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 Map Composite

Enlarged: North Section
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!
Call for Projects Congestion Mitigation and Air Quality (CMAQ) Emissions Formulas

Technical Advisory Committee

June 20, 2018

CMAQ Emissions Formulas
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 (NOx) 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%
Formulas

**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

**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

**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
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 are based on previous applications or formula defaults
### 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

<table>
<thead>
<tr>
<th>Measure</th>
<th>Emission</th>
<th>EPA DEQ</th>
<th>FHWA Toolkit</th>
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</thead>
<tbody>
<tr>
<td>Total Emissions Reduced (KG)</td>
<td>NOx</td>
<td>36</td>
<td>43</td>
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<tr>
<td></td>
<td>VOC</td>
<td>N/A</td>
<td>1</td>
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<tr>
<td>Cost Effectiveness (Cost per KG)</td>
<td>NOx</td>
<td>$1,378</td>
<td>$1,168</td>
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<tr>
<td></td>
<td>VOC</td>
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</table>
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

<table>
<thead>
<tr>
<th>Measure</th>
<th>Emission</th>
<th>EPA DEQ</th>
<th>FHWA Toolkit</th>
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</thead>
<tbody>
<tr>
<td>Total Emissions Reduced (KG)</td>
<td>NOx</td>
<td>36</td>
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<td>VOC</td>
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<td>Cost Effectiveness (Cost per KG)</td>
<td>NOx</td>
<td>$1,378</td>
<td>$489</td>
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<td>VOC</td>
<td>N/A</td>
<td>$25,929</td>
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</table>
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

<table>
<thead>
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<th>FHWA Toolkit</th>
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<td>Total Emissions Reduced (KG)</td>
<td>NOx</td>
<td>113</td>
<td>27</td>
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<td>VOC</td>
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<td>-1</td>
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<td>Cost Effectiveness (Cost per KG)</td>
<td>NOx</td>
<td>$5,291</td>
<td>$21,877</td>
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<td>VOC</td>
<td>N/A</td>
<td>N/A</td>
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</table>
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

<table>
<thead>
<tr>
<th>Measure</th>
<th>Emission</th>
<th>EPA DEQ</th>
<th>FHWA Toolkit</th>
</tr>
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<tr>
<td>Total Emissions Reduced (KG)</td>
<td>NOx</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Cost Effectiveness (Cost per KG)</td>
<td>NOx</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td></td>
<td>VOC</td>
<td>N/A</td>
<td>$63</td>
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<th>Emission</th>
<th>EPA DEQ</th>
<th>FHWA Toolkit</th>
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<tbody>
<tr>
<td>Total Emissions Reduced (KG)</td>
<td>VOC</td>
<td>N/A</td>
<td>143</td>
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</tbody>
</table>
### 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

<table>
<thead>
<tr>
<th>Measure</th>
<th>Emission</th>
<th>MDOT</th>
<th>FHWA Toolkit</th>
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</thead>
<tbody>
<tr>
<td>Total Emissions Reduced (KG)</td>
<td>NOx</td>
<td>660</td>
<td>1,801</td>
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<td></td>
<td>VOC</td>
<td>3,564</td>
<td>1,069</td>
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<td>Cost Effectiveness (Cost per KG)</td>
<td>NOx</td>
<td>$1,212</td>
<td>$444</td>
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<td></td>
<td>VOC</td>
<td>$224</td>
<td>$748</td>
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Bicycle/Pedestrian Trail

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

<table>
<thead>
<tr>
<th>Measure</th>
<th>Emission</th>
<th>MDOT</th>
</tr>
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<tbody>
<tr>
<td>Total Emissions Reduced</td>
<td>NOx</td>
<td>317</td>
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<tr>
<td>Emissions Reduced (KG)</td>
<td>VOC</td>
<td>113</td>
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<tr>
<td>Cost Effectiveness</td>
<td>NOx</td>
<td>$3,148</td>
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<tr>
<td>(Cost per KG)</td>
<td>VOC</td>
<td>$8,818</td>
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## Proposed Call for Projects Schedule

<table>
<thead>
<tr>
<th>Event</th>
<th>Timeframe</th>
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<tbody>
<tr>
<td>Open Call</td>
<td>August</td>
</tr>
<tr>
<td>Project Application Workshop</td>
<td>September</td>
</tr>
<tr>
<td>CMAQ Project Description Due</td>
<td>September</td>
</tr>
<tr>
<td>CMAQ Emissions Data Due</td>
<td>September</td>
</tr>
<tr>
<td>Applications Due</td>
<td>September</td>
</tr>
<tr>
<td>Scoring Meeting</td>
<td>October</td>
</tr>
<tr>
<td>TAC Discussion</td>
<td>October</td>
</tr>
<tr>
<td>Council Presentations</td>
<td>November</td>
</tr>
<tr>
<td>TAC Action</td>
<td>December</td>
</tr>
<tr>
<td>Council Action</td>
<td>January (2019)</td>
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# Draft Federal Funding Available

<table>
<thead>
<tr>
<th>Program</th>
<th>FY2022</th>
<th>FY2023</th>
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<tbody>
<tr>
<td>CMAQ</td>
<td>$4,917,303</td>
<td>$4,921,755</td>
</tr>
<tr>
<td>STBG</td>
<td>$4,183,184</td>
<td>$4,186,972</td>
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<tr>
<td>TA</td>
<td>$330,470</td>
<td>$330,816</td>
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Next Steps

- 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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Transportation Planner II  
mkealy@nfrmpo.org  
(970) 416-2309
## FY2018 TIP Roll Forwards to FY2019
Projects Submitted as of June 19, 2018

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