PRESENTATION OVERVIEW

Groton Long Point Road Bridge
Over Palmer’s Cove

- Background – October 2013 Presentation of Bridge Study Final Report
- Presentation of Aug. 2015 Structure Type Study Report
  - Alternative Bridge Types Considered
  - Causeway Stability
  - Roadway Project Limits
  - Location of Sidewalk
  - Relocation of Overhead Utilities
  - Bridge Vertical Clearance
  - Federal Funding Opportunity
PROJECT AREA
ROADWAY RECONSTRUCTION LIMITS
THE FUTURE OF THE GROTON LONG POINT ROAD BRIDGE OVER PALMER’S COVE
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Boater Concerns
- Vertical Clearance
- Horizontal Clearance
- Dredge Channel
- Maintain Access Between March and November and During Construction

Bridge User Concerns
- Widened for Bicycles and Pedestrians Safely
- Walkway for Pedestrians
- Children Jumping from Bridge
- Fishing Platform
- Water Main on Bridge is Back-up for Groton Long Point
Environmental Concerns
- Increase Tidal Flow
- Sediment Accumulation Causing Sand Bar
- Withstand Major Hurricanes
- Protect Homeowners Adjacent
- Only Route Off Point in Emergency

Timing
- Accident Waiting to Happen
- Repaired ASAP
SCOPE OF WORK

Prepare Engineering Investigation and Evaluation of Rehabilitation Options for Bridge and Causeway.
<table>
<thead>
<tr>
<th>STUDY OBJECTIVES</th>
</tr>
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<tbody>
<tr>
<td>Provide Safe Bridge Crossing and Roadway for Vehicles and Pedestrians</td>
</tr>
<tr>
<td>Provide Causeway Capable of Withstanding Storm Surge</td>
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<tr>
<td>Provide Structure that is Economical to Build and Maintain</td>
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<tr>
<td>Minimize Environmental Impacts of Project</td>
</tr>
<tr>
<td>Provide an Aesthetically Pleasing Structure that Complements the Area</td>
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</table>
EXISTING ROAD AND BRIDGE CONDITIONS
Bridge and Causeway Built in 1935

- Wire Rope Guide Rail
  - Substandard, poor condition
  - Not connected to bridge parapets
  - Minimal embedment due to erosion

30’ Roadway

EXISTING ROADWAY
**Superstructure**
- Concrete Encased Steel Beams
- Cast-in-Place Concrete Deck
- Abutments and Flared Wingwalls with Stone Veneer
- Supported on Wood Piles
- Concrete Parapets
 UTILITIES

- Overhead Utilities
  - Electrical Feed to Fishers Island
- Watermain
- Sanitary Sewer Force Main
COMBINED UNDERWATER AND IN-DEPTH INSPECTION

BRIDGE NO. 04675
GROTON LONG POINT ROAD OVER PALMER COVE
GROTON, CONNECTICUT
SEPTEMBER 7, 2012

BRIDGE SAFETY INSPECTION
STATE PROJECT NO. 170-2868

Prepared by:

MCLaren
45 Barberry Lane, Meriden, CT 06457
100 Snake Hill Road, West Nyack, NY 10994

Garg Consulting Services, Inc.
2096A Silas Deane Hwy
Rocky Hill, CT 06067

CTDOT
SEPTEMBER 7, 2012
IN-DEPTH & UNDERWATER INSPECTION RESULTS
Executive Summary

Bridge No. 04674 carries Groton Long Point Road over Palmer Cove in Groton. The single-span concrete encased steel multi-girder bridge with reinforced concrete deck was built in 1935, has an overall length of 56 feet and a curb-to-curb width of 30 feet. Stone masonry abutments support the superstructure. Palmer Cove is a salt water body with tidal flow. According to the information on file with the Connecticut Department of Transportation, the Inventory rating for an H-20 loading is 75 tons using composite action between the deck and girders. Due to the separation between the deck and beams, the previous load rating should be updated analyzing the bridge as a non-composite structure.

A combined underwater and in-depth inspection was started on September 7, 2012 and completed on September 12, 2012 and found the bridge to be in poor condition (overall rating = 4). The deficiencies found on the bridge and recommendations for repairs are as follows:

Deck:

The deck is in poor condition (Overall rating = 4) due to the following:

1. Approximately 50% of the bituminous concrete overlay has hollow areas with map cracks and areas of concrete pumping through cracks. There is a bituminous patch in eastbound lane over the East Abutment. Seal the cracks (400 LF).
2. The deck ends over the abutments have random transverse cracks up to full length, raveling areas up to 1 ft. by 3 in. by 1 in. deep, minor uneven areas, bituminous patches and spalls. Repair overlay and/or joint detail at deck ends (40 LF).
3. The underside of the concrete deck has random transverse hairline cracks with isolated dampness and efflorescence, and extensive areas of hairline map cracking with dampness and/or efflorescence. There are random hollow areas and spalls along the underside of the deck overhangs adjacent to the fascia girders up to 10 ft. long by 10 in. wide and up to 1 in. deep. Both deck ends over the abutments are spalled up to full length by 4 in. wide by 3 in. deep with random areas of exposed reinforcement. There is up to a 3/8 in. gap by 10 ft. long between the top of all girders and the deck overhang for full length. The total underside of deck deterioration is approximately 43.4%. Continue to monitor.
4. There are free fall drain pipes at all four corners of the bridge. The northeast, northwest and southeast pipes are fully clogged with dirt, and the end 6 in. of the drain pipes have up to 100% loss. Clean out drain pipes (3 EA).

Superstructure:

The superstructure is in poor condition (Overall rating = 4) due to the following:

1. Steel sliding plates at both abutments have light to moderate rust with random areas of painted over laminated rust and pack rust between plates up to 1 inch thick. West Abutment bearing plates have random areas of pitting up to ¼ in. deep. No evidence of movement. Continue to monitor.
2. The bottom flanges at the bearing areas have as little as ¼ in. remaining at the edge of the flange for up to 1 in. wide at both sides along the bearing plates (1 ¼ in. original, 2.7% loss in non
The substructure is in fair condition (Overall rating = 5) due to the following:

1. There are random vertical and transverse hairline cracks in the concrete abutment caps with rust stains. The West Abutment has hollow areas under G5 & G6, 6 square feet total. Also, hollow areas extend along the side of bearings with heavy scale areas ½ in. deep. The stone masonry has random hairline cracks in the mortar joints. Continue to monitor.
2. The concrete wingwall caps have hairline map cracking throughout and several random vertical and transverse cracks up to ½ in. wide. Stems have random displaced stones. All four wingwalls have spalls near the ends of the walls up to 4 ft. Long by 0.9 ft. high by 0.8 ft. deep. The caps are typically displaced at these spall locations, up to 1½ in. (all wingwalls except northwest). The stone masonry has up to 20% of loose/missing mortar along the joints with up to 1.5 ft. of penetration. The northwest wingwall has a ¾ in. wide by up to 6 ft. high vertical crack adjacent to the abutment stem. Repair deteriorated concrete along the caps (1 CY).

The channel is in satisfactory condition (Overall rating = 6) due to the following:

1. The mudline along the West Abutment has typically lowered up to 0.9 ft. and there is up to 1.2 ft. of degradation along the northwest wingwall since the 2008 inspection. The mudline along the East Abutment has typically lowered up to 0.5 ft. since the 2008 inspection. The mudline along the north fascia has lowered up to 0.9 ft. and has risen up to 0.7 ft. since the 2008 inspection. Continue to monitor.

The approach is in fair condition (Overall rating = 5, downrated from 6) due to the following:

1. The cables of the approach guide rails are typically slack, the timber posts are typically weathered and random posts are leaning/tilted. One post at the southeast approach is snapped off at ground level. Consider installing an improved guide rail system.
2. Both approach pavements have random longitudinal and transverse cracks. The pavement along the deck ends is breaking up with random areas of raveling, and is settled up to 2 in. (worst locations are in the north shoulder over the East Abutment). Seal the cracks (100± LF) and repair potholes and settlement (<½ TON).
3. There is an 8 in. diameter by 1 ft. deep erosion area at the northwest embankment adjacent to the first timber guard rail post, and a 10 ft. by 3 ft. by up to 1 ft. deep erosion area along the southwest embankment. Repair erosion areas (1 CY).
CONDITIONS OF EXISTING BRIDGE

- Last inspected by CTDOT: September 7, 2012

- Deck
  - Roadway surface – Cracking at joints
  - Underside of deck – Extensive map cracking
  - Rated: 4
### CONDITIONS OF EXISTING BRIDGE

- **Superstructure**
  - Concrete encased beams
  - Rated: 4
 CONDITIONS OF EXISTING BRIDGE

- **Substructure**
  - Rated: 5

- **Overall Condition:**
  - Poor
CONDITIONS OF EXISTING CAUSEWAY

- **Causeway**
  - Randomly Placed Stone of Various Sizes
  - Brush, Small Trees
  - Sand Below High Tide Line
Hurricane Sandy Preliminary Damage Assessment Report

- Struck October 29, 2012
- No observable movement, cracking or shifting of substructure, substructure or roadway surface
- Eroded along edge of roadway on southern bank of causeway
- Water over-topped roadway in low profile area west of bridge
- Eastbound lane closed to traffic

Roadway Elevations
- Center of Bridge: Elevation 9.30
- Roadway Low Point (240’ West of Bridge): Elevation 7.96
New London Gauging Station
Water level peaked October, 29, 2012 at 8:12pm
  - Water level peak: Elevation: 6.16
Bridge Bottom Chord Elevation: Elevation 5.72

Supports evidence wave action over-topped roadway
From 7:48 PM to 8:54 PM
  - Water Level: Elevation 6.0
From 6:00 PM to 10:36 PM
  - Water Level: Elevation 5.0
PROPOSED BRIDGE REHABILITATION ALTERNATIVES
<table>
<thead>
<tr>
<th>Bridge Rehabilitation</th>
<th>Alternative No. 1</th>
<th>Alternative No. 2</th>
<th>Alternative No. 3</th>
<th>Alternative No. 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Superstructure Replacement</td>
<td>Superstructure Replacement with Pedestrian Bridge</td>
<td>Bridge Replacement Single Span</td>
<td>Bridge Replacement Three Span</td>
</tr>
</tbody>
</table>

**OVERVIEW**
BASIS OF ALTERNATIVE STRUCTURE TYPE SELECTION

- Must accommodate staged construction to maintain vehicular traffic flow
- Must be durable in coastal environment
- Must be economical to build and maintain
- Separate permanent or temporary pedestrian bridge is required to maintain pedestrian traffic during construction
- Reuse of some structural elements considered for reasons of economy
- Rehabilitation of existing superstructure considered deemed impractical and uneconomical
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td><strong>Roadway</strong></td>
<td><strong>30’</strong></td>
</tr>
<tr>
<td><strong>Travel Lanes</strong></td>
<td><strong>12’</strong></td>
</tr>
<tr>
<td><strong>Shoulders/Bike Lane</strong></td>
<td><strong>3’</strong></td>
</tr>
<tr>
<td><strong>Pedestrian Accommodations</strong></td>
<td><strong>None</strong></td>
</tr>
</tbody>
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EXISTING ROADWAY
<table>
<thead>
<tr>
<th>Feature</th>
<th>Measurement</th>
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<tbody>
<tr>
<td>Roadway</td>
<td>33’</td>
</tr>
<tr>
<td>Travel Lanes</td>
<td>12’</td>
</tr>
<tr>
<td>Shoulders/Bike Lane</td>
<td>4’ 6”</td>
</tr>
<tr>
<td>Pedestrian Accommodations</td>
<td>None</td>
</tr>
<tr>
<td>Superstructure Replacement with Sidewalk</td>
<td></td>
</tr>
<tr>
<td>------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Alternative No.2</td>
<td></td>
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</tbody>
</table>

**Roadway:** 33’

**Travel Lanes:** 12’

**Shoulders/Bike Lane:** 4’ 6”

**Pedestrian Accommodations:**

- Pedestrian Bridge: 6’
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Roadway</td>
<td>33’</td>
</tr>
<tr>
<td>Travel Lanes</td>
<td>12’</td>
</tr>
<tr>
<td>Shoulders/Bike Lane</td>
<td>4’ 6”</td>
</tr>
<tr>
<td>Pedestrian Accommodations</td>
<td>6’ Sidewalk</td>
</tr>
</tbody>
</table>
ALTERNATIVE NO.1 - SUPERSTRUCTURE REPLACEMENT
ALTERNATIVE NO.2 - SUPERSTRUCTURE REPLACEMENT WITH SIDEWALK
ALTERNATIVE NO. 3 - BRIDGE REPLACEMENT AND WIDENING
ALTERNATIVE NO.1 - SUPERSTRUCTURE REPLACEMENT
ALTERNATIVE NO.3 - BRIDGE REPLACEMENT AND WIDENING
EXISTING
ALTERNATIVE NO.1 - SUPERSTRUCTURE REPLACEMENT
ALTERNATIVE NO.2 - SUPERSTRUCTURE REPLACEMENT WITH SIDEWALK
ALTERNATIVE NO.3 - BRIDGE REPLACEMENT AND WIDENING
SUMMARY

ALTERNATIVE NO. 1 – Superstructure Replacement
- Roadway: 33’
- Travel Lanes: 12’
- Shoulders: 4’ 6”
- Pedestrian Accommodations: None

ALTERNATIVE NO. 2 – Superstructure Replacement with Sidewalk
- Roadway: 33’
- Travel Lanes: 12’
- Shoulders: 4’ 6”
- Pedestrian Accommodations: 6’ Pedestrian Bridge

ALTERNATIVE NO. 3 – Bridge Replacement with Widening and Sidewalk
- Roadway: 33’
- Travel Lanes: 12’
- Shoulders: 4’ 6”
- Pedestrian Accommodations: 6’ Sidewalk

ALTERNATIVE NO. 4 – Full Replacement 3 Spans, 36’-86’-36’
- Roadway: 33’
- Travel Lanes: 12’
- Shoulders: 4’ 6”
- Pedestrian Accommodations: 6’ Sidewalk
<table>
<thead>
<tr>
<th>Alternative No.</th>
<th>Description</th>
<th>Cost</th>
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</thead>
<tbody>
<tr>
<td>No. 1</td>
<td>Superstructure Replacement</td>
<td>$1,700,000</td>
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<tr>
<td>No. 2</td>
<td>Superstructure Replacement with Sidewalk</td>
<td>$2,400,000</td>
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<tr>
<td>No. 3</td>
<td>Bridge Replacement and Widening</td>
<td>$4,100,000+</td>
</tr>
<tr>
<td>No. 4</td>
<td>Full Bridge Replacement</td>
<td>$5,400,000+</td>
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</tbody>
</table>
PROPOSED CAUSEWAY
REHABILITATION ALTERNATIVES

Alternative A
Placement of Additional Protective Stone Armoring

Alternative B
Pile Support Retaining Wall
## Construction Cost Summary

### Causeway Options

<table>
<thead>
<tr>
<th>Alternative A</th>
<th>Alternative B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protective Armoring</td>
<td>Pile Supported Retaining Wall to Support Widened Roadway</td>
</tr>
<tr>
<td>$500,000</td>
<td>$1,000,000</td>
</tr>
</tbody>
</table>
Figure 9
Alternative No. 2
Superstructure Replacement
and Pedestrian Bridge
Stage Construction

STAGE 1A
5 EXISTING AND PROPOSED Griswold Long Point Road
13'-0" 1'-0"
ALTERNATING ONE-WAY TRAFFIC
DEMOLISH EXISTING BRIDGE DECK
INSTALL TPOC, ANCHOR TO EXISTING DECK BY THROUGH-RODING OR USING CHEMICAL INSERTS.
SAND OUT EXISTING BRIDGE DECK

STAGE 2A
5 EXISTING AND PROPOSED Griswold Long Point Road
18'-17"
12'-0"
ALTERNATING ONE-WAY TRAFFIC
DEMOLISH EXISTING BRIDGE
INSTALL PREFABRICATED PEDESTRIAN BRIDGE
PERMANENT PREFABRICATED PEDESTRIAN BRIDGE

STAGE 1B
5 EXISTING AND PROPOSED Griswold Long Point Road
13'-0"
2'-0"
ALTERNATING ONE-WAY TRAFFIC
CONSTRUCT PROPOSED BRIDGE
INSTALL TPOC ON TEMPORARY BLOCKING, ANCHOR TO BOX BEAMS USING INSERTS CAST INTO BEAMS.
3" MIN. HIGH BEARING SURFACE OVER WEP WATERPROOFING
2'-0" DEEP PRESTRESSED CONCRETE BOX BEAMS

STAGE 2B
5 EXISTING AND PROPOSED Griswold Long Point Road
18'-17"
12'-0"
ALTERNATING ONE-WAY TRAFFIC
CONSTRUCT PROPOSED BRIDGE
INSTALL PREFABRICATED PEDESTRIAN BRIDGE
2'-0" DEEP PRESTRESSED CONCRETE BOX BEAMS
PERMANENT PREFABRICATED PEDESTRIAN BRIDGE

STAGE CONSTRUCTION
SCALE 1/2" = 1'-0"
Figure 10
Alternative No. 3
Complete Replacement with Single-Span Bridge
General Plan & Elevation
Figure 11
Alternative No. 3
Complete Replacement with Single-Span Bridge

Typical Section
**Stage Construction**

- **Stage 1A**: Install temporary modular pedestrian bridge. Demolish existing bridge deck. Install PPC anchor to existing deck by through-inserting or using chemical inserts.

- **Stage 2A**: Continue with the installation process.

- **Stage 1B**: Construct proposed bridge. Install temporary blocking. Anchor to box beams using inserts cast into beams. Install 3" min. hand wearing surface over w/p waterproofing. Install 22" deep prestressed concrete box beams with 5" C-210 reinforced concrete topping.

- **Stage 2B**: Complete the construction process with appropriate materials and techniques.

**Figure 12**

*Alternative No. 3 Complete Replacement with Single-Span Bridge Stage Construction*
Figure 15
Alternative No. 4
Complete Replacement with Three-Span Bridge
Stage Construction
CONSTRUCTION STAGING
CONSTRUCTION STAGING

Objective: Maintain vehicular, pedestrian, and marine traffic flow

Construct Pedestrian Bridge and Walkway

Install Temporary Traffic Signal

Implement Alternating Traffic Flow

Construction Stage 1 - Southerly Half of Bridge

Open Completed Half to Traffic

Construct Stage 2 - Northerly Half of Bridge

Open New Bridge to Traffic
STAGE 2

TEMPORARY TRAFFIC SIGNAL

WORK ZONE

TEMPORARY TRAFFIC SIGNAL

PEDESTRIAN BRIDGE AND WALKWAY
CONSTRUCTION SCHEDULE

Driven by Environmental Permit Restrictions

Stage 1
  - First Season

Stage 2
  - Second Season
OPEN DISCUSSION
AND
QUESTIONS & ANSWERS

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ROADWAY RECONSTRUCTION LIMITS
Evaluated
- (3) roadway structure type options
- (3) pedestrian structure type option
- Causeway stability analysis
ALTERNATIVE BRIDGE TYPES CONSIDERED

- **Superstructure Replacement Alternatives**
  - Alternative SR1, Prestressed Concrete Box Beams
  - Alternative SR2, Steel Rolled Beams
  - Alternative SR3, NEXT Beams

- **Pedestrian Bridge Alternatives**
  - Alternative PB1, Prestressed Concrete Box Beams
  - Alternative PB2, Steel Rolled Beams
  - Alternative PB3, Prefabricated Half Through Truss
CONSTRUCTION COST

- **Superstructure Replacement Alternatives**
  - Alternative SR1, Prestressed Concrete Box Beams - $898,000
  - Alternative SR2, Steel Rolled Beams - $973,000
  - Alternative SR3, NEXT Beams - $927,000

- **Pedestrian Bridge Alternatives**
  - Alternative PB1, Prestressed Concrete Box Beams - $417,000
  - Alternative PB2, Steel Rolled Beams - $491,000
  - Alternative PB3, Prefabricated Half Through Truss - $378,000

- **Cost Differences between Alternatives are Negligible**
ROADWAY RECONSTRUCTION

- Maintain essentially same width within 60 R.O.W.
  - Start at Fisherman Restaurant
  - End at East Shore Drive
- Provide sidewalk on one side
  - Need further study to determine North or South side
- Maintain essentially same profile grade on approaches
  - Grade at bridge about 1 foot higher
- Relocate Overhead Utilities
  - Electrical
  - Telephone
  - Cable

- Relocate Watermain to New Bridge
Existing constructed after Hurricane Carol (1954)

Revetment comprised of large riprap (stones with dimensions of 4-5 feet)

Withstood numerous major storms since construction
  - Numerous Nor’easters
  - Tropical Storm Irene (2011)
  - Remnants of Hurricane Sandy (2012 – Storm of Record)

Minor damage reported

Revetment will be reconstructed to support widened roadway
New revetment designed according to state-of-the-art Federal Highway guidelines and procedures

New revetment will comprise well-graded riprap of approximately the same size

Designed with top and toe embedment

New design considers projected sea level rise
  - 10” of the next 100 years
FUNDING OPTION

- Federal Funds
- HBP / Off System Bridge STP
- Reimbursement
  - Federal – 80%
  - Town – 20%
Eligible Costs

Preliminary Engineering
- Advertising for consulting engineer selection (RFQ/RFPs, etc.)
- Engineering studies and inspections undertaken to determine whether a bridge is eligible for the Local Bridge Program
- Preliminary surveys
- Preliminary engineering activities, including type studies, preparation of project plans, specifications, and cost estimates
- Preparation of bid documents
- Preparation of permit applications
- Soil borings and other subsurface investigations used for design
- Public hearings and legal notices
- Historical reviews and archeological studies prior to construction
FEDERAL FUNDING (CONTINUED)

- Rights of Way
  - Property and easement acquisition
  - Property appraisals
  - Title searches
  - Legal fees for eminent domain proceedings
- Utilities
- Construction
  - Construction costs
  - Temporary structures necessary to perform the work
  - Payroll costs of municipal employees directly working on the project
  - Costs generally recognized as reasonable and necessary for the performance of the project taking
  - Costs incurred to comply with Federal and State laws and regulations
FEDERAL FUNDING (CONTINUED)

- Construction Engineering / Incidentals to Construction
  - Construction inspection
  - Materials testing
  - Construction advertising
  - Construction bid review and analysis
  - Review of shop, construction and working drawings
  - Engineering support and consultation during construction
  - Inspector’s field office costs
  - Archeological studies after beginning construction
  - Construction staking and surveying not performed by the construction contractor
  - Other costs generally recognized as reasonable and necessary for the performance of the project to the standards used on CTDOT projects
NEXT STEPS

- Advance bridge design
- Establish roadway profile
- Design roadway reconstruction
  - Confirm project limits
- Determine sidewalk location
- Design causeway stability
- Determine project funding
OPEN DISCUSSION
AND
QUESTIONS & ANSWERS
NOTE:
APPROXIMATE VEHICULAR BRIDGE DEPTH IS 3-10 FEET MEASURED FROM POINT OF APPLICATION OF GRADE TO THE BOTTOM OF LOW CHORD ELEVATION.

TYPICAL SECTION
SCALE: 3/16" = 1'-0"
Figure X
Alternative No. 2
Rolled Beam
Vehicular Bridge
General Plan & Elevation
NOTE:
APPROXIMATE VEHICULAR BRIDGE DEPTH IS 3.45 FEET (MEASURED FROM POINT OF APPLICATION OF GRADE TO THE BOTTOM OF LOW CHORD ELEVATION).

TYPICAL SECTION
SCALE: 3/16" = 1'-0"
Figure X

Alternative No. 3
NEXT Beam
Vehicular Bridge

Typical Section
NOTE:
APPROXIMATE PEDESTRIAN BRIDGE DEPTH IS 6.22 FEET (MEASURED FROM POINT OF APPLICATION OF GRADE TO THE BOTTOM OF LOW CHORD ELEVATION).

ALTERNATIVE 1: BOX BEAM - ELEVATION
SCALE: 1" = 10'

NOTE:
APPROXIMATE PEDESTRIAN BRIDGE DEPTH IS 6.22 FEET (MEASURED FROM POINT OF APPLICATION OF GRADE TO THE BOTTOM OF LOW CHORD ELEVATION).

ALTERNATIVE 2: ROLLED BEAM - ELEVATION
SCALE: 1" = 10'

NOTE:
APPROXIMATE PEDESTRIAN BRIDGE DEPTH IS 6.22 FEET (MEASURED FROM POINT OF APPLICATION OF GRADE TO THE BOTTOM OF LOW CHORD ELEVATION).

ALTERNATIVE 3: PONY THRU PREFABRICATED TRUSS - ELEVATION
SCALE: 1" = 10'

Figure X
Pedestrian Bridge Alternatives
Bridge Sections and Elevations
TYPICAL SECTION

SCALE 1/16" = 1'-0"

Existing Bridge

Typical Section