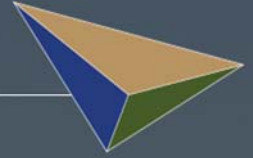


# Chapter 4

## Performance-Based Planning



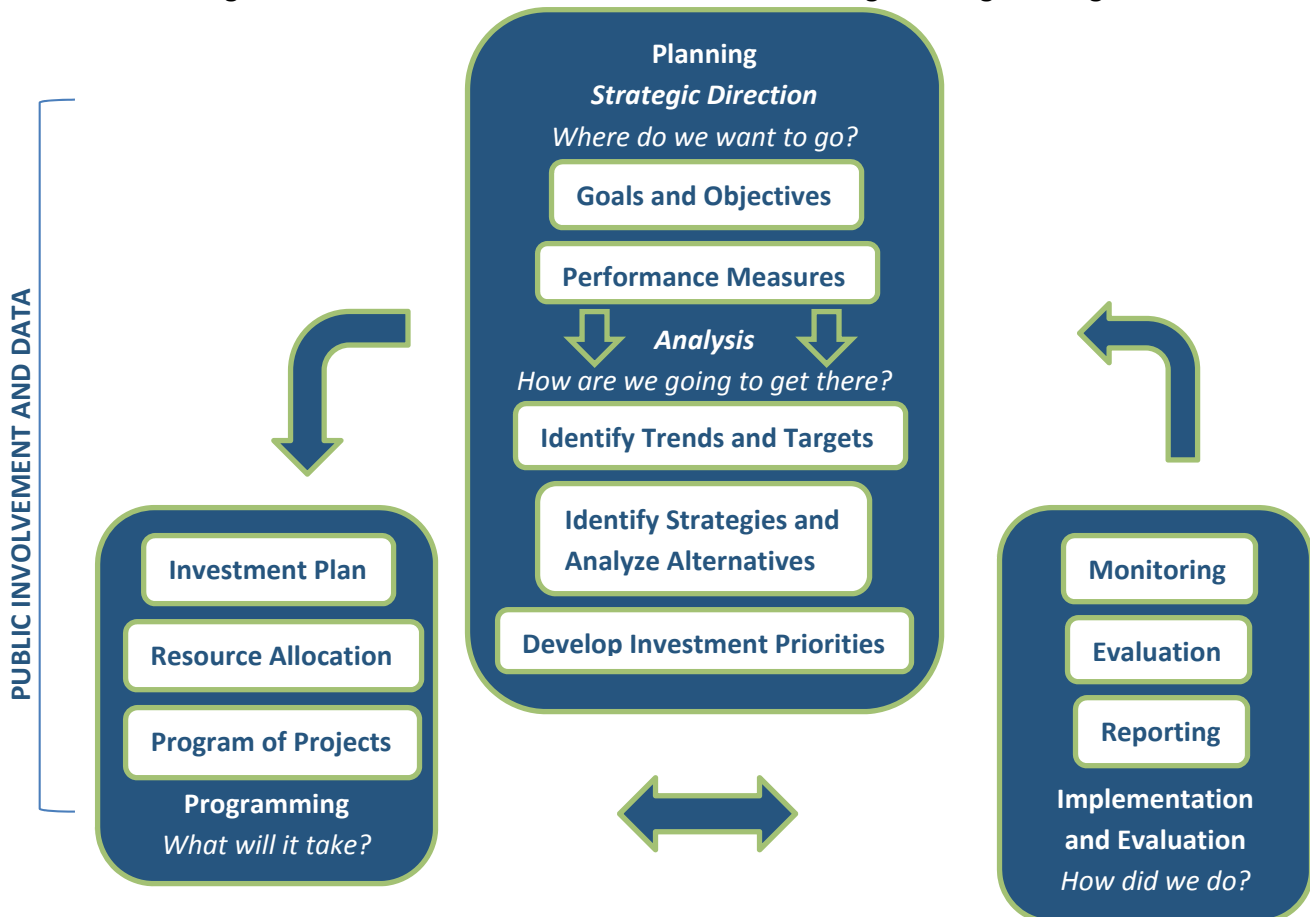
## Chapter 4: Performance-Based Planning

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

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

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

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



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

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

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

### Planning

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

#### *Vision Statement*

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

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

#### *Goals*

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

#### *Objectives*

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

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

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

*Performance Measures*

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

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

*Targets*

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

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

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

## Programming

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

## Implementation and Evaluation

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

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

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

2040 Regional Transportation Plan		Value Statement		Adopted on:						
Goals, Objectives, Performance Measures, and Targets		We seek to provide a multi-modal transportation system that is safe, as well as socially and environmentally sensitive for all users that protects and enhances the region's quality of life and economic vitality.		September 4, 2014						
MPO GOAL	NATIONAL GOAL	OBJECTIVE	PERFORMANCE MEASURE	TARGET (over 4 years)	2040 RTP PLAN					
						GOAL 1	GOAL 2	GOAL 3	GOAL 4	
ECONOMIC DEVELOPMENT/QUALITY OF LIFE	Foster a transportation system that supports economic development and improves residents' quality of life	Infrastructure condition, freight movement and economic vitality, environmental sustainability	Air quality conformity tests on plans and programs	Passes Conformity	Support freight performance in partnership with COOT					
						1	Conforms to air quality requirement	1	1	1
						2	Maintain transportation infrastructure and facilities to meet the need for replacement or rehabilitation	2, 3	Number of facility samples with poor surface condition	Reduce by 1%
						3	Investment in infrastructure	3	Bridges with a sufficiency rating below 5.00	Less than 5% of bridges
						4	Reduce number of severe traffic crashes	4	Bridges with a sufficiency rating below 5.00	Less than 5% of bridges
						5	Use the Congestion Mitigation and Incentive Program (CMIP) to reduce congestion	5, 6, 10, 11	Five-year rolling average of injury and fatal crashes	No increase in crashes
						6	Reliable travel times	6	Regionally significant corridors with a travel time index of 2.5 times less than free flow	Maintain at least 80%
						7	Support transportation services for all income and transit-dependent populations	7	Population and essential destinations within paratransit and microtransit service area within the MPO boundary	At least 85%
						8, 9	Implement RTE, Regional Bicycle Plan, and North I-25 EIS	8, 9	Non-motorized facilities per capita	Increase by at least 2%
						8, 12	Develop project supports alternate modes and connectivity	8, 12	Fixed-route revenue hours per capita within service areas	Increase by 30%
						9	Use Transportation Demand Management techniques to reduce congestion and optimize the system	9	Transit service vehicles within useful life parameters established by FTA	Maintain 75%
						10	Implement Intelligent Transportation Systems (ITS)	10	VMT grown per capita	Change in VMT should not exceed change in population
						12	Enhance transit service in the NTR	12	Fixed-route revenue hours per capita within service areas	Increase by 10%
13	Reduce project delivery time frame	13	Fixed-route revenue hours per capita within service areas	Increase by 10%						
Each measure (and target) or policy is associated with one or more objectives indicated by the corresponding numbers										
<p><b>GOAL 1: ECONOMIC DEVELOPMENT/QUALITY OF LIFE</b>                  Provide a transportation system that supports economic development and improves residents' quality of life</p> <p><b>GOAL 2: MOBILITY</b>                  Provide a transportation system that moves people and goods safely, efficiently, and reliably</p> <p><b>GOAL 3: MULTI-MODAL</b>                  Provide a multi-modal system that improves accessibility and transportation system continuity</p> <p><b>GOAL 4: OPERATIONS</b>                  Optimize operations of transportation facilities</p> <p><b>CONGESTION REDUCTION, FREIGHT MOVEMENT AND ECONOMIC VITALITY, PROJECT DELIVERY</b></p>										

**B. FY2016-2019 Call for Projects**

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

**Surface Transportation Program (STP-Metro)**

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

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

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

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



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

### Congestion Mitigation & Air Quality (CMAQ)

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

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

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

Table 4-6: CMAQ Project Selection

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

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

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

Source: NFRMPO FY2016-2019 TIP

### Transportation Alternatives Program (TAP)

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

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

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

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