

CITY OF FORT LAUDERDALE

February 19, 2019

SIGNAL SYSTEM ALTERNATIVES

SR A1A
SEABREEZE BLVD



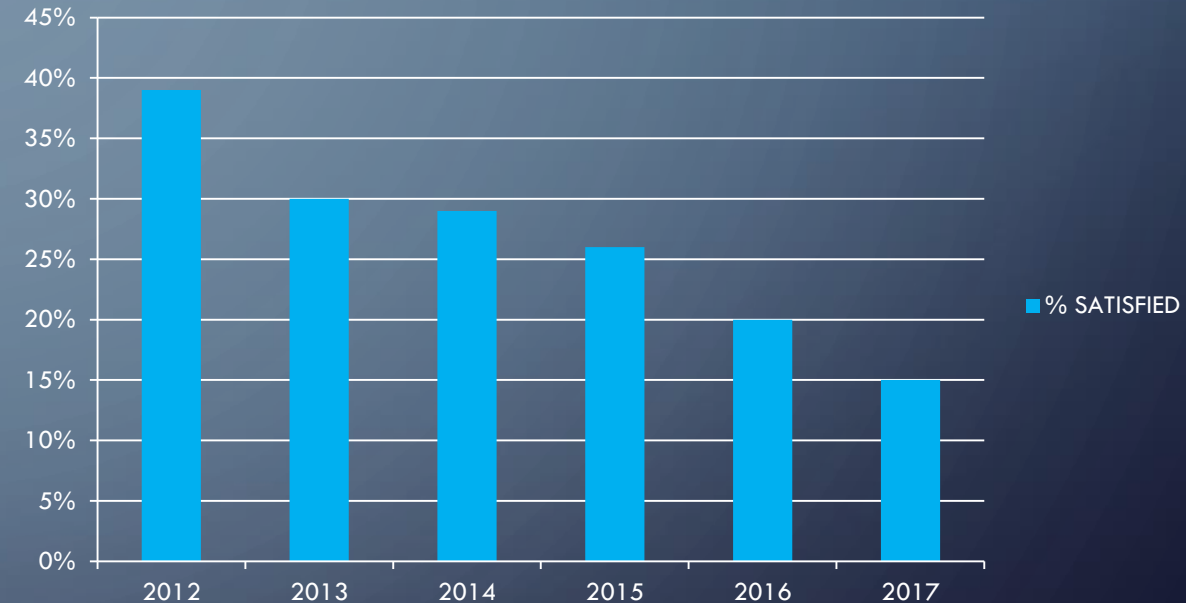
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K KITTELSON
& ASSOCIATES

RESEARCH INCLUDES

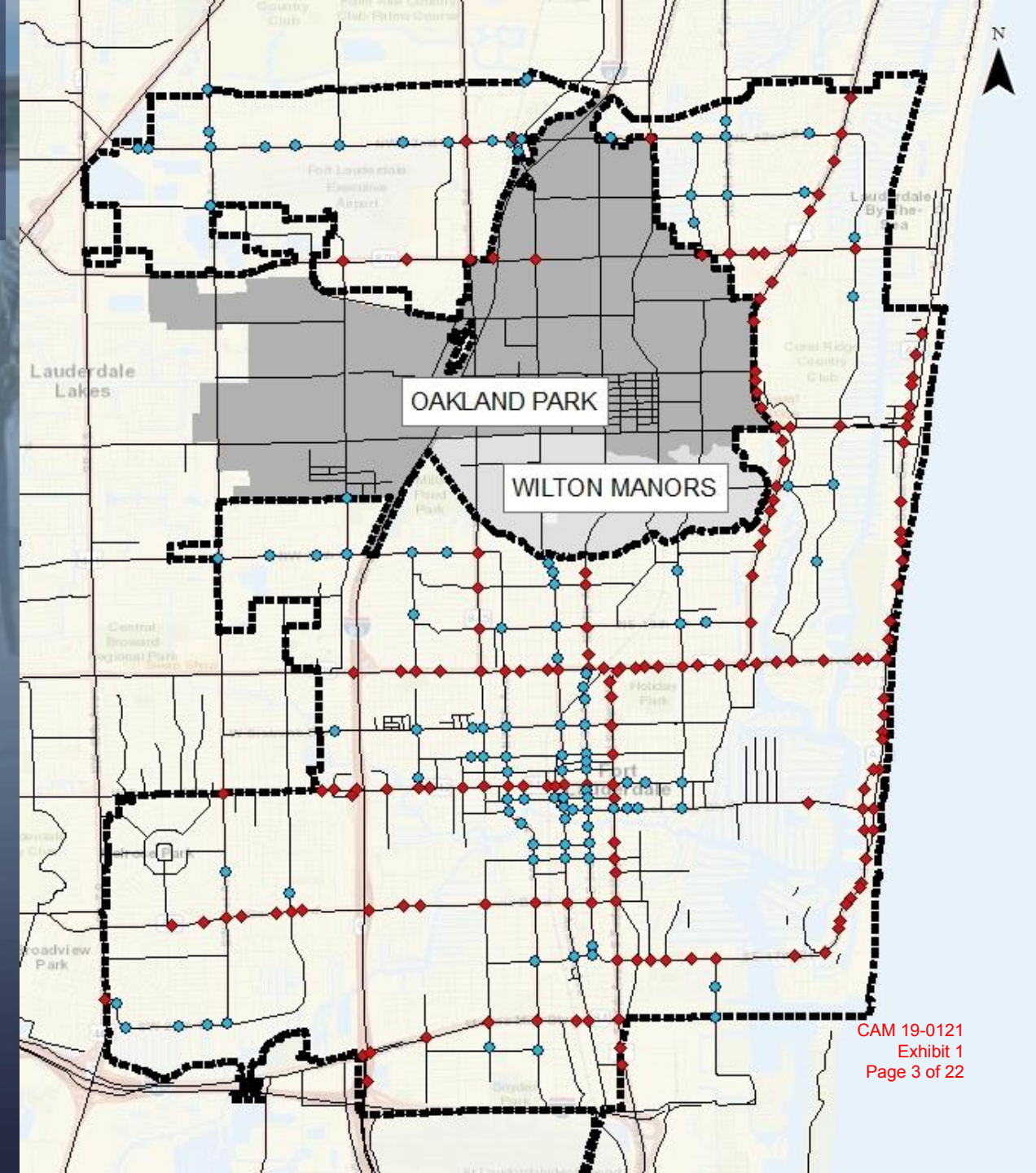
- FORT LAUDERDALE NEIGHBOR SURVEY RESULTS: Satisfaction with Overall Flow of Traffic
 - (% includes Very Satisfied and Satisfied responses)
- Traffic System Survey- 72 questions to FDOT and Broward County Traffic Directors
 - Existing systems, staff, infrastructure, funding allocations, etc.
- Visited City of Boca Raton Traffic Management Center (TMC) and interviewed staff – took signals over from Palm Beach County 20 years ago.
- Toured Broward County TMC on separate occasions



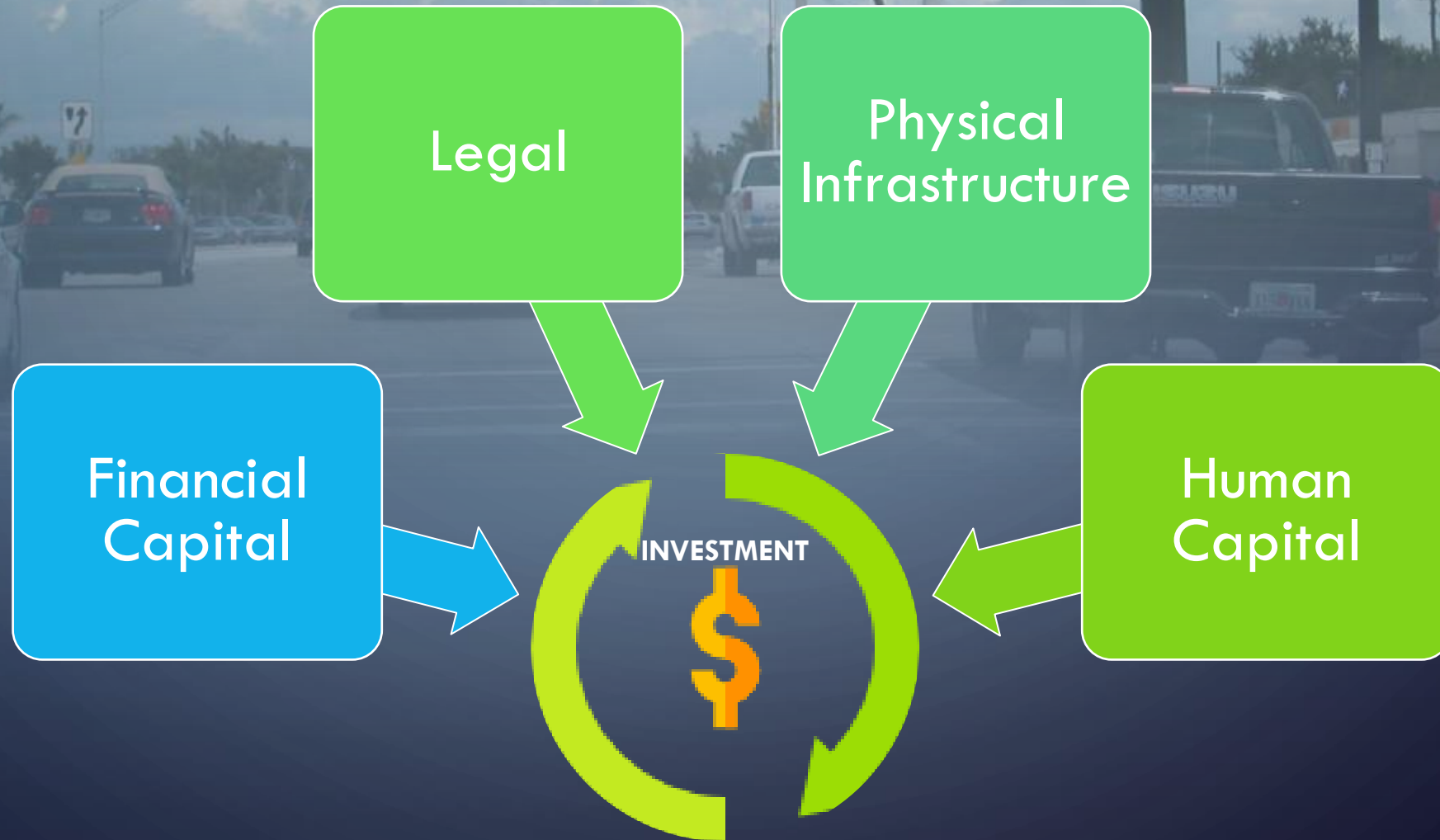
2019 TRAFFIC STATUS...

- System OPERATED by BROWARD COUNTY
 - City currently has limited influence
 - Urban context requires unique considerations
 - 280 Traffic Signals plus 200+/- School Flashers

- ◆ Florida DOT Owned
- Broward County Owned



SIGNAL SYSTEM INVESTMENT NEEDS



SCENARIO OVERVIEW



Scenario 1: Limited Control

City Staff at Broward Traffic Control Center (TMC) to find signal timing opportunities and work with County to implement



Scenario 2: Moderate Control

City takes over the maintenance and operations of signals within City Limits (County/FDOT own system)



Scenario 3: Full Control

City take full ownership of entire traffic system

SCENARIO ELEMENTS

	Limited Control	Moderate Control	Full Control
	City Staff at TMC	City Maintains & Operates Entire System	City takes ownership of System/Full Control
City Staff in Broward TMC to find signal timing opportunities	●	●	●
Ability to request signal timing	●		
Ability to change signal timing		●	●
Ability to change intersection geometry (add lanes, roundabouts, etc)			●
Possible to receive state/federal funding		●	●
Quick implementation of field changes/repair/upgrade		●	●
Ability to implement NEW Technologies			●

SCENARIO COST DETAILS

	Limited Control	Moderate Control	Full Control
	City Staff at TMC	City Maintains & Operates Entire System	City takes ownership of System/Full Control
Estimated Start Up Costs to Implement (Employees, Facilities, Equipment)	\$1M - \$3M	\$3M - \$10M	\$20M - \$60M*
Estimated Number of Employees	3	6 - 10	20 - 30
Estimated Annual Maintenance & Operations Costs	\$1M - \$2M	\$2M - \$10M	\$15M - \$30M
Estimated Annual Extra Costs for Technology Upgrades	\$0	\$5M	\$5M
Estimated Annual NEW Technology Program	N/A	N/A	\$2.5M
Estimated Time for Legal Agreements	6 M - 1 YR	2 - 5 YR	2 - 5 YR
Estimated Time to Full Implementation	1 YR - 2 YR	3 - 7 YR	3 - 7 YR

* - UP TO 5 YEARS FOR CAPITAL PROGRAMMING AND PLANNING

TECHNOLOGY ENHANCEMENT OPPORTUNITIES



	Example	System Planning and Expansion / Long Term Operations	Pilot Planning and Engineering / Implementation
Emergency Services	Smart Preemption	\$1M – \$3M \$75k / year	\$50k – \$75k \$15k / int + \$10k / vehicle
Crossings	Connected Crossing to Traffic Signal System	\$2M – \$5M+ \$100k / year	\$150k – \$200k \$50k – \$100k / crossing
Freight	Freight Priority	\$3M – \$6M+ \$100k+ / year	\$200k – \$400k \$500k – \$1M
Transit Systems	Priority, Queue Jumps	\$1.5M – \$4M \$100k / year	\$100k – \$200k \$20k / int + \$10k / bus
Pedestrian / Bicycle	Pedestrian Detection, Roadway Improvements	\$500k – \$2.5M \$50k / year	\$25k – \$50k \$50k – \$100k / intersection

CHALLENGES:

- **What liability will the City incur in each Scenario?**
- **What type of regional funding would be available to support City investment in Technology/Synchronization?**
- **Would City need additional resources for coordination with Broward County for areas on edge, Oakland Park, Wilton Manors?**

VALUE TO CITY...

- **To serve our Urban Core/City needs:** Traffic synchronization, Bridge openings, RR Coordination, Fire/EMS/Fire Response, Freight/Goods, Urban Multi-modal
- **Invest in resources to define our voice:** Dedicated staff and resources will increase the ability to implement change and dictate movement of people and goods.
- **Use our voice to lead innovation and collaboration:** Implement technology to lead region in movement of traffic



RECOMMENDATIONS

- Begin with Scenario 1 (Limited Control)
 - Initiate work flow with County and FDOT within the City
 - Assess priorities, opportunities, and barriers
- Bi-annual progress reports
 - Define performance measures and objectives
- Modify approach pending results

BACKGROUND

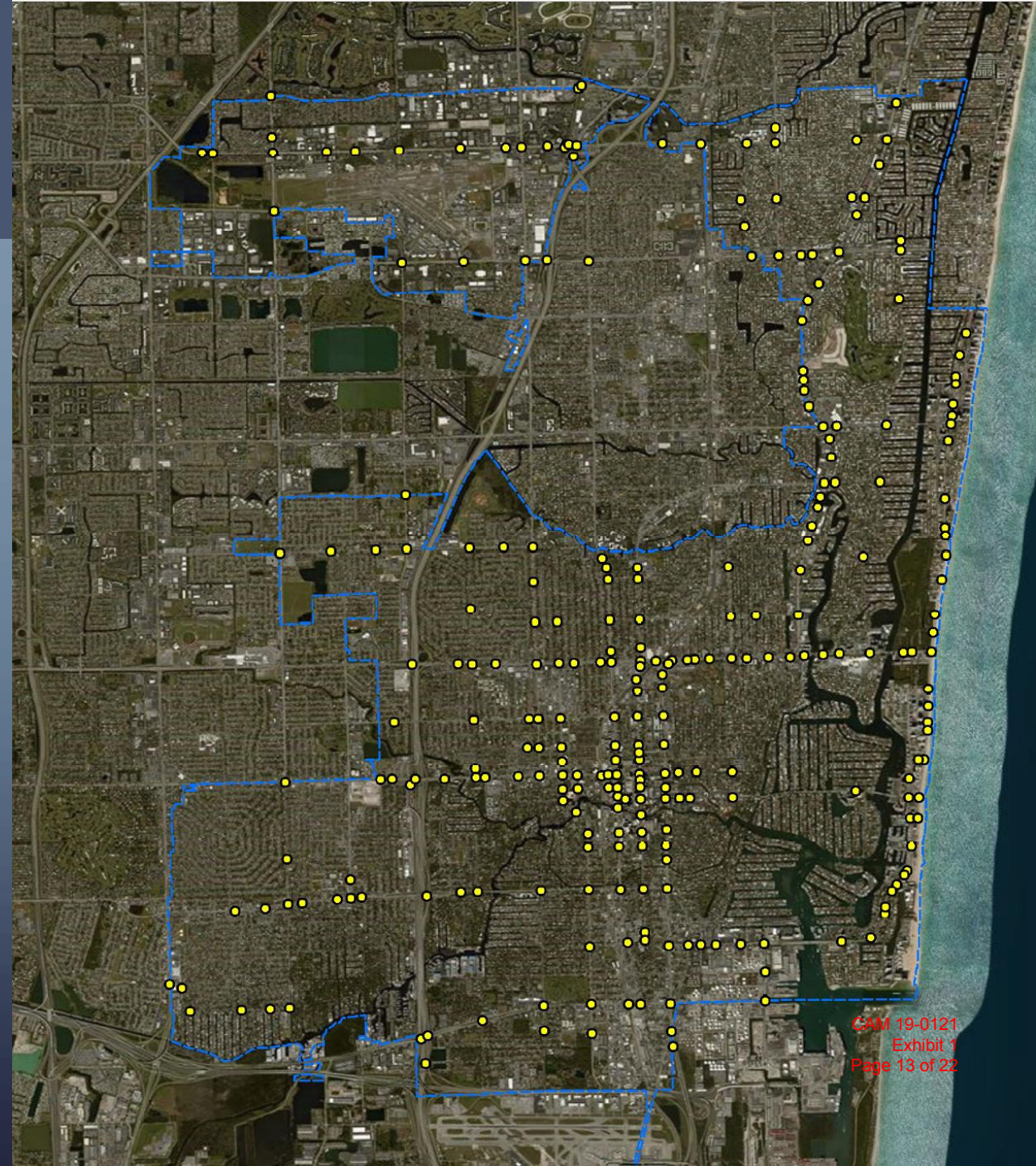
ALL TRAFFIC SIGNALS

- Approximately 280 traffic signals (various types)

*** not including school system flashers*

**** not including Oakland Park and Wilton Manor traffic signals*

- Estimated value of \$60 million in infrastructure assets

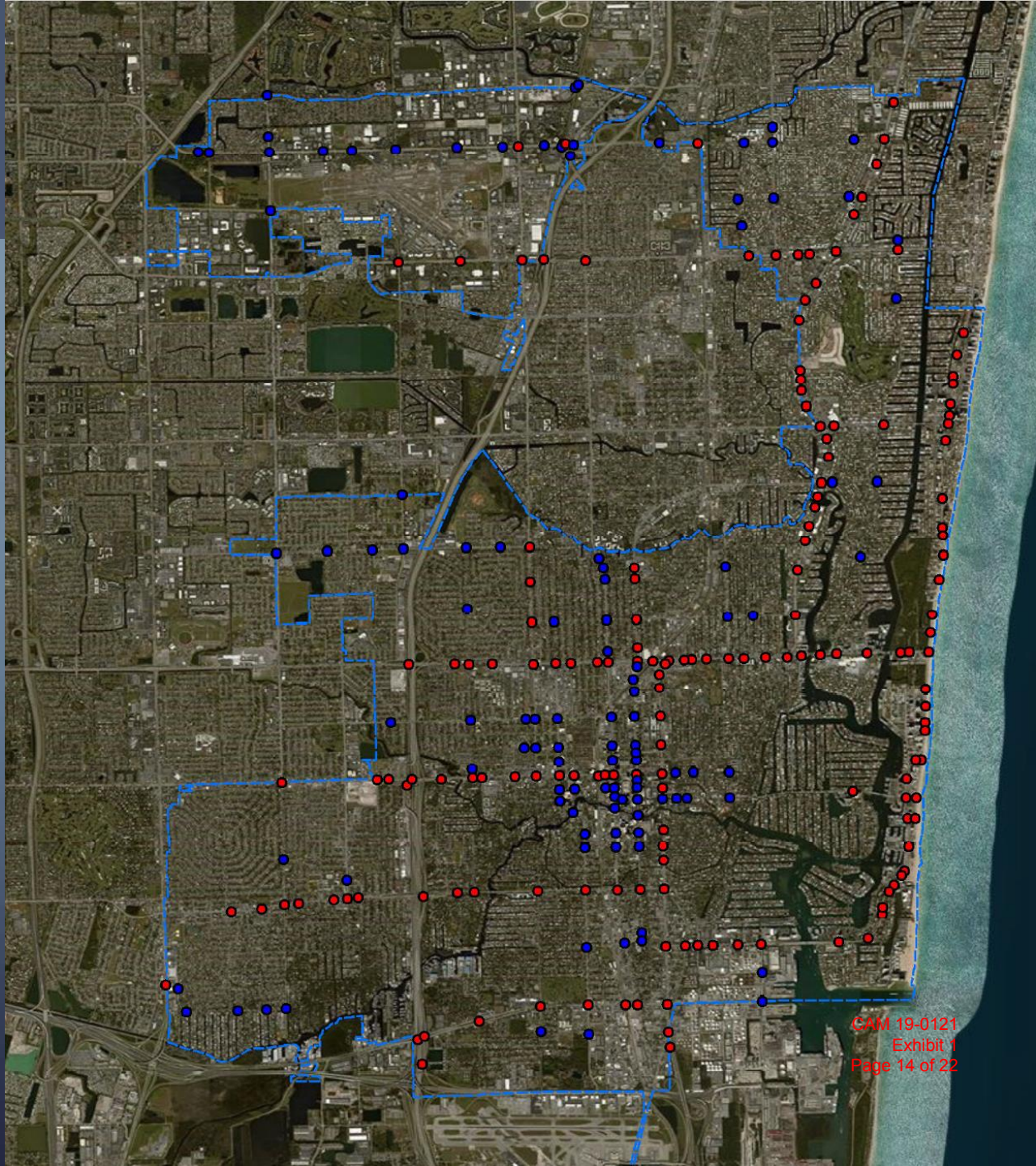


SIGNAL OWNERSHIP

- Florida DOT Owned
- Broward County Owned

**** not including Oakland Park and Wilton Manor traffic signals*

- Estimated \$5M-\$6M annual operation/maintenance budget

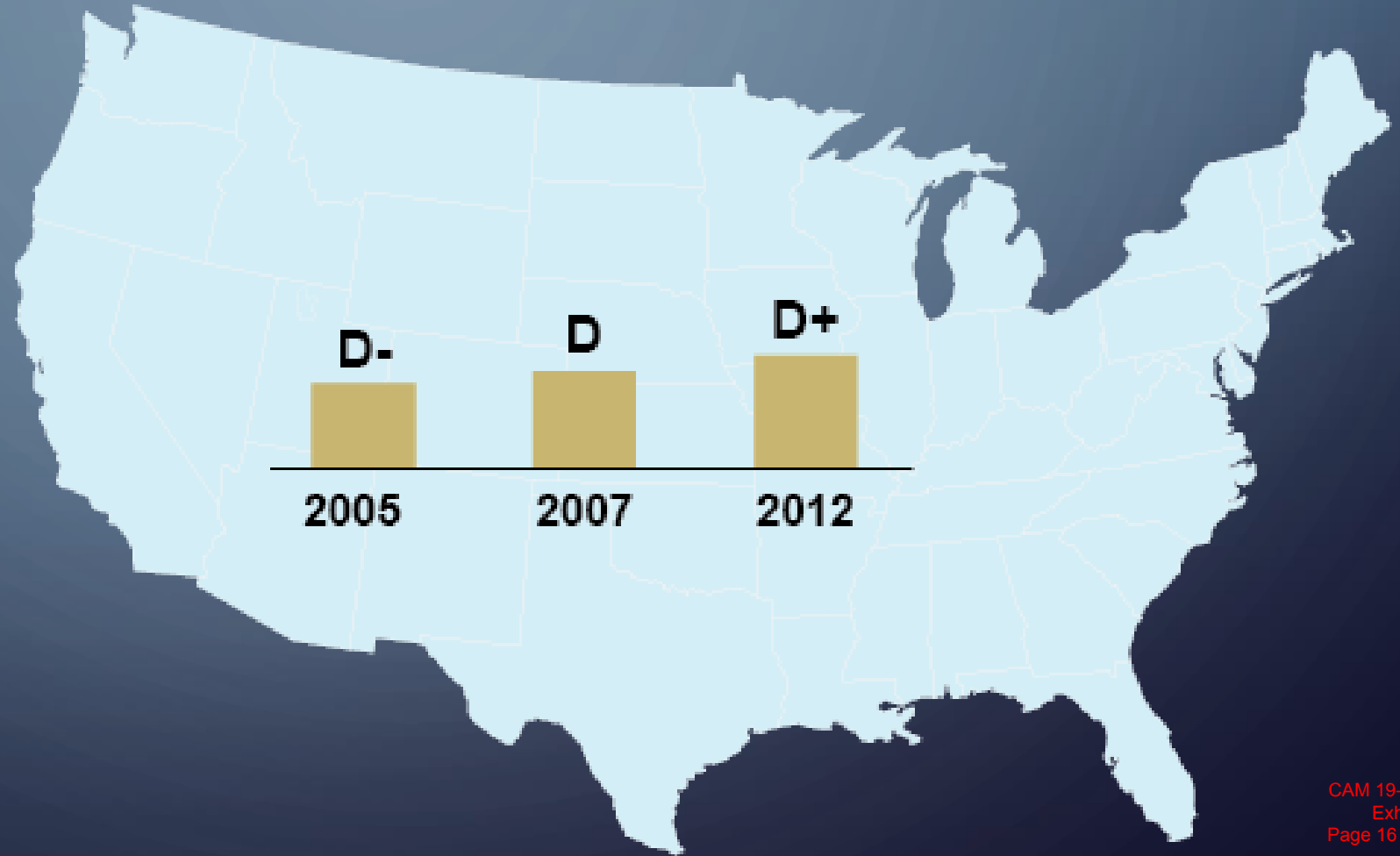


OPERATIONAL INITIATIVES

- Initiate user-based priorities that will vary by area and corridor
 - Flexibility in managing mobility for everyone
 - Flexibility for the future as our City grows
- Leverage technologies
 - Maximize existing capabilities
 - Expand for future readiness
- Engage partners
 - Business
 - Safety
 - Health
 - Environment

TRAFFIC SIGNAL STATE OF PRACTICE: NATIONAL PERSPECTIVE

- Common challenges
 - Management
 - Performance
 - Maintenance
 - Technology



CAPABILITY MATURITY

- Capability Maturity (CM) Assessment is a tool to assess government agency efficiencies and effectiveness
- CM is directly correlated to long term growth and innovation
 - Lower capabilities result in status quo and reactive management
 - Higher capabilities encourage proactive and planned management



FLORIDA CAPABILITY MATURITY

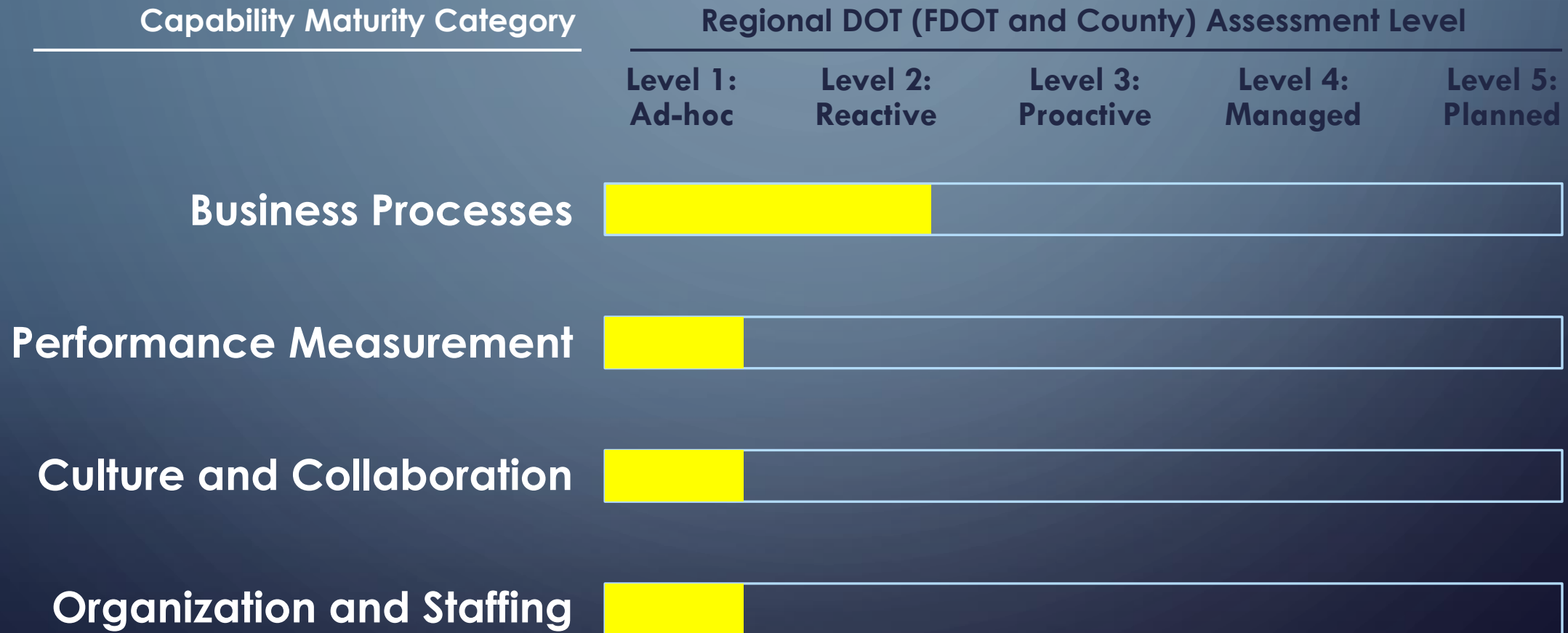
- Federal Highway Administration and Florida DOT conducted capability assessments in past 5 years
- FDOT completed assessment for major areas for 2017 Transportation System Management & Operations Plan
 - Arterial Management based on FDOT priorities
- Regional transportation partners completed assessment in 2012
 - Rated mostly “Level 1 (Ad hoc)” and “Level 2 (Reactive)”



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Source: 2017 FDOT TSMO Plan

CAPABILITY MATURITY: REGIONAL SIGNAL OPERATIONS



SCENARIO 1: EXAMPLE



- Florida Department of Transportation
 - Defers asset management to local agency after construction
 - Provides opportunities for supplemental funding and resources

SCENARIO 2: EXAMPLE



- Broward County
 - FDOT owns all traffic signals on state facilities and provides supplemental funding beyond construction
 - Approximately \$2-\$3 million annually provided to County (about half of County budget)
- County manages, operates, and maintains after traffic signal construction

SCENARIO 3: EXAMPLE



- City of Boca Raton
 - 138 signals (+ lighting)
 - Traffic signals related staff
 - 9 planners/engineers + 9 technicians
 - Estimated \$4-\$5.5 million annual budget
- Programmatic management
 - Internal agency collaboration
 - Coordination with Palm Beach County
 - Leveraging technologies and innovation