Clayton Markham, P.E.

CE Manager 2,
R3 Innovative Delivery
Project Overview

• Roadway Stats
  – Originally Built in the 1980’s
    • 7.6 miles
    • 2 travel lanes w/ auxiliary lanes
  – Designed as a Parkway
    • 64,000 ADT limited-access highway
    • 100,000 ADT currently
  – 10” Thick Concrete
  – Grassy Median
Project Overview

- **I-440 Project Goals**
  - **Address Pavement**
    - Concrete is 30 years old
    - Severe deterioration
    - Recent paving won’t last
  - **Improve Safety**
    - Crash rates on I-440 are nearly double (1.8x) the statewide average
    - Since 2008, there have been 16 fatalities on I-440
  - **Address Congestion**
    - Hillsboro Pike / 21st Avenue
    - West End Avenue
    - Bridge over I-65
Project Overview

- **I-65 Flyover Bridge**
  - Widen bridges toward median to accommodate three (3) travel lanes
Project Overview

- Noise Wall Replacement/Repair
Project Overview

• ITS and Lighting Upgrades
  – DMS upgrades
  – Camera Upgrades
  – New LED lighting
Project Overview – RFP Allowances/Options

- Traffic Control Options
  - Option 1
    - Conventional Construction
  - Option 2
    - Full Segmented Closure
  - Option 3
    - Partial Segmented Closure (Segment 2 Only)
  - I-440 / I-65 Interchange Weekend Closures
Project Overview – RFP Allowances/Options

- Special Provision 108B
  - Lane Closure
    - $7,500 per hour per lane
  - Traffic Control Option #2 & #3
    - $400,000 per Calendar Day
  - Project Completion Date
    - First 30 Days: $100,000 per day
    - Thereafter: $400,000 per day

SP108B
STATE OF TENNESSEE

REVISED 3/13/2018
REVISED 4/3/2018
REVISED 5/25/2018
REVISED 6/12/2018

(January 12, 2018)
Interstate 440
Davidson County
Contract #: DB1701

SPECIAL PROVISION
REGARDING
PROJECT COMPLETION AND LIQUIDATED DAMAGES

The project shall be completed in its entirety as set forth in RFP Book 2 Section D.3. The selected Traffic Control Option shall be implemented as described in Contract Book 3, Section 12.
Preparation
Contract Info

• Design-Build (DB1701)
  – combines all or some portions of the design and construction phases of a project into a single contract
• $152.9 Million
  – $(152,959,352.00)
• 708 Calendar Days
  – Start: August 17, 2018
  – Complete: July 24, 2020
Traffic Phasing

- Phase 1
- Phase 2
Traffic Phasing

• Phase 1

• Phase 2
Incident Management

- Incident Management Plan Document
- Dedicated Help Trucks
- Organization Involvement
  - Nashville OEM
  - Metro ECC
  - Metro PD
  - Metro Fire
  - Public Works
  - Medcom (Vanderbilt)
  - THP
  - TDOT
Traffic Phasing

Traffic Switch #5
Weekend of 3/29

Traffic Switch #2:
Weekend of 3/8

Traffic Switch #1:
Weekend of 3/1

Historical Trends for Thompson Ln EB

Comparison Index #1 (Historical Avg of Mon/Tue/Wed/Thu/Fri: From 2019-01-01 to 2019-03-01) (travel time)
Comparison Index #2 (Historical Avg of Mon/Tue/Wed/Thu/Fri: From 2019-03-04 to 2019-05-03) (travel time)
Public Information

• Press Releases
• Informational Videos
• Community Meetings
• E-mail Updates
• Project Website

TDOT Awards I-440 Reconstruction Contract

Wednesday, August 01, 2018 | 10:02am

NASHVILLE, Tenn. – The Tennessee Department of Transportation today awarded the contract for the I-440 Reconstruction Project. The low bid was submitted by Kiewit Infrastructure South Co. at $152.9 million. The project will not include total closure of segments of I-440. Rather, the winning design-build proposal will complete design and construction of the project in less than two years.

"Using the design-build method is crucial in keeping these large, complicated projects moving forward," said Director of Finance and Administration Mike Young. "I want to thank our project team and the bids that were submitted and for all those who participated in this project." 

Over the next 3—4 years, the I-440 Reconstruction Project will involve the widening of the I-440 rebuild.

- Fall 2018 – closure of lanes at Sallie Falls Road, the 440 northbound bridge, and 440 eastbound Hillside Bridge
- Fall 2019 – closure of lanes at 440 northbound interchange with 440 eastbound

The project will be done in multiple phases and should be completed by 2023.
Summary of Challenges

- Pre-Construction Challenges Included:
  - Compressed Time
  - Submittals
  - Design Exceptions
Design Packages
<table>
<thead>
<tr>
<th>Package</th>
<th>DD Submitted</th>
<th>Comments Returned</th>
<th>DD Final Submitted</th>
<th>DD Concurrence</th>
<th>ROW/UT Certification Request</th>
<th>Utility Certification</th>
<th>ROW Certification</th>
<th>RFC Submitted</th>
<th>RFC Comments Returned</th>
<th>RFC Final</th>
<th>RFC Concurrence</th>
<th>NTP</th>
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</thead>
<tbody>
<tr>
<td>Near Charlotte Crossing</td>
<td>5/14/2019</td>
<td>5/16/2019</td>
<td>6/7/2019</td>
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<tr>
<td>I-65 Bridge Crossing</td>
<td>5/14/2019</td>
<td>5/16/2019</td>
<td>5/22/2019</td>
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</tbody>
</table>
PlanGrid

- Plan Reviews & Submittal Tracking
  - 10 Business Day Review Period
  - 382+ Submittals to Date
  - 8837 Plan Sheets
  - 60+ Team Members
Design Exceptions

• Design Exceptions Approved for the Project
  – Stopping Sight Distance (SSD) – 2 Locations; Superelevation – 1 Location
    • Location 1: West of 21st Ave. / Hillsboro Road Interchange
      – Full Design Standard req. 537 ft. SSD vs. 468 ft. SSD Existing
    • Location 2: Belmont Blvd. Overpass
      – Full Design Standard req. 537 ft. SSD vs. 468 ft. SSD Existing
      – Std. Full SE req. 7.8 % vs. 6 % Existing
Design - Other Requirements

• Survey
  – Survey verified for accuracy by the Design-Builder.

• ROW
  – Constructed entirely within existing ROW. (Railroad Easements)

• Utility Coordination
  – Minor Conflicts able to be Mitigated in Design.

• Geotech
  – Roadway & Structure Investigations and Rockfall Mitigation

• Environmental Permits
  – Only required an NPDES permit (water quality).
Summary of Challenges

- Construction Challenges Included:
  - Compressed Time
  - Materials
  - Structure – I-65 Flyover
Timeline/Schedule
- Early Work Begin: December 2018
- First Major Traffic Shifts: March 2019
- Phase 1 Complete: September 2019
- Phase 2 Complete: May 2020
- Project Complete: July 2, 2020 (Tentative)
Schedule - Organization
Schedule - Forces

- Prime Contractor
  - Peak Staff:
    - 45 Engineers/Staff
    - 150 Craft Personnel

- Subcontractors
  - 50+ Subcontractors
    - Design and Engineering, ITS/Lighting, Asphalt Paving, Traffic Control, Drainage, Concrete Work, Marking
Schedule - Finances
Schedule - Progression
Material - Rubblization

- ACS MIX (PG76-22) Grading D
  - 1.25 inches thick
- AC MIX (PG76-22) Grading B-M2
  - 2.5 – 3.5 inches thick
- AC MIX (PG76-22) Grading A
  - 4.0 inches thick
- Rubblized Concrete
  - 10.0 inches thick
- Existing CTB Base
  - 6.0 inches thick
Material – RCA
Structure – I-65 Flyover
Structure – I-65 Flyover
Structure – I-65 Flyover
Further Project Information

WWW.TN.GOV/TDOT/PROJECTS/REGION-3/INTERSTATE-440
Questions?

Thank you!