11th Street Corridor Project
Innovative Approach to Design-Build

Presented by:

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Overview of Project

- $260m Design Build to Budget (Stipulated Sum), final cost $376m
- Largest DDOT project ever; DDOT’s first Design-Build
- Planning engineer’s estimate = $460m
- Saved DDOT $84m
- 8.3 miles of Roadway
- 22 Bridges, 40 Retaining Walls
- 8 Traffic Signals, Innovative SWM, etc.
- Awarded in Spring 2009, completed Fall 2015
11th Street Corridor Design-Build
Existing Infrastructure
11th Street Corridor Design-Build
Full Build-Out
11th Street Corridor Design-Build
Proposed Project
Innovative Approaches – Procurement:

- Unique Procurement Method
- Maximize scope within project budget, freeway connectivity, local access and connectivity
- Meet 188 environmental commitments, minimizing risk (political, regulatory)
  - 17 alternative alignments analyzed by JMT
  - 42 ATC’s proposed
11th Street Corridor Design-Build Project

**Complete - Connect - Create**

**General**
- 25% Less Overall Bridge Area than Functional Plans for same movements (less future maintenance costs).
- Lowered Anacostia Interchange height and moved highest bridge away from neighborhood.
- Significantly improved Maintenance of Traffic and Duration of Traffic Impacts vs. Functional Plans.
- Reduced Ultimate Cost vs Functional Plans.
- Cumulative effect of approved ATC's allows for approximately $10 million in additional scope.

**Part of Ultimate Intersection at Southeast Boulevard provided for Inbound direction**

**Smaller Footprint provides additional greenspace or re-development opportunities**

**All New River Bridges**
- New Piers - 75+ year Service Life
- Build 70% of project 'off-line', prior to any traffic switches.
- Shorten Schedule by 7 months
- Reduced Footprint

**Ultimate Inbound Express Flyover Provided**
- Much less bridge area: 25,000 SF vs 55,000 SF in Functional Plans (less future maintenance costs)
- Alignment is completely off-line, allowing for cleaner Maintenance of Traffic and minimal impact to existing traffic.

**Legend**
- Proposed Pavement
- Proposed Bridge
- Proposed Retaining Wall
- Proposed Right of Way
- Existing Right of Way
- Existing Pavement to Remain
- Existing Bridge to Remain
- SWM - Wet Facility
- SWM - LID Bioretention
- SWM - LID Grass Swale

**Compress Diamond functions better than SPU from Functional Plans**

**Provides Better Route Continuity than Functional Plans**

**Boulevard experience along 11th Street**

**Rendering of Proposed Anacostia Interchange**

**Vegetation from Neighborhood**
- Vegetation benefits to surrounding neighborhoods

**FES Preferred Alternative**
- FES Preferred Alternative

**Sandu / Fusskeln Proposal**
- Sandu / Fusskeln Proposal
Innovative Approaches – Pre-Bid:

1. Geometrics
2. All New River Bridges
3. Pedestrian Overlooks / Peregrine Falcon Nests
4. Maintenance of Traffic
Geometrics

Started with FEIS, IJR, etc.

• IJR Policy Point 1, Section 2.1.4 – “Reconfiguring Access and Providing Route Continuity”

• IJR Section 1.8.1 – “…upon examination of the environmental impacts, right-of-way requirements, and corresponding costs associated with this alternative, FHWA agreed to eliminate this alternative from further consideration.”
Started with FEIS, IJR, etc.

- IJR Policy Point 1, Section 2.1.4 – “Reconfiguring Access and Providing Route Continuity”
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11th Street Corridor Design - Build Project
Geometrics

• Re-configured FEIS Preferred Alternative to:
  • Place Heavy movements on the left
    • Better for driver expectancy (right exits)
  • Better for weaves with adjacent interchanges
  • Lower overall height & moved highest bridge away from neighborhood
  • Reduce bridge area (25% less) = lower future maintenance costs

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FEIS Preferred Alternative

JMT Alternative
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Re-aligned to provide *All New River Bridges*

- Benefits:
  - Schedule – Project completion 7 months early
  - Reduced Footprint
  - Cylinder Piles
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Pedestrian Overlooks / Peregrine Falcon Nests:

- Save Costs / Save Time / Save Environment
- A ‘WIN – WIN’
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Pedestrian Overlooks:
Pedestrian Overlooks:
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Maintenance of Traffic:

- Complex Phasing – 8 major phases
- Construct 70% of project off-line
- All new river bridges enhances phasing across river
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Maintenance of Traffic-Existing Conditions
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Maintenance of Traffic - Phase 1A
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Maintenance of Traffic - Phase 1B
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Maintenance of Traffic-Phase 1C
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Maintenance of Traffic - Phase 1D
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Maintenance of Traffic-Phase 2A
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Maintenance of Traffic - Phase 2B
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Maintenance of Traffic - Phase 3
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Maintenance of Traffic - Final Condition
Innovative Approaches – Post-Bid:
1. Geotechnical
2. Elimination of Bridge S-21 Flyover
Geotechnical:

- Very Poor Soil Conditions – up to 2.5’ settlement anticipated
Geotechnical:

- **Solutions:**
  - Lightweight Aggregate Fill
  - Geofoam Blocks
  - Geo-concrete columns
  - Geo-steel Columns
Elimination of Bridge S-21 Flyover:

- Original design: Ramp E-1 carried by a flyover bridge (900’)
- Carried a very low volume of traffic (2030 AADT = 8,000)
Elimination of Bridge S-21 Flyover:

- Trade 900’ curved flyover bridge for 100’ straight single span
- Savings estimated at $20m, 8 months
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Elimination of Bridge S-21 Flyover:
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QUESTIONS?
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