





# I-395 Reconstruction MDX SR 83611 Improvements I-95 Concrete Pavement Reconstruction Industry Forum February 02, 2016





## Four Major Project Segments

#### Department Project

- FPID 251688-1-52-01: I-395 Reconstruction
- FPID 429300-2-52-01: I-95 Pavement Reconstruction
- FPID 423126-2-52-01: SR 836 WB Connector

#### **MDX Project**

FPID 423126-1-52-01: NW 17<sup>th</sup> St to Midtown





#### **Definitions**

- Department Project: I-395, I-95, and SR 836 WB Connector
- MDX Project: SR 836
- Total Project: Department Project and MDX Project
- Department Contract: Contract between the Department and Design-Build Firm (DBF) to build the Total Project with payment to the DBF for construction of the Department Contract.
- MDX Contract: Contract between MDX and DBF for the construction of the Total Project, and for payment to the DBF for the construction of the MDX Contract.





## Project Background

#### Need for Improvements

- Increase capacity to prevent future traffic congestion
- Improve safety by alleviating existing operational and geometric deficiencies; eliminate left hand entrance/exit ramps
- Improve local access to and from I-395
- Reduce evacuation time from Miami Beach
- Structures not designed to carry additional capacity

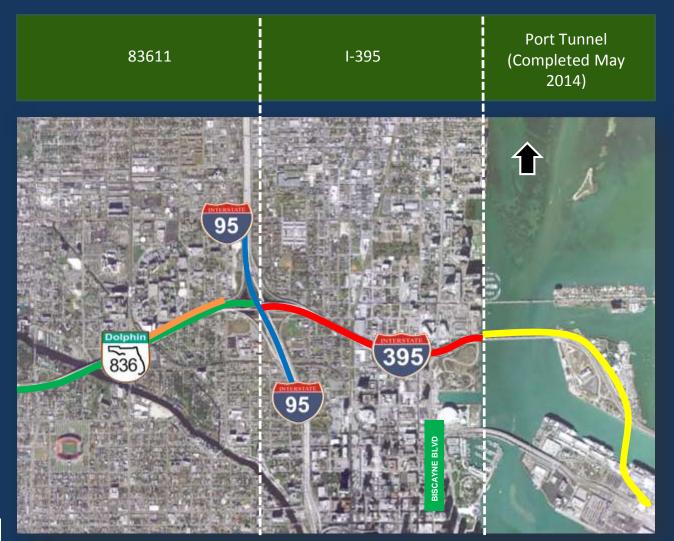






# **Project Location**

#### SR 836/I-395 system













# I-395 Roadway Design - Alignment









### I-395 Variations and Exceptions



- Exceptions:
  - Vertical Clearance
  - Grades
  - Superelevation
  - Vertical Alignment

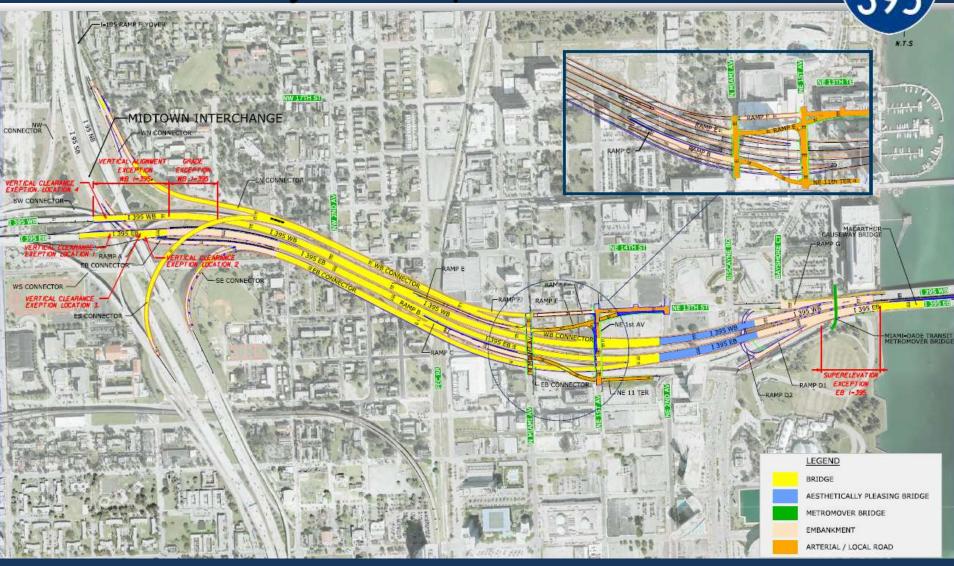
#### Variations:

- Grades
- Length of Horizontal Curve (Ramps)
- Length of Horizontal Curve (Mainline)
- Border Width
- Stopping Sight Distance
- Interstate Ramp Terminal Vertical Curve Length
- Bridge Cross Slope
- Vertical Alignment
- Shoulder Width





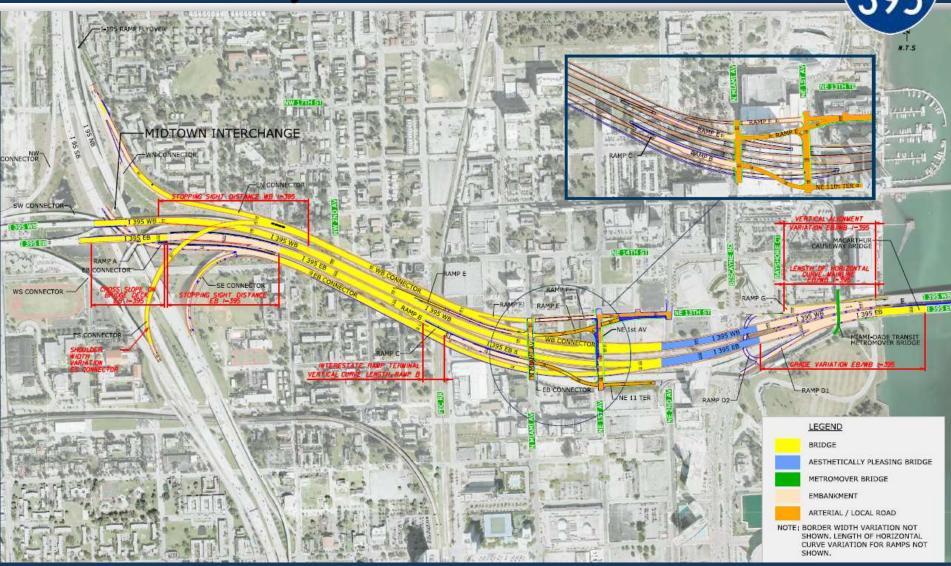
# I-395 Roadway – Exception Locations







# I-395 Roadway – Variations Locations







# I-395 Roadway Design - Alignment



Surface street work







# I-395 Conceptual Construction Phasing



- Four major phases + One "clean-up" phase
- Two temporary bridges
- Surface street work performed in last phase
- Traffic model required for each phase of TCP and detours for comparison to concept
  - Base models provided with RFP
  - Should equal or reduce travel times from concept plans





## I-395 Conceptual Construction Phasing



- Maintain all existing lanes on I-395 and ramps
  - EN and NE ramps may be reduced from 2 to 1 lane
- 45 MPH regulatory speed through work-zone for I-395 Mainline
- Ramp speeds may be reduced by 10 MPH from existing but not less than 25 MPH. Ramp E-N may be 20 MPH.
- No lane closures during major events
- Closure times
  - Mainline Single Lane: 11:00PM 5:30AM (Sun Thur); 2:00AM 6:30AM (Fri Sat)
  - Mainline Multiple Lanes: 12:00AM 5:30AM(Sun Thur); 2:00AM 6:30AM(Fri Sat)
  - Ramps: 10:00 PM 6:30 AM (Sun –Thurs); 11:00PM 7:00 AM (Fri Sat)
  - Surface Streets: 10:00PM 5:30AM (Sun Thurs) 11:00PM to 7:00AM (Fri Sat)







#### Phase I

- Traffic Maintained on existing roadways / bridges
- EB and WB Connectors, ES Connector and temporary connection construction for WB I-395, EN connector & EB Connector



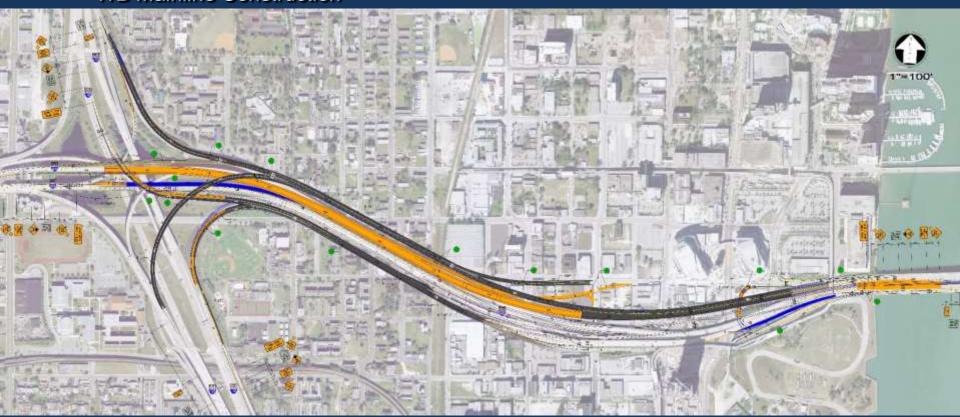






#### Phase II

- WB Mainline traffic shifted to WB Connector, EB traffic form I-95 shifted to EB Connector
- WB Mainline Construction

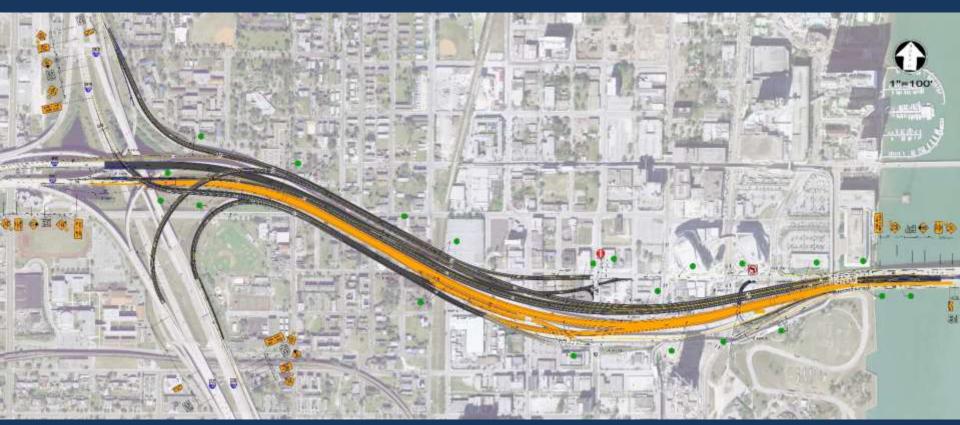








- Phase III
  - EB Mainline traffic shifted to proposed WB mainline
  - EB Mainline and remainder of EB Connector Construction









- Phase IV
  - Complete MacArthur Bridge Widening
  - Construct portions of EB I-395, EB on ramps (ramp D and D-1)
  - Demolition of temporary structures and connections.
  - Milling and resurfacing and reconstruction work for surface streets







395

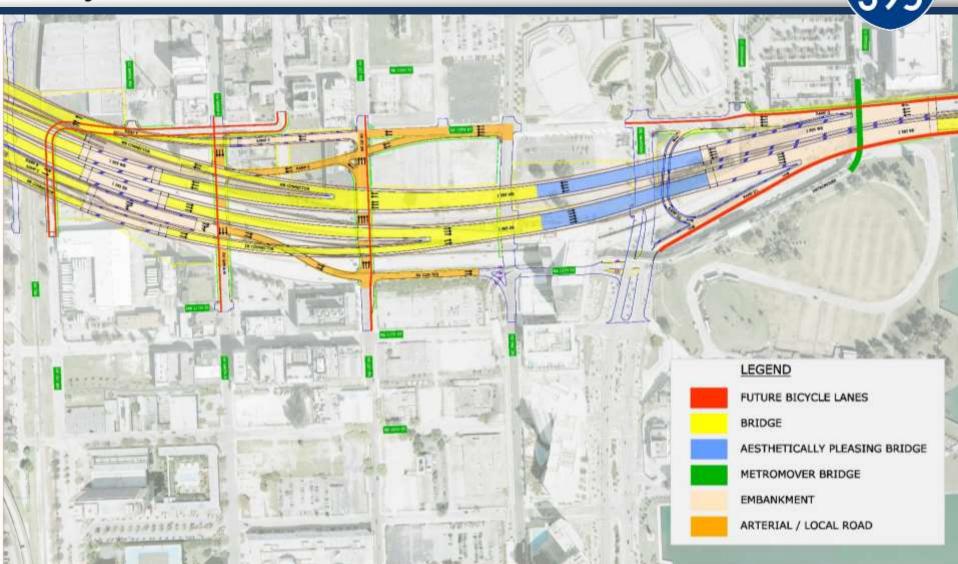
- Phase V Clean-up Phase
  - Complete remaining portion of I-395 EB
  - Complete milling and resurfacing and reconstruction work for surface streets
  - Place traffic in final configuration







# Bicycle Accommodations





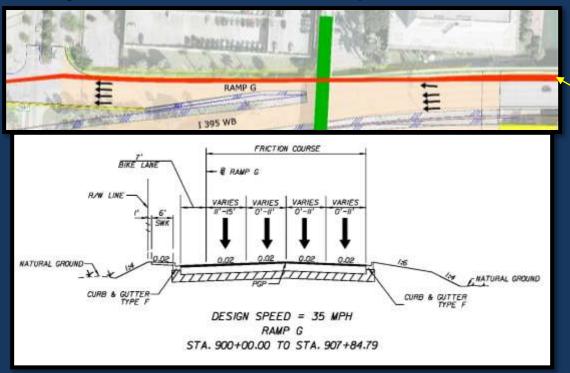


## Bicycle Accommodations



FUTURE BICYCLE LANE

- Current ramps provide no shoulders
- Accommodate future bike lanes on MacArthur Causeway shoulders and ramps



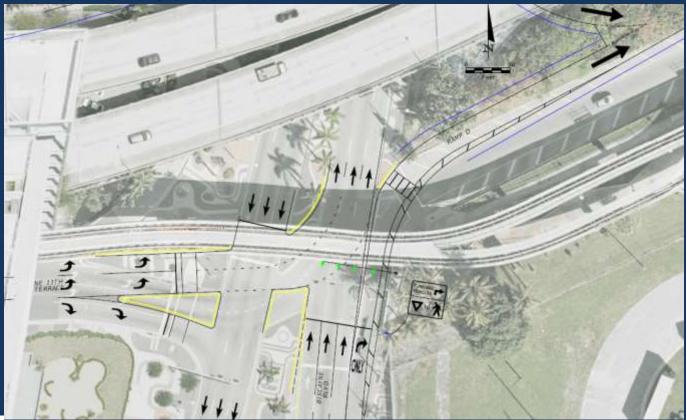
WB I-395 off-ramp to Biscayne Blvd. (Ramp G)





#### Pedestrian Accommodations

- 395
- Modifications to Biscayne Blvd. / NE 11<sup>th</sup> Terrace intersection to improve pedestrian crosswalk
- Better pedestrian connectivity between Museum Park / Metromover
   Station & Arsht Center







### I-395 Pedestrian Accommodations







#### I-395 Record of Decision Commitments



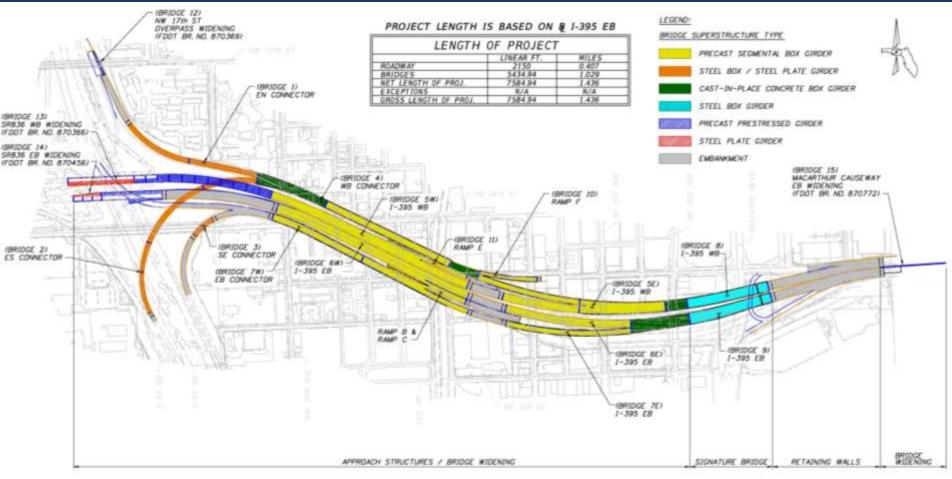
- Minimum 19' of roadway vertical clearance west of FEC
- Minimum 25' of roadway vertical clearance east of FEC
- Minimum 200' of distance between the I-395 westbound bridge and the Adrienne Arsht Center for the Performing Arts (AACPA)
- Minimum 225' of span length between columns
- Provide a signature span design
- Provide aesthetics enhancements (landscape) to help maximize the total integration of the project with the adjacent community
- Reconnect NW 2<sup>nd</sup> Avenue





## I-395 Structures Design





SITE PLAN





#### I-395 Aesthetics



- Aesthetic Steering Committee
- Project Advisory Group (PAG)
- Visual quality concepts and recommendations
  - Iconic
  - Inviting
  - Usable





#### I-395 - Aesthetics Manual



- Visual Quality Intentions for Design
  - The Signature Bridge Span(s) is intended to be a world-class, iconic structure and serve as a City of Miami landmark.
  - All bridges are integrated and all elements complement the overall appearance of the Signature Bridge Span(s) structure.
  - Bridges possess an elegant simplicity in which the engineered lines and proportions are the primary design elements, e.g. form follows function.
  - The design elements exhibit fluid lines in the overall presentation of the bridges.





#### I-395 - Aesthetics Manual



- The AM includes Aesthetic Baseline Requirements
  - Component shapes
  - Textures
  - Colors
  - Other project aesthetic criteria
- Aesthetic Enhancements submitted as part of Aesthetic Project Technical Enhancements





#### I-395 - Aesthetic Project Technical Enhancements



- APTE's are a specific type of ATC's
- Aesthetics Only
- Have to be "equal or better" than aesthetic baseline requirements
- Reviewed by the FDOT
- Examples: Pavers, enhanced lighting on signature bridge, sculptures, etc.
- Occurs with the ATC rounds





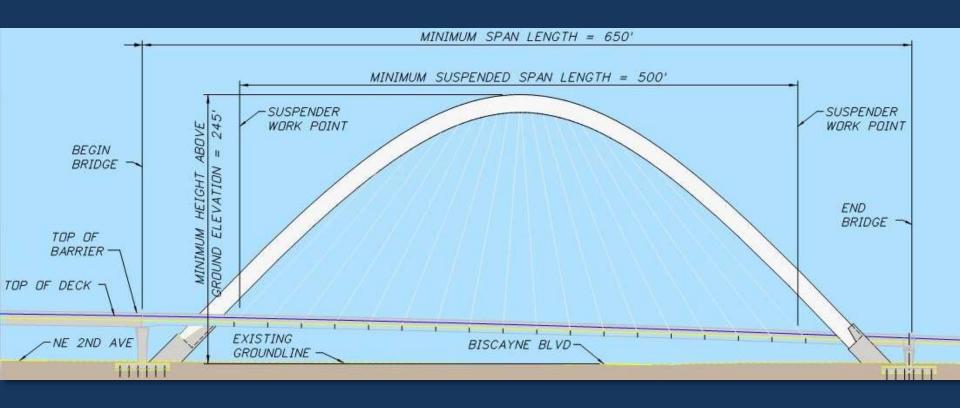
## I-395 Signature Bridge Requirements

- Minimum apex above street level = 245'
- Minimum length of bridge = 650'
- Minimum suspended span length = 500'
- Visual consistency between approach and main span
- Signature Bridge shall span Biscayne Blvd.
- Final bridge to look as one no duplicity, i.e. twin arches





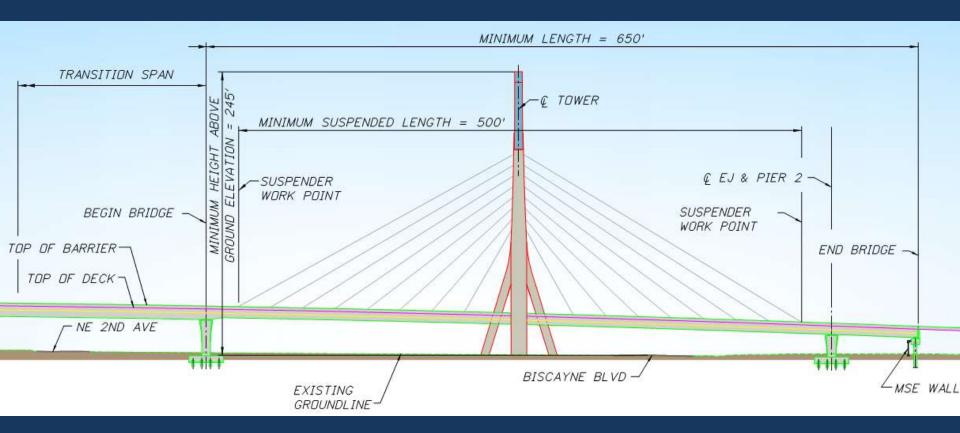
# I-395 Signature Bridge Requirements







# I-395 Signature Bridge Requirements







## I-395 Signature Bridge Templates

- Looking along NB Biscayne Boulevard Day and Night
- Looking along SB Biscayne Boulevard Day and Night
- Traveling EB along I-395 on Signature Bridge
- Aerial View Day Only
- Transition View Day Only





I-395 Template - Looking NB Along Biscayne, Night View - Wishbone







I-395 Template - Looking NB Along Biscayne, Night View – Lotus







#### I-395 - Transition View - Wishbone









# I-395 South Bound Biscayne









## I-395 Aerial View











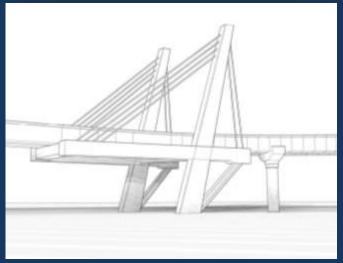
#### I-395 Metromover



#### CABLE STAYED STRUCTURE

- Supports the existing cap of the pier to be removed
- Provides FDOT minimum vertical clearance of 16.5' for the new alignment
- Constructed within the Right-of-Way and aerial easements
- The Metromover will have limited nighttime closures between the hours of 1:00 AM to 4:00 AM









## I-395 Aesthetic Components









## I-395 Streetscape

























INTERSTATE































































## MDX 83611 Project Description

- From the NW 17th Ave Interchange to the SR 836/ I-95/ I-395 Interchange (Midtown Interchange) or approximately 1.4 miles
- Urban Principal Arterial Expressway







#### SR 836 WB Connector



- Portion of new WB Connector only
- Doesn't include exit ramp to NW 14<sup>th</sup> Street







#### MDX 83611 – Area Characteristics



- Urbanized Area
- Major Interchange Connection
- Close Proximity to Downtown Area
- Medical Centers/Hospitals/Health Institutions
- Governmental Complexes
- Miami River
- Constrained Corridor











## MDX 83611 - Scope









#### MDX 83611 – Scope



- Add capacity to SR 836 (1 additional lane in each direction) to improve mobility and safety (11 bridges to be improved)
- Meet all project commitments approved by FHWA during PD&E phase
- Eliminate existing weaving across eastbound SR 836 by creating an elevated separate eastbound CD road to connect NW 12th Avenue interchange with I-395 eastbound, I-95 northbound and I-95 southbound (6 new bridges for this new elevated section)
- Eliminate existing weaving across westbound SR 836 by creating an elevated separate westbound CD road to connect I-95 southbound movement with SR 836 westbound and new exit at NW North River Drive (3 new bridges for this new elevated section)





#### MDX 83611 – Scope Cont.



- Construct new fender system to protect SR 836 columns over Miami River
- Add two new tolling facilities for NW 14<sup>th</sup> Street Exit and at NW North River Drive Exit
- Modify 5 parking facilities





## MDX 83611 - Aesthetics









#### MDX 83611 – Ramp Connections



- NW 12<sup>th</sup> Avenue to northbound I-95 (via new eastbound CD)
- NW 12<sup>th</sup> Avenue to southbound I-95 (via new eastbound CD)
- NW 12<sup>th</sup> Avenue to eastbound I-395 (via new eastbound CD)
- I-95 southbound to NW 14<sup>th</sup> Street (upgrade existing ramp)
- I-95 southbound to NW North River Drive (new exit from new westbound CD)





#### MDX 83611 – Ramp Connections Cont.

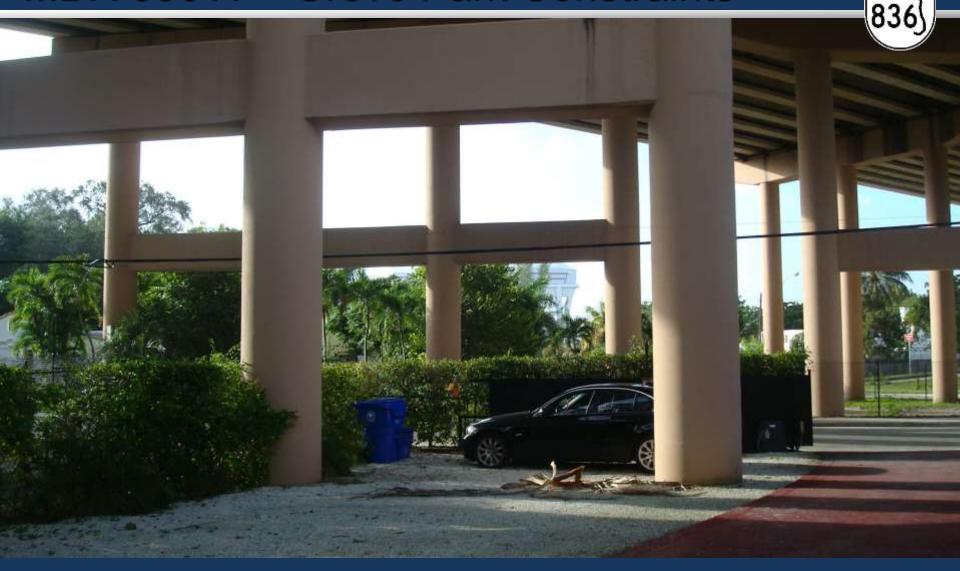


- I-95 southbound to SR-836 westbound (via new westbound CD)
- I-95 northbound to NW 12<sup>th</sup> Avenue/SR 836 westbound (maintain existing ramp configuration)
- SR 836 westbound to NW 12<sup>th</sup> Avenue (maintain existing ramp configuration)
- SR 836 eastbound to I-95 southbound and I-95 northbound (maintain existing ramp configuration)





## MDX 83611 – Grove Park Constraints







Dolphin

## MDX 83611 – Grove Park Constraints







## MDX 83611 - Major Constraint with C-Pier







Dolphin

## MDX 83611 – Women's Detention Center







Dolphin



- Maintain all existing lanes on SR 836 and ramps
- 45 MPH regulatory speed through work-zone for SR 836 Mainline
- Ramp speeds may be reduced by 10 MPH from existing but not less than 25 MPH.
- No lane closures during major events
- Closure times
  - Mainline Single Lane: 11:00PM 5:30AM (Sun Thur); 2:00AM 6:30AM (Fri Sat)
  - Mainline Multiple Lanes: 12:00AM 5:30AM(Sun Thur); 2:00AM 6:30AM(Fri Sat)
  - Ramps: 10:00 PM 6:30 AM (Sun –Thurs); 11:00PM 7:00 AM (Fri Sat)
  - Surface Streets: 10:00PM 5:30AM (Sun Thurs) 11:00PM to 7:00AM (Fri Sat)
- Special restrictions at Grove Park, Jury Parking Lots, Women's Detention Center

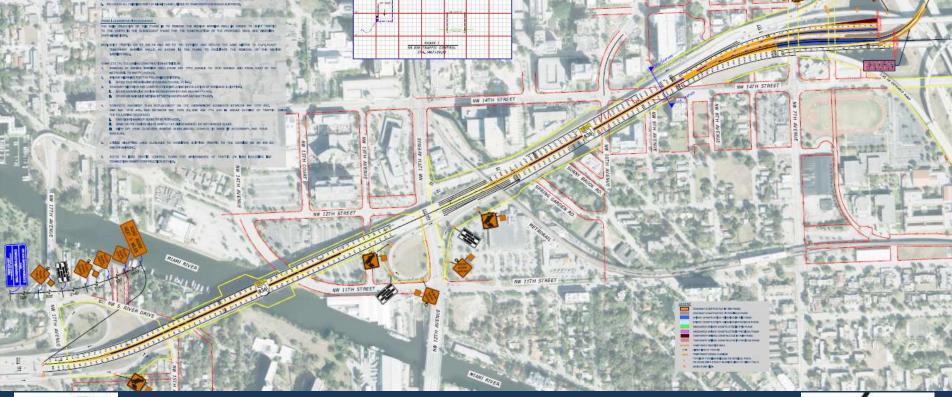






#### Phase I

- Shift traffic onto outside shoulders
- Demolish median barrier wall, close open joints between bridges
- Construct temporary widening for EB to NB ramp



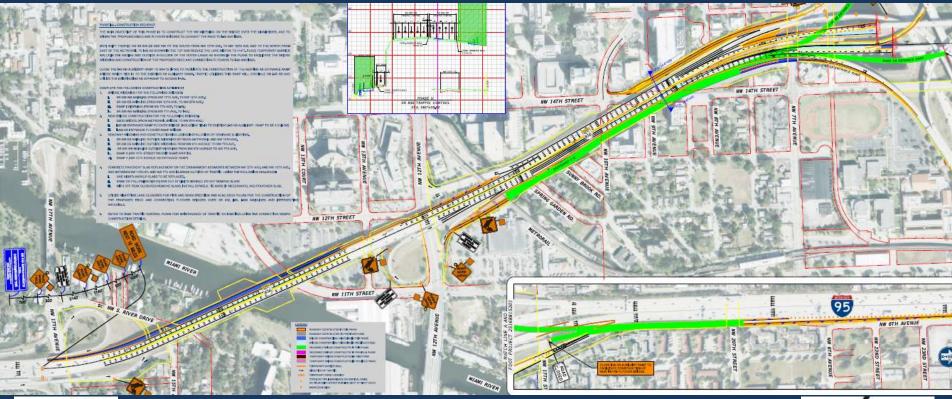






#### Phase II-A

- Shift traffic to north side of SR 836, close NB I-95 to I-195 braided ramp
- Construct WB widening for Bridge over Miami River, Construct EB C road and NW 12 Ave to NB I-95 flyover



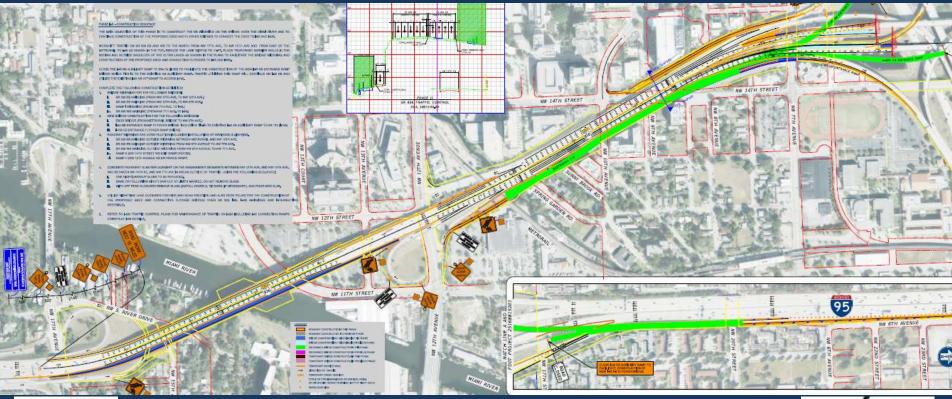






#### Phase II-B

- Construct EB widening for Bridge over Miami River,
- Continue Construction of EB CD road and NW 12 Ave to NB I-95 flyover



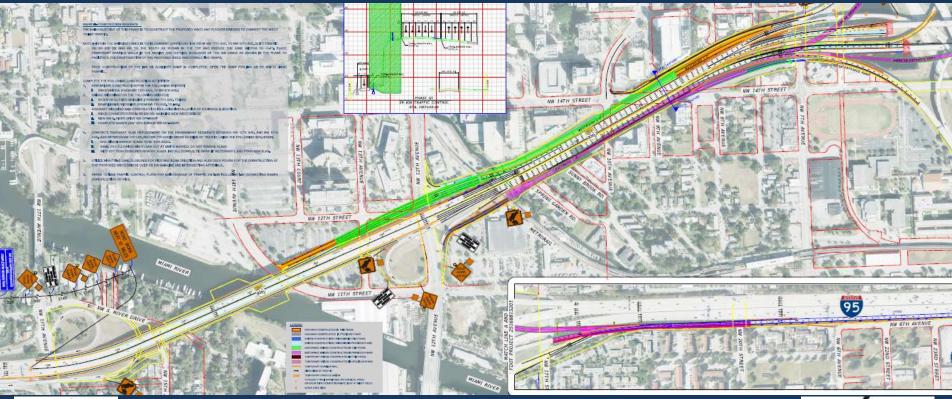






#### Phase III

- Shift Traffic to south side of SR 836
- Construct WB CD road, construct new off-ramp to NW 11<sup>th</sup> St.

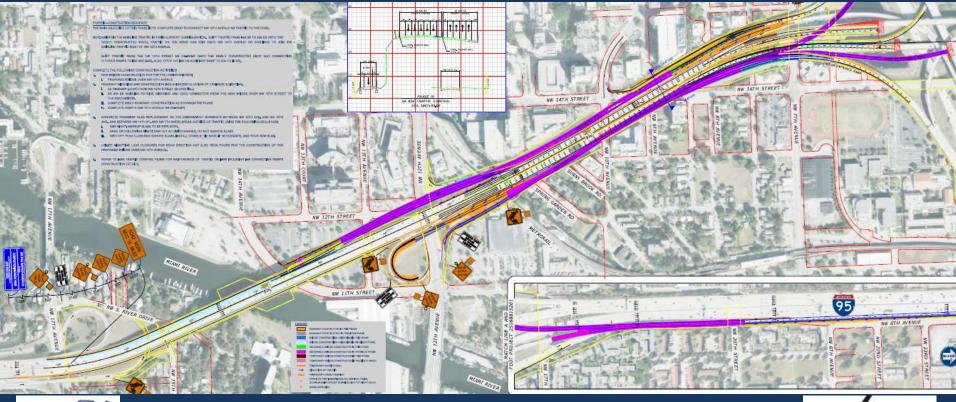








- Phase IV
  - Open EB CD / Open WBCD
  - Construct SB NW 12<sup>th</sup> Ave on-ramp

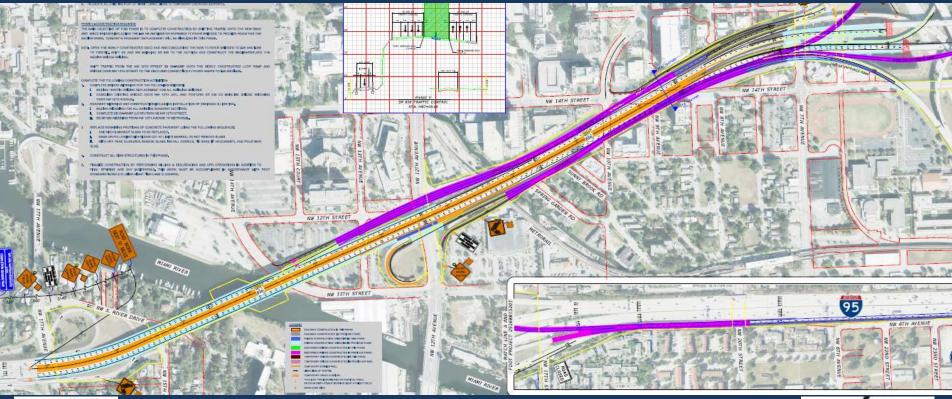








- Phase V
  - Construct final median
  - Place traffic in final configuration













## I-95 Project Update











- FPID 429300-2-32-01
- NW 8th Street to NW 29th Street 1.6 miles
- Project consists of replacement of all Rigid
   Pavement on I-95 mainline and associated entrance and exit ramps.



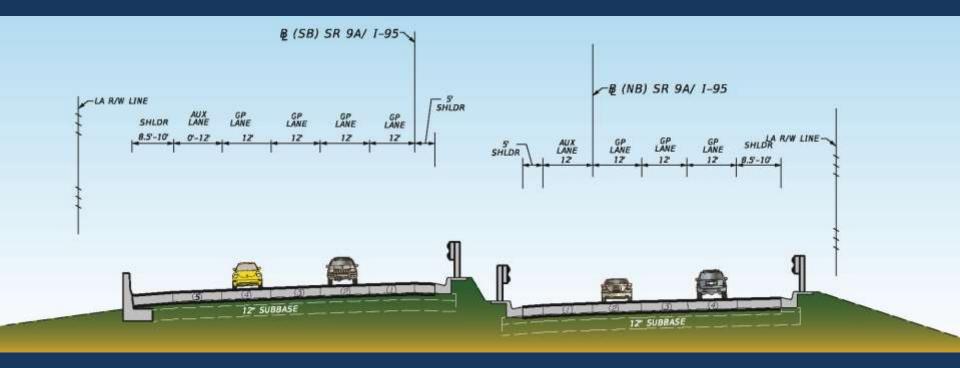




- Replace existing 9" concrete pavement with 11.5"
- Diamond grind new concrete 30 days after placement
- Replace any existing asphalt shoulder with full depth concrete shoulder
- Address drainage maintenance issues
- Replace all guardrail to upgrade to current standard
- Address associated bridge rail retrofits, approach slab replacement and expansion joint replacement



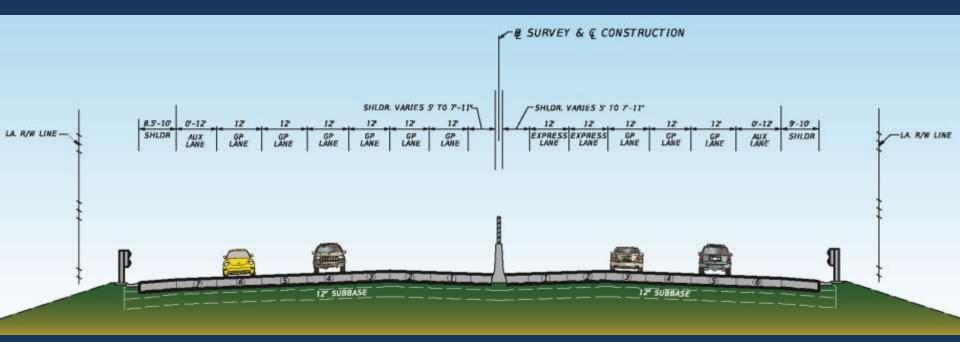








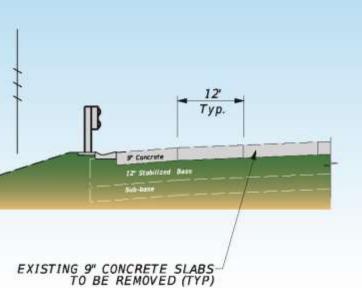




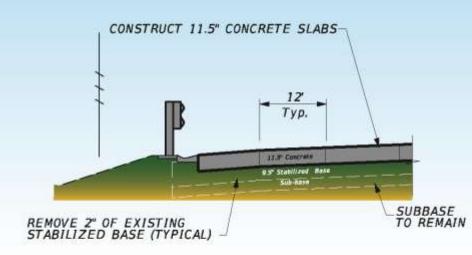








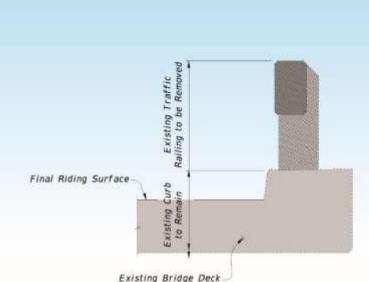
EXISTING CONCRETE PAVEMENT



PROPOSED CONCRETE PAVEMENT

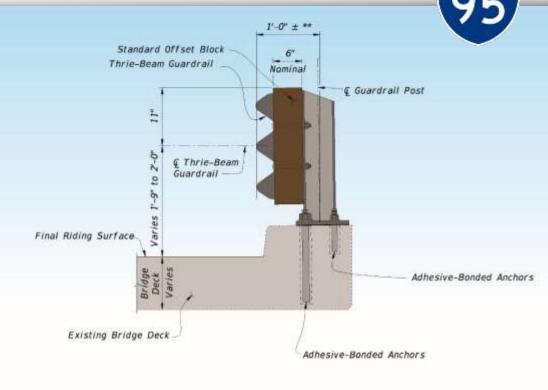






TYPICAL SECTION SHOWING EXISTING TRAFFIC RAILING ON BRIDGE DECK

EXISTING BRIDGE RAILING BEFORE RETROFIT



TYPICAL SECTION THRU RAILING ON BRIDGE DECK

PROPOSED BRIDGE RAILING AFTER RETROFIT





INTERSTATI



### **Traffic Control:**

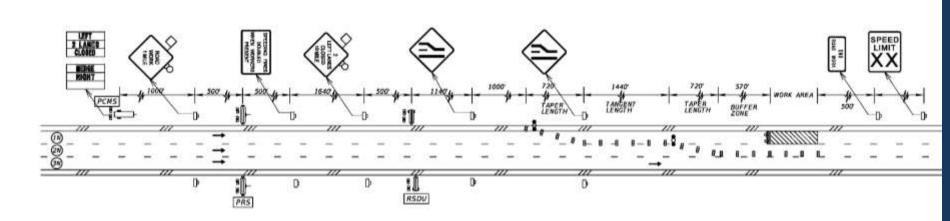
- Closure Restrictions same as for I-395
  - Closure Times
    - Single Lane
      - •11:00 PM to 5:30 AM Sunday thru Thursday
      - 2:00 AM to 6:30 AM Friday and Saturday
    - Multiple Lane
      - •12:00 AM to 5:30 AM Monday thru Thursday
      - •2:00 AM to 6:30 AM Holiday, Friday, Saturday and Sunday



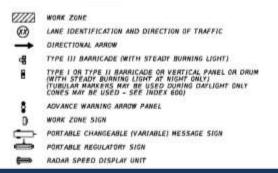




Utilize standard multiple lane closure setups for I-95



#### LEGEND



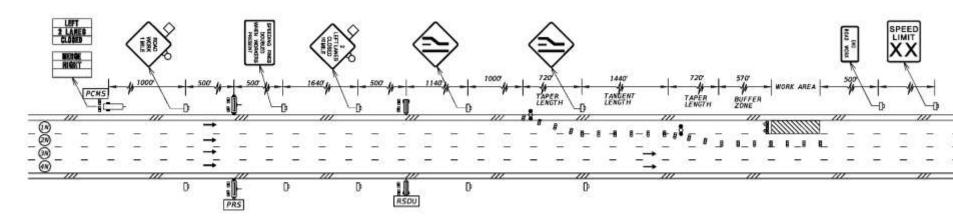
TYPICAL WORK ZONE TRAFFIC CONTROL DETAIL SLAB REPLACEMENT FOR 3 LANE 2 LANE CLOSURE

(NOT TO SCALE)









#### LEGEND

WORK ZONE

(C) LANE IDENT

LANE IDENTIFICATION AND DIRECTION OF TRAFFIC

DIRECTIONAL ARROW

TYPE III BARRICADE (WITH STEADY BURNING LIGHT)

TYPE I OR TYPE II BARRICADE OR VERTICAL PANEL OR DRUM (WITH STEADY BURNING LIGHT AT NIGHT ONLY) (TUBULAR MARKERS NAY BE USED DURING DAYLIGHT ONLY CONES MAY BE USED - SEE INDEX 600)

ADVANCE WARNING ARROW PANEL

WORK ZONE SIGN

PORTABLE CHANGEABLE (VARIABLE) MESSAGE SIGN

PORTABLE REGULATORY SIGN

RADAR SPEED DISPLAY UNIT

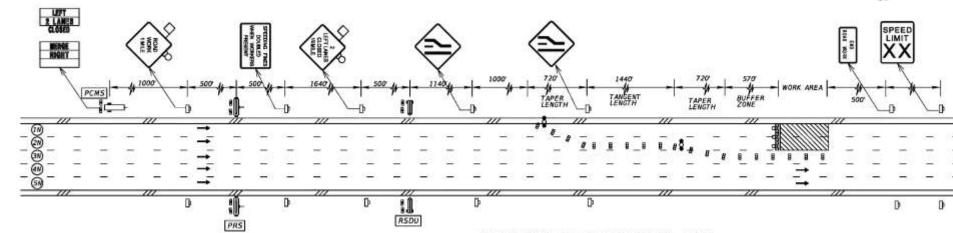
TYPICAL WORK ZONE TRAFFIC CONTROL DETAIL SLAB REPLACEMENT FOR 4 LANE 2 LANE CLOSURE

(NOT TO SCALE)





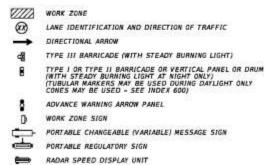




TYPICAL WORK ZONE TRAFFIC CONTROL DETAIL SLAB REPLACEMENT FOR 5 LANE 3 LANE CLOSURE

(NOT TO SCALE)

#### LEGEND

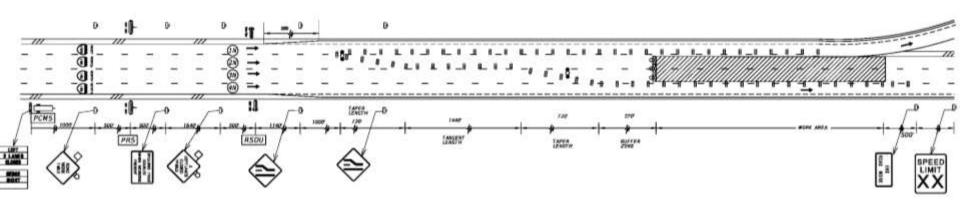


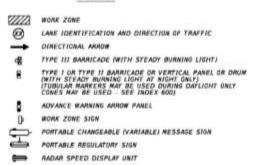






Typical setup for Ramp Exit





LEGEND

TYPICAL WORK ZONE TRAFFIC CONTROL DETAIL SLAB REPLACEMENT FOR 4 LANE 2 LANE CLOSURE

(NOT TO SCALE)

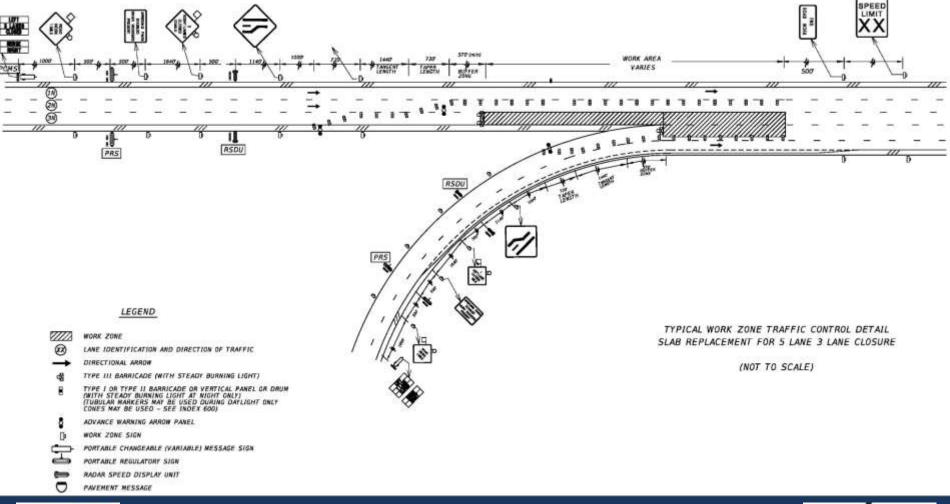


PAVENENT MESSAGE





### Typical setup for Ramp Entrance

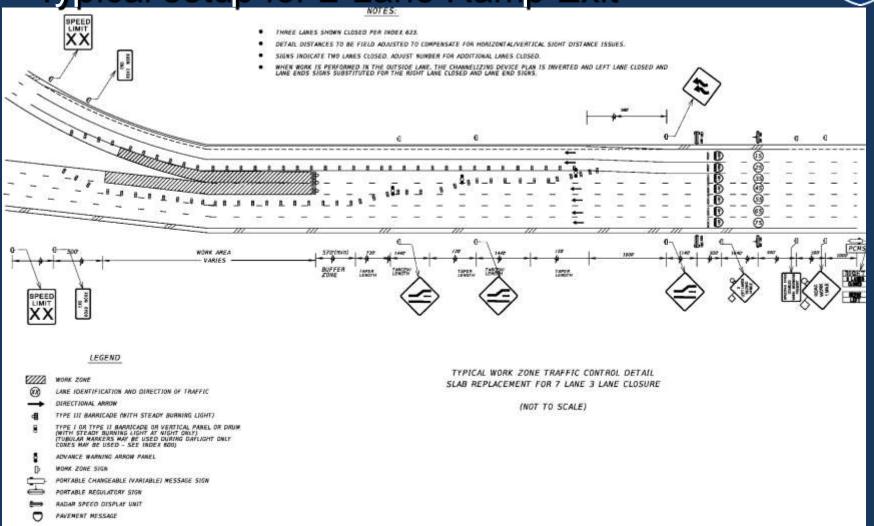






# 95

Typical setup for 2-Lane Ramp Exit

















### Design Build RFP Procedure

- Four Step Procurement Process
  - Phase 1 Short Listing
  - Phase 2 Aesthetic Signature Bridge Proposal Pass/Fail
  - Phase 3 –Technical Proposal:
    - Technical and Aesthetic Volumes Submissions
  - Phase 4 Price Proposal and Financial Proposal Submittals





### Project Selection Committee

### **Project Selection**

Gerry O'Reilly, PE FDOT District 4 Secretary

Debora Rivera, PE FDOT District 6 Director of Transportation Operations

Javier Rodriguez, PE MDX Executive Director





### Phase 1 – Short List

- Letter of Response
  - Photos of previous completed projects/structures
  - Previous Experience
  - <u>Do Not</u> include digital images or sketches of proposed bridge or streetscape
- No Points
- Five Teams





## Review Committee

#### **Technical**

Mario Cabrera, PE FDOT

Rudy Garcia, PE FDOT

David Amato, PE FDOT

Omar Meitin, PE FDOT

Juan Toledo, PE MDX

#### **Aesthetic**

The Honorable Audrey Edmonson

Brian Blanchard, PE

M. John Richard

**Albert Parjus** 

Alyce Robertson





### Phase 2 – Aesthetic Signature Bridge Submission

- Aesthetic Signature Bridge Proposals
- Maximum of 3 Options per Team
  - Each ARC member will independently pass or fail each option
  - For an option to be passed it must receive 4 out of 5 passes from the ARC members. (3 out of 5)
  - Public Meeting to announce passing teams
- Must receive passing on at least 1 bridge





### Phase 2 – Aesthetic Signature Bridge Submission

- ARC will provide ranking
- Ranking for information only
- Preset camera views
  - Structure only
  - Additional streetscape, landscape, or figures prohibited
- Two page summary
  - Each Signature Bridge Option
  - Text Only





### Phase 3 – Technical Proposal

### Technical Proposal Two Volumes

- Volume 1 Technical
  - All Four Projects
  - Preliminary Component Plans and Specification
  - Approved Alternative Technical Concept (ATC)
- Volume 2 Aesthetic
  - Aesthetic Master Plan
  - Approved Aesthetic Project Technical Enhancement (APTE)





### Phase 4 – Price Proposal Submittal

- Separate Price Proposals
  - Department Project
  - MDX Project
- Price Proposals may not exceed:
  - Department Project: \$617,003,490
  - MDX Specific: \$186,000,000
  - Maximum Contract Time = 1825 Days (5 Years)





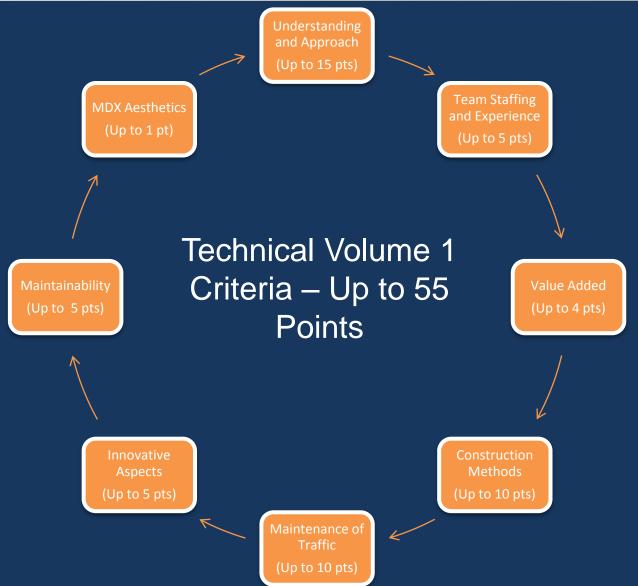
## Adjectival Scoring System

ADJECTIVE RATING	DESCRIPTION
Excellent	The Proposal significantly exceeds stated requirements/objectives in a beneficial way, providing advantages, benefits or added value to the Total Project, and provides a consistently outstanding level of quality.
Very Good	The Proposal exceeds the stated requirements/objectives in a beneficial way, providing advantages, benefits or added value to the Total Project, and offers a significantly better than acceptable quality.
Good	The Proposal comfortably meets the stated requirements/objectives, provides some advantages, benefits or added value to the Total Project and offers a generally better than acceptable quality.
Fair	The Proposer has demonstrated an approach which is considered to marginally meet stated requirements/objectives and meets a minimum level of quality.
Poor	The Proposer has demonstrated an approach which contains significant weaknesses/deficiencies and/or unacceptable quality.





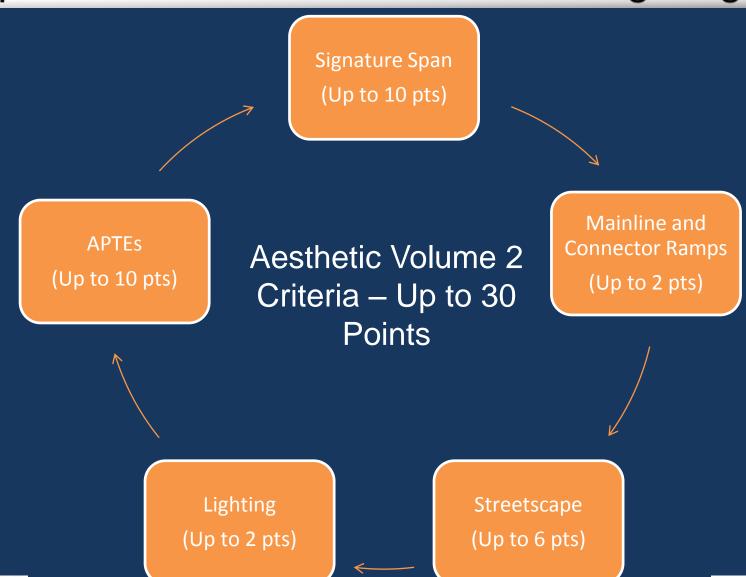
### Proposal Evaluation Criteria and Weighting







### Proposal Evaluation Criteria and Weighting







### Proposal Evaluation Criteria and Weighting

- Technical Volume 1 Up to 55 points total
- Aesthetic Volume 2 Up to 30 points total
  - APTEs Up to 10 points total
- Proposed Contract Time Up to 5 points
- Price Proposal Up to 10 points
- Department will convert the adjectival scores to numerical scores using numerical equivalents.





- Method of Compensation
  - Payments made in accordance with the quarterly cash availability schedule
  - Separate cash availability schedule per 11-digit financial project number
  - Construction Estimate / Receiving Report
  - Invoice monthly lesser of
    - Compensation earned
    - Funds available per cash availability schedule





Quarterly Cash Availability Schedules for I-395 Project

Project Number	251688 - 1 - 52 -01				
Fiscal Year	July 1	October 1	January 1	April 1	Total
2017			34,643,689	5,000,000	39,643,689
2018	25,000,000	20,000,000	5,223,655	20,000,000	70,223,655
2019	12,473,998	20,000,000	20,000,000	20,000,000	72,473,998
2020	37,644,650	35,000,000	35,000,000	5,000,000	112,644,650
2021	19,135,698	30,000,000	30,000,000	25,000,000	104,135,698
2022	30,000,000	30,000,000	20,000,000	20,000,000	100,000,000
				20,000,000	
2023	10,000,000	10,000,000	37,058,489		57,058,489

Project Number	251688 - 1 - 56 -02				
Fiscal Year	July 1	October 1	January 1	April 1	Total
2017			551,311		551,311

Cash Availability Total for I-395 Specific: \$556,731,490





Quarterly Cash Availability Schedules for I-395
 Project

Project Number	429300 - 2 -52 -01				
Fiscal Year	July 1	October 1	January 1	April 1	Total
2017					
2018			14,526,345		14,526,345
2019	7,526,002				7,526,002
2020	2,355,350				2,355,350
2021	864,302				864,302

Cash Availability for I-95 Specific: \$25,272,000





Quarterly Cash Availability Schedules for I-395
 Project

Project Number	423126-2-52-01				
Fiscal Year	July 1	October 1	January 1	April 1	Total
2017					
2018					
2019					
2020				14,000,000	14,000,000
2021				14,000,000	14,000,000
2022		7,000,000			7,000,000

Cash Availability Total for SR 836 WB Connector Specific: \$35,000,000





- Extra Work and Delay Costs
  - Compensation for Extra Work and Delay Costs either through:
    - Monthly progress payments as Extra Work is completed or Delay Costs incurred and acknowledge by Department;
    - As payments per a separate Cash Availability Schedule for such Extra Work Costs or Delay Costs,
    - Combination of the above





- Department's desire (and past practice) is to look first to fund any such Extra Work Costs or Delay Costs compensation through monthly progress payments
- If a separate Cash Availability Schedule, the reasonable and actual cost of financing incurred by the Design-Build Firm due to delayed payment will also be compensated





### **Expected Timeline and Schedule**

- Advertisement Date February 8, 2016
- Letter of Response March 7, 2016
- Draft Aesthetic Signature Bridge May 11, 2016
- Final Aesthetic Signature Bridge June 21, 2016
- Public Meeting to Pass/Fail August 19, 2016
- Technical Proposal Due Late 2016
- Price Proposal Due Early 2017
- Anticipated Award Date Early 2017
- Anticipated Execution Date Early 2017





### Thank you!

Project Website: <a href="https://www.l-395Mljami.com">www.l-395Mljami.com</a>

Project Manager: Maria Perdomo, PE

Contact Nadine Chinapoo
Nadine.Chinapoo@dot.state.fl.us





