

NJTPA 2016 Local Concept Development Study Essex & Hudson Counties Bridge Street Bridge over the Passaic River



Public Information Center



December 10, 2019



Project Overview and Background

- Bridge Spans the Passaic River connecting the City of Newark & the Town of Harrison
- Bridge Street Bridge was built in 1913.
- Bridge is in need of major rehabilitation or replacement.
- Routine maintenance can no longer address deficiencies.
- NJTPA/Essex & Hudson County LCD Study initiated June 2016 utilizing federal funding



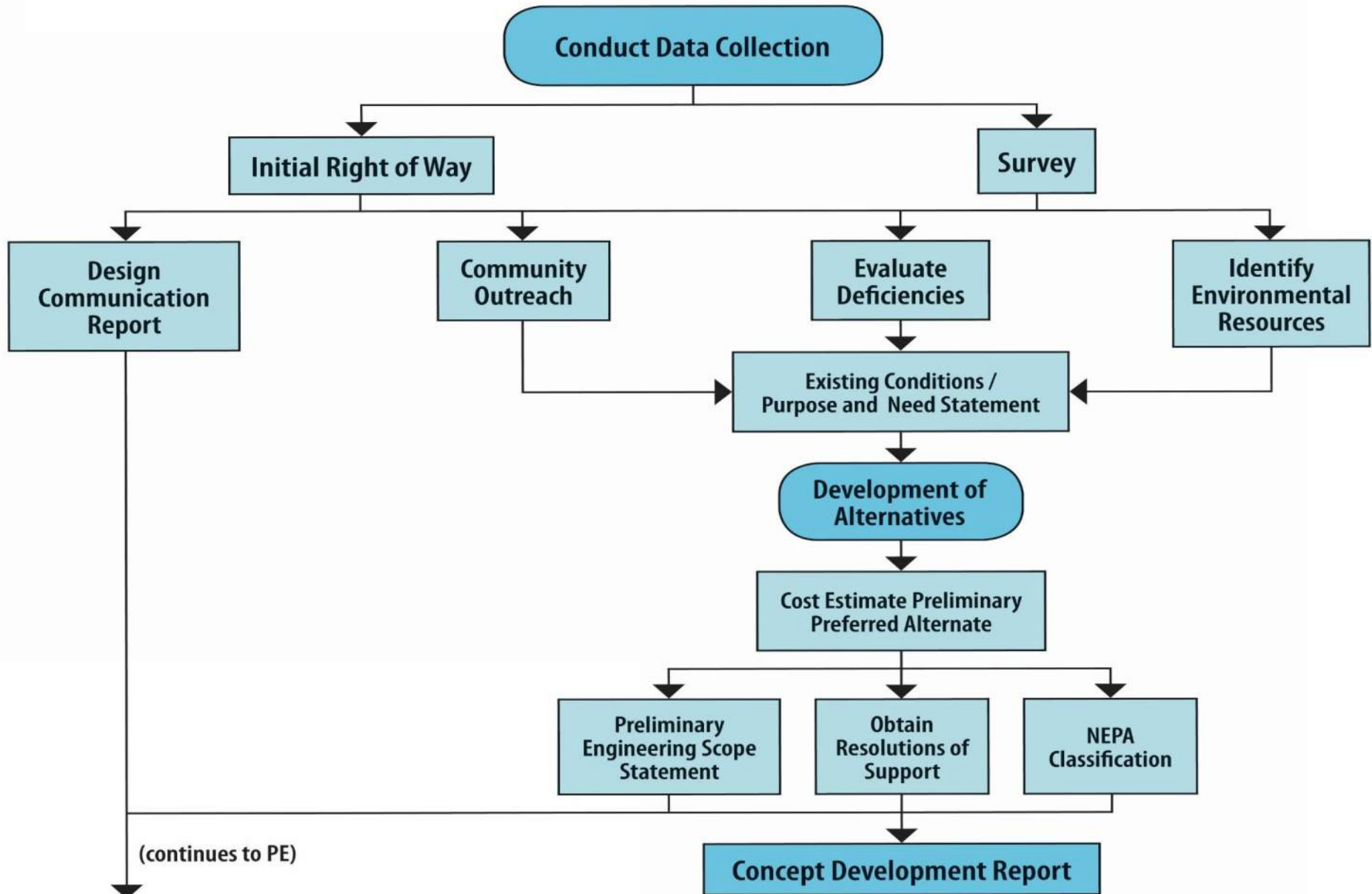
Local Capital Project Delivery Process

Local Concept Development	Local Preliminary Engineering	Final Design/ Right of Way Acquisition	Construction
Data Collection	Approved Design Exception Report	Construction Contract Documents and PS&E package	Complete Construction
Purpose and Need Statement			
Concept Development & Alternatives Analyses	Cost Estimates (Final Design, ROW and Construction)	Environmental Reevaluations	Continue Public Outreach
Selection of Preliminary Preferred Alternative	Approved Environmental Document	Secure Environmental Permits	As-Builts
Environmental Screening Report & NEPA Classification	Preliminary Design	Acquisition of ROW	Update and Finalize Design Communications Report
Concept Development Report	Preliminary Engineering Report	Final Utility Relocation Schemes	Close-out Documentation
Initiate Public Outreach & Involvement	Continue Public Outreach & Involvement	Continue Public Outreach & Involvement	



U.S. Department of Transportation
Federal Highway Administration

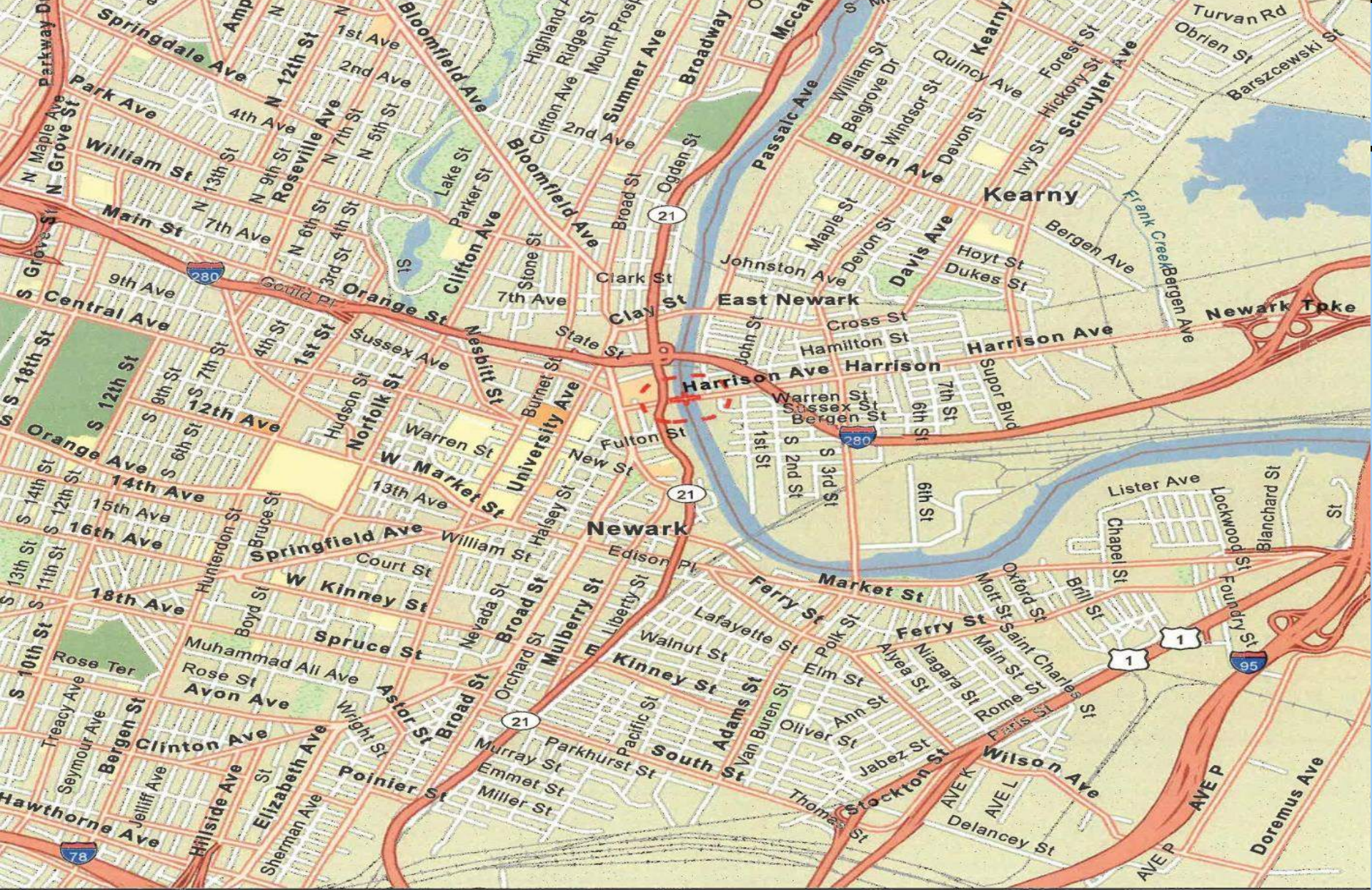
Local Concept Development Process



Environmental Process

- Federally funded projects require NEPA (National Environmental Policy Act) documentation
- Identify environmental resources and concerns
- Avoid, minimize and or mitigate environmental impacts
- Coordination with permitting agencies
- Process includes public input and community development





- Legend**
- ⋈ Bridge Street Bridge Study Area
 - ▭ Bridge Street Bridge Location



Figure 1
Site Location Map

Bridge Street Bridge over Passaic River
Town of Harrison, Hudson County
and City of Newark



LOWER EIGHT MILE CLEANUP AREA

- Navigation Channel Centerline
- Municipal Boundary
- County Boundary
- Bridge
- Highway
- Primary Road
- Railroad

0 500 1,000 2,000 3,000 4,000 Feet



Clay Street Bridge

Stickle Bridge

Newark Draw-NJT

Bridge Street Bridge

BRIDGE STREET BRIDGE



Navigation Channels
2-80' Horizontal
7' Vertical (Closed)



Existing Bridge Condition



Bridge East Approach Roadway Looking West – Note no shoulders



Bridge Opening Looking West at McCarter Highway & City of Newark

Existing Bridge Condition



West approach to bridge looking east towards Town of Harrison



Bridge Opening Looking East at Town of Harrison

Existing Bridge Condition



East Approach Roadway looking towards Passaic Avenue



West Approach to Bridge looking towards McCarter Highway

Project Area



One Harrison Apartments east of bridge (looking east)



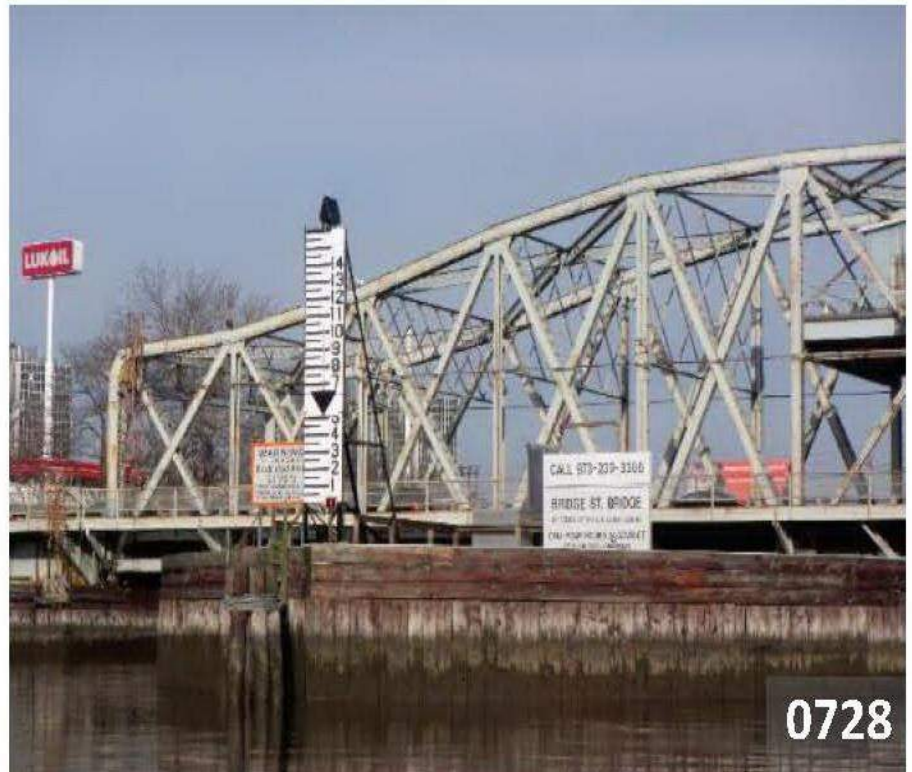
One Harrison Apartments east of bridge (looking west)

Bridge Navigation Data

Name of Bridge	River Mile	Bridge Clearance		
		Horizontal (ft)	Vertical MHW ¹ (ft)	Vertical MLW ² (ft)
Bridge Street Bridge	5.6	80	7	12.5



South Elevation Looking North (Upstream)

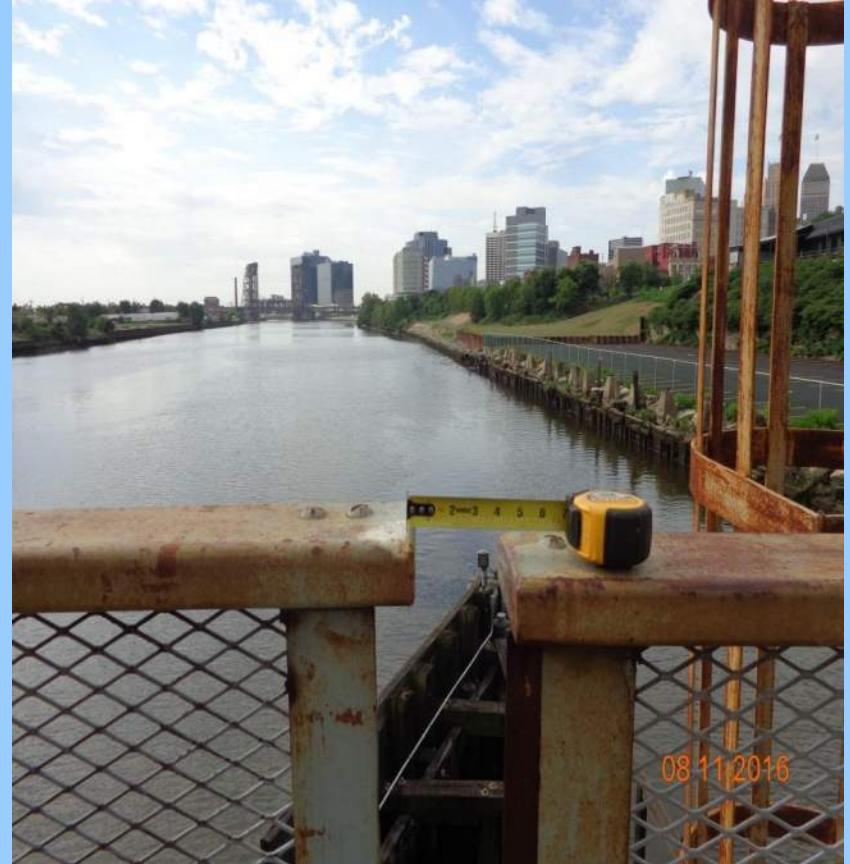


4 Hour Advance Call Notice for Bridge Opening

Passaic River Navigation



South Elevation Looking Upstream (North)



Looking downstream (South) from Bridge Street Bridge

Bridge Street Bridge Data

- Year Built: 1913 (Major rehab. 1981, Next rehab. 2016)
- Bridge type: 3 spans- Pratt truss rim-bearing swing center span (244-ft), west and east approach riveted deck girder spans (65-ft)
- Overall Length: 374-ft
- Bridge Roadway Width: 39-ft 0-in
- No Shoulders on bridge
- ADT = 22,165 vpd
- 7-ft wide cantilevered sidewalk on both sides
- Bridge Navigational Vertical Clearance in closed position: 7-ft (at MHW); Horizontal Clearance = 80-ft

Existing Bridge Condition

- Bridge in poor overall condition and is Structurally Deficient – (2014 Bridge Re-evaluation Report)
- Sufficiency Rating = 48.5 (out of 100)
- Superstructure in poor condition: Rating = 4 out of 10 (localized advanced material losses to steel truss members and to girders & floor beams in swing span)
- Bridge may soon need to be load posted due to advancing deterioration of steel support members

Existing Bridge Condition (continued)

- Substructure in satisfactory condition – Rating = 6 out 10
- Bridge railings are substandard
- Bridge operating machinery in overall fair condition but has only one set of brakes and the span lock machinery has failed (both conditions non-compliant with AASHTO)
- Bridge electrical system in overall poor condition with much equipment nearing the end of its service life
- Bridge can only be operated at creep speed which does not meet AASHTO standards (1 minute to both open & close)
- Needs approx. **\$ 7.5 M** in remedial repairs

Controlling Substandard Design Elements

The following controlling substandard design elements (CSDEs) were identified within the project limits:

CSDE	Direction	Milepost	Description	Existing	Required
Lane Width	EB	N/A	Bridge Street Left Turn Lane at Passaic Avenue	8'	10' min (NJDOT-RDM Section 5.3)
Outside Shoulder Width	EB/WB	12.60 to 12.36	Bridge Street from Route 21 to Passaic Avenue	0'	8' min (NJDOT-RDM Section 5.4.2)
Minimum Radius of Curve	EB/WB	N/A	Angle Point between Bridge Street and the Bridge over the Passaic River	None	231' (NJDOT-RDM Table 4-5)

Crash Analysis

- Crash data associated with the Controlling Substandard Design Elements (CSDEs) identified within the project limits obtained for the years 2012 – 2014 for the signalized intersections at both approaches
- There were a total of 14 crashes reported at the Bridge St & Passaic Avenue intersection during those years. Overrepresented crash types were same direction sideswipe, fixed object and left turn.
- There were 74 crashes reported at Route 21 & Bridge St. Overrepresented crash types were same direction sideswipe & same direction rear end. Pedestrian crashes were also overrepresented.

Utilities

Utility	Owner	Facilities
Electric	PSE&G	Utility poles, Overhead and underground primary and secondary electric lines
Telephone	Verizon	Overhead and underground telephone conduits and manholes
Cable	Comcast - Meadowlands	Overhead cable lines
Gas	PSE&G	Underground transmission and distribution
Water/Sewer	City of Newark, Dept. of Water & Sewer Utilities	Underground sewer, underground water mains, hydrants, and valves
Water/Sewer	Town of Harrison Water & Sewer Dept	Underground sewer & manholes
Sewer	Passaic Valley Sewerage Commission	Underground sewer

Environmental Screening

Environmental Screening completed August 2016

Advanced Coordination with SHPO for Cultural Resources completed by Project Team

- Bridge St Bridge likely eligible for National Register of Historic Places(NRHP) as rare bridge type (swing span)
- Area of Potential Effect (APE) approved September 2016

Cultural Resources



Environmental Constraints



- Legend**
- Bridge Street Bridge Study Area
 - Bridge Street Bridge Location
 - Streams with Water Quality
 - 50-foot Riparian Buffer Zone Boundary
 - 100-year FEMA Floodplain
 - Tidelands
 - Rank 4 Habitat [State Endangered]
 - Historic Property
 - Green Acres Parcel
 - Known Contaminated Site
 - National Priority List Site

SPECIES LIST:
 03_297253 & 03_297254 - Glossy Ibis (Foraging),
 Little Blue Heron (Foraging), Peregrine Falcon
 (Urban Nest), & Snowy Egret (Foraging)



Sources:
 GIS Coverages for the State of New Jersey, New Jersey Department of Environmental Protection (NJDEP), Office of Information Resources Management, Bureau of Geographic Information Systems, 2015. Preliminary Digital Flood Insurance Rate Map (DFIRM) Databases, for New Jersey, Federal Emergency Management Agency, Federal Insurance and Mitigation Administration, Washington, DC; Bergen County issued August 2014, Essex County issued May 2014, and Hudson County issued January 2015. New Jersey 2012 - 2013 High Resolution Orthophotography, NAD83 NJ State Plane Feet, MrSID Tiles, State of New Jersey - Office of Information Technology (NJGIT), Office of Geographic Information Systems (OGIS), Trenton, NJ, March 2013. This (map/publication/report) was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not State-authorized.

Figure 4
Environmental Constraints Map
 Bridge Street Bridge over Passaic River
 Town of Harrison, Hudson County
 and City of Newark
 Essex County, New Jersey

ASGECI Project # 3994

125 Feet

AMY S. GREENE ENVIRONMENTAL CONSULTANTS

Navigation Impact Report

- Remaining commercial usage are businesses along Newark Bay (R.M. 0.0 – 2.2)
- Predominantly recreational usage (R.M. 2.2 – 13.2)
- Need 18-ft minimum vertical clearance above MHW in vicinity of Bridge & Clay St bridges (Newark City Fireboats & PVSC Skimmer vessel) – USCG – July 10, 2019 letter
- Maintain one 75-ft channel for future navigation – USCG – October 3, 2019 (e-mail)
- 200-ft existing federally authorized channel at Bridge & Clay Street – **deauthorized October 23, 2018**



U.S. Department of Transportation
**Federal Highway
Administration**

Navigation Impact Report

- 15-ft over MHW (Union Avenue Fixed Span Bridge – completed 2002) R.M. 13.2
- 35-ft over MHW (I-280 Stickle Movable Bridge in closed position; 135’ clearance in open position) R.M. 5.8
- 13-ft over MHW (Rt 7 Bridge Movable Bridge in closed position; 50-ft in open position – completed 2004) R.M. 10.7
- 30-ft over MHW (Rt 3 Fixed Span Bridge – completed 2014) R.M. 11.8
- Bridge St Bridge – R.M. 5.6



U.S. Department of Transportation
**Federal Highway
Administration**

Bridge Opening Logs

Bridge St Bridge (RM 5.6) & Rt. 7 (Bellville Tpk) Bridge RM 8.9)

<u>Year</u>	<u>Bridge St # Openings</u>	<u>Route 7 # Openings</u>
2011	Not available	116
2012	Not available	58
2013	50	56
2014	16	53
2015	0	10
2016	0	27*

- Openings were primarily for dredging operations and river clean-up
- Recent dredging work (Lyndhurst) completed by Great Lakes Bridge & Dock, LLC used standard height tugs with flat top barges with excavators on top – operations required no openings for I-280 Stickle Bridge
- Current primary users of river between the two bridges are recreational scull boats and kayaks

* January through June 2016



U.S. Department of Transportation
Federal Highway Administration

Community Involvement

- Community Involvement Schedule
 1. Local Officials Briefings: Project Purpose & Need - July 26, 2016 (Town of Harrison); September 12, 2016 (City of Newark)
 2. Stakeholders Meeting No. 1: Purpose & Need – Sept. 19, 2016
 3. Public Information Center Meetings (No. 1): Project Purpose & Need – Oct. 18, 2016 (Town of Harrison & City of Newark)
 4. Stakeholders Mtg No. 2: Input on Alternatives – April 24, 2017
 5. Local Officials Briefings (No. 2): Input on Alternatives & Recommend Prelim. Preferred Alternative – Nov. 13, 2019
 6. Public Information Center Meetings (No. 2): Input on Alternatives & Recommend Preliminary Preferred Alternative – December 10, 2019 (Town of Harrison & City of Newark)

Local Officials Briefing (7/26 & 9/12/16)

Comments from Local Officials Briefings No. 1 (Town of Harrison & City of Newark)

- Bridge Street & Clay Street Bridges cannot be closed at the same time – severe traffic impacts
- Need to maintain and improve pedestrian and bicycle access and connectivity
- Need wider bridge for the addition of outside shoulders
- Look at potential development along the waterfront which may generate marine traffic passing under the bridge

Community Stakeholders Mtg. (9/19/16 & 4/24/17)

Comments from Stakeholders Meetings

- Project should be made compatible with river walkway
- Traffic analysis should include Prudential Center Arena events flow
- Need wider bridge for emergency vehicle access
- Consider future recreational uses and development on the river
- Feedback from Community Input Surveys



Additional Project Outreach

1. NJ State Historic Preservation Office (SHPO): APE & List of Interested Consulting Parties
2. Regulatory Agency (US Coast Guard, US ACOE)
3. NJDOT Subject Matter Experts (Value Solutions)



U.S. Department of Transportation
**Federal Highway
Administration**

Project Purpose & Need Statement

- The purpose of this project is to address the deficiencies of the structure carrying Bridge Street Bridge over the Passaic River in order to provide a safer and more efficient crossing.
- The bridge provides a critical transportation connection for residents, commuters, and students in both Hudson & Essex County. The Average Daily Traffic (ADT) volume is 22,165 vehicles per day. The existing bridge is rated in overall poor condition due to localized advanced material loss to steel truss members, end floor beams and girders. The bridge was built in 1913, has a Sufficiency Rating of 48.5 and is structurally deficient due to the superstructure, which is rated in poor condition. Additionally, the bottom chords of the steel truss are fracture critical members.

Project Goals & Objectives

Important issues that should be considered in addressing the project purpose and need are the goals and objectives identified as follows:

- Provide bicycle compatibility and connectivity to the approach roadways
- Provide ADA compliant pedestrian facilities and crossings as well as connectivity to the approach roadways
- Upgrade bridge and approach roadway conditions to meet AASHTO and NJDOT safety standards including new parapets and guide rail
- Correct the controlling substandard design elements
- Avoid or minimize social, economic, and environmental impacts
- Provide for earthquake resistance of the structure so as to meet current design standards
- Reduce the frequency of major bridge maintenance activities that disrupt traffic



U.S. Department of Transportation
**Federal Highway
Administration**

Project Goals & Objectives (continued)

- Modernize bridge mechanical and electrical components to meet current standards
- Maintain traffic operations and volume with minimal disruption and delay during construction; maintain pedestrian and vehicular access to properties at all times during construction and minimize detours
- Provide accommodations for current and future users of the Passaic River
- Address the high rate of vehicular crashes occurring at the Bridge St/Harrison Ave & Passaic Ave intersection
- Address the traffic signal operating with peak hour congestion at the Bridge St/Harrison Ave & Passaic Ave intersection



U.S. Department of Transportation
**Federal Highway
Administration**

Alternative Concepts

- **No Build**
- **Major Rehabilitation**

Bridge Replacement Alternative Concepts

- Concept 1 – Existing Alignment with Fixed Bridge, (12-ft over MHW – one waterway channel)
- Concept 2 – Existing Alignment with Fixed Bridge, (16-ft over MHW – one waterway channel)
- Concept 3 – Existing Alignment with Fixed Bridge (18-ft over MHW – one waterway channel)

Alternative Concepts

- Concept 4 – Existing Alignment with Fixed Bridge, (35-ft over MHW – two waterway channels)
- Concept 5 – Existing Alignment with Fixed Bridge, (135-ft over MHW – two waterway channels)
- Concept 7 – New Northerly Alignment with Fixed Bridge (12-ft over MHW – one waterway channel)
- Concept 8 – New Southern Alignment with Fixed Bridge (12-ft over MHW – one waterway channel)

Alternative Concepts

- Concept 6A – Existing Alignment with Movable Bridge, (one 80-ft waterway channel)
- Concept 6B – Existing Alignment with Movable Bridge, (one 100-ft waterway channel)
- Concept 6C – Existing Alignment with Movable Bridge, (two 80-ft waterway channels)
- Concept 6D – Existing Alignment with Movable Bridge, (one 80-ft waterway channel and one 58-ft maintenance channel)

Development of Alternative Concepts (cont.)

All bridge replacement concepts include:

- New Bridge width = 80-ft; two 12-ft EB lanes, two 12-ft WB lanes, 6-ft sidewalk & 2-ft parapet on both sides, and 8-ft outside shoulder in each direction
- Additional eastbound & westbound lane justified by the traffic analysis
- Intersection improvements (ADA-compatible curb ramps, pedestrian countdown heads and pushbuttons, crosswalks, etc.) to reduce crashes

ALTERNATIVES ANALYSIS MATRIX RESULTS

- No Build does not meet Project Purpose & Need – bridge cannot be load posted nor permanently closed
- Major Rehabilitation dismissed as viable solution
 - does not meet Project Purpose & Need (cannot be widen existing bridge to provide bicycle compatibility)
 - does not address Controlling Substandard Design Elements
 - Not cost effective (Higher Life Cycle Costs than movable bridge replacement Life Cycle Costs
 - Unknown condition and capacity of existing piles

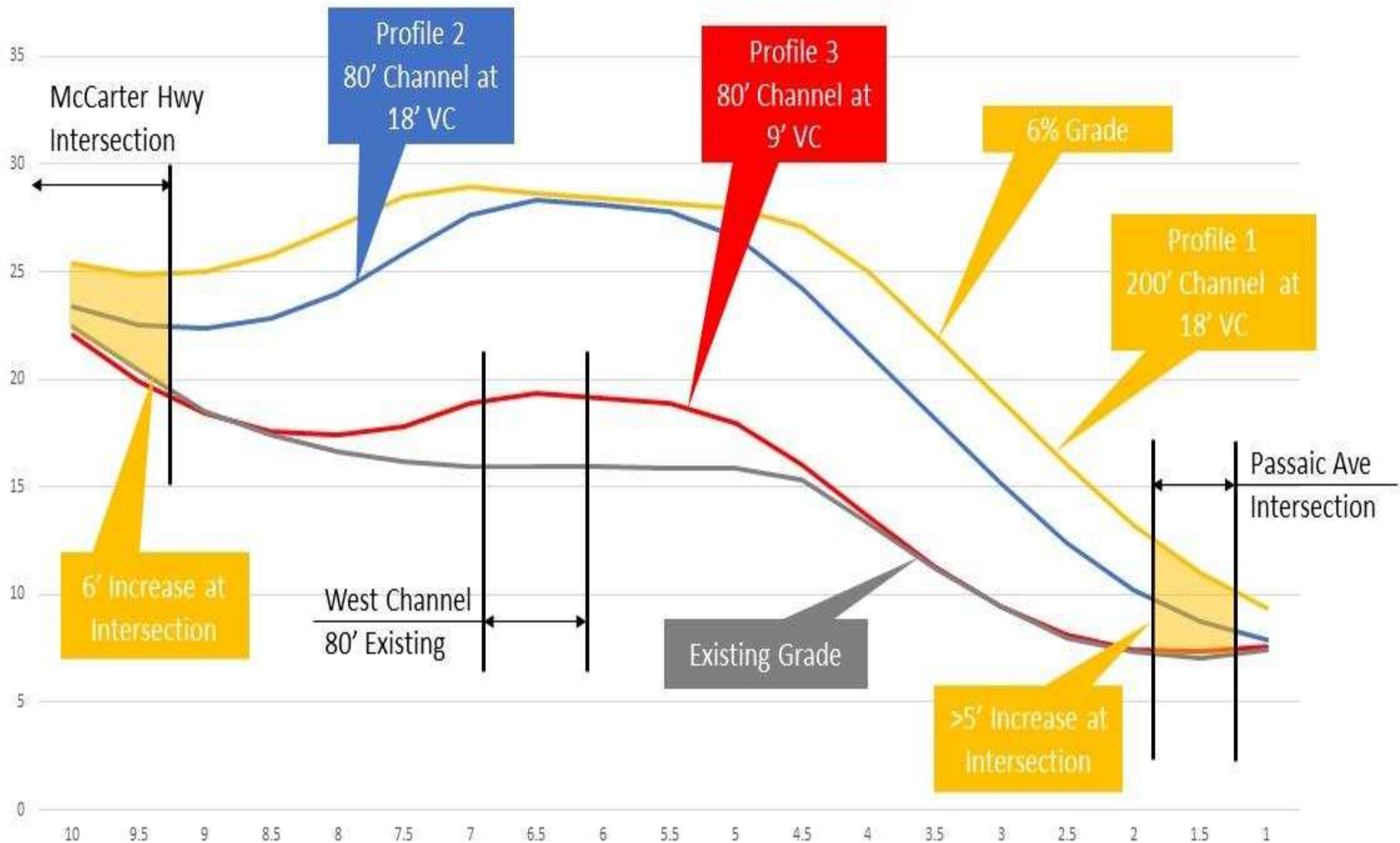
ALTERNATIVES ANALYSIS MATRIX RESULTS (cont.)

- Concepts 1, 7 & 8 – Low-level fixed bridge alternatives (12-ft over MHW) on existing and new alignments dismissed due to not meeting goal and objective for providing accommodations for users of the Passaic River – 18-ft Clearance over MHW needed, per USCG
- Concept 2 – Existing alignment Fixed bridge (16-ft over MHW) dismissed due to not meeting goal and objective for providing accommodations for users of the Passaic River – 18-ft Clearance over MHW needed, per USCG
- Concept 4 – Existing Alignment High-level Fixed bridge (35-ft over MHW) dismissed due to extensive environmental and Right of Way impacts & higher cost than movable bridge (Concept 6A)

ALTERNATIVES ANALYSIS MATRIX RESULTS (cont.)

- Concept 5 – Existing Alignment High-level Fixed bridge (135-ft over MHW) dismissed due to highest environmental and Right of Way impacts & highest cost of all alternatives
- Concept 3 – Existing alignment Fixed bridge (18-ft over MHW) dismissed due to extensive environmental and Right of Way impacts than a movable bridge (Concept 6A)

Assessment of Feasible Alternatives – Bridge Street



ALTERNATIVES ANALYSIS MATRIX RESULTS (cont.)

- Concept 6B – Movable Bridge over one 100-ft wide channel dismissed - higher construction and Life Cycle Costs relative to Concept 6A
- Concept 6C – Movable Bridge over both existing channels dismissed - higher construction and Life Cycle Costs relative to Concepts 6A, 6B, & 6C
- Concept 6D – Replacement-in-kind Swing Span Movable Bridge over one (west) existing 80-ft wide channel and 58-ft wide maintenance channel dismissed - higher construction and Life Cycle Costs relative to Concepts 6A & 6B

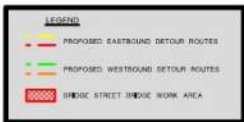
ASSESSMENT OF FEASIBLE ALTERNATIVES

Bridge Type/Sub-type	75' Clear Channel (West Channel)	2-75' Clear Channels (Match Existing)	200' Clear Channel (Match Nav. Channel)
SWING BRIDGE			
Bobtail			
Balanced		X	
SINGLE LEAF BASCULE			
Overhead Counterweight Rolling Lift	X		
Trunnion Bascule	X		
DOUBLE LEAF BASCULE			
Overhead Counterweight Rolling Lift			
Trunnion Bascule			
VERTICAL LIFT			
Strut Style			
Traditional Tower Drive			
Pylon Style	X		X
TABLETOP			
Heavy Lift	X		
Traditional Pit Style	X		
Hybrid Continuous Span		X	

Preliminary Preferred Alternative (PPA)

Concept 6A (PPA)

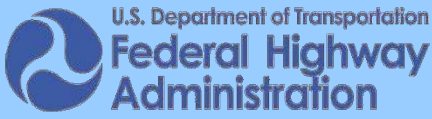
- Meets Project Purpose & Need and all goals and objectives
- Meets the recommendations from the US Coast Guard for future users of the Passaic River (18-ft clearance over MHW and one 75-ft navigation channel)
- Minimal ROW and Environmental impacts in comparison to all **feasible** fixed bridge alternatives
- Eliminates substandard outside shoulder width controlling substandard design element
- Supported by City of Newark & Town of Harrison Officials
- Anticipate support by Community Stakeholders
- Anticipate support by Hudson & Essex County Freeholders



DRAFT



NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY
 Bridge Street Bridge over Passaic River
PROPOSED VEHICLE DETOUR ROUTES
 City of Newark
 Town of Harrison
 Essex County
 Hudson County
 McCORMICK TAYLOR
 MAY 2017



PPA (Concept 6A) Cost

Roadway	\$11.5M
Bridge	\$53.3M
Utilities	\$ 10.8M
CE/CI	\$ 4.0M
Right of Way	\$0.10M
Escalation	<u>\$ 7.8M</u>
Total:	\$ 87.5 M

Environmental Documentation

No significant impacts and with community support for PPA; Categorical Exclusions Document (CED) anticipated



U.S. Department of Transportation
**Federal Highway
Administration**

NEXT STEPS

- Obtain Resolutions of Support for PPA
(Winter 2020)
- Complete Concept Development Report
(Winter 2020)
- Concept Development Phase completed
(Spring 2020)



U.S. Department of Transportation
**Federal Highway
Administration**

Project Contact Information

- Joseph Glembocki, Hudson County Project Manager, jglembocki@hcnj.us, (201) 369-4340
 - David Antonio, Essex County Project Manager, dantonio@essexcounty.nj.org, (973) 226-8500
 - Bridge Street Bridge Project Web Site address:
 - www.bridgestreetbridge.com
- Power Point Presentation will be posted on Web Site
- Social Media (Twitter)
 - Written comments towards PPA will be received during 30-day comment period

Questions



Project Website

- For additional Project Information, please visit the Project Website:

www.bridgestreetbridge.com



U.S. Department of Transportation
**Federal Highway
Administration**