



# MTP Performance Measurement and Project Prioritization Criteria Workshop

Technical Advisory Committee (MTP Steering Committee)

Citizens' Advisory Committee

May 23, 2018

# MTP PROPOSED PROGRAM APPROACH

## Metropolitan Transportation Plan (MTP)

### Example

Complete Streets and Other Localized Initiatives (CSLIP)

XX%

### Example

Complete Streets Master Plan

XX%

### Example

Mobility Hub Program

XX%

### Example

Roadway/ Highway Program

XX%

### Example

Systems Management Program

XX%



move people & goods • create jobs • strengthen communities

# Performance Measurement

# WHY MEASURE PERFORMANCE?



**Provide decision makers with the best information available**



**Align planning goals & performance measures**



**Adapt to changing demographics, policies, and budgetary constraints**



**Guide investment through continuous and objective evaluation**

# CURRENT MPO PERFORMANCE MEASURES

- Recent Performance Measure Experiences:
  - USDOT / FHWA
  - State / MPO Coordination
  - 2040 LRTP
  - 2015 Baseline Report

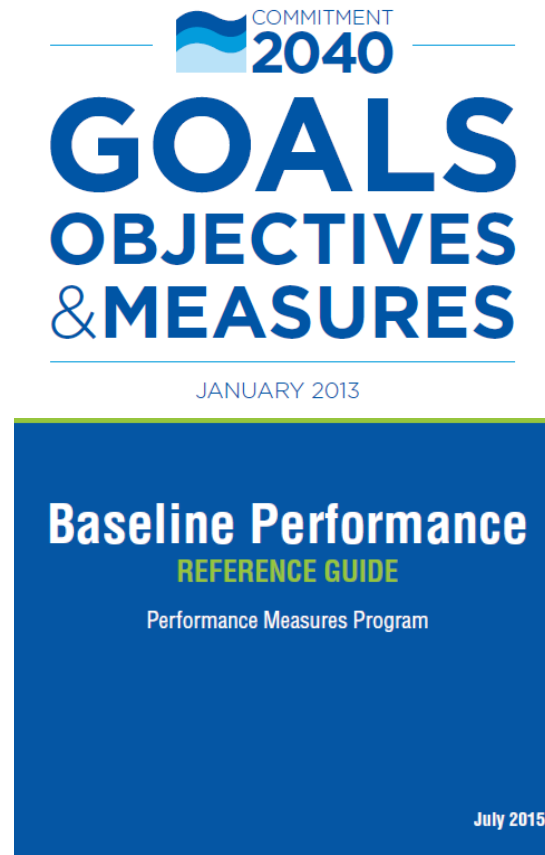


Exhibit 1: Performance Scorecard

MEASURE	PREVIOUS RESULTS	CURRENT RESULTS	DESIRED TREND	STATUS
<b>MOBILITY MEASURES</b>				
Mode Share: Commute by SOV	79.6%	79.6%	↘	Stable
Transit Revenue Hours	1.61M	1.64M	↗	Improving
Transit Passenger Trips	43.0M	43.6M	↗	Improving
On-time Transit Trips	59.2%	60.6%	↗	Improving
On-time Rail Trips	89%	92%	↗	Improving
Per Capita Highway Hours of Delay	—	66.2	↘	TBD
<b>CONNECTIVITY &amp; ACCESSIBILITY MEASURES</b>				
Transit Revenue Hours	1.61 M	1.64 M	↗	Improving
Per Capita Highway Hours of Delay	—	66.2	↘	TBD
New Bike & Pedestrian Facilities	—	19.74 miles	↗	TBD
<b>ASSET MANAGEMENT MEASURES</b>				
Highway Miles Meeting or Exceeding Standards*	92%	93%	↗	Improving
Highway Bridges Meeting or Exceeding Standards*	95%	95%	↗	Stable
Average Age of Transit Fleet – Bus	5.00	4.04	≤ 6 years	Sustaining
Average Age of Transit Fleet – Rail	17.13	15.95	≤ 20 years	Sustaining
<b>SAFETY &amp; SECURITY MEASURES</b>				
Motor Vehicle Serious Injuries per Million VMT	6.7	6.0	↘	Improving
Motor Vehicle Fatalities per Million VMT	.56	.48	↘	Improving
Annual Bike & Pedestrian Serious Injuries	234	194	↘	Improving
Annual Bike & Pedestrian Fatalities	53	47	↘	Improving
Preventable Transit Accidents per 100K Miles of Service	116	130	↘	Not Improving

# HIERARCHY OF PERFORMANCE MEASUREMENT



# MEASURING WHAT'S MOST IMPORTANT

## Guiding Principles

Comprehensive

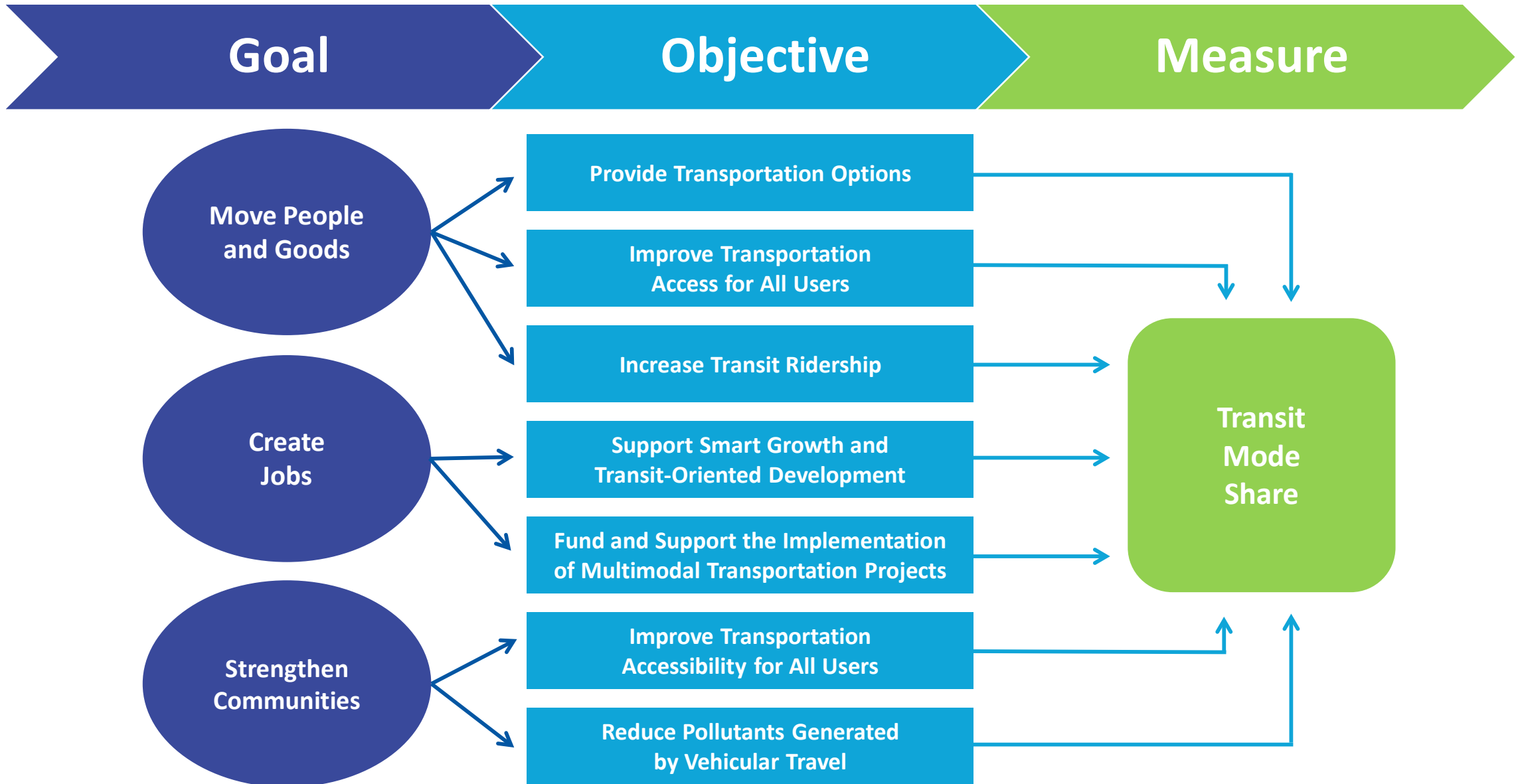
Quantifiable

Replicable

Must answer “yes” to all:

1. Are the measures useful?
2. Are the data available to support?
3. Does the measure “move the needle”?
4. Are the measures understandable / transparent?

# ILLUSTRATING CONNECTIONS: GOAL / OBJECTIVE / MEASURE





# FAST ACT REQUIREMENTS

The FAST Act continues MAP-21's overall performance management approach, within which States invest resources in projects that collectively will make progress toward national goals.

## Federal Performance Measures

Highway Safety Improvement Program (Subpart B): 6 Measures

Asset Condition (Subpart C & D): 6 Measures

National Highway System Performance (Subpart E): 2 Measures

Freight Movement on Interstate (Subpart F): 1 Measure

Congestion Management / Air Quality (Subparts G & H): 3 Measures

Transit Asset Management (TAM Final Rule): 4 Measure

# DRAFT PERFORMANCE MEASURES

- Goal-Objective-Measure Matrix
- Intent:
  - Tie Goals to Objectives
  - Address Federal Performance Measure Requirements
  - Establish Locally-Relevant Measure
  - Discuss Tools / Data for MPO to Support and Implement

# DRAFT PERFORMANCE MEASURES

Broward MPO - 2045 Metropolitan Transportation Plan - Subtask 5.1 (Goals, Objectives, and Measures) - Revised Version 04.24.18

Goal	Objective	Measure Area	Performance Measure	Potential Purpose of Measure (For Discussion Purposes)	Anticipated Data Source (For Discussion Purposes)	Level of Effort to Collect and Report (For Discussion Purposes)	FAST Act Requirement	
GOAL 1: Move People & Goods	1-1: Maintain Infrastructure	Pavement Condition (FAST Act: Subpart C)	Percentage of Existing Facilities/Services Fully Funded for O&M	Ongoing Monitoring, Project Prioritization, Scenario Planning	Asset Management Data	Moderate effort, might require some reconciliation of different jurisdictions' pavement data		
			Percentage of Proposed Facilities/Services Fully Funded for O&M					
			Percentage of Pavements of the Interstate System in Good Condition	Ongoing Monitoring, Project Prioritization, Scenario Planning	Pavement Condition Survey / Interstate System Pavement Condition Forecast	Low effort with standard tools and data. <b>FDOT provides.</b>		
			Percentage of Pavements of the Interstate System in Poor Condition					
			Percentage of Pavements of the Non-Interstate NHS in Poor Condition					
	1-2: Provide Transportation Options	Increased Transit Capacity	Percentage of NHS Bridges Classified as in "Good" Condition	Ongoing Monitoring, Project Prioritization, Scenario Planning	National Bridge Inventory	Low effort with standard tools and data. <b>FDOT provides.</b>		
			Percentage of NHS Bridges Classified as in "Poor" Condition					
	1-3: Manage Roadway Congestion	System Performance: Quality	Increased Highway Capacity	Lane-Miles of New Roadways	Project Prioritization, Scenario Planning, CMP	Roadway line file, GIS	Low effort with standard tools and data	
			Number of Communities with Access to High Quality Transit Service	Daily Hours of Transit Service	Project Prioritization, Scenario Planning	Transit route file, GIS	Low effort with standard tools and data. <b>Need to define quality transit service</b>	
		Annual Hours of Excessive Delay Per Capita (FAST Act: Subpart G)	Percentage of NHS System Operating At or Above LOS Standards	Ongoing Monitoring, Project Prioritization	SERP 8 / Existing Traffic Counts	Low effort with standard tools and data		
			Number of Per Capita Excessive Delay	Ongoing Monitoring, Project Prioritization, Scenario Planning, CMP	National Performance Management Research Data Set (NPMRDS), SERPM 8, Highway Performance Monitoring System (HPMS), vehicle classification data, vehicle occupancy data	Moderate to High effort to process NPMRDS, but this work covers several reliability measures		
	Vehicle Miles Traveled	Change in VMT over existing base year (SERPM 8)	Ongoing Monitoring, Scenario Planning, CMP	SERP 8 / GIS / Existing Traffic Counts	Moderate effort to establish VMT estimation methodology to be applied consistently. However, VMT measure will be used across multiple measures.			
		Performance of the National Highway System: Travel Time Reliability (FAST Act: Subpart E)	Percentage of Person Miles Traveled on the Interstate System that are Reliable	Ongoing Monitoring, CMP	NPMRDS, HPMS	High effort to process NPMRDS, but this work covers several reliability measures. Planning-level forecast of future reliability are difficult.		
	1-6: Improve Truck Travel Time Reliability / Consistency		Freight Movement on the Interstate System: Truck Travel Time Reliability (FAST Act: Subpart F)	Percentage of Person Miles Traveled on the Non-Interstate NHS that are Reliable				
		Percentage of the Interstate System where Peak Hour Travel Times Meet Expectations						
	1-5: Improve Transportation Accessibility for All Users	Accessibility / Connectivity	Percentage of the Interstate System Mileage providing for Reliable Truck Travel Times	Ongoing Monitoring, CMP	NPMRDS, HPMS	High effort to process NPMRDS, but this work covers several reliability measures. Apply Truck Travel Time Reliability (TTTR) Index. Planning-level forecast of future reliability are difficult.		
			Percentage of the Interstate System Mileage Uncongested	Ongoing Monitoring, Project Prioritization, Scenario Planning, CMP	NPMRDS, SERPM 8, HPMS	Moderate to high effort to process NPMRDS		
	1-4: Improve Travel Time Reliability / Consistency and	TSM&O Investment / Future Proofing	Fiber-Optic Network Expansion	Ongoing Monitoring, Project Prioritization, Scenario Planning, CMP	Transportation Improvement Programs / Capital Improvement Plans, Jurisdiction Staff	Low effort with standard tools and data		
			Active Arterial Management Expansion					
	1-7: Increase Transit Ridership	Transit Quality / Performance	Percentage of Roadway System with Fiber					
			Percentage of Arterial Corridor Projects or Transit Projects with Consistent Treatment and Policies Applied Across County Lines	Project Prioritization, Scenario Planning	Planned project file, GIS - Criteria to define "consistent"	Low effort with standard tools and data		
	1-6: Improve Safety and Security for All System Users	Highway Safety Improvement Program Performance Measures (FAST Act: Subpart B)	Percentage of All County Jobs within 45-Minute Peak Period Transit Travel Time for Average Household					
			Percentage of Employment within Walk-to-Bike Access of Transit-Bike Routes					
	1-7: Increase Transit Ridership	Transit Consumed	Number of Total Fatalities	Ongoing Monitoring, Project Prioritization, Scenario Planning	Crash record databases for monitoring, Crash Modification Factors (CMFs) to evaluate project scoring for safety	Moderate effort for scoring projects on safety benefits		
			Number of Total Serious Injuries					
	1-7: Increase Transit Ridership	Transit Supply	Rate of Fatalities per 100 million VMT	Ongoing Monitoring, Project Prioritization, Scenario Planning	Crash record databases for monitoring, CMFs to evaluate project scoring for safety, HPMS for VMT estimates. Note that Non-motorized fatalities and serious injuries are a single PM for FAST Act	Moderate effort to establish VMT estimation methodology to be applied consistently. However, VMT measure will be used across multiple measures.		
			Rate of Serious Injuries per 100 million VMT					
	1-7: Increase Transit Ridership	Transit Supply	Number of Non-Motorized Fatalities					
Number of Non-Motorized Serious Injuries								
1-7: Increase Transit Ridership	Transit Supply	Fixed Route and Commuter Route Frequency / Headways	Ongoing Monitoring, Project Prioritization, Scenario Planning	Transit schedule, transit plans	Low effort with standard tools and data			
		Fixed Route Service and Commuter Route: Annual Ridership or Unlinked Passenger Trips	Ongoing Monitoring, Project Prioritization, Scenario Planning		Low effort with standard tools and data			
1-7: Increase Transit Ridership	Transit Supply	Transit Mode Share	Ongoing Monitoring, Scenario Planning		Moderate effort, combine SERPM output with other modal sources to estimate ridershare.			
		Transit Passenger Trips	Ongoing Monitoring, Project Prioritization, Scenario Planning	Transit data, SERPM 8				
1-7: Increase Transit Ridership	Transit Supply	Transit Passenger Trips per Capita	Ongoing Monitoring, Scenario Planning		Low effort with standard tools and data			
		Transit Passenger Trips per Revenue Hour						
1-7: Increase Transit Ridership	Transit Supply	Revenue Hours of Service						
		Revenue Miles of Service						
1-7: Increase Transit Ridership	Transit Supply	Revenue Miles of Service per Capita	Ongoing Monitoring, Project Prioritization, Scenario Planning	Transit data, SERPM 8	Low effort with standard tools and data			
		Number of New Transit Trips Generated (Linked vs. Unlinked trips SERPM 8)						

# DRAFT PERFORMANCE MEASURES

Goal	Objective	Measure Area	Performance Measure
	1-1: Maintain Infrastructure	Operations and Maintenance Funding (State of Good Repair)	Percentage of Existing Facilities/Services Fully Funded for O&M
			Percentage of Proposed Facilities/Services Fully Funded for O&M
		Pavement Condition (FAST Act: Subpart C)	Percentage of Pavements of the Interstate System in Good Condition
			Percentage of Pavements of the Non-Interstate NHS in Good Condition
			Percentage of Pavements of the Interstate System in Poor Condition
			Percentage of Pavements of the Non-Interstate NHS in Poor Condition
		NHS Bridge Condition Performance Measures (FAST Act: Subpart D)	Percentage of NHS Bridges Classified as in "Good" Condition
			Percentage of NHS Bridges Classified as in "Poor" Condition

Potential Purpose of Measure (For Discussion Purposes)	Anticipated Data Source (For Discussion Purposes)	Level of Effort to Collect and Report (For Discussion Purposes)	FAST Act Requirement
Ongoing Monitoring, Project Prioritization, Scenario Planning	Asset Management Data	Moderate effort, might require some reconciliation of different jurisdictions' pavement data	
Ongoing Monitoring, Project Prioritization, Scenario Planning	Pavement Condition Survey / Interstate System Pavement Condition Forecast	Low effort with standard tools and data. FDOT provides.	●
			●
			●
Ongoing Monitoring, Project Prioritization, Scenario Planning	National Bridge Inventory	Low effort with standard tools and data. FDOT provides.	●
			●



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# Project Prioritization

# PROJECT PRIORITIZATION

Aligning Vision and  
Goals to System-  
level Objectives

&

Linking System-  
level Objectives to  
Project Selection

Ongoing Monitoring

Scenario Performance

Plan Prioritization

Multimodal Priorities List

# OVERVIEW OF SCORING APPROACHES

## SIMPLE DESCRIPTIVE SCORING

<u>PROS</u>	<u>CONS</u>
Transparent and easy to communicate prioritization process	Not sensitive to subtle differences in project performance
Flexible to incorporate both qualitative and quantitative metrics	Results often cluster similar project types at similar scores
Weighting can be built into scoring	-

## COMPLEX WEIGHTED SCORING

<u>PROS</u>	<u>CONS</u>
Sensitive to subtle differences in project performance	Not transparent for non-technical audience
Weighting can be built into scoring.	Performance measure scaling approach can skew results
-	-

# NEXT STEPS

- Establishing the Project Prioritization Process
  - Assessment within Funding Programs
    - Grouping Projects with Eligible Sources
  - Use of Intuitive and Descriptive Scoring Approach
    - Objective Evaluation and Comparison
  - Mirrors System Level Measures at a Project or Corridor Level
    - Align Planning and Program Goals with Project Benefits



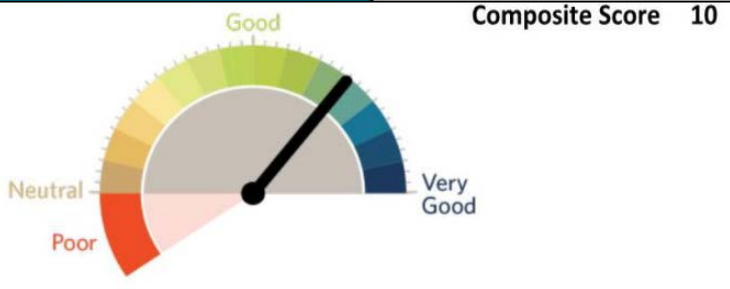
# SIMPLE DESCRIPTIVE SCORING APPROACH

LRTP Project Performance Objective	Performance Measure	Candidate Project Scoring Approach				Scoring Discussion
		2	1	0	-2	
		Very Good	Good	Neutral	Poor	
<b>Goal 1: Provide a connected transportation system that offers efficient and reliable mobility options for all modes of travel.</b>						
<b>1A.</b> Create and enhance multimodal access and connections between bicycle, pedestrian, transit, and private vehicle travel.	Multimodal Connectivity Ranking	Enhances access and connections between at least two modes. Or, a project that improves mobility for two or more modes.	Enhances access and connections for bicycle, pedestrian, or transit travel.	No significant impact on multimodal access or connectivity.	Creates barrier to multimodal connections.	Intermodal projects and those that have multiple modes score highest here. Projects improving bicycle, pedestrian, or transit mobility are assumed "good", as automobile travel already accounts for over 90% of regional travel. Complete streets projects score "Very Good".
<b>1B.</b> Reduce the incidence of roadway congestion.	Vehicular Level of Service	Improves vehicular level of service to "D" or better for a location that would be "E" or worse otherwise, or improves LOS on NHS route.	Improves vehicular level of service.	No significant impact on traffic operations.	Degrades vehicular level of service a letter grade or worse.	LOS for existing or 2040 conditions - intersections and segments where appropriate. Assumes that target is LOS D or better. Minor drops of less than 1 LOS letter grade are not negatively scored. Alternate measure: +2 scoring for LOS improvements on NHS routes (per MAP-21), and +1 for non-NHS routes.
<b>1C.</b> Enhance the efficiency of the existing transportation system through system management and demand management approaches.	Transportation Management Assessment	Improves existing facility or transit route mobility. OR a project that adjusts travel demand to better fit on existing system.	-	No significant impact on system or demand management.	Degrades the service levels of an existing facility or route, or increases peak demand on the system.	Assess Transportation System Management and Demand Management - potentially new transit services that degrade demand on an existing route, or alternatives that somehow increase peak hour demands. No "good" score.
<b>1D.</b> Improve system connectivity through improved multimodal network connections and reduced network gaps.	System Connectivity Assessment	New multimodal network connection where a gap of 1/2 mile or more existed before. (1/2 mile from adjacent, parallel facilities)	Provides a new connection between two existing modal facilities, or an extension of an existing facility.	No change facility connectivity.	Reduces facility connectivity.	Scored for all modes separately. Determine distance of new facility to nearest existing facility as measured to parallel facilities. Must connect to existing facilities. Roadways considered should be arterial or higher for a +2.
<b>1E.</b> Plan for and address transportation system impacts and sufficiency when considering new developments.	No way to measure and compare in LRTP on an alternative basis.					



# SIMPLE DESCRIPTIVE SCORING APPROACH

Alternative 65 Adaptive Traffic Signal Technology: Lincoln Way- Hyland Ave to Beach Ave.

LRTP Project Performance Objective	Performance Method	Score	Scoring Discussion
<b>Goal 1: Provide a connected transportation system that offers efficient and reliable service.</b>			
1A	Multimodal Connectivity Ranking	0	 <p><b>Composite Score 10</b></p>
1B	Vehicular Level of Service	2	
1C	Transportation Management Assessment	2	
1D	System Connectivity Assessment	0	
1E	Not Measured		
<b>Goal 2: Provide a safe transportation system.</b>			
2A	Safety Assessment	2	
2B	Qualitative Safety Assessment	0	
2C	Qualitative Security Assessment	0	
<b>Goal 3: Consider and mitigate the impacts of the transportation system on the natural and built environment.</b>			
3A	Environmental Screening	0	
3B	VMT / VHT Estimation	1	
3C	No way to measure and compare in LRTP on an alternative basis. Coordination is part of overall LRTP, and becomes more focused during project planning and development.		
<b>Goal 4: Provide an accessible transportation system that fits within the context of its surroundings and preserves community character.</b>			
4A	CSS Assessment	0	
4B	Bicycle / Pedestrian / Transit Screening	0	
4C	Environmental Justice Assessment	2	
4D	Active Transportation Screening	0	
4E	Transit Density Screening	0	

# WEIGHTED SCORING APPROACH

Goal Area	Goal Area Weight	Performance Measure	Performance Measure Target	Type
Congestion Reduction	20%	VMT	VMT growth per household between 2010 and 2040 is 8% or less.	Daily VMT / Household
		VHT	VHT growth per household between 2010 and 2040 is 12% or less.	Daily VHT / Household
		Delay	Delay growth per household between 2010 and 2040 is 1.5% per year or less (compounded growth).	Daily Hours Delay
		Miles of Congested Freeway (Mainline) Segments	Congested Miles of Freeway growth per household between 2010 and 2040 is 1.5% per year or less.	Miles at LOS E or F
		Miles of Congested Non-Freeway Segments	Congested Miles of Non-Freeway (Arterial) growth per household between 2010 and 2040 is 1.5% per year or less.	Miles at LOS E / F
Mobility & Accessibility	40%	Regional Mode Share	Achieve 10% transit, bike, walk mode share for all trips by 2040	Total
		Access to Jobs	Auto Access to jobs is reduced less than 1% per year. Transit Access to jobs increases by 1% per year.	Auto: % jobs within 15 minutes
				Transit: % jobs within 60 minutes
		Proximity to Transit	Maintain housing and jobs proximity levels at ¼ mile walk distance at 2010 levels	Jobs: % within ¼ mile
				Houses: % within ¼ mile
		EJ Access to Jobs	Auto Access to jobs is reduced less than 1% per year. Transit Access to jobs increases by 1.15% per year.	Auto: % jobs within 15 min for EJ HH
Transit: % jobs within 60 minutes for EJ HH				
EJ Proximity to Transit	Maintain EJ proximity to Transit services at 2010 levels.	% within ¼ mile of local transit		
Proximity to Bicycle / Pedestrian Facilities	Proximity to Bicycle and Pedestrian facilities increases by 1.0% per year or more.	% of Jobs within ¼ mile of bike facilities		
		% of Households within ¼ mile of bike facilities		
Stewardship & Environment	15%	Criteria Pollutant Emissions	Reduce NO <sub>x</sub> and VOCs by 10% compared to 2040 No-Build.	NO <sub>x</sub> - lbs/day
				VOCs - lbs/day
		Sustainability Score	No Baseline Assessment	
Safety	25%	Fatalities per 100 MVMT	10% Reduction compared to 2040 No-Build	# of Fatalities per 100 MVMT
		Serious Injuries per 100 MVMT		# of Serious Injuries per 100 MVMT
		Non-motorized Fatalities and Serious Injuries		# of Non-motorized Fatalities and Serious Injuries