Congestion Management System

Revised in 2006 to include the First Coast MPO's *NEW* Congestion Management Process

"...we must embrace new solutions if we are going to make any meaningful progress in reducing congestion."
Norman Y. Mineta, *Secretary of Transportation*

Spring 2006

RS&H

First Coast MPO Metropolitan Planning Organization

CONGESTION MANAGEMENT SYSTEM

Prepared for

First Coast MPO Metropolitan Planning Organization

by

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CONGESTION MANAGEMENT SYSTEM

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I. CMS Overview

Introduction

This document is a report of the update of the First Coast Metropolitan Planning Organization's (MPO) Congestion Management System (CMS). The report describes the First Coast MPO's updated CMS development process, recommended CMS facilities, as well as conclusions and recommendations. Federal certification of the MPO planning process is contingent upon a federally approved CMS.

State and Federal Legal and Regulatory Framework

In Florida, CMS has been named a Mobility Management Process (MMP). Chapter 339.177 Florida Statutes requires a MMP for all urbanized areas, whether or not the population exceeds 200,000. All of Florida's 25 Metropolitan Planning Organizations (MPOs) have operational Mobility Management Processes.

At the federal level, the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA) required that a CMS be included as an element of the urban area transportation planning process. This requirement was carried forward in 1998 by TEA-21 (The Transportation Efficiency Act for the 21st Century); and most recently by SAFETEA-LU (Safe, Accountable, Flexible, Efficient Transportation Equity Act [of 2003] – A Legacy for Users).

Under TEA-21, for urbanized areas with a population greater than 200,000 the specific requirements for the establishment and maintenance of a CMS are included in Part 450 and Part 500 of Title 23 of the Code of Federal Regulations (CFR). Part 450 requires that the planning process must include the development of a CMS that provides for effective management of new and existing transportation facilities through the use of travel demand reduction and operational management strategies. Part 500 includes six specific CMS requirements, which are summarized below:

1. Methods to monitor and evaluate the performance of the multimodal transportation system, identify the causes of congestion, identify and evaluate alternative actions, provide information supporting the implementation of actions, and evaluate the efficiency and effectiveness of implemented actions;

2. Definition of parameters for measuring the extent of congestion and for supporting the evaluation of the effectiveness of congestion reduction and mobility enhancement strategies;

3. Establishment of a program for data collection and system performance monitoring to define the extent and duration of congestion, to help determine the causes of congestion, and to evaluate the efficiency and effectiveness of implemented actions;

4. Identification and evaluation of congestion management strategies, including transportation demand management measures, growth management and congestion pricing; traffic operational improvements; public transportation improvements; ITS technologies; and, where necessary, additional system capacity;

5. An implementation schedule, implementation responsibilities, and possible funding sources for each strategy (or combination of strategies); and

6. A process for periodic assessment of the efficiency and effectiveness of implemented strategies, in terms of the area's established performance measures.

On August 10, 2005, TEA-21 was reauthorized through the end of fiscal year 2009. The new bill, SAFETEA-LU, increases focus on congestion relief and mitigation by continuing congestion management processes in urbanized areas with a population greater than 200,000; instituting a new program to improve reliability of the transportation system (Real-Time Systems Management Information Program); providing more options for using road pricing to manage congestion (new Express Lanes Demonstration Program and continued Value Pricing Pilot Program); enhancing and clarifying HOV lane operation and use; and continuing support of Intelligent Transportation Systems (ITS) to provide better information to travelers and emergency responders.

According to a FHWA Section by Section Analysis of the new bill (Title VI, Section 6001, part 5203), SAFTEA-LU modifies TEA-21 "to streamline and integrate the congestion management process into overall planning process and plan development." Transportation Plans must now contain "Operational and management strategies to improve the performance of existing transportation facilities to relieve congestion and maximize the safety and mobility of people and goods." Congestion management is to be addressed "through a process that provides for effective management and operation, based on a cooperatively developed and implemented metropolitan-wide strategy…through the use of travel demand reduction and operational management strategies."

Review of 1997 CMS

The First Coast MPO completed a CMS in 1997. In the 1997 CMS, concurrency counts were used to identify congested links. Next the congested links were grouped and ranked based on the following four criteria:

1. Capacity deficiency (10 points if v/c > 1.0)
2. Status of planned or programmed improvements (10 points if no projects in LRTP)
3. Vehicle miles traveled (VMT) (highest VMT = 10 points), and
4. Availability of transit (3 points if located in transit service area)

The highest ranked roadways would have severe congestion, no improvements included in the TIP or the LRTP, a high total VMT, and transit services available.

The Florida DOT listed Jacksonville's CMS ranking scheme as one of the MMP "Best Practices" in the State of Florida.

In the 1997 CMS, 25 roadways were identified and ranked. The roadway lengths ranged from 0.2 miles (Blanding Blvd from Clay County to Wells Road) to 8.04 miles (I-95, from 20th Street Expressway north to I-295).

An interagency steering committee was formed and was responsible for input to annual performance reports, finalizing the list of congested roadways, and prioritizing preliminary projects.

One of the appendices to the 1997 CMS includes forms to be used for the assessment of congestion, along with forms to be used in the evaluation of potential congestion management strategies.

Although the text of the 1997 CMS report includes a reference to Intelligent Transportation Systems (ITS), it does not include ITS as a potential CMS strategy. The 1997 CMS report recommends that the steering committee should monitor the efforts and the development of ITS, and that ITS be considered as a potential CMS strategy only "if the system proves to be an effective tool for congestion mitigation." As part of the update to the 1997 CMS, RS&H recommends that ITS strategies shall be a fully developed element of the updated CMS.

The 1997 CMS was the basis for the Baymeadows Road Mobility Improvement Project, which was completed in May 2002. In turn, the Baymeadows Road Mobility Improvement Project led to the successful formation of Better Baymeadows Inc., a Transportation Management Organization for the Baymeadows Road corridor.

Current CMS Description

Similar to the First Coast MPO's prior CMS, this updated CMS identifies and prioritizes congested state facilities within the First Coast MPO area. Unlike the previous CMS, however, the updated process incorporates proactive policies that encourage CMS analyses and strategies, instead of or in addition to, traditional capacity expansion projects. The updated process also employs an effective means of identifying and prioritizing congestion across the First Coast MPO region and recommends congestion monitoring between five-year updates. Finally, the process suggests grouping roadway facilities into corridors, and encourages congestion improvement strategies to be approached at the corridor level.

The study area for the updated First Coast MPO CMS covers the First Coast MPO's recently expanded boundary: all of Duval County (City of Jacksonville) and portions of Clay County (including Orange park and Green Cove Springs), St. Johns County (including St. Augustine) and Nassau County (including Fernandina Beach and Amelia Island).

CMS Steering Committee

A steering committee was formed to oversee the update of the Congestion Management System for the First Coast MPO. A Nassau County representative was included to reflect the new expanded boundary of the First Coast MPO and individual representatives. The committee includes growth management officials representing each of the counties within the First Coast MPO study area, along with a representative of the Jacksonville Transportation Authority (JTA) and two representatives of the Florida Department of Transportation District 2 Urban Office.

Table 1 lists the members of the First Coast MPO Congestion Management System steering committee.

Table 1
First Coast MPO Congestion Management System Steering Committee

CITY OF JACKSONVILLE	JTA
Lawrence Kiefer Division Chief Planning and Development Department	**Kevin Feldt, AICP** Senior Transportation Planner
CLAY COUNTY	**NASSAU COUNTY**
Thad Crowe Planning Director	**Jose Deliz, PE** Director, Engineering Services Department
FLORIDA DEPT OF TRANSPORTATION, D2	**ST. JOHNS COUNTY**
Chris LeDew Asst. District Traffic Operations Engineer Jacksonville Urban Office **James M. Green** Transportation Specialist (Liaison to FCMPO) Jacksonville Urban Office	**Scott Clem** Assistant County Administrator **Bill Hartman** Transportation Planning Manager
FIRST COAST MPO	**REYNOLDS, SMITH AND HILLS**
Denise Bunnewith, AICP Executive Director **Jeff Sheffield** Director of Planning	**David Stroud, PE, AICP** Transportation Planning Section Leader **Stephen Tocknell, AICP** Senior Planning Project Manager

It is anticipated that after the completion and adoption of the updated Congestion Management System (CMS) for the First Coast MPO, the steering committee will continue to function as an oversight committee as CMS strategies are implemented and evaluated.

CMS Definitions

- **Congestion (from federal regs. § 500.109 CMS)**
  Congestion is the level at which transportation system performance is no longer acceptable (to the traveling public) due to traffic interference. The level of system performance deemed acceptable by State and local officials may vary by type of transportation facility, geographic location (metropolitan area or sub area, rural area), and/or time of day.

- **Vehicle Miles of Travel (VMT)**
  The number of miles that vehicles are driven, commonly determined by multiplying the number of vehicles on a given segment and/or facility by the length (in miles) of the segment and/or facility.

- **Segments (from HCM[1])**
  Generally, part of a roadway extending from one signalized intersection to another. Refer to Figure 1.

- **Facilities (from HCM)**
  A roadway of reasonable length consisting of a combination of points and segments. Refer to Figure 1.

- **Corridors (from HCM)**
  A set of generally parallel transportation facilities designed to move people between two points. For example, a freeway corridor may consist of a freeway and one or more parallel arterial streets; there also may be rail or bus transit service on either or both the freeway and the arterial, or on a separate right-of-way. Refer to Figure 1.

- **Areas (from HCM)**
  A combination of all facilities in an area. Refer to Figure 1.

- **Constrained**
  Constrained facilities are generally those with limited capacity for additional lanes, either due to right of way constraints, land use constraints, political constraints or environmental constraints. For this study, a constrained facility must be identified as constrained by the First Coast MPO 2030 Long Range Transportation Plan.

- **Transportation Concurrency Exception Area (TCEA)**
  Within the state of Florida, the purpose of a TCEA is to support the development and use of public transportation facilities and services as well as to reduce the adverse impacts that transportation concurrency requirements may have upon urban infill development and redevelopment projects (refer to figure 5).

- **Intelligent Transportation Systems (ITS) (from ITS America)**
  "The application of advanced sensor, computer, electronics, and communications technologies and management strategies---in an integrated manner---to increase the safety and efficiency of the surface transportation system."

- **High Occupancy Toll Lanes (HOT)**
  On limited access highways "value lanes," also known as High Occupancy Vehicle (HOV) lanes or High Occupancy Toll (HOT) lanes can also be effective congestion management tools. Typically, HOT lanes allow drivers of single occupancy vehicles (SOVs) to use HOV lanes that would otherwise be restricted to cars carrying two or more passengers, or buses. SOV drivers using HOT lanes would be required to pay a toll. But instead of toll booths, HOT lanes typically use embedded electronic devices for toll collection and enforcement.

[1] Highway Capacity Manual, Transportation Research Board, National Research Council, 2000

Figure 1 is an illustration, taken from *NCHRP Synthesis 311 – Performance Measures of Operational Effectives for Highway Segments and Systems*, (p. 7), which graphically depicts the relationships among segments, facilities, corridors, and areas.

Figure 1
Generalized Highway System Structure

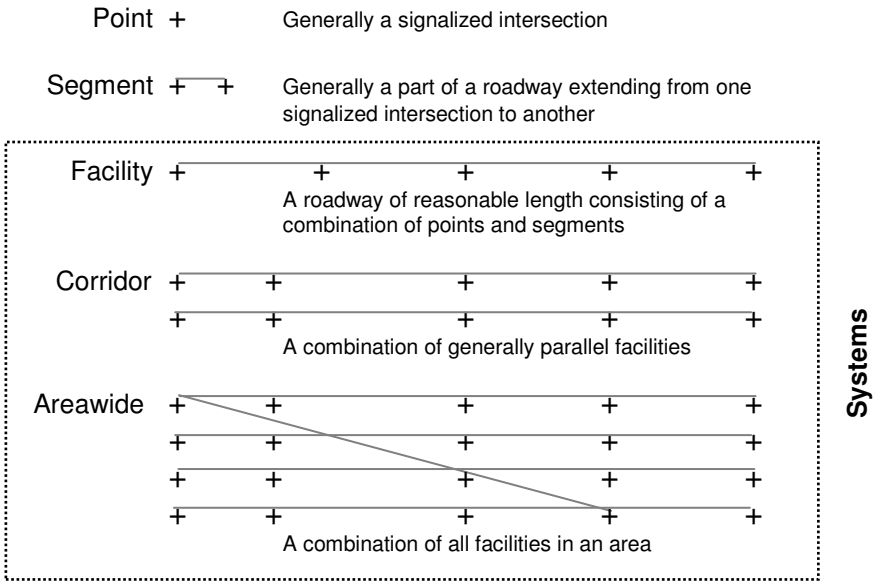


FIGURE 1 Definitions of highway segment and system (HCM 2000).

Best Practices Review

At the outset of this study, RS&H reviewed two reports on best practices, *MMP Best Practices in Florida,* prepared in 1999 by the Florida Department of Transportation (FDOT), and *Congestion Management System Practices,* prepared in 2002 by the Texas Transportation Institute (TTI). In addition, we have also reviewed a tabulated summary prepared by FDOT in 1999 for all of the Florida Mobility Management Processes.

Our review of the FDOT and TTI documents indicated that in 1999 and 2002, several Florida MPOs were using system planning models (FSUTMS), along with existing traffic counts, in order to identify congested routes. Brevard, for example, used both existing congestion and future (2020) congestion with no improvements to the existing system. Metroplan Orlando used generalized capacity tables as a screening measure, and ART_PLAN for more detailed analysis. Once a corridor has been identified as congested based on highway performance measures, additional measures are applied within that corridor in order to measure transit quality of service. These measures could include hours of bus operation, bus service frequency (e.g. 2 per hour), etc.

Several MPOs focus especially upon corridors where conventional capacity improvements are not feasible. Within these corridors, these MPOs prioritize measures that are intended to reduce person trips by automobile, such as vehicular trip reduction, ridesharing and other TDM measures, and measures that increase the supply and use of transit.

According to a summary of the Florida Mobility Management Process (MMP) prepared by FDOT, a typical Florida MMP:

1. Identifies the location of congestion by measuring the system's performance
2. Identifies the causes of congestion
3. Is guided by a multi-disciplinary local steering committee with FDOT representation
4. Recommends strategies to alleviate congestion which can be implemented quickly, inexpensively and can avoid the addition of general purpose lanes of roadway
5. Is corridor-based, (and)
6. Provides a link between the short range transportation improvement program (TIP) and the long range planning process (LRTP).

RS&H has also reviewed a 2004 report prepared by Cambridge Systematics, Inc. (CS) for the Federal Highway Administration, entitled *Traffic Congestion and Reliability: Linking Solutions to Problems*. Our review of the CS *"Traffic Congestion and Reliability…"* report focused on the development of new performance measures that emphasize the reliability of the transportation system over time, especially from day to day. The emerging emphasis on reliability is based on feedback from travelers who have indicated that their main congestion related concern is over how much extra travel time, or buffer time, must be budgeted in order to ensure a timely arrival at a given destination. When there is a wide range of expected travel times, travelers must allow for the possibility of major delays, whether or not these delays actually occur during any given trip.

Regional Congestion Assessment

This section of the report summarizes information in *The 2005 Urban Mobility Report*, released by Texas Transportation Institute (TTI) in May 2005. This update of the TTI report is a national study of 2003 traffic congestion in 85 urban areas across the country. The report asserts that congestion is continuing to grow nationwide at a pace that is outgrowing capacity, operational improvements and demand management efforts.

Tables 2 - 4 summarize key information for the First Coast Metropolitan Planning Organization (MPO) area, along with averaged data for (1) all medium population urban areas (over 500,000 and less than 1 million) and (2) all 85 urban areas studied. Thirty urban areas were included in the medium population group, including Jacksonville (FL), Sarasota-Bradenton (FL), Charlotte (NC-SC), Raleigh-Durham (NC), Richmond (VA), Birmingham (AL), Nashville-Davidson (TN), Memphis (TN-MS-AR) and Austin (TX). The rank shown in Table 2-4 is based upon the 85 urban areas, not the medium urban areas.

Key Mobility Measures (refer to Table 2)

First Coast MPO area motorists are losing time to traffic delay, with an annual delay per traveler at 34 hours, giving the area a ranking of 32nd worst out of the 85 cities studied. The area's annual delay per traveler (34 hours) is higher than an average of 25 hours for all medium urban areas and lower than an average of 47 hours for all urban areas studied.

In terms of travel time index, the First Coast MPO area's travel time index is 1.18 and ranks 48th worst out of the cities studied. This compares to an average of 1.18 for medium areas and 1.37 for all

areas. The travel time index indicates peak period travel to free flow travel and includes both recurring and incident conditions. So, the 1.18 travel time index for the First Coast MPO area generally indicates that it might take about 18 percent more time to take a trip in the peak period than during free flow conditions.

From 1982 to 2003, the annual delay per traveler has increased 26 hours in the First Coast MPO area (8 to 34 hours) and the change in peak-period time penalty (i.e., travel time index) has increased 14 points (1.04 to 1.18). This compares to a 20-hour increase and 13-point increase, respectively, for all medium urban areas.

Components of Congestion (refer to Table 3)

There are 16.8 million hours of travel delay in the First Coast MPO area, consuming over 10.2 million gallons of fuel at a cost of $285 million. These figures are much higher than the 9.6 million hours, 5.6 million gallons and $162 million averaged for all medium areas and lower than those for all urban areas studied (over 43.8 million hours, 26.6 million gallons of fuel and $742 million). In this report, travel delay was defined as travel time above that needed to complete a trip at free-flow speeds. Excess fuel consumed is increased fuel consumption due to travel in congested conditions rather than free-flow conditions. Congestion cost is defined as the value of travel time delay and excess fuel consumption.

Effect of Mobility Improvements (Table 4)

The TTI report also examines hours of delay saved by operational improvements and public transportation. Operational treatments looked at for the First Coast MPO area were freeway incident management, arterial street signal coordination and arterial street access management; freeway ramp metering was not included. The First Coast MPO area saved 987 thousand hours of delay from the use of operational treatments, and saved $6.5 million in congestion costs. This compares to an average of 467 thousand hours of delay and $7.8 million saved in all medium urban areas. An average of four million hours of delay and $65.8 million was saved for all 85 urban areas.

Public transportation service was defined as regular route service from all public transportation providers in the urban areas. For the First Coast MPO area, 738 thousand hours of delay and $12.4 million in congestion costs were saved with the implementation of public transportation. This is lower than an average of 885 thousand delay hours and $14.8 million saved in all medium urban areas. An average of 13.0 million hours of delay and $217 million was saved for all 85 urban areas.

It is recommended that the First Coast MPO annually monitor TTI's estimate of annual delay per traveler as a regional performance measure. The purpose of this will be to track congestion in the First Coast MPO region from year to year, as well as in relation to other MPO regions.

Table 2. Key Mobility Measures, 2003

	Annual Delay Per Traveler		Travel Time Index		Long Term Change of Annual Delay Per Traveler (1982 to 2003)		Point Change in Peak-Period Time Penalty (1982 to 2003)	
	2003 Hours	Rank	2003 Values	Rank	Hours	Rank	Points	Rank
Jacksonville, FL (First Coast MPO)	34	32	1.18	48	26	33	14	39
Medium Urban Area Average	25	------	1.18	------	20	------	13	------
85 Urban Area Average	47	-----	1.37	-----	31	-----	25	-----

Source: The 2005 Urban Mobility Report, Texas Transportation Institute (TTI), May 2005

Table 3. Congestion Components, 2003

	Travel Delay		Excess Fuel Consumed		Congestion Cost	
	Hours	Rank	Gallons	Rank	$ Millions	Rank
Jacksonville, FL (First Coast MPO)	16,850,000	38	10,159,000	39	285	38
Medium Urban Area Average	9,598,000	------	5,995,000	------	162	------
85 Urban Area Average	43,802,000	-----	26,573,000	-----	742	-----

Source: The 2005 Urban Mobility Report, Texas Transportation Institute (TTI), May 2005

Table 4. Effects of Mobility Improvements, 2003

	Operational Treatment Savings			Public Transportation Savings		
	Delay Saved (Hours)	Rank	Cost Saved ($ Million)	Delay Saved (Hours)	Rank	Cost Saved ($ Million)
Jacksonville, FL (First Coast MPO)	987,000	34	16.5	738,000	45	12.4
Medium Urban Area Average	467,000	------	7.8	885,000	------	14.8
85 Urban Area Average	3,962,000	-----	65.8	13,030,000	-----	217.0

Source: The 2005 Urban Mobility Report, Texas Transportation Institute (TTI), May 2005

II. CMS Development Process

Flowchart of CMS Process

Figure 2 shows the steps of the First Coast MPO Congestion Management System process. The flow chart includes a process for conducting project-level CMS analyses pursuant to CMS policies, along with a process for conducting detailed CMS studies for congested facilities. As shown in the flow chart, each process will lead to projects to place in the TIP. The flow chart also shows how the Congestion Management System Plan will be updated on a five-year cycle.

Policies

The Congestion Management System for the First Coast MPO study area includes six policies related to congestion management, as determined by First Coast MPO staff. CMS Policy Implementation is discussed later in the report.

1. Funding mechanisms for project implementation of CMS strategies shall be identified. These funding mechanisms should represent various levels of government, including city, county regional and state.

2. A CMS analysis shall be performed before any capacity expansion project for that facility may be presented for approval by the First Coast MPO. If CMS strategies are not included as part of such a project, justification for their exclusion must be furnished to the First Coast MPO. Additionally, the analysis results shall be furnished to the First Coast MPO.

   This CMS analysis should be completed, whether or not the state highway facility has been identified as part of the First Coast MPO Congestion Management System. A basic CMS analysis may include an evaluation of potential improvements that would provide for more efficient traffic operations (e.g. signal timing strategies) or the future deployment of Intelligent Transportation Systems (ITS) involving that facility.

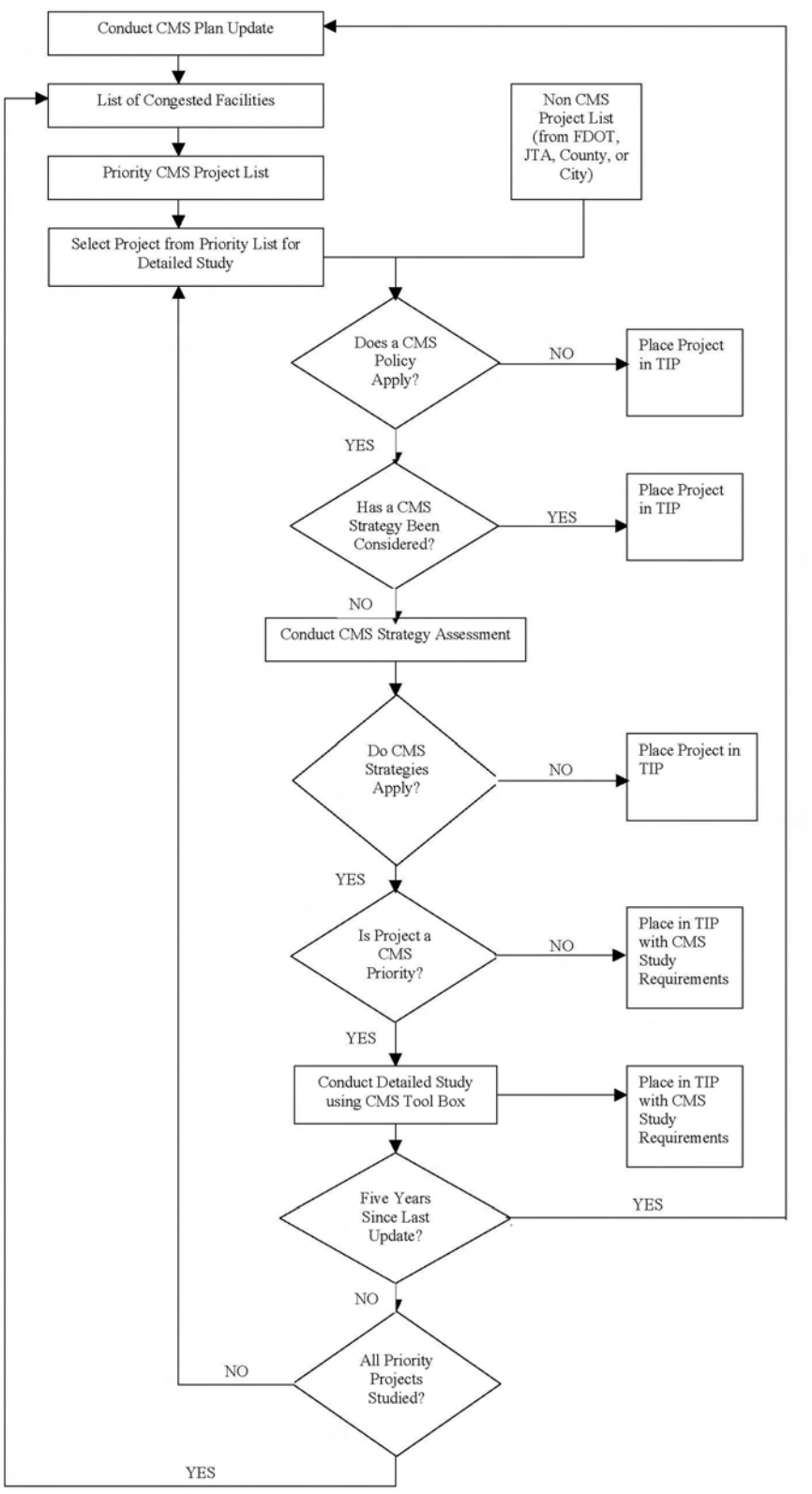
3. The CMS analysis shall include an evaluation of the potential for adding value lanes, such as express toll lanes, on limited access state highway facilities.

4. A maximum width of six general-purpose lanes is recommended, exclusive of special lanes and turning lanes at major intersections, on arterial highways other than limited access highways. CMS strategies will be developed to address any potential capacity deficiencies that may occur as a result of implementing this policy. These CMS strategies may be implemented as short-term improvements. It is not the intent of this policy to discourage or preclude the reservation or acquisition of rights-of-way now for use in adding general-purpose lanes beyond the specified six lane maximum should such facilities be deemed needed and appropriate at a future date.

5. The First Coast MPO shall support the designation and development of Transportation Concurrency Exception Areas (TCEAs) within the First Coast MPO study area, only when a CMS analysis has been conducted and CMS strategies for reducing congestion have been identified.

6. Local governments shall be encouraged to develop policies that support access management, and driveway sharing.

Figure 2
CMS Development Process



Identification of Congested Facilities

Resources Used to Identify Congested Facilities

The first step in the process of identifying congested facilities was to select appropriate resources for use in identifying these facilities. Available travel demand model and Geographic Information system (GIS) tools were both used, namely the Northeast Regional Planning Model (NERPM), Cube Voyager traffic forecasts, and ArcGIS software.

Minimum Facility Length

The next step was to identify state roadways greater than or equal to four miles in length within the First Coast MPO area. The facility length, including congested as well as uncongested segments, was at least four miles. The basis for this standard is that many CMS strategies would not be practical within shorter facilities.

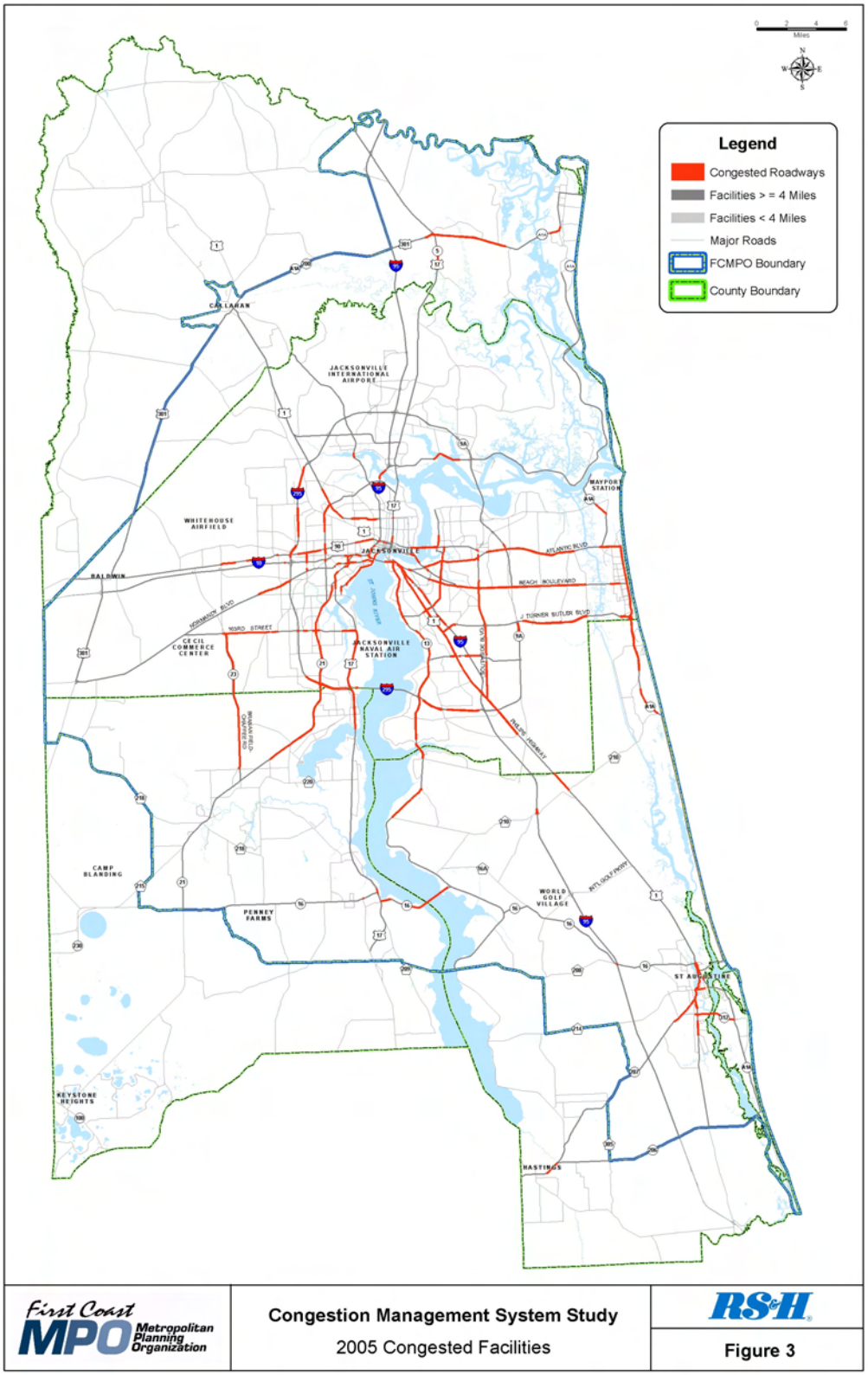
Existing Congestion

Upon reviewing NERPM 2005 model run results displaying congested facilities above both 0.85 and 0.90 volume over capacity (v/c) ratios, a decision was made to use a 0.85 v/c standard to determine which facilities had existing congestion. Both model run results were similar, revealing that utilizing the stricter v/c standard 0.90 did not yield a significantly higher number of congested facilities.

Potential for Future Congestion

A 2015 model forecast was used to indicate where congestion was likely to be relieved due to the implementation of capacity projects. Thus, future year congestion was used to show the benefits of projects already programmed in the First Coast MPO's Transportation Improvement Program (TIP). Facilities congested in 2005 that show significantly reduced congestion by 2015 generally were considered to have benefited from transportation improvement projects programmed in the TIP, as well as those contained in the First Coast MPO's 2030 Long Range Transportation Plan (LRTP). These facilities were not determined to be part of the First Coast MPO Congestion Management System (CMS). Figure 3 displays 2005 congested facilities. Portions of facilities with no congestion are shown in shades of gray and facilities only congested in 2005 are shown in red.

Figure 3
2005 Congested Facilities



Congested Vehicle Miles Traveled (VMT) and Length of Congested Facilities

Once the facilities were identified that were at least 4 miles in length and that were congested in both 2005 and in 2015, the extent of congestion was assessed. If the vehicle miles of travel (VMT) on the congested segment(s) of a facility were determined to be equal to or greater than 20% of the total VMT on that facility, then congestion on the facility was determined to be more significant than those facilities with congested VMT that were less than 20% of the total facility VMT. Likewise, if the congested length of a facility were equal to or greater than 20% of the overall facility length, then congestion on the facility was also determined to be more significant than those facilities with congested segments that were less than 20% of the total facility length. Table 5 displays the list of facilities congested in both 2005 and 2015, and their % congested VMT and % congested length. Figure 4 displays facilities congested in both 2005 and 2015. Congestion is shown in red. Of these facilities, those with % congested VMT or % congested length greater than or equal to 20% are displayed.

Figure 4
2005 and 2015 Congested Facilities

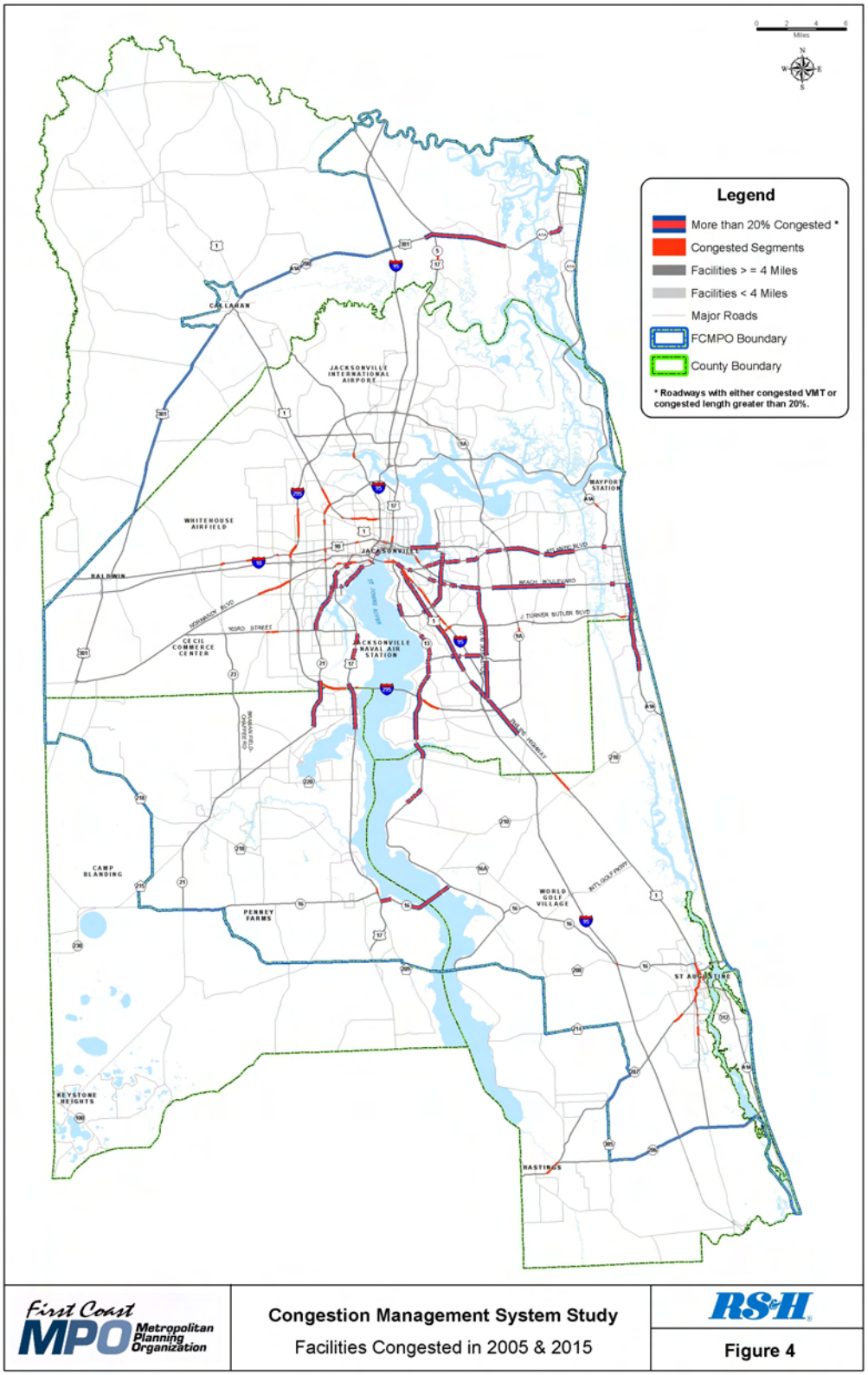


Table 5
2005 and 2015 Congested Facilities

FACILITY NUMBER	FACILITY	FROM	TO	CONGESTED VMT	FACILITY VMT	% CONG. VMT	CONGESTED LENGTH (MI)	FACILITY LENGTH (MI)	% CONG. LENGTH	AVG V/C	COUNTY	PREVIOUS STUDY/ INTERSTATE
5	I-10	US 301	I-95	3,539	841,234	0.42%	0.07	19.04	0.36%	0.85	Duval	YES
9	I-295	I-95/SR 9A (South of Jax)	I-95/SR 9A (North of Jax)	256,129	2,138,880	11.97%	6.17	35.38	17.44%	0.97	Duval	YES
7	I-95	Racetrack Rd	4mi N of Pecan Park Rd	240,092	2,552,387	9.41%	4.44	35.22	12.62%	1.01	Duval	YES
20	SR 16	SR21/Blanding Blvd	SR 13	100,870	282,201	35.74%	4.03	19.23	20.98%	1.15	Clay/St. Johns	
19	SR 16	SR 13	US 1/SR A1A	2,178	219,139	0.99%	0.12	18.51	0.67%	1.09	St. Johns	
34	SR 200/SR A1A	I-95	S. Fletcher Ave	119,655	458,228	26.11%	6.51	16.07	40.53%	1.11	Nassau	
38	SR 207	St Johns/Putnam Co Line	US 1	44,065	285,093	15.46%	1.90	17.83	10.64%	1.02	St. Johns	
11	SR 9A	I-95/I-295	SR202/J Turner Butler Blvd	23,919	284,839	8.40%	0.70	7.68	9.08%	0.89	Duval	
45	SR A1A	SR 206	Mickler Rd	14,608	375,929	3.89%	0.80	29.82	2.69%	1.21	St. Johns	YES
44	SR A1A	Mickler Rd	SR10/Atlantic Blvd	136,826	412,771	33.15%	6.02	13.39	44.94%	1.35	Duval/St. Johns	Yes
12	SR10/Atlantic Blvd	I-95	SR A1A/3rd St.	292,698	721,836	40.55%	9.80	15.53	63.11%	1.09	Duval	
28	SR109/University Blvd	SR13/San Jose Blvd	Fort Caroline Rd	158,591	272,759	58.14%	4.30	9.31	46.20%	1.18	Duval	
29	SR111/Cassat/Edgewood Ave	SR21/Blanding Blvd	US17/Main Street	30,613	248,016	12.34%	1.51	11.88	12.71%	1.11	Duval	
30	SR115/Arlington Expy	Liberty St	SR10/Atlantic Blvd	57,439	285,676	20.11%	1.83	5.53	33.19%	0.92	Duval	
31	SR115/Lem Turner Rd	I-95	Duval/Nassau Co Line	6,401	171,863	3.72%	0.31	11.60	2.63%	0.99	Duval	
46	SR115/Southside Blvd	US1/Philips Hwy	SR 9A	305,393	500,778	60.98%	6.92	9.58	72.25%	1.44	Duval	Yes
1415	SR13/San Jose Blvd	SR13/Hendricks Ave	CR 208	310,781	678,594	45.80%	10.80	33.33	32.40%	1.22	Duval/St. Johns	
32	SR134/103rd St/Timuquana Blvd	SR228/Normandy Blvd	US17/Roosevelt Blvd	17,969	348,571	5.16%	0.86	11.60	7.38%	1.00	Duval	
33	SR152/Baymeadows Rd	SR13/San Jose Blvd	SR 9A	27,434	158,899	17.27%	1.52	6.37	23.90%	1.13	Duval	YES
36	SR202/J Turner Butler Blvd	US 1/Philips Hwy	SR A1A	20,373	924,366	2.20%	1.01	13.02	7.75%	1.39	Duval	
21	SR21/Blanding Blvd	SR 16	US17/Roosevelt Blvd	215,678	848,058	25.43%	6.56	26.79	24.47%	1.16	Duval/Clay	
39	SR211/Riverside Ave	Grand Ave (SR 211)	Water St	43,154	75,930	56.83%	2.60	4.63	56.04%	1.12	Duval	
41	SR228/Hart Expy	Liberty St	US90/SR212/Beach Blvd	13,889	149,952	9.26%	0.52	5.34	9.78%	0.86	Duval	
42	SR228/Normandy Blvd/College St	US 301	SR211/Riverside Ave	58,280	420,430	13.86%	3.75	22.54	16.63%	1.03	Duval	
43	SRA1A/SR101/Mayport Rd	SR10/Atlantic Blvd	Mayport Ferry	3,858	82,074	4.70%	0.26	5.79	4.51%	1.20	Duval	YES
18	US 1	I-95	US 301	71,697	467,166	15.35%	3.18	18.72	17.01%	0.95	Duval/Nassau	
1	US 1/Dixie Hwy	SR 206	Racetrack Rd	101,436	568,303	17.85%	5.14	27.34	18.81%	1.06	St.Johns	
2	US 1/Philips Hwy	Racetrack Rd	I-95 (downtown Jax)	321,596	715,674	44.94%	12.58	17.31	72.68%	1.28	Duval	
3400	US 17/Main St	Forsyth St	Owens Rd	28,097	430,213	6.53%	1.71	32.44	5.27%	0.90	Duval/Nassau	
13	US 90/Beaver St.	Duval/Nassau Co Line	Liberty St	25,493	207,680	12.28%	1.68	21.77	7.71%	1.01	Duval	
17	US17/Roosevelt Blvd/Park Ave	CR 15A	I-10	262,607	1,118,833	23.47%	6.53	28.92	22.59%	1.15	Duval/Clay	
40	US90/SR212/Beach Blvd	I-95	SR A1A/3rd St.	248,248	608,590	40.79%	7.99	14.79	54.02%	1.10	Duval	

Classification of Congested Facilities

Classification factors were developed to assist with determining a final list of congested CMS facilities. These classification factors may also be used to match appropriate CMS strategies to specific congested facilities. CMS strategies are discussed in the following section (Identification and Evaluation of Strategies). Additionally, the Prioritization of Facilities section of this report describes how these factors were incorporated into the CMS prioritization process.

- **Facilities with Recent Corridor/PDE Studies and Interstates**
  First Coast MPO staff has stated that facilities should be screened to remove those that are (or have recently been) corridor/PDE studies from the final list of congested facilities. For example, Southside Blvd., SR A1A (in Duval County) and Baymeadows Road have had recent studies. Additionally, staff has asked that interstates be removed from the final list of congested facilities.

- **Constrained Facilities**
  Many CMS strategies are best employed on facilities that have been identified as constrained. Constrained facilities are generally those with limited capacity for additional lanes, either due to right of way constraints, land use constraints, political constraints or environmental constraints. For this study, a constrained facility must be identified as constrained by the First Coast MPO 2030 Long Range Transportation Plan.

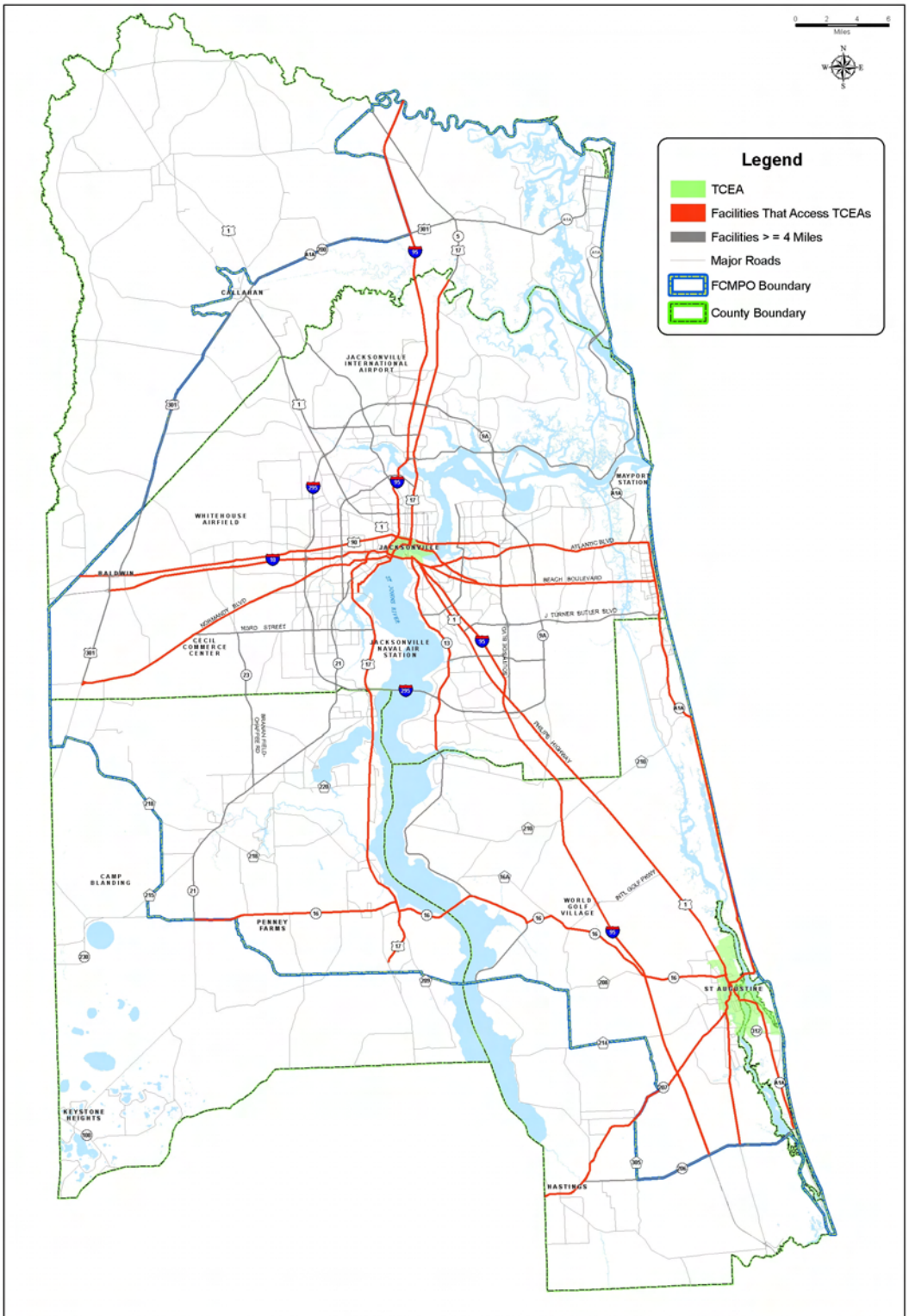
- **Transportation Concurrency Exception Area (TCEA) Designations**
  Within the state of Florida, the purposes of TCEAs are to support the development and use of public transportation facilities and services as well as to reduce the adverse impacts that transportation concurrency requirements may have upon urban infill development and redevelopment projects. Within the City of Jacksonville, a draft amendment (dated 4/1/2005) to the Transportation Element of the City of Jacksonville Comprehensive Plan proposes to designate the city's Central Business District (CBD) as a TCEA. The draft amendment also affirms that strategies developed within the CMS should give a higher priority to facilities serving the TCEA.

  Accordingly, congested transportation facilities that serve the City of Jacksonville's recently approved TCEA were given a higher CMS priority rank. Additionally, CMS strategies that are more appropriate for state transportation facilities serving the CBD or within the CBD area (public transit and pedestrian related strategies, for example) should be considered for these types of facilities. In this report, the City of St. Augustine is also considered a potential TCEA. Thus, state transportation facilities that serve St. Augustine were also considered in the same manner.

  For the purposes of this study, the downtown DRI/master plan area will represent the Jacksonville TCEA and the City of St. Augustine's boundary will represent a TCEA for St. Augustine. Figure 5 displays the TCEA areas, as well as facilities that access a potential TCEA (at least one end of the facility is located within the TCEA), whether or not they are congested. Additionally, Appendix A lists these facilities.

- **Regional Factors**
  Congested facilities crossing county boundaries (within the First Coast MPO area) were give a higher priority for being included in the First Coast MPO CMS. Congestion across county boundaries is more likely to have regional, interregional, or statewide impacts.

Figure 5
Transportation Concurrency Exception Areas (TCEAs)



Identification and Evaluation of CMS Strategies

This section of the report is intended to illustrate, describe, and evaluate specific CMS strategies. It is not intended to be a complete list of all of the strategies that may be employed as part of the First Coast MPO Congestion Management System. In addition to the strategies described here, other CMS strategies may also be selected and implemented.

There are many improvements that can enhance traffic operations, decrease congestion and improve the travel environment. These improvements include transportation demand management (TDM) strategies, strategies to promote increased transit, bicycle and pedestrian travel, and strategies that provide for more efficient traffic operations. Traffic operations and access management strategies include Intelligent Transportation Systems (ITS) and Value Lanes, including High Occupancy Toll (HOT) lanes on limited access highways.

Transportation Demand Management (TDM) Strategies

Transportation Demand Management (TDM) strategies reduce the regional or corridor level demand for peak hour vehicular travel. TDM measures manage congestion either by changing the amount of travel, or by shifting the times when travel occurs. TDM measures may be implemented by various organizational structures, including both public (i.e., local governments) and private (i.e., corporations) entities. Examples of TDM measures include employer sponsored vanpools and carpools, telecommuting, transportation management organizations and transit.

While TDM strategies have been found to be very effective in reducing congestion, the problem has been that they are difficult to implement. They require technical and political changes in how travel demand is accommodated.

Transportation Management Organizations

Typical TDM strategies include the establishment of public private partnerships known as Transportation Management Organizations (TMOs). Typically, a Transportation Management Organization is responsible for promoting the formation of carpools and vanpools, in coordination with the regional or local transit agency.

Two TMOs are currently being managed within the First Coast MPO study area. Downtown Vision Inc administers the TMO for downtown Jacksonville. Better Baymeadows, Inc. manages a second TMO for Baymeadows Road. This TMO was established as a part of a CMS study completed in 2002 by the Florida DOT (*Baymeadows Road Mobility Improvement Project*), in support of the First Coast MPO 1997 Congestion Management System.

Establishment of Special Land Use Districts (e.g. TCEAs)

In Florida there are a number of statewide growth management programs that promote incentives and standards for high density or mixed land use patterns. These programs provide for the establishment of Transportation Management Areas, Multi Modal Transportation Districts, and Transportation Concurrency Exception Areas (TCEAs).

SB 360, enacted by the Florida Legislature in 2005, has added language to FS 163.3180 (5), pertaining to Transportation Concurrency Exception Areas (TCEA). Under the new legislation, the local government now has to establish TCEA guidelines “in the comprehensive plan.” Also, the Department of Transportation is now required to be consulted prior to the designation of a TCEA.

As part of an amendment to a local government comprehensive plan, these guidelines should include "strategies to support and fund mobility within the designated exception area, including alternative modes of transportation." The comprehensive plan amendment should also show "how strategies will support the purpose of the exception and how mobility within the designated exception area will be provided. In addition, the strategies must address urban design; appropriate land use mixes, including intensity and density; and network connectivity plans needed to promote urban infill, redevelopment, or downtown revitalization." Data and analysis justifying the size of the TCEA must accompany the comprehensive plan amendment.

Finally, the local government is now required to assess the impact of the proposed exception area upon SIS facilities, and to develop a plan to mitigate any of these impacts, "including, if appropriate, the development of a long-term concurrency management system pursuant to SS 163.3177 (3) (d) and 163.3180 (9).

Street Connectivity Standards

To provide for efficient vehicular circulation without adding traffic to arterial and limited access highways, land development regulations can be amended to include requirements for higher levels of street connectivity. Typical local subdivision regulations promote connectivity by including restrictions on the lengths of cul-de-sacs within new neighborhoods. Another way to provide for greater street connectivity would be to set minimum "connectivity ratios" for residential neighborhoods within new subdivisions.

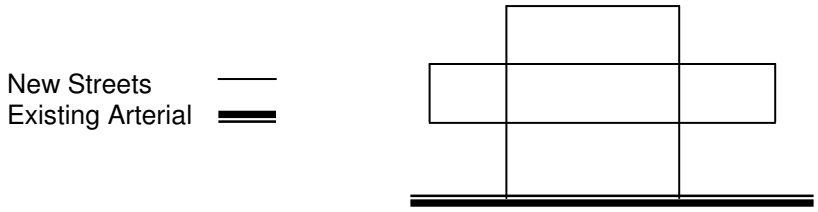
For a new or existing subdivision, the connectivity ratio is calculated by dividing the number of links, either block or street faces, by the number of nodes (either intersections or dead ends) within the same subdivision.

In a simple example shown in Figure 6 below, two new subdivisions are proposed to be located along an existing arterial roadway. Each new subdivision would have one new access road and one new cross street. All of the new subdivision streets would end with cul-de-sacs. In this example the number of new links is 8 and the number of new nodes is 10, for a connectivity ratio of 0.8.

Figure 6
Local Streets with a Low Connectivity Ratio (0.8)

As the number of cross streets increases, and as cul-de-sacs are connected into the street grid, the connectivity ratio rises. In Figure 7 below, each subdivision includes an additional cross street, and the cul-de-sacs are joined together across subdivision boundaries. In this example the number of new links is 15 and the number of new nodes is 12, for a connectivity ratio of 1.25.

Figure 7
Local Streets with a Higher Connectivity Ratio (1.25)



In the neighborhood with the higher connectivity ratio, more local trips are made on local streets, so fewer local trips are made that would be forced to use the existing arterial. Congestion on the existing arterial is reduced as a direct result of the higher connectivity ratio.

Modify Minimum Parking Space Requirements

Local land use regulations typically include minimum off-street parking space requirements. These requirements are based on the proposed number of new dwelling units or the proposed amount of institutional or commercial floor space. These requirements may reduce congestion by keeping roadways clear of parked vehicles. They may also help by reducing the number of vehicles driving around in search of scarce parking spaces.

But minimum parking space requirements may also have the unintended effect of discouraging pedestrian or transit travel, by increasing walking distances to transit stops, or by making it easier to drive than to walk between potential destinations.

A solution may be to reduce these requirements. In densely developed areas that have paid parking facilities and/or good transit services available, it may even make sense for minimum parking space requirements to be completely eliminated. If fewer parking spaces are available, then people will be less likely to drive in congested corridors or areas.

Transit, Bicycle and Pedestrian Strategies

Transit, bicycle, and pedestrian strategies reduce congestion by shifting travel away from cars and onto modes that use less roadway space to move the same number of people. To be effective these strategies must divert a sufficient number of drivers away from their own cars and onto these alternative modes. For this to occur, transit services must be fast, convenient, secure, and reasonably comfortable. They should also be cost effective, both for the user as well as for the transit service provider. Land use development patterns should be in place that support pedestrian, bicycle, and transit usage, and timely information about transit services and other options should be readily available.

New or Enhanced Local Bus Services

Traffic levels can be reduced in congested corridors (or facilities) if drivers would stop using their cars and start using bus services instead. For this to occur it may be necessary to provide new service on

new routes, or to provide additional services on existing routes, either through route extensions, expanded hours of service, or increased bus service frequency.

The Jacksonville Transportation Authority (JTA) operates an extensive network of local and express bus services in Duval County. In addition the City of St. Augustine has completed a Conceptual Parking and Transit Circulation Plan to assist in the movement of people throughout the St. Augustine historic downtown area.

Fixed Guideway Transit System Strategies
Increased use of fixed guideway transit facilities would reduce congestion by diverting riders away from cars and onto transit vehicles.

In addition to a network of local and express bus services, the JTA also operates a 2.5 mile elevated fixed guideway transit system that serves the Southbank and downtown Jacksonville. Potential extensions of this system would allow for increased utilization of the system and would have the potential for reducing auto travel between downtown and adjoining residential neighborhoods, including the Sports Complex, San Marco and Riverside.

The JTA is also developing plans for a Bus Rapid Transit (BRT) system that would provide enhanced transit facilities and services over a much larger area. Proposed BRT facilities would include exclusive travel lanes for buses, new terminals and transit stations, and traffic signal and roadway modifications that would allow buses to move more quickly through the traffic stream. Phase 1 priority areas for BRT implementation include downtown, Arlington, the North Corridor along Lem Turner Blvd., the Southeast Corridor along Philips Highway, and the Southwest Corridor generally along Roosevelt Blvd.

Park and Ride Facilities and Services
Park and ride facilities and services can reduce congestion in corridors (or on roadway facilities) by diverting passengers from cars to buses. They are often operated in conjunction with bus systems. The Jacksonville Transportation Authority (JTA) operates free Park-n-Ride lots around Jacksonville, served by local bus routes and express service to downtown. Most lots have on-going service to ensure riders they will always have a ride home. Monthly permit transit riders may also park at a downtown or Southbank Park-n-Ride lot and ride the Skyway for no additional charge.

Ridesharing Support Services
Ridesharing reduces congestion by carrying the same number of people in a smaller number of vehicles. Ridesharing support services are often provided under the auspices of a Transportation Management Organization. The matching of potential riders may also be done at the regional level (MPO, state DOT, regional transit agency or other organization); sub-regional level (local unit of government); and residential level (private developers, condominium associations and homeowner associations). In the First Coast region, the First Coast MPO and the Jacksonville Transportation Authority (JTA) administer the Metropolitan Commuter Assistance Program (MCAP). MCAP helps to organize and promote vanpools and carpools for interested individuals.

Transit Mobility Access Improvements
Many transit agencies provide services to promote transit oriented development and easy access to transit facilities and services. For example, JTA's Mobility Access Program is designed to assist

developers, planners, engineers and community leaders in creating developments that ease the use of mass transit. The handbook provides JTA's classification of transit stop types and design templates for transit stops, amenities, bus turnarounds and other considerations to make developments transit accessible.

Traffic Operations and Access Management Strategies

Strategies that increase the efficiency of the existing highway network are relatively easy to implement. Traffic signal timing and coordination strategies can increase the carrying capacities of existing roadways. System efficiencies can also be achieved through design improvements at intersections, and through the development and implementation of an access management program.

Access management is the process of providing and managing access to land uses while preserving the flow of traffic along a roadway facility, in terms of safety, capacity and speed. It helps to reduce demand on major roadways for short trips, thereby preserving the road capacity.

Access management improvements are most applicable on arterial facilities with multiple driveway connections, (especially where the speed limit is greater than or equal to 45 mph) and where crash reports reflect a high incidence of rear end or right angle crashes near driveways.

Access management may be challenging since it may involve partnering with existing property owners to encourage solutions such as shared driveways, minimal number of driveways per lot, redesigned medians, etc.

Intelligent Transportation Systems (ITS)

Intelligent Transportation Systems (ITS) are the application of advanced technologies in the operation of the transportation system. ITS strategies can be used to notify drivers to avoid delays caused by construction or accidents, as well as to reduce the amounts of delay that may be caused by these occurrences. Physical elements of ITS systems include:

- roadside devices for detection of major traffic delays,
- a communications system, with the ability to notify drivers when significant delays occur, and
- a central Transportation Management Center.

Generally, ITS technologies have a much greater impact when they are integrated and share information. ITS implementation often requires the participation of many different organizations and groups. ITS strategies should be considered during the development and updates of regional transportation plans, as well as sub area, corridor, and major investment studies.

The implementation of ITS strategies can have institutional as well as technical challenges. In addition it is often difficult to develop a financial package for ITS strategies, because they involve revenue from many different sources.

Value Lanes (HOT or HOV Lanes)

On limited access highways such as interstates, freeways and expressways "value lanes," also known as High Occupancy Vehicle (HOV) lanes or High Occupancy Toll (HOT) lanes can also be effective congestion management tools. Typically, HOT lanes allow drivers of single occupancy vehicles (SOVs) to use HOV lanes that would otherwise be restricted to cars carrying two or more

passengers, or buses. SOV drivers using HOT lanes would be required to pay a toll. But instead of toll booths, HOT lanes typically use embedded electronic devices for toll collection and enforcement.

Value Lane strategies have several objectives:

- A reduction in overall corridor (or facility) congestion.
- An even larger reduction in congestion for those willing to pay a toll.
- Achieving better utilization of under-utilized HOV lanes
- Raising revenues for transportation improvements
- Encouraging shifts to ridesharing and transit
- Encouraging fewer and shorter trips, and shifting trips out of peak period

Another type of value lane strategy involves Fast and Intertwined Regular (FAIR) lanes. FAIR lanes involve credits that can be used as toll payments on HOT lanes, or as payment for transit, paratransit or parking at commuter park and ride lots in the corridor.

CMS Tool Box

Table 6, is a "Congestion Management Tool Box" for the First Coast MPO study area. It includes a summary list of specific congestion management system (CMS) strategies that may be undertaken in support of the strategies that are more generally discussed above. Additional strategies are also listed in the tool box. In addition to the strategies listed in the tool box, other CMS strategies may also be selected and implemented for use in the First Coast MPO Congestion Management System.

Performance Measures

Table 6 also includes a column showing recommended performance measures for each listed CMS strategy. In order to ensure the effectiveness of a selected strategy, a pre- and post-implementation analysis should be conducted that will allow the performance measure to be calculated before as well as after the implementation of a selected CMS strategy.

One of the performance measures in the tool box is "travel time reliability." Before this particular performance measure could be utilized in the First Coast MPO region, it would first be necessary to establish an ITS program. The best way to measure travel time reliability is to use the ITS detection devices as a source of daily travel time information. Variations from day to day can then be statistically analyzed in order to determine travel time reliability.

In the interim, "floating car" travel time runs can be used as a means for approximating travel time reliability.

Finally, it should be noted that a few performance measures (i.e., for "street connectivity" and "minimum parking space," for example) may be based on a continuum of possible responses (i.e., comply a little, comply a lot), versus a binary yes/no response.

Table 6
CMS Tool Box

STRATEGY	PERFORMANCE MEASURES
Employer Sponsored Vanpools + Carpools	• Number of Active Vanpools or Carpools in CMS Corridor or Area
Telecommuting	• % of Workers in CMS Corridor or Area Who Telecommute
Transportation Management Organizations	• Number of Active TMOs in CMS Corridor or Area
Establishment of Special Land Use Districts (e.g. TCEAs)	• Number and Status of TCEAs in Region
Street Connectivity Standards	• Local Government Enactment of Connectivity Standards for CMS Corridors or Areas
Modify Minimum Parking Space Requirements	• Local Government Enactment of Modified Parking Space Requirements for CMS Corridors or Areas
New or Enhanced Local Bus Services	• Bus Ridership in CMS Corridor or Area
Fixed Guideway Transit System Strategies	• Bus Ridership and/or Fixed Guideway Ridership in CMS Corridor or Area
Park and Ride Facilities and Services	• Bus Ridership in CMS Corridor or Area • Number of Cars in Park and Ride Lots
Ridesharing Support Services	• Number of Active Vanpools or Carpools in CMS Corridor or Area
Transit Mobility Access Improvements	• Bus Ridership in CMS Corridor or Area
Pedestrian and Bicycle Strategies	• Pedestrian or Bicycle Traffic Counts
Intersection Design Improvements	• Intersection Level of Service
Traffic Signal Timing and Coordination	• Intersection Level of Service
Access Management	• # of Driveways per Mile in CMS Corridor or Area
Intelligent Transportation Systems (ITS)	• Travel Time Reliability
Value Lanes (HOT or HOV Lanes)	• Travel Time Reliability

III. Recommended CMS Facilities

Prioritization of Facilities

The following categories of congested facilities were recommended for inclusion in the First Coast MPO's list of CMS facilities. These facilities were also prioritized.

- Facilities with % congested VMT or % congested length greater than or equal to 20%
- Facilities without a recent corridor and/or PDE study

No congested facilities were recommended where congestion was primarily located over a bridge. For example, congestion on SR115/Arlington Expressway, from Liberty St. to SR10/Atlantic Blvd., was approximately 1.8 miles in length and occurred primarily on the Matthews Bridge. Also, congestion on SR16, from SR21/Blanding Blvd. to SR13, was 4.0 miles in length, with the majority of its congested length (over 3 miles) occurring on the Shands Bridge.

To prioritize congested facilities, facilities were ranked according to the following prioritization scheme. The facilities that received the highest number of points were given the highest CMS priority. Table 7 lists these prioritized congested facilities and they are shown in Figure 8. From these recommended CMS facilities, CMS studies will be funded equitably throughout the First Coast MPO area. Additionally, the facility limits in Table 7 do not necessarily reflect the limits of future CMS studies and/or projects. There will be opportunity to adjust the actual study limits of the facilities.

- **Criterion 1 – Capacity Deficient**
  10 points: average congested v/c equal to or greater than 1.0 (100% or greater service capacity used)
  5 points: average congested v/c equal to or greater than .9 and less than 1.0 (90% to 99% service capacity used)
  0 points: average congested v/c less than .9 (less than 90% service capacity used)

- **Criterion 2 – Congested Vehicle Miles Traveled (VMT) by Facility**
  The facilities were ranked according to their total congested VMT.
  10 points: congested VMT greater than 250,000
  5 points: congested VMT greater than 100,000 and less or equal to 250,000
  0 points: congested VMT less than or equal to 100,000

- **Criterion 3 – Constrained, as defined by 2030 First Coast MPO Long Range Transportation Plan**
  10 points: Yes
  0 points: No

- **Criterion 4 – Provides Access to TCEA (Transportation Concurrency Exception Area). At least one end of the facility is located in the TCEA.**
  5 points: Yes
  0 points: No

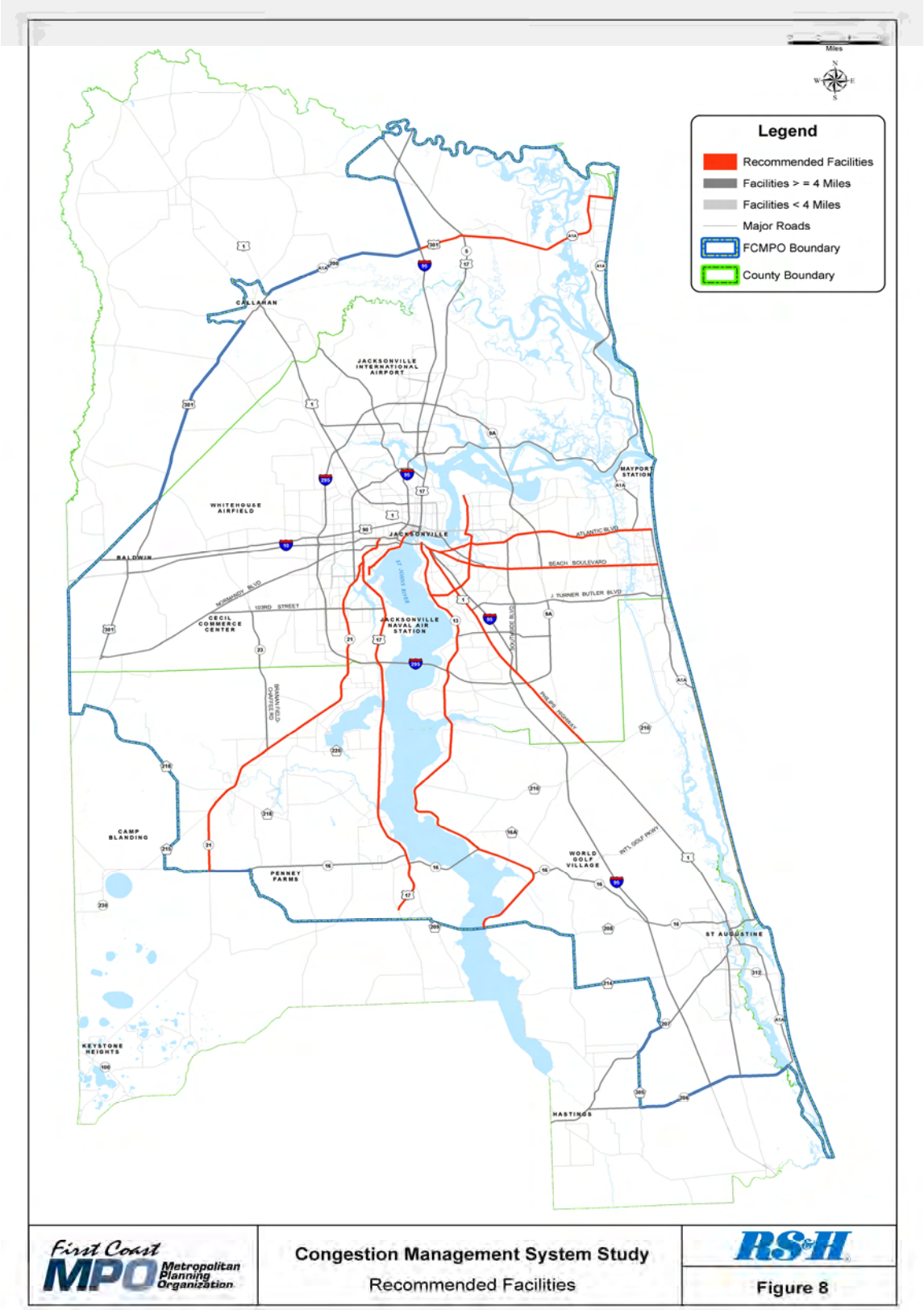
- **Criterion 5 – Congestion is Located in more than one First Coast MPO County**
  5 points: Yes
  0 points: No

Table 7
Prioritized Congested Facilities

RANK	FAC. No.	FACILITY (1)	FROM	TO	CRIT. 1	CRIT. 2	CRIT. 3	CRIT. 4	CRIT. 5	TOTAL (2)	COUNTY
1	12	SR10/Atlantic Blvd	I-95	SR A1A/3rd St.	10	10	10	5	0	35	Duval
2	1415	SR13/San Jose Blvd	SR13/Hendricks Ave	CR 208	10	10	10	0	5	35	Duval/St. Johns
3	17	US17/Roosevelt Blvd/Park Ave	CR 15A	I-10	10	10	10	0	5	35	Duval/Clay
4	2	US 1/Philips Hwy	Racetrack Rd	I-95 (downtown Jax)	10	10	0	5	5	30	Duval
5	40	US90/SR212/Beach Blvd	I-95	SR A1A/3rd St.	10	5	10	5	0	30	Duval
6	21	SR21/Blanding Blvd	SR 16	US17/Roosevelt Blvd	10	5	10	0	5	30	Duval/Clay
7	39	SR211/Riverside Ave	Grand Ave (SR 211)	Water St	10	0	10	5	0	25	Duval
8	28	SR109/University Blvd	SR13/San Jose Blvd	Fort Caroline Rd	10	5	10	0	0	25	Duval
9	34	SR 200/SR A1A	I-95	S. Fletcher Ave	10	5	0	0	0	15	Nassau

(1) Facility limits may not reflect the limits of future CMS studies and/or projects. CMS studies will be funded equitably throughout the First Coast MPO area
(2) Ranked by sum of criteria scores.

Figure 8
Recommended CMS Facilities



CMS Corridors

All congested facilities were grouped into several corridors, listed below and displayed in Figure 9. In addition to congested facilities, Figure 9 shows all facilities that were included in the CMS analysis. As noted in Figure 1, a corridor is a combination of generally parallel facilities.

Congestion improvement strategies can be approached at the corridor level. Corridors can be utilized as a tool to direct CMS and other transportation improvement investments, such that the most capacity is achieved for the least amount of dollars. For example, major capacity investments (along with appropriate CMS strategies) can be directed toward limited access facilities within a corridor, and more short-term CMS strategies directed toward arterial highways within a corridor.

Radial Corridors

Southwest
SR21/Blanding Blvd. (SR16 to US17/Roosevelt Blvd.)
US17/Roosevelt Blvd./Park Ave. (CR15A to I-10)
SR211/Riverside Ave. (SR211/Grand Avenue to Water St.)

West
US90/Beaver St. (Duval/Nassau County Line to Liberty St.)
I-10 (US301 to I-95)
SR228/Normandy Blvd./College St. (US301 to SR211/Riverside Ave.)
SR134/103rd St./Timuquana Blvd. (SR228/Normandy Blvd. to US17/Roosevelt Blvd.)

Northwest
US1/New Kings Rd. (US301 to I-95)
SR115/Lem Turner Rd (Duval/Nassau County Line to I-95)
Southeast
US1/Philips Hwy. (Racetrack Rd to I-95/Downtown Jacksonville)
US1/Dixie Hwy (SR206 to Racetrack Rd.)
I-95 (Racetrack Rd. to Downtown Jacksonville)
SR13/San Jose Blvd. (SR13/Hendricks Ave. to CR208)

Beaches
SR10/Atlantic Blvd. (SRA1A/3rd St. to I-95)
US90/SR212/Beach Blvd. (SRA1A/3rd St. to I-95)
SR228/Hart Expressway (US90/SR212/Beach Blvd. to Liberty St.)
SR202/J Turner Butler Blvd. (SRA1A to US1/Philips Hwy.)
SRA1A (Mickler Rd. to SR10/Atlantic Blvd.)
SRA1A (SR206 to Mickler Rd.)
SRA1A /SR101/Mayport Rd. (SR10/Atlantic Blvd. to Mayport Ferry)

Northeast
I-95 (Downtown Jacksonville to N. of Pecan Park Rd.)
US17/Main St. (Owens Rd. to Forsyth St.)

Beltway Corridors

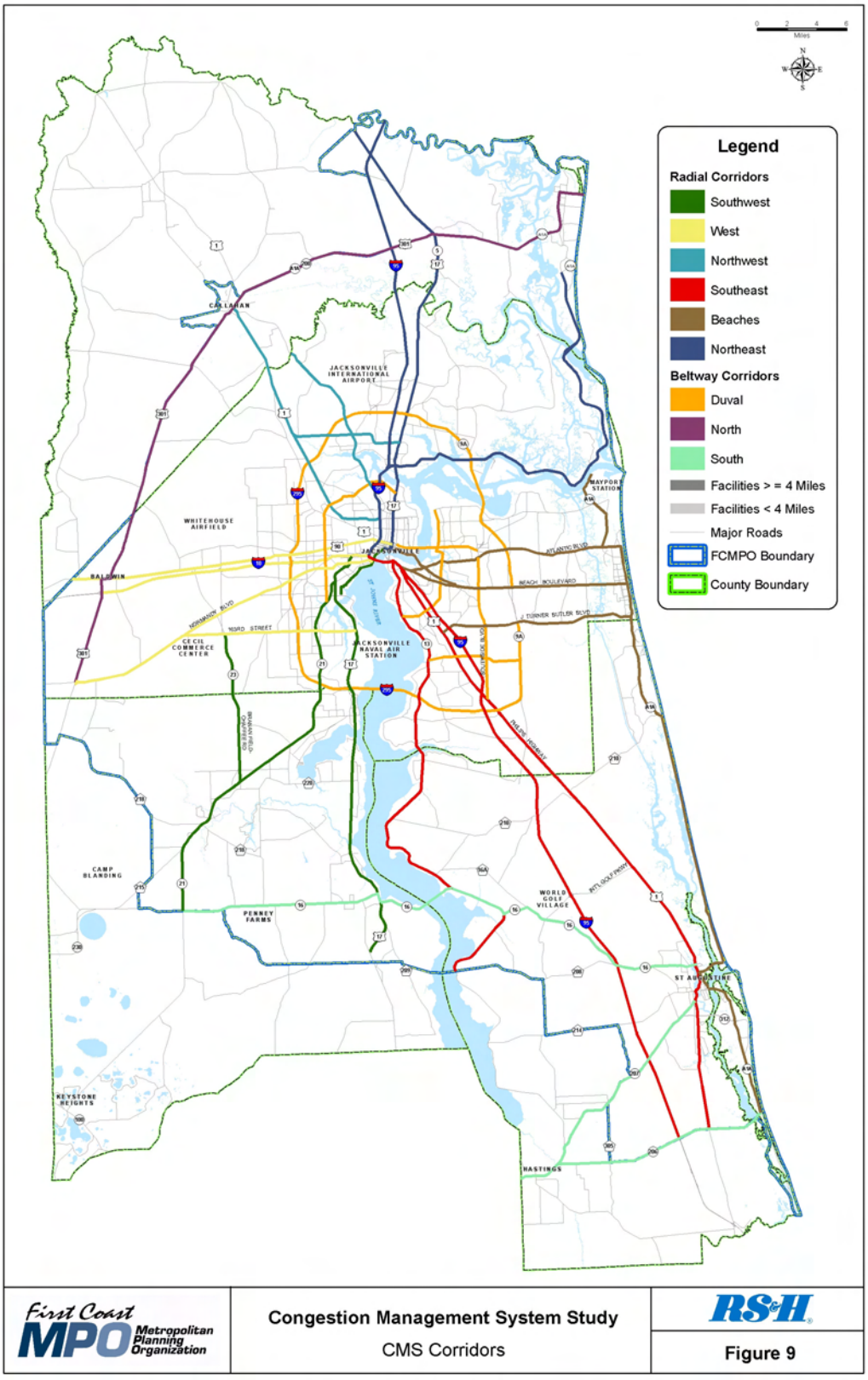
Duval County

SR115/Southside Blvd. (US1/Philips Hwy. to SR9A)
SR109/University Blvd. (SR13/San Jose Blvd. to Fort Caroline Rd.)
SR115/Arlington Expressway (Liberty St. to SR10/Atlantic Blvd.)
SR152/Baymeadows Rd. (SR13/San Jose Blvd. to SR9A)
SR9A (I-95/I-295 to SR202/J Turner Butler Blvd.)
I-295 (I-95/SR9A-S of Jacksonville to I-95/SR9A-N of Jacksonville)
SR111/Cassat Ave./Edgewood Ave. (SR21/Blanding Blvd. to US17/Main St.)

North
SR200/SRA1A (I-95 to S. Fletcher Ave.)

South
SR 16 (SR21/Blanding Blvd. to SR13)
SR 16 SR13 to US1/SRA1A)
SR207 (St. Johns/Putnam County Line to US1)

Figure 9
CMS Corridors



IV. Conclusions and Recommendations

Procedures for Periodic Assessment and Updates

The CMS list of congested corridors and facilities should be updated on a five-year cycle that will coincide with the TIP 5-year cycle. During the CMS update the following tasks should occur:

- Review Travel Data
- Review Congestion – Overall and by Facility
- Review 2005 CMS Facilities
- Review Tool Box Strategies
- Using Performance Measures From CMS Toolbox, Review Performance Of Any Implemented CMS Strategies
- Update CMS Policies
- Update Strategies and CMS Performance Measures
- Update CMS Facilities and Corridors
- Documentation

Congestion Monitoring Mechanism

A congestion monitoring mechanism that would monitor congestion between the 5-year CMS updates should be incorporated into the CMS process. The monitoring mechanism would incorporate a data collection process to assist with monitoring congestion on facilities; verifying which facilities need studying; and providing performance measure data.

The data collection process may include the incorporation of permanent count stations along congested facilities that currently do not have permanent count stations. Currently, FDOT counts many of the limited access facilities. The First Coast MPO may be able to work with the FDOT and local agencies to achieve this process.

Travel Time Data

To help ensure the effectiveness of CMS strategies, it is recommended that travel time data be collected for the region, and particularly the most congested facilities. As discussed in Section II, CMS Development Process (Performance Measure), travel time data can be used as a means for determining travel time reliability, a key CMS performance measure. The incorporation of travel time reliability into the CMS performance measure process addresses results of this study's best practices review, which revealed that an emphasis on the reliability of the transportation system over time, especially from day to day, might respond better to traveler needs.

Regional Congestion Assessment

As previously mentioned in Section I of this report, it is recommended that the First Coast MPO annually monitor the Texas Transportation Institute's estimate of annual delay per traveler, as a regional performance measure. The purpose of this will be to track congestion in the First Coast MPO region from year to year, as well as in relation to other MPO regions.

CMS Policy Implementation

An ongoing CMS process for the First Coast MPO includes implementation of the MPO's CMS policies, for which basic implementation procedures are outlined below. All policies are also described in Section II (Recommended CMS Policies) of this report.

Policy One – CMS Funding

Policy One states that funding for project implementation of CMS strategies shall be identified. The First Coast MPO will work with FDOT and other agencies, if necessary, to locate a source a funds that can be used to implement CMS strategies and/or projects.

Policy Two- All capacity projects -> limited CMS analysis

Policy Two states that a CMS analysis shall be performed on all state highway facilities that are proposed for expansion, whether or not the facility has been identified as part of the MPO's CMS. A CMS analysis may include an evaluation of potential improvements that would provide for more efficient traffic operations.

- In order for a capacity expansion project (on a state highway facility) to be programmed in the MPO's TIP, a basic CMS analysis must first be completed for the facility, and presented to the MPO.

- If CMS strategies are not included as part of such a project, justification for their exclusion must be furnished to the First Coast MPO.

Policy Three - Projects on limited access highways -> evaluate HOT lanes

In conjunction with Policy Two, Policy Three states that a CMS analysis for limited access state highway facilities must include an evaluation of the potential for adding value lanes, such as express toll lanes, to the facility.

- In order for a capacity expansion project (on a limited access state highway facility) to be programmed in the MPO's TIP, an evaluation of the potential for adding value lanes must first be completed for the facility, and presented to the MPO.

- If CMS strategies are not included as part of such a project, justification for their exclusion must be furnished to the First Coast MPO.

Policy Four - Arterial capacity projects where volume -> 6 lane capacity

Policy Four states recommends a maximum width of six general-purpose lanes, exclusive of special lanes and turning lanes at major intersections, on arterial highways other than limited access highways. CMS strategies will be developed to address any potential capacity deficiencies that may occur as a result of implementing this policy. These CMS strategies may be implemented as short-term improvements. It is not the intent of this policy to discourage or preclude the reservation or acquisition of rights-of-way now for use in adding general-purpose lanes beyond the specified six lane maximum should such facilities be deemed needed and appropriate at a future date.

Policy Five – TCEA Support

Policy Five states that the CMS shall support the designation and development of Transportation Concurrency Exception Areas (TCEAs) within the First Coast MPO study area, including a TCEA that

has been proposed for downtown Jacksonville as well as a TCEA that may be proposed for the City of St. Augustine.

- Within the CMS study, congested transportation facilities that serve the City of Jacksonville's TCEA, as well as the City of St. Augustine, were given a higher CMS priority rank. Additionally, CMS strategies that were more appropriate for state transportation facilities serving the CBD or within the CBD area (public transit and pedestrian related strategies, for example) were considered for these types of facilities.

- Within the MPO's process of developing TIP projects and/or priority projects, higher consideration should be given to CMS projects located on congested transportation facilities that serve the City of Jacksonville's proposed TCEA, as well as the City of St. Augustine.

Policy Six – Access Management

The First Coast MPO will work with FDOT and local governments to encourage development of policies that support concepts and strategies related to access management, and driveway sharing.

Detailed CMS Studies

Recommended CMS procedures for the First Coast MPO also include the CMS facilities that have been identified as a result of this CMS update. Every year one or two of these CMS facilities will be studied in greater detail. It is expected that detailed studies will be conducted for all of the recommended CMS facilities before the next update of the First Coast MPO Congestion Management System, which is currently scheduled to occur in five years.

From the recommended CMS facilities, CMS studies will be funded equitably throughout the First Coast MPO area. Additionally, the facility limits contained in this document do not necessarily reflect the limits of future CMS studies and/or projects. There will be opportunity to adjust the actual study limits of the facilities.

Detailed CMS studies will evaluate CMS toolbox strategies to determine the feasibility and benefits of the studied CMS strategies. Additionally, specific design recommendations in the form of recommended CMS operational or capital projects will result from the studies.

Each detailed CMS study should be scheduled for completion within a year of its inception. The scope for the detailed CMS studies should consists of the following tasks.

Phase I – Identify Existing Conditions

- Determine whether or not the detailed CMS study is for a facility that is constrained, as designated in the currently adopted First Coast MPO Long Range Transportation Plan.

- Collect and review existing conditions data. Data collection may include (but not be limited to) # signals per mile, # of through lanes, posted speed, existing right of way width, shoulder condition, AADT, land use conditions, sidewalk and bicycle conditions, transit conditions, crash data, access management classification, # of driveways per mile.

- Meet and/or coordinate with the CMS Steering Committee through other communication vehicles such as telephone, e-mail, etc.

- Identify detailed needs, issues and problems

Phase II – Develop Alternative CMS Strategies

- Recommend potential CMS strategies appropriate to the facility (e.g. constrained, limited access, etc.), using the strategies and performance measures identified in the CMS toolbox, or using other strategies and performance measures as may be appropriate.

- Determine the feasibility and benefits of potential CMS strategies.

- Recommended specific CMS improvements.

- Collect limited data for pre-implementation performance measurement.

- Meet and/or coordinate with the CMS Steering Committee

- Incorporate at least one stakeholder workshop, prior to final development of study recommendations.

Phase III – Develop Implementation Strategies

- Meet and/or coordinate with the CMS Steering Committee

- Finalize recommended CMS improvement strategies

- Recommendations may include project(s), for inclusion into the TIP and FDOT's Work Program and/or maintenance program.

- Recommended projects should include cost estimates and propose implementation issues, such as timing, implementing partners and funding process/sources.

CMS Project Selection

The performance of a CMS study will result in a list of recommended CMS operational or capital projects. Additionally, CMS projects may be recommended from the CMS policy implementation process, previously described.

It is expected that the First Coast MPO Board will select about two CMS projects to be added to the TIP on an annual basis. The actual number of CMS projects may vary, depending upon the results of detailed CMS corridor studies, CMS policy implementation outcomes, and the availability of funds for CMS projects. Programmed projects should be placed in a project category, such as transit, congestion management, etc. that will avoid competition with capacity expansion projects.

Appendix A

Facilities with Access to the Downtown Jacksonville Transportation Concurrency Exception Area (TCEA) And the City of St. Augustine

Appendix A

FAC. No.	FACILITY	FROM	TO	% CONG. VMT	% CONG. LENGTH	FACILITY LENGTH (MI)	TCEA Area
1	US 1/Dixie Hwy	SR 206	Racetrack Rd	17.85%	18.81%	27.34	St. Augustine
2	US 1/Philips Hwy	Racetrack Rd	I-95 (downtown Jax)	44.94%	72.68%	17.31	Jacksonville
5	I-10	US 301	I-95	0.42%	0.36%	19.04	Jacksonville
7	I-95	Racetrack Rd	4mi N of Pecan Park Rd	9.41%	12.62%	35.22	Jacksonville
12	SR10/Atlantic Blvd	I-95	SR A1A/3rd St.	40.55%	63.11%	15.53	Jacksonville
13	US 90	Duval/Nassau Co Line	Liberty St	12.28%	7.71%	21.77	Jacksonville
17	US17/Roosevelt Blvd/Park Ave	CR 15A	I-10	23.47%	22.59%	28.92	Jacksonville
19	SR 16	SR 13	US 1/SR A1A	0.99%	0.67%	18.51	St. Augustine
21	SR21/Blanding Blvd	SR 16	US17/Roosevelt Blvd	25.43%	24.47%	26.79	Jacksonville
30	SR115/Arlington Expy	Liberty St	SR10/Atlantic Blvd	20.11%	33.19%	5.53	Jacksonville
38	SR 207	St Johns/Putnam Co Line	US 1	15.46%	10.64%	17.83	St. Augustine
39	SR211/Riverside Ave	Grand Ave (SR 211)	Water St	56.83%	56.04%	4.63	Jacksonville
40	US90/SR212/Beach Blvd	I-95	SR A1A/3rd St.	40.79%	54.02%	14.79	Jacksonville
41	SR228/Hart Expy	Liberty St	US90/SR212/Beach Blvd	9.26%	9.78%	5.34	Jacksonville
42	SR228/Normandy Blvd/College St	US 301	SR211/Riverside Ave	13.86%	16.63%	22.54	Jacksonville
45	SR A1A	SR 206	Mickler Rd	3.89%	2.69%	29.82	St. Augustine
3400	US 17/Main St	Forsyth St	Owens Rd	6.53%	5.27%	32.44	Jacksonville