



# COLUMBIA TURNPIKE BRIDGE OVER THE BLACK BROOK LOCAL CONCEPT DEVELOPMENT STUDY

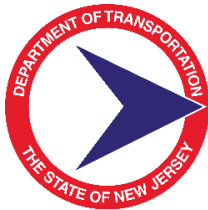
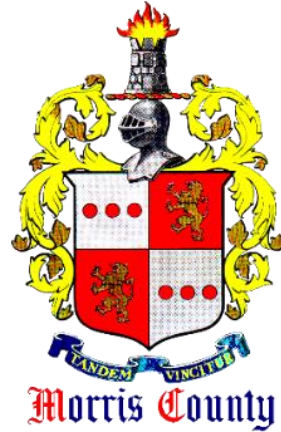
Borough of Florham Park, Morris County, New Jersey

## LOCAL OFFICIALS BRIEFING #2

September 2018



# PROJECT TEAM



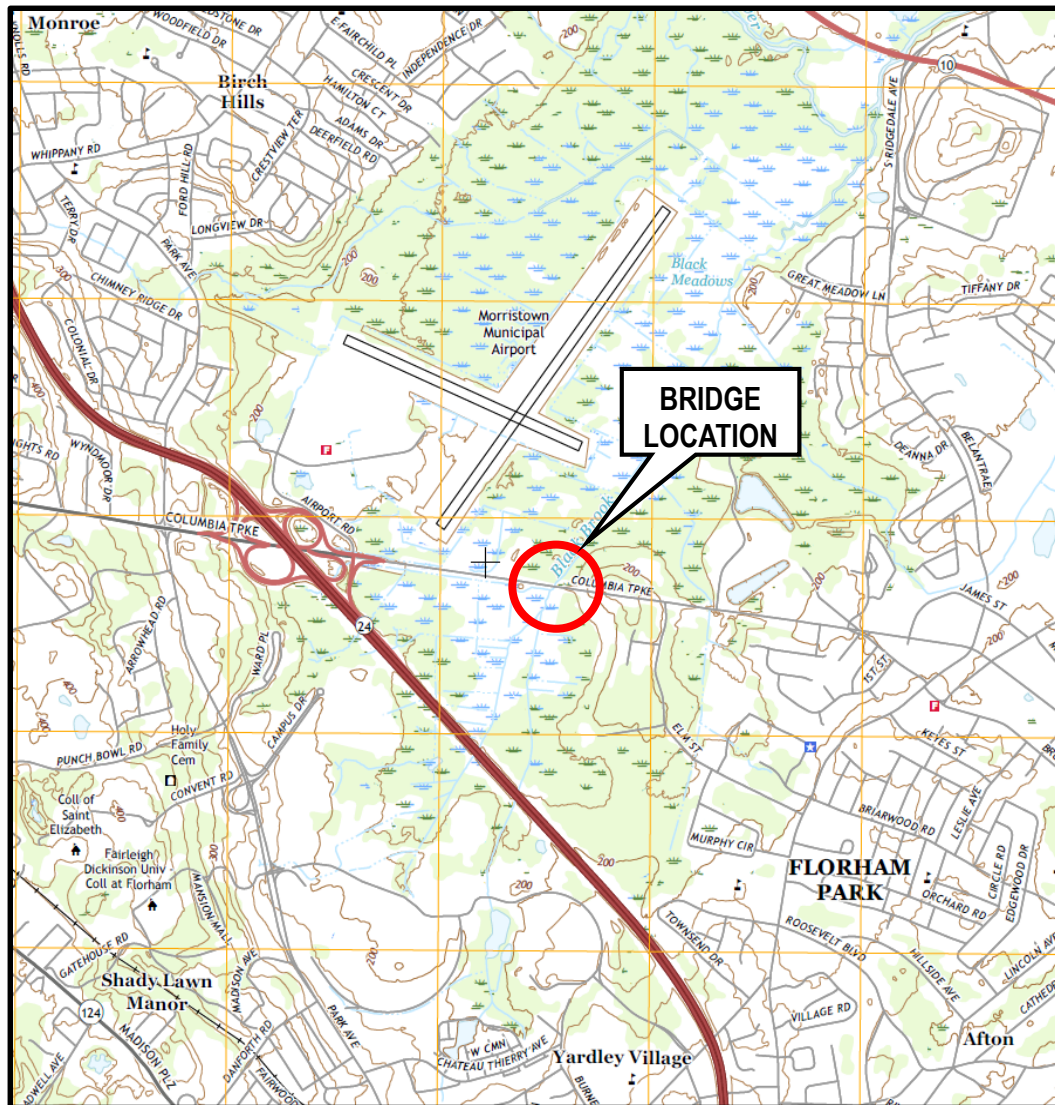
# MEETING PURPOSE

- Provide a summary of the Local Capital Project Delivery Process
- Present a brief summary of the data collection effort
- Present the Project Purpose & Need and Goals and Objectives for the project
- Present the improvement concepts developed for the Columbia Turnpike Bridge
- Obtain input regarding the improvement concepts

# PROJECT OVERVIEW AND BACKGROUND

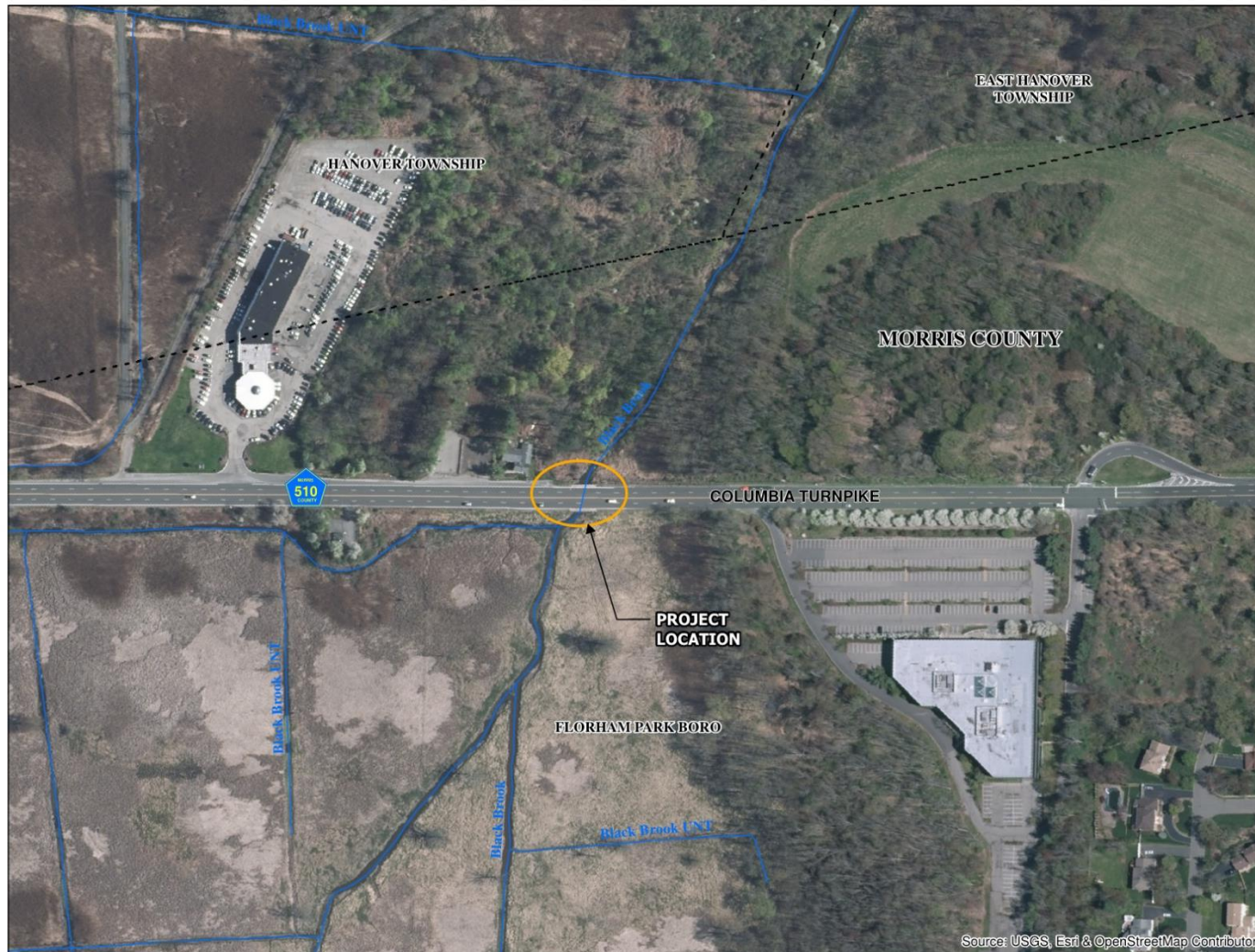
- Columbia Turnpike Bridge is located in Florham Park Borough, Morris County
- Bridge was built in 1929
- Bridge is in need of rehabilitation or replacement
- NJTPA and Morris County - Local Concept Development Study was initiated in November 2017
- Local Capital Project Delivery Program provides the opportunity to advance this project with public input and agency collaboration

# PROJECT LOCATION MAP





# AERIAL MAP



## Aerial Map

### Columbia Turnpike Bridge over Black Brook

Florham Park Borough  
Morris County  
New Jersey



## Legend

- Streams
- Municipality Boundary



0 200 Feet



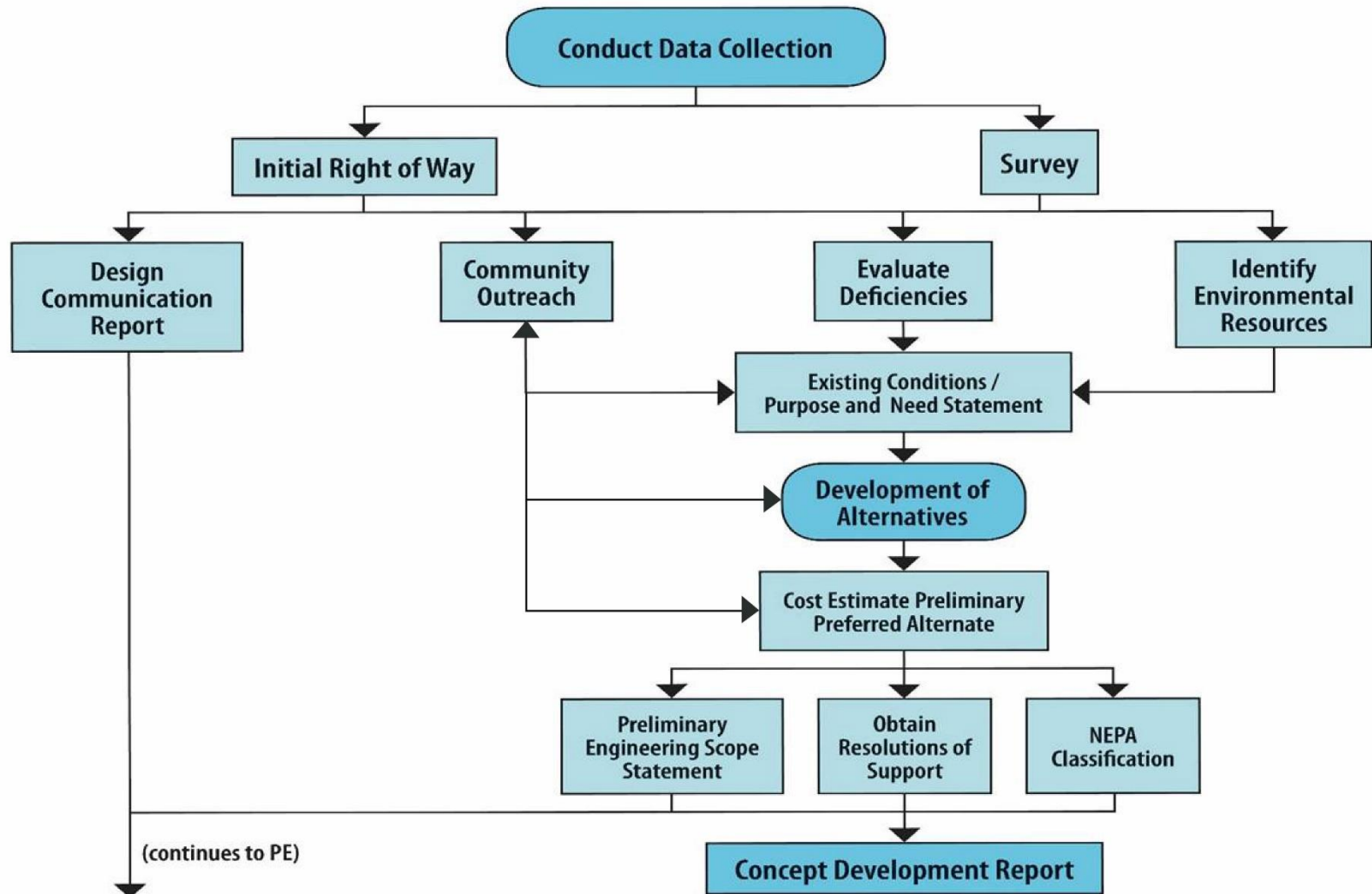
Project Location



# LOCAL CAPITAL PROJECT DELIVERY PROCESS

Local Concept Development	Local Preliminary Engineering	Final Design/Right of Way Acquisition	Construction
<ul style="list-style-type: none"><li>• Data Collection</li><li>• Initiate Public Outreach Efforts</li><li>• Purpose and Need Statement</li><li>• Alternatives Development and Analysis</li><li>• Select Preliminary Preferred Alternative</li><li>• NEPA Classification</li><li>• Local Concept Development Report</li></ul>	<ul style="list-style-type: none"><li>• Continue Public Outreach Efforts</li><li>• Preliminary Design</li><li>• Preliminary ROW Documents</li><li>• Preliminary Engineering Plans</li><li>• Preliminary Construction Cost Estimate and Schedule</li><li>• Approved Design Exception Report</li><li>• Approved NEPA Environmental Document</li><li>• Local Preliminary Engineering Report</li></ul>	<ul style="list-style-type: none"><li>• Continue Public Outreach Efforts</li><li>• Final Design</li><li>• Final ROW Documents and ROW Acquisition</li><li>• Final Contract Plans and PS&amp;E Package</li><li>• Final Utility Relocation Schemes</li><li>• Secure Environmental Permits</li><li>• Environmental Reevaluation</li></ul>	<ul style="list-style-type: none"><li>• Continue Public Outreach Efforts</li><li>• Complete Construction</li><li>• As-Built Plans</li><li>• Close-Out Documentation</li></ul>

# LOCAL CONCEPT DEVELOPMENT PROCESS





# COLUMBIA TURNPIKE BRIDGE DATA

- Year Built: 1929 (widened in 1960)
- Bridge Type: Single Span Bridge with concrete encased steel beams and rolled steel multi-stringers
- Overall Bridge Length = 35 feet
- Bridge Roadway Width = 45'-7"
- Posted Speed Limit = 50 MPH
- 2 lanes in each direction, no outside shoulders
- 4'-11" Sidewalks in each direction
- 2018 AADT = 33,840 vehicles per day

# COLUMBIA TURNPIKE



*Columbia Turnpike west approach  
to bridge, looking east*



*Columbia Turnpike east approach  
to bridge, looking west*

# BLACK BROOK



*Black Brook and associated freshwater wetlands, looking south (downstream)*



*Black Brook and associated freshwater wetlands, looking north (upstream)*

## EXISTING BRIDGE CONDITION

- The bridge is in overall fair condition due to the condition of the superstructure
- Superstructure is in fair condition (rating of 5 out of 10) due to localized section loss and rusting at the beam ends, heavy rust staining and spalls, rust laminations, and diaphragms with section losses and holes
- The bridge is functionally obsolete based on the substandard bridge roadway width
- Sufficiency Rating is 57.5 out of 100 (17<sup>th</sup> Cycle)



# EXISTING BRIDGE PHOTOS



*Bridge south fascia, looking north*



*Bridge north fascia, looking south*

# EXISTING BRIDGE CONDITION



*West approach, looking East*



*Bridge deck, looking south*



# EXISTING BRIDGE CONDITION



*Damaged double rail element*



*Substandard guiderail attachment*

# EXISTING BRIDGE CONDITION



*Under deck – Original Section (1920)*



*Under deck – Widened Section (1960)*



# EXISTING BRIDGE CONDITION



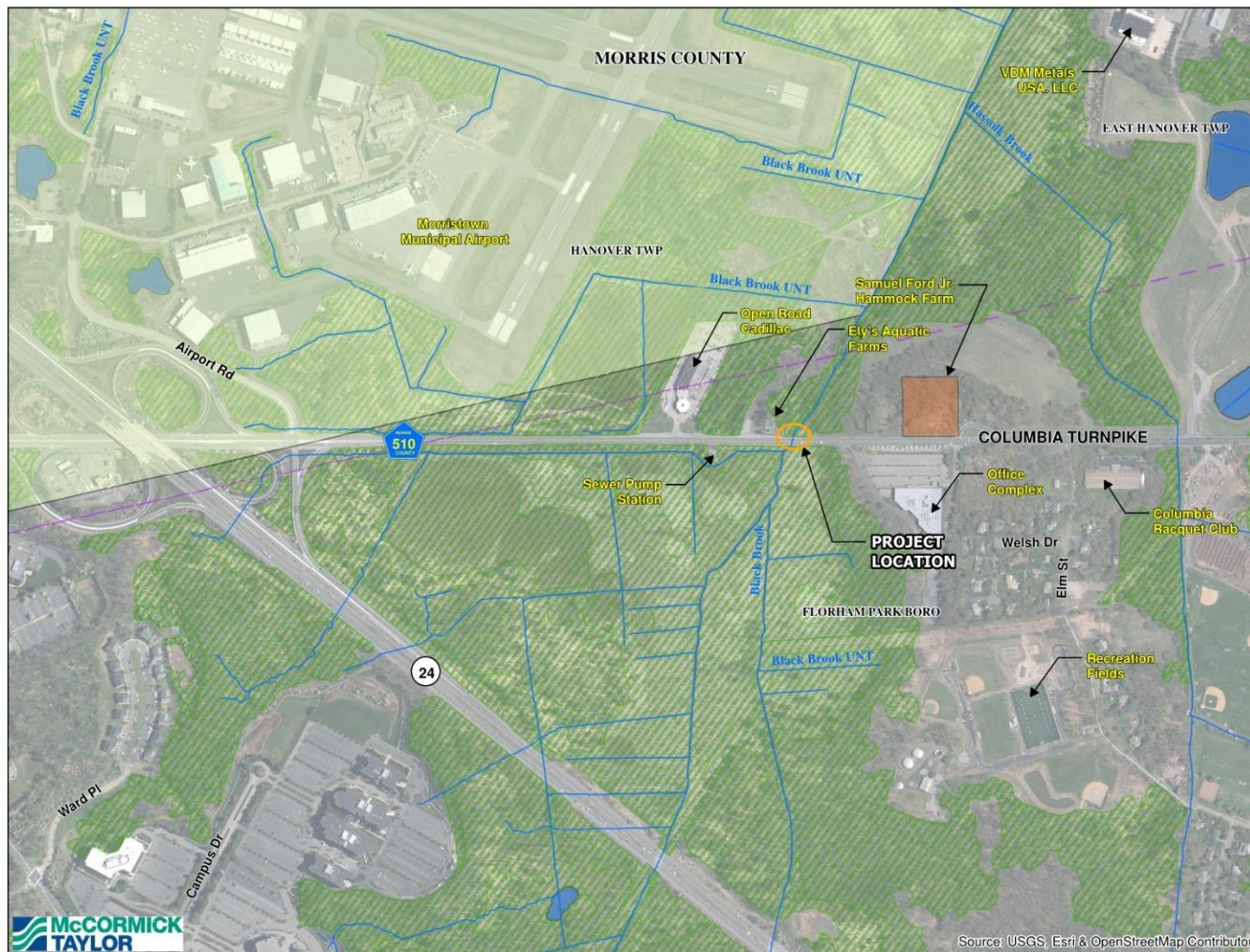
*Abutment bearing seats*



*East Abutment - Northeast corner*



# ENVIRONMENTAL CONSTRAINTS MAP



## ENVIRONMENTAL CONSTRAINTS MAP

### Columbia Turnpike Bridge

Florham Park Borough  
Morris County  
New Jersey



### Legend

-  Streams  
 Municipality Boundary  
 Highlands Planning Area  
 Historic Properties  
 Wetlands  
 Waterbody



0 600 Feet



Source: USGS, Esri & OpenStreetMap Contributors



# SITE CONSTRAINTS



*Sewer Pump Station located  
west of the bridge*



*Ely's Aquatic Farm located just  
west of the bridge*

# SITE CONSTRAINTS



*Office complex located  
east of the bridge*



*Morristown Airport located  
west of project limits*



# PROJECT STATUS

- November 2017 – LCD Study initiated
- Spring 2018 – Data Collection completed
- Spring 2018 – Held Local Officials Briefing #1 and Public Information Center #1
- June 2018 – Project Purpose and Need Statement finalized
- Summer 2018 – Developed Conceptual Alternatives
- August 30, 2018 – Local Officials Briefing #2
- September 11, 2018 – Stakeholders Meeting and Public Information Center #2

## PURPOSE AND NEED

- The purpose of this project is to address the deficiencies and improve safety and traffic operations through the rehabilitation or replacement of the Columbia Turnpike Bridge over Black Brook and to provide an upgraded structure that meets current standards and maintains a safe means of transportation across the Black Brook for all users.

## PURPOSE AND NEED

- The Columbia Turnpike Bridge over Black Brook supports a vital regional transportation network link for the driving public, schools, and businesses through the Borough of Florham Park connecting to Route 24, I-287, Morristown Municipal Airport (MMU), Fairleigh Dickinson University, the Town of Morristown, the Garden State Parkway, the Oranges and Newark.
- The bridge is Functionally Obsolete due to the substandard roadway/shoulder widths and is in overall fair condition due to the condition rating of the superstructure. The superstructure condition is fair with a rating of 5 out of 10, and the substructure is in satisfactory condition. The bridge currently has a Sufficiency Rating of 57.5.

# GOALS AND OBJECTIVES

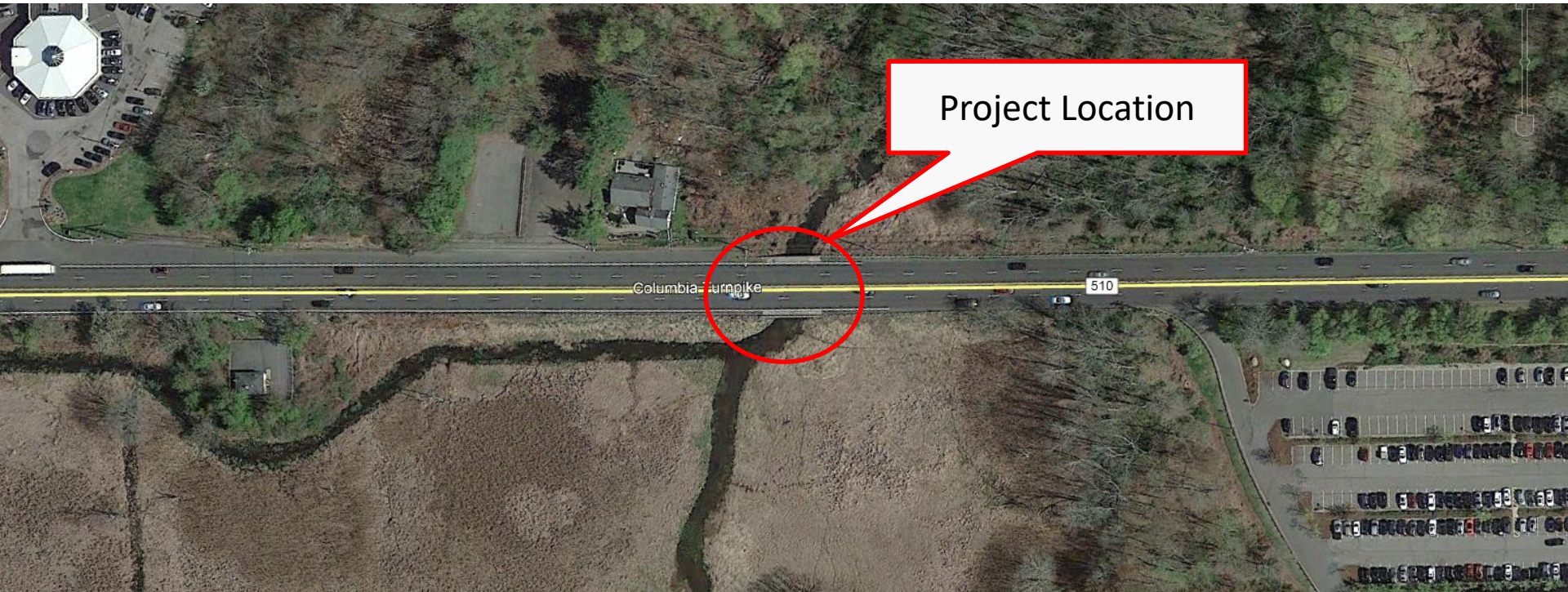
- Address bridge structural deficiencies
- Upgrade bridge and approach roadway conditions to meet AASHTO and NJDOT safety standards, including new parapets and guide rail
- Minimize environmental, social and economic impacts in the project area
- Minimize impacts to the Black Brook
- Minimize impacts to existing utilities including water, gas electrical, telephone and fiber optic lines
- Minimize disruptions to traffic operations during construction
- Maintain access to adjacent business at all times during construction
- Minimize the use of detours; if detours are required, utilize the state and county roadway network to the greatest extent feasible
- Provide bicycle and pedestrian compatibility to the approach roadways



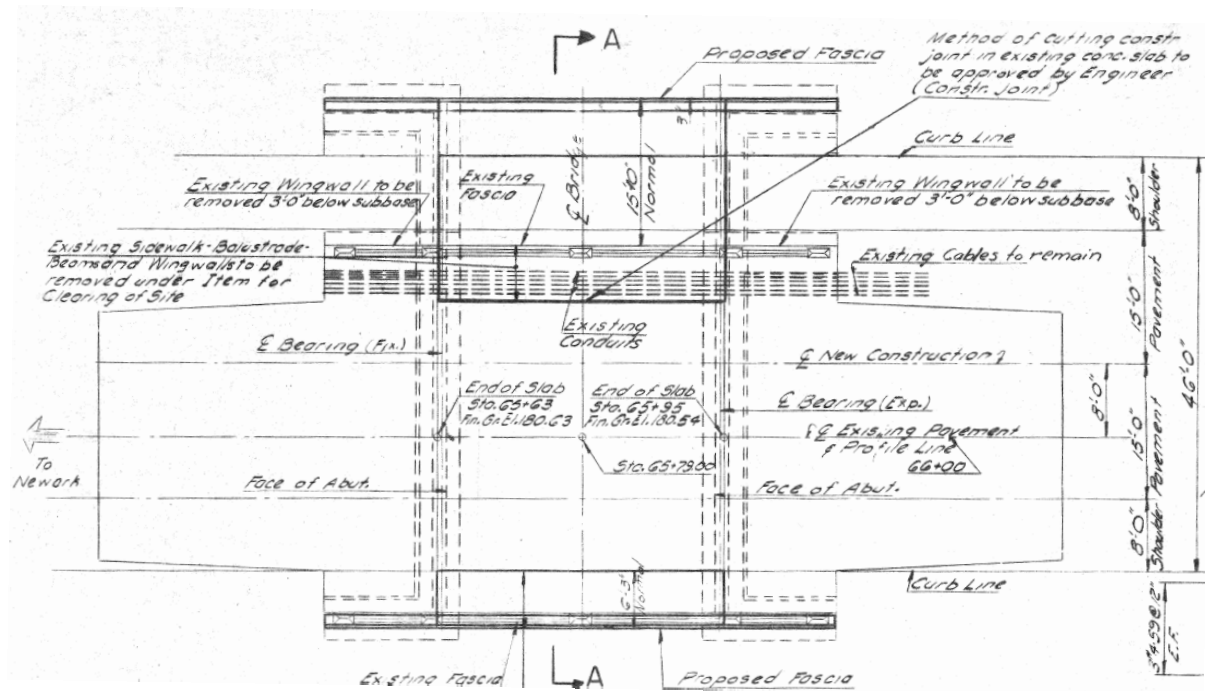
# CRITICAL DESIGN INFLUENCERS FOR STRUCTURAL ALTERNATIVES

- **STRUCTURAL LIFE CYCLE**
  - Strong durability, cost effective, and minimal maintenance
- **HYDROLOGY & HYDRAULICS**
  - No flood water increases greater than 0.04'
- **STAGING**
  - Maintain current traffic capacity on Columbia Turnpike
  - Keeping four lanes open
- **ROADWAY GEOMETRY**
  - Address substandard geometries
  - Wider bridge to include outside shoulder
- **WILDLIFE PASSAGES**
  - Eliminating environmental barriers at bridge

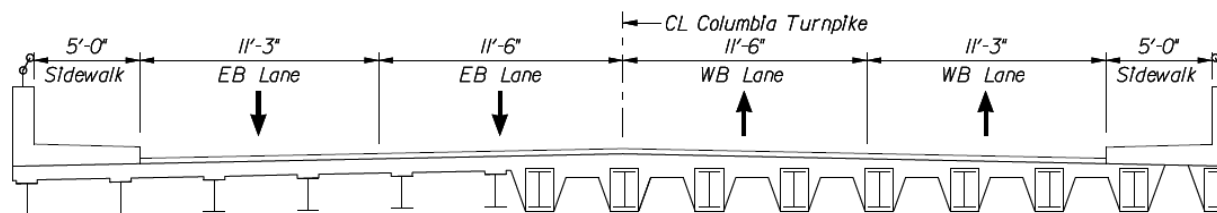
# EXISTING BRIDGE SITE



# EXISTING BRIDGE PLAN & SECTION



**PLAN**

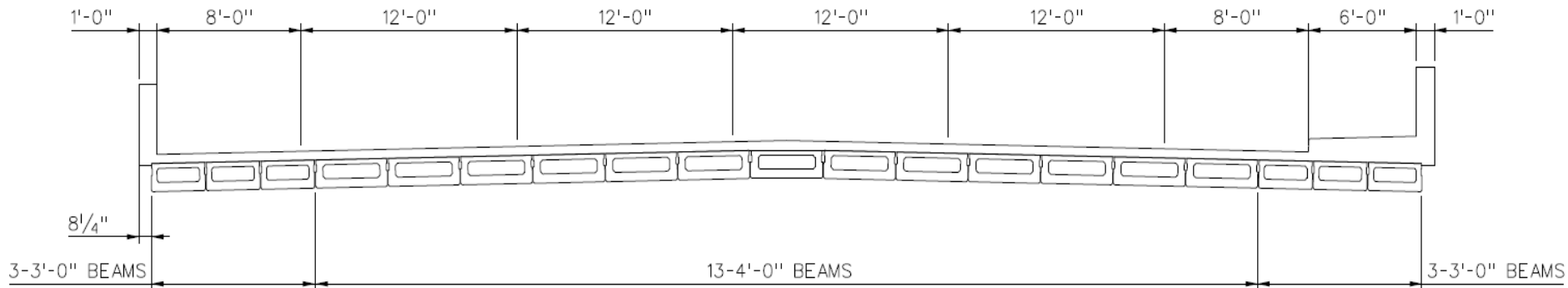


**CROSS SECTION**

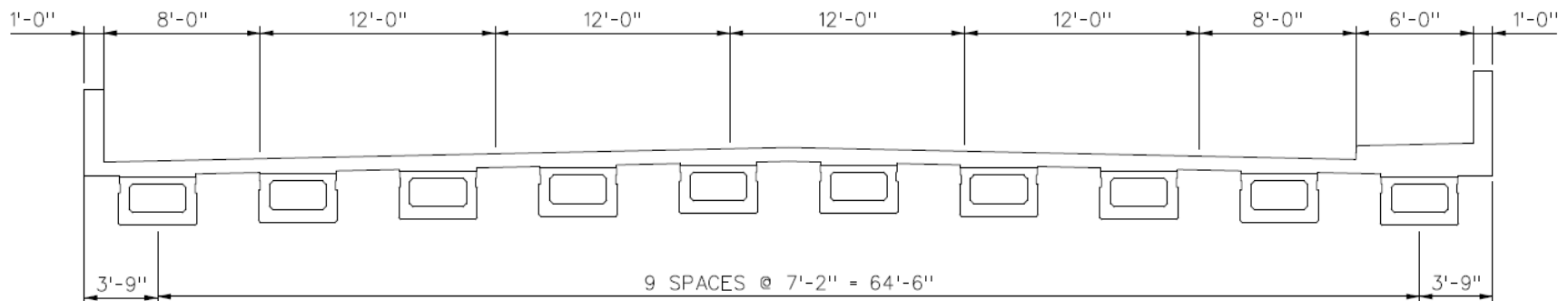


# BRIDGE BEAM ALTERNATIVES

## STANDARD CONSTRUCTION METHODS



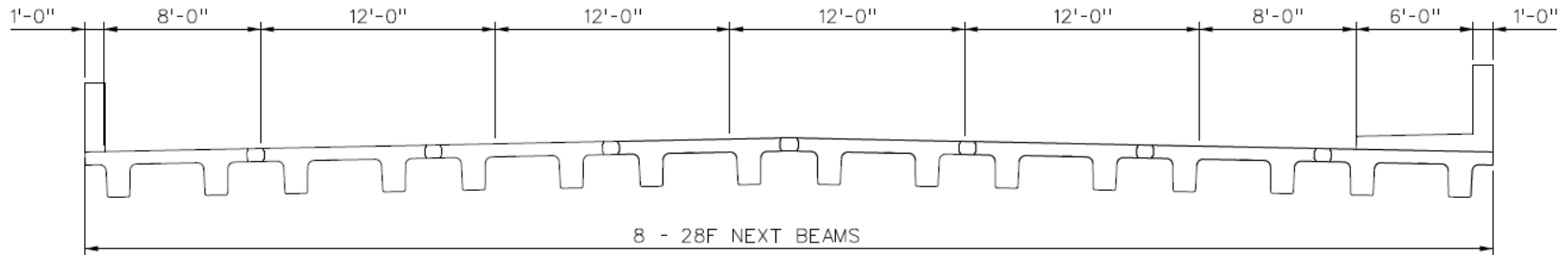
**TYPICAL SECTION – ADJACENT BOX BEAM ALTERNATIVE**



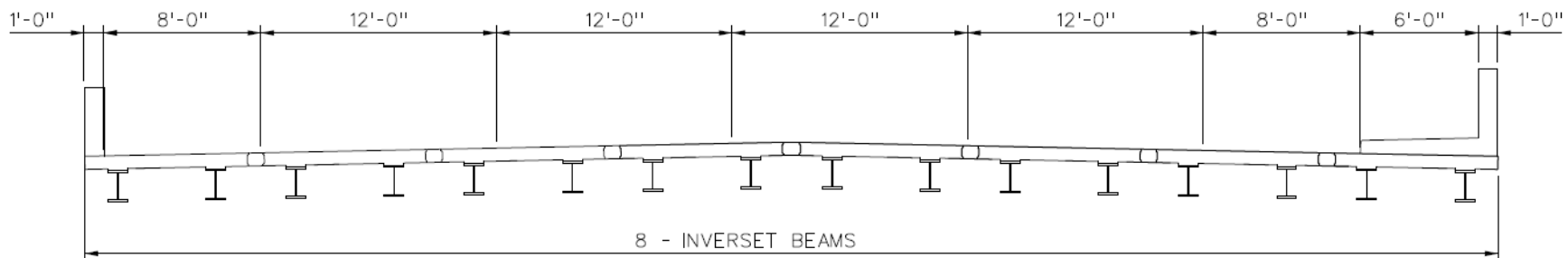
**TYPICAL SECTION – SPREAD BOX BEAM ALTERNATIVE**

# BRIDGE BEAM ALTERNATIVES

## ACCELERATED BRIDGE CONSTRUCTION METHODS (ABC)

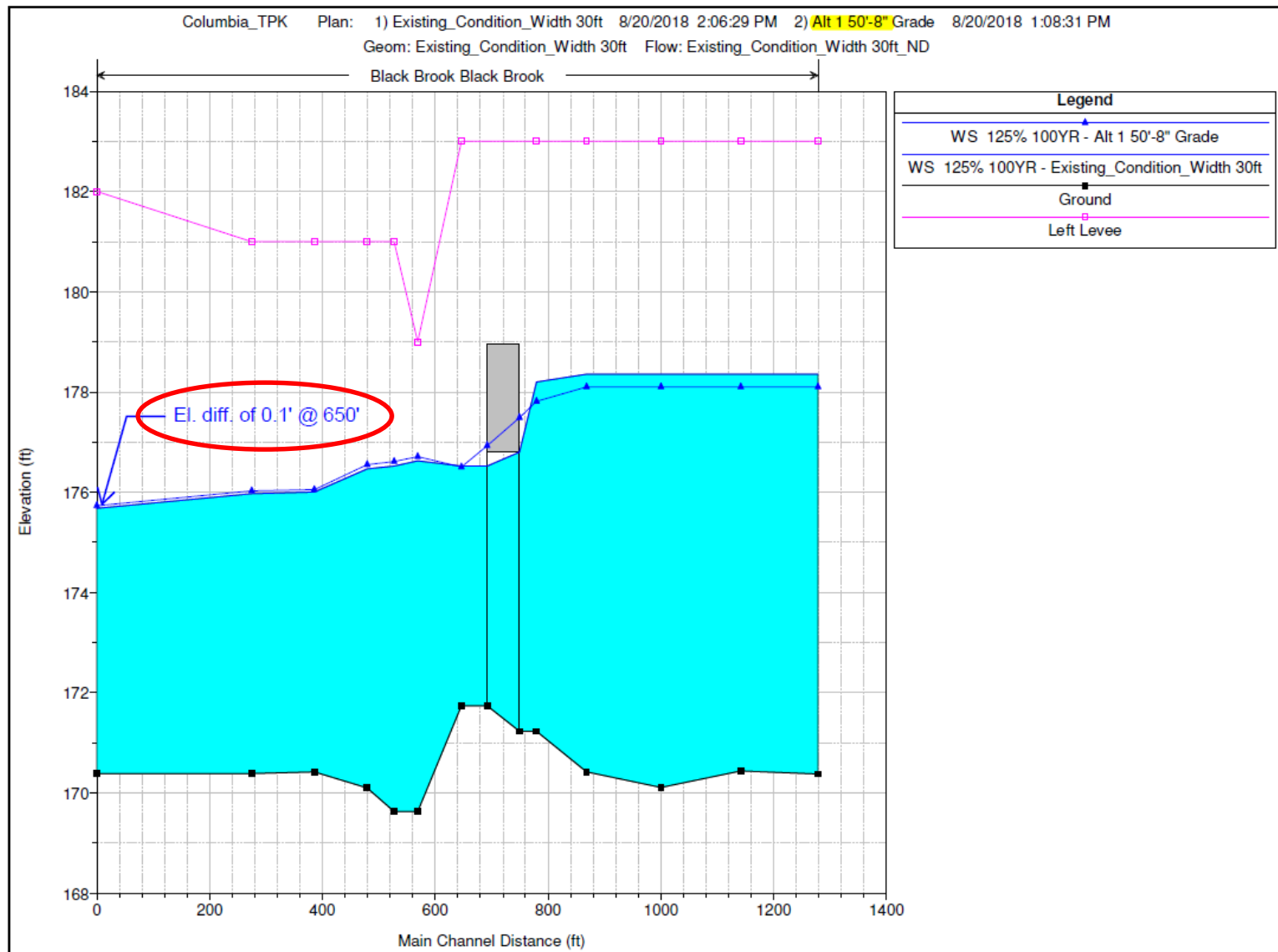


**TYPICAL SECTION – NEXT BEAM ALTERNATIVE**



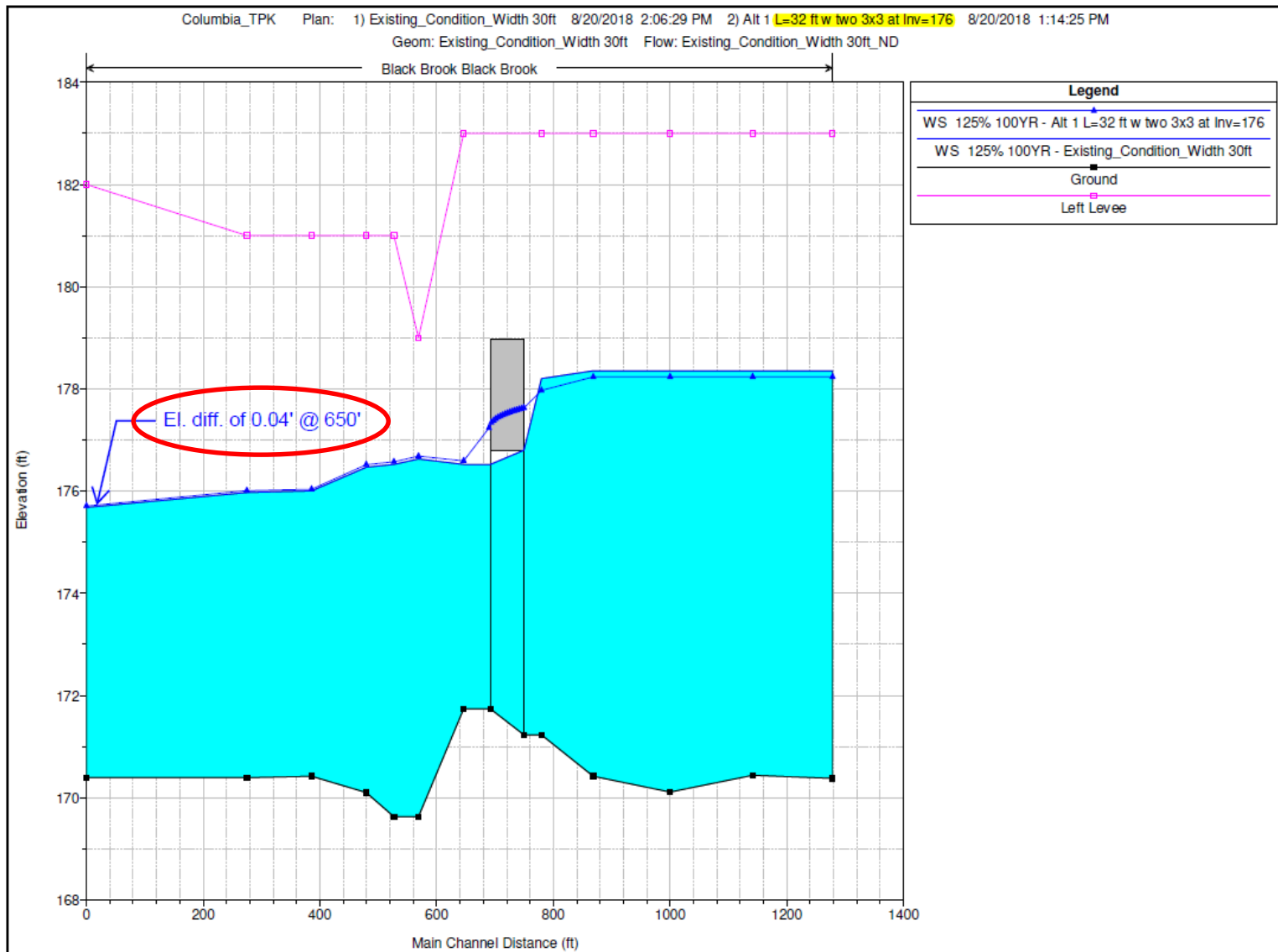
**TYPICAL SECTION – INVERSE ALTERNATIVE**

# HYDRAULIC PROFILE – 52' SPAN ALIGNMENT NEAR EXISTING



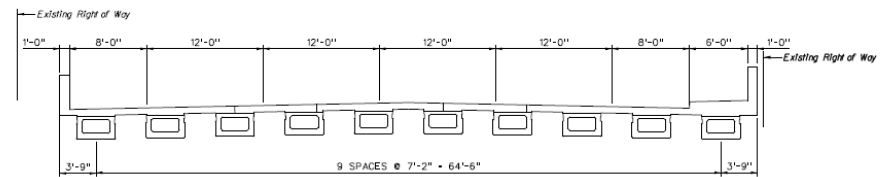
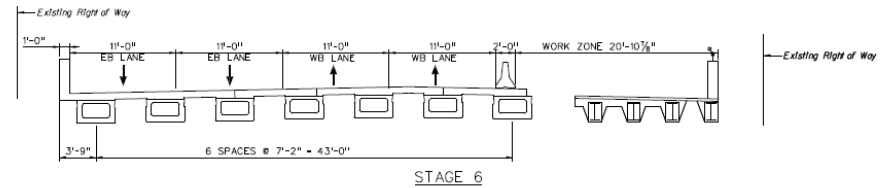
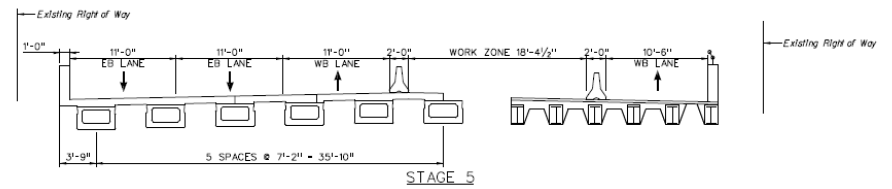
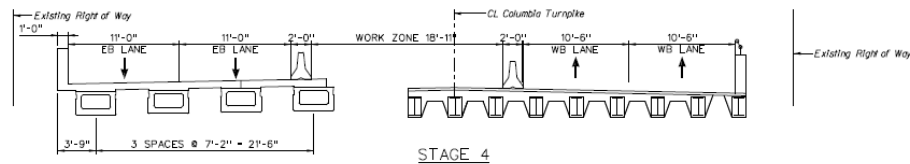
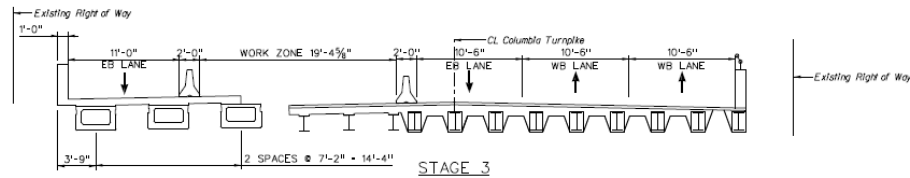
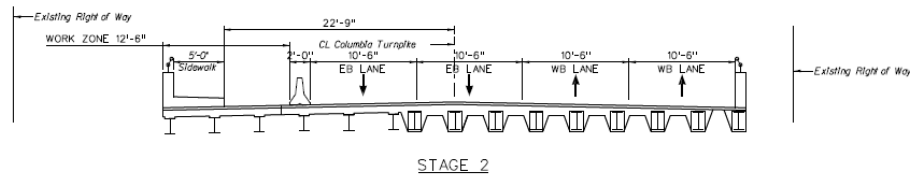
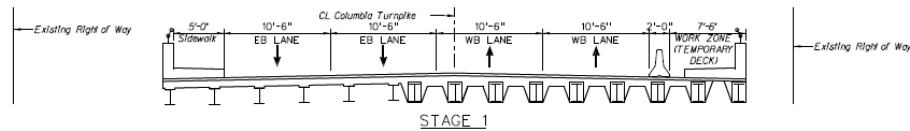


# HYDRAULIC PROFILE – 32' SPAN ALIGNMENT NEAR EXISTING



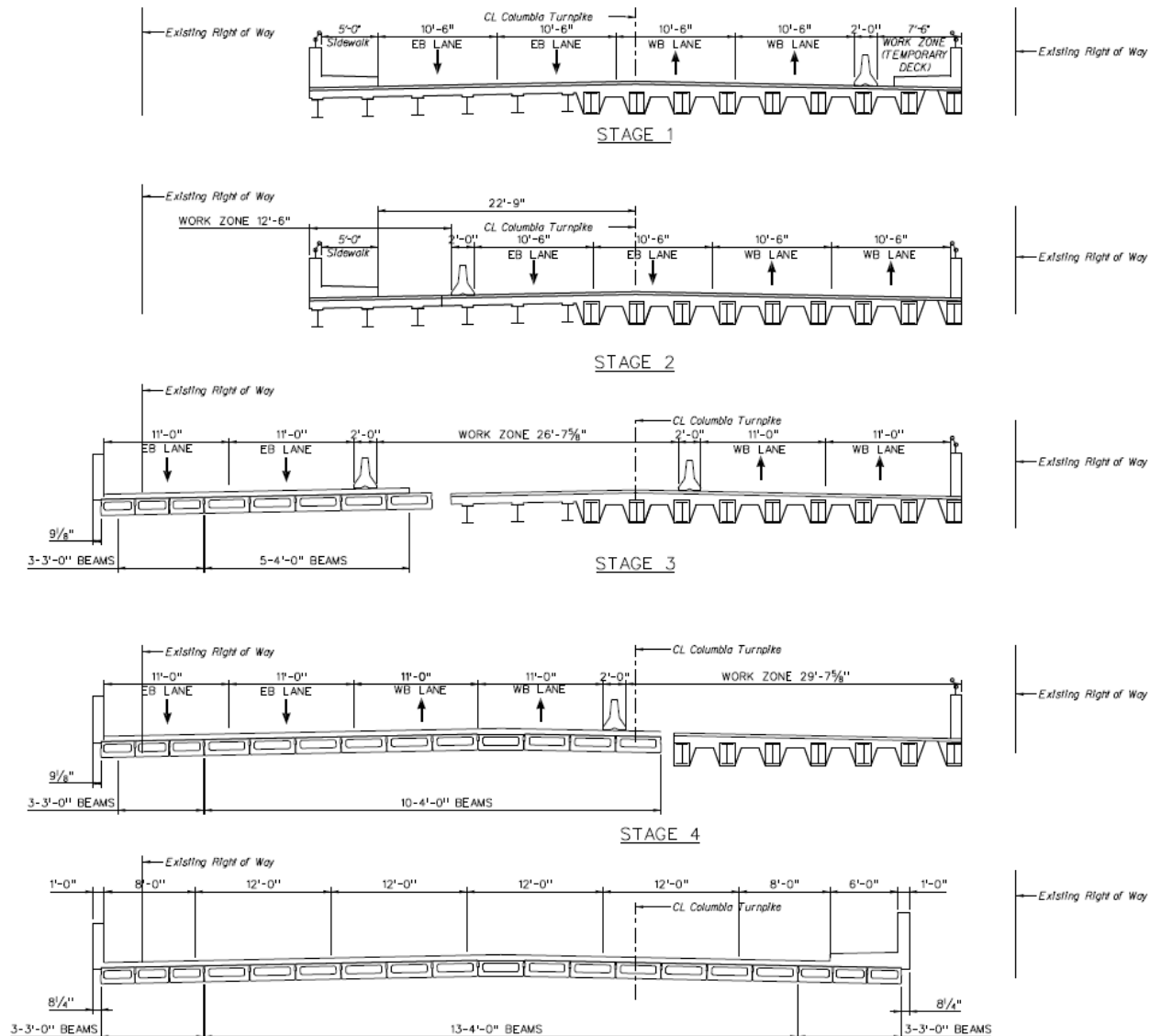
# STAGING CONCEPT 1

## ALIGNMENT NEAR EXISTING (ALTERNATE 1C)



# STAGING CONCEPT 2

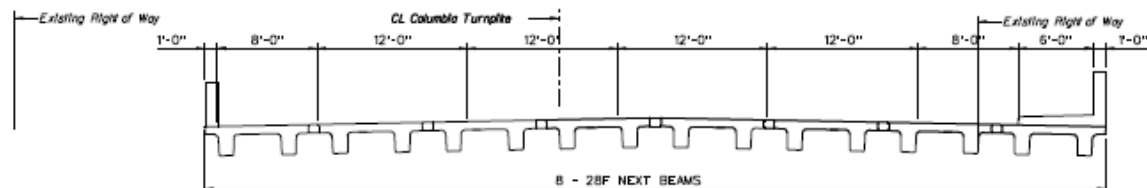
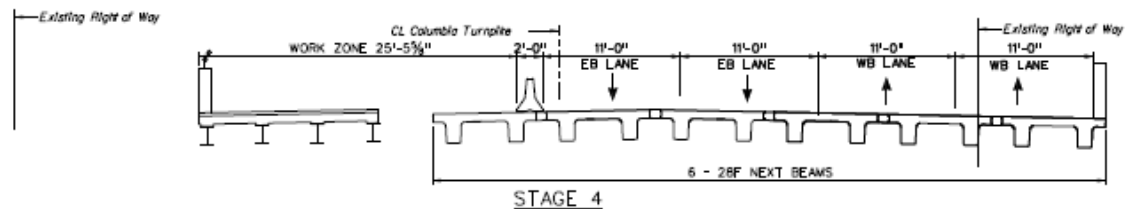
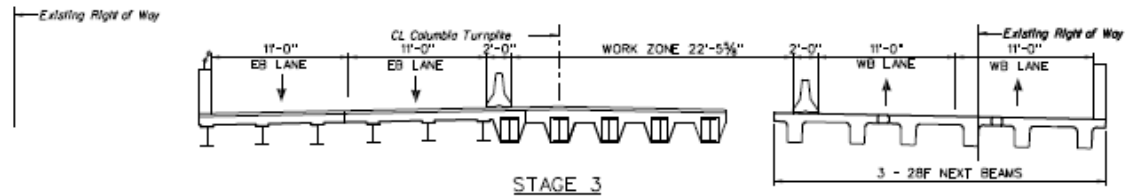
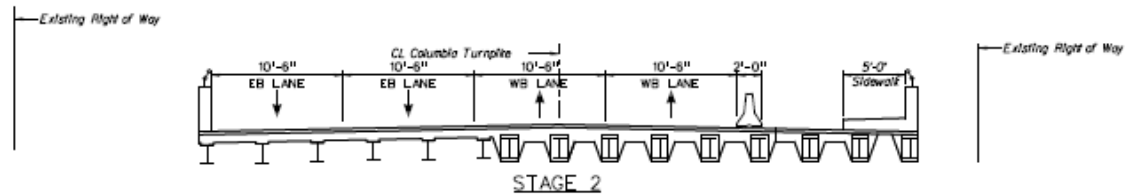
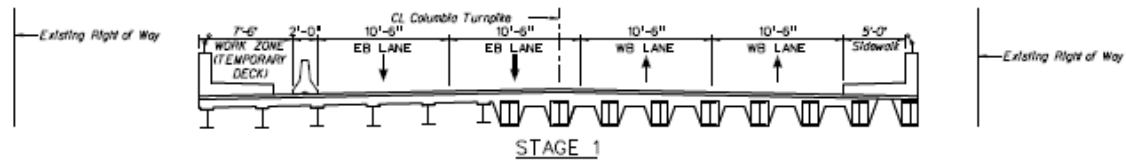
## ALIGNMENT SHIFTED TO SOUTH (ALTERNATE 2D)





# STAGING CONCEPT 3

## ALIGNMENT SHIFTED TO NORTH (ALTERNATE 3A)



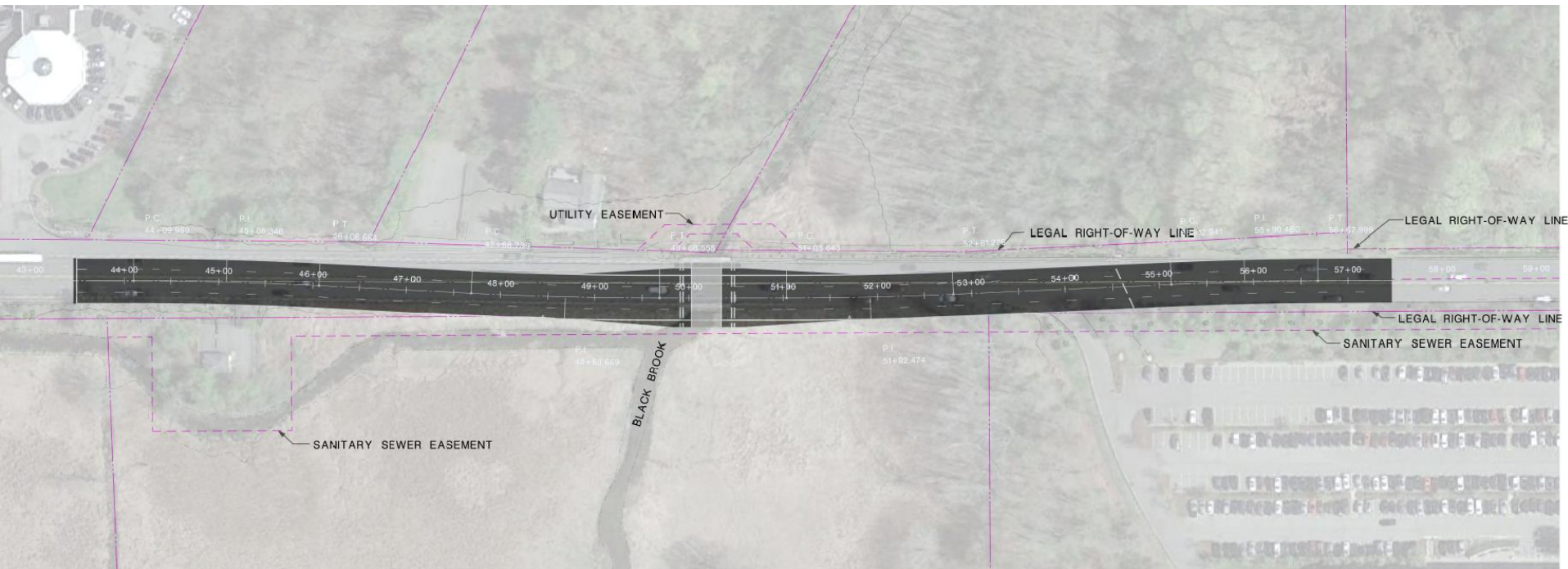
# STAGING CONCEPT 1 - ROADWAY PLAN

## ALIGNMENT NEAR EXISTING (32' SPAN)



# STAGING CONCEPT 2 - ROADWAY PLAN

## ALIGNMENT SHIFTED TO SOUTH (32' SPAN)



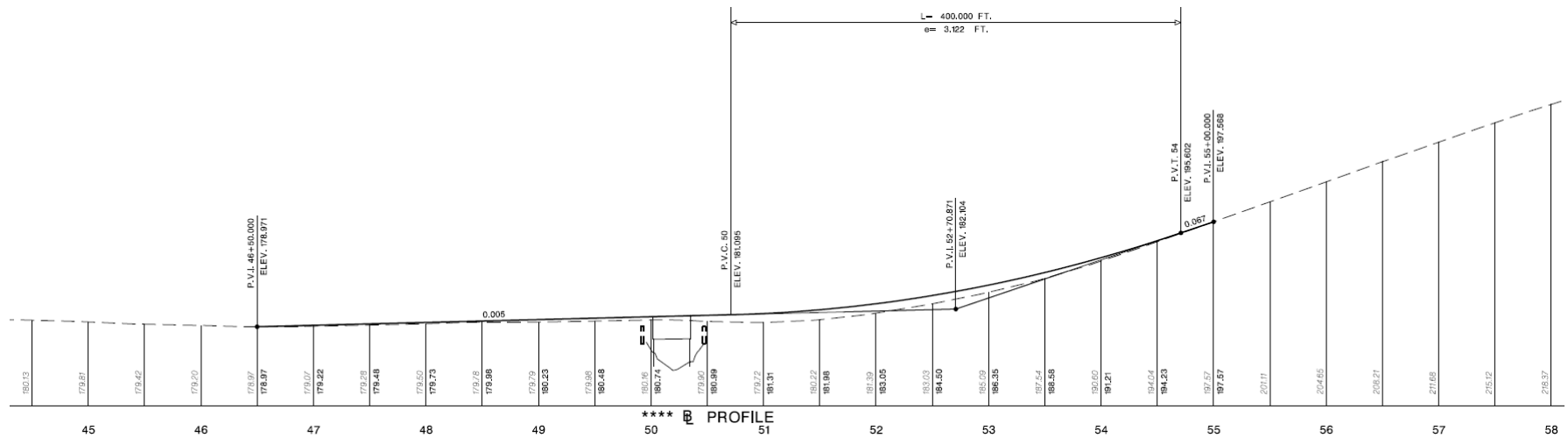


# STAGING CONCEPT 3 – ROADWAY PLAN

## ALIGNMENT SHIFTED TO NORTH (32' SPAN)

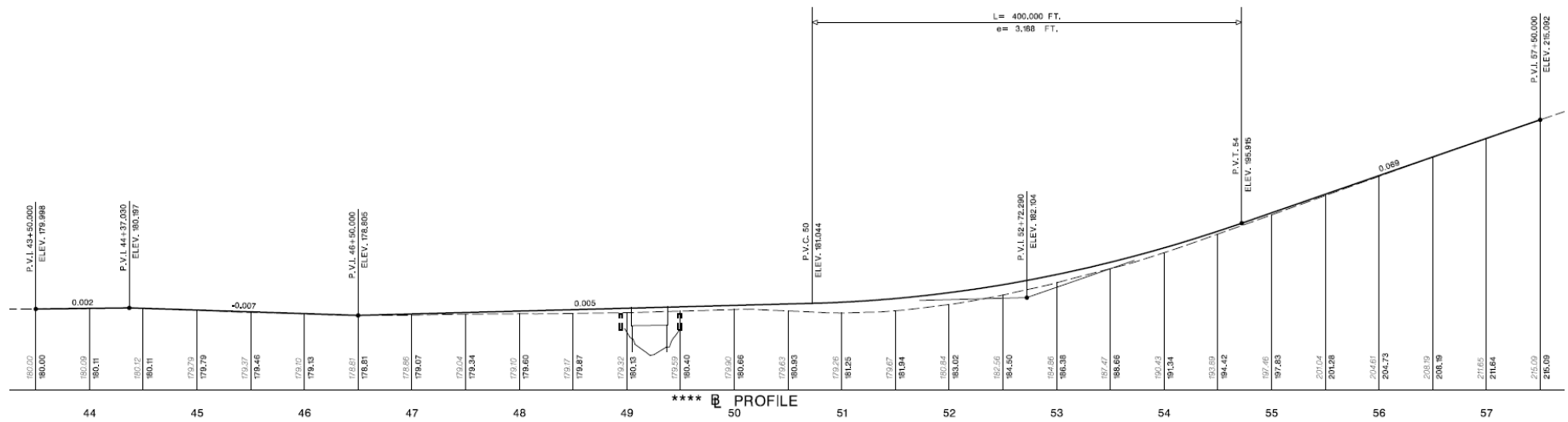


# STAGING CONCEPT 1 – ROADWAY PROFILE NEAR EXISTING ALIGNMENT (32' SPAN)



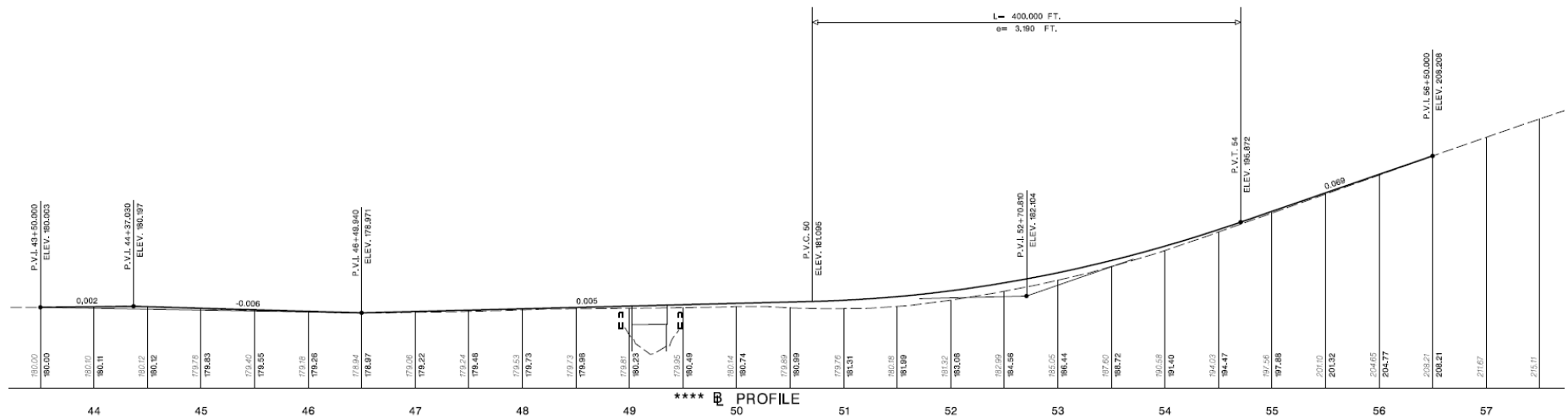
# STAGING CONCEPT 2 – ROADWAY PROFILE

## ALIGNMENT SHIFTED TO SOUTH (32' SPAN)



# STAGING CONCEPT 3 – ROADWAY PROFILE

## ALIGNMENT SHIFTED TO NORTH (32' SPAN)





# STAGING CONCEPT 1 – ROADWAY PLAN ALIGNMENT NEAR EXISTING (52' SPAN)



# STAGING CONCEPT 2 – ROADWAY PLAN

## ALIGNMENT SHIFTED TO SOUTH (52' SPAN)

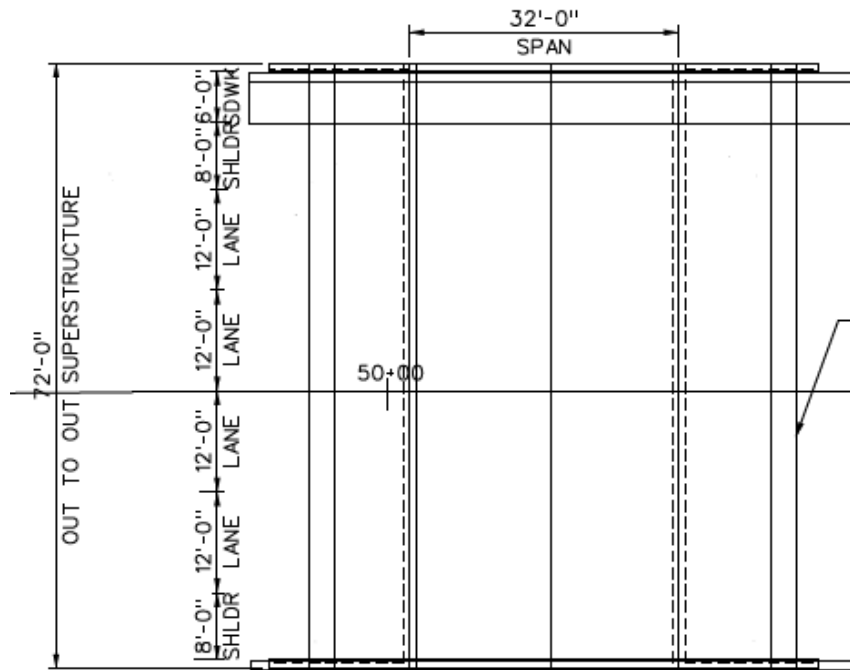


# STAGING CONCEPT 3 – ROADWAY PLAN

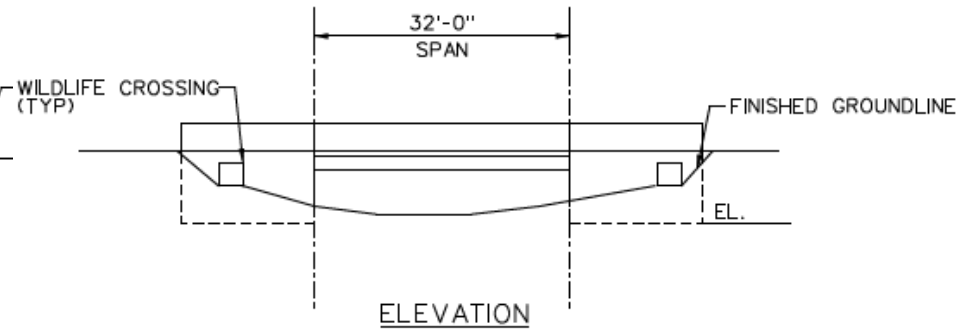
## ALIGNMENT SHIFTED TO NORTH (52' SPAN)



# PRELIMINARY PLAN AND ELEVATION



PLAN



ELEVATION



# PROJECT SCHEDULE

- 18 month completion schedule
- **Major Milestones**
  - Purpose and Need Statement – June 2018
  - Development of Conceptual Alternatives – August 2018
  - Selection of Preliminary Preferred Alternative – November 2018
  - Submission of Draft Local Concept Development Report – March 2019
  - Completion of Local Concept Development Phase – June 2019

# COMMUNITY INVOLVEMENT SCHEDULE

## Project Introduction and Purpose & Need

- Local Officials Briefing #1 – April 24, 2018
- Public Information Center #1 – May 9, 2018

## Obtain Input on Conceptual Alternatives

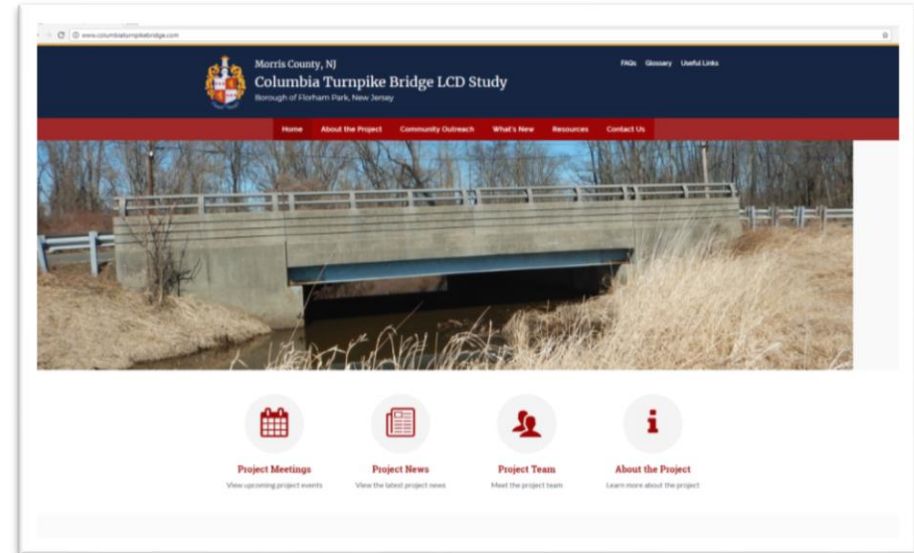
- Local Officials Briefing #2 – August 30, 2018
- Stakeholders Meeting – September 11, 2018
- Public Information Center #2 – September 11, 2018

## Selection and Presentation of Preliminary Preferred Alternative

- Local Officials Briefing #3 – Fall 2018
- Public Information Center #3 – Fall 2018

# PROJECT WEBSITE AND SOCIAL MEDIA

- PROJECT WEBSITE
  - <http://www.columbiaturnpikebridge.com/>
- TWITTER
  - @Columbia\_Bridge
  - [https://twitter.com/Columbia\\_Bridge](https://twitter.com/Columbia_Bridge)
- POWERPOINT PRESENTATION
  - will be posted on the project website



# PROJECT CONTACT INFORMATION

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# THANK YOU

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or to contact us:**



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