



North Front Range
Metropolitan
Planning
Organization

2050 Regional Transportation Plan





North Front Range Metropolitan Planning Organization

2050 Regional Transportation Plan

Prepared by:

North Front Range Metropolitan Planning Organization
419 Canyon Ave, Suite 300
Fort Collins, CO 80521

Adopted:

September 7, 2023

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October 2023 – October 2027

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RESOLUTION NO. 2023-15
OF THE NORTH FRONT RANGE TRANSPORTATION & AIR QUALITY PLANNING COUNCIL
ADOPTING CONFORMITY DETERMINATIONS FOR THE NORTH FRONT RANGE METROPOLITAN PLANNING
AREA FY2024-2027 TRANSPORTATION IMPROVEMENT PROGRAM (TIP) AND THE FISCALLY
CONSTRAINED 2050 REGIONAL TRANSPORTATION PLAN (RTP) AND FOR THE NORTHERN SUBAREA OF
THE UPPER FRONT RANGE TRANSPORTATION PLANNING REGION 2045 RTP AND THE FY2024-2027
STATEWIDE TRANSPORTATION IMPROVEMENT PROGRAM (STIP)

WHEREAS, 23 CFR §450 requires the development of a fiscally constrained Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP) for Metropolitan Planning Organizations (MPOs) through a continuing, cooperative, and comprehensive (“3C”) multimodal transportation planning process; and

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

WHEREAS, a portion of the City of Fort Collins is currently designated as a maintenance area 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 Metro-North Front Range 8-hour ozone nonattainment area which includes the North Front Range metropolitan planning area and portions of Larimer and Weld counties outside the NFRMPO boundary, but are contained within the Upper Front Range Transportation Planning Region (UFRTPR); and

WHEREAS, the Northern Subarea of the Denver Metro-North Front Range 8-hour ozone nonattainment area was expanded in December 2021 to include all of Weld County to the state line; and

WHEREAS, the NFRMPO is required to update the 2050 RTP to be in compliance with the State of Colorado GHG Planning Standard; 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 the North Front Range Transportation & Air Quality Planning Council determines the FY2024-2027 TIP, the 2050 RTP, a portion of the Upper Front Range 2045 RTP, and a portion of the Colorado FY2024-2027 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 this 7th day of September 2023.


Scott K James (Sep 8, 2023 12:25 MDT)
Scott James, Chair

ATTEST:


Suzette Mallette (Sep 8, 2023 13:10 MDT)
Suzette Mallette, Executive Director

RESOLUTION NO. 2023-16
OF THE NORTH FRONT RANGE TRANSPORTATION & AIR QUALITY PLANNING COUNCIL
ADOPTING THE FISCALLY CONSTRAINED 2050 REGIONAL TRANSPORTATION PLAN

WHEREAS, 23 CFR §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, pursuant to the legislation above, the North Front Range Transportation & Air Quality Planning Council (NFRT & AQPC) was designated by the Governor of the State of Colorado as the MPO responsible for carrying out the transportation planning process, and for developing and amending the RTP; and

WHEREAS, the Planning Council, in their responsibility as the Lead Planning Agency and constituting the Northern Subarea of the Denver Metro/North Front Range 8-Hour Ozone Nonattainment Area, has made a positive air quality conformity determination on the 2050 RTP; 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 adopted the GHG Transportation Report for the 2050 RTP, which followed CDOT’s GHG Transportation Planning Standard, and was approved by the Colorado Transportation Commission; and

WHEREAS, the Planning Council approves the 2050 RTP and submits copies for informational purposes to the Governor and official copies for approval to FHWA and FTA;

NOW, THEREFORE, BE IT RESOLVED THAT the North Front Range Transportation & Air Quality Planning Council adopts the 2050 Regional Transportation Plan (RTP).

Passed and adopted at the regular meeting of the North Front Range Transportation & Air Quality Planning Council held this 7th day of September 2023.

Scott K. James
Scott K James (Sep 8, 2023 12:25 MDT)
Scott James, Chair

ATTEST:

Suzette Mallette
Suzette Mallette (Sep 8, 2023 13:10 MDT)
Suzette Mallette, Executive Director



U.S. Department
of Transportation
**Federal Highway
Administration**

Colorado Division

12300 W. Dakota Ave., Suite #180
Lakewood, Colorado 80228
720-963-3000

October 11, 2023

Suzette Mallette
Executive Director, NFRMPO
419 Canyon Avenue, Suite 300
Fort Collins, CO 80521

Subject: Conformity Determination for the NFRMPO 2050 Regional Transportation Plan

Dear Ms. Mallette:

In accordance with the Clean Air Act of 1990, as amended, and 23 CFR 450, the U.S. Department of Transportation (US DOT) is required to make an air quality conformity determination for Regional Transportation Plans (RTP) and Transportation Improvement Programs (TIP) in non-attainment and maintenance areas. Consistent with the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) Region 8 Memorandum of Agreement (MOA) for Transportation Planning Oversight, the FHWA Colorado Division office signs the letter on behalf of FTA Region 8.

On September 7, 2023, the North Front Range Planning Organization (NFRMPO) adopted an air quality conformity determination for the Denver Metro/North Front Range (Northern Subarea) 8-hour Ozone nonattainment area and for the Fort Collins Carbon Monoxide (CO) maintenance area for the North Front Range Metropolitan Planning Area 2050 RTP, the FY24-27 NFRMPO TIP, the Northern Subarea of the Upper Front Range Transportation Planning Region (UFR TPR) 2045 RTP, and for the Northern Subarea of the UFR TPR portion of the FY24-27 Statewide Transportation Improvement Program (STIP). The NFRMPO adopted the conformity determination in its capacity as the Metropolitan Planning Organization.

Based on our evaluation of the NFRMPO conformity determination, in coordination with the Environmental Protection Agency (EPA) Region 8, the Denver Regional Council of Governments (DRCOG), the NFRMPO, the Colorado Air Quality Control Commission (AQCC), the Regional Air Quality Council (RAQC), and the Colorado Department of Transportation (CDOT), we have determined that the requirements of 40 CFR 51 and 93, 23 CFR 450, and 49 CFR 613 along with FHWA/FTA policies and guidance have been met. Furthermore, the conformity determination is consistent with the 2008 and 2015 DRCOG/NFRMPO 8-hour Ozone MOA.

A conformity determination for the NFRMPO 2050 RTP is hereby made. We are also making a conformity determination for the Northern Subarea of the UFR TPR 2045 RTP and UFR TPR portion of the FY24-27 of the STIP. The FHWA Colorado Division Office will make a conformity determination for NFRMPO's FY24-27 TIP following the approval of the TIP by the Governor. This conformity determination does restart the clock for conformity for the NFRMPO 2050 RTP. Our action is consistent with the FHWA/FTA Transportation Planning MOA.

If you have any questions, please contact William Keenan of this office at william.keenan@dot.gov or (720) 963-3019.

Sincerely,

John M. Cater, P.E.
Division Administrator

CC:

Mr. Doug Rex, DRCOG (drex@drcog.org)

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Mr. Gregory Lohrke, EPA (lohrke.gregory@epa.gov)

Placeholder for Resolutions and Approvals
CDPHE Approval of Conformity

Table of Contents

Chapter 1. Planning Context	1
Chapter 2. Trends.....	35
Socioeconomic Trends.....	36
Initiatives and Technology	53
Safety and Resiliency.....	70
System Performance Report	93
Chapter 3. Visioning Planning and Scenarios	121
Corridor Visions.....	122
Scenarios	188
Chapter 4. Funding and Financing	207
Fiscally Constrained Plan	208
Plan Projects.....	234
NFRMPO Priority List	263
Unconstrained Plan Projects	265
Appendix A. Public Outreach	272
Appendix B. Air Quality Conformity.....	295
Appendix C. GHG Transportation Report.....	350

List of Figures

Figure 1-1: NFRMPO Boundary.....	3
Figure 1-2: 2020 Urban Area Boundaries.....	4
Figure 1-3: Planning Products Flowchart.....	5
Figure 1-4: Centerline Miles by Functional Type.....	12
Figure 1-5: State Highway Drivability Life, 2022	12
Figure 1-6: State Highway Bridge Condition, 2022.....	12
Figure 1-7: Roadway Types from RTDM.....	14
Figure 1-8: Transit Service Types	15
Figure 1-9: Permanent Counters in NFRMPO Region	22
Figure 1-10: Regionally Significant Corridors (RSCs).....	23
Figure 1-11: Regional Transit Corridors (RTCs)	25
Figure 1-12: Regional Active Transportation Corridors (RATCs)	27
Figure 1-13: Railroad Company and Status.....	29
Figure 1-14: Equity Index Areas in the NFRMPO, 2023	33
Figure 2-1: Population by Community Type and Growth Rates, 2010-2021.....	37
Figure 2-2: Larimer County Age Distribution by Age Cohort, 1990 and 2020	39
Figure 2-3: Weld County Age Distribution by Age Cohort, 1990 and 2020.....	39
Figure 2-4: Limited English Proficiency Tracts, 2019.....	40
Figure 2-5: Age Distribution by County, 1990-2020	41
Figure 2-6: Older Adult Tracts, 2019.....	42
Figure 2-7: Zero Car Households by Census Tract, 2019.....	43
Figure 2-8: Households with Individuals with Disabilities, 2019.....	44
Figure 2-9: County Employment by Sector, 2019	45
Figure 2-10: Jobs per Square Mile, 2019.....	46
Figure 2-11: Forecasted Household and Job Growth in the North Front Range Region, 2019-2050	47
Figure 2-12: Anticipated Household Growth, 2019 to 2050	49
Figure 2-13: Anticipated Job Growth, 2019 to 2050.....	51
Figure 2-14: National Alternative Fuel Corridors and Stations.....	53
Figure 2-15: 2019 Multimodal Index.....	58
Figure 2-16: Impacts on Transit Ridership from COVID-19 and Pandemic Response Efforts, 2019-2022 ..	63
Figure 2-17: NFRMPO Crashes, 2016-2020.....	73
Figure 2-18: NFRMPO Fatalities and Serious Injuries, 2012-2020.....	74
Figure 2-19: NFRMPO Fatal and Serious Injury Crashes, 2016-2020	74
Figure 2-20: Heat Map of NFRMPO Fatal and Serious Injury Crashes, 2016-2020.....	75
Figure 2-21: Fatalities and Serious Injuries by Road User Type, 2012-2020	76
Figure 2-22: NFRMPO VRU Fatal and Serious Injury Crashes, 2016-2020	77
Figure 2-23: CMP Strategy Categories and Tiers.....	83
Figure 2-24: Illustration of the Safe Systems Approach.....	84
Figure 2-25: Wildland Fires (2016-2020) and 500-Year Flood Zones in the NFRMPO.....	87
Figure 2-26: Criticality Index of the State Highway System in the NFRMPO Region	89

Figure 2-27: 2050 RTP Goals, Objectives, Performance Measures, and Targets (GOPMT)	94
Figure 2-28: Transportation Performance Management	95
Figure 2-29: Number of Fatalities.....	99
Figure 2-30: Rate of Fatalities per 100M VMT	100
Figure 2-31: Number of Serious Injury Crashes	101
Figure 2-32: Rate of Serious Injuries per 100 Million VMT	102
Figure 2-33: Number of Non-Motorized Fatalities and Serious Injuries	103
Figure 2-34: Percent of Interstate Pavement in Good Condition	105
Figure 2-35: Percent of Interstate Pavement in Poor Condition	105
Figure 2-36: Percent of Non-Interstate NHS Pavement in Good Condition	106
Figure 2-37: Percent of Non-Interstate NHS Pavement in Poor Condition	106
Figure 2-38: Percent of NHS Bridges in Good Condition	107
Figure 2-39: Percent of NHS Bridges in Poor Condition.....	107
Figure 2-40: Percent of Person-Miles Traveled on Interstate System that are Reliable	108
Figure 2-41: Percent of Person-Miles Traveled on Non-Interstate System that are Reliable	109
Figure 2-42: Truck Travel Time Reliability (TTTR) Index	110
Figure 3-1: Regionally Significant Corridors	124
Figure 3-2: Regional Active Transportation Corridors (RATCs).....	157
Figure 3-3: Regional Transit Corridors (RTCs).....	172
Figure 3-4: 2050 High Density Households	190
Figure 3-5: 2050 High Density Jobs.....	191
Figure 3-6: Baseline and High Density Scenario Number of Lanes by RSC, 2050.....	194
Figure 3-7: Baseline Scenario Level of Service (LOS) by RSC, 2050	195
Figure 3-8: Baseline Scenario Travel Time Index (TTI) by RSC, 2050	196
Figure 3-9: No Build Scenario Number of Lanes by RSC, 2050.....	198
Figure 3-10: Unconstrained Scenario Number of Lanes by RSC, 2050	199
Figure 3-11: No Build Scenario Level of Service (LOS) by RSC, 2050	201
Figure 3-12: Fiscally Unconstrained Scenario Level of Service, 2050	202
Figure 3-13: High Density Fiscally Constrained Scenario Level of Service, 2050	203
Figure 3-14: No Build Scenario Travel Time Index (TTI) by RSC, 2050	204
Figure 3-15: Unconstrained Scenario Travel Time Index (TTI) by RSC, 2050.....	205
Figure 3-16: High Density Constrained Project Scenario Travel Time Index (TTI), 2050	206
Figure 4-1: Revenue Estimates by Controlling Entity in YOE Dollars, 2024-2050.....	210
Figure 4-2: Revenue Estimates by Expenditure Category, 2024-2050	219
Figure 4-3: Fiscally Constrained and Unconstrained RSC Capacity Projects, 2024-2050	221
Figure 4-4: FY2024-2027 TIP Projects	232
Figure 4-5: Fiscally Constrained RSC Capacity Projects, 2024-2050	236
Figure 4-6: Fiscally Constrained RSC Capacity Projects, Staging Period A: 2024-2026	237
Figure 4-7: Fiscally Constrained RSC Capacity Projects, Staging Period B: 2027-2030.....	240
Figure 4-8: Fiscally Constrained RSC Capacity Projects, Staging Period C: 2031-2040	243
Figure 4-9: Fiscally Constrained RSC Capacity Projects, Staging Period D: 2041-2050	246

Figure 4-10: Fiscally Constrained RTC Projects by Staging Period, 2024-2050	248
Figure 4-11: 2050 RTP Project Locations and Equity Areas.....	252
Figure 4-12: 2050 RTP Project Locations and Oil and Gas Wells	253
Figure 4-13: 2050 RTP Project Locations and Water Features	255
Figure 4-14: 2050 RTP Project Locations and Cultural Resources.....	256
Figure 4-15: 2050 RTP Project Locations and Bird Habitat and Nesting Areas	258
Figure 4-16: 2050 RTP Project Locations and Mammal Habitat Areas.....	259
Figure 4-17: 2050 RTP Project Locations and Biodiversity Significance Areas	261
Figure 4-18: Fiscally Unconstrained RSC Capacity Projects, 2024-2050.....	266

List of Tables

Table 1-1: NFRMPO Planning Factors	8
Table 1-2: Active Transportation Facilities	21
Table 1-3: Regionally Significant Corridors (RSCs).....	24
Table 1-4: Regional Transit Corridors (RTCs)	26
Table 1-5: Regional Active Transportation Corridors (RATCs)	28
Table 2-1: Historical Population Trends by Annual Growth Rate 1980-2020.....	38
Table 2-2: 2019-2050 Population and Jobs by Growth Management Area (GMA)	48
Table 2-3: Jobs by NAICS Code, 2019 and 2050	50
Table 2-4: Alternative Fueling Station Locations.....	54
Table 2-5: Commute to Work Data, 2019 to 2021.....	64
Table 2-6: Truck Traffic (2018) and Truck Crashes (2016-2020)	78
Table 2-7: Rail Related Incidents, 2016-2020	79
Table 2-8: 2023 CMP Performance Measures	82
Table 2-9: Resources for Emergency Management	91
Table 2-10: Security Contact Information	92
Table 2-11: Pavement Condition Metric Thresholds	104
Table 2-12: Bridge Condition Metric Thresholds	104
Table 2-13: Percent Revenue Vehicles Meeting or Exceeding Useful Life Benchmark	112
Table 2-14: Percent Service Vehicles Meeting or Exceeding Useful Life Benchmark.....	112
Table 2-15: Percent Passenger and Maintenance Facilities Rated Below Condition 3.....	113
Table 2-16: Transit Safety Targets	114
Table 3-1: Scenario Metrics Comparison.....	193
Table 3-2: Mode Choice by Scenarios, 2050	197
Table 4-1: Revenue Estimates by Funding Program and Controlling Entity in Millions of YOE Dollars, 2024-2050.....	218
Table 4-2: Revenue Estimates by Controlling Entity and Expenditure Category in Millions of YOE Dollars, 2045-2050.....	220
Table 4-3: Transit Expansion Projected Expenditures, 2024-2050	223
Table 4-4: System Expansion Expenses, in Millions of YOE Dollars.....	224

Table 4-5: Resource Allocation by Expenditure Category in Millions of YOE Dollars, 2024-2050	225
Table 4-6: Resource Allocation by Staging Period, in Millions of YOE Dollars, Staging Period A & B: 2024-2030	226
Table 4-7: Resource Allocation by Staging Period, in Millions of YOE Dollars, Staging Period C: 2031-2040	226
Table 4-8: Resource Allocation by Staging Period, in Millions of YOE Dollars, Staging Period C: 2041-2050	226
Table 4-9: GHG Strategy Funding Allocations, Millions of YOE Dollars, 2024-2050	227
Table 4-10: NFRMPO Calls for Projects	233
Table 4-11: Fiscally Constrained RSC Capacity Projects, Staging Period A: 2024-2026.....	238
Table 4-12: Fiscally Constrained RSC Capacity Projects, Staging Period B: 2027-2030	241
Table 4-13: Fiscally Constrained RSC Capacity Projects, Staging Period C: 2031-2040.....	244
Table 4-14: Fiscally Constrained RSC Capacity Projects, Staging Period D: 2041-2050	247
Table 4-15: Fiscally Constrained RTC Projects by Staging Period, 2024-2050.....	249
Table 4-16: Environmental Analysis Overview.....	251
Table 4-17: Fiscally Unconstrained RSC Capacity Projects, 2024-2050	267

List of Acronyms

Acronym	Meaning/Context
\$5303 & \$5304	FTA program funding for multimodal transportation planning (jointly administered with FHWA) in metropolitan areas and States
\$5307	FTA program funding for public transportation in Urbanized Areas (i.e. with populations >50,000)
\$5309	FTA program funding for capital investments
\$5310	FTA program funding for enhanced mobility of seniors and individuals with disabilities
\$5311	FTA program funding for rural and small Urban Areas (Non-Urbanized Areas)
\$5326	FTA program funding to define “state of good repair” and set standards for measuring the condition of capital assets
\$5337	FTA program funding to maintain public transportation in a state of good repair
\$5339	FTA program funding for buses and bus facilities
3C	Continuing, Comprehensive, and Cooperative
4P	CDOT Project Priority Programming Process
7th Pot	CDOT’s Strategic Investment Program and projects—originally using S.B. 97-01 funds
AASHTO	American Association of State Highway & Transportation Officials
ACP	Access Control Plan
ADA	Americans with Disabilities Act of 1990
ADT	Average Daily Traffic (also see AWD)
AIS	Agenda Item Summary
AMPO	Association of Metropolitan Planning Organizations
APCD	Air Pollution Control Division (of Colorado Department of Public Health & Environment)
AQCC	Air Quality Control Commission (of Colorado)
ARPA	American Rescue Plan Act of 2021
ATP	Active Transportation Plan
AWD	Average Weekday Traffic (also see ADT)
BIL	Bipartisan Infrastructure Law (federal legislation, signed November 2021)
BUILD	Better Utilizing Investments to Leverage Development (the competitive federal grant program that replaced TIGER)
CAAA	Clean Air Act Amendments of 1990 (federal)
CAC	Community Advisory Committee (of the NFRMPO)
CBE	Colorado Bridge Enterprise funds
CDOT	Colorado Department of Transportation
CDPHE	Colorado Department of Public Health and Environment
CEO	Colorado Energy Office
CMAQ	Congestion Mitigation and Air Quality (an FHWA funding program)
CMP	Congestion Management Process
CNG	Compressed Natural Gas

CO	Carbon Monoxide
COG	Council of Governments
COLT	City of Loveland Transit
CPG	Consolidated Planning Grant (combination of FHWA PL & FTA \$5303 planning funds)
CFY	Calendar Fiscal Year
CRP	Carbon Reduction Funds
CTIO	Colorado Transportation Investment Office (formerly High-Performance Transportation Enterprise (HPTE))
DOLA	Department of Local Affairs
DOT	(United States) Department of Transportation
DRCOG	Denver Regional Council of Governments
DTD	CDOT Division of Transportation Development
DTR	CDOT Division of Transit & Rail
EIS	Environmental Impact Statement
EJ	Environmental Justice
EPA	Environmental Protection Agency
EV	Electric Vehicle
FAST ACT	Fixing America's Surface Transportation Act (federal legislation, signed December 2015)
FASTER	Funding Advancements for Surface Transportation and Economic Recovery (Colorado's S.B. 09-108)
FHWA	Federal Highway Administration
FNC	Freight Northern Colorado Plan
FRA	Federal Railroad Administration
FRPR	Front Range Passenger Rail District (Replaced SWC&FRPRC)
FTA	Federal Transit Administration
FY	Fiscal Year (October to September for federal funds; July to June for state funds; January to December for local funds)
FFY	Federal Fiscal Year
GET	Greeley-Evans Transit
GHG	Greenhouse Gas
GOPMT	Goals, Objectives, Performance Measures, and Targets
GVMPO	Grand Valley MPO (Grand Junction/Mesa County)
HOV	High Occupancy Vehicle
HSIP	Highway Safety Improvement Program (FHWA Safety Funds)
HTF	Highway Trust Fund (the primary federal funding source for surface transportation)
HUTF	Highway Users Tax Fund (the State's primary funding source for highways)
IACT	State Interagency Consultation Team (for GHG)
ICG	Inter-Agency Consultation Group for Ozone Nonattainment Area
IGA	Intergovernmental Agreement
IIJA	<i>Infrastructure Investment and Jobs Act (also known as BIL)</i>

IMW MPO	<i>Intermountain West MPO Group</i>
INFRA	Infrastructure for Rebuilding America (a competitive federal grant program for freight improvements)
I&M or I/M	Inspection and Maintenance program (checking emissions of pollutants from vehicles)
ITS	Intelligent Transportation Systems
LCMC	Larimer County Mobility Committee
LRP or LRTP	Long Range Plan or Long Range Transportation Plan
LUAM	Land Use Allocation Model (of the NFRMPO)
MAP-21	Moving Ahead for Progress in the 21st Century (2012 federal transportation legislation)
MAPG	Mobility and Access Priority Group, formerly known as the Senior Transportation Coalition (STC)
MMOF	Multimodal Transportation and Mitigation Options Funds (state funds allocated to MPOs and TPRs in SB18-001)
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MPO	Metropolitan Planning Organization
MVEB	Motor Vehicle Emissions Budget
NAA	Non-Attainment Area (for certain air pollutants)
NAAPME	Nonattainment Area Air Pollution Mitigation Enterprise
NAAQS	National Ambient Air Quality Standards
NARC	National Association of Regional Councils
NCMC	Northern Colorado Mobility Committee (also known as the Joint Mobility Committee)
NEPA	National Environmental Policy Act
NFRT & AQPC	North Front Range Transportation & Air Quality Planning Council (also NFRMPO)
NFRMPO	North Front Range Metropolitan Planning Organization (also NFRT & AQPC)
NHS	National Highway System
NoCo	Northern Colorado Bicycle and Pedestrian Collaborative
NOFO	Notice of Funding Opportunity
NOx	Nitrogen Oxides
OBD	On-Board Diagnostics (of a vehicle's engine efficiency and exhaust)
O₃	Ozone
OIM	Office of Innovative Mobility, division of CDOT
PACOG	Pueblo Area Council of Governments
PL	Federal Planning (funds)
PIP	Public Involvement Plan
POP	Program of Projects
PPACG	Pikes Peak Area Council of Governments (Colorado Springs)
PPP (also P3)	Public Private Partnership
R4 or R-4	Region 4 of the Colorado Department of Transportation
RAQC	Regional Air Quality Council

RATC	Regional Active Transportation Corridor
RPP	Regional Priority Program (a funding program of the Colorado Transportation Commission)
RSC	Regionally Significant Corridor
RTC	Regional Transit Corridor
RTD	Regional Transportation District in the Denver Region or Regional Transportation Director for CDOT Regions
RTDM	Regional Travel Demand Model (of the NFRMPO)
RTP	Regional Transportation Plan
SH	State Highway
SIP	State Implementation Plan (air quality)
SOV	Single Occupant Vehicle
SPR	State Planning and Research (federal funds)
SRTS (<i>see TA</i>)	Safe Routes to School (a pre-MAP-21 FHWA funding program)
SS4A	Safe Streets and Roads for All Funding Program
STAC	Statewide Transportation Advisory Committee
STIP	Statewide Transportation Improvement Program
STBG (<i>previously STP-Metro</i>)	Surface Transportation Block Grant (a FAST Act FHWA funding program)
SWC&FRPRC	Southwest Chief & Front Range Passenger Rail Commission (2017-2022)
SWMPO	Statewide MPO Committee
SWP	Statewide Plan (CDOT)
TAC	Technical Advisory Committee (of the NFRMPO)
TA (<i>previously TAP</i>)	Transportation Alternatives program (an FHWA funding program)
TAZ	Transportation Analysis Zone (used in travel demand forecasting)
TC	Transportation Commission of Colorado
TDM	Transportation Demand Management
TERC	Transportation Environmental Resource Council
TIGER	Transportation Investment Generating Economic Recovery (a competitive federal grant program from 2009-2017 replaced by BUILD)
TIP	Transportation Improvement Program
Title VI	U.S. Civil Rights Act of 1964, prohibiting discrimination in connection with programs and activities receiving federal financial assistance
TMA	Transportation Management Area (federally designated place >200,000 population)
TMO	Transportation Management Organization, also known as TMA – Transportation Management Association
TOD	Transit Oriented Development
TPR	Transportation Planning Region (state-designated)
TRAC	Transit & Rail Advisory Committee (for CDOT)
UFR	Upper Front Range TPR
UPWP	Unified Planning Work Program

UrbanSIM	Land Use model software licensing company used by the NFRMPO for the LUAM
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compound
WCMC	Weld County Mobility Committee

Chapter

1

Planning Context





Cache La Poudre River, Fort Collins

Image credit: CDOT Flickr

The North Front Range Metropolitan Planning Organization (NFRMPO) region has seen continuous and rapid growth in both population and jobs. To accommodate this growth, the region must continue investing in its transportation system. The transportation system – roadways, freight and railroad systems, transit networks, and bicycle and pedestrian infrastructure – connects all portions of our region to allow residents and visitors alike to access jobs, education, shopping, and recreation. To that end, this 2050 Regional Transportation Plan (RTP) is a fiscally constrained plan identifying projects to enhance the existing multimodal transportation system and address ozone and greenhouse gas (GHG) emissions.

North Front Range Metropolitan Planning Organization

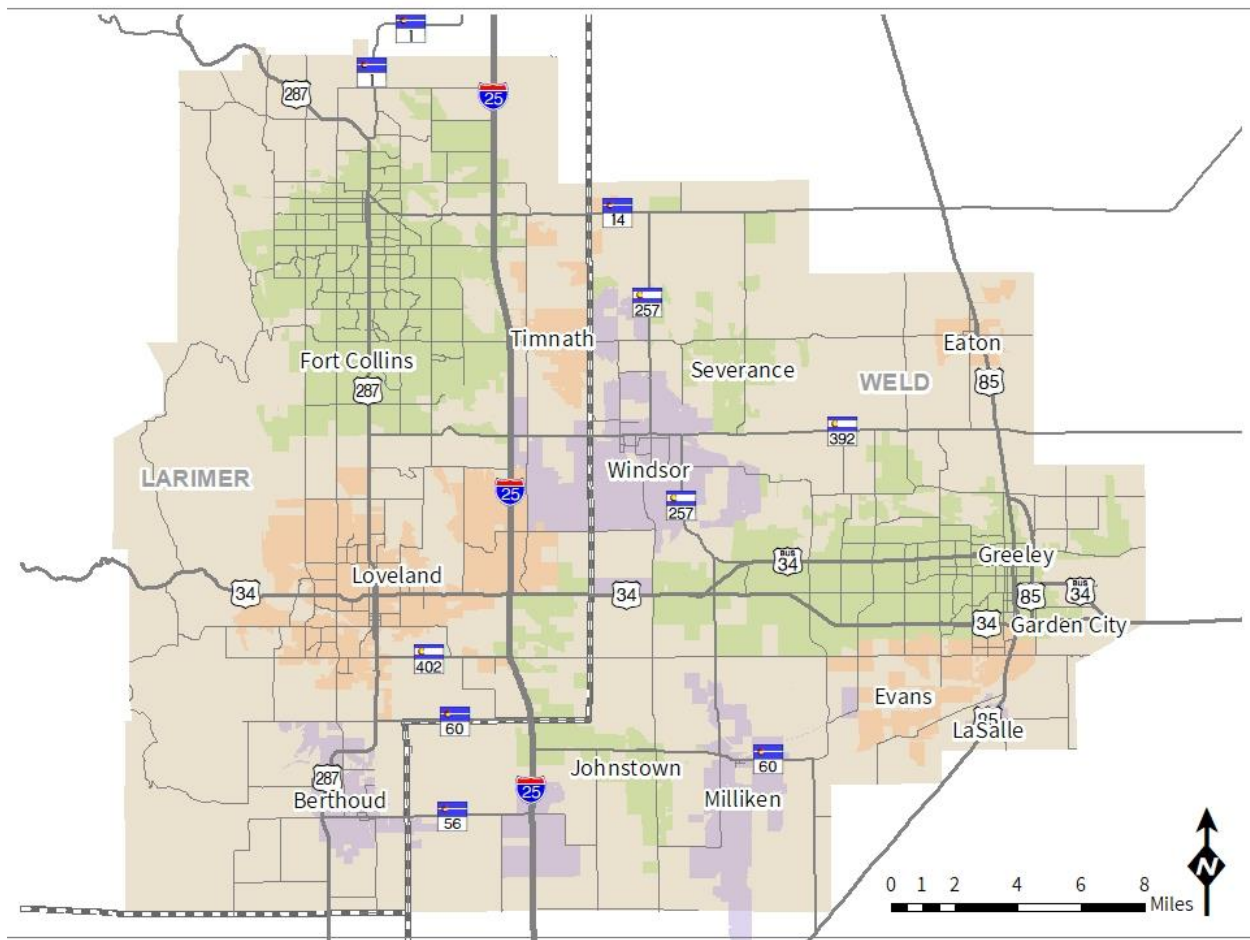
The NFRMPO has led the continuing, cooperative, and comprehensive (3C) transportation planning process on behalf of two counties and 13 communities in Northern Colorado since it was founded in 1988. The NFRMPO policy is set by the Planning Council, which consists of the counties, communities, and two state agencies. At its core, the NFRMPO provides a forum to identify, study, and recommend solutions to regional transportation and transportation-related air quality problems.

A map of the NFRMPO region is shown in **Figure 1-1**.

The members of the NFRMPO Planning Council include:

- Air Pollution Control Division
- Berthoud
- Colorado Transportation Commission
- Eaton
- Evans
- Fort Collins
- Garden City
- Greeley
- Johnstown
- Larimer County
- LaSalle
- Loveland
- Milliken
- Severance
- Timnath
- Weld County
- Windsor

Figure 1-1: NFRMPO Boundary



Legend

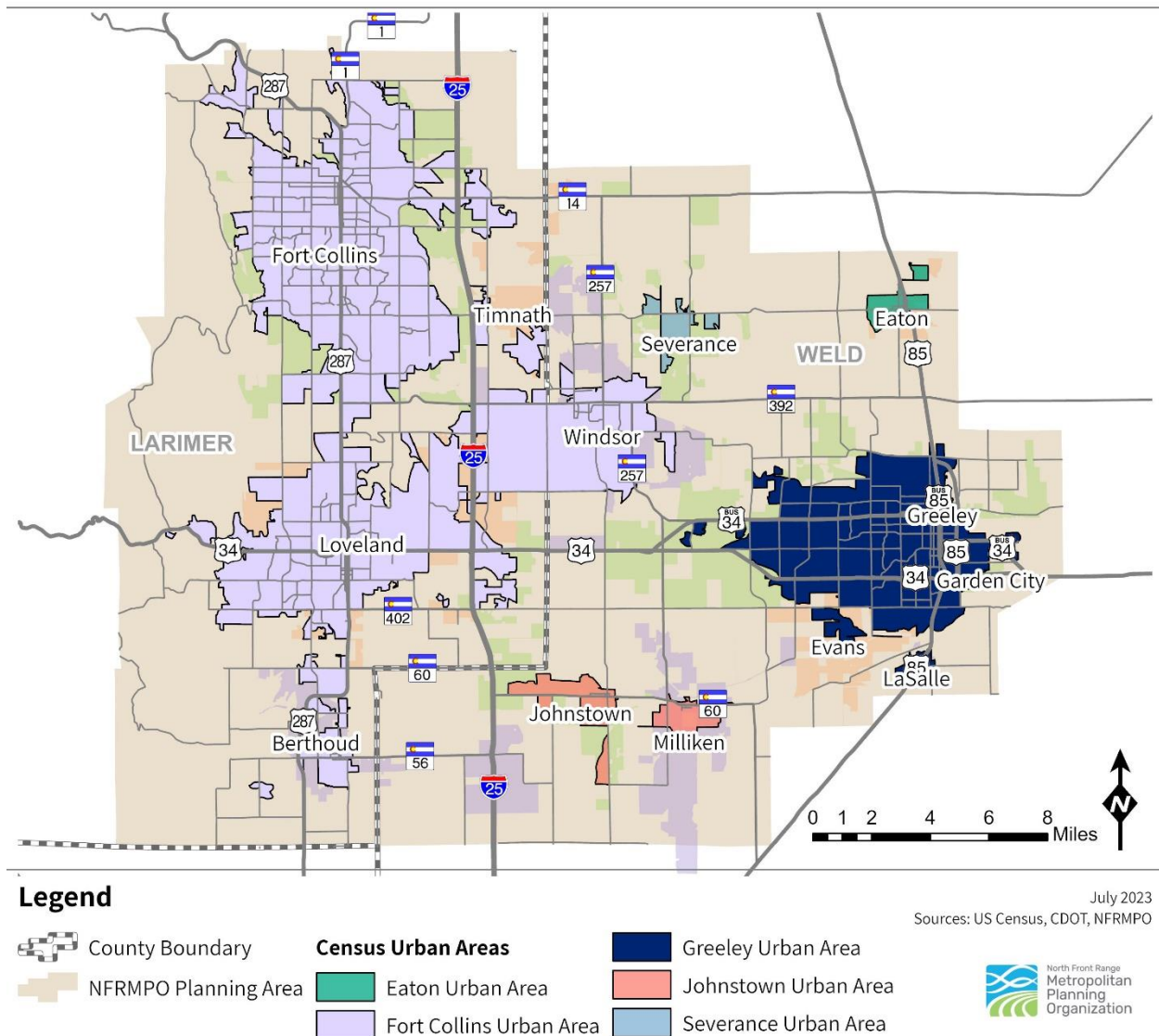
 County Boundary  NFRMPO Planning Area

April 2023
Sources: CDOT, NFRMPO



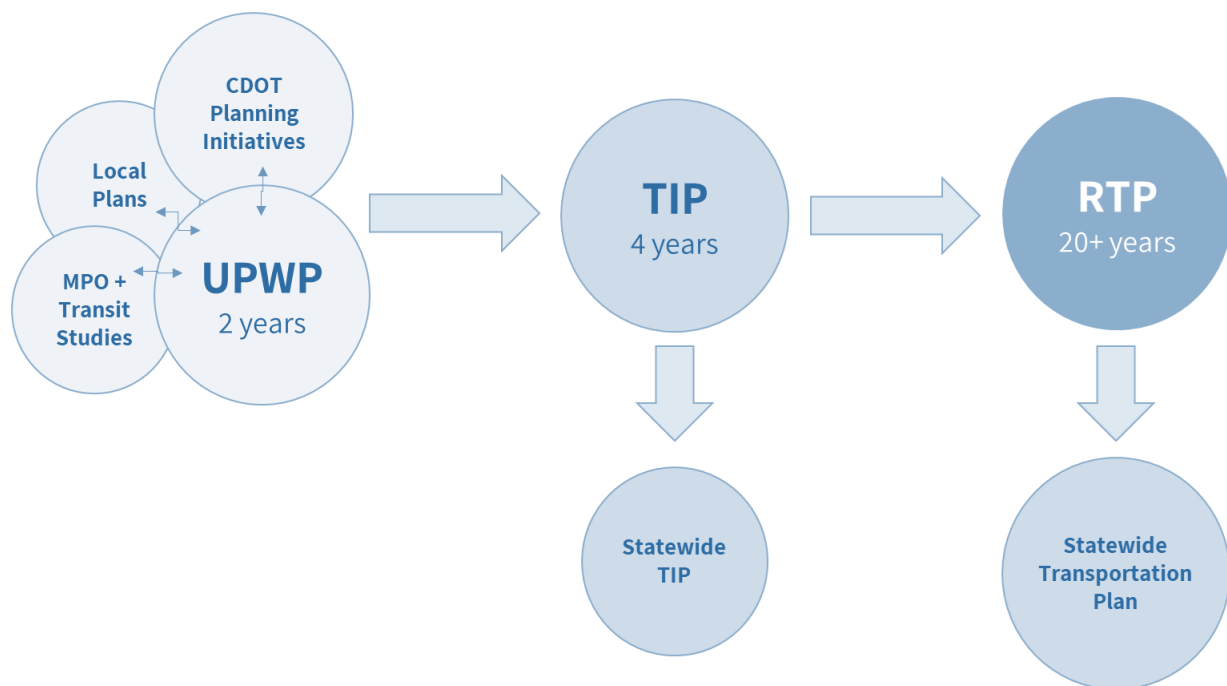
U.S. Census-designated urban areas (UA) with populations over 50,000 are the basis for the NFRMPO planning area, which includes the Fort Collins Transportation Management Area (TMA) and the Greeley UA. TMAs contain more than 200,000 residents and have additional requirements. The NFRMPO area also contains three smaller UAs: the Eaton UA, the Severance UA, and the Johnstown UA. The boundaries of the UAs are shown in **Figure 1-2**. It is important to note that municipal boundaries do not match urban area boundaries, regardless of size.

Figure 1-2: 2020 Urban Area Boundaries



The NFRMPO is responsible for three major initiatives: the planning-focused Unified Planning Work Program (UPWP), the short-range Transportation Improvement Program (TIP), and the long-range Regional Transportation Plan (RTP). Each of these plans and programs tie together to invest transportation dollars in Northern Colorado. Local plans, CDOT planning initiatives, and MPO and transit planning studies are funded through the UPWP, which can influence which projects are funded through the TIP process, all of which are incorporated into the long-range RTP. In addition, planning work from the NFRMPO is incorporated into statewide initiatives like the Statewide TIP (STIP) and the Statewide Transportation Plan (SWP). A schematic of this process is shown in **Figure 1-3**.

Figure 1-3: Planning Products Flowchart



Regional Transportation Plan

Every four years, the NFRMPO engages stakeholders to develop a new long-range transportation plan for the region. The purpose of the RTP is to develop a program of projects and strategies based on identified goals and performance measures, expected population and job growth, available funding, and projects identified by local communities.

The 2050 RTP reflects the identified needs of local communities in a regional context because of stakeholder involvement. The finished product is a fiscally constrained plan, which means the projects identified in the preferred scenario must have reasonably anticipated funding.

What's in the Plan?

The RTP consists of four chapters: Planning Context; Trends; Scenarios and Visioning; and Funding and Financing.

- 1) **Planning Context** – what is important to contextualize the 2050 RTP?
- 2) **Trends** – what is happening today and what do we expect to happen in the future?
- 3) **Scenarios and Visioning** – how can we use the NFRMPO Regional Travel Demand Model (RTDM) and Land Use Allocation Model (LUAM) to better understand the future?
- 4) **Funding and Financing** – what projects can the region afford?

Other plans and documents have been prepared as part of the 2050 RTP effort, including the 2023 Congestion Management Process (CMP), 2021 Coordinated Public Transit/Human Services Transportation (Coordinated Plan), 2021 Active Transportation Plan (ATP), Freight Northern Colorado, and the Transportation Demand Management (TDM) Action Plan.

What Guides the Plan?

Stakeholders guided the work of the 2050 RTP: the Community Advisory Committee (CAC), the Technical Advisory Committee (TAC), and the Planning Council provided guidance. In addition, the NFRMPO attended meetings and events to discuss issues, concerns, and visions with the public.

The 2050 RTP is structured to address Federal and State legislation.

- **Federal transportation legislation** – With each new federal transportation authorization bill, additional requirements are added to the planning process. This plan follows federal regulations set out in 23 CFR § 450.306 and 49 CFR § 613.100 as updated by the Infrastructure Investment and Jobs Act (IIJA).
- **Federal air quality legislation** – The NFRMPO region is within the Denver Metro/North Front Range 8-Hour Ozone Nonattainment Area, meaning air quality is a major component of the long-range plan. This work is guided by the Clean Air Act Amendments of 1990.
- **Federal civil rights legislation** – Because the NFRMPO receives funding from the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA), the NFRMPO is subject to the Civil Rights Act, Title VI, and executive orders related to environmental justice.
- **State legislation** – Senate Bill (SB)21-260 identified additional requirements for greenhouse gas reductions related to the transportation planning process for CDOT and MPOs in the State.

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 [49 CFR § 613.100](#). IIJA is the current comprehensive federal legislation addressing surface transportation and guides the long-range planning process.

IIJA maintains the 10 planning factors that must be addressed by the 3C metropolitan transportation planning process. The relationships between the [2050 RTP](#) and the planning factors are shown in **Table 1-1**.

IIJA Planning Factors:

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 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**;
8. Emphasize the **preservation** of the existing transportation system.
9. Improve the **resiliency and reliability** of the transportation system and reduce or mitigate stormwater impacts of surface transportation; and
10. Enhance **travel and tourism**.²

The new requirement for MPOs in IIJA/BIL to include the consideration of housing as a planning factor in the metropolitan transportation planning process has been determined to be a clarification of Planning Factor 5 and will be reflected in the NFRMPO's work as such.

²23 CFR 450.306: <https://www.gpo.gov/fdsys/granule/CFR-2011-title23-vol1/CFR-2011-title23-vol1-sec450-306>

This 2050 RTP is corridor-based, and the projects included are those analyzed during the determination of conformity with air quality regulations for Volatile Organic Compounds (VOC) and Nitrogen Oxides (NOx) budgets outlined in the Colorado State Implementation Plan (SIP). The vision plan is at the corridor-level. The Financial Plan builds on the currently adopted FY2023-2026 TIP as well as information provided by CDOT and local governments. A corridor based RTP provides greater flexibility for financial constraint and in project selection at the TIP level.

Table 1-1: NFRMPO Planning Factors

Chapter/Section	Economic Vitality	Safety	Security	Accessibility & Mobility	Environment	Integration and Connectivity	System Management & Operations	Preservation	Resiliency & Reliability	Travel & tourism
1 Planning Context				X		X	X	X		
2-1 Socioeconomic Trends		X	X	X		X	X	X	X	X
2-2 Initiatives and Technology	X	X		X	X	X				
2-3 System Performance Report and Performance Measures	X	X		X	X	X	X	X	X	X
2-4 Safety and Resiliency		X	X	X	X	X	X	X	X	X
3-1 Vision Plans	X	X	X	X	X	X	X	X	X	X
3-2 Scenarios	X	X	X	X	X	X	X	X	X	X
4-1 Fiscally Constrained Plans	X	X	X	X	X	X	X	X	X	X
4-2 Plan Projects	X	X	X	X	X	X	X	X	X	X
4-3 Fiscally Unconstrained Projects	X	X		X						
4-4 10-Year List of Projects	X	X	X	X	X	X	X	X	X	X

Vision and Goals

Chapter 2, Section 4 expands on the region's Goals, Objectives, Performance Measures, and Targets (GOPMT). The GOPMT was developed with input and guidance from the Community Advisory Committee (CAC) and Technical Advisory Committee (TAC) and builds on the consensus of priorities from the NFRMPO's Planning Council.

Vision Statement

Ensure the multimodal transportation system in Northern Colorado is safe, socially and environmentally sensitive, and strengthens the region's quality of life and economic vitality.

Goals and Objectives

The following five goals and objectives put into action the vision statement.



Safety

Reduce the number of roadway related fatalities and serious injuries within the region



Regional Health

Improve economic development, residents' quality of life, and air quality



Mobility

Moves people and goods safely, efficiently, and reliably on a continuous transportation system



Multimodal

Improve accessibility of and access to transit and alternative modes of transportation



Operations

Optimize operations, planning, and funding of transportation facilities

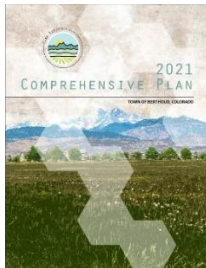
Related Plans, Studies, and Initiatives

The 2050 RTP is the culmination of local and regional plans and builds upon State-level plans.

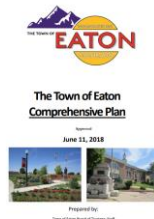
Local Plans

Since 2019, the following agencies have developed long-range and comprehensive plans. The plans included below may not be the only transportation-related plans. Links are provided to each plan and are valid as of Summer 2023.

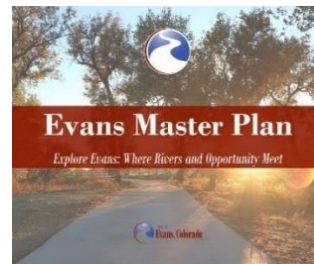
Berthoud



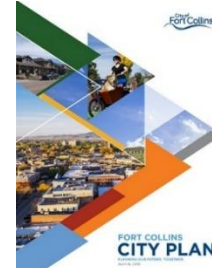
Eaton



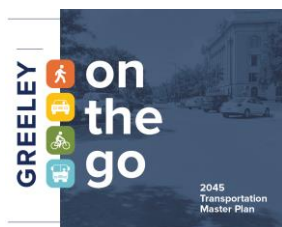
Evans



Fort Collins



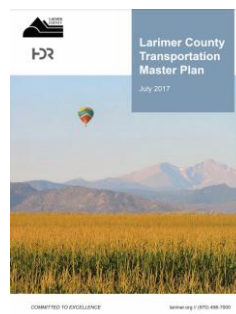
Greeley



Johnstown



Larimer County



LaSalle



Loveland*



Milliken



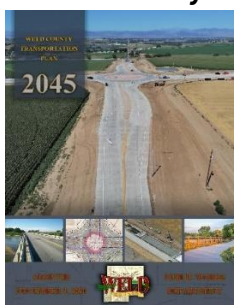
Severance



Timnath



Weld County

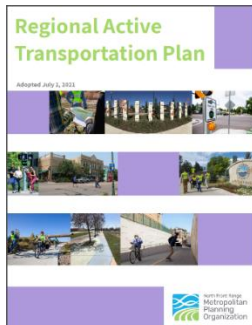


Windsor



NFRMPO Plans

Active Transportation Plan



Coordinated Public Transit/Human Services Transportation Plan



Congestion Management Process



FY2023-2026 Transportation Improvement Program (TIP)



Transportation Demand Management (TDM) Action Plan

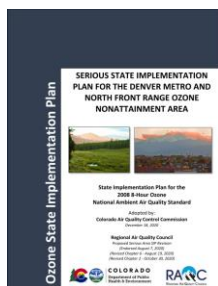


LinkNoCo



Statewide Plans

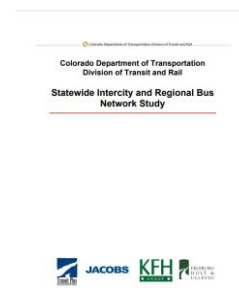
Statewide Implementation Plan



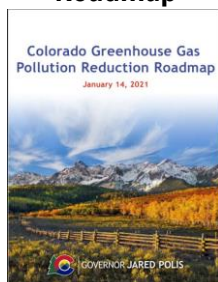
Colorado Freight Plan



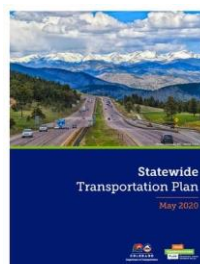
Intercity and Regional Bus Network Plan



Greenhouse Gas Reduction Roadmap



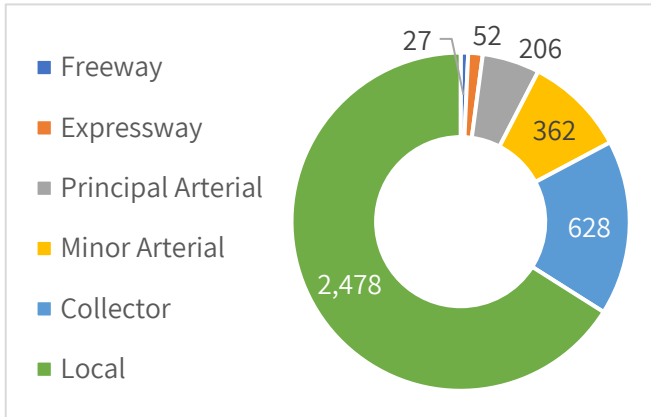
Statewide Transportation Plan



Multimodal Transportation System

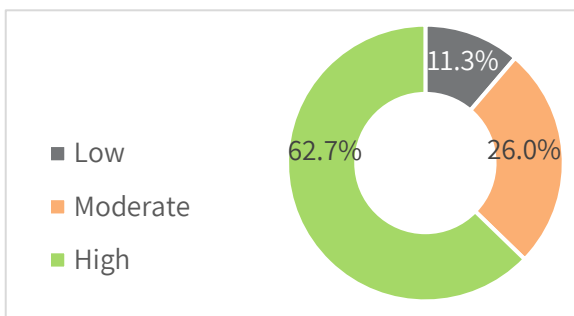
Region at a Glance

Figure 1-4: Centerline Miles by Functional Type



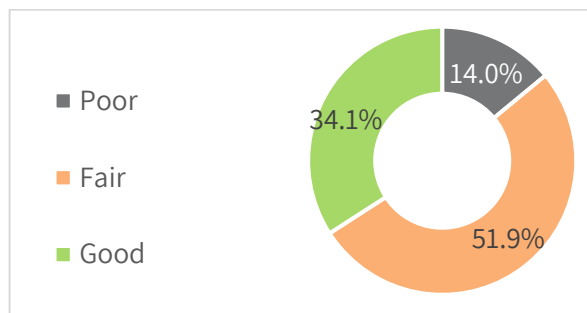
Local streets make up the majority of roadways in the NFRMPO region, followed by collectors, arterials, and expressways. I-25 is the only interstate in the region, while portions of US34, US287, and US85 make up the expressways. Each type of roadway serves a different purpose, from interstate travel to deliveries to commutes.

Figure 1-5: State Highway Drivability Life, 2022



CDOT collects data on the Drivability Life, similar to pavement condition, for State Highways. High Drivability Life denotes pavement in good condition, while Low Drivability Life denotes pavement that should be replaced sooner.

Figure 1-6: State Highway Bridge Condition, 2022



Bridges can be classified as poor, fair, and good. Poor bridges need to be replaced soonest, while good bridges do not need to be replaced. CDOT collects and reports this information for bridges on the State Highway system.

The System

The transportation network within the NFRMPO region includes a mix of roadways, transit systems, bicycle and pedestrian networks, railroads, and airports. A mixture of local governments, educational facilities, CDOT, non-profits, and private companies operate these complementary systems. As a result, the NFRMPO looks holistically at the transportation system across the region with a focus on accessibility, connectivity, and efficiency.

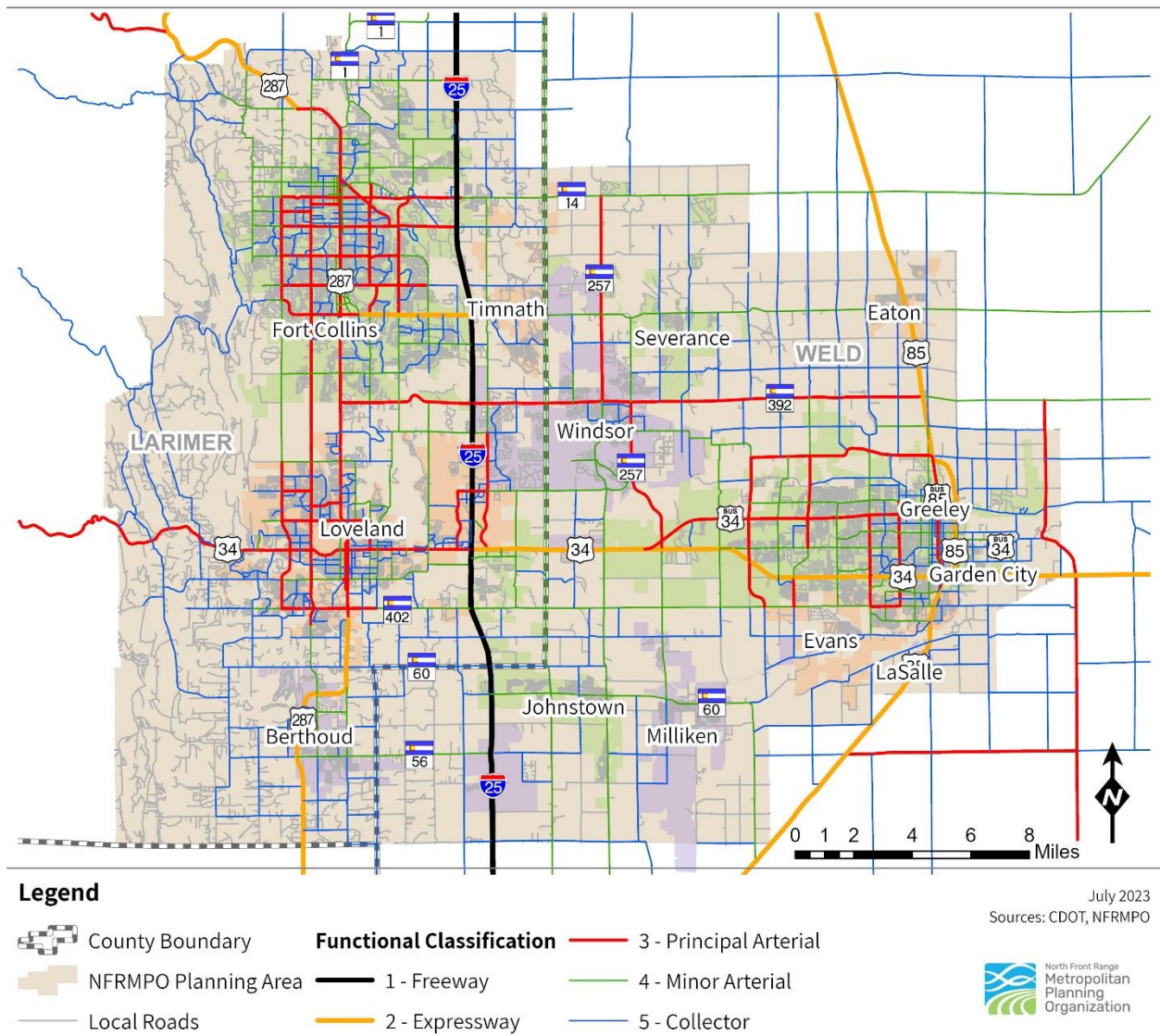
Roadways

Roadways are organized into roadway types in the Regional Travel Demand Model (RTDM) based on their purpose and characteristics, known as functional classifications. CDOT maintains the functional classification system used to determine which roads are eligible for federal aid. Local governments may also maintain local functional class systems of their own, which may differ from CDOT. Roadway types from the RTDM are shown in **Figure 1-7**.

- **Interstate:** Routes which comprise the Interstate Highway system.
- **Freeway or Expressway:** Directional travel lanes, which tend to be separated by some type of physical barrier, and their access points are limited to on- and off- ramp locations or a very limited number of at-grade intersections.
- **Principal Arterial:** Serves major activity centers, high 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.
- **Minor Arterial:** 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.
- **Collector:** Serve traffic circulation in residential and commercial/industrial areas by distributing and channeling trips between Local Roads and Arterials.
- **Ramps:** Connections between controlled-access highways and the surrounding roadway network.
- **Frontage Roads:** Serve a specific purpose in providing local access adjacent to a freeway or expressway.

Local roads are represented by centroid connectors in the RTDM and are roads that connect collector roads and above to neighborhoods.

Figure 1-7: Roadway Types from RTDM

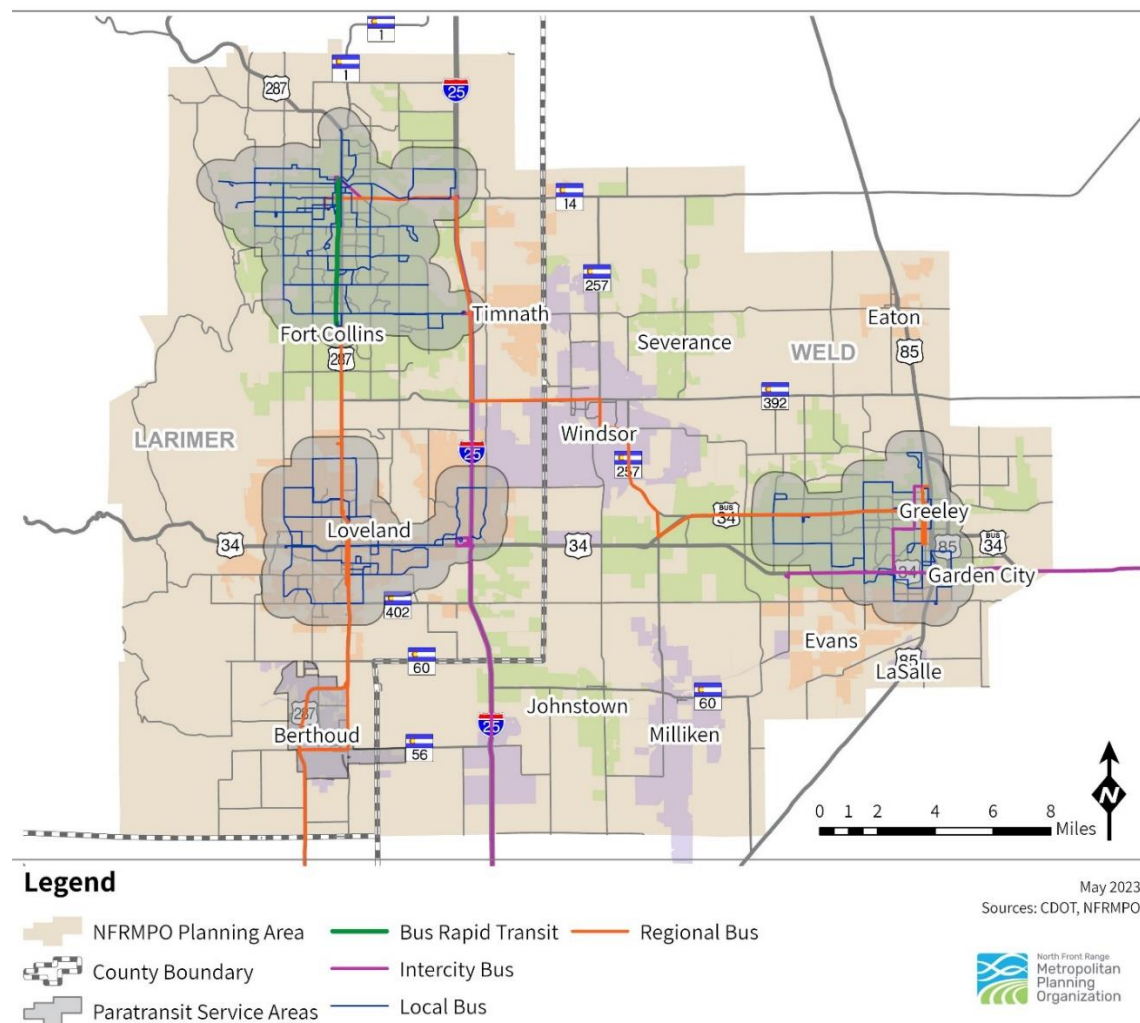


Transit

Transit in the NFRMPO region is operated by local municipalities and CDOT and consists of bus and paratransit services. **Figure 1-8** shows the transit systems by service type: local bus service, intercity bus service, regional bus service, and local bus service. Local buses stop more often, operate in mixed-transit, and provide consistent service throughout the day.

- Intercity bus services connect multiple communities in multiple regions to major destinations with limited stops and limited schedules.
- Bus rapid transit provides frequent service, upgraded stations and amenities, and limited stops.
- Regional buses provide service across communities within the NFRMPO region with limited stops.
- Paratransit provides complementary service for individuals with disabilities within $\frac{3}{4}$ -mile of a fixed-route service.

Figure 1-8: Transit Service Types



Transfort

Transfort is the City of Fort Collins's transit service and the largest provider in the NFRMPO region, providing local and regional fixed-route services, bus rapid transit (BRT), school-subsidized routes, and paratransit. Transfort operates 23 routes Monday through Saturday. Some routes operate for school trips or late-night service only. Transfort has operated fare-free since the beginning of the COVID-19 pandemic.

Paratransit service is contracted through the Dial-a-Ride program. The Dial-a-Ride program provides door-to-door paratransit to individuals who meet minimum service requirements of the ADA. Riders pay \$2.50 per one-way trip. Rides can be booked between 24 hours and 14 days in advance. In addition to Dial-a-Ride, Transfort Dial-a-Ride users can use Dial-a-Taxi. Dial-a-Taxi uses \$5310 funds to provide ADA Paratransit-eligible riders the ability to use a taxi for eligible rides both inside and outside the service area.

FLEX: Transfort operates the FLEX service along US287 and SH119 in Larimer and Boulder counties with financial support from CDOT, Fort Collins, Loveland, Berthoud, Boulder County, Longmont, Colorado State University (CSU), and the University of Colorado at Boulder. Monday through Saturday, the FLEX service operates two routes:

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

MAX: MAX is the first BRT route operating in Northern Colorado along the six-mile Mason Corridor. MAX uses a mix of city streets and a fixed-guideway (dedicated transit lanes) adjacent to the BNSF Railroad, limited stops, upgraded station amenities, and transit signal priority to create a more rapid bus service that is competitive with driving. Extensions to MAX are under study. MAX buses stop at dedicated stations with passenger information displays, ticket vending machines, and artistic shelters.



MAX Bus in Fort Collins

Image credit: City of Fort Collins Flickr

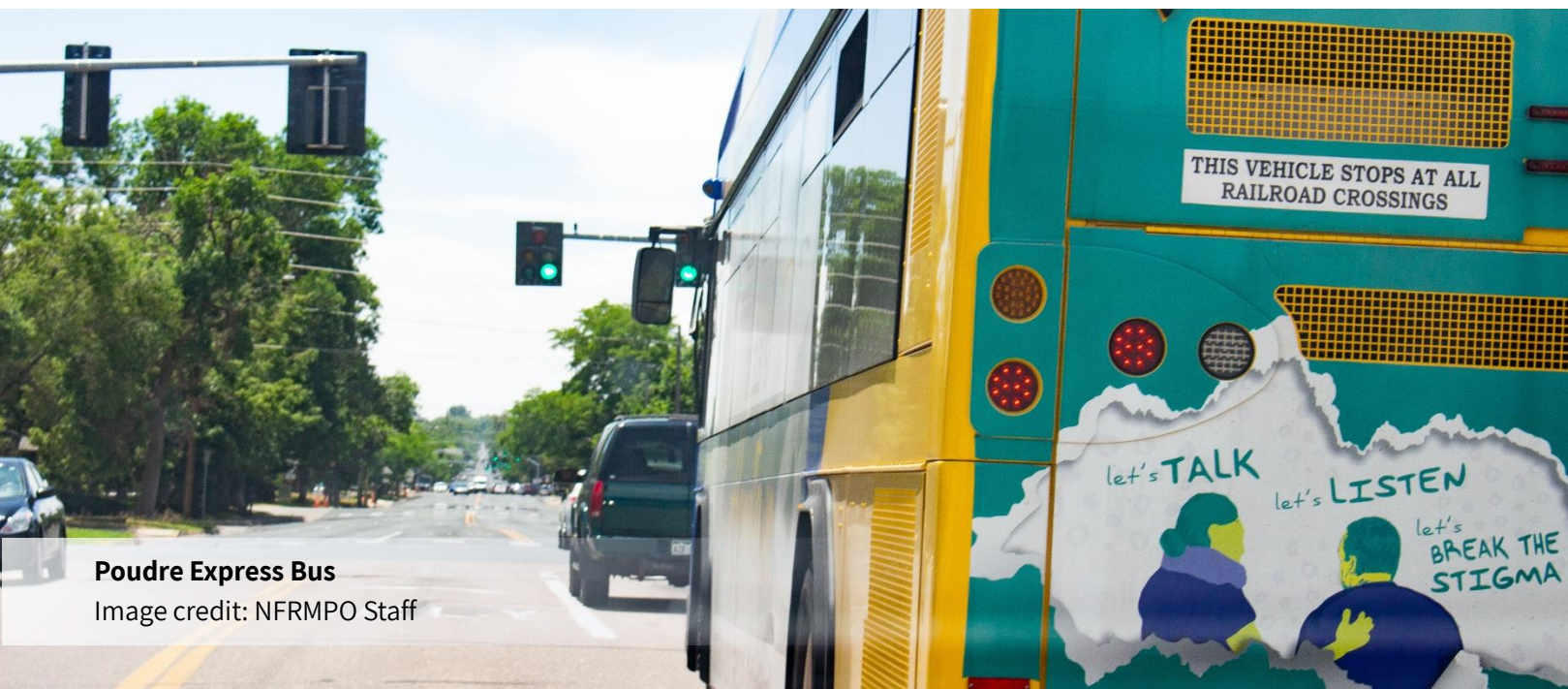
Greeley Evans Transit

The City of Greeley operates transit with support from the City of Evans and the Town of Garden City through purchase of service agreements. Greeley Evans Transit (GET) operates a variety of services, including fixed-route, paratransit, and Call-N-Ride. GET has seven routes, including the UNC Boomerang. Service is provided Monday through Saturday. Fares cost \$1.50 per trip.

Paratransit service provides door-to-door service for persons who qualify under the ADA. Service is provided Monday through Saturdays. Outside of operating hours, GET provides a Call-N-Ride service Monday through Saturday, after regular fixed-route service ends, until 9:00 p.m. and on Sunday from 7:45 a.m. to 1:45 p.m. Paratransit trips cost \$3.

Poudre Express

GET operates the Poudre Express between Fort Collins, Windsor, and Greeley, with financial support from Fort Collins, Windsor, CSU, and Greeley. The Poudre Express operates between Colorado State University and the Greeley Regional Transportation Center, with additional stops at the Harmony Transfer Center, three stops within Windsor, and stops along 10th Street and the University of Northern Colorado (UNC) in Greeley.



Poudre Express Bus
Image credit: NFRMPO Staff

City of Loveland Transit (COLT)

City of Loveland Transit (COLT) provides fixed-route service and paratransit within Loveland. The Loveland Public Works Department operates the fixed-route system from Monday through Saturday. Service operates on five routes, one running to each quadrant of the city and one operating along US287.

Paratransit service operates within $\frac{3}{4}$ -miles of a fixed-route service, and riders may use a Dial-a-Ride or Dial-a-Taxi service. Dial-a-Ride must book the ride between 14 days to 24-hours in advance and must be ADA Paratransit eligible. Dial-a-Taxi is a program using Federal Transit Administration (FTA) \$5310 funds to provide ADA Paratransit-eligible users the ability to use a taxi for eligible rides inside and outside of the COLT service area.



COLT Bus
Image credit: COLT

CDOT/Bustang



Bustang Bus
Image credit: NFRMPO Staff

CDOT operates Bustang service which provides transit connectivity across Colorado. Bustang operates three routes out of Denver Union Station, including the North Line that connects the Downtown Transit Center and Harmony Road Transfer Center in Fort Collins and the Loveland/Greeley Park-n-Ride to Downtown Denver. Bustang Outrider provides additional services from some cities to smaller and more rural towns and cities. As of 2023, there is a three-day-a-week service between Sterling and Greeley.

The North Line runs daily, seven round trips Monday through Friday; the RamsRoute, which runs when CSU is in session with a trip from the CSU Transit Center to downtown Denver on Fridays and returning on Sundays; and two roundtrips per day on Saturdays and Sundays.

In 2022, CDOT inaugurated a new Bustang Outrider service, connecting Sterling in Logan County to Greeley and Denver. The bus also connects to the Fort Morgan Amtrak station, providing additional connections to the national railroad network. The service stops at the UHealth Greeley Campus, North Colorado Medical Center, and the Greeley Regional Transportation Center. Service is provided to Greeley on Monday, Wednesday, and Friday; Tuesday and Thursday, the service operates to Denver.

BATS

The Berthoud Area Transportation System (BATS) provides demand-response service within the Berthoud town limits throughout the week and operates fixed trips on certain days of the week. On Mondays, BATS transports riders to Longmont between 8:00 a.m. and 11:30 a.m. Tuesday through Friday, BATS transports riders to Loveland between 8:00 a.m. and 11:30 a.m., with additional service to Loveland on Thursday between 11:30 a.m. and 3:00 p.m.

Volunteer and Demand Response Services

In addition to the municipally operated services previously described, various human service, volunteer, and demand-response services provide service to older adults, individuals with disabilities, and others in need of transportation.

- **60+ Ride:** 60+ Ride is a volunteer transportation service in Weld County. 60+ drivers use their own vehicles to provide mobility to seniors over the age of 60.
- **Heart&SOUL Paratransit:** Heart&SOUL Paratransit specializes in transportation for older adults and adults with disabilities in Larimer and Weld counties. Heart&SOUL provides customized transportation, including door-through-door services and works with numerous hospices, living facilities, as well as major local hospitals.
- **RAFT:** RAFT is a volunteer transportation non-profit offering door-to-door, on-demand services to eligible seniors (60+) and adults (18+) with disabilities residing within the Berthoud Fire Protection District (BFPD). Trips are made from the BFPD to Berthoud, Loveland, and Longmont.
- **SAINT:** SAINT is a volunteer transportation service within, but not between, Fort Collins and Loveland. SAINT drivers use their own vehicles to provide mobility to seniors over 60 and adults (18+) with disabilities.

VanGo™

VanGo™ is a vanpooling program administered by the NFRMPO, where commuters beginning and ending in similar locations share a van. Vanpool members pay a monthly fee which covers the cost of the program, fuel, maintenance, and insurance. Tolls and parking are covered by the commuters themselves. The VanGo™ fares are calculated using a zone system. Fares are computed according to the distance between zones of origin and destination in the vanpool's route.

Intercity Travel

Express Arrow

Express Arrow provides service between Buffalo, Wyoming and Denver. The daily service travels through Greeley, providing daily service between Greeley and Denver, and Cheyenne, Casper, and Buffalo, WY. The service leaves Greeley going north at 2:20 p.m. and heads south at 2:35 p.m. Tickets between Denver and Greeley cost \$32. Tickets between Cheyenne and Greeley cost \$31. More information is available at <http://expressarrow.com/>

El Paso – Los Angeles Limousine Express

The El Paso – Los Angeles Limousine Express, Inc., operates in the US85 corridor and has two departures per day from Greeley to Denver. The ultimate destinations for these services are Albuquerque, New Mexico and El Paso, Texas. The charge for a one-way fare is \$15.00 for adults and \$10.00 for children. More information is available at <http://www.eplalimo.com/>

Greyhound

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

Connections to Denver International Airport (DEN)

Landline and Groome Transportation provide transportation to Denver International Airport from locations throughout Northern Colorado. Both services use the Northern Colorado Regional Airport (FNL) as a hub, including parking, check-in, and other services. Landline also codeshares with United.

Active Transportation

Facilities identified in the [2021 ATP](#) include sidewalks, off-street shared-used paths, on-street bicycle lanes, and on-street bicycle routes. The following are common definitions of these facilities:

- **Sidewalk**- Hard-surface paths providing space intended for pedestrian travel within the public right-of-way and separated from motor vehicle traffic by a curb, buffer, or curb with buffer. Sidewalks often also serve bicyclists.
- **Shared-Use Path**- Typically distinguished from sidewalks by having a consistent width of eight feet or greater that allows for two-way travel or passing by different types of users (foot traffic, wheelchair users, bicyclists, roller skaters, etc.). Shared-use paths (often referred to as trails or multi-use paths) are sometimes characterized by more separation from traffic than sidewalks. Shared-use paths can be paved (hard surface) or unpaved (soft surface). The NFRMPO inventory only includes all hard-surface paths and some soft-surface paths where information is available.
- **Bicycle Lane**- A portion of the roadway that has been designated by striping, signage, and pavement markings for the preferential or exclusive use of bicyclists. Bike lanes enable bicyclists to ride at their preferred speed without interference from prevailing traffic conditions and facilitate predictable behavior and movements between bicyclists and motorists. Bike lanes can have physical barriers (bollards, medians, raised curbs, etc.) that restrict the encroachment of vehicle traffic.
- **Bicycle Route** – Streets with low motorized traffic volumes and speeds, designated and designed for bicycle safety, comfort, and connectivity. Bicycle routes typically use signs, pavement markings, speed and volume management measures, and enhanced bicycle crossings of busy streets.

Mileage by bicycle facility type shown in **Table 1-2** were identified in the NFRMPO [2021 ATP](#). Bicycle routes were omitted because they are defined differently across communities.



Participants in a walk audit along the Great Western Trail
Image credit: NFRMPO Staff

Table 1-2: Active Transportation Facilities

	Sidewalks	Shared-Use Paths and Trails	Bike Lanes and Bikeable Shoulders
Total Miles	2,845.3	250.6	783.3

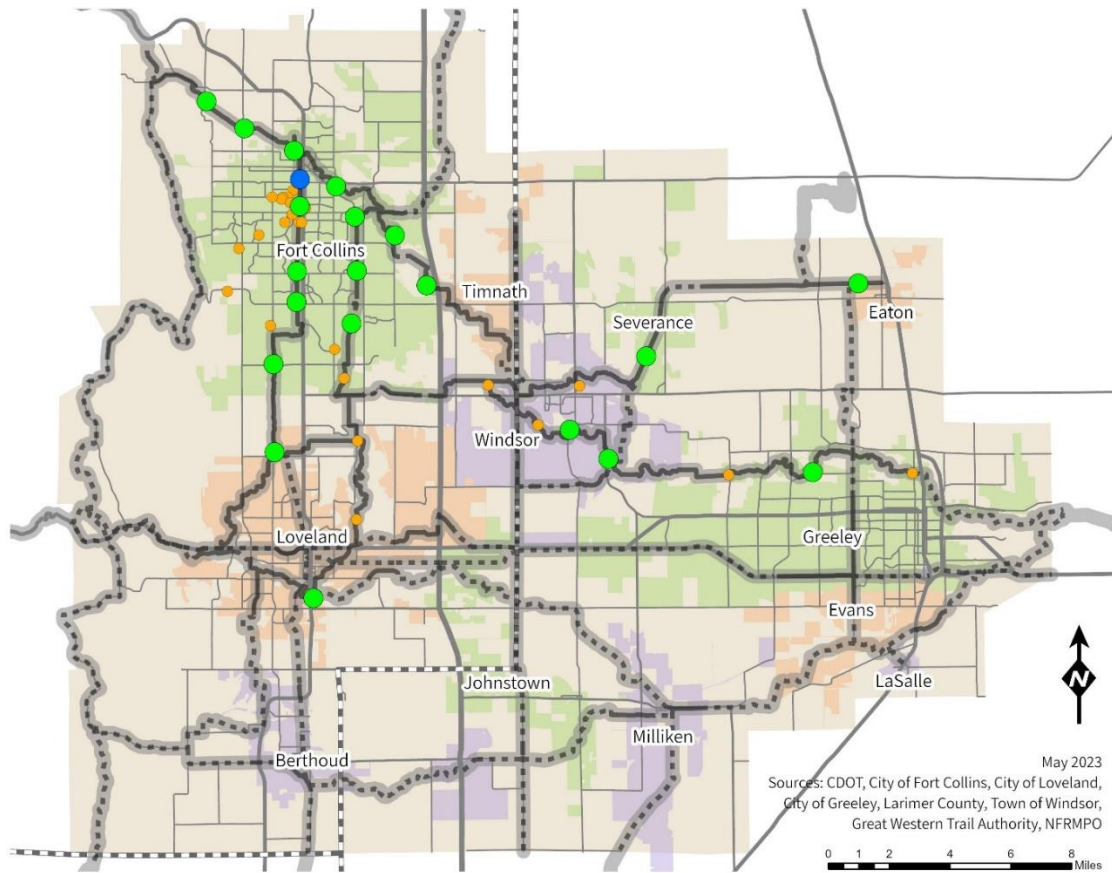
Counter Locations

Several agencies and organizations in the NFRMPO region and CDOT document active transportation facility performance through permanent counting devices. **Figure 1-9** shows the permanent count devices installed along the Regional Active Transportation Corridors (RATCs) and on local trails. There are currently 45 devices installed permanently across the active transportation network, 21 of which are located on RATCs. There are also several temporary counters placed periodically at strategic locations to collect short-duration counts.

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

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

Figure 1-9: Permanent Counters in NFRMPO Region



Legend

- RATC Counter - All Users Existing or Interim RATC County Boundary
- RATC Counter - Bicycles Only Proposed RATC NFRMPO Boundary
- Other Permanent Counter RATC

Regional Corridors

The NFRMPO's role in transportation planning is to focus on corridors that connect across communities and can act as the regional backbone for local connections. To this end, the NFRMPO has developed Regionally Significant Corridors (RSCs), Regional Transit Corridors (RTCs), and Regionally Active Transportation Corridors (RATCs). These regional corridors were adopted by the Planning Council on July 7, 2022. Vision plans were developed for each of these corridors, shown in **Chapter 3**.

Regionally Significant Corridors

RSCs consist of roadways that meet the following criteria:

- The roadway is eligible to receive federal aid,
- The roadway goes through more than one governmental jurisdiction or connects to an activity center by 2050,
- Segments of roadway that do not yet exist or are not currently federal-aid eligible have improvements planned by 2050,
- The roadway serves regional traffic as determined by local knowledge.

Implementation of the RSCs is undertaken by local communities and CDOT. RSCs are shown cartographically in **Figure 1-10** and in table form in **Table 1-3**.

Figure 1-10: Regionally Significant Corridors (RSCs)

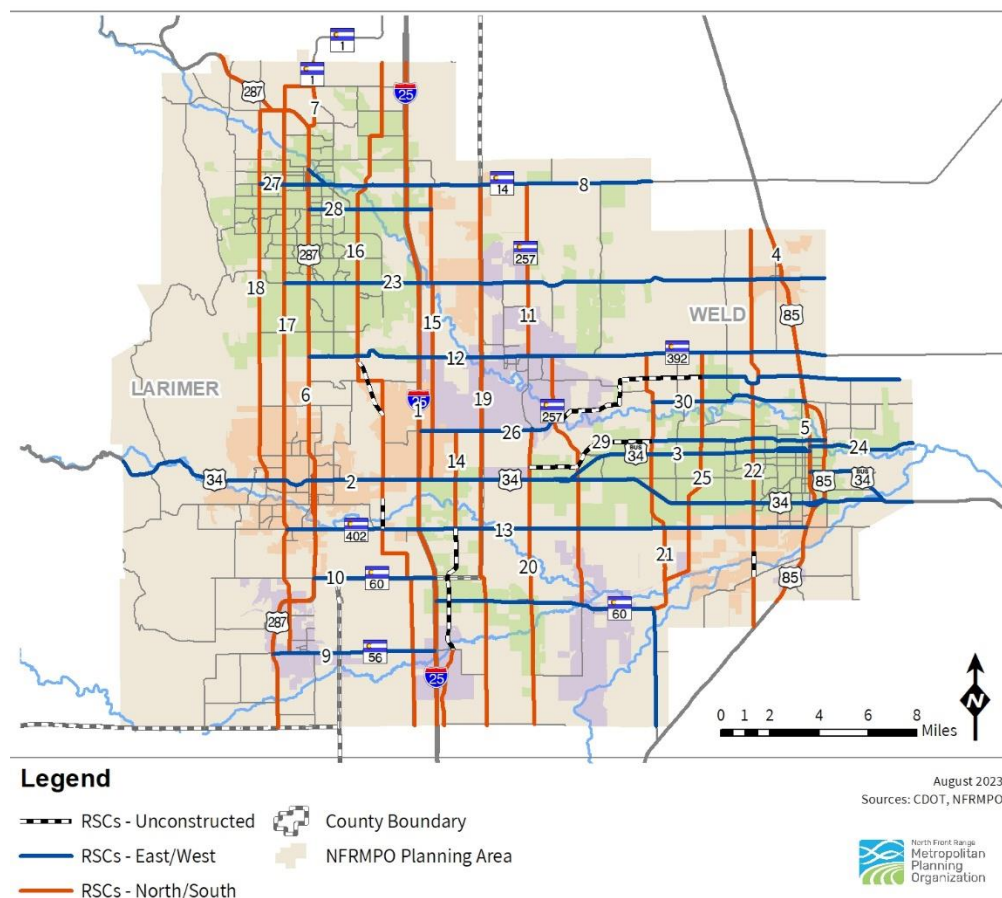


Table 1-3: Regionally Significant Corridors (RSCs)

Corridor	Name
RSC-1	I-25
RSC-2	US34
RSC-3	US34 Business
RSC-4	US85
RSC-5	US85 Business
RSC-6	US287
RSC-7	SH1
RSC-8	SH14
RSC-9	SH56
RSC-10	SH60
RSC-11	SH257
RSC-12	SH392
RSC-13	SH402/Freedom Parkway
RSC-14	LCR3/WCR9.5
RSC-15	LCR5
RSC-16	LCR7 / LCR9 / Timberline Rd
RSC-17	LCR17 / Shields St / Taft Ave / Berthoud Pkwy
RSC-18	LCR 19 / Taft Hill Rd / Wilson Ave
RSC-19	WCR13
RSC-20	WCR17
RSC-21	WCR27 / 83rd Ave / Two Rivers Pkwy
RSC-22	WCR35 / 35th Ave
RSC-23	WCR74 / Harmony Road
RSC-24	8th St
RSC-25	59th Ave / 65th Ave
RSC-26	Crossroads Blvd / WCR66
RSC-27	Mulberry St
RSC-28	Prospect Road
RSC-29	4th St
RSC-30	O Street

Regional Transit Corridors

RTCs are categorized by type of service and include:

- **Premium Transit Analysis** (LinkNoCo) – corridors recommended by the NFRMPO's North Front Range Premium Transit Analysis, also known as LinkNoCo
- **Existing Service** – these regional services already exist but will provide additional frequency and improved infrastructure
- **Local Priorities** – services that do not currently exist but are important to local communities or do not fit into other categories
- **Front Range Passenger Rail** – potential corridors for the Front Range Passenger Rail, currently under study by the Front Range Rail District and CDOT

Implementation of RTCs will be in partnership with local transit agencies, municipalities, and CDOT.

RTCs are shown in **Figure 1-11** and **Table 1-4**.

Figure 1-11: Regional Transit Corridors (RTCs)

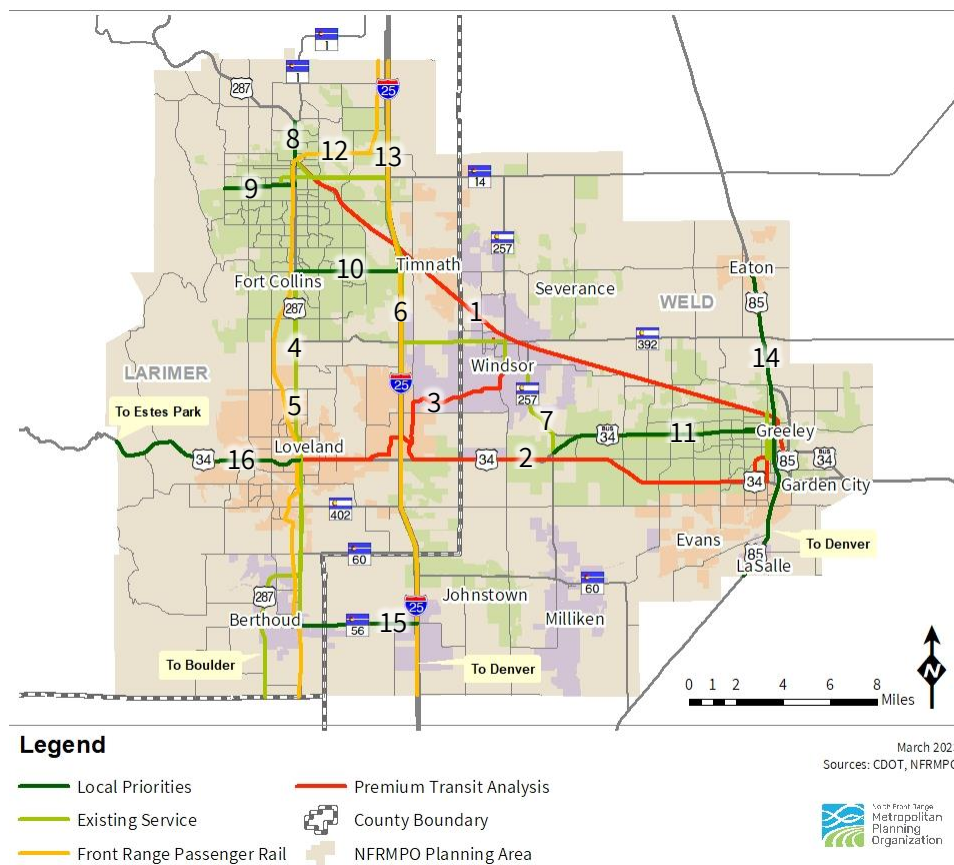


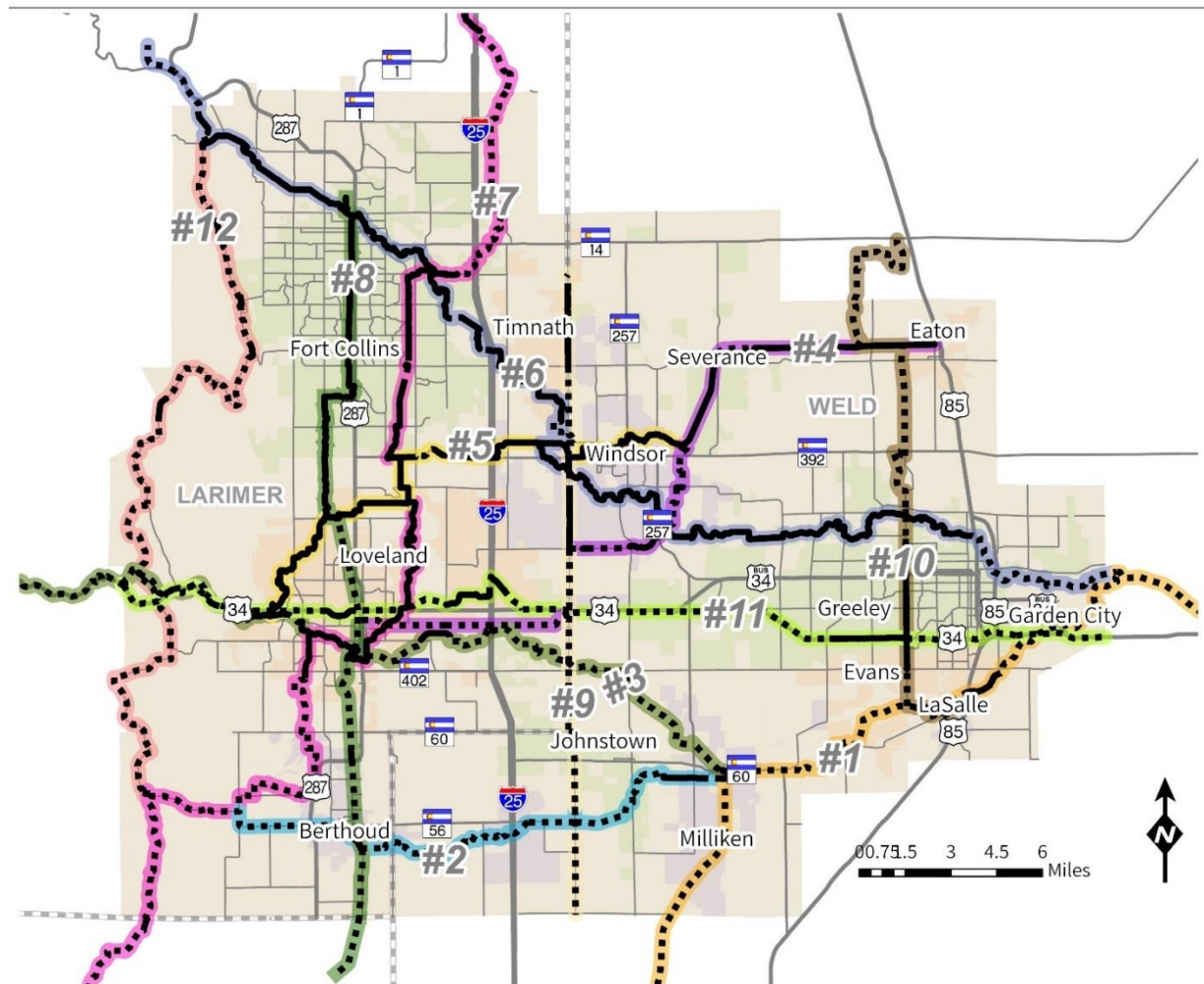
Table 1-4: Regional Transit Corridors (RTCs)

Corridor	Category	Name
RTC-1	Premium Transit Analysis	Great Western
RTC-2	Premium Transit Analysis	US34
RTC-3	Premium Transit Analysis	Loveland to Windsor
RTC-4	Existing Service	FLEX Express
RTC-5	Existing Service	FLEX Local
RTC-6	Existing Service	Bustang
RTC-7	Existing Service	Poudre Express
RTC-8	Local Priority	North College MAX
RTC-9	Local Priority	West Elizabeth MAX
RTC-10	Local Priority	Harmony Road MAX
RTC-11	Local Priority	34 Business Premier Transit
RTC-12	Front Range Rail	Front Range Passenger Rail - US287
RTC-13	Front Range Rail	Front Range Passenger Rail - I-25
RTC-14	Local Priority	US85 Transit Service
RTC-15	Local Priority	SH56 Transit Service
RTC-16	Local Priority	US34 West Loveland to Estes Park

Regional Active Transportation Corridors

RATCs were initially adopted as part of the [2013 Regional Bike Plan](#) and have acted as the backbone for trail planning. The RATCs are predominantly off-street facilities that link multiple communities and provide safe and strategic local connections. In some cases, the RATCs are on-street facilities and may include bicycle lanes or side paths. RATCs serve a mix of recreational, commuter, and casual trips by walking, biking, and rolling. The NFRMPO works with local communities and the NoCo Bicycle and Pedestrian Collaborative to implement the RATCs. RATCs are shown in **Figure 1-12** and **Table 1-5**.

Figure 1-12: Regional Active Transportation Corridors (RATCs)



Legend

— Existing or Interim Alignment	4: Great Western/Johnstown/Loveland	9: Johnstown/Timnath
- - - Proposed Alignment	5: North Loveland/Windsor	10: Eaton/LaSalle
1: South Platte/American Discovery Trail	6: Poudre River Trail	11: US34 Parallel
2: Little Thompson River	7: Front Range Trail West	12: Carter Lake/Horsetooth Foothills
3: Big Thompson River	8: BNSF Fort Collins/Berthoud	

May 2023
Sources: CDOT, NFRMPO



Table 1-5: Regional Active Transportation Corridors (RATCs)

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

Airports

The NFRMPO works with but does not have jurisdiction over the two airports within the region.

Northern Colorado Regional Airport

The Northern Colorado Regional Airport, known as FNL, is a nonprimary commercial service airport located between and governed by Fort Collins and Loveland³. The airport has previously had commercial air service provided by Avelo, most recently between 2021 and 2022. United, Landline, and Groome Transportation provide bus and shuttle services to Denver International Airport. A new terminal with two gates will be constructed and is expected to open in 2024.

FNL has also partnered with the Federal Aviation Administration (FAA) on the development of a remote air control tower⁴. The remote air control tower will use both satellite-based aircraft surveillance technology and ground-based video technology. It is hoped that the remote air control tower will expand commercial services at the airport.

Greeley-Weld County Airport

The Greeley-Weld County Airport, known as GXY, is a regional general aviation airport east of downtown Greeley. The airport is equipped with Very High Frequency (VHF) Omni-Directional Range (VOR), Instrument Landing System (ILS), Global Positioning Satellite (GPS), Precision Approach Path indicators (PAPI), Visual Approach Slope Indicators (VASI) and Non-Directional Radio Beacon (NDB) as navigation aids.

The airport serves helicopter, military, jet, and general aviation aircraft. According to the CDOT Colorado Division of Aeronautics Economic Impact Study, activity from GXY employed 926 people with

³ 2023 List of NPIAS Airports: <https://www.faa.gov/sites/faa.gov/files/2022-10/ARP-NPIAS-2023-Appendix-A.pdf>. Accessed April 17, 2023.

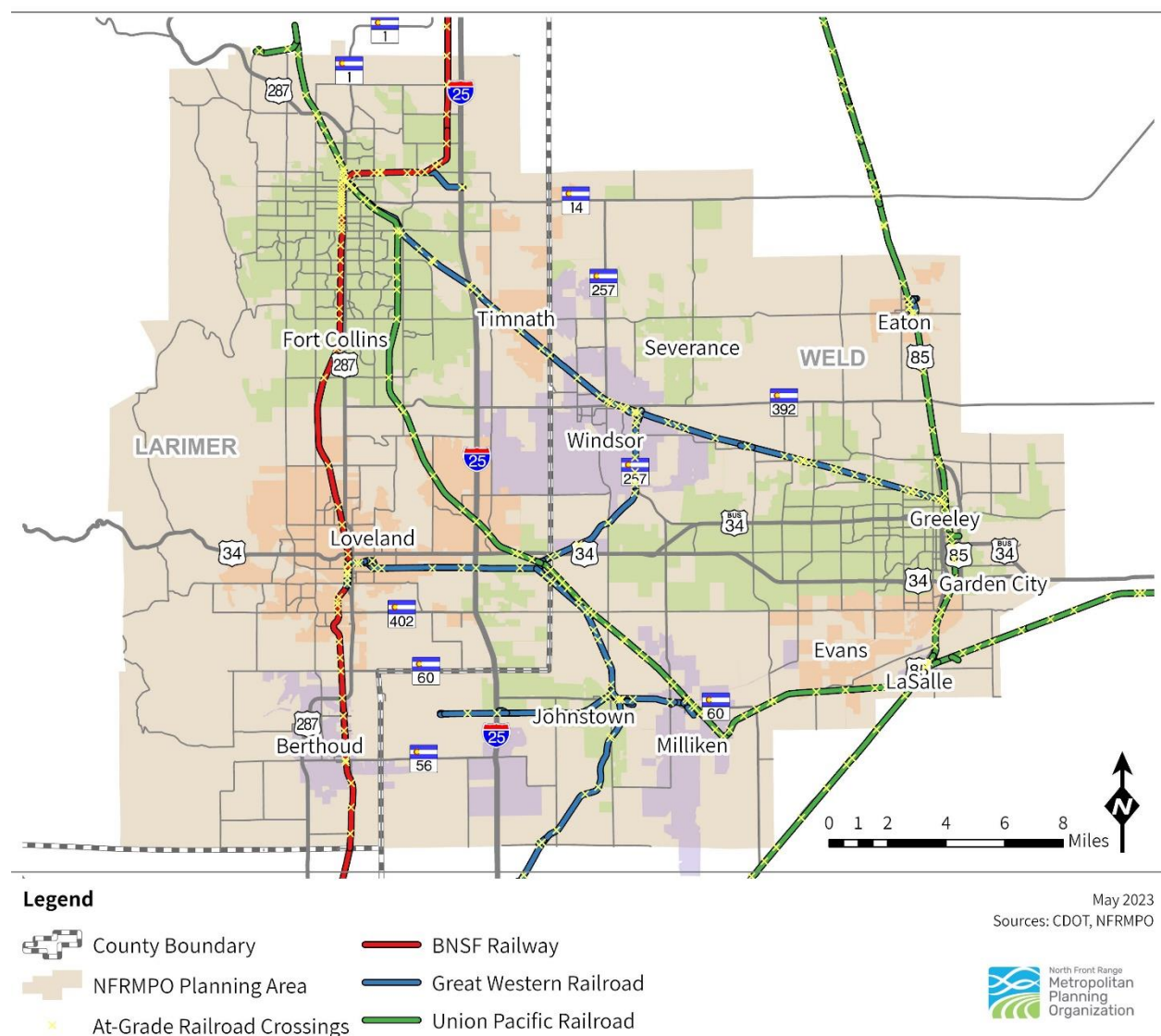
⁴ Colorado Remote Tower Project: <https://www.codot.gov/programs/remotetower>. Accessed April 17, 2023.

a total annual economic impact of \$125.13M. The airport is nearly ten years into a 20-year master plan from 2014 and will be updating it in the near future. The plan provides a 20-year planning period covering the extent and schedule of development needed to accommodate existing and future aviation demand.

Railroads

The NFRMPO region is served by two Class I railroads, the Union Pacific (UP) Railroad and the BNSF Railway, and a shortline railroad, the Great Western Railway of Colorado. In total, the NFRMPO region has approximately 161 miles of active railroad and approximately 409 at-grade crossings. Railroad ownership and grade crossings are shown in **Figure 1-13**. Quiet zones have been added in Windsor and Greeley.

Figure 1-13: Railroad Company and Status



Equity Areas

The NFRMPO strives to ensure all members of the community have equal access to the resources and information developed by the North Front Range Metropolitan Planning Organization (NFRMPO). The NFRMPO has implemented policies and practices to address environmental justice within the transportation planning process, including the development of an [Environmental Justice Plan](#) in 2021. Between 2021 and 2023, additional guidance from the United States and State of Colorado governments have been enacted to continue to address equity and ensure the benefits of transportation related investments are shared and burdens dispersed equally throughout the region. There are three leading initiatives at the federal and state level which guide equity planning within the NFRMPO: Justice40, Disproportionately Impacted (DI) Communities, and Environmental Justice (EJ) which are explored further in the following sections.

Justice 40

The Justice40 initiative was created in 2021 by *Executive Order 14008, Tackling the Climate Crisis at Home and Abroad*. Justice40 sets a goal of 40 percent of the benefits of certain federal investments flowing to disadvantaged communities.

“Through Justice40, the United States Department of Transportation (USDOT) will work to increase affordable transportation options, that connect Americans to good-paying jobs, fight climate change, and improve access to resources and quality of life in communities in every state and territory in the country.

The initiative allows USDOT to identify and prioritize projects that benefit rural, suburban, tribal, and urban communities facing barriers to affordable, equitable, reliable, and safe transportation. Through Justice40, USDOT will also assess the negative impacts of transportation projects and systems on disadvantaged communities and will consider if local community leaders have been consulted in a meaningful way during the project’s development.”⁵

Justice40 census tracts are determined using demographic and environmental data to reflect disadvantage. Justice40 Disadvantaged Communities are identified based on an index of five component areas: transportation insecurity, environmental burden, social vulnerability, health vulnerability, and climate and disaster risk. Each of these components are summed into an Overall Score. A census tract will be considered disadvantaged if the overall index score places it in the 65th percentile or higher of all US census tracts.

More information about the Justice40 initiative can be found on the USDOT website:

<https://www.transportation.gov/equity-Justice40>

⁵ Justice40, 2023. <https://www.transportation.gov/equity-Justice40> (Accessed 3/27/2023)

Disproportionately Impacted (DI) Communities

Disproportionately Impacted (DI) communities were established through *Colorado House Bill (HB) 21-1266: Environmental Justice Disproportionate Impacted Community*, which was passed in 2021 and revised under HB 23-1233 in 2023. Colorado law defines a DI community as census block groups where:

- More than 40 percent of the population are low-income (meaning that median household income is at or below 200 percent of the federal poverty line)
- 50 percent of the households are housing cost-burdened (meaning that a household spends more than 30 percent of its income on housing costs like rent or a mortgage)
- 40 percent of the population are people of color (including all people who do not identify as non-Hispanic white)
- 20 percent of households are linguistically isolated (meaning that all members of a household that are 14 years old or older have difficulty with speaking English)
- Census block groups that experience higher rates of cumulative impacts, which is represented by an EnviroScreen Score (Percentile) above 80⁶.

The EnviroScreen Score is calculated using the 35 indicators which are grouped into two broad categories: Health & Social Factors and Pollution & Climate Burden. More information about the EnviroScreen indicators and a mapping tool created to view DI Communities in Colorado can be found at <https://cdphe.colorado.gov/enviroscreen>.

Environmental Justice

Environmental Justice (EJ) is ensuring disadvantaged populations do not face higher and more adverse impacts of public programs or projects than the rest of the population. There are three major principles of EJ, as outlined in *Executive Order 12898: Federal Actions to Address Environmental Justice (EJ) in Minority Populations and Low-Income Populations (1994)*:

1. Avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects.
2. Ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
3. Prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

The Environmental Protection Agency (EPA) defines EJ as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.” Federal Highway Administration (FHWA) expands on this definition by adding EJ “identif[ies] and address[es] disproportionately high and adverse effects of the agency's programs, policies, and

⁶ Colorado EnviroScreen, 2023. <https://cdphe.colorado.gov/enviroscreen> (Accessed 6/8/2023)

activities on minority populations and low-income populations to achieve an equitable distribution of benefits and burdens.”⁷

NFRMPO EJ areas are determined using American Community Survey (ACS) five-year averages at the census block group level. Using this data, a regional average for people who identify as minority and low-income households is calculated. Each census block group in the region is then determined to be EJ if it exceeds the regional average for minority, low-income, or both. Unlike Justice40, which compares each census tract to all census tracts across the US, and the EnviroScreen tool which compared census block groups across the state of Colorado, the EJ areas calculated by the NFRMPO is a focused regional analysis. Comparing census block groups to a regional average allows for a more granular look at the areas in need within the NFRMPO region.

More information about EJ at the NFRMPO please view the 2021 EJ Plan: <https://nfrmpo.org/wp-content/uploads/2021-environmental-justice-plan.pdf>

Equity Index

The NFRMPO has created an Equity Index of census block groups within the NFRMPO area which qualify as disadvantaged based on one or more of these equity areas. The Equity Index map illustrates the census block groups in the region which qualify as disadvantaged based on the overall Justice40, DI Community, or EJ definitions. Each qualifying census block group is given a score of one to three based on if it qualifies under one or more definition. The Equity Index allows for the NFRMPO to look more holistically at the disadvantaged areas within the region during the planning process to ensure the benefits of implemented projects are dispersed equally throughout the region.



The equity index is utilized through the NFRMPO’s Call for Projects which awards Federal and State funding to NFRMPO local agency transportation projects. Considerations for equity are a requirement for prioritization of projects and determination of project funding under the evaluation criteria for all funding programs per the guidance of Federal and State funding programs and NFRMPO priorities. Equity analysis is conducted on a project level. The Equity Index allows the NFRMPO to identify which projects are located within or will directly impact disadvantaged communities within the region. In addition to identifying projects which are located within Equity Index areas, through the Equity Analysis included in the NFRMPO Call for Projects and the Transportation Improvement Program (TIP), project sponsors are required to document the benefits and burdens anticipated with the project both in the short term (during construction) and long term (post construction). Project sponsors must also

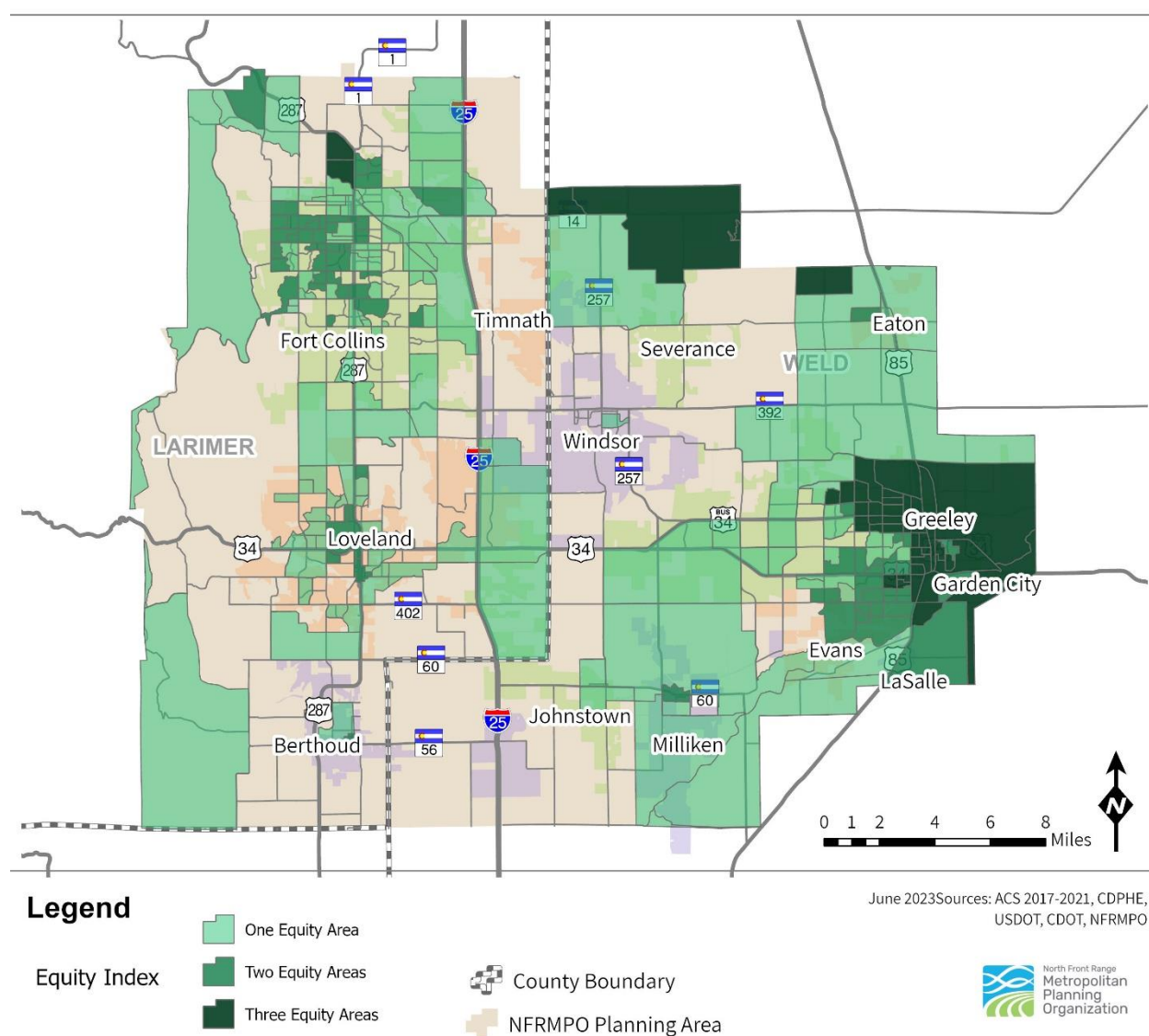
⁷ Environmental Justice, 2022. https://www.fhwa.dot.gov/Environment/environmental_justice/ (Accessed 3/27/2023)

document outreach activities related to the project during the project identification and implementation phases.

The NFRMPO created the Equity Resources ArcGIS Storymap to help explore the differences between the equity areas identified in this section and the specific impacts Justice40, DI communities, and EJ have on planning work at the NFRMPO. The StoryMap also offers interactive online maps and references. In addition to providing maps and references, the Equity Resources Storymap will be updated as new data is released. View the Storymap at <https://arcg.is/1bjfC4>

Figure 1-14 illustrates the areas within the region which qualify under one or more equity areas as outlined in the sections of this document.

Figure 1-14: Equity Index Areas in the NFRMPO, 2023



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 prompted by new regionally significant projects, as defined in **Chapter 4**, or by substantially modified project scopes. A Plan Amendment could also be necessary if substantial changes in financial resources occur, which were not anticipated during the 2050 RTP development process.

To initiate a Plan Amendment, a local agency, Colorado Department of Transportation (CDOT) or the federal government provides information to the NFRMPO outlining the specific amendment request along with a clear justification for the amendment and/or the source of the new funding. NFRMPO staff review the request and determine how the request should be processed, either as a Modification to the RTP or an Amendment to the RTP.

- Modifications can be processed by NFRMPO staff and include minor updates, clarifications, or edits not requiring air quality conformity.
- Amendments are more major updates to the 2050 RTP, may require GHG and conformity analyses, and must be approved by USDOT.

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. The air quality conformity determination is discussed in Appendix A. Amendments adding non-air quality significant projects or project elements (i.e. bridges, interchanges, or transit centers) do not require an air quality conformity determination. Generally, a call for RTP Amendments is held once a year. If no Amendment requests are received, the RTP is not amended and no action by Planning Council, FHWA, or EPA is required.

Chapter

2

Trends



Chapter

2

Section 1

Socioeconomic Trends



NFRMPO Region Today

Northern Colorado has seen consistent growth in the previous decades. **Figure 2-** shows the NFRMPO's regional population, broken up into three categories: large cities, which includes Fort Collins, Loveland, and Greeley; towns and small cities, which includes Berthoud, Eaton, Evans, Garden City, Johnstown, LaSalle, Milliken, Severance, Timnath, and Windsor; and the unincorporated portions of Larimer and Weld counties. The proportion of the population living in the towns and small cities has steadily increased as unincorporated portions of the counties have been annexed. Overall, the NFRMPO region had an estimated 525,000 residents in 2019.

The region's annual growth rate has remained above the State's since at least 2011. In the latter half of the 2010s and into the early 2020s, the region and state have both seen a gradual slowing in growth rate. That is to say, the region and State are continuing to grow, but at a slower rate.

Figure 2-1: Population by Community Type and Growth Rates, 2010-2021

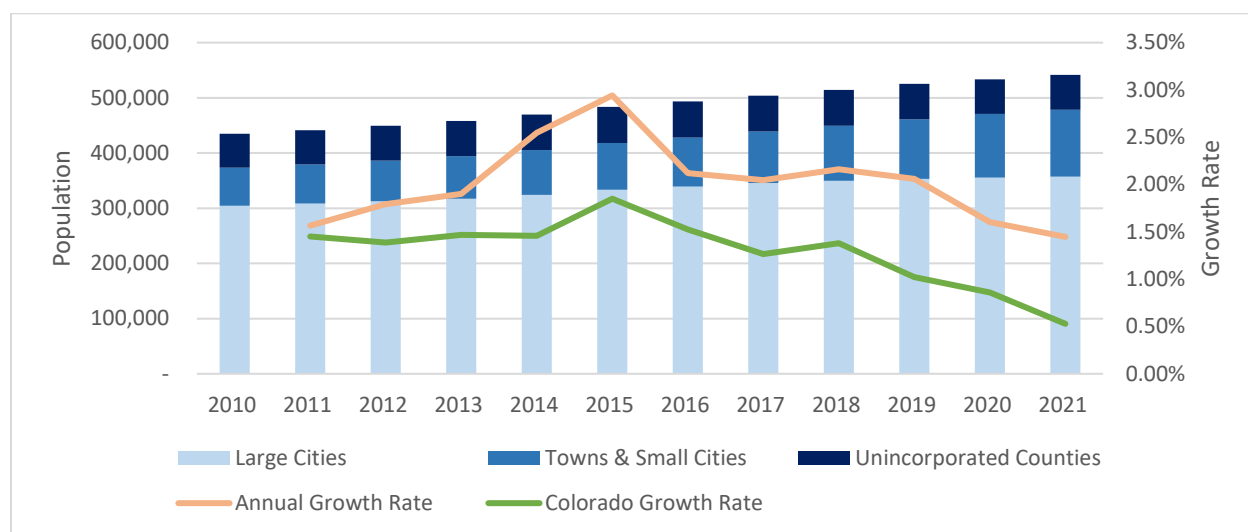


Table 2-1 shows population analyzed by individual community, County, and the State, organized by average annual growth rate. Severance was the fastest growing community in the region, growing by an average rate of 11.5 percent between 1980 and 2020. Besides LaSalle, all communities in the NFRMPO region grew at a faster rate than Colorado. The fastest growing communities are located along major roadways, including State Highways, major County Roads, and near the larger communities. Weld County overall has grown faster than Larimer County.

Table 2-1: Historical Population Trends by Annual Growth Rate 1980-2020

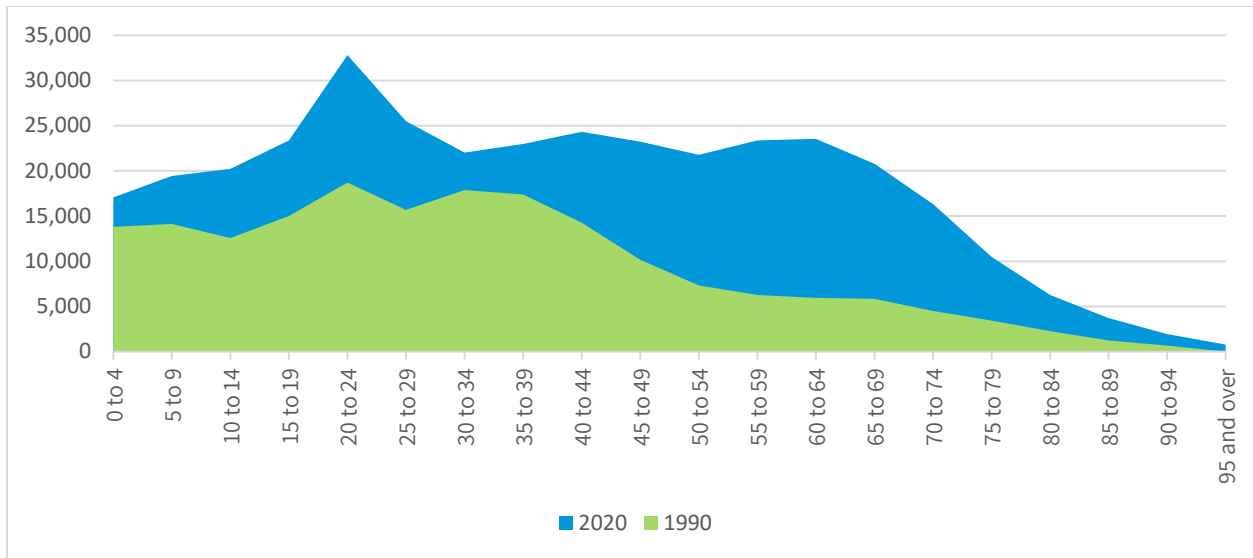
	1980	1990	2000	2010	2020	Average Annual Growth Rate
Severance	102	106	672	3,204	8,032	11.5%
Timnath	185	190	286	629	6,745	9.4%
Johnstown	1,535	1,579	4,459	9,987	17,335	6.2%
Windsor	4,277	5,062	10,256	18,768	33,320	5.3%
Milliken	1,506	1,605	3,040	5,634	8,455	4.4%
Berthoud	2,362	2,990	5,005	5,127	10,509	3.8%
Evans	5,063	5,876	10,448	18,651	22,216	3.8%
Eaton	1,932	1,959	2,783	4,384	5,848	2.8%
Fort Collins	65,092	87,491	120,236	144,888	170,058	2.4%
Loveland	30,215	37,357	51,893	67,033	76,341	2.3%
Garden City	123	199	346	235	254	1.8%
Greeley	53,006	60,454	78,559	93,262	109,141	1.8%
LaSalle	1,929	1,803	1,852	1,967	2,357	0.5%
Weld County	123,438	131,821	183,076	254,230	331,282	2.5%
Larimer County	149,184	186,136	253,088	300,532	359,815	2.2%
Colorado	2,889,964	3,294,394	4,301,261	5,029,316	5,784,156	1.7%

Aging Population

As the region has grown, the population has also aged as shown in **Figure 2-** and **Figure 2-**. Between 1990 and 2020, the fastest growing age cohort in Larimer County was the 60 to 80 age group, with a large decrease in the proportion of 20- to 40-year-olds. In Weld County, the fastest growing age cohort was the 40-60 group, with a decrease in the proportion of 20- to 40-year-olds. Additionally, there were no persons counted over the age of 95 in either County, which was no longer the case by 2020. Aging populations require different needs in the realm of transportation, housing, medical, and human services.

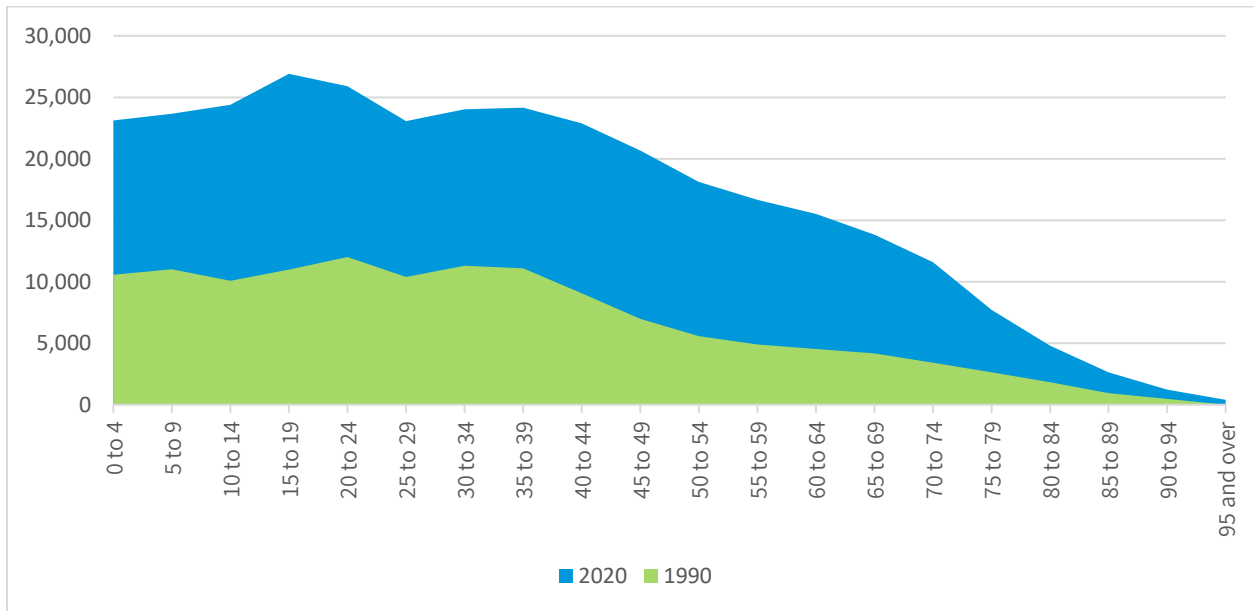
The largest age cohort in Larimer County is the 20 to 24 age group, representing college-age students at Colorado State University and several community and technical colleges in the County. In Weld County, the largest age cohort is 15 to 19, representing more families who may have chosen Weld County for its cheaper homes and cost of living. Weld County was the fastest growing county in Colorado between 2010 and 2020 for the population under 18.

Figure 2-2: Larimer County Age Distribution by Age Cohort, 1990 and 2020



Source: Department of Local Affairs, 2023

Figure 2-3: Weld County Age Distribution by Age Cohort, 1990 and 2020



Source: Department of Local Affairs, 2023

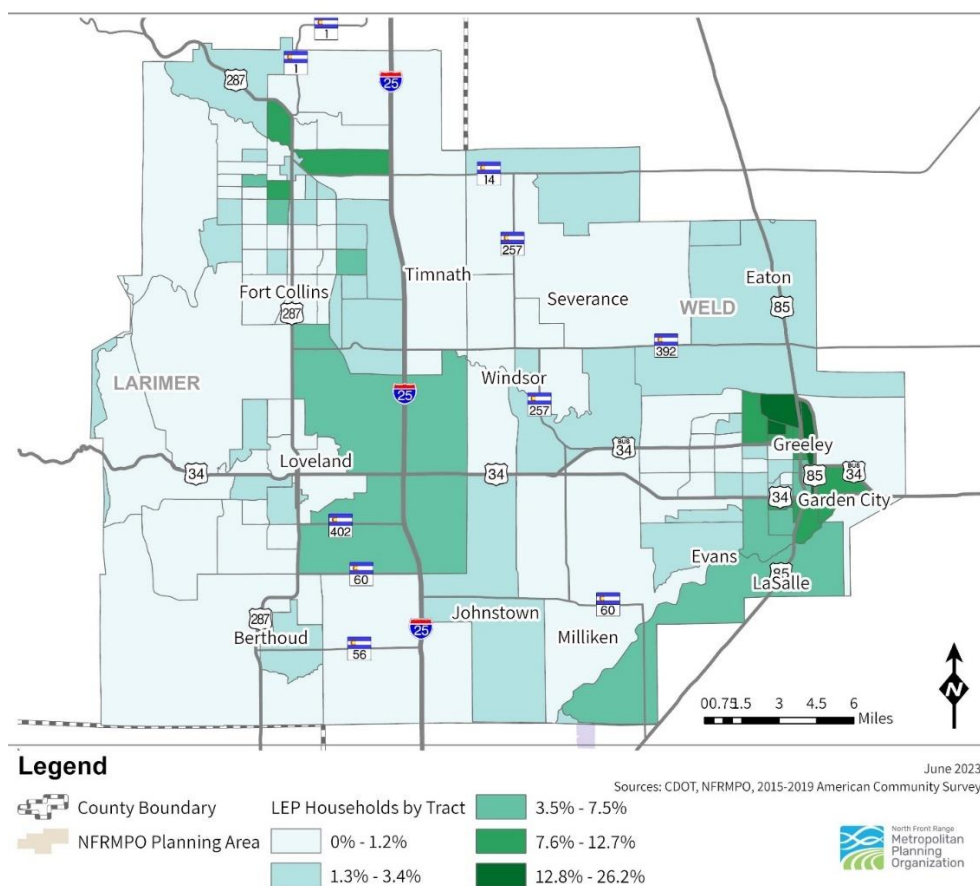
Vulnerable Populations

The Equity Areas defined in **Chapter 1** are key to the NFRMPO’s planning and are based on specific datasets available at the regional, State, and federal levels. In addition to these key data, the NFRMPO also tracks specific populations to ensure equity in its planning and programming. These areas have been called Communities of Concern in previous NFRMPO documents: Limited English Proficiency, Older Adults, Zero Car Households, and the Population with Disabilities. The following sections explore the areas of the region where the block group or census tract has a higher occurrence than the regional average.

Limited English Proficiency

People who do not speak English very well may face challenges that fluent English speakers do not. According to the 2015-2019 American Community Survey (ACS), 4.4 percent of residents within the NFRMPO boundary indicated they spoke English “less than very well”. This equates to approximately 22,500 residents. Overall, approximately 13.4 percent of residents speak a language other than English. The most common language in the region other than English is Spanish. In total, 95.6 percent of residents speak English very well. **Figure 2-** maps LEP Census Tracts in the region with a higher percentage than the regional average.

Figure 2-4: Limited English Proficiency Tracts, 2019



Older Adult Population

As stated previously, the region is seeing a growing aging population. As shown in **Figure 2-**, older adult populations are more highly represented in the unincorporated and less populated areas, which may highlight the more affordable housing in those areas. As more people in the region age, the region will need to adapt to the changing population: “baby boomer” population (individuals born between 1946 and 1964) hitting retirement age, migration, medical breakthroughs allowing people to live longer, and the desire to “age in place.”

Figure 2- shows the gradual growth of the proportion of older adults to the total population between 1990 and 2020. Larimer County residents aged 60 and above grew by 250.8 percent between 1990 and 2020. The 80 and above age group grew by 203.5 percent and the 75-79 age group also grew by 205.7 percent. The 60-64 and 65-69 age categories grew at 295.6 percent and 255.8 percent, respectively. Weld County residents over the age of 60 more than doubled between 1990 and 2015, growing by 220.9 percent. Like Larimer County, Weld County residents aged 60-64 grew at the highest rate, increasing by 242.4 percent. Residents aged 65-69 grew by 232.2 percent and those aged 70-74 increased by 239.7 percent. Residents aged 75-79 and 80+ grew by 192.7 and 179.4 percent, respectively.

Figure 2-5: Age Distribution by County, 1990-2020

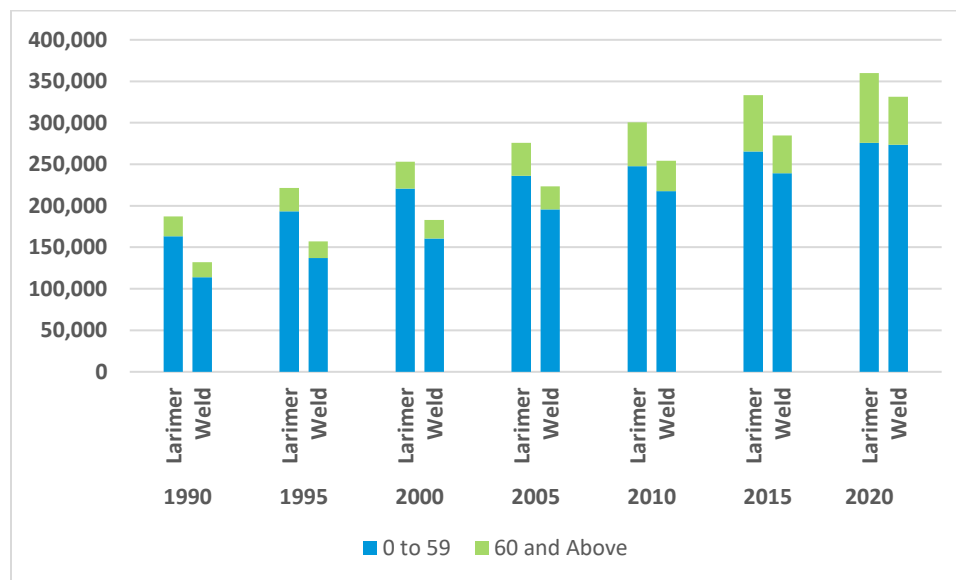


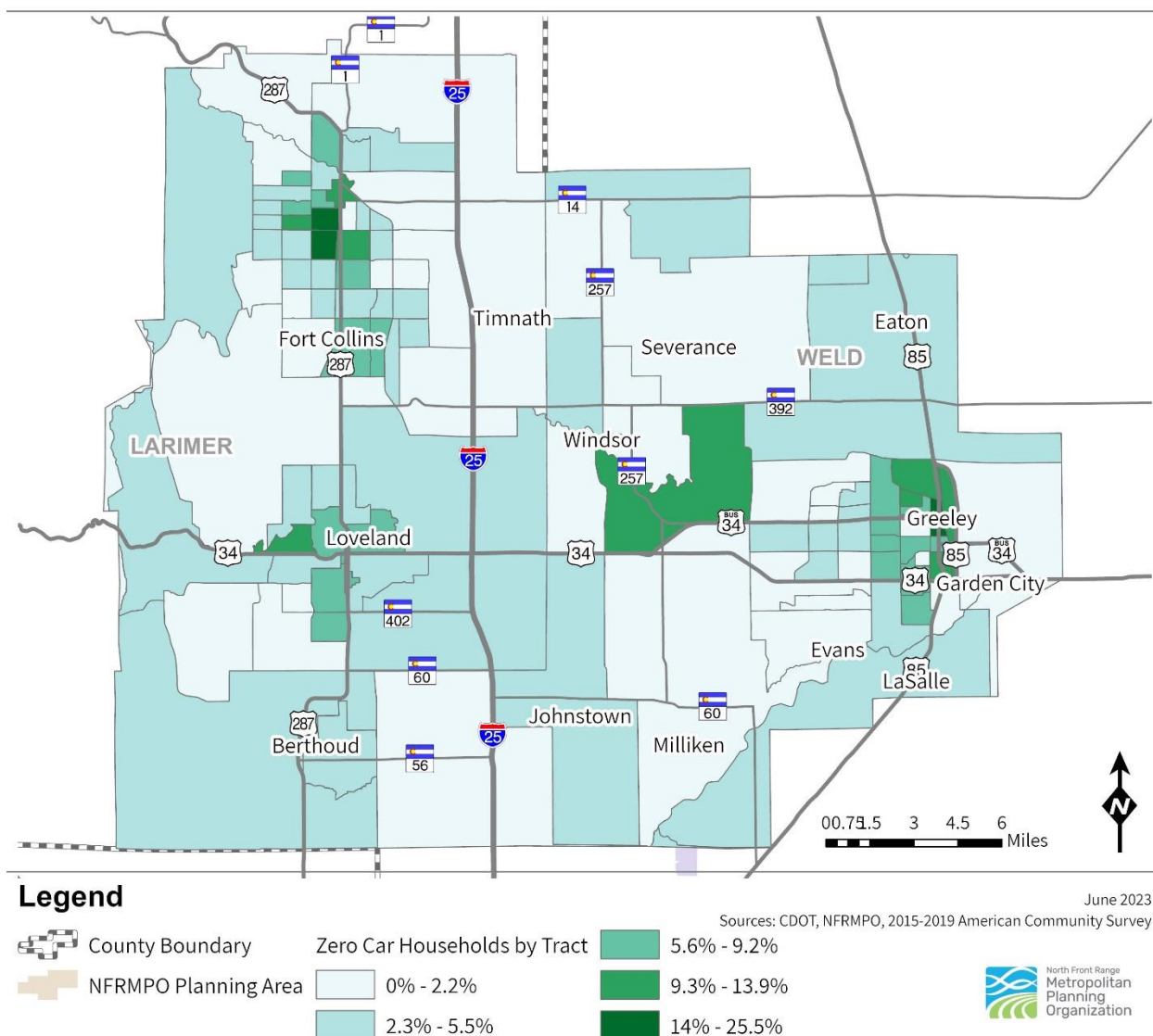
Figure 2-6: Older Adult Tracts, 2019



Zero Car Households

As with many communities across the US, the NFRMPO region is built around the car; however, many households across the region do not have access to a vehicle as shown in **Figure 2-**. Zero-car households are self-reported households which do not currently have a vehicle. It does not acknowledge access to bicycles, work vehicles, or other autos. Not having access to a vehicle can reduce economic, social, and healthcare options due to limited alternative options. Many zero car households are located within the three largest cities, where transit services, sidewalks, and social services are located.

Figure 2-7: Zero Car Households by Census Tract, 2019



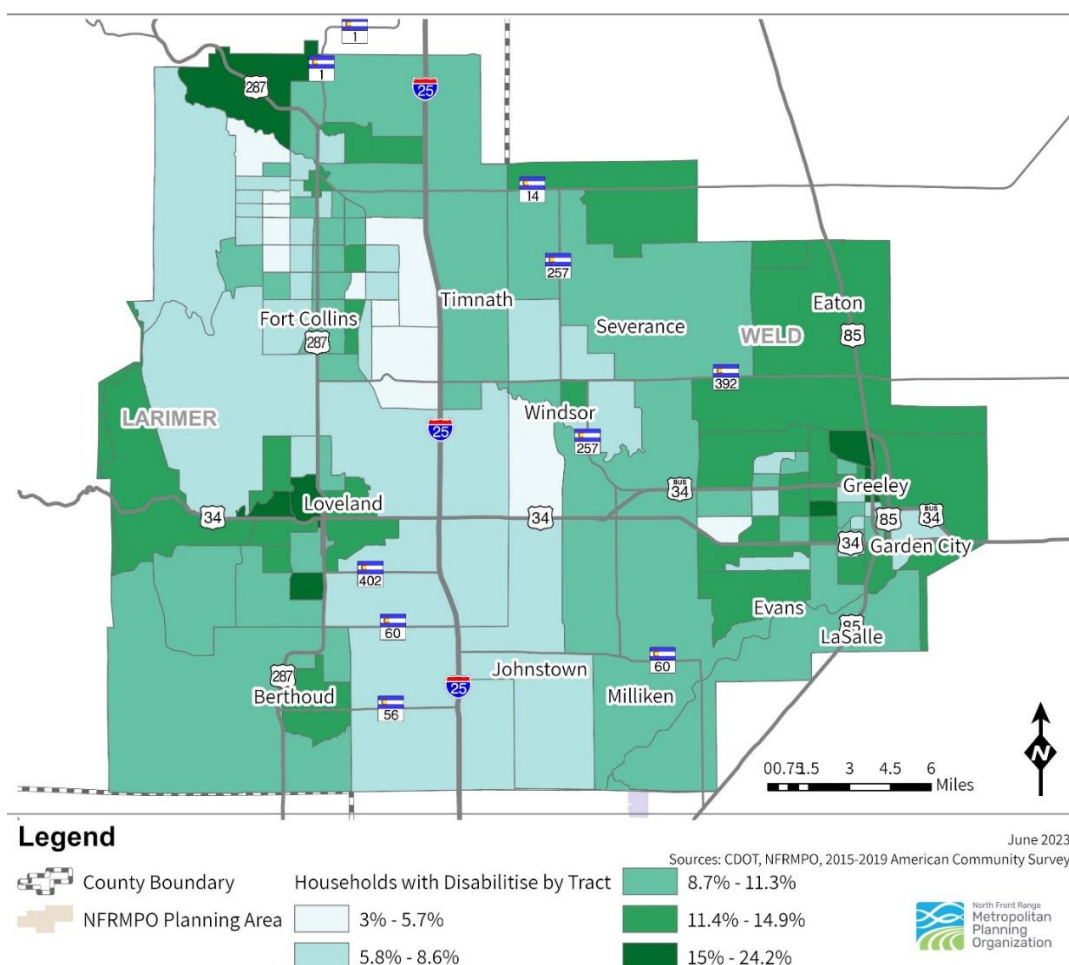
Population with Disabilities

The ACS collects data about persons with disabilities based on pre-defined categories:

- Hearing difficulty: defined as deafness or serious difficulty hearing;
- Vision difficulty: defined as blind or serious difficulty seeing;
- Cognitive difficulty: defined as having difficulty remembering, concentrating, or making decisions due to a physical, mental, or emotional problem;
- Ambulatory difficulty: defined as difficulty walking or climbing stairs;
- Self-care difficulty: defined as difficulty bathing or dressing; and
- Independent living difficulty: defined as difficulty doing errands alone due to a physical, mental, or emotional problem.

Persons with disabilities may face a range of issues using the transportation system, ranging from reliance on transit or paratransit; difficulty using trails, sidewalks, or other bicycle and pedestrian infrastructure; and lack of access to economic, social, and healthcare options. As shown in **Figure 2-**. People with disabilities are concentrated in areas with access to social and transportation services, as well as other parts of the region that may be more affordable.

Figure 2-8: Households with Individuals with Disabilities, 2019

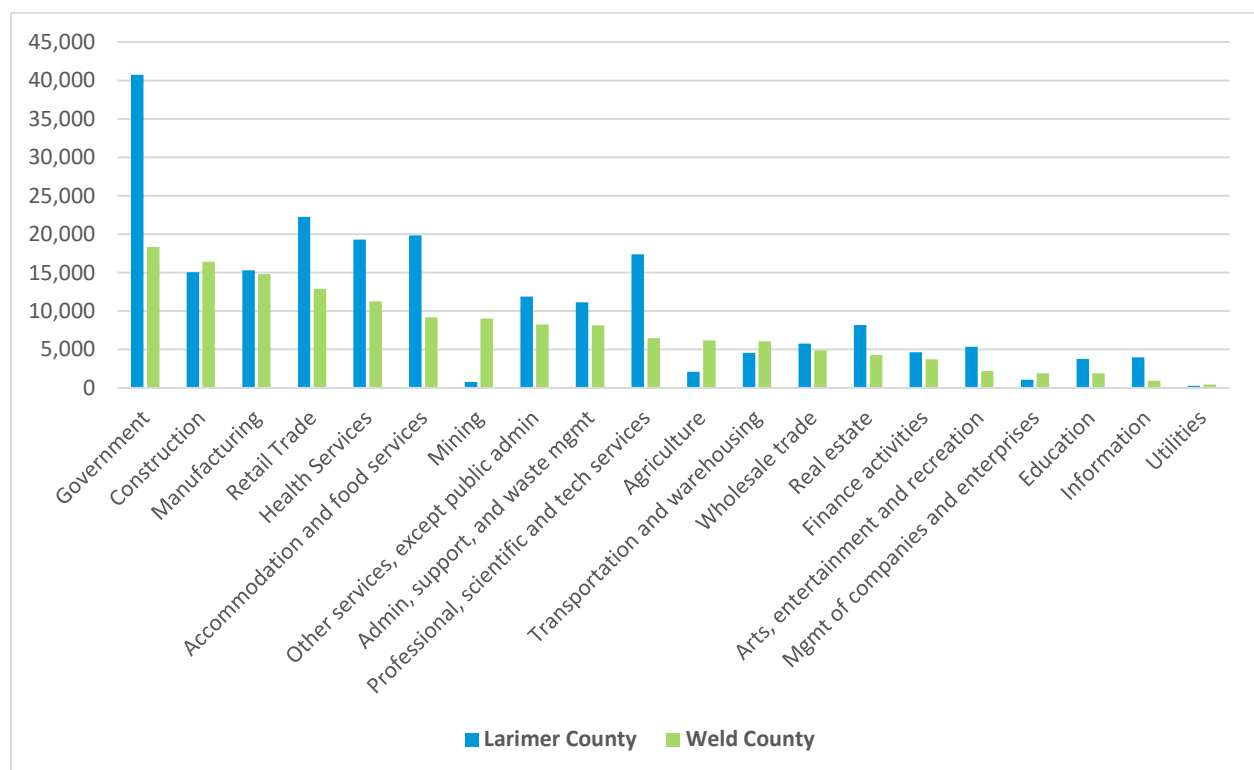


Employment

The State Demography Office (SDO) publishes data exploring employment by North American Industry Classification System (NAICS) code at the County level. **Figure 2-** shows the fifteen key sectors divided by County. Government services, retail trades, and accommodation and food services are the top sectors in Larimer County, while Weld County is dominated by government, construction, and manufacturing.

While the counties share several similarities, there are many economic differences. Larimer County has a large portion of professional, scientific, and technical services, while some of Weld County's top sectors include mining and agriculture. Even some of the counties' shared sectors, such as manufacturing, break down into much different subsectors. While most manufacturing jobs in Larimer County are computers and electrical equipment, most manufacturing jobs in Weld County are related to food and beverage products.

Figure 2-9: County Employment by Sector, 2019

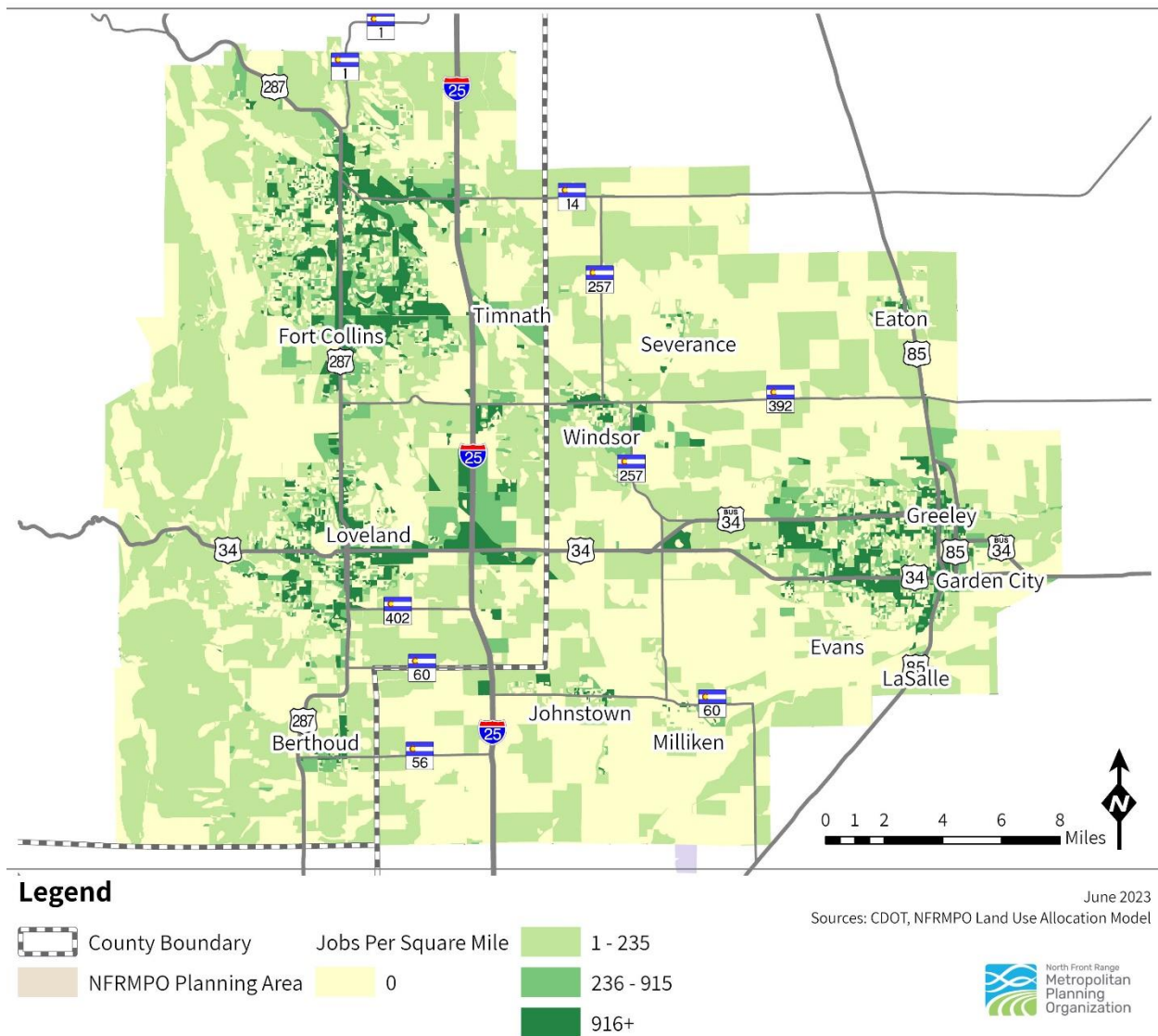


Identifying where these industries are located, **Figure 2-** shows the employment density within the NFRMPO in jobs per square mile. Major job centers are located along interstate, US, and State highways, specifically I-25, US287, US34, US85, and SH14. Outside of downtown areas, the Centerra area, Harmony corridor, and the Windsor Industrial Park are also key employment areas.

The largest employers in Larimer County include Colorado State University, University of Colorado Health system, Hewlett Packard, and Banner Health McKee Medical Center. The largest employers in

Weld County include JBS Swift & Company, Banner Health North Colorado Medical Center, Vestas, and State Farm Insurance.

Figure 2-10: Jobs per Square Mile, 2019

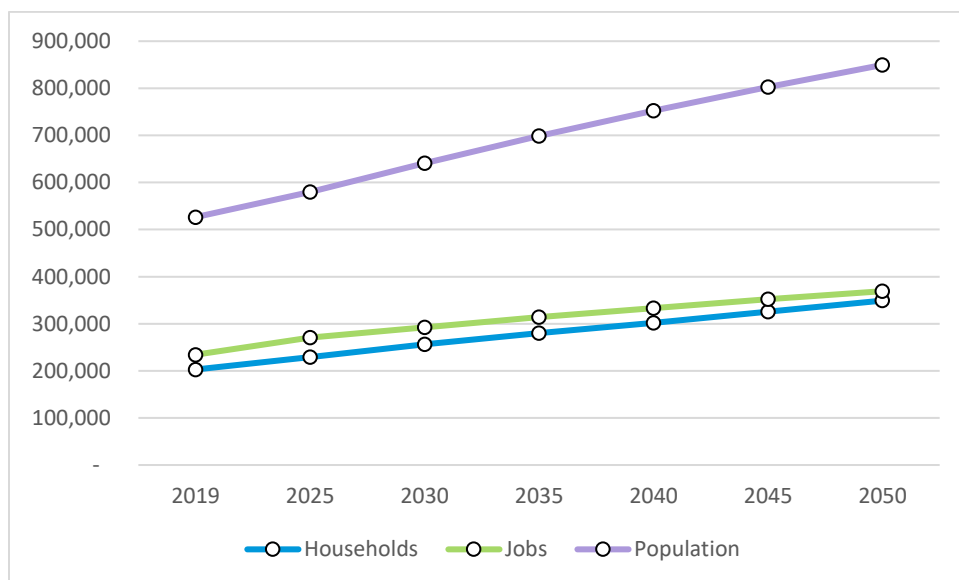


NFRMPO Region in the Future

The NFRMPO Land Use Allocation Model (LUAM) allocates household and employment growth through the UrbanCanvas Block Model. UrbanCanvas is a data-driven, location-choice model designed to reflect the interdependencies of the real-estate market and the transportation system. More information about the NFRMPO's LUAM is available on the NFRMPO website.

The region is forecasted to grow rapidly as shown in **Figure 2-**. By 2050, it is expected the population will increase 61.4 percent to 849,000, the number of households will increase by 72.1 percent to 349,000, and the number of jobs will increase by 57.6 percent to 369,000. On an annual scale, population growth is 1.66 percent per year, household growth is 1.8 percent per year, and job growth is 1.5 percent per year from 2019 to 2050.

Figure 2-11: Forecasted Household and Job Growth in the North Front Range Region, 2019-2050



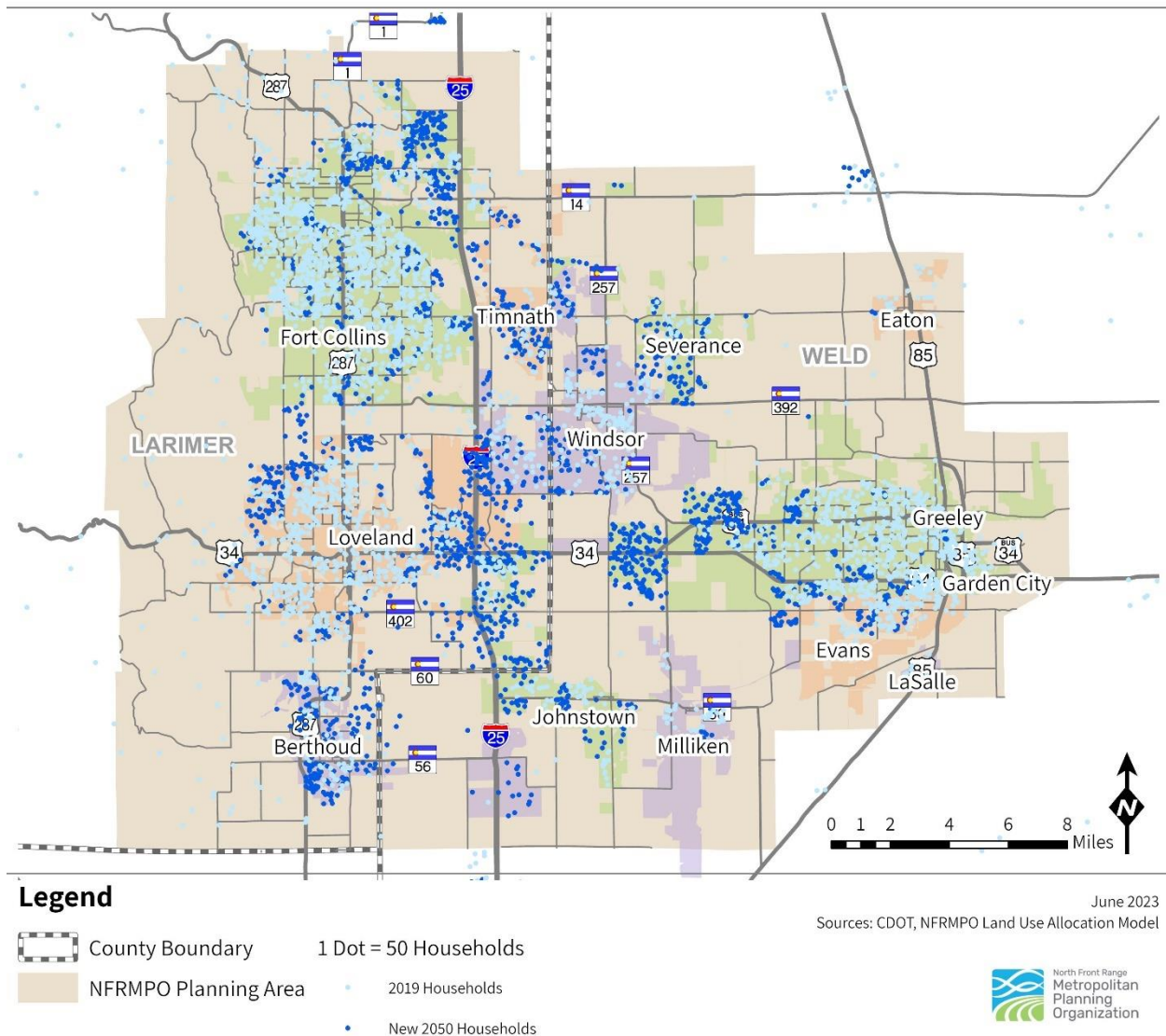
Using the NFRMPO's Land Use Allocation Model and data from the State Demography Office, household and job growth can be estimated for the future. The information is projected at the block-level but aggregated to the Growth Management Area (GMA) for analysis. **Table 2-** shows the expected population and job changes by GMA based on the LUAM. Population growth is expected throughout the region, with the highest growth rates in Berthoud, Johnstown, and Timnath. Job growth is expected to increase significantly, especially in Severance, Milliken, and Johnstown.

Table 2-2: 2019-2050 Population and Jobs by Growth Management Area (GMA)

	2019 Population	2050 Population	Change (2019 - 2050)	2019 Jobs	2050 Jobs	Change (2019- 2050)
Berthoud	13,758	42,267	207.2%	3,074	3,887	26.4%
Eaton	6,077	7,101	16.9%	1,598	2,164	35.4%
Evans	29,143	46,527	59.7%	4,974	7,972	60.3%
Fort Collins	185,243	252,981	36.6%	103,985	139,789	34.4%
Greeley	107,154	177,815	65.9%	52,123	86,987	66.9%
Johnstown	19,663	73,192	272.2%	8,356	26,421	216.2%
LaSalle	2,901	3,045	5.0%	895	1,873	109.3%
Loveland	91,979	159,967	73.9%	47,370	73,406	55.0%
Milliken	9,002	17,756	97.2%	726	2,436	235.5%
Non-GMA Larimer	37,632	68,005	80.7%	10,926	22,567	106.5%
Non-GMA Weld	32,204	64,096	99.0%	9,610	25,920	169.7%
Severance	9,498	25,335	166.7%	534	2,886	440.4%
Timnath	9,106	28,371	211.6%	2,720	7,181	164.0%
Windsor	35,999	85,473	137.4%	15,180	27,573	81.6%

The baseline land use scenario provides the expected growth in the region out to 2050. The location of households in 2019 and the location of new household growth out to 2050 is illustrated in **Figure 2-**. The LUAM forecasts much of the household growth will occur in the center of the region along I-25 as the region grows together, especially along the I-25 and US34 corridors. Periodic redevelopment of areas like downtown Greeley and Fort Collins also contributes to growth in the region.

Figure 2-12: Anticipated Household Growth, 2019 to 2050



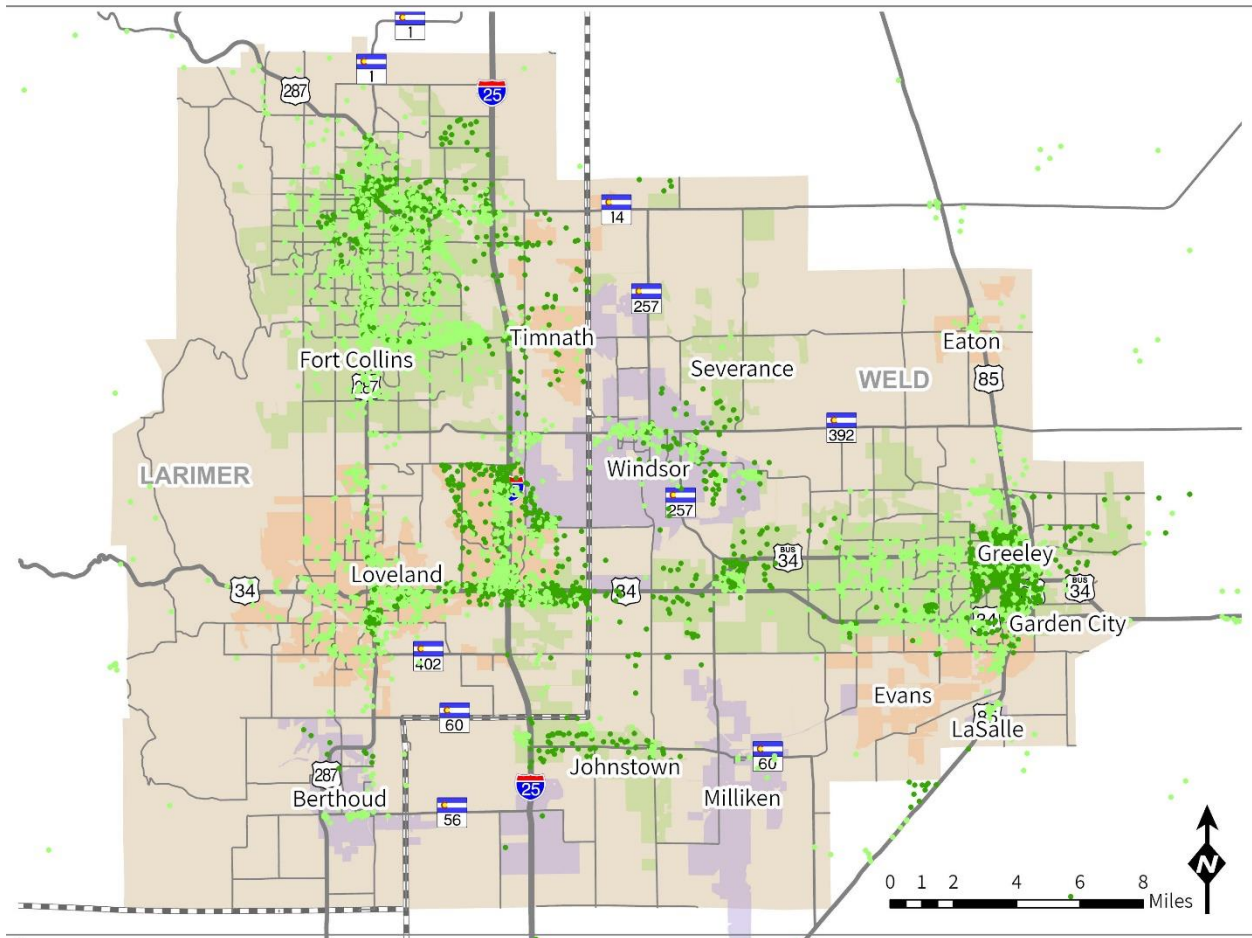
The LUAM uses North American Industry Classification System (NAICS) to track jobs in the region. Based on employment data, control totals from the SDO, and general growth, **Table 2-** shows the number of jobs by NAICS code in 2019 and 2050, as well as the overall growth rate. Exact numbers may not match, but overall growth shows a major increase in job distribution in the region.

The location of jobs in 2019 and the location of new job growth out to 2050 is illustrated in **Figure 2-**. The baseline scenario forecasts much of the employment growth out to 2050 will occur along I-25 near US34 and Crossroads Boulevard, with additional growth scattered throughout the rest of the region. Periodic redevelopment of areas like downtown Greeley and Fort Collins also contributes to growth in the region.





Table 2-3: Jobs by NAICS Code, 2019 and 2050

NAICS Code	Sector	2019	2050	Growth
11	Agriculture, Forestry, Fishing and Hunting	1,607	2,827	75.9%
21	Mining	710	1,181	66.3%
22	Utilities	943	1,499	59.0%
23	Construction	14,338	23,018	60.5%
31-33	Manufacturing	17,301	27,157	57.0%
42	Wholesale Trade	8,102	12,624	55.8%
44-45	Retail Trade	32,416	51,378	58.5%
48-49	Transportation and Warehousing	2,503	4,039	61.4%
51	Information	5,039	7,738	53.6%
52	Finance and Insurance	6,671	10,359	55.3%
53	Real Estate Rental and Leasing	5,917	9,341	57.9%
54	Professional, Scientific, and Technical Services	16,553	25,497	54.0%
55	Management of Companies and Enterprises	1,008	1,432	42.1%
56	Administrative and Support and Waste... Services	4,667	7,327	57.0%
61	Educational Services	17,682	27,656	56.4%
62	Health Care and Social Assistance	42,598	66,489	56.1%
71	Arts, Entertainment, and Recreation	5,811	9,154	57.5%
72	Accommodation and Food Services	23,318	37,619	61.3%
81	Other Services (except Public Administration)	12,406	19,401	56.4%
92	Public Administration	14,597	23,365	60.1%

Figure 2-13: Anticipated Job Growth, 2019 to 2050



Legend

- | | | |
|---|----------------------|---|
|  | County Boundary | 1 Dot = 50 Jobs |
|  | NFRMPO Planning Area |  2019 Jobs |
| | |  New 2050 Jobs |

June 2023
Sources: CDOT, NFRMPO Land Use Allocation Model



Chapter

2

Section 2:

Initiatives and Technology



Initiatives and Technology

The 2050 RTP analyzes transportation needs and anticipated projects to address those needs. In addition to those infrastructure projects, the NFRMPO must also acknowledge requirements and anticipated impacts from adopted legislation like [SB21-260](#) and [IIJA](#), and legislation that has been debated but not adopted. This **Emerging Trends** section acknowledges topics related to the NFRMPO but ones that may not fit into other parts of the 2050 RTP.

Alternative Fuels

FHWA designates a national network of infrastructure-ready corridors for alternative fuels, including electric vehicle charging stations and hydrogen, propane, and natural gas fueling stations. Within the NFRMPO region, US287, US34 east of US287, and I-25 are designated as National Alternative Fuel Corridors. As of December 2022, publicly available electric vehicle charging stations are the most common form of alternative fueling stations, with only a few other stations. Some municipalities or private companies may have charging stations of their own, unavailable to the public. **Figure 2-** and **Table 2-** highlight the publicly available alternative fueling stations.

Figure 2-1: National Alternative Fuel Corridors and Stations

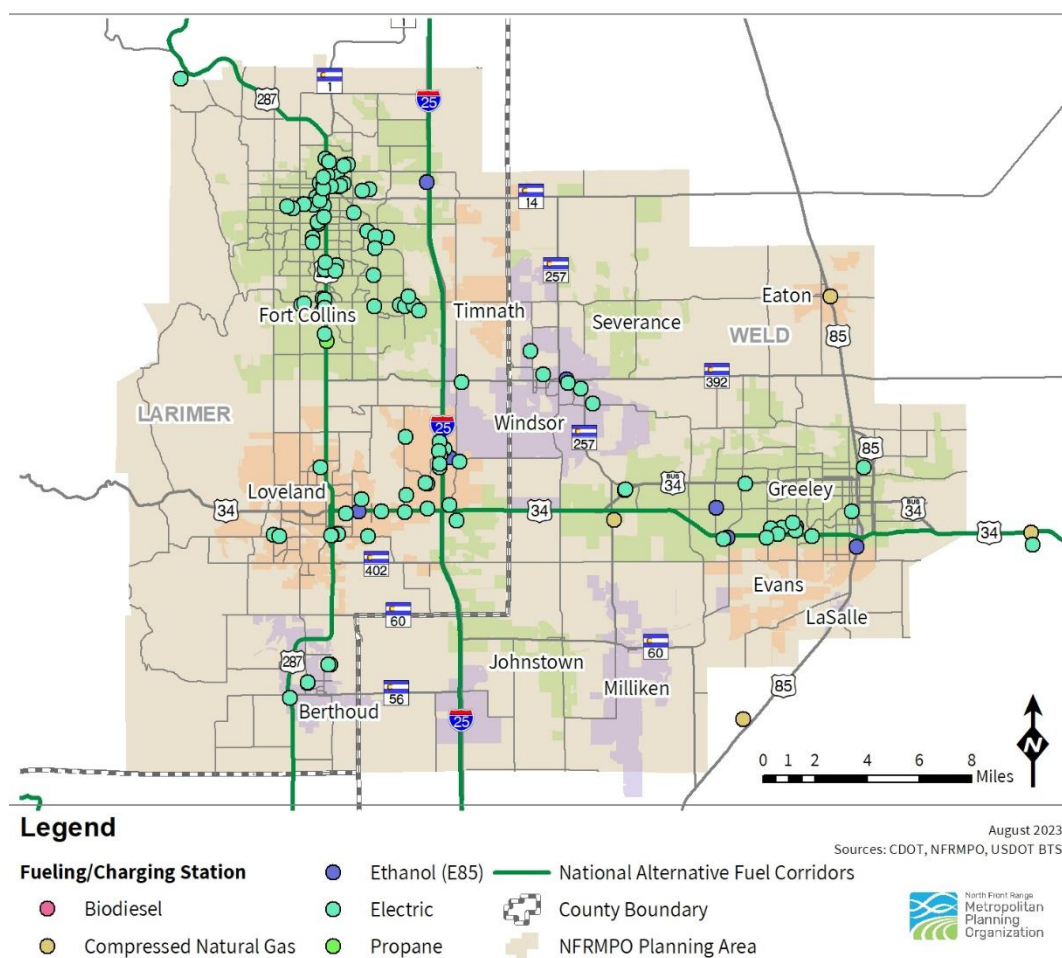


Table 2-4: Alternative Fueling Station Locations

Station/Fuel Type	Number	Description	Vehicle Availability
Biodiesel	1	<ul style="list-style-type: none"> • A renewable, biodegradable fuel manufactured from vegetable oils, animal fats, or recycled restaurant grease • Fuels compression-ignition engines 	<ul style="list-style-type: none"> • Light, Medium and Heavy-Duty vehicles
Compressed Natural Gas (CNG)	1	<ul style="list-style-type: none"> • Natural gas compressed to less than 1% of its volume at standard atmospheric pressure • Used in light-, medium-, and heavy-duty applications 	<ul style="list-style-type: none"> • Medium & Heavy-Duty vehicles
Ethanol (E85)	7	<ul style="list-style-type: none"> • Blend containing 51%-83% ethanol depending on season and geography for use in Flexible Fuel vehicle 	<ul style="list-style-type: none"> • Light, Medium, and Heavy-Duty vehicles
Electric (EV)	118	<ul style="list-style-type: none"> • Plug-in electric vehicles (PEV) - onboard rechargeable batteries store energy to power electric motors, can be powered by the battery or an internal combustion engine. Also plug-in hybrid electric (PHEV) and battery electric (BEV) vehicles. • All-Electric Vehicles (AEVs) are powered solely by the battery 	<ul style="list-style-type: none"> • Light-Duty • Developing Medium and Heavy-Duty vehicles
Hydrogen	0	<ul style="list-style-type: none"> • Used in a fuel cell to power an electric motor 	<ul style="list-style-type: none"> • Developing Light, Medium, and Heavy-Duty vehicles
Liquified Natural Gas (LNG)	0	<ul style="list-style-type: none"> • Purified natural gas supercooled to -260°F to turn into a liquid 	<ul style="list-style-type: none"> • Medium & Heavy-Duty vehicles
Propane (LPG)	1	<ul style="list-style-type: none"> • Used in spark-ignited internal combustion engines 	<ul style="list-style-type: none"> • Medium & Heavy-Duty vehicles
<i>Source:</i> Number of stations, descriptions, and vehicle availability adapted from USDOT and the Alternative Fuel Toolkit .			

The Colorado Energy Office (CEO) established [EV Fast-Charging Corridors](#), which include portions of I-25 and US85. In October 2022, 34 locations were designated for construction, including one location at the Centerplace development in Greeley and a gas station in Wellington. Additional sites are expected to be added over time.

IIJA and SB260 established or expanded funding sources to expand access to alternative fuel vehicles and charging or fueling stations.

Complete Streets

IJJA requires MPOs to dedicate funds to the furtherance of Complete Streets within their regions. A complete street assures that the entire roadway is designed for all users, including drivers, bicyclists, public transportation riders, and pedestrians. Complete Streets have a range of benefits for the environment and roadway users, including:

- Providing safe and consistent travel for all roadway users,
- Creating a pedestrian-friendly environment,
- Enhancing the flow of motorized traffic and active transportation,
- Providing better parking options and facilities or reducing the need for parking,
- Maintaining greater mobility through access management,
- Managing or reduce stormwater runoff,
- Protecting natural resources, and
- Facilitate comprehensive transit access for everyone.

Many NFRMPO communities either have already adopted Complete Streets Policies or include Complete Streets ideals. Examples of how Complete Streets policies can be implemented or addressed include:

- **Access Control Plans** – Communities across the region have worked together to complete Access Control Plans, which can address potential safety hazards, conflict points, and improved connectivity.
- **Road Safety Audits** – Fort Collins has scheduled Vision Zero Audits at select sites to bring community partners together after a crash to address causes of crashes and to also discuss similar intersections and interventions.
- **Bicycle and Pedestrian Safety Audits** – The NoCo Bike & Ped Collaborative and the Northern Colorado Mobility Committee have hosted walking and biking audits across the region. These events allow community members and partners to come together to discuss improvements for all users of the road.
- **Bicycle & Pedestrian Safety Reporter Tool** – Crowdsourced data can be used to identify places where users do not feel safe due to infrastructural issues. Data from the tool is shared with the communities to address issues like sidewalk gaps, faded paint, or speeding.

Safe Routes to School

The Safe Routes to School (SRTS) program “is an approach that promotes walking and bicycling to school through infrastructure improvements, enforcement, tools, safety education, and incentives to encourage walking and bicycling to school”⁸. IIJA codified Safe Routes to School programming into federal law, also increasing the eligibility to include high schools in addition to K-8 schools.⁹ SRTS funds are eligible under Transportation Alternatives (TA) funds. CDOT holds a competitive biennial Call for Projects for Safe Routes to School projects. SB21-260 provided additional state funds for MMOF, which can be used for Safe Routes to School projects.

Fort Collins has operated a successful Safe Routes to School program for many years. Other communities in the area have used Safe Routes to School funding to improve access for walking and cycling to schools around the region. Fort Collins is the only community in the NFRMPO region with a formal Safe Routes to School program. The NFRMPO is leading conversations to support regional initiatives for Safe Routes to School, including both addressing infrastructure needs and developing programming for students to feel comfortable and safe walking and cycling.

Connected and Autonomous Vehicles

CDOT received a Strengthening Mobility and Revolutionizing Transportation (SMART) grant in 2023 to support the development of Autonomous Truck Mounted Attenuators (ATMAs) in partnership with the Minnesota Department of Transportation, Oklahoma DOT, and Wisconsin DOT. The group of DOTs will build internal buy-in and partnerships at a national level, demonstrate and evaluate the technology under a diverse set of operational design domains (ODDs) and environments, and carry out the needed planning to identify and address current barriers that have prevented transportation agencies from deploying this innovative technology at scale. Although this project will not focus on the NFRMPO region in its initial deployment, there are important lessons to be learned that could be applied to Northern Colorado.

CDOT is also in the planning stages for expanding Connected and Autonomous Vehicles (CAV) in Colorado. A Roadmap developed for 2017 to 2024 shows a phased approach to piloting and expanding Connected Vehicles on I-70, testing and validating lessons learned, and applying for grants and supportive funding. CDOT plans to develop an Autonomous Vehicle Strategy in 2024, which will provide direction to CDOT’s role and statewide initiatives. A key performance measure for the 2050 RTP is the rollout of fiber, which can support CAV implementation. The fiber network can connect vehicles with real-time connection to roadways without relying on slow cellular coverage.

The City of Greeley received a SMART grant from USDOT for the Connected Greeley - Emergency Vehicle Preemption Pilot for \$1,382,150. This grant will provide Emergency Vehicle Preemption (EVP), snowplow priority, and a Vulnerable Road User (VRU) detection and warning system at intersections in Greeley.

⁸ <https://www.transportation.gov/mission/health/Safe-Routes-to-School-Programs>

⁹ <https://saferoutespartnership.org/blog/safe-routes-school-law-no-dedicated-money-what-does-it-mean>

Public Health

Public health frameworks acknowledge that a person's health is determined by the conditions in which people live, work, and play and that impacts a person's ability to thrive; these are called the "social determinants of health". The social determinants of health are grouped into five categories: Economic Stability, Education Access and Quality, Health Care Access and Quality, Social and Community Context, and Neighborhood and Built Environment. As a result, public health professionals are increasingly becoming partners in conversations on related topics like transportation and land use planning.

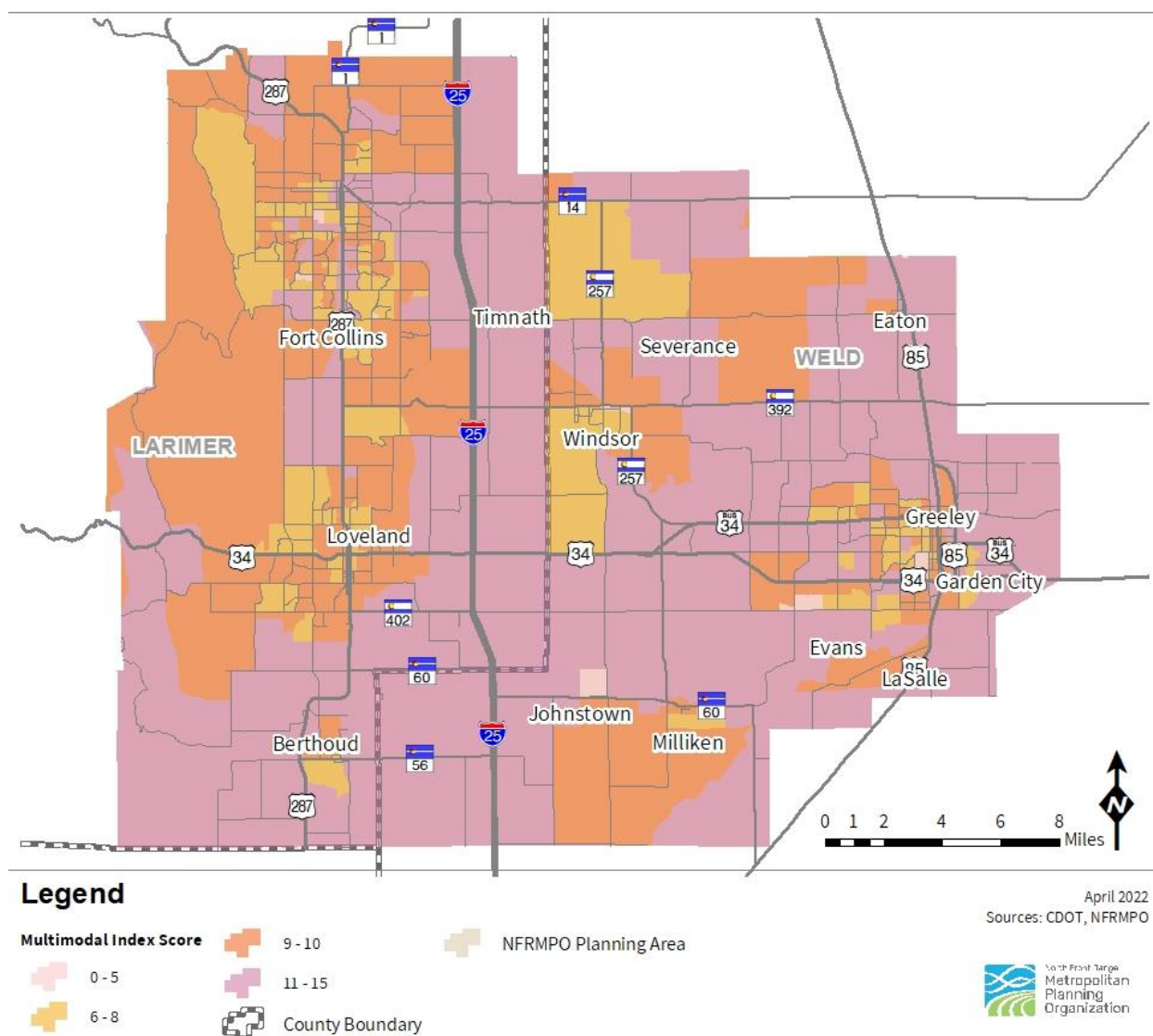
Increasing amounts of research have shown the link between transportation and public health, which are actions that promote and protect the health of people and the communities where they live, learn, work and play.¹⁰ Transportation for America produced a report called [Building Health and Prosperous Communities: How Metro Areas Are Implementing More and Better Bicycling and Walking Projects](#) in partnership with the American Public Health Association. This guidebook highlights seven key strategies to address the relationship between public health and transportation:

- Design guidance for bicycling and walking projects
- Complete Streets policies & programs
- Data collection – walking & bicycle counts
- Performance measures
- Dedicated funding for bicycling and walking projects
- Improving walking and bicycling connections to public transportation and essential destinations
- Grassroots community engagement
- Understanding the public health impacts of transportation behaviors

The Center for Disease Control priority for [Active People, Healthy Nation](#) encourages physical health promotion by using active transportation to every day destinations. This work, supported locally by the Colorado Department of Public Health and Environment, uses public health [strategies](#) to encourage community designs and access to places for physical activity to be considered within transportation and land use planning initiatives.

¹⁰ <https://www.apha.org/what-is-public-health>

Figure 2-2: 2019 Multimodal Index



The NFRMPO has incorporated public health aspects into its planning process by working with the Larimer County Department of Health and Environment's Built Environment Team to regionalize the Multimodal Index (MMI). The MMI is made up of three categories and associated indicators. Scores are assigned based on how the tract compares to the region, with a lower score meaning a better MMI and a higher score meaning a worse MMI.

- **Health Equity**
 - Households with children
 - Households with older adults
 - Households with a person who has a disability
 - Households under Area Median Income
 - Households with residents who did not receive a high school diploma
- **Crashes**

- Fatal, serious injury, and/or involving a vulnerable user
- **Proximity to Active Transportation**
 - Transit stops
 - Transit routes
 - Bicycle lanes
 - Sidewalks and trails
 - High risk arterials

Programs like RideNoCo can also address issues with access to medical care, an important overlap between health and transportation. People who need to attend medical appointments, as well as groceries and social events, can call to discuss what mobility options are available.



Cycling Without Age with Passengers

Image credit: NoCo Bike & Ped Collaborative

Housing

IIJA more explicitly allowed MPOs to consider the link between land use and transportation by acknowledging housing needs. Housing costs are a major concern in Northern Colorado as rental and homebuying becomes more expensive. More expensive housing means people are living farther from their destinations, and many of these locations may be too far to walk, bike, or ride transit. This infrastructure may not exist in new developments. In addition to IIJA, the Colorado Legislature has introduced legislation to address land use, including a section requiring MPOs to consider land use in its long-range plans. Although this legislation did not pass, it is anticipated these requirements will be reintroduced in the future.

Although the NFRMPO does not have land use authority, development of a Land Use Allocation Model (LUAM) is a major component of the RTP. The LUAM considers new and anticipated developments, growth trends provided by the Department of Local Affairs, and input from local communities to

consider where housing and jobs will go. The socioeconomic data from the LUAM is used as an input in the Regional Travel Demand Model.

Using these two models, the NFRMPO can consider scenarios related to how land use impacts transportation. An example is the High-Density Scenario, which raised the maximum Dwelling Units per Acre (DUA) in incorporated communities in the NFRMPO region. Higher DUA meant the LUAM considered more redevelopment and infill, rather than development in currently undeveloped parts of the region. Denser development means that more trips can be taken by walking, biking, or riding transit, which lowers demand on the roadways.

The link between housing and transportation is expected to evolve in coming years, especially as IIJA includes direction to evaluate housing and transportation more explicitly, Colorado considers legislation like the Land Use Bill (SB23-213) and local communities like Fort Collins reevaluate their Land Use Code. NFRMPO staff will continue to evaluate land use impacts on the transportation network and develop more lines of discussion with land use and city planners.

Emerging Mobility

Micromobility

FHWA defines micromobility as “any small, low-speed, human or electric-powered transportation device, including bicycles, scooters, electric-assist bicycles (e-bikes), electric scooters (e-scooters), and other small, lightweight, wheeled conveyances.”¹¹

Currently, Fort Collins is the only community to have a shared micromobility program in Northern Colorado, although other communities are in the process of procuring systems of their own. Greeley is currently working through necessary code changes to facilitate micromobility within the City. The City of Fort Collins and CSU contract with Spin to operate dockless e-bicycles and e-scooters. Fort Collins has also received grants from CDOT and the Colorado Energy Office (CEO) to pilot equitable approaches to micromobility, including providing free Spin passes for low-income residents and staff. Spin also provides cash cards for unbanked individuals to access the system, reduced fares for low-income individuals, and an adaptive vehicle delivery program for anyone who is unable to ride an e-bike or e-scooter.

Groups like NoCo Bicycle and Pedestrian Collaborative have considered micromobility on a regional level. In addition, Greeley is evolving GET to Mobility Services, which will house transit and micromobility. Greeley is currently planning to roll out these services in 2024 and 2025, in line with its [Greeley on the Go Plan](#) and a Mobility Development Plan to be developed.

Microtransit

The American Public Transit Association (APTA) defines microtransit as “operating small-scale, on-demand public transit services that can offer fixed routes and schedules, as well as flexible routes and

¹¹ https://rosap.ntl.bts.gov/view/dot/54137/dot_54137_DS1.pdf?

on-demand scheduling.”¹² As of 2023, no microtransit is available in Northern Colorado but multiple communities are considering implementing microtransit programs.

- Transfort’s Transit Master Plan highlights innovation areas in lower density, peripheral neighborhoods that may not support full-sized bus services. These areas are based around mobility hubs and can provide transfers to micromobility and fixed-route services.
- Berthoud is evaluating adapting Berthoud Area Transportation System (BATS) into a microtransit service compared to the on-demand service operated today. The new service would continue to serve older adults and individuals with disabilities, but also provide service to the general public as well.
- According to Greeley on the GO, GET will develop a Transit Development Plan (TDP) in 2023 and 2024 to evaluate the possibility of microtransit in the area.

Mobility Hubs

Mobility hubs are an evolution of transit centers, park-n-rides, and other locations where people can transfer between one mode of transportation and another. Mobility hubs can be small, like a bus stop co-located with bicycle racks to a bus stop on a highway with access to a park-n-ride, micromobility hubs, and trail access. Mobility hubs are being considered and constructed around the NFRMPO region.

- CDOT is building two mobility hubs as part of the *North I-25 Express Lanes* project, one north of US34 and one at SH56. Each of these mobility hubs will provide bus-only lanes to a stop in the center of the highway, with under-highway access to a park-n-ride. It is expected local transit service will operate to these mobility hubs in the future. The under-highway access to the bus stops also provides a safe, separated bicycle and pedestrian crossings of the Interstate. These mobility hubs are expected to open in early 2024.
- Greeley has applied for and received funding to build a mobility hub at CenterPlace as part of its MERGE project. The mobility hub will provide a center-loading bus stop in the center of US34, with a co-located local transit center, park-n-ride, and safe crossing of the highway. The Mobility Hub is expected to open in 2027. Greeley on the Go also identifies smaller mobility hubs that should be built around the City.
- The Transfort Transit Master Plan recommends smaller mobility hubs across the city, providing safe and easy transfers between the local transit network, the micromobility system, and the regional transit network. These mobility hubs will be implemented gradually by 2040 as need and resources evolve.

¹² <https://www.apta.com/research-technical-resources/mobility-innovation-hub/microtransit/>



NFRMPO Staff on a tour of the US34/Kendall Parkway Mobility Hub

Image credit: NFRMPO Staff

COVID Impacts

The base year for the 2050 RTP is 2019, prior to the COVID-19 pandemic. The emergence of the COVID-19 disease and the associated pandemic response had a major impact on how people move around the region. Key trends that have been incorporated into the 2050 RTP or are being acknowledged in other NFRMPO planning efforts include:

Air Quality

As mentioned earlier in the 2050 RTP, the NFRMPO region is part of the Denver Metro-North Front Range 8-Hour Ozone Nonattainment Area. As such, the NFRMPO tracks air quality data and the impacts of regional transportation projects.

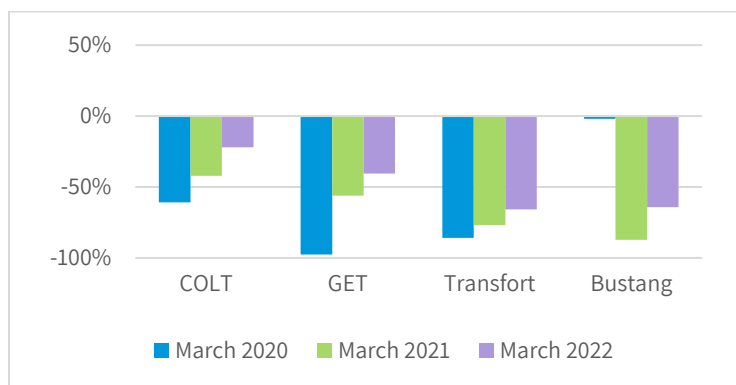
- Ozone levels exceeded health-based federal standards on 33 days in 2022 in the nine-county Denver Metro/North Front Range (DM/NFR) ozone nonattainment area, an improvement over 2021 when 66 days exceeded the standards. The lower ozone levels are due in part to less wildfire smoke in 2022. All three ozone monitors in the NFRMPO are exceeding the 2015 ozone NAAQS of 70 ppb based on the 3-year average of the fourth highest 8-hour ozone value for 2020 through 2022, with Fort Collins-West at 77 ppb, Greeley-Weld Tower at 72 ppb, and Fort Collins-Mason at 71 ppb.
- In 2022, EPA officially expanded the boundary of the 2015 boundary to include the entirety of Weld County. The 2008 boundary remains with the portion of Weld County. The NFRMPO has updated its Regional Travel Demand Model (RTDM) to include the new area.
- The Regional Air Quality Council (RAQC) is developing the State Implementation Plans (SIPs) for both the 2008 and 2015 standards. The region has been downgraded, requiring additional control strategies to reduce air pollution. The NFRMPO and its member communities will continue to remain involved in improving emissions reductions from the transportation sector.

Transit Ridership

Transit ridership decreased sharply in March 2020 with infections on the rise and public health orders to “stay at home,” which was an initial response to the pandemic to mitigate the spread of COVID-19 in Northern Colorado. All three transit agencies reduced service at that time, adding service back as demand increased. Service returns have been inconsistent in certain cases because of a nationwide bus driver shortage, further complicating transit recovery.

Figure 2- shows the comparison of the ridership for the three largest transit agencies and Bustang to March 2019. COLT and GET have seen recovery in ridership that has been slower than for Transfort and Bustang. Slow ridership returns on Transfort may be a result of slower return to Colorado State University, a large contributor to ridership.

Figure 2-3: Impacts on Transit Ridership from COVID-19 and Pandemic Response Efforts, 2019-2022



Sources: COLT, GET, Transfort, CDOT, 2023

Telework

COVID-19 and the pandemic response has brought teleworking to the forefront of office jobs around the country. Data is still being collected about the longevity of work-from-home and its longer impacts, but many offices have moved to a hybrid workplace. Across Larimer and Weld counties, the share of work-from-home increased from 9.1 percent in 2019 to 20.3 percent in 2021, **Table 2-**. Driving alone decreased by 10 percentage points and transit decreased by 0.7 percentage points. Carpooling, walking, and other means stayed relatively consistent.

Table 2-5: Commute to Work Data, 2019 to 2021

Larimer and Weld County	2019		2021	
	Amount	Share	Amount	Share
Workers 16 years and over	352,813	100%	360,329	100%
Car, truck, or van -- drove alone	271,886	77.1%	241,874	67.1%
Car, truck, or van -- carpooled	26,660	7.6%	27,318	7.6%
Public transportation (excluding taxicab)	3,793	1.1%	1,367	0.4%
Walked	8,135	2.3%	8,646	2.4%
Other means	10,157	2.9%	8,024	2.2%
Worked at home	32,182	9.1%	73,100	20.3%
<i>Source: American Community Survey, 1-Year Estimates (2019 and 2021)</i>				

Transportation Demand Management

Transportation Demand Management (TDM) is the use of strategies to inform and encourage travelers to maximize the efficiency of a transportation system, leading to improved mobility, reduced congestion, and lower vehicle emissions, including strategies that use planning, programs, policies, marketing, communications, incentives, pricing, data, and technology. The NFRMPO adopted a [TDM Action Plan](#) in December 2022, laying out strategies to reduce single-occupancy vehicles (SOV) in Northern Colorado. TDM has become more prominent in response to efforts at the State-level, including the Greenhouse Gas (GHG) Planning Standard and Employee Traffic Reduction Programs (ETRP). Although ETRP has not been implemented, the State has shown interest in addressing a reduction in SOV trips and getting more residents and visitors to ride transit, bicycle, work from home, carpool, or vanpool instead.

CDOT

CDOT has been evolving its support for active transportation, transit, and teleworking, including incorporating TDM into what otherwise would be solely capacity-expanding projects.

- [2019 Statewide Transportation Demand Management Plan](#) – a study to identify what TDM efforts are underway in Colorado and their impacts; to identify opportunities for productive future investment of limited available CDOT transportation funds; and to examine where and how CDOT can use TDM to address near-term mobility needs.
- [Policy Directive \(PD\) 1601](#) - establishes fair and consistent procedures regarding the review and evaluation of requests for new interchanges and major improvements to existing interchanges on the state highway system. In 2021, the Transportation Commission (TC) approved a new TDM requirement for new interchanges on the state highway system, proposals for new interchanges not on the Interstate or Freeway system, and modifications to existing interchanges. TDM strategies should result in a three percent or greater average daily traffic (ADT) reduction in urban areas.
- [OIM Grant Program](#) – two programs, called the TDM Seed Funding Grant program and the TDM Innovation Grant program, to provide grants to fund innovative mobility throughout Colorado.

Transportation Management Organization

The TDM Action Plan recommended setting up and supporting Transportation Management Organizations (TMOs) in Northern Colorado. Whereas TDM are the strategies themselves, TMOs are the implementers of these strategies, specifically through outreach, marketing, and initiating new strategies. Currently, TMOs within the State are concentrated in the Denver/I-70 corridors with support from the Denver Regional Council of Governments (DRCOG) and CDOT.

NFRMPO's Planning Council has set aside Multimodal Transportation and Mitigation Options Funds (MMOF) to initiate the first TMO in Northern Colorado, matched with a CDOT Office of Innovative Mobility (OIM) grant. Together, these grants will support a new, standalone organization to work with businesses, community groups, and other major stakeholders along the US34 corridor between Estes Park and Kersey. The NFRMPO will administer the funds, allowing the TMO to focus on programming and community support. Because this is the first TMO in Northern Colorado, it is expected the organization will evolve based on identified needs.

In addition, the Planning Council has set aside \$100,000 of Carbon Reduction Program (CRP) funds annually starting in FY2024 to support new and existing TMOs. As with the MMOF and OIM grants, these funds will need to show a vehicle trip reduction and extensive outreach to ensure the NFRMPO meets requirements set out in the GHG Planning Standard and in line with the requirements of the funding programs.

Local Efforts

Local communities and organizations are implementing TDM into their plans and programs.

- Fort Collins and Colorado State University (CSU) undertook TDM Plans in 2023. These plans will support and expand existing TDM efforts in these jurisdictions, including adding staff and program capacity, investing in new and existing programs, and working to shift trips toward active transportation, transit, and working from home.
- Greeley is evolving Greeley Evans Transit into Mobility Services, encompassing curb management, transit, micromobility, and other initiatives. The actual programming will tie into the Mobility Development Plan the agency will undertake in 2023 and 2024.

Statewide Initiatives

HB19-1261 set statewide goals for GHG reductions compared to 2005 levels, including a planned reduction of 90 percent by 2050. To meet these goals, the State adopted and drafted the GHG Pollution Reduction Roadmap, which identified strategies and GHG reduction targets in each sector. By 2050, the GHG Pollution Reduction Roadmap recommended the transportation sector reduce 99 percent of its GHG emissions. SB23-016 strengthened the State's goals, introducing a 90 percent reduction target by 2045 and increasing the 2050 target to 100 percent.

The GHG Planning Standard requires CDOT and the state's five metropolitan planning organizations (MPOs) to create transportation plans that reduce GHG emissions by programming additional

transportation options¹³. Each region must meet specific emissions reductions using GHG strategies. Agencies can implement one or more mitigation measures if it cannot meet the greenhouse gas reduction levels. Examples include more public transit, more walking and bicycle trails, more medium- and heavy-duty electric vehicle charging stations, cleaner construction policies, carpool programs and smarter land use policies. Failure to meet GHG reductions can mean the Colorado Transportation Commission can designate that specific funding streams for an agency be spent on mitigation efforts.

Other initiatives were rescinded or not approved due to feedback or lack of support. Although these efforts did not move forward, it is expected similar efforts will be evaluated in the future. The 2021 Employee Traffic Reduction Program (ETRP) Rulemaking would have required large employers to develop and implement a plan to reduce the number of SOV trips by employees to and from the work site (Air Quality Control Commission). HB22-1138, which would have required ETRP efforts by large employers and provided funding for Transportation Management Organizations (TMOs) to assist with implementation.

The State has introduced new funding sources to help meet the GHG reduction targets. To understand how these directly impact the NFRMPO, refer to **Chapter 4**.

SB20-204

- **Air Quality Enterprise**: conduct air quality modeling, monitoring, data assessment, and research; implement emission mitigation projects; and provide its data to the Division of Administration and Air Quality Control Commission (AQCC) to facilitate the administration of the state's air quality laws, including by facilitating the timely issuance and effective enforcement of appropriate emission permits.

SB21-260

- **Community Access Enterprise**: supporting the widespread and equitable adoption of electric motor vehicles and electric alternatives to motor vehicles in an equitable manner.
- **Clean Fleet Enterprise**: incentivizing and supporting the use of electric motor vehicles and other clean fleet technologies by owners and operators of motor vehicle fleets.
- **Nonattainment Area Air Pollution Mitigation Enterprise**: mitigating transportation-related emissions in ozone nonattainment areas
- **Multimodal Transportation and Mitigation Options Funds (MMOF)**: classify greenhouse gas mitigation projects as multimodal projects.
- **Clean Transit Enterprise**: supporting clean public transit through electrification planning efforts, facility upgrades, fleet motor vehicle replacement, and construction and development of associated electric motor vehicle charging and fueling infrastructure.

SB22-180

¹³ <https://www.codot.gov/programs/environmental/greenhousegas/assets/ghg-standard-fact-sheet.pdf>

- **Ozone Season Transit Grant Program**: grants for transit agencies to provide at least 30 days of new or expended fare-free transit service during ozone season.
- **Statewide Transit Pilot**: funding for a three-year pilot for CDOT's Division of Transit and Rail (DTR) to extend Bustang services throughout the State.
- **Revitalizing Main Streets**: encourage active transportation and healthy lifestyles through improvements to the vitality of downtowns, mixed-use centers, and community gathering spaces.

SB22-193

- **Clean Air Program Grant**: awards grant money to private entities, local governments, tribal governments, and public-private partnerships for voluntary projects to reduce air pollutants from industrial and manufacturing operations. Projects include energy efficiency projects; transportation electrification projects; projects producing or utilizing clean hydrogen; projects involving carbon capture at industrial facilities and direct air capture projects; methane capture projects; and projects producing or utilizing sustainable aviation fuel.
- **Community Access to Electric Bicycles Grant Program**: awards grant money to local governments, tribal governments, and nonprofit organizations that administer or plan to administer a bike share program or an ownership program for the provision of electric bicycles in a community.
- **Community Access to Electric Bicycles Rebate Program**: rebates for purchases of electric bicycles and equipment used for commuting purposes to individuals in low- and moderate-income households, businesses, or nonprofit organizations or bicycle shops that sell electric bicycles to program participants at discounted prices.
- **Electrifying School Buses Grant Program**: awards grant money to school districts, including schools operated by tribal governments, and charter schools, or nonprofit partners acting on behalf of a school district or charter school, to help finance the procurement and maintenance of electric-powered school buses, the conversion of fossil-fuel-powered school buses to electric-powered school buses, charging infrastructure, and upgrades for electric charging infrastructure and the retirement of fossil-fuel-powered school buses.

HB22-1026

- **Alternative Transportation Options Tax Credit**: restructured an existing tax deduction into a tax credit for employers providing alternative transportation options.

Mobility

RideNoCo is the NFRMPO's Mobility Program, focused on assisting older adults, individuals with disabilities, individuals with lower-income, and people that may not speak English as a first language, as well as the broader community help identify their mobility options and choose the option that best fits their needs. Starting in 2020, the program has expanded from a mobility coordination program into a mobility management program by offering additional programs explained later in this section. RideNoCo staff continue to coordinate with local communities, transit agencies, human service transportation providers, and stakeholders around Northern Colorado to collect data, address gaps, and better coordinate transportation options for vulnerable populations. The program is funded using Federal Transit Administration (FTA) funds and state MMOF grants.



RideNoCo Staff at an Outreach Event

Image credit: NFRMPO Staff

Since 2007, the NFRMPO has convened two Mobility Committees, one in Larimer County and the other in Weld County. These Mobility Committees have met to discuss and address mobility gaps by implementing the various Coordinated Public Transit/Human Services Transportation Plan (Coordinated Plan). Since 2021, the Mobility Committees have held joint committee meetings, which have been

named the Northern Colorado Mobility Committee beginning in 2023.

RideNoCo has expanded in three phases with the support and guidance of the Mobility Committees. These three phases included:

- **Website and Call Center (2021)** – created a central information hub to identify transportation options across region and beyond.
- **Trip Discovery (2022)** – Launched a trip planning tool that allows individuals to find providers and plan trips across public transit, volunteer/human service providers, and walking/biking utilizing GTFS-Flex technology.
- **Trip Dispatching (2023)** – With a long-term vision to find, plan, and book a ride in one place across multiple providers and provide flexibility for transportation providers to schedule riders across different agencies, RideNoCo is currently working with volunteer transportation providers and their scheduling platforms to make their systems Transactional Data Specifications (TDS) compliant. Once complete, RideNoCo and participating agencies will be able to seamlessly share client and trip information among and between each other, reducing friction for prospective riders and enhancing the capacity for coordination among agencies.

In addition, RideNoCo has provided technical assistance and built partnerships to address local mobility gaps. The following two examples showcase rural mobility needs where fixed-route transit may not be sufficient.

- **Red Feather Lakes** – Formed in response to the Cameron Peak wildfire, the North 40 Mountain

Alliance (N40MA) quickly turned to responding to other unmet needs in rural northwestern Larimer County, including transportation. RideNoCo continues to work closely with N40MA to acquire operations funding to scale up the organization's nascent transportation services and the N40MA will be utilizing RideSheet as a scheduling platform as part of the Trip Scheduling phase of the RideNoCo Implementation project.

- **Rural Weld County transportation** – In 2021, RideNoCo partnered with Via Mobility Services to broker a pilot service in rural Weld County to gauge community demand utilizing Section 5311 funding received by Via as part of federal Coronavirus relief allocations. Over the course of the 6-month pilot, 74 riders registered for the service and 461 trips were provided. Due to the pilot's success, RideNoCo worked closely with Via and Weld County communities to bring the service back on an expanded 2-year basis beginning in 2023.

The RideNoCo program will continue to grow and evolve to serve the needs of the region, increasing its role as a vital nexus for mobility needs in the region.

Chapter

2

Section 3:

Safety and Resiliency



NFRMPO's Role

As required by federal legislation, the North Front Range Metropolitan Planning Organization (NFRMPO) has identified its role in regional transportation safety, security, and resiliency. As a planning agency, the NFRMPO acts in an information capacity regarding safety and security of the transportation system in the region. The NFRMPO works with local agencies to ensure information is up-to-date and to make connections or hold trainings when necessary.

A safe and secure transportation system is vital to the movement of people and goods through the region. The NFRMPO fulfills a role in coordinating and promoting transportation safety and security with federal, state, and local government transportation agencies and departments. The NFRMPO supports this objective through planning and programming federal funding for transportation infrastructure and programs. The NFRMPO adopted the following goal as part of the 2050 GOPMT: *Safety – Enhance transportation safety and reduce the number of transportation related fatalities and serious injuries.*

This section provides information on recent safety data trends along with plans and programs related to safety in the region, the state, and nationally. In addition, ongoing and future work is identified to continue to make progress towards reducing fatal and serious injury crashes across the North Front Range region.

Safety

The NFRMPO Planning Council adopted the NFRMPO Safety Vision: Moving Towards Zero Deaths in 2020 recognizing there is no acceptable number of deaths or serious injuries on the road network and outlining action steps to continue to prioritize and enhance safety planning within NFRMPO plans and programs. The action steps outlined in the *Safety Vision* are:

- Continue to prioritize safety in future Calls for Projects;
- Analyze all available crash data to make more informed decisions for safety related projects;
- Integrating the Towards Zero Deaths framework in future planning initiatives;
- Providing regionally specific crash data to compare to statewide crash data when possible; and
- Identifying crash types and characteristics which are most prevalent in the region as well as best practices to mitigate those specific crash types.

As part of the federally required Transportation Performance Management established by FHWA and FTA, the NFRMPO sets the Federally required Highway Safety targets annually. These targets are required to be data driven and not aspirational. The NFRMPO has set these targets since 2018 by supporting the statewide targets, and agreeing to plan and program projects which will contribute to the achievement of these targets. More information about the performance measures and targets are outlined in the [System Performance Report](#) later in this chapter. In future years, and as many NFRMPO member communities pursue Vision Zero through safety action plans, the NFRMPO will work to incorporate targets set out by local agencies to reduce fatal and serious injury crashes. Information about these efforts are included in the [Moving Forward](#) section of this chapter. The NFRMPO may also consider setting a specific goal and timeline to achieve Vision Zero. Future iterations of the Regional Performance Measures outlined in the GOPMT may also include a safety related target to reflect the

priorities of the NFRMPO region. Ultimately, the NFRMPO and its member communities recognize there are no acceptable number of deaths or serious injuries on the road network and will continuously work toward that goal.

Call for Projects

The NFRMPO holds periodic Calls for Projects to award state and federal funding to local agencies in the region for surface transportation projects. The Federal Highway Administration (FHWA) encourages agencies responsible for allocating federal funding to consider roadway safety whenever possible. The NFRMPO has used safety as a prioritization criterion when evaluating project applications. During the 2023 Call for Projects which will be held in late 2023, the NFRMPO will implement a two-tiered approach for safety evaluation by analyzing projects based on crash rates at the project location as well as the implementation of proven safety countermeasures or proactive safety interventions.

Safety Data Working Group

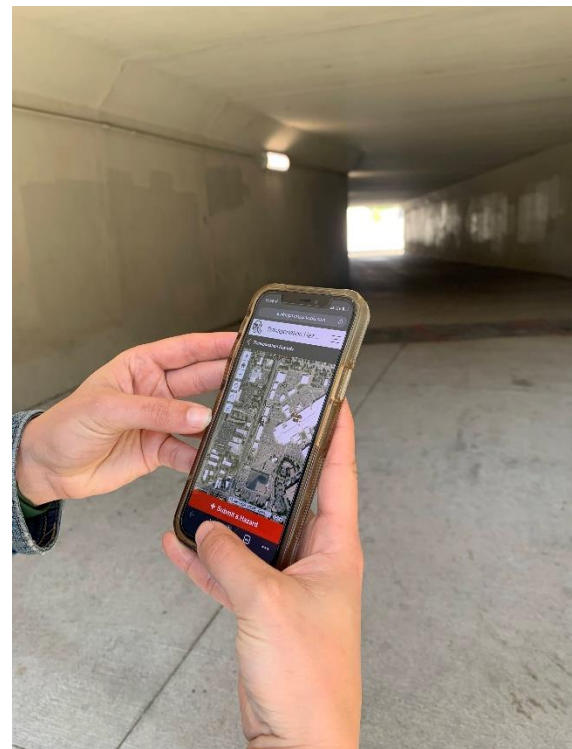
As an implementation of the NFRMPO *Safety Vision*, the NFRMPO created a working group of local agency staff including planners, engineers, geographic information system (GIS) professionals, and partner agencies such as CDOT and FHWA staff. The group convenes periodically to analyze crash data availability and analysis, coordinating efforts for sharing crash data across the region, implementations of crash data in the planning process such as the NFRMPO Calls for Projects, and development of the Bike and Ped Safety Reporter tool.

Bike & Ped Safety Reporter Tool

As part of the implementation of the 2021 Regional Active Transportation Plan, the NFRMPO developed a regional crowdsourced reporting tool to supplement crash data and identify areas in the region where individuals feel unsafe biking, walking, and rolling. Through the Bike and Ped Safety Reporter Tool, members of the public are able to pinpoint locations on an online map where specific hazards are present. Information reported in the tool is shared with the relevant local agency staff to help identify where safety interventions may be implemented. Results from the tool can also be viewed in an online Dashboard where users can track progress of submitted issue.

A variety of issues can be reported in the tool, including:

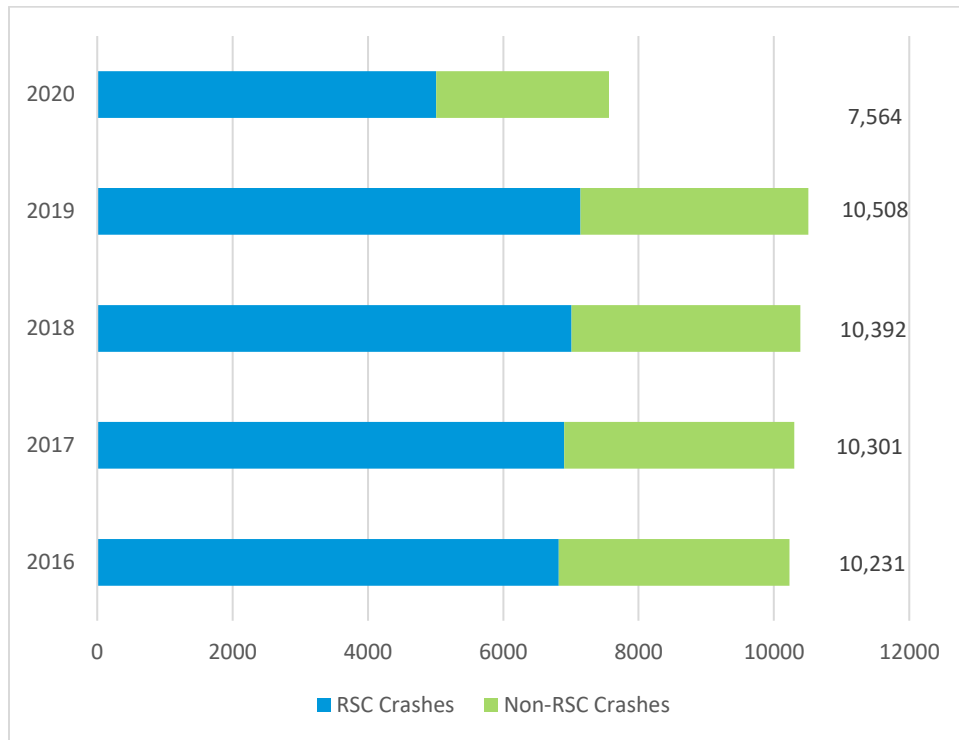
- Accessibility issues;
- Near Misses;
- Poor visibility or lighting;
- Vehicles not yielding the right of way to pedestrians;
- Sidewalk and bike lane obstructions;
- Gaps in bike facilities; or
- Not enough time to cross during a pedestrian signal.



Crash Data Trends, 2016-2020

There were 48,996 crashes within the NFRMPO region between the years 2016 and 2020. Approximately 67 percent of crashes occur on the NFRMPO Regionally Significant Corridor (RSC) network as shown in **Figure 2-**.

Figure 2-17: NFRMPO Crashes, 2016-2020








To best assess the condition of roadway safety in the region, and in accordance with the FHWA Safety Performance Management as outlined in the **System Performance Section**, the NFRMPO tracks the number of fatalities and serious injuries which occur on all public roads within the region. The CDOT defines the following crash severities:

- **Fatal:** A fatal injury is any injury that results in a death within 30 days of the crash
- **Serious Injury:** A serious injury crash results in an evident incapacitating injury and is any injury (other than a fatal injury) that prevents the injured person from walking, driving, or normally continuing the activities the person was capable of performing before the injury. Examples include severe lacerations, broken limbs, and skull, chest, or abdominal injuries.
- **Minor crash:** a crash that resulted in no fatalities or serious injuries. Commonly referred to as a property damage only (PDO) crash.

Figure 2-18 shows the total number of fatalities and serious injuries between 2012 and 2020 in the NFRMPO region. The locations of fatal and serious injury crashes from 2016 to 2020 in the North Front Range are identified in **Figure 2-19**.

The line chart illustrates the number of employees in the manufacturing sector over a nine-year period. The y-axis represents the number of employees, ranging from 0 to 300 in increments of 50. The x-axis represents the years from 2012 to 2020. The data points are as follows:

Year	Number of Employees
2012	218
2013	224
2014	257
2015	270
2016	244
2017	277
2018	257
2019	206
2020	207

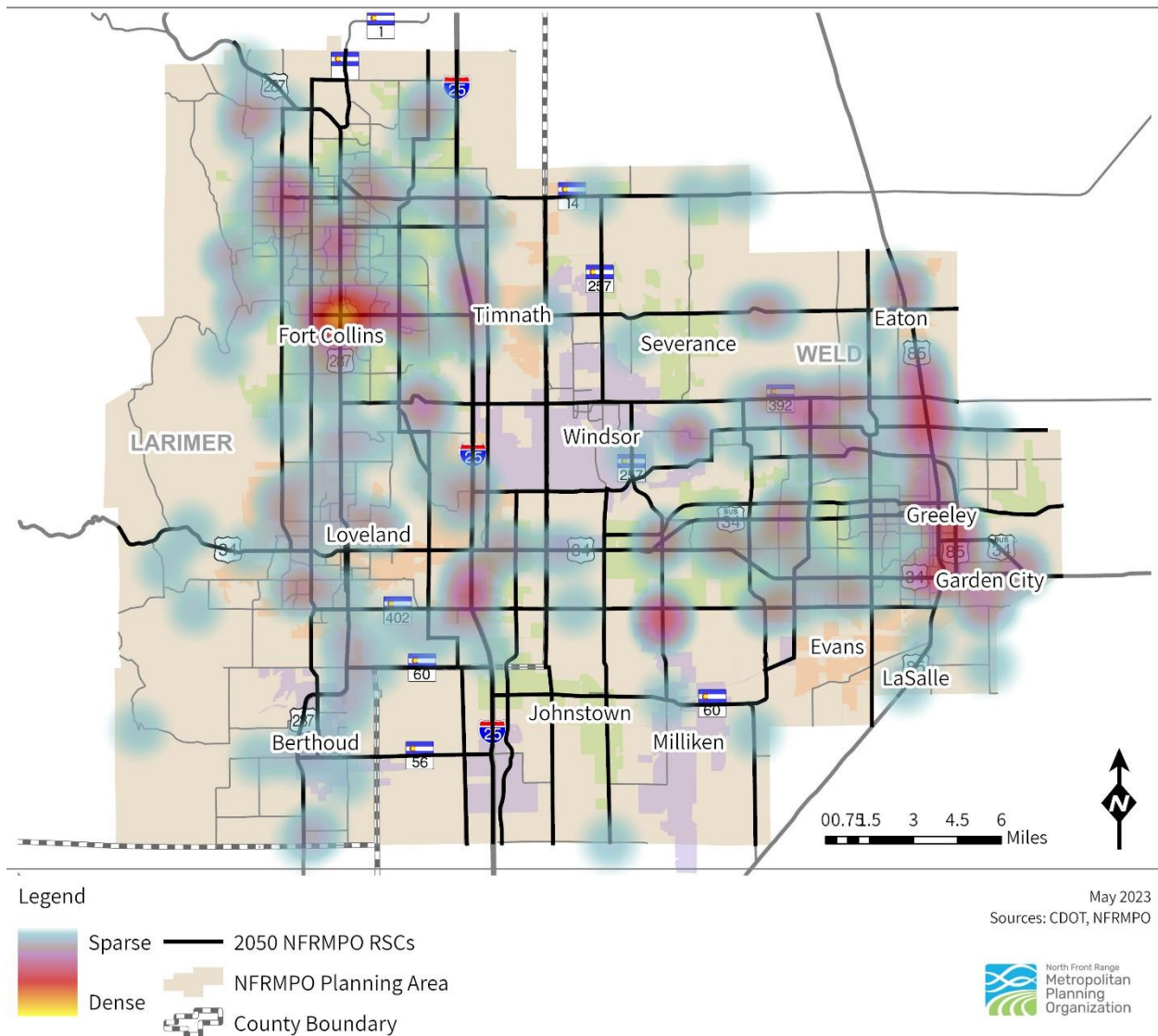
 Fatal Crash  2050 NFRMPO RSCs
 Serious Injury Crash  NFRMPO Planning Area
 County Boundary



North Front Range
Metropolitan
Planning
Organization

Between 2016 and 2020, approximately 70 percent of fatal and serious injury crashes occurred on the NFRMPO RSC network and nearly half of the fatal and serious injury crashes occurred on the highway system. **Figure 2-20** illustrates where the greatest density of fatal and serious crashes has occurred.

Figure 2-20: Heat Map of NFRMPO Fatal and Serious Injury Crashes, 2016-2020



In 2017, the region experienced a higher number of fatalities and serious injuries, including the highest number of fatalities and serious injuries of vulnerable road users (VRUs). A VRU is defined as a person involved in a crash who was not in a motor vehicle or was using a mode of transportation such as walking or biking. **Figure 2-21** shows the number of fatalities and serious injuries by road user type and **Figure 2-22** illustrates the location of VRU involved fatal and serious injury crashes between 2016 and 2020.

Figure 2-21: Fatalities and Serious Injuries by Road User Type, 2012-2020

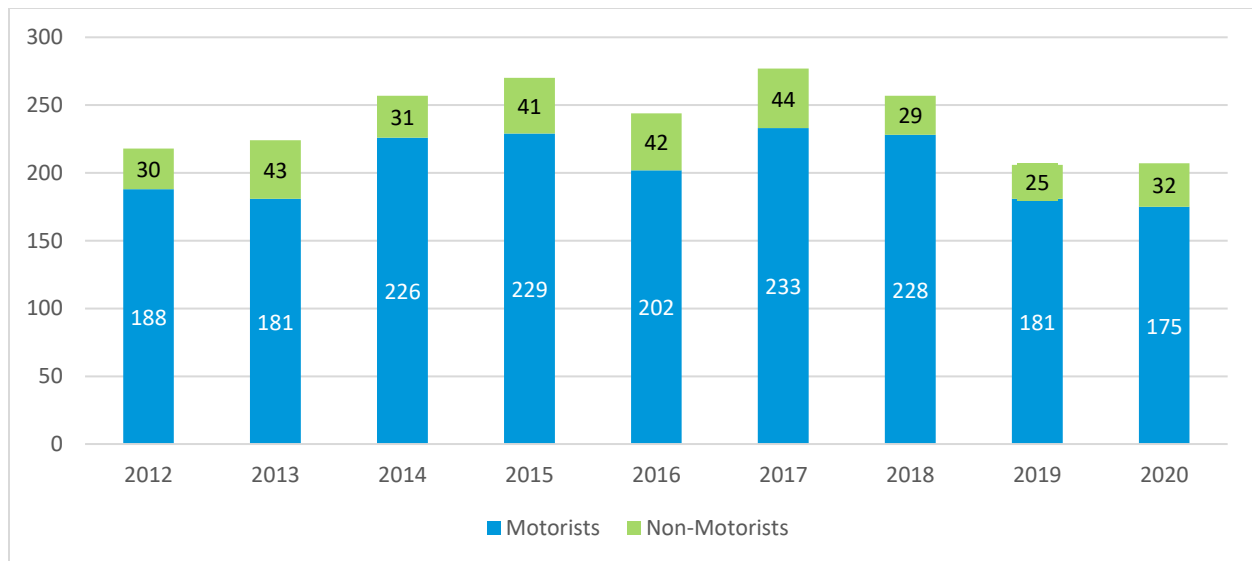
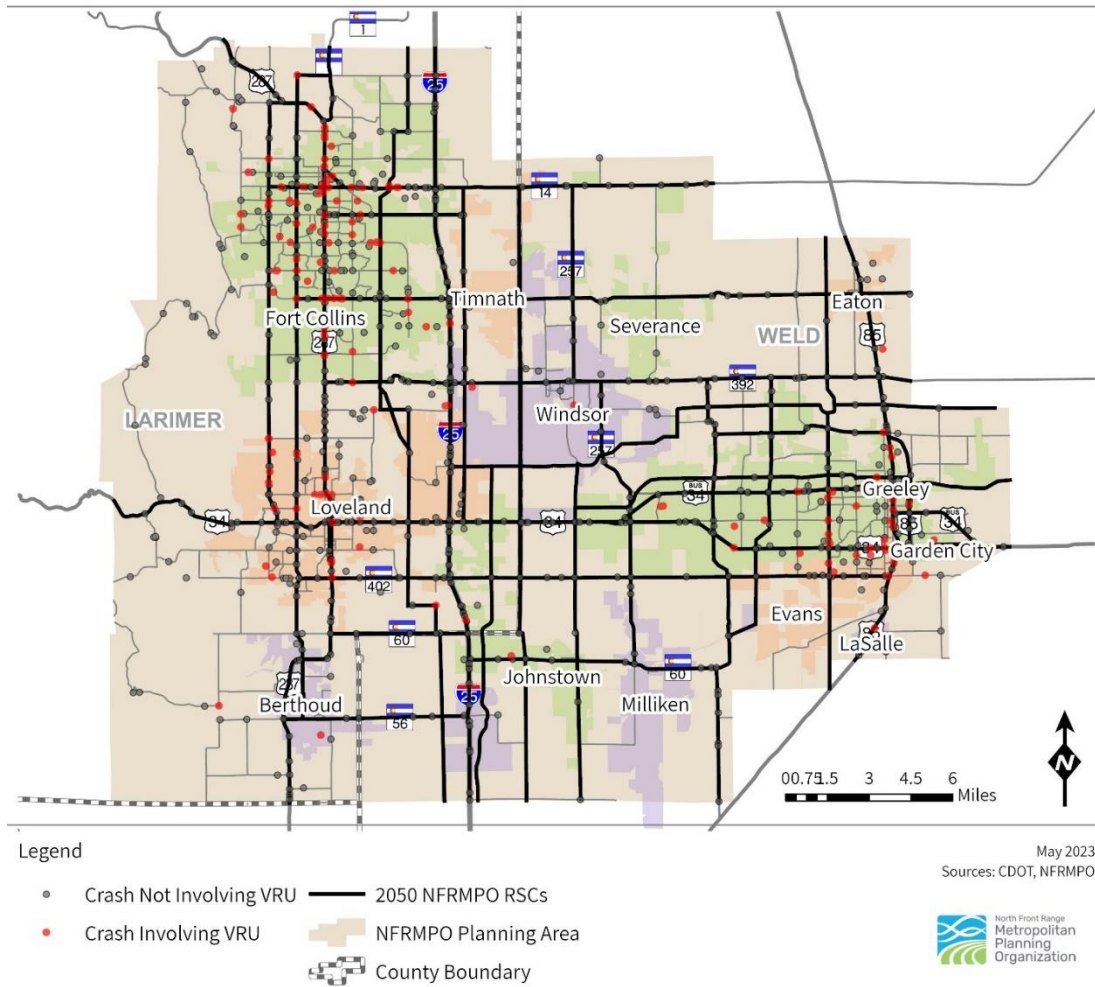


Figure 2-22: NFRMPO VRU Fatal and Serious Injury Crashes, 2016-2020



To evaluate the safety of truck travel within the NFRMPO, the percentage of overall crashes involving trucks was compared against the percentage of truck traffic on the region's top truck routes.

Table 2-6: Truck Traffic (2018) and Truck Crashes (2016-2020)

Roadway	Centerline Miles	2018			2016-2020			
		AADT	AADT	Percent Truck Traffic	Total Crashes	Truck Crashes	Percent Truck Crashes	Truck Crash % > Truck Traffic %
		(Truck)	(All Traffic)					
I-25	27.1	7,743	74,250	10.43%	3,645	386	10.59%	TRUE
US287	32.5	915	23,084	3.96%	1,134	83	7.32%	TRUE
US34	34.4	1,525	32,100	4.75%	367	36	9.81%	TRUE
US34 Business	15.5	462	12,848	3.60%	1,634	152	9.30%	TRUE
US85	16.3	1,881	19,331	9.73%	242	14	5.79%	FALSE
US85 Business	4.4	591	12,888	4.59%	634	36	5.68%	TRUE
SH14	14.2	1,413	23,108	6.12%	5230	140	2.68%	FALSE
SH56	7	410	7,425	5.52%	4955	153	3.09%	FALSE
SH60	19.8	420	9,525	4.41%	2019	54	2.67%	FALSE
SH257	18.6	549	8,503	6.46%	832	101	12.14%	TRUE
SH392	21.3	734	11,490	6.39%	579	26	4.49%	FALSE

As shown in **Table 2-6** Table 2-7, I-25, US287, US34, US34 Business, US85 Business and SH257 have greater percentages of truck crashes than overall truck traffic, with US34, US34 Business, and SH257 showing the greatest difference.

As discussed in **Chapter 1**, the region has extensive railroad trackage operated by BNSF Railway, Union Pacific Railroad (UPRR), and Great Western Railway (GWR). Across the region there are 268 at-grade railroad crossings. **Table 2-7** lists the crashes at the at-grade crossings between 2016 and 2020 as well as non-motorist incidents not at designated crossings. Over the five-year period, there were 17 rail related incidents including five fatalities and six injuries.

Table 2-7: Rail Related Incidents, 2016-2020

Crossing ID	Railroad	County	City	Street	Date	Fatalities	Injuries	Crossing Protection
804854P	UPRR	Weld	Eaton	Collins Avenue	3/20/2016	-	-	Gates, Standard Flashing Light Signal, Audible, Cross Bucks
N/A	BNSF	Larimer	Fort Collins	BNSF Near Pitkin St	6/26/2016	1	-	Not At Crossing
N/A	BNSF	Larimer	Loveland	BNSF Near Garfield Ave	11/15/2016	1	-	Not At Crossing
804852B	UPRR	Weld	Eaton	WCR 72	12/4/2016	-	1	Stop Signs, Cross Bucks
804855W	UPRR	Weld	Eaton	E 5th Street	2/22/2017	1	-	Stop Signs, Cross Bucks
245150L	BNSF	Larimer	Larimer	LCR 52	9/6/2017	-	-	Gates, Standard Flashing Light Signal
804846X	UPRR	Weld	Weld	WCR 66	10/26/2017	-	-	Gates
245120U	GWR	Weld	Greeley	WCR31 (59th Avenue)	12/10/2017	1	-	Cross Bucks, Other
804855W	UPRR	Weld	Eaton	5th Street	2/6/2018	1	-	Stop Signs, Cross Bucks
804848L	UPRR	Weld	Weld	WCR 70	4/12/2018	-	-	Stop Signs, Cross Bucks
N/A	BNSF	Larimer	Fort Collins	BNSF Between Laurel St and	6/29/2018	-	1	Not At Crossing

				Elizabeth St				
N/A	BNSF	Larimer	Fort Collins	BNSF Near Mountain Avenue	1/24/2019	-	1	Not At Crossing
245124W	GWR	Weld	Greeley	35th Avenue	1/26/2019	-	-	Cross Bucks, Other
245124W	GWR	Weld	Greeley	35th Avenue	3/1/2019	-	-	Cross Bucks, Other
N/A	BNSF	Larimer	Fort Collins	BNSF Between Laurel St and Elizabeth St	11/15/2019	-	1	Not At Crossing
245120U	GWR	Weld	Greeley	59th Avenue	1/11/2020	-	1	Cross Bucks, Other
245038A	BNSF	Larimer	Loveland	4th Street	3/6/2020	-	1	Gates, Standard Flashing Light Signal, Cross Bucks

Transit Safety

In 2017, the Federal Transit Administration (FTA) released the National Public Transportation Safety Plan required under MAP-21 and the FAST Act. The goal of the Plan is to improve the safety of all public transportation systems that receive Federal transit funds. The National Public Transportation Safety Plan identifies safety performance criteria for all modes of public transportation, defines “state of good repair” (SOGR), identifies minimum safety performance standards for public transportation vehicles and minimum safety standards to ensure the safe operation of the system, and a safety certification training program.



In May 2018, the FTA issued the Public Transportation Safety Program final rule, formally adopting the Safety Management Systems (SMS) approach to safety. As part of the final rule, the FTA can enforce compliance with Federal transit safety law. Consequences for noncompliance include mandating how funds be spent, withholding funds, and imposing restrictions on a transit agency's operations.

Each local transit agency was tasked to create their own Public Transportation Agency Safety Plan (PTASP) with corresponding performance measures and targets by July 2020. These plans are required to include methods for identifying and evaluating safety risks throughout all elements of the system; strategies to minimize the exposure of the public, personnel, and property to hazards and unsafe conditions; a process and timeline for conducting an annual review and update of the Plan; performance targets based on the safety performance criteria and SOGR, assignment of an adequately trained safety officer reporting to the general manager; and a comprehensive staff training program for the operations personnel and personnel directly responsible for safety. Performance measures and targets included in the PTASPs are outlined in **Chapter 2: System Performance Report** of the 2050 RTP.

The Colorado Association of Transit Agencies (CASTA) partners with CDOT in use of the State's apportioned Rural Transit Assistance Program (RTAP) program. These funds are used for safety and training courses at the spring and fall CASTA conferences. In addition, CASTA is piloting a Professional Transit Driver Certification (PTDC) program, which will focus on defensive driving, Passenger Assistance Security and Safety (PASS), First Aid/CPR, safety, emergency and evacuation procedures, and workplace violence among other topics.

Congestion Management Process (CMP)

Congestion, defined as the build-up of vehicles on certain portions of the transportation system resulting in travel speeds that are slower than 'free flow' speeds¹⁴, is closely related to transportation safety. Congestion is one of the major contributors to crashes within the region while, in turn, crashes are one of the major contributors to congestion. To address congestion, the region uses the systematic process identified in the Congestion Management Process (CMP). The CMP is updated with the same frequency as the RTP and was most recently updated in 2023.

One of the major functions of the CMP is to guide the project selection process for the TIP. As federally required, any project proposed for inclusion in the TIP that adds general-purpose lanes must demonstrate demand and operational management strategies are insufficient to satisfy the need for additional capacity unless the project addresses an established bottleneck or is a safety improvement. If a roadway expansion project is deemed necessary, the CMP must identify all regional demand and operational management strategies to maintain the functional integrity and safety of the project into the future.

The 2023 CMP incorporates the goals and performance measures adopted for the 2050 RTP as many of the performance measures are directly related to congestion. The objectives of the 2023 CMP build

¹⁴ Traffic Congestion and Reliability: Trends and Advanced Strategies for Congestion Mitigation. https://ops.fhwa.dot.gov/congestion_report/chapter2.htm. (Accessed 6/20/2023).

from the goals in the 2050 RTP. The objectives highlight the need to achieve multiple outcomes simultaneously with a constrained set of financial resources. The following objectives guide the 2023 CMP:

- Optimize the transportation system;
- Reduce congestion;
- Improve travel time reliability;
- Increase the availability of viable travel options;
- Enhance transportation equity; and
- Improve safety.

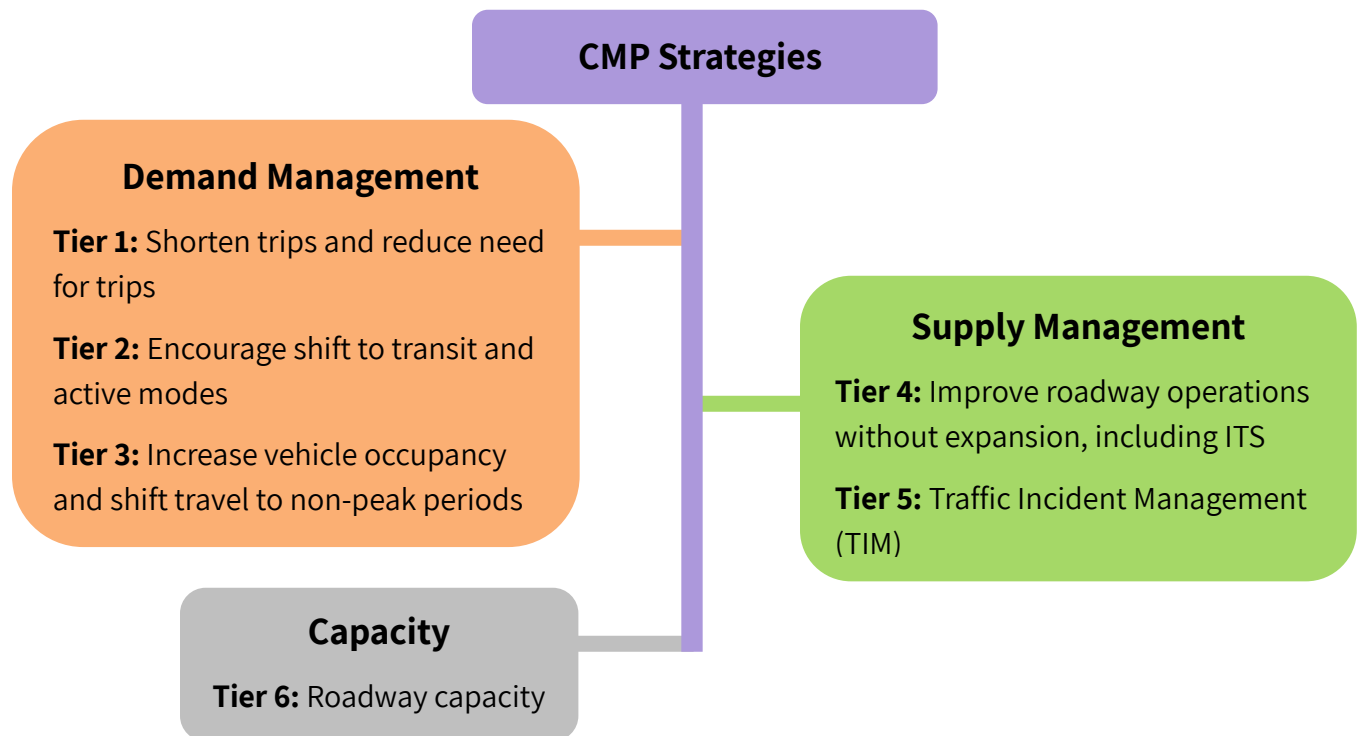
These objectives have related performance measures as shown in **Table 2-8**.

Table 2-8: 2023 CMP Performance Measures

Performance Measure	Description
Travel Time Index	Ratio of average peak travel time to an off-peak (free-flow) standard. A value of 1.5 indicates that the average peak travel time is 50% longer than off-peak travel times.
VMT per Capita	Miles traveled by vehicles in a specified region over a specified time period. Calculated per person for all trips.
Travel Time Reliability	Measures non-recurring delay for all vehicles by comparing the 80 th percentile travel time to the median (50 th percentile) travel time. A value of 1.5 or higher indicates the segment is not reliable. A corridor may be congested, but reliable if the congestion is consistent.
Truck Travel Time Reliability	Measures non-recurring delay for trucks by comparing the 95 th percentile travel time to the median (50 th percentile) travel time. A value of 1.5 or higher is considered unreliable.
Number of Crashes	The number of collisions involving one or more vehicles.
Transit Ridership per Capita	The number of unlinked trips per resident within each provider's service area. Measuring per capita helps account for population growth.
Percent of non-single occupant vehicle commuter trips	Percent of all commute trips completed by any mode other than SOV, including by transit, bicycle, walking, or carpooling.
Percent of devices connected by fiber on RSCs	Percent of devices connected with fiber-optic cables used for transportation management purposes.
Peak Hour Excessive Delay on NHS in Fort Collins UA	Annual hours of excessively delayed travel per capita, with excessive delay defined as travel time at 20 miles per hour or 60% of the posted speed limit travel time, whichever is greater, between 6 a.m. and 10 a.m. and 3 p.m. to 7 p.m. weighted by vehicle volumes and occupancy.

Strategies to manage congestion are identified in the 2023 CMP and are categorized by Demand Management, Supply Management, and Capacity and are broken down into six tiers as illustrated in **Figure 2-23**.

Figure 2-23: CMP Strategy Categories and Tiers



Many CMP strategies coincide with the FHWA Proven Safety Countermeasures and help the NFRMPO make progress toward achieving safety goals. Strategies identified in the 2023 CMP that coincide with safety countermeasures are identified as such.

Moving Forward

The United States Department of Transportation (USDOT) adopted the National Roadway Safety Strategy (NRSS) in January 2022. The NRSS describes major actions which can be implemented to make a meaningful difference in roadway safety by implementing the Safe Systems Approach.

The Safe Systems approach is comprised of five key principles:

1. **Death and Serious Injuries are Unacceptable** - While no crashes are desirable, the Safe System Approach prioritizes the elimination of crashes that result in death and serious injuries since no one should experience either when using the transportation system.
2. **Humans Make Mistakes** - People will inevitably make mistakes and decisions that can lead or contribute to crashes, but the transportation system can be designed and operated to accommodate certain types and levels of human mistakes and avoid death and serious injuries when a crash occurs.

3. **Humans Are Vulnerable** - People have physical limits for tolerating crash forces before death or serious injury occurs; therefore, it is critical to design and operate a transportation system that is human-centric and accommodates physical human vulnerabilities.
4. **Responsibility is Shared** - All stakeholders – including government at all levels, industry, nonprofit/advocacy, researchers, and the public – are vital to preventing fatalities and serious injuries on our roadways.
5. **Safety is Proactive** - Proactive tools should be used to identify and address safety issues in the transportation system, rather than waiting for crashes to occur and reacting afterwards.
6. **Redundancy is Crucial** - Reducing risks requires that all parts of the transportation system be strengthened, so that if one part fails, the other parts still protect people.¹⁵

As illustrated in **Figure 2-24**, there are five objectives to implementation of the Safe Systems approach: Safer People, Safer Roads, Safer Vehicles, Safer Speeds, and Post Crash-Care.

Figure 2-24: Illustration of the Safe Systems Approach



The Safe Systems approach is implemented from national to local agencies as a wholistic approach to reducing fatal and serious injury crashes. The following section outlines some of the work being undertaken in the region around safety planning.

CDOT Strategic Transportation Safety Plan

In 2015 the Colorado Department of Transportation (CDOT) announced the Moving Colorado Towards Zero Deaths initiative which was carried forth into the 2020-2023 Colorado Strategic Transportation

¹⁵ National Roadway Safety Strategy (2022), <https://www.transportation.gov/sites/dot.gov/files/2022-02/USDOT-National-Roadway-Safety-Strategy.pdf>. Accessed 6/7/2023

Safety Plan (STSP). The vision of the STSP is “The future of Colorado is zero deaths and serious injuries so all people using any transportation mode arrive at their destination safely”¹⁶. The STSP includes several strategies to advance transportation safety planning in the state and help Colorado become a national leader in safety. The STSP identifies a target to reduce roadway fatalities and serious injuries by 15 percent between 2020 and 2023.



Fort Collins Vision Zero Action Plan

In 2023, the City of Fort Collins adopted the first Vision Zero Action Plan¹⁷ in the region. The plan identifies strategies which can be implemented over the next ten years to achieve Vision Zero by 2032 and eliminate transportation related fatalities and serious injuries. The plan focuses on vulnerable users, or people using the transportation system outside of a motor vehicle including riding a motorcycle, using a wheelchair, walking, biking, or using micro mobility devices. The five main goals of the plan are:

- Support mode shift to reduce motor vehicle trips;
- Prioritize safer speeds and multimodal places;
- Promote a culture of traffic safety;
- Increase data transparency and partnerships; and
- Center equity.

Safe Streets and Roads for All

The Safe Streets and Roads for All (SS4A) federal discretionary grant program was created through the Infrastructure Investment and Jobs Act (IIJA) which will award \$5B over five years to initiatives that eliminate roadway deaths and serious injuries¹⁸. Two NFRMPO local agencies received awards to develop safety action plans during the first round of grant awards: the City of Greeley and Larimer County. Additional NFRMPO local agencies may apply for grants to develop safety action plans during the 2023 notice of funding opportunity. Safety Action plans created through the SS4A program identify projects and strategies to address transportation safety in the region and allow for local agencies to apply for implementation (or construction) funding from the SS4A program in future years.

¹⁶ 2020-2023 Colorado Strategic Transportation Safety Plan, April 6, 2023.

¹⁷ Fort Collins Vision Zero Action Plan (2023), <https://www.fcgov.com/traffic/files/vision-zero-action-plan-2023.pdf?1681490393>, Accessed 6/16/2023

¹⁸ Safe Streets and Roads for All (SS4A), <https://www.transportation.gov/grants/SS4A>, Accessed 5/18/2023

Resiliency

The NFRMPO has an informational role in planning for the resiliency of the transportation system. The Colorado Resiliency Office defines resiliency as “the ability of communities to rebound, positively adapt to, or thrive amidst changing conditions or challenges — including human-caused and natural disasters — and to maintain quality of life, healthy growth, durable systems, economic vitality, and conservation of resources for present and future generations.”¹⁹

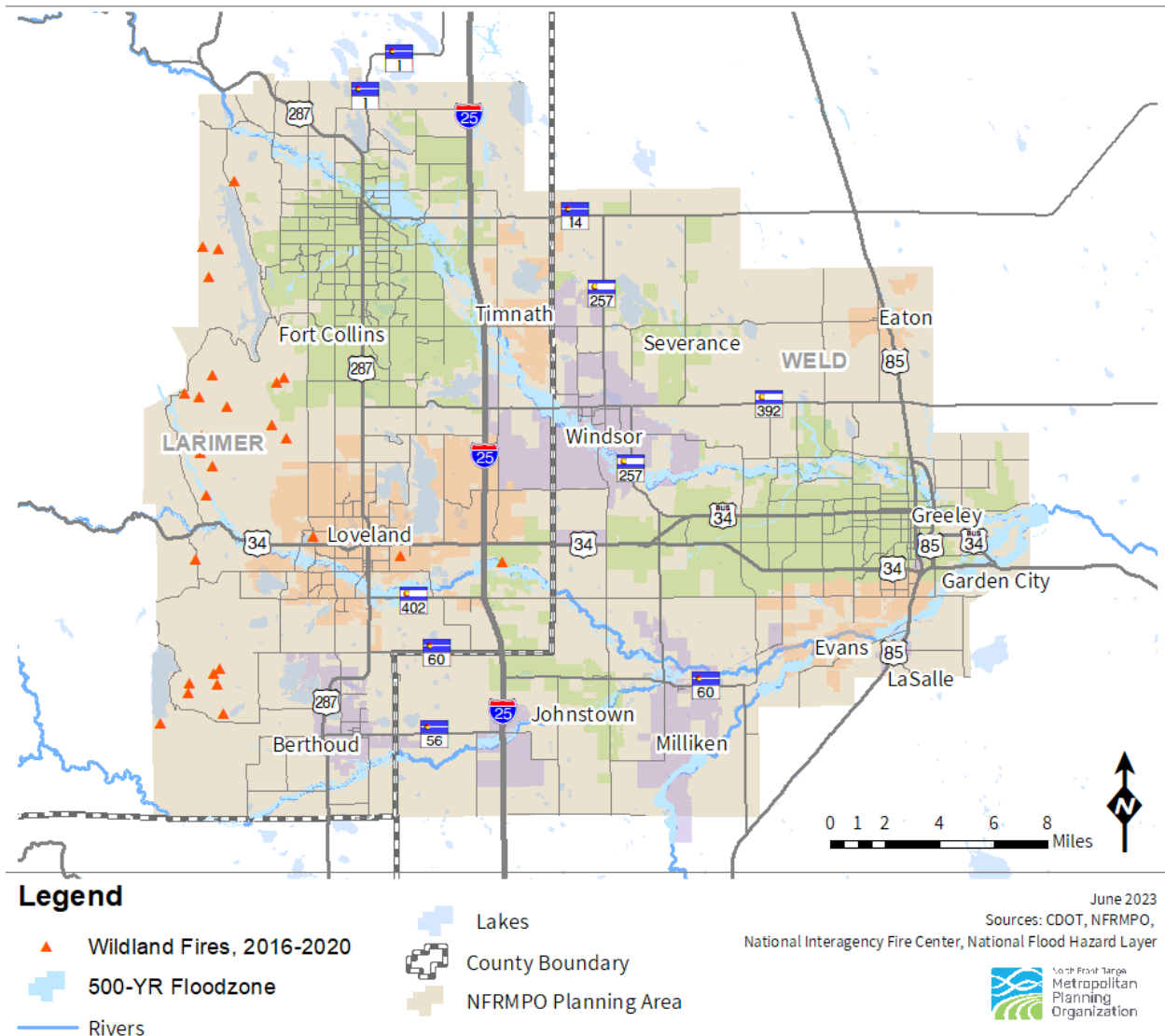
Examples of environmental risks identified in the regional Hazard Mitigation Plans (HMP) include biological hazards; earthquakes; extreme weather; fires; floods, hazmat; and tornadoes. Additional transportation security incidents may include trespassing, vandalism, or terrorism.

The North Front Range region is susceptible to a wide range of natural hazards, including snowy and icy road conditions, wildfires, flooding, tornadoes, high winds, hail, and more. Parts of the region receive an average of 47 inches of snow annually, which can stick to roads and create dangerous driving conditions. Heavy flooding can cause significant damage to transportation infrastructure and strain vulnerable parts of the system. The 2013 floods alone resulted in \$4B in damage to roads, bridges, and other infrastructure and property across the state, including \$280M on US34, and has taken years to replace or repair. Communities within or near designated floodplains are most susceptible to flood risks.

Figure 2-25 illustrates the NFRMPO communities located near 500-year flood plains along with fire locations between 2016 and 2020.

¹⁹ 2020 Colorado Resiliency Framework, https://static1.squarespace.com/static/5fd3ae01f8f3aa3014a8069a/t/60beac4c8ff8cb6a2171ea1d/1623108705479/Framework_Electronic.pdf, Accessed 6/20/2023

Figure 2-25: Wildland Fires (2016-2020) and 500-Year Flood Zones in the NFRMPO



Wildfires within the region may pose a significant risk to people and property, but even fires outside the region can have a significant impact on our air quality. Wildfires across the West during the summer of 2020 significantly increased the concentration of particulate matter in the air. Increased concentrations of PM may cause or exacerbate respiratory health problems and reduce visibility.

Lasting effects of wildfires can also have an impact on the transportation system including flood risk in burn areas. The Cameron Peak Fire, which burned from August 13 to December 2, 2020 and burned over 200,000 acres in Larimer County. Risks include an increased likelihood of flooding resulting in damage to public and private infrastructure.²⁰ Areas around the Poudre River watershed experienced common

²⁰ Cameron Peak Fire Risk Assessment, 2021.

https://www.larimer.org/sites/default/files/uploads/2021/cpf_risk_assessment_overview_5.24.2021.pdf, (Accessed 6/20/2023).

occurrences of debris flow, flash flooding, and washed-out roads during the summer of 2021 following the Cameron Peak Fire.²¹

CDOT Resilience Program

The CDOT Resilience Program was created to assess the risks and prepare the transportation system in advance of threats including floods, high winds, avalanches, rockfall, and other unavoidable threats. The CDOT Resilience Program helps plan for adverse events to ensure the transportation system is better equipped to withstand and quickly recover from events when they happen, while also ensuring the public can continue to access homes, businesses, schools, and hospitals.²²

CDOT created a criticality index of the state highway system to better prioritize the most critical roadways in the state.

*Criticality is a measure of the importance of an asset to the resilience of the system, and by extension, to the success of CDOT in carrying out its mission of delivering service to travelers.*²³

Criticality is based on six criteria:

1. Average Annual Daily Traffic (AADT);
2. Association of American State Highway and Transportation Officials (AASHTO) Roadway Classification factor;
3. Freight value per Ton;
4. Tourism dollars;
5. Social Vulnerability Index; and
6. System Redundancy.



Post-fire debris flow runs onto SH 14

Image credit: *Coalition for the Poudre River Watershed*

Figure 2-26 illustrates the criticality index of the state highway system in the NFRMPO region.

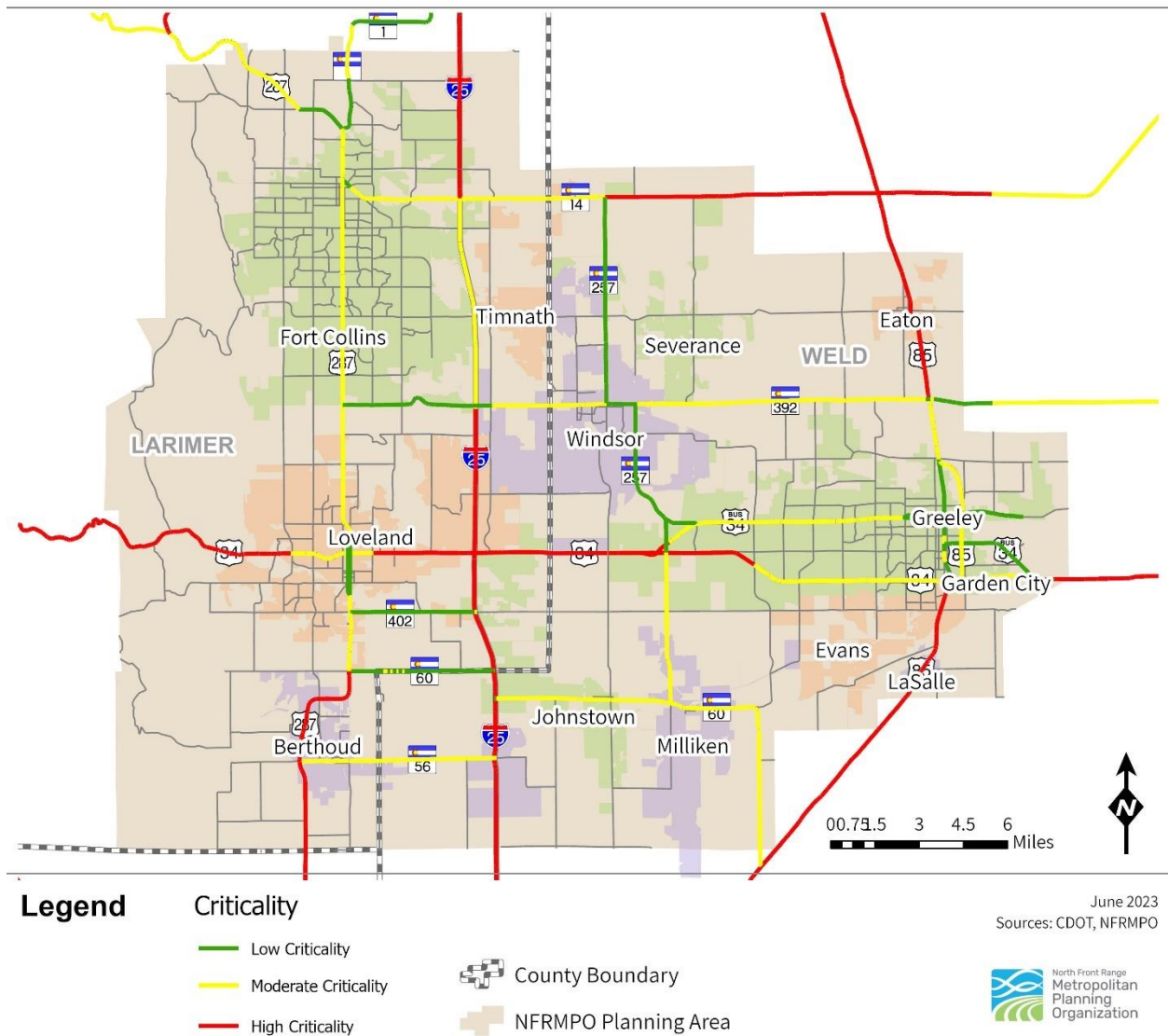
²¹ Recovery Efforts for the Cameron Peak Fire, 2021.

<https://storymaps.arcgis.com/stories/66393e20dd674741b43d024a2f2d9188>. (Accessed 6/20/2023).

²² CDOT Resilience Program, 2021. <https://codot.gov/programs/planning/cdot-resilience-program> (Accessed 6.20/2023).

²³ Resilience in Colorado, 2021. <https://storymaps.arcgis.com/stories/8e576e78ac664b32b059ef1fe83a92fe>. (Accessed 6/20/2023).

Figure 2-26: Criticality Index of the State Highway System in the NFRMPO Region



COTrip

COTrip is an online map and mobile app which provides travelers with statewide, real time information about Colorado roads including roadway conditions, traffic incidents, construction, and weather alerts and conditions. COTrip is a useful tool to help roadway users be prepared when traveling around the state.



View the website or download the app at <https://www.cotrip.org/>

PROTECT

The Promoting Resilient Operations for Transformative, Efficient, and Cost-saving Transportation (PROTECT) grant program was created by the Bipartisan Infrastructure Law (BIL) and provides funding for projects to ensure the resilience of surface transportation projects against natural hazards including climate change, extreme weather events, and natural disasters. The PROTECT program includes opportunities for local and regional agencies to apply funding to complete a Resilience Improvement Plan (RIP). In addition to the planning funding, there is also competitive and formula funding for agencies to implement projects to further resilience projects. Within the PROTECT program, a RIP may include the following elements:

- Planning, predesign, design, or development of data tools to simulate transportation disruption scenarios, including vulnerability assessments;
- Technical capacity building to facilitate the ability of the State to assess the vulnerabilities of its surface transportation assets and community response strategies under current conditions and a range of potential future conditions;
- Or evacuation planning and preparations²⁴.

Emergency Management

Larimer County and Weld County Offices of Emergency Management provide information and resources to people who live, work, and spend time within the region. These offices provide information on how to plan and prepare for emergencies, respond to emergencies, mitigate against hazards, and recovery from hazards and disasters.

Table 2-9 Table 2-9 shows resources for each county and the State related to Emergency Management.

²⁴ Bipartisan Infrastructure Law Fact Sheets, Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT), 2023. https://www.fhwa.dot.gov/bipartisan-infrastructure-law/protect_fact_sheet.cfm. Accessed 7/7/2023.

Table 2-9: Resources for Emergency Management

Larimer County	Emergency Preparedness Guide, 2023 - The Emergency Preparedness Guide provides information on how to be ready for emergencies and education on hazards in Larimer County.	https://www.larimer.gov/sites/default/files/uploads/2023/em_prep_guide_final_04.26.2023.pdf
	Larimer County Hazard Mitigation Plan, 2021 – The Larimer County Multi-Jurisdictional Hazard Mitigation Plan analyzes the Counties vulnerabilities to all hazards including natural and human caused to minimize impacts to people, property, and critical facilities.	https://drive.google.com/file/d/1D7L-eWuaScqIHD6GzMngY7PtLPyCpAtC/view
Weld County	Emergency Preparedness Guide, 2018 – The Emergency Preparedness Guide provides an overview of disaster information and tips on how to get on emergencies plans for all types of hazards.	English – https://www.weld.gov/files/sharedassets/public/departments/office-of-emergency-management/documents/english-oem-emergency-preparedness-guide.pdf Spanish – https://www.weld.gov/files/sharedassets/public/departments/office-of-emergency-management/documents/spanish-oem-emergency-preparedness-guide.pdf
	Hazard Mitigation Plan, 2021 – The Hazard Mitigation plan is designed to proactively reduce the risk of hazards facing Weld County.	https://www.weld.gov/files/sharedassets/public/departments/office-of-emergency-management/documents/haz.-mitigation-plan/weld-hazard-mitigation-plan-2021.pdf
Statewide	READYColorado – Colorado’s source for preparedness information and tips on natural, technological, and human caused hazards.	https://dhsem.colorado.gov/info-center/readycolorado
	COEMERGENCY – An incident specific resource for Coloradans during disasters	http://www.coemergency.com/

Security

USDOT defines a transportation security incident as one resulting in a significant loss of life, environmental damage, transportation system disruption, or economic disruption in a particular area. Examples of environmental security issues identified in the regional Hazard Mitigation Plans (HMP) include biological hazards; earthquakes; extreme weather; fires; floods, hazmat; and tornadoes. Overall transportation security incidents may include trespassing, vandalism, or terrorism. Local agencies prepare for the incidents and risks depending on the services they provide. **Table 2-10** is a reference for local and partner agencies and includes websites or other contact information for current information.

Table 2-10: Security Contact Information

Park N Rides	Colorado Department of Transportation	
Transit Agencies	Berthoud Area Transportation System (BATS)	Contact phone: (970) 344-5816
	Bustang (CDOT)	Contact phone: 800-900-3011
	City of Loveland Transit (COLT)	Contact Phone: (970) 962-2700
	Greeley Evans Transit (GET)	Contact Phone: (970) 350-9287
	Transfort	Contact Phone: (970) 221-6620 Website:
Volunteer Transportation Service Providers	Senior Alternatives In Transportation (SAINT)	Contact Phone: (970) 223-8604
	60+ Ride	Contact Phone: (970) 352-9348
	RAFT	Contact Phone: (970) 532-0808
Vanpool Service	VanGo™ Vanpool Service	Contact Phone: (800) 332-0950
Railroad Security	BNSF Railway	Contact phone: (800) 795-2673
	Union Pacific Railroad (UPRR)	Contact phone: (888) 870-8777
	Great Western Railway of Colorado (GWR)	Contact phone: (303) 398-4500
Airport Transportation Security	Greeley-Weld County Airport	Contact Phone: (970) 336-3000
	Northern Colorado Regional Airport	Contact Phone: (970) 962-2850

Chapter

2

Section 4:


System Performance Report



GOPMT

The Goals, Objectives, Performance Measures, and Targets (GOPMT) are the guiding policy of transportation investments in the region. GOPMT are incorporated into the RTP, TIP, and associated NFRMPO plans and programs. The GOPMT for the 2050 RTP was adopted by the Planning Council on June 1, 2023, as shown in **Figure 2-27**. Each performance measure and target apply to at least one NFRMPO and national goal as well as an objective.

Figure 2-27: 2050 RTP Goals, Objectives, Performance Measures, and Targets (GOPMT)



Safety	Regional Health	Mobility	Multimodal	Operations
Reduce the number of roadway related fatalities and serious injuries within the region	Improve economic development, residents' quality of life, and air quality	Move people and goods safely, efficiently, and reliably on a continuous transportation system	Improve accessibility of and access to transit and alternative modes of transportation	Optimize operations, planning, and funding of transportation facilities
Performance Measures				
Safety Transit Safety <ul style="list-style-type: none"> Total Fatalities Fatality Rate Total Injuries Injury Rate Total Safety Events Safety Event Rate System Reliability/Major Mechanical Failures 	System Performance <ul style="list-style-type: none"> CMAQ Emissions Reductions Non-SOV Travel Peak Hour Excessive Delay Regional PM <ul style="list-style-type: none"> Percent of Non-SOV Commuter Trips Daily VMT per Capita 	Infrastructure Condition System Performance <ul style="list-style-type: none"> Peak Hour Excessive Delay Truck Travel Time Reliability Regional PM <ul style="list-style-type: none"> Travel Time Index on RSCs 	Regional PM <ul style="list-style-type: none"> Population served by paratransit Fixed-route Revenue Hours per Capita within Service Areas Non-Motorized Facility Miles Daily VMT per Capita 	TAM System Performance <ul style="list-style-type: none"> Travel Time Reliability Peak Hour Excessive Delay Regional PM <ul style="list-style-type: none"> Projects Requiring more than One Extension % of Devices Connected by Fiber on RSCs Travel Time Index on RSCs

Goals and Objectives

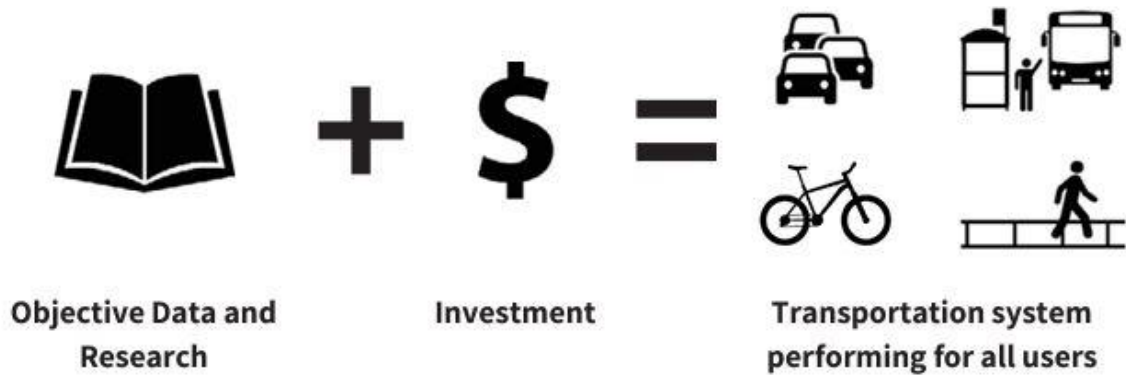
Goals are the first step to supporting the vision statement, which can be found in **Chapter 1**. Goals address the key desired outcomes for the region. National goals are set in federal regulations, while the NFRMPO develops regional goals which address local needs and the federal Planning Factors.

Objectives are needed to support and accomplish the established goals. For the 2050 RTP, the NFRMPO worked with Planning Council, TAC, and other stakeholders to ensure these goals reflect the region's current expectations.

Performance Measures and Targets

Performance measures at the local, regional, state, and federal levels are based on the Transportation Performance Management (TPM) approach set forth by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA). TPM is a strategy which helps decision-makers understand the impacts of transportation investment decisions based on data and objective information. A graphical representation of TPM is shown in **Figure 2-**. This section shows the connection between data and research, the transportation system, investments, and system performance.

Figure 2-28: Transportation Performance Management



The North Front Range Metropolitan Planning Organization (NFRMPO) works with the Colorado Department of Transportation (CDOT), its member communities, transit agencies, and the general public to establish targets based on the federally required and regionally selected performance measures for the region as shown in **Chapter 1**. The NFRMPO has 180 days to set targets after CDOT adopts Statewide targets to adopt its own regional targets or agree to support CDOT's targets. CDOT sets targets for the NHS as shown in **Chapter 1**. These targets form part of the NFRMPO's GOPMT, which was first established in the [2040 Regional Transportation Plan \(RTP\)](#).

As of the adoption of the [2050 RTP](#), the federally required performance measures are divided into five categories, which include:

- *PM1: Highway Safety*
- *PM2: Pavement and Bridge Condition*
- *PM3: System Performance*
- Transit Asset Management (TAM)
- Transit Safety

Process

The NFRMPO worked with CDOT, local agencies, and transit staff to collect data on current conditions and to identify long-term needs. This data was presented to the NFRMPO's Technical Advisory Committee (TAC), which provided guidance on how to set targets. TAC's recommendation was taken to the Planning Council for further discussion and adoption. Memos were included in each of TAC and Planning Council's meeting packets for Discussion and Adoption.

The NFRMPO can set regional targets or support the Statewide targets for Highway Safety, Bridge & Pavement Condition, and System Performance measures. The NFRMPO set targets by agreeing to program projects to help achieve the Statewide targets. For the transit measures, the NFRMPO worked with the transit agencies in the region and adopted each transit agency's targets.

The NFRMPO must adopt *PM1: Highway Safety* targets annually, and the transit agencies must adopt TAM and Transit Safety targets. Transit agencies then report the targets to the NFRMPO, while the *PM2: Bridge & Pavement Condition* and *PM3: System Performance* measures are adopted every four years at

the start of each performance period. Targets for *PM2* and *PM3* are reevaluated by the state every two years and may be adjusted at that mid-point.

Impact on the NFRMPO Planning Process




The RTP and the Transportation Improvement Program (TIP) both acknowledge the need to invest in the regional transportation system. Projects are programmed into short-range and long-range documents to move the region toward achieving targets set as part of this TPM process.

Call for Projects

The programming stage of performance-based planning is carried out through the NFRMPO-administered Call for Projects in which federal and state funds are awarded for surface transportation projects. The NFRMPO awards funding from four federal programs: Congestion Mitigation and Air Quality Improvement (CMAQ), Surface Transportation Block Grant (STBG), Transportation Alternatives (TA), and Carbon Reduction Program (CRP). The NFRMPO also awards state funding from the Multimodal Transportation and Mitigation Options Funds (MMOF). Projects that receive funding through the Call for Projects process are required to contribute to the achievement of the performance measure targets.

Target Achievement

Every performance measure has a corresponding baseline and target. Baselines are important to establish how much progress is being made on a performance target. Baselines are set when the performance measures and targets are first set. The current status is the most recent data the NFRMPO has and is used to evaluate progress on target achievement. The federal performance measure targets are to be achieved by the end of the corresponding performance period, and the regional performance measures are meant to be achieved by 2050. The NFRMPO uses a three-tier grading system:

-  means the State or the NFRMPO region has achieved the target based on baseline data;
-  means the State or the NFRMPO is making progress and is trending in the proper direction or is close to achieving a target but has not yet; and
-  means the target has not been achieved and not enough progress has been made.

Background Information

The following describe the intention of the performance measures in the following sections.

- **Federal-aid highway program**- The federal-aid highway program includes the Interstate Highway System, primary highways, and secondary local roads.
- **National Highway System (NHS)**- The NHS is a network of roadways important to the nation's economy, defense, and mobility.
- **Person-miles**- Person-miles are the distance traveled by each individual person. For example, a bus carrying five people traveling one mile is five person-miles while one person driving their own car one mile is one person-mile.

- **Reliability**- Reliability is the ratio of the 80th percentile travel time (a particularly bad day) to the 50th percentile travel time (a normal day). If the ratio is less than 1.5, the roadway segment is considered reliable.
- **Vehicle Miles Traveled (VMT)**- VMT is the distance traveled by a vehicle, no matter the occupancy of the vehicle. For example, if a car travels one mile, that is one VMT regardless of the number of people in the vehicle.

Scenario Planning

The NFRMPO uses scenario planning as a technique for future planning in the 2050 RTP. Based on public input, scenarios are designed and run using the NFRMPO's Land Use Allocation Model (LUAM) and the Regional Travel Demand Model (RTDM). Both models use 2019 as a base year for data and can take into consideration changing demographics, roadway and transit improvements, and changes in travel behavior. The NFRMPO's RTP must be fiscally constrained, meaning the desired scenario will be one which considers current and future funding levels to afford projects. Scenarios are explored in

Chapter 3.

Highway Safety

Highway safety targets are concerned with incidents involving motor vehicles on all local, state, and Interstate roads. The NFRMPO adopted highway safety targets by agreeing to support the State targets. Unlike the other performance measures, Highway Safety measures must be adopted on an annual basis rather than the two- and four-year basis. The following targets are the five-year rolling averages for 2019-2023. The baseline, target, and current status listed below represent the statewide crash trends.

Highway Safety targets are required by FHWA to be data-driven and non-aspirational. Though the NFRMPO recognizes there is no acceptable number of deaths and serious injuries on the roadway network, the NFRMPO follows the federal guidance on target setting for the Highway Safety targets. The CDOT sets targets for Highway Safety based on past trends and anticipated future trends forecasted from past data. The ultimate goal of the CDOT and the NFRMPO as detailed in the Safety section of this chapter are to continually work to reduce fatal and serious injuries on the roadway network

Important trends to note for Highway Safety Targets:

- VMT has increased throughout Colorado, meaning vehicles are traveling farther each day and/or there are more vehicles on the road.
- Fatal and serious injury numbers, along with VMT, were greatly affected in 2020 due the COVID-19 pandemic. Trends across the nation showed a decrease in VMT and an increase in fatal injury rates.

Sample strategies and projects in place to improve highway safety in the NFRMPO region include:

- In 2023, the City of Fort Collins adopted a [Vision Zero Action Plan](#) which aims to eliminate fatalities and serious injuries by 2032;
- Larimer County and the City of Greeley received Safe Streets for All (SS4A) grants in 2022 to create Safety Action Plans which will identify projects and set a goal for eliminating fatalities and serious injuries;
- Local communities can apply for Safe Routes to School funds, which improve connections for students and parents walking and biking to and from local schools. These funds have been used to address sidewalk gaps, safe crossings, and Safe Routes to School programming.
- Communities within the NFRMPO have received approximately \$17.7M in FASTER funding for safety projects since 2019; and
- The NFRMPO adopted the NFRMPO Safety Vision: Toward Zero Deaths in 2020 outlining action steps to prioritize and enhance safety within NFRMPO plans and projects.

Number of Fatalities

The target for number of fatalities on all public roads is measured using a five-year rolling average. This smooths out fluctuations in the number of crashes over time. Unfortunately, fatal crashes in Colorado have continued to increase and it is expected to continue increasing for the foreseeable future. Fatal crashes are reported in the Fatality Analysis Reporting System (FARS), with the data then analyzed by CDOT.

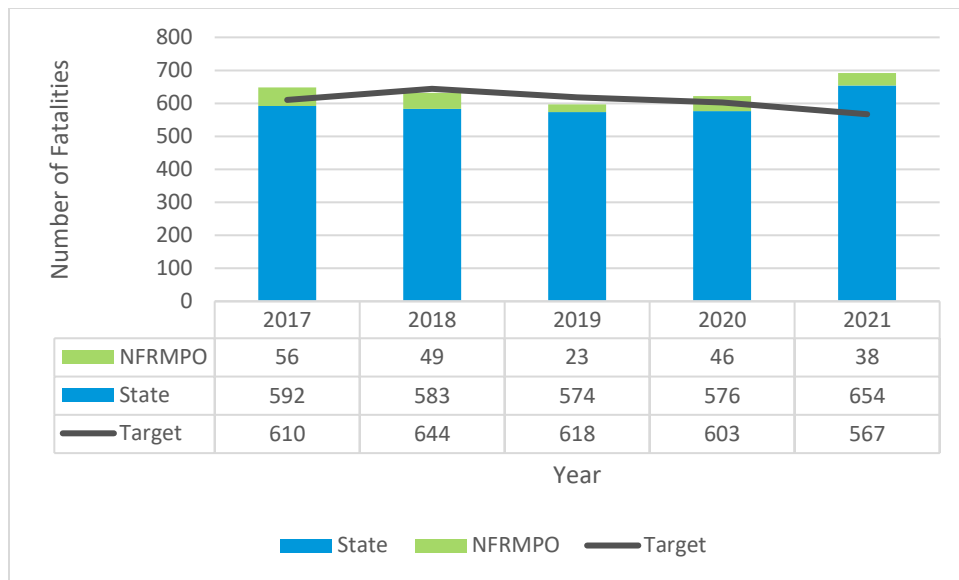
Baseline:
638

Target:
668

Current Status:
692

Progress:


Figure 2-29: Number of Fatalities



Rate of Fatalities per 100 Million VMT

Converting number to rates adds context- for example, understanding the number of fatal crashes in the context of how many miles are driven can indicate the relative safety of the system. VMT has increased across the State in recent years as have serious injury crashes.

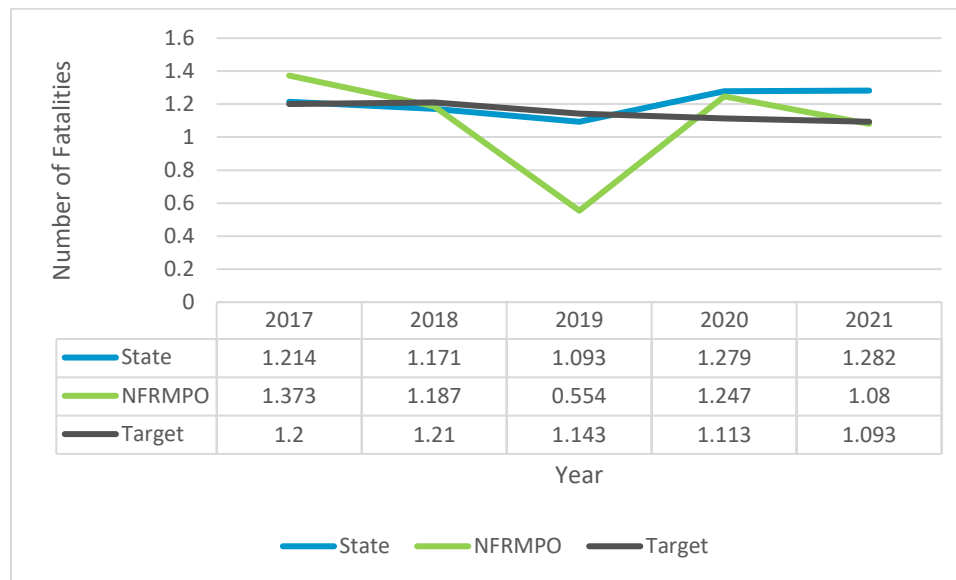
Baseline:
1.208

Target:
1.262

Current Status:
1.282

Progress:


Figure 2-30: Rate of Fatalities per 100M VMT



Number of Serious Injuries

Serious injury crashes include any injury other than a fatal injury which prevents the injured person from walking, driving, or from performing other activities which they performed before the crash.

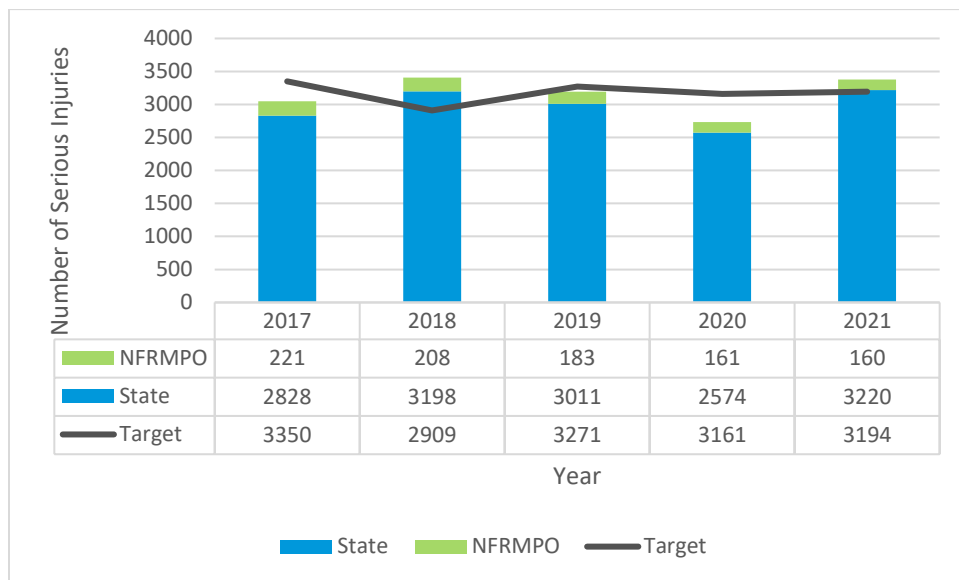
Baseline:
3,153

Target:
3,041

Current Status:
3,380

Progress:


Figure 2-31: Number of Serious Injury Crashes



Rate of Serious Injuries per 100 Million VMT

Serious injury crashes are those crashes which include any injury other than a fatal injury which prevents the injured person from walking, driving, or from performing other activities which they performed before the crash.

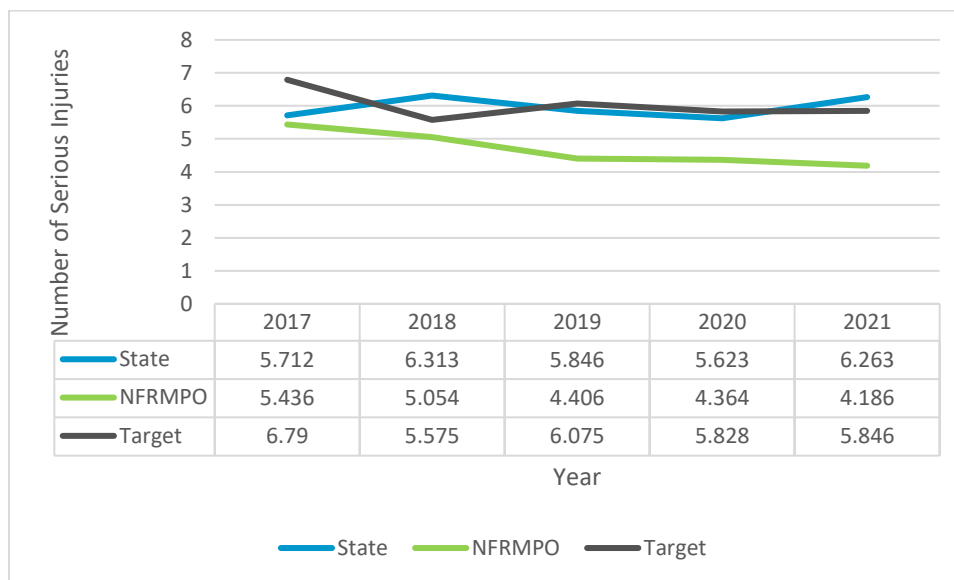
Baseline:
5.951

Target:
5.794

Current Status:
6.263

Progress:


Figure 2-32: Rate of Serious Injuries per 100 Million VMT



Number of Non-Motorized Fatalities and Serious Injuries

Non-motorized refers to bicyclists, pedestrians, and other active transportation modes. This measure combines both fatalities and serious injuries.

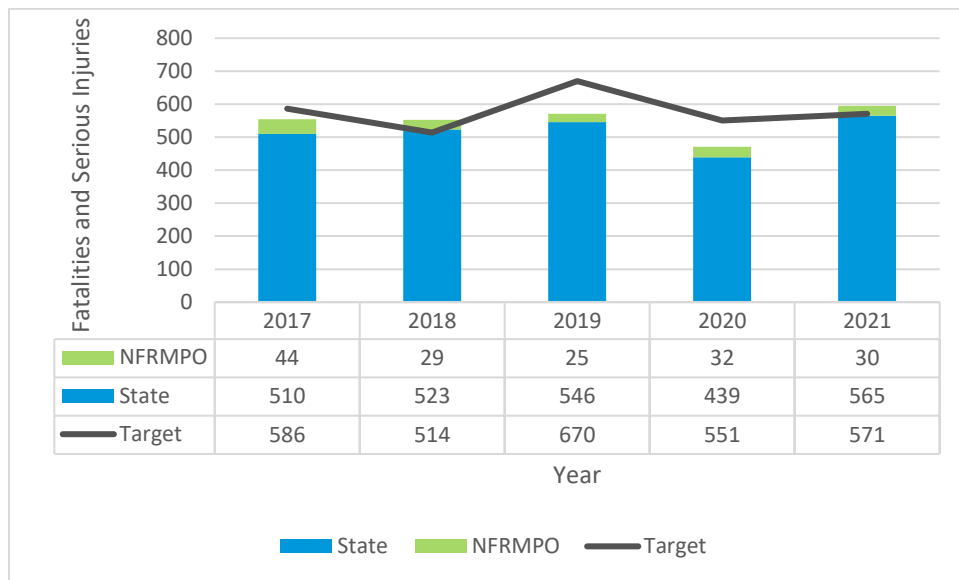
Baseline:
549

Target:
548

Current Status:
595

Progress:


Figure 2-33: Number of Non-Motorized Fatalities and Serious Injuries



Pavement and Bridge Condition

Pavement and Bridge Condition are measured solely for the Interstate and non-Interstate NHS for the purposes of this System Performance Report. The NFRMPO NHS System can be found in **Chapter 1**.

Pavement condition is measured using data submitted to the Highway Performance Monitoring System (HPMS), specifically the International Roughness Index (IRI), cracking percent, faulting, and rutting. The IRI is a system used to evaluate and manage the road system, while cracking percent, faulting, and rutting address various aspects of pavement condition. FHWA set certain metric thresholds in the final rule, defining good, fair, and poor conditions for each of these measurements. **Table 2-11** shows the metric categories for good, fair, and poor conditions used as part of this performance measure.

Table 2-11: Pavement Condition Metric Thresholds

	Good	Fair	Poor
IRI (inches/mile)	<95	95-170	>170
Rutting (inches)	<0.20	0.20-0.40	>0.40
Faulting (inches)	<0.10	0.10-0.15	>0.15
Cracking (%)	<5	5-20 (asphalt) 5-15 (JCP) 5-10 (CRCP)	>20 (asphalt) 0.15 (JCP) >10 (CRCP)

Bridge condition is measured using data reported to the National Bridge Inventory (NBI). The NBI is a rating scale from zero to nine, rated good, fair, and poor. Deck, superstructure, and culvert condition are graded and FHWA set the following thresholds. **Table 2-12** shows the thresholds for Bridge Condition Metrics.

Table 2-12: Bridge Condition Metric Thresholds

	Good	Fair	Poor
Deck	≥7	5 or 6	≤4
Superstructure	≥7	5 or 6	≤4
Substructure	≥7	5 or 6	≤4
Culvert	≥7	5 or 6	≤4

Strategies within the NFRMPO region to improve pavement and bridge condition since 2019 include:

- 10 bridges and much of the pavement along I-25 was rebuilt and improved as a part of the *I-25 North Express Lanes Project* between Johnstown and Fort Collins.
- Pavement improvements were made along US34 within Loveland due to a series of improvement projects.

Percent of Interstate Pavement in Good Condition

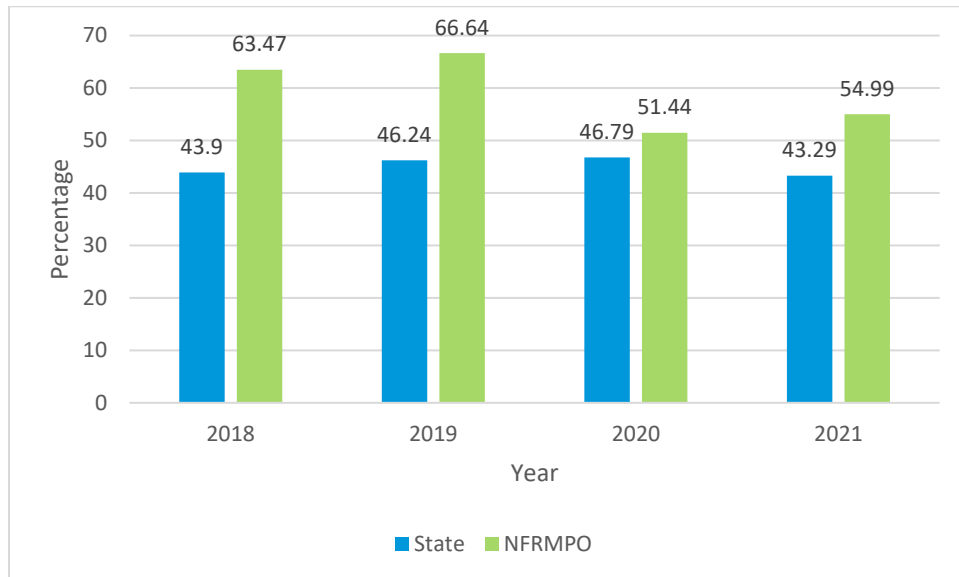
Statewide Baseline:
43.09%

Statewide Target:
47%

Current Status:
43.29%

Progress:
—

Figure 2-34: Percent of Interstate Pavement in Good Condition



Percent of Interstate Pavement in Poor Condition

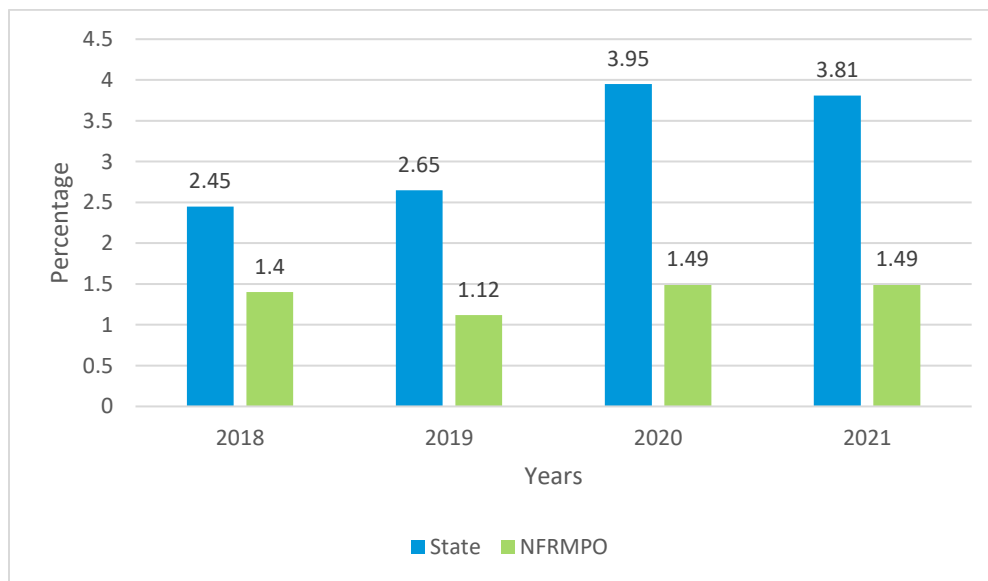
Statewide Baseline:
3.51%

Statewide Target:
3.5%

Current Status:
3.81%

Progress:
✗

Figure 2-35: Percent of Interstate Pavement in Poor Condition



Percent of Non-Interstate NHS Pavement in Good Condition

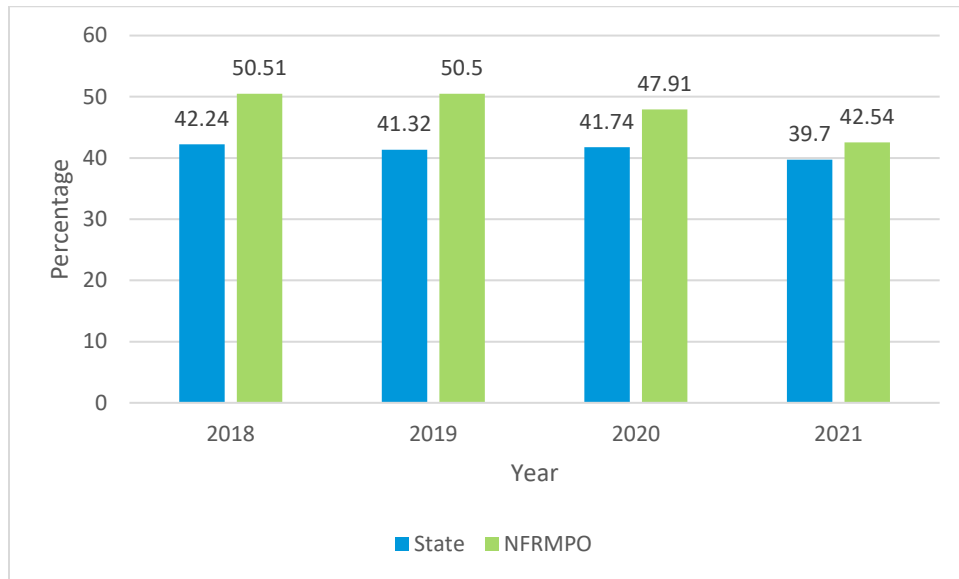
Statewide Baseline:
49.4%

Statewide Target:
43%

Current Status:
39.7%

Progress:
✖

Figure 2-36: Percent of Non-Interstate NHS Pavement in Good Condition



Percent of Non-Interstate NHS Pavement in Poor Condition

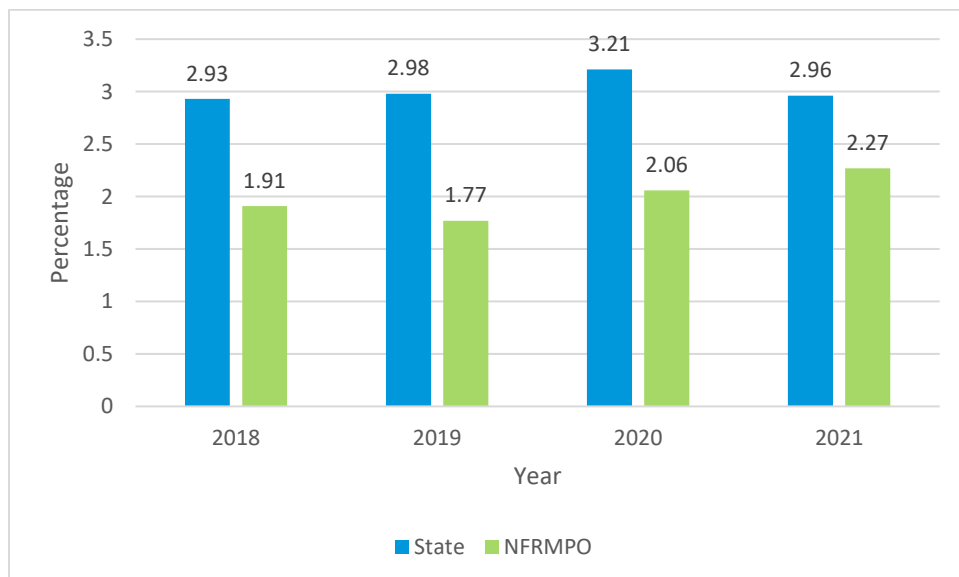
Statewide Baseline:
12.7%

Statewide Target:
3.5%

Current Status:
2.96%

Progress:
✔

Figure 2-37: Percent of Non-Interstate NHS Pavement in Poor Condition



Percent of NHS Bridges in Good Condition

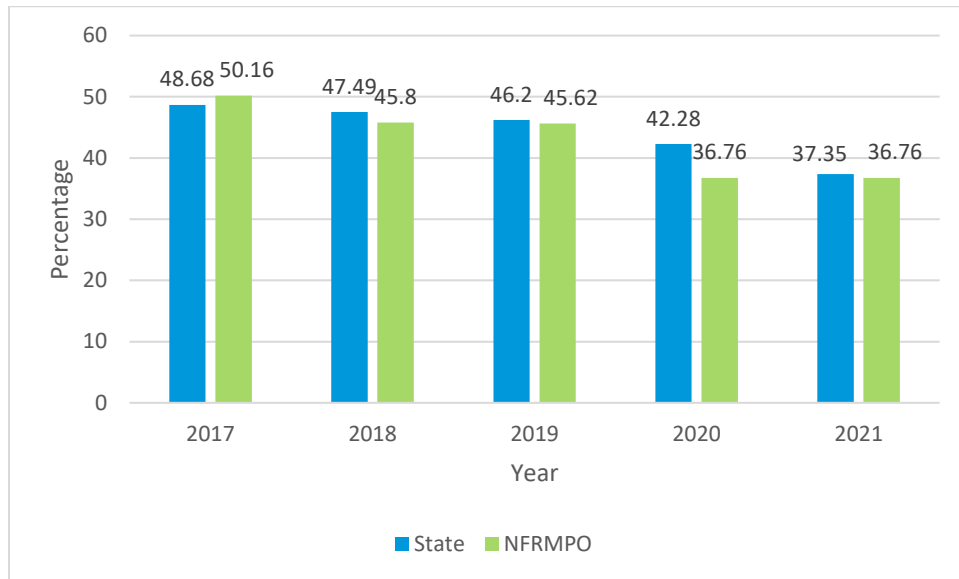
Statewide Baseline:
47.2%

Statewide Target:
36%

Current Status:
37.35%

Progress:
✓

Figure 2-38: Percent of NHS Bridges in Good Condition



Percent of NHS Bridges in Poor Condition

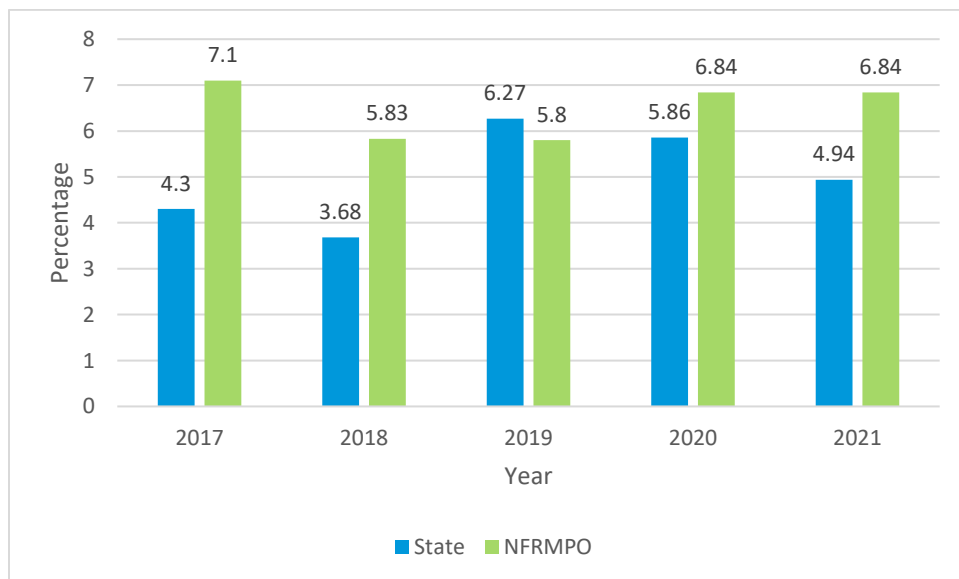
Statewide Baseline:
3.8%

Statewide Target:
4.0%

Current Status:
3.47%

Progress:
✓

Figure 2-39: Percent of NHS Bridges in Poor Condition



System Performance

There are three types of system performance measures: Reliability, Air Quality, and Traffic Congestion.

Reliability

A reliable transportation system is important for all aspects of the State's economy and quality of life.

Travel time reliability indexing (TTRI) is a multi-stepped process to determine the ratio of peak travel periods to normal travel periods. Travel time reliability is calculated using the following equation:

$$\text{Travel Time Reliability} = \frac{80\text{th Percentile Travel Time}}{50\text{th Percentile Travel Time}}$$

Travel time is reported using the National Performance Management Research Data Set (NPMRDS) and is collected in 15-minute segments during all time periods between 6:00 a.m. and 8:00 p.m. local time. The 80th Percentile Travel Time represents congested periods, while the 50th Percentile Travel Time represents the average travel time. "Reliable" is considering a TTRI below 1.5.

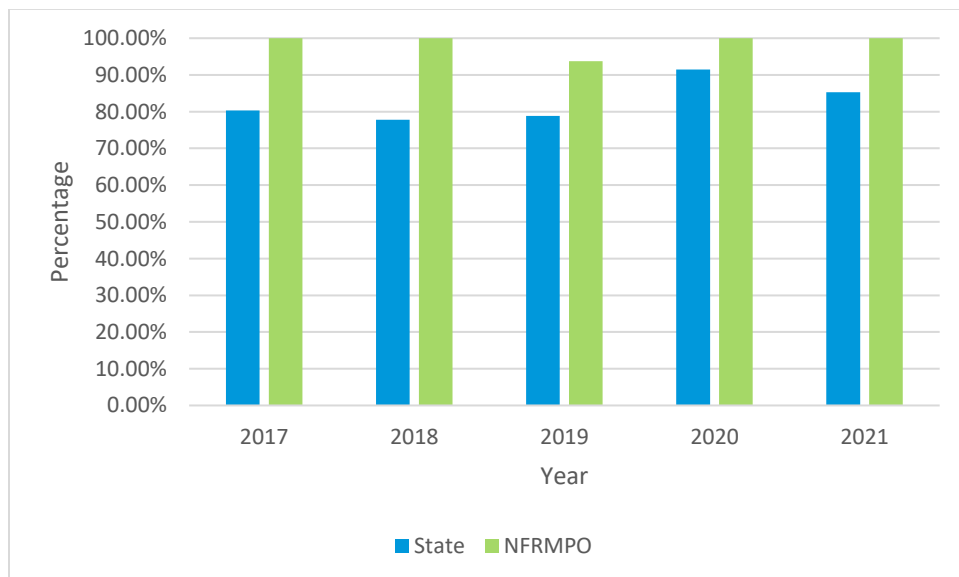
Example projects and strategies to improve reliability in the NFRMPO region since 2019 include:

- *I-25 North Express Lanes* project will add a managed lane between Berthoud and Fort Collins adding additional capacity.
- Investment in ITS and improved signal timing throughout the region to balance traffic needs.

Percent of Person-Miles Traveled on Interstate System that are Reliable

Statewide Baseline:	Statewide Target:	Current Status:	Progress:
80.7%	79%	85.30%	✓

Figure 2-40: Percent of Person-Miles Traveled on Interstate System that are Reliable



Percent of Person-Miles Traveled on Non-Interstate System that are Reliable

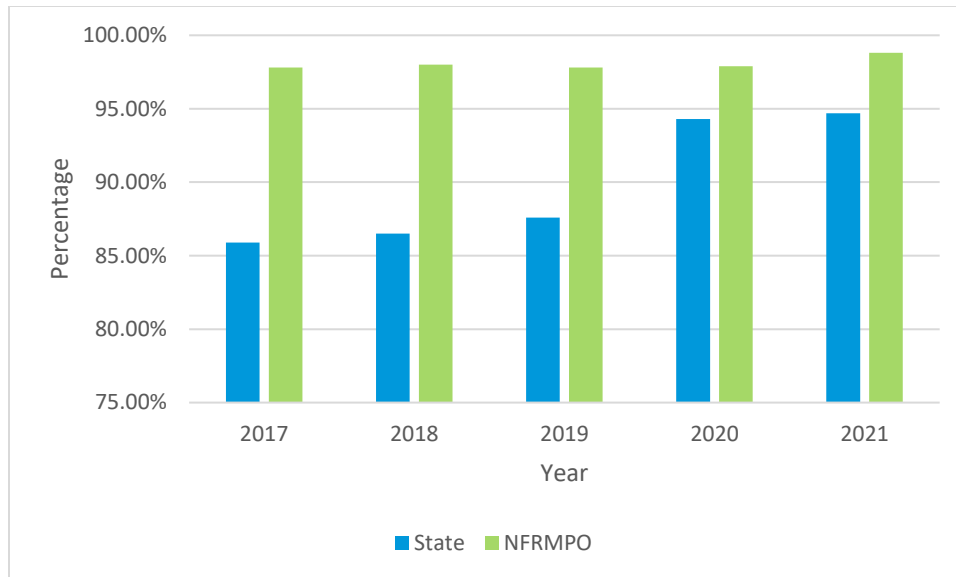
Statewide Baseline:
86.2%

Statewide Target:
94%

Current Status:
94.70%

Progress:
✓

Figure 2-41: Percent of Person-Miles Traveled on Non-Interstate System that are Reliable



Truck Travel Time Reliability (TTTR) Index

The TTTR ratio is generated by using the following equation:

$$\text{Truck Travel Time Reliability} = \frac{95\text{th Percentile Truck Travel Time}}{50\text{th Percentile Truck Travel Time}}$$

The TTTR is calculated for each of the following five time periods for each segment of Interstate:

- Morning peak Monday through Friday (6-10 a.m.);
- Midday Monday through Friday (10 a.m.-4 p.m.);
- Afternoon peak Monday through Friday (4-8 p.m.);
- Weekends (6 a.m.-8 p.m.); and
- Overnights for all days (8 p.m.- 6 a.m.).

The maximum TTTR for each segment of Interstate is multiplied by the length of the segment, then the sum of all length-weighted segments is divided by the total length of Interstate will generate the TTTR Index.

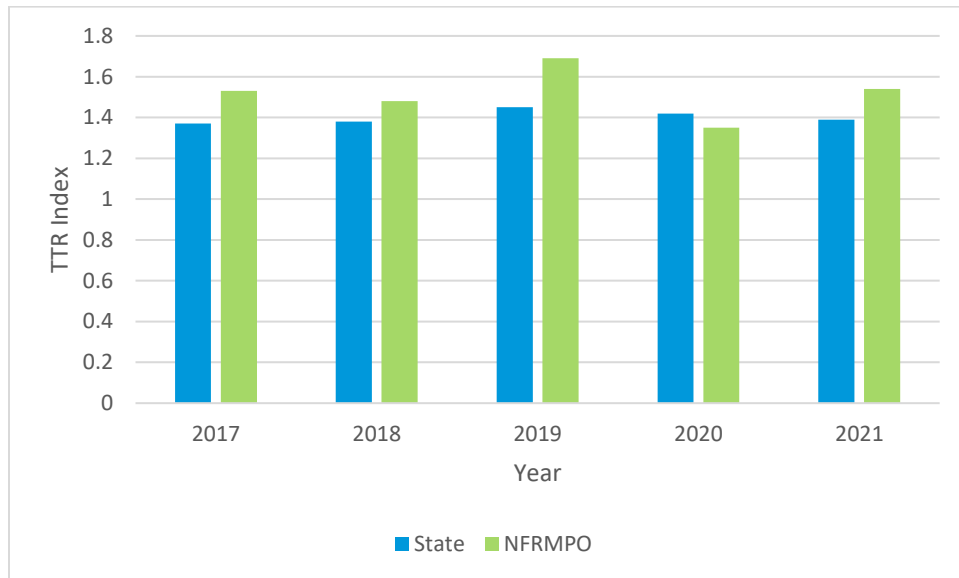
Statewide Baseline:
1.37

Statewide Target:
1.46

Current Status:
1.39

Progress:
✓

Figure 2-42: Truck Travel Time Reliability (TTTR) Index



Air Quality

The following performance measures are required because the NFRMPO is part of the Denver Metro-North Front Range 8-Hour Ozone Nonattainment Area and the cities of Fort Collins and Greeley are both Maintenance Areas for Carbon Monoxide. Volatile Organic Compounds (VOC) and Nitrogen Oxides (Nox) are criteria pollutants for ozone. Because of the Maintenance Areas and the Nonattainment Area, the NFRMPO receives Congestion Mitigation and Air Quality (CMAQ) funding and must estimate the reductions in criteria pollutants during the project selection process. CDOT set the following four-year targets by forecasting anticipated daily emissions reductions using an average benefit reduction by dollar as reported through the CMAQ Public Access System.

Volatile Organic Compounds (VOC) Reduction

Statewide Baseline:
672.78 kg/day

Statewide Target:
482 kg/day

Current Status:
223.11 kg/day

Progress:
—

Carbon Monoxide (CO) Reduction

Statewide Baseline:
9,998.716 kg/day

Statewide Target:
5,393 kg/day

Current Status:
2,826.53 kg/day

Progress:
—

Nitrogen Oxides (NOx) Reduction

Statewide Baseline:
672.780 kg/day

Statewide Target:
1,086 kg/day

Current Status:
304.26 kg/day

Progress:
—

Traffic Congestion

The NFRMPO is required to establish two- and four- year targets for two Traffic Congestion Performance Measures: Percent of Non-Single Occupant Travel and Annual Hours of Peak Hour Excessive Delay (PHED). Unlike the other PM3 targets, traffic congestion measures are only required for the Fort Collins Transportation Management Area (TMA). The NFRMPO is required to set traffic congestion targets in conjunction with the State.

Non-Single Occupant Vehicle (SOV) Travel

The Non-SOV Travel performance measure measures whether travelers are using modes of transportation other than driving by themselves in their cars.

Baseline:	Target:	Current Status:	Progress:
25.4%	25.6%	25.6%	

Annual Hours of Peak Hour Excessive Delay per Capita on the NHS System

Annual Hours of Peak Hour Excessive Delay evaluates congestion during peak commuting hours which are 6:00-10:00 a.m. and either 3:00-7:00 p.m. or 4:00-8:00 p.m. The level of congestion is equal to the longest travel time compared to the average travel time.

Baseline:	Target:	Current Status:	Progress:
2.7	3.7	2.7	

Transit Asset Management (TAM)

The NFRMPO region decided to keep each transit agency separate regarding performance measures. City of Loveland Transit (COLT) elected to join the Statewide Tier II TAM Plan and to support Statewide targets, while Transfort and Greeley Evans Transit (GET) elected to draft their own TAM plans.

The transit agencies each identified their current and expected needs and use the National Transit Database (NTD) to report data to FTA. This data is meant to help transit agencies identify need and invest limited funds where they are needed most. Anticipated Useful Life Benchmarks are identified by the FTA, but each agency identifies their needs and funding capabilities. These targets are set yearly by the transit agencies and then reported to the NFRMPO. The NFRMPO will report these targets with each update to the System Performance Report.

Strategies to improve transit investment include using CMAQ funding to purchase new buses, assisting the transit agencies in purchasing new buses, and ensuring transit investments are represented in the 2050 RTP.

Percent Revenue Vehicles Meeting or Exceeding Useful Life Benchmark

Revenue vehicles are vehicles providing revenue service, namely those vehicles which directly provide transit service to customers. A useful life benchmark (ULB) estimates how many years that vehicle can be in service and still be in a state of good repair. The ULB considers how long it is cost effective to operate an asset before ongoing maintenance costs outweigh replacement costs. ULBs are derived from FTA's Transit Economic Requirements Model (TERM). Transit agencies have faced difficulty with delivery of vehicles due to supply chain issues.

Table 2-13: Percent Revenue Vehicles Meeting or Exceeding Useful Life Benchmark

Agency	Vehicle Type	Useful Life Benchmark	Target
GET	Bus	14	0%
	Cutaway	7	
Statewide Tier II	Bus	14	31.14%
	Cutaway	10	26.15%
	Minivan	8	7.03%
Transfort	30-ft Bus	13	0%
	35-ft and 40-ft Bus	15	
	Articulated Bus	15	
	Cutaway- Light Duty	6	
	Cutaway- Medium Duty	9	

Percent Services Vehicles Meeting or Exceeding Useful Life Benchmark

FTA defines service vehicles as vehicles used to indirectly deliver transit service, maintain revenue vehicles, and perform transit-oriented administrative activities.

Table 2-14: Percent Service Vehicles Meeting or Exceeding Useful Life Benchmark

Agency	Vehicle Type	Useful Life Benchmark	Target
GET	Non-Revenue/Service Automobile	10	0%
	Other Rubber Tire Vehicles	10	50%
Statewide Tier II	Automobiles	8	0%
	Trucks & Other Rubber Tire Vehicles	14	15.07%
Transfort	Automobiles	10	21%
	Trucks and Other Rubber Tire Vehicles	10	0%

Percent Passenger and Maintenance Facilities Rated Below Condition 3

Passenger and maintenance facilities include transit stations and centers, park-n-ride lots and garages, maintenance facilities, and administrative offices. The FTA provides grading criteria in its Facilities Condition Assessment Guidebook, leading to the TERM five-point scale. Condition 3 is considered “Adequate”.

Table 2-15: Percent Passenger and Maintenance Facilities Rated Below Condition 3

Agency	Vehicle Type	Target
GET	Administrative/ Maintenance Facilities	0%
	Passenger Facilities	0%
Statewide Tier II	Administrative and Maintenance	2.78%
	Passenger and Parking	0%
Transfort	Administrative and Maintenance Facilities	0%
	Passenger and Parking Facilities	0%

Transit Safety

The Federal Transit Agency (FTA) requires certain operators of public transportation systems that receive federal funds under the FTA’s Urbanized Area Formula Grants to develop Public Transportation Agency Safety Plans (PTASPs) which include targets for transit safety performance measures. There are three public transportation agencies within the North Front Range region which are subject to this rule: Transfort, Greeley-Evans Transit (GET), and City of Loveland Transit (COLT). The transit safety measures were first set in 2021.

Public transportation agencies are required to set the following performance targets annually for each mode of transit service provided:

- Total Fatalities
- Fatality Rate (per 100,000 Vehicle Revenue Miles (VRM))
- Total Injuries
- Injury Rate (per 100,000 VRM)
- Total Safety Events
- Safety Event Rate (per 100,000 VRM)
- System Reliability/Major Mechanical Failures (VRM/Failures)

Table 2-16: Transit Safety Targets

Agency	Measure	Total Fatalities	Fatality Rate	Total Injuries	Injury Rate	Total Safety Events	Safety Event Rate	System Reliability
GET	Fixed Route Bus, Paratransit, Demand Response	0	0	1	0	0	0	1.5
COLT	Fixed Route Bus	0	0	0	0	0	0	0
	ADA/Paratransit	0	0	0	0	0	0	0
Transfort	Fixed Route Bus (Directly Operated)	0	0	0	0	0	0	0
	Bus Rapid Transit (Directly Operated)	0	0	0	0	0	0	0
	Demand Response (Purchased Transportation)	0	0	0	0	0	0	0
	Demand Response- Taxi (Purchased Transportation)	0	0	0	0	0	0	0

Regional Performance Measures

The NFRMPO region identified the following performance measures as important to the benefit of the transportation system in Northern Colorado. Unlike the federally required performance measures, the regional performance measures are to be achieved by 2050.

Population within Paratransit and Demand Response Service Area Within the NFRMPO Boundary

Population for the paratransit and demand response service area are taken from the NTD for the most recent year, while the population for the overall NFRMPO region is taken from Department of Local Affairs (DOLA) estimates. Current investments call for commuter transit investments which do not have a requirement for complementary ADA paratransit.

Baseline:	Target:	Current Status:	Progress:
63%	At Least 75%	68.7%	

Fixed-route Revenue Hours per Capita within Service Areas

Population in the NFRMPO region is growing at a quick rate, while investment in transit is holding steady. Investments in regional transit as a result of the [LinkNoCo](#) study will increase transit revenue hours at the regional level.

Baseline:	Target:	Current Status:	Progress:
0.65	Increase by 30%	.45	

Non-Motorized Facility Miles

Non-motorized facilities include sidewalks, trails, and bike lanes. The region has invested heavily in implementing the [2021 Active Transportation Plan](#) regional trails, while individual communities have worked to ensure connectivity within their communities.

Baseline:	Target:	Current Status:	Progress:
3,352 miles	7.62 miles per 1,000 people	4,586 miles	

Percent of Non-Single Occupant Vehicle Commuter Trips

As the region continues to grow, investments and strategies should be made to increase the percentage of non-single occupant vehicle commuter trips to prevent excess congestion and lower the region's greenhouse gas emissions. The federally required percentage of non-single occupant vehicle commuter trips performance measure is only for the Fort Collins TMA while this performance measure is for the whole region.

Baseline:	Target:	Current Status:	Progress:
23%	At Least 40%	26.8%	

Daily VMT Per Capita

VMT is estimated using the NFRMPO's Regional Travel Demand Model (RTDM), data provided by CDOT, and Census data. Population is estimated by DOLA. Investments should be made to ensure residents do not need to drive as far to run errands, commute, go to school, etc.

Baseline:	Target:	Current Status:	Status:
24	24	24	


Projects Requiring more than One Extension

All projects that receive funding through a NFRMPO Call for Projects are subject to the TIP Project Delay Procedure which aims to maximize the funding obligated each fiscal year and enable the NFRMPO to redirect funds to alternate projects if any are inactive or not making progress. Projects that are determined to be delayed may be granted extensions. Projects that require more than one extension could have their project funding revoked by Planning Council.

Baseline:	Target:	Current Status:	Status:
11%	≤22%	20%	

Travel Time Index on RSCs

Regionally Significant Corridors (RSCs) include all Interstates, US, and State Highways; and roadways which are eligible to receive federal aid, connect more than one governmental jurisdiction and/or activity center, will be completely built by 2050, and serve regional traffic. Travel Time Index (TTI) measures the ratio of peak-period travel time to the free flow travel time, with peak period being defined as 6:00 a.m. to 9:00 a.m. and 4:00 p.m. to 7:00 p.m. Travel time data is not available for all RSCs, so a sampling is done and extrapolated to all RSCs.

Baseline:	Target:	Current Status:	Status:
90% of RSCs have a TTI ≤1.5	90%	94.9%	

Percent of Devices Connected by Fiber on RSCs

Communities throughout the region are investing in fiber to help connect Intelligent Transportation System (ITS) devices to the transportation network. Investments in ITS technology will assist in connecting the region's transportation network and providing important data that will assist with the transportation planning process.

Baseline:	Target:	Current Status:	Status:
87%	≥87%	87%	

Scorecard

Category	Performance Measure	Benchmark (2045 RTP Target)	2050 RTP Target	Status
PM1: Highway Safety	Number of fatalities	644	668	✖
	Rate of fatalities per 100M VMT	1.20	1.262	✖
	Number of serious injuries	2,909	3,041	✖
	Rate of serious injuries per 100M VMT	5.575	5.794	✖
	Number of non-motorized fatalities and serious injuries	514	548	✖
PM2: Bridge and Pavement Condition	Percent of Interstate pavement in Good condition	47%	47%	—
	Percent of Interstate pavement in Poor condition	1%	3.5%	✖
	Percent of Non-Interstate NHS pavement in Good condition	51%	43%	✖
	Percent of Non-Interstate NHS pavement in Poor Condition	2%	3.5%	✓
	Percent of NHS Bridges in Good condition	44%	36%	✓
	Percent of NHS Bridges in Poor condition	4%	4%	✓
PM3: System Performance	Percent of person-miles traveled on Interstate system that are reliable	81%	79%	✓
	Percent of person-miles traveled on non-Interstate system that are reliable	64%	94%	✓
	Truck travel time reliability index	1.5	1.46	✓
	VOC Reduction	105 kg/day	482 kg/day	—
	CO Reduction	1,426 kg/day	5,393 kg/day	—
	NOx Reduction	105 kg/day	1,086 kg/day	—
	Non-single occupant vehicle travel	N/A	25.6%	—
	Annual hours of peak hour excessive delay per capita on the NHS system	N/A	3.7	✓

Status Key: ✓ Achieved — In Progress ✖ Not Achieved

Category	Performance Measure	Benchmark (2045 RTP)	Target (2050 RTP)	Status
Regional Performance Measures	Population within paratransit and demand response service area within the NFRMPO boundary	≥75%	≥75%	—
	Fixed-route revenue hours per capita within service areas	Increase by 10%	Increase by 30%	✗
	Non-motorized facility miles	Increase by 50%	7.62 miles per 1,000 people	—
	Percent of non-single occupant vehicle commuter trips	≥25%	≥40%	—
	Daily VMT per capita	24	24	✓
	Projects requiring more than one extension	N/A	≤22%	✓
	Travel time index on RSCs	90% ≤ 1.5	90% ≤ 1.5	✓
	Percent of devices connected by fiber on RSCs	N/A	≥87%	✓

Status Key: ✓ Achieved — In Progress ✗ Not Achieved

Agency	Percent Revenue Vehicles Meeting or Exceeding Useful Life Benchmark	Benchmark (years)	2045 RTP Target	2050 RTP Target	Status
GET	Bus	14	5%	0%	✓
	Cutaway	7	10%/20%	0%	✓
Statewide Tier II	Bus	14	20%	31.14%	✓
	Cutaway	10	7%-20%	26.15%	✗
	Minivan	8	38%	7.03%	N/A
Transfort	30-ft Bus	13	25%	0%	✓
	35-ft and 40-ft Bus	15	25%	0%	✓
	Articulated Bus	15	25%	0%	✓
	Cutaway- Light Duty	6	25%	0%	✓
	Cutaway- Medium Duty	9	25%	0%	✓

Status Key: ✓ Achieved — In Progress ✗ Not Achieved

Agency	Percent Service Vehicles Meeting or Exceeding Useful Life Benchmark	Benchmark (years)	2045 RTP	2050 RTP	Status
GET	Non-Revenue/Service Automobile	10	1%	0%	✓
	Other Rubber Tire Vehicles	10	1%	50%	✓
Statewide Tier II	Automobiles	8	28%	0%	✓
	Trucks & Other Rubber Tile Vehicles	14	28%	15.07%	✗
Transfort	Automobiles	10	25%	21%	✓
	Trucks and Other Rubber Tiles	10	25%	0%	✓

Status Key: ✓ Achieved — In Progress ✗ Not Achieved

Agency	Percent Passenger and Maintenance Facilities Rated Below Condition 3	2045 RTP Target	2050 RTP Target	Status
GET	Administrative/ Maintenance Facilities	10%	0%	✓
	Passenger Facilities	10%	0%	✓
Statewide Tier II	Administrative and Maintenance	19%	2.78%	✓
	Passenger and Parking	19%	0%	✓
Transfort	Administrative and Maintenance Facilities	25%	0%	✓
	Passenger and Parking Facilities	25%	0%	✓

Status Key: ✓ Achieved — In Progress ✗ Not Achieved

A blue bus with white stripes and the City of Loveland logo is shown. The bus has a large window and a side mirror. The logo on the side features a stylized mountain and the text "City of Loveland".

Chapter

3

Scenarios & Visioning

Chapter

3

Section 1: Corridor Visions



Corridor Visions

Vision plans were prepared for each of the 30 RSCs, 16 RTCs, and 12 RATCs, highlighting information from the Regional Travel Demand Model, Fiscally Constrained Plan, and information from local plans.

- **Socioeconomic Data** (housing and jobs) is analyzed for each census block within 0.5 miles of the corridor as determined by the LUAM. Information about the baseline scenario used for the 2050 data is explored in the Scenario section.
- **Vehicle Miles Traveled (VMT)** is estimated by the RTDM for each RSC. This VMT includes only the corridor, not connecting corridors or buffered areas.
- **VRM (Vehicle Revenue Miles)** are the number of miles a bus in revenue service travels each day as determined by the RTDM. VRH is determined by the distance and service levels for each route.

Feedback from the public is highlighted in relevant corridors. Red text denotes a negative comment or concern, while green denotes a positive comment or suggestion. Major projects identified in this section are those that can be modeled. During that process and during community engagement, local community staff identified multimodal improvements that will be made. Multimodal improvements include projects like sidewalks, side paths, bike lanes, and transit improvements. The following icons provide context for these priorities.









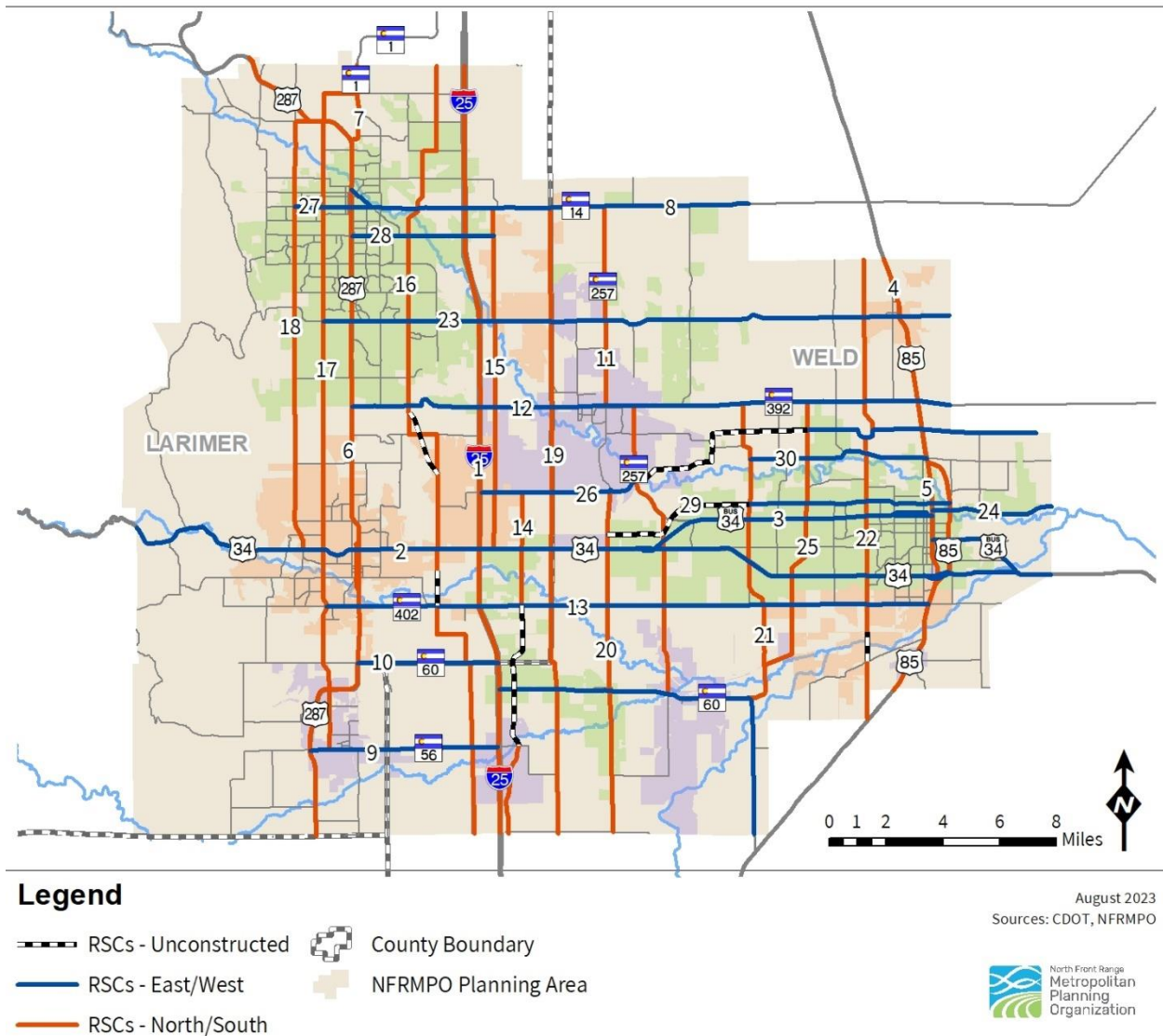
Safety	 Vehicle Safety	 Pedestrian Safety
Regional Health	 Air Quality and Environment	 Regional Economy
Infrastructure	 Personal Vehicle Mobility and Infrastructure	 Pedestrian Mobility and Infrastructure
Multimodal	 Public Transit Options/Infrastructure	 Bicycle Accessibility/Infrastructure

Figure 3-1: Regionally Significant Corridors



RSC 1: I-25 Corridor Vision

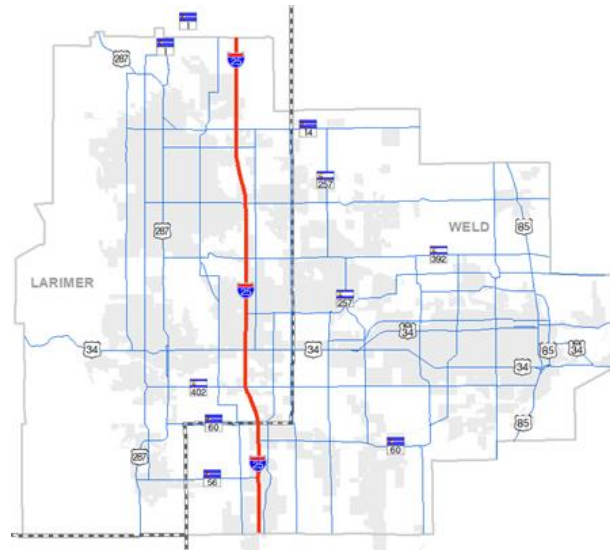


Vision Statement

I-25 is built to the North I-25 Environmental Impact Statement (EIS) to support its role as the backbone of the regional transportation system, supporting multimodal trips on a safe, efficient, and reliable corridor.

Jurisdictions

Berthoud, Fort Collins, Johnstown, Loveland, Larimer County, Windsor, Timnath



I-25 within the NFRMPO

Anticipated Growth in Adjacent Census Block Groups

Category	2019	2050	% Change
Population	10,389	44,630	+329.6%
Jobs	17,954	32,092	+78.7%
VMT	2,055,879	3,431,492	+66.9%

Future Improvements

Community/Agency	Improvement Type	Location	Completion Date
CDOT	Express Lane Construction	SH14 to SH402	2024-2026
CDOT	Express Lane Construction	SH402 to SH56	2024-2026
CDOT	Express Lane Construction	SH56 to WCR-38	2027-2030
Mead	Interchange Construction	WCR38 and I-25	2027-2030

Related Plans

- [North I-25 Environmental Impact Statement](#)
- [North I-25 EIS Records of Decisions](#)

Connecting RSCs:

- US34 (RSC2)
- SH14 (RSC8)
- SH56 (RSC 9)
- SH60 (RSC10)
- SH392 (RSC12)
- SH402/Freedom Pkwy (RSC13)
- WCR74/Harmony Rd (RSC23)
- Crossroads Boulevard (RSC26)
- Prospect Road (RSC28)

Connecting RTCs:

- Great Western (RTC1)
- US34 (RTC2)
- Loveland to Windsor (RTC3)
- Bustang (RTC6)
- Poudre Express (RTC7)
- Harmony MAX (RTC10)
- Front Range Rail (I-25) (RTC13)
- SH56 Transit Service (RTC15)

Connecting RATCs:

- Little Thompson (RATC2)
- Big Thompson (RATC3)
- Great Western (RATC4)
- North Loveland/Windsor (RATC5)
- Poudre Trail (RATC6)
- Front Range Trail (RATC7)
- US34 Parallel (RATC11)

What we heard from the public

*“There are **too many cars** on I-25, and no viable alternatives for people that would be interested in taking **transit** to get to regional destinations.”*

*“**Increased capacity** for vehicles to **minimize congestion** and **improve safety**. Since we’re planning thirty years out, consider an **additional lane** in each direction dedicated to **autonomous vehicles and BRT**.”*

RSC 2: US34 Corridor Vision

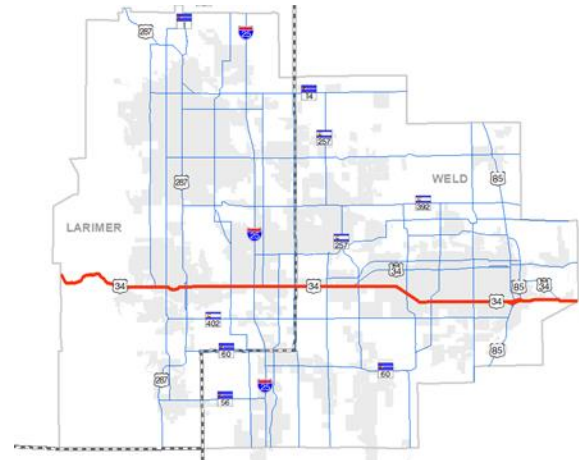


Vision Statement

US34 is the primary east-west corridor through the region, supporting growing housing, jobs, and tourism nodes along the corridor.

Jurisdictions

Larimer County, Loveland, Johnstown, Windsor, Greeley, Garden City, Evans, Weld County



US34 within the NFRMPO

Anticipated Growth in Adjacent Census Block Groups

Category	2019	2050	% Change
Population	68,241	128,346	+88.1%
Jobs	39,134	64,863	+65.7%
VMT	986,396	1,517,159	+53.9%

Future Improvements

Community/Agency	Improvement Type	Description/Location	Completion Date
Loveland	Road Widening	6 lanes between Centerra Pkwy and LCR3	2024-2026
Loveland	Road Widening	6 lanes between Boyd Lake Avenue and Rocky Mountain Avenue	2024-2026
Greeley/CDOT	Interchange Construction	47th Avenue	2027-2030
Greeley/CDOT	Interchange Construction	35th Avenue	2027-2030
Greeley/CDOT	Mobility Hub Construction	Centerplace Mobility Hub	2027-2030

Related Plans

- [US34 Planning and Environmental Linkage Study](#)
- [US34 Access Control Plan](#)
- US34 Corridor Optimization Plan
- [LinkNoCo Report](#)
- [Regional Active Transportation Plan](#)



Future Interchanges at US34/47th Ave (Left) and US34/35th Ave (Right) in Greeley.

RSC 2: US34 Corridor Vision Continued

Connecting RSCs:

- I-25 (RSC1)
- US34 Business (RSC3)
- US85 (RSC4)
- US85 Business (RSC5)
- US287 (RSC6)
- LCR3 (RSC14)
- LCR5 (RSC15)
- LCR7/LCR9 (RSC16)
- LCR17/Taft Ave (RSC17)
- LCR19/Wilson Ave (RSC18)
- WCR13 (RSC19)
- WCR17 (RSC20)
- WCR27/83rd Avenue (RSC21)
- 35th Avenue (RSC22)
- 59th Ave/65th Ave (RSC25)

Connecting RTCs:

- US34 (RTC2)
- Loveland to Windsor (RTC3)
- FLEX Express (RTC4)
- FLEX Local (RTC5)
- Bustang (RTC6)
- Poudre Express (RTC7)
- Front Range Rail (RTC12)
- Front Range Rail (RTC13)
- US85 Transit Service (RTC14)

Connecting RATCs:

- South Platte (RATC1)
- Big Thompson Trail (RATC3)
- North Loveland/Windsor (RATC5)
- Front Range Trail (RATC7)
- BNSF (RATC8)
- Johnstown/Timnath (RATC9)
- Greeley/LaSalle (RATC10)
- US34 Parallel (RATC11)
- Carter Lake/Horsetooth (RATC12)



Construction at I-25 and US34 in Loveland (CDOT)

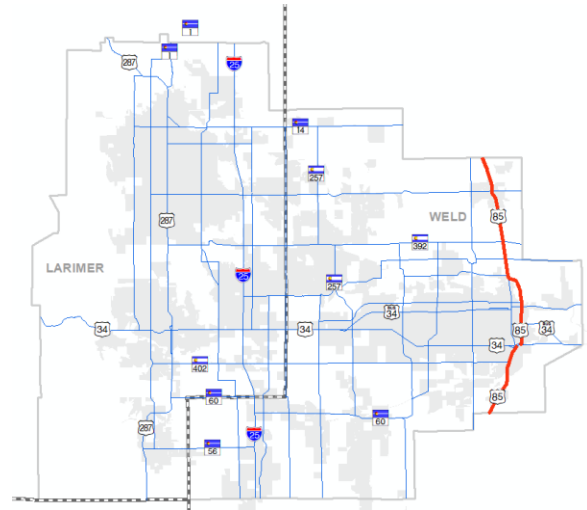
RSC 4: US85 Corridor Vision

Vision Statement

US85 is the primary north-south corridor for the eastern portion of the region, connecting oil and gas, agricultural, educational, and other activity centers to population centers.

Jurisdictions

Weld County, Eaton, Greeley, Garden City, Evans, LaSalle



US85 within the NFRMPO

Anticipated Growth in Adjacent Census Block Groups			
Category	2019	2050	% Change
Population	20,593	24,098	+17%
Jobs	11,406	20,604	+80.6%
VMT	284,073	469,024	+65.1%

Related Plans

- [US85 Planning and Environmental Linkage Study \(PEL\)](#)
- [US34 & US85 Interchange PEL Study](#)

Connecting RSCs:

- US34 (RSC2)
- US34 Business (RSC3)
- US85 Business (RSC5)
- SH392 (RSC12)
- SH402/Freedom Pkwy (RSC13)
- WCR74/Harmony Rd (RSC23)
- 8th Street (RSC24)
- Crossroads Boulevard (RSC26)
- O Street (RSC30)

Connecting RTCs:

- Great Western (RTC1)
- US85 Transit Service (RTC14)

Connecting RATCs:

- South Platte Trail (RATC1)
- Poudre Trail (RATC6)
- Greeley/LaSalle (RATC10)
- US34 Parallel (RATC11)



Construction at US85 and SH392 (CDOT)

RSC 5: US85 Business Corridor Vision

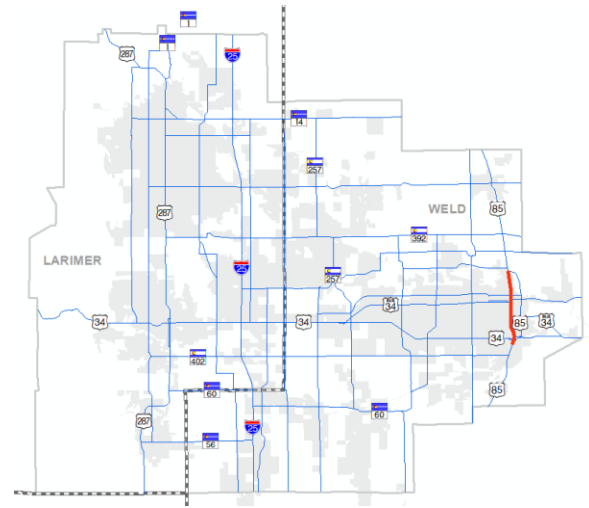


Vision Statement

US85 Business supports economic development into and through downtown Greeley and the University of Northern Colorado.

Jurisdictions

Greeley, Garden City



US85 Business within the NFRMPO

Anticipated Growth in Adjacent Census Block Groups			
Category	2019	2050	% Change
Population	15,859	19,732	+24.4%
Jobs	14,667	30,784	+109.9%
VMT	51,896	69,343	+33.6%

Future Improvements

Community/Agency	Improvement Type	Description/Location	Completion Date
Greeley	Mobility Enhancements	Reduce 8th Avenue to 2 lanes from O St to 24th St	2027-2030

Related Plans

- [US34 & US85 Interchange PEL Study](#)
- [Greeley on the Go Plan](#)

Connecting RSCs:

- US34 (RSC2)
- US34 Business (RSC3)
- 8th Street (RSC24)
- 4th Street (RSC29)

Connecting RTCs:

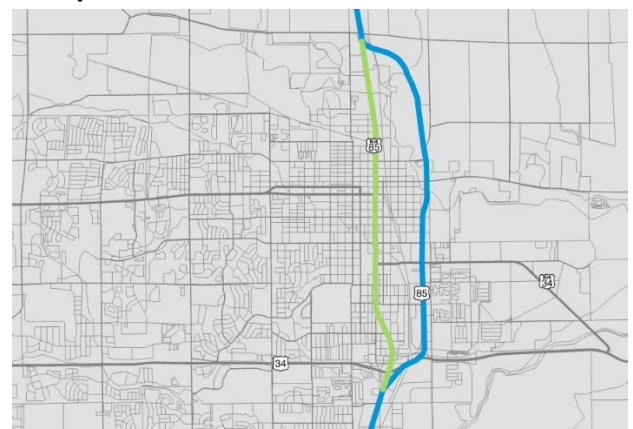
- Great Western (RTC1)
- Poudre Express (RTC7)
- US34 Business Transit (RTC11)
- US85 Transit Service (RTC14)

Connecting RATCs:

- Poudre Trail (RATC6)
- US34 Parallel (RATC11)

What we heard from the public

“This corridor would benefit from reduced speeds, less traffic, and additional investments.”



US85 (Right) and US85 Business (Left) in Greeley/Garden City

RSC 6: US287 Corridor Vision

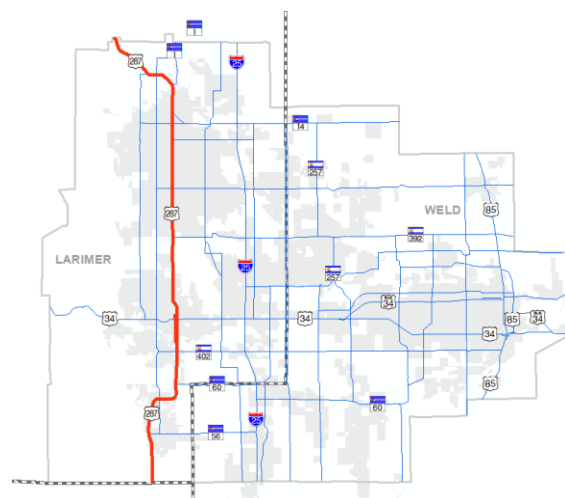


Vision Statement

US287 is the primary north-south corridor for the western portion of the region, connecting Colorado State University and the downtowns of Fort Collins, Loveland, and Berthoud.

Jurisdictions

Larimer County, Fort Collins, Loveland, Berthoud



US287 within the NFRMPO

Anticipated Growth in Adjacent Census Block Groups

Category	2019	2050	% Change
Population	61,082	93,348	+52.8%
Jobs	57,838	80,593	+39.3%
VMT	862,977	1,237,186	+43.4%

Future Improvements

Community/Agency	Improvement Type	Description	Completion Date
Fort Collins	Road Widening	Trilby to Carpenter/LCR32	2031-2040
Larimer County/CDOT	Road Widening	SH392 to LCR30	2031-2040
Loveland	Road Widening	29th Street to 71st Street	2031-2040
Loveland	Road Widening	1st Street to SH402	2031-2040
Loveland	Park and Ride	Construction of Park and Ride at 11th St and US287	2041-2050

Related Plans

- [US 287 Asset Inventory](#)
- [Fort Collins Transportation Master Plan](#)
- [Connect Loveland](#) (draft)
- [Berthoud Transportation Master Plan](#)
- [Larimer County Transportation Master Plan](#)

What we heard from the public



Max Bus Stop at CSU (CSU Photography)

“Congestion and viable (high frequency) transit. Accessibility/safety of bus stops.”

RSC 6: US287 Corridor Vision

Connecting RSCs:

- US34 (RSC2)
- SH1 (RSC7)
- SH14 (RSC8)
- SH56 (RSC9)
- SH60 (RSC10)
- SH392 (RSC12)
- SH402/Freedom Pkwy (RSC13)
- LCR17 (RSC17)
- LCR19 (RSC19)
- WCR74/Harmony Road (RSC23)
- Mulberry Street (RSC27)
- Prospect Road (RSC28)

Connecting RTCs:

- Great Western (RTC1)
- US34 (RTC2)
- Loveland to Windsor (RTC3)
- FLEX Express (RTC4)
- FLEX Local (RTC5)
- Bustang (RTC6)
- Poudre Express (RTC7)
- North College MAX (RTC8)
- West Elizabeth MAX (RTC9)
- Harmony Road MAX (RTC10)
- Front Range Passenger Rail (RTC12)
- US34 West Loveland to Estes Park (RTC16)

Connecting RATCs:

- Little Thompson River (RATC2)
- Big Thompson River (RATC3)
- Great Western (RATC4)
- N. Loveland/Windsor (RATC5)
- Poudre River Trail (RATC6)
- Front Range Trail West (RATC7)
- BNSF (RATC8)
- US34 Non-Motorized (RATC11)



US287 at 37th Street in Loveland, location of the new Loveland Transit Center

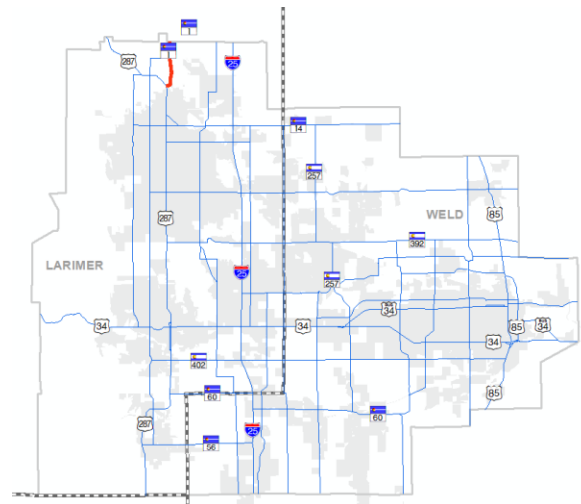
RSC 7: SH1 Corridor Vision

Vision Statement

SH1 is a primary northern gateway into the region, acting as a safe, welcoming, and multimodal corridor.

Jurisdictions

Fort Collins, Larimer County



SH1 within the NFRMPO

Anticipated Growth in Adjacent Census Block Groups			
Category	2019	2050	% Change
Population	4,182	5,330	+27.5%
Jobs	1,210	1,834	+51.6%
VMT	23,167	42,764	+84.6%

Related Plans

- [Fort Collins Transportation Master Plan](#)
- [Larimer County Transportation Master Plan](#)

Connecting RSCs:

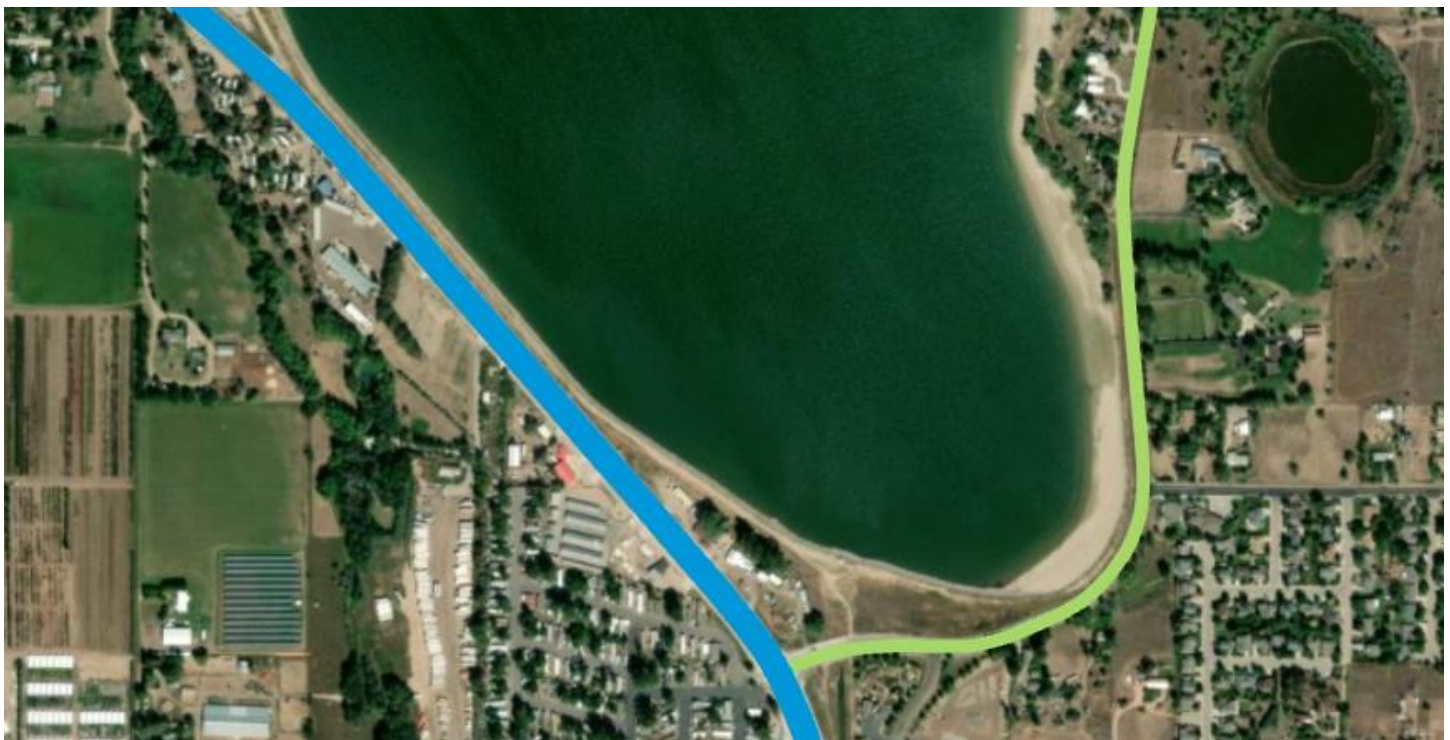
- US287 (RSC6)
- LCR17 (RSC17)

Connecting RTCs:

- North College MAX (RTC8)

Connecting RATCs:

- None



Intersection of SH1 (right) and US287 (left, RSC 6) near Terry Lake in Larimer County

RSC 8: SH14 Corridor Vision

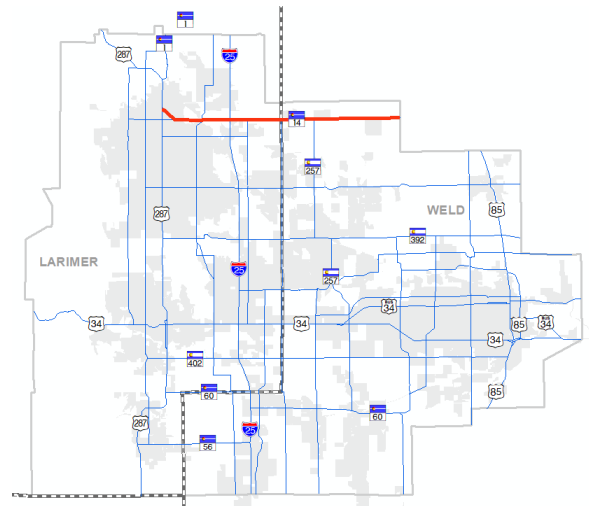


Vision Statement

SH14 supports the movement of goods and people between downtown Fort Collins and the eastern portion of the region.

Jurisdictions

Fort Collins, Larimer County, Timnath, Severance, Weld County



SH14 within the NFRMPO

Anticipated Growth in Adjacent Census Block Groups

Category	2019	2050	% Change
Population	13,853	25,154	+81.6%
Jobs	28,673	45,311	+58%
VMT	263,934	411,235	+55.8%

Related Plans

- [Fort Collins Transportation Master Plan](#)
- [Larimer County Transportation Master Plan](#)
- [Weld County Transportation Master Plan](#)

Additional Details

- National Highway System

Connecting RSCs:

- I-25 (RSC1)
- US287 (RSC6)
- SH257 (RSC11)
- Larimer CR5 (RSC15)
- Larimer CR7/LCR9 (RSC16)
- Weld CR13 (RSC19)
- Mulberry Street (RSC28)

Connecting RTCs:

- Great Western (RTC1)
- FLEX Express (RTC4)
- Bustang (RTC6)
- Poudre Express (RTC7)
- North College MAX (RTC8)
- Front Range Rail (RTC12)
- Front Range Rail (RTC13)

Connecting RATCs:

- Poudre River Trail (RATC6)
- Front Range Trail (RATC7)

What we heard from the public

*“**Speed** is a major concern along this corridor. People go way too fast and pass people going the speed limit. There needs to be **speed controlling measures** to help **improve safety**.”*



Intersection of Highway 85 and Highway 14

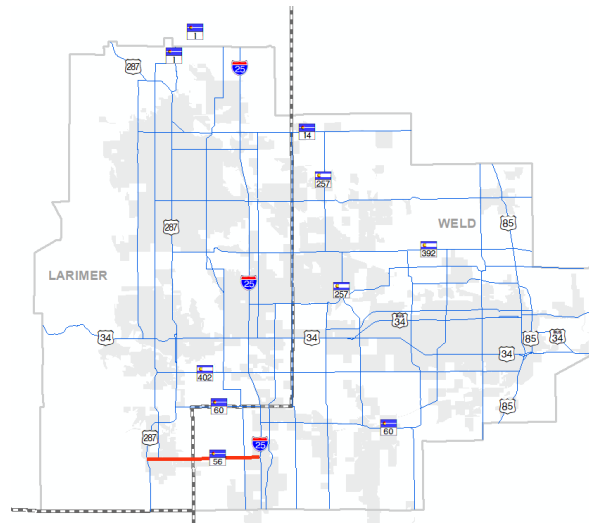
RSC 9: SH56 Corridor Vision

Vision Statement

SH56 supports the movement of goods and people between Berthoud and I-25, including connections to the Mobility Hub.

Jurisdictions

Berthoud, Larimer County, Weld County



SH56 within the NFRMPO

Anticipated Growth in Adjacent Census Block Groups			
Category	2019	2050	% Change
Population	6,857	18,720	+173%
Jobs	2,277	1,939	-14.8%
VMT	66,280	133,994	+102.2%

Related Plans

- [Berthoud Transportation Master Plan](#)

Connecting RSCs:

- I-25 (RSC1)
- US287 (RSC6)
- LCR3/WCR9.5 (RSC14)
- Larimer CR7/LCR9 (RSC16)
- LCR17 (RSC17)

Connecting RTCs:

- FLEX Express (RTC4)
- FLEX Local (RTC5)
- Bustang (RTC6)
- Front Range Rail (RTC12)
- Front Range Rail (RTC13)

Connecting RATCs:

- Little Thompson River (RATC2)
- BNSF (RATC8)



Rendering of Berthoud Mobility Hub at SH56 and I-25 (CDOT)

RSC 10: SH60 Corridor Vision

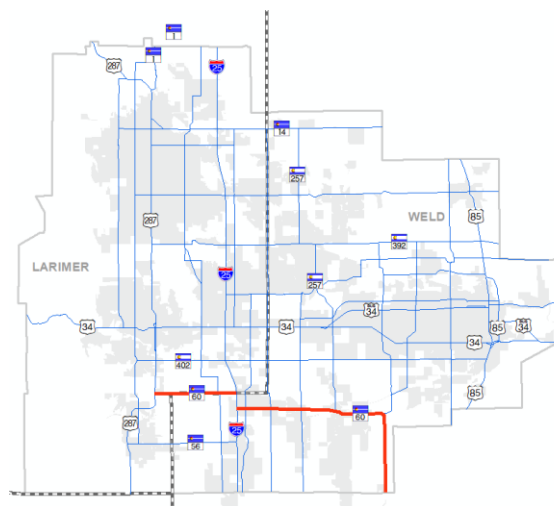


Vision Statement

SH60 acts as the backbone for housing and economic development in the southern portion of the region, connecting Loveland, Johnstown, and Milliken to I-25.

Jurisdictions

Loveland, Larimer County, Weld County, Johnstown, Milliken



SH60 within the NFRMPO

Anticipated Growth in Adjacent Census Block Groups			
Category	2019	2050	% Change
Population	17,649	35,442	+100.8%
Jobs	3,542	9,959	+181.2%
VMT	223,161	358,476	+60.6%

Related Plans

- [SH60 Environmental Overview Study](#)

Connecting RSCs:

- I-25 (RSC1)
- US287 (RSC6)
- LCR3/WCR9.5 (RSC14)
- Larimer CR7/LCR9 (RSC16)
- WCR13 (RSC19)
- WCR17 (RSC20)
- WCR27 (RSC21)

Connecting RTCs:

- FLEX Express (RTC4)
- FLEX Local (RTC5)
- Bustang (RTC6)
- Front Range Rail (RTC13)

Connecting RATCs:

- South Platte Trail (RATC1)
- Little Thompson River (RATC2)
- Big Thompson River (RATC3)
- Johnstown/Timnath (RATC9)



Construction at SH60 and I-25 – May 2021 (CDOT)

RSC 11: SH257 Corridor Vision

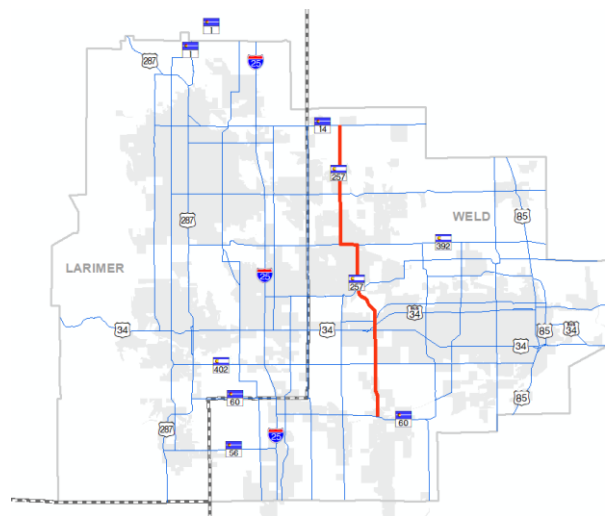


Vision Statement

SH257 supports the movement of goods and people, and jobs and housing growth throughout the central portion of the region.

Jurisdictions

Weld County, Severance, Windsor, Greeley, Milliken



SH257 within the NFRMPO

Anticipated Growth in Adjacent Census Block Groups

Category	2019	2050	% Change
Population	16,768	41,047	+144.8%
Jobs	5,712	10,977	+92.2%
VMT	182,174	336,104	+84.5%

Future Improvements

Community/Agency	Improvement Type	Description/Location	Completion Date
Windsor	Road Widening	Walnut Street to Eastman Park Drive	2027-2030
Windsor	Road Widening	WCR78 to WCR74	2031-2040
Windsor	Road Widening	WCR74 to SH392	2031-2040
Windsor	Road Widening	Eastman Park Drive to Crossroads	2031-3040

Related Plans

- [Severance Transportation Master Plan](#)
- [Windsor Transportation Mater Plan](#)

Connecting RSCs:

- US34 (RSC2)
- US34 Business (RSC3)
- SH14 (RSC8)
- SH60 (RSC10)
- SH392 (RSC12)
- SH402/Freedom Pkwy (RSC13)
- WCR74/Harmony Road (RSC23)
- Crossroads Boulevard (RSC26)
- 4th Street (RSC29)

Connecting RTCs:

- Great Western (RTC1)
- US34 (RTC2)
- Loveland to Windsor (RTC3)
- Poudre Express (RTC7)
- US34 Business Premier Transit (RTC11)

Connecting RATCs:

- Little Thompson River (RATC2)
- Big Thompson River (RATC3)
- Great Western (RATC4)
- N. Loveland/Windsor (RATC5)
- Poudre River Trail (RATC6)
- US34 Parallel (RATC11)

RSC 12: SH392 Corridor Vision

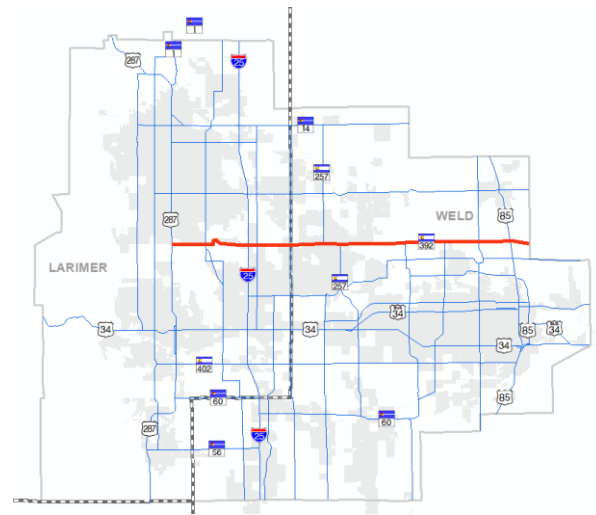


Vision Statement

SH392 supports economic and housing growth in southern Fort Collins, the industrial area around the Northern Colorado Regional Airport, through to northern Greeley.

Jurisdictions

Fort Collins, Larimer County, Windsor, Weld County, Greeley



SH392 within the NFRMPO

Anticipated Growth in Adjacent Census Block Groups

Category	2019	2050	% Change
Population	21,713	35,343	+62.8%
Jobs	8,837	12,525	+41.7%
VMT	273,008	488,281	+78.9%

Future Improvements

Community/Agency	Improvement Type	Description/Location	Completion Date
Windsor	Road Widening	Highland Meadows Pkwy to Colorado Blvd	2024-2026
Windsor	Road Widening	WCR19 to WCR21	2027-2030
Windsor	Road Widening	Colorado Blvd to 17th St	2027-2030
Weld County	Road Widening	WCR21 to WCR23	2027-2030

Related Plans

- [Fort Collins Transportation Master Plan](#)
- [Fort Collins Active Modes Plan](#)
- [Windsor Transportation Plan](#)

What we heard from the public

*“My vision for the corridor includes a **bypass** around **downtown Windsor**.”*

Connecting RSCs:

- I-25 (RSC1)
- US85 (RSC4)
- US287 (RSC6)
- SH257 (RSC11)
- Larimer CR5 (RSC15)
- Larimer CR7/LCR9 (RSC16)
- Weld CR13 (RSC19)
- Weld CR17 (RSC20)
- Weld CR27/83rd Avenue (RSC21)
- 35th Avenue (RSC22)
- 59th Ave/65th Ave (RSC25)

Connecting RTCs:

- Great Western (RTC1)
- Loveland to Windsor (RTC3)
- FLEX Express (RTC4)
- FLEX Local (RTC5)
- Bustang (RTC6)
- Poudre Express (RTC7)
- Front Range Rail (RTC13)
- US85 Transit Service (RTC14)

Connecting RATCs:

- Great Western (RATC4)
- N. Loveland/Windsor (RATC5)
- Poudre River Trail (RATC6)
- Front Range Trail West (RATC7)
- BNSF (RATC8)
- Johnstown/Timnath (RATC9)
- Greeley/LaSalle (RATC10)

RSC 13: SH402 / Freedom Parkway Corridor Vision

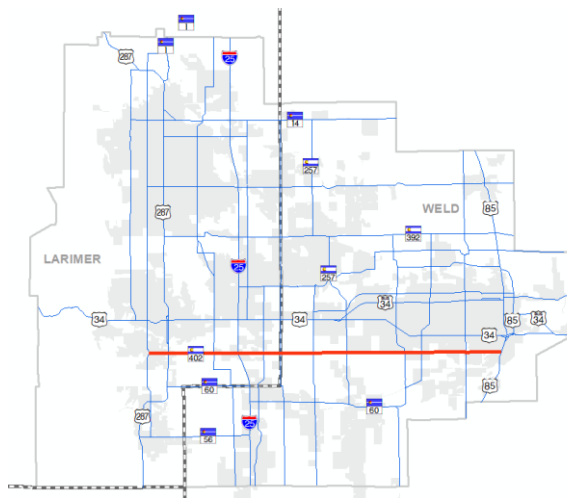


Vision Statement

SH402 acts as the southern relief corridor for US34, connecting Loveland to Evans and supporting economic and housing growth in the southern portion of the region.

Jurisdictions

Loveland, Larimer County, Johnstown, Weld County, Evans



SH402/Freedom Parkway within the NFRMPO

Anticipated Growth in Adjacent Census Block Groups

Category	2019	2050	% Change
Population	29,008	56,476	+94.7%
Jobs	7,045	10,842	+53.9%
VMT	247,535	533,391	+115.5%

Future Improvements

Community/Agency	Improvement Type	Description/Location	Completion Date
Loveland	Road Widening	St. Louis Ave to Boise Ave	2024-2026
Evans/Greeley	Road Widening	47th Ave to Stampede Drive	2024-2026
Loveland	Road Widening	Boyd Lake Avenue to I-25	2027-2030
Loveland	Road Widening	US287 to St. Louis Avenue	2031-2040
Greeley	Road Widening	WCR17 to SH257	2031-2040
Greeley	Road Widening	SH257 to 77th Ave/83rd Ave/Two Rivers Pkwy	2041-2050

Related Plans

- [Connect Loveland](#) (draft)
- [Freedom Parkway Access Control Plan](#)
- Evans Multimodal Transportation Master Plan

Connecting RSCs:

- I-25 (RSC1)
- US85 (RSC4)
- US287 (RSC6)
- LCR3/WCR9.5 (RSC14)
- LCR7/LCR9 (RSC16)
- LCR17 (RSC17)
- WCR13 (RSC19)
- Weld CR17 (RSC20)
- Weld CR27/83rd Avenue (RSC21)
- 35th Avenue (RSC22)
- 8th Street (RSC24)
- 59th Ave/65th Ave (RSC25)

Connecting RTCs:

- Loveland to Windsor (RTC3)
- FLEX Express (RTC4)
- FLEX Local (RTC5)
- Bustang (RTC6)
- Front Range Rail (RTC12)
- Front Range Rail (RTC13)
- US85 Transit Service (RTC14)

Connecting RATCs:

- Big Thompson River (RATC3)
- BNSF (RATC8)
- Johnstown/Timnath (RATC9)
- Greeley/LaSalle (RATC10)

RSC 14: LCR3 / WCR9.5 Corridor Vision

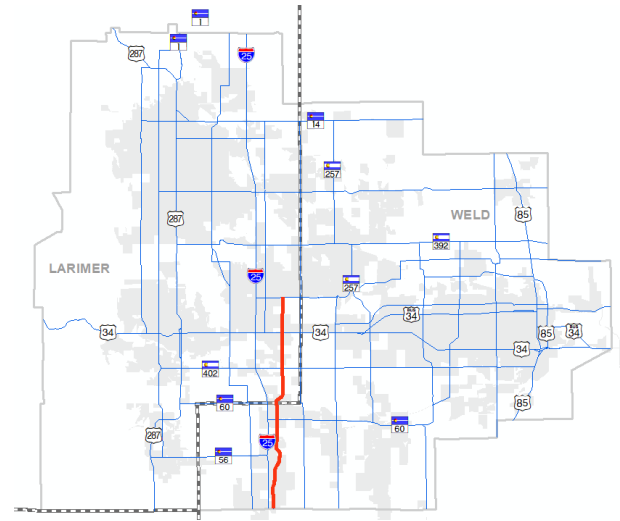


Vision Statement

LCR3/WCR9.5 acts as a relief corridor for I-25 and supports economic and housing growth in the central portion of the region.

Jurisdictions

Windsor, Larimer County, Johnstown, Weld County, Berthoud



LCR3/WCR9.5 within the NFRMPO

Anticipated Growth in Adjacent Census Block Groups

Category	2019	2050	% Change
Population	6,419	23,800	+270.8%
Jobs	3,893	10,528	+170.4%
VMT	832	39,884	+4,696.4%

Future Improvements

Community/Agency	Improvement Type	Description/Location	Completion Date
Loveland	Paving Unpaved Road	US34 and Crossroads Blvd	2024-2026
Johnstown	New 4 Lane Road	LCR14	2024-2026
Johnstown	Road Widening	Juniper St to SH60	2024-2026
Johnstown	New 4 Lane Road	SH60	2024-2026
Johnstown	Road Widening	US34 to Ronald Reagan Blvd	2027-2030
Johnstown	Road Widening	LCR20C to LCR18	2027-2030
Johnstown	New 4 Lane Road	LCR16 to 2,500 feet north of LCR14	2027-2030
Berthoud/Weld County	New 2 Lane Road	WCR44/SH56 to WCR32	2027-2030
Johnstown	New 4 Lane Road	Expanding High Plains Blvd from LCR18 to LCR16	2031-2040
Johnstown	New 4 Lane Road	Expanding High Plains Blvd from 2,500 feet south of SH60 to WCR46	2031-2040
Johnstown	New 4 Lane Road	Expanding High Plains Blvd from WCR46 to WCR44	2041-2050

Related Plans

- [Larimer County Transportation Master Plan](#)
- [North I-25 EIS](#)

Connecting RSCs:

- US34 (RSC2)
- SH60 (RSC10)
- SH402/Freedom Pkwy (RSC13)
- Crossroads Boulevard (RSC26)

Connecting RTCs:

- US34 (RTC2)

Connecting RATCs:

- Little Thompson River (RATC2)
- Big Thompson River (RATC3)
- Great Western (RATC4)
- US34 Parallel (RATC11)

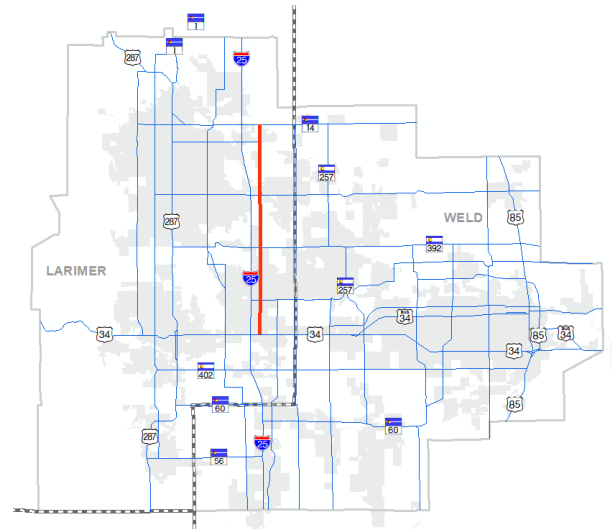
RSC 15: LCR5 Corridor Vision

Vision Statement

LCR5 acts as a relief corridor for I-25 and supports economic and housing growth in the central part of the region.

Jurisdictions

Fort Collins, Timnath, Larimer County, Windsor, Loveland



LCR5 within the NFRMPO

Anticipated Growth in Adjacent Census Block Groups			
Category	2019	2050	% Change
Population	11,213	33,619	+199.8%
Jobs	8,729	16,835	+92.9%
VMT	49,685	169,314	+240.8%

Future Improvements

Community/Agency	Improvement Type	Description/Location	Completion Date
Loveland	Road Widening	Crossroads Blvd	2027-2030
Windsor	Road Widening	LCR30 to SH392	2027-2030
Loveland	Road Widening	Rodeo Rd to 71st Street/CR30	2031-2040
Timnath	New 3 Lane Road	Constructing Timnath Bypass/Pkwy from N of LCR40 to LCR38	2031-2040

Related Plans

- [Larimer County Transportation Master Plan](#)
- [North I-25 EIS](#)
- [Connect Loveland](#)

Connecting RSCs:

- US34 (RSC2)
- SH14 (RSC8)
- SH392 (RSC12)
- WCR74/Harmony Road (RSC23)
- Crossroads Boulevard (RSC26)
- Mulberry Street (RSC27)

Connecting RTCs:

- Great Western (RTC1)
- US34 (RTC2)
- Loveland to Windsor (RTC3)
- Poudre Express (RTC7)

Connecting RATCs:

- N. Loveland/Windsor (RATC5)
- Poudre River Trail (RATC6)
- US34 Non-Motorized (RATC11)

RSC 16: LCR7 / LCR9/ Timberline Road Corridor Vision

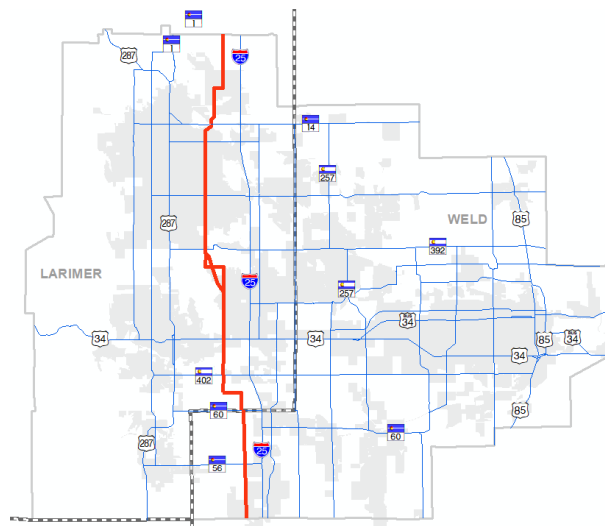


Vision Statement

LCR7/LCR9/Timberline Road Provides safe, efficient, and multimodal travel in the eastern portion of Larimer County.

Jurisdictions

Larimer County, Fort Collins, Loveland, Weld County, Berthoud



LCR7/LCR9/Timberline Road within the NFRMPO

Anticipated Growth in Adjacent Census Block Groups

Category	2019	2050	% Change
Population	37,793	73,551	+94.6%
Jobs	24,267	34,707	+43%
VMT	284,189	519,277	+82.7%

Future Improvements

Community/Agency	Improvement Type	Description/Location	Completion Date
Fort Collins	New 2 Lane Road	Giddings Road to Mountain Vista Dr	2024-2026
Loveland	New 2 Lane Road	SH402 to LCR20C	2027-2030
Loveland	Road Widening	LCR20C to US34	2031-2040
Fort Collins	Road Widening	Mountain Vista Dr to N of East Vine Dr	2031-2040
Fort Collins/Larimer County/Loveland	New 4 Lane Road	Constructing a new road from LCR11 south of SH392 to LCR9 north of Valley Oak Drive	2041-2050

Related Plans

- [Connect Loveland](#) (draft)
- [Larimer County Transportation Master Plan](#)
- [Fort Collins Transportation Master Plan](#)

Connecting RSCs:

- US34 (RSC2)
- SH14 (RSC8)
- SH56 (RSC9)
- SH60 (RSC10)
- SH392 (RSC12)
- SH402/Freedom Pkwy (RSC13)
- WCR74/Harmony Road (RSC23)
- Prospect Road (RSC28)

Connecting RTCs:

- Great Western (RTC1)
- US34 (RTC2)
- Loveland to Windsor (RTC3)
- Bustang (RTC6)
- Poudre Express (RTC7)
- Harmony MAX (RTC10)
- Front Range Rail (US287) (RTC12)
- SH56 Transit Service (RTC15)

Connecting RATCs:

- Little Thompson River (RATC2)
- Big Thompson River (RATC3)
- Great Western (RATC4)
- N. Loveland/Windsor (RATC5)
- Poudre Trail (RATC6)
- Front Range Trail (RATC7)
- US34 Parallel (RATC11)

RSC 17: LCR17 / Shields St / Taft Ave / Berthoud Pkwy Corridor Vision

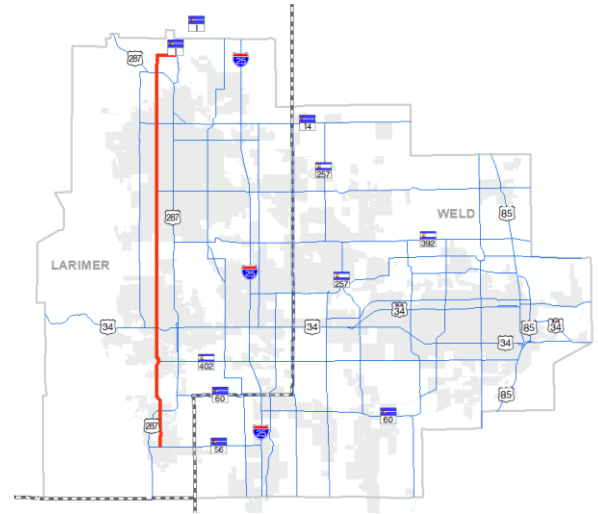


Vision Statement

LCR17/Shields Street/Taft Avenue/Berthoud Parkway connects Colorado State University, western Loveland, and Berthoud, supporting economic and housing growth.

Jurisdictions

Larimer County, Fort Collins, Loveland, Berthoud



RSC17 within the NFRMPO

Anticipated Growth in Adjacent Census Block Groups

Category	2019	2050	% Change
Population	60,235	88,955	+47.7%
Jobs	14,045	17,603	+25.3%
VMT	367,105	532,299	+45%

Future Improvements

Community/Agency	Improvement Type	Description/Location	Completion Date
Larimer County	Road Widening	LCR32 to LCR30	2031-2040
Larimer/Loveland	Road Widening	LCR16/28th Street SW to LCR14/SH60	2031-2040
Fort Collins	Road Widening	Harmony Road to Hilldale Drive	2031-2040
Loveland	Road Widening	23rd St SW to 28th St SW/LCR16	2031-2040

Related Plans

- [Larimer County Transportation Master Plan](#)
- [Connect Loveland](#) (draft)
- [Fort Collins Transportation Master Plan](#)
- [Berthoud Transportation Master Plan](#)

Connecting RSCs:

- US34 (RSC2)
- US287 (RSC6)
- SH1 (RSC7)
- SH56 (RSC9)
- SH402/Freedom Pkwy (RSC13)
- WCR74/Harmony Road (RSC23)
- Mulberry Street (RSC27)

Connecting RTCs:

- FLEX Express (RTC4)
- FLEX Local (RTC5)
- West Elizabeth MAX (RTC9)
- Front Range Rail (US287) (RTC12)
- SH56 Transit Service (RTC15)
- US34 West Loveland to Estes Park Transit (RTC16)

Connecting RATCs:

- Little Thompson River (RATC2)
- Big Thompson River (RATC3)
- N. Loveland/Windsor (RATC5)
- Poudre River Trail (RATC6)
- Front Range Trail (RATC7)
- BNSF (RATC8)
- US34 Parallel (RATC11)

What we heard from the public

*“My primary concern for the corridor is **Safety. Safety. Safety.** And discomfort. But mostly safety.”*

RSC 18: LCR19 / Taft Hill Road / Wilson Avenue Corridor Vision

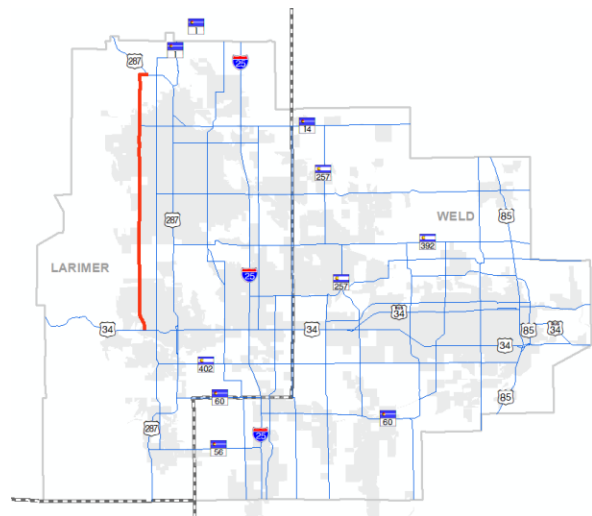


Vision Statement

LCR19/Taft Hill Road/Wilson Avenue supports the western portion of Fort Collins and Loveland with safe, efficient, and multimodal trips.

Jurisdictions

Larimer County, Fort Collins, Loveland



RSC 18 within the NFRMPO

Anticipated Growth in Adjacent Census Block Groups

Category	2019	2050	% Change
Population	34,141	48,083	+40.8%
Jobs	8,061	9,303	+15.4%
VMT	234,690	330,176	+40.7%

Future Improvements

Community/Agency	Improvement Type	Description	Completion Date
Fort Collins	Road Widening	Harmony Road to Brixton Road	2024-2026
Larimer County	Road Widening	LCR32 to LCR30	2031-2040

Related Plans

- [Larimer County Transportation Master Plan](#)
- [Connect Loveland](#) (draft)
- [Fort Collins Transportation Master Plan](#)

Connecting RSCs:

- US34 (RSC2)
- US287 (RSC6)
- Mulberry Street (RSC27)

Connecting RTCs:

- West Elizabeth MAX (RTC9)
- US34 West Loveland to Estes Park Transit (RTC16)

Connecting RATCs:

- N. Loveland/Windsor (RATC5)
- Poudre River Trail (RATC6)
- US34 Parallel (RATC11)

What we heard from the public



Loveland Fire Station Number 3 on Wilson Ave (LFRA)

*“If there were a **separated path**, not only could I **cycle** to Coyote and Prairie Ridge, if it continued further south to 57th St, it could then **connect** to the path along Shields.”*

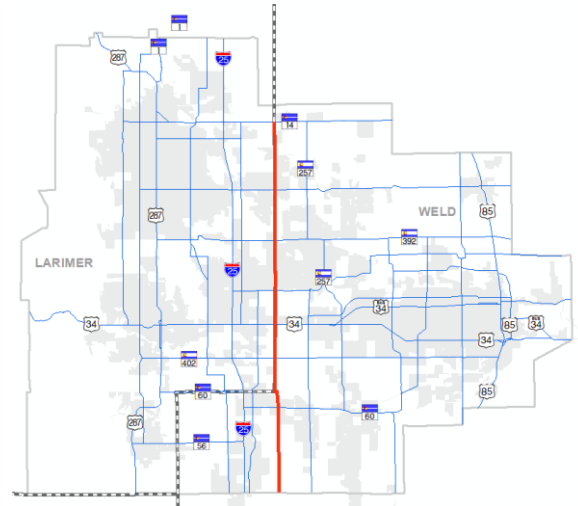
RSC 19: WCR13 Corridor Vision

Vision Statement

WCR13 supports economic and housing growth in the central portion of the region, connecting the fastest growing portions of the region.

Jurisdictions

Larimer County, Timnath, Severance, Windsor, Weld County, Johnstown, Berthoud



WCR13 within the NFRMPO

Anticipated Growth in Adjacent Census Block Groups

Category	2019	2050	% Change
Population	12,439	36,191	+190.9%
Jobs	2,042	7,358	+260.3%
VMT	62,213	235,857	+279.1%

Future Improvements

Community/Agency	Improvement Type	Description/Location	Completion Date
Timnath	Road Widening	Harmony Road to South Growth Management Area	2027-2030
Windsor	Road Widening	Kaplan Dr to Crossroads Blvd	2031-2040
Windsor	Road Widening	SH392 to Kaplan Drive	2031-2040
Johnstown	Road Widening	WCR46 to WCR44	2041-2050

Related Plans

- [Larimer County Transportation Master Plan](#)
- [Windsor Transportation Master Plan](#)
- [Weld County Transportation Master Plan](#)

Connecting RSCs:

- US34 (RSC2)
- SH14 (RSC8)
- SH60 (RSC10)
- SH392 (RSC12)
- SH402 (RSC13)
- WCR74 (RSC23)
- Crossroads Blvd (RSC26)

Connecting RTCs:

- Great Western (RTC1)
- US34 (RTC2)
- Loveland to Windsor (RTC3)
- Poudre Express (RTC7)

Connecting RATCs:

- Little Thompson River (RATC2)
- Big Thompson River (RATC3)
- Great Western (RATC4)
- N. Loveland/Windsor (RATC5)
- Poudre Trail (RATC6)
- Johnstown/Timnath (RATC9)
- US34 Parallel (RATC11)

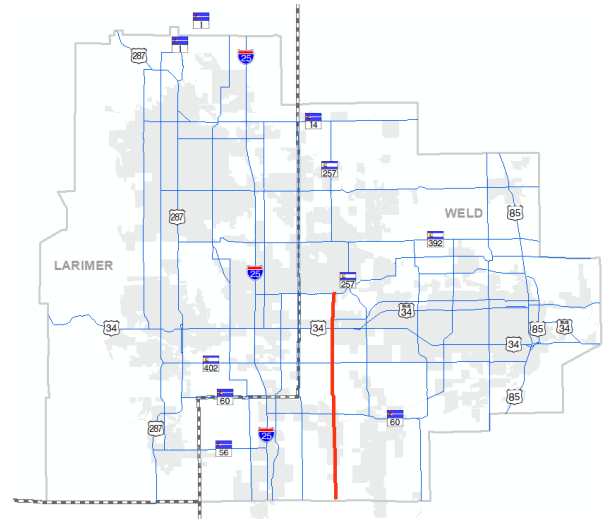
RSC 20: WCR17 Corridor Vision

Vision Statement

WCR17 supports agriculture, oil and gas, and other economic development efforts.

Jurisdictions

Windsor, Weld County, Greeley, Johnstown



WCR17 within the NFRMPO

Anticipated Growth in Adjacent Census Block Groups

Category	2019	2050	% Change
Population	8,637	35,878	+315.4%
Jobs	1,114	4,781	+329.2%
VMT	63,165	178,889	+183.2%

Future Improvements

Community/Agency	Improvement Type	Description	Completion Date
Windsor	Road Widening	WCR62/Crossroads Boulevard to US34	2031-2040

Related Plans

- [Windsor Transportation Master Plan](#)
- [Weld County Transportation Master Plan](#)

Connecting RSCs:

- US34 (RSC2)
- SH60 (RSC10)
- SH402 (RSC13)
- Crossroads Boulevard (RSC26)
- 4th Street (RSC29)

Connecting RTCs:

- US34 (RTC2)

Connecting RATCs:

- Little Thompson River (RATC2)
- Big Thompson River (RATC3)
- Great Western (RATC4)
- US34 Parallel (RATC11)



Johnstown Town Hall at WCR17 and WCR46.5 (*Jeffrey Beall, Wikimedia*)

RSC 21: WCR27 / 83rd Avenue / Two Rivers Parkway Corridor Vision

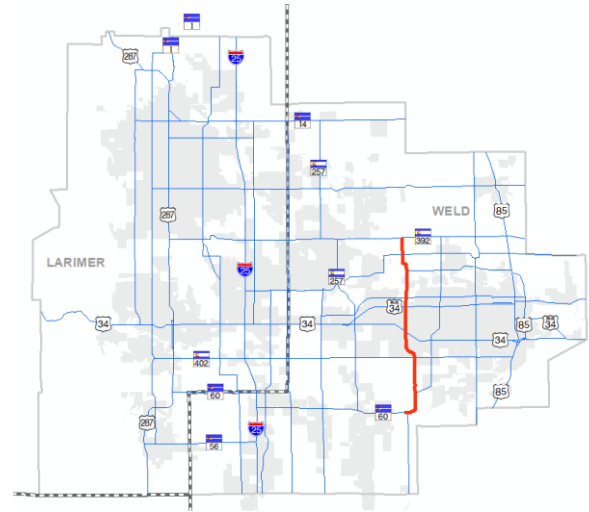


Vision Statement

WCR27/83rd Avenue/Two Rivers Parkway is an important corridor connecting SH392 to SH60.

Jurisdictions

Weld County, Greeley, Evans, Milliken



RSC 21 within the NFRMPO

Anticipated Growth in Adjacent Census Block Groups			
Category	2019	2050	% Change
Population	5,568	13,383	+140.4%
Jobs	476	1,232	+158.8%
VMT	84,813	135,468	+59.7%

Future Improvements

Community/Agency	Improvement Type	Description/Location	Completion Date
Severance	New two Lane Road	SH14 to WCR74	2031-2040

Related Plans

- [Greeley on the Go Plan](#)
- [Weld County Transportation Master Plan](#)

Connecting RSCs:

- US34 (RSC2)
- US34 Business (RSC3)
- SH60 (RSC10)
- SH392 (RSC12)
- Freedom Parkway (RSC13)
- 59th Ave/65th Ave (RSC25)
- Crossroads Boulevard (RSC26)
- 4th Street (RSC29)
- O Street (RSC30)

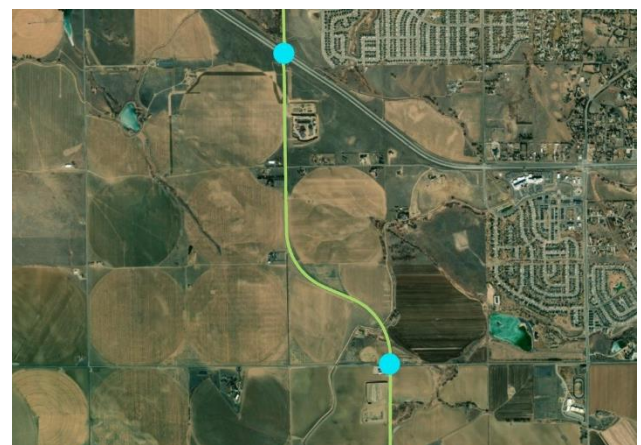
Connecting RTCs:

- Great Western (RTC1)
- US34 (RTC2)
- Poudre Express (RTC7)
- US34 Business Premier Transit (RTC11)

Connecting RATCs:

- South Platte (RATC1)
- Poudre Trail (RATC6)
- US34 Parallel (RATC11)

RSC21 connects with US34 (*RSC2, top*) and Freedom Parkway (*RSC13, bottom*) in Greeley, facilitating movement for Weld Counties growing population.



RSC 22: WCR35 / 35th Avenue Corridor Vision

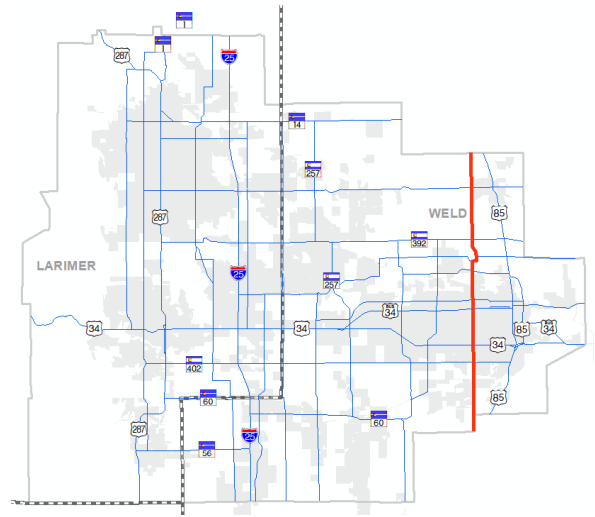


Vision Statement

WCR35/35th Avenue parallels US85, providing relief and direct connections into central Greeley.

Jurisdictions

Weld County, Eaton, Greeley, Evans



WCR35/35th Avenue within the NFRMPO

Anticipated Growth in Adjacent Census Block Groups

Category	2019	2050	% Change
Population	24,612	34,422	+39.9%
Jobs	7,497	9,902	+32.1%
VMT	125,586	226,153	+80.1%

Future Improvements

Community/Agency	Improvement Type	Description	Completion Date
Evans	New 4 Lane Road and Bridge	4th Street to WCR394	2031-2040
Evans/Weld County	Road Widening	WCR394 to US85	2031-2040
Weld County	Road Widening	SH392 to O Street	2031-2040

Related Plans

- [Greeley on the Go Plan](#)
- [Weld County Transportation Master Plan](#)
- Evans Transportation Master Plan

Connecting RSCs:

- US34 (RSC2)
- US34 Business (RSC3)
- SH392 (RSC12)
- Freedom Parkway (RSC13)
- WCR74 (RSC23)
- Crossroads Boulevard (RSC26)
- 4th Street (RSC29)
- O Street (RSC30)

Connecting RTCs:

- Great Western (RTC1)
- US34 (RTC2)
- Poudre Express (RTC7)
- US34 Business Premier Transit (RTC11)

Connecting RATCs:

- South Platte (RATC1)
- Great Western (RATC4)
- Poudre Trail (RATC6)
- Greeley/LaSalle (RATC10)
- US34 Parallel (RATC11)

RSC 23: WCR74 / Harmony Road Corridor Vision

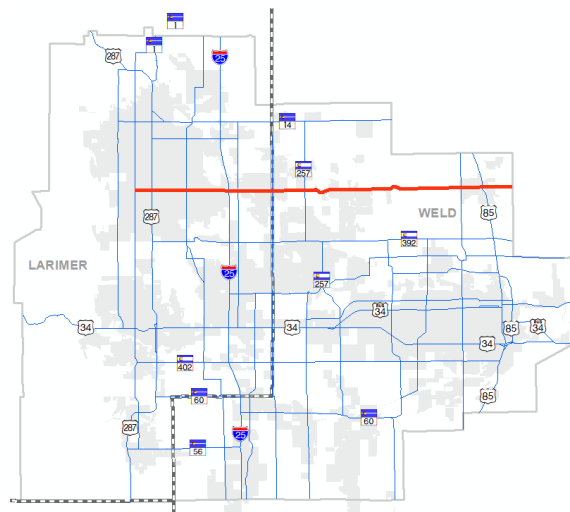


Vision Statement

WCR74/Harmony Road supports the economic development and housing growth between Fort Collins and Eaton.

Jurisdictions

Fort Collins, Larimer County, Timnath, Windsor, Severance, Weld County, Eaton



WCR74/Harmony Road within the NFRMPO

Anticipated Growth in Adjacent Census Block Groups

Category	2019	2050	% Change
Population	36,926	59,540	+61.2%
Jobs	28,554	32,382	+13.4 %
VMT	416,264	640,559	+54%

Future Improvements

Community/Agency	Improvement Type	Description	Completion Date
Windsor	Road Widening	WCR15 to SH257	2024-2026
Fort Collins	Road Widening	College Ave to Boardwalk Dr	2027-2030
Timnath	Road Widening	I-25 to LCR1	2027-2030

Related Plans

- [Weld County Transportation Master Plan](#)
- [Fort Collins Transportation Master Plan](#)
- [Larimer County Transportation Master Plan](#)
- [Severance Transportation Master Plan](#)

Connecting RSCs:

- I-25 (RSC1)
- US85 (RSC4)
- US287 (RSC6)
- SH257(RSC11)
- LCR5 (RSC15)
- LCR7 (RSC16)
- LCR17 (RSC17)
- WCR13 (RSC19)
- WCR35 (RSC22)

Connecting RTCs:

- Great Western (RTC1)
- FLEX Express (RTC4)
- FLEX Local (RTC5)
- Bustang (RTC6)
- Poudre Express (RTC7)
- Harmony Road MAX (RTC10)
- Front Range Rail (US287) (RTC12)
- Front Range Rail (I-25) (RTC13)
- US85 Transit Service (RTC14)

Connecting RATCs:

- Great Western (RATC4)
- Front Range Trail West (RATC7)
- Johnstown/Timnath (RATC9)
- Greeley/LaSalle (RATC10)

What we heard from the public

*“My vision for the corridor includes **transit** and **bike** facilities, preferably **separated** to not increase congestion for all modes.”*

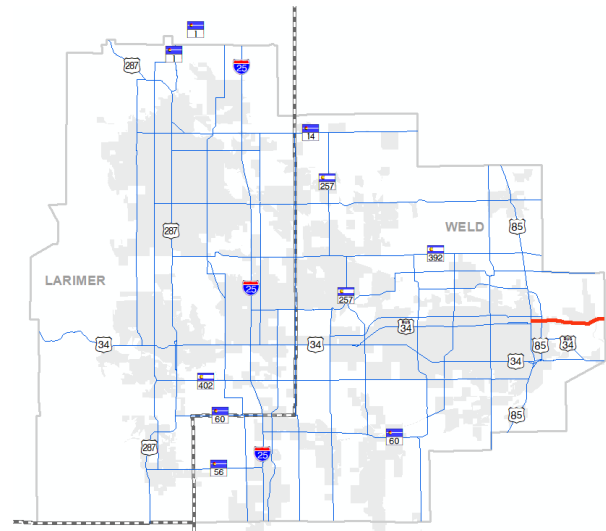
RSC 24: 8th Street Corridor Vision

Vision Statement

8th Street continues to support growth and development to the Greeley-Weld County Airport.

Jurisdictions

Greeley, Weld County



8th Street within the NFRMPO

Anticipated Growth in Adjacent Census Block Groups			
Category	2019	2050	% Change
Population	3,554	5,068	+42.6%
Jobs	5,944	13,762	+131.5%
VMT	21,109	36,279	+71.9%

Related Plans

- [Greeley on the Go Plan](#)
- [Weld County Transportation Master Plan](#)

Connecting RSCs:

- US34 Business (RSC3)
- US85 (RSC4)
- US85 Business (RSC5)

Connecting RTCs:

- Great Western (RTC1)
- Poudre Express (RTC7)
- US34 Business Premier Transit (RTC14)

Connecting RATCs:

- Poudre Trail (RATC6)
- US34 Parallel (RATC11)



Greeley-Weld County Airport on 8th Street in Greeley (*City of Greeley*)

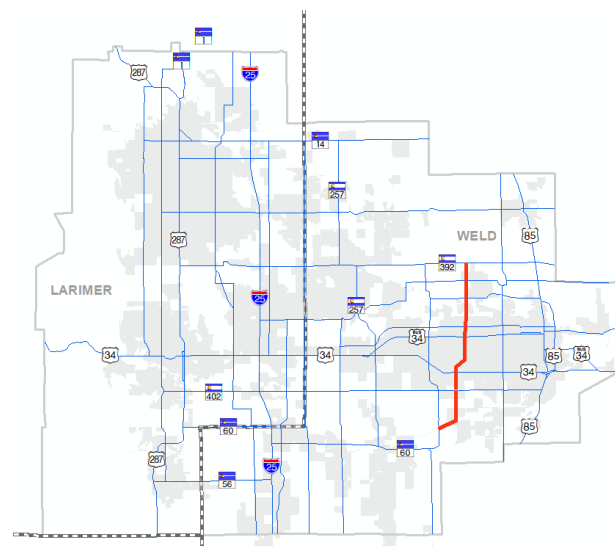
RSC 25: 59th Avenue / 65th Avenue Corridor Vision

Vision Statement

59th Avenue/65th Avenue supports local and regional trips into and out of west-central Greeley, including supporting Aims Community College.

Jurisdictions

Weld County, Greeley, Evans, Milliken



59th Avenue/65th Avenue within the NFRMPO

Anticipated Growth in Adjacent Census Block Groups			
Category	2019	2050	% Change
Population	12,300	20,697	+68.3%
Jobs	6,078	7,454	+22.6%
VMT	73,822	132,709	+79.8%

Future Improvements

Community/Agency	Improvement Type	Description/Location	Completion Date
Evans	Road Widening	WCR54/37th Street to 49th Street	2027-2030

Related Plans

- [Greeley on the Go Plan](#)
- [Weld County Transportation Master Plan](#)
- Evans Transportation Master Plan

Connecting RSCs:

- US34 (RSC2)
- US34 Business (RSC3)
- SH392 (RSC12)
- Freedom Parkway (RSC13)
- WCR27 (RSC21)
- Crossroads Boulevard (RSC26)
- 4th Street (RSC29)
- O Street (RSC30)

Connecting RTCs:

- Great Western (RTC1)
- US34 (RTC2)
- Poudre Express (RTC7)
- US34 Business Premier Transit (RTC11)

Connecting RATCs:

- Poudre Trail (RATC6)
- US34 Parallel (RATC11)



Location of the road widening project between 37th Street (blue) and 49th Street (purple) in Evans/Weld County set to begin construction in 2027.

RSC 26: Crossroads Boulevard / WCR66 Corridor Vision

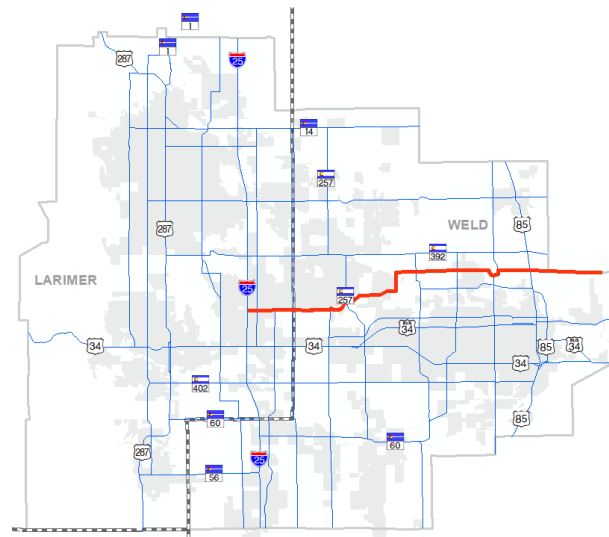


Vision Statement

Crossroads Boulevard/WCR66 supports growth in the industrial, warehouse, and commercial areas in the central I-25 area.

Jurisdictions

Loveland, Windsor, Larimer County, Weld County, Greeley



Crossroads Blvd/WCR66 within the NFRMPO

Anticipated Growth in Adjacent Census Block Groups

Category	2019	2050	% Change
Population	8,716	29,891	+242.9%
Jobs	9,149	16,361	+78.8%
VMT	71,794	203,707	+183.7%

Future Improvements

Community/Agency	Improvement Type	Description	Completion Date
Loveland	Road Widening	Centerra Pkwy to LCR3	2024-2026
Windsor	Road Widening	LCR3 to WCR13	2027-2030
Weld County	Road Widening	SH257 to O Street	2031-2040

Related Plans

- [Weld County Transportation Master Plan](#)
- [Windsor Transportation Master Plan](#)
- [Greeley on the Go Plan](#)

Connecting RSCs:

- I-25 (RSC1)
- US85 (RSC4)
- SH257(RSC11)
- LCR3 (RSC14)
- LCR5 (RSC15)
- WCR13 (RSC19)
- WCR17 (RSC20)
- WCR27 (RSC21)
- WCR35 (RSC22)
- 59th Ave/65th Ave (RSC25)

Connecting RTCs:

- Great Western (RTC1)
- Loveland to Windsor (RTC3)
- Bustang (RTC6)
- Poudre Express (RTC7)
- Front Range Rail (I-25) (RTC13)
- US85 Transit Service (RTC14)

Connecting RATCs:

- Great Western (RATC4)
- Poudre Trail (RATC6)
- Johnstown/Timnath (RATC9)
- Greeley/LaSalle (RATC10)

RSC 27: Mulberry Street Corridor Vision

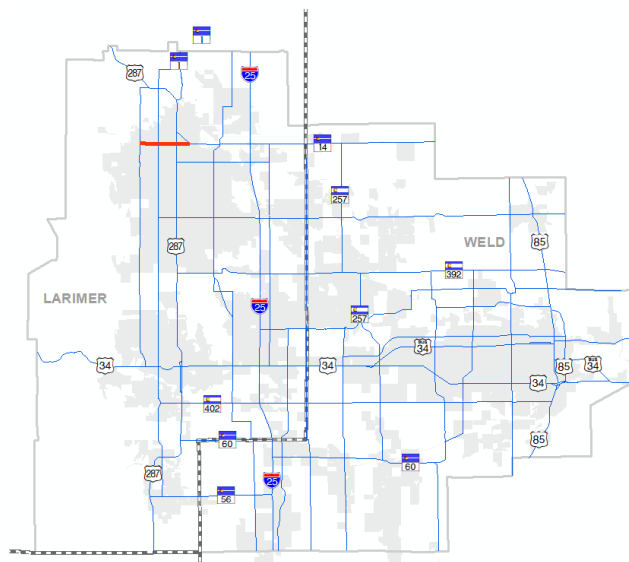


Vision Statement

Mulberry Street supports downtown Fort Collins, Colorado State University, and connects local trips from SH14.

Jurisdictions

Fort Collins



Mulberry Street within the NFRMPO

Anticipated Growth in Adjacent Census Block Groups			
Category	2019	2050	% Change
Population	19,375	21,963	+13.4%
Jobs	24,589	35,677	+45.1 %
VMT	57,326	75,877	+32.4%

Related Plans

- [Fort Collins Transportation Master Plan](#)

Connecting RSCs:

- US287 (RSC6)
- SH14 (RSC8)
- LCR17 (RSC17)
- LCR19 (RSC18)

Connecting RTCs:

- FLEX Express (RTC4)
- Bustang (RTC6)
- Poudre Express (RTC7)
- Front Range Rail (US287) (RTC12)

Connecting RATCs:

- BNSF (RATC8)

What we heard from the public

*“Canyon/Whitcomb/Mulberry is a **horrible intersection**. It should be a **roundabout** to force people to **slow down**.”*

RSC 28: Prospect Road Corridor Vision

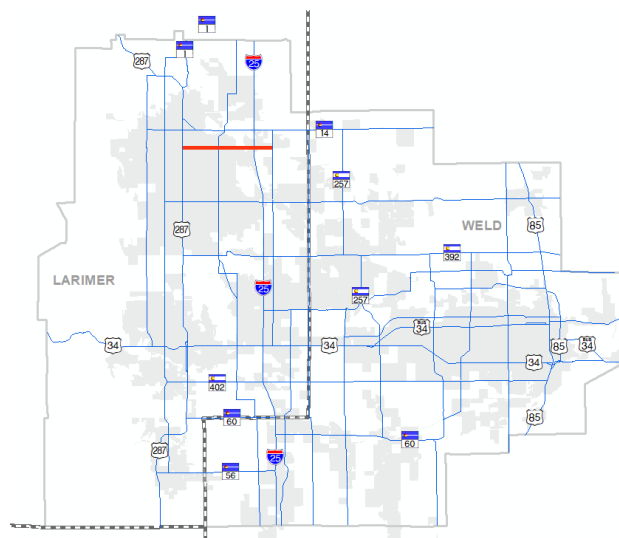


Vision Statement

Prospect Road acts as the eastern gateway into Fort Collins, connecting I-25 to Colorado State University.

Jurisdictions

Fort Collins, Larimer County, Timnath



Prospect Road within the NFRMPO

Anticipated Growth in Adjacent Census Block Groups

Category	2019	2050	% Change
Population	14,169	20,096	+41.8%
Jobs	15,440	20,985	+35.9 %
VMT	106,563	195,290	+83.3%

Future Improvements

Community/Agency	Improvement Type	Description	Completion Date
Fort Collins	Road Widening	Summit View Drive to I-25	2024-2026
Fort Collins	Road Widening	Sharp Point Drive to Summit View Drive	2024-2026

Related Plans

- [Fort Collins Transportation Master Plan](#)

Connecting RSCs:

- I-25 (RSC1)
- US287 (RSC6)
- LCR5 (RSC15)
- LCR7 (RSC16)

Connecting RTCs:

- Great Western (RTC1)
- FLEX Express (RTC4)
- Bustang (RTC6)
- Poudre Express (RTC7)
- Front Range Rail (US287) (RTC12)
- Front Range Rail (I-25) (RTC13)

Connecting RATCs:

- Poudre Trail (RATC6)
- Front Range Trail West (RATC7)
- BNSF (RATC8)

RSC 29: 4th Street Corridor Vision

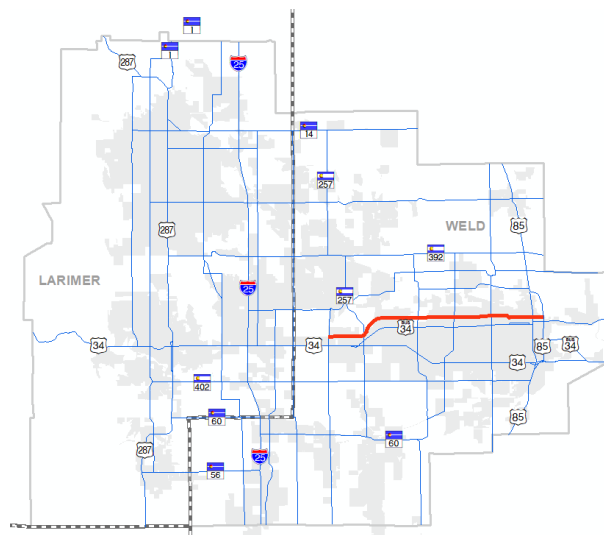


Vision Statement

4th Street provides relief to US34 Business, supporting multimodal trips and economic growth.

Jurisdictions

Greeley, Weld County, Windsor



4th Street within the NFRMPO

Anticipated Growth in Adjacent Census Block Groups

Category	2019	2050	% Change
Population	30,535	56,507	+85.1%
Jobs	12,616	22,658	+79.6%
VMT	56,192	117,386	+108.9%

Future Improvements

Community/Agency	Improvement Type	Description/Location	Completion Date
Greeley	New road	WCR17 to WCR27/83rd Ave	2040

Related Plans

- [Greeley on the Go Plan](#)

Connecting RSCs:

- US85 (RSC4)
- US85 Business (RSC5)
- WCR17 (RSC20)
- WCR27 (RSC21)
- WCR35 (RSC22)
- 8th Street (RSC24)
- 59th Ave/65th Ave (RSC25)

Connecting RTCs:

- Great Western (RTC1)
- US85 Transit (RTC14)

Connecting RATCs:

- Greeley/LaSalle (RATC10)

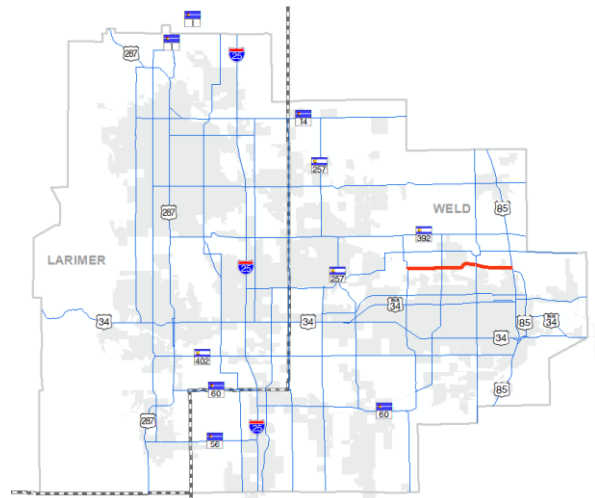
RSC 30: O Street Corridor Vision

Vision Statement

O Street acts as a key thoroughfare in northern Greeley and Weld County, supporting east-west agricultural and oil and gas trips.

Jurisdictions

Greeley, Weld County



O Street within the NFRMPO

Anticipated Growth in Adjacent Census Block Groups			
Category	2019	2050	% Change
Population	841	1,446	+71.9%
Jobs	3,467	3,897	+12.4%
VMT	27,114	55,629	+105.2%

Related Plans

- Weld County Transportation Master Plan
- [Greeley on the Go Plan](#)

Connecting RSCs:

- US85 (RSC4)
- US85 Business (RSC5)
- WCR27 (RSC21)
- WCR35 (RSC22)
- 59th Ave/65th Ave (RSC25)

Connecting RTCs:

- Great Western (RTC1)
- US85 Transit (RTC14)

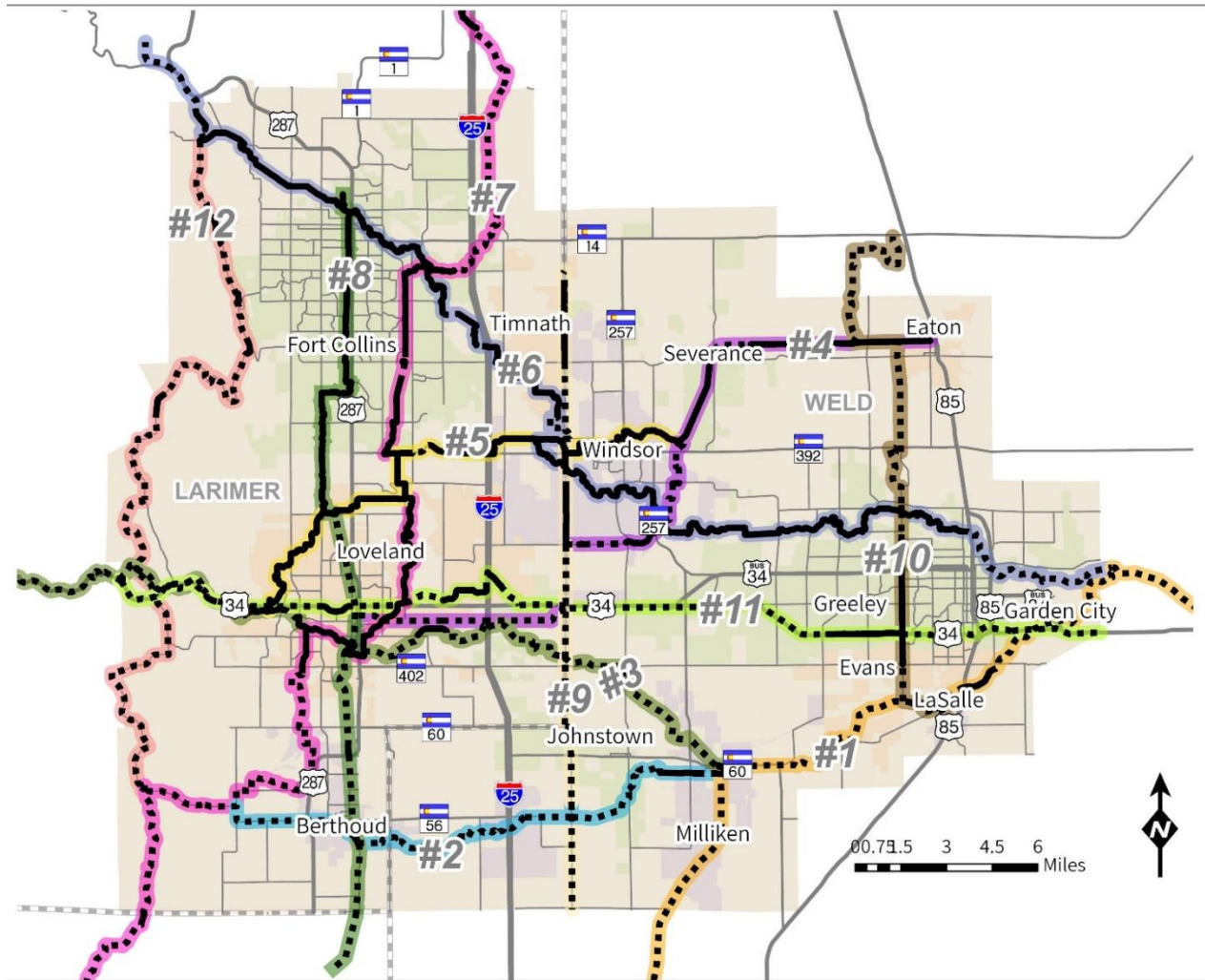
Connecting RATCs:

- Greeley/LaSalle (RATC10)



35th Avenue and O Street roundabout construction (Weld County)

Figure 3-2: Regional Active Transportation Corridors (RATCs)



Legend

- | | | |
|--|-------------------------------------|--------------------------------------|
| — Existing or Interim Alignment | 4: Great Western/Johnstown/Loveland | 9: Johnstown/Timnath |
| - - - Proposed Alignment | 5: North Loveland/Windsor | 10: Eaton/LaSalle |
| 1: South Platte/American Discovery Trail | 6: Poudre River Trail | 11: US34 Parallel |
| 2: Little Thompson River | 7: Front Range Trail West | 12: Carter Lake/Horsetooth Foothills |
| 3: Big Thompson River | 8: BNSF Fort Collins/Berthoud | |

May 2023
Sources: CDOT, NFRMPO



RATC 1: South Platte/American Discovery Trail Vision

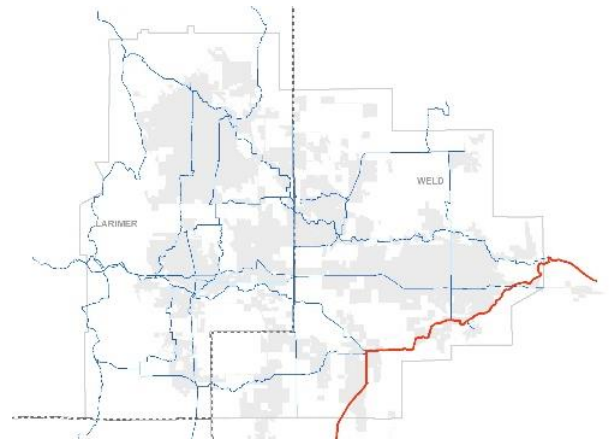


Vision Statement

The South Platte Trail showcases and improves access to a river corridor of statewide significance.

Jurisdictions

Milliken, Weld County, Evans, LaSalle, Greeley



South Platte/American Discovery Trail

Anticipated Growth in Adjacent Census Block Groups

Category	2019	2050	% Change
Population	12,955	18,268	+41%
Jobs	2,333	4,453	+90.9%

Related Plans

- [US85 Planning and Environmental Linkage Study \(PEL\)](#)
- [Greeley on the Go Plan](#)
- [NFRMPO Regional Active Transportation Plan](#)
- [Greeley Parks, Trails, and Open Lands Master Plan](#)
- [Wildcat Trail Conceptual Master Plan](#)
- [Evans Open Space and Trails Master Plan](#)
- [Johnstown-Milliken Parks, Trails, Recreation, Open Space Plan](#)

What we heard from the public

- Safety concerns when crossing US85
- Support for increasing biking accessibility/infrastructure between municipalities along the trail

Connecting RSCs:

- US34 (RSC2)
- US34 Business (RSC3)
- US85 (RSC4)
- SH60 (RSC10)
- WCR35/35th Avenue (RSC22)

Connecting RTCs:

- US85 Transit Service (RTC4)

Connecting RATCs:

- Little Thompson River (RATC2)
- Big Thompson River (RATC3)
- Poudre River Trail (RATC6)
- Eaton/LaSalle (RATC10)
- US34 Non-Motorized (RATC11)

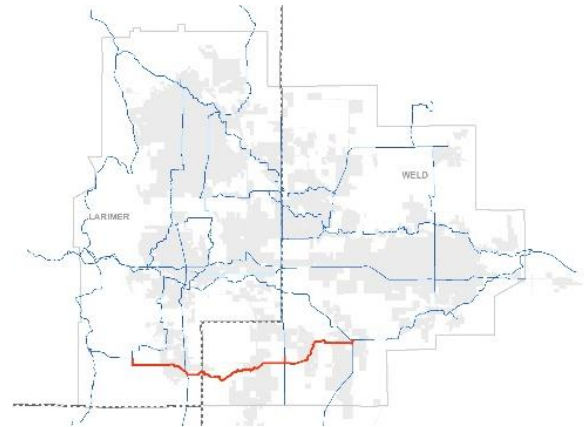
RATC 2: Little Thompson River Corridor Vision

Vision Statement

The Little Thompson River provides a safe and separate crossing of I-25 for the southern portion of the region.

Jurisdictions

Larimer County, Berthoud, Johnstown, Milliken, Weld County



Little Thompson River Corridor

Anticipated Growth in Adjacent Census Block Groups

Category	2019	2050	% Change
Population	17,510	34,936	+99.5%
Jobs	3,183	4,637	+45.7%

Related Plans

- [Berthoud Trails Master Plan](#)
- [NFRMPO Regional Active Transportation Plan](#)
- [Larimer County Open Lands Master Plan](#)
- [Johnstown-Milliken Parks, Trails, Recreation, Open Space Plan](#)

Connecting RSCs:

- I-25 (RSC1)
- US287 (RSC6)
- SH56 (RSC9)
- SH60 (RSC10)
- LCR3/WCR9.5 (RSC14)
- LCR7/LCR9/Timberline Road (RSC16)
- LCR17/Shields St/Taft Ave/Berthoud Pwky (RSC17)
- WCR17 (RSC20)

Connecting RTCs:

- FLEX Express (RTC4)
- FLEX Local (RTC5)
- Bustang (RTC6)
- Front Range Passenger Rail-US287 (RTC12)

Connecting RATCs:

- South Platte/American Discovery Trail (RATC1)
- Big Thompson River (RATC3)
- Front Range Trail (West) (RATC7)
- BNSF Fort Collins/Berthoud (RATC8)
- Johnstown/Timnath (RATC9)

RATC 3: Big Thompson River Corridor Vision

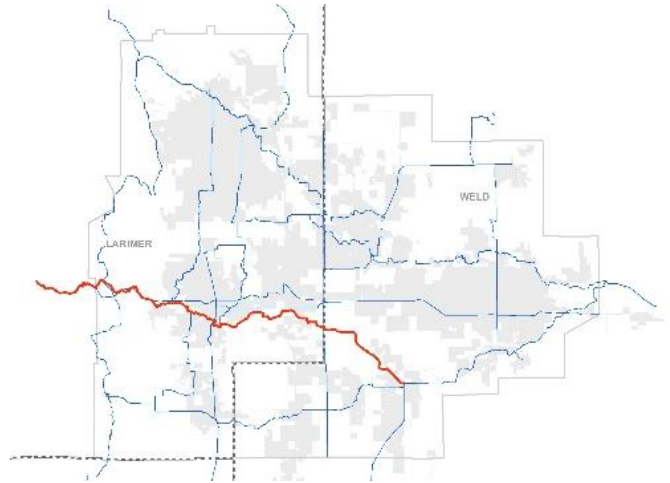


Vision Statement

The Big Thompson River connects recreation opportunities in the Canyon into the local and regional trail network with a safe I-25 crossing.

Jurisdictions

Larimer County, Loveland, Johnstown, Weld County, Milliken



Big Thompson River Corridor

Anticipated Growth in Adjacent Census Block Groups			
Category	2019	2050	% Change
Population	30,617	51,314	+67.6%
Jobs	11,349	18,677	+64.6%

Related Plans

- [Loveland Parks and Recreation Master Plan](#)
- [NFRMPO Regional Active Transportation Plan](#)
- [Larimer County Open Lands Master Plan](#)
- [Johnstown-Milliken Parks, Trails, Recreation, Open Space Plan](#)

What we heard from the public

- Concerns over trail maintenance
- Concerns over expanding development limiting trail expansion
- Support for a connection to Estes Park

*“My vision for this corridor is a **safe connected link** between the Front Range and Estes Park.”*

Connecting RSCs:

- I-25 (RSC1)
- US34 (RSC2)
- US287 (RSC6)
- SH60 (RSC10)
- SH257 (RSC11)
- SH402/Freedom Pkwy (RSC13)
- LCR3/WCR9.5 (RSC14)
- LCR7/LCR9/Timberline Road (RSC16)
- LCR17/Shields St/Taft Ave/Berthoud Pkwy (RSC17)
- WCR13 (RSC19)
- WCR17 (RSC20)

Connecting RTCs:

- FLEX Express (RTC4)
- FLEX Local (RTC5)
- Bustang (RTC6)
- Front Range Passenger Rail- US287 (RTC12)
- Front Range Passenger Rail- I-25 (RTC13)
- US34 West Loveland to Estes Park (RTC16)

Connecting RATCs:

- South Platte/American Discovery Trail (RATC1)
- Little Thompson River (RATC2)
- Great Western/Johnstown/Loveland (RATC4)
- North Loveland/Windsor (RATC5)
- BNSF Fort Collins/Berthoud (RATC8)
- Johnstown/Timnath (RATC9)
- US34 Non-Motorized (RATC11)

RATC 4: Great Western Trail Corridor Vision

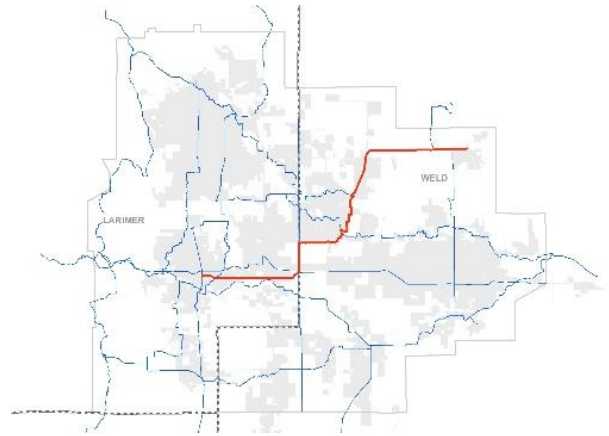


Vision Statement

The Great Western Trail repurposes existing right-of-way to provide recreational and commuter opportunities for active transportation.

Jurisdictions

Larimer County, Loveland, Johnstown, Weld County, Milliken



Great Western Trail Corridor

Anticipated Growth in Adjacent Census Block Groups			
Category	2019	2050	% Change
Population	33,594	67,799	+101.8%
Jobs	20,117	36,785	+82.9%

Related Plans

- [Loveland Parks and Recreation Master Plan](#)
- [Windsor Comprehensive Plan](#)
- [NFRMPO Regional Active Transportation Plan](#)

What we heard from the public

- Safety concerns for bicyclists and pedestrians crossing major roadways
- Support for increasing connectivity to regional destinations along the corridor
- Support for increasing connectivity to regional destinations along the corridor

*“My vision for this corridor is **safe bike lanes** along Crossroads Blvd with a **safe crossing** of SH257 to **connect** to the Poudre River Trail.”*

Connecting RSCs:

- I-25 (RSC1)
- US34 (RSC2)
- US287 (RSC6)
- SH60 (RSC10)
- SH257 (RSC11)
- SH402/Freedom Pkwy (RSC13)
- LCR3/WCR9.5 (RSC14)
- LCR7/LCR9/Timberline Road (RSC16)
- LCR17/Shields St/Taft Ave/Berthoud Pkwy (RSC17)
- WCR13 (RSC19)
- WCR17 (RSC20)

Connecting RTCs:

- FLEX Express (RTC4)
- FLEX Local (RTC5)
- Bustang (RTC6)
- Front Range Passenger Rail- US287 (RTC12)
- Front Range Passenger Rail- I-25 (RTC13)
- US34 West Loveland to Estes Park (RTC16)

Connecting RATCs:

- South Platte/American Discovery Trail (RATC1)
- Little Thompson River (RATC2)
- Great Western/Johnstown/Loveland (RATC4)
- North Loveland/Windsor (RATC5)
- BNSF Fort Collins/Berthoud (RATC8)
- Johnstown/Timnath (RATC9)
- US34 Non-Motorized (RATC11)

RATC 5: North Loveland/ Windsor Corridor Vision

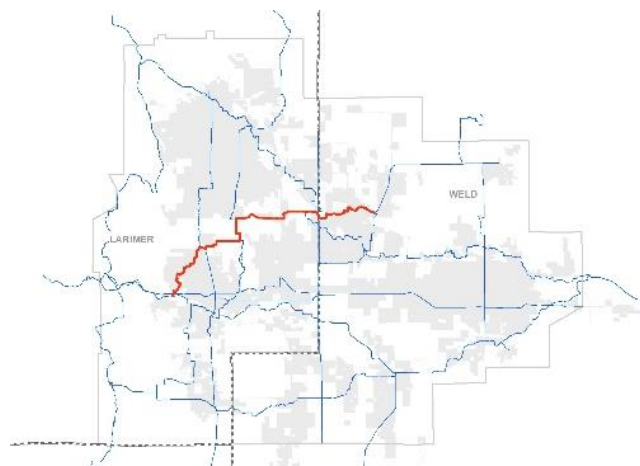


Vision Statement

The North Loveland/Windsor Trail provides ample active transportation opportunities in the fastest growing area of the region.

Jurisdictions

Loveland, Larimer County, Fort Collins, Windsor, Weld County, Severance



North Loveland/Windsor Corridor

Anticipated Growth in Adjacent Census Block Groups			
Category	2019	2050	% Change
Population	33,594	67,799	+101.8%
Jobs	20,117	36,785	+82.9%

Related Plans

- [Loveland Parks and Recreation Master Plan](#)
- [Windsor Comprehensive Plan](#)
- [Larimer County Open Lands Master Plan](#)
- [NFRMPO Regional Active Transportation Plan](#)
- [Fort Collins Active Modes Plan](#)

What we heard from the public

- Safety concerns for pedestrians along roadways
- Support for increasing interregional connectivity

Connecting RSCs:

- I-25 (RSC1)
- US34 (RSC2)
- US287 (RSC6)
- SH257 (RSC11)
- SH392 (RSC12)
- LCR5 (RSC15)
- LCR7/LCR9/Timberline Road (RSC16)
- LCR17/Shields St/Taft Ave/Berthoud Pwky (RSC17)
- LCR19/Taft Hill Rd/Wilson Ave (RSC18)
- WCR13 (RSC19)

Connecting RTCs:

- Great Western (RTC1)
- FLEX Express (RTC4)
- FLEX Local (RTC5)
- Bustang (RTC6)
- Poudre Express (RTC7)
- Front Range Passenger Rail- US287 (RTC12)
- Front Range Passenger Rail- I-25 (RTC13)
- US34 West Loveland to Estes Park (RTC16)

Connecting RATCs:

- Big Thompson River (RATC3)
- Great Western/Johnstown/Loveland (RATC4)
- North Loveland/Windsor (RATC5)
- Front Range Trail (West) (RATC7)
- BNSF Fort Collins/Berthoud (RATC8)
- US34 Non-Motorized (RATC11)

RATC 6: Poudre River Trail Corridor Vision

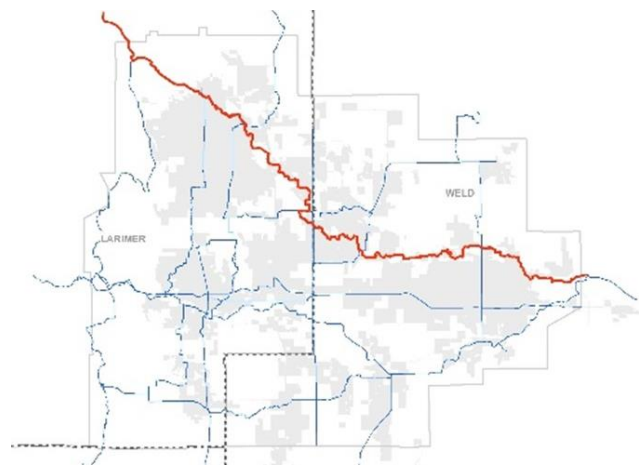


Vision Statement

The Poudre River Trail acts as the backbone of the regional trail network, providing ample recreation and active transportation opportunities.

Jurisdictions

Larimer County, Fort Collins, Timnath, Windsor, Weld County, Greeley



Poudre River Trail Corridor

Anticipated Growth in Adjacent Census Block Groups

Category	2019	2050	% Change
Population	49,125	95,463	+94.3%
Jobs	43,428	69,981	+61.1%

Related Plans

- [Greeley Parks, Trails, and Open Lands Master Plan](#)
- [Windsor Comprehensive Plan](#)
- [Larimer County Open Lands Master Plan](#)
- [NFRMPO Regional Active Transportation Plan](#)
- [Fort Collins Active Modes Plan](#)

What we heard from the public

- Support for expanding the trail to connect Greeley to LaPorte
- Support for expanding the trail to connect to other regional/local trails
- Concern over the lack of public restrooms along the trail and significant travel time between destinations
- Support for a trail crossing over I-25

*“My vision for this corridor is **complete connection** from downtown Greeley to LaPorte without having to use bike lanes along country roads or city streets.”*

RATC 6: Poudre River Trail Corridor Vision

Connecting RSCs:

- I-25 (RSC1)
- US34 Business (RSC3)
- US85 (RSC4)
- US85 Business (RSC5)
- US287 (RSC6)
- SH14 (RSC8)
- SH257 (RSC11)
- SH392 (RSC12)
- LCR5 (RSC15)
- LCR7/LCR9/Timberline Road (RSC16)
- LCR19/Taft Hill Rd/Wilson Ave (RSC18)
- WCR13 (RSC19)
- WCR27/83rd Ave/Two Rivers Pkwy (RSC21)
- WCR35/35th Ave (RSC22)
- WCR74/Harmony Road (RSC23)
- 59th Ave/65th Ave (RSC25)
- Crossroads Blvd/WCR66 (RSC26)
- Prospect Road (RSC28)

Connecting RTCs:

- Great Western (RTC1)
- Loveland to Windsor (RTC3)
- Bustang (RTC6)
- Poudre Express (RTC7)
- North College MAX (RTC8)
- Front Range Passenger Rail-US287 (RTC12)
- US85 Transit Service (RTC14)

Connecting RATCs:

- Great Western / Johnstown / Loveland (RATC4)
- North Loveland/Windsor (RATC5)
- Front Range Trail (West) (RATC7)
- BNSF Fort Collins/Berthoud (RATC8)
- Greeley/LaSalle (RATC10)
- Carter Lake/Horsetooth Foothills Corridor (RATC12)

RATC 7: Front Range Trail West Corridor Vision

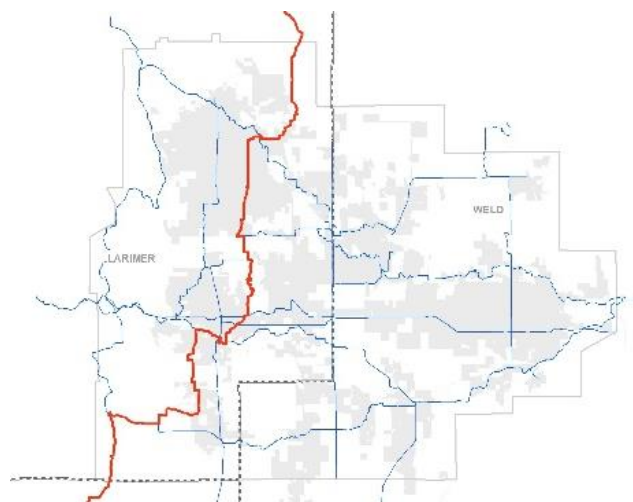


Vision Statement

The Front Range Trail West connects the western portion of the region to the statewide trail network along a wide, environmentally sensitive concrete trail.

Jurisdictions

Larimer County, Fort Collins, Loveland, Berthoud



Front Range Trail West Corridor

Anticipated Growth in Adjacent Census Block Groups

Category	2019	2050	% Change
Population	77,273	114,607	+48.3%
Jobs	39,642	50,590	+27.6%

Related Plans

- [Larimer County Open Lands Master Plan](#)
- [NFRMPO Regional Active Transportation Plan](#)
- [Fort Collins Active Modes Plan](#)
- [Loveland Parks and Recreation Master Plan](#)
- [Berthoud Trails Master Plan](#)

What we heard from the public

- Concern over pedestrian safety, trail lighting, easements for trail expansion, and maintenance
- Consensus over the need for an eventual connection from Boulder County north to Wellington

*“My vision for the corridor is an **overpass** or **underpass** at the Harmony Road crossing.”*

Connecting RSCs:

- I-25 (RSC1)
- US34 (RSC2)
- US287 (RSC6)
- SH14 (RSC8)
- SH392 (RSC12)
- LCR7/LCR9/Timberline Road (RSC16)
- LCR17/Shields St/Taft Ave/Berthoud Pwky (RSC17)
- WCR13 (RSC19)
- WCR74/Harmony Road (RSC23)
- Prospect Road (RSC28)

Connecting RTCs:

- Great Western (RTC1)
- US34 (RTC2)
- Loveland to Windsor (RTC3)
- FLEX Express (RTC4)
- FLEX Local (RTC5)
- Bustang (RTC6)
- Poudre Express (RTC7)
- Harmony Road MAX (RTC10)
- Front Range Passenger Rail-US287 (RTC12)
- Front Range Passenger Rail-I-25 (RTC13)

Connecting RATCs:

- Little Thompson River (RATC2)
- Big Thompson River (RATC3)
- Great Western/Johnstown/Loveland (RATC4)
- North Loveland/Windsor (RATC5)
- Poudre River Trail (RATC6)
- BNSF Fort Collins/Berthoud (RATC8)
- Carter Lake/Horsetooth Foothills Corridor (RATC12)

RATC 8: BNSF Fort Collins/Berthoud Corridor Vision

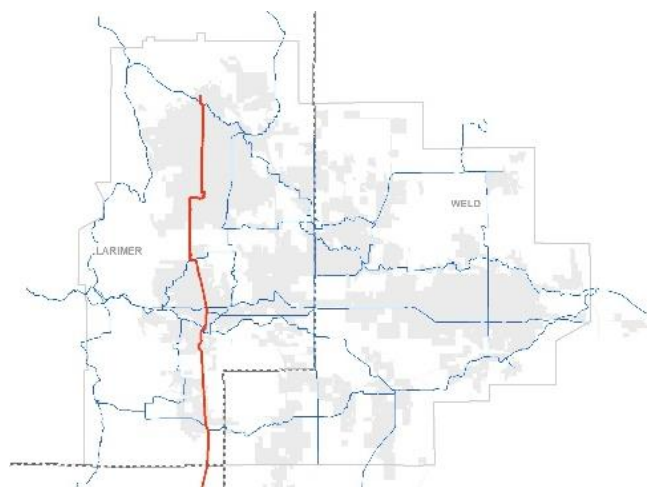


Vision Statement

The BNSF Trail ensures the right-of-way is multimodal to provide ample active transportation opportunities.

Jurisdictions

Larimer County, Fort Collins, Loveland, Berthoud



BNSF Fort Collins/Berthoud Corridor

Anticipated Growth in Adjacent Census Block Groups			
Category	2019	2050	% Change
Population	69,582	107,865	+55%
Jobs	59,556	83,586	+40.3%

Related Plans

- [Larimer County Open Lands Master Plan](#)
- [NFRMPO Regional Active Transportation Plan](#)
- [Fort Collins Active Modes Plan](#)
- [Loveland Parks and Recreation Master Plan](#)
- [Berthoud Trails Master Plan](#)

What we heard from the public

- Concerns over bicyclist safety
- Support for expanding biking infrastructure to connect local neighborhoods and workplaces

*"My vision for the corridor is **higher signal prioritization** for cyclists at intersections with roadways."*

Connecting RSCs:

- US34 (RSC2)
- US287 (RSC6)
- SH14 (RSC8)
- SH56 (RSC9)
- SH402/Freedom Pkwy (RSC13)
- LCR17/Shields St/Taft Ave/Berthoud Pkwy (RSC17)
- Prospect Road (RSC28)

Connecting RTCs:

- FLEX Express (RTC4)
- FLEX Local (RTC5)
- Poudre Express (RTC7)
- North College MAX (RTC8)
- West Elizabeth MAX (RTC9)
- Harmony Road MAX (RTC10)
- Front Range Passenger Rail-US287 (RTC12)
- SH56 Transit Service (RTC15)
- US34 West Loveland to Estes Park (RTC16)

Connecting RATCs:

- Little Thompson River (RATC2)
- Big Thompson River (RATC3)
- Great Western/Johnstown/Loveland (RATC4)
- North Loveland/Windsor (RATC5)
- Poudre River Trail (RATC6)
- Front Range Trail (West) (RATC7)
- US34 Non-Motorized (RATC11)

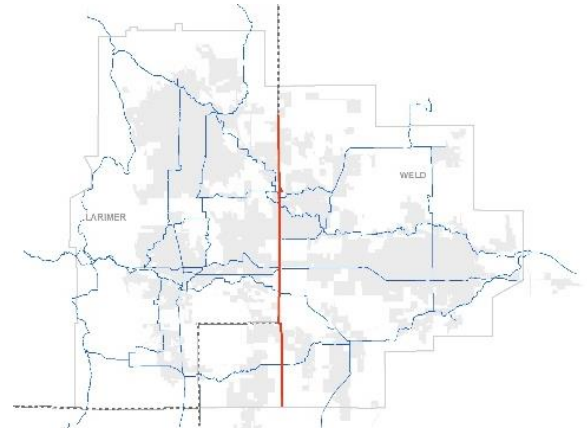
RATC 9: Johnstown/Timnath Corridor Vision

Vision Statement

The Johnstown/Timnath Trail provides safe active transportation opportunities in the central portion of the region.

Jurisdictions

Larimer County, Weld County, Timnath, Windsor, Johnstown



Johnstown/Timnath Corridor

Anticipated Growth in Adjacent Census Block Groups			
Category	2019	2050	% Change
Population	16,203	41,925	+158.7%
Jobs	2,189	8,211	+275.1%

Related Plans

- [Windsor Comprehensive Plan](#)
- [NFRMPO Regional Active Transportation Plan](#)
- [Johnstown Transportation Master Plan](#)

Connecting RSCs:

- US34 (RSC2)
- SH60 (RSC10)
- SH392 (RSC12)
- SH402/Freedom Pkwy (RSC13)
- WCR13 (RSC19)
- WCR74/Harmony Road (RSC23)
- Crossroads Blvd/WCR66 (RSC26)

Connecting RTCs:

- Great Western (RTC1)
- US34 (RTC2)
- Loveland to Windsor (RTC3)
- Poudre Express (RTC7)

Connecting RATCs:

- Little Thompson River (RATC2)
- Big Thompson River (RATC3)
- Great Western/Johnstown/Loveland (RATC4)
- North Loveland/Windsor (RATC5)
- Poudre River Trail (RATC6)
- US34 Non-Motorized (RATC11)

RATC 10: Eaton/LaSalle Corridor Vision

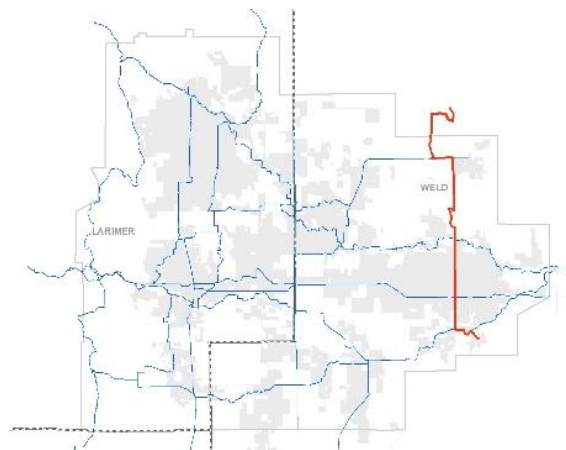


Vision Statement

The Eaton/LaSalle Trail mixes on-street and off-street opportunities for active transportation in the eastern portion of the region.

Jurisdictions

Weld County, Eaton, Greeley, Evans



Eaton/LaSalle Corridor

Anticipated Growth in Adjacent Census Block Groups			
Category	2019	2050	% Change
Population	32,325	43,790	+35.5%
Jobs	10,469	12,813	+22.4%

Related Plans

- [Windsor Comprehensive Plan](#)
- [NFRMPO Regional Active Transportation Plan](#)
- [Johnstown Transportation Master Plan](#)

What we heard from the public

- Concerns regarding pedestrian and bicyclist safety
- Consensus that the Eaton/LaSalle corridor is primarily used for social and recreational activities

*“My vision for the corridor is **greater bicycle safety** on 35th Avenue in Greeley.”*

Connecting RSCs:

- US34 (RSC2)
- US85 (RSC4)
- SH392 (RSC12)
- SH402/Freedom Pkwy (RSC13)
- WCR35/35th Ave (RSC22)
- WCR74/Harmony Road (RSC23)
- Crossroads Blvd/WCR66 (RSC26)
- 4th Street (RSC29)
- O Street (RSC30)

Connecting RTCs:

- Great Western (RTC1)
- US34 (RTC2)
- US34 Business Premier Transit (RTC11)
- US85 Transit Service (RTC14)

Connecting RATCs:

- South Platte/American Discovery Trail (RATC1)
- Great Western/Johnstown/Loveland (RATC4)
- Poudre River Trail (RATC6)
- US34 Non-Motorized (RATC11)

RATC 11: US-34 Non-Motorized

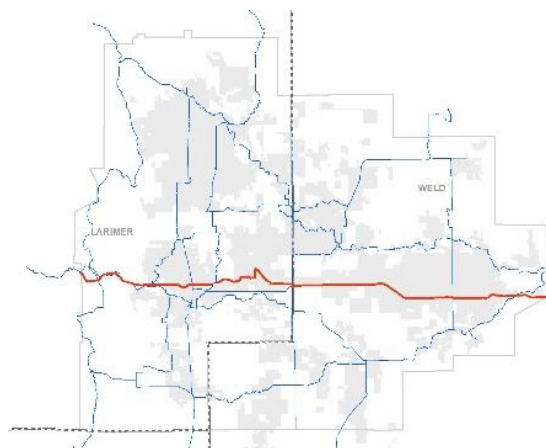


Vision Statement

The US34 Trail offers safe and efficient off-street facilities for pedestrians and cyclists.

Jurisdictions

Larimer County, Loveland, Johnstown, Weld County, Greeley, Evans



US34 Parallel Corridor

Anticipated Growth in Adjacent Census Block Groups

Category	2019	2050	% Change
Population	66,973	128,678	+92.1%
Jobs	40,042	66,389	+65.8%

Related Plans

- US34 Planning and Environmental Linkages (PEL) Study
- [NFRMPO Regional Active Transportation Plan](#)
- [Greeley Parks, Trails, and Open Lands Master Plan](#)
- [Loveland Parks and Recreation Master Plan](#)

What we heard from the public

- US-34 non-motorized is primarily used for commuting
- Bicycle facilities/infrastructure are currently unsafe and lack extensive connectivity from bike routes to bike paths.

*"I would like to see better **separation** between bikes and vehicles."*

RATC 11: US-34 Non-Motorized

Connecting RSCs:

- I-25 (RSC1)
- US34 (RSC2)
- US34 Business (RSC3)
- US85 (RSC4)
- US85 Business (RSC5)
- US287 (RSC6)
- SH257 (RSC11)
- LCR3/WCR9.5 (RSC14)
- LCR5 (RSC15)
- LCR7/LCR9/Timberline Road (RSC16)
- LCR17/Shields St/Taft Ave/Berthoud Pwky (RSC17)
- LCR19/Taft Hill Rd/Wilson Ave (RSC18)
- WCR13 (RSC19)
- WCR17 (RSC20)
- WCR27/83rd Ave/Two Rivers Pkwy (RSC21)
- WCR35/35th Ave (RSC22)
- 59th Ave/65th Ave (RSC25)

Connecting RTCs:

- US34 (RTC2)
- FLEX Express (RTC4)
- FLEX Local (RTC5)
- Bustang (RTC6)
- Poudre Express (RTC7)
- Front Range Passenger Rail-US287 (RTC12)
- US85 Transit Service (RTC14)
- US34 West Loveland to Estes Park (RTC16)

Connecting RATCs:

- South Platte/American Discovery Trail (RATC1)
- Big Thompson River (RATC3)
- North Loveland/Windsor (RATC5)
- Front Range Trail (West) (RATC7)
- BNSF Fort Collins/Berthoud (RATC8)
- Johnstown/Timnath (RATC9)
- US34 No Greeley/LaSalle (RATC10)
- Carter Lake/Horsetooth Foothills Corridor (RATC12)

RATC 12: Carter Lake/Horsetooth Foothills Corridor Vision

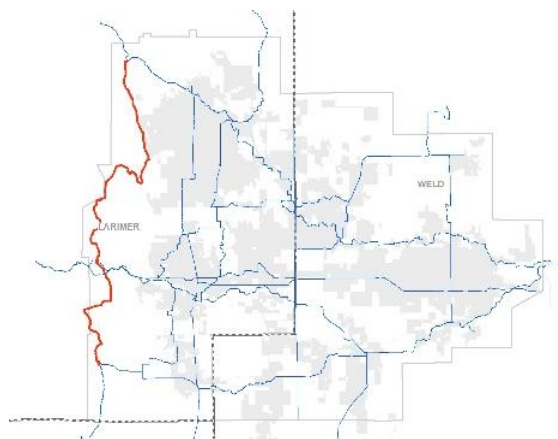


Vision Statement

The Carter Lake Trail is a key recreation corridor to improve safety for recreational cyclists in the western portion of the region.

Jurisdictions

Larimer County, Fort Collins



Carter Lake/Horsetooth Foothills Corridor

Anticipated Growth in Adjacent Census Block Groups

Category	2019	2050	% Change
Population	7,035	7,963	+13.2%
Jobs	1,075	2,412	+124.4%

Related Plans

- [Larimer County Open Lands Master Plan](#)
- [NFRMPO Regional Active Transportation Plan](#)

What we heard from the public

- Many people use the corridor for recreation and exercise
- Safety, trail maintenance and incomplete bike infrastructure are primary concerns

*“My vision for this corridor is **better access to buses and other transit.**”*

Connecting RSCs:

- US34 (RSC2)

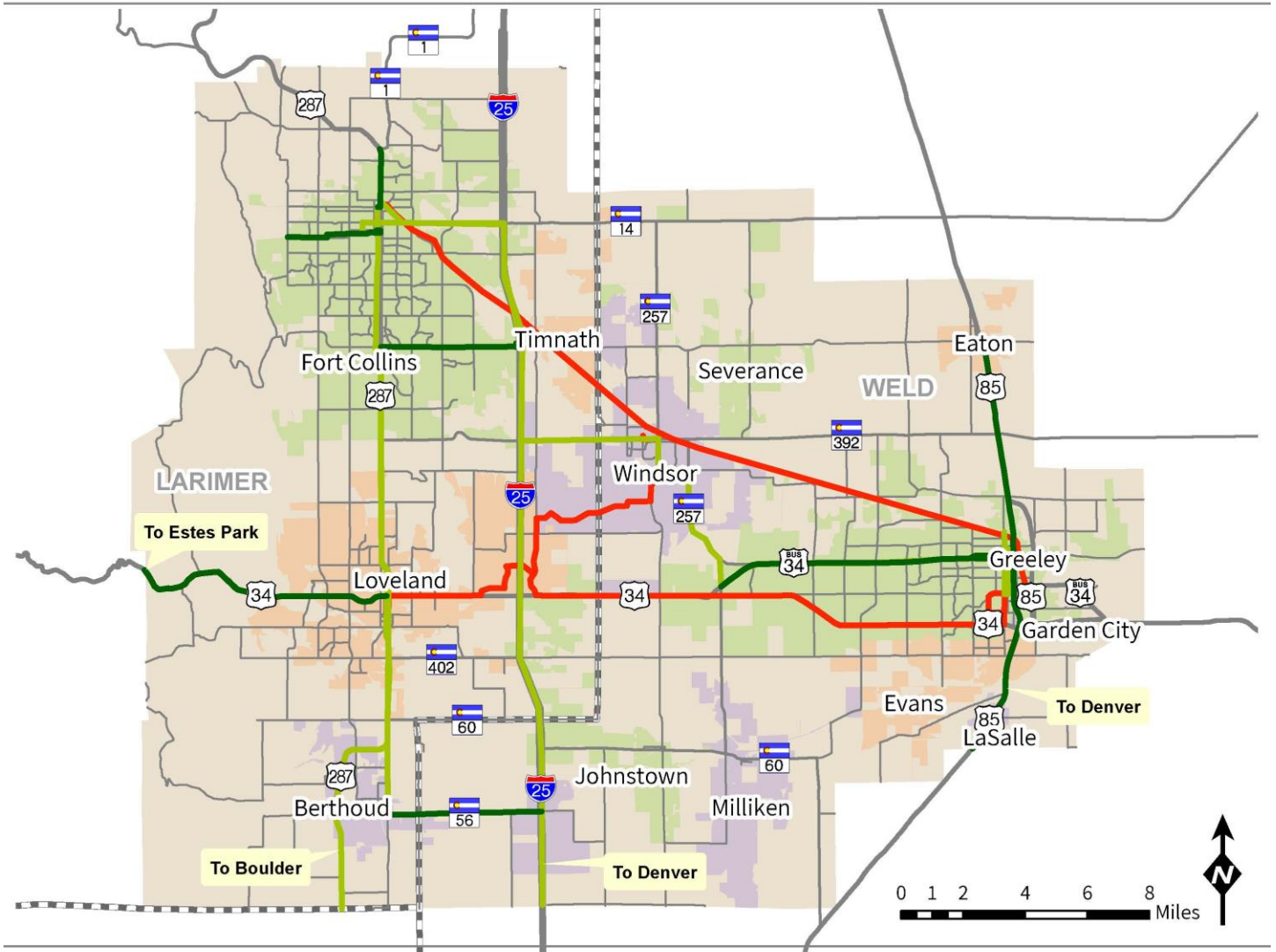
Connecting RTCs:

- US34 West Loveland to Estes Park (RTC16)

Connecting RATCs:

- Big Thompson River (RATC3)
- Great Western/Johnstown/Loveland (RATC4)
- Poudre River Trail (RATC6)
- Front Range Trail (West) (RATC7)

Figure 3-3: Regional Transit Corridors (RTCs)



Legend

- Local Priorities
- Existing Service
- Premium Transit Analysis
-  County Boundary
-  NFRMPO Planning Area

May 2023
Sources: CDOT, NFRMPO



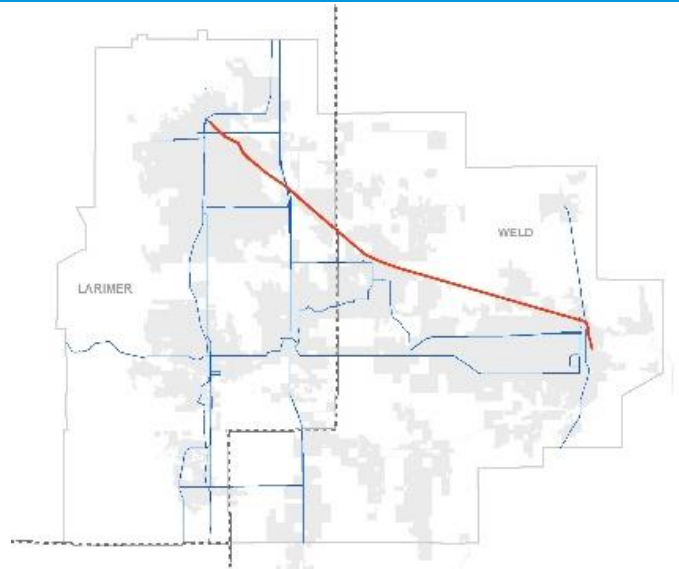
RTC 1: Great Western Corridor Vision

Vision Statement

The Great Western Corridor evolves the Poudre Express service into bus rapid transit and future rail options, supporting transit-oriented communities and economic development.

Jurisdictions

Fort Collins, Timnath, Larimer County, Weld County, Windsor, Greeley



Great Western Corridor

Anticipated Growth in Adjacent Census Block Groups			
Category	2019	2050	% Change
Population	45,534	76,309	+67.5%
Jobs	47,030	78,394	+66.7%
Daily VRM	--	1,712	--

Related Plans

- [LinkNoCo Premium Transit Feasibility Study](#)

Connecting RSCs:

- I-25 (RSC1)
- US34 Business (RSC3)
- US85 (RSC4)
- US85 Business (RSC5)
- SH1(RSC6)
- SH14 (RSC8)
- SH257 (RSC11)
- SH392 (RSC12)
- LCR5 (RSC15)
- LCR 7 / Timberline Rd (RSC16)
- WCR13 (RSC19)
- 35th Ave (RSC21)
- WCR74 (RSC22)
- 8th Street (RSC23)
- 83rd Ave (RSC25)
- Crossroads (RSC26)
- Mulberry Street (RSC27)
- Prospect Rd (RSC28)
- O Street (RSC30)

Connecting RTCs:

- Bustang (RTC6)
- Poudre Express (RTC7)
- North College MAX (RTC8)
- Front Range Passenger Rail (RTC13)

Connecting RATCs:

- Great Western (RATC4)
- N Loveland/Windsor (RATC5)
- Poudre Trail (RATC6)
- Front Range Trail W (RATC7)
- Johnstown/Timnath (RATC 9)
- Eaton/LaSalle (RATC10)

RTC 2: US34 Corridor Vision

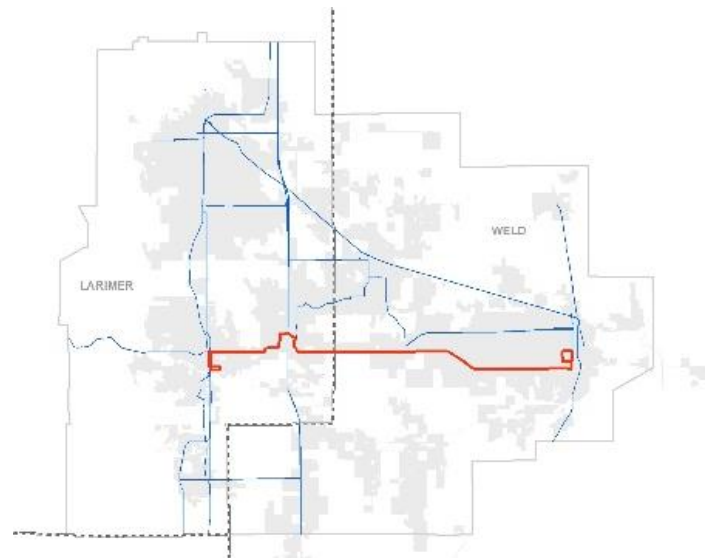


Vision Statement

The US34 Corridor provides vital service between Loveland and Greeley, connecting to the University of Northern Colorado, Medical Center of the Rockies, and other major activity centers.

Jurisdictions

Loveland, Larimer County, Johnstown, Windsor, Greeley



US34 Transit Corridor

Anticipated Growth in Adjacent Census Block Groups			
Category	2019	2050	% Change
Population	62,923	124,115	+97.2%
Jobs	41,357	72,168	+74.5%
Daily VRM	--	1,089	--

Related Plans

- [LinkNoCo Premium Transit Feasibility Study](#)

What we heard from the public

- Demand for increased service on weekends and in the evening
- Support for expanding service to include medical facilities

Connecting RSCs:

- I-25 (RSC1)
- US34 (RSC2)
- US34 Business (RSC3)
- US287 (RSC6)
- SH257 (RSC11)
- LCR3/WCR9.5 (RSC14)
- LCR5 (RSC15)
- LCR7/LCR9 (RSC16)
- WCR13 (RSC19)
- WCR17 (RSC20)
- WCR37/83rd Ave (RSC21)
- WCR35/25th Ave (RSC22)
- 59th Ave / 65th Ave (RSC25)

Connecting RTCs:

- FLEX Express (RTC4)
- FLEX Local (RTC6)
- 34 Business Premier Transit (RTC11)
- Front Range Passenger Rail (RTCs 12 and 13)

Connecting RATCs:

- Great Western (RATC4)
- Front Range Trail W (RATC7)
- BNSF (RATC8)
- Johnstown/Timnath (RATC9)
- Greeley/LaSalle (RATC10)
- US34 Non-Motorized (RATC11)

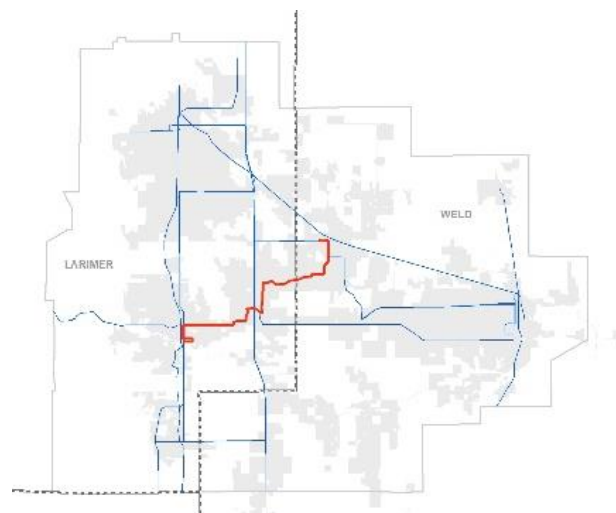
RTC 3: Loveland to Windsor Corridor Vision

Vision Statement

The Loveland to Windsor Corridor supports the fast and dense development happening in the central portion of the region.

Jurisdictions

Loveland, Larimer County, Weld County, Windsor



Loveland to Windsor Transit Corridor

Anticipated Growth in Adjacent Census Block Groups			
Category	2019	2050	% Change
Population	39,490	73,810	+86.9%
Jobs	29,665	44,416	+49.7%
Daily VRM	--	742	--

Related Plans

- LinkNoCo Premium Transit Feasibility Study

Connecting RSCs:

- I-25 (RSC1)
- US34 (RSC2)
- US287 (RSC6)
- SH392 (RSC12)
- LCR5 (RSC15)
- LCR7/LCR9 (RSC16)
- Crossroads Blvd (RSC26)

Connecting RTCs:

- Great Western (RTC1)
- US34 (RTC2)
- FLEX Express (RTC4)
- FLEX Local (RTC5)
- Bustang (RTC6)
- Poudre Express (RTC7)
- Front Range Passenger Rail (RTC 12 and 13)

Connecting RATCs:

- Poudre Trail (RATC6)
- Front Range Trail W (RATC7)
- BNSF (RATC8)
- Johnstown/Timnath (RATC9)
- US34 Non-Motorized (RATC11)

RTC 4: FLEX Express Corridor Vision



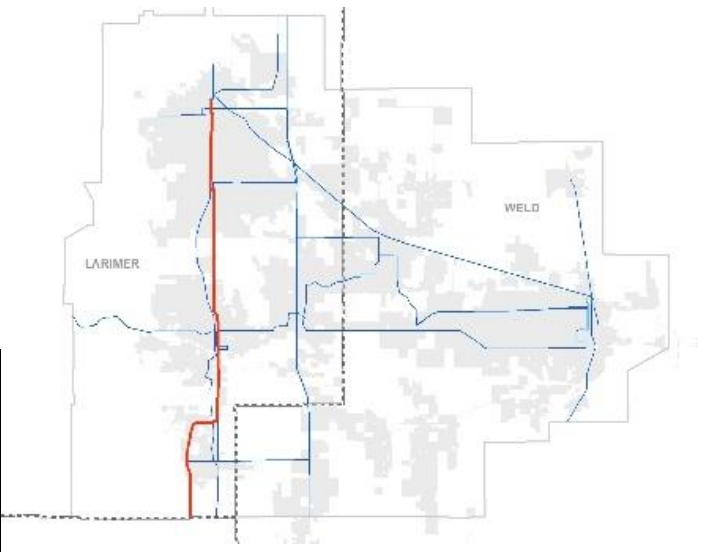
Vision Statement

The FLEX Express frequently connects students, faculty, commuters, and visitors along the corridor to Colorado State University and the University of Colorado.

Jurisdictions

Fort Collins, Larimer County, Loveland, Boulder County

Anticipated Growth in Adjacent Census Block Groups			
Category	2019	2050	% Change
Population	65,523	104,765	+59.9%
Jobs	56,879	79,836	+40.4%
Daily VRM	351	675	+92.3%



FLEX Express Transit Corridor

Related Plans

- [Transfort Transit Master Plan](#)

What we heard from the public

- Demand for higher frequency of service
- Support for expanding park and ride facilities and increasing first and last mile connections.

*"My vision for the corridor is improved **evening** and **weekend** service."*

Connecting RSCs:

- US34 (RSC2)
- US287 (RSC6)
- SH14 (RSC8)
- SH56 (RSC9)
- SH60 (RSC10)
- SH392 (RSC12)
- SH402 (RSC13)
- LCR17 (RSC17)
- WCR74 (RSC23)
- Mulberry Street (RSC27)
- Prospect Rd (RSC28)

Connecting RTCs:

- US34 (RTC2)
- FLEX Local (RTC5)
- Bustang (RTC6)
- Poudre Express (RTC7)
- West Elizabeth MAX (RTC9)
- Harmony Road MAX (RTC10)
- Front Range Passenger Rail (RTC12)
- SH56 (RTC15)
- US34 West Loveland to Estes (RTC16)

Connecting RATCs:

- Little Thompson (RATC2)
- Big Thompson (RATC3)
- Great Western (RATC4)
- N Loveland/Windsor (RATC5)
- Front Range Trail W (RATC7)
- BNSF (RATC8)
- US34 Non-Motorized (RATC11)

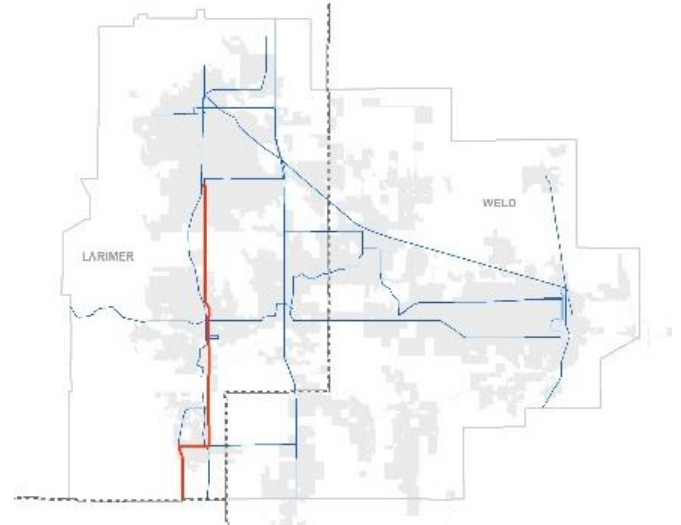
RTC 5: FLEX Local Corridor Vision

Vision Statement

The FLEX Local provides frequent service to local communities and connects smaller communities into the larger transit network.

Jurisdictions

Fort Collins, Larimer County, Loveland, Berthoud, Boulder County



FLEX Local Corridor

Anticipated Growth in Adjacent Census Block Groups			
Category	2019	2050	% Change
Population	45,225	80,434	+77.9%
Jobs	22,863	283,841	+1,141.5%
Daily VRM	563	1,127	+100.2%

Related Plans

- [Transfort Transit Master Plan](#)

Connecting RSCs:

- US34 (RSC2)
- US287 (RSC6)
- SH14 (RSC8)
- SH56 (RSC9)
- SH60 (RSC10)
- SH392 (RSC12)
- SH402 (RSC13)
- LCR17 (RSC17)
- WCR74 (RSC23)
- Mulberry Street (RSC27)
- Prospect Rd (RSC28)

Connecting RTCs:

- US34 (RTC2)
- FLEX Express (RTC4)
- Bustang (RTC6)
- Harmony Road MAX (RTC10)
- Front Range Passenger Rail (RTC12)
- SH56 Transit Service (RTC15)
- US34 West Loveland to Estes Park (RTC16)

Connecting RATCs:

- Little Thompson (RATC2)
- Big Thompson (RATC3)
- Great Western (RATC4)
- N Loveland/Windsor (RATC5)
- Front Range Trail W (RATC7)
- BNSF (RATC8)
- US34 Non-Motorized (RATC11)

RTC 6: Bustang Corridor Vision

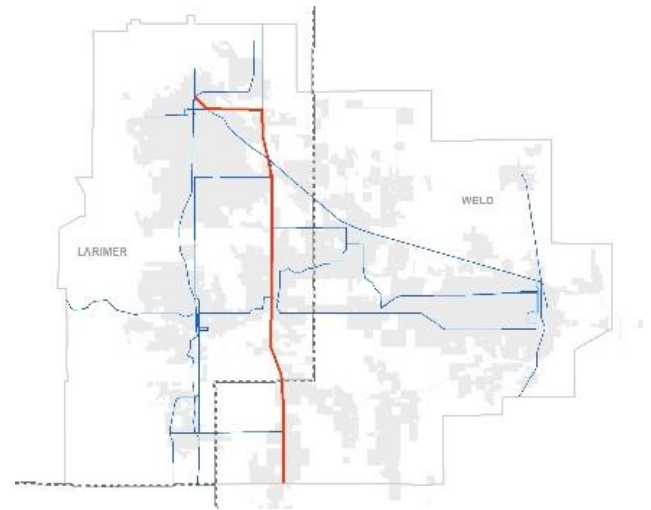


Vision Statement

Bustang provides a statewide connection to connect commuters, tourists, and other users to Denver and beyond.

Jurisdictions

Fort Collins, Loveland, Berthoud, Denver



Bustang Corridor

Anticipated Growth in Adjacent Census Block Groups			
Category	2019	2050	% Change
Population	25,308	71,136	+181.1%
Jobs	47,235	77,342	+63.7%
Daily VRM	639	661	+3.4%

Related Plans

- Bustang Expansion Study

What we heard from the public

- Demand for increased frequency, including evening and weekend service. *"I would like to see ways to get people thinking of using transit along I-25..."*

Connecting RSCs:

- I-25 (RSC1)
- US34 (RSC2)
- SH1 (RSC7)
- SH14 (RSC8)
- SH56 (RSC9)
- SH60 (RSC10)
- SH392 (RSC12)
- SH402 (RSC13)
- LCR7/LCR9 (RSC16)
- WCR74 (RSC23)
- Mulberry Street (RSC27)
- Prospect Rd (RSC28)

Connecting RTCs:

- Great Western (RTC1)
- US34 (RTC2)
- Loveland to Windsor (RTC3)
- Poudre Express (RTC7)
- N College MAX (RTC8)
- Harmony Rd MAX (RTC10)
- Front Range Passenger Rail (RTC13)
- SH56 Transit Service (RTC15)

Connecting RATCs:

- Little Thompson (RATC2)
- Big Thompson (RATC3)
- Great Western (RATC4)
- N Loveland/Windsor (RATC5)
- Poudre Trail (RATC6)
- Front Range Trail W (RATC7)
- US34 Non-Motorized (RATC11)

RTC 7: Poudre Express Corridor Vision

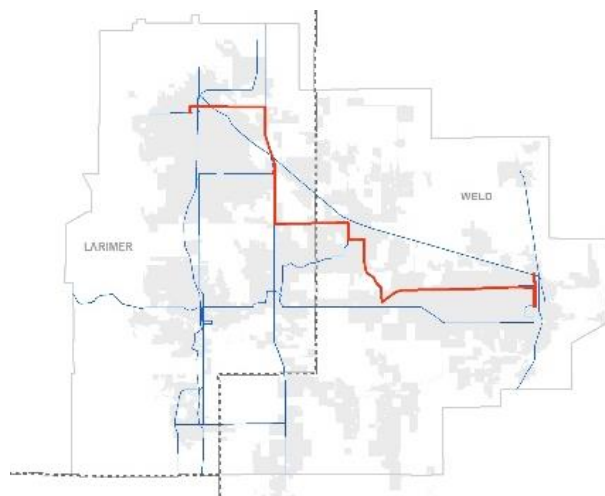


Vision Statement

The Poudre Express continues to provide service across two counties frequently, efficiently, and with upgraded infrastructure.

Jurisdictions

Fort Collins, Windsor, Greeley



Poudre Express Corridor

Anticipated Growth in Adjacent Census Block Groups			
Category	2019	2050	% Change
Population	83,299	148,504	+181.1%
Jobs	68,341	111,476	+63.1%
Daily VRM	*Started 2020	857	--

Related Plans

- [LinkNoCo Premium Transit Feasibility Study](#)
- [Greeley on the Go Plan](#)
- [Windsor Transportation Master Plan](#)

What we heard from the public

- Demand for increased frequency, including evening and weekend service. *“Local transit connections, last mile connections, and parking options are key.”*

Connecting RSCs:

- I-25 (RSC1)
- US34 Business (RSC3)
- US287 (RSC6)
- SH1 (RSC7)
- SH14 (RSC8)
- SH257 (RSC11)
- SH392 (RSC12)
- LCR5 (RSC15)
- WCR13 (RSC19)
- WCR74 (RSC23)
- Crossroads Blvd (RSC26)
- Mulberry Street (RSC27)
- Prospect Rd (RSC28)
- 4th Street (RSC29)

Connecting RTCs:

- Great Western (RTC1)
- US34 (RTC2)
- Loveland to Windsor (RTC3)
- Poudre Express (RTC7)
- N College MAX (RTC8)
- W Elizabeth MAX (RTC9)
- Harmony Rd MAX (RTC10)
- 34 Business Premier (RTC11)
- US85 Transit Service (RTC14)

Connecting RATCs:

- Great Western (RATC4)
- N Loveland/Windsor (RATC5)
- Poudre Trail (RATC6)
- Front Range Trail W (RATC7)
- BNSF (RATC8)
- US34 Non-Motorized (RATC11)

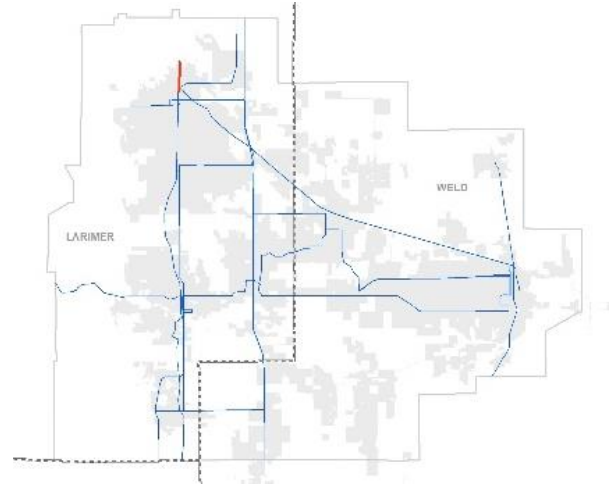
RTC 8: North College MAX Corridor Vision

Vision Statement

North College MAX is a gateway to Fort Collins, supporting local neighborhoods and businesses.

Jurisdictions

Fort Collins



North College MAX Transit Corridor

Anticipated Growth in Adjacent Census Block Groups			
Category	2019	2050	% Change
Population	10,044	18,376	+83%
Jobs	17,438	28,898	+65.7%
Daily VRM	236	448	+89.8%

Related Plans

- [North College MAX Plan](#)
- [Transfort Transit Master Plan](#)

Connecting RSCs:

- SH14 (RSC6)
- SH1 (RSC7)
- SH14 (RSC8)

Connecting RTCs:

- Great Western (RTC1)
- FLEX Express (RTC4)
- Bustang (RTC6)
- Front Range Passenger Rail (RTC12)

Connecting RATCs:

- Poudre Trail (RATC6)
- BNSF (RATC8)

RTC 9: West Elizabeth MAX Corridor Vision

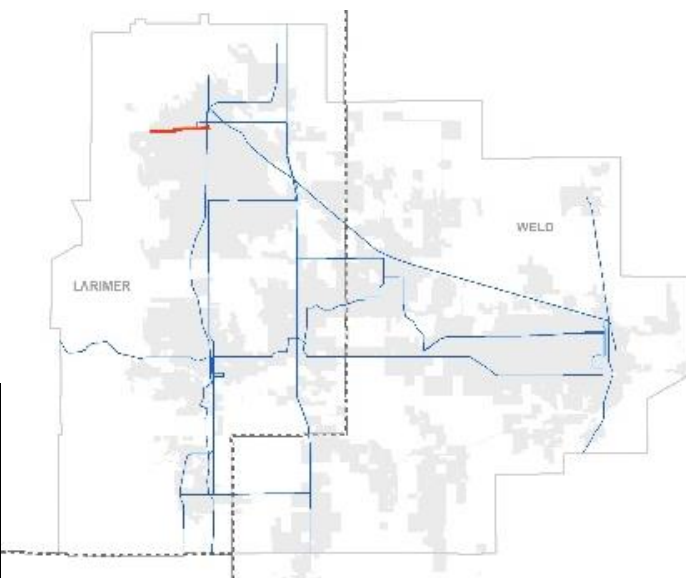


Vision Statement

West Elizabeth MAX supports students and residents in a dense, urban environment.

Jurisdictions

Fort Collins



West Elizabeth Transit Corridor

Anticipated Growth in Adjacent Census Block Groups			
Category	2019	2050	% Change
Population	24,475	26,825	+9.6%
Jobs	14,623	21,452	+46.7%
Daily VRM (Routes 31, 32, 33)	524	611	+16.6%

Related Plans

- [West Elizabeth MAX Study](#)

What we heard from the public

- Demand for increased service frequency
- Support for transit-oriented development along the corridor

*"My vision for the corridor includes **ten-minute service** to midnight."*

Connecting RSCs:

- US287 (RSC6)
- LCR17 (RSC17)
- LCR19 (RSC18)

Connecting RTCs:

- FLEX Express (RTC4)
- Poudre Express (RTC7)

Connecting RATCs:

- BNSF (RATC8)



West Elizabeth Locally Preferred Alternative (Fort Collins)

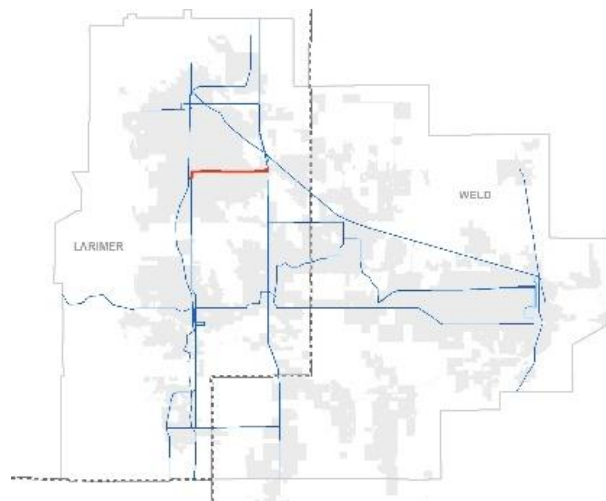
RTC 10: Harmony Road MAX Corridor Vision

Vision Statement

Harmony Road MAX is a gateway to Fort Collins, supporting local and regional traffic in the southeast portion of the region.

Jurisdictions

Fort Collins



Harmony Road MAX Transit Corridor

Anticipated Growth in Adjacent Census Block Groups			
Category	2019	2050	% Change
Population	20,349	26,762	+31.5%
Jobs	25,835	27,688	+7.2%
Daily VRM	256* (Route 16)	682	+166.4%

Related Plans

- [Harmony Road Enhanced Travel Corridor](#)
- [Transfort Transit Master Plan](#)

Connecting RSCs:

- I-25 (RSC1)
- US287 (RSC6)
- LCR7/LCR9 (RSC16)
- WCR74 (RSC23)

Connecting RTCs:

- FLEX Express (RTC4)
- FLEX Local (RTC5)
- Poudre Express (RTC7)
- Front Range Passenger Rail (RTCs 12 and 13)

Connecting RATCs:

- Front Range Trail (West) (RATC7)
- BNSF (RATC8)

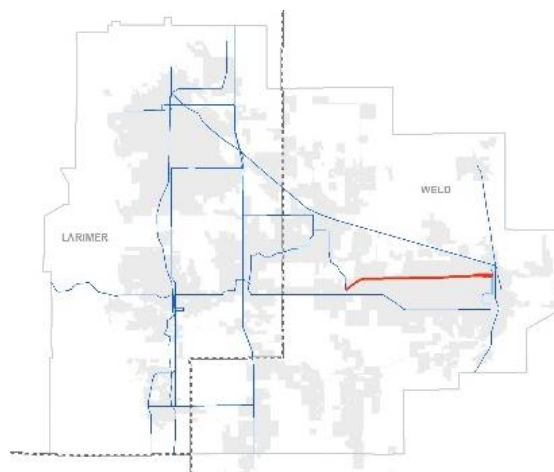
RTC 11: US34 Business Premier Transit Corridor Vision

Vision Statement

US34 Business Premier Transit supports local and regional transit usage, enhancing a multimodal corridor.

Jurisdictions

Greeley



US34 Business Premier Transit Corridor

Anticipated Growth in Adjacent Census Block Groups			
Category	2019	2050	% Change
Population	62,923	124,115	97.2%
Jobs	41,357	72,168	74.5%
Daily VRM	See RTC 7		

Related Plans

- [Greeley on the Go Plan](#)

Connecting RSCs:

- US34 Business (RSC3)
- US85 Business (RSC5)
- SH257 (RSC11)
- WCR27/83rd Ave (RSC21)
- WCR35 (RSC22)
- 59th Ave/65th Ave (RSC25)

Connecting RTCs:

- US34 (RTC2)
- Poudre Express (RTC7)
- US85 Transit Service (RTC14)

Connecting RATCs:

- Greeley/LaSalle (RATC10)
- US34 Non-Motorized (RATC11)

RTC 12 and RTC 13: Front Range Passenger Rail Corridor Visions



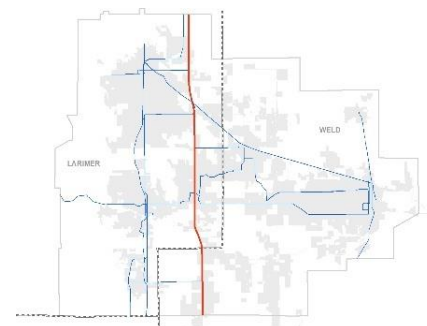
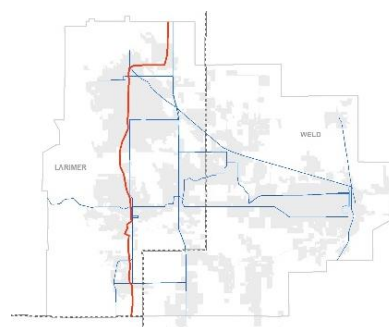
Vision Statement

Front Range Passenger Rail along US287 supports economic development and the movement of people through the region's downtowns.

Front Range Passenger Rail along I-25 supports fast and efficient movement of people through the region.

Jurisdictions

Fort Collins, Larimer County, Loveland, Berthoud



Front Range Passenger Rail Proposed Corridors

Anticipated Growth in Adjacent Census Block Groups			
Category	2019	2050	% Change
Population	75,135	133,595	+77.8%
	17,705	64,908	+266.6%
Jobs	62,365	88,724	+42.3%
	19,746	35,996	+82.3%

Related Plans

- [Front Range Passenger Rail District](#)

What we heard from the public

- Demand for a high frequency line with extensive local connections

*"I would use this service to go to Denver for social engagements if **weekend** and **late-night** service was included."*

Connecting RSCs:

- See RSC1 and RSC6

Connecting RTCs:

- See RTC4, RTC5, and RTC6

Connecting RATCs:

- See RATC8

RTC 14: US85 Transit Service Corridor Vision

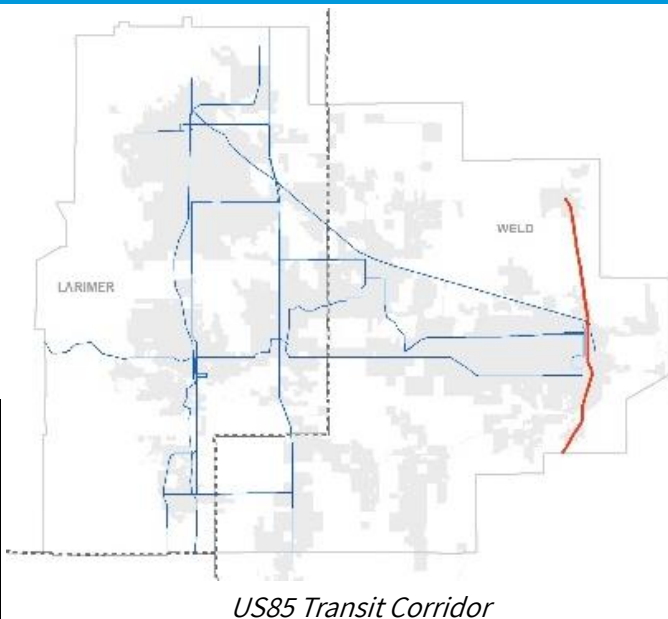


Vision Statement

US85 Transit Service completes the North I-25 EIS option for express bus service in Weld County.

Jurisdictions

Weld County, Eaton, Greeley, Evans, LaSalle



Anticipated Growth in Adjacent Census Block Groups			
Category	2019	2050	% Change
Population	29,264	35,034	+19.7%
Jobs	19,347	39,939	+106.4%
Daily VRM	--	1,493	--

Related Plans

- [North I-25 EIS](#)

What we heard from the public

- The corridor is primarily used for commuting
- Demand for late night and early morning service for shift workers
- Demand for expanding local connections along the corridor

Connecting RSCs:

- US34 (RSC2)
- US34 Business (RSC3)
- US85 Business (RSC5)
- SH392 (RSC12)
- SH402/Freedom Pkwy (RSC13)
- WCR74/Harmony Rd (RSC23)
- 8th Street (RSC24)
- Crossroads Boulevard (RSC26)
- O Street (RSC30)

Connecting RTCs:

- Great Western (RTC1)
- US85 Transit Service (RTC14)

Connecting RATCs:

- South Platte Trail (RATC1)
- Poudre Trail (RATC6)
- Greeley/LaSalle (RATC10)
- US34 Parallel (RATC11)

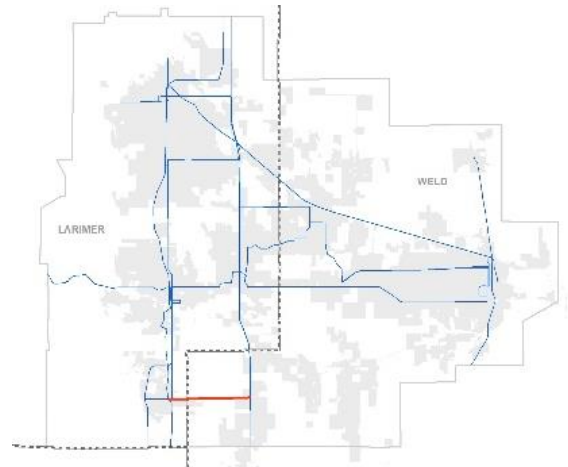
RTC 15: SH56 Transit Service Corridor Vision

Vision Statement

SH56 Transit Service shuttles commuters and visitors between Berthoud and the SH56 Mobility Hub.

Jurisdictions

Berthoud, Larimer County, Weld County



SH56 Transit Corridor

Anticipated Growth in Adjacent Census Block Groups			
Category	2019	2050	% Change
Population	4,064	8,749	+115.3%
Jobs	1,299	1,622	+24.9%
Daily VRM	Not Modeled (microtransit)		

Related Plans

- [Berthoud Transportation Master Plan](#)

Connecting RSCs:

- I-25 (RSC1)
- US287 (RSC6)
- LCR3/WCR9.5 (RSC14)
- Larimer CR7/LCR9 (RSC16)
- LCR17 (RSC17)

Connecting RTCs:

- FLEX Express (RTC4)
- FLEX Local (RTC5)
- Bustang (RTC6)
- Front Range Rail (RTC12)
- Front Range Rail (RTC13)

Connecting RATCs:

- Little Thompson River (RATC2)
- BNSF (RATC8)

RTC 16: US34 West Loveland to Estes Park Corridor Vision

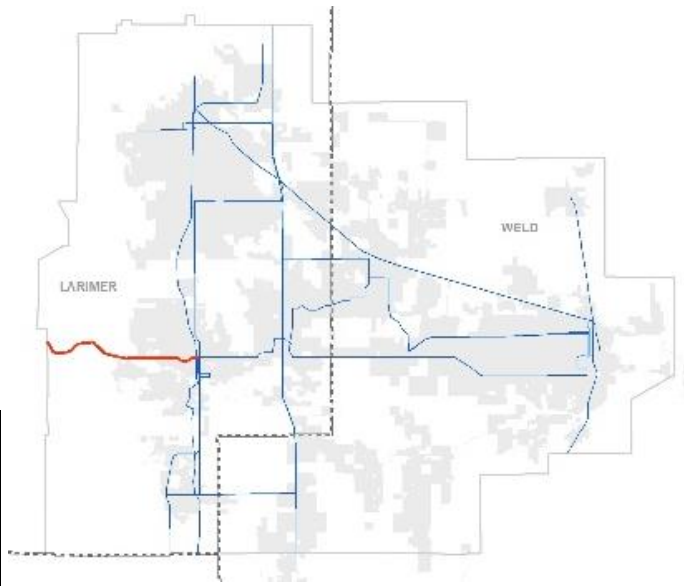


Vision Statement

US34 West Loveland to Estes Park supports commutes and tourism between the North Front Range and Estes Park.

Jurisdictions

Loveland, Larimer County, Estes Park



US34 West Transit Corridor

Anticipated Growth in Adjacent Census Block Groups

Category	2019	2050	% Change
Population	14,922	20,402	+36.7%
Jobs	3,487	7,698	+120.8%
VRM	Not Modeled		

What we heard from the public

- The corridor is primarily used for recreation
- Demand for frequent service
- Concerns over safety

*"I would use this service to **connect** to recreation opportunities at RMNP **rather than driving**."*

Connecting RSCs:

- US34 (RSC2)
- US287 (RSC6)
- LCR17 (RSC17)
- LCR19 (RSC18)

Connecting RTCs:

- US34 (RTC2)
- FLEX Express (RTC4)
- FLEX Local (RTC5)
- Front Range Passenger Rail (RTC12)

Connecting RATCs:

- Big Thompson (RATC3)
- N Loveland/Windsor (RATC5)
- BNSF (RATC8)
- US34 Non-Motorized (RATC11)
- Carter Lake (RATC12)

An aerial photograph of a highway interchange under construction. A blue hexagonal graphic is overlaid on the top left, containing the text 'Chapter 3'. The scene shows multiple lanes of traffic, construction equipment, and a large pile of steel beams on the left side of the road.

Chapter

3

Section 2: Scenarios

Forecasts and Scenarios

Although the NFRMPO establishes a baseline scenario based on fiscal constraint and feedback from member communities, the NFRMPO uses other scenarios to understand the impact of different policy decisions on the region's transportation system and needs. The NFRMPO uses the Land Use Allocation Model (LUAM) and the Regional Travel Demand Model (RTDM) to forecast differences in key milestones, like Level of Service, Travel Time Index, and vehicle miles traveled (VMT). These types of analyses can also help the NFRMPO understand how its prioritization impacts the performance measures discussed in **Chapter 2**.

In addition to the scenarios discussed in this section, the NFRMPO also established scenarios for the Greenhouse Gas (GHG) Transportation Report, a State requirement. The strategies for the GHG Transportation Report are included in **Appendix B**.

Land Use Scenarios

The baseline scenario is explained in **Chapter 2** and is based on data from the State Demography Office, local communities, and the UrbanSim platform.

One land use scenario was prepared for the 2050 RTP to compare it to the baseline scenario. The scenario increased allowable densities within certain zoning districts and manual increases in population by growing the 2050 numbers by 25 percent. The high-density scenario was created to demonstrate how the region would develop if additional density was allowed in urban core areas compared to the density currently identified in communities' long-range plans. Manual increases in population happened in areas roughly based on the urban core areas identified in the 2045 RTP. These areas were identified based on locations with the highest density in 2015 and roughly align to the central portion of the region. To accommodate additional growth, the maximum allowable densities in the urban core were doubled in the high-density scenario. Household and jobs results for the High-Density Scenario are shown in **Figure 3-4** and **Figure 3-5**.

Compared to the baseline scenario, the high-density scenario forecasts more and denser development within the core. Development in the rural area is located predominantly along major highway corridors, while the influx of new development and jobs is along major corridors.

Outputs from the High-Density Land Use Scenario were used as an input for the High-Density Land Use – Fiscally Constrained Projects scenario, explained in the following sections.

Figure 3-4: 2050 High Density Households

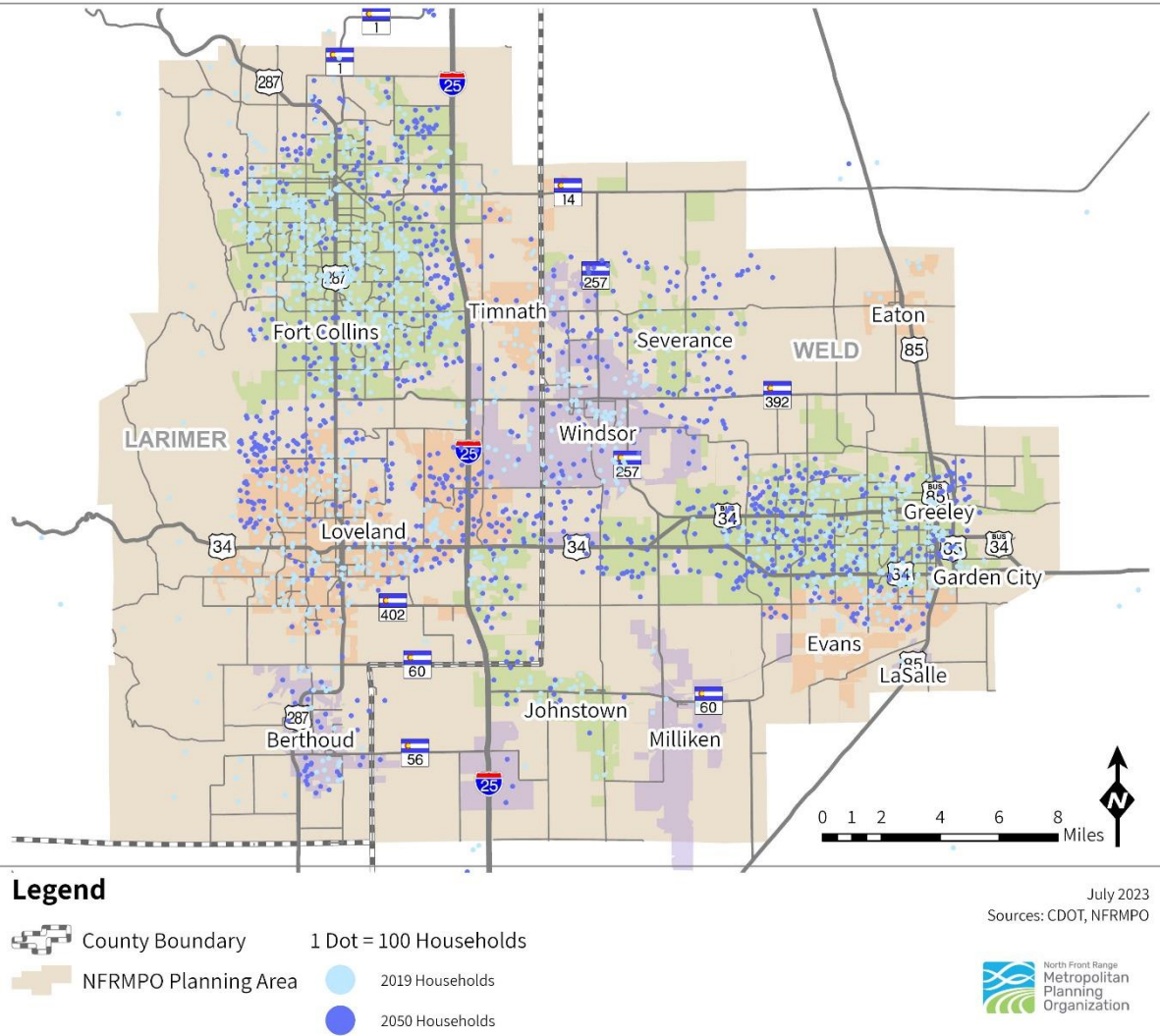
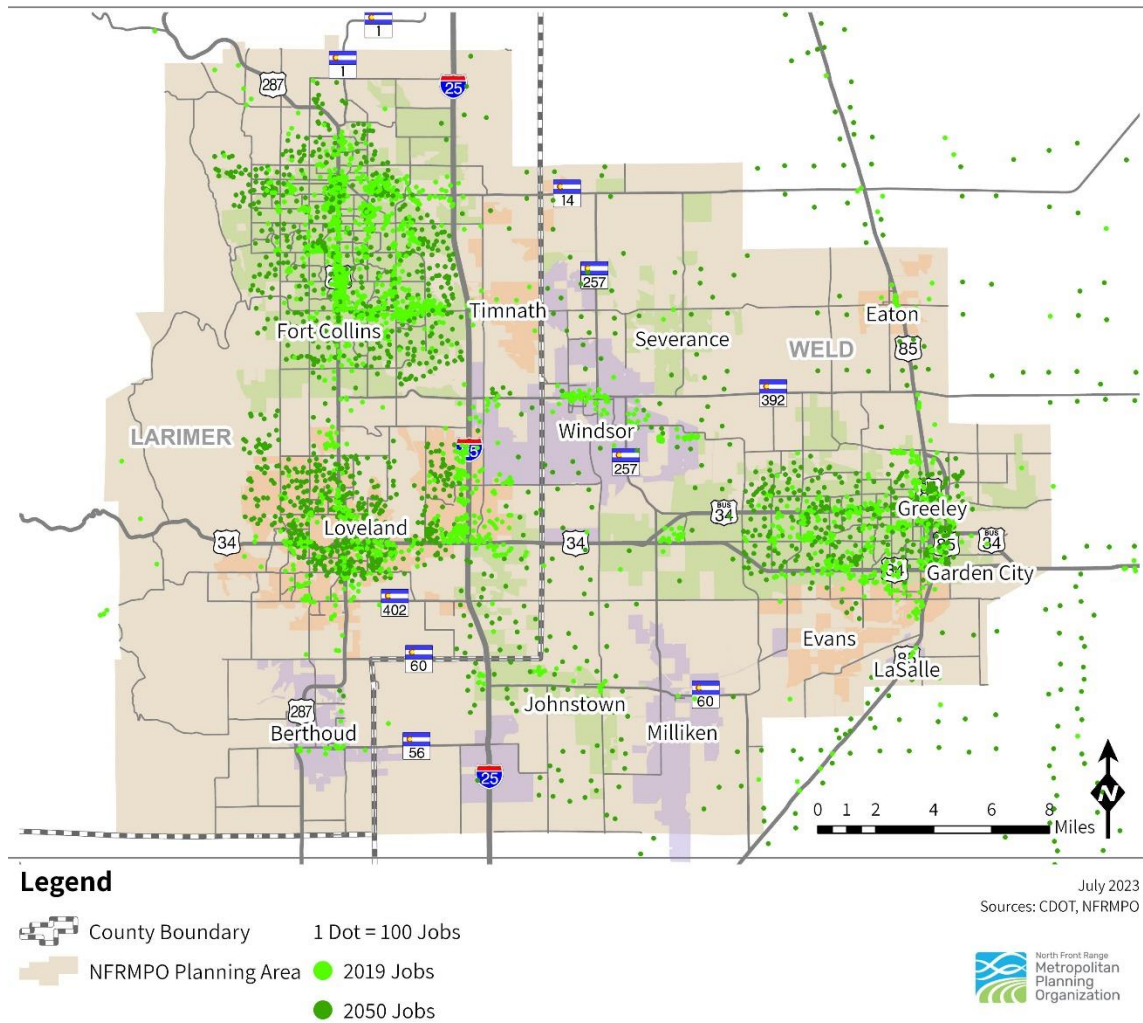


Figure 3-5: 2050 High Density Jobs



Transportation Scenarios

The 2019 RTDM builds upon the outputs from the LUAM to identify how the region's transportation system will perform in 2050, including traffic volume, congested travel speeds, and transit ridership. The 2019 RTDM uses a base year of 2019 and a combination of destination choice and gravity modeling to forecast travel choices by trip purpose.

Four transportation scenarios were developed using the 2019 RTDM, including the baseline scenario and three specific scenarios. The baseline scenario forecasts the transportation system using the fiscally constrained priority transportation projects and guidance from local communities. The alternative investment scenarios test the following investment options:

- **No Build** – No additional transportation investments from 2023 through 2045, beyond what is already under construction.
- **Fiscally Unconstrained** – All identified projects regardless of available funding
- **Fiscally Constrained and Higher Density Land Use** – Projects with anticipated funding based on a higher density scenario

A comparison of results for certain performance metrics are shown in **Table 3-1**.

Baseline Transportation Scenario

The baseline transportation scenario represents the expected transportation system in 2050 and includes the fiscally constrained, regionally significant projects identified in the Financial Plan. Compared to the 2019 network, the fiscally constrained 2050 network includes roadway widenings, new roads, and newly paved roads, as well as additional transit routes and bicycle and pedestrian infrastructure.

The number of lanes in the 2050 fiscally constrained roadway network are displayed in **Figure 3-6**.

Level of Service (LOS) is a qualitative measure of how well the roadway serves traffic. LOS ranges from a score of A, which is free-flow traffic, to a score of F, which is stop-and-go traffic that is poorly served by the roadway's capacity. LOS is shown in **Figure 3-7**, with the central portion of the region having the most LOS F.

The Travel Time Index (TTI), a measure of congestion that compares travel time during the peak period to free-flow conditions, is forecasted to be higher in 2050 than in 2019. As defined in the 2023 Congestion Management Process (CMP), a TTI of 1.5 or higher is indicative of congestion.

Figure 3-8 shows the TTI for each RSC, with US34, SH402, and SH56 having the highest TTIs in the region.

Table 3-1: Scenario Metrics Comparison

	Baseline	No Build	Fiscally Unconstrained	High Density/Fiscally Constrained
Vehicle Miles Traveled (VMT)	19,020,700	19,537,644	19,546,470	18,519,574
Vehicle Hours Traveled (VHT)	570,784	605,562	559,419	552,488
Vehicle Hours of Delay	103,612	125,374	83,011	93,338
Percent of RSCs with TTI >= 1.5	12.3%	16.9%	5.8%	8.1%
Percent of RSCs with LOS F	30.7%	35.9%	23.1%	27.8%
Person Miles Traveled	23,914,430	23,976,599	24,014,940	22,611,887
Person Hours Traveled	729,226	758,498	702,604	691,216
Average Speed (MPH)	33.3	32.3	34.9	33.5

Figure 3-6: Baseline and High Density Scenario Number of Lanes by RSC, 2050

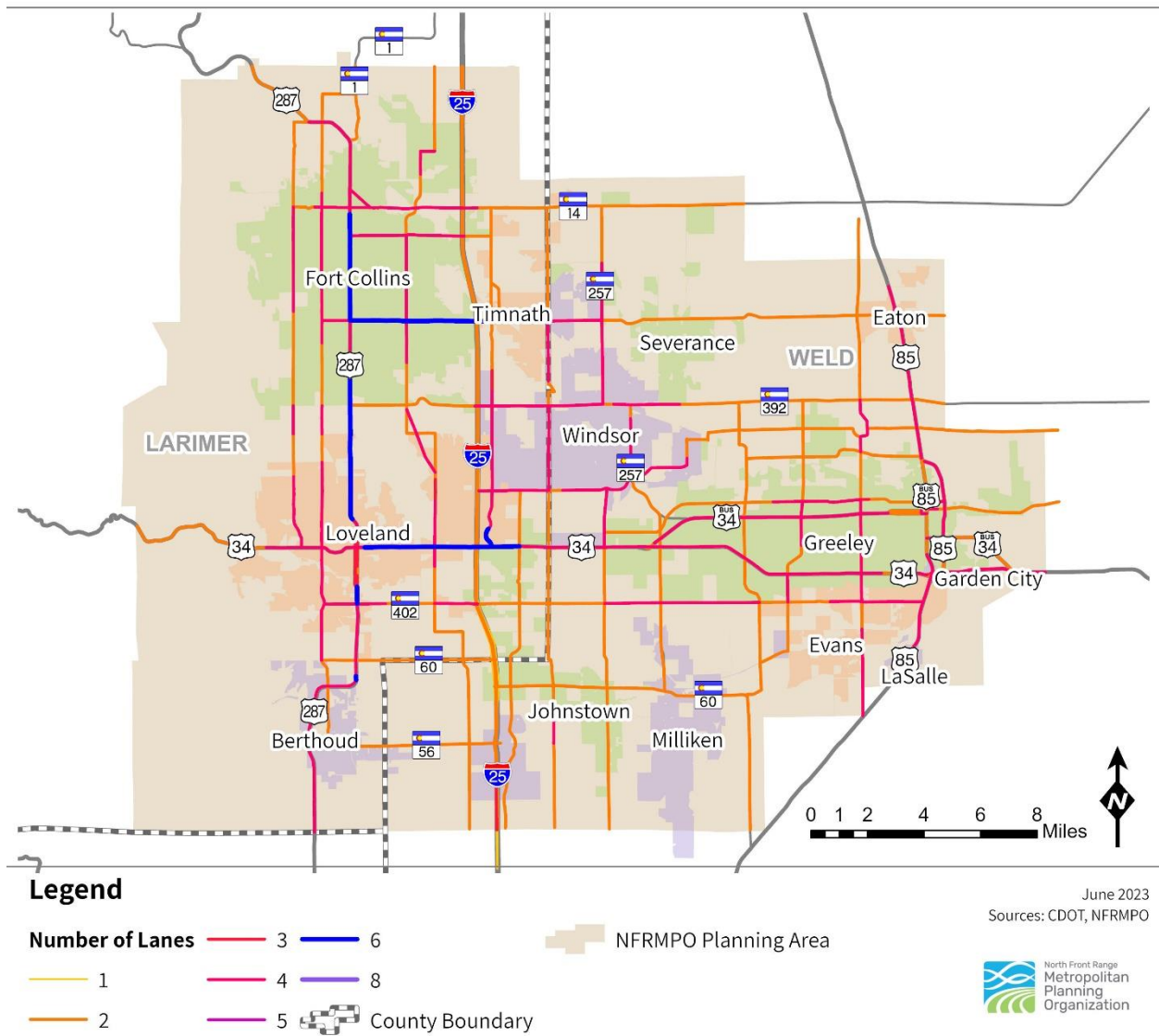
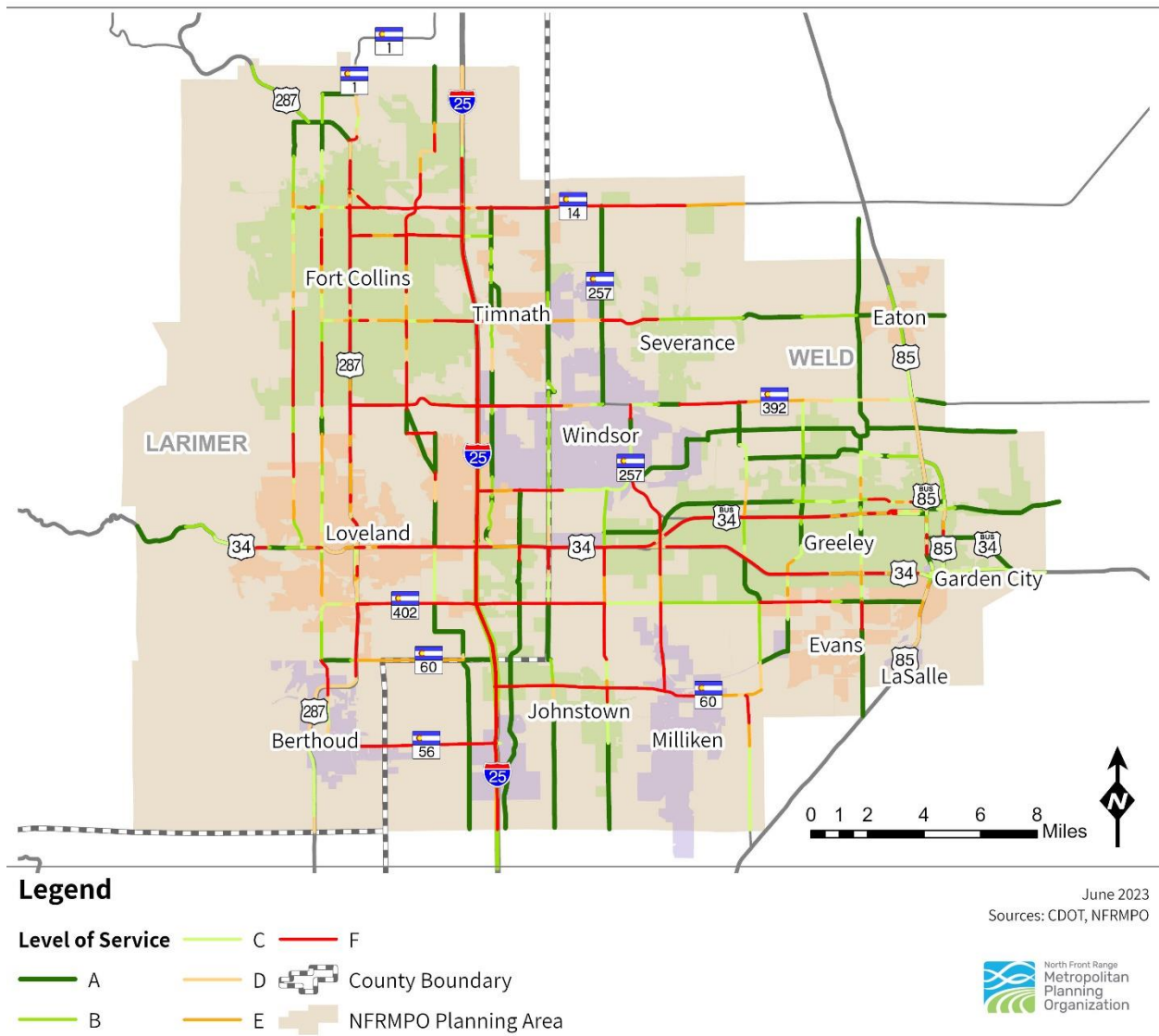


Figure 3-7: Baseline Scenario Level of Service (LOS) by RSC, 2050



Legend

- Congested Corridors**
 - Yellow line: Congesting (1.30 - 1.49)
 - Red line: Congested (1.50 - 2.49)
 - Dark red line: Severely Congested (2.50+)
 - Green line: Not Congested
- Black dashed line: County Boundary
- Light blue shaded area: NFRMPO Planning Area

June 2023
Sources: CDOT, NFRMPO

North Front Range Metropolitan Planning Organization

Alternative Transportation Scenarios

The alternative investment scenarios vary the most according to the percentage of the RSCs with LOS F with the Fiscally Unconstrained Project scenario having the lowest percent. The No Build Scenario has the highest percent, reflecting the lack of investments and rapid growth in population. The High Density-Fiscally Constrained Project Scenario has the lowest VMT and PMT of the scenarios, reflecting the potentially shorter trips accomplished in higher density areas.

Other measures of delay, such as vehicle hours of delay, percent of system with TTI greater than or equal to 1.5, and person hours of delay also vary substantially among the alternative investment scenarios. Distance traveled as measured by VMT and person mile traveled do not vary substantially among the scenarios.

The RTDM forecasts mode choice with five key categories: Drive Alone, Carpool (at least two people per vehicle), Walking, Biking, and Transit. **Table 3-2** shows the mode choices by scenario. Drive Alone is consistent across the top, recognizing a lack of further investment in transit or bicycle and pedestrian projects. Carpooling remains consistent in all four scenarios.

Table 3-2: Mode Choice by Scenarios, 2050

Mode	Baseline	No Build	Fiscally Unconstrained	High Density-Fiscally Constrained
Drive Alone	45.9%	49.1%	49.0%	49.0%
Carpool	39.0%	38.8%	38.8%	38.3%
Walk	10.7%	8.0%	8.0%	8.4%
Bike	4.3%	3.5%	3.5%	3.7%
Transit	0.1%	0.7%	0.7%	0.6%

Figure 3-9 and **Figure 3-10** show the number of lanes by RSC for the No Build Scenario and the Fiscally Unconstrained Scenario. The number of lanes for the High-Density Scenario is the same as the Baseline, **Figure 3-6**. The most notable difference in the number of lanes between the two scenarios is the number of lanes along I-25.

Figure 3-9: No Build Scenario Number of Lanes by RSC, 2050

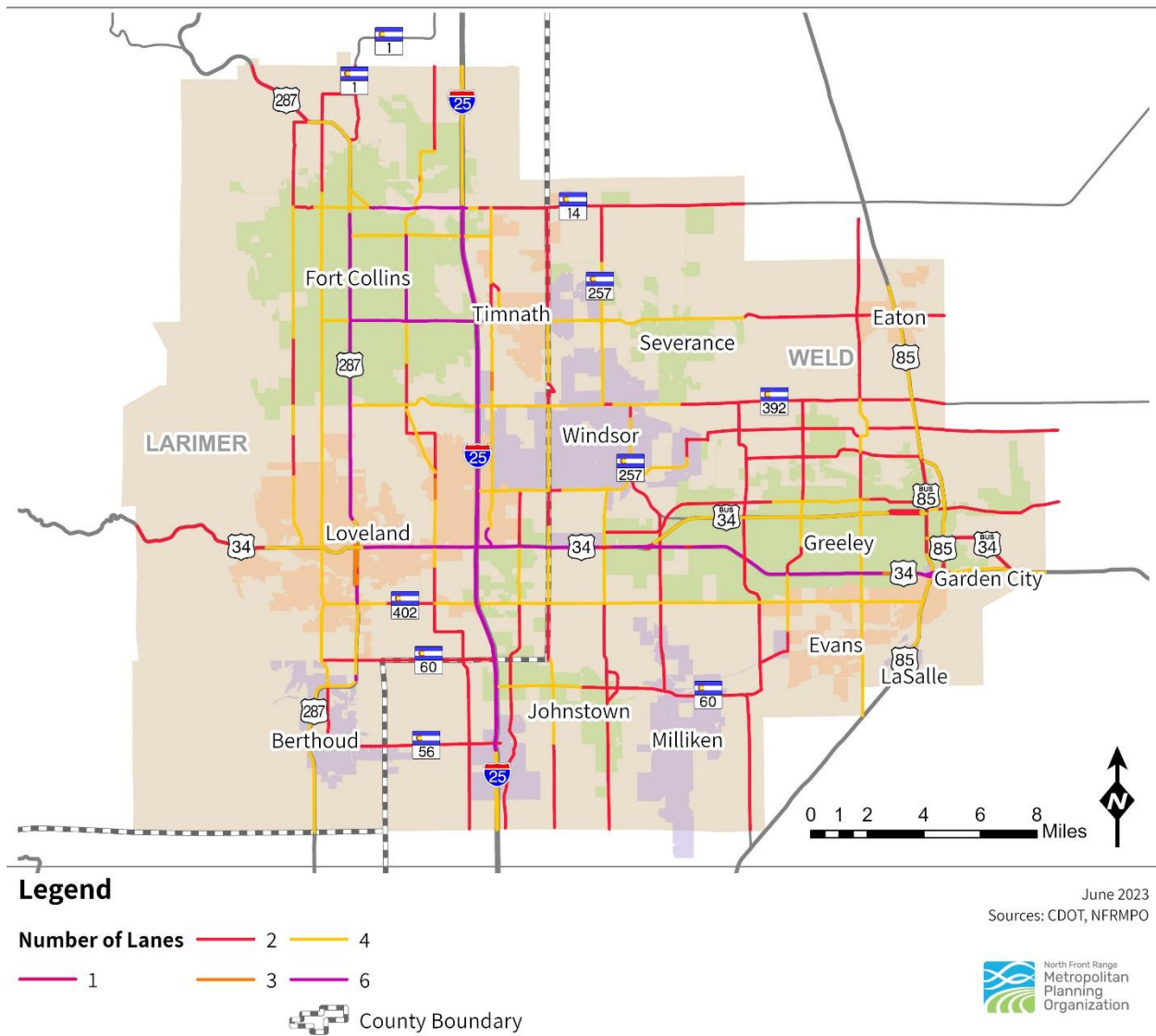
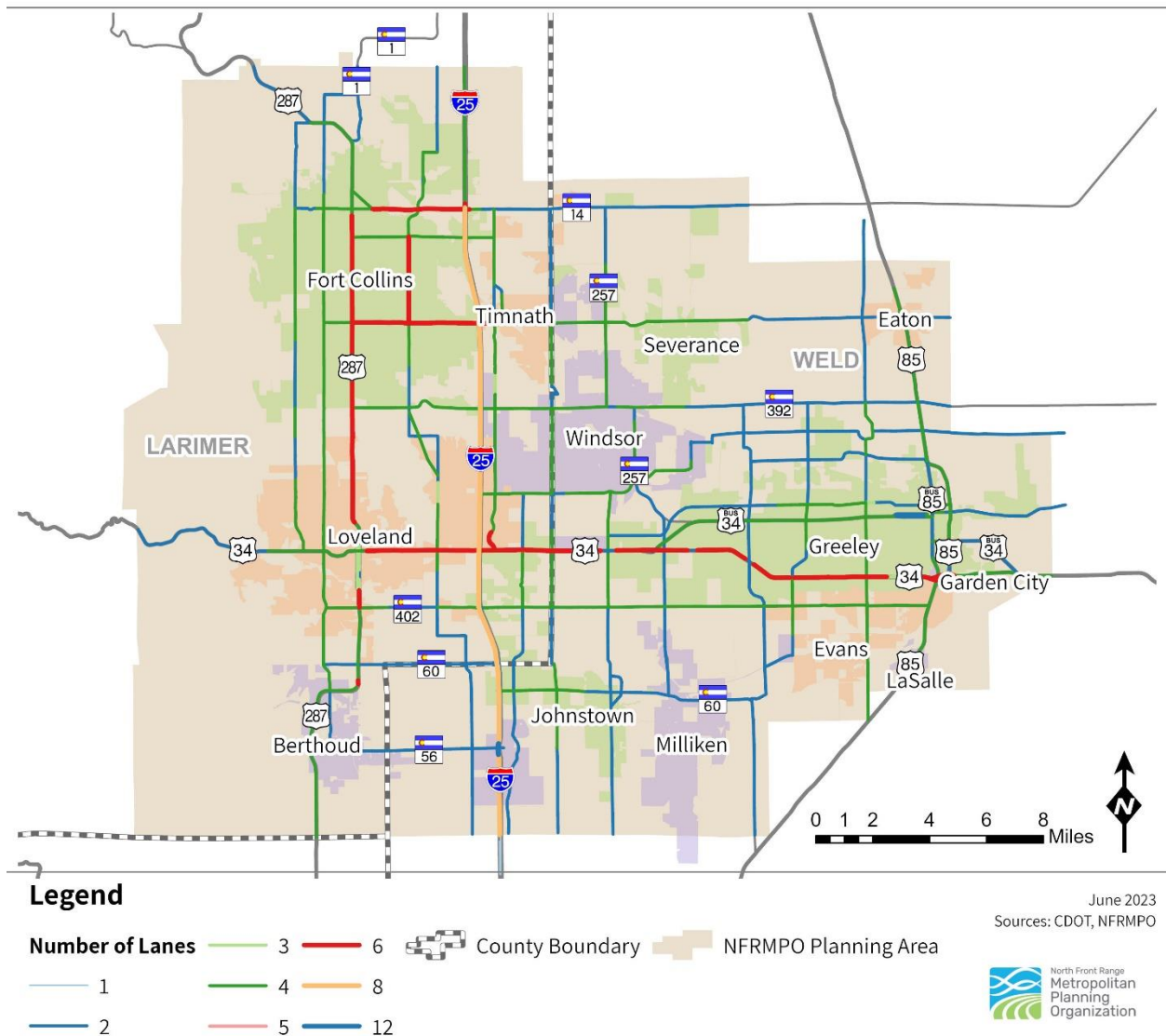


Figure 3-10: Unconstrained Scenario Number of Lanes by RSC, 2050



LOS has become an antiquated measure but still allows a broad understanding where roadway capacity can and cannot handle volumes. Looking at person-miles traveled, and vehicle miles traveled can give further context about alternative transportation options being used, as a full base will have fewer VMT but greater PMT. **Figure 3-11**, **Figure 3-12**, and **Figure 3-13** show LOS by Scenario.

The No Build scenario has the highest ratio of RSCs with an LOS F, resulting from no further investments in transit, bicycle and pedestrian infrastructure, or roadway capacity. The Fiscally Unconstrained has the most LOS A, resulting from the increased investments, while the High-Density Scenario has more moderate LOS. Across all three scenarios, areas with the lowest LOS are located near interchanges with I-25 or US34, two of the central corridors within the region.

Figure 3-11: No Build Scenario Level of Service (LOS) by RSC, 2050

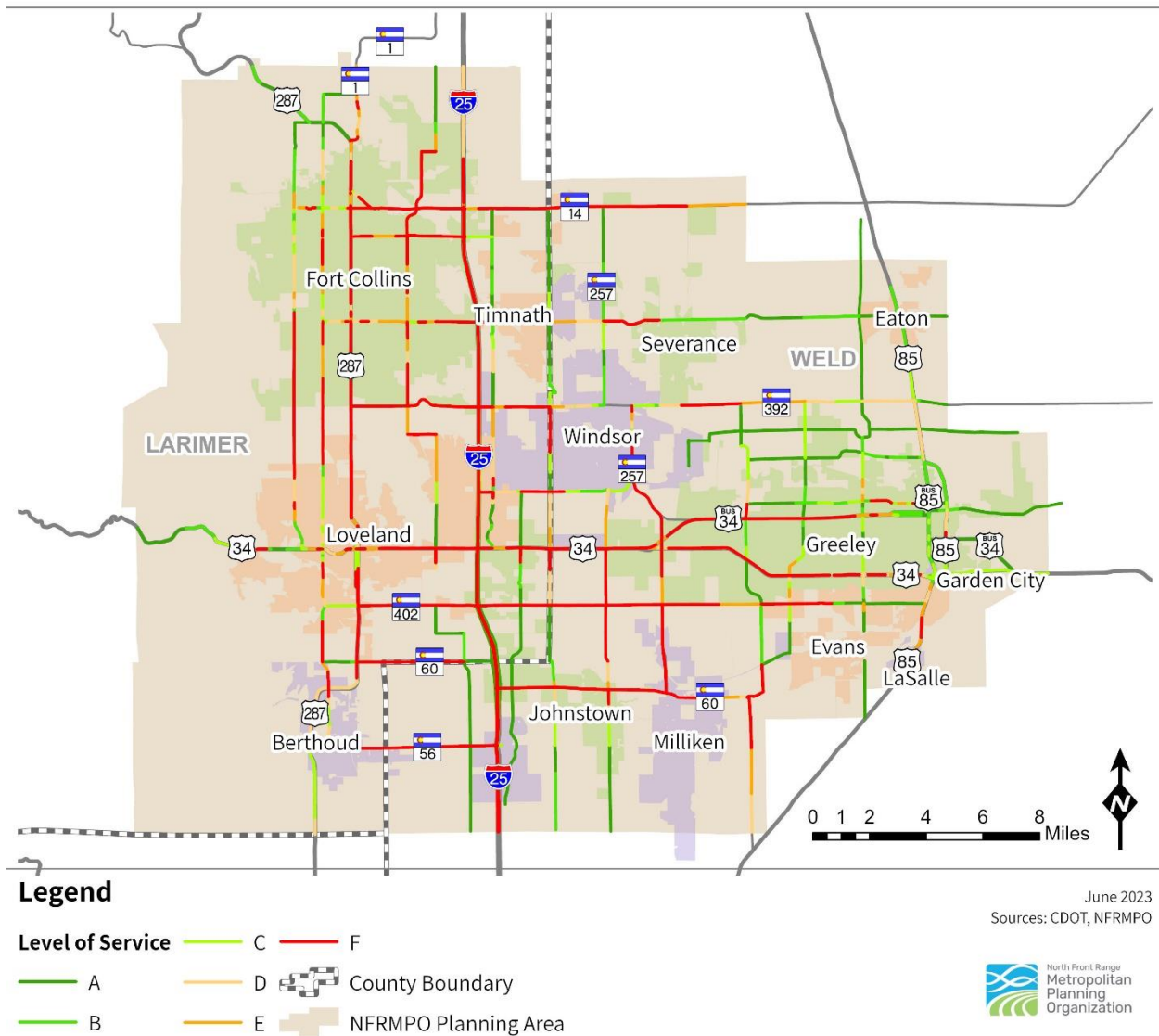


Figure 3-12: Fiscally Unconstrained Scenario Level of Service, 2050

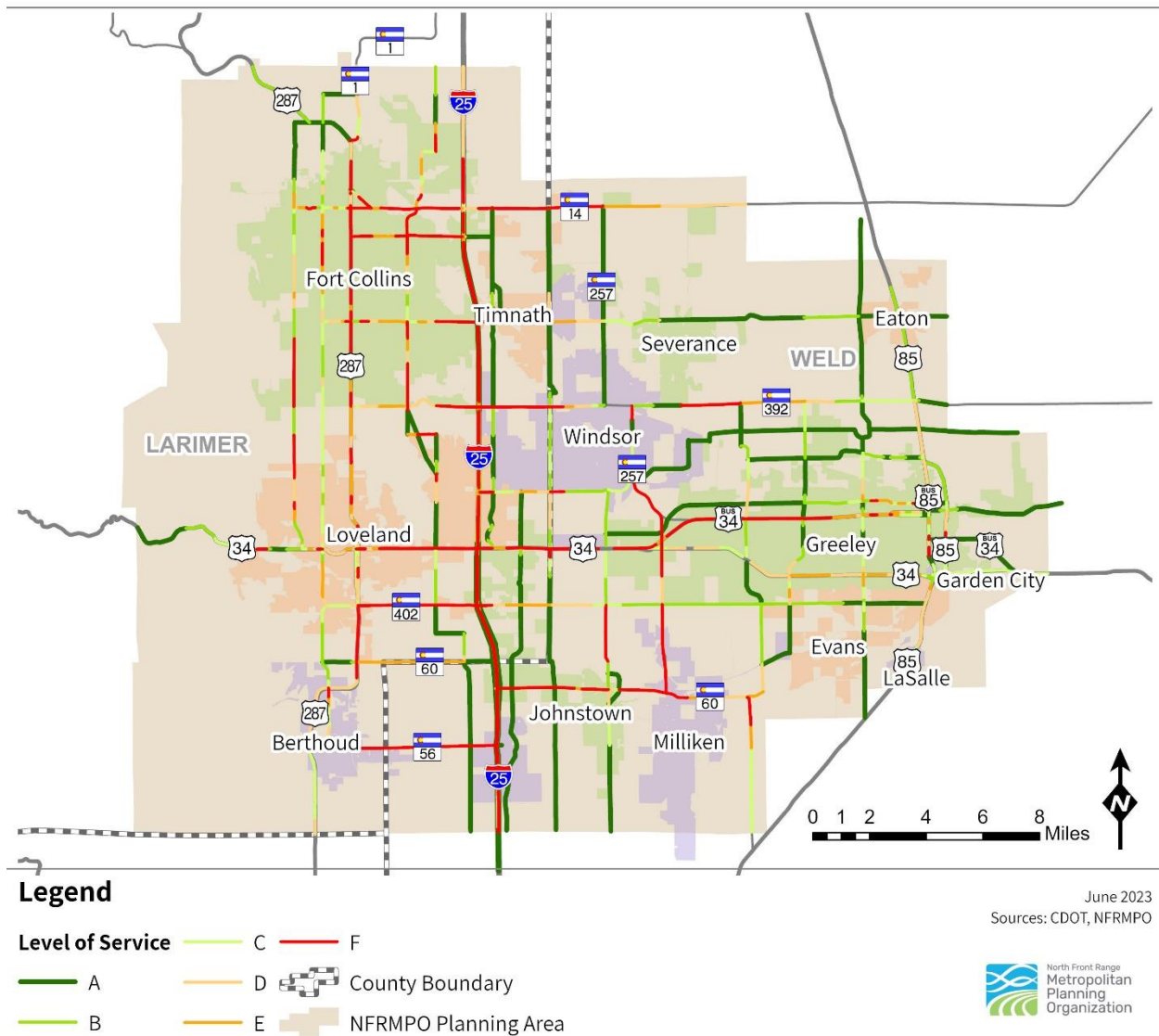


Figure 3-13: High Density Fiscally Constrained Scenario Level of Service, 2050

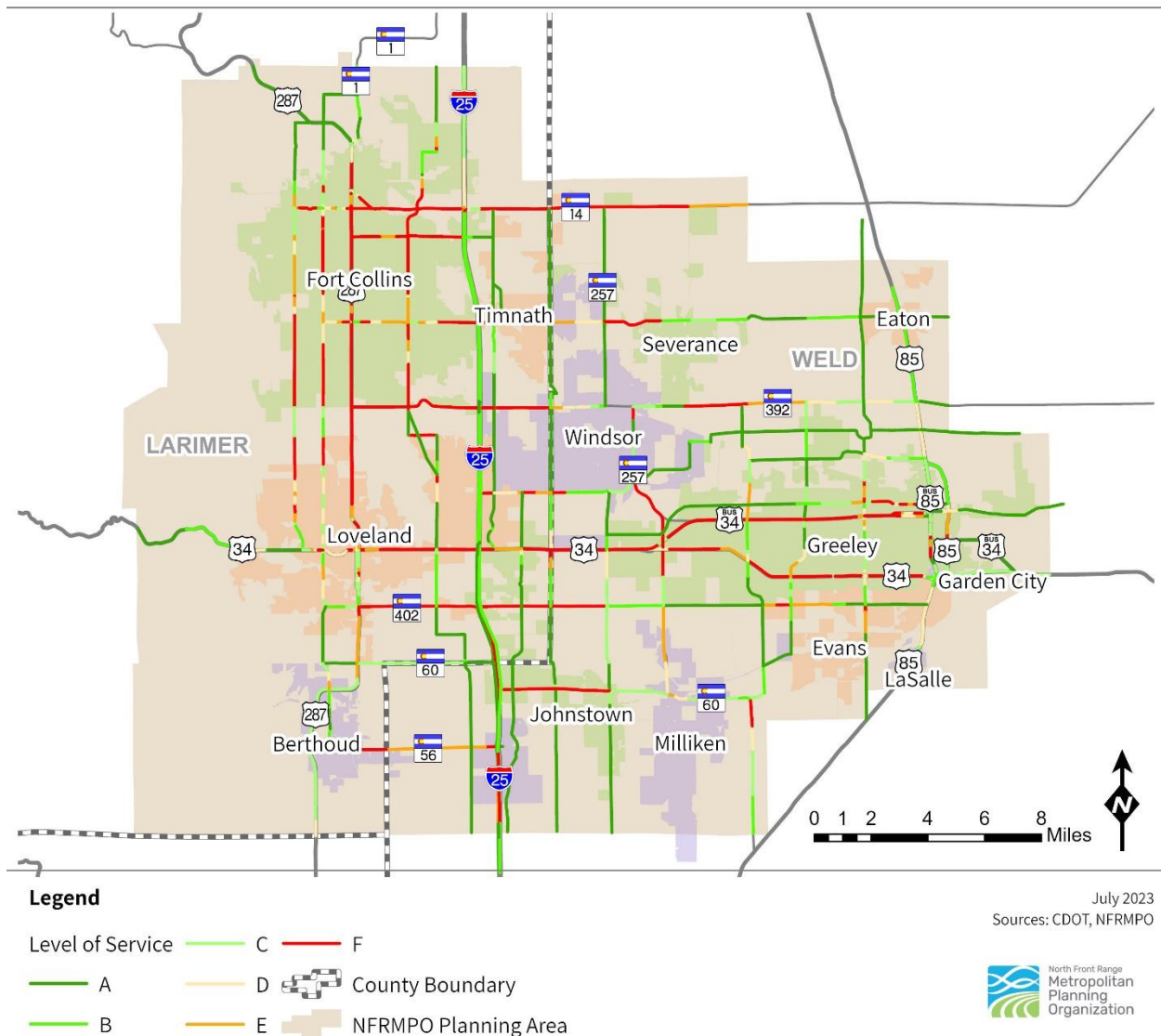


Figure 3-13, Figure 3-14, and Figure 3-15 show TTI by RSC for the three scenarios. Consistent areas across the three scenarios with higher TTIs, or more congestion, are along US34, SH14, SH56, and SH60. These corridors are direct connections to I-25 and are also major thoroughfares for anticipated development.

Figure 3-14: No Build Scenario Travel Time Index (TTI) by RSC, 2050

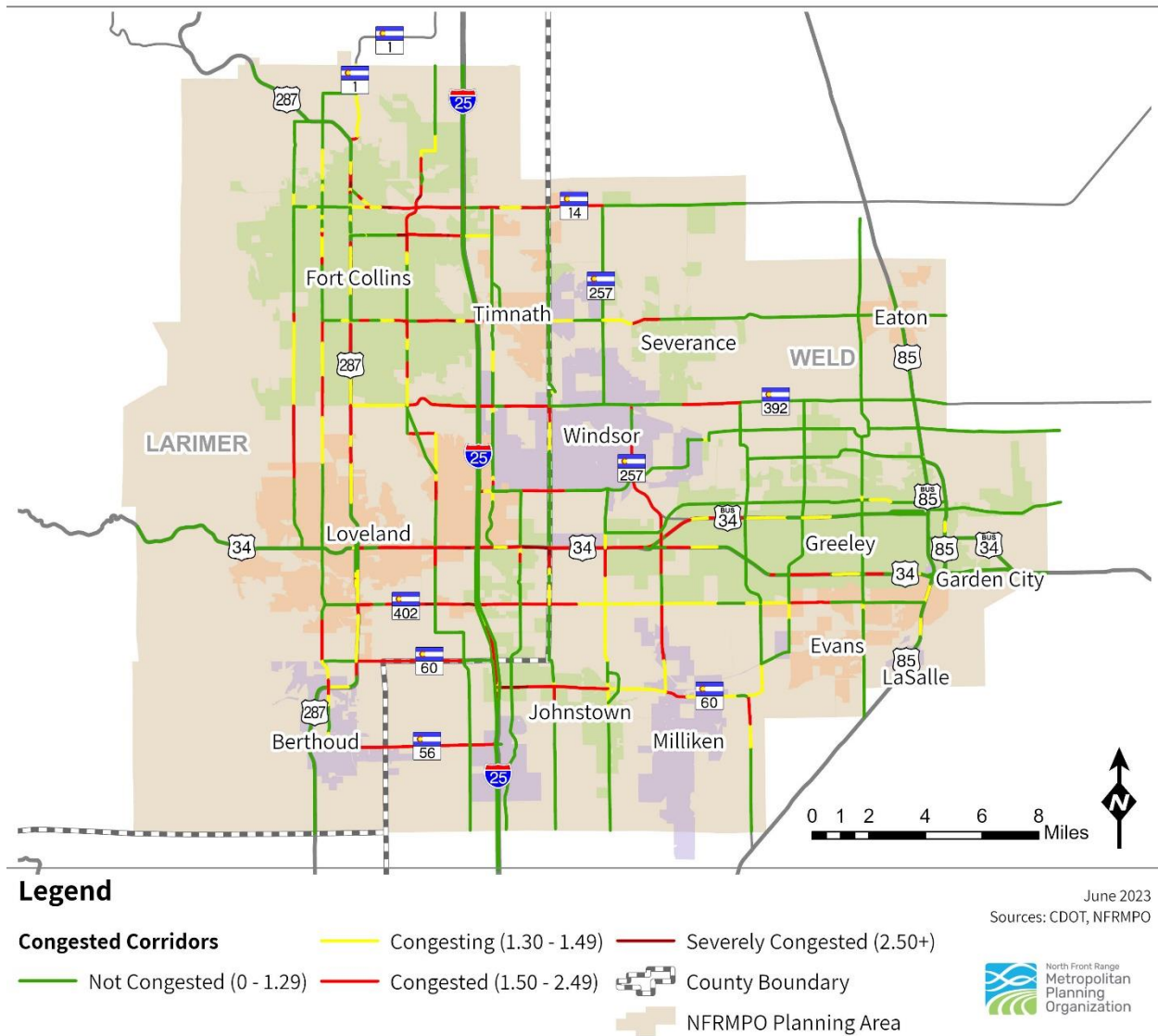


Figure 3-15: Unconstrained Scenario Travel Time Index (TTI) by RSC, 2050

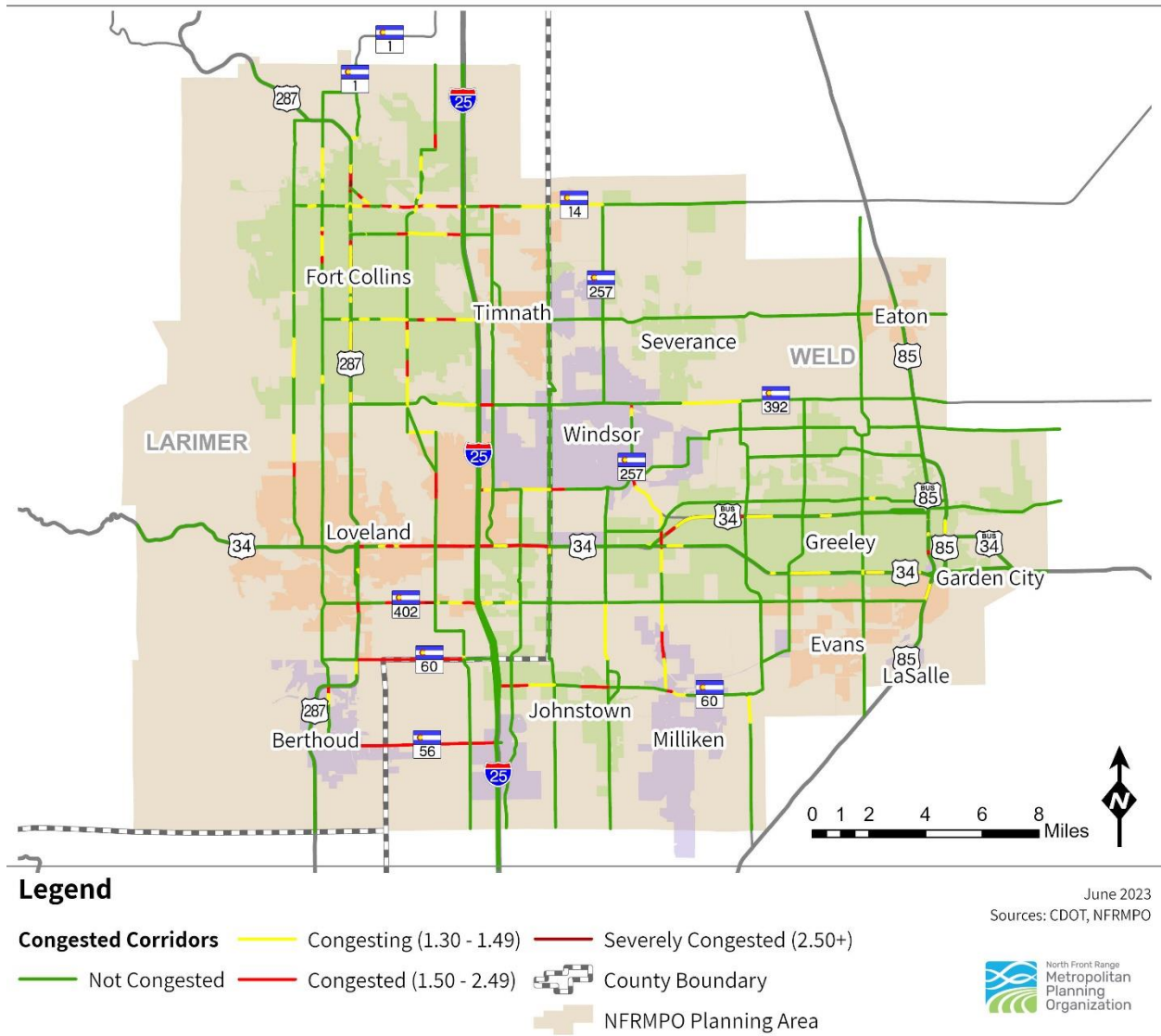
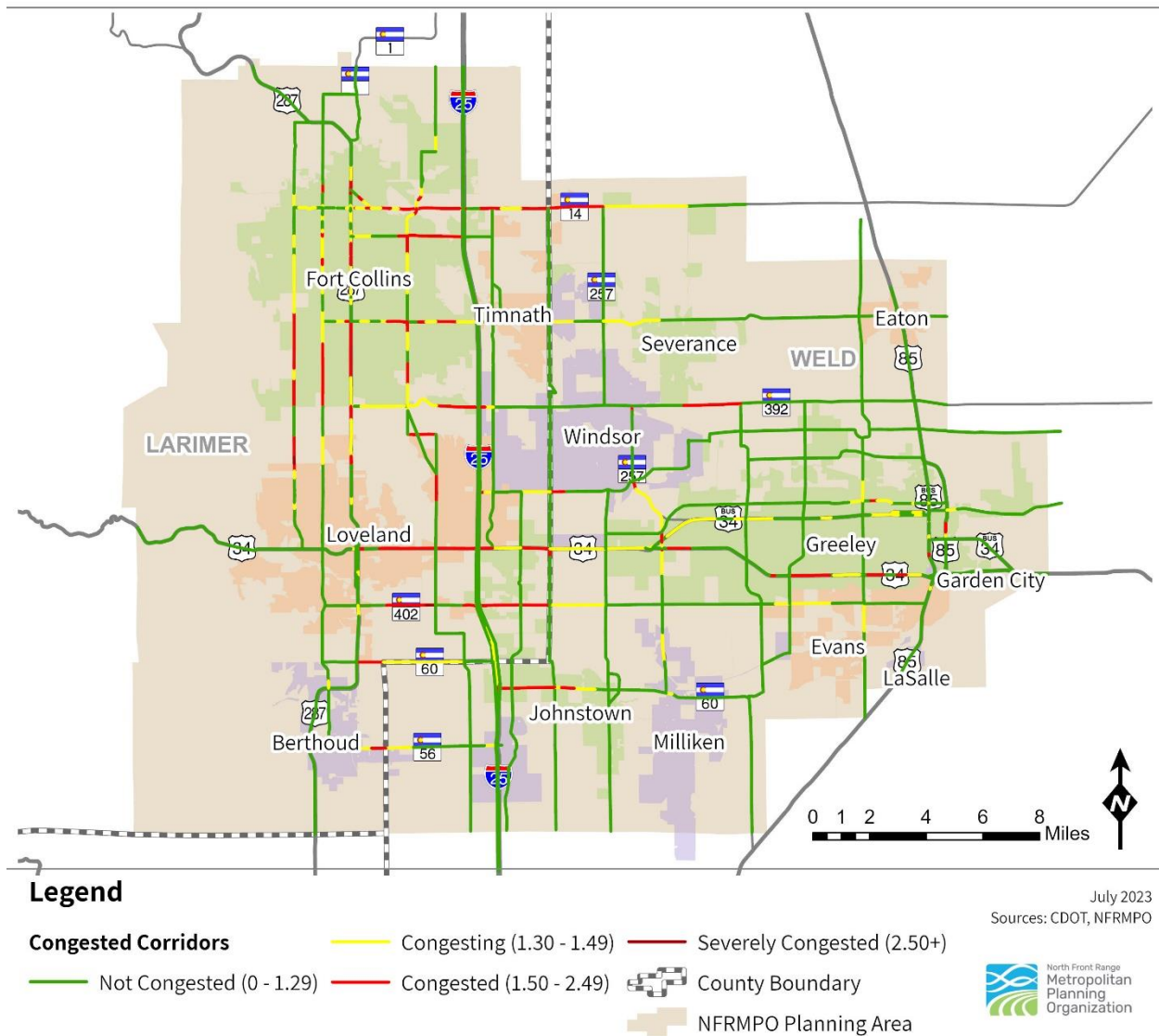


Figure 3-16: High Density Constrained Project Scenario Travel Time Index (TTI), 2050




The background of the slide is a photograph of a city street. On the left, there are tall green trees and a sidewalk. A street lamp pole is visible. In the center, a row of large, dense green trees lines the street. To the right, a dark-colored car is driving away on a paved road with white dashed lines. In the far background, there are blue mountains under a clear sky. The overall scene is bright and sunny.

Chapter

4

Funding & Financing



Chapter

4

Section 1:

Fiscally Constrained Plan

The 2050 RTP is a fiscally constrained plan, which means the total estimated cost of operating, maintaining, and improving the transportation system does not exceed the forecasted revenue over the horizon of the Plan. The estimated costs for operating and maintaining the transportation system were developed by extrapolating current operations and maintenance costs. The cost of improving the system is based on the roadway, transit, and active transportation project costs identified by member communities and in local plans. The forecasted revenue represents the amount of public and private funding for transportation that is reasonably anticipated from 2024 through 2050.

The Fiscally Constrained Plan was cooperatively developed by the North Front Range Transportation and Air Quality Planning Council (NFRT&AQPC), the NFR Technical Advisory Committee (TAC), the Colorado Department of Transportation (CDOT), local communities, and NFRMPO staff to project anticipated revenues used for transportation operations, maintenance, and improvements throughout the region from 2022 through 2050. All revenues and costs are presented in year of expenditure (YOE) dollars using a 2.5 percent inflation factor.

Revenue Estimates

The revenue estimates use current information and reasonable assumptions about future funding to forecast transportation revenue over the time horizon of the RTP. The revenue estimates are based on a variety of sources, including the CDOT 2045 Long Range Revenue Projections and Program Distribution from 2021; the fiscal year (FY)2023-2026 Transportation Improvement Program (TIP); and forecasted discretionary grants, developer contributions, local revenue, and transit revenue. Overall, an estimated \$13.5B in funding is reasonably anticipated for transportation projects within the North Front Range region between 2024 and 2050.

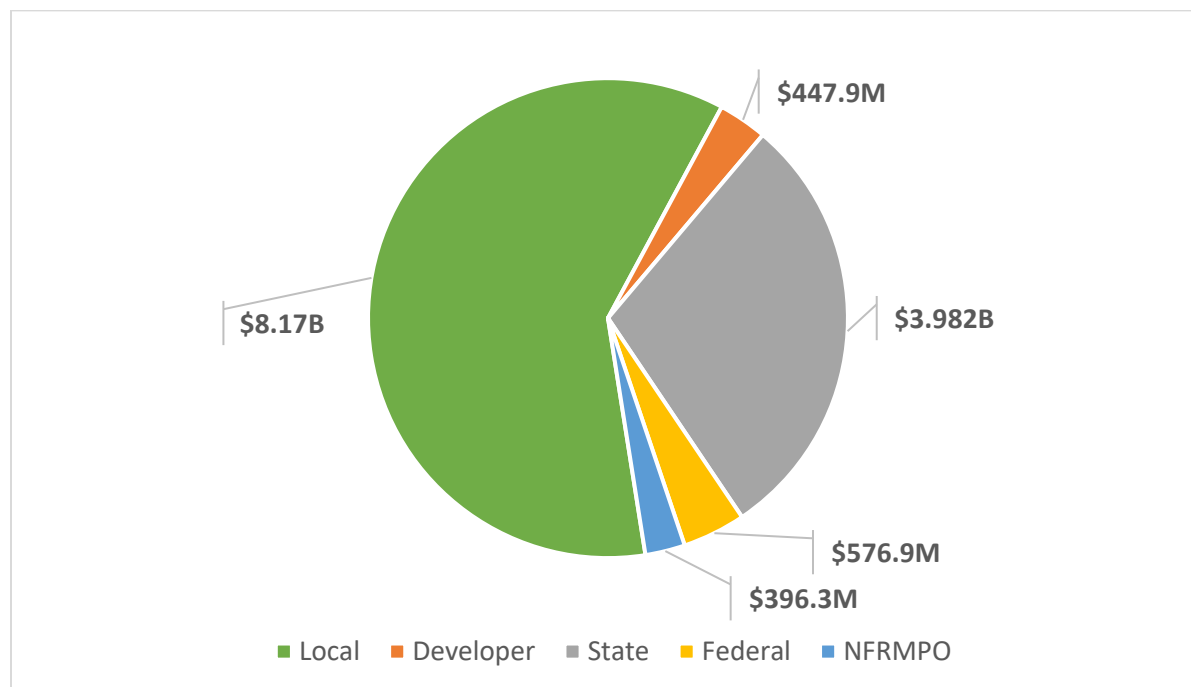
In 2019, the CDOT Transportation Commission (TC) adopted the 2045 Long Range Revenue Projections for the State. Assumptions from the Projections are used to create a Program Distribution for the State, which then guides the development of the fiscally constrained MPO RTP and TIP. The adopted Revenue Distribution assumed a high revenue scenario to account for anticipated additional revenue from various future state and federal sources.

The Infrastructure Investment and Jobs Act (IIJA), also called the Bipartisan Infrastructure Law (BIL), was signed into law on November 15, 2021, increasing Federal transportation funding across the nation over five fiscal years (2021-2026). Federal transportation revenues will be provided through both increases in formula funds, revenues which flow automatically to eligible recipients based on certain criteria, and discretionary grants, which are competitive grant programs used to further specific priorities. More information about formula funding types and federal grant programs will be provided later in this section.

In 2023, the NFRMPO worked with State and Federal partners to reconcile the increased IIJA revenue with the 2045 Revenue Projections. Given the high revenue scenario assumptions, it was determined the total funding assumptions would remain the same for the 2050 RTP as was anticipated in the 2045 Revenue Projections. Additionally, the CDOT extrapolated the funding assumptions from the 2045 Program Distribution out to 2050 to account for the time horizon of the 2050 RTP.

Figure 4-1 displays the revenue estimates by the entity that controls the funds, which is distinct from the funding source. While most entities control their own funding, both the NFRMPO and the State control funding from other sources. The NFRMPO controls and awards funds from federal sources and the state controls and awards funding from both state and federal sources. Two-thirds of the funding is controlled by local entities, with the next highest share controlled by the State at 29 percent. The Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) control four percent of the funding. Developers and the NFRMPO both control three percent of the funding.

Figure 4-1: Revenue Estimates by Controlling Entity in YOE Dollars, 2024-2050



The funding sources controlled by each entity are identified in the following sections.

Locally Controlled Revenue Sources

Local communities derive revenue for transportation from a variety of sources, including taxes, fees, and fares.

Highway Users Tax Fund (HUTF)

The HUTF provides funding to the state and local governments to fund the transportation system, including transit. The fund is comprised primarily of motor fuel taxes and motor vehicle license fees along with other fees and fines. HUTF funds are allocated to the state highway fund, counties, and municipalities based on statutory formulas.

Other State-Controlled Funds

In addition to the HUTF, local communities receive a share of the FASTER funds collected by the State from motor vehicle registration surcharges, rental vehicle fees, and oversize/overweight vehicle surcharges. With SB2018-001, local communities will also receive a share of the funding transferred to transportation purposes from the State's General Fund.

Impact Fees

Impact fees are development charges imposed to fund capital projects intended to offset the impacts caused by a proposed development.

General Funds

Local General funds typically are the primary operating funds for municipalities. The general funds represented in the 2050 RTP are specifically directed towards transportation system maintenance and improvements.

Local Tax

Funds generated by sales, use, specific ownership, and property taxes can be transferred to general funds or directed towards capital projects.

- Sales Tax: In 2019, the City of Evans passed The Road Ahead, a one percent sales tax collected to fund road maintenance and arterial expansion. The City anticipated the resulting revenue from the sales tax would triple the street maintenance budget and complete more repairs on neighborhood streets in addition to collector and arterial streets. The tax went into effect on July 1, 2020 and will sunset on June 30, 2027.
- Use Tax: A use tax can be charged on the use or consumption of a taxable item that is not subject to a sales tax. The town of Windsor collects a 3.95 percent construction use tax on new construction permits. The majority of the construction use tax is dedicated to the Capital Improvement Fund, which funds capital projects including transportation projects.
- Specific Ownership Tax: This tax is collected annually during vehicle registration and is based on the vehicle's age and value. Local governments may choose to use this revenue for transportation improvements.
- Property Tax: Property taxes in Larimer and Weld counties from a dedicated mill levy are used to fund projects on county roads. In addition, 50 percent of the mill levy collected by the county on properties within municipalities is allocated to municipalities for their road and street projects.

Transit Fares and Directly Generated Funds

Transit systems generate revenue through fares, passes, and other directly generated revenue such as advertising.

State Controlled Funding Programs

The State awards funding from state and federal sources for roadway, transit, and bicycle and pedestrian projects. Projects may be selected by the Colorado Transportation Commission (CTC), the regional CDOT office, CDOT Headquarters, or by other state-approved entities.

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 Fees

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 Safety: The goal of FASTER Safety is to fund 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 provides funds to finance, repair, reconstruct, and replace bridges designated as structurally deficient or functionally obsolete. FASTER Bridge is administered through the Colorado Bridge Enterprise, which targets funding to address Colorado's deficient bridges.
- 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 Colorado Transportation Commission (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 and Structures Off-System): This program identifies the condition of every bridge on public roads 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.
- Transportation Alternatives Program (TA): TA provides 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. A portion of TA funding is controlled by the regional CDOT offices, while another portion is controlled by MPOs.

- Highway Safety Improvement Program (HSIP): This program addresses safety improvements on all public roads using a mixture of state and federal funds.
- Great Outdoors Colorado (GOCO): Funding from the Colorado Lottery is awarded to a variety of project types, including trail projects, across the state by the GOCO Board. GOCO Board members are appointed by the Governor and confirmed by the Colorado State Senate.
- Strategic Funding: Strategic funding is a mixture of new Federal funding from IIJA and State funding from sources such as Senate Bill (SB) 260.
 - SB 21-260 – Sustainability of the Transportation System was passed by the Colorado State Legislature in 2021 and increased transportation funding over the next ten years by approximately \$5.4B uses a combination of general funds transfers and fees. The following are funding programs resulting from passage of SB 21-260, which are included in the strategic funding assumptions.
 - The Revitalizing Main Streets (RMS) program began as part of Colorado’s COVID-19 Recovery Plan and was established as a competitive grant program to enhance active transportation safety and strengthen the connection of people to main streets and central economic hubs. The passage of SB 21-260 provided an additional \$85M to the program over the next ten years.
 - The Clean Transit Enterprise was created to support clean public transit through electrification planning efforts, facility upgrades, fleet motor vehicle replacement, and construction and development of associated electric motor vehicle charging and fueling infrastructure.
 - Nonattainment Area Air Pollution Mitigation Enterprise (NAAPME) was created for the purpose of mitigating transportation-related emissions in ozone nonattainment area.
 - IIJA provided additional formula and discretionary grant opportunities to the State for a variety of transportation related projects. Through formula funding alone it is estimated Colorado can expect to receive the following funding²⁵:
 - Highways and bridges - \$4B
 - Highway traffic safety programs - \$33M
 - Statewide public transportation - \$950M
 - EV charging network expansion - \$57M
- FTA Funds: The state controls and awards funding from two FTA funding programs that fund transit operations, maintenance, and/or capital for small urban areas, including Greeley, as well as rural areas.

²⁵ “The Bipartisan Infrastructure Law Will Deliver for Colorado”, USDOT,
https://www.transportation.gov/sites/dot.gov/files/2021-11/Bipartisan_Infrastructure_Law_Colorado.pdf
 Accessed: March 22, 2023

- 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 programs and project implementation.
- 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.

Federally Controlled Funding Programs

The US Department of Transportation (USDOT) awards discretionary funding through competitive processes to projects across the nation. The IIJA created and expanded many discretionary grant programs available for State and Local governments to apply for.

- Safe Streets for All (SS4A) - The SS4A program will provide funding directly to local governments to support efforts to advance “vision zero” plans and other improvements to reduce crashes and fatalities, especially for cyclists and pedestrians.
- Multimodal Project Discretionary Grant (MPDG) – The MPDG program will support multi-modal, multi-jurisdictional projects of national or regional significance within the following categories:
 - MEGA Projects– The MEGA program supports large, complex projects which are difficult to fund by other means and are likely to generate national or regional economic, mobility, or safety benefits.
 - Infrastructure for Rebuilding America (INFRA) - INFRA grants will offer needed aid to freight infrastructure by providing funding to state and local government for projects of regional or national significance.
 - Rural Surface Transportation Grant (Rural) – The Rural program supports projects which improve and expand the nation’s surface transportation infrastructure in rural areas to increase connectivity, improve safety and reliability of the movement of people and freight, and generate regional economic growth and improve quality of life.
- Promoting Resilient Operations for Transformative, Efficient, and Cost-saving Transportation (PROTECT) Program– The PROTECT program is eligible for projects intended to increase the resilience of the transportation system including making existing infrastructure more resilient, or efforts to move infrastructure to nearby locations not continuously impacted by extreme weather and natural disasters.

Additional federal funding to regional projects comes through the Transportation Infrastructure Finance and Innovation Act (TIFIA). The TIFIA program provides credit assistance in the form of direct

loans, loan guarantees, and standby lines of credit to finance surface transportation projects of national or regional assistance²⁶.

FTA allocates funding directly to certain transit agencies and awards discretionary grants. The total amount available for a program is based on funding authorized under IIJA 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. As discussed in the state-controlled funding section, CDOT also administers some FTA funding programs through a competitive process.

The following federally controlled 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 are 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: See program description on previous page. FTA controls §5310 funds for large urban areas, including Fort Collins.
- FTA §5339 Bus and Bus Facilities Program: See program description on previous page. FTA controls §5339 funds for large urban areas, including Fort Collins. The §5339 program includes a formula funding component under §5339(a) and a competitive grant component under §5339(b) and §5339(c).

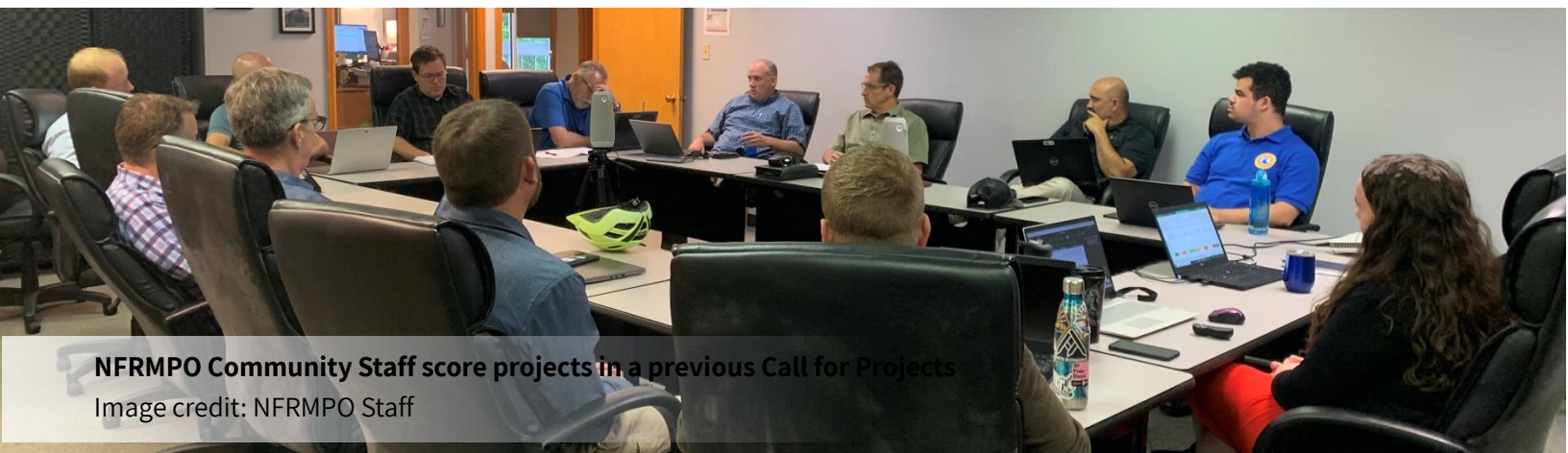
FTA awards discretionary funds through competitive processes including the following programs:

- Low and No Emission Bus Programs– BIL expands this competitive program which provides funding to state and local governmental authorities for the purchase or lease of zero-emission

²⁶ “Transportation Infrastructure Finance and Innovation Act (TIFIA)”, USDOT, https://www.fhwa.dot.gov/ipd/finance/tools_programs/federal_credit_assistance/tifia/, Accessed: August 14, 2023.

and low-emission transit buses as well as acquisition, construction, and leasing of required supporting facilities.

- **Buses + Bus Facilities Competitive Program**– This program provides competitive funding to states and direct recipients to replace, rehabilitate, and purchase buses and related equipment and to construct bus-related facilities including technological changes or innovations to modify low or no emission vehicles or facilities.
- **Capital Investment Grants (CIG)** – the CIG program includes funding for New Starts, Small Starts, and Core Capacity Improvements to invest in new high-capacity transit projects communities choose to build.



NFRMPO Community Staff score projects in a previous Call for Projects

Image credit: NFRMPO Staff

NFRMPO Controlled Funding Programs

The NFRT&AQPC selects projects to receive funding through an approved Call for Projects process. Two Calls for Projects were held to award funding in the FY2024-2027 TIP with a third Call to be held in Fall 2023. These projects represent the first four years of the 2050 RTP.

- **Congestion Mitigation and Air Quality (CMAQ) Improvements:** CMAQ funds are FHWA funds restricted to improvements which contribute to attainment or maintenance of the National Ambient Air Quality Standards (NAAQS). CMAQ funds may be used for air quality improvement projects, including operation improvements, ITS, transportation demand management (TDM) strategies, 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 FTA funds, including limited transit operations.
- **Surface Transportation Block Grant (STBG):** These FHWA funds are sub-allocated to urbanized areas with populations over 200,000 based on their relative share of the population among all urbanized areas in the state. Funds may be used on a wide variety of highway transportation improvement projects, as defined in 23 U.S.C. 123²⁷. This is one of the most flexible federal funding sources available for transportation.

²⁷ <https://www.fhwa.dot.gov/map21/docs/title23usc.pdf>

- Carbon Reduction Program (CRP): The CRP program is an FHWA program established under the IIJA to fund projects designed to reduce transportation emissions from on-road sources including public transportation projects, transportation alternatives projects, projects and strategies for transportation demand management, and alternative fuel projects²⁸.
- Transportation Alternatives (TA): See program description in the State Controlled Funding Programs section.
- Multimodal Transportation and Mitigation Options Fund (MMOF) is a State funding source originally established in 2018 as a one-time allocation of state funding to multimodal projects and extended through 2033 through SB260. The MMOF program intention is to promote a complete and integrated multimodal system²⁹.

Estimates of available federal, state, local, and private funding by funding program and expenditure category for 2024 through 2050 are identified in **Table 4-1**. These are considered by CDOT and local communities to be reasonable estimates of what will be available for the timeframe of the 2050 RTP.

²⁸ https://www.fhwa.dot.gov/bipartisan-infrastructure-law/crp_fact_sheet.cfm

²⁹ <https://www.codot.gov/programs/planning/grants/mmof-local>

Table 4-1: Revenue Estimates by Funding Program and Controlling Entity in Millions of YOE Dollars, 2024-2050

Funding Program by Controlling Entity	2024-2030	2031-2040	2041-2050	2024-2050
Local Funding				
Local Transit	\$116.64	\$205.81	\$263.46	\$585.91
Local Roadway	\$1,414.03	\$2,495.04	\$3,193.86	\$7,102.93
Local Bike-Ped	\$23.69	\$41.80	\$53.50	\$118.98
Developer Contributions	\$240.60	\$116.22	\$48.89	\$405.71
Local Funding Total	\$1,794.96	\$2,858.86	\$3,559.71	\$8,213.53
State Controlled				
Maintenance	\$85.81	\$132.82	\$147.73	\$366.36
Surface Treatment	\$71.76	\$115.86	\$123.45	\$311.07
Structures On-System	\$14.33	\$22.47	\$24.65	\$61.45
Colorado Bridge Enterprise (CBE)	\$37.60	\$61.16	\$62.33	\$161.10
Asset Management - Strategic Projects Fund	\$337.75	\$482.50	\$482.50	\$1,302.75
Highway Safety Improvement Program (HSIP)	\$13.09	\$19.51	\$20.35	\$52.94
FASTER Safety	\$29.03	\$52.43	\$64.28	\$145.73
State Discretionary Bike/Ped Grants	\$3.09	\$5.87	\$7.51	\$16.47
Transportation Alternatives Program (CDOT-TAP)	\$5.44	\$9.38	\$10.37	\$25.19
Strategic Projects	\$247.75	\$346.11	\$336.37	\$930.24
Regional Priority Program (RPP)	\$27.80	\$31.33	\$31.33	\$90.45
Strategic Transit and Multimodal Projects	\$59.85	\$96.50	\$96.50	\$252.85
Bustang	\$2.09	\$3.28	\$3.66	\$9.04
TIFIA Loans	\$137.86	\$0.00	\$0.00	\$137.86
State Controlled Total	\$1,073.24	\$1,379.23	\$1,411.04	\$3,863.51
Federally Controlled				
Federal Discretionary	\$70.00	\$100.00	\$100.00	\$270.00
FTA 5307	\$109.13	\$192.56	\$246.49	\$548.18
FTA 5310	\$1.51	\$2.63	\$3.36	\$7.49
FTA 5339	\$4.27	\$7.43	\$9.51	\$21.20
Federally Controlled Total	\$184.91	\$302.61	\$359.36	\$846.88
NFRMPO Controlled				
Surface Transportation Block Grant (STBG)	\$34.39	\$53.42	\$59.07	\$146.89
Congestion Mitigation and Air Quality (CMAQ)	\$38.44	\$60.35	\$66.73	\$165.52
Carbon Reduction Program (CRP)	\$5.83	\$9.15	\$10.12	\$25.10
Transportation Alternatives (TA)	\$3.29	\$5.10	\$5.64	\$14.04
Multimodal Transportation and Mitigations Options Fund (MMOF)	\$7.70	\$4.01	\$0.00	\$11.71
NFRMPO Controlled Total	\$89.65	\$132.04	\$141.56	\$363.26
Total:	\$3,142.76	\$4,672.74	\$5,471.67	\$13,287.18

Funding Estimates by Category

Revenue estimates listed in **Figure 4-2** were classified as dedicated or flexible based on how the funds are typically used. Dedicated funds are those that are typically used for one of four categories: Roadway – Asset Management, Intersection Improvements, Transit, or Bicycle and Pedestrian. Flexible funds are those that could be assigned to a variety of project types.

As shown in **Table 4-2**, the majority of the revenue for the 2050 RTP is flexible, meaning it can be spent on a variety of project types. Approximately 17 percent of revenue is from funding programs that fund roadway operations and maintenance while 11 percent is from funding programs for transit systems. Three percent of revenue is dedicated to bike and pedestrian projects, with one percent dedicated to intersection projects.

Figure 4-2: Revenue Estimates by Expenditure Category, 2024-2050

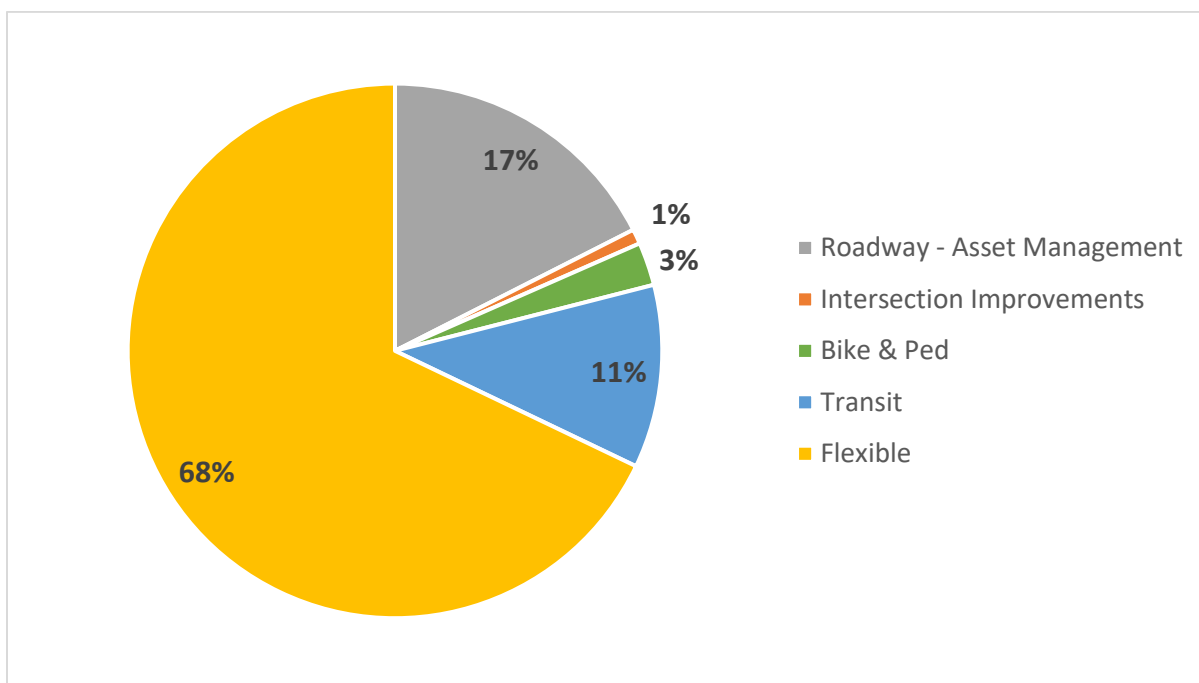


Table 4-2: Revenue Estimates by Controlling Entity and Expenditure Category in Millions of YOE Dollars, 2045-2050

Controlling Entity	Roadway - Asset Management	Intersection Improvements	Bike & Ped	Transit	Flexible
2024-2030					
Local	\$0	\$0	\$23.69	\$116.64	\$1,654.63
State	\$567.50	\$19.90	\$40.42	\$56.80	\$388.63
Federal	\$0	\$0	\$0	\$114.91	\$70.00
NFRMPO	\$5.77	\$6.54	\$14.28	\$21.15	\$41.92
Subtotal	\$573.26	\$26.44	\$78.39	\$309.49	\$2,155.18
2031-2040					
Local	\$0	\$0	\$41.80	\$205.81	\$2,611.26
State	\$850.77	\$33.05	\$66.43	\$86.15	\$342.83
Federal	\$0	\$0	\$0	\$202.61	\$100.00
NFRMPO	\$9.05	\$10.26	\$18.73	\$29.57	\$64.44
Subtotal	\$859.82	\$43.31	\$126.95	\$524.13	\$3,118.52
2041-2050					
Local	\$0	\$0	\$53.50	\$263.46	\$3,424.75
State	\$884.21	\$38.03	\$69.19	\$85.55	\$334.06
Federal	\$0	\$0	\$0	\$259.36	\$100.00
NFRMPO	\$10.01	\$11.34	\$18.71	\$30.70	\$70.80
Subtotal	\$894.22	\$49.37	\$141.40	\$639.06	\$3,747.62
Total 2024-2050	\$2,327.31	\$119.12	\$346.74	\$1,472.69	\$9,021.32

Asset Management and System Expansion Expenses

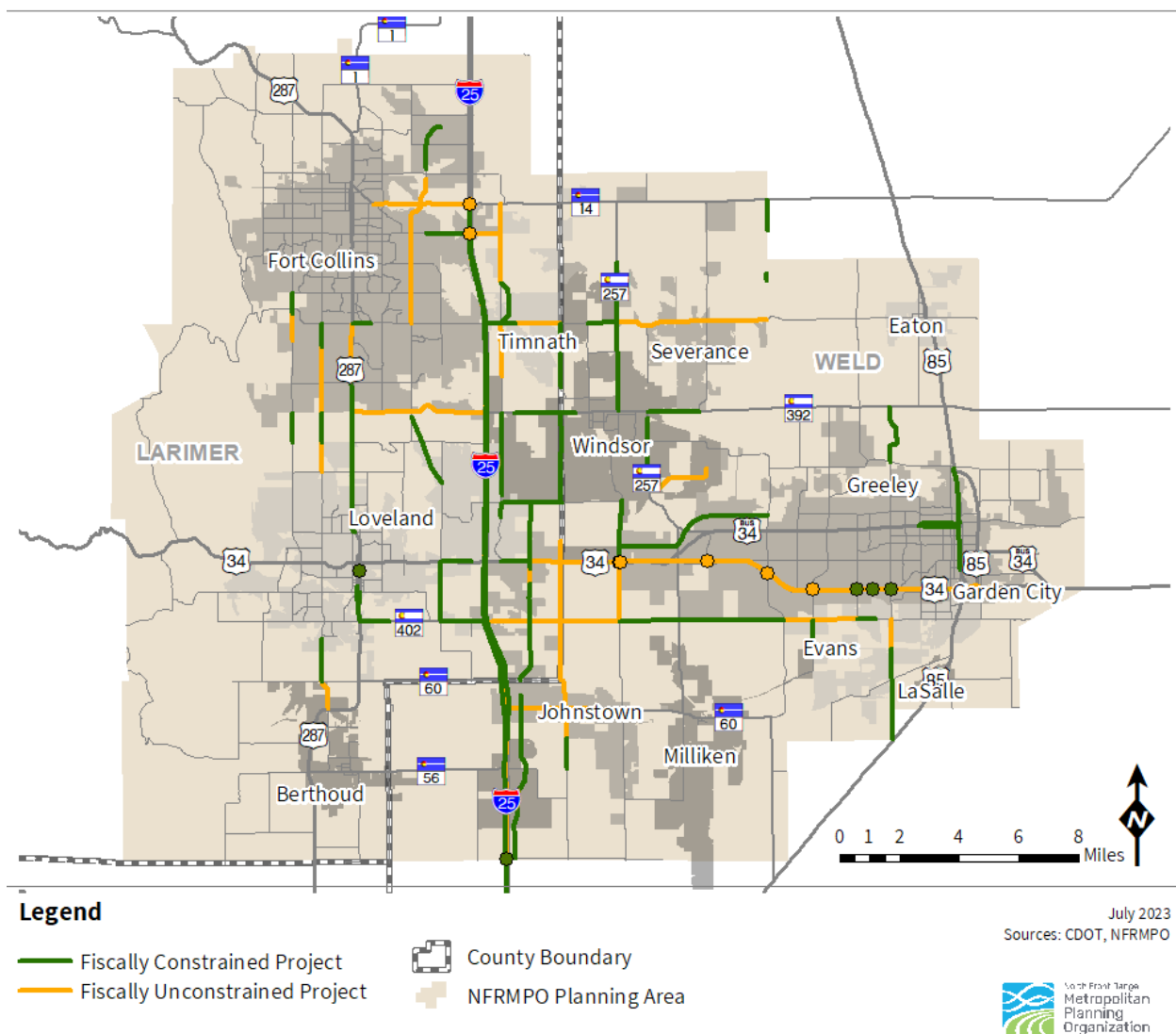
The Roadway Asset Management expense category covers the maintenance and operations of the roadway system, including maintaining the condition of pavement and bridges on the National Highway System (NHS) within the region as the system is expected to exist through 2050. Roadway operations and maintenance costs were developed using information provided by NFR communities.

Roadway operations costs include the cost of lighting, traffic control, and snow and ice removal and roadway maintenance costs include the cost of resurfacing. An average per lane mile cost of \$25,138 in 2023 dollars for operations and maintenance. The cost of intersection improvements system-wide is estimated at \$787M over the time horizon of the plan.

To adequately support the forecasted growth of the NFR region, investment in the transportation system beyond operations and maintenance is required. The NFRMPO solicited capacity projects from local transportation plans and the most up to date planning studies to identify the total need for the transportation system expansion over the time horizon of 2050 RTP.

A total of 125 roadway capacity projects on Regionally Significant Corridors (RSCs) were identified, as shown in **Figure 4-3**. The cost of roadway capacity projects on RSCs totals \$3.2B and the cost of roadway capacity projects on non-RSCs totals \$1.1B. Details on the constrained RSC projects can be found in the **Plan Projects** section. The list of unconstrained projects can be found in the **Unconstrained Plan Projects** section.

Figure 4-3: Fiscally Constrained and Unconstrained RSC Capacity Projects, 2024-2050



The operations and maintenance costs for the Regional Active Transportation Corridors (RATCs) is estimated at \$8K per year in 2023 dollars. The cost to build out the RATC network totals \$348M, estimating the cost of building one new mile of trail in 2023 dollars is \$1.2M.

Operations and maintenance costs for the transit system include vehicle operations and maintenance, general administration, facility maintenance, and state of good repair. Operations and Maintenance costs for the existing transit system are estimated at \$24.8M per year in 2023 dollars and derived using data from the National Transit Database for 2019 and 2021. The planned local system expansion and capital purchases identified in the 2019 Transfort Transit Master Plan, Greeley On the Go: Mobility, Connect Loveland: Transit Plan, and the CDOT 10-year Development Plan for Bustang being incorporated into the Fiscally Constrained Plan.

The cost to build out the Regional Transit Corridors (RTCs) is \$3.2B. The future transit network includes Local System Expansion and Regional Transit Expansion. The expanded local transit network was developed in coordination with Transfort, COLT, and GET in accordance with their long-range plans and Transit Asset Management (TAM) plans.

Local system and regional expansion projects incorporated into the future transit network are listed in **Table 4-3** and **Table 4-4**.

Table 4-3: Transit Expansion Projected Expenditures, 2024-2050

Agency	Source	Operating Investments	Capital Investments	Total (YOE)
Local System				
Transfort 	2019 Transit Master Plan	-North College Ave BRT -West Elizabeth BRT -Harmony Road BRT	-Transit Centers -Mobility Hubs -Bus Station and Stop Enhancements -Fleet Upgrades and Expansion -Technology Upgrades -Operations and Maintenance Facility	~\$1,463M
COLT 	Connect Loveland (Draft)	-Increased Frequency -Service Expansion	-Fleet Expansion -Transfer Points/Park and Rides -Speed and Reliability Improvements -Bus Maintenance Facility -Bus Stop Upgrades	~\$547M
GET 	Greeley On the Go	- 10 th /11 th St High Frequency Transit - 10 th St High Frequency Transit - Poudre Express Enhancements	- Mobility Hubs	~\$827M
Regional System				
TBD	LinkNoCo	-Begin Operating Service (US34, Loveland to Windsor, Great Western Rail)	-Fleet Purchases -Maintenance Facility -Station Construction -Queue Jumps -Technology Improvements -Guideway and Track	~\$622M
Bustang 	10-Year Development Plan	-Service Expansion	N/A	~\$9M
FRPR* 	In Progress	N/A	N/A	N/A

*The Front Range Passenger Rail (FRPR) is identified in the 2050 RTP as an RTC and is included as fiscally unconstrained with no associated dollar amount. The FRPR District, created with SB21-260 is currently working on identifying final alignments for the FRPR and an associated service development plan. For the most up to date information about FRPR please visit: <https://www.ridethefrontrange.com/>.

Table 4-4: System Expansion Expenses, in Millions of YOE Dollars

Project Type	Project Sub-Type	Cost*
Roadway Capacity Projects	RSC Roadway	\$3,214.27
	Non-RSC Roadway	\$1,081.96
	Total	\$4,296.22
Transit Capacity Projects	RTC – Local System Expansion	\$2,790.97
	RTC – Regional System Expansion	\$631.471
	Total	\$3,422.44
Active Transportation Capacity Projects	Total	\$348.33

**Costs for roadway capacity projects include capital expense only. Costs for transit capacity projects include capital and operating expenses.*

Resource Allocation

The total identified need for operating, maintaining, and improving the transportation system from 2024 through 2050 is \$15.5B, well beyond the forecasted revenue of \$13.2B, as shown in **Table 4-5**. Due to the importance of operating and maintaining the system, the financial plan for the 2050 RTP fully funds the operations and maintenance costs for roadways, including the costs of intersection improvements. The operations and maintenance costs do not reflect the cost needed to bring the full roadway system to an excellent level of service, only to maintain at a minimum the current level of service. The revenue allocation also includes the full operations and maintenance cost of the RATC network, and the RTC local and regional system, except for the FRPR as notated earlier. These expenditures are funded through a combination of dedicated and flexible funding sources.

The 2050 RTP fiscally constrains a portion of the roadway capacity projects based on project-based funding and feasibility submitted by project sponsors. The roadway capacity projects for RSCs and non-RSCs are assigned \$2.04B in flexible funding, which provides funding for 158 projects. A total of 227 projects were considered for the 2050 RTP leaving \$2.26B in unfunded roadway capacity projects for 69 projects. The fiscally constrained RSC capacity projects are identified in the **Plan Projects** section. Unconstrained RSC capacity projects are listed in the **Unconstrained Plan Projects** section.

The NFRT&AQPC has identified the operations and maintenance of the existing system and the buildout of the RSC network as being a priority for additional funding. The RSC projects are identified within the **Unconstrained Plan Projects** section.

Table 4-5: Resource Allocation by Expenditure Category in Millions of YOE Dollars, 2024-2050

Expenditure Category	Cost	Dedicated Funding	Flexible Funding	Total Funded	Unfunded
Roadway Operations & Maintenance	\$6,510.17	\$2,327.31	\$4,182.87	\$6,510.17	\$0.00
Intersection Improvement Projects	\$787.93	\$119.12	\$668.81	\$787.93	\$0.00
RATC: Operations, Maintenance, and Expansion	\$435.38	\$347.32	\$88.06	\$435.38	\$0.00
RTC Local: Operations, Maintenance, and Local System Expansion	\$2,790.97	\$1,463.65	\$1,327.33	\$2,790.97	\$0.00
RTC Regional: LinkNoCo & Bustang	\$631.47	\$9.04	\$622.43	\$631.47	\$0.00
RSC: Capacity Projects	\$3,214.27	\$0.00	\$1,419.05	\$1,419.05	\$1,795.22
Non-RSC Capacity Projects	\$1,081.96	\$0.00	\$621.00	\$621.00	\$460.96
GHG Reduction Category Improvements	\$91.00	\$0.00	\$91.00	\$91.00	\$0.00
Total	\$15,543.15	\$4,266.44	\$9,020.54	\$13,286.98	\$2,256.18

The 2050 RTP organizes funding and projects within four separate staging periods:

- Staging Period A: 2024-2026
- Staging Period B: 2027-2030
- Staging Period C: 2031-2040
- Staging period D: 2041-2050

Within the Fiscally Constrained Plan, staging periods A and B have been combined. RSC Capacity projects funding in **Table 4-5** can be referenced in the **Plan Projects** section by Staging Period. **Table 4-6**, **Table 4-7**, and **Table 4-8** illustrate the resources allocated for each expenditure category by staging period.

Table 4-6: Resource Allocation by Staging Period, in Millions of YOE Dollars, Staging Period A & B: 2024-2030

Expenditure Category	Cost	Dedicated Funding	Flexible Funding
Roadway Operations & Maintenance	\$1,226.15	\$573.26	\$652.88
Intersection Improvement Projects	\$150.95	\$26.44	\$124.51
Regional RATC Operations, Maintenance, and Expansion	\$101.94	\$78.39	\$23.55
RTC Local: Operations, Maintenance, and Local System Expansion	\$329.27	\$307.40	\$21.87
RTC Regional: LinkNoCo, Bustang, FRPR	\$116.92	\$2.09	\$114.83
Regionally Significant Corridor (RSC) Capacity Projects	\$759.48	\$0.00	\$759.48
Non-RSC Capacity Projects	\$437.05	\$0.00	\$437.05
GHG Reduction Strategies	\$21.00	\$0.00	\$21.00

Table 4-7: Resource Allocation by Staging Period, in Millions of YOE Dollars, Staging Period C: 2031-2040

Expenditure Category	Cost	Dedicated Funding	Flexible Funding
Roadway Operations & Maintenance	\$2189.37	\$859.82	\$1329.55
Intersection Improvement Projects	\$266.35	\$43.31	\$223.03
Regional RATC Operations, Maintenance, and Expansion	\$189.10	\$126.95	\$62.15
RTC Local: Operations, Maintenance, and Local System Expansion	\$1244.81	\$520.85	\$723.96
RTC Regional: LinkNoCo, Bustang, FRPR	\$114.64	\$3.28	\$111.36
Regionally Significant Corridor (RSC) Capacity Projects	\$499.67	\$0.00	\$499.67
Non-RSC Capacity Projects	\$133.80	\$0.00	\$133.80
GHG Reduction Strategies	\$35.00	\$0.00	\$35.00

Table 4-8: Resource Allocation by Staging Period, in Millions of YOE Dollars, Staging Period C: 2041-2050

Expenditure Category	Cost	Dedicated Funding	Flexible Funding
Roadway Operations & Maintenance	\$3,094.65	\$894.22	\$2,200.43
Intersection Improvement Projects	\$370.64	\$49.37	\$321.26
Regional RATC Operations, Maintenance, and Expansion	\$144.34	\$141.40	\$2.95
RTC Local: Operations, Maintenance, and Local System Expansion	\$1,216.89	\$635.40	\$581.49
RTC Regional: LinkNoCo, Bustang, FRPR	\$399.91	\$3.66	\$396.25
Regionally Significant Corridor (RSC) Capacity Projects	\$159.89	\$0.00	\$159.89
Non-RSC Capacity Projects	\$50.14	\$0.00	\$50.14
GHG Reduction Strategies	\$35.00	\$0.00	\$35.00

The Fiscally Constrained Plan allocates funding to a category of projects to assist in meeting the GHG Planning Standards as outlined by the Colorado State Legislature in 2022. The four categories of strategies identified in the GHG Transportation report are Transit, Transportation Demand Management (TDM), Operations, and Active Transportation. The GHG Strategies expenditure category primarily funds the TDM and Operations strategies but also includes other strategies not funded through the other expenditure categories. **Table 4-9** lists each of the 2050 RTP expenditure categories and the corresponding percentage of the funded projects which are anticipated to help achieve the reductions outlined in the GHG Transportation Report. More information on the strategies can be found in the **GHG Transportation Report**. Details on specific TDM strategies can be found in the Emerging **Trends Section**.

Table 4-9: GHG Strategy Funding Allocations, Millions of YOE Dollars, 2024-2050

Expenditure Category	Proportion of Expenditure Category Achieving GHG Strategies	Total Funded Expenditure Category (2024-2050)	\$ Contributing to GHG Strategies
Roadway Operations & Maintenance	6%	\$6,510.17	\$390.61
Intersection Improvement Projects	9%	\$787.93	\$67.35
Regional RATC Operations, Maintenance, and Expansion	85%	\$435.38	\$370.08
RTC Local: Operations, Maintenance, and Local System Expansion	62%	\$2,790.97	\$1,730.40
RTC Regional: LinkNoCo & Bustang	61%	\$631.47	\$387.63
Regionally Significant Corridor (RSC) Capacity Projects	5%	\$1,419.05	\$70.95
Non-RSC Capacity Projects	5%	\$621.00	\$31.05
GHG Reduction Strategies	100%	\$91.00	\$91.00
TOTAL	24%	\$13,286.98	\$3,139.07

Additional and Potential Funding Sources

Additional funding sources are potentially available for specific types of transportation related projects in addition to the funding identified in the revenues section of this document. These funding sources are outlined in this section.

Transit

In addition to funding from the USDOT, funding for transit-related activities can come from multiple other federal agencies. These funds can be used to varying degrees as local match for FTA funding, but also may be (and are currently) used for funding for vulnerable populations like older adults and individuals with disabilities.

Department of Health and Human Services

Funding sources distributed by the federal Department of Health and Human Services include Temporary Assistance for Needy Families (TANF), Older Americans Act Funds (OAA), Development Disabilities Assistance and Bill of Rights, and Medicaid.

Department of Housing & Urban Development

Community Development Block Grants can be used to support transit and transit-related infrastructure.

Veterans Administration

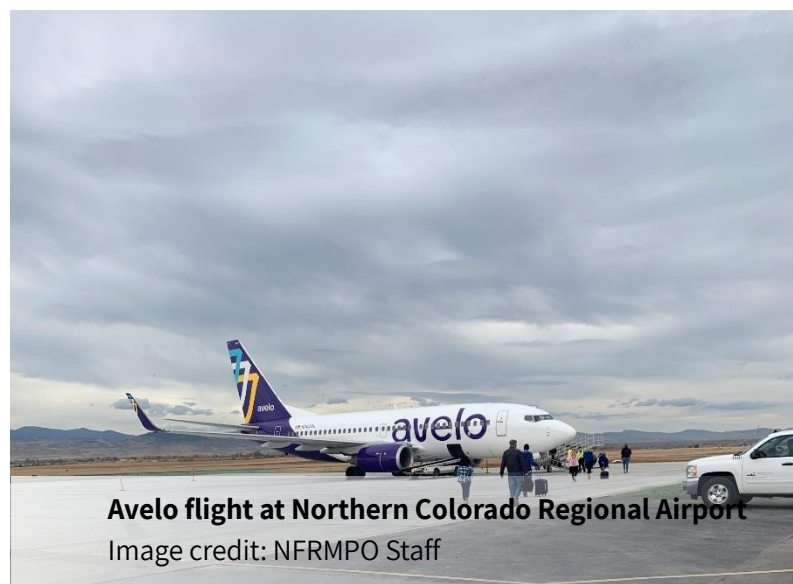
The Veterans Administration (VA) provides funding to transport veterans to VA hospitals, including from Larimer and Weld counties to the hospital in Cheyenne.

Intercity Bus Expenses

The NFRMPO region does not directly support intercity bus services using federal or local dollars; however, CDOT operates the Bustang service which connects Fort Collins and Loveland to Denver and has planned expansions benefiting the region. A new Park-n-Ride at SH56, a mobility hub at Kendall Parkway including bus slip ramps and non-motorized trail connections, and the creation of a Bustang Outrider route connecting Fort Collins, Greeley, and Fort Morgan to points farther east are anticipated. Additional service may be provided in the future, but current Bustang projects focus predominantly on capital projects. The new Kendall Parkway Park-n-Ride is being funded as part of the I-25 North Express Lanes project.

Aviation

Aviation is an important aspect of the NFRMPO region's multimodal transportation system. Although the NFRMPO does not actively plan for aviation and aviation projects are not included in the 2050 RTP, the following identifies the funding sources and plans for the two general aviation airports in the region.



Avelo flight at Northern Colorado Regional Airport
Image credit: NFRMPO Staff

Airport Improvement Program

The Airport Improvement Program (AIP) provides entitlement funds and discretionary grants for the planning and development of public-use airports included in the National Plan of Integrated Airport Systems (NPIAS). Grants cover 90 to 95 percent of eligible costs for general aviation airports. In 2018, the Northern Colorado Regional Airport received \$10.6M of COVID entitlements to construct a terminal building and \$2.2M in AIP entitlements. In 2022, the Greeley-Weld County Airport received \$6.9M in AIP discretionary funds for runway rehabilitation and \$500K in AIP entitlements³⁰.

Aviation Fuel Tax

Colorado collects a \$0.04/gallon jet fuel excise tax and \$0.06/gallon avgas excise tax³¹. These funds are distributed to aviation projects across the State as part of a discretionary aviation grant program and airport fuel tax disbursements. In 2022, the Greeley-Weld County Airport received \$24,054 and the Northern Colorado Regional Airport received \$132,708 from the sales and excise taxes. The Northern Colorado Regional Airport received \$20,800 and the Greeley-Weld County Airport received \$56,235 in State Aviation Grants in 2022³².

SIB Loan Program

The State Infrastructure Bank (SIB) Loan Program funds projects such as capital airport improvements, air traffic control towers, snow removal equipment, and airport pavement reconstruction.

Airport Fees

Both the Greeley-Weld County Airport and the Northern Colorado Regional Airport charge fees for various items, including security access, land and hangar leasing, airline operations, and parking. These funds are invested in the airports based on identified needs.

³⁰ AIP Grant History Visualization (FYs 2005-2022), 2022.

https://explore.dot.gov/t/FAA/views/AIPTableauDashboard-Public_16287828377070/Start?%3AshowAppBanner=false&%3Adisplay_count=n&%3AshowVizHome=n&%3Aorigin=viz_share_link&%3AisGuestRedirectFromVizportal=y&%3Aembed=y. (Accessed 6/23/2023)

³¹ Aviation Taxes, 2023. <https://tax.colorado.gov/aviation-taxes#:~:text=Aviation%20Fuel%20Excise%20Tax&text=Excise%20fuel%20tax%20are%20due,is%204%C2%A2%20per%20gallon>. (Accessed 6/23/2023)

³² Aeronautics Sales Tax Data, 2022 Excise Taxes, Aeronautics Grant Reports (WIMS), <https://codot.opengov.com/data/#/45475/query=55368018E74168581E26DB17897A0488&embed=n>, (Accessed 6/23/2023).

Freight

Freight is the underlying connection of people and goods, meaning investment in the freight system benefits all aspects of quality of life.

National Highway Freight Program (NHPP)

NHPP funds must contribute to the efficient movement of freight on the National Highway Freight Network (NHFN) and be included in the State's Freight Plan. Eligible projects include intelligent transportation systems (ITS) and other technology to improve the flow of freight, including intelligent freight transportation systems; railway-highway grade separation; truck-only lanes; climbing and runaway truck lanes; adding or widening of shoulders, and truck parking facilities eligible for funding under Section 1401 (Jason's Law) of MAP-21.

Railway-Highway Crossings (Section 130) Program

The Section 130 program is an FHWA program providing funds for the elimination of hazards at at-grade crossings. Since the program's inception in 1987, fatalities at these crossings have decreased by 57 percent. Section 130 funds are administered in Colorado by CDOT.

Other Federal Programs

Private Activity Bonds (PAB), Railroad Rehabilitation and Improvement Financing (RRIF), and Transportation Infrastructure Finance and Innovation Act (TIFIA) are non-grant programs which can help fund freight-related projects. RRIF and TIFIA are loan or line-of-credit programs, while PABs are tax-exempt bonds for private investors.

Public-Private Partnerships Most freight in the US is handled by private companies. Private funding can be used to leverage additional public funding, expand the scope of projects, and as an overall gain for the freight system. Grant opportunities authorized in the FAST Act and administered by the Federal Motor Carrier Safety Administration (FMCSA) are a good example of how the federal government is working with the trucking industry to improve safety of commercial drivers and their vehicles. The Colorado Freight Advisory Council (FAC) brings public and private stakeholders from the freight industry together to strengthen relationships, build consensus, and pursue opportunities to facilitate the safe, efficient, coordinated, and reliable movement of freight.

Pipeline and Hazardous Materials Safety Administration (PHMSA)



Train stored on Great Western Railway tracks

Image credit: NFRMPO Staff

PHMSA provides comprehensive grant programs that are designed to improve damage prevention, develop new technologies, and improve both hazmat and pipeline safety. The grants can be used to foster partnerships with local communities and universities to promote pipeline awareness campaigns, provide resources for emergency preparedness, development of pipeline resources and information, and the implementation of best practices regarding pipeline and hazmat safety nationwide.

Transportation Improvement Program (TIP)

The NFRMPO is responsible for the creation of a Transportation Improvement Program (TIP) for the region at least every four years. The TIP presents a four-year program of multimodal 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.

The TIP is fiscally constrained by program and year. Projects programmed within the NFRMPO TIP must:

- Come from an approved RTP,
- Follow the regional Congestion Management Process (CMP),
- Within non-attainment areas, show conformity according to air quality budgets outlined in the Statewide Implementation Plan (SIP)
- Conform with the GHG Planning Standard

The NFRMPO must provide all interested parties with a reasonable opportunity to provide comments on a proposed TIP or amendment to an existing TIP.

FHWA and FTA determine if the TIP is consistent with the adopted RTP and if it was produced through the 3C transportation planning process. The TIP is included without changes in the Statewide Transportation Improvement Program (STIP), developed by CDOT and approved by the Governor.

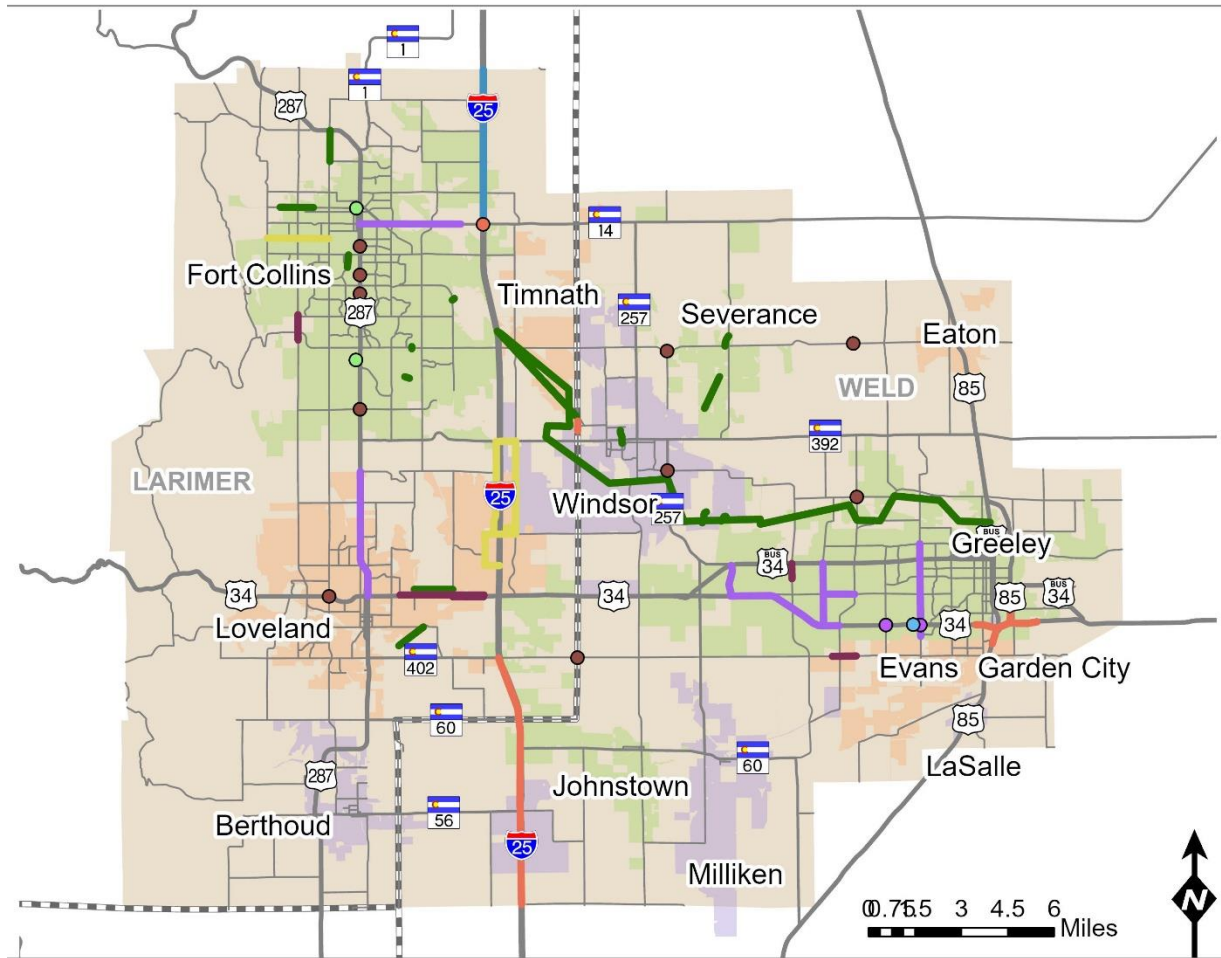
Federal transportation funding legislation, established by MAP-21 and carried forward in the FAST Act and IIJA, required that the TIP include:

- To the maximum extent practicable, a description of the anticipated effect of the TIP toward achieving the performance targets established in the 2045 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.

The FY2024-2027 TIP is anticipated to be adopted by the NFRT&AQPC on September 7, 2023, will become effective upon action by the state.

The FY2024-2027 TIP provides the first four years of programmed projects for the 2050 RTP. **Figure 4-4** shows the location of the projects included in the FY2024-2027 TIP.

Figure 4-4: FY2024-2027 TIP Projects



Legend

- | | | |
|--|--|----------------------|
| — Bike/Ped | ● Charging & Fueling Infrastructure | County Boundary |
| — ITS | ● Interchange | NFRMPO Planning Area |
| — Modify & Reconstruct | ● Intersection Improvements | |
| — Surface Treatment | ● Mobility Hub/PNR | |
| — Transit | ● Modify & Reconstruct | |
| — Widening | | |

July 2023
Sources: CDOT, NFRMPO



Call For Projects

The NFRMPO holds periodic Calls for Projects to award the federal and state funding controlled by the NFRMPO to transportation projects. During the NFRMPO Call for Projects process, member communities have the opportunity to apply for funding from the relevant federal and state funding sources. **Table 4-10** details the Calls for Projects held by the NFRMPO since 2020, including the funding programs awarded and the total amount of funding awarded during the Call.

Table 4-10: NFRMPO Calls for Projects

Call	Funding Programs Awarded	Fiscal Years of Funding Awarded	\$ Funding in Call
2019 MMOF Call for Projects	MMOF	FY2020	\$4,850,008
2021 Call for Projects	CMAQ, STBG, TA	FY2024 & FY2025	\$15,573,628
2022 MMOF Call for Projects	MMOF	FY2022 & FY2023	\$15,557,778
Upcoming:			
2023 Call for Projects	CMAQ, STBG, TA, CRP	FY2026 & FY2027	\$22,745,092

The Call for Projects process is developed in coordination with the TAC, NoCo Bike and Ped Collaborative, Mobility Committees, and local agency staff then approved by the NFRT&AQPC. The NFRMPO staff develops a guidebook relevant to each call which includes the following elements:

- Estimated funding and local match requirements
- Eligible applicants and project types
- Schedule
- Project requirements
- Scoring criteria

Scoring criteria for all funding programs is developed in consideration with federal requirements and NFRMPO priorities. Projects awarded funding in NFRMPO Calls for Projects are required to be in alignment with the relevant RTP, including being located on or directly impacting a regional corridor (RSC, RTC, or RATC). Additionally, projects are required to help the NFRMPO achieve progress to federally required and regionally specific performance measures and targets, as detailed in the **System Performance Report**. Projects awarded funding through the NFRMPO Call for Projects are also programmed into the relevant TIP and STIP following award notifications. Details on past and upcoming NFRMPO Calls for Projects, including guidebooks and awarded projects can found on the [NFRMPO Call for Projects website](#).

Chapter

4

Section 2:

Plan Projects



Plan Projects Overview

The Regional Transportation Plan (RTP) is a corridor-based plan and does not identify specific projects, except regionally significant projects that require air quality analyses and air quality conformity with Carbon Monoxide (CO), Volatile Organic Compounds (VOC), and Nitrogen Oxides (NOx) budgets outlined in the applicable Colorado State Implementation Plans (SIPs). A corridor-based RTP provides greater flexibility for financial constraint and selecting projects for the Transportation Improvement Program (TIP).

A Regionally Significant Project is any fiscally constrained project that impacts the roadway network on a Regionally Significant Corridor (RSC). This includes any capacity or non-capacity air quality project on an RSC. All member jurisdictions, including the Colorado Department of Transportation (CDOT), were asked to provide information on projects fitting these criteria, with a year of improvement between 2024 and 2050. These projects were collected for the 2050 RTP and are included in the Base Year (BY) 2019 NFRMPO Regional Travel Demand Model (RTDM). Individual project information is detailed in the following section.

Examples of Air Quality Significant Projects include:

- Adding at least two (2) lane miles, or completing a regional connection;
- Adding a new intersection on principal arterials or above;
- Adding new interchanges or grade-separated intersections;
- Major improvements to existing interchanges, excluding drainage improvements and ramp widening;
- Regional transit projects on fixed guideways, which offer a significant alternative to regional roadway travel;
- Addition or deletion of major bus routes with 3,000 riders per day, considering existing service levels

As identified in the **Fiscally Constrained Plan** section, \$1.4B in year of expenditure (YOE) dollars are assigned to regionally significant roadway projects which qualify based on the Air Quality Significant Project definition and may include capacity expansion, park and rides (PNR), multimodal elements including bike and pedestrian or transit improvements on RSCs in the 2050 RTP. The funding is assigned from flexible funding programs from a variety of sources, including federally controlled, state-controlled, NFRMPO-controlled, and locally controlled funding, as well as private contributions. The specific funding source(s) for each project will be determined through future funding processes held by each controlling entity and are not identified in the 2050 RTP.

This Chapter provides an overview of the fiscally constrained projects located on the NFRMPO regional corridors as well as a high-level overview of the environmental considerations for the projects.

Regionally Significant Projects

Figure 4- illustrates the fiscally constrained RSC network in 2050 by number of lanes. Projects highlighted in yellow are the RSC capacity projects for the 2050 RTP as they will be built out by 2050, sections not highlighted in yellow will remain the same number of lanes in 2050 as exist today.

Figure 4-6: Fiscally Constrained RSC Capacity Projects, Staging Period A: 2024-2026

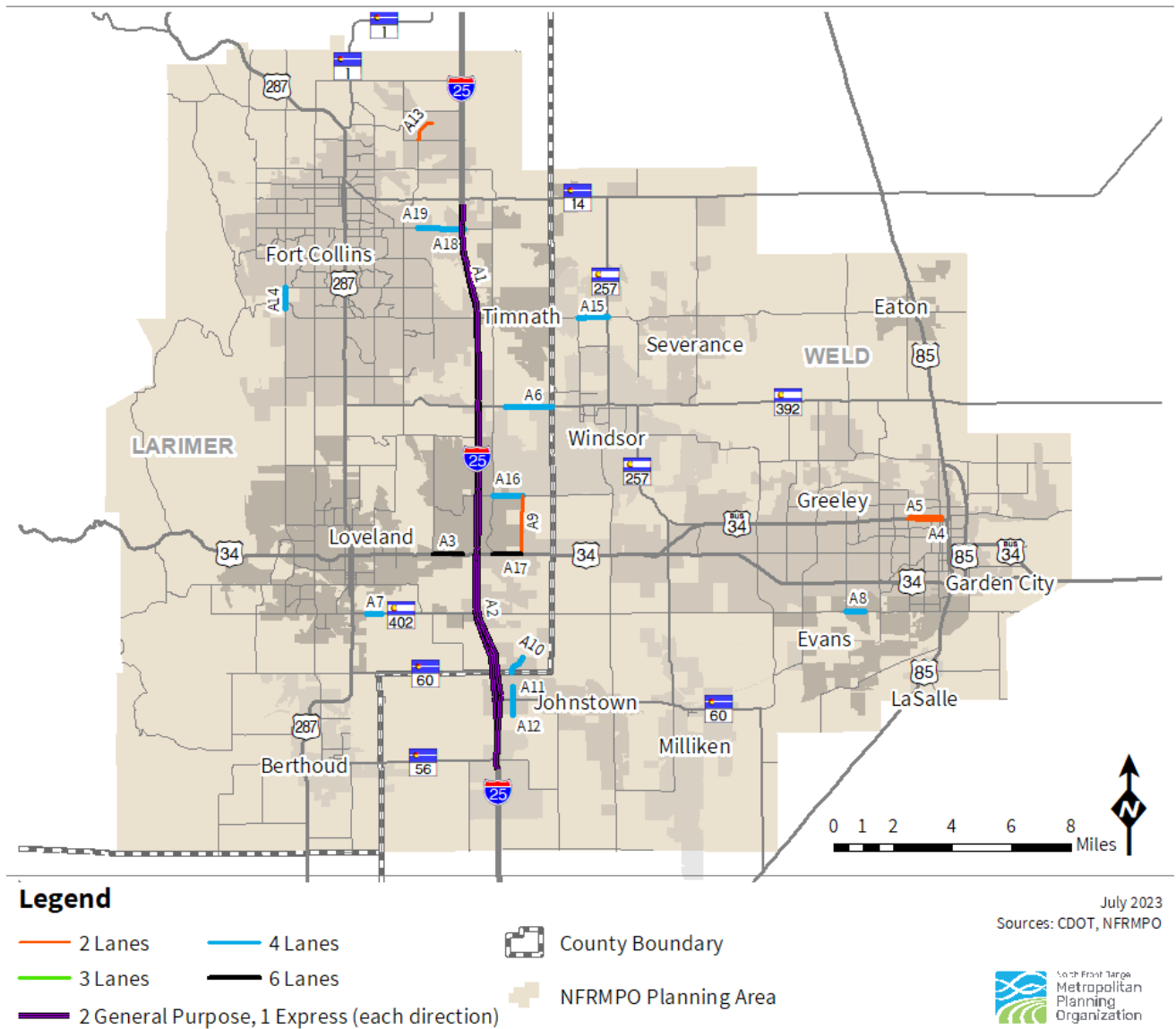


Table 4-11: Fiscally Constrained RSC Capacity Projects, Staging Period A: 2024-2026

Map ID	RSC	Project Name	Project Limits	Improvement Type	Remaining Project Cost (\$M, YOE)
A1	1	I-25 Express Lane Segment 7&8	SH14 to SH402	Add tolled express lane in each direction and interchange reconstructions	\$-
A2	1	I-25 Express Lane Segment 6	SH402 to SH56	Add tolled express lane in each direction and interchange reconstructions	\$-
A3	2	US 34 Widening	Boyd Lake Ave. to Rocky Mountain Ave.	Widen from 4 lanes to 6 lanes	\$5.81
A4	3	10th St Mobility Enhancements	E of 23rd Ave to 10th Ave	Convert to Two-Way	\$16.15
A5	3	9th St Mobility Enhancements	E of 23rd Ave to 8th Ave	Convert to Two-Way	\$16.15
A6	12	SH-392 Widening	Highland Meadows Pkwy to Colorado Blvd	Widen from 2 lanes to 4 lanes	\$29.08
A7	13	SH 402 Widening	St. Louis to Boise	Widen from 2 lanes to 4 lanes	\$7.02
A8	13	WCR-54 / 37th St Widening	47th Ave to Stampede Dr	Widen from 2 lanes to 4 lanes	\$ -
A9	14	LCR 3 Paving	US 34 to Crossroads Blvd	Paving Unpaved Road	\$14.95
A10	14	High Plains Blvd New Road	2500 ft N of LCR14 to LCR14	New 4 lane road	\$5.84
A11	14	High Plains Blvd Widening	Juniper to SH60	Widen from 2 lanes to 4 lanes	\$6.99
A12	14	High Plains Blvd New Road	SH60 to 2500 ft S of SH 60	New 4 lane road	\$7.71
A13	16	Timberline New Road 1	Giddings to Mountain Vista	New 2 lane road	\$8.42
A14	18	Taft Hill Widening	Harmony to Brixton	Widen from 2 lanes to 4 lanes	\$10.34
A15	23	Harmony Road Widening	WCR-15 to SH-257	Widen from 2 lanes to 4 lanes	\$5.34
A16	26	Crossroads Blvd Widening	Centerra to LCR 3	Widen from 2 lanes to 4 lanes	\$12.41
A17	2	US 34 Widening	Centerra Pkwy. to LCR 3	Widen from 4 lanes to 6 lanes	\$13.12

Map ID	RSC	Project Name	Project Limits	Improvement Type	Remaining Project Cost (\$M, YOY)
A18	28	Prospect Widening	Summit View to I-25	Widen from 2 lanes to 4 lanes	\$9.46
A19	28	Prospect Widening	Sharp Point to Summit View	Widen from 2 lanes to 4 lanes	\$3.17

Figure 4-7: Fiscally Constrained RSC Capacity Projects, Staging Period B: 2027-2030

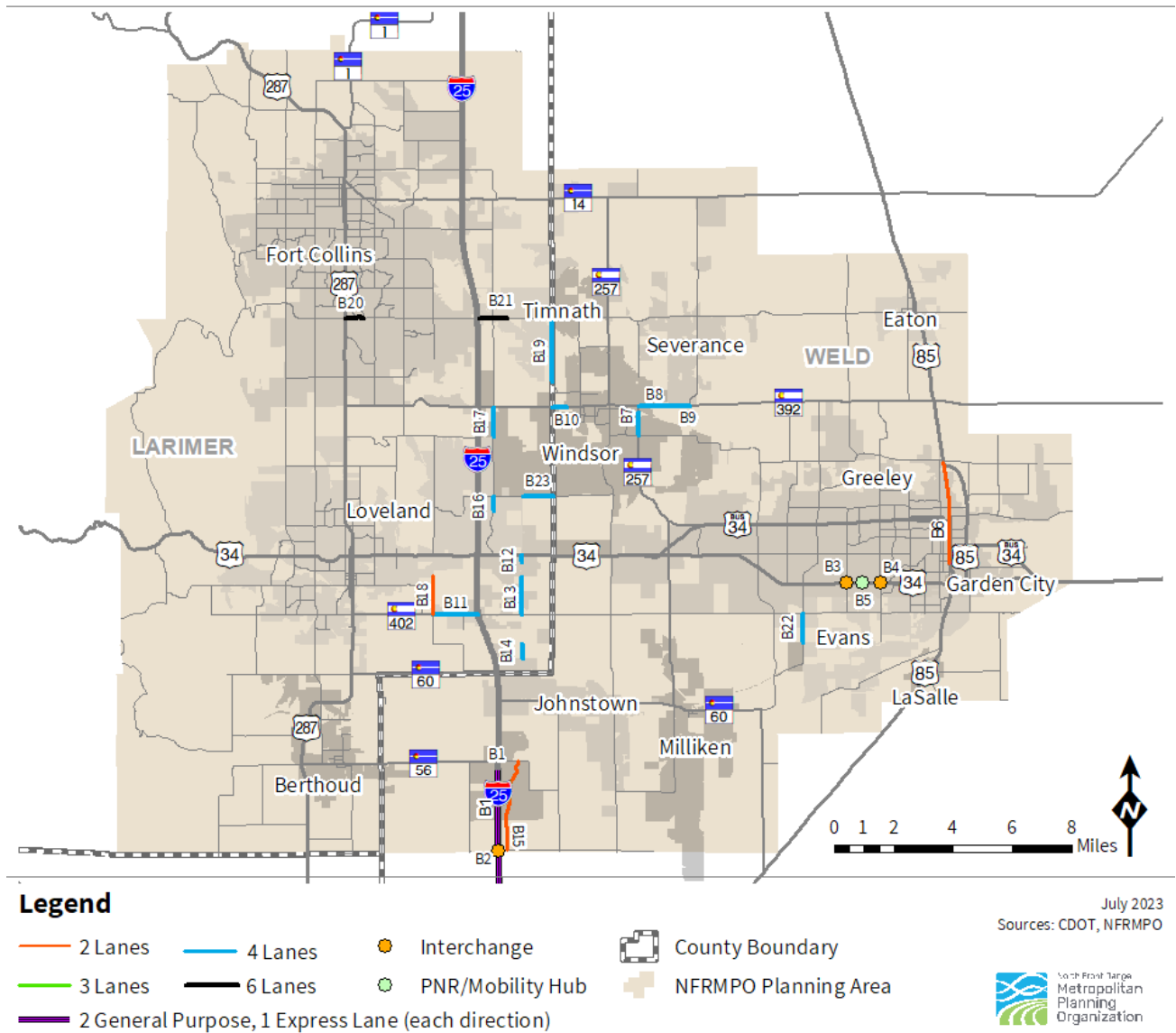


Table 4-12: Fiscally Constrained RSC Capacity Projects, Staging Period B: 2027-2030

Map ID	RSC	Project Name	Project Limits	Improvement Type	Remaining Project Cost (\$M, YOE)
B1	1	I-25 Express Lane Segment 5	SH56 to WCR 38	Add tolled express lane in each direction and interchange reconstructions	\$173.95
B2	1	I-25 and WCR-38 Interchange	WCR-38 to WCR-38	New Interchange	\$33.11
B3	2	US 34 and 47th Interchange	47th Ave to 47th Ave	New interchange	\$47.22
B4	2	US 34 and 35th Interchange	35th Ave to 35th Ave	New interchange	\$52.85
B5	2	US 34 Mobility Hub at Centerplace	N/A	PNR	\$25.00
B6	5	8th Avenue / US 85 Business Mobility Enhancements	O Street to 24th Street	Reduce from 4 lanes to 2 lanes/Enhancing multimodal mobility	\$74.11
B7	11	SH-257 Widening	Walnut St to Eastman Park Dr.	Widen from 2 lanes to 4 lanes	\$10.58
B8	12	SH 392 Widening	WCR-19 to WCR-21	Widen from 2 lanes to 4 lanes	\$4.10
B9	12	SH-392 Widening	WCR-21 to WCR-23	Widen from 2 lanes to 4 lanes	\$5.25
B10	12	SH-392 Widening	Colorado Blvd to 17th Street		\$1.89
B11	13	SH 402 Widening	Boyd Lake Ave to I-25	Widen from 2 lanes to 4 lanes	\$14.18
B12	14	High Plains Blvd Widening	US 34 to Ronald Reagan	Widen from 2 lanes to 4 lanes	\$3.86
B13	14	High Plains Blvd New Road	LCR20C to LCR18	Widen from 2 lanes to 4 lanes	\$19.28
B14	14	High Plains Blvd New Road	LCR16 to 2500 ft N of LCR14	New 4 lane road	\$7.71
B15	14	WCR-9.5 New Road	WCR 44 / SH 56 to WCR32	New 2 lane road	\$37.79
B16	15	Centerra Parkway Widening	Crossroads Blvd to 0.5 miles south	Widen from 2 lanes to 4 lanes	\$4.85

Map ID	RSC	Project Name	Project Limits	Improvement Type	Remaining Project Cost (\$M, YOE)
B17	15	LCR 5 Widening	LCR 30 to SH 392	Widen from 2 lanes to 4 lanes	\$5.35
B18	16	Boyd Lake Extension	SH 402 to LCR 20C	New 2 lane road	\$8.47
B19	19	LCR 1 Widening	Harmony Rd to South GMA	Widen from 2 lanes to 4 lanes	\$13.99
B20	23	Harmony Road Widening	College to Boardwalk	Widen from 4 lanes to 6 lanes	\$13.34
B21	23	Harmony Widening	I-25 to LCR-1	Widen from 4 lanes to 6 lanes	\$7.99
B22	25	65th Avenue Widening	WCR-54/37th St to 49th St	Widen from 2 lanes to 4 lanes	\$9.09
B23	26	Crossroads Widening	LCR 3 to WCR 13	Widen from 2 lanes to 4 lanes	\$4.10

Figure 4-8: Fiscally Constrained RSC Capacity Projects, Staging Period C: 2031-2040

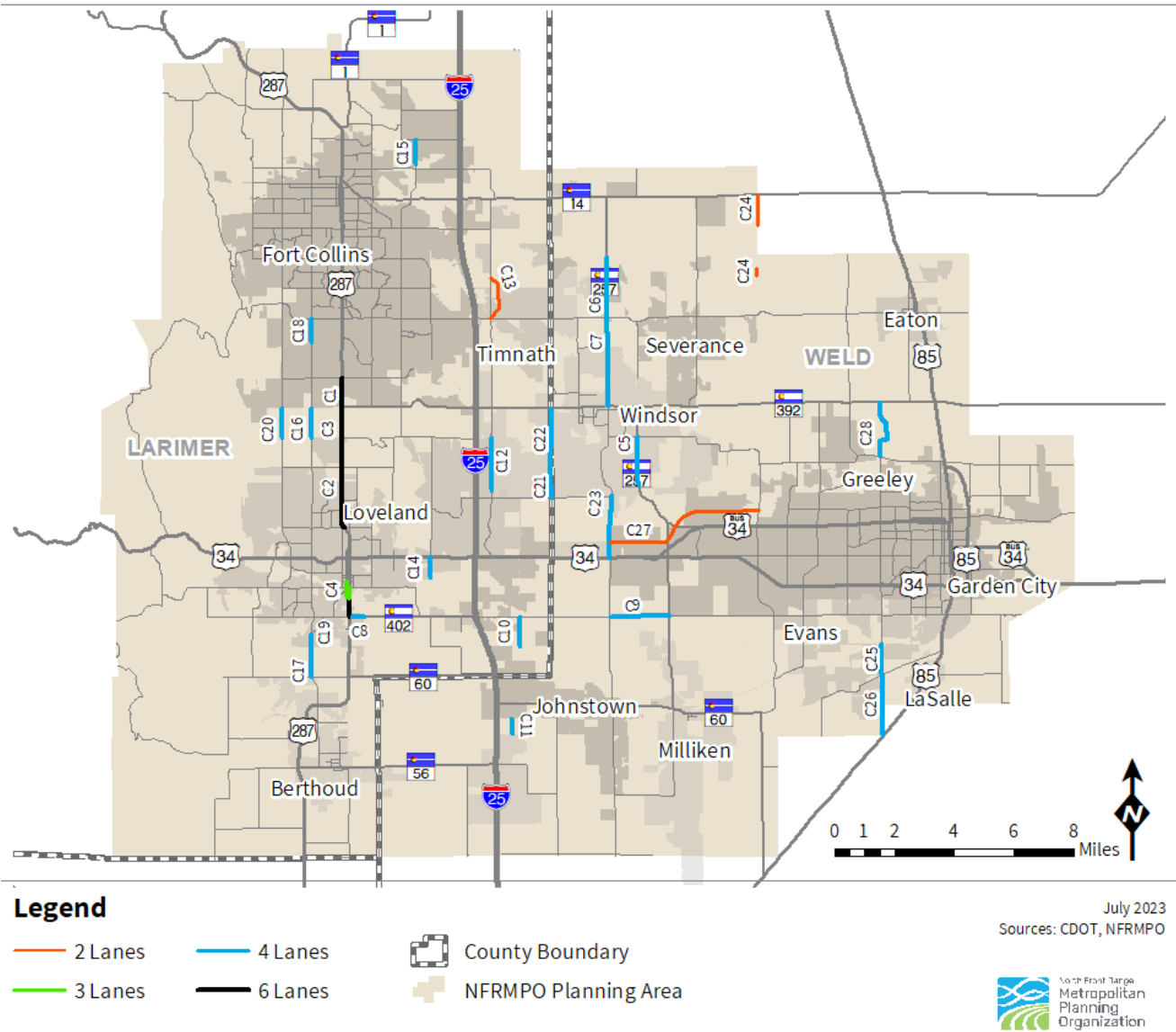


Table 4-13: Fiscally Constrained RSC Capacity Projects, Staging Period C: 2031-2040

Map ID	RSC	Project Name	Project Limits	Improvement Type	Remaining Project Cost (\$M, YOE)
C1	6	US 287 / College Widening	Trilby to Carpenter / LCR 32	Widen from 4 lanes to 6 lanes	\$18.08
C2	6	US 287 Widening	29th St. to 71st St.	Widen from 4 lanes to 6 lanes	\$13.86
C3	6	US 287 Widening	LCR 32 / SH392 to LCR 30	Widen from 4 lanes to 6 lanes	\$7.61
C4	6	US 287 Widening	1st St / 2nd St to SH 402	Widen from 4 lanes to 6 lanes	\$25.87
C5	11	SH-257 Widening	Eastman Park Dr. to Crossroads	Widen from 2 lanes to 4 lanes	\$9.28
C6	11	SH-257 Widening	WCR-78 to WCR-74	Widen from 2 lanes to 4 lanes	\$10.50
C7	11	SH-257 Widening	WCR-74 to SH-392	Widen from 2 lanes to 4 lanes	\$14.12
C8	13	SH 402 Widening	US 287 to St. Louis	Widen from 2 lanes to 4 lanes	\$7.18
C9	13	WCR-54 / 37th St Widening	WCR 17 to SH257	Widen from 2 lanes to 4 lanes	\$26.90
C10	14	High Plains Blvd New Road	LCR18 to LCR16	New 4 lane road	\$19.74
C11	14	High Plains Blvd New Road	2500 ft S of SH 60 to WCR46	New 4 lane road	\$9.87
C12	15	N Fairgrounds Ave Widening	Rodeo Rd. to 71st St. (CR 30)	Widen from 2 lanes to 4 lanes	\$22.56
C13	15	Timnath Bypass/Parkway New Road	N of LCR 40 to LCR 38	New 2 lane road	\$4.04
C14	16	Boyd Lake Widening 3	LCR 20C to US 34	Widen from 2 lanes to 4 lanes	\$3.83
C15	16	Timberline Widening 3	Mountain Vista to N of Vine	Widen from 2 lanes to 4 lanes	\$16.95
C16	17	LCR 17 Widening	LCR 32 to LCR 30	Widen from 2 lanes to 4 lanes	\$8.07
C17	17	LCR 17 Widening	CR 16/28th St SW to CR 14/SH 60	Widen from 2 lanes to 4 lanes	\$11.79
C18	17	Shields Widening	Harmony to Hilldale	Widen from 2 lanes to 4 lanes	\$11.88
C19	17	Taft Ave Widening 2	23rd St. SW to 28th St SW / LCR 16	Widen from 2 lanes to 4 lanes	\$17.42

Map ID	RSC	Project Name	Project Limits	Improvement Type	Remaining Project Cost (\$M, YOE)
C20	18	LCR 19 Widening	LCR 32 to LCR 30	Widen from 2 lanes to 4 lanes	\$8.07
C21	19	WCR-13 Widening	Kaplan Dr to Crossroads	Widen from 2 lanes to 4 lanes	\$6.96
C22	19	WCR-13 Widening	SH-392 to Kaplan Dr	Widen from 2 lanes to 4 lanes	\$5.57
C23	20	WCR-17 Widening	WCR-62 / Crossroads to US-34	Widen from 2 lanes to 4 lanes	\$7.73
C24	21	WCR 27 New Road	SH 14 to WCR 74	New 2 lane road	\$9.31
C25	22	35th Ave New Road	49th Street to WCR 35 / WCR 394	New 4 lane road	\$68.93
C26	22	35th Ave Widening	WCR-394 to US-85	Widen from 2 lanes to 4 lanes	\$24.35
C27	29	4th St New Road	WCR 17 to 83rd Ave.	New 2 lane road	\$87.42
C28	22, 26	WCR-35 (35th Ave) Widening	SH 392 to O Street	Widen from 2 lanes to 4 lanes	\$21.79

Figure 4-9: Fiscally Constrained RSC Capacity Projects, Staging Period D: 2041-2050

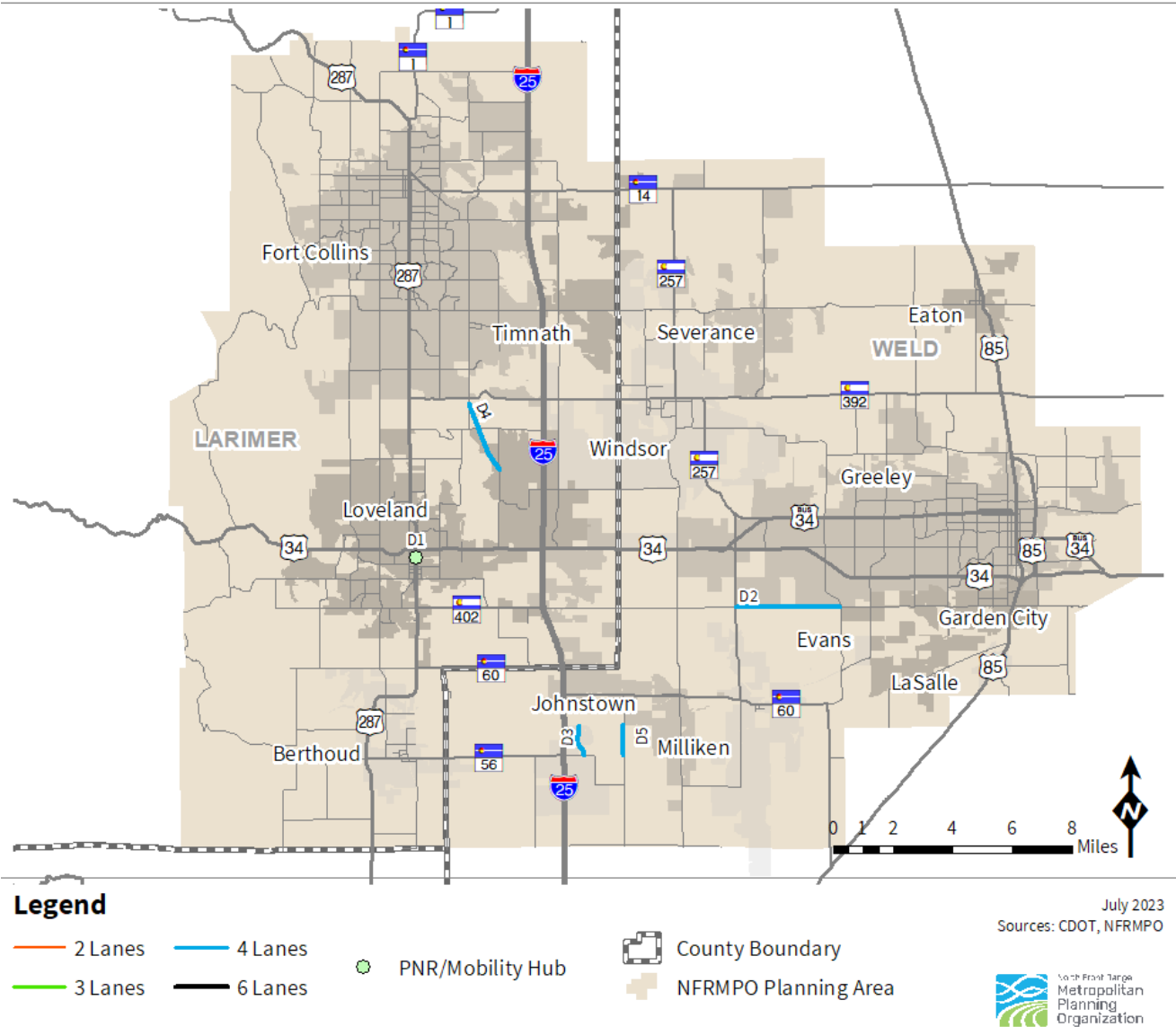


Table 4-14: Fiscally Constrained RSC Capacity Projects, Staging Period D: 2041-2050

Map ID	RSC	Project Name	Project Limits	Improvement Type	Remaining Project Cost (\$M, YOE)
D1	6	11th and US 287 Park and ride	N/A	PNR	\$0.86
D2	13	WCR-54 / 37th St Widening	SH 257 to 77th Ave / 83rd Ave/ Two Rivers Parkway	Widen from 2 lanes to 4 lanes	\$60.25
D3	14	High Plains Blvd New Road	WCR46 to WCR44	New 4 lane road	\$25.27
D4	16	New Road UP: LCR 11 to LCR 9	LCR 11 south of SH 392 to LCR 9 north of Valley Oak Dr	New 4 lane road	\$58.88
D5	19	WCR-13 Widening	WCR 46 to WCR 44	Widen from 2 lanes to 4 lanes	\$14.63

Transit

All RTCs identified in **Chapter 1** are considered fiscally constrained except for the Front Range Passenger Rail corridors. **Figure 4-10** illustrates the RTC projects by staging period in which service is anticipated to begin. Capital expansion and operating costs for the RTC projects are included in the RTC Regional and RTC Local system expansion costs detailed in the **Fiscally Constrained Plan** section.

Figure 4-10: Fiscally Constrained RTC Projects by Staging Period, 2024-2050

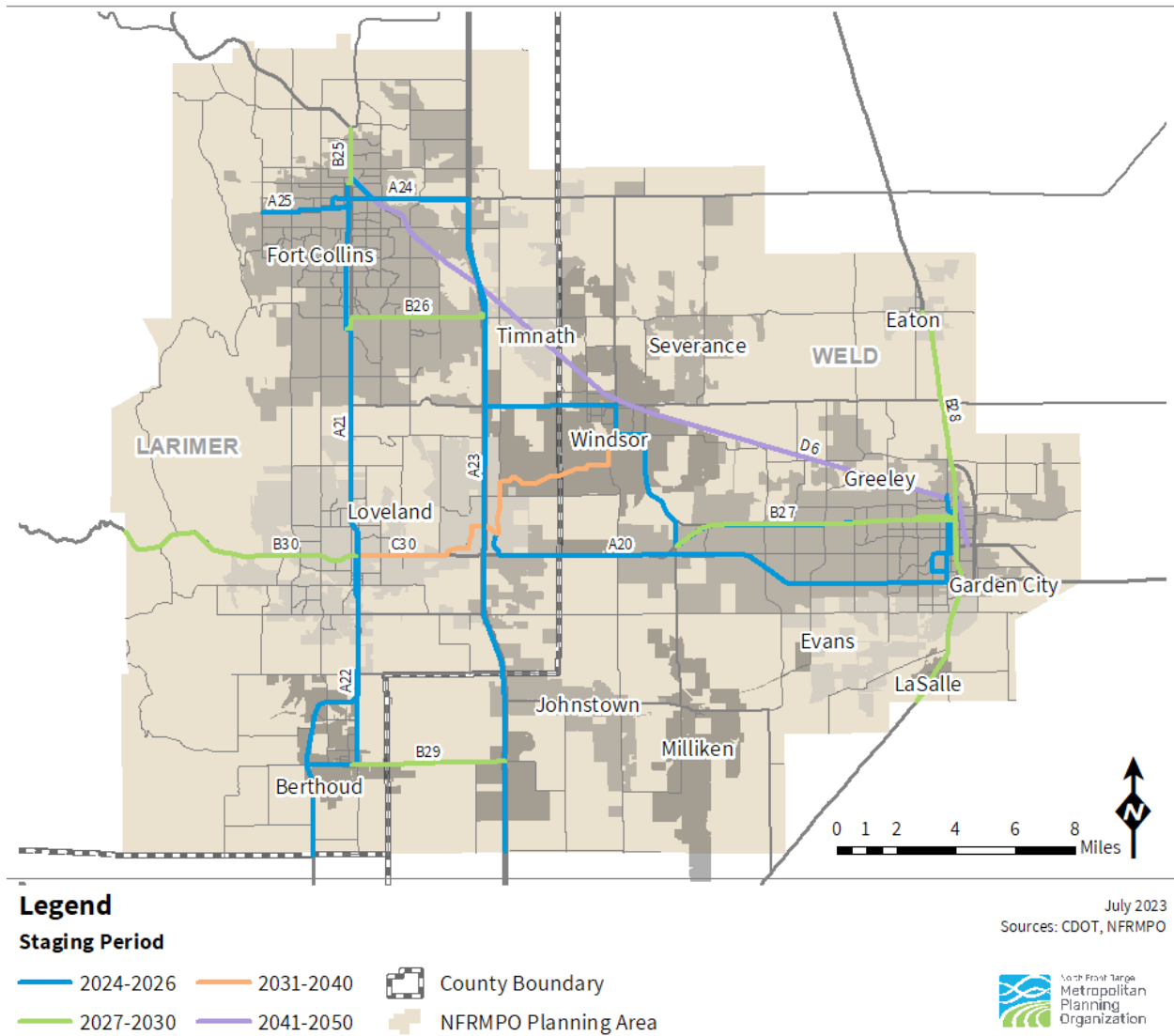


Table 4-15: Fiscally Constrained RTC Projects by Staging Period, 2024-2050

Map ID	RTC	Project	RTC Category	Staging Period
D6	RTC-1	Great Western	LinkNoCo	2041-2050
A20	RTC-2	US34	LinkNoCo	2024-2026
C30	RTC-3	Loveland to Windsor	LinkNoCo	2031-2040
A21	RTC-4	FLEX Express	Existing Service	2024-2026
A22	RTC-5	FLEX Local	Existing Service	2024-2026
A23	RTC-6	Bustang	Existing Service	2024-2026
A24	RTC-7	Poudre Express	Existing Service	2024-2026
B25	RTC-8	North College MAX	Local Priority	2027-2030
A25	RTC-9	West Elizabeth	Local Priority	2024-2026
B26	RTC-10	Harmony MAX	Local Priority	2027-2030
B27	RTC-11	34 Business Premier	Local Priority	2027-2030
B28	RTC- 14	US85 Transit	Local Priority	2027-2030
B29	RTC-15	SH56 Transit	Local Priority	2027-2030
B30	RTC-16	US34 West (Loveland to Estes)	Local Priority	2027-2030

Environmental 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 and subsequent transportation authorizations have continued these requirements. These activities should be developed alongside federal, state, land management, and regulatory agencies.

The scale of the 2050 RTP is not designed to evaluate project-specific impacts; project specific environmental impacts and mitigation strategies are governed through the National Environmental Policy Act (NEPA) process and handled by CDOT and project sponsors for federally funded transportation projects. More information about the NEPA process can be found at <https://www.epa.gov/nepa>.

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 environment³³

NFRMPO staff analyzed the potential impacts of transportation projects according to the following environmental features.

- Equity Areas
- Active Oil and Gas Wells
- Flood Zones and Water Features
- Historic Sites
- Biodiversity Significance
- Habitat Areas

Each feature will be explained and mapped alongside the 2050 RTP Fiscally Constrained RSC projects in the following sections.

Table 4-16 illustrates the number of projects that are within a quarter mile of each of the environmental features outlined in this section.

³³ <https://www.ecfr.gov/current/title-40/chapter-V/subchapter-A/part-1500/section-1500.1>

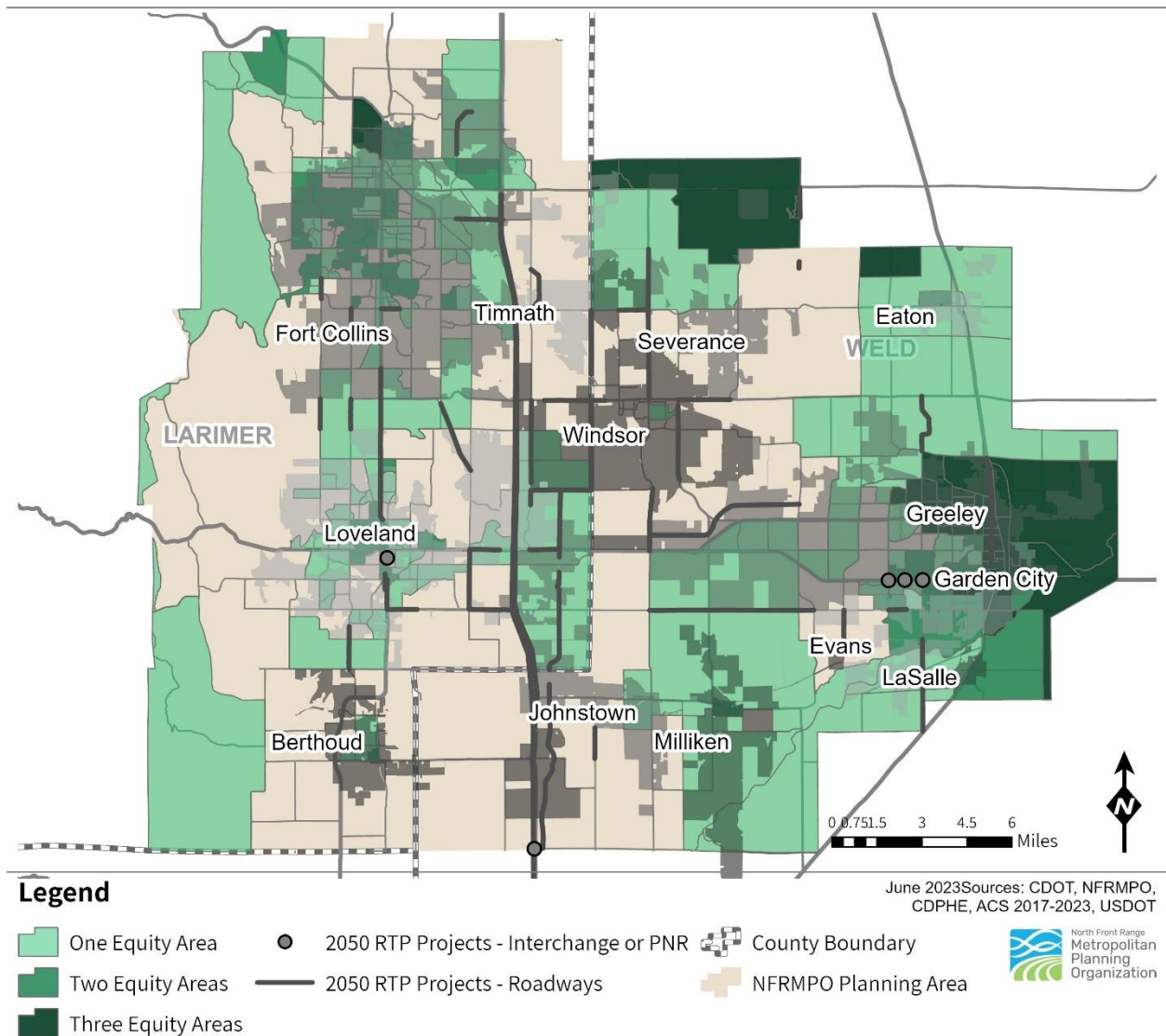
Table 4-16: Environmental Analysis Overview

Environmental Feature	# Projects within ¼ mile	% of all projects within ¼ mile
Equity Area	59	79%
Cultural Resource Structure	2	3%
Cultural Resource Building	6	8%
Cultural Resource District	3	4%
Biodiversity Areas	6	8%
Wetlands	62	83%
Lakes and Ponds	56	75%
Flood Zones	24	32%
Oil & Gas Well	25	33%
Habitats (Mammals and Birds)	75	100%

Equity Areas

As described in **Chapter 1: Equity**, the NFRMPO integrates equity analysis into the planning and project selection process in addition to the policies and practices through the work of the NFRMPO. Of the 75 fiscally constrained RSC projects, 59 are within a quarter mile of a Census Block grouped as an Equity area within the NFRMPO, as illustrated in **Figure 4-11**.

Figure 4-11: 2050 RTP Project Locations and Equity Areas

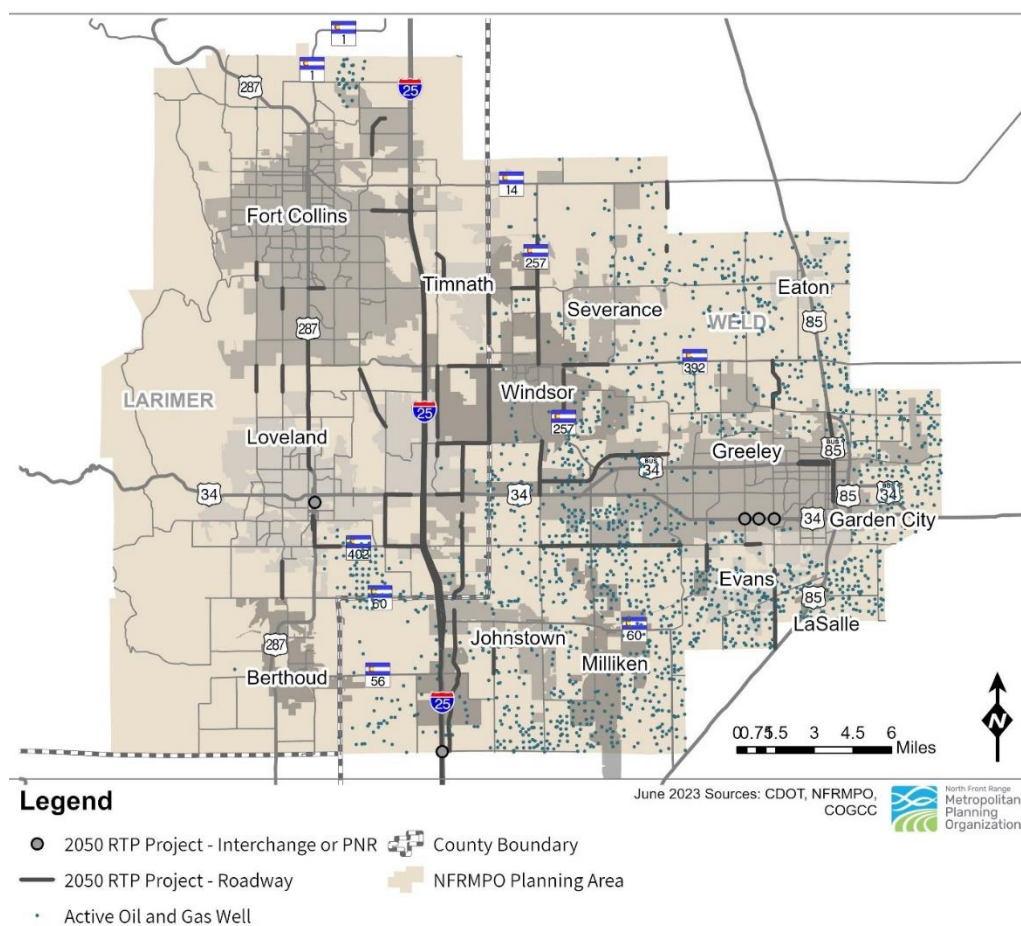


To learn more about Equity analysis and planning within the NFRMPO, refer to the **Equity** section.

Active Oil and Gas Wells

Significant oil and gas production has been underway in the region for most of the past century. In fact, much of the economic growth in Weld County has been a result of the oil and gas industry. In 2022, Weld County produced 132,008,104 barrels of oil out of 160,312,400 barrels produced Statewide. By comparison, Larimer County produced 2,486,508 barrels in 2022³⁴. **Figure 4-12** shows the active oil and gas wells within NFRMPO planning area. The presence of a thriving oil and gas industry has impacted the region's air quality due to the emission of gaseous pollutants from well production and midstream facilities. Additionally, while oil and gas pipeline capacity is increasing in the region, a large amount of petroleum is still being transported by truck, which results in emissions from heavy-duty vehicles. Only transportation related emissions are considered as part of the NFRMPO air quality conformity modeling and analysis.

Figure 4-12: 2050 RTP Project Locations and Oil and Gas Wells



³⁴ Colorado Oil & Gas Conservation Commission, 2023. <https://cogcc.state.co.us/data4.html#/production>. Accessed 6/26/2023.

Flood Zones and Water Features

The North Front Range region is home to several major rivers and their tributaries, including the Cache la Poudre, Big and Little Thompson, and South Platte Rivers. Additionally, the region contains many lakes and reservoirs, including 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. 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. In the North Front Range region, wetlands are commonly found adjacent to streams or rivers where the ground stays saturated. **Figure 4-13** shows the water features, wetlands, and 500-year floodplains within the region.

Waterbodies and wetlands are both protected under the Federal Clean Water Act (CWA). Under 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. Though the two are covered under the same Federal regulations, mitigation strategies to avoid impacts differ greatly between the two.

Water Mitigation

Furthermore, as water rolls off transportation infrastructure, it often carries pollutants left behind by motorists into nearby lakes, rivers, and streams. Even during the construction phase, silt, dust, and other particulate matter may be carried into nearby waterbodies via runoff or even wind. In accordance with CDOT's Statewide Transportation Plan, mitigation strategies are used for any transportation projects posing a threat to water quality. Most commonly, a project will use one or several Best Management Practices (BMP) to avoid or control runoff.

BMPs may include retention and detention ponds to temporarily or permanently store stormwater; vegetated swales to slow the flow of runoff, allowing pollutants to filter out before entering nearby water bodies; and even newer technologies like permeable pavement. Silt fences are often used in the construction phase to help prevent particulate matter associated with construction from entering water bodies.

Additionally, CDOT works with local municipalities, permit holders, and private developers to construct and maintain watershed-scale water quality facilities. The Permanent Water Quality Mitigation Pool (PWQM) provides \$6.5M each fiscal year to fund, design, purchase right-of-way, environmental clearances, and construction of PWQ Control measures and install PWQ control measures on priority projects. Priority projects are projects that are inside CDOT's Municipal Separate Storm Sewer System (MS4) area, disturb one or more acres, increase impervious surface by 20 percent or more and drain into a stream, the Cherry Creek Drainage Basin, or is part of an environmental assessment or environmental impact statement³⁵.

³⁵ CDOT Permanent Water Quality, 2023. <https://www.codot.gov/programs/environmental/water-quality/stormwater-programs/pwq-permanent-water-quality>. Accessed 6/30/2023.

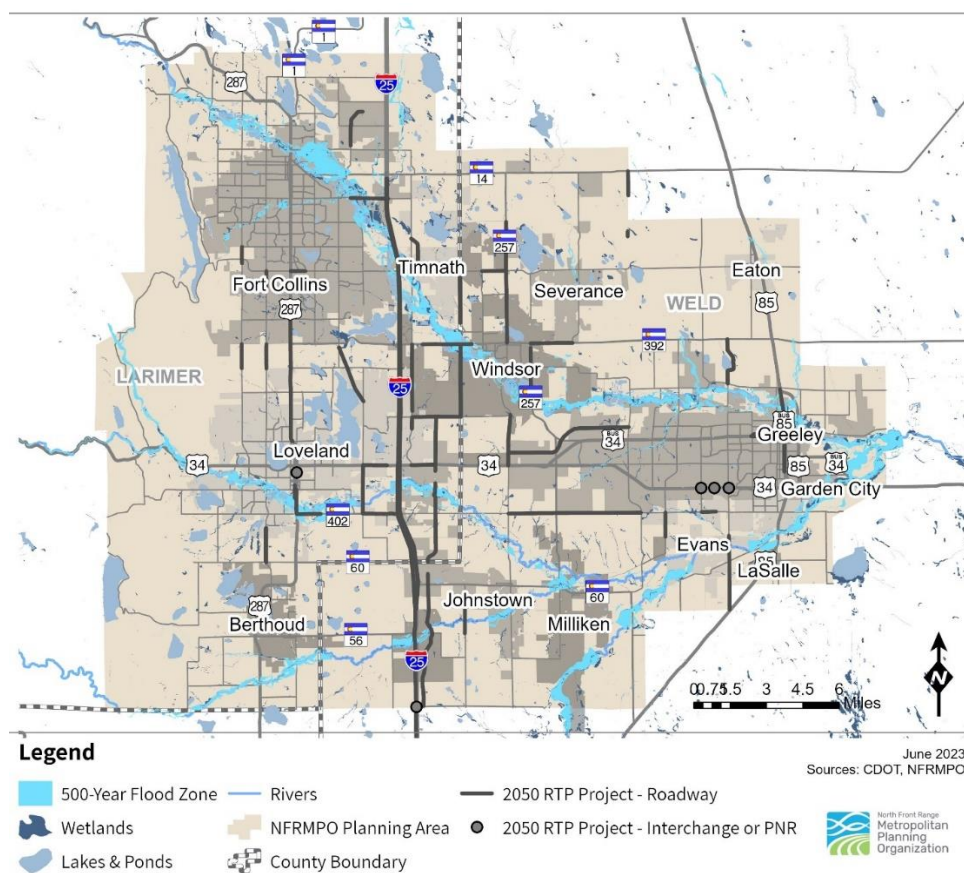
Wetland Mitigation

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.³⁶

As Colorado communities continue to grow, mitigating 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.

Figure 4-13: 2050 RTP Project Locations and Water Features



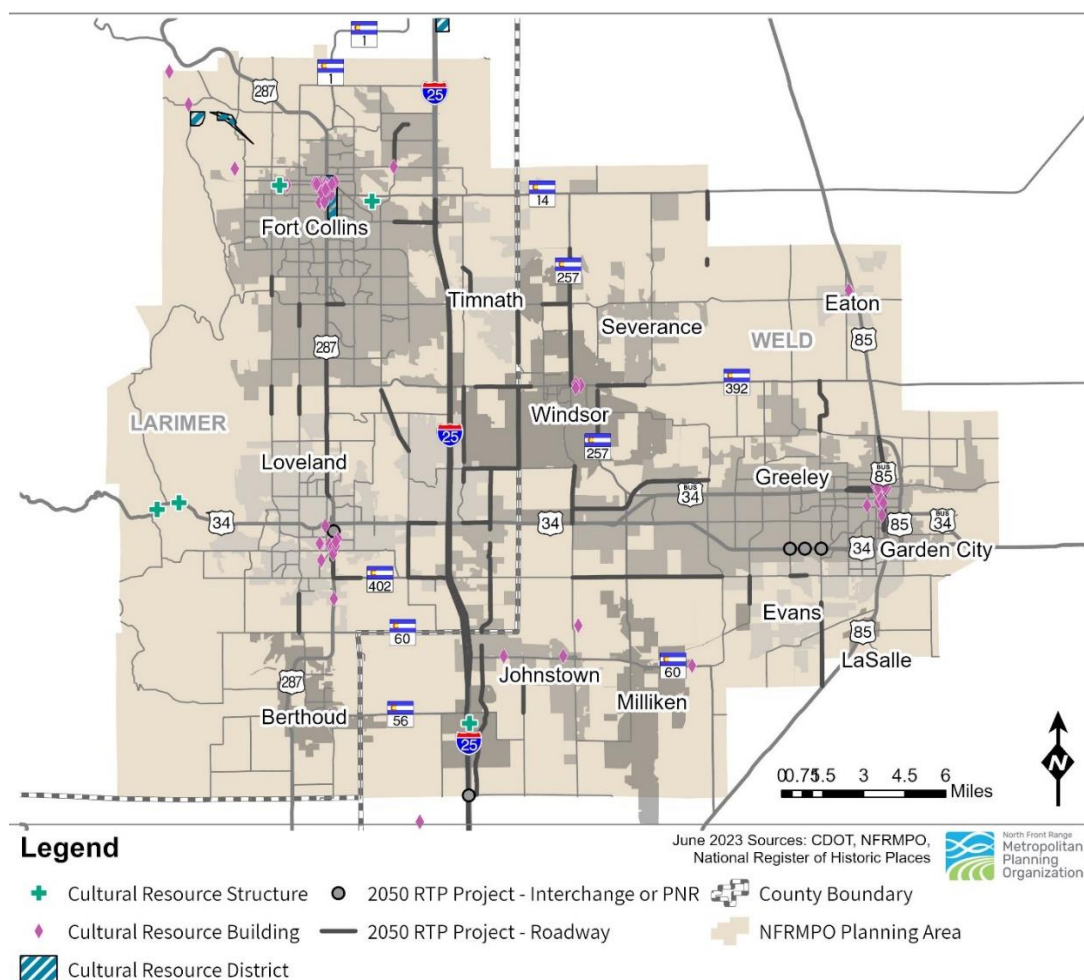
³⁶ CDOT Wetlands, 2023. <https://www.codot.gov/programs/environmental/wetlands>. Accessed 7/5/2023.

Historic 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. **Figure 4-14** displays the sites located within the North Front Range planning boundary.

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

Figure 4-14: 2050 RTP Project Locations and Cultural Resources



2020 Colorado Statewide Preservation Plan

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. Colorado Statewide Preservation Plan lists six overall goals for historic preservation in the State that build off the overarching objective³⁷:

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).

Endangered/Threatened Species Habitats and Biodiversity

The NFRMPO recognizes threatened and endangered bird, mammal, plant, and fish species inhabit Larimer and Weld counties. Animals identified as threatened in the region include Preble's Meadow Jumping Mouse, the Eastern Black Rail, the Mexican Spotted Owl, the Piping Plover, and the Greenback Cutthroat Trout. Endangered species inhabiting the North Front Range include the Gray Wolf, Whooping Crane, and the Pallid Sturgeon.³⁸ Preserving and developing suitable habitat to support key species is central to maintaining the region's valuable biodiversity. While the region does not contain any "critical habitat," defined as habitat essential for the conservation of threatened or endangered species, many threatened and important species live in or migrate through the North Front Range. **Figure 4-15** and **Figure 4-16** show habitats for some of the region's important species as identified by Colorado Parks and Wildlife (CPW).



Prebles Meadow Jumping Mouse

Image credit: USFWS Flickr

³⁷ The Power of Heritage and Place: A 2020 Action Plan to Advance Preservation in Colorado, 2017.

<https://www.historycolorado.org/sites/default/files/media/document/2017/StatePlan.pdf>. Accessed 6/25/2023.

³⁸ <https://ipac.ecosphere.fws.gov/>

Figure 4-15: 2050 RTP Project Locations and Bird Habitat and Nesting Areas

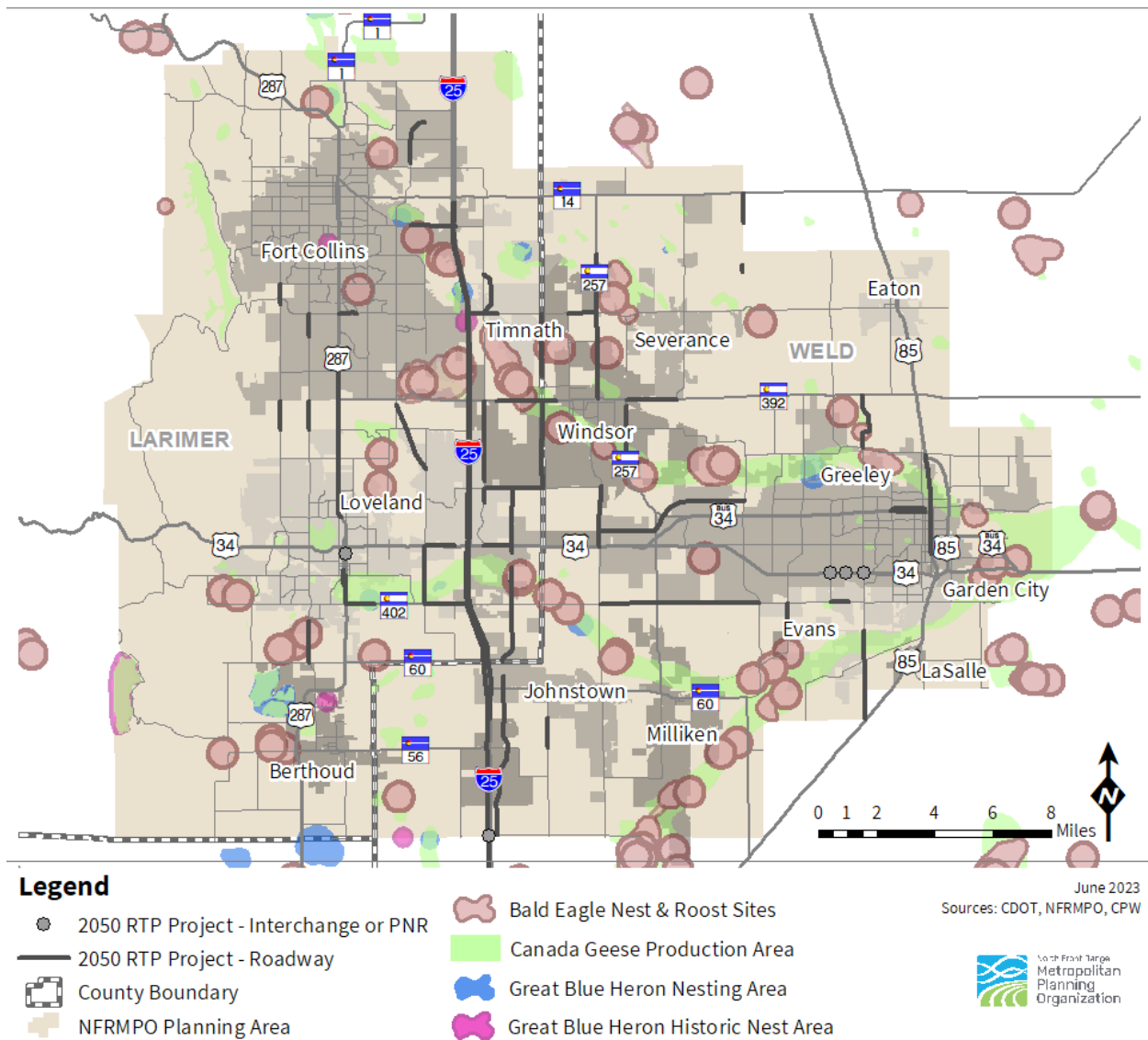
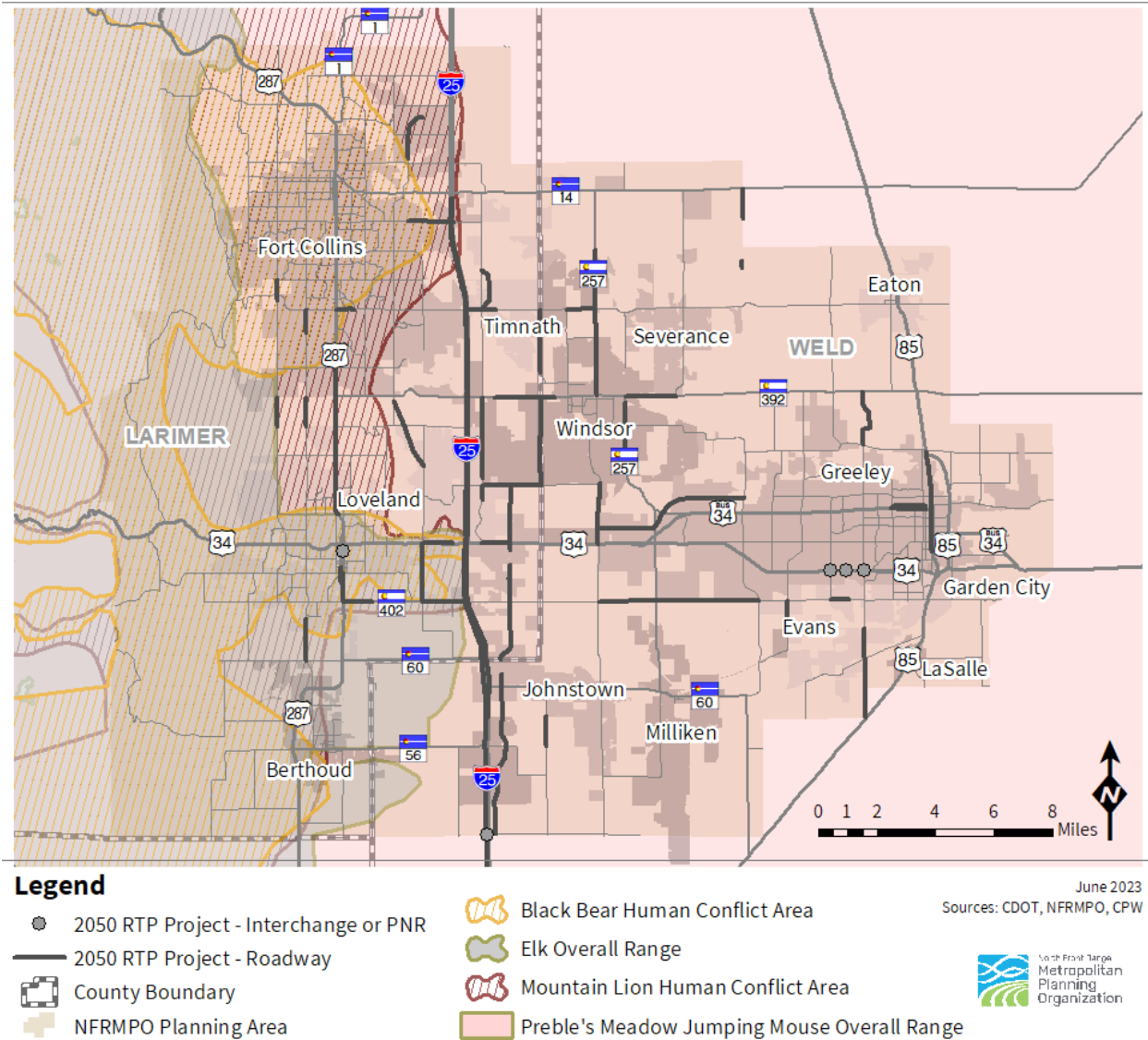


Figure 4-16: 2050 RTP Project Locations and Mammal Habitat Areas

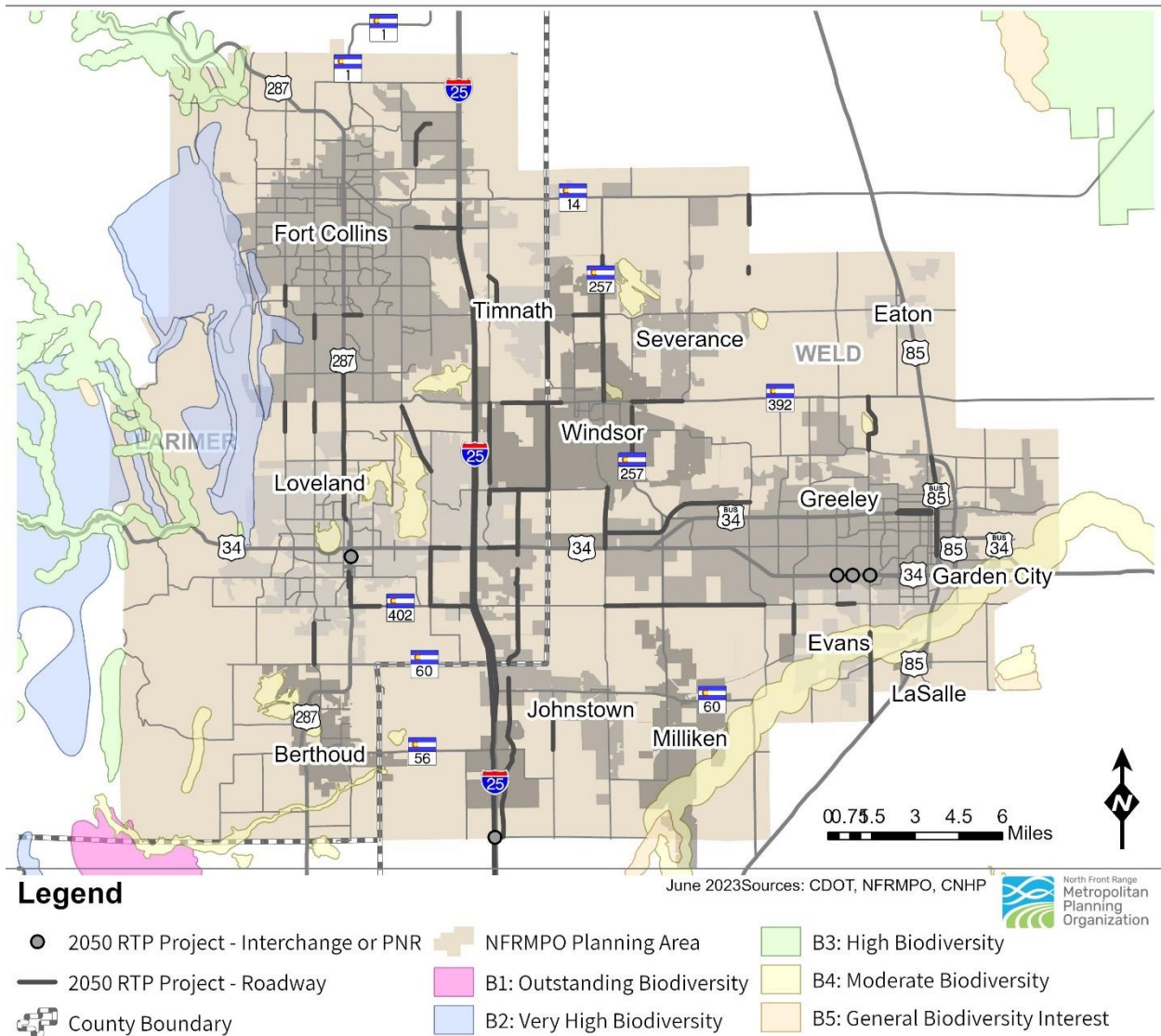


Additionally, the Colorado Natural Heritage Program (CNHP) identifies Potential Conservation Areas (PCA) Statewide. A PCA is an ecologically sensitive area depended upon by species, suites of species, or a natural community for its continued existence.³⁹ **Figure 4-17** identifies these areas within 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 species' 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 moderate biodiversity interest.

The NFRMPO's RSCs 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.

³⁹ http://www.landscape.org/colorado/priorities/cnhp_pca/

Figure 4-17: 2050 RTP Project Locations and Biodiversity Significance Areas



Short-Grass Prairie Initiative

In 2001 CDOT began the Short-Grass Prairie Initiative (SGPI), a partnership amongst the Nature Conservancy, United States Fish and Wildlife Service (USFWS), and other federal agencies, to protect up to 50,000 acres of the short-grass prairie in eastern Colorado. SGPI allows CDOT to offset project impacts by contributing to the creation of similar habitat elsewhere in the State that have been created through the SGPI. CPW is responsible for protecting and preserving the State's fish and wildlife resources through conservation, recreation, and wildlife management activities.⁴⁰

Colorado Senate Bill 13-40 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. Certification is provided by CPW if the construction plans demonstrate appropriate mitigation measures to eliminate or diminish adverse effects to such streams or their banks or tributaries.

⁴⁰ <https://cpw.state.co.us/aboutus/>

Chapter

4

Section 3:

NFRMPO Priority List



NFRMPO Priority Corridors with Candidate Project List

In early 2020, the Colorado Department of Transportation (CDOT) developed a 10-Year Strategic Pipeline of Projects to create a list of the State's top transportation priorities. This Pipeline provides a living list of projects to incorporate into CDOT's Statewide Transportation Improvement Program (STIP) as the four active fiscal years change as well as the [2045 Statewide Plan](#).

The NFRMPO's Regional Transportation Plan (RTP) is a corridor-based plan without specific projects therefore the Planning Council wanted to provide CDOT with the region's priorities for two reasons:

- **To identify which corridor(s) with their associated projects are most important for funding and**
- **To provide a cohesive voice from Planning Council to CDOT on their priority.**

This was especially important to the creation of the initial list as there was a significant amount of federal funding available. The NFRMPO Planning Council first prioritized which corridors they wanted to focus on and came to a consensus on six Regionally Significant Corridors (RSCs):

- I-25
- US34
- US85
- US287
- SH14
- SH392

The NFRMPO's Priority Project List was first developed during a joint Planning Council-TAC Work Session held on January 16, 2020. Attendees reviewed and voted on priorities from a list of 57 regional projects compiled from a variety of sources, including: the [2045 Regional Transportation Plan](#), US85 and US34 PEL studies, the CDOT Region 4 2018 Ballot Project List, and from Technical Advisory Committee (TAC) and Planning Council members. Ultimately, Councilmembers at the workshop identified I-25 as the priority and let CDOT determine the project needs. This list has been updated annually since its creation in 2020.

Currently, the CDOT 10-Year Strategic Pipeline has been fully programmed out through fiscal year 2030, with the NFRMPO receiving a significant amount of funding early on for the I-25 project. This list is for coordination with CDOT and does not affect projects awarded through the NFRMPO Call for Projects or other funding sources. The most current version of the list may be found here: <https://nfrmpo.org/wp-content/uploads/nfrmpo-priorities-list.pdf>.

Chapter

4

Section 4:

Unconstrained Projects



The Fiscally Constrained Plan and Plan Projects Chapters of the 2050 RTP identify funding which is reasonably anticipated to be available over the horizon of the plan, as well as regionally significant projects on RSCs from the NFRMPO local agencies to be completed with the available funding. Additional projects were provided by NFRMPO local agencies which do not have funding identified to be reasonably available within the timeframe of the 2050 RTP. These projects are considered unconstrained and are included in this chapter. Projects on the Unconstrained Plan Projects list may be funded should additional funding become available.

Regionally Significant Corridor (RSC) Projects

Figure 4-18: Fiscally Unconstrained RSC Capacity Projects, 2024-2050

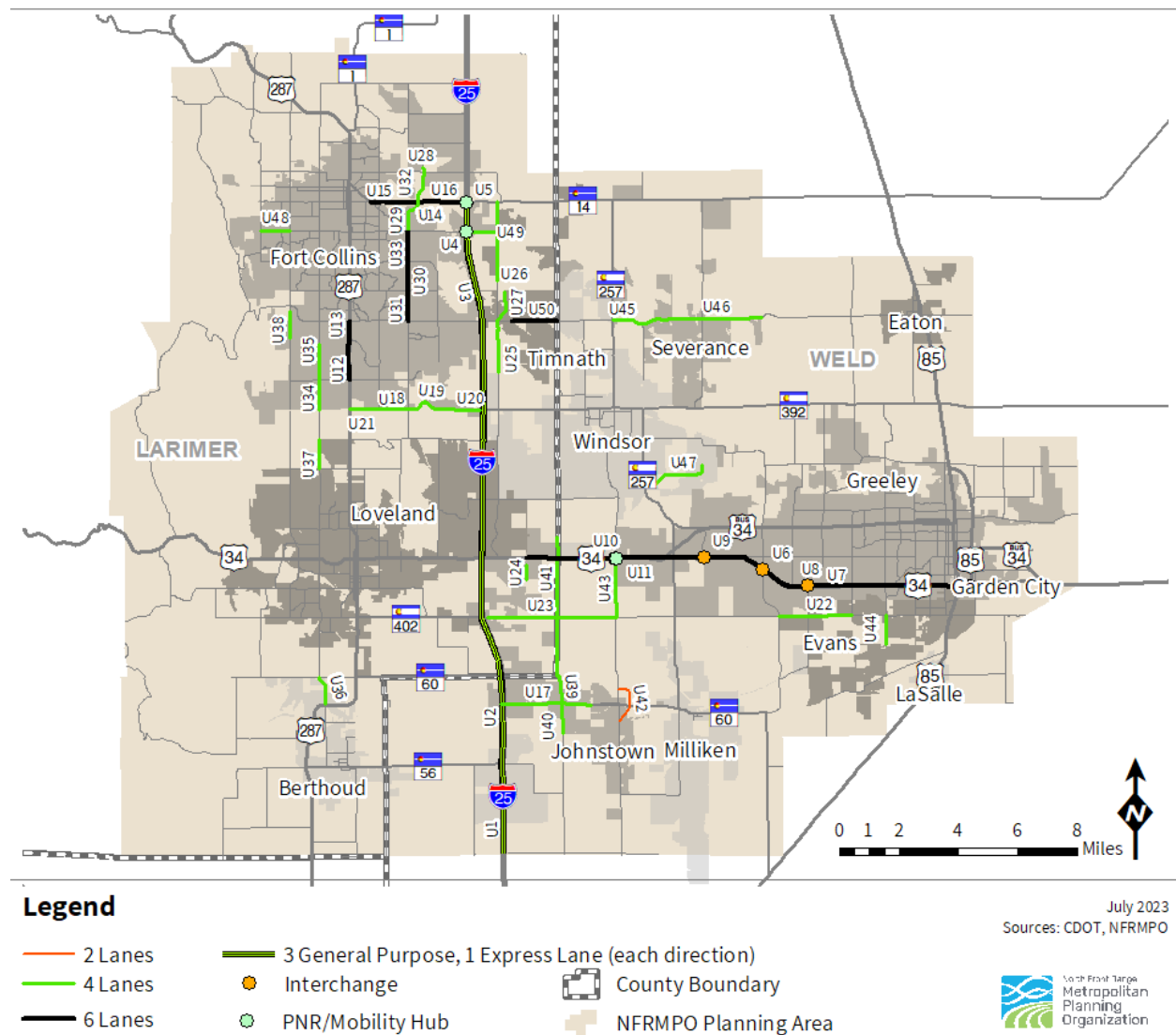


Table 4-17: Fiscally Unconstrained RSC Capacity Projects, 2024-2050

Map ID	Staging Period	RSC	Project Name	Extent	Improvement Type	Cost in 2024+ (\$M, YOY)
U1	2031-2040	1	I-25 GP Widening Segment 5	SH56 to WCR 38	Widen from 2 to 3 general purpose lanes (each direction)	\$77.98
U2	2031-2040	1	I-25 GP Widening Segment 6	SH402 to SH56	Widen from 2 to 3 general purpose lanes (each direction)	\$155.97
U3	2031-2040	1	I-25 GP Widening Segment 7&8	SH14 to SH402	Widen from 2 to 3 general purpose lanes (each direction)	\$148.88
U4	2027-2030	1	Prospect Road and I-25 Park and Ride	N/A	PNR	\$5.94
U5	2041-2050	1	Mulberry and I-25 Park and Ride	N/A	PNR	\$8.61
U6	2027-2030	2	US34 and 83rd Ave Interchange	N/A	New interchange	\$35.66
U7	2031-2040	2	US 34 Widening	LCR 3 (MP 97.8) to MP 113.65	Widen from 4 lanes to 6 lanes	\$436.00
U8	2031-2040	2	US34 and 65th Ave SPUI or interchange	N/A	New interchange	\$114.12
U9	2031-2040	2	US34 and Promontory Parkway SPUI or interchange	N/A	New interchange	\$44.52
U10	2041-2050	2	US34 and WCR17 Interchange	N/A	New interchange	\$58.43
U11	2041-2050	2	US34 and WCR17 Park and Ride	N/A	PNR	\$0.86
U12	2041-2050	6	US 287 / College Widening	Fossil Creek to Trilby	Widen from 4 lanes to 6 lanes	\$21.43
U13	2041-2050	6	US 287 / College Widening	Harmony to Fossil Creek	Widen from 4 lanes to 6 lanes	\$16.56
U14	2041-2050	8	Mulberry Widening	Timberline to Summit View	Widen from 4 lanes to 6 lanes	\$4.13

Map ID	Staging Period	RSC	Project Name	Extent	Improvement Type	Cost in 2024+ (\$M, YOE)
U15	2041-2050	8	Mulberry Widening	Riverside to Timberline	Widen from 4 lanes to 6 lanes	\$33.07
U16	2041-2050	8	Mulberry Widening	Summit View to I-25	Widen from 4 lanes to 6 lanes	\$20.67
U17	2024-2026	10	SH-60 Widening	I-25 to WCR-15	Widen from 2 lanes to 4 lanes	\$22.45
U18	2031-2040	12	Carpenter Widening	Lemay to Timberline	Widen from 2 lanes to 4 lanes	\$7.31
U19	2031-2040	12	Carpenter Widening	Timberline to County Road 9	Widen from 2 lanes to 4 lanes	\$7.31
U20	2041-2050	12	Carpenter Widening	County Road 9 to I-25	Widen from 2 lanes to 4 lanes	\$8.27
U21	2041-2050	12	Carpenter Widening	College to Lemay	Widen from 2 lanes to 4 lanes	\$12.40
U22	2027-2030	13	WCR-54 / 37th St Widening	77th Ave / 83rd Ave/ Two Rivers Parkway to 47th Ave	Widen from 2 lanes to 4 lanes	\$35.84
U23	2031-2040	13	LCR-18 / WCR-54 Widening	I-25 to WCR-17	Widen from 2 lanes to 4 lanes	\$22.43
U24	2027-2030	14	High Plains Parkway Widening	Ronald Reagan to LCR 20C	Widen from 2 lanes to 4 lanes	\$7.71
U25	2027-2030	15	Main St Widening	Harmony Rd to South GMA	Widen from 2 lanes to 4 lanes	\$13.99
U26	2041-2050	15	LCR-5 Widening	SH-14 to Realigned Main Street	Widen from 2 lanes to 4 lanes	\$68.17
U27	2041-2050	15	Timnath Bypass/Parkway New Road	N of LCR 40 to LCR 38	Widen from 2 lanes to 4 lanes	\$18.81
U28	2031-2040	16	Timberline Widening and overpass	N of Vine to S of Vine	Widen from 2 lanes to 4 lanes	\$16.95
U29	2031-2040	16	Timberline Widening	Mulberry to Prospect	Widen from 2 lanes to 4 lanes	\$29.23

Map ID	Staging Period	RSC	Project Name	Extent	Improvement Type	Cost in 2024+ (\$M, YOE)
U30	2031-2040	16	Timberline Widening	Drake to Horsetooth	Widen from 4 lanes to 6 lanes	\$11.88
U31	2031-2040	16	Timberline Widening	Horsetooth to Harmony	Widen from 4 lanes to 6 lanes	\$11.88
U32	2041-2050	16	Timberline Widening	S of Vine to Mulberry	Widen from 2 lanes to 4 lanes	\$31.01
U33	2041-2050	16	Timberline Widening	Prospect to Drake	Widen from 4 lanes to 6 lanes	\$23.77
U34	2031-2040	17	Shields Widening	Trilby to Carpenter / LCR 32	Widen from 2 lanes to 4 lanes	\$7.31
U35	2031-2040	17	Shields Widening	Hilldale to Trilby	Widen from 2 lanes to 4 lanes	\$7.31
U36	2041-2050	17	LCR 17 Widening	LCR 14 to US 287	Widen from 2 lanes to 4 lanes	\$9.74
U37	2041-2050	17	LCR-17 Widening	LCR-30 to LCR-28/57th Street	Widen from 2 lanes to 4 lanes	\$51.13
U38	2031-2040	18	Taft Hill Widening	Brixton to GMA	Widen from 2 lanes to 4 lanes	\$12.92
U39	2031-2040	19	WCR-13 Widening	WCR 50 to SH 60	Widen from 2 lanes to 4 lanes	\$29.92
U40	2031-2040	19	WCR-13 Widening	SH 60 to WCR 46	Widen from 2 lanes to 4 lanes	\$10.76
U41	2031-2040	19	WCR-13 Widening	WCR-60 to WCR-50	Widen from 2 lanes to 4 lanes	\$24.47
U42	2031-2040	20	Downtown Loop Road North	WCR-17 to SH-60	New 2 lane road	\$7.98
U43	2031-2040	20	WCR-17 Widening	WCR-56 to WCR-54	Widen from 2 lanes to 4 lanes	\$13.73
U44	2024-2026	22	35th Ave Widening	37th St / WCR 54 to 49th St	Widen from 2 lanes to 4 lanes	\$8.32
U45	2027-2030	23	WCR-74 Widening	SH-257 to WCR-21	Widen from 2 lanes to 4 lanes	\$13.49
U46	2041-2050	23	WCR-74 Widening	WCR-21 to WCR-27	Widen from 2 lanes to 4 lanes	\$31.07
U47	2027-2030	26	Crossroads Blvd New Road	SH 257 to WCR 23	New 4 lane road	\$21.40
U48	2041-2050	28	Prospect Widening	Overland to Taft Hill	Widen from 2 lanes to 4 lanes	\$13.44

Map ID	Staging Period	RSC	Project Name	Extent	Improvement Type	Cost in 2024+ (\$M, YOE)
U49	2027-2030	28	Prospect Widening	I-25 to Main Street	Widen from 2 lanes to 4 lanes	\$6.57
U50	2031-2040	23	Harmony Widening	RR Tracks to LCR 1	Widen from 4 lanes to 6 lanes	N/A

Regional Transit Corridor (RTC) Projects

All Regional Transit Corridors (RTCs) identified in **Chapter 1** are considered fiscally constrained except for the two potential alignments for the Front Range Passenger Rail (FRPR) corridor. The FRPR District, created with SB21-260, is currently working on identifying a final alignment and an associated service development plan. For the most up to date information about FRPR please visit

<https://www.ridethefrontrange.com/>.

Appendix

A

Public Outreach



Public Involvement Plan

The NFRMPO updated the Public Involvement Plan (PIP) in 2022 to assist in the guidance of public participation in the planning process for the 2050 RTP. The NFRMPO Planning Council adopted the 2022 PIP on December 1, 2022. The 2022 PIP builds on the successes and lessons learned from the 2019 PIP. Strategies from the 2022 PIP were incorporated into the development of the 2050 RTP. Application of these strategies are explained in the following sections.

Major updates to the 2022 PIP impacting the were:

- Lessons learned about public involvement during the COVID-19 pandemic;
- Guidance from the Infrastructure Investment and Jobs Act (IIJA) including an increased focus on social media and virtual engagement opportunities; and
- Updated and new engagement strategies;

The 2022 PIP also includes a process for evaluating the effectiveness of NFRMPO outreach strategies. To ensure effectiveness of engagement strategies, evaluation of public outreach should always be assessed based on the four Guiding Engagement Principles as outlined in the 2022 PIP:



1

Meet people where they are.

2

Provide options for involvement, and be adaptable.

3

Be a good community partner.

4

Consistently evaluate what works and what doesn't.

Outreach Strategy

The NFRMPO developed the [2050 RTP Outreach Strategy](#) in October 2021⁴¹. The Strategy was created to ensure a continuing, comprehensive, and cooperative planning process and was intended to define the purpose of each phase of outreach, including desired outcomes, strategies and benchmarks. The Strategy outlined four phases of the [2050 RTP](#) planning process. Within this document the outreach activities implemented during the four phases are documented.

❖ Phase 1: Goals and Problem Statement

- Set specific transportation-related goals
- Identify the priorities of communities, elected officials, and stakeholders
- Explain the purpose of the [2050 RTP](#) process

❖ Phase 2: Visioning

- Discuss and identify potential projects
- Create vision plans for corridors based on potential projects and existing plans

❖ Phase 3: Scenario Planning

- Create scenarios for the NFRMPO to run through the Regional Travel Demand Model
- Evaluate logic and success of scenarios based on community input

❖ Phase 4: Closing the Feedback Loop

- Follow up with participants with draft [2050 RTP](#)
- Evaluate the final plan to expectations at beginning

Phase 1: Goals and Problem Statement

The desired outcome of Phase 1 is a set of goals to guide the completion of the plan. These goals will be based on the priorities of the general public, stakeholders, and community partners and will influence the Goals, Objectives, Performance Measures, and Targets section of the [2050 RTP](#).

Timeline

Anticipated: October 2021-December 2021

Executed: October 2021-April 2022

Strategies Implemented

- **Website** – NFRMPO Staff created a project website for the [2050 RTP](#). The website was published on the front page of the NFRMPO website, and in the NFRMPO *On the Move* quarterly newsletter.
- **Video** – NFRMPO staff created an introductory video to the 2050 RTP which was posted to the



[Vision Statement](#) / [RTP Context](#) / [Timeline](#) / [Get Involved](#) / [Resources](#)

Vision Statement (under review): The multimodal transportation system in Northern Colorado will be safe, socially and environmentally sensitive, and supportive of the region's quality of life and economic vitality.

What is the RTP?
The **Regional Transportation Plan**

What is considered in the RTP?
The RTP considers the entire

What is in the RTP?
The RTP will address the following

⁴¹ The [2050 RTP Outreach Strategy](#) was developed prior to the adoption of the [2022 PIP](#) and therefore references the [2019 PIP](#).

NFRMPO YouTube channel and to the 2050 RTP Website: <https://youtu.be/dPTzYdjn1Cg>

- **Partner Presentations** – NFRMPO began partner presentation in 2021 following the Kickoff of the RTP and through April 2022. The partner presentations covered the information included in the introductory video, introducing the plan purpose, structure, component plans, and timeline. Presentations during this phase were given to the following groups:
 - Loveland Transportation Advisory Board
 - Greeley Citizen Transportation Advisory Board
 - Fort Collins Bicycle Advisory Committee
 - Fort Collins Transportation Board
 - NFRMPO Technical Advisory Committee (TAC)
 - NFRMPO Community Advisory Committee (CAC)
 - NoCo Bike and Ped Collaborative

Phase 2: Visioning

The desired outcome of Phase 2 is to envision the future of the region based on the goals identified in Phase 1 and the projects submitted by the NFRMPO member communities. The Vision Plans will inform scenarios in Phase 3.

Timeline

Anticipated: April 2022-July 2022

Executed: November 2022-April 2023

Strategies Implemented

- **TAC Discussion** – Discussions were held with the TAC and Planning Council to determine and finalize the NFRMPO regional corridors.
- **Community Conversations** –
 - NFRMPO staff convened the model steering team made up of local land use, transit, and transportation planners to facilitate conversations around the Land Use Allocation Model (LUAM) and Regional Travel Demand Model (RTDM)
 - NFRMPO Staff discussed the regional corridor development process with the CAC.
- **Virtual Outreach**
 - NFRMPO Staff maintained the 2050 RTP Website.
 - An ArcGIS Story Map Collection was created to host online interactive content including Story Maps, Visioning Activities, and a survey.
 - A social media campaign was created to promote the Corridor Visioning Activities and the Popup events throughout the region.
 - The Corridor Visioning Activities were promoted through a specific RTP Corridor Visioning Newsletter and through the *On the Move* newsletter.
 - NFRMPO staff prepared media kits for community engagement offices and public information officers at NFRMPO local agencies and local Chambers of Commerce to promote the 2050 RTP development process and the Corridor Visioning Activities.

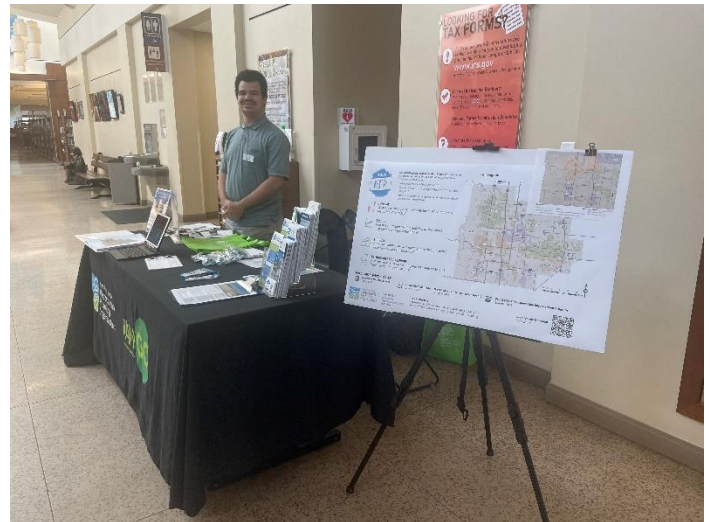
- **Partner Presentations** – Staff gave presentation to partner agencies and groups January and April 2023 to the following partners:

- Greeley Citizens Transportation Advisory Board
- I-25 Coalition
- US34 Coalition
- US85 Coalition
- Fort Collins Transportation Board
- Fort Collins Bicycle Advisory Board
- Larimer County Workforce Development Board
- LCBE Community Champions
- Northern Colorado Mobility Committee
- NoCo Bike and Ped Collaborative
- Northern Colorado Elected Officials



- **Pop-up Events** – NFRMPO Staff hosted popup events across the region at the following locations to discuss the Corridor Visioning Activities. During these popup events Staff talked to over 265 community members, collecting input on what their priorities and concerns are for the NFRMPO regional corridors.

- Lincoln Park Library – Greeley
- Transportation Projects Fair – Fort Collins
- Riverside Library – Evans
- Harmony Library – Fort Collins
- Clearview Library Trivia – Windsor
- Loveland Public Library
- Johnstown Public Library
- Eaton Public Library
- Milliken Library
- Clearview Library
- Old Town Library – Fort Collins
- Berthoud Library
- Council Tree Library – Fort Collins
- CSU Earth Day



Phase 3: Scenario Planning

The desired outcome of Phase 3 is to create and run scenarios based on the regional goals identified in Phase 1 and the vision plans created through Phase 2. These scenarios will be run through the NFRMPO's Regional Travel Demand Model (RTDM) and Land Use Allocation Model (LUAM).

Timeline:

Anticipated: October 2022-January 2023

Executed: May 2023-July 2023

Strategies Implemented

- **TAC Discussion / Model Steering Team** – NFRMPO staff discussed scenario inputs with the TAC, Model Steering Team, NoCo Bike and Ped Collaborative, Community Advisory Committee, and Planning Council.
- **Community Conversations** – NFRMPO Staff presented at the CDOT 4P Meetings in both Larimer and Weld Counties and the Larimer County Regional Elected Meeting.

Phase 4: Closing the Feedback Loop

The desired outcome of Phase 4 is to close the feedback loop and report back to participants from Phases 1, 2, and 3 what NFRMPO staff heard and are presenting to the Planning Council.

Timeline

Anticipated: June 2023-September 2023

Executed: June 2023 – Present

Strategies Implemented

- **Pop-up Events** – Staff attended the following community events beginning in April 2023. At the 13 events attended between April and August 15 staff talked to approximately 1,935 community members about the NFRMPO, RTP, and regional transportation planning.
 - Timnath Safety Fair
 - Berthoud Day
 - Johnstown BBQ Day
 - Fort Collins Open Streets
 - Greeley Stampede
 - Bike to Work Day (Fort Collins, Greeley, Windsor, Evans, and Loveland)
 - Eaton Days
 - LaSalle Day
 - Milliken Beef n' Bean Day
 - The following events will be held between August 15 and October 1. NFRMPO staff will discuss the Draft and Final RTP during these events:
 - Severance Days
 - Loveland Corn Roast Festival
 - Windsor Harvest Festival



- Evans Heritage Day
- Fort Collins Open Streets
- **Public Comment Period** – The public comment period for the [2050 RTP](#) was open from July 10 through August 9, 2023. A draft version of the plan was accessible through the NFRMPO website, the 2050 RTP website, and the ArcGIS Online Story Map Collection page. During the public comment period, the NFRMPO received comments from six community members and seven local and partner agencies. Comments received during the process are summarized in the following section and were incorporated into the draft plan as practicable.
- **TAC and Planning Council Discussion** – Public comment opportunities were available during TAC and Planning Council meetings. TAC and Planning Council were presented the Draft [2050 RTP](#), comments and recommendations received during these discussions were incorporated into the final plan.
- **Social Media** – The Draft 2050 RTP and public comment period were promoted through the NFRMPO social media channels including Facebook, Instagram, LinkedIn, and Twitter. Additionally, the notice of public comment was sent to the following mailing lists:
 - *On the Move* newsletter
 - RTP Updates
 - TAC
 - Planning Council
 - NoCo Bike and Ped
 - Chambers of Commerce
 - Community Advisory Committee
 - Mobility Committees

Next Steps

NFRMPO staff will continue to create content related to the finalized 2050 RTP including the following:

- **Final Plan** – The final 2050 RTP will be posted on the NFRMPO website, 2050 RTP website, promoted through the *On the Move* newsletter and social media channels.
- **RTP Brochure, Fact Sheets, Executive Summary, and/or ArcGIS Story Maps** – As outlined in the 2022 PIP, NFRMPO staff will create educational content related to the 2050 RTP to be available to the public. This content will be intended to highlight the main takeaways of the plan in an easy to consume format. Materials will also be created for Spanish language translation. This content will be promoted through the same channels as other RTP content.
- **Outreach Evaluation** – NFRMPO staff will continue to evaluate the effectiveness of the 2050 RTP outreach strategy with community partners and the NFRMPO Community Advisory Committee (CAC).

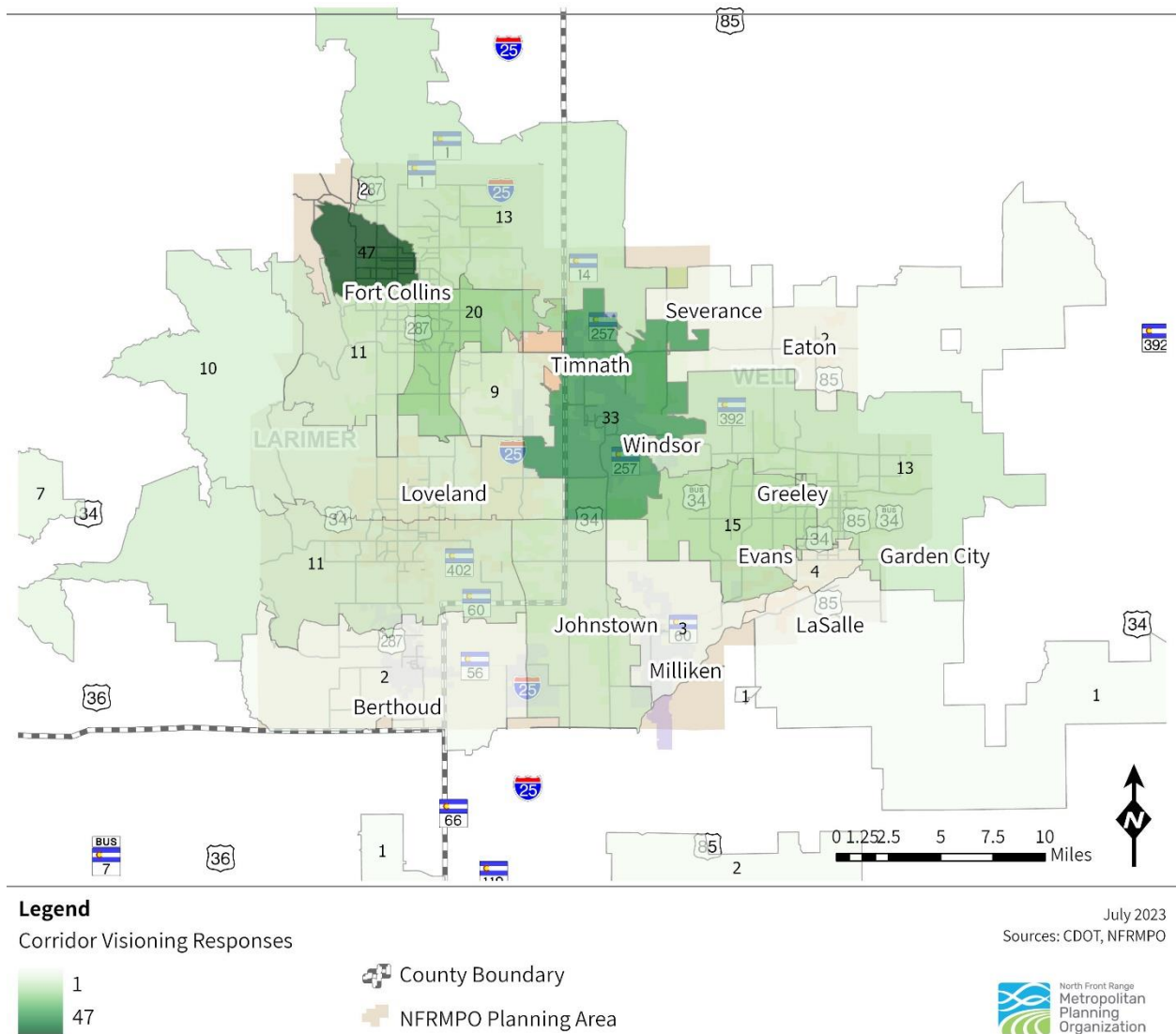
What We Heard

Corridor Visioning

Throughout the Spring, the NFRMPO launched the Corridor Visioning Activities as part of the [2050 Regional Transportation Plan](#). Through a set of three online interactive mapping activities, people who live, work, or travel through the North Front Range region were able to vote on corridors and comment

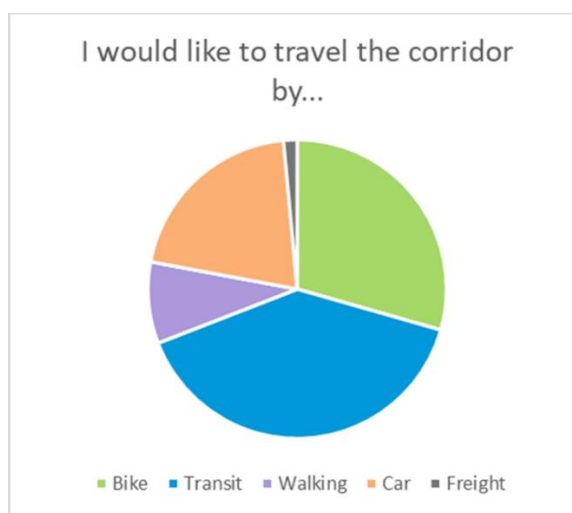
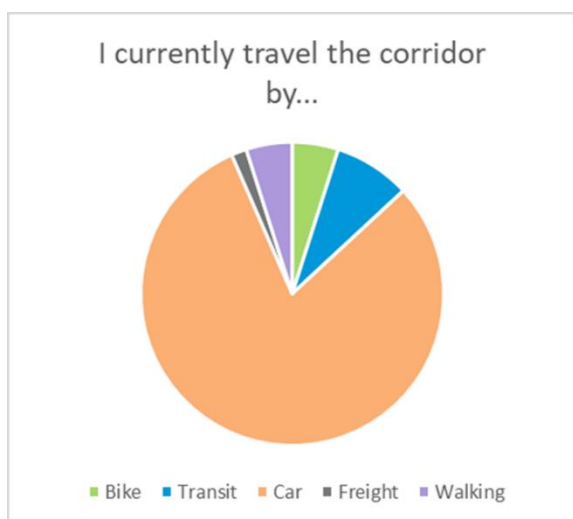
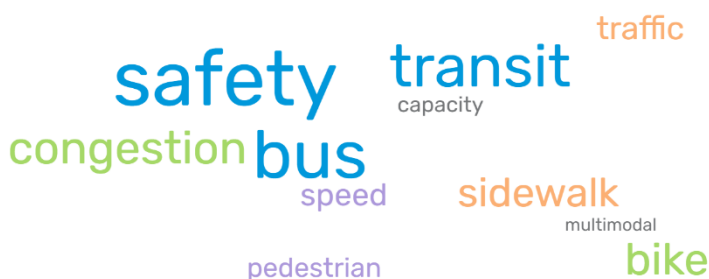
on their vision for the Future of Transportation in the region. In addition to the online activities, NFRMPO staff talked to people at libraries across the region. NFRMPO staff also presented to a variety of groups including Transportation Boards, Highway Coalitions, and mobility committees. Overall, there were over 200 responses received through in person and online comments (note: responses do not indicate individual responders, one responder may have submitted multiple responses).

Survey responders were asked to provide their ZIP code so we would know where people were responding from. We received responses from 20 zip codes across Northern Colorado.



The top themes we heard in response to our Regionally Significant Corridors were safety, transit, congestion, sidewalk, traffic, bike, speed, pedestrian, capacity, and multimodal. The top themes we heard about our transit corridors were increased frequency, evening and weekend service, local connections, and bike parking and transport. For the active transportation corridors, the most significant themes were connectivity, safe crossings, and separated multi-use paths.

We asked responders to let us know what mode of transportation they currently travel each corridor by and how they would like to travel the corridor. 80 percent of responses said they currently travel the corridor by car, but traveling by car dropped to only 20.5 percent when asked how you would like to travel the corridor. Most responders (almost 40 percent) stated they would like to travel around the region by transit, either by bus or another form of transit, followed by bike at almost 30 percent.



We asked respondents to prioritize each of our corridor types and the following rose to the top:

Regionally Significant Corridor: I-25



Regional Transit Corridors: Bustang



Active Transportation Corridor: Poudre River Trail



The NFRMPO has incorporated the comments and themes into the Corridor Vision section the [2050 RTP](#). To view all the comments made during the Corridor Visioning activity check out the [RTP Collection page](#).

Draft 2050 RTP Public Comment Period

During the 30-day public comment period for the [2050 RTP](#), the NFRMPO received 13 comments from community members, local agency staff, and partner agencies. The public comments received are summarized and grouped by theme.

Capacity Expansion and Multimodal Transportation Options

Community members commented that projects submitted for incorporation in the [2050 RTP](#) were heavily focused on expanding or widening roadways and highways. Concerns were expressed that the projects may result in induced demand within the region and there should be a greater focus on maintaining the existing roadway system in addition to expanding transportation options within the region. Concerns were expressed that there is not enough focus on expanding transit options within the region and to connect the North Front Range to the Denver region.

Community members commended the [2050 RTP](#) for the expansion of active transportation options with the build out of the Regional Active Transportation Corridors (RATCs).

Public comments noted a significant amount of flexible funding outlined in the Fiscally Constrained Plan is allocated to capacity expansion projects and that the community would like to see more of the flexible funding allocated to active transportation and transit projects.

Air Quality

Comments received from community partners articulated concern about the relationship between the 2050 RTP and the Colorado GHG Transportation planning standard, noting the goal of the GHG Planning Standard is to reduce greenhouse gas emissions for the transportation system and expressed concern that the Planning Standard may not be achieving the intended result.

Comments received noted the desire for additional funding to be allocated to GHG Reduction strategies to further the strategies outlined in the NFRMPO GHG Transportation Report.

Safety

Public comments included concern about the safety targets included within the Plan and the desire for safety targets to be more closely tied to the NFRMPO Safety Vision. Comments received noted there may be better ways to report fatal and serious injury rates other than by vehicle miles traveled (VMT). Suggestions were made to calculate the rate by population (per capita). Comments were made requesting the NFRMPO set more ambitious targets to pursue zero fatal and serious injuries.

Comments were received expressing a desire for the NFRMPO to pursue a Vision Zero Action plan through the Safe Streets and Roads for All (SS4A) grant which would allow more NFRMPO member agencies to apply for future construction funding.

Performance Measures

Public comments noted the desire for more ambitious targets to be set for non-single occupant vehicle travel, daily VMT per capita, and safety. Concern was expressed about the regional performance measure related to increased active transportation facilities, indicating the target may be unreasonable for local agencies and there may be a better way to capture the intent of the performance measure. Comments were received regarding congestion and noted a desire to see travel time reliability and delay reduction performance measure acknowledge induced demand.

Local Agency Input

Local agency staff revised RTP sections with an eye toward local perspective, including how the RTP reflects local plans and programs.

Lessons Learned

Through the 2050 RTP development process, outreach, and public comment, NFRMPO staff documented lessons learned and adaptations for future iterations of the Regional Transportation Plan.

Outreach Strategy

The 2050 RTP Outreach Strategy was developed prior to the adoption of the 2022 PIP and therefore does not fully reflect the strategies outlined within the PIP. Future RTP outreach strategies should implement the strategies outlined in the 2022 PIP. Additionally, future iterations of the PIP should implement lessons learned within the 2050 RTP process.

The 2050 RTP Outreach Strategy outlined opportunities and strategies which were not fully implemented during the 2050 RTP development process including the development of a RTP specific

newsletter and creation of fact sheets for each discrete phase of the RTP. An effort should be made to implement these strategies for future planning processes.

Intended Audiences

The NFRMPO will continue to expand outreach to better include all target audiences, with a focus on environmental justice populations, Chambers of Commerce, area agencies on aging (AAAs), safety groups, environmental agencies, Limited English Populations (LEPs), and youth. The NFRMPO staff should continue to work with partner agencies included in the NFRMPO 2021 Environmental Justice Plan's Community Resources Inventory.

The NFRMPO should endeavor to expand community conversations and popup events to more diverse audiences.

Public Comment Implementation

Though much of the public comment received about the 2050 RTP was incorporated into the final document, some comments relating to the process may not be implemented in the 2050 RTP due to timing and process constraints. These such comments will be preserved for future RTP iterations in addition to other NFRMPO plans and programs which will be developed in the upcoming planning cycle.

Materials

The following pages are examples of outreach materials used throughout the 2050 RTP development process:

- 2050 RTP Branding
- 2050 RTP Introduction Presentation
- Corridor Visioning Social Media Examples
- Corridor Visioning Activity Screenshots
- StoryMap Collection Screenshot
- 2050 RTP Get Involved! Survey example



RTP Example Presentation



Introduction

- Updated every four years (September 2019)
- Consider all travel modes: transit, freight, bike/ped, roadway, emerging technology, etc.
- Must have a 20+ year planning horizon
- Projects must be fiscally constrained
- Must meet air quality conformity requirements

2050 RTP



What's new

2050 RTP

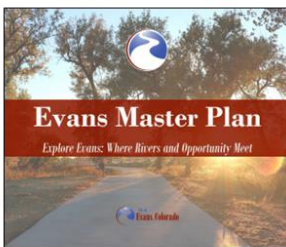
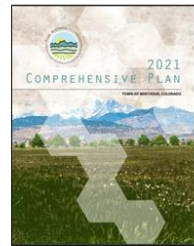
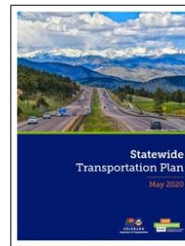
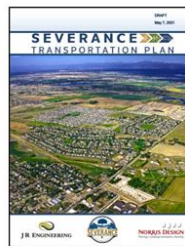
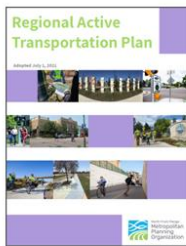
- Greenhouse gas budgets
- Focus on the “**so what**” of the data and **emerging trends**
- Reduce duplicate information
- RTP-focused **Outreach Strategy**



3

Existing Plans

2050 RTP



Others?

4

1. Planning Context

What does our region/agency look like today?

2. Trends

Socioeconomic, transportation, emerging trends and technology, and security/safety

3. Visioning and Scenario Planning

What does the region look like as it grows and develops?

4. Funding and Financing

What projects should the region fund and with what money?

5. Appendices

5

Outreach**2050 RTP**

2021	2022				2023		
Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Phase 1a (Goals, Problem Identification)		Phase 2 (Goal ranking, Corridor Visions)		Phase 3 (Scenarios and Projects)		Phase 4 (Education)	

6

Home / RTP / 2050 RTP



Vision Statement / RTP Context / Timeline / Get Involved / Resources

Vision Statement (under review): The multimodal transportation system in Northern Colorado will be safe, socially and environmentally sensitive, and supportive of the region's quality of life and economic vitality.

What is the RTP?

The **Regional Transportation Plan (RTP)** is the long-range transportation plan for the Northern Colorado region. We update the plan every four years to use current information to evaluate our current system, identify the needs to address congestion, accessibility, and overall mobility, and ensure a fiscally constrained plan to address the need.

Our most recent RTP was adopted in September 2018. The plan can be downloaded from our RTP page.

What is considered in the RTP?

The RTP considers the entire transportation system: roadways, bicycle and pedestrian infrastructure, transit, freight, and emerging technology. As part of the process, we look at what exists today, what local communities have planned over the next two decades, what funding is available, and what projects have a regional significance.

The other major thing we consider is how this plan impacts the region's air quality - we need to continue to National Ambient Air Quality Standards (NAAQS) and consider greenhouse gas (GHG) emissions.

What is in the RTP?

The RTP will address the following topics:

- **Planning Context** - what does our transportation system and infrastructure look like today?
- **Trends** - what does our region look like today and what do we expect it to look like by 2050?
- **Scenarios and Visioning** - what could our regional corridors look like based on local, regional, and statewide plans and modeling?
- **Funding and Financing** - how do we pay for the improvements needed?

- Website: nfrmpo.org/rtp/2050-rtp
- Social Media
- Videos and Presentations
- Surveys
- Community Events
- Building on local efforts and plans

Alex Gordon, PTP
 Transportation Planner III
agordon@nfrmpo.org
 (970) 289-8279

Corridor Visioning Social Media Examples



NFRMPO 2050 RTP

"I WOULD LIKE TO SEE
GREATER BICYCLE SAFETY ON
35TH AVE"

- GREELEY RESIDENT COMMENT ON
GREELEY / LASALLE ACTIVE
TRANSPORTATION CORRIDOR



North Front Range
Metropolitan
Planning
Organization



IMAGE CREDIT: GREELEY PUBLIC WORKS

CORRIDOR VISIONING

Corridor Visioning Activity Screenshots

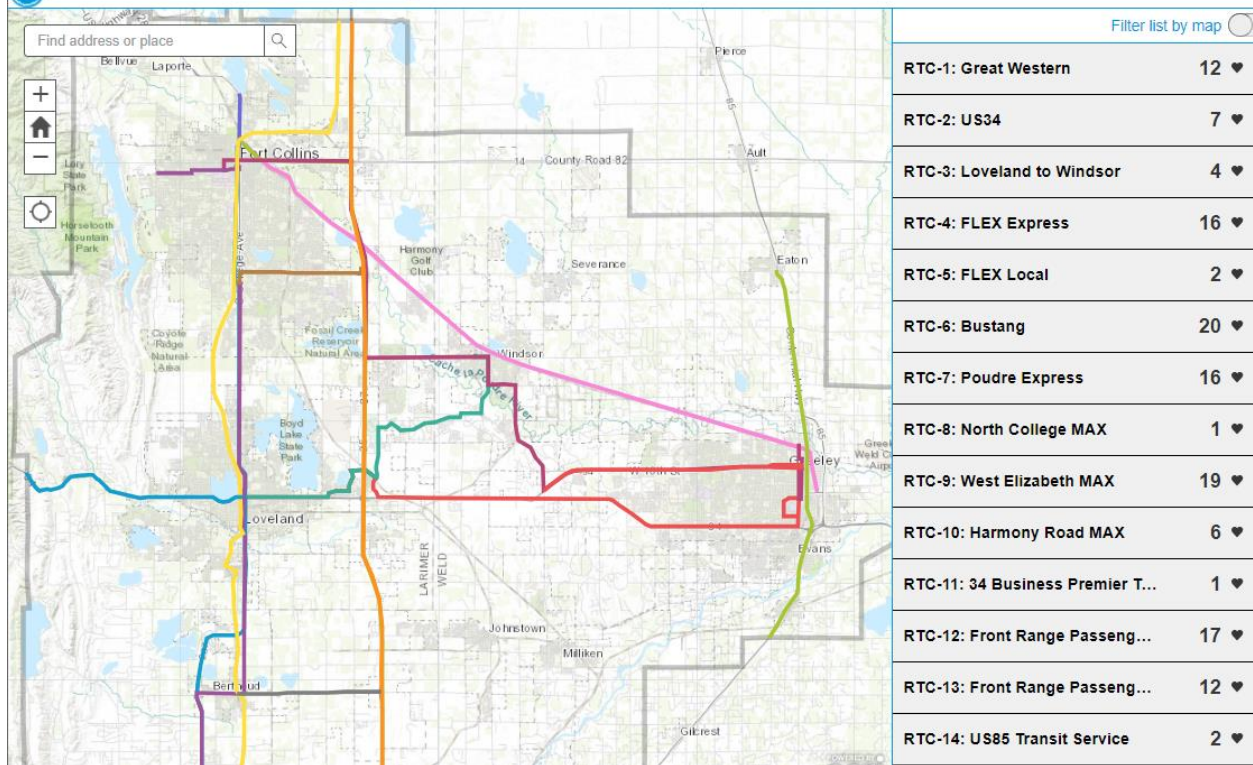
2050 RTP Corridor Visioning: Regionally Significant Corridors

Find address or place

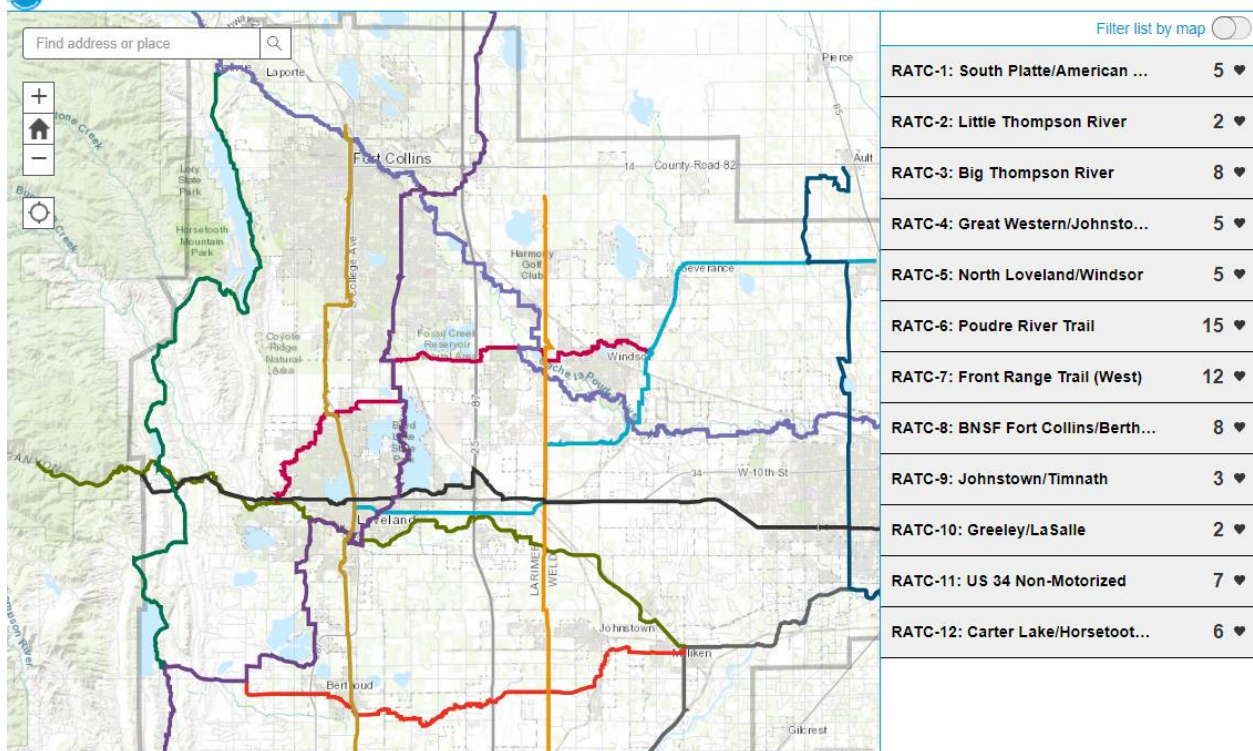
Filter list by map

RSC-01: I-25	18 ♥
RSC-02: US34	8 ♥
RSC-03: US34 Business	3 ♥
RSC-04: US85	2 ♥
RSC-05: US85 Business	1 ♥
RSC-06: US287	12 ♥
RSC-07: SH1	0 ♥
RSC-08: SH14	7 ♥
RSC-09: SH56	1 ♥
RSC-10: SH60	3 ♥
RSC-11: SH257	4 ♥
RSC-12: SH392	7 ♥
RSC-13: SH402/Freedom Park...	4 ♥
RSC-14: LCR3/WCR9.5	0 ♥

2050 RTP Corridor Visioning: Regional Transit Corridors



2050 RTP Corridor Visioning: Regional Active Transportation Corridors





Collection

2050 Regional Transportation Plan

Learn more about the NFRMPO and the 2050 RTP.

NFRMPO, 2023

Get started

Learn about our long-range transportation and get involved!

- **2050 RTP for Public Review** - Provide comments on the plan through August 9, 2023.
- **2050 RTP Context** - learn about the plan and what we're working on.
- **2050 Corridor Visioning Activities** - see what people have said about our regional corridors.
- **Constituent Plans** - learn about some other plans that feed into the overall RTP, like the Congestion Management Process (CMP) and the Transportation Improvement Program (TIP).
- **Get Involved** - send your feedback via a survey about our regional transportation system.

Regional Transportation Plan



Draft 2050 RTP for Public Review



2050 RTP Get Involved! Survey Example



The Future of Transportation in the North Front Range

The North Front Range MPO is taking a deep dive into how our transportation network operates today and what we need to do in the future. Provide your input on the vision for our transportation system.

Corridor Name and/or Number:

I currently travel this corridor by... ☐ Bike ☐ Bus ☐ Car ☐ Commercial Vehicle ☐ Walking

I would like to travel this corridor by... ☐ Bike ☐ Bus ☐ Car ☐ Commercial Vehicle ☐ Walking

I predominantly use this corridor for... ☐ Commuting (School/Work) ☐ Medical ☐ Recreation/Exercise ☐ Social ☐ Other

My vision for this corridor includes...

My primary concerns for the corridor are...



The Future of Transportation in the North Front Range

The North Front Range MPO is taking a deep dive into how our transportation network operates today and what we need to do in the future. Provide your input on the vision for our transportation system.

Additional Comments

ZIP Code (Required)

Name (optional)

Email Address (optional)

I would like to stay up to date on the 2050 RTP! ☐ Yes ☐ No



For more information visit nfrmpo.org/2050-rtp

Appendix

B

Conformity Report



Denver Metro/North Front Range (Northern Subarea) 8-Hour Ozone Nonattainment Area and Fort Collins Carbon Monoxide (CO) Maintenance Area Conformity Determination

for the
North Front Range Metropolitan Planning Area
2050 Regional Transportation Plan Update
and for the
FY2024-2027 Transportation Improvement Program
and for the
Northern Subarea of the Upper Front Range Transportation Planning
Region 2045 Regional Transportation Plan
and for the
Northern Subarea of the Upper Front Range Transportation Planning Region
portion of the
Colorado FY2024-2027 Statewide Transportation Improvement Program

The North Front Range Metropolitan Planning Organization
419 Canyon Avenue, Suite 300 Fort Collins, CO 80521

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September 7, 2023



TABLE OF CONTENTS

TABLE OF CONTENTS	1
LIST OF ACRONYMS	3
CHAPTER 1: INTRODUCTION	4
Purpose	4
Background	4
Nonattainment Areas and Emissions Budgets	4
<i>Carbon Monoxide Maintenance Areas</i>	5
<i>Ozone Nonattainment Area</i>	7
Planning Organizations and Memorandum of Agreements (MOAs)	9
Conformity Determination Process	9
Public Participation	10
CHAPTER 2: IMPLEMENTATION OF CONTROL MEASURES	11
CHAPTER 3: EMISSIONS TESTS	12
Background	12
CO Emissions Test	12
8-Hour Ozone Emissions Tests	12
<i>Budgets Analysis Years</i>	12
<i>Technical Process</i>	13
<i>Demographic Assumptions</i>	13
<i>Transportation Assumptions</i>	13
<i>Air Quality Modeling Assumptions</i>	13
<i>Emission Test Results – Northern Subarea</i>	14
<i>Summary of 8-hour Ozone Conformity Findings</i>	14
APPENDIX A: MEMORANDUM OF AGREEMENT – TRANSPORTATION CONFORMITY EVALUATIONS CONDUCTED UNDER THE 8-HOUR OZONE STANDARD (2008)	15
APPENDIX B: MEMORANDUM OF AGREEMENT – TRANSPORTATION CONFORMITY EVALUATIONS (2022)	24
APPENDIX C: NFRMPO 2019 BASE YEAR REGIONAL TRAVEL DEMAND MODEL DESCRIPTION	30
APPENDIX D: 8-HOUR OZONE NORTHERN SUBAREA MODELING SUMMARY	36
APPENDIX E: NORTHERN SUBAREA REGIONAL TRAVEL DEMAND MODEL PROJECTS	38
APPENDIX F: RESOLUTION 2023-15 NORTH FRONT RANGE TRANSPORTATION & AIR QUALITY PLANNING COUNCIL (NFRT&AQPC) ADOPTION	45
APPENDIX G: APCD CONFORMITY CONCURRENCE	47
APPENDIX H: U.S. DEPARTMENT OF TRANSPORTATION CONFORMITY FINDING	49

LIST OF TABLES

Table 1: 8-Hour Ozone Conformity for Denver Metro/North Front Range Northern Subarea	13
Table 2: 8-Hour Ozone Conformity for Denver Metro-North Front Range Northern Subarea (Emission Tons per Day)	14
Table 3: 8-Hour Ozone Northern Subarea Modeling Summary	37
Table 4: Fiscally Constrained Roadway Capacity Projects	40
Table 5: Fiscally Constrained Transit Capacity Projects	43

LIST OF FIGURES

Figure 1: Fort Collins and Greeley CO Maintenance Area Boundaries.....	6
Figure 2: Denver Metro/North Front Range 8-Hour Ozone Nonattainment Area and Subareas.....	7
Figure 3: Northern Subareas	10
Figure 4: TAZ Structure	32
Figure 5: Fiscally Constrained Roadway and Transit Capacity Projects.....	39

LIST OF ACRONYMS

APCD – Air Pollution Control Division	MTRK – Medium-heavy Truck
AQCC – Air Quality Control Commission	MVEB – Motor Vehicle Emissions Budget
BRT – Bus Rapid Transit	NAAQS – National Ambient Air Quality Standards
BY – Base Year	NFRMPO – North Front Range Metropolitan Planning Organization
CAA – Clean Air Act	NFRT&AQPC – North Front Range Transportation and Air Quality Planning Council
CDOT – Colorado Department of Transportation	NOx – Nitrogen Oxides
CDPHE – Colorado Department of Public Health and Environment	OBO – Other-Based Other
CFR – Code of Federal Regulation	PIP – Public Involvement Plan
CO – Carbon Monoxide	PPM – Parts per Million
COLT – City of Loveland Transit	RAQC – Regional Air Quality Council
CSU – Colorado State University	RMSE – Root Mean Square Error
DRCOG – Denver Regional Council of Governments	RSC – Regionally Significant Corridor
EE – External-External	RTC – Regional Transit Corridor
EI – External-Internal	RTDM – Regional Travel Demand Model
EPA – Environmental Protection Agency	RTP – Regional Transportation Plan
FHWA – Federal Highway Administration	RVP – Reid Vapor Pressure
FTA – Federal Transit Administration	SDO – Colorado State Demography Office
GET – Greeley Evans Transit	SIP – State Implementation Plan
HBO – Home-Based Other	STIP – Statewide Transportation Improvement Program
HBS – Home-Based Shopping	TAC – Technical Advisory Committee
HBS_c – Home-Based School	TAZ – Traffic Analysis Zone
HBU – Home-Based University	TCM – Transportation Control Measures
HBW – Home-Based Work	TIP – Transportation Improvement Program
HTRK – Heavy Truck	TMA – Transportation Management Area
ICG – Air Quality Interagency Consultation Group	TPR – Transportation Planning Region
IE – Internal-External	UFR – Upper Front Range Transportation Planning Region
I/M – Inspection and Maintenance Program	UNC – University of Northern Colorado
LBO – Lodging-based Other	VMT – Vehicle Miles Traveled
LUAM – Land Use Allocation Model	VOC – Volatile Organic Compounds
MOA – Memorandum of Agreement	WBO – Work-Based Other
MOVES3 – EPA’s Motor Vehicle Emission Simulator model	YOE – Year of Expenditure
MPO – Metropolitan Planning Organization	

CHAPTER 1: INTRODUCTION

Purpose

This report demonstrates the transportation programs and plans in the Northern Subarea of the Denver Metro/North Front Range (DM/NFR) Nonattainment area (NAA) and Fort Collins Maintenance area meet air quality requirements per the federally prescribed transportation conformity process. Specifically, the programs and plans meet the requirements for the 2008 8-Hour Ozone National Ambient Air Quality Standard (NAAQS), the 2015 8-Hour Ozone NAAQS, and the 1971 Carbon Monoxide (CO) NAAQS.

This demonstration is based on the regionally significant projects in the 2050 Regional Transportation Plan (RTP), with which the FY2024-2027 Transportation Improvement Program (TIP) projects are consistent, along with the regionally significant projects in the 2045 RTP for the Upper Front Range (UFR), and the FY2024-2027 Statewide TIP (STIP).

Background

The NFRMPO is the lead planning agency for Carbon Monoxide (CO) within the North Front Range and is responsible for conducting conformity determinations for all NAAQS pollutants for which the region is not in attainment.

The NFRMPO conducts air quality conformity determinations on transportation plans and programs to determine conformance with the applicable Colorado State Implementation Plans (SIP) and in compliance with the Clean Air Act (CAA),¹ the Transportation Conformity Regulation,² the Statewide and Metropolitan Planning Regulation,³ and other applicable federal and state requirements. The conformity determination ensures that transportation plans, programs, and projects do not:

- Create new violations of the NAAQS;
- Increase the frequency or severity of NAAQS violations; or
- Delay timely attainment of the NAAQS or achievement of any interim milestone.

Nonattainment Areas and Emissions Budgets

There are three nonattainment areas partially or wholly within the NFRMPO region. These include the Fort Collins Maintenance area for the 1971 CO NAAQS, the Greeley Maintenance area for the 1971 CO NAAQS, and the DM/NFR NAA for the 2008 Ozone NAAQS and 2015 Ozone NAAQS.

¹42 U.S.C. Chapter 85, Clean Air Act, Requirements and History, <https://www.govinfo.gov/content/pkg/USCODE-2017-title42/html/USCODE-2017-title42-chap85.htm>.

²40 CFR 93 Subpart A, Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Developed, Funded or Approved Under Title 23 U.S.C. or the Federal Transit Laws, https://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title40/40cfr93_main_02.tpl.

³ 23 CFR 450, Planning Assistance and Standards, https://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title23/23cfr450_main_02.tpl.

Carbon Monoxide Maintenance Areas

Portions of the cities of Fort Collins and Greeley and their immediate vicinities are designated as maintenance areas for CO, shown in **Figure 1**.

The Fort Collins area was designated by the U.S. Environmental Protection Agency (EPA) as nonattainment for CO in 1979. The last violation of the CO standard in Fort Collins was in 1991. The EPA redesignated Fort Collins as an attainment/maintenance area in 2003 with the approval of the first 10-year maintenance plan.⁴ The second 10-year maintenance plan was approved by the EPA in 2013 and demonstrates continued attainment through September 22, 2023.⁵

The second 10-year maintenance plan for the Fort Collins Maintenance Area meets the requirements and provisions of EPA's limited maintenance plan option. To qualify for this option, the maintenance plan demonstrated CO levels at or below 85 percent of the 8-hour standard of 9 parts per million (ppm) for eight consecutive quarters. Transportation plans and improvement programs in CO limited maintenance plan areas are presumed to automatically satisfy the emissions budget test requirement, and no regional emissions analysis is required.

The Greeley area was designated by the EPA as nonattainment for CO in 1977. The last violation of the CO standard in Greeley was in 1988. The EPA redesignated Greeley as an attainment/maintenance area in 1999 with the approval of the first 10-year maintenance plan.⁶ The second 10-year maintenance plan was approved by the EPA in 2013 and demonstrated continued attainment through May 10, 2019.⁷ While the Greeley CO Maintenance area has not yet been redesignated as an attainment area, conformity requirements no longer apply due to the expiration of the second 10-year maintenance plan.

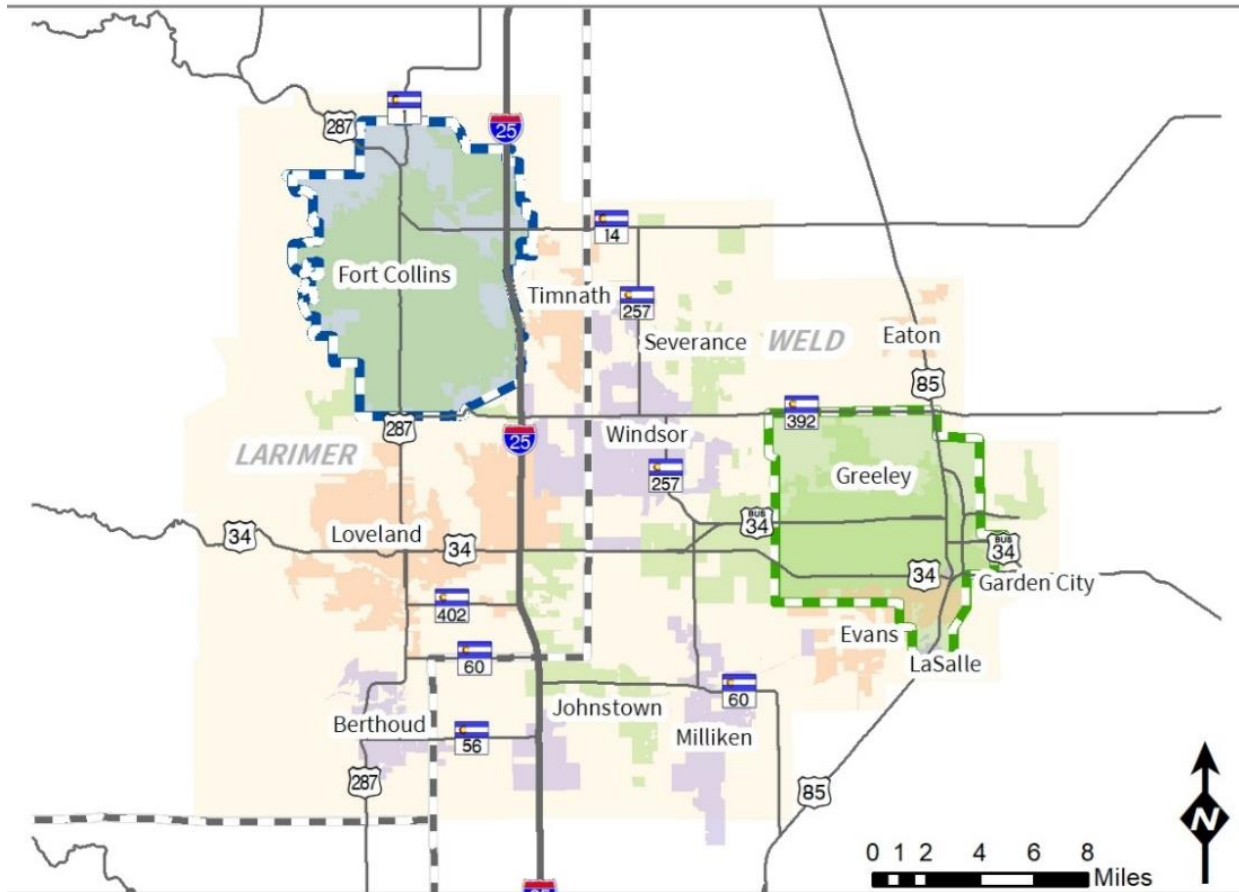
⁴ 68 FR 43316, <https://federalregister.gov/a/03-18303>, 2003

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

⁶ 64 FR 11775, <https://federalregister.gov/a/99-5661>, 1999

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

Figure 1: Fort Collins and Greeley CO Maintenance Area Boundaries



Legend

-  Fort Collins Maintenance Area
-  Greeley Maintenance Area
-  NFRMPO Planning Area
-  County Boundaries

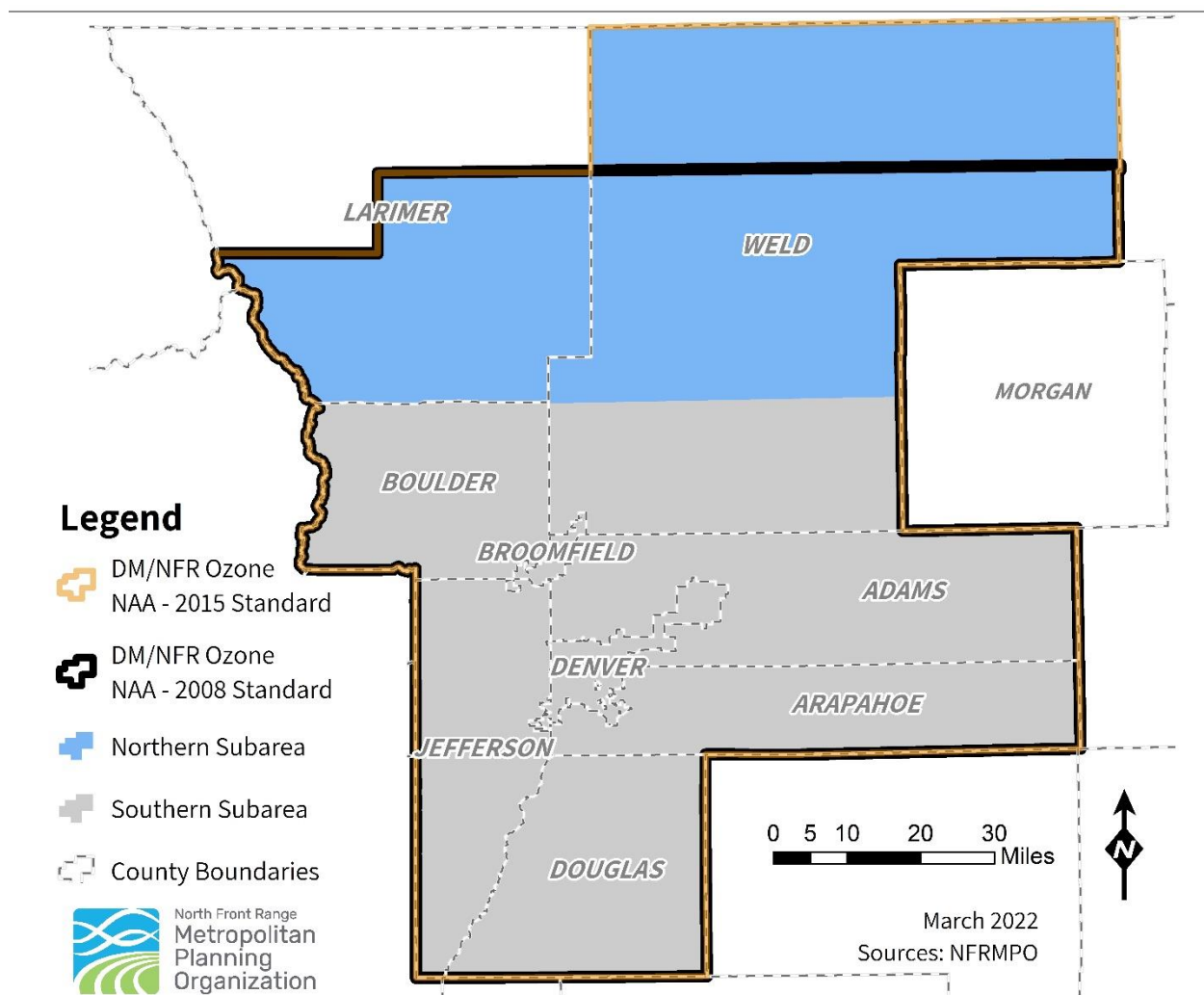
April 2019
Sources: CDOT, NFRMPO



Ozone Nonattainment Area

The NFRMPO region is within the nine-county Denver Metro/North Front Range (DM/NFR) Nonattainment Area (NAA) for the 2008 8-hour Ozone NAAQS and 2015 8-hour ozone NAAQS. The NAA for the 2008 8-hour ozone NAAQS covers the full counties of Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, Jefferson, and portions of Larimer and Weld counties. The same area was designated as nonattainment for the 2015 8-Hour ozone NAAQS. Subsequently, the EPA expanded the boundary of the DM/NFR NAA for the 2015 8-hour ozone NAAQS to include the entirety of Weld County. **Figure 2** shows the boundaries of the DM/NFR NAA for both the 2008 and 2015 NAAQS and shows its two subareas, Northern and Southern. The boundary between the two subareas is the Boulder/Larimer County line, extended at the same latitude eastward through southern Weld County to the Morgan County line. The NFRMPO conducts conformity determinations for the Northern Subarea.

Figure 2: Denver Metro/North Front Range 8-hour Ozone Nonattainment Areas and Subareas



The nine-county DM/NFR area was originally designated as a nonattainment area for ozone under the 1997 8-hour ozone NAAQS of 0.08 ppm established by the EPA. A SIP was developed to demonstrate how the region would attain the 1997 8-hour ozone standard by 2010. For the purposes of transportation conformity, Motor Vehicle Emission Budgets (MVEBs) were

established as part of the SIP for each subarea of the NAA for the two ozone precursors: Nitrogen Oxides (NOx) and Volatile Organic Compounds (VOC). EPA found the NOx and VOC MVEBs adequate for transportation conformity purposes⁸ and approved the budgets with the final rule to approve the *Denver Metro Area & North Front Range Ozone Action Plan* which included revisions to the SIP for the 1997 8-hour ozone NAAQS.⁹

On March 27, 2008,¹⁰ the EPA lowered the NAAQS for ground-level ozone to 0.075 ppm. The same nine-county DM/NFR NAA under the 1997 standard was designated as Marginal Nonattainment by the EPA under the 2008 standard on May 21, 2012.¹¹ As a Marginal Nonattainment area, the deadline to attain the 2008 ozone NAAQS was by the end of the 2014 ozone season and a new SIP was not required. The DM/NFR NAA failed to attain the NAAQS based on the three-year average of ozone data from 2012 to 2014 and on May 4, 2016, EPA reclassified the area from Marginal to Moderate, extending the attainment year to 2017.¹² Due to the reclassification, the State of Colorado developed the *Moderate Area Ozone SIP* to demonstrate how the area will comply with the federal CAA for the 2008 ozone NAAQS and set new MVEBs for each subarea of the Nonattainment area. The MVEBs were deemed adequate for conformity determinations by the EPA on March 16, 2018.¹³ The region failed to attain the NAAQS based on the three-year average of ozone data from 2015 to 2017, but due to a clean data year in 2017 the State of Colorado requested a one-year extension on the attainment deadline. The State later withdrew the request, and the EPA reclassified the area from Moderate to Serious on December 26, 2019, with an attainment year of 2020.¹⁴ The Air Quality Control Commission (AQCC) adopted the *Serious Area SIP* including new MVEBs on December 18, 2020. Until the new MVEBs are approved or deemed adequate by EPA, the MVEBs in the *Moderate Area Ozone SIP* continue to be the applicable budgets. On April 13, 2022, the EPA announced a proposed rule to reclassify the region to Severe for the 2008 NAAQS, which has attainment year of 2027. Effective date was October 7, 2022.

The EPA lowered the ozone NAAQS to 0.070 ppm on December 28, 2015.¹⁵ The nine-county DM/NFR area was designated as a Marginal Nonattainment area by the EPA on August 3, 2018.¹⁶ As noted previously, EPA subsequently designated the entirety of Weld County as nonattainment for the 2015 ozone standard, with an effective date of December 30, 2021¹⁷, thus expanding the boundary of the DM/NFR NAA for the 2015 ozone standard. A conformity determination for the Northern Subarea including northern Weld County must be made by the end of the one-year grace period, which concludes on December 30, 2022. This conformity determination includes northern Weld County and demonstrates conformity, thus meeting the federal requirements.

A SIP is currently under development for the 2015 ozone NAAQS. Until new MVEBs are approved and become effective, the DM/NFRNAA, including the entirety of Weld County, demonstrates conformity to the 2015 ozone NAAQS by meeting the approved Moderate SIP MVEB tests for the 2008 ozone NAAQS ([40 CFR 93.109\(c\)\(2\)\(i\)](https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-93/subpart-B/section-93.109(c)(2)(i))). On April 13, 2022, the EPA announced proposed rule to reclassify to the region as moderate for the 2015 NAAQS, which has an attainment year of 2023. Effective date is anticipated in fall 2022.

⁸ 75 FR 9893, <https://federalregister.gov/a/2010-4551>, 2010

⁹ 76 FR 47443, <https://federalregister.gov/a/2011-19807>, 2011

¹⁰ 73 FR 16436, <https://federalregister.gov/a/E8-5645>, 2008

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

¹² 81 FR 26697, <https://federalregister.gov/a/2016-09729>, 2016

¹³ 83 FR 11751, <https://federalregister.gov/a/2018-05406>, 2018

¹⁴ 84 FR 70897, <https://federalregister.gov/a/2019-27485>, 2018

¹⁵ 80 FR 65291, <https://federalregister.gov/a/2015-26594>, 2015

¹⁶ 83 FR 25776, <https://federalregister.gov/a/2018-11838>, 2018

¹⁷ 86 FR 67864, <https://federalregister.gov/a/2021-25451>, 2021

Planning Organizations and Memorandum of Agreements (MOAs)

The NFRMPO is the MPO for the Fort Collins Transportation Management Area (TMA), which includes Berthoud, Fort Collins, Loveland, and portions of Johnstown, Timnath, and Windsor. The NFRMPO has 15 local government members, including 13 municipalities and portions of Larimer and Weld counties.

The UFR covers the remainder of the Northern Subarea of the 8-Hour Ozone Nonattainment Area. Located in north-central Colorado, the UFR is comprised of portions of Larimer and Weld counties and Morgan County and excludes the portion of southwestern Weld County included in the Denver Regional Council of Governments (DRCOG) metropolitan planning area. **Figure 3** illustrates the Northern Subarea boundaries for the 2008 ozone NAAQS and the 2015 ozone NAAQS as well as the NFRMPO and UFR planning regions.

The Regional Air Quality Council (RAQC) is the lead air quality planning agency for the entire DM/NFR 8-Hour Ozone Nonattainment Area.¹⁸ DRCOG is the MPO for the Denver TMA and is responsible for conformity determinations for the Southern Subarea.

An MOA was signed in 2008 by the Air Pollution Control Division (APCD) of the Colorado Department of Public Health and Environment (CDPHE), Colorado Department of Transportation (CDOT), RAQC, UFR, NFRMPO, and DRCOG per federal transportation regulations,¹⁹ and is included in **Appendix A**. The MOA allows the option to establish subarea emissions budgets for VOC and NO_x based on the subareas defined in **Figure 2**. The MOA stipulates DRCOG will conduct conformity determinations for the Southern Subarea of the 8-Hour Ozone Nonattainment Area, while the NFRMPO will conduct conformity determinations for the Northern Subarea. It states the course of action to be pursued if one (or both) Subareas fail a conformity test or exceed emissions budgets. An updated MOA was signed in 2015 signed by the NFRMPO, CDPHE, RAQC, and DRCOG, replacing an MOA signed in 1998 by the NFRMPO and CDPHE and a similar MOA between DRCOG and CDPHE.

In 2022, an MOA was signed by the NFRMPO, CDPHE, RAQC, and DRCOG, replacing the 2015 MOA. The MOA, included in **Appendix B**, identifies the specific roles and responsibilities in conformity evaluations and findings for each agency, including allowing for routine conformity determinations to be performed and approved through the APCD, rather than through a public meeting with the State of Colorado's AQCC.

Conformity Determination Process

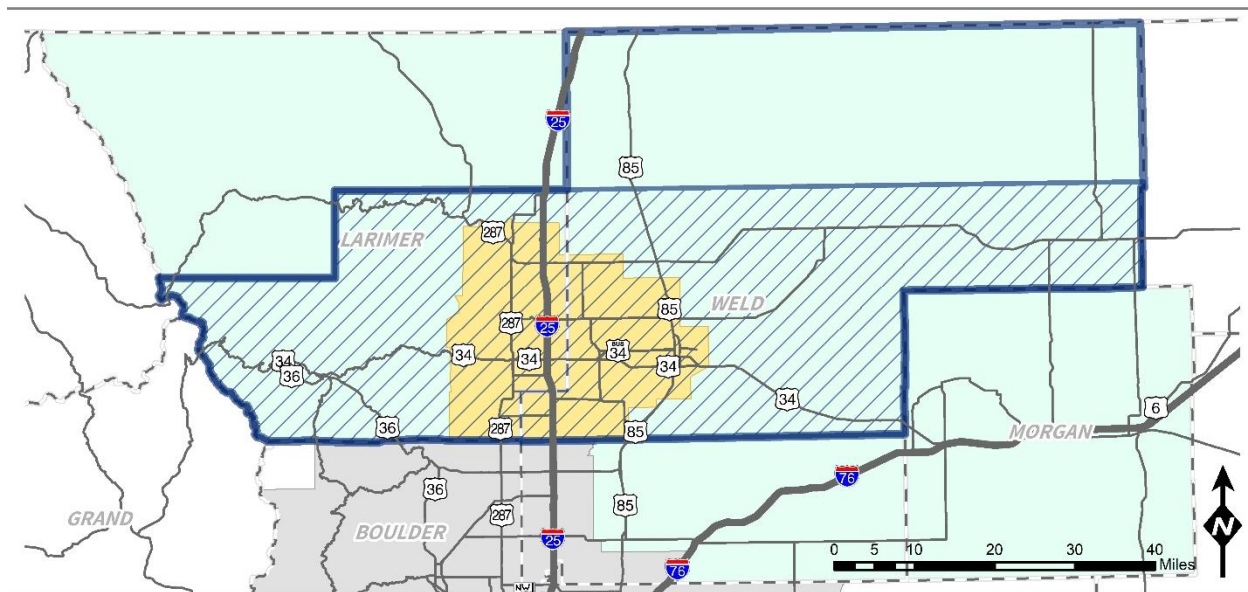
The NFRMPO and DRCOG worked cooperatively with the Air Quality Interagency Consultation Group (ICG) which includes membership from the Federal Highway Administration (FHWA), Federal Transit Administration (FTA), EPA, CDOT, RAQC, UFR, and APCD to review the conformity documentation and planning assumptions for this report. Furthermore, members of the NFRMPO's Technical Advisory Committee (TAC), or their representatives, served as the review team for the North Front Range Socio-economic Data and NFRMPO 2015 Base Year (BY) Regional Travel Demand Model (RTDM) assumptions, pursuant to the AQCC's Regulation Number 10.²⁰

¹⁸ Executive Order B 2013 007, https://www.colorado.gov/governor/sites/default/files/executive_orders/b_2013-007.pdf, 2013







¹⁹ 23 CFR 450.314(c), https://www.ecfr.gov/cgi-bin/text-idx?SID=cb8fc2bb654e58e1c70363164784595b&mc=true&node=se23.1.450_1314&rqn=div8, 2017

²⁰ 5 CCR 1001-12, <https://www.sos.state.co.us/CCR/GenerateRulePdf.do?ruleVersionId=4498&fileName=5%20CCR%201001-12>, 2012

Figure 3: Northern Subareas



Legend

-  Northern Subarea, 2008 NAAQS
-  Northern Subarea, 2015 NAAQS
-  NFRMPO
-  Upper Front Range TPR
-  DRCOG
-  County Boundaries

July 2022
Sources: CDOT, NFRMPO
 North Front Range
Metropolitan
Planning
Organization

Public Participation

The 2022 Public Involvement Plan (PIP) guides the NFRMPO's public participation activities for all plans and programs.²¹ The NFRMPO released the 2050 Regional Transportation Plan (2050 RTP) for public comment on July 10, 2023, ending August 9, 2023. The NFRMPO is holding a 30-day public comment period on the FY2024-2027 Transportation Improvement Program (TIP) and this conformity determination beginning on August 4, 2023 and ending on September 3, 2023. The documents will be available on the NFRMPO website at <https://nfrmpo.org/public-comment/> and at the NFRMPO Office as a print copy. The public comment period ends at 5:00 p.m. on August 9, 2023.

The North Front Range Air Quality and Transportation Planning Council (NFRT&AQPC) will hold a public hearing regarding this conformity determination prior to their regular monthly meeting on September 7, 2023. The NFRT&AQPC will entertain adoption of the 2050 RTP, the GHG Transportation Report, and this conformity determination at their regular monthly meeting on September 7, 2023. All public comments submitted during the public comment period will be presented and the public is encouraged to attend. Minutes of the NFRMPO Planning Council's meeting will be available on the NFRMPO website at <https://nfrmpo.org/meeting-materials/> and at the NFRMPO Office as a print copy.

²¹ NFRMPO, "2019 Public Involvement Plan", accessed on 7/6/2022 at <https://nfrmpo.org/wp-content/uploads/2019-public-involvement-plan.pdf>.

CHAPTER 2: IMPLEMENTATION OF CONTROL MEASURES

For this conformity determination no new transportation control measures (TCMs) are identified for timely completion or implementation as part of the applicable state implementation plans. The Moderate Area Ozone SIP adopted by the AQCC in 2016 and approved by the EPA on August 2, 2018 did not include any TCMs, nor are there commitments to TCMs in the Fort Collins Carbon Monoxide Maintenance Plan.

CHAPTER 3: EMISSIONS TESTS

Background

The transportation plan and program must pass a series of emissions tests to demonstrate conformity. The plan and program must not exceed the MVEBs in the applicable SIP. Satisfying these tests involves demonstrating relevant emissions in future years are less than or equal to the emissions budget established in the approved SIP.

CO Emissions Test

As stated in **Chapter 1**, a conformity determination is no longer required for the Greeley CO Maintenance area. In addition, the second 10-year maintenance plan for the Fort Collins CO Maintenance Area meets the requirements and provisions of EPA's limited maintenance plan option. Transportation plans and improvement programs in carbon monoxide limited maintenance plan areas are presumed to automatically satisfy the emissions budget test requirement, and no regional emissions analysis is required.

8-Hour Ozone Emissions Tests

The 8-Hour Ozone emissions test is required for the Northern Subareas of the DM/NFR NAA. The emissions test is for the two ozone precursors, NO_x and VOC. The EPA found the MVEBs for NO_x and VOCs contained in the *Moderate Area Ozone SIP* adequate for transportation conformity purposes on March 16, 2018 and approved these MVEBs on August 2, 2018. As a result, the NFRMPO is required to use these budgets for subsequent transportation conformity determinations.

MVEBs have not been established for the DM/NFR NAA designated as nonattainment under the 2015 ozone NAAQS, which is a larger area than the DM/NFR NAA designated under the 2008 ozone NAAQS. The emission test in this conformity determination uses the MVEBs established for the Northern Subarea for the 2008 ozone NAAQS to determine conformity for the Northern Subarea for the 2015 ozone NAAQS, as permitted by 40 CFR 93.109(c)(2)(iii)(B).

Budgets Analysis Years

In accordance with EPA regulations,²² the ICG agreed on the following staging years for determining 8-hour ozone conformity:

- **2023** – the first horizon year (no more than 10 years from the 2019 base year of the travel demand model), the attainment year for the 2015 ozone NAAQS, and the attainment year for the 2008 ozone NAAQS
- **2030** – an intermediate modeling year
- **2040** – an intermediate modeling year
- **2050** – the last year (horizon) of the 2050 RTP

²² 40 CFR 93.118, <http://www.ecfr.gov/cgi-bin/retrieveECFR?gp=1&SID=4c2888da2e1fb443b24ff76fcd7cfc84&ty=HTML&h=L&mc=true&r=PART&n=pt40.20.93>.

These attainment years are anticipated once the Moderate and Severe classifications are effective.

Technical Process

The technical process used to estimate future pollutant emission levels is based on the latest planning assumptions in effect at the time of this conformity determination. Assumptions behind the analysis were derived from estimates of current and future population, employment, travel, and congestion. The MOA stipulates the emissions estimates for the Northern Subarea portion of the 8-Hour Ozone Nonattainment Area are to be performed by the APCD.

The NFRMPO 2010 BY Land Use Allocation Model (LUAM) and the 2019 BY RTDM, developed for input to the emissions model, covers the Northern Subarea of the 8-Hour Ozone Nonattainment Area. **Appendix C** and **Appendix D** describe the modeling structure for the RTDM in more detail.

Demographic Assumptions

Table 1 presents the demographic assumptions for the Northern Subarea developed using the 2010 LUAM. The 2020 estimated population for the Northern Subarea is 579,427. The population forecast for the Northern Subarea in 2050 is 927,879, an increase of 60.1 percent. Employment is forecast to be approximately 490,155 in 2050 compared to the year 2020 estimate of 311,202, an increase of 57.5 percent. Growth in population and employment will be the principal factors for the increased demand on the region's transportation facilities and services.

Table 1: Population and Employment Forecasts – Northern Subareas					
Northern Subarea	Statistic	2026	2030	2040	2050
2008 Ozone NAAQS	Population	632,571	700,072	876,410	927,879
	Employment	362,590	386,437	411,525	490,155
2015 Ozone NAAQS	Population	632,571	700,072	876,410	927,879
	Employment	362,590	386,437	411,525	490,155

Transportation Assumptions

To complete the emissions tests, the applicable staging years (2026, 2030, 2040, and 2050) and transportation networks were defined for the NFRMPO boundary and the UFR area within the Northern Subarea. The RTDM includes all capacity improvements (widening) and regionally significant projects for the Northern Subarea for the respective staging years. **Appendix E** contains the list and map of regionally significant transportation improvement projects coded in the RTDM on regionally significant corridors (RSCs) and regional transit corridors (RTC).

Air Quality Modeling Assumptions

APCD estimated air pollution emissions shown in this report using the most recent EPA Motor Vehicle Emissions Simulation (MOVES3) model.

Emission Test Results – Northern Subarea

The results of the Northern Subarea emissions tests by year are reported in **Table 2**. APCD generated the emissions estimates using the transportation inputs from the 2019 RTDM and the MOVES3 emissions model. APCD performed the 8-hour ozone conformity analysis for the years 2026, 2030, 2040, and 2050, which meet the EPA staging year requirements.²³

Table 2: 8-Hour Ozone Conformity for Denver Metro-North Front Range Northern Subarea (Emission Tons per Day)							
Northern Subarea	Ozone Precursor	Moderate SIP Budgets (2008 Ozone Standard)	2026	2030	2040	2050	Pass/Fail
2008 Ozone NAAQS	Volatile Organic Compounds (VOC)	8	4	3	3	4	PASS
	Oxides of Nitrogen (NOx)	10	3	2	2	2	PASS
2015 Ozone NAAQS	Volatile Organic Compounds (VOC)	8	4	3	3	4	PASS
	Oxides of Nitrogen (NOx)	10	3	2	2	2	PASS

Summary of 8-hour Ozone Conformity Findings

Based on the quantitative conformity analysis, NFRMPO staff has determined the NFRMPO 2050 RTP, the FY2024-2027 TIP, the UFR 2045 RTP, and the northern subarea of the FY2024-2027 STIP demonstrate conformity for the 2008 and 2015 8-Hour Ozone NAAQS using the 8-hour ozone emissions budgets for the Northern Subarea. In addition, the NFRMPO 2050 RTP met all planning requirements identified in 23 CFR 450. **Appendix C** includes more information on the transportation and demographic assumptions used in the 8-hour ozone emissions analysis.

²³ 40 CFR 93.118, <http://www.ecfr.gov/cgi-bin/retrieveECFR?gp=1&SID=c9ad38a0577544cc1bd184aaa325cb6a&ty=HTML&h=L&mc=true&r=PART&n=pt40.20.93>, 2013

***Appendix A: Memorandum of Agreement – Transportation Conformity Evaluations
Conducted Under the 8-Hour Ozone Standard (2008)***

MEMORANDUM OF AGREEMENT
FOR
TRANSPORTATION CONFORMITY EVALUATIONS
CONDUCTED UNDER THE 8-HOUR OZONE STANDARD

BY AND BETWEEN

THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT,
THE DENVER REGIONAL AIR QUALITY COUNCIL,
THE COLORADO DEPARTMENT OF TRANSPORTATION,
THE UPPER FRONT RANGE TRANSPORTATION PLANNING REGION,
THE NORTH FRONT RANGE TRANSPORTATION AND AIR QUALITY
PLANNING COUNCIL (a.k.a. the North Front Range MPO),
AND THE DENVER REGIONAL COUNCIL OF GOVERNMENTS

March 14, 2008

Abbreviations Guide

APCD – Air Pollution Control Division
AQCC – Air Quality Control Commission, (“the Commission”)
CDPHE – Colorado Department of Public Health and Environment
CDOT - Colorado Department of Transportation
DRCOG – Denver Regional Council of Governments
MOA – Memorandum of Agreement
MPA – Metropolitan Planning Area
MPO – Metropolitan Planning Organization
NFR – North Front Range
NFRT& AQPC – North Front Range Transportation & Air Quality Planning Council (the NFR MPO)
NOx – Nitrogen Oxides
RAQC – (Denver) Regional Air Quality Council
SIP – State Implementation Plan
UFR – Upper Front Range
TIP – Transportation Improvement Program
TPR – Transportation Planning Region
USDOT – United States Department of Transportation
USEPA – United States Environmental Protection Agency
VOC – Volatile Organic Compounds

Terminology

Consulting parties – Those agency parties involved in data and document review for the purposes making or commenting on a Conformity Determination. Includes the Air Quality Control Commission, USDOT and USEPA, who are not signatory parties to this MOA.

Signatories/Signatory parties –The parties signatory to this document. This group of six agencies does not include USDOT or USEPA.

On-road motor vehicle – Refers to cars, trucks, buses, motorcycles, vans and other motorized vehicles that use public highways, streets and roadways; to be distinguished from motor vehicles that may be designed for off-road use, e.g., all-terrain vehicles, and from agricultural and construction equipment.

A. Background and Purpose

The U.S. Environmental Protection Agency (USEPA) has designated an area (See map, Attachment A) inclusive of the Denver Metro Area and portions of both the North Front Range Metropolitan Planning area and the Upper Front Range Transportation Planning Region as nonattainment under the 8-hour ozone standard. The nonattainment designation became effective November 20, 2007. The Upper Front Range TPR is not represented by a Metropolitan Planning Organization as it comprises a largely rural area. Furthermore, the TPR lacks the expertise and wherewithal to provide or purchase transportation and modeling forecasts as part of the Conformity Determination process for the 8-hour ozone area.

Federal Transportation Regulations at 23CFR 450.314 (b) state that where a metropolitan planning area does not include an entire nonattainment area or maintenance area, “there shall be written agreement among the State Department of Transportation, State air quality agency, affected local agencies, and the MPO describing the process for cooperative planning and analysis of all projects outside the MPA within the nonattainment or maintenance area. The agreement must also indicate how the total transportation-related emissions for the nonattainment or maintenance area, including areas outside the MPA, will be treated for the purposes of determining conformity in accordance with EPA’s transportation conformity rule (40 CFR Part 93). The agreement shall address policy mechanisms for resolving conflicts concerning transportation-related emissions...(and) (c): In nonattainment or maintenance areas, if the MPO is not the designated agency for air quality planning...there shall be a written agreement between the MPO and the designated air quality planning agency describing their respective roles and responsibilities for air quality related transportation planning. (d) If more than one MPO has been designated to serve an urbanized area, there shall be written agreement among the MPOs, the State(s), and the public transportation operator(s) describing how the metropolitan transportation planning processes will be coordinated to assure the development of consistent metropolitan transportation plans and TIPs across the MPA boundaries....”

Similarly, EPA regulations at 40 CFR 93.105(e) and 51.390 require states to create consultation procedures in the SIP whereby MPO representatives, state and local air quality planning agencies, state and local transportation agencies and other organizations must consult with each other and with U.S. Environmental Protection Agency (USEPA) and U.S. Department of Transportation (USDOT) regarding development of State Implementation Plans (SIPs), transportation plans, transportation improvement programs (TIPs), and Conformity Determinations.

This Memorandum of Agreement (MOA) is designed to allow for and to guide cooperative transportation planning in conformance with State air quality plans, and related review and analysis in the pursuit of transportation Conformity Determinations associated with the 8-hour ozone State Implementation Plan (SIP).

B. Conformity Determinations Prior to/In Lieu of the Establishment of On-Road Motor Vehicle Emission Budgets

The first Conformity Determination for the area of concern is due November 20, 2008, as required by the federal Conformity Rule at 40 CFR 93.102(d). Since adequate or

approved motor vehicle emission budgets will not be available until late 2009, one or more Conformity Determinations for the nonattainment or maintenance area of concern must follow the procedures at 40 CFR 93.109(e)(2)(iii).

The Denver Regional Council of Governments and the North Front Range MPO shall perform transportation emissions forecasting for the respective areas described in Section C.1 and C.2 for Conformity Determinations, regardless of whether emission budgets have been established, and regardless of whether overall nonattainment-or maintenance area emission budgets or sub-area emission budgets are used.

C. Motor Vehicle Emission Budgets for the 8-Hour Ozone Nonattainment (or Maintenance) Area and Sub-Areas

In the SIP development process, the Air Pollution Control Division (APCD), the North Front Range Metropolitan Planning Organization (NFRMPO), and the Regional Air Quality Council (RAQC) shall work together to propose overall area motor vehicle emission budgets for volatile organic compounds (VOC) and nitrogen oxides (NO_x) for the 8-hour ozone nonattainment or maintenance area. Said budgets must be adopted by the Commission and affirmed via USEPA adequacy determinations in order to become viable for use in Conformity Determinations.

Sub-area emission budgets for ozone precursors under the 8-hour ozone standard may also be proposed to the AQCC for the following two sub-areas:

1. The combined areas of the Denver Metro Region and the southern portion of the Upper Front Range Transportation Planning Region (TPR) as designated nonattainment by USEPA, i.e., the area south of the north line of Township 3 north of the 6th Principal Meridian; said line is the southern boundary of the North Front Range MPO extended to the east line of Weld County. For this sub-area, the budgets for NO_x and VOC shall be proposed during SIP development for the federal 8-hour ozone standard by the RAQC with input from the APCD, CDOT, DRCOG, and UFR to be considered for adoption by the Commission.
2. The combined areas of the North Front Range MPO area and the northern portion of the Upper Front Range TPR, as designated nonattainment by USEPA, i.e., the area north of the north line of Township 3 north of the 6th Principal Meridian; said line is the southern boundary of the North Front Range MPO extended to the east line of Weld County. For this sub-area, the budgets for NO_x and VOC shall be proposed determined during SIP development for under the federal 8-hour ozone standard by the NFR MPO in consultation with the APCD and the RAQC, with input from CDOT and UFR, to be considered for adoption by the Commission.

Sub-area budgets, agreed to by the signatories and approved by the Commission, may be used to measure the conformity of plans and programs for the respective areas, once determined adequate by the USEPA.

Sub-areas as described above and Conformity procedures described in this document shall remain the same when and if the 8-Hour Nonattainment Area is re-designated an "Attainment/Maintenance Area.

D. Granting of Authority, Responsibilities

The Upper Front Range TPR lacks the expertise and wherewithal to provide or purchase transportation and modeling forecasts as part of the Conformity Determination process for the 8-hour ozone area. By this agreement:

1. The DRCOG agrees to provide transportation forecasts and make Conformity Determinations for the area described in Section C.1 above. The area includes the DRCOG MPO area and other 8-hour ozone nonattainment areas within the DRCOG TPR, as well as a portion of the nonattainment area of the Upper Front Range TPR.
2. The North Front Range MPO agrees to provide transportation forecasts and make Conformity Determinations for an area described in Section C.2 above. The area includes North Front Range MPO 8-hour ozone nonattainment areas as well as portions of the Upper Front Range TPR nonattainment area.
3. The Upper Front Range TPR authorizes the DRCOG and the NFR MPO to prepare transportation forecasts and make Conformity Determinations for the relevant nonattainment areas of the Upper Front Range as described in Section C of this document.
4. The agreed-upon transportation forecasting authorities shall continue for the 8-Hour Ozone Area after it is re-designated "Attainment/Maintenance" status by USEPA.

E. Compensation to MPOs for Additional Responsibilities

It is anticipated that over the next one-to-four years, funding will be needed for enhanced transportation forecasting and to perform Conformity Determinations for the Upper Front Range areas of concern. The CDOT has the responsibility to fund required Conformity Determinations and associated transportation modeling efforts for areas outside of the MPOs.

As forecasting and modeling work for the UFR will extend beyond the MPO boundaries, the CDOT will provide necessary funding to DRCOG and NFR based upon a mutually agreeable course of action delineating tasks, schedule, and costs among the signatory agencies. The signatory agencies will look to the USEPA and USDOT to assure consistency with federal requirements regarding tasks. The CDOT will execute separate intergovernmental agreements with the NFRMPO and DRCOG detailing the specific work that will be done for the agreed-to compensation.

F. Conformity Review – Procedural

The agencies shall follow the interagency consultation process and procedures identified in Colorado Air Quality Control Commission Regulation No. 10 for sharing information and conducting review of transportation data, projections, and determining Transportation Conformity to the State Implementation Plan under the 8-hour ozone standard, and generally the process outlined in memoranda of agreement for Transportation Conformity evaluations by and between the CDPHE and the Denver Regional Council of Governments (1998) and with the North Front Range Transportation and Air Quality Planning Council (2003).

The DRCOG and NFR MPO shall provide forecasts for their respective areas as described in Section C. 1 and C.2. In cases where one Conformity finding is to be made for the overall 8-Hour Ozone Nonattainment (or Attainment/Maintenance) Area, and no sub-area emission budgets are to be used, the MPOs, in consultation with the other signatory parties and with USEPA and USDOT, shall sum the ozone precursor emissions from their respective areas for overall-Area totals of VOC and NO_x, to determine whether forecasted emissions meet the appropriate Conformity test(s). In such cases, the MPOs jointly shall produce one Conformity Determination document for the overall 8-Hour Ozone Nonattainment (or Attainment/Maintenance) Area.

The APCD will perform independent emission budget tests and other applicable analyses for the overall Nonattainment (or Attainment/Maintenance) region and, as well as for the sub-areas described in C.1 and C.2 if sub-area budgets are to be used, within 30 days of receiving the final submittal of transportation data, although such data will be submitted to the APCD as early in the process as possible. The APCD may also assist with enhanced emissions forecasting for the Upper Front Range area, or provide other in-kind assistance to emissions forecasting efforts.

Assuming the APCD agrees with a Conformity Determination, it will recommend that the Air Commission comment formally via letter to the relevant MPO and to CDOT regarding its concurrence.

In the event that future sub-area emissions exceed a Conformity test or emission budget, the sub-area MPO shall immediately and diligently pursue actions, e.g., transportation plan and/or TIP amendment, that would bring projected emissions under budget (or in line with the Conformity test being used) and thus to conform to the SIP (and/or not threaten to increase the severity of the 8-Hour Area's nonattainment status). Such endeavor would be pursued as part of standard interagency process. If the sub-area were to fail to meet a Conformity test/make a positive Conformity Determination, all parties to this MOA shall confer on an emergency basis to review emission budgets and to consider the merits of the following actions, which may be needed to achieve or to re-establish Conformity:

- Potential revisions to transportation plans and/or transportation programs
- Potential modeling (by both MPO's) of the entire nonattainment (or Attainment/Maintenance) Area for a Conformity Determination, if allowed by the SIP
- Potential appeal (via the SIP process) for emission budget revisions
- Potential additional SIP revisions.

A course of action employing one or more of the above-listed actions shall be determined by the parties to this agreement. Parties may appeal to the USDOT and USEPA for guidance in establishing Conformity.

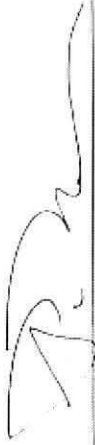
G. Dispute Resolution

Any protracted disagreements between consulting parties reviewing a Conformity Determination shall be elevated to the Commission, per the provisions in AQCC Regulation No. 10. Any continuing dispute that devolves or threatens to devolve into a situation of official non-conformance of transportation plans with the State Implementation Plan may be elevated to the Governor, just as a disputed Conformity Determination may be elevated to the Governor, as provided in AQCC Regulation No. 10 and at 40 CFR Section 93.105(d).

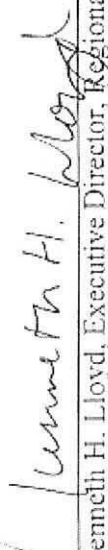
H. Termination of Agreement

This agreement shall be binding upon the signatory parties-until the 8-hour ozone area has achieved attainment status and maintains said status for a period of at least 20 years, unless the undersigned agencies revise or replace this MOA via unanimous, written agreement.


The undersigned hereby agree to the delegations, responsibilities and procedures described above.

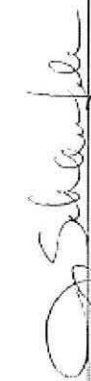

Paul Tourangeau, Director, Air Pollution Control Division, CDPHE 3/14/08 Date


Jennifer Finch, Director, Transportation Development Division, CDOT 3/14/08 Date


Kenneth H. Lloyd, Executive Director, Regional Air Quality Council 3/14/08 Date


Robert D. Masden, Weld County Commissioner,
Chairman, Upper Front Range TPR 3/24/08 Date


Cliff Davidson, Executive Director, North Front Range MPO 3/20/08 Date


Jennifer Schaufele, Executive Director,
Denver Regional Council of Governments 3/14/08 Date

This map illustrates the geographical distribution of ozone nonattainment areas and Metropolitan Planning Organization (MPO) boundaries within the Front Range Urban Corridor. The map includes major highways such as I-76, I-25, and US-89, along with numerous cities and towns including Fort Collins, Loveland, Windsor, Greeley, Boulder, Broomfield, Denver, Lakewood, Aurora, Parker, Castle Rock, Larkspur, and Bennett. Two specific sub-areas are highlighted: the 'North Front Range and northern Upper Front Range Sub-area' and the 'DRCOG and southern Upper Front Range Sub-area'. A legend at the bottom defines the symbols used: a dashed line for the Ozone Nonattainment Boundary, a solid line for the NFRMPO boundary, a thick solid line for the Proposed DRCOG MPO Boundary, a thin solid line for the Upper Front Range area, a shaded box for the DRCOG area, and a horizontal line for the North line of Township 3 and North of the 6th PM. A scale bar indicates distances from 0 to 20 miles, and a north arrow is located in the upper right corner.

Ozone Nonattainment Boundary

NFRMPO

Proposed DRCOG MPO Boundary

Upper Front Range

DRCOG

**North line of Township 3
North of the 6th PM**

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Created Date: 12/14/2009

Mod. 5 (Gibbs) Viterbi Quality Assessment (2009) Attribution not
Prepared by U.S. Fed. & Assoc. Inc.
Current Date: 12/14/2010

***Appendix B: Memorandum of Agreement – Transportation Conformity Evaluations
(2022)***

MEMORANDUM OF AGREEMENT

FOR

TRANSPORTATION CONFORMITY EVALUATIONS CONDUCTED UNDER THE 8-HOUR OZONE STANDARDS

BY AND BETWEEN

THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT,
THE REGIONAL AIR QUALITY COUNCIL,
THE COLORADO DEPARTMENT OF TRANSPORTATION,
THE UPPER FRONT RANGE TRANSPORTATION PLANNING REGION,
THE NORTH FRONT RANGE TRANSPORTATION AND AIR QUALITY
PLANNING COUNCIL (a.k.a. the North Front Range MPO), AND
THE DENVER REGIONAL COUNCIL OF GOVERNMENTS

September 22, 2022

Abbreviations Guide

APCD – Air Pollution Control Division
AQCC – Air Quality Control Commission
CDPHE – Colorado Department of Public Health and Environment
CDOT – Colorado Department of Transportation
DRCOG – Denver Regional Council of Governments
MOA – Memorandum of Agreement
MPA – Metropolitan Planning Area
MPO – Metropolitan Planning Organization
NFR – North Front Range
NFRT& AQPC – North Front Range Transportation & Air Quality Planning Council (NFRMPO)
NO_x – Nitrogen Oxides
RAQC – Regional Air Quality Council SIP – State
Implementation Plan
UFR – Upper Front Range
TIP – Transportation Improvement Program
TPR – Transportation Planning Region
USDOT – United States Department of Transportation
USEPA – United States Environmental Protection Agency
VOC – Volatile Organic Compounds

Terminology

Consulting parties – Those agency parties involved in data and document review for the purposes of making or commenting on a Conformity Determination. Includes the Air Quality Control Commission, USDOT and USEPA, who are not signatory parties to this MOA.

Signatories/Signatory parties – The parties signatory to this document. This group of six agencies does not include USDOT or USEPA.

On-road motor vehicle – Refers to cars, trucks, buses, motorcycles, vans, and other motorized vehicles that use public highways, streets, and roadways; to be distinguished from motor vehicles that may be designed for off-road use, e.g., all-terrain vehicles, and from agricultural and construction equipment.

A. Background and Purpose

The U.S. Environmental Protection Agency (USEPA) has designated two areas (*See map, Attachment A*) inclusive of the Denver Metro Area and portions of both the North Front Range Metropolitan Planning area and the Upper Front Range (UFR) Transportation Planning Region (TPR) as nonattainment under both the 2008 and 2015 8-hour ozone standards. The nonattainment designation became effective November 20, 2007 under the 1997 8-Hour ozone standard. On May 21, 2012, the same area was designated nonattainment for the 2008 8-Hour ozone standard. On August 3, 2018, the same area was designated nonattainment under the 2015 8-Hour ozone standard, with the remaining portion of Weld County being designated as nonattainment and added to the area under the 2015 8-hour ozone standard effective December 30, 2021. The UFR TPR is not represented by a Metropolitan Planning Organization (MPO) as it comprises a largely rural area. Furthermore, the UFR TPR lacks the expertise and wherewithal to provide or purchase transportation and modeling forecasts as part of the Conformity Determination process for the 8-Hour ozone area.

Federal Transportation Regulations at 23 CFR 450.314 (c) state that where a metropolitan planning area does not include an entire nonattainment area or maintenance area:

“there shall be a written agreement among the State Department of Transportation, State air quality agency, affected local agencies, and the MPO describing the process for cooperative planning and analysis of all projects outside the MPA within the nonattainment or maintenance area. The agreement must also indicate how the total transportation-related emissions for the nonattainment or maintenance area, including areas outside the MPA, will be treated for the purposes of determining conformity in accordance with EPA’s transportation conformity rule (40 CFR Part 93, Subpart A). The agreement shall address policy mechanisms for resolving conflicts concerning transportation-related emissions...(and) (d): In nonattainment or maintenance areas, if the MPO is not the designated agency for air quality planning...there shall be a written agreement between the MPO and the designated air quality planning agency describing their respective roles and responsibilities for air quality related transportation planning. (e) If more than one MPO has been designated to serve an urbanized area there shall be written agreement among the MPOs, the State(s), and the public transportation operator(s) describing how the metropolitan transportation planning processes will be coordinated to assure the development of consistent metropolitan transportation plans and TIPs across the MPA boundaries....”

Similarly, USEPA regulations at 40 CFR 93.105 and 51.390 require states to create consultation procedures in the State Implementation Plan (SIP) whereby MPO representatives, state and local air quality planning agencies, state and local transportation agencies and other organizations must consult with each other and with USEPA and U.S. Department of Transportation (USDOT) regarding development of (SIPs, transportation plans, transportation improvement programs (TIPs), and Conformity Determinations.

This Memorandum of Agreement (MOA) is designed to allow for and to guide cooperative transportation planning in conformance with State air quality plans, and related review and analysis in the pursuit of transportation Conformity Determinations associated with the 8-Hour ozone SIP(s).

This MOA supersedes the prior agreement between the parties dated March 14, 2008.

B. Conformity Determinations Prior to/In Lieu of the Establishment of On-Road Motor Vehicle Emission Budgets

For any conformity determination that must be completed prior to the establishment of on-road motor vehicle emission budgets for the applicable standard and nonattainment area, one or more Conformity Determinations for the nonattainment or maintenance area of concern must follow the procedures at 40 CFR 93.109(c)(2).

The Denver Regional Council of Governments (DRCOG) and the North Front Range MPO (NFRMPO) shall perform transportation emissions forecasting for the respective areas described in Section C.1 and C.2 for Conformity Determinations, regardless of whether emission budgets have been established, and regardless of whether overall nonattainment or maintenance area emission budgets or sub-area emission budgets are used.

C. Motor Vehicle Emission Budgets for the 8-Hour Ozone Nonattainment (or Maintenance) Area and Sub-Areas

In the SIP development process, the Air Pollution Control Division (APCD), the NFRMPO, DRCOG, and the Regional Air Quality Council (RAQC) shall work together to propose overall area motor vehicle emission budgets (MVEBs) for volatile organic compounds (VOC) and nitrogen oxides (NO_x) for the 8-hour ozone nonattainment or maintenance area(s). Said budgets must be adopted by the Air Quality Control Commission (AQCC) and affirmed via USEPA adequacy determinations to become viable for use in Conformity Determinations.

Sub-area emission budgets for ozone precursors under the 8-Hour ozone standards may also be proposed to the AQCC for the following two sub-areas:

1. The combined areas of the Denver Metro Region and the southern portion of the UFR TPR as designated nonattainment by USEPA (see Figure 1), i.e., the area south of the north line of Township 3 north of the 6th Principal Meridian; said line is the southern boundary of the North Front Range MPO extended to the east line of Weld County. For this sub-area, the budgets for NO_x and VOC shall be proposed during SIP development for the federal 8-Hour ozone standards, as appropriate, by the RAQC with input from the APCD, CDOT, DRCOG, and UFR TPR to be considered for adoption by the AQCC.
2. The combined areas of the North Front Range MPO area and the northern portion of the UFR TPR, as designated nonattainment by USEPA, i.e., the area north of the north line of Township 3 north of the 6th Principal Meridian; said line is the southern boundary of the North Front Range MPO extended to the east line of Weld County. This sub-area has two delineations: one for the 2008

8-Hour ozone standard and another for the 2015 8-Hour ozone standard; however, the preceding description applies to both delineations. For this sub-area, the budgets for NOx and VOC shall be proposed during SIP development for the federal 8-Hour ozone standards by the RAQC, with input the APCD, CDOT, NFRMPO and UFR TPR, to be considered for adoption by the AQCC.

Sub-area budgets, agreed to by the signatories and approved by the AQCC, may be used to measure the conformity of plans and programs for the respective areas, once determined adequate by the USEPA.

Sub-areas as described above, and Conformity procedures described in this document shall remain the same when and if either or both 8-Hour Nonattainment Areas are re-designated an “Attainment/Maintenance Area”.

D. Granting of Authority, Responsibilities

The UFR TPR lacks the expertise and wherewithal to provide or purchase transportation and modeling forecasts as part of the Conformity Determination process for the 8-Hour ozone area. By this agreement:

1. DRCOG agrees to provide transportation forecasts and make Conformity Determinations for the area described in Section C.1 above. The area includes the DRCOG MPO area and other 8-Hour ozone nonattainment areas within the DRCOG TPR, as well as a portion of the nonattainment areas of the UFR TPR.
2. NFRMPO agrees to provide transportation forecasts and make Conformity Determinations for an area described in Section C.2 above. The area includes NFRMPO 8-Hour ozone nonattainment areas as well as portions of the nonattainment areas of the UFR TPR.
3. The UFR TPR authorizes DRCOG and the NFRMPO to prepare transportation forecasts and make Conformity Determinations for the relevant nonattainment areas of the UFR TPR as described in Section C of this document.
4. The agreed-upon transportation forecasting authorities shall continue for the 8-Hour Ozone Area after it is re-designated “Attainment/Maintenance” status by USEPA.

E. Compensation to MPOs for Additional Responsibilities

Funding will be needed for transportation forecasting and to perform Conformity Determinations for the UFR TPR areas of concern. CDOT has the responsibility to fund required Conformity Determinations and associated transportation modeling efforts for areas outside of the MPOs.

As forecasting and modeling work for the UFR TPR will extend beyond the MPO boundaries, CDOT will provide necessary funding to DRCOG and NFRMPO based upon a mutually

agreeable course of action delineating tasks, schedule, and costs among the signatory agencies. The signatory agencies will look to the USEPA and USDOT to assure consistency with federal requirements regarding tasks. CDOT will execute separate intergovernmental agreements (IGAs) with the NFRMPO and with DRCOG detailing the specific work that will be done for the agreed-to compensation.

F. Conformity Review – Procedural

The agencies shall follow the interagency consultation process and procedures identified in Colorado AQCC Regulation No. 10 for sharing information and conducting review of transportation data, projections, and determining Transportation Conformity to the SIPs under the 8-Hour ozone standards, and generally the process outlined in the MOA for Transportation Conformity Evaluations by and between the CDPHE, RAQC, DRCOG, and NFRMPO, which was executed in 2015.

DRCOG and NFRMPO shall provide forecasts for their respective areas as described in Section C. 1 and C.2. In cases where one Conformity finding is to be made for the overall 8-Hour Ozone Nonattainment (or Attainment/Maintenance) Area, and no sub-area emission budgets are to be used, the MPOs, in consultation with the other signatory parties and with USEPA and USDOT, shall sum the ozone precursor emissions from their respective areas for overall-Area totals of VOC and NO_x, to determine whether forecasted emissions meet the appropriate Conformity test(s). In such cases, the MPOs shall jointly produce one Conformity Determination document for the overall 8-Hour Ozone Nonattainment (or Attainment/Maintenance) Areas.

The APCD will perform independent emission budget tests and other applicable analyses for the overall Nonattainment (or Attainment/Maintenance) region and, as well as for the sub-areas described in C.1 and C.2, if sub-area budgets are to be used, within 30 days of receiving the final submittal of transportation data, although such data will be submitted to the APCD as early in the process as possible. The APCD may also assist with enhanced emissions forecasting for the UFR TPR area or provide other in-kind assistance to emissions forecasting efforts.

Assuming the APCD agrees with a Conformity Determination, it will recommend that the AQCC comment formally via letter to the relevant MPO and to CDOT regarding its concurrence.

In the event future sub-area emissions exceed a Conformity test or emissions budget, the sub-area MPO shall immediately and diligently pursue actions, e.g., transportation plan and/or TIP amendment, that would bring projected emissions under budget (or in line with the Conformity test being used) and thus to conform to the SIP (and/or not threaten to increase the severity of the 8-Hour Area's nonattainment status). Such endeavor would be pursued as part of standard interagency process. If the sub-area were to fail to meet a Conformity test/make a positive Conformity Determination, all parties to this MOA shall confer on an emergency basis to review emission budgets and to consider the merits of the following actions, which may be needed to achieve or to re-establish Conformity:

1. Potential revisions to transportation plans and/or transportation programs;
2. Potential modeling (by both MPOs) of the entire nonattainment (or Attainment/Maintenance, once it is re-designated) Area for a Conformity Determination, if allowed by the SIP;
3. Potential appeal (via the SIP process) for emission budget revisions; and/or
4. Potential additional SIP revisions.

A course of action employing one or more of the above-listed actions shall be determined by the parties to this agreement. Parties may appeal to the USDOT and USEPA for guidance in establishing Conformity.

G. Dispute Resolution

Any protracted disagreements between consulting parties reviewing a Conformity Determination shall be elevated to the AQCC, per the provisions in AQCC Regulation No. 10. Any continuing dispute that devolves or threatens to devolve into a situation of official non-conformance of transportation plans with the SIP may be elevated to the Governor, just as a disputed Conformity Determination may be elevated to the Governor, as provided in AQCC Regulation No. 10 and at 40 CFR Section 93.105(d).

H. Termination of Agreement

This agreement shall be binding upon the signatory parties until the 8-Hour ozone area has achieved attainment status and maintains said status for a period of at least 20 years, unless the undersigned agencies revise or replace this MOA via unanimous, written agreement.

The undersigned parties hereby agree to the responsibilities and procedures described above.

Lisa McGovern, Director, Procurement and Contracts, CDPHE

Date

Rebecca White, Director, Transportation Development Division, CDOT

Date

Mike Silverstein, Executive Director, RAQC

Date

Scott James, Chair, UFR TPR

Date

Doug Rex, Executive Director, DRCOG

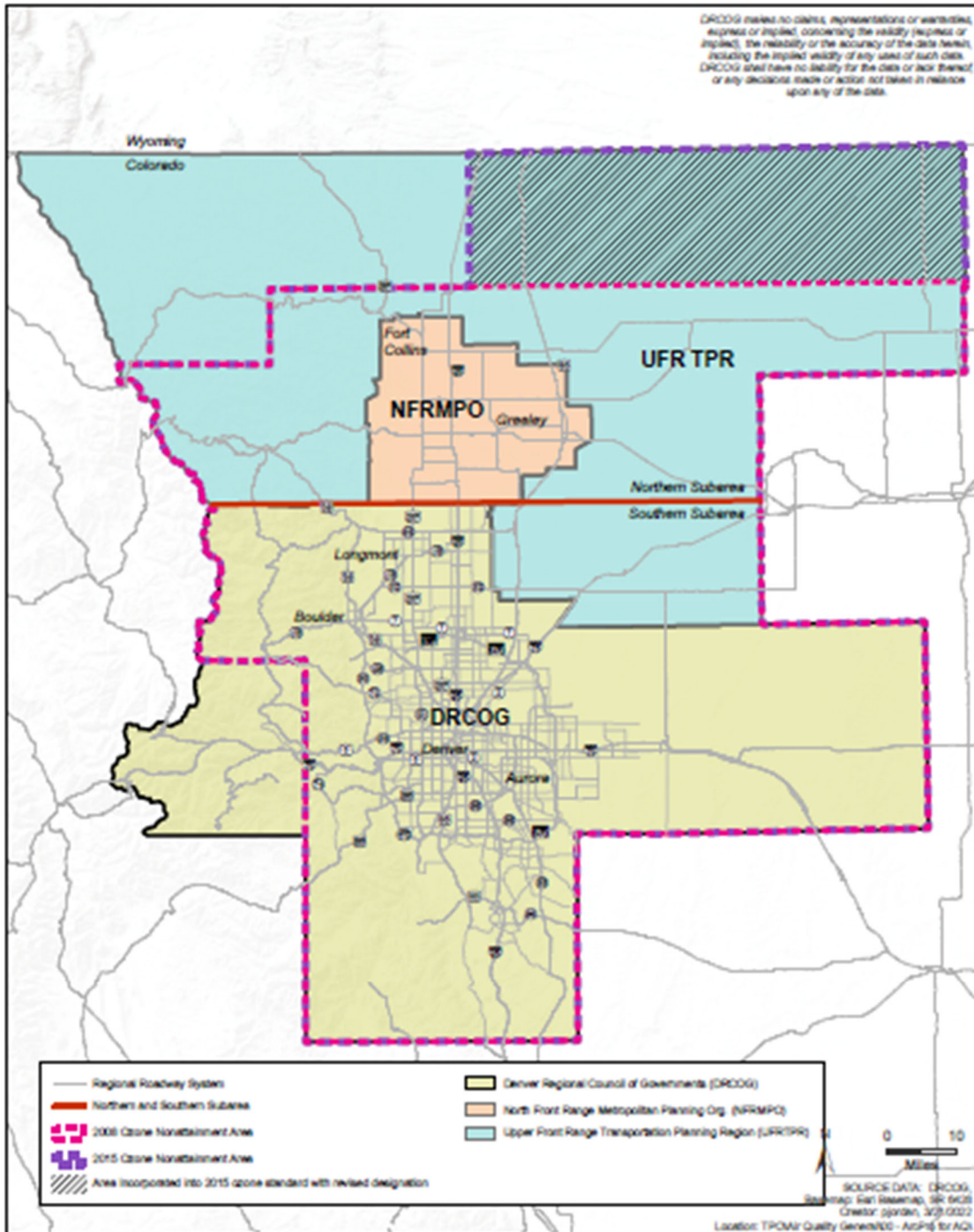
Date

Suzette Mallette, Executive Director, NFRMPO

Date

Attachment A

Figure 1. Planning Organizations Involved in Denver Metro/North Front Range 8-Hour Ozone Nonattainment Areas



Appendix C: NFRMPO 2019 Base Year Regional Travel Demand Model Description

Introduction

The NFRMPO 2019 Base Year (BY) Regional Travel Demand Model (RTDM) is a four-step travel model incorporating trip generation, trip distribution, mode choice, and trip assignment. The model was updated in 2019 to incorporate updated traffic counts, freight data, land use data, and various modeling improvements. The 2019 BY RTDM replaces the 2019 BY RTDM developed in 2019.

The 2019 BY RTDM was calibrated using data from the *NFRMPO Household Survey, 2010* and the *NFRMPO On-Board Transit Survey, 2009*. The household survey was used to develop the trip generation rates, trip length frequency distributions, and auto occupancy rates. The on-board survey was used in combination with the household survey to produce mode share targets. Detailed information on the modeling process, inputs, and procedures will be documented in the soon-to-be-released *North Front Range 2019 Base Year Regional Travel Model Documentation* which will be available at <https://nfrmpo.org/modeling/>.

Roadway volumes were validated using traffic count data collected between 2015 and 2019. Transit ridership was calibrated to match boarding counts on the transit systems in the region at the system level.

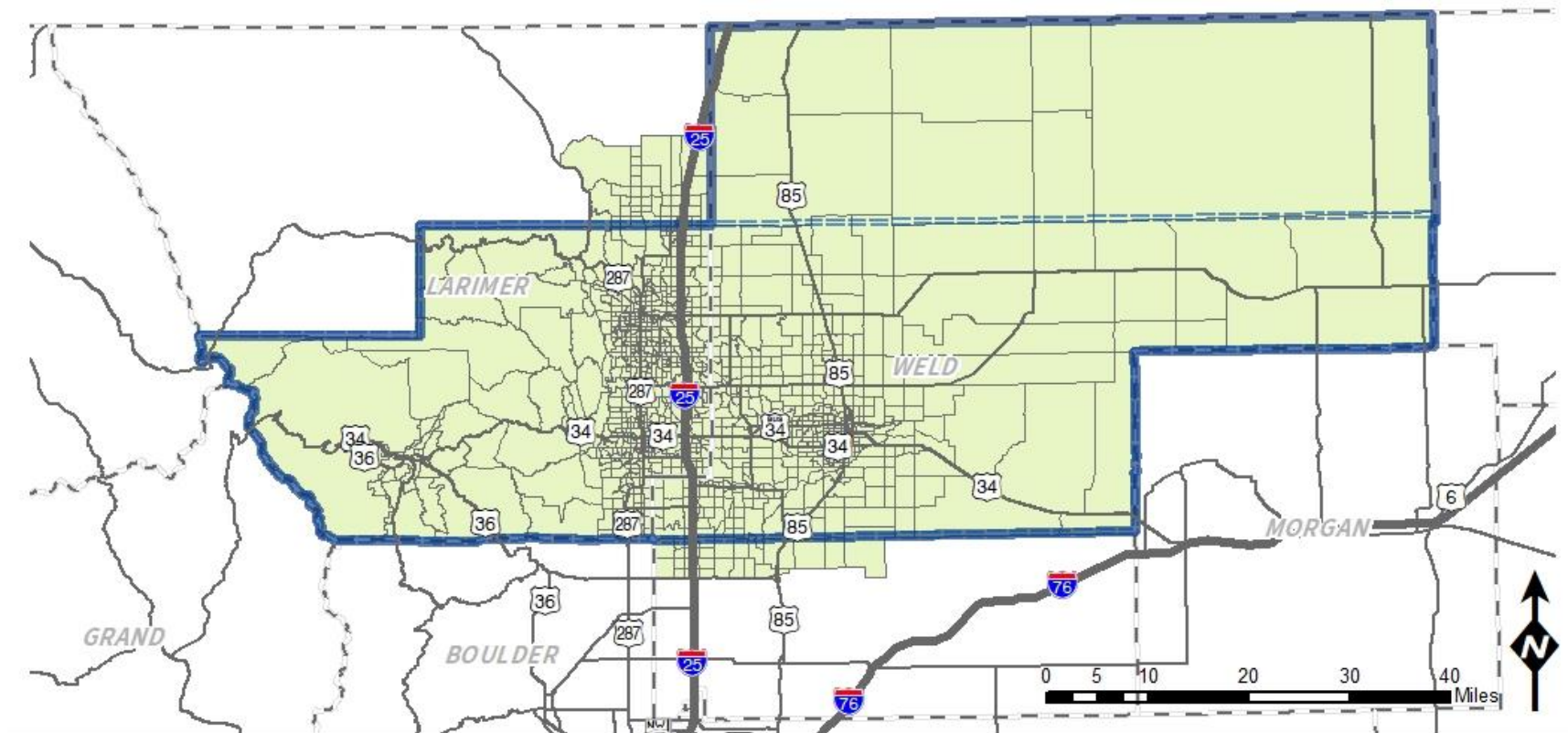
To facilitate modeling of the entire ozone nonattainment area, the model was expanded to cover additional portions of Larimer and Weld counties not within the NFRMPO boundary. The majority of this additional area is very sparsely populated. The expanded area includes the Estes Park area, which is heavily influenced by seasonal tourist activity. To best reflect the unique nature of the Estes Park area, an additional lodging-based trip purpose was included. In addition, the Estes Park area was modeled to represent summer conditions rather than school-season conditions due to the heavily seasonal nature of the area. The remainder of the modeling area remains reflective of an average weekday when school is in session.

The model incorporates a traffic analysis zone (TAZ) structure developed based on existing land use and roadway conditions, future land use, and staff comments from member governments. For the Northern Subarea, the TAZ structure includes 1,238 internal zones and 20 external stations. **Figure 4** depicts the complete TAZ structure, slightly larger than the 8-Hour Ozone Nonattainment Northern Subarea. The RTDM has a base year of 2019 and forecast years of 2026, 2030, 2040, and 2050.





Demographic Development Estimation

Socio-economic data is the input activity-based information that provides the foundation for trip-making in the RTDM. Data is recorded for basic, retail, medical, and service employment types and for households by income groups and household sizes. Data for the Estes Park area also includes lodging information to better represent tourist/visitor trips. Employment data is used in the RTDM primarily as generators of trip attractions. Household data is used in the RTDM primarily as a generator of trip productions. The NFRMPO develops and maintains a Census Block-based land use allocation model (LUAM) which distributes total households and employment at the Block level, which then aggregates to the TAZ level. The LUAM uses the household and employment control totals for the region developed by the Colorado State Demography Office (SDO).

Figure 4: TAZ Structure



Legend

-  Northern Subarea, 2008 NAAQS
-  Northern Subarea, 2015 NAAQS
-  Traffic Analysis Zones (TAZs)
-  County Boundaries

July 2023

Sources: CDOT, NFRMPO



Roadway and Transit System

Roadway and transit networks contain basic input information for use in the model and represents real-world conditions to the greatest extent possible. The roadway network contains over 8,400 links defined according to facility type, area type, speeds, capacities, etc. The roadway network is used to distribute trips and route transit and automobile trips. The roadway network was prepared based on data from the NFRMPO and from scheduling/phasing of projects in the RTP and TIP. The NFRMPO also collaborated with local jurisdictions as necessary to verify construction and opening dates. The model contains base year, interim year, and forecast year transit route systems based on information provided by Transfort, City of Loveland Transit (COLT), Greeley Evans Transit (GET), and CDOT. Transit networks are categorized into local, express, and Bus Rapid Transit (BRT) service.

Trip Generation

The trip generation module estimates trip productions and attractions based on zonal attributes (e.g. population, households, income, employment, etc.). Productions and attractions are generated for each TAZ and balanced by trip purpose at the regional level. Cross-classified trip rates are applied in the model to represent trip-making characteristics that vary by household size and income. Generally, trip rates increase as household size and income increase. The model includes the following trip purposes:

- **Home-Based Work (HBW):** Commute trips between home and work.
- **Home-Based University (HBU):** Trips between home and university locations (e.g., CSU, UNC) for school related purposes by people not employed by the university.
- **Home-Based Shop (HBS):** Trips between home and retail locations for the purpose of shopping.
- **Home-Based School (HBSc):** Trips between home and K-12 school locations for students in these schools.
- **Home-Based Other (HBO):** All other trips with one end at home.
- **Work-Based Other (WBO):** Work-related trips without an end at home.
- **Other-Based Other (OBO):** Trips with neither an end at home nor a work-related purpose.
- **Lodging-Based Other (LBO):** Trips made by visitors, based at a lodging establishment (Estes Park area only, not included in the household travel survey).
- **Medium Truck (MTRK):** Medium-heavy truck trips (FHWA Vehicle classes 5-7).
- **Heavy Truck (HTRK):** Heavy truck trips (FHWA Vehicle classes 8-12).

Some TAZs have unique land uses and generate a significantly different number of trips in comparison to the model's estimation. For these locations, special generator values are applied in the model to define the number of trips produced and attracted to the locations. The main Colorado State University (CSU) campus in Fort Collins and the University of Northern Colorado (UNC) campus in Greeley are the two University special generators used in the NFRMPO model area. Additionally, Rocky Mountain National Park is treated as a special generator in the expanded model area.

The model represents two types of external travel. Through trips are represented by the EE trip purpose and were estimated using traffic count data and information from the Statewide Travel Model developed by CDOT. Trips with one end inside the modeling area and another outside of the modeling area are referred to as Internal-External/External-Internal (IE/EI) trips. These trips are included in the primary model trip purposes described previously. At external stations, the number of IE/EI trips by purpose is based on traffic count data and analysis of the *NFRMPO Household Travel Survey* data.

Trip Distribution

Trip distribution is the process used to apportion person trip productions and attractions from the trip generation model among all zone pairs by trip purpose. The resulting trip table matrix contains both intrazonal trips (trips that do not leave the zone) on the diagonal and interzonal trips in all other zone interchange cells. The NFRMPO model uses a destination choice model for most trip purposes and a standard gravity model for HBU and HBSc trip purposes. The trip distribution model is validated to average trip lengths and trip length frequency distributions observed in the *NFRMPO Household Travel Survey*.

Mode Choice

The RTDM uses a nested logit model to determine travel modes. The first step in the mode analysis process is the split among primary modes: auto, transit, and non-motorized. The second step provides a choice between drive alone and shared ride 2 and shared ride 3+. The next model provides a choice between walk and drive access to transit, followed by a choice between walk or drive access and then local, express, and BRT. The drive access mode only considers express and BRT transit, as on-board data shows that drive access to local transit is minimal in the region. Lastly, the model provides a choice between walk and bike.

Traffic Assignment/Time-of-Day Analysis

The traffic assignment module loads vehicle trips onto the roadway network to estimate link-specific traffic volumes. This is done for three time periods which cover the entire day: the PM peak period, AM peak period, and off-peak. Each of these trip tables is assigned to the roadway network using a capacity constrained equilibrium assignment procedure. The resulting traffic volumes from the four assignments are summed to estimate a 24-hour volume for each link in the network.

As part of the RTDM's 2019 base year development using the household survey and traffic count data, additional time-of-day parameters were developed to represent the variation of travel patterns throughout the day. The time-of-day assignment process uses the vehicle trip table in production/attraction format for the three time periods and divides it into eight time periods: AM peak, one AM shoulder hour, midday peak period, PM peak, three PM shoulder hours, and an off-peak period representing the remainder of the day. The mid-day and off-peak periods may be further divided into hourly volumes using percentages identified in the model documentation.

Model Validation

Validation involves testing the RTDM's predictive capabilities. Validation tests include quantifying the model's ability to replicate observed conditions and performing sensitivity tests.

The base year validation effort was conducted by comparing model results to observed traffic count data representative of 2019 (collected between 2015 and 2019). Transit ridership was validated to boarding counts on the transit systems in the region at the system level. The overall sum of model volumes is within two percent of the traffic counts on the same links. Model volume totals by facility type are within eight percent of the sum of traffic counts for arterials and freeways and within 23 percent for collectors. The overall percent root mean square error (percent RMSE) is within 40 percent. Additional detail on model validation is available in Section 12 of the RTDM Technical Report.

Speed Feedback

A speed feedback loop is incorporated into the modeling process to ensure consistency of speeds. This corrects a fundamental problem with travel demand models when estimated speeds used in the trip distribution process are not the same as those which result from the traffic assignment/speed estimation process.

Air Quality Modeling

The Air Pollution Control Division (APCD) conducts the air pollutant emissions modeling using the Environmental Protection Agency (EPA) Motor Vehicle Emissions Simulator (MOVES) computer software, MOVES2014b. The NFRMPO, APCD, and other agencies work together in this effort, both to develop the modeling techniques, assumptions, and parameters, and reviewing the executed model runs. The RTDM outputs are one of the principal inputs to the air pollutant emissions model. The air pollutant emissions model estimates the amount of emissions of Volatile Organic Compounds (VOCs) and Nitrogen Oxides (NO_x) generated by motor vehicles. The results are then combined with numerous assumptions concerning meteorology and atmospheric chemical reactions to produce air pollutant concentration estimates. No dispersion modeling was conducted for this analysis; only emission estimates were calculated.

Inputs included the link vehicle miles traveled (VMT) and speeds from the transportation networks, vehicle fleet mix estimates from the Colorado Department of Transportation (CDOT) automatic traffic counters, maximum and minimum temperature, the ethanol content, and Reid Vapor Pressure (RVP) of the gasoline. The emissions model included adjustments for emission reduction credits from the federally approved Inspection and Maintenance (I/M) program.²⁴ For the Northern Subarea the RVP was 7.8 psi and 10-15 percent by volume ethanol in all gasoline. The results reflect recent vehicle age distribution and mileage accumulation rates from the Mobile Sources program.

²⁴40 CFR 93.122(a)(3)(i)., <http://www.gpo.gov/fdsys/pkg/CFR-2012-title40-vol21/pdf/CFR-2012-title40-vol21-sec93-122.pdf>, 2012

Appendix D: 8-Hour Ozone Northern Subarea Modeling Summary

Table 3: 8-Hour Ozone Northern Subarea Modeling Summary

	2026 (1 st Horizon Year)	2050 (Last Horizon Year)
Socioeconomic Data		
Population	632,571	927,879
Employment	362,590	490,155
VMT-Weighted Speed by Roadway Type		
Interstate	75	75
Expressway	57	57
Principal Arterial	41	41
Minor Arterial	45	46
Collector	38	37
Ramp	51	48
Frontage Road	48	47
Centroid Connector	32	32
Average	53	53
Daily VMT		
Interstate	4,475,836	6,373,012
Expressway	2,456,213	3,412,875
Principal Arterial	4,722,773	6,713,216
Minor Arterial	3,711,974	5,768,076
Collector	1,671,132	2,626,978
Ramp	133,620	188,464
Frontage Road	129,363	217,574
Centroid Connector	2,006,294	2,955,547
Total	19,307,205	28,255,742
Lane Miles by Roadway Type		
Interstate	323	356
Expressway	456	456
Principal Arterial	965	1,045
Minor Arterial	1,235	1,333
Collector	2,529	2,569
Ramp	24	25
Frontage Road	87	87
Centroid Connector	2,796	2,794
Total	8,415	8,665
Source: <u>NFRMPO 2019 Regional Travel Demand Model, 2010 Land Use Allocation Model</u>		
Note: Data is based on the Northern Subarea, including the additional area in Weld County.		

Appendix E: Northern Subarea Regional Travel Demand Model Projects

Figure 5: Fiscally Constrained Roadway Capacity and Infrastructure Projects

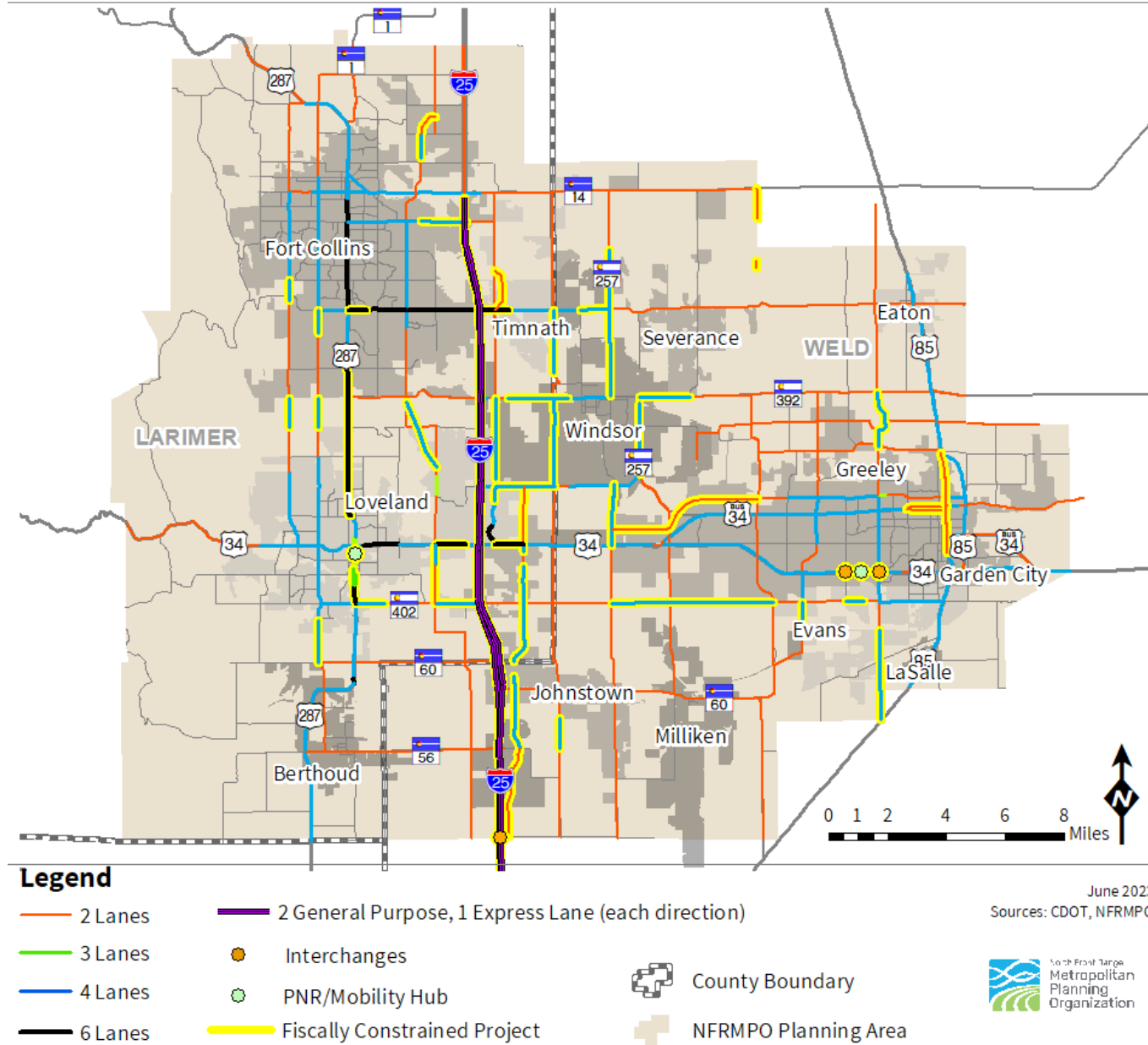


Table 4: Fiscally Constrained RSC Capacity Projects, Staging Period A: 2024-2026

Map ID	RSC	Project Name	Project Limits	Improvement Type
A1	1	I-25 Express Lane Segment 7&8	SH14 to SH402	Add tolled express lane in each direction and interchange reconstructions
A2	1	I-25 Express Lane Segment 6	SH402 to SH56	Add tolled express lane in each direction and interchange reconstructions
A3	2	US 34 Widening	Boyd Lake Ave. to Rocky Mountain Ave.	Widen from 4 lanes to 6 lanes
A4	3	10th St Mobility Enhancements	E of 23rd Ave to 10th Ave	Convert to Two-Way
A5	3	9th St Mobility Enhancements	E of 23rd Ave to 8th Ave	Convert to Two-Way
A6	12	SH-392 Widening	Highland Meadows Pkwy to Colorado Blvd	Widen from 2 lanes to 4 lanes
A7	13	SH 402 Widening	St. Louis to Boise	Widen from 2 lanes to 4 lanes
A8	13	WCR-54 / 37th St Widening	47th Ave to Stampede Dr	Widen from 2 lanes to 4 lanes
A9	14	LCR 3 Paving	US 34 to Crossroads Blvd	Paving Unpaved Road
A10	14	High Plains Blvd New Road	2500 ft N of LCR14 to LCR14	New 4 lane road
A11	14	High Plains Blvd Widening	Juniper to SH60	Widen from 2 lanes to 4 lanes
A12	14	High Plains Blvd New Road	SH60 to 2500 ft S of SH 60	New 4 lane road
A13	16	Timberline New Road 1	Giddings to Mountain Vista	New 2 lane road
A14	18	Taft Hill Widening	Harmony to Brixton	Widen from 2 lanes to 4 lanes
A15	23	Harmony Road Widening	WCR-15 to SH-257	Widen from 2 lanes to 4 lanes
A16	26	Crossroads Blvd Widening	Centerra to LCR 3	Widen from 2 lanes to 4 lanes

A17	2	US 34 Widening	Centerra Pkwy. to LCR 3	Widen from 4 lanes to 6 lanes
A18	28	Prospect Widening	Summit View to I-25	Widen from 2 lanes to 4 lanes
A19	28	Prospect Widening	Sharp Point to Summit View	Widen from 2 lanes to 4 lanes

Table 5: Fiscally Constrained RSC Capacity Projects, Staging Period B: 2027-2030

Map ID	RSC	Project Name	Project Limits	Improvement Type
B1	1	I-25 Express Lane Segment 5	SH56 to WCR 38	Add tolled express lane in each direction and interchange reconstructions
B2	1	I-25 and WCR-38 Interchange	WCR-38 to WCR-38	New Interchange
B3	2	US 34 and 47th Interchange	47th Ave to 47th Ave	New interchange
B4	2	US 34 and 35th Interchange	35th Ave to 35th Ave	New interchange
B5	2	US 34 Mobility Hub at Centerplace	N/A	PNR
B6	5	8th Avenue / US 85 Business Mobility Enhancements	O Street to 24th Street	Reduce from 4 lanes to 2 lanes
B7	11	SH-257 Widening	Walnut St to Eastman Park Dr.	Widen from 2 lanes to 4 lanes
B8	12	SH 392 Widening	WCR-19 to WCR-21	Widen from 2 lanes to 4 lanes
B9	12	SH-392 Widening	WCR-21 to WCR-23	Widen from 2 lanes to 4 lanes
B10	12	SH-392 Widening	Colorado Blvd to 17th Street	

B11	13	SH 402 Widening	Boyd Lake Ave to I-25	Widen from 2 lanes to 4 lanes
B12	14	High Plains Blvd Widening	US 34 to Ronald Reagan	Widen from 2 lanes to 4 lanes
B13	14	High Plains Blvd New Road	LCR20C to LCR18	Widen from 2 lanes to 4 lanes
B14	14	High Plains Blvd New Road	LCR16 to 2500 ft N of LCR14	New 4 lane road
B15	14	WCR-9.5 New Road	WCR 44 / SH 56 to WCR32	New 2 lane road
B16	15	Centerra Parkway Widening	Crossroads Blvd to 0.5 miles south	Widen from 2 lanes to 4 lanes
B17	15	LCR 5 Widening	LCR 30 to SH 392	Widen from 2 lanes to 4 lanes
B18	16	Boyd Lake Extension	SH 402 to LCR 20C	New 2 lane road
B19	19	LCR 1 Widening	Harmony Rd to South GMA	Widen from 2 lanes to 4 lanes
B20	23	Harmony Road Widening	College to Boardwalk	Widen from 4 lanes to 6 lanes
B21	23	Harmony Widening	I-25 to LCR-1	Widen from 4 lanes to 6 lanes
B22	25	65th Avenue Widening	WCR-54/37th St to 49th St	Widen from 2 lanes to 4 lanes
B23	26	Crossroads Widening	LCR 3 to WCR 13	Widen from 2 lanes to 4 lanes

Table 6: Fiscally Constrained RSC Capacity Projects, Staging Period C: 2031-2040

Map ID	RSC	Project Name	Project Limits	Improvement Type
C1	6	US 287 / College Widening	Trilby to Carpenter / LCR 32	Widen from 4 lanes to 6 lanes
C2	6	US 287 Widening	29th St. to 71st St.	Widen from 4 lanes to 6 lanes

C3	6	US 287 Widening	LCR 32 / SH392 to LCR 30	Widen from 4 lanes to 6 lanes
C4	6	US 287 Widening	1st St / 2nd St to SH 402	Widen from 4 lanes to 6 lanes
C5	11	SH-257 Widening	Eastman Park Dr. to Crossroads	Widen from 2 lanes to 4 lanes
C6	11	SH-257 Widening	WCR-78 to WCR-74	Widen from 2 lanes to 4 lanes
C7	11	SH-257 Widening	WCR-74 to SH-392	Widen from 2 lanes to 4 lanes
C8	13	SH 402 Widening	US 287 to St. Louis	Widen from 2 lanes to 4 lanes
C9	13	WCR-54 / 37th St Widening	WCR 17 to SH257	Widen from 2 lanes to 4 lanes
C10	14	High Plains Blvd New Road	LCR18 to LCR16	New 4 lane road
C11	14	High Plains Blvd New Road	2500 ft S of SH 60 to WCR46	New 4 lane road
C12	15	N Fairgrounds Ave Widening	Rodeo Rd. to 71st St. (CR 30)	Widen from 2 lanes to 4 lanes
C13	15	Timnath Bypass/Parkway New Road	N of LCR 40 to LCR 38	New 2 lane road
C14	16	Boyd Lake Widening 3	LCR 20C to US 34	Widen from 2 lanes to 4 lanes
C15	16	Timberline Widening 3	Mountain Vista to N of Vine	Widen from 2 lanes to 4 lanes
C16	17	LCR 17 Widening	LCR 32 to LCR 30	Widen from 2 lanes to 4 lanes
C17	17	LCR 17 Widening	CR 16/28th St SW to CR 14/SH 60	Widen from 2 lanes to 4 lanes
C18	17	Shields Widening	Harmony to Hilldale	Widen from 2 lanes to 4 lanes
C19	17	Taft Ave Widening 2	23rd St. SW to 28th St SW / LCR 16	Widen from 2 lanes to 4 lanes
C20	18	LCR 19 Widening	LCR 32 to LCR 30	Widen from 2 lanes to 4 lanes
C21	19	WCR-13 Widening	Kaplan Dr to Crossroads	Widen from 2 lanes to 4 lanes
C22	19	WCR-13 Widening	SH-392 to Kaplan Dr	Widen from 2 lanes to 4 lanes

C23	20	WCR-17 Widening	WCR-62 / Crossroads to US-34	Widen from 2 lanes to 4 lanes
C24	21	WCR 27 New Road	SH 14 to WCR 74	New 2 lane road
C25	22	35th Ave New Road	49th Street to WCR 35 / WCR 394	New 4 lane road
C26	22	35th Ave Widening	WCR-394 to US-85	Widen from 2 lanes to 4 lanes
C27	29	4th St New Road	WCR 17 to 83rd Ave.	New 2 lane road
C28	22, 26	WCR-35 (35th Ave) Widening	SH 392 to O Street	Widen from 2 lanes to 4 lanes

Table 7: Fiscally Constrained RSC Capacity Projects, Staging Period C: 2031-2040

Map ID	RSC	Project Name	Project Limits	Improvement Type
D1	6	11th and US 287 Park and ride	N/A	PNR
D2	13	WCR-54 / 37th St Widening	SH 257 to 77th Ave / 83rd Ave/ Two Rivers Parkway	Widen from 2 lanes to 4 lanes
D3	14	High Plains Blvd New Road	WCR46 to WCR44	New 4 lane road
D4	16	New Road UP: LCR 11 to LCR 9	LCR 11 south of SH 392 to LCR 9 north of Valley Oak Dr	New 4 lane road
D5	19	WCR-13 Widening	WCR 46 to WCR 44	Widen from 2 lanes to 4 lanes

***Appendix F: Resolution 2023-15 North Front Range Transportation & Air Quality
Planning Council (NFRT&AQPC) Adoption***

RESOLUTION NO. 2023-15
OF THE NORTH FRONT RANGE TRANSPORTATION & AIR QUALITY PLANNING COUNCIL
ADOPTING CONFORMITY DETERMINATIONS FOR THE NORTH FRONT RANGE METROPOLITAN PLANNING
AREA FY2024-2027 TRANSPORTATION IMPROVEMENT PROGRAM (TIP) AND THE FISCALLY
CONSTRAINED 2050 REGIONAL TRANSPORTATION PLAN (RTP) AND FOR THE NORTHERN SUBAREA OF
THE UPPER FRONT RANGE TRANSPORTATION PLANNING REGION 2045 RTP AND THE FY2024-2027
STATEWIDE TRANSPORTATION IMPROVEMENT PROGRAM (STIP)

WHEREAS, 23 CFR §450 requires the development of a fiscally constrained Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP) for Metropolitan Planning Organizations (MPOs) through a continuing, cooperative, and comprehensive (“3C”) multimodal transportation planning process; and

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

WHEREAS, a portion of the City of Fort Collins is currently designated as a maintenance area 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 Metro-North Front Range 8-hour ozone nonattainment area which includes the North Front Range metropolitan planning area and portions of Larimer and Weld counties outside the NFRMPO boundary, but are contained within the Upper Front Range Transportation Planning Region (UFRTPR); and


WHEREAS, the Northern Subarea of the Denver Metro-North Front Range 8-hour ozone nonattainment area was expanded in December 2021 to include all of Weld County to the state line; and

WHEREAS, the NFRMPO is required to update the 2050 RTP to be in compliance with the State of Colorado GHG Planning Standard; 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 the North Front Range Transportation & Air Quality Planning Council determines the FY2024-2027 TIP, the 2050 RTP, a portion of the Upper Front Range 2045 RTP, and a portion of the Colorado FY2024-2027 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 this 7th day of September 2023.


Scott K James (Sep 8, 2023 12:25 MDT)
Scott James, Chair

ATTEST:


Suzette Mallette (Sep 8, 2023 13:10 MDT)
Suzette Mallette, Executive Director

Appendix G: APCD Conformity Concurrence



COLORADO
Air Quality Control Commission
Department of Public Health & Environment

August 28, 2023

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

The Colorado Air Quality Control Commission has reviewed the North Front Range Metropolitan Planning Organization's conformity determination conducted for the following transportation plans and programs: the North Front Range Metropolitan Planning Area 2050 Regional Transportation Plan Update, the FY2024-2027 Transportation Improvement Program, the Northern Subarea of the Upper Front Range Transportation Planning Region 2050 Regional Transportation Plan, and for the Northern Subarea of the Upper Front Range Transportation Planning Region portion of the Colorado FY2024-2027 Statewide Transportation Improvement Program. The Air Quality Control Commission agrees that these plans and programs conform to the State Implementation Plan and emissions budgets for ozone precursors.

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 conformity staging or reporting years. Therefore, the Air Quality Control Commission concurs with this conformity determination. We understand that the North Front Range Metropolitan Planning Organization Planning Council plans to formally adopt these plans and programs on September 7, 2023. Barring any substantive changes in the interim, our concurrence with the positive conformity determination will apply to the final version of these plans and programs.

Should you have any questions regarding the Air Quality Control Commission's action, please contact Rick Coffin at 303-692-3127 or at richard.coffin@state.co.us.

Sincerely,

Elise Jones, Chair
Colorado Air Quality Control Commission

Cc: Greg Lohrke, U.S. EPA, Region 8
Bill Haas, FHWA
Doug Rex, DRCOG
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Jojo La, CDPHE
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Appendix H: U.S. Department of Transportation Conformity Finding

Appendix

C

GHG Transportation Report



NFRMPO GHG Transportation Report

Determining Compliance with the GHG Transportation Planning Standard

for the
North Front Range Metropolitan Planning Area
2050 Regional Transportation Plan
And
FY2024-2027 Transportation Improvement Program

The North Front Range Metropolitan Planning Organization
419 Canyon Avenue, Suite 300 Fort Collins, CO 80521

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June 20, 2023



Table of Contents

<i>Purpose</i>	3
<i>Background</i>	3
<i>Greenhouse Gas (GHG) Emissions Analysis</i>	4
Baseline Plan Description	5
Updated Plan Description	6
Modeling Summary	6
<i>Public Participation</i>	7
<i>Impact</i>	10
Appendix A: GHG Modeling Assumptions and Model Execution Intergovernmental Agreement (2023)	12
Appendix B: NFRMPO 2019 Base Year Regional Travel Demand Model Description	19
Appendix C: MOVES3 Model Description	31
Appendix D: Resolution 2023-12 North Front Range Transportation & Air Quality Planning Council (NFRMPO) Adoption	47
Appendix E: APCD Verification	49
Appendix F: Colorado Transportation Commission Resolution	52

LIST OF TABLES

Table 1: GHG Emissions Results, Million Metric Tons (MMT) per Year	5
Table 2: Modeled Improvements and Funding Sources	6
Table 3: NFRMPO Modeling Summary, Baseline Plan	8
Table 4: NFRMPO Modeling Summary, Updated Plan	9
Table 5: NFRMPO Modeling Summary, Comparison of Baseline to Updated Plan	11
Table B-1: TDM Improvements and Funding Sources	24
Table B-2: TDM Reduction Factor by Location and Trip Purpose, 2030	25
Table B-3: TDM Reduction Factor by Location and Trip Purpose, 2040 and 2050	25
Table B-4: Walk and Bicycle Speed Assumptions	26
Table B-5: Bicycle and Pedestrian Alternative Specific Constants	26
Table B-6: Bicycle and Pedestrian Alternative Specific Constants, Equivalent Minutes of In-Vehicle Travel Time (IVTT)	26
Table B-7: Unadjusted and Adjusted Transit Assumptions	27
Table B-8: Arterial Signal Timing Assumptions, Updated Plan	28
Table B-9: NFRMPO Modeling Summary, Validation	30

LIST OF FIGURES

Figure 1: NFRMPO Planning Area	4
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Figure B-1: The Four-Step Travel Model.....	22
Figure B-2: TDM in the Model.....	24

LIST OF ACRONYMS

APCD – Air Pollution Control Division
BRT – Bus Rapid Transit
BY – Base Year
CCR – Code of Colorado Regulations
CDOT – Colorado Department of Transportation
CDPHE – Colorado Department of Public Health and Environment
CCR – Code of Colorado Regulations
CFR – Code of Federal Regulations
COLT – City of Loveland Transit
CSU – Colorado State University
DRCOG – Denver Regional Council of Governments
EPA – Environmental Protection Agency
FHWA – Federal Highway Administration
GET – Greeley-Evans Transit
GHG – Greenhouse Gas
HHTS – Household Travel Survey
IACT – State Interagency Consultation Team
IGA – Intergovernmental Agreement
LUAM – Land Use Allocation Model
MAP – Mitigation Action Plan
MMT – Million Metric Tons
MOVES3 – MOtor Vehicle Emission Simulator model

MPA – Metropolitan Planning Area
MPO – Metropolitan Planning Organization
NFRMPO – North Front Range Metropolitan Planning Organization
NFRT&AQPC – North Front Range Transportation and Air Quality Planning Council
OBTS – On-Board Transit Survey
PD – Policy Directive
PIP – Public Involvement Plan
PMT – Person Miles Traveled
RTDM – Regional Travel Demand Model
RTE – Regional Transit Element
RTP – Regional Transportation Plan
SIP – State Implementation Plan
SDO – State Demography Office
TAZ – Traffic Analysis Zone
TC – Transportation Commission
TDM – Transportation Demand Management
TIP – Transportation Improvement Program
TMA – Transportation Management Area
UNC – University of Northern Colorado
VHT – Vehicle Hours Traveled
VMT – Vehicle Miles Traveled

Purpose

This report demonstrates the 2050 Regional Transportation Plan (RTP) and the FY2024-2027 Transportation Improvement Program (TIP) complies with Colorado's greenhouse gas (GHG) Transportation Planning Standard ("GHG Planning Standard") specified in the Code of Colorado Regulations ([2 CCR 601-22](#)).

The demonstration is based on analysis of all trips conducted using the NFRMPO's 2019 Base Year (BY) Regional Travel Demand Model (RTDM) and the Environmental Protection Agency's (EPA's) Motor Vehicle Emission Simulator (MOVES3) air quality model. The NFRMPO is not relying on GHG Mitigation Measures to demonstrate compliance with the GHG Planning Standard, and as such, this report does not include a Mitigation Action Plan (MAP).

The North Front Range Transportation and Air Quality Planning Council (NFRT&AQPC) will entertain adoption of this GHG Transportation Report at their regular monthly meeting on July 6, 2023. Subsequently, the NFRT&AQPC will entertain adoption of the 2050 RTP, FY2024-2027 TIP, and the ozone and carbon monoxide (CO) air quality conformity determination at their regular monthly meeting on September 7, 2023.

Background

In 2021, *Senate Bill (SB) 21-260: Sustainability of the Transportation System* was enacted in Colorado. The bill, which created new sources of funding for transportation, also required the Colorado Transportation Commission (TC) to adopt implementing guidelines and procedures for addressing GHG emissions in transportation planning. In December 2021, the TC adopted revisions to the statewide transportation planning rules to incorporate a new GHG Planning Standard to address the GHG requirements in SB21-260.

The GHG Planning Standard requires the Colorado Department of Transportation (CDOT) and the Metropolitan Planning Organizations (MPOs) in Colorado to determine the amount of GHG emissions from transportation projects included in transportation plans and take steps to reduce GHG emissions relative to estimated emissions resulting from Baseline Plans. Baseline Plans are those plans in place at the time the GHG Planning Standard became effective on January 30, 2022.

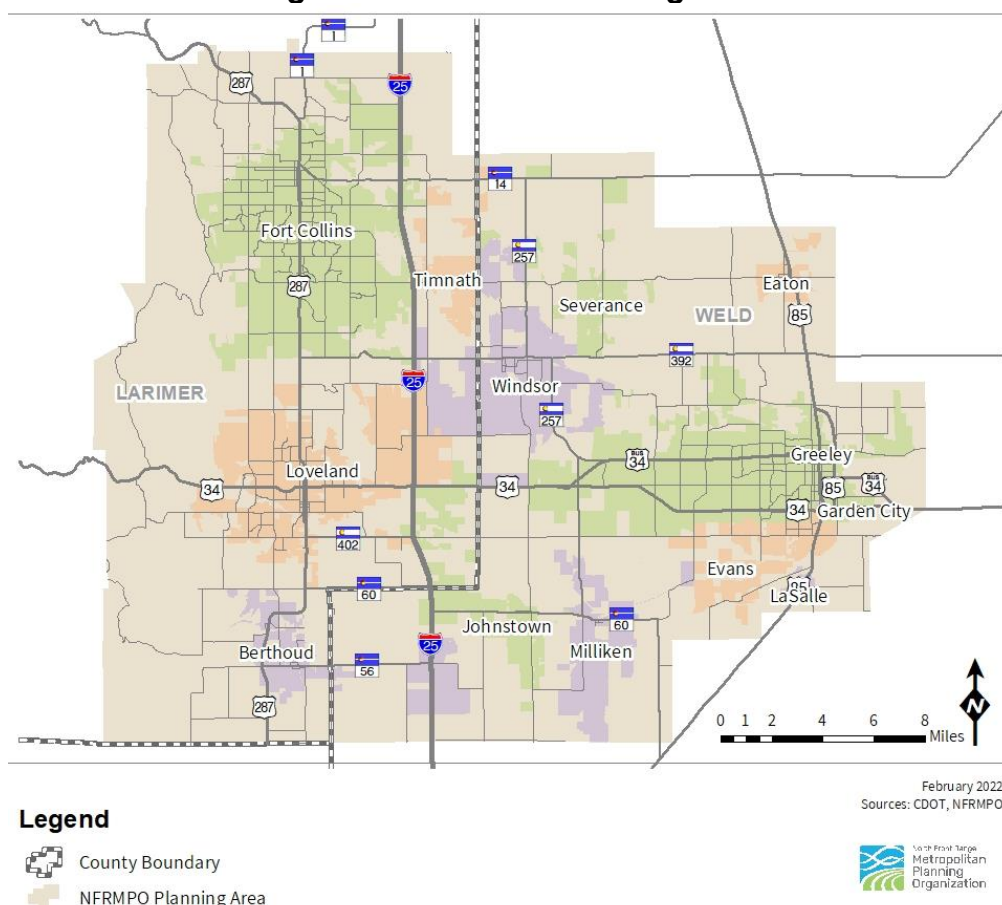
The NFRMPO is the MPO for the Fort Collins Transportation Management Area (TMA), which includes Berthoud, Fort Collins, Loveland, and portions of Johnstown, Timnath, and Windsor, and the Greeley Urban Area, which includes Greeley, Evans, and LaSalle. The NFRMPO has 15 local government members, including 13 municipalities and portions of Larimer and Weld counties. The NFRMPO Planning Boundary is shown in **Figure 1**.

The Baseline Plan for the NFRMPO is the 2045 RTP, which was adopted by the NFRT&AQPC on September 5, 2019 and was in effect as of January 30, 2022. For this GHG Transportation Report, the 2045 RTP will be referred to as the Baseline Plan and the 2050 RTP will be referred to as the Updated Plan. The FY2024-2027 TIP, which is consistent with the 2050 RTP, is assessed as part of the analysis for the Updated Plan.

An Intergovernmental Agreement (IGA) between the Air Pollution Control Division (APCD) of the Colorado Department of Public Health and Environment (CDPHE), CDOT, and the NFRMPO was signed and executed on May 30, 2023 and is included in **Appendix A**. The IGA identifies the roles and responsibilities of each agency for model execution and address modeling assumptions for compliance demonstrations for the GHG Planning Standard.

The NFRMPO is also responsible for determining conformity with the State Implementation Plan (SIP) for ozone and carbon monoxide per the federally prescribed transportation conformity process for nonattainment areas. The conformity determination for the 2050 RTP and the FY2024-2027 TIP, which demonstrates conformity with the SIP, will be available for review at: <https://nfrmpo.org/public-comment/>.

Figure 1: NFRMPO Planning Area



Greenhouse Gas (GHG) Emissions Analysis

For this report, GHG analysis is required in five compliance years: 2025, 2027, 2030, 2040, and 2050. The 2027 compliance year is required because it is the last year of the TIP, while the other four years are explicitly identified as required compliance years in the GHG Planning Standard.

Annual GHG emissions for the Baseline Plan and Updated Plan are shown in **Table 1** for each compliance year. The “Reduction” row of **Table 1** displays the amount of reduced GHG emissions in million metric tons (MMT) for each compliance year and reflects the difference between the Baseline Plan and the Updated Plan. **Table 1** also shows the GHG Reduction Levels established for the NFRMPO in the GHG Planning Standard for each compliance year, with the value for 2027 interpolated.

As shown in **Table 1**, the 2050 RTP and FY2024-2027 meet or exceed the required GHG Reduction Levels in each of the five compliance years, demonstrating compliance with the GHG Planning Standard.

Table 1: GHG Emissions Results, Million Metric Tons (MMT) per Year					
	2025*	2027*	2030	2040	2050
Baseline Plan: 2045 RTP	1.55	1.52	1.40	1.01	0.64
Updated Plan: 2050 RTP	1.47	1.45	1.28	0.90	0.56
Reduction	0.12	0.07	0.12	0.11	0.08
Required GHG Reduction Level	0.04	0.06	0.12	0.11	0.07
Pass/Fail	PASS	PASS	PASS	PASS	PASS
<p>*All values for 2025 and 2027 are interpolated. Note: Some numbers in this chart may not add correctly due to rounding.</p>					

The following sections provide details of the Baseline Plan and Updated Plan as well as modeling summaries for the NFRMPO's GHG emissions analysis.

Baseline Plan Description

The GHG analysis of the Baseline Plan includes the roadway, transit, and non-motorized facility improvements identified in the 2045 RTP as modeled using the 2019 BY RTDM.

The 2045 RTP identified the major capacity projects, including regionally significant roadway and transit capacity expansion, that are fiscally constrained and planned for the region through 2045. Each of these major capacity projects is identified in the maps and tables included in [Chapter 3, Section 5](#) of the 2045 RTP. Projects are assigned to one of four staging periods based on anticipated year of completion, including 2020, 2021-2030, 2031-2040, and 2041-2045.

Transit projects are explicitly identified in the 2045 RTP only if they are regional transit projects between jurisdictions, if they are on fixed guideways, and/or if they serve at least 3,000 riders per day. There are five fiscally constrained transit capacity projects included in the Plan, which includes the routes recommended for investment in the NFRMPO's 2045 Regional Transit Element (2045 RTE). In addition to the major transit projects, the fiscally constrained plan of the 2045 RTP includes commitments to local transit system expansion planned as of 2019, as specified in the 2019 Transfort Transit Master Plan and the 2017 Greeley Evans Transit 5-10 Year Strategic Plan, and these local system expansions are included in the modeling of the Baseline Plan. The City of Loveland Transit (COLT) system did not have any planned expansion at the time the 2045 RTP was developed and therefore the 2045 RTP did not assume any expansion of the COLT system.

For non-motorized facility investment, the 2045 RTP includes the buildout of the 12 Regional Non-Motorized Corridors (RNMC) identified in the NFRMPO's 2016 Non-Motorized Plan. The 2045 RTP does not include any commitments for the expansion of the local non-motorized system.

Updated Plan Description

The GHG analysis of the Updated Plan includes the roadway, transit, and non-motorized facility improvements, along with other GHG-reducing strategies, identified in the 2050 RTP as modeled using the 2019 BY RTDM. The updated project list for the 2050 RTP is included in the 2050 RTP and is based on feedback and guidance from NFRMPO communities.

The 2050 RTP relies on four categories of strategies for achieving GHG Reductions. **Table 2** describes improvements based on categories and funding sources. How these projects are incorporated into the modeling is explained throughout this document. Additional detail on these strategies is also available in the 2050 RTP.

Table 2: Modeled Improvements and Funding Sources		
Category	Improvement	Funding Source
<i>Transit</i>	<ul style="list-style-type: none"> Updated transit network to match local plans and efforts Acknowledgment of additional funding opportunities LinkNoCo recommendations 	CDOT 10-Year Plan, FTA, MMOF
<i>TDM</i>	<ul style="list-style-type: none"> TDM program based on local plans and efforts Impact of Council setting aside TMO funding Increase in work from home in all compliance years 	MMOF, IIJA
<i>Operations</i>	<ul style="list-style-type: none"> Arterial signal timing improvements by 2030 and additional signal timing improvements through 2050 	CDOT 10-Year Plan, IIJA, Local funds
<i>Active Transportation</i>	<ul style="list-style-type: none"> Expansion of the local bicycle and pedestrian network by 2030 and increasing to 2050 Completion of Regional Active Transportation Corridors (RATCs) by 2045 	IIJA, MMOF, Local Funds

Modeling Summary

Key inputs and outputs from the travel model runs for four of the compliance years for the Baseline Plan and the Updated Plan are provided in **Tables 3 and 4**. The **Tables** identify demographic data and travel forecasts for the NFRMPO region, which is a subset of a larger modeling area represented in the NFRMPO's 2019 BY RTDM. The forecasted demographic data is from the NFRMPO 2019 BY Land Use Allocation Model (LUAM), which allocates households and jobs forecasted for the entire modeling area by the Colorado State Demography Office (SDO) to smaller geographies throughout the region. The same land use dataset was used to model the Baseline Plan and the Updated Plan, which means all differences in the emissions results are

due to changes in transportation strategies instead of also reflecting any changes in land use planning or population forecasts.

The NFRMPO 2019 BY RTDM forecasts travel demand for a typical weekday when school is in session. The vehicle and transit data shown in the **Tables** is for a typical weekday. To account for lower traffic volumes on weekends and most holidays, a factor of 338 is used to convert daily VMT forecasts from the travel model into annual estimates used in the GHG emissions analysis. Additional detail on the NFRMPO 2019 BY RTDM is available in **Appendix B**.

NFRMPO staff evaluated each GHG strategy for reasonableness, appropriateness, and fundability through existing and expected funding sources. It is important to note this report estimates total GHG emissions for the Updated Plan instead of attempting to identify the GHG emissions reductions from each strategy. This is because the effect of each strategy is nonadditive in the model, as they are in real life: implementing two or more strategies may create a larger impact than the sum of impact from each constituent strategy due to synergies, or it may create a reduced impact compared to the sum of each constituent strategy due to overlaps in how the strategies are reducing GHG.

Compared to the Baseline Plan, the Updated Plan has a large increase in walk trips and bike trips and a moderate increase in transit trips. Better connectivity and accessibility on the bicycle and pedestrian network and better frequency and more regional transit service account for the increases. In addition, congestion is expected to grow into the future because of the population and job growth, making walking, bicycling, and transit more attractive than they otherwise would.

Based on training provided by CDPHE, NFRMPO staff ran a version of MOVES. After completing an RTDM model run, NFRMPO staff exported that run's network shapefile to update for county designation and more accurate segment lengths. During shapefile processing, staff confirmed county designation by checking if each network link's centroid was located in the correct county. After confirming the county designation, staff added a new field to the shapefile named cntyMiles and calculated the geometry to get the network length in miles. After completing these steps, staff exported the network shapefile to link to the corresponding Microsoft Access database. Once the text file was linked, staff adjusted the "speedMOVESvmt" or "speedMOVESvmt2030" query so that it referred to the new .txt file. Once done, NFRMPO staff ran the query and exported the results to corresponding Excel documents for post-processing if needed.

Public Participation

The [2019 Public Involvement Plan](#) (PIP) guides the NFRMPO's public participation activities for all plans and programs. The NFRMPO will hold a 30-day public comment period on the 2050 RTP and this GHG Transportation Report in July 2023. A 30-day public comment period for the associated ozone and CO conformity determination will be open in August. The documents will be available on the NFRMPO website at <https://nfrmpo.org/public-comment/> and at the NFRMPO Office as a hard copy.

The NFRT&AQPC will entertain adoption of the 2050 RTP, this GHG Transportation Report, and the conformity determination at their regular monthly meeting on September 7, 2023. All public comments submitted during the public comment period will be presented and the public is encouraged to attend. Minutes of the NFRMPO Planning Council's meeting will be available on the NFRMPO website at <https://nfrmpo.org/meeting-materials/>.

Table 3: NFRMPO Modeling Summary, Baseline Plan				
	2026	2030	2040	2050
Socioeconomic Data				
Population	578,923	628,062	738,762	834,360
Households	229,263	250,964	296,698	343,158
Employment	272,192	287,249	327,024	361,508
Lane Miles by Roadway Type				
Interstate	150	150	158	158
Expressway	207	207	207	207
Principal Arterial	680	704	759	759
Minor Arterial	776	785	839	849
Collector	1,234	1,245	1,273	1,275
Ramp	18	18	18	18
Frontage Road	46	48	48	48
Centroid Connector	1,349	1,348	1,347	1,347
Total Lane Miles	4,460	4,505	4,649	4,661
Person Trip Mode Share				
Single occupancy in auto	48.1%	48.5%	48.9%	49.1%
Shared ride in auto	38.1%	38.5%	38.6%	38.8%
Walk	9.1%	8.5%	8.2%	8.0%
Bicycle	4.1%	3.8%	3.6%	3.5%
Transit	0.6%	0.6%	0.7%	0.6%
Other non-vehicle *	0.0%	0.0%	0.0%	0.0%
Total Daily Trips	2,722,863	2,997,134	3,464,354	3,885,123
Vehicle and Transit Data – Typical Weekday				
Vehicle Miles Traveled (VMT)	12,895,810	14,463,906	17,247,089	19,498,069
VMT per capita	22.8	23.0	23.4	23.4
Average vehicle speed (mph)	37.6	36.6	34.7	33.1
Average vehicle trip length (mi)	6.7	6.9	7	7.1
Vehicle Hours Traveled (VHT)	342,573	395,715	496,478	589,434
Transit trips (linked)	18,573	19,532	23,618	25,280
Source: <i>NFRMPO 2019 Regional Travel Demand Model, 2019 Land Use Allocation Model</i> <i>* Other non-vehicle includes the Reduced Drive Alone trips using the TDM tool, which was not used for the Baseline Plan.</i>				

Table 4: NFRMPO Modeling Summary, Updated Plan

	2026	2030	2040	2050
Socioeconomic Data				
Population	578,923	628,062	738,762	834,360
Households	228,263	254,173	299,111	347,089
Employment	272,192	291,939	331,713	367,686
Lane Miles by Roadway Type				
Interstate	157	158	158	158
Expressway	207	207	207	207
Principal Arterial	666	701	745	745
Minor Arterial	796	825	872	894
Collector	1,242	1,246	1,273	1,273
Ramp	18	18	18	18
Frontage Road	46	46	46	46
Centroid Connector	1,370	1,371	1,368	1,368
Total Lane Miles	4,502	4,572	4,687	4,709
Person Trip Mode Share				
Single occupancy in auto	46.1%	43.5%	43.4%	43.6%
Shared ride in auto	37.3%	35.9%	35.8%	36.0%
Walk	9.6%	11.2%	10.9%	10.7%
Bicycle	6.3%	7.6%	4.6%	4.5%
Transit	0.7%	0.8%	0.7%	0.8%
Other non-vehicle	0.0%	1.0%	4.5%	4.5%
Total Daily Trips	2,721,598	2,997,443	3,464,552	3,885,563
Vehicle and Transit Data – Typical Weekday				
Vehicle Miles Traveled (VMT)	12,893,007	13,811,560	16,014,778	18,108,408
VMT per capita	22.27	21.99	21.68	21.70
Average vehicle speed (mph)	37.76	37.54	36.28	34.81
Average vehicle trip length (mi)	6.8	6.8	7	7.1
Vehicle Hours Traveled (VHT)	341,417	367,901	441,404	520,176
Transit trips (linked)	19,529	22,566	26,788	29,289
Source: NFRMPO 2019 Regional Travel Demand Model, 2019 Land Use Allocation Model * Other non-vehicle includes the Reduced Drive Alone trips using the TDM tool.				

Impact

Based on the commitment to GHG strategies identified in the 2050 RTP, the NFRMPO region expects to see a decrease in overall trips taken and miles driven, increase in active transportation and transit usage, and a decrease in VMT. **Table 5** shows the overall impacts comparing the 2045 RTP Baseline and 2050 RTP. An overall explanation for the increase in non-single occupant vehicle (SOV) trips is a compounding of strategies that ramp up with each modeling year.

- **Active Transportation** – Speeds and bicycle/walking attractiveness were increased in the RTDM to represent better connectivity, safer facilities and crossings, adding bicycle lanes and additional protections, and the introduction of more regional e-bike and e-scooter options. These changes made active transportation modes more attractive for shorter and medium-length trips. Currently many of these bicycle and pedestrian options are available in Fort Collins and in pockets across the region, but it is expected these strategies will expand throughout the region in the future.
 - **Model impact:** Person-trip mode share for walking and bicycling shows a significant increase in 2026 and 2030, and moderate increases in 2040 and 2050.
 - **Context:** The [California Air Resource Board](#) found that increasing bicycle lanes on city streets led to a small increase in the percent of individuals commuting by bicycle and a reduction in the percent of individuals commuting by driving. NFRMPO staff extrapolated increases in bicycle network connectivity, safety, and accessibility.
- **TDM** – Investments in TDM will reduce the number of commuting trips taken by SOVs and will translate into fewer overall trips. TDM strategies like telework, carpooling, transit subsidies, and vanpooling redistribute trips across the transportation system. The 2045 RTP was adopted prior to the COVID-19 pandemic, so expected trend changes in teleworking are represented in the 2050 RTP. Existing vanpooling rates are already incorporated into the RTDM, but the NFRMPO's TDM Action Plan and efforts by the City of Fort Collins and Colorado State University (CSU) will increase the impact of TDM strategies in the region. Additionally, the NFRMPO Planning Council has set aside funding to create more Transportation Management Organizations in Northern Colorado, starting in FY2024. In addition, more communities around the region are identifying the need for investments in TDM in their Transportation Master Plans. The effectiveness of TDM strategies is expected to increase each year as more communities implement TDM programs.
 - **Model impact:** The NFRMPO anticipates no major impacts from a TDM program in 2026, but an evolving program in place by 2030 and evolving by 2050.
 - **Context:** According to the [US Department of Transportation](#) and the [California Air Pollution Control Officers Association](#), investments in TDM programs can result in a five percent reduction in SOV mode share and a four to six percent reduction in VMT. The NFRMPO chose to be conservative in the impacts of a TDM program but expects a program to grow in success over time.
- **Operations** – Fuel-burning vehicles emit GHG emissions when operating, so strategies that reduce the operation time of vehicles will also reduce GHG emissions. Operations strategies include reducing congestion and reducing delays at traffic signals or other

obstacles. The impact of operations strategies is accounted for in the modeling by considering both vehicle miles traveled and vehicle speed by time of day.

- **Model impact:** Traffic signal and operational improvements result in a reduction in hours of vehicle delay in the Updated Plan as compared with the Baseline Plan. The reductions in delay increase over time, as do the reductions in VHT.
- **Context:** Research by the [California Air Resource Board](#) shows that traffic signal coordination can reduce GHG emissions between one and 10 percent without accounting for induced demand.
- **Transit** – Since the 2019 adoption of the 2045 RTP, the NFRMPO held multiple Calls for Projects and new legislation has been passed at the State and federal levels. New funding for Bustang and local transit has been identified which will support the increases in transit service in future years. In addition, CDOT and Greeley have invested in mobility hubs, which will grow in usefulness over time.
 - **Model impact:** The number of transit trips are higher in the Updated Plan compared to the Baseline Plan, with the greatest difference in 2050. Despite these notable increases in transit trips, mode share for transit trips remains about the same (0.6 percent to 0.8 percent) in both the Updated Plan and Baseline Plan. The increase in transit trips reduce VMT, VMT per capita, and VHT.
 - **Context:** The [Federal Transit Administration](#) estimates that a quarter-full bus emits 33 percent less GHG emissions per passenger mile than the average SOV. At-capacity buses can reduce emissions up to 82 percent compared to SOV on a per-passenger-mile basis.

Table 5: NFRMPO Modeling Summary, Comparison of Baseline to Updated Plan

	2026	2030	2040	2050
Person Trip Mode Share (Percentage Point difference)				
Single occupancy in auto	-2.0%	-5.0%	-5.5%	-5.5%
Shared ride in auto	-0.8%	-2.6%	-2.8%	-2.8%
Walk	0.5%	2.7%	2.7%	2.7%
Bicycle	2.2%	3.8%	1.0%	1.0%
Transit	0.1%	0.2%	0.0%	0.2%
Other non-vehicle	-2.0%	-5.0%	-5.5%	-5.5%
Vehicle and Transit Data – Typical Weekday (Percent change)				
Vehicle Miles Traveled	0.0%	-4.5%	-7.1%	-7.1%
VMT per capita	0.3%	-4.5%	-7.1%	-7.1%
Average vehicle speed (mph)	0.3%	2.7%	4.4%	5.2%
Average vehicle trip length (mi)	1.5%	-1.4%	0.0%	0.0%
Vehicle Hours Traveled (VHT)	-0.3%	-7.0%	-11.1%	-11.7%
Transit trips (linked)	5.1%	15.5%	13.4%	15.9%

Appendix A: GHG Modeling Assumptions and Model Execution Intergovernmental Agreement (2023)

**INTERGOVERNMENTAL AGREEMENT BETWEEN THE COLORADO
DEPARTMENT OF TRANSPORTATION, COLORADO DEPARTMENT OF PUBLIC
HEALTH & ENVIRONMENT, AND THE NORTH FRONT RANGE
TRANSPORTATION & AIR QUALITY PLANNING COUNCIL REGARDING THE
EXECUTION OF MPO TRAVEL DEMAND MODEL AND MOVES EMISSIONS
MODEL**

5/30/2023

THIS AGREEMENT is made effective and entered into this ____ day of _____, 2023, by and between the North Front Range Transportation & Air Quality Planning Council, also known as the North Front Range Metropolitan Planning Organization (NFRMPO), the Colorado Department of Transportation (CDOT), and the Colorado Department of Public Health & Environment (CDPHE).

I. APPLICABILITY

This intergovernmental agreement (IGA) applies to the continuing, cooperative, and comprehensive transportation planning and emissions modeling processes required to be carried out pursuant to 2 CCR 601-22, the Rules Governing Statewide Transportation Planning Process and Transportation Planning Regions, as implemented by CDOT and the state's Metropolitan Planning Organizations (MPOs) in order to meet state transportation planning requirements and ensure progress towards reducing greenhouse gas (GHG) emissions from the transportation sector.

II. DEFINITIONS

All defined terms provided in 2 CCR 601-22 have the same definition in this Intergovernmental Agreement.

“Modeling Requirements to Estimate Greenhouse Gas Emissions” - a living document summarizing the most appropriate model structure and design standards for modeling GHG emissions and the transportation system as it relates to the requirements of 2 CCR 601-22. This document is developed and periodically updated through the Statewide Modeling Coordination Group.

“Statewide Modeling Coordination Group (SMCG)” - composed of travel and air pollutant modeling professionals designated by the State Interagency Consultation Team (IACT), with representatives from all the state's MPOs, CDOT, and the APCD.

III. PURPOSE

This IGA is established to define the roles and responsibilities of the Air Pollution Control Division of the CDPHE (APCD), the Division of Transportation Development of

CDOT, and NFRMPO (hereafter referred to as “parties”) related to the development and execution of NFRMPO’s MPO Model and the MOVES Model to address the requirements of the GHG Planning Standard in 2 CCR 601-22. Further, this IGA ensures coordination between all parties in carrying out these responsibilities and sets common and shared standards, assumptions, and verification procedures for GHG analysis.

IV. COORDINATION AND COMMUNICATION

Staff from each party will work in partnership to ensure the successful implementation of 2 CCR 601-22 - Rules Governing Statewide Transportation Planning Process (“GHG Planning Rules”). Staff will communicate frequently and make every attempt to resolve differences at the lowest staff level possible and in a timely manner.

Each party will provide one or more representatives to serve on the following committees established by CDOT.

- The State Interagency Consultation Team (IACT), and
- The Statewide Modeling Coordination Group (SMCG).

The IACT works collaboratively and consults appropriately to approve modifications to Regionally Significant definitions, address classification of projects as Regionally Significant, review modeling assumptions and address other issues raised by the parties.

The SMCG works collaboratively to discuss, advise, and agree on analysis approaches and the inputs, content, and timing of work products and outputs related to travel demand modeling, MOVES modeling, and the interrelationships between these tools. The SMCG will make every attempt to resolve technical issues among the parties and to do so in a timeframe that does not delay submission of NFRMPO’s GHG Transportation Report. Disagreements among the SMCG will be elevated to the IACT.

It is expected that all parties will actively participate in the IACT and the SMCG along with any other groups as determined by the IACT.

Any protracted disagreements between parties shall be elevated to the Executive Director of each party.

V. ANALYSIS, DOCUMENTATION, REVIEW & VERIFICATION RESPONSIBILITIES

NFRMPO RESPONSIBILITIES - two (2) areas of responsibility are identified:

1-Modeling and Analysis

1. Notify CDOT's Director of Transportation Development and APCD's Director via email when initiating a transportation planning process that requires a GHG analysis under the GHG Planning Rules to ensure early coordination on MOVES analysis and other relevant technical issues. Such coordination will include developing a milestone schedule identifying an anticipated timeline and the type and format of data and reporting information to be shared between the NFRMPO, APCD, and CDOT.
2. Conduct travel modeling for the NFRMPO MPO area. Develop and report results of NFRMPO's Travel Demand Model and the MOVES Model to the standard described in the "*Modeling Requirements to Estimate Greenhouse Gas Emissions*" document. Operate these models as described in each submitted NFRMPO GHG Transportation Report.
3. Ensure that results contained within the GHG Transportation Report submitted to APCD and CDOT are complete and comprehensive enough to allow for review and verification.

2-Documentation

1. Prepare the GHG Transportation Report in compliance with the requirements of 2 CCR 601-22, 8.02.6. Per the requirements of section 8.04.1, the GHG Transportation Report constitutes the technical data supporting NFRMPO's compliance demonstration. The GHG Transportation Report will also include, if applicable, a GHG Mitigation Action Plan.
2. Prepare a calibration and validation report per the requirements of 2 CCR 601-22, 8.02.2.1. This report may be included in the GHG Transportation Report.
3. Document any substantial changes or modifications made to the technical data provided by APCD, for review during the APCD verification process.
4. When appropriate, provide documentation as described in Section VI of this Agreement.

APCD RESPONSIBILITIES - two (2) areas of responsibility are identified:

1-Modeling and Documentation

1. Prepare, and provide to the SMCG and NFRMPO's Transportation Planning Division Director, documentation of the MOVES modeling process, assumptions and inputs utilized by APCD for the NFRMPO MPO area, for inclusion in the GHG Transportation Report. Unless otherwise agreed to by the parties to this Intergovernmental Agreement, this modeling process and documentation will be

considered final for the duration of a given compliance period which begins when a GHG analysis is initiated as determined through SMCG consultation and concludes when the Transportation Commission has approved a NFRMPO GHG Report for a plan update or amendment.

2. Provide NFRMPO with GHG emission factor outputs from the MOVES model and any necessary tools for GHG emissions analysis for each of the required compliance years. Changes to GHG emission methodology that become available after a GHG emission analysis is initiated will only be used if agreed to by the parties to this Intergovernmental Agreement.

2-Review and Verification

1. Perform an overall review of the technical data provided in the draft GHG Transportation Report for obvious calculation errors, and/or results that appear inaccurate, unreasonable, inconsistent, or unsubstantiated; and assess the methods used to estimate future emissions projections.
2. Provide timely feedback via a letter or email to NFRMPO's Transportation Planning Division Director on the submitted draft GHG Transportation Report recognizing that Reports will be considered acceptable if no written comments are received by NFRMPO within 30 days of submission. APCD will notify NFRMPO as early as possible of any potential issues to allow time for consultation and consideration of adjustments.

CDOT RESPONSIBILITIES - two (2) areas of responsibility are identified:

1-SMCG and IACT Coordination and Management

1. Convene, organize, and provide non-financial support to the IACT. Schedule a minimum of (3) meetings per year, with additional meetings as needed.
2. Convene, organize, and provide non-financial support to the SMCG. Schedule a minimum of (3) meetings per year, with additional meetings as needed, to evaluate the state of modeling throughout the duration of the rule and cooperatively review at least annually, the need for specific updates to the "*Modeling Requirements to Estimate Greenhouse Gas Emissions*".
3. Ensure that the "*Modeling Requirements to Estimate Greenhouse Gas Emissions*" document is updated to reflect new information and decisions made by the SMCG and that all changes receive concurrence from the SMCG before finalizing. Serve as document custodian and ensure all parties have access to the most recent version.
4. As a member of the SMCG, CDOT will provide technical support and advice on modeling issues as needed, including defining assumptions regarding zero

emission vehicles by vehicle class and staging year to be used in the MOVES model.

2-GHG Transportation Reports - Facilitation and Review

1. Ensure timely exchanges of the tools, data inputs and outputs, and documentation between parties to this IGA.
2. Facilitate coordination of parties during the review process by helping to schedule meetings as needed and provide technical assistance as needed.
3. Support the Transportation Commission's review of each submitted GHG Transportation Report and prepare filing of all necessary information.

VI. RELIANCE ON PREVIOUS GHG EMISSIONS ANALYSIS

Applicable planning documents, as defined in 2 CCR 601-22, may rely on the previous GHG emissions analysis if the criteria listed below can be demonstrated. This demonstration must be described in writing and presented to the IACT and SMCG for their concurrence.

1. The new applicable planning document contains all projects which must be completed in the document's covered timeframe to achieve the transportation system defined by the applicable planning document for which the previous GHG emissions analysis was conducted;
2. The scope of each project in the new applicable planning document is not significantly different from that described in the previous applicable planning document; and
3. The previous GHG emissions analysis and Mitigation Action Plan, if any, demonstrates compliance with all applicable GHG Reduction Levels required in 2 CCR 601-22.

VII. AMENDMENT, TERMINATION, AND SUPERSESSION OF AGREEMENT

This IGA will be reviewed at least every four (4) years from its effective date. It may be amended, whenever deemed appropriate, by written agreement of all parties.

Any party to this IGA may terminate it by a 60-day written notice to the other parties. If this occurs, the parties agree to consult further to determine whether the issues can be resolved, and the agreement re-implemented in an amended form.

THE COLORADO DEPARTMENT OF TRANSPORTATION

DocuSigned by:
By: Darius Pakbaz
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Name: Darius Pakbaz

Title: Director, Division of Transportation Development

Date: 5/30/2023

THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

DocuSigned by:
By: [Signature]
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Name: Michael Ogletree

Title: APCD Director

Date: 5/26/2023

THE NORTH FRONT RANGE TRANSPORTATION & AIR QUALITY PLANNING COUNCIL

DocuSigned by:
By: Suzette Mallette
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Name: Suzette Mallette

Title: Executive Director

Date: 5/30/2023

Appendix B: NFRMPO 2019 Base Year Regional Travel Demand Model Description

Introduction

The NFRMPO 2019 Base Year (BY) Regional Travel Demand Model (RTDM) is a four-step travel model incorporating trip generation, trip distribution, mode choice, and trip assignment. The model was developed in 2023 and replaces the 2015 BY RTDM developed in 2019. Major improvements to the 2019 BY RTDM compared to the 2015 BY RTDM include updated traffic counts, land use data, and various modeling improvements. The NFRMPO's GHG emissions analysis for the 2050 RTP uses the NFRMPO 2019 BY RTDM version 6.00 in TransCAD Version 9.0, build 32840.

This document provides an overview of the 2019 BY RTDM. More detailed information on the modeling process, inputs, and procedures are available in the forthcoming *North Front Range Regional Travel Demand Model 2019 Base Year: Technical Report*. The Technical Report reflects the model as it was developed in 2023.

The remainder of this document is organized into the following sections:

- Model area and Forecast Years
- Demographic Development Estimation
- Roadway and Transit Systems
- The Four-Step Model
- Speed Feedback
- GHG Strategy Methodologies
- Induced Demand
- Model Calibration
- Model Validation

Model Area and Forecast Years

To enable modeling for ozone analysis, the RTDM covers additional portions of Larimer and Weld counties not within the NFRMPO boundary. The expanded area of the model, along with portions of the unexpanded modeling area that are outside of the NFRMPO Metropolitan Planning Area (MPA), are not included in the GHG analysis as the GHG Planning Standard applies to the MPA for the NFRMPO.

The model uses a traffic analysis zone (TAZ) structure developed based on existing land use and roadway conditions, future land use, and staff comments from member governments. Within the NFRMPO region, the RTDM has 1123 zones. The RTDM has a base year of 2019 and forecast years of 2026, 2030, 2040, and 2050.

Demographic Development Estimation

Socio-economic data provides the foundation for trip-making in the RTDM. Employment data is prepared for basic, retail, medical, and service employment types. Population and household data are developed using a population synthesizer. The population synthesizer generates a record for each person living in the model area, having information such as the person's worker status, student status, and age. Each person is associated with a household record. Household records include information such as household size, household income, and number of autos.

Employment data is used in the RTDM primarily as generators of trip attractions. Person and household data is used in the RTDM primarily as a generator of trip productions. The NFRMPO develops and maintains a Census Block-based land use allocation model (LUAM) which

distributes total households and employment at the Block level in the base year and forecast years using a location-choice model. The land use model for the 2019 BY RTDM is the 2019 BY LUAM. Additional information on the 2010 BY LUAM is available in the forthcoming “NFRMPO 2019 Land Use Allocation Model: Technical Documentation”. The model uses forecasted growth in employment and households from the Colorado State Demography Office (SDO).

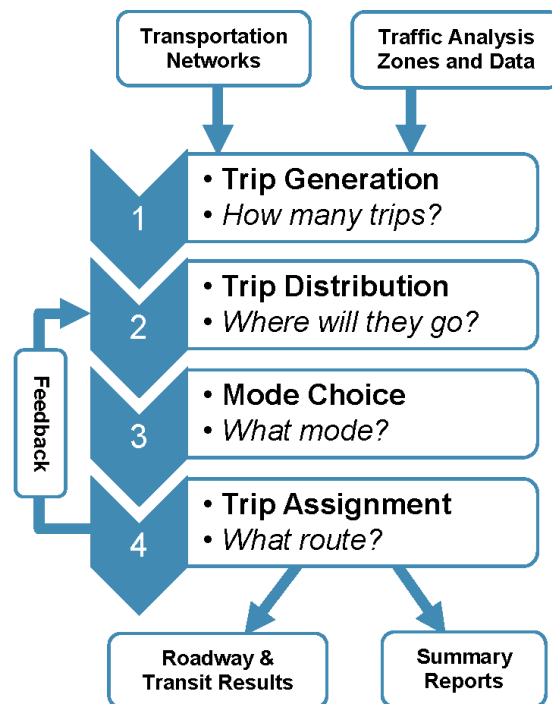
Roadway and Transit Systems

Roadway and transit networks contain basic input information for use in the model and represents real-world conditions to the greatest extent possible. The roadway network contains over 8,100 links within the MPO boundary defined according to facility type, area type, speeds, capacities, etc. The roadway network is used to distribute trips and route transit and automobile trips. The roadway network was prepared based on data from the NFRMPO and from scheduling/phasing of projects in the Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP). The NFRMPO also collaborated with local jurisdictions as necessary to verify construction and opening dates. The model contains base year, interim year, and forecast year transit route systems based on information provided by Transfort, City of Loveland Transit (COLT), Greeley Evans Transit (GET), and CDOT. Transit networks are categorized into local, express, and Bus Rapid Transit (BRT) service.

The Four-Step Model

The four steps of the 2019 BY RTDM are illustrated in **Figure B-1**. Key inputs to the travel model include the roadway and transit system networks and TAZ-level data including population and jobs. Each step of the travel model answers a different question; see sections below for detail on each step. Key outputs of the travel model include roadway volume and speed by time of day, transit boardings by route, and trip share by mode.

Figure B-1. The Four-Step Travel Model



Trip Generation

The trip generation module estimates trip productions and attractions based on zonal attributes (e.g. population, households, income, employment, etc.). Productions and attractions are generated for each TAZ and balanced by trip purpose at the regional level. Person trip productions are generated using a disaggregate choice model estimated from the 2010 household travel survey. This model distinguishes between workers who commute and those who do not commute because they are either working from home or taking the day off. Truck trips and trip attractions are generated using a regression model. The unexpanded model includes the following trip purposes:

- **Home-Based Work (HBW):** Commute trips between home and work.
- **Home-Based University (HBU):** Trips between home and university locations (e.g., CSU, UNC) for school related purposes by people not employed by the university.
- **Home-Based Shop (HBS):** Trips between home and retail locations for the purpose of shopping.
- **Home-Based School (HBSc):** Trips between home and K-12 school locations for students in these schools.
- **Home-Based Other (HBO):** All other trips with one end at home.
- **Work-Based Other (WBO):** Work-related trips without an end at home.
- **Other-Based Other (OBO):** Trips with neither an end at home nor a work-related purpose.
- **Medium Truck (MTRK):** Medium-heavy truck trips (FHWA Vehicle classes 5-7).
- **Heavy Truck (HTRK):** Heavy truck trips (FHWA Vehicle classes 8-13).

Some TAZs have unique land uses and generate a significantly different number of trips in comparison to the model's estimation. For these locations, special generator values are applied in the model to define the number of trips produced and attracted to the locations. The main Colorado State University (CSU) campus in Fort Collins and the University of Northern Colorado (UNC) campus in Greeley are the two University special generators used in the NFRMPO model area. Additionally, Rocky Mountain National Park is treated as a special generator in the expanded model area.

The model represents two types of external travel. Through trips are represented by the external-external (EE) trip purpose. Trips with one end inside the modeling area and another outside of the modeling area are referred to as Internal-External/External-Internal (IE/EI) trips. These trips are included in the primary model trip purposes described previously. At external stations, the number of IE/EI trips by purpose is based on traffic count data. Distributions of both EE and IE/EI trips have been calibrated based on analysis of LOCUS location-based services (LBS) data. Growth in external travel is based on analysis of the Colorado Statewide Travel Model.

Trip Distribution

Trip distribution is the process used to apportion person trip productions and attractions from the trip generation model among all zone pairs by trip purpose. The resulting trip table matrix contains both intrazonal trips (trips that do not leave the zone) on the diagonal and interzonal trips in all other zone interchange cells. The NFRMPO model uses a destination choice model for most trip purposes and a standard gravity model for HBU and HBSc trip purposes. The trip distribution model is validated to average trip lengths and trip length frequency distributions observed in the HHTS and developed from LOCUS LBS data.

Mode Choice

The RTDM uses a nested logit model to determine travel modes. The first step in the mode analysis process is the split among primary modes: auto, transit, and non-motorized. The second step provides a choice between drive alone and shared ride 2 and shared ride 3+. The next model provides a choice between walk and drive access to transit, followed by a choice between walk or drive access and then local, express, and BRT. The drive access mode only considers express and BRT transit, as on-board data shows that drive access to local transit is minimal in the region. Lastly, the model provides a choice between walk and bike.

Trip Assignment/Time-of-Day Analysis

The traffic assignment module loads vehicle trips onto the roadway network to estimate link-specific traffic volumes. This is done for three time periods which cover the entire day: the PM peak period, AM peak period, and off-peak. Each of these trip tables is further segmented into peak and shoulder periods, for a total of eight time periods: AM peak, one AM shoulder hour, midday peak period, PM peak, three PM shoulder hours, and an off-peak period representing the remainder of the day. These eight vehicle trip tables are assigned to the roadway network using a capacity constrained equilibrium assignment procedure. The resulting traffic volumes from the four assignments are summed to estimate a 24-hour volume for each link in the network. The mid-day and off-peak periods can be further divided into hourly volumes using percentages identified in the RTDM Technical Report.

Speed Feedback

A speed feedback loop is incorporated into the modeling process to ensure consistency of speeds. This corrects a fundamental problem with travel demand models when estimated speeds used in the trip distribution process are not the same as those which result from the traffic

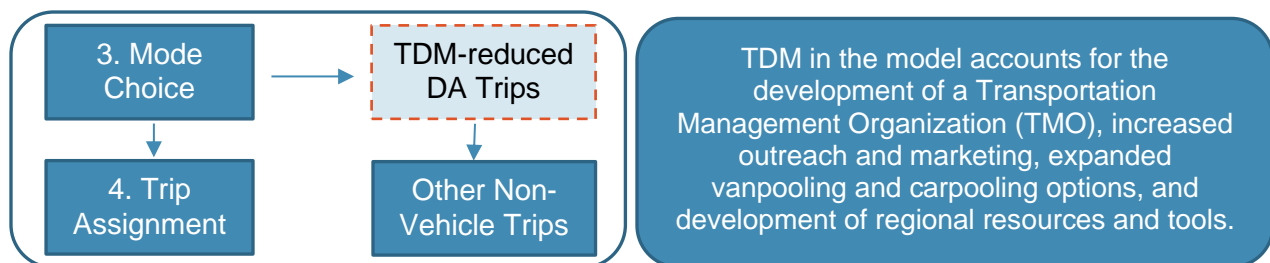
assignment/speed estimation process.

GHG Strategy Methodologies

Transportation Demand Management (TDM)

To reflect the TDM program being developed by the NFRMPO along with other TDM programs across the region, the RTDM was updated to account for a reduction in drive alone trips within specific areas using the NFRMPO's TDM processor. Reduction factors are applied to specific trip purposes based on anticipated effects of the TDM efforts, with reductions varying spatially and over time. Drive alone trips reduced through the TDM processor are assumed to be replaced by locally specific tele-travel (regional increases in work from home shares are addressed directly in trip generation), non-motorized travel, transit, or rideshare; however, the RTDM does not assign a specific mode to the reduced drive alone trips. This is shown in **Figure B-2, Table B-1**. The reduced drive alone trips are identified as "other non-vehicle" trips in the model summary tables included in the GHG Transportation Report.

Figure B-2. TDM in the Model



Category	Improvement	Funding Source
<i>TDM</i>	Transportation Management Organization (TMO) to conduct business outreach and develop resources	MMOF, CDOT 10-Year Plan, CDOT, IJJA
<i>TDM</i>	Expansion of RideNoCo program for trip planning, ridesharing, and vanpooling	MMOF, FTA, CDOT, IJJA
<i>TDM</i>	Schoolpooling and Regional Safe Routes to School programming	MMOF, CDOT 10-Year Plan, IJJA, Local Funds
<i>TDM</i>	Marketing and promotion of expanded transit, bicycle, and pedestrian options	MMOF, IJJA

Due to the time needed to establish the NFRMPO's TDM program, the 2025 compliance year for the Updated Plan does not account for any benefits of the TDM program. **Table B-2** and **Table B-3** display the reduction factors assumed for 2030, 2040, and 2050 in the Updated Plan. Model runs for the Baseline Plan do not account for TDM programs. Best practice for TDM programs assumes a 5 percent reduction in SOV trips and a 4 to 6 percent reduction in VMT. NFRMPO staff considered a conservative estimate for this report.

Table B-3. TDM Reduction Factor by Location and Trip Purpose, 2040 and 2050 (moderate)					
Location	Home Based Work and Work Based Trips	Home Based Shopping/ Other Trips	Trips to School	Trips to Universities	All Other Trips
Fort Collins	3%	2%	3.5%	5.5%	1.5%
Greeley, Loveland, Windsor	1.5%	1.5%	3%	5%	1.5%
Remaining NFRMPO Areas	0.5%	0.5%	3%	5%	1.5%

Bicycle and Pedestrian Improvements

To account for the expansion of the bicycle and pedestrian network that is forecasted to occur over the lifetime of the RTP, along with the increasing availability of e-bikes and scooters, the RTDM was updated by increasing the average speed of walk trips and bicycle trips and reducing the alternative specific constant of bicycle and pedestrian trips for most trip purposes.

While the RTDM includes a bicycle network, there are three reasons for not reflecting bicycle improvements through the model network. First, the location of bicycle facility improvements through 2050 is not known. Second, extensive bicycle network improvements that reduce level of traffic stress on a regional scale are significantly different than the bicycle facilities included in the calibrated base year model. Finally, expansion of the modeled bicycle network would not account for new technologies such as e-bikes and scooters.

To equate improvements in bicycle and pedestrian infrastructure, the walk and bicycle speed assumptions were updated. The NFRMPO considered a 33 percent increase in speed to be representative of improvements to connectivity and accessibility. Modeling completed for the Baseline Plan and the 2025 compliance year for the Updated Plan use the unadjusted values shown in **Table B-4**. The 2025 compliance year in the Updated Plan uses unadjusted values due to the time needed to implement expansions to the bicycle and pedestrian network. Modeling completed for 2030 and beyond for the Updated Plan use the adjusted values shown in that table.

Table B-6 converts the Bicycle and Pedestrian Alternative Specific Constants (ASCs) developed by Cambridge Systematics from **Table B-5** into equivalent minutes of In-Vehicle Travel Time (IVTT). In essence, the model assumes a penalty for choosing an alternative mode of transportation based on attractiveness for trip types. Expected improvements to the bicycle and pedestrian network could reduce barriers to making these options more attractive for people to use. The NFRMPO asserted a 25 percent reduction to ASCs for all trips except HBSc, which already had a positive constant. The results were tested and showed a 1.0 percentage point increase in non-motorized trips in 2050 between the Baseline Plan and Updated Plan, which was deemed reasonable based on expected investments in network connectivity, accessibility, and improvement projects. These investments include safer bicycle lanes, better connectivity and protection, more marketing, improved wayfinding, and better bicycle parking, among other improvements.

Table B-4. Walk and Bicycle Speed Assumptions		
	Unadjusted Values	Adjusted Values
Walk Speed	3 mph	4 mph
Bicycle Speed	12 mph	17 mph

Table B-5. Bicycle and Pedestrian Alternative Specific Constants				
Trip Purpose	Unadjusted Values		Adjusted Values	
	Bicycle	Pedestrian	Bicycle	Pedestrian
HBW	-0.336566	-0.560631	-0.25242	-0.42047
HBU	-0.853826	-0.546834	-0.64037	-0.41013
HBS	-1.452584	-0.467941	-1.08944	-0.35096
HBO	-0.311467	0.925648	-0.2336	0.694236
HBSc	0.366699	1.299213	0.366699	1.299213
WBO	-1.586597	-0.332458	-1.18995	-0.24934
OBO	-1.888487	-0.072737	-1.41637	-0.05455
LBO	-1	-1	-0.75	-0.75

Table B-6. Bicycle and Pedestrian Alternative Specific Constants, Equivalent Minutes of In-Vehicle Travel Time (IVTT)				
Trip Purpose	Unadjusted Values		Adjusted Values	
	Bicycle	Pedestrian	Bicycle	Pedestrian
HBW	13.46	22.43	10.1	16.82
HBU	34.15	21.87	25.61	16.41
HBS	58.1	18.72	43.58	14.04
HBO	12.46	-37.03	9.34	-27.77
HBSc	-14.67	-51.97	-14.67	-51.97
WBO	63.46	13.3	47.6	9.97
OBO	75.54	2.91	56.65	2.18
LBO	40	40	30	30

Work From Home

The RTDM makes assumptions about the rate of workers not commuting on a specific day. This non-commute share reflects the rate of telework along with the workers at self-employed small home businesses; those regularly working from home offices; and a share of workers not working on a typical day due to absenteeism, part time work, and alternative schedules such as weekend work or three 12 hour shifts a week.

For the base year, the work from home rate is assumed to be 11 percent based on analysis of the HHTS and coordination with CODT and DRCOG. Under a standard future condition without increased work from home, the rate is assumed to stay at 11 percent. With the Updated Plan, a higher share of work from home is anticipated. The model assumptions for the Updated Plan include slightly more than doubling the work from home rate from 11 percent to 25 percent.

As of July 2022, the NFRMPO, Fort Collins, and CSU are developing TDM Plans, which will address investments in TDM resources, strategies, and programming throughout the region. These Plans will build on shifts during the COVID-19 pandemic, which increased telework policies and strategies. In addition, CDOT has developed new funding to invest in TDM strategies, including creating WFH policies.

Analysis of HHTS data shows that reductions in commute trips are linked to an increase in the amount of home-based shopping (HBS), home-based other (HBO), and other-based other (OBO) trips as workers make additional trips in place of their commute trips. The disaggregate trip generation model estimated using the 2010 HHTS accounts for the increase in other trip types resulting from decreased commute trips through interaction between the trip generation models for each trip purpose. For the Baseline Plan, the work from home share remains at 11 percent.

Improved Transit Service, Mobility Hubs, Transit Signal Priority, and Real-Time Transit Information

Modeling conducted for the Updated Plan includes additional transit service, mobility hubs, transit stations, and park-n-rides as identified in the Updated Plan. Transit service and improved park-n-rides were incorporated directly into the model. In addition to these improvements, two adjustments were made to modeling conducted for the Updated Plan to reflect transit signal priority for certain transit routes and the availability of real-time transit service information.

The Transit Speed/Congested Speed Factor reflects the travel speed of the transit route relative to the congested speed of traffic. Without transit signal priority and given the need to make stops along the route, the default assumption in the RTDM is a factor of 0.5, which means transit service operates at half the speed of traffic. The adjusted value is used for routes planned to have transit signal priority in future compliance years, starting in 2040.

The model's unadjusted transfer penalty factor of 3.5 minutes reflects the uncertainty of making a transfer between transit routes and is used in the Baseline Plan and 2025 compliance year. Modeling conducted for the Updated Plan for 2030 and beyond uses the adjusted transfer penalty factor of 0.0 which reflects the increased certainty provided to transit users through real-time transit service information.

Table B-7 identifies the unadjusted and adjusted transit assumptions for transit speeds and the transfer penalty.

Table B-7. Unadjusted and Adjusted Transit Assumptions		
Assumption	Unadjusted Value	Adjusted Value
Transit Speed/Congested Speed Factor	0.5	1.0
Transfer Penalty	3.5	0.0

Arterial Signal Timing Improvements

To account for planned improvements to arterial signal timing identified in the Updated Plan, the RTDM was adjusted to reflect reduced delay along major corridors with traffic signals and increased demand due to improvements in speed, as shown in **Table B-8**. The arterial signal timing adjustments are applied in 2030 and beyond based on the forecasted number of traffic signals adjusted, the forecasted volume on major corridors, and delay reduction and induced travel elasticity factors identified in CDOT's [Policy Directive \(PD\) 1610: Greenhouse Gas Mitigation Measures](#). Specifically, PD 1610 identifies the following factors for arterial signal timing improvements:

- Hours of delay reduction per vehicle per mile: 0.006
- Induced travel elasticity (defined as percent change in VMT with respect to percent change in travel time): -0.3

Table B-8. Arterial Signal Timing Assumptions, Updated Plan			
	2030	2040	2050
Number of Signals	126	126	126
Average Forecasted Volume Before Signal Timing	20,002	24,693	29,352
Delay Reduction (Hours)	45,555	56,019	66,589
Average Forecasted Volume After Induced Travel Adjustment	20,722	25,582	30,409

Induced Demand

Induced demand is the increase in the overall amount of travel such as person-miles traveled (PMT) or VMT in response to improvements in transportation capacity/level of service. There are five possible elements of induced demand:

1. **Route shifts:** Travelers choosing a different route, which changes volumes on particular facilities and has the potential to slightly increase or decrease overall VMT.
2. **Mode shifts:** Travelers choosing a different mode, which changes overall VMT but does not significantly change PMT.
3. **Destination shifts:** Travelers choosing to visit different destinations or choosing to live further or closer to their frequent destinations.
4. **Additional trips:** Travelers choosing to make a trip they would otherwise forgo.
5. **New development:** In the long term, transportation capacity can influence the location of new development, which may affect overall VMT.

Another type of change that may occur as a result of increases in transportation capacity is shifts in the time of day trips are made. This change does not significantly increase the amount of PMT or VMT, but it can impact congested speeds.

The 2019 BY RTDM addresses three of the five elements of induced demand:

- The traffic assignment model is sensitive to travel time and capacity and assigns higher volumes to improved facilities.

- The mode choice model is sensitive to level of service by mode and allocates travel demand to improved modes.
- The trip distribution model is sensitive to travel impedance and adjusts destinations in response to new capacity.

The trip generation model of the 2019 BY RTDM includes limited consideration of destination accessibility, but model estimation exercises did not uncover a significant relationship between accessibility and trip generation rates. Therefore, the model does not forecast significant changes in trip generation resulting from transportation system improvements. Lastly, the 2019 BY RTDM does not directly address the new development element of induced demand, as changes to forecast year land use patterns related to transportation improvements would require additional updates to the land use allocation model as well as coordination with local jurisdictions. Future updates to the NFRMPO's RTDM will continue to explore data sources and potential model improvements related to these two elements of induced demand.

Model Calibration

The 2019 BY RTDM was calibrated using data from the *2010 NFRMPO Household Survey*, LOCUS LBS data, and the *NFRMPO On-Board Transit Survey, 2009 (OBTS)*. The household survey was used to develop the trip generation model and auto occupancy rates. The household survey combined with LOCUS LBS data was used to develop trip length frequency distributions and average trip lengths by purpose and time of day. The OBTS was used in combination with the household survey and 2019 transit boarding counts to produce mode share targets. Additional detail on model calibration is available in Section 12 of the forthcoming RTDM Technical Report.

Model Validation

Validation involves testing the RTDM's predictive capabilities. Validation tests include quantifying the model's ability to replicate observed conditions and performing sensitivity tests.

The base year validation effort was conducted by comparing model results to observed traffic count data representative of 2019 (collected between 2017 and 2019). Transit ridership was validated to boarding counts on the transit systems in the region at the system level. The overall sum of model volumes is within two percent of the traffic counts on the same links. Model volume totals by facility type are within ten percent of the sum of traffic counts for arterials and freeways and within 15 percent for collectors. The overall percent root mean square error (percent RMSE) is 41.5 percent. Additional detail on model validation is available in Section 12 of the forthcoming RTDM Technical Report.

Table B-9 shows validation data for the NFRMPO's 2019 BY RTDM to use as a comparison to data shown in the GHG Transportation Report.

Table B-9: NFRMPO Modeling Summary, Validation	
	2019
Socioeconomic Data	
Household Population	549,037
Households	210,824
Employment	240,483
Person Trip Mode Share	
Single occupancy in auto	49.7%
Shared ride in auto	37.8%
Walk	8.2%
Bicycle	3.7%
Transit	0.50%
Other non-vehicle	0.0%
Total Daily Trips	2,759,292
Vehicle and Transit Data – Typical Weekday	
Vehicle Miles Traveled (VMT)	15,139,122
VMT per capita	27.6
Average vehicle speed (mph)	41.2
Average vehicle trip length (mi)	6.6
Vehicle Hours Traveled (VHT)	367,546
Transit trips (linked)	13,976

Appendix C: MOVES3 Model Description

Overview

This Appendix summarizes the methodology used to calculate greenhouse gas (GHG) emissions for the NFRMPO area, using emission rates from EPA's MOtor Vehicle Emission Simulator (MOVES).

MOVES is a state-of-the-science emissions modeling system that estimates air pollution emissions for criteria air pollutants, greenhouse gases and air toxics. MOVES estimates emissions from on-road vehicles such as cars, trucks and buses, accounting for the phase-in of federal emissions standards, vehicle and equipment activity, fuels, temperatures, humidity, and emission control activities such as inspection and maintenance (I/M) programs.

In Colorado, the Air Pollution Control Division (APCD), a branch of the Colorado Department of Health and Environment (CDPHE), develops the locally defined inputs to MOVES, which is run to establish over 47,000 unique emission rates for each combination of month, hour, road type, speed bin, and vehicle type. These rates are multiplied by distances, total vehicle volumes, volumes per time period, and speeds per time period outputs from the NFRMPO's Regional Travel Demand Model a relational database, resulting in a GHG emissions inventory of surface transportation.

To develop baseline and compliance GHG emission inventories for the state's GHG rule, APCD staff created versions of these relational databases for each compliance year (2025, 2030, 2040, and 2050) and provided them to NFRMPO. NFRMPO staff and others subject to this initial deadline were trained by APCD staff on the methodology to perform the GHG emissions analysis on February 23, 2022, and, per agreement, NFRMPO staff is authorized to perform the GHG emissions analysis for compliance with the rule. In the event of an update to the MOVES relational database, APCD staff will inform NFRMPO staff. Every time there is an update to the MOVES relational database including to the input assumptions, NFRMPO staff will be notified and retrained as necessary to continue being able to perform the required GHG emissions analysis.

The MOVES documentation which follows was developed by CDOT's consultant Felsburg Holt & Ullevig (FHU) in January 2022 and modified where appropriate by NFRMPO staff. It describes the inputs and methodology used to create the MOVES relational databases.

MOVES3 Run Specifications

The run specification (RunSpec) parameters outlined below were used to calculate GHG emission rates with MOVES. They are consistent with APCD's process to calculate GHG emissions.

The four modeled years 2025, 2030, 2040, and 2050 used the same run specifications except for where specified (e.g., the year being modeled). Each of the four modeled years has six related run specifications to separate the emission rates by vehicle type, as described in the On-road Vehicles section.

Scale

The "Scale" parameters define the model type (on-road or non-road), domain/scale, and calculation type.

Model Type

On-road was the model type selected. This estimates emissions from motorcycles, cars, buses, and trucks that operate on roads.

Non-road/off-network emissions were not included. These emissions are from equipment used in applications such as recreation, construction, lawn and garden, agriculture, mining, etc. and are outside of the scope of this analysis.

Domain/Scale

MOVES allows users to analyze mobile emissions at various scales: National, County, and Project. While the County scale is necessary to meet statutory and regulatory requirements for SIPs and transportation conformity, either the County or National scale can be used for GHG inventories. EPA recommends using the County scale for GHG analysis. The County scale allows the user to enter county-specific data through the County Data Manager. Providing local data significantly improves the precision of the modeling results (EPA 2016).

The County scale was used.

Calculation Type

MOVES has two calculation types - Inventory (total emissions in units of mass) or Emissions Rates (emissions per unit of distance for running emissions or per vehicle for starts and hoteling emissions) in a look-up table format must be post-processed to produce an inventory. Either may be used to develop emissions estimates for GHGs (EPA 2016).

The Emission Rates calculation type was used.

Time Span

The "Time Span" parameters define the years, months, days, and hours that emissions are calculated.

When Emission Rates is chosen, users may choose to approach the selection of options in the Time Spans Panel differently than when running MOVES in Inventory mode. For example, when modeling running emission rates, instead of entering a diurnal temperature profile for 24 hours, users can enter a range of 24 temperatures in increments that represent the temperatures over a period of time. By selecting more than one month and using a different set of incremental

temperatures for each month, users could create a table of running emission rates by all the possible temperatures over an entire season or year (EPA 2016).

When using Emission Rates instead of Inventory, the time aggregation level is automatically set to Hour and no other selections are available. Pre-aggregating time does not make sense when using Emission Rates and would produce emission rates that are not meaningful (EPA 2016). However, the year, month, and day must still be specified and will affect the emission rates calculated.

The time span parameters specified below were also used because the travel demand model outputs represent an annual average weekday.

Years

The County scale in MOVES allows only a single calendar year in a RunSpec. Users who want to model multiple calendar years using the County scale will need to create multiple RunSpecs, with local data specific to each calendar year, and run MOVES multiple times (EPA 2016).

The years used were 2025, 2030, 2040, and 2050. Emission rates for each of these years were calculated separately. This accounts for information such as a changing age distribution of vehicles and their corresponding fuel efficiency.

Months

MOVES allows users to calculate emissions for any or all months of the year. If the user has selected the Emission Rates option, the Month can be used to input groups of temperatures as a shortcut for generating rate tables for use in creating inventories for large geographic areas (EPA 2016).

The months used were January and July to match the process described by APCD. These represent winter and summer months and generally the extremes in annual weather conditions. This accounts for changes in fuel efficiency between warm and cold temperatures throughout the year. The arithmetic averages of emission rates from January and July were used for the final emissions inventory.

Days

Weekdays and weekend days can be modeled separately in MOVES. MOVES provides the option of supplying different speed and VMT information for weekdays and weekend days to allow the calculation of separate emissions estimates by type of day (EPA 2016).

The days used were weekdays to match the travel demand model output data. These represented the emission rates for an average weekday. The results were escalated later to approximate a full year.

Hours

The hours used were all 24 hours of the day (i.e., clock hours of 1 AM, 2 AM, 3 AM, etc.). These represent the emission rates for individual hours of a day. This accounts for changes in fuel efficiency between warm and cold temperatures throughout the day.

Geographic Bounds

The “Geographic Bounds” parameter defines the county(s) used. For a county-scale run, only one county can be selected per RunSpec. The county used was Adams County, Colorado. The county defines input parameters such as the meteorology data used to estimate emission rates.

On-road Vehicles

MOVES describes vehicles by a combination of vehicle characteristics (e.g., passenger car, passenger truck, light commercial truck, etc.) and the fuel that the vehicle is capable of using (gasoline, diesel, etc.). The [Panel] is used to specify the vehicle types included in the MOVES run (EPA 2016).

The “On-road Vehicles” parameter defines the source types (i.e., vehicle types) and their fuels (gasoline, diesel, electricity, etc.). All combinations of vehicle types and fuels available in MOVES3 were used to calculate the emission rates. APCD’s process, which was being followed, assigns travel demand model mileage based on a modified HPMS category. To calculate aggregate emission rates for each HPMS category (i.e., merging all the relevant source types and fuel types), each of the six HPMS categories used a separate RunSpec. It is important to note that APCD’s modified HPMS category does not match the MOVES HPMS types for source types 21, 31, and 32.

When this methodology document refers to HPMS categories, it is generally referring to APCD’s HPMS categories. The figure below illustrates the HPMS categories.

	A	B	C	D	E
1	sourceType	sourceTypeName	HPMSVtypeID	HPMSVtypeName	HPMS from APCD
2	11	Motorcycle	10	Motorcycles	10
3	21	Passenger Car	25	Light Duty Vehicles	20
4	31	Passenger Truck	25	Light Duty Vehicles	30
5	32	Light Commercial Truck	25	Light Duty Vehicles	30
6	41	Other Buses	40	Buses	40
7	42	Transit Bus	40	Buses	40
8	43	School Bus	40	Buses	40
9	51	Refuse Truck	50	Single Unit Trucks	50
10	52	Single Unit Short-haul Truck	50	Single Unit Trucks	50
11	53	Single Unit Long-haul Truck	50	Single Unit Trucks	50
12	54	Motor Home	50	Single Unit Trucks	50
13	61	Combination Short-haul Truck	60	Combination Trucks	60
14	62	Combination Long-haul Truck	60	Combination Trucks	60

Road Type

The Road Type Panel is used to define the types of roads that are included in the run. MOVES defines five different road types as shown in **Table 3-1**. Generally, all road types should be selected including Off-Network. Selection of road types in the Road Type Panel determines the road types that will be included in the MOVES run results (EPA 2016).

Table 3-1: MOVES Road Types

Roadtypeid	Road type	Description
1	Off-Network	Locations where the predominant activity is vehicle starts, parking and idling (parking lots, truck stops, rest areas, freight or bus terminals)
2	Rural Restricted Access	Rural highways that can be accessed only by an on-ramp
3	Rural Unrestricted Access	All other rural roads (arterials, connectors, and local streets)
4	Urban Restricted Access	Urban highways that can be accessed only by an on-ramp
5	Urban Unrestricted Access	All other urban roads (arterials, connectors, and local streets)

All road types available in MOVES3 were used.

Pollutants and Processes

The Pollutants and Processes Panel allows users to select from various pollutants, types of energy consumption, and associated processes of interest. In MOVES, a pollutant refers to particular types of pollutants or precursors of a pollutant but also includes energy consumption choices. Processes refer to the mechanism by which emissions are released, such as running exhaust or start exhaust. Users should select all relevant processes associated with a particular pollutant to account for all emissions of that pollutant. Generally, for this project, that includes running emissions.

The CO₂ Equivalent pollutant is the sum of the global warming potential of other greenhouse gases expressed as a unit of CO₂ (EPA 2016) and CO₂ Equivalents (CO₂e) is the pollutant of interest for these GHG calculations. MOVES requires several other prerequisite pollutants for CO₂e; however, only the emission rates for CO₂e were needed for this project.

Units

Users are free to choose any of the mass unit selection options but should generally choose a unit whose magnitude is appropriate for the parameters of the RunSpec (EPA 2016).

The units used for models were grams for mass, joules for energy, and miles for distance.

Activity

MOVES allows the user to select multiple activity output options (e.g., distance traveled, population, etc.). For Emission Rate calculations, distance and population are reported automatically, but the values in the output are intermediate steps in the rate calculation and do not represent the true activity (EPA 2016).

When calculating emission rates (as opposed to emission inventories), MOVES selects the activities hoteling hours, population, and starts without the option of changing them.

Output Emissions Detail

This panel allows the user to select the amount of detail provided in the output database. Certain selections on this panel are made by the MOVES software and cannot be changed, based on

selections made on earlier panels. The more boxes checked on this panel, the more detail and segregation provided in the MOVES output database. More detail generally is not helpful for this process so no optional selections should be checked on this panel. For example, if Source Use Type were selected on this panel, emission rates for each of the MOVES vehicle Source Use Type categories would be reported in the output database, which would defeat the purpose of performing MOVES calculations based on consolidated HPMS category.

No optional aggregation selections were made on this panel. Source type detail was captured via the six HPMS RunSpecs for each year modeled, as described in the On-road Vehicles section. Since multiple source types were used for HPMS 30, 40, 50, and 60, emission rates were aggregated for into HPMS categories. That is, emission rates for MOVES source types 31 and 32 were aggregated into the HPMS 30 RunSpec, etc.

Input Database/County Data Manager

After completing the RunSpec, the next step is to supply MOVES with data to create an input database that is the basis for the emission rate calculations. When using the County scale, the County Data Manager (CDM) is used to create an input database and populate it with local data. Modelers can either rely on MOVES default information or local data that the user inputs, as is appropriate for the goals of the MOVES modeling. The data contained in the MOVES default database are typically not the most current or best available for any specific county. Therefore, with the exception of fuels, EPA recommends using local data for MOVES for GHG analyses when available to improve the accuracy of GHG emissions estimates. However, the MOVES default data (county level) may be the only or best source of that data readily available. Also consider that data consistency may be more important than data perfection for some GHG analyses. At a minimum, EPA strongly encourages the use of local VMT and vehicle population data. EPA believes these inputs have the greatest impact on the quality of results. However, if local data are not available, MOVES default data may be useful for some inputs without affecting the quality of the results (*EPA 2016*).

In Emissions Rates mode, a full gamut of input data must be provided, described below, for MOVES to run. Some of these inputs actually do not affect the ultimate emission rates (they would affect inventory mode output) but reasonable inputs in the CDM should be used for general data integrity. As a general rule, users should input accurate activity for the scenario being modeled regardless of whether MOVES is being used in Inventory or Emissions Rates mode (*EPA 2016*).

The “Create Input Database” parameters define the region-specific inputs such as distributions of road types, vehicle age distributions, and meteorology data. The parameters specified in RunSpecs pre-populate the input database with default data for some of the parameters. However, region-specific data should be used when available and not all parameters have default data.

One comprehensive input database was created for each year modeled. Each of the six HPMS RunSpecs for that year used that single input database and were saved to a single output database. The input data were entered with the MOVES County Data Manager window, as specified below.

Age Distribution

A typical vehicle fleet includes a mix of vehicles of different ages, referred to as Age Distribution in MOVES. MOVES covers a 31 year range of vehicle ages, with vehicles 30 years and older grouped together. MOVES allows the user to specify the fraction of vehicles in each of 30 vehicle ages for each of the 13 source types in the model. For estimating on-road GHG emissions, EPA

recommends and encourages states to develop age distributions that are applicable to the area being analyzed (EPA 2016).

APCD has developed a vehicle age distribution for the DRCOG area, and it was used for each year modeled.

Average Speed Distribution

This input is more important for Inventory than Emission Rates. Vehicle power, speed, and acceleration have a significant effect on vehicle emissions, including GHG emissions. MOVES models those emission effects by assigning activity to specific drive cycles. The Average Speed Distribution Importer in MOVES calls for a speed distribution in VHT in 16 speed bins, by each road type, source type, and hour of the day included in the analysis. EPA urges users to develop the most detailed local speed information that is reasonable to obtain. However, EPA acknowledges that average speed distribution information may not be available at the level of detail that MOVES needs (EPA 2016).

The Emission Rates option in MOVES will produce a table of emission rates by road type for each speed bin. Total running emissions are then quantified outside of MOVES by multiplying the emission rates by the VMT for each source type in each vehicle speed category. Users should supply an appropriate speed distribution to produce the necessary emission rates (EPA 2016).

APCD uses MOVES default data for all years in emission rate mode for their GHG models. This was used for each year modeled. Since emission rates were calculated (as opposed to emission inventories), the average speed distribution used in MOVES will not change the emission rates calculated. The speeds are accounted for in the travel demand model data.

Fuel

Entering this input data into MOVES involves four tables – called FuelFormulation, FuelSupply, FuelUsageFraction, and AVFT (alternative vehicle fuels and technology) – that interact to define the fuels used in the area being modeled.

- The FuelSupply Table identifies the fuel formulations used in a region (the regionCounty Table defines which specific counties are included in these regions) and each formulation's respective market share;
- The FuelFormulation Table defines the properties (such as RVP, sulfur level, ethanol volume, etc.) of each fuel;
- The FuelUsageFraction Table defines the frequency at which E-85 capable (flex fuel) vehicles use E-85 vs. conventional gasoline; and
- The AVFT Table is used to specify the fraction (other than the default included in the sampleVehiclePopulation Table) of fuel types capable of being used (such as flex fuel vehicles) by model year and source type.

In general, users should review/use the default fuel formulation and fuel supply data provided in MOVES, with important exceptions noted below. EPA strongly recommends using the default fuel properties for a region unless a full local fuel property study exists.

The GHG effects of changes in the fuel mix used by vehicles can be modeled in MOVES. AVFT can be used to change the fraction of future vehicles using gasoline, diesel, CNG and electricity. These changes will be reflected in MOVES GHG emission rates.

The FuelUsageFraction Table allows the user to change the frequency at which E-85 capable vehicles use E-85 fuel vs. conventional fuel, when appropriate. MOVES contains default estimates of E-85 fuel usage for each county in the U.S. In most cases, users should rely on the default information.

The AVFT Table allows users to modify the fraction of vehicles using different fuels and technologies in each model year. In other words, the Fuel Tab allows users to define the split between diesel, gasoline, ethanol, CNG, and electricity, for each vehicle type and model year. For transit buses, the default table assumes that gasoline, diesel, and CNG buses are present in the fleet for most model years. If the user has information about the fuel used by the transit bus fleet in the county modeled, the user should be sure it is reflected in the AVFT Table (EPA 2016).

*****NOTE: This tab is critically important in GHG calculations. This is where electric vehicle percentages, etc. are defined.*****

APCD uses MOVES default data for fuel supply, fuel formulation, and fuel usage fraction for all years in their GHG models. For AVFT, APCD uses custom inputs that includes electric vehicles for all years. These were used for each year modeled.

Meteorology

Ambient temperature and relative humidity data are important inputs for estimating on-road GHG emissions with MOVES. Ambient temperature and relative humidity are important for estimating GHG emissions from motor vehicles as these affect air conditioner use. MOVES requires a temperature (in degrees Fahrenheit) and relative humidity (in terms of a percentage, on a scale from 0 to 100) for each hour selected in the RunSpec. EPA recommends that users input the average daily temperature profile for each month if they are modeling all 12 months. Temperature assumptions used for estimating on-road GHG emissions should be based on the latest available information. The MOVES database includes default monthly temperature and humidity data for every county in the country. These default data are based on average monthly temperatures for each county from the National Climatic Data Center for the period from 2001 to 2011. These national defaults can be used for a GHG inventory, or more recent data can be used (EPA 2016).

If the Emission Rate calculation type is chosen in the RunSpec, users can enter a different temperature and humidity for each hour of the day to create an emission rate table that varies by temperature for running emissions processes. Emission rates for all running processes that vary by temperature can be post-processed outside of MOVES to calculate emissions for any mix of temperatures that can occur during a day. This creates the potential to create a lookup table of emission rates by temperature for the range of temperatures that can occur over a longer period of time such as a month or year from a single MOVES run (EPA 2016).

MOVES default meteorology data was used for all years. The county used was Adams County, Colorado for the months of January and July. Emission rates were post-processed to average winter and summer emission rates.

Road Type Distribution

MOVES does not have default data for this input, so it must be developed. The fraction of VMT by road type varies from area to area and can have a significant effect on GHG emissions from on-road mobile sources. EPA expects states to develop and use their own specific estimates of VMT by road type (EPA 2016).

If the Emission Rates option is used, MOVES will automatically produce a table of running emission rates by road type. Running emissions would then be quantified outside of MOVES by

multiplying the emission rates by the VMT on each road type for each source type in each speed bin. In that case, data entered using the Road Type Distribution Importer is still required but is not used by MOVES to calculate the rate. However, road type distribution inputs are important for Emission Rates runs involving non-running processes, because they are used by MOVES to calculate the relative amounts of running and non-running activity, which in turn affects the rates for the non-running processes (*EPA 2016*).

APCD uses a custom road type distribution for all years in their GHG models. This was used for each year modeled. Since emission rates were calculated (as opposed to emission inventories), the road type distribution used in MOVES will not change the emission rates calculated. The road types are accounted for in the travel demand model.

Source Type Population

MOVES does not have default data for this input, so it must be developed. APCD uses a custom source type distribution for all years in their GHG models. These data were used for each year modeled. The source type populations used in MOVES will not change the emission rates calculated. However, source population data are still needed as inputs for an emission rates MOVES run.

Vehicle Type VMT

MOVES does not have default data for this input, so it must be developed. EPA believes VMT inputs have the greatest impact on the results of a state or local GHG or energy consumption analysis. Regardless of calculation type, MOVES requires VMT as an input. MOVES can accommodate whatever VMT data is available: annual or average daily VMT, by HPMS class or MOVES source type. Therefore, there are four possible ways to enter VMT, allowing users the flexibility to enter VMT data in whatever form they have. EPA recommends that the same approach be used in any analysis that compares two or more cases (e.g., the base year and a future year) in a GHG analysis (*EPA 2016*).

The Output Emission Detail panel determines the detail with which MOVES will produce emission rates for running emissions, such as by source type and/or road type in terms of grams per mile. Total emissions are quantified outside of MOVES by multiplying the emission rates by the VMT for each source type and road type. However, users will still need to enter data using the Vehicle Type VMT Importer that reflects the VMT in the total area where the lookup table results will be applied. This is necessary because MOVES uses the relationship between source type population and VMT to determine the relative amount of time vehicles spend parked vs. running (*EPA 2016*).

APCD uses HPMS as the source type and annual as the time span for their GHG models. This was used for each year modeled. Since emission rates were calculated (as opposed to emission inventories), the VMT used in MOVES will not change the emission rates calculated. The VMT values are in the travel demand model data. However, VMT data are still needed as inputs for an emissions rate MOVES run.

Inspection/ Maintenance Program

Because the DRCOG area is an ozone nonattainment area, an inspection and maintenance (I/M) program applies. I/M program inputs should be used for SIP and conformity analyses and are generally available as defaults within MOVES.

APCD uses inputs into MOVES to represent the I/M program in the DRCOG area. This was used for each year modeled.

Others

APCD assumes MOVES default values for the starts, hoteling, idle, retrofit data, and generic tabs. This was left as is for each modeled year.

MOVES Rate per Distance Table

The critical table in the output database with the calculated emission rates was the “rateperdistance” table. It contained emission rates for each combination of month, hour, pollutant, road type, speed bin, and vehicle type as specified in the RunSpec. The MOVESScenarioID field was the mechanism used by FHU to identify the HPMS source type.

The table was filtered to include only CO₂e (i.e., pollutant ID 98) emission rates and exported to a comma-separated value (CSV) file. Because the table included emission rates for both January and July and MOVES speed bins are not discrete speeds in miles per hour, post-processing of the emission rates was required to calculate emission inventories.

Processed Emission Rates

APCD provided several Access databases with calculation tools for processing the MOVES and travel demand model data. These Access databases are the basis for the post-MOVES data processing. The instructions contained below provide a narrative of what occurs, but these actions are already built into the Access databases.

The MOVES rate per distance output table needed to be manipulated to produce emission rates that could be related to the calculated vehicle speeds for road links in the travel demand model data. The emission rates for January and July needed to be averaged to create composite emission rates. The emission rates for the 16 speed bins (which cover 5 MPH ranges) in MOVES were linearly interpolated to provide emission rates for every mile per hour speed from 1 to 75, which is how speed data are presented in the travel demand model data.

The resulting table includes a total of 43,776 unique emission rates. That is, an emission rate for each combination of:

- MOVES Road Types 2-5
- HPMS Types 10/20/30/40/50/60
- Hours 1-24
- Speeds 1-75

Processing Annual Average Emission Rates

For each year/rate per distance table (i.e., this process must be repeated for 2025, 2030, 2040, and 2050):

- Filter to include only CO₂e (pollutant ID 98) emission rates
- There were unique emission rates for each combination of:
 - Road type
 - HPMS type
 - Speed Bin
 - Hour
 - Month

- To get the average emission rates per year, each combination of road type, HPMS type, average speed bin, and hour were summed and divided by two (to average the corresponding emission rates for January and July)
- Seasonally averaged emission rate = (Winter Rate + Summer Rate)/2

Interpolating Emission Rates from Speed Bin to Integer Speeds

After seasonally averaging the emission rates, these rates were used to interpolate (linearly) between speed bins to get an emission of rate for every mile per hour for the speeds of 1 to 75 miles per hour. In general, the process used was:

- For adjacent speed bins, subtract the lower bin number emission rate from the higher bin number emission rate and divide by five to calculate a per mile per hour change in the emission rate (*NOTE: emission rates generally decrease with increased speed*)
- Add the appropriate emission rate change to the lower bin avgBinSpeed value to interpolate each mile per hour emission rate between the avgBinSpeed values
- For reference, the table below illustrates the MOVES speed bins
- Example for interpolating emission rate of 11 mph:
 - Speed per mph = 11 mph
 - Speed of Lower Speed Bin = 10 mph
 - Number of Speeds per Speed Bin = 5 (= 2.5 for speed bin 1; = 5 for all other speed bins)
 - ER of Lower Speed Bin = 4055 g/m (dummy data)
 - ER of Upper Speed Bin = 3421 g/m (dummy data)
 - $4055 + (3421 - 4055) * (11 - 10)/5 = 3928$

avgSpeedBinID	avgBinSpeed	avgSpeedBinDesc
1	2.5	speed < 2.5mph
2	5	2.5mph <= speed < 7.5mph
3	10	7.5mph <= speed < 12.5mph
4	15	12.5mph <= speed < 17.5mph
5	20	17.5mph <= speed < 22.5mph
6	25	22.5mph <= speed < 27.5mph
7	30	27.5mph <= speed < 32.5mph
8	35	32.5mph <= speed < 37.5mph
9	40	37.5mph <= speed < 42.5mph
10	45	42.5mph <= speed < 47.5mph
11	50	47.5mph <= speed < 52.5mph
12	55	52.5mph <= speed < 57.5mph
13	60	57.5mph <= speed < 62.5mph
14	65	62.5mph <= speed < 67.5mph
15	70	67.5mph <= speed < 72.5mph
16	75	72.5mph <= speed

Processed Travel Demand Model

The travel demand model data are exported as a table, each record representing a traffic link attributed with distances, total volumes, volumes per time period, and speeds per time period. This data is imported into the MOVES relational database and associated with the appropriate MOVES emission rates, as described below.

The resulting table includes aggregated VMT for each combination of:

- MOVES Road Types 2-5
- HPMS Types 10/20/30/40/50/60
- Hours 1-24
- Speeds 2.5-75

This process provides respective county names for each link to aggregate VMT by geography/region.

Attribute Travel Demand Model with County Name

The first step was to attribute each link with the county name. The county information was necessary because it was used later in the process to filter VMT (and thus, on-road emissions inventory) by geography/region (e.g., MPO or non-MPO traffic). Performing this step later in the process would require significant modifications to the process.

Access Database

The travel demand model CSV file from the step above was imported into an Access database. The remaining post-processing steps were performed in this Access database, as described below.

Speeds

The travel demand model speeds were in floating decimal format and rounded to the nearest integer. Speeds less than 2.75 mph were rounded to 2.5 mph. This was because emission rates for speeds of 2.5 mph or less were the same, as described in the **Processed Emission Rates** section.

Time Periods

The travel demand model provides aggregated data for 10 blocks of time for a day, not hour by hour—see the "name" column below. The data for these travel demand model periods were recategorized/interpolated into data for discrete clock hours 1-24 based on methodology from APCD.

The PeriodHour24 table below was used to split the travel demand model data for different time periods (AM1, PM2, OP1, etc.) into 24 clock hour time periods. VMT was calculated for each combination of integer speed (2.5 – 75mph), interstate (yes or no), road functional class (1-8), rural (yes or no), periodCog (1-10), and county.

The periodCog 1-10 were related to hours 1-24 as shown in the "hour" column. That provided a VMT per clock hour for each combination of speed and functional class. This was used to relate the VMT to fractions of VMT by HPMS per functional class and hour.

The cVMT was divided by the number of "periods" corresponding with each clock hour to calculate the VMT.

PeriodHour24						
Interval	periodCog	name	hour	hrsT	periods	
11:00 PM - 6:30AM	7	Op1.bin	1	7.5	7	
11:00 PM - 6:30AM	7	Op1.bin	2	7.5	7	
11:00 PM - 6:30AM	7	Op1.bin	3	7.5	7	
11:00 PM - 6:30AM	7	Op1.bin	4	7.5	7	
11:00 PM - 6:30AM	7	Op1.bin	5	7.5	7	
11:00 PM - 6:30AM	7	Op1.bin	6	15	7	
6:30-7:00 AM	1	Am1.bin	7	1	1	
7:00-8:00 AM	2	Am2.bin	8	1	1	
8:00-9:00 AM	3	Am3.bin	9	1	1	
9:00 AM - 11:30 AM	8	Op2.bin	10	2.5	2.5	
9:00 AM - 11:30 AM	8	Op2.bin	11	2.5	2.5	
	9	Op3.bin	12	3.5	7	
	8	Op2.bin	12	2.5	5	
11:30 AM - 3:00 PM	9	Op3.bin	13	3.5	3.5	
	9	Op3.bin	14	3.5	3.5	
	9	Op3.bin	15	3.5	3.5	
3:00-5:00 PM	4	Pm1.bin	16	2	2	
3:00-5:00 PM	4	Pm1.bin	17	2	2	
5:00-6:00 PM	5	Pm2.bin	18	1	1	
6:00-7:00 PM	6	Pm3.bin	19	1	1	
7:00-11:00 PM	10	Op4.bin	20	4	4	
7:00-11:00 PM	10	Op4.bin	21	4	4	
7:00-11:00 PM	10	Op4.bin	22	4	4	
7:00-11:00 PM	10	Op4.bin	23	4	4	
11:00 PM - 6:30AM	7	Op1.bin	24	7.5	7	

Fraction of VMT by HPMS

Once VMT was calculated for each road functional class and clock hour, the fractions of VMT by HPMS for each corresponding functional class and clock hour were applied. This calculated the VMT for HPMS 10-60. The fractions used were from APCD and were consistent with their methodology.

NAA?	Weld?	Rural?	FC	Hr	10f	20f	30f	40f	50f	60f
-1 W	R	1		1	1.12494375281236E-03	0.442984079764564	0.408981870287873	8.24958752062397E-04	3.60606876834793E-03	0.14247807867434
-1 W	R	1		2	6.50325162581291E-04	0.418107821883677	0.388118179039889	1.40070035017509E-03	5.57032759041272E-03	0.186152645973265
-1 W	R	1		3	1.1907462009526E-03	0.402448608970853	0.376594285267901	1.9278748015423E-03	8.86488378110699E-03	0.208973600977645
-1 W	R	1		4	1.88772529102432E-03	0.400795540811441	0.375296865809669	3.5956672209987E-03	8.74568726325332E-03	0.209678513603612
-1 W	R	1		5	1.27600843728028E-03	0.438002933384539	0.406922735865401	8.59352621025494E-04	5.91653137282429E-03	0.14702243831893
-1 W	R	1		6	9.86892049192773E-04	0.462978652961131	0.429325812630245	1.88521686320158E-03	5.20852159466524E-03	9.96149039015637E-02
-1 W	R	1		7	8.56477631797771E-04	0.47063947538398	0.437825973989187	1.19740562115417E-03	7.50554404406707E-03	8.19751233298142E-02

Road Types

The travel demand model used roadway functional classes that were recategorized to MOVES road types. That allowed the road types from the travel demand model to be related to the emission rates.

DRCOG Facil	FHWA facility type	rural?	FHWA	Urban	MOVESrt	fhwaRT	fcCode	Interstate
1	Principal Arterial - Interstate	-1 R	R		2	1 1		1
1	Principal Arterial - Interstate	-1 R	R		2	1 1		0
1	Principal Arterial - Interstate	0 N	U		4	11 1		0
1	Principal Arterial - Interstate	0 N	U		4	11 1		1
2	Principal Arterial - Other	-1 N	R		3	2 2		0
2	Principal Arterial - Other Freeways or Expressway	0 N	U		4	12 2		0
3	Principal Arterial - Other	-1 N	R		3	2 3		0
3	Principal Arterial - Other	0 N	U		5	14 3		0
4	Minor Arterial	-1 N	R		3	6 4		0
4	Minor Arterial	0 N	U		5	16 4		0
5	Major Collector	-1 N	R		3	7 5		0
5	Collector	0 N	U		5	17 5		0
6	Principal Arterial	-1 R	R		2	1 1		0
6	Principal Arterial	0 N	U		4	11 1		0
8	Local System	-1 N	R		3	9 7		0
8	Local System	0 N	U		5	19 7		0

Filter by Geography/Region

The statewide GHG inventory was filtered to contain VMT for all counties in Colorado, except for the nine county region in the ozone non-attainment area. The nine counties excluded were Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, Jefferson, **Larimer, and Weld**. The statewide results were subdivided further into Pikes Peak area and the rest of the state.

Emissions Inventory

The processed emission rates table and the processed VMT table were related by road type, HPMS type, hour, and speed. This relate was used to multiply the emission rate (g/mi) by the VMT (mi) to get a total in grams of CO2e for an average weekday. The formula used was:

- $\text{CO2e (g/day)} = \text{SUM}(\text{Emission Rate (g/mi)} * \text{VMT (mi)})$
- $\text{CO2e (MMt/day)} = \text{CO2e (g/day)} * 1 \text{ (MMt)} / 1\text{e}+12 \text{ (g)}$

- $\text{CO}_2\text{e (MMt/year)} = \text{CO}_2\text{e (MMt/day)} * 338$ (travel demand model weekdays/calendar year)

The calculated emissions inventory was for on-road emissions. Non-road emissions were not included in this calculation.

References

EPA. 2016. *Using MOVES for Estimating State and Local Inventories of On-road Greenhouse Gas Emissions and Energy Consumption*. June.

<https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockkey=P100OW0B.pdf>

***Appendix D: Resolution 2023-12 North Front Range Transportation & Air Quality
Planning Council (NFRT&AQPC) Adoption***

RESOLUTION NO. 2023-12
OF THE NORTH FRONT RANGE TRANSPORTATION & AIR QUALITY PLANNING COUNCIL
ADOPTING THE NFRMPO GREENHOUSE GAS (GHG) TRANSPORTATION REPORT

WHEREAS, 23 CFR §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, pursuant to the legislation above, the North Front Range Transportation & Air Quality Planning Council (NFRTP & AQPC) was designated by the Governor of the State of Colorado as the MPO responsible for carrying out the transportation planning process, and for developing and amending the RTP; and

WHEREAS, Colorado Senate Bill 21-260 specified implementing relevant measures pursuant to § 25-7-105, C.R.S.; reducing GHG emissions to help achieve statewide GHG pollution reduction targets established in House Bill 19-1261 (now codified in § 25-7-102(2)(g) and 105(1)(e), C.R.S.); and considering the role of land use in the transportation planning process; and

WHEREAS, the NFRMPO will provide the GHG Transportation Report containing a GHG emissions analysis, to the Transportation Commission at least 30 days prior to adoption by the Planning Council of the 2050 RTP in accordance with the Planning Rules demonstrating 2050 RTP is in compliance with the GHG Reduction Levels in Table 1 of the Planning Rules; and

WHEREAS, under Rule 8.05 of the Planning Rules, the Transportation Commission, within 30 days of receipt of the GHG Transportation Report or at the next regularly scheduled Transportation Commission meeting, whichever is later, shall determine whether the applicable GHG Reduction Levels in Table 1 have been met and the sufficiency of any GHG Mitigation Measures needed for compliance; and

WHEREAS, the Transportation Commission will review the NFRMPO’s GHG Transportation report on August 16, 2023 to determine compliance of the concluded the NFRMPO’s GHG Transportation Report with the Planning Rules;

NOW, THEREFORE, BE IT RESOLVED THAT the North Front Range Transportation & Air Quality Planning Council adopts the NFRMPO Greenhouse Gas (GHG) Transportation Report, for the 2050 RTP.

Passed and adopted at the regular meeting of the North Front Range Transportation & Air Quality Planning Council held this 6th day of July 2023.

Scott K. James

Scott K. James (Jul 7, 2023 07:36 MDT)

Scott James, Chair

ATTEST:

Suzette Mallette

Suzette Mallette (Jul 7, 2023 09:58 MDT)

Suzette Mallette, Executive Director

Appendix E: APCD Verification



COLORADO

**Department of Public
Health & Environment**

August 9, 2023

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

VIA EMAIL

Subject: Greenhouse Gas Transportation Report for the North Front Range Metropolitan Planning Organization 2050 Regional Transportation Plan and FY2024-2027 Transportation Improvement Program

Dear Ms. Mallette:

Thank you for submitting the North Front Range Metropolitan Planning Organization (NFRMPO) Draft Greenhouse Gas (GHG) Transportation Report for the 2050 Regional Transportation Plan (RTP) and FY2024-2027 Transportation Improvement Program (TIP) to the Air Pollution Control Division (Division) on July 14, 2023. The Division appreciates NFRMPO's collaborative engagement concerning the Division's request for additional technical information associated with the Draft GHG Transportation Report. This letter serves as written verification that the technical data contained within the Draft GHG Transportation Report is acceptable, in accordance with Section 8.04 of the Transportation Commission's GHG Rule (5-2-CCR-601-22).

We look forward to working with NFRMPO as applicable on future verification efforts.

Sincerely,

Garry Kaufman
Deputy Director for Regulatory Affairs
Air Pollution Control Division

CC: Commissioner Scott James, Chair, NFRMPO
Darius Pakbaz, CDOT
Herman Stockinger, CDOT
Theresa Takushi, CDOT
Clay Clarke, CDPHE
Dale Wells, CDPHE
Becky Karasko, NFRMPO



Appendix F: Colorado Transportation Commission Resolution

Resolution #TC-2023-08-07

Adoption of the Commission's determination that the NFRMPO GHG Transportation Report is sufficient and meets the reduction levels required in Rule 2 CCR 601-22 (Planning Rules).

Approved by the Transportation Commission on August 16, 2023.

WHEREAS, Senate Bill 21-260 directed the Transportation Commission of Colorado ("the Commission") to adopt procedures and guidelines requiring CDOT and MPOs to take additional steps in the planning process for regionally significant transportation projects to account for the impacts on the amount of statewide GHG pollution and statewide vehicle miles traveled that are expected to result from those projects; and

WHEREAS, Senate Bill 21-260 also specified implementing relevant measures pursuant to § 25-7-105, C.R.S.; reducing GHG emissions to help achieve statewide GHG pollution reduction targets established in House Bill 19-1261 (now codified in § 25-7-102(2)(g) and 105(1)(e), C.R.S.); and considering the role of land use in the transportation planning process; and

WHEREAS, Senate Bill 21-260 further required, under § 43-4-1103, that CDOT shall update their 10-Year Plan and the Denver Regional Council of Governments (DRCOG) and the North Front Range Metropolitan Planning Organization (NFRMPO) shall update their Regional Transportation Plans (RTP) and meet the reduction levels in Table 1 by October 1, 2022; and

WHEREAS, on December 16, 2021 the Commission adopted updated Planning Rules, which included greenhouse gas reduction levels for CDOT in non-MPO areas, DRCOG, and NFRMPO; and

WHEREAS, the Commission adopted Policy Directive No. 1610 on May 19, 2022, with minor amendments thereafter (as amended, the "Policy Directive") which guides implementation of the Planning Rules and use of GHG Mitigation Measures; and

WHEREAS, the Commission established the Agency Coordination Committee ("ACC") chaired by Commissioner Hickey to act as liaison for the Commission throughout the rulemaking and compliance process, and that group has met frequently with department staff during the current compliance effort; and

WHEREAS, NFRMPO is nearing completion of their 2050 RTP and the FY2024-2027 Transportation Improvement Program (TIP) and the Planning Rules require NFRMPO to provide to the Commission "at least 30 days prior to adoption" of their TIP or RTP a GHG Transportation Report (Report) containing a GHG emissions analysis, and if applicable, a GHG Mitigation Action Plan demonstrating that the Applicable Planning Document is in compliance with the GHG Reduction Levels in Table 1 of the Planning Rules; and

WHEREAS, Under Rule 8.05 of the Planning Rules, the Commission, within thirty days of receipt of the GHG Transportation Report or at the next regularly scheduled Commission meeting, whichever is later, shall determine whether the applicable GHG Reduction Levels in Table 1 have been met and the sufficiency of any GHG Mitigation Measures needed for compliance."

WHEREAS, on July 14, 2023, the Commission received NFRMPO's Report reflecting the results of modeling of the updated Transportation Improvement Program and 2050 RTP for the NFRMPO area pursuant to the Rules and the Policy Directive; and

WHEREAS, the Report concludes that NFRMPO will achieve the required reduction levels under the Planning Rules; and

NOW THEREFORE BE IT RESOLVED, after review and consideration of the NFRMPO Report, the Commission finds the Report and NFRMPO to be in compliance with the Planning Rules and to have achieved the required reduction levels.

Herman
Stockinger

Digitally signed by Herman
Stockinger
Date: 2023.08.18 11:39:11
-06'00'

Herman Stockinger, Secretary
Transportation Commission of Colorado

Date