Assessment of the Miami Urban Watch Alternative for Rebuilding I-395

View of Proposed Performing Arts Boulevard Looking East

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July 25, 2002

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Introduction

The Miami Urban Watch Alternative: On December 20, 2000, the Metropolitan Planning Organization, MPO approved a contract with the University of Miami's Center for Urban and Community Design to assess the viability of a citizen initiative for rebuilding I-395. Developed by Joaquin Wagner and Jorge Espinel, co-founders of Miami Urban Watch - a non-profit, urban design research group - the proposal calls for replacing I-395 with a broad landscaped boulevard and an underpass beneath its median for through traffic to Watson Island and Miami Beach. The University of Miami has coordinated the study with the assistance of Miami Urban Watch and Glatting, Jackson, Kercher, Anglin Rinehart, Inc, a traffic planning consutant from Orlando FL.

Study objectives:

1) Review background information on this alternative and the broader urban issues pertaining to this proposal, identify any outstanding issues and problems, discuss their implications on other aspects of the area's infrastructure and identify initial strategies for addressing these issues.

2) Analyze the Miami Urban Watch Alternative in terms of impact on downtown land uses and traffic patterns, implementation method and timeframe, environmental and urban design considerations.

3) Examine the costs and benefits of this proposal and its desirability over the Florida Department of Transportation, FDOT's Elevated Alternative for rebuilding I-395.

Content: This document presents the result of the assessment, as called for in the contract with the MPO. The document includes:

- Principal issues pertaining to I-395's redesign.
- Characteristics of the Miami Urban Watch Alternative including costs, benefits, implementation strategy, and impact on downtown Miami's redevelopment.
- A comparative analysis of the Miami Urban Watch Alternative vs. FDOT's Preferred Option.
- Concerns raised about the Miami Urban Watch Alternative.
- Glatting-Jackson's assessment.
- Key conclusions and recommendations;
- FDOT's latest critique of the proposal; and
- A response to FDOT's critique and a revised version of the Miami Urban Watch Alternative to address FDOT's March/April, 2002 concerns.

It should be noted that funds from this contract have been used exclusively for the assessment of the Miami Urban Watch Alternative and the preparation of this document. The Miami Urban Watch Alternative has been under development for several years. All drawings and additional materials illustrating the Miami Urban Watch proposal are the sole property of their authors and cannot be used for any other purpose without their consent.

Executive Summary

A complex issue: Rebuilding Interstate 395 (I-395) involves far more than traffic planning, engineering or aesthetic matters. I-395 is a complex issue with substantial local and regional socio-economic ramifications affecting everyone in the County.

Conflicting objectives: A major conflict between transportation objectives, Port of Miami needs and urban revitalization concerns lies at the heart of the problem. On the one hand, the Florida Department of Transportation (FDOT) seeks to widen I-395 in order to correct existing operational deficiencies and provide access to the Port of Miami via a proposed tunnel from Watson Island. On the other hand, I-395 creates substantial social, economic and urban problems for downtown Miami and is a major obstacle to its revitalization. Widening I-395 would aggravate these problems and significantly slow down revitalization efforts.

Pressing needs: This conflict is magnified by the time sensitive and pressing nature of these opposing interests. The Port of Miami, one of the County's most important economic engines, has critical access problems that need to be resolved very soon in order to maintain its competitive edge. Downtown Miami's revitalization is an essential condition for improving Miami's economy and ability to compete regionally. It is also crucial to the success of the Performing Arts Center now under construction. Revitalizing South Florida's urban cores and creating higher density residential mixed-use communities where people can walk or use public transit to get to work is a necessary step for reducing traffic congestion and implementing cost-effective mass transit systems. It is also a key strategy for controlling suburban sprawl, preserving our environment, making better use of available resource and attaining regional sustainability.

A search for a new alternative: Plans for rebuilding I-395 have been on hold for the past eight years because of a lack of funding and considerable opposition by downtown communities such as Overtown, according to FDOT officials. New voices have joined this opposition in recent years. As the downtown community grows, it is highly likely that this opposition will increase. This will most certainly create an impasse. But such a situation serves no one's interest and would be very costly for the City, the County and the Port. A solution must be found that addresses the full range of issues and balances conflicting objectives. This solution appears to lie more within the range of depressed or belowground alternatives than elevated options.

An obstacles to this search: The search for a balanced solution is severely limited by the FEC tracks running along NW 1st Avenue to the Port of Miami. In order to bring I-395 to ground level alone, the structure must first clear the FEC tracks by 23.5 feet, according to FDOT. Considering 1) the limited distance available between the tracks and the point where the structure would reach the ground, and 2) that the grade of the structure as it ramps downwards cannot exceed a certain percentage, this condition places a very high constraint on what actually can be done. And yet, the FEC tracks provide very little service to the Port. Within the last five years service along these tracks has dwindled from one train per day to one train per week. Considering downtown Miami's growth, it is highly unlikely that this service will increase in the future. Meanwhile, the FEC tracks create a no-man's land that isolates Overtown from the rest of the

city. They also generate a corridor of blight along their path and diminish the stature of important landmarks such as the Freedom Tower.

A need to question current assumptions: Under these conditions, it is reasonable to question the validity of the clearance requirement, and raise questions about the FEC tracks and broader Port access issues. Does the minimal service these tracks provide to the Port justify not only limiting the possibility of finding an effective solution for I-395's reconstruction but also keeping Overtown in its present isolated state? Can the FEC right-of-way be put to better use by building a commuter light rail line along this route? Would the Port of Miami be better served if a cargo rail tunnel were built along the FEC's right-of-way, as a recent Port transportation study suggests, instead of building the proposed truck tunnel from Watson Island to the Port – a project that is far over budget and appears to be at a stand still.

These questions suggest that the I-395 issue is far broader than it would first appear. Furthermore, that to solve this problem we must begin by reviewing the validity of current assumptions about I-395, the FEC tracks and other forms of access to the Port.

A need to look at the whole picture: Because I-395's redesign has far reaching implications regarding a wide range of urgent issues, it should be on the front burner of each City and County decision maker. A process must be put in place that gathers the input of all relevant players and stake holders, clarifies objectives, balances needs and creates a comprehensive plan of action. A debate on this matter is urgently needed if we are to make significant headway in dealing with the crucial transportation and urban problems before us.

Intent of proposal: The intent of the Miami Urban Watch Alternative is to present a design strategy for resolving the conflict between the above-mentioned objectives, as well as to show how much can be gained by stepping out of the box and dealing with the whole picture. Its overall aim is to spark discussion about issues that have long been ignored or inadequately addressed.

Premises: The proposal begins from the premise that 1) FDOT's Preferred Alternative, an elevated structure similar to, but wider that the existing expressway fails to address critical urban revitalization issues, presents far too many problems for future projects in the area, requires a disproportionally high investment in right-of-way land that would essentially be buried beneath the structure, and has major public opposition. For these reasons, it is highly unlikely that it will ever be implemented. 2) A no-build alternative or a continuing delay on this project is not productive. No one gains in the current circumstances; and 3) A solution that balances all relevant interests and objectives appears to be available within the range of depressed or underground options – not elevated alternatives. It is imperative to address this situation in order to begin to seek the necessary funding as soon as possible

Characteristics: Referred to as the Boulevard-Underpass Alternative, the proposal presented here calls for replacing I-395 with a boulevard and an underpass beneath its median for through traffic to Watson Island and Miami Beach. Apart from solving apparently incompatible objectives, its principal objectives are:

1) It heals festering conditions in Overtown and Park West; 2) It completely transforms the downtown area and turns blighted land into productive high revenue bearing property; 3) It creates new land that can accommodate a variety of mixed uses including civic uses such as the Art and Science museums; and 4) It provides an appropriate urban setting for the Performing Arts Center and integrates this site with Bicentennial Park. Two key features of the proposal need to be highlighted here:

1) The project is designed to be implemented in stages that can be financed as separate packages. The first of these stages, building the boulevard alone, can be implemented at a very low cost within the next three to five years as part of a public works program funded by City or County bond issues.

2) A great deal of land in a prime location will be recuperated when I-395 is torn down. When the value of this land is subtracted from the construction cost, the total cost of this project is far less than expected.

Assessment: This proposal has been evaluated and deemed to be viable and sound by Glatting and Jackson, a prominent traffic-planning firm based in Orlando. It has also been reviewed by FDOT. According to FDOT officials, its principal shortcoming lies in how this proposal deals with the FEC track crossing. This is an issue that involves policy decisions and balancing priorities. As such, it requires substantial analysis and debate on the part of City and County decision makers.

Part I. Background/Issues

About I-395

I-395 characteristics: Interstate 395 (I-395) is an elevated expressway connecting the SR-836/I-95 Midtown Interchange to the MacArthur Bridge. I-395 provides access to downtown Miami and is a key route for traffic to Watson Island and Miami Beach. I-395 also provides a link for Port of Miami traffic via the downtown street grid. 2001 traffic counts on the I-395 corridor, according to FDOT, are as follows: 49,500 east bound and 52,000 west bound in downtown Miami; 41,000 east bound and 40,000 westbound on the MacArthur Causeway; and 38,000 east bound and 39,500 west bound near Alton Avenue in South Beach. I-395 is not actually an interstate highway, but was designated as such for federal funding purposes.

Approximately a mile in length, I-395 is a large elevated structure supported on columns with an exposed underside throughout most of its path. Its eastbound section is comprised of five lanes near the Midtown Interchange; two lanes in the vicinity of Biscayne Boulevard and three lanes as it approaches the MacArthur Bridge. Its west bound section begins with three lanes near the MacArthur Bridge, narrows down to two lanes near Biscayne Boulevard and increases to four lanes as it approaches the Midtown Interchange. I-395 has on and off ramps at N.E. 2nd Ave. and N.E. 1st Ave, as well as in the vicinity of N. Bayshore Drive.

I-395 has a roller coaster type profile. Near the Midtown Interchange, clearance between the underside of the structure and ground level is between fourteen and fifteen feet. Near NW 1st Avenue, the underside rises to twenty-three feet to clear the Florida East Coast Railway (FEC) tracks running south to the Port of Miami. The structure dips as it approaches NE 2nd Avenue and then rises again to meet the MacArthur Bridge.

Area impacted by I-395

Boundaries: The area most heavily impacted by I-395 is bounded on north by NE 21st Street, on the south by NE 6th Street, on the east by Biscayne Bay, and on the west by I-95. Overtown, Omni and Park West are the principal "neighborhoods" within this sector.

Overtown: A once thriving community and center of African-American life in Miami, Overtown was decimated when I-95 and I-395 were built. Today, Overtown has major social and economic problems. Much of its urban fabric is highly deteriorated. Notable exceptions to this pattern include the recently renovated Lyric Theatre and the Dorsey House. Many of the problems in this neighborhood are due, in large part, to the disproportionate impact that transportation projects have had here, according to a report prepared by the Institute of Government at Florida International University for the MPO in 1998. Nevertheless, community leaders, local churches and redevelopment agencies are working in a concerted effort to revitalize the area. Although progress has been slow, there appear to be important changes in the works.

Park West: This is a semi-industrial area with many empty lots and deteriorated warehouses. The Freedom Tower and the American Airlines Arena are located in the better part of this sector on Biscayne Boulevard. A few blocks west, Camillus House, a homeless assistance facility creates major problems for the area, according to local property owners. The Miami Arena, a place that has been made obsolete by the construction of the AA Arena, lies at the boundary between Park West and Overtown. The area has several residential buildings in the vicinity of NW 1st Avenue. Bicentennial

Park, a large recreational area at the edge of Biscayne Bay that has lain semi-abandoned for years is situated here.

The Omni: More recently referred to as the Performing Arts District, this neighborhood includes: a residential-hotel complex at the edge of Biscayne Bay which includes the Biscayne Bay Marriott, the Doubletree and the Renaissance hotels; two high rise condominiums and an apartment building limited to rental units; the International Fine Arts College, and the old Omni Mall, which is now being converted into additional space for the College; the Miami Herald; Trinity Cathedral, the Performing Arts Center site; and the School Board Headquarters.

The area's potential: Close to Biscayne Bay and strategically located a few minutes away from Miami International Airport, Miami Beach, the Central Business District, Miami-Dade Community College, and the Design District, this area is potentially one of Miami's most valuable assets. Centered on institutions such as the Performing Arts Center and the Lyric Theatre, this could be one of the most exciting new places in South Florida. Cooled by Bay breezes with great views of Biscayne Bay, the area could become Miami's premier residential, mixed-use area: a stable and vibrant multi-ethnic district similar to the Greenwich Village-Soho-Little Italy section of lower Manhattan. Bicentennial Park could become an exciting recreational-cultural complex similar to Baltimore's Inner Harbor.

Missed opportunities: Despite its potential, much of the study area has remained blighted and desolate for years. Empty lots with overgrown weeds or strewn with garbage abound here. With the exception of the Omni, abandoned or highly deteriorated buildings stand out as a dominant feature. Miami's premier thoroughfare, Biscayne Boulevard, is lined with parking lots and shabby or abandoned buildings that fail to define its spatial character or promote pedestrian activity. Sites with a privileged location overlooking Biscayne Bay are empty or misused. Waterfront parks are badly neglected, underutilized, inaccessible and unsafe. Many streets are badly in need of repair and lack a tree canopy to provide shade. There is little street life here save for parts of Overtown and the Omni.

High expectations: With the opening of the Lyric Theatre, on-going work on the Performing Arts Center, and the recent charrette on Bicentennial Park and other planning efforts, there are high expectations that downtown's revitalization is finally underway. By the fall of 2004, the opening date of the Performing Arts Center the area in its vicinity should be in a presentable state. Considering: 1) the magnitude and complexity of the task; 2) the extent of the area, 3) the obstacles that must be surmounted, and 4) the amount of time it takes from the moment a decision is made on a project to its finished date – a lot remains to be done!

Factors negatively affecting the development of the area: Apart from the Camillus House which brings a large number of vagrants and drug addicts to the area who often sleep on the streets or in Bicentennial Park, two of the most salient factors negatively impacting the area are: I-395 and the Florida East Coast Railway (FEC), tracks to the Port of Miami. Together these elements of Miami's infrastructure divide the downtown area into unmanageable and difficult to build parcels. They also create a corridor of blight and desolation along their path.

I-395 problems and related issues

Urban Problems: When it was built, I-395 eviscerated much of Overtown, a once thriving African American community. Today, this structure with an exposed underside creates a corridor of blight and desolation along its path. Cluttered with rubbish and infested with rodents, much of the space beneath the structure is a public health hazard. A haven for panhandlers and drug dealers, this space is an unsafe, crime-prone environment. I-395 discourages residential mixed-use development; it provides a bleak approach to the downtown area and projects a negative image of Miami. As Bicentennial Park's northern edge, it severely limits public access to the park . A block south of the Performing Arts Center site, the expressway raises major visual, noise, security and image problems for this new cultural landmark. There is no doubt whatsoever that I-395 presents critical urban environment problems and is a major obstacle to downtown Miami's revitalization.

Florida East Coast Railway (FEC), track problems: The FEC track corridor between NE 7th and NE 14th Streets is a no-man's land that isolates Overtown from Park West. Together with I-95, I-395 and Metrorail, this strip of land virtually "walls-in" the Overtown community. Between NW 1st Avenue and Biscayne Boulevard, the FEC tracks create extremely difficult development conditions for adjacent properties. Strewn with garbage and rarely maintained, this corridor is as much of a health hazard as I-395, and generates a highly negative image of Miami. Running a few feet away from the Freedom Tower, the FEC tracks limit the building's expansion and enhancement. It also diminishes the stature of this important landmark. Most critical of all, with respect to the I-395 issue, is the fact that these tracks pose severe limitations on what can be done. According to FDOT, any proposal to bring down I-395 to grade level or below, must clear the tracks by 23.5 feet. This means that if the thought is to turn I-395 into an underpass just before N. Miami Avenue, the roadway would have to have a very steep grade – one which FDOT would not approve. And yet, the FEC tracks actually provide minimal service to the Port. Several years ago, the tracks were used once a day only, between midnight and dawn, by a small train carrying equipment to the Port. Today, that service has been reduced to once a week, and may diminish further, according to Port of Miami officials. Given the expected growth of the downtown area and the increase in vehicular traffic along the FEC's path, it is highly unlikely that these tracks can ever be used for the movement of container trains or anything other than emergency service.

Truck access to the Port of Miami: Situated just across Biscayne Bay from downtown Miami, in what may be one of the worse possible locations in terms of future growth, the Port of Miami has critical access problems. Trucks coming in and out of the Port must travel through the relatively narrow streets of downtown Miami to gain access to Interstate expressways. As new facilities such as the American Airlines Arena have been built directly in the path of the trucks, port traffic has become bogged down. Under these conditions, it is becoming difficult for the Port of Miami to compete with other South Florida ports that enjoy better truck, as well as rail access. For several years now, a study has been underway to build a vehicular tunnel from Watson Island to the Port. If this tunnel is built, port related truck traffic will be routed unto I-395. This is one of the main reasons why FDOT has renewed its interest in rebuilding this structure. However, the design and engineering challenge in this project is a very difficult one. The tunnel must be dug to a depth of at least sixty feet to clear the North Channel used by cruise ships. Because there is a very short distance between Watson Island and Dodge Island where the Port is located, the tunnel will necessarily have a very steep (6.5%) grade that will impose a heavy burden on truck traffic. Within the past year, the cost of building this tunnel has soared to close to a billion dollars. Because of the events of September 11,

additional restrictions and conditions such as potential explosions and emergency evacuation routes are being considered for all new structures. According to the FDOT, this could mean the death of this project. If this happens, one of the principal motivations on the part of FDOT for expanding I-395 will no longer be there. But neither will the truck traffic that would significantly affect I-395's design.

Rail access to the Port of Miami: The idea of building a cargo train tunnel to the Port has been floated for several years now; but it has not made headway because all efforts have been directed towards building the Watson Island truck tunnel. Now that the likelihood of this project ever coming to fruition is diminishing, the idea of the rail tunnel to the Port has been revived. According to a recent study by Beiswenger Hock concerned with the issue of access to the Port, the FEC tracks would begin to go underground in the vicinity of N. 79th Street. By the time the tracks reach the I-395 area they would be totally underground. Therefore, they would no longer be an impediment to the proposal to bring I-395 down, as the clearance requirement would cease to exist.

FDOT Plans for rebuilding I-395 and problems with these plans

Evaluation study: According to a 1993 Florida Department of Transportation (FDOT) study entitled: *SR-836/I-395 PD& E Study; Existing Conditions Report,* I-395 has substantial geometric, operational and safety deficiencies along its length and its downtown Miami on-and-off ramps. As new facilities such as the Performing Arts Center open, traffic will increase and aggravate these problems. New ramps will have to be built to reduce congestion around I-395 entry and exit points. If a proposed truck tunnel from Watson Island to the Port of Miami is built as planned, trucks traveling to and from the Port will be rerouted unto I-395. To accommodate this traffic, more lanes will have to be added to the expressway.

Alternatives studied: In a 1994 report entitled: *SR-836/I-395 PD& E Study; Alternatives Considered*, FDOT documented the result of an extensive analysis for the reconstruction of I-395. Eighteen alternatives were considered including six elevated, six open-cut, and six tunnel options. At-grade-only alternatives were discarded from the start because they presented insurmountable problems. Depressed or belowground options were considered primarily because of issues related to downtown Miami's future development, including the construction of the Performing Arts Center. All of the alternatives analyzed were considerably wider than the Boulevard-Underpass Alternative. The open cut and tunnel options were aligned relatively close to I-395 and in some parts, actually overlapped the footprint of the existing structure. This would call for an auxiliary support structure to hold up I-395 during construction. Otherwise, part of the expressway would have to be torn down before work could begin. This would make an open -cut or a tunnel alternative very difficult and costly to implement.

Conclusions of Alternatives Considered Report: In its conclusions, the study recommended two alternatives as semi-finalists for further evaluation: 1) An elevated structure similar to, but wider that the existing expressway, referred to as Alternative E-2; and 2) a tunnel option from NE 1st Avenue to N. Bayshore Drive referred to as Alternative T-6. According to the study report: "The final recommendation of the alternative selection process will be performed after the value engineering and public hearing process, and more specifically, following all pertinent environmental coordination needed with the appropriate agencies, etc."

Follow-up actions: According to FDOT officials and Overtown residents, the Elevated Alternative was presented to, and summarily rejected by the Overtown community. According to FDOT officials, the tunnel option was discarded for economic reasons. The I-395 project has been on hold for the past eight years. Downtown opposition, a lack of funding and consensus on what should be done has been cited as the principal reasons for this. I-395's reconstruction has been on FDOT's lowest priority list to be implemented in 2015. However, in the wake of a proposal to build a tunnel from Watson Island to the Port of Miami that would place all truck traffic on I-395, the MPO asked FDOT to review and give this project greater priority. At an MPO meeting in 2000, FDOT argued that the Elevated Alternative is the only viable option for rebuilding I-395.

FDOT's Preferred Alternative: FDOT's Preferred Option for rebuilding I-395 is an elevated structure similar to, but wider that the existing expressway. Scheduled to be built around 2015, this project would cost approximately $56 million in construction costs plus another $50 to $80 million for right-of-way land, considering that the land would not be purchased before 2012. Appendix material describes this alternative in detail.

Problems with FDOT's Preferred Option: While the Elevated Alternative appears to resolve I-395 deficiencies and Port of Miami needs, it fails to address important downtown Miami revitalization issues. Rebuilding I-395 as an elevated expressway, similar to but wider than the existing structure:

- Creates more space beneath the structure that would be difficult to enclose and maintain.
- Aggravates the festering, crime-prone conditions along its footprint.
- Takes away more land from downtown neighborhoods only to bury it beneath the structure.
- Seals Bicentennial Park's northern edge and make it more difficult to attract people to the park.
- Blocks views of, and from the Performing Arts Center.
- Increases I-395's noise level and disrupt activities at the PAC.
- Diminishes the PAC's stature as a cultural and architectural landmark.
- Discourages pedestrian activity and development in the area.
- Takes far too long to implement and slows down revitalization efforts.
- Disrupts new downtown projects at a critical time in their development.
- Incurs very high right-of-way costs.

Conclusions about FDOT's Alternative: The widened elevated structure proposed by FDOT may work well from a traffic planning perspective. However, its principal flaw lies in the urban, social and economic realm. This proposal aggravates existing downtown problems, opens old wounds in the Overtown community and is a major obstacle to downtown Miami revitalization efforts. For these reasons it has generated growing opposition and its alternative should be given thorough consideration.

Part II. The Boulevard-Underpass Alternative

Motivation and objectives

Urban revitalization concerns: The need to undertake swift and effective action to bring about a dramatic change in downtown Miami's urban and socio-economic conditions cannot be overemphasized. For years, neighborhoods like Overtown and Park West have languished in a state of neglect, blight and desolation. Despite all the talk about Miami's revitalization during the past ten years, little if anything has changed. Empty lots overgrown with weeds and used as dumping grounds abound here. So do highly deteriorated or abandoned buildings. Streets are badly in need of repair. Pressing socio-economic and urban problems in this area including one of the highest poverty and crime rates in the county, remain unadressed.

Miami is the poorest city in the United States. There is no doubt that one of the main causes of this problem is the fact that a large tract of land in the heart of the city lies totally unproductive and drains available resources. The spectacle of downtown Miami's urban scape discourages tourists, potential investors and businesses that could bring thousands of new jobs to the area. Both the City and the County have been forsaking untold revenue and will continue to do so for years if effective action is not taken soon.

The Performing Arts Center is under construction in the Omni and is scheduled to open in the fall of 2004. A great deal is riding on its success, including the future of the companies that will make the Center their home. Yet the area around the Center is desolate and as of the June, 2002, there are no concrete plans for improving conditions in its vicinity. Considering that it takes at least one year to prepare a set of plans and working drawings for any area improvement project, and at least two years for its implementation, it appears that when the Performing Arts Center opens, it will do so in an environment that detracts from Miami's premier cultural landmark, and may be detrimental to its success.

In the meantime, cities like Miami Beach, Fort Lauderdale and West Palm Beach have made major strides in their urban revitalization efforts. Their urban cores are thriving. Well-shaded, pedestrian friendly streets lined with shops, restaurants and cafes, attract thousands of people while Miami's downtown streets languish. Taking advantage of, and enhancing their riverfront, cities like Fort Lauderdale are attracting new high-end development that will increase their revenue base. Meanwhile, Miami's Bicentennial Park overlooking Biscayne Bay remains isolated and used mainly by vagrants. Parking lots, deteriorated or abandoned buildings and a gas station line Biscayne Boulevard, the City's premier thoroughfare. Under these conditions, Miami cannot compete with other cities in terms of attracting high-end business activities and residential development.

County and regional issues: For the past twenty years development towards the west has been the predominant trend in Miami-Dade County and the South Florida region. According to the Governor's Commission for a Sustainable South Florida, this trend cannot continue. We have, encroached far into the Everglades and destroyed valuable natural resources. We have endangered our water supply and jeopardized the sustainability of the region. Because low density suburban settlements provide relatively low tax revenues, they do not generate sufficient funds to pay for the construction of new schools, roads, sewer, energy, and water supply systems. Since the automobile is the prevalent mode of transportation in the suburbs, the more we expand towards the west, the greater the burden we place on our roads and highways. This is one of the major reasons for the traffic congestion and increasingly long commutes people are facing. Expanding mass transit is considered by some to be one of the more viable solutions to

this problem; however, mass transit does not work well in low density, spread out areas such as Miami-Dade County. As South Florida's population increases in coming years, the question is: how are these daunting problems going to be resolved?

According to the Governor's Commission for a Sustainable South Florida and the Florida Planning Council, the most viable alternative is to redirect development towards the east where the infrastructure is already in place, by revitalizing South Florida's decayed urban cores. Creating more compact, mixed use communities where people are less obligated to use their cars and can walk or use public transportation to get to work is the key to solving a wide range of problems, particularly the traffic congestion we are facing. This is the fundamental point of the Eastward Ho! Initiative and the underlying idea guiding the planning process in places from Stewart to Fort Lauderdale. The longer we wait to initiate this process in Miami, the more difficult it will be, and the longer it will take to resolve our broader long range problems. The question is: Why is Miami taking so long getting underway?

Many reasons have been given for Miami's failure to take effective action in revitalizing its downtown area. Among these: conflicting political interests, government corruption, lack of funds, lack of a comprehensive plan of action, lack of coordination between the many government levels and agencies involved in the downtown area – each with its own set of objectives that often conflict with others; and the lack of effective mechanisms to bring these groups to the table and work towards a common goal. Coordinated action is necessary to address downtown's infrastructure problems, that is, Interstate 395 (I-395) and the Florida East Coast Railway, FEC tracks to the Port of Miami. Until the City, the County, the Port and FDOT address this issue comprehensively, little progress will be made in downtown Miami revitalization efforts.

One of the broader aims of this proposal is to highlight the fact that downtown Miami's revitalization cannot advance unless Miami takes swift and decisive action on I-395 and the FEC tracks to the Port of Miami. It is untenable to wait until 2015, the target date set by the Florida Department of Transportation, FDOT, to rebuild I-395.

Since transportation planning and land use are inextricably linked, this work cannot be done by one agency alone FDOT and its transportation consultants. An integrated effort with the full participation of all the pertinent agencies and stake holders in the area, as well as planners, economists and urban designers is needed. This proposal offers recommendations on how to develop a comprehensive plan that can be carried out on an incremental basis.

Key Concern: A plan that resolves both transportation and urban revitalization objectives is needed. This plan should not only focus on I-395's redesign, but also on its relationship to adjacent land uses, as well as opportunities for dealing with other pertinent issues; i.e., how to provide adequate sites for the important civic buildings without taking too much land away from Bicentennial Park, what to do with the Miami Arena and how to improve Overtown.

Objectives: The following are among the principal objectives of this proposal:

- To find a solution that balances transportation and urban revitalization issues.
- To heal the wound of I-395 in downtown Miami's urban fabric and help transform a desolate and unkempt, area into an amenable, pedestrian friendly environment.
- To take down barriers that divide the downtown and isolate places like Overtown and Bicentennial Park.

- To help create an economically viable and socially vibrant mixed-use residential community in the downtown area.

- To improve Overtown's urban and socio-economic conditions.

- To recuperate valuable land beneath and alongside I-395, turning strategically located, blighted properties into productive real estate.

- To help advance Bicentennial Park's revitalization.

- To find a way to build civic buildings adjacent to Bicentennial Park while taking away as little park land as possible.

- To create an urban environment around the Performing Arts Center in keeping with the stature of this new landmark and find a way to open the Center to Biscayne Bay.

The concept

Characteristics: The proposal calls for replacing I-395 with a 200-foot wide boulevard and a six-lane underpass beneath its median. The proposed boulevard would be lined by residential and office buildings with commercial facilities at the ground level. Following the example of Barcelona's Las Ramblas, or Miami Beach's Lincoln Road, its landscaped median would include promenades, exhibits, cafes, book and flower stalls.

Impact on downtown Miami's urban fabric: This alternative creates six new city blocks on the south side of the boulevard between NW 1st Avenue and Biscayne Bay. Two of these sites can be used for the Miami Art and Miami Science museums. This resolves the problem of satisfying museum area requirements without sacrificing much recreational land from Bicentennial Park. Together with a new plaza similar to New York's Grand Army plaza at the entrance to Central Park, this plan opens the Performing Arts Center to Bicentennial Park. It also integrates the museums , the Performing Arts Center and the park into a major cultural-recreational complex by the Bay. A fundamental element of this plan and an important outcome of taking down I-395 is the creation of a second boulevard linking Gibson and Bicentennial Park. This new thoroughfare will play a key role in opening and helping revitalize Overtown.

The Proposed Museum Sites: This proposal calls for building the Miami Art Museum and the Miami Science Museum on recuperated land after I-395 is taken down. The Science Museum would face Bicentennial Park. The Art Museum would be located across the boulevard from the Performing Arts Center. As the most valuable property of the newly created blocks, the art museum site presents a special challenge: Economic objectives call for making the most out of this site by building a tower overlooking the park. Such a structure, however, would block the Performing Arts Center. To solve this problem and provide both the museum and the City of Miami with a revenue base, a volumetric plan similar to New York's Museum of Modern Art is proposed here. Designed around a sculpture garden facing the Opera House, the Miami Art Museum would occupy the first six to eight stories of the block. A tower similar to the one designed by Cesar Pelli for New York's MOMA would be

incorporated into the design at the west end of the site to avoid intruding on the Opera House's view of Bicentennial Park.

Buildings Lining the Boulevard: Buildings on either side of the boulevard would include shops and restaurants at ground level, two floors of office space and eight floors of residential space. Designed and built as part of a unified plan for new city blocks, these buildings would be served by ample parking cores.

The Proposal as Part of a Broader vision for the area: A project of this nature has a major impact on adjoining areas and touches on a number of questions presently under discussion: How can we accelerate Overtown's revitalization? How can we accommodate the Art and the Science museums on Bicentennial Park without taking away too much recreational land? How can we make a more productive use of the Miami Arena? Such a project also raises opportunities that would not be available with the Elevated Alternative for I-395. Showing what these opportunities are, as well as the problems that can be solved by eliminating the existing structure, is an important part of the argument for the Boulevard-Underpass Alternative. For this reason, this proposal deals not only I-395's redesign, but also suggests a series of related improvements:

- A light rail, elevated line from the Metrorail, Arena station towards the Design District and Little Haiti along the FEC right-of-way.

- A major commuter hub at the Arena Station and a new City of Miami, City Hall with World Trade Center offices above, on the site of the Miami Arena.

- Waterbus and taxi service from Bicentennial Park to other parts of the county.

- A plan for integrating the Performing Arts Center, Bicentennial Park, and the art and science museums into a cultural-recreational complex.

- Preliminary design guidelines for the blocks lining the boulevard and the proposed Miami Art Museum site.

- A proposed "Great Basin" at Bicentennial Park where people can stroll along the water's edge, dine on floating restaurants, ride on paddle boats and visit historical ships.

Benefits

The broader Boulevard-Underpass plan:

- Improves downtown Miami's transportation network and provides an out-of-view route for Port bound trucks.

- Eliminates the deteriorated conditions along I-395's path and repairs downtown's urban fabric.

- Creates a new economic engine at the Miami Arena site for Overtown and Park West's revitalization.

- Turns blighted land into productive property suitable for high-end residential/mixed-use development.

- Provides an appropriate setting for the Performing Arts Center and conveys a positive image of Miami.

- Opens the Performing Arts Center to Bicentennial Park and Biscayne Bay.

- Creates ample sites for the Miami Art and the Miami Science museums.

- Eliminates the barrier between the Central Business District and the Performing Arts Center District.

- Increases City and County revenues.

- Can be initiated in two to three years with a relatively modest investment.

- Provides a basis for developers to plan new investments in the area.

- Conveys a strong message of commitment to downtown's revitalization.

Technical characteristics and precedents

Underpass characteristics: It is important to understand that the proposed underpass is not a tunnel, but a depressed roadway covered by a landscaped structure. This makes a major difference in the way it is built, ventilated and maintained; as well as in how it meets special requirements such as emergency access, potential fires and other hazards. It also affects costs, clearance requirements and whether the project can be implemented and financed on an incremental basis.

A tunnel is usually buried deep beneath the ground and is designed to carry extremely high loads. Because most tunnels are relatively long, they require special ventilation, drainage and other support systems. After the devastating fire in the Mont Blanc tunnel, they must now be designed with special fire resistant walls, emergency shelters and a host of other safety provisions. But such tunnels are radically different in scale and complexity from the underpass proposal presented here. The Mont Blanc tunnel is approximately 11.6 kilometers in length and burrows through the French and Italian Alps about five thousand feet below the mountain top at its mid point. As in the case of other Alpine tunnels where major fires and accidents have occurred, this is a major engineering undertaking.

The depressed roadway in the Boulevard-Underpass Alternative will be three to four city blocks long. The covering structure will be about six to eight feet in depth. Covering the structure will require special ventilation, safety and drainage features; but in this, it does not even begin to approximate the systems required in major tunnels. Moreover, the covering structure will carry comparatively minimal

loads and can be left open in some points for ventilation and access. This is a matter of detailed design.

The Fort Washington Way project discussed in the Glatting Jackson report provides a good example of the Boulevard-Underpass concept. It is interesting to note Fort Washington Way was left open for years; but it is now in the process of being covered as shown in the top left hand photo. The area above will have a variety of uses, including recreational activities.

The Boulevard-Underpass Alternative highlighted in this study is one of several possibilities within the range of at-grade or below ground level Alternatives for resolving the I-395 issue. These possibilities include building:

1) A boulevard with a depressed, uncovered roadway in the middle;

2) A boulevard with an underpass between NE Miami Avenue and N. Bayshore Drive;

3) A boulevard with an underpass between NE 1st Avenue and N. Bayshore Drive;

4) A boulevard with a short underpass between NE 2nd Avenue and N. Bayshore Drive.

Any of the above options satisfies the most important goal of this project; that is: taking down I-395.

These alternatives are not mutually exclusive and can be thought of as part of a menu that can be combined in several ways. For example, the project can begin with the boulevard alone. . Subsequently, a depressed roadway can be built in its median, and covered only in certain parts, i.e., the vicinity of the Performing Arts Center. As additional funding becomes available, other parts of the depressed roadway can be covered. Some, are of course, more desirable than others, but in fact, most of these alternatives are not necessarily exclusive of others.

It is important to note that throughout most of the construction process, I-395 structure will be untouched. Traffic can flow in the same way as it does today. This point is discussed further in the Implementation Strategy section.

Implementation and costs

Strategy: This project is designed to be implemented in phases that can be financed as separate packages in a joint City, County, State and Federal effort. The initial part of the project is limited to building most of the boulevard and can be carried out as an independent project. Building the underpass, its access ramps and taking down I-395 can be done later.

Boulevard costs: The cost estimate in this study has been structured to provide a basis for determining the cost of the boulevard independent of the underpass. Based on FDOT data, the cost of building a six-lane boulevard with 15 ft. wide sidewalks, landscaping and lighting is approximately $3.5 million. Assuming right-of-way land is purchased before the end of 2003 at $100/sq.ft. (In April 2002 land sold for $80/sq. ft.) the cost of purchasing approximately 200,000 sq. ft. of right-of way land is approximately $20 million. The cost of building the boulevard is approximately $23.5 million.

Implementation: The Boulevard can be built as a public works project within the next two to five years, without touching or disrupting I-395. Implementing this phase of the project alone would immediately rehabilitate the blocks between NE 13th and NE 14th Streets from Biscayne Blvd. to N. Miami Ave. and bring about a considerable change in the area.

Funding: Funds for purchasing right-of-way land can be obtained through an *Infrastructure Finance and Innovation Act, (TIFIA)* loan to be repaid when I-395 is taken down. Boulevard construction costs can be paid for through city and/or county bond issues.

Total costs: The cost of building a six-lane, 120 ft. wide underpass (about 25% wider than most six-lane tunnels) and taking down I-395 is approximately $241.5 million. The cost of building the boulevard and the underpass is approximately $273 million. However, since a substantial amount of land will be recuperated once I-395 is taken down, the market value of this land ten to fifteen years from now has to be factored into the equation. The value of the recuperated land when I-395 is taken down is estimated to be approximately $84 million. Subtracting this amount from the $273 million, the total cost of the Boulevard-Underpass Alternative is approximately $189 million. This number can be lowered considerably by narrowing the width of the underpass to 100 feet, a number more consistent with standard underpass/tunnel design dimensions, or by reducing the length of the underpass by one block.

Concerns about the Miami Urban Watch Alternative

At the beginning of the study, meetings were held to identify objection to this proposal or any other potential problem. Participants at these meetings included: FDOT, Miami-Dade County and City of Miami officials; civic, cultural and community organizations; and firms working on related projects. The following were the major issues and specific problems identified during these meetings:

FEC tracks to the Port: This was considered to be the most critical factor affecting the outcome and viability of this project. FDOT argued that any proposal to bring down I-395 had to comply with a 23.5 feet clearance requirement between the underside of the proposed structure and the FEC tracks running parallel to NW 1st Avenue. This, together with a limit on I-395's slope as it came down to ground level, and the short distance available to do so, placed severe constraints on most options. As noted earlier, FDOT's own proposal required depressing the tracks at a very high cost.

Potential Flooding Problems: FDOT pointed out that, due to its location, the underpass could have severe flooding problems and negatively impact Miami Beach's evacuation under hurricane conditions.

Conflict with 72" Main: County engineers noted that a 72" pipe connecting to the Pump Station at Bicentennial Park crosses NE 13th Street near Biscayne Boulevard. This pipe would obstruct the underpass.

Contaminated land in the vicinity of the proposed underpass: A number of potentially contaminated sites were identified within the boundaries of the Boulevard-Underpass proposal. Decontaminating this site could be extremely expensive.

Costs: Considering that there are no available funds for I-395 and the Boulevard-Underpass was more expensive than the Elevated option, FDOT and MPO officials argued that this was an economically unrealistic proposal.

Response to FEC track concerns

Initial Position: From the beginning, the authors of the Boulevard-Underpass Alternative have argued that the FEC tracks to the Port of Miami are a major barrier to the integration of Overtown with the rest of Miami and an obstacle to downtown Miami's revitalization. The FEC tracks essentially create a no-man's land between Overtown and Park West. Together with I-95, I-395 and Metrorail, they enclose the area like a classic ghetto. If there is a true commitment to resolving Overtown problems and provide environmental justice to the residents of this area, this problem needs to be resolved.

The FEC tracks also cut dozens of city blocks into irregular pieces that are difficult to develop or build upon. Badly maintained and strewn with refuse, the FEC corridor projects a blighted image that reflects negatively on Miami. It also limits the integration and enhancement of blocks such as the one where the Freedom Tower stands, and degrades this important landmark.

And yet, the FEC tracks actually provide very little use to the Port. During the past five years, service along the FEC tracks has dwindled from one train per day to less than one train a week, according to FEC and Port of Miami reports. Given the constraints posed by new development and additional traffic in the downtown area, it is doubtful whether cargo service along these tracks can be significantly increased in the future. Doing so would create major congestion/traffic delay problems in the area and increase the possibility of accidents in downtown Miami.

The Port of Miami may argue that having rail access is essential to its survival; and this is certainly true. But in this case, the Port would be better served if instead of building the Watson Island truck tunnel, the FEC tracks were placed in a tunnel, as per recent recommendations in a recent Port Access study. The bottom line here is that Miami needs to address the FEC track issue - a problem that has long been neglected – with the required decisive action, both for the sake of the downtown area and the Port.

Under these conditions, FDOT's clearance requirement should not be considered immutable nor sufficient enough condition to rule out any alternative for taking down I-395. This is an issue that needs to be discussed in terms of policies and priorities both with respect to downtown Miami's revitalization and the needs of the Port.

Alternative 1. Considering the above issues, this proposal calls for replacing the tracks with a light rail commuter line from the Metrorail Arena Station towards Little Haiti and other points along the northeast corridor. Crossing above I-395 at their intersection, this line would resolve the clearance problem and open the door to a host of possibilities for I-395's redesign. This idea is consistent with current studies for the FEC track corridor, as well as with statements by transportation officials about the

need for a commuter rail line to serve the NE corridor and the consideration that the FEC right of way is the most logical place for this line.

Replacing the cargo tracks with a commuter line not only helps resolve existing traffic problems; but also gives rise to new possibilities for revitalizing downtown Miami and making better use of existing resources such as the Miami Arena. By joining the light rail line to Metrorail at the Arena Station, a new and highly active transportation hub would be created in the Park West-Overtown area.

This hub could be charged with additional energy by building a new office complex on the site of the Miami Arena that could house the World Trade Center and a new City of Miami City Hall. This complex would provide jobs for people in the area and dramatically change the social, economic and urban fabric in Overtown and Park West. By moving City Hall to this area, the City would demonstrate a strong commitment to revitalizing downtown Miami, establish a presence where there is none at the moment, and free a substantial amount of land in Coconut Grove for better and more revenue producing uses.

Considering the possibility that a decision about the future use of the FEC right-of-way may not be made any time soon, and based on the premise that the tracks will be used at most once a day, two additional alternatives were worked out to address FEC clearance requirements.

Alternative 2. An at-grade crossing: This option calls for taking down I-395 west of the FEC tracks and creating a well-guarded, at-grade crossing for the once-a-night train to the Port. Similar to a tollbooth plaza, the crossing would be designed as a portal to downtown Miami.

According to Glatting Jackson, Inc. the firm retained to evaluate this proposal, the at grade crossing works. The following are among the key conclusions of their report.

- Alignment of Proposed Boulevard is well within FDOT Guidelines.
- Weaving and merging operations are feasible and safe.
- Design speeds are appropriate for the function of proposed alternative. The At-Grade Crossing at the Port Railroad Line is safe.
- Train delay will affect less than one percent of population.
- Traffic capacity of an at-grade Intersection on SR 836 is more than adequate.
- Vehicle storage space at signalized intersection on SR 836 is adequate.
- Access to the surface street system is greatly superior in the Boulevard Alternative.

Alternative 3: Taking down I-395 east of the FEC tracks: The third alternative for dealing with the FEC track problem would keep I-395 in its current position above the FEC tracks. I-395 would be brought down east of the tracks, arrive at ground level in the vicinity of N. Miami Avenue, and turn into

an underpass just before NE 1st Avenue. The profile of this alternative is almost identical to FDOT's tunnel alternative T-6. This alternative presents several advantages:

1) As the distance between the interchange and the underpass increases, weaving and merging conditions improve.

2) There is no need to purchase right-of-way land in Overtown.

3) The cost would be far less than the previous alternative; and

4) It would not affect NW 1st Avenue.

Despite the shorter length of the underpass, this alternative still accomplishes the major objectives of the proposal.

The proposal's main shortcoming is that N. Miami Avenue would have to run below I-395 at their juncture. This entails an additional cost. But it is more than offset by savings in the cost of the shortened boulevard's underpass. Considering existing conditions at N. Miami Avenue, this proposal would have relatively little impact on adjacent areas.

The bottom line on this issue is that before ruling out any alternative because of the FEC track clearance requirements, a host of issues related to the FEC tracks must be discussed and decided upon.

Response to other concerns

Potential flooding problems: in locations such as the one where the underpass would be built, building a raised portal at a tunnel's entrance above the flood line solves potential tunnel flooding problems. This is how the Watson Island – Port of Miami tunnel would address this issue. In the case of I-395, the section the MacArthur Bridge at the edge of the bay can be turned into part of that portal. By building floodwalls on either side of the bridge's base to the required height, potential flooding problems can be averted.

72" main: There are three ways by which this problem can be addressed. One is by running the pipe between ground level and the top of the underpass. Another is by rerouting the line towards the east to a point where its crossing no longer affects the underpass. The third alternative is by sinking the pipe beneath the underpass at NE 13th Street. Costs and implementation issues will determine the best option.

Contaminated land: This issue affects not only the proposed underpass, but also, other projects including the Elevated Alternative. To reduce limitations on future development, this issue should be addressed promptly and in a comprehensive manner by all pertinent entities. According to an official from the Department of Environmental Resource Management (DERM), it is difficult to determine the cost of decontaminating the land along the proposed underpass without further study. Nevertheless, since this item is primarily a matter of excavating and taking away contaminated land, its cost should not be as high as if the land had be decontaminated and put back in place. Based on previous

DERM experience, this amount may be in the $8 to $10 million range. State and federal funds are available to assess and assist in cleanup efforts.

Cost: The cost analysis included in this study shows that when land values are factored into the equation, the difference in costs between the Elevated and the Boulevard-Underpass Alternative is considerably reduced. Because the Boulevard-Underpass Alternative can be carried out in phases with a variety of financing options, arguably, it has a better chance of being implemented than the Elevated option.

The Boulevard-Underpass Alternative vs. FDOT's Elevated Option

Functionality: The Elevated Alternative has been under study for a considerable time; therefore, it should present few, if any functional problems. The Boulevard-Underpass Alternative is in its early stage of development and, according to FDOT, still presents problems, particularly at the FEC track crossing. These problems can be resolved in one of two ways: 1) through negotiation with the FEC railway to build a much needed light rail line to the northeastern part of the county. Since the line would cross above I-395, the railway crossing issue would cease to exist. 2) Through a more detailed design study of the FEC crossing.

Impact on downtown Miami's urban environment: Considering that the Elevated Alternative is similar to, but wider than the existing structure, this solution promises little in terms of repairing Miami's urban fabric and is likely to worsen social and economic conditions in the area. The Boulevard-Underpass Alternative would dramatically improve Downtown Miami's urban landscape and help create a lively, mixed-use, pedestrian-friendly community.

Technical and other environmental considerations: From a technical perspective, the Elevated Alternative is a relatively simple project. However, its construction will disrupt travel along I-395 for several years. The Boulevard-Underpass Alternative may not be as simple as the Elevated option. However, it is not as complex as a tunnel-boring project. The initial phase - building most of the at grade boulevard – is comparable to a street improvement project that would have little, if any impact on I-395 or the surrounding area. Building the underpass with a cut-and-cover system is similar to the kind of work that is routinely done when building a skyscraper's foundations. Covering the trench would be similar to laying a first floor slab. The design would take into account the high water table conditions in this area and incorporate the required drainage system. As different from complex projects such as Boston's "Big Dig" the proposed underpass would be built through a relatively open and unobstructed area. Construction staging and hauling extracted materials from the site would be a relatively straight forward process.

Implementation feasibility: the Elevated Alternative has been on hold for the past eight years because of opposition to this project by the downtown community. This opposition has grown in recent years and it is likely to increase further. For this reason, the future of this alternative is ever more doubtful. But even if public opposition were to decrease, Miami would have to wait ten to fifteen years before the Elevated Alternative gets underway. This would significantly slow-down current revitalization efforts and create major traffic problems around the Performing Arts Center when construction begins.

On the other hand, for a relatively modest investment on the part of the City of Miami and Miami-Dade County, implementation of the Boulevard-Underpass Alternative can be initiated within a year or two as part of a public works program. This would 1) send a strong message to the development community that Miami is serious about revitalizing the downtown area; 2) significantly improve Miami's urban core in a relatively short time; and 3) increase the productivity of the area and generate revenues far sooner than expected.

Costs: According to the FDOT, the cost of building the Elevated Alternative is approximately $57.5 million in 2002 dollars. This figure will increase if construction is not initiated within the next ten years. The cost of purchasing approximately 318,424 sq.ft. of right-of-way land (figure provided by FDOT), assuming an average cost of $120/sq. ft. multiplied by a factor of 2 is approximately $76.5 million. This assumes that the cost of land in the area will have risen by at least 20% of the current $100/sq.ft. estimated market value in five years. Once the Performing Arts Center is built, property owners will be more resistant to selling land than they may be now. Properties will have to be obtained through an Order of Taking. According to FDOT officials, the market value of the land has to be doubled when doing a cost estimate to account for legal procedures. Excluding environmental and utility relocation costs, the total cost of the Elevated Alternative then is approximately $134 million.

Considering the $189 million approximate cost of the Boulevard-Underpass Alternative, the difference between the two proposals is about $55 million. However, in looking at this figure several points should be considered: 1) the $76.5 million spent on right-of-way acquisition for the Elevated Alternative would be lost beneath the structure. 2) Right-of-way funds for the Boulevard-Underpass Alternative will be totally recuperated when I-395 is taken down. 3) New revenues generated by this alternative have not been factored into the equation. 4) The $55 million difference can be viewed an investment in creating a new public space in Miami and helping to revitalize the downtown area.

Broader economic issues: While the Elevated Alternative creates jobs only during its construction, The Boulevard-Underpass Alternative creates jobs, not only during its construction, but also after the project is finished with the construction of new buildings along the boulevard and its vicinity. The Elevated Alternative does not increase the productivity of land adjacent to its footprint, nor does it generate new revenues. The Boulevard-Underpass Alternative increases the productivity and value of properties in the area. It also recuperates a large amount of land buried beneath I-395 and turns it into revenue producing property.

Funding: Experience of cities such as Portland, Oregon shows that transportation needs can be solved more economically, efficiently and far quicker than expected if, instead of relying exclusively on the federal transportation funds to cover most of a project's expenses and going through the long approval process this entails, a city or a county seeks a variety of funding sources and partnerships at a local and regional level to get a project off the ground. The Boulevard-Underpass Alternative has been designed with Portland's experience and funding strategy in mind. Right-of-way land can be purchased with a TIFIA loan to be paid back when I-395 is torn down and the land is sold. Building the boulevard can be financed with City of Miami of Miami or Miami-Dade County bonds. As different from the Elevated Alternative which is solely a transportation project, the Boulevard-Underpass Alternative is both a transportation and an urban revitalization project. This can open the door to additional funding sources for the underpass that would not be available for the Elevated Alternative.

Conclusions and Recommendations

Conclusions: Glatting-Jackson's assessment of the Boulevard-Underpass proposal demonstrates that the Boulevard-Underpass Alternative works from a traffic planning point of view. The study as a whole shows that this proposal is superior to the Elevated Alternative in terms of addressing a broad range of issues particularly downtown revitalization concerns. The adjoining cost estimate and comparative economic analysis demonstrates that this is not only an economically viable option , but also a far wiser investment. In terms of implementation, the Boulevard-Underpass Alternative can be initiated far sooner than the Elevated Option.

A key point that emerges from a detailed cost analysis of both the Boulevard-Underpass and the Elevated Alternatives is that land values, particularly in a downtown environment, play a pivotal role in the final cost of these proposals. The Elevated Structure may be cheaper to build, but the costs of purchasing right-of-way land in the distant future more than doubles the cost of this project. The Boulevard-Underpass Alternative may be more expensive to build, but the value of the land recuperated once I-395 is taken down lowers this amount considerably. Additional socio-economic benefits and revenues generated by turning blighted land along I-395's path into highly productive property, offset construction costs even more. As a whole, the Boulevard-Underpass Alternative provides a higher return on the investment. It generates more jobs; creates new public spaces where there is now a barren area; dramatically changes the character of the area, and provides a major boost to downtown Miami's revitalization.

Based on all the feedback that has been obtained from City and County agencies as well as from FDOT, the principal problem with the Boulevard-Underpass Alternative arises from its relationship to the FEC track crossing. According to FDOT, lowering I-395 and having an at-grade crossing at the FEC tracks is unacceptable even if there is only one train per week running along these tracks. Bringing down I-395 east of the expressway may create a roller coaster effect for drivers. In fact, the profile of this last variation is almost identical to FDOT's Tunnel Alternative (T-6). This option was carefully scrutinized in FDOT's 1994 study and was chosen as one of two semi-finalists for further study, out of eighteen possibilities. Would this alternative have made it as far if its profile were flawed?

Furthermore, the FEC track problem is not just a design issue. It is also a matter of transportation and urban development policies and priorities that need to be addressed in the very near future as part of: 1) a comprehensive plan for downtown Miami and future access to the Port; and 2) public discussions on the proposed transportation tax. Should a decision be made to include a light rail line towards the northeast along the FEC right-of-way as part of the projects to be financed through this tax, the I-395 – FEC track crossing issue would cease to exist.

General Recommendations: To achieve a well-balanced and successful urban environment, transportation, land-use planning and urban design have to be carried out in unison. So do the efforts of local, city, county and state agencies.

Considering that the reconstruction of I-395 is a complex issue that incorporates both transportation and urban planning and design matters, the overall recommendation of this report is that future work on I-395 be carried out, not by a single agency, but by a special team comprised of transportation and land-use planners, urban designers, engineers and economists. Considering the impact of this project on a wide range of interests in downtown Miami's revitalization, a blue ribbon panel should be established to oversee the process. This panel should include City of Miami, Miami-Dade County and FDOT officials, as well as civic and business leaders, representatives of institutions, community groups and other interests in downtown Miami's revitalization.

1**) Reconsider** the Elevated Alternative as a Preferred Option for rebuilding I-395 and conduct a more thorough evaluation of at least four proposals: The Elevated Alternative, the Boulevard-Underpass Alternative and variations on the two which arise out of further discussion of the two main proposals. Evaluation criteria should include not only transportation concerns, but also urban revitalization issues. Submit these alternatives for public discussion.

2) Initiate conversations with FEC officials to explore future uses of FEC r.o.w.

3) Authorize additional work on the Boulevard-Underpass alternative to include:

a) Resolving outstanding issues such as the FEC track crossing
b) Undertaking a more detailed study of the boulevard's design and how it relates to the Performing Arts Center and Bicentennial Park.
c) Analyzing underpass construction and engineering issues.
d) Analyzing economic impact of this alternative on downtown Miami, including number of jobs created, potential revenues etc.
e) Searching for alternative funding sources and how urban revitalization funds can be channeled towards implementing this alternative.

4) Examine the possibility of purchasing right-of-way land as soon as possible. Even if this alternative does not come to fruition, the land can be sold for development in the future at a considerable benefit to the City or the County. If design guidelines are established before the sale, this will assure an adequate environment for the Performing Arts Center. This idea worked well for Baltimore in its urban revitalization efforts. It could be just as successful in Miami.

5) Debate this issue in a public forum. A great deal of planning work is being done now on a wide range of proposals for the downtown area. Investors are purchasing land for future development. In most cases there is little knowledge about the Boulevard-Underpass Alternative and how it could affect these projects. It is neither productive nor fair to proceed under these circumstances when there is a possibility that existing downtown conditions might change.

At a time when there is much discussion about new bond issues and public works programs, every effort should be made to put the I-395 issue on the forefront of public discussions as well as on the front burner of Miami-Dade County and City of Miami's decision-making process.

Assessment of Miami Urban Watch Alternative by:

Glatting Jackson Anglin Lopez Rinehart, Inc.
33 East Pine Street
Orlando FL

MEMORANDUM

DATE: July 31, 2001

TO: Jorge Espinel

FROM: Walter Kulash
Ian Lockwood
Wade Walker

RE: Geometry on Miami Urban Watch Proposal for I-395
GJ15544.02

Introduction

The Miami Urban Watch proposal for the relocation of I-395 from I-95 to Biscayne Bay calls for replacing the current 1.2 mile elevated structure with a combination of: (1) elevated structure between I-95 and N.W. First Avenue, (2) an at-grade intersection at N.W. First Avenue and the FEC railroad tracks and (3) a six-lane tunnel for through traffic between N.W. First Avenue and the MacArthur Causeway. Under the preferred alternative, all turning movements to local streets would be accomplished from surface boulevard streets to either side of the tunnel. The northern of these streets (westbound) is aligned along the existing N.W. Thirteenth Street.

Horizontal Alignment

The horizontal alignment (*Figure 1*) of the proposed alternative is well within FDOT and AASHTO guidelines. A summary of curve data for all of the new mainline alignment in the proposed alternative is given in *Table 1*. As indicated in *Table 1*, all curves in the proposed alignment can be accommodated with a design speed that is comfortably in excess of the proposed posted speeds for the alternative. Further, the horizontal curvature is accommodated within a maximum superelevation of 5%, well within the guidelines for arterial highways.

Traveling from west to east on the proposed alignment (the critical direction for horizontal alignment), the major horizontal curvature features are:

- Curve EB1, at the western boundary of the proposed alternative (in the vicinity of N.W. Third Avenue) meets the existing curve of the eastbound lanes from SR836. Curve EB1 extends the existing curve, adding a 51 m.p.h. segment to the existing curve. The proposed alignment continues to the southeast for a short tangent (straight) segment.

- Curves EB2 and EB3 connect the ramps from I-95 to the new alignment. They continue the existing ramp speeds (40 mph) well within their design speeds of 52 m.p.h and 58 m.p.h., respectively.

- Curve EB4, a 40 m.p.h. design curve, brings the proposed alignment into an east/west direction. Curve EB4 is completed 150 feet to the west of N.W. First Avenue, so that eastbound traffic enters this intersection and the railroad grade crossing at right angles. From N.W. First Avenue eastward through Biscayne Boulevard, the alignment is straight.

- Curve EB5 (a high speed curve with design speed well over 60 m.p.h.) beginning just to the west of Biscayne Boulevard, brings the proposed route into alignment with the existing MacArthur Causeway.

Design Speeds are Appropriate to the Function of the Proposed Alternative

Under the proposed alternative, the western reverse curve (Curves EB1 plus EB4) has a lower design speed than the counterpart segment of the existing I-395. This difference in design speed is desirable for all traffic movements using the segment. For the four movements to and from I-95, this segment of roadway is, under the proposed alternative, a signalized ramp terminal (with the signal located at N.W. First Avenue). At the point of maximum curvature on the ramps themselves, design speeds range from 30 to 45 miles per hour. Thus, the design speed of 40 miles per hour through Curve EB4 is consistent with, and reinforces the transition from freeway driving (on Interstate I-95) and the transition to city street driving on the proposed alternative to the east of N.W. First Avenue.

For through traffic in both directions on State Route 836, the de facto design speed of 51 miles per hour through curve EB1 and 40 miles per hour through curve EB4 under the proposed alternative are a desirable element in stepping down the vehicle speeds from the freeway sections of SR836 (to the west of I-95) and the arterial street segments (to the east of N.W. First Avenue).

Under the proposed alternatives, the de facto design speeds to the east of N.W. First Avenue are somewhat irrelevant, since this becomes an arterial street rather than an extension of freeway ramps (as at present). On an urban arterial street, design elements other than horizontal curvature are likely to become the determining factors in design speed. On the proposed alternative, some of these design features include the signalized intersections, curbs/gutters/sidewalk cross sections on the surface arterial, major tree plantings alongside of the street, architectural elements in the median, buildings closely fronting the street, and, for the express lanes, the sense of enclosure provided by the tunnel cross section.

Overall, the horizontal alignment of the boulevard alternative falls well within guidelines such as the *FDOT Plans Preparation Manual* and the AASHTO "A Policy on the Geometric Design of Streets and Highways" ("AASHTO *Green Book*"). The ramps remain in their current horizontal alignment, the western pair of curves has a design speed well within the guidelines for ramp termini and the arterial street section to the east of N.W. First Avenue is well within the guidelines for a major arterial street.

Vertical Alignment of the Proposed Boulevard is well within FDOT Design Guidelines

The existing alignment is elevated throughout the area between I-95 and MacArthur Causeway. Its maximum slope is 4.2%, as the roadway goes under the downtown people mover. The proposed boulevard has a vertical alignment that is substantially different from the existing route. The proposed alternative meets the alignment of the existing ramps to/from I-95 and to/from SR836. Rather than an aerial structure between this point and the MacArthur Causeway, however, the boulevard alternative descends to grade at N.W. First Avenue. East of that point, six lanes (three in each direction) continue as uninterrupted flow lanes (expressway lanes) to the MacArthur Causeway. Four lanes (two in each direction) remain at grade between N.W. First Avenue and Biscayne Boulevard, comprising a surface arterial partly along the alignment (north side) of existing Thirteenth Street.

The vertical profile of the boulevard alternative, while containing some grades steeper than the existing alignment, nevertheless falls well within the Florida DOT and AASHTO guidelines for streets of this category. The grades of the ramps, meeting their existing grades toward the western ends and meeting the grade of the N.W. First Avenue intersection eastern end, range between 4.2 and 5.8%. These grades are well within the guidelines of 6-8% for ramps as given in the *FDOT Plans Preparation Manual.*

The six express lanes in the boulevard alternative have a 7.0% grade (maximum, for a brief segment) to the east of N.W. First Avenue, and a slope of 5.0% just west of Biscayne Boulevard, as they leave the tunnel and meeting the MacArthur Bridge approaches. The MacArthur Bridge ramp grade is 4.5%, so this grade is almost identical to the grade coming up from the tunnel. The grades at both the western and eastern ends of the tunnel (7.0 and 5.0, respectively) are well under the guidelines of 7% (45 m.p.h.) and 8% (30 m.p.h.) for arterial streets (from the *FDOT Plans Preparation Manual*).

The Proposed Traffic Signal at N.W. First Avenue is a Normal Arterial Street Signal Operation

The boulevard alternative calls for the SR 836 extension (formerly I-395) to meet N.W. First Avenue at a signalized at-grade intersection. This intersection is a conventional and reasonably expected feature on all of its approaching roadways. From the west, two of the approaching lanes are simply ramp terminals (ramps from I-95 southbound and I-95 northbound). A ramp terminating in a signalized intersection with a surface arterial streets is the normal and expected configuration for Interstates in urban areas. The other four lanes from the west are through lanes on SR 836. West of I-95, SR 836 is a freeway. Thus, the proposed signalized intersection marks the transition from freeway to urban street.

This transition from freeway to urban street, at a signalized intersection, is neither unusual nor unexpected, and a number of standard traffic control devices support the design. Signs from the warning series from the *Manual on Uniform Traffic Control Devices* ("W" series) that are appropriate for the situation include "Freeway Ends," "Signal Ahead," and "Prepare to Stop." Further, a blank-out internally lit sign fully compatible with the MUCTD, could be keyed to the traffic signal cycle at N.W. First Avenue, warning motorists, at some point upstream, of the need to stop. When there is no need to stop (a great majority of the time, given the probable signal timing at N.W. First Avenue), the sign blanks out, displaying no message to the passing traffic.

From the east, three of the approach lanes at the signalized intersection at N.W. First Avenue are emerging on an upgrade from the depressed section in the tunnel. These approach lanes are simply normal arterial street lanes, with the approach speed of the vehicles largely determined by the preceding tunnel section, and the up-grade on the approach to the intersection. Should further warning and slowing of the approaching vehicles be required, it can be accomplished through a combination of standard MUCTD "W" series warning signs, such as the "Signal Ahead," "Prepare to Stop," and so forth.

The approaches, to the intersection, on N.W. First Avenue from both directions are simple two-lane approaches in each direction. The configuration of the turning lanes depends on a more detailed design of the intersection. It is quite likely that they would be configured as a through/right-turn lane, in combination with a left-turn-only lane. This configuration would most likely apply to both the approach from the north as well as the approach from the south.

Simple Two-Phase Operation for the Traffic Signal at N.W. First Avenue

A simple two-phase operation of the proposed traffic signal at the SR 836/N.W. First Avenue intersection would be appropriate. With left turns prohibited in the east/west direction, a single signal phase is all that is needed for east/west movement. Given the low volume of traffic projected to be on N.W. First Avenue, a single signal phase is all that should be needed on that street as well. If needed, for traffic signal efficiency, left turns from N.W. First Avenue can be prohibited. The destinations intended to be reached by such turns -- SR 836 or the on-ramps to I-95 -- can be reached by several other equally convenient routes, at three other points along 13th Street.

Traffic level of service need not be balanced, at the SR 836/N.W. First Avenue intersection, between the north/south approaches (on N.W. First Avenue) and the east/west approaches (on SR836). The east/west approaches (i.e., along SR 836) deserve far greater priority, at the signal, than the north/south approaches. The volume of traffic is far greater in the east/west direction than in the north/south. Further, north/south traffic has a number of other, equally attractive routes for north/south travel, an advantage not available to the east/west travel on SR 836. It would be entirely appropriate to have a 120-second or even 180-second signal cycle length at the SR 836/N.W. First Avenue signal. This lengthy cycle would maximize the capacity for east/west traffic on SR 836, and reduce the stoppages on 836 to no more than 20-30 hourly. Regular users of N.W. First Avenue would either accept the delay inherent in a lengthy signal cycle, or exercise their option of taking nearby parallel routes, such as Miami Avenue, N.E. First Avenue and N.E. 2nd Avenue.

Vehicle Storage Space at the Signalized Intersection on SR 836 is Adequate

In the boulevard alternative, distance of 960 feet separates the SR 836/N.W. First Avenue intersection from the gore of the ramp from I-95 northbound on to SR 836 eastbound. Thus, there is a stacking distance of 900 feet from the intersection that presents no interference with flow from any ramp. This stacking distance is far in excess of that required by the SR 836/N.W. First Avenue traffic signal. During the peak hour, this signal is projected to require the storage, in each approach lane, of no more than fifteen vehicles, requiring a length of storage area of less than 400 feet. Thus, the available storage is, at a minimum, more than twice that required.

The At-Grade Crossing of the Port Railroad Line is Safe

The alignment of the proposed SR 836 extension in the boulevard alternative will accommodate a design, for the at-grade crossing of the Port railroad spur, that is in full conformity to safe rail-crossing design. Specifically:

- The stopping sight distance for a motorist from either the east or the west exceeds FDOT guidelines. Thus, there is far more than adequate distance for a driver to safely stop should a train be in the crossing with the signal failed (or with the driver failing to see the signal). For an object the size of a train, the stopping sight distance is considerably larger than the above-mentioned FDOT sight distances (which are based on visibility of an object only 6 inches higher than the pavement).

- The visibility of the grade-crossing warning signs is in excess of 600 feet from the west, and 500 feet from the east. Thus, there is a large margin of safety in the distance needed for a motorist to become aware of an activated signal and to stop.

- The sight triangle, at the intersection of the railroad tracks and SR 836, is well in excess of 1,000 feet, in either direction from either of the approaches on SR 836. Thus, there is far more than adequate sight distance for a motorist, at the grade crossing, to see an approaching train. Given the low speed of trains at this point (10-15 miles per hour) the margin of safety is even greater. At 15 miles per hour, and with a sight triangle of 1,000 feet along the tracks, the clearance time, for a motorists, is almost 20 seconds.

Train Delay will Affect Less than One Percent of Vehicular Traffic

There are only two trains a day (one train in each direction) on the Port railroad Line across the proposed SR 836 extension. Further, these trains will be scheduled, as they are at the present time, to operate between midnight and 3:00 a.m. The small number of trains (two daily), and their hours of operation (i.e., middle of the night) assure that there will be very little vehicle delay at the railroad grade crossing as the result of train operations. For example, two 4,000 foot trains, operating at 15 miles per hour, would yield a gate-down time of 8 minutes, or .13 of an hour. During the early morning hours in which the trains operate (midnight-3:00 a.m.), the traffic volume is typically 1-2 percent of the daily total. The traffic delayed by a train, therefore, obtained by taking the product of the total delay (.13 hours) times the typical fraction of daily traffic occurring in an early morning hour (.015), yielding a total percentage, of all vehicles, of around one quarter of a percent affected by the grade crossing. Thus, only a minuscule faction of the daily traffic is subject to any delay whatsoever from train operations at the grade crossing. When delayed, the average delay is around 2 minutes for each vehicle.

The challenge proposed by the possibility of a large increase in Port rail traffic is a self-negating issue. Should Port rail traffic increase dramatically, it would become necessary, for reasons of Port efficiency, to depress the rail line through and beyond the area in which it intersects with SR 836 extended. Thus, the possibilities of rail traffic resolve themselves as follows: (1) traffic remains at its current level (two trains daily during the early morning hours) and therefore there is minuscule train/motor vehicle conflict or (2) Port rail traffic

increases dramatically, at which point grade separation of the rail line is required for Port operations, thereby eliminating rail/motor vehicle conflicts.

Traffic Capacity of an At-Grade Intersection on SR836 is More than Adequate

Each approach of SR 836 extended at the proposed SR 836/N.W. First Avenue intersection has an hourly capacity of around 5,000 vehicles (this projection is based on a 150-180 second signal cycle, two-phase signal operation and a G/C ratio of 60-70% for the SR 836 approaches.

The capacity of 5,000 hourly vehicles in a single direction on either approach to the at-grade intersection exceeds, by a factor of 2, the projected peak-hour volumes of 2,600 vehicles. The volume/capacity ratio of the projected intersection, therefore, is around 0.50, indicating the following: (1) free flowing traffic at the present time, most likely Level of Service "B" or "C" and (2) the ability to absorb, with satisfactory levels of traffic service, large increases in traffic in the future.

Weaving and Merging Operations are Feasible and Safe

The amount of weaving and merging operations required are less for the boulevard alternative than for a continuation of I-395. Under the boulevard alternative, all movements to (from) the surrounding surface street system are accommodated by exiting to (or entering from) the two-lane surface street adjacent to the depressed section. By contrast, under the Interstate 395 plan, all the movements to and from the surface street system are focused at two points, with drivers needing to weave into position prior to reaching these points.

Under the boulevard alternative, traffic exits (and enters) the freeway on two lanes in each direction. Drivers positioning themselves for turns onto the desired cross streets is all accomplished through normal lane changing movements on a low-speed surface arterial street. Under the existing and proposed I-395, on the other hand, drivers must position themselves by weaving and merging on freeway lanes in order to position themselves for the single exit/entry points. The operative principle -- exiting the freeway at a simple, multi-lane point and then distributing to the local street system from arterial streets – is the same as that employed in the reconstruction of the Fort Washington Way freeway in downtown Cincinnati.

Access to the Surface Street System is Greatly Superior in the Boulevard Alternative

Access to the surface street system is substantially improved with the boulevard alternative, due to the following factors:

- **Multiple cross streets from a single exit point** -- In the boulevard alternative, incoming motorists reach all the connecting north/south streets by making a single decision; namely, to enter the "local" surface lanes of the SR836 extension. The reverse situation is also true for motorists leaving the area. This pattern of distribution is far superior to that now provided by I-395, in which all exiting traffic is funneled to just a single north/south route (Biscayne Boulevard), with access to the full complement of north/south street involving considerable-out-of direction movement on cross streets.

- **Visibility of destination sites** -- Under the boulevard alternative, incoming motorists, once directed to the surface lanes of the SR836 extension, will be in view of the important destination sites, such as the Performing Arts Center, the park and other important destinations. Thus, a good deal of way finding is accomplished by motorists directly sighting their destination.

  This ease of wayfinding is in sharp contrast to the difficulties encountered by motorists on the existing I-395. At present, motorists are fully occupied with negotiating the ramps, and are out of sight of the important destinations, even after arrival at the ramp terminals on cross streets such as Biscayne Boulevard.

- **Directness of Access** -- Access between the interstate system and SR836 and the destinations within the performing arts district are made to direct connections on local streets in the proposed alternative. Out-of-direction travel and excessive turning movements are minimized.

  In the existing I-395, on the other hand, access to all the major destinations almost always involves out-of-direction travel on the part of the motorists, as they try to negotiate their way from the single "landing" within the district from the freeway ramp, involving numerous turns and out-of-direction travel.

Surface Arterial Access to Miami Beach is More Valuable than Freeway Access

Presumably, Interstate 395 was intended to provide both the continuity of an interstate route number into Miami Beach, as well as the continuity of the freeway connection all the way to the foot of the MacArthur Causeway. However, neither the interstate route designation continuity nor the freeway continuity serves Miami Beach well. The beach would be better served by the conversion of I-395 to an extension of SR836, configured as a surface arterial street. Major advantages of such a conversion include:

- **Continuity of Route 836 to the Beach** -- At the present time, visitors approaching the beach on SR836 are confronted with the confusing sequence of signs directing them, for a very brief interval, onto an interstate route and then depositing them on a surface arterial (MacArthur Causeway). For visitors approaching the beach on SR836, therefore, the re-designation of the route as SR836 throughout (to the east of I-95 as well as to the west) would be a major simplification. Much of the confusing directional signs approaching the SR836/I-95 interchange from the west could be removed.

- **Motorists Approaching Miami Beach on I-95** -- The proximity of the I-95/SR836 interchange to Miami Beach argues strongly that motorists on I-95 be given directional signs that route them to the beach, without any mention of an intervening route number. Typically, directional signs to major, immediately adjacent destinations guide motorists directly to that destination, by name, without burdening the motorist with the additional information about a short segment of intervening numbered route (in this case, I-395). Simply dropping the I-395 designation removes one further source of potential confusion for motorists on I-95 intending to get to Miami Beach. The present nomenclature, of a separate interstate route connecting I-

95 to the beach, creates the illusion of greater separation between the beach and I-95 than actually exists. Eliminating this nomenclature would, therefore, improve the perceived accessibility of the beach.

- **Appropriate Use of Interchange Route Terminology** -- Interstate spurs and routes, such as the existing I-395, are useful wayfinding devices where no single destination is served, but rather a series of somewhat obscure destinations, arrayed along a series of exits. This is not at all the case with the existing I-395. It is focused almost entirely on a single destination (Miami Beach) that is already recognized as a distinctive place name. The device of an interstate connector route (I-395) is not only unnecessary, but most likely gets in the way of clear and simple direction finding.

- **Access Between the Beach and Nearby Mainland Areas** -- On the existing I-395, access between Miami Beach and its immediately adjacent mainland neighborhood is confusing and difficult. Going through the contortions of finding a freeway access point, entering freeway traffic for an extremely brief interval, then exiting onto surface streets (MacArthur Causeway and Miami Beach streets) is a driving sequence that greatly adds to the perceived distance between Miami Beach and its immediately surrounding area. This perceived difficulty of access is detrimental to both the beach and the city. The recommended plan would replace this torturous access for short travel with a sequence of travel having all the convenience of a full local street network.

Comparable Examples of Changes to Urban Freeways

As urban freeways approach forty and even fifty years of use throughout the U.S., it is not unusual to see changes in their function. The following selected examples of freeways modifications throughout the U.S. all have elements that would be applicable to I-395 in Miami:

- **Fort Washington Way, Cincinnati** -- This 8-lane freeway through downtown Cincinnati carries Interstates 71 and 51 through the heart of downtown Cincinnati, as well as serving as major radial routes into downtown. Designed in the 1960's, the freeway was, by the 1990's, no longer serving the City well. The City, now interested in reclaiming its waterfront, wished to reconstitute the nine downtown streets that were severed by Fort Washington Way in the 1960's. Two new sports stadiums, a major park and the Freedom Museum were all being constructed on the City's reclaimed waterfront, separated from downtown by the freeway. Access to downtown from Fort Washington Way was minimal, with a single, highly convoluted ramp system connecting the freeway to downtown. The connection was made even more difficult by the absence of any cross streets, all of which were severed at the time of the construction of Fort Washington Way. An enormous amount of land was consumed by Fort Washington Way and its ramps. At many points, the combination freeway/ramp system was over 600 feet wide, all of it in open cut.

  The reconstruction of Fort Washington Way, a joint project of the Ohio DOT and the City of Cincinnati, vigorously attacked all of the shortcomings of Fort Washington Way. Access to the surrounding street system was restored by replacing the convoluted freeway ramps with a grand service boulevard, split on either side of a

narrowed, depressed freeway. This measure, similar to that being proposed for I-395, both simplified and greatly improved access to/from the surrounding area. Traffic exiting the freeway simply exited onto the surface boulevard, and then has their choice of nine routes into downtown on intersecting local streets. Similarly with traffic exiting the downtown area.

Local streets severed by the original freeway construction are now rejoined, in a series of decorative bridges across the depressed freeway.

Major areas of similarity between Cincinnati and I-395 in Miami are the replacement of a complicated freeway single entry/exit point with a series of simple at-grade intersections, replacement of local streets severed by original freeway construction, and creation of valuable urban addresses in areas formerly occupied by freeway right-of-way.

- **Riverfront Parkway, Chattanooga** -- The City of Chattanooga, in concert with RiverValley Partners (a consortium of downtown business and cultural interests) has proposed, to the Tennessee DOT, that Riverfront Parkway, a four-mile section of freeway in downtown Chattanooga, be converted from its current configuration as a freeway to a surface arterial parkway. The original function of the Parkway -- to expedite truck traffic from riverfront industries and through traffic passing through Chattanooga -- are obsolete. City stakeholders are now far more interested in access to downtown, support of the driving tourism industry along the river, access to the reclaimed riverfront, support of a museum district previously isolated by the freeway, and reclaiming valuable development land along downtown's waterfront. Several principles guiding the conversion of Riverfront Parkway are highly applicable to the conversion of I-395 in Miami. Replacing the previous single-minded concern with expediting through traffic with a balanced transportation goal of access as well as mobility is one of the similarities between the two situations. Another important similarity is the goal of becoming a valued address for cultural institutions (in this case, art museums) rather than the highway being a factor that divides the institutions from their surroundings.

- **Interstate 394, Milwaukee** -- The City of Milwaukee, at the direction of Mayor John Norquist, is requesting that the 1.2 mile segment of I-392 in downtown Milwaukee be demolished, and replaced with a divided surface parkway capable of accommodating light rail transit in the median. The original function of this segment of interstate, to connect with a waterfront interstate, has been rendered obsolete, with the withdrawal of the waterfront freeway from the region's long-range plan. City transportation planning policies now call for a balance of access to local destinations along with mobility through the City.

- **Interstate 240 Conversion, Asheville, North Carolina** -- In an intensive public involvement session sponsored by the North Carolina DOT, stakeholders for the downtown Charlotte area proposed that Interstate 240, a downtown connector from Interstate 40, be dropped as an interstate route, and redesigned into a surface arterial highway, reconstituting the arterial surface highway (Patton Avenue) that was largely obliterated by the construction of I-240 several decades ago. Two options for the treatment of I-240 were considered: (1) withdrawal of I-240 completely, throughout

its 8 miles length in Asheville and (2) designation of a short segment of new route for I-240 to “replace” the segment being converted to a surface arterial road.

Important parallels between I-240 and Asheville and I-395 in Miami are: (1) removal of short segment of interstate connector that was proving to be divisive and damaging to the city and (2) replacement of a former interstate route with an important surface arterial street, serving as a major address within the city.

WMK/pae
Attachments

Table 1: Horizontal Curves

Curve	Interior Angle	Length of Curve	Radius	Super-Elevation	Design Speed	Proposed Posted Speed
Eastbound EB1	37°	590 ft	920 ft	5%	51 mph	45 mph
EB2	36°	620 ft	990 ft	5%	52 mph	40 mph
EB3	34°	720 ft	1210 ft	5%	58 mph	40 mph
EB4	55°	520 ft	540 ft	5%	40 mph	35 mph
EB5	7°	600 ft	4900 ft	-	Over 60 mph	45 mph
Westbound WB1	7°	600 ft	4900 ft	-	Over 60 mph	45 mph
WB2	50°	550 ft	630 ft	5%	43 mph	35 mph
WB3	26°	680 ft	1500 ft	5%	62 mph	45 mph

Diagram 1: Horizontal Alignment Summary

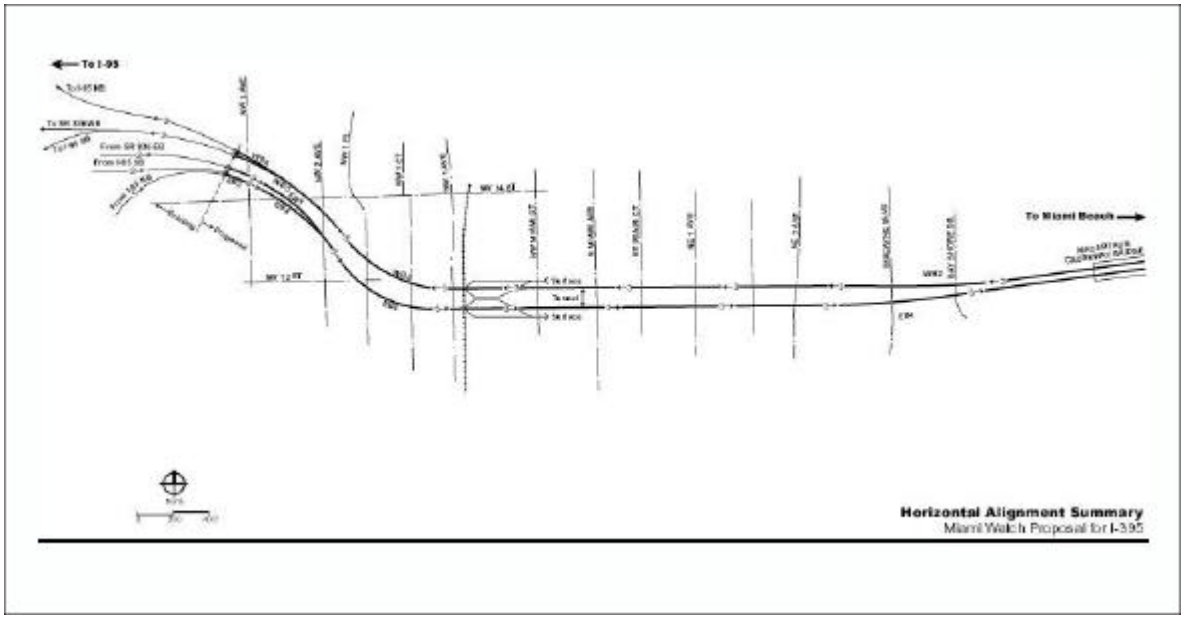
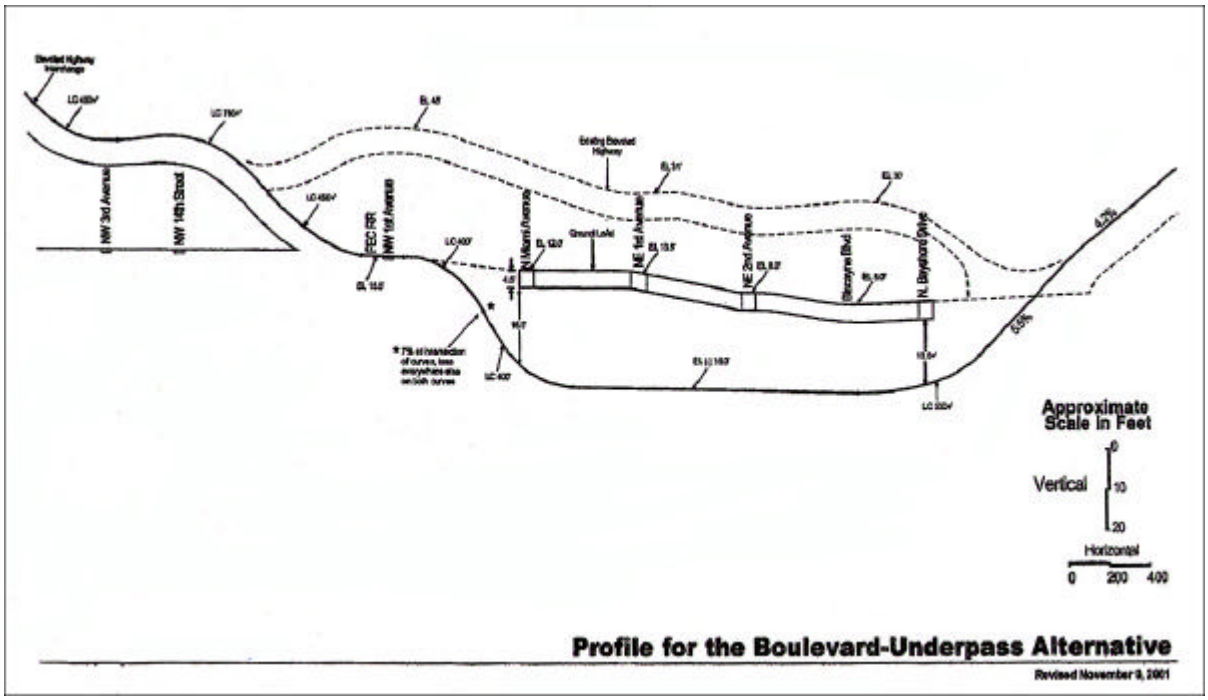


Diagram 2: Profile for the Boulevard-Underpass Alternative



Appendix 1: Miami Urban Watch Alternative - Cost Estimate

Construction of Boulevard Only

Item Description	Estimated Quantity	Unit Price	Total
Clearing and grubbing	6 acres	$7,000/ac	$ 42,000
6 lane Blvd.,5' sidewalks, lights, mobil., sign. reg. drain.*.4 miles		$4,375,000/mile	$ 1,750,000
Additional 10ft of sidewalk area on either side	1750 ft x2 x 10ft=35,000 sq ft	$3/sq ft	$ 106,000
Landscaping and irrigation median and sidewalks	1750ft.x120ft = 210,000sq ft	$2/sq ft	$ 420,000
Additional lighting		10% blvd. cost	$ 175,000
Additional signalization, Signage and Pavement marking		10% blvd. cost	$ 175,000
Additional drainage		10% blvd.cost	$ 175,000
Sub-total			**$ 2,843,000**
Contingencies		15%+ of sub total	$ 427,000
Right of Way Costs	**App. 200,000 sq. ft**	**Average of $100/sq ft**	**$ 20,000,000**

(Above cost per sq.ft. is based on 2/27/02 land sales information. ROW costs will be recuperated when I-395 is taken down)

Total cost of at-grade boulevard construction and right-of-way **$23,270,000**

Construction of underpass, ramps and demolition of I-395

Item Description	Estimated Quantity	Unit Price	Total
Modif. to exist. struct. (new ramps) NW 3rd -NW 1st Ave.	250'x1000ft=250,000 sq ft	$ 60/sq ft	$15,000,000
Tunnel approach section NW 1st Ave. – N. Miami Ave.	120'x 600ft=72,000 sq ft	$200/sq ft	$14,400,000
Cut and Cover tunnel N. Miami Ave-N.Bayshore Dr.	2000'x120ft=240,000 sq ft	$400/sq ft	$ 96,000,000
Tunnel approach from MacArthur Bridge	120'x 800ft=96,000 sq ft	$200/sq ft	$19,200,000
Retaining walls	18,000 sq ft	$32/sq ft	$ 576,000
Flood Walls	58,200 sq ft	$30/sq ft	$ 1,746,000
Street decking	3, 250 sq yds	$300/sq yd	$ 975,000
Demolition existing structure	4,500 x 200ft=900,000 sq ft	$10/sq ft	$ 9,000,000
Sub Total			**$ 156,897,000**
Lighting		2x FDOT estimate	$ 600,000
Signalization, signs and pavement markings		FDOT estimate	$ 750,000
Drainage		20% of sub total	$31,393,400
Contingencies		20% of sub total	$31,393,400
Mobilization		10% of sub total	$15,967,000
Utility relocation			$ 4,000,000
Additional right of way	8,000 sq. ft	$80/sq.ft.	$ 640,000

Total cost of Underpass construction **$ 241,640,800**

Appendix 1: Cost Estimate continued

Total Boulevard-Underpass Implementation Costs

Total cost of at-grade boulevard construction	**$ 23,270,000**
Total cost of underpass construction	**$ 241,640,800**
Approximate cost of decontaminating land (DERM ballpark guestimate)	**$ 8,000,000**
Total cost of Boulevard-Underpass construction, ROW and site decontamination	**$ 272,910,800**

Minus value of recuperated land when I-395 is taken down

Amount of land recuperated: Approximately 562,000 sq. ft.

Value of land: 562,000 sq.ft. @ $150/sq.ft **$ 84,300,000**

(Above figure is based on hypothesis that in ten years land values near PAC will have increased by at least 50%)

Final Boulevard/Underpass Alternative Costs

Total cost of Boulevard-Underpass Alternative construction:	**$ 272,910,800**
Minus value of recuperated land:	**- $ 84,300,000**
Final Cost:	**$ 188,610,800**

MPO's Preferred Alternative (Elevated Structure) Total Costs

Construction cost: (Based on information furnished by FDOT consultants) $ **57,590,298**

ROW acquisition: Purchase approx. 318,424 sq ft. (Fig. provided by FDOT) @ $ 120/sq.ft. x 2) **$ 76,421,760**

(The reasoning for the above figures is as follows: 1) The average cost of land in the PAC area will be at least $120/sq.ft in five years when FDOT might be ready to purchase the required ROW. 2) It is highly likely the land will have to be purchased by Eminent Domain, considering its marketability by the time the PAC is built. According to FDOT officials, under these circumstances, the ROW cost estimate must be doubled to account for litigation and other expenses.)

Utility relocation and soil decontamination costs **not included**

Final cost: (Assuming work would begin by 2010) $ 134,012,058

Cost difference between Boulevard-Underpass Alternative and Elevated Alternative

Boulevard-Underpass:	**$ 188,610,800**
Elevated Alternative:	**$ 134,012,058**
Difference:	**$ 54,598,742**

Appendix 2: Response to FDOT concerns regarding Draft Report

This document addresses FDOT's principal concerns about the Boulevard-Underpass Alternative as expressed in the following documents:

- December 12, 2001, review of the Boulevard-Underpass Alternative by Metric Engineering, FDOT consultants.

- December 18, 2001, FDOT letter to Mr. Jesus Guerra summarizing its principal concerns about this alternative.

- March 26, 2002, FDOT review of Boulevard-Underpass Alternative Executive Summary presented at the April, 2002 meeting of the Transportation Planning Council.

FEC track and NW 1st Avenue crossing issues:

FDOT concerns: According to the above FDOT reviews, the principal problem with the Boulevard-Underpass Alternative is its incompatibility with the FEC tracks to the Port of Miami, the proposed truck tunnel from Watson Island to the Port and a Downtown Development Agency (DDA) proposal to transform NW 1st Avenue into an important north-south traffic corridor. Despite the fact that the FEC tracks to the Port are used at most once a day, these tracks must be regarded as a fixed condition according to FDOT officials. Bringing down I-395 to grade level west of the tracks and having an at-grade crossing to deal with clearance limitations, as the Boulevard-Underpass proposal suggests, presents major operational, delay, safety, geometric and vertical alignment problems. This alternative would create more delays for Port traffic now using I-395; it would be a detriment to the proposed express service to the Port via the proposed Watson Island-Port of Miami truck tunnel. It would also block NW 1st Avenue vehicular traffic.

Response: The FEC tracks along NW 1st Avenue are as much of an obstacle to downtown Miami's revitalization as I-395. According to Port of Miami and FEC officials, the tracks are now used at most once a week. It is highly unlikely that traffic along these tracks can be increased in the future given the constraints posed by downtown development. The FEC corridor in this part of Miami can and should be put to better and more productive use. Building a light rail line towards the northeastern part of the county along the FEC right-of-way would be one of the most efficient ways to resolve an array of transportation \and land use problems in the area. By running the line above I-395, the conflict between the FEC track corridor and the Boulevard proposal would be eliminated. The proposed at-grade crossing works according to Glatting Jackson and Associates, Inc., the traffic-planning firm contracted to evaluate this proposal. Nevertheless, considering that this is a complex issue with a host of players that may be difficult to resolve in the near future, the Boulevard-Underpass Alternative has been modified in order to address FDOT's principal objection to this proposal. The revised alternative calls for extending I-395 further east, reaching ground level in the vicinity of North Miami Avenue and beginning the underpass just west of NE 1st Avenue. Traffic along N. Miami Avenue would make a jog at NE 14th Street to NW 1st Avenue and return to N. Miami Avenue after it cleared I-395. Alternately, N. Miami Avenue could be placed below or above I-395 at their juncture. The clearance between the tracks and the underside of the structure would remain as is. There would be

no incompatibility with current plans for NW 1st Avenue. This revised proposal has several advantages:

- There is no need to purchase right of way land in Overtown, or to change I-395's alignment in this area.
- As the distance between the interchange and the underpass increases, weaving and merging conditions improve.
- Since the underpass is shortened, its cost will be considerable reduced.
- The proposed modification to N. Miami Avenue resolves an alignment problem at its juncture with 14th Street.

Costs Issues:

FDOT's December, 2001 concerns: According to a December 18, 2001 letter from Ana Arvelo, Senior Project Development Manager at FDOT to Mr. Jesus Guerra, Metropolitan Planning Organization Project Manager, "the costs presented in the Miami Urban Watch proposal are incomplete. Several key components such as drainage, maintenance of traffic, mobilization and other contingencies must be included. We estimate the cost of the proposal to be in the $300,000,000 range.

Response: The cost estimate for the Boulevard-Underpass Alternative was completely revised for the Transportation Planning Council's April 2002 meeting and includes the above-mentioned items. Previous FDOT cost estimates have been in the range of, or below $250 million. (See attached documentation.). In its December 12, 2001 letter to Ms. Ana Arvelo, Senior Project Development Manager at FDOT, Raul Driggs of Metric Engineering notes that the projects cost is in the $250 to $300 million range. The current construction cost estimate is within these parameters (Appr. $270 million). The difference between this figure and the estimated final cost of this alternative ($190 million) is due to the fact that the estimated cost of the land recuperated when I-395 is taken down, ten to fifteen years from now, is subtracted from the construction cost. From the beginning, we have been clear on this issue. I-395's cost is not just a matter of construction and right-of-way considerations. Other issues such as the value of recuperated land and broader economic benefits to the downtown area must be considered.

FDOT's March, 2001 concerns: The following excerpts are taken from a March 26, 2002 letter from Ms. Ana Arvelo to Mr. Jesus Guerra concerning the Executive Summary of the proposed Boulevard-Underpass Alternative:

Page 2, Paragraph 1. " The $84 million land value [*attributed to the value of recuperated land once I-395 is taken down*] is based on pure speculation and should not be subtracted from the actual cost of the project".

Response: The fact is that if I-395 is taken down, the land beneath this structure will remain in place and will indeed have a value. We may differ as to what that value is and exactly how it gets factored into the equation, but if the experience of other cities around the country is anything to go on, (see adjoining article) the value of recuperated land can be very high. In addition, the $84 million figure was not arrived at in an

arbitrary manner. First, a mathematical estimate was made of the square footage encompassed by I-395's footprint. Second, a conservative estimate of $100/sq.ft. was established as the average cost of land in the vicinity of I-395 if this structure were torn down five years from now. (This is a low figure considering the fact that properties close to Biscayne Blvd. have recently been sold at $80/sq.ft.; moreover, that this action would likely trigger a major real estate boom in the area). Third, after consulting with real estate and land value analysts, a projection was made as to the possible value of this land in 2015. Considering the Performing Arts Center Economic Impact Study conclusions as to the potential increase in land values when the Performing Arts Center is built, as well as the rate of increase in land values over the last two years, it was concluded that a $ 150/sq.ft. average value for land beneath I-395 between Biscayne Blvd. and NW 1st Avenue in the year 2015 was a conservative estimate.

Page 2, Paragraph 4. "To assume that the land for elevated alternative will cost $240/sq. ft. ($120x2) and at the same time only $100/sq.ft. for the Boulevard-Underpass is purely subjective and unfair."

Considering the fact that the Elevated Alternative is still unfunded and is not scheduled to be implemented until 2015, according to FDOT, it is reasonable to assume that right-of-way land for this project will not be purchased any time soon. Considering the process noted above, $120/sq.ft. is a conservative estimate for the cost of land in 2010 when FDOT might be ready to purchase the required properties. According to FDOT Right-of Way officials, the market value of land obtained through Eminent Domain has to doubled in determining right-of-way costs. It is reasonable to assume that after the Performing Arts Center is finished, property owners in the vicinity will be reticent to give up their land without an Order of Taking. Even if the cost of land were assumed to be $100/sq. ft. in 2010, the price tag for this item would be extremely high relative to construction costs. This investment would essentially be lost as buried land beneath the structure.

In the case of the Boulevard-Underpass Alternative, purchasing right-of-way land and implementing the boulevard section of the proposal can occur relatively soon as part of a public works project funded by City or County bond issues. At least 25% of the required land is either part of a public right-of-way (NE 13th Street and part of I-395) or is owned by the County. Most of the additional required land south of NE 13th Street and west of NE 2nd Avenue is relatively blighted. Considering recent transactions, $80/sq.ft (average price) for this land today is a high estimate. Assuming a 25% increase over the next two years, $100/sq. ft. in 2004 is a conservative estimate.

The principal reason why it is assumed that the required right-of-way land for the Boulevard-Underpass project would not have to be obtained through Eminent Domain if this is done relatively soon is this: Land adjacent to I-395 will be difficult to develop in the foreseeable future given existing conditions, the possibility that I-395 will be widened and that, if this were to occur, much of this land would eventually be buried beneath the structure. As such, property owners and land speculators may be more willing to sell now at a price somewhat higher than market value, i.e.$100/sq.ft, than to wait ten years for a better deal with little return on their investment. Evidence for this is the recent sale of considerable property in the vicinity of the PAC by the owners of Quick Park. The County purchased one of the most valuable properties in this area, just across the street from the PAC, two years ago without going through Eminent Domain. But whether this is possible or not, this is an issue that needs to be included as part of any comparative economic analysis of I-395 alternatives. Analysts may differ about the projected numbers used here, but the fundamental point is

that location, land values and implementation time frame do play a major role in I-395's price tag and must be factored into the overall equation. Given the $30,000 available for this project, most of which has been used to cover Glatting Jackson consulting costs, this study has touched on a very limited set of economic considerations. A full economic impact study of both the Elevated and the Boulevard-Underpass Alternative needs to be carried out in order to determine the potential short and long range economic benefits or either proposal, and the level of return for the investment.

Other FDOT concerns:

Flooding issues: In a December 12, 2001 letter to Ms. Ana Arvelo, Senior Project Development Manager at FDOT, Raul Driggs of Metric Engineering notes that: "another important issue deals with the flooding risk of this tunnel option and its potential consequences in terms of service interruptions during evacuations and other emergencies… It is inherently clear that a flooded tunnel would eliminate this critical evacuation route for all South Miami Beach residents."

Response: In fact, this proposal includes an underpass with three lanes in each direction and a boulevard with the same number of lanes. Thus, even if the underpass were temporarily placed out of service, there would always be the same number of lanes in each direction as we have on the MacArthur Causeway today. Moreover, the proposed raised portal and flood walls reaching to the height of the MacArthur Bridge at the edge of the Bay - designed to comply with flooding prevention requirements - make it highly unlikely that the underpass would be endangered to the extent described in this paragraph. If this concern were as critical as it is made out to be, the proposed Watson Island-Port of Miami tunnel would have to be ruled out immediately. For one thing, said tunnel is in an even more precarious location than the proposed underpass. For another, if this tunnel were flooded by the same tidal surge hitting the underpass, it would be almost impossible to drain. (Consider the fact that the tunnel is essentially designed like the letter U, in that vehicles must travel down from Watson Island at least fifty feet beneath the North Channel and come up again at Dodge Island within a very short horizontal distance.) In addition, by the time the underpass is built, the light rail line linking Miami and the Beach should be in place. Considering the huge traffic congestion problems that often occur during an evacuation, this system would provide an additional, if not better means to evacuate people from the Beach.

Tunnel Dimensions: In the March 26, 2002 letter from Ms. Ana Arvelo to Mr. Jesus Guerra, Ms. Arvelo states, "the provision of adequate shoulders in the tunnel is a must and thus only the 120 foot wide section should be considered."

Response: According to Elwyn H. King, Principal Professional Associate, Parsons Brinckerhoff Quade and Douglas, and Thomas R. Kuesel, Consulting Engineer, Chairman Emeritus, Parsons Brinckerhoff Qaude and Douglas in their Tunnel Engineering Handbook, shoulder widths in tunnels are generally narrower than on open highways, both to conserve costs and in recognition that emergency towing service is generally available on heavily used tunnels." Moreover; the left shoulder primarily provides a "shy distance" to prevent motorists from moving away from the tunnel side wall." This distance, according to an accompanying diagram is 3'-0" wide. Thus for safety reasons, traffic lanes should be as close as possible to tunnel walls. This is in direct contradiction to the idea that a six-lane underpass should have 12 ft wide shoulders.

General Observations:

In determining whether the Boulevard-Underpass proposal merits further consideration, the most important question that needs to be asked is what is the alternative? At the April, 2000 meeting of the Transportation Planning Council, FDOT officials were asked a simple question: Why has the Elevated Alternative been on hold for so many years? Apart from the fact that it has not been funded, the most important reason given by FDOT representatives was that it has major opposition from the Overtown community. The fact is that if there was significant opposition when hearings were held on this matter, that opposition has greatly increased in recent years. Now many other residents in the downtown community as well as civic leaders and government officials have reinforced their position. Under these circumstances, it is highly unlikely that the Elevated Alternative will ever be accepted or implemented.

Conclusions: After obtaining multiple viewpoints about the proposal made here, both positive and negative, this study concludes that:

1)Miami cannot continue in the current state of indecision concerning the future of I-395. Downtown Miami's future is at stake . As it stands, I-395 is a major obstacle to downtown Miami's revitalization, it has substantial deficiencies and it must be rebuilt to address new traffic demands and help resolve Port of Miami access problems. It will take a considerable amount of time to rebuild I-395. A decision on this matter must be made now.

2) Given the level of community opposition to the Elevated Alternative, it is unrealistic to assume that it will ever be implemented. The best solution to the I-395 problem is an alternative that addresses both transportation needs and community concerns. This solution can exist outside the realm of elevated structures. It is important to come to terms with this matter as soon as possible in order to develop the best solution for the whole community.

3) In this study, we have addressed every concern FDOT has raised about the Boulevard-Underpass Alternative, and done our best to revise the study in response to the feedback we have obtained. The alternative may still have problems that need to be worked out. This is what the design process is all about. But, viewed within the broader picture of Miami's long-range development, there is little doubt that this is not just a viable solution, but also one, which can do much to transform Miami. It would be far more productive for Miami for FDOT and other concerned officials to focus on how this proposal can be improved.