SR 9/I-95 Interchange at 45th Street PD&E Study
Palm Beach County, Florida
FPID No.: 436519-1-22-01 | FAP No.: 0951-682-1 | ETDM No.: 14225

Palm Beach County MPO
October 19, 2017
Presentation Outline

Overview of Planning and Programming

- I-95 Interchange Master Plan
- Strategic Intermodal System (SIS)
- Project Development Process

Overview of the I-95 at 45th Street PD&E Study

- Project Limits:
  - SR 9/I-95: from S of 45th Street to N of 45th Street
  - 45th Street: From Village Boulevard to Congress Avenue
  - Palm Beach County, Florida
- Project Manager
  - Robert Lopes, P.E.
SR 9 (I-95) Interchange Master Plan | Palm Beach County

• Completed in December 2014
• Evaluated 17 interchanges
  - From Linton Boulevard to Northlake Boulevard
• Analyzed interchanges to determine existing and potential future deficiencies
• Coordinated with Local Agencies and MPO
• Identified operational and safety needs
  - Developed short-term improvements
  - Developed long-term conceptual design alternatives
• Facilitated programming of future interchange studies and projects through the SIS program
SR 9 (I-95) Interchange Master Plan | Palm Beach County

Study Results

- FDOT incorporated recommendations into:
  - Design Projects
  - PD&E Studies

FDOT programs PD&E Studies and Design Projects based on priority and SIS funding availability.
Strategic Intermodal System (SIS)

- Established by the Florida Legislature in 2003 (F.S. 339.61)
- State Funded Program
- Focuses state resources on transportation facilities most critical to statewide travel, including:
  - Interstates
  - Interchanges
  - Airports
  - Seaports
  - Spaceports
  - Rail
  - Highways of Interregional Significance
  - “Last Mile” Connectors

- SIS Planning Documents:
  - First 5 Year Plan – projects funded in 5 Year work program
  - Second 5 Year Plan – planned projects years 6-10
  - SIS Cost feasible Plan – projects projected for years 11-25
  - SIS Multi Modal Unfunded Needs Plan
Project Development Process Flow Chart

Planning

Time Varies

PD&E

*2 Years

Design

2-3 Years

Right of Way

2-4 Years

Construction

* Categorical Exclusion Type II

We are currently here
Project Study Area

LIMITS:
SR 9/I-95: from S of 45th Street to N of 45th Street
45th Street: From Village Boulevard to Congress Avenue
Palm Beach County, Florida

MUNICIPALITIES:
City of West Palm Beach
Town of Mangonia Park
City of Riviera Beach
Purpose and Need

Project Purpose:

- Identify short-term and long-term needs within the study area;
- Develop design concepts to address traffic spillback onto I-95;
- Improve interchange operations, reduce congestion, and increase safety at the study interchange.

Project Need:

- Alleviate existing and future traffic congestion thereby improving safety at the interchange.
Existing Year Conditions - Lane Configuration, Delay and LOS

<table>
<thead>
<tr>
<th>Section</th>
<th>AM Delay / LOS</th>
<th>PM Delay / LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>24.0 C</td>
<td>30.5 C</td>
</tr>
<tr>
<td>2</td>
<td>26.8 C</td>
<td>22.2 C</td>
</tr>
<tr>
<td>3</td>
<td>34.9 C</td>
<td>30.1 C</td>
</tr>
<tr>
<td>4</td>
<td>33.8 C</td>
<td>41.3 D</td>
</tr>
<tr>
<td>5</td>
<td>14.3 B</td>
<td>10.2 B</td>
</tr>
</tbody>
</table>

- **Level Of Service (LOS):**
  - A: Excellent
  - B: Good
  - C: Moderate
  - D: Congestion
  - E:塞

- **Existing Lane Change:***
  - Existing Lane
  - Change in pavement marking
  - Proposed additional lane
No-Build 2040 Year Conditions - Lane Configuration, Delay and LOS
Alternatives Analysis

• No-Build

• Transportation System Management & Operations (TSM&O)
  o Short Term
  o Open to Traffic in 3-5 Years
  o No Right-of-Way Impacts
  o Lower Cost

• Build Alternatives
  o Long Term
  o Open to Traffic in 8-10 Years
  o Ultimate Improvements
Alternatives Analysis | TSM&O

- Add additional right and left turn lane at the ramp intersections
- Add directional signage on NB off-ramp to North Congress Avenue
- Add one EB and one NB left turn lane at Congress Avenue
- Provide travel information system
- Develop signal system strategies
TSM&O 2040 Year Conditions - Lane Configuration, Delay and LOS

SR 9/I-95 Interchange at 45th Street PD&E Study

AM Delay / LOS
PM Delay / LOS

Existing Lane
Change in pavement marking
Proposed additional lane
LOS F Movements

Level Of Service
AM Delay / LOS
PM Delay / LOS

36.2 D
50.2 D

34.7 C
29.3 C

40.1 D
39.6 D

40.5 D
53.0 D

18.0 B
13.5 B
Alternatives Analysis | Alternative 1 – 45th Street Widening
Alternatives Analysis | Alternative 2 – Diverging Diamond Interchange
Alternatives Analysis | Alternative 2 – Diverging Diamond Interchange
Alternatives Analysis | Alternative 3 – SR 710 Ramps
Alternatives Analysis | Alternative 4 – Cumberland Drive Extension
Alternative 1 – 2040 Year Conditions
Lane Configuration, Delay and LOS

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level Of Service</strong></td>
<td><strong>AM Delay / LOS</strong></td>
<td><strong>PM Delay / LOS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>29.5 C</td>
<td>26.0 C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>46.7 D</td>
<td>23.3 C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>45.7 D</td>
<td>30.6 C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>46.7 D</td>
<td>31.8 C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>54.0 D</td>
<td>20.7 C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>53.7 D</td>
<td>18.2 B</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Alternative 2 – 2040 Year Conditions

Lane Configuration, Delay and LOS
Alternative 3 – 2040 Year Conditions
Lane Configuration, Delay and LOS

<table>
<thead>
<tr>
<th>Location</th>
<th>AM Delay / LOS</th>
<th>PM Delay / LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>34.7 C</td>
<td>35.4 D</td>
</tr>
<tr>
<td>2</td>
<td>27.1 C</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>28.2 C</td>
<td>22.7 C</td>
</tr>
<tr>
<td>4</td>
<td>14.9 B</td>
<td>22.7 C</td>
</tr>
<tr>
<td>5</td>
<td>48.4 D</td>
<td>45.0 D</td>
</tr>
</tbody>
</table>

Legend:
- Existing Lane
- Change in pavement marking
- Proposed additional lane

Northpoint Blvd
45th Street
Corporate Way
Congress Ave

Level Of Service:
A: Excellent, B: Good, C: Moderate, D: Poor, E: Critical, F: Unacceptable
Alternative 4 – 2040 Year Conditions
Lane Configuration, Delay and LOS
## Alternative Evaluation Matrix

<table>
<thead>
<tr>
<th>PARAMETERS</th>
<th>NO BUILD</th>
<th>TSM&amp;O</th>
<th>ALT 1</th>
<th>ALT 2</th>
<th>ALT 3</th>
<th>ALT 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geometric Compliance to Design Criteria</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Access Management</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Multimodal (Transit/Pedestrian/Bicycle)</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Mobility</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Safety Impacts</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Utility Impacts</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Maintenance of Traffic</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Meets Purpose &amp; Need</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Social &amp; Neighborhood Impacts</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Relocation Potential</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Community Services Facilities</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Economic &amp; Employment Impacts</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Public Comments</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Wetlands and Essential Fish Habitat</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Water Quality and Quantity</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Wildlife and Habitat</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Cultural/Historical/Archeological</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Noise Impacts</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Air Quality</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Contamination</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Engineering/CEI/Construction</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Right-of-Way/Business Damages</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>SCORE</td>
<td><strong>58</strong></td>
<td><strong>65</strong></td>
<td><strong>84</strong></td>
<td><strong>87</strong></td>
<td><strong>51</strong></td>
<td><strong>57</strong></td>
</tr>
</tbody>
</table>
## Preliminary Cost Estimate

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>TSM&amp;O</th>
<th>ALTERNATIVE 1</th>
<th>ALTERNATIVE 2</th>
<th>ALTERNATIVE 3</th>
<th>ALTERNATIVE 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roadway Construction</td>
<td>$3,880,000</td>
<td>$9,778,000</td>
<td>$9,295,000</td>
<td>$54,207,000</td>
<td>$26,362,000</td>
</tr>
<tr>
<td>Engineering/Design (10% Construction)</td>
<td>$388,000</td>
<td>$978,000</td>
<td>$930,000</td>
<td>$5,421,000</td>
<td>$2,636,000</td>
</tr>
<tr>
<td>CEI (15% Construction)</td>
<td>$582,000</td>
<td>$1,467,000</td>
<td>$1,394,000</td>
<td>$8,131,000</td>
<td>$3,954,000</td>
</tr>
<tr>
<td>Right-of-Way Acquisition</td>
<td>$0</td>
<td>$2,261,000</td>
<td>$2,261,000</td>
<td>$4,581,000</td>
<td>$2,000,000</td>
</tr>
<tr>
<td><strong>TOTAL COST</strong></td>
<td><strong>$4,850,000</strong></td>
<td><strong>$14,484,000</strong></td>
<td><strong>$13,880,000</strong></td>
<td><strong>$72,340,000</strong></td>
<td><strong>$34,952,000</strong></td>
</tr>
</tbody>
</table>
Public Involvement

• Agency & Public Kick-Off Meetings – September 13, 2016

• Elected Officials/Agencies Briefings
  o Palm Beach County Engineering
  o Palm Beach County MPO
  o City of West Palm Beach
  o Town of Mangonia Park
  o City of Riviera Beach

• Alternatives Public Workshop – March 28, 2017

• Other Meetings
  o Coordination with City of West Palm Beach & Town of Mangonia Park
  o 45th Street Corridor Summit – Multiagency Discussion

• Public Hearing – November 2, 2017
### Summary Schedule

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>J</td>
<td>F</td>
<td>M</td>
</tr>
<tr>
<td>Notice to Proceed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fact Sheet/Newsletter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elected Officials/Agency Kick-Off Meeting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Kick-Off Meeting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering Data Collection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering Analysis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental Data Collection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental Analysis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Develop and Evaluate Alternatives</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternatives Public Workshop</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering Reports</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental Reports</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Hearing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final Project Documentation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Location and Design Concept Acceptance (LDCA)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuous Public Involvement</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Summary Schedule Diagram**

FDOT FPID No.: 436519-1-22-01 | FAP No.: 0951-682-1 | ETDM No.: 14225
Long Range Transportation Plan (LRTP)

• I-95 at 45th Street Interchange Project FM #436519-1
  • Current approval for statewide SIS funds for all phases
  • Work Program FY 2018 – FY 2022 and SIS 2nd Five

<table>
<thead>
<tr>
<th>Phase</th>
<th>PD&amp;E</th>
<th>Design</th>
<th>ROW</th>
<th>Const</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiscal Year(s)</td>
<td>2016-2017</td>
<td>2021</td>
<td>2022-2023</td>
<td>2026</td>
</tr>
<tr>
<td>Funding (1)</td>
<td>$1,792,126</td>
<td>$6,000,000</td>
<td>$19,516,258</td>
<td>$80,432,086</td>
</tr>
</tbody>
</table>

Note: (1) Shown in Year of Expenditure (YOE) dollars
THANK YOU

For more information, please call, email or write to:

Robert Lopes, PE
Project Manager
Florida Department of Transportation – District Four
3400 West Commercial Boulevard
Fort Lauderdale, FL 33309
Phone: (954) 777-4425
Toll free: (866) 336-8435, ext. 4425
E-mail: Robert.Lopes@dot.state.fl.us
www.95at45Street.com