Sustainability Performance Measures for El Paso's Transit Corridors

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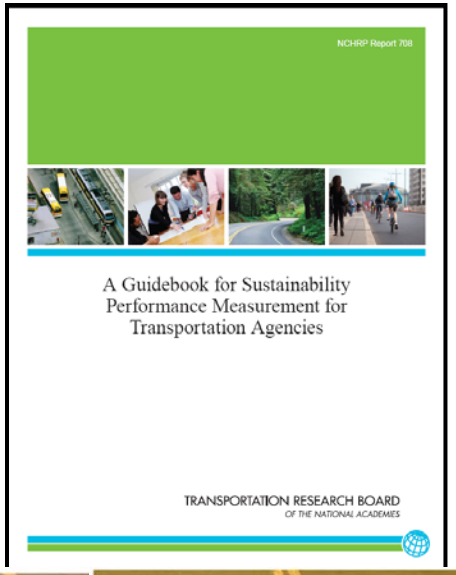
Overview

- Overall Goal – to develop a framework to apply sustainability performance measures for transit corridors in El Paso
- Project details
  - funded by CIITR, in cooperation with the City of El Paso
  - Phase 1 (nearing completion)– identify appropriate goals, objectives and measures
  - Phase 2 – implementation/application

Background

- Original concept based on interactive workshop series developed for TxDOT
- Informed by recently-completed NCHRP project
- City of El Paso – in process of implementing rapid transit system (RTS) projects



Phase 1 Goals

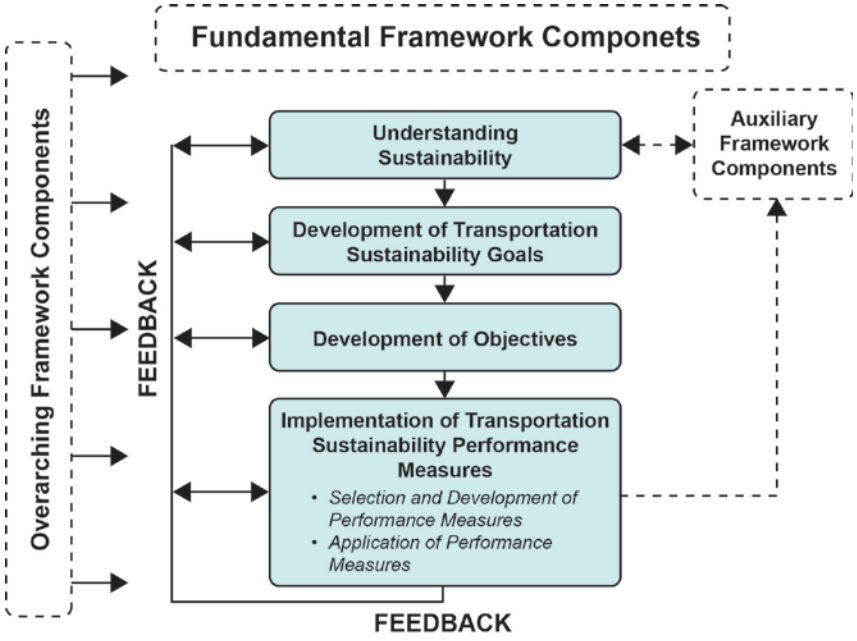
- Understand sustainability in the context of transit corridors
- Identify a framework and approach for performance measurement to be implemented
- Develop goals, objectives and performance measures
- Discuss application of performance measures

Approach

- Understand sustainability
- Make relevant to City's strategic plan
- Interactive workshop process

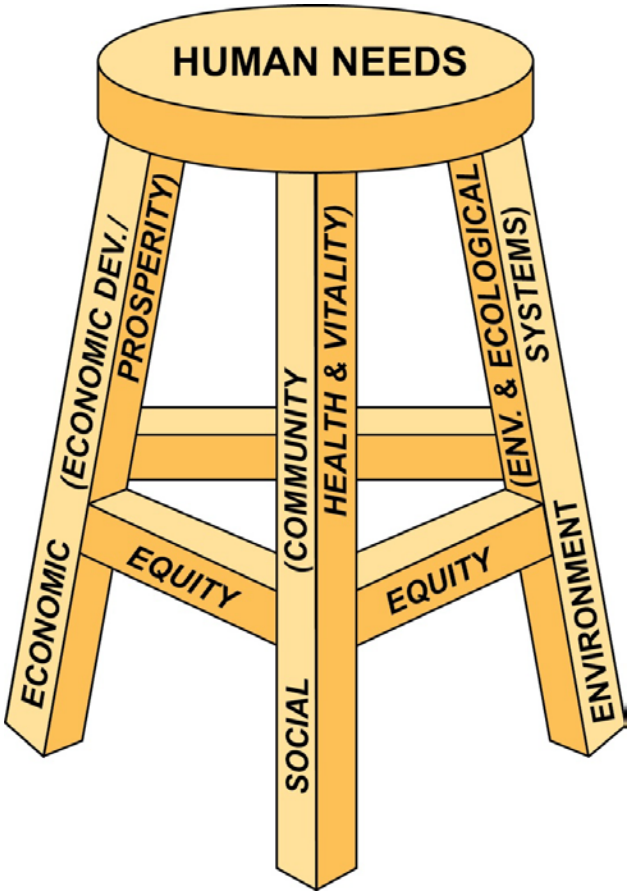
Performance Measure Implementation Framework

- *"what does a transportation agency need to be equipped with?"*
- Framework consisting of:
  - Fundamental components
  - Overarching components
  - Auxiliary components

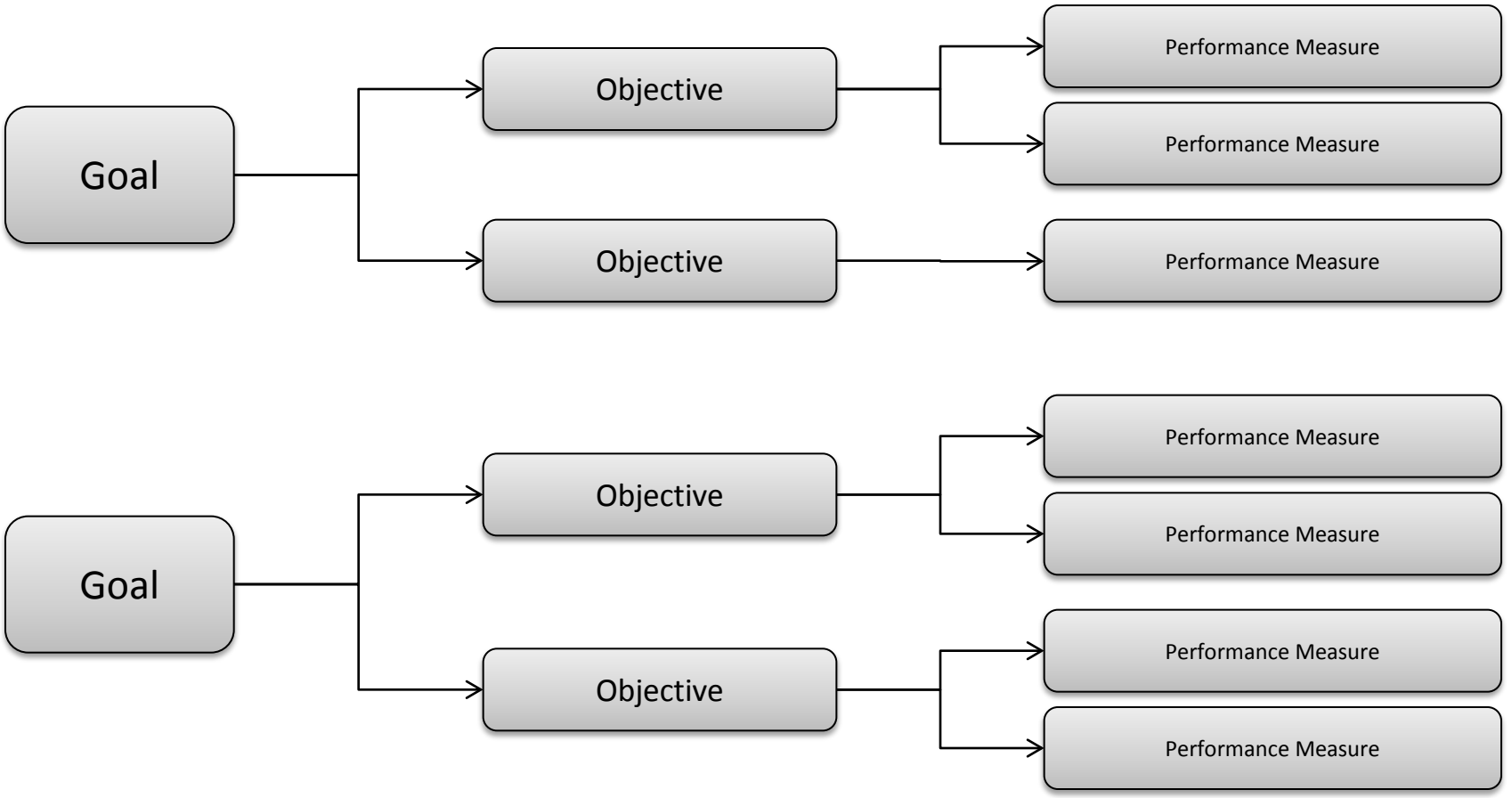


Principles of Sustainability

- ***Sustainability entails meeting human needs for the present and future, while:***
  - *preserving and restoring environmental and ecological systems,*
  - *fostering community health and vitality,*
  - *promoting economic development and prosperity, and;*
  - *ensuring equity between and among population groups and over generations.*

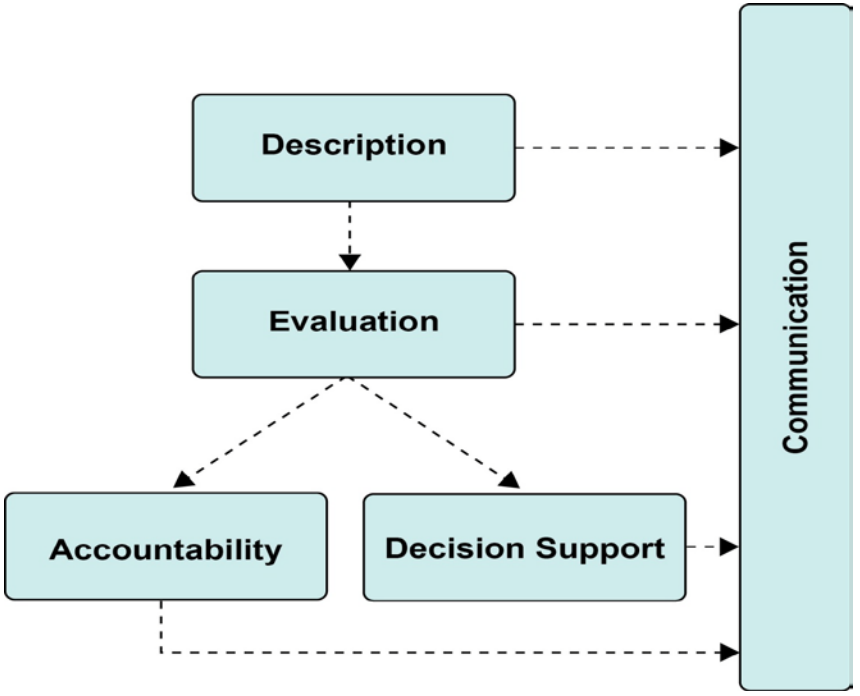


Framework of Performance Measures



Performance Measurement Applications

- Quantify individually, or “index” together
- Application types
  - Describe
  - Evaluate
  - Accountability
  - Decision Making
  - Communication



Definition of Transit Corridor

- Terminal nodes and intermediate nodes
- Links consisting of:
  - Roadway/General Purpose Lanes
  - RTS Facility (may occupy same physical space as roadway)
  - Sidewalks, Bike Lanes
- Influence area (buffer zone)

RTS Sustainability Goals

- Reduce car dependence
- Mitigate traffic congestion
- Improve international mobility
- Increase livability
- Promote economic development
- Ensure system effectiveness and efficiency
- Promote equity
- Improve the environment

Mapping Goals to Principles

Goal	Principle			
	Environmental and Ecological Systems	Community Health and Vitality	Economic Development and Prosperity	Equity
Reduce car dependence		Yes		Yes
Mitigate traffic congestion	Yes	Yes	Yes	
Improve international mobility			Yes	
Increase livability		Yes		
Promote economic development			Yes	
Ensure system effectiveness and efficiency			Yes	
Promote equity				Yes
Improve the environment	Yes			

Draft Measure Framework

Goal	Objective	Indicator	Performance Measure	Unit	Measure Code
1. Reduce car dependence	1.1 Shift car users to RTS	RTS users who are car owners	1.1.1 Medium/High income users in RTS corridor influence area	Dimensionless	1.1.1
	1.2 Make RTS an attractive choice for the traveling public	Travel time by RTS compared to travel time by car	1.2.1 Ratio of travel times by car and by RTS along corridor	Percentage	1.2.1
	1.3 Increase the number of persons with access to RTS service	Residents in the proximity of an RTS station	1.3.1 No. of residents within the corridor influence area	Dimensionless	1.3.1
2. Mitigate traffic congestion	2.1 Improve mobility on RTS corridor	Reduce peak hour travel times	2.1.1 Travel Time Index on the RTS corridor	Dimensionless	2.1.1
	2.2 Shift single occupant car trips to RTS	Increase person-miles of travel without increasing vehicle-miles of travel	2.2.1 Ratio of daily person-miles of travel to VMT on the RTS corridor	Percentage	2.2.1
3. Improve international mobility	3.1 Provide connectivity across the border	Connect RTS and cross-border transit	3.1.1 Number of cross-border transit transfer points on corridor	Dimensionless	3.1.1
		Promote usage of RTS by cross-border travelers	3.1.2 Percent of RTS users who are international travelers	Percentage	3.1.2
4. Increase livability	4.1 Support pedestrian and bike modes	Provide pedestrian facilities	4.1.1 Sidewalk quality along the corridor	Good/Poor/Absent	4.1.1
		Provide bike lanes	4.1.2 length of bike lanes per corridor mile	miles/mile	4.1.2
	4.2 Promote mixed use development	Balance land uses	4.2.1 Land-use entropy Index per influence area	Dimensionless	4.2.1
	4.3 Promote safety and security	· Crashes	4.3.1 Severe crashes on corridor	Dimensionless	4.3.1
		· Lighting coverage	4.3.2 Lighting coverage for pedestrian from stops to OD on the RTS corridor	Percentage	4.3.2
		· Emergency Phone coverage	4.3.3 Emergency Phone coverage on the RTS corridor	Percentage	4.3.3
5. Promote economic development	5.1 Revitalize key nodes along RTS corridors	Support and diversify adjacent business	5.1.1 Number of jobs in corridor influence area	Dimensionless	5.1.1
		Increase property values	5.1.2 Value per unit area of commerical property in influence area	Dollars	5.1.2
		Promote commercial activity	5.1.3 Tax revenue generated from commercial establishments in influence area	Dollars	5.1.3
6. Ensure system effectiveness and efficiency	6.1 Generate revenue through RTS fares	Increase revenue from fares	6.1.1 Fare recovery ratio on the RTS project	Percentage	6.1.1
	6.2 Establish RTS and feeder system on schedule	The degree of completion of RTS and feeder system	6.2.1 The completion rate of RTS and feeder system according to schedule	Percentage	6.2.1
7. Promote equity	7.1 Create access to HUD-designated neighborhood areas	HUD-designated neighborhood areas served	7.1.1 HUD-designated neighborhood areas in each influence area	Dimensionless	7.1.1
	7.2 Provide access to critical destinations (jobs, schools, healthcare)	Critical destinations in influence area	7.2.1 No. of schools located in each influence area	Dimensionless	7.2.1
			7.2.2 No. of health centers in each influence area	Dimensionless	7.2.2
	7.3 Affordability of access	Travel cost vs. Income	7.3.1 The ratio of daily travel cost on RTS to the daily personal income	Percentage	7.3.1
	7.4 Transit availability	Bus Service Quality	7.4.1 The RTS Level of Service		7.3.2
8. Improve the environment	8.1 Reduce Pollutant Emissions	Daily emission of PM, CO and Ozone Precursor	8.1.1 Daily emission of PM per mile of the RTS corridor	mg/mile	8.1.1
			8.1.2 Daily emission of CO per mile of the RTS corridor	mg/mile	8.1.2
			8.1.3 Daily emission of Ozone Precursor per mile of the RTS corridor	mg/mile	8.1.3
	8.2 Reduce GHG Emissions	Daily emission of CO2	8.2.1 Daily emission CO2 per mile of the RTS corridor	mg/mile	8.2.1

Example Objectives and Performance Measures

Goal	Objective	Performance Measure
Reduce car dependence	Shift car users to RTS	Medium/High income users in RTS corridor influence area
	Increase the number of persons with access to RTS service	No. of residents within the corridor influence area

- Description
- Quantification
- Data sources
- Potential targets/benchmark values

Next Steps

- Quantify selected measures for Mesa corridor
- Phase 2
  - identify the specific applications using the developed goals, objectives and measures
  - quantify the measures and set up a tracking system for each of the application types;
  - Perform pilot applications

Conclusions

- Performance measurement framework successfully adapted for transit corridors
- Goals, objectives and performance measures developed
- Interactive process and linkage to strategic plan – ensures buy-in
- Next steps will result in practical application

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