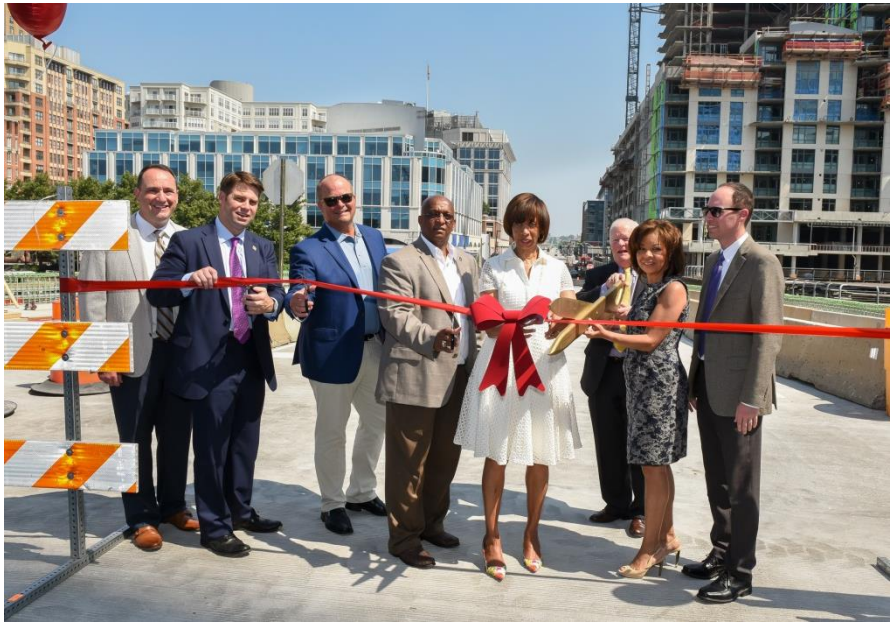
2020 to 2025 CIP



DEPARTMENT OF TRANSPORTATION
BALTIMORE CITY

Michelle Pourciau,
Director
January 10, 2019

Who We Are?

DOT Mission

- Multimodal transportation agency that focuses to enhance the quality of life for Baltimore residents, businesses and visitors by protecting and enhancing infrastructure and providing access by all modes of transportation to create more complete streets.

DOT Goals

- **State of Good Repair** maintain and restore critical infrastructure including bridges, roadways, sidewalks, lighting, bicycle and transit. Our infrastructure is a lifeline for public safety and movement of all things.

- Sustainable change with **Innovation and Technology** expertise building transportation infrastructure
  - so that everyone can collaborate on improving the quality of life for all those in Baltimore.
  - Incorporating new technological advancements will continue to enhance modern multimodal transportation that adapt and respond to changing technology.

- National Leader in **Complete Streets** by the inclusion and the adoption of the Complete Streets legislation
  - Enable DOT to develop a Complete Streets Manuel that prioritizes design and construct projects.

DOT Public Outreach Strategy

Community Engagement

Identify Methods

- Identify methods of community engagement to obtain public input. Establish timeline of frequent engagement throughout planning, design, and construction.

Identify Barriers

- Identify and overcome barriers to engagement associated with race, income, age, disability, English language proficiency, and vehicle access.

Obtain Feedback

- What type of feedback from the public can be expected? How can the public be educated on the subject matter and provide constructive input into the process.

Report Back

- Document, respond to, and share public feedback. Build consensus on project prioritization and design determinations.

Through the Complete Streets – Creating a more Robust Public Engagement process

Who We Are?

Muhammed Khalid
O $38,785,355
C $78,025,000

1. ATVES
2. Strategic Initiatives
3. Rights of Way
4. Transportation Engineering & Construction
5. Conduit
6. Traffic Operations
7. Signal Maintenance
8. Signal Planning

Kenith Ching
O $98,763,961
C $115,000

1. Maintenance
2. Safety
3. Towing
4. Facilities

Theo Ngongang
O $20,584,004
C $3,154,000

1. Transit & Sustainable Traffic
2. Planning
3. Complete Streets

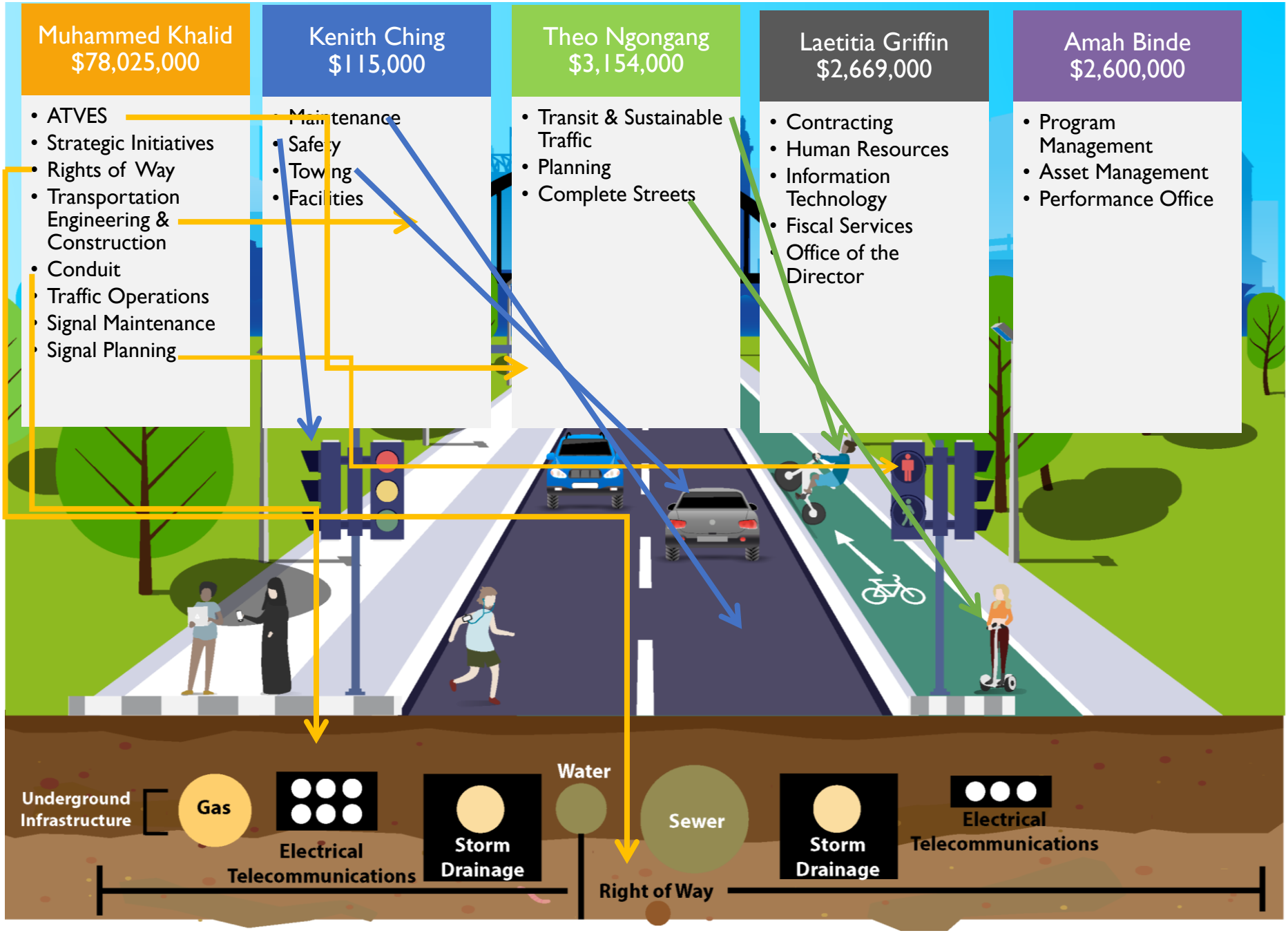
Laetitia Griffin
O $8,274,066
C $2,669,000

1. Contracting
2. Human resources
3. Information Technology
4. Fiscal Services
5. Office of the Director

Amah Binde
C $2,600,000

1. Program Management
2. Asset Management
3. Performance Office

Who We Are?


Muhammed Khalid
$78,025,000
• ATVES
• Strategic Initiatives
• Rights of Way
• Transportation Engineering & Construction
• Conduit
• Traffic Operations
• Signal Maintenance
• Signal Planning
Kenith Ching
$115,000
• Maintenance
• Safety
• Towing
• Facilities
Theo Ngongang
$3,154,000
• Transit & Sustainable Traffic
• Planning
• Complete Streets
Laetitia Griffin
$2,669,000
• Contracting
• Human Resources
• Information Technology
• Fiscal Services
• Office of the Director
Amah Binde
$2,600,000
• Program Management
• Asset Management
• Performance Office
Underground Infrastructure
Gas
Electrical Telecommunications
Storm Drainage
Water
Sewer
Storm Drainage
Electrical Telecommunications
Right of Way

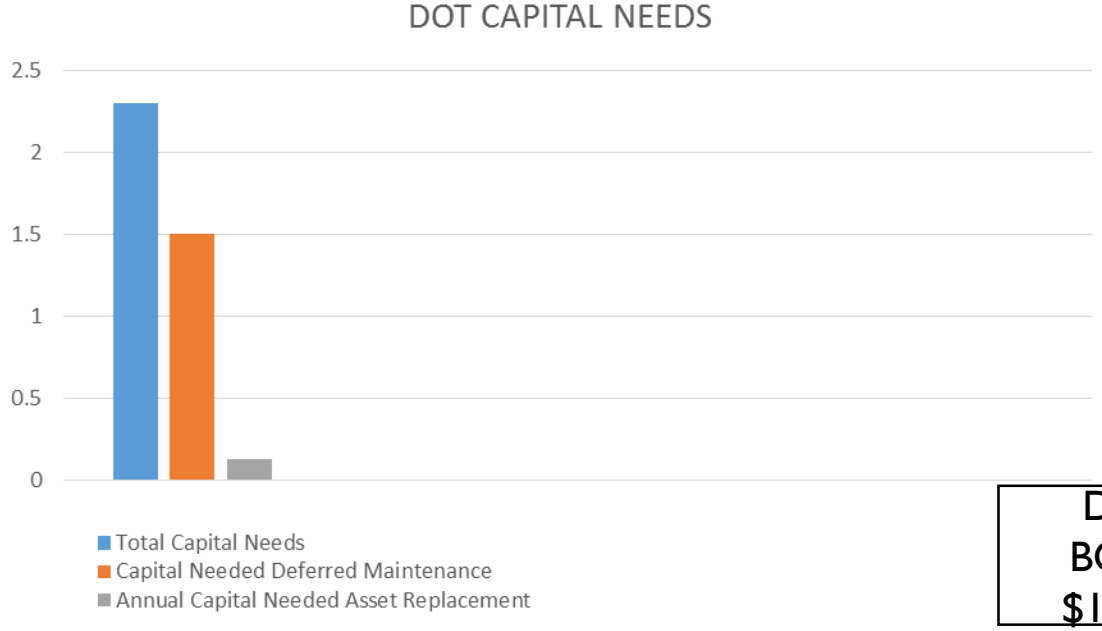
Critical Issues

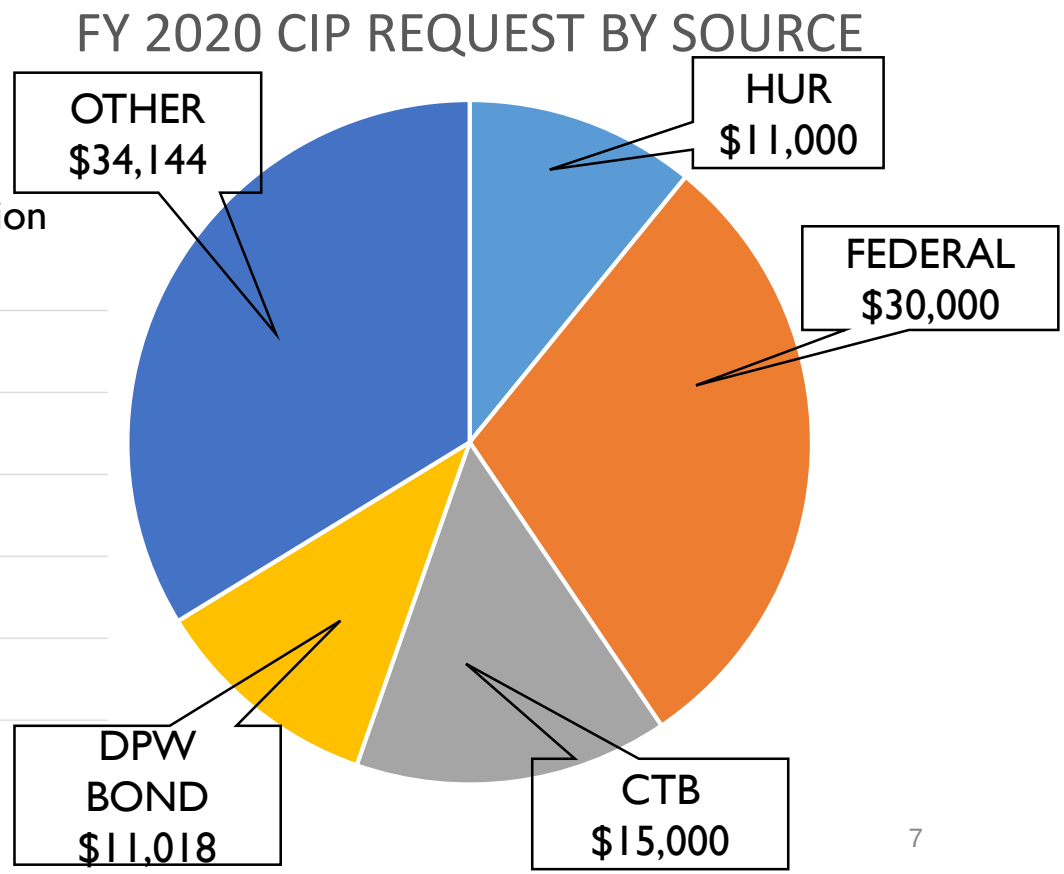
- DOT Capital Investment need is driven by:
  - High cost of improving infrastructure
  - Commitment to creating a multimodal transportation system.

- Key challenges
  - Inadequate local funding levels provided to the agency over the last 6-year CIP cycle.
  - High Cost of Infrastructure
  - Age of Infrastructure and Deferred Maintenance
  - Innovation and Technology
    - Smart Nodes
    - Autonomous Vehicles
    - Small Cells

Critical Issues

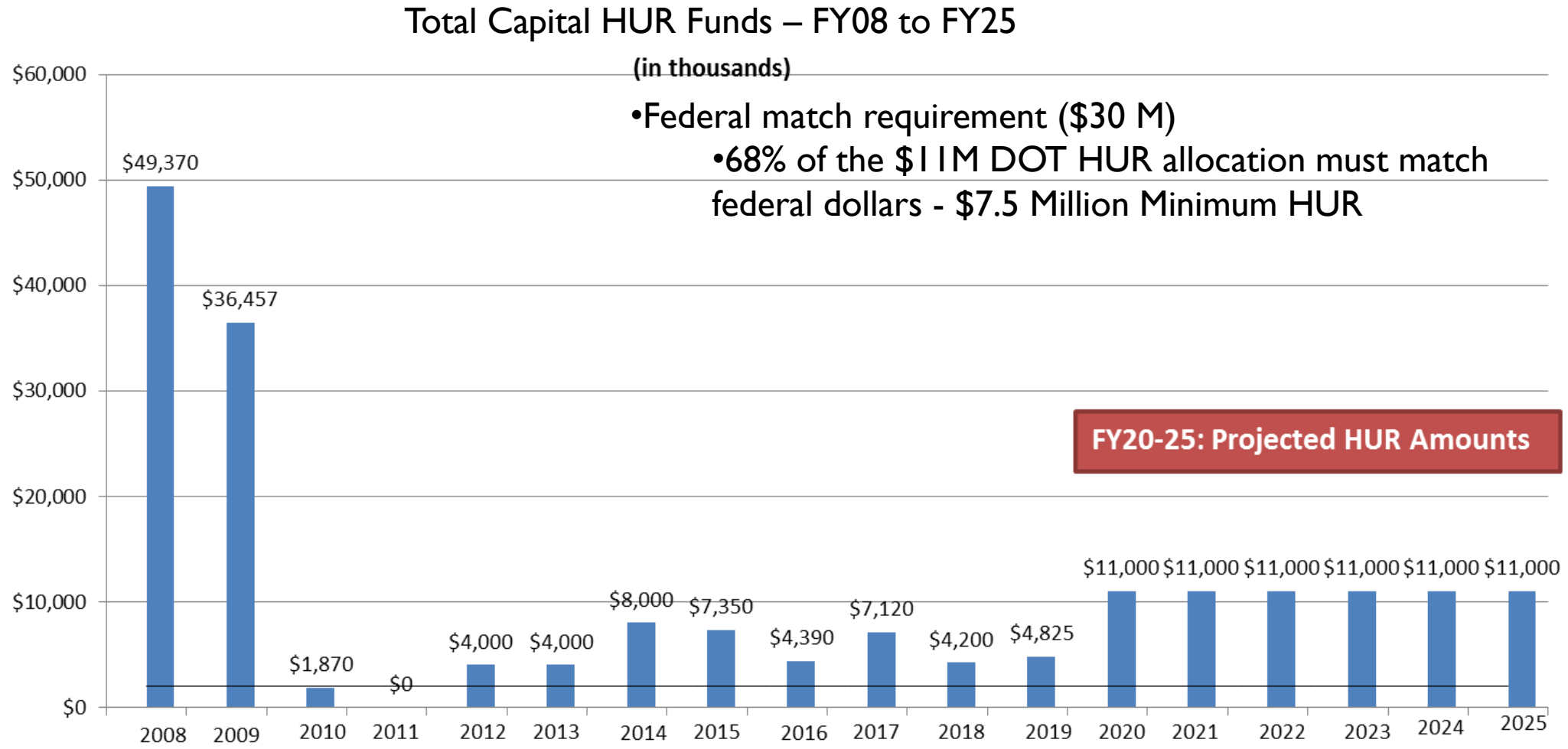
- HUR Funds:
  - Few Limitations of HUR
  - HUR can be used across all CIP Requests
- MDOT County Transportation Revenue Bonds (CTB)
  - Funds must be spent within 3 years
  - Limitations by project types
  - Funds associated to particular project
  - Not easily reallocated – when needed based on the contractor bid amount
- DOT Capital Needs:
  - Total Capital Needs – Current Analysis
  - Deferred Maintenance 2/3 Capital Needs
  - Annual Asset Replacement – Above current allocation





Critical Issues

- Inadequate local funding levels provided to the agency over the last six year CIP cycle.



Critical Issues

- Aging Infrastructure and Deferred Maintenance

Why is traffic so congested in Baltimore? Officials blame 'antiquated' signal system

airs

26th Street Wall Infrastructure Repairs

On Monday, November 26, 2018 a section of the retaining wall on East 26th Street above the CSX rail line through Charles Village partially buckled and began to fail. The potential failure of the retaining wall between North Calvert Street and Guilford Avenue caused DOT to close 26th Street. DOT is currently working to repair this section of the wall and sidewalk.

The objective of this project is to address the wall failure by stabilizing the existing

Critical Issues

- Innovation and Technology

Fast Facts for Connected and Automated Vehicle (CAV) Technology

Actions in Maryland on Automated Vehicles

Self-driving vehicles have the potential to transform how we live and work – to save lives by reducing traffic crashes, as well as providing more travel options for people who are not able to drive. While Maryland is open for business and eager to realize the life-saving and economic benefits of this innovative technology, the safety of all who travel our roadways comes first. Many vehicles already on the road have automated features. Cruise control is an automated feature that has been around more than 50 years; some modern cruise control systems can automatically speed up and slow down your car to keep a set following distance relative to the car ahead for auto stop and go in traffic jams. Other automated features include lane departure warning, traction control, parking assist, and collision alerts. To prepare for this changing transportation landscape, Maryland Department of Transportation (MDOT) and many partners are working together to ensure the safety of all roadway users as we move toward the future of transportation.

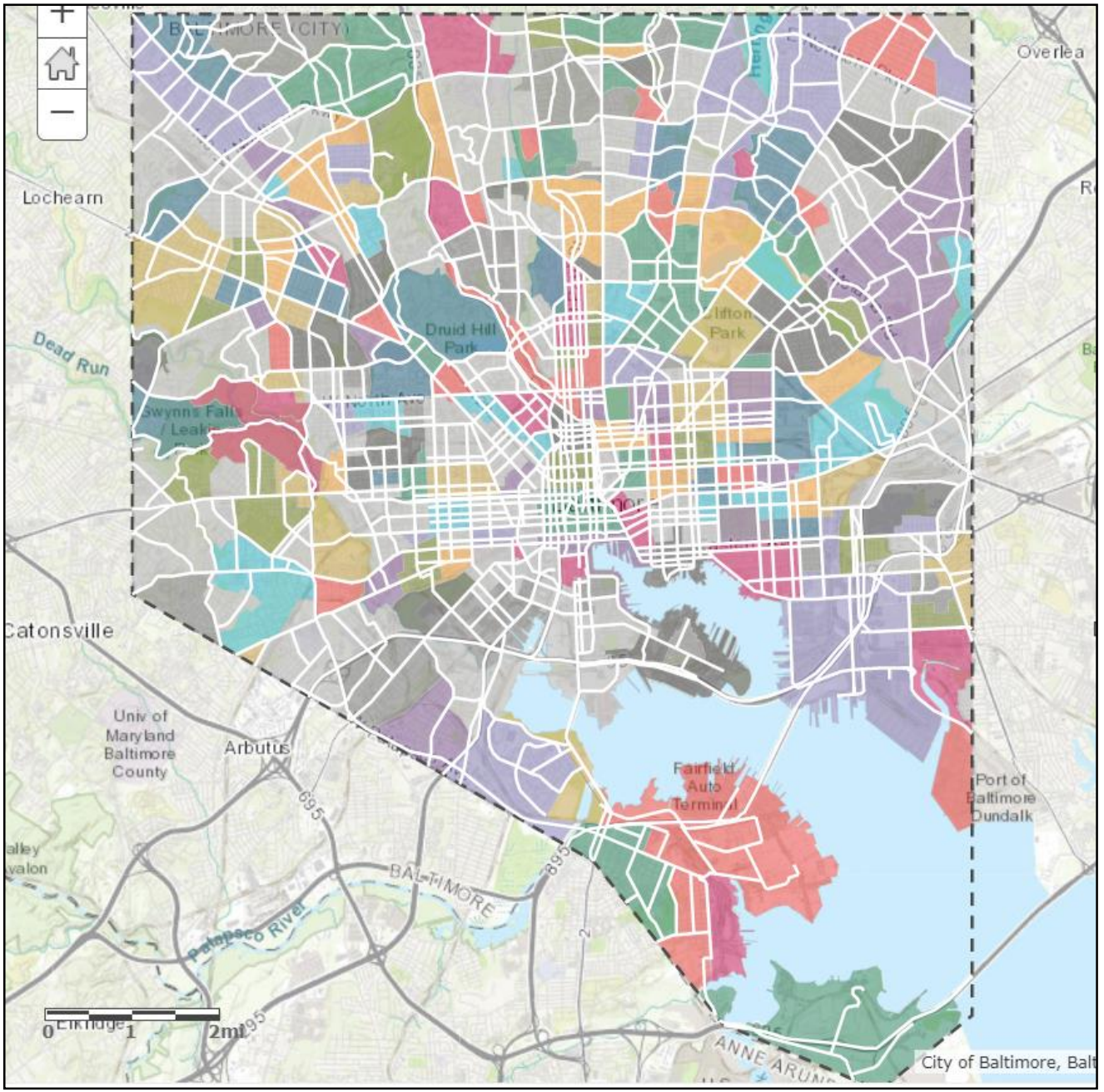
Automated Vehicle Testing in Maryland

Smart Nodes include light poles with smart technology. Citizens on the street can use the pole to charge their electric car and cell phone, read related information on the side kiosk, weather sensors and it has a camera attached for the city's integrated CCTV program; and it provides light!

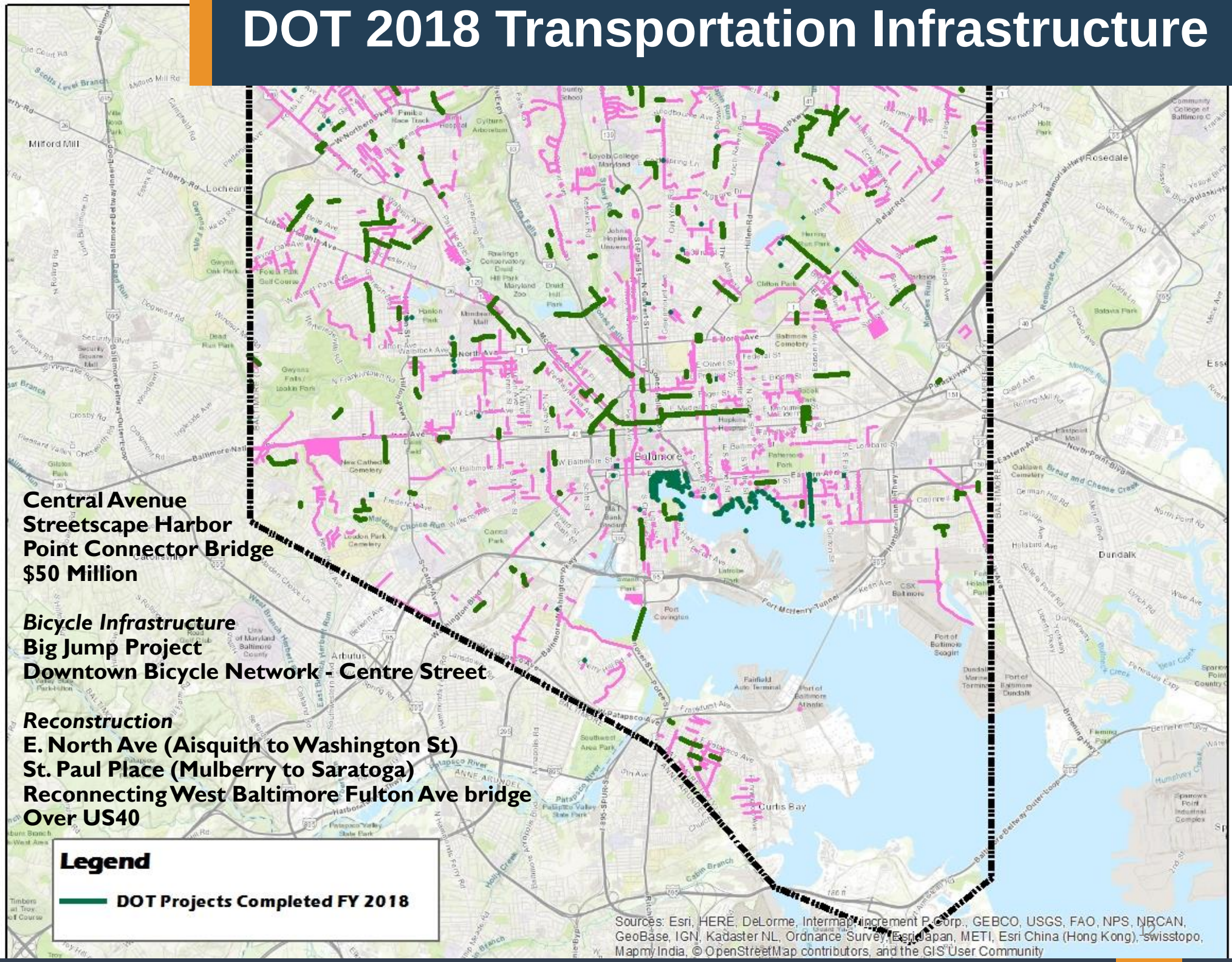
Baltimore City looks to 'small cell' systems to improve wireless coverage

The City is proposing a franchise agreement with ExteNet Systems, which would install antennae on the top of light poles.

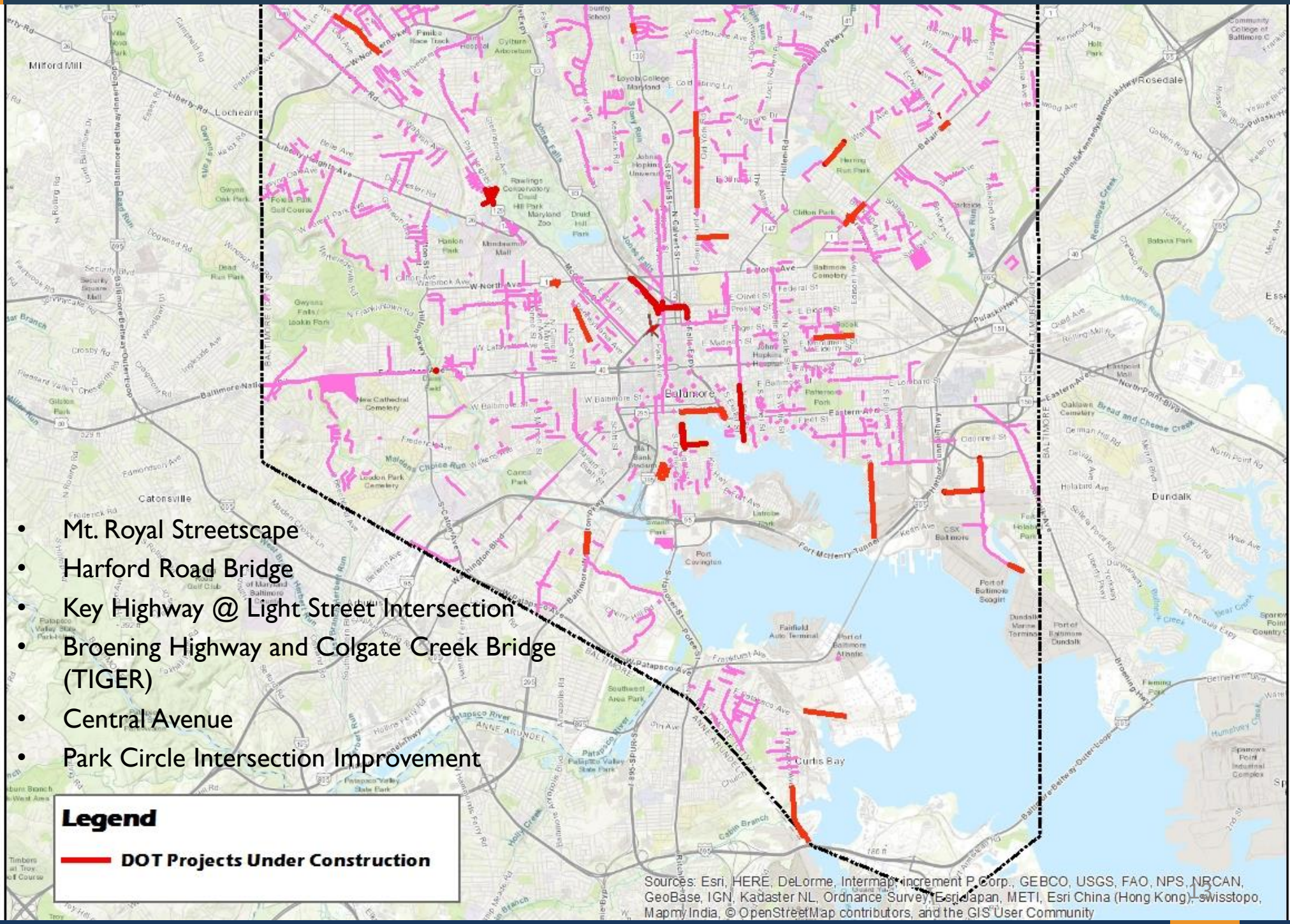
Our Portfolio



DOT 2018 Transportation Infrastructure

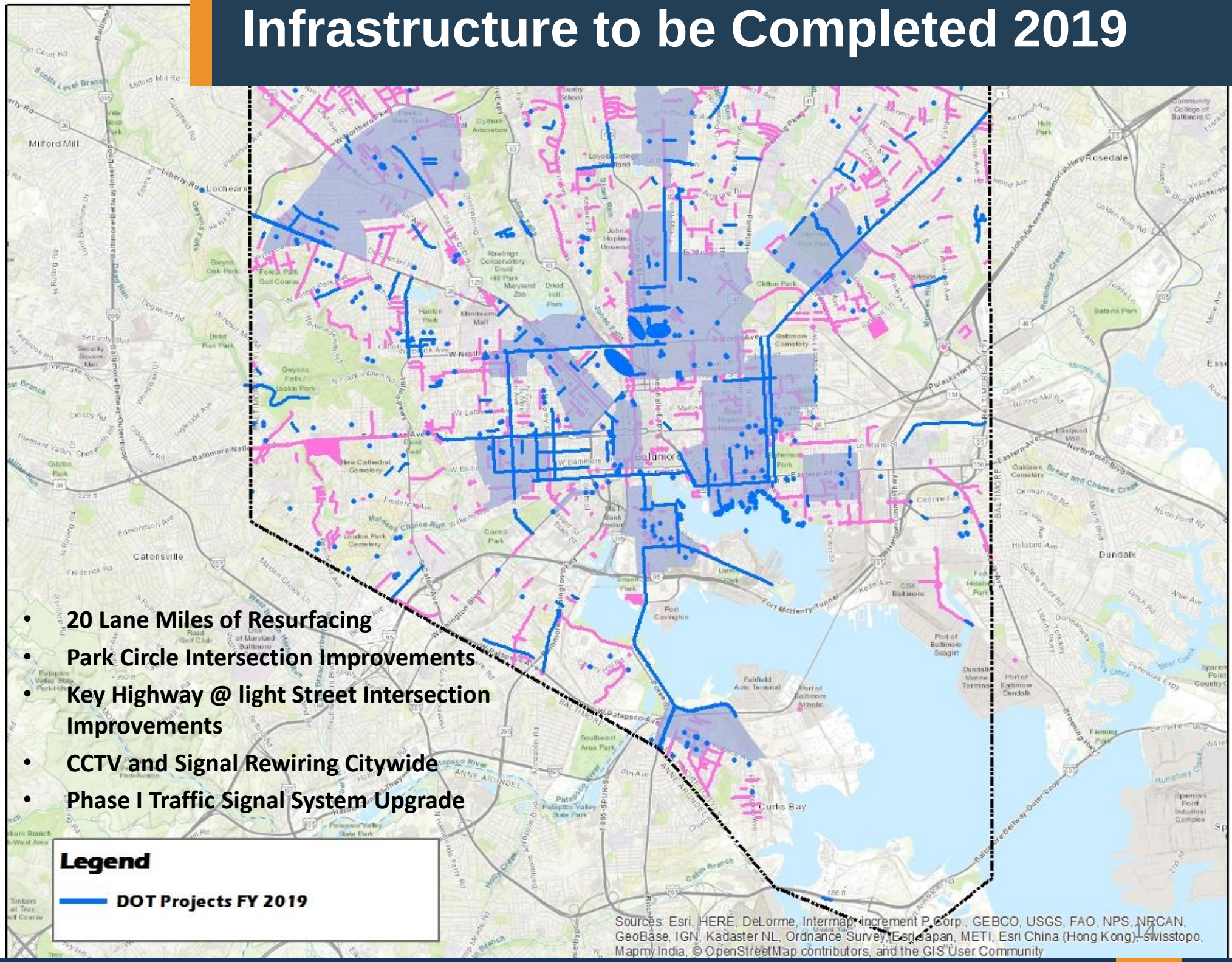


Transportation Infrastructure Under Construction



- Mt. Royal Streetscape
- Harford Road Bridge
- Key Highway @ Light Street Intersection
- Broening Highway and Colgate Creek Bridge (TIGER)
- Central Avenue
- Park Circle Intersection Improvement

Infrastructure to be Completed 2019



- 20 Lane Miles of Resurfacing
- Park Circle Intersection Improvements
- Key Highway @ light Street Intersection Improvements
- CCTV and Signal Rewiring Citywide
- Phase I Traffic Signal System Upgrade

Long Term Capital Needs

- Capital needs are driven by the commitment to creating a multimodal transportation system based on the principles of constructing complete streets throughout all of Baltimore City.

ASSET CATEGORY	CAPITAL NEEDS	JUSTIFICATION
Roadways	$480M	4,750 Lanes Miles 64.5% of City roadways are in “acceptable” condition $80 million annually for ten years to raise the “acceptable” percentage to 80%
Bridges	$660M	248 Bridges 35 Bridges in Poor Condition, 8 under construction Replacement of remaining 27 bridges at $600/Sf bridge deck area
Sidewalks/ADA Access	$465M	3,600 miles sidewalk - 25% need reconstruction 900 miles at $6.50/SF concrete 5’-wide sidewalk ADA compliance in the Central Business District $58 million and for the entire city $290 million (sidewalk slope, drive aprons, curb ramps, and complete sidewalk network)
Retaining Walls and Other Structures	$50M	Estimated 20,000 LF of retaining walls – 5% need reconstruction 1,000 LF at $50,000/ LF

ASSET CATEGORY	CAPITAL NEEDS	JUSTIFICATION
Alleys	$67M	400 miles of alley – 25% need reconstruction 100 miles at $9.00/SF concrete
Traffic Signalization	$80M	1400 Signalized Intersections 320 Signals/intersections need to be replaced at an average intersection cost of $250,000 (Communication, reconstruction, ATMS/TMC, and ITS)
DOT Facilities (Short-Term)	$6M	16 DOT Facilities - Short-term repairs identified in the 2009 MP $375,000 average per facility
DOT Facilities	$120M	Maintain our present facilities Create sustainable, energy-efficient facilities
Bicycle Facilities	$27M	77 road miles separated facilities – need to construct the entire 77 road miles at $360,600/road mile
Complete Streets and Safety	$40M	Enhance safety, DOT will embark upon a citywide program to upgrade pavement markings 121 LM at $330,500/LM
Lighting	$50M	Pedestrian lighting is a key element of healthy neighborhoods complete streets Replace 17,000 PMA, Upgrade 26,000 fixtures, install new Ped lighting
IT Infrastructure/ Smart Nodes / Smart City	$20M	IT infrastructure for the DOT facilities, 1300 employees, fleet $10 million “Smart nodes” equipped to provide traffic and security cameras, Wifi, weather information, power outlets and display screens. The total program capital investment $10 Million
Conduit	$250M	26 Million LF – 80% needs replacement 20.8 Million LF at $12.00/LF
Transit Infrastructure	$50M	City owns 12 buses – need to replace 12 and purchase 12 new (additional) buses long term transit maintenance shop for City owned transit
TOTAL	**$2.3B**	

Long Term Capital Needs

Transportation Plan

Baseline is complete

Public engagement beginning Winter 2019

RFP prepared for Advertisement FY19

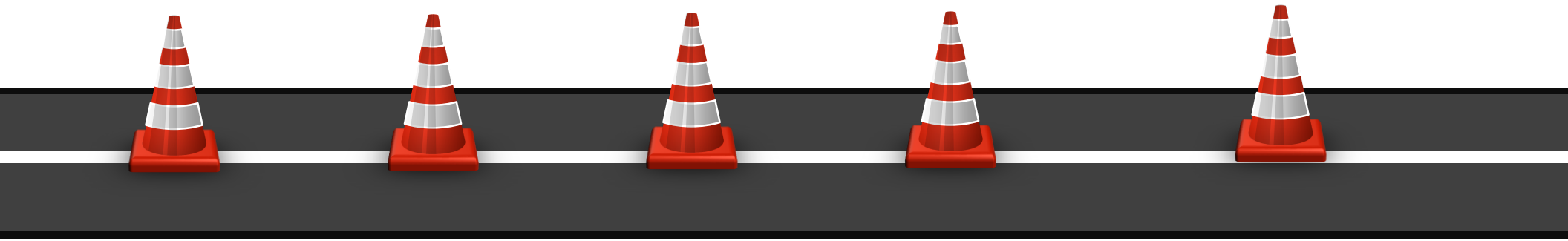
Asset Management System

- Completed listing of all BC DOT asset categories. A total of 35 asset categories, 12 asset categories with existing GIS layers/geodatabases
- Identified critical needs in the transportation system network and performed high level preliminary cost analysis of those needs
- Determined all attributes for key asset categories for development of asset inventories

Project Planning

Program Management Office (PMO)

- Completed Phase I-Gap Assessment Report for the PMO
  - ➢ included draft process charts to assist the department with better understanding of scheduling, cost, prioritization and implementation



Program Summaries – High Profile Projects

TRAFFIC MITIGATION ZONE PROJECTS

- CIP request is expected funding from New development FY20
- Seeking Authorization to spend funds

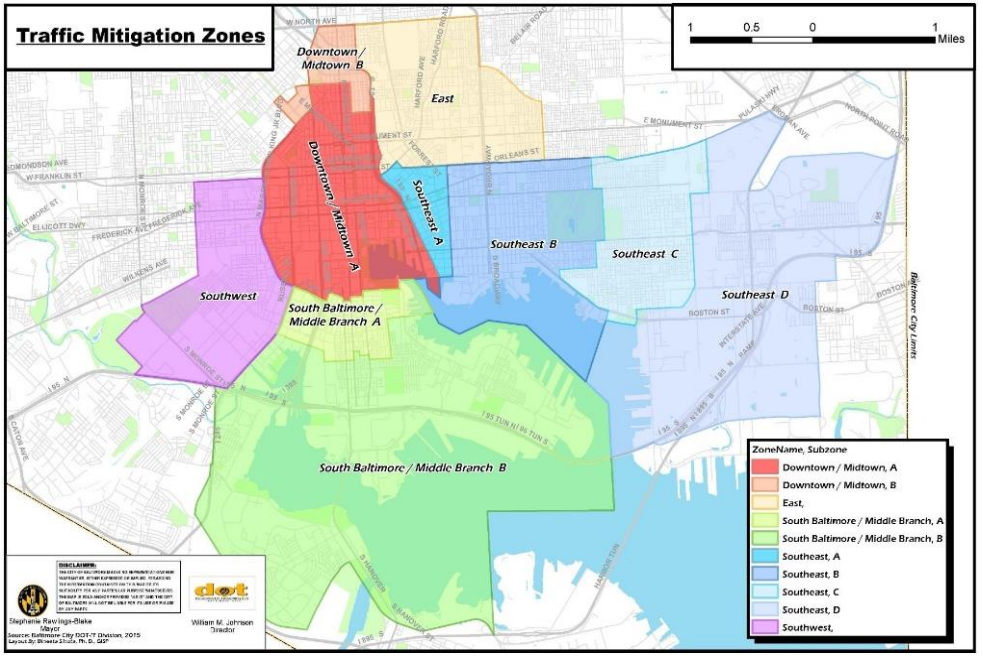
- South Baltimore/ Middle Branch $1.5 Million
  - **LAWRENCE STREET STUDY**

- Southeast $1.2 Million
  - **WOLFE STREET BIKE FACILITY STUDY**
  - **POTOMAC STREET CYCLE TRACK EATON STREET EXTENSION**

- East $1 Million

- Midtown Downtown $1 Million

- Southwest $100,000



Program Summaries – High Profile Projects

BICYCLE INFRASTRUCTURE

- Separated Bike Lane Network Plan adopted by Planning Commission
  - $5 Million commitment programed in CIP
  - Funded – full amount uncommitted and unallocated ready for prioritization 509-019

- Overall Bike Program
  - Over $7 Million of uncommitted funding

- Prioritize Spending and seek grants to maximize use of local funds

- Implementation slower than anticipated
  - Focus on speeding up implementation

Program Summaries – High Profile Projects

COMPLETE STREETS

- CIP 508-116 Streetscape-Complete Streets $800K 2020
  $11.6 M out-years
- Establishment of an Advisory Committee
- Establishment of Design Guidelines
- Development of a Complete Streets Manual
- Reporting Annually Status of the Complete Streets Transportation System
- Establishment of Performance Measures Related to Transportation and the Success of "Complete Streets"
- Increased Transparency
- Complete Streets Manual:
  - A Project Prioritization Process Including an Equity Assessment
  - Decision Tree Showing Street Design Determinations
  - Community Engagement Policies Centered Around Equity
  - More Consistency Among Projects of Similar Street Typologies

Program Summaries – High Profile Projects

ADA (Access)

- Self Assessment – 90% of pedestrian facilities in CBD require upgrades to current standards
  - Enable all persons the ability to navigate CBD
    - Sidewalks
    - Curb Ramps
    - Crosswalks
    - Pedestrian Signals
  - Provide residents and visitors safe, reliable and continuous pathways throughout the CBD

Program Summaries – High Profile Projects

WATERFRONT INNER HARBOR PROJECTS

REQUESTED FUNDING

- Rehabilitation of the Promenade Bulkhead near Harris Creek
- Inner Harbor Crosswalks

UNFUNDED

- Inner Harbor Dredging
- Inner Harbor Promenade Maintenance & Repair
- Inner Harbor Infrastructure/Utility - Electrical Upgrades

Implementation Tools

IMPLEMENTATION TOOLS				
CIP	PROJECT	COUNTY TRANSPORTATION BONDS	FEDERAL	HUR
508-641	Citywide Transportation Plan	$ -	$ 1,000	$ 500
508-378	Capital Project Delivery Services - Enterprise Solution (IT)	$ -	$ 800	$ 200
527-044	Asset Management	$ -	$ 1,280	$ 320
527-048	Envista Upgrades	$ -	$ -	$ 250
527-049	Safety IT Needs	$ -	$ -	$ 269
527-050	Towing IT Needs	$ -	$ -	$ 500

Comprehensive Asset Management Tools

LiDAR asset data collection for all physical assets beginning Winter 2019

GIS Geodatabases/asset inventories for key remaining physical asset categories: Traffic Signs, Traffic signals, Pedestrian Signals, Sidewalks & Paths, Alleys, Medians, Driveways, Pavement Markings completed by Fall 2019

Completion of ADA Compliance Analysis/Self Evaluation completed by Summer 2019

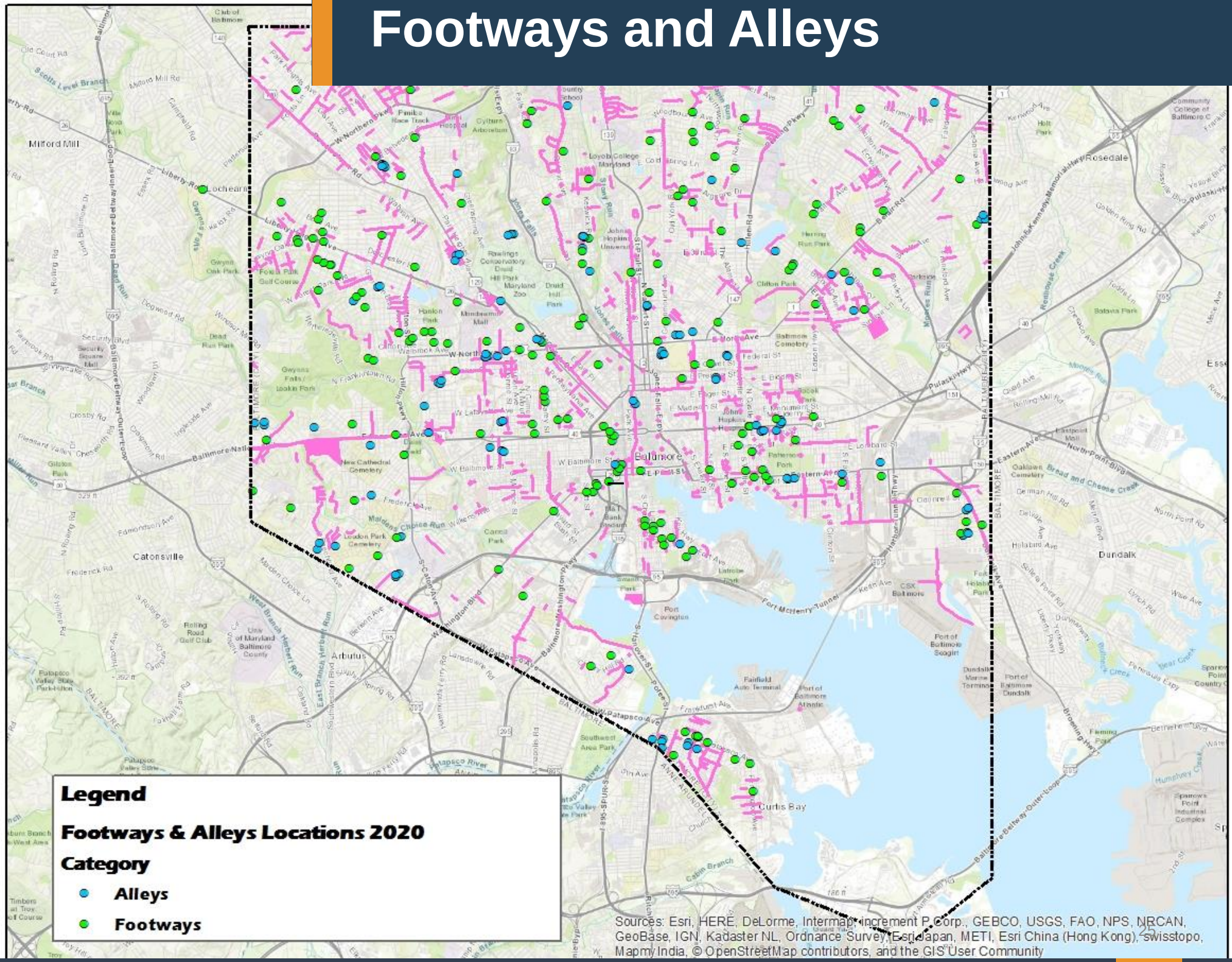
Program Management Tools

Phase II of PMO implementation to consist of development of all materials for key recommendations provided in the Gap Assessment report.. Such materials will include PM manuals, PM tools and techniques, Revised/New SOPs, Automated Workflows/Processes, Policies/Procedures

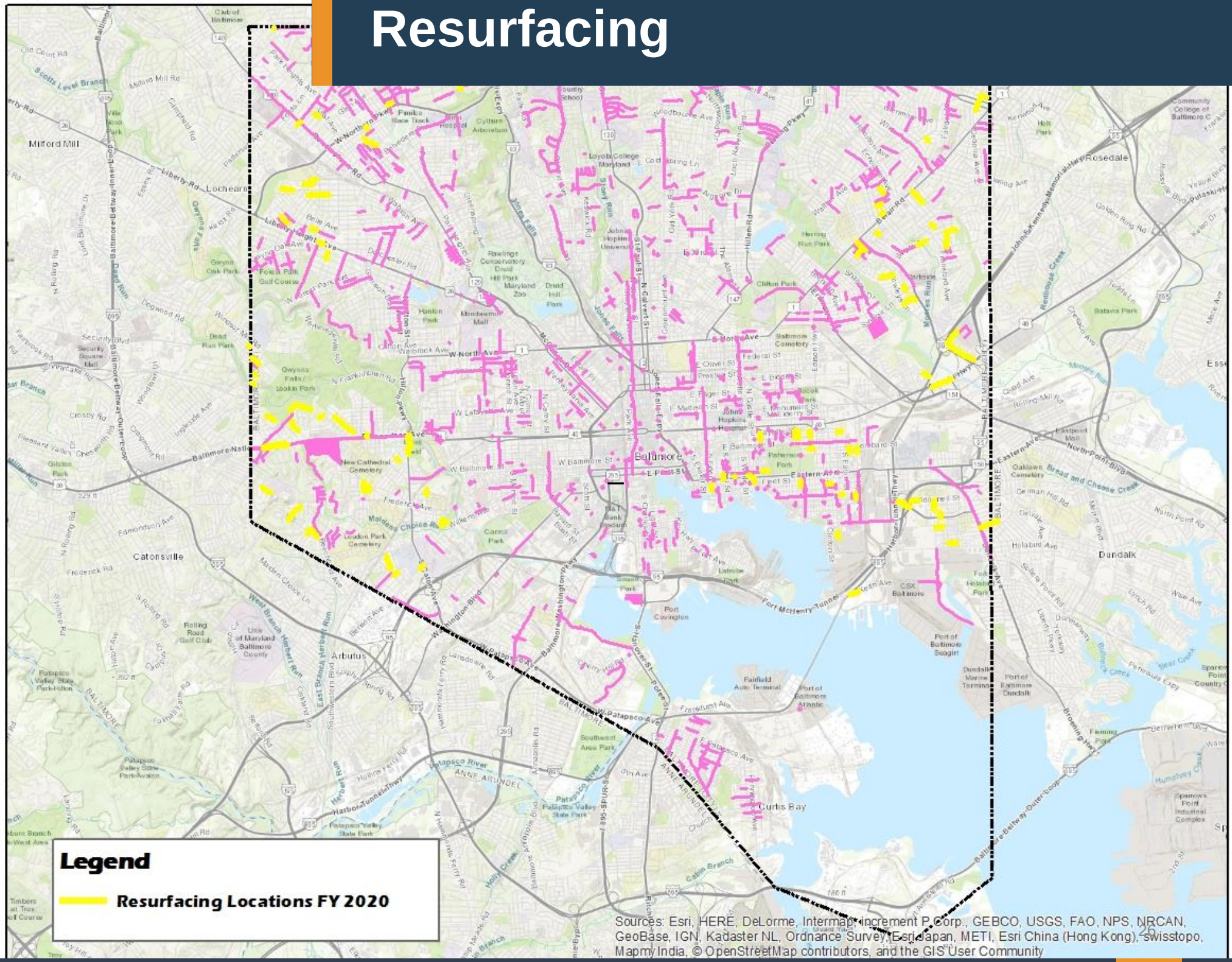
Justification – Local Rehabilitation

LOCAL REHABILIATION				
CIP	PROJECT	COUNTY TRANSPORTATION BONDS	FEDERAL	HUR
508-465	Curb Repair-Slab Repair - ADA Ramps Upgrade Citywide	$ 1,100	$ -	$ -
504-100	Sidewalk Reconstruction	$ 2,382	$ -	$ -
504-200	Alley Reconstruction	$ 1,500	$ -	$ -
508-029	Materials and Compliance Testing	$ -	$ -	$ 450
506-754	Annual Urgent Needs Bridges Repairs	$ 1,000	$ -	$ -
514-002	Resurfacing JOC - Urgent Needs	$ 2,500	$ -	$ -
514-214	Resurfacing -- Northwest	$ 2,500	$ -	$ -
514-215	Resurfacing -- Southwest	$ 2,500	$ -	$ -
514-216	Resurfacing -- Southeast	$ 2,500	$ -	$ -
514-846	Resurfacing -- Northeast	$ 2,500	$ -	$ -

Footways and Alleys



Resurfacing



Justification – Facilities

FACILITIES				
CIP	PROJECT	COUNTY TRANSPORTATION BONDS	FEDERAL	HUR
508-119	DOT Maintenance Facilities Improvements & Repairs	$ -	$ -	$ 750

2601 Falls Road

6201 E. Lombard Street

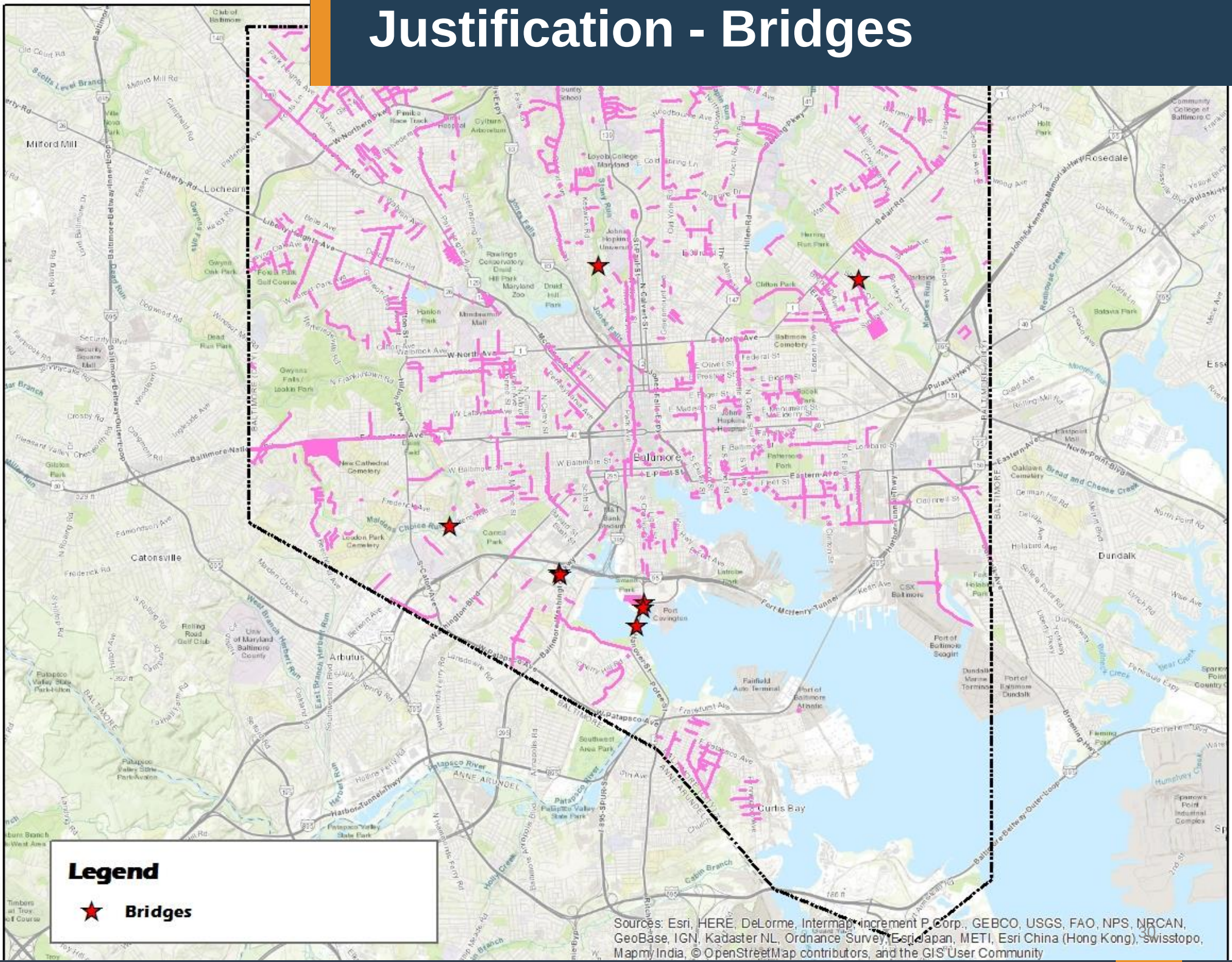
Justification – Bridges

BRIDGES				
CIP	PROJECT	COUNTY TRANSPORTATION BONDS	FEDERAL	HUR
506-011	Brehms Lane over Herring Run Bridge Replacement (BC4501)	$ -	$ 520	$ 155
506-760	Perring Parkway Ramp Bridge over Herring Run (BC3203)	$ -	$ 3,500	$ 1,000
506-761	Remington Ave Bridge over Stoney Run (BC3203)	$ -	$ -	$ 250
507-003	Russell Street Bridge (BC 5103) & Monroe Street Ramp (BC5221) over CSX	$ -	$ 1,120	$ 280
509-326	Replacement of Wilkens Ave. Bridge over Gwynns Falls	$ 2,400	$ 1,600	$ -
509-006	Hanover Street Bridge - Rebuilding Baltimore's Bridge: Connecting Communities Through Investment	$ -	$ 3,200	$ 800

Justification – Bridges

- **Hanover Street Bridge and Multimodal Corridor**
- **NEPA $4 Million FY20 CIP**
- **Replacement of the Hanover Street Bridge**
  - Improved Multimodal corridor critically needed
  - Vital link between heart of Baltimore City and southern connection for neighborhoods, posts, and businesses
- **Expected replacement cost $150 Million**

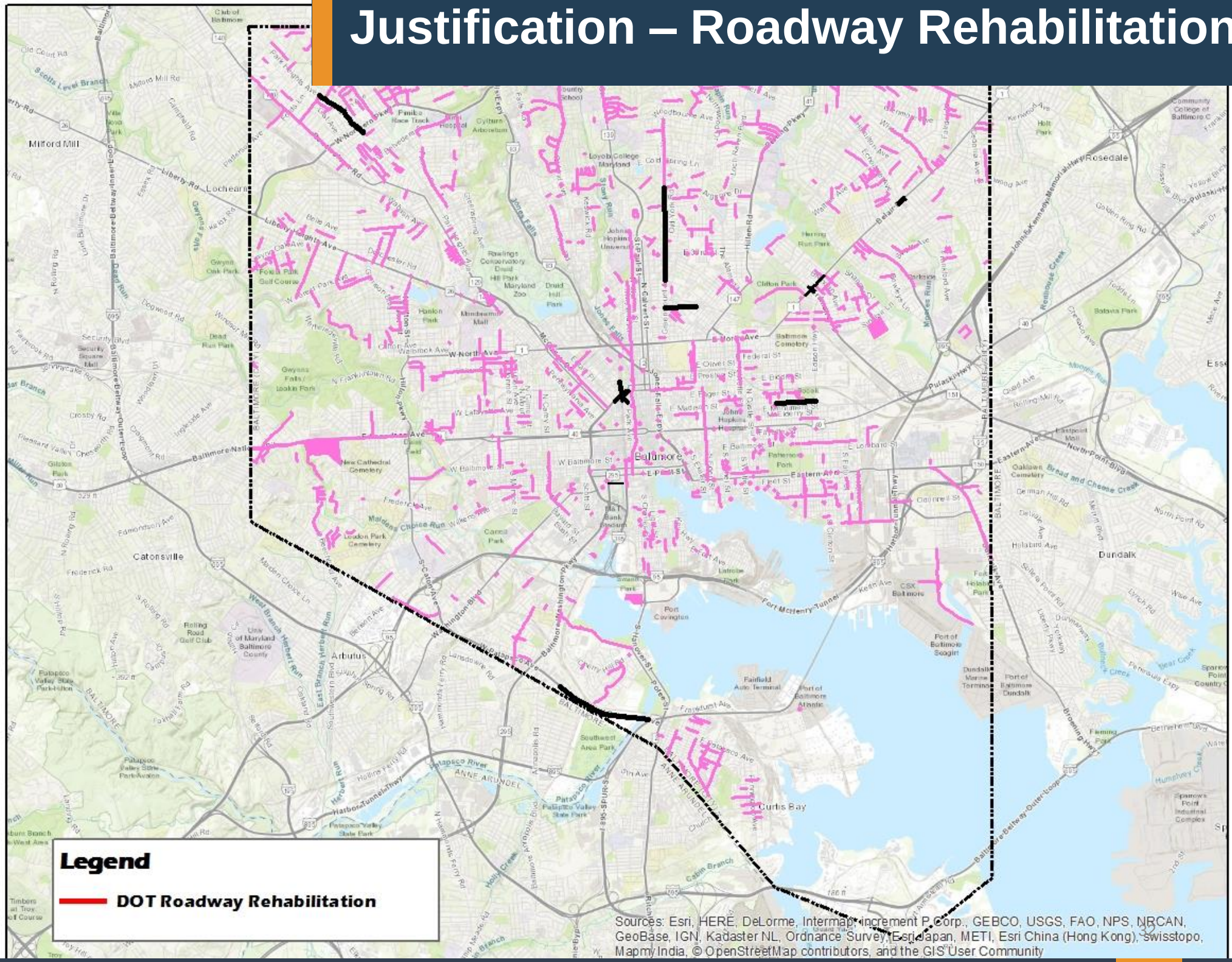
Justification - Bridges



Justification – Roadway Rehabilitation

ROADWAY REHABILITATION				
CIP	PROJECT	COUNTY TRANSPORTATION BONDS	FEDERAL	HUR
508-044	Rehabilitation of 25th St - Greenmount Ave to Kirk Ave	$ -	$ 1,050	$ 492
508-046	Park Heights Avenue from W. Rogers Avenue to Strathmore Avenue	$ -	$ 3,168	$ 792
508-053	Madison Street Rehabilitation from N. Milton Avenue to Edison Highway	$ -	$ 800	$ 425
508-072	Patapsco Ave - Magnolia Ave to Bridge	$ -	$ 2,400	$ 500
508-118	MLK Boulevard Intersection Improvements	$ 50	$ 1,000	$ 250
527-009	Belair Road Reconstruction	$ -	$ 2,000	$ 288
508-116	Streetscapes-Complete Streets	$	$	$ 800

Justification – Roadway Rehabilitation



Justification – Studies

STUDIES				
CIP	PROJECT	COUNTY TRANSPORTATION BONDS	FEDERAL	HUR
527-047	Transportation Studies	**$ -**	**$ 3,102**	**$ 1,000**
508-118	Baltimore Street Feasibility Study – Howard St to President St	**$ -**	**$ 2,000**	**$ 800**

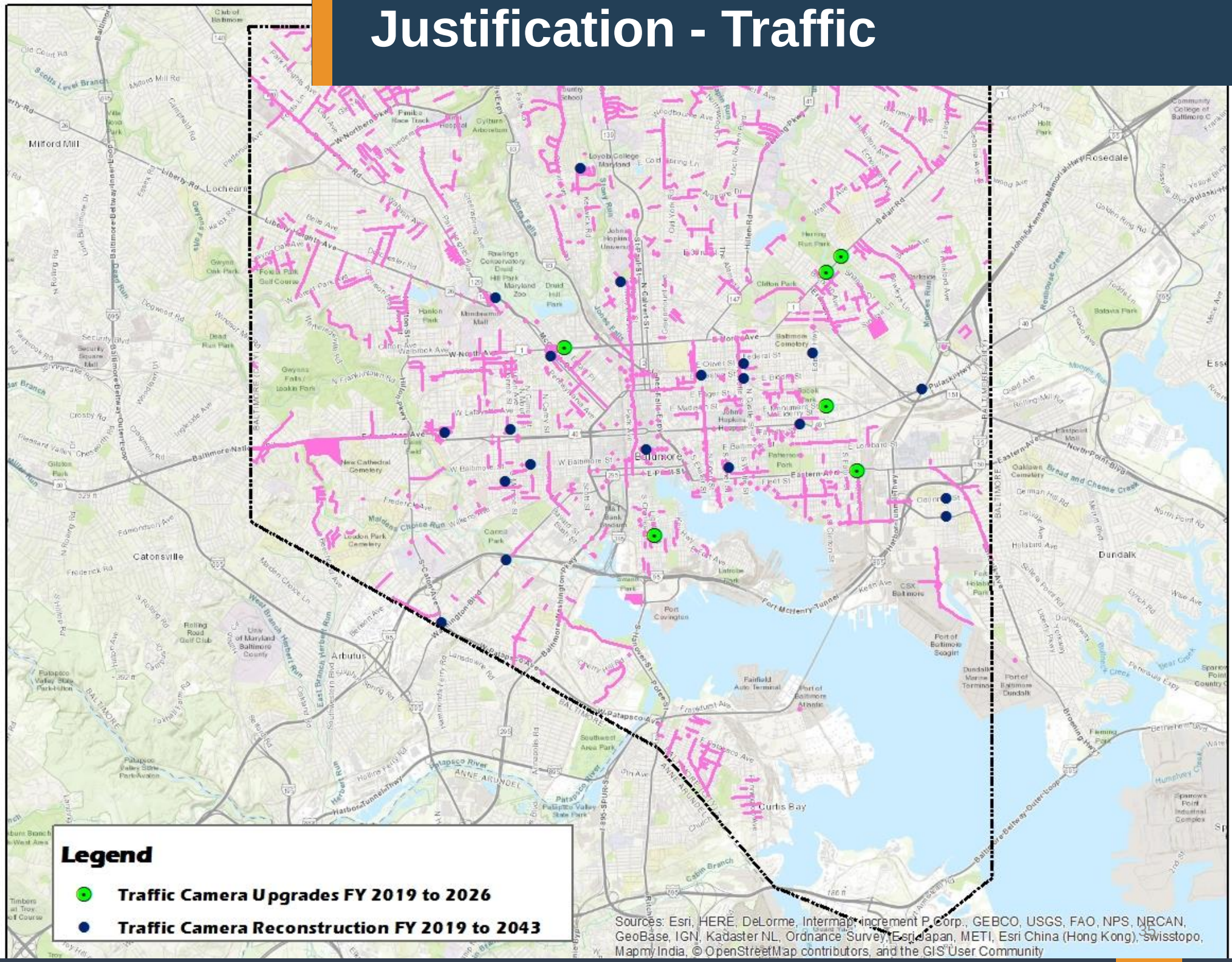
Justification – Traffic

TRAFFIC				
CIP	PROJECT	COUNTY TRANSPORTATION BONDS	FEDERAL	HUR
512-077	Traffic Signal Reconstruction	$ -	$ 1,010	$ 253
512-080	Traffic Safety Improvements Citywide	$ 3,500	$ -	$ -
512-009	Communication Upgrades	$ -	$ 450	$ 50

The infrastructure of signal system is old and far exceeded its expected life expectancy, it needs rehabilitation as well as upgrade with modern technologies to improve the efficiency of the system to enhance safety, reduce delays and harmful environmental impact of greenhouse gases

- Traffic Signal Reconstruction(replace and upgrade aging structurally compromised traffic signals)
- Asset & Inventory Management(this could be integrated in asset management program managed by Amah Binde)
- Keep track of signal system equipment/infrastructure that includes but not limited to traffic signals, communication network, CCTVs, DMSs, detections, and other ITS devices)
- ITS Systems Improvement (improve traffic/signal operation by means of smart devices and systems that may include detection, adaptive system, CCTVs, DMSs)
- Communication Deployment(current communication is in dire need to rehab and upgrade with modern technologies to manage signal operation with efficiency)
- TMC Upgrade(video management system, security system and building access system are obsolete and need replacement in next few years)
- Design Contract (an strong design & contract management support program is required to accomplish above projects)

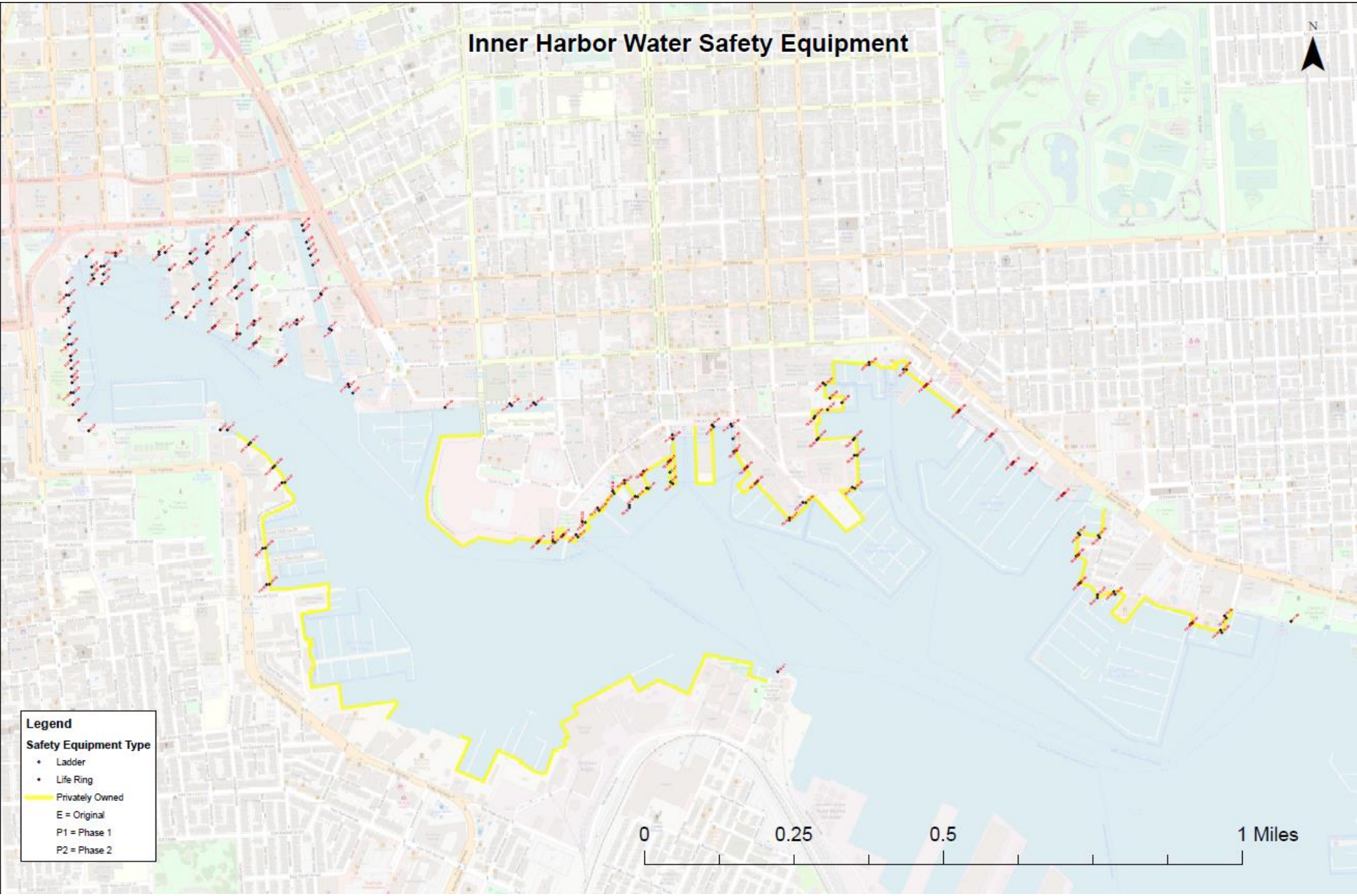
Justification - Traffic



Justification – Waterfront

WATERFRONT				
CIP	PROJECT	COUNTY TRANSPORTATION BONDS	FEDERAL	HUR
506-012	Rehabilitation of the Promenade Bulkhead near Harris Creek	$ 1,186	$ -	$ -
508-098	Inner Harbor Crosswalks	$ 400	$ -	$ -
508-543	Inner Harbor Dredging*	$ -	$ -	$ -
527-046	Inner Harbor Promenade Maintenance & Repair*	$ -	$ -	$ -
527-312	Inner Harbor Infrastructure/Utility - Electrical Upgrades*	$ -	$ -	$ -
*Funding identified as Other				

Justification Waterfront



Infrastructure 2013 through 2019 and requested for FY 2020