



**Regional Transportation Technical Advisory
Committee (RTTAC) Transportation Systems
Management & Operations (TSM&O)
Subcommittee**

Meeting Agenda

April 25, 2024 10:00 AM – 12:00 Noon

100 West Cypress Creek Road. 6th Floor, Suite 650,
Ft Lauderdale, FL 33309

10:00 AM	I. Call to Order / Introductions
10:10 AM	II. District 6 Okeechobee Road Smart Work Zone Project George Hoffman, FDOT District 6
10:40 AM	III. District 4 Smart Work Zone Program Update Dan Smith, FDOT District 4
11:10 AM	IV. Broward MPO/Deloitte Consulting Digital Twin Initiative Mark Plass, Broward MPO
11:40 AM	V. Opportunities to Collaborate ○ Round table discussion
11:55 AM	I. Upcoming Events: ITS America April 22-25, 2024 Phoenix, AZ CoMotion Miami Wolfson Campus Building May 6-7, 2024 Transportation Planning Exchange May 7-9, 2024 St. Petersburg, FL TEAMFL May 23-24, 2024 Coral Gables, FL FDOT Transportation Symposium June 13-14, 2024 Hollywood, FL at the Diplomat Hotel Orlando, FL (November 7-8, 2024) FES ACEC Florida Annual Conference July 24-27, 2024 JW Marriott Miami Turnberry Resort & Spa Transpo (ITSFL & FLPRITE) August 25-28, 2024 Orlando FAV Summit September 4-6, 2024 Tampa, FL
12:00 Noon	II. Adjournment



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April 25, 2024 10:00 AM – 12:00 Noon

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Meeting Attendees:

Mark Plass, Broward MPO
Hector DiDonato, Miami-Dade TPO
Ming-Tang Li, Broward County Traffic
Buffy Sanders, Broward MPO
Tracy Phelps, City of Boca Raton
Alexandra Lopez, FDOT D4 TSM&O
Dan Smith, DOT D4 TSM&O
Francisco Lledo, FDOT D6 Construction
George Hoffman, FDOT D6 Construction
Ana Calleja, FDOT D6 PLEMO
Sergio Bravo, FDOT D6 TSM&O
Tewari Edmonson, Miami Dade DTPW
Catalina Echeverri, Gannett Fleming

Call to Order / Introductions

Meeting attendees introduced themselves and the agencies they represent.

District 6 Okeechobee Road Smart Work Zone (SWZ) Project

George Hoffman from FDOT D6 presented on Okeechobee Road Smart Work Zone project. The 10-mile reconstruction project is ongoing until 2028. Segment 1 was completed last year and currently 3 segments are active. FTE manages 2 of the 6 construction segments. The SWZ contract was originally for 4 years with a 3-year renewal for \$4.3 million. Some challenges listed included the need for professional services on a contractual services type contract. Another challenge was the design bid build project allows the contractor to change MOT phases. Recommend increase the estimate from 7.5% for reconstruction projects was noted. Next steps include adding the side streets for signal operations and signal timing adjustments.

Presentation attached at the end.

District 4 Smart Work Zone Program Update

Dan Smith from FDOT District 4 presented on the Smart Work Zone Program. The program started with the Roosevelt bridge detour using 6 trailers owned by the D4 TSM&O group. Dan noted that the area of influence was more than the bridge reconstruction area. Dan shared the program success stories and documents that are

packaged to share with other districts and states with forms and SOPs. The D4 mobility and safety team were crucial for the success of this program.

Presentation attached at the end.

Broward MPO/Deloitte Consulting Digital Twin Initiative

Mark Plass from Broward MPO shared the digital twin project from Broward MPO. This 12-month effort part of a SMART grant received in March 2024. The MPO is currently holding meetings with stakeholders and looking for opportunities to integrate existing software instead of creating new ones. Mark will provide an update on the progress at upcoming meetings.

Presentation attached at the end.

Upcoming Events

ITS America
April 22-25, 2024
Phoenix, AZ

CoMotion Miami
Wolfson Campus Building
May 6-7, 2024

Transportation Planning Exchange
May 7-9, 2024
St. Petersburg, FL

TEAMFL
May 23-24, 2024
Coral Gables, FL

FDOT Transportation Symposium
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Hollywood, FL at the Diplomat Hotel
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FES|ACEC Florida Annual Conference
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Transpo (ITSFL & FLPRITE)
August 25-28, 2024
Orlando

FAV Summit
September 4-6, 2024
Tampa, FL



Florida Department of
TRANSPORTATION



State Road (SR) 25/US 27/Okeechobee Road Smart Work Zone Management

DOT-RFP-23-6179SD / 447645-1-62-01 / BEE55

Outline

- Introduction
- Key Staff
- Scope of Services
 - SWZ Control Center Services
 - SWZ Deployment
 - SWZ System Operations
- Reporting
- Challenges and Next Steps
- Demo

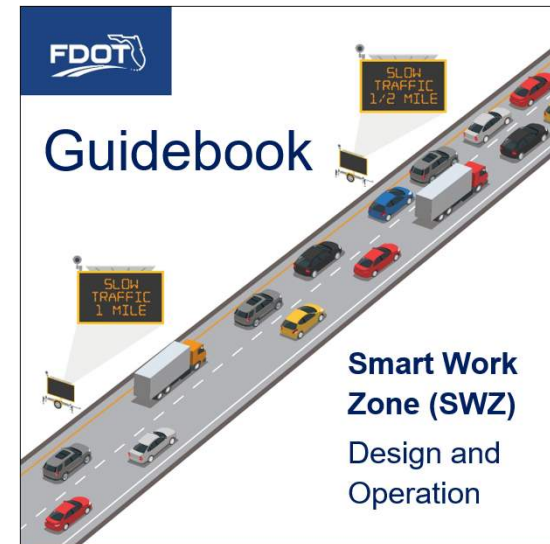
Introduction

- Purpose

To establish, operate, and maintain a Smart Work Zone (SWZ) system to be temporarily deployed, retrieved, and redeployed across multiple projects along US 27 / SR 25 / Okeechobee Road

- Characteristics

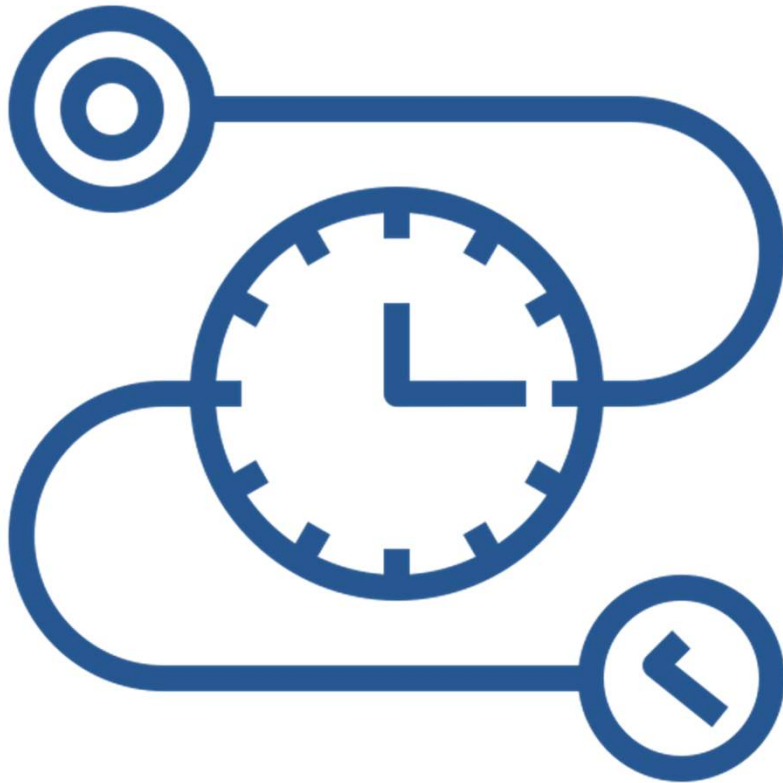
- Real-time
- Portable
- Automated
- Reliable





Project Schedule and Cost

Notice to Proceed: November 1, 2022



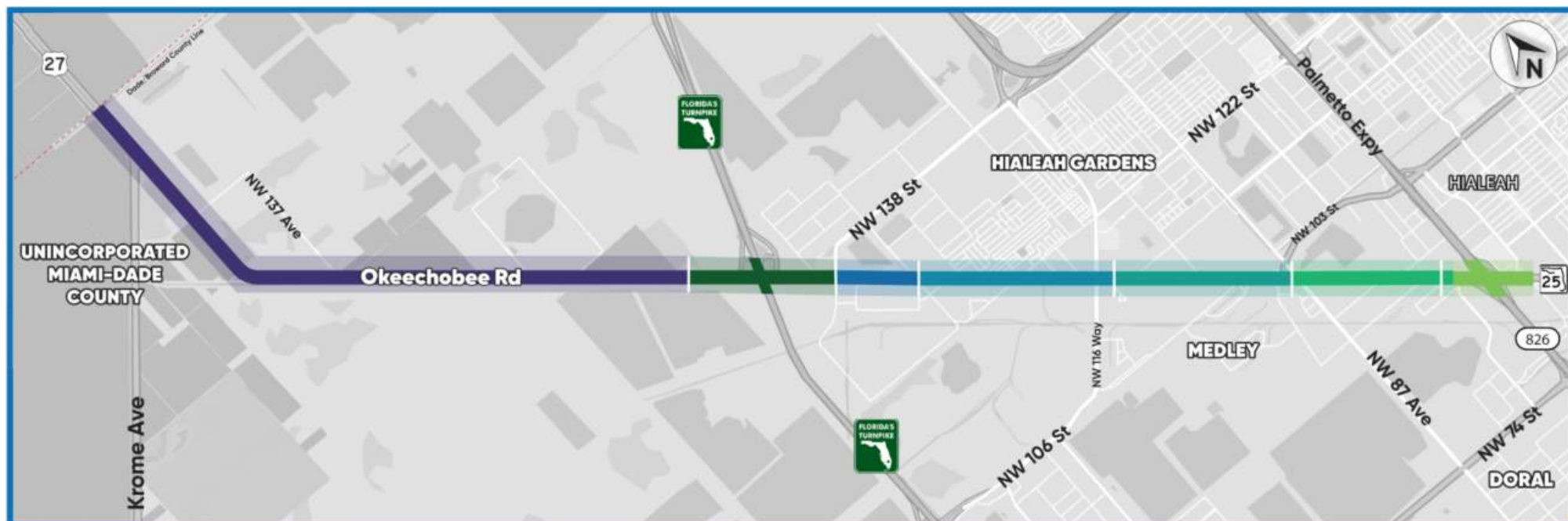
Cost: \$4,270,500.00

*Estimated End Date: November 1, 2025

**This Agreement may be renewed for a period that may not exceed three (3) years.*



Project Location Map



LEGEND

Segment One	Managed by Florida's Turnpike Enterprise		Segment Two	Segment Five	Segment Three	Segment Four
FM No: 423251-2 SR 25/US 27/Okeechobee Road from the Broward County Line to west of SR 821/Florida's Turnpike	FM No: 435542-3 SR 25/US 27/Okeechobee Road from west of SR 821/Florida's Turnpike to west of NW 138 Street	FM No: 443645-1 SR 25/US 27/Okeechobee Road from west of NW 138 Street to east of NW 107 Avenue	FM No: 423251-5 SR 25/US 27/Okeechobee Road from east of NW 107 Avenue to east of NW 116 Way/Hialeah Gardens Boulevard	FM No: 423251-4 SR 25/US 27/Okeechobee Road from east of NW 116 Way to east of NW 87 Avenue	FM No: 423251-3 SR 25/US 27/Okeechobee Road from east of NW 87 Avenue to NW 79 Avenue	FM No: 436565-1 SR 25/US 27/Okeechobee Road at SR 826/Palmetto Expressway Interchange

Key Staff

- FDOT Construction
 - Contract Manager: George Hoffman, P.E.
 - CCEI: Ally Engineering, Consor Eng., RKK
- TransCore
 - Project Manager: Albert Wilkes
 - SWZ Operations: Michelle Gonzalez
 - SWZ Maintenance: Roger Rodriguez
 - SWZ Operators
 - Signal Timing/Analysis: Choice Engineering

Scope of Services

1. SWZ Control Center Services

- Hardware, software, connectivity with devices
- Create, manage, and report traffic events
- View and control CCTV cameras
- Create, view, and post messages on PCMS devices
- TransCore uses Hill and Smith's HS Connect

TIME TO	1	121 WAY	2	DETOUR
87TH AVE	2	BRIDGE	6	AT
XX MIN	2	CLOSED	1	116 WAY

Scope of Services

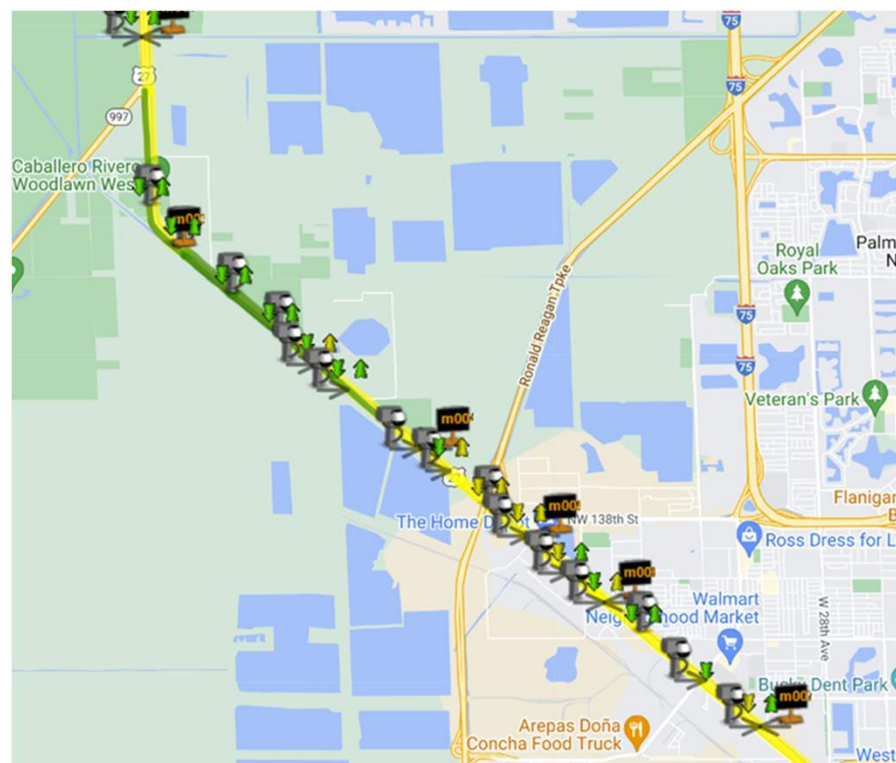
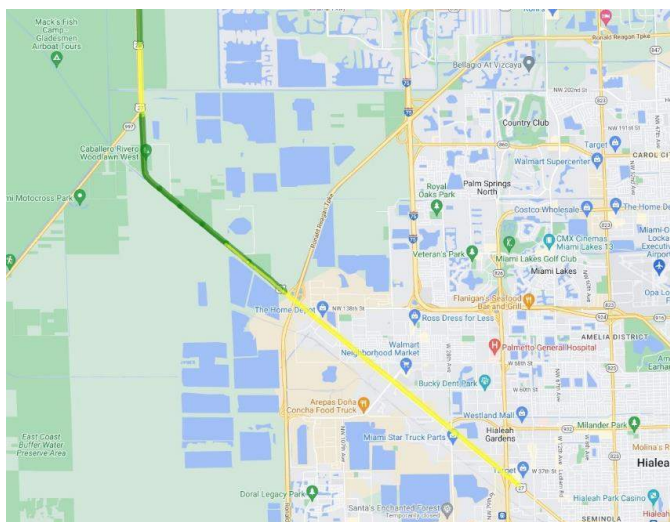
2. SWZ Deployment

- Field Equipment
 - CCTV Cameras
 - Portable Changeable Message Signs
 - Vehicle Detection Systems
 - Counts, average travel speeds, times
- Coordination
 - Construction schedules and key dates

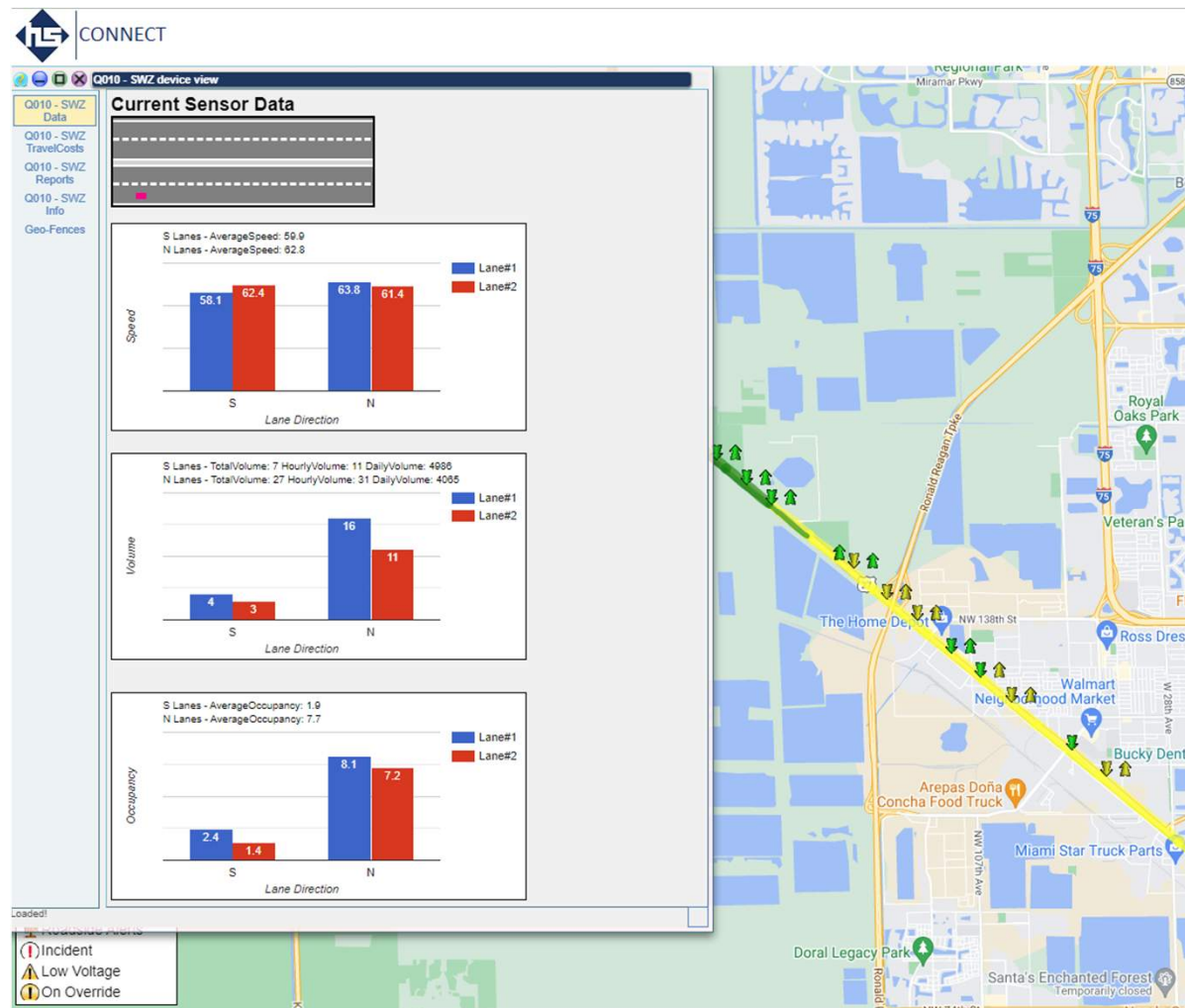


SWZ Deployment

- Initial deployment of 17 SWZ Trailers
- Two config. types
 - 10 CCTV + MVDS
 - 7 CCTV, MVDS, & PCMS



SWZ Deployment



Real-time MVDS Data

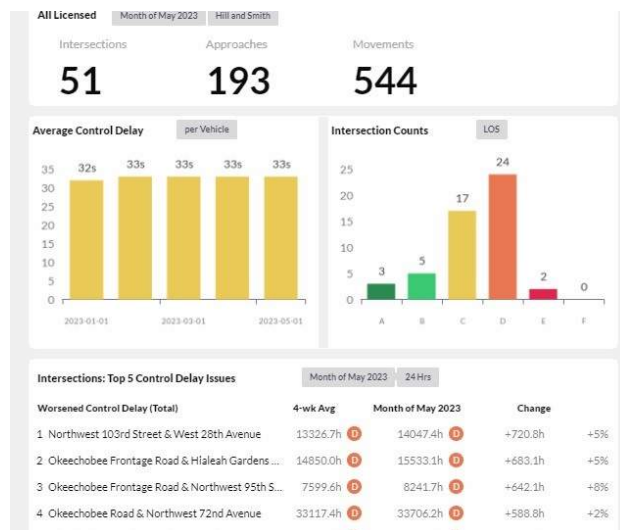
Scope of Services

3. SWZ System Operations

- 24/7 operation of the SWZS
- Dedicated operators to identify incidents
 - Type, severity, and responses until resolved
- Traffic Analysis
 - Work Zone / MOT Phase Review
 - Use work zone traffic data to determine impacts
 - Reports required prior to MOT phase
 - Propose adjusted signal timing plans

SWZ System Operations

- RITIS data - corridor-level performance metrics
- INRIX data - supplement SWZS data
 - Intersection-level performance indicators
- First time INRIX signal analytics for SWZ



INRIX Dashboard

SWZ System Operations



Miramar TMC



SWZ System Operations

SWZ System Operations Interface

Video Feed: C010 - SWZ (controlled by this user)

010 SWZ Video 12/15/14 11:00:00

Presets:

[Access Camera Head](#)

[Refresh Presets](#)

Map Legend:

- Speed > 45 mph
- Speed 15 to 45 mph
- Speed < 15 mph
- Inactive
- Live Video
- Roadside Alerts
- Incident
- Low Voltage
- On Override

The interface displays a live video feed of a road scene and a map showing the location of the camera and other vehicles. The map includes labels for various locations such as Memorial Hospital Miramar, Miramar Regional Park, The Home Depot, and Walmart. The video feed shows a road with a curve and a truck driving.



SWZ System Operations





SWZ System Operations

The screenshot displays the SWZ System Operations interface, which includes a map and a message editor. The map on the right shows a street grid with a highlighted route in yellow and green. The message editor on the left is titled "Current Message" and shows "KROME AVENUE 8 MIN". Below this is the "Override Message Editor" section, which includes a "Display Time" dropdown set to "3 (secs)" and a "Group Boards" list. The "Default Message Editor" section at the bottom provides instructions on how to set the default message. The interface also includes a sidebar with navigation links and a bottom status bar with icons for "Roadside Alerts", "Incident", "Low Voltage", and "On Override".

Current Message

KROME AVENUE
8 MIN

Override Message Editor

Remove page

Display Time: 3 (secs)

Add New Text Page

You can select additional devices from the "Group Boards" list box to override or change the default message on multiple message boards simultaneously.

Group Boards

- M002 - SWZ-North
- M003 - SWZ-North
- M007 - SWZ-North
- BB_MB-North
- M001 - SWZ-South
- M004 - SWZ-South
- M006 - SWZ-South
- W000 - SWZ-South

Select All Devices

If you want the override to never end, "End Time" must be left empty. If you want the override to end at a certain time, select an "End Time" which is local to the project's time zone.

End Time:

Default Message Editor

The default message is the message which will typically be activated/shown on the message board when it is NOT on override.

If the project is setup as a Smart Workzone System the default message is recommended by the system once per minute and it could change based on the traffic conditions. Changing the default message through this interface in this case will not have an effect as it will be automatically replaced by the recommended message.

Roadside Alerts

- Incident
- Low Voltage
- On Override



SWZ System Operations

CONNECT

1426 Information

1428 Info

1425 Reports

Update

incidentNumber:

1426

incidentType("):

Stationary Vehicle

incidentType_Other:

Enter a incidentType_Other

incidentClassification("):

Minor

notifyingAgency:

FHP

createdBy:

Michelle Gonzalez

updatedBy:

Michelle Gonzalez

contactName:

Michelle Gonzalez

incidentStatus("):

Active

reasonIncidentVoided:

Enter a reasonIncidentVoided

incidentRoadway:

Okeechobee

incidentLatitude:

25° 0' 0" N

incidentLongitude:

80° 20' 36.61" W

generalDescription:

Grey Nissan sedan with hazards on and hood open. Driver is working on engine. Located on NB Okeechobee Rd & 105th Way, on the right shoulder.

damageDescription:

Update 1, 7:53 AM: Driver has closed hood and is walking
No visible damage.

equipmentInvolved:

None.

dateAdded:

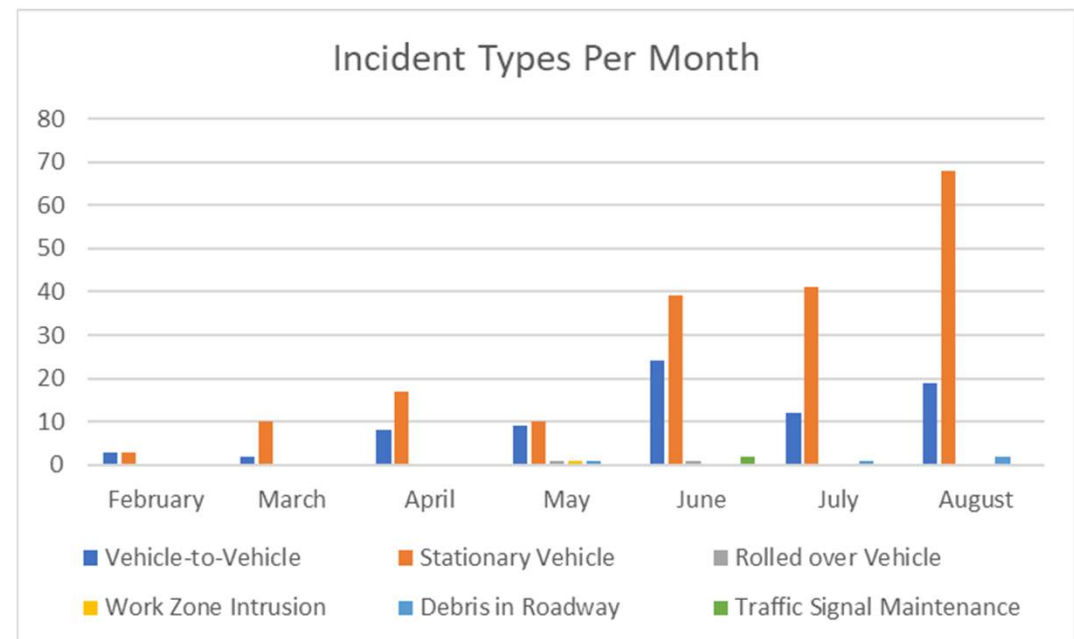
9/25/2023 7:47:54 AM

dateUpdated:

9/25/2023 8:00:11 AM

Reporting

- Total of 900 Incidents
- Majority are Stationary Vehicles: 80-90%
- Vehicle-to-Vehicle: 10-20%
- Minimal IRV Incidents



Challenges

- Contract Type: BEE55
- Involves contractor or field-type work
- Intended to provide professional services scope
- Ambiguity regarding MOT Phases
- Procurement lag and high cost of equipment
 - Mobilization was limited to 7.5% of total

Next Steps

- Renewal of Contract, +3 years
- Feasibility analysis on expanding the scope to include “off-system” roadways
- Cost-benefit analysis of the SWZ contract
- Research project through FIU
 - Quantify safety and mobility benefits



Recommended Resources

- Transportation Management Plan - 423251-7
- Operational Concept Report - 447645-1
- Developmental Standard Specifications 102 and 900
- Developmental Standard Plans (DSP)
- FDOT Design Manual - 240 Transportation Management Plan
- FDOT Smart Work Zone (SWZ) Design and Operation Guidebook
- FHWA Guidance on Using Intelligent Transportation Systems (ITS) in Work Zones

Questions?





DISTRICT 4 SMART WORK ZONE

A NEW WAY OF THINKING



Daniel Smith D4 TSM&O
Florida Department of Transportation



WHY?



**4,016+
CONSTRUCTION
PROJECTS IN
NEXT 5 YEARS**



**53,000+ WORK
ZONE-RELATED
CRASHES FROM
2017-2021**



**COMMUNITY
DISRUPTION
DURING
CONSTRUCTION**



HOW IT STARTED

FDOT

TCPalm.

FDOT: Severe corrosion found at Roosevelt Bridge causing support of bridge to be ruptured



Severe corrosion found at Roosevelt Bridge causing support of bridge to be ruptured

FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) announced today that severe corrosion was found at the Roosevelt Bridge, causing the support of the bridge to be ruptured.

FDOT officials are working quickly to seal the area to reduce the flow of water into the bridge. According to a recent report, the support will be damaged if the area is not sealed.

The Florida Department of Transportation (FDOT) is currently conducting an investigation of the cause of the damage to the bridge. The investigation will determine the cause of the damage and the steps that will be taken to prevent future damage.



SWZ DEFINITION



Application of technology used to reduce negative impacts to safety and mobility within a work zone.



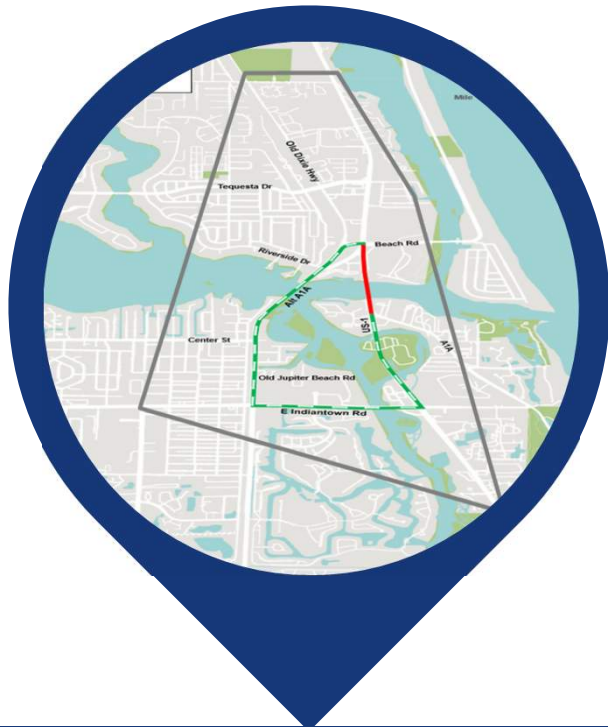
Application of technology used to reduce negative impacts to safety and mobility within **and around** a work zone.





INNOVATION & FOCUS ON COMMUNITY

AREA OF INFLUENCE



SWZ EQUIPMENT – WIRELESS DATA TRANSFER



Florida Department of Transportation



SECONDARY BENEFITS

Rapid ITS Deployment

- ✓ Natural Disaster
- ✓ Unplanned Road Closures
- ✓ Emergency Management Support
- ✓ Special Event Monitoring





KEYS TO SUCCESS



Coffee with the Contractor!

FDOT

Fire, Police & Hospital

PIO

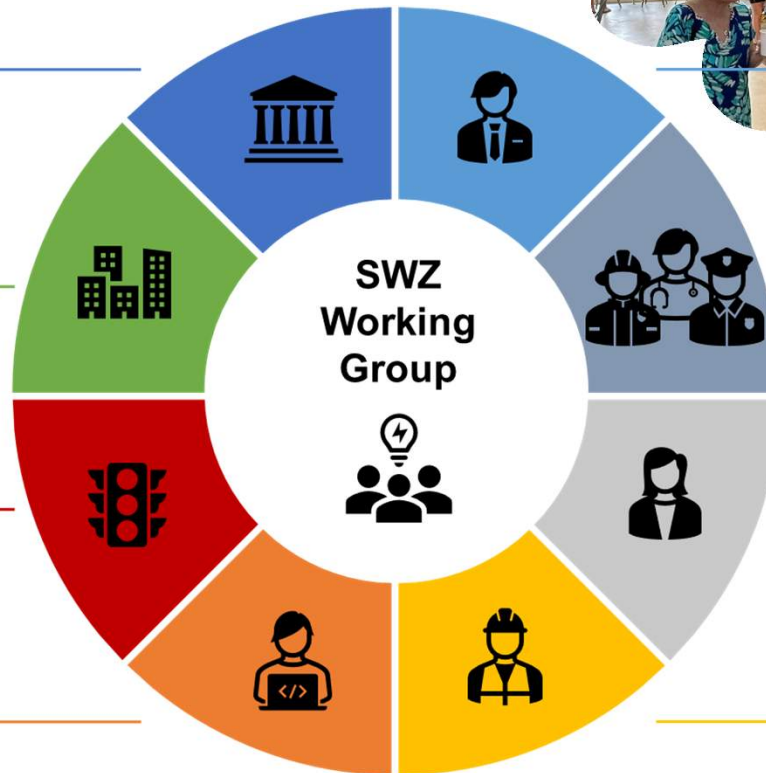
Contractor and CEI

City Manager's Office

Local Municipalities

Signal Maintaining Agencies

SWZ Consultant



Florida Department of Transportation

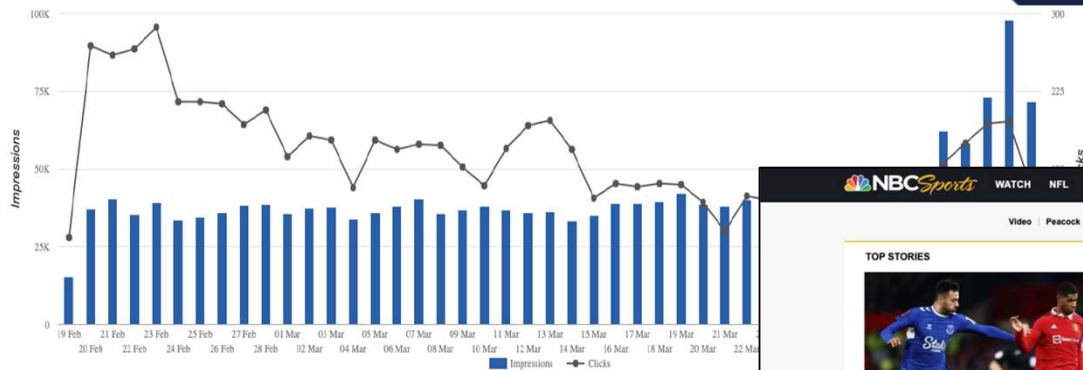




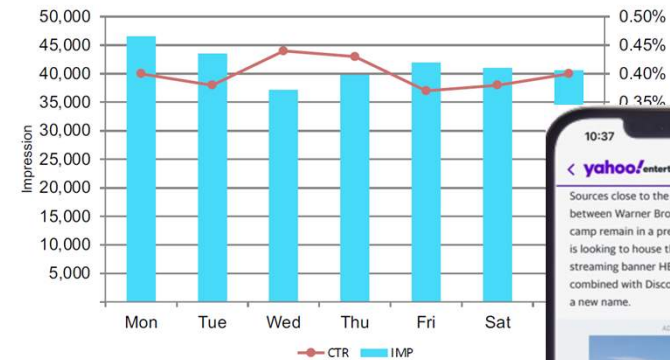
Geofencing Media Campaign

Campaign Delivery

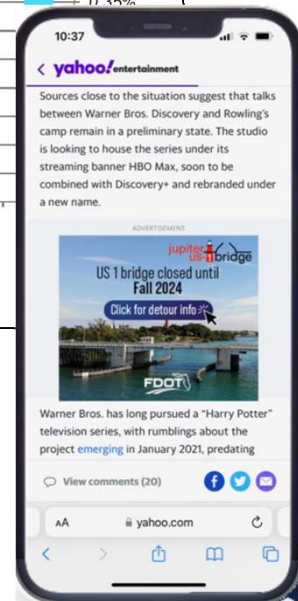
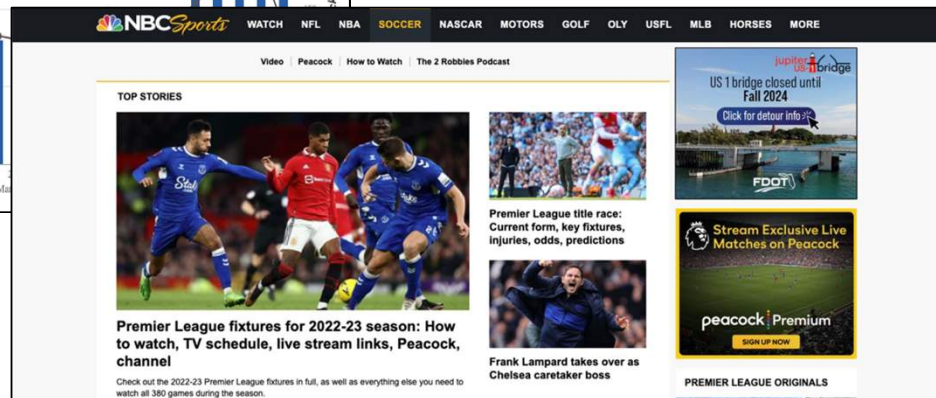
IMPRESSIONS	CLICKS	CLICK THROUGH RATE	ESTIMATED SPEND
1.87M	7.44K	%0.40	\$14,680.00
100%	100%	100%	100%



Day of Week Performance



Highest CTR performing day was Wednesday, followed by Thursday



Florida Department of Transportation



FORMALIZING PROGRAM

D4 SAFETY TEAM



D4 MOBILITY TEAM





SCALABLE PROGRAM

Florida Department of Transportation (FDOT) District 4
Transportation System Management and Operation (TSM&O)
Scoping Checklist

The purpose of this checklist is to assist FDOT project managers and TSM&O staff with identifying key TSM&O improvements, deliverables, and milestones to include in projects and project schedules. This includes, but is not limited to, activities and deliverables associated with the systems engineering process, ITS and signal system design, and documentation related to preserving the existing TSM&O network components and infrastructure.

General Project Information	
Project Manager:	FMR:
Project Description:	Project Limits (Project Length):
County:	Production Date: Letting Date:
Preservation of Existing Infrastructure managed by FDOT	
Is this project within the existing TSM&O Network?	☐ Yes ☐ No
What are the existing devices or infrastructure in place? (Is there an ITS hub site within the project limits?)	
Will the existing infrastructure require additional coordination? (e.g. conduit run conflicts, ITS device relocation or upgrade, etc.)	☐ Yes ☐ No
Incorporate new FDOT managed ITS Infrastructure or TSM&O Strategies	
Are the project limits on the TSM&O Strategic Network?	☐ Yes ☐ No
What type of implementation strategies are recommended from the District 4 TSM&O Master Plan? (Check all that apply)	☐ Traffic Management ☐ Transit Management ☐ Safety & Emergency Management
Additional Comments:	No recommendations, FDOT doesn't maintain
Date TSM&O Scoping Form was uploaded to PS&E:	
TSM&O Contact Information	
Scoping Lead	TSM&O Program Engineer Alexandra.Lopez@dot.state.fl.us (954) 777-4376

SWZ PROGRAM SOG

1

2

INITIAL SCREENING TOOL

PROJECT SCOPING
FORM

3

4

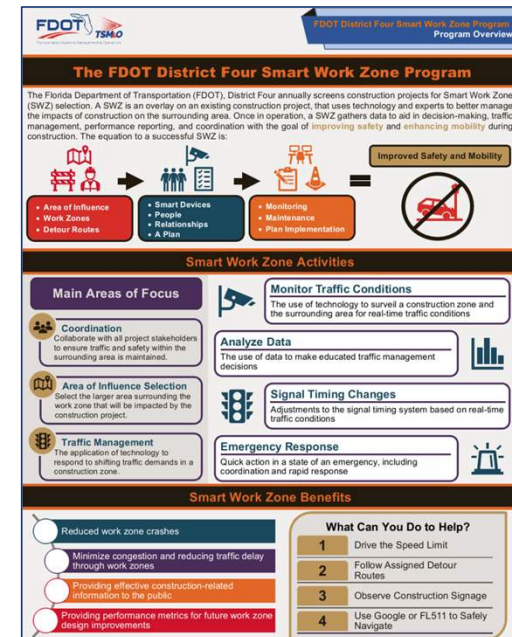
MARKETING MATERIALS

PERFORMANCE MEASURE
CATALOG

5

6

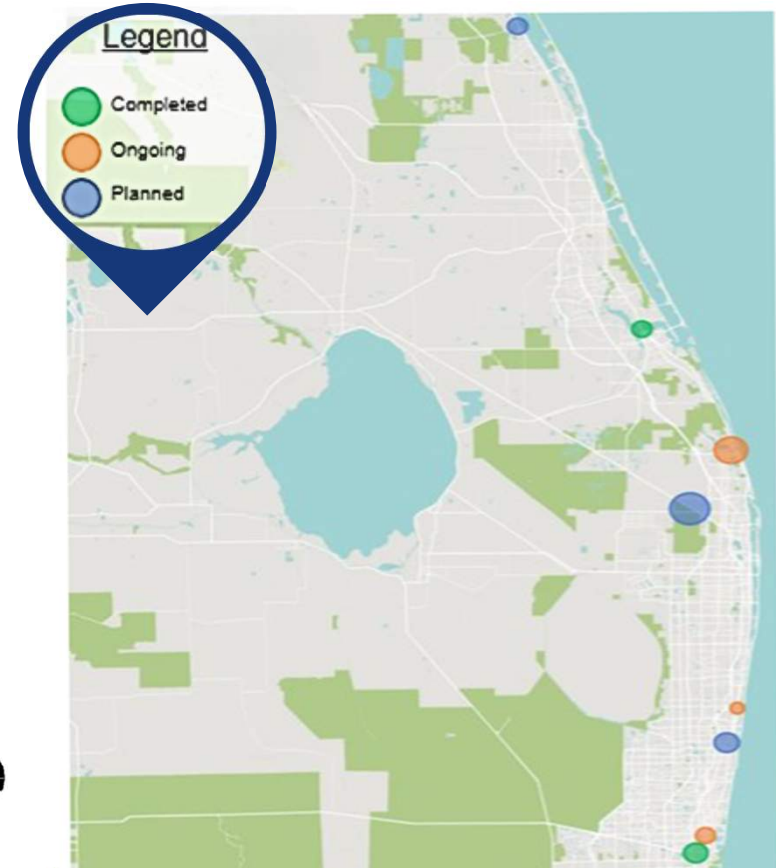
SWZ STARTUP &
WITHDRAWAL PLANS



Florida Department of Transportation

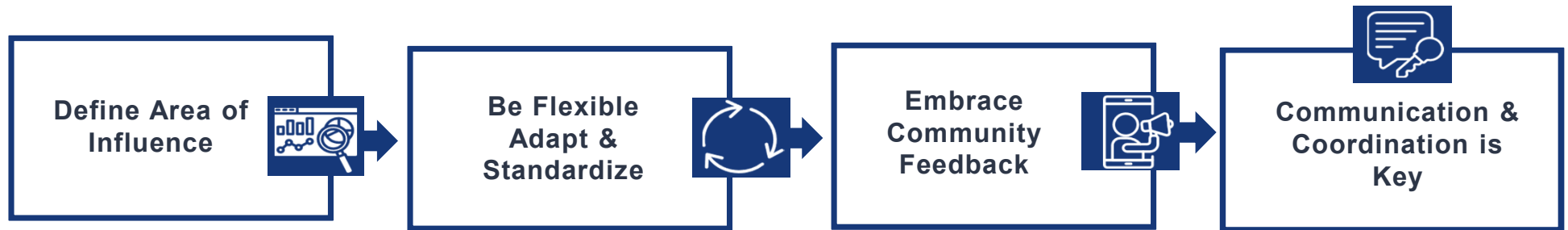


PAST, PRESENT & FUTURE





OUTCOMES & LESSONS LEARNED



FORMULA FOR SUCCESS
TECHNOLOGY + PEOPLE + RELATIONSHIPS + A PLAN

daniel.smith@dot.state.fl.us

954-847-2633

Florida Department of Transportation



Introduction to Digital Twin Effort

Project Overview & Background

Broward MPO

April 2024



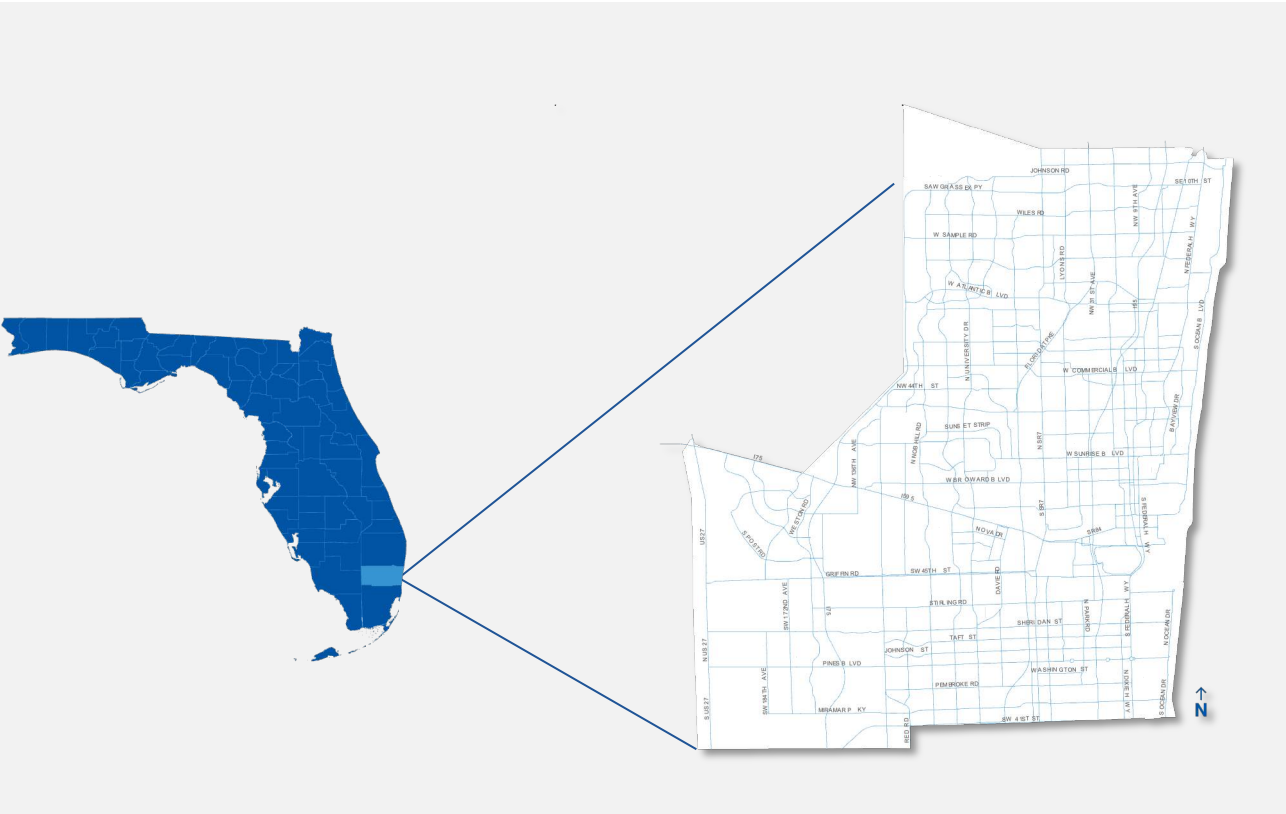
In coordination with regional partners, the Broward Metropolitan Planning Organization (BMPO) is developing a [digital twin platform](#) to improve analytics, data management, and modeling capabilities for ongoing transportation, resiliency, and land-use planning efforts.

With the support of USDOT's [Strengthening Mobility and Revolutionizing Transportation \(SMART\) Grants Program](#), BMPO is designing and developing the platform to best serve its stakeholders and partners in the region.

This document introduces the motivation for the project, defines the solution and its technical approach, and demonstrates how it can [benefit Broward County's planning community](#).

- 1 | Regional Challenges & Complexities
- 2 | Solution Overview
- 3 | Use Cases
- 4 | Benefits
- 5 | Next Steps

Generational challenges require an integrated, informed strategy across transportation, climate, and economic development stakeholders.



TRANSPORTATION



CONGESTION



LIMITED CAPACITY



NETWORK DISRUPTIONS



INFRA. VULNERABILITY

CLIMATE



PRECIPITATION



SEA LEVEL RISE



STORM SURGE



TEMPERATURE

ECONOMIC DEVELOPMENT



POPULATION GROWTH



CONNECTING COMMUNITIES



POP. DEMAND MANAGEMENT

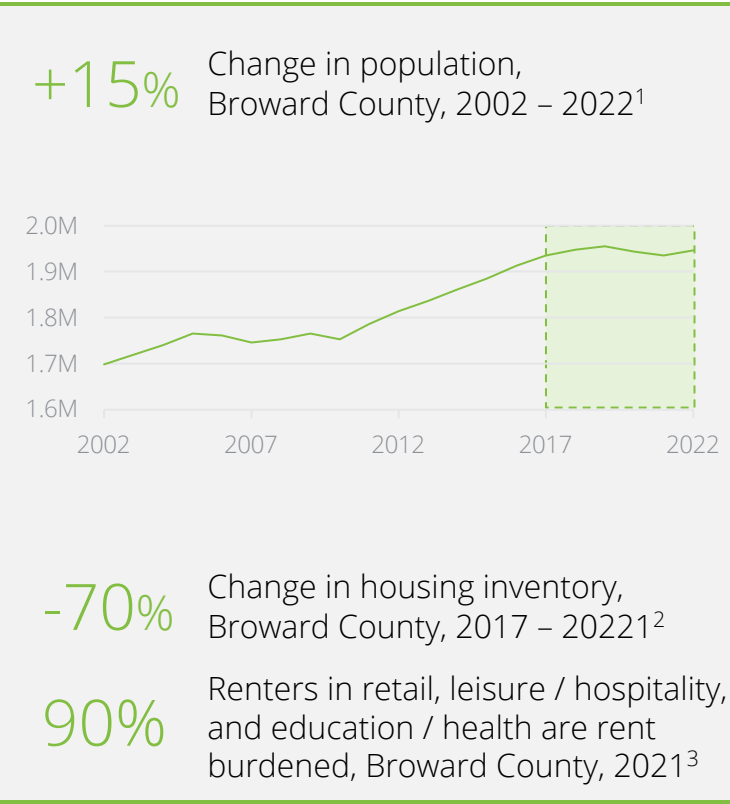


ECONOMIC GROWTH

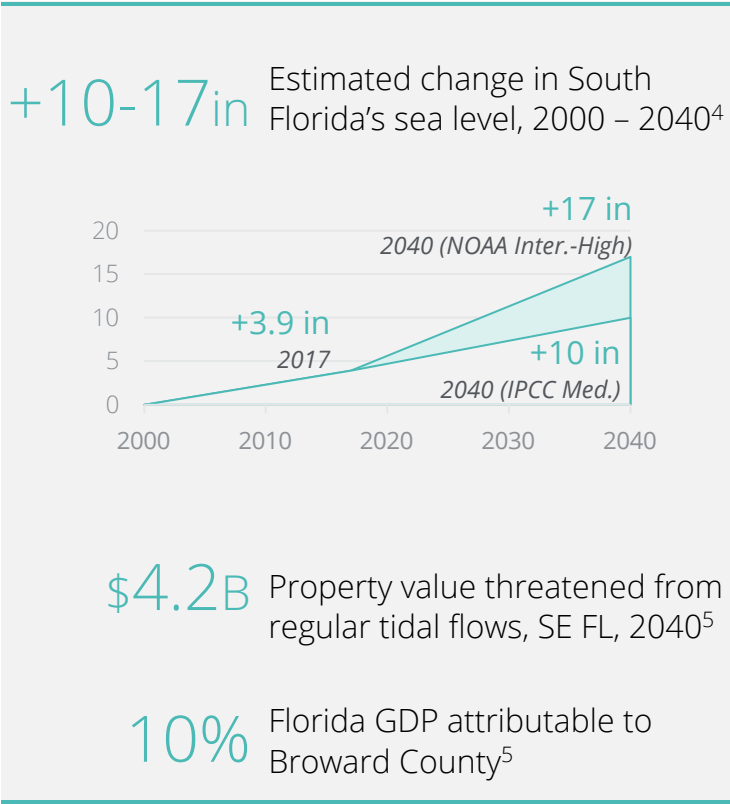
Difficulties around collaborative and rapid decisions, limited access to data-driven tools, and rising costs of design and development protract timelines and inhibit progress.

The region’s infrastructure must be resilient to long-term risks & uncertainty.

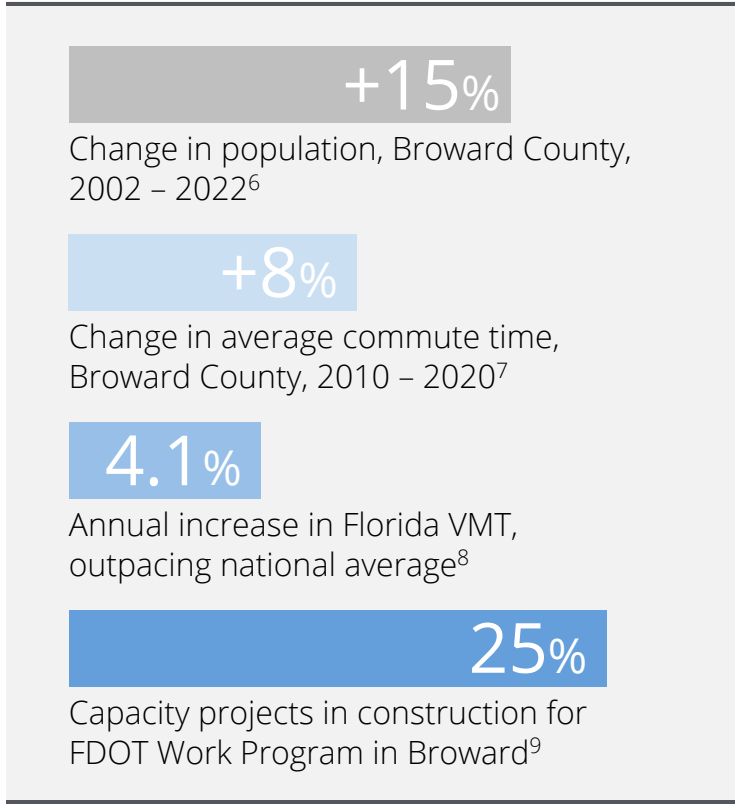
Broward’s *population growth* continues, while available housing has not kept pace.



Accelerating *climate risks* threaten Broward residents and the local economy.



Automobile-reliant travelers experience *persistent congestion* on a largely built-out roadway network.



¹ FRED Resident Population in Broward County, FL

² FRED Housing Inventory: New Listing Count in Broward County, FL

³ FIU Broward County Affordable Housing Needs Assessment

⁴ SE Florida Regional Climate Change Compact Unified Sea Level Rise Projection

⁵ FRED Gross Domestic Product: All Industries in Broward County

⁶ FRED Resident Population in Broward County, FL

⁷ ACS 5-year estimates

⁸ FDOT Transportation Trends and Conditions

⁹ FDOT Work Program

Complexities in coordination, data, and modeling constrain our responses.



DATA STORAGE: Intermittent availability of data to identify needs and track project impacts

Agencies invest in technology and data gathering, but often for single-purpose efforts and not retained for secondary analyses



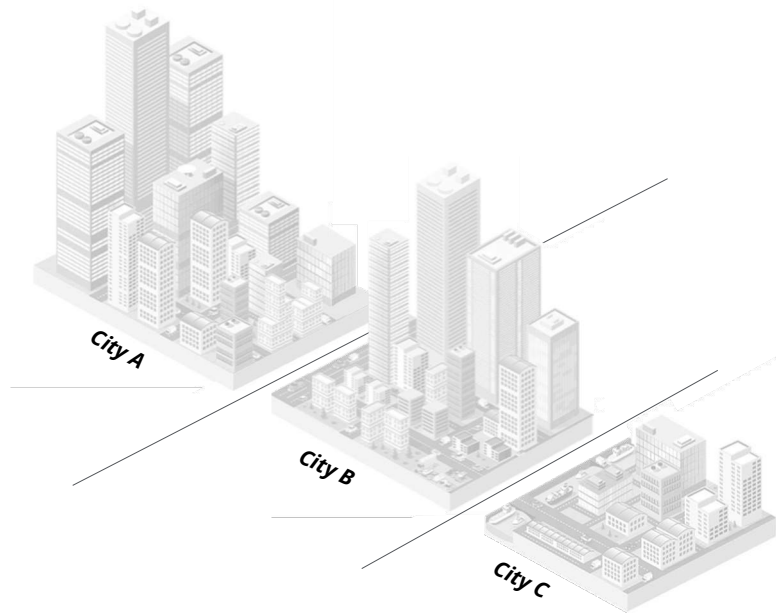
DATA ACCESS: Siloed datasets not easily accessible to partner agencies or researchers

Sharing data with other users or agencies requires time- and resource-intensive administrative processes, often manual



DATA USABILITY: Proliferation of data yet difficult to gain information or actionable insights

The increasing volume and variety of data requires costly data engineering efforts to render it useful for analysis



MODEL PRECISION: Level of detail provided in model logic and output data

Regional models sometimes struggle to assess project impacts on individual road segments, transit stations, or households



MODEL EFFICIENCY: Intensity of computing power and lengthy run-times for new analyses

Previous generation of models were based on-premise and required significant amount of time for each new analysis



MODEL FLEXIBILITY: Manual updates to input data requires time, effort, and coordination

Input data is sometimes outdated and slow to account for changes to travel demand, new modes, or other external factors

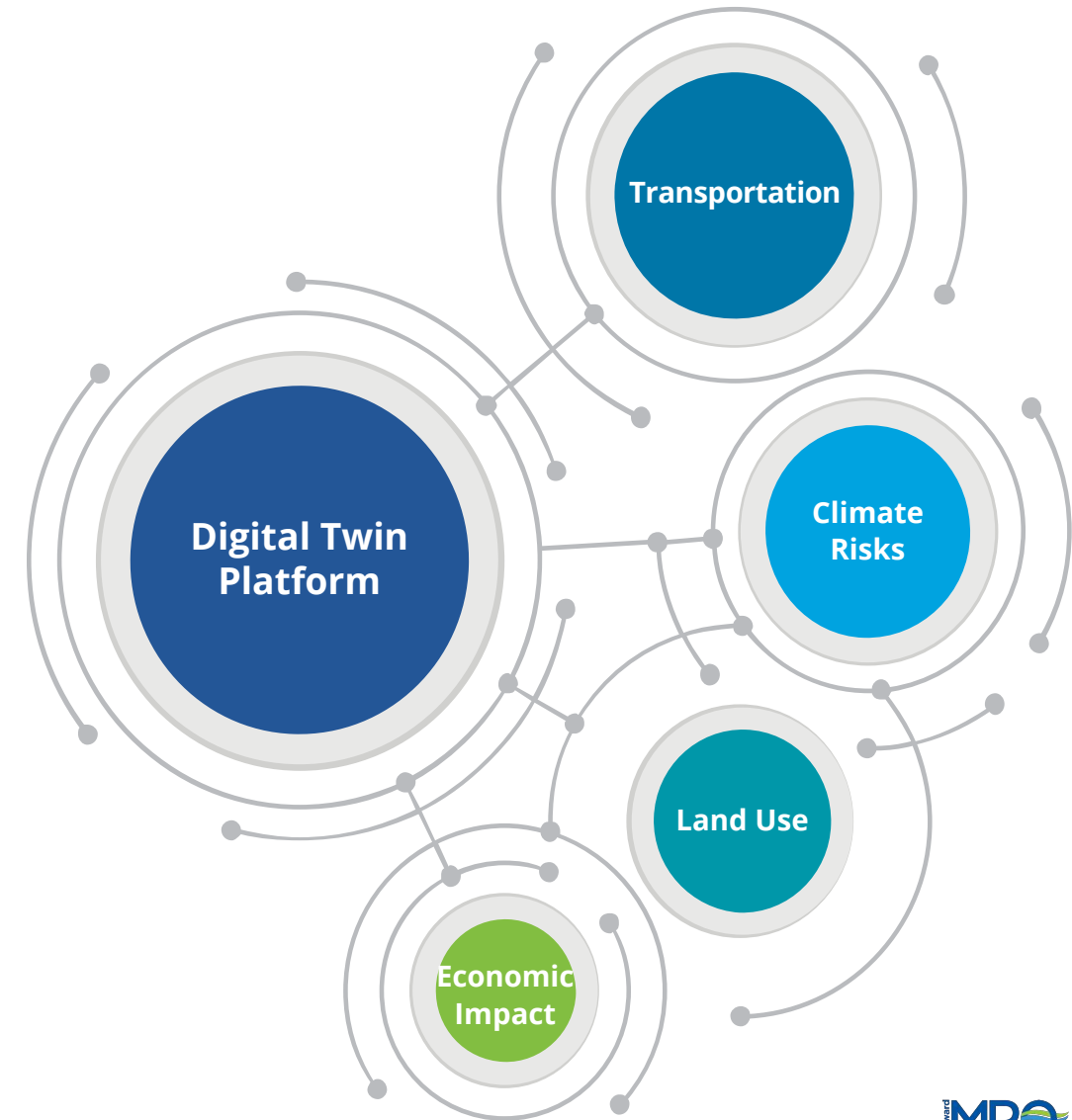
BMPO is building an integrated solution to address these challenges.

Our Vision

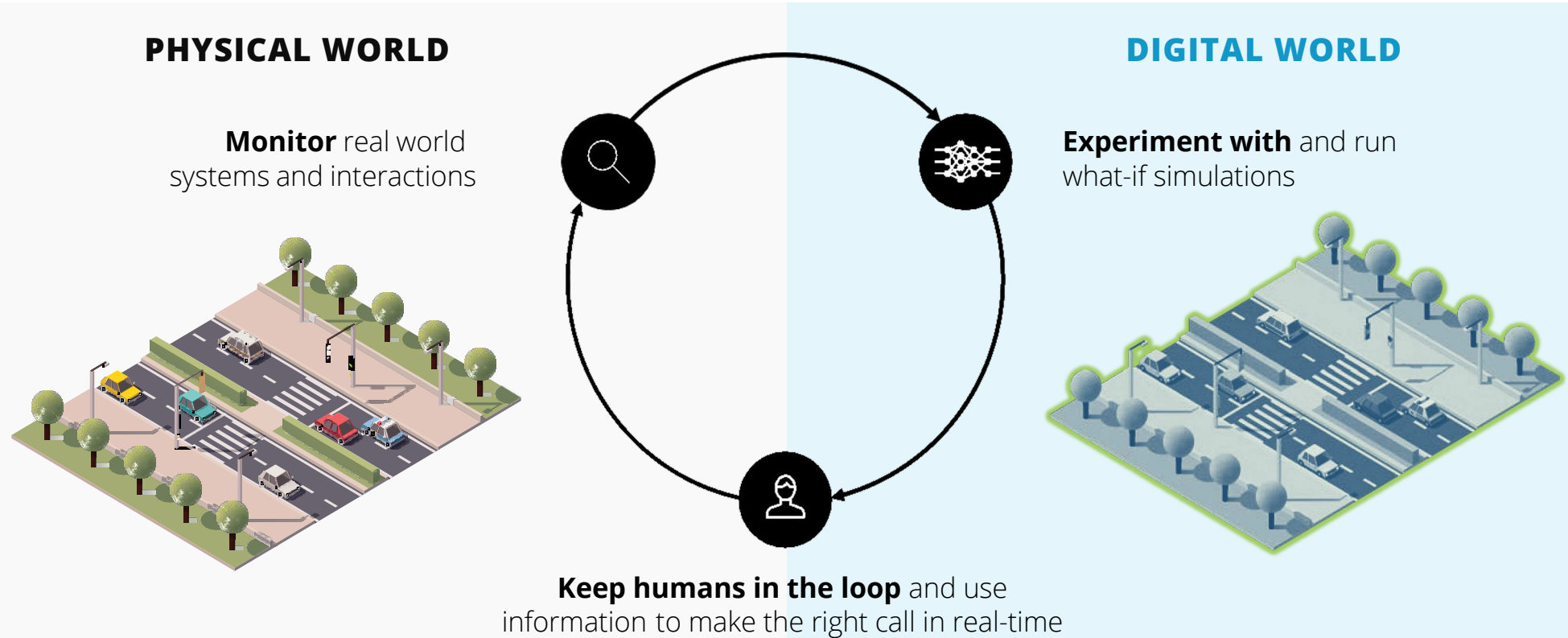
An analytics platform that facilitates and streamlines planning, bridges data silos, and catalyzes public-private partnerships.

Made possible by cloud, AI, mobile and geospatial data, the platform can allow stakeholders to **perform rapid scenario analysis on planning needs** and **project impacts**.

Infrastructure owner-operators – both public and private – can access a shared digital twin to coordinate project planning and bolster stakeholder buy-in, driving **data-driven decision-making for cross-sector collaboration**.



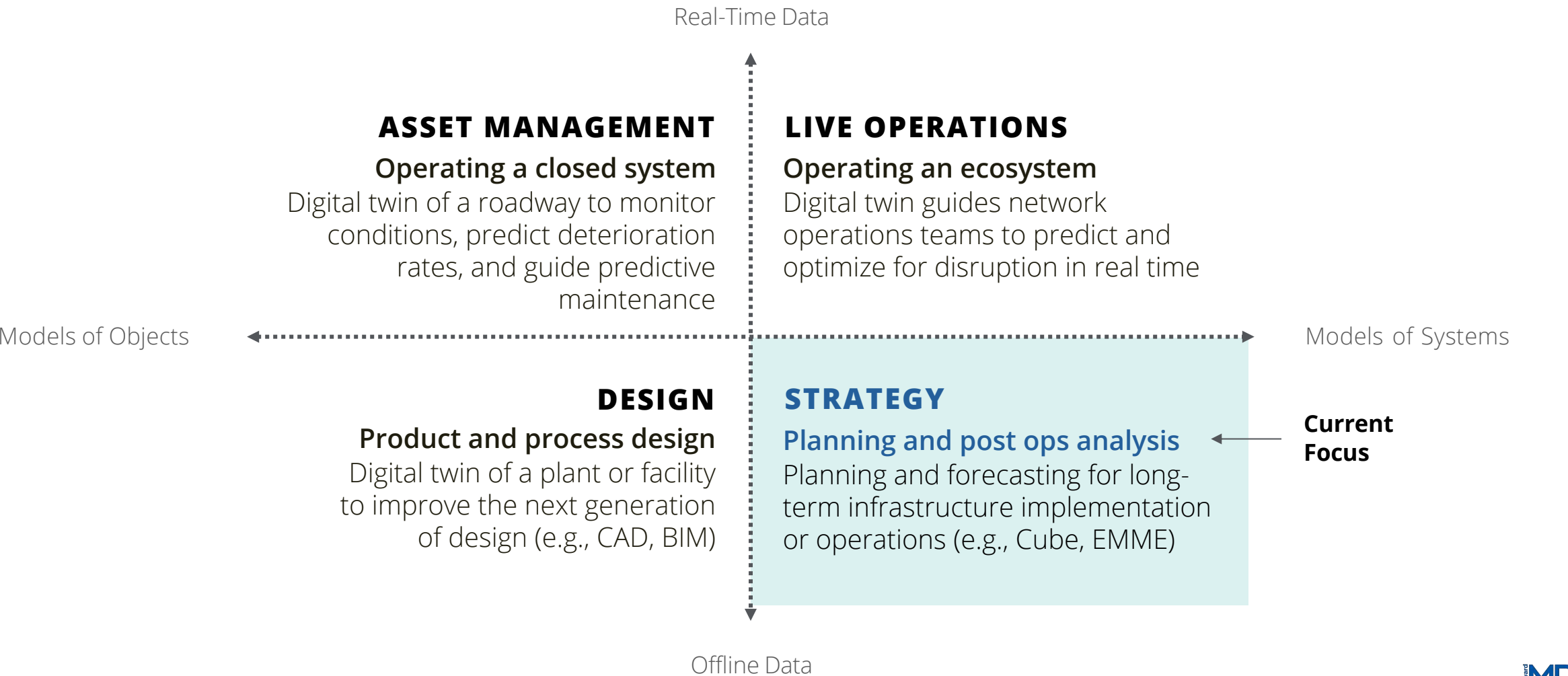
Digital twins bridge the gap between the physical and digital worlds.

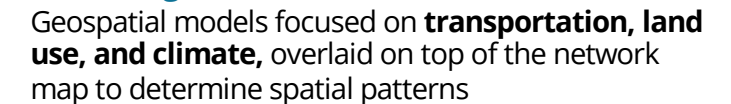
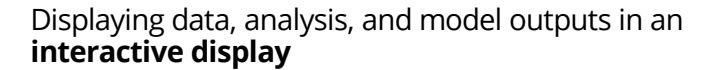


A digital twin is a digital replica of an asset, process, or system linked to the “physical twin”. It ingests data to reflect the current state and allows real-time monitoring and simulation of different scenarios to predict and optimize physical performance.

To start, BMPO is focusing on planning-related use cases and applications.

Digital twins are gaining momentum thanks to rapidly evolving simulation and modeling capabilities, improved interoperability and IoT sensors, and greater availability of cloud computing power and infrastructure, among other things.





The digital twin is built on guiding principles that inform ongoing design.

The digital twin platform is designed to enhance modeling approaches and processes used by agency leaders, modelers, planners, and operations analysts. The goal is to provide more open access to regional data, advanced analytics, and on-demand models to enhance decision-making.

PLATFORM APPROACH

Create *maximum flexibility* with data inputs, data structures, and model analysis to encourage *cross-organization collaboration* and information-sharing

AGILE DEVELOPMENT

Continuously improve analytics tools and UI designs to *meet evolving organizational priorities and reduce barriers to entry* for modeling and data science activities

FEDERATED ARCHITECTURE

Distribute decision-making among various components instead of single-use, proprietary architecture to *improve functionality and efficiency*

MODULAR STRUCTURE

Use only the *analytical tools you need* but maintain access to all the *sophisticated data science capabilities available*

Initial use cases will demonstrate the digital twin’s application to Broward’s planning processes and uncover additional opportunities.

INITIAL USE CASES

Long-Range Planning

Select project alternatives with iterative insights

EXAMPLES

- + Regional plan modeling support
- + Transit station access
- + Community plan updates for local jurisdiction
- + Modeling support for special studies

Operations Planning

Rapid analytics to inform decision-making

EXAMPLES

- + Evacuation Scenario Planning
- + General toll and managed lane modeling
- + Mitigation planning for disruptions
- + Revenue studies and optimization

NEXT-STEP USE CASES

Traffic Operations

Asset Management

Land Use Optimization

Economic Development

Energy & Utility Planning

Resiliency Planning

Different user groups – agency leaders, planners, and data scientists alike – can access the platform to collaborate & generate new insights.

PLANNING PROCESS BENEFITS



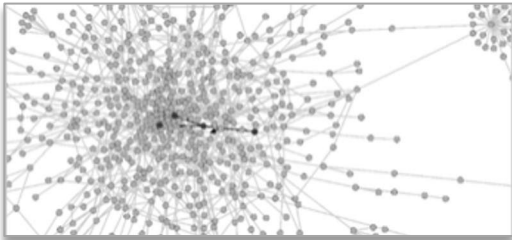
Established modeling capabilities **accessible** to all.

	Miami	SERPM FL	Orlando	Jackson- ville	Broward	Palm Beach	Tampa	Volusia
Level-of-service coefficients								
Transit Walk Time	-0.0450	-0.0450	-0.0400	-0.0450	-0.0450	-0.0450	-0.0450	-0.0400
Transit Auto Access Time	-0.0180	-0.0180	-0.0180	-0.0180	-0.0180	-0.0180	-0.0180	-0.0180
Transit Run Time	-0.0180	-0.0180	-0.0180	-0.0180	-0.0180	-0.0180	-0.0180	-0.0180
Transit First Wait < 7 minutes	-0.0450	-0.0450	-0.0400	-0.0450	-0.0450	-0.0450	-0.0450	-0.0400
Transit First Wait > 7 minutes	-0.0450	-0.0450	-0.0400	-0.0450	-0.0450	-0.0450	-0.0450	-0.0400
Transit Transfer (2nd wait) Time	-0.0450	-0.0450	-0.0400	-0.0450	-0.0450	-0.0450	-0.0450	-0.0400
Transit Number of Transfers	-0.0450	-0.0450	-0.0400	-0.0450	-0.0450	-0.0450	-0.0450	-0.0400
Transit Fare	-0.0048	-0.0048	-0.0048	-0.0048	-0.0048	-0.0048	-0.0048	-0.0048
Highway terminal time	-0.0450	-0.0450	-0.0400	-0.0450	-0.0450	-0.0450	-0.0450	-0.0400
Highway Run Time	-0.0180	-0.0180	-0.0180	-0.0180	-0.0180	-0.0180	-0.0180	-0.0180
Highway Auto Operating Costs	-0.0048	-0.0048	-0.0048	-0.0048	-0.0048	-0.0048	-0.0048	-0.0048
Highway Parking Costs	-0.0048	-0.0048	-0.0048	-0.0048	-0.0048	-0.0048	-0.0048	-0.0048
HOV Time Difference	-0.0180	-0.0180	-0.0180	-0.0180	-0.0180	-0.0180	-0.0180	-0.0180
Noting Coefficients								
Transit mode	0.3000	0.3000	0.3000	1.0000	0.3000	0.3000	0.3000	0.3000
Highway auto mode	0.8000	0.8000	0.8000	1.0000	0.8000	0.8000	0.8000	0.8000

🕒 **Planners** easily incorporate real-life outputs of previous initiatives into current model



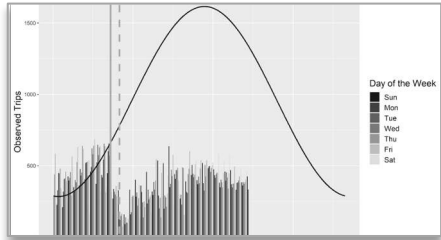
Rapid, on-demand analyses help users when they need it.



🕒 **Data Scientists** immediately setup analysis with at-the-ready data



Planning scenarios and behavioral trends reflect **reality**.



🕒 **Planners** view potential impacts in detail to see changes on a human scale



Users visualize insights to help with inter-agency **coordination**.



🕒 **Agency Leaders** use vivid visualizations for storytelling and decision-making

Where we're going.

With support from the USDOT SMART Grant program, BMPO and its partners are prepared to continue to design, test, and implement the digital twin platform over the next two years.



As platform development continues, we seek the guidance of **leaders across Broward County** to best address pressing transportation, resiliency, and land-use planning needs.



Introduction to Digital Twin Effort

Project Overview & Background

Broward MPO

April 2024

