

Congestion Management System

The Mobility Management Process



CMS Defined

- A CMS is a **systematic process for managing congestion** that provides information on transportation system performance and on alternative strategies for alleviating congestion and enhancing the mobility of persons and goods.

Federal Planning Requirements

- In Transportation Management Areas (metro areas with a population > 250,000), the MPO's transportation planning process must include a CMS.

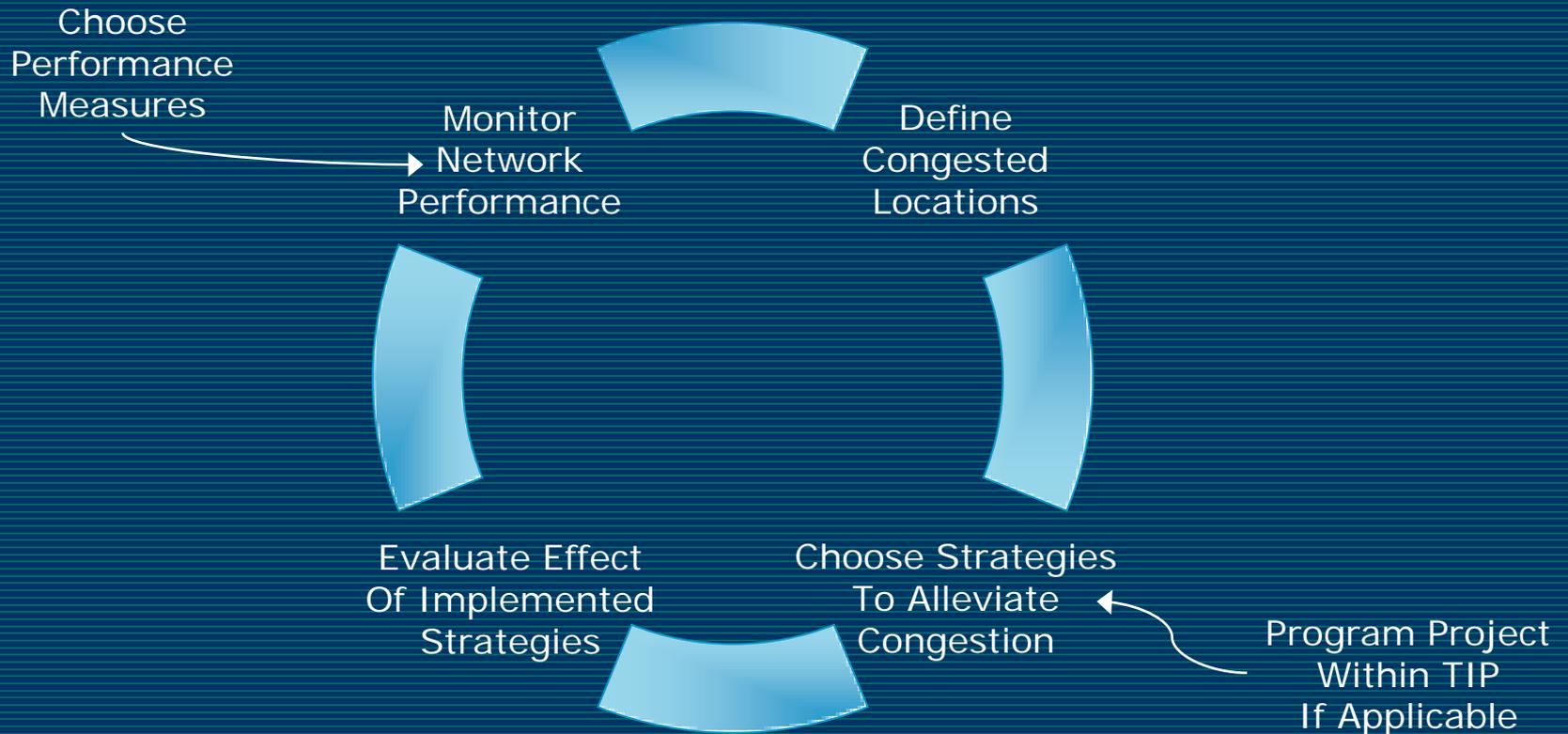
- 23 CFR 500.105

State Planning Requirements

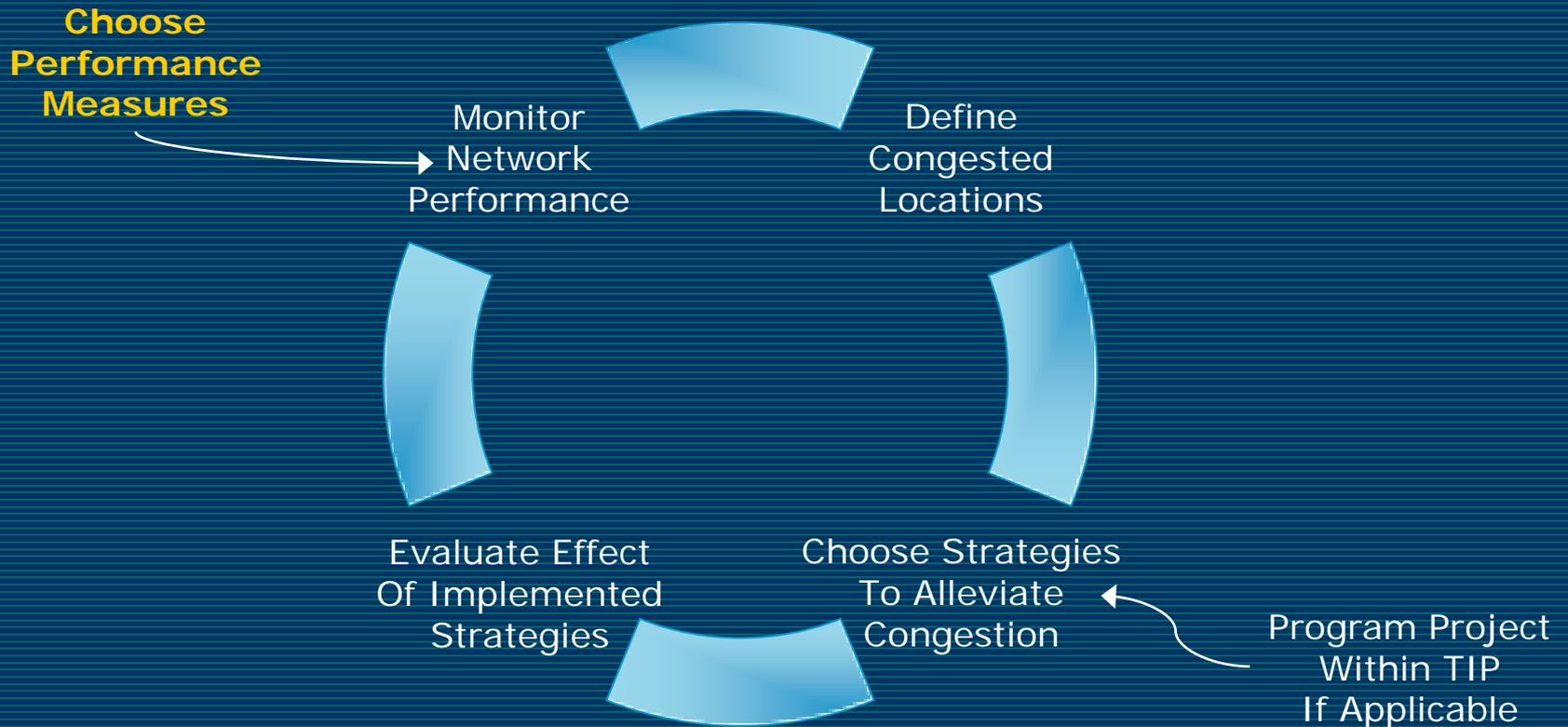
- Each metropolitan planning organization within the state must develop and implement a traffic congestion management system.

- Chapter 339.177 Florida Statutes

CMS Cycle Overview



CMS Cycle Overview



CMS Cycle Overview

Choose Performance Measures

Performance measures set the barometer by which congestion and mobility are measured. Different modes of travel require distinct performance measures.

In 1995, the local CMS Task Force selected these measures:

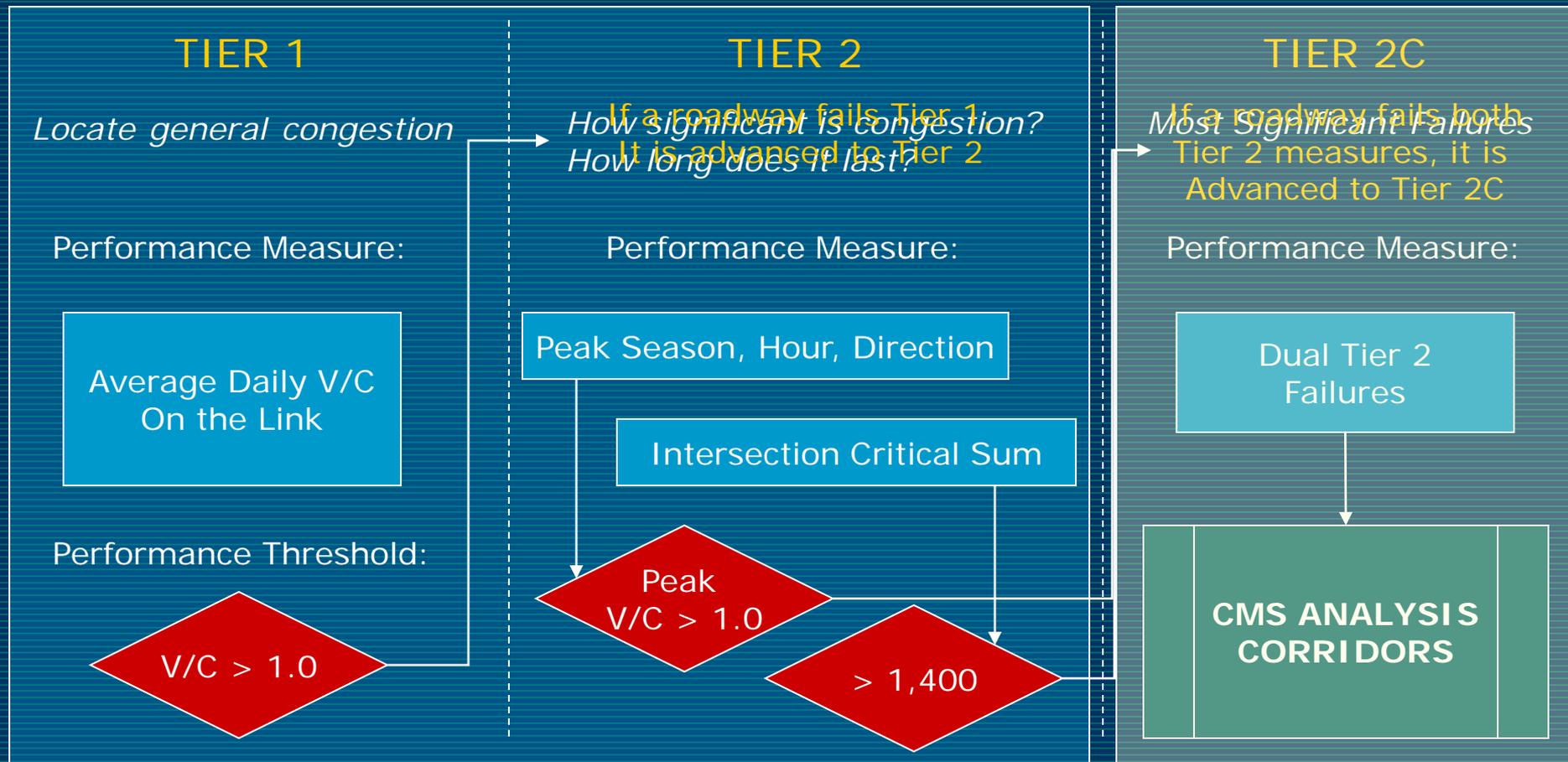
ROADWAY

- Volume to Capacity Ratio:
 - Both Daily and Peak Hour/Direction
- Intersection Critical Sum

TRANSIT

- On-Time Performance: % of transit service that is on time
- Load factor: passengers per available seat

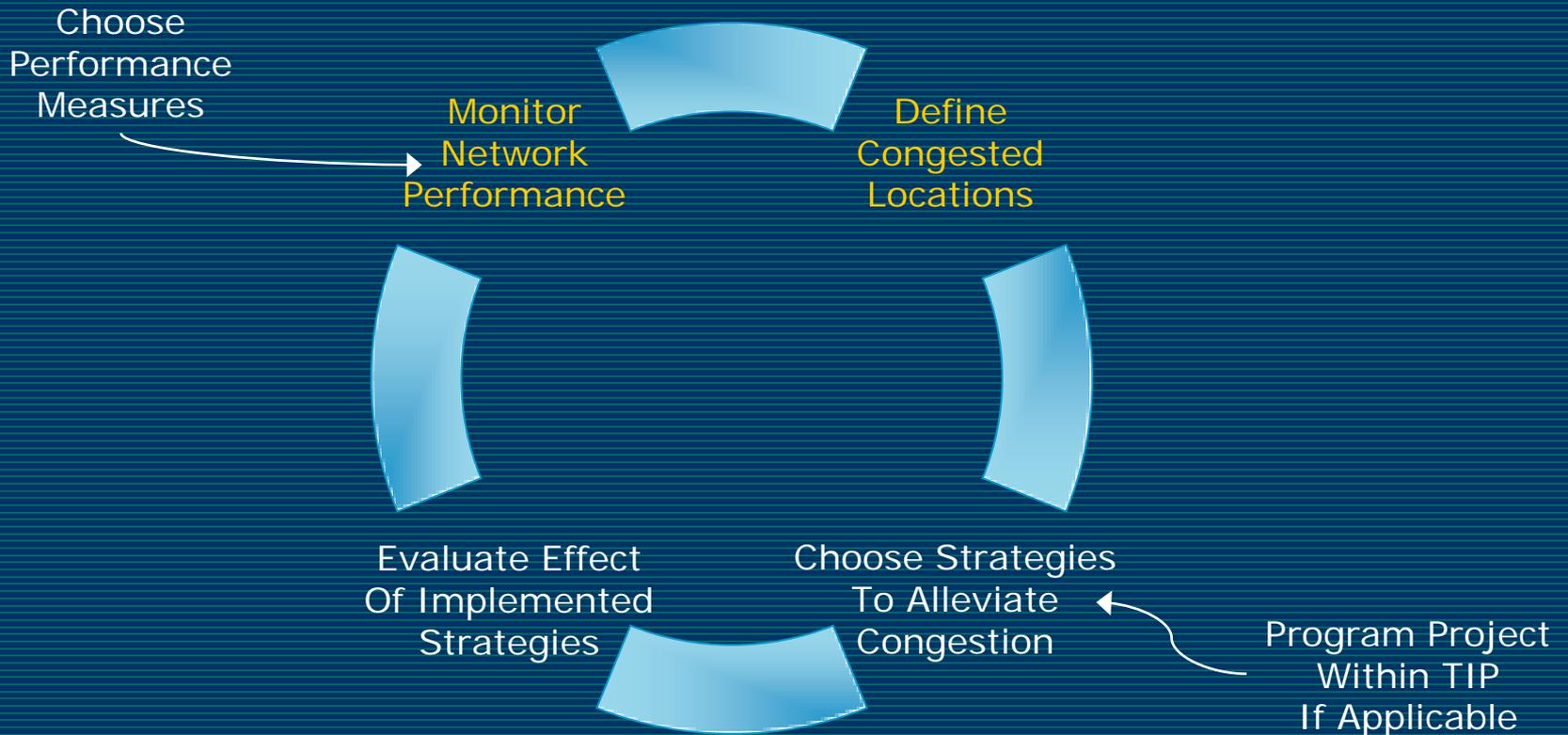
CMS Roadway Analysis Process



Original Process

New

CMS Cycle Overview



System Performance Report

- ❑ Reports on the transportation system using data collected by the state, county, and local municipalities.
- ❑ It is currently focused on transit and roadway performance.
- ❑ Defines and locates congestion on the transportation system.

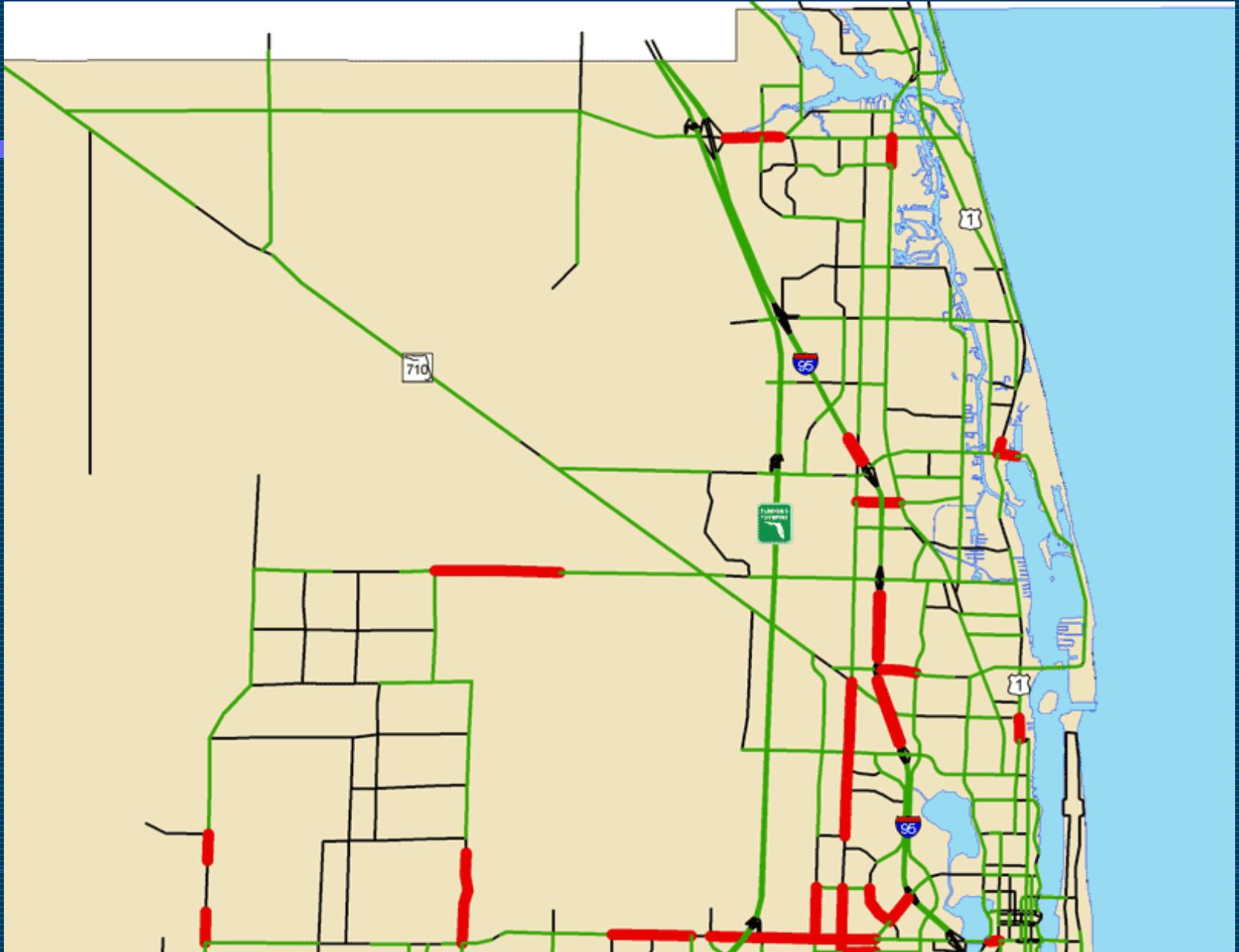
System Performance Report

- The new CMS Analysis Corridor portion of the report targets the worst performing areas for more comprehensive study.
- The selected corridors need to be examined beyond what the currently available data allows.

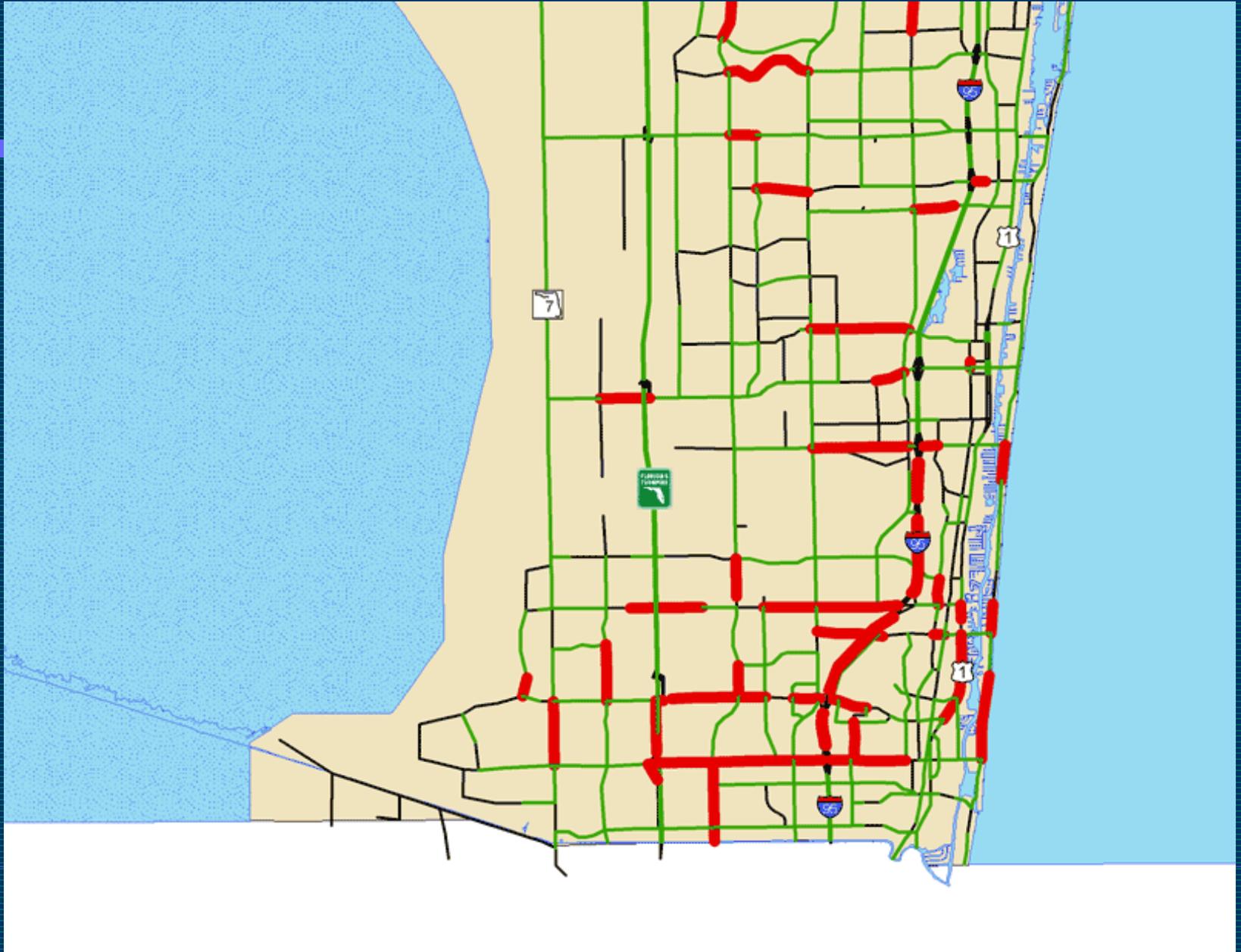
System Performance Report

- Before we further discuss the CMS Analysis Corridors, let's see the **Tier process** that leads up to the corridor selection.

CMS Roadway Tier 1



CMS Roadway Tier 1



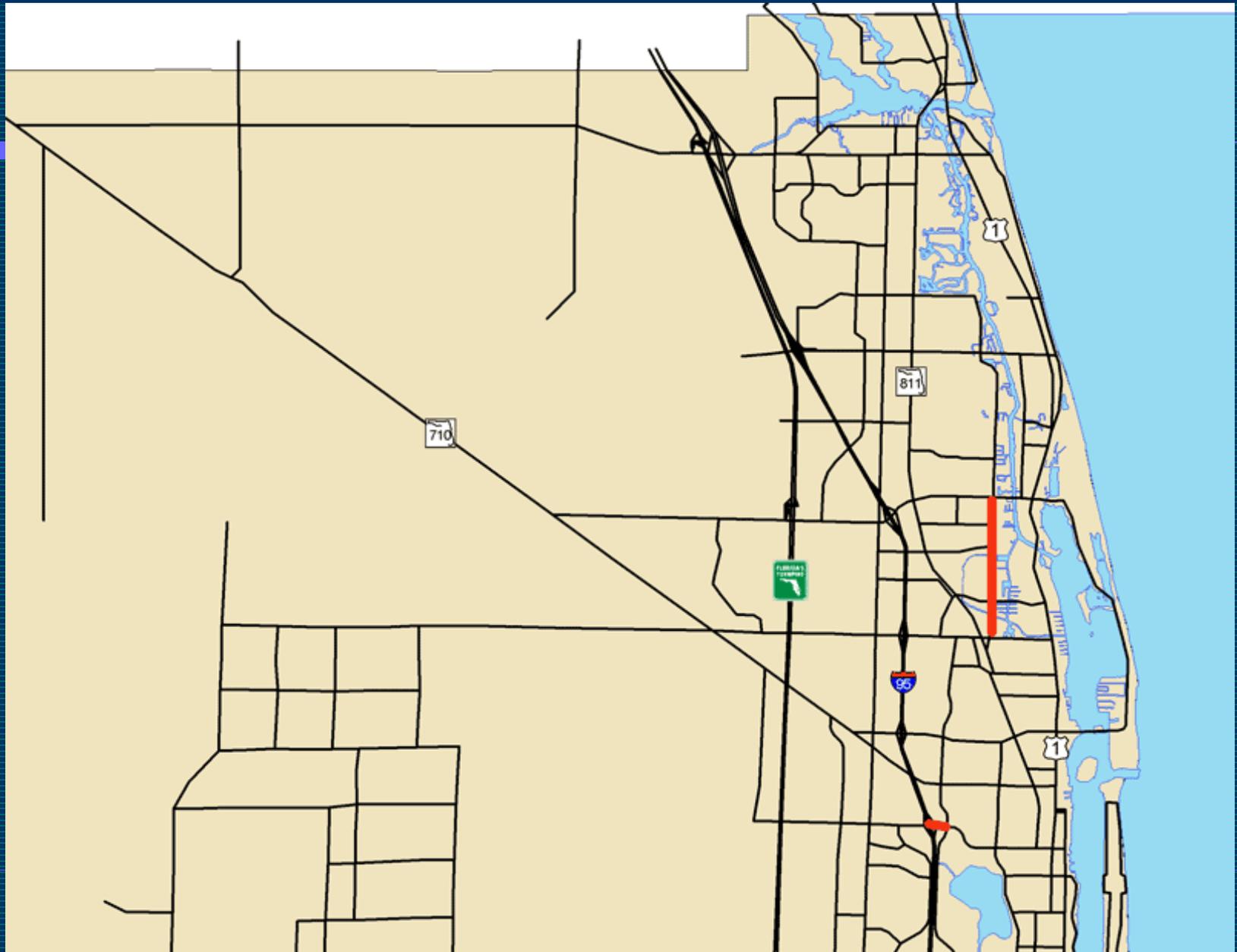
CMS Tier Process Details

- The previous maps showed those facilities that failed Tier 1.
- Each of these failures is then moved to Tier 2 for further analysis.

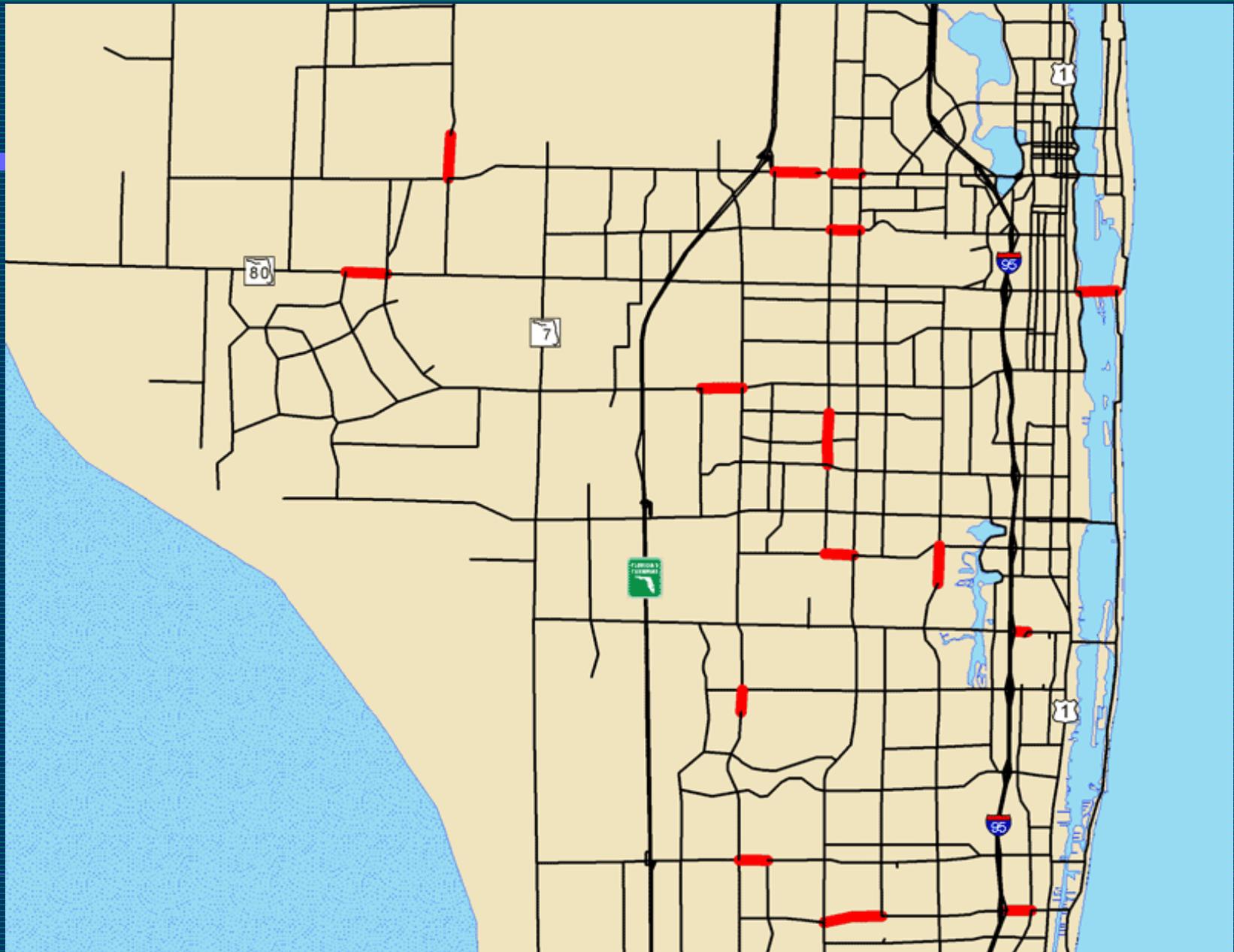
CMS Tier Process Details

- As discussed, there are two Tier 2 roadway screens:
 - Peak Season, Peak Hour, Peak Direction Volume to Capacity Ratio and;
 - Intersection Critical Sum or Volume
- First, let's see the "peak" failure maps:

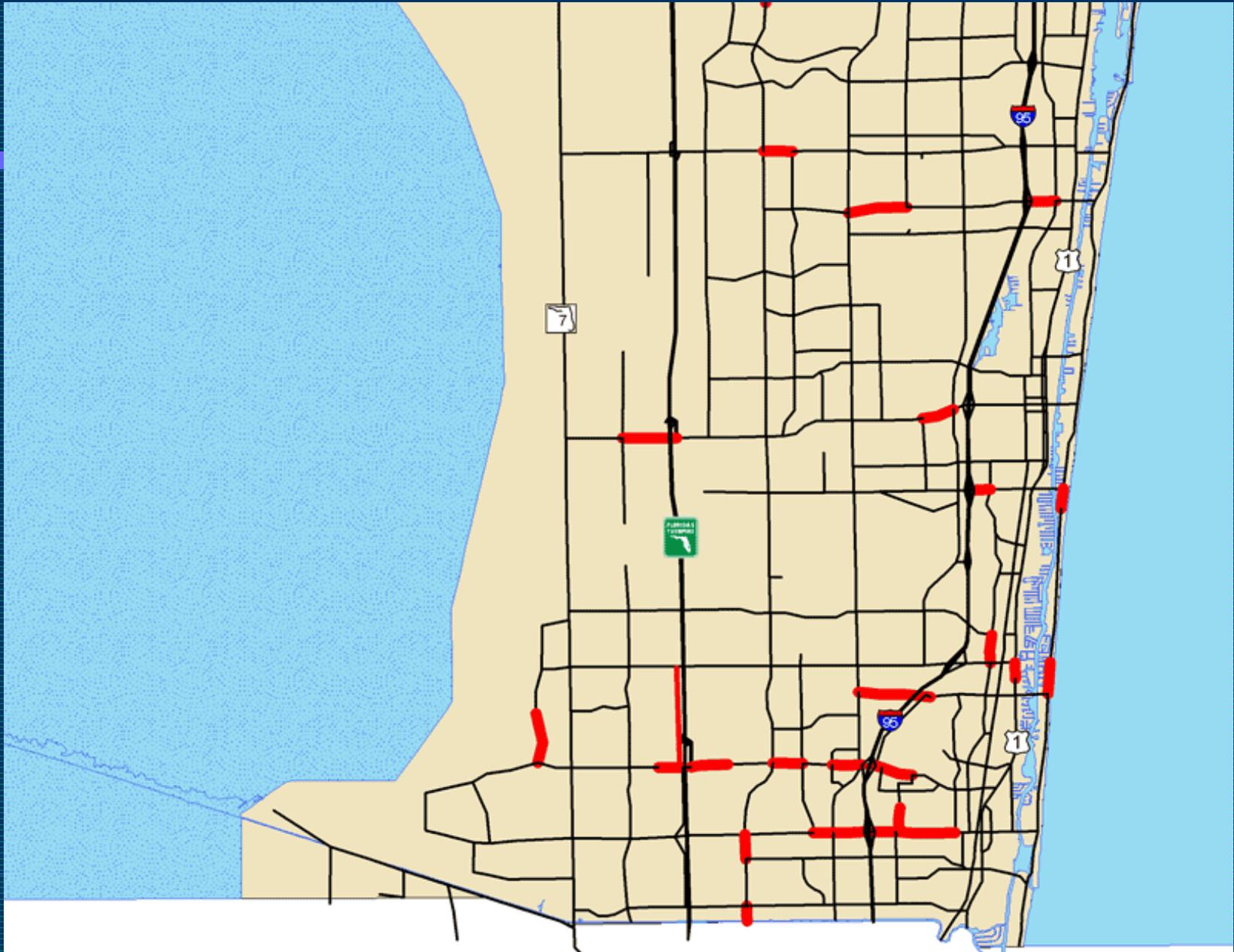
CMS Roadway Tier 2 Peak Conditions



CMS Roadway Tier 2 Peak Conditions



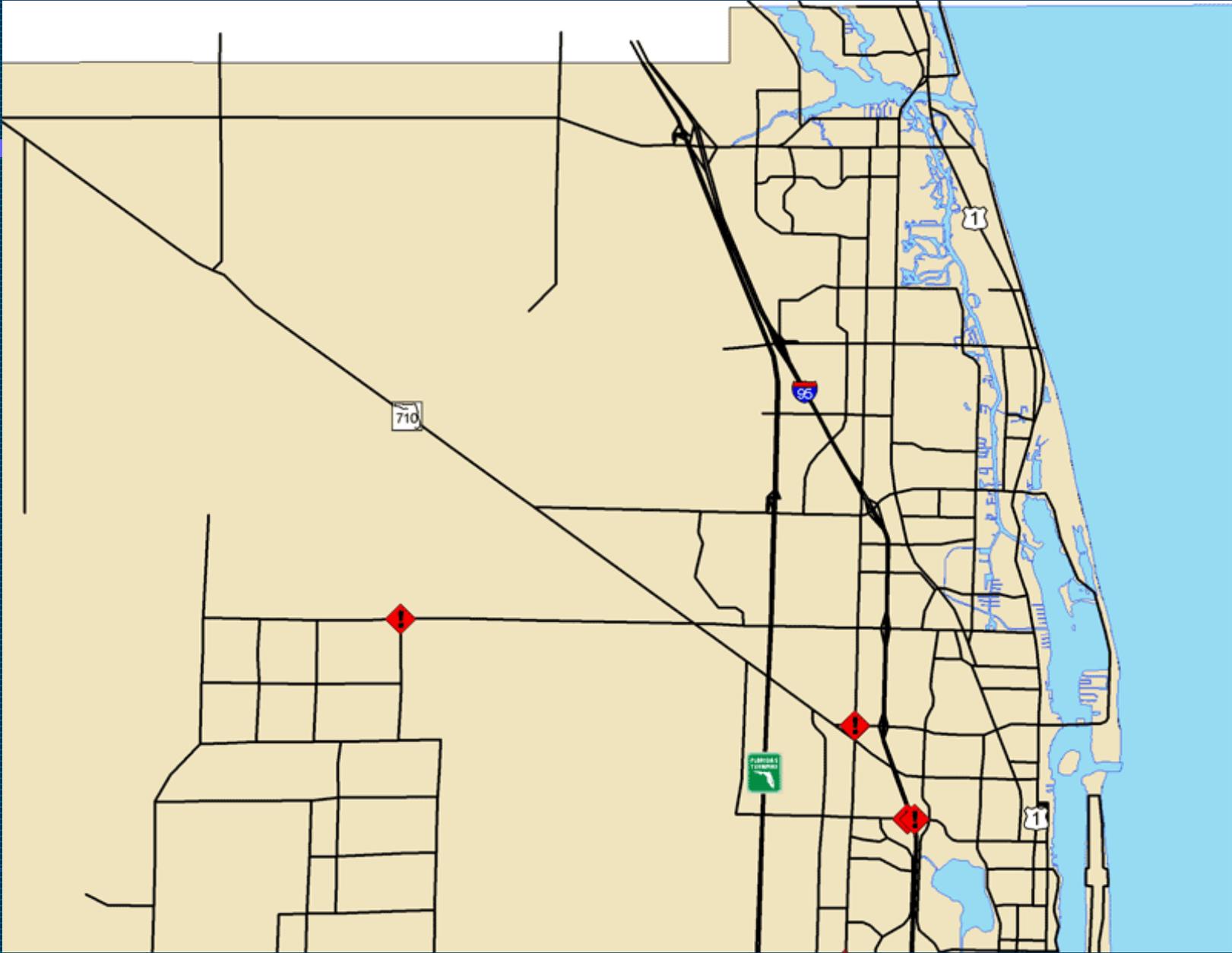
CMS Roadway Tier 2 Peak Conditions



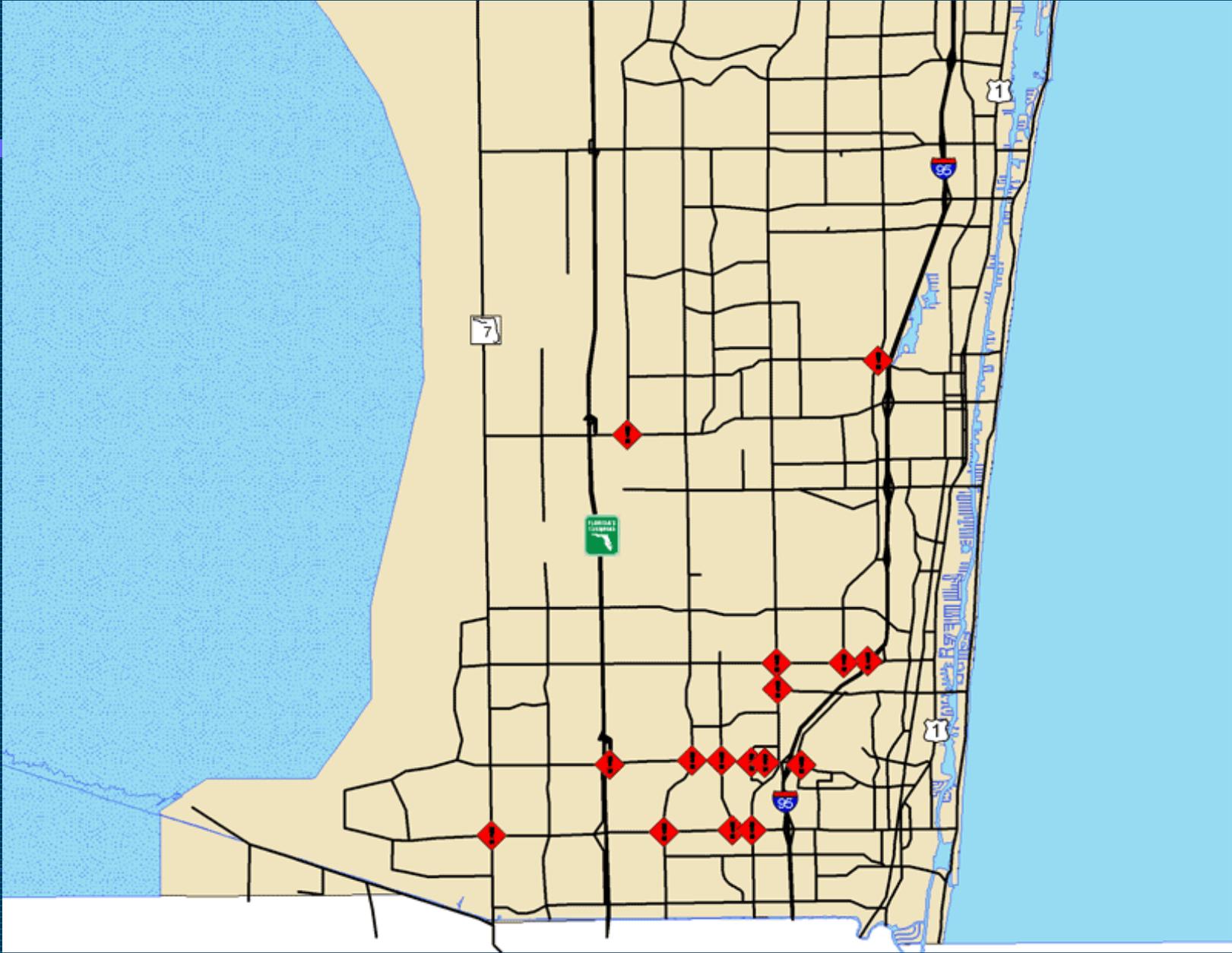
CMS Tier Process Details

- Now, let's look at the intersection critical sum maps:

CMS Roadway Tier 2 Intersection Critical Sum



CMS Roadway Tier 2 Intersection Critical Sum



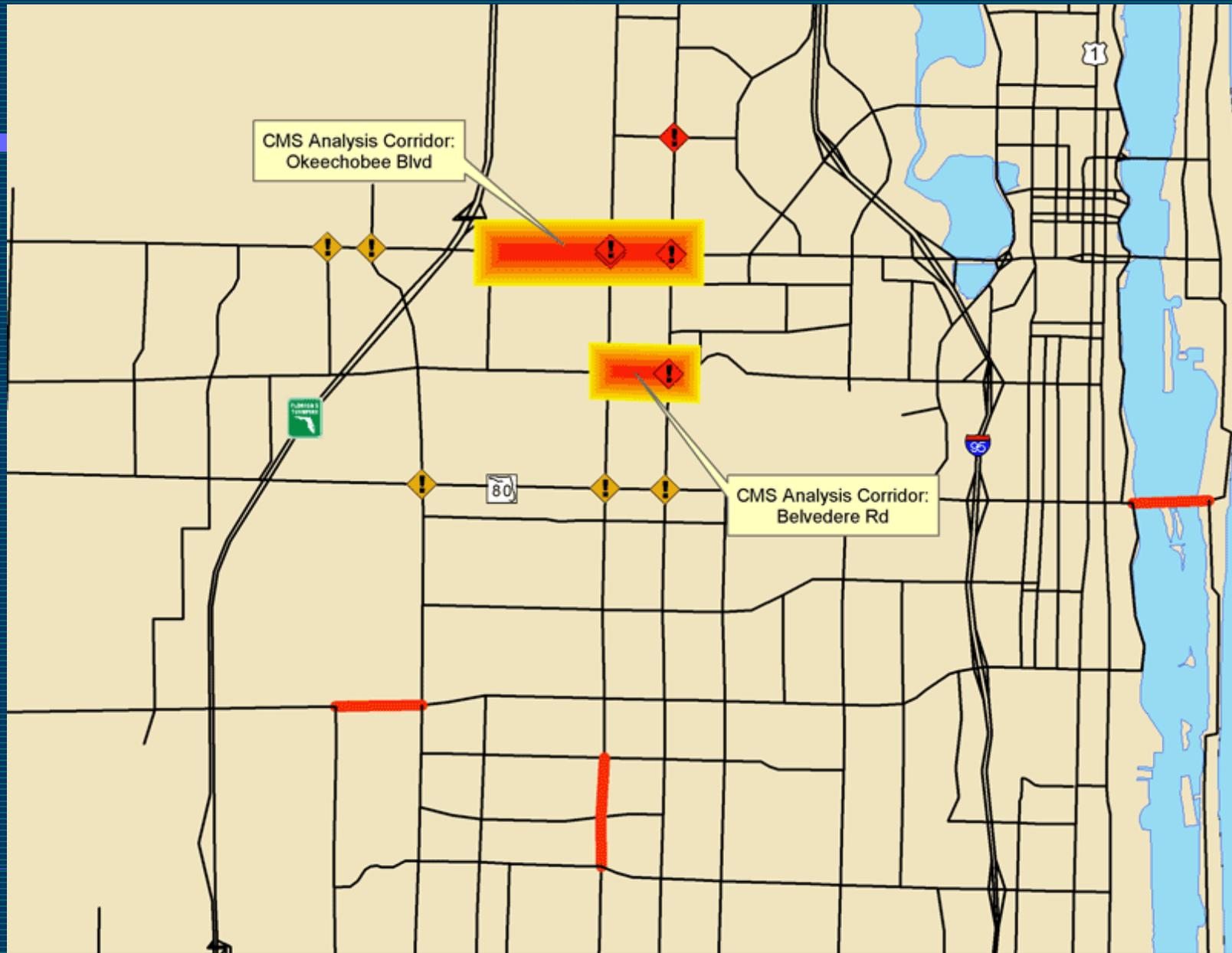
CMS Tier 2 Dual Failures

- ❑ We have seen the Tier 2 Peak roadway failures.
- ❑ We have seen the Tier 2 Intersection Critical Sum Failures.
- ❑ Now let's look at those roadways that have BOTH a Peak failure and an intersection(s) failure—these are the CMS Analysis Corridors.

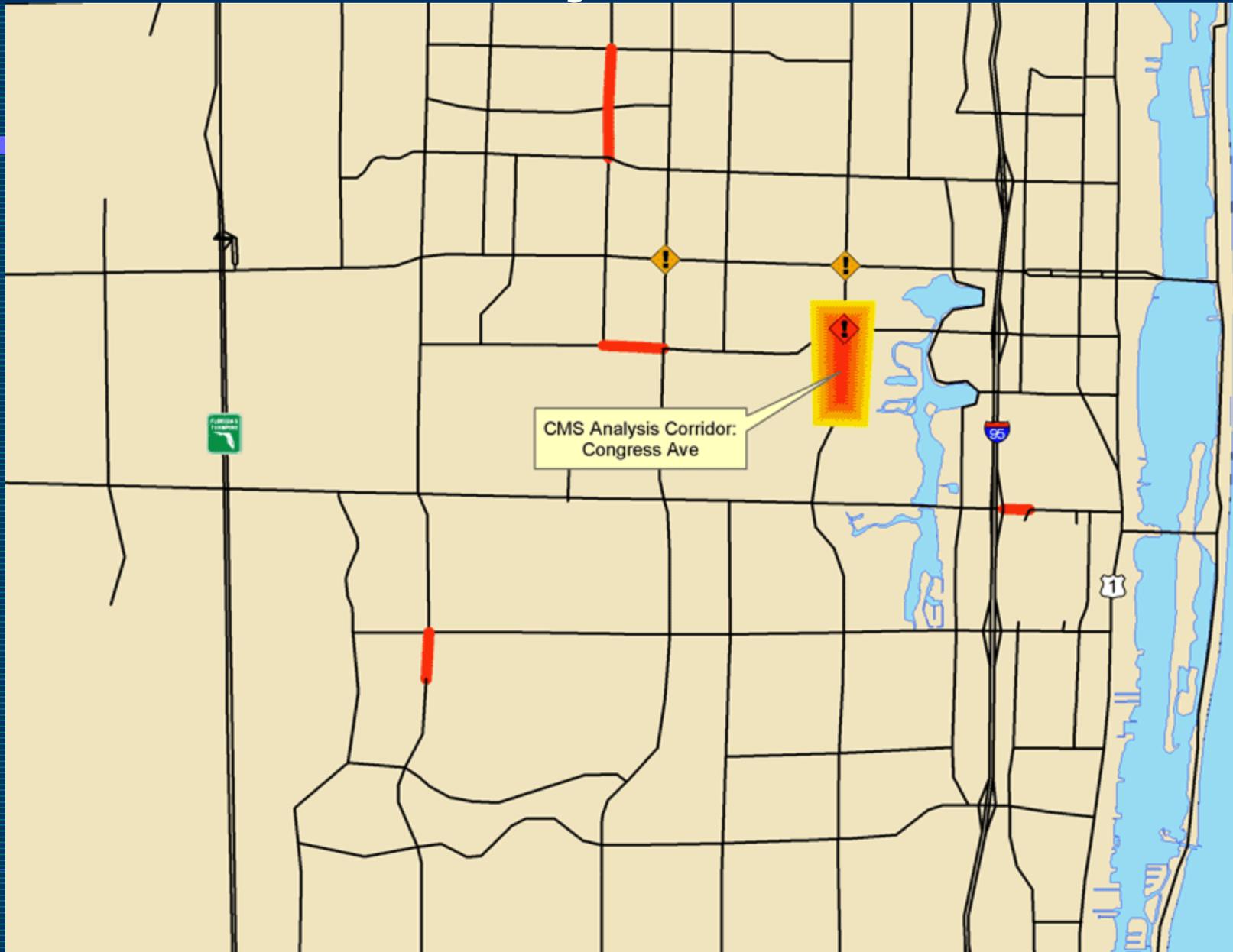
CMS Analysis Corridors



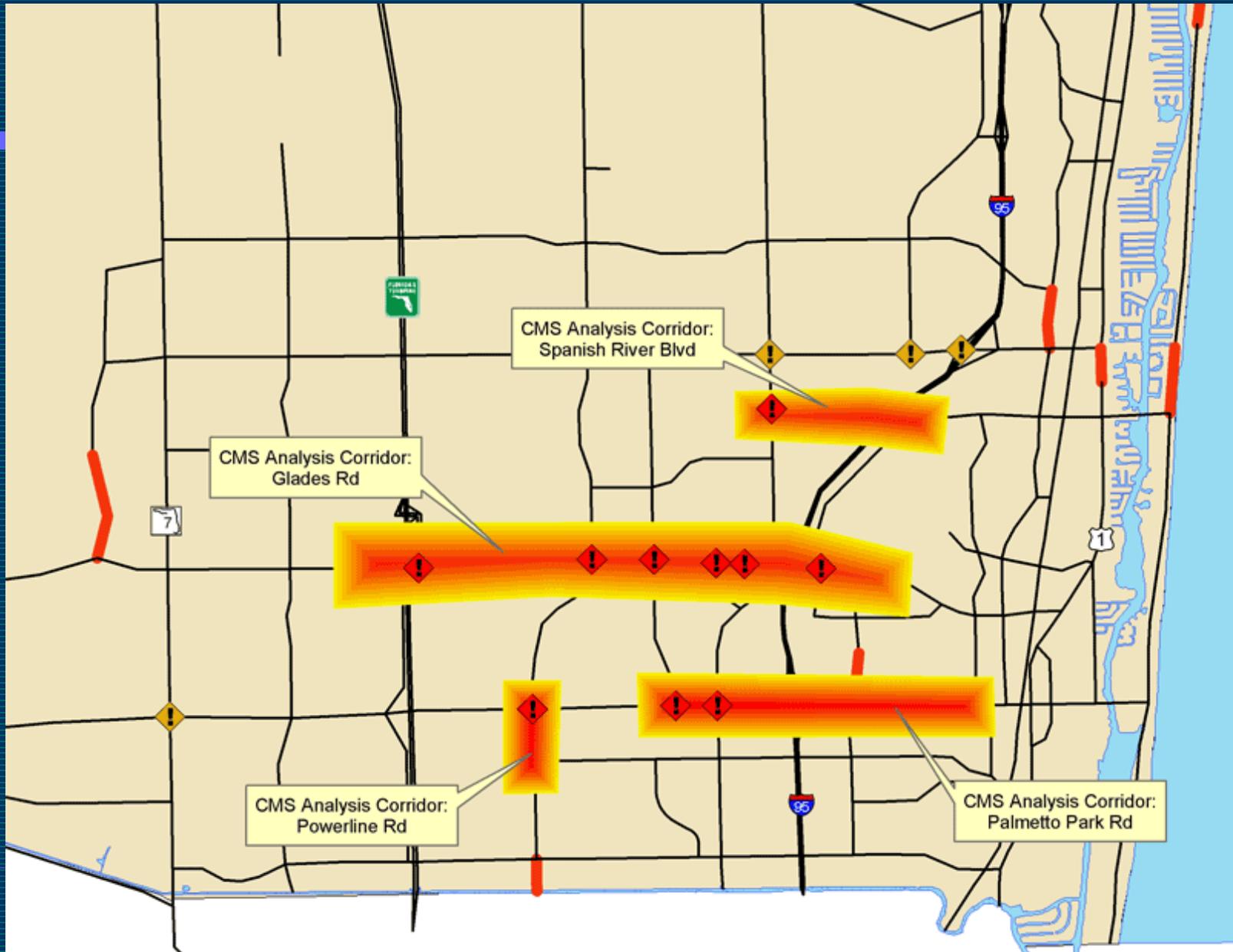
CMS Analysis Corridors



CMS Analysis Corridors



CMS Analysis Corridors



CMS Analysis Corridor Results

- Five of the eight selected corridors had potential congestion solutions 'soon to be in place.'
- Three of the corridors were deemed to have severe enough congestion problems that they need full corridor studies.

CMS Analysis Corridor Results

- The three corridors that were recommended for corridor studies were:
 - Okeechobee Blvd.
 - Glades Rd.
 - Palmetto Park Rd.

Future Direction

- Now that we've seen the process, how do we enhance and improve the Congestion Management System?

CMS Peer Review

- First, a peer review. How do other MPO's implement their Congestion Management Systems?

CMS Peer Review

- Broward County MPO's CMS is substantially similar to the enhanced 'analysis corridor' version of the Palm Beach MPO CMS.
- For example, BCMPO has completed several corridor studies recommended via their CMS, including SR7/US441 and Oakland Park Blvd.

CMS Peer Review

- Miami-Dade MPO's CMS is undergoing revision to better implement multimodal, mobility-focused approaches to alleviate congestion.

CMS Peer Review

- Metroplan Orlando, the MPO for the Orlando region, has a typical corridor-based CMS in place, using roadway measures that are readily available data from their HPMS.

Metroplan - CMS Peer Review

- In their next CMS update, Metroplan will be incorporating both ITS and freight movement considerations.

FHWA and Academic Research

- The FHWA has sponsored research to determine the feasibility and benefit of using travel times to augment Congestion Management Systems.

FHWA and Academic Research

- There is growing focus on ITS as a vehicle to archive useful data that could be used by a CMS.

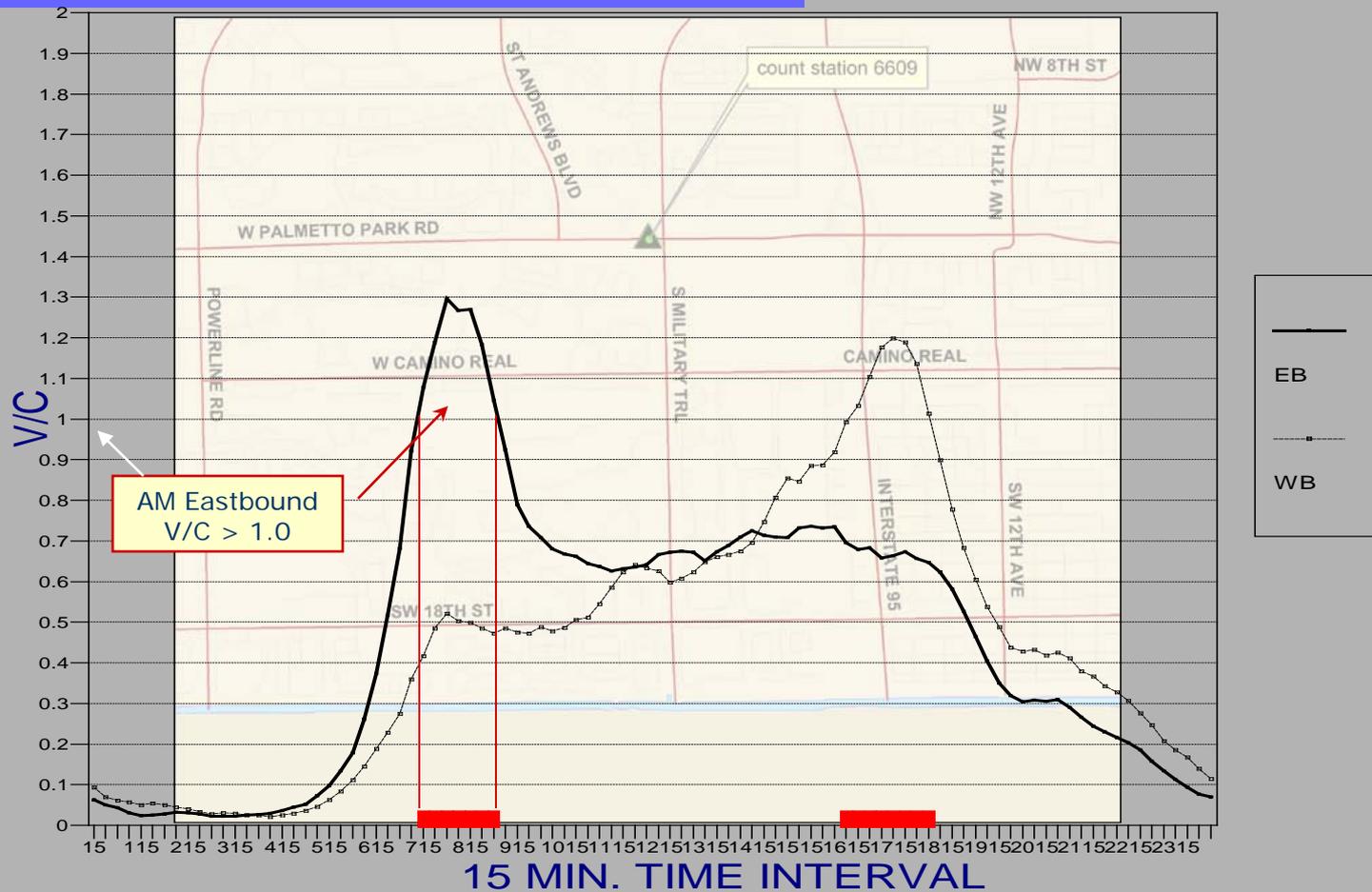
Other Directions

- Exploring the peak conditions of failed roadways may offer insight as to which congestion mitigation strategies might be effective.

Other Directions

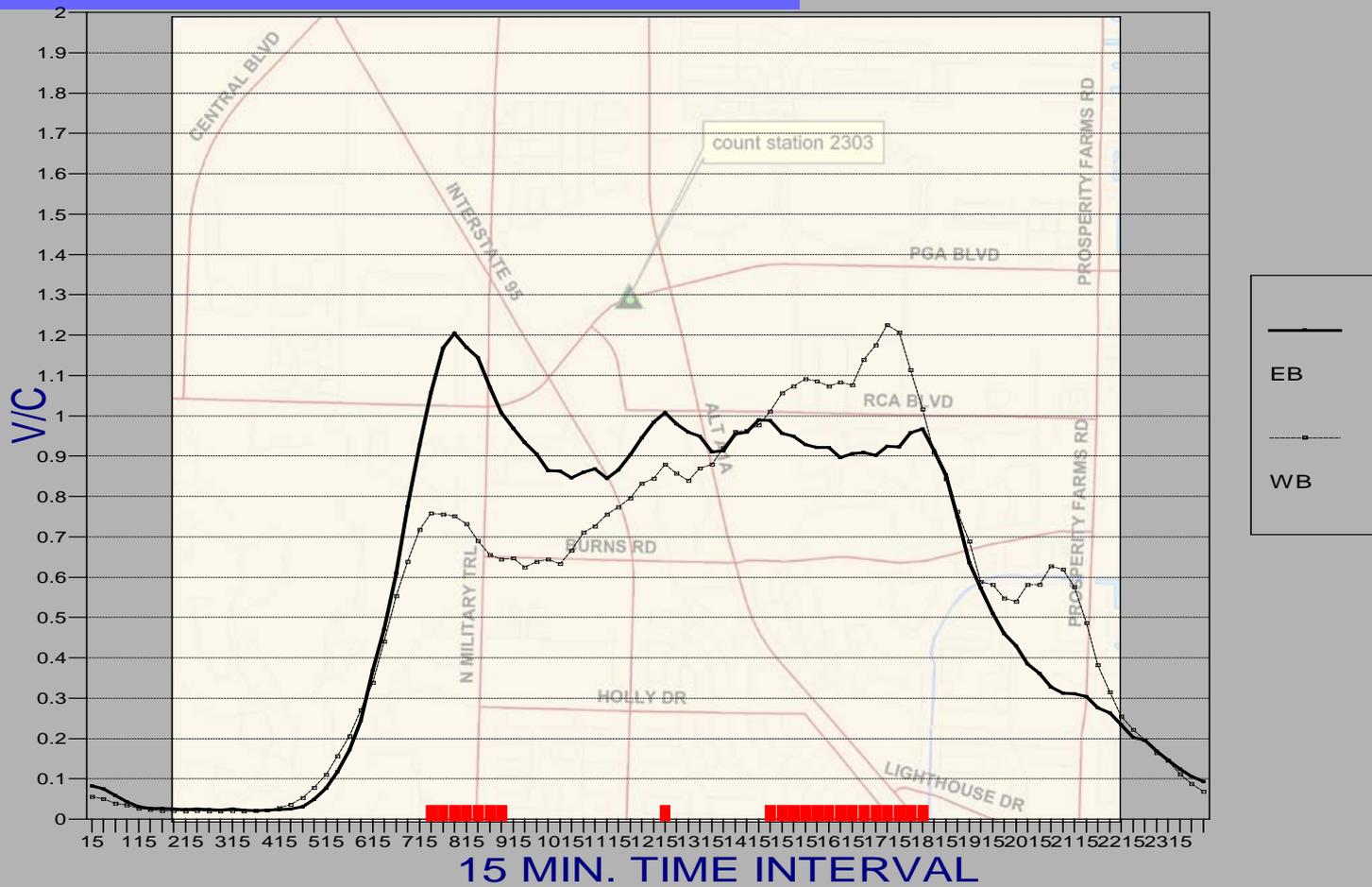
2001 TRAFFIC COUNT DISTRIBUTION

Palmetto Park Rd, 130' West of Military Trail



Other Directions

2001 TRAFFIC COUNT DISTRIBUTION
PGA Blvd, 2000' E of I-95



Final Thought

- It's time to revisit the CMS process and see how we can create a better tool to assist the transportation planning decision-making process.