

AASHTOWARE NETWORK SCREENING



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AGENDA

- AASHTOWare Safety Network Screening
- Network Screening Options
- ODOT Screening Examples
- Local Screening Examples
- How to Access

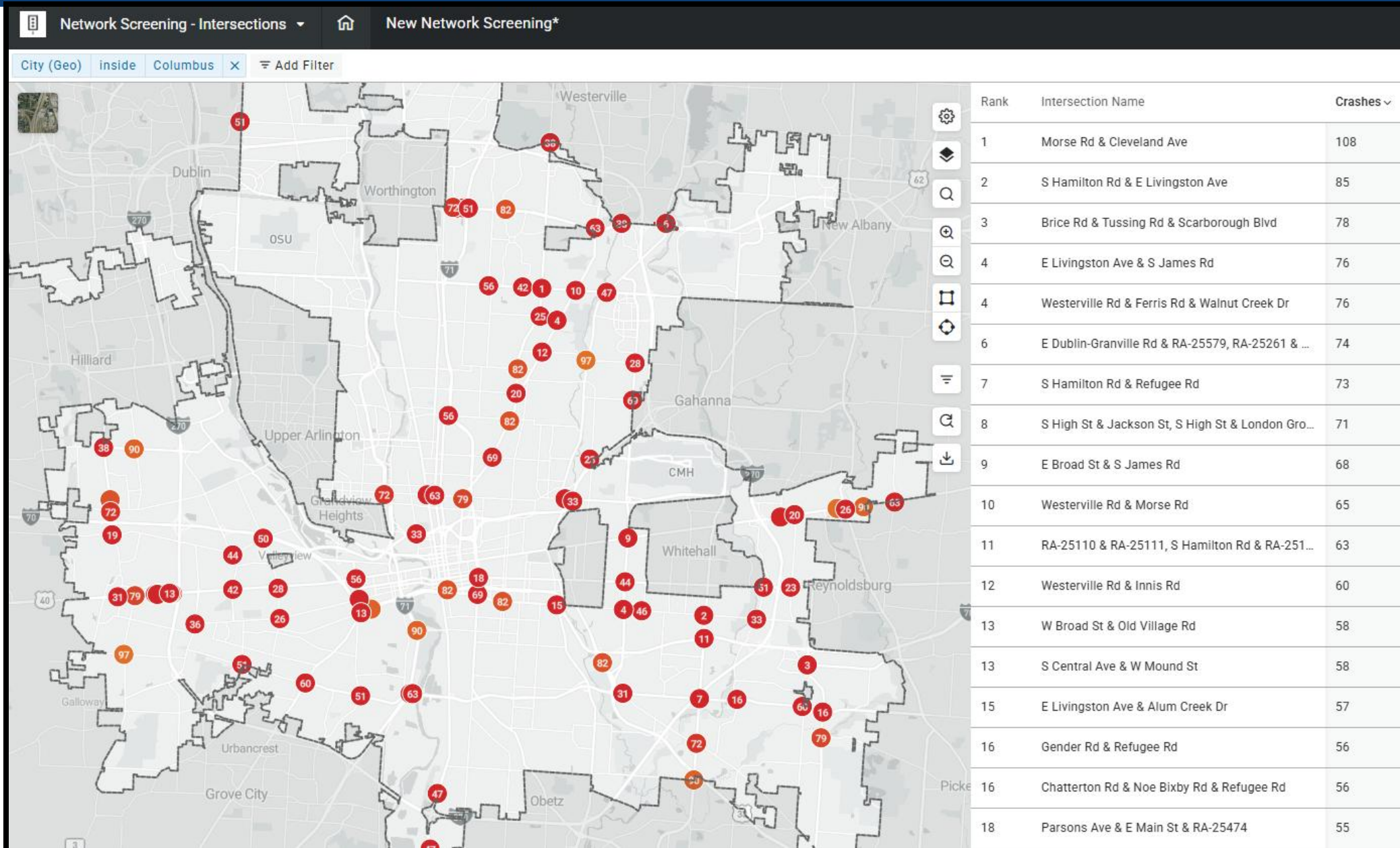


AASHTOWARE SAFETY NETWORKING SCREENING

- Tool for finding high-crash locations on your roadway network
- Replacing *Safety Analyst*
- Now open to public agencies/consultants at no cost



EXAMPLE OUTPUT



WHAT CAN YOU SCREEN BY?

- Crash type
 - AADT
 - Severity
 - Curve-related
 - Lighting
- Functional Class
 - Behaviors
(Alcohol/drug, speed)
 - Intersection type
(Signal, stop-controlled)
 - Location (City,
township, county, MPO)

AND
MORE!

EXTRA FEATURE IN CRASH QUERY

The screenshot displays the 'Crash Query' application interface. A navigation menu on the left is open, with 'Advanced Network Screening' highlighted in a red box. The main area shows a map of Ohio with blue heatmaps indicating crash density. On the right, there are tabs for 'Metrics', 'Chart Builder', and 'Raw Table'. The 'Metrics' tab is active, showing a table of crash statistics.

Crash Query

New Crash Query *

January 1, 2021 - December 31, 2025

Open In Save

Apps

Collision Diagrams

Crash Query

Crash Tree Diagrams

Dashboards

Network Screening

Advanced Network Screening

Predictive Analysis

Reports

Ohio Department of Transportation

Data Management

Schemas

Datasets

Tables

Sources

Data Diagram

Configuration

Dictionary

Queues

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Settings

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Centerburg

Granville

Columbus

Mapbox © OpenStreetMap Improve this map

Metrics Chart Builder Raw Table

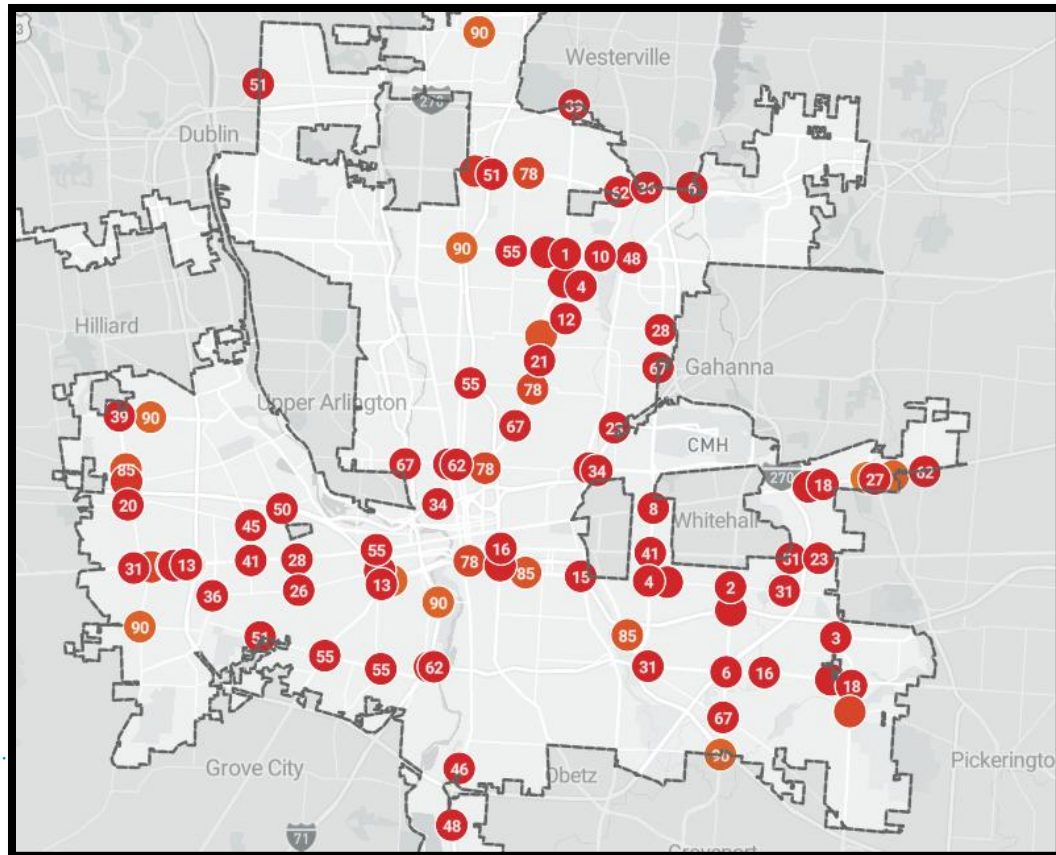
ODOT Custom Filters		Crash
Intersection Involved	544,741	41.79%
Younger Driver (Age 15 to 25) Involved	439,658	33.73%
ODOT Maintained Involved	361,933	27.77%
Roadway Departure Involved	335,441	25.74%
Senior Driver (Age 65+) Involved	240,778	18.47%
Freeway Involved	195,271	14.98%
Interstate Highway Involved	154,167	11.83%
Speed Involved	146,952	11.27%
Show all (10 more)	341,547	26.21%

SEVERITY_BY_TYPE_CD		Crash
(5) Property Damage Only	970,745	74.48%
(3) Minor Injury Suspected	167,516	12.85%
(4) Injury Possible	128,752	9.88%
(2) Serious Injury Suspected	30,732	2.36%
(1) Fatal	5,684	0.44%

CRASH_TYPE_DESC		Crash
Rear End	287,147	22.03%
Fixed Object	214,655	16.47%

NETWORK SCREENING OPTIONS

- Network Screening
- Advanced Network Screening



Apps

Collision Diagrams

Crash Query

Crash Tree Diagrams

Network Screening



Advanced Network Screening



Intersections

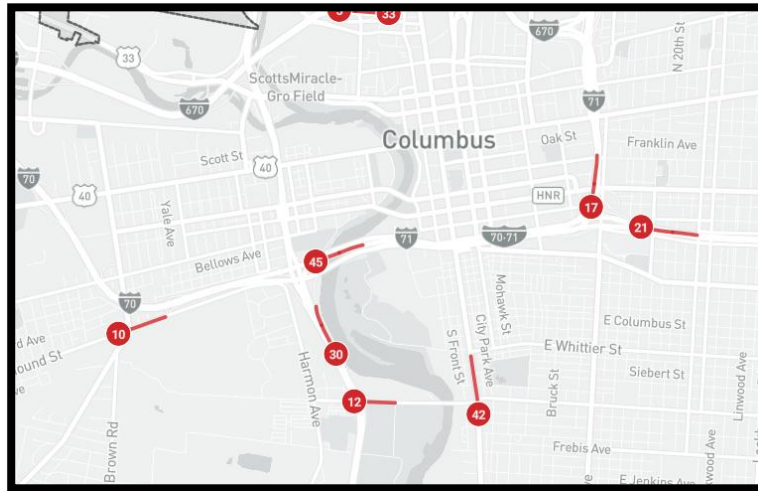
Segments

Sliding Window



RANKING ELEMENTS

- **Network Screening**
 - Crashes
 - Crash Rate



- **Advanced Network Screening**

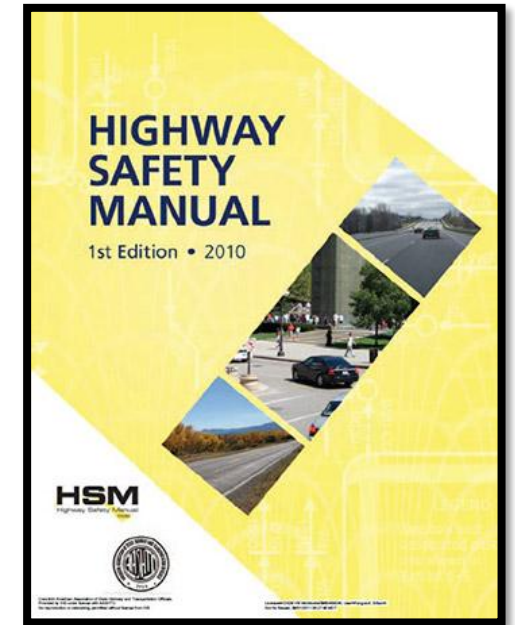
- Crashes/crash rate
- Predicted Crashes
- Expected Crashes
- Potential for Safety Improvement

Highway
Safety
Manual



WHAT IS THE BENEFIT OF ADVANCED NETWORK SCREENING?

- Helps compare different locations more fairly
- Adjusts for traffic and road design
- Helps normalize for random spikes in crash years



RANKING SITE TYPES - OPTIONS

- Intersections
- Segments
- Sliding Window

Apps

Collision Diagrams

Crash Query

Crash Tree Diagrams

Network Screening



Advanced Network Screening



Intersections

Segments

Sliding Window



INTERSECTIONS

Network Screening - Intersections
Urban Intersection*
December 31, 2018 - December 31, 2023

Urban/Suburban/Rural (Intersections) = Urban x Polygon 1 x Add Filter

Rank	Intersection	District Number	County	Route Name
1	Cleveland Ave (C...	6	Franklin	CR-17, CR-75
2	Brice Rd (CFRAC...	6	Franklin	CR-117, MR-420
3	E Livingston Ave ...	6	Franklin	MR-4207, SR-317
4	E Broad St (SFRA...	6	Franklin	SR-16, SR-317
5	Morse Rd (CFRA...	6	Franklin	CR-17, SR-3
6	E Main St (SFRA...	6	Franklin	SR-317, US-40
7	Brice Rd (CFRAC...	6	Franklin	CR-117, MR-4374
8	Alum Creek Dr (C...	6	Franklin	CR-122, US-33
9	E Main St (SFRA...	6	Franklin	MR-4345, US-40
10	Baltimore-Reynol...	6	Franklin	CR-106, MR-1036
11	E Broad St (SFRA...	6	Franklin	CR-104, MR-8767
12	E Broad St (SFRA...	6	Franklin	MR-4254, SR-16
13	Blacklick-Eastern...	5	Fairfield	SR-204, SR-256,
14	Feder Rd (CFRAC...	6	Franklin	CR-22, CR-3
15	Harrisburg Pike (...)	6	Franklin	MR-4280, SR-3, U
16	E Main St (SLICU...	5	Licking	TR-169, US-40
17	Gender Rd (CFRA...	6	Franklin	CR-222, MR-4205
18	Cleveland Ave (C...	6	Franklin	CR-322, CR-75

Cleveland Ave (CFRACR00075**C), Morse Rd (CFRACR00017**C)

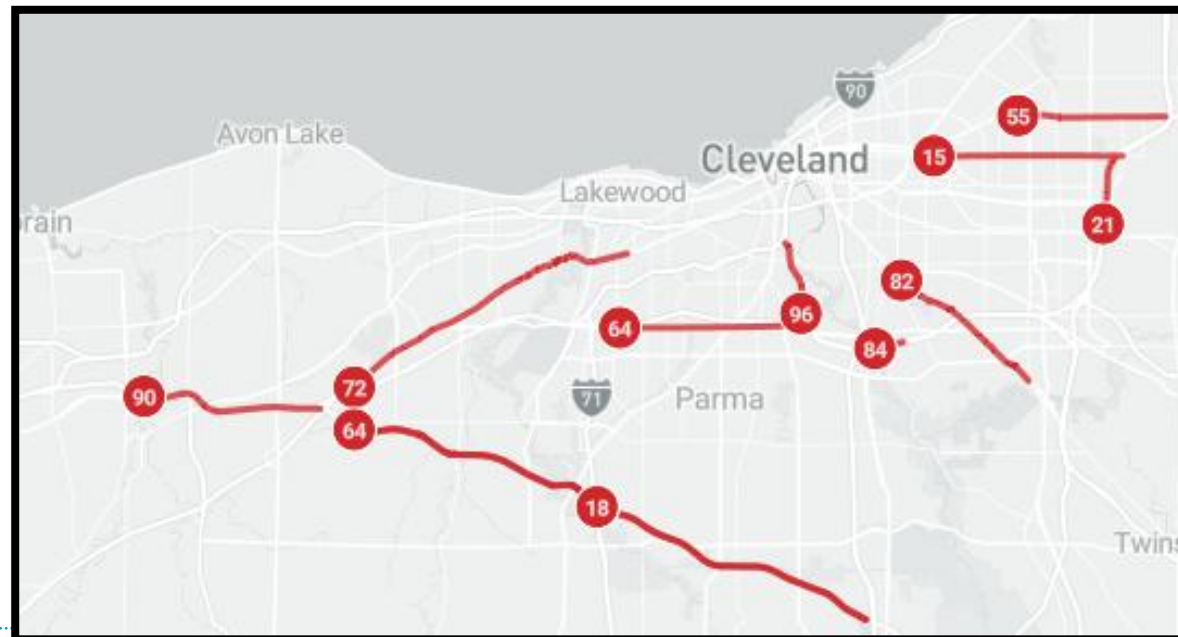
Open In

Rank	Filtered	State
This Screening	1	1
2023		
2022		
2021		
Observed		
Crashes		299
Crash Rate		6.21
Crashes Per Year		59.8
ePDO		1068.54
LOSS		4
All Crashes SPF - Per Year		
Expected Crashes		58.37

© Mapbox © OpenStreetMap Improve this map © Maxar
Hide/Show Columns

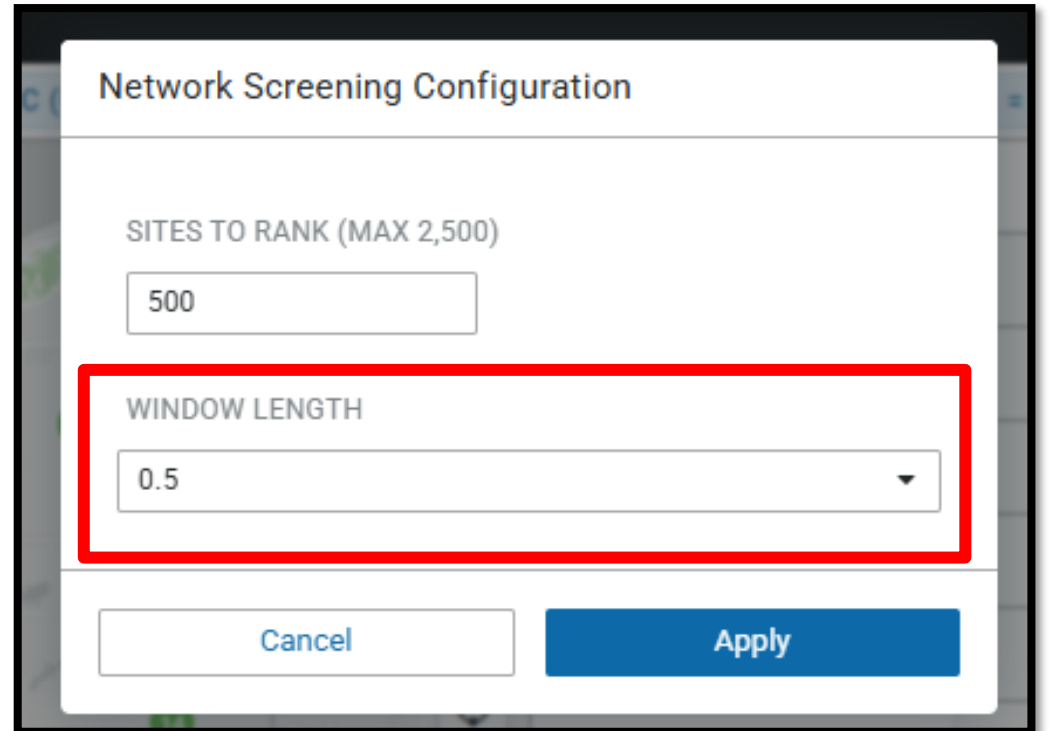
SEGMENTS

- Segmented locations by AADT
- Not used by ODOT priority lists – we use **Sliding Window** for corridors



SLIDING WINDOW

- Screen roadway network in **small segments**
- 0.1 to 10-mile segments



The image shows a software dialog box titled "Network Screening Configuration". It contains two input fields: "SITES TO RANK (MAX 2,500)" with a text input containing "500", and "WINDOW LENGTH" with a dropdown menu set to "0.5". The "WINDOW LENGTH" section is highlighted with a red rectangular border. At the bottom, there are "Cancel" and "Apply" buttons.

Network Screening Configuration

SITES TO RANK (MAX 2,500)

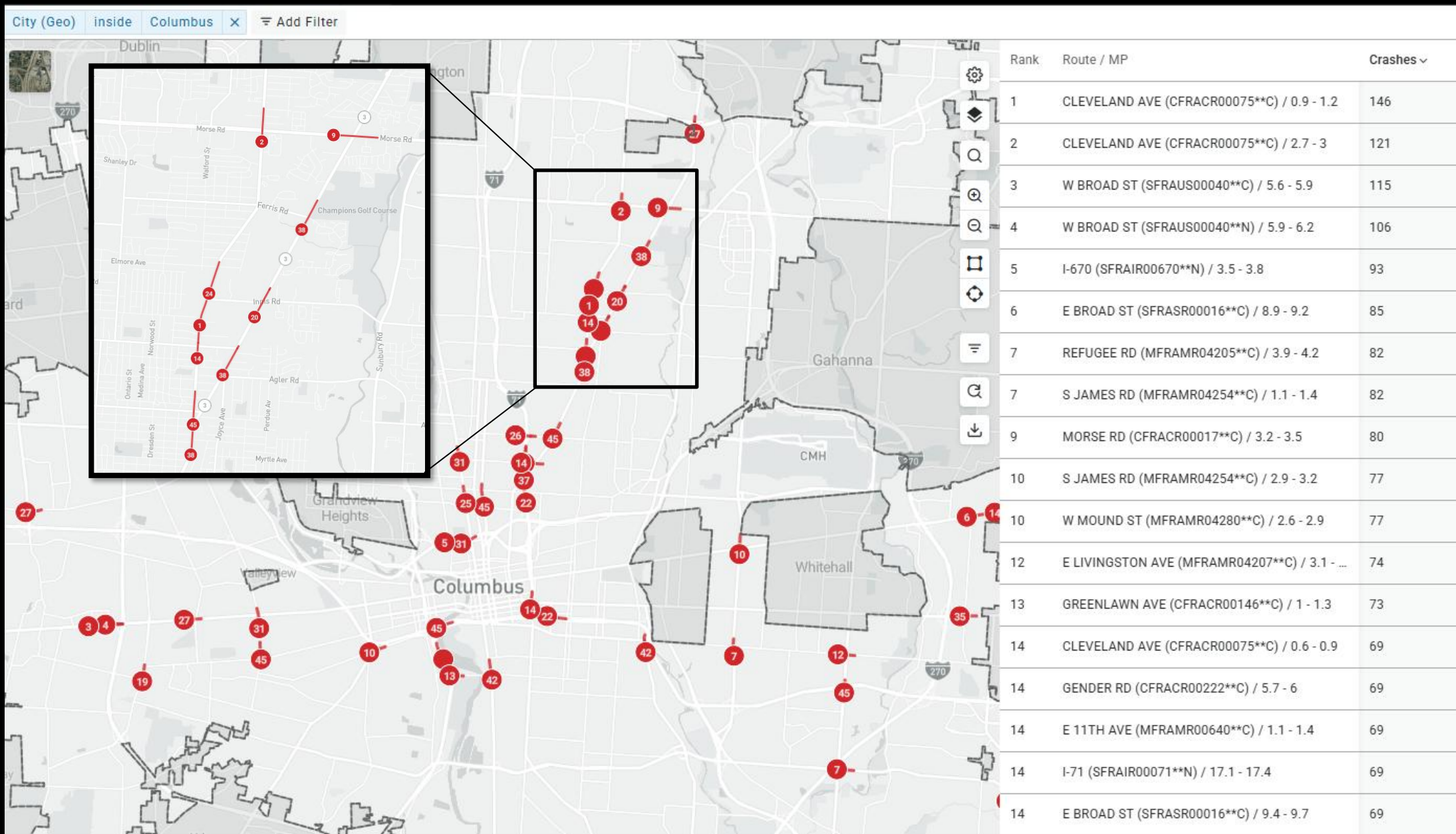
500

WINDOW LENGTH

0.5

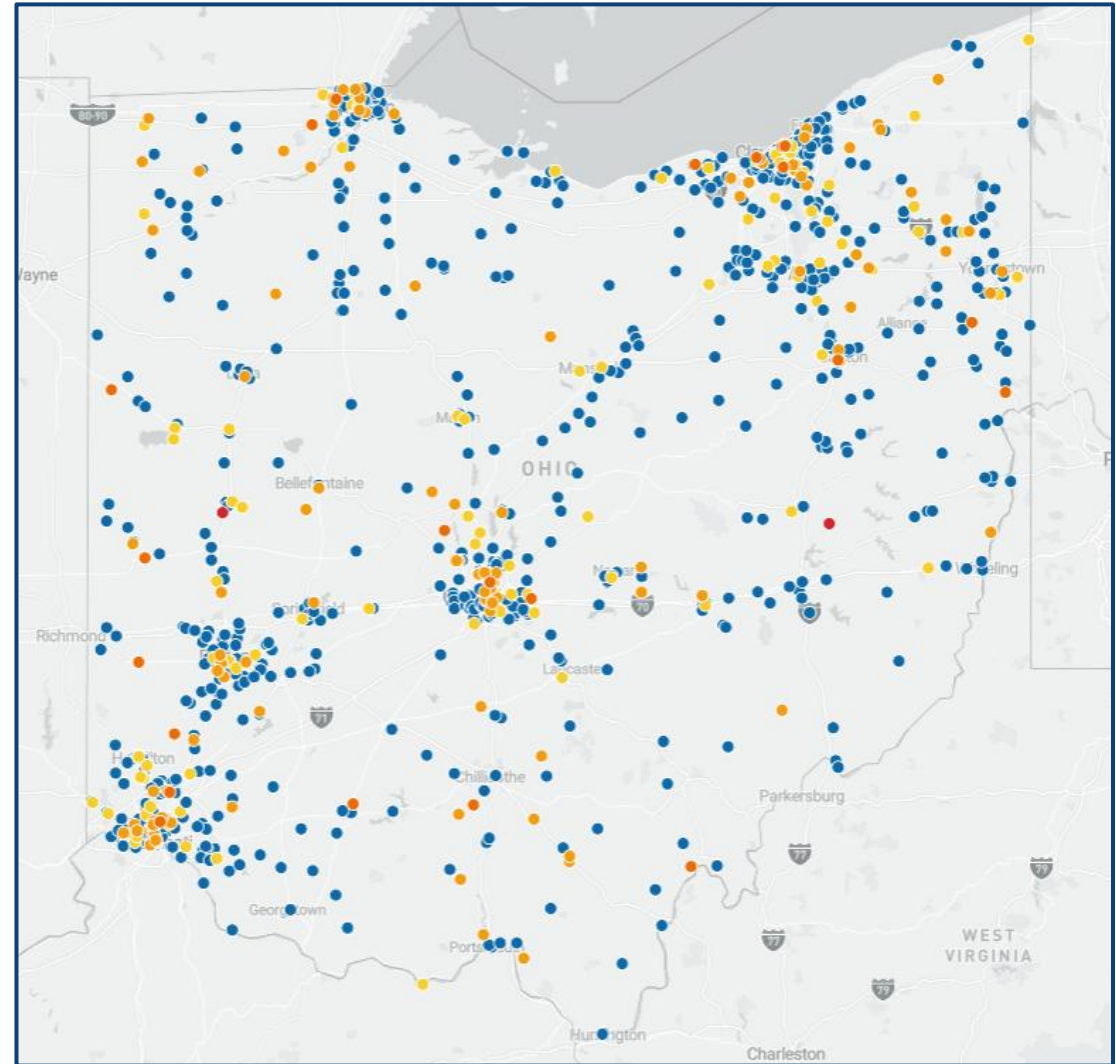
Cancel Apply

SEGMENTS – SLIDING WINDOW ANALYSIS



WHAT DATA IS IN THERE?

- Crash Data
- Roadway Inventory
- AADT
- Intersection Data
- Asset Data





**Department of
Transportation**

transportation.ohio.gov

EXAMPLE SCREENING LISTS

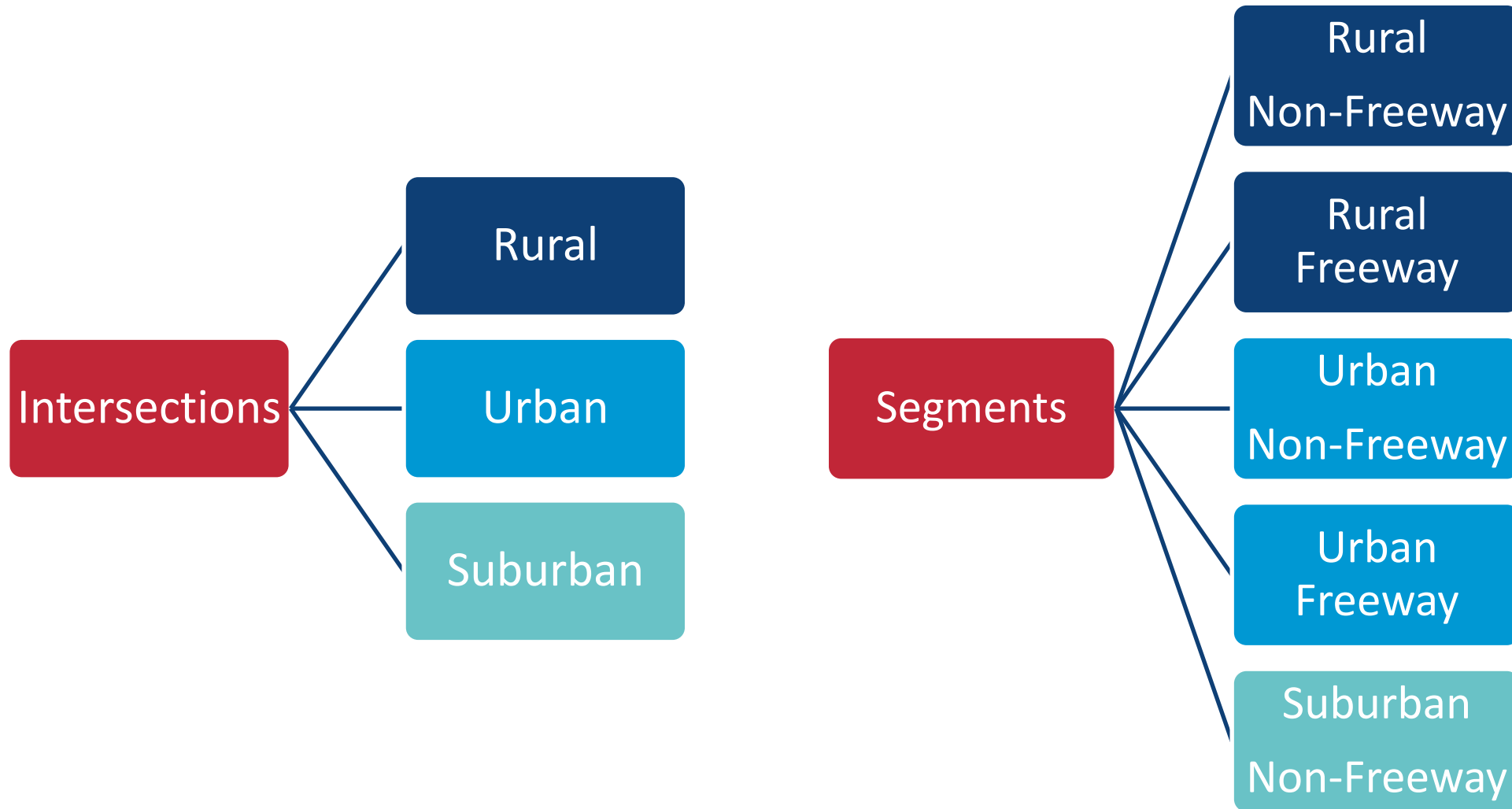
ODOT SCREENING LISTS

- HSIP Priority Lists
- All-Way Stop
- Roundabout

Rank/Location				
Rank	District	County	Name	NLFID
1	4	Mahoning	Boardman Poland Rd & Market St	SMAHUS00224**C
2	6	Delaware	Columbus Pike & E Powell Rd	SDELSR00750**C
3	6	Franklin	Riverside Dr & Hayden Run Rd	SFRAUS00033**C
4	2	Lucas	Airport Hwy & RA-48020 & RA-48026	SLUCSR00002**N
5	4	Mahoning	N Canfield Niles Rd & Mahoning Ave	SMAHSR00046**C
6	8	Hamilton	W Galbraith Rd & Winton Rd	CHAMCR00101**C
7	7	Montgomery	Needmore Rd & N Dixie Dr	CMOTCR00099**C
8	2	Lucas	Airport Hwy & S Holland Sylvania Rd	SLUCSR00002**C
9	8	Hamilton	Colerain Ave & Springdale Rd	SHAMUS00027**C
10	8	Hamilton	W North Bend Rd & Winton Rd	CHAMCR00239**C
11	6	Franklin	Westerville Rd & Ferris Rd & Walnut Creek Dr	CFRACR00172**C
12	8	Hamilton	Colerain Ave & W Galbraith Rd	CHAMCR00101**C
13	8	Butler	Cincinnati Dayton Rd & Tylersville Rd	CBUTCR00020**C
14	7	Clark	W National Rd & Upper Valley Pike & RA-12038 & RA-12161	CCLACR00327**C
15	8	Warren	Butler-Warren Rd & Tylersville Rd	TBUTTR00011**C
16	4	Stark	Belden Village St & Whipple Ave & RA-76093 & RA-76094	CSTACR00099**C
17	4	Mahoning	Boardman Poland Rd & South Ave	CMAHCR00151**C
18	1	Allen	Allentown Rd & N Cable Rd	SALLSR00081**C
19	8	Butler	SR 4 & RA-9136 & RA-9138	SBUTRA09136**C
20	6	Franklin	Westerville Rd & Innis Rd	SFRASR00003**C



HSIP PRIORITY LISTS



PRIORITY LISTS

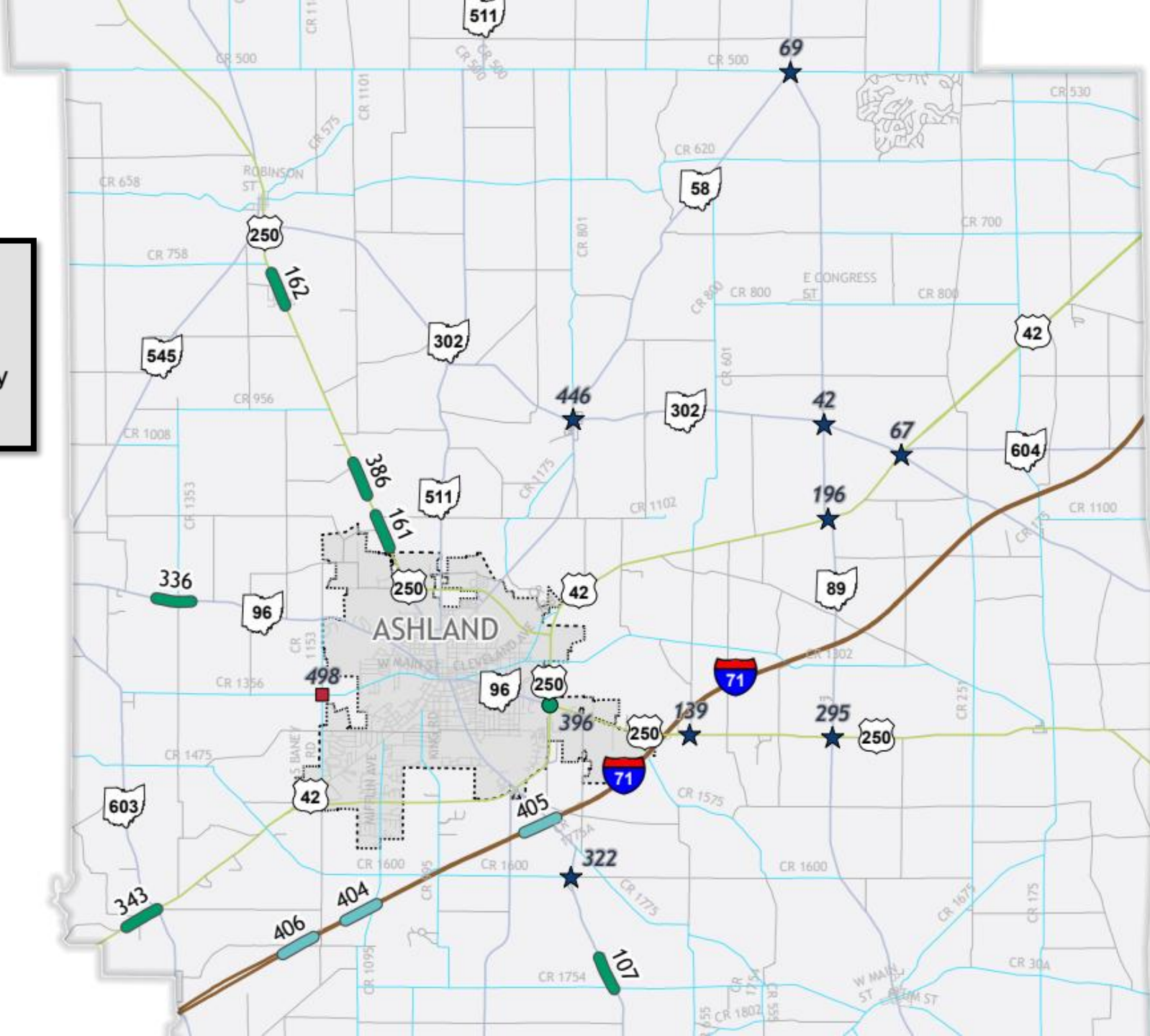
Intersection Lists

- ★ Rural Intersection
- Suburban Intersection
- Urban Intersection

Segment Lists

- Rural Freeway
- Rural Non-Freeway

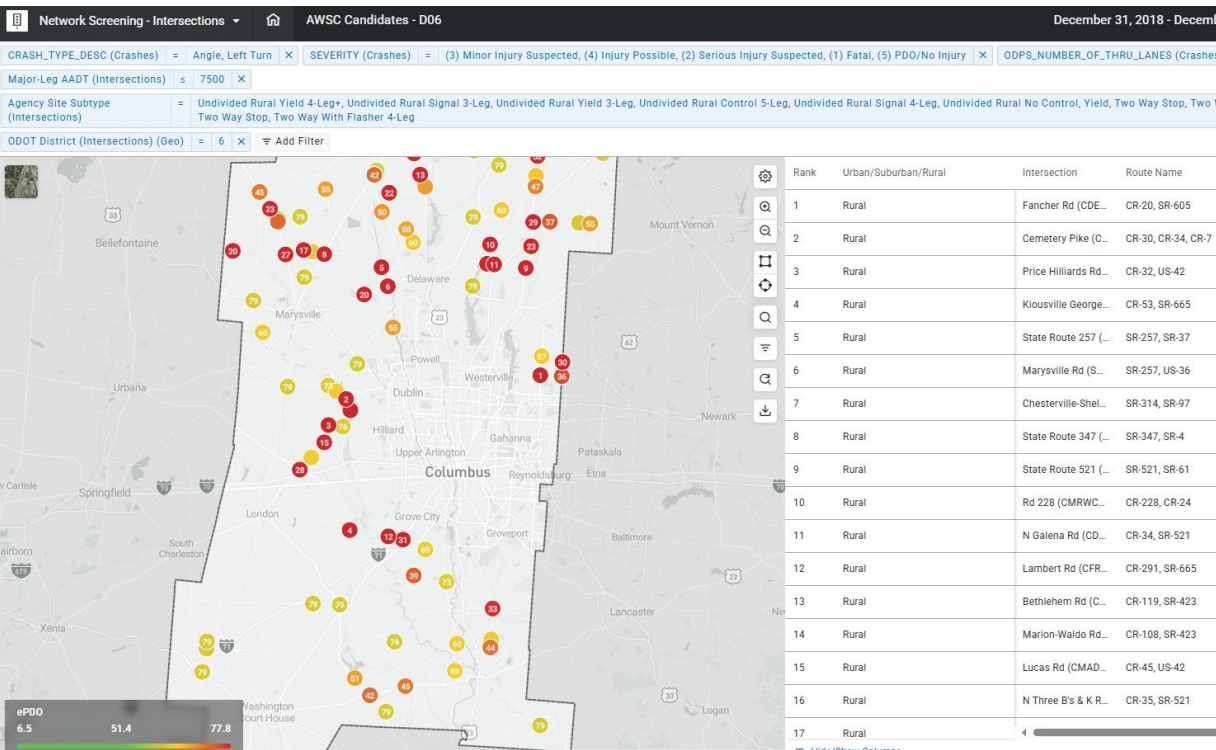
Ranked by
Expected Crashes



ALL-WAY STOP CONTROL PILOT

Using North Carolina DOT methodology to convert two-way stop to all-way stop

- Undivided, two-lane rural intersection with **two-way stop**
- Major leg AADT is **7,500 or less**
- At least six angle or left-turn crashes over a 5-year period
- **2 to 4 locations per ODOT District**



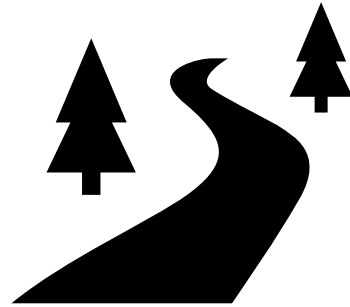
LOCAL USES

- High-priority intersection and segment lists
- Low-cost countermeasure screening
- Pedestrian and bicycle improvement screening
- Police department – targeted enforcement



LOCAL USE EXAMPLE

- County engineer in Hamilton County wants to find where **curve-related roadway departure injury crashes** are occurring



HAMILTON COUNTY CURVE SCREENING

- 1:

County (Geo)	inside	Hamilton	X
--------------	--------	----------	---
- 2:

MAINTENANCE_AUTHORITY_DESC	=	County Highway Agency	X
----------------------------	---	-----------------------	---
- 3:

ROAD_CONTOUR	=	Curve Grade, Curve Level	X
--------------	---	--------------------------	---
- 4:

Roadway Departure Involved	=	Yes	X
----------------------------	---	-----	---
- 5:

SEVERITY	=	(2) Serious Injury Suspected, (1) Fatal, (4) Injury Possible, (3) Minor Injury Suspected	X
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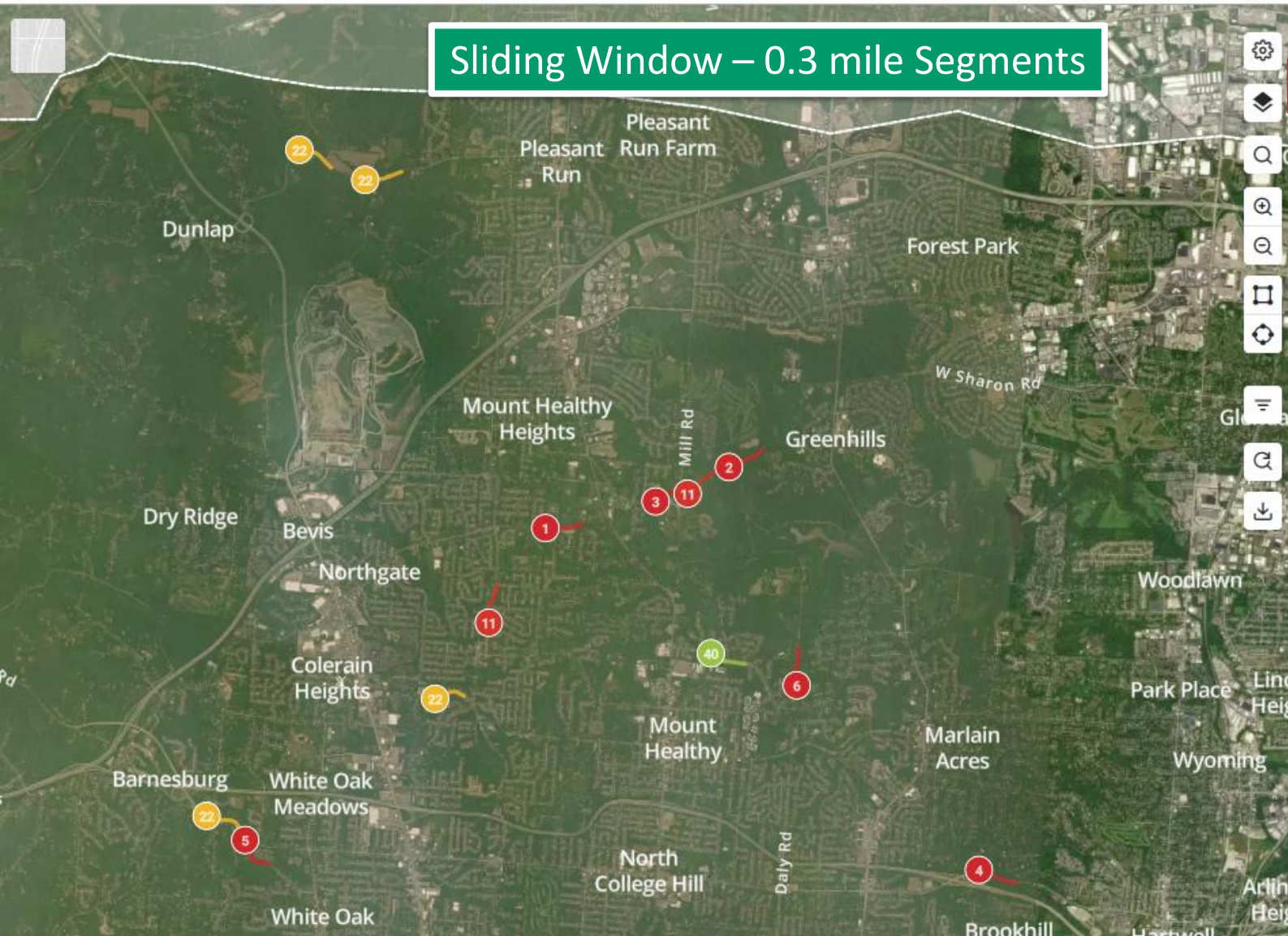


HAMILTON COUNTY CURVE SCREENING

January 1, 2021 - December 31, 2025

County (Geo) inside Hamilton x MAINTENANCE_AUTHORITY_DESC = County Highway Agency x ROAD_CONTOUR = Curve Grade, Curve Level x Roadway Departure Involved = Yes x SEVERITY = (2) Serious Injury Suspected, (1) Fatal, (4) Injury Possible, (3) Minor Injury Suspected x Add Filter Hide Filters

Sliding Window – 0.3 mile Segments



Rank	Route / MP	Crashes	Fatal Crashes
1	SPRINGDALE RD (CHAMCR00096**C) / 7.1 - 7.4	15	0
2	SPRINGDALE RD (CHAMCR00096**C) / 8.7 - 9	12	1
3	SPRINGDALE RD (CHAMCR00096**C) / 8 - 8.3	9	0
4	W GALBRAITH RD (CHAMCR00101**C) / 5.9 - 6.2	7	0
5	BLUE ROCK RD (CHAMCR00071**C) / 5.8 - 6.1	6	0
6	NEW BIDDINGER RD (CHAMCR00048**C) / 2.3 - ...	5	0
6	WEST FORK RD (CHAMCR00159**C) / 1.2 - 1.5	5	1
6	CALDWELL DR (CHAMCR00219**C) / 0.6 - 0.9	5	0
6	DALY RD (CHAMCR00220**C) / 2.6 - 2.9	5	2
6	CLOUGH RD (CHAMCR00358**C) / 2.4 - 2.7	5	0
11	CILLEY RD (CHAMCR00011**C) / 1.2 - 1.5	4	0
11	PIPPIN RD (CHAMCR00090**C) / 2.7 - 3	4	0
11	SPRINGDALE RD (CHAMCR00096**C) / 8.3 - 8.6	4	0
11	NORTH BEND RD (CHAMCR00142**C) / 0.9 - 1.2	4	0
11	REEMELIN RD (CHAMCR00146**C) / 0.5 - 0.8	4	0
11	WESSELMAN RD (CHAMCR00184**C) / 0.4 - 0.7	4	0

CURVE CRASHES



SPRINGDALE RD (CHAMCR00096**C) / 7.1 - 7.4 ×



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Observed	
Crashes	15
Crash Rate	3.14
Crashes Per Year	3
EPDO	87.66



LOCAL USE EXAMPLE

- City engineer in Hamilton wants to find where **pedestrian and bicycle crashes** are occurring in the city



CITY OF HAMILTON PEDESTRIAN AND BICYCLE

- 1:

City (Geo)	inside	Hamilton	X
------------	--------	----------	---
- 2:

MAINTENANCE_AUTHORITY_DESC	=	Municipal Highway Agency	X
----------------------------	---	--------------------------	---
- 3:

CRASH_TYPE_DESC	=	Pedalcycles, Pedestrian	X
-----------------	---	-------------------------	---

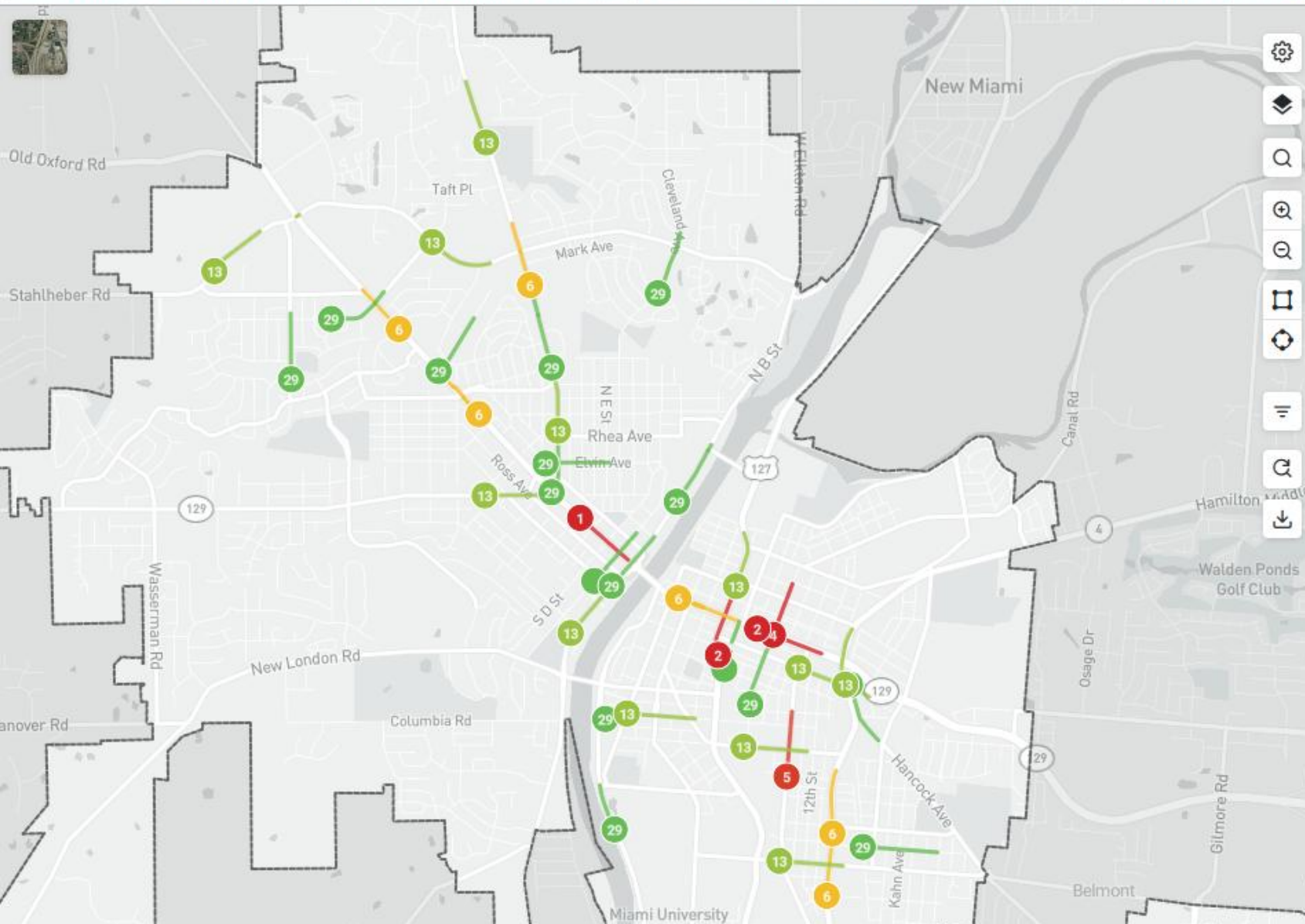
Sliding Window – 0.3 mile Segments



CITY OF HAMILTON PEDESTRIAN AND BICYCLE

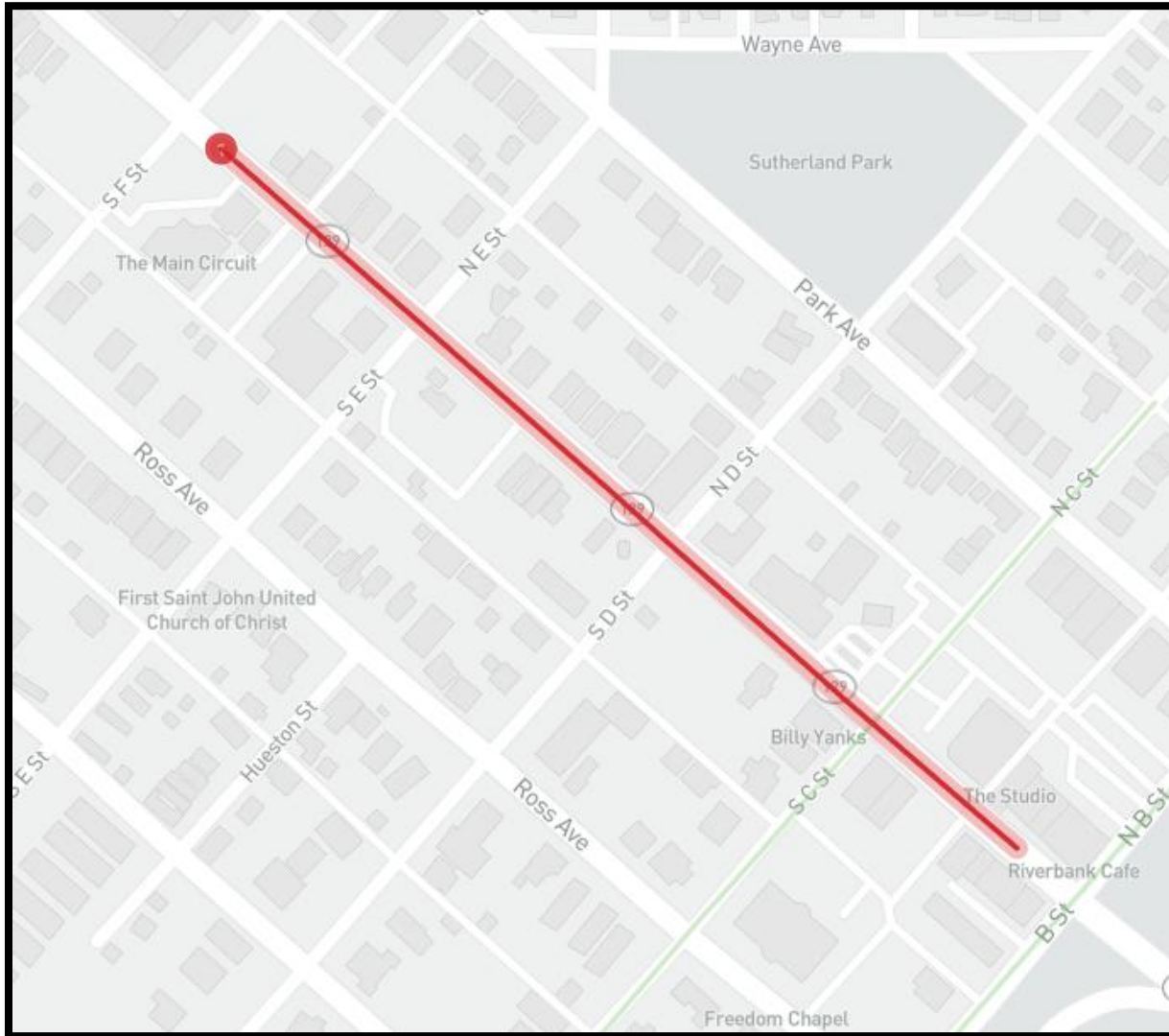
January 1, 2021 - December 31, 2025

MAINTENANCE_AUTHORITY_DESC = Municipal Highway Agency x CRASH_TYPE_DESC = Pedalcycles, Pedestrian x City (Geo) inside Hamilton x Add Filter



Rank	Route / MP	Crashes
1	MILLVILLE AVE (SBUTSR00129**C) / 13.9 - 14.2	11
2	HIGH ST (SBUTSR00129**C) / 14.9 - 15.2	8
2	N MARTIN LUTHER KING JR BLVD (SBUTUS0012...	8
4	S 7TH ST,N 7TH ST (MBUTMR00534**C) / 0.5 - 0...	5
5	EAST AVE (MBUTMR02540**C) / 0.4 - 0.7	4
6	EATON AVE (CBUTCR00027**C) / 1 - 1.3	3
6	S ERIE BLVD (SBUTSR00004**C) / 6.9 - 7.2	3
6	S ERIE BLVD (SBUTSR00004**C) / 7.2 - 7.5	3
6	HIGH ST (SBUTSR00129**C) / 14.5 - 14.8	3
6	HIGH ST (SBUTSR00129**N) / 14.4 - 14.7	3
6	MAIN ST (SBUTSR00177**C) / 0.5 - 0.8	3
6	MAIN ST (SBUTSR00177**C) / 1 - 1.3	3
13	EATON AVE (CBUTCR00027**C) / 0.3 - 0.6	2
13	EATON AVE (CBUTCR00027**C) / 1.7 - 2	2
13	N B ST (CBUTCR00180**C) / 0.2 - 0.5	2
13	HANOVER ST (MBUTMR00772**C) / 0.6 - 0.9	2

PEDESTRIAN AND BICYCLE



MILLVILLE AVE (SBUTSR00129**C) / 13.9 - 14.2 ×

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Observed	
Crashes	11
Crash Rate	4.98
Crashes Per Year	2.2
EPDO	60.14



LOCAL USE EXAMPLE

- Planner in Columbus wants to make a priority list of the **signalized intersections** with the highest number of **bicycle and pedestrian** crashes



COLUMBUS SIGNALIZED INTERSECTIONS

1:

City (Geo) inside Columbus X

2:

MAINTENANCE_AUTHORITY_DESC = Municipal Highway Agency X

3:

CRASH_TYPE_DESC = Pedalcycles, Pedestrian X

4:

Agency Site Subtype (Intersections) = Undivided Urban Signal 4-Leg, Undivided Urban Signal 3-Leg,

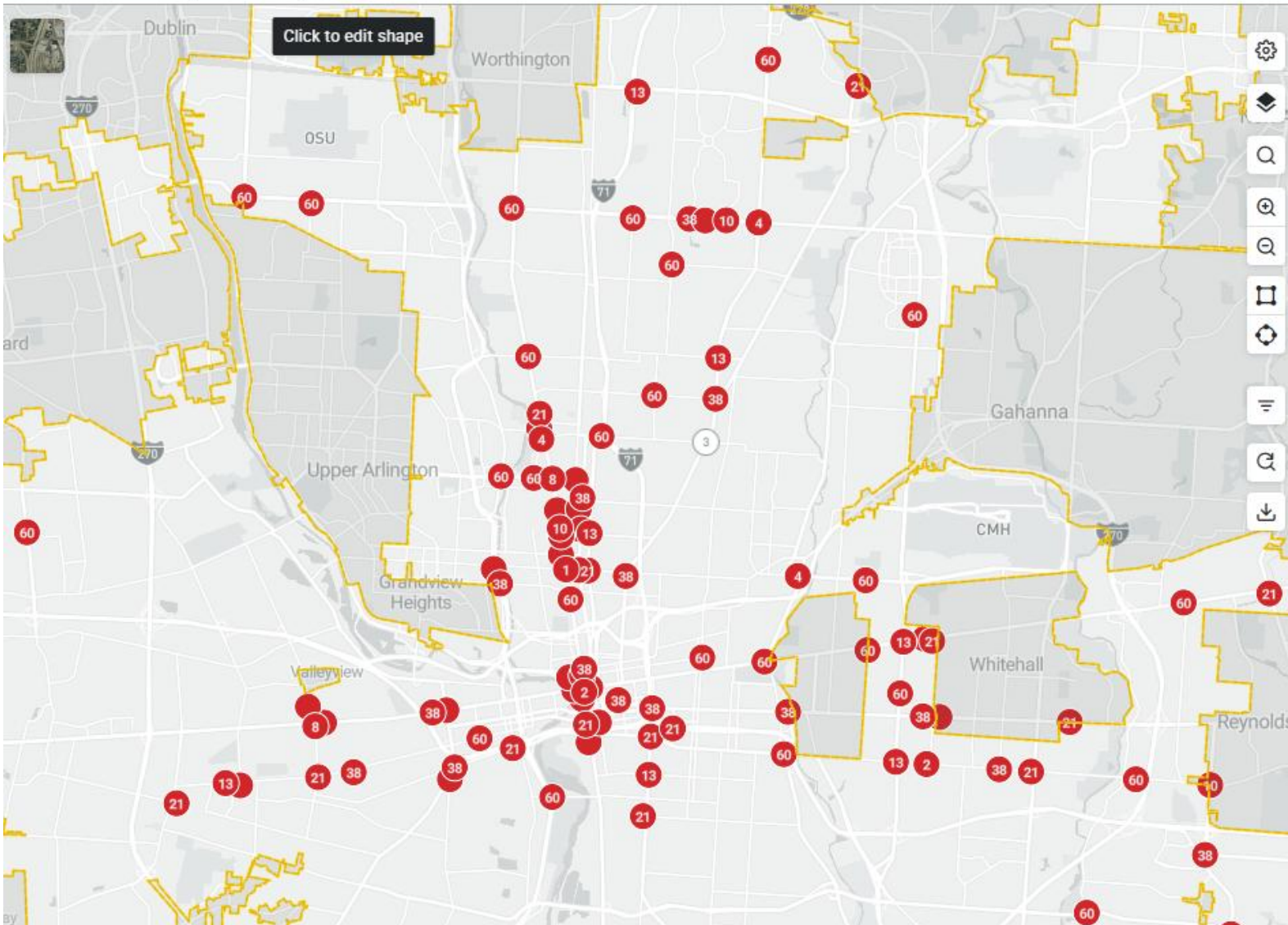
Divided Urban Signal 4-Leg, Divided Urban Signal 3-Leg X



CITY OF COLUMBUS PED/BIKE

January 1, 2021 - December 31, 2025

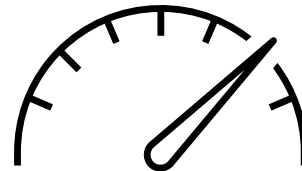
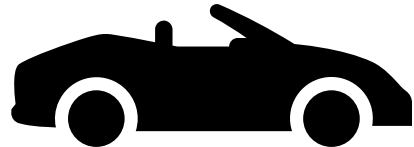
City (Geo) inside Columbus X MAINTENANCE_AUTHORITY_DESC (Crashes) = Municipal Highway Agency X CRASH_TYPE_DESC (Crashes) = Pedestrian, Pedalcycles X
 Agency Site Subtype (Intersections) = Undivided Urban Signal 4-Leg, Undivided Urban Signal 3-Leg, Divided Urban Signal 4-Leg, Divided Urban Signal 3-Leg X Add Filter



Rank	Intersection Name	Crashes
1	E 5th Ave & N High St	15
2	Barnett Rd & E Livingston ...	11
2	E Broad St & N High St	11
4	W Hudson St & N High St	9
4	Morse Rd & Cleveland Ave	9
4	Summit St & E 5th Ave	9
4	E 5th Ave & N Nelson Rd	9
8	W Broad St & S Hague Ave	8
8	E Lane Ave & N High St	8
10	Chittenden Ave & N High St	7
10	Brice Rd & E Livingston Ave	7
10	Morse Rd & Northtowne Bl...	7
13	Parsons Ave & E Whittier St	6
13	Cleveland Ave & Oakland P...	6
13	E Livingston Ave & S Jame...	6
13	W 10th Ave & N High St	6

LOCAL USE EXAMPLE

- Greene County Sheriff wants to find where speed-related crashes are occurring to do **targeted speed enforcement**



GREENE COUNTY SPEED RELATED

- 1:

County (Geo)	inside	Greene	X
--------------	--------	--------	---

- 2:

MAINTENANCE_AUTHORITY_DESC	=	County Highway Agency	X
----------------------------	---	-----------------------	---

- 3:

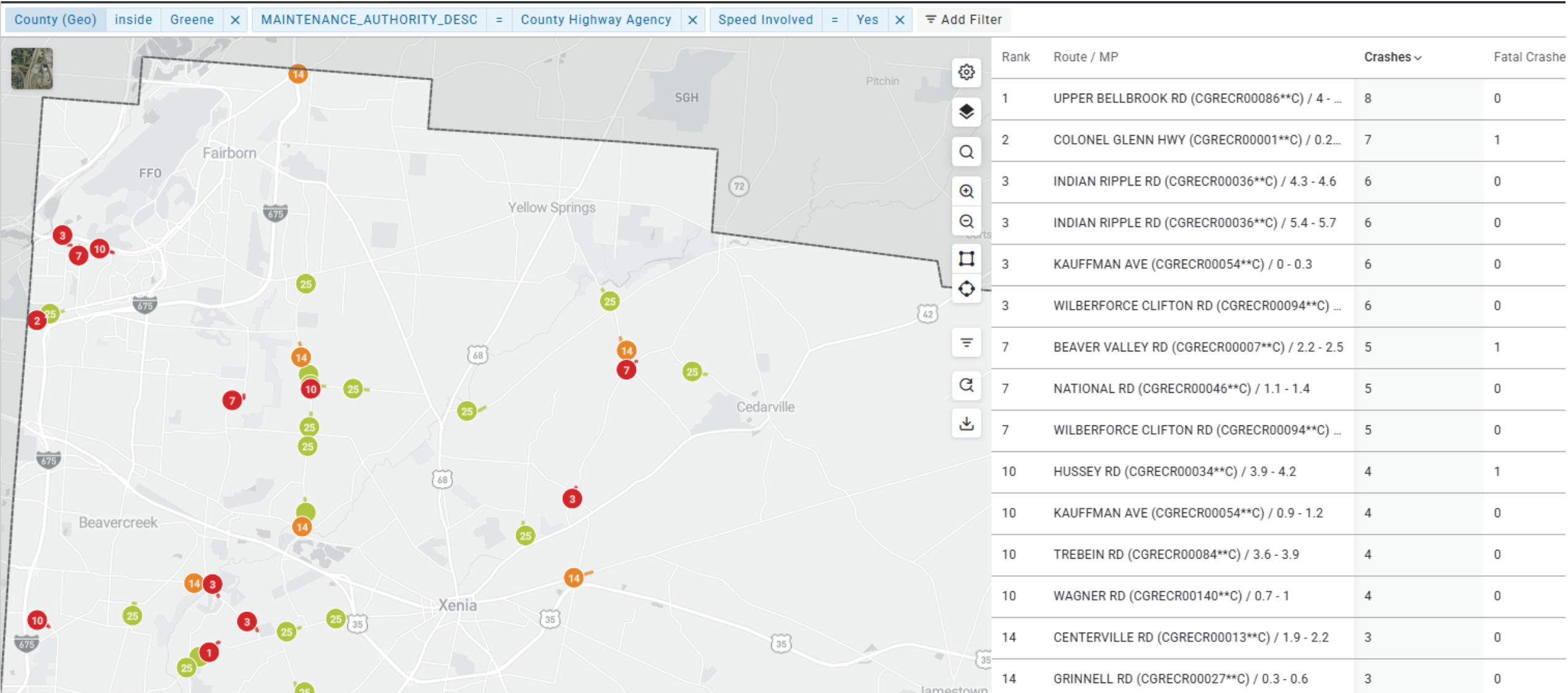
Speed Involved	=	Yes	X
----------------	---	-----	---

Sliding Window – 0.3 mile Segments



GREENE COUNTY SPEED RELATED

January 1, 2021 - December 31, 2025



LOCAL USE EXAMPLE

- County engineer in Miami County is looking at converting **two-way stop-controlled** intersections into **all-way stop-controlled**



MIAMI COUNTY ALL-WAY STOP

- 1:

County (Geo)	inside	Miami	X
--------------	--------	-------	---
- 2:

MAINTENANCE_AUTHORITY_DESC (Crashes)	=	County Highway Agency	X
--------------------------------------	---	-----------------------	---
- 3:

Major-Leg AADT (Intersections)	≤	30 - 7500	X
--------------------------------	---	-----------	---
- 4:

Agency Site Subtype (Intersections)	=	Undivided Rural No Control, Yield, Two Way Stop, Two Way With Flasher 4-Leg	X
-------------------------------------	---	---	---
- 5:

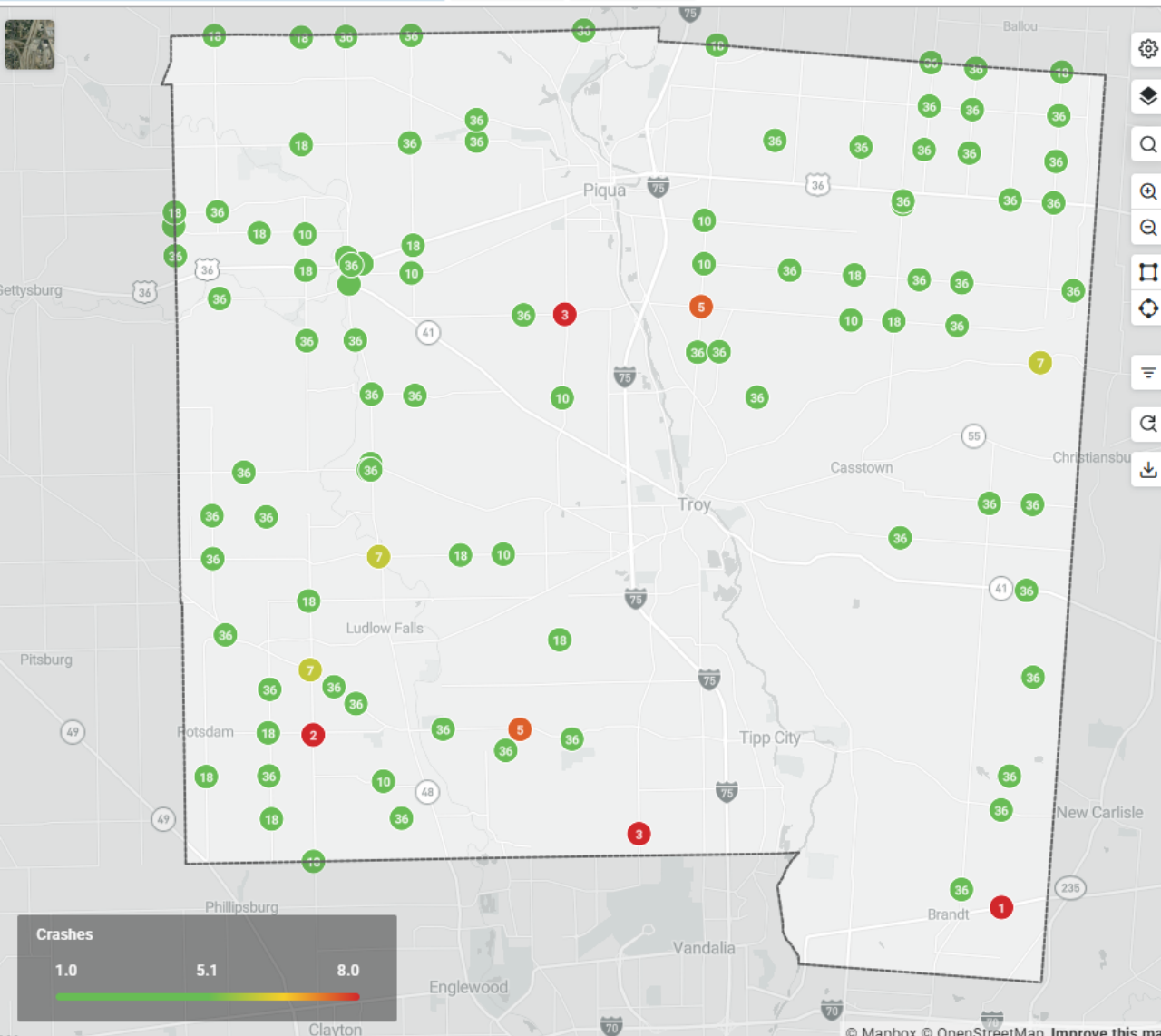
CRASH_TYPE_DESC (Crashes)	=	Angle, Left Turn	X
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MIAMI COUNTY ALL-WAY STOP

May 25, 2023 - May 24, 2026

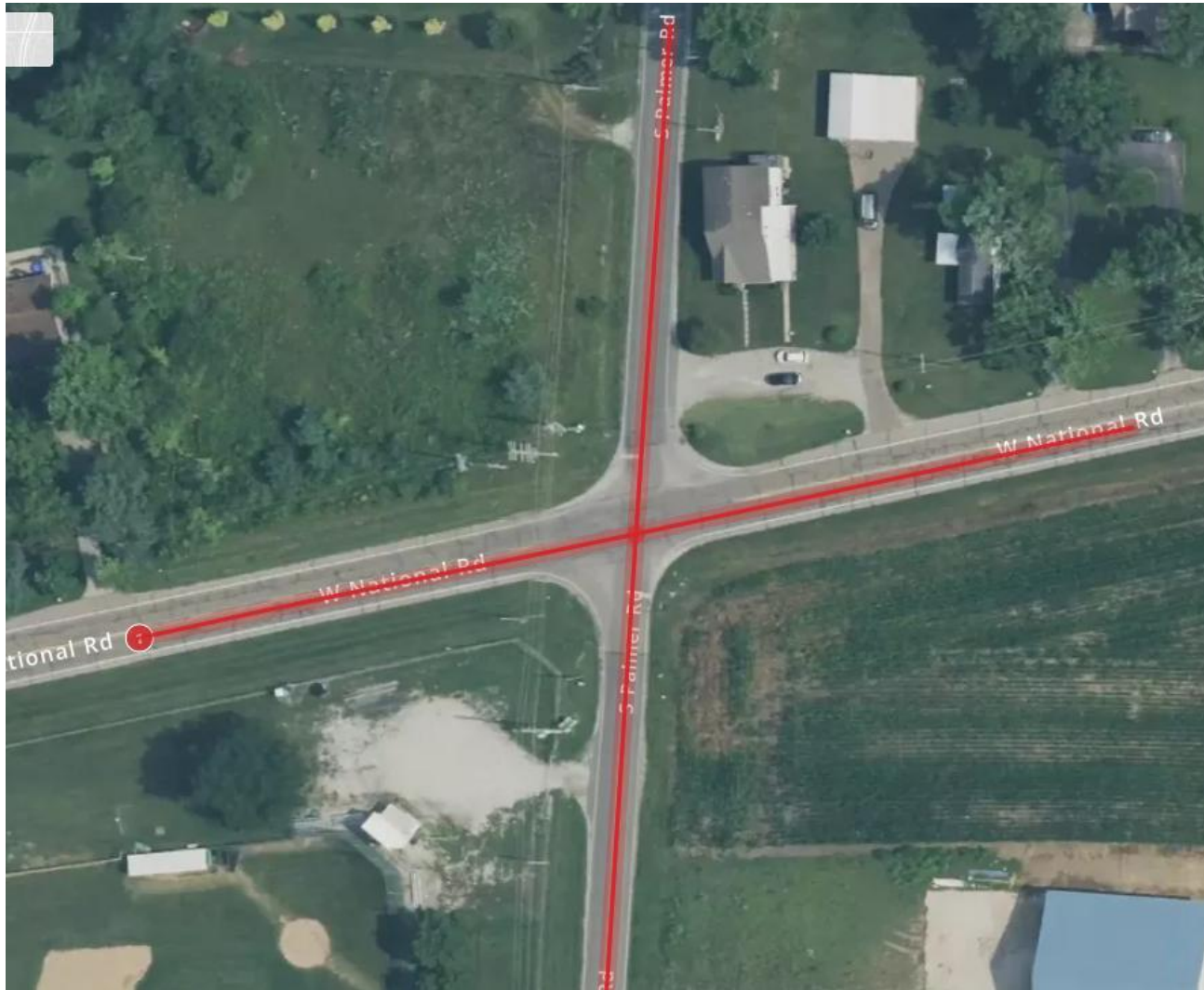
County (Geo) inside Miami x MAINTENANCE_AUTHORITY_DESC (Crashes) = County Highway Agency x Major-Leg AADT (Intersections) ≤ 30 - 7500 x Agency Site Subtype (Intersections) = Undivided Rural No Control, Yield, Two Way Stop, Two Way With Flasher 4-Leg x
 CRASH_TYPE_DESC (Crashes) = Angle, Left Turn x Add Filter Hide Filters



Rank	Intersection Name	Crashes	Fatal Crashes	Crash Rate - Yearly
1	US 40 & Palmer Rd	10	0	1.6
2	S Range Line Rd & Milton P...	9	0	3.0
3	Gingham Frederick Rd & P...	8	0	2.0
3	Farrington Rd & N Washing...	8	1	1.0
5	Troy Sidney Rd & E Peterso...	7	0	2.1
5	SR 571 & Kessler Frederick...	7	0	0.8
7	SR 48 & Fenner Rd	4	0	0.9
7	N Alcony Conover Rd & Tro...	4	0	2.2
7	SR 571 & S Range Line Rd	4	0	0.9
10	N Range Line Rd & Covingt...	2	0	0.8
10	Troy Sidney Rd & E Statler ...	2	0	0.6
10	Jay Rd & Emerick Rd	2	0	1.0
10	Brown Rd & Mulberry Grov...	2	0	1.1
10	Troy Sidney Rd & W Loy Rd	2	0	0.6
10	E Peterson Rd & Casstown...	2	0	2.1
10	Eldean Rd & Washington Rd	2	0	0.3
10	Fenner Rd & S Forest Hill Rd	2	0	0.4
18	S Range Line Rd & North C...	1	0	0.3
18	US 36 & N Range Line Rd	1	0	0.1

[Hide/Show Columns](#)

MIAMI COUNTY ALL-WAY STOP



Palmer Rd (CMIACR00177**C), US 40 (SMIAUS00040**C) ×

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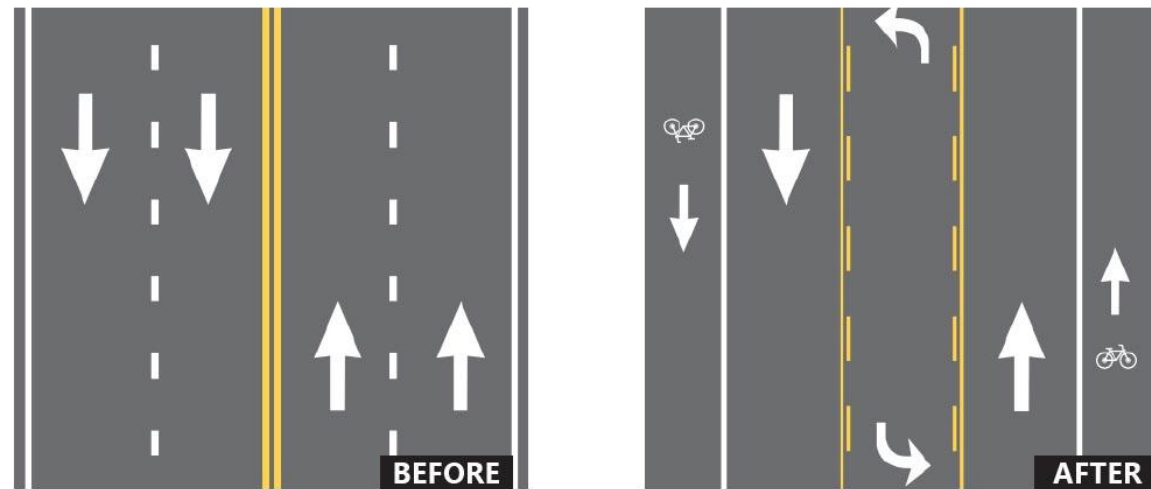
[Open In](#) ▾

Observed	
Crashes	10
Crash Rate	1.57
Crashes Per Year	3.34
EPDO	21.09



LOCAL USE EXAMPLE

- A city engineer in Cleveland is looking for roadways in the city to implement a **roadway reconfiguration**



Source: FHWA



ROADWAY RECONFIGURATION

- 1:

City (Geo)	inside	Cleveland	X
------------	--------	-----------	---
- 2:

MAINTENANCE_AUTHORITY_DESC	=	Municipal Highway Agency	X
----------------------------	---	--------------------------	---
- 3:

Divided/Undivided AADT	≤	25 - 10500	X
------------------------	---	------------	---
- 4:

CRASH_TYPE_DESC	=	Pedestrian, Pedalcycles, Angle, Left Turn	X
-----------------	---	---	---
- 5:

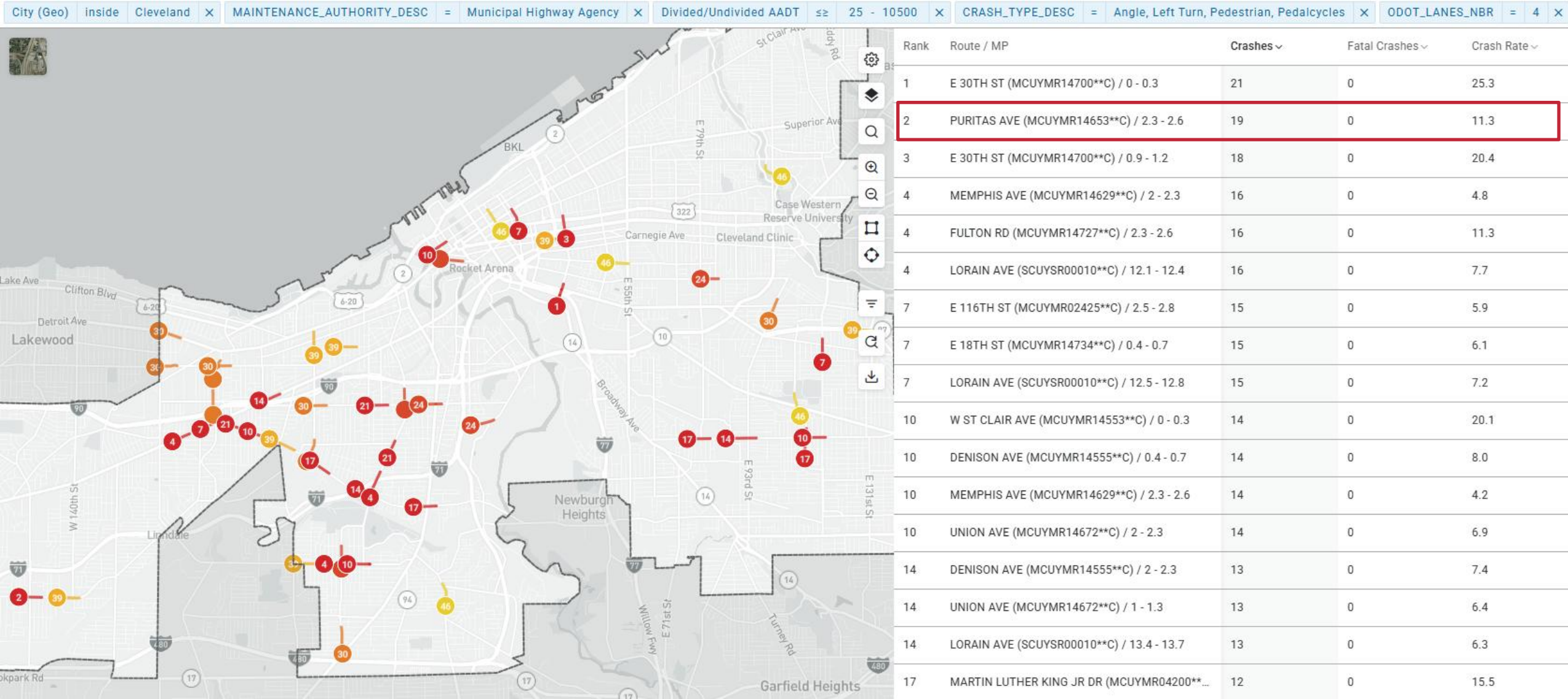
ODOT_LANES_NBR	=	4	X
----------------	---	---	---

Sliding Window – 0.3 mile Segments



CLEVELAND ROADWAY RECONFIGURATION

May 25, 2023 - May 24, 2026



CLEVELAND ROADWAY RECONFIGURATION

AADT: 9,000




PURITAS AVE (MCUYMR14653**C) / 2.3 - 2.6

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Open In

Observed	
Crashes	19
Crash Rate	11.27
Crashes Per Year	6.34
EPDO	76.13

HOW TO GET STARTED

- Go to our website!
 - Google “ODOT Crash Analysis Tools”
- Request AASHTOWare Safety access 
- Watch training videos



FUNDING PROGRAMS



**Formal Safety
Application**
\$6M



**Abbreviated Safety
Application**
\$600,000



Systemic Safety Application
\$2M – Pedestrian
\$5M – Roadway Departure





**Department of
Transportation**

transportation.ohio.gov

THANK YOU

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