

# NJTPA 2016 Local Concept Development Study Bergen & Essex Counties Kingsland Avenue Bridge over the Passaic River



## Public Information Center



December 12, 2019



# Project Overview and Background

- Bridge Spans the Passaic River connecting the Townships of Nutley & Lyndhurst
- Kingsland Avenue Bridge was built in 1905.
- Bridge is in need of major rehabilitation or replacement.
- Routine maintenance can no longer address deficiencies.
- NJTPA/Bergen & Essex County Local Concept Development (LCD) Study initiated June 2016 utilizing federal funding
- Local Capital Project Delivery Process provides opportunity to advance this project with public input and agency collaboration.



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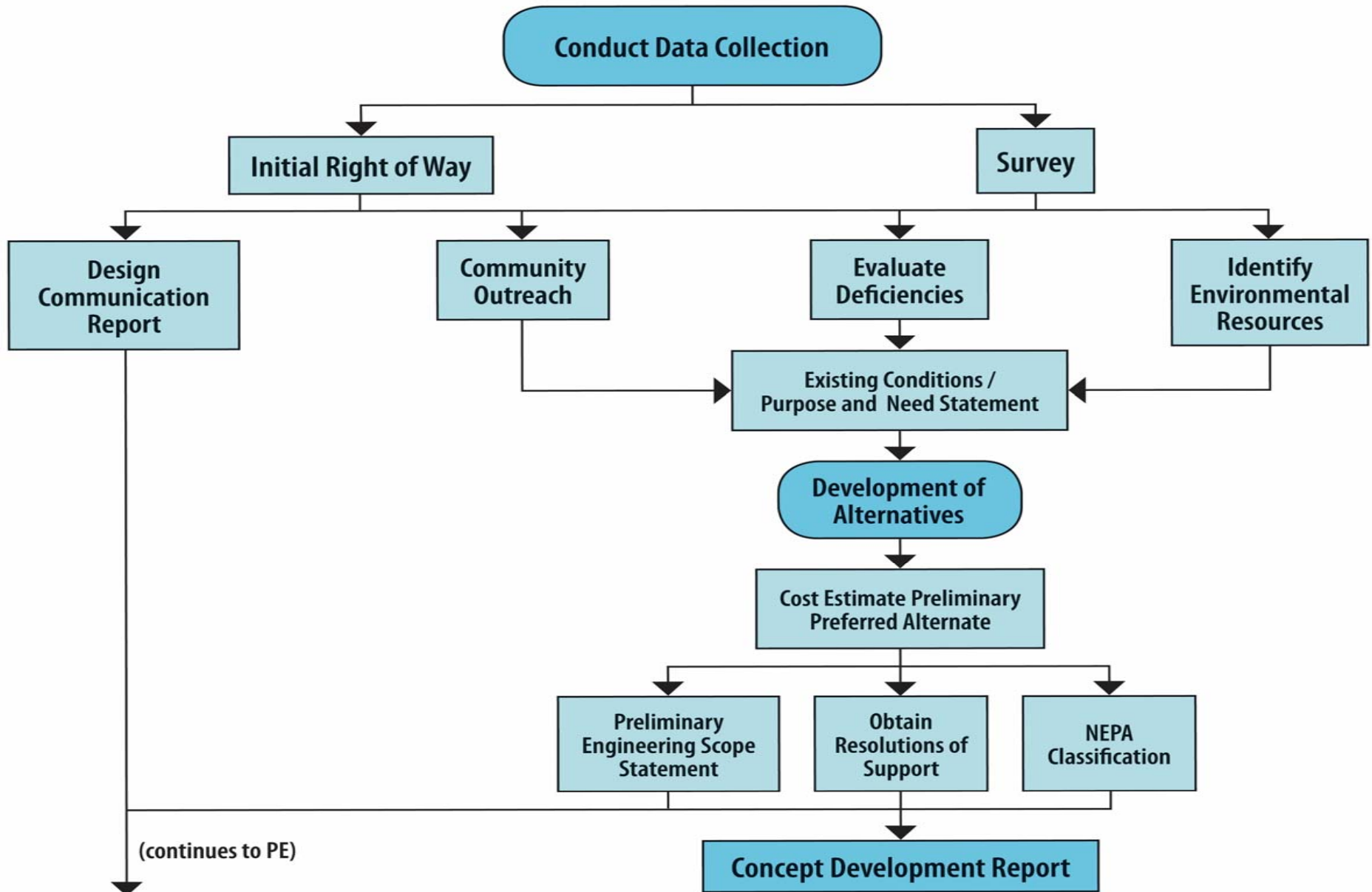
# Local Capital Project Delivery Process

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	



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# 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

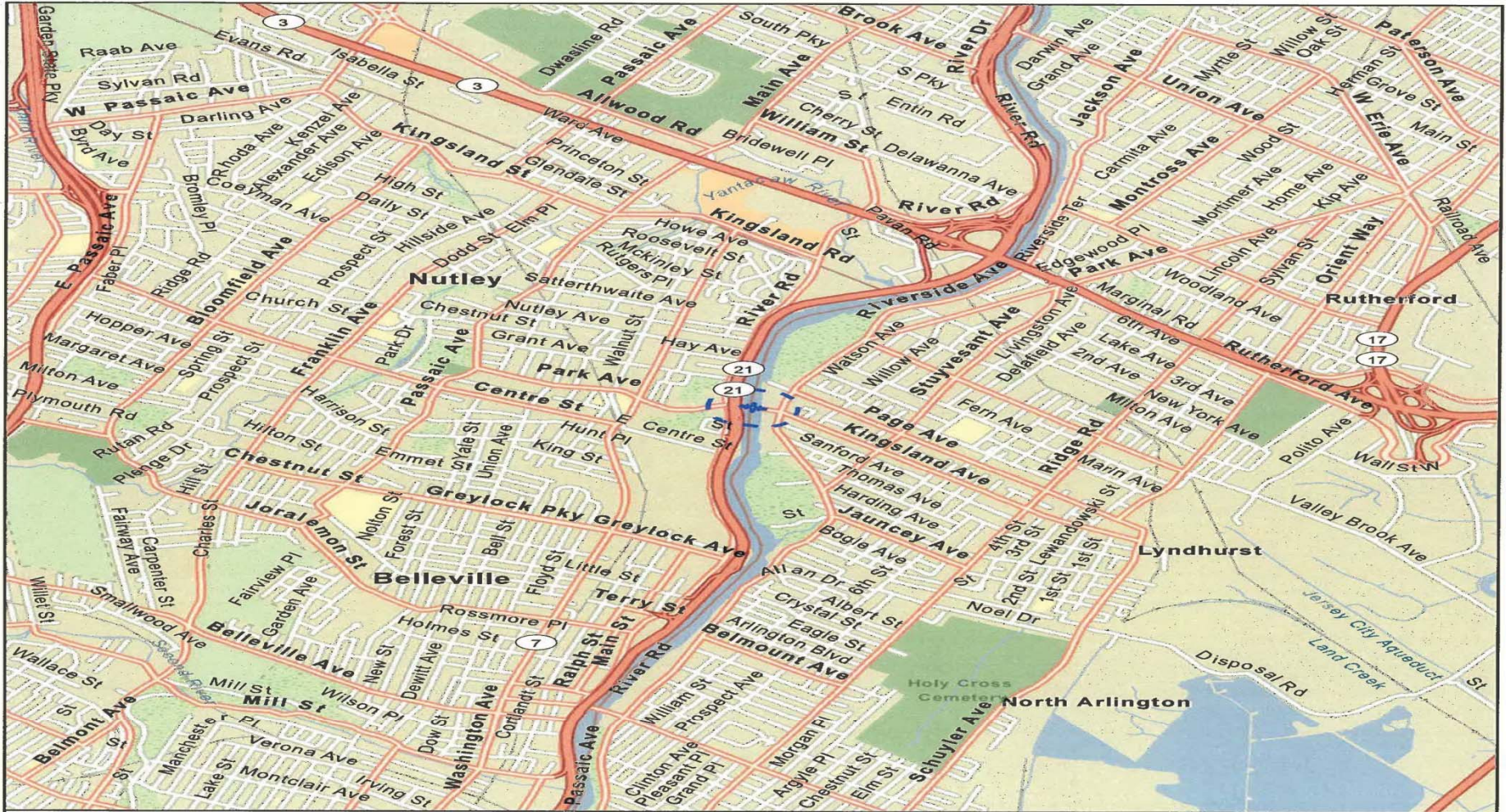


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# Project Site Location Map



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## Legend



Kingsland Avenue Bridge Study Area  
Kingsland Avenue Bridge Location



**Figure 1**  
**Site Location Map**

Kingsland Avenue Bridge over Passaic River  
Lyndhurst Township, Bergen County  
and Nutley Township  
Essex County, New Jersey

## KINGSLAND AVENUE BRIDGE



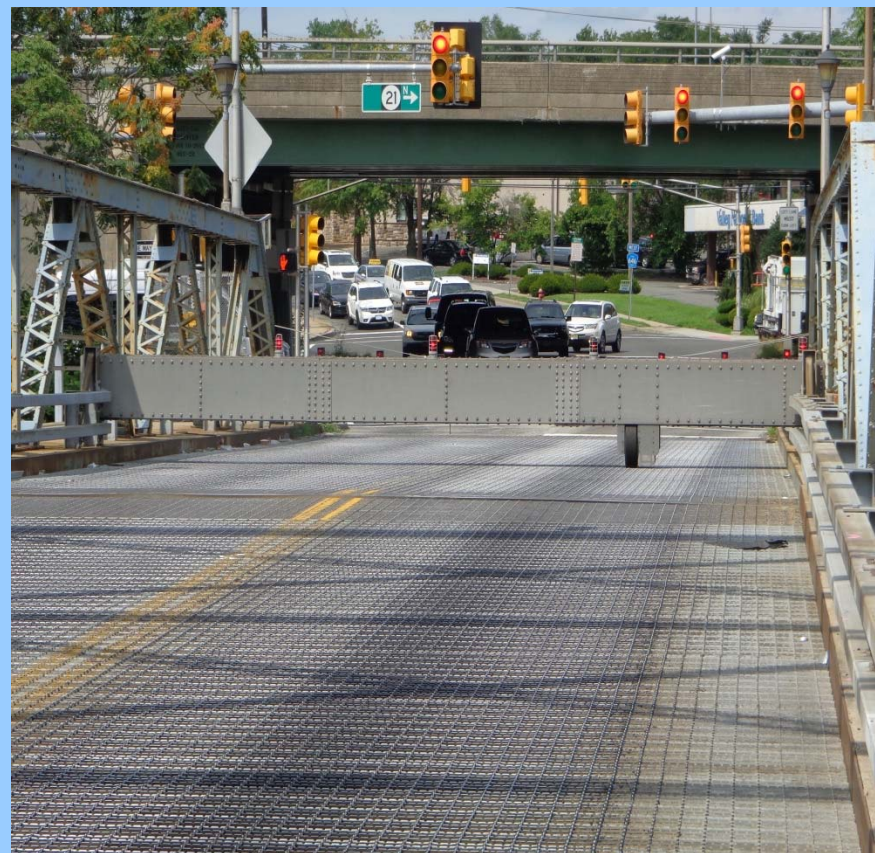
Navigation Channels  
2-65' Horizontal  
7' Vertical (Closed)



# Existing Bridge Condition



Bridge East Approach Roadway Looking West – Note no shoulders



Bridge Opening Looking West at Route 21 & Township of Nutley





# Existing Bridge Condition

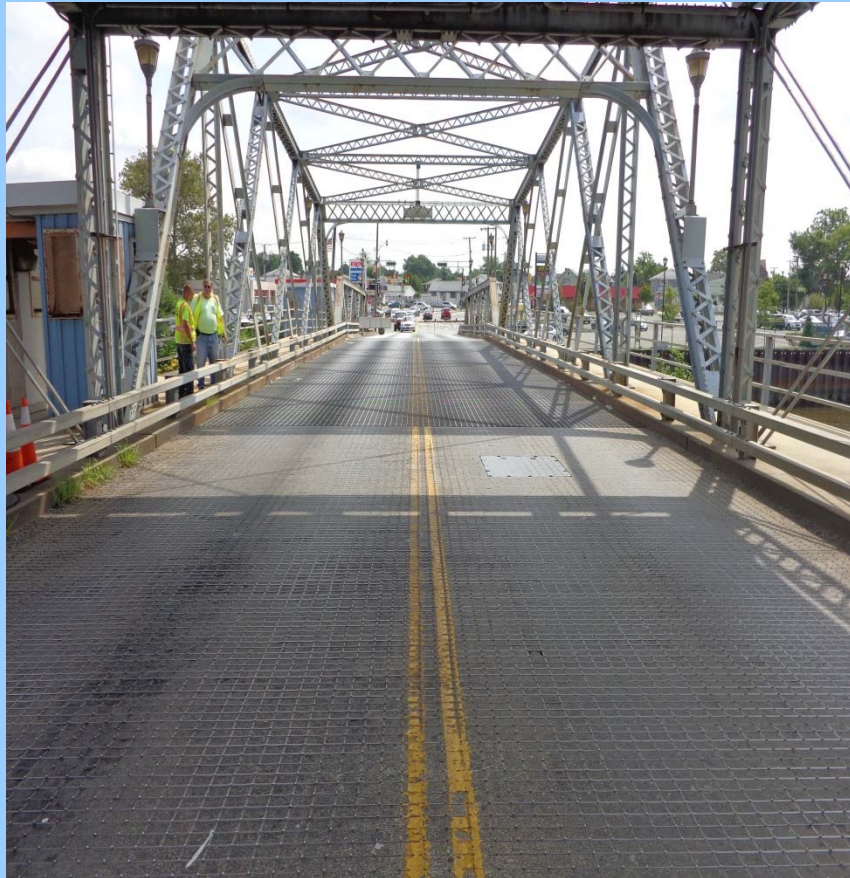


West approach to bridge at River Road & Park Avenue intersection



West approach to bridge at intersection with Route 21 ramps & Park Ave.

# Existing Bridge Condition



Bridge looking east towards Township of Lyndhurst



Substandard Vertical Clearance



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# Existing Bridge Condition



Kingsland Ave & Riverside Avenue intersection looking east



Project Goal: Improve Bicycle Compatibility

# Existing Bridge Condition



Project Goal: Compatibility with Passaic River Waterfront Walkway

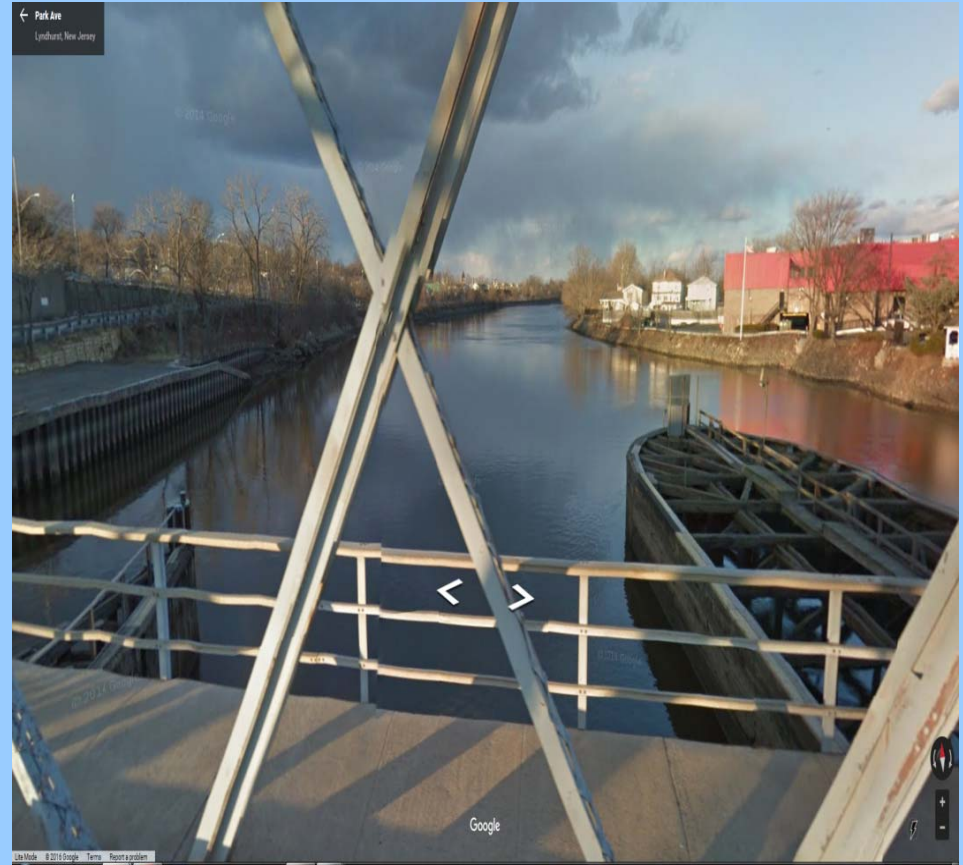


Passaic River Waterfront Walkway looking south

# Passaic River Navigation



Bridge Navigation: 7-ft vertical clearance at MHW, 65-ft channel width



Looking upstream from bridge; note boat ramp on west bank



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# Kingsland Avenue Bridge Data

- Year Built: 1905 (Major rehab. 1986)
- Bridge type: 4 spans- two-span riveted Warren through-truss rim-bearing swing center span (204 ft), west and east approach steel through pony truss spans (80 ft)
- Overall Length: 364 feet
- Bridge Roadway Width: 29' – 3"
- No Shoulders on bridge
- 6 foot wide cantilevered sidewalk on both sides
- Bridge Navigational Vertical Clearance in closed position: 7 feet (at MHW); Horizontal Clearance = 65 feet



# Existing Bridge Condition

- Bridge in poor overall condition and is Structurally Deficient – (2014 Bridge Re-evaluation Report)
- Sufficiency Rating = 24.3 (out of 100)
- Superstructure in poor condition: Rating = 4 out of 10 (severe corrosion and/or loss of section of below deck truss members, gusset plates, floor beams, and stringers )
- 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 and control systems are in overall fair condition, although many parts do not conform or are in violation of current standards
- Needs approx. **\$ 7.3 M** in remedial repairs





# Controlling Substandard Design Elements

- Lane Cross Slope (CSDE)
- Right Shoulder Width (CSDE)
- Grade (CSDE)
- Crest Vertical Curve (CSDE)
- Sag Vertical Curve
- Vertical Clearance
- Bridge Width

# Crash Analysis

- Crash data associated with the Controlling Substandard Design Elements (CSDs) identified within the project limits obtained for the years 2012 – 2014 for the signalized intersections at both approaches
- There were a total of 24 crashes reported at the Kingsland & Riverside Ave intersection during those years. Recent improvements to intersection has reduced the number of right angle crashes
- There were 28 crashes reported at Park Ave & River Road intersection. Majority were same direction rear end & right angle/left turn.
- No crashes reported at the Route 21 ramps and Park Avenue.

# Utilities

Utility	Owner	Facilities
Electric (Newark & East Newark)	PSE&G	Utility poles, Overhead and underground primary and secondary electric lines
Telephone	Verizon	Overhead and underground telephone conduits and manholes
Cable	Comcast & Altice USA	Overhead cable lines
Gas	PSE&G	Underground transmission and distribution
Water/Storm Sewer	Lyndhurst & Nutley Dept. of Public Works	Underground sewer, underground water mains, hydrants, and valves
Sanitary Sewer	PVSC	Underground sewer & manholes
Sanitary Sewer	Essex County Public Works	Underground sewer & manholes




# Environmental Screening


Environmental Screening completed December 2016


Advanced Coordination with SHPO for Cultural Resources completed by Project Team


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

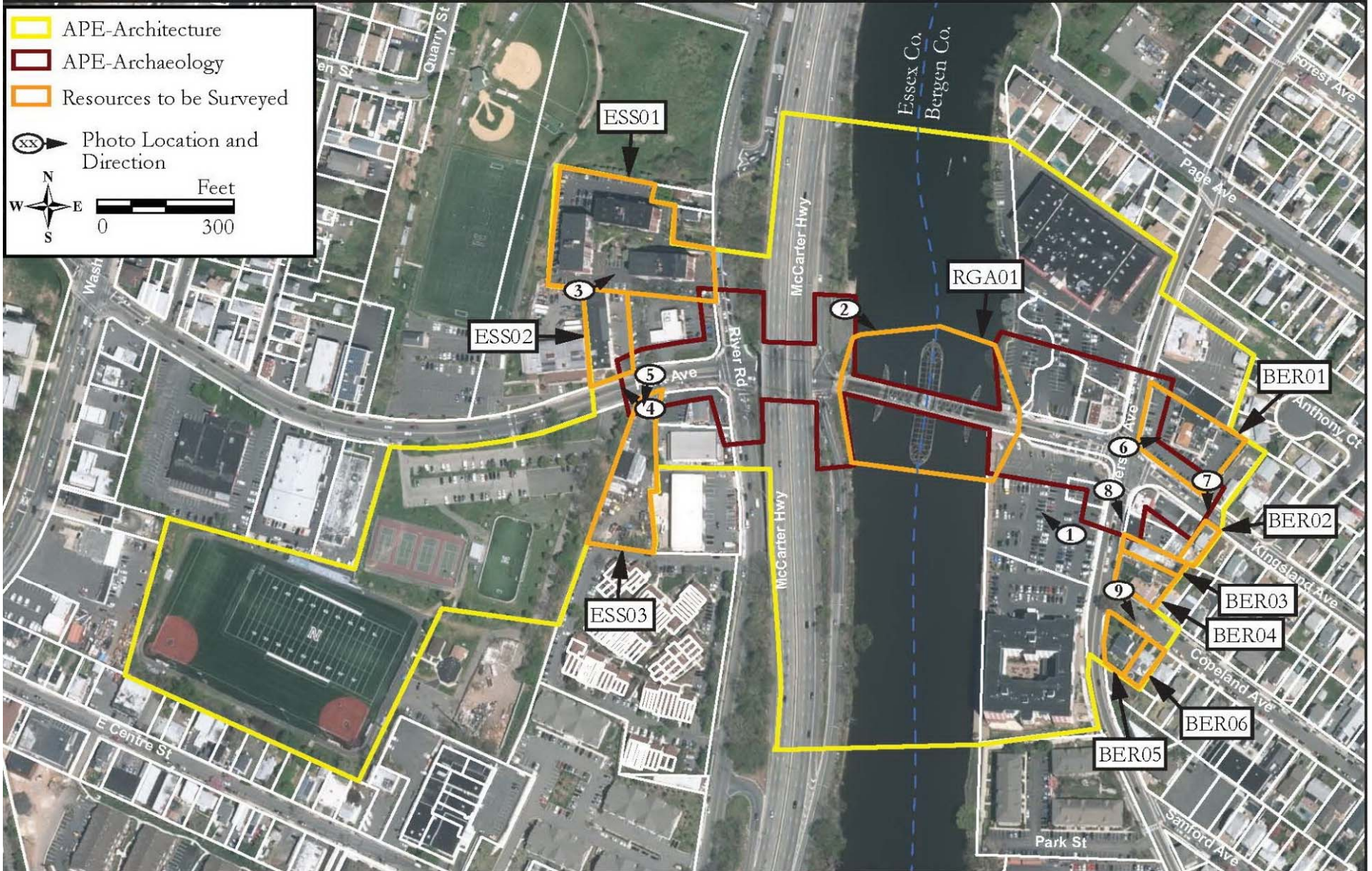
# Cultural Resources

 APE-Architecture  
 APE-Archaeology  
 Resources to be Surveyed

 Photo Location and Direction

 N  
W E S

 Feet  
0 300



# Environmental Constraints



# 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 16-ft\* minimum vertical clearance above MHW in vicinity of Kingsland Ave Bridge (PVSC Skimmer vessel) – \*12-ft with mitigation; USCG – July 10, 2019 letter
- Maintain one 75-ft channel for future navigation – USCG – October 3, 2019 (e-mail)
- 150-ft existing federally authorized channel at Kingsland Ave – **deauthorized October 23, 2018**



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# Navigation Impact Report

- 15-ft over MHW (Union Avenue Fixed Span Bridge – completed 2004) R.M. 13.2
- 30-ft over MHW (Rt 3 Fixed Span Bridge – completed 2014) R.M. 11.8
- Kingsland Ave Bridge – R.M. 10.7
- 13-ft over MHW (Rt 7 Vertical Lift Movable Bridge in closed position; 50-ft in open position – completed 2004) R.M. 8.9



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# Bridge Opening Logs

## Kingsland Ave Bridge (RM 10.7) & Rt. 7 (Bellville Tpk) Bridge RM 8.9)

<u>Year</u>	<u>Kingsland Ave # Openings</u>	<u>Route 7 # Openings</u>
2011	8	116
2012	13	58
2013	66	56
2014	40	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



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# Community Involvement

- Community Involvement Schedule
  1. Local Officials Briefings: Project Purpose & Need - July 25, 2016 (Twp. of Nutley); July 27, 2016, Twp. of Lyndhurst
  2. Stakeholders Meeting No. 1: Purpose & Need – Sept. 29, 2016
  3. Public Information Center Meetings (No. 1): Project Purpose & Need – Oct. 17, 2016 (Townships of Nutley & Lyndhurst)
  4. Stakeholders Mtg No. 2: Input on Alternatives – April 26, 2017
  5. Local Officials Briefings (No. 2): Input on Alternatives & Recommend Prelim. Preferred Alternative – October 29, 2019
  6. Public Information Center Meetings (No. 2): Input on Alternatives & Recommend Preliminary Preferred Alternative – December 12, 2019 (Townships of Nutley & Lyndhurst)



# Local Officials Briefings (7/25 & 7/27/16)

## Comments from Local Officials Briefings No. 1 (Townships of Nutley & Lyndhurst)

- Need to maintain and improve pedestrian and bicycle access and connectivity
- Need wider bridge for the addition of outside shoulders
- There is heavy traffic congestion on the bridge at peak hours that extends to Park Avenue & Route 21 & Riverside Avenue & Kingsland Avenue
- Results of Navigation Impact Study at Clay Street Bridge will impact any replacement bridge at Kingsland Avenue



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# Stakeholders Meeting (9/29/16 & 4/26/17)

## Comments from Stakeholders Meetings

- Need to provide bicycle access and connectivity
- Need wider bridge for emergency vehicle access
- Traffic signals within the project limits not synchronized
- Clay Street, Bridge Street, and Kingsland Avenue Bridge projects should not be constructed concurrently
- Provide interim improvements to relieve traffic congestion



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# Project Purpose & Need Statement

- The purpose of this project is to address the deficiencies of the structure carrying Kingsland Avenue over the Passaic River in order to provide a safer and more efficient crossing.
- The bridge provides a critical transportation connection for residents and commuters in both Bergen & Essex County who travel from businesses and residential areas on both sides of the river. The existing bridge is rated in overall poor condition due to severe corrosion and/or section loss of below deck truss members, floor beams and stringers. The bridge was built in 1905, has a Sufficiency Rating of 24.3 and is structurally deficient due to the superstructure, which is rated in poor condition. The bridge is functionally obsolete due to inadequate deck geometry. The mechanical span drive machinery is in poor condition. Additionally, the bottom chords of the steel truss are fracture critical members.



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# 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

## Project Goals & Objectives (continued)

- 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 Kingsland Avenue & Riverside Avenue intersection
- Address the high rate of vehicular crashes occurring at the Park Avenue & River Road intersection
- Address traffic signals operating at peak hour congestion at all approach roadway intersections



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# Alternative Concepts

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

## Bridge Replacement Alternative Concepts

- Concept 1 – Existing Alignment with Fixed Bridge, 4-lane section under Route 21 (10-ft over MHW – both waterway channels)
- Concept 2A – Existing Alignment with Fixed Bridge, 5-lane section under Route 21 (10-ft over MHW – one waterway channel)
- Concept 2B – Existing Alignment with Fixed Bridge (18-ft over MHW – both waterway channels)



# Alternative Concepts (continued)

## Bridge Replacement Alternative Concepts (continued)

- Concept 2C – Existing Alignment with Fixed Bridge (30-ft over MHW – both waterway channels)
- Concept 3A – Existing Alignment with Fixed Bridge (12-ft over MHW – one 75-ft waterway channel), 5-Lane Bridge Section (Additional Eastbound lane)
- Concept 3B – Existing Alignment with Fixed Bridge (12-ft over MHW – one 75-ft waterway channel), 5-Lane Bridge Section (Additional Westbound lane)



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# Alternative Concepts (continued)

## Bridge Replacement Alternative Concepts (continued)

- Concept 3C – Existing Alignment with Fixed Bridge (12-ft over MHW – one 75-ft waterway channel), 5-Lane Bridge Section (Additional Westbound lane); Park Avenue Eastbound Left Turn Lane & two (2) Westbound through lanes
- Concept 3D – Existing Alignment with Fixed Bridge (12-ft over MHW – one 75-ft waterway channel), 5-Lane Bridge Section (Additional Westbound lane); Park Avenue Eastbound Left Turn Lane & one Westbound through lane



# Alternative Concepts (continued)

## Bridge Replacement Alternative Concepts (continued)

- Concept 5 – New Southern Alignment with Fixed Bridge (9-ft over MHW – two 75-ft waterway channels)
- Concept 6 – New Northern Alignment with Fixed Bridge (9-ft over MHW – two 75-ft waterway channels); maintain existing bridge



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# Alternative Concepts (continued)

## Bridge Replacement Alternative Concepts (continued)

- Concept 4A – Existing Alignment with Movable Bridge (one 65-ft waterway channel)
- Concept 4B – Existing Alignment with Movable Bridge (one 100-ft waterway channel)
- Concept 4C – Existing Alignment with Movable Bridge (two 65-ft waterway channels)



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# Development of Alternative Concepts (cont)

## All bridge replacement concepts include:

- Additional eastbound & westbound lanes justified by the traffic analysis
- 15-ft outside lane (for bicycle compatibility), 6-ft sidewalk & 1-ft 9-in parapet on both sides
- Intersection improvements (ADA-compatible curb ramps, pedestrian countdown heads and pushbuttons, crosswalks, etc.) to reduce crashes



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# 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



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## ALTERNATIVES ANALYSIS MATRIX RESULTS (cont.)

- Concepts 1, 2A, 5, & 6 – Fixed bridge alternatives (9 & 10-ft over MHW) dismissed due to not meeting goal and objective for providing accommodations for users of the Passaic River – 16-ft Clearance over MHW needed, per USCG (12-ft with mitigation)
- Concept 2B – Fixed bridge (18-ft over MHW) dismissed due to extensive environmental and Right of Way impacts & higher cost than Concepts 3A through 3D
- Concept 2C – High-level fixed bridge (30-ft over MHW) dismissed due to highest cost and most extensive environmental and ROW impacts of all alternatives



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# ALTERNATIVES ANALYSIS MATRIX RESULTS (cont.)

- Concepts 4A, 4B, & 4C – Movable bridge alternatives (over one 65-ft channel, one 100-ft wide channel, & two 65-ft wide channels; respectively) dismissed due to higher costs (construction, operations & maintenance, & life-cycle) than Concepts 3A through 3D with mitigation



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## ALTERNATIVES ANALYSIS MATRIX RESULTS (cont.)

- Concept 3A – Existing Alignment with Fixed Bridge (12-ft over MHW – one 75-ft waterway channel), 5-Lane Bridge Section (Additional EB lane) dismissed due to traffic analysis showing better operations for additional westbound lane
- Concept 3B – Existing Alignment with Fixed Bridge (12-ft over MHW – one 75-ft waterway channel), 5-Lane Bridge Section (Additional WB lane) dismissed due traffic analysis showing better operations for Concepts 3C & 3D
- Concept 3D – Existing Alignment with Fixed Bridge (12-ft over MHW – one 75-ft waterway channel), 5-Lane Bridge Section (Additional WB lane); Park Avenue Eastbound Left Turn Lane & one Westbound through lane dismissed due traffic analysis showing better operations for Concept 3C



# Preliminary Preferred Alternative (PPA)

## Concept 3C (PPA)\*

- Meets Project Purpose & Need and all goals and objectives
- Meets the recommendations from the US Coast Guard for current and future users of the Passaic River (12-ft clearance over MHW and one 75-ft navigation channel) with mitigation
- Minimal ROW and Environmental impacts in comparison to all **feasible** fixed bridge alternatives
- Lowest cost of all **feasible** alternatives
- Eliminates controlling substandard design elements
- Supported by Township of Nutley & Lyndhurst Officials

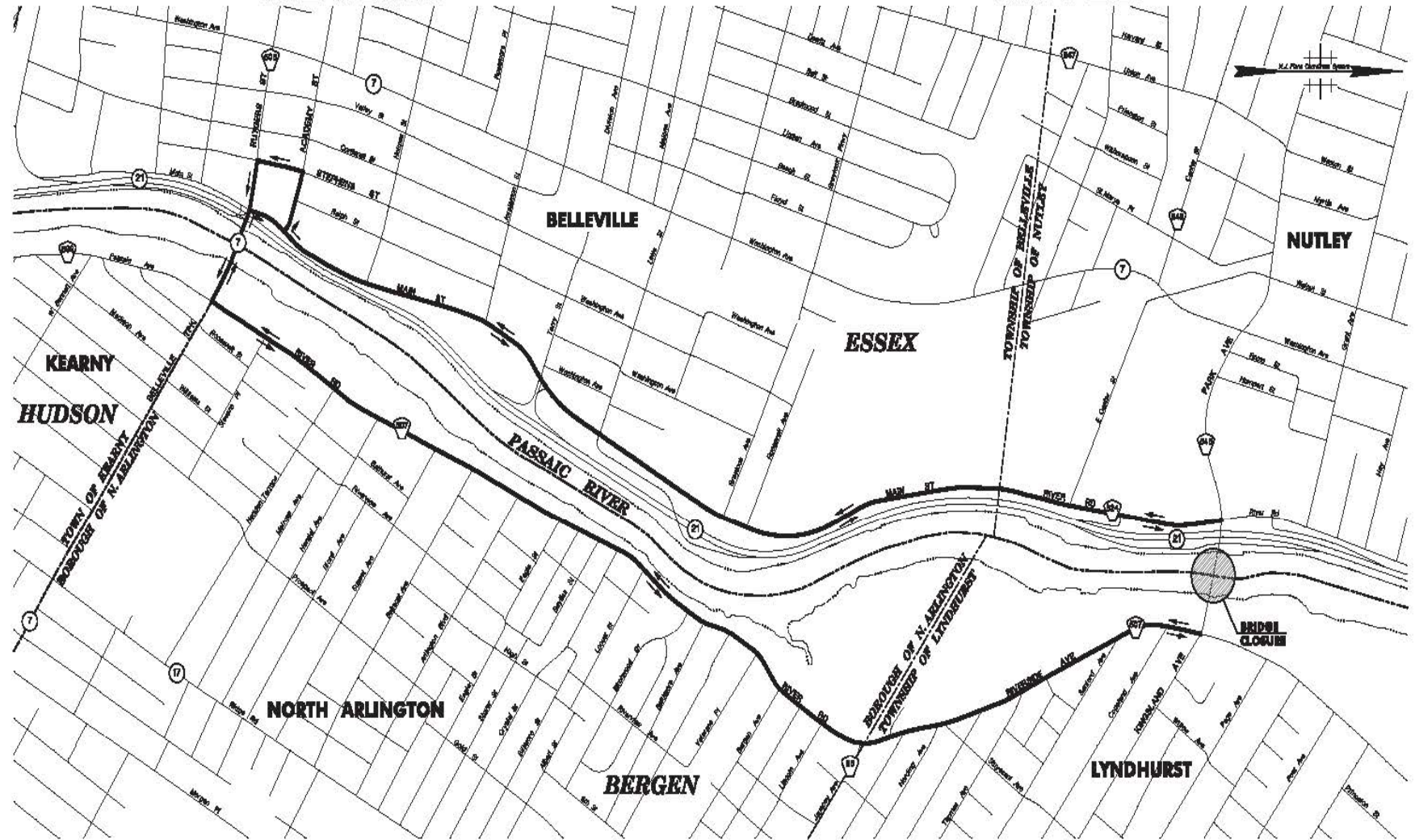
\* Requires mitigation – PVSC vessel needing less than 12-ft vertical clearance to perform river skimming program – estimated cost \$950,0000 + maintenance fees



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TOWNSHIP OF NUTLEY  
TOWNSHIP OF LYNDHURST

COUNTY ESSEX  
COUNTY OF BERGEN



**DETOUR PLAN**  
NOT TO SCALE


  
 Prepared by  
 Checked by  
 Drawn by  
 Date



NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY

KINGSLAND AVENUE BRIDGE OVER PASSAIC RIVER

### DETOUR PLAN

TOWNSHIP OF NUTLEY  
TOWNSHIP OF LYNDHURST

ESSEX COUNTY  
BERGEN COUNTY



**PRELIMINARY**

APRIL 2017

## PPA (Concept 3C) Cost

Roadway	\$ 4.1 M
Bridge	\$ 22.8 M
Utilities	\$ 0.1 M
CE/CI	\$ 3.3 M
Right of Way	\$ 0.2 M
Escalation	<u>\$ 2.7 M</u>
Total:	\$ 33.2 M



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# Environmental Documentation

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



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# PROJECT SCHEDULE/NEXT STEPS

- Obtain Resolutions of Support for PPA (Fall 2019/Winter 2020)
- Complete Concept Development Report (Winter 2020)
- Concept Development Phase completed (Spring 2020)



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# Project Contact Information

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  - David Antonio, Essex County Project Manager,  
[dantonio@essexcounty.nj.org](mailto:dantonio@essexcounty.nj.org), (973) 226-8500
  - Kingsland Avenue Bridge Project Web Site address:
    - [www.KingslandAvenueBridge.com](http://www.KingslandAvenueBridge.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



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## Community Outreach (continued)

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

[www.KingslandAvenueBridge.com](http://www.KingslandAvenueBridge.com)



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