
TRANSPORTATION APPENDIX A

TRANSPORTATION ALTERNATIVES

INTRODUCTION TO APPENDIX A

This appendix evaluates specific measures that might reduce congestion, improve mobility, or provide a safer and more attractive Fort Myers Beach. This evaluation does not include any detailed engineering work; its purpose is to explore the widest variety of options, and then identify those with enough promise to warrant further refinement.

This evaluation formed the basis of the actions recommended in the Fort Myers Beach Comprehensive Plan. It is organized in three parts:

- **Alternatives within existing rights-of-way**, assuming no new bridges and no four-laning of Estero Boulevard (this section begins on page 7-A-2 of this appendix);
- **Capital-intensive alternatives**, including new bridges and widening of Estero Boulevard (beginning on page 7-A-48); and
- **Futuristic alternatives**, providing an overview of some technologies under development which provide some promise at Fort Myers Beach (beginning on page 7-A-58).

Appendix B (immediately following) contains additional transportation data on these subjects:

- roads and intersections;
- seasonal fluctuations in traffic;
- measurement of traffic congestion;
- adequacy of evacuation routes;
- school buses;
- how residents travel to work; and
- traffic crashes.

ALTERNATIVES WITHIN EXISTING RIGHTS-OF-WAY

All of the potential improvements discussed in this first section are alternatives to the conventional solution of four-laning Estero Boulevard, consistent with the following formal policy in the current comprehensive plan:

POLICY 16.3.6: *Under no circumstances shall the four laning of Estero Boulevard be considered as a desirable means of improving traffic circulation on Estero Boulevard.*

This unambiguous policy was adopted by the Lee County Commission in 1992 as part of a new Fort Myers Beach portion of the Lee County Comprehensive Plan (which remains in effect today). It reflected a broad consensus of beach residents at the time that, however bad congestion may be in the winter, the four-laning of Estero Boulevard (at least if designed like most other new roads) would be even worse.

This unusual position results from Estero Boulevard's key importance to Fort Myers Beach. It is simply classified as an arterial road by Lee County, reflecting its length and position between two obvious arterials, San Carlos Boulevard and Bonita Beach Road. However, to local residents and businesses, Estero Boulevard is far more than an arterial road whose main role is to move traffic from one end of the island to the other. It could equally well be considered a collector road because it collects traffic from intersecting local streets and distributes it to true arterial roads. In addition, it serves as a local road because it provides the only access to most adjacent properties.

Besides each of these roles, Estero Boulevard is the "Main Street" of Fort Myers Beach. It is the center of town, the public space that visitors see and remember (in addition to the beach). Estero Boulevard may have the highest pedestrian usage of any road in

Lee County. There is no other way to traverse the island, so people cannot avoid Estero Boulevard even if they wish to.

Most beach communities have a greater distinction between being "on the beach" and "off the beach." Estero Island is so narrow, and Estero Boulevard is so easy to cross, that the entire island feels like it is "on the beach." If Estero Boulevard were turned into a modern four-lane highway, with wide travel lanes, paved shoulders, and high speeds, the fundamental character of the community would be changed.

Given these factors, multiple uses of Estero Boulevard are a fact of life, rather than factors to be reduced or eliminated. The balancing of these multiple uses is fundamental to the evaluation of alternatives below.

At present, Estero Boulevard has 34 feet of paving for most of its length south of Times Square. (North of Times Square the pavement is only 22 feet wide.) The 34-foot pavement is configured in three different ways:

- Two 12-foot travel lanes, with 5-foot paved shoulder on each side (see Figure 1).
- Two 11-foot travel lanes, with an 11-foot continuous center turn lane plus two sets of double stripes (see Figure 2).
- Two 11-foot travel lanes, with an 11-foot continuous center turn lane and a 10-foot raised sidewalk (see Figure 3).

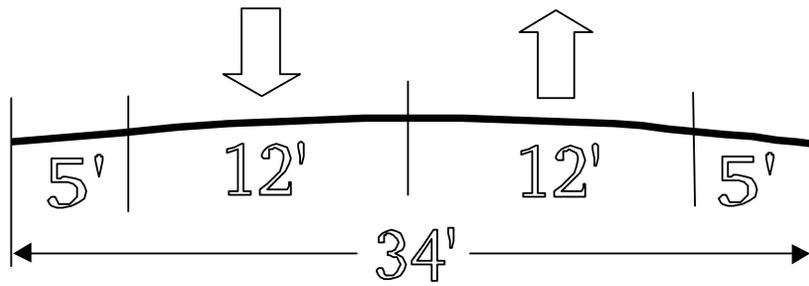


Figure 1, Estero Boulevard cross-section with 5-foot paved shoulders

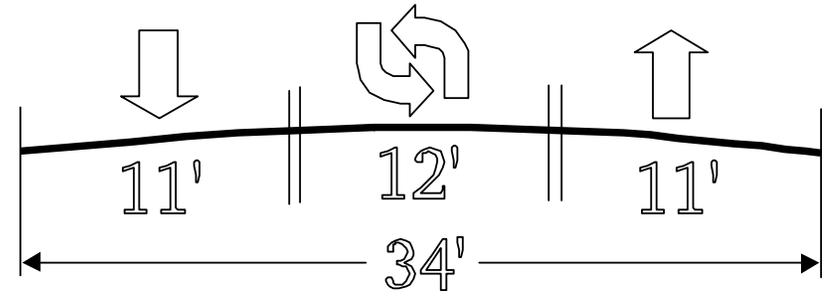


Figure 2, Estero Boulevard cross-section with center turn lane

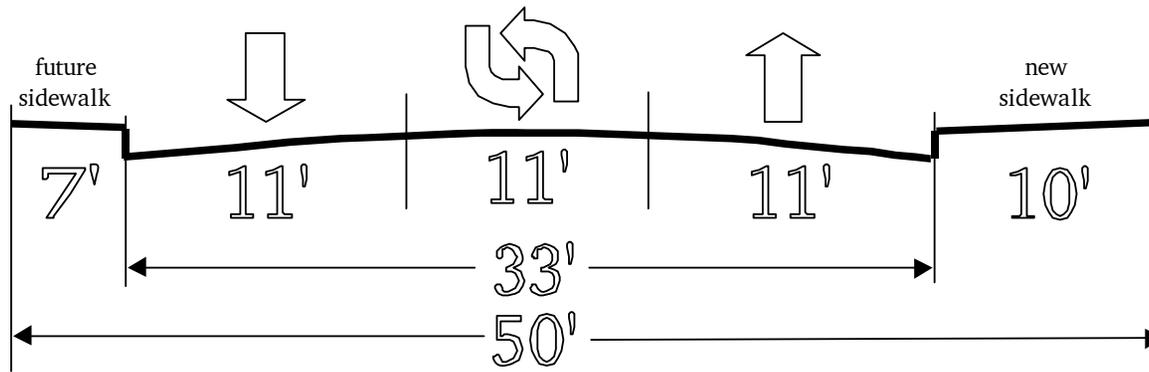


Figure 3, Estero Boulevard cross-section as redesigned near Times Square

For the purpose of free-flowing traffic, the right-of-way widths of Estero Boulevard are quite mismatched. Figure 4 and Figure 5 show how the highest traffic volumes coincide with the narrowest right-of-way.

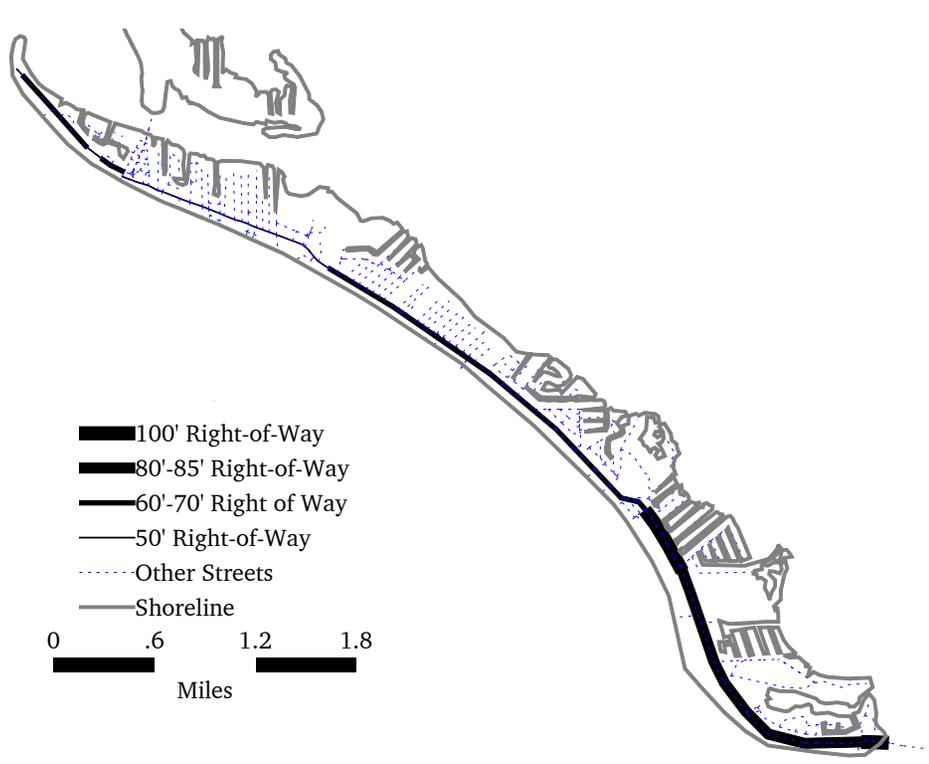


Figure 4, Right-of-way widths along Estero Boulevard

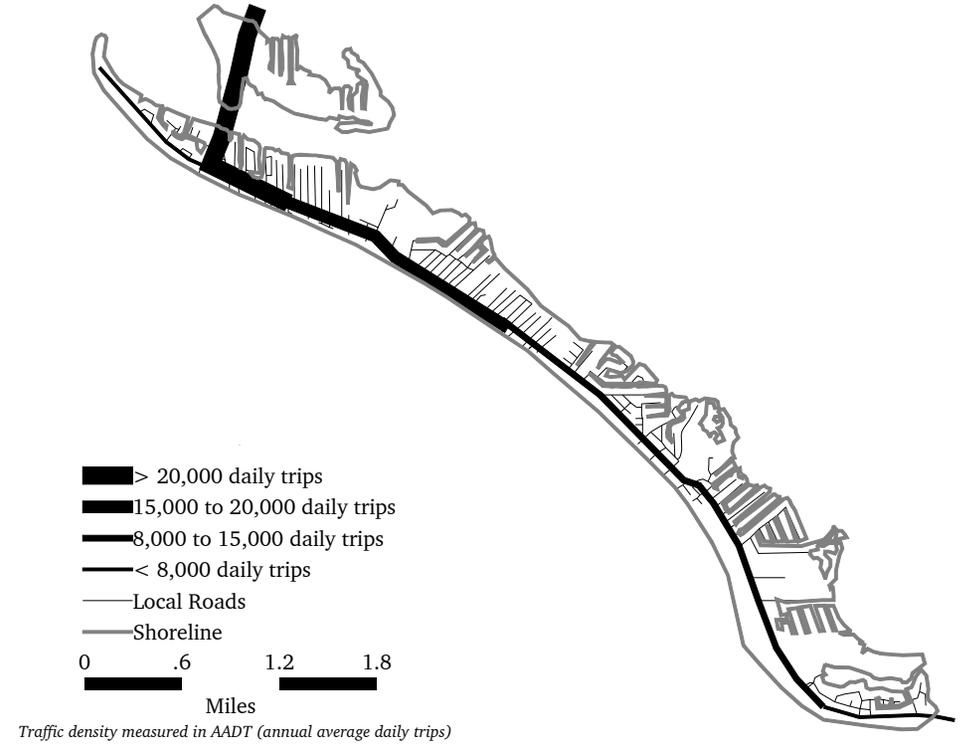


Figure 5, Traffic density along Estero Boulevard

Given this mismatch, roadway options are extremely limited in the most congested area, from Times Square to the public library, where the right-of-way is only 50 feet wide. The newly designed improvements between Times Square and the Lani Kai may represent the best physical configuration that can be obtained within 50 feet, with a new 10-foot-wide sidewalk on the Gulf side and a proposed 7-foot sidewalk on the Bay side. Curbs separate the attractive sidewalks from moving cars; the new coconut palms symbolize the sandy beach and the carefree spirit of Fort Myers Beach. Drainage is placed underground, an expensive but unavoidable choice under the circumstances. Power lines are also underground, with the collateral benefit of protecting them from high winds. The main limitation of extending this configuration further towards the library is simply its high cost (about \$2,000,000 per mile including raised sidewalks on both sides of Estero Boulevard).

The following sections evaluate a wide variety of additional changes to the transportation system that could be made within existing rights-of-way or with relatively minor costs. After these evaluations, the more capital-intensive options will be discussed, followed by a look into some other options that may become available in the future.

Intercepting Vehicles Before They Reach Fort Myers Beach

In a very real sense Fort Myers Beach doesn't have too many visitors, but every winter it is clear that visitors arrive in too many cars. The most obvious solution (although perhaps the most difficult to achieve) is to provide other ways for visitors to reach and move around the island. If properly designed, these alternatives can also be used by local residents to move around when a surplus of drivers inevitably turns up in mid-winter.

An important component of this system is to "intercept" as many vehicles as possible, especially those with only a single occupant,

before they reach Estero Island, and provide their occupants with an alternative for the rest of the trip. The trip from the intercept point to the island is of course important, but many visitors will not take advantage of this trip unless they also can move *around* the island without a car. Visitors who are staying for more than a day or two also need the opportunity to conveniently rent a car for off-island excursions.

Initial steps in intercepting vehicles off the island have already been taken. A park-and-ride lot has been built at Main Street on San Carlos Island, and other park-and-ride lots use excess parking spaces at the Summerlin Square shopping center and the Bonita Springs K-Mart. Trolleys and buses serve these lots. Experience with these lots has been only fair, with the Main Street lot not having been used as heavily as expected. Improvements to this system are badly needed; many are suggested in this appendix, including common-sense ideas such as:

- more frequent trolley service;
- comfortable waiting areas at major trolley stops (with shade and benches);
- signs at every trolley stop with fare, route, and schedule information;
- special treatment for trolleys so they don't have to sit in the same line of traffic with all the cars;
- a water shuttle link between the Main Street lot and popular destinations on Estero Island; and
- improved airport limousine service so that visitors arriving by airplane can easily avoid renting a car for their entire visit.

Any major success in getting visitors to leave their cars on the mainland will depend on the creation of a balanced transportation system. For instance, an interceptor parking lot only works with a reliable system of public transportation. In the same way, a bus or trolley trip usually involves some walking at each end. If that walk is of reasonable length and is a pleasant experience, people will use public transportation much more often. (Fortunately, walkways that are safe, beautiful, and interesting are just as desirable to permanent residents as they are to visitors.)

A very important connection between car trips at Fort Myers Beach and other modes of travel occurs off the island, at the Southwest Florida International Airport. The majority of tourists arrive in Lee County by airplane (67.8% in 1996). Slightly fewer continue their visit to Lee County with a rental car (59.5% in 1996); the remainder are met by friends or relatives, or use a taxi or shuttle bus to reach their destination. If limousines or shuttle buses were used more, the number of vehicles arriving in tourist destinations such as Fort Myers Beach would be reduced.

In spite of the large number of visitors to the island, there is no regularly scheduled airport shuttle service. On-request service is available from Majestic Airport Taxi/Limo Service and Professional Airline Terminal Service to patrons of various motels, hotels, and resorts. There are also three taxi cab companies that operate in the island. One is based on the island (Local Motion Taxi); the other two (Royal Palm Transportation and Apple Taxi Limo Inc.) anticipate enough business in the area to have joined the Greater Fort Myers Beach Chamber of Commerce.

Bicycles are used extensively within the Town, primarily for recreation and short trips. With bike racks now mounted on all trolleys, there are improved opportunities for longer trips. There are several locations along Estero Boulevard for bicycle rentals and service, which are primarily used by tourists.

Pedestrian traffic is accommodated by the use of on-road and

off-road paths and sidewalks. Times Squares is a pedestrian hub for Lee County, and the beaches generate a sizable number of trips on foot by residents and visitors.

Mopeds and motorized scooters are popular rental items at Fort Myers Beach. Many riders are unfamiliar with their operation, and with lower speeds than autos, they generally add to traffic delays and reduce road capacity more than they relieve congestion.

Public water transportation facilities such as boat ramps and marinas are primarily used for recreational purposes. There are no full-service boat ramps and only three unmarked boat ramps within the public rights-of-way. A ramp on Bayview Drive (between Ohio and Virginia Avenues) offers some maneuverability for boat launches, while the gravel ramp at Miramar Street and Coconut Drive appear to be suited only for launching small craft such as canoes. Neither provides any parking spaces. Water transportation has considerable potential to supplement other mobility opportunities at Fort Myers Beach, for instance through water taxis or scheduled water shuttle service closely linked to recreational and pedestrian activities (as discussed in some detail later in this appendix).

Methods of Encouraging Mobility Without Cars

Trolleys and Trams

Fort Myers Beach has been served by Lee Tran trolley buses over the past decade. In the off-season, two vehicles serve the entire island at 45-minute intervals. During the peak season, as many trolleys as can be afforded are used. Over the past eight years, between three and eight trolleys have been used during the peak season, running at intervals of 15–20 minutes to 30–45 minutes

The trolley system has received extra local subsidies in recent years, allowing greatly improved service and demonstrating the feasibility of alternate modes of travel. However, the subsidies have been an ad-hoc response to a perennial congestion problem; no long-term funding or operational plan has been developed.

Trolleys are available for riders seven days a week, with more frequent service during the peak season. This service experienced its largest ridership in 1994/95 with 466,018 passengers. The fare was free that year, with the service partially funded by the CRA (10.5%) and by rider donations (2.8%). When fares were reinstated the following year, ridership dropped to its lowest level since 1991, with 238,754 passengers paying the nominal fare of \$0.25 per ride (which covered 9.9% of the actual operating costs). Table 7-A-1 provides details of ridership and operating costs since 1991. Figure 7 shows the current route map for this service.



Figure 6, Trolley bus

Table 7-A-1 — Transit Ridership and Operating Costs Since 1991

<u>Fiscal Year</u>	<u>Park & Ride</u>	<u>Trolley Only</u>	<u>Total Riders</u>	<u>Operating Costs</u>	<u>Fares Collected</u>	<u>Donations By Riders</u>	<u>CRA Subsidy</u>
91/92	0	268,306	268,306	\$448,104	\$47,882		\$50,000
92/93	0	424,643	424,643	\$442,526		\$3,608	\$87,500
93/94	179,653	283,699	463,352	* \$699,141		\$6,592	\$75,000
94/95	112,877	353,141	466,018	* \$714,345		\$19,987	\$75,000
95/96	44,693	194,061	238,754	** \$416,471	\$41,384		none

* More Frequent Service

** \$0.25 Fare Reinstated

Source: Lee Tran

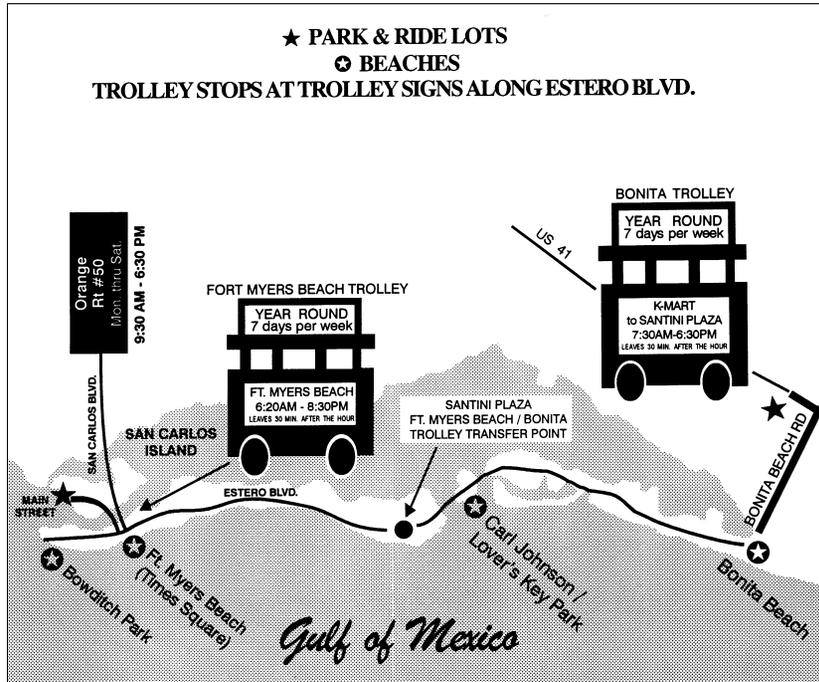


Figure 7, Beach Trolley Route Map

about having correct change. In Emeryville, California, local businesses pay to operate five free shuttles that relieve congestion caused by a daily influx of 20,000 workers into their community of 7,000 residents.

There is some public distaste for subsidizing visitors' trolley trips by eliminating fares, but even when fares are charged, most public transportation still requires a subsidy. When compared to the various costs of building more road capacity, improved transit service can be an inexpensive alternative.

There are 81 trolley stops in the island and 3 trolley pull-off stations, as shown in Figure 8. The pull-off stations at Times Square and Bowditch Point currently have shelters; the station at Villa Santini Plaza does not. The trolley stops are scattered evenly along Estero Boulevard. Additionally, there are important off-island stops at Summerlin Square, San Carlos Island's Main Street, and Lover's Key/Carl Johnson State Recreation Area.

The trolley system is capable of handling many more inter-island trips. The 1990 Census indicated that no work trips were made on public transportation. Obvious options to be considered are more frequent service, and benches/shelters at key stops. Free rides also increase ridership substantially, in part due to the convenience of not worrying

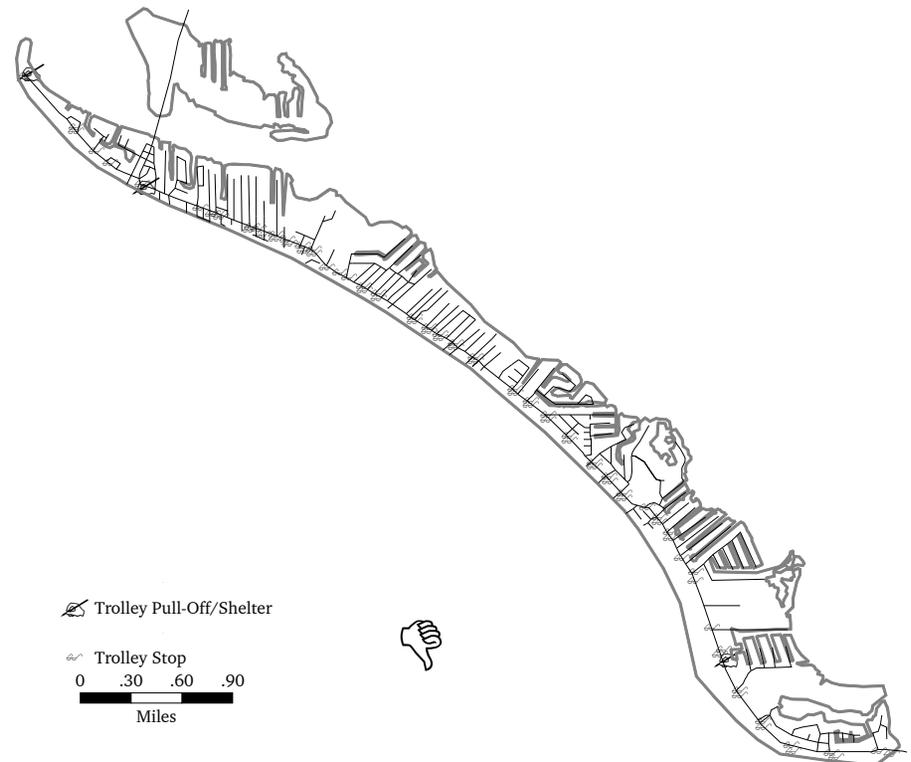


Figure 8, Trolley Stops

Public transportation has negative as well as positive effects on traffic flow. The presence of a large low-performance vehicle like a trolley can reduce the capacity of a road, especially where the trolley cannot pull out of traffic to discharge passengers.

Trolleys carrying only a few passengers have little effect on traffic flow during off-peak periods, but during peak periods they should be carrying enough passengers to offset the effects of their bulk and their frequent stops. A trolley's ratio of actual passengers to seats is known as its "load factor," which is as important to traffic flow as to the bottom line of the trolley operator.

The current nostalgia-styled trolley buses have proven popular even though they can be less comfortable than modern air-conditioned buses. The unusual styling and open-air feeling seems to encourage their use.

Other alternatives are available, including tram-style vehicles such as the one shown in Figure 9. These vehicles can be pow-



Figure 9, *Commercially available tram*

ered with diesel engines like the current trolleys, or like most new buses can use a variety of cleaner fuels such as LP or compressed natural gas, electric propulsion, or even hybrids combining electric and another power source. Trams can be boarded through multiple gates, unlike trolleys that usually have only one or two doors; this is an advantage for reducing the stop-time when loading, but precludes the easy collection of fares. The slowness of most trams would be a negative effect of their use on Estero Boulevard (except perhaps on the northern segment from Times Square to Bowditch Point).

Other novelties such as double-decker buses would also appeal to additional riders. A double-decker bus with an open top and bike racks could be introduced during the peak season by using a vehicle that is out of service in its northern home town, with service expanded if warranted by demand. There is also the possibility of students using regular Lee Tran service rather than a separate run by a school bus.

Another promising measure to improve connections between modes of travel has been the installation of bike racks on Lee Tran buses and trolleys. Despite the current limitation of two bikes per vehicle, this experiment has been popular with bicyclists. Bike racks provide commuters and visitors an opportunity to make longer trips, or trips away from bus routes, without using a car. (The United States DOT is currently testing racks that can carry three bikes, and new Florida legislation exempts buses from previous legal limitations on racks for more than two bikes.)

Bus shelters could become a focal point in any major center of activity. Ideal shelters should be roofed but with transparent or open sides, placed at convenient locations, and be equipped with benches and clearly posted schedules. Shelters at key locations might even be equipped with integral stationary bike racks and lockers.

Adjoining businesses such as coffee shops and news stands would be further enhanced if a stop for scheduled airport service were also provided at one or more key locations (even slightly off Estero Island, such as on San Carlos Island). These services at a single location would effectively create a small transit terminal, since taxi stands would be attracted to any regular shuttle or limousine stops. Locations near such a transfer point would provide good business opportunities for rentals of cars, bikes, motorbikes, and roller blades.

Off-island park-and-ride lots can allow motorists to conveniently transfer to buses or trolleys. Park-and-ride lots at each end of the trolley route have accommodated a sizable number of passengers, particularly in the first year that service was provided (1993-94). These lots are located at Summerlin Square, San Carlos Island's Main Street, Lover's Key/Carl Johnson State Recreation Area, and the Bonita Springs K-Mart. Although there is no breakdown available to gauge the effectiveness of any of these locations in intercepting car trips that would have ended up on Fort Myers Beach, observations by trolley drivers are that the Main Street lot has yielded the fewest users. Much of the K-mart ridership may have been bound for other beach access points south of Lover's Key/Carl Johnson park, leaving the latter and Summerlin Square with the presumed highest rate of capture. Data for 1996-97 is not yet available. The 25¢ fare is still in place. The Town of Fort Myers Beach, through interlocal agreements with the county-run Lee Tran, has funded an extra trolley to allow service every 15 minutes during February, March, and half of April. The cost to the town was a cap of \$47,000 in 1997 and \$31,600 in 1998.

Unfortunately, Table 7-A-1 shows a significant *drop* over the last two years in the number of persons boarding public transportation at the existing park-and-ride lots (located at Summerlin Square, Main Street on San Carlos Island, Villa Santini, Carl Johnson Park, and K-Mart in Bonita Springs). During 1996/96, boarding levels were at only 25% of the 1993/94 rate. Some of

this decrease can be attributed to the end of free service (the fare is now 25¢). Other factors are the reduced frequency of service, and some number of passengers who may have been riding the trolley without a particular destination (especially when there was no fare).

Not all of the park-and-ride users have eliminated a single-occupant-vehicle trip in favor of public transportation. However, every trip that is eliminated reduces the number of cars competing for the limited space on Estero Boulevard. Methods should be sought to improve the usage of the Main Street lot on San Carlos Island and the Summerlin Square lot at the corner of Summerlin Road.

Water Transportation

With traffic congestion blocking movement along Estero Boulevard during the peak season, the potential for water transportation becomes apparent.

A December 1993 origin-and-destination study indicated that 23% of 2,500 drivers on Estero Island began and ended their trips on the island. The same survey showed that 46% of the trips were made by out-of-town visitors, making alternative modes viable especially if they were an integral part of the visiting experience. Water-based transportation is a classic



Figure 10, Some potential landing sites for water transportation

example of making the trip part of the experience, because of its novelty plus the potential for seeing wildlife along the way. Matanzas Pass and its adjoining canals in particular would

provide an ideal water transportation network for recreational and some business or work trips. This network could use a mix of on-call water taxis plus regularly scheduled water shuttles, stopping at landing sites such as those shown in Figure 10.

Water transportation has been underutilized due to logistical problems including limited dockage; manatee slow-speed zones; potential for foul weather; and existing regulations that require dedicated parking spaces at each stop. There are several steps that can be taken to encourage more water transportation, beginning with an inventory of all navigable waterways identifying their length, navigational depths, speed restrictions, types of boats that can be accommodated, available dockage, and boat storage facilities. Next, travel times can be determined for trips between the most likely destinations. Formal policies in the new comprehensive plan supporting water transportation would lay the groundwork for repealing regulations that work against water shuttles (such as parking requirements that consider a water shuttle or taxi to be a business requiring a separate pool of parking spaces at each stopping point).

Water taxis are operating successfully as private businesses in Miami and Fort Lauderdale. In downtown Miami, a water shuttle runs continuously for a one-way fare of only \$3.50. Water taxi service is available to and from Miami Beach for \$7.00 each way; this is an on-call shared-ride service. Identical water taxi service is available in Fort Lauderdale. These boats load and unload from the front, allowing them to dock in tight locations without special facilities (see Figure 11).



Figure 11, Water taxi unloading at a Fort Lauderdale hotel

The two public parks (Lynn Hall and Bowditch Point) and the 36 beach access points are extremely attractive to residents and visitors, but at present they cannot be conveniently reached except by motor vehicles using the Matanzas Pass Sky Bridge and Estero Boulevard. Water transportation could proceed instead through the protected waters behind Estero Island, although there would be many difficult issues to address including the effects of slow-speed zones for manatee protection and reasonable privacy concerns of nearby residents. Water transportation could include water taxis with on-call service; regularly scheduled water shuttles; and private boats.

Some local roads at Fort Myers Beach could serve as links between water transportation and the Gulf beaches and other attractions. There are 33 local roads that extend directly to Bay waters (or indirectly via a canal). Of these, 25 directly intersect Estero Boulevard, forming 14 “T” intersections and 11 four-way

intersections. (“T” intersections would be preferred because of the lower number of conflict points with motorists on Estero Boulevard.)

The current ownership of Bay side access points is divided between public and private interests. Acquisition of additional easements or even full ownership might be needed to bring many of the Bay access points up to reasonable standards. Table 7-A-2 identifies the current status of all existing and potential landing sites for various forms of water transportation.

Table 7-A-2 indicates most of the potential landing sites for water transportation, with 13 existing landing sites and 20 more that might be possible. Additional study would be needed to determine the feasibility of the various sites. For the 13 commercial sites (at the restaurants, motels, and marinas listed above), the owners would have to agree to provide dockage. The agreement would ensure public access to the system while providing positive exposure to the business, enabling them to expand their patronage.

The public boat anchorage in Matanzas Pass has several potential impacts on Fort Myers Beach. Without an acceptable place on Estero Island for dinghies to tie up, visiting boaters (and those living aboard) will tend to use any number of routes to the beach and to buy groceries and other necessities. This can create unacceptable impacts to neighborhoods, and will work against the goal of integrating the boating community with other island activities. If the route isn’t convenient enough, these trips will have to be made by private car or taxi, adding to the number of trips on the roads.

Table 7-A-2 — Existing and Potential Landing Sites

<u>Site</u>	<u>Location</u>	<u>Landing Available?</u>
Bowditch Point	Bowditch Point Park	
Pink Shell Resort	South of Bowditch	Yes
Island House Motel	Matanzas Street	Yes
Snug Harbor Restaurant	Old San Carlos	Yes
Matanzas Pass Restaurant	Crescent Street	Yes
Silver Sands parking lot	Palermo Circle	Yes
Miramar bay access	Miramar Street	
Island Bay Marina	Pearl Street	Yes
Bayview Drive canal	Bayview Drive	Yes (also ramp)
Delmar bay access	Delmar Avenue	
Mango bay access	Mango Street	
Chapel bay access	Chapel Street	
Tropical Shore canal	Tropical Shore Way	
Gulf Beach bay access	Gulf Beach Road	(discussion below)
Connecticut bay access	Connecticut Street	
Hercules bay access	Hercules Drive	
Coconut bay access	Coconut Drive	
Mid Island Marina	Strandview Avenue	Yes
Rusty Pelican	Bayland Road	Yes
Glenview Manor canal	Glenview Manor Drive	
Williams canal	Williams Drive	
Pescadora canal	Avenida Pescadora	
Sterling bay access	Sterling Avenue	
Indian Bayou canal	Indian Bayou Drive	
Mound canal	Mound Road	
Munch Box Restaurant	Driftwood Lane	Yes
Charlie Brown Restaurant	Esteros at Curlew St.	Yes
Ibis canal	Ibis Street	
Fairview canal	Fairview Boulevard	
Lazy Flamingo	Villa Santini Plaza	Yes
Fish Tale Marina	Lenell Road	Yes
Bay Beach easement	Bay Beach Lane	

At present there is an informal passage via a canal that comes in from the Bay side and meets Gulf Beach Road (at the northern edge of Bay Oaks Park). Boaters dock their canoes and dinghies (see Figure 12) and walk along Gulf Beach Road south of the grocery store. This route may be the least intrusive way for boaters to purchase groceries and reach the beaches, with no negative impact on traffic flow whatever. After confirming that the passage occurs entirely on public property, the town may wish to place identifying markers and any necessary improvements, and establish regulations as needed to ensure safe use of this passage.



Figure 12, Informal dinghy landing at Gulf Beach Road

Bicycles and Walking

Fort Myers Beach has outstanding opportunities to increase pedestrian and bicycle activity. The physical layout of the community encourages walking and biking, with all homes within just a short distance from the beach and active commercial areas. The traffic congestion provides additional incentives for people to avoid driving. Although there are more sidewalks at Fort Myers Beach than in most parts of Lee County, pedestrians and cyclists still encounter many difficult and unsafe conditions.



Figure 13, CRA sidewalks during construction

Efforts are needed to improve the existing network of sidewalks and bike paths, which will have the added benefit of “capturing” some car trips to work, shopping, and school (especially with improved connections to Lee Tran service). Currently, there are sidewalks on one side of Estero Bou-

levard only (except for the area from Lynn Hall Park to the Lani Kai, where there are sidewalks on both sides).

North of Times Square, the sidewalk shifts from the east to the west side of Estero Boulevard at northern end of Carlos Circle. The primary reason for this shift was the existence of “grandfathered-in” on-street parking within the public right-of-way on the east side.

Sidewalks can easily co-exist with some kinds of on-street parking. Urban areas commonly have sidewalks that are separated from arterial roads with a row of parallel parking; the parked cars protect pedestrians from moving vehicles. However, straight-in parking spaces in front of stores (as is common at Fort Myers Beach) causes some conflicts with sidewalks. A clear delineation of the sidewalk was used in the CRA improvements near Times Square to alert motorists to the sidewalk, thereby providing an alternative to force pedestrians to cross to the other side of the street.

Although traffic levels currently diminish as one approaches Bowditch Point, sidewalks on both sides of Estero Boulevard would eliminate the need for crossing Estero Boulevard at Carlos Circle. This may become important as traffic levels increase due to the proposed public parking at Bowditch Point and additional tram or trolley service there.

South of the Lani Kai, the Estero Boulevard sidewalk remains on the Bay side all the way to Lenell Road, where there is a gap in front of the Villa Santini Plaza to Bay Beach Lane. The sidewalk resumes south of Bay Beach Lane to Buccaneer Drive, where it now ends. A new sidewalk is planned from Buccaneer to Estrellita Drive (just north of Big Carlos Pass). This sidewalk would be built in 1998 or 1999 with federal funds from the ISTEA program (Intermodal Surface Transportation Efficiency Act). The estimated cost is \$377,000.

Although *traffic levels* are relatively low in this area, *traffic speeds* are often high. A sidewalk on both sides once again would reduce the number of crossings. The wide right-of-way and the deep drainage ditches in this area create opportunities and challenges for completing a resort environment that encourages walking, bicycling and public transportation.

Another pedestrian concept emerged from public “community design” workshops during the preparation of this comprehensive plan. A quiet network of “hidden paths” was proposed to run parallel to Estero Boulevard on the Bay side to provide an alternative to walking and cycling along Estero Boulevard. This network is described further in the Community Design Element of this plan, and is shown conceptually in Figure 14.

The “hidden path” network would expand the use of cycling and walking to school as an alternative to walking along busy Estero Boulevard (many students live close to the elementary school but now take the bus or are driven to school). The “hidden paths” would also provide an alternative walking and bicycling environment that could replace some single-occupant-vehicle trips. This would be particularly true where parts of the path system link important centers of activity. These paths could also alleviate a gap in the future transportation network by connecting water- and land-based transportation.

The successful implementation of such an idea would require extensive community involvement and a close working relationship between residential neighborhoods and law enforcement agencies to ensure a safe and secure path. A good first step may be working with the Lee County School District to encourage parents nearest the school to participate materially

(through donation of easements) and financially (where their property is not involved). School trips are the most effective way of ensuring steady foot and cycling traffic, which would ensure safety and immediate community involvement. Presence of law enforcement, particularly Sheriff’s department bike patrols and VOICE volunteers, would help ensure the successful implementation of the hidden path concept. The facility must be designed with adequate visibility to ensure the safety of users and adjoining property owners.

Paved shoulders are provided on many parts of Estero Boulevard where there are no center turn lanes. These shoulders are used by bicyclists (although they are not marked as bike lanes). Bicyclists are able to ride with the flow of traffic, leaving the sidewalk to pedestrians who have no other alternative. In areas with limited right-of-way, an alternative for cyclists would be extra-wide travel lanes (14 feet wide), possibly in conjunction with closed (underground) drainage.

There are one-way bike lanes along 2nd and 3rd Streets between Crescent Street and Old San Carlos, as well as sidewalks on one side of these roads. These are adequate for current usage. However, Old San Carlos will need wider sidewalks, placed on both sides, in order to become the shopping and pedestrian street as proposed in the Community Design Element.

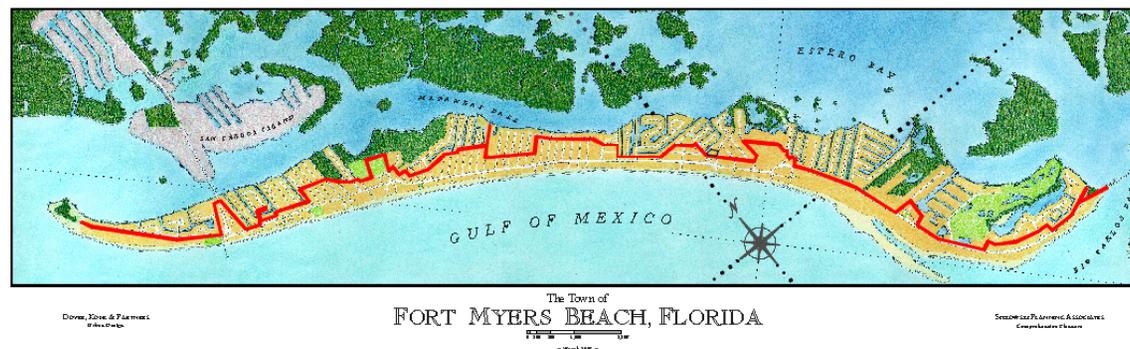


Figure 14, Conceptual plan for a network of “hidden paths”

Funding for sidewalks and bike paths can come from many sources, including ad valorem taxes, gas taxes, special assessments, and grants. The Town's proposed budget for Fiscal Year 1997-98 would allot \$75,000 towards the south end sidewalks, landscaping, and parking, out of a total capital budget of \$555,000. Additional funding may become available if the Town Council approves concepts in the Community Design Element of this plan. In addition to the ISTEA funds programmed for the sidewalk south of Buccaneer Drive, there may be future ISTEA funds, although they may be less generous than the current program. These funds could provide a supplement or full funding for facilities that may not be built otherwise. ISTEA grant applications for the county-maintained portion of the Estero Boulevard must be initiated by Lee County, unless the Town agrees to assume responsibility for the maintenance of Estero Boulevard. Another option would be the establishment of a special taxing or assessment districts (MST/BUs), which could be in conjunction with lighting or other special districts. This would allow improvements to be made without a changeover of maintenance responsibility on Estero Boulevard.

Bicycling and walking are already popular for short trips, despite the marginal facilities now in place. The improved sidewalks near Times Square have already made walking there even more popular; the sidewalks are raised above a curb and are surfaced with colorful pavers that match the new look of the Times Square pedestrian mall. Similar sidewalks should be extended as far south as the public library, linking the elementary school and Bay Oaks to the Times Square area. These sidewalks would be safer for pedestrians (and more attractive) if the rows of coconut palms were placed in the traditional location between the curb and the sidewalk; the current design places the trees at the outer edge of the right-of-way, where they provide no protection whatever to pedestrians. When full curbs are provided, the edge of tree trunks can be as close as 1½ feet from the curb, according to the conservative design standards of AASHTO (the American Association of State Highway and Transportation

Officials).

If even a few feet of additional right-of-way can be obtained, these sidewalks could be wider, or the coconuts could be planted in a grass strip between the curb and the sidewalk. If necessary, costs could be reduced somewhat by using the decorative pavers only at intervals between sections of standard concrete sidewalk. For capital planning purposes, cost should be budgeted at \$1,000,000 per mile for improvements similar to those now in place, or double that for full sidewalks on both sides of Estero Boulevard.

A similar pattern of urban sidewalks should be built in the future around the Villa Santini Plaza. The shopping plaza and its high-rise neighbors provide the basis for another high-quality pedestrian zone at the south end of the island.

At other locations on Estero Island, sidewalks and/or bike paths can be improved over time in a variety of configurations. They would be used less intensively than the sidewalks at Times Square, and the wider rights-of-ways offer many more choices in design.

Sidewalks encourage people to walk parallel to roads, but crossing major roads such as Estero Boulevard remains a problem. Pedestrian overpasses are sometimes built at major crossing points, especially over freeways or wide arterial roads. However, pedestrians are not likely to use these overpasses unless it is obvious that they are easier or safer than trying to cross at ground level. As long as Estero Boulevard is no wider than three lanes, conventional pedestrian overpasses are unlikely to attract many users. More users would be attracted if the ramps were replaced by glass-faced elevators and the overpass itself provided exceptional views.

Pedestrian crossings at ground level will always be hazardous, especially near high-speed traffic. To improve pedestrian safety,

a full traffic signal has been installed at the main crossing at Times Square. This signal is actuated by a pushbutton, which changes the signal to red after a preset amount of time. In practice, many pedestrians grow tired of waiting for the signal to change, and cross when a gap appears in the traffic. The light then changes, halting traffic in the absence of any pedestrians. Experimentation with this traffic signal is warranted, for example changing it to a flashing yellow light that would warn motorists of the crossing but not automatically stop traffic.

Bicycles and pedestrians often share sidewalks, but that situation is not ideal, especially where the number of pedestrians is high and the sidewalks are narrow. Bicycle facilities are typically one of three types:



- **Bike lane:** a portion of a road which has been striped for preferential or exclusive use by bicycles.
- **Bike path:** a paved path for bicycles that is physically separated from the road (such as the bike path along most of Summerlin Road).
- **Bikeway:** any road, path, or sidewalk that is specifically designated as being open to bicycles (but which may be shared with pedestrians or even local traffic).

Where the right-of-way is wider, separate bike paths and sidewalks can be built, or on-road bike lanes can be provided for bicycles (and be shared by pedestrians, who should be walking in the opposite direction, against traffic). For non-tourist use, there is a need for secure stationary bike racks (preferably in combination with bus shelters); and shower/locker facilities at major nodes would make commuting by bike more feasible.

Many communities actively encourage bicycle usage to supplement other modes of travel. Some colleges and resort communities have experimented with providing distinctively painted older bikes as free loaners to encourage bicycling. Long Beach, California, operates a bike station at its central transit mall. Arriving

bus passengers can rent bikes and use the public restrooms and changing areas; arriving bicyclists can store their bike in a guarded storage area before they board a bus.

Designing Buildings to Encourage Mobility Without Cars

The location of buildings can create (or destroy) a pedestrian atmosphere. Properly located buildings reduce walking distances, which are the most controllable obstacle to walking and public transportation. If a store is separated from the sidewalk by a large parking lot, even nearby residents are less likely to walk across the inhospitable expanse of hot asphalt (see Figure 16).

When existing stores are separated from the street, extensions can be added so that at least part of the building reaches the public sidewalk. Rearranged parking is still available, but is less visible from the street, and pedestrians now have a path to the main store without crossing the parking lot. Over time, pedestrian usage increases and less parking is required. Ultimately, frontage on the public sidewalk can become the most valuable space, with the parking lot increasingly relegated to a lot *behind* the stores, or under elevated commercial space.

Detailed building facades also make walking more enjoyable because they provide unique visual sequences. When the walk is interesting, its distance is noticed less. And when sidewalks are covered by awnings or canopies, pedestrians are protected from sun and rain, further improving the experience and encouraging walking (see examples in Figure 17 and Figure 18). Building and zoning codes that discourage or prohibit these arrangements should be quickly updated.

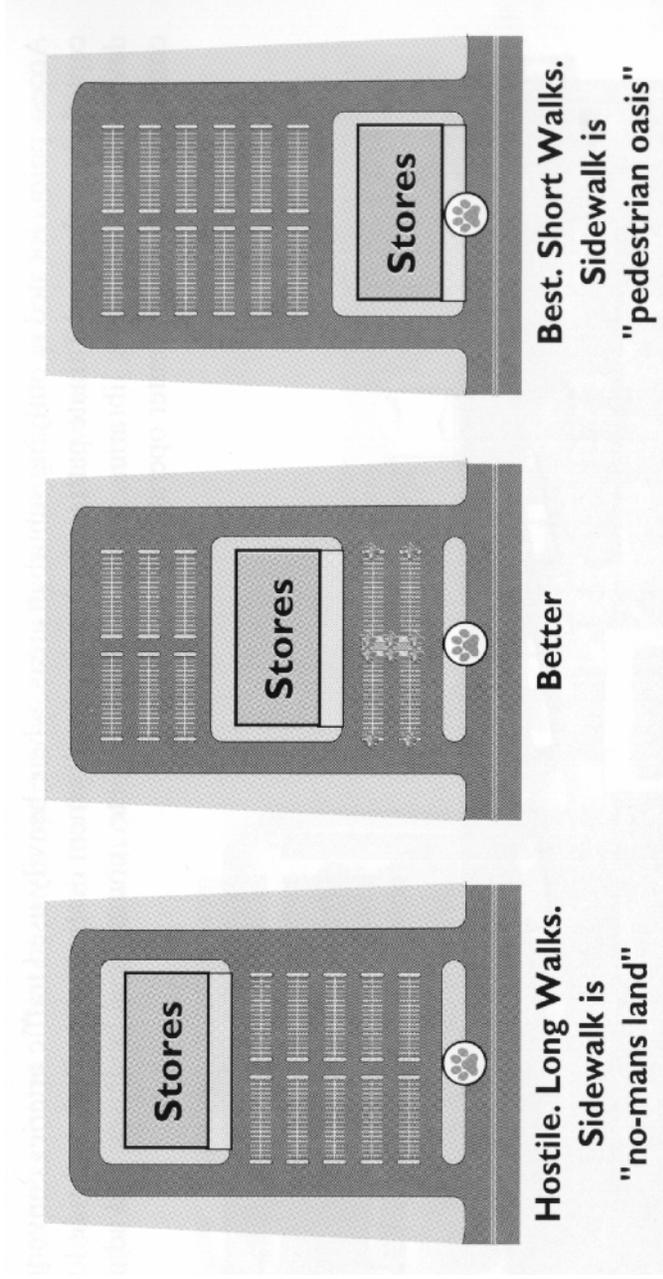
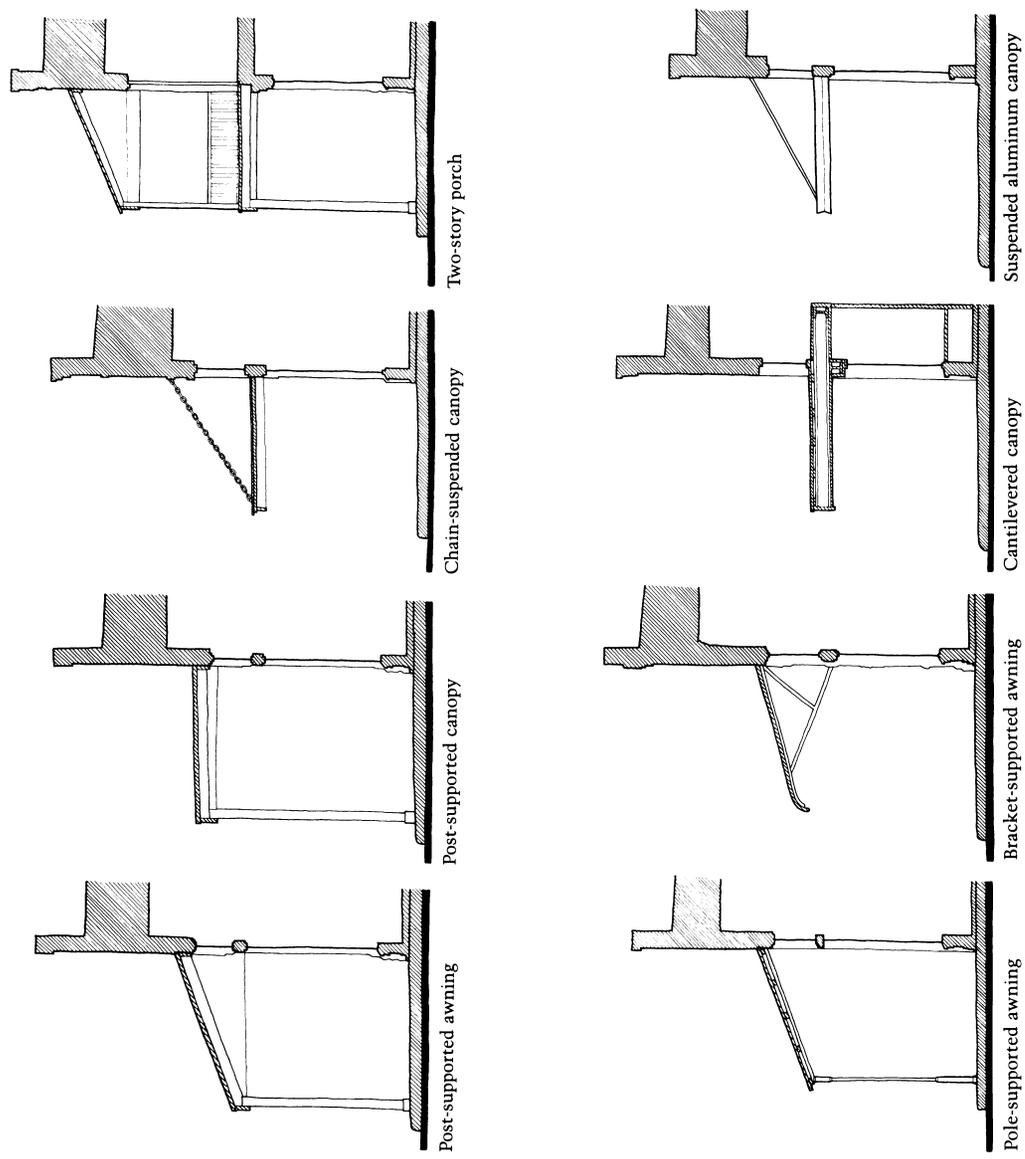


Figure 16, Relation of stores to parking lots (source: *Guidelines for Public Transit in Small Communities*, Urban Transit Authority, British Columbia, Sept. 1980)



Figures 17 and 18, Wood (top) and metal (bottom) awnings and canopies (source: *Awnings and Canopies on Main Street, National Main Street Center, 1987*)

Parking Options

The shortage of parking is a regular topic of conversation at Fort Myers Beach. Punitive towing policies of some area merchants are damaging the reputation of Fort Myers Beach as a friendly place to visit. The rebirth of commercial activity near Times Square may increase this problem. When parking is unavailable, visitors tend to wander around in their cars, worsening congestion.

The problem unfortunately is more complex than just a shortage of parking. A surplus of parking seems ideal, but in fact it would induce more people to drive to Fort Myers Beach, offsetting the relief now being provided by the trolley system and bicycling or walking. It is not impossible to build an aesthetically pleasing parking lot, but most parking lots and garages are very unappealing, and because of their size they can work directly against the pedestrian-oriented vacation experience that Fort Myers Beach offers.

The adequacy of parking for beachgoers is also an on-going debate. Lee County has provided additional parking at many beach access points in recent years, but did not provide any public parking in the original improvements at Bowditch Point (as discussed later). Beach parking and business parking are, however, closely related at Fort Myers Beach.

Parking Usage at Times Square

A limited parking inventory was conducted in 1993 as part of the CRA planning for Times Square improvements. Two separate surveys were included: a survey of four shared parking lots, with hourly occupancy counts; and a count of parking spaces in private lots. This project inventoried the area surrounding Times Square (Estero Boulevard from Lagoon Street to Carolina Avenue; Old San Carlos from Estero Boulevard to First Street; and Crescent Street from Estero Boulevard to First Street). It did not

include the existing on-street parking or the parking in the beach access points beyond the project boundaries. The survey was conducted on a weekday in January of 1993 beginning at 8:00 A.M.

The survey of shared parking lots examined the two primary beach parking lots, the publicly owned lot at Lynn Hall Park and the privately owned La Playa lot on Old San Carlos. It also examined the auxiliary public lot at Matanzas Pass, and the parking lot of the Key Estero Shopping Center on Estero Boulevard at Carolina Avenue. It also reported additional data provided by the operators of the La Playa lot on hourly and monthly use of that lot.

The occupancy of spaces at each lot was monitored on an hourly basis, with the results shown in Table 7-A-3. The two most convenient beach parking lots were nearly full from 11:00 A.M. to 3:00 P.M., but the Matanzas Pass metered lot never even approached capacity during the same period.

Table 7-A-3 — Occupancy of Shared Parking Lots, 1993

<i>Beginning Hour</i>	<i>Lynn Hall Beach Park</i>	<i>La Playa Parking Lot</i>	<i>Matanzas Pass Lot</i>	<i>Key Estero Shopping Center</i>
# of spaces:	132	82	62	116
<u>8:00 A.M.</u>	5%	0%	0%	25%
<u>9:00 A.M.</u>	20%	4%	0%	48%
<u>10:00 A.M.</u>	56%	34%	2%	52%
<u>11:00 A.M.</u>	98%	70%	8%	61%
<u>1:30 P.M.</u>	99%	100%	37%	59%
<u>2:00 P.M.</u>	95%	100%	34%	52%
<u>3:00 P.M.</u>	75%	84%	15%	55%
<u>4:00 P.M.</u>	63%	44%	8%	51%
<u>5:00 P.M.</u>	48%	21%	3%	48%
<u>5:30 P.M.</u>	<u>39%</u>	<u>13%</u>	<u>3%</u>	<u>44%</u>
<i>average:</i>	60%	47%	11%	49%

Source: Core Area Parking and Inventory Survey, Florida Transportation Engineering, Inc., February 1993.

This study attributed the under-utilization of the Matanzas Pass lot to inadequate signage advising visitors of its location, as well as its relative distance from the beach. The Key Estero lot was well used, but still almost half empty most of the day.

The second part of the survey counted the number of parking spaces in private lots serving individual businesses and the occupancy rate when the spaces were counted (but not at hourly intervals during the day). The survey's totals have been grouped in Table 7-A-4 for all establishments in the following categories: lodging, retail stores, restaurants, beach/recreation (other than lots included in Table 7-A-3), convenience stores, and offices. The survey revealed that there are 1,349 additional parking spaces, in addition to the 392 spaces monitored in the first part of the survey. Average occupancy for the various land-use categories in Table 7-A-4 did not approach capacity during this survey, although several individual businesses were at or near capacity.

Table 7-A-4 — Additional Parking Data, 1993

<i>Land Use Type</i>	<i>Total Number of Parking Spaces</i>	<i>Average Occupancy</i>
Lodging	464	64%
Retail Stores	400	48%
Restaurants	251	56%
Recreation	172	46%
Convenience Stores	34	29%
Offices	28	71%

Source: Core Area Parking and Inventory Survey, Florida Transportation Engineering, Inc., February 1993.

It is difficult to assess the actual deficiency of parking without a survey of parking needs over a longer period than a single day. Certainly parking is more of a problem at Fort Myers Beach than almost anywhere else in Lee County, and the shortage of parking

is repeatedly cited by residents and visitors as a major deficiency. It can also be expected to become more of a problem now the successful Times Square improvements are inducing extensive redevelopment activity.

Parking for small businesses near Times Square is available in a variety of ways, including “grandfathered” on-street parking, zero-lot-line off-street/on-site parking, some shared parking lots, commercial parking lots, and additional demand on the limited public beach parking lots. Traffic conflicts are created by most of the existing on-street parking, and the zero-lot-line facilities without adequate room for maneuvering, because traffic must back out into the flow of traffic, creating conflicting movements and reducing the capacity of roads to handle through traffic. This is particularly a problem along Estero Boulevard.

A centrally located and convenient parking garage has been discussed as a solution to parking needs of beachgoers and



Figure 19, Aerial view of Times Square (photo courtesy Mohsen Salehi)

patrons of Times Square merchants who don't have on-site parking. This topic will be discussed further below.

Beach Parking

In addition to intersecting streets, driveways, and direct parking spaces, Fort Myers Beach's abundance of beach access points contribute to traffic problems along Estero Boulevard. This is particularly true near those access points that have parking spaces. Contributing to the problem is the unfamiliarity of most drivers seeking beach parking, and unclear signage that results in repeated entries into access points when searching for a parking space. Also contributing are inadequate sight distances for drivers exiting an access point. (An *adequate* sight distance would be an unobstructed view of traffic so that a driver knows when it is safe to pull into the flow of traffic.) The turns into and out of beach access points often contribute to delays in the flow of traffic, particularly when there are no center turn lanes where vehicles can await a gap in traffic

Table 7-A-5 provides a summary of the beach access points that provide public parking spaces (only 16 of the 36 access points). In addition to those shown, Lee County is planning to add 78 additional parking spaces in Bowditch Point Regional Park by the winter of 1997/98.

Improving Accessibility of Bowditch Point Regional Park

Lee County purchased the 16-acre northern end of Estero Island in the late 1980s when development was imminent there. Following a series of public workshops, the county prepared a master plan and has developed the first phase of Bowditch Point Regional Park. This phase did not include any public parking; the only on-site lot has 12 handicapped spaces and 5 spaces for maintenance workers.

Table 7-A-5 — Parking Spaces at Beach Access Points

<u>Access location</u>	<u>General spaces</u>	<u>Handicap spaces</u>
Bowditch Point	5 (staff only)	12
Lynn Hall Park	118	5
Palm Avenue	18	2
Delmar Avenue	6 - 8 (unmarked)	-
Pompano Street	2 - 3 (unmarked)	-
Seaview Street	3	1
Connecticut Street	10	-
Hercules Drive	8	-
Coconut Drive	8 - 10 (unmarked)	-
Bayview Avenue	5	1
Gulfview Avenue	7	-
Strandview Avenue	8	-
Dakota Avenue	4	-
Aberdeen Avenue	6	-
Lanark Avenue	-	2
Gulf Drive	5	
Flamingo Street	5 - 6 (unmarked)	1
TOTAL:	218 - 224	24

The county's priority had been to encourage peak-season visitors to Fort Myers Beach to leave their cars on the mainland, or "park once" after arriving and walk or use the trolley or other means to reach their various destinations. Several alternatives for off-site parking for Bowditch Point were explored and were to be built in later phases, with a parking garage near Times Square a distinct possibility. However, all planning for these later phases has since been dropped by the county.

Bus and trolley service is currently provided to the park, and for a time there was a single trolley that circulated between Bowditch Point and the Main Street parking lot on San Carlos Island. In part because of the lack of on-site or other convenient parking, usage of Bowditch Point has low compared to popular Lynn

Hall Park at Times Square. According to data from the Tourist Development Council, Bowditch Point received 25,000 visitors last year, while Lynn Hall Park received 500,000 visitors.

In a recent reversal of all previous plans, Lee County has decided to build a 78-space on-site public parking lot Bowditch Point Park to increase its accessibility to the general public. This lot, which may be completed for the 1998/99 winter season, will have a surface of crushed shell instead of asphalt to reduce the “paved” feel of the lot and to make it less difficult to remove if better parking or accessibility options become available. This lot will cost about \$150,000 to design and build, and is expected to bring in \$80,000 to \$90,000 annually in parking fees. All 78 spaces will be available to the general public because the existing 12 handicapped spaces are sufficient for a 600-space public parking lot.

These 78 new spaces are far more than will be needed in the off-season, but the lot may not be large enough to meet the afternoon demands during the winter. If the lot is full, motorists will have to return to Times Square and points south in search of parking, adding to the congestion there. To minimize this effect, Lee County plans to provide “variable message sign” over San Carlos Boulevard (visible before motorists reach Estero Island) with up-to-the-minute information about the availability of parking spaces at Bowditch Point.

Before this new parking lot was planned, Lee County DOT had assessed the traffic impacts of a 60-space parking lot at Bowditch Point that had been proposed in conjunction with other private development there. The projected number of trips in and out of the parking lot was based on data collected at Lynn Hall Park and Bonita Beach Park in April 1997. DOT estimated that each parking space would generate 20 trips (1200 total trips per day). During the peak hour, this entire lot, plus the private development then proposed for Bowditch Point, would add about 230 cars to Estero Boulevard north of Times Square, an increase of

65% to the current traffic near Lynn Hall Park and a 150% increase near Bowditch Point. They concluded that this increase in traffic would be substantial, but that Estero Boulevard would still be at less than half of its capacity between Times Square and Bowditch Point.

Lee County has also revived its previous plans to build public docks at Bowditch Point. For years it has actually been illegal for boaters to land at Bowditch Point and use the park. Public docks can accommodate pleasure boats, water taxis, and regularly scheduled water shuttles. Access to Bowditch Point by water would be a novel and intriguing alternative to park-and-ride lots and trolleys. Water shuttles and taxis themselves would probably be provided by the private sector, but public docks are a prerequisite for this service to Bowditch Point.

Serious consideration should be given to using the parking pricing structure at Bowditch Point (and elsewhere at Fort Myers Beach) for congestion management as well as a revenue source for maintenance costs. There is no reason to discourage parking in the off-season or in off-hours, so parking during those hours would be at the current low rates. But rates could be increased during peak periods. This would discourage some people from driving and parking during those periods, and help pay for the cost of providing peak-season parking

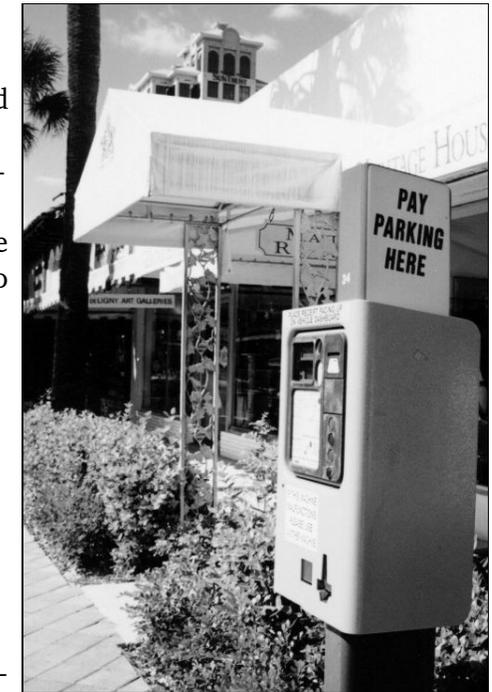


Figure 20, Automated parking meter

spaces that will sit unused during most of the year. Also, an “early bird” special could encourage some beach traffic to arrive earlier during the day before road congestion is a problem; fees would then increase depending on the hour of the day. Automated parking meters (see Figure 20) can provide for graduated rates without having to reprogram individual meters at each parking space.

With better transportation options, Bowditch Point can become a true regional park. Many residents north of Times Square fear the increased traffic and would prefer Bowditch Point to remain functionally almost a neighborhood park. But it was purchased and developed for much wider usage, and the challenge is to provide better access without adding to peak-season congestion on the roads. The best option would be a comprehensive approach to parking and mass transit to serve the needs of Bowditch Point and other popular tourist destinations at Fort Myers Beach.

Where is More Parking Needed?

Parking lots open to the public are run by several public and private entities. Lee County owns and manages the large lot at Lynn Hall Park. The county manages the town-owned lots beneath the Matanzas Pass Sky Bridge and just south of the private La Playa lot near Times Square. Table 7-A-6 indicates the total revenue from parking meters at these lots from October 1996 through June 30, 1997. (Under the town-county agreement that runs until the year 2006, this revenue is shared, with the town getting 85% and the county the remaining 15%.) Even during the busiest months, March and April, these lots are not operating at full capacity.

According to an occupancy survey from January 1993, only 37% of the 62 spaces beneath the sky bridge were occupied at the peak hour of 1:30 P.M. on a weekday. The 1997 revenue data

Table 7-A-6 — Total Revenue From Town Parking Lots

<i>Month</i>	<i>Amount</i>
October 1996	\$1,303
November 1996	\$1,654
December 1996	\$1,724
January 1997	\$2,566
February 1997	\$1,732
March 1997	\$4,584
April 1997	\$3,562
May 1997	\$2,616
June 1997	\$2,651
9-MONTH TOTAL:	\$22,395

is not directly comparable because it measures total revenue instead of hourly occupancy. Occupancy data should be collected on a regular basis; it is a truer measure of demand because total revenues don’t evaluate hourly demand, and can be affected by turn-over rates.

The surplus space in these lots, in the midst of an apparent parking shortage, emphasizes the importance of disseminating information about *where* parking is available. A positive step is the planned introduction of the “variable message signs” across San Carlos Boulevard where they can be read by drivers before they enter Estero Island. These signs will be automated so that the information is up-to-the minute. At present, Lee County is only planning to use these signs to advise motorists of parking at Bowditch Point, but if this technology is successful, it could be linked to other public parking lots with telephone lines or radio signals (see example in Figure 21). This technology has potential for widespread use in promoting the use of park-and-ride lots and reducing unnecessary trips onto the island when no parking is available. It can also provide an estimate of delays due to traffic congestion.

There is another less-apparent source of public parking: the numerous on-street parking spaces located partially or wholly within public rights-of-way. Most of these spaces are currently used by adjoining businesses, and are often marked as if they are private spaces, complete with signs threatening the public with towing if they park there. Where these spaces are located fully on the public right-of-way, they are actually public parking that has been appropriated for private use.



Figure 21. Variable message sign for parking management

An accurate inventory of these spaces would be the first step towards identifying the parties with interests at stake (including Lee County for the county-maintained portion of Estero Boulevard). A dialog could then ensue, especially over the fate of jointly owned spaces. In some cases, such as along Old San Carlos, the spaces could be reconfigured to be totally on public land, allowing the spaces to be equipped with short-term meters (such as a 30-minute maximum). This arrangement would keep most of these spaces available for business use without privatizing a public resource. For those spaces that remain in joint public-private ownership, the parking revenues could be shared proportionately.

The revenue from parking meters is only a secondary benefit; the more important factor would be the town's ability to manage the complete stock of public parking spaces for maximum convenience to visitors and businesses with the minimum of additional impact on peak season road congestion. Other benefits of these

negotiations may be the ability to reduce some of the conflict points caused by the current number of driveways, and more pooled parking spaces (rather than spaces reserved exclusively for individual businesses). The Chamber of Commerce or the Main Street program could play an important role in this kind of planning, for instance brokering in-kind donations such as shared or combined parking and driveways as another way to meet parking demands for expanding businesses, or arranging valet parking with expenses apportioned among participating businesses. The public would benefit by reducing the vast expanses of asphalt that make walking from place to place more difficult. Other types of shared parking can also be used, as will be discussed later in this appendix.

Parking Garages at Times Square

Parking demand at Times Square results from the high demand for beach parking plus the needs of many local businesses which have little or no parking of their own. Based on the 1993 parking inventory, the consulting firm of Wallace Roberts & Todd (WRT) concluded that only those parking facilities located closest to the beach are highly utilized, and that any deficits exist only during a relatively short 3–4 month peak season. They questioned whether parking utilization during a 3–4 month season was sufficient to justify a publicly financed parking garage. They suggested if a garage were to be built, it should be built *behind* new buildings on Old San Carlos, either near the existing La Playa lot at the foot of the bridge or across Old San Carlos next to Snug Harbor.

The demand for beach parking changes greatly depending on the season. Even unconventional spaces are used to meet short-term seasonal demands, for instance front yards, empty lots, and underutilized business lots. In all likelihood, any additional parking spaces that can be provided will be consumed during the peak season if they are close enough to popular beaches. But each extra vehicle that is driven to Fort Myers Beach during the

peak season adds to the existing congestion. Parking spaces quite a distance from the beaches, especially if on the mainland and served by trolleys, are less likely to be used, but are far better from the standpoint of congestion and improving the pedestrian environment; the difficulty is in making them convenient or appealing enough to attract more than occasional users. Extra on-island beach parking can work directly against the success of off-island parking and public transportation. In fact, many communities find that a moderate parking shortage reduces unnecessary car trips and encourages walking and the use of public transportation.

An on-island parking garage is often promoted as a way to reduce traffic congestion by getting drivers in search of parking off of the road. Countering this benefit, however, are the *additional* drivers who had been dissuaded from driving to Fort Myers Beach by the legendary parking shortages. Whether the additional drivers would more than offset those previously circling the island in search of parking cannot be assessed through any simple analytical technique. The possibility, however, suggests caution in advocating a parking garage, especially if it adds additional parking rather than replacing existing spaces.

A critical point is that a parking garage and its surrounding travel pattern must be considered together. For instance, a garage at the foot of the Matanzas Pass Sky Bridge combined with an extra incoming lane on the bridge would have different impacts than a garage at the same location with today's single incoming lane.

Shared Parking at Times Square

In place of a garage, the WRT study recommended 165 more on-street parking spaces to serve beachgoers and area shops (although some of these spaces would offset the loss of spaces at Lynn Hall Park to accommodate an expansion of the beach and a proposed amphitheater). Some of the spaces would be diagonal and some would be parallel, depending on right-of-way widths.

In addition to the new on-street spaces, WRT suggested creating a reservoir of shared interconnected parking to the rear of businesses along Old San Carlos (as shown in Figure 22). Patrons of any businesses along Old San Carlos could park in any available spaces, taking advantage of the differing hours of businesses to make better use of available parking. Each business would not need to provide for its peak parking demand on its own site.

Retail space, offices, and residential units would be built up to the right-of-way line of Old San Carlos. This would improve the pedestrian character of the street by replacing individual front parking lots with continuous storefronts, broken only by some driveways to the shared parking behind (as shown by arrows in Figure 22). This concept has not been implemented to date; it will be a difficult undertaking that requires the co-operation of area landowners. The town needs to assess the feasibility of this approach in the very near future and either make it happen through direct actions or allow it to happen by modifying the land development regulations. If this approach cannot work, or does not through inactivity, the much more risky and expensive (and in many ways less desirable) alternative of a large parking garage may become essential.

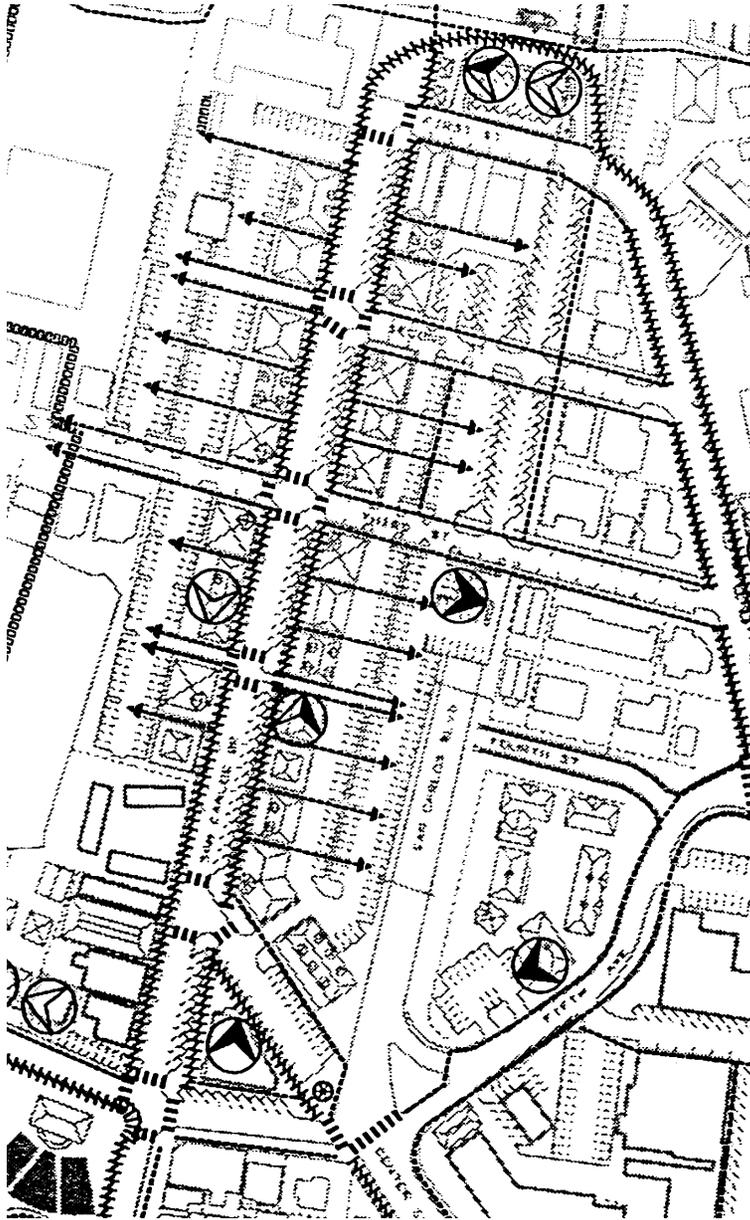


Figure 22, WRT master plan, with arrows showing access from Old San Carlos to shared parking lots behind buildings

It has been widely demonstrated that combinations of land uses require less parking than the same land uses in free-standing locations. Shared parking is ideal when businesses are relatively small and are clustered closely together, as in the Times Square area. An excellent example is the paid parking lots along Las Olas Boulevard in Fort Lauderdale (see Figure 23), which are located behind a thriving business district that faces wide tree-lined sidewalks (see Figure 31). Another example is the free joint parking lots located behind stores in the main business district at Celebration (near Orlando).



Figure 23, Sign advertising shared parking behind stores along Las Olas Boulevard in Fort Lauderdale

Auto use is influenced by factors such as travel distance, trip purpose, convenient parking, parking fees, and transit service. Fort Myers Beach can capitalize on its existing pedestrian environment by making walking easy and pleasant, which is rarely compatible with huge parking lots serving a single business.

The Economics of Surface Parking and Parking Garages

When assessing the economic viability of a parking garage, land cost is often a primary factor. As land costs increase, it becomes economically more feasible to expand parking vertically in a garage rather to expand horizontally by acquiring more land for surface lots.

The cost of building a parking garage varies widely depending on topography, structural requirements, architectural efforts, revenue control devices, and other uses in the building. If land costs are not included, the cost of building a parking garage is about four times the cost of a surface lot. If the land cost is included, the figures can change dramatically. In 1996, the International Parking Institute estimated that new parking garages cost between \$4,500 and \$15,000 per space, excluding land costs. Surface parking lots can often be built for \$1,500 per space (for paving, drainage, marking, signing, and lighting). A 1988 study by McCarthy Parking Structures reported land costs of at least \$15 per square foot as the lower level for considering a parking garage. (It should be noted that these land values are somewhat dated and were most likely based on a survey of moderate to large cities.) Land values reported by the Lee County Property Appraiser often don't reflect actual market values, but they do indicate that this value is often met near Times Square. But given the number of vacationing visitors and the economic upswing in progress at Fort Myers Beach, a garage may not prove to be the most economic use of property, especially if it were a single-use building rather than a mixed-used complex that can take advantage of the strong year-round economy.

A private landowner would consider many factors before deciding whether to build either a garage or surface parking. These would include zoning, financing, taxes, alternative uses for the property, the potential for mixed uses, the characteristics of parking demand, security, and operation/maintenance expenses.

Since parking garages are not attractions themselves but merely facilitate trips to other destinations, primary locational considerations must be the walking distance for the patrons (or transit connections) plus access and post-construction traffic circulation.

Another factor to be weighed is the existing surface lot under the Matanzas Pass Sky Bridge. During recent surveys, it has not been filled to capacity during peak periods, perhaps due to its distance from the beach or its lack of visibility. Given the high demand for parking at Lynn Hall Park, there is an opportunity to reduce the number of spaces at the park and make better use of these other existing parking spaces (and a parking garage if one is built). Lynn Hall Park could be used more as a real park than as a parking lot.

If a landowner wished to build a parking garage entirely at his own expense, the town would still have considerable control through the zoning process. Public parking garages are permitted only if a "special exception" is granted by the town.

Parking garages are often better served by market forces than government initiative. Given the town's financial position and the strong local economy, this is especially true at Fort Myers Beach. However, combined public/private opportunities may be worth exploring. If public-sector powers were required to assemble land, a landowner might be willing to build the garage at his own expense and operate it for a period sufficient to recover their costs. After that time, the town would own the garage and could operate it directly, sell it, or contract out its operation.

Local experience with parking garages is mainly those built by government but operated by private entities. In downtown Fort Myers, the Main Street (old) and Monroe Street (new) parking garages in downtown Fort Myers can serve as case studies of parking garage design, construction, and operation. The Monroe garage near the Harborside convention center includes 5,800 square feet of retail space abutting the sidewalks along Monroe

and First Streets. Despite the initial cost of increasing the ceiling height to 13 feet and adding mechanical ventilation to maintain air quality in the garage's ground level, the retail space is a plus for downtown Fort Myers, making the garage's frontage a part of the city rather than a place to be hurried past. The retail space may also prove to be a good business investment for the city of Fort Myers. Both garages can be expanded by two additional levels to meet the market demands. Table 7-A-7 provides size and cost data for building both garages.

Table 7-A-7 — Fort Myers Parking Garages

	<i>Main Street (old)</i>	<i>Monroe Street (new)</i>
Year Built	1988	1996
Square Footage (all floors)	180,000	180,000
Land Area	1.34 acre	0.88 acre
Land Cost	\$9/SF	\$11/SF
Number of Floors	4	5
Number of Parking Spaces	571	550
Retail Square Footage	0	5800
Number of Storefronts	0	7
Total Construction Cost	\$3,400,000	\$6,200,000
Retail Construction Cost	n/a	\$700,000

These garages were financed with revenue bonds plus \$1,500,000 in cash from the city's general fund. The equivalent debt service is nearly \$800,000 per year. Operating and maintaining these garages cost an additional \$135,800 last year. In contrast, revenues from parking fees last year, the highest year ever, amounted to less than \$200,000. There are several reasons for this relatively poor financial performance: the new federal building will be a major tenant but hasn't opened yet; many of the city's 870 parking meters are less expensive than the garages; and garage rates are themselves quite low, averaging \$40 per month per space. The garages were built to support down-

town redevelopment, not as direct revenue sources. This year Fort Myers has begun to manage the on-street parking meters and the garages together; meter charges will double at many locations, which should increase usage in the garages. The main lessons for Fort Myers Beach are the enormous costs of building and operating parking garages, and the need to manage parking meters and parking garages together so that both support the municipalities' redevelopment goals.

Parking Rate Structure

When the private sector controls the supply of public parking, parking rates are effectively set by the market. Individual operators adjust their prices so that a small number of spaces are always vacant and ready to accept new customers. This strategy has great merit in big-city downtowns, where parking operators are very sensitive to emerging shortages of parking and are prepared to build more parking lots or garages as soon as merited by demand.

Traffic congestion at Fort Myers Beach adds another dimension to parking discussions. Parking rates, and even the easy availability of parking, are closely related to road congestion because the difficulty in parking discourages some people from driving (or from driving in separate cars when alternatives are available). Parking supply and rates can be manipulated for purposes far broader than maximizing revenues and the number of parking spaces. The town can play a direct role in managing parking in publicly owned lots. Equally important is its indirect role through its parking requirements for new or expanding businesses, and through the rezoning process for new privately owned parking lots that are open to the public.

Changes to the rate structure can even apply to parking lots *not* managed by the town. One such change is a special tax on parking (if legally permissible). Parking taxes are usually imposed to generate additional funds, which they often do by

causing an increase in parking rates. If this increase changes travel behavior and discourages individual car trips, the effects on road congestion may be positive, even though less revenue than anticipated might be collected. At Fort Myers Beach, road congestion and parking availability are more important than parking revenue, so a parking tax is not likely to be the best way to manage parking.

There are a number of ways that the town can *directly* control the parking rate structure, although these will only directly affect publicly owned lots. Rates could be manipulated to encourage a specific type of behavior, such as the use of van pools or car pools. Rates could also be graduated to encourage more subtle changes in behavior; for instance, graduated rates could favor short-term parking; or lower rates can be charged for the less convenient parking lots; or higher rates could be charged for arrivals or departures that coincide with the busiest periods. The rate structure does not need to be so extreme as to affect the behavior of all or even most users; it can be effective if even a small number of users arrive before or after the peak period, or select the less convenient lot, or car-pool rather than driving separate cars.

Governments sometimes have comprehensive policies to encourage the use of high-occupancy vehicles (as discussed later). A number of these jurisdictions have also adjusted prices in public parking lots to favor carpools and van pools. Car pools can also be given discounted rates in on-street metered spaces reserved for their use. Parking surcharges during peak hours or the peak season can also encourage motorists who drive alone to the beach to use public transit or to car pool, thereby freeing up scarce parking spaces.

An important benefit to experimenting with changes in the parking rate structure is that rates can be easily modified if they don't work, or if they have unintended consequences. For example, if the town were to substantially increase the short-term

parking rates in public lots, several different outcomes are possible: people may continue to use the facilities as before and pay the higher rate; some may leave their cars at home and travel to the beach in a different mode of travel; some may park in park-and-ride lots and walk or ride with trolley; others may stop making trips to the beach altogether. If trips to the beach decline dramatically during the peak season, the benefit of the rate increase would probably be outweighed by the loss of public accessibility to the beaches and damage to local businesses and the tax base. The increase can simply be adjusted or rolled back.

Another idea would seek to use parking demand to minimize the effects of the many parking spaces which require drivers to back directly into the most congested portions of Estero Boulevard. Some of these spaces might be reserved for those who commute via high-occupancy vehicles. The benefit would be two-fold, rewarding those who don't commute in a single-occupant vehicle and reducing the number of parking maneuvers along critical sections of Estero Boulevard. Unfortunately, many of these parking spaces are very important to adjoining businesses who would not want their customers to lose the most convenient parking spaces.

Lee County is beginning to use "transponders," a technology that is well suited to variable pricing in parking lots. These small devices are mounted in cars and automatically deduct tolls without vehicles ever stopping at bridge toll plazas. These devices can easily be programmed to adjust the tolls based on the exact time of day; in Lee County's pilot program, tolls during off-peak hours will be reduced to encourage some people to avoid crossing the bridges during commuter rush hours.

The county does not plan to use transponders on the Sanibel Causeway because there is no commuter rush hour. Because travel patterns on Sanibel are similar to Fort Myers Beach, this technology may never be used for managing demands on beach roads. But the technology itself has promise for variable pricing

and general efficiency whenever vehicles must pay a fee. This technology is not limited to regular users, as motels and timeshare resorts could loan transponders to their guests.

The most effective parking rate changes are those that can achieve important community objectives, such as relieving congestion, encouraging walking and public transit, and strengthening local businesses. As a general rule, the Times Square area would be most affected by changes in parking prices and availability.

Implementing Shared Parking

The redevelopment plan for Times Square and Old San Carlos calls for shared parking behind buildings and new on-street parking. The shared parking will require extensive cooperation between property owners, and the on-street parking will require major public expenditures to install. Business people who wish to begin implementing the redevelopment plan now are faced with conventional on-site parking requirements that run counter to the pedestrian-oriented concept behind the redevelopment plan.

The redevelopment overlay district adopted by the town provides some relief, and some businesses have obtained variances from the conventional parking requirements. Without a clearer path during this interim period, however, the town may lose some opportunities to see its redevelopment plan move forward with private financing. Some alternatives are:

- Modifying development regulations to make it easier for businesses to substitute private arrangements they may be able to make for nearby (but not on-site) parking.
- If a parking garage is built, businesses could purchase some of its capacity (not necessarily specific parking spaces) for their customers.
- The town could act as a catalyst for the WRT shared

parking concept. This could be done by *requiring* new development along Old San Carlos to design their sites to accommodate shared parking, or by actually acquiring key easements, or even building public parking lots in the suggested configuration.

Faced with similar situations, some resort communities charge a fee in lieu of on-site parking and use the proceeds to build public parking lots. Miami Beach has been charging \$5,000 for each parking space *not built* along popular Ocean Drive, and then building public parking garages to meet the parking demand. (Since a parking garage cannot be built this cheaply, the city pays the remainder of the cost.) The city of Hollywood is instituting a similar approach in their more urban areas.

This concept is fairly easy to institute, and may be seen as favorable by businesses without space for on-site parking lots. The difficulty is raising *enough* money to build an entire parking facility, which can be costly in small increments.

Despite some obvious disadvantages of small parking lots (higher cost per space, extra traffic caused by those searching for a parking space), a number of small public lots may be a more desirable parking solution than one large lot. Large lots are inherently hostile to pedestrians (although good design can make them less so). Small lots can be surrounded by garden walls or hedges, yet because of their size drivers can quickly see if any spaces are available.

Regardless of size, public parking needs to be fairly convenient for users, yet not placed in the center of pedestrian activity. This is the reason that WRT suggested shared parking *behind* new shopfronts along Old San Carlos. Those heading for the beaches would walk along Old San Carlos, rejuvenating it as a public place. For the same reason, a parking garage would be better if placed on the site of the existing cruise ship parking lot next to Snug Harbor, instead of at the foot of the bridge. The Snug

Harbor location would also have the advantage of interfering less with the majestic view of the Gulf of Mexico that now greets motorists as they cross the Matanzas Pass Sky Bridge.

An easily-overlooked component of a rejuvenated pedestrian zone is an adequate loading zone for delivery vehicles. Unless deliveries can be completed very early in the morning, delivery vehicles will interfere with pedestrian and traffic flow, as is the case at present at Times Square and the Villa Santini Plaza. The probably solution to this dilemma at Times Square is an off-site waiting area for delivery trucks, with merchandise shuttled to individual merchants on hand-trucks. At the Santini Plaza, a redesign of the entire complex could include an adequate loading area for all merchants.

Transportation Demand Management

The concept known as “transportation demand management” (TDM) attempts to reduce the number of single-occupant vehicles during peak traffic periods. Potential measures can be grouped into three categories:

- Strategies that eliminate trips completely;
- Strategies that accommodate existing trips in fewer vehicles; and
- Strategies that move trips before or after the most congested periods.

TDM strategies for Fort Myers Beach would be directed to three somewhat distinct groups. One is island residents who commute to jobs off the island; another is employees of island businesses who live on the mainland. The third group is seasonal residents and tourists who are not likely to be employed during their stay.

The purpose of TDM is to curb demand without reducing personal mobility, while providing alternate travel means to offset peak period congestion. It tries to use transportation more efficiently as an alternative to “building our way out of congestion.” The goal is to reduce the number of vehicles using the road system during peak periods while providing a wider range of mobility options to those who wish to travel.

TDM provides alternatives to driving alone and techniques to encourage their use. These alternatives must be customized to the problem at hand; techniques that work well in major urban centers may not fit Fort Myers Beach.

Some common TDM strategies include:

- **Matching services**, to connect commuters interested in ridesharing with others on similar schedules;
- **Transit promotion**, which can include a free trolley pass instead of a free parking place;
- **Alternate work hours**, with flexible shifts or shifts

that are staggered to avoid peak travel periods; and

- **Non-motorized mode program**, where employers or motels provide sidewalks, bicycle racks, showers, or lockers to make non-motorized travel convenient for commuters or guests.

TDM techniques are often implemented by individual large employers (often to meet government mandates to reduce peak-hour trips). Tourism and the hospitality industry are the largest employers at Fort Myers Beach. Since many jobs in this industry are low-paying, there are opportunities to reduce vehicle travel while providing a valuable service to employees by providing transportation between the workplace and off-island locations (such as interceptor parking lots, or major bus transfer points). Some employers already provide this kind of service to attract employees who live as far away as Fort Myers.

TDM strategies often include:

- new or improved modes of transportation;
- financial or time incentives for the use of these alternative modes (for example, compensatory time for those not commuting alone);
- supporting activities that make the use of alternative modes more convenient or to remove impediments to their use; and
- marketing activities to promote these modes.

The effectiveness of TDM often depends heavily on the level of participation by employers. The development of effective TDM programs should be approached as a major public/private partnership.

Of greater complexity, and perhaps importance to Fort Myers Beach in the long run, is the development of “congestion avoidance” strategies to preserve the capability of the transportation system to handle *future* travel demands. Congestion avoidance strategies traditionally fall into two broad categories:

- **supply-side**, by building significant additional road capacity, such as widening Estero Boulevard and building new bridges, or
- **demand-side**, by implementing land use/growth management policies that tie land use densities/design to transportation systems demand capability.

Trip-making patterns, volumes, travel mode choices are largely a function of development patterns. The town's control over the trip-generating characteristics of the land use (such as the density of development) could be used to make the resulting travel demand consistent with the transportation infrastructure and the desired level of service.

TDM programs could be an integral part of comprehensive planning for Fort Myers Beach, providing cost-effective transportation improvements that reduce or alleviate traffic congestion. These improvements can include expansions of the sidewalk/bicycle path network or water shuttle facilities such as docks and waiting areas, and intangibles such as improved trolley service.

The new comprehensive plan could explicitly lay out long-range congestion-avoidance strategies to deal with future development and its impact on travel. Despite the limited vacant land at Fort Myers Beach (about 120 acres, or only 8% of the total land), the redevelopment potential is substantial enough to merit an aggressive TDM linkage. Providing mobility in such a context requires innovations, coordination, and both short- and long-term perspectives in planning.

Some TDM strategies have proven effective in attracting commuters as well as visitors from single-occupant vehicles, but their effectiveness is always limited by the users' awareness, ability to use, and willingness to use these alternatives. Driving alone is such a long-standing habit that few even think of trying an

alternative without encouragement and assistance. Fort Myers Beach has the dubious advantage of so much peak season congestion that TDM strategies won't seem unrealistic or more of a constraint on freedom than sitting in traffic.

TDM strategies can become practical when combined with supporting activities that make the alternative more pleasant and convenient, or reduce the need for a personal automobile for other purposes during the trip (such as personal errands). By themselves, these activities would be costly and have little chance of success; in concert with aggressive promotion of TDM strategies, they can make change travel behavior in ways that benefit individuals and the community.

Supporting Activities

Although Fort Myers Beach is more oriented to pedestrians than most newer communities, many of its attractions were designed with the expectation that most people would arrive by private car. This expectation often becomes self-fulfilling because the site design or linkages with other activities do not accommodate the needs of those without a car. The correction is to provide "rideshare-friendly" site design, plus services for those without cars. Site design should include accommodating the safe maneuvering of trolleys, convenient and pleasant transit stops and shelters, bicycle racks, and showers/lockers for bike commuters. On-site services such as childcare, ATMs, convenience goods, and laundry service can minimize the true and perceived need for a private car.

Another program that is crucial to the success of a TDM program is the guarantee of a ride home, if necessary by taxicab. This service addresses the two main factors that hinder TDM programs: the fear of being stranded in an emergency, and the fear that ridesharing hinders the time flexibility that a job may require. This idea can be extended by the lodging industry to their visitors.

Because of the important role that businesses must play in TDM programs, the “Main Street” program or other public-private partnership could be the vehicle for coordinating the efforts of businesses with those of government. Even smaller businesses can be involved in one of the most critical activities will determine both the town’s economic viability and its livability.

TDM Marketing

Potential users must be made aware of the availability of TDM programs and encouraged to try them. This will be difficult at Fort Myers Beach because so many motorists are just visiting.

Marketing efforts begin by disseminating information on available TDM services and incentives. This information can be directed to the public at large by mass mailings; newspaper, radio, and TV ads; and roadside signs. It can also be targeted to specific markets (such as in travel pamphlets, or to arriving visitors).

Marketing can also include personalized trip planning assistance by telephone or through information centers at strategic locations. The Fort Myers Beach Chamber of Commerce and the TDC welcome center volunteers could be trained to take on this responsibility.

In addition to general and on-demand information on TDM strategies, TDM marketing often includes special promotions such as contests, prize drawings, and other activities to attract the attention of commuters and visitors, generate excitement about the alternative modes, and reward those who begin to share rides. The effectiveness of TDM would be increased with the following ideas:

- **Information materials** should reflect the characteristics and attitudes of potential users. For visitors, stress their appreciation of the coastal environment; why sit in traffic while on vacation?; leave your car at

home and travel by boat; etc. For commuters, stress practical matters such as less wear-and-tear on their car; cost savings, companionship during the trip; etc.

- **Promotions** should be scaled to the target population (e.g. regional information campaigns for potential visitors; direct distribution to employees and motel guests; van-pool information targeted to long-distance commuters; and bicycle information to nearby commuters).
- **Marketing** should be highly visible and continuous to reach visitors and new residents.
- **Information centers** should be easily accessible and staffed by people with some training in TDM strategies.
- **Pilot programs** should be encouraged for untested TDM strategies to evaluate their effectiveness and to estimate costs.

Improved Management of Traffic

When it is not feasible or desirable to add enough lanes to avoid congestion, TDM is often used in conjunction with techniques to better manage the flow of traffic on the existing road system. Like TDM, a traffic management system must be custom-made to respond to local conditions. Potential elements in such a system for Fort Myers Beach might include:

- *Adding a third (reversible) travel lane*
- *Preference for high-occupancy vehicles*
- *Traffic calming*
- *Redevelopment of major activity nodes*
- *Reducing intersections onto Estero Boulevard*
- *Improved law enforcement*
- *Innovative signage*
- *Tolls on bridges*
- *Funding for road maintenance and improvements*

Each of these options are discussed in the following sections.

Adding a Third (Reversible) Travel Lane

One alternative to be considered is providing a third lane of traffic in the direction of highest traffic flow. Under this configuration, the existing pavement could be used in its current width (or with slight widening) to increase its traffic-handling capacity, without converting Estero Boulevard into a four-lane highway.

Arterial roads are usually operated with an equal number of lanes in each direction, and with no lane serving traffic in different directions in different hours. Yet travel patterns are rarely equal in both directions at all hours of the day. This condition typically “wastes” road capacity, particularly in a bottleneck situation.

Reversible lanes have the potential to make more efficient use of roads with uneven travel patterns. Reversible lanes are not

uncommon on commuter routes in major cities where additional road capacity cannot be provided. One lane (usually a center lane) is designated for one-way travel during certain hours of the day, and in the opposite direction during other hours, with the directions selected to provide an extra lane in the dominant direction. The outer lanes provide normal flow at all hours of the day. Another method is to make a two-lane street operate one way only during the peak period. The first method will be evaluated below, since there is a third lane already in existence on Estero Boulevard and a fifth lane on San Carlos Boulevard.

Reversible lanes can increase peak-period capacity of a road with minimum capital expenditures by converting unused capacity for use in the direction of heavier flow. The system is particularly effective on bridges or anywhere that additional capacity via construction would be cost-prohibitive. There are however, disadvantages including operational problems at each end of the reversible lane; difficulties in enforcing of lane-use regulations; potential interference with emergency vehicles; loss of left-turn lanes; increased safety hazards; and unsightliness of lights and/or barriers that would be required. These disadvantages would be especially problematic at Fort Myers Beach because so many tourist use the roads and would be unfamiliar with the reversible pattern, and because left turns are required to obtain access to many streets and private properties.

There are several factors that can cause reversible lanes to be warranted (meaning they would meet the objective of a short-term increase in directional flow without adverse impact on operational characteristics such as the ability of other motorists to make left turns):

- Evidence of congestion;
- Time of congestion;
- Ratio of directional traffic volumes;
- Capacity at access points; and
- Lack of alternative improvements such as a parallel route

The Matanzas Pass Sky Bridge and Estero Boulevard may meet most of the above criteria during the peak season except for the inadequate road capacity near Times Square. The breakdown lanes appear to provide the necessary width for a reversible lane, and the directional difference in travel volumes may be adequate during certain hours.

If a reversible lane is warranted (including approval by FDOT for the sky bridge) and found operationally feasible, the method of designating lanes to be reversed and the direction of flow must be selected. There are four possible methods of designating lanes:

- Suspended lighted signals over each lane, typically indicating yellow during transition periods and red when oncoming traffic will be using that lane (spaced perhaps 500 feet apart);
- Permanent signs advising the motorists of regulation and hours of operation;
- Portable barriers to discourage passing (similar to those used at the Cape Coral Bridge toll plaza); or
- Adjustable barriers that rise from the pavement when needed (as used on Lake Shore Drive in Chicago) or are moved back and forth with special vehicles (as on the San Diego Coronado Bridge).

A reversible lane could be provided on San Carlos Boulevard; on the sky bridge; on Estero Boulevard; or all three. San Carlos Boulevard has a fifth lane, now used as a two-way left turn lane, from Summerlin Road to the sky bridge. (However, there are efforts underway to introduce raised medians at some locations to eliminate the misuse of this lane as passing lane.) A segment of the center lane could be converted to a reversible lane, at least from the Hurricane Pass Bridge through the Prescott/Buttonwood intersection to the sky bridge. The Matanzas Pass Sky Bridge itself has 40 feet available for vehicles, which would need to be restriped to accommodate three 11-foot travel lanes and 3½-foot striped shoulders (in place of the cur-

rent 12-foot travel lanes and 8-foot breakdown lanes). The existing barrier-separated sidewalk on the south side of the bridge cannot be incorporated into the travel lanes because of structural problems; however, an additional suspended sidewalk might be possible to replace the breakdown lanes that are now used by bicyclists.

The third lane on the sky bridge could then tie into the existing three-lane section of Estero Boulevard. It could continue to the south either to just past the public library, or as far south as Buccaneer Drive. If extended beyond the library, the existing paved shoulders from Bay Road to Albatross Street would be eliminated to leave room for three 11-foot travel lanes.

It is not clear whether a reversible lane would have enough benefits to offset the inevitable operational difficulties. The directional patterns of current traffic at Fort Myers Beach is shown in Figure 23. Between 1:00 and 7:00 P.M., traffic levels are almost evenly split in each direction. The potential for a reversible lane would be in the morning hours, when traffic is heavier onto the island, and possibly again in the evening for traffic leaving the island. Reversible lanes must be pursued with utmost caution because of the unfamiliarity of visitors with the area; also, the absence of the two-way left may bring about maneuvers that causes substantial delays. A pilot project could be tried prior to peak-season conditions to experiment with operational problems and to assess local reactions to reversible lanes.

A variation on reversible lanes would be to create an extra lane onto the island only from the Hurricane Pass Bridge to Times Square. Under this scenario, the center lane would continue onto Estero Boulevard southbound; the right-hand lane would be forced to turn right only. This configuration would provide quicker access to the north end of the island, and would be

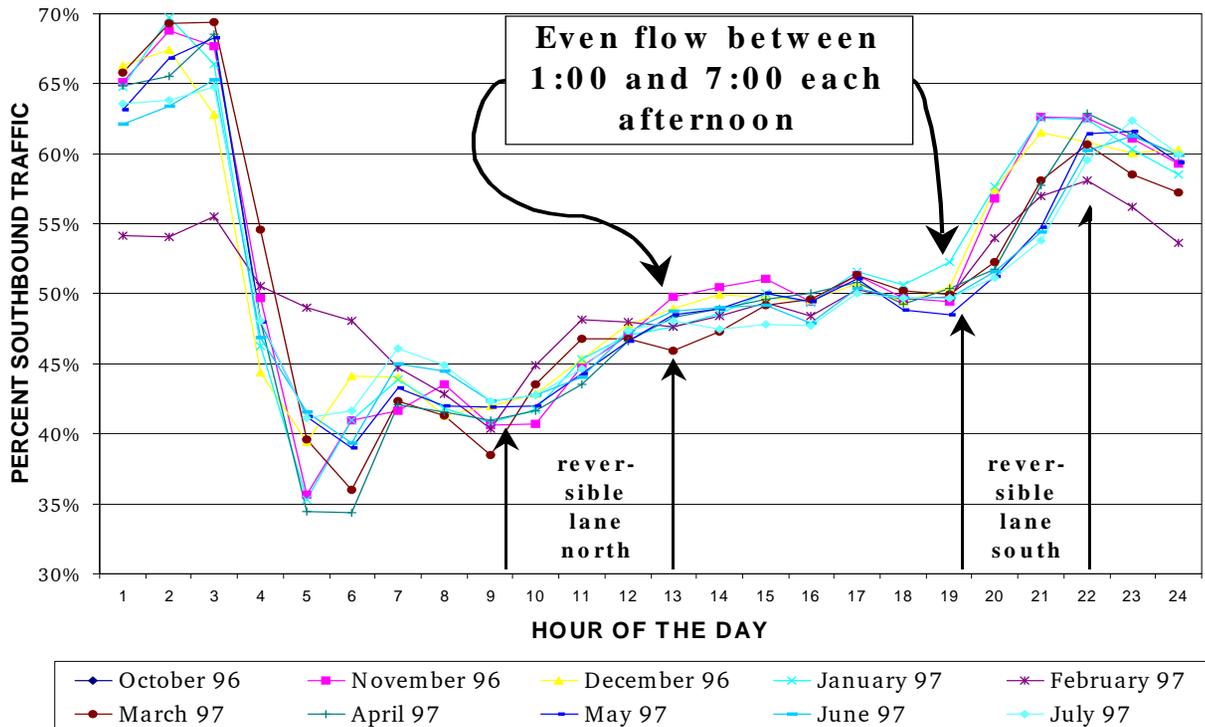


Figure 24, Percent of southbound traffic on Estero Boulevard at Donora

especially suited to providing direct access to a parking garage located at the foot of the sky bridge. Problems would include drivers attempting to circumvent this lane’s purpose by merging into the center lane on the bridge, or circling under the bridge and re-entering Estero Boulevard southbound from Crescent Street. This plan would also attract more cars to Estero Island without creating any more road capacity on the island itself.

Reversible lanes can also operate as high-occupancy-vehicle (HOV) lanes, although that may defeat the purpose of increasing the traffic-carrying capacity of the road. The center lane could be operated as an HOV lane, limited to vehicles with two or more passengers, for example inbound from 7:00 A.M. to 2:00 P.M., outbound from 2:00 P.M. to 9:00 P.M., and two-way left between 9:00 P.M. and 7:00 A.M. This subject will be discussed

further below.

It should be noted that Fort Myers Beach traffic patterns, ironically, have achieved a plateau of even traffic volumes throughout the day. A plateau is the *objective* of most congestion mitigation programs, which seek to “flatten” the traffic peaks which usually occur in the morning and evening rush hours. The problem, however, is that the plateau at Fort Myers Beach occurs at the absolute peak capacity during the winter, in effect converting the entire day into one long “rush hour.”

Before embarking on any pilot projects, these concepts should be studied further in conjunction with other strategies suggested in this appendix.

Preference for High-Occupancy Vehicles

In recent decades, highway lanes have been designated for the exclusive use of “high-occupancy vehicles” (HOV) near major cities. Their purpose is to improve the speed and convenience of buses and to provide an incentive for car/van pooling in congested areas.

HOV lanes are usually built in addition to the existing mixed-use lanes (in some cases, though, new HOV lanes have been built but later converted to standard lanes). Sometimes HOV lanes are created by converting a standard mixed-use lane. If an HOV lane on a congested highway is converted from a mixed lane, it must be heavily used by mass transit vehicles or car/van pools, or its advantages would be offset by the loss of the existing lane. Some HOV lanes allow vehicles with as few as two occupants, making HOV lanes more politically acceptable but much less

valuable for encouraging mass transit use.

Due to obvious physical limitations of the current right-of-way, an HOV lane on Estero Boulevard may have to compete for the same center lane as the reversible lane discussed previously. Further study would be needed to determine the relative feasibility of each concept independently (and the possibility of combining the two functions).

HOV lanes can be operated in different ways:

- **Reversible/Directional Facilities:** An extra lane can be reserved for HOVs traveling in the direction of the busiest traffic flow; this lane works very much like any other reversible lane, with extra signage to indicate the restrictions on single-occupant vehicles; or
- **Contra-Flow Lane:** A conventional lane that is normally used by all vehicles for travel in a single direction can be reserved for HOVs during peak periods (provided that another route can be found for vehicles traveling in the less popular direction).

A contra-flow lane is used only in unusual situations. A contra-flow application at Fort Myers Beach might each afternoon dedicate *all* lanes of Estero Boulevard to traffic leaving the island from Crescent Street to the sky bridge, at which point a reversible center lane on the bridge would allow at least two continuous northbound lanes all the way to the mainland. Traffic that would normally use the southbound lane of Estero Boulevard from Fifth Street to Crescent Street would be detoured across Old San Carlos, Third Street, and Crescent Street. (A traffic light would probably be required at Crescent Street to allow these cars to reenter Estero Boulevard.)

A similar contra-flow situation might be tried in reverse in the mornings. If the sky bridge were configured for two southbound lanes, they could both flow onto Estero Boulevard, merging to a

single lane just past Crescent Street. Northbound traffic would be required to turn right on Crescent Street to reach Lynn Hall Park and points to the north.

Each contra-flow example poses a number of operational difficulties that would offset some of its effectiveness. To the degree either or both work successfully, they would increase capacity on Estero Boulevard north of Crescent Street, only to reach the same bottleneck that now occurs on Estero Boulevard from Crescent Street to Bay Oaks.

Another possible configuration would merge the reversible-lane and HOV concepts. When two lanes are flowing along Estero Boulevard in the peak travel direction, the outside lane (curb lane) would be designated for HOVs only (trolleys and cars with at least two or three passengers). This separate HOV lane would make travel by trolley much quicker, making it a more desirable option than it is at present.

Since any HOV concept would use roads and bridges that are maintained by the county and the state respectively, their concurrence would be required. Without such concurrence, the town would first have to take over all responsibility for maintaining and operating those facilities.

Prior to their use, HOV lanes must be marked by restriping the pavement. This requires grinding down and removing the existing pavement markings (ideally resurfacing the pavement at the same time so that remnants of the old markings do not show through and confuse drivers, particularly at night or during storms). The new stripes and lane markings are then painted onto the surface.

If an HOV lane is found feasible, publicity and incentives would be needed to educate the public and encourage the use of higher occupancy vehicles. The same would be true for preferential parking for HOVs. See the previous discussion on TDM market-

ing for some general ideas.

Although any promotional incentives for HOV implies a disincentive for single-occupant vehicles, this disincentive may not be strong enough to sufficiently change travel patterns. Merchants in particular would be sensitive to the perception that they are penalizing some of their patrons for driving alone. Participating merchants might pursue this matter through parking surcharges, particularly in conjunction with a shared parking scheme.

Traffic Calming

“Traffic calming” is a concept that recognizes the importance of streets for all modes of travel, not solely for cars and trucks. Pedestrians and bicyclists usually must share the same streets, but planning and engineering trends over the past 40 years have placed them at a distinct disadvantage compared to high-speed vehicles.

Most traffic calming efforts have been made in response to residents of side streets who have become upset by cars racing through their neighborhoods to avoid traffic congestion on major roads. In this situation, undesirable though traffic is “calmed” with physical techniques such as speed humps, narrowed lanes, landscaping, traffic diverters, jogs, or traffic circles at intersections. These can be considered “active” traffic calming techniques, which are intended to reduce speeding, or even reduce the capacity of the road, to discourage its use as a shortcut.

In 1992, Lee County adopted an administrative code (11-14) with standards for applying active traffic calming measures in local residential roads. The county is also planning to construct roundabouts on a few collector roads, although these will serve as traffic control devices (replacing four-way stop signs at intersections) rather than for traffic calming. Local roads are seldom used as shortcuts because of Estero Island’s long and narrow shape, so this kind of traffic calming will have very limited

application at Fort Myers Beach.

There are also “passive” measures that calm speeding traffic. These measures can play a major role in reducing speed without diminishing the number of vehicles that can use the road. Fort Myers Beach has an obvious problem with too-slow speeds near Times Square during the peak season, but excessive speeding is also a problem along Estero Boulevard at other times and locations. With the number of bicycles and pedestrian sharing Estero Boulevard, this speeding is extremely dangerous, especially with the nightlife and bars that are patronized by Lee County residents who then drive themselves home.

“Passive” traffic calming measures do not interfere with the number or continuity of travel lanes in a road (although they sometimes reduce lane widths slightly). Typical techniques include providing curbs and street trees; allowing buildings nearer the road; and creating interesting vistas for drivers. These measure make the road more attractive and usable for pedestrians, and also discourage speeding by ending the resemblance of the road to a rural highway whose wide travel lanes, minimum curvature, and wide breakdown lanes are designed for high-speed vehicles. Passive traffic calming measures have received little attention from traffic engineers; they are not even mentioned in Lee County’s formal policy on traffic calming (which only addresses active measures).

The precise design of an intersection can also have a great impact on travel behavior and pedestrian safety. Sharp corners (with a short radius) require drivers to slow down before turning. When the corner has a larger radius, vehicles can turn at faster speeds and crosswalks must be longer, making crossing much more dangerous. Some corners are designed with a channelized turn lane with a very large radius; these are extremely dangerous to pedestrians, although a raised island can be provided as a refuge for pedestrians. Figure 25 illustrates these types of intersections.

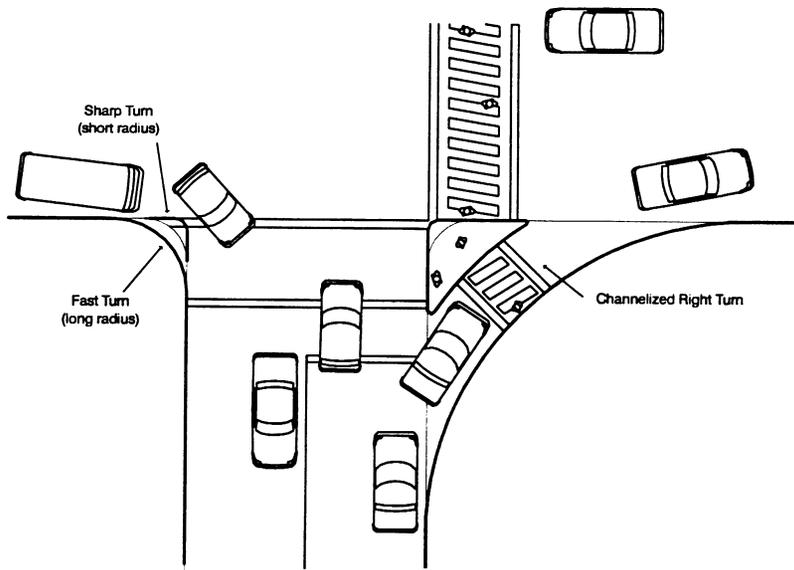


Figure 25, *Examples of pedestrian-vehicle conflicts*

Landscaping and street trees provide a hospitable environment for pedestrians and thus pedestrian-oriented commercial activities. The presence of pedestrians passively calms traffic. Some of the innovative signs that are being tried at Fort Myers Beach acknowledge the presence and the rights of pedestrian and cyclists and also act as passive traffic calming measures.

Motorists understand the nature of a more urban street and tend to slow down, not just for fear of being cited for speeding, but because there are inherent uncertainties about what lies ahead. As a bonus, these roads are more interesting to drive along, even when congestion slows traffic to a crawl.

Some parts of Estero Boulevard, such as from Times Square to the library, already have many passive traffic calming measures (and some active ones such as parking spaces that require backing out, to the detriment of its traffic-carrying capacity). Its

passive measures include sidewalks, heavy pedestrian usage, power poles near the road, many buildings near the road, and even the jogs in the right-of-way at Times Square and the library. Extending the Times Square streetscape south of the Lani Kai will have a further calming effect on traffic while better protecting pedestrians from reckless drivers (through the curbs and street trees).

The potential effects of specific traffic calming measures, whether passive or active, should be carefully studied before they are implemented. Actual vehicular speeds can be measured over a period of time to identify the most problematic areas. Then various techniques that will serve other community needs as well can be evaluated for their impact on traffic flow and safety and to ensure that emergency vehicles will retain full access. This type of study can be done for the entire town, or for selected areas that seem particularly dangerous or that are being considered for redevelopment.

Redevelopment of Major Activity Nodes

There are four major nodes of activity along Estero Boulevard: Bowditch Point, Times Square, Bay Oaks, and Villa Santini Plaza (see Figure 26). All four have reasonable access (or potential for access) by trolleys, by sidewalks, and by dockage for boats. Parking issues for Bowditch Point and Times Square have been discussed above. Neither Bay Oaks nor Villa Santini have great surpluses of parking, but parking is adequate for the existing land uses. Any redevelopment within these nodes should be coordinated with promoting access by means other than just cars.

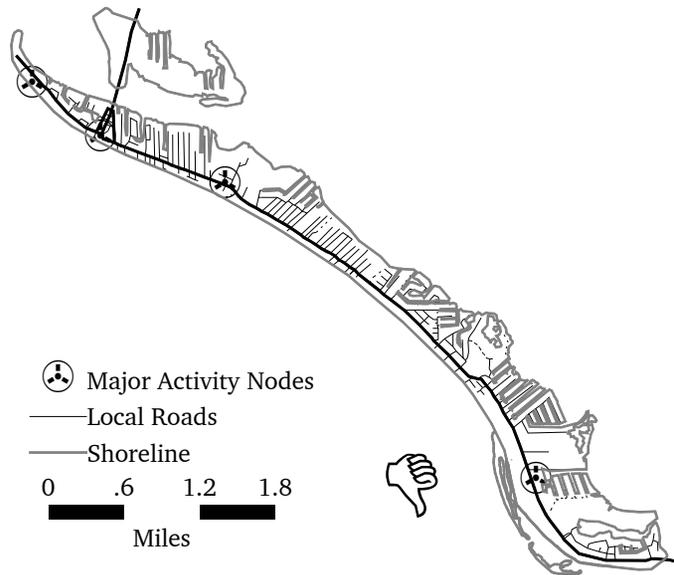


Figure 26, Major activity nodes at Fort Myers Beach

For instance, redevelopment areas could have parking limitation criteria by which new trips generated as a result of new or expanded land uses would not result in additional parking (a “no net gain” policy). Good design can often produce this result, as in the previous example (Figure 16) of stores separated from the sidewalk by large parking lots.

For work trips, accessible shower facilities for employees can encourage the use of bicycles. Currently only the Bay Oaks Recreation Center has publicly accessible showers. The showers at Bowditch Point do not lend themselves to accommodating work trip because they are located away from most places of employment.

The town should insist on considering these matters before approving major redevelopment projects. The Diamondhead convention center, for instance, is being built between two of the most important nodes of activity on Fort Myers Beach, and will have great impacts on both. Under current rules, however, no traffic circulation analysis was required except for a determination of whether to build a single turn lane. (Further analysis wasn’t required because no rezoning was needed and the number of trips generated in the peak hour fell below a fixed county-wide threshold.) The Town should ensure that its development regulations do not allow this situation to continue.

Reducing Intersections onto Estero Boulevard

An option that may merit further study would be better use of some existing roads that run parallel to Estero Boulevard. Such roads exist at several locations on the Bay side and function as minor collector roads; Shell Mound Boulevard is an example. The purpose would be to reduce the number of intersections onto Estero Boulevard by partially or fully closing some local streets where they intersect Estero Boulevard. The closure could be total, creating a cul-de-sac on the local street; or partial, where right turns could be made in or out, but a median on Estero Boulevard would prevent left turns in or out. Pedestrian passage would never be blocked. Vehicular turns that are blocked would be made on an alternate route whose design would be improved to handle those turns. The intent of these changes would be to avoid some of the conflict points and turning maneuvers that restrict the capacity of Estero Boulevard.

An obvious concern of nearby residents would be increased traffic by motorists seeking to avoid congestion on Estero Boulevard. This can be prevented in a number of ways, such as narrowing the parallel road or carefully selecting the intersecting streets to remain open. For instance, if Madison Court provided a main access to Shell Mound Boulevard (rather than Donora as at present), traffic on Shell Mound might even be lower than today's levels.

Figure 27 shows some candidates for street closure that could be examined in more detail to determine their feasibility. The heavy lines indicate the parallel roads, and the stars indicate some intersections with Estero Boulevard that might be partially or fully closed (see Table 7-A-8). Unfortunately, these intersections are not in the area of greatest congestion on Estero Boulevard (refer back to Figure 5).

Table 7-A-8 — Parallel Minor Collectors	
<i>Parallel Collector</i>	<i>Intersection With Estero Boulevard</i>
OAK STREET:	
	Gulf Beach Road
	School Street
	Bay Road
SHELL MOUND BOULEVARD:	
	Donora Boulevard (<i>minor collector</i>)
	Voorhis Avenue
	Eucalyptus Court
	Madison Court (<i>minor collector</i>)
	Washington Avenue
	Jefferson Street
	Mid Island Drive
	Connecticut Street (<i>minor collector</i>)
LAUDER STREET:	
	Sterling Avenue
	Aberdeen Avenue
	Lanark Avenue

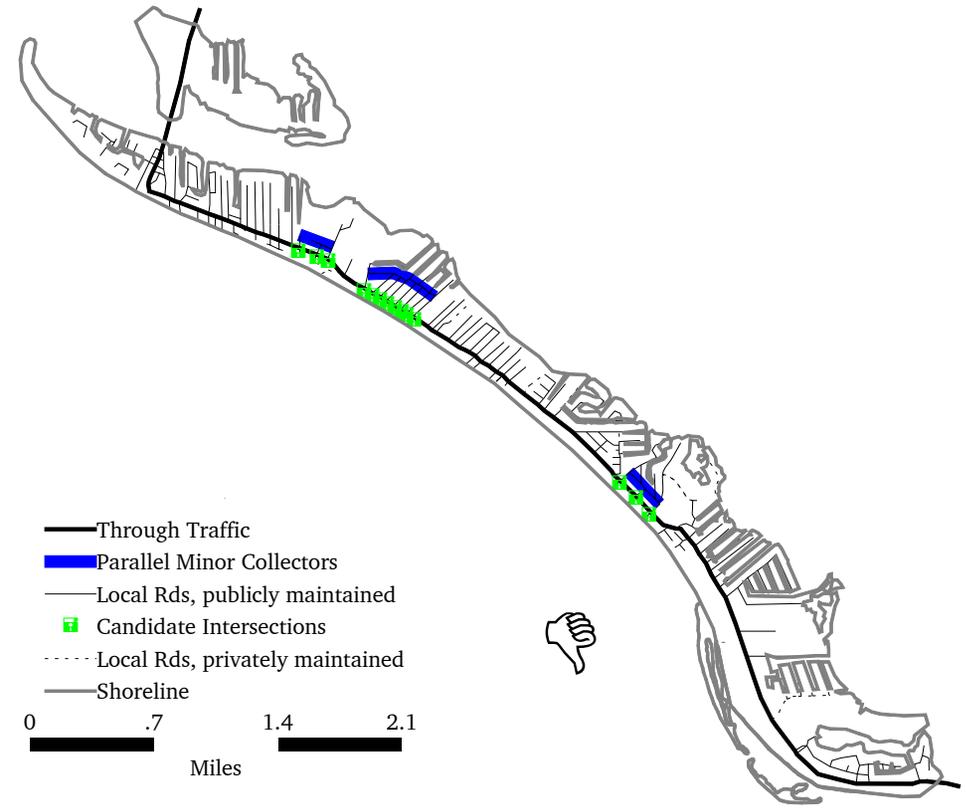


Figure 27, Candidates for reducing intersections onto Estero Boulevard

It may even be possible to acquire land or easements to partially extend some roads parallel to Estero Boulevard. This could improve the interconnection of neighborhoods and allow local and inter-neighborhood trips to avoid Estero Boulevard. Neighborhood attitudes to such changes should be gauged before any extensive work is done on this subject. Attitudes are difficult to predict in advance because street closings and extensions have multiple impacts:

- they may reduce traffic on one street while dumping it on another;
- they may stabilize the residential character of some streets by isolating them from potential encroachment of commercial uses;
- they may be so controversial among neighbors that the discord itself outweighs the potential benefits.

There may also be opportunities for connecting parking lots and shared driveways towards the same objective.

Improved Law Enforcement

The number of traffic violations at Fort Myers Beach isn't documented as higher than other parts of the county, but the town's position as a pedestrian hub of the region makes law enforcement a critical safety matter. Recent innovations such as community policing have demonstrated the value of unconventional techniques such as bike patrols and reintroduced techniques such as mounted police and beat cops. These techniques provide human contact between the police and the community; and the presence of the police at the street level improves law abidance including reduced traffic violations. The future will bring more new techniques and will reintroduce some currently unfashionable ones.

Reckless driving can cause injuries and property damage, and depending on the hour of the crash, can also bring the operation of the road network to a halt. The reduction of reckless driving

must be the highest priority if the pedestrian character of Fort Myers Beach is to be retained and improved. Running red lights, for example, has reached epidemic proportions throughout the state. Since there will never be enough policemen to regularly patrol intersections, video cameras have been successfully tried and have shown promising results. However, some courts do not recognize traffic violations that were not personally observed by a deputized officer, precluding the video system from automatically issuing tickets. Two alternatives to resolving this impasse are changes to state law, or having officers personally view the videotape and witness violations after-the-fact.

Parking violations can also become law enforcement issues. Overdue parking meters and the misuse of handicapped parking spaces are the most obvious. But more important parking issues also arise. A major issues at Fort Myers Beach is the towing of cars that are parked illegally on private property. Although this practice is legal as long as kickbacks aren't paid to the property owner, it is a major black eye for the entire community, especially when excessive towing rates are charged along with punitive payment policies. The town has recently adopted an ordinance to control rates and payment policies. The real solution, though, is for the entities doing the towing to recognize that their resource of extra parking can be made directly profitable through parking fees. Towing is hardly the best way to make use of a valuable resource.

Cars may not be towed by a third party from public rights of way unless the car impedes a driveway and essentially blocks a means of egress and ingress. This applies along Estero Boulevard and on side streets. A problem may arise along Estero Boulevard where there is grandfathered on-street parking or zero-lot-line parking, or the common situation where existing spaces are partly on private and partly on public land.

Innovative Signage

In the last five years, improved traffic signs have been placed along Estero Boulevard to emphasize heavy pedestrian use there. In addition, the new “zebra” pedestrian crossings alert motorists of pedestrian crossings, primarily at beach access points (13 out of the 36 beach access points have pedestrian crossings) and more intense commercial and residential nodes (Times Square, Villa Santini Plaza, and Red Coconut RV Park). Their effectiveness cannot be gauged yet but some reduction in injuries and property damage have already appeared. Lee County is now considering new signs that would encourage northbound traffic to use Crescent Street to reach the bridge or the north end of the island.

Hurricane evacuation signs are currently located only at Lovers Lane, Donora Boulevard, Washington Street, and Lenell Road, with the first two directing the traffic towards San Carlos Boulevard and the last two towards Bonita Beach. The point of division is about 2 miles south of Times Square, although no data has been located that would support this split of traffic. The signs at Donora and Washington face traffic from the local roads, while the signs at Lovers Lane face northbound traffic and signs at Lenell face southbound traffic along Estero Boulevard. The location and adequacy of these signs needs to be evaluated now that San Carlos Boulevard and Bonita Beach Road have been widened and any low points on the evacuation routes can be identified. The current division of evacuation traffic should be considered preliminary and subject to further evaluation.

During an evacuation, instructions from law enforcement and emergency management personnel will supersede the signs, but prior to those agencies taking control, opportunities for an early, orderly, and safe evacuation could be lost without proper attention to details such as roadway elevations and properly located signs. Also, the signs provide a constant reminder of the potential danger and general instructions on how best to proceed if evacuation is needed.

Tolls on Bridges

Currently, road maintenance at Fort Myers Beach is divided between the state, the county, and the town. The Florida Department of Transportation (FDOT) maintains San Carlos Boulevard from the signalized crosswalk at Times Square to McGregor Boulevard on the mainland. Lee County DOT maintains Estero Boulevard from the crosswalk south to Big Carlos Pass and beyond. The county has retained maintenance of this portion primarily because Estero Boulevard is part of the county’s arterial network and an evacuation route.

The town is responsible for maintaining all other public roads, including Old San Carlos and Estero Boulevard from Times Square north to Bowditch Point. The town does not have its own maintenance crews; it contracts maintenance work to private firms or to Lee County DOT through an interlocal agreement. Under this agreement, the county agrees to provide maintenance as requested by the town at rates that are specified in the agreement. The town and the county have recently extended this agreement through September 1998.

With the recent widening of San Carlos Boulevard and improvements to Estero Boulevard, the routine maintenance costs in the short term will be relatively low. The town could absorb those costs if Lee County and FDOT are willing to relinquish their responsibilities for these facilities. Table 7-A-9 summarizes the maintenance costs for these facilities in 1996.

Table 7-A-9 — Reported Maintenance Costs

<i>Facility</i>	<i>1996 Maintenance Cost</i>
Big Carlos Pass Bridge*	\$70,000
Estero Boulevard	\$37,500
Matanzas Pass Sky Bridge**	\$1,000
San Carlos Boulevard***	\$45,000

* Includes bridge tenders salaries

** Hurricane Pass Bridge not available individually

*** Includes up to US 41 via McGregor/Colonial

The benefits and costs of such a roadway turnover, however, need to be carefully evaluated. The immediate benefit of maintaining all the roads and bridges within the town would be the ease in decision-making about operational improvements such as traffic signals, speed limits, and reversible lanes. The immediate costs might be similar to those found in Table 7-A-7-A-4, plus the cost of professional engineering assistance.

The longer-term benefit of assuming responsibility would be the ability to implement the town's policies from a focus on "vehicle moving" to "people moving," without having to persuade several other jurisdictions every time an operational change is desired. The long-term costs would include major highway renovation and bridge replacement, including unexpected costs from hurricane damage. Avoiding those costs would be the likely motivation for the state and county to give up their current responsibilities. An independent engineering evaluation of the condition of both bridges would be essential before seriously negotiating over their future.

The turnover of county facilities to the town might be relatively easy due to the county's recent efforts to turn over responsibility for a wide variety of county facilities, especially those in cities, including neighborhood and community park maintenance (such as Bay Oaks) and arterial road maintenance (such as Periwinkle Way and Sanibel-Captiva Road on Sanibel).

The transfer of maintenance responsibility from the state, however, may be more complex. FDOT's general policy disfavors a piecemeal approach to turning over their facilities. Since the sky bridge is part of San Carlos Boulevard, FDOT can be expected to suggest that turnover of the bridge be connected with assuming responsibility for an entire link of San Carlos Boulevard to a logical terminus as far away as Summerlin Road (which is about 3 miles outside the town's boundary).

FDOT proposed a similar approach in 1995 during negotiations

with Collier County about placing a toll on the bridge to Marco Island. FDOT cited its formal policy against imposing tolls where they are not needed to repay revenue bonds; this policy is designed to keep motorists from "paying a second time" for a facility that was built with traditional user fees such as gas taxes. However, FDOT will consider exceptions to this policy after examining the effect of tolls on the overall transportation system and how they relate to local transportation planning. (Whenever tolls are in excess of costs to maintain a road or bridge, FDOT uses them for other roads in the same county.) In the Marco Island case, FDOT suggested that Collier County might take over the Marco Island Bridge, but only in a package with all of State Road 951 from Marco Island to U.S. 41 (a distance of 7 miles). Then FDOT policy would not affect any decisions on tolls.

The imposition of tolls has the potential to modify travel behavior as well as be a significant revenue source for transportation purposes. Properly used, tolls can help manage congestion, with toll levels varying by season or time of day. There are potentially suitable sites for a toll facility off the island, but none on the island. Maintaining former county and state roads and bridges could allow the use of tolls if they prove desirable. The impact of tolls on the tourism-based economy of Fort Myers Beach, however, must be carefully evaluated before this possibility forms the basis of assuming additional road maintenance responsibility.

The town may also wish to consider the potential for future annexations in the same discussion on road turnover. For instance, a terminus on San Carlos Boulevard might be negotiated with FDOT in conjunction with establishing a maximum future boundary of the town, or considering the use of the San Carlos Boulevard right-of-way as the required contiguity with the town for land that doesn't directly abut the town's current boundaries. The same issues might arise in taking over responsibility for the Big Carlos Pass Bridge and portions of Hickory Boulevard be-

yond the bridge. The town should not try to impose annexation on any land; voter approval is required in nearly every case. But prudent planning might leave open options for annexation should they ever be in the interest of the town and those currently outside its boundaries. Governmental responsiveness to the needs of coastal communities could become a driving force for annexations in the future.

Funding for Road Maintenance and Improvements

Funds for maintaining and improving roads at Fort Myers Beach can come from gasoline taxes, impact fees paid by new development, and special taxing districts. The town can also use any of their general revenues (such as property taxes) for transportation improvements.

There are two types of gasoline taxes, those charged to motorists statewide and those charged by initiative of the Lee County Commission. Part of each gasoline tax is shared with the Town of Fort Myers Beach.

The state of Florida charges statewide gasoline taxes, 1 cent per gallon of which is deposited in a municipal revenue sharing trust fund (along with a portion of the state cigarette tax). A share of this fund is distributed annually to each municipality based on a complex statutory formula. The Town of Fort Myers Beach will receive about \$84,000 from this fund in 1998. About 35% of this amount comes from the municipal gas tax and can be used only for transportation purposes, including transportation-related public safety activities.

In addition to the statewide gasoline taxes, Lee County has adopted a “local option” gasoline tax of an additional 11 cents per gallon. The county is obligated to share a portion of this tax with all of its municipalities. Although state law provides a distribution formula, counties and cities are allowed to negotiate a different distribution by interlocal agreement. Such an agreement has been reached in Lee County, resulting in the

distribution shown in Table 7-A-10.

Table 7-A-10 — Division of 11 Cents Per Gallon Local Option Gas Tax

<i>Municipality</i>	<i>Percentage</i>
Fort Myers Beach	2.3%
Sanibel	5.0%
Fort Myers	14.0%
Cape Coral	23.3%
Unincorporated Area	55.4%

In 1998, Fort Myers Beach will receive about \$575,000 from this source. There is no rational reason for Fort Myers Beach’s share to be less than half that of Sanibel (which is of similar size and character as a tourist destination). The town is attempting to renegotiate the agreement for a fairer apportionment of revenue. A new allocation could be based on peak (rather than permanent) population, or the number of vehicles using the roads (both of which would reflect the impacts of tourism better than other measures).

The town also collects road impact fees, having adopted Lee County’s road impact fee ordinance upon incorporation. Prior to issuance of building permits, these fees must be paid into a fund that is used to build new roads to offset the impacts of growth. Table 7-A-11 shows the current rates that are charged for several common types of development.

Until late 1997, impacts fees paid by those developing property at Fort Myers Beach were deposited into the same account as all development occurring west of Interstate 75 between Bonita Springs and Fort Myers. A total of \$315,000 had been deposited into this account from development at Fort Myers Beach from the date of incorporation through 10-31-97. Lee County and the town are negotiating an interlocal agreement that will turn these funds and future road impact fees over to the town. For budget

purposes, these fees can be expected to total about \$150,000 per year in the future.

**Table 7-A-11 — Road Impact Fee Rates
(Per Dwelling Unit or 1,000 Sq. Ft.)**

<i>Land Use</i>	<i>Amount</i>
Single Family	\$1,712
Duplex	\$1,251
Multifamily	\$1,075
Mobile Home	\$775
Office (<100,000 s.f.)	\$1,990
Medical Office	\$4,169
Convenience Store	\$11,177
Retail (<100,000 s.f.)	\$3,297
General Industrial	\$1,079

Road impact fees are spent to improve roads in the same district where they are collected; unspent fees are retained for future use within that district. Since no further road improvements are planned by Lee County on Estero Island, the impact fees collected there will always be used on the mainland. Although mainland roads do benefit town residents, mainland traffic causes acute congestion at Fort Myers Beach during the peak season. Lee County only allows its road impact fees to build new roads (and occasionally bike paths); it will not make other types of transportation improvements such as mass transit or parking. The town may wish to establish its own road impact fee program that would allow other means of offsetting the impacts of growth, given the town's intractable transportation problems. Instead of limiting expenditures to new roads, the program may be expanded to cover capital improvements such as improved mass transit, better sidewalks, elevating roads to prevent flooding, and providing off-island parking areas.

In addition to gasoline taxes and road impact fees, the town council can establish a special district within a defined area of the island to fund maintenance and/or capital improvements there. The council is currently considering this concept, sometimes called a Municipal Service Taxing or Benefit Unit, for use in the downtown area. It could fund continuing maintenance of existing and future improvements (such as the existing street lighting district). It can also be used to build specific capital improvements such as underground utilities or sidewalks. Taxing districts usually pay for on-going maintenance with a levy based on the assessed value of property. Benefit districts usually pay for one-time capital improvements, based on the acreage or front-footage of properties being benefitted by the improvement. The council can establish these districts without a referendum.

Roads, even local roads with very little traffic, must be resurfaced occasionally to protect the underlying layers of crushed rock that support the surface layer of asphalt. Lee County has recently resurfaced nearly all roads at Fort Myers Beach, but the next maintenance cycle on local roads will be the responsibility of the town. Well in advance of reconstruction of this magnitude, an inventory of all the roadways and their anticipated life cycle will be needed. Based on that inventory, a phasing schedule can be developed to take advantage of substantial economies of scale. (Generally it is cheaper to advance a scheduled reconstruction by a couple of years so that mobilization costs can be spread across a larger number of roads.)

CAPITAL-INTENSIVE ALTERNATIVES

The transportation options in the previous section could be implemented without acquiring major new rights-of-way. None of these options would “solve” traffic congestion in the peak season; there is so much pent-up demand for driving to the beach that many “partial solutions” would merely encourage additional drivers on the road, offsetting the advantages just gained.

This section looks at more ambitious solutions to traffic congestion, even though they may be widely dismissed as financially infeasible or environmentally questionable or unsound. These options are worth examining for many reasons, including the possibility of redesigning the traffic circulation network if a major hurricane destroys major parts of the existing network. The options to be examined include:

- a new bridge to the mainland (at four different locations);
- the four-laning of Estero Boulevard; and
- the conversion of Estero Boulevard into a “grand boulevard” (with separate lanes for local traffic).

Additional Bridge to the Mainland

Additional bridges to Estero Island have probably been contemplated since the second bridge was built across Big San Carlos Pass in 1965. That bridge converted the dead-end Estero Boulevard into a beautiful through-route along the beaches that even today attracts drivers who never plan to stop on Estero Island. It also justified the high-density rezonings that have resulted in today’s high-rise resort district that includes buildings whose densities average well above 20 dwelling units per acre (compared to today’s cap of 6 per acre). Following a seemingly inevitable pattern, each new bridge spawns the need for “just one more.”

Four potential locations for another bridge are reviewed here (see map in Figure 28):

- a bridge from Black Island to Coconut Road;
- a mid-island bridge to tie into Winkler Road;
- a bridge from just north of Bay Oaks to Main Street on San Carlos Island; and
- a twin span near the existing Matanzas Pass Sky Bridge.

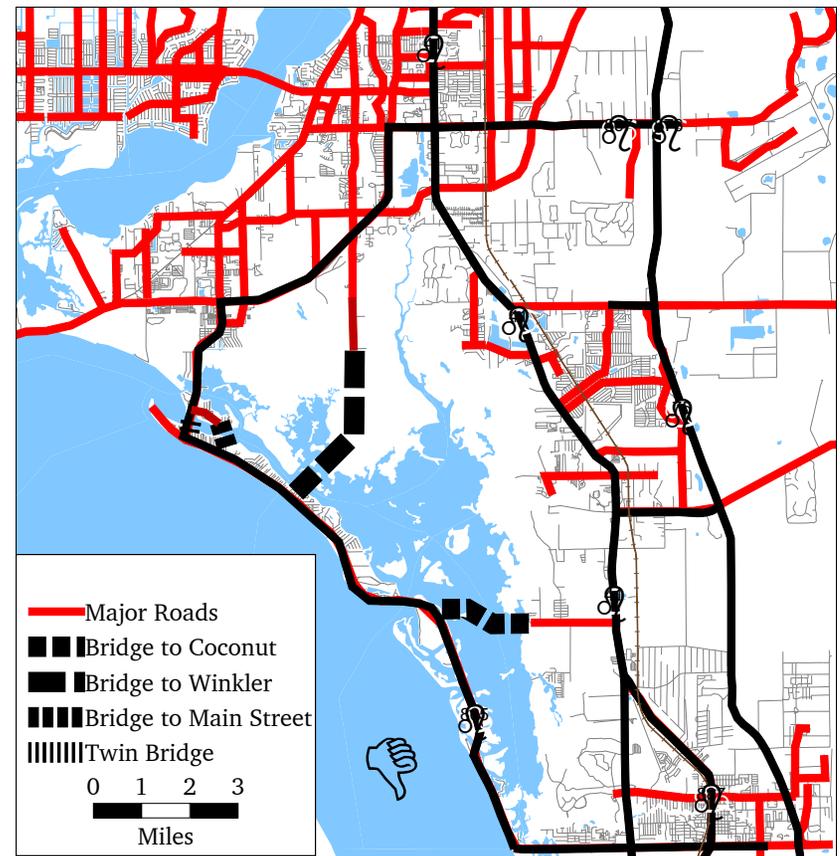


Figure 28, Potential routes for an additional bridge

Black Island to Coconut Road

A new bridge connecting Black Island to Coconut Road has long been discussed by Lee County, although it is no longer included in any official transportation plans. This idea was widely considered in the early 1980s when Black Island and Lover's Key were to be considered for intense urban development and/or a public park; a consultant to Lee County identified three specific locations where this bridge could connect to Black Island.

Coconut Road now runs between Estero Bay and U.S. 41, and would provide a corridor to connect a new bridge to U.S. 41. Private developers are planning to extend Coconut Road further to the east, and ultimately would like to connect it to a new interchange on Interstate 75 (although an interchange at that location was recently rejected by FDOT). A new bridge to Coconut Road would provide direct access for tourists to reach the new state recreation area on Lover's Key. Much of this traffic now uses the sky bridge and Estero Boulevard to reach Lover's Key. A new bridge would also provide another route off Estero Island, especially for those who live towards the south end.

Unfortunately, this route would require an extremely long and expensive bridge, since causeways (like the one to Sanibel) cannot be built across the Estero Bay Aquatic Preserve. Environmental damage would be extensive, permitting would be very difficult, and feasibility for toll financing is questionable given the easy availability of two other bridges (which have extra capacity except during the peak season). Neither Lee County nor the state has shown any recent interest in building a bridge to Coconut Road; in fact it appears to be against the policies of both. The Lee County Comprehensive Plan now contains the following language:

GOAL 76: LIMITATION OF PUBLIC EXPENDITURES IN COASTAL HIGH HAZARD AREAS. *To restrict public expenditures in areas particularly subject to repeated destruction by hurricanes, except to maintain required service levels, to protect existing residents, and to provide for recreation and open space uses.*

OBJECTIVE 76.1: COASTAL HIGH HAZARD AREA EXPENDITURES. *Public expenditures in areas particularly subject to repeated destruction by hurricanes shall be limited to necessary repairs, public safety needs, services to existing residents, and recreation and open space uses.*

POLICY 76.1.1: *All further public expenditures made for new facilities on undeveloped barrier islands or within V zones shall require a finding by the county commission that such expenditures are necessary to maintain required service levels, to protect existing residents, or to provide for recreation and open space needs.*

POLICY 76.1.2: *No new causeways (public or private) shall be constructed to any islands.*

POLICY 76.1.3: *No new bridges shall be constructed to undeveloped barrier islands except where needed to achieve evacuation clearance time objectives on adjoining islands connected by existing bridges. In such a case, this plan shall be amended to insure that the ultimate development of all areas served by the new bridge is limited to levels which can safely be served by the new and existing bridges.*

POLICY 76.1.4: *When state funding is required for the relocation or replacement of infrastructure currently within the Coastal Building Zone, the capacity of the replacement structure shall be limited to maintaining required service levels, protecting existing residents, and providing for recreation and open space needs.*

Some of the language above is derived from the 1981 Charlotte Harbor Management Plan, which required that local governments prohibit construction of bridges and causeways on or to

undeveloped barrier islands. The Charlotte Harbor Management Plan was prepared by a "Charlotte Harbor Resource Planning and Management Committee" appointed by the governor.

In 1981, the governor issued an executive order restricting the use of state funds for infrastructure improvements to barrier islands. This order directed state agencies to give priority to barrier islands in land acquisition programs, and allow state and federal grants only in those coastal areas:

"which can accommodate growth, where there is need and desire for economic development, or where potential danger to human life and property from natural hazards is minimal. Such funds shall not be used to subsidize growth or post disaster redevelopment in hazardous coastal barrier areas." (EXECUTIVE ORDER NUMBER 81-105)

Mid-Island to Winkler Road

A mid-island bridge is an earlier idea for reducing congestion on Estero Boulevard. An actual 100' right-of-way existed at least back to 1963 that would have provided a direct route from the end of Winkler Road (south of Summerlin Road) to Estero Boulevard just south of Mid Island Marina. This route has merit from a transportation standpoint, providing another evacuation route while allowing beachgoers to totally bypass the congested roads just south of Times Square. However, its route is very environmentally sensitive, traversing Matanzas Pass, Julies Island, and the extensive wetlands fringing Estero Bay. Construction would be a formidable and costly undertaking, requiring extensive mitigation requirements for damaging pristine wetlands and wildlife habitat (if permits could be obtained at all).

Several major factors have now made this route quite infeasible:

- The right-of-way would reach Estero Island between Bayland Road and Madera Road, just south of Mid Island Marina. Most lots on both streets already have homes, which would result in major disloca-

tions and public costs (although dislocations could be reduced by using an alternate route through the Mid Island Marina).

- The state has purchased 5,500 acres on the north side of Estero Bay to form the Estero Bay State Buffer Preserve. This land lies on both sides of the right-of-way; it is the same land that was proposed for the massive 1970s development to be known as "The Estuaries." The land was purchased because of its unsuitability for urban development.
- The right-of-way itself has recently been donated by Lee County to the state. The county had applied for permission to dredge a navigation channel from the Imperial River to the Gulf. This channel traverses the Estero Bay Aquatic Preserve, where new dredging is prohibited by state law. A permit condition required donation of the right-of-way to offset damage caused by the channel dredging.
- A bridge at this location would face many of the same problems with county and state policies that were discussed above for a bridge to Coconut Road.

In a post-disaster scenario, if the existing homes on Bayland and Madera were badly damaged or destroyed, they may no longer be an impediment to construction of a new bridge. But the loss of the right-of-way, combined with the environmental sensitivity of the route and state ownership of the land on both sides for preservation purposes, effectively eliminates this route from further serious consideration.

Bay Oaks to Main Street (on San Carlos Island)

There is another bridge alignment that would be much shorter but would still allow through-traffic to bypass Times Square and some of the most congested parts of Estero Boulevard. It would connect near the easterly end of Main Street on San Carlos Island, crossing Matanzas Pass to the east of the federal channel. The terminus on Estero Island would be near the northern end of

Bay Oaks Park, possibly at Gulf Beach Road (a short street between the Topps grocery store and Bay Oaks). Figure 29 illustrates this alignment.

This route would have environmental impacts to the Matanzas Pass Preserve and the Estero Bay Aquatic Preserve. These impacts would be much less than the first two alignments, however. This alignment also has the potential for neighborhood impacts at each end.

The major advantage over the first two alignments would be a greatly decreased cost, simply because of the reduced length. This alignment would have major impacts on San Carlos Island; some of these could be positive, particularly to the large marine industrial parcels on the south side of Main Street, but others would be negative, by increasing traffic past several existing mobile home parks.

If a bridge were built along this alignment, it should be expected

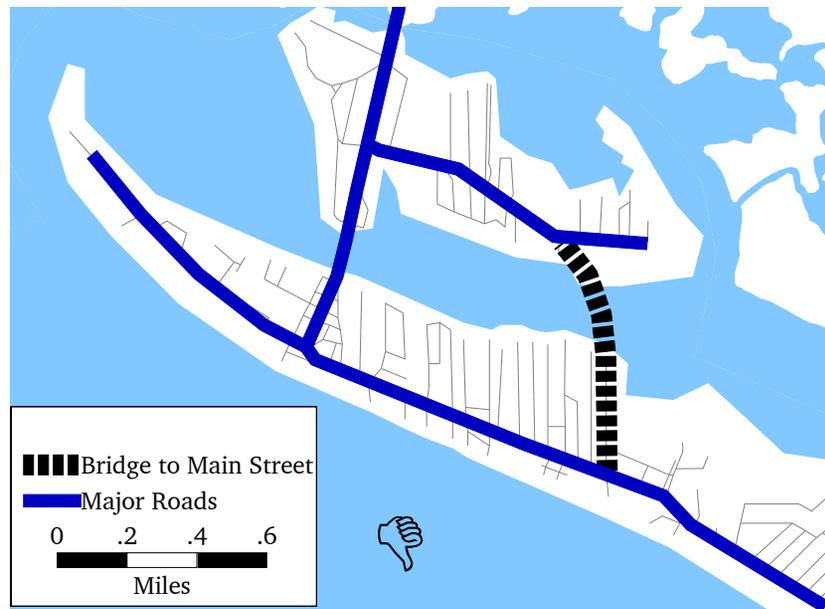


Figure 29, Potential bridge to Main Street

to induce additional travel to Fort Myers Beach by reducing congestion on the sky bridge and on Estero Boulevard from Times Square to Bay Oaks. Congestion would be *increased*, however, south of Bay Oaks where bridge traffic would meet vehicles coming from Times Square and continuing southward for some distance. The least damaging improvement would be a European-style “grand boulevard” with an extended pedestrian realm that includes a pair of tree-lined medians and a one-way access road on each side (see pages 7-A-55 to 7-A-57 for a fuller discussion of this concept).

Twin Bridge Over Matanzas Pass

If a mid-island bridge resembles the Midpoint Bridge recently opened between Fort Myers and Cape Coral, then a twin bridge over Matanzas Pass resembles the parallel bridge built in the late 1980s to increase capacity between College Parkway and Cape Coral Parkway. In that case the original bridge was still in good condition but was overloaded by commuting traffic between Cape Coral and Fort Myers. A new 2-lane bridge was built right next to the original bridge and now carries all eastbound traffic; the original bridge carries all westbound traffic. A toll plaza on the Fort Myers side collects tolls in both directions.

The existing Matanzas Pass Sky Bridge was built in 1978 and may be well past half its useful lifespan. Either as part of the reconstruction of that bridge or as a separate project, a twin bridge could be built that would connect Crescent Street to San Carlos Boulevard on San Carlos Island. This bridge could carry two lanes of northbound traffic, allowing the existing bridge to carry all southbound traffic. This location would allow a new bridge of the shortest possible length (refer back to Figure 28), reducing costs and the environmental damage inherent in building a new bridge.

Drawbacks to this bridge (besides cost) would include:

- It would increase road capacity over Matanzas Bridge even though the existing bridge is not over capacity even in the peak season (at least at present).
- It would increase the southbound capacity at the bridge from one lane to two lanes, encouraging more people to drive to Estero Island without increasing road capacity at the bottleneck just past the bridge.
- Mobile home parks and/or some businesses on the east side of San Carlos Boulevard would be displaced.

Four-Laning of Estero Boulevard

In the early 1990s, Estero Boulevard was widened to 34 feet of pavement, with traffic striping designating a center turn lane in large segments (see Figure 2 and Figure 3). Prior to these improvements, the pavement width was very much like Estero Boulevard north of Times Square, with 22 feet of pavement and unpaved shoulders. From Times Square to the Lani Kai, a new raised sidewalk has been added on the Gulf side.

Where center turn lanes have not been striped, the extra pavement is used for 5-foot paved shoulders on each side. These shoulder serve as a “recovery zone” for motorists, an area where they can regain control of their vehicle or maneuver to avoid collisions without leaving the pavement. The shoulders are also used by bicyclists riding and occasionally by pedestrians. The paved shoulders are also used for picking up and dropping off trolley passengers (since there are so few trolley pull-offs).

Due to the intensity of existing land uses, most of the center turn lane is located where the right-of-way is the narrowest. Between Lynn Hall Park and Flamingo Street, the rights-of-way ranges from 50 feet to 65 feet. For all practical purposes, the center turn lane is the last road widening within the available right-of-way. (A sidewalk can still be built on the west side, with moderate costs mostly due to relocation and removal of manmade and natural features; an additional easement would increase the buffer between the edge of the pavement and the edge of the sidewalk.)

To increase the traffic-handling capacity of Estero Boulevard further, additional right-of-way would be needed to add more travel lanes. This would be an expensive proposition because it would involve forced purchase of property, including potential payments for business damages based on loss of future income. However, in a post-disaster scenario, many buildings could already be destroyed, reducing these costs.

The amount of right-of-way needed for this improvement would be determined by the design of the road, but assuming plans would include 4 travel lanes plus a center turn lane, the minimum needed, irrespective of drainage concerns, would be an additional 11 feet for each new travel lane plus 3 more feet to provide a full sidewalk on the Bay side. (Travel lanes of 12 feet are recommended for higher speed free-flowing arterials.) If all drainage were underground, the new right-of-way would have to be at least 75 feet (instead of the current 50 feet near Times Square). This configuration is illustrated in Figure 30.

From Flamingo Street south to Big Carlos Pass, the right-of-way varies from 80 to 100 feet. In the widest areas, the road’s drainage could change from closed (underground) drainage to open drainage using grassed swales. Open drainage is preferred from an environmental perspective when enough right-of-way is available, and it is much less expensive. However, unless rights-of-way are very wide, swales use up land that could otherwise be used for sidewalks and bike paths. Given the pedestrian character of Fort Myers Beach, the long-term plan should be the elimination of most swales along Estero Boulevard and their replacement with sidewalks and bike paths.

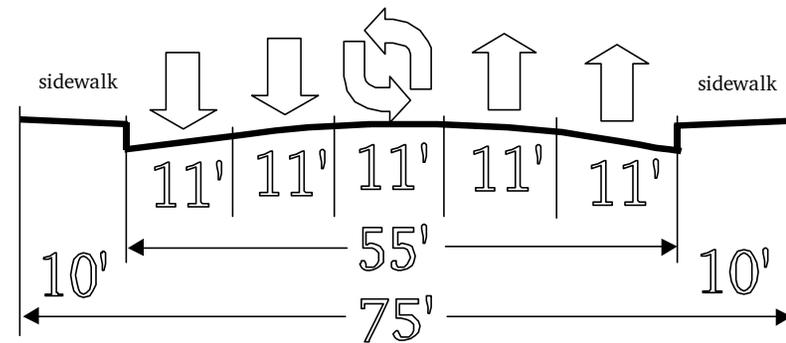


Figure 30, Estero Boulevard cross-section with five lanes

Ideally, a four-lane road would *not* have a continuous left-turn lane as shown in Figure 30. Without the left-turn lane, a landscaped median could be provided to make the road more beautiful and provide a refuge for pedestrians crossing the street (see Figure 31). However, without closing many of the intersecting side streets along Estero Boulevard (or providing other access to them), it would be very difficult to find locations where a median could be constructed.



Figure 31, Landscaped median dividing a four-lane road

Like many other traffic improvements discussed in this appendix, the widening of Estero Boulevard should be expected to reduce congestion enough to attract additional drivers; it may also move the “most congested area” further down Estero Boulevard where widening isn’t needed now.

Converting Estero Boulevard to four through lanes would greatly change the character of Fort Myers Beach. The following effects should be expected:

- a very noticeable reduction in congestion (at least initially);

- an increase in the number of day-visitors to the beaches in the peak season;
- increased private sector efforts to provide paid parking lots to accommodate additional visitors;
- over time, increased traffic flow (until congestion again deters many drivers);
- great difficulty for pedestrians trying to cross five lanes of traffic;
- improved business for merchants who can provide sizable parking lots; and
- an increase in development expectations, resulting in requests to rezone land for higher intensity uses.

The following design features could mitigate some of the adverse impacts just described:

- parking garages to increase parking without spacing out buildings so much that walking becomes impractical;
- fairly narrow lane widths to discourage speeding;
- raised medians wherever possible to provide a refuge for pedestrians while crossing;
- wide sidewalks with curbs and street trees (to separate pedestrians from moving traffic); and
- regularly spaced pedestrian crossings, especially just south of Times Square (these could be signalized with yellow flashers or stop lights, or provided with raised “speed tables,” to improve pedestrian safety).

Unfortunately, several of these mitigating factors (especially raised medians and wide sidewalks) can add substantially to the right-of-way that would have to be acquired from adjoining landowners, perhaps damaging the viability of one or both sides for certain land uses. The cost and therefore feasibility for this improvement would be greatly decreased if it were to be implemented only after a major hurricane where many buildings might be badly damaged or destroyed.

Rebuilding Estero Boulevard as a Grand Boulevard

Any major change to the configuration of Estero Boulevard may only be feasible after a major natural disaster. When envisioning this possibility, it is also worth considering a wider variety of options than conventional four- or five-laning. One such possibility would be to convert Estero Boulevard into a European-style “grand boulevard.”¹

There are many kinds of roads that are considered boulevards. One type is a standard thoroughfare with wide tree-lined sidewalks along each side, flanked by single-family homes. The best local example is McGregor Boulevard in Fort Myers. The current streetscaping plan for Estero Boulevard is beginning to create a more commercial version of this type of boulevard, without requiring any additional right-of-way.

Another type of boulevard has a wide central planted median and a one-way road on each side. The median may have sidewalks or formal street trees. This type of boulevard is found throughout the United States; well-known examples include Monument Avenue in Richmond, Virginia; Fairmount Boulevard in Cleveland Heights, Ohio; and Dolores Street in San Francisco.

A third type of boulevard is the European-style multiple roadway boulevard, with a central roadway for through traffic that is separated from side access roads by a pair of tree-planted medians (see Figure 32). Sidewalks can be placed on the medians, or can be on the outer edge of the right-of-way (protected from moving traffic by on-street parallel parking). This type of boulevard is found throughout Paris, where they were built in the



Figure 32, Local and through traffic separated in a grand boulevard

latter half of the nineteenth century in a massive but successful “urban renewal” effort to open up parts of the medieval street pattern. These grand boulevards were designed not only to ease terrible congestion but also to link important civic destinations. Since their conversion to automobile traffic, these boulevards have combined elegant public spaces and vast mobility within a single (albeit wide) right-of-way. The best examples reconcile the seemingly incompatible: high volumes of traffic and pedestrian-friendly street edges.

Grand boulevards often run through commercial districts, unlike most other boulevards. Street-level retail is fully compatible with the kind of pedestrian-oriented public spaces that are created. American versions of grand boulevards have also been built, usually in conjunction with new developments that were

¹ This section draws heavily on “Boulevards: A Study of Safety, Behavior, and Usefulness” by Allan B. Jacobs, Yodan Y. Rofo, and Elizabeth Macdonald, *University of California Working Paper 625*, November 1994

seeking to establish dignified public spaces; expensive residential structures often face these boulevards instead of commercial space.

In an intense commercial and mixed-use environment such as Estero Boulevard, the conflicts between through traffic, local traffic, and pedestrians are severe. Efforts to improve the flow of through traffic often work against pedestrian movement, and vice versa. A grand boulevard tries to reconcile each of these uses within a single right-of-way. Conflicts between through and local traffic (or between vehicles and pedestrians) of course don't disappear, but their needs are accommodated in a different way than under modern roadbuilding practices. The best boulevards do this by establishing an extended pedestrian realm that includes a pair of tree-lined medians and a one-way access road on each side, which along with the sidewalks all function at the pace of pedestrians. Buses would use the through lanes.

Some of the difficulties with the grand boulevard concept at Fort Myers Beach would include:

- additional right-of-way would be required (the absolute minimum would be 100 feet, with 125 feet and up being desirable), although a wider right-of-way might be less expensive if front setbacks were reduced for buildings along Estero Boulevard;
- the large number of cross streets, many of which might have to be restricted to right-in, right-out movements only;
- the unfamiliarity of American drivers with the complexity of the remaining intersections; and
- resistance should be expected because few true boulevards have been built in recent years.

Nonetheless, it is worth considering whether this concept could be feasible (at least in a post-disaster situation), and how it would affect traffic flow and the general character of Fort Myers Beach. Figure 33 shows one possible configuration for the most

congested portions of Estero Boulevard (from Crescent Street to the public library). It would include a central two-lane bi-directional through road; turn lanes at the more important side streets; formal planted medians on each side; and then a one-way local street on the outside of each median. Drivers would move from the through lane to the parallel local street (and back) either at intersections or through angled mid-block breaks in the median. This configuration would require a continuous right-of-way of at 113 feet, with occasional wider portions to accommodate trolley pull-offs or U-turns. Other configuration could include a dedicated transit lane (with a wider right-of-way), or limiting the parallel local street to specific areas rather than a continuous street (allowing a narrower right-of-way at other locations).

Positive results of a grand boulevard might include:

- Through traffic would flow more freely by being separated from those who are merely seeking a parking place (see Figure 32).
- Sidewalks would be fully separated from higher speed traffic.
- Additional space would be provided for street trees, which would shade the road, sidewalks and parking spaces.
- Instead of using the sidewalk, bicycles could use either the parallel local street or the faster through lanes; or a separate bike lane could be provided (if there were enough right-of-way).
- This configuration would provide some additional road capacity over the current situation (although far less than conventional four-laning) at the same time it actually improves the pedestrian realm.

Negative results of a grand boulevard might include:

- Reducing the number of cross streets would require more frequent U-turns along Estero Boulevard. Uncontrolled U-turns can be dangerous; dedicated U-turn

lanes take up valuable right-of-way

- A large number of conflict points would be created at the remaining intersections with side streets.
- The intersections (and perhaps lane widths) would almost certainly violate some of the highway design standards used by most American engineers.
- The extra road capacity would induce more private vehicles to travel to Fort Myers Beach, which is likely to increase congestion wherever Estero Boulevard remains in its current configuration.
- This option would be quite expensive to construct, especially if right-of-way had to be purchased any time other than following a major hurricane.
- The extra right-of-way might be best acquired from Bay side commercial properties, damaging their viability or encouraging migration of commercial activity back into residential neighborhoods. (A better option would be to reduce setbacks, perhaps to zero, at the same time right-of-way is acquired, thus reducing the damage to commercial properties.)

A partial application of the grand boulevard concept would be in conjunction with a new bridge from Main Street on San Carlos Island to the Bay Oaks area. Improvements to Estero Boulevard would be needed where the traffic from such a bridge would rejoin Estero Boulevard (perhaps using a roundabout instead of a traffic light), and continuing southward for some distance. The amount of traffic on this portion of Estero Boulevard would be greater than before, because the new bridge would allow more traffic to reach Fort Myers Beach. Simply adding a traffic light and two more lanes to Estero Boulevard would easily handle this additional flow, but at unacceptable costs to the community because Estero Boulevard would become a barrier to movement to and from the beaches.

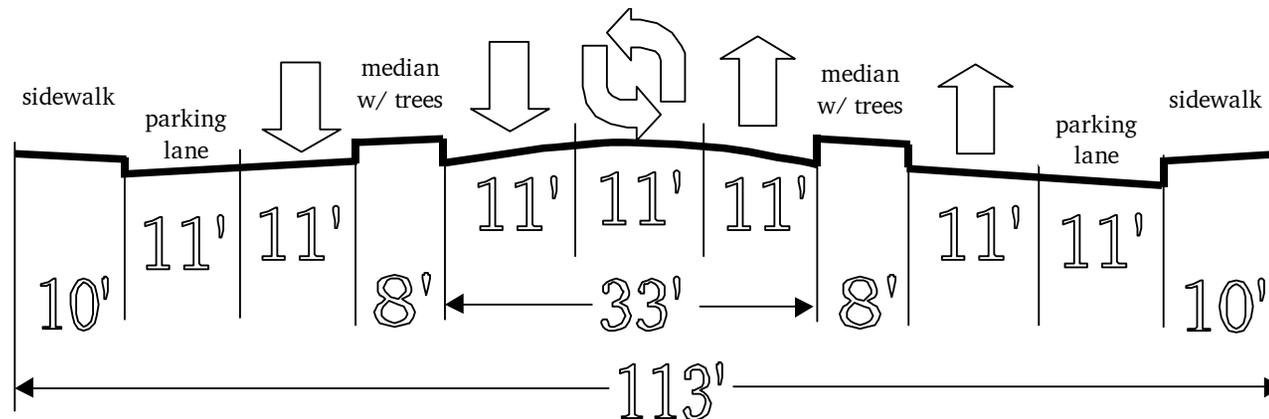


Figure 33, Concept for a “grand boulevard” at Fort Myers Beach

FUTURISTIC ALTERNATIVES

All of the improvements discussed thus far in this appendix could be implemented with technology that is available now. Most of this technology is widely used, although a few types are still evolving, such as transponders and variable sign boards.

Many other transportation technologies are under development or are being explored by entrepreneurs or government agencies. The technological landscape is littered with transportation ideas that seem outlandish now, such as pneumatic trains, flying cars, and rocket belts. But other improvements that seemed equally far-fetched are now in common use, such as driverless rail transit, air bags, and global positioning systems.

The following sections provide an overview of some technologies under development which provide some promise at Fort Myers Beach. Examined first are improvements to private vehicles, followed by potential mass transit improvements.

Improvements to Individual Vehicles

Low-Emission Vehicles

Tremendous efforts are being made to produce non-polluting cars that do not require large internal combustion engines. These efforts have been boosted by a California mandate to major auto manufacturers to begin selling zero-emission vehicles by the end of the decade. There are thousands of electric-powered vehicles on the road today; their limitations include a limited range between recharges of their onboard batteries (typically 75 miles) and relatively high cost because they are not mass-produced.

An alternative to all-electric vehicles is a hybrid electric vehicle that combines battery power with a small internal combustion engine (or possibly a fuel cell). The engine could charge the batteries continuously, or only at higher speeds, or only when

the batteries become depleted to some level. Toyota is now marketing the first commercial hybrid cars. The extra engine adds to the cost of the vehicle, but it has several advantages:

- it increases the maximum range of an all-electric vehicle;
- the engine can be one-fourth the size a standard car engine because its power is not needed for acceleration; and
- the engine itself can run at a constant speed (despite the car's varying speed); this allows the engine to be tuned for very low emissions compared to a standard car engine.

Although all-electric or hybrid vehicles hold great promise for reducing air pollution, their use as private cars would have little or no impact on congestion. Each vehicle would still require the same space on the road and use up the same amount of parking, although the air quality improvements would be welcome at Fort Myers Beach. Electric vehicles could easily be used for fixed-route vehicles such as mail trucks where the limited range poses no impediment. Small electric vehicles are also being tested as adjuncts to mass transit systems in "station car" experiments, where they be in a pool for the use of transit commuters.

Low-emission technologies have immediate promise at Fort Myers Beach for mass transit vehicles, most of which are now diesel-powered. Diesel engines cause visible and offensive fumes during acceleration, and they cannot be turned off for short periods, which makes trolley transfer points into undesirable neighbors for businesses that would otherwise welcome the flow of potential customers. (Cleaner engines are expected from a new generation of diesel engines.)

Low-emission buses or trolleys can be powered in several ways:

- all-electric (until recently these were limited to slow tram-style vehicles or vehicles that could be conveniently recharged between busy periods);

- compressed or liquid natural gas, or liquefied petroleum (LP or propane) gas; or
- electric hybrids, which can be assisted by diesel engines, fuel cells, or gas.

Some electric buses are now being used in Burbank, Santa Barbara, and Santa Monica, California. Orlando recently added six propane-powered trolleys along International Drive and ten natural gas buses downtown; they are also being used in Las Vegas and Washington, D.C. Propane or electric-powered buses or trolleys would be highly desirable at Fort Myers Beach; its resort and pedestrian character is less tolerant of air pollution than communities where most time is spent inside air-conditioned cars and homes.

Vehicular Automation

The past decade has seen considerable research into “automated highway systems.” This effort tries to increase the number of vehicles that can use a congested stretch of highway by substituting electronic systems for human avoidance of crashes. Individual vehicles (or just high-occupancy vehicles) could be equipped with automatic systems that can sense vehicles ahead and alter speed accordingly, or that use radar-based systems that sense any kind of obstacle and warn the driver or apply the brakes automatically.

A more advanced system would convert a busy highway lane into an automated lane that might carry double or triple the current number of vehicles. Only properly equipped vehicles would be allowed to enter this lane. Magnets embedded in the pavement would provide feedback to sensors mounted on these cars. A full-scale test of this concept took place in San Diego in the summer of 1997, where multiple vehicles were run along a specially equipped section of Interstate 15 (see Figure 34).

Even if automated highway technology becomes practical, there

are major problems with its use at Fort Myers Beach. To keep manually controlled cars out of the automated lanes, continuous barriers are required. Thus an extra lane must be constructed, with even greater problems than would be faced by adding conventional lanes (or HOV or reversible lanes as discussed earlier in this appendix). Given that congestion at Fort Myers Beach is seasonal, many of the very cars causing the congestion belong to seasonal residents and national rental fleets, making them less likely to bear the cost of equipment that would be required for using an automated lane.

Some of the technology developed for automated highways will undoubtedly be integrated into cars of the future, but full-scale automated highways are unlikely to provide relief to congested roads at Fort Myers Beach.

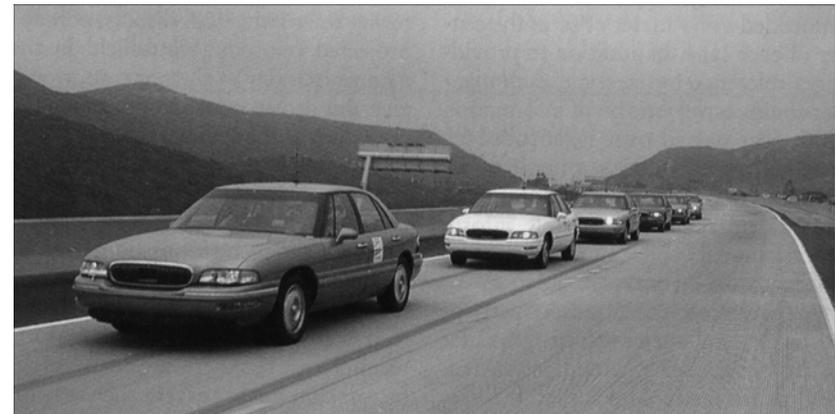


Figure 34, Automated cruising test on Interstate 15

New Types of Mass Transit

The acceptance of trolleys at Fort Myers Beach suggests that the public is more willing to use public transportation when the vehicles are interesting and unusual—even if they are less comfortable than modern buses. This opens up some mass transit possibilities that might otherwise not be considered at Fort Myers Beach. Some ideas for different forms of public transportation are discussed below.

Monorails and Peplemovers

A number of automated “peplemover” technologies are now in use. Some are monorails, where vehicles hang from or straddle a single continuous beam. These are often used between airport terminals or at amusement parks where a large number of people need to travel along a single path. Figure 35 shows a fully automated monorail that has been running since 1984 at Dortmund University in Germany. This monorail is suspended on L-shaped poles to allow other uses of the space below the beam.

Much larger peplemover systems are also in operation. An example is Vancouver’s “SkyTrain” which is an advanced light rapid transit system that is integrated with trolleys and a passenger ferry. Many others operate in France and Japan. These systems compete with more conventional modes of rail travel such as light rail, rapid transit, or conventional streetcars. These modes require exclusive, fully-segregated guideways (except for streetcars or San Francisco-style cable cars which share lanes with other vehicles).

Aerial Trams

Ski-lift and gondola hardware is also being adapted for urban mass transportation by several manufacturers. The beautiful Gulf views that would be provided by this technology could make it a tourist attraction as much as public transportation, and

could perhaps be implemented without dedicating an existing traffic lane for the purpose. This type of service could simply run parallel to the beach, or could connect Fort Myers Beach to the mainland as an enticement for the use of park-and-ride lots. Individual gondolas can be built to carry 4 to 12 passengers along with their bulky gear. Figure 36 shows a gondola in British Columbia. Aerial tramways provide larger vehicles and are typically used over steeper terrain, such as the new tramway in Juneau, Alaska, which connects the waterfront with Mount Roberts (see Figure 37).

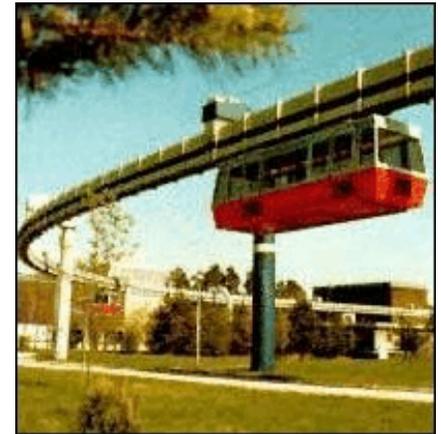


Figure 35, Automated monorail



Figure 37, Aerial tram

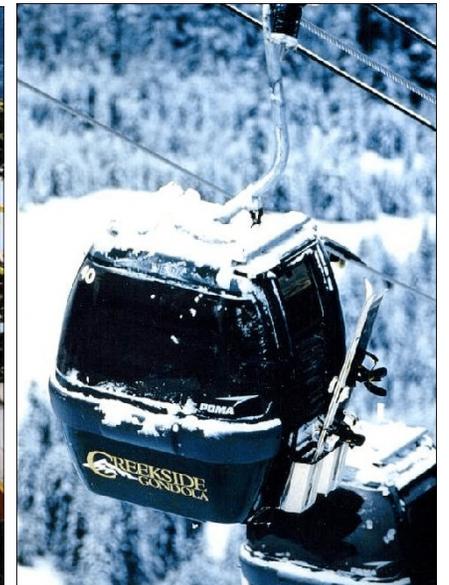


Figure 36, Gondola

Personal Rapid Transit

Instead of attracting users to public transportation by making it a novel experience, a different approach known as “personal rapid transit” (PRT) is being developed that would make the vehicles more like a private car. The result would be like a fleet of automated taxicabs running along a fixed guideway, which could be elevated like a monorail (see Figure 38) or run at ground level.

The small PRT vehicles would enable a single person or small party to travel together in privacy and with the comforts of a private car (see prototype vehicle in Figure 39). Stations would be placed on a small loop off the main line so that vehicles traveling longer distances wouldn’t have to stop at all stations. Because the vehicles are automated, they could run at whatever intervals are needed to meet demand, including service 7 days a week and 24 hours a day. Since each vehicle would be used



Figure 38, Conceptual PRT elevated guideway

repeatedly throughout the day, major parking lots wouldn’t be needed as with private cars. When not in use, PRT vehicles could be stored at a remote location, probably adjoining a main terminal that includes a bus transfer point and satellite parking lot.



Figure 39, Prototype PRT vehicle

The PRT concept has been considered for decades but is now under active development by the Regional Transportation Authority of Northeastern Illinois (Chicago area) and the Raytheon Corporation. This technology is aimed at urban areas that are not dense enough to support light rail transit. If the technology matures into a practical system, it could find applications in many Florida cities where public transportation is now limited to occasional bus routes.

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