



# **Indian River County MPO**

**2006 Congestion Management  
System Plan Update**

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## **I. INTRODUCTION**

The Indian River County MPO has retained Kimley-Horn and Associates, Inc. to update its Congestion Management System (CMS) Plan. This CMS Plan, combined with the MPO's annual State of the System Report and the MPO's Strategy Monitoring Reports, represents the MPO's total Congestion Management System process. The CMS Plan development process and results are presented in the following sections:

- Section II – CMS Plan Update Process describes the general steps taken to identify the CMS Plan.
- Section III – 2003 CMS Priority Corridors describes the results of the prioritization process and identifies the priority corridors for further evaluation.
- Section IV – 2003 CMS Plan Update describes specific CMS strategies for the top two priority corridors, including the priorities for the strategies.

## II. CMS PLAN UPDATE PROCESS

As illustrated in *Figure 1*, updating the CMS plan involves five steps (table references are to tables presented later in this report). The first step is to conduct a corridor prioritization analysis which ranks those roadway segments that have high scores based on a formula that considers current and future congestion. These scores are weighted by whether they are currently congested or will be congested in the future.

The second step involves eliminating segments from Step One, where improvements are programmed (within the next five years) or segments have previously been evaluated as part of previous MPO CMS efforts. Also, segments on I-95 are removed because the Florida Department of Transportation maintains jurisdiction over this roadway. This step results in a list of candidate CMS segments.

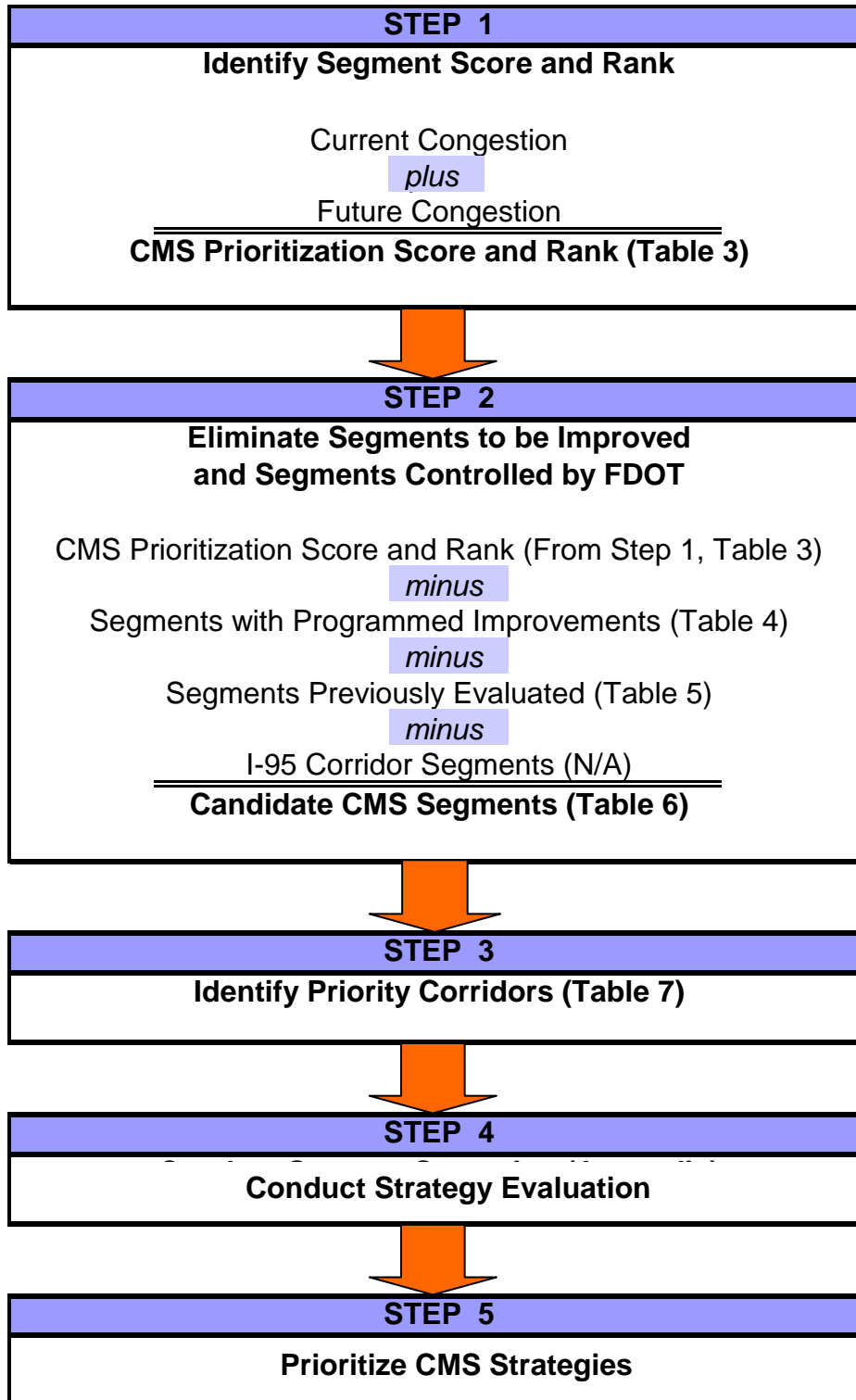
The third step involves identifying priority CMS corridors by grouping adjacent CMS segments identified in the second step.

The fourth step involves identifying various strategies with respect to the characteristics of each of the CMS corridors. This screening process relies on technical review based on data collected from each of the priority corridors. This step results in the identification of priority CMS strategies that are appropriate for implementation.

The fifth step involves the prioritization of CMS strategies that are identified for the corridors.

Additional details describing the process of selecting CMS segments and strategies are provided in the following sections.

Figure 1: CMS Plan Update Process



## SEGMENT SCORES AND WEIGHTS

Segment scores are calculated based on a formula that considers current and future levels of congestion. The level of congestion is based on the volume to capacity (V/C) ratio for roadway segments. These weights and scores are identified in *Table 1*. It should be noted that the weight places more emphasis on existing congestion than on future congestion.

**Table 1: Prioritization Scores and Weights**

PRIORITIZATION CRITERIA	RANGE	SCORE	WEIGHT
Existing V/C ratio	0.0 – 0.69	0	6
	0.70 – 0.89	4	
	0.90 – 1.09	8	
	1.10 and higher	10	
Existing + Vested V/C ratio	0.0 – 0.69	0	4
	0.70 – 0.89	4	
	0.90 – 1.09	8	
	1.10 and higher	10	

## STRATEGY EVALUATION AND PRIORITIZATION

Strategies are identified based on a consideration of the characteristics of each of the priority corridors and the identification of CMS projects that are appropriate for implementation. This screening process is guided by a technical review of the CMS priority corridors. Factors that are considered to develop strategies include the following:

- Traffic volumes
- Roadway and intersection geometry
- Intersection Analysis
- Schools and other unique traffic generators in corridor
- Land Uses along the corridor
- Transportation Improvement Program projects along corridor

Each of the potential strategies is reviewed based on available data and are prioritized based on their effectiveness and applicability to the CMS priority corridors.

### III. 2006 CMS PRIORITY CORRIDORS

The above mentioned CMS plan update process has been applied to identify the 2006 priority corridors and the recommended congestion management strategies to improve the corridor. The corridor prioritization analysis involved collecting annualized average daily traffic counts, vested trip information, and capacity for every major roadway segment in the county. These data were updated for 2005, the most recent year for which most of the data were available and entered into the MPO's CMS spreadsheet. Using weighted scores previously identified in *Table 1*, each segment was assigned a prioritization score. The CMS process calls for identifying 20 segments with the highest priority scores. Since the scores are calculated in multiples of 8 due to the weights associated with the prioritization criteria, the top 45 segments were selected for further review. These 45 segments are shown in the *Table 2*.

**Table 2: 2006 CMS Prioritization Score and Rank**

LINK	STREET SEGMENT	FROM STREET	TO STREET	PRIORITY SCORE
2050W	16TH STREET	20TH AVE	OLD DIXIE HWY	80
2510S	27TH AVENUE	ATLANTIC BLVD	AVIATION BLVD	80
1020S	S.R. A1A	S. VB CITY L	17TH STREET	80
1040S	S.R. A1A	S.R. 60	N. VB CITY L	80
1050S	S.R. A1A	N. VB CITY L	FRED TUERK RD	80
2410S	27TH AVENUE	S. COUNTY LINE	OSLO RD	64
2420S	27TH AVENUE	OSLO RD	4TH ST	56
2430S	27TH AVENUE	4TH ST	8TH ST	56
2440S	27TH AVENUE	8TH ST	12TH ST	56
2450S	27TH AVENUE	12TH ST	S. VB CITY L	56
1915W	S.R. 60	I-95	82ND AVE	56
1360N	U.S. 1	OLD DIXIE HWY	41ST STREET	56
1375N	U.S. 1	49TH STREET	65TH STREET	56
2250W	12TH STREET	20TH AVE	OLD DIXIE HWY	40
2820S	20TH AVENUE	4TH ST	8TH ST	40
2830S	20TH AVENUE	8TH ST	12TH ST	40
4740W	26TH ST	43RD AVE	FLIGHT SAFETY DR	40
2460S	27TH AVENUE	S. VB CITY L	16TH ST	40
4460W	37TH ST	U.S. 1	INDIAN RIVER BLVD	40
4860W	8TH ST	20TH AVENUE	OLD DIXIE HWY	40
1710W	C.R. 512	S.R. 60	I-95	40
1110S	INDIAN RIVER BD.	4TH ST @ US 1	12TH STREET	40
1120S	INDIAN RIVER BD.	12TH STREET	S. VB CITY L	40
1130S	INDIAN RIVER BD.	S. VB CITY L	17TH STREET	40
1140S	INDIAN RIVER BD.	17TH STREET	21ST STREET	40
1150S	INDIAN RIVER BD.	21ST STREET	MB BRIDGE	40
2315S	OLD DIXIE HWY	4TH ST	8TH ST	40
2320S	OLD DIXIE HWY	8TH ST	12TH ST	40
2325S	OLD DIXIE HWY	12TH ST	S. VB CITY L	40
1030S	S.R. A1A	17TH STREET	S.R. 60	40
1510N	SCHUMANN DR	C.R. 510 @ 66TH AVE	S. SEB CITY L	40
1305S	U.S. 1	S. COUNTY LINE	OSLO RD	40
1315S	U.S. 1	4TH ST @ IR BLVD	8TH STREET	40
1320S	U.S. 1	8TH STREET	12TH STREET	40
1325S	U.S. 1	12TH STREET	S. VB CITY L	40
1330S	U.S. 1	S. VB CITY L	17TH STREET	40
1335S	U.S. 1	17TH STREET	S.R. 60	40
1340S	U.S. 1	S.R. 60	ROYAL PALM PL	40
1350S	U.S. 1	ATLANTIC BLVD	37TH STREET	40
1355N	U.S. 1	37TH STREET	OLD DIXIE HWY	40
1365N	U.S. 1	41ST STREET	45TH STREET	40
1370N	U.S. 1	45TH STREET	49TH STREET	40
1380N	U.S. 1	65TH STREET	69TH STREET	40
1385N	U.S. 1	69TH STREET	OLD DIXIE HWY	40
1400N	U.S. 1	C.R. 512	N. SEB CITY L	40
1405S	U.S. 1	N. SEB CITY L	ROSELAND RD	40

The ultimate objective of the CMS update process involves screening congested corridors for possible congestion mitigation strategies. The strategy screening is performed on congested corridors for which major roadway improvement projects are not currently programmed. Of the 45 CMS priority corridors, seven have improvement projects programmed. These are shown in *Table 3*.

**Table 3: Segments with Programmed Improvements or Studies**

LINK	STREET SEGMENT	FROM STREET	TO STREET	PRIORITY SCORE
2050W	16TH STREET	20TH AVE	OLD DIXIE HWY	80
1020S	S.R. A1A	S. VB CITY L	17TH STREET	80
2410S	27TH AVENUE	S. COUNTY LINE	OSLO RD	64
2420S	27TH AVENUE	OSLO RD	4TH ST	56
2430S	27TH AVENUE	4TH ST	8TH ST	56
2440S	27TH AVENUE	8TH ST	12TH ST	56
4740W	26TH ST	43RD AVE	FLIGHT SAFETY DR	40

Three CMS priority segments were previously evaluated under the MPO's CMS process. Therefore, they do not need to be evaluated as part of this update. The eight segments with previous CMS analyses are shown in *Table 4*. Congestion mitigation strategies were identified in the previous CMS analyses of these segments on S.R. A1A, Indian River Boulevard, and Schumann Drive. Hence these segments were removed from further analysis.

**Table 4: Segments with Previous CMS Analysis**

LINK	STREET SEGMENT	FROM STREET	TO STREET	PRIORITY SCORE
1040S	S.R. A1A	S.R. 60	N. VB CITY L	80
1050S	S.R. A1A	N. VB CITY L	FRED TUERK RD	80
1120S	INDIAN RIVER BD.	12TH STREET	S. VB CITY L	40
1130S	INDIAN RIVER BD.	S. VB CITY L	17TH STREET	40
1140S	INDIAN RIVER BD.	17TH STREET	21ST STREET	40
1150S	INDIAN RIVER BD.	21ST STREET	MB BRIDGE	40
1030S	S.R. A1A	17TH STREET	S.R. 60	40
1510N	SCHUMANN DR	C.R. 510 @ 66TH AVE	S. SEB CITY L	40

A CMS corridor analysis is not performed for segments on I-95, as strategies for improving these roadway segments are included in FDOT's current FIHS Needs Plan. No CMS priority segments are on I-95.

The candidate CMS segments were obtained by applying the following methods. First, the roadway segments with the 45 highest priority scores were selected and identified as priority roadway segments (these were identified in *Table 2*). Second, roadway segments with programmed improvements (see *Table 3*) and those previously evaluated as part of the CMS process (see *Table 4*) were eliminated from the prioritized roadway segments list. This process resulted in the elimination of fifteen segments from the prioritized roadway segment list. *Table 5* summarizes the resulting candidate CMS segments.

**Table 5: Candidate CMS Segments**

LINK	STREET SEGMENT	FROM STREET	TO STREET	PRIORITY SCORE
2510S	27TH AVENUE	ATLANTIC BLVD	AVIATION BLVD	80
2450S	27TH AVENUE	12TH ST	S. VB CITY L	56
1915W	S.R. 60	I-95	82ND AVE	56
1360N	U.S. 1	OLD DIXIE HWY	41ST STREET	56
1375N	U.S. 1	49TH STREET	65TH STREET	56
2250W	12TH STREET	20TH AVE	OLD DIXIE HWY	40
2820S	20TH AVENUE	4TH ST	8TH ST	40
2830S	20TH AVENUE	8TH ST	12TH ST	40
2460S	27TH AVENUE	S. VB CITY L	16TH ST	40
4460W	37TH ST	U.S. 1	INDIAN RIVER BLVD	40
4860W	8TH ST	20TH AVENUE	OLD DIXIE HWY	40
1710W	C.R. 512	S.R. 60	I-95	40
1110S	INDIAN RIVER BD.	4TH ST @ US 1	12TH STREET	40
2315S	OLD DIXIE HWY	4TH ST	8TH ST	40
2320S	OLD DIXIE HWY	8TH ST	12TH ST	40
2325S	OLD DIXIE HWY	12TH ST	S. VB CITY L	40
1305S	U.S. 1	S. COUNTY LINE	OSLO RD	40
1315S	U.S. 1	4TH ST @ IR BLVD	8TH STREET	40
1320S	U.S. 1	8TH STREET	12TH STREET	40
1325S	U.S. 1	12TH STREET	S. VB CITY L	40
1330S	U.S. 1	S. VB CITY L	17TH STREET	40
1335S	U.S. 1	17TH STREET	S.R. 60	40
1340S	U.S. 1	S.R. 60	ROYAL PALM PL	40
1350S	U.S. 1	ATLANTIC BLVD	37TH STREET	40
1355N	U.S. 1	37TH STREET	OLD DIXIE HWY	40
1365N	U.S. 1	41ST STREET	45TH STREET	40
1370N	U.S. 1	45TH STREET	49TH STREET	40
1380N	U.S. 1	65TH STREET	69TH STREET	40
1385N	U.S. 1	69TH STREET	OLD DIXIE HWY	40
1400N	U.S. 1	C.R. 512	N. SEB CITY L	40
1405S	U.S. 1	N. SEB CITY L	ROSELAND RD	40

The candidate CMS segments were reviewed and the two priority corridors were selected based on discussions with County staff and characteristics and limitations of the corridors. The selected candidate segments are listed in *Table 6*.

**Table 6: CMS Priority Segments**

LINK	STREET SEGMENT	FROM STREET	TO STREET	PRIORITY SCORE
1360N	U.S. 1	OLD DIXIE HWY	41ST STREET	56
1375N	U.S. 1	49TH STREET	65TH STREET	56
2315S	OLD DIXIE HWY	4TH ST	8TH ST	40
2320S	OLD DIXIE HWY	8TH ST	12TH ST	40
2325S	OLD DIXIE HWY	12TH ST	S. VB CITY L	40
1350S	U.S. 1	ATLANTIC BLVD	37TH STREET	40
1355N	U.S. 1	37TH STREET	OLD DIXIE HWY	40
1365N	U.S. 1	41ST STREET	45TH STREET	40
1370N	U.S. 1	45TH STREET	49TH STREET	40
1380N	U.S. 1	65TH STREET	69TH STREET	40
1385N	U.S. 1	69TH STREET	OLD DIXIE HWY	40

The priority segments were grouped into two continuous routes – U.S. 1 from Atlantic Boulevard to Old Dixie Highway (north of 69<sup>th</sup> Street) and Old Dixie Highway from 4<sup>th</sup> Street to South Vero Beach City Limit. *Table 7* lists the two priority corridors and their limits. These corridors were evaluated in an effort to identify appropriate improvements through the strategy screening process.

**Table 7: Grouped CMS Priority Corridors**

CORRIDOR	FROM STREET	TO STREET
U.S. 1	ATLANTIC BLVD	OLD DIXIE HWY
OLD DIXIE HWY	4TH ST	S. VB CITY L

## IV. 2006 CMS PLAN UPDATE

After the identification of the CMS priority corridors, readily available corridor data were collected for the two CMS priority corridors. This data was used in the strategy screening process to evaluate the applicability of the strategies to priority CMS corridors. Appropriate improvement strategies were identified for each of the two corridors. The recommended strategies for each of the priority CMS corridors are described below:

### **PRIORITY CORRIDOR 1 U.S.1 FROM ATLANTIC BLVD TO OLD DIXIE HIGHWAY (NORTH OF 69TH STREET)**

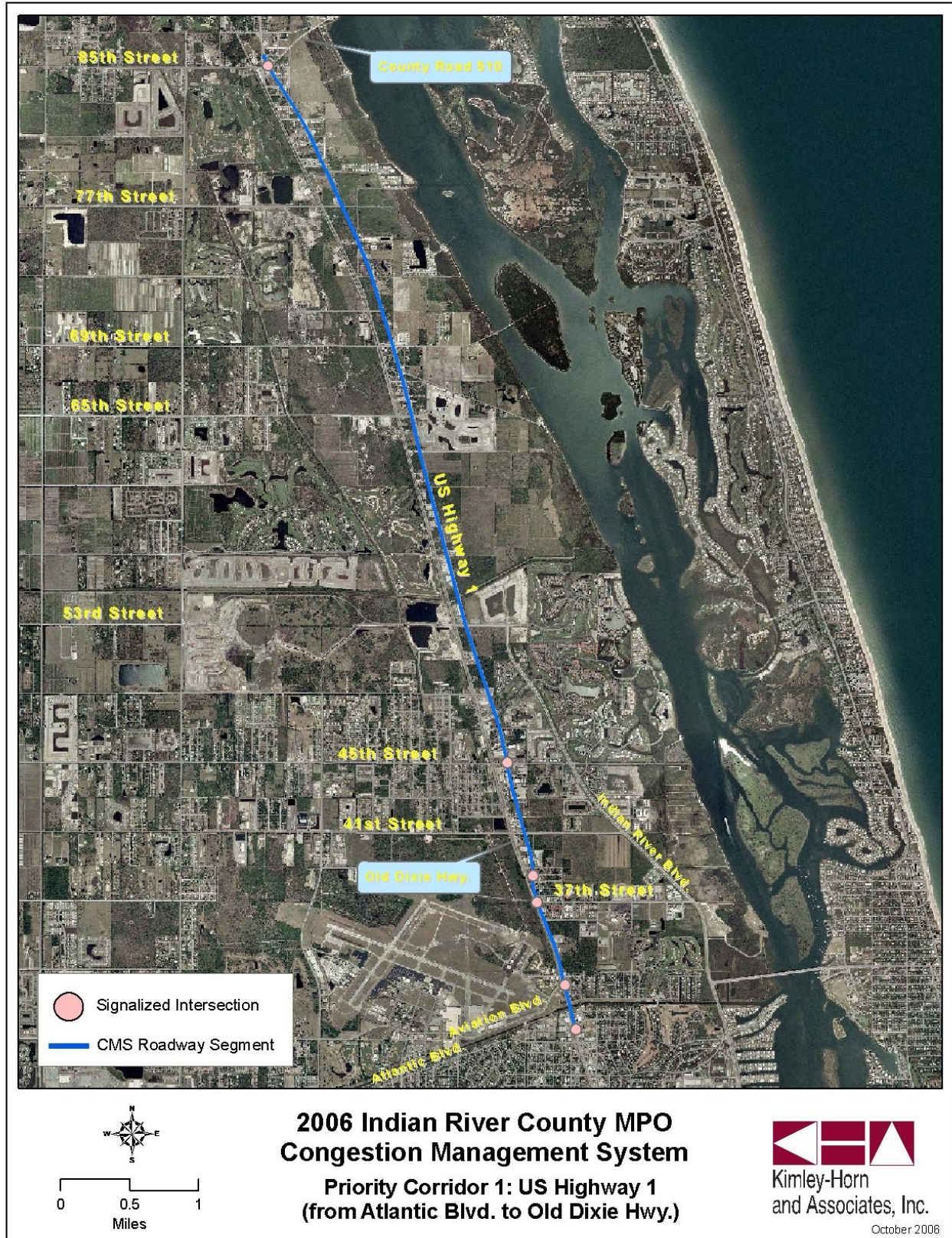
U.S.1 from Atlantic Blvd to Old Dixie Highway currently operates under congested conditions. Several side streets including CR 510, 45th Street, 37th Street, and Aviation Boulevard experience significant delays while priority is given to the operation of U.S.1 which carries higher volumes of traffic. Part of the corridor is 4-lane divided while the remainder of the corridor is 4-lane undivided. The length of the segment is approximately 7.5 miles. This corridor is illustrated in *Figure 2*.

Opportunities to improve the operation of U.S.1 within the identified segment limits are provided below:

- Conversion of the entire portion of U.S.1 from Atlantic Boulevard to 37th Street into a divided roadway will improve operating conditions on the corridor while providing better access management control.
- A considerable portion of the corridor, especially to the north of 49th Street is currently undeveloped. It is recommended that an access management master plan be developed to guide the location of future access points. It is recommended that the County coordinate with the MPO on developing the access management master plan.
- The traffic signals along U.S.1, especially Atlantic Boulevard, Aviation Boulevard, 37<sup>th</sup> Street, and Old Dixie Highway, are located fairly closely to each other. The implementation of a computerized signal system that allows for coordination of the intersections along the corridor will result in optimized operation of the traffic signals.
- The following intersection improvement is recommended along this corridor:

- U.S.1 & 37th Street – The peak hour southbound traffic volume on U.S.1 turning left onto the 37th Street exceeds 200 vehicles per hour. Consideration should be given to adding another southbound left turn lane and modifying the signal (if necessary) to provide dual left-turn operation.

Figure 2: Priority Corridor 1 – U.S. 1



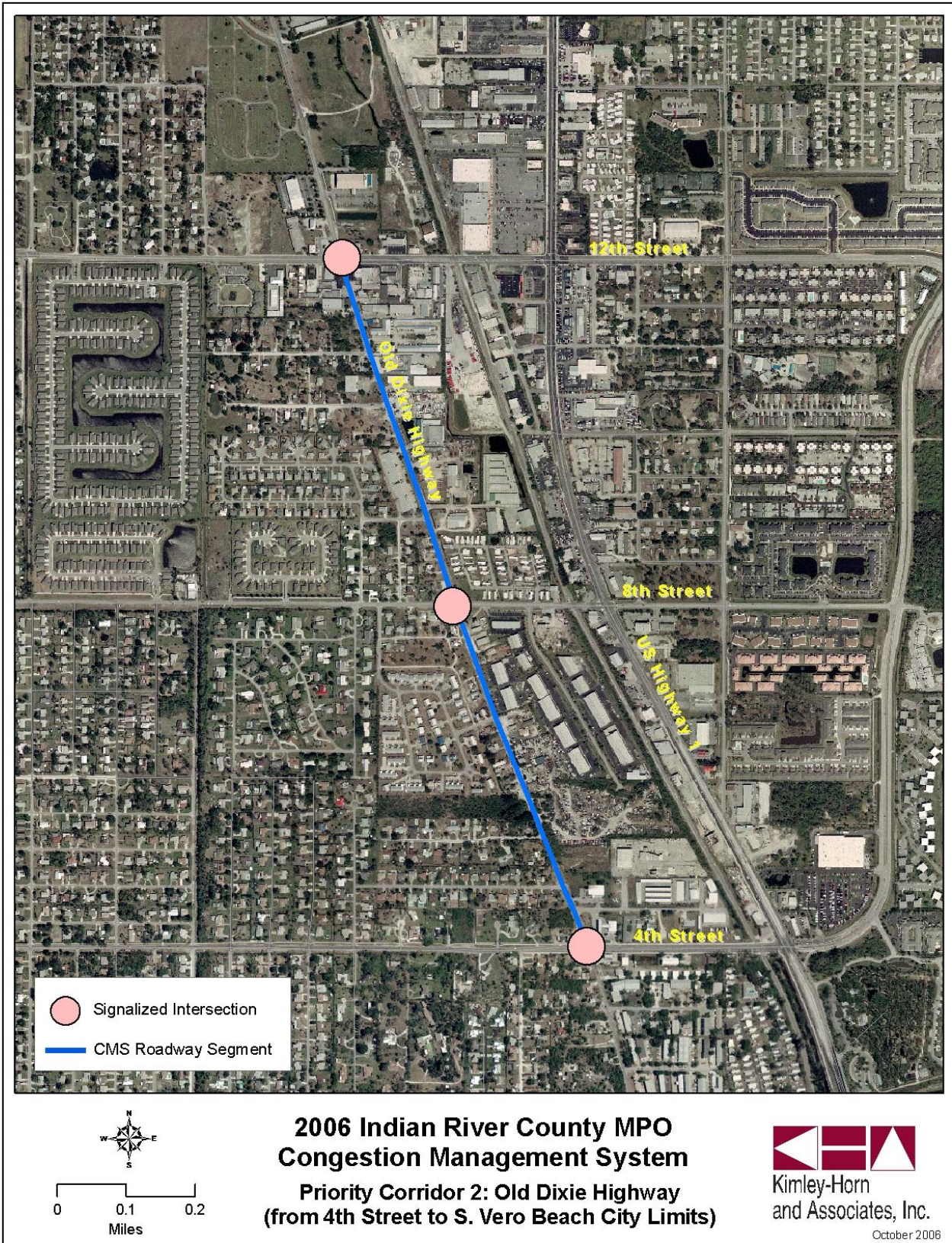
## **PRIORITY CORRIDOR 2**

### **OLD DIXIE HIGHWAY FROM 4<sup>TH</sup> STREET TO SOUTH VERO BEACH CITY LIMIT**

Old Dixie Highway from 4th Street to S. Vero Beach City Limit is identified as a priority corridor in the CMS ranking. This is a two-lane undivided roadway. This corridor is illustrated in *Figure 3*. Recommended strategies to improve the operation of this corridor are provided below:

- This corridor is primarily developed and has several closely located access points that result in deteriorated operating conditions. It is recommended that an access management plan be developed and implemented for this corridor. The access management plan should consider strategies to work with property owners to provide cross access between adjacent sites ultimately reducing access points along Old Dixie Highway.
- The corridor is fully developed; hence it is physically constrained for widening. It is recommended that the County adopt transportation system management improvements to improve the operating conditions of critical intersections including 4th Street, 8th Street, and 12th Street.
- The implementation of a computerized signal system that allows for coordination of the intersections along the corridor will result in optimized operation of traffic signals.

Figure 2: Priority Corridor 2 – Old Dixie Highway



## V. SUMMARY

The results of the 2006 Indian River MPO CMS Plan Update are summarized in *Table 8*. This table summarizes the strategies for each corridor.

**Table 8: CMS Plan Summary of Strategies**

CORRIDOR	STRATEGY
US-1 from Atlantic Blvd to Old Dixie Highway (north of 69th Street)	Conversion of the entire segment of US-1 from Atlantic Boulevard to 37th Street into a divided roadway will improve operating conditions on the corridor while providing better access management control.
	Develop an access management master plan.
	Install a computerized signal system.
	Implement intersection improvements at U.S.1 & 37th Street.
Old Dixie Highway from 4th Street to South Vero Beach City Limit	Develop an access management master plan.
	Implement intersection improvements at 4th Street, 8th Street and 12th Street.
	Install a computerized signal system.