

Volume 3
Exit Roadways
Detailed Final Report

Prepared by
URS Corporation
In association with
Keith and Schnars

November 15, 2002



2020 Vision
Fort Lauderdale - Hollywood International Airport

1.0 EXECUTIVE SUMMARY

The Fort Lauderdale-Hollywood International Airport has been experiencing rapid growth in recent years, and with growth expected to continue in the future, capital and infrastructure improvement projects at terminals and the airside are ongoing. Further enhancements, including landside transportation improvements are also necessary.

The airport exit roadway system is now approaching unacceptable levels of congestion and safety due to increasing volumes of traffic. Roadway improvements are needed to improve traffic operating conditions and to keep pace with expected growth in passenger demand. These roadway improvements will be the final phase in providing a two-level roadway system around the terminals and the airport exit.

A major objective of the staging of construction will be to minimize inconveniences to the traveling public and disruptions to airport operations. It is anticipated that a Design-Build project delivery will be used to accelerate construction of the Exit Roadway improvements.

With the expansion of the south Terminal 4 expected in the future, an increase in capacity for the terminal roadway will also be required. Extending the two-level curbside at this terminal in a later phase in the future will provide the necessary additional curb space required for the Terminal expansion.

A conceptual phasing plan was developed to understand the potential interface and compatibility issues during project implementation, considering both planned and existing airport projects.

A conceptual cost estimate was also prepared for the conceptual phasing plan to establish a preliminary project budget. The total project cost was estimated at \$73,171,005. This assumes a two-phased implementation approach. The first implementation phase does not include the construction of additional curbside at Terminal 4. This project cost was estimated at \$58,911,464. The second implementation phase provides for the construction of the terminal roadway associated with the future Terminal 4 expansion. The project cost for this phase was estimated at \$14,259,541. It should be noted that this order of magnitude cost estimate should be evaluated further in coordination with the planning and design of the future Terminal 4 expansion.

A more detailed construction cost estimate will also be needed during the next phase of design once the Exit Roadway improvements are more fully defined and validated.

2.0 PROJECT LOCATION AND DESCRIPTION

The Exit Roadways Improvement Project is located within Fort Lauderdale-Hollywood International Airport property boundaries with project limits extending from the south end of the Terminal 3 curbside roadways to the connection with the Terminal Access Roadways Interchange Project (Task 2 Roads), which is currently under construction and located east of the airport. (See Figure1)

The general objective of the exit roadway improvements will be to improve the level of service and safety for the traveling public utilizing the Terminal roadways. This will be accomplished by constructing the final segment of the two-level roadway system encircling the terminals and airport exit. Provisions will also be made to accommodate the future Terminal 4 curbside expansion plans.

Elements of work will include the construction of roadways, bridge structures, retaining walls, drainage, lighting, utility adjustments, signing and pavement markings, and landscaping.

A major objective of the staging of construction will be to minimize inconveniences to the traveling public and disruptions to airport operations. It is anticipated that a Design-Build construction delivery will be used to accelerate construction of this project.

3.0 PROJECT COORDINATION

Since the exit roadways project construction will be phased, coordination with other airport projects (both planned and existing) is essential to ensure a successful coordinated implementation.

It will be necessary to coordinate the following projects and facilities:

- The Consolidated Rental Car Facility (CRCF) Project
(Currently under design and construction)
- The Terminal Access Roadways Interchange Project (Task 2 Roads)
(Presently under construction)
- Palm and Hibiscus Parking Garage Exit Toll Plazas
- Terminal 4 Expansion (future planned development)
- Automated Guideway Transit (People Mover) (future planned development)

OCTOBER 2002
SCALE: N.T.S.
DRAWN BY: L.A.S.

FIGURE 1

3.01 CRCF Project

The CRCF, located east of the Hibiscus Garage and directly across from Terminal 1, is presently under design with early site work already under construction. The facility is scheduled for completion in year 2005 (with substantial completion by end of 2004). Once operational, this seven-level garage will house eleven (11) different rental car companies and will accommodate approximately 3,000 public parking spaces. The garage is also designed to accommodate the expansion of three additional levels of public parking in the future.

Operationally, rental car users will enter the CRCF facility on the north side. Public parking patrons will access the facility utilizing the existing Hibiscus garage helix ramp. The CRCF will be connected to the Hibiscus garage for access to public parking at levels five and six. Rental car patrons and public parkers will exit the CRCF facility utilizing a new doubled-threaded helix to be constructed on the southwest corner of the CRCF. As stated in *Technical Memorandum IA: Garage Ramp Analysis*, dated April 15, 2002, prepared by Kimley-Horn & Associates, this helix, will accommodate approximately 1,000 vehicles per hour on each "thread" in the exit configuration.

Since the proposed exit configuration of the CRCF helix ramp discharges traffic onto the existing exit roadway system, combined with traffic exiting the Palm and Hibiscus garages at the same location, it will be critical to coordinate this interface with both projects to ensure that adequate merge and weaving distances are provided prior to opening of the CRCF.

3.02 Terminal Access Roadways Interchange (Task 2 Roads)

The Task 2 Roadways project is currently under construction and consists of restructuring the Airport access roadway interchange. This project is located east of the Airport and is within Florida Department of Transportation (FDOT) right of way. The project is tentatively scheduled for completion in August 2003, approximately six (6) months ahead of schedule. Once completed, it will provide much improved access into and out of the airport.

It is anticipated that this project will be completed prior to the start of construction of the Exit Roadway improvements. It will be necessary to coordinate the east project tie-in of the exit roadways with this project, since FDOT permits will be required.

3.03 Parking Exit Toll Plazas (Palm and Hibiscus)

There is a potential that existing parking exit plazas located on the south side of the Hibiscus garage will be impacted and will need to be reconfigured with the proposed Exit Roadway improvements project. These exit toll plazas serve both the Palm and

Hibiscus garages and are expected to accommodate the CRCF public parking demand as well.

Parking exit lane requirements must be accommodated by the proposed Exit Roadway improvements to ensure a high level of service for all parking garage users.

Additionally, the Broward County Aviation Department (BCAD) may implement a pay-on-foot revenue control system to improve transaction processing and turnover rates for all three garages. Parking patrons would pay their parking fee at kiosks located in the garages and use a validated ticket to exit out of a main toll plaza. As described in the *Comprehensive Roadway Plan Report* prepared by Leigh Fisher Associates in January 2001, key assumptions for this operation are:

- All parking vehicles would use the toll plaza to exit.
- Most of the parking exit booths at the toll plaza would be unmanned. Additional booths will be manned to provide assistance for parking users experiencing difficulties with the pay-on-foot system, or who forget to pay their parking fee earlier.

A detailed evaluation of the exit toll plaza configuration and pay-on-foot system implementation will be needed as the design of the Exit Roadway Improvement project progresses to ensure compatibility and efficiency.

3.04 Terminal 4 Expansion

Although initial construction of the Exit Roadway improvements will not include the expansion of the existing Terminal 4 curbside, coordination with the Terminal 4 design team will be needed to ensure that provisions are made to preserve future expansion of the terminal roadways.

It will be necessary to coordinate the length, functional layout, and elevation of the future Terminal 4 roadway to maintain flexibility for the project tie-in with the Exit Roadway improvements.

3.05 Automated People Mover (APM)

In June 2001, the Board of County Commissioners approved an 18-month study to evaluate the feasibility of constructing certain projects envisioned for the Fort Lauderdale-Hollywood International Airport over the next 20 years.

One of the projects under study as part of the “2020 Vision” program is an automated people mover (APM) system. An elevated APM system is proposed as a way to improve the level of service for transporting air passengers between the future CRCF and the terminal buildings. The APM system at full build out is also proposed to

provide a seamless link to Port Everglades transporting cruise line passengers to and from the Port and the Airport.

Conceptual APM alignments, APM technologies, potential system operating plans, and potential costs have been studied to determine alternative scenarios, so that decisions can be made before proceeding into the project development and environmental study phase.

Implementation of an on-airport APM system could be years away. However, to maintain flexibility, the APM alignment alternatives that have been studied so far should be considered during the design development of the Exit Roadway improvements in order to preserve a corridor(s) for the APM.

4.0 CONCEPTUAL EXIT ROADWAY PHASING PLAN

A conceptual phasing plan was developed to understand potential interface and compatibility issues during project implementation, considering both planned and existing airport projects. (See Appendix A)

This Phasing plan, as intended, is a “baseline” alternative that should be reviewed and be verified by a roadway design team in the next phase of study. The Consultant will evaluate the baseline alternative with the goal of:

- 1) Improving upon the concept-phasing plan.
- 2) Validating the assumptions and conceptual alternatives through traffic analysis and modeling.
- 3) Evaluating roadway geometric constraints.
- 4) Developing a workable constructability and Maintenance of Traffic plan that will minimize disruptions to airport operations and inconveniences to the traveling public.
- 5) Developing viable solutions to maintain flexibility and expandability with other airport projects and facilities. (Both planned and existing)
- 6) Producing an approved Design-Build Criteria Package (DBCP) in accordance with the County Procurement Code to be used by a design-build team for construction.

The following summarizes the potential phased implementation of the Exit Roadway improvements: (Refer to Appendix A for a graphical representation)

- Phase 1 (Drawing A-510):

A new bridge structure connecting the Palm Garage at level 4 (roof top) to the Hibiscus Garage at level 3 is constructed. This bridge structure is proposed to accommodate both vehicular and pedestrian traffic. This phase is also necessary to allow for the construction of a proposed new parking exit toll plaza at ground level located between the Palm and Hibiscus garages. (Potential construction: Year 2003/2004)

- Phase 2 (Drawing A-511):

A new parking exit toll plaza between the Palm and Hibiscus garages is proposed for construction as shown. This phase also contemplates the integration and implementation of the pay-on-foot system at the Palm and Hibiscus garages. Provisions are also being planned to accommodate a potential pay-on-foot system at the new CRCF.

This phase also requires the existing courtesy parking tram operation be moved to the 4th level of the Palm garage (roof top), which is the 3rd level of the Hibiscus garage. As proposed, the parking tram loop operation would circulate between the Palm and Hibiscus garages providing stops at the Terminals 2, 3, and 4 pedestrian bridges. (It should be noted that the existing Terminal 2 and 3 pedestrian bridges are presently being re-designed by others to provide for enclosed and air-conditioned spaces. Moving walkways will also be provided, as appropriate. Once completed, it is anticipated that pedestrians will not be permitted to use pedestrian crossings at the arrivals and departure levels of the terminal roadways, except during emergency situations). (Potential construction: Year 2004)

- Phase 3 (Drawing A-512):

This phase re-routes Palm garage exiting traffic to the north side of the garage, utilizing the new exit toll plaza. The exit ramps from the Palm garage will also be demolished. Also, a temporary detour roadway for exiting movements will be constructed as shown. (Potential construction: Year 2004/2005)

- Phase 4 (Drawing A-513):

With vehicles now using the temporary detour, this phase constructs a temporary exit for the CRCF to accommodate rental car patrons upon substantial completion and tenant move-in of this facility by the end of 2004. Car rental operators located south of the exit roadways project would be relocated to the CRCF at the end of this phase. (Potential construction: Year 2004/2005)

- Phase 5 (Drawing A-514):

Upon substantial completion and tenant move-in of the CRCF, a temporary return to terminal detour is constructed through the former Avis rental car site. This phase also shifts CRCF exiting traffic to the temporary detour.

- Phase 6 (Drawing A-515):

With all exiting traffic now shifted to temporary detours, this phase constructs portions of the new upper and lower level roadways. This work also includes the construction of a new and more permanent 2nd level bridge structure to accommodate the CRCF exiting movements from the CRCF helix ramp. (Potential construction: Year 2006/2007)

- Phase 7 (Drawing A-516):

This phase completes the final project tie-ins on the east and west ends of the project. Exiting traffic will need to be shifted to accomplish the work in this phase. (Potential construction complete: Year 2007/2008)

- (Drawing A-517):

This drawing presents the proposed final configuration of the exit roadway improvements envisioned for the airport in the near term. When completed, the project should accommodate all required exiting movements, while providing a safe and efficient operation that can be expanded in the future, as needed.

- (Drawing A-518):

This drawing shows a potential functional layout for the proposed expanded Terminal 4 curbside roadways. This conceptual arrangement will need to be coordinated with the Terminal 4 Expansion planning and programming to ensure flexibility and expandability.

5.0 CONCEPTUAL COST ESTIMATE

An estimate of probable construction costs was prepared by Cost Management, Inc. for the Conceptual Phasing Plan described in Section 5.0 of this report. (Refer to Appendix B). This conceptual cost estimate was developed only to establish a preliminary project budget.

It should also be noted that a more detailed construction cost estimate will be needed during the next phase of design once the Exit Roadway improvements are more fully defined and validated.

As shown in Appendix B, the Summary of Bid Items page provides a breakdown of project costs associated with a two-phased implementation approach for the construction of the Exit Roadway system.

The first implementation phase provides for exit roadway improvements that do not include the construction of an extended curbside at Terminal 4. The project cost for this work was estimated at \$58,911,464. The estimate was escalated assuming the end of Year 2007 completes construction of the first implementation phase.

The second implementation phase provides for roadway improvements associated with the Terminal 4 expansion. The project cost for this work was estimated at \$14,259,541 and was escalated to year 2010. It should be noted that this order of magnitude cost should be evaluated further in coordination with the planning and design of the future Terminal 4 expansion.

The total project cost for both implementation phases is estimated at \$73,171,005.

6.0 REFERENCE DOCUMENTS

The following is a partial list of reference documents and studies that are relevant to the Exit Roadways improvement project and should be reviewed with the next phase of design:

- **2020 Vision Progress Report and Project Updates**, Fort Lauderdale-Hollywood International Airport, prepared by URS Corporation and Leigh Fisher Associates, November 2001 to February 2002, and March 2002 to June 2002
- **2020 Vision Terminal 4 and Intermodal Center Project Definition Report**, Fort Lauderdale-Hollywood International Airport, prepared by Leigh Fisher Associates, October 2002.
- **2020 Vision Automated People Mover (APM) Project Definition Report**, Fort Lauderdale-Hollywood International Airport, prepared by URS Corporation, October 2002.
- **Consolidated Rental Car Facility, Contract Design Documents, Volume 1 and 2**, Fort Lauderdale-Hollywood International Airport, prepared by Spillis Candela DMJM, July 15, 2002.
- **Consolidated Rental Car Facility, Technical Memorandum IA: Garage Ramp Analysis**, prepared for Spillis Candela DMJM, by Kimley-Horn & Associates, April 15, 2002.
- **Stormwater Master Plan**, Fort Lauderdale-Hollywood International Airport, prepared by Camp Dresser McKee (CDM), 2002.

- **Pay-on-Foot Parking System Assessment, Fort Lauderdale-Hollywood International Airport**, prepared by Leigh Fisher Associates, January 2002.
- **2001 Passenger Demand Forecast Update, Fort Lauderdale-Hollywood International Airport**, prepared by Leigh Fisher Associates, June 2001.
- **Comprehensive Roadway Plan, Fort Lauderdale-Hollywood International Airport**, prepared by Leigh Fisher Associates, January 2001.
- **Preliminary Engineering Report, Terminal Access Roadway Improvements, Fort Lauderdale-Hollywood International Airport**, prepared by Keith and Schnars, P.A., August 2000.
- **Design Traffic Technical Memorandum, Terminal Access Roadway Improvements, Fort Lauderdale-Hollywood International Airport**, prepared by Keith and Schnars, P.A., August 2000.
- **Exit Roadway Capacity Analysis, Fort Lauderdale-Hollywood International Airport**, prepared by Leigh Fisher Associates, April 2000.
- **The Value Engineering Report**, produced by Beiswenger, Hoch and Associates, Inc. Consulting Engineers and PCL Construction Leaders, March 2000.
- **Final Traffic & Alternatives Analysis Report, Terminal Access Roadway Improvements, Fort Lauderdale-Hollywood International Airport**, contract No. PC6AV00001188, **Addendum – Alternative 7.0B**, prepared by PBSJ, May 1998.
- **Traffic Operations Analysis, Terminal Access Roadway Improvements, Fort Lauderdale-Hollywood International Airport**, prepared by PBSJ, May 1998.
- **Traffic Report, Terminal Access Roadway Improvements, Fort Lauderdale-Hollywood International Airport**, prepared by PBSJ, September 3, 1996.