



Pedestrian Level-of-Service

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Study Purpose

The Pedestrian Level-of-Service study is included in the FFY 2016 Unified Planning Work Program (UPWP)

- Create a performance monitoring tool
- Assess pedestrian suitability
 - Intersections
 - Roadway segments

Literature Review

- Nine previous studies or models were reviewed.
- Most studies/models use either a “grade scaled” or “point scaled” score.
- Most studies/models use between eight and 30 factors.
- Almost all studies measure pedestrian suitability on roadway segments and intersections.

Step #1: Research



Pedestrian Report Card Assessment

- Roadway level-of-service (LOS) for vehicles
 - Categorizes traffic flow
 - Grades A – F
- Pedestrian suitability is more nuanced
 - Pedestrian Report Card Assessment (PRCA)
 - Grading categories
 - Transportation equity factor

Step #2: Develop Concept



Grading Categories

Four of the six Long-Range Transportation Plan goals:

1. Safety
2. System Preservation
3. Capacity Management and Mobility
4. Economic Vitality

Step #2: Develop Concept



Transportation Equity Factor

- Environmental justice zones
- Quarter mile of a school or college
- > 8.9% of population is over 75 years of age
- > 27.5% of households do not own a vehicle

Step #2: Develop Concept

Selection Process

1. List of potential performance measures
 - Usefulness and relevance of measure
 - Availability of data
2. Survey
 - Boston region transportation professionals
3. Test run results



Step #3: Select Performance Measures

Survey Results

- Most Preferred Performance Measures:
 - Sidewalk Presence
 - Pedestrian Signal Presence
 - Sidewalk Condition
- Most Valued Transportation Equity Factors:
 - Elderly Population
 - Percentage of commuters who walk, bike, and take public transportation to work
- General Opinion:
 - Not enough investment in pedestrian facilities in environmental-justice areas



Step #3: Select Performance Measures

Goals and Performance Measures

Capacity Management and Mobility	Economic Vitality	Safety	System Preservation
Sidewalk Presence Roadway Segments and Intersections	Pedestrian Volumes Roadway Segments and Intersections	Pedestrian Crashes Roadway Segments and Intersections	Sidewalk Condition Roadway Segments and Intersections
Crossing Opportunities Roadway Segments and Intersections	Adjacent Bicycle Accommodations Roadway Segments	Pedestrian-Vehicle Buffer Roadway Segments	
Walkway Width Roadway Segments		Vehicle Travel Speed Roadway Segments and Intersections	
Pedestrian Delay Intersections		Sufficient Crossing Time (Index) Intersections	
Curb Ramps Intersections		Pedestrian Signal Presence Intersections	



Step #3: Select Performance Measures

Roadway Segment Performance Measure Weights

Boston Region MPO Goal	Performance Measure	Weight Factor
Capacity Management and Mobility	Sidewalk Presence	3
	Crossing Opportunities	2
	Walkway Width	1
Economic Vitality	Pedestrian Volumes	1
	Adjacent Bicycle Accommodations	1
Safety	Pedestrian Crashes	3
	Pedestrian-Vehicle Buffer	1
	Vehicle Travel Speed	1
System Preservation	Sidewalk Condition	1



Step #4: Performance Measure Weighting

Intersection Performance Measure Weights

Category	Performance Measure	Weight Factor
Capacity Management and Mobility	Pedestrian Delay	3
	Sidewalk Presence	2
	Curb Ramps	1
	Crossing Opportunities	1
Economic Vitality	Pedestrian Volumes	1
Safety	Sufficient Crossing Time (Index)	3
	Pedestrian Crashes	3
	Pedestrian Signal Presence	1
	Vehicle Travel Speed	1
System Preservation	Sidewalk Condition	1



Step #4: Performance Measure Weighting

**Pedestrian Report Card Assessment
Test Intersection**

Intersection - Lowell Street and East Street

- Capacity Management and Mobility: **Poor**
- Economic Vitality: **Poor**
- Safety: **Fair**
- System Preservation: **Poor**
- Transportation Equity Factor Presence: **High**

Step #5: Test the PRCA

Pedestrian Report Card Assessment Test Roadway Segment

Roadway Segment - Route 9 from Tremont Street to Ruggles Street

Capacity Management and Mobility: *Good*

Economic Vitality: *Good*

Safety: *Good*

System Preservation: *Good*

Transportation Equity Factor Presence: *High*

Step #5: Test the PRCA

Recommendations and Next Steps

- Maintain the “report card” evaluation system
 - No cumulative average
- Potential MPO follow-up project
 - Create a PRCA monitoring program
- Next Steps
 - Outreach
 - Bicycle level-of-service

Step #6: Recommendations and Next Steps