



City of Hallandale Beach

June 24, 2010

DPW/Utilities & Engineering
630 N.W. 2nd Street
Hallandale Beach, FL 33009
Phone: (954) 457-1600
Fax: (954) 457-1624

Richard Tornese, P.E.
Director, Broward County
Highway Construction and Engineering Division
1 North University Drive, Box B 300
Plantation, FL 33324

Subject: Hallandale Beach Blvd. Traffic Light Synchronization

Dear Mr. Tornese:

Enclosed for your perusal is our Application for the FY 14/15 County Incentive Grant Program for the Hallandale Beach Blvd. Traffic Light Synchronization Project.

Please feel free to contact Richard Labinsky, P.E., City Engineer, at (954) 457-3042 with any additional questions. Thank you for this opportunity.

Sincerely,

THE CITY OF HALLANDALE BEACH

William Brant, P.E.
Director, Utilities & Engineering Department

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FY 2014/2015 County Incentive Grant Program Application

City of Hallandale Beach, FL

Utilities and Engineering Department

Traffic Light Synchronization for Hallandale Beach Blvd.

1. *Name and address of applicant*

Name: City of Hallandale Beach
Address: 400 South Federal Highway
Hallandale Beach, FL 33009

2. *A complete description of the project, with project location map, and detailed description of the purpose of the project for improving traffic flow and reducing traffic congestion on the state highway system.*

A location map of the proposed project is attached.

This project entails the implementation of traffic light synchronization and fiber optic cable along Hallandale Beach Blvd. (SR 858) from I-95 to Three Islands Blvd. This corridor has major traffic congestion issues affecting not only the residents and businesses of the city but also the adjacent communities that use the roads in route to other destinations. The City's 2030 Transportation Master Plan as well as community forums have determined that one of the most effective solutions to the city's traffic congestion is the synchronization of traffic lights along the major corridors. Foremost of these corridors is Hallandale Beach Boulevard.

Attached is page 4-15 of the City of Hallandale Beach 2030 Transportation Master Plan describing traffic light synchronization and fiberoptic as proposed solutions for the traffic congestion of Hallandale Beach Blvd. under section C2.

The City has budgeted funds and has a capital improvement project called Traffic Light Synchronization and Fiberoptic Cable to begin implementation of this project. The City has initiated the research process of several alternatives that are available to improve the synchronization of the lights along the Blvd. Although the City has not decided on which alternative will be utilized, the City is committed to implementing some sort of traffic light synchronization along this corridor.

One promising alternative thus far is the implementation of an innovative technology called InSync that employs real-time adaptive signal control utilizing computerization, cameras and fiber optic communication lines. This system utilizes artificial intelligence to make the most

effective use of a signal's green time along arterial or major roadways. Because Hallandale Beach Blvd. is a state highway, the City has met with Broward County and the Florida Department of Transportation (FDOT) to discuss the possibility of a pilot project for this adaptive signal control system along Hallandale Beach Blvd. This new technology, InSync, is currently in the process of being accepted under FDOT's Qualified Products List (QPL) list. Once FDOT accepts this product, the City would want to pursue this alternative. As a result of this particular alternative (InSync), a 20%-30% reduction in traffic congestion throughout this section of Hallandale Beach Blvd. is anticipated.

Another alternative is the installation of a fiberoptic cable to interconnect the traffic lights along Hallandale Beach Boulevard with the Broward County Traffic Engineering Division (BCTED) main control center. This cable will allow for the use of a new software platform that the County is implementing that will allow the County to perform iterative engineering and re-timing processes to synchronize the traffic signals along the corridor.

3. *Identification of whether the project is in the Department's Five Year Work Program and if so, provide the Work Program Item Number.*

This project is not in the Department's Five Year Work Program.

4. *Certification from the Chief Fiscal Officer of the City that sufficient matching funds are available.*

A letter from the Chief Fiscal Officer (Patty Ladocetta, Finance Director) is attached.

As with most cities in the nation, the City of Hallandale Beach is going through difficult financial times. However, because the City has determined this project to be a high priority, the City of Hallandale Beach has budgeted for a Capital Improvement Project called Traffic Light Synchronization with funds allocated in the amount of \$250,000. In addition, the City has received Developer funding (Villages of Gulfstream) in the amount of \$150,000 which the City has earmarked for traffic light synchronization/fiber optic cable as well. If awarded this grant, all funding sources would be as follows:

• City Funds, Capital Improvement Project-Traffic Light Synchronization:	\$250,000.00
• Developer Funds (Villages of Gulfstream):	<u>\$150,000.00</u>
Total City Matching Funds (50%):	\$400,000.00
County Incentive Grant Funds (50%):	<u>\$400,000.00</u>
Project Total:	\$800,000.00

If the City were to receive FDOT's grant assistance in the amount of \$400,000, making the total funding equal to \$800,000, the City would then be able to successfully implement this project.

5. *Details of which the project phases are included in the request for matching funds, an accounting of the current stage of project development and a schedule of future project development.*

Current Stage of Project Development

Planning/Research-	60% complete
Design and Permitting –	0%
Construction-	0%

Future Stage of Project Development

Design and Permitting –	February 2011
Construction -	The City would be ready for construction as early as December 2011

Because there are no right-of-way acquisitions necessary to implement this project, and the City's funding sources in the amount of \$400,000 is already in the City's budget, the City would be ready to begin this project as of December 2011 (as of December 2011, City would be ready to begin project once grant funding from County Incentive Program Grant Funding is announced).

6. *An accounting of expenditures to date for each project phase and a current cost estimate for each project phase.*

Accounting of Expenditures is as follows:

	<u>Spent to Date</u>	<u>Current Cost Estimate</u>
Engineering Design/Permits:	\$0	\$150,000
<u>Construction:</u>	<u>\$0</u>	<u>\$650,000.00</u>
TOTAL	\$0	\$800,000.00

7. *Certification that the project is consistent with the Florida Department of Transportation Plan, the Comprehensive Plan of the Metropolitan Planning Organization where applicable and any local government comprehensive plan.*

Attached is page 4-15 of the Citywide Transportation Master Plan describing traffic light synchronization and fiberoptic as proposed solutions for the traffic congestion of Hallandale Beach Blvd. under section C2.

In addition, attached is also the City's Comprehensive Plan, page 3-48 and 3-49 that indicates all the functions of Hallandale Beach Blvd. and how these uses many times lead to congestions problems as well as to hazardous conditions for pedestrian and vehicular traffic that would not

normally be associated with an arterial roadway. This project is estimated to relieve the congestion of traffic by 20% - 30%.

8. *If the project is not located on a state highway system, a justification report detailing how the project will alleviate the need for construction or improvements to the state highway system by reducing the traffic congestion, and quantitatively estimate the improved through traffic capacity and /or increased level of service afforded the affected state highway.*

Hallandale Beach Blvd. (SR 858) is on the state highway system and is one of the City's main arterial east-west traffic roadways. It contains frequent pedestrian crossings, Broward County bus routes (route 28 and route 4), Miami Dade County bus routes, City minibus routes, as well as many business driveways. Attached are maps demonstrating both the Broward County's bus routes, and the City's minibus routes. In addition, this serves as the City's only beach access and the main beach access within a distance of 4.1 mile radius. Hallandale Beach Blvd. is also utilized heavily by residents leaving/coming to the City as well as visitors coming to the City from Miami-Dade and Broward County. Due to all these functions that occur on this corridor, Hallandale Beach Blvd. currently faces many traffic congestion concerns.

With the implementation of traffic light synchronization and fiber optic cable along Hallandale Beach Blvd. from I-95 to Three Islands Blvd., a 20% - 30% reduction in traffic congestion throughout this section of Hallandale Beach Blvd. is anticipated. This proposed system is estimated to reduce fuel consumption by 5,000 gallons per year per intersection based upon intersections serving 25,000 vehicles per day. That equates to a decrease in CO2 emissions of 97,000 lbs. per intersection annually. The City has 10 intersections that are a part of this project with a typical usage of 40,000 vehicles per day.

9. *Details of how this project will affect any historic property that is included or eligible for the inclusion in the National Register of Historic Places. Include if the Division of Historical Resources has been given a chance to comment on the project.*

There are no historical sites that have been identified on the proposed roadway corridor.

10. *Any other relevant information necessary to assure compliance with the eligibility requirements and to meet the ranking criteria.*

There are no negative environmental impacts anticipated with this project since no new right of way is needed.

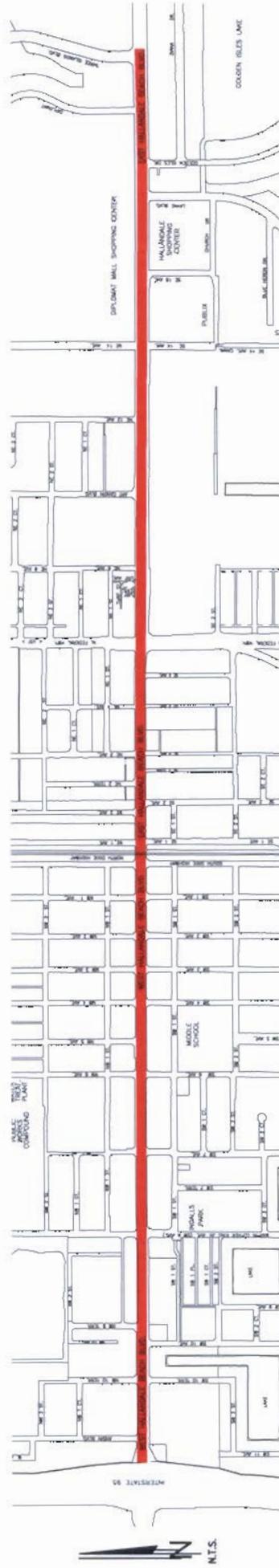
Environmental Impact Improvement: If our main alternative (InSync) were to be utilized, the result will not only vastly improve traffic conditions, but this system has proven to reduce fossil fuel consumption, reduce the emission of carbon dioxide and thus enhance the quality of life.

This proposed system is estimated to reduce fuel consumption by 5,000 gallons per year per intersection based upon intersections serving 25,000 vehicles per day. That equates to a decrease in CO2 emissions of 97,000 lbs. per intersection annually. The City has 10 intersections that are a part of this project with a typical usage of 40,000 vehicles per day.

If the fiberoptic connection to BCTED is utilized, there would be similar benefits, though they would be less quantifiable.

Pedestrian and Vehicular Safety Improvement: By reducing the congestion level of Hallandale Beach Blvd., the existing hazardous conditions for pedestrians and vehicular traffic along the corridor will also decrease.

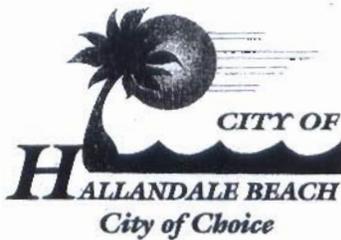
Improvement to Economy: The implementation of traffic light synchronization and fiberoptic cable will enhance the economy by allowing motorists on Hallandale Beach Blvd. to reach their respective business in a less congested road. All modes of transportation which include commercial vehicles, cars, buses, minibuses and pedestrians, currently utilizing this corridor, would benefit from shorter travel times.



LOCATION MAP

**COUNTY INCENTIVE GRANT PROGRAM FY 2014 / 2015
 PROJECT NAME: HALLANDALE BEACH BLVD. TRAFFIC
 LIGHT SYNCHRONIZATION**





City of Hallandale Beach

June 25, 2010

400 South Federal Highway
Hallandale Beach, FL 33009-6433
Phone: (954) 458-3251
Fax: (954) 457-1342

Ms. Stacy Miller, P.E.
District Program Management Engineer
Florida Department of Transportation
3400 West Commercial Boulevard
Fort Lauderdale FL 33309-3421

RE: **City of Hallandale Beach**
Project: Hallandale Beach Blvd. Traffic Light Synchronization

Dear Ms. Miller:

The City has demonstrated a need to improve its current heavy traffic congestion on Hallandale Beach Blvd. As it is indicated in the City's Comprehensive Plan, the implementation of traffic synchronization will greatly alleviate traffic on Hallandale Beach Blvd. by improving the progression of the lights on Hallandale Beach Blvd.

It is my understanding that the City of Hallandale Beach is submitting a County Incentive Grant Program Application for funding assistance of the Hallandale Beach Blvd. Traffic Synchronization Project in the amount of \$400,000. This letter serves as certification that 50% match funding is available as follows:

- City Funds under Capital Improvement Project-Traffic Light Synchronization: \$250,000.00
- Developer Funds (Villages of Gulfstream): \$150,000.00

Total Matching Funds: \$400,000.00

If you have any questions, please contact me at (954)457-1371.

Sincerely,

Patricia M. Ladolcetta
Director of Finance

C1) Locally Controlled Traffic Center

Establish a locally controlled traffic center. This option would raise a number of institutional issues that would need to be addressed early. In addition, the City would incur recurring expenses to operate and maintain the traffic system and center. A City traffic control center with established primary and secondary control criteria



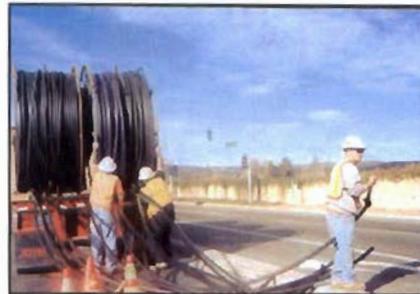
Example of a traffic control center

between the City and Broward County is an option to reflect the spirit of regional integration as emphasized in the Southeast Florida Regional ITS Architecture.

C2) Fiber Optic or Wireless Interconnect Signalization on US 1 and Hallandale Beach Blvd.

Provide communications link between the traffic signals along both US 1 and Hallandale Beach Boulevard, in two stages:

- a. Facilitate quick stage deployment with wireless Ethernet connectivity between the signals. Also, establish wireless Ethernet link between the on-street signal devices and a computerized control center at the City of Hallandale Beach office complex.
- b. Construct long term Ethernet communications deployment with fiber optic cable between the traffic signals. Tie into Broward County's existing 48-fiber cable along I-95 at the I-95/Hallandale Beach Boulevard interchange.



Fiber Optic Cable

This alternative would be further enhanced if the City procured software that is traffic adaptive and compatible with the Broward County signal

Boulevard located in the City of Hallandale Beach is approximately 2.7 miles in length. The roadway is constructed as a 6-lane divided facility with 100' of right-of-way. Concrete sidewalks exist on both sides of the roadway and adequate drainage exists.

The pavement is in good condition. There are a total of 19 traffic signals located along Hallandale Beach Boulevard located primarily at the intersections of arterials and other major collectors. This number includes 2 traffic signals to service the drawbridge crossing the Intracoastal Waterway. Adequate drainage exists on this roadway.

Traffic Signalization – exists at the following locations:

- I-95
- SW/NW 10th Terrace
- SW/NW 8th Avenue
- SW/NW 6th Avenue
- SW/NW 4th Avenue
- Dixie Highway
- SE/NE 1st Avenue
- US 1
- NE 8th Avenue
- NE 10th Avenue
- NE 14th Avenue
- SE 16th Avenue
- Layne Boulevard
- Golden Isles Drive
- Diplomat Parkway
- Three Islands Boulevard
- ICWW Bridge EB
- ICWW Bridge WB
- Ocean Drive (SR A1A)

All traffic signals are operated and maintained by Broward County.

Adjoining land uses/access – Adjoining land uses are primarily strip type commercial development, large scale retail (supermarkets, Diplomat Mall, etc.) and office. Hallandale Beach Boulevard provides access to the major commercial development within the City, the City's Financial District, as well as, to several high density multi-family development located adjacent to and east of NE 14th Avenue. In addition, Hallandale Beach Boulevard provides access to the Gulfstream Race Track / Casino, generally located on the SE corner of Hallandale Beach Boulevard and US 1, as well as to the beach via an intersection with SR A1A. Hallandale

Beach Boulevard intersects with I-95, Dixie Highway, US 1 and SR A1A and therefore, provides access for residents leaving the City and visitors coming to the City from Miami-Dade, Broward and Palm Beach Counties.

While Hallandale Beach Boulevard functions as a regional arterial roadway, the lack of a well defined support system of collector streets, and given the existing adjacent land uses and access to the facility, the roadway is forced to provide a variety of other functions as well. Hallandale Beach Boulevard provides access for local circulation, frequent pedestrian crossings, bus routes, minibus routes and direct property access which are not typically associated with the function of an arterial roadway. The multiple functions of Hallandale Beach Boulevard frequently lead to congestion problems as well as to hazardous conditions for pedestrian and vehicular traffic that would not normally be associated with the function of an arterial roadway.

b) Present Level of Service

The roadway segment between I-95 and Dixie Highway is currently handling 64,000 TPD. The roadway segment between Dixie Highway and US1 is currently (2007) handling 40,500 TPD. The segment between US 1 and the Intracoastal Waterway is currently handling 39,500 TPD. Finally the segment just west of the Intracoastal Waterway (ICWW) Bridge is currently handling 31,000 TPD. The capacity of these roadway segments at LOS D are 49,500 TPD on all segments except at the ICWW because of the number of traffic signals, respectively. These traffic volumes result in V/C ratios of 1.30, .82 and .80, respectively. These V/C ratios result in a current operating LOS of F, C and C respectively for the roadway segments.

The spacing of traffic signals along an urban arterial street is very important to maintaining progressive traffic flow. On East Hallandale Beach Boulevard, there are four (4) closely spaced signalized intersections at Layne Boulevard, Golden Isles Drive, Diplomat Parkway and Three Islands Boulevard. These traffic signals, together with the FEC Railroad crossing and the ICWW drawbridge, contribute to the traffic delays which commonly occur along Hallandale Beach Boulevard.

PM Peak Hour Traffic (PMPH) - The roadway segment east of I-95 is currently (2007) handling 6,040 trips in the PM Peak Hour. The roadway segment just west of US 1 is currently handling 3,650 trips in the PM Peak Hour. The roadway segment just east of US 1 is currently handling 3,560 trips in the PM Peak Hour. Lastly, the roadway segment just west of the ICWW Bridge is currently handling 2,790 trips in the PM Peak Hour. The established Level of Service (LOS) volume at LOS D is 4,680 trips in the PM Peak Hour between I-95 and US 1 but only 4,420 trips in the PM Peak