

Project Development - Broward County Intermodal Center and People Mover

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Abstract:

A project is defined during the project development stage, when high level planning studies establish the feasibility/viability of the project. Often times during this stage, due to schedule and budgetary constraints, aspects of the project related to constructability, design/implementation issues, environmental/physical impacts and civil/system integration issues are not thoroughly explored. This paper examines the typical project development process and identifies value added approaches that can make the process more meaningful, provide schedule and budget optimization opportunities during the subsequent phases of the project through early identification of fatal flaw alternatives and/or improved reviews for environmental impact or assessment studies. In many cases, this value added approach has enabled Owners to implement aspects of the project to avoid future construction disruptions which are not feasible in operating airport, port or urban environments. The paper examines the various aspects with a case study of the Broward County Intermodal Center and People Mover project.

Introduction

The availability of safe, efficient and effective transportation corridors (whether they are roads or transit corridors) is a key factor that affects the desirability, effectiveness/efficiency and competitiveness of a given facility, area or region. Population growth has placed a demand on transportation and this demand is not expected to subside. As such, the need for transportation corridor improvements or implementation of new corridors is a public policy issue and a high priority at all levels of transportation planning and management.

The anticipated or projected “needs” may be:

- Traffic congestion mitigation,
- Supplement transportation capacity on the corridor to meet anticipated demands (driven by census and demographic growth patterns),
- Ensuring adequate and efficient access to major regional transportation infrastructure/facilities, such as airports and seaports, that are key economic engines and are essential for the increasing global economy while contributing to the local economy through direct and indirect jobs.

Public transportation projects typically undergo several levels of planning and scrutiny including technical, environmental and economic evaluations as part of the process for establishing the viability of the project. Often times the initial levels of planning and scrutiny are at a very high level to establish if the project is a viable mechanism through which the anticipated “needs” can be satisfied. The next levels of planning and scrutiny are typically driven by the anticipated funding mechanism(s) and the due diligence requirements established by the anticipated funding entity(ies).

Transportation projects in the United States typically rely on some level of state and federal funding (in addition to local funding) and as such the project development process must demonstrate compliance with the National Environmental Policy Act (NEPA). The intent is to demonstrate that social, economic, physical and environment impacts due to the proposed project are clearly identified, the negative impacts minimized and/or successfully mitigated, and that the projected costs of the project are then balanced with the projected benefits of the project, the baseline for comparison being a “do-nothing” scenario. This process includes public outreach and input, is a consensus building process and can take several years to complete depending on the size and complexity of the project, and starts with the establishment of the lead Federal Agency and other co-operating agencies. The project development process must follow the agency’s established procedural requirements and this is deemed to demonstrate compliance with the NEPA.

Through a case study of the Broward County Intermodal Center and People Mover project, this paper examines the typical project development process and identifies value added approaches that can make the process more meaningful and provide schedule and budget optimization opportunities during the subsequent phases of the project through early identification of fatal flaw alternatives and/or improved reviews for environmental impact or assessment studies. In many cases, this value added approach has enabled Owners to implement aspects of the project to avoid future construction disruptions which are not feasible in operating airport, port or urban environments.

The Lea+Elliott Team was selected and authorized by Broward County to initiate a detailed study of the proposed project during 2003. For efficiency and cost effectiveness reasons, further project development was set up to occur in two distinct phases. The first phase was a Techno-Economic feasibility study that included

concept level technical evaluation of alternatives to (1) identify any “fatal flaws” that may prevent that alternative from moving forward for further evaluation in the Project Development & Environmental (PD&E) Phase of the project and (2) a financial feasibility analysis of the viable alternatives that included identification of revenue streams, potential needs-based phasing of the project and avenues for reducing the project’s reliance on internal revenue streams through potential external funding. Coordination with regional transportation partners was crucial on regional transportation and intermodal aspects of the project. This first phase was concluded in 2004 and established a framework of policy issues for consideration by the County, including whether the project development should proceed to the next phase – the Project Development and Environment Study phase. A paper entitled “FLL Airport / Port Everglades APM and Intermodal Center – Feasibility Analysis” was submitted and presented at the 2005 ASCE APM Conference held in Orlando, Florida, USA.

The County has authorized the initiation of the next phase of the project to be compliant with the National Environmental Policy Act (NEPA) process. One of the first steps of this phase is the identification and establishment of the lead Federal Agency. This step is essential in support of notifying interested and affected parties and initiating the process for establishing the priority for the project with the Broward County Metropolitan Planning Organization (MPO) and preserving the eligibility of the project for federal and state funding opportunities.

Project Need and Description

From 1980 to 2003, the average population growth in Broward County, Florida has been more than twice the average population growth in the United States (2.3% vs. 0.9%). Broward County had an estimated population of 1.7 million in 2003. The population of Broward County is forecast to increase an average of 1.6% per year between 2003 and 2020, compared to 1.7% for the State of Florida and 1.0% for the nation.

Tourism has always been one of Broward County’s core industries. During 2003, more than 8.5 million visitors contributed \$7.0 billion into the local economy according to the Greater Fort Lauderdale Convention and Visitors Bureau. In 2004, the number exceeded 9 million visitors.

As a result of the growth experienced by Broward County, the air passenger traffic at Fort Lauderdale-Hollywood International Airport (Airport) and the cruise passenger traffic at Port Everglades (Seaport) have increased substantially and current projections indicate that the passenger-related traffic will double at both of these facilities in the 20-year planning horizon. The cargo corridors at both the Airport and Seaport are identified as Intermodal Connectors under the National Highway System program (FHWA).

The Airport’s service region, the area that generates the majority of airline traffic at the Airport, consists of Broward County, northern Miami-Dade County, and southern

Palm Beach County. According to data from the U.S. Department of Transportation for 2003, approximately 95% of the enplaned passengers originated their travel at Fort Lauderdale-Hollywood International Airport. The Airport's air passenger traffic is significantly generated by passengers originating or terminating locally, including visitors to the Broward County and South Florida region, who utilize the landside access/egress points to the Airport and the regional roadway network to/from the Airport and their local point of origination or destination. Approximately 20.8 million travelers passed through the Airport in 2004, a 16.1% increase over 2003.

Port Everglades, in addition to its cruise passenger traffic, is the distribution center for South Florida's waterborne fuel deliveries and includes the private sector's extensive network of tank storage facilities and supporting pipeline infrastructure: a significant amount of the petroleum and bulk cargo/freight destined for South Florida enters through Port Everglades. According to the Port Everglades Commerce Report for Fiscal Year (FY) 2003, it was the 12th busiest port in the nation for containerized cargo. Additionally, it was the third busiest cruise port in the world in 2003, with 19 cruise lines serving approximately 3.4 million passengers in FY 2003. The Port Everglades Master Plan projects an increase of sixty percent (60%) in Port Everglades' cargo business and a doubling of the cruise passenger traffic in the 2020 planning horizon.

The Airport and Seaport play a major role in the economic welfare of the region. The Airport contributes more than \$2.3 billion to the local economy and employs 31,500 people either directly or indirectly. The Seaport infuses more than \$2.4 billion into Broward County's economy and provides more than 19,000 jobs through its cruise travel and international trade activity.

Both the Airport and the Seaport are located at the east end of the County. Road-based access is limited: access is from the I-595 corridor, the US-1 corridor, and surface streets. Due to the landlocked nature of the two facilities and the main access corridors, it is highly unlikely that traditional roadway improvements will be sufficient to provide the access that is necessary commensurate with the demand projections (passengers, employees and bulk cargo/freight) at these two facilities that are major contributors to the economic wellbeing of the County.

Recognizing that safe, efficient and effective transportation are essential to the economic and life quality issues for the growing Broward County (and regional) population, Broward County (in mid-2001) initiated its "2020 Vision Plan" study. The 2020 Vision Plan outlined a framework for the expected development at the Airport and Seaport to support the County's growth and for key elements that would address the transportation/access requirements, including connections with regional transportation/transit improvements. Separately, the Florida Department of Transportation (FDOT) District IV, and the South Florida Regional Transportation Authority (SFRTA) initiated the Central Broward East/West Transit Analysis Study. They also initiated studies of the Florida East Coast Railway Corridor (that is located

at the east boundary of the Airport) for potential commuter rail service to provide additional north/south transit connectivity within the region.

The Broward County Intermodal Center and People Mover project (Project) is a key element identified in the 2020 Vision Plan. The need to be addressed by this project (a combination of roadway, intermodal and transit elements) is: roadway congestion and the resulting economic distress. This project is likely to be the only feasible means to address the level of congestion at the Airport and Seaport access/egress points. Approximately 95% of the Airport's air passenger traffic is generated by passengers originating or terminating locally, including visitors to the Broward County and South Florida region, who utilize the landside access/egress points to the Airport and the regional roadway network to/from the Airport and their local point of origination or destination. It is also estimated that approximately 25-30% of the multi-day cruise passengers utilizing the Seaport originate and terminate locally. The Seaport also serves as the entry port for a significant amount of the petroleum and bulk cargo/freight for road-based distribution to primarily South Florida counties.

The regional transportation/transit projects initiated by FDOT and SFRTA envision a final connection to the Airport and Seaport through the Intermodal Center, thus providing convenient access options to the employees at both facilities in addition to the local residents and visitors who utilize the facilities. Relieving the congestion of the access highways/roads, by diverting a greater percentage of the passenger traffic, will ease freight movement (on the roadways) that is projected to continue to grow in support of the growing needs of the South Florida region.

Several potential locations for the Intermodal Center (an integral part of the project) are under evaluation. One of the proposed locations is just east of the Airport within the State right-of-way (US-1 Corridor), and will provide access to ground transportation modes and transfers: air, sea, regional and city rail and buses. Additionally, overflow parking facilities will be included in the Intermodal Center. The available alternatives to be considered for the Intermodal Center and People Mover project are being established as part of the Project Development and Environment Study phase of the project.

Multiple alternatives, including bus (on existing roads, dedicated at-grade or elevated bus lanes), use of at-grade rail corridor and APM were considered as part of the feasibility study. The project study area, and its relationship to other regional transit projects is shown in Figure 1.

Identification of the Lead Federal Agency

After evaluation of the findings of the phase I feasibility study, Broward County authorized the Project Development and Environmental (PD&E) phase of the study. An essential part of this study phase was the need and desire to retain project eligibility for state and federal funding opportunities. As such, this stage of project development must comply with the National Environment Policy Act, and there must

be a lead federal/stage agency to oversee the project development, review the project findings and provide concurrence.



Figure 1 – Project Study Area

The Federal Highway Administration (FHWA), an agency of the US Department of Transportation accepted the request to be the lead federal agency on the project. The Florida Department of Transportation become the lead state agency and the liaison between the project and the FHWA. Key considerations that were part of the evaluation and screening process for identifying the appropriate lead federal agency were:

- Anticipated needs addressed by the project that include:
 - Roadway congestion and environmental quality issues due to growing passenger, employee and bulk cargo/freight movements, and its impacts on the regional economic conditions,
 - Intermodal connections between other planned regional transportation/transit projects (intended to address regional roadway congestion and environmental quality issues) and the airport and seaport.

- The identified potential project elements that include:
 - Intermodal Center, providing connectivity between various modes including regional rail, air, sea, road based vehicles (automobiles and buses), and overflow parking, and facilitating the re-distribution of the access mode split effectively reducing the passenger demand on the limited access/egress roadway systems into the Airport and Seaport and thus increasing the ability of these roadway systems to better meet the growing cargo/freight/petroleum product movements for distribution into the South Florida region.
 - Roadway elements and improvements to provide facilitate alternate access opportunities.
 - Relief to anticipated congestion on existing roadway corridors to support future demand including passengers, employees and bulk cargo/freight movements. Since the bulk cargo/freight and petroleum product destinations are largely within the South Florida region, it is not likely that an alternative to trucking will be viable. Due to the landlocked nature of the access/egress system into the two facilities (Airport and Seaport) and their common use for both passenger and bulk cargo/freight and petroleum product movements, alternatives to address the projected transportation needs must focus on developing alternatives for passenger access to provide the capacity for the bulk cargo/freight access needs. Alternatives for reducing the passenger demands on the shared roadways include regional rail/transit elements, Automated People Mover and/or rail elements (connecting the airport and seaport to each other and the Intermodal Center), bus elements, including dedicated busways and/or separate busways.

- Precedence and description of acceptable alternatives/project types with the potential agency's procedural requirements for compliance with NEPA.

- Consistency with the Broward County Metropolitan Planning Organization's Long Range Transportation Plan, where this project is identified as providing the final connectivity to the airport and seaport.

Advanced Notification and Class of Action Determination

One of the first steps with the lead federal agency is the determination of the Class of Action determination, which establishes the overall process that the project development must comply with. Typically, new projects (especially transit projects) are designated with an "Environmental Impact Statement" (EIS) action, which is the most stringent Class of Action determination and can take several years to complete. Other classes of action include an Environmental Assessment (EA) with a potential for a Finding of No Significant Impact (FONSI). The required Class of Action determination is established by the lead federal agency after the completion of the Advanced Notification (AN) process, wherein agencies and jurisdictions having an

interest in the project area, or who may have authority over the project are officially notified about the project and their comments/input/concerns solicited. Documentation of all correspondence, input, resolutions, public information meetings, etc must be maintained and submitted as part of the PD&E process to demonstrate that appropriate input and participation was actively solicited, that comments/concerns/input were appropriately addressed.

The more detailed/refined the Advanced Notification, the more likely that the reviewing agencies are able to provide specific comments that can be satisfactorily addressed or provide concurrence that the level of impacts are minimal – this can result in an EA Class of Action determination that will fast track the review process leading to a quicker concurrence from the federal agency, a key milestone in proceeding with the implementation of the project and securing potential funding.

The Lea+Elliott Team initiated some engineering and environmental activities earlier to develop appropriate detailed information that was included in the Advanced Notification. These early activities were focused on a more detailed definition of the corridors to clearly establish (and demonstrate) that the potential corridors remained outside of any environmentally sensitive areas, minimized property impacts and that there were positive benefits that could be potentially achieved such as reduced congestion, improved environmental conditions (reduced noise, emissions) and improved socio-economic opportunities through the ability to support economic development by providing efficient transportation access. The team also scheduled project information meetings with the agencies and stakeholders to provide them with an overview of the project and to initiate a dialog to effectively address any concerns or issues. Figure 2 illustrates the catalog of maximum corridors that were defined and included in the AN, to solicit the broadest level of input within the project study area.

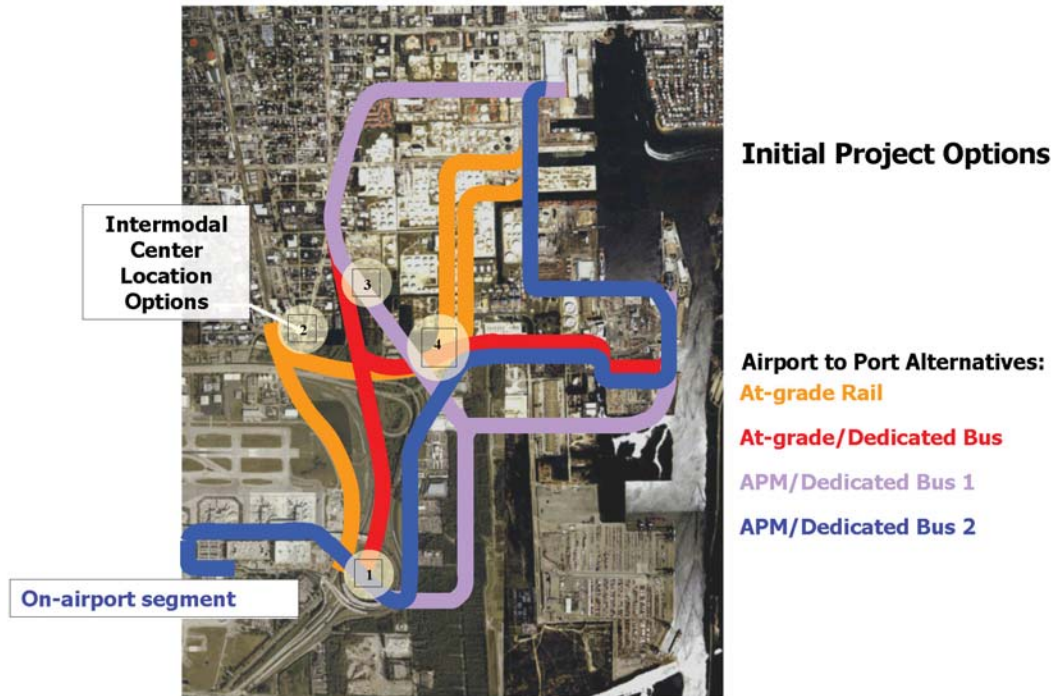


Figure 2 – Project Corridors – Catalog of Options

The AN process was effective in obtaining targeted comments/concerns that were addressed proactively and successful in demonstrating that the project corridors had moderate to minimal environmental impacts (that could be successfully mitigated) and that there were positive socio-economic impacts. This resulted in the project receiving an Environmental Assessment determination with the possibility of obtaining a FONSI from FHWA, instead of the EIS action determination which requires a longer study period.

Project Integration and Stakeholder Participation

The defined corridors are located on-airport, on-port and in the area between. The evaluation and screening of these corridor alternatives is dependent on the needs and operational requirements of the airport, the port and the area in-between (which is State or County right-of-way), and the viability of a particular alternative or corridor is therefore inter-dependent on the different needs of these different stakeholders, including the cruiselines, cargo lines, airlines, ground transportation providers and other agencies such as US Customs and Border Protection, Transportation Security Administration, Broward Sheriff’s Office, etc. who have jurisdiction over the security operational aspects of the airport and seaport.

Each of these different groups has different operational needs and interests, and to maximize their participation and to assure more effective input, multiple stakeholder target groups were established. Meetings were scheduled and project information

provided focused on the target groups' areas of interest, and input/comments/feedback solicited that could be addressed/incorporated in the ongoing project development process. This approach is proving to be effective in obtaining focused inputs, as well as building consensus towards the eventual selection of the Locally Preferred Alternative (that will be part of the end result of the PD&E phase), and will be continued throughout the project development process.

An example of the effectiveness of this approach is the screening of the defined corridors to be further evaluated to only those that continue to meet the common needs of the stakeholders. Figure 3 illustrates the remaining viable corridors, that now include only bus and APM (from a technology perspective), and alignment options that have been reduced based on the comments received in response to the Advanced Notification (AN) process.

The airport and seaport are also in the process of updating their facility master plans, and this project is being coordinated real time with the master plan updates to ensure that the end result is fully coordinated and that the implementation scenarios are fully integrated with the overall financial demands in support of appropriate policy decisions that would establish the phased capital improvement programs at the airport, the seaport and within the County.



Figure 3 – Remaining Viable Corridor Options

While the project development process has been on-going, there were several capital projects that were under implementation at the airport, including the Rental Car

Facility (RCF). The APM, if and when implemented, would provide a connection between the RCF and the airport terminals, thus addressing the roadway and terminal congestion issues by eliminating the rental car busing operation from the airport roadway system. Since the RCF was under construction, and there is a critical interface with the APM system, more detailed engineering was performed to establish alignments and interfaces that could be included into the RCF project. This eliminated or minimized “throwaway” work on the RCF to accommodate the APM in the future, while allowing the RCF to operate effectively in the absence of the APM. Based on this approach, decisions were made to design certain RCF elements and access roadway elements to include the future loads from the APM system, and to construct certain foundations under the access roadways and avoid future disruptions. The cost impact of this approach on the RCF project was minimal while reducing future costs (if and when the APM is implemented) by minimizing the need to re-do completed work and avoiding or minimizing future disruptions (to operations or access). Figure 4 illustrates the interface between the RCF and the future potential APM. To ensure that these decisions did not “lock” the County into a particular APM technology, a technology neutral approach was adopted in developing the interface and load requirements for the design of these “advanced elements” that were constructed. This retained the County’s ability to competitively procure the transportation system in the future by maximizing the ability of potential suppliers to apply different classes of technologies to the project based on the project performance parameters which would be established as part of the procurement process.

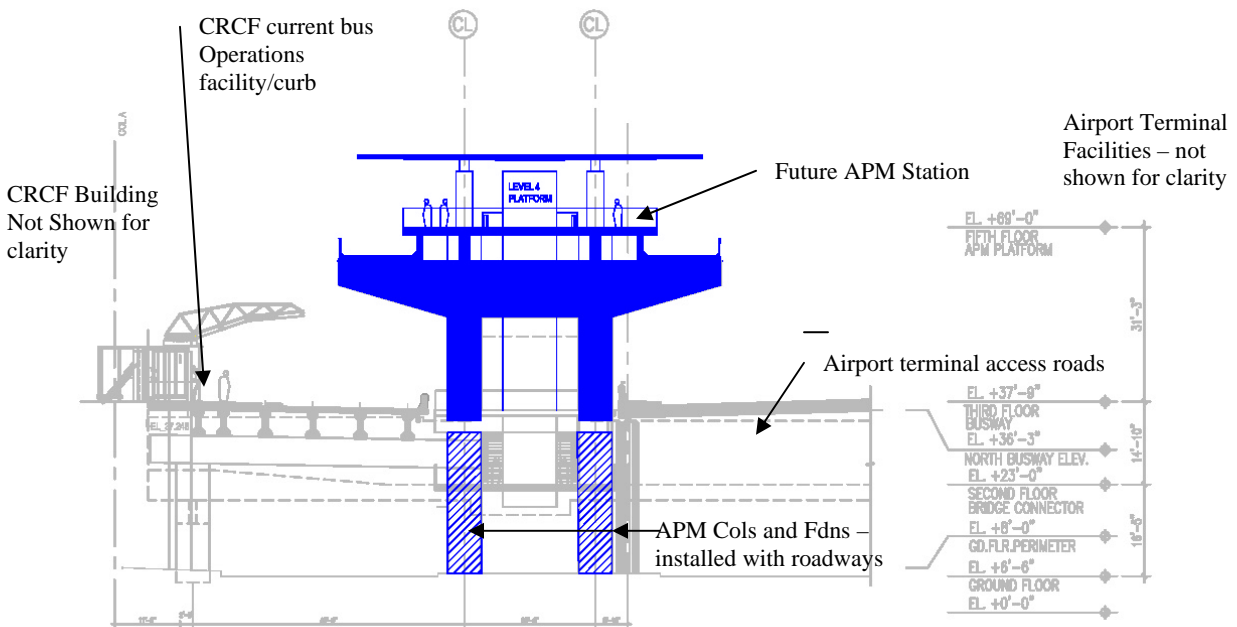


Figure 4 – Consolidated Rental Car Facility and Future APM Station Interface

Conclusion

Project development processes are essentially guidelines for the project development team to ensure a successful conclusion. The process is one of consensus building between the lead agency, the reviewing agencies, the project stakeholders and the project owner. Communication and coordination in a timely manner, including the willingness to advance limited engineering analysis/evaluation to provide more definitive information during the early and other appropriate phases of the project can result in improved efficiencies for the project concurrence process, and also more cost effective future project implementation which is fully integrated with the environment (physical and other) affected by the project. It is essential that the project development team support the project owner through the process by proactively framing policy issues for the owner with the goal of achieving a cost effective, efficient and integrated project development and implementation experience.