

Independent Transportation Surtax Oversight Board Regular Meeting

January 28, 2022

9:30 AM

Welcome and Roll Call

- Chair, Alan Hooper-- Call to Order
- Administrative Specialist, Roy Burnett – Roll Call

REGULAR AGENDA OVERVIEW

Action Item(s) Anyone wishing to speak on an Action Item must pre-register at: [Register To Speak](#) **PRIOR** to the Chair moving into discussion of that Item. A member of the public wishing to address the Oversight Board on an Action Item will have two minutes.

1. **Motion to Approve** Minutes of the November 19, 2021 Oversight Board Meeting

2. **Motion to Approve** the Town of Southwest Ranches’ (“Town”) request to convert funding in the amount of \$5,160 allocated in FY2020 (Cycle 1) from the Design-phase to the Construction-phase of project number SWRA-022. The cost-estimate for all phases of the project is not-to-exceed \$43,000 based upon documentation that the Town submitted to the MPO. As a result of receiving in-kind design services from the South Broward Drainage District, the Town submitted a formal request to MAP Administration, to convert the FY2020 (Cycle 1) Design-phase funds in the amount of \$5,160 to the Construction phase and utilize up to \$43,000, based upon the cost estimate that the Town submitted to the MPO, for construction of the project. SWR-022 is ranked 84 and funding for the construction phase is not included in the current Five-Year Plan. **SWRA-022: Drainage Project: Green Meadows** – includes drainage improvements to significantly reduce roadway flooding during heavy rainfall events (**Exhibit 1**- SWR Conversion Request Documentation).

3. **Motion to Approve** Five-Year Plan Adjustments FY2022-2026

Five-Year Plan FY2022-2026 Proposed Adjustments

Oversight Board Presentation

Adjustments to the Five-Year Plan

- Adjustments to any Five-Year Plan are governed by the 2nd Amendment and Restatement to the global ILA (ILA), Sec. V.C.4, consistent with the factors outlined in Sec. V.C.2 and Sec. V.D
- Sec. V.C.2 lists the following considerations that can be used when developing Five-Year Plans

- (a) The MPO's funding recommendations in FY2020 and for subsequent Fiscal Years up to the MAG;
- (b) The County Administrator's annual budget recommendations published by the County in approximately July of each year;
- (c) The Oversight Board's consideration as to statutory eligibility for funding with Transportation Surtax Proceeds pursuant to Section 212.055(1), Florida Statutes;
- (d) Available Transportation Surtax Proceeds;
- (e) Revenue and economic forecasts and analysis;
- (f) Corridor delivery modeling with an aim to achieve responsible and efficient use of Transportation Surtax Proceeds and the mitigation of potential or actual disruption to residents and businesses;
- (g) Requests from Municipalities to reschedule, modify, or combine projects;
- (h) Construction-readiness of each Transportation Surtax Project;
- (i) The ability to leverage state and/or federal funding; and
- (j) Other factors the MAP Administration or the County Commission deems relevant.

Adjustments to the Five-Year Plan (*cont.*)

- Sec. V.D limits the ability for the Five-Year Plan to be adjusted, as follows:

D. The County's Limited Discretion to Fund Municipal Capital Projects Other Than as Ranked by the MPO within the MAG Funding Recommendations. The Parties agree and stipulate that the County may deviate from the MPO's ranking to accelerate or subordinate funding of an MCP within the MAG for the applicable Fiscal Year only when necessary to ensure Transportation Surtax Proceeds are utilized legally, responsibly, efficiently, and with the least disruption to residents and businesses, in the circumstances set forth herein. The County's deviation from the MPO's ranking order in one Fiscal Year shall not modify the order of priority for funding MCPs in any subsequent Fiscal Year. **If the County uses its limited discretion as defined in this section in any Fiscal Year, it shall provide written notice to the impacted Municipality(ies) of such deviation and the reason(s) for such deviation and commit to fund any subordinated MCP within a reasonably prompt time frame once the reason(s) for the deviation as stated in the County's written notice are resolved, subject to the availability of funds within the MAG.** The circumstances under which the County may exercise its limited discretion pursuant to this section are limited to the following:

1. Demonstrated need, documented in writing, to coordinate the construction timeline of the applicable MCP(s) and the timing of other projects that affect the same or nearby transportation elements to avoid waste;
2. The MCP is scheduled for construction funding for that Fiscal Year but is not construction-ready for any of the following reasons:
 - (a) The Municipality does not have 100% complete, signed, sealed, design plans and required construction documents for the project;
 - (b) The Municipality has not obtained the written approval necessary to construct the project from the owner(s) of the impacted road(s);
 - (c) Right-of-way required to construct the project has not been acquired;
 - (d) The construction cost estimate is ten percent (10%) higher than the construction cost estimate proposed by the Municipality in its application for funding (after factoring in reasonable inflation);
 - (e) The permits required to construct the project have not been obtained;

A Workshop was held on January 20th with municipalities, the MPO and the Whitehouse Group (Surtax Services Consultant) to review the proposed changes and engage in Q&A

Written notice, as required by the Section, was provided to affected municipalities (Pompano Beach, Deerfield Beach, Weston, North Lauderdale, Southwest Ranches, and Dania Beach) on January 20th

Why are Adjustments Needed?

- Since the presentation of the detailed Five-Year Plan to the Oversight Board in August 2021 and the adoption of the County's FY2022 Capital Budget, MCPs were formally withdrawn by sponsoring municipalities
- The impact of withdrawn MCPs on FY 2022 is currently \$1,680,000; total impact on the Five-Year Plan is \$7.84M
- Three MCPs currently in Design-phase will likely be construction-ready in FY 2022 (those projects were outside Five-Year Plan); those municipal sponsors requested to be brought into FY2022 (triggering a readiness eval by MPO); Sec. V.C.5 of the ILA does not allow those projects to move into Construction and seek reimbursement unless in Five-Year Plan
- 2 projects programmed for Construction-phase funding in FY2022 will not be ready until FY2023 based on design schedule

Five-Year Plan FY2022-2026 Proposed Adjustments (1.20.2022)

RANK	MUNICIPALITY	PROJECT ID	5YP PHASE(S)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total 5YP	>5YP
18	Pembroke Park	PPRK-002	Construction	\$1,272,115					\$1,272,115	
34-37	Miramar	MIRA-001	Construction		\$10,000,000	\$10,000,000	\$10,000,000	\$11,000,000	\$41,000,000	> \$11,000,000
38 & 88	Fort Lauderdale	FORT-108	Design & Construction	\$780,000	\$2,762,500	\$2,762,500			\$6,305,000	no change
40	Coral Springs	CORA-097	Design & Construction	\$250,000	\$9,450,000	\$250,000	\$9,450,000		\$19,400,000	no change; deemed ineligible, not formally withdrawn
42	Pompano Beach	POMP-002	Construction	\$10,938,400		\$10,938,400			\$21,876,800	converted design to construction in 3/21
46	Pembroke Pines	PPIN-039	Design & Construction	\$531,750		\$3,766,563			\$4,298,313	construction funding moved out one year based on projected readiness
48	Lauderdale Lakes	LLAK-006	Design & Construction	\$102,000		\$722,500			\$824,500	construction funding moved out one year based on projected readiness
49	Wilton Manors	WILT-009	Design & Construction	\$720,000			\$5,100,000		\$5,820,000	construction funding moved out two years based on projected readiness
50	Sunrise	SUNR-055	Construction			\$3,960,000			\$3,960,000	no change; always programmed in 2024 per Sec. V.D.1
53	Weston	WEST-303	Construction		\$4,312,000				\$4,312,000	design schedule indicates Construction-phase in FY2023
54	Deerfield Beach	DEER-007	Construction		\$3,520,000				\$3,520,000	design schedule indicates Construction-phase in FY2023
56	Tamarac	TAMA-008	Design & Construction	\$540,000			\$3,825,000		\$4,365,000	construction funding moved out two years based on projected readiness
57	Lighthouse Point	LHP-010	Design & Construction	\$60,000			\$425,000		\$485,000	construction funding moved out two years based on projected readiness
58	North Lauderdale	NLAU-007.2	Construction	\$2,641,596					\$2,641,596	no change
61	Margate	MARG-002	Construction	\$153,120					\$153,120	previously programmed in FY2023; moving up to 2022 b/c w/in MAG
63	Fort Lauderdale	FORT-104	Construction	\$2,640,000					\$2,640,000	previously programmed in FY2023; moving up to 2022 b/c w/in MAG; deemed ineligible, not withdrawn
65	Coral Springs	CORA-098	Design & Construction			\$250,000	\$9,450,000		\$9,700,000	no change; deemed ineligible, but not formally withdrawn
66	Hollywood	HOLL-038	Design & Construction			\$600,000	\$4,250,000		\$4,850,000	no change
67	Miramar	MIRA-020	Construction		\$1,056,000				\$1,056,000	construction moving up one year
68	Lauderdale Lakes	LLAK-016	Design & Construction		\$60,000		\$425,000		\$485,000	construction moving up one year
69 & 91	Sunrise	SUNR-075&SUNR-61	Construction		\$2,860,000			\$5,280,000	\$8,140,000	2nd phase of bundled project construction funding moving into 2026 (was outside 5YP)
71	Davie	DAVI-012	Construction			\$1,760,000			\$1,760,000	no change
73	Wilton Manors	WILT-003	Construction		\$2,082,495				\$2,082,495	construction funding moving into 2023 based on readiness of design
74	West Park	WPRK-003	Construction			\$3,644,366			\$3,644,366	construction funding moving into 2024
75 & 98	Weston	WEST-192&WEST-193	Construction			\$291,549			\$291,549	\$2,800,000 MPO recommended \$291,549 for funding in 2026; may require additional assessment in next 5YP
76	Pembroke Park	WPRK-009	Construction			\$1,249,497			\$1,249,497	construction funding moves into 2024
81&103	Cooper City	COOP-024&COOP-042	Construction		\$2,112,000		\$1,408,000		\$3,520,000	2nd phase of construction phase funding of bundle moves out based on readiness per city
77&101	Deerfield Beach	DEER-005&DEER-006	Construction		\$2,500,000				\$2,500,000	readiness review conducted by MPO indicates project will be construction-ready in 2023 (was outside 5YP)
78	Lighthouse Point	LHP-009	Design & Construction		\$120,000		\$850,000		\$970,000	readiness review completed by MPO; construction phase funding moves into 2025 (was outside 5YP)
80	North Lauderdale	NLAU-008	Construction	\$2,640,000					\$2,640,000	readiness review conducted by MPO indicates project likely construction-ready in FY2022
82	Parkland	PARK-002	Construction	\$2,600,000					\$2,600,000	project is part of coordinated delivery (per V.D.1) and blended construction funding; FDOT production date 5/2022
83	Margate	MARG-047	Construction				\$880,000		\$880,000	readiness review conducted by MPO; construction phase funding moves into FY2025 (was outside 5YP)
84	Southwest Ranches	SWRA-022	Construction	\$43,000					\$43,000	readiness review conducted by MPO indicates project will be construction-ready in 2022 (was outside 5YP)
87	Dania Beach	DANI-017	Construction	\$6,346,560					\$6,346,560	readiness review conducted by MPO indicates project will be construction-ready in 2022 (was outside 5YP)
89	Coral Springs	CORA-102	Construction					\$330,000	\$330,000	project moves into 2026 to meet MAG requirement
90	Miramar	MIRA-025	Construction					\$1,848,000	\$1,848,000	project moves into 2026 to meet MAG requirement
93	Lauderdale Lakes	LLAK-018	Construction					\$880,000	\$880,000	project moves into 2026 to meet MAG requirement
94	Hallandale Beach	HALL-019	Construction					\$1,320,000	\$1,320,000	project moves into 2026 to meet MAG requirement
95	Davie	DAVI-014	Construction					\$2,464,000	\$2,464,000	project moves into FY2026
96	Coconut Creek	COCO-016	Construction				\$2,424,400		\$2,424,400	project moves into FY2025 based on projected readiness; funded above MAG
97	West Park	WPRK-008	Construction				\$1,760,000		\$1,760,000	project moves into FY2025 based on projected readiness; funded above MAG
99	Pompano Beach	POMP-013	Construction					\$5,217,316	\$5,217,316	project moves into FY2026
102	Pembroke Park	PPRK-008	Construction					\$660,000	\$660,000	project moves into FY2026
105	Lighthouse Point	LHP-011	Design & Construction				\$90,000	\$637,500	\$727,500	project moves into FY2026
106	Parkland	PARK-007	Construction					\$528,000	\$528,000	design moves into FY 2025; construction moves into FY2026
107	Margate	MARG-033	Construction					\$200,000	\$200,000	project moves into FY2026; deemed ineligible, not formally withdrawn
109	Hollywood	HOLL-056	Construction					\$733,333	\$733,333	project moves into FY2026

Projects moved to the future based on readiness
 Projects moved ahead of schedule due to readiness

Other notes:

Projects ranked #39, 41, 43, 44, 47, 51, 52 were fully-funded in FY2021. #55 was deemed ineligible in Cycle 1. #64 was Planning-phase only (funded in FY2020). #70 was deferred at city's request (never reviewed). #72 was removed from Cycle 1 at city's request. #79 was deferred by the city (Cycle 1); #82 was formally withdrawn; #85 is planning-phase only (funded in FY2020); #86 was formally withdrawn by the city; #88 is bundled with #38; #91 was bundled with #69; #92 was deferred in Cycle 1 (never reviewed); #98 is bundled with #75; #100 was deferred at city's request (never reviewed); #103 is bundled with #81; #104 removed from Cycle 1 consideration at city's request; #108 removed at the city's request.

Projects deemed ineligible, but not formally withdrawn, are not calculated in the "Total 5YP" value
 \$30+M in deferred MCPs from Cycle 1 are not captured in this exercise

Financial Impact of Proposed Adjustments*

	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total 5YP
Plan's Total MCPs	\$29,368,541	\$31,384,995	\$39,695,375	\$31,437,400	\$30,898,149	\$162,784,459
Community Shuttles	\$14,973,140	\$15,097,890	\$15,550,830	\$18,006,130	\$18,546,300	\$82,174,290
Plan's Total MCP and CS	\$44,341,681	\$46,482,885	\$55,246,205	\$49,443,530	\$49,444,449	\$244,958,749
Estimated MAG	\$34,258,179	\$35,183,150	\$36,133,095	\$37,108,689	\$38,110,620	\$180,793,733
Plan funding over MAG	\$10,083,502	\$11,299,735	\$19,113,110	\$12,334,841	\$11,333,829	\$64,165,016
Budgeted MCPs	\$30,654,340	\$31,471,190	\$32,309,780	\$33,170,670	\$19,564,320	\$147,170,300
Budgeted CS	\$14,973,140	\$15,097,890	\$15,550,830	\$18,006,130	\$18,546,300	\$82,174,290
Budgeted MCP and CS	\$45,627,480	\$46,569,080	\$47,860,610	\$51,176,800	\$38,110,620	\$229,344,590
Budgeted vs Planned	\$1,285,799	\$86,195	(\$7,385,595)	\$1,733,270	(\$11,333,829)	(\$9,062,029)
Plan's Previous Year Balance	\$6,552,130	\$7,924,124	\$538,530	\$2,271,800	(\$9,062,029)	

\$1,124,019 more than the \$161,660,440 included in the Five-Year Plan acted upon by the OB in August 2021, but \$9,062,029 more than the current adopted Capital Budget allocation of \$147,170,300 for MCPs. The upcoming FY23-27 budget will include revised revenue projections (upward).

Assumes \$2,890,000 of ineligible projects are withdrawn

Assumes \$9,450,000 of ineligible projects are withdrawn

Assumes \$500,000 of ineligible projects are withdrawn

Assumes \$18,900,000 of ineligible projects are withdrawn

Assumes \$200,000 of ineligible projects are withdrawn

Assumes \$31,940,000 of ineligible projects are withdrawn

Should ineligible projects be brought into eligible status, this Five-Year Plan would be adjusted

*Based on best available information as of January 20, 2021

Discussion? Q&A

Action on Five-Year Plan Adjustments

- Surtax Legal Counsel - Eligibility Recommendation(s)
- Motion to Approve

Presentations

Traffic System Management

Mr. Scott Brunner, Director, Traffic Engineering Division

*(Mr. Mark Plass, FDOT, District 4, TSM&O is participating and available for Q&A/
discussion)*



Broward's Advanced Signal Control System

*Moving forward into
the future*

Signal system technology is finally evolving quickly now, and in many directions...



So where are we headed?



Creating an advanced signal system that will support, enhance and improve the performance of:

- Commuter travel time and travel time reliability
- Surface bus transit operations
- School zone, pedestrian, and bike operations and safety
- Rail crossing operations
- Fire-rescue operations & incident management



Creating an advanced signal system that will also support new and emerging technologies:

- Connected vehicle technologies
- Autonomous vehicle technologies
- Integrated smart city technologies



Several Initiatives:



- Adaptive Traffic Signal Control (ATSC)
- Connected Vehicle (CV) Deployments
- Transit Signal Priority (TSP) and Fire-Rescue Preemption
- Automated Traffic Signal Performance Measures (ATSC)
- Advanced Differential Bike Detection
- Advanced Intersection Sensor Deployments
- TSM&O Partnership with FDOT & MPO

ATSC Initiative

Conventional Signal Timing Shortfalls



- No “machine learning” or “artificial intelligence.”
- Uses pre-programmed set of timing plans that are deployed for certain times of the day, and day of the week (known as “TOD” plans).
- Key parameters (cycle length, splits and offsets) are either fixed or relatively rigid within each TOD plan.
- TODs don’t respond well to unpredictable traffic demand.

ATSC Initiative

Conventional Signal Timing Shortfalls

- Good TOD plans require significant data collection, simulation modeling and field-refinement, which is very time consuming and resource-intensive.



ATSC Initiative

Conventional Signal Timing Shortfalls



- Humans are predictable (*except when they are driving*) and so the normal predictability of flow dynamics can fall apart due to roadside incidents, crashes, work zones, weather, railroad crossings, emergency vehicle preemptions, etc.



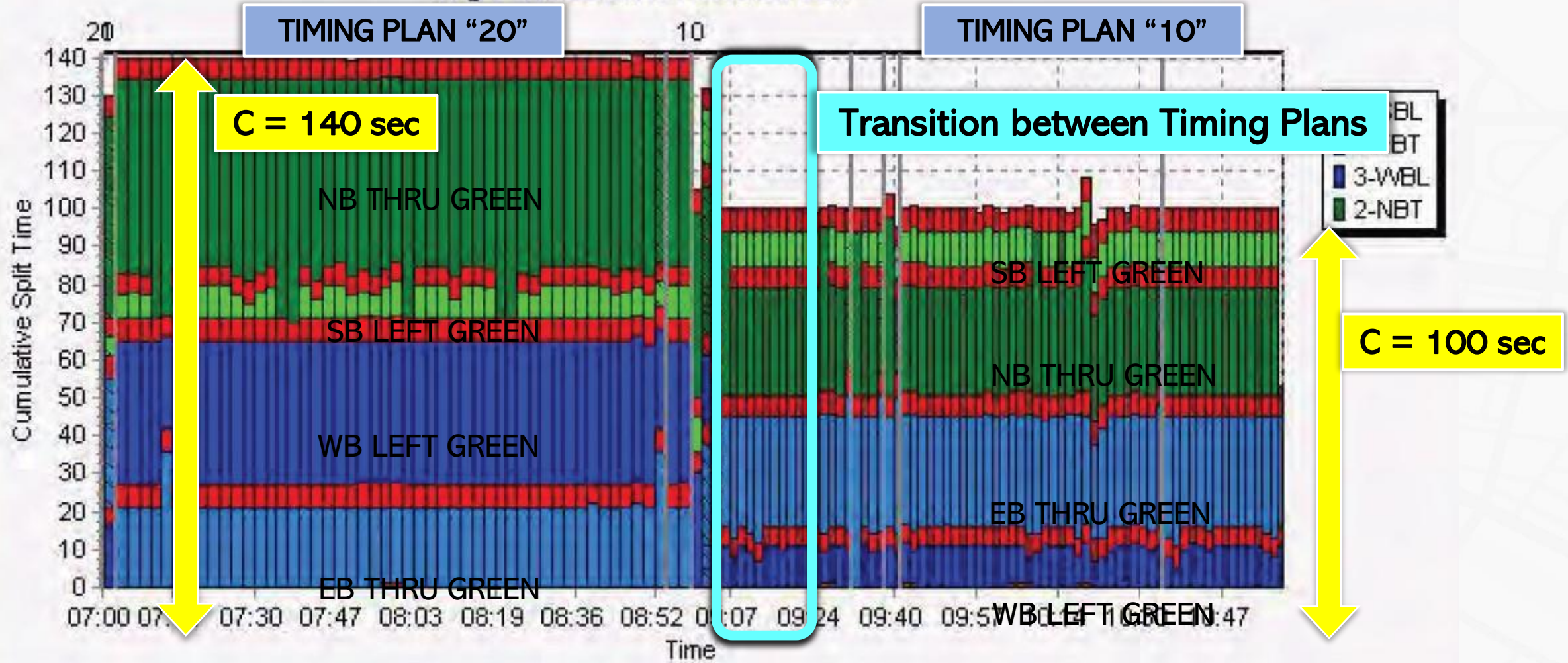
Potential Solution - Adaptive Control



- ATSC technology throws out the rigid parameters of TOD plans and allows the three key parameters to adjust in an amorphous manner based on real-time traffic demand.
 - Cycle lengths (time duration to complete all phases in sequence)
 - Splits (% green allocations for each movement)
 - Offsets (the time between when one signal turns green relative to the when the next signal turns green)
- If we equated TOD to classical music, then adaptive control could be considered jazz improvisation.

Conventional TOD Plans: Transition between Two Plans

Ring 1 Time Series of Phase Duration

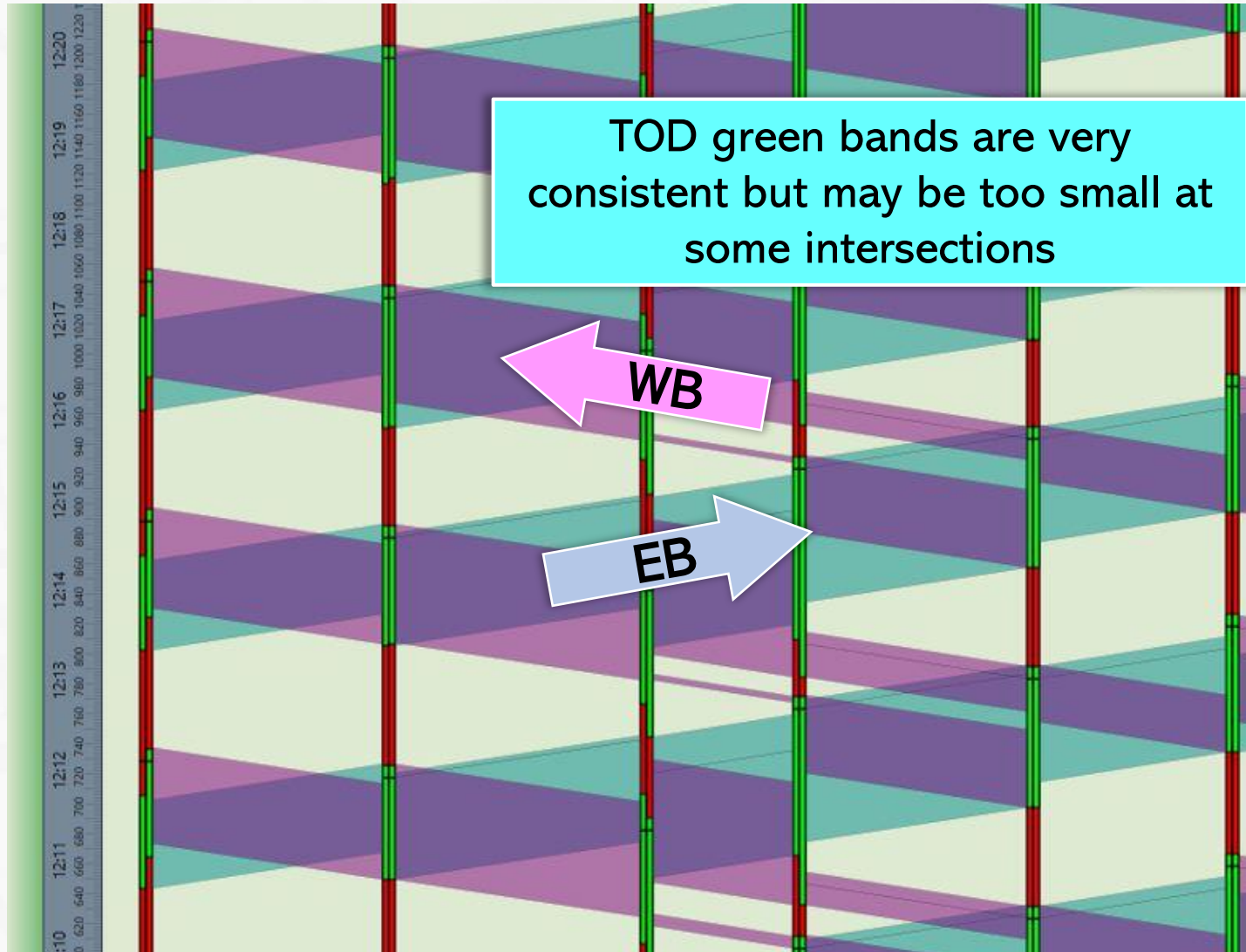


ATSC Initiative

TOD Plan (Not Adaptive)

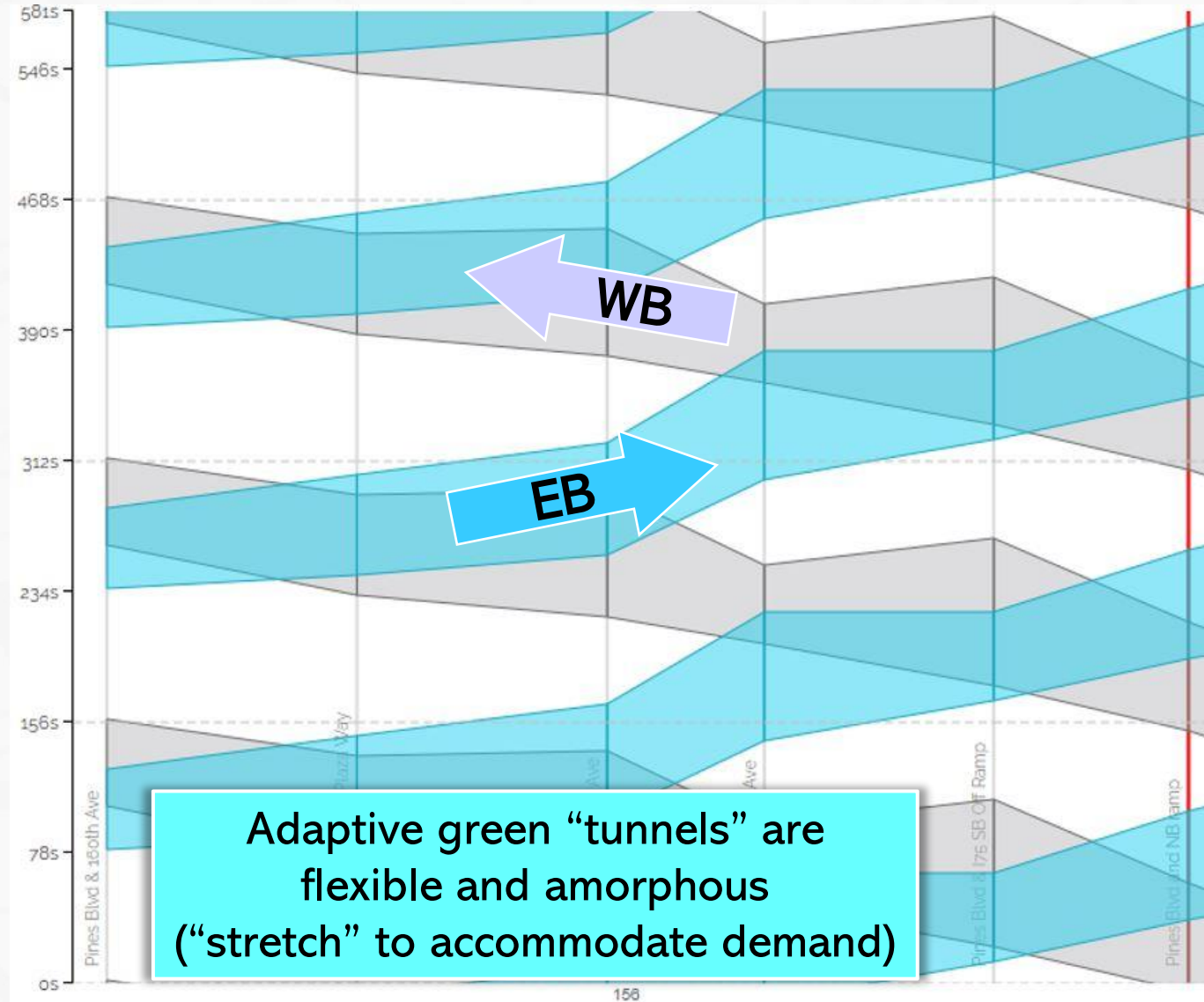
Pines Blvd
Near I-75
Midday Operation

↑
Time



ATSC Initiative

↑
Time



Adaptive Control

Pines Blvd Near I-75 Midday Operation

ATSC Initiative

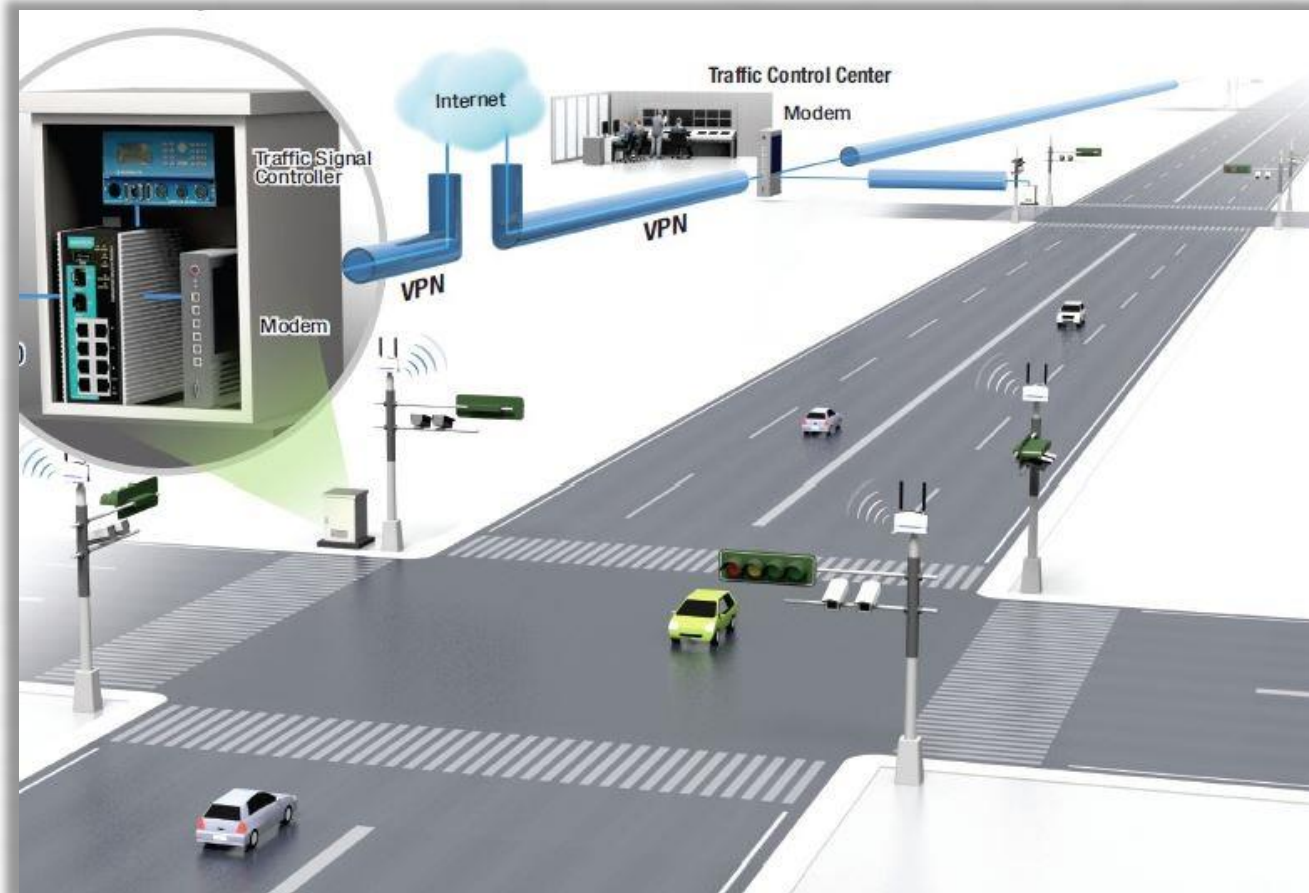
Adaptive Control - Benefits



- Continuously analyzes and redistributes green time in a more “equitable” fashion based on actual demand.
- More responsive to dramatic fluctuations in traffic conditions.
- Improves travel time reliability by creating “green tunnels” that expand and contract to achieve smoother flows.
- More effective in flushing out queues and restarting normal traffic flow resulting from railroad crossings, drawbridge openings, incidents, and special events.

ATSC Initiative

Adaptive Control – Key System Requirements



- Advanced optimization algorithms
- Substantial processing capability
- Extremely fast communications (fiber/ethernet)
- Robust vehicle detection
- Compatibility among components

ATSC Initiative

Adaptive Control – Two Categories



- Centralized Architecture:
 - All input data and adaptive analysis for all intersections are processed using a central processor.
 - After analysis is complete, the optimized adaptive timing solutions are sent to all the system intersection controllers in a command-and-control fashion (“mothership sending commands to its drones”)

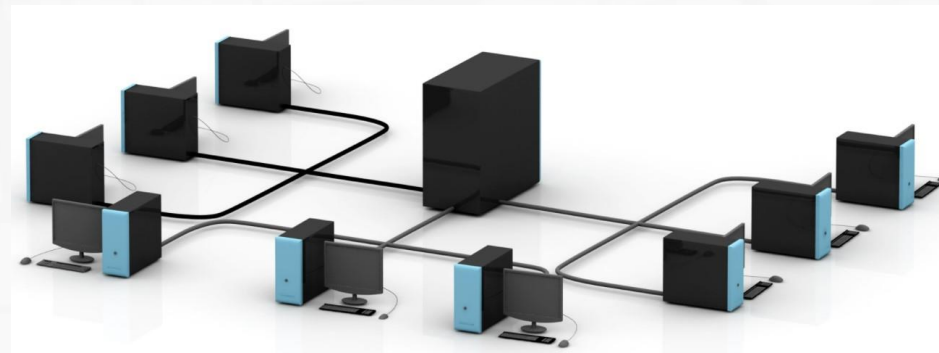


ATSC Initiative

Adaptive Control – Two Categories

- Distributed Architecture:

- Real-time analysis any algorithm processing is accomplished at each individual intersection controller.
- Data and analysis from each individual controller is shared with adjacent controllers to perform coordinated optimized implementation (“squadron-oriented mission”)



ATSC Initiative

Adaptive Control – System Selection



There are many systems in the adaptive control race, but they do not always play well together, and most don't have interchangeable parts.

Selecting one or more system(s) is a challenge for agencies due to many competitive factors.

Adaptive Systems – Critical Features Comparison

ATCS	ACDSS	ACS Lite	Centracs Adaptive	InSync	Intelight	Kadence	OPAC	PTV Balance	Quictrac	RHODES	SCATS	SCOOT	Synchro Green	Surtrac	UTOPIA
2070 ATC Compatible	✓	✓		✓	✓	✓				✓			✓	✓	
TSP Capable			✓	✓		✓			✓		✓	✓	✓	✓	
Pedestrian Priority			✓									✓	✓		
Trafficware ATMS.now Compatible	✓	✓	✓	✓					✓				✓	✓	
Grid System Capable	✓										✓	✓		✓	
Closed Loop Capable		✓		✓	✓		✓			✓		✓	✓	✓	
Central Network Preferred/Required			✓				✓	✓		✓	✓	✓	✓		✓
Central System Control			✓	✓			✓	✓		✓	✓	✓	✓		✓
Ethernet Networks Preferred	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

Adaptive Systems – Critical Features Comparison

ATCS	ACDSS	ACS Lite	Centracs Adaptive	InSync	Intelligent	Kadence	OPAC	PTV Balance	Quictrac	RHODES	SCATS	SCOOT	Synchro Green	Surtrac	UTOPIA
2070 ATC Compatible	✓	✓		✓	✓	✓				✓			✓	✓	
TSP Capable			✓	✓		✓			✓		✓	✓	✓	✓	
Pedestrian Priority			✓									✓	✓		
Trafficware ATMS.now Compatible	✓	✓	✓	✓					✓				✓	✓	
Grid System Capable	✓										✓	✓		✓	
Closed Loop Capable		✓		✓	✓		✓			✓		✓	✓	✓	
Central Network Preferred/Required			✓				✓	✓		✓	✓	✓	✓		✓
Central System Control			✓	✓			✓	✓		✓	✓	✓	✓		✓
Ethernet Networks Preferred	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

ATSC Initiative

Adaptive Systems – First Two Broward Deployments



ATCS	Synchro Green	InSync	Surtrac
2070 ATC Compatible	✓	✓	✓
TSP Capable	✓	✓	✓
Pedestrian Priority	✓		
Trafficware ATMS.now Compatible	✓	✓	✓
Grid System Capable			✓
Closed Loop Capable	✓	✓	✓
Central Network Preferred/Required	✓		
Central System Control	✓	✓	
Ethernet Networks Preferred	✓	✓	✓

- **InSync** – first adaptive system deployed in Broward: Pines Blvd @ I-75 vicinity; operates as its own independent sub-system without needing centralized control.
- **Synchro Green** – adaptive platform that can be cointegrated directly with existing countywide system and uses same communications protocol; will comprise most of future adaptive deployments.

Adaptive Control – Limitations



- Even the most advanced signal control systems, including adaptive control, cannot overcome over-capacity conditions, traffic disruptions, or fully eliminate traffic congestion.
- Adaptive control is used to reduce the duration and severity of over-capacity peak periods but cannot eliminate the underlying over-capacity condition in its entirety.
- Adaptive control is an effective tool for certain traffic situations but should not be oversold as a “cure-all” for all types of traffic congestion.

ATSC Initiative

Adaptive Control – Hybrid Operation



- In downtown grid networks with equally spaced signals and significant pedestrian activity, TOD systems (even fixed-time operation) may outperform adaptive systems.
- A combination of conventional TOD systems, central adaptive systems, and distributed adaptive systems may be the most effective approach in addressing the specific characteristics of certain corridors or subareas.

ATSC Initiative

Adaptive Control – Performance Measuring



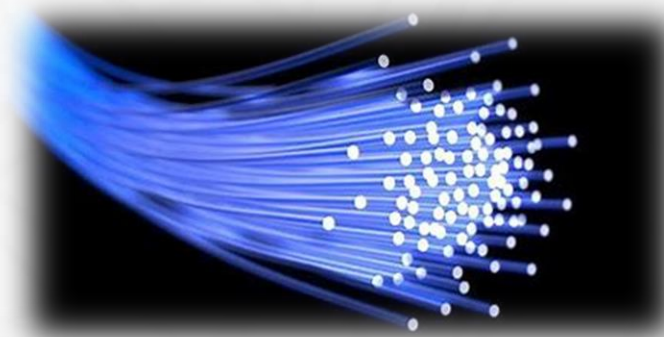
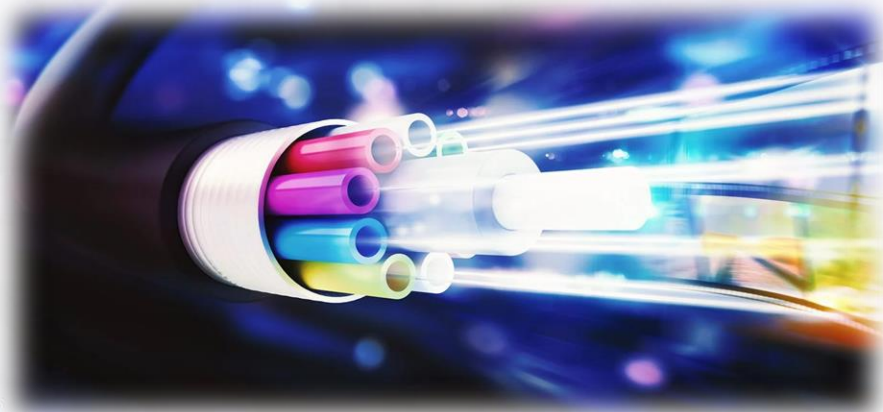
- Travel time and travel time reliability are among the most common types of performance measures for any transportation system.
- Measuring travel times for comparative analysis (i.e., new system vs. prior system) can be challenging because travel time is highly correlated to traffic volume, vehicle mix, physical roadway capacity and volume-to-capacity ratio, all of which can change adversely with time.
- Slightly degrading travel times in the future can still represent a net improvement in performance if system volume and other factors are increasing.

ATSC Initiative

County-FDOT Integrated Network



- Both agencies are installing fiber along major arterials to support advanced traffic signal control systems and a wide spectrum of intelligent transportation system (ITS) devices.
- Fiber will support adaptive signal control projects as part of Surtax/Mobility Advancement Program (22 adaptive segments in program)

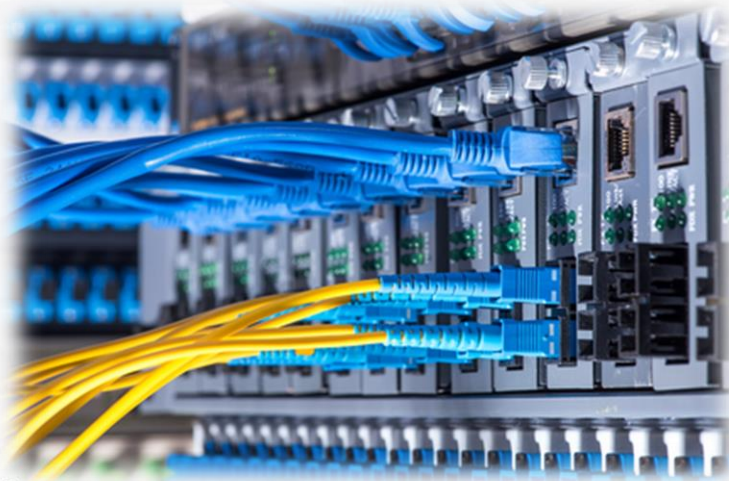


ATSC Initiative

County-FDOT Integrated Network



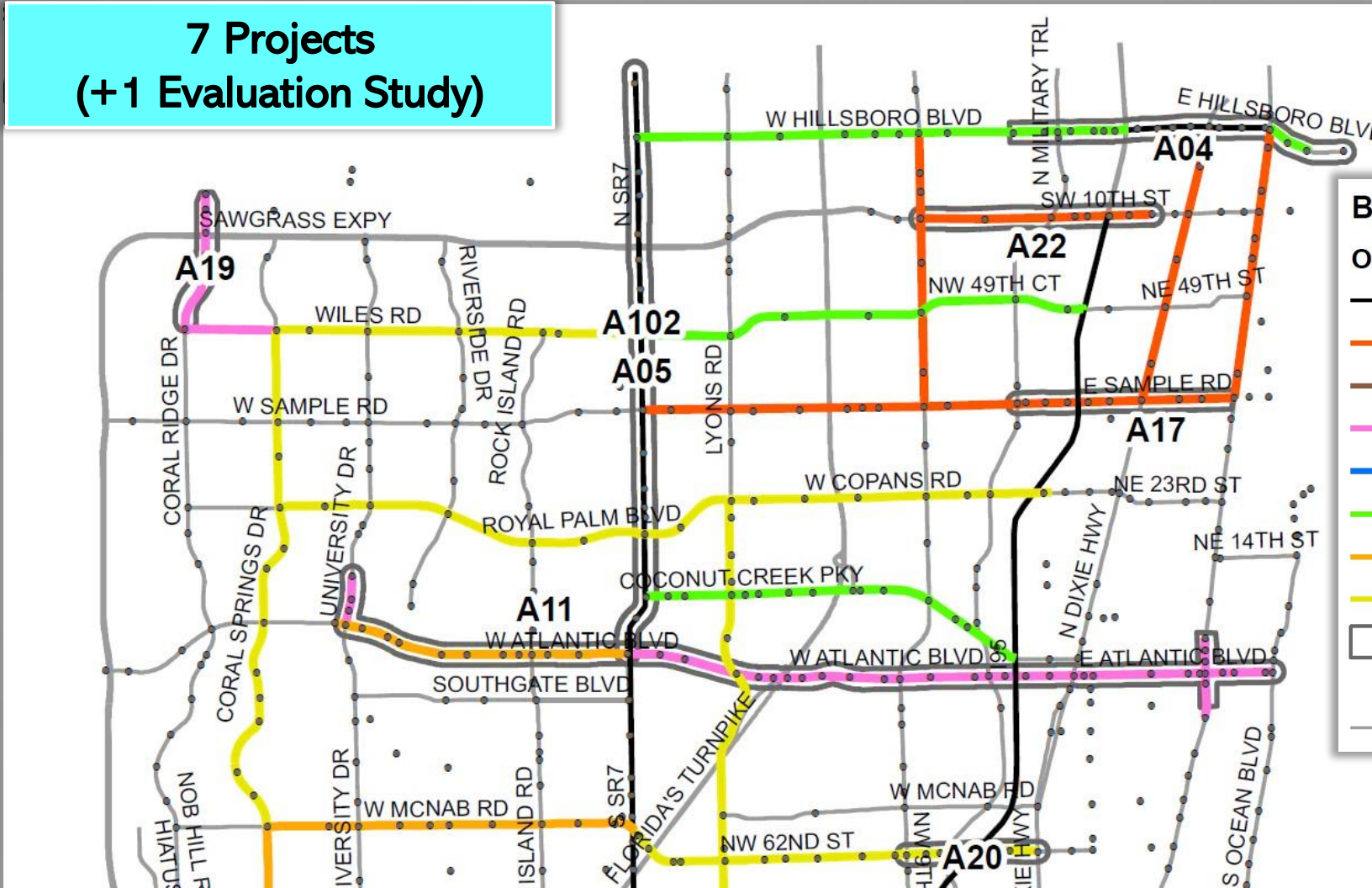
- Fiber will support expansion of FDOT Active Arterial Management program already operational on some FDOT corridors.
- MPO, FDOT & County collaborating on a unified program.



ATSC Initiative

County-FDOT Integrated Network – North

**7 Projects
(+1 Evaluation Study)**

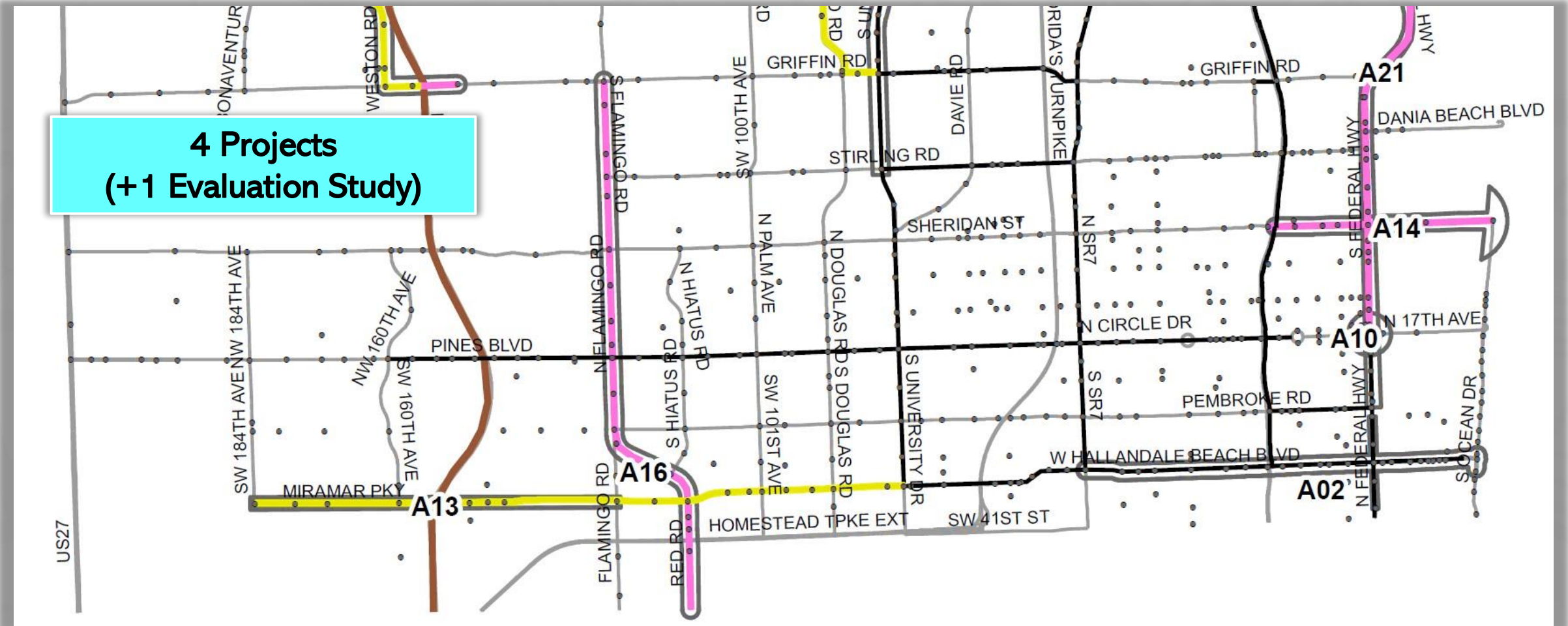


Broward Fiber Optic Status 7/15/2021

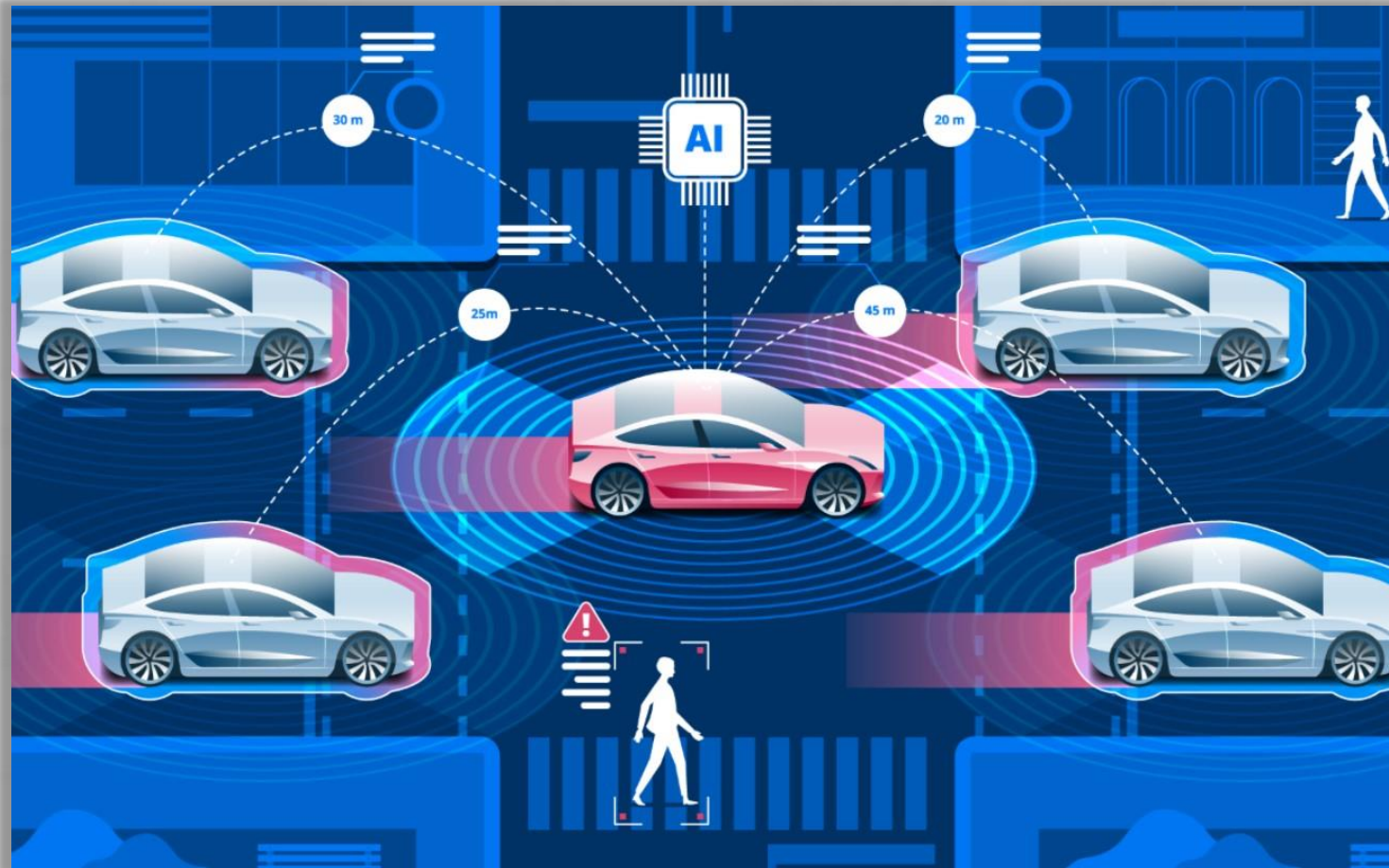
OWNER, STATUS

- Broward - FDOT Shared, Existing (175.7 mi)
- FDOT - Surtax LFA, Planned (Deerfield Bch) (18.0 mi)
- FDOT, Planned (17.6 mi)
- Surtax - Adaptive, Planned (38.9 mi)
- Surtax - Fiber Program, Complete (6.4 mi)
- Surtax - Fiber Program, Design (19.6 mi)
- Surtax - Fiber Program, Construction (10.1 mi)
- Surtax - Fiber Program, Planned (56.5 mi)
- SURTAX Adaptive Program
- Intersection Signals
- Arterial Roadway

County-FDOT Integrated Network – South



Connected Vehicles (CVs)



CV Initiative

Connected Vehicle (CV) Technology



- CVs are equipped with devices that allow wireless communication between other vehicles and roadway infrastructure:
 - Vehicle-to-Vehicle (V2V)
 - Vehicle-to-Infrastructure (V2I)
- Communication occurs through:
 - On-Board Units (OBUs) and Roadside Units (RSUs)
- Wireless communication supported by Dedicated Short-Range Communications (DSRC) and likely 5G in the future.



Broward County, FL

TTS TRAFFIC TECHNOLOGY SERVICES

Traffic Technology Services, Inc. (TTS) is an information service provider for connected vehicle applications. Through a new data authorization partnership with Broward County, FL, starting in November 2020 TTS will provide a connected vehicle, vehicle-to-infrastructure solution for private industry applications through the service, [Personal Signal Assistant®](#).

Traffic Management System

Broward County is committed to providing a safe, efficient, and well-maintained county transportation infrastructure to improve the general welfare of travelers in their neighborhoods and the community. The County Traffic Engineering Division utilizes Cubic's Trafficware ATMS.now modular central transportation management platform to monitor and manage the operation of a total of 1,454 signalized intersections throughout the County.

Connected Vehicle Technology

During summer 2020, Broward County upgraded the existing ATMS.now platform to allow traffic signal data stored on the platform to be accessible by a third party such as TTS.

TTS utilizes the data to develop automotive-grade messages that contain predictions of signalized intersection operations. These messages are delivered as an information service to customers implementing connected vehicle solutions, utilizing existing cellular communications to vehicles or mobile devices.

Driver or End User Impacts

TTS customers use the service to implement their own connected vehicle applications. For example, Audi drivers will receive information on the traffic signals, providing information on the remaining [time-to-green](#) or the [suggested speed](#) to avoid stopping. In another example, [Sydic app](#) users will receive similar time-to-green information through the app, SDK, or via eligible Android Auto or Apple CarPlay systems.

County Benefits

The County will receive performance metric reports from TTS, summarizing signal performance and connected vehicle crossings. These performance metrics will help traffic engineers identify and quantify problem locations to improve traffic signal timing operations for all users. This reporting and service is provided at no-cost to the County.

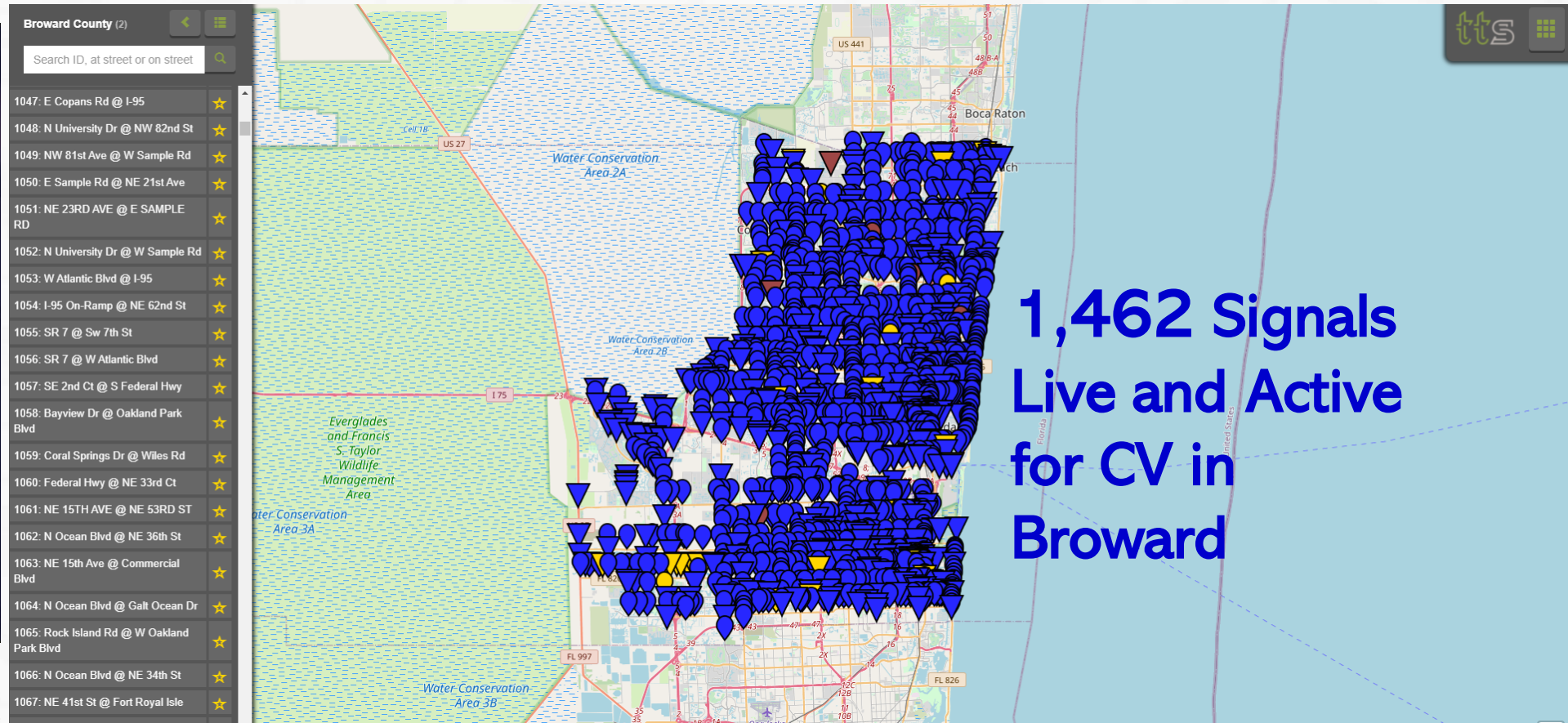
trafficechservices.com

- In November 2020 Broward County partnered with [Traffic Technology Services, Inc. \(TTS\)](#) an information service provider for connected vehicle applications.
- TTS is providing a connected vehicle, vehicle-to-infrastructure (V2I) solution for various private industry applications.

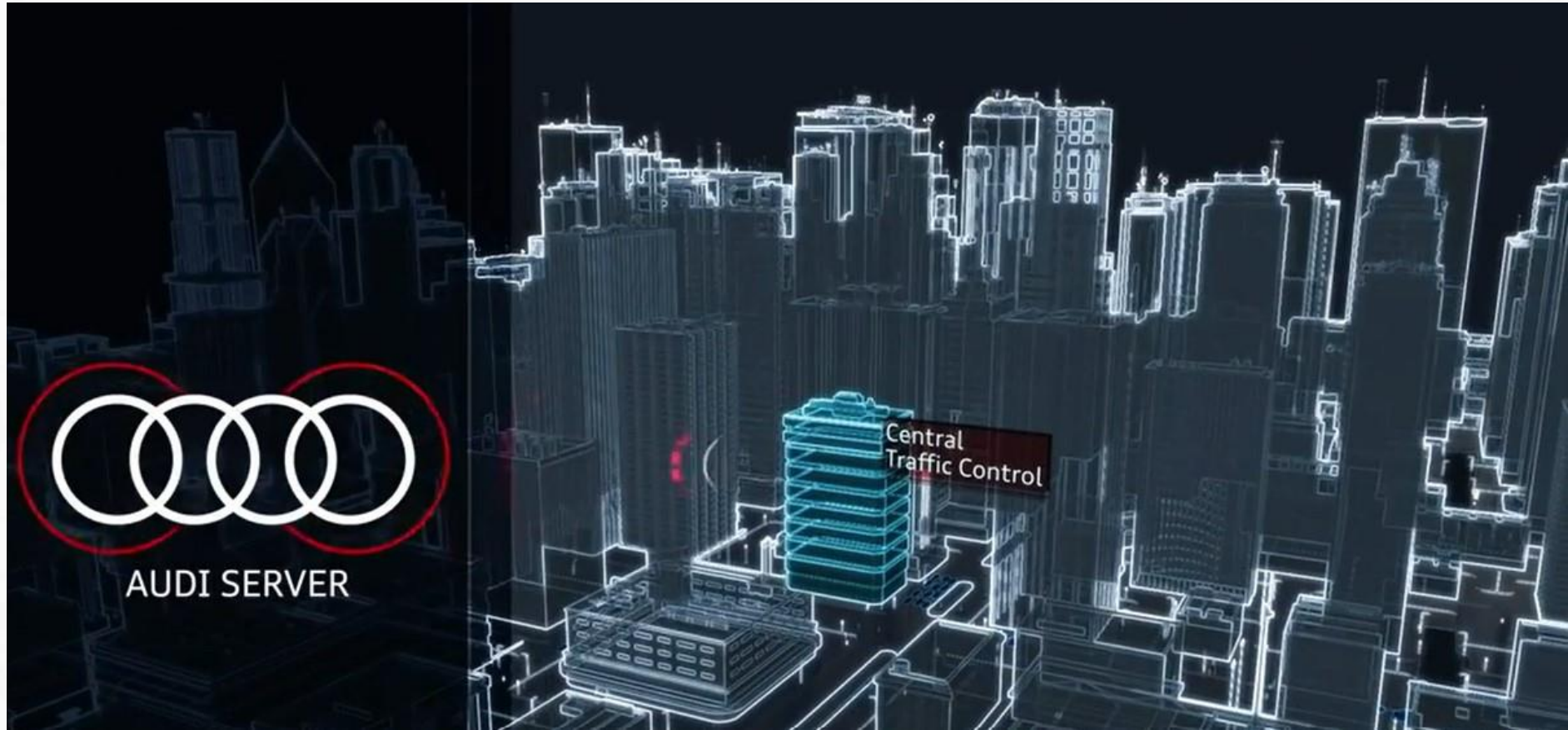
CV Initiative

Connected Vehicle Industry Partnership

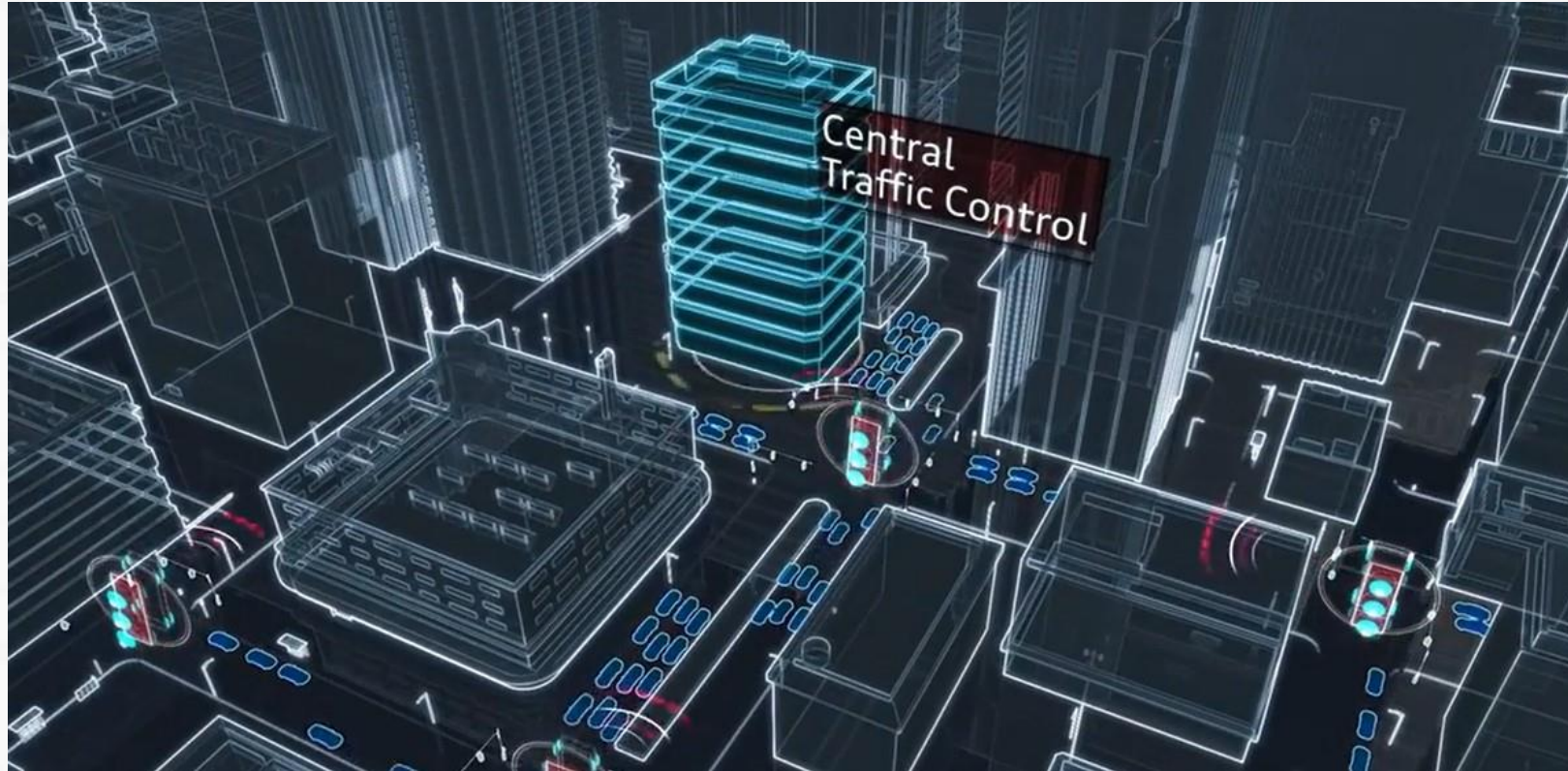
- During the summer of 2020, Broward County upgraded its existing ATMS.now countywide platform to allow signal data to be accessible by third parties, such as TTS.



TTS-Audi V2I Broward



CV Initiative



TTS captures real-time signal data from Broward's central signal control server and makes it available to Audi and other auto CV platforms.

CV Initiative



On-board CV unit connects wirelessly to the Audi server which has active signal controller status information for every Broward intersection provided by TTS.

CV Initiative



Time to green:
6 seconds

CV Initiative



Time to green:
4 seconds

CV Initiative



Countdown stops below 4 seconds to account for any system latencies and to redirect driver attention to signals (also to prevent early starts)

CV Initiative



Green indication



Mapping and Navigation

CV Initiative

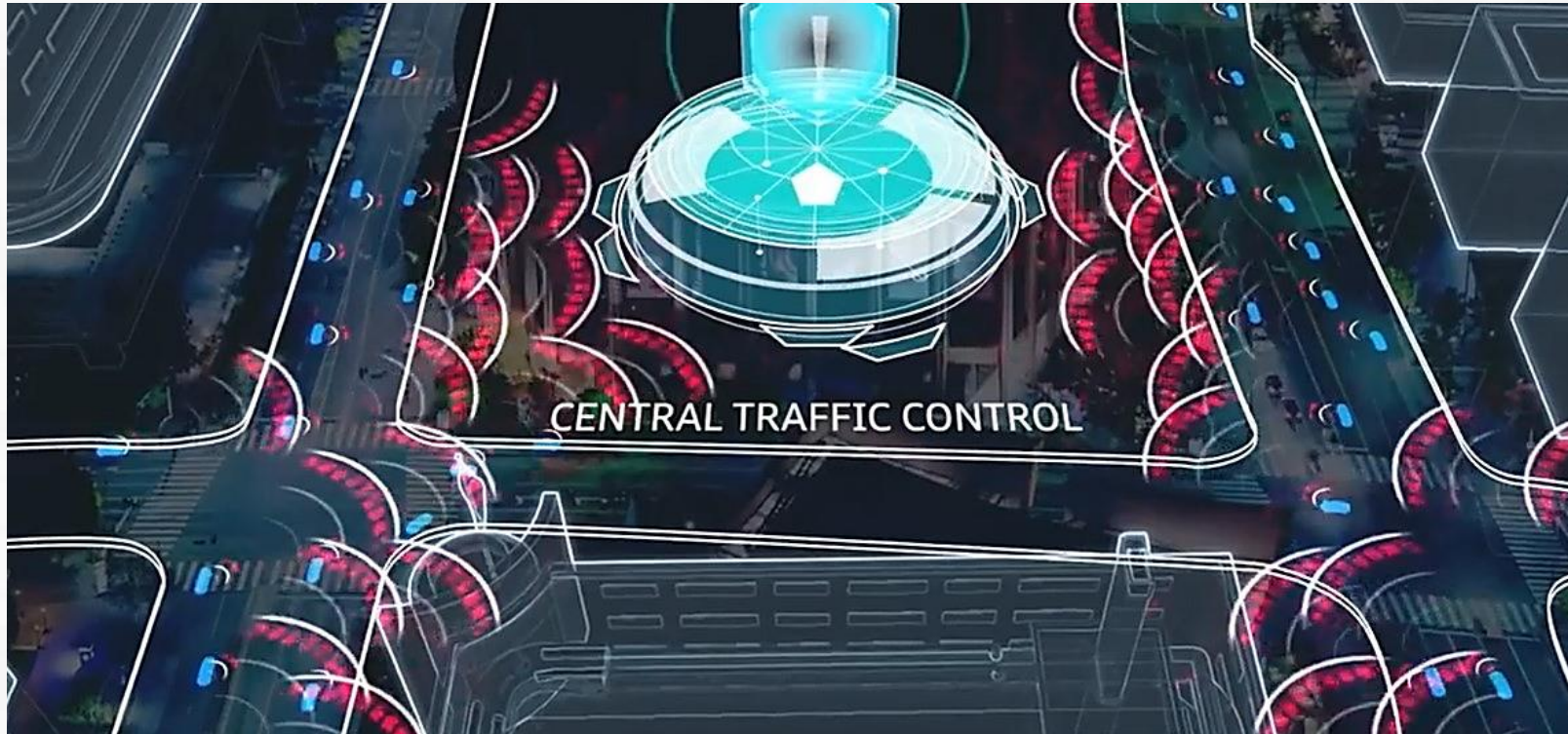


Recommended speed based on current signal synchronization



Roadway conditions, work zones, road closures & detours

How does CV Benefit Regional Traffic Signal Operations?



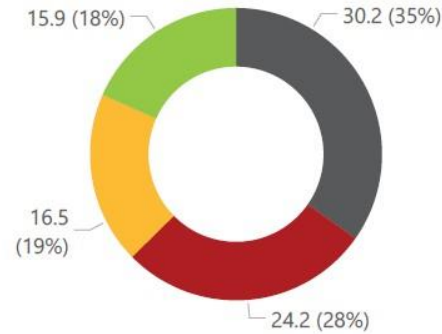
10,000s of actual moving vehicles providing two-way real-time data relative to their interaction with the signal system.

CV Initiative

We can now receive signal performance metrics from 10,000s of moving vehicles...



Total Delay (Hours) by Peak



Peak Period ● Other ● Evening ... ● Midday ... ● Mornin...

Average Veh Delay

14.0

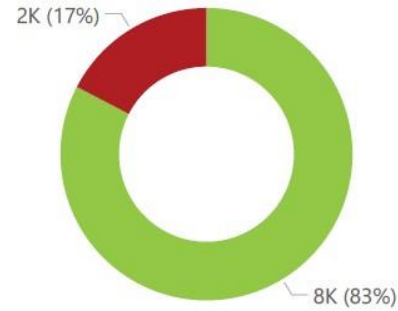
Total Delay (Hours)

86.8

Total Crossings

22.6K

Arrivals



Arrival State ● Green ● Yellow/Red

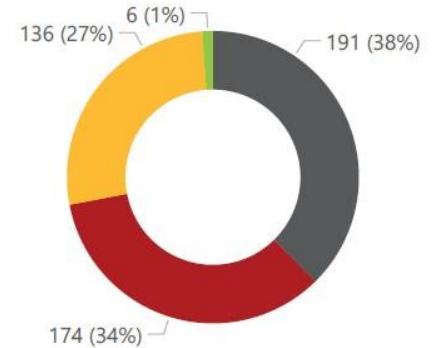
Red Arrival Rate

17.4%

Arrival Crossings

9490

Split Failures by Peak



Peak Period ● Other ● Evening ... ● Midday ... ● Mornin...

Split Failure Rate

2.2%

Total Split Failures

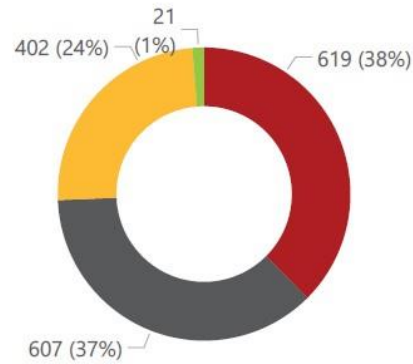
507

CV Initiative

Percentage of vehicles arriving during green and red signal phases...

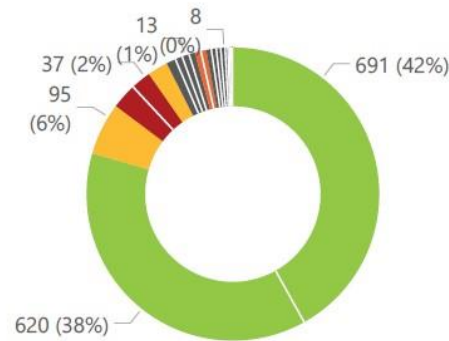


Red Arrivals by Peak



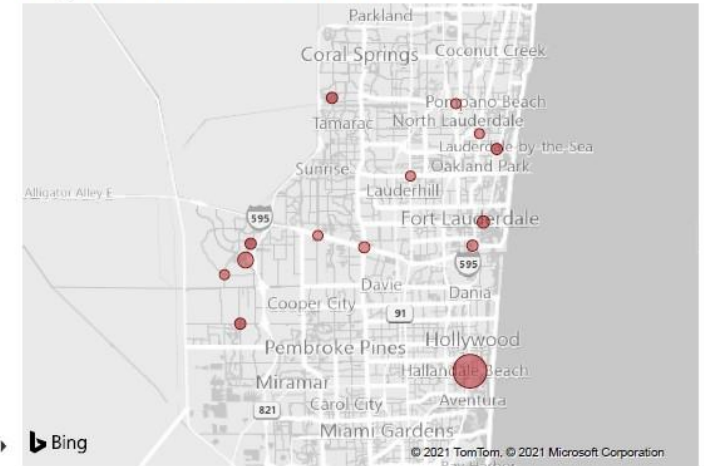
Peak Period ● Evening ... ● Other ● Midday ... ● Mornin...

Red Arrivals by Phase



Phase ● 2 ● 6 ● 4 ● 1 ● 5 ● 8 ● 601 ● 204 ● 602 ● 202 ▶

Highest Red Arrival %



Bing

Total Intersections Reported

416

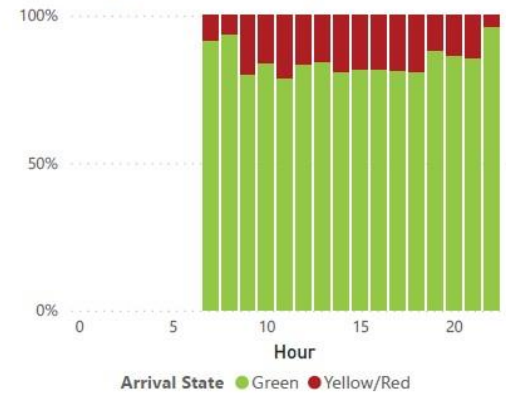
Total Red Arrivals

1649

Total Red Arrival

17.4%

Average Arrivals by Hour



Arrival State ● Green ● Yellow/Red

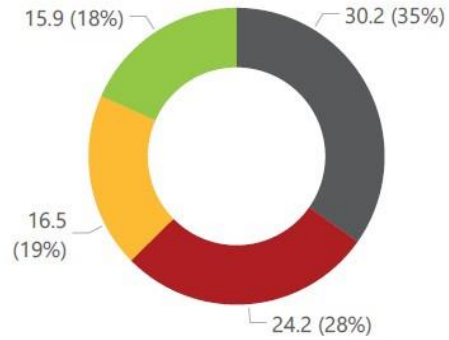
ID	Red Arrival Rate	N/S Street	E/W Street
2091	✓ 100%	SE 15TH AVE	E Broward Blvd
3390	✓ 100%	Weston Rd	Indian Trace
1218	100%	W Atlantic Blvd	Riverside Dr
3455	✓ 100%	SW 172nd Ave	SHERIDAN ST
1101	✓ 100%	E Commercial Blvd	US-1
3084	✗ 93%	E Hallandale Beach Blvd	N Federal Hwy
2366	✓ 83%	SE 3rd Ave	SE 17th St
2034	✓ 83%	S UNIVERSITY DR	W STATE RD 84 WB RAMP
3385	✗ 82%	Weston Rd	Royal Palm Blvd
1028	✓ 80%	N Dixie Hwy	E Cypress Creek Rd
3507	✓ 80%	BONAVENTURE BLVD	S Post Rd
1007	✓ 80%	POWERLINE RD	W Atlantic Blvd
1068	80%	SR 7	W Oakland Park Blvd

CV Initiative

Signal related delays and where are the worst delays, and when...

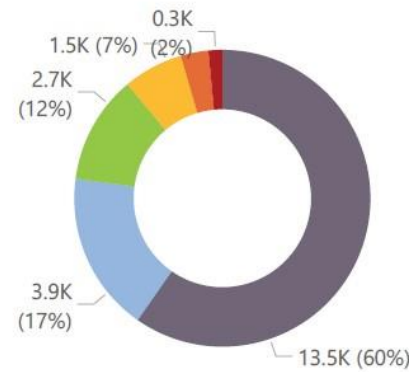


Total Delay (Hours) by Peak



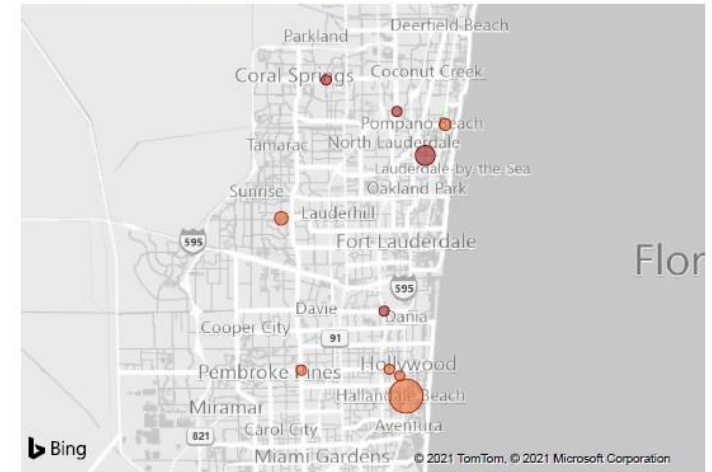
Peak Period ● Other ● Evening ... ● Midday ... ● Mornin...

Crossing by LOS



Calc LOS ● A ● B ● C ● D ● E ● F

Highest Average Delay



Average Veh Delay

14.0

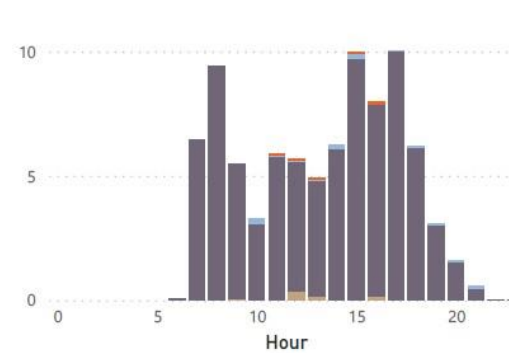
Total Delay (Hours)

86.8

Total Crossings

22.6K

Total Delay (Hours) by Hour



Weekday ● Fr ● MoTuWeTh ● Sa ● Su

ID	Average Delay	N/S Street	E/W Street
3274	✓ 134.1	Griffin Rd	Interstate 95 SB Ramp
1200	✓ 111.5	ROCK ISLAND RD	W Sample Rd
1009	✓ 103.2	N Powerline Rd	Dr Martin Luther King Blvd
1273	⚠ 84.1	NE 18th Ave	NE 62nd St
3084	✗ 79.2	E Hallandale Beach Blvd	N Federal Hwy
3014	✓ 78.9	S UNIVERSITY DR	Pines Blvd
3211	✓ 78.6	Washington St	S 21st Ave
1336	✓ 76.1	N Federal Hwy	E ATLANTIC BLVD
3209	✓ 75.0	S 26th Ave	HOLLYWOOD BLVD
2260	✓ 73.5	N Pine Island Rd	W Sunrise Blvd

CV Initiative



Save fuel with green light advisory speeds



Reduce frustration with red light countdowns



Stay safe with speed and red light warnings



CeVe mobile app now live in Broward...

- Green light advisory speeds
- Red light countdown
- Speed and red-light warnings

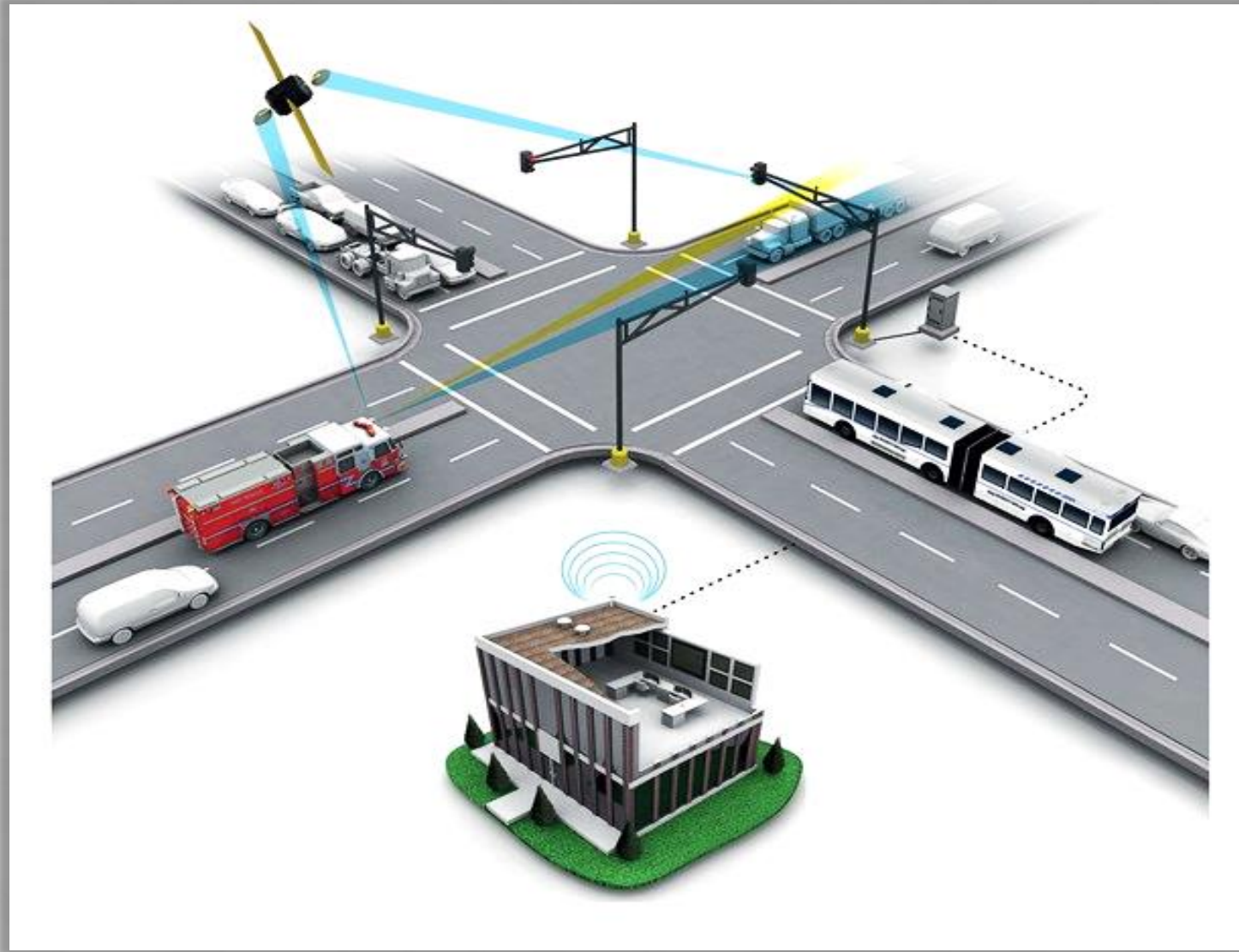
(Available for your mobile device – requires subscription)

Other CV Applications

- **Emergency Vehicle Preemption (EVP)** – combination of OBU, RSU and GPS (with or without centralized control) implements a special traffic signal preemption phase (override) for approaching emergency vehicles.
- **Transit Signal Priority (TSP)** – same basic technology as EVP except that it uses a “low-priority” call to modify the traffic signal phasing and/or timing, typically initiating an “early green return” or “green extension” to allow the bus or other transit vehicle to “clear” the intersection with minimal delay. Activation (permission) is usually granted from a central system monitoring the vehicle’s location and schedule adherence.



CV Initiative



EVP & TSP with
Central
Management
System (CMS)

650+
Intersections
Active with EVP
(and TSP ready)
in Broward
County

ATSPM Initiative

Automated Traffic Signal Performance Measures (ATSPM)



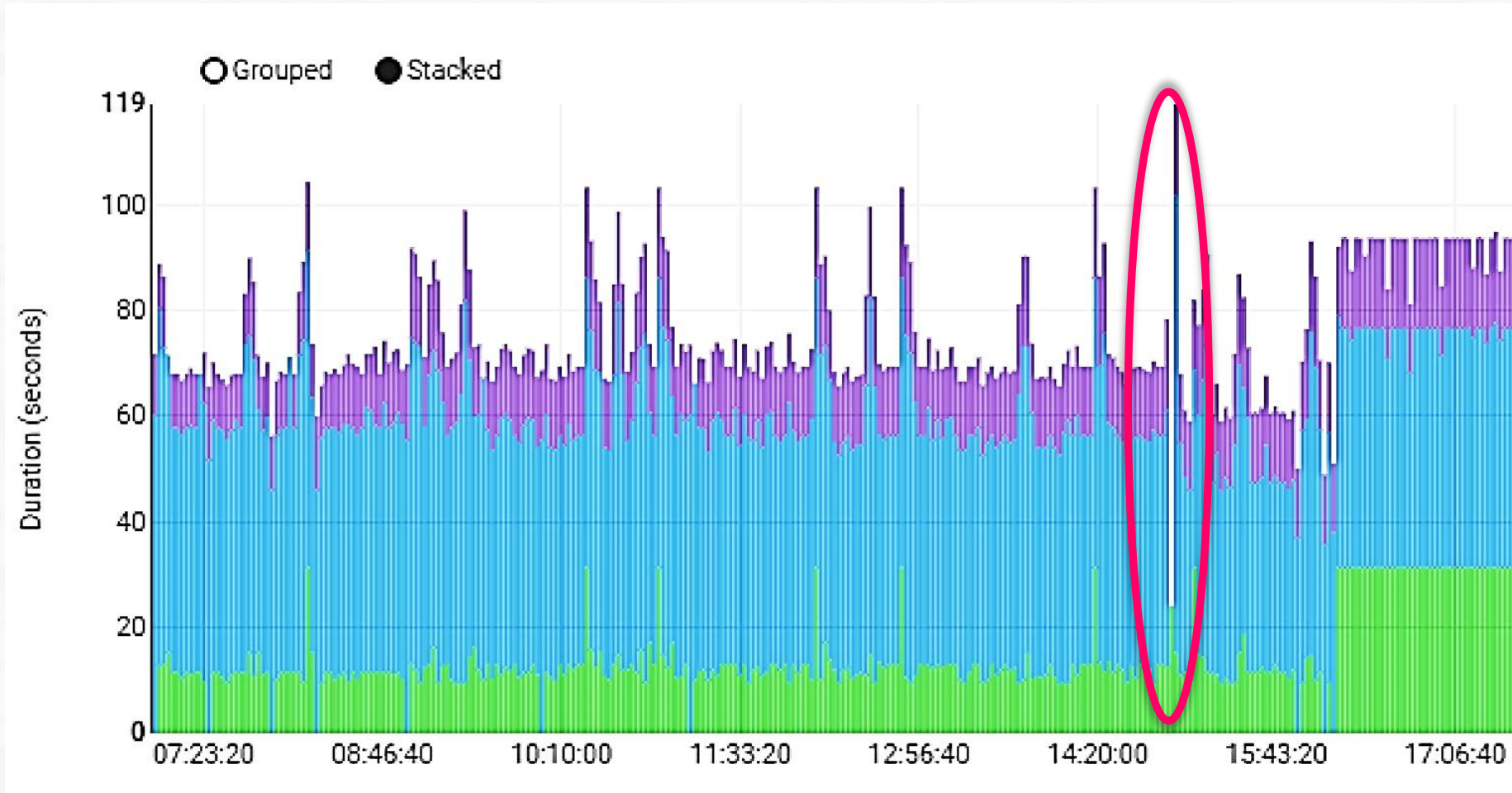
- Prior to now, there was no robust, system platform to correlate signal timing operation and equipment functionality to real-time traffic system performance.
- Timing engineers long recognized that high-resolution data and analytics of traffic signal systems are critical for identifying effective operational intervention strategies.
- Research concept began in 2013 at Purdue University and Indiana DOT...with significant system evolution starting in 2016.

Broward County Moving Forward with ATSPM



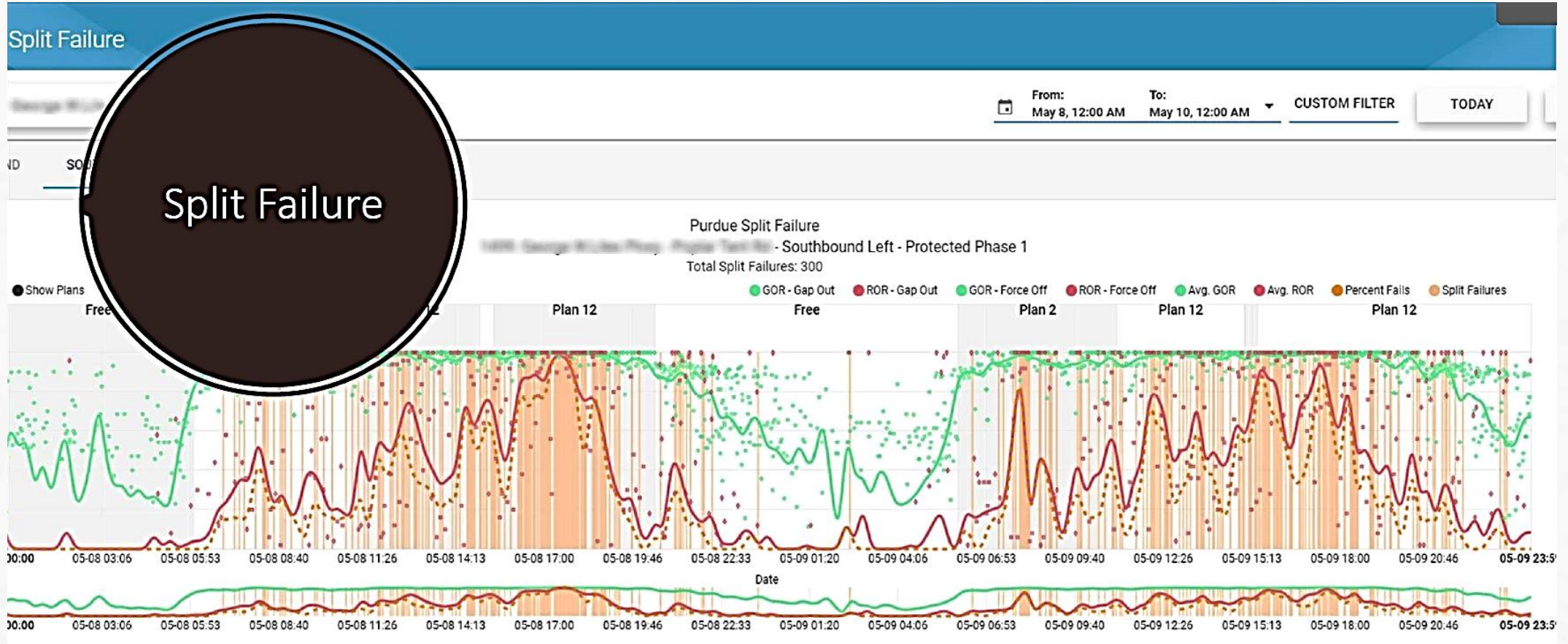
- County views ATSPM as a significant signal system performance “breakthrough” and is critical to advancing any signal system, agnostic of different types of signal software and hardware.
- Uses a “pyramid” perspective to identify what system parameters have the greatest adverse impact if not functioning properly so that engineering and maintenance resources can be applied most effectively.
- Broward County will be deploying ATSPM as part of all future adaptive signal system projects as these projects will provide the advanced infrastructure required by ATSPM.

ATSPM Initiative



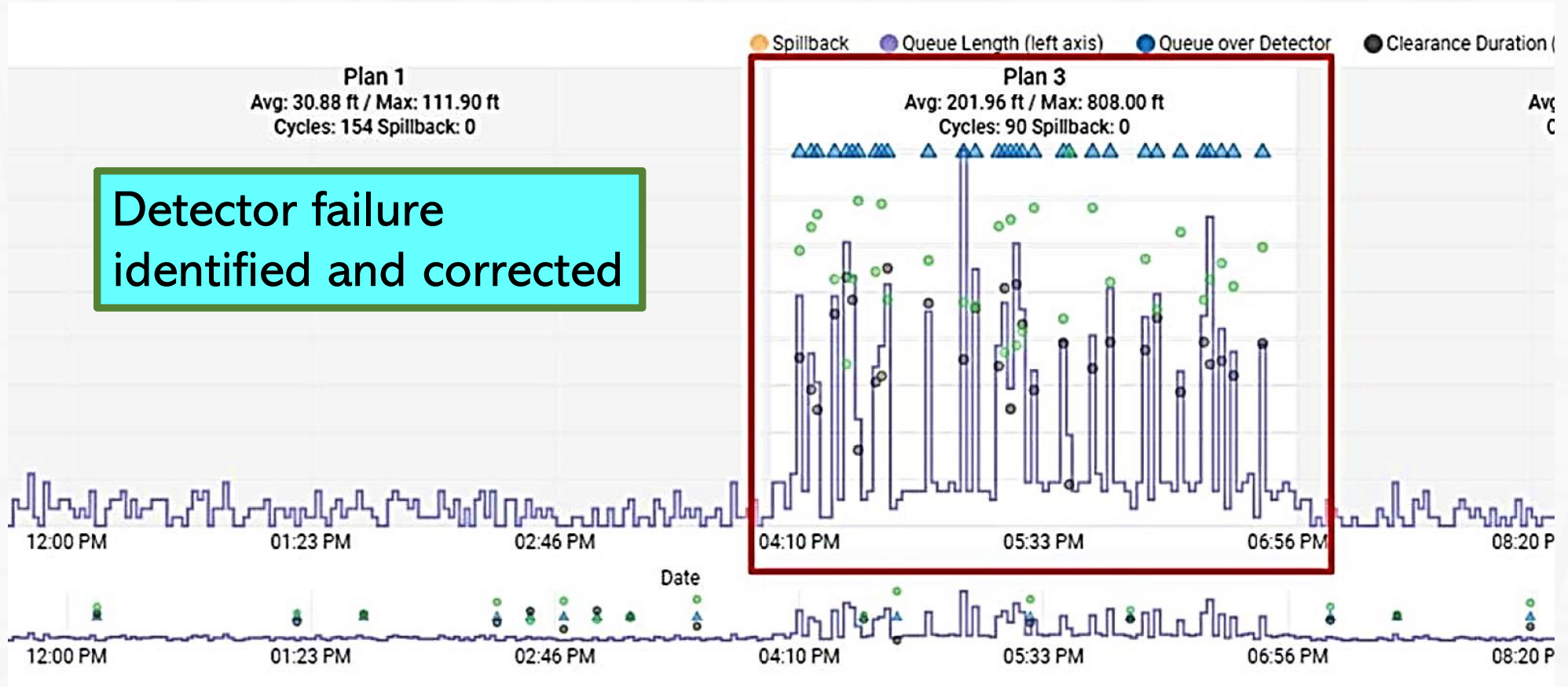
Phase duration (sec) by time-of-day graph, looking for anomalies...

ATSPM Initiative



Split failures by time of day – identifies patterns in vehicles waiting more than one cycle...

ATSPM Initiative

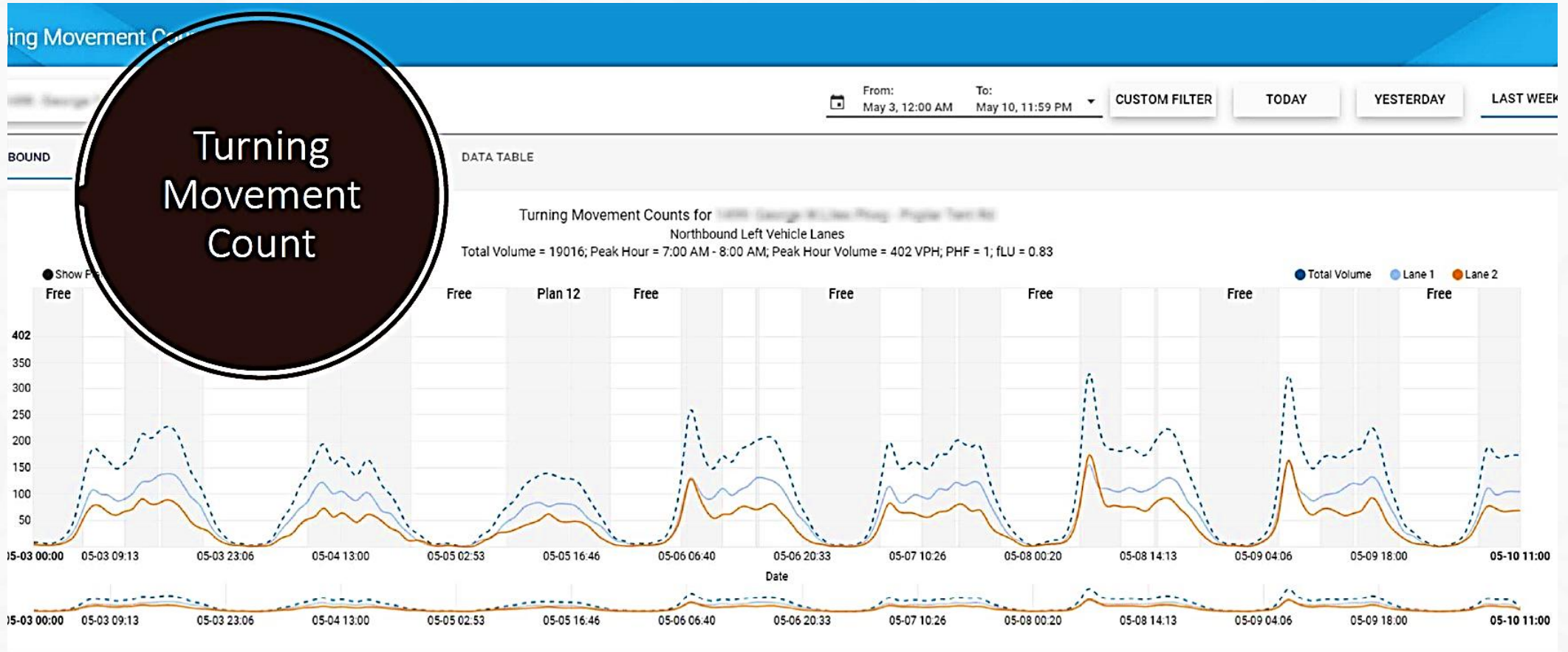


Spillback – identifies trends in overspill queues and their lengths (potential detector failures)...

ATSPM Initiative



Turning Movement Count

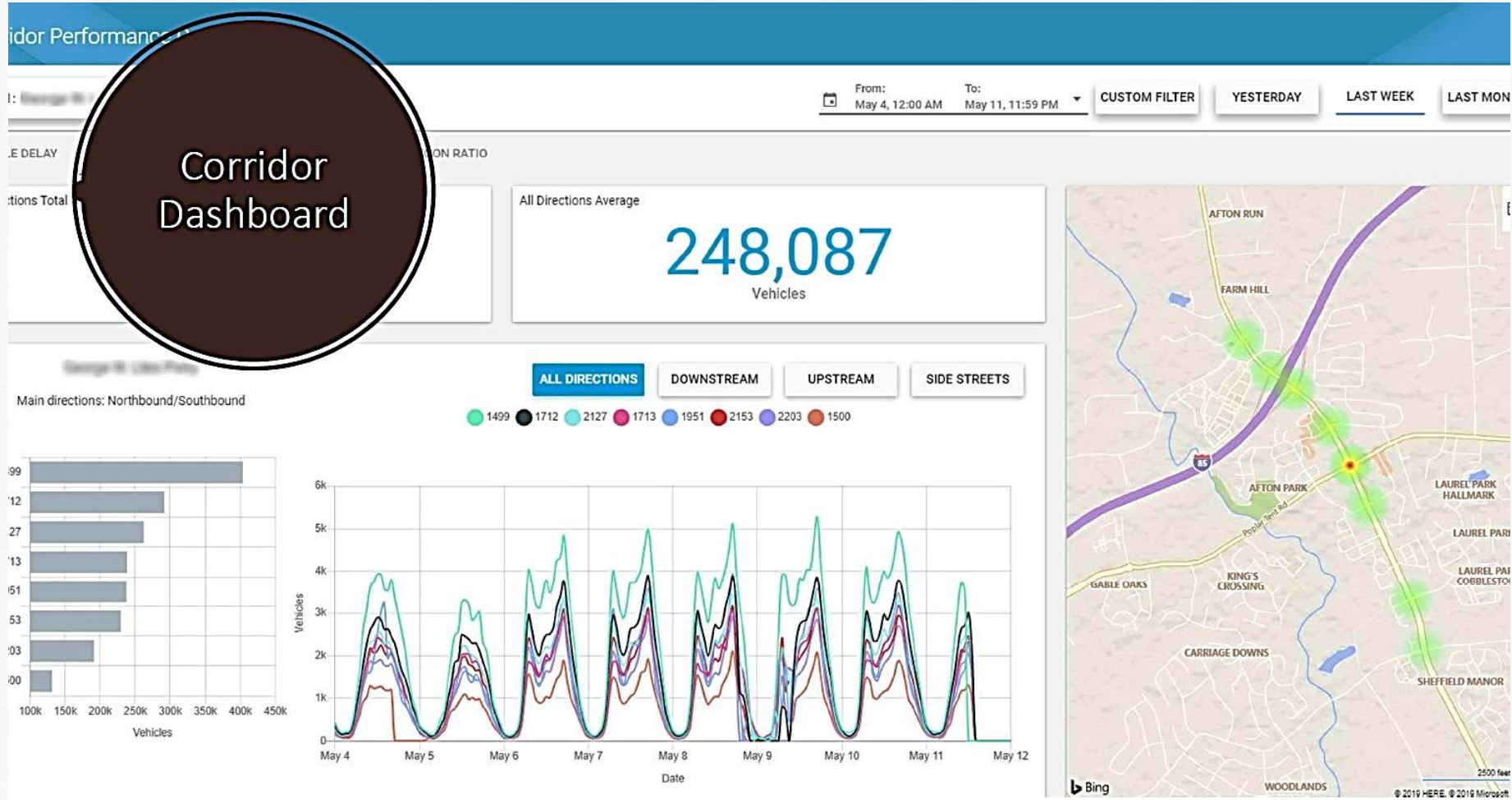


Intersection turning movement counts and statistical trends, and many more.

ATSPM Initiative



Corridor Dashboard



Intersection volume statistics along a corridor (per vehicle sensors)...

ADBD Initiative

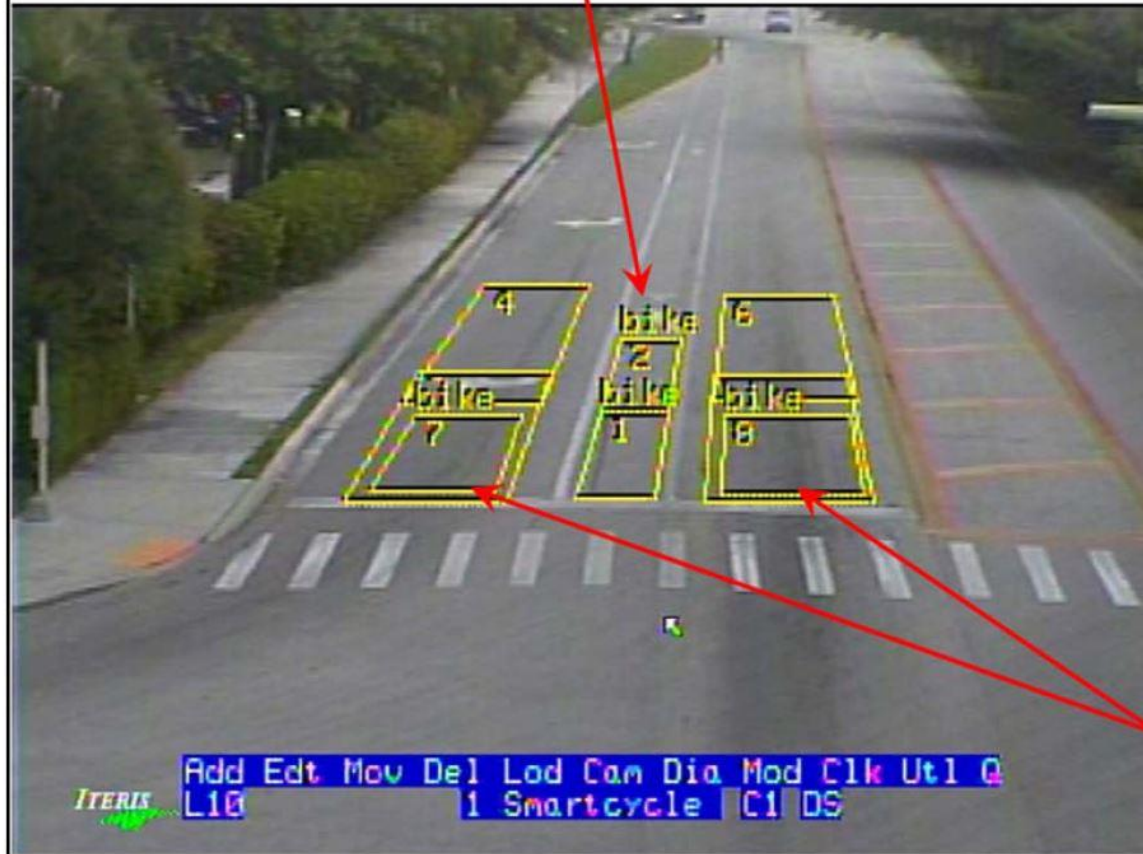
Advanced Differential Bike Detection

A vehicle detection system that can differentiate cyclists from all other users in mixed traffic, regardless of whether the cyclist is in a bike lane or not.



ADBD Initiative

Bike Zones drawn in the bike only lane



Bike Zones drawn in vehicle lanes. The bike zones are inside the vehicle zone.



ADBD Initiative

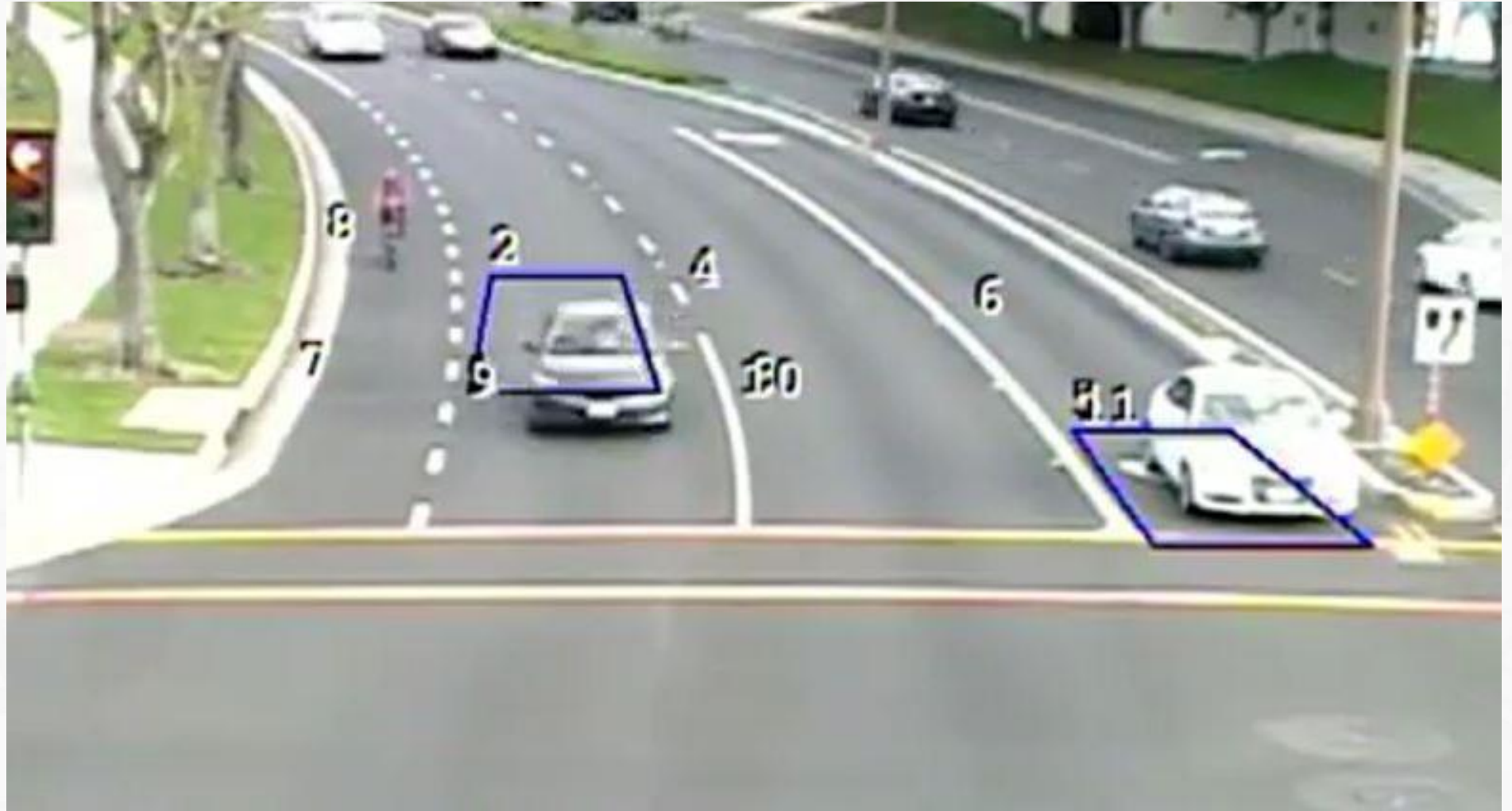
**Cyclist in
bike lane
approaching
traffic signal**



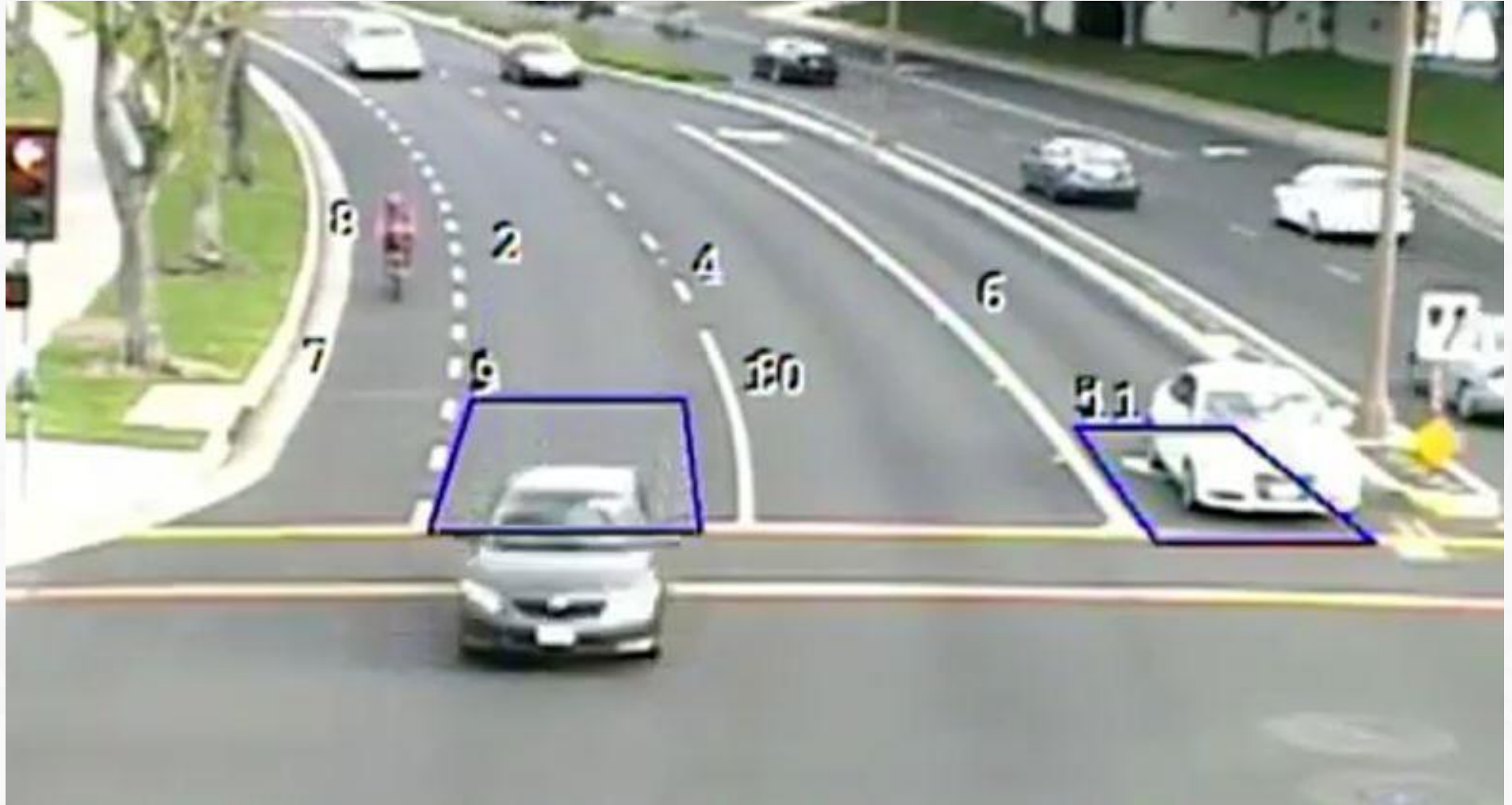
ADBD Initiative



ADBD Initiative



ADBD Initiative



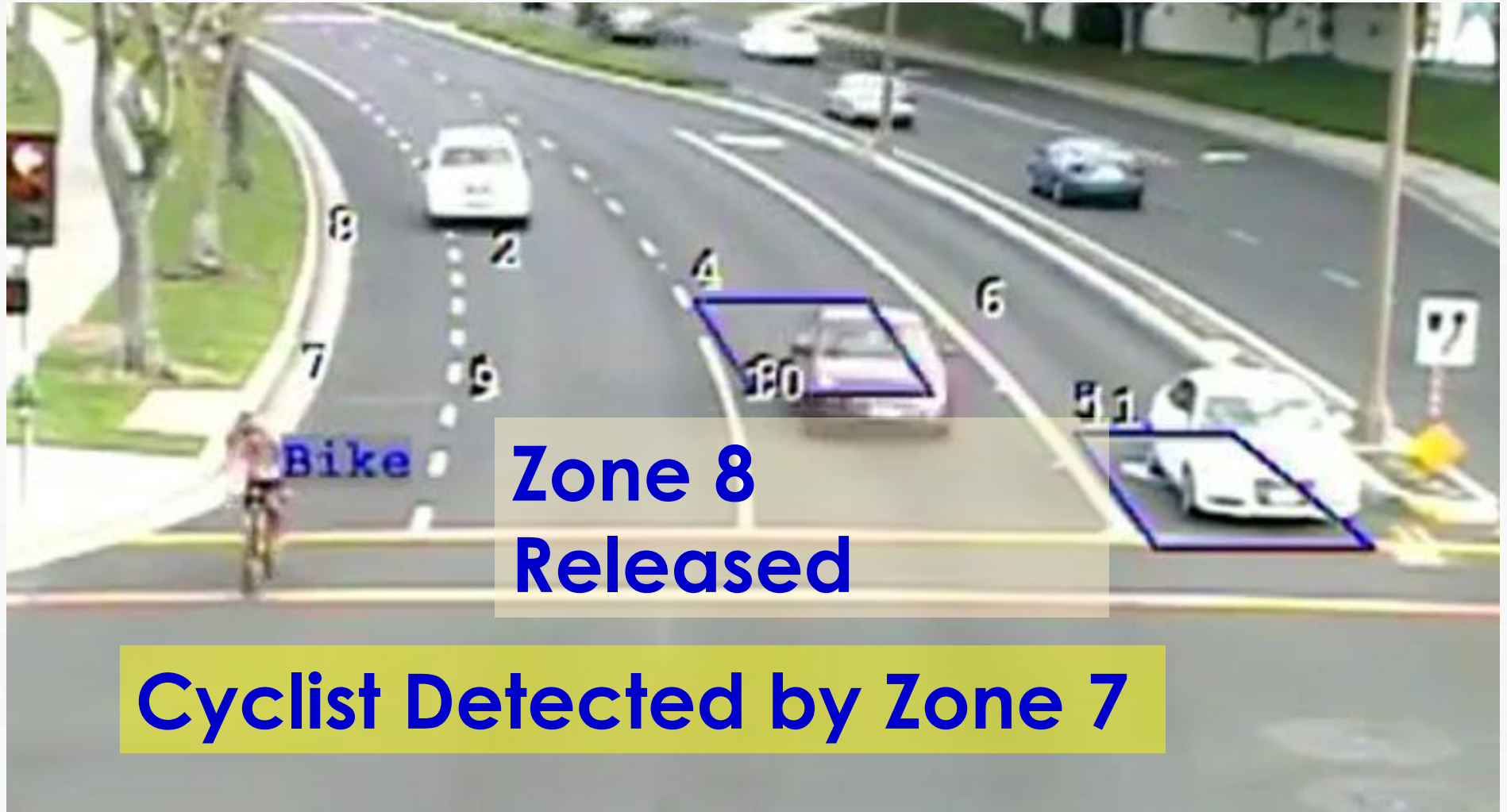
ADBD Initiative



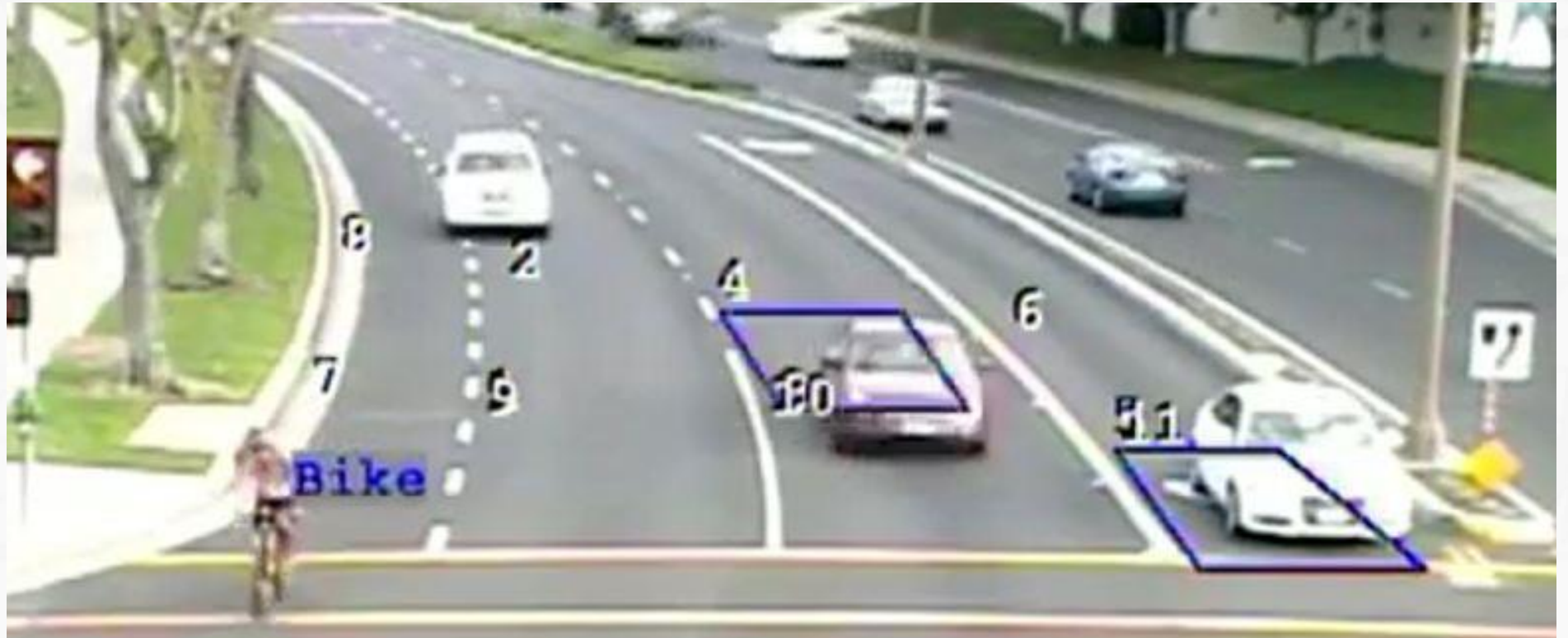
ADBD Initiative



ADBD Initiative



ADBD Initiative



**GREEN EXTENSION OF SIGNAL
COULD BE PROVIDED FOR CYCLIST**

ADBBD Initiative

**Cyclist in
bike lane
approaching
traffic signal**



ADBD Initiative



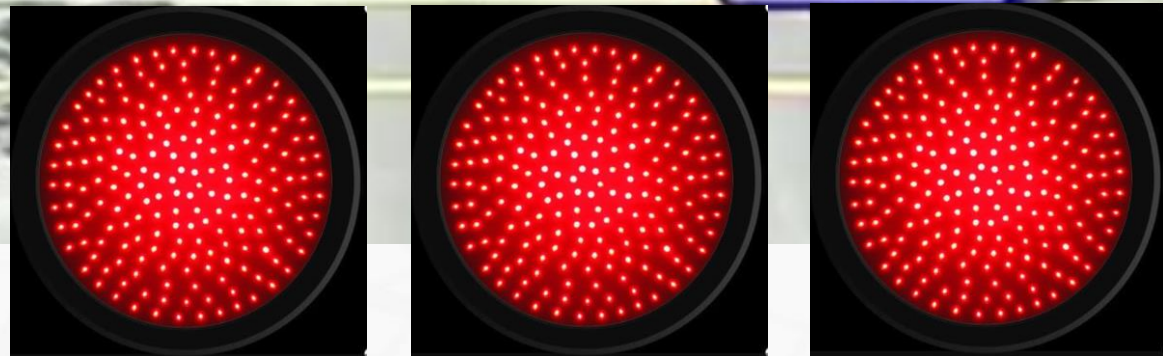
ADBD Initiative



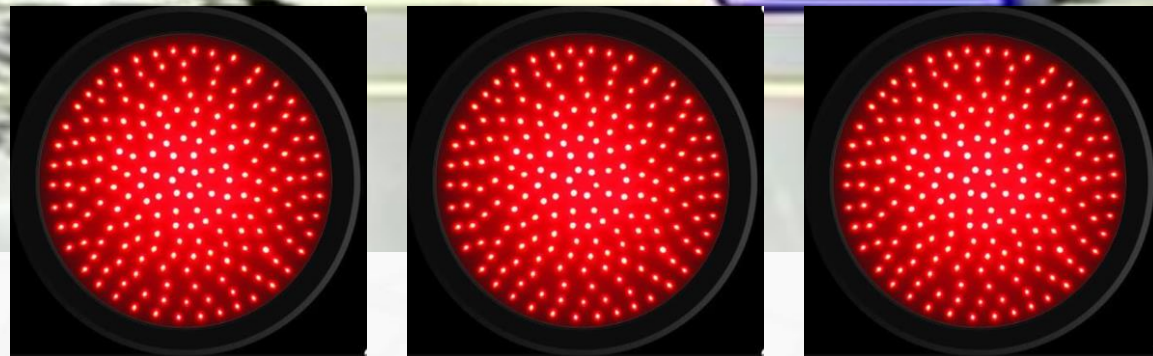
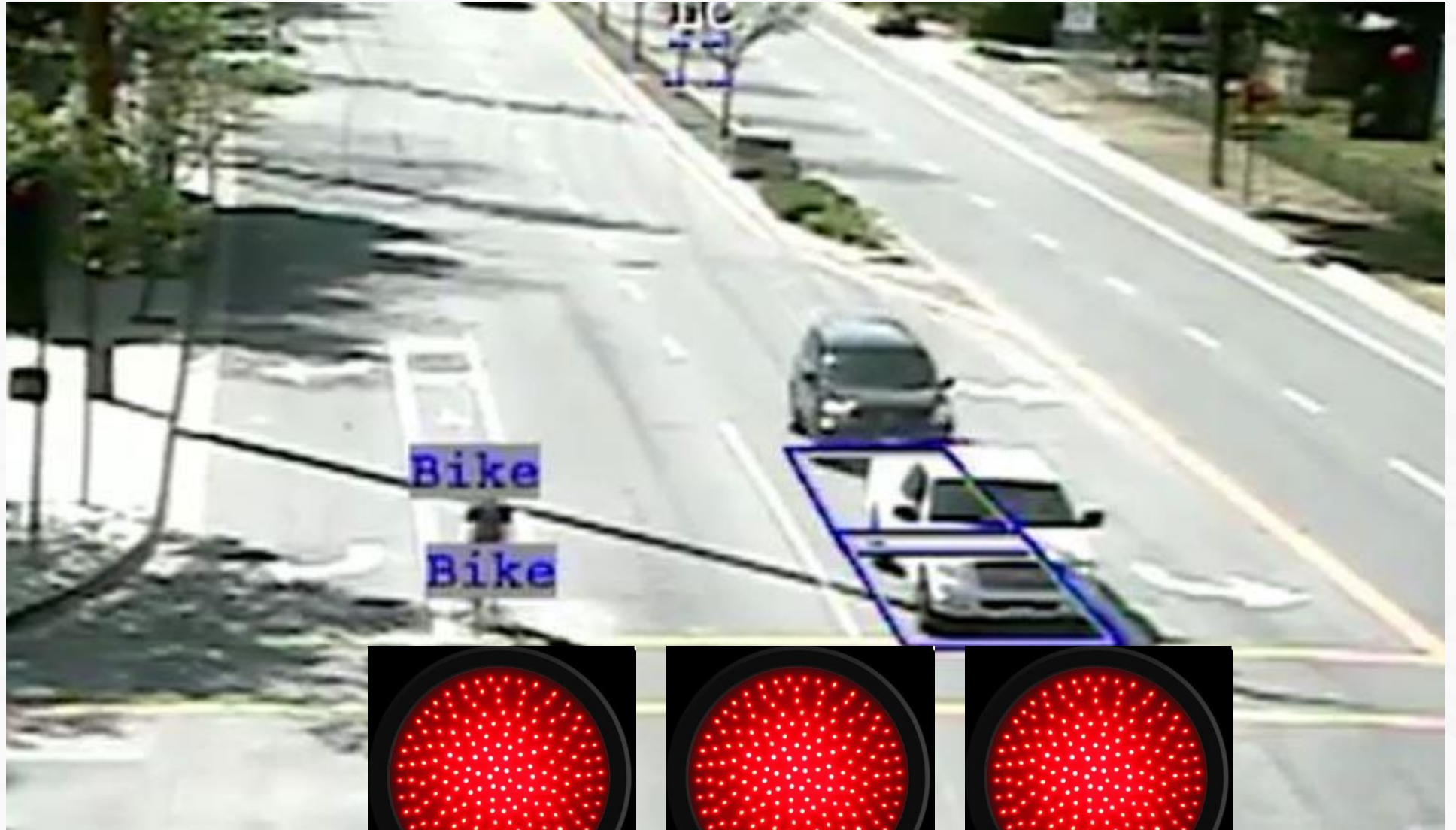
ADBD Initiative



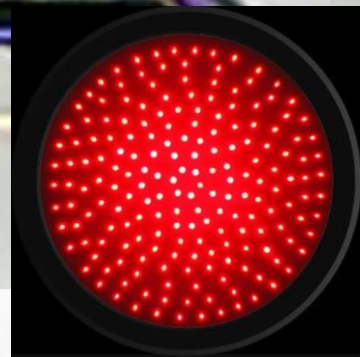
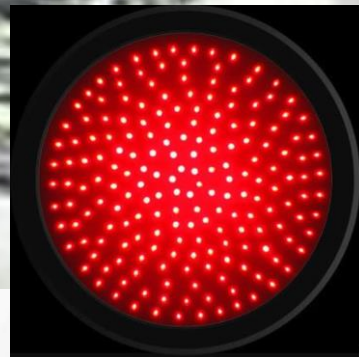
ADBD Initiative



ADBD Initiative

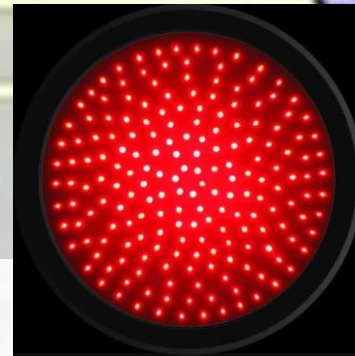


ADBD Initiative



ADBD Initiative

LEADING BICYCLE INTERVAL COULD BE PROVIDED FOR CYCLIST



ADBD Initiative

**Cyclist in
left turn lane
in mixed
traffic**



ADBD Initiative



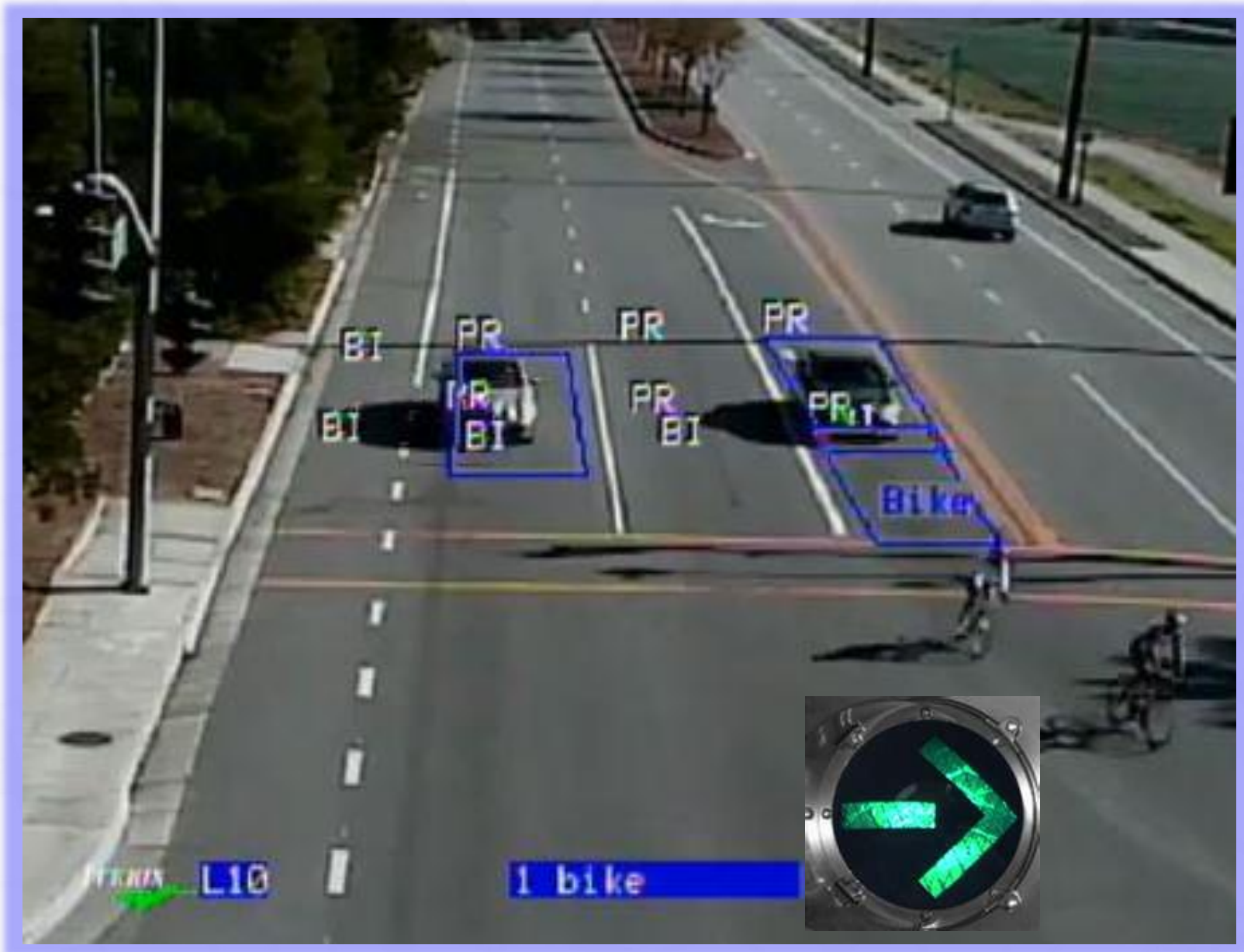
ADBD Initiative



ADBD

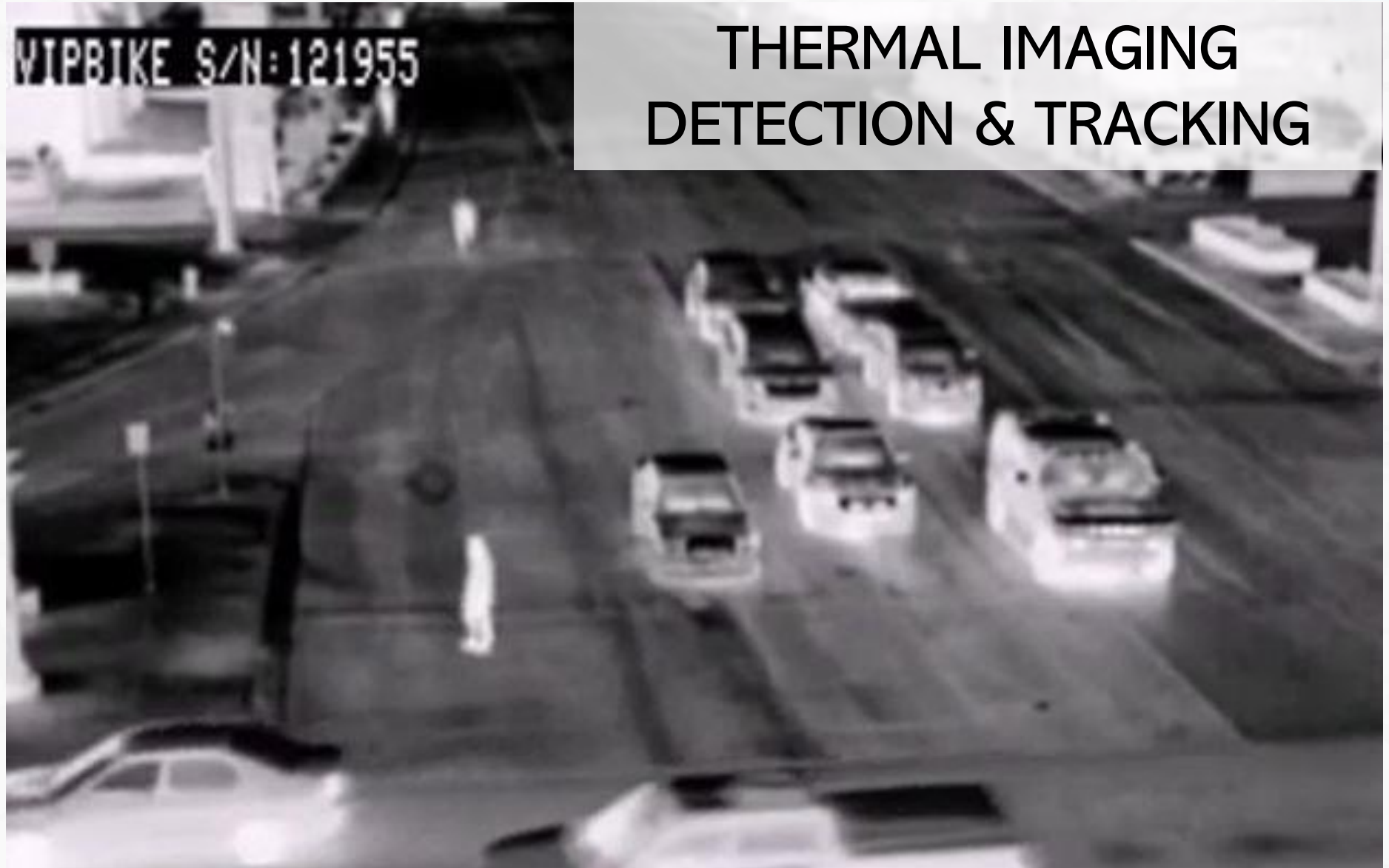
Initiative

**GREEN
EXTENSION
OF LEFT
TURN
ARROW
COULD BE
PROVIDED**



ADBD *Initiative*

THERMAL IMAGING DETECTION & TRACKING



ADBD Initiative



ADBD *Initiative*



ADBD

Initiative



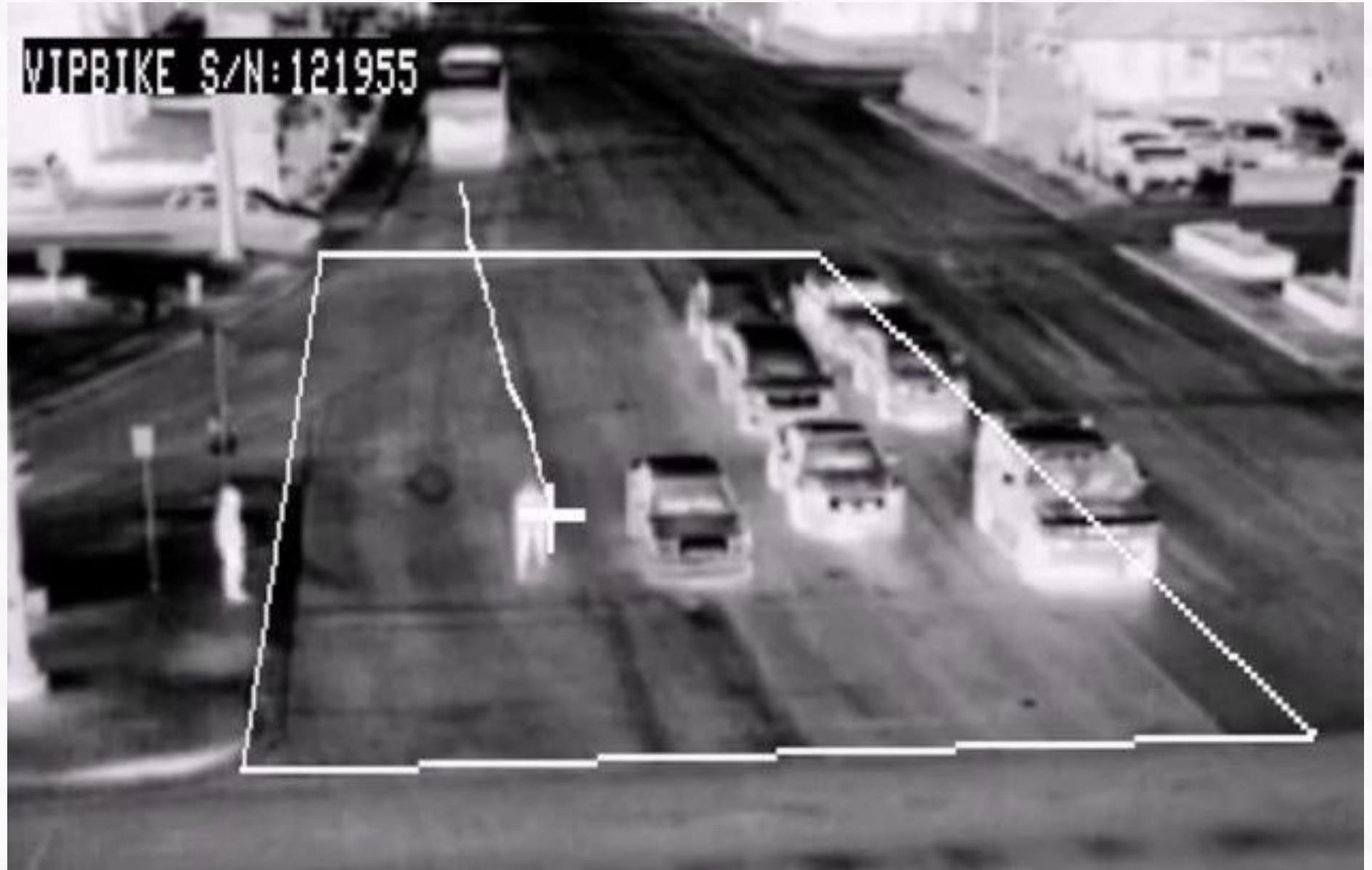
ADBD

Initiative



ADBD

Initiative



ADBD

Initiative



ADBD *Initiative*



ADBD *Initiative*



ADBD

Initiative



ADBD

Initiative



Advanced Intersection Sensor Deployment

In addition to, and as an enhancement to advanced bike detection systems, the County (with FDOT) is installing intersection detection systems that can also detect pedestrian activity in addition to bicycles and other vehicles.



AISD Initiative

Eight (8) locations are already equipped with the Trafisense2 technology (Teledyne FLIR):

1. SR-7 and NW 1400 Block (Lauderhill Mall Transit Hub)
2. Sunrise Blvd and NW 16 Ave
3. Griffin Rd and Dykes Rd/Weston Rd
4. Nob Hill Rd and Springtree Lakes Dr/NW 47 St
5. Atlantic Blvd and Oasis Dr
6. Pines Blvd and Flamingo Rd
7. SW 30 Avenue and SW 42 Street
8. Wiles Rd and Coral Springs Blvd



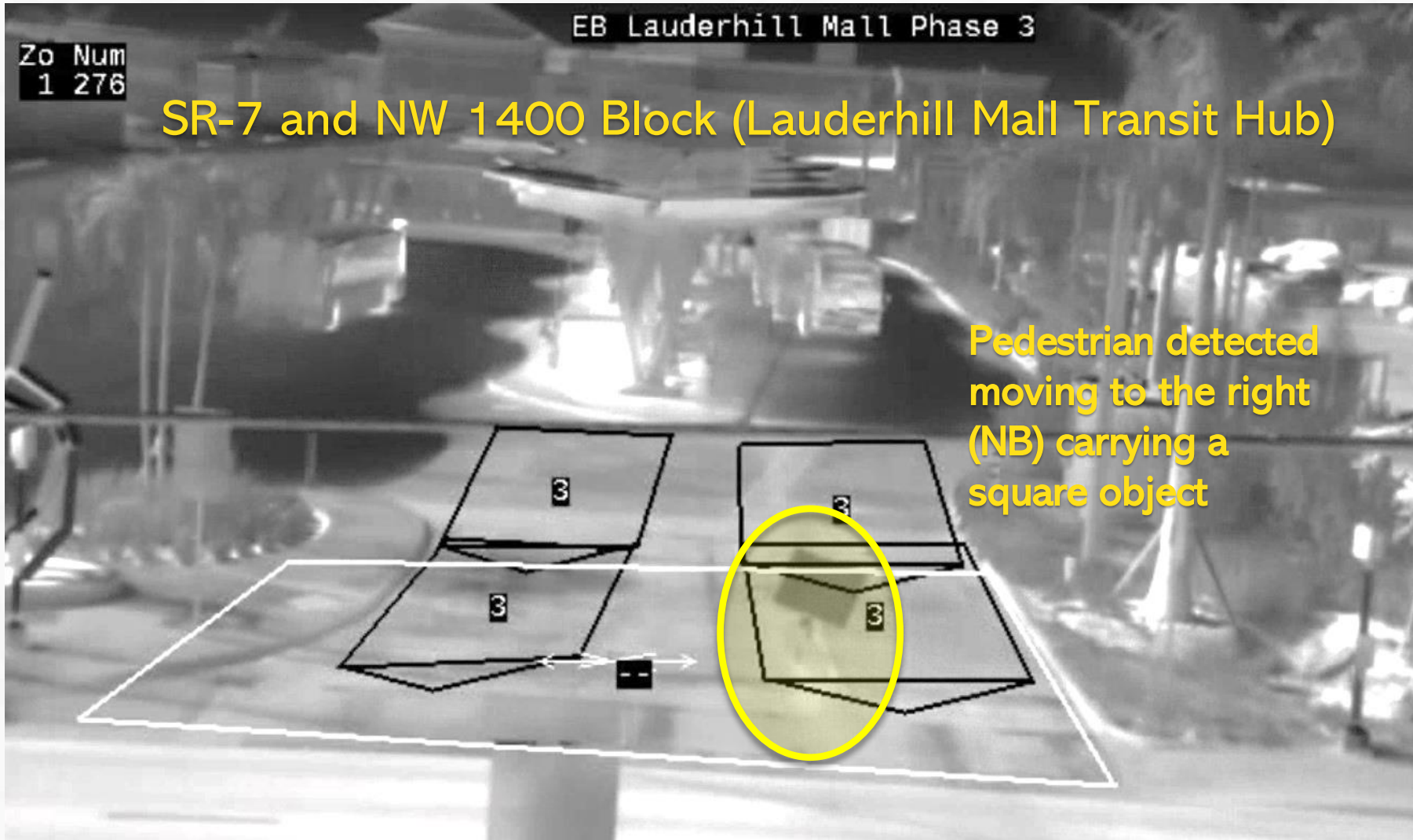
AISD Initiative

Two (2) locations are already equipped with the Iteris Next technology (Iteris):

1. Pembroke Rd and SW 136 Ave
2. Powerline Rd and NW 59 Ct

County policy is to install this technology as part of all future traffic signals and signal upgrade projects.





Trafisense2 technology (Teledyne FLIR):

*AI*SD Initiative

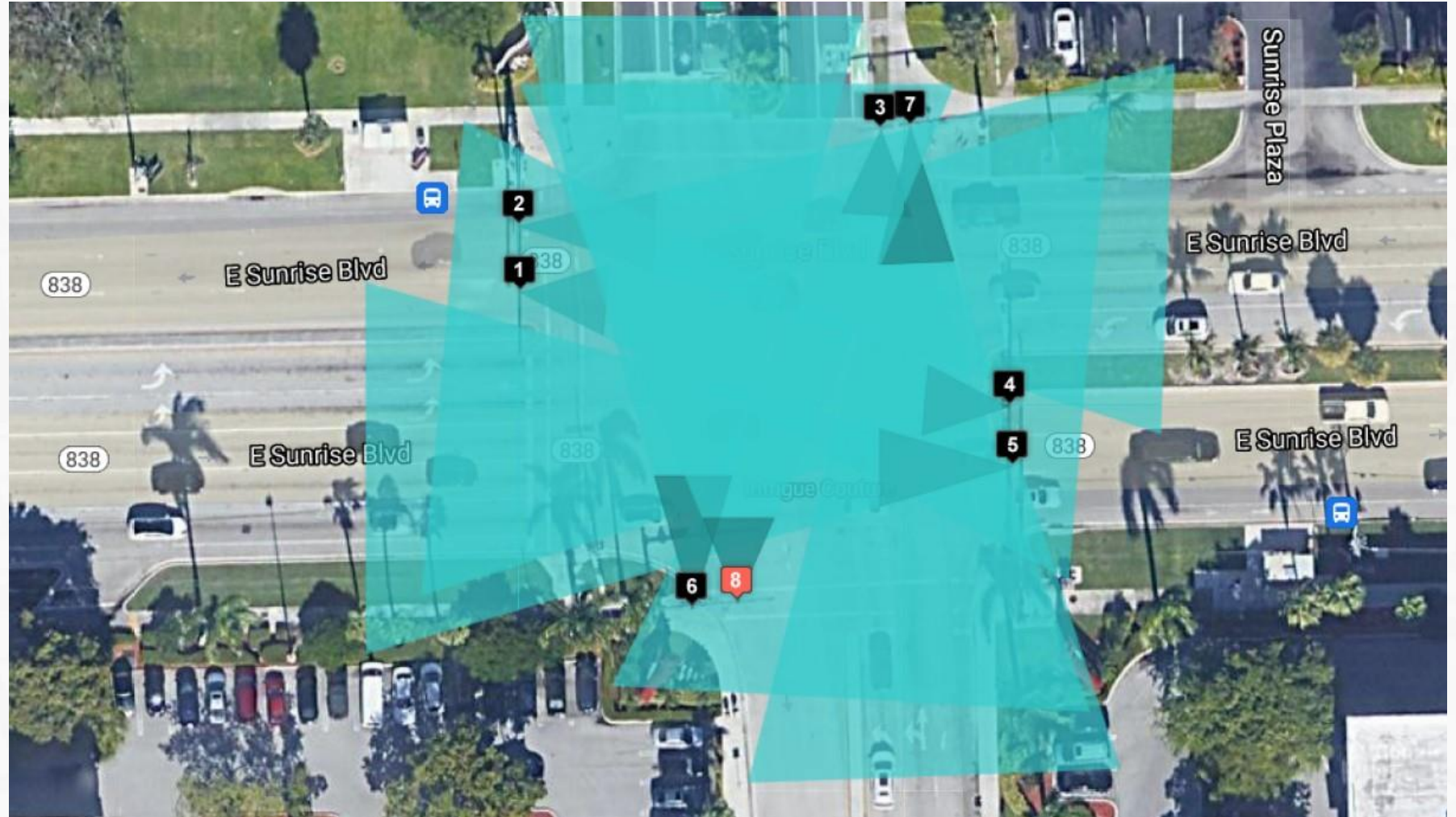
County staff is partnering with FDOT and MPO in selecting locations to deploy the sensor technology in order to provide special bike phasing and/or monitor pedestrian activity. The four (4) initial pilot locations are:

1. Sunrise Blvd and Bayview Drive
2. Las Olas Boulevard and SR-A1A
3. Commercial Blvd and SR-A1A
4. Wilton Drive and NE 21 Ct



AISD Initiative

Sunrise Blvd and Bayview Drive (significant bike activity and green bike box on SB approach)



AISD Initiative

Las Olas Boulevard at SR-A1A (one of the highest pedestrian (ped) and bicycle activity intersections in the County; has exclusive ped phase)



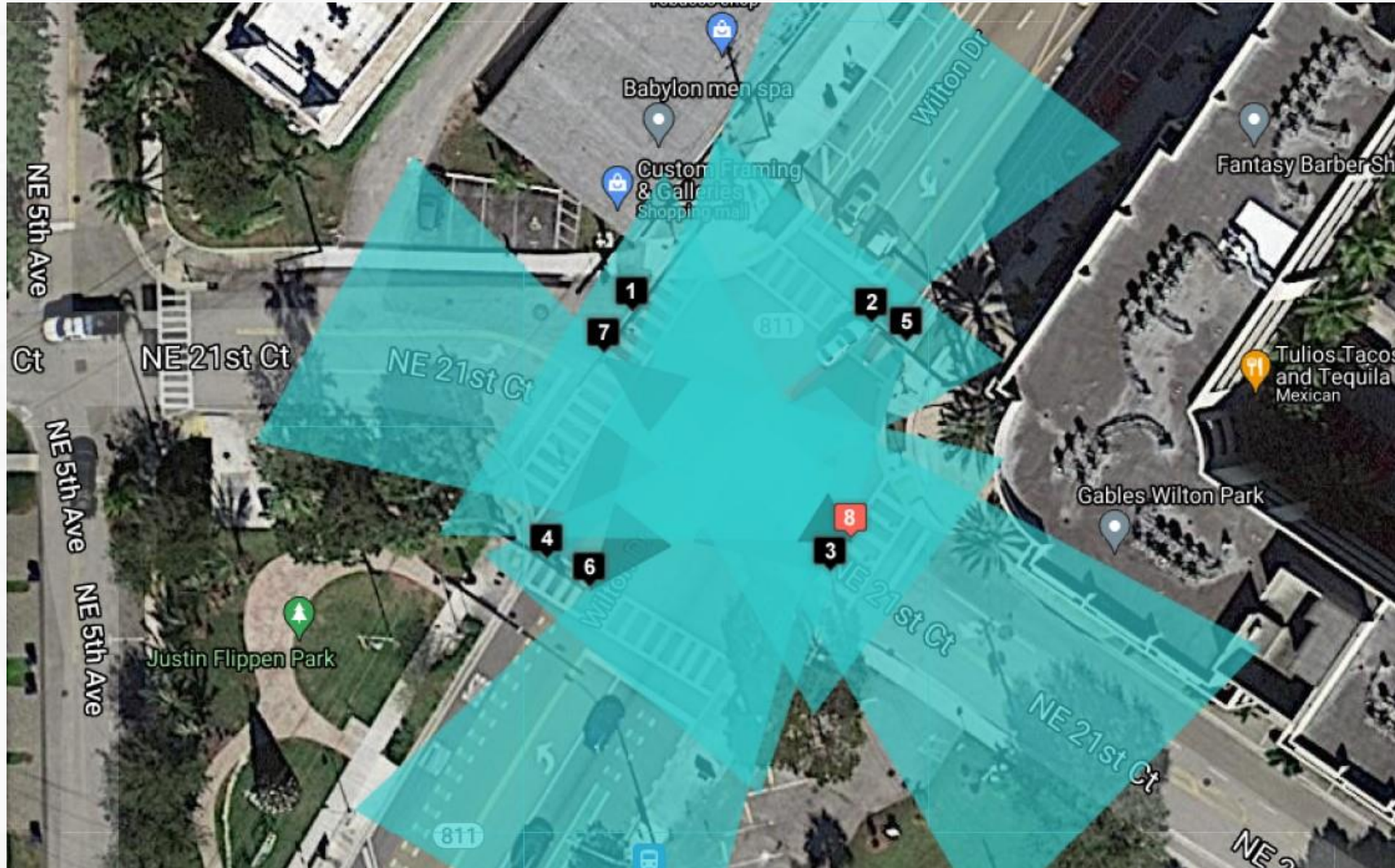
AISD Initiative

Commercial Blvd and SR-A1A (great test case for pedestrian monitoring and has all-way ped phases programmed by day of week and time of day)



AISD Initiative

Wilton Drive and NE 21 Ct (good test case, significant bike and pedestrian activity)



AISD Initiative

Other potential advanced intersection sensor deployments include:

- Sheridan St and SR-A1A
- Hallandale Beach Blvd and SR-A1A
- Flagler Dr and Andrews Ave, Oakland Pk Blvd, and Commercial Blvd (continuous bike lanes)
- Andrews Ave at various locations in the City of Oakland Park





Thank you!
QUESTIONS?

Data Analytics

(MAP Administration, Planning & Innovations Section, Min-Tang Li, Ph.D.)

Introduction of Regional Location-Based Services (LBS) Data

Agenda

1. Background
2. RITIS Trip Analytics
3. Replica
 - Trends
 - Places
4. Demo



-- Please hold questions until the end of the demonstration--

Background

Regional Data Acquisition Memorandum of Understanding (MOU)

- Regional Partnership also delineated cost-sharing among the partners
- Surtax contributed \$25,000 to the contract

Data Acquisition Contract managed by Broward MPO

- Two vendors jointly submitted and were selected based on a competitive solicitation process (RLI) to mainly focus on improving data sources for the regional planning model

Regional Data Acquisition MOU

September 18, 2020, MOU was jointly signed into effect by 3 regional MPOs, FDOT D4&6, and Broward County to acquire probed GPS/mobile spatial and temporal data mainly for southeast regional planning model (SERPM) development

Calendar Year Task (Jan-Dec)	2020	2021	2022	2023	2024	
Fiscal Year Task (Jul-Jun)	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
SERPM 8 Maintenance/Support						
SERPM 9 Procurement						
Travel Data Collection						
SE Data Development						
SERPM 9 Model Development (to Delivery)						
SERPM 9 Development Refinements						

		FY 2020	FY 2021	FY2022	FY 2023	FY 2024	TOTAL
Travel Data Collection							300,000
Travel Data Collection	FDOT	0	75,000	75,000	0	0	150,000
	MPO	0	12,500	12,500	0	0	25,000
	TPO	0	30,000	30,000	0	0	60,000
	BC		12,500	12,500			25,000
	TPA	0	20,000	20,000	0	0	40,000

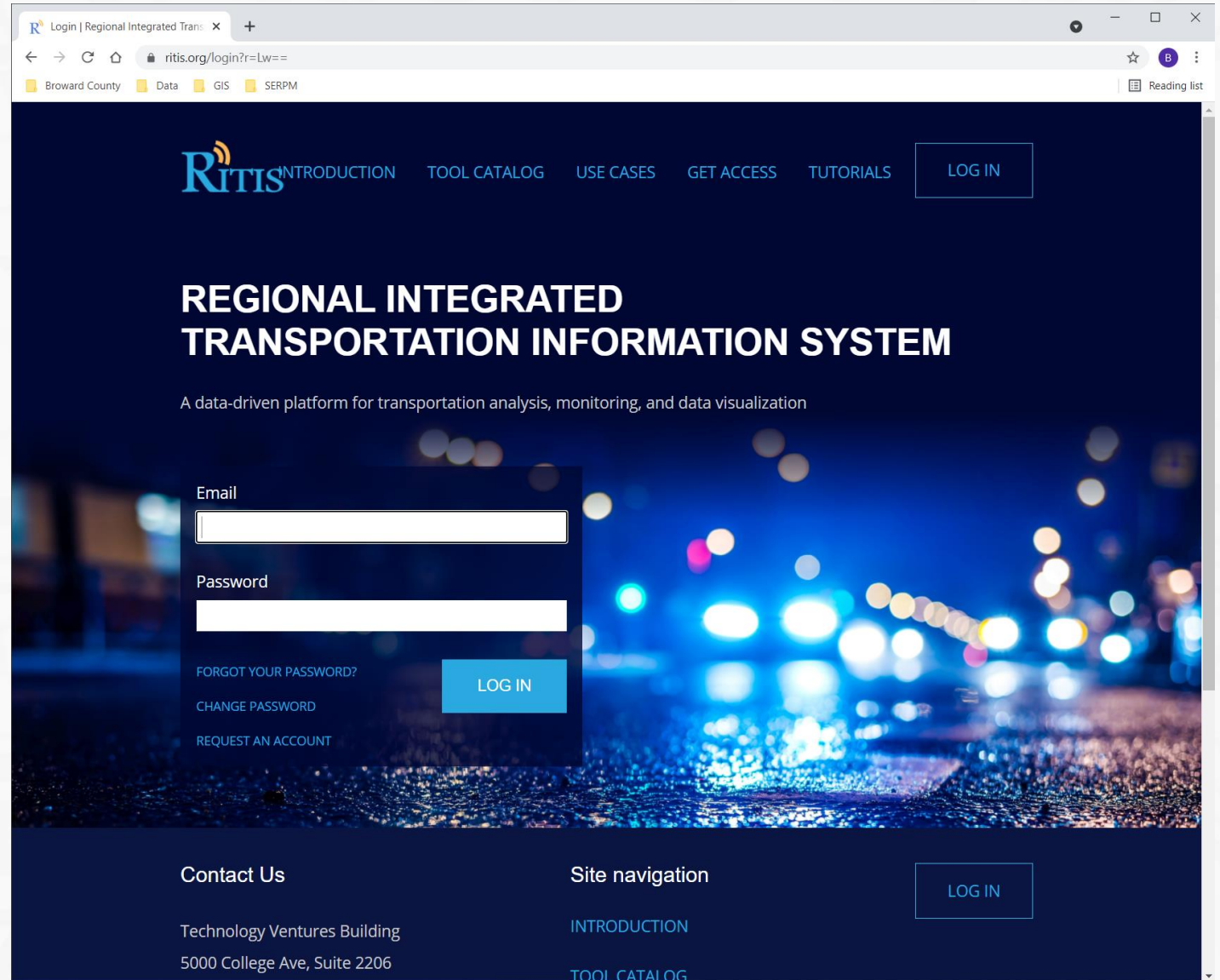
Data Acquisition Contract

- June 10, 2021, INRIX/Replica Team were selected as the vendors to provide data for regional partners to use
- INRIX 8-month data, accessed via Regional Integrated Transportation Information System (RITIS), cover the following temporal spans:
 - 2019: **March – May**, July, **September-November**
 - 2020: Mid December – Mid January

	Product	Annual Fee	Notes
1	INRIX Trips Data and Analytics Tool	\$ 150,000	Perpetual license with 8 months of Trips data only and 1-year license for Trip Analytics with same data loaded.
2	Replica Trips and Places	\$ 150,000	Included in fee are supplemental and additional data as listed in the proposal.
	Minimum Data Requirements Total	\$ 300,000	

RITIS

ITS (Intelligent Transportation system) data warehouse and analytics platform for FDOT and others



The screenshot shows the login page for the Regional Integrated Transportation Information System (RITIS). The browser address bar shows the URL `ritis.org/login?r=Lw==`. The page features a dark blue header with the RITIS logo and navigation links: INTRODUCTION, TOOL CATALOG, USE CASES, GET ACCESS, TUTORIALS, and a LOG IN button. The main content area has a large heading: REGIONAL INTEGRATED TRANSPORTATION INFORMATION SYSTEM, followed by a subtitle: A data-driven platform for transportation analysis, monitoring, and data visualization. A login form is centered, containing fields for Email and Password, a LOG IN button, and links for FORGOT YOUR PASSWORD?, CHANGE PASSWORD, and REQUEST AN ACCOUNT. The footer includes contact information for Technology Ventures Building and a site navigation menu with links to INTRODUCTION and TOOL CATALOG, along with another LOG IN button.

RITIS Trip Analytics – INRIX Data

- [Origin-Destination \(OD\) Matrix](#)
- [Segment Analysis](#)
- [Route Analysis](#)

Event Query Tool :: RITIS | Region x Tools — Trip Analytics x +


trips.ritis.org/tools?dataset=16


Broward County Data GIS SERPM


Reading list

Trip Analytics

Logged in as mli@broward.org | [My History](#) | [Help](#) | [SWITCH DATA SET](#) | [LOGOUT](#)

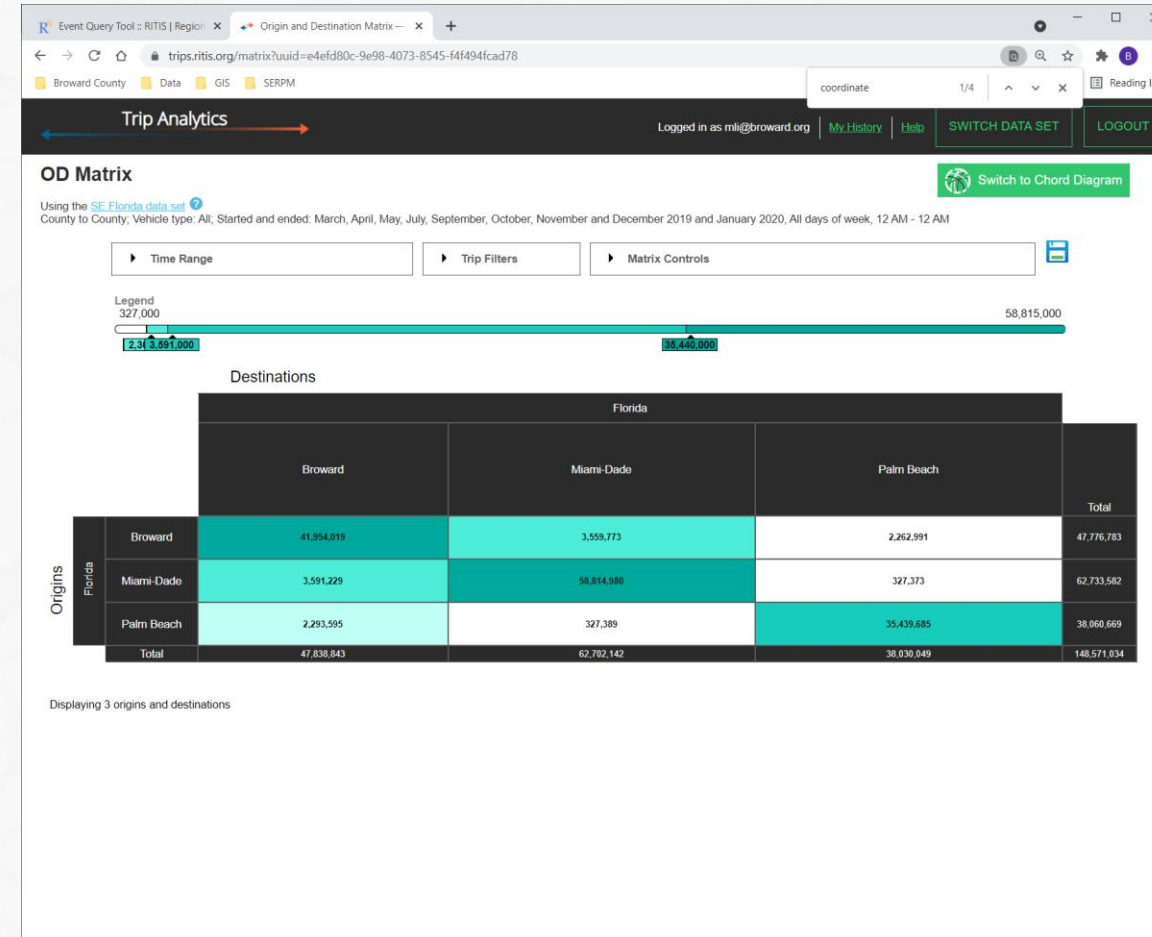
 **OD MATRIX** [START](#)
Set up an Origin-Destination matrix by choosing geographies and dates available

 **SEGMENT ANALYSIS** [START](#)
Analyze the different origins and destinations of trips that passed through selected road segments

 **ROUTE ANALYSIS** [START](#)
Analyze the routes between different geographies during different dates and time periods

Trip Analytics – OD Matrix

- The Origin-Destination (OD) Matrix tool generates geography-to-geography trip tables based on trip start and endpoints. Zones can be a county, sub-county, or TAZ. Users can filter by date range, time-of-day, day-of-week, and by vehicle class.
- Matrix Layout
 - ✓ Matching Axes – same number of OD axes
 - ✓ Custom Axes – customized OD axes



Aggregated & Anonymous Raw Data: Predefined OD Locations

The image displays two screenshots of the ArcGIS Pro interface, illustrating the 'XY Table To Point' geoprocessing tool. Both screenshots show a map of a street grid with blue location markers. The left screenshot shows the tool's parameters and a data table with 14 rows of trip data. The right screenshot shows the same tool with 119 rows of data selected in the table.

Geoprocessing Parameters (Left Screenshot):

- Input Table: 2019-03-March.csv
- Output Feature Class: 1903March_XYTableToPoint
- X Field: start_longitude
- Y Field: start_latitude
- Z Field: (empty)
- Coordinate System: GCS_WGS_1984

Data Table (Left Screenshot):

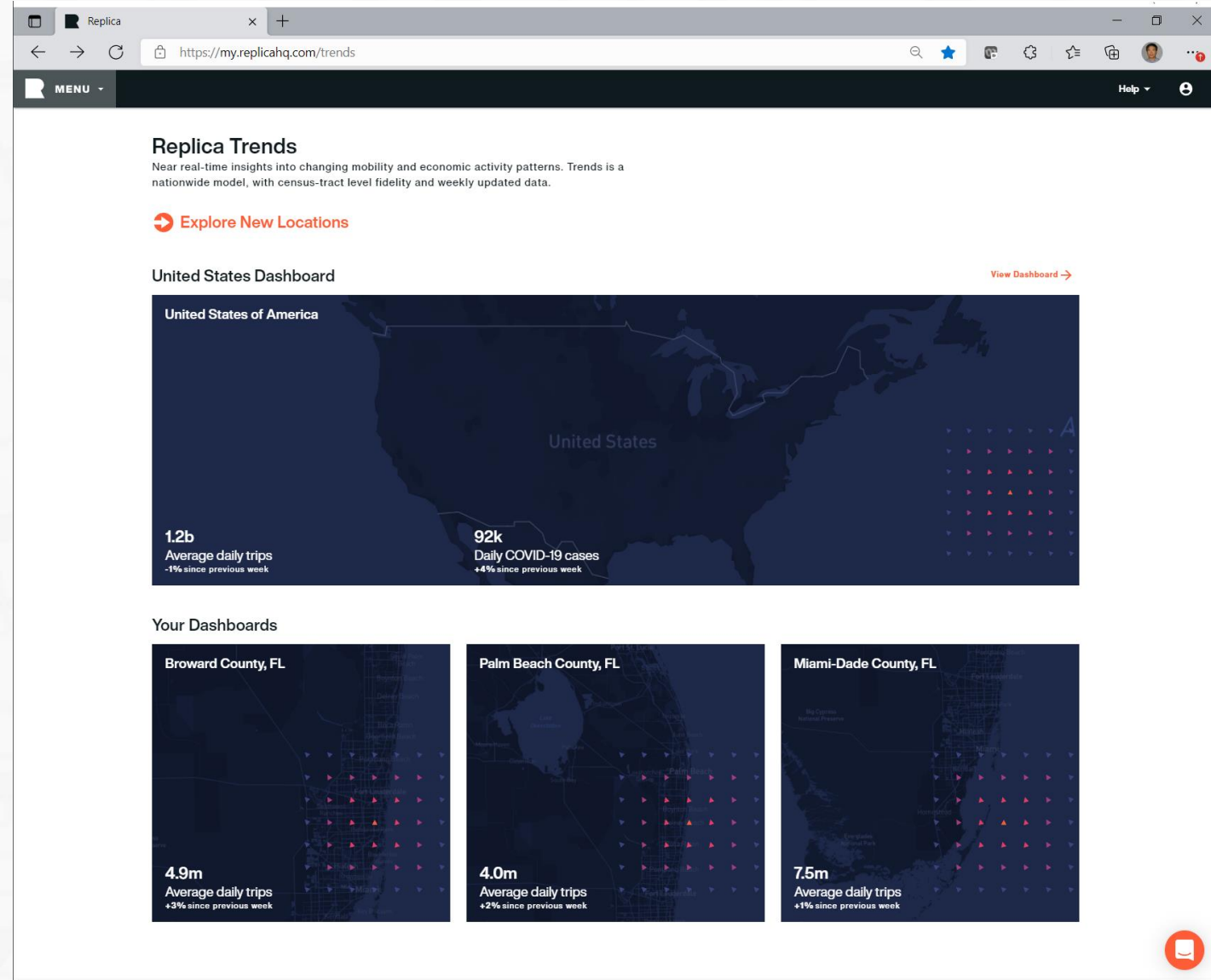
OBJECTID	Shape	trip_id	start_tstamp	end_tstamp	start_latitude	start_longitude	end_latitude	end_longitude
1	Point	2139aabe-de24-8e04-8	Fri, 01 Mar 2019 16:59:3	Fri, 01 Mar 2019 17:11:4	26.12893	-80.12809	26.16961	-80.128
2	Point	3278b37a-377b-6057-a	Fri, 01 Mar 2019 22:01:2	Fri, 01 Mar 2019 22:07:4	26.12893	-80.12809	26.13509	-80.132
3	Point	5e77c41c-a0ab-837d-9	Mon, 04 Mar 2019 22:0	Mon, 04 Mar 2019 22:0	26.12893	-80.12809	26.13386	-80.128
4	Point	a3fa700a-36c6-1e72-75	Tue, 05 Mar 2019 01:18	Tue, 05 Mar 2019 01:23	26.12893	-80.12809	26.15358	-80.128
5	Point	ef5aa66c-02f6-7a99-0e	Tue, 12 Mar 2019 17:31	Tue, 12 Mar 2019 17:47	26.12893	-80.12809	26.17084	-80.118
6	Point	1e339e50-3bfa-dc1d-6	Tue, 12 Mar 2019 16:38	Tue, 12 Mar 2019 16:51	26.12893	-80.12809	26.17577	-80.133
7	Point	de4ffad7-32bd-d776-8	Wed, 13 Mar 2019 18:11	Wed, 13 Mar 2019 18:3	26.12893	-80.12809	26.13756	-80.129
8	Point	637a27cf-55d2-a53b-5	Thu, 14 Mar 2019 20:42	Thu, 14 Mar 2019 20:47	26.12893	-80.12809	26.13756	-80.128
9	Point	0d3f7977-3bb9-737a-6	Fri, 15 Mar 2019 20:01:4	Fri, 15 Mar 2019 20:08:4	26.12893	-80.12809	26.13386	-80.123
10	Point	c2115589-0cf3-de34-1e	Mon, 18 Mar 2019 21:3	Mon, 18 Mar 2019 21:4	26.12893	-80.12809	26.16838	-80.106
11	Point	a1972c61-3434-efea-d	Mon, 18 Mar 2019 17:5	Mon, 18 Mar 2019 18:1	26.12893	-80.12809	26.16838	-80.106
12	Point	b0f2845b-acaf-ee28-0	Tue, 19 Mar 2019 13:30	Tue, 19 Mar 2019 13:49	26.12893	-80.12809	26.1203	-80.121
13	Point	963622c9-d579-23a5-e	Wed, 20 Mar 2019 19:0	Wed, 20 Mar 2019 19:3	26.12893	-80.12809	26.20042	-80.187
14	Point	20f3ac85-2749-b30b-0	Thu, 21 Mar 2019 19:34	Thu, 21 Mar 2019 19:45	26.12893	-80.12809	26.15975	-80.130

Data Table (Right Screenshot):

OBJECTID	Shape	trip_id	start_tstamp	end_tstamp	start_latitude	start_longitude	end_latitude	end_longitude
1	Point	1e0c3a4-ae5f-6853-bf	Fri, 01 Mar 2019 12:26:2	Fri, 01 Mar 2019 12:41:4	26.12893	-80.12672	26.14865	-80.129
2	Point	83fefbaf-b6fb-6fc1-ec8	Fri, 01 Mar 2019 21:04:0	Fri, 01 Mar 2019 21:10:2	26.12893	-80.12672	26.14619	-80.121
3	Point	8f0cabc0-0751-647c-e	Sat, 02 Mar 2019 22:48:1	Sat, 02 Mar 2019 22:54:	26.12893	-80.12672	26.13756	-80.137
4	Point	7f3a40e7-a18f-551c-2c	Sat, 02 Mar 2019 19:49:	Sat, 02 Mar 2019 19:58:	26.12893	-80.12672	26.16591	-80.132
5	Point	7f36bc26-573b-0692-8	Sat, 02 Mar 2019 22:06:1	Sat, 02 Mar 2019 22:18:	26.12893	-80.12672	26.14249	-80.134
6	Point	c080b03-757a-5c10-d	Mon, 04 Mar 2019 19:5	Mon, 04 Mar 2019 20:2	26.12893	-80.12672	26.09687	-80.251
7	Point	217d2541-1990-13e0-1	Mon, 04 Mar 2019 13:31	Mon, 04 Mar 2019 13:51	26.12893	-80.12672	26.18193	-80.132
8	Point	7bc79b74-50ef-f220-4f	Mon, 04 Mar 2019 17:21	Mon, 04 Mar 2019 17:2	26.12893	-80.12672	26.13016	-80.134
9	Point	dc2b4023-61b2-6788-8	Tue, 05 Mar 2019 13:37:	Tue, 05 Mar 2019 13:46:	26.12893	-80.12672	26.17824	-80.134
10	Point	7e103d30-0835-6ebb-f	Tue, 05 Mar 2019 23:48:	Tue, 05 Mar 2019 23:51:	26.12893	-80.12672	26.13509	-80.12
11	Point	93a53065-778f-caf9-1a	Tue, 05 Mar 2019 18:43:	Tue, 05 Mar 2019 19:07:	26.12893	-80.12672	26.13633	-80.137
12	Point	a5b968a0-e42d-b65a-e	Tue, 05 Mar 2019 19:48:	Tue, 05 Mar 2019 20:19:	26.12893	-80.12672	26.08207	-80.251
13	Point	fe11beb-d5ee-70e6-d	Wed, 06 Mar 2019 17:31	Wed, 06 Mar 2019 17:3	26.12893	-80.12672	26.12769	-80.136
14	Point	02c16ca9-d9a9-140a-4	Wed, 06 Mar 2019 13:51	Wed, 06 Mar 2019 14:0	26.12893	-80.12672	26.18316	-80.133

Replica Trends

Nationwide census-tract level fidelity and weekly updated data



Replica Places

Modeled trip table for an average weekday and weekend day for each season, and a quality report that measures the model's outputs against observed data.

Replica Places
Detailed, activity-based travel models, region and time-specific.

Explore Your Place

- Places Explorer**
A web-based interface for querying and visualizing Replica's data.
- Places Data Downloads**
Files summarizing Replica data that you can download for analysis.
- Places Reports**
Pre-packaged reports that display data on critical issues.

Your Workbooks [View All Workbooks →](#)

Your Reports [View All Reports →](#)

Case studies
Cities all over the US are using Replica to better understand movement in their areas. Here are some of the ways we've seen our customers use Replica data to better understand movement in their areas.

- "L" system overview**
This project looks all trips on Chicago's "L" network on a typical Thursday in Fall. It's a great way to get a quick overview of the system.
- North Lakeshore Drive analysis**
This project looks at southbound trips on the Gold Coast section of North Lakeshore Drive. You can see where the trips start, end, the modes used, and other key data.
- How do residents of affluent & disadvantaged areas get around**
In this report we compare three of the most affluent zip codes in Chicago with three of the most disadvantaged, and look at how location, income, and other factors affect how people get around.

[View all Case Studies →](#)

Demo

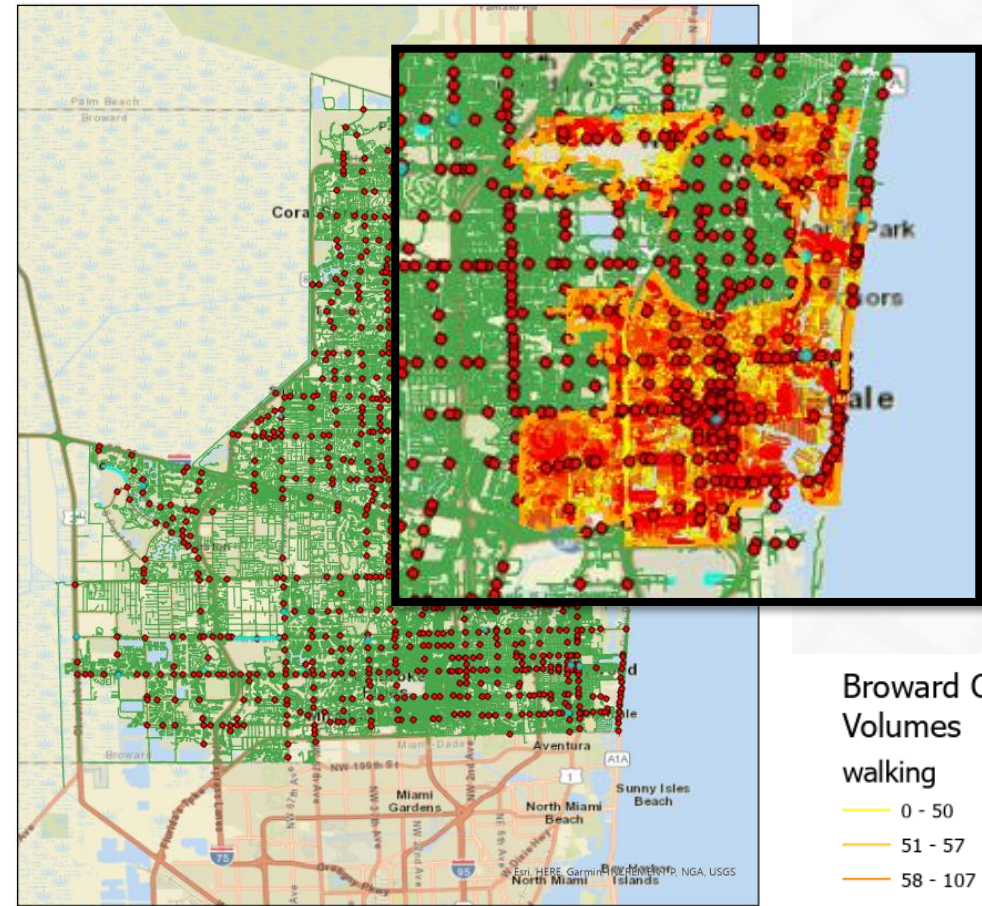
<https://ritis.org/>

<https://replicahq.com/>

On-Going Replica Data Applications

Assess synthesized pre-pandemic travel demand for Pedestrians/Bicycles, etc., at roadway segment and intersection levels.

Develop projects/plans, such as Non-Motorized Count Strategic Plan, to better prepare for and remedy the impact introduced by increasing travel demand.



MAP Broward
 Mobility Advancement Program
 Brought to you by the
 Penny For Transportation

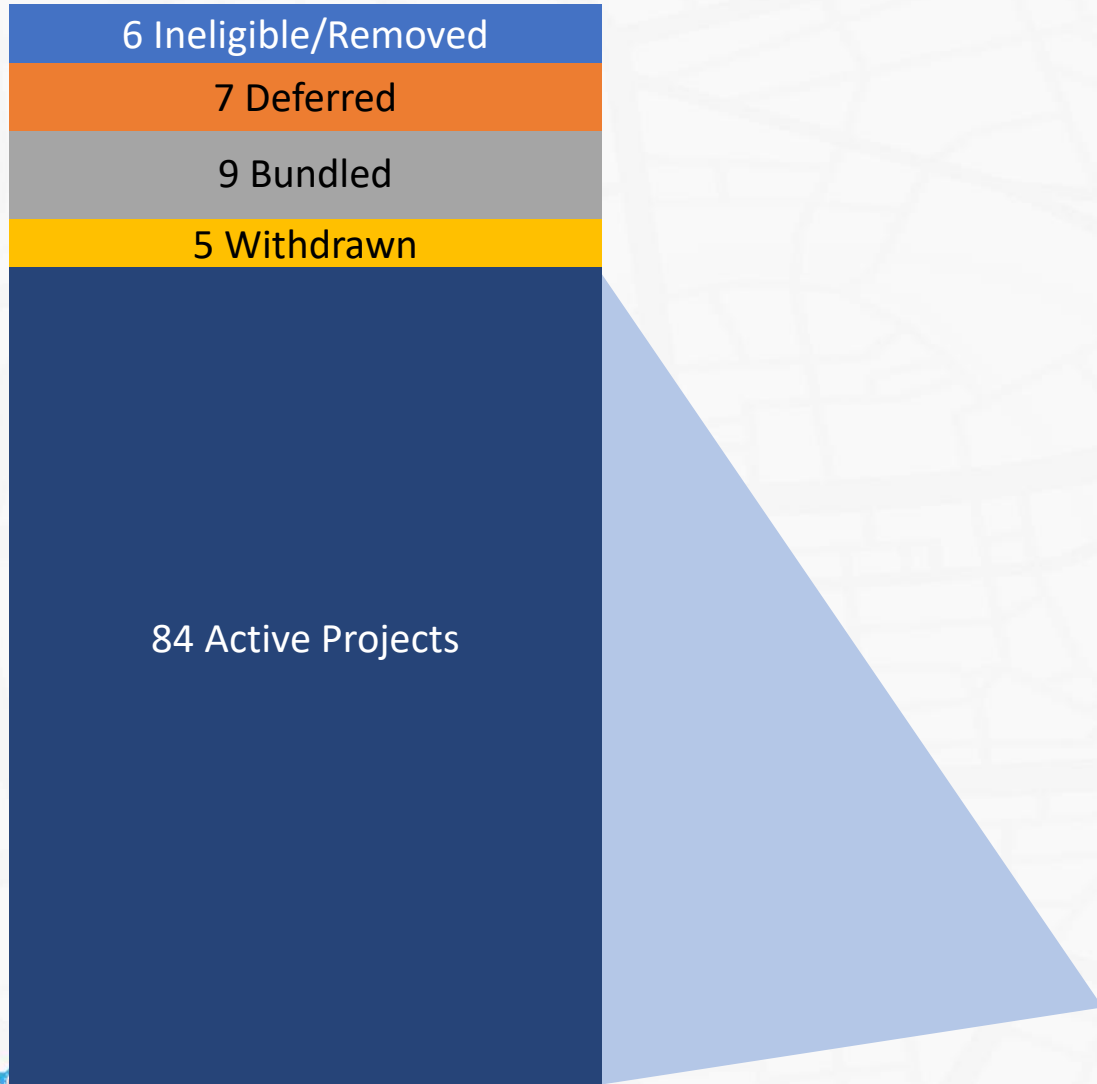
Discussion/Questions?

Municipal Surtax-funded Projects Status Report

Mobility Advancement Program

Alexander Mayorga, MPA, Program Performance Coordinator

Active Municipal Capital Projects (MCPs)



110 Original Municipal Capital Projects

(-) **6** Projects Ineligible/Removed by cities

(-) **7** Projects Deferred

(=) **97 Cycle 1 MCPs**

Post Award:

(-) **9** Projects Bundled (16 became 7 bundled projects)

(-) **5** Projects Withdrawn

(+) **1** Project initially deferred (PPRK-002)

(=) Total **84 Active MCPs**

Status of 84 Active MCPs – Post Award

84 Active Projects

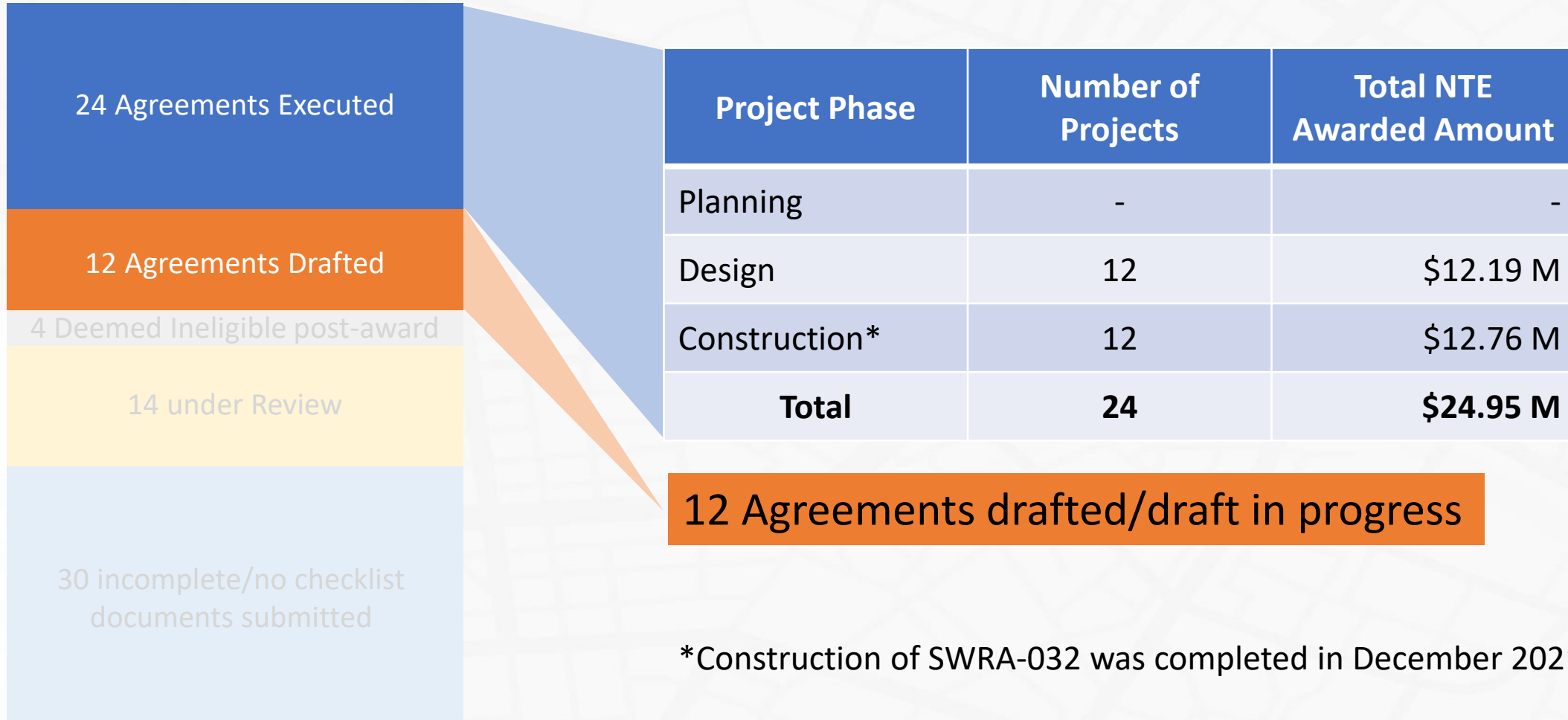


- 24 Agreements Executed
- 12 Agreements in draft form
- 4 Projects have been deemed ineligible post-award
- 14 Projects currently under review
- 30 Projects for which incomplete or no checklist documents have been submitted to the Surtax Legal Team

*One municipal project will likely convert to a county project (Section 5.D.4.e from ILA)

MCPs: Agreements' status update

84 Active Projects

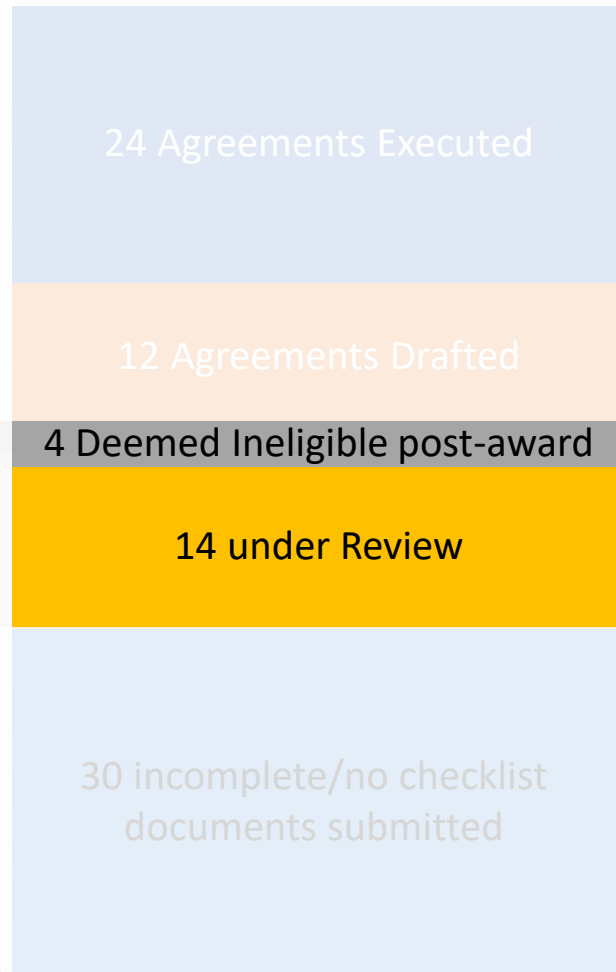


12 Agreements drafted/draft in progress

*Construction of SWRA-032 was completed in December 2021

MCPs: Ineligible Projects and Projects under review

84 Active Projects

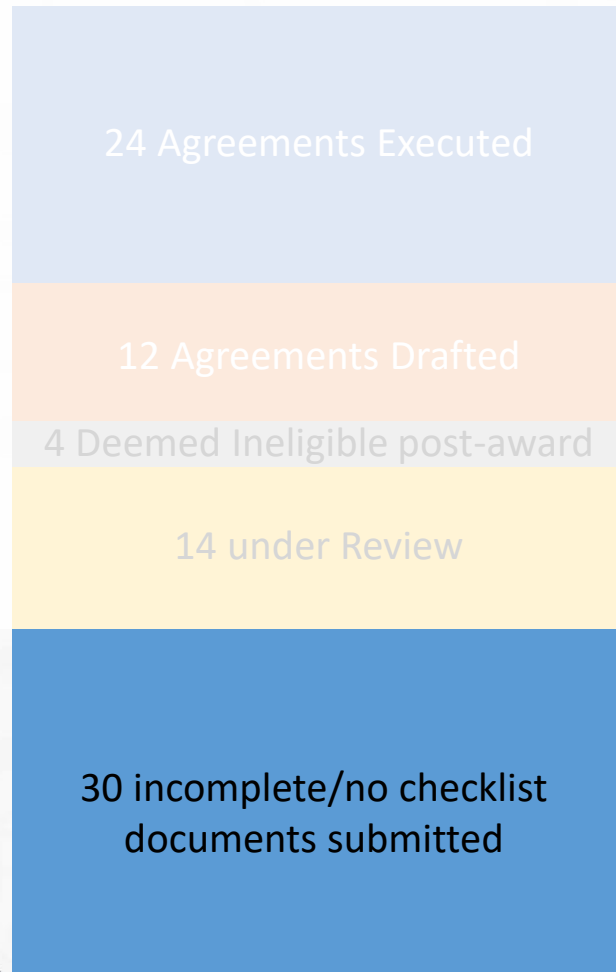


Project ID	Project Type	Description
CORA-097 Ranked 40	New Sidewalk	New Sidewalk Construction; asphalt replacement with ADA compliant concrete sidewalks
CORA-098 Ranked 65	New Sidewalk	New Sidewalk Construction
FORT-104 Ranked 63	New Sidewalk	Citywide Sidewalks
MARG-033 Ranked 107	Bike/Pedestrian Infrastructure	Firefighters Pk-Winfield Blvd. Pedestrian Bridge

Documentation for 14 projects currently under review

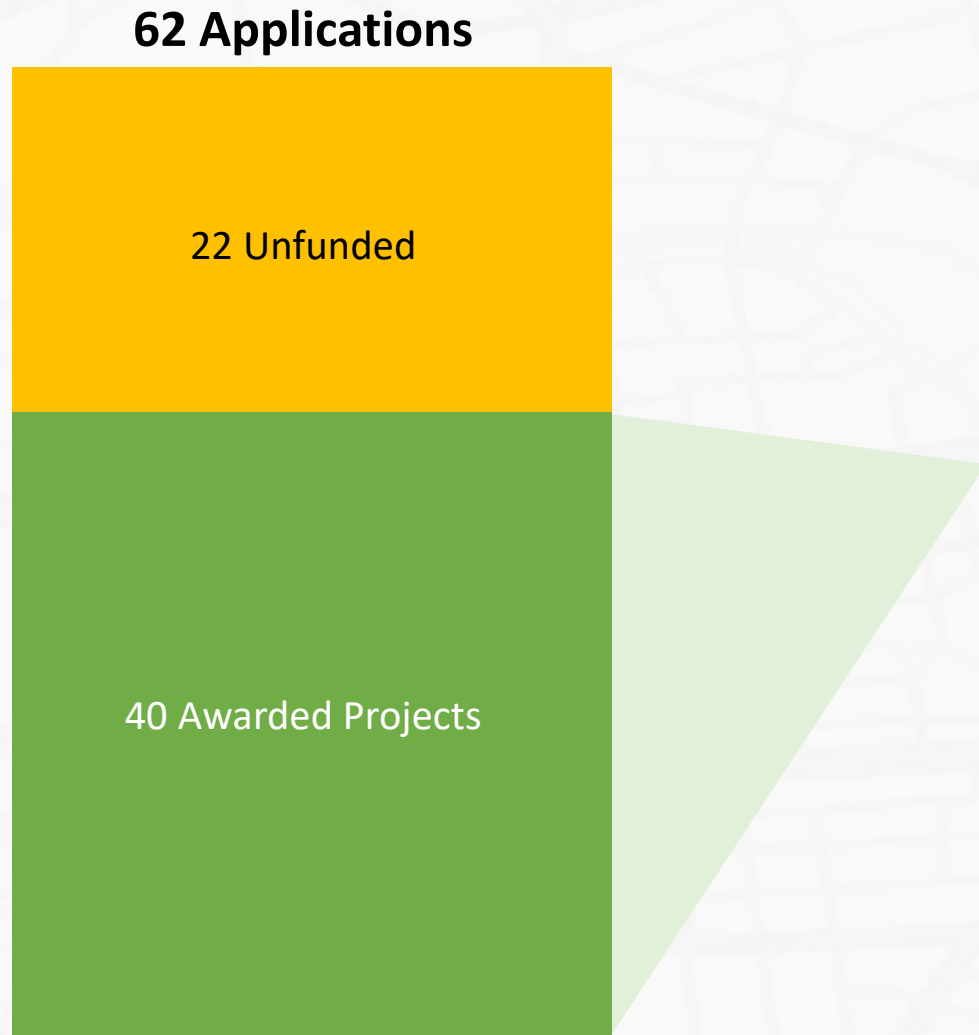
MCPs: 30 incomplete/no Checklist documents submitted

84 Active Projects



Project ID	Municipality	Type	Phase
COCO-016	Coconut Creek	Multi-Purpose Path	Design
COOP-024	Cooper City	Roadway Drainage Improvement	Design
COOP-036	Cooper City	Way Finding Signs	Construction
CORA-102	Coral Springs	Bus Shelter Repair And Replacement	Design
DAVI-012	Davie	Various roadway Improvements	Design
FORT-122	Fort Lauderdale	Various roadway Improvements	Construction
HALL-005	Hallandale Beach	City-Wide Bus Shelter Improvements	Construction
HALL-019	Hallandale Beach	Various roadway Improvements	Design
HALL-026	Hallandale Beach	City-wide Bus Stops Digital Signage	Construction
HOLL-036	Hollywood	Various roadway Improvements	Design
HOLL-038	Hollywood	Various roadway Improvements	Planning
HOLL-056	Hollywood	Safety/traffic calming	Design
HOLL-064	Hollywood	Various roadway Improvements	Construction
LHP-009	Lighthouse Point	Safety/traffic calming	Planning
LHP-010	Lighthouse Point	Construction new sidewalks and bike lane	Planning
LHP-011	Lighthouse Point	Sidewalk Construction	Planning
LLAK-015	Lauderdale Lakes	Various roadway Improvements	Construction
LSEA-005	Lauderdale-by-the-Sea	Various roadway Improvements	Construction
MARG-047	Margate	City Bicycle/Pedestrian Greenway System	Design
PARK-002	Parkland	Bike and pedestrian infrastructure	Construction
PARK-007	Parkland	Traffic Light	Construction
PPIN-039	Pembroke Pines	City Wide Sidewalk Projects	Planning
PPRK-008	Pembroke Park	Roadway Drainage Improvement	Design
PPRK-010	Pembroke Park	Bike Lane And Sidewalk Improvements	Design
SUNR-025.1	Sunrise	Roadway Drainage Improvement	Construction
SUNR-055	Sunrise	Bicycle Lanes	Design
SWRA-022	Southwest Ranches	Roadway Drainage Improvement	Conversion to Const.
WPRK-009	Pembroke Park	Various roadway Improvements	Design
WPRK-007	West Park	Intersection Improvements	Construction
PPRK-002	Pembroke Park	Roadway Drainage Improvement	Construction

Active Municipal Rehabilitation and Maintenance Projects (R&M)



- 62 Original R&M Projects Applications
- (-) 22 Projects unfunded (pending availability of revenues)

(=) 40 Awarded Projects*

* An R&M project in Cooper City (Resurfacing) was bundled with two Capital Projects (Drainage) to increase efficiency, reduce disruption, and protect surtax investments.

Status of 40 Municipal R&M Projects – Post Award

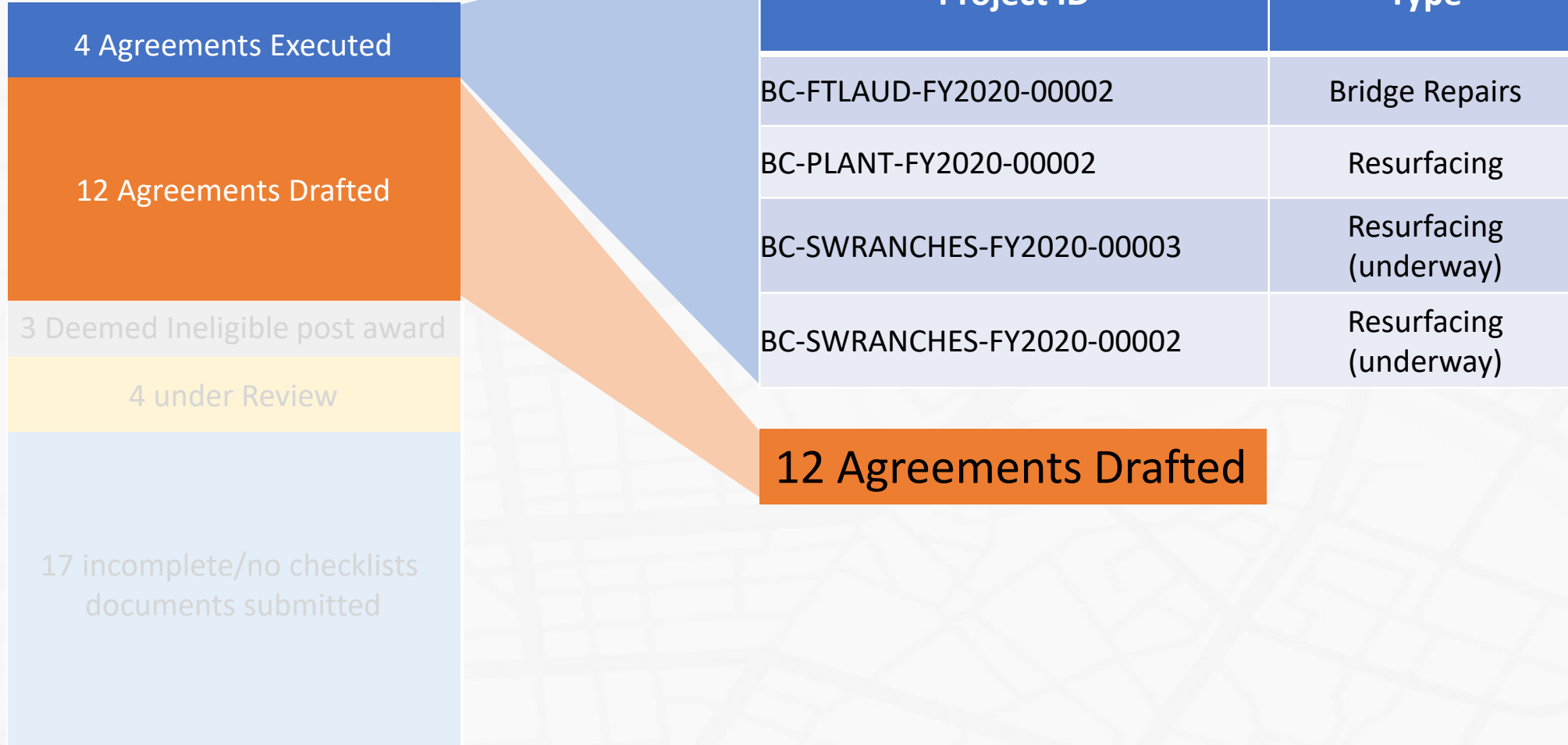
40 Active Projects



- 4 Agreements Executed
- 12 Agreements in draft form
- 3 Projects have been deemed ineligible post award
- 4 Projects currently under review
- 17 Projects for which incomplete or no checklist documents have been submitted to the Surtax Legal Team

Municipal R&M Projects: Agreements' status update

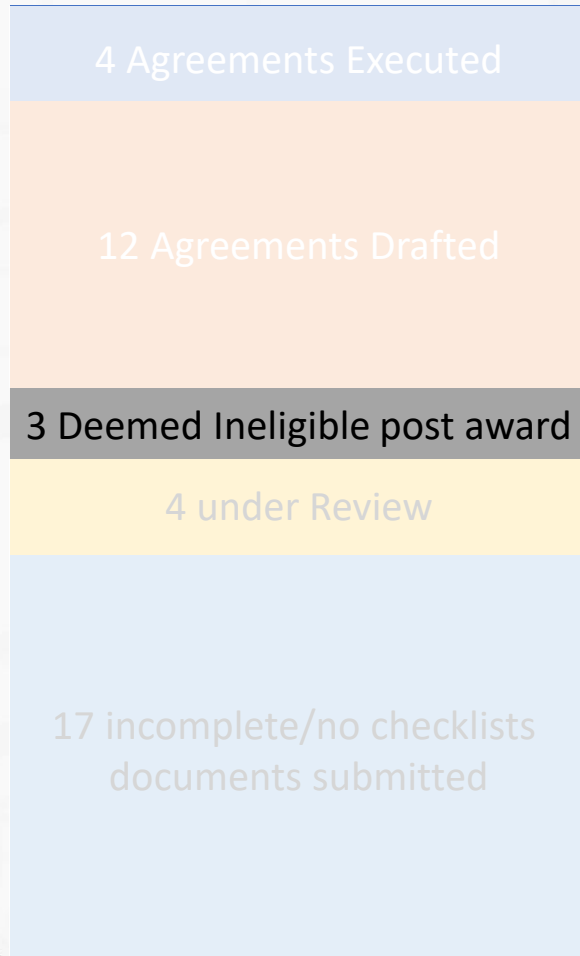
40 Active Projects



Slide updated January 26, 2022 to reflect 12 Agreements Drafted (previously stated 11 Agreements Drafted)

Municipal R&M Projects: Ineligible Projects

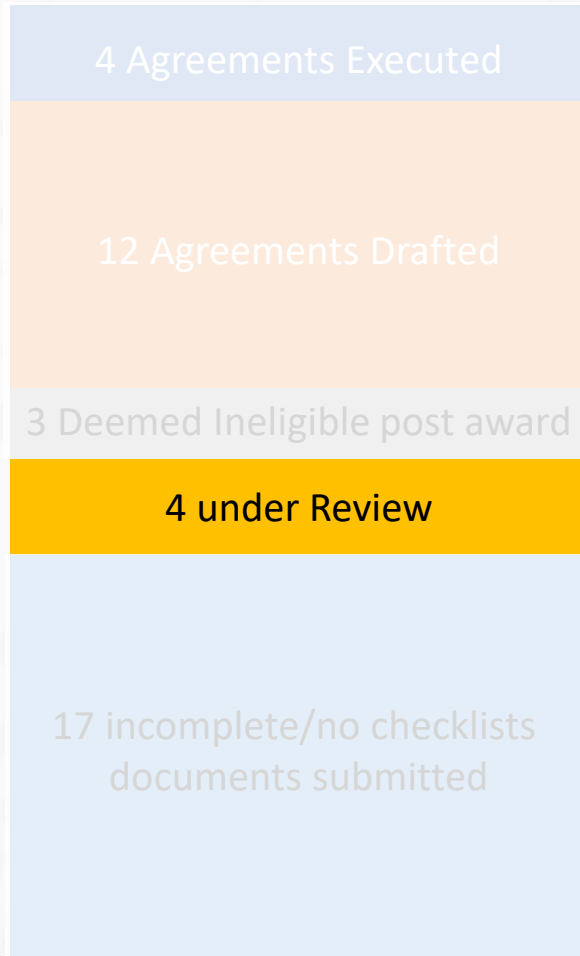
40 Active Projects



Ineligible Projects Project ID	Project Type	Project Name
BC-HBEACH-FY2020-00001	Sidewalk Repairs	Hallandale Beach Priority Sidewalk Maintenance
BC-WESTON-FY2020-00004	Sidewalk Repairs	Weston Sidewalk Maintenance
BC-FTLAUD-FY2020-00001	Sidewalk Repairs	Sidewalk repair and maintenance

Municipal R&M Projects: Projects under Review

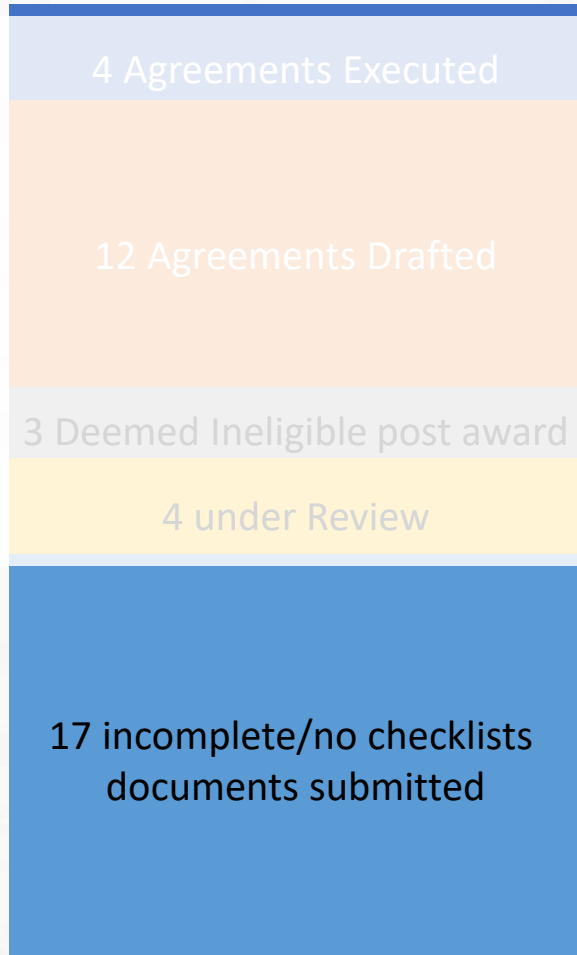
40 Active Projects



Project ID	Municipality	Type
BC-HLYWD-FY2020-00001	Hollywood	Resurfacing
BC-OAKLAND-FY2020-00001	Oakland Park	Resurfacing
BC-COOPERC-FY2020-00001	Cooper City	Resurfacing
BC-WMANORS-FY2020-00002	Wilton Manors	Resurfacing

Municipal R&M Projects: 17 incomplete/no checklist documents submitted

40 Active Projects



Project ID	Municipality	Type	
BC-CSPRINGS-FY2020-00001	Coral Springs	Resurfacing	
BC-DBEACH-FY2020-00001	Dania Beach	Resurfacing	*
BC-FTLAUD-FY2020-00004	Fort Lauderdale	Bridge Repairs	
BC-FTLAUD-FY2020-00003	Fort Lauderdale	Resurfacing	
BC-LHPOINT-FY2020-00001	Lighthouse Point	Bridge Repairs	
BC-LHPOINT-FY2020-00002	Lighthouse Point	Bridge Repairs	
BC-MARG-FY2020-00002	Margate	Sidewalk Repairs	
BC-MARG-FY2020-00001	Margate	Bridge Repairs	*
BC-MARG-FY2020-00003	Margate	Resurfacing	
BC-NRTHLAUD-FY2020-00008	North Lauderdale	Drainage	
BC-NRTHLAUD-FY2020-00006	North Lauderdale	Sidewalk Repairs	
BC-OAKLAND-FY2020-00002	Oakland Park	Drainage	
BC-PBRKPINES-FY2020-00001	Pembroke Pines	Resurfacing	
BC-SUNRISE-FY2020-00003	Sunrise	Resurfacing	
BC-SUNRISE-FY2020-00006	Sunrise	Resurfacing	
BC-LAHILL-FY2020-00001	Lauderhill	Sidewalk Repairs	
BC-LLAKES-FY2020-00001	Lauderdale Lakes	Sidewalk Repairs	

* Not ready for Construction

Surtax Municipal Projects Summary

Total Active Projects: 124
in all phases Capital and R&M Projects

28 Executed agreements

- 24 Capital Projects: 12 Construction phases (1 Completed construction, 3 underway) and 12 Design phases (2 ongoing)
- 4 Rehabilitation and Maintenance Projects (Construction only): 2 of them underway

24 Agreements in draft form

- 12 Capital Projects (drafted or draft in progress)
- 12 Rehabilitation and Maintenance Projects

7 ineligible projects

- 4 Capital Projects
- 3 Rehabilitation and Maintenance Projects

18 project checklist documents under review

- 14 Capital Projects
- 4 Rehabilitation and Maintenance Projects

47 projects no checklist documents submitted

- 29 Construction phase amount to **\$36 M (DEADLINE TO COMMENCE CONSTRUCTION JUNE 2023)**
- 13 Design phase
- 5 Planning phase

It's Been a Great Ride!



Thank you, Chris Walton, for your contributions to Broward County's Transportation & Mobility!

Sincerely,

The Oversight Board & MAP Admin Team

NON-AGENDA & ADJOURN

Regular Meeting of Oversight Board January 28, 2022

LUNCH BREAK

Oversight Board Members are to report to Security Room 116B for the 2022 ID-Badge Renewals

Mandatory Annual Ethics Training for the Oversight Board Members will occur at the conclusion of lunch