VENETIAN CAUSEWAY
(Venetian Way)
Project Development & Environment (PD&E) Study
FROM NORTH BAYSHORE DRIVE TO PURDY AVENUE

FM No. 422713-2-22-01

Efficient Transportation Decision Making (ETDM): 12756

Project Advisory Group (PAG)

Meeting No. 3

March 9, 2016

Florida Department of Transportation - District 6

Project Team

FDOT

PROJECT MANAGER
Dat Huynh, PE

MIAMI-DADE COUNTY

CONSULTANT
PROJECT MANAGER:
Enrique “Rick” Crooks, PE
EAC CONSULTING, INC.

U.S. Department of Transportation
Federal Highway Administration

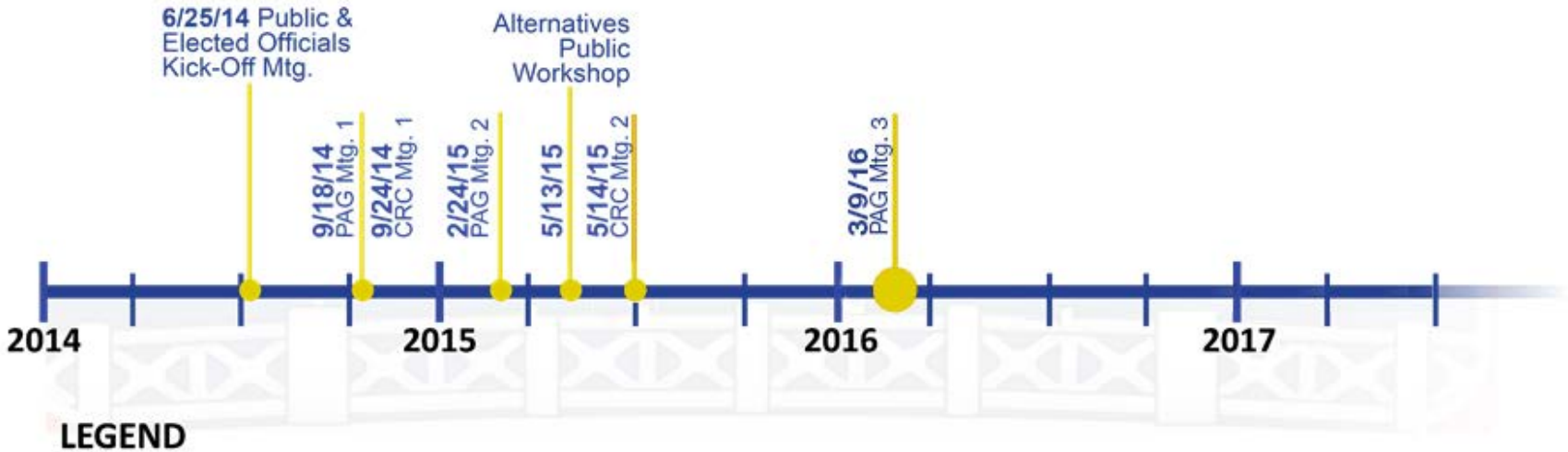
Purpose and Need for Project

The purpose of the proposed project is to address identified structural and functional deficiencies of the twelve existing bridges (ten low-level fixed spans and two movable bascules), through potential alternatives such as replacement or rehabilitation.

- **Project Status**
- **Alternatives Flowchart**
- **Alternatives/Screening Matrix**
- **No-Build Alternatives**
- **Build Alternatives**
- **Life Cycle Costs**
- **Environment**
- **Next Steps**

Project Status

Project Scope Development



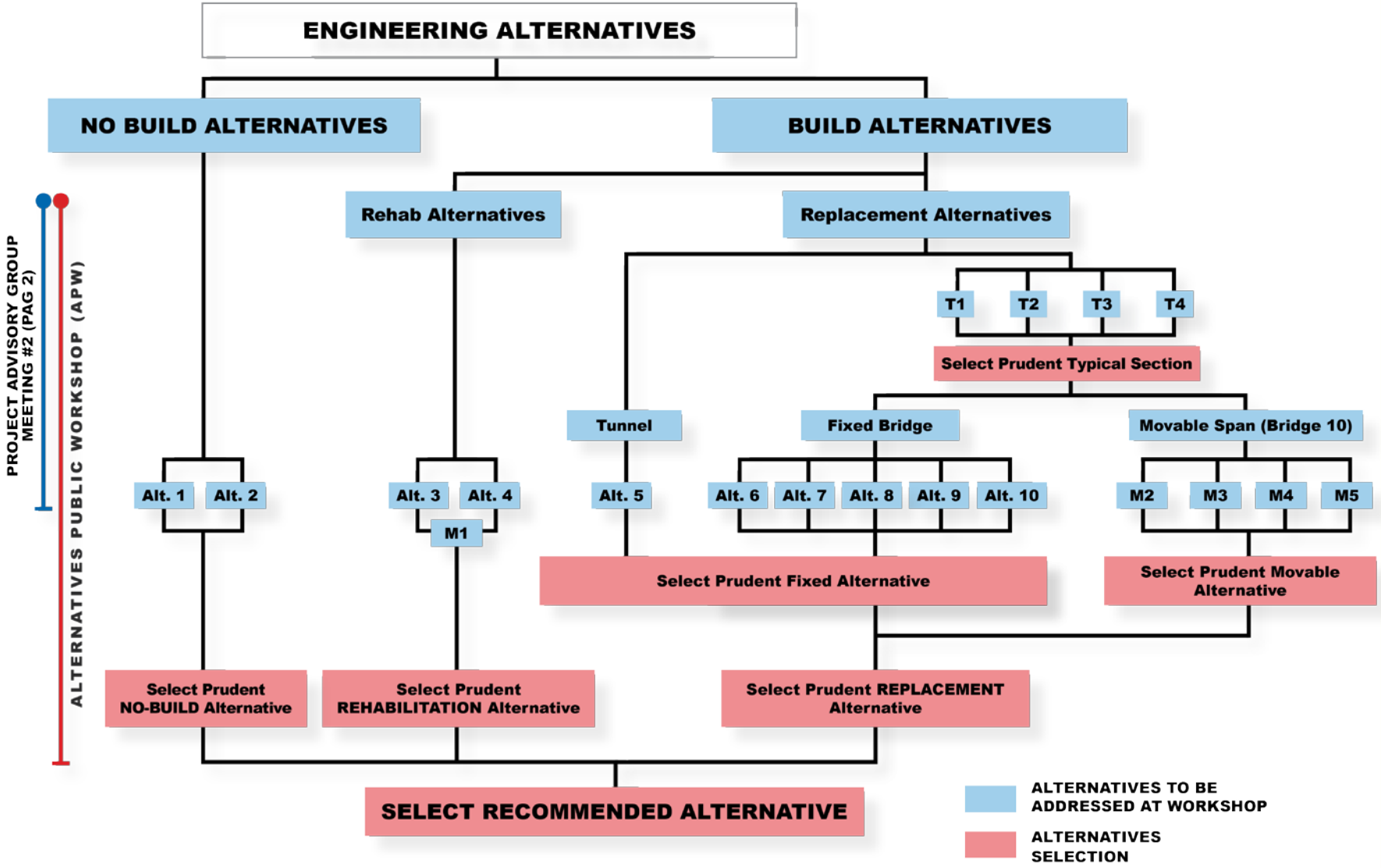
LEGEND

CRC: Cultural Resource Committee

MTG: Meeting

PAG: Project Advisory Group

Alternatives Flowchart



Alternatives Matrix / Ranking Ballot Results

Alternative	No Build	Votes
1	Do Nothing	0
2	Transportation System Management	0
	Rehabilitation	
3	Without Beam Strengthening	3
4	With Beam Strengthening	6
	Replacement - Typical Sections	
T1	Venetian Railing	9
T2	Wyoming TL-4 at Coping	6
T3	Wyoming TL-3 at curb and original Venetian at coping	1
T4	Wyoming TL-3 at curb and Custom Railing at coping	0
	Replacement - Fixed Alternatives	
5	Tunnel	1
6	High Level Fixed Bridge	3
7	Arched Beams	5
8	FIB with Arched Fascia	2
9	FIB	0
10	Cast-in-Place Slab (Flat/ Variable Depth)	1
	Infill of Spoil Islands -	5
	Replacement - Movable Bridge Alternatives	
M2	Swing Bridge	1
M3	Vertical Lift Bridge	0
M4	Double Leaf Bascule Bridge	10
M5	Single Leaf Bascule Bridge	0
	Maintenance of Traffic	
Option 1	Detours	2
Option 2	Phased Construction with Detour at East Bascule	4
Option 3	Phased Construction with Temporary Bridge at East Bascule	9

Highest Ranked Alternatives shown in Red

Screening Matrix

Alternative	Description	Meets Purpose and Need	Sensitive to Historic Resource	Sensitive to Natural and Physical Environment	Meets Rehab or Replacement Parameters	Community Preference	Total
1	Do Nothing	0	3	3	0	0	6
2	Transportation Systems Management & Operations (TSM&O)	0	3	3	0	0	6
Rehabilitation Alternatives							
3	Fixed Bridge Rehab w/out Beam Strengthening	3	3	2	2	1	11
4	Fixed Bridge Rehab with Beam Strengthening	3	3	2	3	2	13
M1	Bascule Bridge Rehabilitation	3	3	2	3	2	13
Replacement Alternatives							
Typical Sections							
T1	Venetian Railing	3	3	3	3	3	15
T2	Wyoming Railing TL-4 at coping	3	0	3	2	1	9
T3	Wyoming Railing TL-3 at curb and Original Venetian Railing at Coping	3	1	3	2	1	10
T4	Wyoming Railing TL-3 at curb and Custom Railing at Coping	3	0	3	2	0	8
Fixed Alternatives							
5	Tunnel	3	0	1	1	1	6
6	High Level Fixed Bridge	3	0	1	1	2	7
7	Arched Beams	3	3	2	3	3	14
8	FIB With Arched Fascia	3	1	2	2	1	9
9	FIB	3	0	2	2	0	7
10	Cast-in-Place Slab (Flat/Variable Depth)	3	0	2	2	1	8
11	Infill Spoil Islands	3	0	0	1	3	7
Movable Bridge Alternatives							
M2	Swing Bridge	3	0	2	2	0	7
M3	Vertical Lift Bridge	3	0	2	2	0	7
M4	Double Leaf Bascule Bridge	3	3	2	3	3	14
M5	Single Leaf Bascule Bridge	3	0	2	2	0	7

Screening Matrix - Scoring Methodology	Score
High	3
Medium	2
Low	1
Not Applicable	0

Highest ranked alternatives shown in Red

No-Build Alternatives

Alt. 1

Alt. 1 - Do Nothing

- Existing Deficiencies will Remain
- Continued Deterioration
- Extensive Periodic Repairs and Maintenance

Does not meet purpose and need for project

No-Build Alternative

Alt. 2 – Transportation System Management

Alt. 2

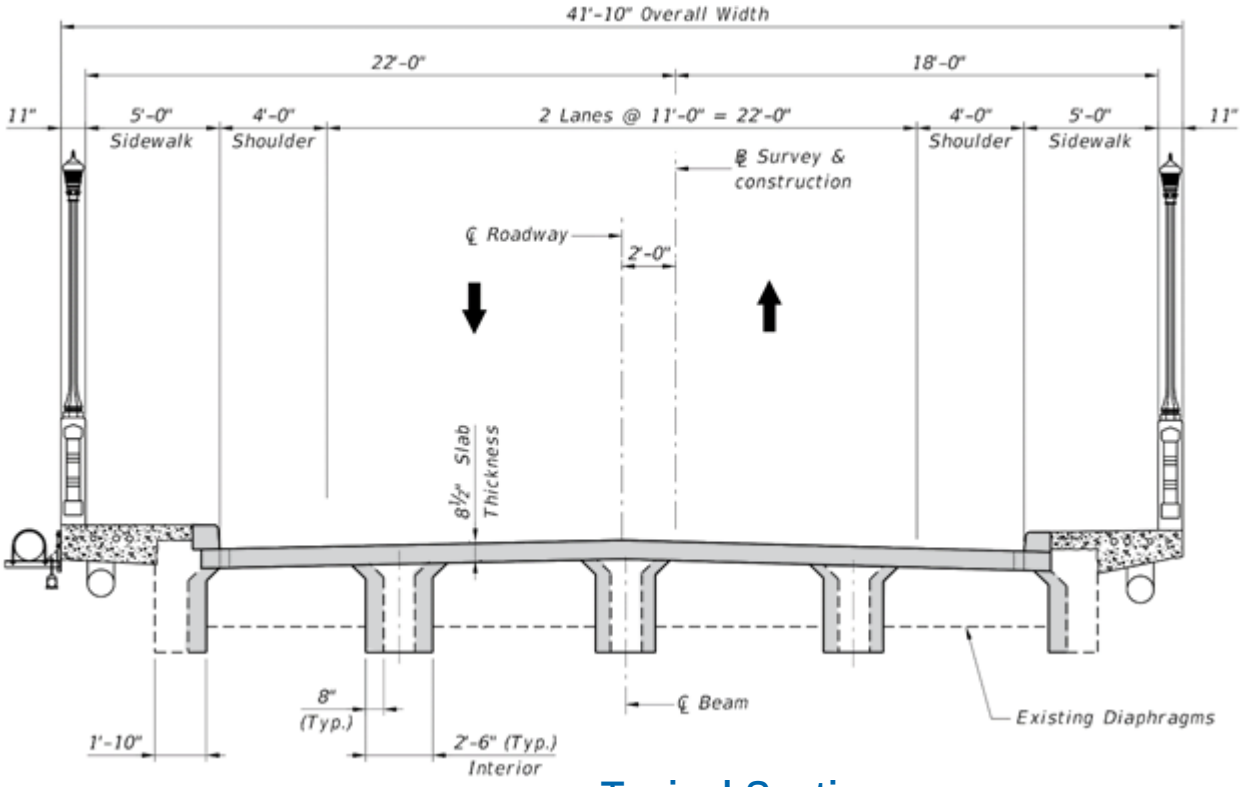
- Enhanced Bus service
- Facilitate Pedestrians and Bicyclists
- Existing Deficiencies will remain, but safe bridges required for effective TSM

Does not meet purpose and need for project

Rehabilitation Alternatives

Alt. 4

Alt. 4 - Fixed Bridge Rehab with Beam Strengthening



Typical Section

Estimated Cost Range:
$42 - $44 Million

- Expand Sidewalk to 5 feet to meet minimum requirement for ADA
- 4 foot Shoulder does not meet 5.5 foot shoulder requirement for bike lane

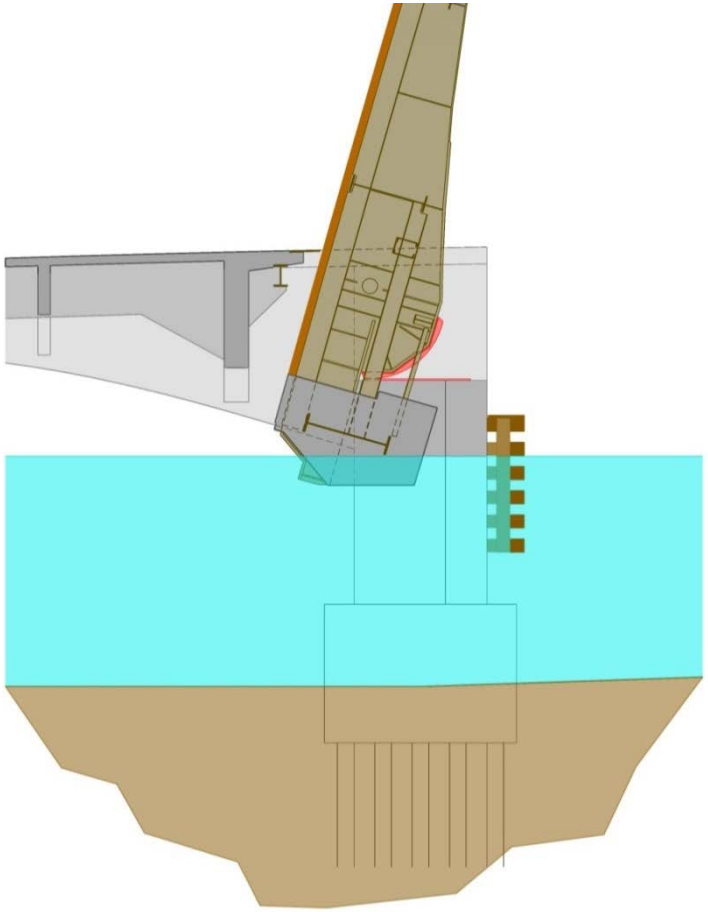
Rehabilitation includes:

- Deck Replacement Beam and Foundation Strengthening
- 41'-10" Overall width to remain, Venetian Railing to remain

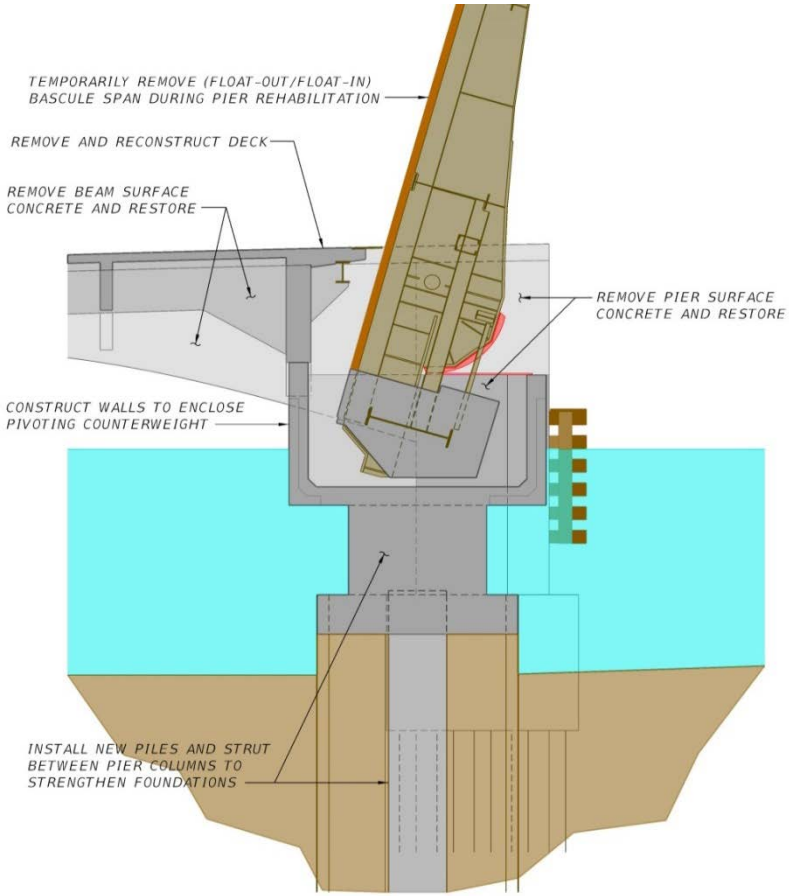
Rehabilitation Alternatives

M1

Alt. M1 - Bascule Bridge Rehabilitation



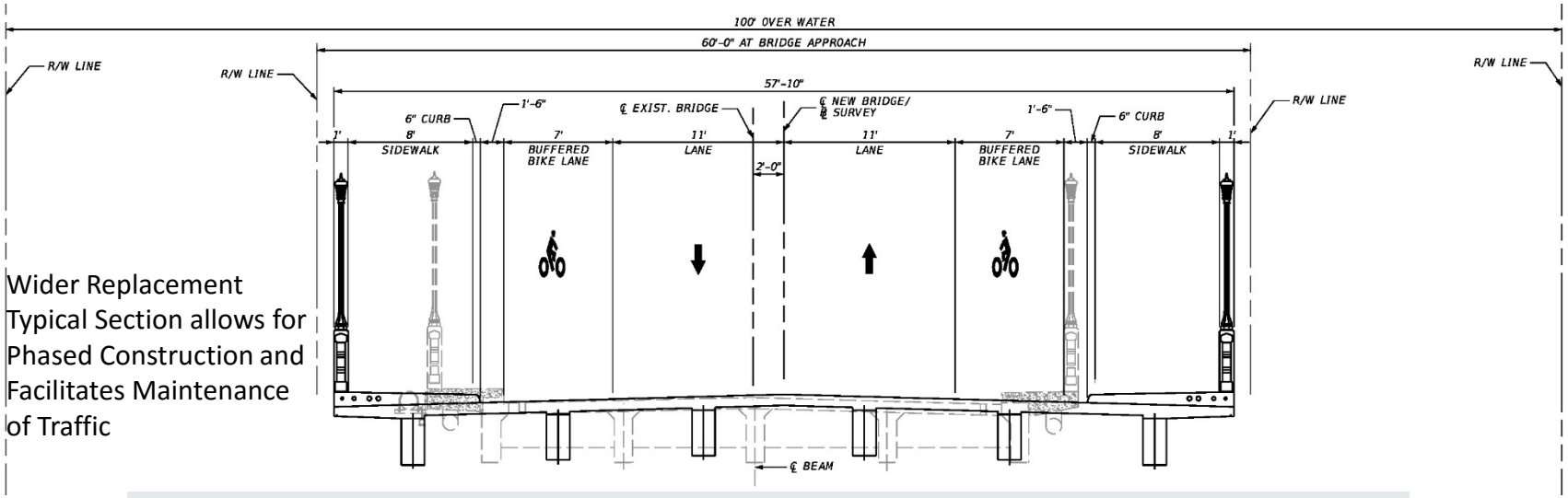
SECTION THRU EXISTING BASCULE SPAN



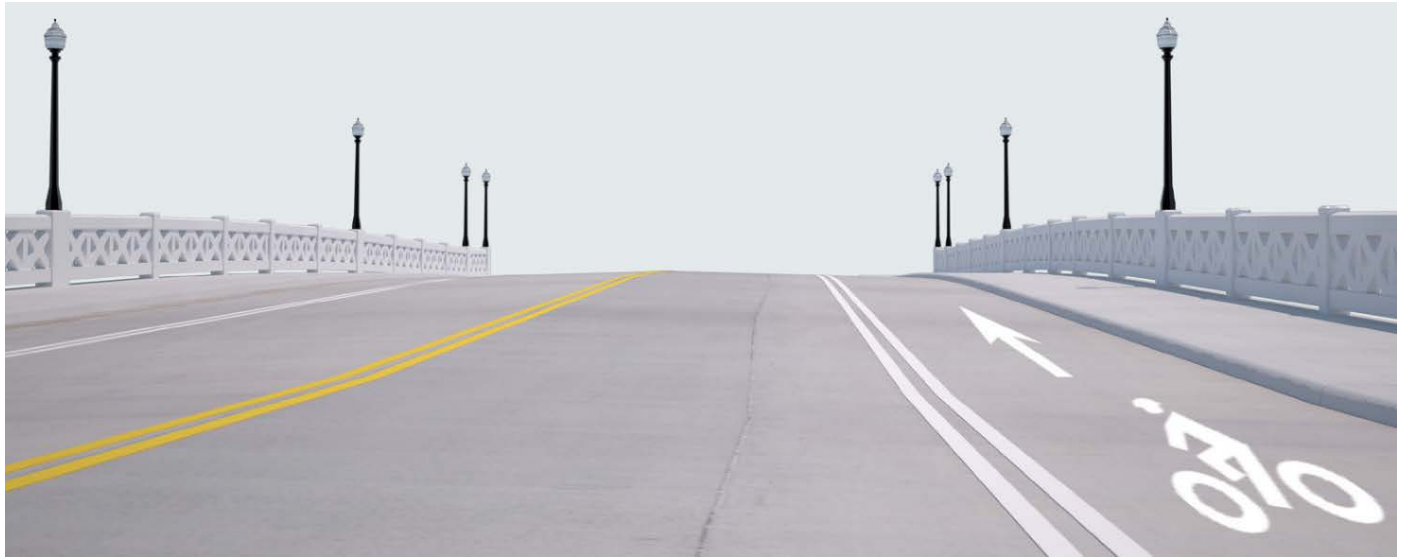
SECTION THRU REHABILITATED BASCULE SPAN

Estimated Cost Range: $8 - $9 Million

Replacement Alternatives – Typical Section Selection



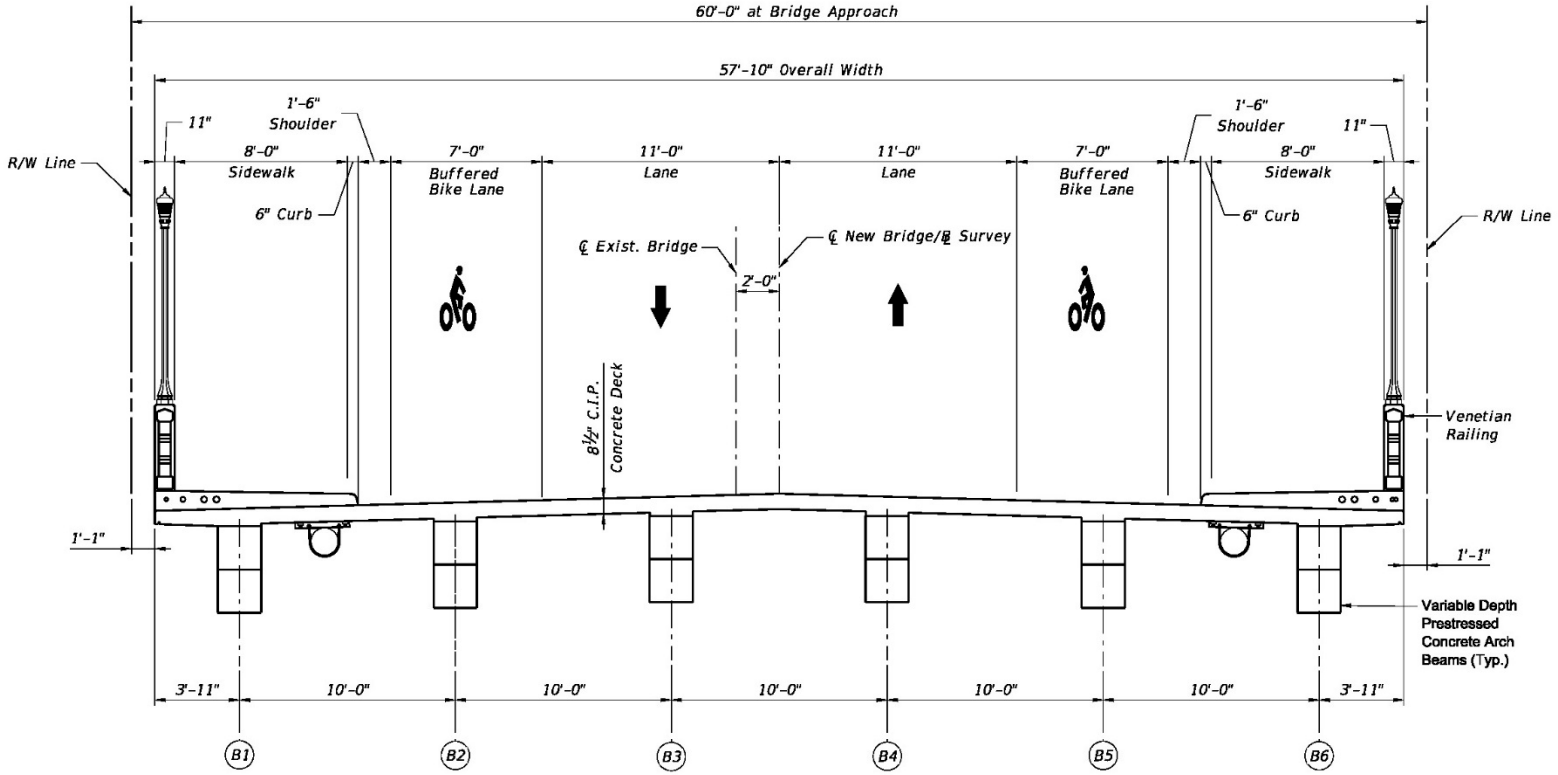
Wider Replacement Typical Section allows for Phased Construction and Facilitates Maintenance of Traffic



Replacement Alternatives – Fixed Bridges

Alt. 7

Alt. 7 – Arched Beam

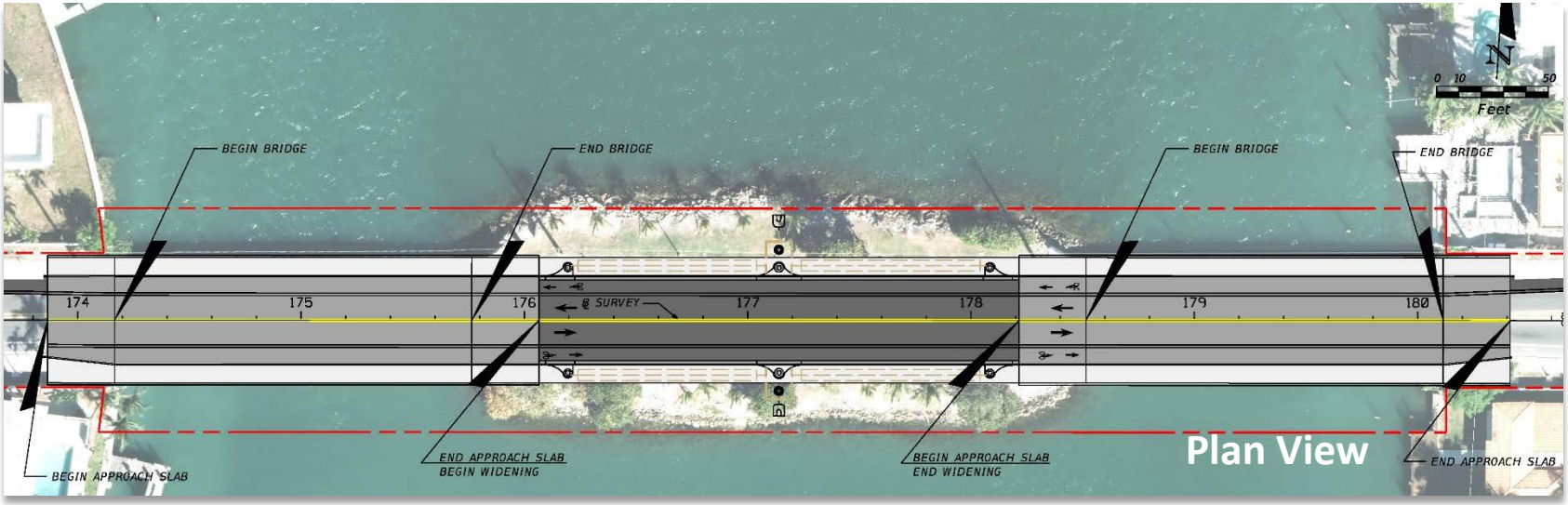


Typical Section

Replacement Alternatives – Fixed Bridges

Alt. 7

Alt. 7 –Arch Beam



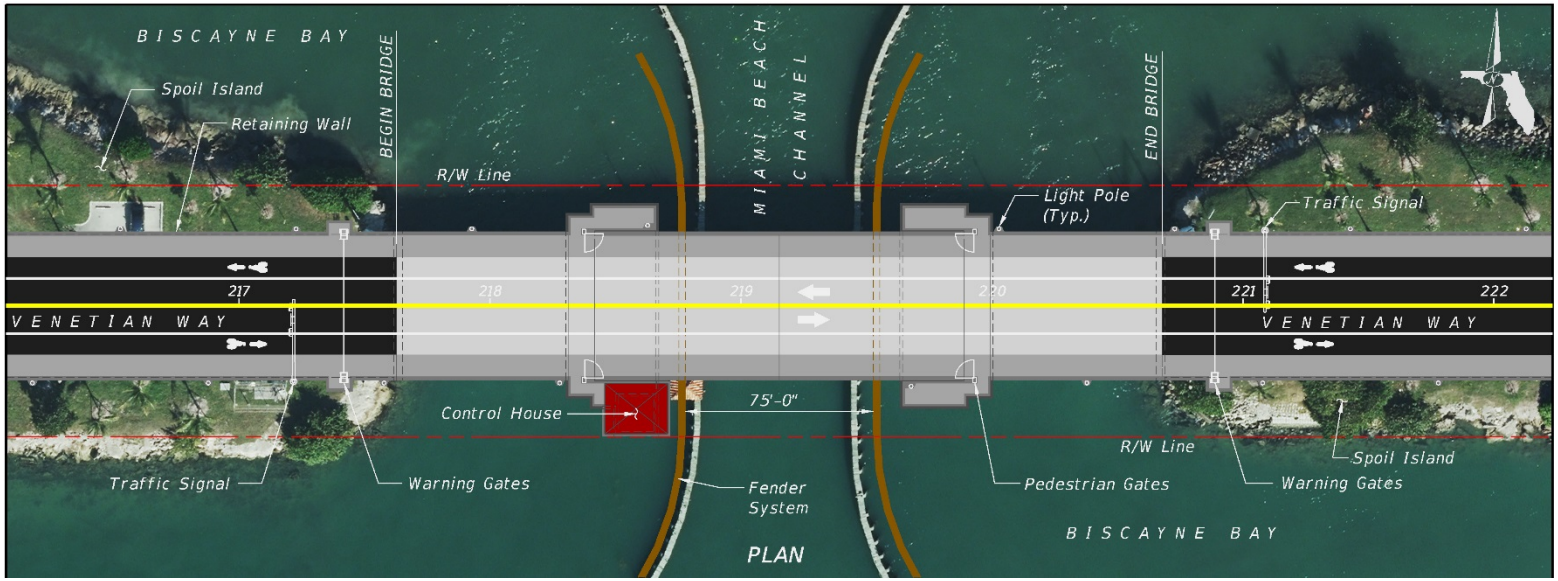
Estimated Cost Range:
$36 - $41 Million*

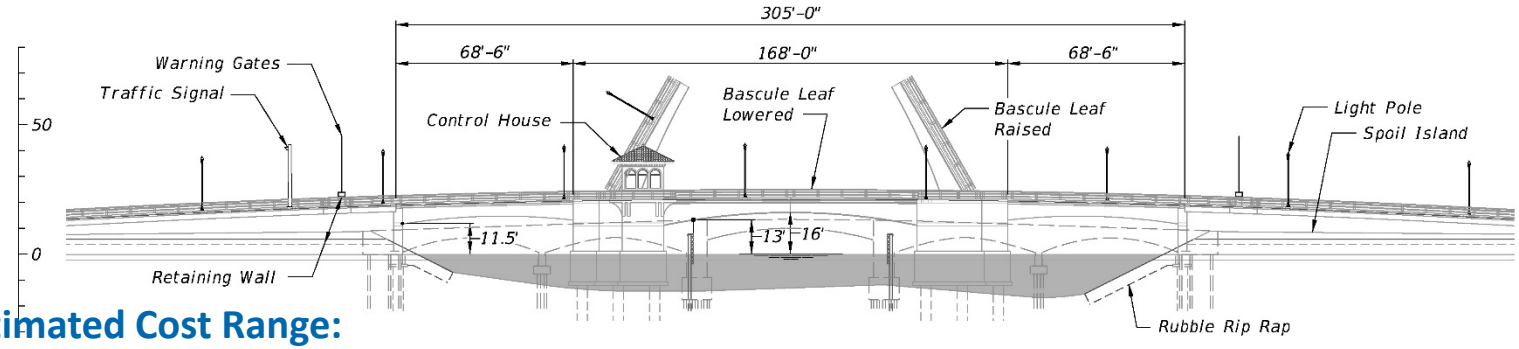
****High Range for Phased Construction***

M4

Replacement Alternative – Movable Bridges

Alt. M4 – Double Leaf Bascule Bridge





Elevation

Estimated Cost Range:

$29- $33 Million

M4

Replacement Alternative – Movable Bridges

Alt. M4 – Double Leaf Bascule Bridge

Life Cycle Costs

- Sections 1024 and 1025 of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) specified that consideration should be given to life-cycle costs in the design and engineering of bridges, tunnels, and pavements.

- **Guidance for Life Cycle Cost Analysis (LCCA)**
  - National Cooperative Highway Research Program (NCHRP) Report 483 – Bridge Life-Cycle Cost Analysis

- **Elements to be considered include:**
  - Project Costs (Construction, Design etc.)
  - Service Life
  - Maintenance Costs,
  - Maintenance Cycle

Life Cycle Costs – Possible Scenarios

NO BUILD (Unknown Service Life)

REHABILITATION (25-year Service Life)

REPLACEMENT (75-year Service Life)

Environmental Impacts of No-Build vs Build

- **No Build Alternatives result in no environmental impacts**
- **Build Alternatives (Rehab. or Replacement)**
  - Similar natural resource impacts for both rehabilitation and replacement.
  - Potential impact to corals on substructure & scour protection areas
  - Temporary impacts due to construction methods
    - Barge Use, water quality, noise, air quality
  - Minimal threatened & endangered species involvement
    - Informal Section 7 (of the Endangered Species Act) Consultation with USFWS & NMFS
  - Retain and improve bicycle and pedestrian access

Historic Resource Impacts of No-Build vs. Build

- **No Build Alternatives result in No Adverse Effects/Impacts to the historic resources**

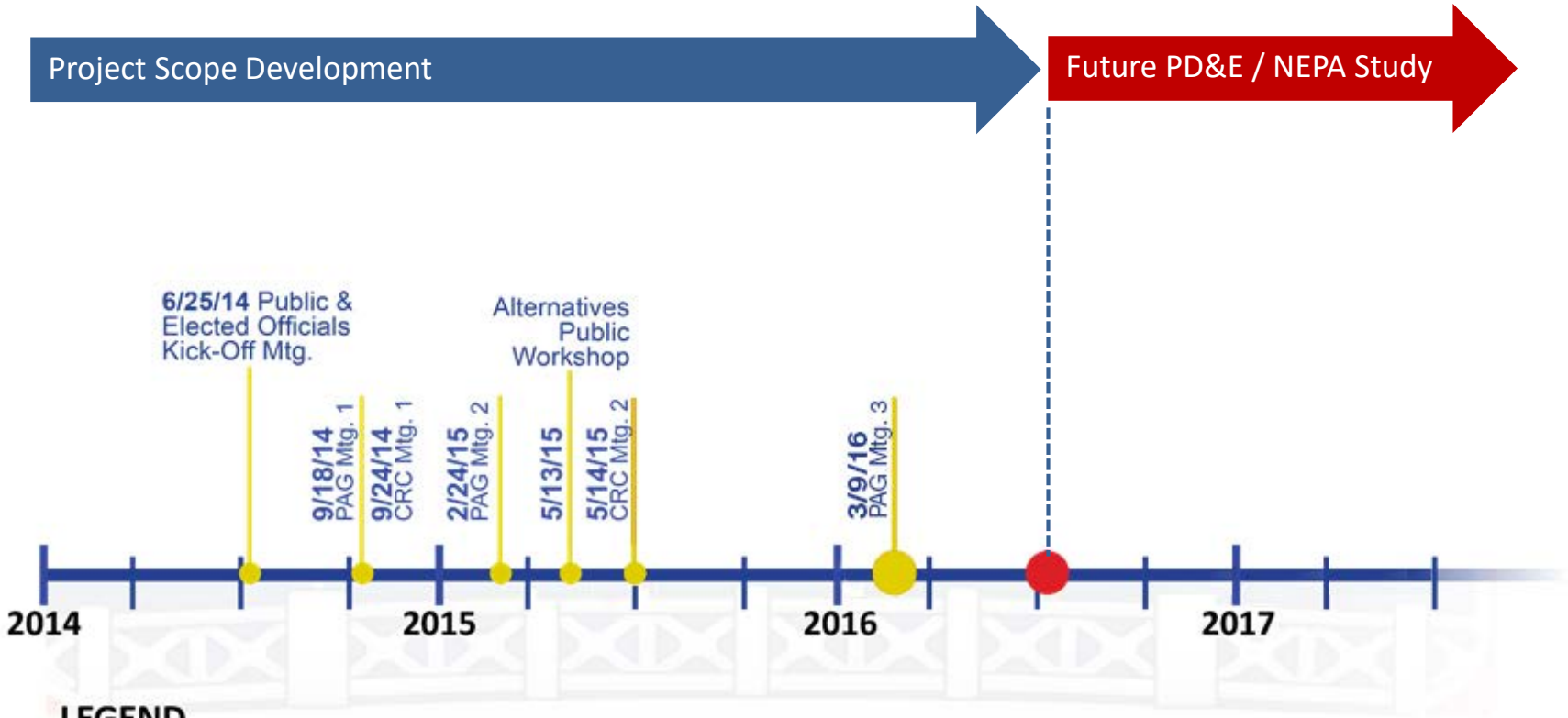
- **Build Alternatives**
  - Rehabilitation - May Likely Result in Adverse Effects/Impacts to the historic resources
  - Replacement - Adverse Effects/Impacts to the historic Resources

- **Adverse Effects**
  - Section 106 Effects Determination Case Study Report, Memorandum of Agreement, and further consultation with affected parties will be necessary.
  - Section 4(f) documentation also required.

Class of Action (COA) Determination

- Scope development revealed that extensive bridge rehabilitation or bridge replacement are viable alternatives for the Project.
- These alternatives could have a significant impact on the historic bridges.
- The future PD&E/NEPA study may be assigned an Environmental Impact Statement (EIS) class of action.
- The future PD&E/NEPA study will evaluate all build and no-build alternatives. The No-Build Alternative will be carried throughout the study.
- FHWA will make the determination if the COA is an EIS.

Next Steps



LEGEND

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Drive Safely

Stay Informed

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ONLINE

- Project webpage - Updates posted weekly

  http://www.fdotmiamidade.com/venetianbridgestudy

- Efficient Transportation Decision Making (ETDM)

  https://etdmpub.fla-etat.org/est/

  - **Click on Project Number on left hand menu**
  - **Type in 12756**
  - **Click "Go" or press Enter**