TCPE

Transit Corridor & Project Evaluation Guidance

A planning guide for project sponsors of major transit capital investment projects seeking funding through the Federal Transit Administration's (FTA) Capital Investment Grants (CIG) program and the State New Starts Transit program

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FDOT

Table of Contents

Figures

List of Acronyms

ADT	Average Daily Traffic
BRT	Bus Rapid Transit
CIG	Capital Investment Grants
EJ	Environmental Justice
ETDM	Efficient Transportation Decision Making
FDOT	Florida Department of Transportation
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
LOD	Limits of Disturbance
LOS	Level of Service
LRT	Light Rail Transit
MOE	Measure of Effectiveness
MOU	Memorandum of Understanding
MOT	Maintenance of Traffic
MPO	Metropolitan Planning Organization
MTP	Metropolitan Transportation Plan
NEPA	National Environmental Policy Act
PD	Project Development
PD&E	Project Development and Environment
PEL	Planning and Environmental Linkages
PMOC	Project Management Oversight Consultant
RCMP	Risk Contingency Management Plan
SIS	Strategic Intermodal System
SNS	State New Starts
STOPS	Simplified Trips-on-Project Software
TBEST	Transit Boardings Estimation and Simulation Tool
TCAR	Transit Concepts and Alternatives Review
TCPE	Transit Corridor and Project Evaluation
TDP	Transit Development Plans
TNC	Transportation Network Companies
TPOs	Transportation Planning Organization
VMT	Vehicle Miles Traveled

Introduction

Overview

The Transit Corridor and Project Evaluation (TCPE) Study is a planning guide for project sponsors of major transit fixed guideway capital investment projects seeking funding through the Federal Transit Administration's (FTA) Capital Investment Grants (CIG) program and FDOT's State New Starts (SNS) program. The TCPE updates and replaces the 2016 TCAR Study guidance.

The TCPE Study is designed to help successfully secure federal and state funding to deliver transit projects enhancing mobility in their area. It provides an important bridge between system planning and seeking to enter Project Development (PD) in the FTA's CIG Program or FDOT's SNS program. The TCPE addresses the changing needs of project sponsors and the evolving funding environment.

This guidance is designed specifically for CIG and SNS funded projects. If a project is not seeking these funds, a TCPE is not required. However, if a project conducts a TCPE and determines in Step C the project is not competitive or ready to seek CIG/SNS funding, the work conducted in the TCPE can be utilized when seeking other grant funding sources.

"Do I Really Need a TCPE Study?"

Project sponsors may wonder "Do I really need to do a TCPE Study?" A TCPE study, or its planning level equivalent, helps project sponsors and champions position a project for success before entering PD. Early planning and project development require investment of time and money, and it is important to make sure taxpayer funds and staff time is well spent on projects with a high probability of success. The TCPE will better prepare a project for FTA CIG funding at the federal level, and anyone seeking funding from the FDOT SNS program must complete a TCPE, or its planning level equivalent.

The TCPE is a streamlined process that allows entry to FTA PD in a timely and cost-effective manner. Project sponsors may choose to conduct a more extensive study which may include preliminary engineering and more detailed environmental reviews. However, the TCPE guidance should still be consulted to ensure project readiness to enter FTA CIG PD.

The TCPE study leverages existing and past planning efforts, mobilizes stakeholders around a set of recommended alternatives, and creates a pathway for successful entry into PD; and most importantly, success in project development through engineering, construction, and into revenue service. There are also important benefits to securing entry into FTA PD. The enhanced project status results in a higher level of coordination with FTA, and it even means certain funding can become eligible as non-federal match expenditures toward a future FTA CIG grant.

A TCPE study will help assess a project's readiness to enter PD and effectively compete for federal funding. It can also help guide project or transit corridor study activities and identify actions needed before a project is ready to enter PD.

Even the worthiest projects can face a difficult path to revenue service and the TCPE study is essential for identifying risks and developing mitigation strategies. Changes to the National Environmental Policy Act (NEPA) and FTA CIG PD timelines make TCPE planning even more critical. A TCPE study will result in one of the most important elements for

success, a funding plan for capital and long-term operating and maintenance costs.

What does the TCPE include?

The TCPE guidance replaces the Transit Concepts and Alternatives Review (TCAR) guidance. It reflects changes in federal policy and statutes since 2016 and provides a more flexible framework that can be used to prepare a project to enter the FTA CIG Program PD or other funding opportunity. The TCPE also provides enhanced clarity around the steps needed to go from system planning to PD. A refined planning checklist (**Table 1**) provides the details project sponsors need to be successful in getting a project from concept to revenue service and secure federal funding.

SunRunner Bus Rapid Transit, PSTA

Table 1. Transit Corridor and Project Evaluation Study Checklist

		Completed (Y/N)	Revisiting (Y/N)
Public Involvement and Stakeholder Engagement	• Is there a plan to engage key stakeholders and obtain public input?		
STEP A: HIGH-LEVEL ASSESSMENT			
Purpose and Need	• Do stakeholders agree on the project Purpose and Need?		
	• Can the Purpose and Need help screen potential alternatives?		
Fatal Flaw Analysis	• Has project financial feasibility been addressed?		
	• Has a constructability analysis been conducted?		
Project Sponsor	• Has the Project Sponsor been identified?		
	• If so, does there need to be an MOU developed?		
	• Is the sponsor different from the future owner and operator?		
Project Champion	• Has the Project Champion been identified?		
Funding Options	• Have funding options been identified?		
	• Have they been evaluated for suitability for this project?		
Transportation Plans and Policies	• Is the project included in an existing plan?		
	• Are there existing policies to support the project?		
	• Has there been previous public involvement?		
STEP B: PROJECT AND CORRIDOR FEASIBILITY			
Project and Corridor Description	• Is there sufficient description of the corridor to identify alternatives and inform the project goals and objectives?		
Goals, Objectives, and Priorities	• Are goals and objectives consistent with Purpose and Need?		
Corridor Needs and Benefits	• Have future travel patterns and forecasts been generated?		
Alternatives Evaluation	• Has a process for evaluation of alternatives been developed using guidance from TCPE?		
STEP C: PROJECT READINESS			
Recommended Alternatives	• Do recommended alternatives meet/exceed performance requirements and have strong support from community?		
Readiness Assessment	• Will the project be funded as New Starts, Small Starts, Core Capacity, or Bundle?		
	• Can the project be completed within required timeframe?		
FTA CIG Project Evaluation	• Is the latest FTA CIG rating criteria being applied? *If State funding is used, check latest criteria for FDOT's State New Starts (SNS).*		
Strategic Funding Plan	• Have primary funding sources for capital and long-term operations and maintenance been identified?		
	• Are there actions remaining to lock them in place?		
Risk Analysis	• Have potential risks likely to be incurred in Project Development been identified and have associated mitigation strategies been developed?		

Developing a Premium Transit Project

Vision/System Planning

Ideally, premium transit projects emerge from long-range system planning where agencies develop visions and transit development plans to guide how the transit network should grow. Key corridors are identified for development based on various factors including potential for ridership growth; demand from transit-dependent communities; ability to connect activity, employment, and population centers; and opportunities to support transit-oriented development. Early planning activities increase the likelihood of success and make certain that premium transit projects complement the existing transit network. ***While FTA wants to see a project with independent utility, that does not mean it should operate independently from the rest of the system.***

WHAT IS PREMIUM TRANSIT?

Premium transit represents a higher level of investment on a corridor than local fixed routes or demand responsive service. It consists of dedicated service along a corridor with higher frequencies and/or capacity along with more amenities, stations or superstops, unique branding, and connections to other transportation modes. Premium transit projects typically operate in a dedicated right of way but can operate, in part, in mixed traffic. Those projects within a separate right of way are classified as fixed guideway projects and are eligible for different funding sources.

Projects emerging from the long-range planning process benefit from system integration, incremental corridor development, and inclusion in the metropolitan planning organization Metropolitan Transportation Plan (MTP). There are situations where projects arise outside of the traditional planning process. That doesn't mean these are "bad" projects, especially considering these projects typically have a strong project champion. Still, project advocates should recognize this lack of early planning places additional demands to get a project ready to enter PD.

Scoping the TCPE

Once a sponsor determines a TCPE study is needed, they should utilize the three-step process discussed in this guide to develop a study scope and fee. A TCPE study is intended to be flexible and offers a simplified process to boost efficiency in conducting tasks of various magnitudes and complexity. A project sponsor may choose to conduct each step as a discrete planning study/task. In developing the scope and fee, sponsors should consider the following:

- Ongoing and previous planning study efforts;
- Project complexity;
- Likelihood of evaluating multiple alternatives;
- Potential corridor ownership issues; and
- Level of cost estimating, design, and environmental review desired prior to seeking entry into PD.

The project sponsor should incorporate stakeholder engagement in the TCPE study's scope and fee during each phase. The purpose of the engagement is to: 1) solicit and review public comments and feedback received from persons and groups in

impacted communities; and 2) apply comments during each phase of the project.

Public Involvement/ Stakeholder Engagement

Public Involvement and Stakeholder Engagement is a foundational and continuous process that travels with a premium transit project from ideation to revenue service. A strong plan also supports the Florida Department of Transportation's (FDOT) commitment to community-oriented planning.

The project sponsor should begin by developing a Public Involvement and Stakeholder Engagement Plan that supports each step of the TCPE and can continue into future project phases. The plan should include clearly defined goals and objectives, strategies for outreach and engagement, a broad range of stakeholder groups and individuals, a work plan and timeline, and highlighted references to applicable federal and state laws and guidance for engagement.

Stakeholder Roles & Responsibilities

As part of the high-level assessment the project sponsor should identify key stakeholders that represent varying project interests. Likely stakeholder participants are grouped below under four categories. These are:

- Federal, State, and Local Agencies;
- Elected Officials, Community Leaders, and the Public;
- Third Parties such as Railroads and Utilities; and
- Others such as the Project Owner(s) and Business Leaders or Major Employers.

However, each project may differ based on location and scope of work.

Figure 1. Key Stakeholders

The FTA and the Federal Highway Administration (FHWA) regulate federal transportation planning processes in metropolitan areas. Florida is in FTA's Region 4. Region 4 staff are available to provide support to transit operators in Florida. The project sponsor should introduce the project to Region 4 staff during initial project assessment to discuss federal funding eligibility.

Local governments, Metropolitan Planning Organizations (MPOs)/Transportation Planning Organizations (TPOs) and the FDOT have distinct, yet complementary roles in Florida's transportation planning and programming processes. MPOs/TPOs and local governments prioritize projects, while the FDOT programs or budgets projects. FDOT coordinates with MPOs/TPOs and local governments to develop a vision for the state's transportation system to include goals, objectives, and policies to sustain and support the growth of the state's population and economy.

Stakeholder Coordination

Stakeholder coordination is critical to all premium transit projects, particularly those crossing multiple jurisdictions. The high-level assessment will involve the stakeholders listed in **Figure 1** coming together for the following:

- Agreement on project needs, goals and objectives, and priorities
- Planning policies/requirements
- Ownership and operation responsibilities
- Opportunities to collect and share data and software

These groups may form into technical or advisory committees to address project issues and concerns. Local agencies may have access to considerable data, software, and resources that will be useful for planning activities. A signed Memorandum of Understanding (MOU) by key stakeholders - including project sponsor, operator, and local agency - is recommended.

Emerging Technologies

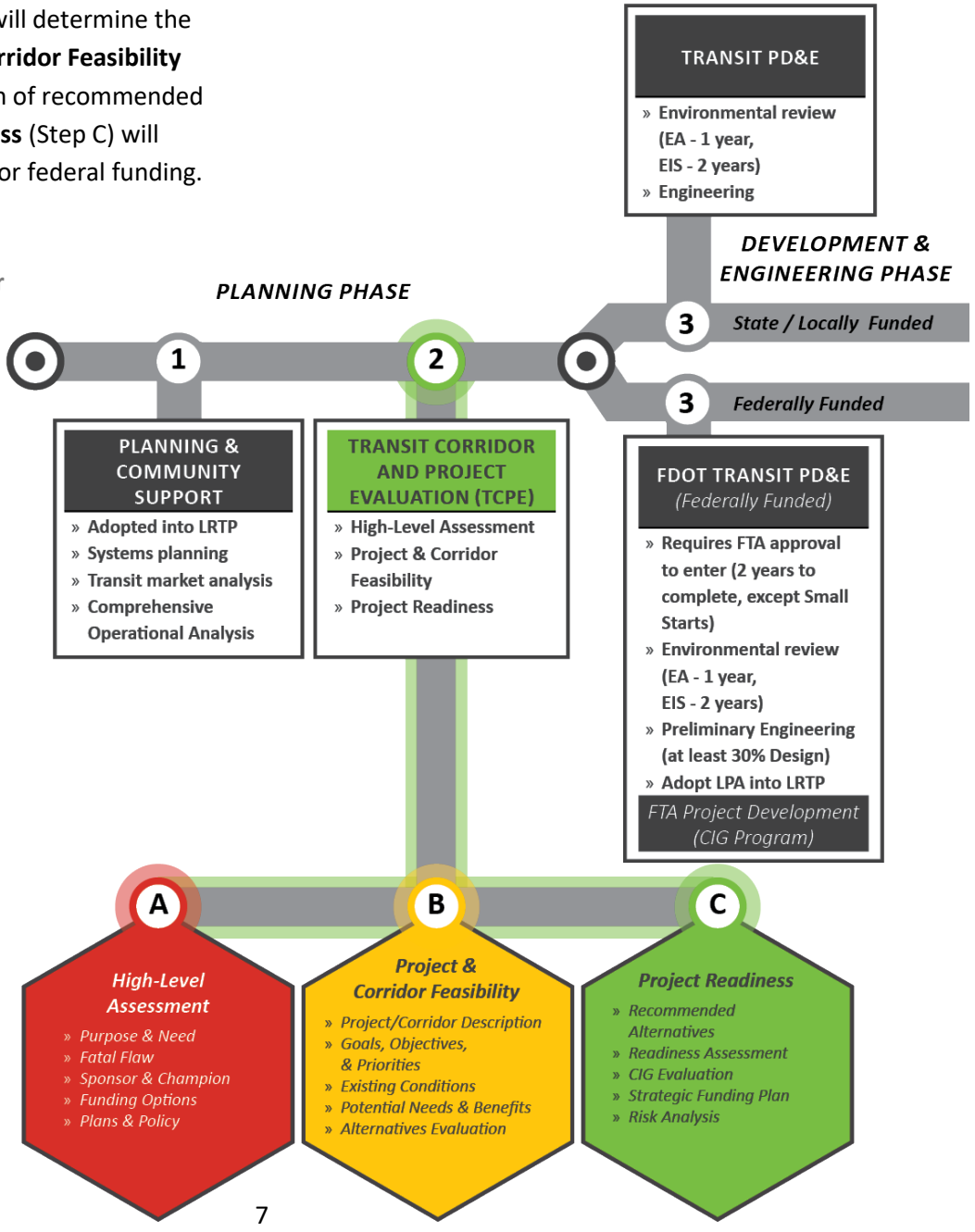
Stakeholder engagement can be employed by blending traditional approaches such as in-person meetings with newer techniques of online engagement and a range of interactive tools. The following emerging technologies can help manage project communications, meet people where they are, and provide effective stakeholder engagement throughout the life of a project:

- **Virtual Workshops.** In-person meetings should be complemented by online opportunities for stakeholders to provide feedback. These meetings should take place both during and outside of working hours so a wide variety of people can participate.
- **Interactive Project Website.** A sponsor-approved website should be created at a project's onset and updated at key milestones to help distribute information to key stakeholders. The website should be ADA-compliant and include easy-to-understand graphics, images, renderings, and other visuals to allow the community to better understand the proposed concepts and options.
- **Facilitation Tools**. Highly interactive tools such as surveys, polls, and computer-generated mapping can help to provide real-time feedback during in-person or virtual meetings. These tools can be employed on stakeholder cell phones or embedded into project websites to solicit live feedback from stakeholders.

Transit Corridor and Project Evaluation

Figure 2 displays the TCPE component in the context of the overall three-phase framework for transit project delivery. The TCPE falls within the planning phase following Planning and Community Support. The TCPE component consists of a three-step process for developing a premium transit project. A **High-Level Assessment** (Step A) will determine the project's viability; **Project and Corridor Feasibility** (Step B) will result in the selection of recommended alternatives; and **Project Readiness** (Step C) will evaluate the project's readiness for federal funding.

Figure 2. Overall Framework for Transit Project Delivery



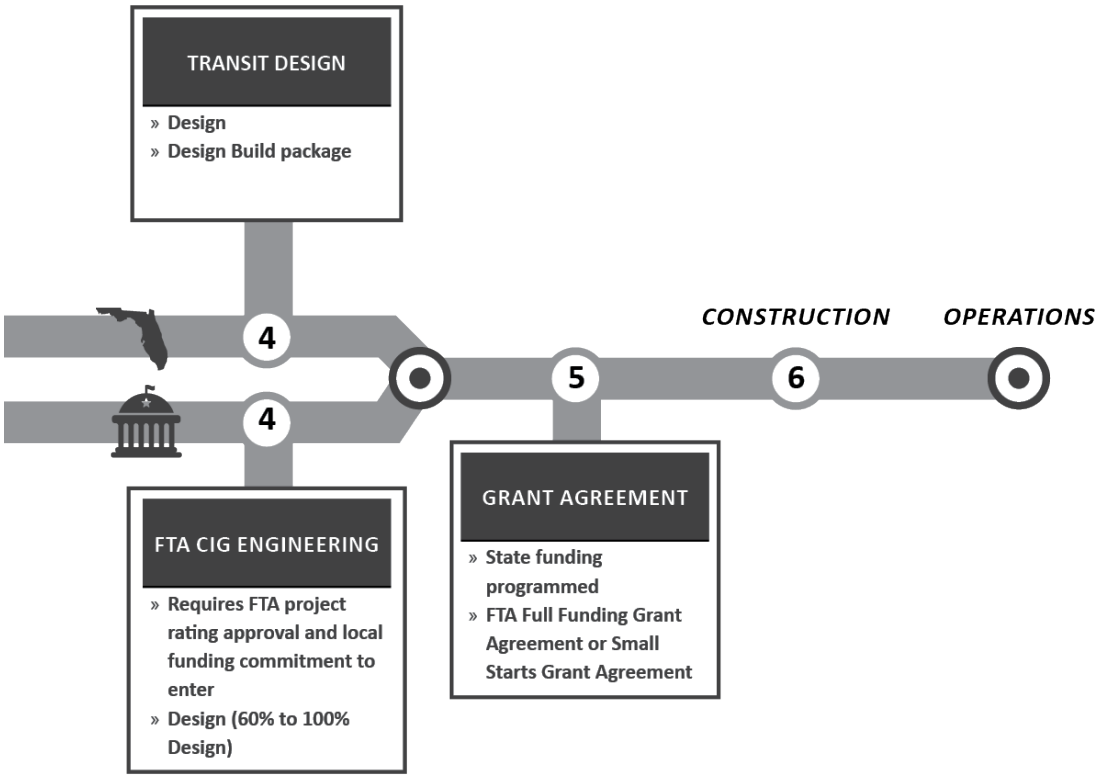
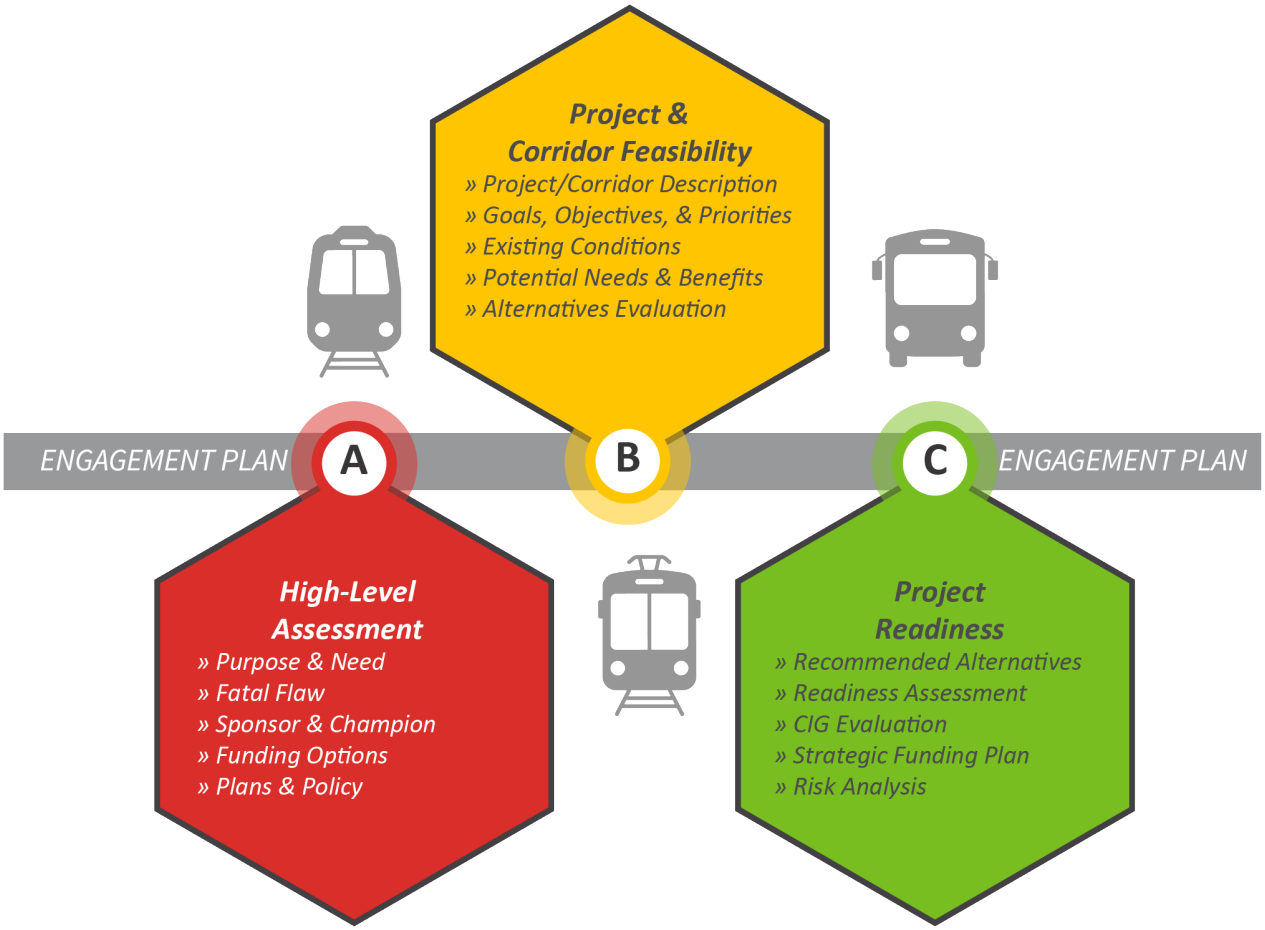

TRANSIT DESIGN
» Design
» Design Build package
CONSTRUCTION
OPERATIONS
4
4
5
6
GRANT AGREEMENT
» State funding programmed
» FTA Full Funding Grant Agreement or Small Starts Grant Agreement
FTA CIG ENGINEERING
» Requires FTA project rating approval and local funding commitment to enter
» Design (60% to 100% Design)

Figure 3 enlarges each of the steps in the evaluation, while the paragraphs below describe each step in more detail. Though the three steps represent the general order of work, project sponsors have the discretion, and are even encouraged to look for ways to conduct activities concurrently to expedite the process.

Tri Rail, South Florida Regional Transportation Authority

Figure 3. Transit Corridor and Project Evaluation (TCPE) Steps

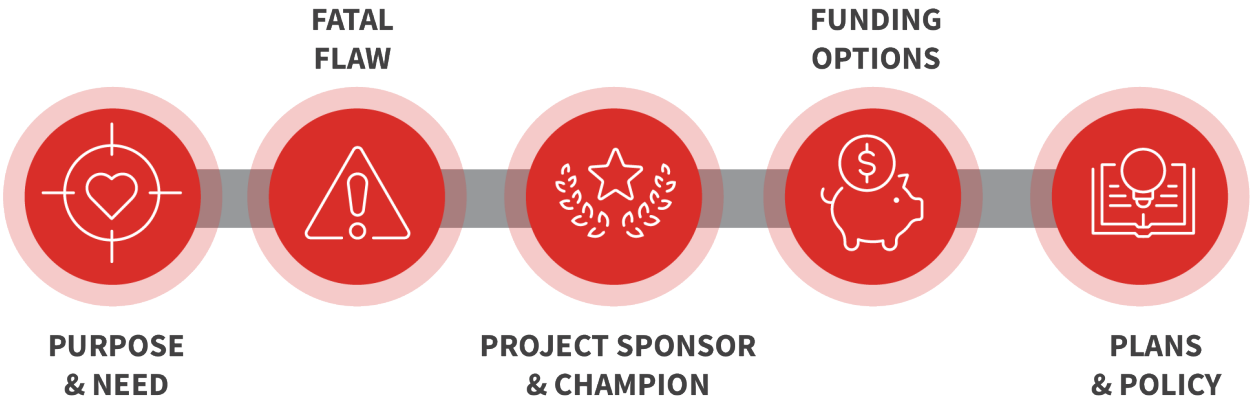


STEP A: High-Level Assessment

A high-level assessment is necessary to identify opportunities, issues, and risks early on and to determine if the project should progress to the next steps (**Figure 4**). **Project sponsors will often identify a wide range of ideas and concepts to be considered for a transit project for PD and federal funding without assessing potential challenges that might inhibit its implementation.**

First Coast Flyer, Jacksonville Transportation Authority

Figure 4. High-Level Assessment Steps



Purpose and Need

The project sponsor and key stakeholders should establish the Purpose and Need statement for a potential project during the High-Level Assessment. If the Purpose and Need statement was developed during previous planning efforts, then it should be reviewed to determine if refinements are needed. The Purpose and Need is the critical first step that establishes the framework for the project and drives the alternatives evaluation. It describes what the project is trying to accomplish and why the project is needed.

Fatal Flaw Analysis

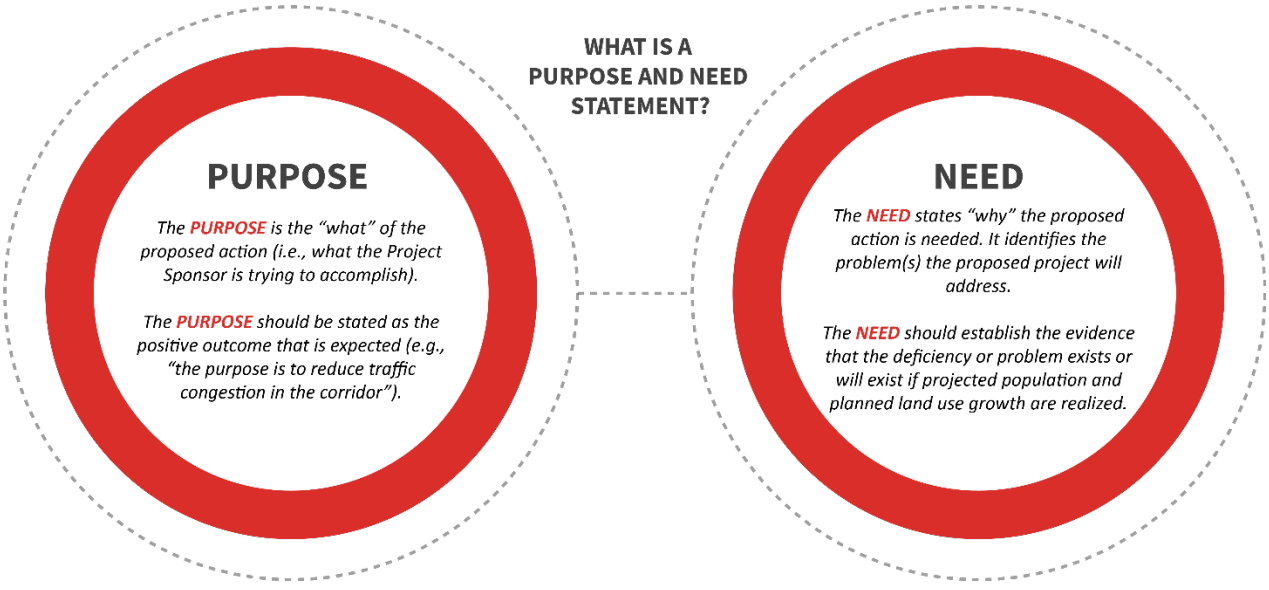
Project sponsors need to be realistic and forthright about the project's ability to be implemented given the expense associated with early planning and project development. It is recommended that assessment of project risks (see Step C: Risk Analysis) and potential fatal flaws have some level of independent review by someone other than the project sponsor.

A project could be deemed fatally flawed if it is fiscally or technically infeasible. Fiscal infeasibility relates to unreasonably high capital cost, long-term operation and maintenance costs, and lack of funding availability or minimal benefit, i.e., marginal increase in ridership. If a potential project's anticipated capital and/or O&M costs are considerably higher than other proposed solutions, yet offer minimal or similar benefits to other projects, then its elimination can be justified. Opportunities for funding of the project should also be reviewed in reference to its probable costs and benefits.

KEY CONSIDERATION

A project could be deemed fatally flawed if it is fiscally or technically ***infeasible.***

Technical infeasibility refers to physical, operational, environmental, and construction related fatal flaws that could limit or block a project's implementation. Project sponsors should initiate FDOT's Efficient Transportation Decision Making (ETDM) process to identify potential environmental issues and

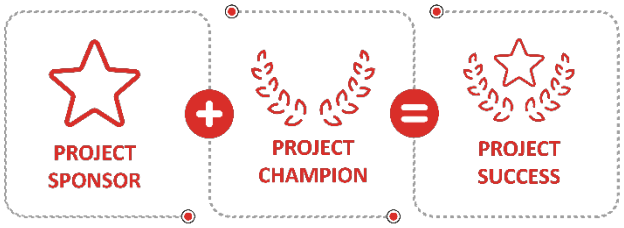


resources of concern. Most physical and operational constraints can be overcome but typically at a cost. In that case, project sponsors should realistically consider whether those costs would render the project financially infeasible. Physical constraints may come in the form of limited right of way, excessive business and community impacts, or structural constraints.

Potential fatal flaws that do not render a project infeasible, will likely remain as project risks that will need to be mitigated during project development.

Project Sponsor and Champion

The project sponsor and champion are both critical to a project's success. Early planning and corridor evaluation can require significant investment in time and money, so it is important that they are in place to strengthen chances for advancement and success. Therefore, it is strongly recommended to identify these roles before proceeding with the next steps.



Project Sponsor

The project sponsor is the agency or entity that is proposing or initiating the study, seeking approval for funding, and will be the recipient of any federal funding for the project. They are responsible for project oversight; interacting with local, state, and federal officials; and project implementation. The project sponsor will apply for entry into FTA's CIG federal funding program and conduct PD, environment reviews, engineering, construction, and operations. The project sponsor could be the same agency from planning through PD, engineering and construction, and operations. Or the identified sponsor may change to another agency after planning for PD or engineering.

In the case of an unsolicited proposal for a project seeking FTA CIG and FDOT SNS funding, a project sponsor will still need to be identified and the project will need to go through TCPE or planning equivalent. FTA defines an unsolicited proposal as one that is prepared without the recipient's supervision, endorsement, direction, or direct involvement; or one that is not an offer responding to a recipient's previously published expression of need or request for proposals. Project sponsors should also consult the current state statutes and federal guidelines for such proposals.

Project Champion

A project champion generates support for the project with key stakeholders including the public, government officials, community leaders, and local businesses. Having a champion on board early helps stakeholders build alliances and agreement with the project's mission and goals and support through challenges that may be encountered during project development.

A project champion is not a formal role and not all projects will have one. However, someone outside the sponsor agency such as an elected official or major employer can be the key to success.

KEY CONSIDERATION

If there is not an apparent project champion, a sponsor agency might think about strategically cultivating a champion(s) to help garner support for local and state funding and satisfy federal funding requirements.

Since project champions are often elected officials there can be inherent challenges; the most notable being the time it takes a project to get completed may exceed the champion's time in office. Sponsors should plan for withstanding potential changes in elected leadership and potential shifting priorities at state and local government agencies.

Role of the Department

FDOT is a vital partner in advancing mobility through all transportation modes in Florida. However, for major transit projects, the department's role will vary depending on the project, the FDOT district involved, and the local agency looking to advance the project. Typically, the department does not own and operate public transit. However, in some cases, the department will function as the project sponsor through PD and even into engineering and construction. If the department begins the project as the sponsor, they will typically transition that role to the local agency at some point in the process. Determining the department's role is an important discussion in the early stages and will be influenced by the:

- Complexity of the project
- Technical capacity and workload of the local agency looking to advance the project
- Project impact on state facilities

It is a Best Practice to develop a Memorandum of Understanding or Cooperative Agreement that spells out roles and responsibilities for FDOT and other key local project partners.

KEY CONSIDERATION

If the initial project sponsor is expected to change or will not be the service operator, a memorandum of understanding (MOU) should be created with the project's service operator or agency anticipated to become the project sponsor.

Funding Options

Transit sponsors exploring the viability of a premium transit project should consider a variety of funding options. Lack of adequate and dedicated funding is one of the main reasons a project does not proceed into engineering, construction, and ultimately revenue service. During the high-level assessment, a project sponsor does not need a comprehensive funding plan, but there should be a clear understanding of the funding options.

KEY CONSIDERATION

Expectations must be set for the development of a realistic funding plan addressing capital, operating, and long-term maintenance needs before requesting entry into FTA PD of the project.

In developing the list of potential funding sources, consideration should be given to whether the funds:

- Are traditional or non-traditional
- Are competitive grants or formula
- Are local, federal, or state
- Are generated as a Public Private Partnership or innovative financing
- Are recurring, one-time or subject to annual appropriations
- Can support all or a portion of the project
- Can support capital, operating or both
- Require matching funds
- Require approval by local ordinance or referendum

During the Project Readiness step, a more detailed Strategic Funding Plan should emerge.

Transportation Plans & Policy

The project sponsor should review and document relevant state, regional, and local planning products to determine whether the project is included in an existing plan, if any early planning work or studies have been initiated by another agency, and whether the project is consistent with goals and objectives of relevant plans. Some of the plans can also be utilized later when establishing existing conditions on the corridor. These plans include but are not limited to:

- Metropolitan Transportation Plans (MPO/TPO Long Range Transportation Plans)
- Regional Transportation Planning Studies
- Transit Development Plans (TDPs)
- Local Government Comprehensive Plans and Transportation Master Plans
- Corridor planning studies

In evaluating existing plans and policies, particular attention should be given to the existing land use and zoning along the corridor and the presence of any plans or strategies to promote transit supportive land uses and affordable housing. If there are no existing plans and the land uses on the corridor do not support transit or affordable housing, this will be viewed as a deficiency and the sponsor should consider initiating an effort to address this.

Lastly, a review of national best practices, case studies, and information on similar projects will provide important context and perspective as the project advances.

STEP B: Project & Corridor Feasibility

Projects and corridors that advance from the High-Level Assessment will undergo a data-driven feasibility assessment of projects and corridors in **Step B** as depicted in **Figure 5**.

KEY CONSIDERATION

The Project and Corridor Feasibility evaluation includes a data-driven analysis that drives the comprehensive decision-making process during corridor development.

Figure 5. Project & Corridor Feasibility Steps

Project/Corridor Description

A project description is developed during the planning process by the project sponsor with input from stakeholders. The description should be well-defined to guide the study, but flexible enough to allow for a reasonable set of alternatives. The following elements are typically included in the project description:

PROJECT DESCRIPTION ELEMENTS

- *Project Type (Corridor or facility)*
- *Project Scope (what is being done)*
- *Project Location, including city and county and jurisdiction(s)*
- *Project limits, such as length and end points or destinations*
- *Study area limits for analysis*

The planning study area encompasses the entire project or corridor under consideration, as well as the area surrounding the corridor, to accurately identify potential impacts from the project. A good rule-of-thumb for the planning study area is a half-mile buffer (reasonable walking distance for transit riders) surrounding the project corridor, but the distance can change based on needs expressed by stakeholders. For example, if the project being evaluated proposes a new commuter rail service, then the project study area should consider the potential ridership catchment area for riders who may drive and park at a station to use the proposed service. The planning study area should also consider environmental, cultural, or historic resources that may be encountered that could be different from the walking area. Having input from stakeholders will help define reasonable limits for this level of effort.

Establish Goals, Objectives, and Priorities for the Project / Corridor

It is important to review the Purpose and Need statement and current transportation plans and policies before establishing project-specific goals, objectives, and priorities. The involvement of key stakeholders is also necessary during goal setting to build consensus during early stages of the project. Though the project-level goals will be more specific to the project, they should align with the Purpose and Need and applicable federal, state, regional, or local area requirements.

GOAL SETTING

- *Align corridor-wide goals with Purpose and Need, regional goals, local plans, and policies.*
- *Use performance measures to guide corridor selection and prioritization.*
- *Involve key stakeholders during goal setting process.*

Project goals and objectives include high-level statements that describe what the project is trying to achieve and low-level statements that describe how the project will accomplish its goals. Goals and objectives drive the development of priorities that help set timelines, budgets, and resources for a project. Goals and objectives also lead to the identification of performance measurements to guide corridor selection and prioritization.

Analysis of Existing Conditions

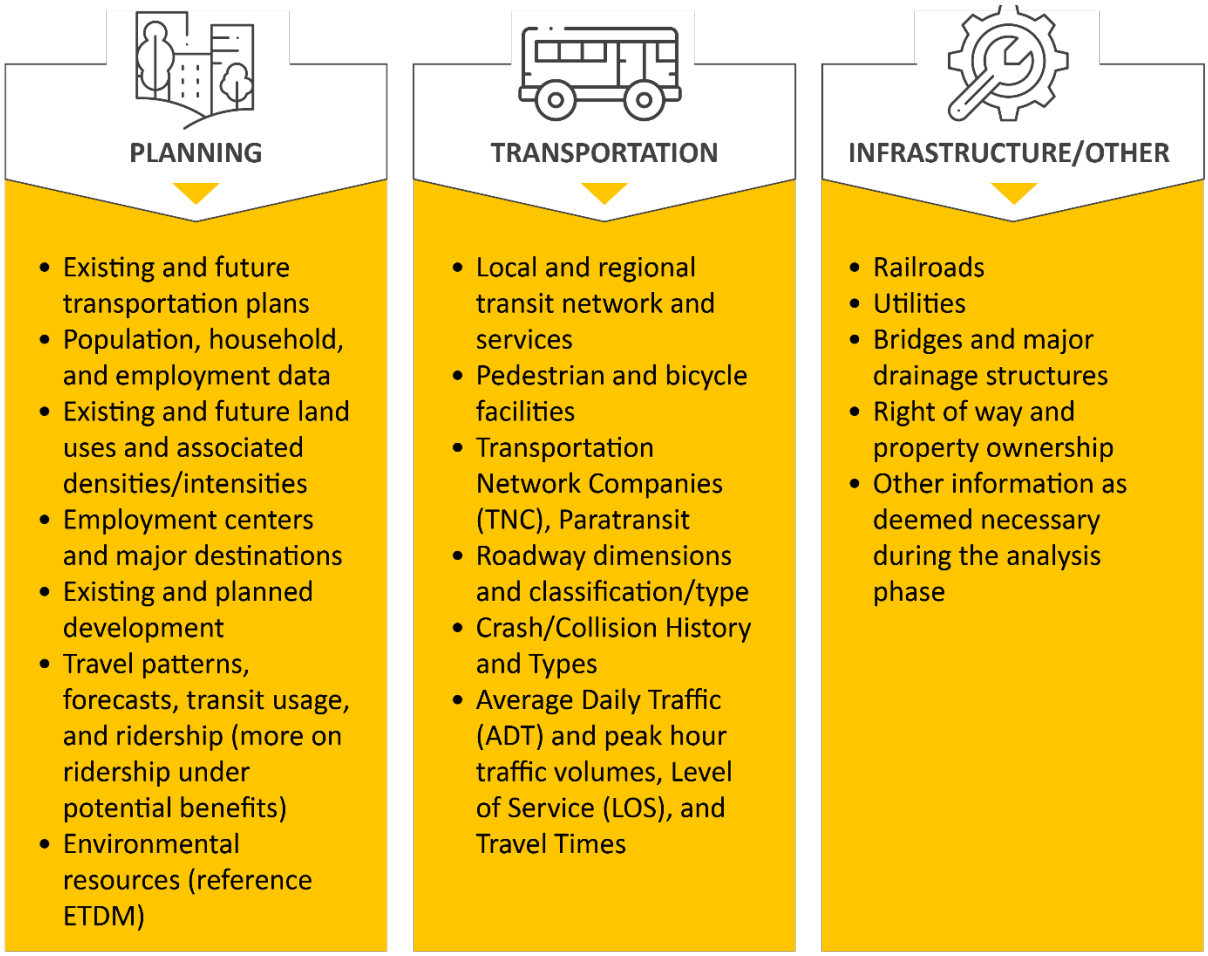
The analysis of existing conditions begins with data collection. Data will be used to analyze project area demographics, employment densities, land uses, development plans, regional and local transit connections, trip patterns to and from and within

the corridor, and existing transit usage. Readily available data can be collected from a variety of resources and fall under three types: planning, transportation, and infrastructure. See **Figure 6** for a listing of data that is typically required for corridor planning projects. The project sponsor should add other data, as deemed necessary, for analysis.

The project sponsor should reach out to stakeholders for availability and usefulness of necessary data to minimize both time and resources for its collection. Use of a data collection plan is recommended to include resource/agency for collection of data, data availability, timeframe for collection, and status of collection. Digital photography can be used to catalog and illustrate the characteristics of the potential project corridors. Site visits, digital GIS mapping, and other technologies can be used to collect data and visually verify its location and accuracy.

Assessing existing traffic conditions and roadway features is important when transit services are shared with vehicular traffic on a roadway. Examples are Bus Rapid Transit (BRT) and Light Rail Transit (LRT)/streetcar systems that operate on existing (or proposed) roadways in mixed traffic. The traffic analyses will include Average Daily Traffic (ADT) trends, Level of Service (LOS), and travel time. Safety and crash studies are also needed.

Figure 6. Data Typically Required for Corridor Planning



Finally, engineering and environmental inventories are needed to identify key features that would cause major issues with the project. As mentioned earlier, FDOT's ETDM tool will identify potential environmental issues and resources of concern and help to determine possible mitigation measures during early stages of project development. ETDM is part of FDOT's approach to link early environmental and transportation planning activities. We recommend incorporating this process as a best practice to inform project delivery.

Identify Corridor Needs and Potential Benefits

To understand corridor needs and potential benefits of new premium transit service, it is recommended to review travel patterns and forecasts on a regional or corridor level and transit usage of residents, employees, and other identified groups located in the corridor.

Travel patterns can be determined using output from activity-based models. Activity based models predict an individual's choices, daily activity patterns, and travel in a region or corridor. They also predict mode choice, trip travel times, origins, and destinations. An understanding of future travel patterns will aid in determining the need, type, and location for future transit service.

Regional travel forecasting models can be used to quantify the following potential benefits and compare them between various transit modes.

- Travel time savings
- Shifting of automobile trips to transit trips
- Reducing Vehicle Miles Traveled (VMT)

The ability to attract new ridership, thus increasing transit usage, is a potential benefit of adding a new premium transit service. To determine if the service will attract new ridership, the project sponsor may choose among the following three approaches for opening and future year forecasts:

- Adopted region-wide travel models
- Incremental data-driven methods
- FTA's Simplified Trips-on-Project Software (STOPS)

KEY CONSIDERATION

The use of the FTA STOPS Model is recommended for determining ridership. Project Sponsors should consult with FTA as early as possible if another model is used.

The first two options rely on local efforts to prepare the forecasts. FDOT's Transit Boardings Estimation and Simulation Tool (TBEST) transit demand model provides ridership estimates at individual stops. It integrates socio-economic, land use, and transit network data into a unique platform for scenario-based transit ridership estimation. More information on the TBEST model is located at: https://tbest.org/.

The third option, which is recommended for use, requires the usage of the FTA STOPS to estimate preliminary ridership for various transit modes. The STOPS model expedites data collection by using readily available data sources, such as the Census Transportation Planning Products Program. More information on the STOPS model can be found on FTA's website: https://www.transit.dot.gov/funding/grant-programs/capital-investments/stops.

The project sponsor should consult with FTA to ensure sufficient data is collected to support the proposed ridership methodology. Consultation with FTA will prove especially beneficial when applying for FTA CIG funding.

Alternatives Evaluation

The evaluation of alternatives includes the selection of screening and evaluation criteria, identification and development of alternatives, and the narrowing of alternatives to the recommended preferred alternative. Because the TCPE should be tailored to the specific project, sponsors should take time to craft their own process for identifying and evaluating alternatives. The framework discussed below is not intended to be prescriptive but should assist sponsors in developing their own approach.

KEY CONSIDERATION

Project sponsors should take time to craft their own process for evaluating alternatives with assistance from the framework discussed in this section.

Screening and Evaluation Criteria

Screening criteria will be derived from the Purpose and Need and goals and objectives of the project and include measures of effectiveness (MOEs) to evaluate how each alternative performs and how they compare with each other. The MOEs can be qualitative or quantitative. Additionally, the FTA CIG and/or FDOT SNS evaluation criteria should be considered in the evaluation matrix. The project screening and evaluation criteria should be developed with stakeholder input and support.

Alternatives identification and evaluation criteria should consider the requirements of the granting agency; for example, federal requirements including the need for convenience and accessibility and to enhance opportunities for all persons in a community. Planning data identified in the previous section should be analyzed to ensure all populations, including critical and transit dependent persons, will have equal access to transit services. A project that provides equal access to transit by all populations is a benefit recognized by FTA and will improve its eligibility for FTA CIG funding by assigning two times the number of trips for transit dependent persons in the STOPS model. For more information see Part 2, Chapter 4 of FDOT's Project Development and Environment (PD&E) Manual.

Sponsors should consider Title VI and Environmental Justice (EJ) requirements and make certain that equitable solutions are incorporated into proposed projects early in the process. Refer to USDOT FHWA/FTA TPCB's Equity in Transportation for more information. https://www.planning.dot.gov/planning/topic_transportationequity.aspx

Assessing the Alternatives

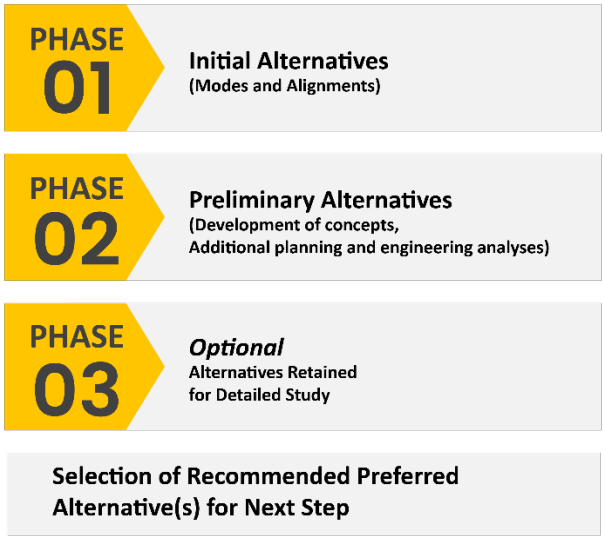
Figure 7 displays a common evaluation framework for projects that have undergone early planning work. It consists of up to three phases for the development and evaluation of alternatives. The phases are:

1) Identification of Initial Alternatives
2) Preliminary Alternatives Development
3) Alternatives Retained for Detailed Study (Optional)

The Initial Alternatives phase establishes a set of alternatives consisting of singular or multiple mode options that represent small and/or large-scale solutions. The alternatives advance into the Preliminary Alternatives phase which analyzes transit characteristics and operations, conceptual design, and environmental conditions for the determination of potential impacts on the surrounding environment. The alternatives development process begins and ends with the project sponsor and body of stakeholders vetting alternatives throughout the process to achieve consensus.

Activities listed under Phases 1, 2, and 3 may not apply to every project. The project sponsor and stakeholders should discuss this list and modify as appropriate depending on the complexity of the project and number of alternatives identified.

Figure 7. Common Evaluation Framework



Initial Alternatives

The project sponsor should develop initial alternatives with input received from stakeholders and an understanding of existing transit conditions and needs. Initial alternatives should include a range of modes, alignments, and station locations that will undergo a qualitative and/or quantitative analysis using pre-determined screening criteria to determine how each alternative performs against a set of criteria.

Initial alternatives can be derived from information found in previous studies, regional plans, and through early planning work. They must meet the Purpose and Need of the project and be vetted through the fatal flaw analysis described in the initial assessment. Initial alternatives may include the following:

- Multiple transit modes (e.g., heavy rail, light rail, streetcar, bus rapid transit)
- Multiple alignment options of potential premium rail and bus service routes in the corridor
- Potential station locations and maintenance facilities

Multiple alignment options can be bundled together into a smaller number of alternatives. Review of the alternatives will be based on a comparative analysis of performance between alternatives. If data are not readily available, then qualitative measures may be used in lieu of quantitative results. Results of a comparative evaluation will determine which alternatives will be retained for further study. Every effort should be made to use readily available data representing existing and future conditions in the corridor for better results.

Preliminary Alternatives

The screening of initial alternatives will produce a shortlist of alternatives for further analysis. Typically, analyses will cover conceptual engineering, additional planning, and environmental work to determine the feasibility of each alternative.

Conceptual engineering activities include the conceptual design (approx. 10-15% design) of each alternative to determine feasibility and establish a footprint for use during additional planning and environmental work. Listed below are the most common activities included in conceptual engineering.

CONCEPTUAL ENGINEERING

- *Horizontal and vertical alignments and profiles*
- *Typical sections with select dimensions*
- *Limits of Disturbance (LOD)*
- *Pedestrian and bicycle connections to adjacent land uses*
- *Constructability and maintenance of traffic requirements*
- *High-level capital and O&M cost estimates*
- *Schedule for design and construction*

Planning analyses conducted during Preliminary Alternatives analyses may include additional planning activities identified below.

ADDITIONAL PLANNING ACTIVITIES

- *Guideway type (mixed traffic, dedicated)*
- *Average station spacing*
- *Typical peak frequency*
- *Transit vehicle type, capacity*
- *Station location/configuration*
- *Technology (transit signal priority)*
- *Maintenance facility(ies)*
- *Traffic operational analyses*
- *Ridership refinements*

Traffic operational analyses are required for projects such as a BRT, LRT, and streetcar systems operating in mixed traffic and/or requiring lane repurposing. Refer to FDOT: Traffic Methodologies for BRT Corridors Recommended Guidance (September 2019). Even elevated systems operating in roadway right of way may require assessments of operational impacts.

The project sponsor may choose to conduct a roadway facility physical, operational, and safety impact evaluation. This could include travel lane elimination/modification, left/right turn lane elimination/modification, parking lane elimination/modification, median opening closure/modification, typical section modification, highway-railway/busway grade crossing, and others (as applicable and determined by FDOT). These impacts can be direct (on state roadway) and/or indirect (nearby connecting state roadway) impacts.

During the Preliminary Alternatives phase, an environmental impacts assessment is not only important but is considered necessary for the identification of potential impacts for each alternative. The environmental impacts assessment is consistent with FHWA's Planning and Environmental Linkages (PEL) process. Conceptual design drawings will be superimposed onto mapping from FDOT's ETDM tool to see if the LOD crosses environmentally sensitive areas. Listed below are the most common activities included in the environmental impacts assessment.

ENVIRONMENTAL IMPACTS ASSESSMENT

- *Potential high-level impacts to environmental, cultural, historic, and socio-economic resources*
- *Property impacts, acquisitions, and ROW needs*
- *Change in vehicle miles traveled; and*
- *Air and noise impacts*

Preliminary alternatives will be evaluated using screening criteria similar to Phase 01, as applicable. However, this phase is a quantitative analysis that relies on appropriate data to evaluate preliminary alternatives. The results of a comparative evaluation will determine which alternative(s) are recommended for advancement to the next step for consideration as the preferred alternative.

PHASE 03

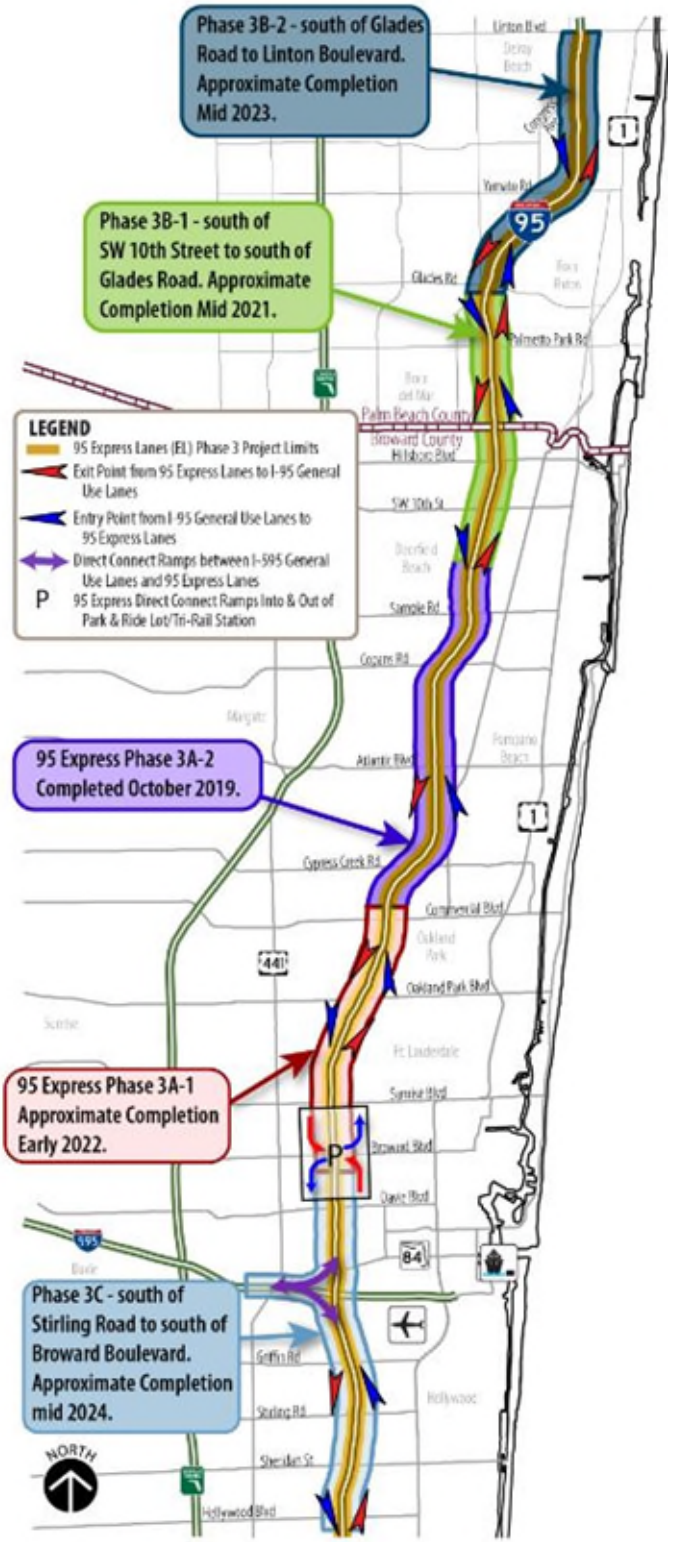
Alternatives Retained for Detailed Study (Optional)

Technically complex projects, located in challenging environments, or spanning across multiple jurisdictions may require an additional phase referred to as the Alternatives Retained for Detailed Study phase. This third phase is optional, but it will otherwise need to be completed later during PD evaluation. Therefore, sponsors may choose to conduct this phase to ensure timely completion of PD within the prescribed two-year timeframe for FTA New Starts and Core Capacity and mitigation of potential risks.

Phase 3 can be beneficial to a project sponsor who wants to advance the engineering design to approximately 30% to lessen risks associated with project scope, cost, schedule, and constructability. Other references may be required such as the FDOT Context Classification Guide when designing transit corridors in mixed traffic. It also results in an additional screening of alternatives to determine the recommended preferred alternative(s) to advance to the next step. Activities conducted in this phase include:

- Utility Assessment
- Drainage/Storm Water Management Conceptual Design
- Right of Way impact analysis
- Constructability and Maintenance of Traffic (MOT) options (for complex and high-density environments)

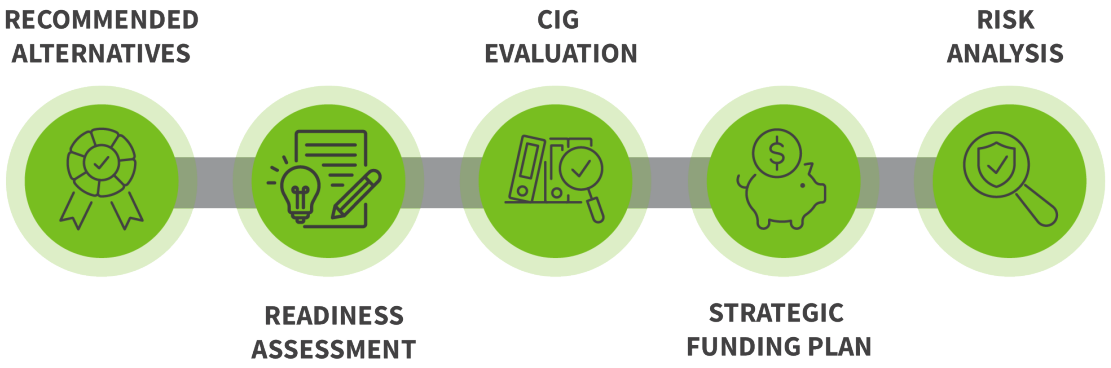
95 Express, I-95 Managed Lanes, FDOT



STEP C: Project Readiness

The Project Readiness step (**Figure 8**) finalizes the preferred alternatives, evaluates the project's ability to compete for FTA CIG funding, prepares the project for entry into FTA CIG PD, establishes a Strategic Funding Plan, and identifies project risks and mitigation strategies.

Figure 8. Project Readiness Steps



Recommended Alternatives

The project sponsor and stakeholders will review and recommend alternatives from the previous step and may conduct additional analyses, as necessary, to narrow the set of alternatives. The recommended alternatives should be the projects that perform best based on the project goals, have strong community support, and can effectively compete for funding. This may result in a single preferred alternative; however, a project sponsor will generally want to carry multiple options into PD.

Readiness Assessment

Sponsors can begin to consider whether a project is ready to enter PD or if there is an alternative approach to develop a project outside of the FTA CIG Program. This section will discuss a project's readiness to enter FTA CIG Project Development. The evaluation will consider whether all required agency approvals and actions by appropriate governing bodies are in place.

FTA CIG PD Requirements

When a project enters FTA CIG PD there are specific actions that will need to be completed. For a New Starts or Core Capacity project, PD needs to be completed within two years. Therefore, project sponsors should consider their ability to complete the following list of items in a timely manner. Project sponsors will refer to analyses conducted during the Alternatives Evaluation (in Step B) when assessing a project's ability to meet PD requirements.

NEPA Class of Action

Using results from the early environmental research described in Step B, project sponsors should be able to reasonably assess the likely NEPA Class of Action. They can also develop the NEPA scope of work and timeline requirements associated with completing environmental reviews and clearance.

FTA CIG PD REQUIREMENTS

- *Select the Locally Preferred Alternative and get adopted into financially constrained Metropolitan Transportation Plan (MTP)*
- *Complete NEPA reviews (see environmental impact assessment completed in Step B)*
- *Obtain at least 30% of the non-CIG capital funding*
- *Continue concept engineering up to approximately 30% design (see Step B, Optional Phase 03)*
- *For New Starts and Core Capacity, complete readiness requirements for entry into Engineering*
- *Identify timeline for receipt of grant construction, grant agreement, and start of revenue service*

FTA CIG Project Evaluation Criteria

Assessing how a project will score under the FTA CIG evaluation criteria is an important step prior to requesting entry into PD. Although this guide addresses some of the FTA CIG criteria during evaluation of alternatives, it is recommended that the project sponsor conduct a more detailed assessment, such as a preliminary scoring, prior to seeking entry into PD for two important benefits. First, it will be a good measure for whether the project is truly ready to compete for FTA CIG funds; and second, it will confirm that the necessary advanced work is complete on key deliverables required during PD.

The FTA CIG project rating criteria is subject to change and sponsors need to be sure they evaluate a project with the latest criteria. As an example, FTA

has indicated they will address project rating criteria but have not done so yet.

FTA also establishes "break points" in the ratings that are updated from time to time based on the latest research and accumulation of performance measures from various projects over time.

As shown in **Figure 9**, under the current evaluation criteria, half of the project rating is based on project justification and half is based on local financial commitment.

It should be noted there are some slight differences between the Small Starts and New Starts criteria. Additionally, the Smalls Starts Program provides for a simplified financial evaluation for certain project sponsors.

Project Justification

Evaluation of Project Justification is based on:

- *Land Use* – Assessment of conditions around the corridor and station areas, including population and employment density, development character, accessibility/pedestrian environment, and affordable housing.
- *Cost Effectiveness* – Measured as annualized capital, operating and maintenance cost per trip.
- *Mobility Improvements* – Measured as total number of linked transit trips with additional weighting provided for transit dependent riders.
- *Congestion Relief* – The number of new weekday transit trips resulting from the project.
- *Environmental Benefits* – Anticipated direct and indirect benefits to human health, safety, energy, and the air quality environment. These benefits are computed based on the change in VMT.
- *Economic Development* - The extent to which a proposed project is likely to induce additional, transit-supportive development.

Local Financial Commitment

Evaluation of Local Financial Commitment is based on:

- Current capital and operating condition of the sponsor (25%) – this includes bond rating, assets condition, cash flow, and service stability.
- Commitment of capital and operating funds (25%).
- Reasonableness of cost estimates and planning assumptions (50%).

FTA also requires the use of current year (post pandemic) transit usage data to calculate the measures for evaluation criteria.

Until such time if/when changes are made to project rating criteria, the project sponsor should indicate the baseline, i.e., what is currently known using current guidelines, but note criteria may be subject to change by FTA.

Figure 9. FTA CIG Project Rating Criteria

FDOT SNS Evaluation Criteria

In Florida, state funding is typically an important component of the non-federal match. Due to increased competition for limited funding, FDOT has created its own SNS funding evaluation criteria. The state criteria differs slightly from the federal criteria; however, it is non-restrictive which means application information developed for any of the FTA CIG programs can be used for the state application. Like the federal criteria, the state criteria and application requirements are subject to change and project sponsors should coordinate with FDOT to ensure they are aware of the latest rating criteria.

Requesting Entry into PD

If a project sponsor is ready to seek entry into the PD phase as a New Starts, a Small Starts, or a Core Capacity project they will need to submit a letter to the FTA with specific information. The TCPE planning study ensures all needed information is readily available. Of note however, is the requirement that the sponsor has identified the cost and demonstrated commitment of funds needed to complete PD.

Strategic Funding Plan

During the Project Readiness step, project sponsors should refine funding options into a Strategic Funding Plan. Funding options need to be evaluated to determine feasibility and identify actions needed to secure the funding and assess what portions of the project they will support. If there are non-traditional funding sources like private contributions, tax increment financing, or joint use development, sponsors should take appropriate actions to secure commitments, identify and initiate potential legal arrangements needed to commit funding, and determine how these contributions can be integrated into the FTA CIG program.

The State of Florida typically supports premium transit projects by providing up to one-half the non-federal share through the FDOT SNS Transit Program. However, there may be other options under the Strategic Intermodal System (SIS) program, flexible Federal-Aid Highway Program funding that is apportioned to the state by formula, or the Florida Rail Enterprise for commuter rail projects. If a project sponsor is considering any of these funding sources, they should begin discussions with FDOT to determine eligibility and assess whether these sources can be integrated into the Strategic Funding Plan.

In recent years, the number of federal discretionary grant programs has increased significantly. With these new funding opportunities, project sponsors may opt to pursue multiple federal funding paths concurrently. These may be part of a funding strategy, but sponsors should be aware of federal concerns raised about layering federal funds and effectively making the use of grant funds contingent on the receipt of additional federal funds. Project sponsors should generally seek funding for project elements with independent utility.

Sponsors may determine that a project simply is not ready to enter FTA PD. That does not mean the development of a project or corridor needs to sit idle. In fact, developing a funding strategy can be an important component of a project **"off ramp"** as it allows the sponsor to continue advancing the corridor in hopes that it may be ready to compete for CIG funding in the future.

This approach may include opportunities to address capital needs on a corridor (e.g., enhanced station areas for future bus rapid transit corridor or park-n-ride lots for future commuter rail), planning (e.g., transit supportive land use and zoning), and service enhancements (e.g., added frequencies or regional

express bus service in advance of a commuter rail service).

If a project sponsor chooses to pursue an incremental path, key activities related to the long-term funding strategy may still proceed. This is especially the case for local funding sources that will support long-term O&M. As an example, utilizing value capture may require passage of a local ordinance to authorize. By laying the foundation for dedicated funding, a project will be well-positioned for success when they decide to formally enter PD.

KEY CONSIDERATION

Pursuing incremental transit corridor development is not a sign of failure. In many cases, this will be the fastest way to deploy better transit service to the community.

It is noteworthy that during PD for FTA New Starts projects, **sponsors need to secure 30% of non-CIG funding commitments for capital costs within two years.** This means all funding partners need to have a clear understanding of expectations moving forward. Projects without established funding sources (e.g., requires a referendum to approve a funding source) should consider whether the project is truly ready to enter PD. FTA does not consider a future planned referendum or a future legislative appropriation as a funding commitment.

If private funding is proposed to support the project, it is preferable that legally binding agreements be in place at this time. If the private funding is to support PD, those agreements **must** be in place before entering PD.

The funding plan should separately address capital needs but, most importantly, it must demonstrate the ability to support long-term operations and maintenance. For capital needs, this includes the sources needed to support the non-federal share of FTA CIG funding including anticipated state funding. Because FTA sets its share of the funding when a project enters engineering, sponsors need to address funding contingencies in case of cost escalation after entry into engineering.

KEY CONSIDERATION

FTA locks in the CIG funding amount (dollar amount, not percent!) when entry to CIG Engineering is requested. This is a risk to sponsors who may consider advancing design beyond 30% during PD to minimize that risk.

For Operations and Maintenance, sponsors need to be able to demonstrate there is sufficient funding available to not only fund the new service but also maintain the service and capital assets of the existing system. Sponsors need to consider that major capital projects also have a useful life and require major overhauls, vehicle replacements, and facility maintenance and refurbishments. All of these will be local responsibilities.

Risk Analysis

Before entering Engineering, FTA will commission the assigned Project Management Oversight Consultant (PMOC) to conduct a risk workshop on the project's scope, schedule, and cost. FTA will also commission the PMOC to conduct a risk refresh workshop before recommending the execution of a Full Funding Grant Agreement. The recommendations flowing from the Engineering Risk Report will inform the project's Risk Contingency Management Plan (RCMP) that will set the amount of cost and schedule contingency throughout project delivery.

While assessment and mitigation of risks is a focus later in the process, taking a proactive approach to risk management early is a best practice. During the

TCPE, there is enough information available to identify high-level risks a project is likely to encounter during PD as well as some risks expected in the Engineering and Construction phases.

Complex projects with significant rights of way are more likely to have cost escalation and schedule slippage. Sponsors should consider whether there may be challenges in meeting the requirements to complete NEPA and PD within the required timelines. Additionally, since project sponsors assume cost escalation risks once they enter the Engineering phase, sponsors may choose to conduct a higher level of engineering during the PD phase. This could impact the scope and cost associated with PD so it is timely to consider during the project readiness step of the TCPE.

Risks most likely during the PD phase include but are not limited to, the emergence of project opposition, changing stakeholders, loss of champions, uncertainty of funding sources, environmental concerns, and lack of consensus on mode, alignment, and station location. Project sponsors should identify potential risks, rank them based on the likelihood of occurring and their impact on the project, and develop mitigation strategies accordingly. Many of the issues arising during PD can be mitigated simply by conducting a thorough TCPE, committing to a robust stakeholder engagement and public involvement strategy, and locking in local funding source commitments.

Similar to the initial fatal flaw analysis, it is a best practice for the risk analysis to incorporate a level of independent review by someone other than the project sponsor.

KEY CONSIDERATION

For more information about project risk management, sponsors may wish to review FTA Oversight Procedure OP 40.

https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/regulations-and-guidance/58901/op40c-risk-and-contingency-review-sept-2015.pdf

Conclusion

The TCPE study process is designed to help premium transit project sponsors in Florida successfully secure federal and/or state funding to deliver transit projects enhancing mobility in their area. There are some important considerations that agencies should keep in mind as they navigate the process.

- Committed local funding is key and failure to identify a funding plan can doom even the most competitive projects.
- Failure to consider long-term O&M, including future costs of overhauls and replacement of vehicles is a fatal flaw.
- Project champions are key, but projects can take well over a decade from ideation to revenue service and if your champion is an elected official, their time in office may expire before the project takes off.
- Most premium transit projects will impact another agency's facility (e.g., BRT on state roads and commuter rail on freight rail lines) so get them on board first!
- Treating public and stakeholder involvement as a check-the-box exercise is not a recipe for success. FTA expects robust public engagement from the pre-PD phase throughout project delivery to revenue service.

Tampa Streetcar (rendering), City of Tampa

Florida Department of Transportation

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