

CHAPTER 6 ALTERNATIVES

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6. ALTERNATIVES

6-1 OVERVIEW

The Environmental Document should provide a complete discussion of alternatives and their impacts on the environment. It must also demonstrate how the Build Alternative(s) meets the project purpose and need. This chapter provides guidance on Alternative Corridor and Project Development and Environment (PD&E) alternative(s) evaluation, documentation of alternative(s) in the Environmental Document, and the preferred alternative selection.

In accordance with **40 CFR 1505.1(e)**, analysis of the reasonable alternatives derived from a range of alternatives is required for projects anticipated to be Environmental Impact Statements (EISs). This can be achieved, for qualifying projects, through the Alternative Corridor Evaluation (ACE) which can be conducted as part of the transportation planning efforts that precede the PD&E phase. ACE meets the intent of **Appendix A of 23 CFR 450** and ***Moving Ahead for Progress in the 21st Century (MAP-21), Section 1310***.

The ACE and Efficient Transportation Decision Making (ETDM) screenings may produce the following planning products identified in ***Federal Highway Administration (FHWA) Guidance on Using Corridor and Subarea Planning to Inform NEPA***:

1. Purpose and need or goals and objective statements;
2. General travel corridor and/or general mode(s) definition (e.g., highway, transit, or highway /transit combination);
3. Preliminary screening of alternatives and elimination of unreasonable alternatives;
4. Basic description of the environmental setting; and/or
5. Preliminary identification of environmental impacts and environmental mitigation

Section 1310.168 of ***MAP-21*** provides planning decisions that may be adopted for use in the ***National Environmental Policy Act (NEPA)*** process. The ACE process provides the framework for advancing planning products into the ***NEPA/PD&E*** process. The following is the list of planning decisions and products that may be advanced to ***NEPA*** pursuant to ***MAP-21***:

1. Identification of tolling, private financial assistance, or other special financial measures that may be necessary to implement the project

2. A decision with respect to modal choice, including a decision to implement corridor or subarea study recommendations to advance different modal solutions as separate projects with independent utility
3. A basic description of the environmental setting
4. A decision with respect to methodologies for analysis
5. An identification of programmatic level mitigation for potential impacts. In the state of Florida this is addressed through **Section 373.4137 F.S., Mitigation Requirements for Specified Transportation Projects** which requires that the Florida Department of Transportation (FDOT) mitigate for transportation project impacts using any mitigation option that meets both federal and state requirements

In accordance with **Section 1310.168 of MAP-21**, adoption and use of planning products is subject to a determination by the Lead Federal Agency with concurrence of participating agencies and with an opportunity for public notice, comment and consideration of comments by the Lead Federal Agency. The following conditions must be met for adoption and use of these planning products:

1. The planning product was developed through a planning process conducted pursuant to applicable federal law
2. The planning product was developed by engaging in active consultation with appropriate federal and state resource agencies and Indian tribes
3. The planning process included broad multidisciplinary consideration of systems-level or corridor-wide transportation needs and potential effects, including effects on the human and natural environment
4. During the planning process, notice was provided through publication or other means to federal, state, local and tribal governments that might have an interest in the proposed project, and to members of the general public, of the planning products that the planning process might produce and that might be relied on during any subsequent environmental review process. These entities should have been provided an opportunity to participate in the planning process leading to the planning product
5. After initiation of the environmental review process, but prior to determining whether to rely on and use the planning product, the Lead Federal Agency has made documentation relating to the planning product available to federal, state, local, and tribal governments that may have an interest in the proposed action, and to members of the general public, and has considered any resulting comments

6. There is no significant new information or new circumstance that has a reasonable likelihood of affecting the continued validity or appropriateness of the planning product
7. The planning product has a rational basis and is based on reliable and reasonably current data and reasonable and scientifically acceptable methodologies
8. The planning product is documented in sufficient detail to support the decision or the results of the analysis and to meet requirements for use of the information in the environmental review process
9. The planning product is appropriate for adoption and use in the environmental review process for the project
10. The planning product was approved not later than 5 years prior to date on which the information is adopted pursuant to this section

In an EIS, a discussion of the alternatives studied is included in the section titled "Alternatives Including Proposed Action". In an Environmental Assessment (EA) this section is titled "Alternatives Considered". In a **Preliminary Engineering Report (PER)** it is titled "Alternative Alignment Analysis". The content of each of these sections is the same, regardless of document type (as defined by **23 CFR 771** and **T6640.8A**). For that reason and for ease in understanding, these sections will all be referred to as the alternatives section for the remainder of this chapter.

The alternatives section is the heart of the Environmental Document and should rigorously explore and objectively evaluate alternatives. The types of alternatives to be considered include No-Action, Transportation Systems Management and Operations (TSM&O), and Build Alternatives. Although the No-Action Alternative usually will not meet the purpose and need, it must be considered and carried through the public hearing.

The alternatives section should:

1. Discuss how the alternatives were selected for detailed study.
2. Describe alternatives that were identified and eliminated in planning or in the project development process, and the basis for their elimination.
3. Demonstrate how the proposed alternatives meet the purpose and need of the project.
4. Summarize the environmental impacts of each alternative that were advanced into PD&E and discuss how the proposed alternatives will enhance and/or

adversely affect the human and natural environment. All issues and impacts should be clearly presented.

5. Include a matrix for easy comparison of the alternatives at the end of the section. This should provide a clear basis for the decision-maker to choose among options presented.

After the District has identified the FDOT recommended alternative, it should discuss the basis for its selection with the Lead Federal Agency who may approve it as the preferred alternative. Once the preferred alternative is approved, it must be identified in the Environmental Document.

Type 2 Categorical Exclusions (CEs) do not typically require screening of multiple Build Alternatives in the ETDM Environmental Screening Tool (EST), although there may be situations when impacts to issues/resources may result in the need to consider additional alternatives. This should not preclude a District from considering minor shifts in the alignment during the PD&E Study.

For State Environmental Impact Reports (SEIRs) the number of Build Alternatives to be evaluated is determined by the Florida Department of Transportation (FDOT) and may include TSM&O, Multimodal Alternatives (where appropriate) and the No-Action Alternative. The No-Action Alternative must be evaluated and carried through the public hearing.

6-1.1 Definitions

The following definitions clarify terminology used in this chapter:

Alignment - Refers to both horizontal and vertical placement of a transportation facility. Horizontal alignment refers to the location of the transportation facility as described by curves and tangents. Vertical alignment refers to the vertical orientation of the facility (i.e., below grade, at grade, or above grade).

Alternative - A potential transportation corridor, alignment, or improvement under consideration that addresses the project's purpose and need (modes, locations, design features).

Corridor – A broad geographical area connecting two locations in which a transportation improvement, regardless of mode, is being considered by the state, a county or a municipality. In the Planning Screen a study area would be a corridor where no alternatives have been identified. The corridor width may be influenced by the environmental and physical features within the area. For example, an area with sensitive environmental features may require a broader corridor to provide adequate options for a transportation alignment that avoids or minimizes impacts to protected environmental resources.

Prudent and Feasible Avoidance Alternative – This alternative does not use **Section 4(f)** property and does not cause other severe problems of a magnitude that substantially outweighs the importance of protecting the **Section 4(f)** property. In assessing the importance of protecting the **Section 4(f)** property, it is appropriate to consider the relative value of the resource to the preservation purpose of the statute (**23 CFR 774**).

Locally Preferred Alternative - The local project sponsor or Metropolitan Planning Organization (MPO)'s favored alternative for the project.

Practicable Alternative requirement – For projects requiring a U.S. Army Corps of Engineers **Section 404** permit, the guidelines (**40 CFR Section 230.10**) require that there be no practicable alternative to the proposed discharge of fill material into waters of the U.S. which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences. The term Least Environmentally Damaging Practicable Alternative (LEDPA) is not actually used in the guidelines.

Preferred Alternative - The preferred alternative for a federal aid project is the alternative that **has been approved by the Lead Federal Agency**. If a preferred alternative is selected prior to the public hearing, it must be presented as such at the public hearing and in the Environmental Document that is available to the public during the public hearing.

Reasonable Alternative – (term used for EIS only) – Alternatives meeting the purpose and need which are practical or feasible from a technical and economic standpoint, rather than simply desirable from the standpoint of the applicant.

FDOT Recommended Alternative – The alternative submitted for approval to the Lead Federal Agency, by FDOT and/or project sponsor (if not an FDOT project) as the preferred alternative. The FDOT recommended alternative becomes the preferred alternative once it is approved by the Lead Federal Agency. In a DEIS this alternative would become the FHWA preferred alternative if no substantial controversy or issues arise through the public and agency comment period.

Selected Alternative – Once the preferred alternative receives Location and Design Concept Acceptance (LDCA) it becomes the selected alternative and is advanced to the next phase of implementation.

Viable Alternatives – (term used for all but EISs) Alternatives that address the purpose and need if there is more than one alternative proposed. Consideration should also be given to whether or not the alternative can be implemented/constructed.

6-2 PROCEDURE

6-2.1 Alternative Corridor Evaluation (ACE)

The ACE process is a consistent, coordinated, and documented method for corridor identification and evaluation. Projects with the potential to require the preparation of an EIS generally need a corridor evaluation to identify reasonable alternatives for **NEPA** analysis from a possible range of alternatives. FDOT should perform ACE as part of transportation planning activities that precede the PD&E phase; however, in some cases ACE will be part of the PD&E Study. **Figure 6.1** outlines the ACE process. The Districts can use ACE for non-federal projects at their discretion.

During ACE, the District develops a **Methodology Memorandum (MM)** based on stakeholder comments and other information and then uses it to refine or eliminate alternative corridors in order to avoid potential environmental effects (**Section 6-2.3.2**). The Lead Federal Agency must approve the elimination of unreasonable alternatives (**FHWA Guidance on Using Corridor and Subarea Planning to Inform NEPA, April 5, 2011**, and **MAP-21, Section 1310**).

Different corridors are often considered when a new route is needed between two locations and may include multimodal options. Corridors can be identified that largely avoid sensitive environmental areas and still satisfy the identified transportation need. Projects that typically require ACE include the following:

1. New alignments – new roadways; new roadway connections or extensions; new transit and rail lines
2. Major realignments
3. Major bypasses – truck bypasses; city/town bypasses; rail lines
4. Other types of projects based on consultation with FHWA, the Federal Transit Administration (FTA), or Federal Railroad Administration (FRA)

Many transportation projects may already have corridor options from completed action or master plans, for example, projects located on the existing Strategic Intermodal System (SIS). These analyses should be evaluated and considered prior to advancing into the ACE process. Decisions made in these action or master plans should be included in the project documentation and should become part of the **NEPA** project record (e.g., project file, Environmental Document, etc.). Keep in mind all planning products incorporated into the **NEPA** process must follow the conditions of **Section 1310.168** of **MAP-21 (Section 6-1)**.

6-2.1.1 Basic Steps of ACE

1. Define the Initial Corridors

Regardless of when the District begins ACE, the first step is to define corridors. If a previous planning study identified corridors, these are used as a starting point for the ACE process. Others can be added by the District at their discretion. There is also the possibility that as stakeholders [such as the Environmental Technical Advisory Team (ETAT)] become involved, additional corridors could be identified. The ability to meet the purpose and need must serve as a baseline to identify and delineate corridors. Depending on the phase of development of the project, the District identifies a study area (in Planning Screen only), swaths or narrower alignments as corridor(s). The ACE process varies depending on whether it is started in the Planning Screen, Programming Screen, or PD&E phase. It is important that the naming of each corridor or alternative remain consistent throughout ACE and be carried through the PD&E phase.

2. District Makes Decision to Advance Project

The District internally considers the involvement and potential impacts to environmental issues/resources and the presence of any fatal flaws, to decide if the project should be advanced. Consideration should be given to Geographic Information System (GIS) data, what is known of the area, early stakeholder involvement, etc. The District should ensure that the level of detail of the analysis is appropriate to the range of alternatives being considered. Once the decision has been made to advance the project, the goals of using the ACE process (e.g., performing an action plan level corridor analysis or determining reasonable alternatives for **NEPA** analysis) are defined. Depending on when the ACE process is going to be conducted, the project is either prepared for ETDM screening or as part of the PD&E Study.

3. Develop Analysis Methodology

The District coordinates with the Lead Federal Agency, ETAT, and other stakeholders as appropriate to develop the **MM** that details the goals of the evaluation, the alternatives analysis methodology, how coordination with stakeholders will occur, and the basis for decision-making (refer to **Figure 6.2** for a complete outline). The **MM** includes:

- a. Background
- b. The evaluation criteria
- c. Specific data tools [i.e., EST, Land Suitability Mapping (LSM), Quantum, etc.] and timelines that will be applied with the evaluation criteria

- d. The approach to eliminating unreasonable alternatives

In certain situations the **MM** may need to be reviewed by project stakeholders more than once. This may take place when one or more of the following apply:

- a. There is a change in project termini (expanded)
- b. There is a change in purpose and need
- c. There is a change in project concept(s) (e.g., number of lanes, adding interchanges, etc.)
- d. There is a change in supporting data that may affect the methodology and any resulting decisions made from it (e.g., population changes, economic changes, land use changes, etc.)
- e. When stakeholder input results in significant revisions to the methodology

When the ACE process is conducted as part of an ETDM screening, the ETAT provide comments and mark “understood” in the EST, and the Lead Federal Agency provides its acceptance of the methodology, through the tools of the EST. This is consistent with the requirements of **MAP-21, Section 1310**. When the ACE is conducted in PD&E, the **MM** can be uploaded as an ancillary document for ETAT review and comment; however, in this case the District is responsible for obtaining and documenting Lead Federal Agency concurrence.

4. Refine Corridors

Corridors are refined using the evaluation criteria developed in the **MM** and specific analytical tools (i.e., EST, LSM, Quantum, etc.) discussed in the **MM**.

5. Alternative Corridor Evaluation Report

The results of Step 4 are documented in an **Alternative Corridor Evaluation Report (ACER)**. This report summarizes the refinements made in consideration of ETAT and/or stakeholder assessments, project purpose and need, public involvement commentary, analytical methodology, and evaluation criteria. It also identifies the alternatives that should move forward for **NEPA** analysis, and provides supporting justifications for eliminating alternatives. The Lead Federal Agency approves the eliminated alternatives and identifies the alternatives to be advanced for **NEPA** analysis. Documentation regarding the elimination of alternatives and the **ACER** becomes a part of the project’s Administrative Record.

6-2.1.2 ACE During Planning, Programming, or PD&E

Depending on when the process begins, the following steps are taken:

1. ACE beginning during the Planning Screen (**Figure 6.3**). See **Chapter 3** of the **ETDM Manual, Topic No. 650-000-002** for details on EST procedure.
 - a. The District determines if the project qualifies for ACE (**Section 6-2.1**), and is a priority for screening at this time.
 - b. The District defines initial alternatives and prepares a Preliminary Environmental Discussion (PED). In the Planning Screen, if no alternatives have been identified, a study area can be entered as a corridor. A PED is required for ACE projects in the Planning Screen. FDOT uses the PED to inform the ETAT and other agencies, as appropriate, of the District's initial consideration of potential involvement with environmental issues/resources and how they intend to address or evaluate them as the project advances. The PED provides reviewing agencies with context to aid them in providing actionable comments (**Part 1, Chapter 3, Preliminary Environmental Discussion and Advance Notification**).
 - c. The project proceeds with a standard EST Planning Screen, the results of which are summarized in a **Preliminary Planning Screen Summary Report**.
 - d. Using the Planning Screen results, the District develops the **MM** (**Section 6-2.1.1**).
 - e. The **MM** is submitted through the EST for 30-day agency review. Through the EST commenting agencies indicate if the **MM** is understood. The District then adjusts the **MM**, as necessary, to address any comments received before sending the document for Lead Federal Agency review. Depending on the nature of the ETAT comments, the Lead Federal Agency may recommend that the ETAT review the revised **MM**. The Lead Federal Agency is expected to respond or provide acceptance (within 30 days), as appropriate.
 - f. The District applies the approved **MM** to refine the alternatives and documents these activities in an **ACER**. During this process corridors can be eliminated from further consideration with Lead Federal Agency concurrence. For details on EST procedures see **Chapter 3** of the **ETDM Manual, Topic No. 650-000-002**.

- g. The ***Final Planning Screen Summary Report with ACER*** documents the ***MM*** and ACE and identifies alternatives that were eliminated from consideration and those which will be advanced for further analysis.
 - h. The ***Final Planning Screen Summary Report with ACER*** can then be used by the District to determine if the project should proceed through the standard Programming Screen, or if ACE should be continued. If proceeding through the standard Programming Screen, the screening results will identify the reasonable alternatives for ***NEPA*** analysis during PD&E and ETAT commentary for the scope of services. If further refinement of ACE is required follow number 2, below.
2. ACE beginning or continuing during the Programming Screen (***Figure 6.4***). See ***Chapter 4*** of the ***ETDM Manual, Topic No. 650-000-002*** for details on EST procedure.
- a. The District defines (or refines) alternatives and performs an internal assessment to decide if the project should be screened at this time. This assessment supports the development of the Advance Notification (AN) which contains the PED. If the project was advanced from the Planning Screen, the PED must be updated with new information and if any approvals have been received they must be included.
 - b. The project proceeds with a standard EST Programming Screen, the results of which are summarized in a ***Preliminary Programming Screen Summary Report***.
 - c. Using the Programming Screen results, the District develops (refines) the ***MM*** (***Section 6-2.1.1***).
 - d. The ***MM*** is submitted through the EST for 30-day agency review. Through the EST, commenting agencies indicate if the ***MM*** is understood. The District then adjusts the ***MM***, as necessary, to address any comments received before sending the document for Lead Federal Agency review. Depending on the nature of the ETAT comments, the Lead Federal Agency may recommend that the ETAT review the revised ***MM***. The Lead Federal Agency is expected to provide acceptance (within 30 days), as appropriate.
 - e. The District applies the approved ***MM*** to refine the alternatives and documents these activities in an ***ACER***. During this process, corridors can be eliminated from further consideration with Lead Federal Agency acceptance. For details on EST procedure see ***Chapter 4*** of the ***ETDM Manual, Topic No. 650-000-002***.

- f. The **Preliminary Programming Screen Summary Report** with **ACER** documents the **MM**, **ACER**, and alternatives that were eliminated from consideration and those that will be advanced for **NEPA** analysis during PD&E. FDOT seeks Lead Federal Agency acceptance of the Class of Action (COA). Once accepted, FDOT publishes the **Final Programming Screen Summary Report with ACER**.

3. ACE beginning during PD&E

When ACE takes place during PD&E, coordination with ETAT, other stakeholders, and the lead agency is still required and any documents used or prepared are uploaded to the EST for review through the EST document review tool. The ETAT review timeframe is 30 days as with any other document review. If another timeframe is necessary it needs to be coordinated with the ETAT and lead agency. During PD&E the Districts must document coordination and decisions outside of the EST as part of the project's Administrative Record.

- a. The District defines alternatives (based on screening or identified internally through coordination with stakeholders).
- b. The District develops the **MM** based on commentary from the Programming Screen/AN, and new information from step (a) above.
- c. The **MM** is then submitted through the EST document review tool for 30-day agency review. The Districts must document coordination and decisions outside of the EST.
- d. Once the coordination is complete the Lead Federal Agency approves the **MM** for use.
- e. The District applies the approved methodology to refine the alternatives and documents these activities in an **ACER**. During this process alternatives can be eliminated from further consideration in coordination with the Lead Federal Agency. The results of the **ACER** identify the reasonable alternatives for **NEPA** analysis.
- f. The **ACER** is uploaded to and accessible through the EST.
- g. The District requests Lead Federal Agency approval of alternatives that can be eliminated from further consideration and the alternatives for **NEPA** analysis. Once approved these alternatives are adopted and advanced into the **NEPA** analysis consistent with **MAP-21**.

6-2.1.3 Preparation of the Alternative Corridor Evaluation Report

The EST is used to prepare the **ACER** for projects that begin ACE during the Planning or Programming Screens. The **ACER** is combined with the results of the Planning or Programming screen in a **Final Planning (or Programming) Screen Summary Report with ACER**. This report consists of the results of the screening, information provided in the **MM**, and additional language providing the ACE results, such as the alternatives considered but eliminated and alternatives considered for additional study.

If ACE begins at PD&E, the **ACER** is created without using the EST. It references the **MM** and describes the alternatives considered but eliminated, and identifies the alternatives considered for additional study. The **MM** is attached to the **ACER** for submittal to the Lead Federal Agency.

The Lead Federal Agency then approves findings of the **ACER** and the alternatives considered for additional study are analyzed in PD&E. The **ACER** becomes a part of the project's Administrative Record.

6-2.1.4 Documenting ACE in the Environmental Document

The alternatives section of the **EIS (or some EAs as appropriate)** should summarize the results of the corridor analysis, whether it is a corridor report prepared during PD&E or a previous planning activity. This summary should describe the rationale for determining the reasonableness of the alternatives evaluated. The **ACER** should be included in the project file as part of the supporting documentation of a PD&E Study and should be summarized in the "Alternatives Development" sub-section (**Section 6-2.3.1**) of the Environmental Document. The "Alternatives Considered but Eliminated" sub-section (**Section 6-2.3.2**) should include documentation explaining why an eliminated alternative would not meet the purpose and need or was otherwise unreasonable, and the coordination that assisted in making the determination.

6-2.2 Alternatives Evaluation during PD&E

Alternatives evaluation during PD&E should begin with the alternative(s) reviewed during the Programming Screen or identified during the associated ACE. New alternatives identified in PD&E can be studied, as appropriate. For an EIS, these are defined as the reasonable alternatives. All alternatives need to be developed to a comparable level of detail so that their merits can be compared and evaluated equally. It is important that the names used for the alternatives remain consistent throughout project development. The following sections discuss the types of project alternatives.

6-2.2.1 No-Action Alternative

The No-Action Alternative, also termed the No-Build Alternative, often means precisely that—doing nothing to the proposed project area, and it is meant to serve as a

benchmark to compare other alternatives. The No-Action Alternative can also include short-term minor reconstruction activities (safety improvements, minor widening, intersection improvements, etc.) which usually comprise a part of an on-going plan for the continued safe operation of the existing roadway system. Generally, these types of minor activities are CEs or Non Major State Actions (NMSA).

The No-Action Alternative remains under consideration throughout the PD&E Study including during the public hearing and the final selection process. Describe the No-Action Alternative in the alternatives section of the **PER** and Environmental Document. Describe the effects of no-action on the surrounding human and natural environment. All advantages and disadvantages of this option should be considered. When considering impacts of the No-Action Alternative, include the impacts to surrounding areas, such as increased travel demand on parallel routes, emergency response time, etc.

6-2.2.2 Transportation Systems Management and Operations (TSM&O) Alternative

The TSM&O Alternative includes activities which make up an integrated program designed to optimize the performance and utilization of the existing multimodal infrastructure through implementation of systems, services, and projects to preserve the capacity and improve the security, safety and reliability of the transportation system. Before consideration of alternatives that add capacity to an existing facility, it must first be demonstrated that maximization of the existing system through various TSM&O strategies does not meet the purpose and need. TSM&O includes upgrades or additions to the existing facility such as ramp signals, arterial traffic management systems, traffic incident management, work zone traffic management, road weather management, traveler information services, congestion pricing, parking management, traffic control, commercial vehicle operations, transit priority signals systems, and freight management.

The TSM&O Alternative also includes conversion of facilities with existing non-tolled managed lanes, such as, High Occupancy Vehicle (HOV) lanes to tolled Express Lanes as long as the total number of existing non-tolled general purpose lanes remains the same and other considerations are met. Although no tolling agreement is necessary (**23 USC 166(b)(4)** and **Section 166 of MAP-21**), coordination with FHWA is required as appropriate.

The TSM&O Alternative may have been previously addressed in a planning study. For example, a **Traffic Operations Study** may have looked at traffic signal optimization and access control elements of the TSM&O Alternative. If this has occurred, summarize the results of the previous study in the **PER** and the alternatives section of the Environmental Document. In addition, cite and make those documents available as part of the project file.

While TSM&O primarily relates to projects in urbanized areas, the concept of achieving maximum utilization is equally important in rural areas. The TSM&O Alternative should be discussed in the alternatives section of the **PER** and Environmental Document. If the TSM&O Alternative does not meet the purpose and need, document the reason.

6-2.2.3 Build Alternative(s)

The Build Alternative(s) are proposed to address the transportation problems identified in the purpose and need. The first step in analyzing Build Alternatives is to determine if they meet the purpose and need of the project. For projects that went through the ACE process, this has already occurred. The alternatives section for the Build Alternative(s) should provide a good description of the alternatives studied. This includes defining where alignments could potentially be developed, and the social, economic, and environmental consequences which would make such development undesirable.

During the development of build alternatives, FDOT policy requires that all additional capacity on all limited access facilities on the State Highway System include a dynamically tolled alternative in the form of Express Lanes [**Tolling For New and Existing Facilities on the State Highway System (SHS), FDOT Procedure No. 525-030-020**]. When evaluating alternatives for additional capacity on limited access State Highway System, the District, at a minimum, must evaluate the ability of each alternative to maximize long-term capacity needs and long-term mobility needs, provide travel reliability and travel options for drivers (**Section 338.151, F.S., MAP-21**, and **Title 23 Section 129** as amended by **MAP-21**). Keep in mind that tolling may involve additional federal and state requirements (**FHWA Guidance on Section 129, 2012**). Coordination with FHWA should take place if tolling will be considered on a federal project to ensure federal requirements are met.

A general discussion of the Build Alternative is then provided in the alternatives section of the Environmental Document and the **PER**. For Build Alternative(s) provide the following information:

1. Maps showing the alternatives.
2. Preliminary design concepts under consideration for both roadway and bridge elements of each alternative. This includes:
 - a. Project length; and if the project is segmented, segment lengths.
 - b. Description of the existing facility [i.e., Right of Way (ROW) width, number of lanes, median type, etc.] as it relates to the proposed action or alternative. For simple widening projects, all alternatives will have the same existing facility information. For projects on new alignments, include data on all existing facilities that will be affected.

- c. Average Annual Daily Traffic (AADT) for opening year, interim year, and 20-year traffic levels per alternative. This information may be referenced since it is generally found in the purpose and need or traffic section of the Environmental Document or **PER**. Include information for parallel roads affected by the project, as well as side streets, intersections, and interchanges.
 - d. Future capacity and Level of Service (LOS) per alternative or other appropriate information for multimodal projects (e.g., transit, rail, etc.). Where the LOS standards cannot be provided, the District must consult with FHWA if the project is to be approved by the agency. Justification for a project which will not adequately meet its purpose and need in the future must be provided to FHWA for concurrence. This coordination must be documented prior to proceeding with development of the draft document. This documentation should be included in the **PER**.
 - e. Maintenance of traffic, which includes all facilities, devices and operations as required to ensure the safety and convenience of the public within the construction zone. For each Build Alternative, ensure that the cost and complexity of the maintenance of traffic is considered.
 - f. Access management criteria, access management plan (as appropriate), and rationale for each alternative.
 - g. A description of all major intersection improvements.
 - h. Description of typical sections for each segment. If the same typical section occurs throughout a large portion of the project, then reference it in all applicable segments.
 - i. Description of supplemental routes, which are proposed to help meet the need of a constrained corridor.
 - j. Discussion of all non-motorized facilities (pedestrian and bicycle) that are being considered for the project.
3. Discussion of ROW involvement for each alternative under consideration. This includes drainage and retention area needs and temporary construction easements.
 4. How the type of facility proposed for each alternative addresses the purpose and need. For bridge structures, briefly reiterate the deficiencies of the structure, (e.g., number of openings, vertical and horizontal clearances, state of repair, rating, maintenance, LOS, U.S. Coast Guard involvement) and how the proposed improvements will solve the problems and deficiencies identified.

5. Advantages and disadvantages of each alternative. Discussion must include, but not be limited to:
 - a. Cost (including engineering, ROW, relocation, mitigation, and construction);
 - b. ROW involvement. This includes proposed drainage and retention area needs and all easements;
 - c. Number of potential relocations;
 - d. Relationship to any special, unique, or significant natural and historic features (i.e., landmarks, homes, properties, etc.);
 - e. Potential for **Section 4(f)** involvement (USDOT projects);
 - f. Description of any unique community needs or situations which will be served, enhanced, or impacted;
 - g. Consistency with the cost-feasible plan for the MPO/Transportation Planning Organization (TPO) (as appropriate); and
 - h. Summary of environmental impacts.

6-2.2.3.1 Multimodal Alternatives

Multimodal Alternatives are alternatives with mass and rapid transit options and non-motorized vehicle options. Develop alternatives to incorporate alternate modes of transportation where need and opportunity exists (See **Policy No. 000-725-010, Major Urban Corridor Studies**). For example, if a bus system exists or is proposed within the corridor, then bus stop facilities should be considered as part of the alternative design, and if these are implemented, sidewalks connecting bus stop facilities and local destinations may be needed as outlined in the final federal rule **Transportation for Individuals With Disabilities**.

For multimodal projects or projects where the potential exists for multimodal options, FTA should be consulted early in the project development process. Depending on the extent of FTA involvement and the possible use of FTA funds for portions of the proposal, the need to request FTA to be a lead agency or cooperating agency should be considered at the earliest stages of project development. The need for FTA coordination should be established through consultation with FHWA.

Evaluate the types of non-motorized facilities required to meet the need as defined in the purpose and need section of the Environmental Document. This evaluation must determine what types of facilities should be constructed consistent with local plans and the cost factors (monetary and environmental) involved in meeting the local needs as

defined by local interests. This evaluation includes consideration of pedestrians regarding trip and recreational activities (**Part 2, Chapter 14, Pedestrian and Bicycle Facilities**).

6-2.3 Analysis and Documentation

The alternatives section of the Environmental Document must address the following discussion points in accordance with **40 CFR 1502.14**:

1. Rigorously explore and objectively evaluate all reasonable alternatives (for EISs), and, for alternatives which are being eliminated from detailed study, briefly discuss the reasons for their elimination.
2. Devote an equal level of detail to each alternative considered, including the proposed action, so that their comparative merits can be evaluated.
3. For EISs only, include reasonable alternatives not within the jurisdiction of the lead agency.
4. Include the No-Action Alternative.
5. As appropriate, identify the Lead Agency approved preferred alternative, if one exists, in the draft document and the final document, unless another law prohibits the expression of such a preference.
6. Include appropriate mitigation opportunities and measures not already incorporated as a part of the proposed action or the alternatives proposed.

The location of alternatives information in the Environmental Document differs depending on the COA:

Type 2 CE: If more than one alternative is analyzed, alternatives information is included in Block 2.b. (Proposed Improvements) of the **Type 2 Categorical Exclusion Determination Form**.

EA: Alternatives information is included in the section titled Alternatives Considered.

EIS: Alternatives information is included in the section titled Alternatives Including Proposed Action.

SEIR: Alternatives information is included in Section 2.b. (Proposed Improvements) of the **SEIR Sample Format**.

The alternatives section for EAs and EISs should be divided up into sub-sections, as applicable (also for SEIRs at the District's discretion):

1. Alternative Development
2. Alternatives Considered but Eliminated
3. Alternatives Considered for Additional Study
4. Comparison of Alternatives-The Alternatives Matrix
5. FDOT Recommended/Preferred Alternative

6-2.3.1 Alternatives Development

This sub-section provides the project history by summarizing any planning alternative corridor reports, screening reports, and results of the ACE process as applicable. It should provide a brief description of the original alternatives that were considered and the methodology used for evaluation.

6-2.3.2 Alternatives Considered but Eliminated

This sub-section should discuss alternatives considered but eliminated from detailed study (during planning, ACE, or PD&E). This sub-section should clarify why the alternatives were eliminated, what criteria were used to eliminate them, at what point in the process the alternatives were removed, and who was involved in establishing the criteria. The rationale for eliminating alternatives should be summarized in this section and addressed in the *PER (Part 1, Chapter 4, Project Development Process and Engineering Considerations)* and the project file.

The primary reason for eliminating an alternative from consideration is that it does not meet the project purpose and need. Although the No-Action Alternative does not typically meet the purpose and need, it must be considered as a viable alternative throughout the study.

6-2.3.3 Alternatives Considered for Additional Study

This sub-section should discuss the alternatives under consideration [No-Action, TSM&O (if applicable), and Build Alternatives]. For an EIS this sub-section should describe the reasonable alternatives for *NEPA* analysis. Begin this sub-section by identifying the alternatives that were identified to be studied in greater detail in the PD&E Study, and include a concise discussion of how and why they were selected (*T6640.8A*). This sub-section should document the alternatives evaluation methodology during PD&E.

This sub-section should provide a clear understanding of each alternative's termini, location, costs, and major design features (number of lanes, ROW requirements, median widths, etc.), and provide the reader with a general understanding of each alternative's effects on its surroundings. This sub-section should present a summary of

the environmental impacts of each alternative (based on the information and analysis presented in Affected Environment and Environmental Consequences/Impact sections of the Environmental Document). The information should provide a clear basis for decision-making. Maps and other appropriate visual aids, such as photographs, drawings, or sketches should be used as needed. See **Section 6-2.2.3** for information to include for each Build Alternative.

Design detail should be commensurate with the information needed to define and evaluate environmental impacts or define ROW. Each alternative must be explored at a sufficient level of detail to support a reasoned choice. The FDOT recommended alternative should be identified in the **PER** and draft Environmental Document. It should be noted that all alternatives are under consideration and that a final decision is made only after the public hearing transcript (if applicable) and comments on the **PER** and draft Environmental Document have been evaluated.

6-2.3.4 Comparison of Alternatives- The Alternatives Matrix

The Environmental Document up to this point has been an analysis of each alternative's impact on individual resources or issues. To finalize the decision-making process, the Environmental Document must compare alternatives in a fair and balanced manner using "apples-to-apples" comparisons. The alternatives matrix is developed to compare the alternatives across the breadth of issues affected by the project. It provides a comparative qualitative and quantitative analysis of alternatives for the project. The factors evaluated in the matrix should be based on the critical issues or constraints of the project. Information in the matrix must be consistent with the Environmental Document and applicable technical reports.

The ranking for each factor should be based on how each alternative impacts the critical issues/resources as identified in the Environmental Consequences or Impacts section of the Environmental Document. The rationale and the factors used in the ranking of the analysis should be clearly described in the text and should take ETAT commentary into consideration. As alternatives are analyzed, the comparison should be based on the intensity of the impacts on the issues/resources and the importance of the issues/resources impacted.

Other factors can also be included in the matrix based on the analysis of the project. There is no standard list of factors since projects and their impacts are unique. The following is an example of potential factors:

1. Constructability
2. Construction costs
3. Engineering costs [design and Construction Engineering and Inspection (CEI)]

4. ROW costs (business damages, residential relocations, number of parcels, etc.)
5. Bicycle and pedestrian facilities, as appropriate
6. Temporary Traffic Control (TTC)/Transportation Management
7. Environmental impacts (natural, physical and cultural) – direct, indirect, and as appropriate, cumulative impacts. Information must be consistent with the Environmental Document and applicable technical reports
8. Social and economic impacts (ROW requirements, relocations, aesthetics, traffic flow improvements, changes to neighborhoods and social gathering areas, etc.) – Information must be consistent with the Environmental Document and applicable technical reports
9. Operational analysis – Evaluate the degree to which each alternative will meet the project objectives or purpose and need. This element in the matrix may include such functions as increased LOS, improved drainage, improved access control, elimination of congestion, establishment of system continuity (SIS goals), reduced travel time, or improved safety
10. Safety benefits as determined using *The Highway Safety Manual (HSM) Analysis* in accordance with *NCHRP 17-38*

The matrix is a tool used by the Lead Federal Agency and the District to compare alternatives and aid in determining the FDOT recommended/preferred alternative.

6-2.3.5 FDOT Recommended/Preferred Alternative

For an EA or DEIS, this sub-section should be titled FDOT Recommended Alternative when the District has identified the FDOT recommended alternative. This sub-section should describe the alternative which the Department is recommending to FHWA for LDCA. This determination is based on the results of the alternatives evaluation and is summarized in the alternatives matrix. For DEISs, the FDOT recommended alternative would become the FHWA preferred alternative, if no substantial controversy or issues arise through the public and agency comment period.

Once approved by the Lead Federal Agency, the District must identify the preferred alternative in the Environmental Document [Draft Environmental Impact Statement (DEIS), EA, Final Environmental Impact Statement (FEIS)/Record of Decision or FEIS] and **PER**, and discuss the basis for its selection. This should be documented in a sub-section titled Preferred Alternative. In a FEIS, this would replace the FDOT Recommended Alternative sub-section of the DEIS.

The coordination to determine the preferred alternative may occur through various mechanisms, including verbal communication, a letter, or identification in the EA or EIS. Regardless, coordination with the Lead Federal Agency is required. The coordination must be documented in this section and maintained in the project file.

The preferred alternative is described in sufficient detail so the reader totally understands the Department's and Lead Federal Agency's decision. Provided below is an example of the type of discussion generally found in this section.

"As a result of scoping, the public hearing, environmental analysis, and interagency coordination, the alternative identified for LDCA is (alternative name), which is (alternative description) (cite location of alternative specific details and typical sections)."

The Lead Federal Agency will not accept the identification of a preferred alternative until completion of sufficient scoping and analysis to support the identification. Although the preferred alternative could be identified earlier in the process, at the latest it must be identified in the final Environmental Document [FEIS or Finding of No Significant Impact (FONSI)]. Regardless of when the preferred alternative is identified, it must be approved by the Lead Federal Agency.

Once the project receives LDCA and is advanced to the next phase of implementation, the preferred alternative is referred to as the selected alternative.

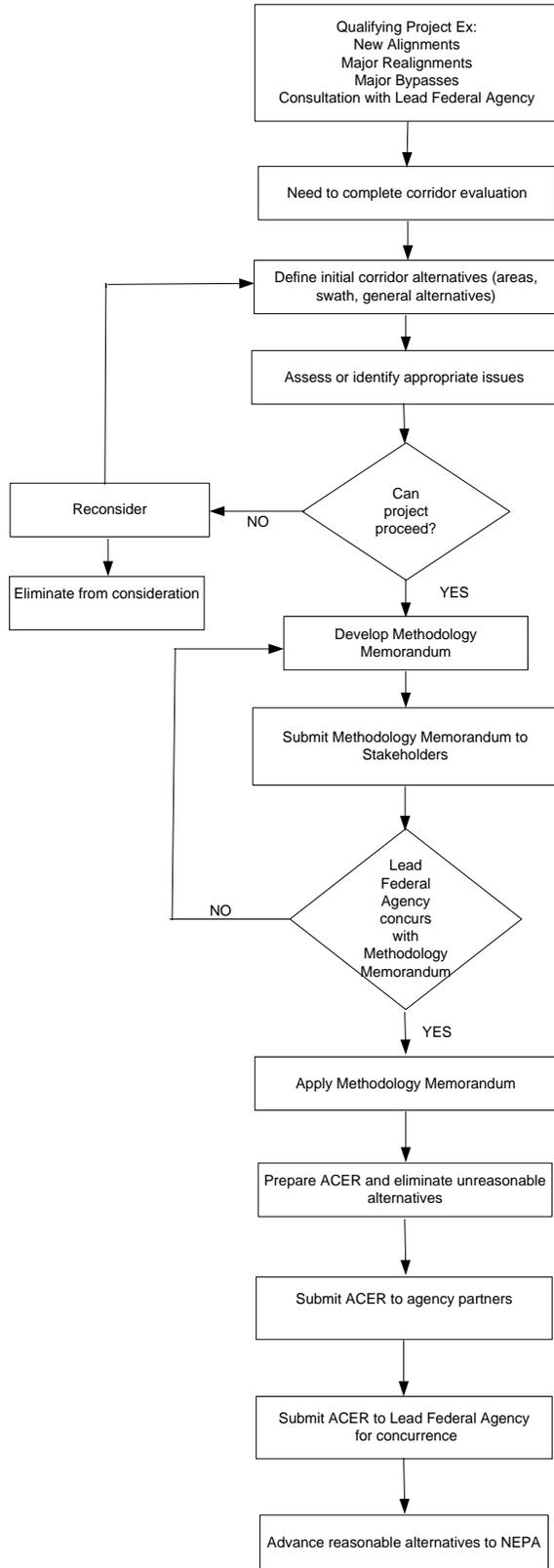
6-3 REFERENCES

1. Council on Environmental Quality, Executive Office of the President, 1978. Regulations For Implementing The Procedural Provisions Of The National Environmental Policy Act. Reprint 43 FR 55978-56007, 40 CFR Part 1500-1508.
2. 23 CFR 450. Planning Assistance and Standards. Appendix A, Linking the Transportation Planning and NEPA Processes.
3. Moving Ahead for Progress in the 21st Century (MAP-21), Section 1310.
4. FHWA, Guidance on Using Corridor and Subarea Planning to Inform NEPA, April 5, 2011.
5. Federal Register, March 24, 2009. Environmental Impact and Related Procedures; Final Rule, FR Vol. 74, No. 55. 23 CFR 771.
6. U.S. Department of Transportation, Federal Highway Administration, October 30, 1987. Guidance for Preparing and Processing Environmental and Section 4(f) Documents, FHWA Technical Advisory T6640.8A.

7. Section 4(f) of the Department of Transportation Act of 1966, Title 49, USC, Section 1653(f).
8. 40 CFR 230. 10(a). CFR 40 Part 230 Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material.
9. Florida Statutes, Section 338.151.
10. FDOT Procedure No. 525-030-020. Tolling For New and Existing Facilities on the State Highway System (SHS).
11. FHWA, Guidance on Section 129 General Tolling Program, September 24, 2012. Federal Tolling Programs under the Moving Ahead for Progress in the 21st Century.
12. FDOT Policy No. 000-725-010. Major Urban Corridor Studies.
13. Transportation for Individuals with Disabilities, Federal Rule, 49 CFR Parts 27, 37, and 38.
14. FHWA ORDER Classification Code 6640.1A, Policy on Permissible Project Related Activities during the NEPA Process, October 1, 2010.
15. NEPA and Transportation Decisionmaking, Development and Evaluation of Alternatives: <http://environment.fhwa.dot.gov/projdev/tdmalts.asp>
16. NCHRP 17-38, Highway Safety Manual.
17. American Association of the State Highway and Transportation Officials (AASHTO), Practitioner's Handbook. Defining the Purpose and Need and Determining the Range of Alternatives for Transportation Projects. August, 2007.

6-4 HISTORY

1/12/2000



Note: This process can be used on non-federal projects

FIGURE 6.1 Alternative Corridor Evaluation Process

1. Background

- a. Contact personnel
- b. Basic project information
 - i. Include any previous planning studies or relevant information
 - ii. Include any known issues of concern
- c. Brief description
- d. Brief Purpose and Need of the project

2. Describe the goals and objectives of the ACE

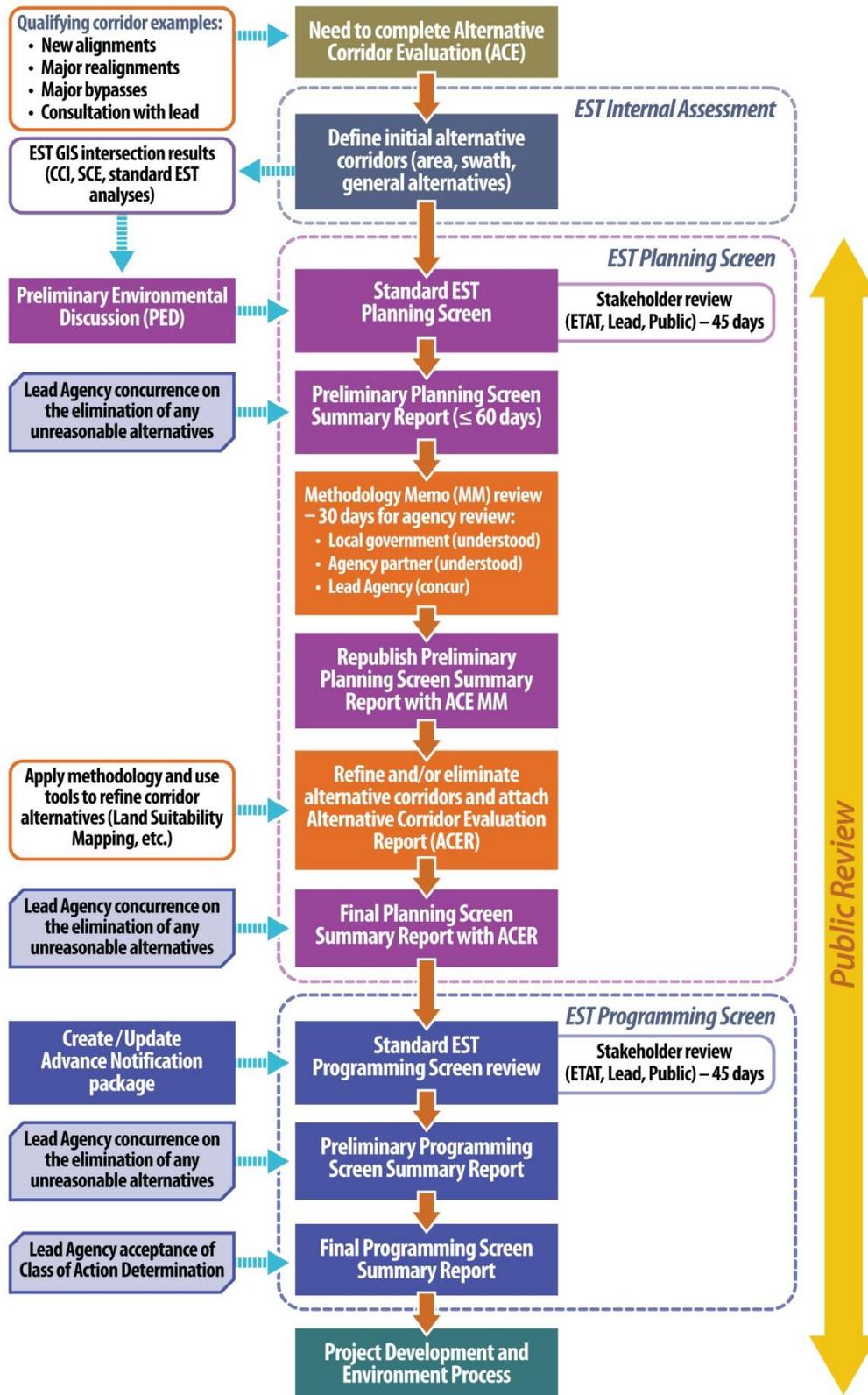
- a. Provide the status in project delivery
- b. Define the intent of the study
- c. Identify the decision points/milestones

3. Describe the methods that will be used to analyze the alternatives and make decisions

- a. Describe alternative corridors
- b. Describe screening criteria
- c. Briefly describe the data that will be used and how it will support the decision making process going forward
- d. Describe the rationale that will be used to eliminate alternatives
- e. Describe the data tools that will be used in the analysis [i.e., EST, Land Suitability Mapping (LSM), Quantum, etc.]

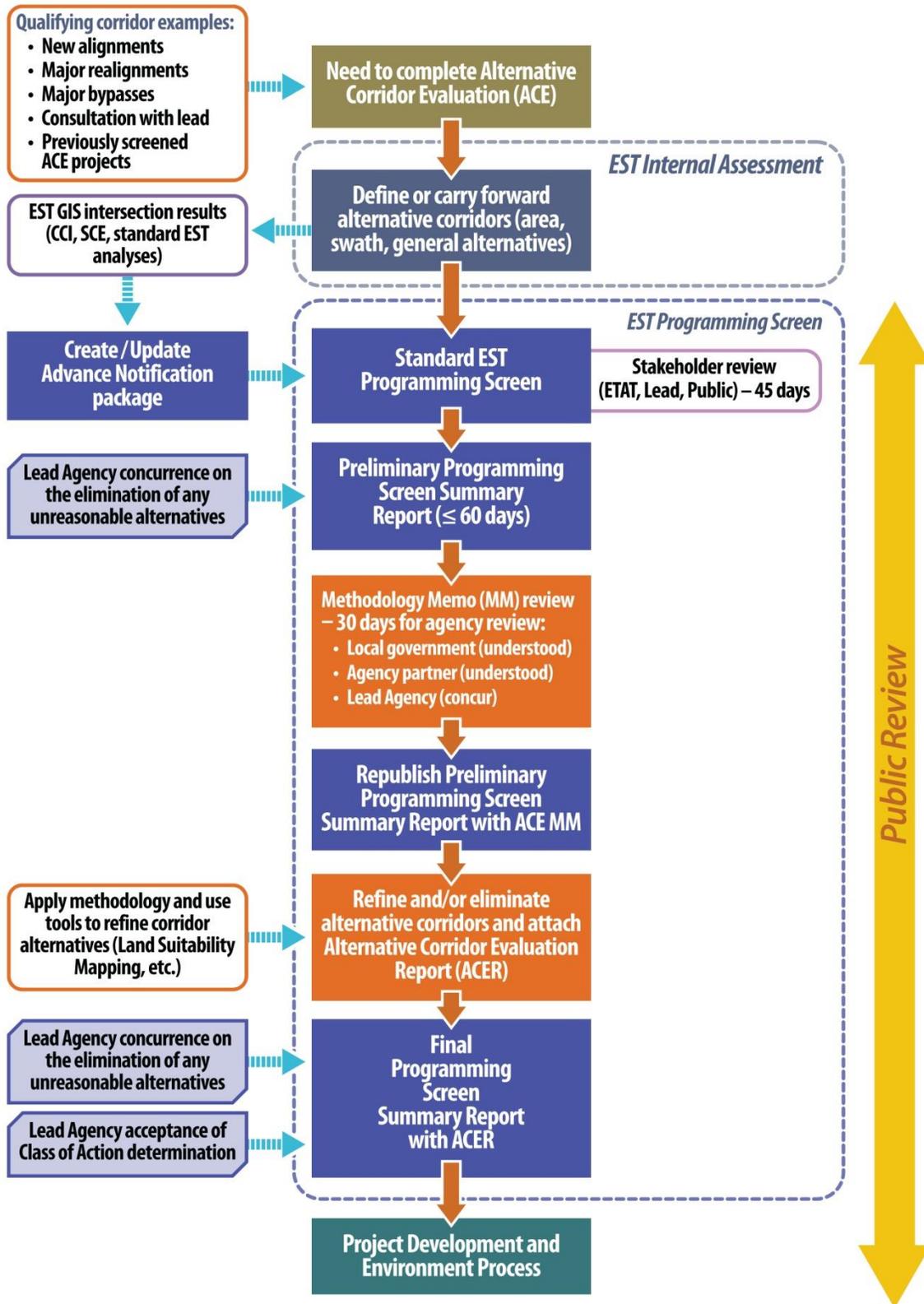
4. A brief description of stakeholder involvement

FIGURE 6.2 Methodology Memorandum Outline



*CCI= Community Characteristics Inventory, SCE= Sociocultural Effects Evaluation

FIGURE 6.3 ACE During the Planning Screen



*CCI= Community Characteristics Inventory, SCE= Sociocultural Effects Evaluation

Figure 6.4 ACE During the Programming Screen