November 1, 2011 Presentation

City of Key West

Carrying Capacity Traffic Study

Presentation of Findings

Calvin, Giordano & Associates, Inc.

EXCEPTIONAL SOLUTIONS

SCOPE OF SERVICES

"The Carrying Capacity Traffic Study will assess the capacity of City streets and related transportation infrastructure.

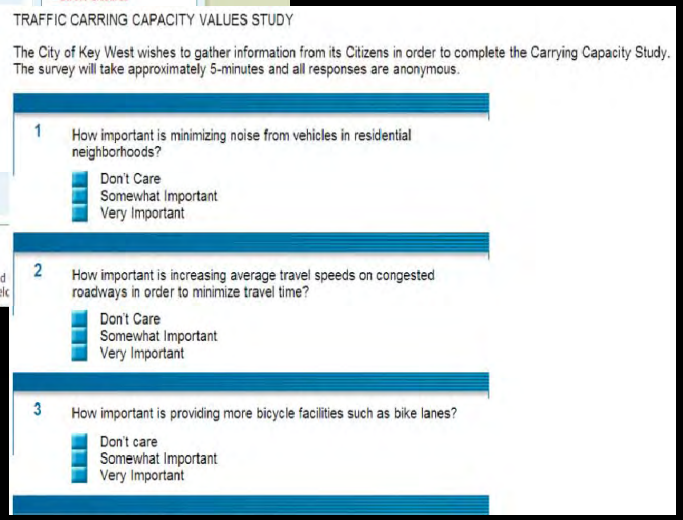
The Study will address specialized vehicles and their impacts to roadways and adjacent land uses, including impacts associated with mobility, noise, and air quality…"

Public Open House

PUBLIC OUTREACH

Community Values Meeting

PUBLIC OUTREACH



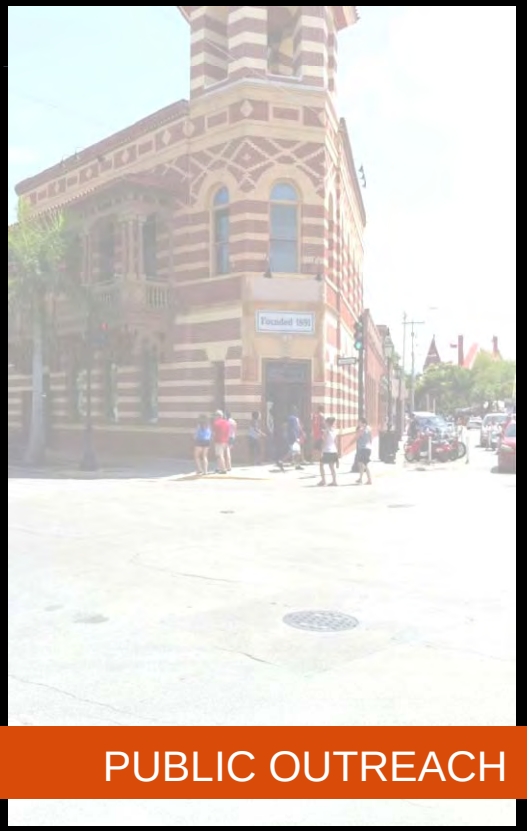
PUBLIC OUTREACH

PUBLIC OUTREACH RESULTS

Residents felt most strongly about the following topics:

- Improving pedestrian and bicycle facilities
- Providing an accommodating atmosphere for tourists
- Preferred new off-street parking facilities rather than on-street parking facilities
- Limiting the number of cruise ship passengers disembarking simultaneously

Travel time and speeds on congested roadways were only of <u>moderate</u> importance to residents



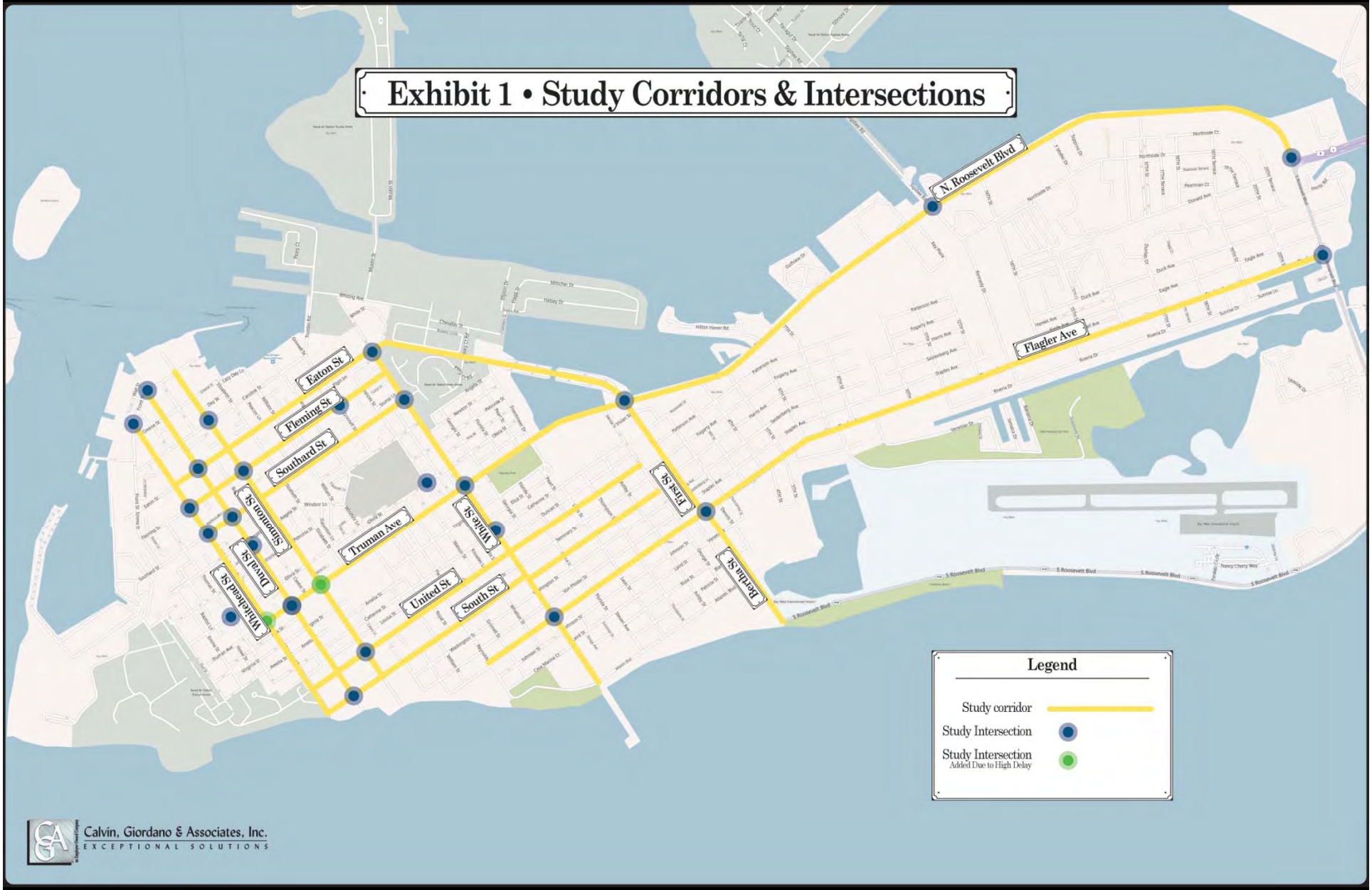


Exhibit 1 • Study Corridors & Intersections
N. Roosevelt Blvd
Flagler Ave
Eaton St
Fleming St
Southard St
Truman Ave
United St
South St
Simonton St
Duval St
Whitehead St
White St
Fitzpatrick St
Bertha St
Legend
Study corridor
Study Intersection
Study Intersection
Added Due to High Delay
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EXCEPTIONAL SOLUTIONS

Data Collection included:

- Travel time runs
- 24-hour daily traffic volumes
- Speed counts
- Turning movement counts
- Pedestrian counts
- Vehicle classification counts
- Multi-modal vehicle attributes
- Roadway characteristics and geometry constraints
- Speed limit inventory
- Parking inventory
- Parking violations
- Pedestrian and bicycle facilities
- Sound level inventory
- Cruise ship data
- Historical traffic data and trends
- Population growth projections

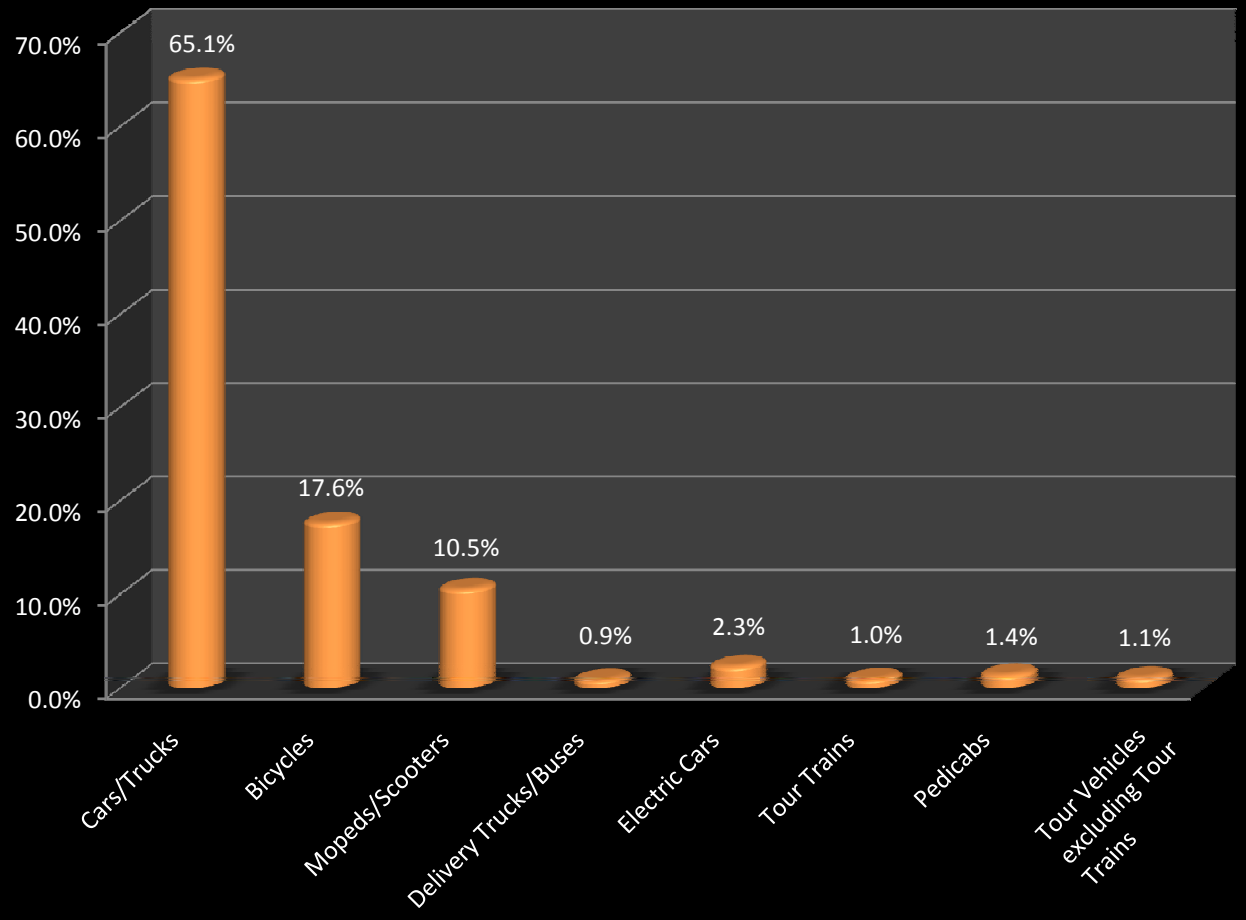
DATA COLLECTION

Multi-Modal Classifications:

- Scooters
- Electric Cars
- Tour Buses
- Tour Trains
- Bicycles
- Pedestrians
- Delivery Trucks/ Buses
- Pedicabs
- Cars

DATA COLLECTION – TURNING MOVEMENT COUNTS

Traffic Composition - Old Town



DATA COLLECTION

TRADITIONAL CARRYING CAPACITY MEASURES

- Volume to Capacity (V/C) Ratios
  (FDOT, General Planning Analysis)

- Level of Service based on Average Speed
  (Highway Capacity Manual, Key West Comprehensive Plan)

- Level of Service based on Intersection Delay
  (Highway Capacity Manual)

CHARACTERISTICS UNIQUE TO KEY WEST

- VISSIM traffic microsimulation model utilized to incorporate specialized vehicles unique to Key West

- Calibrated to 3% of the existing conditions

- Model Network consists of over 15 corridors and 50 intersections

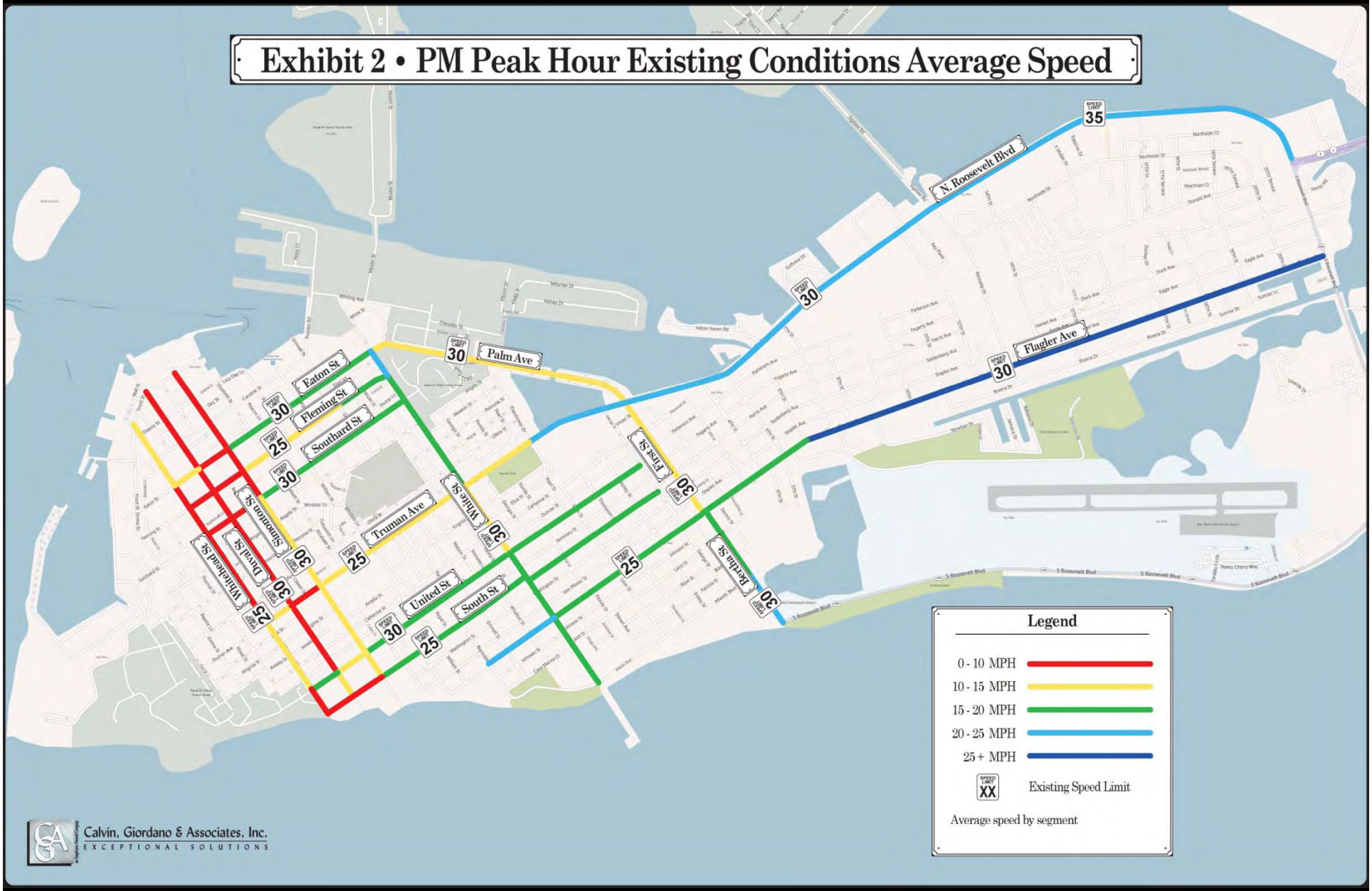
- New roadways and intersections can be easily added

- Infinite future scenarios possible including:
  - New franchises/tours
  - New bicycle/pedestrian facilities
  - New development
  - Roadway modification from two-way to one-way
  - Signal timing changes
  - New bus routes

TRAFFIC SIMULATION MODEL

Run Video

Exhibit 2 • PM Peak Hour Existing Conditions Average Speed



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EXCEPTIONAL SOLUTIONS

Exhibit 5 • Existing Conditions PM Peak Hour V/C Ratio

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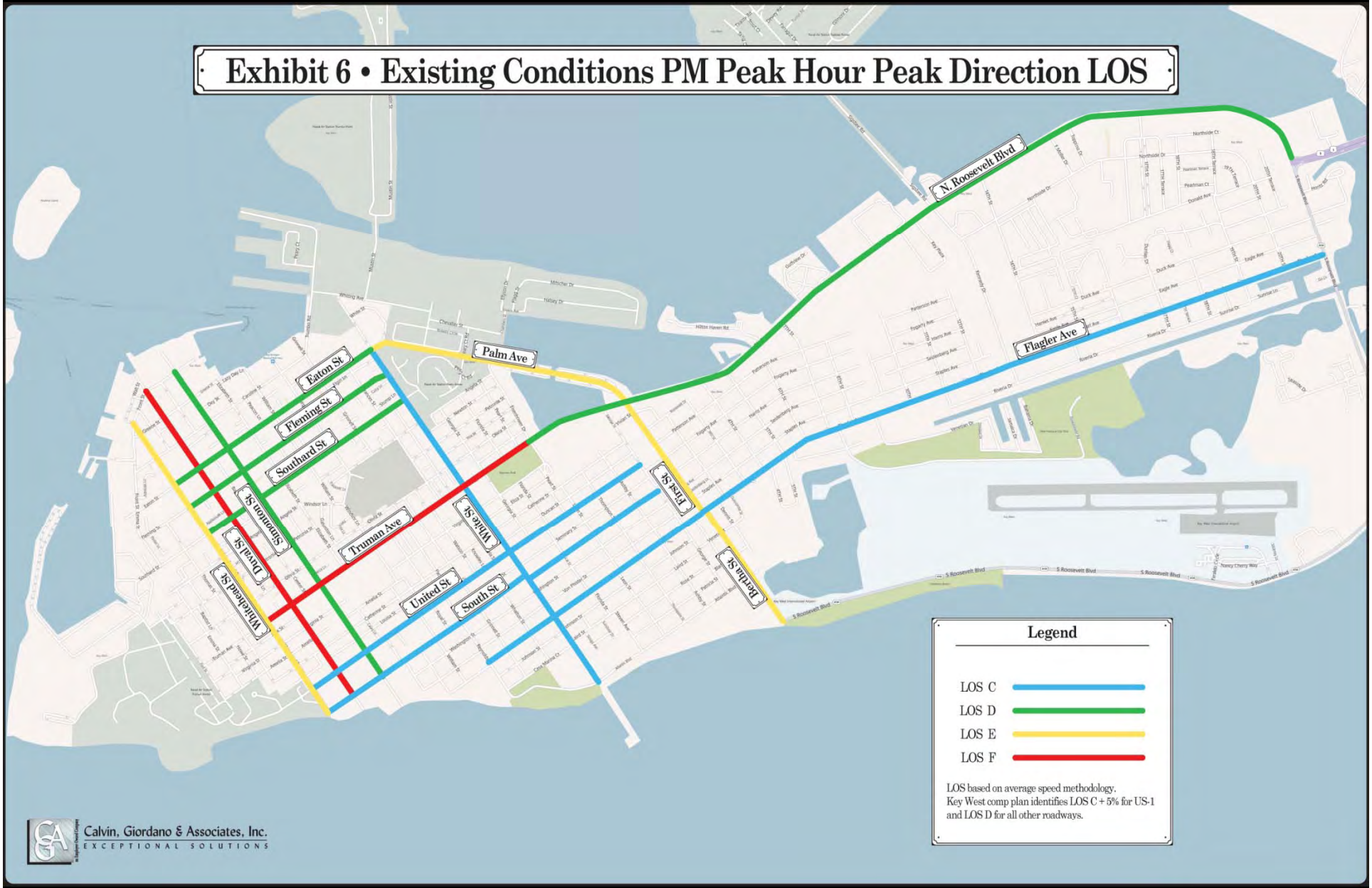
EXCEPTIONAL SOLUTIONS

Exhibit 6 • Existing Conditions PM Peak Hour Peak Direction LOS



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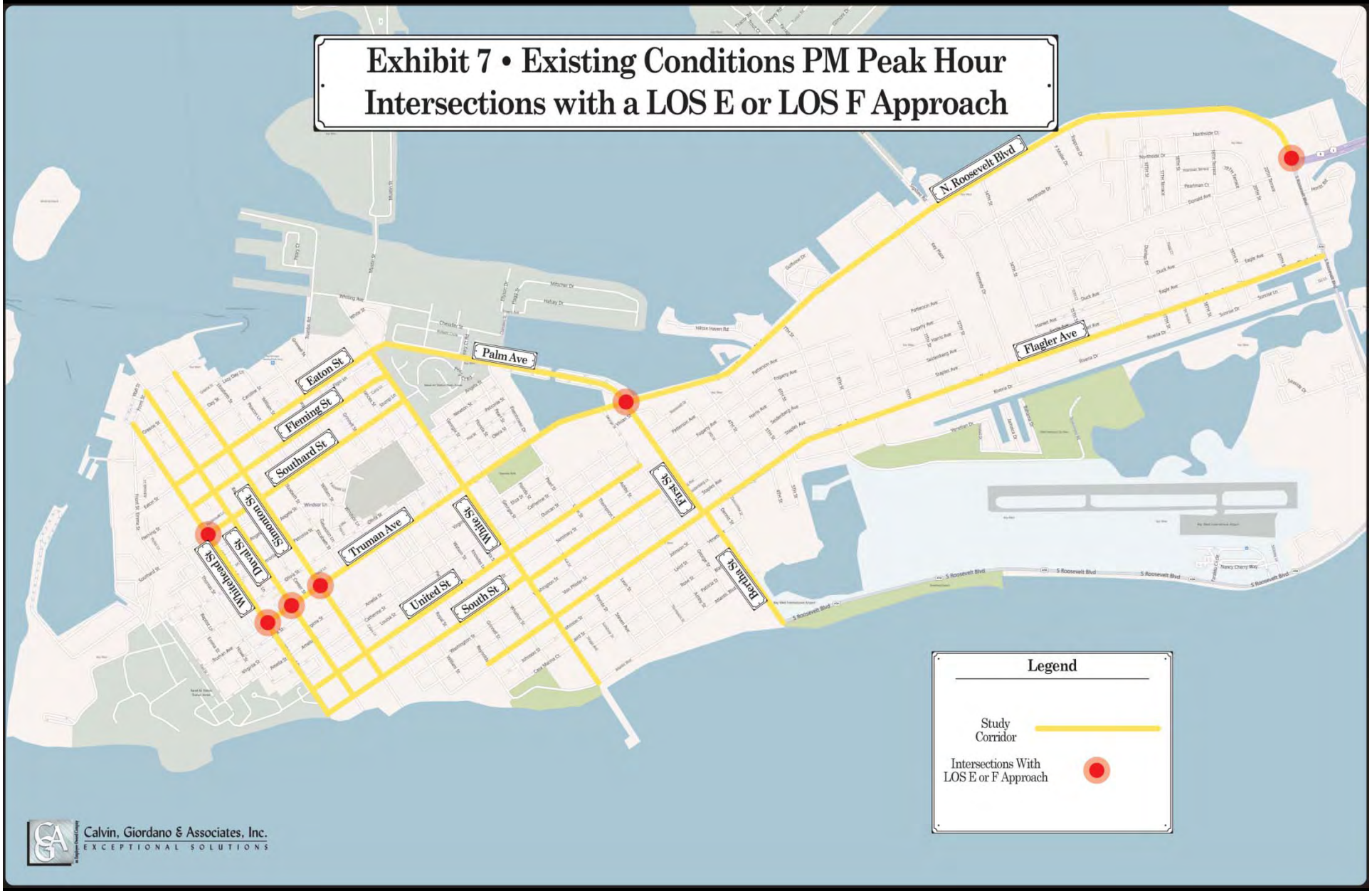
EXCEPTIONAL SOLUTIONS

Exhibit 7 • Existing Conditions PM Peak Hour Intersections with a LOS E or LOS F Approach



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EXCEPTIONAL SOLUTIONS

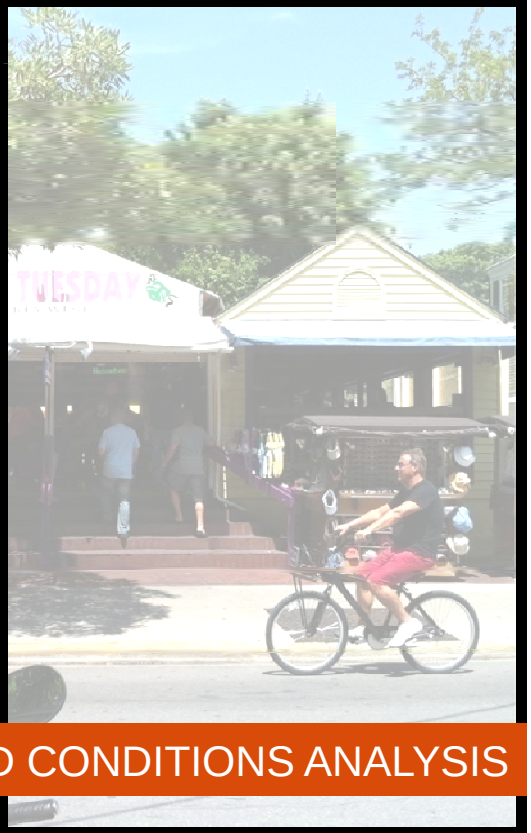
TRAFFIC SIMULATION – OPTIMIZED CONDITIONS

Traffic Signal Improvements:

- Signal timing optimization
- Installation of vehicle detection systems
- Installation of pedestrian detectors and signal heads
- Coordinated signal timing along corridors

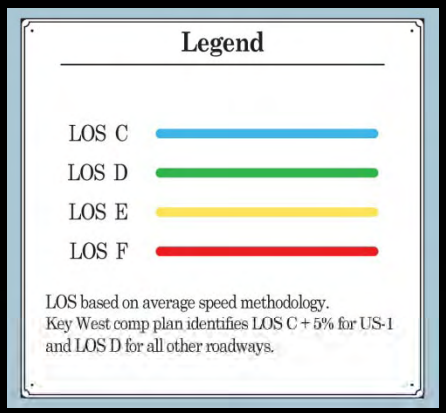
Roadway Improvements:

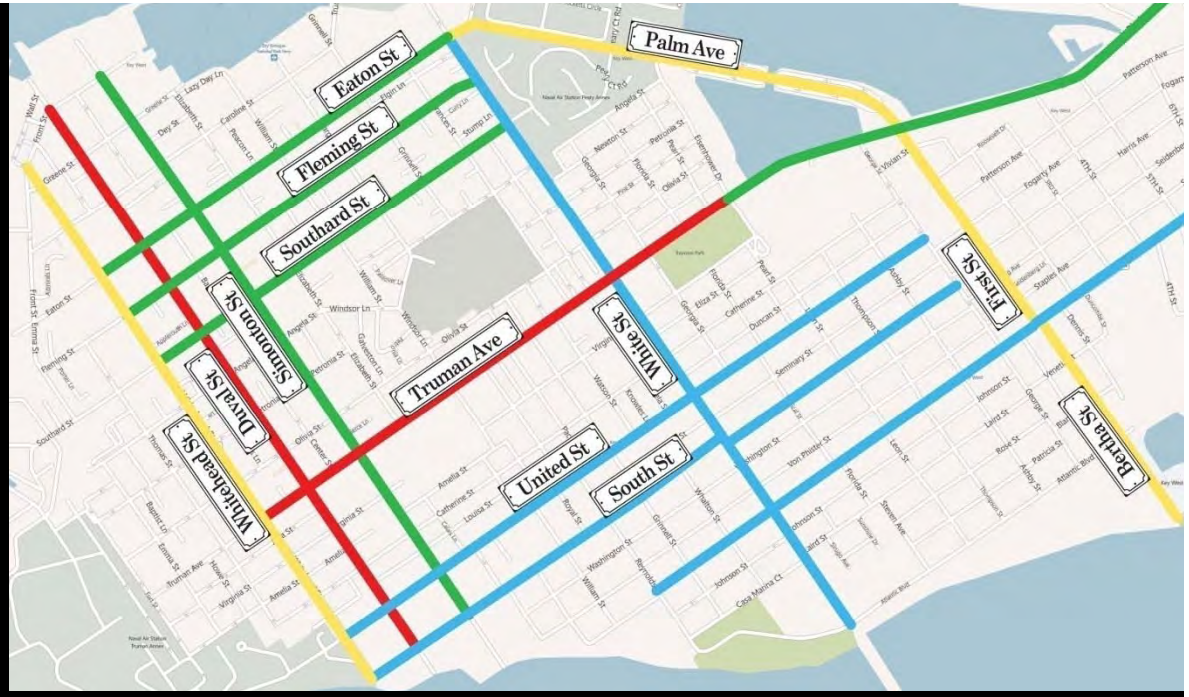
- Extension of the southeast bound left turn lane on Palm Avenue at N. Roosevelt Boulevard



OPTIMIZED CONDITIONS ANALYSIS

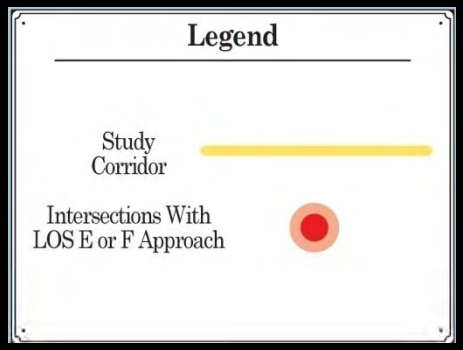
Existing Conditions



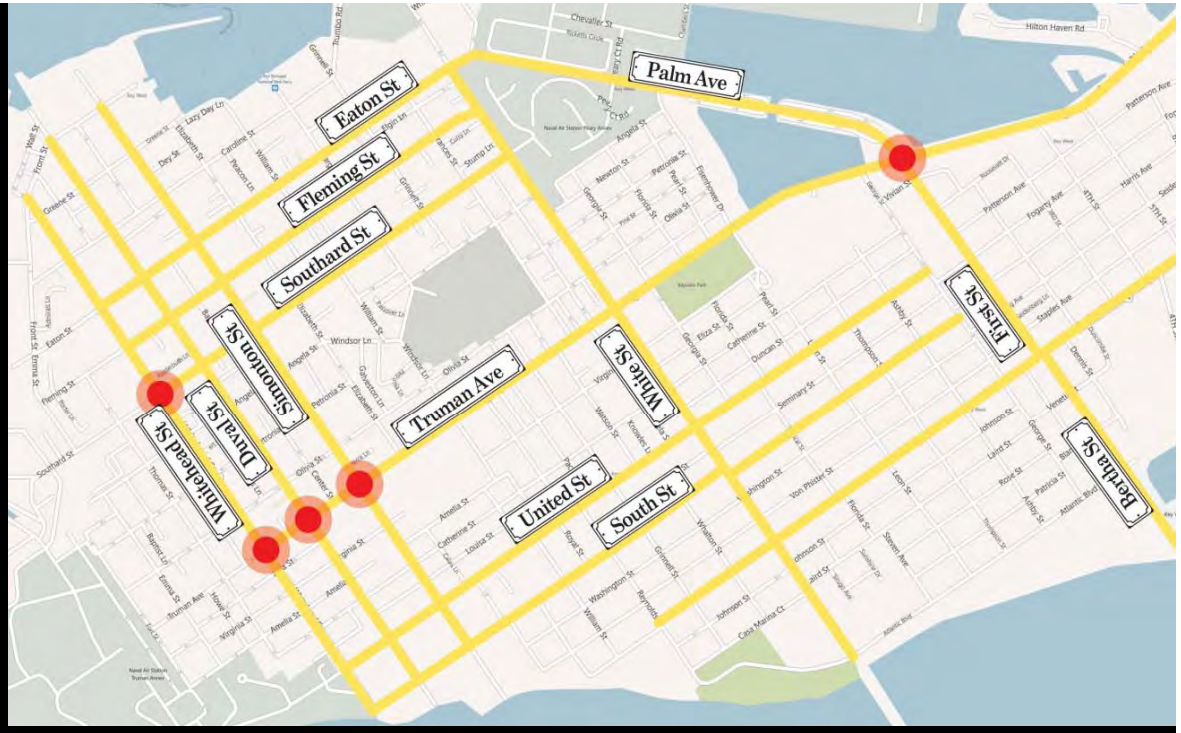


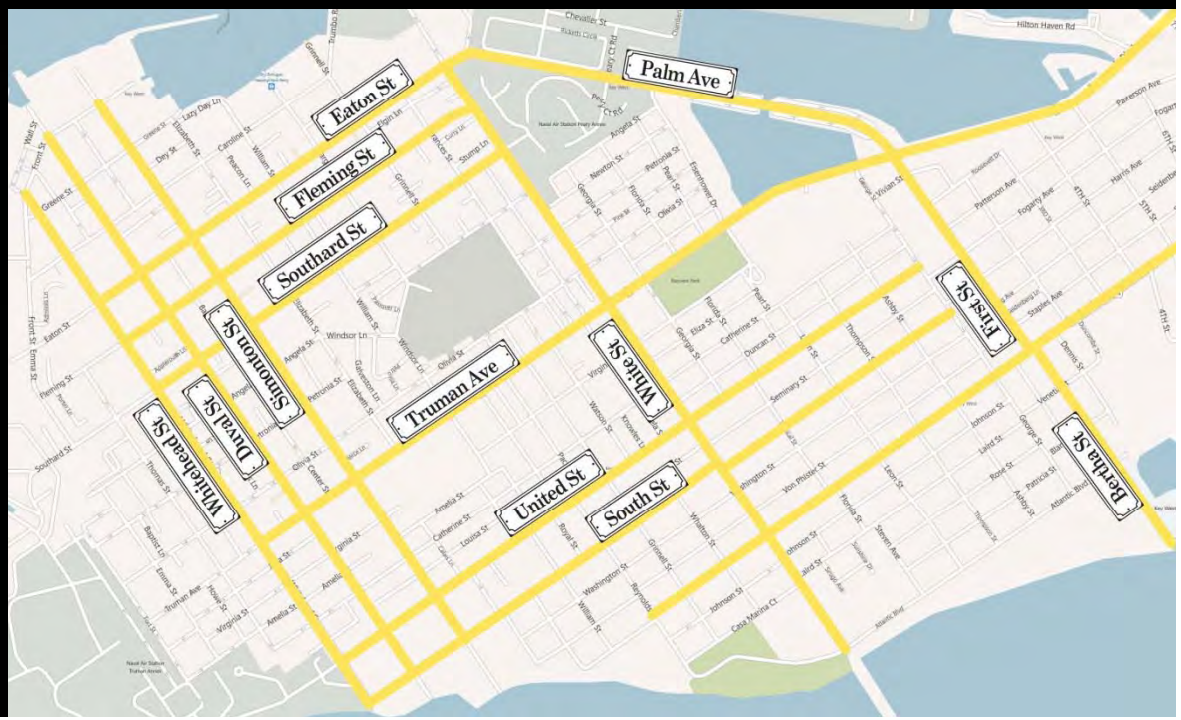
Optimized Conditions

Existing Conditions



Optimized Conditions



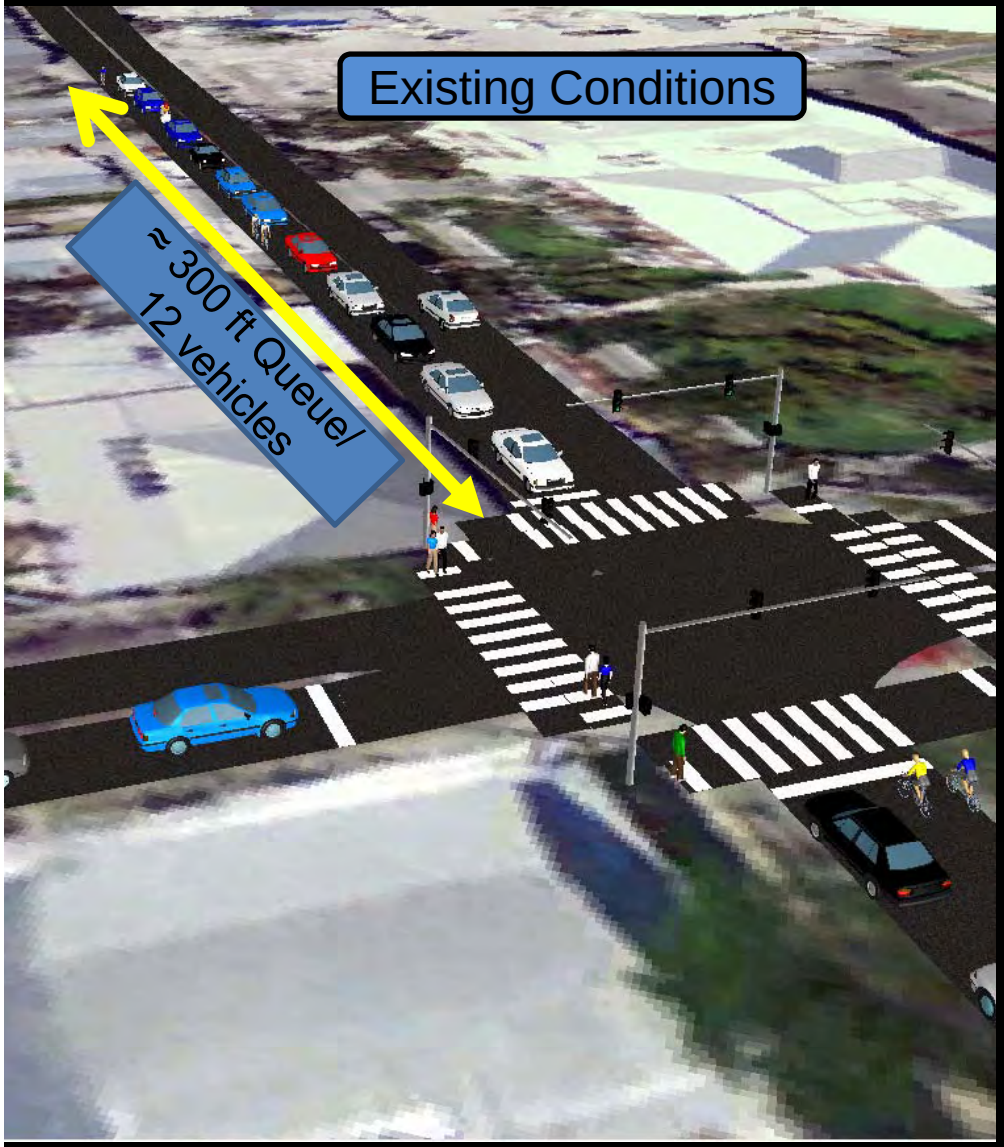


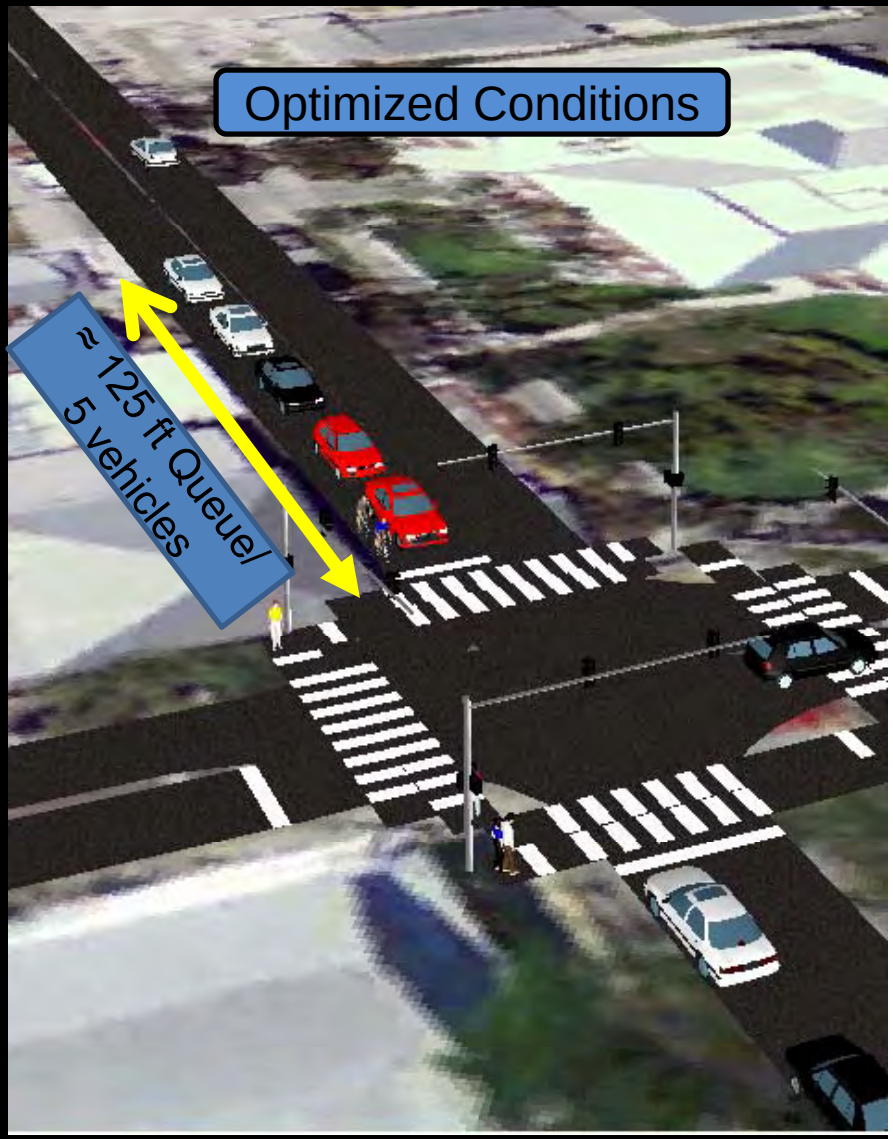
Traffic Simulation Model
Duval St at Truman Ave – Southeast Bound Approach

Traffic Simulation Model
Whitehead St at Truman Ave – Southeast Bound Approach

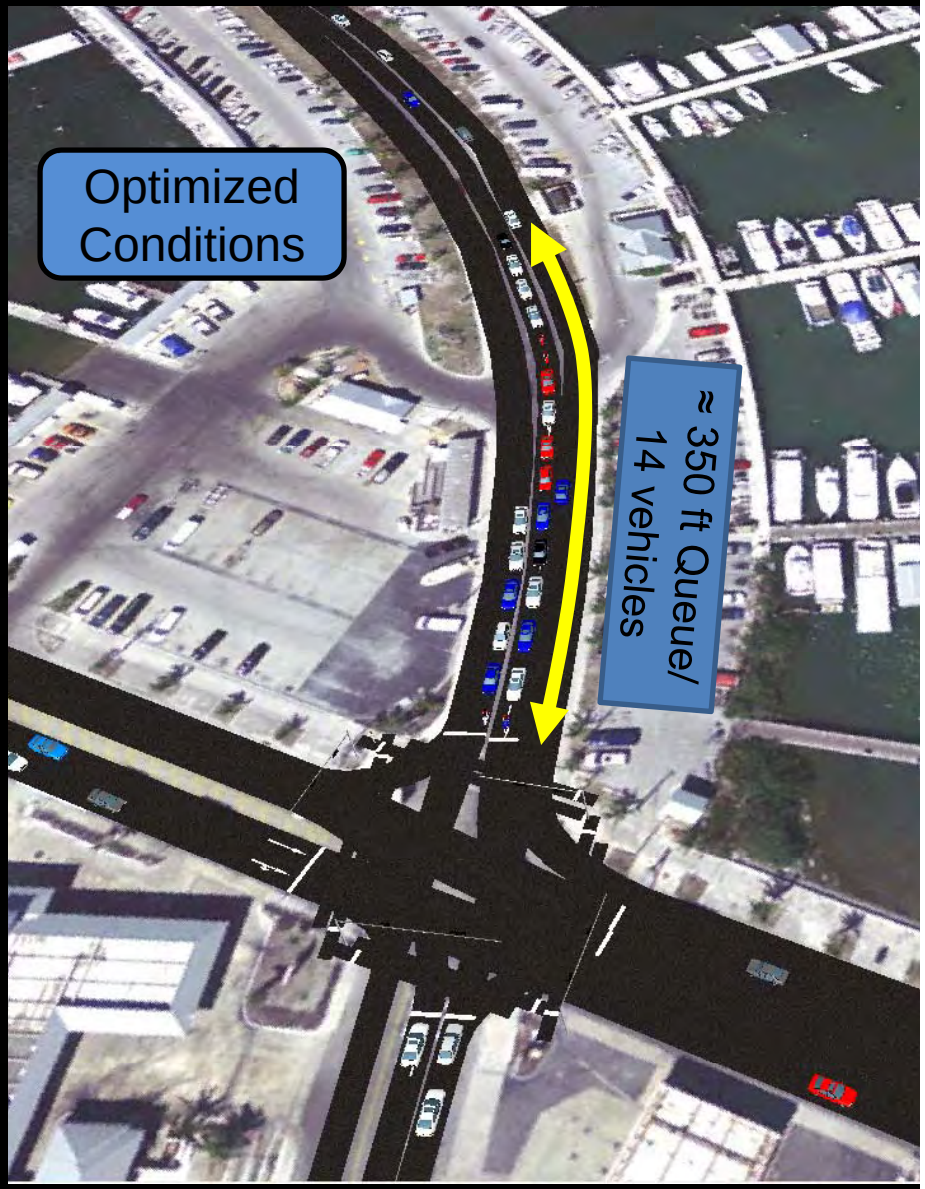
Traffic Simulation Model
Truman Ave at Simonton St – Southwest Bound Approach

Traffic Simulation Model
Southard St at Whitehead St– Northeast Bound Approach

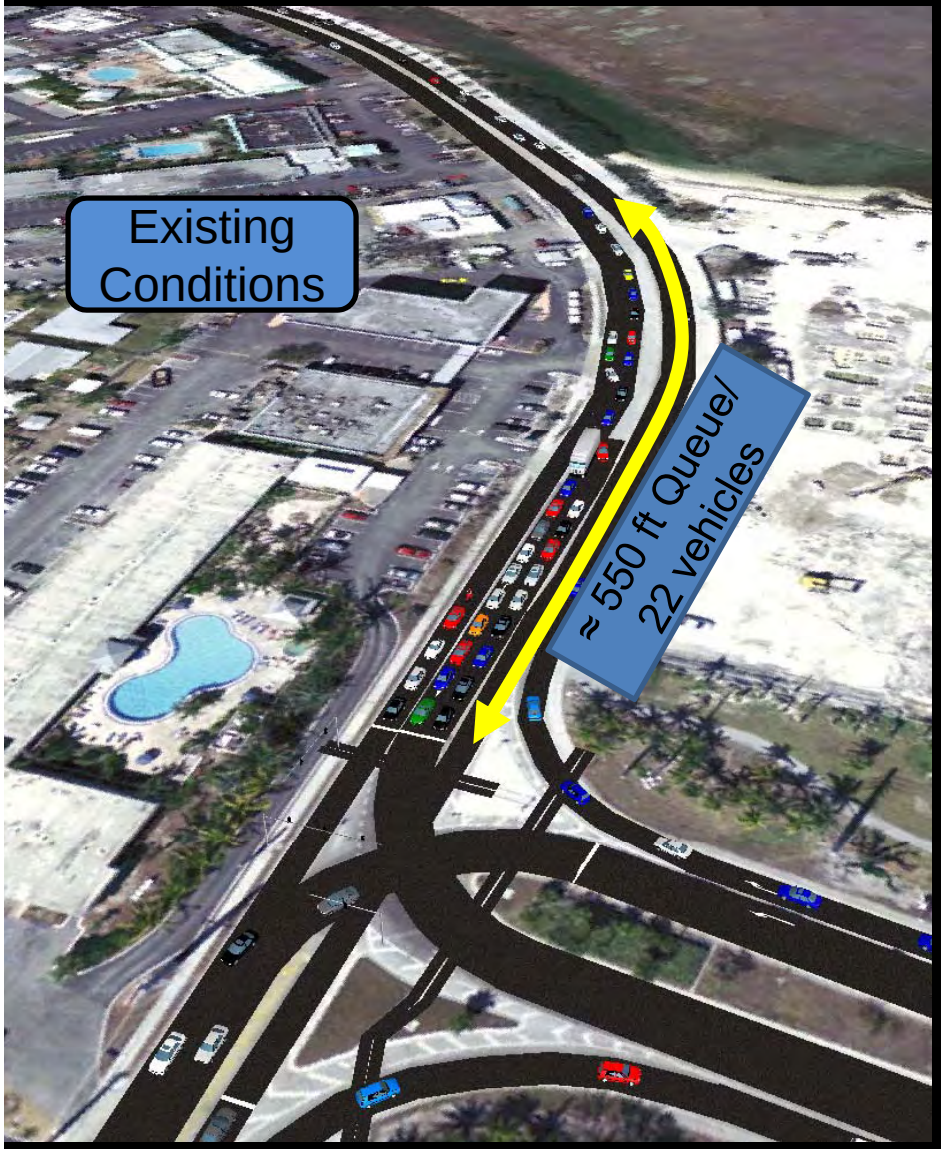


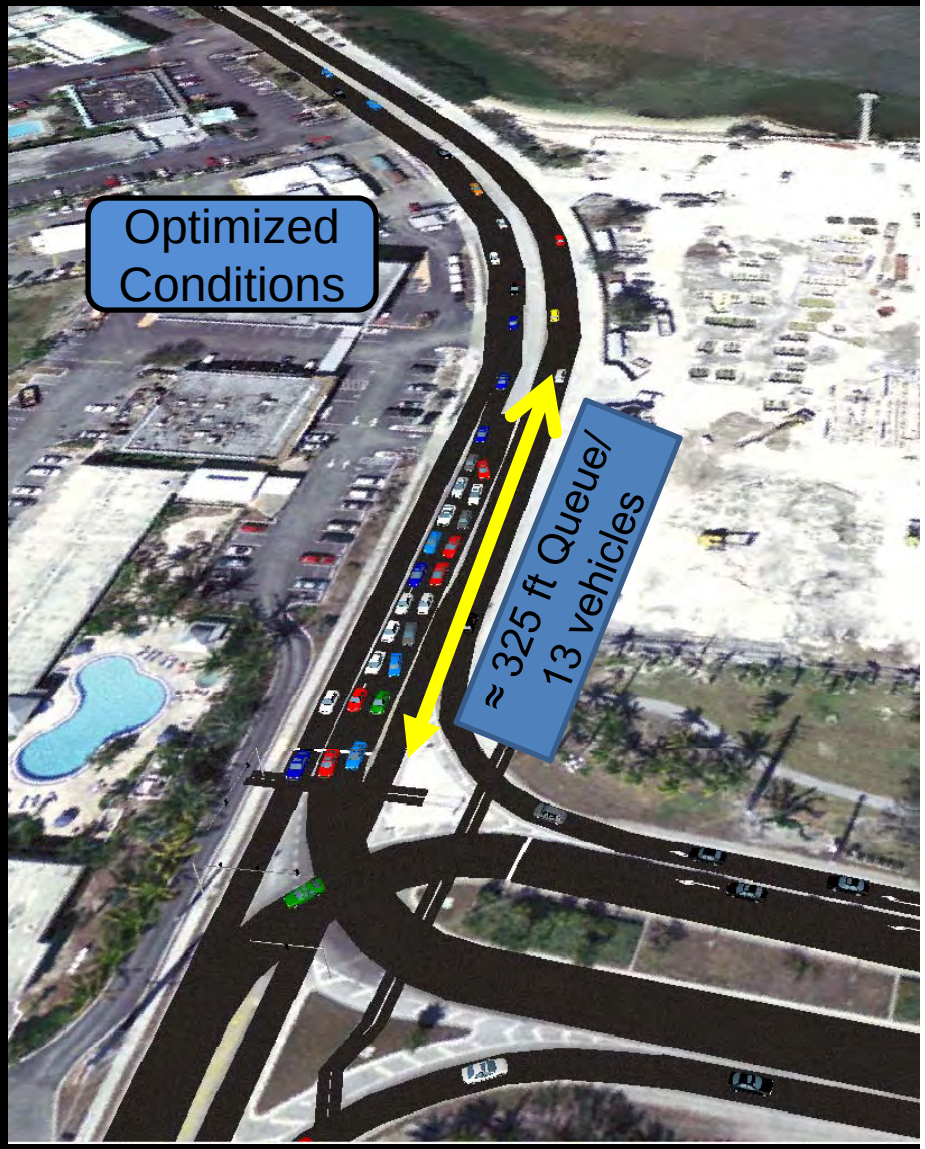


Traffic Simulation Model
Palm Ave at N. Roosevelt Blvd – Southeast Bound Approach



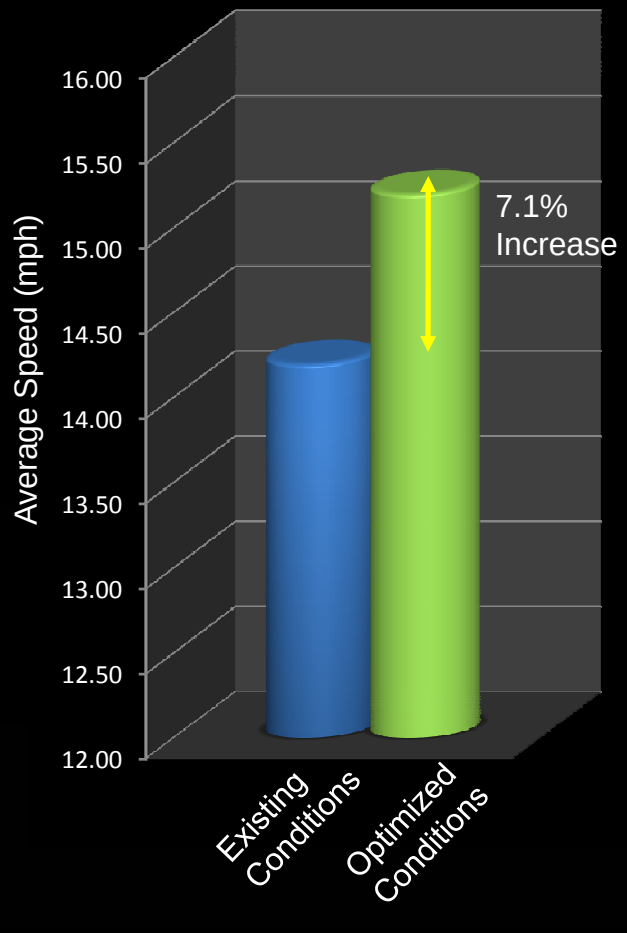
Traffic Simulation Model
N. Roosevelt Blvd at Overseas Hwy – South Bound Approach



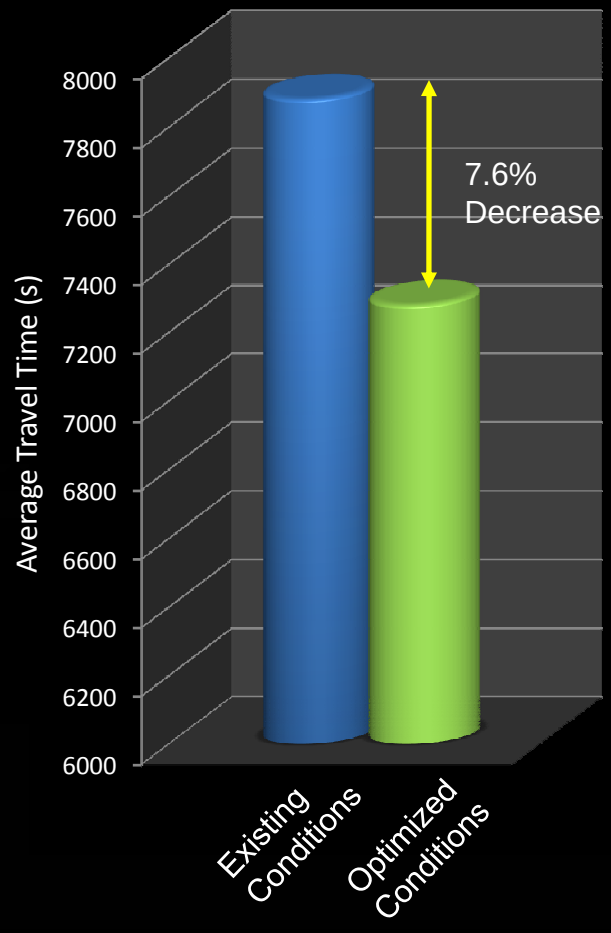


OPTIMIZED CONDITIONS ANALYSIS

Average Speed Comparison



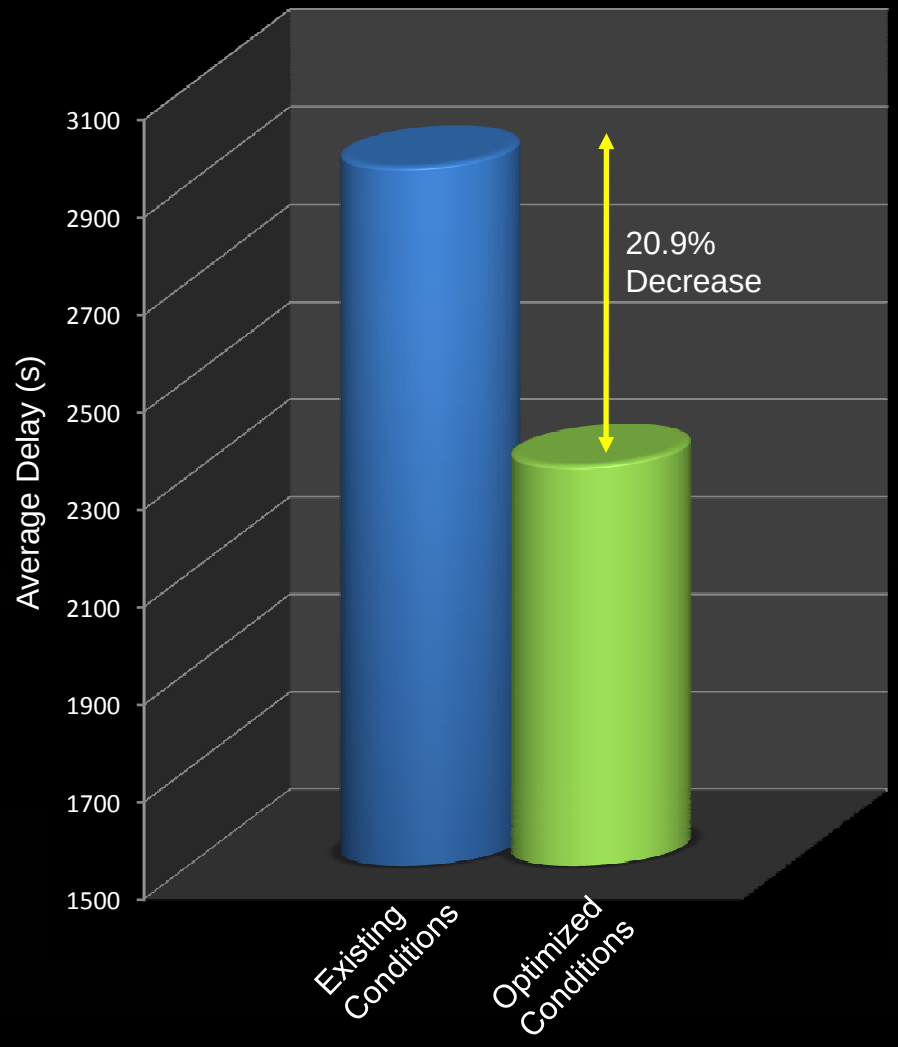
Average Travel Time Comparison

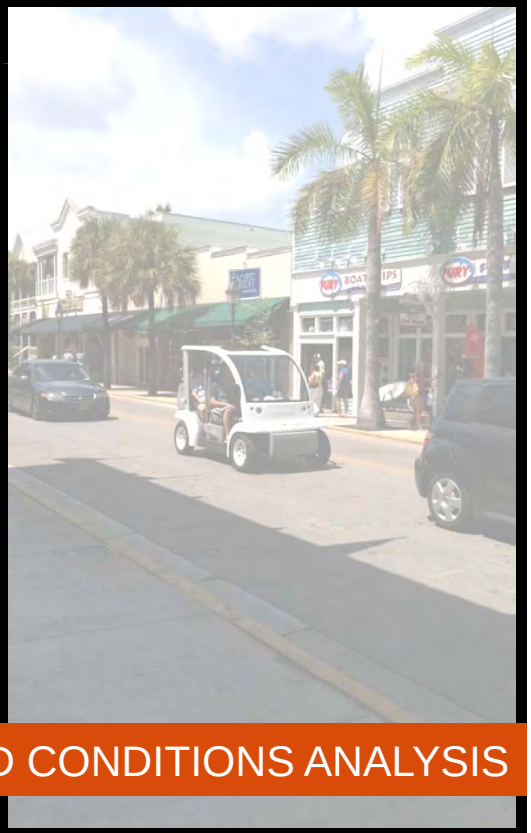


OPTIMIZED CONDITIONS ANALYSIS

OPTIMIZED CONDITIONS ANALYSIS

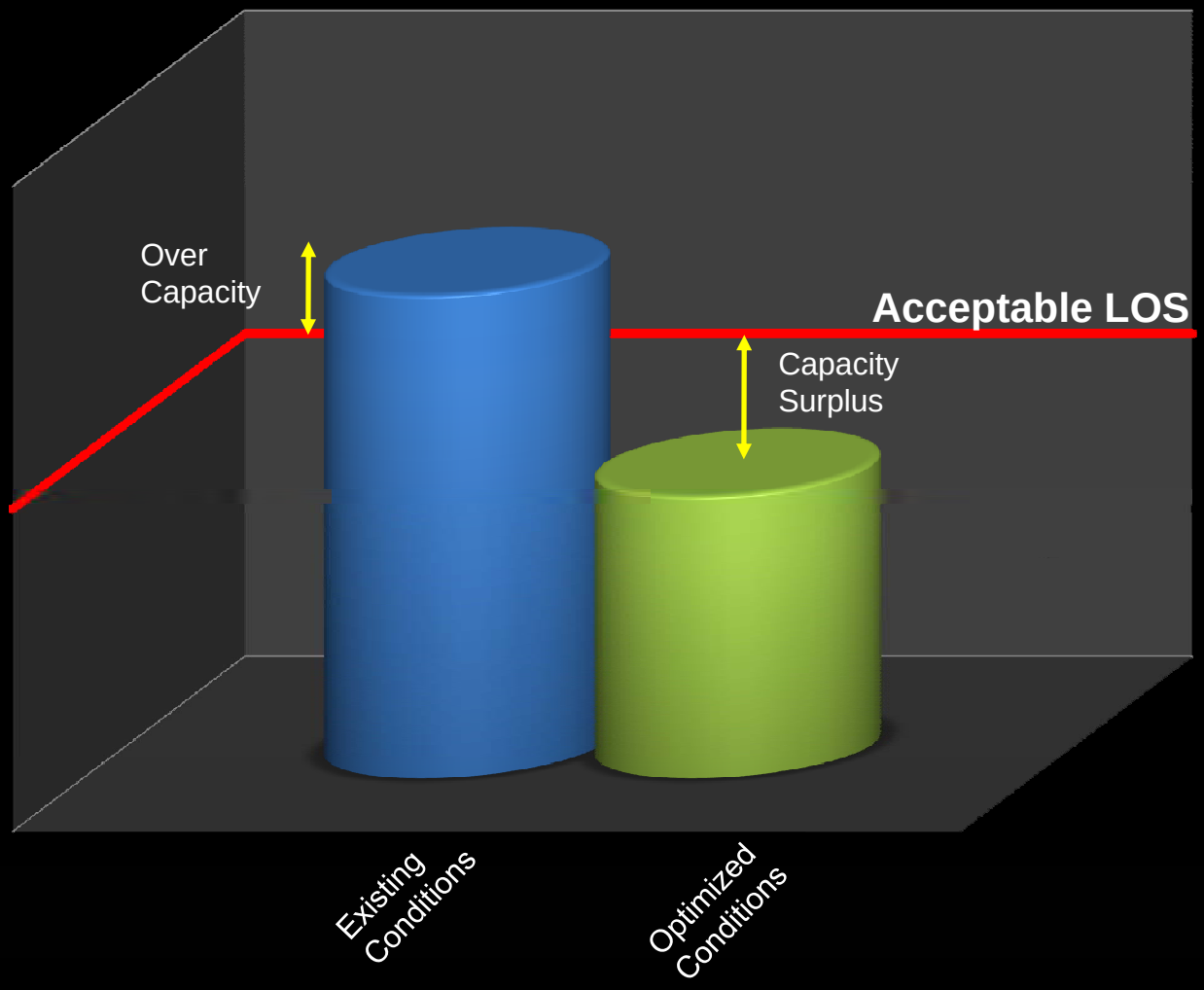
Average Travel Delay Comparison





OPTIMIZED CONDITIONS ANALYSIS

CITY ALTERNATIVES

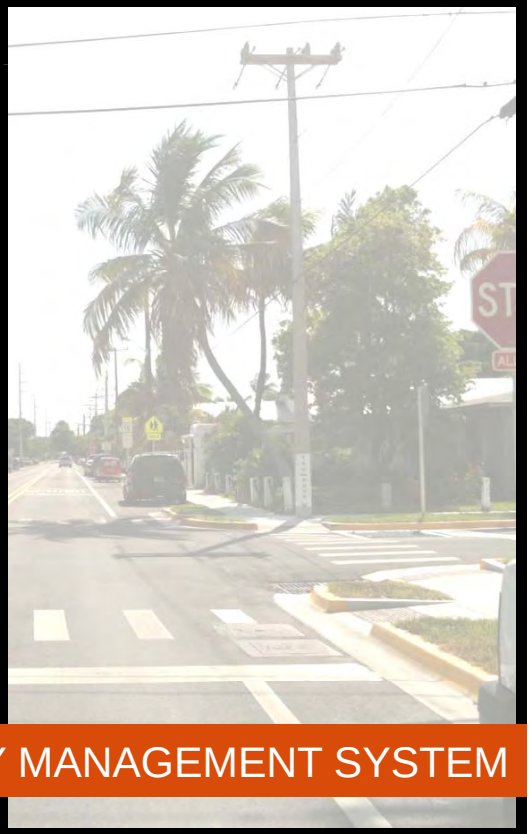


CITY ALTERNATIVES

LOCAL TRANSPORTATION CONCURRENCY UTILIZING THE TRAFFIC SIMULATION MODEL

The Traffic Simulation Model developed for the Carrying Capacity study can be utilized as a baseline and updated to simulate future traffic conditions such as:

- Proposed franchise vehicle operations
- Proposed land development projects
- Proposed modifications to intersection and roadway operations such as one-way streets
- Future construction projects and associated detours



CONCURRENCY MANAGEMENT SYSTEM

LOCAL TRANSPORTATION CONCURRENCY UTILIZING THE TRAFFIC SIMULATION MODEL

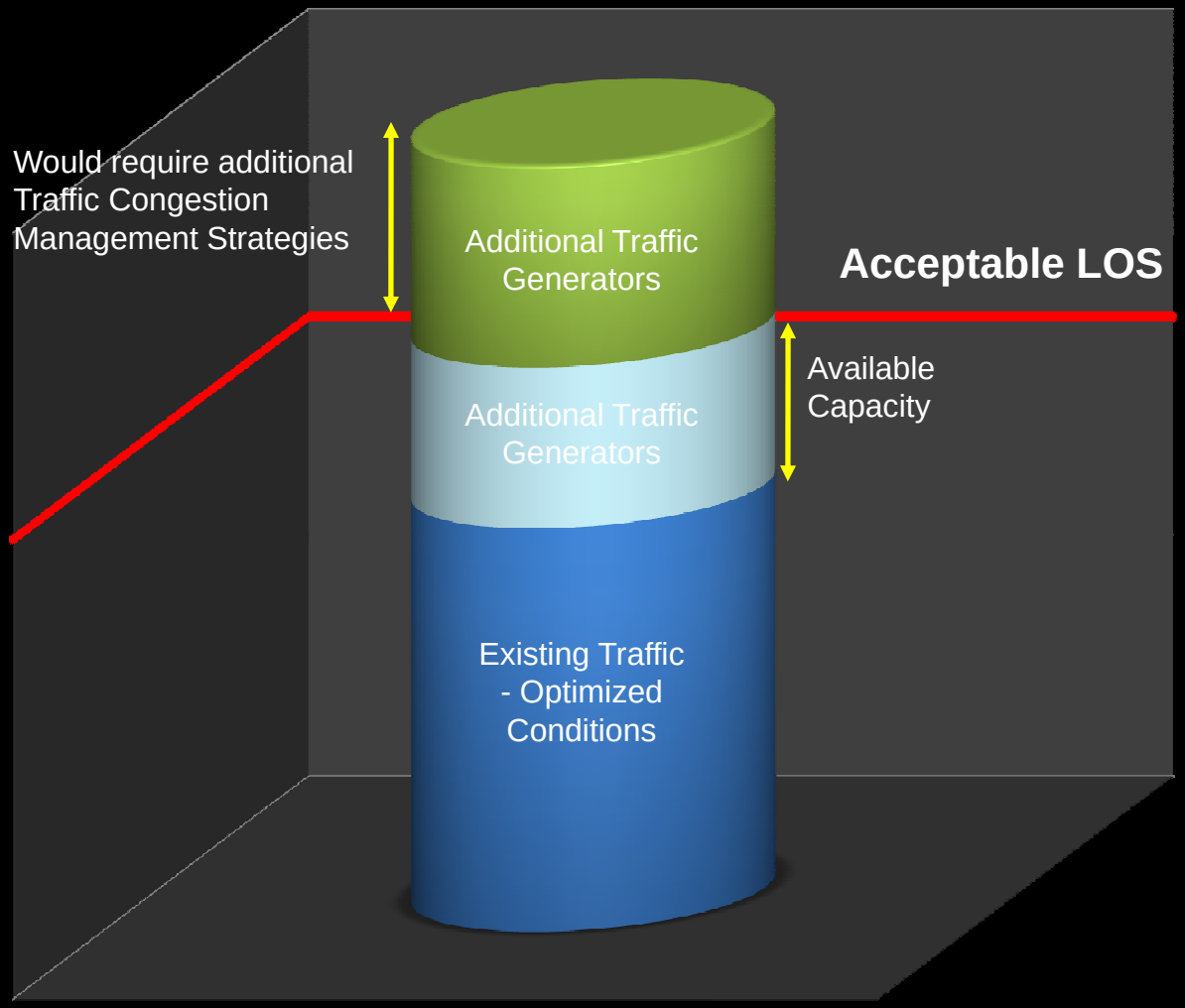
The Traffic Simulation Model can also provide a baseline for a city-wide Transportation Concurrency system. Transportation Concurrency is a planning tool utilized by municipalities throughout Florida and Nationwide.

A Local Transportation Concurrency system will afford the opportunity to:

- Monitor available roadway capacity
- Track the effects of new traffic generators on roadway capacity
- Develop a proportionate fair share mitigation strategy for new traffic generators
- Allow applicants an opportunity to demonstrate their ability to minimize traffic impacts

CONCURRENCY MANAGEMENT SYSTEM

CONCURRENCY MANAGEMENT SYSTEM



CONCURRENCY MANAGEMENT SYSTEM

Next Steps

•Final Report will be submitted to the City within 2 weeks.

•Final report will be delivered in hard copy format and on DVD.

•VISSIM model files will be delivered to the City on DVD.

•CGA staff will provide a day of on-site training to City staff on how to use the VISSIM software.

•CGA staff will attend an additional City Commission meeting to address any questions regarding the final report.