Pedestrian Report Card Assessment (PRCA)

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Boston Region Metropolitan Planning Organization

Boston Region MPO Documents

- Long Range Transportation Plan (LRTP)
- Transportation Improvement Plan (TIP)
- Unified Planning Work Program (UPWP)
  - FFY 2016: Pedestrian Level of Service (PLOS)

PLOS Study Purpose

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

Pedestrian Report Card Assessment

- Pedestrian suitability is nuanced
  - PRCA
    - Grading Categories
    - Prioritize Transportation Equity

Grading Categories

Four of the six LRTP goals:

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

Transportation Equity

High Priority Areas

- Environmental justice zones
- School or college within one-quarter mile
- > 8.9% of population is older than 75 years of age
- > 27.5% of households do not own a vehicle

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	

Roadway Segment Performance Measure Weights

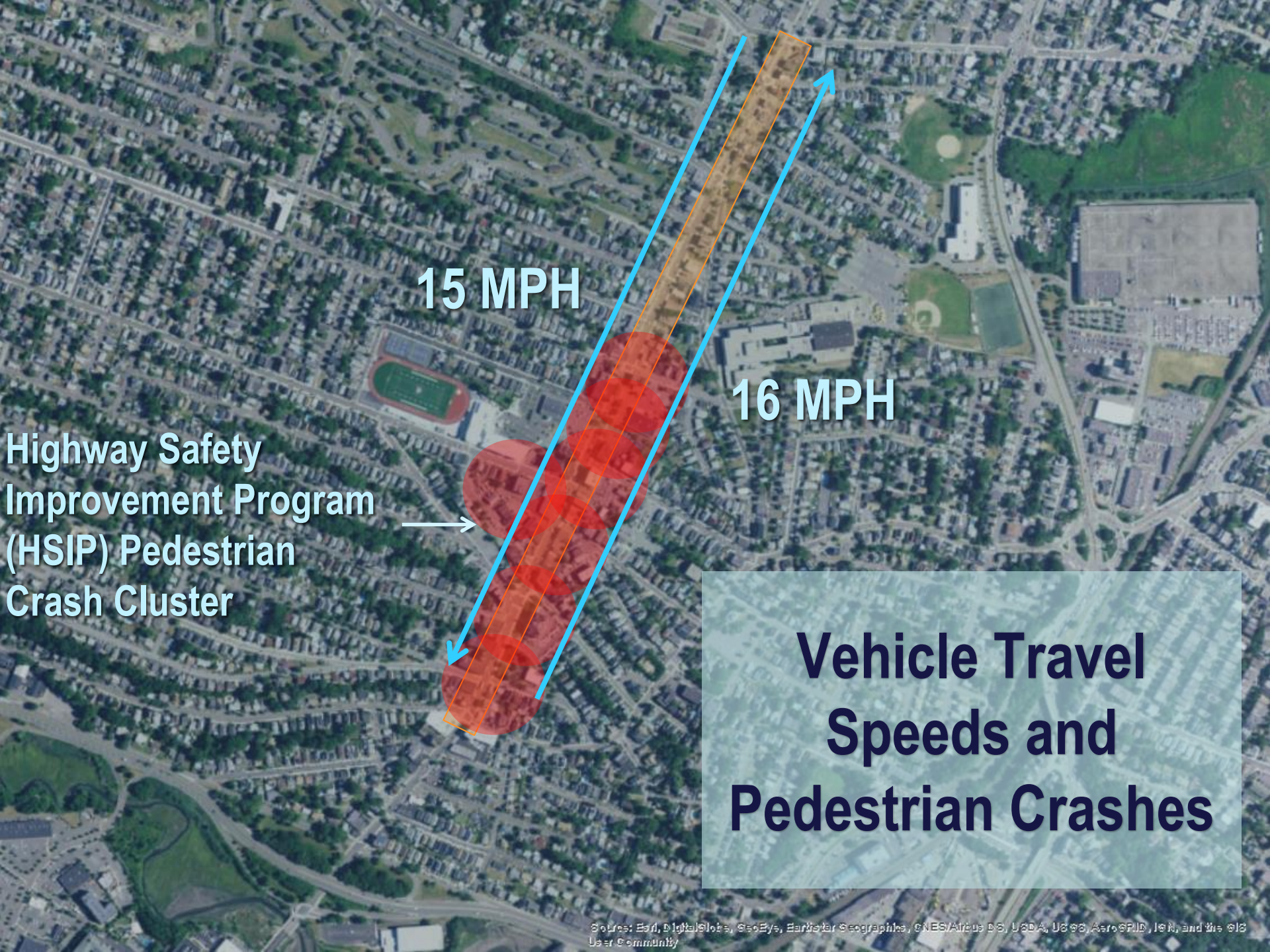
Boston Region MPO Goal	Performance Measure	Weight Factor	Percent of Score
Capacity Management and Mobility	Sidewalk Presence	3	50%
	Crossing Opportunities	2	34%
	Walkway Width	1	16%
Economic Vitality	Pedestrian Volumes	1	50%
	Adjacent Bicycle Accommodations	1	50%
Safety	Pedestrian Crashes	3	60%
	Pedestrian-Vehicle Buffer	1	20%
	Vehicle Travel Speed	1	20%
System Preservation	Sidewalk Condition	1	100%

Intersection Performance Measure Weights

Category	Performance Measure	Weight Factor	Percent of Score
Capacity Management and Mobility	Pedestrian Delay	3	43%
	Sidewalk Presence	2	29%
	Curb Ramps	1	14%
	Crossing Opportunities	1	14%
Economic Vitality	Pedestrian Volumes	1	100%
Safety	Sufficient Crossing Time (Index)	3	38%
	Pedestrian Crashes	3	38%
	Pedestrian Signal Presence	1	12%
	Vehicle Travel Speed	1	12%
System Preservation	Sidewalk Condition	1	100%

Roadway Segment:
Route 107
Beach Street to Revere Street
(0.78 miles)
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- 8 foot wide Sidewalks
  - Both sides of street
- 17 Marked Crosswalks
- 99 Pedestrians/Hour
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


15 MPH
16 MPH
Highway Safety Improvement Program (HSIP) Pedestrian Crash Cluster
Vehicle Travel Speeds and Pedestrian Crashes
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Roadway Buffer Features

- Bike lanes
- 8 foot wide buffer between vehicles and pedestrians

Grading Categories: Scoring Breakdown **Roadway Segment**

Capacity Management and Mobility

Performance Measure	Weight	Rating	Weighted Score
Sidewalk Presence	3	Good	9
Crossing Opportunities	2	Good	6
Walkway Width	1	Good	3
Total	**6**	**Good**	**18**

Economic Vitality

Performance Measure	Weight	Rating	Weighted Score
Pedestrian Volumes	1	Good	3
Adjacent Bicycle Accommodations	1	Good	3
Total	**2**	**Good**	**6**

Safety

Performance Measure	Weight	Rating	Weighted Score
Pedestrian Crashes	3	Poor	3
Pedestrian-Vehicle Buffer	1	Fair	2
Vehicle Travel Speed	1	Good	3
Total	**5**	**Poor**	**8**

System Preservation

Performance Measure	Rating
Sidewalk Condition	**Fair**

Transportation Equity Priority

Area Condition	Yes/No
Environmental Justice zone?	Yes
School or college within one-quarter mile?	Yes
More than 8.9% of population older than 75 years?	Yes
More than 27.5% of households do not own a vehicle?	No

Category rating = total rating/total weight
Rating Score:
Good = 3
Fair = 2
Poor = 1

Category Ratings
Good: Score of 2.3 or more (maximum 3.0)
Fair: Score is between 1.7 and 2.3
Poor: Score is 1.7 or less (minimum 0)

BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

Pedestrian Report Card Assessment (PRCA): **Roadway Segment**

Roadway Segment Location
Route 107 between Beach Street and Revere Street in Revere

Grading Categories	Score	Rating
Safety	1.6	Poor
System Preservation	2.0	Fair
Capacity Management and Mobility	3.0	Good
Economic Vitality	3.0	Good

Transportation Equity	
High Priority Area	✓
Moderate Priority Area	
Not a Priority Area	

Category Ratings
Good: Score of 2.3 or more (maximum 3.0)
Fair: Score is between 1.7 and 2.3
Poor: Score is 1.7 or less (minimum 0)

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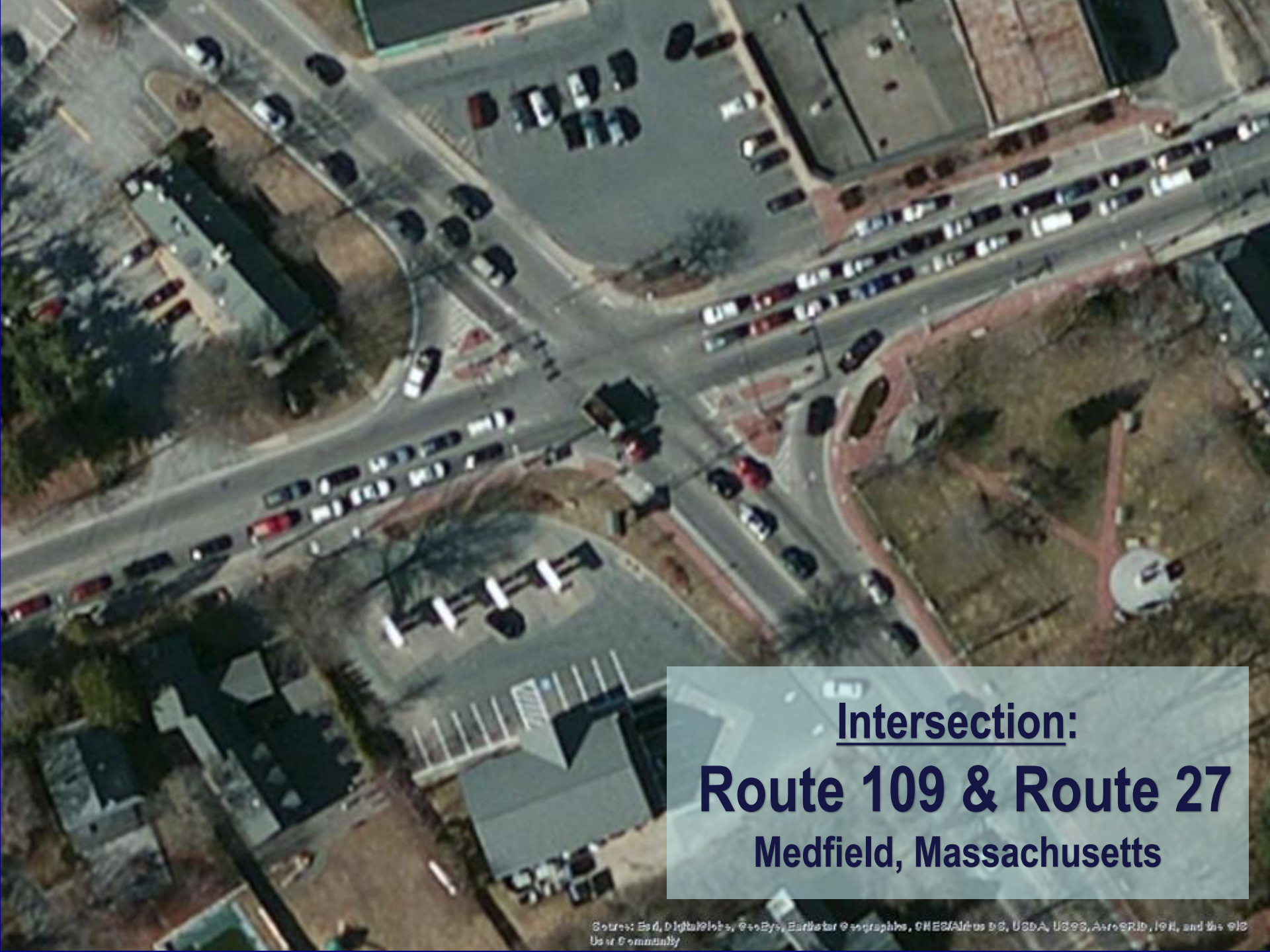
Intersection:
Route 109 & Route 27
Medfield, Massachusetts
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Sidewalk on three out of four approaches
- Crosswalks and curb cuts at every approach
- Brick sidewalks

30 MPH
32 MPH
38 MPH
33 MPH

Additional Intersection Features

- Exclusive Pedestrian Cycle
- Pedestrian Delay: 57 seconds
- Crossing Time Index: 1.05
  - 19 Seconds Permitted
  - 18 Seconds Required
- One Pedestrian per Hour
- No HSIP Pedestrian Crash Cluster

Grading Categories: Scoring Breakdown **Intersection**

Capacity Management and Mobility

Performance Measure	Weight	Rating	Weighted Score
Pedestrian Delay	3	Poor	3
Sidewalk Presence	2	Fair	4
Curb Ramps	1	Good	3
Crossing Opportunities	1	Good	3
Total	**7**	**Fair**	**13**

Economic Vitality

Performance Measure	Rating
Pedestrian Volumes	**Poor**

Category rating = total rating/total weight
Rating Score:
Good = 3
Fair = 2
Poor = 1

Safety

Performance Measure	Weight	Rating	Weighted Score
Sufficient Crossing Time (Index)	3	Fair	6
Pedestrian Crashes	3	Good	9
Pedestrian Signal Presence	1	Fair	2
Vehicle Travel Speed	1	Poor	1
Total	**8**	**Fair**	**18**

System Preservation

Performance Measure	Rating
Sidewalk Condition	**Fair**

Transportation Equity Priority

Area Condition	Yes/No
Environmental Justice zone?	No
School or college within a one-quarter mile?	Yes
More than 8.9% of population older than 75 years?	No
More than 27.5% of households do not own a vehicle?	No

Category Ratings
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BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

Pedestrian Report Card Assessment (PRCA):

Intersection

Intersection Location
Route 109 and Route 27 – Medfield, MA

Grading Categories	Score	Rating
Safety	2.25	Fair
System Preservation	2.0	Fair
Capacity Management and Mobility	1.85	Fair
Economic Vitality	1.0	Poor

Transportation Equity	
High Priority Area	
Moderate Priority Area	
Not a Priority Area	✓

Category Ratings
Good: Score of 2.3 or more (maximum 3.0)
Fair: Score is between 1.7 and 2.3
Poor: Score is 1.7 or less (minimum 0)

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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