

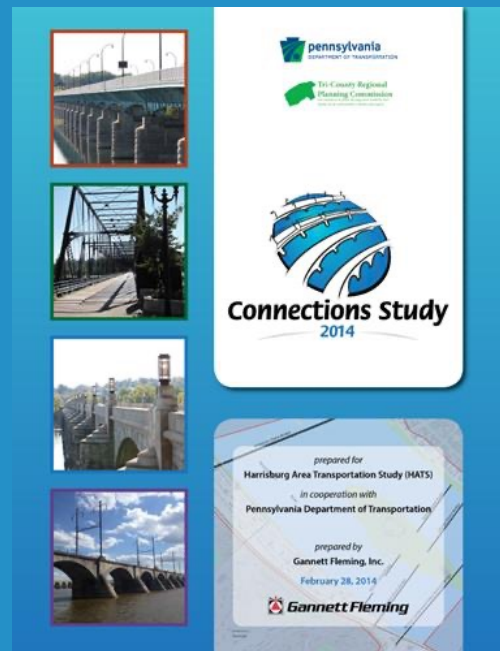


# Capital Area Cross-River Connections Study

*prepared for*  
Harrisburg Area Transportation Study (HATS)

*in cooperation with*  
Pennsylvania Department of Transportation

*prepared by*  
Gannett Fleming, Inc.



Harrisburg Area Transportation Study  
Cross-river Connections Study



# Study Background

- Conducted to improve safety and mobility for all modes of cross-river transportation
- Data Collection and Existing Conditions Analyses Fall 2012 – Fall 2013
  - Bridge existing conditions
  - Traffic data collection
  - Transportation safety audit
  - Public surveys and open house



# Bridge Existing Conditions



## M. Harvey Taylor Bridge

- Built in 1952
- Rehabilitated in 2001
- 4,218 feet long
- 27 spans

Bicycle-safe railings  
4 feet, 6 inches high

Divided roadway  
25 feet wide, each side

Sidewalks  
8 feet wide, each side

Construction: steel two-girder system with floorbeams and stringers

## Walnut Street Bridge

(between Harrisburg and City Island)

- Built in 1890
- Rehabilitated in 1996
- 1,420 feet long
- 7 spans

Open-grid deck  
12 feet wide

Concrete sidewalk  
6 feet wide

Construction: steel truss

Walnut Street Bridge  
West Shore spans closed  
(missing three spans as a  
result of 1996 flood)



# Bridge Existing Conditions



## Market Street Bridge – East Shore Spans

(between Harrisburg and City Island)

- Built in 1928
- Rehabilitated in 1962
- 1,404 feet long
- 14 spans



**Railing – Concrete Barrier**  
3 feet, 9 inches high, each side

**Sidewalks**  
5 feet, 4 inches wide, each side

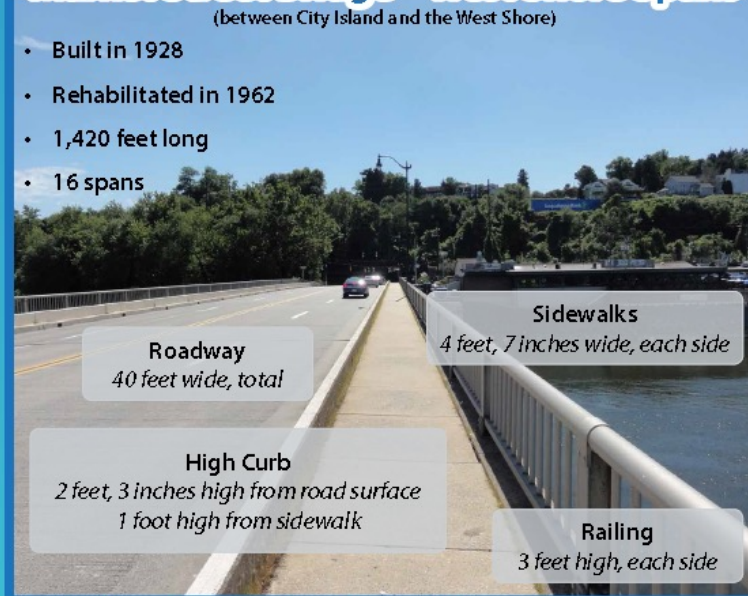
**Roadway**  
40 feet wide, total

Construction: concrete arch

## Market Street Bridge – West Shore Spans

(between City Island and the West Shore)

- Built in 1928
- Rehabilitated in 1962
- 1,420 feet long
- 16 spans



**Roadway**  
40 feet wide, total

**Sidewalks**  
4 feet, 7 inches wide, each side

**High Curb**  
2 feet, 3 inches high from road surface  
1 foot high from sidewalk

**Railing**  
3 feet high, each side

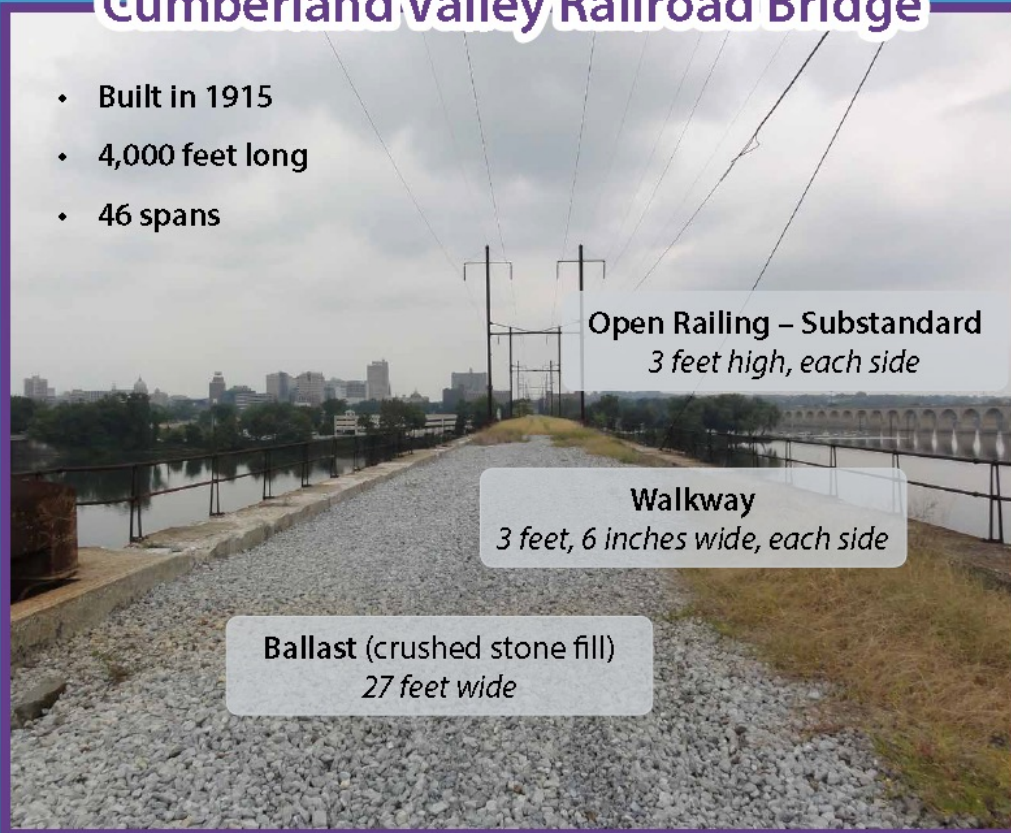
Construction: adjacent prestressed concrete beam

# Bridge Existing Conditions



## Cumberland Valley Railroad Bridge

- Built in 1915
- 4,000 feet long
- 46 spans



Open Railing – Substandard  
3 feet high, each side

Walkway  
3 feet, 6 inches wide, each side

Ballast (crushed stone fill)  
27 feet wide

Construction: concrete arch



# How much pedestrian and vehicle traffic do the bridges handle currently?



Bridge	Number of Vehicles per Day	Pedestrians per Weekday Peak Periods <sup>1</sup> (both directions)	Pedestrians per Weekend Day <sup>2</sup> (both directions)	Pedestrians on Labor Day Weekend <sup>3</sup> (both directions)
M. Harvey Taylor Bridge	16,066 eastbound	109	147	—
	17,478 westbound			
Walnut Street Bridge	N/A	566	1,172	6,890/1,903
Market Street Bridge – West Spans	7,320 eastbound	139	178	—
Market Street Bridge – East Spans	6,738 westbound	240	133	—

*Cumberland Valley Railroad Bridge is currently closed to all traffic.*

<sup>1</sup>Sum of pedestrians counted during the three peak periods on Wednesday, September 12, 2012: morning rush hour (6 - 9 a.m.), lunchtime (11 - 1), afternoon rush hour (3 - 6 p.m.)

<sup>2</sup>Traffic counts conducted Saturday, September 15, 2012

<sup>3</sup>Labor Day weekend (2012) pedestrian counts conducted 12 - 6 p.m. Sunday and 9 a.m. - 3 p.m. Monday. Senators baseball games on City Island started both days at 2 p.m.

# Transportation Safety Audit

- Projects to improve the use of the bridges should enhance safety for motorists, pedestrians, and bicyclists.
- A road safety audit identified top safety concerns as follows:
  - Sidewalks end abruptly, are narrow, or non-existent
  - No barrier between sidewalks and driving lane
  - Poor or missing signs
  - Pavement markings faded



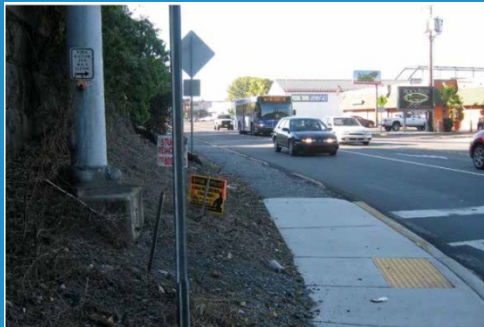
In Wormleysburg, sidewalk between the Market Street Bridge and Walnut Street Bridge is discontinuous and has non-compliant ADA ramps.





# Transportation Safety Audit

- **Top safety concerns (continued):**
  - Inadequate accommodation for people with disabilities (such as curb ramps)
  - Poor lighting at night
  - Road surface uneven
  - Poor drainage, snow/ice obstructions
  - Poor pedestrian/bicycle connectivity between Wormleysburg and Lemoyne



Inadequate accommodation for people with disabilities—push buttons for “Walk” signal are inaccessible, and some curb ramps lack detectable warning surfaces which assist vision-impaired people.

Sidewalks are narrow along the Market Street bottleneck at the railroad bridges.



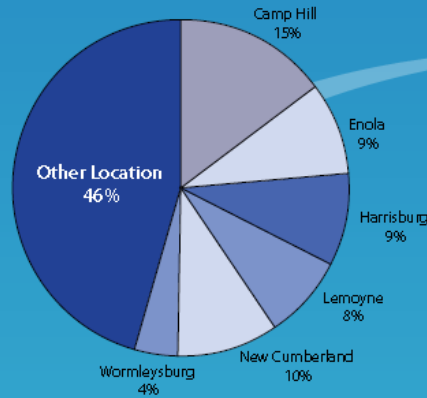


# Public Surveys

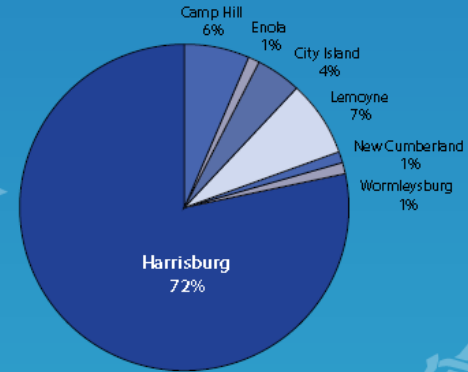
- Origin-destination survey responses of travelers exiting the Market Street Bridge on both shores



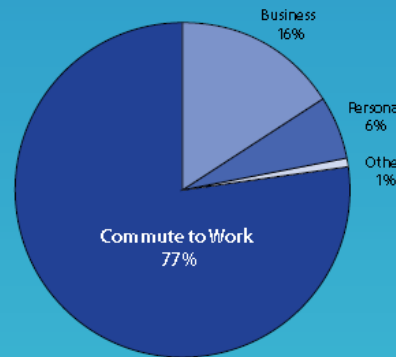
Where did your trip begin?



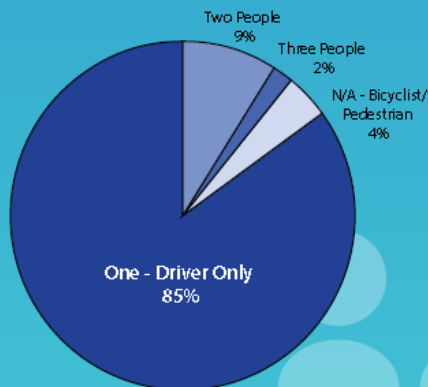
Where did your trip end?



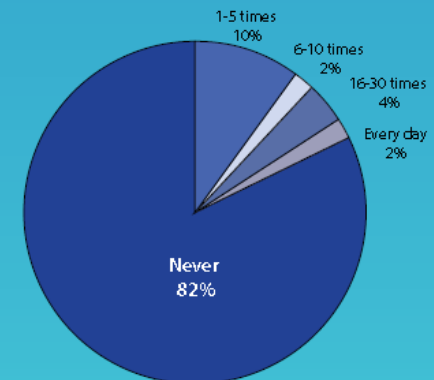
What is the purpose of your trip?



How many people in your vehicle?



How many times per month do you make this trip on foot or by bicycle?



# Public Open House

- Public Open House Oct 2013 with the following common responses:
  - Poor connectivity/signage for HTB
  - Improve MSB sidewalk and railing
  - Positive feedback on use of CAT Bridge, especially for bike/ped travel



**Study Background and Purpose**

The study is analyzing the current bridge, which is 100 years old. The study is analyzing the current bridge, which is 100 years old. The study is analyzing the current bridge, which is 100 years old.

**What is being considered for the Cumberland Valley Railroad Bridge in the mid-term?**

**West Side**

- Mid-term:** Connect the bridge to the West Side of the river.
- Long-term:** Build a new bridge to connect the West Side of the river to the East Side.

**Bridge**

**BEFORE:** The bridge is currently a concrete bridge with a steel deck.

**AFTER:** The bridge will be replaced with a steel truss bridge with a concrete deck.

**East Side**

- Mid-term:** Connect the bridge to the East Side of the river.
- Long-term:** Build a new bridge to connect the East Side of the river to the West Side.

**What are the study objectives?**

**The aim is to improve:**

- Safety
- Multimodal mobility (convenient travel for pedestrians, bicyclists, transit users, and motorists)

**While reducing:**

- Delays
- Fuel consumption
- Vehicle emissions

In short-term needs, transportation improvement options have been developed to the best planning level and estimates, as appropriate. The options have been categorized as:

- Short-term projects:** Those with the potential to be implemented in less than 7 years
- Mid-term projects:** Those with the potential to be implemented in 7-14 years
- Long-term projects:** Those that are more costly or uncertain, with an implementation of greater than 14 years



Harrisburg Area Transportation Study  
Cross-river Connections Study





# Study Results

- **Study considered:**
  - Future needs, multimodal mobility, and agency/public input
  - A phased approach to stage improvements in a cost effective and most feasible manner

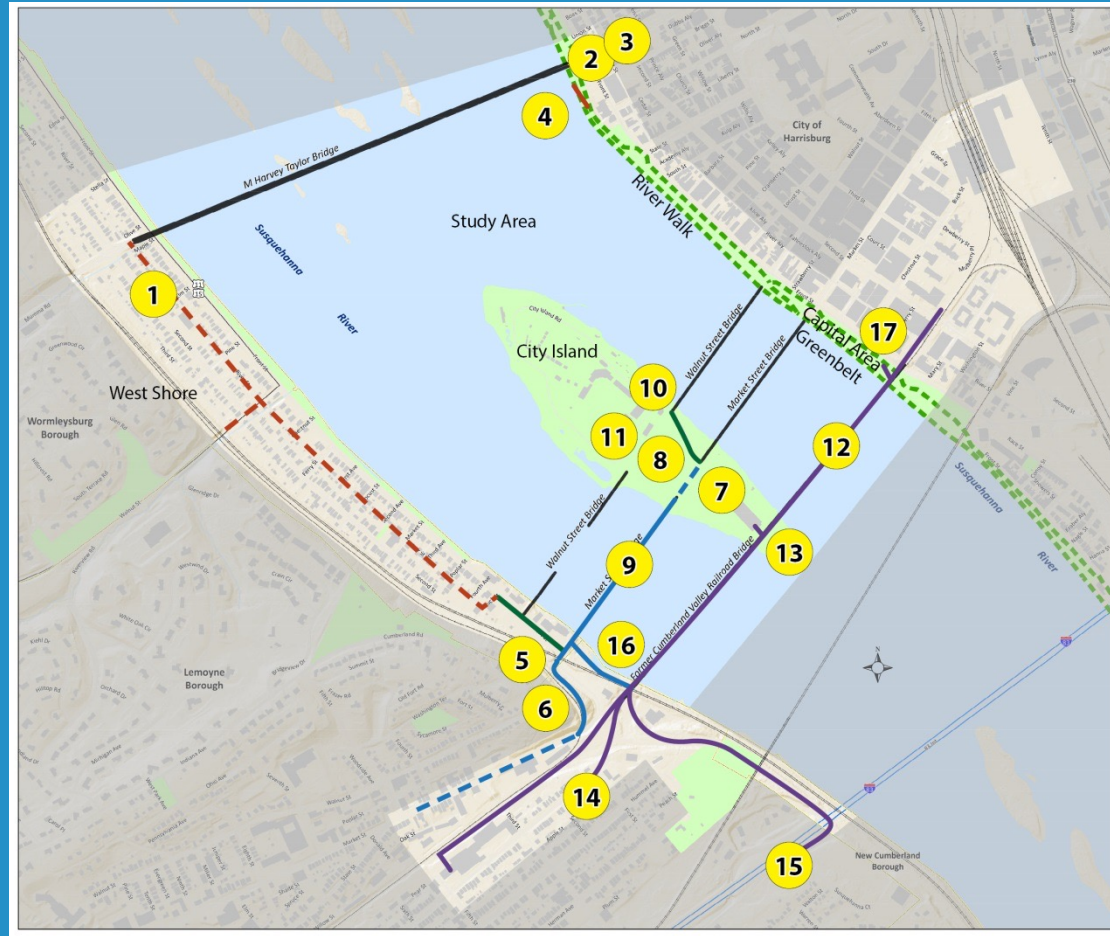


Harrisburg Area Transportation Study  
Cross-river Connections Study



# Study Results

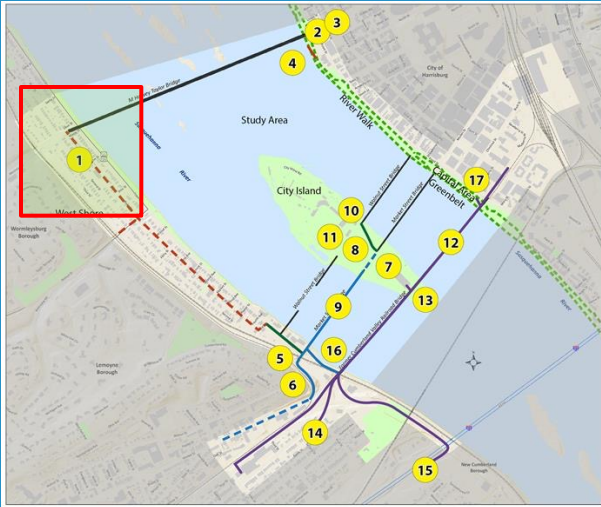
- Overview of connections





# Study Results

## Harvey Taylor Bridge – West Shore



Costs:  
 <\$5,000



- Route on existing roadways
- Alternate route on existing roadways

**Bikes-Peds  
 Use Tunnel  
 for Travel South**

**↑**  **Harrisburg**

**↑**  **City Island**

**Camp Hill**  **→**

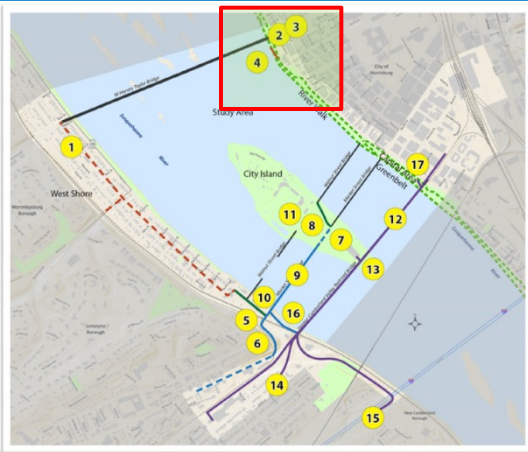
**Bike-  
 Ped  
 Tunnel**

**→**

# Study Results

## Harvey Taylor Bridge – East Shore

2. Near-term improve signs/markings (\$2,500)
3. Mid-term upgrade pedestrian signal equipment and minimize pedestrian crossing distances (\$170k)





# Study Results

## Harvey Taylor Bridge – East Shore

### 4. Mid-term connect River Walk and Greenbelt (\$1.8 M)

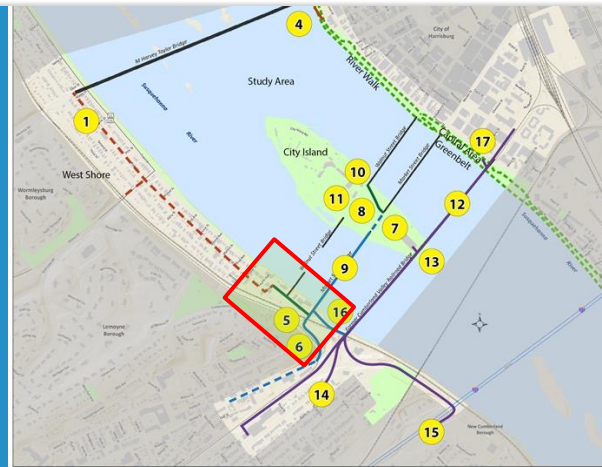


# Study Results

## Market Street Bridge – West Shore

### Near-Term

### 5. Restripe Front Street to reduce crossing distances (<\$5,000)

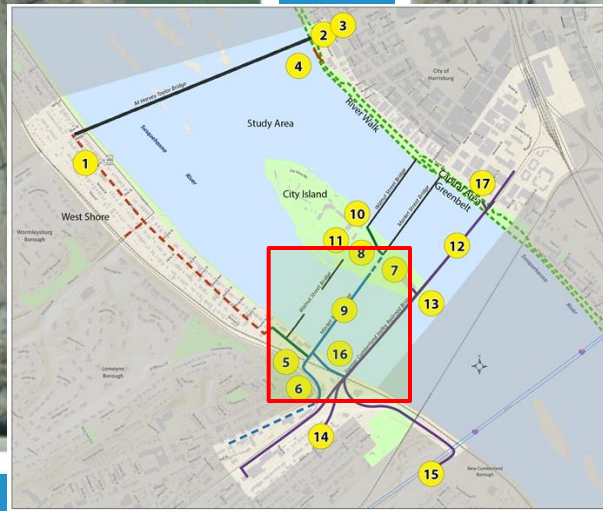
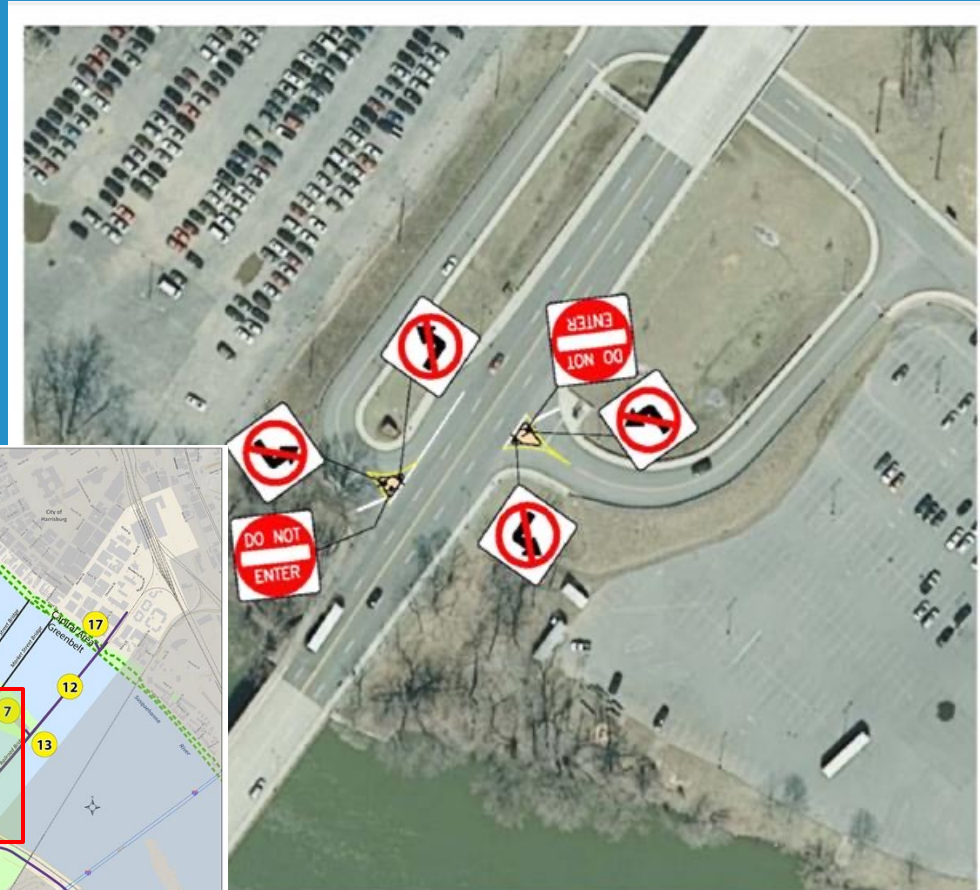
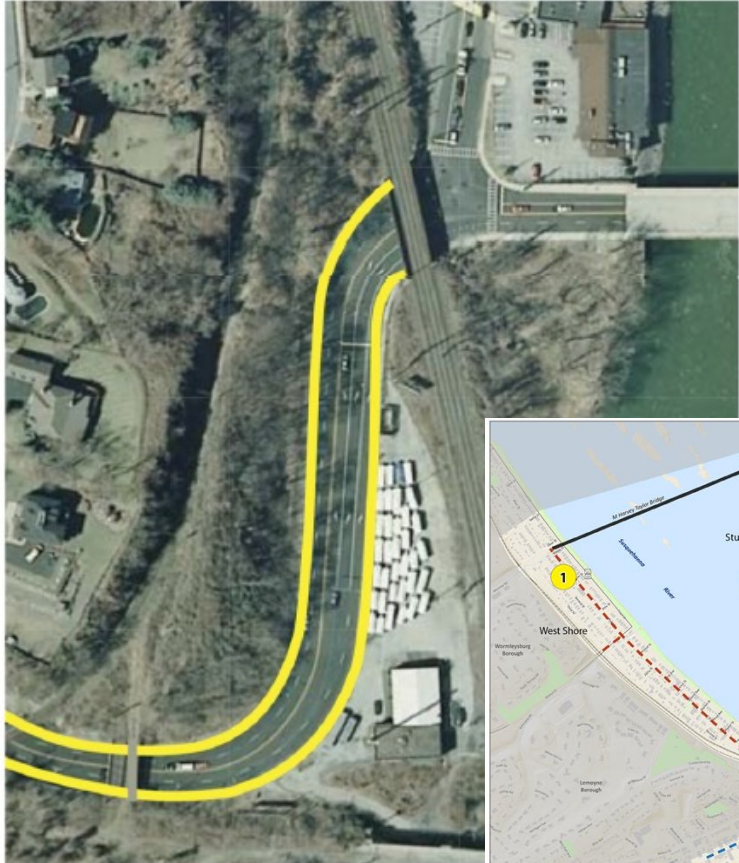




# Study Results

## Market Street Bridge – West Shore

6. Repair existing sidewalk within bottleneck (\$10k-\$20k)
7. Restrict left turns to/from City Island (\$5,000)



# Study Results

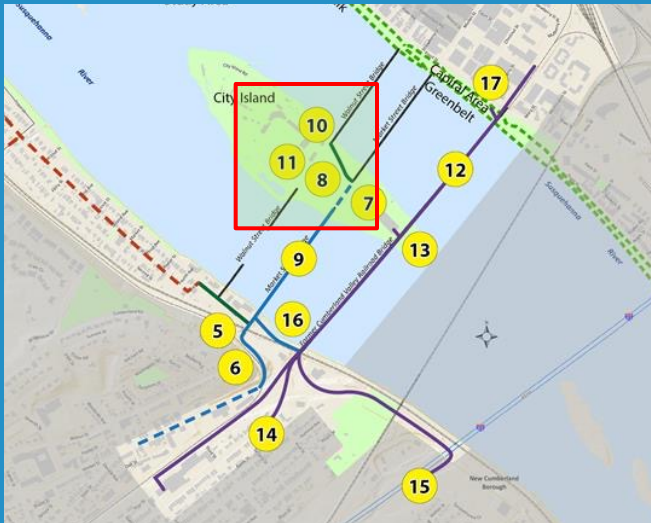
## City Island

### Near-Term

8. Upgrade pedestrian/bicycle connections on City Island (\$20,000)

10. Ped/Bike signing for travel between WSB and MSB (<\$5,000)

11. City Island bike share





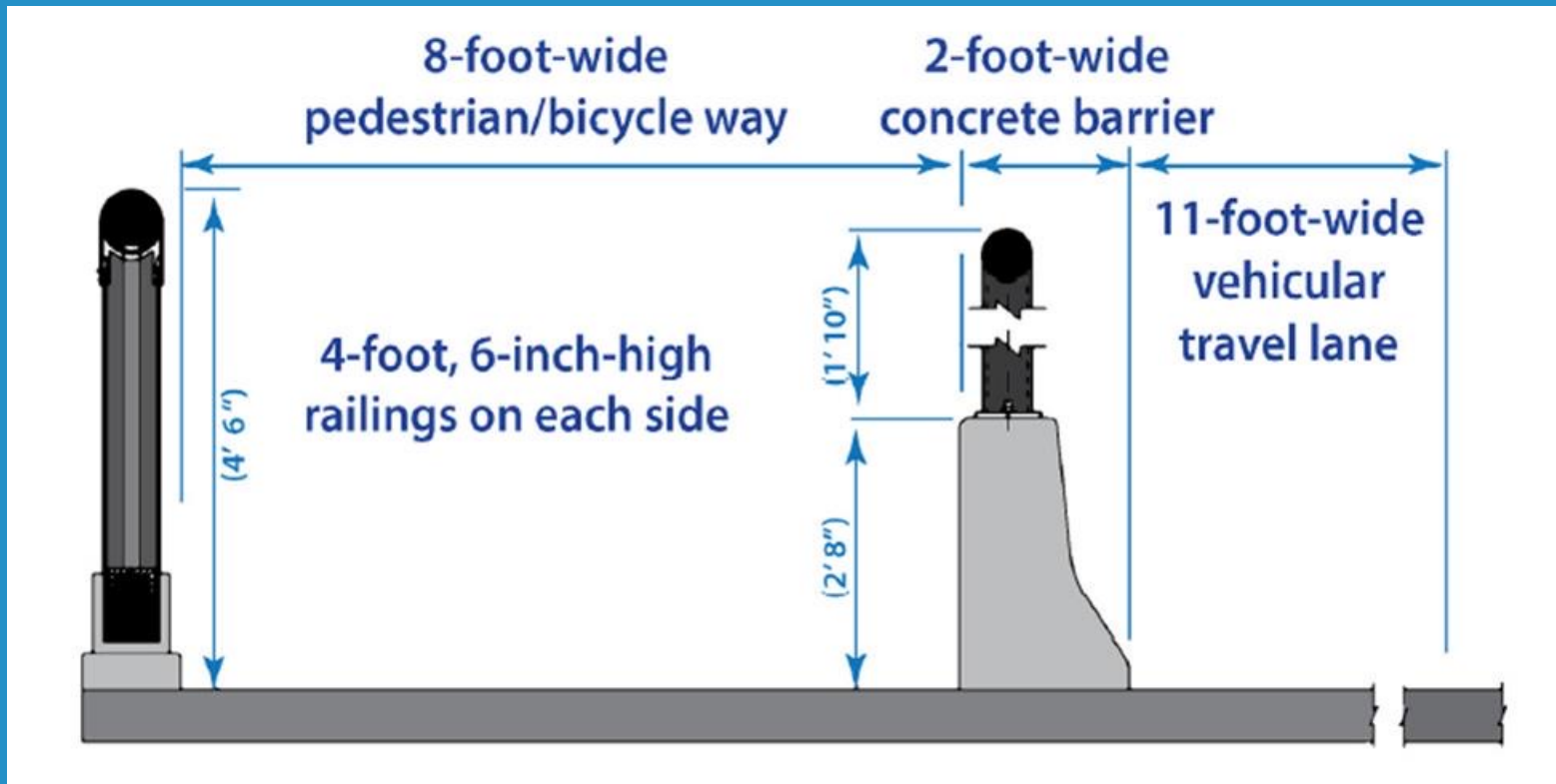
# Study Results

## Market Street Bridge – West Shore Spans

### Mid-Term

#### 9. Widen bridge and sidewalk (\$200k)

NOTE: This would be part of a bridge rehabilitation project



# Study Results

## Walnut Street Bridge

- **Future Use (Long Term)**
  - No transportation “need” for the West Shore spans of the Walnut Street Bridge.
  - Even if the missing spans were replaced, the bridge could only accommodate bicycles and pedestrians (at \$12 M - \$30 M).
  - The Market Street Bridge is 500 feet southeast and provides vehicular, bicycle, and pedestrian connectivity.
  - Funds should be utilized to improve the other study bridges which provide connectivity for all modes.
    - MSB Ped Improvements \$200k (above rehab cost)
    - CAT Bridge (\$3.2 M)
      - With City Island Connection only (\$150k additional)
      - With City Island, East & West Shore Connections (\$4.5 M additional)



## Study Results

### CAT Bridge

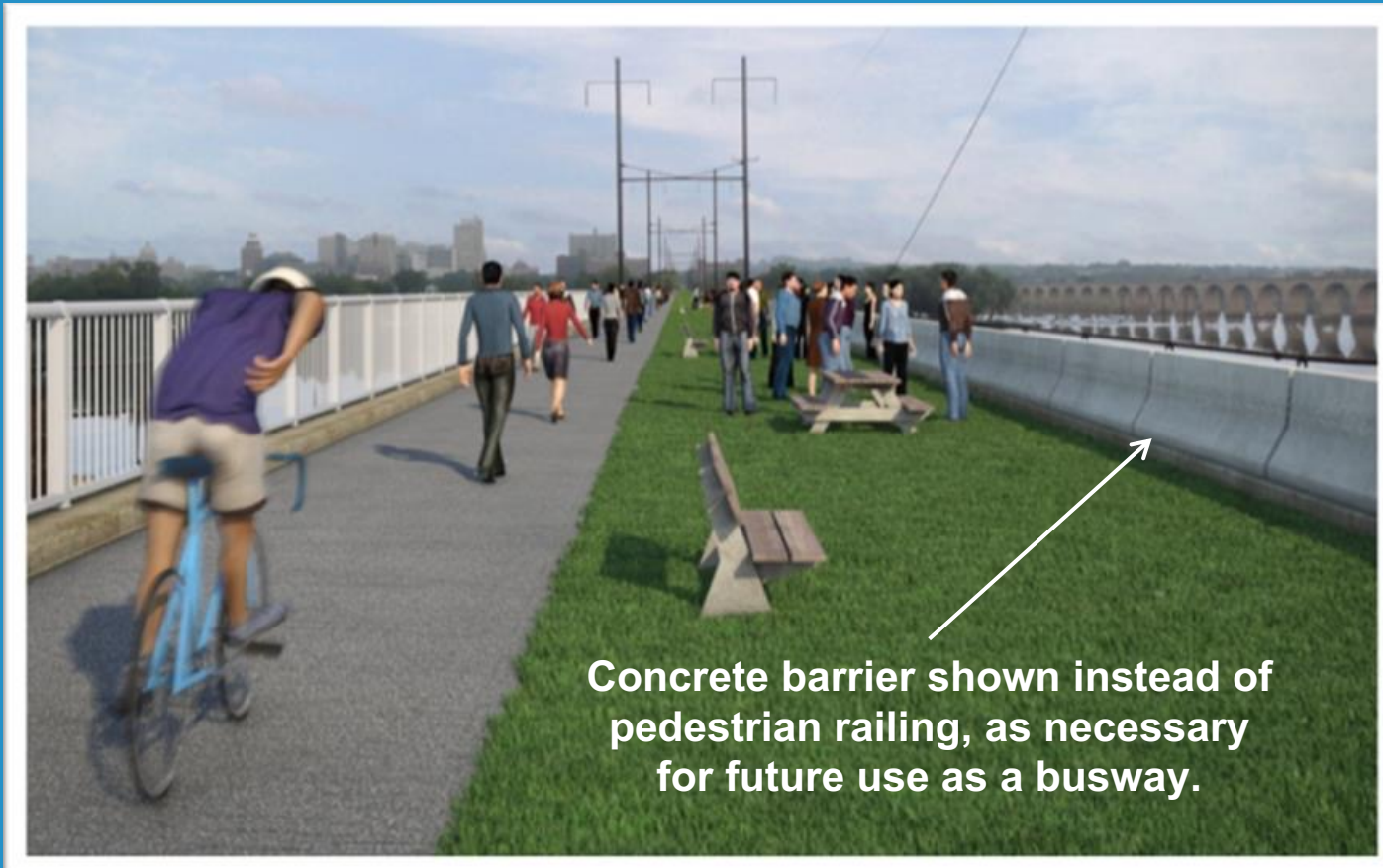
- Any projects considered which involve the CAT Bridge and its shore connections will require cooperation from the railroads (Norfolk Southern and Amtrak)
- Railroads are owners of right-of-way at the bridge termini
- It is estimated that periodic maintenance of the bridge will be required at 5-yr intervals at a cost of \$1.5 M
  - Concrete repairs will be necessary
  - *This will be required whether or not the bridge is put to use*

# Study Results

## CAT Bridge

### Mid-Term

**12. Convert bridge to pedestrian and bicycle shared-use pathway (\$3.2 M)**



**Concrete barrier shown instead of pedestrian railing, as necessary for future use as a busway.**



# Study Results

## CAT Bridge – City Island

13. Construct an elevated pedestrian connection from the bridge to the City Island parking garage (\$150k)



# Study Results

## CAT Bridge – West Shore

- Construct pedestrian and bicycle connections between CAT bridge and Lemoyne-New Cumberland:

- (14) Bosler (\$450k)
- (15) Lowther (\$430k)

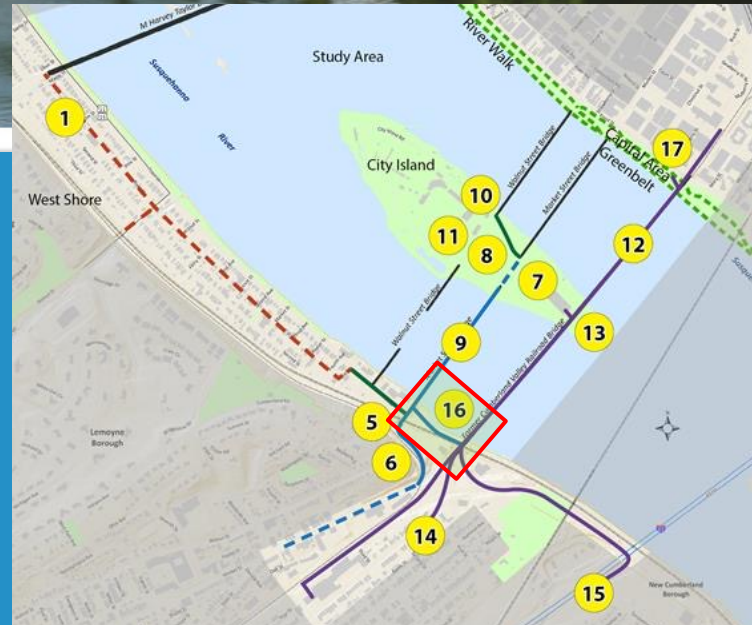




# Study Results

## CAT Bridge – West Shore

16. Build an elevated pedestrian and bicycle connection between the CAT and Market Street bridges on the West Shore (\$1.8 M)



# Study Results

## CAT Bridge – East Shore

17. Construct a ramp to provide pedestrian and bicycle connection between the CAT bridge and Front Street/Greenbelt (\$1.7 M)







# Study Results

## CAT Bridge Long-Term

- **Bridge Rehabilitation (\$12 - \$15 M)**
  - Necessary at some point even if the bridge remains unused
  - Includes waterproof membrane, concrete repairs, and repair of scour holes with grout bags





# Study Results

## CAT Bridge Long-Term

- **Potential alternative use considerations**
  - Additional stakeholder input necessary
  - Transit use requires
    - Administration agreements with railroad owners
    - Pavement or rail to accommodate potential transit use.
      - \$300,000 for pavement or \$700,000 for track
        - » The limits of any potential transit corridor are uncertain, so cost for only on bridge itself and not approaches.
        - » Does not include gates, signaling, lighting, and other appurtenances.

# Study Results

## CAT Bridge Long-Term

- **Bridge Option 1: Shared Transit, Pedestrian, Bicycle Facility**
  - One-lane, two-way busway
  - Shared-use path (as suggested for mid-term improvement)



# Study Results

## CAT Bridge Long-Term

- **Bridge Option 2: Elevated Park**
  - Without transit, one long-term alternative is an elevated park
    - Transit use will require cooperation from NS and Amtrak

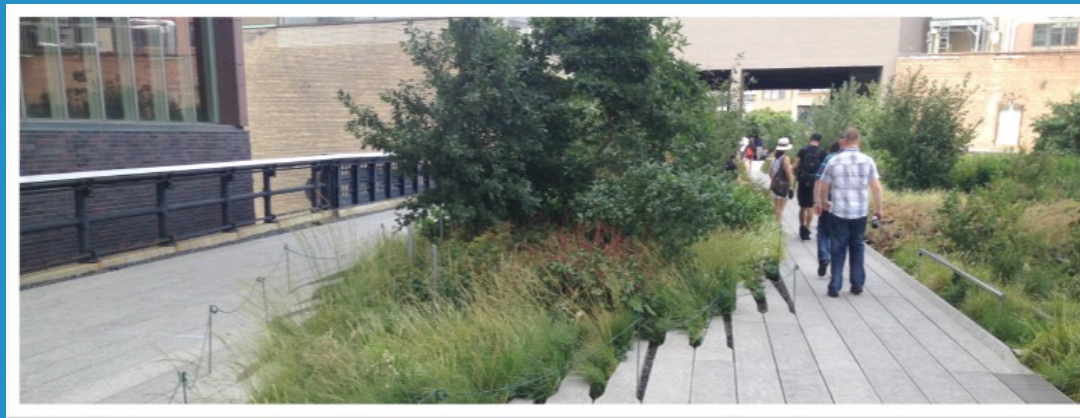




# Study Results

## CAT Bridge Long-Term

- **Bridge Option 2: Elevated Park**
  - Safer connection for non-vehicular traffic
  - Potential recreational uses include festivals, a fireworks viewing area, location for lunch hours.
  - Could provide emergency vehicle access (dependent upon connections at each shore)



**Elevated Park  
Example:  
Highline Park,  
NYC**

# Study Results

- Other Long-Term Considerations
  - CAT approaches are on NS and Amtrak ROW





# Study Results

– Bus or Rail Transit use may require:

- Track relocation on East Shore
- Rehabilitation of 2<sup>nd</sup> Street overpass
- Lemoyne Connector grade separation for NS track (West Shore)





# Next Steps

- Study adopted at Feb 28, 2014 Coordinating Committee Meeting
- Next Steps
  - Establish project sponsors / follow project development process through HATS
    - Regional Transportation Plan (RTP)
    - Transportation Improvement Program (TIP)
  - Perform additional detailed study and analyses for mid- and long-term projects as required
    - Especially applies to those where continued consideration by railroad stakeholders is necessary
  - Evaluate the additional opportunities for funding, given the multiple uses for the CAT Bridge

