



DENNIS-YARMOUTH BRIDGE REPLACEMENT

Br. No. D-07-004 = Y-01-003
Route 28 over Bass River



01

Project Location

Project Location



Project Limits

- Pleasant Street, Yarmouth
- Driveway at Bass River Park, Dennis

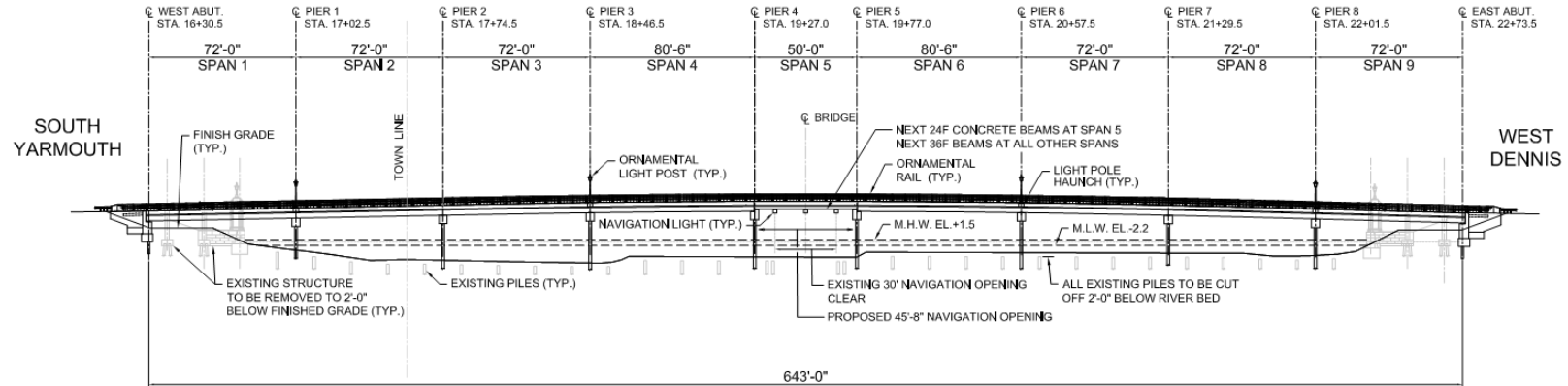
Adjacent Yarmouth Project

- Coordinating with adjacent project
- Main Street (Route 28) at North Main St. and Old Main St.

02

**Concept Cross Section,
Elevation, and Plan**

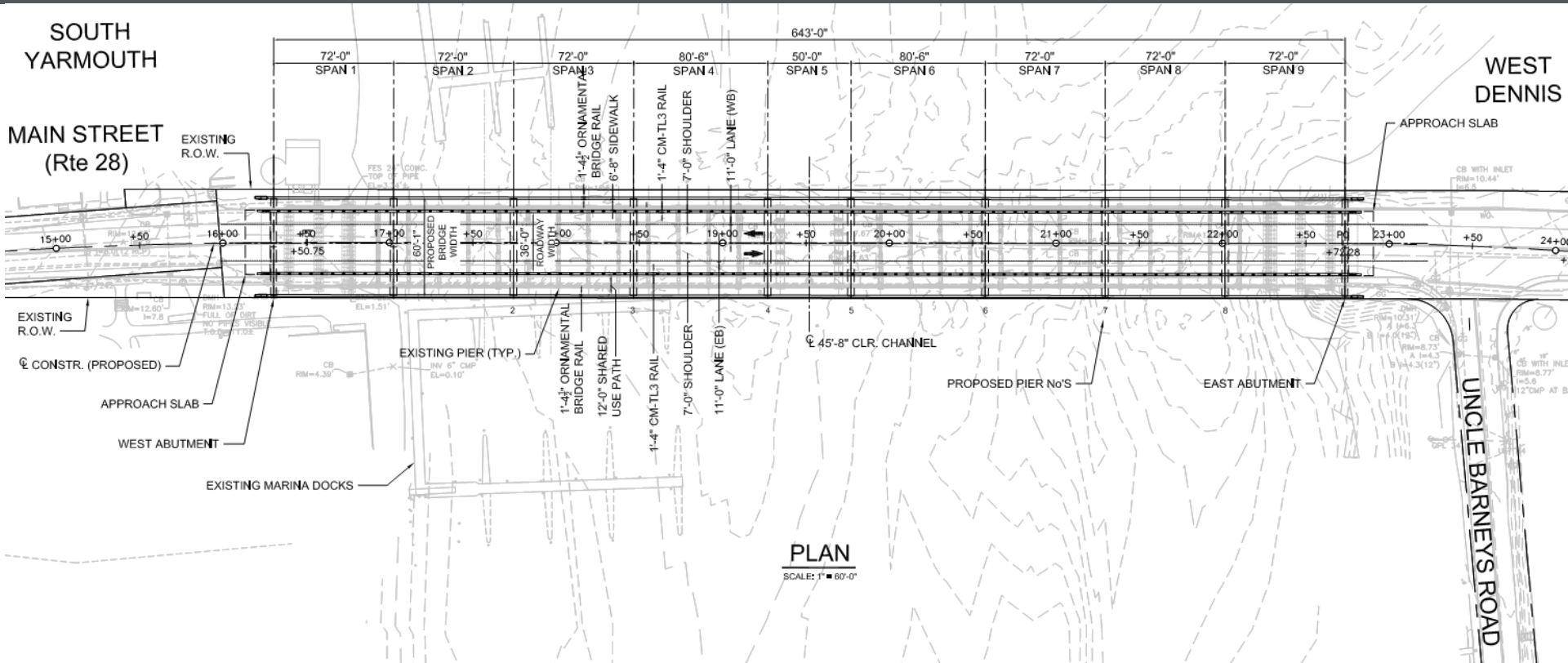
Concept Bridge Elevation



Concept Navigational Channel:
45'-8" Clear Span
15'-6" Vertical Clearance

Concept Approach Spans:
6 Spans at 72'-0"
2 Spans at 80'-6"
1 Nav. Channel at 50'-0"
Total Bridge Length = 643'-0"

Conceptual Bridge Plan View for a Shared Use Path



03 **Superstructure Selection**

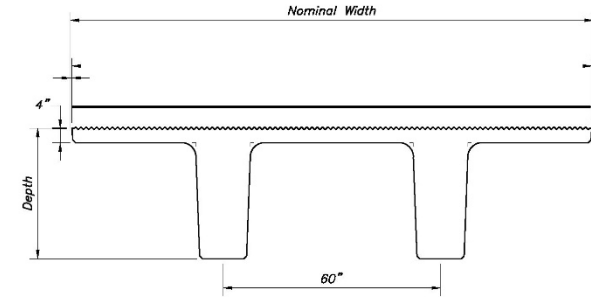
Span Arrangement & Superstructure Materials

Span Arrangement

- Existing Piers are spaced at 18'-0" apart
- Conceptual Plan to open up the Approach Span Piers to be spaced at 72'-0"

Superstructure Materials

- Structure Type best addresses the project constraints and parameters and best fits the site conditions (Aesthetics) .
- Use of Accelerated Bridge Construction (ABC) innovative rapid construction techniques.
- Bass River Bridge lends itself to a bridge to use ABC construction techniques.
- Northeast Extreme Tee (NEXT) beams with a composite concrete deck and 3" Bituminous Pavement.



STANDARD NEXT F BEAM
NOT TO SCALE

04

Current Project Status

Design Progress and Milestones

Design Status:

- Bridge Type Selection Worksheet submitted. (NEXT Beams)
- Addressing Type Study Comments
- Moving 25% Bridge/Highway Design forward.
- Ongoing Coordination with the Adjacent Projects.

Field Work:

- Survey has been Completed
- Preliminary Environmental Impact Evaluation is Complete
- Geotechnical Borings have been Completed
- Hydraulic Study is near completion.



05 **Aesthetics**

Span Arrangement & Aesthetics

Current Proposals

- Shared Use Path and Sidewalk Provide Ample Pedestrian Areas.
- Concrete Next Beams Maintain the Classic “Cape Look”, Compared to more Urban Steel Beams.
- Ornamental Lights and Railings will Provide a Traditional Look During the Day and Night.
- Minor Walkway Entrance Enhancements will Provide a Welcoming Environment.

Limitations

- Shared Use Path will Utilize Majority of the Southern Available Right of Way.
- Next Beams are not Conducive to Overhangs / Bulb outs.
- End Transitions will Need to be Coordinated with Towns.
- Any Significant Increase in Bridge Height / Clearance over the Channel will lead to an Uncomfortable Walking and Riding Surface

Lighting Aesthetics

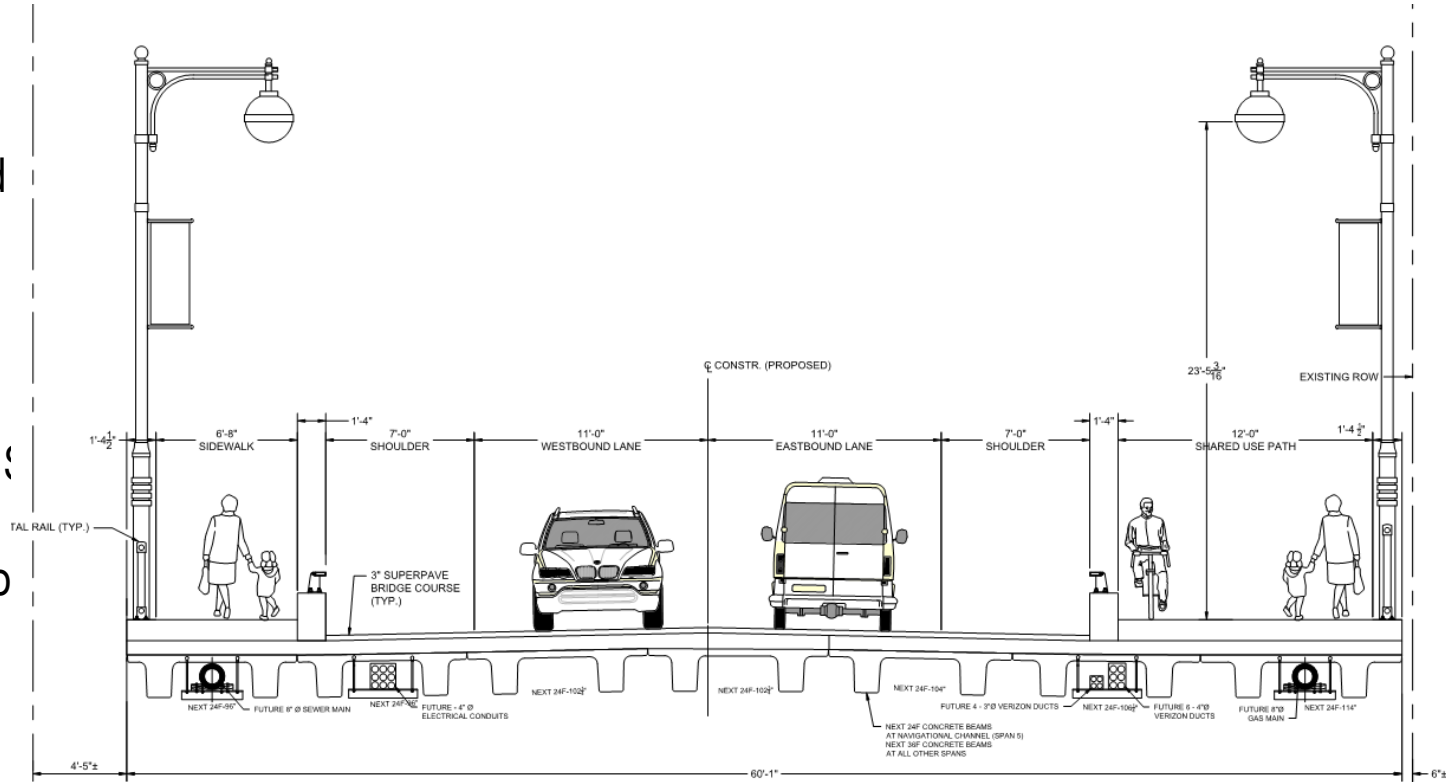
High Overheads:

Positives:

- Full Width Shared Use Path
- Away from Traffic

Negatives:

- Unsightly
- More Exposed to Spray
- More Light Pollution



Lighting Aesthetics

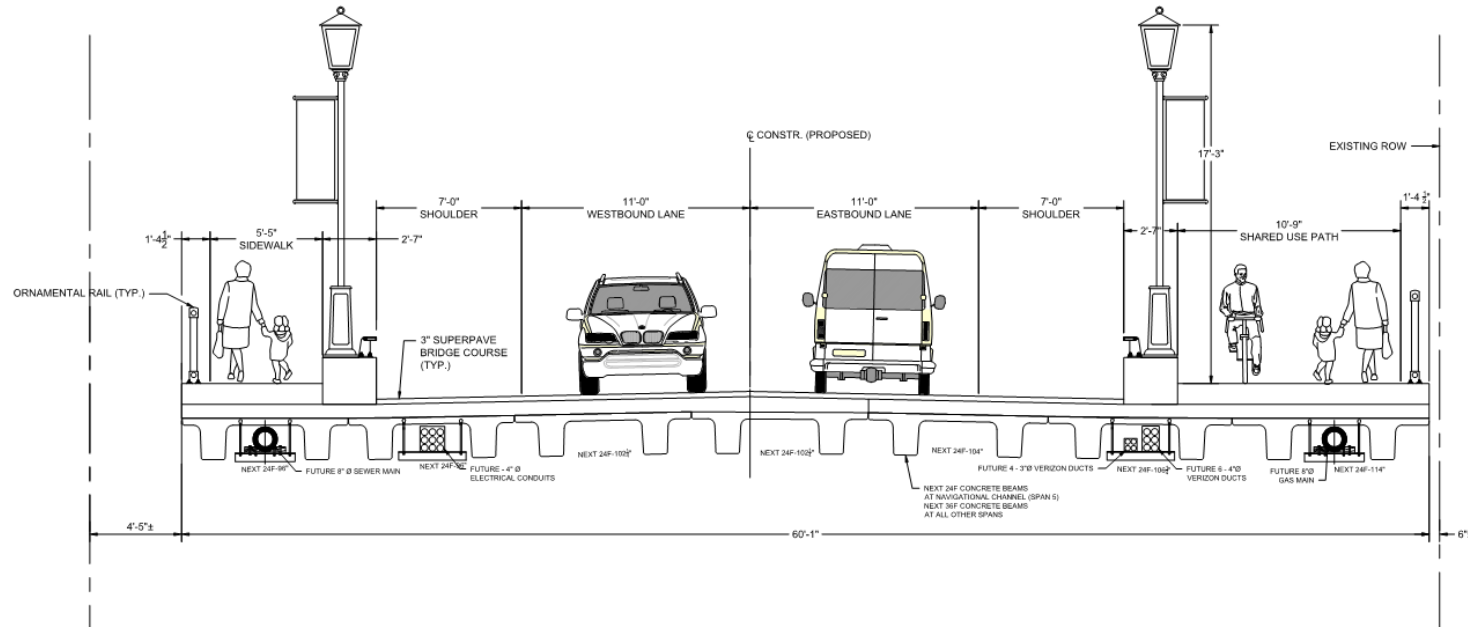
Low Side-Bys:

Positives:

- Easy to Maintain
- Low Profile (Less Pollution)

Negatives:

- Reduce Shared Use Path at Points
- Possible Damage from Oversized Loads



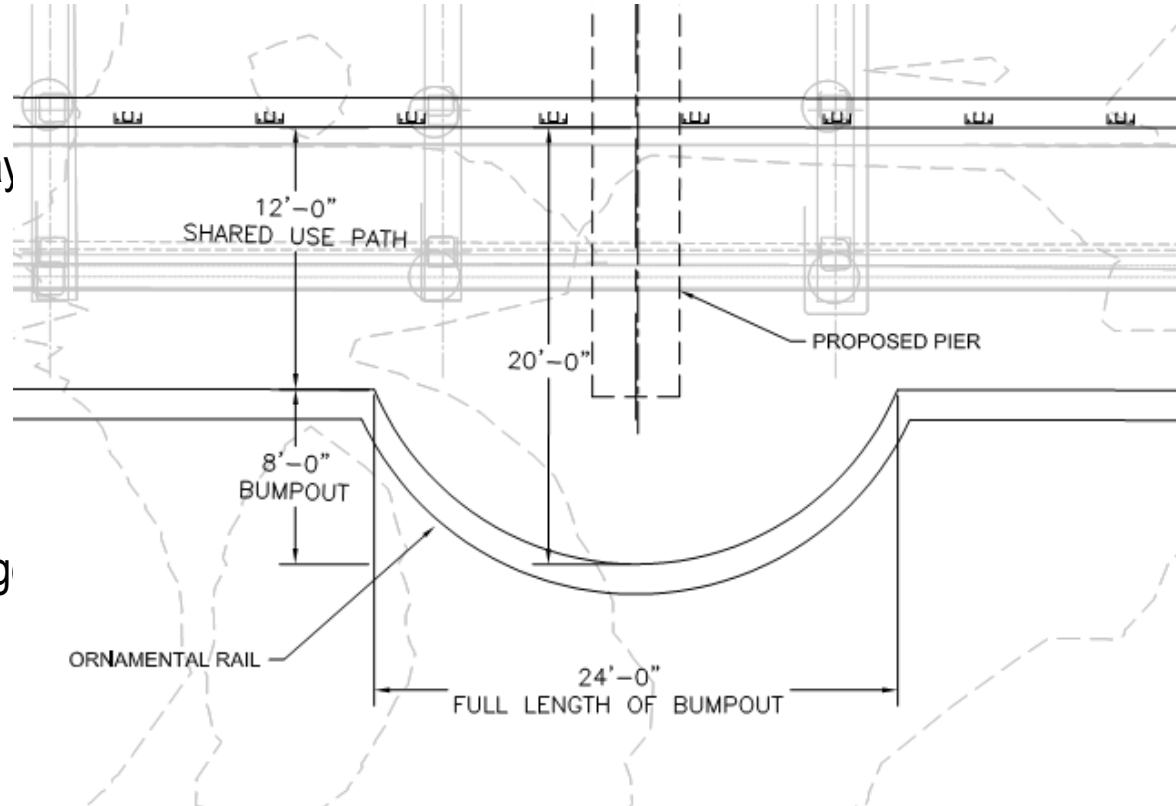
Bulbout Aesthetics

Bulbout Advantages:

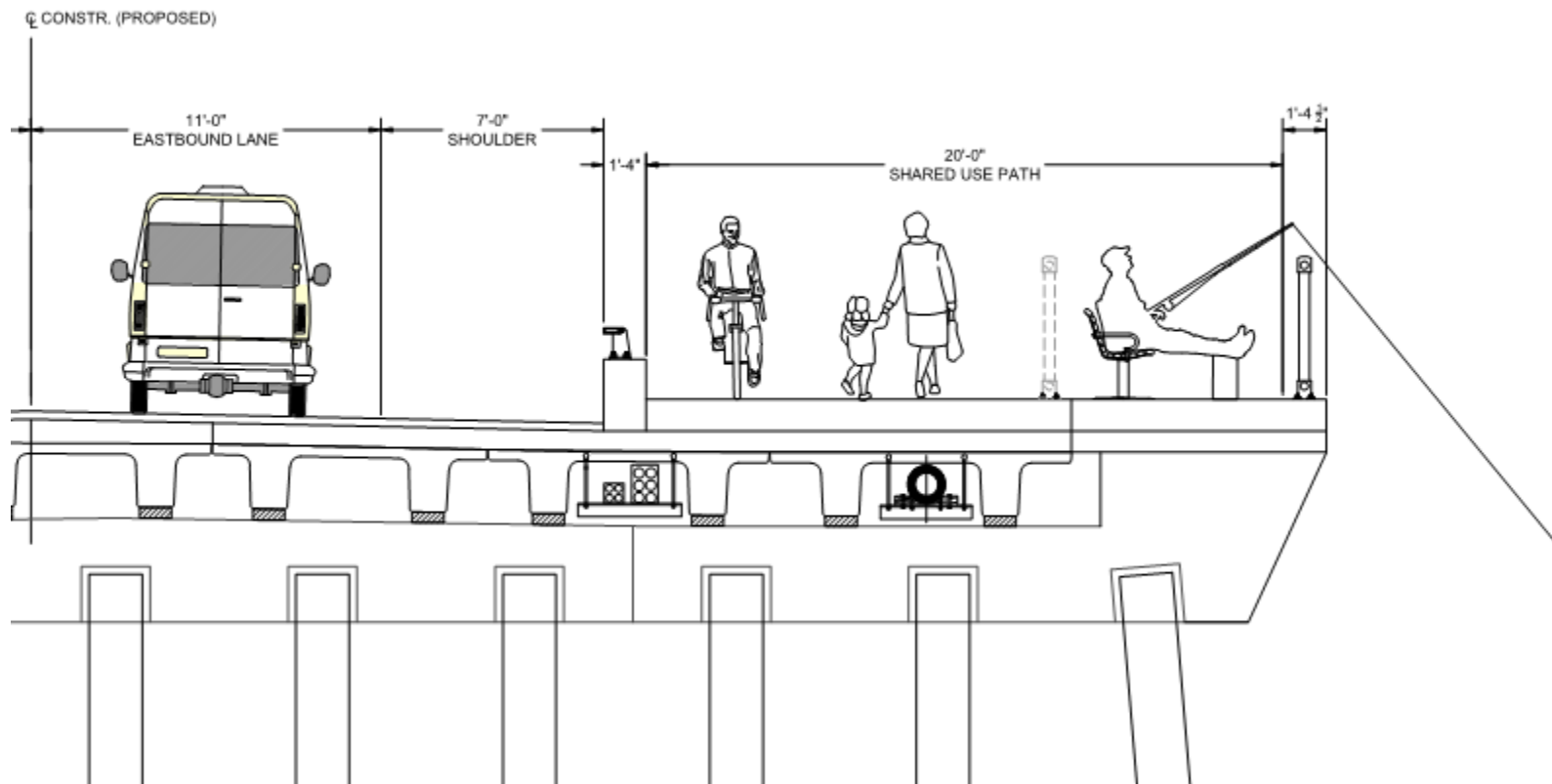
- Location for Informational Signs.
- Resting area for Pedestrians away from Foot Traffic.
- Area for Fishermen.

Bulbout Disadvantages:

- Will require ROW permanent easements.
- Presents Unique Design Challenge and Must be Located at a Pier.
- May encourage Loitering.



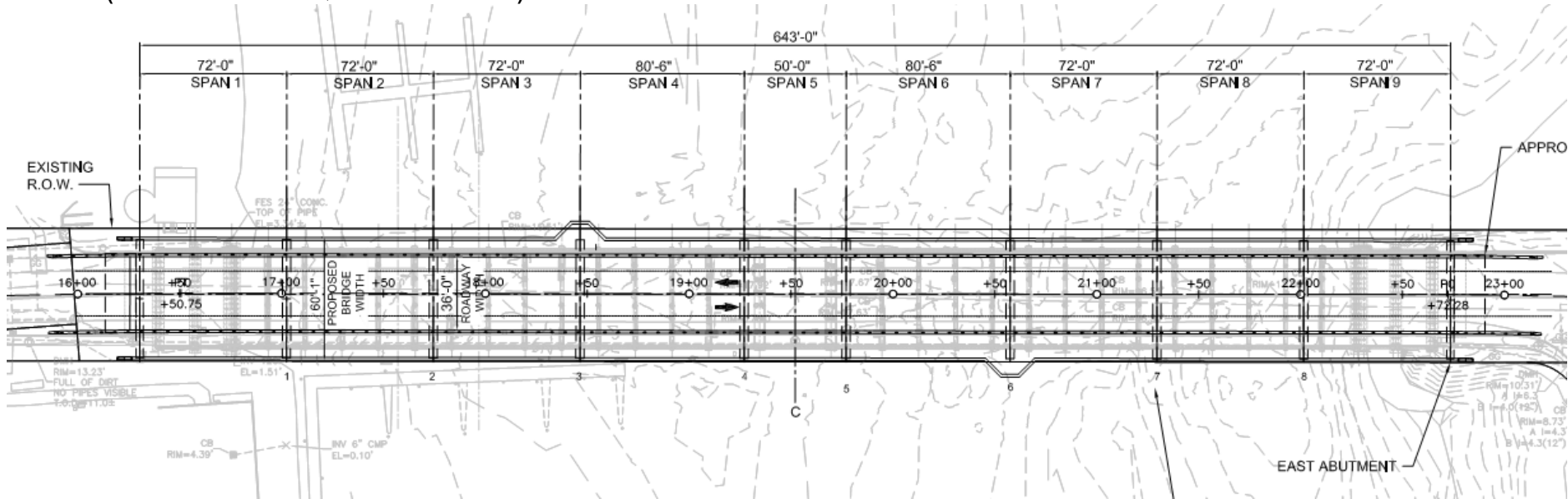
Bulbout Aesthetics



Bulbout Aesthetics

At Pier 3 and 6:

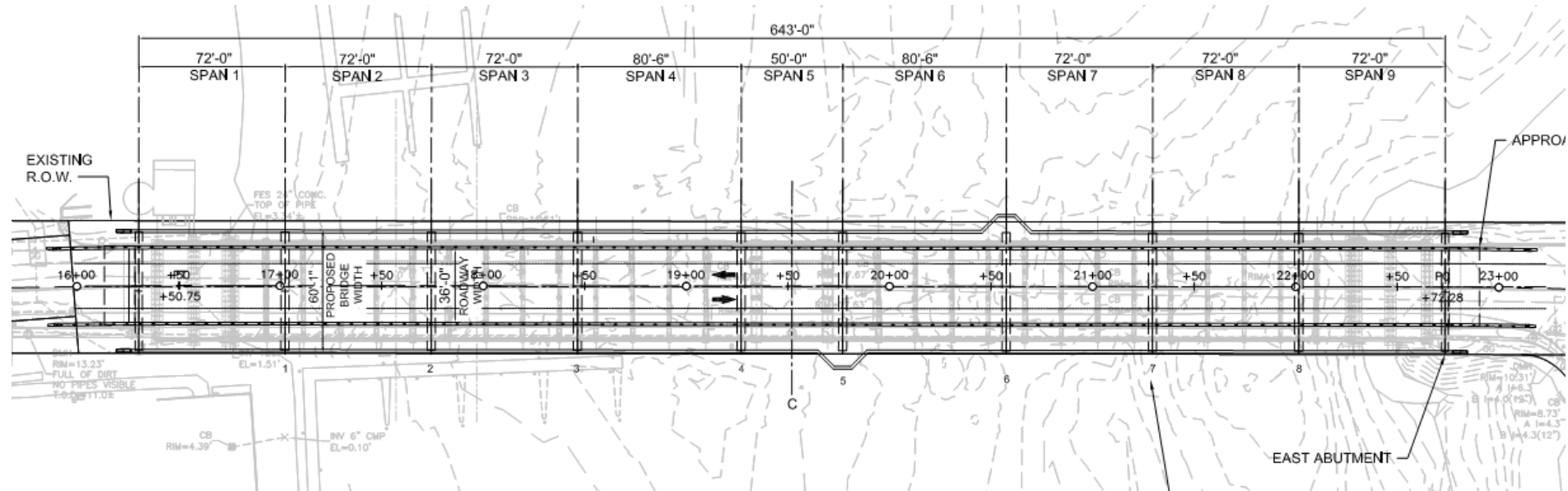
- Avoids the Navigation Opening
 - Symmetric Bulbouts along the Bridge
 - Not Centered on the River
 - North Side May Impact Docks
- (One Yarmouth, One Dennis)



Bulbout Aesthetics

At Pier 5 and 6:

- South Bulbout is Centered on River
- Avoids the Docking Zones
- Not Symmetric to the Bridge (Both on Dennis Side)
- South Side Fishing will Impact Boat Navigation



Abutment Aesthetics



Stepped Monument

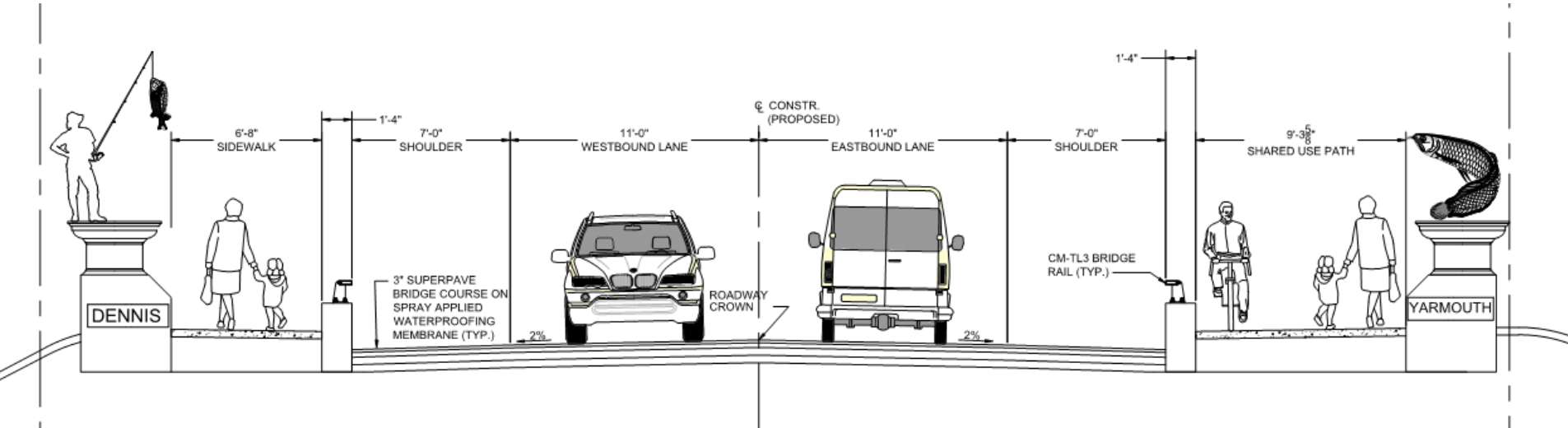


Sloped Sail Monument

Abutment Aesthetics

Abutment Treatments:

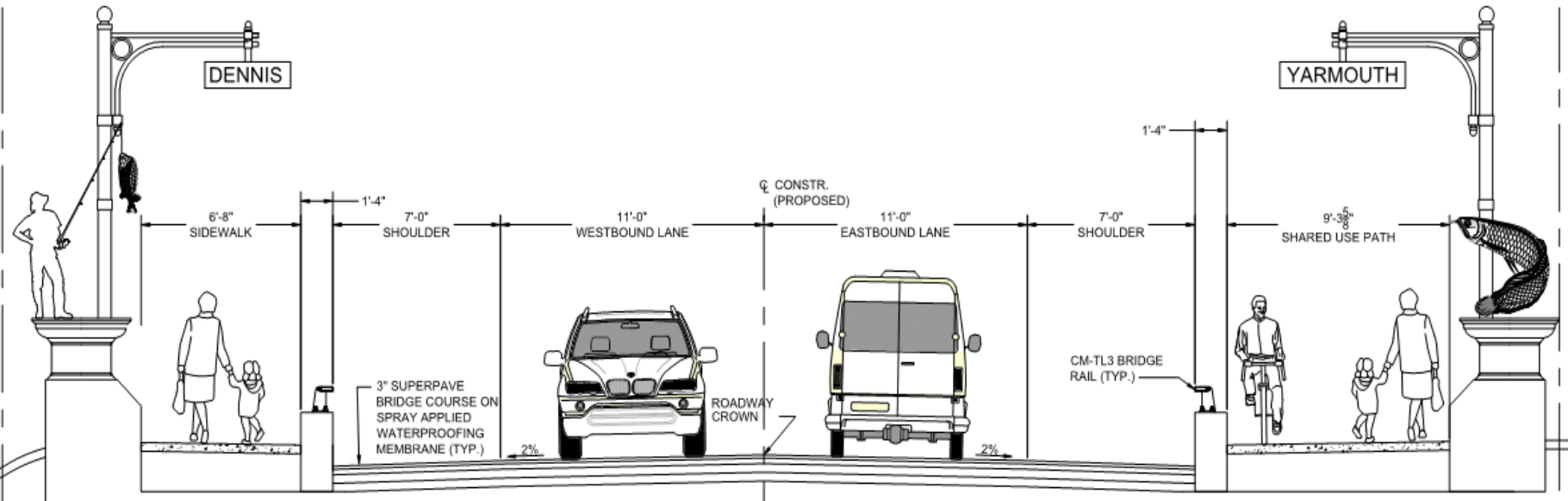
- Will Provide An Entrance Way
- Allow for Local Art Installations
- Allow the Towns to Add Character
- Provide a Location for Historic Plaques



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Aesthetics



Stepped Monument



Sloped Sail Monument

Questions?

