PROJECT TEAM

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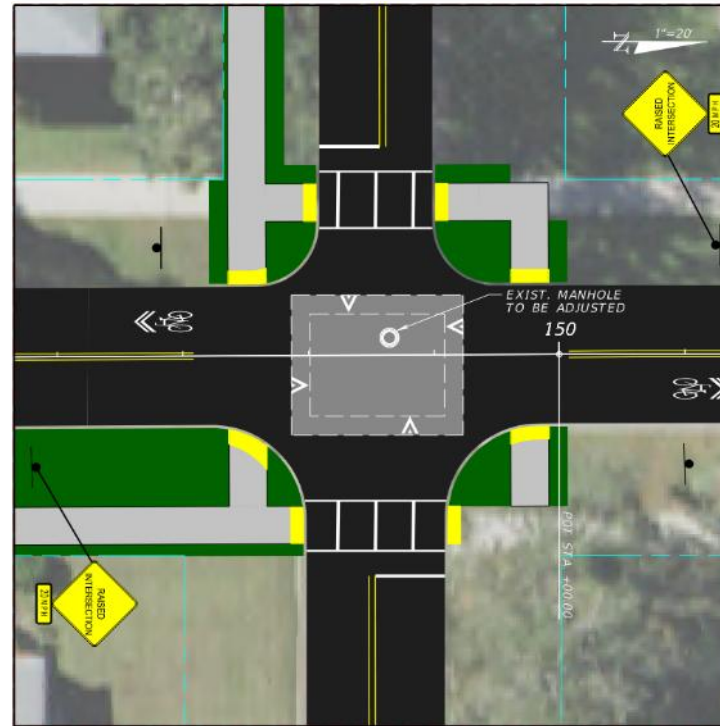# RECENT CITY OF BARTOW TRANSPORTATION INITIATIVES

- **Trail Planning**
  - **Fort Fraser Trail Overpass**
  - **Trail Town Certification**
  - **Collier-to-Polk (Heartland) SUN Trail**

- **Safety & Design Projects**
  - **S. Jackson Avenue Safety Study**
  - **Main Street Streetscape**
  - **Impact Fee Capital Projects**

- **Citywide Traffic Safety Program**

ROADWAY INFRASTRUCTURE ASSETS DATA

- **Data Collection:** In 2022, the City of Bartow partnered with Transmap to collect assets data.

- **Advanced Technology Used:**
  - Panoramic imaging
  - LiDAR (Light Detection and Ranging)
  - Laser Crack Measurement Systems (LCMS)

- **Evaluated assets condition based:**
  - Wear and tear
  - Physical damage
  - Overgrown vegetation
  - Asset width
  - Fading or inconsistent coloring
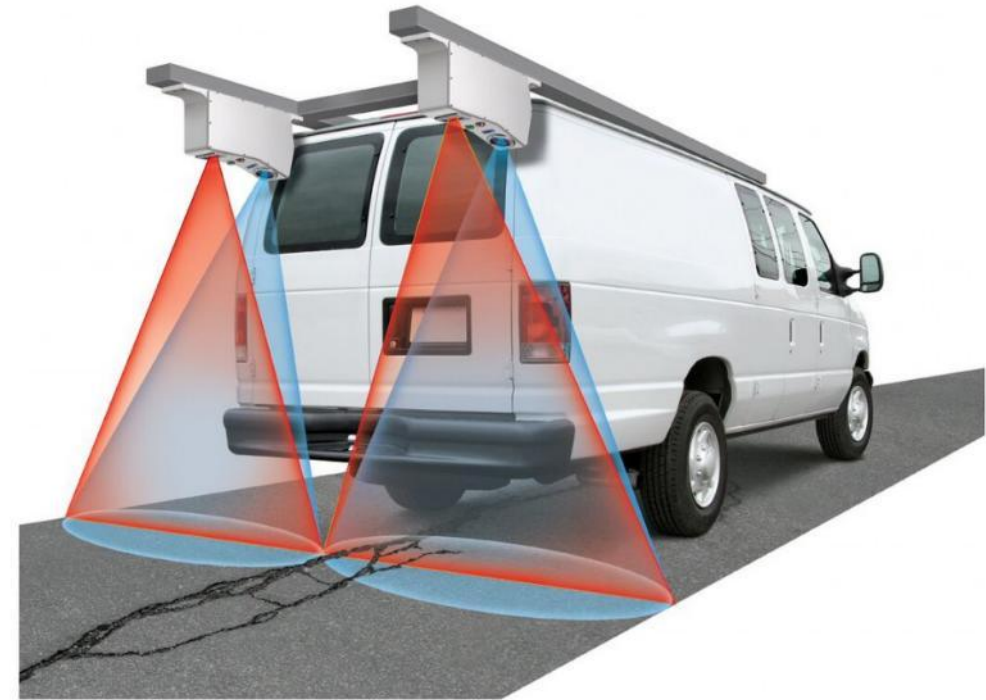
Laser Crack Measurement Systems (LCMS)

QUESTION: HOW CAN BARTOW USE THE ASSETS DATA?

- Make the data usable

- Prioritize for safety and key locations

- Deploy and track maintenance activities

- Support ongoing planning and safety analysis

ANSWER: CITYWIDE TRAFFIC SAFETY PROGRAM

- **Comprehensive Geographic Information System (GIS)**

  - Inventory transportation assets

  - Establish tools and protocols for ongoing data updates

  - Use safety and priority areas to focus activities

- **Applications:**

  - Identify and prioritize maintenance needs

  - Track ongoing maintenance progress

  - Support budgeting

  - Support programs & plans

ASSET CONDITIONS – 2022 LIDAR DATA COLLECTION

- **Key Findings**
  - **Roadway Signs (4,397 assessed)**:
    - 180 rated poor or fair (mostly stop/speed limit & parking signs)
  - **Pavement Markings**:
    - 292 symbols: 64 (22%) rated poor, 114 (39%) rated fair
    - 61.21 miles striped: 12.3 mi (20%) rated poor, 20.81 mi (34%) rated fair
  - **Marked Crosswalks (171 total)**:
    - ~40% rated good
  - **Sidewalks (≈56.7 miles)**:
    - 2,216 defects identified; 59% due to cracking
  - **Curb Ramps (1,237 assessed)**:
    - 952 missing detectable warnings

WHAT DO WE DO WITH THIS INFORMATION??

FIELD COLLECTOR - ARCGIS ONLINE FIELD MAPS

- ## Data Collection Set Up

  - **Used Existing TransMap Data Collection Layers**

  - **Identified Existing Attributes in the Data**

  - **Added New Attributes for Data Collection**

Poor Condition of Parking Sign

PGA – FIELD CONFIRM CONDITIONS

- **2025 Field Review:**

  - **Re-assessed assets in poor condition from 2022**

    - Signs

    - Marked Crosswalks

    - Pavement Markings - Symbols

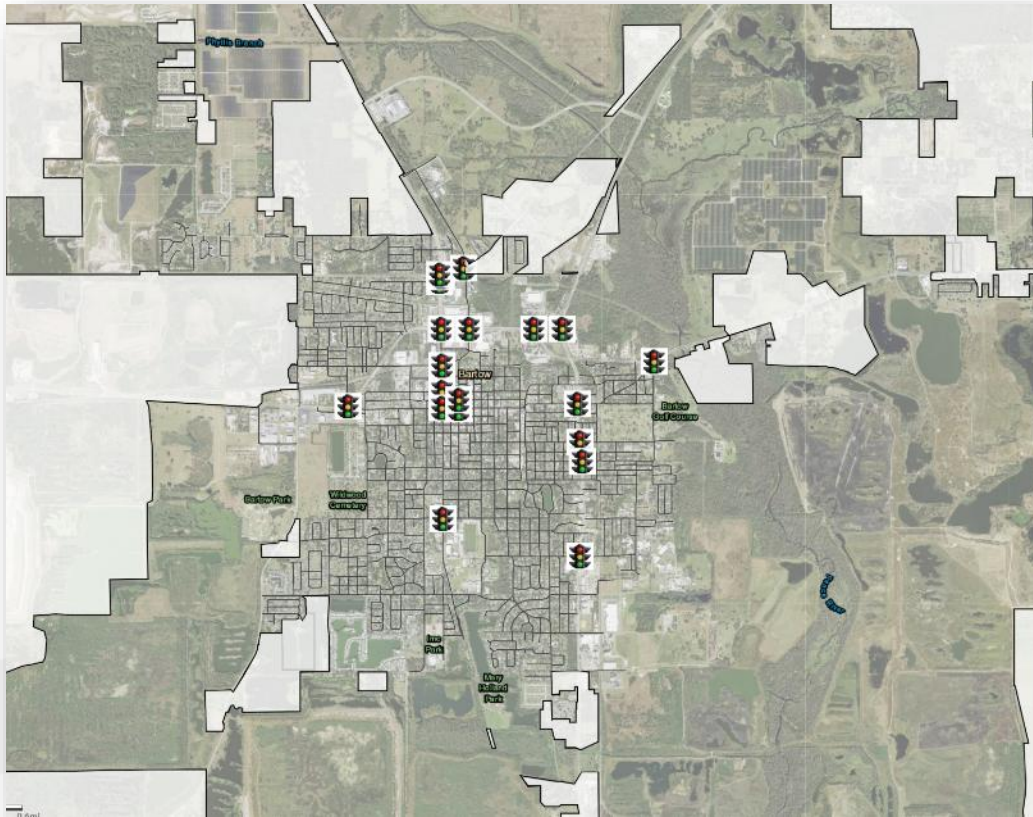- **Field Review Key Findings**

  - **21 Marked Crosswalks Identified by TransMap as Poor**

    - ✓ 19 remain in poor condition

  - **58 Signs Identified by TransMap as Poor**

    - ✓ 36 remain in poor condition

  - **64 Pavement Symbols Identified by TransMap as Poor**

    - ✓ 40 remain in poor condition

- **2025 Field Review:**

  - **Covered assets within 300 ft of signalized intersections**

- **Field Review Key Findings**

  - **Roadway Signs:**

    - 11 signs in poor condition

  - **Pavement Markings – Symbols & Striping:**

    - 13 symbols were in poor condition

    - 9 stops bars were either missing or faded

  - **Marked Crosswalks:**

    - 67 evaluated: Downtown well-maintained; state roads show fading

  - **Sidewalks:**

    - 5 locations recommended for improvement

  - **Curb Ramps:**

    - 123 assessed

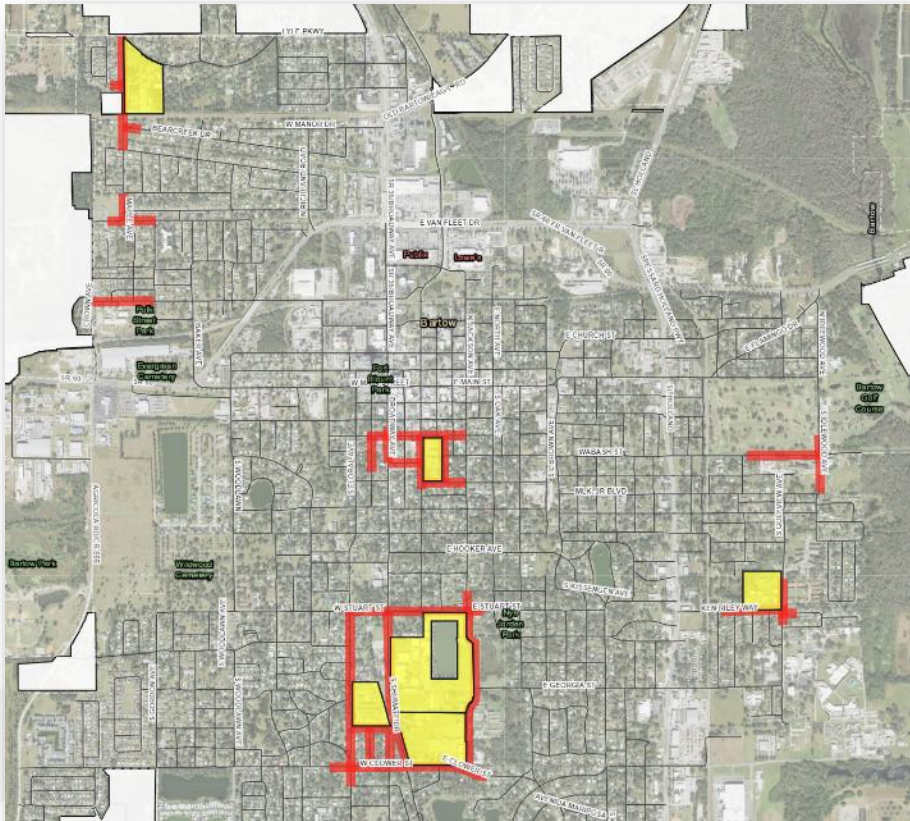   - 35% lacked detectable warning strips

PGA ASSET DATA COLLECTION – SCHOOL ZONES

- **2025 Field Review:**

  - **Covered assets within school zones**

- **Field Review Key Findings**

  - **Roadway Signs:**

    - 9 signs were identified as in poor condition

      - ✓ Parking regulation signs are the top category for poor condition

  - **Marked Crosswalks**:

    - 11 marked crosswalks in fair conditions

  - **Sidewalks**:

    - Sidewalks are at least 5 foot wide

    - Sidewalks are located on at least one side of the roadway

  - **Curb Ramps**:

    - Majority of curb ramps do not have a detectable curb ramp warning

ASSETS CONDITION – ONGOING DATA COLLECTION VIA FIELD APP

- **Summary**
  - **Roadway Signs:**
    - 1,204 signs have been re-evaluated
  - **Marked Crosswalks**:
    - 90 marked crosswalks have been re-evaluated
  - **Sidewalks**:
    - Over 450,000 square feet of sidewalks have been re-evaluated
  - **Curb Ramps**:
    - 402 curb ramps have been re-evaluated
  - **Pavement Markings – Symbols & Striping:**
    - 166 pavement symbols have been re-evaluated
   - 2,091 feet of pavement striping have been re-evaluated

ASSET PRIORITIZATION FRAMEWORK

- ## Four Key Priority Zones

  - Crosswalks – 250-foot buffer

  - School zones – 0.25-mile buffer

  - High-crash segments – 100-foot buffer

  - Bike/pedestrian crash areas – 500-foot buffer

Key Priority Zone

Legend:
High Crash Segments

Bicycle and Pedestrian Crashes Study Area

Crosswalk Study Area

School Zone Study Area
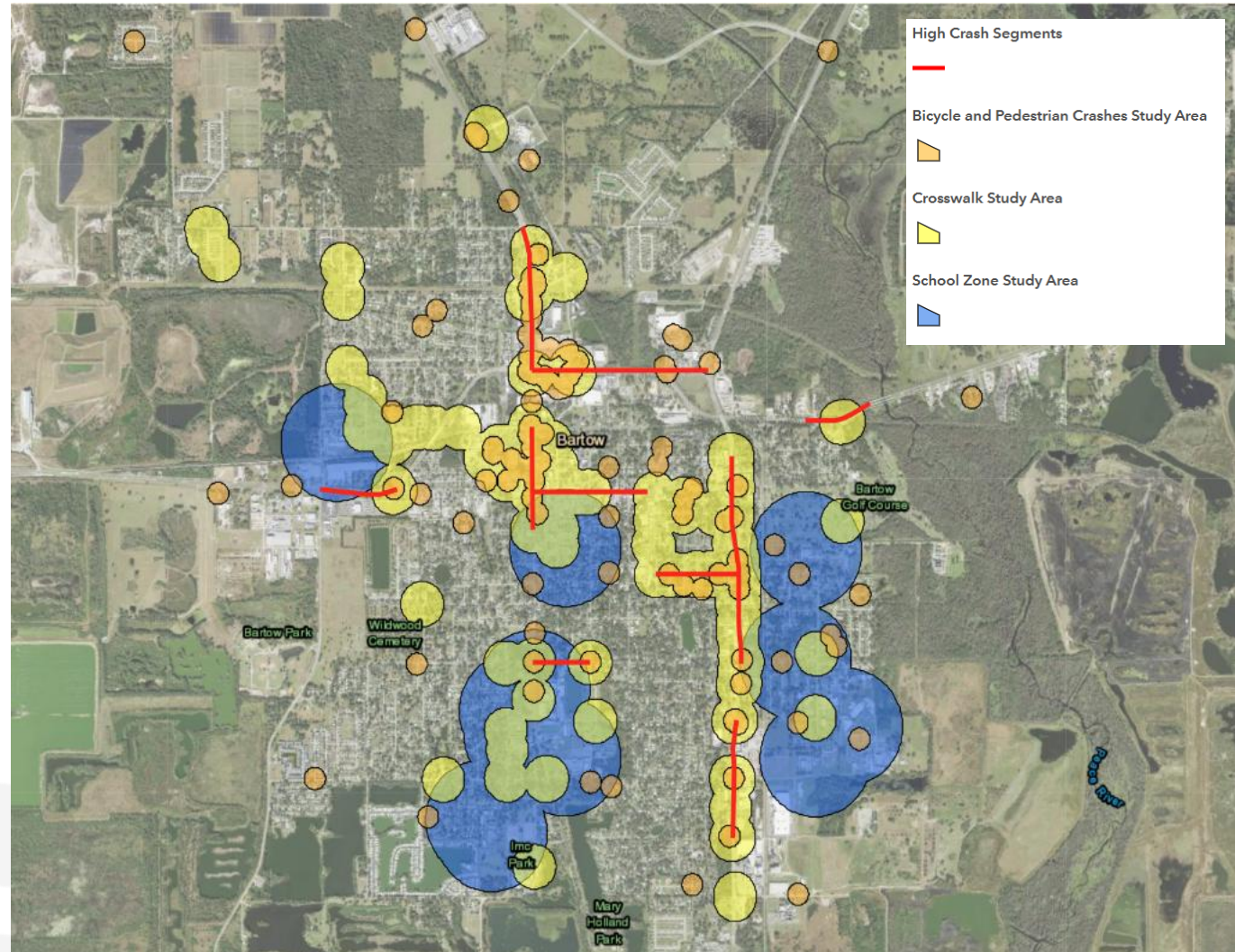
ASSET PRIORITIZATION FRAMEWORK

- **Prioritization Logic:**

 - **Assets with full condition data prioritized by:**
    - Physical condition
    - Location within priority zones

  - **Assets without condition data evaluated by:**
    - Compliance with modern design standards
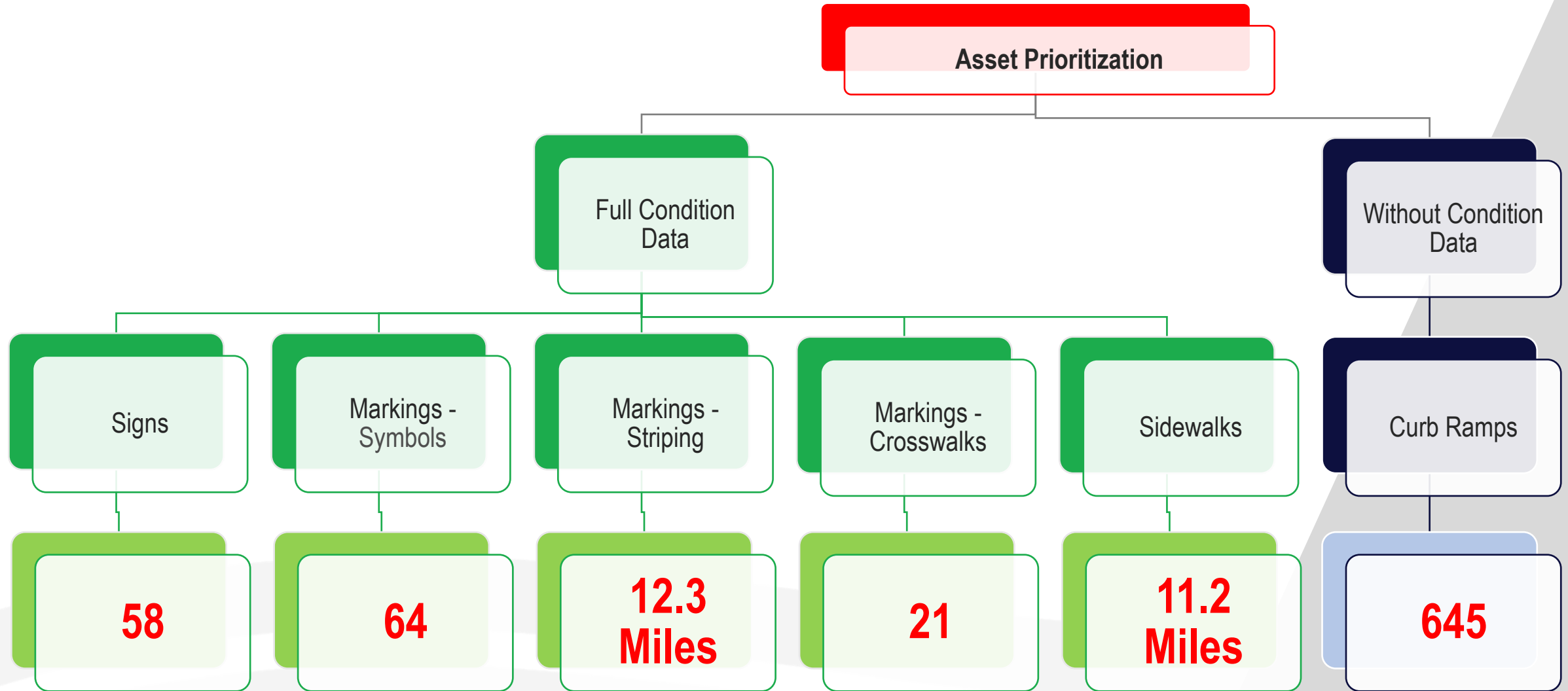   - Location within priority zones

- **Priority Levels:**

  - **Very High Priority** – Poor condition, any location → *Immediate replacement*

  - **High Priority** – Fair condition **within** a priority zone

  - **Moderate Priority** – Fair condition **outside** priority zones

  - **Low Priority** – Good condition → *Ongoing monitoring*
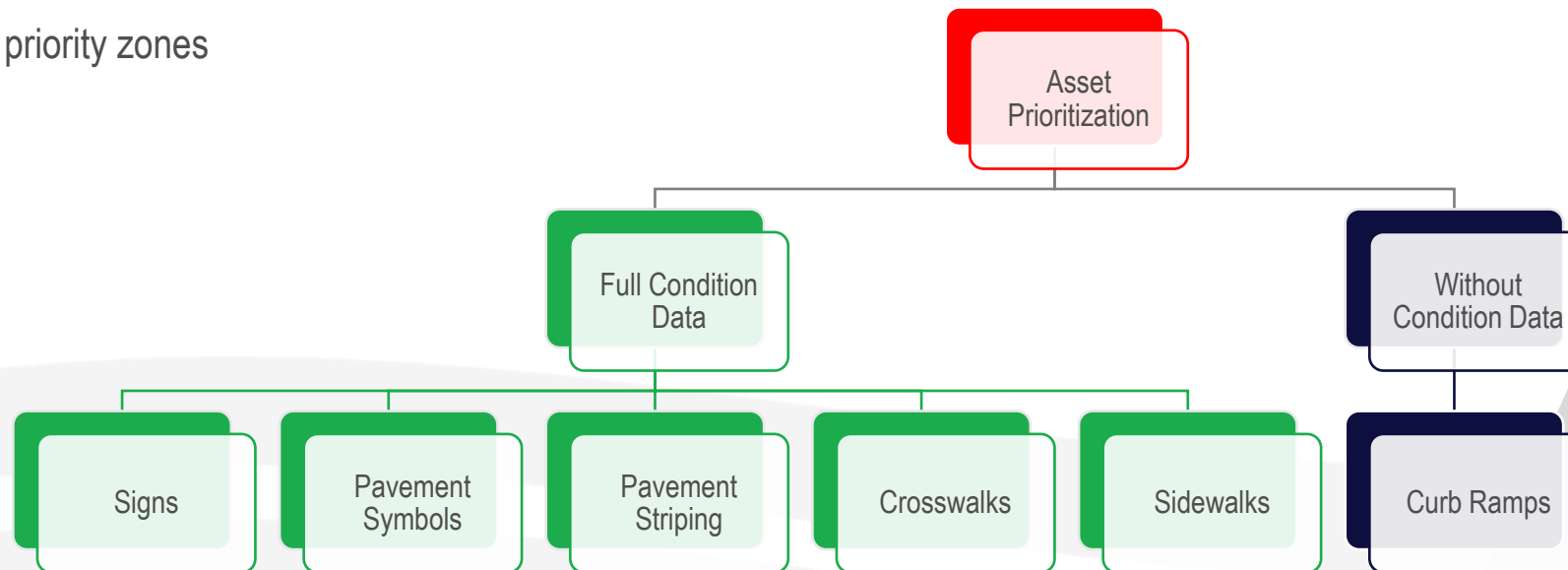
CITY OF BARTOW INVENTORY ASSESSMENT DASHBOARDS

Dashboards

- 1) Bartow GIS Data – Public Viewing
- 2) Transportation Asset Inventory
- 4) Crash Analysis (2019-2024)

Tools

- Experience Builder
- Custom Widgets / Dashboards
- Microsoft PowerBi

City of Bartow Transportation Asset Inventory - Internal Staff Landing Page

🔗 SeeClickFix   🏠 City of Bartow Website

City of Bartow GIS Dashboard Overview

The City of Bartow GIS Dashboard is a comprehensive, interactive tool designed to help the City effectively track, monitor, and manage its transportation asset inventories. This dashboard brings together multiple data sources and visualization tools to support data-driven decision-making and long-term infrastructure planning. The system focuses on key assets such as curb ramps, crosswalks, pavement markings, pavement striping, sidewalks, and signage, enabling city staff to evaluate asset conditions, prioritize maintenance, and plan improvements with precision.

Within this platform, several specialized dashboards are available to provide a complete picture of the City's transportation network:

- **City of Bartow GIS Portal** - This Public Viewing GIS portal serves as the central hub for all City of Bartow GIS data, offering an intuitive map-based interface to explore, review, and analyze geographic data. Users can filter data layers, zoom into specific neighborhoods, and gain insights into the City's infrastructure and environmental context.

- **Transportation Asset Inventory** - A tracking and monitoring tool that allows the City to log current transportation assets and view their condition. Assets are classified by condition ratings such as *Poor* or *Fair*, and the dashboard also tracks estimated repair costs, helping the City prioritize maintenance activities and budget planning. This dashboard also includes the Pavement Conditions Index (PCI) for the city maintained roadways. This is a City of Bartow internal GIS inventory.

- **Crash Analysis (2019–2024)** This dashboard integrates with Microsoft Power BI to provide an in-depth analysis of crash history within the City of Bartow. By reviewing crash data from 2019 to 2024, city staff can identify high-risk areas, safety concerns, and trends that can inform infrastructure improvements and safety initiatives. This is a City of Bartow internal crash dashboard.

Together, these dashboards provide the City of Bartow with a powerful, centralized system for asset management and planning,

Bartow GIS Data - Public Viewing   🔍 Public Viewing Data

Provides direct access to the City of Bartow's GIS Portal, where users can explore and review geographic data, maps, and other spatial information related to the city.

Transportation Asset Inventory   📍 Data Inventory

Provides a centralized log for the City of Bartow to track and monitor asset conditions, maintenance needs, and replacement priorities over time, supporting data-driven planning and decision-making.

Crash Analysis (2019-2024)   ☆ Crash Data

Provides a summary of City of Bartow crash data from 2019 to 2024, sourced from FDOT Signal 4 Analytics, highlighting trends and patterns to support safety analysis and planning.
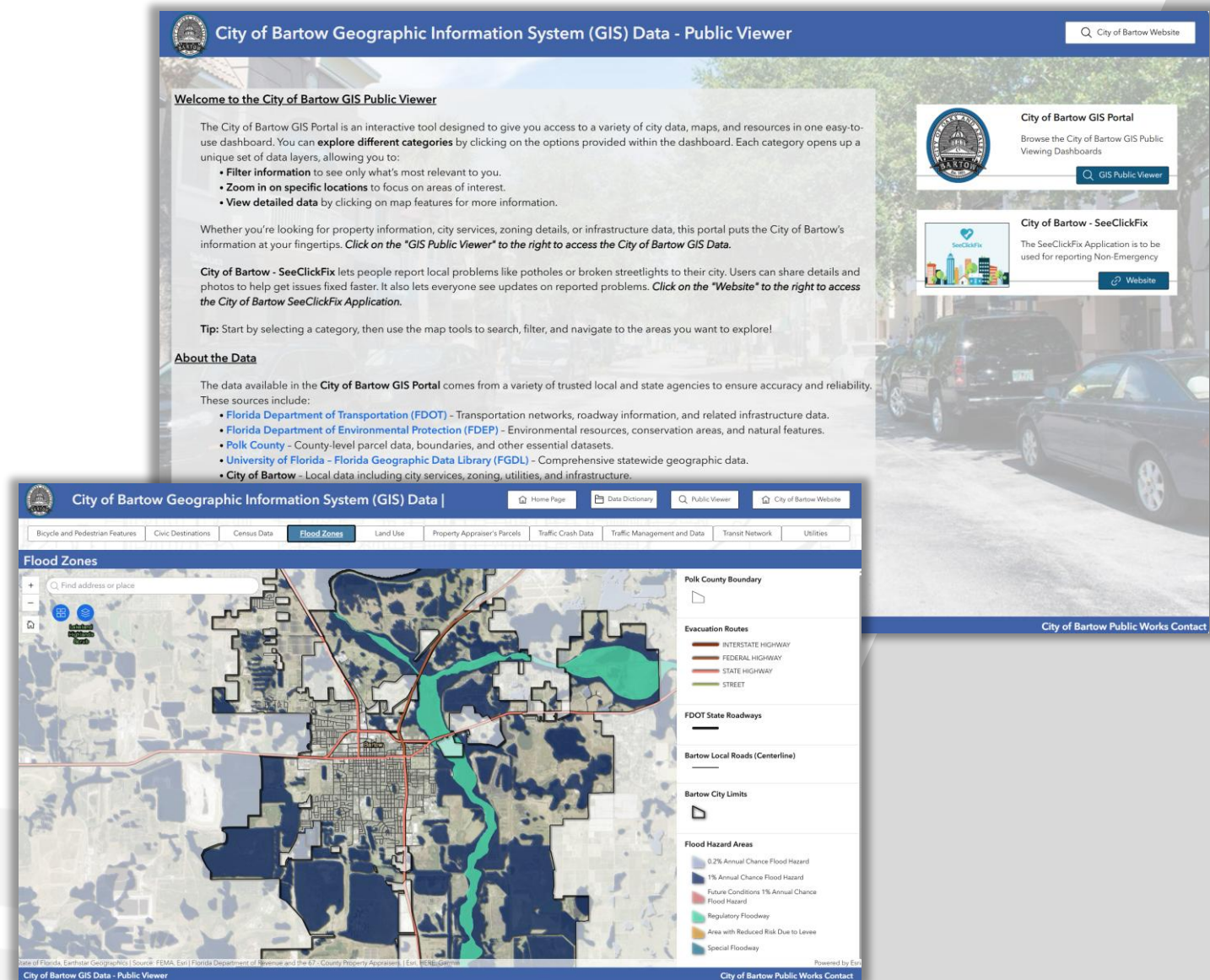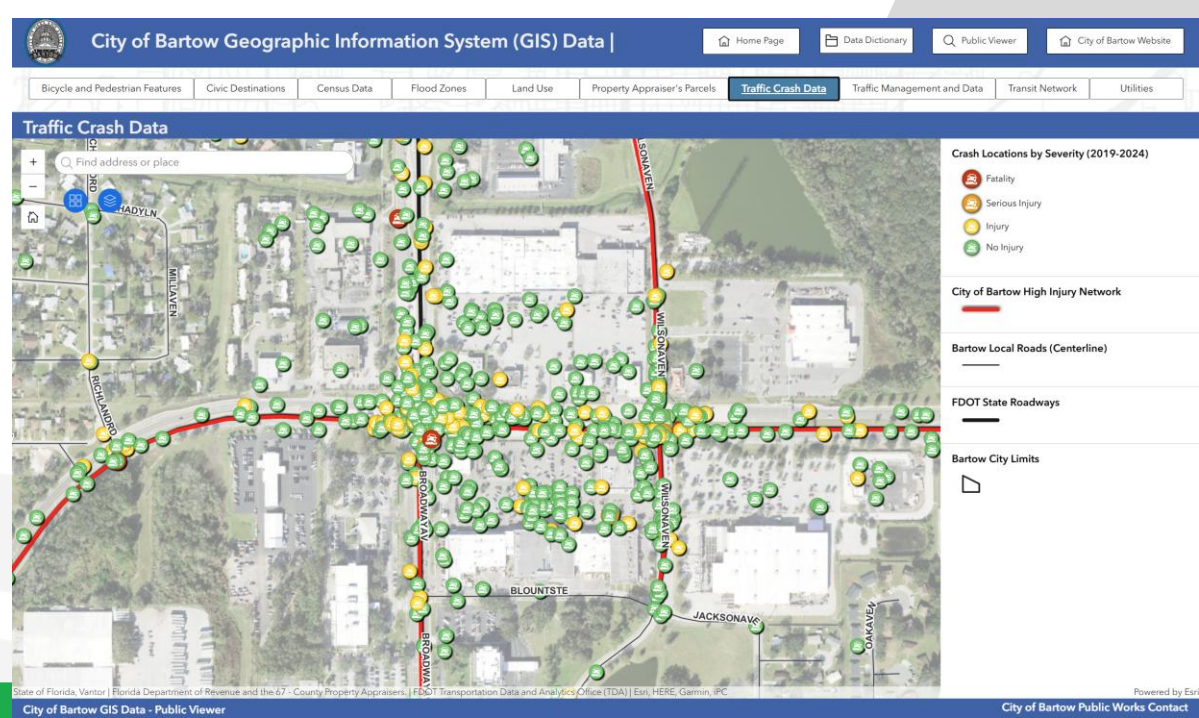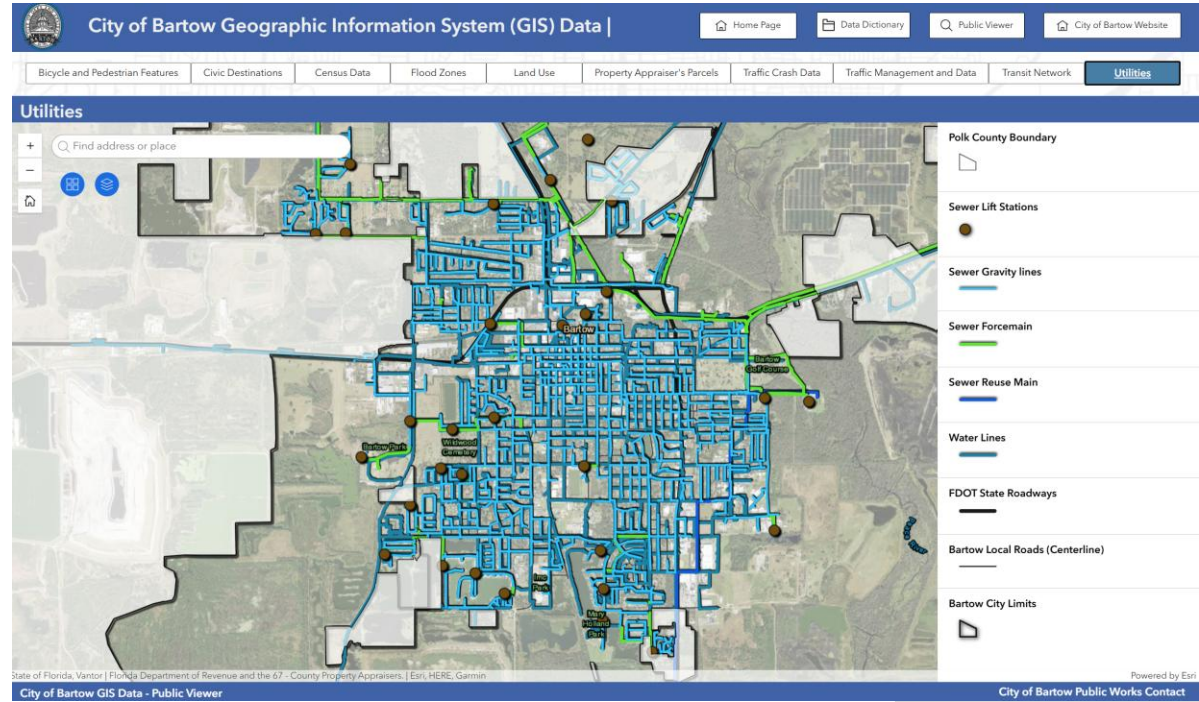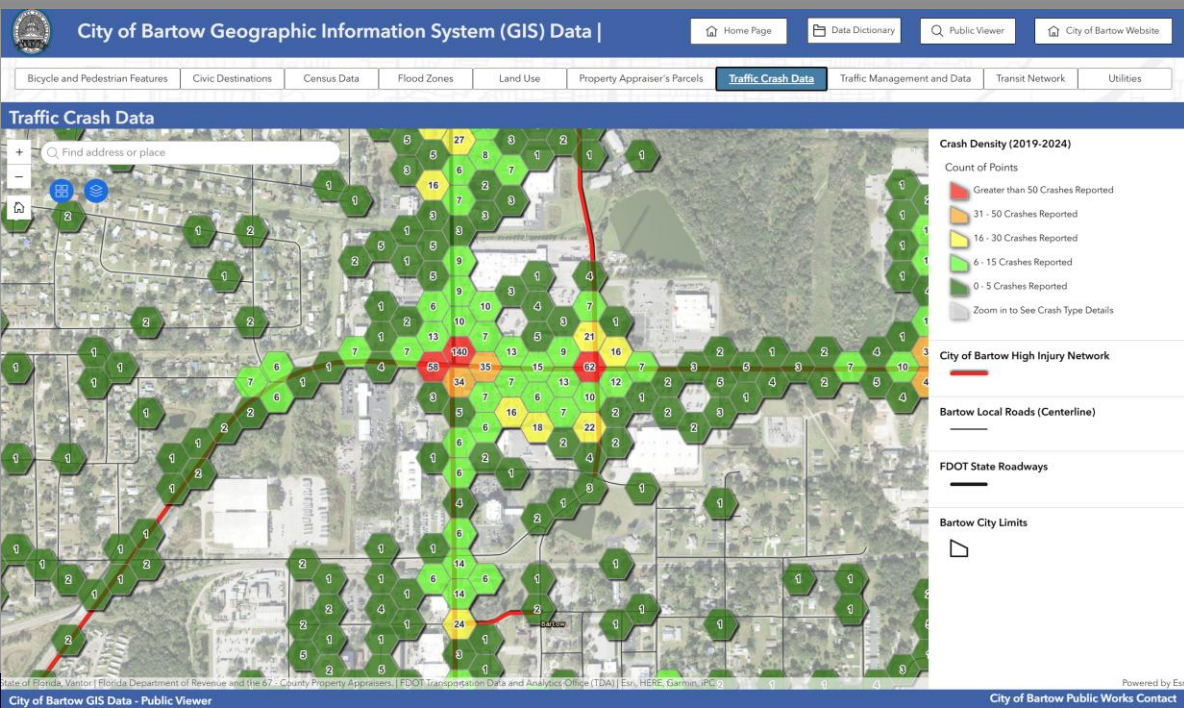
City of Bartow GIS Data - Internal Staff Landing Page

CITY OF BARTOW GIS PORTAL

- ## Dashboard Overview

  - **External dashboard developed for access and viewing the GIS data within the City of Bartow**

  - **Using local and external data sources**

    - ✓ Bicycle and Pedestrian Features
    - ✓ Civic Destinations
    - ✓ Crash / Safety Data
    - ✓ Flood Zones
    - ✓ Freight Routes
    - ✓ Land Use

    - ✓ Property Appraiser's Parcels
    - ✓ Roadway Features
    - ✓ Schools
    - ✓ Traffic Information's
    - ✓ Transit Network
    - ✓ Utilities

City of Bartow Geographic Information System (GIS) Data — GIS mapping dashboards showing Bicycle and Pedestrian Features, Utilities, and Traffic Crash Data views for the City of Bartow, Florida.
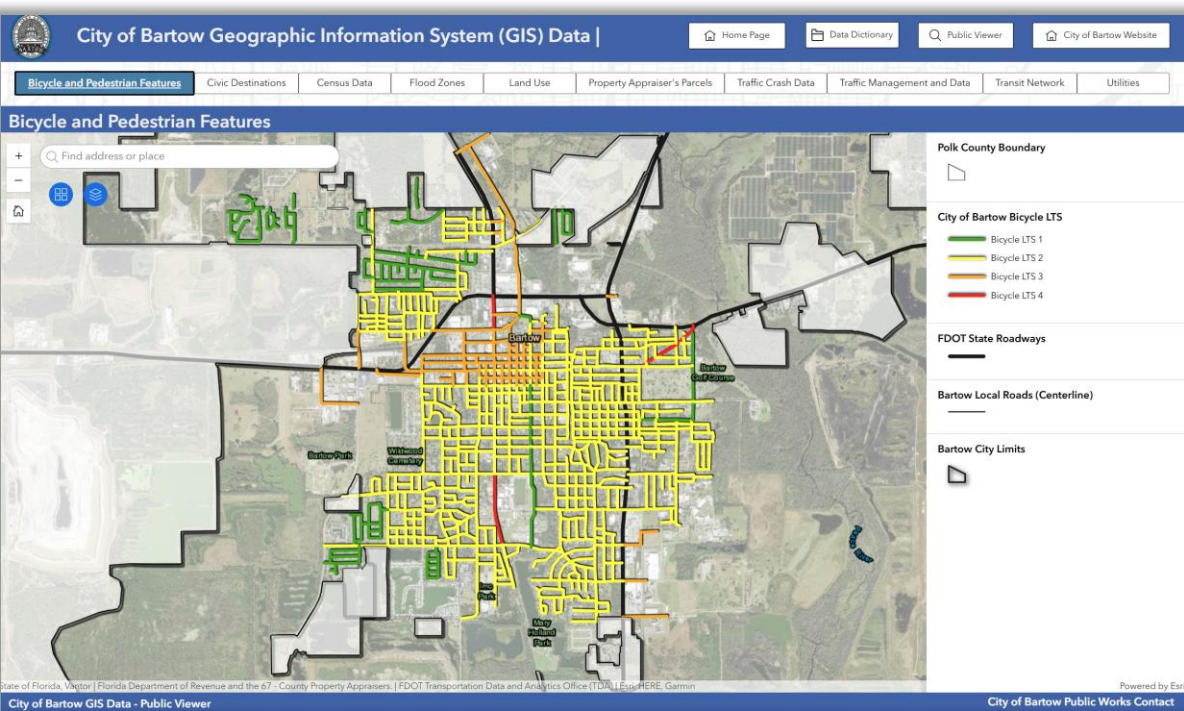
USING THE DATA & DASHBOARDS

- **Maintenance**
  - Strategic Deployment
  - Budgeting
  - Tracking

- **Planning**
  - Safety Analysis Tools
  - Public Information & Input
  - Cross-Disciplinary Project Support

ASSET MAINTENANCE – IMPLEMENTATION

- **Sidewalks**
  - Fill sidewalk gap
  - Repair broken / cracked sidewalk

- **Pavement Markings**
  - Replace
  - Clean dirt and debris

- **Curb Ramps**
  - Add detectable warning
  - Reconstruct single curb ramp
  - Convert single to split curb ramp

- **Signs**
  - Replace signage panel, pole, or both

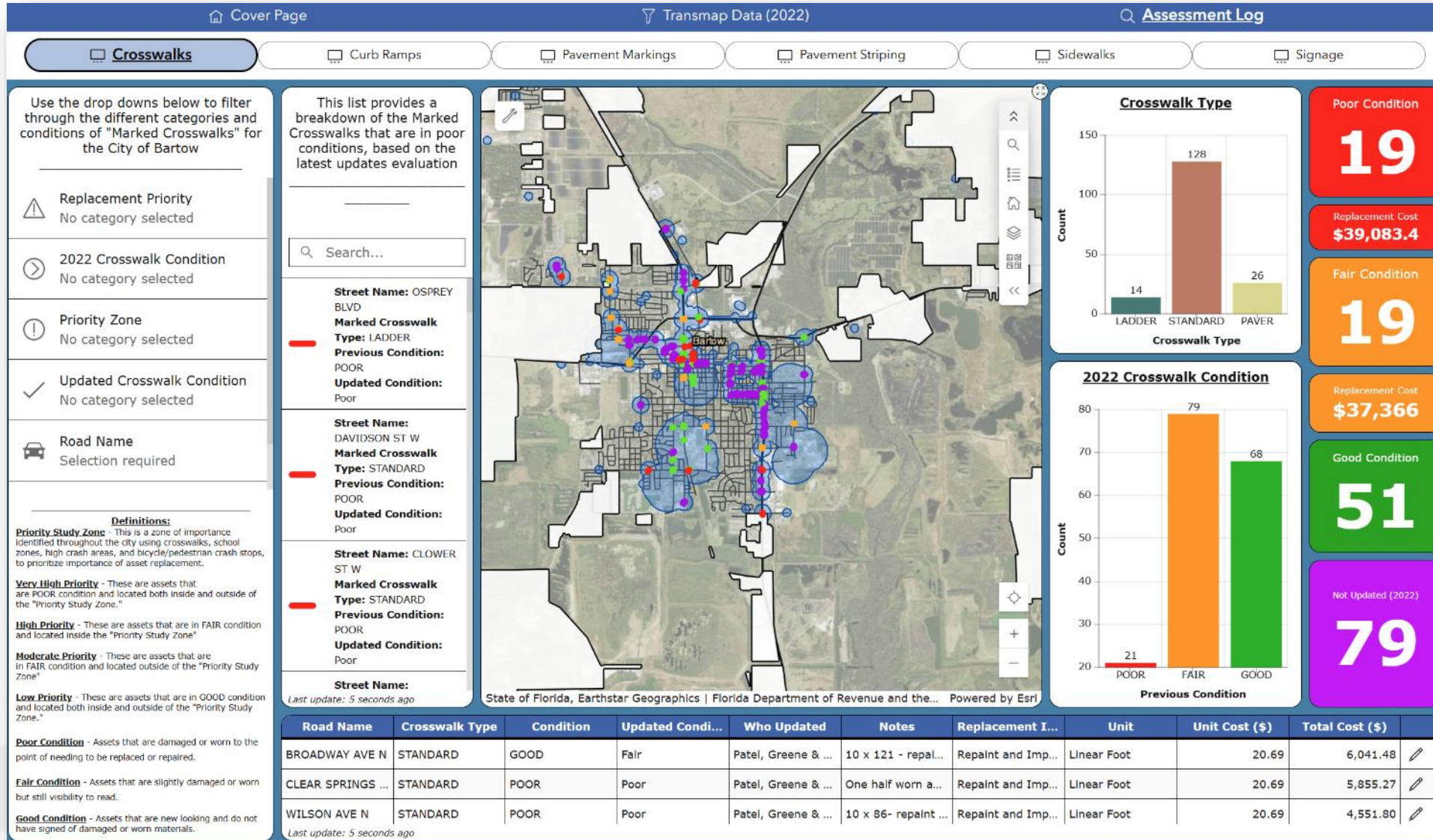- **Asset maintenance cost estimates**
  - Derive quantities from field data collection & conditions
  - FDOT Item Average Unit Cost

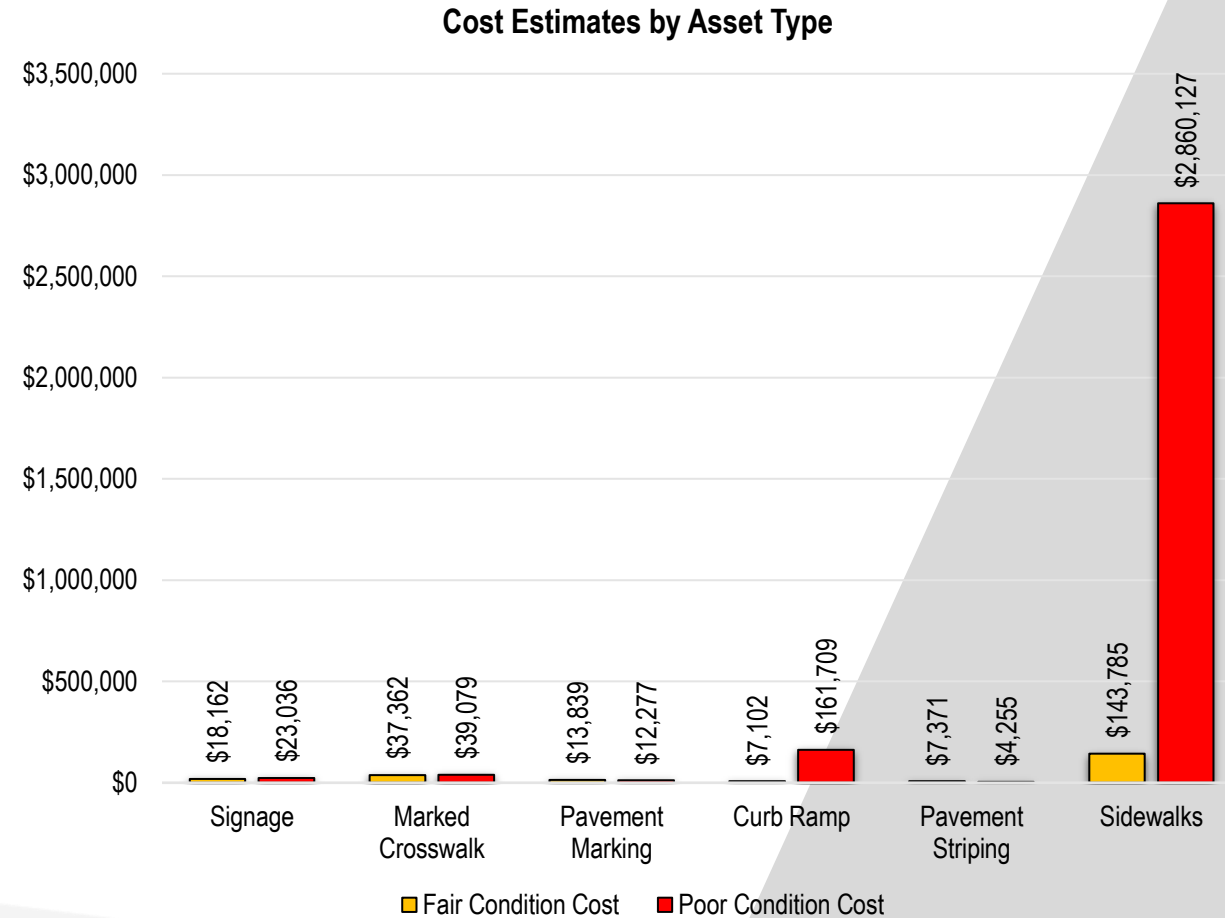# DASHBOARD – REAL TIME NEEDS ASSESSMENT

Assigned Cost Estimates based on updated data collection

PROGRAMMATIC MAINTENANCE COST ESTIMATES

- ## Maintenance need calculation

  - Calculate cost of assets in poor or fair condition

  - Focus resources on the most critical repairs

  - Phase maintenance

- ## Strategic budgeting & delivery

  - Increased annual sign replacement budget from $5,000 to $50,000

  - Expanding City capacity to perform their own maintenance – truck and equipment to install thermoplastic markings

Cost Estimates by Asset Type

Asset Type	Fair Condition Cost	Poor Condition Cost
Signage	$18,162	$23,036
Marked Crosswalk	$37,362	$39,079
Pavement Marking	$13,839	$12,277
Curb Ramp	$7,102	$161,709
Pavement Striping	$7,371	$4,255
Sidewalks	$143,785	$2,860,127

Legend: ☐ Fair Condition Cost ☐ Poor Condition Cost

MATURE MAINTENANCE PROGRAM

- **Calibrate prioritized needs in real time**

- **Track progress & costs to align budget with needs**

- **Preventative maintenance**
  - **Annual: Review assets in priority zones**
  - **Bi-Annual: Review assets outside priority zones**

- **Establish service standards**
  - **Sidewalks: Respond to public requests**
  - **Pavement Markings: Refresh every 2–4 years**
  - **Curb Ramps: Maintain ADA standards; repair/replace as needed**
  - **Signage: Replace faded/damaged signs per MUTCD standards**

CRASH ANALYSIS (2019-2024) – MICROSOFT POWERBI
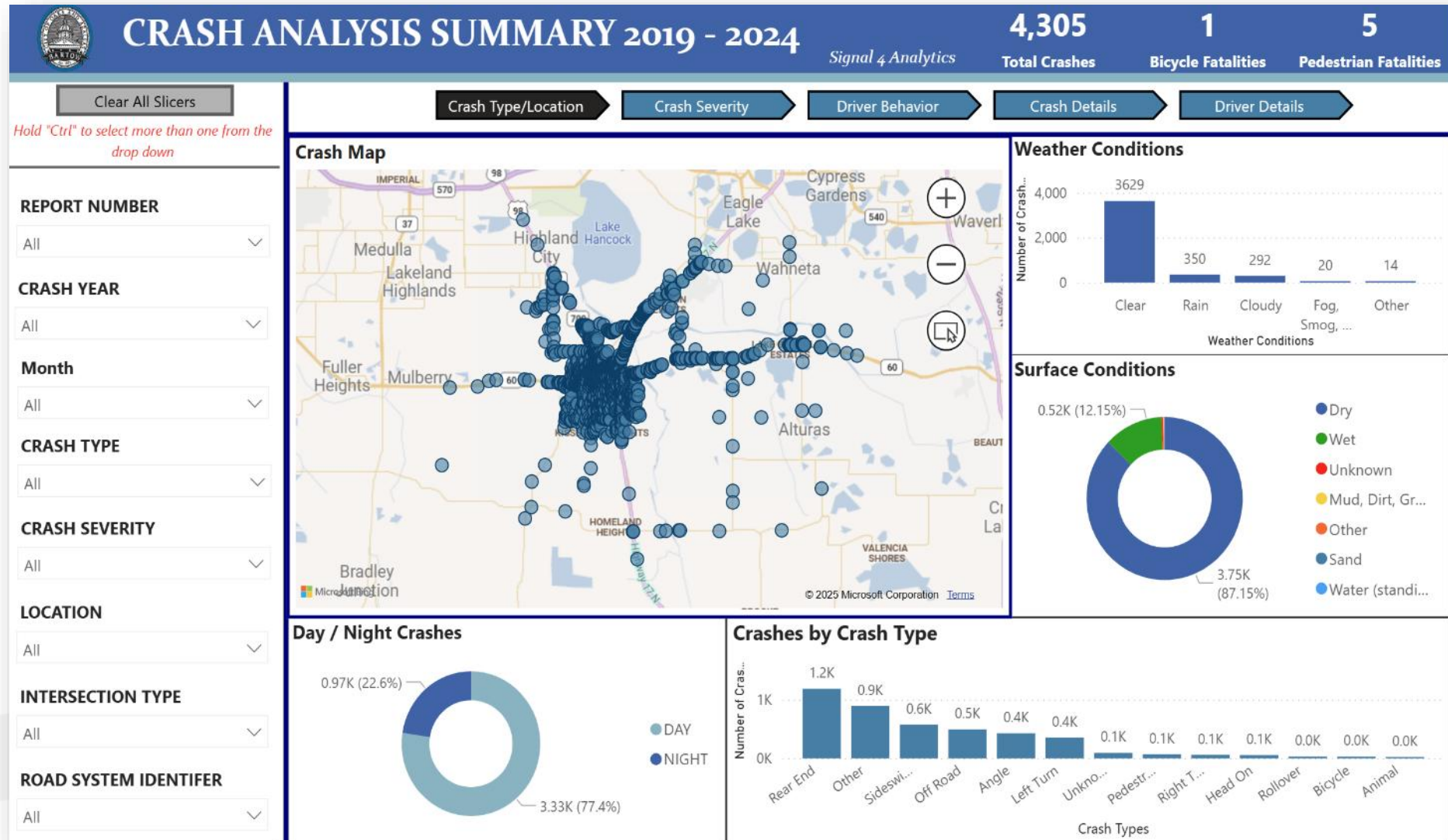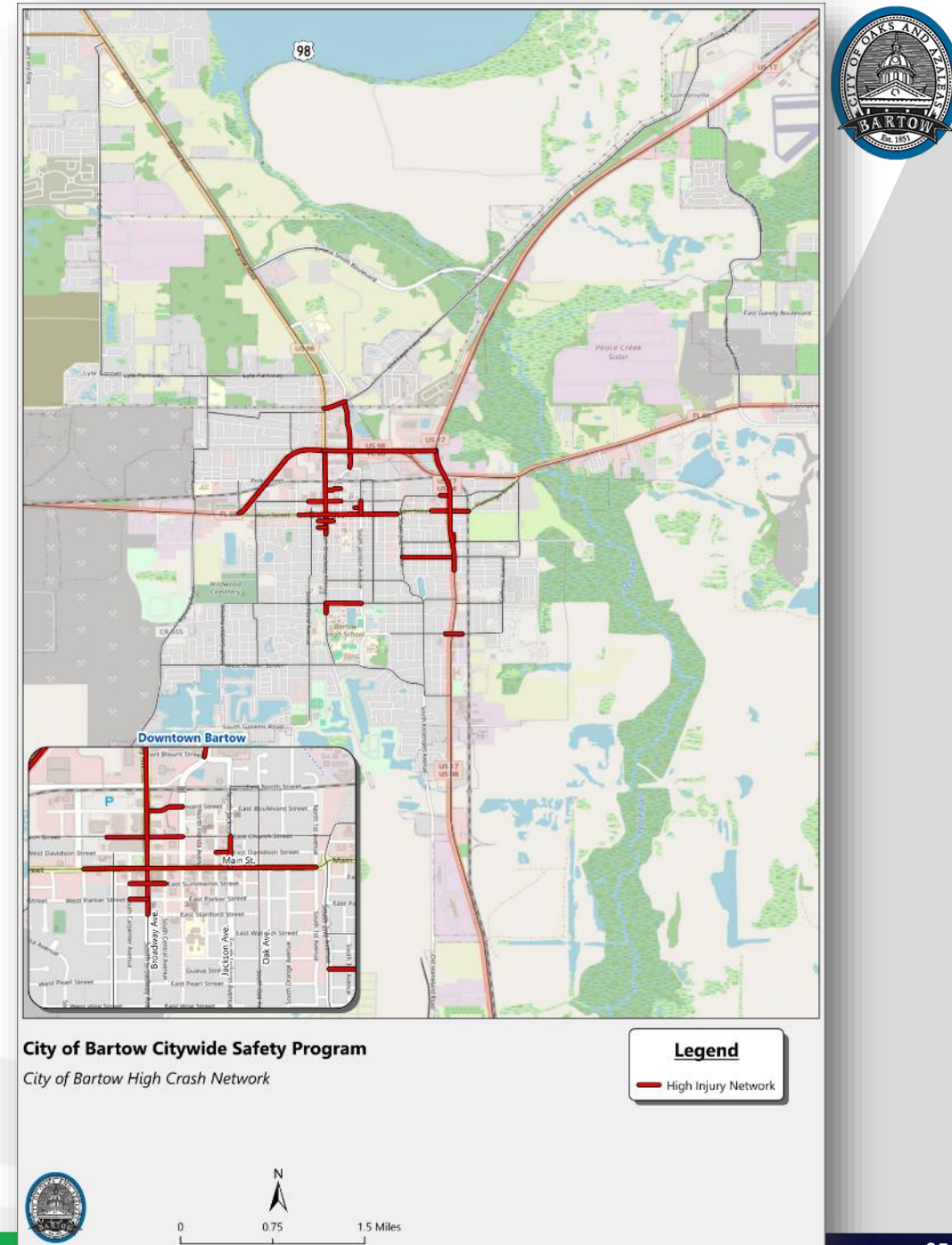
HIGH CRASH NETWORK

- ## Purpose

  - **Establish a data-driven framework to identify the most hazardous roadway segments in Bartow using historical crash data.**

    $$R = \frac{C}{365 \; x \; N \; x \; L}$$
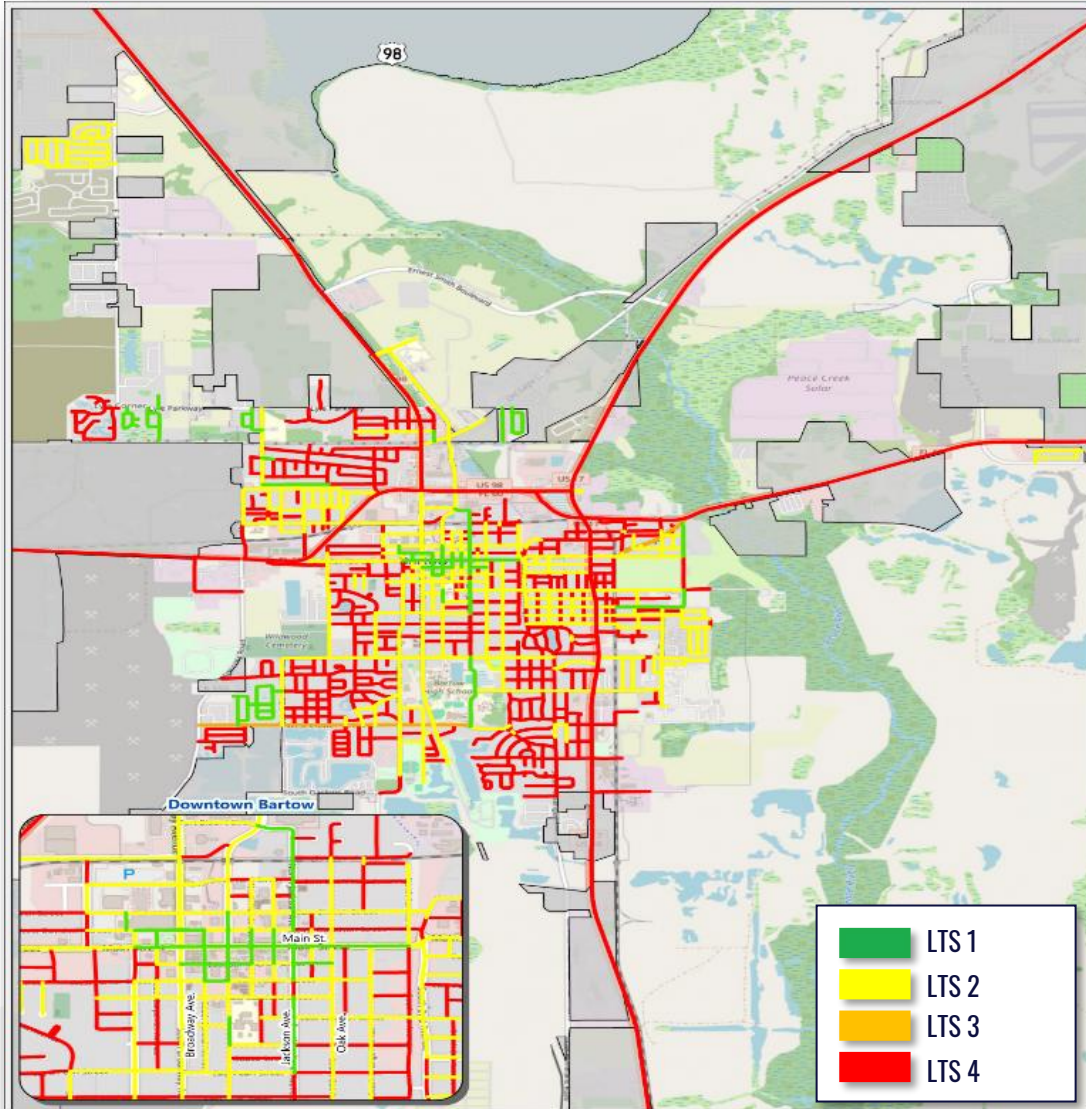
    - R = Crash rate for the road segment

    - C = Total number of crashes in the study period

    - N = Number of years of data

    - L = Length of the roadway segment in miles
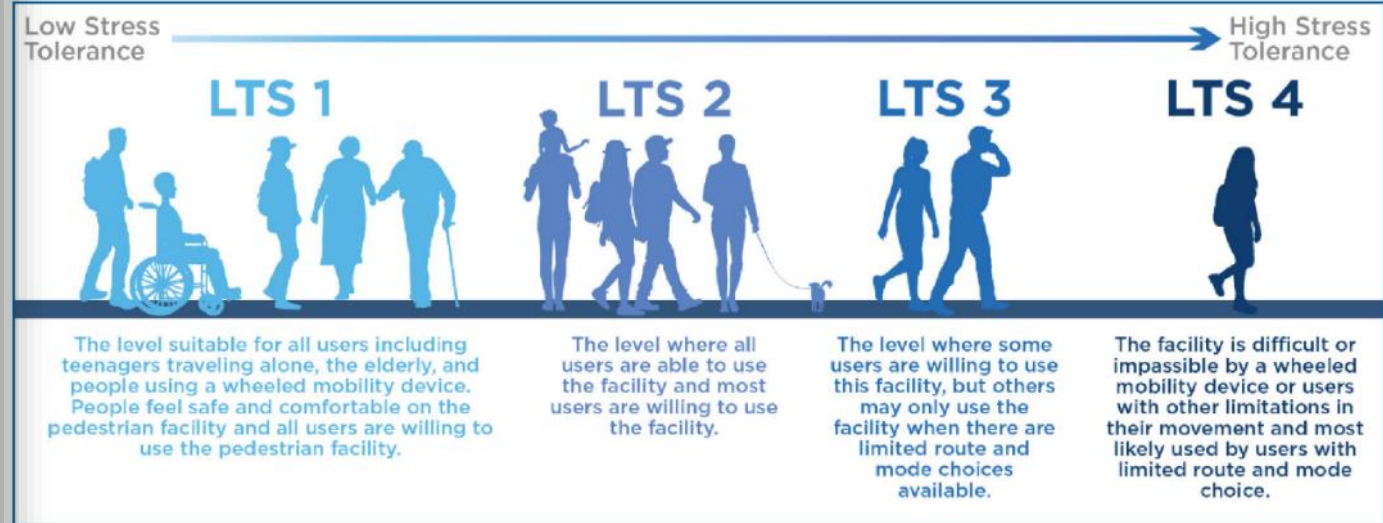
- ## Bartow high crash network summary:

  - **2.99 miles** of State Roadways identified as high crash segments

  - **2.57 miles** of Local Roadways identified as high crash segments

City of Bartow Citywide Safety Program
City of Bartow High Crash Network

Legend
— High Injury Network

Downtown Bartow

ASSESSING NETWORK QUALITY

Pedestrian
Level of Traffic Stress (LTS)

Pedestrian LTS Miles
- LTS 1 – 8.5
- LTS 2 – 40.3
- LTS 3 – 1.9
- LTS 4 – 51.8

ASSESSING NETWORK QUALITY

LTS 3 Downtown – Land Use

Legend:
- LTS 1 (green)
- LTS 2 (yellow)
- LTS 3 (orange)
- LTS 4 (red)
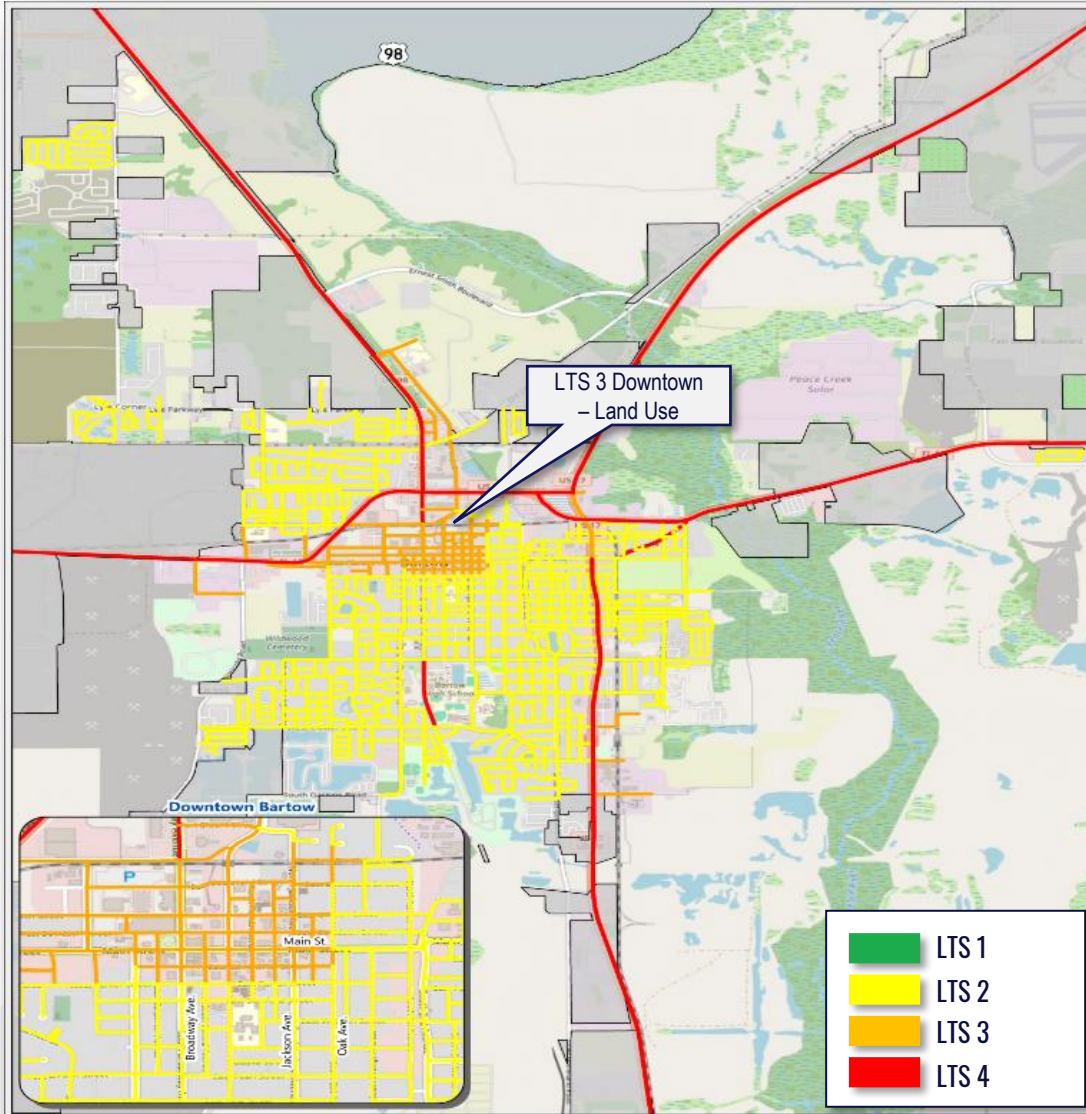
Bicycle
Level of Traffic Stress (LTS)

Low Stress Tolerance → High Stress Tolerance

LTS 1 — The level that most children can use confidently.

LTS 2 — The level that will be tolerated by most adults.

LTS 3 — The level tolerated by confident cyclists who still prefer having their own dedicated space for riding.

LTS 4 — The level tolerated only by those with limited route or mode choice or cycling enthusiasts that choose to ride under stressful conditions.

Bicycle LTS Miles
- LTS 1 – 0.0
- LTS 2 – 88.8
- LTS 3 – 12.5
- LTS 4 – 1.3

CROSS DISCIPLINARY PROJECTS & PLANNING

- **Public Information & Feedback**
  - **Website & social media content**
  - **SeeClickFix (Launched May 1, 2025)**

- **Improved project delivery**
  - **Identify needed projects**
  - **Coordinate needs into adjacent projects**
  - **Regional collaboration**
  - **Data ready to support grant applications**

- **Post-storm repair tracking**
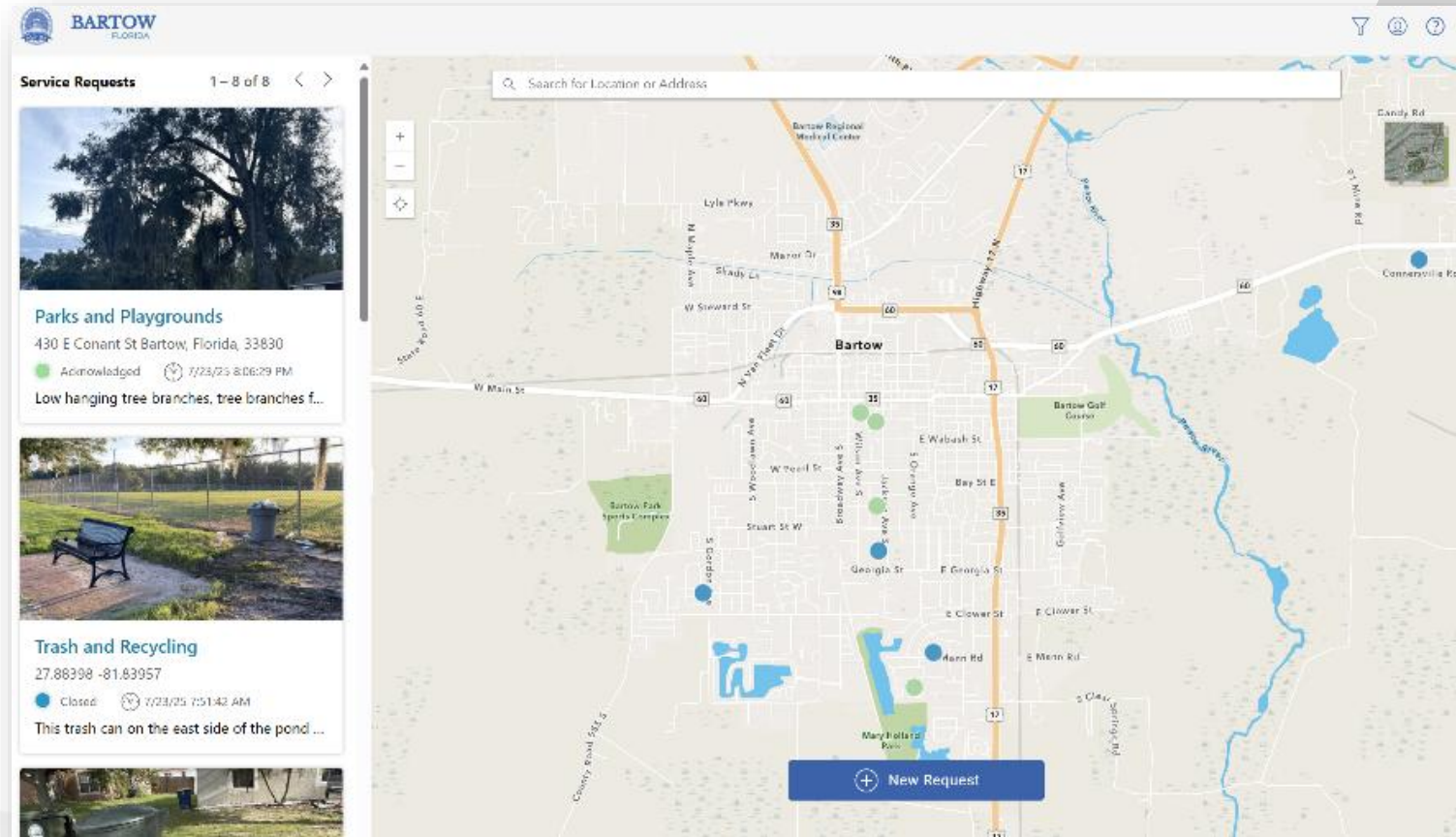
THANK YOU!

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