

Local Concept Development Study for **Picket Place Bridge over South Branch of Raritan River** Branchburg and Hillsborough Townships, Somerset County



Public Information Center No. 2
October 17, 2019

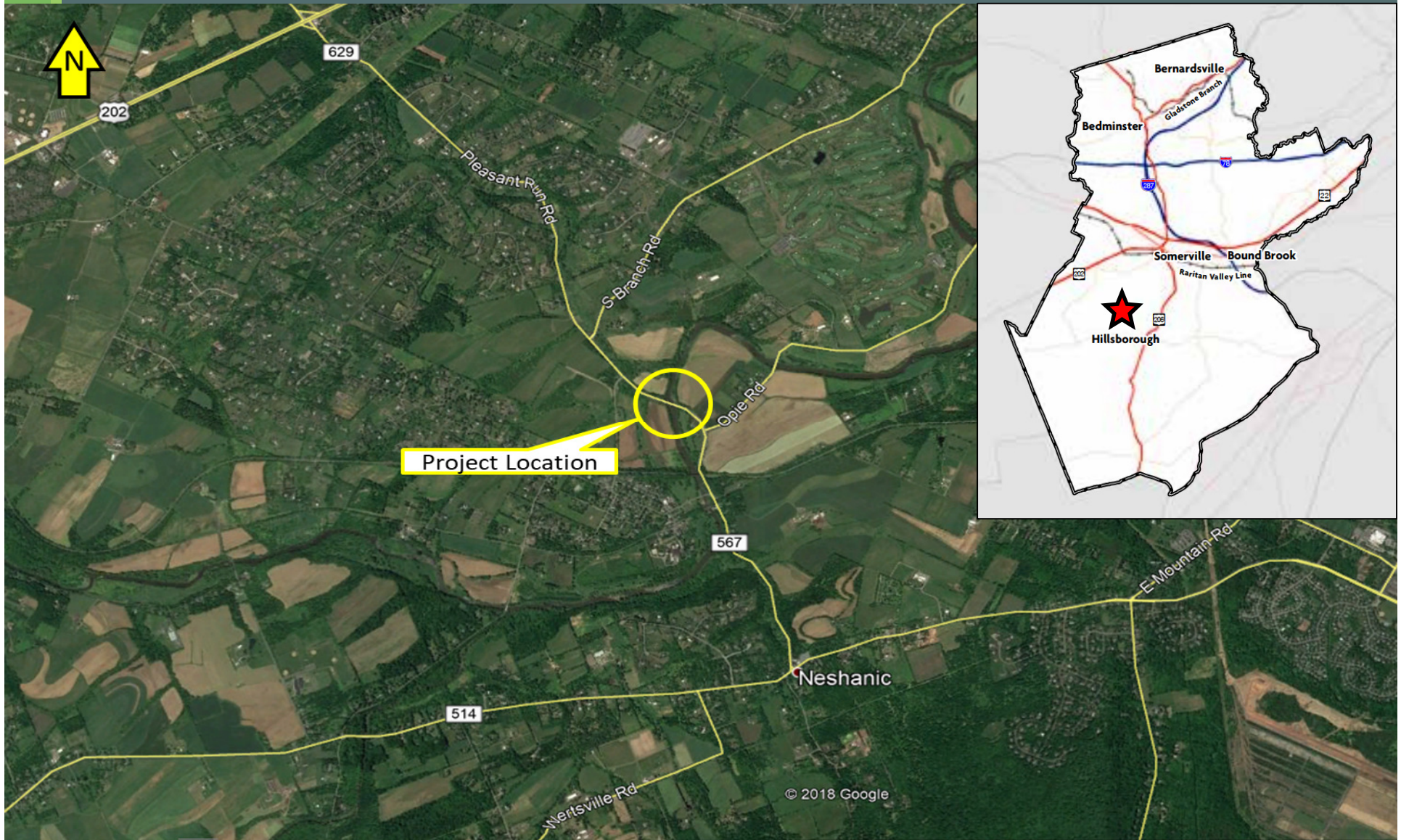
Local Concept Development Process

	Local Concept Development	Local Preliminary Engineering	Final Design / Right of Way Acquisition	Construction
<input checked="" type="checkbox"/>	Purpose and Need Statement	Approved Design Exception Report	Construction Contract Documents and PS&E package	Completed Construction As-Built
<input checked="" type="checkbox"/>	Data Collection and Environmental Screening Report	Cost Estimates (Final Design, ROW and Construction)	Environmental Reevaluations	Update and Finalize Design Communications Report
<input checked="" type="checkbox"/>	Selection of Preliminary Preferred Alternative	Approved Environmental Document	Environmental Permits Acquisition of ROW	Close-Out Documentation
<input type="checkbox"/>	NEPA Classification	Approved Project Plan	Update Design Communications Report	
<input type="checkbox"/>	Concept Development Report	Preliminary Engineering Report		
<input type="checkbox"/>	Create Design Communications Report	Update Design Communications Report		

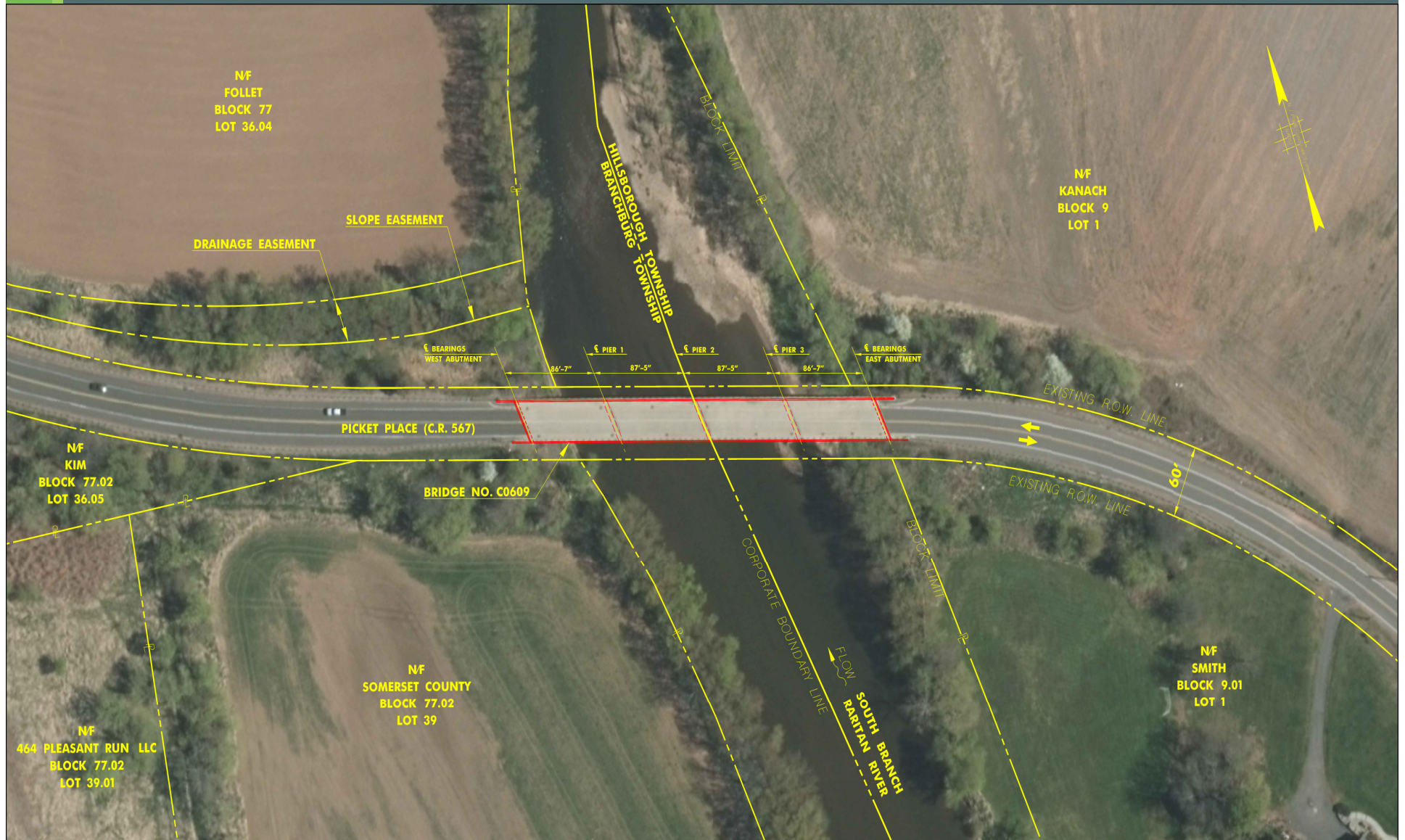
Today's Agenda

- Provide update on activity since last meeting in May 2019.
- Present viable alternatives developed.
- Obtain your feedback and support of a Preliminary Preferred Alternative (PPA).
- Inform you of the next steps.

Project Location Map

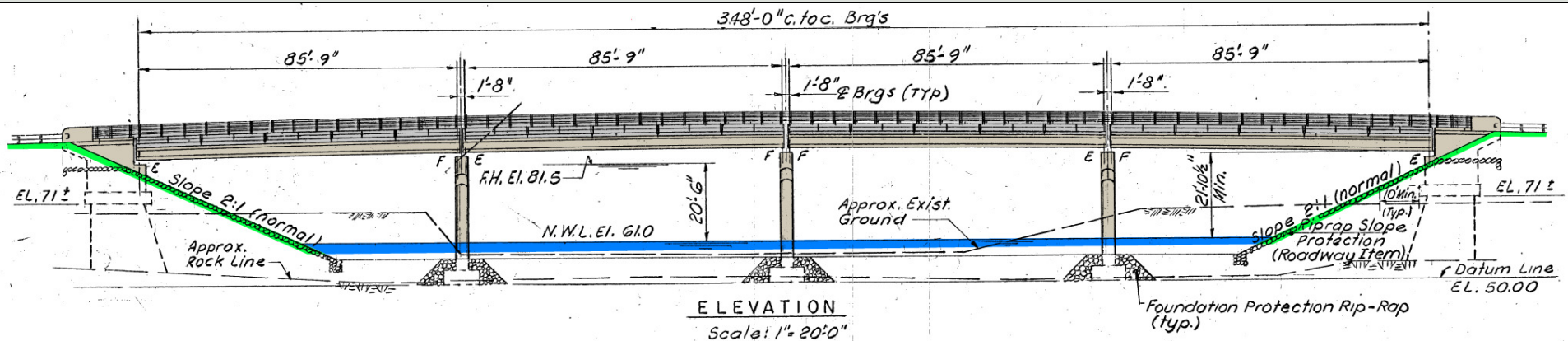


Project Study Area



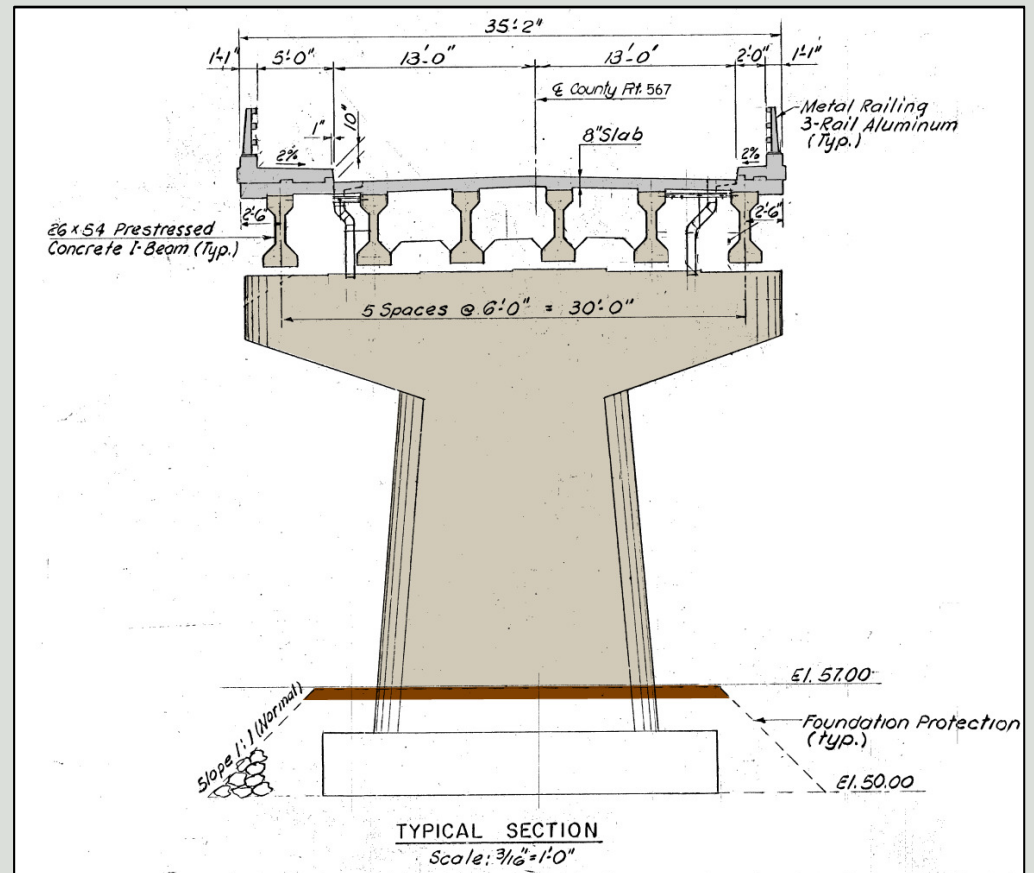
Bridge Information

- Year Built: 1979
- Bridge Type: 355' +/- long four-span, simply supported prestressed concrete I-beam structure supported on reinforced concrete abutments and piers.
- Substructure skewed 25 degrees with respect to the roadway centerline.



Bridge Information

- Carries Picket Place - an Urban Major Collector roadway with a 40 mph speed limit.
- Carries under 2,500 vehicles per day.
- Furnishes 26' curb-to-curb width, for one lane in each direction of traffic and negligible shoulders.
- Furnishes a 5' wide sidewalk on the north side.

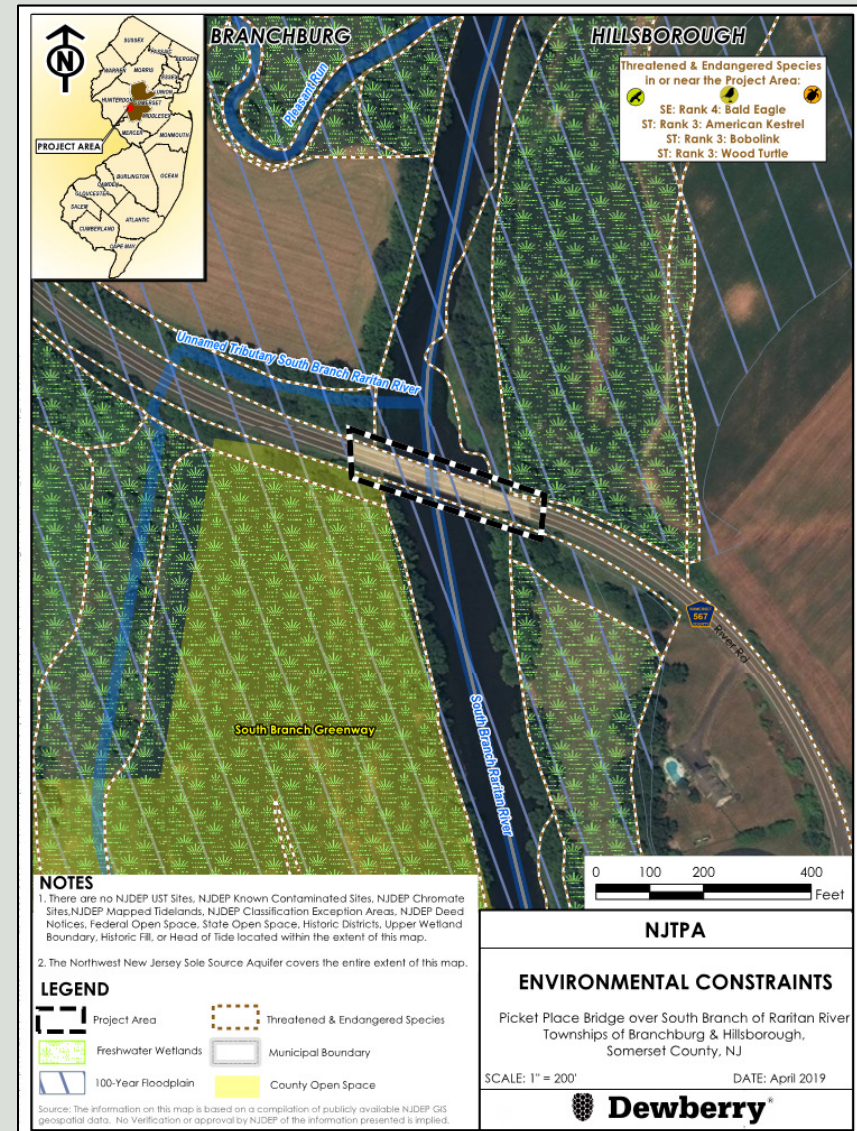


Completed Data Collection

- Held Initial Local Officials Meeting in January 2019.
- Identified environmental and permitting issues.
- Gathered and analyzed traffic information.
- Evaluated structural and site constraints.
- Held Stakeholders' Meeting and Public Information Center in May 2019.

Environment at Site

- Environmental Constraints
 - Floodplain of South Branch of the Raritan River
 - Freshwater Wetlands
 - Potential T&E Species
- Cultural Resources
 - The bridge is not eligible for listing on the New Jersey nor National Registers of Historic Places.
 - No listed historic sites in the immediate vicinity of the structure.



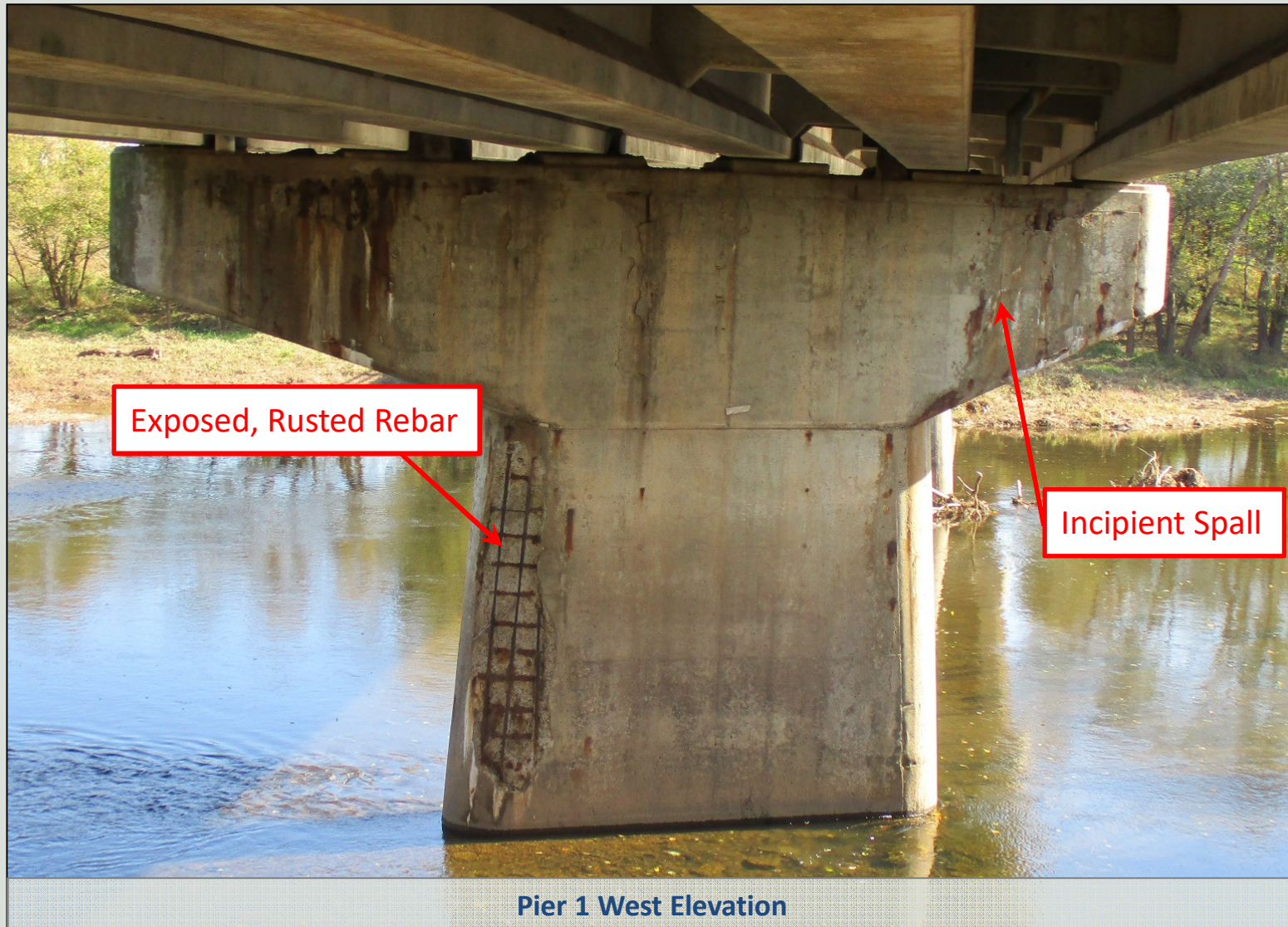
Existing Bridge Condition

- Classified as Structurally Deficient and Functionally Obsolete - 16th Cycle Bridge Re-Evaluation Survey Report
- Sufficiency Rating = 50.5 (out of 100)
- Substructure in poor condition: Rating = 4



- Bridge is in poor overall condition due to large spalls with exposed, rusting rebar, areas of unsound concrete and cracks.
- Bridge currently not posted for restricted load limits.

Bridge Condition – Coring Program



Bridge Condition – Coring Program



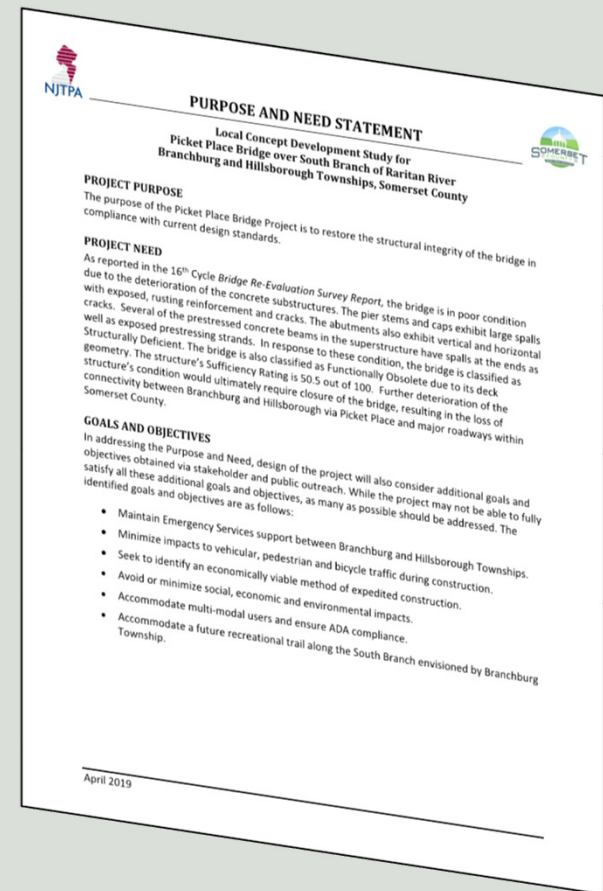
Purpose and Need

Project Purpose

Restore the structural integrity of the bridge in compliance with current design standards.

Project Need

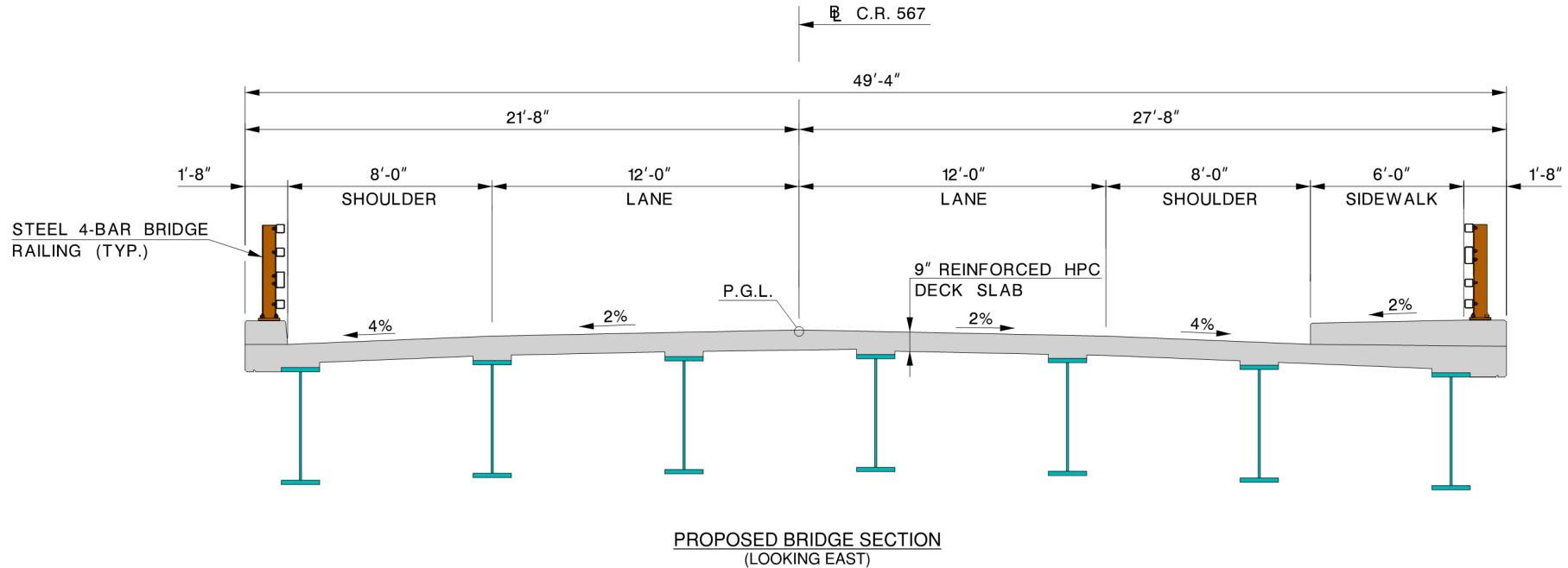
- Bridge is classified as Structurally Deficient and Functionally Obsolete.
- Further deterioration would ultimately require closure of the bridge, resulting in the loss of connectivity.



Goals and Objectives

- Maintain Emergency Services support between Branchburg and Hillsborough Townships.
- Minimize impacts to vehicular, pedestrian and bicycle traffic during construction.
- Seek to identify an economically viable method of expedited construction.
- Avoid or minimize social, economic and environmental impacts.
- Accommodate multi-modal users and ensure ADA compliance.
- Accommodate a future recreational trail along the South Branch envisioned by Branchburg Township.

Alternatives Analysis



- Furnishes 40' curb-to-curb width, for one – 12' lane with an 8' shoulder in each direction of traffic.
- Furnishes a 6' wide sidewalk along the south side.
- Standard NJDOT 4-Bar Steel Bridge Railing along each fascia.

Alternatives Evaluated

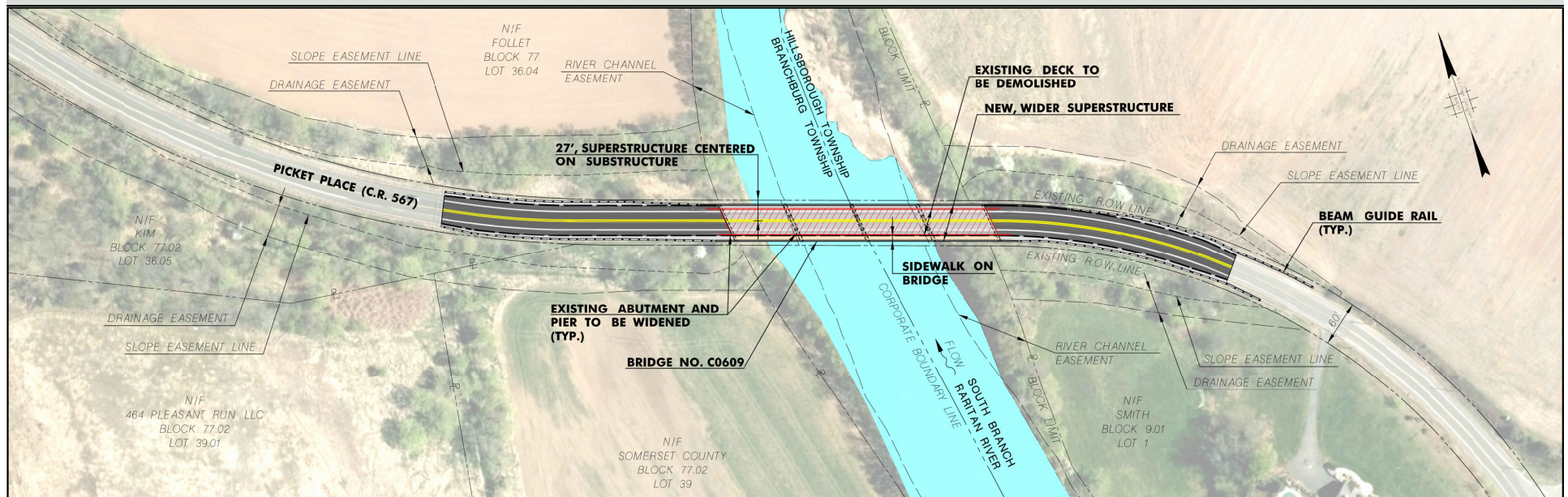
- Alt .1 – No-Build
- Alt. 2 – Rehabilitate Superstructure and Substructure using Detour
- Alt. 3 – Replace Superstructure, Rehabilitate Substructure, Staged Construction Maintaining 1 Lane
- Alt. 4 – Replace Superstructure, Rehabilitate Substructure using Detour
- Alt. 5 – Bridge Replacement, Staged Construction Maintaining 1 Lane
- Alt. 6 – Bridge Replacement, Staged Construction Maintaining 2 Lanes
- Alt. 7 – Bridge Replacement, Off-line Construction
- Alt. 8 – Bridge Replacement, Detour

Alternative 2

Rehabilitate Superstructure and Substructure using Detour

Description

Rehabilitate and widen existing superstructure by adding beams and replacing the deck. Temporarily shore superstructure to accomplish substructure modifications. Close bridge to all traffic throughout construction.



Alternative 2

Rehabilitate Superstructure and Substructure using Detour

- Advantages

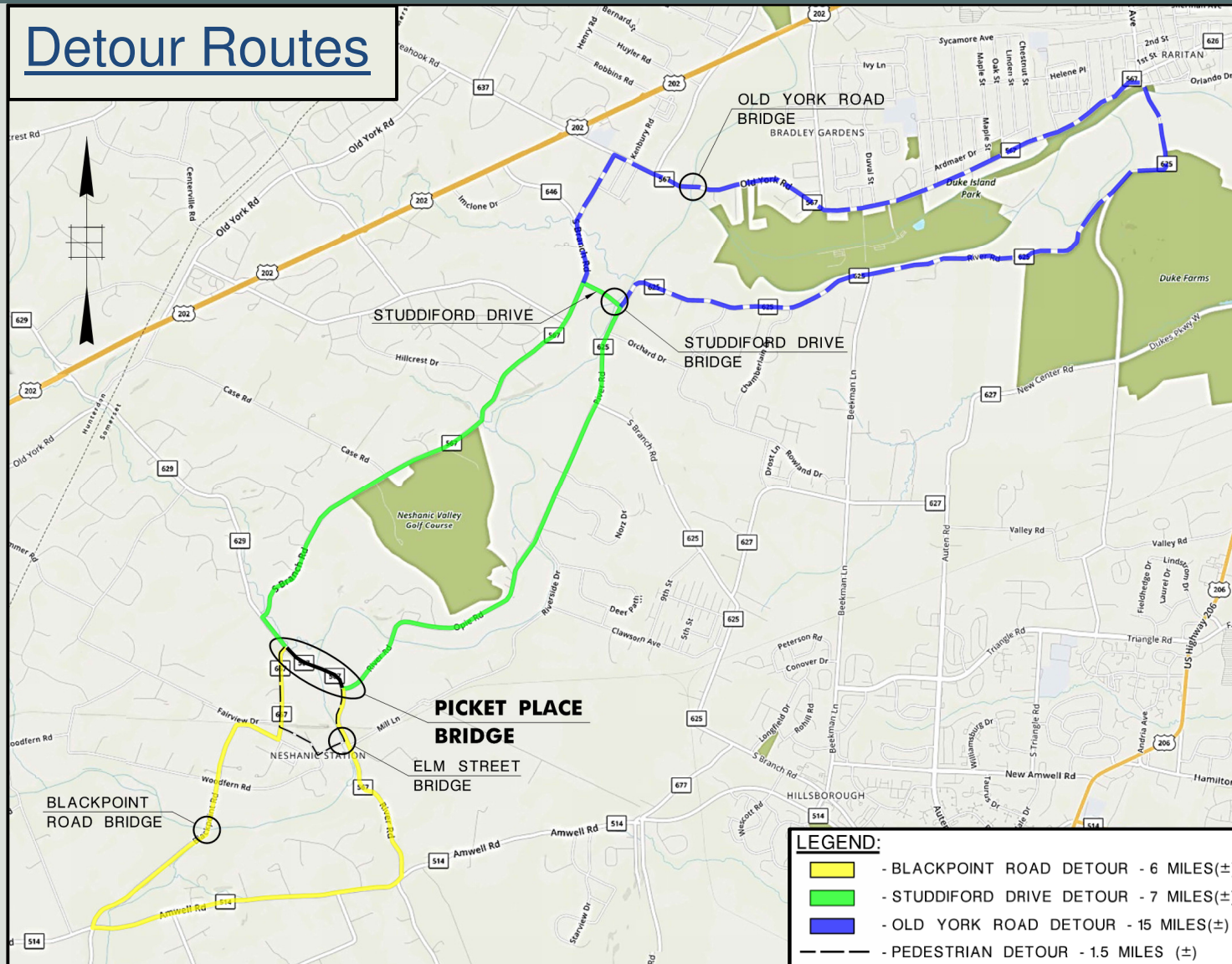
- Existing beams and substructure is reused - least amount of new construction elements required.
- Roadway and bridge remain within existing ROW, no ROW acquisitions required.
- Single stage construction offers the contractor complete control of work zone, improving safety.

- Disadvantages

- Requires temporary shoring of superstructure to rehabilitate substructure.
- Requires rehabilitation of existing bridge members to achieve required design life.
- Bridge is closed to all traffic.

Detour Considerations

Detour Routes

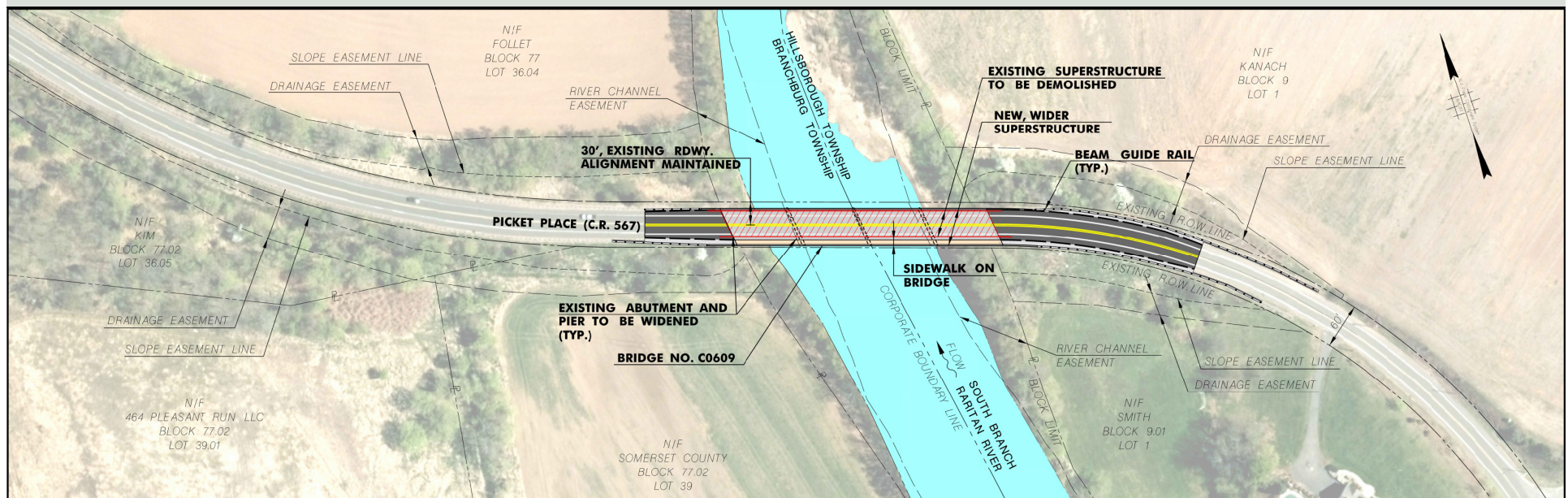


Alternative 3

Replace Superstructure, Rehab. Substructure, Stage to Maintain 1 Lane

Description

Construct new superstructure on current alignment. Modify substructure. Stage construction to maintain a single lane of alternating vehicular traffic using temporary traffic signals.



Alternative 3

Replace Superstructure, Rehab. Substructure, Stage to Maintain 1 Lane

- Advantages

- Completely new superstructure.
- Minimizes roadway project limits.
- Reduces amount of in-water work.
- Vehicular traffic maintained throughout construction.
- Roadway and bridge remain within existing ROW, no ROW acquisitions required.

- Disadvantages

- Requires temporary shoring of substructure to maintain traffic.
- Requires alternating traffic.
- Pedestrian traffic is detoured.
- Requires rehabilitation of existing bridge members to achieve required design life.

Alternating Traffic

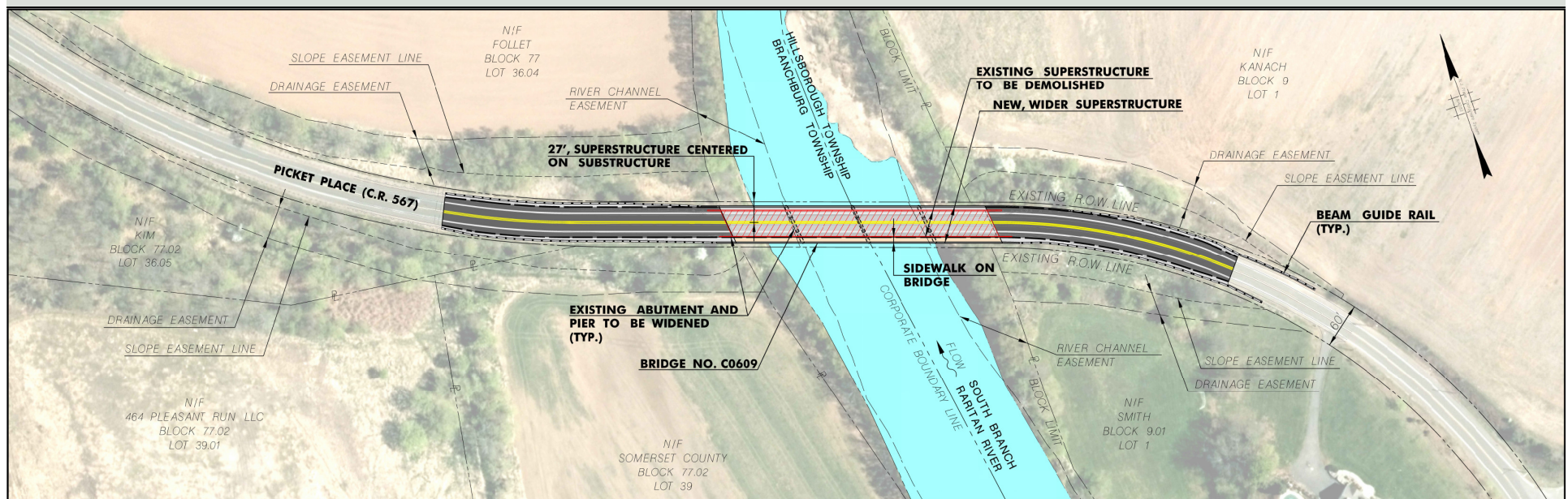


Alternative 4

Replace Superstructure, Rehabilitate Substructure using Detour

Description

Construct new superstructure on shifted alignment (3' north). Modify substructure. Close bridge to all traffic throughout construction.



Alternative 4

Replace Superstructure, Rehabilitate Substructure using Detour

- Advantages

- Completely new superstructure.
- Minimizes in-water work.
- Roadway and bridge remain within existing ROW, no ROW acquisitions required.
- Single stage construction offers the contractor complete control of work zone, improving safety.

- Disadvantages

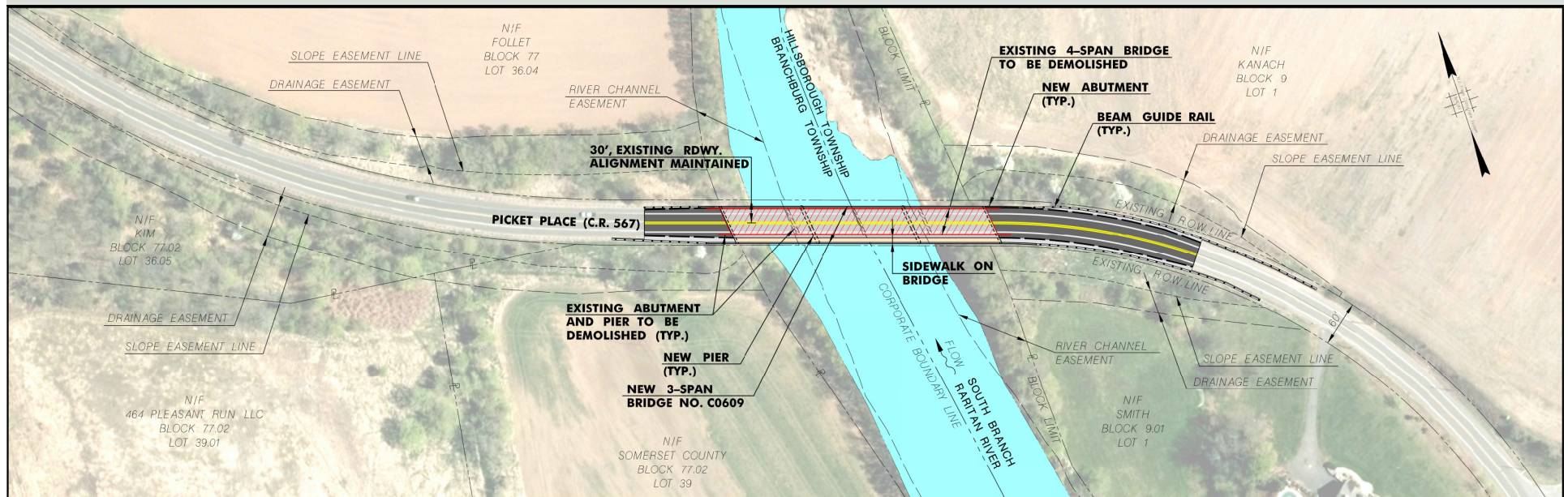
- Bridge is closed to all traffic.
- Requires rehabilitation of existing bridge members to achieve required design life.

Alternative 5

Bridge Replacement, Staged Construction Maintaining 1 Lane

Description

Completely replace existing structure on current alignment. Stage construction to maintain a single lane of alternating vehicular traffic using temporary traffic signals.



Alternative 5

Bridge Replacement, Staged Construction Maintaining 1 Lane

- Advantages

- Completely new superstructure and substructure.
- Minimizes roadway project limits.
- Vehicular traffic maintained throughout construction.
- Roadway and bridge remain within existing ROW, no ROW acquisitions required.
- Fewer substructure elements in the river improves streamflow and reduces future maintenance.

- Disadvantages

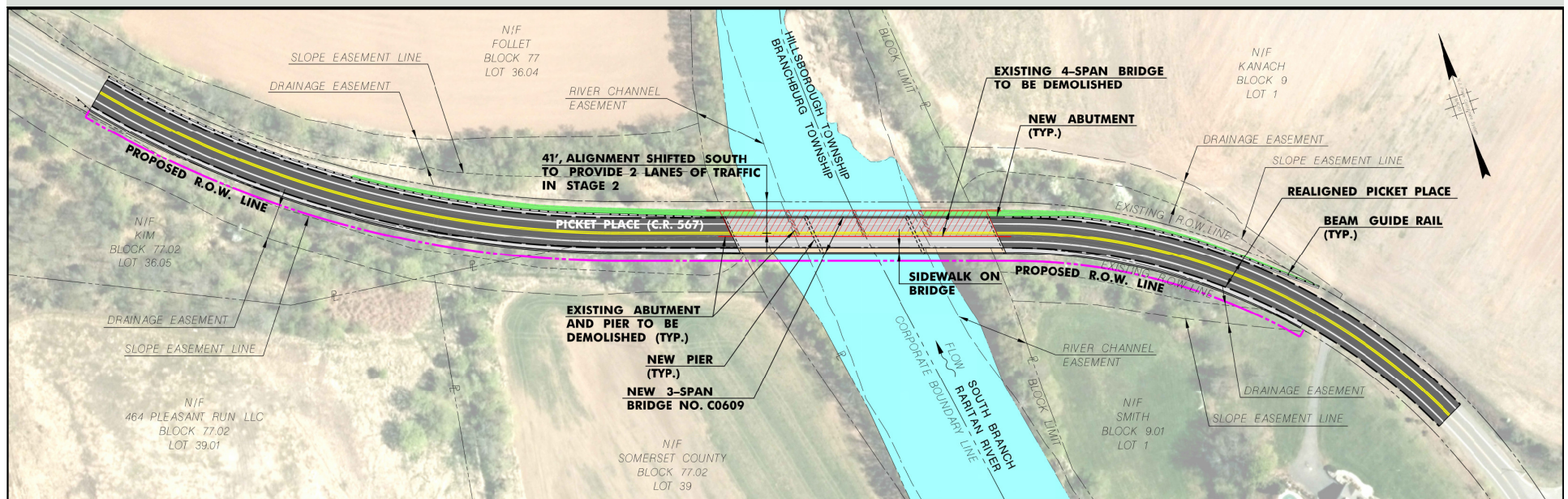
- Requires alternating traffic.
- Pedestrian traffic is detoured.
- Greater in-water work.

Alternative 6

Bridge Replacement, Staged Construction Maintaining 2 Lanes

Description

Completely replace existing structure on shifted alignment (11' south). Stage construction to maintain a single lane of alternating vehicular traffic in Stage 1, and 2 lanes of traffic in Stage 2.



Alternative 6

Bridge Replacement, Staged Construction Maintaining 2 Lanes

- Advantages

- Completely new superstructure and substructure.
- Vehicular traffic maintained throughout construction.
- Alternating traffic only required in first stage.
- Fewer substructure elements in the river improves streamflow and reduces future maintenance.

- Disadvantages

- Lengthy walls required along south side of project to minimize impacts on adjacent properties.
- Requires alternating traffic.
- Pedestrian traffic is detoured.
- Greater in-water work.
- ROW acquisitions required.
- Greater environmental impacts.

Alternative 7

Bridge Replacement, Off-Line Construction

- Advantages

- Completely new superstructure and substructure.
- All traffic (Veh./Bike/Ped.) maintained throughout construction.
- Fewer substructure elements in the river improves streamflow and reduces future maintenance.

- Disadvantages

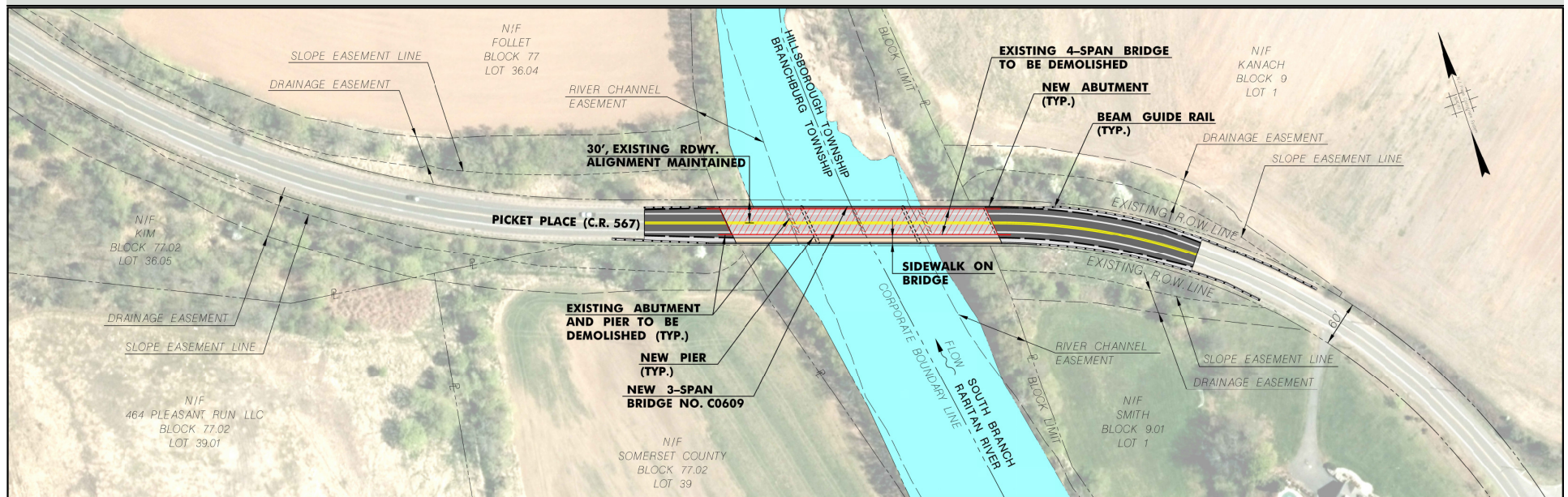
- Lengthy walls required along south side of project to minimize impacts on adjacent properties.
- Increased roadway project limits.
- Impacts drainage culvert west of bridge.
- Greater in-water work.
- ROW acquisitions required.
- Greatest environmental impacts.
- Greatest project costs.

Alternative 8

Bridge Replacement, Using Detour

Description

Completely replace existing structure on current alignment.
Close bridge to all traffic throughout construction.



Alternative 8

Bridge Replacement, Using Detour

- Advantages

- Reduces construction duration.
- Completely new superstructure and substructure.
- Minimizes roadway project limits.
- Roadway and bridge remain within existing ROW, no ROW acquisitions required.
- Fewer substructure elements in the river improves streamflow and reduces future maintenance.
- Single stage construction offers the contractor complete control of work zone, improving safety.

- Disadvantages

- Bridge is closed to all traffic.
- Greater in-water work.

Alternative Analysis Matrix

Criteria →	Satisfies Purpose & Need	Impacts to Picket Place Traffic during Construction					Total Construction Duration	Permits Required			Right-of-Way Impacts			Estimated Construction Cost w/o ROW
Alternatives ↓		Traffic Control	Open To:			Maintains Emergency Services Support		FWW/FHA/SESC	SWM	Mitigation	Easements	Acquisitions	Estimated Cost	
			Veh.	Bikes	Peds.									
Alternative 1 - No-Build ¹	NO	N / A					N / A	N / A			N/A			N / A
Alternative 2 - Rehabilitate Superstructure and Substructure using Detour	YES	Detour	NO	NO	NO	NO	15-18 MO.	✓	✓		Temporary	NO	\$50,000	\$7.4M
Alternative 3 - Replace Superstructure, Rehabilitate Substructure using Staged Construction	YES	1 Lane Alternating (Stages 1 and 2)	YES	YES	NO	YES	20-27 MO.	✓	✓		Temporary	NO	\$50,000	\$8.6M
Alternative 4 - Replace Superstructure, Rehabilitate Substructure using Detour	YES	Detour	NO	NO	NO	NO	15-18 MO.	✓	✓		Temporary	NO	\$50,000	\$7.5M
Alternative 5 - Bridge Replacement, Staged Construction Maintaining 1 Lane	YES	1 Lane Alternating (Stages 1 and 2)	YES	YES	NO	YES	18-24 MO.	✓	✓		Temporary	NO	\$50,000	\$9.7M
Alternative 6 - Bridge Replacement, Staged Construction Maintaining 2 Lanes ²	YES	1 Lane Alt. (Stage 1) 2 Lanes (Stage 2)	YES	YES	NO	YES	20-27 MO.	✓	✓	✓	Temporary and Permanent	YES	\$75,000	\$13.7M
Alternative 7 - Bridge Replacement, Off-Line Construction	YES	2 Lanes	YES	YES	YES	YES	18-24 MO.	✓	✓	✓	Permanent and Permanent	YES	\$100,000	\$13.1M
Alternative 8- Bridge Replacement, Detour	YES	Detour	NO	NO	NO	NO	12-15 MO.	✓	✓		Temporary	NO	\$50,000	\$8.5M

NOTES:

- County continues to incur regular maintenance costs. Bridge deterioration continues.
- Alternating traffic is only required in the first construction stage.

PERMITS LEGEND:

FWW : NJDEP Freshwater Wetlands.

FHA : NJDEP Flood Hazard Area.

SESC : Somerset-Union Soil Conservation District certification.

SWM : NJDEP Stormwater Management compliance

Mitigation : Mitigation required for Wetlands and/or Riparian Zone impacts.

NOTE:
THIS DRAWING IS IN DRAFT FORM. PLEASE DO NOT REPLICATE. IT HAS BEEN RELEASED AS CLASSIFIED ADVISORY, CONSULTATIVE AND DELIBERATIVE MATERIAL PURSUANT TO N.J.S.A. 47-1A-6. IT IS INTENDED FOR REVIEW AND COMMENT PURPOSES ONLY. ANY QUESTIONS, PLEASE CONTACT: LILI H. TSU, SOMERSET COUNTY PRINCIPAL ENGINEER II, TEL: 908-231-7079, EMAIL: tsu@co.somerset.nj.us



Next Steps

- Obtain Municipal and County support for the recommended PPA via Resolutions.
- Document results of Local Concept Development (LCD) Phase and obtain approval.
- LCD Phase complete / project graduates to Preliminary Engineering Phase.

Questions and Comments?

Contact:

Lili H. Tsu, Somerset County – Principal Engineer II, Bridge Section
Tel.: 908-231-7079, Email: tsu@co.somerset.nj.us

Or

Nicole Pace-Addeo, Stokes Creative Group
Tel.: 609-859-8400, Email: npace@stokescg.com

Note:

Written comments towards PPA will be accepted through **Monday, November 18, 2019.**

Visit our website: www.PicketPlaceBridge.com