

 Hollywood, FL

 June 13-14, 2024



2024 TRANSPORTATION SYMPOSIUM

Henry E. Kinney Tunnel Rehabilitation & Pedestrian Plaza

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FDOT District 4

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Gannett Fleming, BCC Engineering

Henry E. Kinney Tunnel Team

OWNERS



CITY OF FORT LAUDERDALE

DESIGN TEAM



ITS



LANDSCAPING



SIGNING/PAVEMENT MARKING/
UTILITY COORDINATION

SURVEYING & MAPPING



Media Relations Group, LLC

PUBLIC INVOLVEMENT



GEOTECHNICAL



TBG



CULTURAL RESOURCES

LANDSCAPE
DESIGN CONCEPT

CEI / CONSTRUCTION SUPPORT



THE
CORRADINO GROUP

COMMUNITY OUTREACH

STAKEHOLDERS



CONTRACTOR



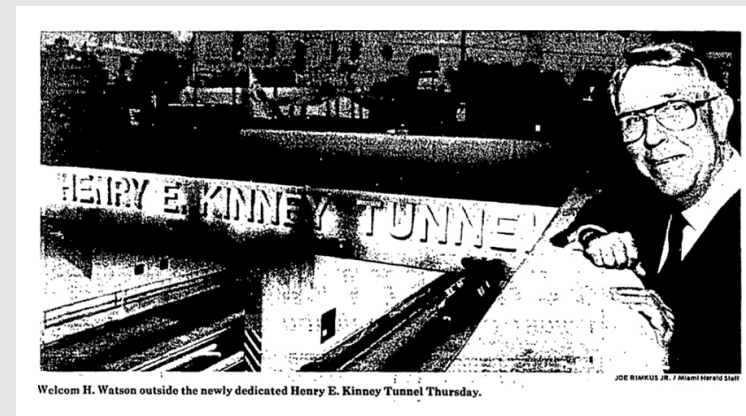
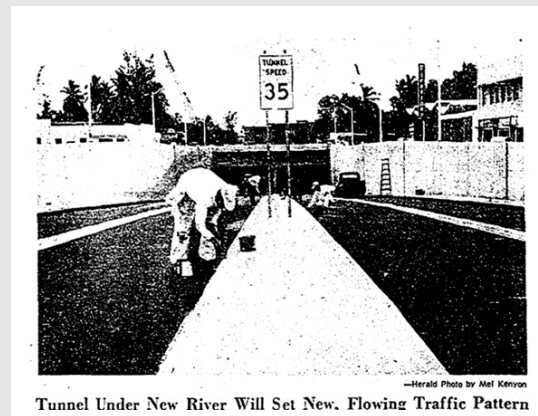
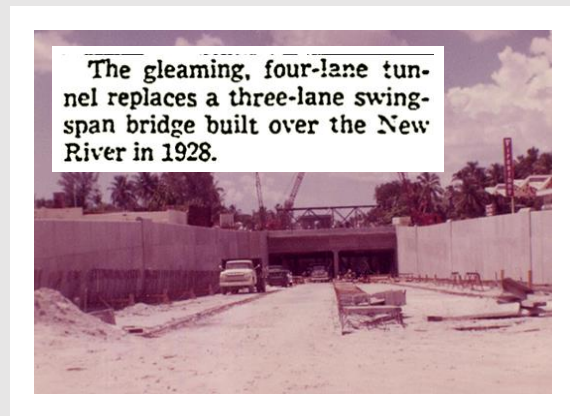
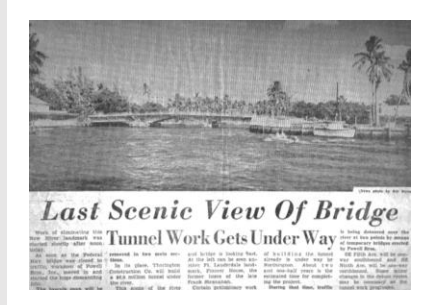
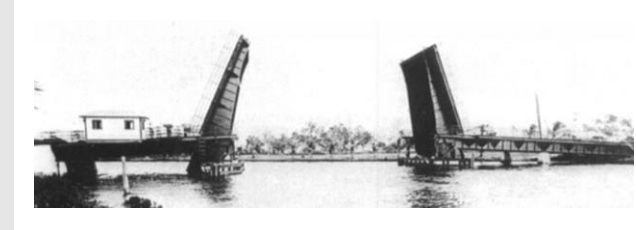
SUBCONTRACTORS



TRANSPORTATION
SYMPOSIUM

History of Henry E. Kinney Tunnel

- Originally known as the New River Tunnel
- Narrowly passed by voters
- Replaced US 1 drawbridge
- Construction cost – \$6.5 Million
- Opened in 1960 as the only operating Florida tunnel
- Renamed to Henry E. Kinney Tunnel in 1986



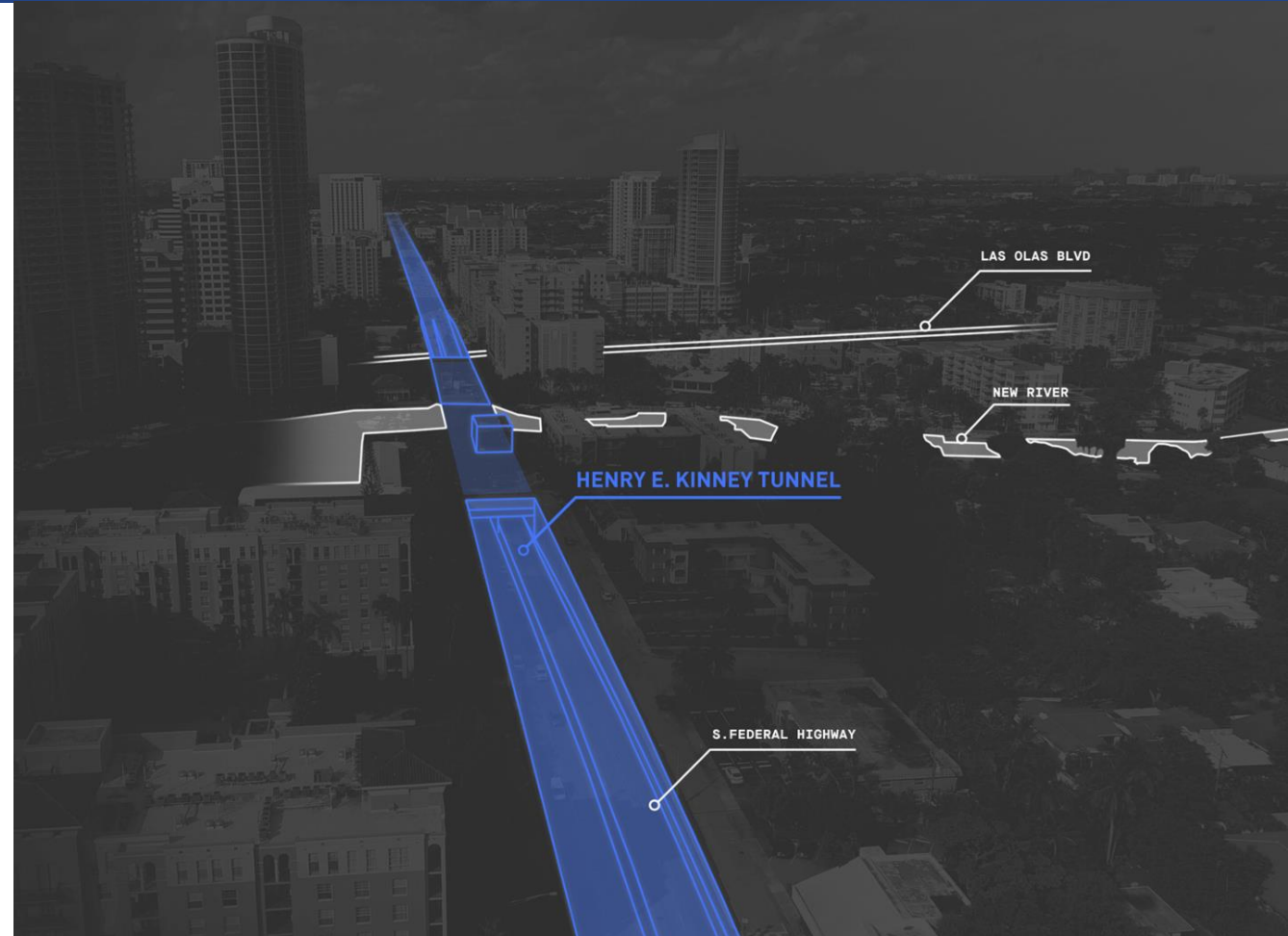
Objectives

FP ID 439714-1-52-01

- Rehabilitate tunnel
- Improve safety and mobility on US-1

FP ID 439714-1-52-02

- Enhance Las Olas Boulevard at SE 6th Avenue (tunnel)
- City of Fort Lauderdale Local Fund Agreement (LFA)



Project Location

SR5/US 1/Federal Highway

- Principal urban arterial
- 4 lanes divided (2 NB/2 SB)
- 51,000 AADT (2019)
- 47,500 AADT (2023)
- 3.14 miles

Henry E. Kinney Tunnel

- Crosses under East Las Olas Blvd, New River, and North Rio Vista Blvd



LIMITS

SR 869/I-595 to North of SR 842/Broward Blvd.

LOCATION

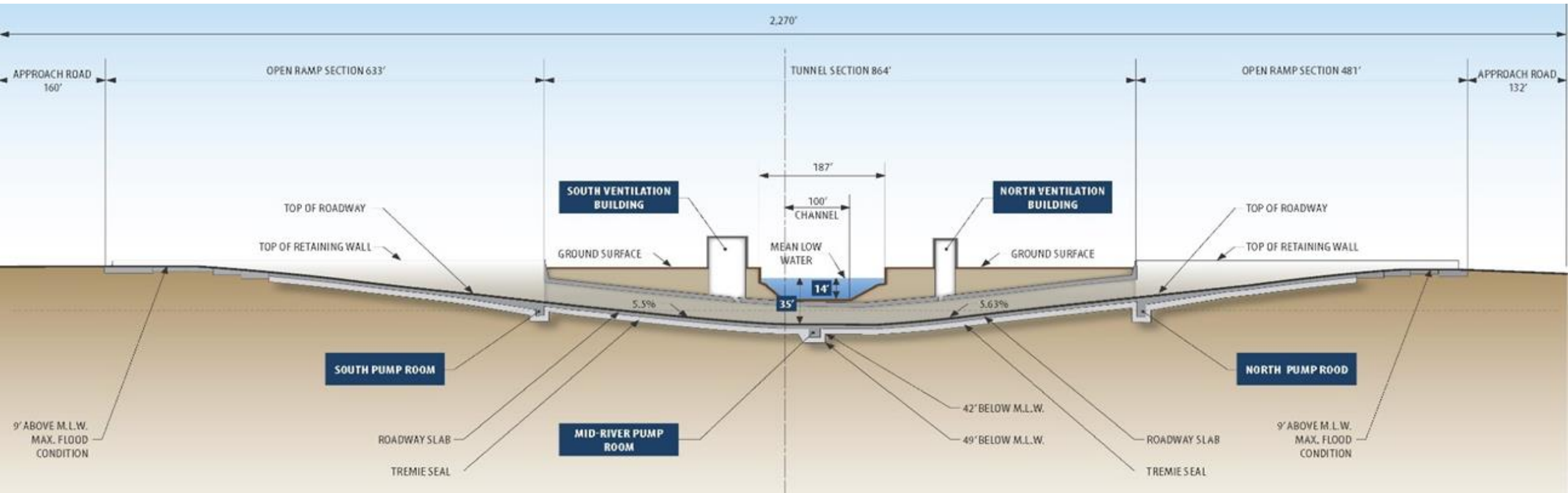
SR-5/US-1/Federal Highway in Downtown Ft. Lauderdale in Broward County, FL

Project Area



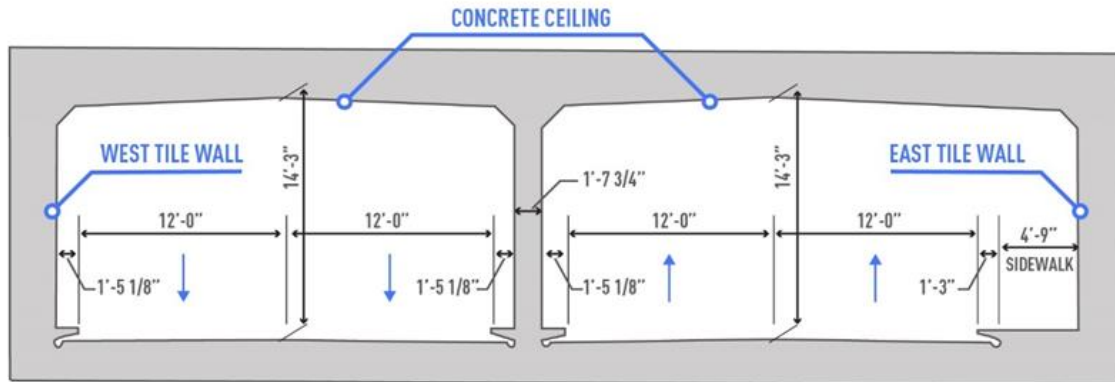
Existing Conditions

ELEVATION VIEW OF TUNNEL

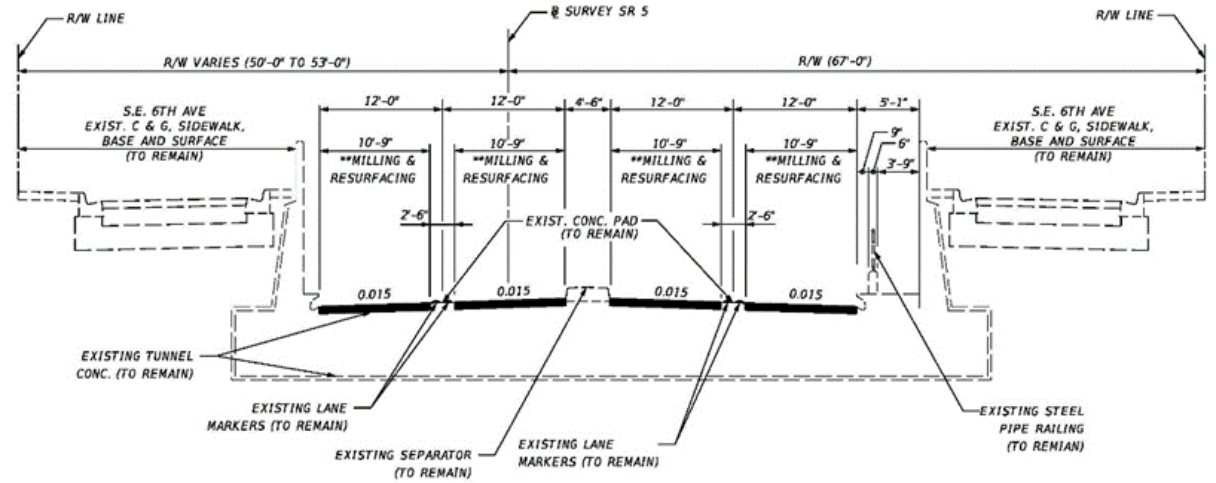


Existing Conditions

DOUBLE-BARREL TUNNEL TYPICAL SECTION



OPEN RAMP TYPICAL SECTION



Existing Conditions

Innovative Design and Construction

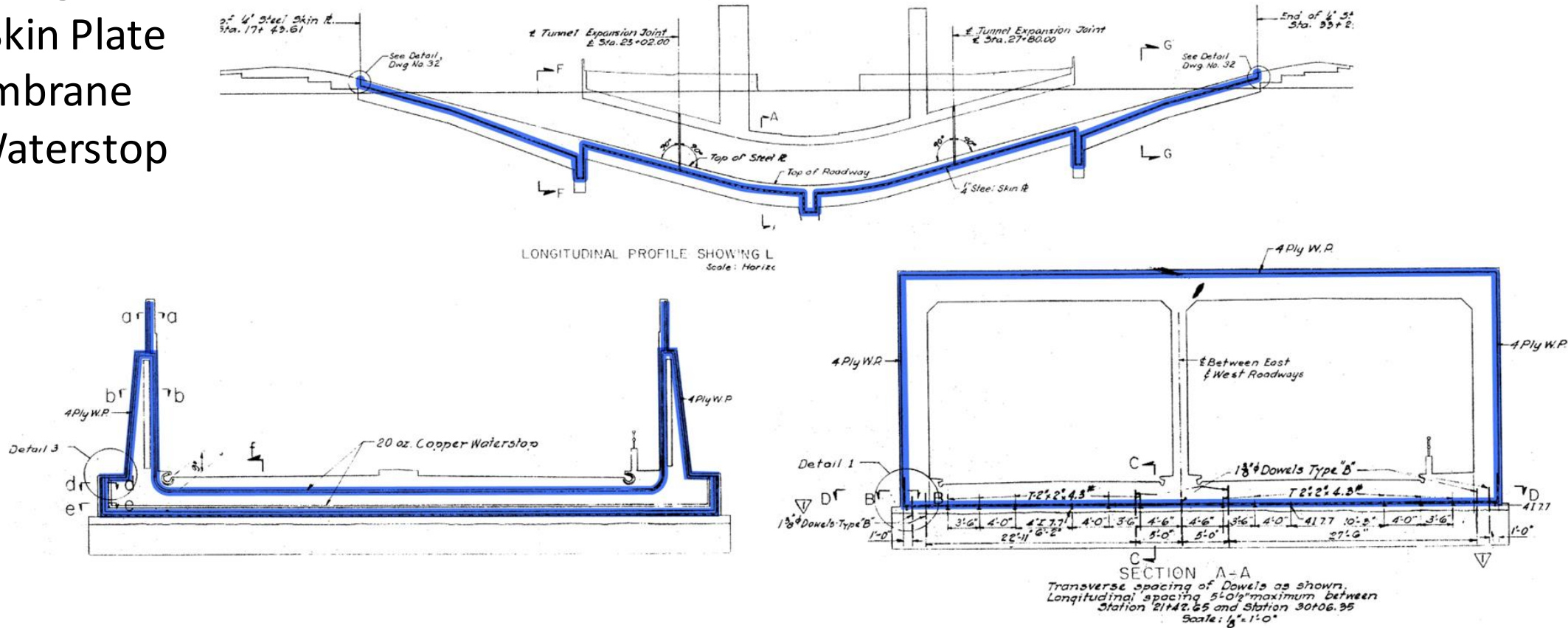
- 1,000,000 ceramic tiles
- Automated fans and Saccardo nozzle
- Automated pumps
- Carbon monoxide detectors
- Phone lines to police
- Waterproofing system
- Art Deco walls at ramps



Existing Conditions

Waterproofing

- 1/4" Steel Skin Plate
- 4-Ply Membrane
- Cooper Waterstop

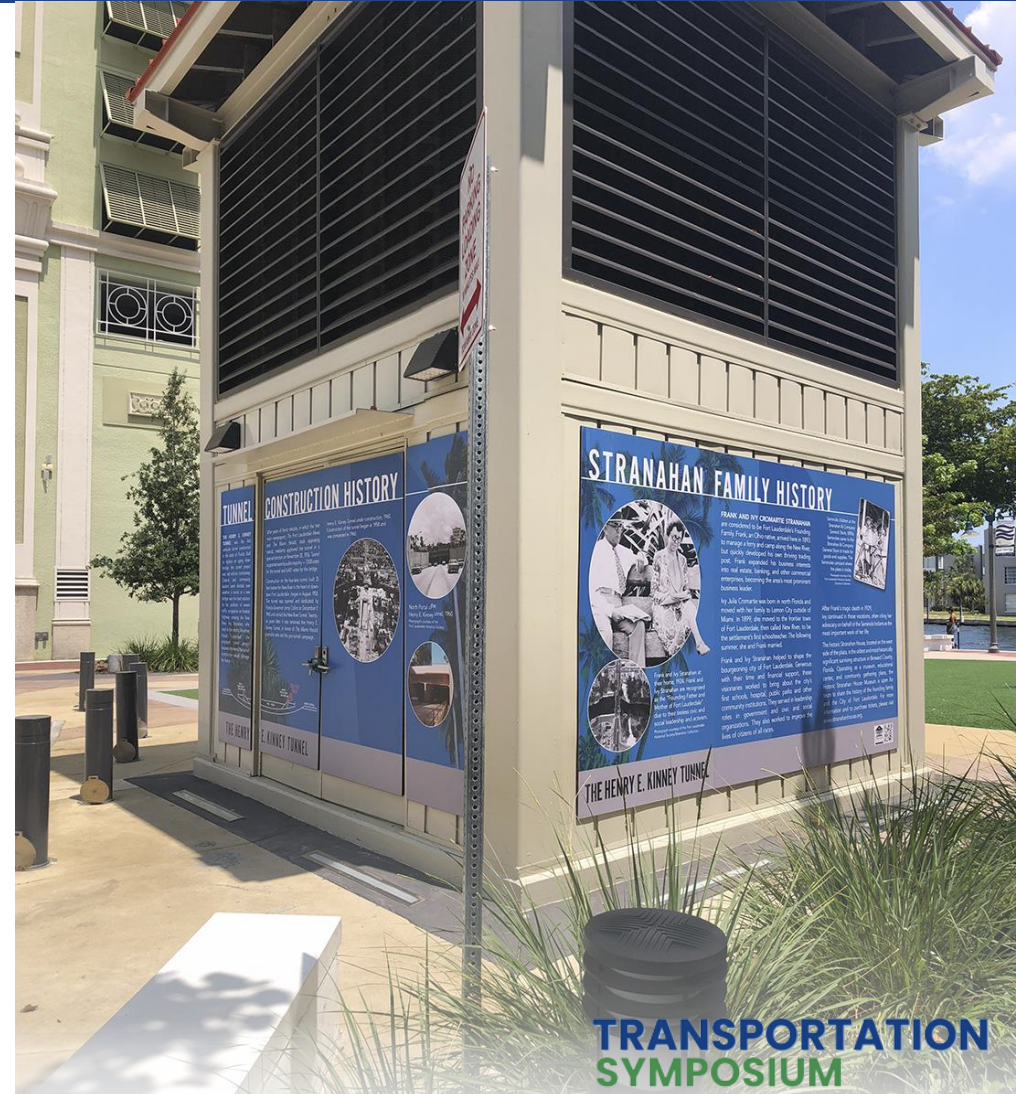


Historic Significance

Eligible for Listing on National Register of Historic Places

- **Criterion A** in Area of Community Planning and Development (historic role in development of Fort Lauderdale)
- **Criterion C** under Engineering and Architecture (design)

Agreement with the Florida Division of Historic Resources Under FS Chapter 267



Scope of Rehabilitation

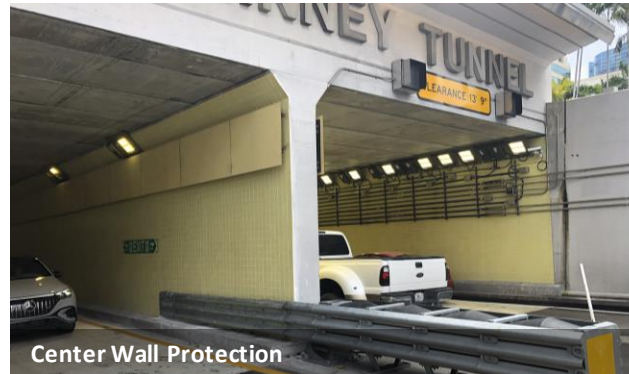
FP ID 439714-1-52-01

Repair and Replace Tunnel Systems and Structure to Meet Local, State, and Federal Standards (**NFPA 502**)

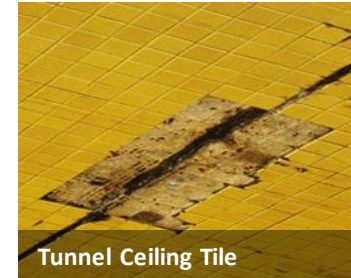
- Mechanical
- Electrical
- Architectural
- Structural
- Civil
- Life safety



Life Safety



Center Wall Protection



Tunnel Ceiling Tile



Tunnel Portal



South Vent. Bldg.



Bicycle-Friendly Grates



Tunnel Ventilation

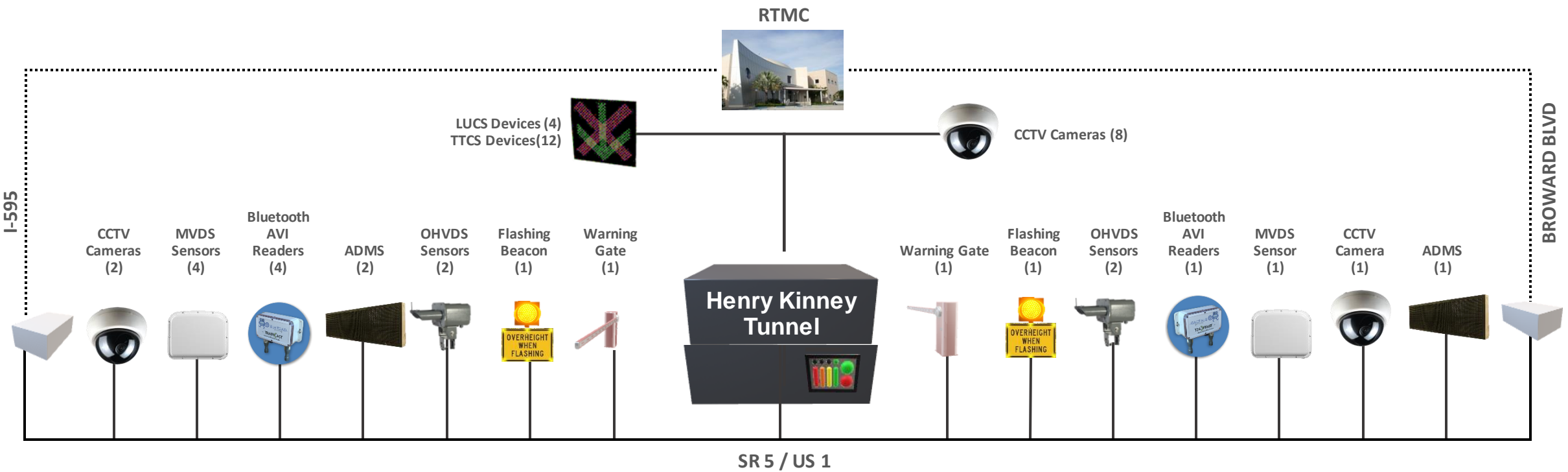


Tunnel Lighting

Scope of Rehabilitation

Improve Safety and Mobility on SR5/US-1

- Intelligent transportation system (ITS)

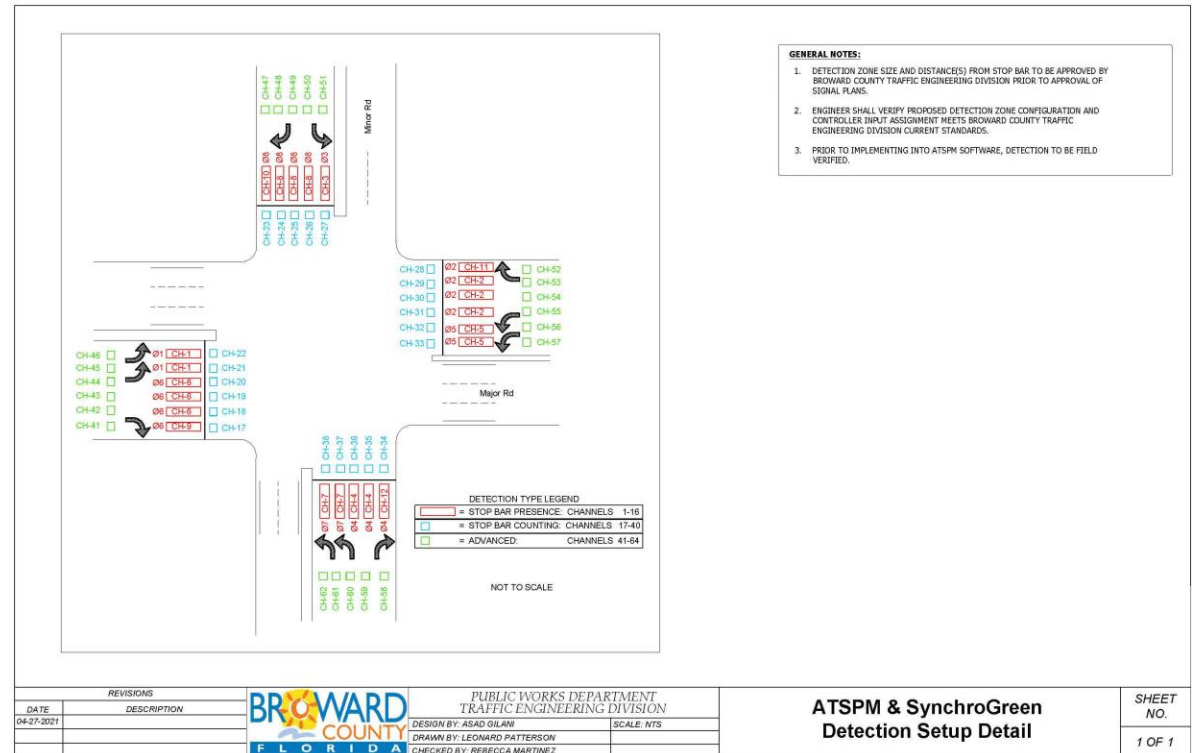


Scope of Rehabilitation

Improve Safety and Mobility on SR5/US-1

Adaptive traffic signals at US-1:

- SE 30th Street
- SE 28th Street
- SR 84/Marina Boulevard
- SE 17th Street
- Davie Boulevard
- SE 9th Street
- SE 7th Street
- Broward Boulevard



Scope of Pedestrian Plaza

FP ID 439714-1-52-02

City of Fort Lauderdale Local Fund Agreement (from Parks Bonds)

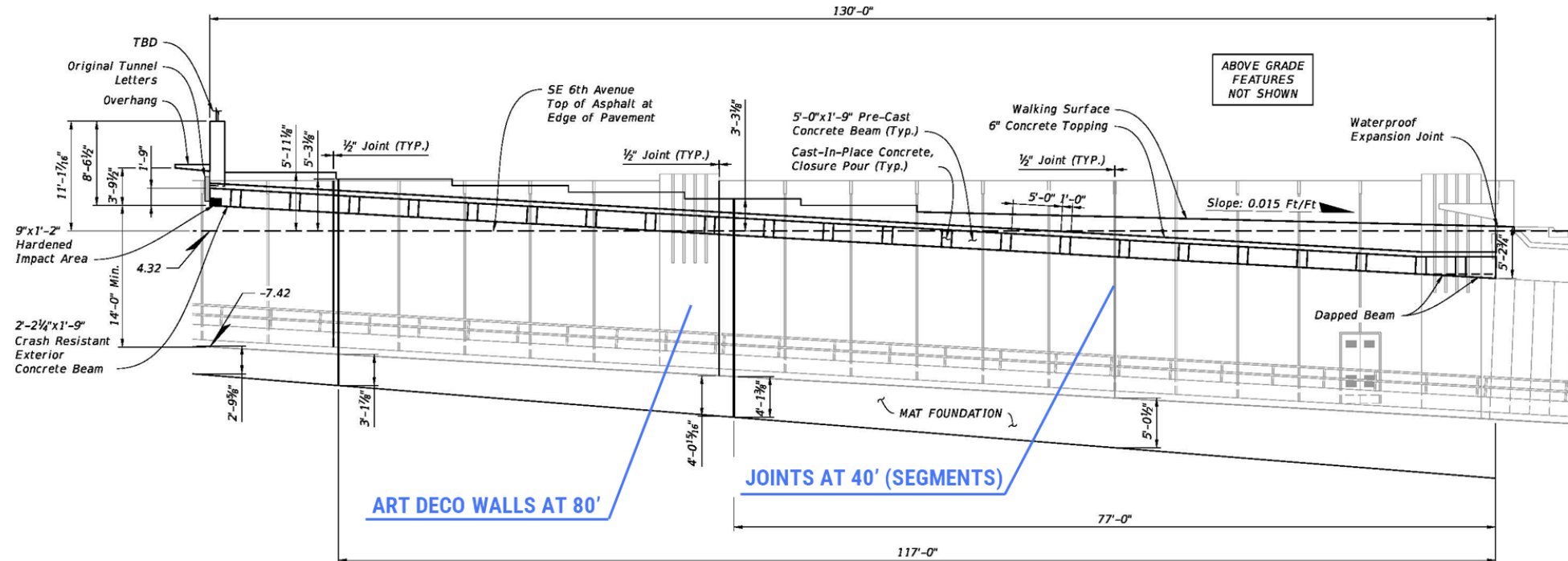
- Extend tunnel north for pedestrian plaza
- Enhance new and existing plaza and Las Olas Blvd for the community



Scope of Pedestrian Plaza

Tunnel Extension

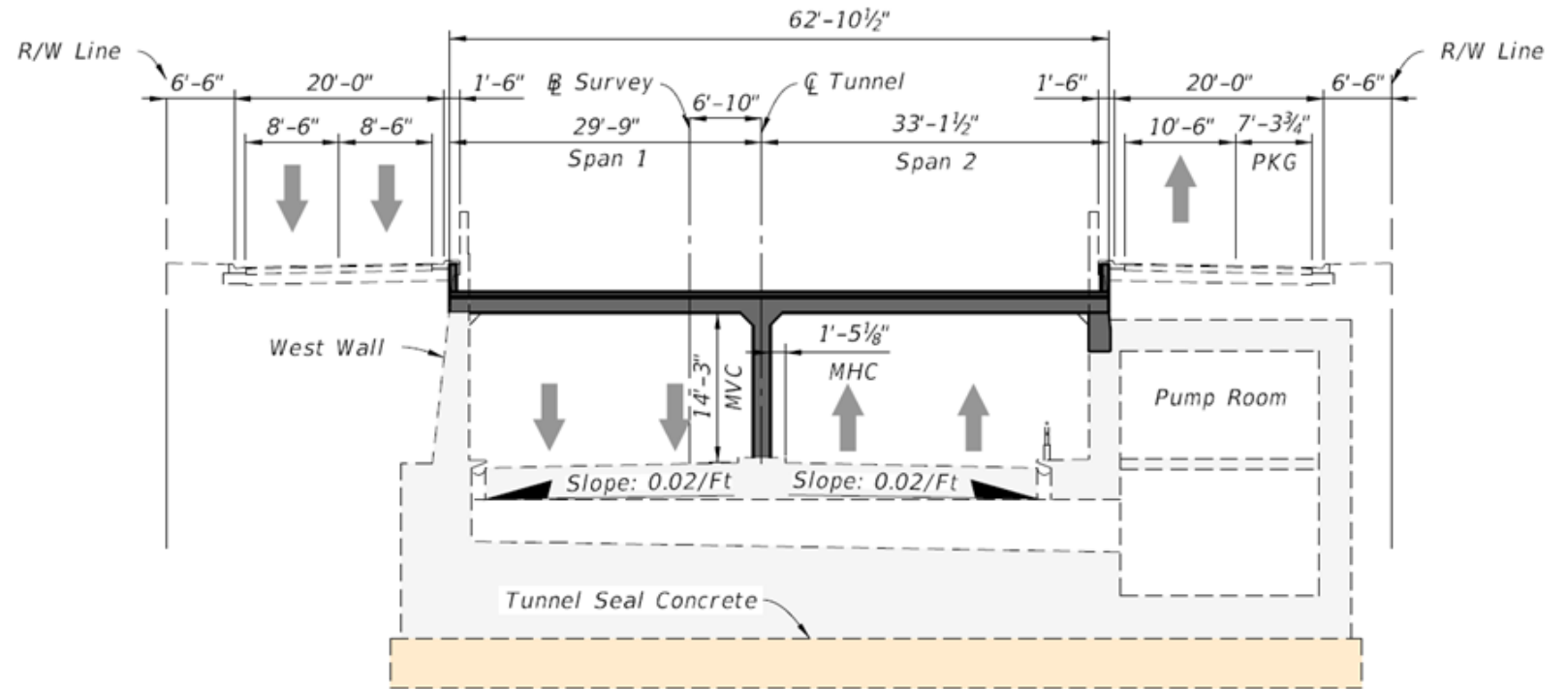
- BDR Recommended 117 feet from north portal
- Constraints
 - Change in Tunnel Category (>1000')
 - Wall Joints (40')
 - Art Deco (80')
 - Slopes



Scope of Pedestrian Plaza

Tunnel Extension

- Two-span, 21 in. deep, continuous flat slab with center column to mimic tunnel barrels



Scope of Pedestrian Plaza

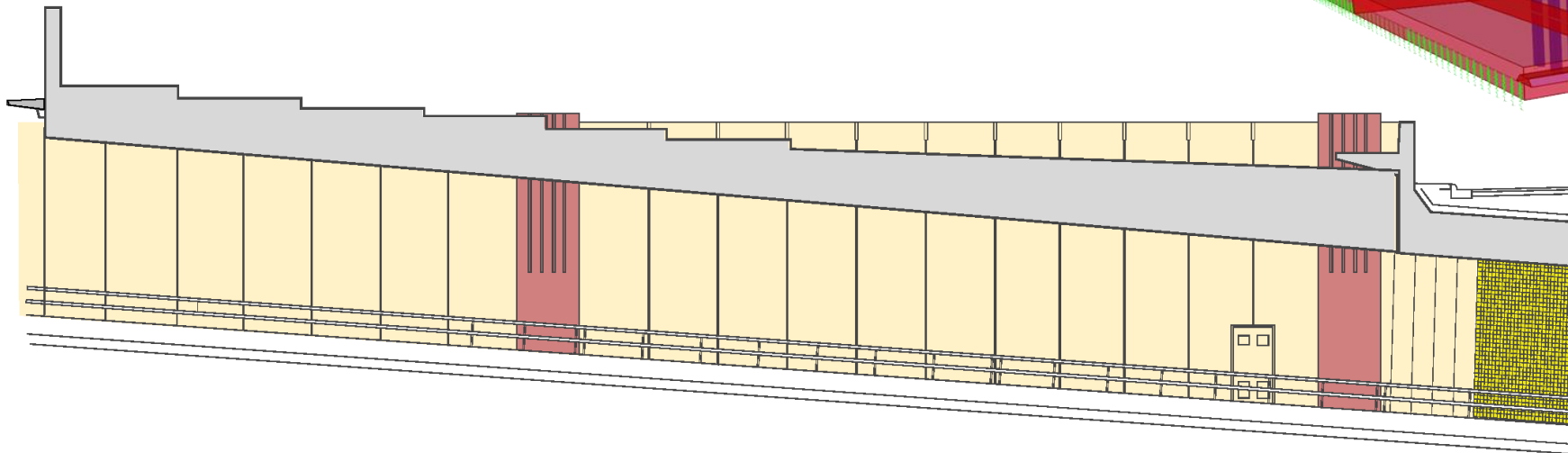
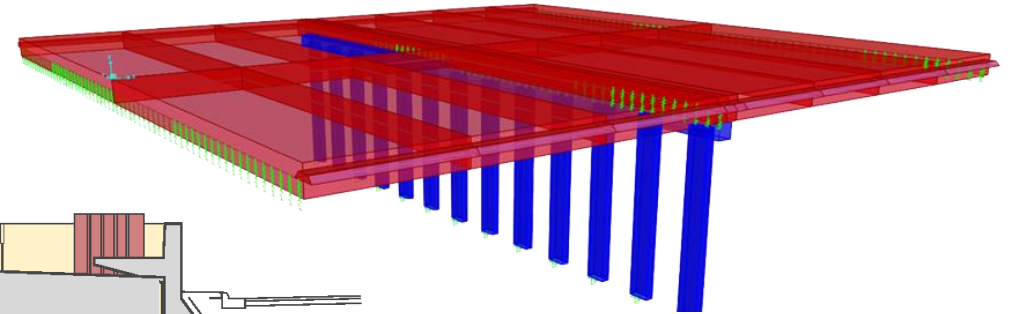
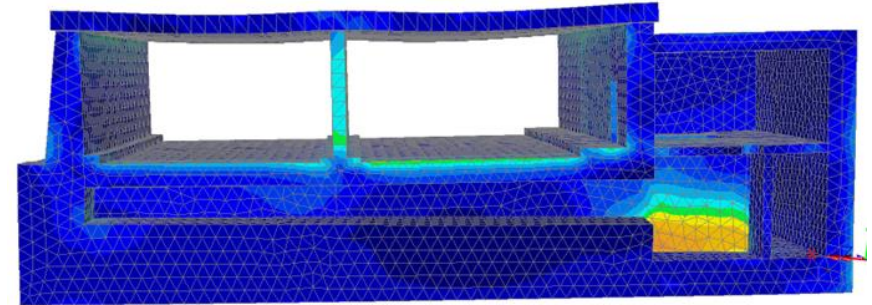
Tunnel Extension

- Finite-element model
- Constraints of pump room
- Considered joints and pilasters

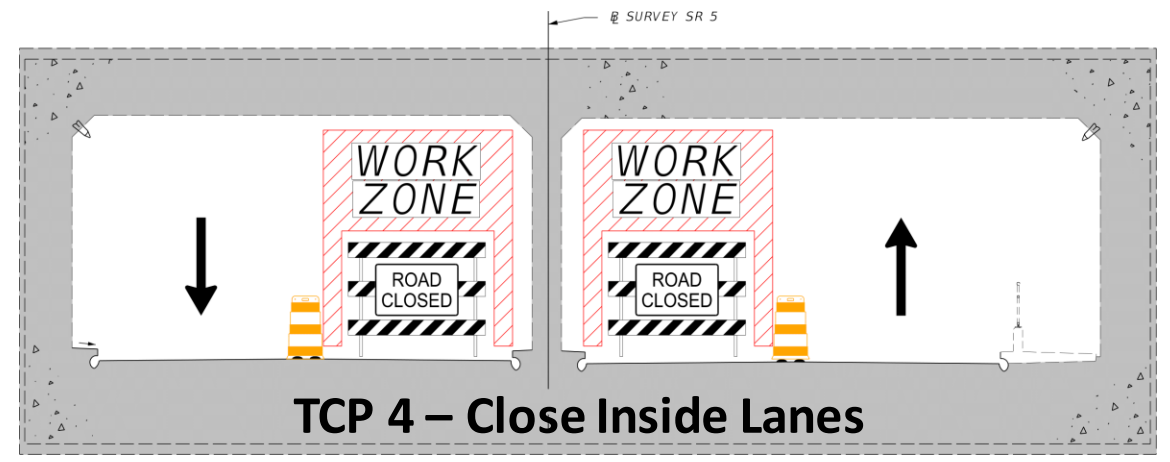
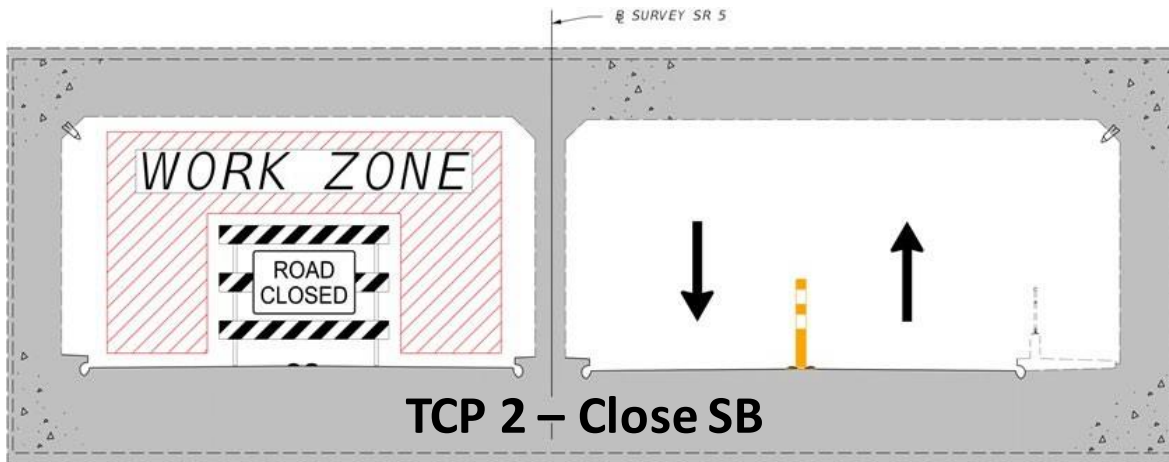
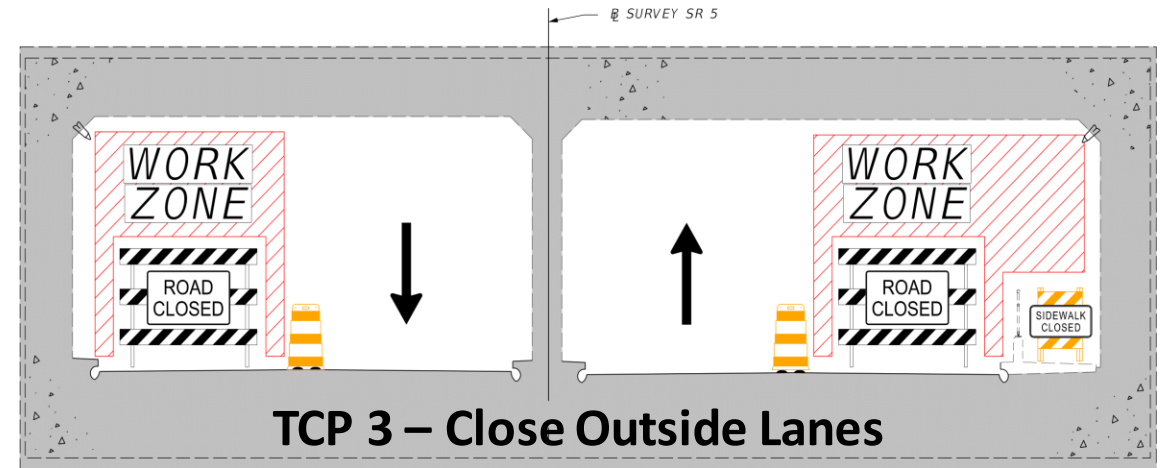
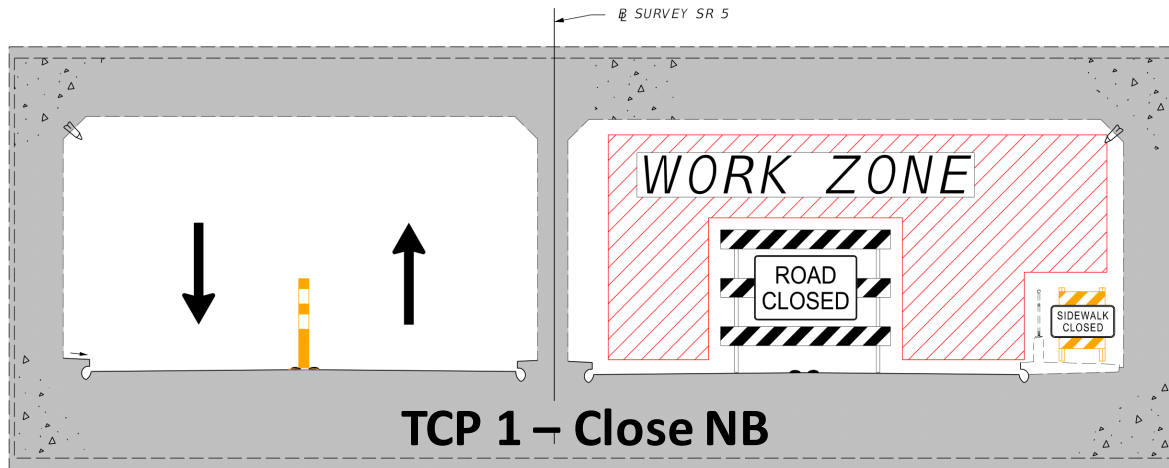
(WallM) STR_d_1_B 9 (0.9*DC+1.35*EHar+1.75*LLN)
Entity: Stress - Solids
Component: SE (Units: lb/ft²)

2.60015E3
7.26154E3
11.9229E3
16.5843E3
21.2457E3
25.9071E3
30.5685E3
35.2299E3
39.8913E3
44.5526E3
49.214E3
53.8754E3
58.5368E3
63.1982E3
67.8596E3

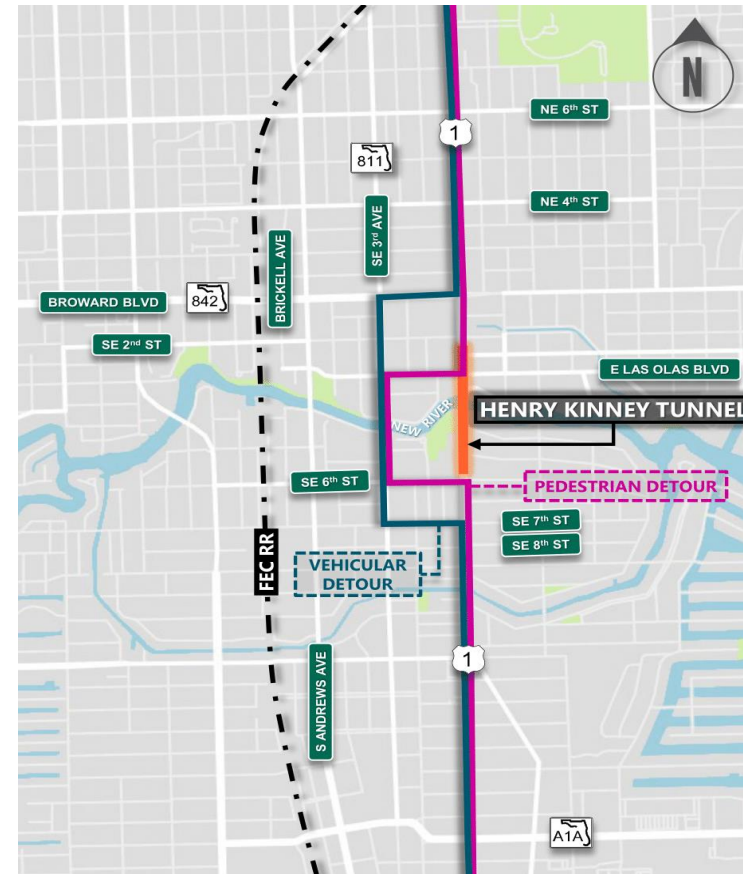
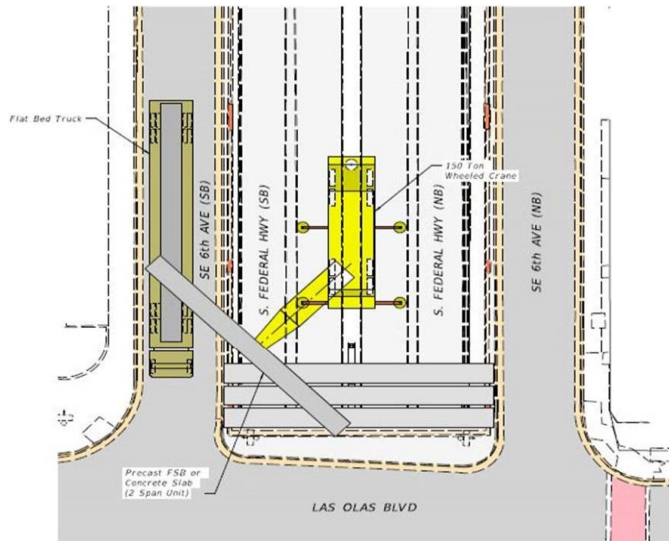
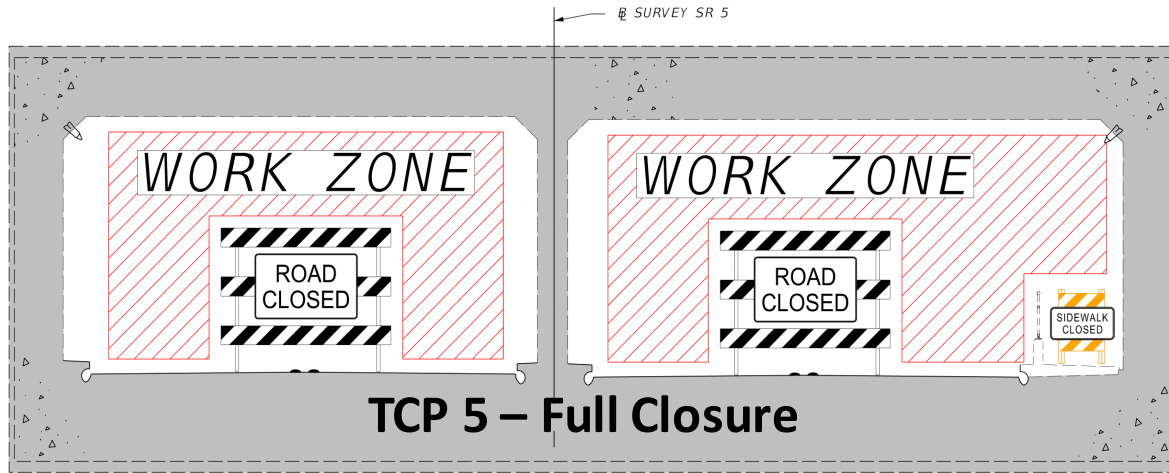
Maximum 70.1903E3 at node 20193
Minimum 269.456 at node 32614



Maintenance of Traffic



Maintenance of Traffic



Detour US-1

Pedestrian Plaza at Las Olas Boulevard



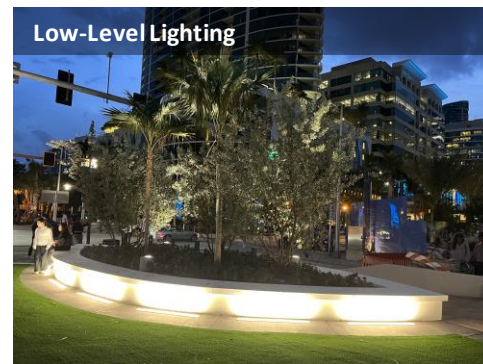
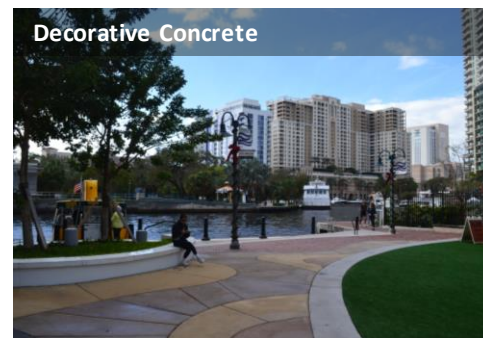
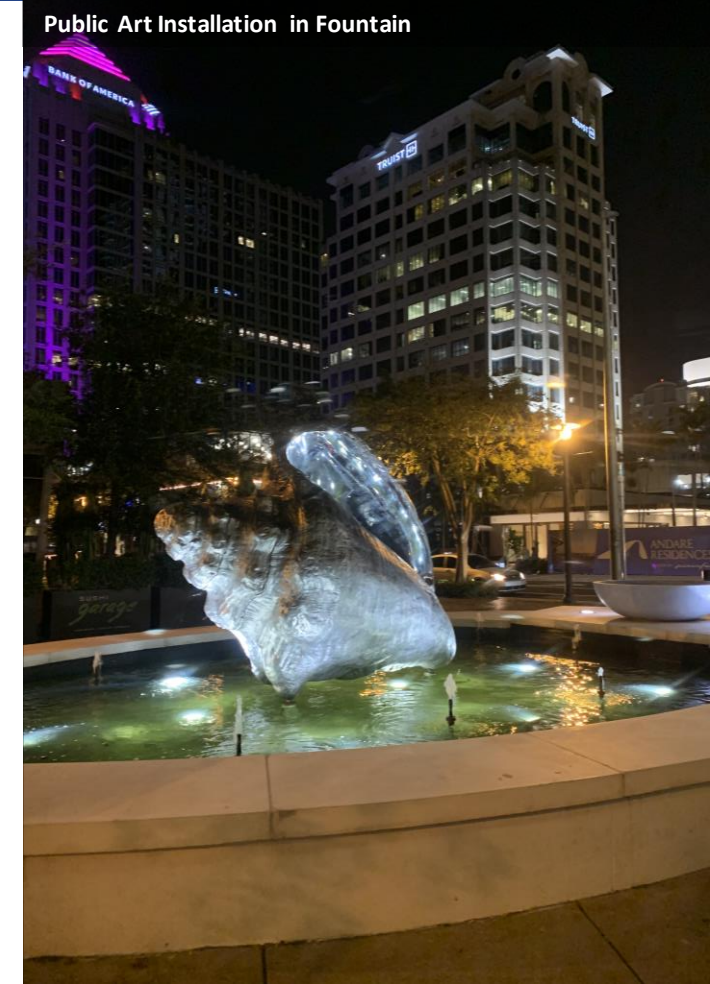
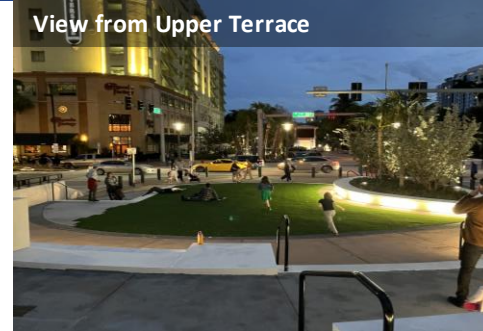
Pedestrian Plaza at Las Olas Boulevard



Pedestrian Plaza at Las Olas Boulevard



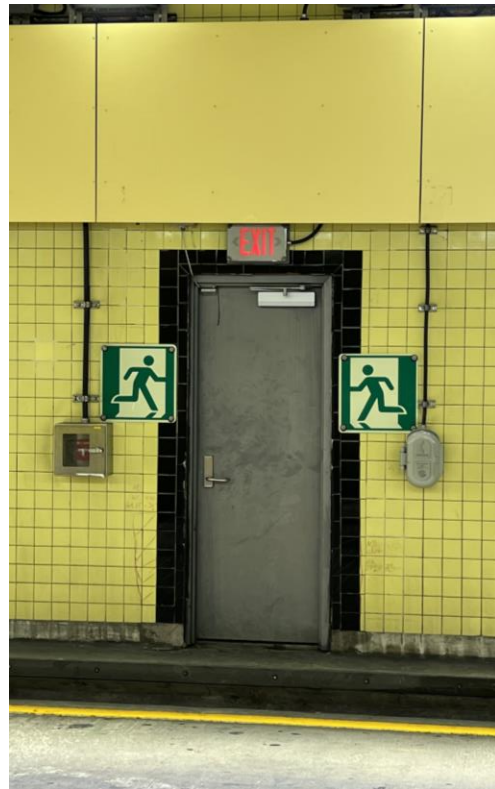
Pedestrian Plaza at Las Olas Boulevard



Tunnel Rehabilitation

Egress Signage Improvements

- Distance to Exit
- Photoluminescent



Tunnel Rehabilitation

Ventilation Improvement

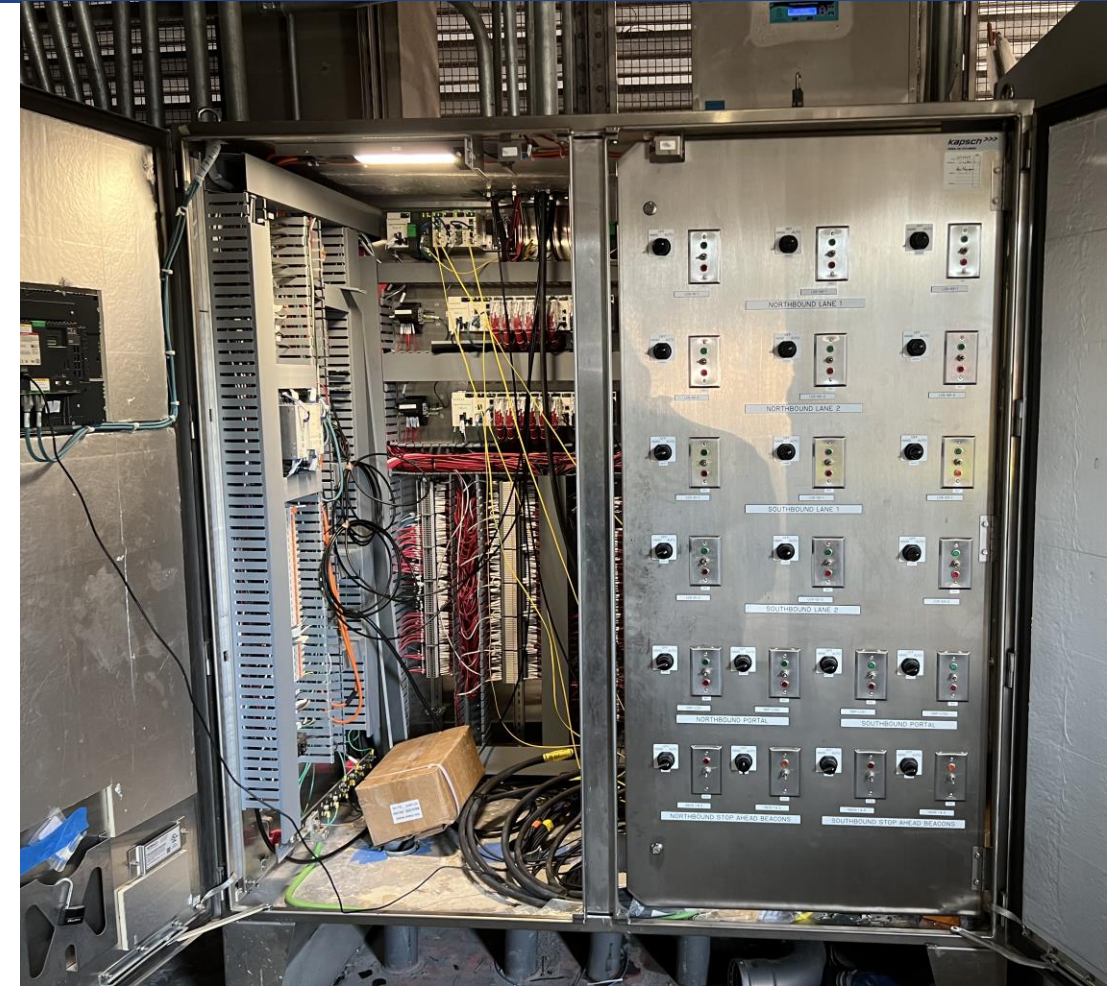
- Saccardo Nozzle Repairs
- Increase Air Velocity
- Fan Replacement



Tunnel Rehabilitation

Tunnel Control System

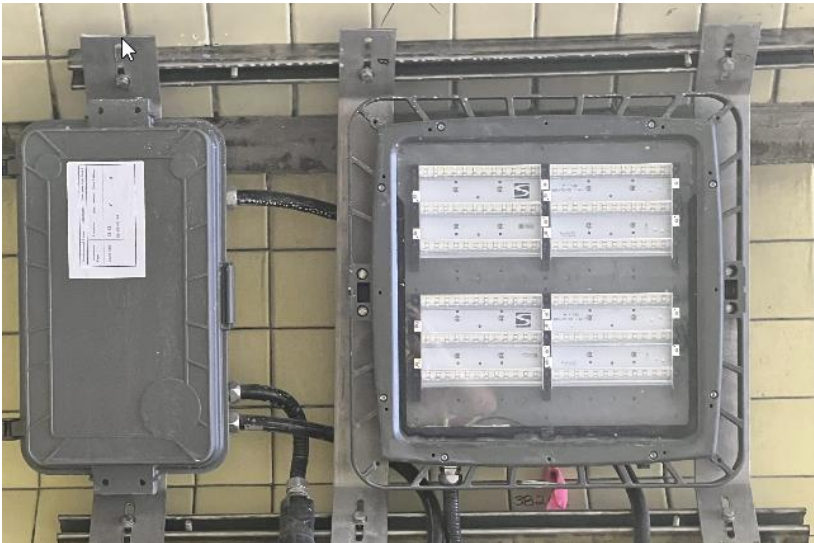
- Ventilation
- Fire Detection
- CO Detection
- Tunnel Lighting
- Storm Pumps
- Warning Gates
- Over-Height VDS
- Lane Use Signals
- Door Alarms
- Standby Power Generator
- Emergency Power – Lighting System



Tunnel Rehabilitation

Tunnel Lighting System

- LED Technology
- Automatic Dimming – Matched to Ambient Light Levels
- Improved Color Rendering
- Energy Efficient



Tunnel Rehabilitation

Tunnel Stormwater Pumps

- Water Level Float Control
- Control Panels
- Pumps
- Hydrocarbon Detection



Tunnel Rehabilitation

Electrical Power System Improvements

- Redundant FP&L Services
- Electrical Service Switchgear
- Variable Frequency Drives – Tunnel Ventilation Fans
- Standby Power Generator
- Lighting Emergency Power Inverter
- Power Distribution Equipment



Tunnel Rehabilitation

Tunnel Traffic Control

- Warning Gates
- Warning Beacons
- Over-Height VDS
- CCTV
- Lane-Use Signals



Construction

Overcoming Challenges Throughout the Project

- Logistics of construction in an urban area where business, residential, and entertainment districts converge



Construction

Overcoming Challenges Throughout the Project

- Logistics of construction in an urban area where business, residential, and entertainment districts converge



Construction

Overcoming Challenges Throughout the Project

- Maintaining HEK Tunnel in operation during construction



Construction

Overcoming Challenges Throughout the Project

- Maintaining HEK Tunnel in operation during construction



Community Engagement

Partnership with the Community

- Minimize impacts to local stakeholders and patrons
- Special events accommodation for art fairs, food festivals, air shows, etc.



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Community Engagement

Partnership with the Community

Community outreach strategies included:

- Quarterly update meetings to the public and with key stakeholders regarding work progress and closures of Las Olas and the HEK Tunnel
- In-person presentations for local groups and organizations
- Informational flyer and email dissemination to the public



Project Flyover



Safety Message

FLORIDA
ARRIVE ALIVE
THIS SUMMER



FLHSMV 
TRANSPORTATION
SYMPOSIUM

Contact Us



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