ENGINEERING EXCELLENCE

BRIDGE UNDERPASS RETROFIT FOR EXISTING BRIDGES

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Bridge Underpass Retrofit for Existing Bridges

Why use bridge underpass retrofits?

- Typical Florida underpass bridges are utilitarian in appearance
- Separates communities instead of enhancing them
- Retrofit techniques improve the look of the community
- Efficiently and economically improves facades of typical underpass bridges
- Precast elements have clean uniform finishes
- Unlimited textures and colors

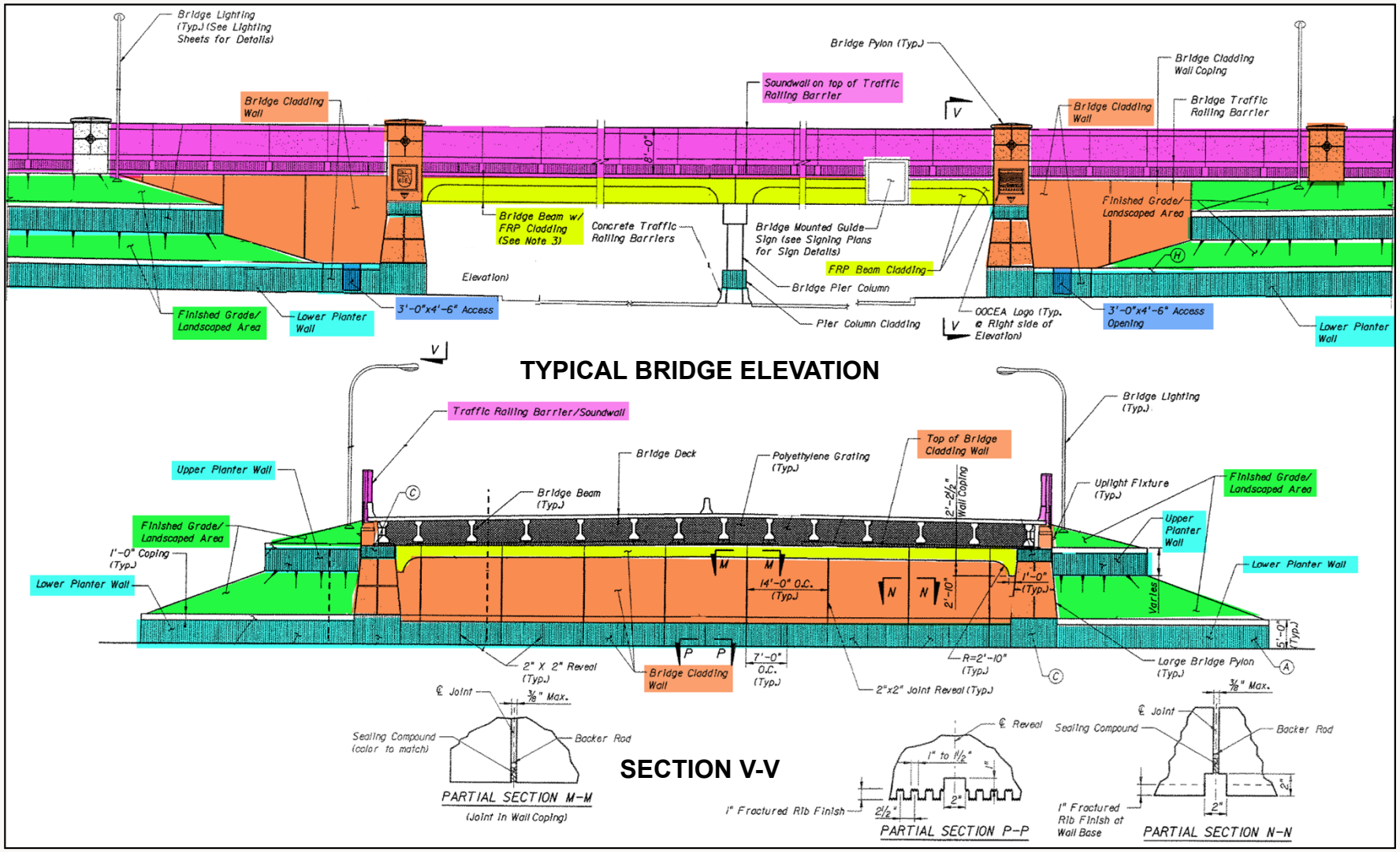
Existing Bridges with Sloped Abutments

Typical sloped abutment details:

- Provides unpleasant stained areas
- Provides areas for trash collection
- Encourages areas for vagrancy and graffiti

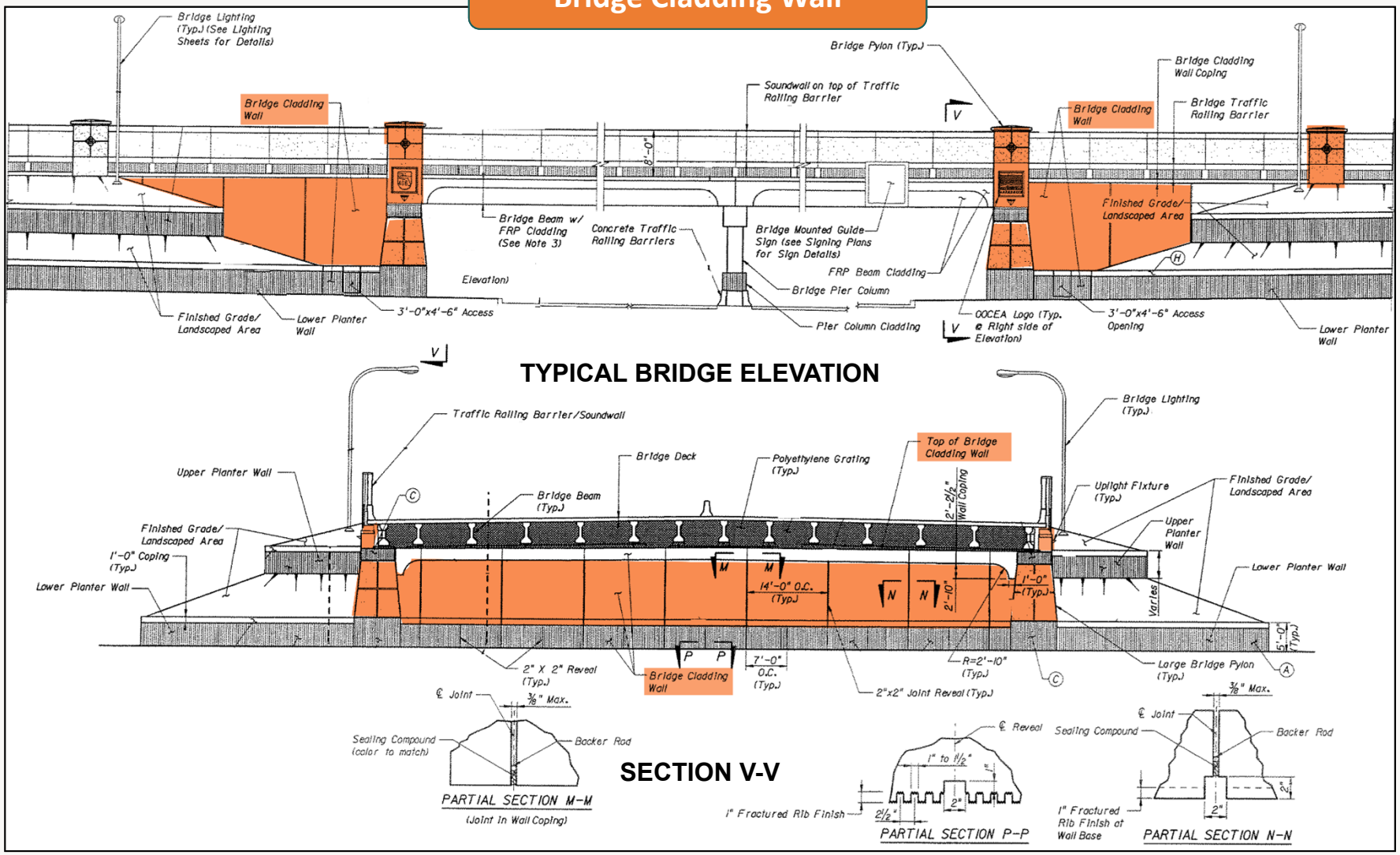
Maintenance and Aesthetic Concerns of Existing Bridges with Sloped Abutment

Plans to Improve



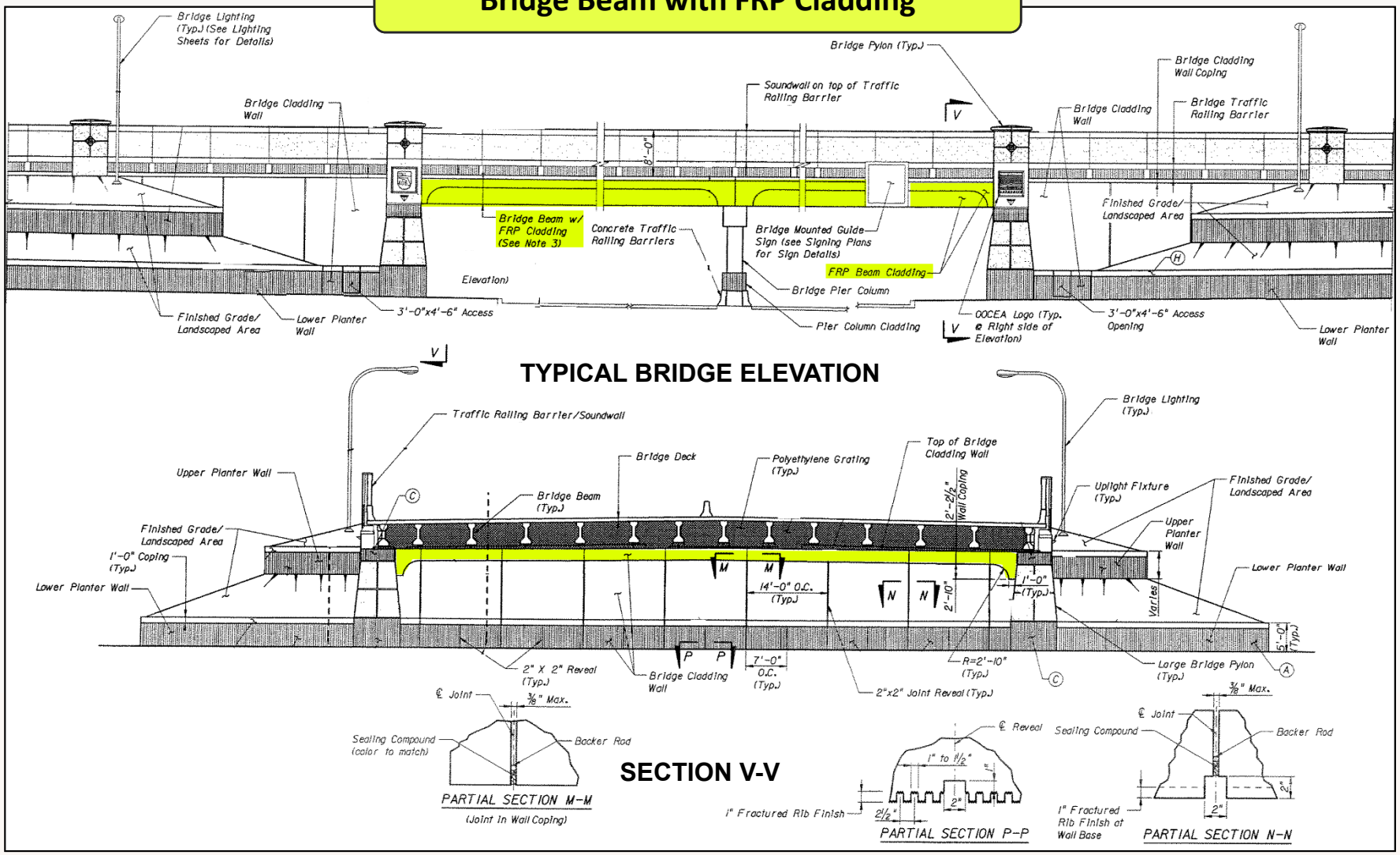
Plans to Improve

Bridge Cladding Wall



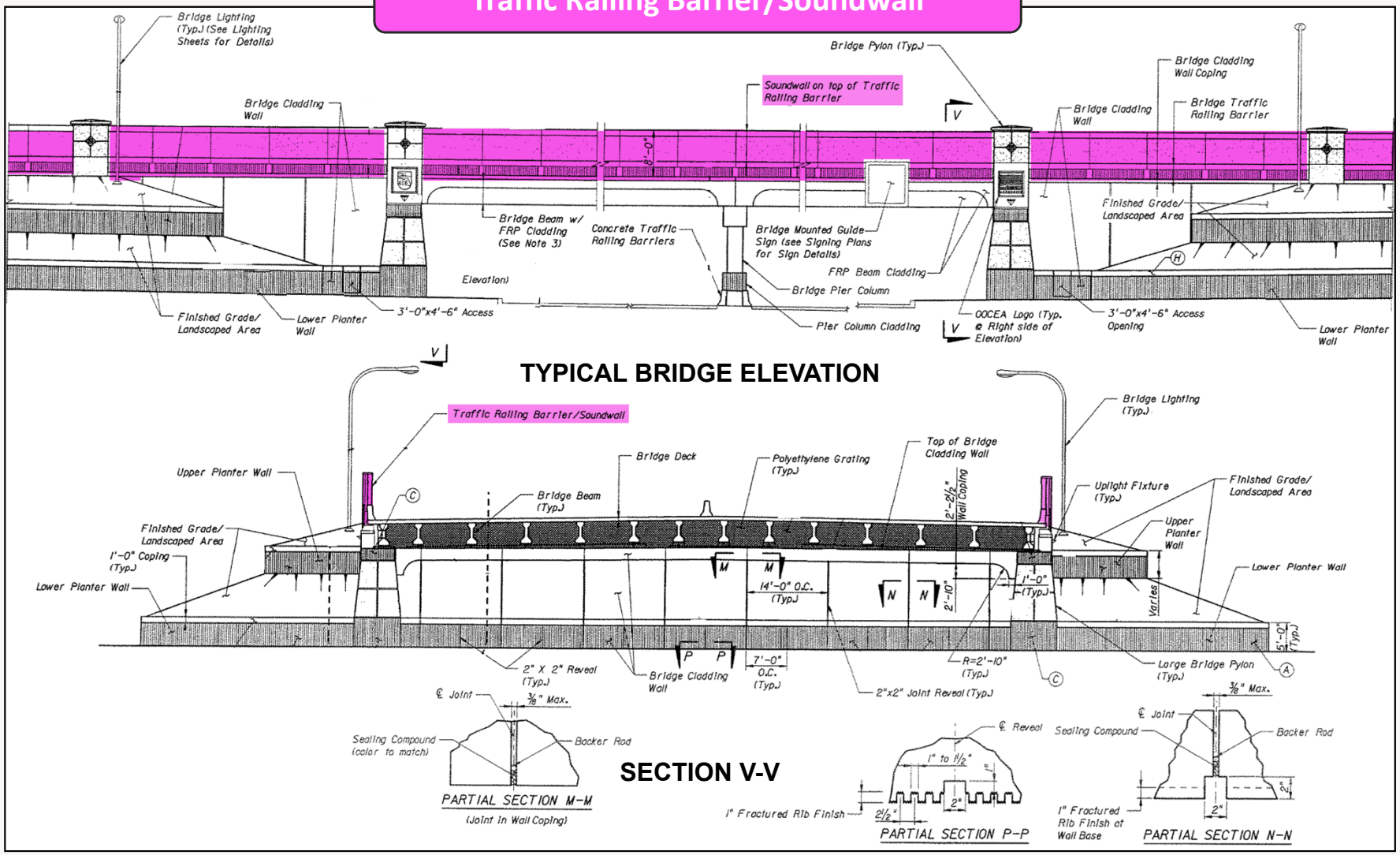
Plans to Improve

Bridge Beam with FRP Cladding



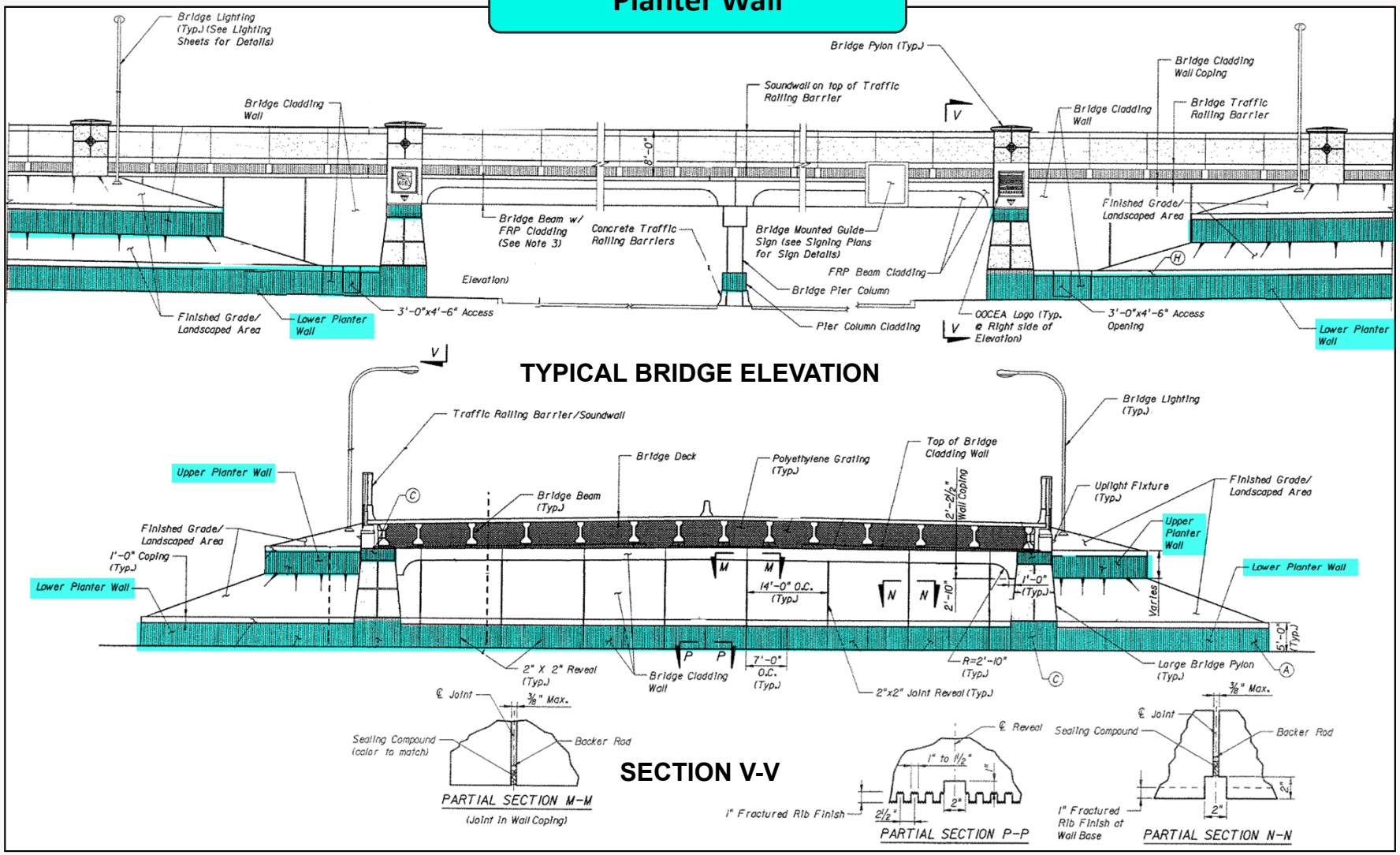
Plans to Improve

Traffic Railing Barrier/Soundwall



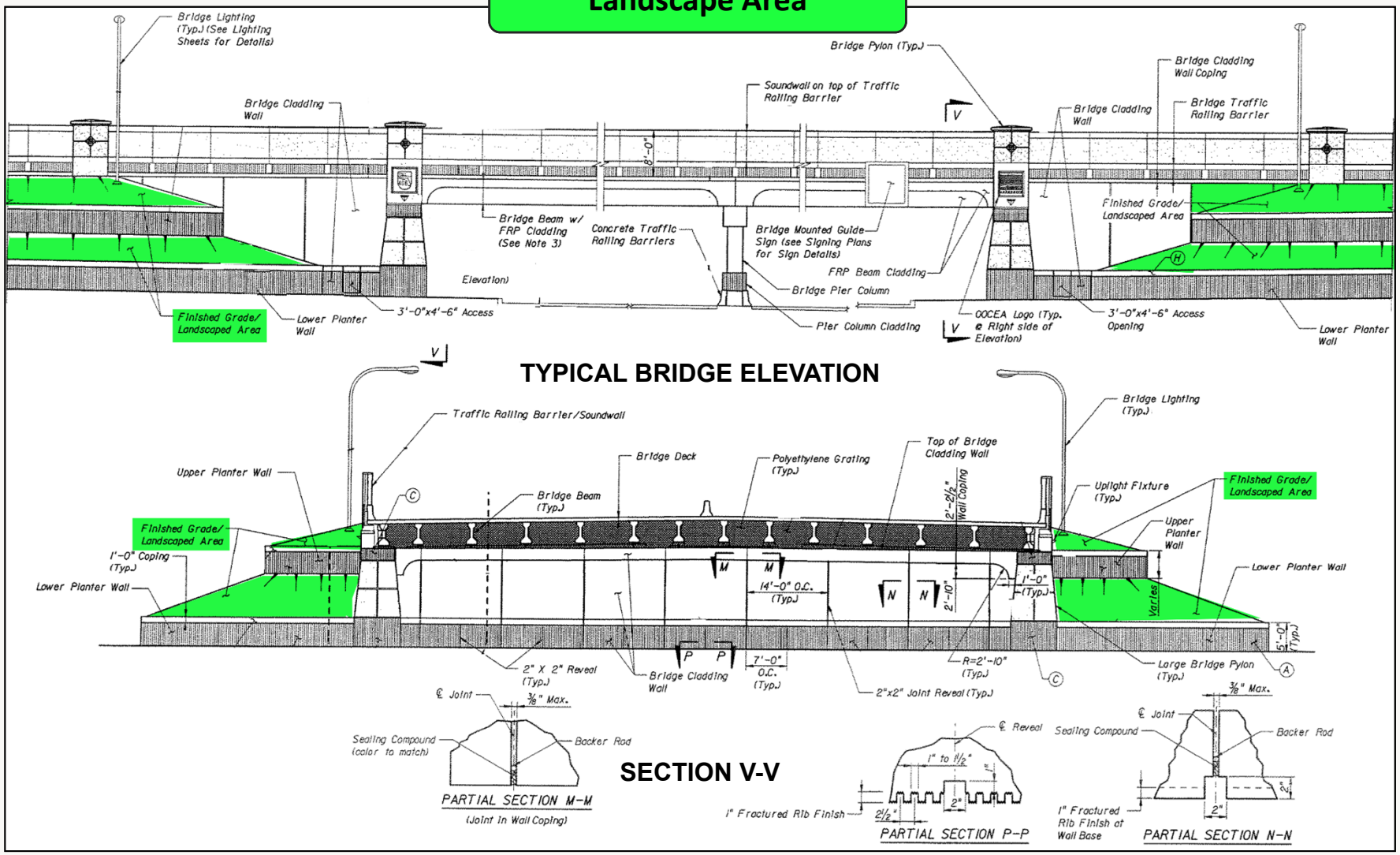
Plans to Improve

Planter Wall



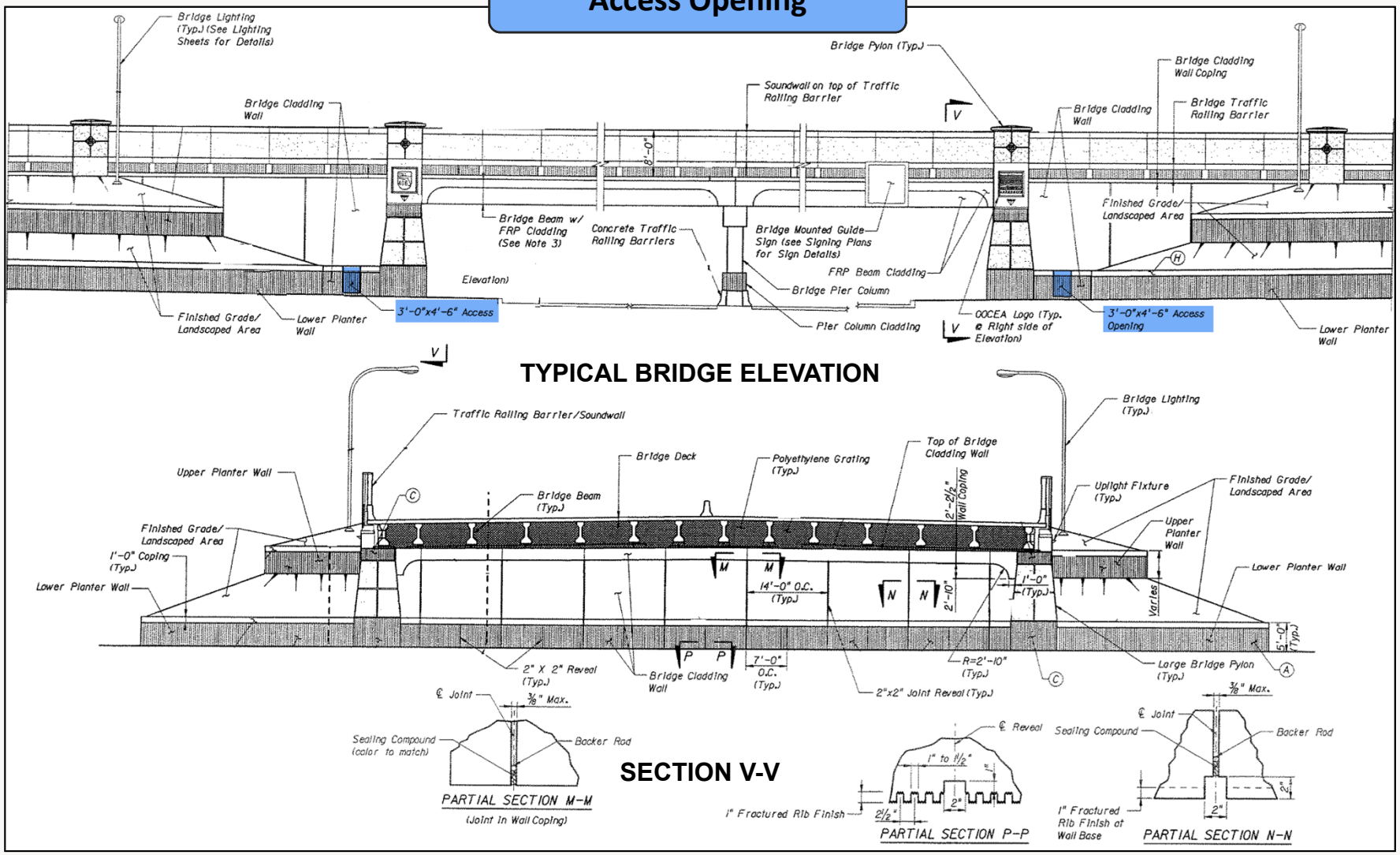
Plans to Improve

Landscape Area



Plans to Improve

Access Opening



Construction Photos During Retrofit

Advantages

- Placement of cladding walls to cover sloped abutment
- Soundwalls placed on top of Railing to reduce noise pollution
- Walls provide clean aesthetic look

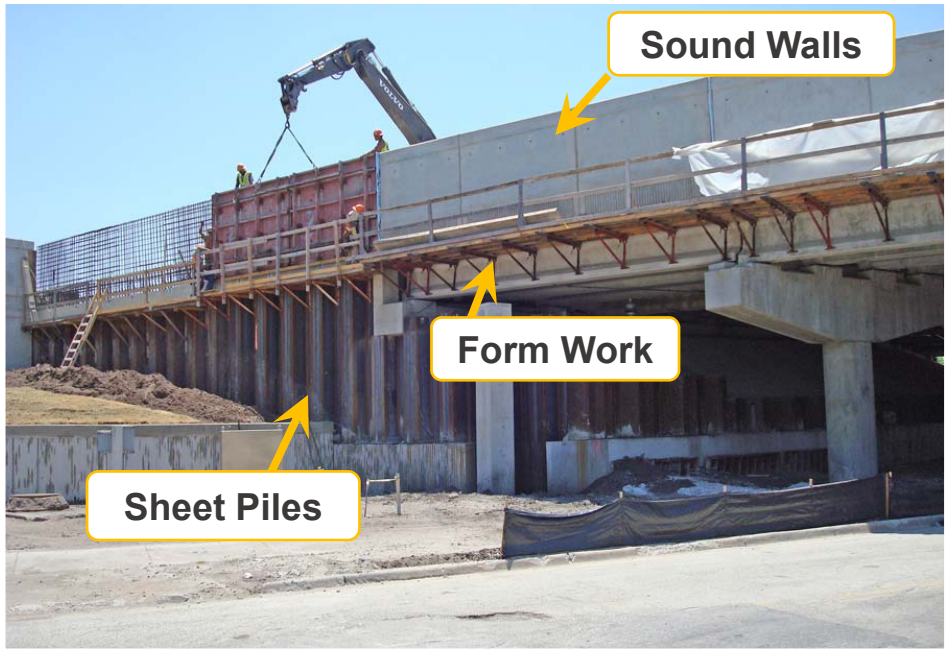
- Precast walls being installed
- Small equipment and minimal crew

Small footprint for Construction

Construction Photos During Retrofit

Installation

- Sheet piling put into place to hold bridge cladding walls
- Form work put into place to bring in sound walls.
- Elements are very light so can be held in place with small connecting elements
- Can be installed with small equipment



Completed Retrofit

BEFORE

AFTER

Completed Bridge

Lighting

- **Traditional Wall mounted luminaire fixtures**
- **LED Lighting luminaire fixtures**

Bridge Retrofit Lighting

Traditional Lighting

- Die-cast aluminum housing
- High pressure sodium lamps.
- Average rated life = 24,000 hours
  - Assuming 12 hrs /day
  - Approximately 6 year durability

Costs

- $624 per Fixture
- 6 fixtures per bridge = $3744

(As per FDOT 2015 Item Average Costs and Basis of Estimate)

LED Lighting

- Die-cast aluminum LED luminaire fixtures
- External heating radiation fins
- Maximizes lighting coverage
- Low Maintenance
- Meets ANSI Vibration Standards
- Average rated life = 100,000 hours
  - Approximately 23 years durability

Costs

- $900 per Fixture
- 6 fixtures per bridge = $5400

Effectivity

- Underdeck lighting deters vagrancy and the tunnel effect
- Durable lighting options

Costs/Maintenance

Costs

- Costs can range from $35 to $50/SF

Maintenance

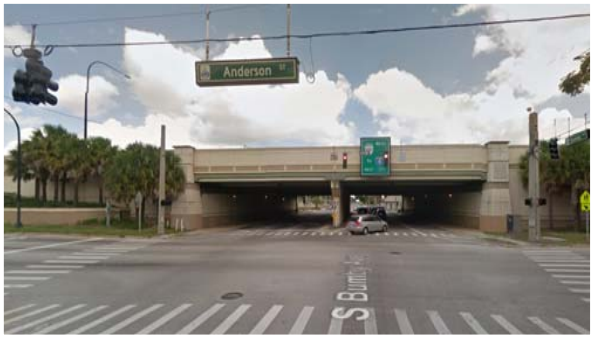
- The inspectors can use the access door provided in the walls

Hatch - Google maps

Downtown Orlando 408 Corridor

408 and S. Summerlin Ave.

408 and S. Mills Ave.



408 and S. Bumby Ave.

408 and Primrose Drive

408 and S. Crystal Lake

408 and S. Semoran Blvd.

EAC Consulting, Inc.

Thank You