Alternative Corridor Evaluation (ACE) Process:

Webinar 2: Conducting an ACE Study

2021

The environmental review, consultation, and other actions required by applicable federal environmental laws described in this training are carried out by FDOT pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated December 14, 2016 executed by FHWA and FDOT.

Today's Presenters

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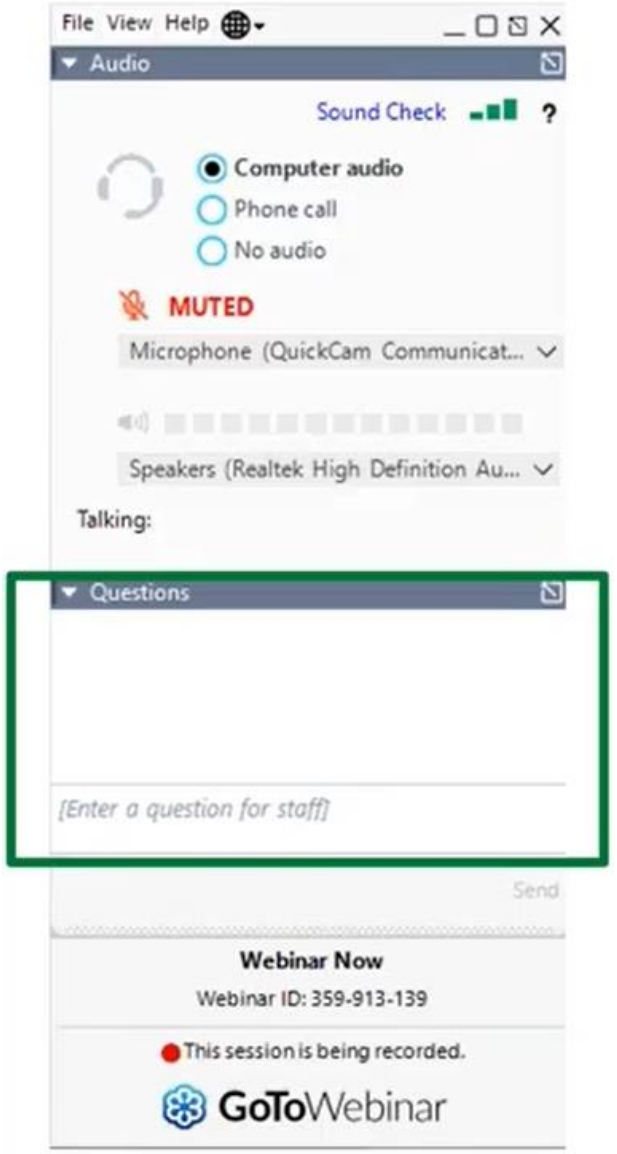
Housekeeping

- Recording
- Handouts
- List of attendees
- Questions
- ACE Training Website
  - https://www.fdot.gov/environment/sched/oemtrainingprogramstandalonetrainingevents/OEM-Training-Program---ETDM-ACE-Process



Training Session Outline

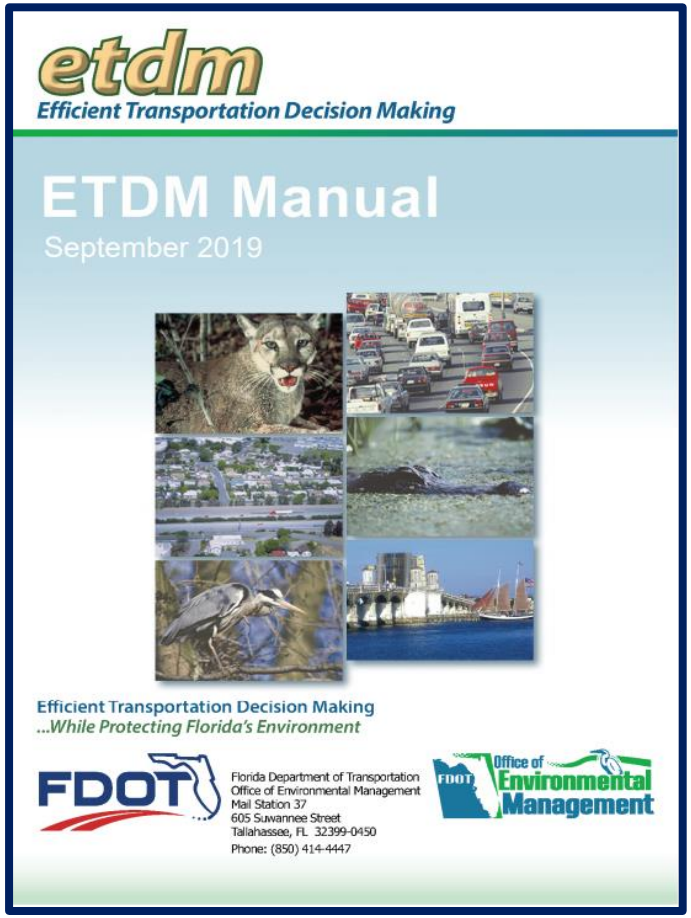
Webinar 1: ACE Overview and the Planning Phase

- Lesson 1 Overview of Planning Phase
- Lesson 2 ACE Process Overview
- Lesson 3 Scoping Considerations for an ACE Study

Webinar 2: Conducting an Alternative Corridor Evaluation (ACE) Study

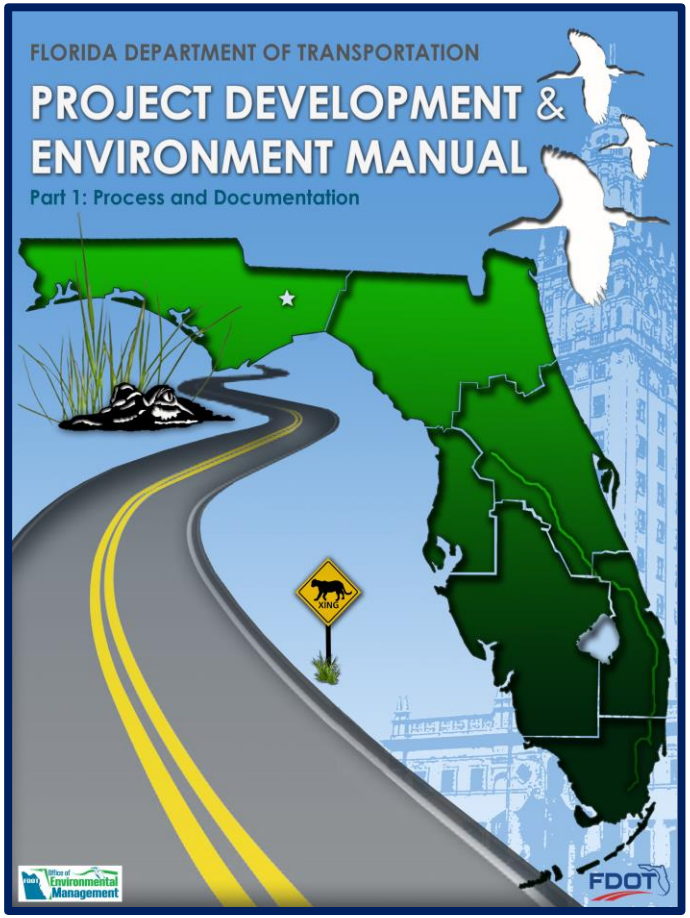
- Lesson 1 Perform Initial Analysis and Conduct Standard Efficient Transportation Decision Making (ETDM) Screening
- Lesson 2 Development of the Methodology Memorandum (MM)
- Lesson 3 Tips on Corridor Refinements and Analysis Methods
- Lesson 4 Development of the Alternative Corridor Evaluation Report (ACER)

Resources



ETDM Manual, Chapters 3 and 4

https://www.fdot.gov/environment/pubs/etdm/etdmmanual.shtm



PD&E Manual, Part 1, Chapter 4

https://www.fdot.gov/environment/pubs/pdeman/pdeman-current

Recommended Trainings

ETDM Training:

- Efficient Transportation Decision Making (ETDM) Process Overview
- Environmental Screening Tool (EST) - Alternative Corridor Evaluation (ACE)
  https://www.fdot.gov/environment/sched/train1.shtm

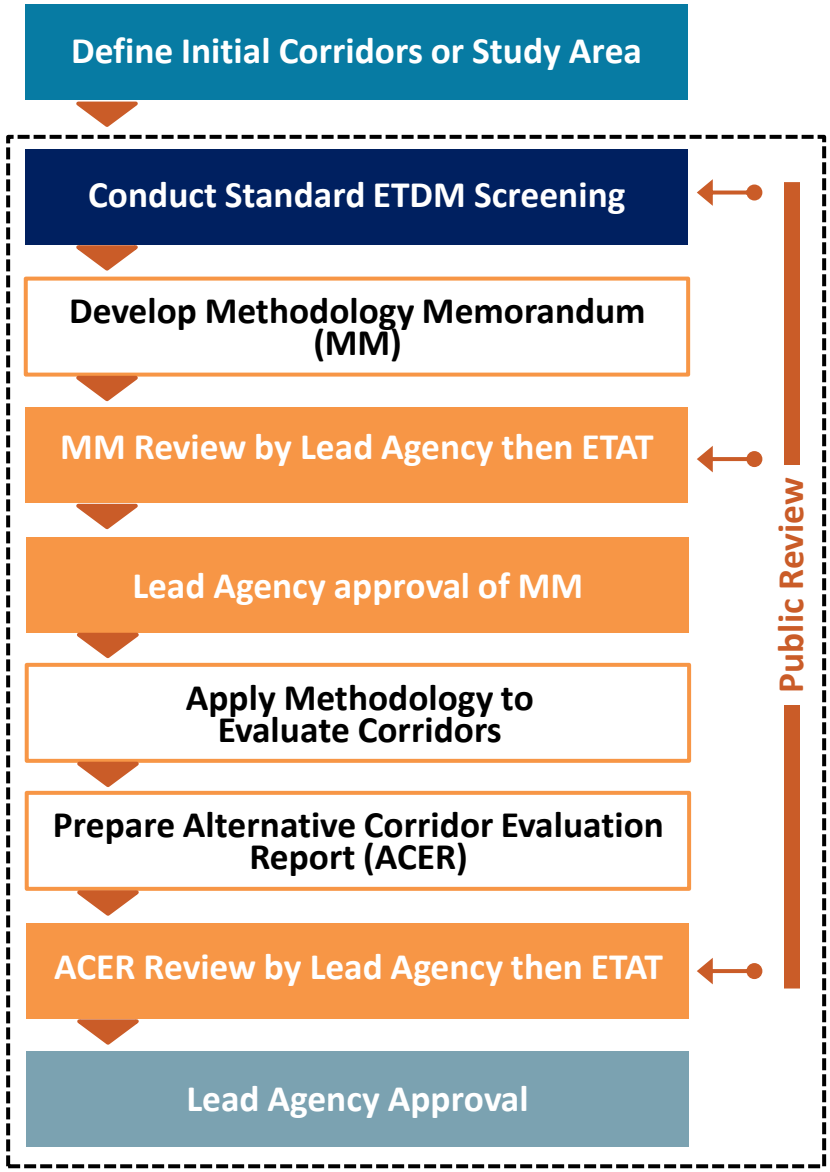
FDOT Office of Environmental Management (OEM) Trainings:

- Project Development & Environment (PD&E) Training: Project Development Process
  https://www.fdot.gov/environment/sched/track3.shtm

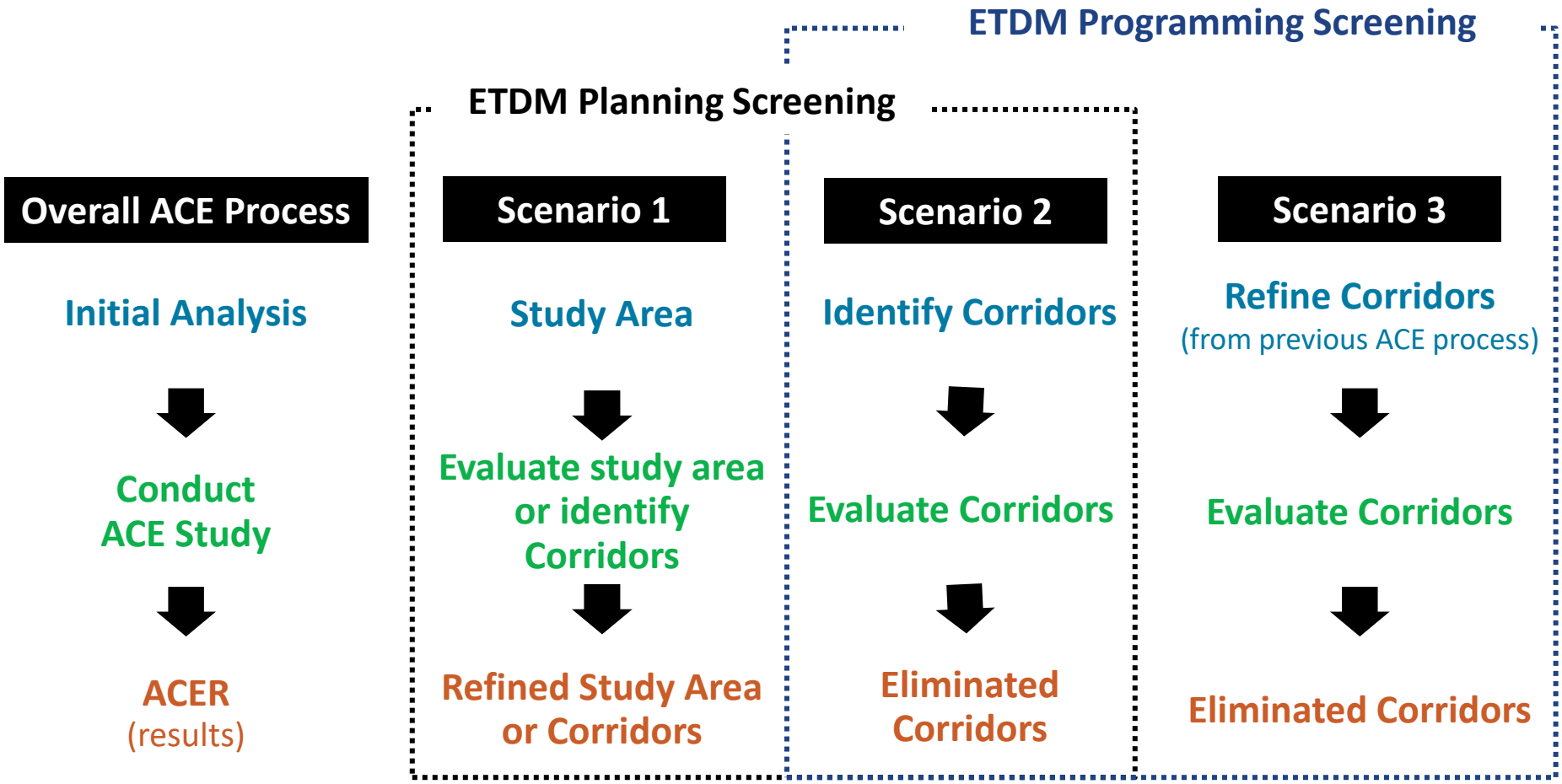
Purpose of the ACE Process

- **Eliminate alternative corridors prior to the more detailed PD&E analysis**
- Remaining alternatives may result in less potential for environmental impacts
- Decreasing significance may allow for lower Class of Action (COA) than originally envisioned
- Adopt results and decisions into the National Environmental Policy Act (NEPA) process
- Establishes a consistent statewide approach while providing flexibility for analysis methods and stakeholder outreach
- Results and decisions adopted or incorporated by reference into the PD&E study

ACE Process


Define Initial Corridors or Study Area
Conduct Standard ETDM Screening
Develop Methodology Memorandum (MM)
MM Review by Lead Agency then ETAT
Lead Agency approval of MM
Apply Methodology to Evaluate Corridors
Prepare Alternative Corridor Evaluation Report (ACER)
ACER Review by Lead Agency then ETAT
Lead Agency Approval
Public Review

Project Progression in the ACE Process



Lesson 1:
Perform Initial Analysis and Conduct Standard ETDM Screening

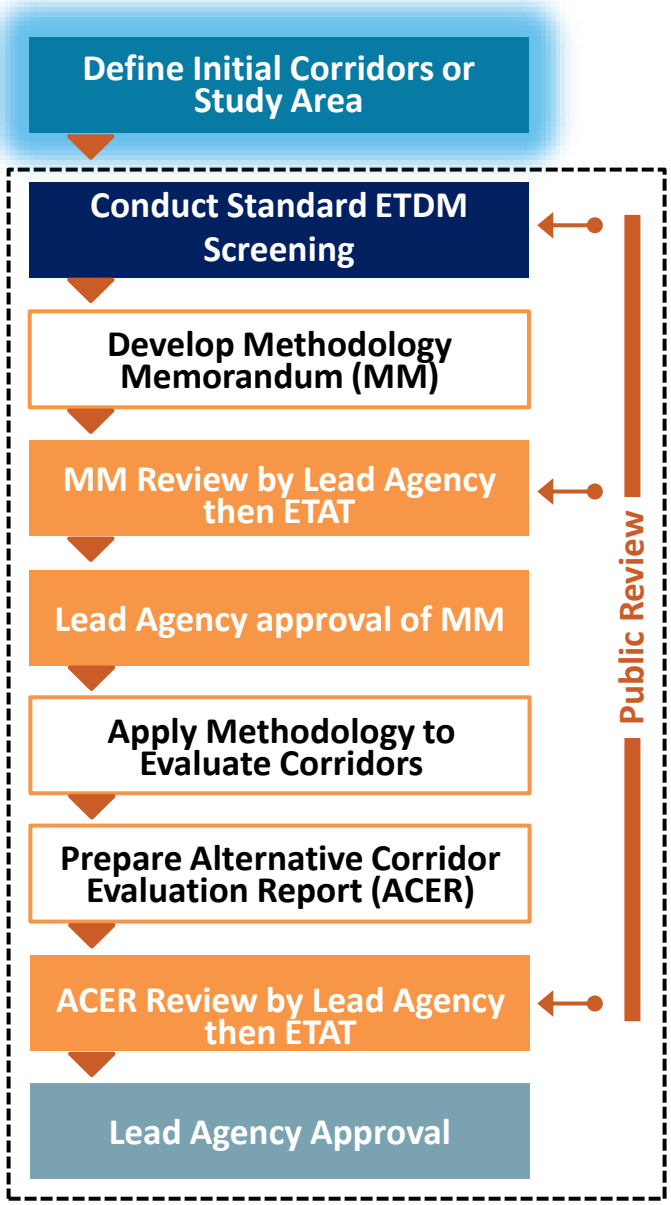
Determine Goal

Define study area

OR

Identify and define a reasonable range of initial corridors

Identified corridors and study area should address the project's purpose and need



When to Conduct Study Area Analysis

Conducting ETDM Planning Screen

+

No previous planning study with defined study area or corridors

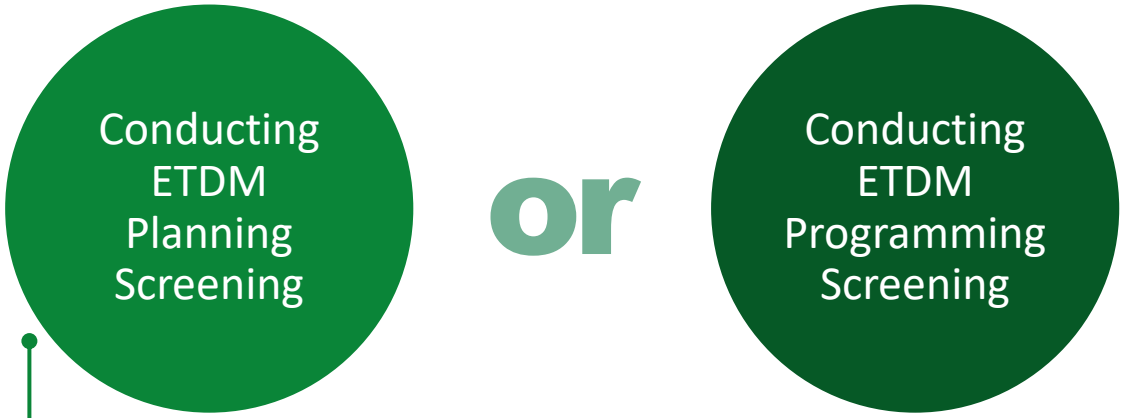
or

Large study area with potential to refine

SAMPLE PROJECT WITH A STUDY AREA ANALYSIS

West Bay Parkway (ETDM No.: 14207) District 3

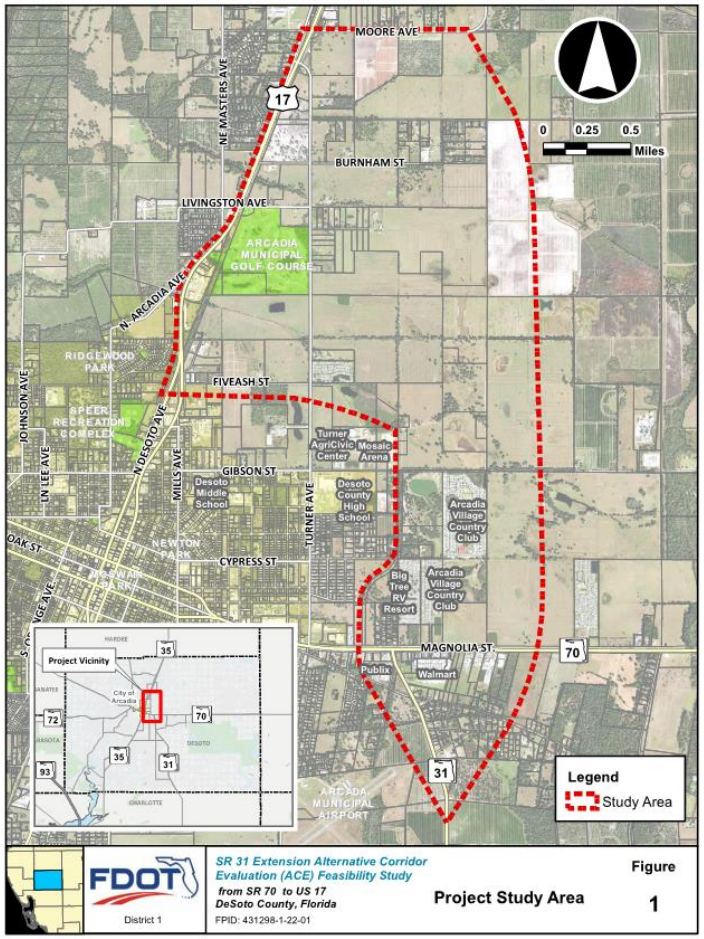
When to Identify Initial Corridors



- Project has a sufficiently defined study area
- Preliminary corridors have been identified from previous planning efforts
- Time constraints

Gather Information and Establish Project Parameters

- **Review previous planning studies**
- **Consider project stakeholder comments**
- **Define purpose and need**
  - Future traffic demand
  - System connectivity
  - Others
- **Develop project description**
  - Type of facility and context classification
  - Initial logical termini
- **Determine study area**



SR 31 Extension (ETDM No.: 14316)
District 1

Consider Type of Corridor Path

Swath

- A corridor width that includes a buffer or is wide enough to cover a range of alternatives (i.e., over 1,000-ft to a few miles)
- Corridor width defined by preliminary typical section elements
- Used for large study areas (at the ETDM Planning screening stage)

Broad corridor

- Wider than the potential typical section
- Potential typical section is defined
- Allows for flexibility when refining/narrowing corridors

Narrower alignment

- Width of the potential typical section
- Refine corridors during ACE process

Determine Corridor Width that is Appropriate for Analysis

Overall ACE Process	Scenario 1	Scenario 2	Scenario 3
Initial Analysis	Initial Study Area	Swath or Broad Corridor	Swath or Broad Corridor (from previous ACE process)
↓	↓	↓	↓
ACER Study	Refined Study Area, Swath or Broad Corridor	Broad Corridor or Narrower Alignment	Narrower Alignment

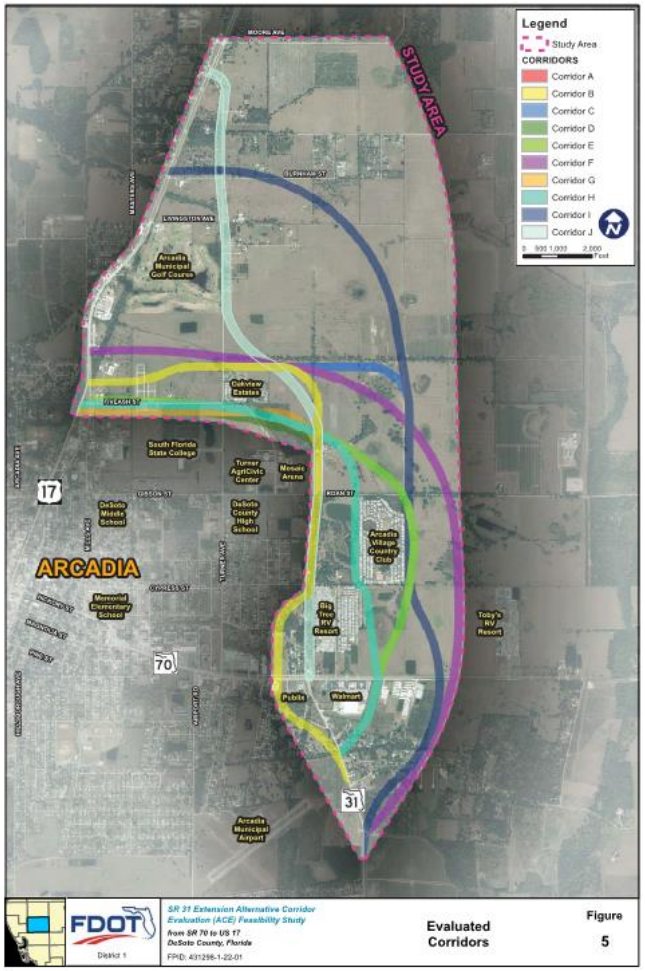
Swaths = very wide

Broad Corridors = wider than potential typical section

Narrower Alignment = potential typical section

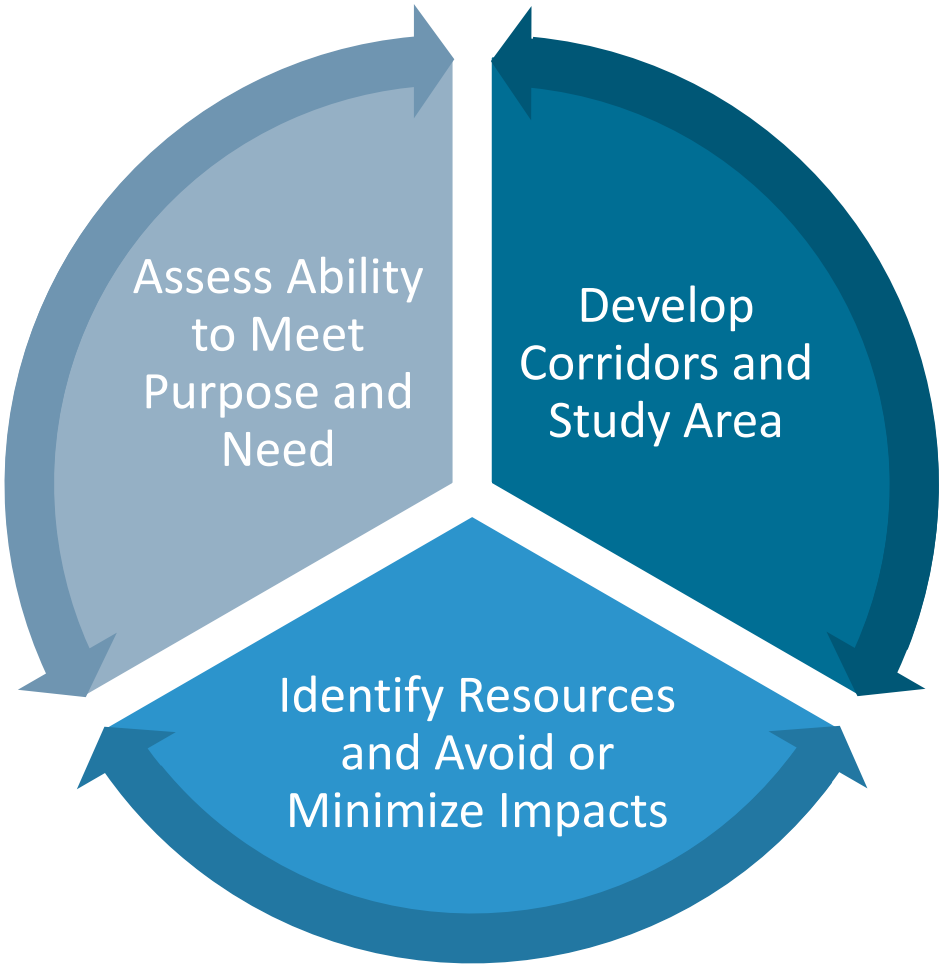
Define Corridor Paths for Initial Analysis

- **Determine a corridor width for analysis**
- **Several studies started with these corridor widths:**
  - Broad corridors around 500-ft
  - Swaths over 1,000-ft
- **Start with basic design elements:**
  - Type of facility and context classification
  - Design speed
  - Horizontal curvature
  - Number of lanes
- **Identify potential access/interchanges**
- **Consider a reasonable number of corridors**



SR 31 Extension (ETDM No.: 14316)
District 1

Define Study Area or Initial Corridors

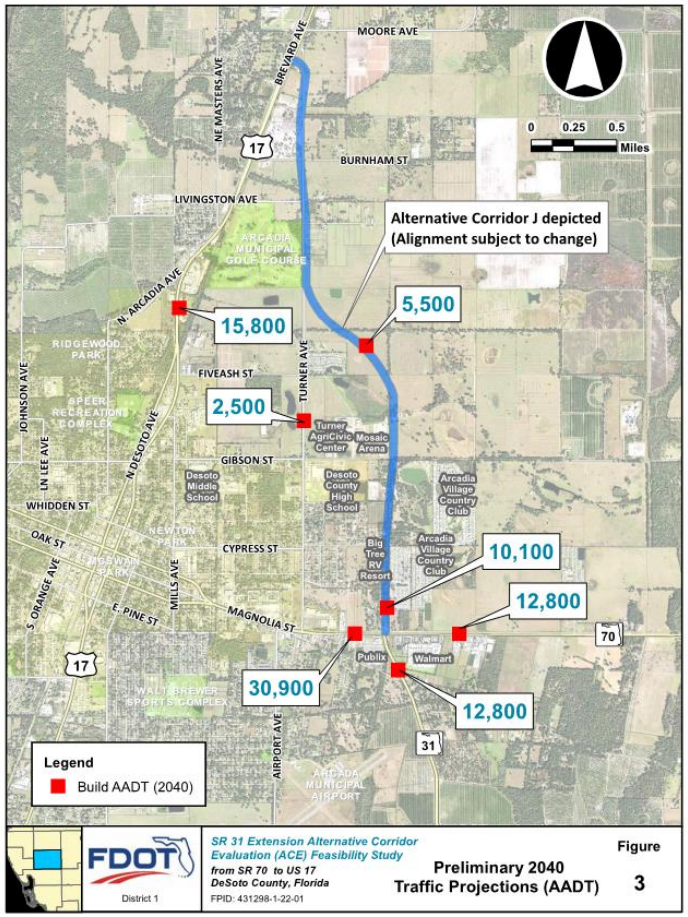


Assess Ability to Meet Purpose and Need

- **Traffic is usually a primary goal**
- **Test the initial**
  - Study area
  - Corridor paths and access points
- **Iterative process**
  - Identify corridors or study area
  - Run travel demand model
  - Refine corridor paths or study area
  - Re-run travel demand model

BEST PRACTICE

Develop standalone traffic memorandum that documents the initial traffic analysis

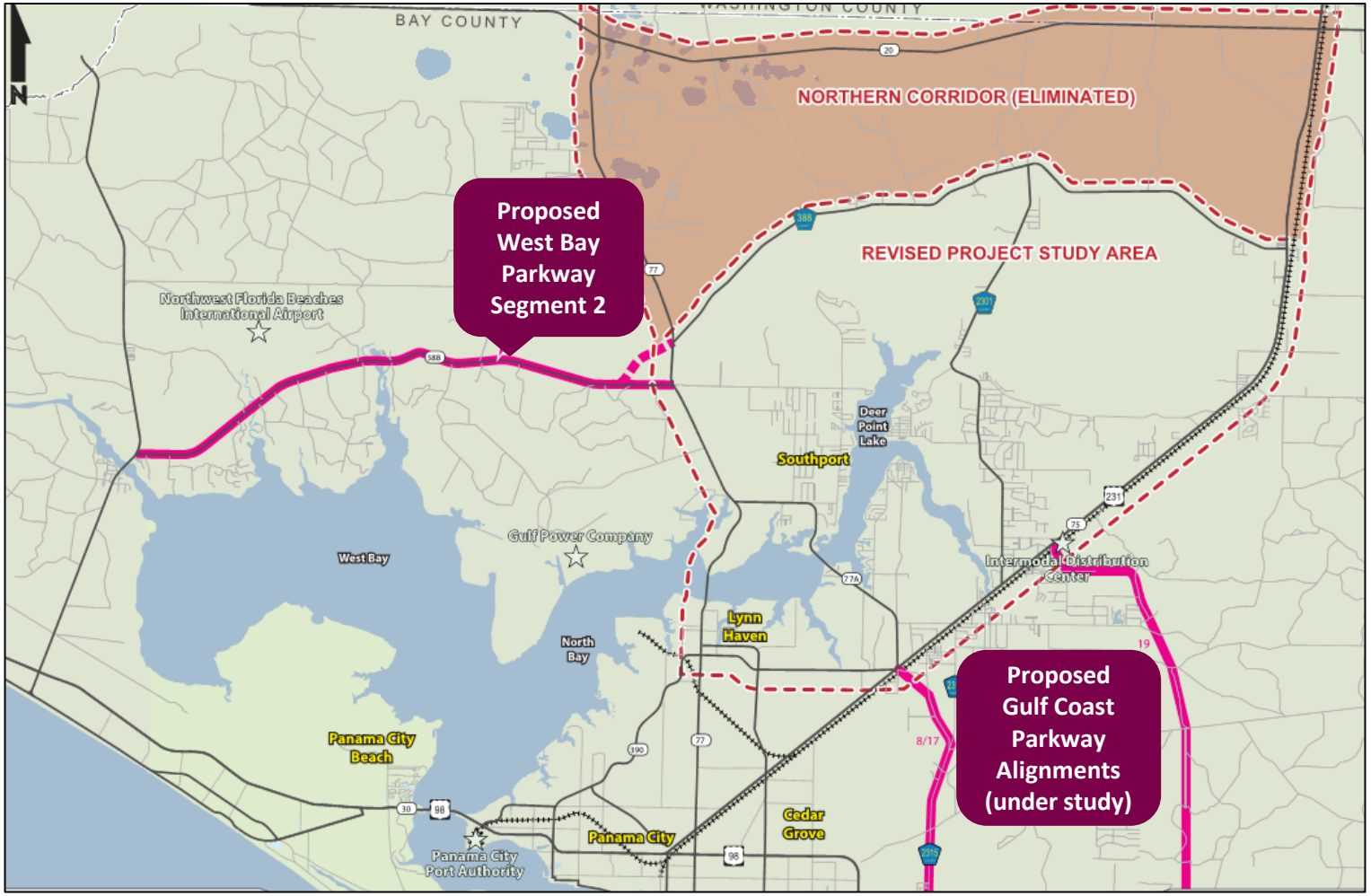


SR 31 Extension (ETDM No.: 14316)
District 1

Traffic Analysis for Study Area and Corridor

West Bay Parkway (ETDM No.: 14207) District 3

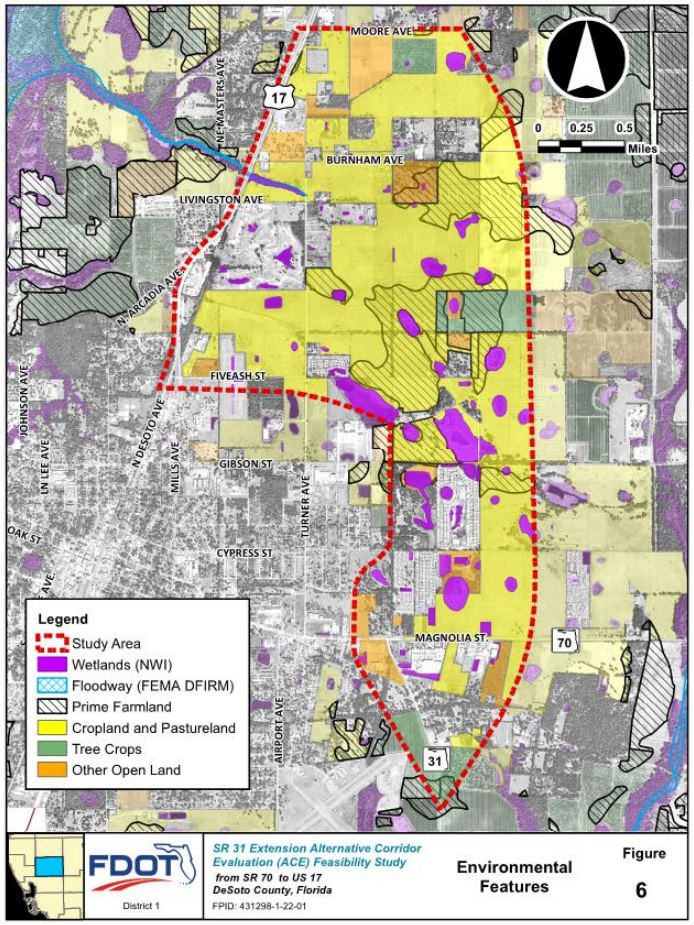
Results of the Analysis



West Bay Parkway (ETDM No.: 14207) District 3

Evaluate the Potential Environmental Impacts

- **Identify sensitive environmental resources**
- **Design corridor paths to avoid or minimize impacts**
- **Conduct GIS-based analysis**
  - EST Area of Interest (AOI) tool
  - Land Suitability Mapping (LSM)
- **Consider potential fatal flaws**



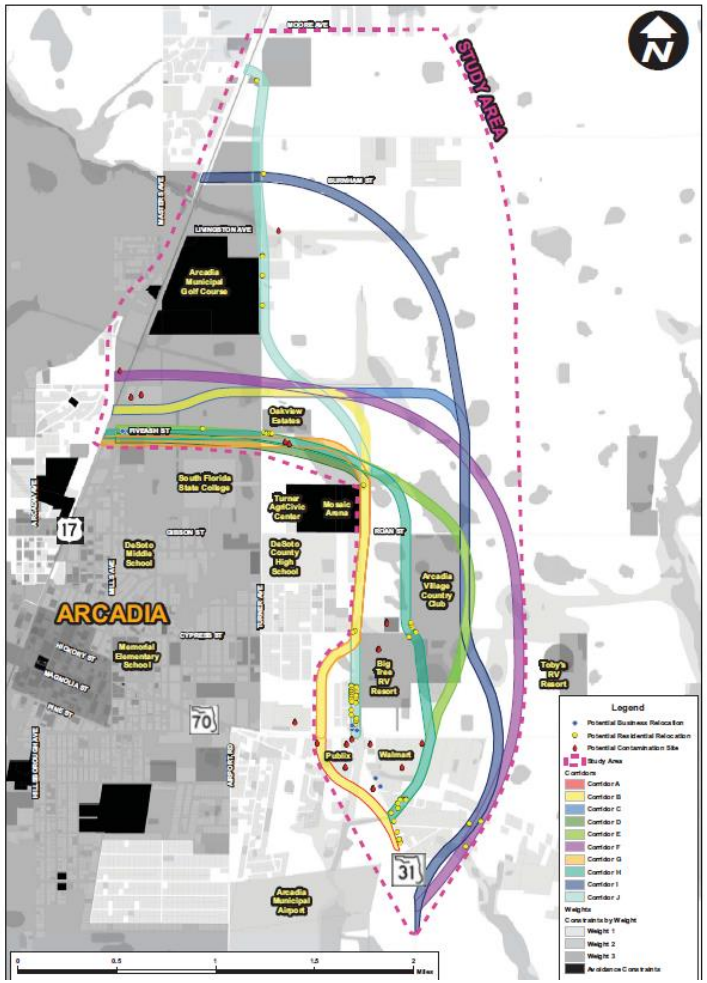
SR 31 Extension (ETDM No.: 14316)
District 1

BEST PRACTICE

Consider using LSM to identify initial corridors and refine study area

Land Suitability Mapping (LSM)

- **Used to identify sensitive environmental features**
- **Supports project development**
  - Refine study area to avoid sensitive areas
  - Design corridor alignments to avoid and minimize placement in these areas
- **GIS-based mapping of environmental features**
- **Environmental layers are overlayed on a map**
- **Progressively darker shades indicate a higher concentration of features**
  - Areas to avoid
  - Least desirable corridor paths



SR 31 Extension (ETDM No.: 14316)
District 1

Using Land Suitability Mapping (LSM)

LSM may not apply to all projects

- Small study areas
- Uniform features distributed throughout study area

During initial analysis

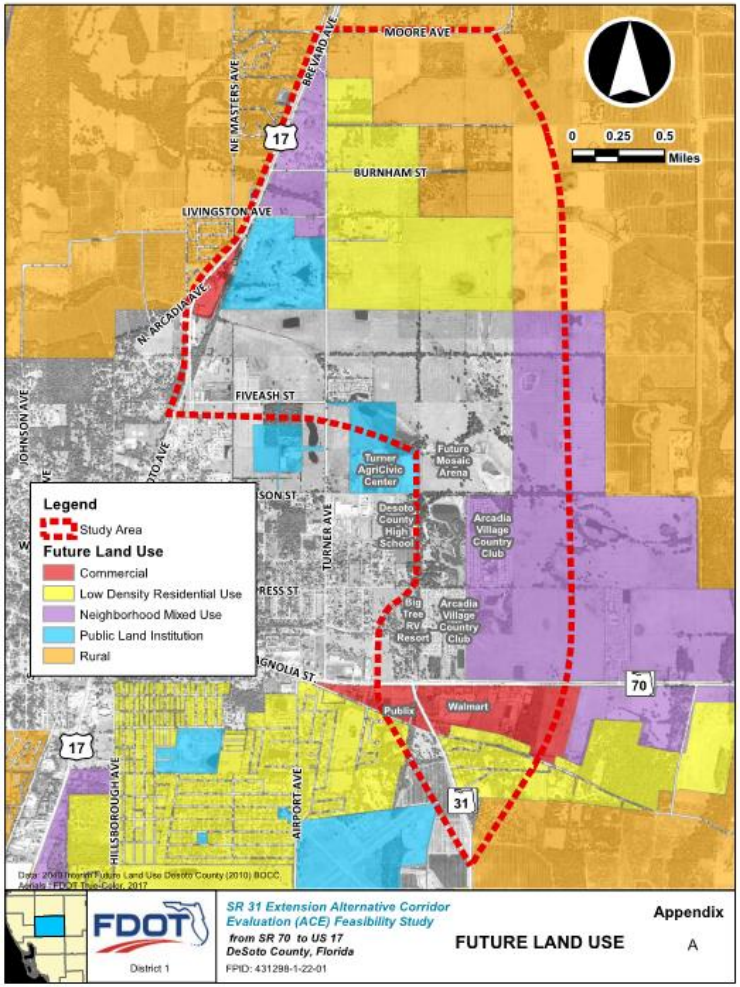
- Identify corridors or refine study area

During ACE Study

- Update previous LSM with ETAT commentary and refine corridors

OR

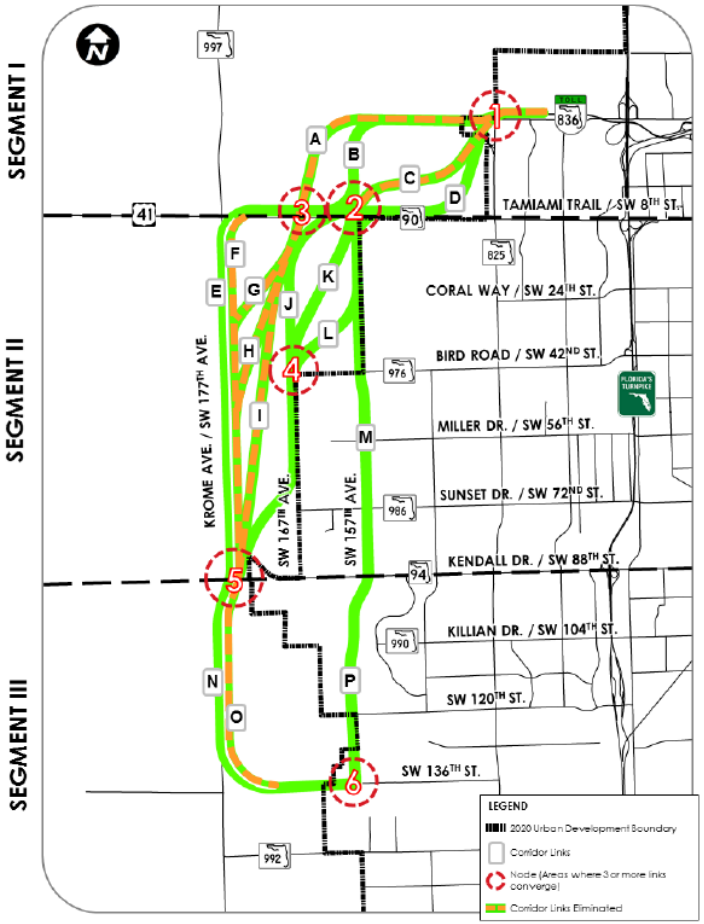
- Start LSM to identify corridors



SR 31 Extension (ETDM No.: 14316)
District 1

Large Study Areas may be Segmented

- **Large study areas with diverse features may begin with several links**
- **Consider the potential to narrow down prior to the ACE study**
  - Are there distinct regions in the study area? Yes!
  - Do some corridors share links and nodes? Yes!
- **Perform a high-level qualitative analysis**
  - Define nodes where multiple corridors converge
  - Segment the corridors into links
  - Evaluate individual links
  - Eliminate links with significant issues

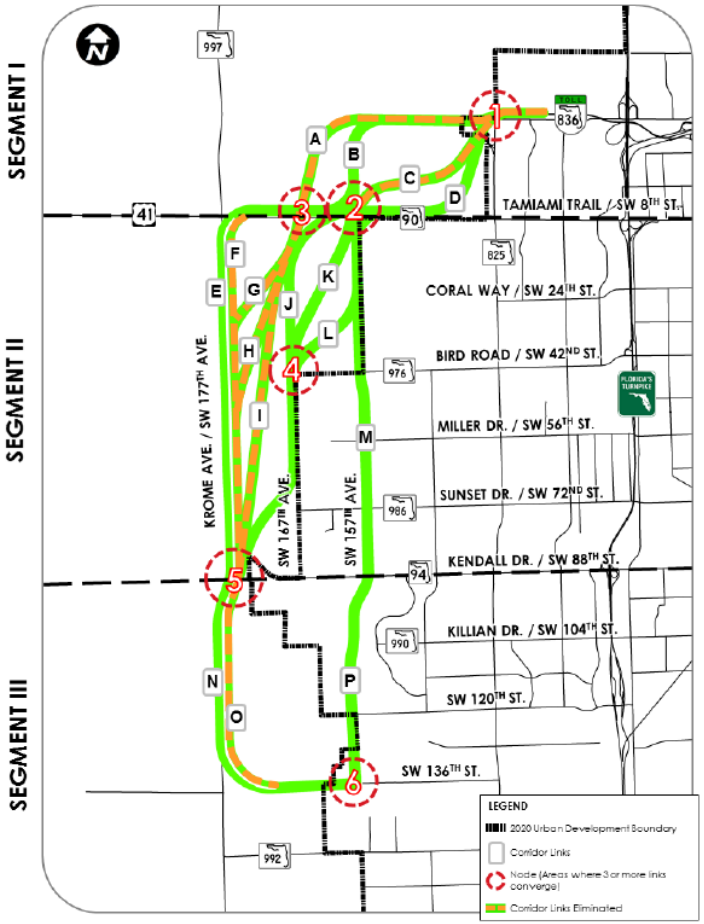


SR 836 Southwest Extension (ETDM No.: 11482)
Miami-Dade Expressway Authority (MDX)

Example Project

SR 836 Southwest Extension (ETDM No.: 11482) (Miami-Dade Expressway Authority)

- Study area segmented
- Links identified in each segment
- Links created 46 possible corridor combinations
- All corridors followed 3 general alignments
- Performed high-level qualitative analysis
- Narrowed to 10 corridors for the ACE study
- Retained original 3 corridor alignments: western, central and eastern alignment
- Documented in the ACER

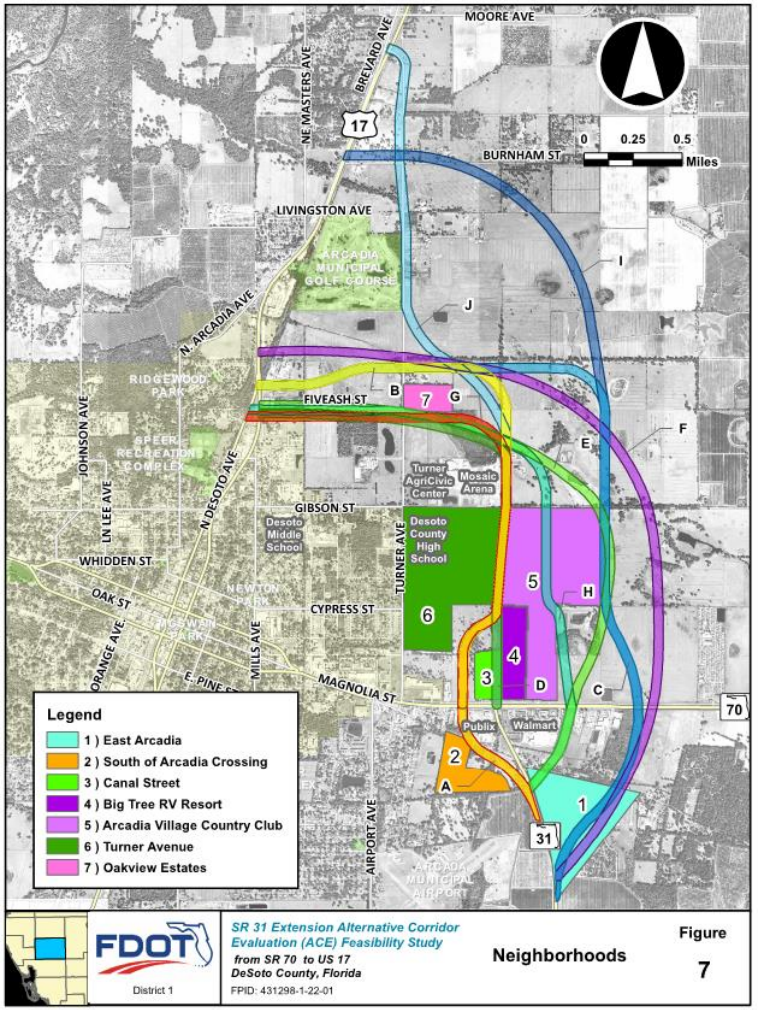


SR 836 Southwest Extension (ETDM No.: 11482)
Miami-Dade Expressway Authority (MDX)

Other Considerations

- **Maintain naming convention of each corridor throughout the life of the project (e.g., from initial activity to PD&E)**
- **Projects should consider**
  - Public transportation systems
  - Multimodal transportation needs (FDOT Major Urban Corridor Studies Policy, Topic No. 000-725-010)
  - Alternative modes (i.e., bicycle and pedestrian)

For some projects, the results of the initial analysis could be a decision point before advancing ACE study



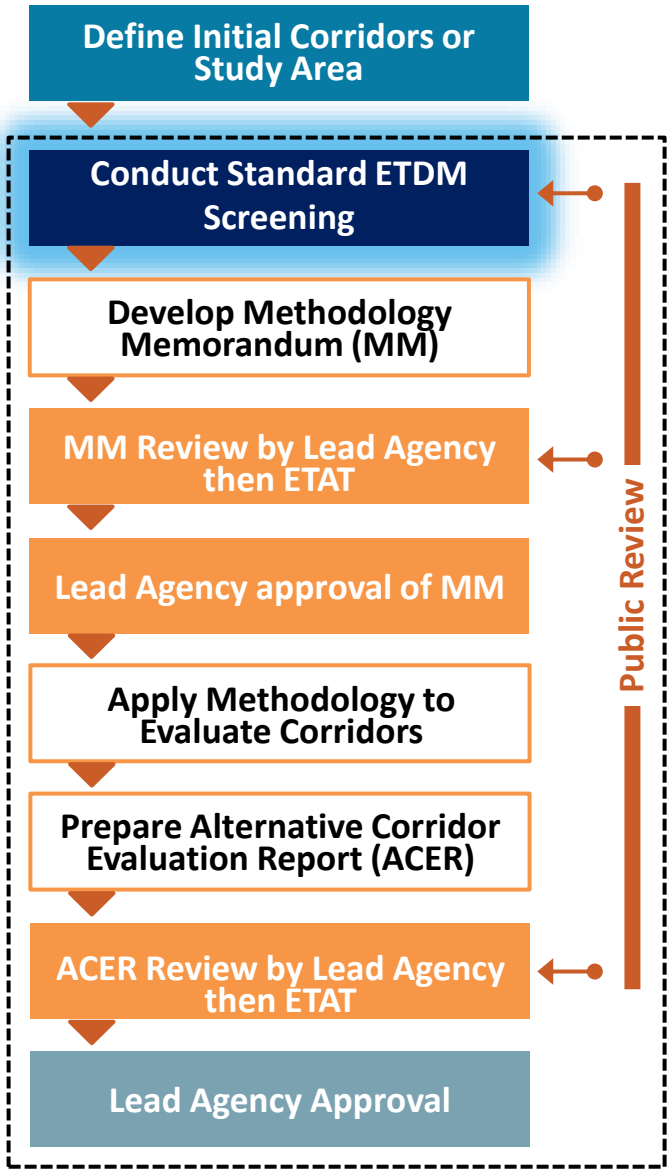
SR 31 Extension (ETDM No.: 14316)
District 1

Conduct Standard ETDM Screening

ETDM Planning Screening

OR

ETDM Programming Screening

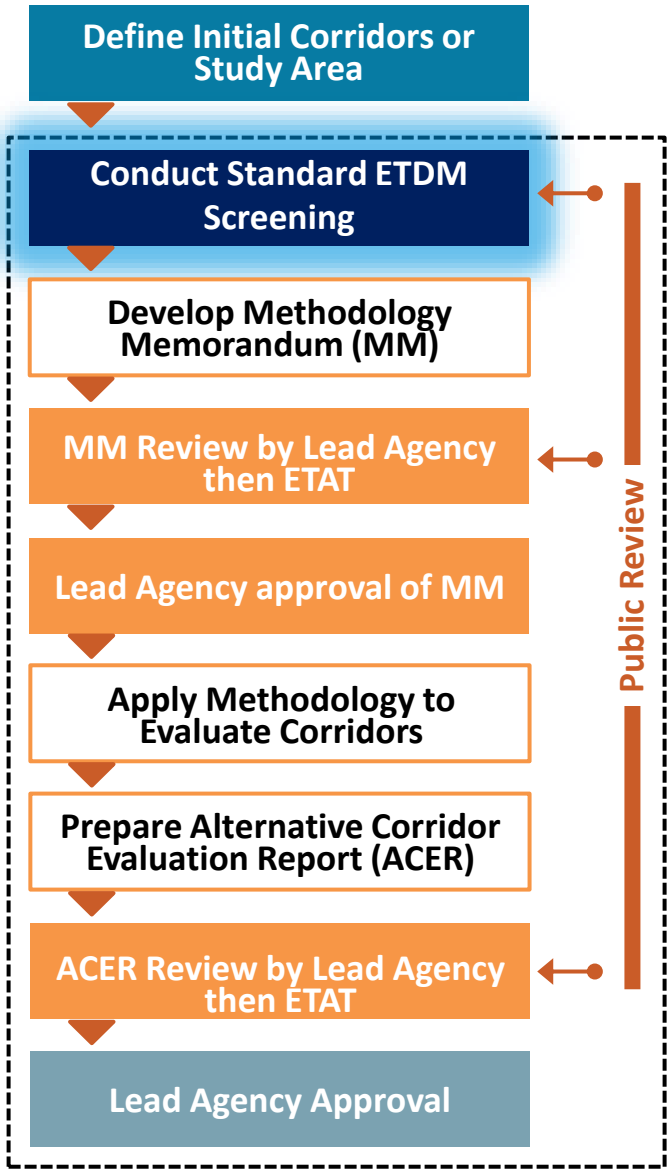


BEST PRACTICE

Host kick-off webinars with Environmental Technical Advisory Team (ETAT) prior to ETDM screening event

Conduct Standard ETDM Screening

- **Prior to screening, indicate that the project will be developed through the ACE process**
  - Mention in the project description
- **Advance Notification (AN) Package may be prepared with ETDM Programming screening**
- **Preliminary Screening Summary Report documents the ETDM review**
- **Results used to**
  - Develop MM
  - Consider ETAT commentary

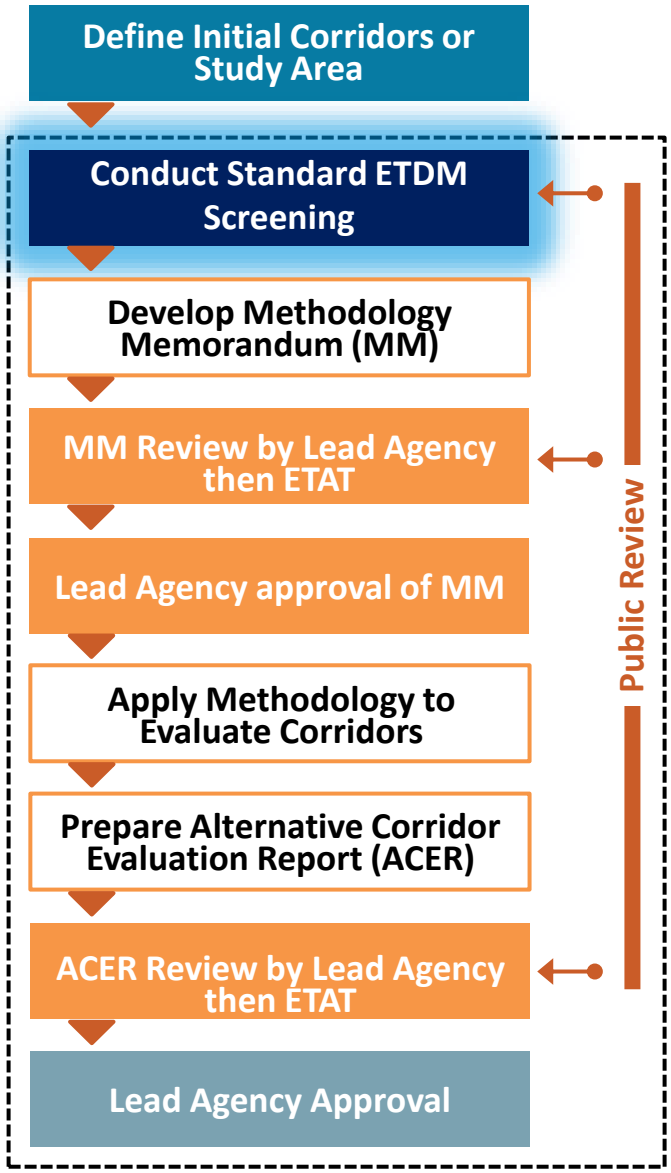


Preliminary Screening Summary Report

- **ACE process is embedded within ETDM process**
- **Republish the Preliminary Screening Summary Report after**
  - Approval of MM, and then
  - Approval of ACER
- **Final Summary Report is published after Class of Action determination**

BEST PRACTICE

- Consult OEM on potential issue resolutions
- Invite ETAT members to field reviews
- Consider virtual field reviews



Best Practices for the Initial Analysis

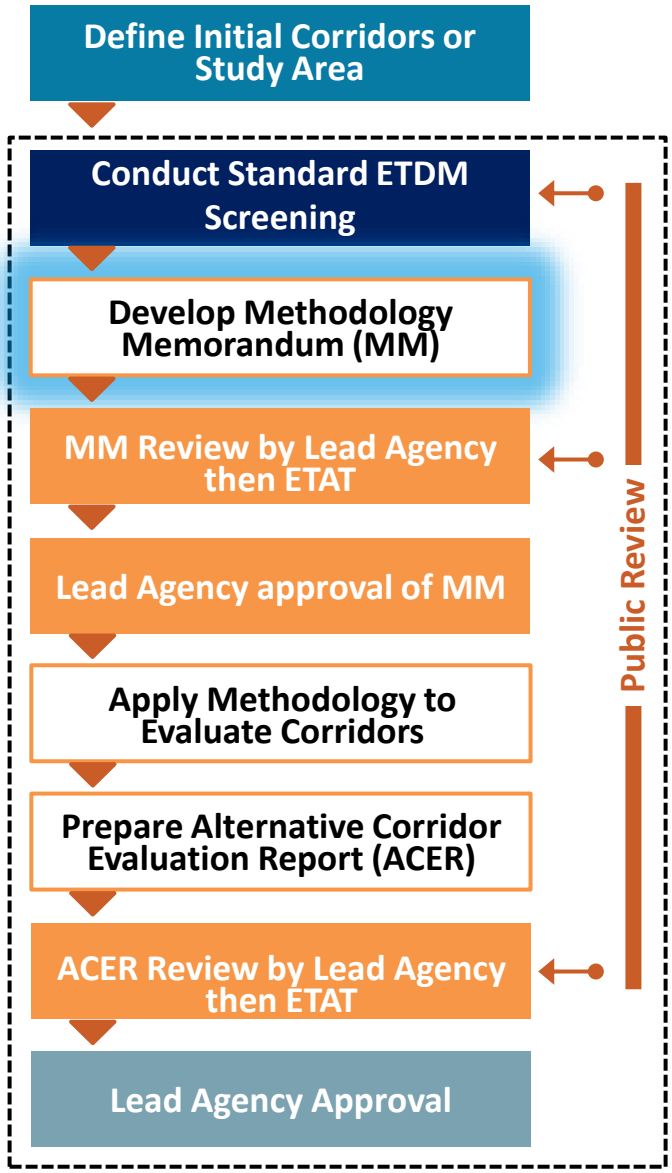
- **Use LSM to identify sensitive features, initial corridors and refine study area**
  - Good starting point but may not apply to all projects
- **Develop traffic projections for the initial analysis**
  - Reuse and update during the ACE study
  - Consider need for separate traffic methodology for ACE
- **Host kick-off webinars with ETAT members prior to ETDM screening event**
  - Builds awareness of the potential corridor complexity
  - Aids in the ETAT review process
- **Invite ETAT members to field reviews**
  - Assists with the environmental resource location accuracy and magnitude
  - May help to assess the quality of the resource
- **Consult OEM on potential issue resolutions**

Questions?

Lesson 2: Development of the Methodology Memorandum (MM)

Methodology Memorandum (MM)

- **Describes the analysis methodology used to**
  - Develop, refine, and eliminate corridors
  - Refine study area
- **Establishes the goals and objectives of the ACE study**
- **Forms the basis for decision making**
- **When a previous ACE study was conducted, consider refining the previous MM**

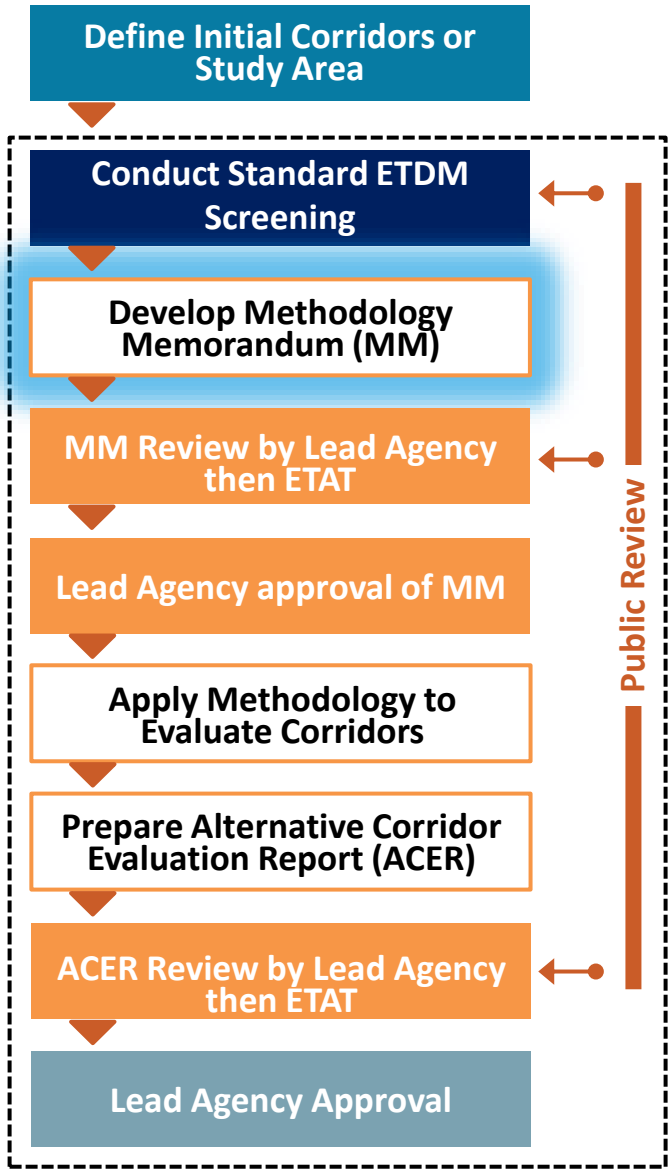


BEST PRACTICE

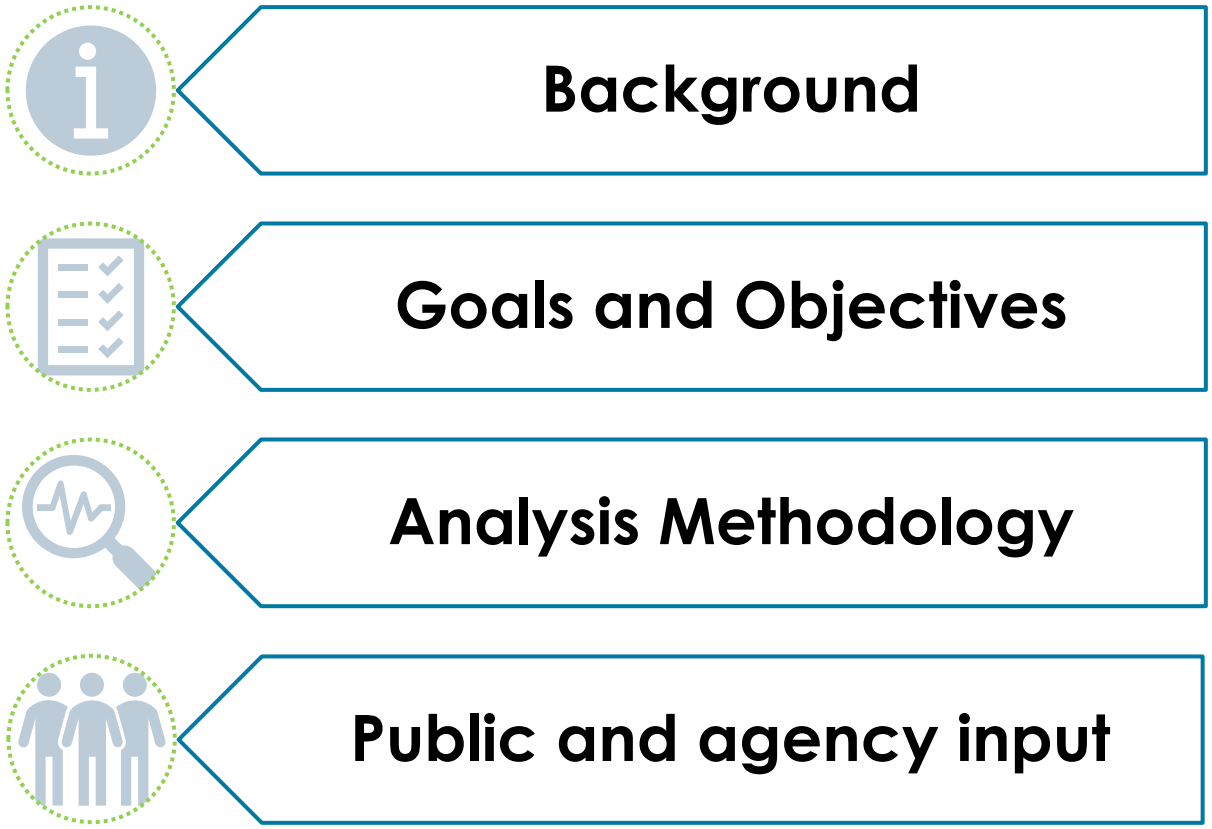
Coordinate with OEM on analysis methodology when FDOT is Lead Agency

Assemble Initial Information

- **Review initial analysis**
- **ETDM Preliminary Screening Summary Report**
  - Purpose and Need and project description
  - ETAT commentary
  - Public review
  - Summary Degree of Effect (SDOE)
- **Previous planning studies and early stakeholder comments**
- **GIS data**
- **Observations from the field**



Contents of the Methodology Memorandum (MM)

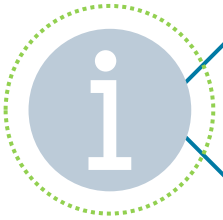


*Check with OEM for sample MMs

Background

- **Cover page**
  - Planning product adoption notice
  - NEPA Assignment standard statement
- **Purpose of the MM**
  - Include brief overview of ACE process
- **Contact information for FDOT Project Manager**
- **Project Description and Purpose and Need**
- **Basic project information**
  - Previous planning studies
  - Relevant nearby projects
  - Known issues

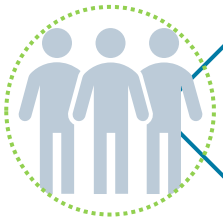
Goals and Objectives



Background

Goals and Objectives

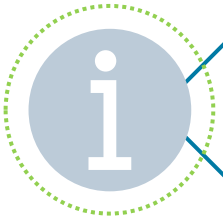
Analysis Methodology



Public and agency input

- **Status in project delivery**
  - Reference previous ETDM screening event
  - Provide brief description of corridors
  - Indicate if the ETAT conducted a previous MM review
- **Goals and objective**
  - Refine study area
  - Identify corridors
  - Eliminate corridors
- **Decision points/milestones**
  - Review and approval of MM (after first review)

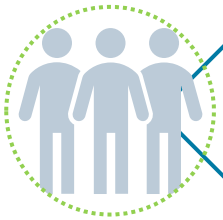
Analysis Methodology



Background

Goals and Objectives

Analysis Methodology

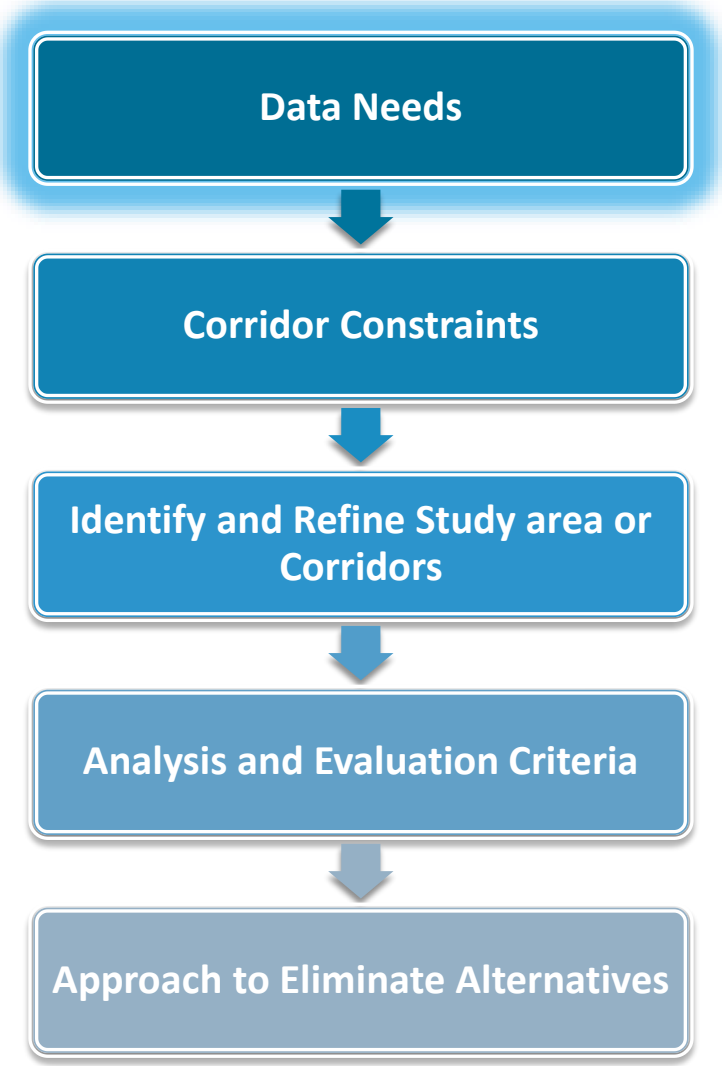


Public and agency input

- Data Needs
- Corridor Constraints
- Identify and Refine Study area or Corridors
- Analysis and Evaluation Criteria
- Approach to Eliminate Alternatives

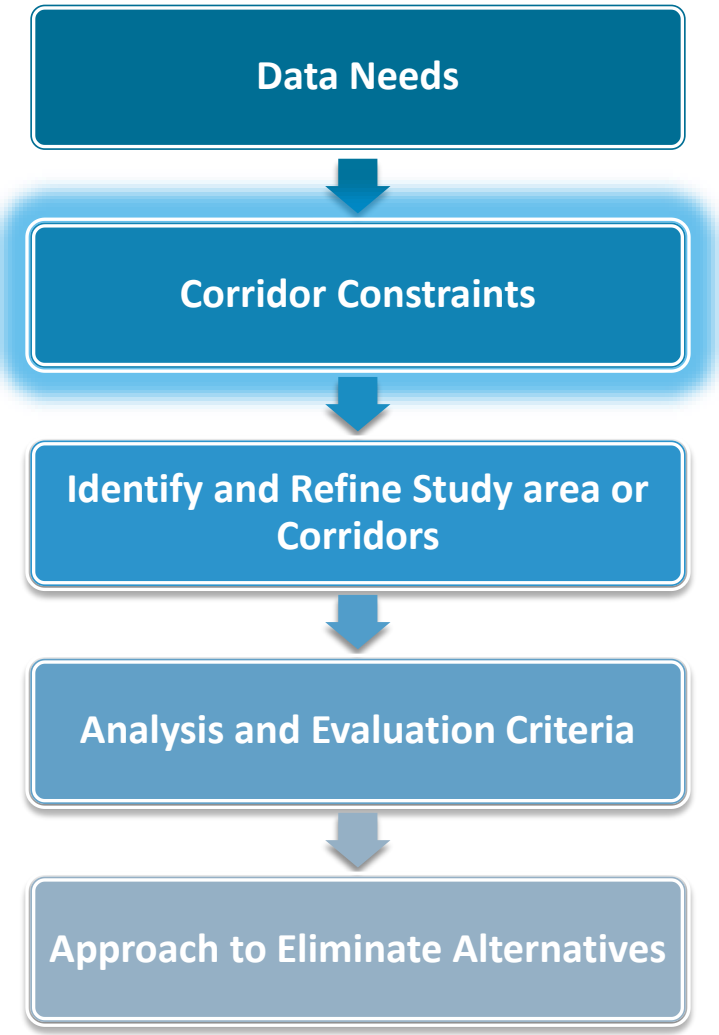
Data Needs

- **Describe data used to evaluate environmental impacts**
- **List GIS data layer, source, and year**
- **Utilize Florida Geographic Data Library (FGDL)**
- **Example of GIS layers**
  - Prime Farmland
  - Schools
  - Historical sites
  - Wetlands
  - Landfills
- **Conduct literature reviews and consider field observations**

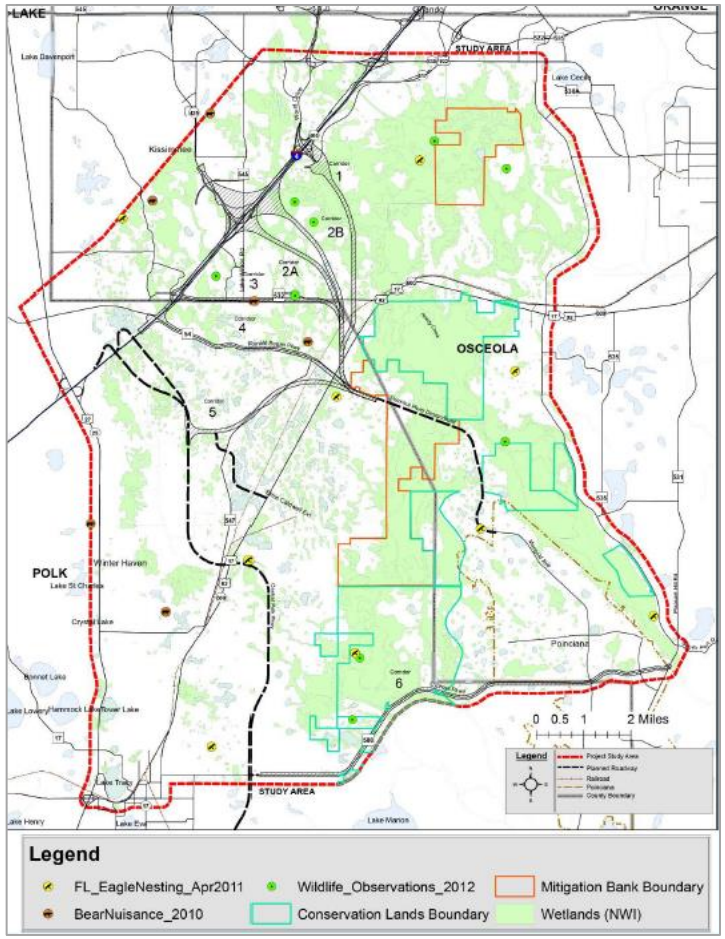


Corridor Constraints

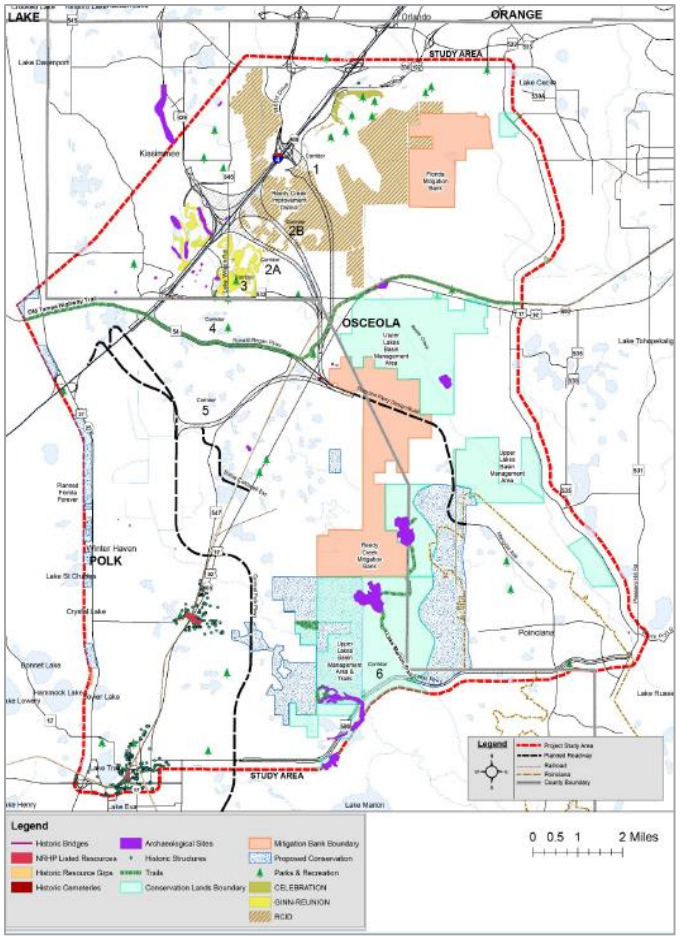
- **Corridor constraints can present substantial issues**
- **Identify and detail constraints in the study area**
- **Identify from several sources**
  - Preliminary Environmental Discussion (PED)
  - ETAT commentary (i.e., Preliminary Screening Summary Report)
  - Initial analysis (i.e., LSM)
  - Coordination with stakeholders
  - District knowledge of the area
  - Field Reviews/Ground Truthing
- **Consult with District Environmental Management Office**



Sample GIS Constraint Maps



Wetlands and Species Occurrences
I-4 Poinciana Parkway (ETDM No.: 13957)
District 5

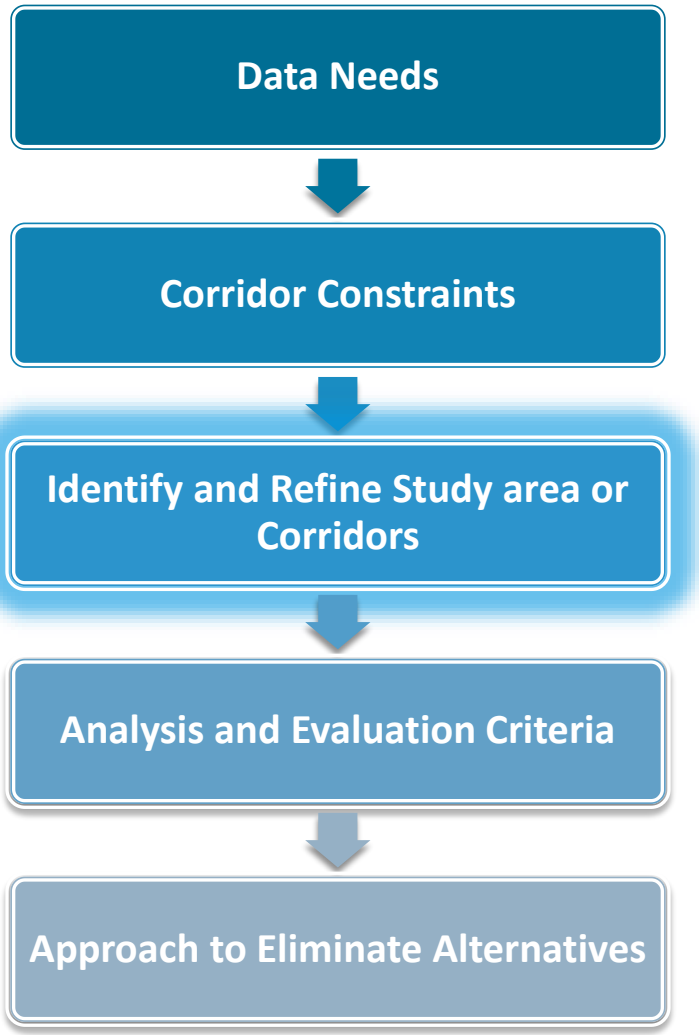


Public Lands & Cultural Resources
I-4 Poinciana Parkway (ETDM No.: 13957)
District 5

Identify and Refine Corridors

- **Describe the identified corridors using**
  - ETDM Preliminary Screening Summary Report
  - Initial analysis
- **How will initial corridors be refined?**
  - Define typical section elements
  - Refine alignment to avoid and minimize impacts
  - Public and agency input
- **How will new corridors be identified?**
  - LSM and constraints mapping

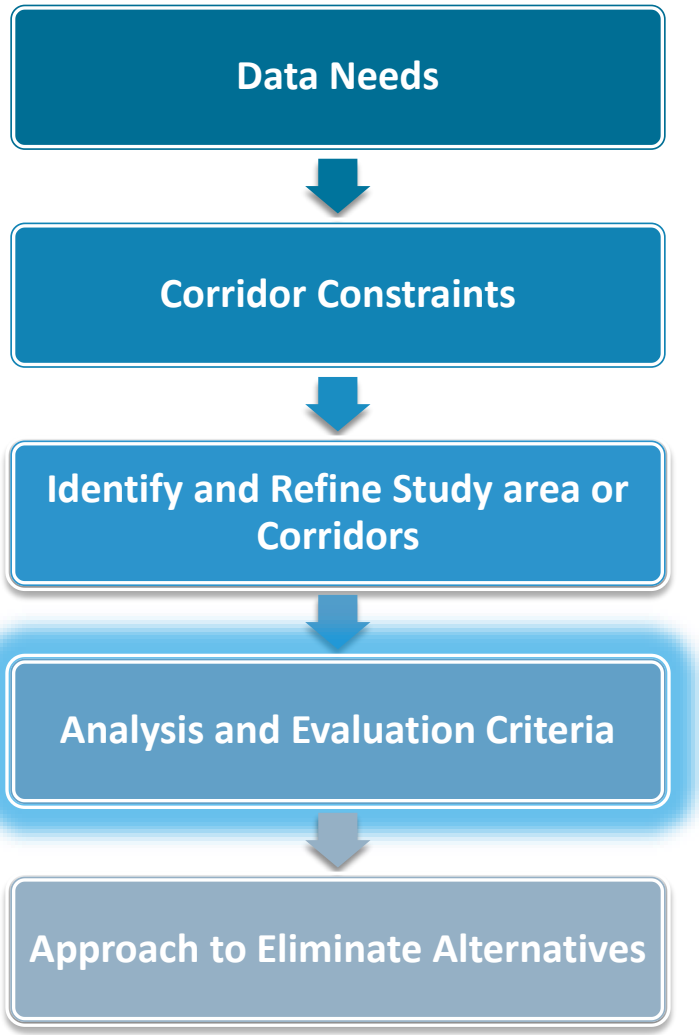
Details of corridor refinements included in Lesson 3



Analysis and Evaluation Criteria

- **Describe the corridor comparative evaluation**
- **Use quantitative and qualitative methods**
- **Establish approach for each category**
  - Ability to meet purpose and need
  - Potential impacts to environmental resources
  - Engineering feasibility
  - Public and agency input
  - Unique issues
- **Rank the corridors within each category**

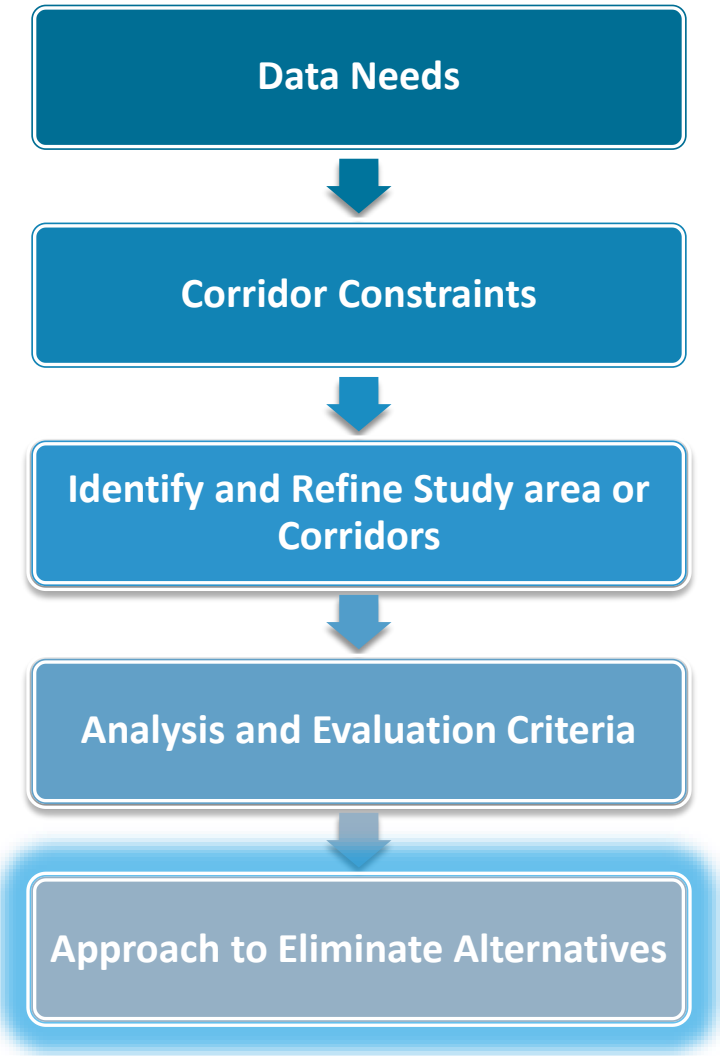
Details of analysis and evaluation approaches included in Lesson 3



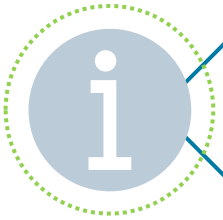
Approach to Eliminate Alternatives

- **Corridors that do not meet Purpose and Need can be eliminated immediately**
- **Establish evaluation thresholds for other analysis categories**
  - Corridors that exceed a threshold for environmental impacts will be eliminated
- **Basic approach should include**
  - Perform Purpose and Need evaluation
  - Continue analysis of remaining corridors
  - Develop qualitative, quantitative, and narrative assessments of each corridor
  - Summarize corridor analysis
  - Eliminate corridors exceeding threshold

Details of the analysis topics and rating methods are included in Lesson 3



Public and Agency Input



Background

Goals and Objectives

Analysis Methodology

Public and agency input

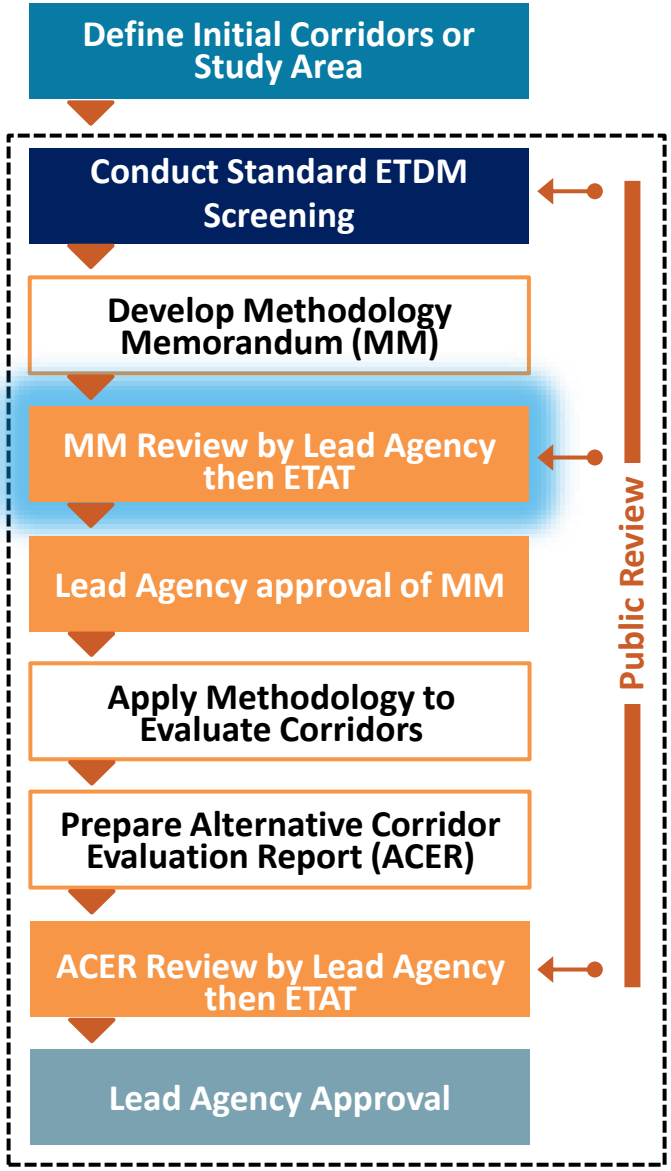
- **Develop engagement strategy to solicit input from the public and agencies**
  - Include a list of anticipated meetings
- **Consider the outreach conducted to date**
- **Summarize ETAT comments**

BEST PRACTICE

Develop a Public Involvement Plan (PIP) which helps to define the approach to engaging the public and agencies

Conduct Review of the Methodology Memorandum (MM)

- **Submit draft to Lead Agency for review**
  - 14-days
- **Upload in EST for ETAT review**
  - 30-days
  - Public review on ETDM Public Access Site



BEST PRACTICE

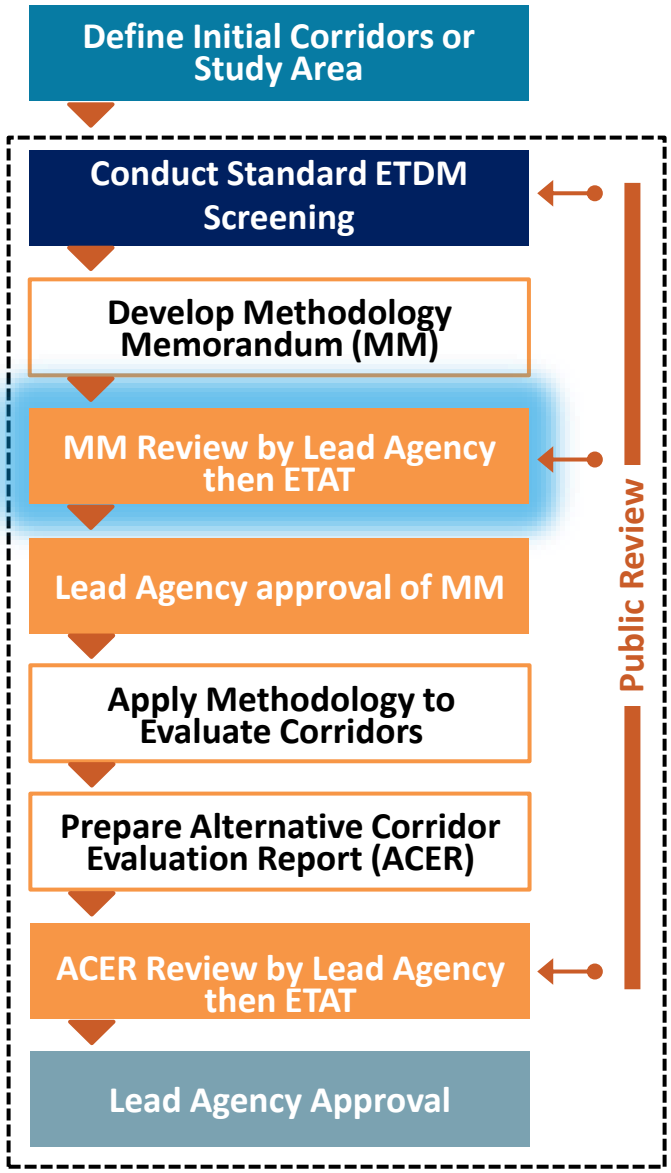
Prior to the lead agency review, host a meeting with the Lead Agency (i.e., OEM) to walkthrough the MM approach and input from ETAT on the ETDM screening event

Addressing Comments

- **Lead Agency reviews first**
  - Update MM
  - Check with Lead Agency if another review is needed or can proceed to ETAT review
- **Upload for ETAT review**
- **Identify significant ETAT comments and consult with Lead Agency to determine approach**
  - Updated MM is ready for approval
  - Resubmit updated MM for ETAT review
  - Conduct ETAT resolution meeting

BEST PRACTICE

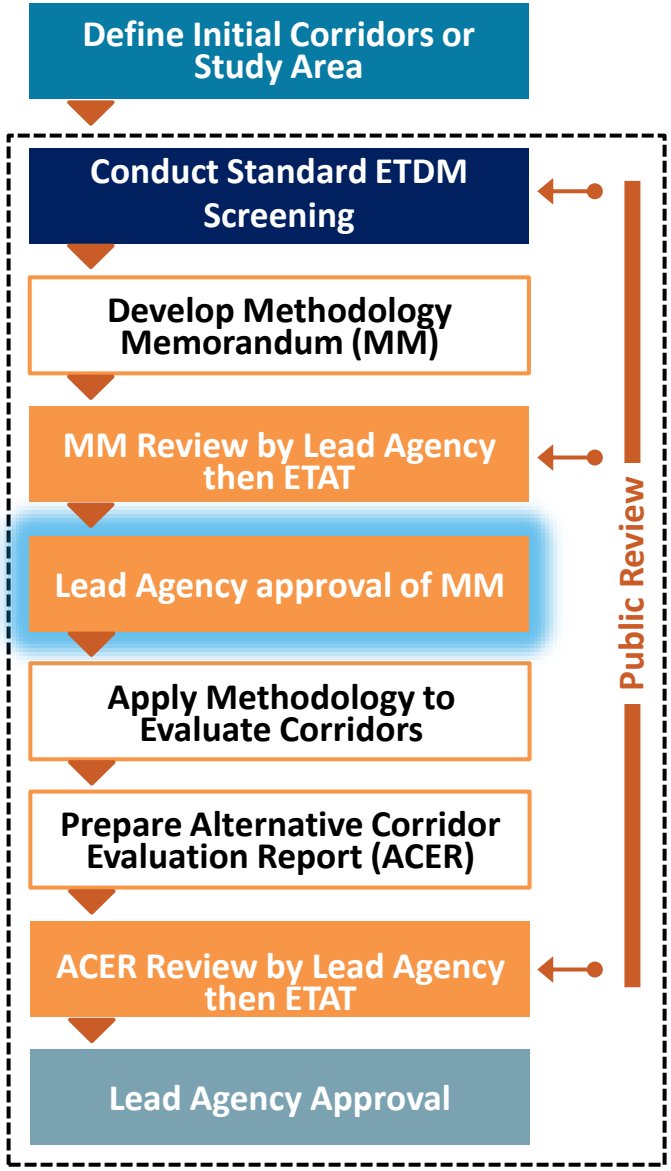
Pre-schedule a comment resolution meeting with Lead Agency



Approval of the Methodology Memorandum (MM)

- **Lead Agency approves**
- **Republish Preliminary Screening Summary Report**
  - Attach MM to the report

Now it's time to conduct the ACE study

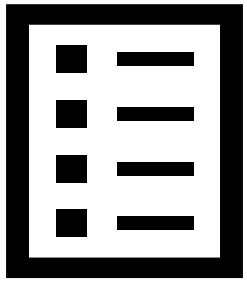


When to Update and Review Methodology Memorandum (MM)

- **Decision to change analysis approach**
- **Stakeholder input that results in changes to methodology**
- **Changes in**
  - Project termini (expanded)
  - Purpose and Need
  - Project concepts (i.e., number of lanes, new interchanges)
  - Supporting data that may affect methodology and resulting decisions (e.g., population and land use changes)

Consult with OEM when this occurs to determine best approach

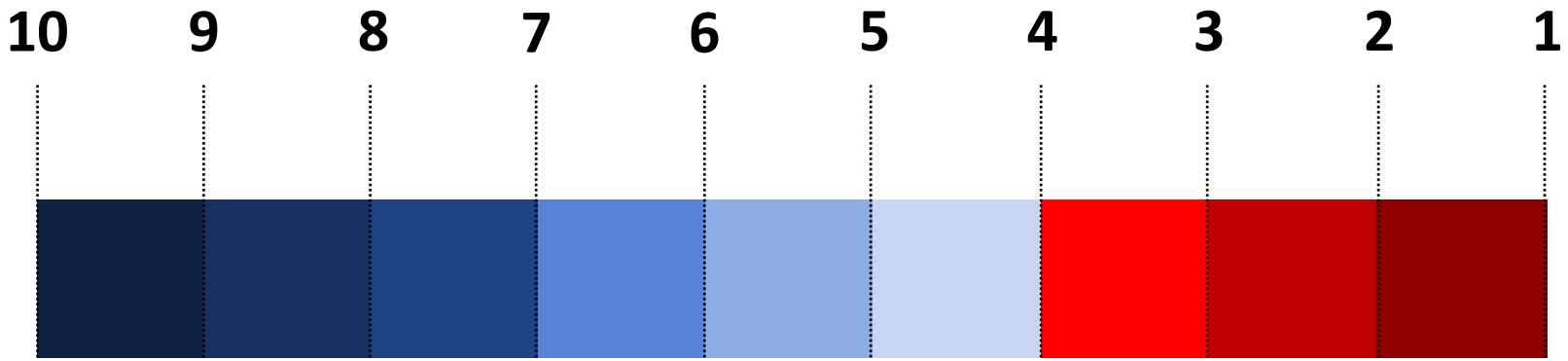
Best Practices for the Methodology Memorandum (MM)



- **Coordinate with OEM on analysis methodology when FDOT is Lead Agency**
- **Develop a traffic methodology and memorandum for the ACE study effort which should build upon the initial analysis**
- **Develop a Public Involvement Plan**
  - Helps to define the public and agency involvement approach and documentation
  - Include the anticipated meetings in the MM
- **Prior to the lead agency review of MM, host a meeting with the Lead Agency (i.e., OEM) to walk through the MM approach and ETAT input from the ETDM screening event**
- **Pre-schedule a MM comment resolution meeting with Lead Agency**

Questions?

Break time


10
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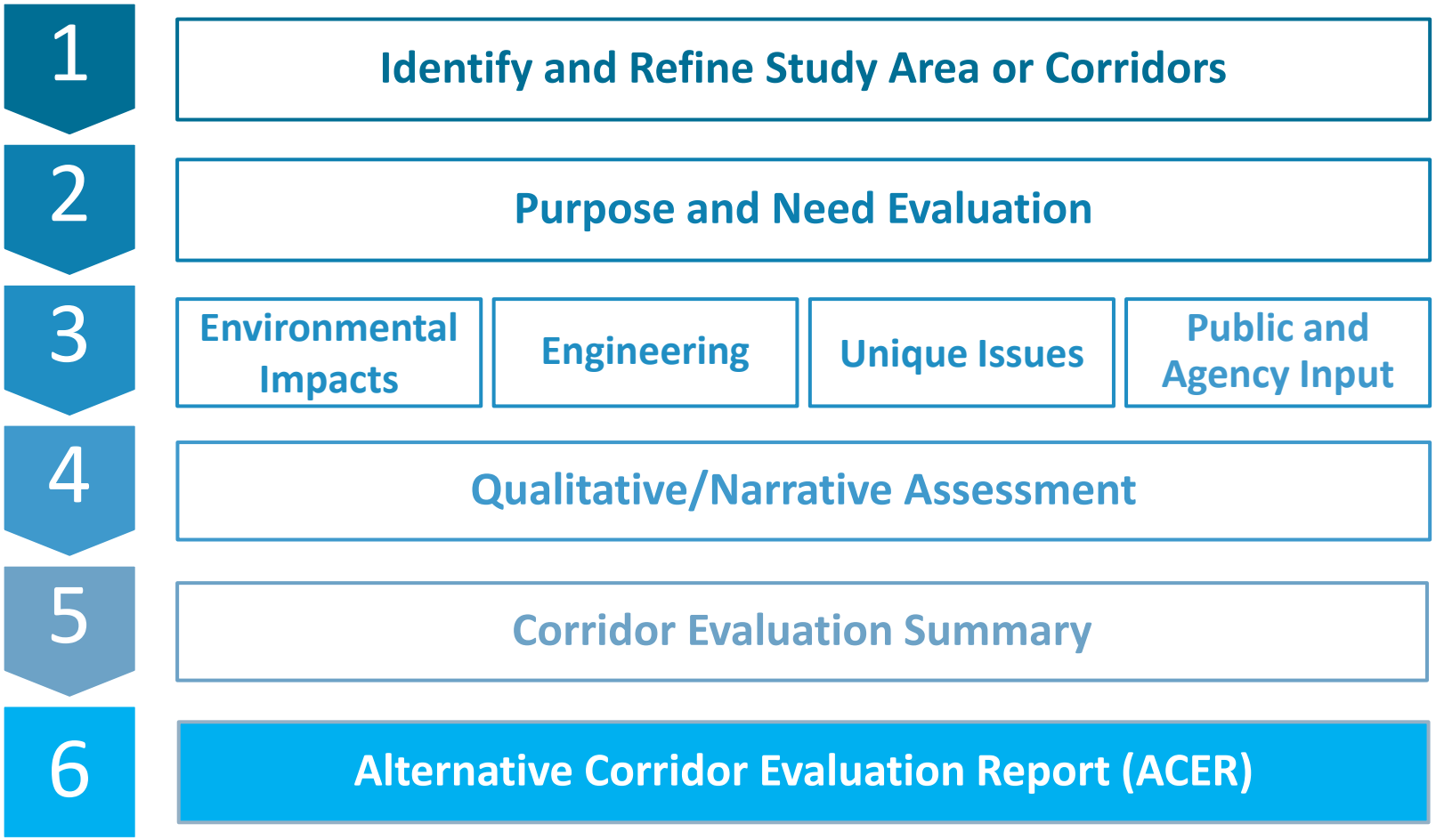
Lesson 3:
Tips on Corridor Refinements and Analysis Methods

Apply Methodology to Conduct ACE Study



Study Area and Corridor Development

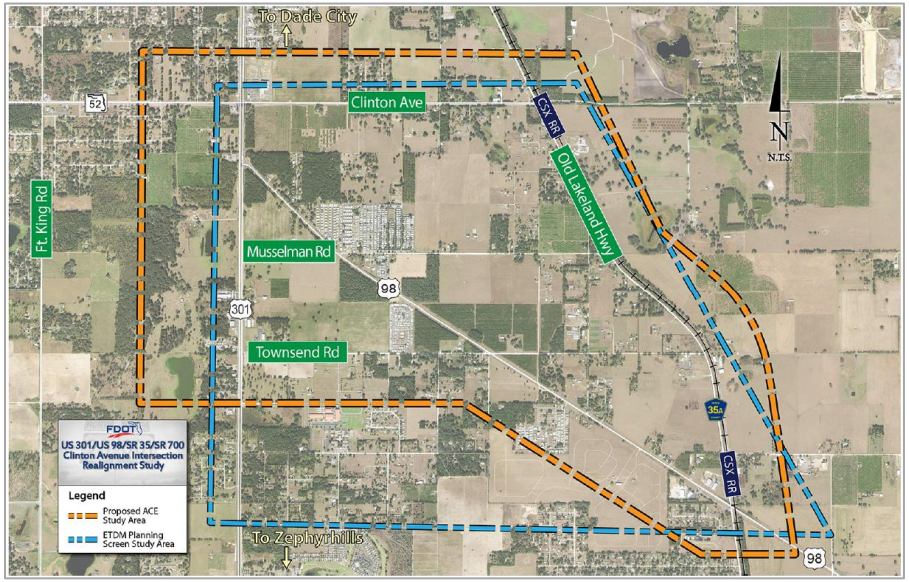
Overall ACE Process	Scenario 1	Scenario 2	Scenario 3
Initial Analysis	Initial Study Area	Swath or Broad Corridor	Swath or Broad Corridor (from previous ACE process)
↓	↓	↓	↓
ACER Study	Refined Study Area, Swath or Broad Corridor	Broad Corridor or Narrower Alignment	Narrower Alignment

Swaths = very wide

Broad Corridors = wider than potential typical section

Narrower Alignment = potential typical section

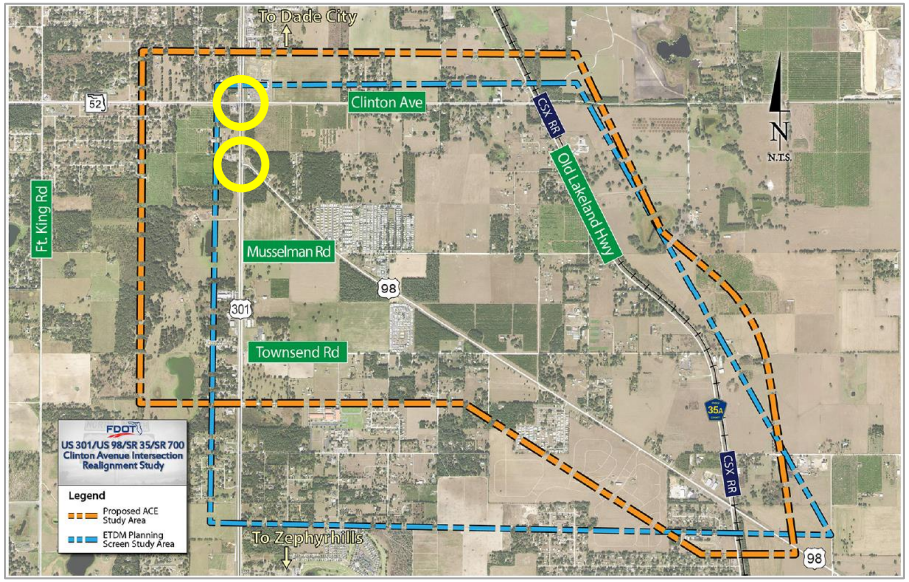
Starting with a Study Area

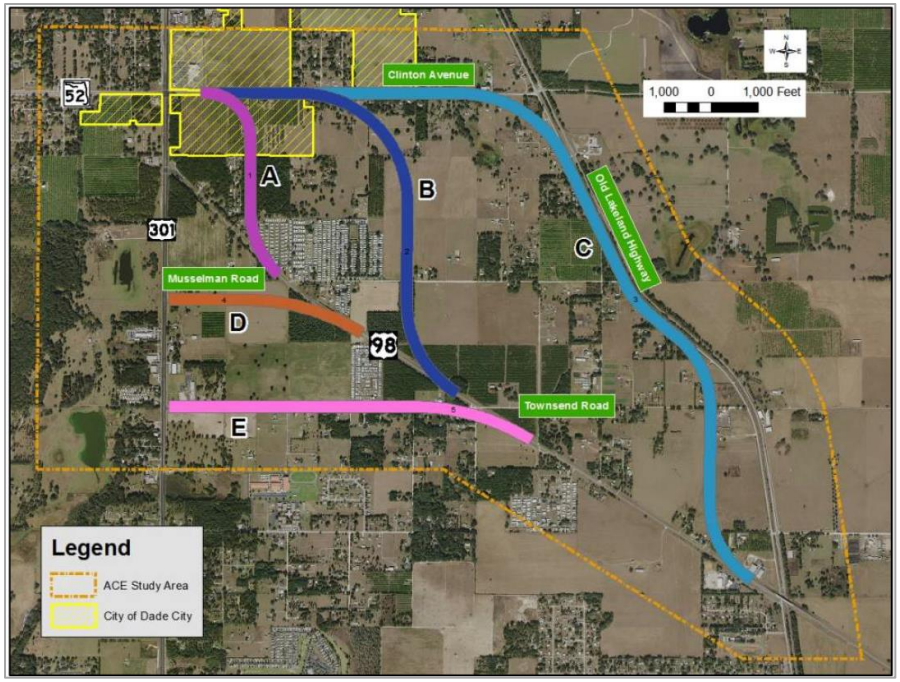


US 301/US 98/SR 35/SR 700 Clinton Avenue Intersection Realignment Study (ETDM No.: 14374) District 7

- **When the goal is to refine study area**
  - Segment into geographically distinct areas
- **When the goal is to identify corridors**
  - Determine constraints (use ETAT commentary and initial analysis)
  - Use corridor width and/or design elements described in MM
  - Layout corridor path to avoid and minimize impacts (i.e., LSM)
  - Determine a reasonable number of corridors
- **Apply methodology to refine study area and corridors**

Identifying Corridors during ACE Study

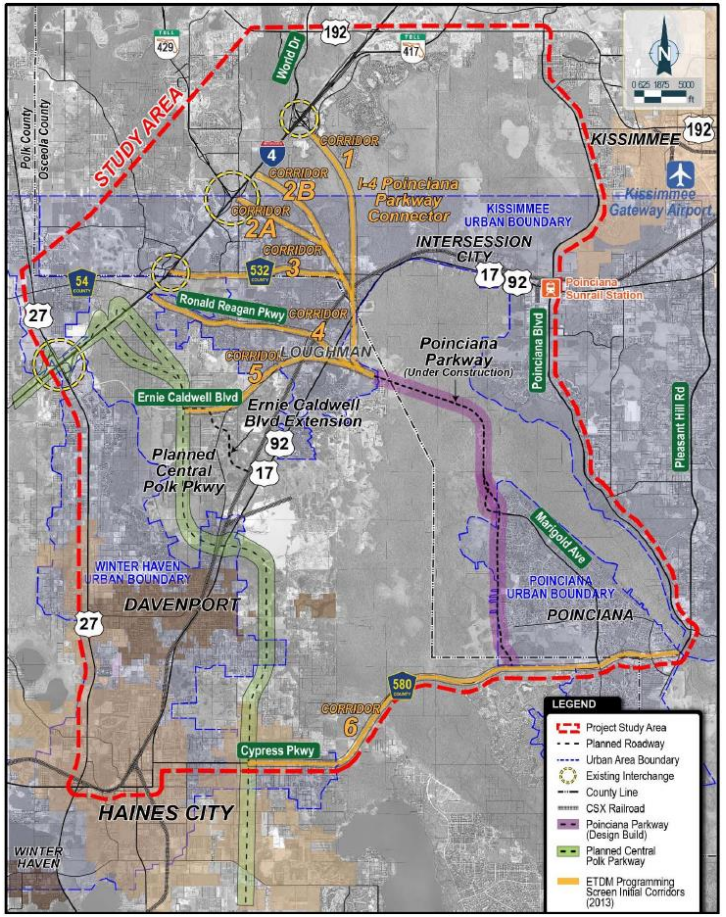




Sample project:
US 301/US 98/SR 35/SR 700 Clinton Avenue Intersection Realignment Study (ETDM No.: 14374) District 7

Starting with Corridors

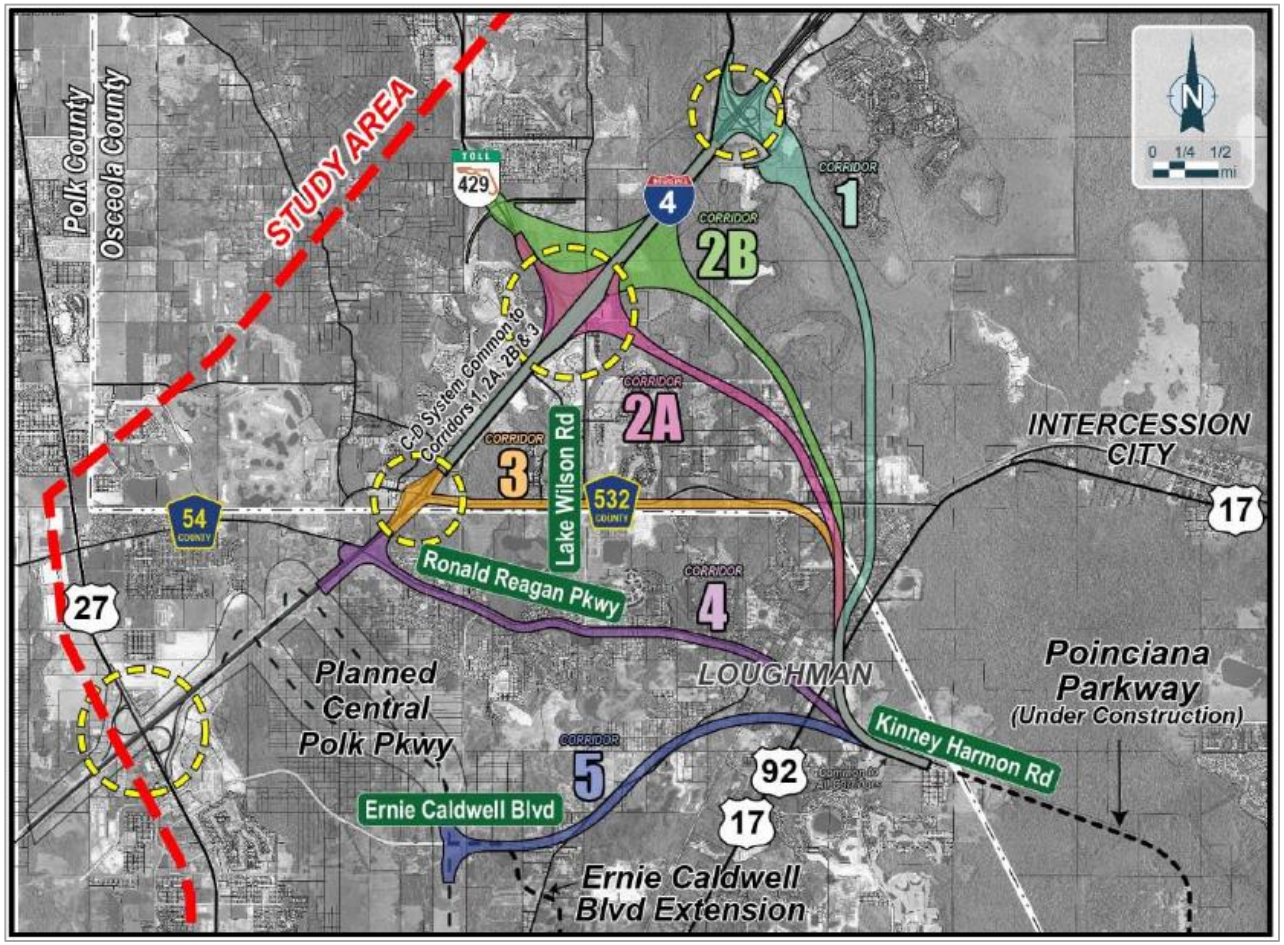
- **Refine corridors**
  - Based on initial corridors identified in the MM
  - Narrow the corridor width using design elements
  - Adjust corridor paths to avoid and minimize impacts
- **Design elements used to refine the corridors should be stated in the MM such as**
  - Type of facility and context classification
  - Design speed
  - Horizontal curvature (to layout corridor paths)
  - Determine number of lanes using future traffic demand
- **New corridors can be identified from the ACE process**
- **Apply methodology to refine and eliminate corridors**



I-4 Poinciana Parkway (ETDM No.: 13957) District 5

Initial Analysis - Starting with a Swath

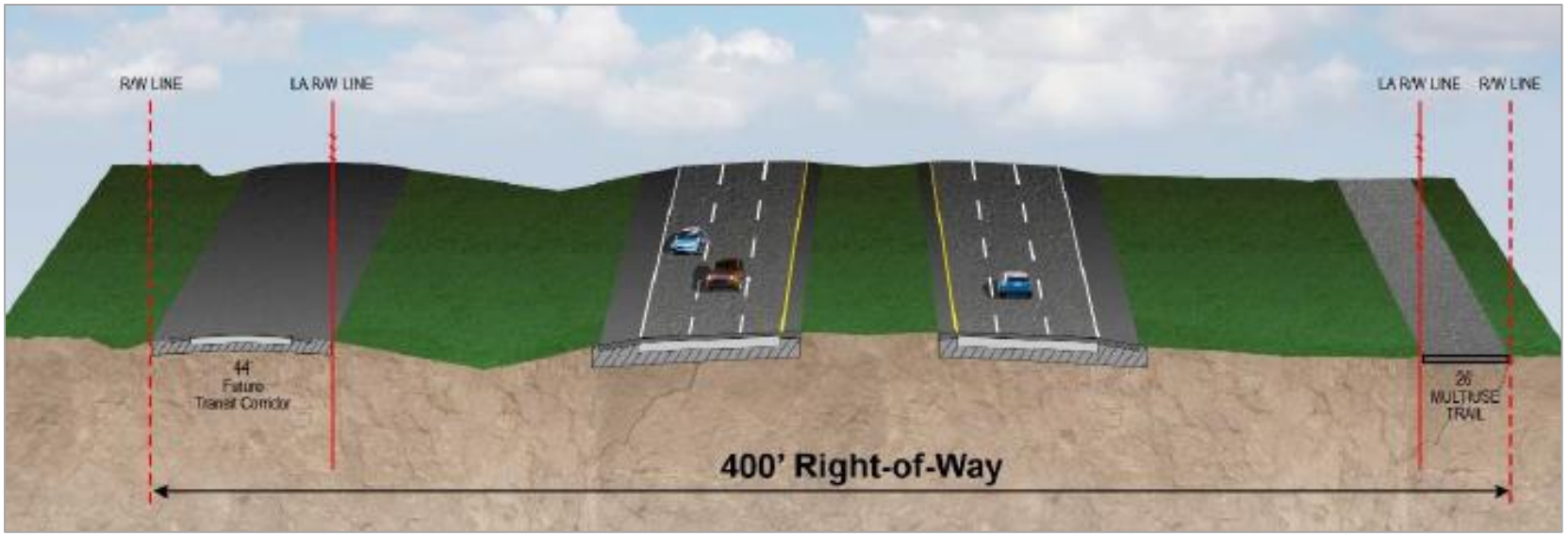
- **Total width = 1,400-ft**
  - Corridor width = 400-ft
  - Buffer width = 500-ft on each side
- **Provides opportunities to refine during ACE study**



I-4 Poinciana Parkway (ETDM No.: 13957) District 5

Refining to a Broad Corridor

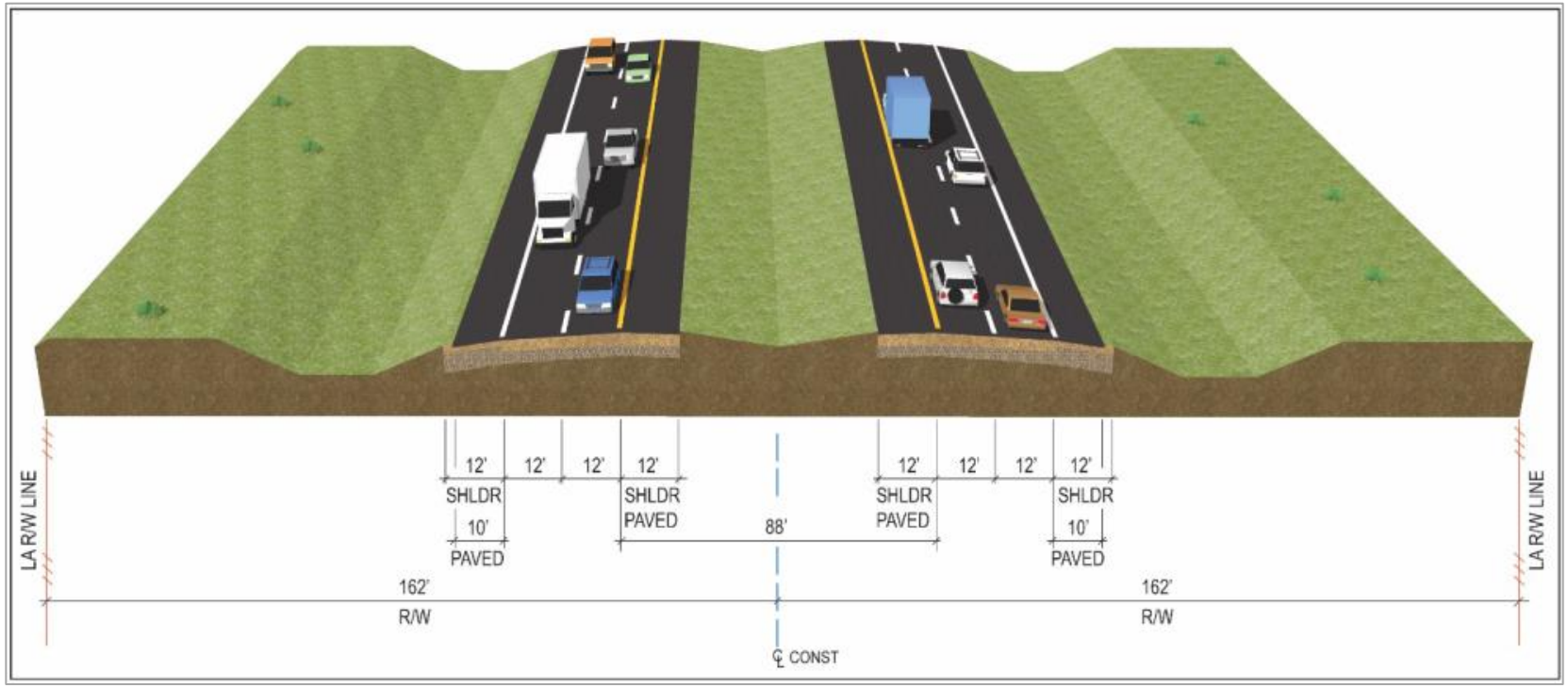
Sample project shows undefined typical section elements and provides an envelope for a future transit corridor and multi-use trail



I-4 Poinciana Parkway (ETDM No.: 13957) District 5

Refining to a Narrower Alignment

Sample project shows defined typical section and right of way requirements



SR 836 Southwest Extension (ETDM No.: 11482) Miami-Dade Expressway Authority (MDX)

Purpose and Need Evaluation

- **Select criteria that addresses Purpose and Need**
- **Criteria should be specific, measurable, and relevant**

Example of Purpose and Need criteria

System Linkage	Travel time savings and connectivity to transportation network, other State Roads, and Interstate
Traffic Demand	Traffic demand, VMT, and VHT changes in the existing roadway network
Economic Development	Connectivity between residential and employment centers land uses
Safety	Reduction in traffic on high crash segments

Purpose and Need Evaluation

Purpose and Need Evaluation Results							
Alternative Corridors	Promote Regional System Linkage (1)	Support Economic Development (2)	Improve Mobility For People And Goods (3)	Enhance Hurricane Evacuation (4)	Enhance Multimodal Connectivity (5)	Cum. Score	Ordinal Rank
1	High	High	Moderate	High	High	19	4
2	High	High	High	High	High	20	9
3	High	High	Moderate	High	High	19	4
4	High	Moderate	Moderate	High	Moderate	17	2
5A	High	Moderate	Moderate	High	Moderate	17	2
5B	Moderate	Minimal	Minimal	Moderate	Moderate	13	1
6	High	High	Moderate	High	High	19	4
7	High	High	High	High	High	20	9
8	High	High	Moderate	High	High	19	4
9	High	High	Moderate	High	High	19	4

Note: High (highest benefit) = 4; Moderate (medium benefit) = 3; Minimal (low benefit) = 2; Low (no benefit)= 1

(1) Based on number of interchanges

(2) Based on difference in travel speeds and vehicle-hours traveled from traffic model

(3) Based on corridor estimates of year 2050 Annual Average Daily Traffic (AADT) from traffic model

(4) Based on total capacity of evacuation routes

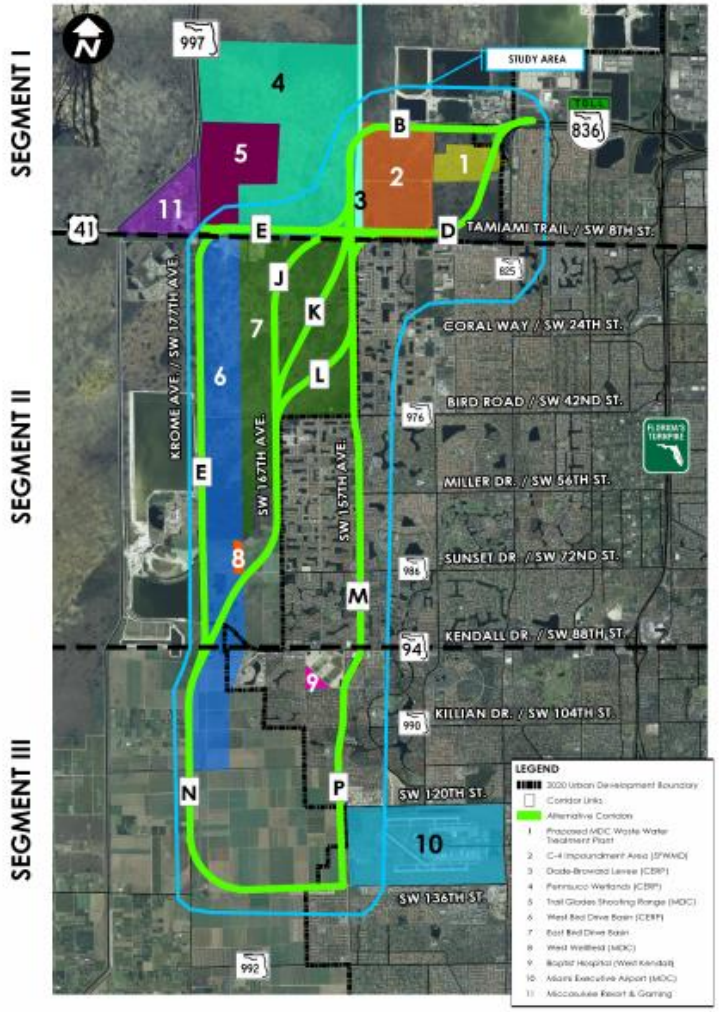
(5) Based on opportunity for better access to existing and proposed transit; potential park and ride lots

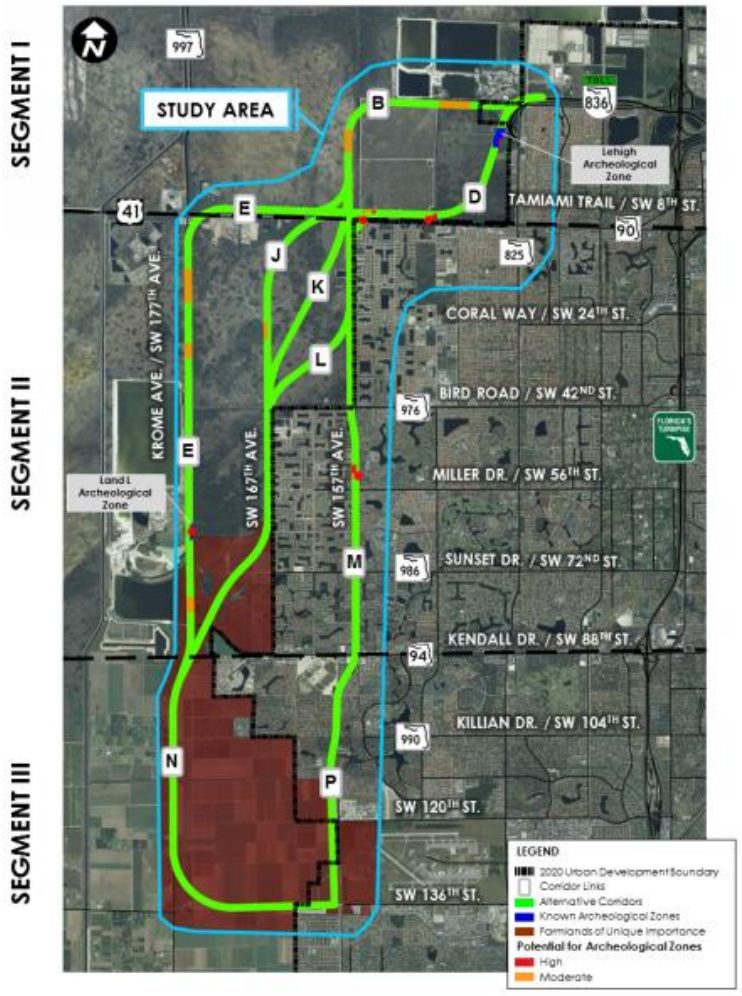
SR 836 Southwest Extension (ETDM No.: 11482) Miami-Dade Expressway Authority (MDX)

Tips for Purpose and Need Evaluation

- **This evaluation is the first checkpoint**
  - Eliminate corridors that do not meet the Purpose and Need (no further analysis)
  - This activity could have been completed in the initial analysis
- **Traffic improvements are usually a primary objective, so consider these measures**
  - Traffic demand such as Annual Average Daily Traffic (AADT)
  - Travel speed between alternative corridors and No-Action
  - Vehicle-Miles Traveled (VMT) and Vehicle-Hours Traveled (VHT)
- **Use a simplified scoring system such as**
  - High benefit, medium benefit, low, benefit, no benefit
  - Yes, measure is satisfied; no, measure is not satisfied

Potential Impacts to Environmental Resources





SR 836 Southwest Extension (ETDM No.: 11482) Miami-Dade Expressway Authority (MDX)

Environmental Impacts Evaluation

- **Determine a scoring system the fits the project objective and available information**
- **Create an evaluation matrix to compare corridors for each evaluation criteria**
  - Use the GIS databases identified in MM
- **Common quantitative scoring approaches**
  - Standard Deviation of the Mean (use when data is normally distributed)
  - Standard Deviation of the Median
- **Use a tiered scoring system with assigned values**
- **Rank the corridors by adding the scores within each environmental category**

Tiered Scoring System - SR 836 Southwest Extension (ETDM No.: 11482) Miami-Dade Expressway Authority (MDX)

Deviation Intervals, Descriptions and Values		
DEVIATION	**DESCRIPTION**	**VALUE (SCORE)**
Impact > Median + 2 MAD*	High	1
Median + 2 MAD > **Impact** > Median + MAD	High-Moderate	2
Median + MAD > **Impact** > Median	Moderate-High	3
Median > **Impact** > Median – MAD	Moderate-Low	4
Median – MAD > **Impact** > Median - 2 MAD	Low-Moderate	5
Median - 2 MAD > **Impact**	Low	6

*MAD = Median Absolute Deviation = Median(| X_i - Median(X_i) |)

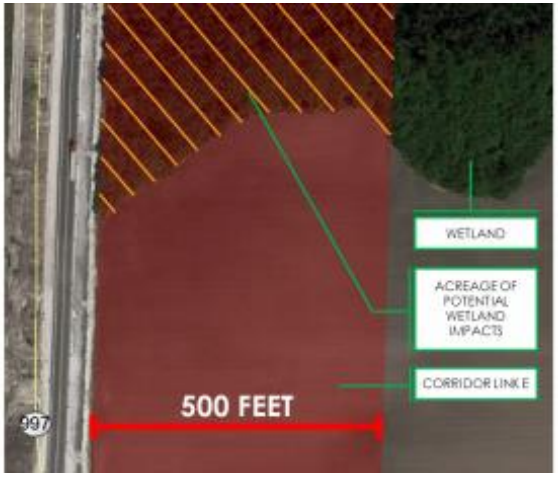
Environmental Evaluation Summary

Environmental Evaluations Results								
Alternative Corridors*	SEGMENT I		SEGMENT II		SEGMENT III		Cumulative Score	Ordinal Rank
	Link	Score	Link	Score	Link	Score		
1	B-1	85	L-1	100.5	N	62.5	248	4
2	B-1	85	M-1	80.5	P	44.5	210	2
3	B-2	83	K-1	116	N	62.5	261.5	8
4	B-3	78	E-1	112	N	62.5	252.5	5
5A	D-1	86	E-2	112.5	N	62.5	261	6
5B	D-1	86	E-3	112.5	N	62.5	261	6
6	D-1	86	J	118	N	62.5	266.5	10
7	D-2	66.5	M-2	81.5	P	44.5	192.5	1
8	D-2	66.5	L-2	101	N	62.5	230	3
9	D-3	85.5	K-2	116	N	62.5	264	9

SR 836 Southwest Extension (ETDM No.: 11482) Miami-Dade Expressway Authority (MDX)

Tips on the Environmental Evaluation

- **GIS layers may need to be adjusted**
  - Convert point features to polygon features
  - Criteria evaluation may be based on multiple GIS layers and require combination or editing
  - Ground truthing
  - New layers may need to be developed
- **During Analysis**
  - Use the selection tool to capture discrete features
  - Clip polygon layers to capture impact
- **Visual Enhancements**
  - Color coding to visually represent scoring



ALT. CORRIDOR	PURPOSE AND NEED	ENVIRONMENTAL IMPACTS
		Social and Economic
1	HIGH TO MODERATE BENEFIT: Moderate improvement of mobility for people and goods and highest benefit to the remaining parameters.	MODERATE BENEFIT: Moderate number of affected residential parcels and neighborhoods.
2	HIGH BENEFIT: Highest benefit on all Purpose and Need parameters.	LOW BENEFIT: Greatest number of effected residential parcels and community facilities. Greatest potential to impact community cohesion.

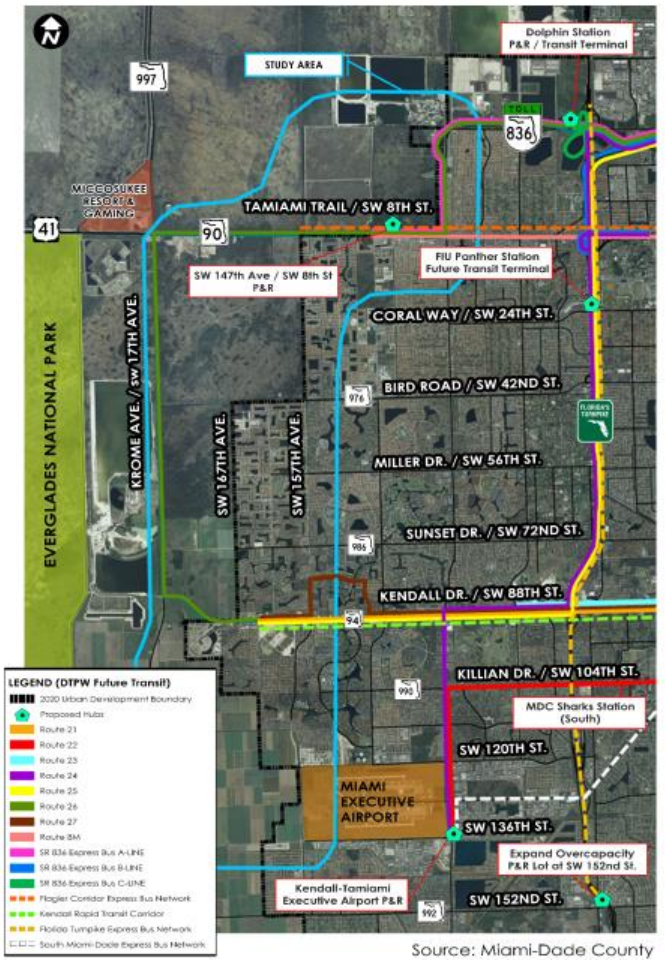
SR 836 Southwest Extension (ETDM No.: 11482)
Miami-Dade Expressway Authority (MDX)

Tips on the Environmental Evaluation

- **While developing the MM, perform a high-level test of the scoring methods to select the best fit**
- **Consider:**
  - Using ordinal rank (i.e., rank #1 and #2)
  - Color coding the scoring
- **Use simplified a tiered scoring system for each environmental resource**
  - 3-tier ranking (Low, medium, high)
  - 6-tier ranking (low, low-moderate, moderate-low, moderate-high, high moderate, high)
- **Non-quantifiable factors could be assigned a degree of impact by a qualified professional**

Engineering Evaluation

- **Evaluate the engineering factors relevant at this phase**
- **Traffic is usually considered during Purpose and Need evaluation**
- **Common quantifiable engineering factors include**
  - Major utility conflicts
  - Railroad crossings
  - Right of way needs (i.e., area and number of parcels)
  - Access management spacing
  - Construction cost estimates
- **Construction cost estimates**
  - Check if there is a relevant FDOT Long Range Estimates (LRE) cost per mile mode
  - Select a bridge cost from the Structures Design Guidelines



Source: Miami-Dade County

SR 836 Southwest Extension (ETDM No.: 11482)
Miami-Dade Expressway Authority (MDX)

Tips on the Engineering Evaluation

Scoring approach similar to environmental evaluation

- Yes or no (e.g., yes, it meets criteria) for unquantifiable factors
- 3-tier ranking (low, medium, high)
- Ordinal rank (i.e., rank #1 and #2)

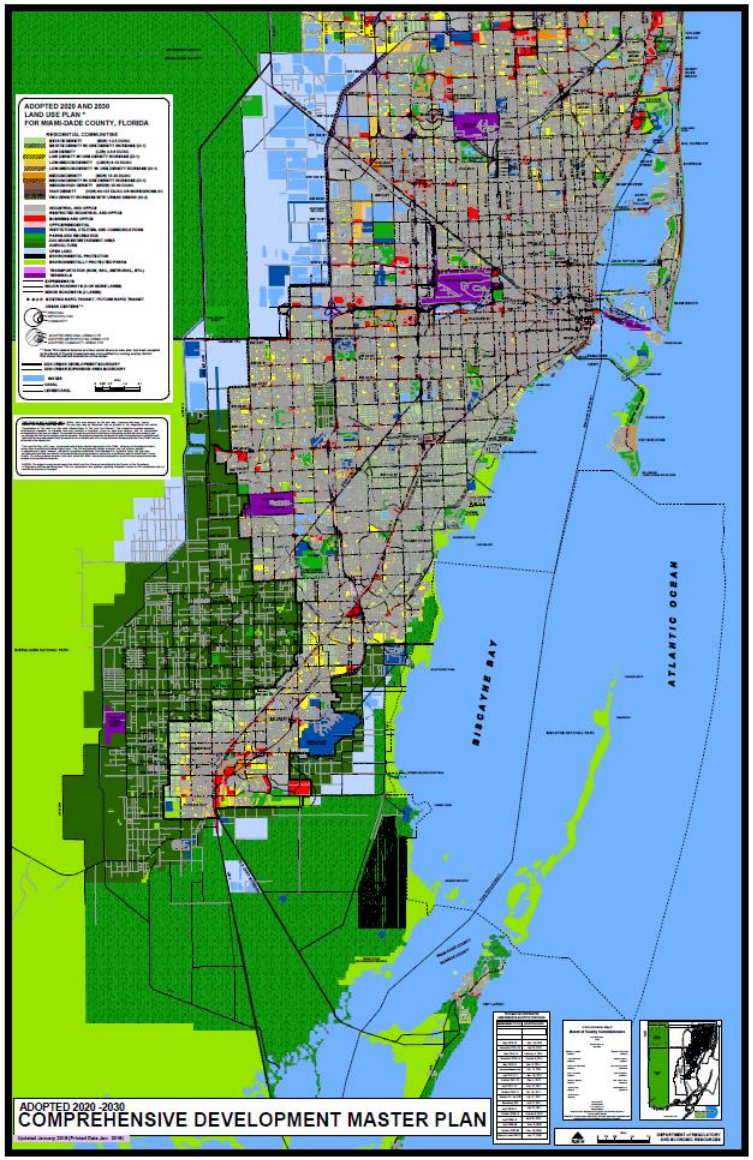
SR 31 Extension Alternative Corridor Evaluation

Corridor	Major Utility Conflict Potential*	Drainage Complexity Rating** (Lower is Better)	New Intersections on SR 70 (Lower is Better)	New Intersections on US 17 (Lower is Better)	New Network Connections (Higher is Better)	Freight Mobility Enhancement (Change in Travel Distance)	Total Engineering Performance Rating***
A	Very Low	3	1	2	5	0.01	Medium
B	Low	2	1	2	5	0.09	Medium
C	Very Low	4	1	2	4	0.5	Lower
D	Very Low	3	0	2	5	-0.21	Medium
E	Low	4	1	2	4	0.1	Lower
F	Low	4	1	1	3	0.22	Lower
G	Low	3	1	2	3	0.06	Lower
H	Low	3	1	2	4	-0.07	Lower
I	Low	3	1	0	4	-0.56	Higher
J	Low	4	0	0	3	-1.31	Higher

*Utility conflict potential for all corridors were too minimal to use as a differentiator in total engineering performance rating.
**Based on corridor length, number of anticipated pond sites, permits impacted, floodplain impacts, drainage crossings, and other special considerations.
***Based on change in travel distance, new network connections, intersection creation, and drainage complexity.

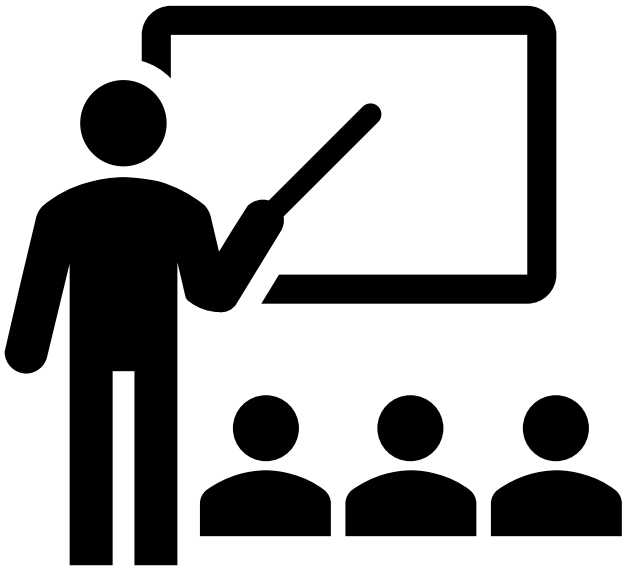
Unique Issues

- **Most projects can be evaluated within the normal categories (i.e., environment, engineering)**
- **Potential unique issues**
  - Comprehensive Development Master Plan (CDMP) amendments and Urban Development Boundary (UDB)
  - Wellfield protection areas
  - Florida Gas Transmission lines
  - Comprehensive Everglades Restoration Plan (CERP)



SR 836 Southwest Extension (ETDM No.: 11482)
Miami-Dade Expressway Authority (MDX)

Public and Agency Input



- **Determine approach for public and agency input**
  - What are the affected stakeholders?
  - What are the major concerns?
  - Are there any known controversial issues?
  - How will project information be shared?
  - How will public and agency input be accomplished?
- **Conduct outreach to agencies, stakeholders, and the general public**
- **During the study, document**
  - Support for corridors
  - Lack of support
  - Unresolved issues

Public and Agency Outreach Techniques

Virtual Engagement

- Project websites
- Hybrid virtual/ in-person meetings

Corridor Workshops

- Present the corridors, evaluation, and solicit input

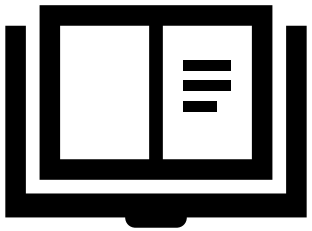
Stakeholder Meetings

- Elected officials
- Agencies and ETAT members
- Local community groups
- Town hall meetings

Project Advisory Groups

- Only a few projects used this approach
- Should clearly define expectations for the group

Narrative Assessment



- Summarize the results for each corridor in each category
- Consider advantages and limitations of each alternative corridor
- Highlight unique factors that may affect decisions

Narrative Assessment Summary

Advantages (Benefits)	Limitations (Detrimental Effects)
Medium social impacts	Highest impacts to DRIs and associated outdoor recreation (private)
Fewer residential parcels/property owners	Environment damaging impacts to Reedy Creek wetlands
Existing interchange	Impact to RCID conservation lands (potential Section 4(f))
Meets interchange spacing criteria	Impact Loughman Park (potential Section 4(f))
Reduces travel time from Bridge to I-4	Highest potential Section 106 historic resources
Interchange is within urban service area boundary of Osceola County	T&E Species Occurrence and Habitat (Section 7)
Fewer impacts to community facilities	Railroad involvement/High Utilities conflict including gas lines and FGT Substation
Less potential for contamination	Impacts mobile home RV resort
Interchange is within urban service area boundary of Osceola County	

I-4 Poinciana Parkway (ETDM No.: 13957) District 5

Summary of Evaluation

Corridor	Purpose & Need Satisfaction	Evaluation Criteria					Recommended for Further Consideration
		Environmental Impacts[1]	Engineering Performance[2]	Stakeholder Support[3]	Public Support[4]	Construction Cost[5]	
A	Yes	Medium	Low	Disapproval	Lower	$21,297,812	No
B	Yes	Low	Medium	Neutral	Medium	$24,636,262	Yes
C	Yes	Low	High	Disapproval	Lower	$26,223,896	No
D	Yes	High	Low	Neutral	Medium	$18,555,277	No
E	Yes	Medium	Medium	Neutral	Lower	$24,537,535	No
F	Yes	Medium	High	Approval	Higher	$24,049,815	Yes
G	Yes	Medium	Low	Strong Approval	Lower	$17,555,314	No
H	Yes	High	Medium	Strong Disapproval	Lower	$24,024,504	No
I	Yes	Medium	Medium	Disapproval	Medium	$26,681,649	No
J	Yes	High	Medium	Strong Approval	Higher	$26,822,166	Yes

(1) Corridors assigned a "High" environmental impact are anticipated to have more impacts relative to the other corridors.
(2) Corridors assigned a "High" engineering performance offer better mobility benefits with lower right-of-way requirements relative to the other corridors.
(3) Based on coordination meetings with stakeholders, governmental agencies and NGO's (Table 8)
(4) Public support rated "higher" received more favorable public support relative to the other corridors.
(5) Costs based on FDOT per lane mile cost plus estimated wetland mitigation costs and estimated right-of-way

SR 31 Extension (ETDM No.: 14316) District 1

Questions?

Poll

Select all of the main analysis categories that are common in an ACE study

a. Purpose and Need
b. Environment
c. Public and stakeholder input
d. Engineering

Select all of the main analysis categories that are common in an ACE study

- ANSWER:
- A
- B
- C
- D

How are corridors eliminated in the ACE process? (Select the best response)

a. Too many impacts to environmental resources
b. High cost
c. Not meeting the evaluation criteria established in the Methodology Memorandum
d. Public controversy

Select the best response: How are corridors eliminated in the ACE process?

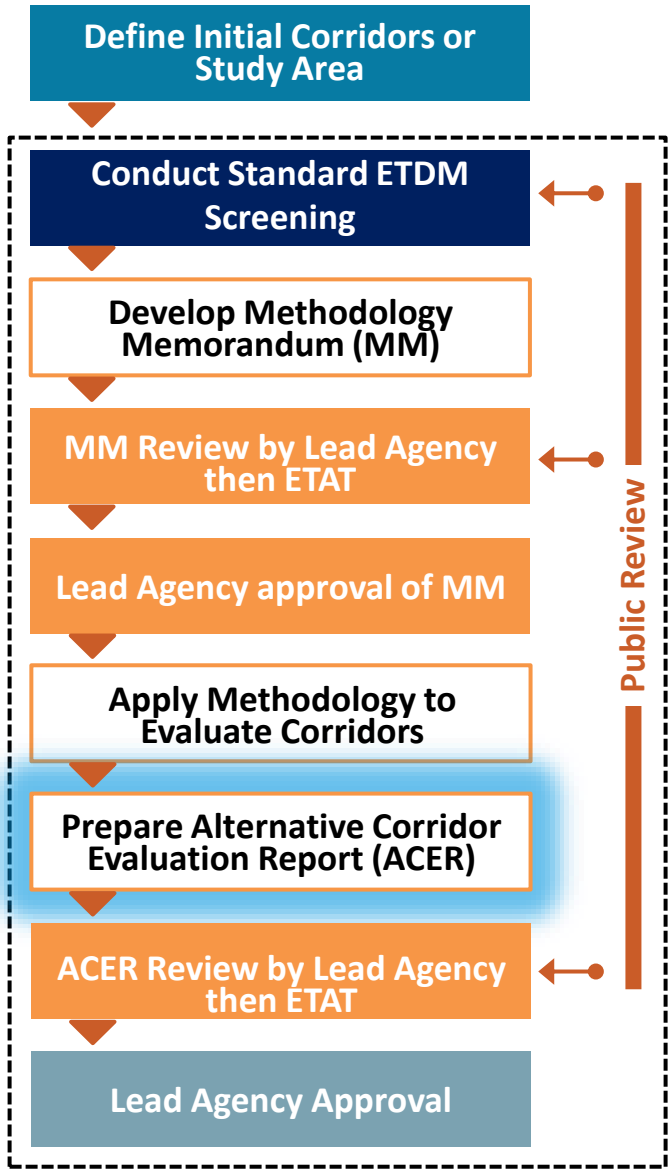
- ANSWER:

C

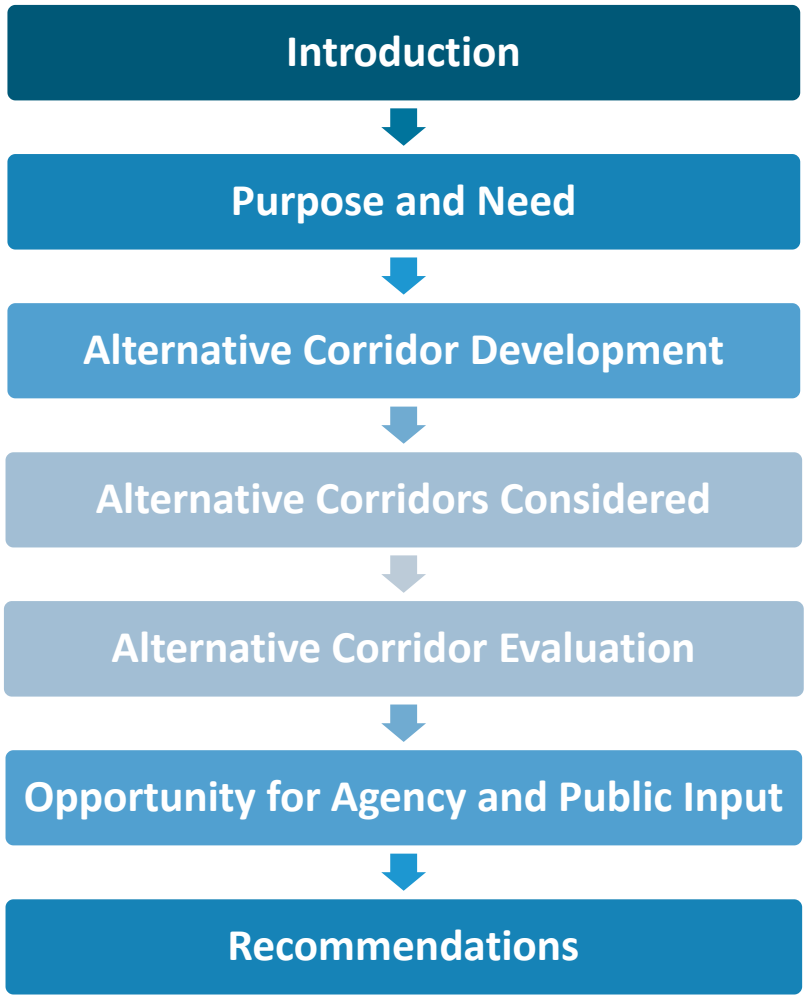
Lesson 4:
Development of the Alternative Corridor Evaluation Report (ACER)

Alternative Corridor Evaluation Report (ACER)

- Document corridors moving forward and eliminated corridors
- Results and decisions in ACER may be adopted into the PD&E study
- Include the methodology, data, analysis, public and agency involvement, and decisions
- When starting with a study area, discuss refinements or the identified corridors
- Standard public notice statement must be included (check ETDM Manual for text)



ACER Outline

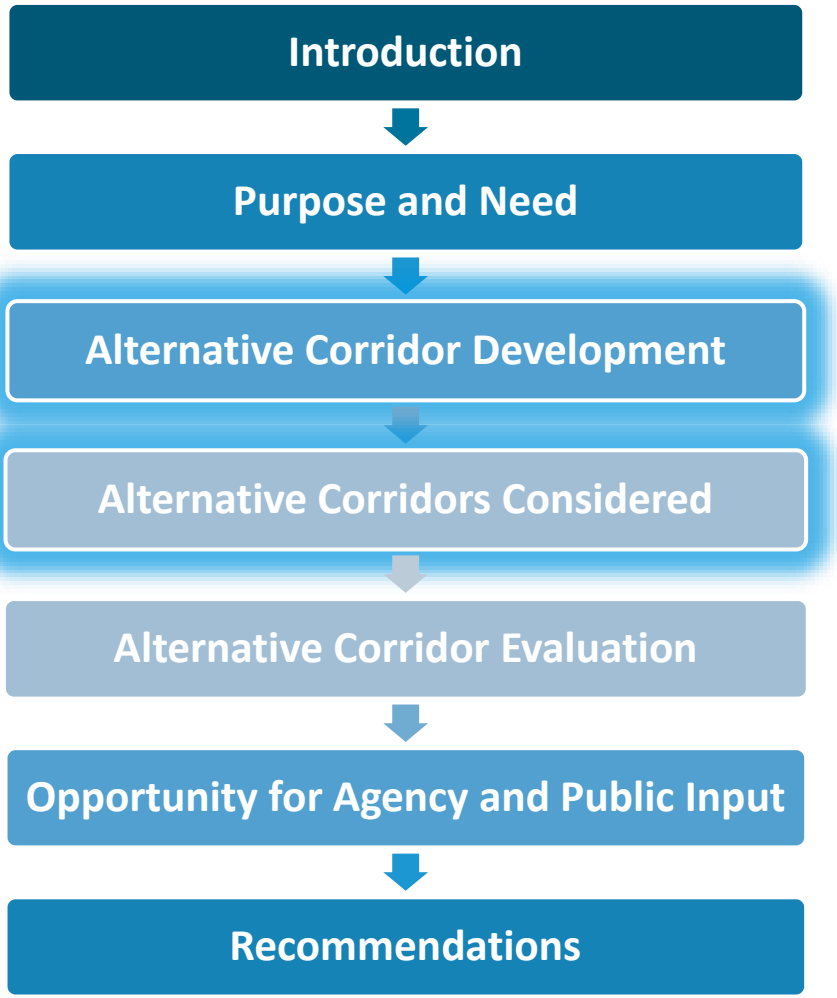


Start with this initial outline and modify as necessary to fit the needs and approach of the project

BEST PRACTICE

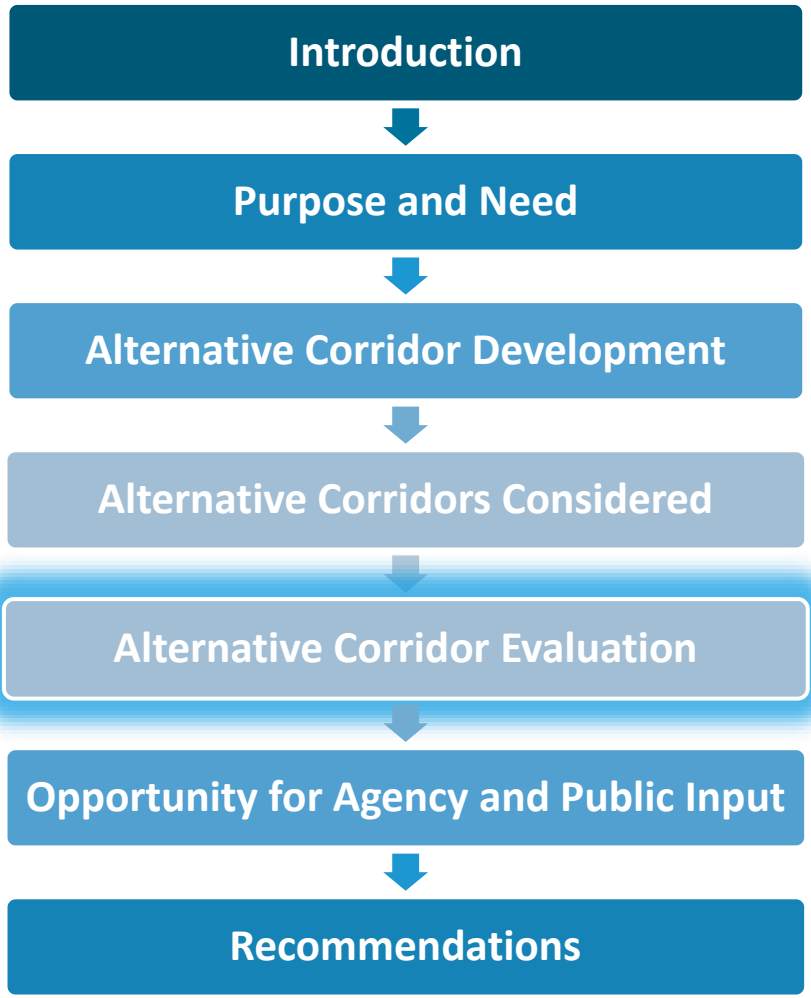
- Request sample ACERs from OEM
- Download ACER template: https://www.fdot.gov/environment/publications.shtm
- Include figures showing the study area, corridors, environmental resources, and significant features
- Use matrices and tables to compare the results for each category (e.g., environment) and the evaluation summary

Identified and Evaluated Study Area and Corridors



- **Describe the initial analysis and resulting corridors or study area**
  - For instance, was LSM or another tool used?
- **Discuss corridor refinements and new corridors consistent with the approved MM**
  - Geometric design features
  - Interchange considerations
  - Corridor width for analysis
- **Detail the study area and corridors considered for the evaluation**
  - Maintain naming convention from previous analysis

Alternative Corridor Evaluation

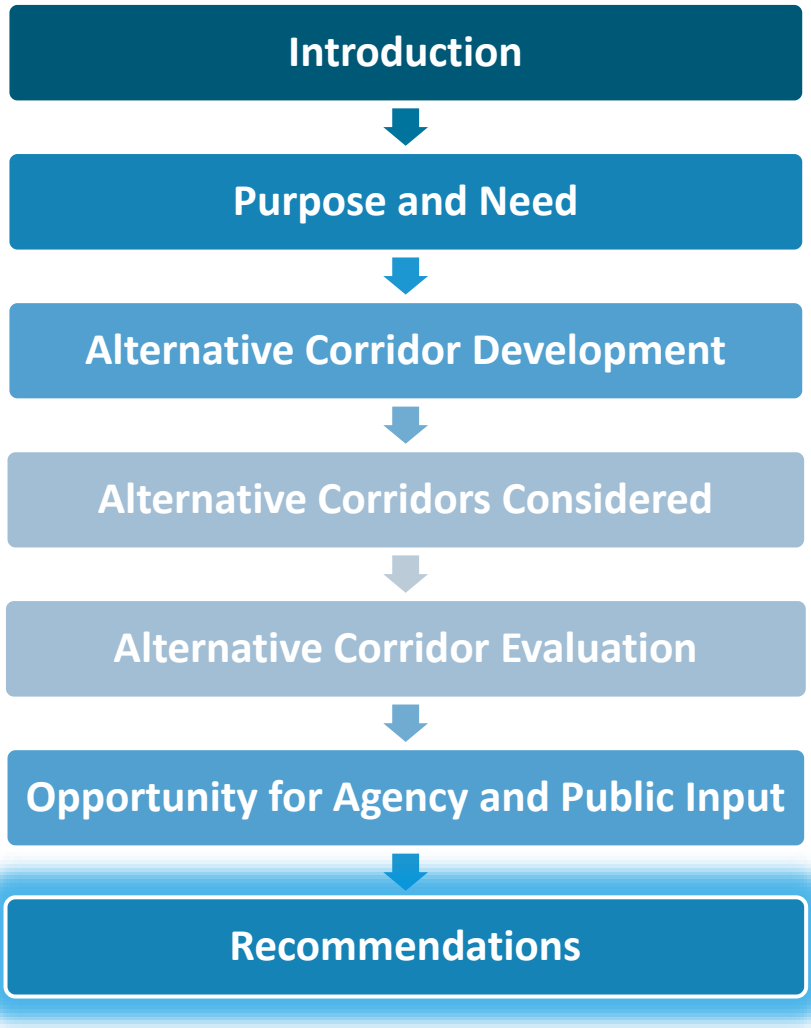


- **Evaluation must be consistent with methodology**
- **Summarize the evaluation results for each category**
  - Purpose and Need evaluation
  - Environmental impacts
  - Engineering considerations
  - Unique issues
- **Describe qualitative/narrative assessment**
- **Provide evaluation summary**

Agency and Public Input

- **Provide a summary of the meetings, including**
  - Support and concerns for corridors
  - Comments
- **Detail the public support or lack of support for corridors**
- **Include summary of ETAT comments**
- **Discuss unresolved project issues**
  - How will this be address in future phases?

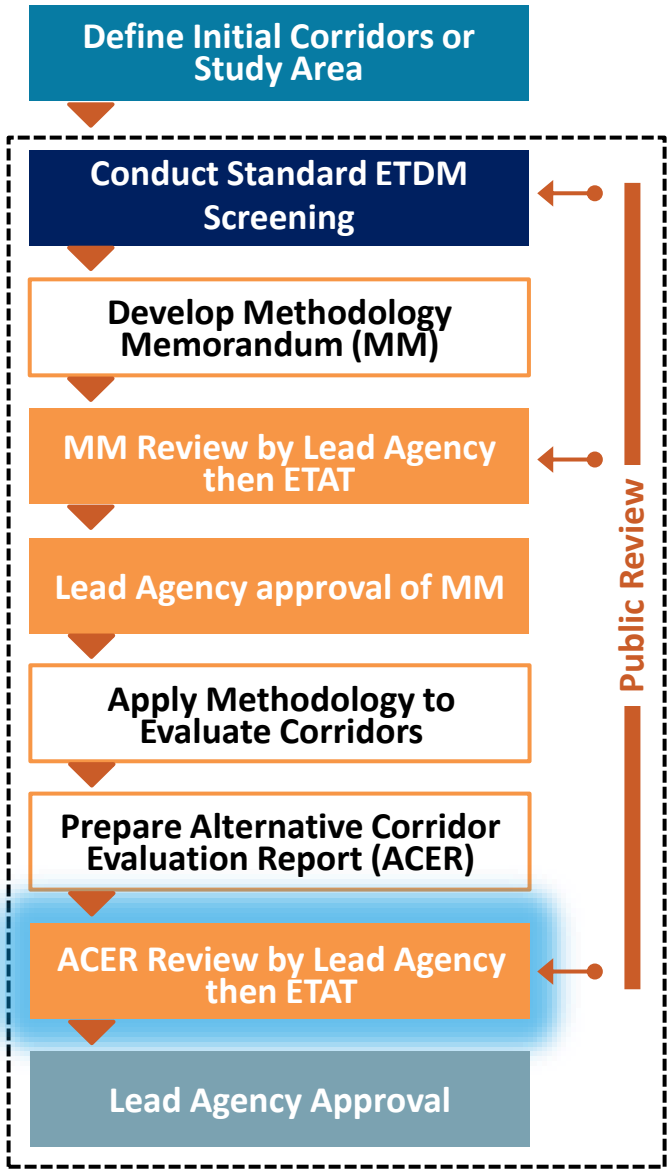
Results and Decisions from the Study



- **Document**
  - Study area (and any refinements)
  - Identified corridors
  - Basis for eliminating alternative corridors
  - Corridors to advance to PD&E phase
- **Consider other project parameters that have changed**
  - Purpose and Need
  - Project area
  - Environmental setting
  - Preliminary environmental impacts

Conduct ACER review

- **Submit draft to Lead Agency for review**
  - 21-days
- **Upload in EST for ETAT review**
  - 30-days
  - Public review on ETDM Public Access Site



BEST PRACTICE

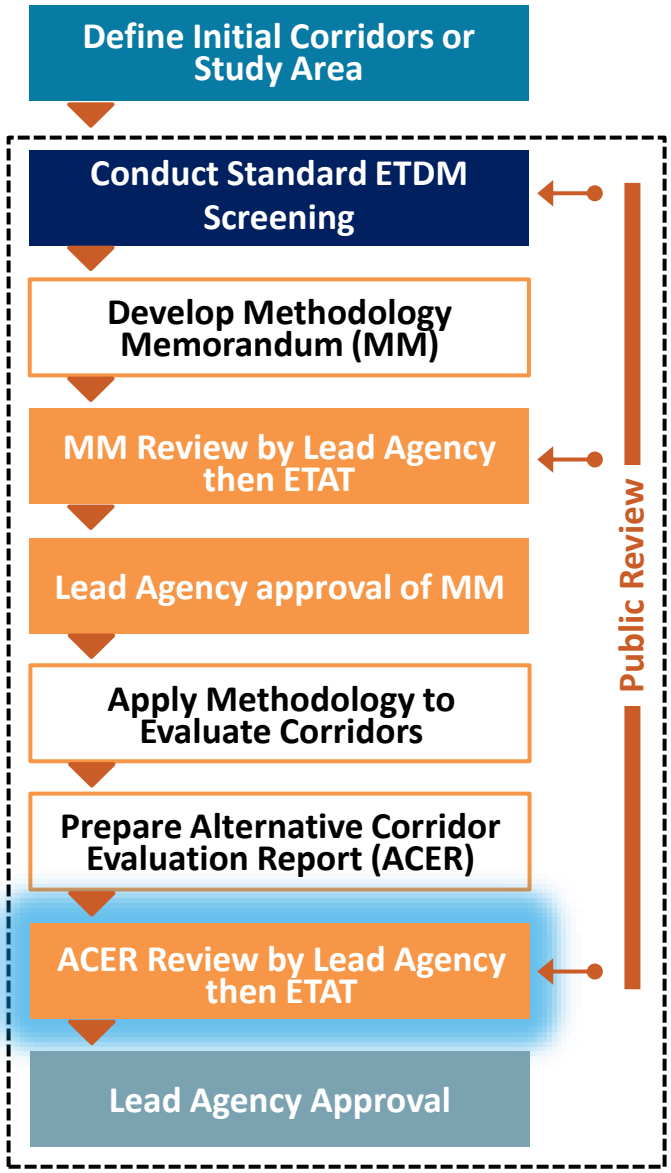
- Provide regular ACE study updates
- Prior to the lead agency review, host a meeting with the Lead Agency (i.e., OEM) to walkthrough the ACER and results

Addressing Comments

- **First review by Lead Agency**
  - Update ACER
  - Check with Lead Agency if another review is needed or can proceed to ETAT review
- **Upload for ETAT review**
- **Identify significant ETAT comments and consult with Lead Agency to determine approach**
  - Updated ACER is ready for approval
  - Resubmit updated ACER for ETAT review
  - Conduct ETAT resolution meeting

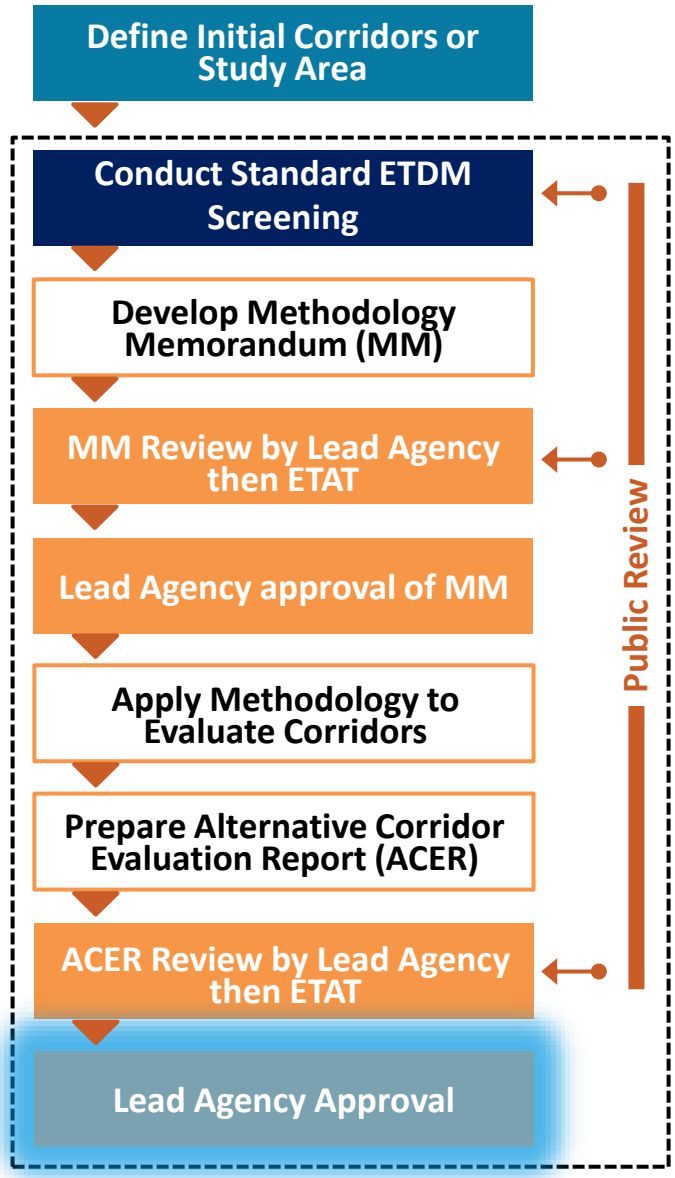
BEST PRACTICE

Pre-schedule a comment resolution meeting with Lead Agency

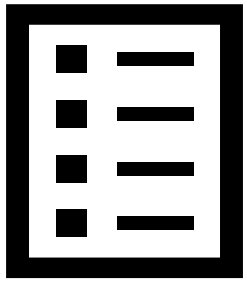


ACER Approval

- **Lead Agency approves ACER**
- **When corridors have been eliminated**
  - District makes formal request for adoption
  - Considered by Lead agency and potential cooperating agency
- **During ETDM planning screening**
  - ETDM Coordinator publishes Final Planning Screening Summary Report
- **During ETDM programming screening**
  - ETDM Coordinator publishes Preliminary Programming Screening Summary Report
  - Final summary report is published following Class of Action determination



Best Practices when Preparing ACER

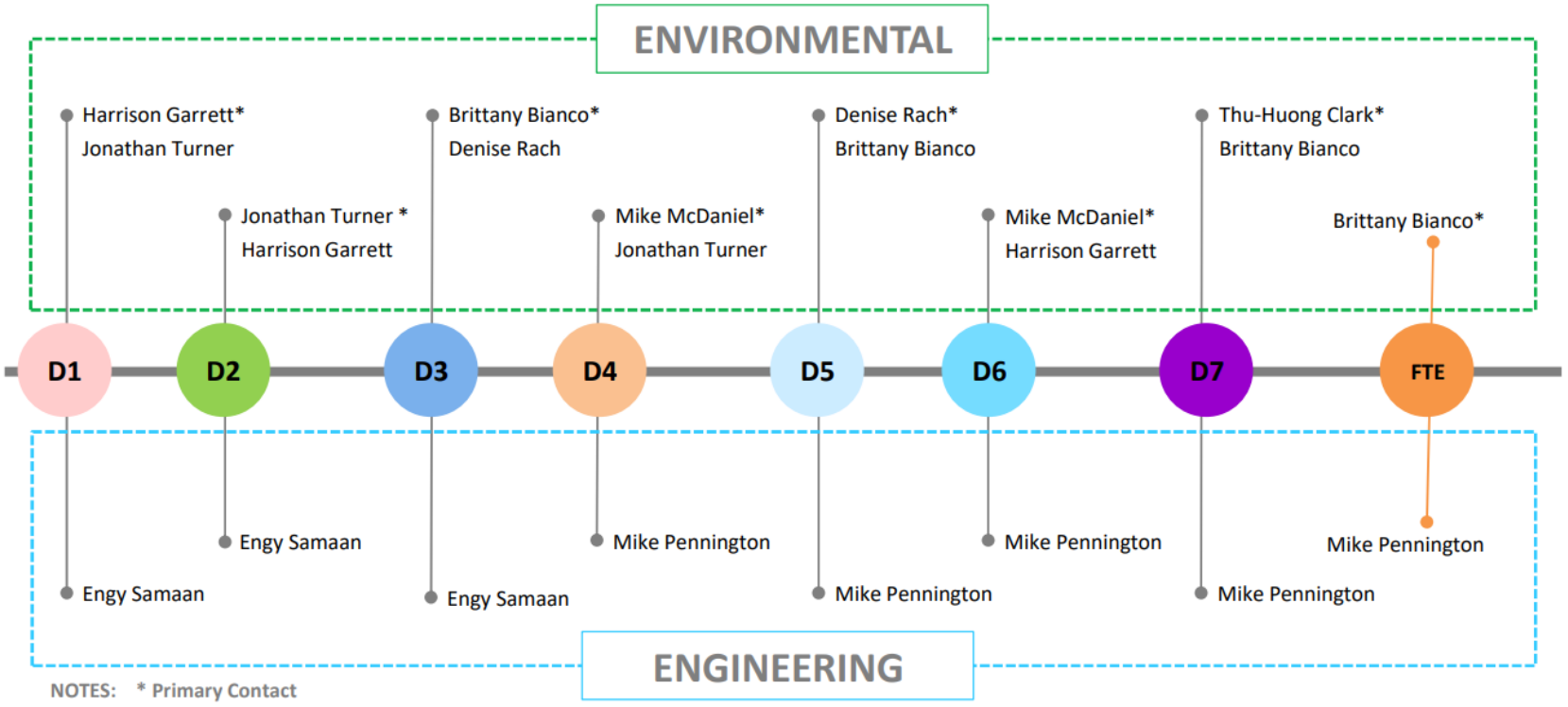


- Request sample ACERs from OEM
- Download ACER template on the FDOT OEM website: https://www.fdot.gov/environment/publications.shtm
- Include figures in the ACER that show the study area, corridors, environmental resources, and significant features
- Use matrices and tables in the ACER to compare the results for each category (e.g., environment) and the evaluation summary
- Prior to the lead agency review, host a meeting with the Lead Agency (i.e., OEM) to walkthrough the ACER and results
- Pre-schedule a comment resolution meeting and hold if necessary

Resources

- ETDM Manual : http://www.fdot.gov/environment/pubs/etdm/etdmmanual.shtm
- PD&E Manual: http://www.fdot.gov/environment/pubs/pdeman/pdeman1.shtm
- ACE Scope of Services and Staff Hour forms: https://www.fdot.gov/environment/pubs/scope/sos.shtm
- ACER Outline: https://www.fdot.gov/environment/publications.shtm
- Environmental Management Academy Course Catalog:
  - FDOT Learning Curve: https://floridadot.myabsorb.com/#/login
- OEM Training: http://www.fdot.gov/environment/sched/train1.shtm

Resources: OEM Contacts



NOTES: * Primary Contact

OEM Director

Jason Watts

Administrator Support to all Districts

- Katasha Cornwell
- Thu Clark
- Peter McGilvray

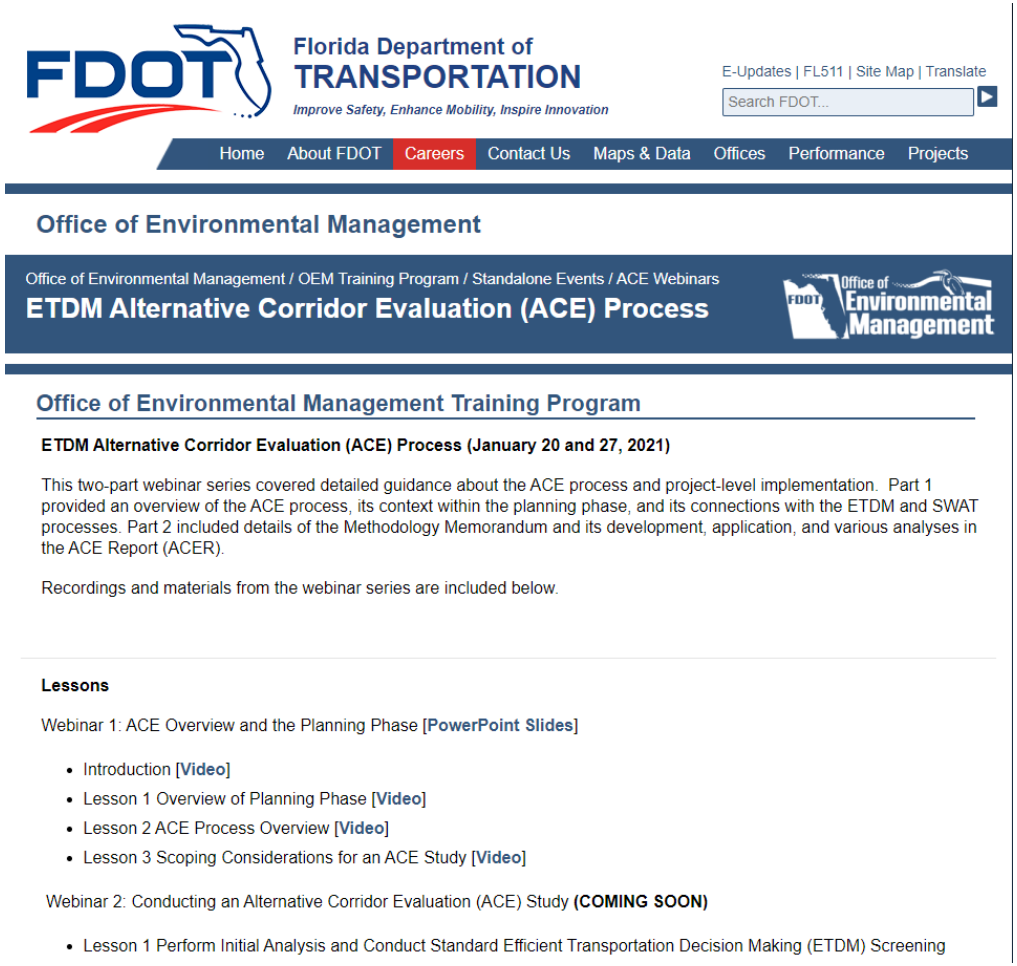
Office of General Counsel

- Kathleen Toolan
- Nona Shaffner
- George Reynolds

ACE Process Training Website

Website includes

- Recorded webinars
- Handouts
- Resources



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Office of Environmental Management

Office of Environmental Management / OEM Training Program / Standalone Events / ACE Webinars

ETDM Alternative Corridor Evaluation (ACE) Process

Office of Environmental Management Training Program

ETDM Alternative Corridor Evaluation (ACE) Process (January 20 and 27, 2021)

This two-part webinar series covered detailed guidance about the ACE process and project-level implementation. Part 1 provided an overview of the ACE process, its context within the planning phase, and its connections with the ETDM and SWAT processes. Part 2 included details of the Methodology Memorandum and its development, application, and various analyses in the ACE Report (ACER).

Recordings and materials from the webinar series are included below.

Lessons

Webinar 1: ACE Overview and the Planning Phase [**PowerPoint Slides**]

- Introduction [**Video**]
- Lesson 1 Overview of Planning Phase [**Video**]
- Lesson 2 ACE Process Overview [**Video**]
- Lesson 3 Scoping Considerations for an ACE Study [**Video**]

Webinar 2: Conducting an Alternative Corridor Evaluation (ACE) Study **(COMING SOON)**

- Lesson 1 Perform Initial Analysis and Conduct Standard Efficient Transportation Decision Making (ETDM) Screening

https://www.fdot.gov/environment/sched/oemtrainingprogramstandalonetrainingevents/OEM-Training-Program---ETDM-ACE-Process

Questions?

Thank you for your time