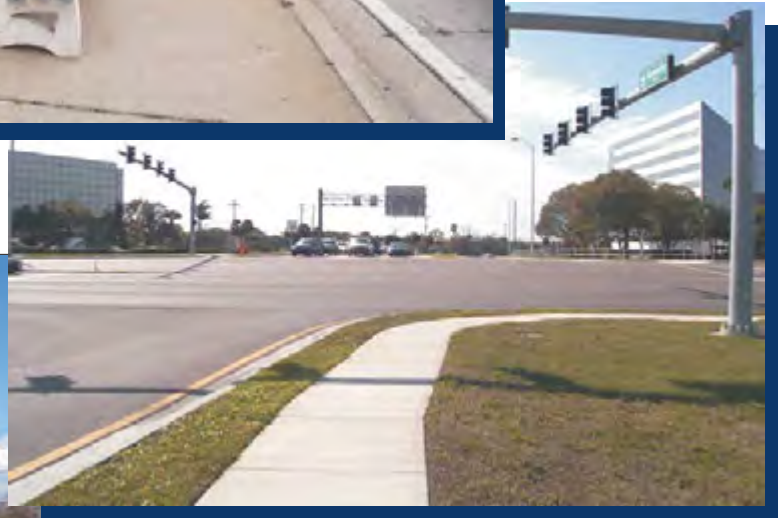




Kennedy Boulevard Corridor Study *Final Report*

Prepared for:

**Hillsborough County
Metropolitan
Planning
Organization
(MPO)**



August 2003



KENNEDY BOULEVARD CORRIDOR STUDY

Final Report

Prepared For:

**HILLSBOROUGH COUNTY
METROPOLITAN PLANNING ORGANIZATION**

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SECTION 1

INTRODUCTION



The purpose of this study is to conduct an evaluation of the Kennedy Boulevard (SR 60) corridor from Memorial Highway to Ashley Drive. The length of the corridor is approximately 4.2 miles. The anticipated result is the identification of transportation system management and other corridor improvements to improve mobility by reducing delay and congestion and by encouraging the utilization of alternative travel modes. In addition, the corridor study is designed to further urban design concepts along the corridor.

Previously, Technical Memorandum Number 1 was prepared to summarize the data collection undertaken to support the corridor study. That technical memorandum was distributed in September 2002 for review and comment. In January 2003, Technical Memorandum Number 2 was prepared to summarize the various analyses that were conducted on the collected data and the evaluation of the results. In February 2003, Technical Memorandum Number 3 was prepared to present the preliminary recommendations resulting from the corridor study.

This document, the Preliminary Report, summarizes the study's resulting final recommendations for the Kennedy Boulevard corridor and presents a general discussion of the costs and benefits related to specific recommended improvements. This document is composed of eight major sections, including this introduction. The remaining sections of this report are summarized below.

Section 2 discusses the recommendations for potential roadway and intersection improvements for the Kennedy Boulevard corridor. These recommendations have been developed and organized into three major categories, including (1)

congestion/capacity/level of service, (2) safety, and (3) access management.

Section 3 presents recommended improvements for transit service in the Kennedy Boulevard corridor based on a series of analyses and evaluations related to the existing and potential future conditions of this service. These improvements can help the overall utilization of bus service within the corridor, thereby supporting the congestion mitigation efforts along Kennedy Boulevard between Downtown Tampa and the Westshore Business District.

Section 4 details the recommended improvements for bicycle and pedestrian facilities based on the related analyses that have been undertaken during the course of this project. Specific improvements are recommended along Kennedy Boulevard, as well as on selected streets within ¼-mile of the corridor. Implementing these recommendations will improve the quality and level of service for bicyclists and pedestrians and also help address issues related to meeting the requirements of the Americans With Disabilities Act (ADA).

Section 5 presents recommendations that support Travel Demand Management (TDM) strategies and their application within the Kennedy Boulevard corridor. Based on discussions with Bay Area Commuter Services (BACS), MPO staff, review committee members, and selected major employers, TDM strategies were identified and considered in an effort to more effectively manage travel demand in the corridor.

Section 6 provides the urban design and streetscaping recommendations for Kennedy Boulevard. The landscape and urban design opportunities for the study area were derived from a

comprehensive evaluation of the existing conditions of the entire Kennedy Boulevard corridor. The recommendations are based on public preferences for streetscape and urban design concepts, as well as the feasibility of implementing these concepts along various sections of the corridor.

improvements and give them an opportunity to help formulate the final set of recommendations that are the most applicable to and feasible for Kennedy Boulevard immediately and in the near future.

Section 7 provides a review of the City of Tampa's Comprehensive Plan and Land Development Code. The methods and techniques used to promote redevelopment and economic revitalization are reviewed specifically in the context of their applicability to the Kennedy Boulevard corridor. The information summarized in this section ensures that the recommendations from this corridor study are being developed with an understanding of the City's goals, objectives, policies, and land development regulations.

Section 8 includes a discussion of the general costs and benefits related to the specific recommended improvements for the Kennedy Boulevard corridor that are presented herein. The examination of costs is based on current day unit costs available from the Florida Department of Transportation, the City of Tampa, Hillsborough Area Regional Transit Authority, and/or any other available sources. In addition, the benefits for many of the improvements also are quantified and, as possible, are related to Congestion Mitigation and Air Quality Improvement (CMAQ).

Finally, Section 9 summarizes the results of the study's public meetings and the additional public comments that were received during the course of the study. In addition, the section provides summaries of the three coordination meetings that were held with the City of Tampa, the Florida Department of Transportation, and Hillsborough Area Regional Transit (HART) after development of the preliminary recommendations for improving the Kennedy Boulevard corridor. These meetings were facilitated to discuss the recommendations with these implementing agencies to enable them to gain a better understanding of the suggested

SECTION 2 TRAFFIC/ROADWAY



Various data inventories and analyses related to existing traffic conditions and roadway elements of Kennedy Boulevard have been conducted during the course of this project. The information that has resulted from these efforts has been instrumental in the development of recommendations for potential roadway and intersection improvements for the Kennedy corridor. As discussed in this section, these recommendations have been developed and organized into three major categories: (1) congestion/capacity/level of service, (2) safety, and (3) access management.

Roadway/Intersection Capacity Improvements

Among the roadway-based recommendations are three specific intersection capacity improvement projects that are proposed. The potential benefits of these proposed intersection capacity improvements were estimated using the traffic flow analysis and simulation suite, Synchro/SimTraffic. Baseline existing conditions were evaluated and compared with conditions in the improved scenarios. The proposed intersection improvements and the corresponding simulation analyses results are summarized in the following sections.

Memorial Highway at Kennedy Boulevard

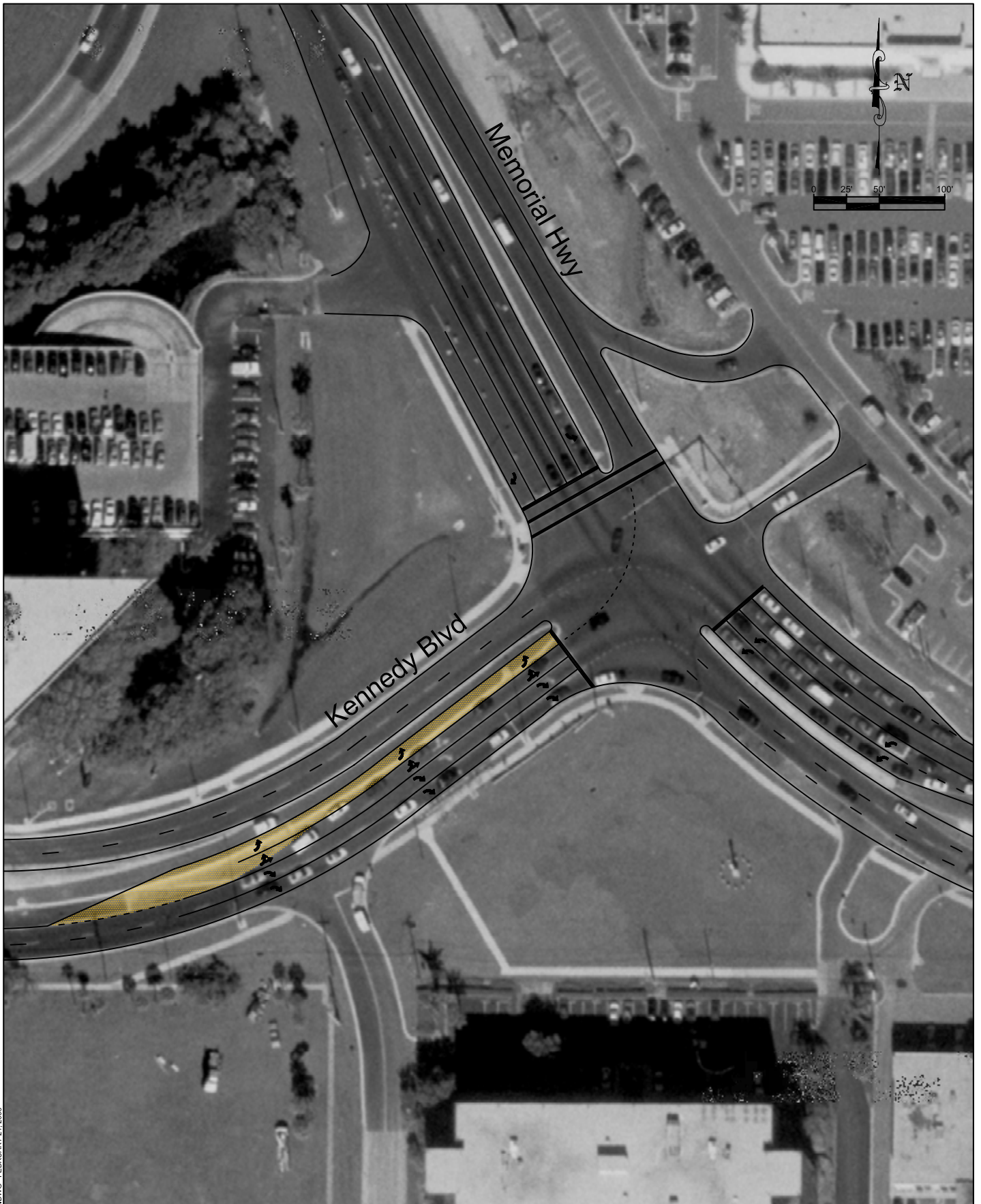
Substantial benefits are observed at this intersection with improvements in two stages: a signal timing adjustment and the addition of a northeast-to-northwest left turn lane. The maximum green allowed for the northeast-to-northwest left turn movement is 40 seconds during the p.m. peak hour, per the intersection controller settings provided by the City of Tampa. Optimized signal splits suggest that a longer green time (up to 54 seconds) is needed to reduce delays on that approach. With this adjustment, overall intersection delay is reduced by 26 percent. In the future, as traffic volumes grow, addition of the second left turn lane for that movement will reduce delays by an additional 23 percent. The simulation analysis results for this improvement are summarized in Table 2-1. In addition, the suggested modification is illustrated in Figure 2-1.

Dale Mabry Highway at Kennedy Boulevard

Addition of a northbound through lane at this intersection proves to be the most effective improvement in reducing delay per dollar spent, with

**Table 2-1
Summary of Intersection Performance Improvement: Memorial Hwy at Kennedy Blvd**

Factor	Baseline Condition	Optimized Signal Timing		With 2nd Left Turn Lane	
		Total	% Change	Total	% Change
Intersection Delay (veh-hrs)	105.3	78.0	-26%	53.9	-49%
Fuel Consumption (gallons)	127.5	108.7	-15%	95.6	-25%
HC Emissions (grams)	345.3	295.7	-14%	266.3	-23%
CO Emissions (grams)	10,839.0	9,114.0	-16%	8,823.7	-19%
NOx Emissions (grams)	830.7	711.7	-14%	676.0	-19%



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Kennedy Boulevard Corridor Study

Figure 2-1
Memorial Hwy. at Kennedy Blvd.
Improvement Schematic

an associated reduction of 119 vehicle-hours of delay per peak hour. Extrapolating the peak hour delay to an annual savings over a 25-year life nets a benefit of over \$30 million in saved time alone. The development of an additional westbound through lane does not prove to be as effective an improvement; therefore, it is not recommended. The simulation analysis results for this improvement are summarized in Table 2-2. The intersection improvement also is depicted in Figure 2-2.

MacDill Avenue at Kennedy Boulevard

Widening the south leg of this intersection to provide for a northbound left turn lane saves 50.6 vehicle-hours of delay per peak hour, according to the simulation analyses. The simulation analysis results for this improvement are summarized in Table 2-3. Figure 2-3 details the necessary modifications for implementing this particular improvement.

It is important to note that, for this particular intersection, although traffic data did not indicate a problem with left-turning vehicles in the southbound-to-eastbound direction, it was commented at one of the recent March 2003 workshops that a similar left-turn lane addition is needed in the southbound direction. When this improvement on MacDill Avenue is advanced for design, the need for the southbound left turn lane should be reviewed. Should it be determined that such a lane is necessary and/or desirable, it is anticipated that it could be accommodated in the implementation of the northbound left turn lane without significant additional cost or impact.

Howard Avenue at Kennedy Boulevard

The existing painted median should be re-stripped to lengthen the east-to-north left turn lane. This will result in prohibition of turns into Moody Street from Kennedy Boulevard.

**Table 2-2
Summary of Intersection Performance Improvement: Dale Mabry Hwy at Kennedy Blvd**

Factor	Baseline Condition	With NB Thru		With WB Thru		With NB and WB Thru	
		Total	% Change	Total	% Change	Total	% Change
Intersection Delay (veh-hrs)	300.5	181.1	-40%	284.0	-5%	172.8	-42%
Fuel Consumption (gallons)	334.0	308.1	-8%	335.2	0%	306.7	-8%
HC Emissions (grams)	829.3	780.0	-6%	838.7	1%	789.7	-5%
CO Emissions (grams)	24,089.3	29,838.0	24%	26,366.3	9%	31,712.3	32%
NOx Emissions (grams)	2,072.3	2,259.3	9%	2,135.7	3%	2,289.3	10%

**Table 2-3
Summary of Intersection Performance Improvement: MacDill Ave at Kennedy Blvd**

Factor	Baseline Condition	With NB Left	
		Total	% Change
Intersection Delay (veh-hrs)	128.4	77.9	-39%
Fuel Consumption (gallons)	172.6	146.7	-15%
HC Emissions (grams)	766.3	718.0	-6%
CO Emissions (grams)	36,891.3	37,683.7	2%
NOx Emissions (grams)	2,550.3	2,470.0	-3%



**Kennedy Boulevard
Corridor Study**

**Figure 2-2
Dale Mabry Hwy. at Kennedy Blvd.
Improvement Schematic**



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Kennedy Boulevard Corridor Study

Figure 2-3
MacDill Ave. at Kennedy Blvd.
Improvement Schematic

Other Capacity/Congestion Improvements

Additional capacity and congestion related improvements have not been recommended for the eastern sections of Kennedy Boulevard, but further study to confirm the future character of this section of road is recommended. No capacity-related improvements are recommended because congestion in this section is not severe, virtually no excess land exists for additional lanes, and the Hillsborough County Planning Commission's "Kennedy Boulevard – A Strategy for Improvements" report proposes developing an alternate route to divert traffic away from Kennedy Boulevard in the vicinity of Willow Avenue. This measure provides the opportunity to change the character of Kennedy Boulevard from that of an urban arterial to a scenic and cultural "Boulevard" concept. If that vision is achieved, the concept of introducing alternative traffic control measures that are compatible with the desired character of the road should be pursued, such as roundabouts at key intersections (i.e. Willow Street or Boulevard), enhanced pedestrian crosswalks, wider sidewalks, and curb "bulbouts" to accommodate bus stops, shield parking, and provide for landscaping.

One of the alternate route concepts involves the development of a roadway adjacent to the existing CSX railroad tracks on the west side of the University of Tampa that would link to the existing Cass Street Bridge over the Hillsborough River. A portion of the width of this bridge also is being contemplated for use by the light rail system being proposed in the Tampa Rail Project Study. It is recommended that the needs of both of these concepts be coordinated in the future to avoid one concept precluding the implementation of the other.

In light of other impending traffic circulation changes (e.g., modification of Ashley Street for the Arts District, modifications to Boulevard as a part of the University of Tampa's new Master Plan, modifications to Interstate 275, and enhanced

access to the Channelside District from the Lee Roy Selmon Expressway), a follow-up study to review downtown traffic circulation and investigate the effectiveness of different opportunities to shift traffic from Kennedy Boulevard is recommended. This study should address not only downtown circulation, but also "gateway access routes" and the traffic access/egress needs of special event facilities in the CBD.

In addition, the comfort of the eastern section of Kennedy Boulevard can be improved through an upcoming major resurfacing by leveling the outside eastbound lane from Howard Avenue to Parker Street. An existing sharp turn in the westbound direction at Brevard Avenue is noted. While there appears to be no indication of frequent vehicular crashes there, the narrow lanes and the poor alignment are uncomfortable to negotiate and have a mild influence on capacity. If the opportunity arises through site redevelopment on adjacent property, the State or City should seek to acquire the necessary land to improve this alignment. Finally, to enhance the appearance of Kennedy Boulevard from Armenia Avenue to downtown, raised, landscapable medians could be introduced at locations where painted medians exist (further discussed in Section 6 of this document). The potential effects of these medians on the access needs of individual sites should be more closely evaluated when developing this design.

Access Management

A review of the driveways and medians along Kennedy Boulevard did not identify any specific areas of unusual hazard or conflicts associated with site driveways that would justify Florida Department of Transportation intervention. However, many locations exist along the road where driveways have been abandoned, joint access could be developed, or where driveways could be reconstructed or be better defined to make sidewalks safer and more comfortable. The City and State should strengthen

their resolve and provide developers with incentives, through redevelopment policies, to restore curbs when driveways are abandoned, to consolidate access, and to better define driveways when sites are redeveloped. Further, it is recommended that an access management study be completed for the corridor to support the landscaping and median concepts included in this study.

Safety Improvements

The only intersections along Kennedy Boulevard exhibiting unusually high crash rates were Memorial Highway and Grady Street. Notwithstanding the generally safe conditions, an analysis of crash patterns at the ten intersections having the highest crash rates was undertaken (this analysis is documented in Technical Memorandum 2). The recommendations for further study or suggested actions that resulted from that analysis are summarized as follows.

- Boulevard – recently implemented changes to provide left turn lanes in the north-south directions will probably reduce the left turn crash pattern identified at this location. Continue to monitor the effectiveness of this change.
- Ashley Drive – improve the advance notice and visibility of signage indicating the westbound right lane must turn right.
- Memorial Highway – continue to monitor crashes there, as the high crash rate may have been cured with recently implemented improvements.
- Grady Street – seek to alleviate the side-street traffic demand that is giving rise to the crash patterns by improving the capacity of the Dale Mabry Highway intersection. If ineffective, consider median closure as recommended in a recent Florida Department of Transportation study.
- Dale Mabry Highway – further observe and evaluate the rear-end crash pattern on the north leg of this intersection.
- Howard and Armenia Avenues – undertake further studies of lighting at these locations to address Thursday- and Friday-night crash patterns.

SECTION 3 PUBLIC TRANSPORTATION

Based on the data and other information that have been collected for the public transportation service being provided in the Kennedy Boulevard corridor, a series of analyses and evaluations were completed related to the existing and potential future conditions of this service. This assessment has helped identify a number of recommendations for transit service in the corridor that can help improve the overall utilization of this service, thereby supporting the congestion mitigation efforts along Kennedy Boulevard between Downtown Tampa and the Westshore Business District. This section summarizes the various recommendations, by specific topic area, that have been developed for public transportation service in the corridor. Details for each of the recommendations can be found in this study's Technical Memorandum Number 3.

Bus Stop Infrastructure

Route 10 is the only Hillsborough Area Regional Transit Authority (HART) route that operates along the entire Kennedy Boulevard Study corridor between Ashley Drive in Downtown Tampa and West Shore Boulevard. Following are the recommendations related to bus stops and infrastructure for the Kennedy Boulevard portion of this particular route.

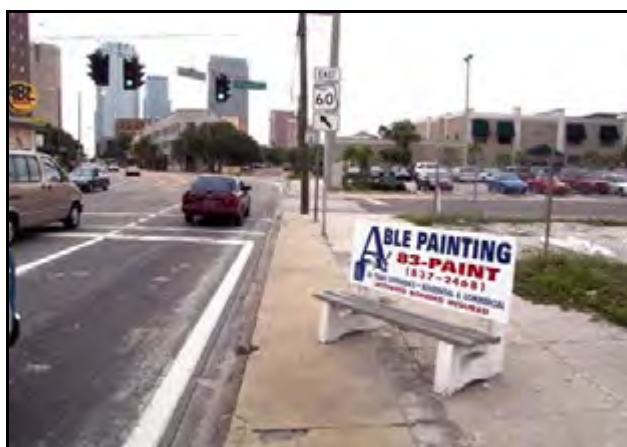
Sidewalks and Curb Cuts

- To facilitate pedestrian access to transit, HART should continue to work with the City of Tampa and the Florida Department of Transportation (FDOT) to ensure the repair and continual maintenance of sidewalks along Kennedy Boulevard and sidewalks on all major cross-streets to Kennedy, especially on those segments of roadway that are needed to access existing bus stops. Priority bus stop locations

requiring various sidewalk maintenance activities include the westbound stops at Hyde Park Avenue (Stop Number 1839) and Oregon Avenue (1845), and the eastbound stops at Trask Street (1871), MacDill Avenue (1884), and Brevard Avenue (1898). Figure 3-1 shows the Trask (top) and Brevard (bottom) stops.

- HART should work with the City and FDOT to ensure that sidewalks are implemented where

**Figure 3-1
Examples of Sidewalk Condition**



they currently do not exist but are needed along the corridor, on cross-streets, and on parallel facilities, especially along those segments that are needed to access transit. This is discussed in more detail in the “Bicycle Facilities & Sidewalks” section of this document.

- HART should continue to work with the City to ensure the provision of appropriate, ADA-conforming sidewalk access to all bus stops in the corridor, particularly at the major stops.
- HART should work with the City and FDOT to add “filler” concrete where gaps and/or grass separate the sidewalk and street at corridor bus stops. This should be done for at least the minimum ADA-required pad width (i.e., 5 feet, measured parallel to the roadway) for accommodating wheelchair lift access. Priority bus stop locations requiring such gap filler include the westbound stops at Delaware Avenue (1843), Willow Avenue (1844), Oregon Avenue (1845), and Armenia Avenue (1850), and the eastbound stops at Armenia Avenue (1889) and Howard Avenue (1890). Figure 3-2 presents photographs of two of these stops: the Delaware stop (top) and the Oregon stop (bottom).



Figure 3-2
Examples of Gaps Between
Sidewalk and Roadway

- HART should work with the City and FDOT to ensure that there are appropriate curb ramps, per ADA accessibility guidelines, proximate to each bus stop within the corridor, particularly at the major stops. This is discussed in more detail in the “Bicycle Facilities & Sidewalks” section of this document.

Obstructions

- HART should work with the City to ensure that light/electric poles, signal controller boxes, and other utilities do not obstruct sidewalk access to the bus stops along the corridor. Priority bus stop locations with such obstructions include the westbound stops at Sterling Avenue (1860) and

Hubert Avenue (1865), and the eastbound stops at Church Avenue (1878), MacDill Avenue (1884), Armenia Avenue (1889), and Boulevard (1897). Figure 3-3 shows the obstructions at the eastbound stop at Armenia Avenue.

- HART should work with the Tampa Jaycees and any other organizations that place benches along roadways for advertising purposes to ensure that the benches are properly placed so that they do not obstruct sidewalk access to the bus stops. Priority bus stop locations with bench obstructions include the westbound stops at Oregon Avenue (1845), Himes Avenue (1859), and Church Avenue (1861), and the eastbound stops at Gomez Avenue (1885), Rome Avenue

Figure 3-3
Example of Sidewalk Obstructed by Utilities



(1893), and Brevard Avenue (1898). Figure 3-4 illustrates the bench obstruction at the westbound stop at Himes.

- HART should work with newspaper/magazine vending machine companies to establish guidelines for the placement of these machines when they are adjacent to bus stops and/or transit shelters since they can present an obstruction to bus stop access and even an eyesore if they are not properly maintained. Priority bus stop locations with vending machine obstructions include the eastbound stops at Renellie Drive (1870) and Habana Avenue (1887). In Figure 3-5, the bus stop at the top shows a bench and newspaper/magazine vending machines that are placed in a manner that is relatively unobtrusive and pleasing to the eye. Conversely, the lower photograph shows the Habana Avenue bus stop, whose sidewalk access has been effectively blocked by the locations of the bench and vending machines, and the placement of the vending machines appears haphazard and is unappealing aesthetically.

Bus Stop Placement and Infrastructure

- Bus stop spacing is an important consideration because it can impact patron access to (and,

therefore the attractiveness of) transit, as well as effect overall transit performance. As a result, HART should consider the implementation of standard bus stop spacing requirements to clarify the current guidance that is provided in the agency's *Transit Friendly Planning and Design Handbook and Technical Manual*. Table 3-1 presents typical bus stop spacings that are representative of current practices at transit agencies around the U.S. and elsewhere.

Figure 3-4
Example of Sidewalk Obstructed by Bench



- It is recommended that HART staff review the placement of its bus stops in relation to intersections (i.e., stops can be placed either at the near or far side of an intersection, or at mid-block) within the Kennedy corridor to ensure that they are located where they will provide the greatest level of safety and convenience for the system's patrons.
- Since bus stop infrastructure, such as shelters, benches, and lighting, can improve the comfort and safety of existing patrons, as well as increase the relative attractiveness of transit as a viable alternative mode of transportation, it is recommended that HART develop bus stop infrastructure placement guidelines and incorporate them into an updated design handbook. Such guidance would equate the

Figure 3-5
Examples of Vending Machine Placement



placement of a particular bus stop infrastructure item, like a bench or garbage receptacle, to a particular level of bus stop activity (e.g., daily boardings) and/or other factors. Table 3-2 includes example guidelines for the placement of bus stop infrastructure based on daily passenger boarding activity.

- Once HART has developed its own bus stop infrastructure placement guidelines, these guidelines should be used to improve the infrastructure of the most heavily utilized bus stops within the Kennedy Boulevard corridor.
- One major issue that has come up during this study is the dangerous pedestrian conditions for HART patrons who must cross Kennedy

Boulevard to access bus stops on the opposite side of the road. HART must continue to work with the City and FDOT to ensure that appropriate crosswalk improvements are made to all major intersections along the Kennedy corridor. For example, the availability of pedestrian signals at each of these intersections is a significant improvement that can protect crossing pedestrians. Currently, however, the priority is for improving existing crosswalk markings. Priority intersections for such improvements include MacDill Avenue, Armenia Avenue, Boulevard, and Hyde Park Avenue.

- HART also should review the locations of all its current stops in the Kennedy corridor with respect to utilization, safety, and spacing (once spacing guidelines have been established). Those stops in locations that are poorly utilized or unsafe, or stops that are spaced too close together, should be further evaluated to determine whether there are any opportunities to do away with some stops, to shift the stops to better locations, or to consolidate stops.

Table 3-1
Typical Bus Stop Spacing

Environment	Spacing Range (ft)	Typical Spacing (ft)
Central Core Areas or CBDs	300 to 1,000	600
Urban Areas	500 to 1,200	750
Suburban Areas	600 to 2,500	1,000
Rural Areas	650 to 2,640	1,250

SOURCE: *Guidelines for the Location and Design of Bus Stops*, Transit Cooperative Research Program Report 19, Texas Transportation Institute, Transportation Research Board, National Research Council, National Academy Press, Washington, D.C., 1996 (p. 18).

- It is important for HART to begin working with the businesses fronting Kennedy Boulevard to see whether they will support the improvement of transit by freely granting HART easements on

Table 3-2
Daily Passenger Boarding Requirements for
Placement of Bus Stop Infrastructure

Bus Stop Feature	Daily Passenger Boarding Activity				
	< 50	50-100	100-300	300-500	> 500
Accessible	S	S	S	S	S
Built-in Sign	--	--	--	O	S
Bus Pads	*	*	*	*	S
Expanding Sidewalks	O	O	S	S	S
Individual Bus Bays	--	--	--	--	S
Lighting	O	O	S	S	S
Nonpublic Roadway	--	--	--	--	S
Park-and-Ride		O	O	O	O
Passenger Shelter	O	O	S	S	S
Permanent Structure	--	--	--	S	S
Public Roadway	S	S	S	S	--
Red Curbs	S	S	S	S	O
Route Designation	S	S	S	S	S
Route Map	O	O	S	S	S
Seating	O	S	S	S	S
Sign and Pole	S	S	S	S	S
System Map	--	--	O	O	S
Telephone	--	O	O	O	S
Timetable	--	O	O	O	S
Trash Receptacle	O	O	O	S	S

Note: S – Standard Feature, O – Optional Feature, -- – Not Applicable, * – Required for stops with four or more buses per hour.

SOURCE: *Short Range Transit Plan FY 2001-2005*, Metropolitan Transit Development Board, San Diego, CA, 2000.

their properties for the implementation of shelter and/or bench pads and related bus stop infrastructure. Figure 3-6 shows easement opportunities for the two stops at Gomez Avenue (westbound stop at top, eastbound stop on the bottom).

- HART staff should consider the implementation of attractive bus shelters at the major Route 10 bus stops on Kennedy Boulevard. Based on current utilization, priority stops for shelter installation include the westbound stop at Hyde Park Avenue (1839), and the eastbound stops at Hyde Park Avenue (1899), Armenia Avenue

(1889), Sterling Avenue (1879), and Renellie Drive (1870). As an example of an attractive, suitable shelter, HART's Arbor Shelter is shown in Figure 3-7.

Figure 3-6
Examples of Opportunities for
Property Easements



- HART staff should consider the implementation of HART Bus Kiosks at other busy bus stops on Kennedy Boulevard whose utilization levels may not warrant full shelters at this time. The kiosk, which is shown in Figure 3-8, is designed to accommodate a telephone, a system map and schedule, other system information and announcements, and local business advertising, if desired. Based on current utilization, priority stops for kiosk installation include the westbound

Avenue (1878), MacDill Avenue (1884), Howard Avenue (1890), and Willow Avenue (1895).

Bus Stop ADA Accessibility

According to the ADA guidelines, in order for a bus stop to be considered “accessible,” it must have an accessible path that connects it to the buildings, facilities, and/or neighborhoods that it serves, and it must include a concrete pad of appropriate dimensions that will allow for wheelchair lift or ramp deployment. However, these are truly only minimum requirements. ADA accessibility of a bus stop also can include consideration of the stop’s other infrastructure elements, its location, and its surrounding environment. To this end, the following bulleted items suggest improvements to the bus stops and related supporting infrastructure along the Kennedy Boulevard study corridor that can help improve accessibility for HART patrons with disabilities. It is important to note, however, that many ADA-specific recommendations were introduced in the previous section on bus stop infrastructure improvements; therefore, the bulleted items in this section include only those ADA-related recommendations that have not yet been presented.

- HART should ensure that an appropriate concrete pad (minimum pad dimensions are 60

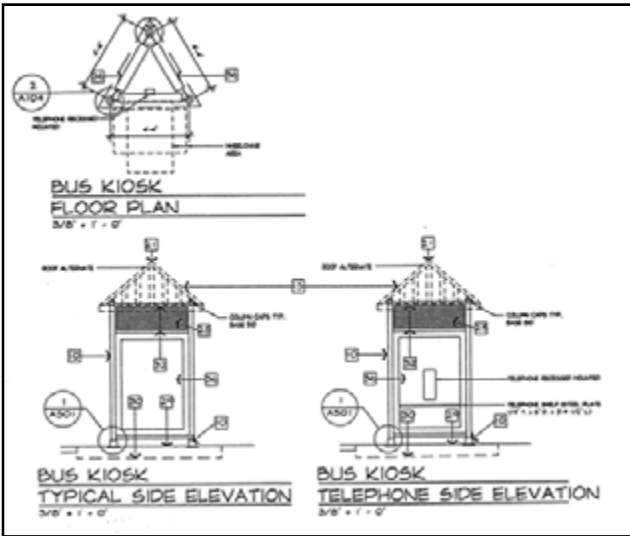
Figure 3-7

Photograph of HART Arbor Shelter



Figure 3-8

Design Schematics for HART Bus Kiosk



inches wide, measured parallel to the roadway, by 96 inches, as required by ADA guidelines for accessibility purposes) is available at each bus stop so that wheelchair lifts/ramps on its buses will have the necessary clearance to deploy. Priority bus stop locations requiring concrete pads include the westbound stops at Armenia Avenue (1850) and Sterling Avenue (1860), and the eastbound stops at Trask Street (1871), Gomez Avenue (1885), Armenia Avenue (1889), and Howard Avenue (1890).

- HART needs to continue to ensure that appropriate clearance of structures is maintained at all bus stops and shelters per ADA guidelines. HART’s *Transit Friendly Planning and Design Handbook and Technical Manual* details specific clearance requirements in Appendix B, Figure 2.16.
- HART should evaluate and, where necessary, improve the placement and design of its bus stops along the Kennedy corridor to ensure that most, if not all, of the stops will be ADA compliant and accessible. As shown in Table 3-3, over 38 percent of the Route 10 bus stops along Kennedy

and accessible. As shown in Table 3-3, over 38 percent of the Route 10 bus stops along Kennedy are not accessible at this time. More of these stops should be accessible, at the least, and ideally, more stops should be improved such that they can attain “preferred” accessibility status.

**Table 3-3
Accessibility Status of Bus Stops along Kennedy Study Corridor**

Accessibility Status	Route 10 Stops (n=60)	
	# Stops	% Total Stops
Preferred	12	20.0
Accessible	25	41.7
Not Accessible	23	38.3

Route Performance

Route 10 was shifted over from Cypress Street to Kennedy Boulevard after the 2000 fiscal year. Since that time, the route’s performance has steadily improved in several areas, based on a route performance analysis that was completed for HART’s last three fiscal years. Route utilization (riders per mile, per hour) has increased, as has its operating ratio (i.e., revenue generated divided by operating expense). Even cost per rider declined, which also is a positive outcome since this indicates the increasing cost efficiency of the route. As a result, Route 10’s performance compared to HART’s other local (non-express) routes has improved significantly.

Based on these findings, it is anticipated that any improvements that can be made to make the corridor more pedestrian and bicycle friendly and, therefore, more transit accessible, should help this route continue to improve its performance and generate more transit trips. The only recommendation regarding the performance of the route that can be suggested is for HART staff to conduct a complete ridecheck of Route 10 to verify the utilization levels at individual bus stops and to check on the on-time performance of the route.

Service Modifications/Improvements

As noted previously, bus service in the Kennedy Boulevard corridor appears to be doing relatively well and has improved in the last couple years. Analysis of bus travel times and delay in the Kennedy Boulevard corridor found that, despite signal delay at several major intersections along the corridor, Route 10 is not really experiencing significant impacts from congestion at this time. In addition, a transit orientation analysis did not identify any areas in the immediate corridor that require transit service at this time based on traditional transit orientation characteristics.

It would appear, then, that Kennedy corridor transit service does not require much in the way of improvements, especially considering that, based on the ridecheck analysis, the primary utilization of the route is to provide connector service between Westshore Plaza and its surrounding area and Downtown Tampa, and it seems to be performing this task successfully. Nevertheless, there are some improvements that can be implemented to the route that can help improve transit service and connectivity throughout the corridor. The following recommendations discuss these particular improvements.

- The fact that the primary bus trip on Route 10 is for access between the Westshore area and Downtown Tampa suggests the need for peak-hour express bus service in the corridor to supplement the current route schedule. It is anticipated that additional buses operating more limited-stop service during the morning and afternoon rush hour periods can have a significant impact on total travel times for commuters and may even help attract additional peak-hour riders because of this.
- Route 10 currently operates with 30-minute headways, a favorable frequency compared to many other routes in Tampa and bus service

elsewhere in Florida. While increased frequency on Route 10 certainly would be beneficial to current HART patrons, it is not apparent that it is warranted at this time given the increased operating costs that would result and the uncertainty surrounding its true impact on ridership in the relatively transit-unfriendly environment of the Kennedy Boulevard corridor.

- HART should be sure to consider the impact that any future frequency improvements may have on cross-route connectivity. This consideration will be necessary to ensure that the timing of the routes for transfer purposes is as efficient and convenient as possible to limit the time that transferring passengers must wait at a stop for a connecting bus.
- Currently, Route 10 ends service at 8:43 p.m. on weekdays and between 7:00 and 7:30 p.m. on weekends. While typical of many routes in Tampa and systems elsewhere in Florida, these times do not support the needs of many workers in the corridor with jobs that are not of the typical “8-to-5” variety (e.g., Westshore Plaza, hotel/motel, retail, etc.). Because of this, it would be prudent for HART to consider providing later evening service on Route 10 and other routes serving Westshore Plaza and the Westshore area to meet the needs of its patrons who have later evening/night trip-making needs.
- HART should consider pursuing a partnership with Kennedy corridor businesses for the provision of some type of Kennedy shuttle service. With funding assistance from major employers and other businesses and retailers along the corridor, it may be possible for HART to institute and operate a daily shuttle service that could supplement access to all of the attractors between Westshore and Downtown. This service could also help provide some relief for the midday congestion that occurs on Kennedy each weekday because of lunchtime trips for shopping, eating, personal errands, and other purposes.

Given these recommendations, it may be possible for HART to effect some improvements to its Route 10 in the near term that should have a positive effect on ridership and customer satisfaction. However, it is important to recognize that many of these modifications may only serve to make transit service more convenient for existing patrons, and that any ridership growth may result from the existing users being able to take more trips. There is no guarantee that any one or combination of these improvements will be enough to attract the elusive “discretionary” rider (i.e., a person who has a transportation alternative -- typically the auto -- and does not have a need to ride the bus). Nevertheless, it is also the case that getting non-users to ride transit first involves an education and acculturation process. They must have an initial experience with transit that is positive and rewarding, and providing various service improvements such as greater frequency and/or shuttle service may just be the impetus that is needed to initiate this experience.

Route Infrastructure

Because of the right-of-way constraints existing along Kennedy Boulevard, it is difficult to effect any roadway-based infrastructure improvements within the corridor specifically supportive of transit. Two potential improvements within the corridor that could benefit transit are bus bays and high occupancy vehicle (HOV) lanes. The implementation of bus bays at major intersections/transfer locations along the corridor could provide buses and patrons with a greater degree of safety during the boarding and de-boarding process. Bus bays also would allow stopping buses to get out of the flow of traffic on a more frequent basis, thereby helping the congestion issue somewhat. HOV lanes would speed up transit service in the corridor, and also could serve as additional incentive for single-occupant vehicle drivers to try various commute alternatives, such as carpooling, vanpooling, or transit. Unfortunately, the corridor’s right-of-way issues make it highly unlikely that there will be enough space in the foreseeable future to accommodate these types of improvements;

therefore, their implementation is not a viable recommendation.

Cross-Route Connectivity

A connectivity analysis of Route 10 conducted by HART staff determined that the wait times for the connections between this route and three of its connector routes along Kennedy Boulevard (i.e., Routes 17, 32, and 36) can range from a couple of minutes up to 85 minutes. On average, transfers from Route 10 to any of the other three routes range from 19 to 32 minutes, while the transfers from any of the three to Route 10 range from 18 to 21 minutes. While these wait times are not excessive compared to that found at other transit agencies around the state, following are some suggestions for HART to consider related to route connectivity.

- Because the original analysis was conducted by HART staff using published route schedule information, it is important for HART to review the timing of transfers between Route 10 and all of its cross-routes within the study corridor giving consideration to actual operating times (i.e., account for the on-time performance of the included routes). This level of analysis will help ensure that route connections are as convenient and timely as possible for transferring riders, given the respective headways of the routes and the actual timing of their connections.
- Based on the results of an actual timing analysis, HART staff should determine whether it would be possible to modify or adjust the schedules of the connecting routes to ease the transfer time burden of waiting patrons. Since changes to a single route will affect all other routes that connect to it in varying ways, if HART is experiencing similar issues for many of its other routes, it may be beneficial for staff to analyze its route connections on a system-wide basis.

Advanced Public Transportation Systems (APTS)

In the near term, there really does not appear to be any corridor-specific APTS technologies that make sense for the Kennedy Boulevard corridor because of a number of considerations, including cost, lack of available right-of-way, and realistic necessity. Among the APTS technologies that could have future application in the corridor and provide some level of benefit to both HART and its patrons are automated passenger counters (APCs), automated vehicle location (AVL), advanced traveler information systems (ATIS), and transit signal priority (TSP). Of these technologies, only the signal priority technology is a logical option for implementation within a single corridor. The other technologies are better suited for system-wide implementation.

Outreach/Marketing

One major recommendation regarding transit service, in general, is that HART absolutely must continue to provide community and business outreach throughout its service area to market all facets of its transit services and educate non-users about transit's benefits and how to utilize it. Within the Kennedy Boulevard corridor, the marketing aspect of this outreach will be especially important if any improvements are made to Route 10 that might encourage more utilization from current riders and/or persuade non-users to begin to ride. Even if no changes to Route 10 service are made in the near term, specific marketing and outreach activities involving employers and businesses along the Kennedy corridor may help increase ridership and even help attract new riders. To this end, some suggested outreach activities are as follows.

- HART staff should work with hotels in the Westshore and Downtown areas, and any others along the corridor, to ensure that they have route maps and schedules available for distribution to

guests/visitors and staff. Transit passes and fare cards also should be available for purchase from the front desk or concierge of every major hotel in these areas.

- HART staff should work with major employers within the Westshore and Downtown areas and along the corridor to help them educate their employees about the transit services that are available. This outreach also would provide an opportunity to educate the employers themselves about financial transit user benefits that they could offer their employees.
- HART staff must continue to work with Westshore Plaza to ensure that it has appropriate and sufficient transit information for its shoppers and employees. The sale of passes and other fare media also must continue to be facilitated at the mall, as well.
- Finally, HART staff must seek to better coordinate the agency's outreach efforts with those of the Tampa Downtown Partnership and Bay Area Commuter Services. These organizations already have established many contacts in the community through their efforts to educate businesses and the public about Transportation Demand Management alternatives. HART certainly could benefit from these established contacts, and HART also could offer, in turn, assistance to these organizations with outreach and education activities throughout Tampa and within the Westshore and Downtown districts, specifically.

Summary of Transit Recommendations

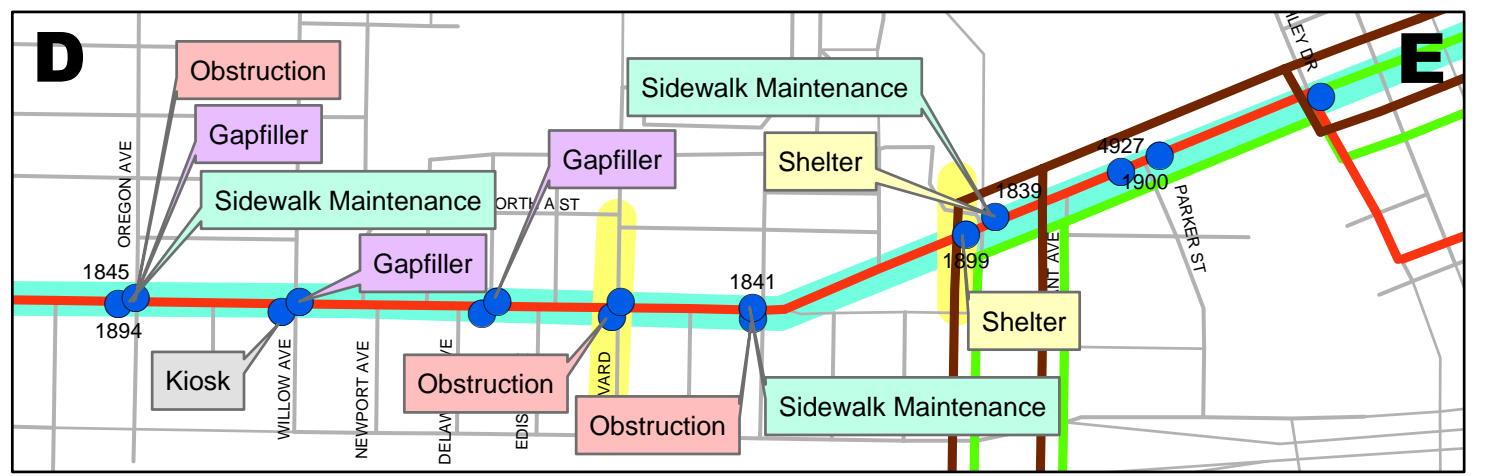
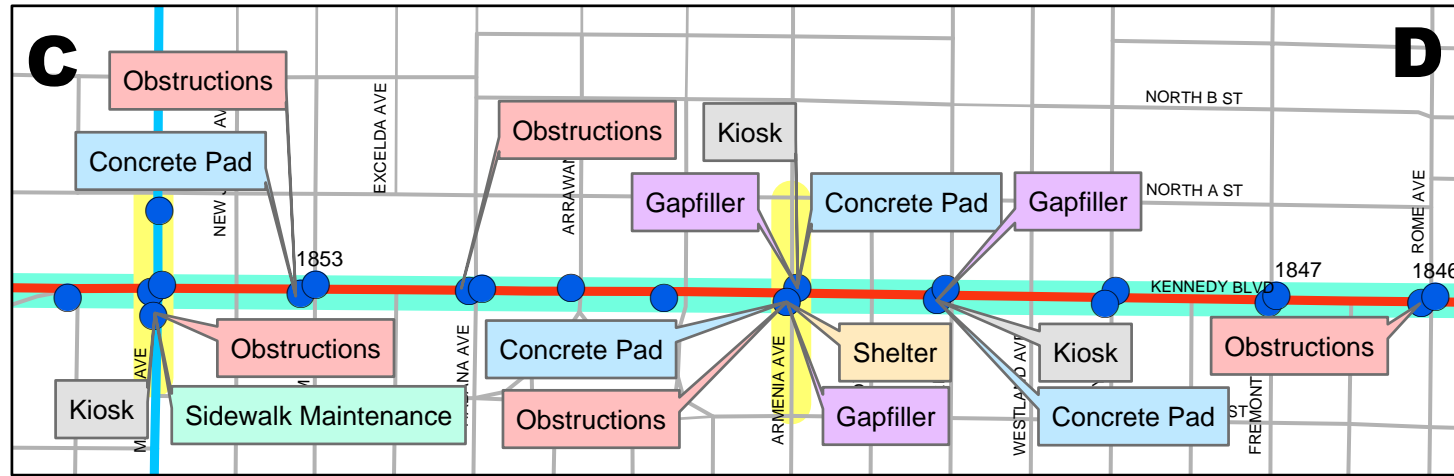
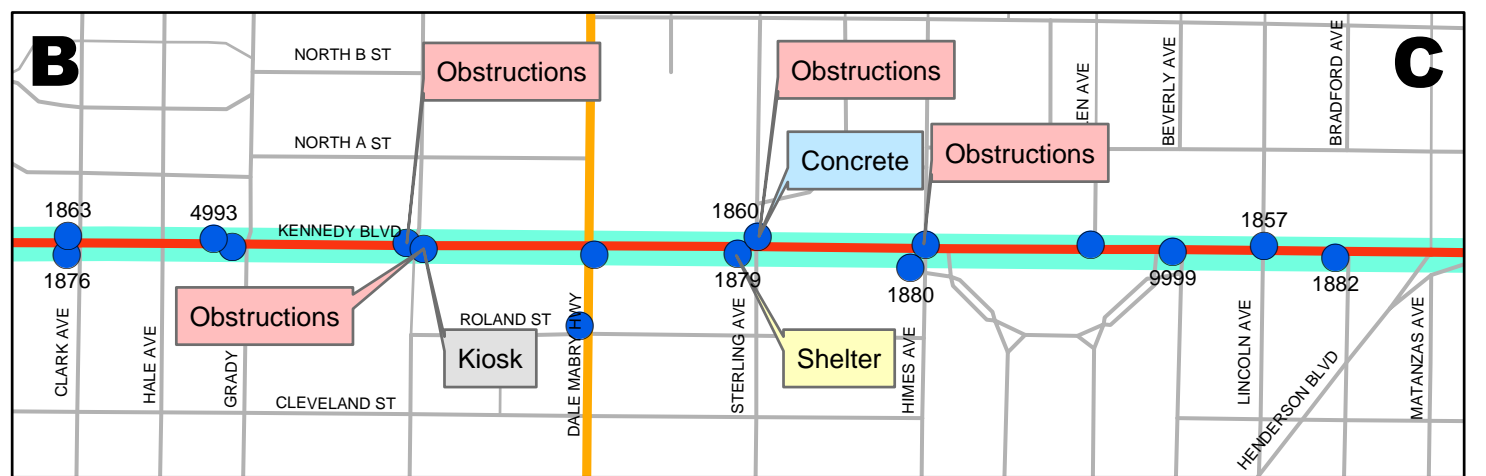
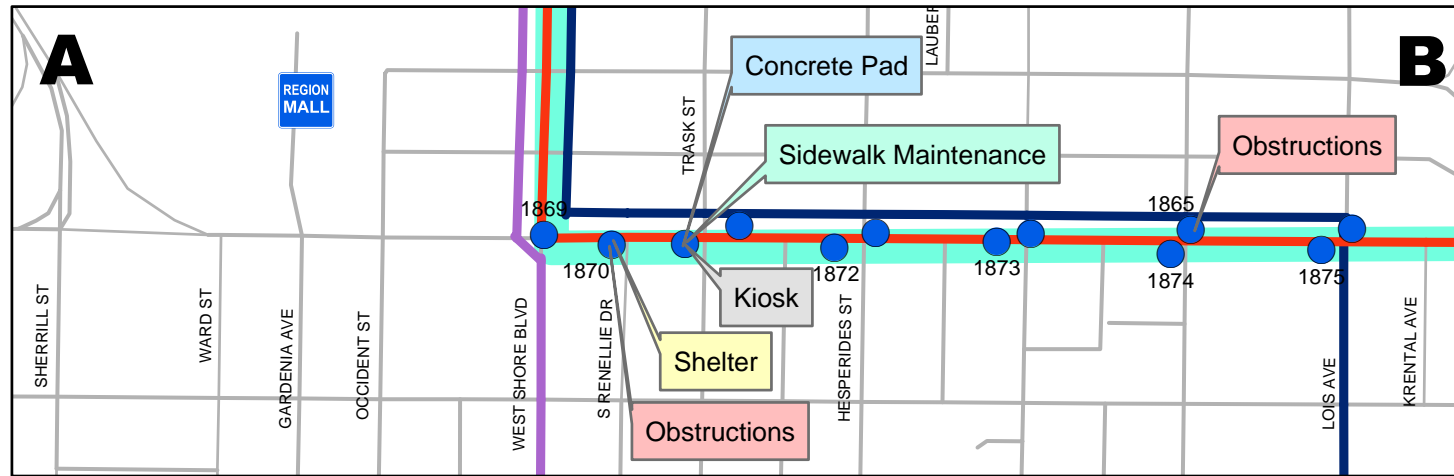
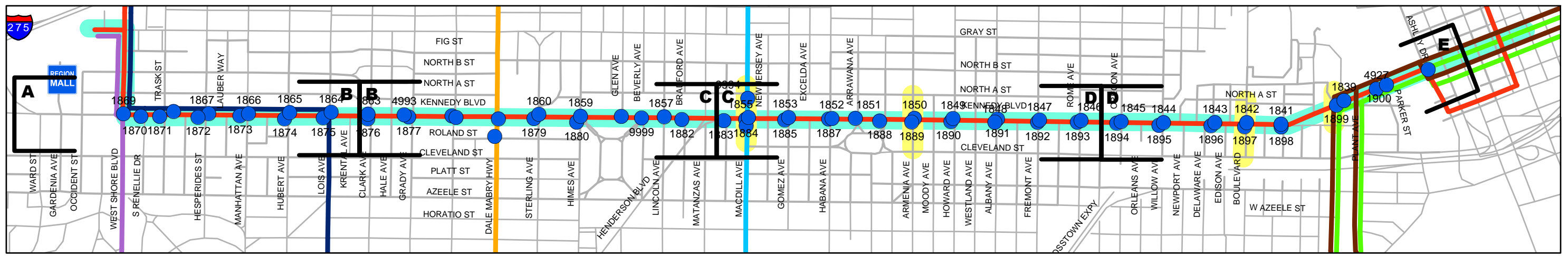
This section has presented a wide range of transit-based recommendations that deal with a host of topics, including bus stop infrastructure, bus stop ADA-related accessibility, service modifications, and public outreach and marketing, among others. Table 3-4 summarizes the suggested improvements that

have been made, distinguished by whether a recommendation will require capital and/or operating expenditures, or can simply be addressed by HART staff during the day-to-day operations of the system.

Finally, Map 3-1 graphically depicts the priority locations along the corridor that have been recommended for one or more improvements that require capital and/or operating funding, along with each location's specific improvements identified.

**Table 3-4
Summary of Transit Recommendations**

Improvements Requiring Capital/Operating Funding	Other Improvements
Maintenance of Existing Sidewalks	Development of Bus Stop Spacing Guidelines
Installation of New Sidewalks	Review of Bus Stop Placement
Improvement of Bus Stop Access (ADA & non-ADA) <ul style="list-style-type: none"> - Concrete Pads - Curb Ramps - Fill Gaps Between Street & Sidewalks - Removal of Obstructions - Appropriate Sidewalk Width - Appropriate Clearance of Structures 	Development of Bus Stop Infrastructure Placement Guidelines
Improvement of Bus Stop Infrastructure <ul style="list-style-type: none"> - High Utilization Stops - Bus Shelters - Information Kiosks 	Petitioning of Corridor Businesses for Property Easements to Support Bus Stop Infrastructure Improvements
Improvement of Crosswalk Facilities	Review of Actual Transfer Timing Conditions for Route 10 & Cross-Routes
Implementation of Peak-Hour Express Bus Service on Route 10	Improvement of Information & Fare Media Availability at Hotels Within Corridor
Implementation of Later Evening Bus Service on Route 10 & Other Westshore Plaza Routes	Provision of Education & Outreach to Major Corridor Employers
Gauging of Business Interest in Corridor Shuttle Service	Coordination of Outreach Efforts with Other Transportation-Related Organizations



- Bus Stops
- Route 3
- Route 10
- Route 17
- Route 18
- Route 30
- Route 32
- Route 36
- Route 46
- Route 81
- AM/PM Peak Express Service on Rt 10
- Crosswalk Improvements (Faded Pavement Markings)



Kennedy Boulevard Corridor Study

Map 3-1 Summary of Transit Improvements

SECTION 4 BICYCLE FACILITIES AND SIDEWALK RECOMMENDATIONS

Using street segment-level data, an inventory of bicycle and pedestrian conditions has been developed based on the input variables for the Florida Department of Transportation (FDOT) Bicycle and Pedestrian Quality/Level of Service (Q/LOS) methodology. This inventory reflects the manner in which vehicular traffic speed and volume interrelate with the existence and setback of bicycle and pedestrian facilities to form an overall measure of bicyclist and pedestrian comfort.

Using the Q/LOS scores generated by this model in conjunction with a more straightforward comparison of sidewalk existence and traffic volume, this study's identified several areas along the Kennedy Corridor where sidewalk facilities are unsatisfactory. Summary review and recommendations regarding these inadequate sections are addressed herein. Additionally, recommendations regarding the improvement of ADA conditions at signalized intersections along Kennedy Boulevard are discussed.

It also has been stated in previous documentation for this study (Technical Memorandum Number 3) that, without reducing the number of automobile lanes or radically altering the right-of-way bounds, bicycle travel along Kennedy Boulevard is a non-starter. As an alternative, this study suggests the cultivation of parallel routes to the north and south of Kennedy Boulevard. Those steps necessary to implement parallel bicycle routings are described in this section, as well.

Bicycle Recommendations: Parallel Capacity Bicycle Routing

The concept of routing bicycle traffic parallel to Kennedy Boulevard, referenced in Map 4-1, suggests several options that could allow an east-west traverse

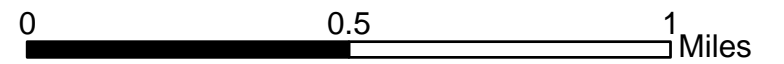
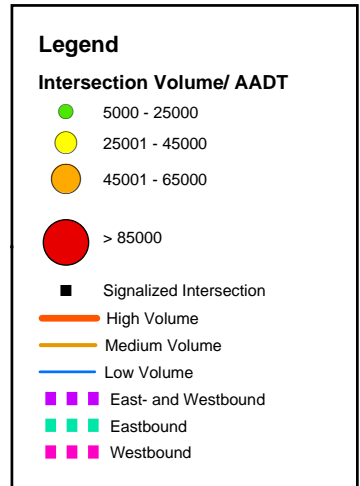
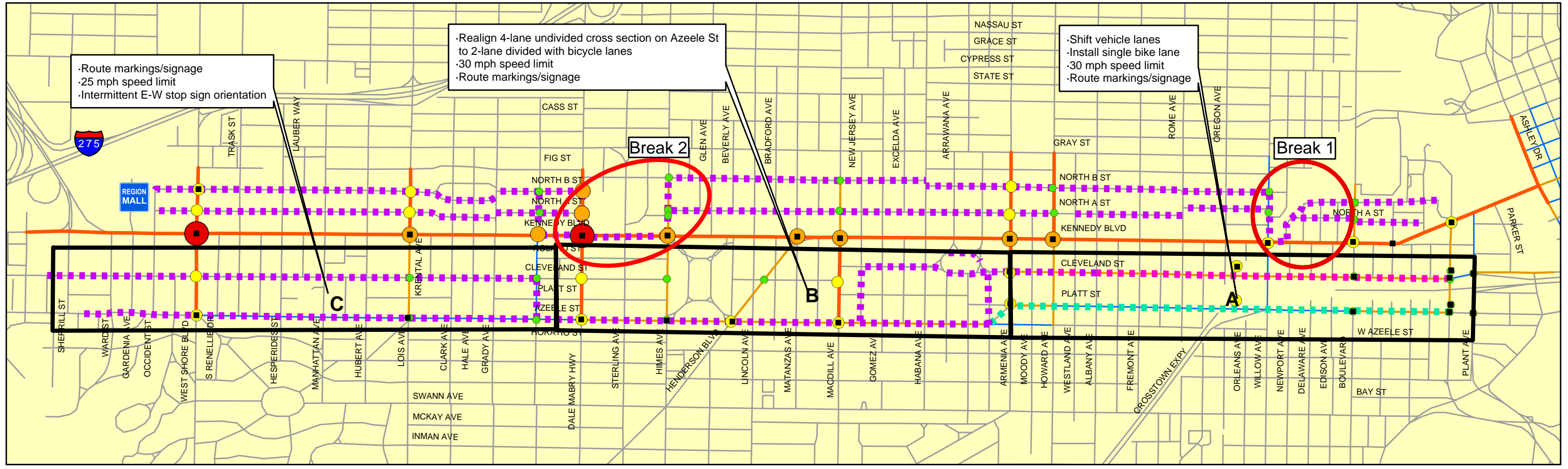
of the study area. Although north-south travel is an equally important aspect of bicycle mobility, it is not explicitly addressed here because a large number of minor roads provide capacity in this direction. With respect to east-west routing, both a northern and southern alignment are suggested.

Northern Alignment

To the north of Kennedy Boulevard, North A Street and North B Street provide near-continuous east-west access. These streets, shown in Figure 4-1, are primarily residential in character and carry relatively few vehicles. Most intersections along North A and North B Streets are controlled by east-west oriented, two-way stop signs. This has the effect of reducing traffic speeds and deterring the use of these roads for through traffic.

**Figure 4-1
North A and North B Streets, Typical Conditions**





Kennedy Boulevard Corridor Study

Map 4-1 Bicycle Routes/Obstacles

I:\10231.02-Kennedy-Blvd\maps\bicycle_for_ppt

Exceptions to the east-west continuity along North A and B Streets are labeled *Break 1* and *Break 2* in Map 4-1.

Connectivity Break 1, near Willow Street can be remedied in two ways:

- Railway cross easement to allow continuous travel along North A Street; or
- Diversion of northern alignment bicycle routes to Kennedy Boulevard.

If the second option is preferred, two-way off-street bicycle facilities should be provided along the segment between Newport Avenue and Willow Avenue. Some right-of-way acquisitions may be necessary to complete the construction of these facilities.

Connectivity Break 2 is more serious because it is caused by the absence of a viable means to cross Dale Mabry at North A and North B Streets without diverting to the signalized intersection at Kennedy Boulevard. Once this diversion has been made, it is logical to remain on Kennedy Boulevard to traverse Himes Avenue before returning to North A or North B Street. However, lack of existing right-of-way and obstructions abutting the right-of-way impede the development of dedicated off-street bicycle lanes along the segment of Kennedy Boulevard from Dale Mabry to Himes Avenue. Nevertheless, it is possible in many locations to widen the sidewalk to a shared use facility. Appropriate signage alerting bicyclists of their responsibility to yield to pedestrians should be installed as necessary.

Southern Alignment

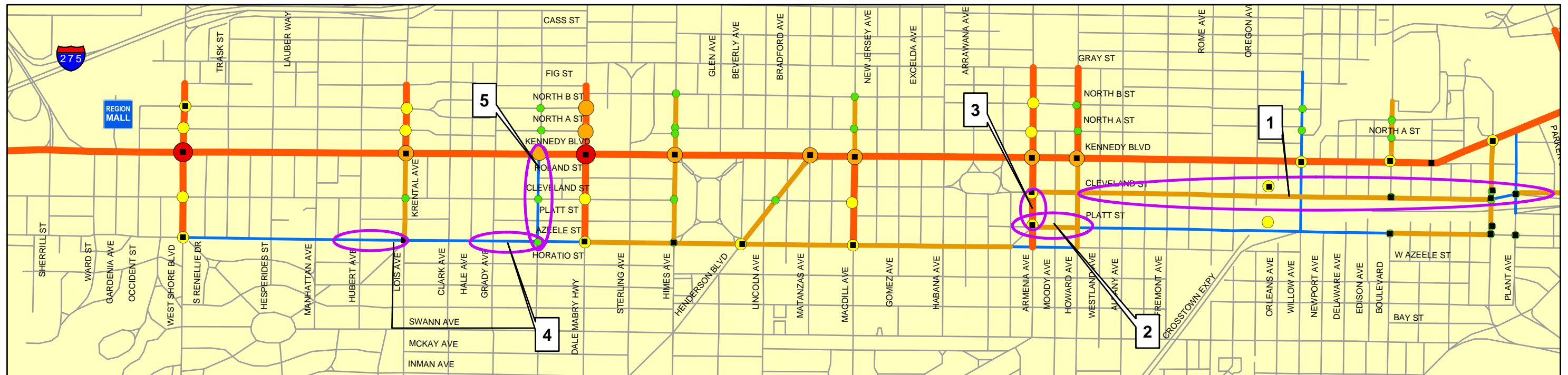
It also is shown in Map 4-1 that an east-west bicycle route south of Kennedy Boulevard is possible using combined segments of Azeele Street, Cleveland Street, and Platt Street. This routing alignment can essentially be divided into eastern and western components, as the roadway cross-section adjustments necessary to implement the bicycle

route will vary to the east and west of Armenia Avenue.

From Armenia Avenue to the Hillsborough River, Cleveland Street and Platt Street serve as one-way pairs, as shown in *Box A*. To accommodate bicycles on a two-way road, sufficient cross-section for two bicycle lanes must be harvested from the roadway alignment. Often this requires the closure of a motorized vehicle lane and presents a trade-off scenario unacceptable to Level of Service maintenance. However, because Cleveland and Platt Street are one-way facilities, only one bicycle lane is necessary. To designate this lane, existing lanes should be shifted to the left, allowing for a 5-foot bicycle lane and associated signage.

From Armenia west to Dale Mabry, shown in *Box B*, Cleveland Street becomes a two-lane neighborhood road and Azeele Street assumes a four-lane undivided cross-section. For this reason, it would appear preferable to align the bicycle route along Cleveland Street, but, because of its minor road status, Cleveland is not signalized at its intersection with major north-south roads in the study area, presenting considerable crossing hazards to cyclists.

To circumvent this issue, this study recommends the realignment of Azeele Street's four-lane undivided cross-section to that of a two-lane divided roadway (two directional lanes and one center turn lane) with the addition of dedicated bicycle lanes. Azeele Street traffic volumes are comparable to North and South Boulevard where a similar lane reduction was used to calm traffic. Shown in Figure 4-2, the cross-section realignment occurs entirely within the existing curb-and-gutter system, thereby minimizing construction costs. As with the Boulevard realignment, a painted center turn lane may eventually be supplanted by a restricted landscaped median to reflect the landscape architecture vision described in Section 6 of this report.



Area # 5



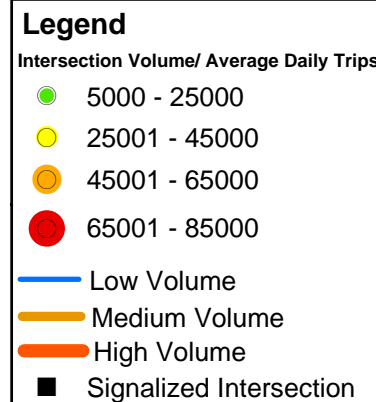
4. Azeele Street, Church to Grady and Lois to Hubert

- Construct sidewalk on both sides of street

5. Church Street, Kennedy Boulevard to Azeele Street

- Construct sidewalk(s)
- Define driveways

Area # 2



1. Cleveland Street, Armenia to Hillsborough River

- Construct/complete sidewalks along both sides of road
- Provide landscaping consistent with "Traditional" approach recommended for parallel segment of Kennedy Boulevard

2. Armenia Avenue, Platt Street to Cleveland Street

- Construct sidewalk along east side of street

3. Platt Street, Armenia Avenue to Westland Avenue

- Construct sidewalk(s)



Area # 1



Figure 4-2
Azeele Street Realignment



From Dale Mabry to Westshore Boulevard, shown in *Box C*, Azeele Street and Cleveland Street carry a two-lane undivided cross-section of insufficient width to support dedicated bicycle lanes. Although this reduction in capacity is echoed in a reduction in traffic volume, residents of the area have stated that considerable cut-through traffic exists. Redirection of two-way stops from north-south to east-west orientation will further calm motor vehicle traffic along Cleveland and Azeele without completely restricting their use as alternates to Kennedy Boulevard. This should result in a cycling environment similar to North A and North B Streets.

General Bicycle Recommendations

All routes should be well marked for both cyclists and motor vehicles. Provision of bicycle storage racks should be prioritized where north south transit routes intercept designated bicycle routes. Likewise, commercial, service, and multi-family land uses along bicycle routes (and throughout the corridor) should be encouraged to provide bicycle storage facilities. Additionally, the City of Tampa should vigorously

enforce land development regulations that require the installation of bicycle facilities incident with redevelopment or new development.

Pedestrian Recommendations

In Technical Memorandum Number 2, Map 4-1 shows pedestrian level of service over-layed with roads lacking sidewalk provisions. All roads without sidewalks on at least one side should be included in a corridor-wide work program to build sidewalks. In Technical Memorandum Number 3, Map 4-1 introduces a prioritization concept that uses presence of sidewalks and Average Annualized Daily Volume (AADT) to highlight those areas in most dire need of sidewalk construction or improvements.

Referring to Map 4-2, *Pedestrian Improvements*, included herein, it is apparent that several areas should be set as high priority in the area's sidewalk construction plan. These areas are introduced and discussed in the following sections.

Cleveland Street from Hillsborough River to Armenia Avenue

This section of Cleveland Street lies within the "traditional" architecture design area and could serve as a pedestrian connection between Downtown Tampa and the University of Tampa and the burgeoning restaurant district along South Howard Avenue. Additionally, this section of Cleveland Street exhibits some mixture of land use and could see considerable infill development considering vacant street frontages along its eastern end. For these reasons, existing right-of-way, as evidenced by the presence of non-continuous sidewalk segments along Cleveland, should be used to construct sidewalk facilities along both sides of this facility (with the possible exception of the Lee Roy Selmon Expressway frontage).

Armenia Avenue from Platt Street to Cleveland Street

With 25,000+ AADT, this section of Armenia Avenue sustains sufficient traffic to warrant sidewalks along

both sides of the roadway. Presently there are no sidewalks along the east side of Armenia, although review of aerial imagery indicates existing structures and parking facilities will not interfere with sidewalk development here.

Platt Street from Armenia Avenue to Westland Avenue

This segment of Platt Street carries approximately 12,500 vehicle trips per day, but does not have continuous sidewalks along either side of the street. As an element in the bicycle route proposed herein and part of an area presently redeveloping with mixed-use facilities and multifamily dwellings, it is logical for this roadway to have adequate sidewalk facilities. Review of aerial imagery does not suggest right-of-way conflicts.

Azeele Street from Church Street to Grady Avenue and Lois Avenue to Hubert Avenue

Although only 5,000 vehicle trips travel these segments of Azeele Street, they represent a break in sidewalk coverage along a roadway with generally excellent continuity. These roadway segments are residential in character and the right-of-way is not constrained by buildings or parking lots. Sidewalks should be built here to extend the continuous sidewalk coverage provided by Azeele Street.

Church Street from Kennedy Boulevard to Azeele Street

This segment of Church Street carries approximately 7,000 vehicles per day, but has no sidewalk coverage. To remedy this situation, available right-of-way should be consumed to construct sidewalks connecting Azeele Street and Cleveland Street to Kennedy Boulevard. Where possible, continuous driveways should be converted to well-defined entrances and exits.

General Pedestrian Recommendations

As noted in the introduction to the Pedestrian Recommendations element of this Preliminary Report, a general sidewalk construction plan is necessary in addition to the specific street segment improvements noted. The improvements suggested herein essentially seek to plug gaps in existing sidewalk coverage to provide continuity along key corridors. However, according to this study's sidewalk inventory, large regions of the Kennedy Corridor have no sidewalk facilities at all.

This is especially true of the region between Willow Avenue and Dale Mabry Highway along and between North A and North B Streets. Construction of sidewalks throughout this area would allow access from this residential area to commercial and transit activities available along Kennedy Boulevard. Likewise, the area between Dale Mabry Highway and Westshore Boulevard to the south of Kennedy Boulevard lacks the sidewalk infrastructure common to the southern half of the study district. As this area is adjacent to the Westshore Mall, it seems appropriate that sidewalk construction be encouraged here.

In addition to the construction of new sidewalks, crosswalk striping at major intersections should be updated and accented where possible to match the architectural guidelines established for Kennedy Boulevard. By carrying the landscaping patterns of Kennedy Boulevard north and south to neighborhoods within the study area, the palpable sense of place necessary to re-invent the corridor will extend throughout the corridor in a self-reinforcing structure.

ADA Recommendations: Kennedy Boulevard Intersection Improvements

A further field review of ADA intersection crossing conditions along Kennedy Boulevard indicates severe problems at several locations. Documentation of these issues and recommendations for their resolutions are provided as follows.

Gardenia Avenue

Problem: No sidewalk along north side of Kennedy approaching Gardenia intersection.



Solution: Install sidewalk. Hopefully retain hedgerow.

Problem: No north-south ramp on southwest corner of intersection.



Solution: Install ramp.

Problem: Diagonal ramp is not oriented to allow east-west crossing at southeast corner.



Solution: Expand ramp to the left to allow access without conflict with through traffic.

Occident Street

Problem: Bench obstructs wheelchair access to ramp on northeast corner of intersection.



Solution: Shift bench a few feet back.

Problem: Narrow sidewalk at southeast corner does not permit passage to east-west ramp.



Solution: Cut corner with extra sidewalk between red flags.

Westshore Boulevard

Problem: Ramp pass-throughs on pedestrian island are too narrow because of pedestrian signal pole location at southwest corner.



Solution: Shift pedestrian signal pole slightly northeast.

Lois Avenue

Problem: Sidewalk does not connect.



Solution: Pave the "cowpath."

Problem: Signal cabinet obstructs ramp access at southeast corner of intersection.



Solution: Move signal cabinet (or) route sidewalk around back of cabinet (or) extend curb radius.

Dale Mabry Highway

Problem: Signal span-wire support pole blocks sidewalk access to ramp at southwest corner of intersection.



Solution: Route sidewalk around back of signal pole.

Henderson Boulevard

Problem: No east-west passage across Henderson Boulevard.



Solution: Convert striped area beyond red cone to sidewalk and build ramps to accommodate wheelchairs.

MacDill Avenue

Problem: Signal support pole and hydrant block ramp access from both directions to the diagonal ramp on the north east corner of the intersection.



Solution: Move signal pole (or) push back retaining wall to allow sidewalk to wrap around back of poles.

Armenia Avenue

Problem: Utility pole blocks access to northwest ramps.



Solution: Bury utilities along Kennedy Boulevard (or) shift pole in line with signal support pole (or) wrap sidewalk around back of poles.

Problem: No eastwest ramp at northeast corner of intersection.



Solution: Construct ramp.

Problem: Sidewalk does not wrap around back of signal support pole at southeast corner of intersection.



Solution: Fill in this gap with concrete.

Problem: Bench and signal controller badly obstruct sidewalk at southwest corner of intersection.



Solution: Acquire sufficient right of way to either move the controller and the bench or re-route the sidewalk.

Hyde Park Avenue

Problem: No north-south access at west leg of intersection.



Solution: Construct north-south ramps at southwest and northwest corners and angle crossing to intercept northwest corner of intersection rather than mid-block.

Problem: No north-south ramp on southeast corner of intersection.



Solution: Construct ramp.

Problem: Large curb drop-off with eroding sidewalk edge along north side of Kennedy Boulevard adjacent to the University of Tampa campus.



Solution: Repair sidewalk and implement aluminum handrails along those sections where curb drop-off is ten (10) inches or greater.

SECTION 5 TRAVEL DEMAND MANAGEMENT

Travel Demand Management (TDM) is a set of strategies that encourages more efficient trip-making to reduce the demand that is placed on the transportation system. The TDM toolkit does not provide new facilities or infrastructure. Instead, it combines education, incentives, and programs that support the use of alternative modes in order to make alternatives to driving alone as viable and widely used as possible.

In general, the potential impact of TDM programs is best measured in relationship to the peak hour. To illustrate, about 13 to 14 percent of Tampa Bay area commuters carpool, according to the most recent Census statistics. Commuters are more likely to travel during peak periods than people driving for purposes such as shopping or recreation. If these commuters did not carpool, there could be up to 13 to 14 percent more vehicles on the roads during the most heavily-traveled times of the day. In contrast, consider that when a freeway is at 90 percent capacity, it can still operate; it is the last few percentage points of traffic that result in gridlock conditions.



Alternatives to driving alone during peak travel periods include:

- Carpooling and vanpooling;
- Alternative work schedules, permitting off-peak commuting;
- Telework (e.g., telecommuting, tele-shopping, tele-banking, long-distance learning);
- Non-motorized transportation; and
- Public transit.

In Tampa, specific TDM activities that support these choices include the following:

- Raising awareness among the general public;
- Ride-matching for carpoolers and vanpoolers;
- Provision of vehicles for vanpools;
- Guaranteed (or “emergency”) Ride Home program for users of all non-SOV modes;
- Recruitment, particularly of large employers, to encourage and support employees’ alternate-mode use;
- Assistance for employers developing programs for employee telecommuting or alternative work schedules; and
- Identifying needed facilities to support alternate-mode use (often, the provision of facilities is another agency’s function).

These activities also can include:

- Market and pricing reforms; and
- Development regulation, such as trip reduction ordinances.

There are several organizations in Tampa whose primary function is TDM and who work together to serve the Kennedy Boulevard corridor. The organizations are as follows:

- Bay Area Commuter Services (BACS), a countywide commuter assistance program and the managing agency for the region’s rideshare-matching, vanpool rental, and Guaranteed Ride Home programs;
- Tampa Downtown Partnership’s Transportation Management Organization

(TMO), which focuses on employers in the downtown central business district; and

- Westshore Alliance TMO, which focuses on employers in the Westshore business district.

These organizations coordinate with HART, the Bicycle/Pedestrian Advisory Committee, the Environmental Protection Commission, and the American Lung Association on many public education, outreach, and recruitment projects throughout Hillsborough County.



Employer Interviews

To gain a better understanding of TDM's potential in the Kennedy Boulevard area, five interviews were conducted with representatives of key organizations and/or major employers either within or close to the corridor. The organizations involved in this interview process include the Westshore Alliance, the Tampa Downtown Partnership, the Wyndham Westshore, Southtrust Bank, and the St. Pete Times Forum (formerly known as the Ice Palace).

The organization representatives had many suggestions about improving physical facilities for walking, bicycling, and taking the bus. These modes, and the facilities to support them, are discussed in more detail in other chapters of this report. Interviewees also suggested park-and-ride lots, shuttle services, and high-occupancy-vehicle (HOV) facilities.

The TDM measures that the interviewees believe might have the most success in the corridor, in general, are (1) alternative work hours, (2) telework, and (3) transit. The interviewees also commented that TDM strategies alone will not solve Kennedy's problems.

For example, the St. Pete Times Forum staff discussed the viability of public transit as an option for its employees and visitors. The

Forum's employees face some challenges in getting to work due to a combination of factors, such as jobs that are primarily service-sector and relatively low paying, parking close to the Forum that is expensive during major events, employees who take the bus having to walk several blocks from the end of the Marion Street Transitway to get to the Forum; and buses not running late enough at night to accommodate when some events and work shifts conclude. Some of the options that could help address these challenges include:

- Improving the walking environment between the Marion Street Transitway and the Forum, particularly crosswalks and lighting, to enhance safety;
- Registering Forum employees in the Guaranteed Ride Home program, so if they have to work late unexpectedly and they miss the last bus, they can take a taxi home; and
- Registering Forum employees in the rideshare matching database, to assist employees who work late on a regular basis. If bus service is not available after the late shift, carpooling may be viable with the staff of other late-shift service employers in the area, such as the several downtown hotels.

TDM Strategies

Based on the results of the employer interviews and other related information gathered during the public involvement process, the following recommendations are made to help support TDM and its application in the Kennedy corridor.

- BACS and the two TMOs should continue to identify and meet with representatives of large employers in the corridor. In these meetings, topics to be highlighted include TDM's potential to address employer challenges such as limited parking, facility relocation, and employee recruitment and

retention. Some of the interviewees were unfamiliar with local TDM programs and public transit services; therefore, continued outreach, conducted in partnership with HART staff, clearly is needed.

- BACS and the Downtown TMO, in partnership with HART, should continue to work with the St. Pete Times Forum to cultivate use of transportation alternatives



by its employees. If the Forum develops a level of comfort in recommending bus service to its employees, a second step would be to promote public transit use – including the streetcar as well as the bus system – to Forum visitors.

- Based on the interviewees' interest in telecommuting, it is suggested that BACS consider working with the two TMOs to select at least one employer in Downtown and one in the Westshore area for the regional telecommuting pilot program.
- Pedestrian and bicycle facilities must be improved throughout the corridor. Every public transit trip and many shared rides begin and end with walking and sometimes bicycling. The City, County, FDOT, and others must continue to fund multimodal projects in the Kennedy corridor.
- The City should evaluate its land development regulations to ensure that new developments participate in helping create a more pedestrian and bike-friendly corridor. For example, the regulations should require new developments to include obstruction-free sidewalks and eliminate continuous drop-curbs, transit amenities and bicycle racks, and



landscaping and streetscaping to shelter pedestrians, particularly where sidewalks are close to high-speed travel lanes. To accomplish this, flexibility in FDOT right-of-way standards may be needed.

In addition to these recommendations, the following two considerations have been suggested by MPO staff.

- The City also may want to consider the implementation of a City-wide trip reduction ordinance. Kennedy Boulevard is one of the City's more prominent and intensely used corridors, connecting the City's two largest employment districts and paralleling the interstate. Since new development and redevelopment often can impact traffic load, a trip reduction ordinance could be used to encourage new developments to offset any projected increases in trips on Kennedy with provisions that promote transit usage, carpooling, and other alternatives to driving alone. Provisions could include: reducing the number of parking spaces required in new developments, providing preferential parking set-aside spots for carpoolers, property management that includes on-going promotion of transportation choices, on-site showers for employees who bicycle, and other on-site provisions for cyclists, pedestrians, and bus riders.
- The ultimate build-out of the Tampa Interstate Study proposes to set aside an envelope for the purpose of High Occupancy Vehicle travel and express bus service or high speed rail, between Downtown and Westshore. Such provision could provide a significant incentive for carpooling and transit use to access destinations along the Kennedy corridor.

SECTION 6 URBAN DESIGN & STREETSCAPING



The urban design and streetscape recommendations in this section are derived from a broad collection of information including: a comprehensive analysis of existing opportunities and constraints found along the Kennedy Boulevard corridor, and prior planning commission and public input from two interactive open houses and two public workshops. The expertise and collaboration of the consulting team and the information compiled throughout this project are the basis for the recommendations. The urban design and streetscape recommendations are inclusive of the aesthetic theme, function, public comfort and safety, and long-term maintenance of the Kennedy Boulevard corridor.

Streetscape Characteristics

The diversity of development and physical differences in roadway cross sections along Kennedy Boulevard will require two distinct streetscape approaches. The section between Memorial Highway (Westshore Business District) eastward to Henderson Boulevard is identified as having the highest intensity of business development with limited plantable right-of-way along the roadside edges. Although landscape treatments will be limited along the roadside edges, this segment of Kennedy Boulevard has extensive open medians suitable for various planting improvements. This segment also contains new retail and office development, which is consistent with a more contemporary streetscape style.

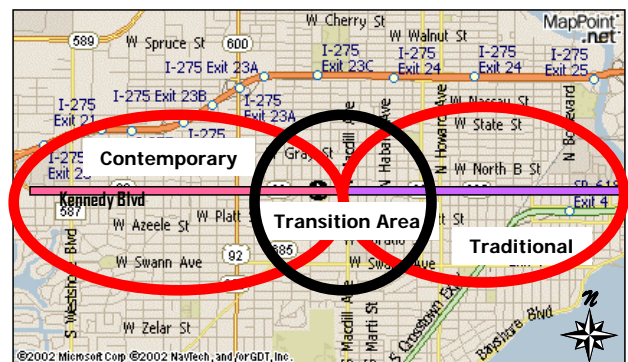
The road segment from Henderson Boulevard eastward to Willow Avenue has a more industrial, warehouse-like character and is well positioned for redevelopment. Landscape medians are not present currently, but the potential for new medians

exists for providing future landscape median development. The roadside edges also provide potential sites for streetscape improvements. The character of this area can be formed during the redevelopment period to reinforce the “Old Tampa” motif (traditional streetscape style) or redevelopment may reflect a more modern style requiring a more contemporary treatment of the streetscape elements.

The final road segment of the corridor is from Willow Avenue eastward to the Hillsborough River Bridge (Central Business District) and Ashley Drive. This segment contains strong evidence of historic Tampa District architecture, reinforced by the historic Hillsborough River Bridge and the University of Tampa, and is the most urban section of the corridor. The historic and urban character of this section should be reflected in the streetscape treatment and components.

These three character-specific segments of Kennedy Boulevard are shown in Figure 6-1, which illustrates the contemporary portion of the corridor to the west, the more traditional portion of the corridor to the east, and the transitional segment that connects the two.

**Figure 6-1
Specific Characteristic Segments of Kennedy Boulevard**



The design recommendations presented in the remainder of this section will demonstrate how each of the segments will be treated to respond to their site conditions and create a unique, yet unified look for the Kennedy Boulevard corridor.

Landscape Treatment

The distinctly different characteristics of the east and west sections of the corridor require different approaches to the landscape treatment. Input from the interactive open houses indicated a desire for a shade tree-lined corridor, as illustrated in Figure 6-2. This treatment would include a more traditional approach to lighting, colored sidewalks, and festive awnings and banner arms. It is recommended that the area from the Hillsborough River Bridge westward to Willow Avenue be treated in this manner. Fewer business signs, parking conflicts, curb cuts, and utility conflicts make this landscape treatment more suitable for this corridor segment. It also is recommended that the area from Willow Avenue westward to Henderson Boulevard be treated in the same style if a more contemporary character of redevelopment does not take place prior to the streetscape implementation. The streetscape style should reflect the neighborhood and architectural character of the area. It also is recommended that additional landscape medians be installed within this section of Kennedy Boulevard to assist in traffic calming and additional urban beautification. This style will also encourage pedestrian circulation in this urban section.

The area west of Henderson to Memorial Highway is characterized by significant commercial signage, curb cuts, parking conflicts and newer retail and office development. The approach to the landscape design in this area should respond to the architectural character and visibility requirements of adjacent retailers. The lower branches of shade trees can be “limbed-up” to provide view clearance to adjacent signage. Creating shade through the use of clustering smaller trees or palms will reinforce the shade concept while still allowing

storefront visibility. Where conflicts arise in storefront and signage visibility, other means of creating shade will need to be explored, such as shade structures and awnings attached to storefronts. In addition to aesthetic considerations, this tree-planting scheme should avoid potential overhead power line conflicts. The introduction of large Medjool Date palms in the medians will create a high quality landscape statement with instant impact to the roadway and provide a contiguous landscape element throughout the corridor (see Figure 6-3). Augmented planting of existing medians is recommended not only to visually enhance the area, but also to provide for some calming of traffic.

Figure 6-2
Example of Shade Tree-Lined Roadway



Pedestrian Recommendations

A streetscape design functions on many different levels. Providing elements for the pedestrian is a key asset in achieving a successful overall urban design. A significant design recommendation relates to standardizing the way pedestrians move along the corridor to provide an attractive, comfortable, engaging and safe pedestrian experience. The existing sidewalk system is unsafe and does not reflect current roadway design standards. Proper placement of street trees will assist in pedestrian safety by providing barriers to vehicles while adding to the urban aesthetic and pedestrian comfort. Opportunities exist at

Figure 6-3
Example of Medjool Palms Planted in Median



signalized intersections to provide specialty-paved crosswalks that create visual queues for both the driver and pedestrian and add to the urban aesthetic.

Input from the interactive open houses indicated a desire for imprinted asphalt crosswalks. These walks, while attractive, would be a long-term maintenance problem. As an alternative to imprinted asphalt, we recommend using colored concrete with dark aggregates and deep colors (dark red and browns) with a sandblasted finish to hide tire marks (see Figure 6-4). Another pedestrian feature would be the incorporation of shaded rest areas and transit stops along the corridor that will provide pedestrian havens from sun and rain. These transit areas are to include specialty paving, benches, trash receptacles, and a higher intensity of landscaping. The structure should be attractive and functional and respond to the preferred architectural style shown in Figure 6-4.

Lighting

A major visual and functional feature to any streetscape design is the use of pedestrian and roadway lighting. Currently the roadway uses wooden or concrete power poles with a “cobra head” light fixture mounted to the top and connected to overhead power lines. Although cost effective, this type of lighting is functional but not attractive. The use of decorative metal or concrete

poles with a metal halide light fixture would provide an attractive, yet functional lighting solution for the corridor. The poles can also accommodate banner arms, electrical outlets, and mounting brackets for seasonal displays. A more traditional period fixture was preferred in the interactive open houses typical of the one shown in Figure 6-5. This type of fixture would enhance the rich architectural character of the area from the Hillsborough River Bridge to Henderson Boulevard segment of the roadway, while the pole and fixture shown in Figure 6-6 could

Figure 6-4
Examples of Transit Stops and Concrete Crosswalks



be used from Henderson Boulevard west to Memorial Highway. These poles spaced at even intervals provide a unifying element to the corridor.

Figure 6-5



Figure 6-6



Examples of Period and Contemporary Light Fixtures

Site Furnishings

Site furnishings are an important element of any successful streetscape and should be specified to reinforce the design themes. Public input stated a desire for a family of site furnishings that had classic or historic characteristics and were predominantly made of metal with powdercoat painted surfaces. This style is recommended for the historic and highly urban areas east of Henderson Boulevard (as shown in Figure 6-7), while a family of more contemporary site furnishings is recommended for the area west of Henderson Boulevard as shown in Figure 6-8. The proposed site furnishings for the Kennedy Boulevard corridor will also be durable and low maintenance, and able to withstand the harsh Florida climate while providing lasting beauty and function to the streetscape. These fixtures will be located systematically throughout the corridor and colors should be selected to match other streetscape elements to provide a unified look.

Miscellaneous Streetscape Recommendations

A key to creating an identity or sense of place for the roadway will be the introduction of identification markers or an icon that can be repeated throughout the roadway. We recommend the development of a Kennedy Boulevard logo and a mile marker system

that can be used for this purpose. This element should be incorporated into signage at the major east and west gateways to the corridor and reflected in site furnishings, the lighting program, signalization, sidewalks, and transit stops.

Utilities

Utility blight is one of the most visually obtrusive elements along a roadway. The Kennedy Boulevard corridor currently has major overhead utility lines traversing the southern portion of the right-of-way that connects to the various buildings and light fixtures. While extremely expensive, putting utilities underground would provide a major positive impact to the overall look of the roadway and maximize the opportunity for streetscape planting. During each stage of the Kennedy Boulevard project development, conflicts between utilities and streetscaping should be anticipated to the greatest extent possible. Obtaining easements for relocating utilities behind tree planting areas and consolidating utility corridors during road/utility reconstruction are ways to lessen the conflicts between utilities and landscape effects.

Figure 6-7
Examples of Metal Period Site Furnishings



In cases where it is not economically feasible or possible to underground utilities, the landscape plan must be designed around the utilities. The landscape plan must provide the utility companies and the City access to their facilities and enable their maintenance. Location and selection of tree

species that are to be installed within the vicinity of above-ground utilities that remain will need to be carefully considered. The center medians along Kennedy Boulevard allow a greater opportunity to install large specimen tree species, while the roadside edges must be carefully planted with tree species to meet utility and other limiting factors. Tree species also must be selected and located to avoid severe trimming required to maintain clearance from utility lines, not obstruct businesses along the corridor, and not create safety concerns for pedestrians and motorists.

Planting trees in utility areas along the Kennedy Boulevard corridor will necessitate working closely with the utility companies and the City of Tampa to develop mutually agreeable and creative solutions to tree/utility conflicts. A plan that is flexible and adaptable to future construction phases will be extremely important for maximizing the aesthetic potential of the streetscape character along Kennedy Boulevard.

Business Development Considerations

To adequately accommodate those who have and will make financial commitments along the corridor, it is recommended that a comprehensive redevelopment plan and design guidelines be established. These planning documents will provide a road map for development and give existing property owners and potential investors an

**Figure 6-8
Examples of Metal Contemporary Site Furnishings**



understanding of the vision and redevelopment potential of the corridor. Businesses need to know what they are investing in and what incentives, opportunities, and limits are provided by the area. New and existing businesses alike will benefit from these planning tools. Businesses should be encouraged to implement some of the streetscape elements outside of the right-of-way, such as awnings and storefront enhancements. These are elements that can have an immediate positive impact on the corridor.

Implementation

For these recommendations to be successfully implemented, they should be adopted into design guidelines and formalized in an action plan for a “Better Kennedy Boulevard.” The guidelines and action plan must be prepared to ensure that future development opportunities and phased construction and infrastructure improvements will adhere to design precedents.

Summary

The value of the streetscape components of this study should not be underestimated. These elements will provide the visual and functional reference for the vehicular and pedestrian user. The streetscape and urban design will be that which defines Kennedy Boulevard as a highly attractive historic corridor that provides a contiguous positive experience for Tampa’s residents and visitors alike.

Examples of how the various streetscape elements described herein may be applied to segments of the Kennedy corridor are illustrated in Figures 6-9 and 6-10, which show aerial photographs of the corridor with overlays of potential streetscape and landscape design. In Figure 6-9, roadside edge and median details are depicted for a segment of Kennedy Boulevard between Manhattan Avenue and Hubert Avenue, in the western portion of the corridor. Similarly, Figures 6-10 and 6-11 present potential design details for the intersections at Howard

Avenue, in the eastern portion of the corridor, and Lois Avenue, in the eastern portion, respectively.

Figure 6-9
Example of Potential Streetscape/Landscape Design for Roadside Edge and Median, Kennedy Boulevard Between Manhattan Avenue and Hubert Avenue

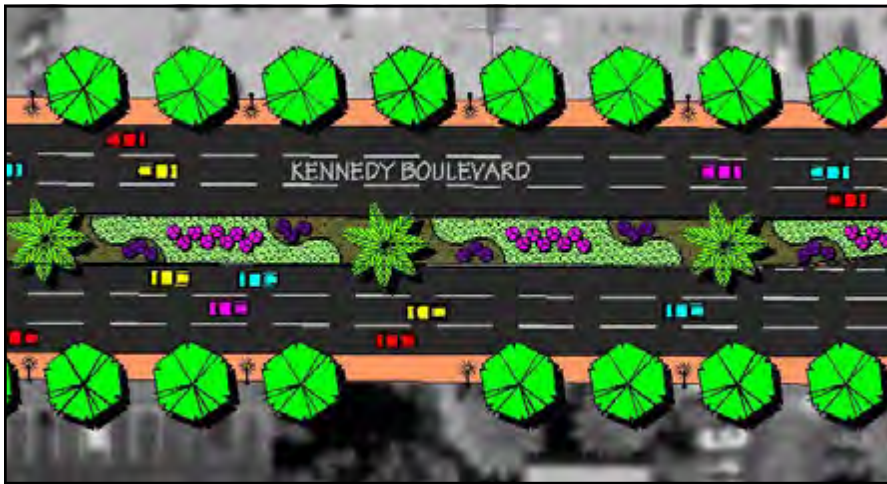


Figure 6-10
Example of Potential Streetscape/Landscape Design for an Intersection, Kennedy Boulevard at Howard Avenue



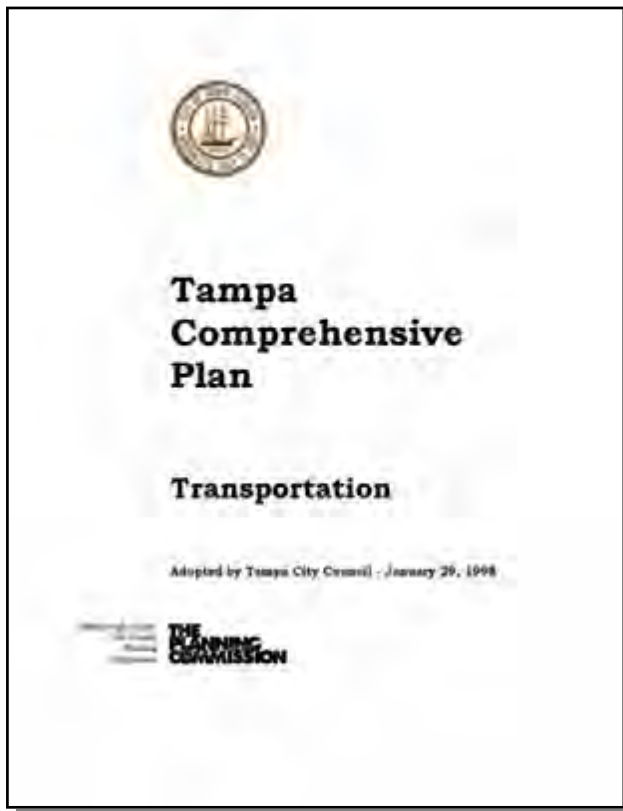
Figure 6-11
Example of Potential Streetscape/Landscape Design for an Intersection, Kennedy Boulevard at Lois Avenue



SECTION 7 COMPREHENSIVE PLAN AND LAND DEVELOPMENT CODE



The City of Tampa's Comprehensive Plan goals, objectives, and policies provide the basis for implementing regulations and guidelines intended to facilitate the City's redevelopment efforts. The methods and techniques used to promote redevelopment and economic revitalization were reviewed in the context of applicability to the Kennedy Boulevard corridor. The Plan's Future Land Use Element and the Transportation Element provided the policy framework and general strategy



used to support corridor redevelopment and revitalization initiatives. The strategy generally revolves around the establishment of various delineated land use districts and overlay zones. The Plan also defines a Transportation Concurrency Exception Area (TCEA) and targets redevelopment of the gateway corridors.

Redevelopment Corridor within the Transportation Concurrency Exception Area

The Kennedy Boulevard corridor segment examined in this study is identified as a "Redevelopment Corridor" within the City's TCEA in Future Land Use Element, Policy B-7.2. As a result, there are multiple objectives and policies that promote enhancements to the major arterial system that lead to Tampa's downtown Central Business District and promote connectivity between the various neighborhood and employment centers. The following review outlines those Goals, Objectives, and Policies that may be applicable to Kennedy Boulevard based on the previously noted policy directive.

The TCEA is established and defined by Future Land Use Element, Objective 2.7. In summary, the TCEA was created to promote urban infill, redevelopment, and revitalization, and enhance urban mobility within and adjoining the downtown Central Business District. Transportation Element Policy 2.7.2 identifies an array of methods to accomplish the desired TCEA objectives and may be applicable to redevelopment efforts associated with Kennedy Boulevard. The methods listed in Policy 2.7.2 include:

- Marketing and public education campaigns that promote the benefits and availability of transit;
- Continued retrofitting of sidewalks and lighting within the City to encourage pedestrian alternatives and to improve pedestrian access to transit and commercial facilities;
- Improvement of intersections to facilitate safe pedestrian modes of transportation;

- Retrofitting of roadways within the City to include bicycle facilities, thereby encouraging bicycling as alternative transportation;
- Establishing ridesharing, carpooling, staggered work hours, and telecommuting;
- Implementation of the Urban Village land use concept within the City to facilitate integrated land use patterns;
- Continued marketing of the City as a desirable and attractive place to live and work in an effort to accomplish compact growth;
- Assess the inclusion of High Occupancy Vehicle lanes for all major reconstruction of the Florida Interstate Highway System in the TCEA; and
- Require that transit, bicycle, and pedestrian design considerations be included in the design of all redevelopment and new development projects.

While Future Land Use Element, Policy B-7.2 summarizes many broad topics, further policy guidelines are provided specific to transit, bicycle, and pedestrian travel.

Transit

The Transportation Element includes a Mass Transit Component that outlines general objectives oriented to increasing transit ridership and strategies to address congestion management. Objectives 4.1, 4.2, and 4.3 provide the policy framework for promoting transit ridership, transit improvements, and the implementation of the Downtown Transportation Master Plan. According to Transportation Element Policy 4.2.1, incentives that can help increase the modal split for transit "...may take the form of parking fees and/or limiting the amount of parking in activity centers, provision of transit amenities in development projects, High Occupancy Vehicle (HOV) lanes on roadways for

exclusive transit use, or other appropriate incentives."

Transit strategies are developed through the coordination of HART and the MPO. Transportation Element Policy 2.7.5 states that the City, in cooperation with the MPO and HART, "...will give highest priority to the funding of necessary capacity improvements to roadways and transit services that would help to relieve congestion on roadways within the TCEA which are operating below the adopted LOS standard." This is beneficial to efforts to redevelop Kennedy Boulevard because the following segments are listed as deficient and below LOS D in the Future Land Use Element, Table 5:

- I-275 from Kennedy Boulevard to Memorial Highway;
- Kennedy Boulevard from Memorial Highway to Westshore Boulevard;
- Kennedy Boulevard from Lois Avenue to Dale Mabry Highway; and
- Kennedy Boulevard from Dale Mabry Highway to Himes Avenue.

Bicycle and Pedestrian

The Transportation Element includes a Bicycle and Pedestrian Component that outlines the implementation strategies that would facilitate retrofitting the corridor to provide for a more conducive environment for bicycle and pedestrian facilities. Goals 10, 11, and 12 and the underlying objectives and policies identify the need to develop design standards and physical improvements on priority corridors that are sensitive to the safety and retrofitting needs of bicyclists and pedestrians.

The Transportation Element provides further support of bicycle and pedestrian facility development as part of the TCEA district policy framework. Transportation Element, Policy 2.7.12 states that "The City shall, by 1998, develop a

program to construct additional bicycle facilities in the TCEA to accommodate and encourage the use of bicycles as transportation. These could include bike lanes, bike paths, racks, and lockers and other bicycle parking facilities.” Transportation Element, Policy 2.7.13, addresses pedestrian needs as follows, “The City shall continue constructing new sidewalks and other pedestrian facilities throughout the TCEA to encourage more pedestrian trips. High priority will be given to sidewalks that improve mobility and connectivity to transit.” Implementation of bicycle and pedestrian facilities is monitored via Transportation Element, Objective 2.8, which directs that “The City’s Transportation Element shall contain a process for monitoring overall mobility and economic development within the TCEA and it shall include at a minimum the following components: improvements and/or expansion of mass transit, pedestrian travel, bicycling, and other forms of non-automobile travel within the TCEA. A monitoring plan shall be developed and a base line report prepared within one year of the effective date of the TCEA.”

Gateway Corridor

The Kennedy Corridor is identified in the Future Land Use Element as a potential “Gateway” corridor leading to the designated Central Business District of Downtown Tampa. “Gateway” corridors are proposed for aesthetic attention including additional landscaping and street tree planting.

Implementation methods may include public and private “planting” plans for areas within the existing road right-of-way or in a designated landscaped buffer zone area. Future Land Use Element, Objective 6, and underlying policies promote community appearance guidelines for areas considered gateways to downtown such as Kennedy Boulevard.

The Plan provides for aesthetic considerations in the context of development and redevelopment. The Future Land Use Element includes “Community

Appearance” objectives that are directed at the development of design oriented development review guidelines and are applicable to the Kennedy Boulevard corridor. These code requirements and guidelines promote multi-modal redevelopment goals. Future Land Use Element, Policy D-6.1 states that “...major commercial renovations shall provide sidewalks in areas where it is practical and feasible for pedestrian oriented activities.” The intent is to encourage pedestrian activity, and reduce overall dependence on the automobile. Further, Future Land Use Element, Policy D-6.2 states that “All new commercial development and major commercial renovations shall be required to provide shade trees along sidewalks, where practical and feasible.”

Arterial Access Management

The Transportation Element provides guidelines for access management applicable to arterial roadways, in general. Standard development guidelines are identified and FDOT access management standards are adopted by reference. Transportation Element, Policy 1.2.9 promotes shared access points as a means of minimizing driveway cuts. The policy is written, however, in the context of new development rather than redevelopment. Transportation Element Policy 1.2.7 provides for design review “...of parking and access elements on site plans submitted through development review and the construction plan processes. Balance safety, efficiency, economic development, and desired infill growth with the need to protect surrounding neighborhoods from adverse impacts.” In addition, Transportation Element, Policy 2.1.2 references Chapter 27 of the Land Development Code for specific setbacks associated with all classified roadways in the City.

Land Use Compatibility

General consideration of compatibility between residential and non-residential land use is

addressed in the context of the Comprehensive Plan Future Land Use Map Designation and the development review process. In general, Future Land Use Element Policy B-5.3 states, “The expansion of appropriate commercial uses adjacent to residential uses should be considered only if such expansion maintains the residential character of, and mitigates the effect of the expansion’s non-residential traffic into the adjacent neighborhood(s).” Further, Objective B-6 promotes commercial redevelopment in areas where it is needed in a manner that is compatible with surrounding residential uses. Future Land Use Element, Policy B-6.1 encourages implementation of this objective through fostering partnerships between neighborhoods and business districts within, or adjacent to, the neighborhoods. There is a need to emphasize a mutually cooperative role recognizing that the two are interdependent. Further implementation guidance is given in Future Land Use Element, Objective B-5, which provides location criteria and performance standards to be used for commercial uses located adjacent to, or within, residential areas.

Land Development Regulations

The Land Development Regulations (LDR) support objectives of designated special districts and overlay zones by applying design and review standards specific to the identified district. The regulatory standards and criteria are generally located in Chapter 27 – Zoning of the LDR. Within this chapter, there are standard design requirements and requirements specific to Districts, including but not limited to, Central Business Districts and Overlay Districts. The general issues addressed include allowable zoning classifications, landscaping, streetscape, height, Floor Area Ratio, set back, lot size and dimension, parking and sign requirements.

The appearance, accessibility, and compatibility of a site are directly influenced by site design and the

placement of development. Zoning is a key element in promoting desired site design and compatible development. Specifically, zoning classifications determine the allowable setbacks and other dimensional requirements that impact individual lots, as well as the overall character of an area. Section 27-77 in the LDR provides a matrix showing the zoning district and associated height, bulk, and placement regulations.

The Kennedy Boulevard corridor has a mixed use of commercial and office retail businesses. Redevelopment and revitalization efforts in this area would be subject generally to the standards as follows. The front, side, and rear setbacks for the commercially zoned properties generally found along arterial roadways are generally 10 feet front, 10 feet side, and 10 feet rear. Commercial Intense (CI) zoning, which is the most intense, allows for a zero lot line in the front, side, and rear. Office Professional zoning allows a range of front setbacks from the less intense uses requiring 25 feet to the intense uses that require 20 feet. The more intense Office zoning classifications generally require 10 feet side and a range of 20-25 rear setbacks. On-site and off-site parking is determined based on the use of the property and also site plan requirements unique to a designated district.

In a more general sense, Chapter 13 – Landscaping, Tree Removal, and Site Clearing, provides technical guidelines in the form of a matrix that lists the amount of landscaping area and number of plants recommended by land use. These requirements are inclusive of development that occurs in the process of renovation and alteration of a structure.

The topics of streetscaping, bicycle facilities, and enhancements for pedestrians are generally addressed in association with other activities, ranging from the criteria for the placement of benches on sidewalks for advertising purposes and requirements for unobstructed walkways to the

operation of sidewalk cafes. It appears that pedestrian and bicycle safety is an issue that is addressed in the application of development plans and special permit requirements. Screening and buffering requirements that separate vehicular use areas (excluding accessways and pedestrian ways) are found in Chapter 13. Additional details and requirements may be discerned through the process of development review and tied to the district or planning area associated with the location of the property.

Chapter 22 of the Land Development Code deals with Streets and Sidewalks. Sec. 22-103 addresses requirements for the provision of sidewalks in the public right of way along or near the portions of any parcel of property abutting a public street or a contribution of funds in lieu of construction for residential and non-residential developments. This regulation may be beneficial to redevelopment efforts because of the provisions for retrofitting and repair of existing facilities. The expansion of any existing single-family or multi-family residential building in excess of fifty (50) percent of the existing square footage of building area on a parcel or the expansion of an existing commercial, industrial, or other non-residential building or use that results in an expansion of that building or use in excess of twenty-five (25) percent of the existing square footage of building area on a parcel would trigger the permitting requirement therein for the provision of sidewalks. In addition, all uses undergoing site plan controlled zoning approval, or S-2 special use approval, or any change in an existing use requiring twenty-five (25) percent additional parking would be required to comply with this section.

In further support of the provision of sidewalks, Section 22-104 provides for sidewalk trust funds, which in turn provides for the establishment of trust funds for each transportation impact fee district. This provision provides for the funding to support sidewalk construction and replacement projects within the districts where funds were collected.

Summary

In summary, the City's Comprehensive Plan and Land Development Regulations support corridor redevelopment and economic revitalization along Kennedy Boulevard. As reflected in the establishment of Central Business Districts, Commercial Overlay Districts, and Neighborhood Plans, the Comprehensive Plan vision fosters a redevelopment strategy that is sensitive to and responsive to the unique needs of an area and to the relationship that area has with other land uses and districts. The Plan's recognition of the Kennedy Boulevard corridor as a Redevelopment Corridor and potential "gateway" corridor elevates the importance of preserving and improving the roadway's functions and enhancing the design standards that are key to the economic vitality of the area. The attention given to improving transit operations and the promotion of alternative modes of transportation, such as biking and pedestrian travel, contribute to these objectives. Land Development Regulations have been customized for various specific districts and may provide an effective mechanism in establishing redevelopment incentives for the Kennedy Boulevard corridor in the future.

SECTION 8 SUMMARY OF BENEFITS AND COSTS

Many of the recommended improvements discussed herein for the Kennedy Boulevard corridor have associated costs. While these costs may range significantly from improvement to improvement, it also is the case that varying levels of benefit also accrue for many of the recommendations. These benefits may include reduced traffic congestion, improved intersection operation, increased transit ridership, or higher mode splits for the bicycle and walk modes of travel, among others. Further, improving the aesthetics and overall “user-friendliness” of the corridor for all modes can ultimately create additional benefits for area businesses and retailers, as well, such as the potential for more customer traffic and increased sales/revenues. This section presents the various costs and benefits associated with the recommendations for the Kennedy corridor. Any assumptions and/or inputs utilized in the included calculations are provided as available, as are their sources.

Intersection Improvements

Benefits anticipated to result from the identified improvements were quantified in terms of reduced delay, reduced fuel consumption, and reduced vehicle emissions. The SimTraffic microscopic traffic simulation model was used to estimate vehicle-hours of delay and fuel consumption for both the existing condition and with-improvement scenario. Simulations were performed for PM peak hour conditions at each intersection for each scenario. Daily vehicle-hours of delay and fuel consumption were estimated assuming that the simulated peak hour conditions exist at each intersection for a period equivalent to the duration under which each of these intersections operate at a volume-to-capacity ratio of 0.90 or greater, based

on critical movement analyses. Vehicle-hours of delay were converted to person-hours of delay using an average vehicle occupancy rate of 1.22 persons per vehicle; observed during the data collection phase of this study. Monetary values were assigned to the estimated daily person-hours of delay using a value of \$9.44 per person-hour. Per Federal Highway Administration guidelines, this value reflects 60 percent of the mean hourly wage in the Tampa Bay area as reported in the National Compensation Survey, September 2001. Monetary values were assigned to the daily fuel consumption estimate using a value of \$1.51 per gallon, which reflects the average price per gallon of mid-grade gasoline for the lower Atlantic states during late January 2003, as reported by the Energy Information Administration. Annual monetary benefits anticipated to be realized by each improvement were calculated by multiplying daily benefits by 260 (the annual number of weekdays) and are summarized in Table 1. Worksheets documenting the development of these benefits are provided in Appendix A.

Vehicle emissions were estimated for the existing and with-improvement scenarios using an emissions reduction calculation methodology developed by the California Department of Transportation (CALTRANS). The methodology considers average vehicle speeds as the basis for applying emissions factors to estimate the daily production of hydrocarbons, nitrogen oxides, and carbon monoxide. Annual reductions in vehicle emissions anticipated to result from each improvement were calculated by multiplying daily benefits by 260 (the annual number of weekdays) and are summarized in Table 1. Worksheets documenting the emissions calculations are provided in Appendix A.

Intersection improvement costs were estimated in terms of roadway construction, signal modifications, mobilization, maintenance of traffic, engineering/design, and right-of-way acquisition. Roadway construction and signal modification cost estimates were developed by tabulating pay item quantities for each intersection improvement, and then applying average unit costs to these quantities, as reported by the Florida Department of Transportation (TRNS*PORT, 01/01/02-11/18/02). Mobilization, maintenance of traffic, and engineering/design costs were estimated to be equal to 35 percent of the construction cost (mobilization plus maintenance of traffic - 15%, engineering/design - 20%). Right-of-way will be required to implement the improvements at Dale Mabry Highway and at MacDill Avenue. In both cases, land currently being used for business parking on certain parcels will be required. Other

year design life and an annual interest rate of 7 percent; resulting in a capital recovery factor of 0.0944. The cost of each improvement was annualized using this capital recovery factor, and summarized in Table 1. Worksheets detailing these cost estimates are provided in Appendix B.

Kennedy Boulevard at Memorial Highway

The addition of a second eastbound-to-northbound left-turn lane at this intersection is estimated to result in an annual monetary benefit of \$166,443 with an annualized cost of \$4,166. This results in a benefit-to-cost ratio of 40. In addition, this improvement is estimated to result in an annual reduction of approximately 13,800 kg of emissions (3.32 kg per dollar).

Table 8-1. Summary of Annual Benefits and Costs for Intersection Improvements

Kennedy Boulevard Intersection	Proposed Improvement	Annual Benefits								Annualized Improvement Cost	Monetary Benefit to Cost Ratio	Air Quality Benefit to Cost Ratio (kg/\$)
		Reduced Vehicle Emissions			Reduced Delay		Reduced Fuel Consumption		Total Monetary Value <i>(does not include air quality benefits)</i>			
		Hydrocarbons	Nitrogen Oxides	Carbon Monoxide	Person-Hours	Monetary Value	Gallons	Monetary Value				
Memorial Highway	Addition of second eastbound-to-northbound left-turn lane.	2,213 kg	922 kg	10,698 kg	16,304	\$153,911	8,294	\$12,532	\$166,443	\$4,166	40	3.32
Dale Mabry Highway	Addition of third northbound through lane.	5,350 kg	2,015 kg	23,207 kg	198,837	\$1,877,020	35,308	\$53,350	\$1,930,370	\$116,506	17	0.26
Dale Mabry Highway	Addition of third westbound through lane.	417 kg	139 kg	1,598 kg	27,533	\$259,911	-1,683	-\$2,544	\$257,367	\$100,532	3	0.02
Dale Mabry Highway	Addition of third northbound and westbound through lanes.	5,350 kg	2,015 kg	23,416 kg	212,770	\$2,008,547	37,310	\$56,375	\$2,064,923	\$217,038	10	0.14
MacDill Avenue	Addition of northbound-to-westbound left-turn lane.	1,846 kg	760 kg	8,903 kg	96,238	\$908,491	40,352	\$60,972	\$969,463	\$29,346	33	0.39

takings would involve strips of landscaped land or, in one case, an entire parcel. The magnitude of business damages associated with loss of parking is difficult to estimate, so the right-of-way acquisition costs may not be highly accurate. Records of the Hillsborough County Property Appraiser were reviewed to provide an order of magnitude for land costs; however, Property Appraisers' estimates are generally viewed as conservative. Each of the identified improvements was assumed to have a 20-

Kennedy Boulevard at Dale Mabry Highway

The addition of a third northbound through lane at this intersection is estimated to result in an annual monetary benefit of \$1,930,370 with an annualized cost of \$116,506. This improvement results in a benefit-to-cost ratio of 17. In addition, this improvement is estimated to result in an annual reduction of approximately 30,600 kg of emissions (0.26 kg per dollar).

The addition of a third westbound through lane at this intersection is estimated to result in an annual monetary benefit of \$257,367 with an annualized cost of \$100,532. This results in a benefit-to-cost ratio of 3. In addition, this improvement is estimated to result in an annual reduction of approximately 2,150 kg of emissions (0.02 kg per dollar).

The addition of third northbound and westbound through lanes at this intersection is estimated to result in an annual monetary benefit of \$2,064,923 with an annualized cost of \$217,038. This results in a benefit-to-cost ratio of 10. In addition, this improvement is estimated to result in an annual reduction of approximately 30,800 kg of emissions (0.14 kg per dollar).

Kennedy Boulevard at MacDill Avenue

The addition of a northbound-to-westbound left-turn lane at this intersection is estimated to result in an annual monetary benefit of \$969,463 with an annualized cost of \$29,346. This improvement results in a benefit-to-cost ratio of 33. In addition, this improvement is estimated to result in an annual reduction of approximately 11,500 kg of emissions (0.39 kg per dollar).

Public Transportation Improvements

A number of recommendations related to public transportation in the Kennedy Boulevard corridor were presented previously in Section 3. Several of these improvements will require some level of operating and/or capital funding in order for implementation to occur. These improvements with associated costs include the following:

- Concrete pads;
- Gap filler;
- Obstruction removal/relocation;
- Bus shelters;
- Bus information kiosks;

- Crosswalk re-striping;
- Peak-hour express bus service on Route 10; and
- Later evening bus service on Route 10.

The estimated costs for each of these recommended transit-related improvements are presented in Table 8-2, along with unit costs, required units, and any revenue that might be generated as a result of the implementation of the improvement. Notes also have been provided detailing all of the assumptions that were utilized in the calculations, as well as general information on the various sources of information that were consulted for this purpose.

As shown in the table, the total cost for all of these transit-related improvements is \$232,784. The majority of this cost is related to the two bus service improvements, \$69,806 for the peak express service on Route 10 and \$70,034 for the later evening service on this same route.

The benefits resulting from transit improvements related to Congestion Mitigation and Air Quality Improvement (CMAQ) were developed utilizing a methods handbook prepared by the California Air Resources Board in cooperation with the California Department of Transportation and the California Air Pollution Control Officers Association: *Methods to Find the Cost-Effectiveness of Funding Air Quality Projects (1999 Edition)*. One of the methods identified in this document presents a relatively straightforward way to estimate the air quality benefits of various bus service improvements. Basically, this particular method estimates how many annual auto trips and auto vehicle mile of travel (VMT) can be reduced because of the transit improvements, and then uses these results to estimate the annual emission reductions¹ that accrue, as well. The basic equation for estimating the annual reductions for a particular type of pollutant is as follows:

Table 8-2
Summary of Transit-Related Improvement Costs

Transit-Related Improvement	Units	Unit Cost (2003 \$)	Improvement Cost	Generated Revenue	Net Cost
Concrete Pad at Bus Stop ¹	6	\$1,200	\$7,200	\$0	\$7,200
Gap Filler at Bus Stop ²	3	\$1,200	\$3,600	\$0	\$3,600
Removal/Relocation of Obstruction(s) ³					\$17,211
- Sterling Avenue (WB Stop) ⁴	1	\$685	\$685	\$0	\$685
- Hubert Avenue (WB Stop) ⁴	1	\$685	\$685	\$0	\$685
- Church Avenue (EB Stop) ⁴	1	\$685	\$685	\$0	\$685
- MacDill Avenue (EB Stop) ⁵	1	\$4,947	\$4,947	\$0	\$4,947
- Armenia Avenue (EB Stop) ⁶	1	\$5,170	\$5,261	\$0	\$5,261
- Boulevard (EB Stop) ⁵	1	\$4,947	\$4,947	\$0	\$4,947
Bus Shelter ⁷	5	\$8,000	\$40,000	\$0	\$40,000
Bus Information Kiosk ⁸	6	\$4,000	\$24,000	\$0	\$24,000
Crosswalk Re-Striping (units in feet) ⁹					\$933
- MacDill Avenue	260	\$0.98	\$255	\$0	\$255
- Armenia Avenue	240	\$0.98	\$235	\$0	\$235
- Boulevard	216	\$0.98	\$212	\$0	\$212
- Hyde Park Avenue	236	\$0.98	\$231	\$0	\$231
Improvement of Corridor's Transit Friendliness					\$92,944
Rt. 10 Peak Express Service (annual veh trips) ¹⁰	3,060	\$33.21	\$101,609	\$31,804	\$69,806
Rt. 10 Night Service (annual veh trips) ¹¹	3,070	\$33.21	\$101,941	\$31,908	\$70,034
All Transit-Related Improvements					\$232,784

Notes

- Concrete pads for bus stops that meet ADA guidelines range in cost from \$800-\$1200 per pad, depending on the number of pads being poured at the same time. The higher end of the range is assumed for the six pads to develop a more conservative estimate. Source: HART staff.
- Gap filler is required only in a quantity that will meet the ADA requirements for a concrete pad; hence, it is assumed that the cost to fill the existing gap at each identified location would approximate the cost of a new concrete pad.
- All of the obstruction-related improvements included in this table reference specific utilities issues. It was assumed that the cost would be negligible for HART staff to work with the Tampa Jaycees and vending machine proprietors to ensure that benches and/or vending machines are not blocking sidewalks or otherwise creating any hazards for pedestrians and HART patrons.
- This location is assumed to require the relocation of a light pole. The unit cost shown for this task is based on an average unit cost derived from actual recent FDOT projects. Source: FDOT Pay Item Average Unit Cost Report, Jan. 2002 – Nov. 2002.
- This location is assumed to require the installation/removal of a concrete strain (signal) pole. The unit cost shown for this task is based on an average unit cost derived from actual recent FDOT projects for pole removal, a new concrete strain pole, and a span wire assembly. Source: FDOT Pay Item Average Unit Cost Report, Jan. 2000 – June 2002 and Jan. 2002 – Nov. 2002.
- This location is assumed to require the installation/removal of a concrete strain (signal) pole, the removal of a utility pole, and about 5 square yards of additional concrete sidewalk being poured. The unit cost shown for this task is based on an average unit cost derived from actual recent FDOT projects for pole removal, a new concrete strain pole, a span wire assembly, utility pole removal, and concrete

sidewalk installation. Source: FDOT Pay Item Average Unit Cost Report, Jan. 2000 – June 2002 and Jan. 2002 – Nov. 2002.

7. The cost of a bus shelter is assumed to be similar to that for HART's Arbor Shelter, which costs \$8,000 per unit. This cost includes the cost of the shelter and a matching bench and garbage receptacle. Source: HART staff.

8. The cost of a bus information kiosk is assumed to be similar to that for HART's new Bus Kiosk, which costs \$4,000 per unit. Source: HART staff.

9. The crosswalk re-striping costs are based on the use of 12-inch-wide, white, solid traffic striping to put down two parallel stripes across the entire width of Kennedy on both sides of each of the indicated intersections. Source: FDOT Pay Item Average Unit Cost Report, Jan. 2002 – Nov. 2002.

10. The peak express service on Route 10 assumes that 6 additional one-way trips are provided in each the a.m. and p.m. peak periods, for a total of 12 new vehicle trips per day. Assuming an annual total of 255 days of weekday service, this represents an additional 3,060 vehicle trips each year for this route. The average trip cost of \$33.21 represents the fully-allocated average cost per trip derived from the FY 2002 route statistics for Route 10. Fare revenue, which is included to help offset operating costs of the additional service, is generated based on the route's FY 2002 farebox recovery ratio of 31.3 percent. Source: HART route statistics.

11. The night service on Route 10 assumes that service will be extended an additional two hours, from 8:43 to 10:43 p.m., Monday through Saturday. This increase in service span will require 10 additional one-way trips each day. Assuming an annual total of 307 days of weekday/Saturday service, this represents an additional 3,070 vehicle trips each year for this route. Trip cost and fare revenue are calculated using the same assumptions and data utilized for the peak express service. Source: HART route statistics.

Annual Emission Reduction $_{\text{pollutant}} = (\text{Annual Auto Trips Reduced} \times \text{Auto Trip End Emission Factor}) + (\text{Annual Auto VMT Reduced} \times \text{Auto VMT Emission Factor}) - (\text{Bus VMT} \times \text{Bus VMT Emission Factor})$

Where **Annual Auto Trips Reduced** = $(\text{Days of Bus Operation per Year} \times \text{Additional Ridership per Day} \times \text{Non-Transit Dependent Adjustment Factor}) \times (1 - \text{Auto Access Adjustment Factor})$

And **Annual Auto VMT Reduced** = $(\text{Days of Bus Operation per Year} \times \text{Additional Ridership per Day} \times \text{Non-Transit Dependent Adjustment Factor}) \times [\text{Average Auto Trip Length} - (\text{Auto Access Adjustment Factor} \times \text{Average Auto Access Trip Length})]$

Using this equation, known data for the various transit improvements, and the emission factor inputs identified in the document, it is possible to generate annual changes in emissions for each of the pollutant types and for all of them combined. For purposes of this analysis, it is important to recognize that only the night service and express service bus improvements are examined at the individual level. All other transit improvements are combined into a single “package enhancement” since ridership increases are not typically associated with these specific types of infrastructure and/or amenities improvements. In this regard, it is estimated that this package of improvements would result in at least a five percent increase in average daily ridership for Route 10 (about 30 passenger trips per day), through a combination of increased use by

¹ Vehicle emission reductions are calculated for three major pollutants: reactive organic gases (ROG), nitrogen oxides (NOx), and particulate matter (PM10). It should be noted that the previous edition of this document included calculations for carbon monoxide (CO), as well. Since the Federal Highway Administration requests that CO reductions be reported for CMAQ projects, this pollutant has been included in the calculations contained herein for purposes of estimating overall emission reductions.

existing passengers, diverted auto trips, and/or net new trips that would not have been made otherwise, regardless of mode. The only other assumptions of note are listed in the following bullets.

- The number of days of bus operation for the weekday express service improvement is assumed to be 255 days; the total days for the service span increase is 307 days (Monday through Saturday).
- The estimated ridership increase for each of the transit service improvements is based on the Route 10 service elasticity (0.0528) that was calculated during the course of this study and the route’s FY 2002 annual ridership total of 217,846 passenger trips.
- For the non-transit dependent adjustment factor, it is assumed that 30 percent of the new riders generated by the express service are not transit dependent. For the other transit improvements (night service, infrastructure), 20 percent of the new riders are expected to be non-transit dependent.
- Neither of the “Auto Access to Transit” variables is utilized in this analysis since it is not anticipated that the service improvements will result in any “new” auto trips for accessing Route 10. In the case of the express service, for example, it is expected that the bus service will be replacing only the downtown-to-Westshore portion of longer auto trips that are already occurring; therefore, auto access to transit should not increase and may even decline somewhat.
- The average auto trip length is assumed to be 4.2 miles, the length of the corridor, for the express service improvement. For the other transit improvements, 50 percent of the corridor length, or 2.1 miles, is assumed to be the average length of an auto trip that could be reduced.

Based on these inputs and assumptions, annual emission reductions can be estimated for the express bus service addition to Route 10, the later

evening service on the route, and the overall infrastructure improvements along the route. These estimates are illustrated in Table 8-3. As shown, most of the reductions occur for the carbon monoxide pollutant. While the express service and infrastructure improvements indicate net overall annual emission reductions, the later evening service reflects an increase in annual emissions. However, overall, the transit-related improvements are estimated to have net benefit of 0.33 kilograms per day in total emission reductions.

Bicycle & Pedestrian Facilities Improvements

The recommendations for bicycle and pedestrian improvements noted in Section 4 of this report include the following.

- Development of east-west parallel capacity bicycle routes
 - * North “A” and “B” Streets
 - * Azelee/Platt and Cleveland Streets
- Development of a comprehensive sidewalk construction plan
- Construction of key sidewalk segments
- Intersection wheelchair ramp improvements
 - * Install ramps/shift existing ramps
 - * Connect or reroute sidewalk access
 - * Address obstructions

The estimated costs associated with these bicycle and pedestrian improvements are presented in Table 8-4, along with unit costs and required units. As indicated in the table, the total estimated cost for all the recommended bicycle, pedestrian, and ADA improvements is approximately \$250,000. The majority of these costs are split between bicycle route roadway stripings (\$106,000) and sidewalk construction (\$129,000). About \$15,000 is dedicated to correcting ADA access at Kennedy’s signalized intersections.

According to Caltrans’ *Methods to Find the Cost-Effectiveness of Funding Air Quality Projects*, the AADT reduction factor of parallel capacity bike lanes along Kennedy Boulevard is 0.002 + 0.0005 (at least 3 activity centers). Based on AADT ranging from 30,000 to 50,000 vehicles per day, the use of an AADT of 40,000 and an estimated total of 200 bicycling days per year suggests an ROG reduction of 65.2 kilograms per year and a NOx reduction of 31.2 kilograms per year associated with these improvements. Assuming a similar trip reduction for improved pedestrian facilities, but with approximately half the trip length and 365 days-per-year availability, emission reductions associated with the pedestrian improvements are estimated at approximately 59.5 kilograms per year of ROG and 28.5 kilograms per year of NOx.

**Table 8-3
Summary of Transit-Related Annual Emission Reductions**

Transit-Related Improvement	ROG	NOx	PM10	CO	Total (g/year)	Total (kg/day)
Rt. 10 Peak Express Service	(25,381)	(168,168)	(1,541)	305,779	110,690	0.30
Rt. 10 Night Service	(48,307)	(193,873)	(10,481)	121,584	(131,078)	-0.36
Overall Infrastructure Improvements	13,215	9,030	2,036	116,839	141,119	0.39
All Transit-Related Improvements	(60,473)	(353,012)	(9,987)	544,203	120,731	0.33

Notes

1. Figures shown in parentheses are “negative” reductions, or increases in a particular pollutant.
2. All pollutant figures are shown in grams per year.

**Table 8-4
Summary of Bicycle-, Pedestrian-, and ADA-Related Improvement Costs**

	Task	Quantity	Units	Unit Cost	Cost	Source
Bicycle						
1.1	Re-Stripe Azelee St from Dale Mabry to Tampania	6,400	feet	\$5.39	\$34,500.00	5/2
1.2	Re-Stripe Cleveland St from Hillsborough River to Armenia Ave	8,200	feet	\$2.93	\$24,000.00	5/2
1.3	Re-Stripe Platt St from Hillsborough River to Tampania Ave	8,600	feet	\$2.91	\$25,000.00	5/2
1.4	Bicycle Route Signage and Installation	100	sign	\$219.45	\$21,945.00	1
Pedestrian						
1.1	Comprehensive Sidewalk Improvement Plan Study	1	study	\$25,000.00	\$25,000.00	2
1.2	Map 4-2, Item 1 (both sides)	0.63	miles	\$70,022.06	\$43,763.79	1
1.3	Map 4--2, Item 2 (both sides)	0.13	miles	\$70,022.06	\$8,885.37	1
1.4	Map 4-2, Item 3	0.1	miles	\$35,011.03	\$3,646.98	1
1.5	Map 4-2, Item 4 (both sides)	0.44	miles	\$70,022.06	\$30,568.34	1
1.6	Map 4-2, Item 5 (both sides)	0.24	miles	\$70,022.06	\$16,709.81	1
ADA						
1.1	Install Ramps	8	each	\$500.00	\$4,000.00	2
1.2	Move Bench	2	each	---	---	4
1.3	Sidewalk Detour	6	each	\$1,200.00	\$7,200.00	3
1.4	Move Retaining Wall / Acquire Right of Way	2	each	\$1,000.00	\$2,000.00	2
1.5	Redesign Pedestrian Island	1	each	\$1,000.00	\$1,000.00	2
1.6	Install New Sidewalk	0.019	miles	\$70,022.06	\$1,326.18	1
Total Proposed Recommendations					\$249,545.47	

- Notes: 1. FDOT 2000 Transportation Costs, June 2001, Adjusted for 2003
 2. Professional Judgment
 3. Same as Transit Pad
 4. Incidental to Re-Routing Sidewalk
 5. FDOT Pay Item Average Unit Cost Report, January 2002-November 2002.

Urban Design & Streetscaping Improvements

The urban design and streetscape recommendations for Kennedy Boulevard are only conceptual at this time, making the development of actual cost estimates for the improvements extremely difficult, if not entirely impossible. It is possible, however, to review general, sketch-level costs associated with similar streetscape projects for which detailed data already exist. These typical costs are based on a **per mile cost** and are as follows:

- Landscape (plant materials) \$170,000
- Site Furnishings and Tree Grates \$105,000
- Sidewalks (Remove & Replace – Standard Gray) \$150,000
- Sidewalks (Remove & Replace – Colored Concrete) \$275,000
- Roadway and Pedestrian Lighting (Leased) \$100,000
- Undergrounding of all Utilities \$1,900,000

These cost estimates are in current day dollars and a 15-percent contingency should be added to all

figures. The total cost per mile for similar streetscape projects can range from \$800,000 to \$1,200,000 for the landscape, site furnishings, irrigation, mile markers, etc. The per-mile cost for undergrounding, including all related costs for easements, transformer relocation, and conversion costs, is approximately \$2,000,000. Nevertheless, it is important to recognize that placing a priority on these improvements will ensure the minimum potential investment, as costs for this project will only go up over time.

The benefits of the improvements that are outlined herein are more qualitative in nature since it is not really possible to measure the positive impacts that aesthetics and various urban design components ultimately may have on air quality, delay, alternative transportation utilization, or other characteristics that typically can be assessed quantitatively. As such, the benefits of the urban design and streetscape concept recommended for Kennedy Boulevard include the following.

- The aesthetic improvements to Kennedy Boulevard would provide an attractive framework for this historic corridor.
- The quality of life would be much improved for all users of the corridor, as well as all adjacent properties.
- The installation of landscape materials in the medians and along the right-of-way edges would create vertical edges to the drive lanes, which have proven to assist in traffic calming. The narrower the drive lanes appear, the slower vehicles tend to drive.
- Communities generally experience marked redevelopment and upgrading of adjacent properties along improved corridors, increasing the tax base.
- Attractive and usable corridors, sensitive to pedestrians, act as destinations for visitors and residents.
- This project would provide accessibility, comfort, interest, and safety for pedestrian users.
- These improvements celebrate the historic qualities of this corridor and its importance to the City of Tampa.

Streetscape improvements have proven to provide communities with increased user-ship by pedestrians and a renewed sense of city pride. These kinds of urban design improvements speak volumes about the community's concern for its residents, businesses, and visitors.

Appendix A

Kennedy Boulevard Intersection Improvements SimTraffic Simulation Results (Delay & Fuel Consumption)

Kennedy Boulevard at Memorial Highway

Scenario	PM Peak Hour Intersection Delay				PM Peak Hour Fuel Consumption			
	Run 1	Run 2	Run 3	Average	Run 1	Run 2	Run 3	Average
Baseline Condition	93.6 vh-hr	122.8 vh-hr	99.5 vh-hr	105.3 vh-hr	119.8 gal	137.4 gal	125.4 gal	127.5 gal
Improvement - Add Second EB to NB Left-Turn Lane	54.8 vh-hr	52.0 vh-hr	54.9 vh-hr	53.9 vh-hr	96.3 gal	93.6 gal	97.0 gal	95.6 gal
Net Reduction				51.4 vh-hr				31.9 gal

Kennedy Boulevard at Dale Mabry Highway

Scenario	PM Peak Hour Intersection Delay				PM Peak Hour Fuel Consumption			
	Run 1	Run 2	Run 3	Average	Run 1	Run 2	Run 3	Average
Baseline Condition	282.1 vh-hr	303.3 vh-hr	316.2 vh-hr	300.5 vh-hr	315.6 gal	332.9 gal	353.5 gal	334.0 gal
Improvement - Add NB Through Lane	170.7 vh-hr	183.7 vh-hr	189.0 vh-hr	181.1 vh-hr	292.3 gal	299.5 gal	332.6 gal	308.1 gal
Net Reduction				119.4 vh-hr				25.9 gal

Kennedy Boulevard at Dale Mabry Highway

Scenario	PM Peak Hour Intersection Delay				PM Peak Hour Fuel Consumption			
	Run 1	Run 2	Run 3	Average	Run 1	Run 2	Run 3	Average
Baseline Condition	282.1 vh-hr	303.3 vh-hr	316.2 vh-hr	300.5 vh-hr	315.6 gal	332.9 gal	353.5 gal	334.0 gal
Improvement - Add WB Through Lane	272.0 vh-hr	293.8 vh-hr	286.2 vh-hr	284.0 vh-hr	318.1 gal	334.7 gal	352.9 gal	335.2 gal
Net Reduction				16.5 vh-hr				-1.2 gal

Kennedy Boulevard at Dale Mabry Highway

Scenario	PM Peak Hour Intersection Delay				PM Peak Hour Fuel Consumption			
	Run 1	Run 2	Run 3	Average	Run 1	Run 2	Run 3	Average
Baseline Condition	282.1 vh-hr	303.3 vh-hr	316.2 vh-hr	300.5 vh-hr	315.6 gal	332.9 gal	353.5 gal	334.0 gal
Improvement - Add NB & WB Through Lane	171.9 vh-hr	173.2 vh-hr	173.2 vh-hr	172.8 vh-hr	294.6 gal	298.4 gal	327.0 gal	306.7 gal
Net Reduction				127.8 vh-hr				27.3 gal

Kennedy Boulevard at MacDill Avenue

Scenario	PM Peak Hour Intersection Delay				PM Peak Hour Fuel Consumption			
	Run 1	Run 2	Run 3	Average	Run 1	Run 2	Run 3	Average
Baseline Condition	119.3 vh-hr	130.4 vh-hr	135.6 vh-hr	128.4 vh-hr	162.1 gal	165.4 gal	170.2 gal	172.6 gal
Improvement - Add NB to WB Left-Turn Lane	58.9 vh-hr	104.7 vh-hr	70.0 vh-hr	77.9 vh-hr	143.6 gal	157.4 gal	139.1 gal	146.7 gal
Net Reduction				50.8 vh-hr				25.9 gal

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Kennedy Boulevard Intersection Improvements Monetary Benefits Summary

Improvement	Benefits									
	Period	Periods per Day	Reduced Delay			Reduced Fuel Consumption		Period Value	Daily Value	Annual Value
			Veh-Hrs	Person-Hrs	Value	Gallons	Value			
Add Second EB to NB Left-Turn Lane	Peak Hour	1	51.4	62.7	\$ 591.96	31.9	\$ 48.20	\$ 640.16	\$ 640.16	\$ 166,443
Add NB Through Lane	Peak Hour	5.25	119.4	145.7	\$ 1,375.11	25.9	\$ 39.08	\$ 1,414.19	\$ 7,424.50	\$ 1,930,370
Add WB Through Lane	Peak Hour	5.25	16.5	20.2	\$ 190.41	-1.2	\$ (1.86)	\$ 188.55	\$ 989.87	\$ 257,367
Add NB & WB Through Lane	Peak Hour	5.25	127.8	155.9	\$ 1,471.46	27.3	\$ 41.30	\$ 1,512.76	\$ 7,942.01	\$ 2,064,923
Add NB to WB Left-Turn Lane	Peak Hour	6	50.6	61.7	\$ 582.37	25.9	\$ 39.08	\$ 621.45	\$ 3,728.70	\$ 969,463

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Appendix B

Kennedy Boulevard at Memorial Highway
Improvement: Add Second EB to NB Left-Turn Lane (350')

Roadway Construction Cost Estimate

Item No.	Description	Unit	Quantity	Average Unit Cost	Source	Cost
110-1-1	Clearing and Grubbing	SY	300	\$1.87	1	\$561.00
110-4	Removal of Existing Pavement	SY	100	\$4.99	1	\$499.00
160-4	Stabilization	SY	550	\$2.12	1	\$1,166.00
331-2	Asphaltic Concrete (Type S)	TN	375	\$61.24	1	\$22,965.00
337-5-2	Asphaltic Concrete Friction Course	TN	32	\$63.51	1	\$2,032.32
520-1-10	Curb & Gutter	LF	450	\$9.75	1	\$4,387.50
660-2-106	Loop Assembly	AS	1	\$662.70	1	\$662.70
710-6	Directional Arrows	EA	6	\$23.57	1	\$141.42
710-25-61	Solid Traffic Stripe (6" White)	LF	490	\$0.22	1	\$107.80
710-25-241	Solid Traffic Stripe (24" White)	LF	12	\$1.95	1	\$23.40
710-26-61	Solid Traffic Stripe (6" Yellow)	LF	450	\$0.24	1	\$108.00
710-27	Skip Traffic Stripe (2' X 4')	LF	46	\$0.46	1	\$21.16
710-27	Skip Traffic Stripe (4' X 6')	LF	40	\$0.46	1	\$18.40
SUBTOTAL						\$32,694
Mobilization & Maintenance of Traffic (15%)						\$4,904
Engineering/Design (20%)						\$6,539
Right-of-Way						\$0
TOTAL PLAN COST ESTIMATE						\$44,136
Annualized Cost (20-Year Design Life, 7% Interest Rate)						\$4,166

Source 1: FDOT Pay Item Average Unit Cost Report, January 2002- November 2002.

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Kennedy Boulevard at Dale Mabry Highway
Improvement: Add Third NB Through Lane
Roadway Construction Cost Estimate

Item No.	Description	Unit	Quantity	Average Unit Cost	Source	Cost	
Roadway	110-1-1	Clearing and Grubbing	SY	930	\$1.87	1	\$1,739.10
	110-4	Removal of Existing Pavement (Sidewalk)	SY	400	\$4.99	1	\$1,996.00
	160-4	Stabilization	SY	770	\$2.12	1	\$1,632.40
	331-2	Asphaltic Concrete (Type S)	TN	520	\$61.24	1	\$31,844.80
	337-5-2	Asphaltic Concrete Friction Course	TN	42	\$63.51	1	\$2,667.42
	520-1-10	Curb & Gutter	LF	680	\$9.75	1	\$6,630.00
	522-2	Concrete Sidewalk	SY	410	\$22.78	1	\$9,339.80
	710-11	Remove Existing Pavement Markings	SF	903	\$1.24	1	\$1,119.72
	710-25-61	Solid Traffic Stripe (6" White)	LF	267	\$0.22	1	\$58.74
	710-25-241	Solid Traffic Stripe (24" White)	LF	11	\$1.95	1	\$21.45
	710-27	Skip Traffic Stripe (10' - 30')	LF	80	\$0.46	1	\$36.80
	SUBTOTAL - Roadway Construction						\$57,086.23
	Traffic Signal	630-1-12	Conduit, Underground	LF	300	\$3.59	1
630-1-13		Conduit, Underpavement	LF	200	\$13.54	1	\$2,708.00
632-7-1		Signal Cable	PI	1	\$2,433.08	1	\$2,433.08
635-1-11		Pull Boxes	EA	10	\$240.88	1	\$2,408.80
639-1-13		Electrical Power Service	AS	1	\$656.67	1	\$656.67
639-2-1		Electrical Service Wire	LF	100	\$1.57	1	\$157.00
649-113-003		Mast Arm (Steel, Single Arm)	EA	4	\$15,000.00	1	\$60,000.00
650-51-311		Traffic Signal	AS	12	\$670.36	1	\$8,044.32
635-181		Pedestrian Signals	AS	8	\$510.18	1	\$4,081.44
659-101		Signal Head Auxiliaries (Back Plate, 3- Section)	EA	6	\$231.82	1	\$1,390.92
660-1-103		Inductive Loop Detector	EA	12	\$126.64	1	\$1,519.68
660-2-102		Loop Assembly (Type B)	AS	10	\$544.98	1	\$5,449.80
660-2-106		Loop Assembly (Type F)	AS	4	\$662.70	1	\$2,650.80
665-11		Pedestrian Detector	EA	8	\$204.43	1	\$1,635.44
670-5-110		Actuated Solid State Controller Assembly	AS	1	\$12,515.09	1	\$12,515.09
699-1-1		Electrically Powered Sign (Internally Illuminated)	EA	4	\$1,709.42	1	\$6,837.68
690-10		Remove Traffic Signal Heads	EA	12	\$39.34	1	\$472.08
690-20		Remove Pedestrian Signal Assembly	EA	8	\$45.93	1	\$367.44
690-32-1		Pole Removal	EA	2	\$480.91	1	\$961.82
690-50		Remove Controller Assembly	EA	1	\$173.50	1	\$173.50
690-60	Remove Vehicle Detector Assembly	EA	12	\$27.87	1	\$334.44	
690-100	Remove Miscellaneous Signal Equipment	PI	1	\$501.36	1	\$501.36	
SUBTOTAL - Traffic Signal Modification						\$116,376	
SUBTOTAL - Construction						\$173,463	
Mobilization & Maintenance of Traffic (15%)						\$26,019	
Engineering/Design (20%)						\$34,693	
Right-of-Way						\$1,000,000	
TOTAL PLAN COST ESTIMATE						\$1,234,174	
Annualized Cost (20-Year Design Life, 7% Interest Rate)						\$116,506	

Source 1: FDOT Pay Item Average Unit Cost Report, January 2002- November 2002.

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Kennedy Boulevard at MacDill Avenue
Improvement: Add NB to WB Left-Turn Lane (200')

Roadway Construction Cost Estimate

Item No.	Description	Unit	Quantity	Average Unit Cost	Source	Cost
110-1-1	Clearing and Grubbing	SY	530	\$1.87	1	\$991.10
110-4	Removal of Existing Pavement (Sidewalk)	SY	260	\$4.99	1	\$1,297.40
160-4	Stabilization	SY	270	\$2.12	1	\$572.40
331-2	Asphaltic Concrete (Type S)	TN	290	\$61.24	1	\$17,759.60
337-5-2	Asphaltic Concrete Friction Course	TN	22	\$63.51	1	\$1,397.22
515-1-2	Handrail	LF	180	\$23.40	1	\$4,212.00
520-1-10	Curb & Gutter	LF	430	\$9.75	1	\$4,192.50
522-2	Concrete Sidewalk	SY	290	\$22.78	1	\$6,606.20
710-6	Directional Arrows	EA	3	\$23.57	1	\$70.71
710-25-61	Solid Traffic Stripe (6" White)	LF	340	\$0.22	1	\$74.80
710-25-241	Solid Traffic Stripe (24" White)	LF	13	\$1.95	1	\$25.35
710-26-61	Solid Traffic Stripe (6" Yellow)	LF	370	\$0.24	1	\$88.80
710-26-181	Solid Traffic Stripe (18" Yellow)	LF	60	\$0.93	1	\$55.80
710-27	Skip Traffic Stripe (10' - 30')	LF	40	\$0.46	1	\$18.40
SUBTOTAL						\$37,362
Mobilization & Maintenance of Traffic (15%)						\$5,604
Engineering/Design (20%)						\$7,472
Right-of-Way (Estimate - 02/28/03)						\$260,425
TOTAL PLAN COST ESTIMATE						\$310,864
Annualized Cost (20-Year Design Life, 7% Interest Rate)						\$29,346

Source 1: FDOT Pay Item Average Unit Cost Report, January 2002- November 2002.

Right-of-Way Estimate

Parcel No. A-22-29-18-3O4-000002-00001.0 - Acquire 6' x 175' Strip	\$8,925.00
Parcel No. A-22-29-18-3O4-000002-00009.0 - Acquire Entire Parcel	\$250,000.00
Parcel No. A-22-29-18-3O4-000002-00010.0 - Acquire 6' x 100' Triangle	\$1,500.00

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Location: Kennedy Blvd
Scenario: Improvements

	Memorial NELT (P.M.)	Memorial NERT (P.M.)	MacDill NBL (P.M.)	MacDill SBL (P.M.)	Dale Mabry NB w/Shared RT (P.M.)	MacDill NBL (A.M.)	Not Used
Movement:							
Approach Volume (vph):	522	952	152	21	1,070	238	
Number of Lanes:	2	2	1	1	3	1	
Cycle Length (sec):	150	150	130	130	160	120	
Green Time (sec):	30	79	36	0	53	34	
Percentile Queue:	95	95	95	95	95	95	95
Length of Vehicle (ft):	25	25	25	25	25	25	25
Start-up Lost Time (sec):	3	3	3	3	3	3	3
Headway (sec):	2.05	2.1	2.05	2.05	2.1	2.1	2.1

Input:

Movement:

Output:

	20.0%	52.4%	27.4%	0.0%	33.0%	28.5%	ERR
Average Arrivals (veh/red phase):	17.4	18.9	4.0	0.8	31.9	5.7	ERR
95th %ile Queue (veh):	25	26	8	2	41	10	0
Poisson "Safety" Ratio:	1.437	1.377	2.007	2.637	1.287	1.763	ERR
Length of Queue (ft):	350	350	200	50	400	250	0
No. veh in longest queue:	14	14	8	2	16	10	0
Max Green required (sec):	31.7	32.4	19.4	7.1	36.6	24	7

SECTION 9 PUBLIC COMMENT & COORDINATION



The public involvement plan for the Kennedy Boulevard Corridor Study included a number of opportunities for residents and business owners along the corridor, as well as the general public, to offer their comments and help shape the study's recommendations. In addition to the open houses and public workshops that were held during the study, the public also was provided the opportunity to provide comments and/or suggestions by e-mail and telephone. This section summarizes the results of the study's public meetings and the additional public comments that were received during the course of the study.

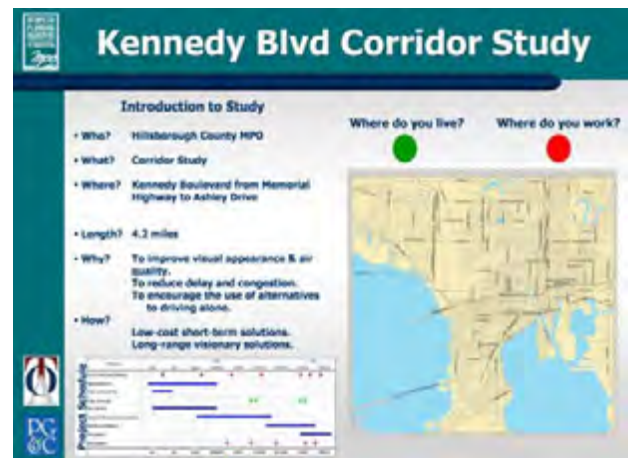
In addition, this section includes general comments about the Kennedy corridor that were received during the employer interviews conducted as part of the study's Travel Demand Management analysis (previously discussed in Section 5). Finally, the section provides summaries of the three coordination meetings that were held with the City of Tampa, the Florida Department of Transportation, and Hillsborough Area Regional Transit (HART) after development of the preliminary recommendations for improving the Kennedy Boulevard corridor. These meetings were facilitated to discuss the recommendations with these implementing agencies to enable them to gain a better understanding of the suggested improvements and give them an opportunity to help formulate the final set of recommendations that are the most applicable to and feasible for Kennedy Boulevard immediately and in the near future.

Summary of Open Houses

Two Interactive Open Houses were held, one on each side of the Kennedy Boulevard corridor study area. The first was held on November 7, 2002, in the lobby of Grand Central Place; the second was

held on November 12, 2002, at the Center Court of Westshore Plaza. More than 110 individuals participated in the open houses to give their opinions on what could be done to improve urban design, reduce congestion, and improve air quality within the Kennedy corridor. The following topic areas were presented to and discussed with the participants during both open houses.

- Urban Design
- Sidewalks
- Bicycle Facilities
- Public Transportation
- Traffic Circulation



Based on the participants' input, some of the desirable improvements that were indicated for the Kennedy Boulevard corridor include the following.

- To the east, towards downtown, the participants want a more traditional urban design and streetscaping concept. Whereas, to the west, they believe a more contemporary character is needed.
- Trees and other landscaping improvements along the streets were indicated to be the most

desirable improvements to the pedestrian conditions within the corridor.

- Improved sidewalk maintenance, continuous sidewalks with curb ramps, benches and other street furniture, and speed limit reductions/traffic calming measures are other pedestrian-related improvements that were desired by participants.
- The implementation of bike racks at major destinations throughout the Kennedy area is the bicycle facility improvement that most participants would like to see.
- Off-street bike paths and speed limit reductions/traffic calming measures are other bicycling-related improvements that were desired by participants.
- Among the “other” bike-related suggestions that the participants offered are sidewalks on both sides of the street, stricter law enforcement, and wider (4 to 6 feet) bike lanes.
- The implementation of bus shelters at more stops and increased service frequency are the two improvements that would have the greatest positive impact on the participants’ use of transit service along Kennedy.
- Other transit improvements that were suggested include the provision of other transit modes of service (e.g., trolley, light rail, shuttle, monorail), later evening bus service, seatbelts on the buses, improved ADA accessibility, designated bus bays, sidewalks, and the promotion of use by visitors (e.g., provide hotels with discounted passes).
- Many of the participants find the Kennedy Boulevard-Dale Mabry Highway intersection to

be the most problematic in terms of congestion. Participants also find the intersections at MacDill Avenue and West Shore Boulevard to be congested regularly, as well.

- Most participants identified the Kennedy Boulevard-Dale Mabry intersection as being the most hazardous location. Other hazardous locations that were indicated include the intersections of Kennedy and Boulevard, and Kennedy and Grady.
- Another frequently-mentioned concern involved safety along the corridor. Specifically, comments were made regarding concerns for the high levels of vagrancy, prostitution, and drug peddling along portions of Kennedy Boulevard that make it an unsafe environment.

The detailed discussion of the open house results are documented in Technical Memorandum Number 2 of this study. It is important to note that the timing of the open houses allowed for the input of the participants to help guide and shape the preliminary recommendations that were developed for the study. It was these recommendations that were then presented at two different public workshops that were held later in the study process.

Summary of Public Workshops

The two public workshops were held to permit residents and business owners within the Kennedy corridor to review and comment on the study’s suggested improvements. The first workshop was held on March 11, 2003, at WTVT FOX 13. The attendees for this workshop were primarily business owners. The second workshop was held on March 17, 2003, at Jefferson High School. The attendees for this workshop were primarily residents of the corridor’s surrounding area, although a few concerned citizens from other parts of the City attended, as well. In both workshops, a presentation was made that summarized the basic recommendations that were being made to help improve the Kennedy corridor. After the presentation, the attendees were given an





opportunity to ask questions and/or provide comments.

The attendees in the first workshop proved to be receptive to many of the recommendations that were presented. It appeared that many initial concerns were alleviated when it became apparent that widening of the roadway was not being recommended. There was some discussion of the recommended transit improvements, and some individuals seemed to be open to potentially working with HART to help improve its bus stop infrastructure along the corridor. The concept of exchanging kiosk advertising for some level of property easement to accommodate concrete bus pads and shelters was even brought up by attendees and discussed. Overall, it was apparent that the attending business owners are quite interested in improving the transportation and aesthetics issues along Kennedy so that it may help improve their business. To this end, pedestrian-related improvements seemed to garner particular favor because of the possibility of increasing foot traffic along Kennedy.

In the second workshop, because of the primarily residential point of view, the attendees focused on some different issues. While the attendees, for the most part, were enthusiastic about improving transit along Kennedy, they were not as favorable to the concept of the recommended parallel bike paths (some did not want to have an increase in bike traffic on their residential streets). Also, there was a

particular aversion to any improvements to the corridor that might potentially encourage vehicles to use the parallel residential streets for cut-through purposes. However, the most volatile issue that was brought up involved the possible shifting of business parking from the street-side to the backs of the commercial developments. Residents indicated that this should not be done in any case because it would bring noise and other undesirable impacts too close to their homes. Interestingly, though, this was not a recommendation in the report, nor was it presented as such at the workshop. The only other concerns that were brought up were more individual in nature, including one business owner who was concerned with the impact that a raised median in front of his business (Tampa Sheet Metal) would have on his company's ability to load and unload delivery trucks.

Additional Public Comment via E-Mail/ Phone

Further supporting the notion of relatively significant popular support for the overall improvement of the Kennedy Boulevard corridor, MPO staff received 10 e-mail messages from concerned residents and business owners who were unable to attend either the open houses or public workshops, but wanted to ensure that they had an opportunity to voice their thoughts and opinions. In addition, two other individuals called either to offer opinions or to request information about the study. This additional public input has been reviewed and the identified issues have been summarized into four primary categories (aesthetics, design, infrastructure, and safety), as follows.

Aesthetics

A major theme was the desire for Kennedy Boulevard to "look" better. One individual wants to see Kennedy Boulevard become an "elegant passage way into the city...and become the Gateway to our beautiful city, Tampa." To accomplish this, though, these individuals see a lot of work that must be done. One individual pointed

out that most of the buildings along Kennedy need to be painted and that the street “just looks old.” In addition to the need to update its look, it also was indicated that there is a terrible garbage problem along the Kennedy corridor. One person suggested placing trash receptacles along the corridor at designated locations and implementing an ad campaign to get people to stop littering and pick up the trash along the corridor. Further adding to the clutter within the corridor are the numerous billboards that one individual referred to as an “eyesore.” It was suggested by this same person that billboards not be allowed within the corridor. Finally, the owner of a new restaurant sought to help address the aesthetics problem by landscaping this property. This individual contacted the project team to gather information on the landscaping treatments that were being recommended in the study so that the restaurant’s landscape theme would match that suggested for the rest of the corridor.

Design

One concern that was identified is the potential impact that a redesign of Kennedy Boulevard would have on the businesses and properties fronting the corridor. Three business/property owners raised specific concern about the possibility of widening the roadway. One of these individuals believes that the existing buildings are situated too close to the roadway for it to be widened. Another indicated that road widening would negatively impact existing parking supply, which already is insufficient. It also was mentioned that the addition of medians would encroach on the travel lanes. Yet another property owner living in one of the neighborhoods along Kennedy Boulevard to the west of Dale Mabry indicated not wanting to see any new development (or densification of existing development) along that portion of Kennedy because, without enough parking, it might cause people to seek out parking in the residential areas. Finally, one individual residing near Kennedy indicated that the heart of the problem is the one-way portion of Kennedy

Boulevard in the Downtown area, and that this section of roadway should be made two-way.

Infrastructure

Several of the individuals who e-mailed comments indicated a desire for streetscaping the corridor in order to help beautify it. One individual suggested that a new street tree-planting concept is needed since the existing Crape Myrtle trees “are not doing well.” In addition, it was recommended that brighter street lighting is needed along the corridor, and that there are a number of damaged sidewalks that need to be repaired. Regarding sidewalks, another individual indicated a desire for more sidewalks and bike lanes along Kennedy and in the neighborhoods adjacent to the corridor. Also, it may be useful to assess the condition of all street signage within the corridor. In one e-mail, it was pointed out that the “No Truck Traffic” sign on the north side of the Kennedy and Church Avenue intersection is at an angle, so truck drivers are unable to see it until they have already turned onto Church. Similarly, another individual indicated that there is a general lack of “identifiable street signs with numbers” to make it easier for people to determine where they are when trying to find a particular location. This person is concerned that this could “create situations leading to vehicular accidents.”

Safety

The concept of safety applies in two basic areas: safety for vehicles and safety for pedestrians. In the case of vehicular safety, one storeowner discussed witnessing “quite a few” accidents at the intersection of Kennedy and Habana Avenue. This individual stressed that it is extremely difficult to turn onto Kennedy because of all the traffic, and that the signals appear to need better synchronization because of the frequent backups that occur, especially at MacDill Avenue. Another person indicated that the Kennedy-Grady Avenue intersection “has become quite dangerous” since it was re-stripped.

Several e-mails also discussed the issues that make the Kennedy corridor unsafe for pedestrians, store patrons, etc. As several individuals noted, there are significant prostitution, vagrancy, and drug dealing problems along portions of the corridor. As one person noted, Kennedy appears to be “a haven for undesirables.” Another person indicated a belief that strip clubs, bars, and vacant buildings on segments of Kennedy further exacerbate these problems. Both of these individuals mentioned in their e-mails that the police have not done much about these issues (even though one has called to report such activity several times) and, as a result, the activities continue unchecked. Among the suggestions that were made to help deal with these problems are neighborhood watches, stricter vagrancy laws, and increased police patrols.

Finally, a representative of the University of Tampa called the project team to find out if anything had been recommended to deal with the significant curb drops that existed for a section of Kennedy, on the north side of the street adjacent to the school. At the time, this particular issue had not been addressed. However, it has since been documented and a recommended improvement has been suggested for this particular issue in the section dealing with pedestrian infrastructure.

Additional Public Comment via Public Hearing

A public hearing was held on December 3, 2002, concerning the MPO Tentative Work Program. During the public comment portion of the hearing, one attendee suggested that the MPO should consider redesigning Kennedy Boulevard from Dale Mabry east to Downtown Tampa so that safety is improved and medians are added for the accommodation of a light rail system.

Employer Interview Comments

As discussed previously in Section 5, five interviews were conducted with representatives from the Westshore Alliance, the Tampa Downtown

Partnership, the Wyndham Westshore, Southtrust Bank, and the St. Pete Times Forum to better gauge whether the application of TDM strategies within the Kennedy corridor could have success. In the interviews, the representatives also discussed their thoughts on Kennedy Boulevard’s image, its current transportation issues, and improvements that are needed in the corridor. The following sections present a sampling of their comments.

Image of Kennedy Boulevard

When asked what word or thought came to mind when they considered the Kennedy Boulevard corridor, the interviewees used descriptors such as “trashy,” “run-down,” and “ugly.” These concepts do not paint a flattering picture of the corridor, suggesting an image of an old, worn down roadway that has completely lost its one-time luster as Tampa’s Grand Central Boulevard. The interviewees also believe that Kennedy is “busy,” both traffic-wise and sign-wise. They suggested that it is a major commercial roadway that reflects a city that has grown up too fast and has not had adequate resources to keep up its major corridors as it should.

Current Transportation Issues

The interviewees also discussed general transportation issues that they believe exist within the Kennedy Boulevard corridor. One issue that was identified deals with the condition and design of the roadway. It was indicated that the roadway is not smooth, has not been maintained properly, and is in dire need of repair. Flooding of the roadway also was identified as a significant problem. In addition, the travel lanes are considered to be too narrow and there are not enough dedicated right turn lanes. Also discussed was the seemingly uncontrolled access that is being provided along Kennedy. The interviewees believe that there are too many driveways along the corridor that are adding to the existing traffic problems. Congestion, though, is probably the single greatest problem on the corridor

at this time, according to the interviewees. It is apparent to them that the corridor is quickly becoming unable to handle the traffic demands that are being placed on it, especially during peak periods, making it a dangerous corridor to drive. It was noted that it is especially difficult to drive across Kennedy or to turn left onto Kennedy, particularly at an unsignalized intersection or from an access drive. In addition, it was discussed that transit and ridesharing options may not be as attractive and/or productive as they could be because of the congestion on the corridor.

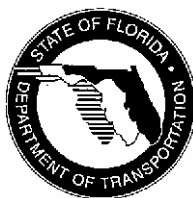
Potential Improvements

Besides suggesting a number of infrastructure and streetscape improvements for the roadway, the interviewees indicated that it is very important to do something about the corridor's bicycle and pedestrian infrastructure. Kennedy needs to become more bike and pedestrian friendly. Existing sidewalks must be repaired and properly maintained, and additional sidewalks should be added where there are none. It also was indicated that improved pedestrian signalization would make it safer to cross Kennedy on foot.

The respondents also believe that, with improvements, public transit can become a more realistic commute alternative for workers if it better meets their needs. Among the transit improvements suggested by interviewees are increased hours of operation, increased frequency of bus trips, greater geographic service coverage, improved marketing, and increased patron safety and comfort.

**Florida Department of Transportation
Coordination Meeting**

A summary of the Kennedy Boulevard Corridor Study recommendations was presented to staff of the Florida Department of Transportation on March 26, 2003. In attendance at the meeting were representatives



of FDOT, the City of Tampa, and the MPO. FDOT representatives included Mr. Ken Hartmann, District Secretary; Mr. Bob Clifford, District Planning Director; Mr. Don Skelton, District Production Manager; and Mr. Steve Love, MPO Liaison.

The status of current and upcoming FDOT projects was reviewed and various recommendations were discussed specifically. Secretary Hartmann indicated that implementation of landscaping above and beyond standard FDOT treatments would require an agreement with City of Tampa Parks Department to maintain and cultivate the landscaping. He also expressed his desire that there be political support for restricting access with raised medians as a condition of FDOT participation in concept. The need for a more detailed evaluation of corridor access issues was identified as a transition step from the conceptual plan of the Corridor Study to the roadway design stage.

Secretary Hartmann acknowledged that features and recommendations relative to sidewalk and pedestrian issues were desirable, and that the FDOT staff would seek ways to address them as appropriate in routine FDOT programs. He also indicated that he would have staff review the major resurfacing program to establish a generalized time frame when additional sections of Kennedy Boulevard might be resurfaced.

The City of Tampa staff in attendance at this meeting sought confirmation from the FDOT of its support and funding assistance for the proposed Dale Mabry at Kennedy Boulevard intersection improvement. Secretary Hartman said that he would refer the matter to the FDOT's traffic engineering department for further review and advice. Mr. Burnside indicated that receipt of some degree of support from the FDOT would help him to advocate the improvement's funding by the City of Tampa.

Finally, further development of the aesthetic package is also warranted to provide more specific

details regarding how elements of the conceptual plan might be implemented. This might be pursued in association with the corridor access plan study.

The meeting concluded with acknowledgement by MPO and FDOT staff that the opportunity to pursue easily implemented elements -- such as pouring concrete filler between the sidewalks and curbs to make boarding and alighting from buses easier or pursuit of easements through Chamber of Commerce promotion to allow bus stop shelters to be installed on private property -- might produce some short term successes to generate momentum for implementation of additional elements of the corridor study.

City of Tampa Coordination Meeting

Similarly, a summary of the Kennedy Boulevard Corridor Study recommendations was presented to the City of Tampa on April 8, 2003. In attendance at the meeting were representatives of the City of Tampa and the MPO. The City of Tampa representatives included Mr. Elton Smith, Transportation Division Manager; Ross Ferlita, Director of Parks and Recreation; and Mr. Jim Burnside, City Traffic Engineer.



The City of Tampa representatives first indicated an interest in how the recommendations were received by FDOT. After discussing the FDOT response, staff began listing specific concerns with several of the study's analyses and recommendations. Most prominent among these was a general concern with the issue of slowing speeds along Kennedy Boulevard, especially through the application of streetscape treatments. They believe that this will serve to create more congestion problems. They were assured that this was not a specific intent of the study, and that a general goal was rather to create more uniform speeds in the corridor. They also expressed concern that turning radii at a number of curb cuts was not adequate and was necessitating

cars having to come to nearly a complete stop to make a right-hand turn.

The bicycle path recommendations were then discussed with regard to location. It was indicated that the Greenway Committee had produced information that recommended safe bicycle routing, and it was believed that the Committee was actually suggesting Cypress Street, farther north, as an East-West corridor. It was reiterated that the purpose of the study's recommended paths was to provide a safer biking alternative to Kennedy, while still providing convenient access to the businesses along this corridor, and that Cypress was too distant to serve this particular purpose.

Two of the intersection improvements then were discussed in some detail. In the case of the Kennedy and Dale Mabry recommended modifications, City staff indicated that negotiations were ongoing with the CVS Pharmacy. Mr. Burnside also suggested that City traffic engineering staff may want to consider reviewing the simulations to see the lunch hour and p.m. peak backups. It was suggested that Westshore impact fee revenue could help fund this particular improvement. Some discussion followed with regard to the property requirements that might be needed on the second block of this intersection improvement and any impact on green space that this might have.

In the case of the Kennedy and MacDill intersection improvement, the three properties along the northeast corner that would be affected by the improvements were discussed. First, it was indicated that the City has made two appraisals thus far of the first property (at the corner) – a bank – that would be affected. It also was mentioned that the bank has now built a pond on the part of the property that would be needed. The second property then was discussed and City staff indicated that this parcel's owner is willing to sell, but is asking a lot for the property (~\$500,000). Finally, City staff indicated a willingness to start working with the third property owner (medical condominiums) to see whether a deal can be made

to trade off alternative parking solutions for the existing parking spaces that they would lose.

Mr. Smith then brought up the issue of access management and asked how this was being addressed in the study. After discussion of the recommendations related to access management, Mr. Smith indicated that he liked the idea of implementing raised medians at specific locations – they will serve to enforce what the City and FDOT want drivers to do anyway with the existing painted medians. He did suggest that the striped areas that are recommended for improvement should be reviewed to determine which are completely and easily doable and which might create additional issues if they were raised.

Finally, Mr. Smith expressed his personal belief that it is very important to parallel Kennedy with bike lanes and sidewalk facilities. There was general agreement that the corridor needs to become more pedestrian- and bicycle-friendly. Mr. Burnside added that the City was going to be bidding out a specific sidewalk improvement project on Cleveland Street within three weeks. This was seen as a positive start to the process, especially since the segment of Cleveland that will be improved is one of the areas that were recommended in the study for the addition of sidewalks.

Hillsborough Area Regional Transit Coordination Meeting

The coordination meeting with HART staff was completed earlier in the process than with the other groups to ensure that the study recommendations related to transit were reasonable and feasible for Route 10, and to give staff time to plan for the more easily-implementable suggestions. A meeting was held at the HART offices on December 16, 2002, after development of the preliminary transit recommendations was completed. At that meeting, a summary of the transit-specific recommendations that were being incorporated into the Kennedy



Boulevard Corridor Study were presented. In attendance at the meeting representing HART were Ms. Diana Carsey, Director of Planning; Mr. John Dausman, Senior Planner; and David Shoup, Planner.

Prior to the meeting, draft recommendations were provided to HART staff to review. At the meeting, their specific comments were addressed and the improvements were discussed in general. One major issue that was discussed involved the implementation of infrastructure in the corridor that would help make Kennedy a more transit-friendly environment. For example, the installation of new sidewalks and the maintenance of existing ones was mentioned as being an important factor in improving the corridor for pedestrians and, thereby, making it better for transit, as well. The primary issue related to sidewalks is agency responsibility and HART staff recognized that this was out of their direct control. However, they did understand the importance of continuing to coordinate with the City and FDOT to ensure that such infrastructure needs were being addressed.

Similarly, HART staff agreed that they would need to increase the level and amount of infrastructure that they were providing at their stops in order to increase the comfort of existing patrons and help attract new ones. Also in this regard, the ADA-related accessibility of stops was discussed to help HART staff understand where specific improvements are needed to help make Route 10 more accessible overall for persons with disabilities. HART staff noted that some of the improvements also would require coordination with and assistance from the City and/or FDOT (e.g., gap-filler, sidewalk obstructions, and curb ramps).

Also, other specific recommendations were discussed with regard to feasibility, including peak-hour express service, later evening service to Westshore Plaza, and increased distribution of marketing information to businesses along the

corridor. HART staff indicated that the many of these recommendations involved issues of which they were aware and recognized needed more near-term solutions. The later evening service for routes serving the mall was indicated as being one particular issue that was already being discussed at staff level to determine its potential.

Finally, Ms. Carsey discussed the importance of getting FDOT and City engineers (and others responsible for roadway planning and construction) properly educated about the specific needs of transit. HART staff indicated that it certainly helps make their jobs easier if the existing roadway environment is accommodating to the needs of transit and its users.