PRELIMINARY ENGINEERING REPORT

Florida Department of Transportation

District X

Project Title

Limits of Project

County, Florida

Financial Management Number: XXXXX-X

ETDM Number: XXXXXX

Date

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by the Florida Department of Transportation (FDOT) pursuant to 23 U.S.C. §327 and a Memorandum of Understanding dated May 26, 2022, and executed by Federal Highway Administration and FDOT.

**PROFESSIONAL ENGINEER CERTIFICATION**

**PRELIMINARY ENGINEERING REPORT**

**Project:** Project Title

**ETDM Number:** XXXXX

**Financial Project ID:** XXXXXX-X-XX-XX

**Federal Aid Project Number:** XXXX XXX X

This preliminary engineering report contains engineering information that fulfills the purpose and need for the (road name) Project Development & Environment Study from (south/west project limit) to (north/east project limit) in (county name), Florida. I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of transportation engineering as applied through professional judgment and experience.

I hereby certify that I am a registered professional engineer in the State of Florida practicing with [insert Consulting Firm Name], and that I have prepared or approved the evaluation, findings, opinions, conclusions or technical advice for this project.

*[****Only Sign and Seal the Final Report***

***Include “DRAFT” and Date on the Cover of the Draft Report****]*

|  |  |
| --- | --- |
|  | This item has been digitally signed and sealed by *[Insert P.E. Name]* on the date adjacent to the seal.  Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies. |

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# PROJECT SUMMARY

## Project Description

*Start with the description from the Efficient Transportation Decision Making (ETDM) and modify as applicable based on the changes in scope between ETDM screening and completion of PD&E. The project description must be written to allow a person without prior knowledge of the area to clearly understand where the project is located. Refer to Part 2 Chapter 1 of the PD&E Manual for project description requirements.*

*Include:*

* *The name of the facility (with alternate names if applicable)*
* *Limits of the proposed project (length and logical termini)*
* *Name of City and County where the project is located*
* *A brief description of the existing facility*
* *A brief description of the proposed improvements including pedestrian and bicycle accommodation. Discuss navigations issues when project crosses over navigable waters.*

*Include a project map illustrating the project limits.*

## Purpose & Need

*Describe the purpose of the project and then support it by discussing the needs for the project. Refer to Part 2 Chapter 1 of the PD&E Manual for Purpose and Need requirements.*

*The purpose and need must be consistent with the purpose and need in the ETDM. Purpose and Need must be verbatim with purpose and need described in the Environmental Document (Type 2 CE, EA, EIS, SEIR). If during the PD&E a new “need” is identified, it can be added as a secondary need.*

*Discuss the project status including actions taken to date, other agencies and governmental units involved, actions pending, schedules, etc.*

## Commitments

*Identify a list of all commitments that are made during the study. Review final technical documents and agency correspondences to include and list their commitments. Refer to Part 2 Chapter 22 of the PD&E Manual for additional information.*

## Alternatives Analysis Summary

*Provide a summary of alternatives analysis to include the number of alternatives, any significant differences in the alternatives analyzed, summary of public involvement feedback, and overall estimated costs.*

## Description of Preferred Alternative

*Include a brief description of the Preferred Alternative. Briefly explain why it the alternative to address the purpose and need for the project. Note potential Design Variations or Design Exceptions needed for the preferred alternative.*

## List of Technical Documents

*Include a list of all technical documents prepared for the study. Include the date the document was prepared (The initial draft may include Dates of Draft technical documents. The Final PER lists the dates of the final documents).*

*Do not name any of the consultant firms when referencing technical documents.*

# EXISTING CONDITIONS

*The Existing Conditions section should adequately describe the project area, and document available information. Include sources for data or information when applicable.*

## Previous Planning Studies

*Briefly discuss planning studies that were completed to support development of this study. If there are no previous planning studies completed, simply say there were no completed planning studies.*

*If planning decisions or products were incorporated into NEPA by reference, then:*

* *discuss the previous planning studies’ influence on the PD&E study;*
* *provide a brief description of the planning study;*
* *summarize policy assumptions used in the transportation planning process related to land use, economic development, transportation costs, and network expansion consistent with those to be used in the NEPA process;*
* *discuss changes that have occurred in the project area since the study was completed;*
* *include titles of the previous planning reports in the List of Technical Document.*

## Existing Roadway Conditions

*If the item is not found in the existing condition, include a statement that it is not present in the appropriate section of the PER.*

### Roadway Typical Sections

*Identify number of lanes and all existing roadway typical sections within the project limits. Include dimensions of each cross-sectional element. Briefly explain typical section changes from committed projects that are not part of this PD&E Study, if applicable, such as intersection improvements, access management changes, or bounding projects that have not yet been constructed.*

### Roadway Functional & Context Classifications

*Identify the functional and context classifications of the existing roadway. Identify any other special designations such as hurricane evacuation route, SIS corridor, etc.*

### Access Management Classification

*Identify the access management classification and locations where the existing roadway does not meet the access management standards.*

### Right-of-Way

*Identify the existing right-of-way within the project limits. Include relevant easements such as utility* *and drainage easements.*

### Adjacent Land Use

*Identify and discuss the existing land uses adjacent to the right-of-way. Include an existing land use map.*

### Pavement Type and Condition

*Identify the cracking and ride rankings found in the Pavement Condition Survey from the FDOT State Materials Office. Include the year of the data reported.*

### Existing Design and Posted Speed

*Identify the design speed and posted speed of the existing facilities.*

### Horizontal Alignment

*Identify horizontal alignment components of the facility.*

### Vertical Alignment

*Identify vertical alignment components of the facility as noted in survey or as-built plans, if available. If this data is not available, identify public sources of vertical elevation data to generally describe the existing conditions.*

### Multi-modal Facilities

*Identify pedestrian accommodations, bicycle facilities, shared use paths, mass transit facilities and freight and intermodal logistics centers within the study area. Include the location, type, width and any special designations of pedestrian and bicycle facilities. Provide routes/schedules, bus stops, park-and-ride lots and transfer centers of mass transit facilities. Provide the location, type, and any special considerations of freight and intermodal facilities.*

### Intersections

*Identify the existing intersection configuration and lane assignment, intersection control type, technology, and operational conditions.*

### Physical or Operational Restrictions

*Identify physical or operational restrictions such as multimodal use lanes, parking, fixed objects, barriers, and clear zones.*

### Traffic Data

*Identify existing Annual Average Daily Traffic (AADT), peak hour volume, Directional Design Hour Volumes (DDHV), truck percentages, pedestrian and bicycle counts, and transit ridership data and operational conditions.*

### Roadway Operational Conditions

*Identify LOS and relevant performance measures such as delay, travel time, and density.*

### Managed Lanes

*Identify Managed Lanes, such as Express Lanes or Toll Lane configurations and operations within the corridor.*

### Crash Data

*Discuss crash rates, severity, number (frequency), types, contributing causes, crash distribution and patterns, identify location of high crash locations, if any.*

### Railroad Crossings

*Identify the number of tracks, number of train crossings, speed, type of train (passenger or freight), type of warning devices, operating characteristics, railroad right-of-way and Rail Master Plan (if available).*

### Drainage

*Describe surface water and groundwater features on or near the project. Identify the drainage basins and flow patterns, floodplains, floodways, and stormwater management systems including regional facilities. Include an existing drainage map. Use the Flood Insurance Rate Map (FIRM) or Water Management Districts maintained flood maps (when required) to identify any special flood hazard areas. Include size and location of cross drains and box culverts along the corridor. Discuss areas with potential drainage problems within the project limits.*

### Lighting

*Identify the presence of lighting, lighting type, and the maintaining agency.*

### Utilities

*List utilities located within the project limits. Include location, Utility Agencies/Owners (UAO), and contact information.*

### Soils and Geotechnical Data

*Identify the different soil classifications found in The United States Department of Agriculture (USDA) and the National Resources Conservation Service (NRCS) Soil Survey for the project corridor.* *Include an existing soil map. Note areas of special design considerations.*

### Aesthetics Features

*Describe any scenic views or vistas on or near the project limits. Identify any aesthetic features (landscaping, pavers, noise wall decors, etc.) within the project limits. Document who is responsible for maintenance activities.*

### Traffic Signs

*Identify all overhead traffic guide signs located within the study limits in an aerial map or exhibit and provide a general summary of roadway signs.*

### Noise Walls and Perimeter Walls

*Identify type and location of noise and/or perimeter walls within the study limits.*

### Intelligent Transportation Systems (ITS)/Transportation System Management and Operations (TSM&O) Features

*Identify any ITS or TSM&O features within the study limits. Include operational needs and infrastructure requirements.*

## Existing Bridges and Structures

*Briefly describe all bridges and features being crossed (rivers, streams, roadway, railroads, etc.). For each bridge, identify each item listed in Section 3.2.3.3.2 of Part 2 Chapter 3 of the PD&E Manual. Note in the PER if no bridges or specific bridge features do not apply.*

## Existing Environmental Features

*Summarize the existing environmental features within the project limits that would affect the development of alternatives.*

# FUTURE CONDITIONS

## Future Conditions Considerations

*Briefly discuss future conditions including land use, context classification, travel demand, and other improvement plans, if any. Reference traffic report if it was prepared separately. Briefly discuss how future demand volumes and design hour volumes were estimated. Reference Traffic Report, or Interchange Access Request report and Traffic Forecasting Memo for more details.*

*Include discussion of local plans or policies that affect the project alternatives.*

# DESIGN CONTROLS & CRITERIA

## Design Controls

*List design controls used to determine the design criteria of the project alternatives. Refer to FDM 201 and Section 3.2.3.5 of Part 2 Chapter 3 of the PD&E Manual for more information on design controls.*

## Design Criteria

*List [in tabular form] design criteria used to develop alternatives with their associated manuals, procedures, and guidelines. Include criteria relevant to the project including roadway, structures, drainage design, and any special local or project specific criteria.*

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# ALTERNATIVES ANALYSIS

## No-Build (No-Action) Alternative

*Describe the No-Build Alternative which serves as the baseline or benchmark against which the other Alternatives are evaluated. Include reference to any planned projects or conditions that are part of the project no-build condition. Describe the results of not taking action, and describe how the No-Build reflects on the items noted in the Purpose and Need Statement.*

## Transportation Systems Management and Operations (TSM&O) Alternative

*Describe the TSM&O Alternative, including strategies it would use to optimize the efficiency of the existing transportation system or facility. Explain how the TSM&O Alternative would meet (or fail to meet) the project’s purpose and need. Discuss how elements of TSM&O were added in the Build Alternative, if any.*

## Multimodal Alternatives

*Describe the multimodal alternatives and how they align with the Metropolitan Planning Organization (MPO) Long Range Transportation Plan (LRTP), Local Government Comprehensive Plan (LGCP), and Transit Development Plan where applicable. Discuss coordination with the District Transit or Modal Office. Describe how the multimodal alternatives address the purpose and need for the project.*

## Build Alternatives

*Discuss how the Build Alternative(s) were developed. Discuss initial screening of alternatives (based on a fatal flaw analysis) and alternatives that were eliminated from detail study. If the alternatives were screened by studies completed prior to PD&E study, state the title and date of the reports, summarize the decision reached to eliminate the alternatives, include the reports in the Technical Materials section, and upload final reports in SWEPT.*

*Describe Build Alternative(s) and how it addresses the project’s purpose and need. For each Build Alternative that is evaluated in detail, include discussion of the engineering elements that were considered during the development of Build Alternative(s) (Section 3.2.5 of Part 2, Chapter 3 of the PD&E Manual).*

*Summarize environmental impacts of the Build Alternative(s) and reference other sections of the PER and supporting technical documents to reduce repetition, if applicable.*

*If a Value Engineering (VE) study was performed, summarize the recommendations of the study.*

*Support description of Build Alternatives with exhibits and plans that are developed only to the level of detail needed to illustrate the concepts.*

## Comparative Alternatives Evaluation

*Include a matrix that compares each alternative evaluated in detail (including the No-Build Alternative) with respect to the items listed in Section 3.2.8 of Part 2 Chapter 3 of the PD&E Manual. Summarize and incorporate by reference the results of the environmental technical analyses to avoid repetition.*

*If a TSM&O Alternative was evaluated in detail, include the alternative in the matrix.*

*If VE study was performed, include the VE Recommended Alternative in the comparative evaluation matrix. Reference and upload the VE Study report in SWEPT.*

## Selection of the Preferred Alternative

*Briefly, discuss the results of the comparative alternatives evaluation. Explain the rationale behind selecting the Preferred Alternative.*

# AGENCY COORDINATION & PUBLIC INVOLVEMENT

## Agency Coordination

*Briefly explain how ETDM comments were used to develop alternatives and identify mitigation (if applicable).*

*Briefly summarize coordination with MPO/County/City and resource agencies.*

## Public Involvement

*Briefly describe public involvement approach followed, reference Comments and Coordination Report for detail. Briefly discuss how public comments were considered in the development and refinement of Build Alternatives.*

*Comments are provided in the Comments and Coordination Report.*

## Public Hearing

*Briefly describe the information presented at the Public Hearing and the outcomes of the meeting. Include discussion of any items that affect the recommendations of the PD&E, public support or opposition of the preferred alternative, and number of attendees.*

# PREFERRED ALTERNATIVE

*This section includes a description of design features of the Preferred Alternative, which may be a refinement of the Build Alternative described in Chapter 5 as the result of Public Hearing comments.*

*Include a discussion of design refinement performed after the Public Hearing if appropriate.*

*Attach concept plans of the Preferred Alternative in the Appendix.*

*Discuss the engineering details and environmental impacts of the Preferred Alternative listed below, as appropriate.*

## Typical Sections

*Discuss the roadway and bridge typical sections in detail and support discussion by exhibits. Upload Signed and Sealed Typical Section Package in SWEPT.*

## Access Management

*Briefly discuss any change(s) to existing access management classification that is(are) proposed in the Preferred Alternative. Include language about how the project complies with 335.199, FS, if applicable.*

## Right of Way

*If additional right-of-way is required to construct the Preferred Alternative, state the estimated right-of-way impacted, the number of impacted parcels, and the number of relocations (residential and business) that the Preferred Alternative will require.*

## Horizontal and Vertical Geometry

*Discuss the horizontal and vertical geometry of the Preferred Alternative. Include [in the appendix] concept plans showing the horizontal and vertical geometry for the project.*

## Design Variations and Design Exceptions

*Discuss design controls and criteria that will need a Design Variation or Design Exception. State (and provide date) if any of the Design Variations or Design Exceptions were approved. Include signed Design Variations and Design Exceptions in the appendix.*

## Multimodal Accommodations

*Discuss provisions for multimodal accommodations (bicycles, pedestrians, transit), Complete Streets and Context Sensitive design solutions that are included in the Preferred Alternative.*

*Identify any impacts to transit routes, railroads and truck routes along the project including the location and general layout of potential bus turnouts, ramp bypass lanes, or exclusive transit lanes.*

## Intersection/ Interchange Concepts and Signal Analysis

*Include concept plans showing Preferred Alternative intersections and/or interchange configurations, traffic control types, and signs.*

## Tolled Projects

*Summarize the results of the Preliminary Toll Siting Technical Memorandum as applicable to the preferred alternative.*

## Intelligent Transportation System and TSM&O Strategies

*Include discussion of Intelligent Transportation System (ITS) facilities and TSM&O strategies or technologies that will be added in the Preferred Alternatives. Discuss if a Systems Engineering analysis is required by FHWA. Confirm applicability of TSM&O strategies or technologies with the District TSM&O Program Engineer.*

## Landscape

*Describe any landscape features of the Preferred Alternative.*

## Lighting

*Describe the lighting features to be included in the Preferred Alternative.*

## Wildlife Crossings

*Discuss wildlife crossings and coordination with appropriate District personnel and regulatory agencies.*

## Permits

*Summarize the preferred alternative permitting needs and coordination with the District and permitting agencies.*

## Drainage and Stormwater Management Facilities

*Discuss the type of drainage system(s) to be used for the Preferred Alternative. Include a discussion of the stormwater management systems.*

## Floodplain Analysis

*Summarize the findings of the Location Hydraulics Report and/or Bridge Hydraulics Report and discuss any mitigation proposed as part of the project.*

## Bridge and Structure Analysis

*Summarize preferred structure and aesthetic treatment, and utility from the Bridge Development Report, if one was prepared. Include a discussion of general structural plans and elevations if needed for the environmental document or design exception report.*

*Describe existing structures that can be retained and reused. Describe location where new structures (bridge and retaining walls) are required, including the proposed bridge location and layout, profile grade requirements at stream crossings, and justification of use of retaining walls instead of slope embankments.*

## Transportation Management Plan

*Briefly discuss the Transportation Management Plan (TMP) and how it facilitates the general traffic control strategies, addresses potential road closures or detours and work zone impacts.*

## Constructability

*Describe general sequence of construction to address ability to maintain traffic and identify any issues that may impact implementation of the preferred alternative.*

## Construction Impacts

*Describe impacts from the proposed project construction to resources such as noise, air, and water quality, maintenance of traffic and access, species protection, safety considerations, temporary construction impacts, etc. as listed in Section 3.2.5.19 of Part 2 Chapter 3 of the PD&E Manual.*

## Special Features

*Briefly discuss any special features that are not commonly associated with a transportation project. Examples could include any features included to protect or minimize impacts to the environment.*

## Utilities

*Identify any impacted utilities and costs associated with relocating utilities. Include contact information for impacted utilities. If utilities are in FDOT ROW by permit, the cost for relocation is at the expense of the utility owner (Note that information here).*

## Cost Estimates

*Include a table summarizing estimated project costs (construction, right of way, design, CEI, etc.). Note method to estimate costs for the project phases, such as percentages based on the Long-Range Estimate (LRE) construction cost estimates.*

# APPENDIX