



North Front Range Regional Commuter Rail Concept Discussion

*North Front Range MPO –
Technical Advisory Committee*






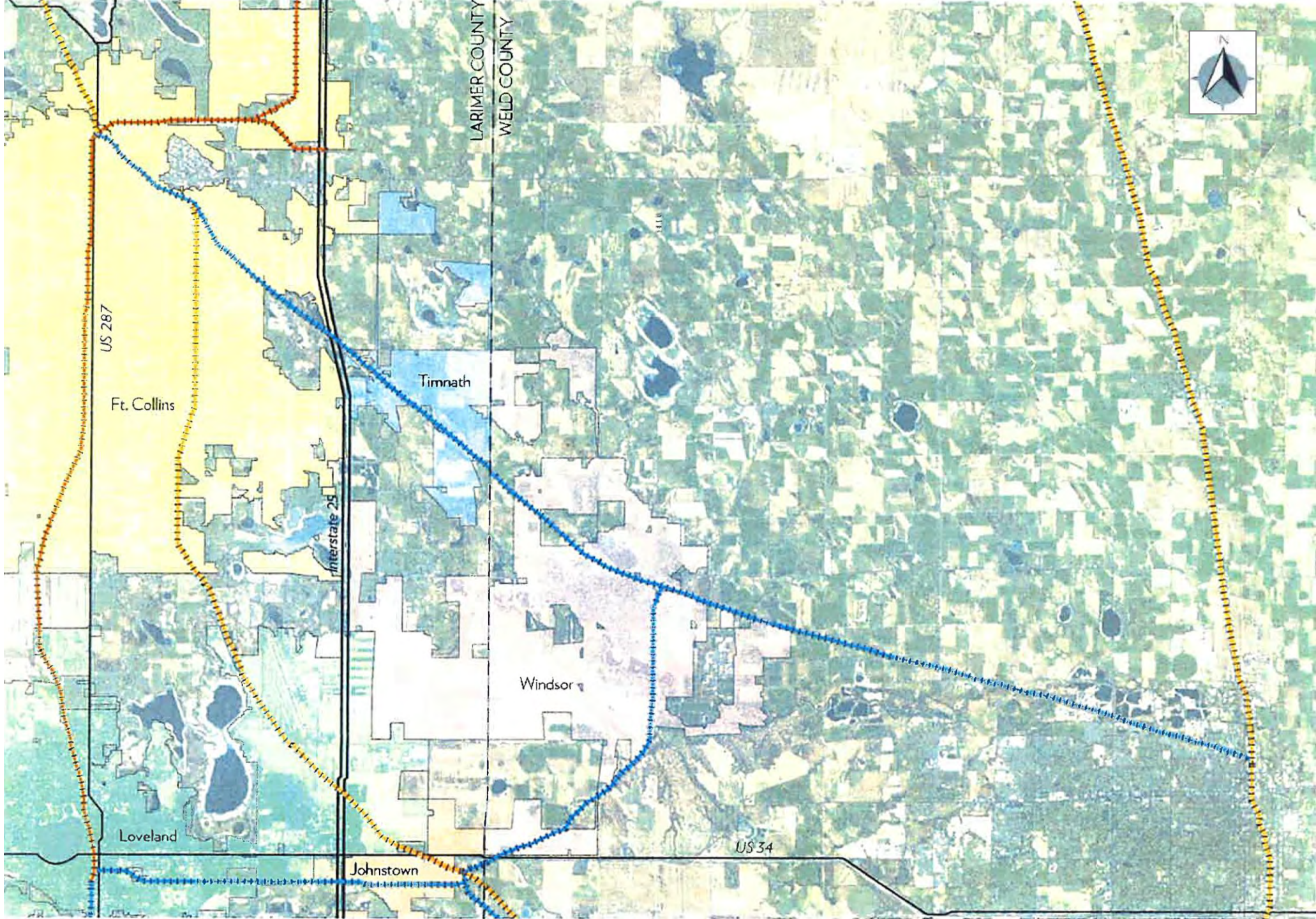
Windsor, CO – June 20, 2018

Background

- SW Chief and Fr. Range Passenger Rail Commission
- Possible Independent North Front Range Regional Commuter Service?
- Utilize Existing Light Density Freight Lines (Great Western Railway & UP) in the Region
- Connect Key Activity Centers / Communities
- Tie-in to Future Front Range Commuter Rail

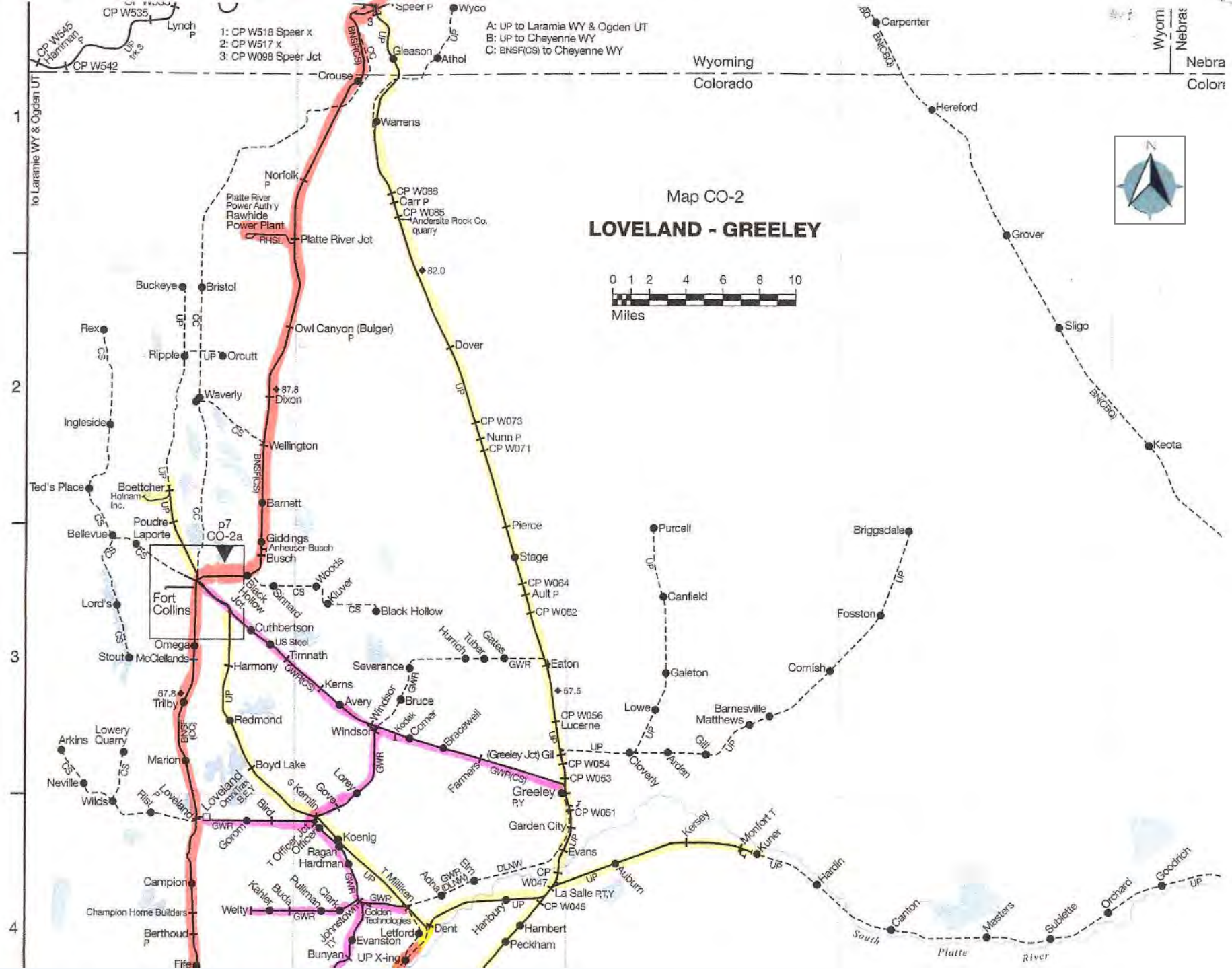
North Front Range Rail Network

-  BNSF Railroad
-  Union Pacific Railroad
-  Great Western Railroad



North Front Range Rail Map Composite

Enlarged:
North Section



North Front Range Rail Map Composite

Enlarged:
South Section

- BNSF
- UP
- GWR
- RTD



Stakeholders

- NFR MPO
- OmniTRAX
- Greeley
- Fort Collins
- Loveland
- Windsor
- Timnath
- CDOT
- Others??
 - *Chambers of Commerce,*
 - *BNSF/UP*
 - *Fort Collins- Loveland Regional Airport*

Possible Elements of a Future Feasibility Study

- Research 'Similar' Commuter Rail Projects
- Right of Way Analysis
- Stakeholder Involvement
- Projected Ridership Analysis
- Operating Plan Scenarios
- Is Rail Appropriate Technology?
- Cost Estimates
 - *Rail Related Capital Improvements*
 - *Stations*
 - *Operating Costs*
- Governance
- Project Funding Sources

Thank you!

wsp.com

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North Front Range Rail Map Composite

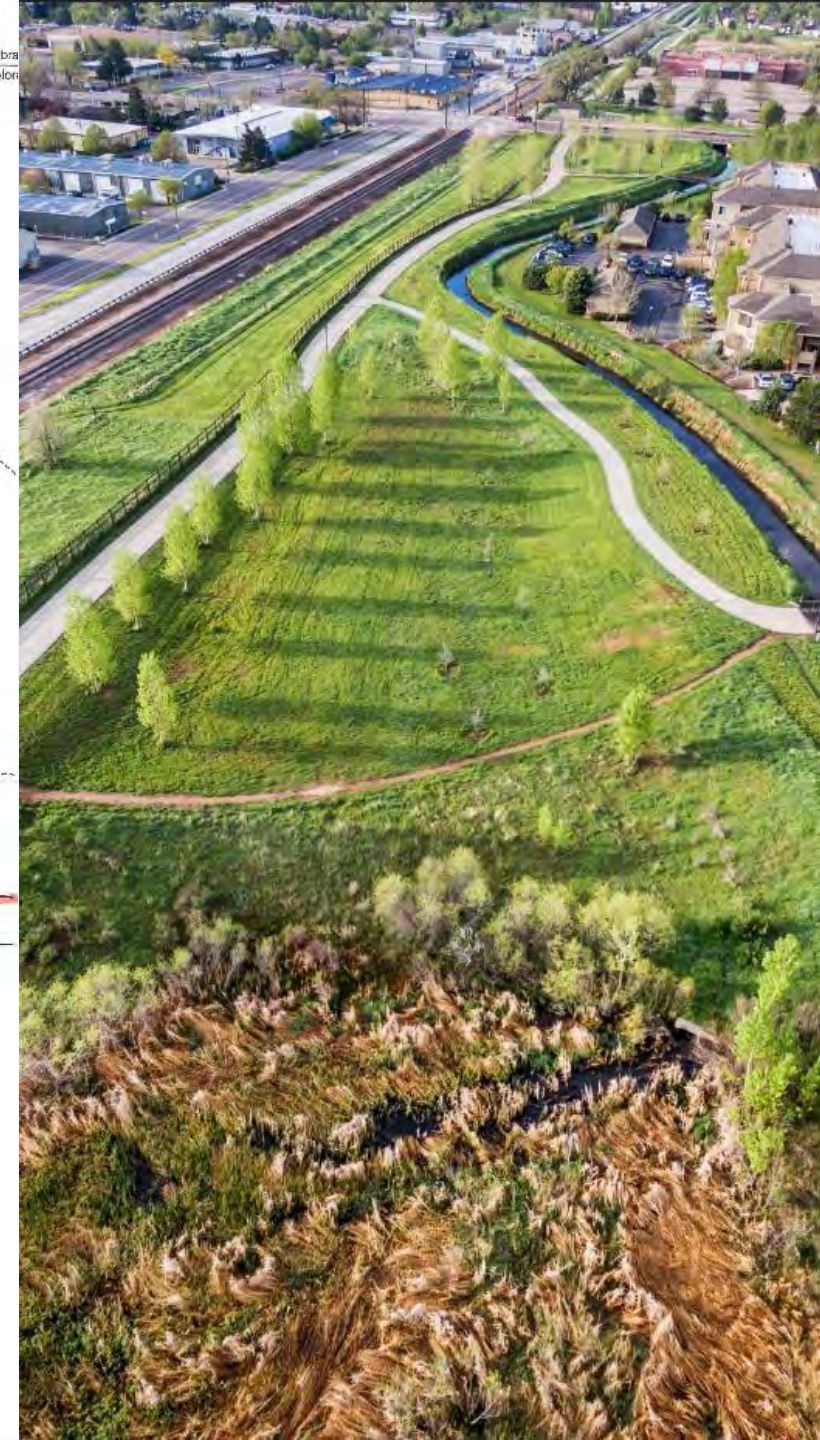
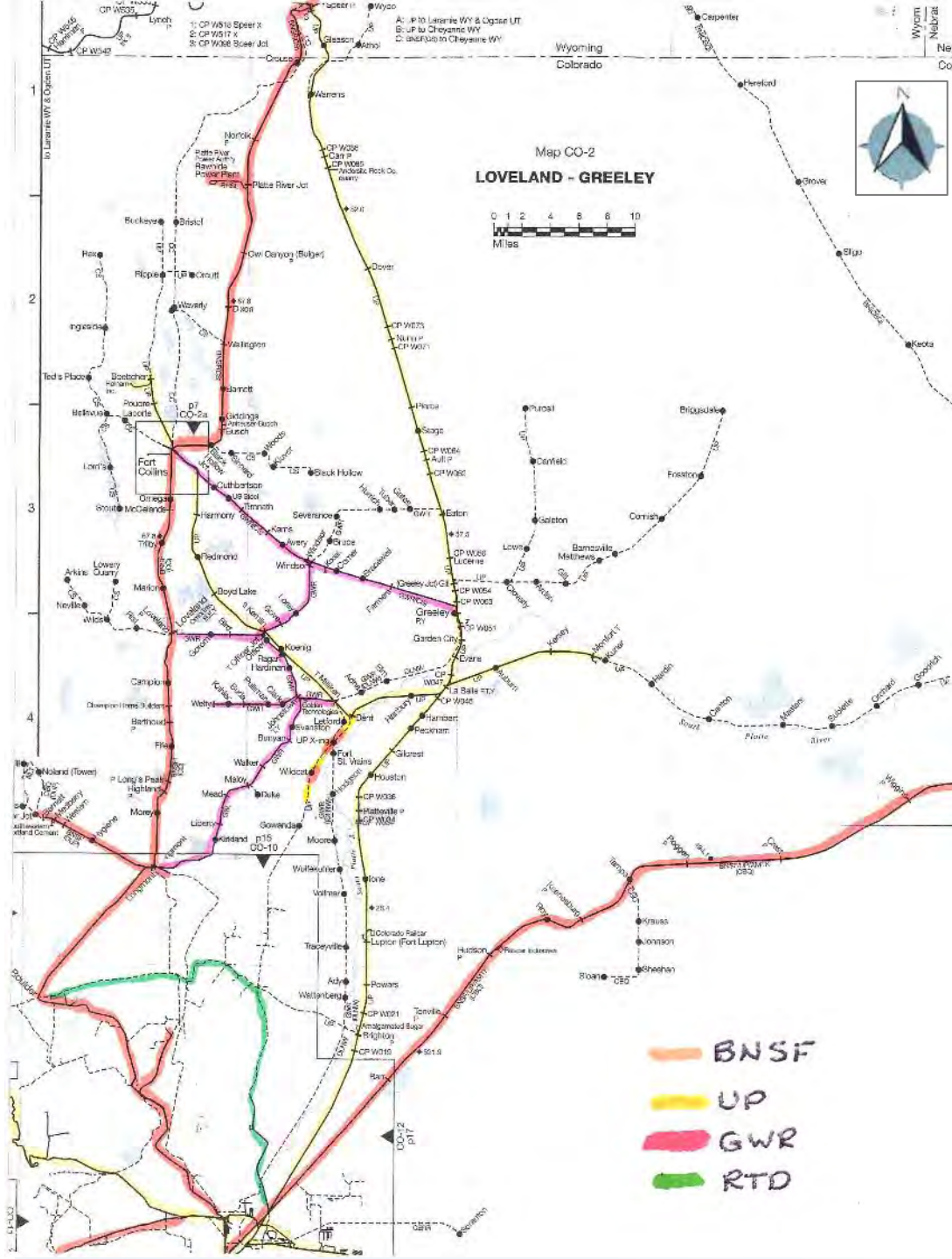




Photo title

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Call for Projects Congestion Mitigation and Air Quality (CMAQ) Emissions Formulas

Technical Advisory Committee



FY2022-2023 Call for Projects

- Call will be held this fall
- Congestion Mitigation and Air Quality (CMAQ) funded projects must contribute to attainment or maintenance of national standards for ozone and carbon monoxide
- Ozone precursors include nitrogen oxides (NO_x) and volatile organic compounds (VOC)
- CMAQ formulas assess total emissions reduced and cost effectiveness of the reduction

CMAQ Scoring in 2014 and 2016



- Short Term Emissions Benefits (Year 1) – 20%
- Long Term Emissions Benefits (Years 2-5) – 40%
- Cost Effectiveness (Cost per Emissions Benefit) – 40%

Michigan DOT Forms

- Used in 2014 and 2016 Calls
- Supports seven project types
- Michigan emission factors can be replaced with CO factors
- Out year is 2035

EPA Diesel Emissions Quantifier (DEQ)

- Used in 2014 and 2016 Calls for alternative fuel vehicles
- No estimate for VOC
- No CNG-specific factors
- Out year is 2023

FHWA CMAQ Emissions Calculator Toolkit

- Supports nine project types
- Developed in 2016-2017
- Three modules to be released in 2018
- Out year is 2020 or 2021

Eligible Projects



- Diesel engine retrofits*
 - Diesel vehicle repower*
 - Idle reduction strategies*
 - Park and ride*
 - Incident management*
 - Alternative fuel vehicle/bus
 - Alternative fuel stations
 - Transit service expansion
 - Transit amenity improvements
 - Extreme-temperature cold start technologies
 - Bicycle and pedestrian facilities and programs
 - Employee transit benefits
 - Intermodal freight
 - Intersection improvements
 - Traffic signal synchronization
 - Roundabouts
 - Intelligent Transportation Systems (ITS)
 - Congestion pricing
 - Carpooling / vanpooling
 - Carsharing
 - Ridesharing
 - Bikesharing
 - Subsidized transit fares
 - Travel Demand Management (TDM) strategies and outreach
- *Most cost effective projects

Example Projects for Formula Testing



- CNG vehicle replacement
- Clean diesel vehicle replacement
- Transit CNG bus replacement
- Diesel engine retrofit
- Traffic signal synchronization
- Bicycle/pedestrian trail

Example projects tested as
2020 upgrades from 2010

Example projects are based on previous applications or formula defaults

CNG Vehicle Replacement



Inputs

- Old Fuel Type – Diesel
- New Fuel Type – CNG
- Old Model Year – 2010
- New Model Year – 2020
- VMT – 14,962
- Cost – \$50,000
- Annual Fuel Gallons – 1,463
- Annual Idling Hours – 30
- Vehicle Class – Single unit short-haul class 4-5

Measure	Emission	EPA DEQ	FHWA Toolkit
Total Emissions Reduced (KG)	NOx	36	43
	VOC	N/A	1
Cost Effectiveness (Cost per KG)	NOx	\$1,378	\$1,168
	VOC	N/A	\$53,769

Clean Diesel Vehicle Replacement



Inputs

- Old Fuel Type – Diesel
- New Fuel Type – Diesel
- Old Model Year – 2010
- New Model Year – 2020
- VMT – 14,962
- Cost – \$50,000
- Annual Fuel Gallons – 1,463
- Annual Idling Hours – 30
- Vehicle Class – Single unit short-haul class 4-5

Measure	Emission	EPA DEQ	FHWA Toolkit
Total Emissions Reduced (KG)	NOx	36	102
	VOC	N/A	2
Cost Effectiveness (Cost per KG)	NOx	\$1,378	\$489
	VOC	N/A	\$25,929

Transit CNG Bus Replacement



Inputs

- Old Fuel Type – Diesel
- New Fuel Type – CNG
- Old Model Year – 2010
- New Model Year – 2020
- VMT – 26,250
- Cost – \$600,000
- Annual Fuel Gallons – 3,269
- Annual Idling Hours – 600

Measure	Emission	EPA DEQ	FHWA Toolkit
Total Emissions Reduced (KG)	NOx	113	27
	VOC	N/A	-1
Cost Effectiveness (Cost per KG)	NOx	\$5,291	\$21,877
	VOC	N/A	N/A

Diesel Engine Retrofit



Inputs

- Retrofit Type – Diesel Particulate Filter
- Old Model Year – 2010
- New Model Year – 2020
- VMT – 14,962
- Cost – \$9,000
- Annual Fuel Gallons – 14,962
- Annual Idling Hours – 30

Measure	Emission	EPA DEQ	FHWA Toolkit
Total Emissions Reduced (KG)	NOx	0	0
	VOC	N/A	143
Cost Effectiveness (Cost per KG)	NOx	N/A	N/A
	VOC	N/A	\$63

Traffic Signal Synchronization



Inputs

- Area Type – Urban
- Corridor Length – 4 miles
- Number of signalized intersections – 12
- Number of Lanes – 3
- Speed Limit – 50 mph
- Average Speed – 31 mph
- Expected Increase in Speed – 5 mph
- Average Cycle Length – 110 seconds
- Truck Percentage – 6%
- AADT – 55,000
- Peak-Hour Volume – 6,000
- Existing Corridor Travel Time – 10 minutes

Measure	Emission	MDOT	FHWA Toolkit
Total Emissions Reduced (KG)	NOx	660	1,801
	VOC	3,564	1,069
Cost Effectiveness (Cost per KG)	NOx	\$1,212	\$444
	VOC	\$224	\$748

Inputs

- Length – 0.75 miles
- ADT – 58,000
- Percentage of bike/ped – 3%
- Average speed on road – 43 mph
- Cost – \$1,000,000

Measure	Emission	MDOT
Total Emissions Reduced (KG)	NOx	317
	VOC	113
Cost Effectiveness (Cost per KG)	NOx	\$3,148
	VOC	\$8,818

Proposed Call for Projects Schedule



Event	Timeframe
Open Call	August
Project Application Workshop	September
CMAQ Project Description Due	September
CMAQ Emissions Data Due	September
Applications Due	September
Scoring Meeting	October
TAC Discussion	October
Council Presentations	November
TAC Action	December
Council Action	January (2019)

Draft Federal Funding Available



Program	FY2022	FY2023
CMAQ	\$4,917,303	\$4,921,755
STBG	\$4,183,184	\$4,186,972
TA	\$330,470	\$330,816

- Determine Call policies for CMAQ, STBG, and TA
 - CMAQ Emissions formulas
 - Project scoring system
 - Pool structure
 - Request limit

- If changes requested, form Subcommittee or bring back to TAC?

For more information:

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FY2018 TIP Roll Forwards to FY2019
 Projects Submitted as of June 19, 2018

Project Sponsor	Project Title	Funding Type	Amount Rolled	Roll Status in TIP
Evans	35 th Ave: Prairie View to 37 th St	STP Metro	\$1,115k F / \$232k L / \$93k LOM (all)	Submitted
Evans	US85 Access Control at 31 st Street	STP Metro	\$643k F / \$133k L / \$68k LOM (all FY18)	Submitted
Fort Collins	US287 (N College) Ped Bridge & Path	CMAQ	\$174k F / \$36k L (all)	Completed
Greeley	Bus Yard Concrete Maintenance	FASTER Transit Local	\$160k F / \$40k L (all)	Submitted
Loveland	Loveland Traffic Optimization	CMAQ	\$380k F (all)	Completed
Loveland	US 287 & US 34 VMS Signs	CMAQ	\$497k F / \$103k L (all)	Completed