



2018-2022 Crash Report

Appendix

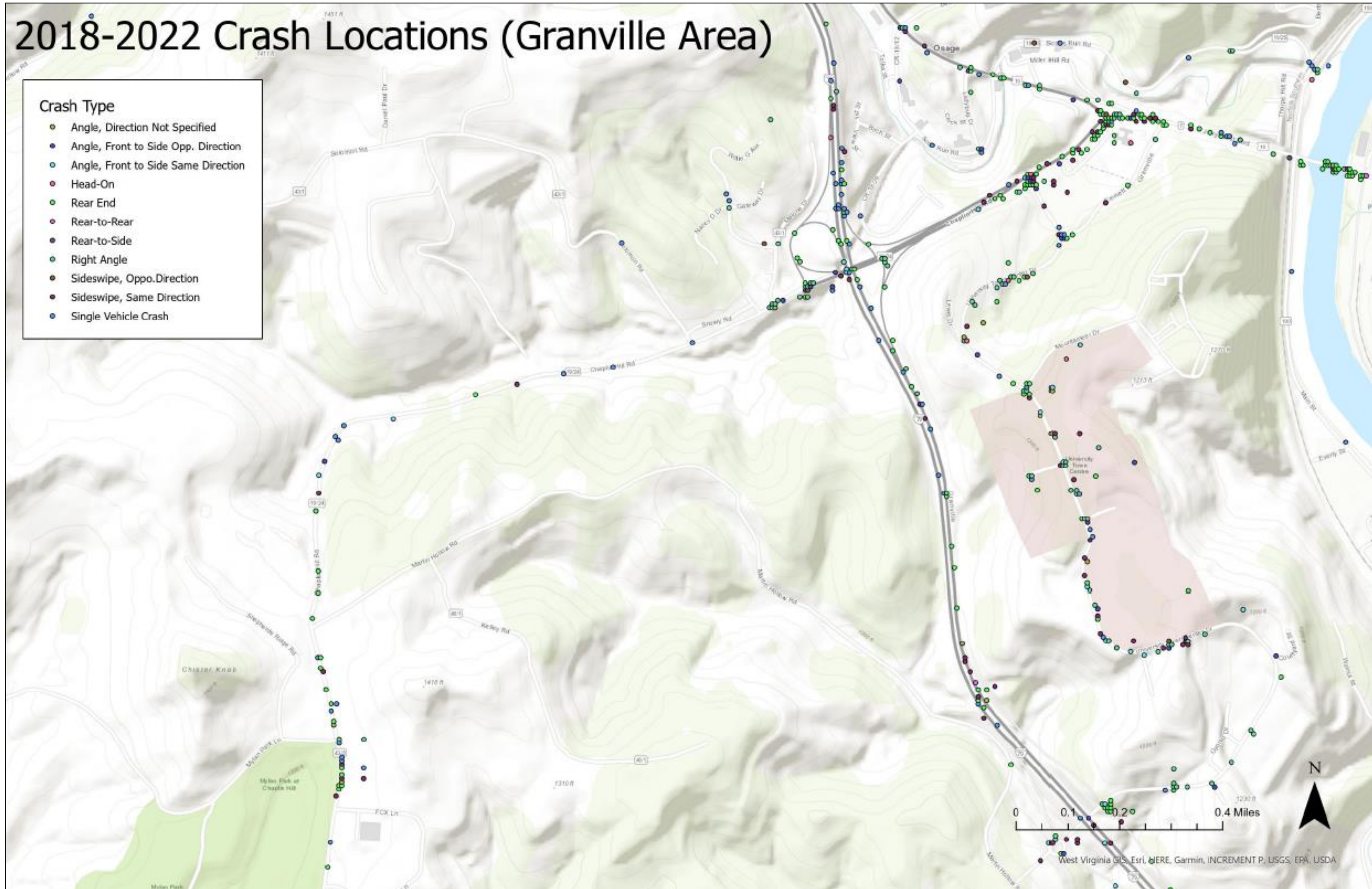
January, 2024

Appendix A:
Crash Location by Municipalities and Subareas

2018-2022 Crash Locations (Granville Area)

Crash Type

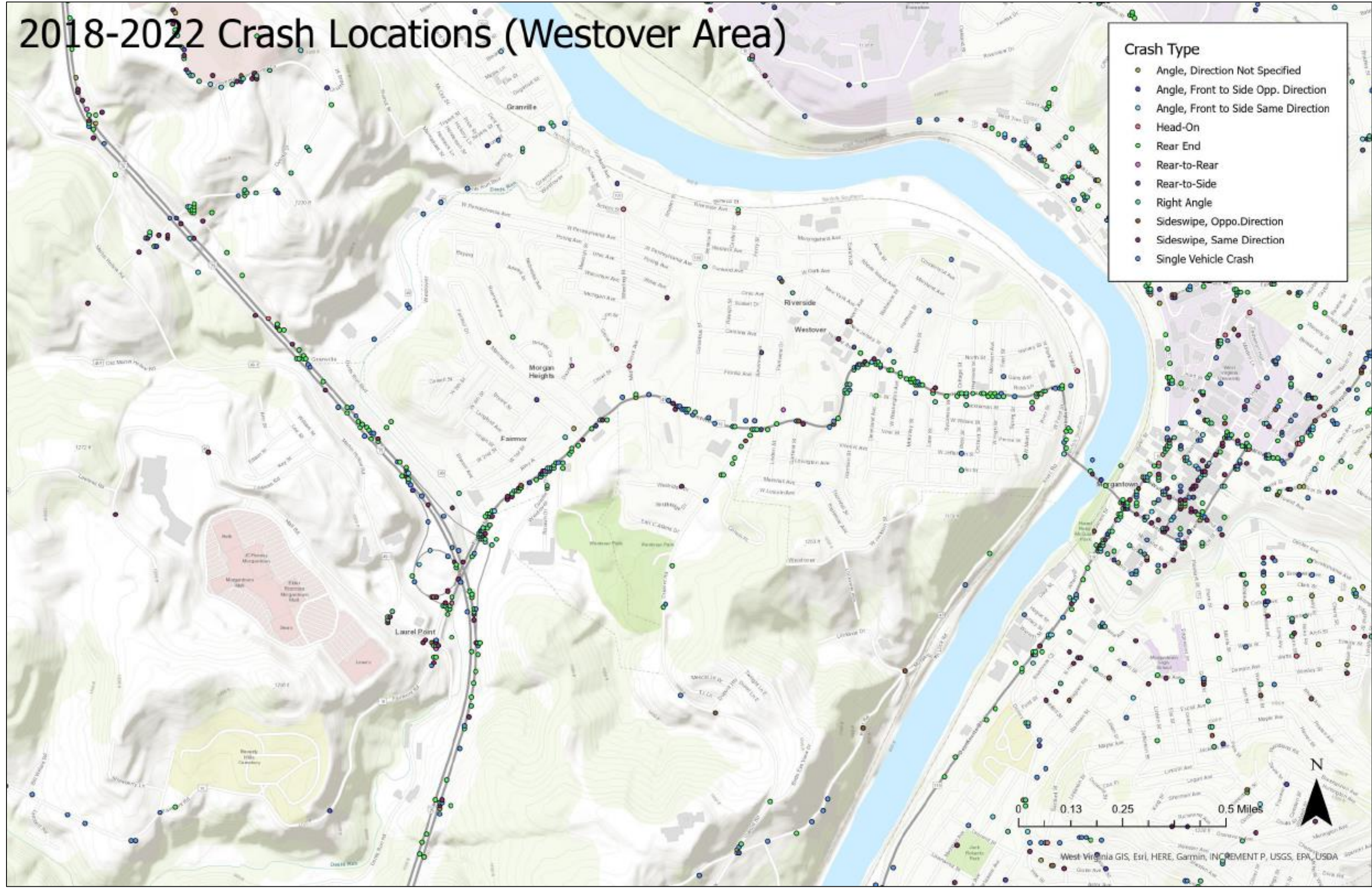
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- Angle, Front to Side Opp. Direction
- Angle, Front to Side Same Direction
- Head-On
- Rear End
- Rear-to-Rear
- Rear-to-Side
- Right Angle
- Sideswipe, Oppo.Direction
- Sideswipe, Same Direction
- Single Vehicle Crash



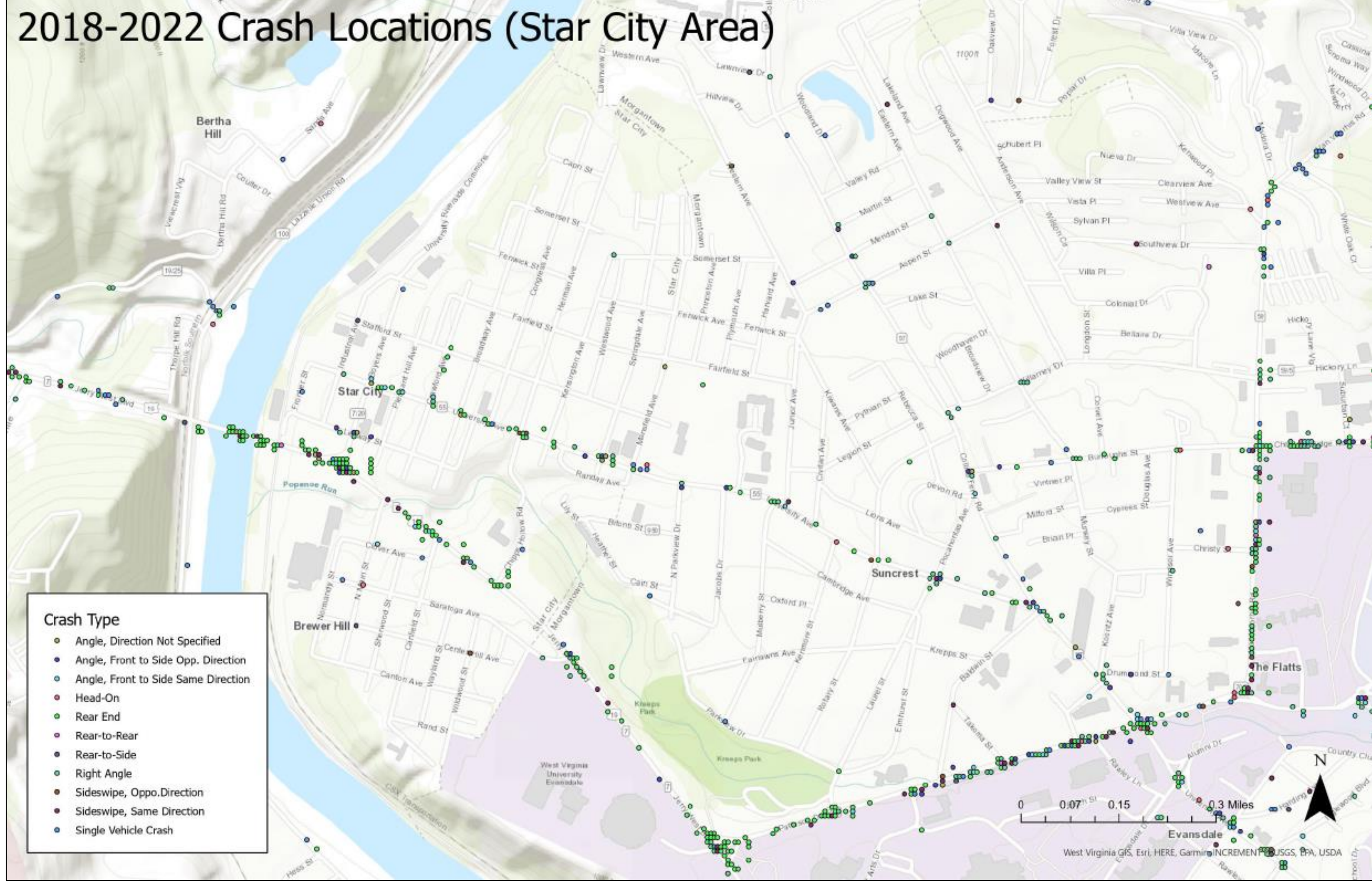
2018-2022 Crash Locations (Westover Area)

Crash Type

- Angle, Direction Not Specified
- Angle, Front to Side Opp. Direction
- Angle, Front to Side Same Direction
- Head-On
- Rear End
- Rear-to-Rear
- Rear-to-Side
- Right Angle
- Sideswipe, Oppo.Direction
- Sideswipe, Same Direction
- Single Vehicle Crash



2018-2022 Crash Locations (Star City Area)

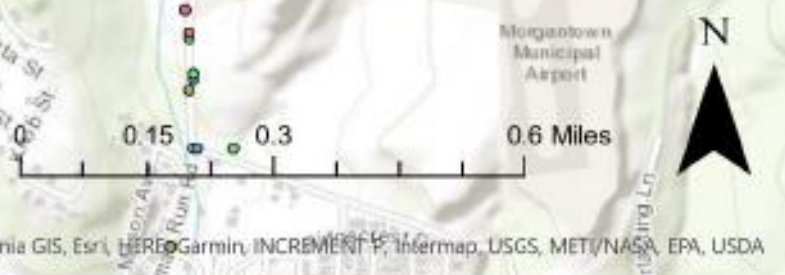
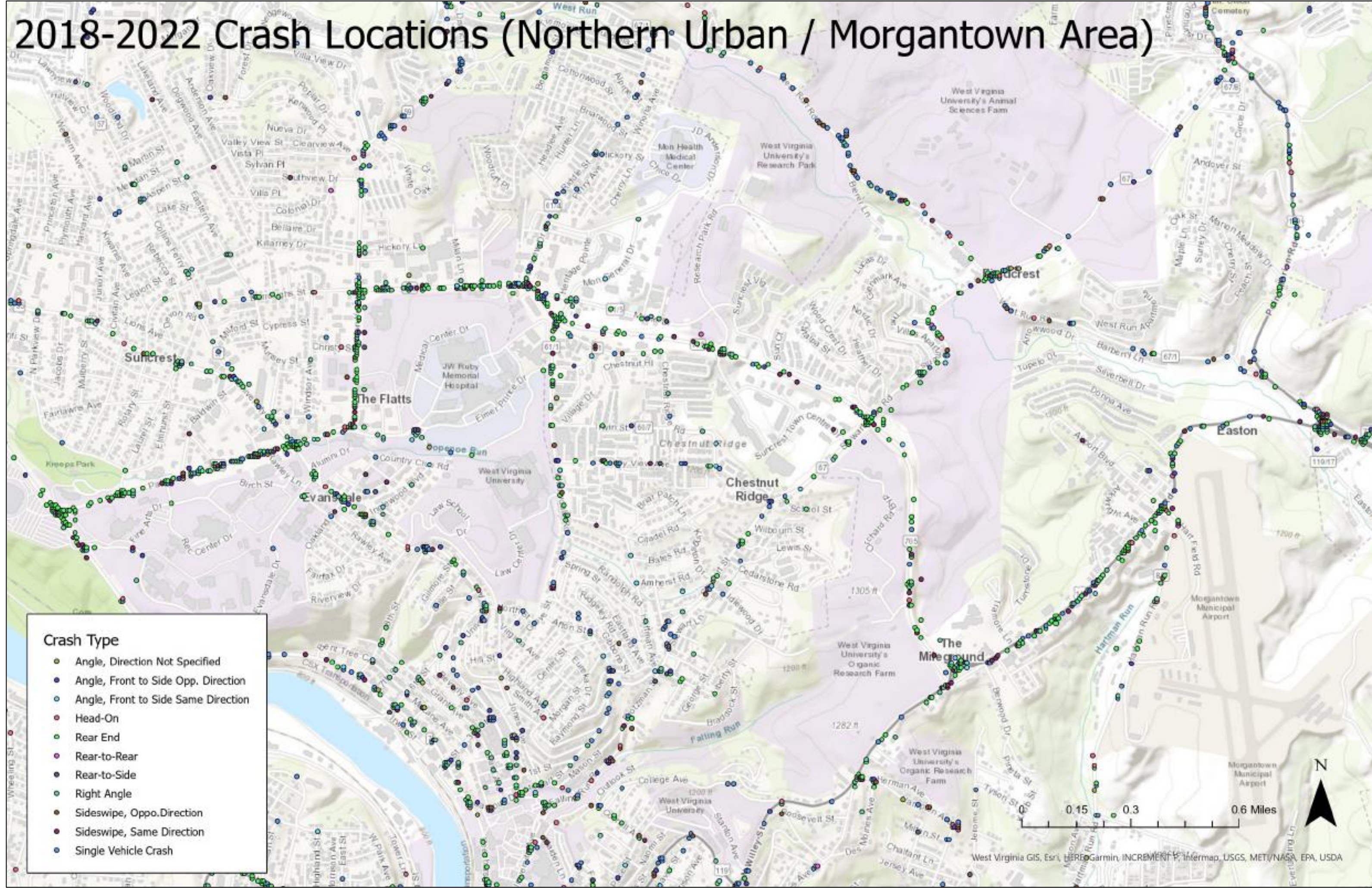


- Crash Type**
- Angle, Direction Not Specified
 - Angle, Front to Side Opp. Direction
 - Angle, Front to Side Same Direction
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 - Single Vehicle Crash

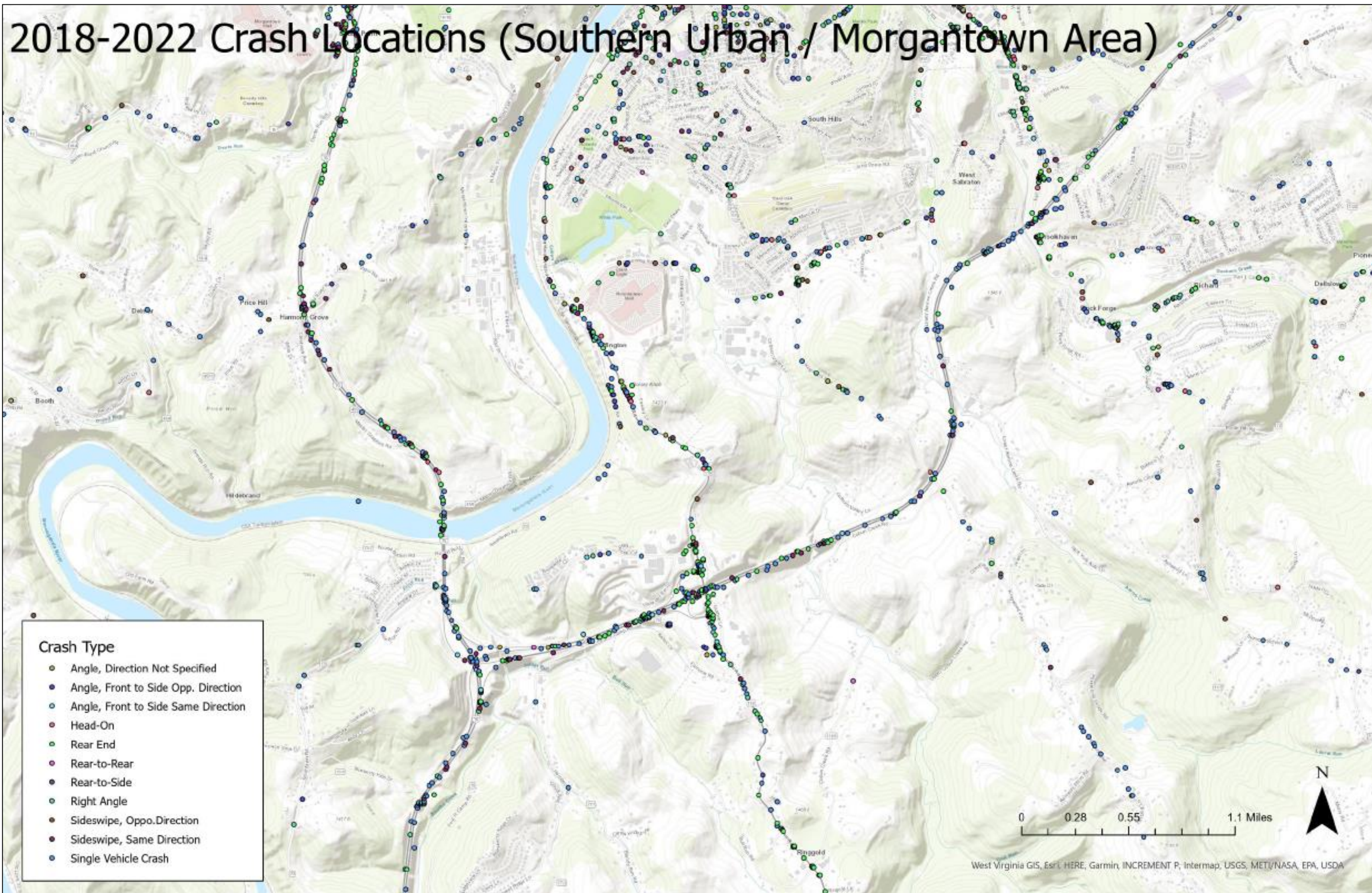
0 0.07 0.15 0.3 Miles

West Virginia GIS, Esri, HERE, Garmin, INCREMENTAL, USGS, EPA, USDA

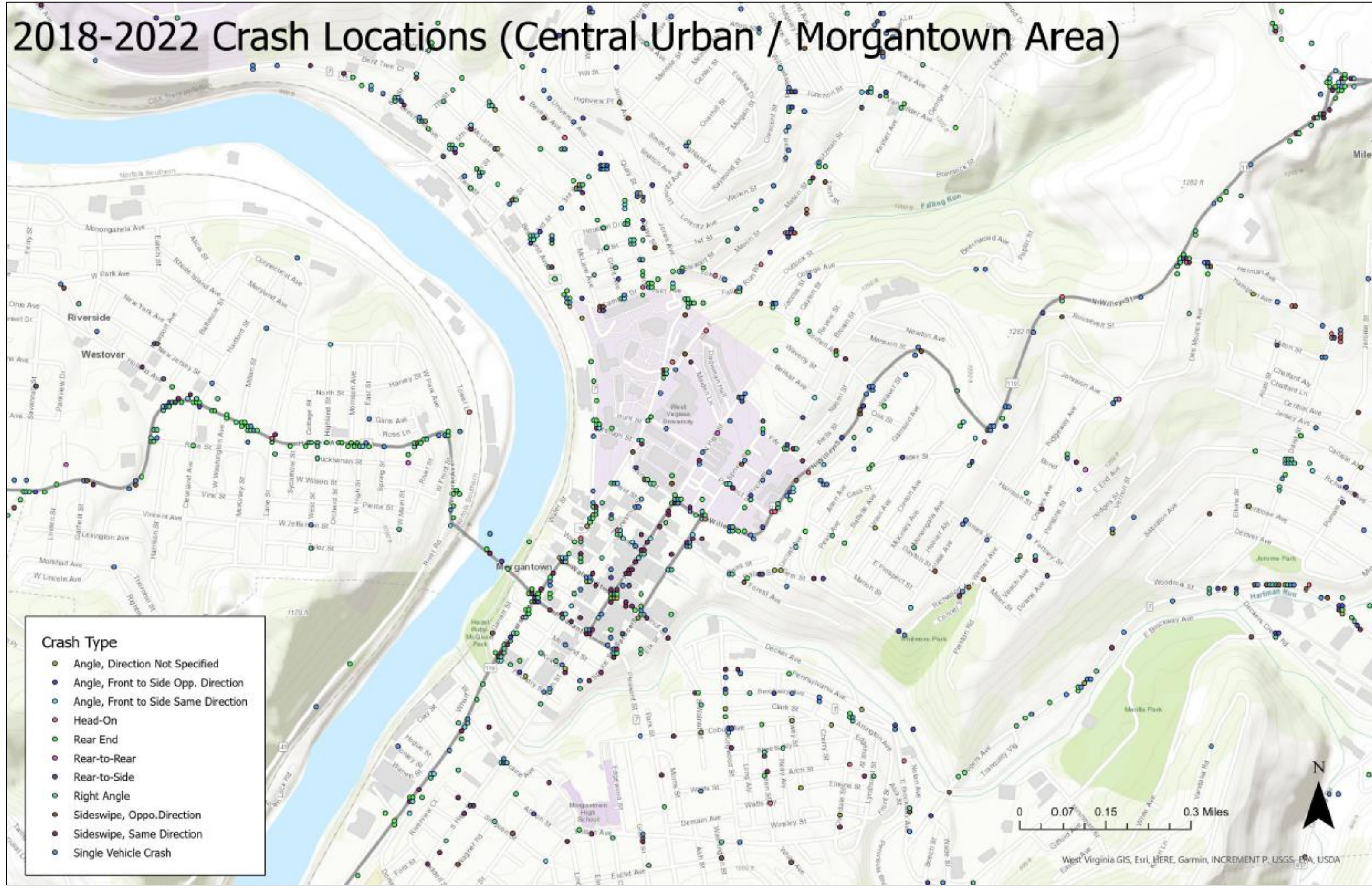
2018-2022 Crash Locations (Northern Urban / Morgantown Area)



2018-2022 Crash Locations (Southern Urban / Morgantown Area)



2018-2022 Crash Locations (Central Urban / Morgantown Area)

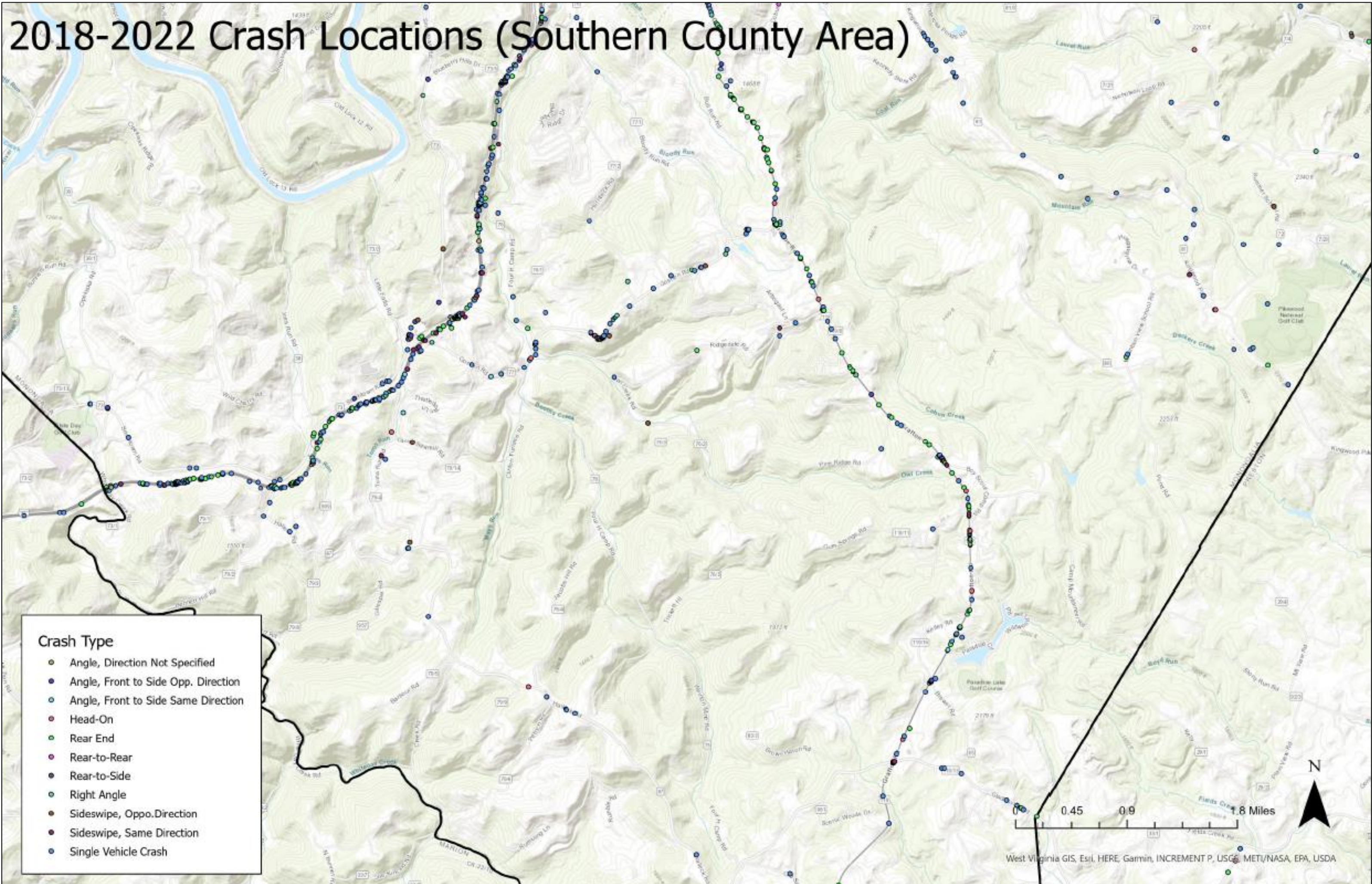


Crash Type

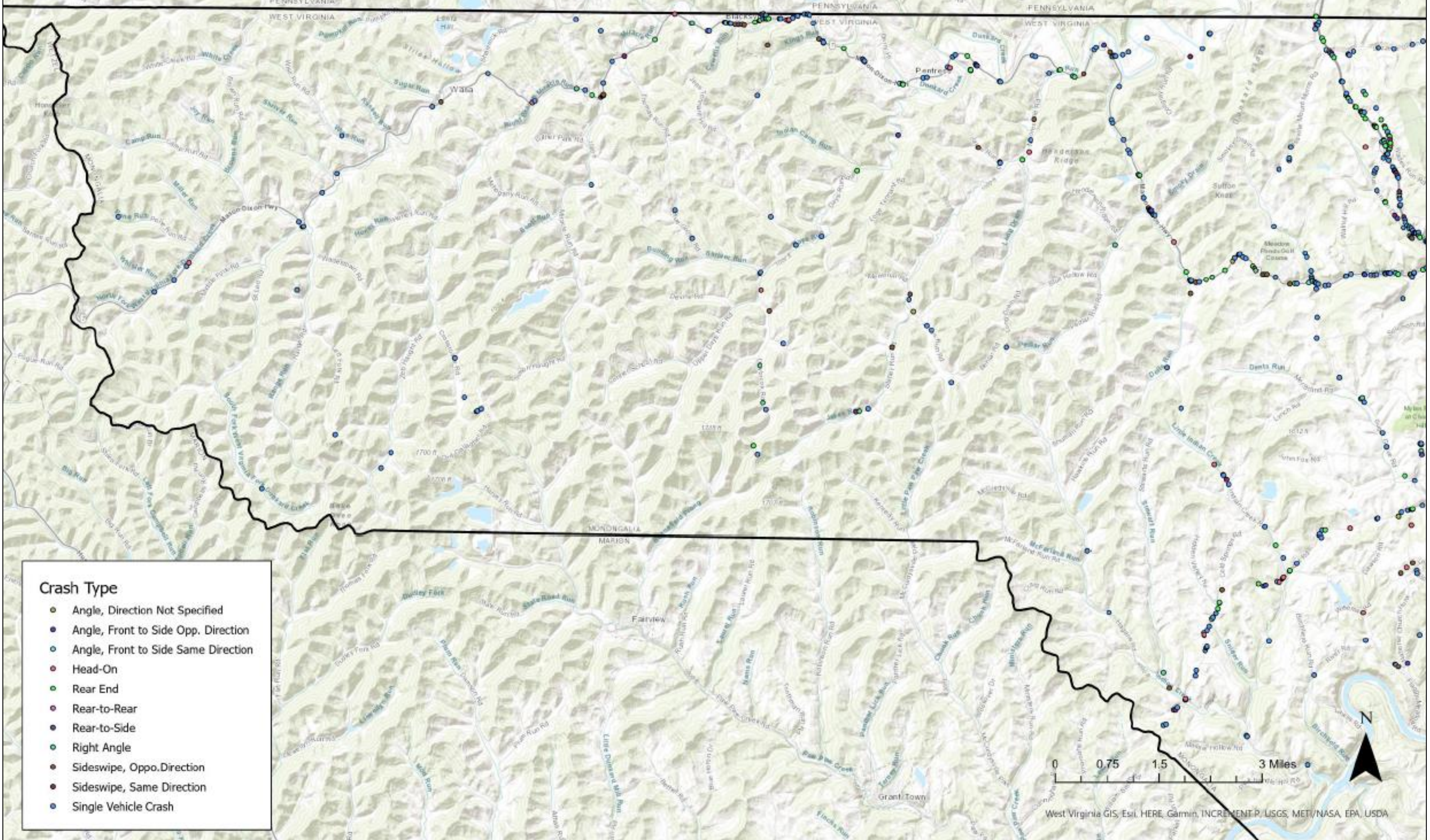
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- Angle, Front to Side Same Direction
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- Right Angle
- Sideswipe, Oppo.Direction
- Sideswipe, Same Direction
- Single Vehicle Crash



2018-2022 Crash Locations (Southern County Area)



2018-2022 Crash Locations (Western County Area)

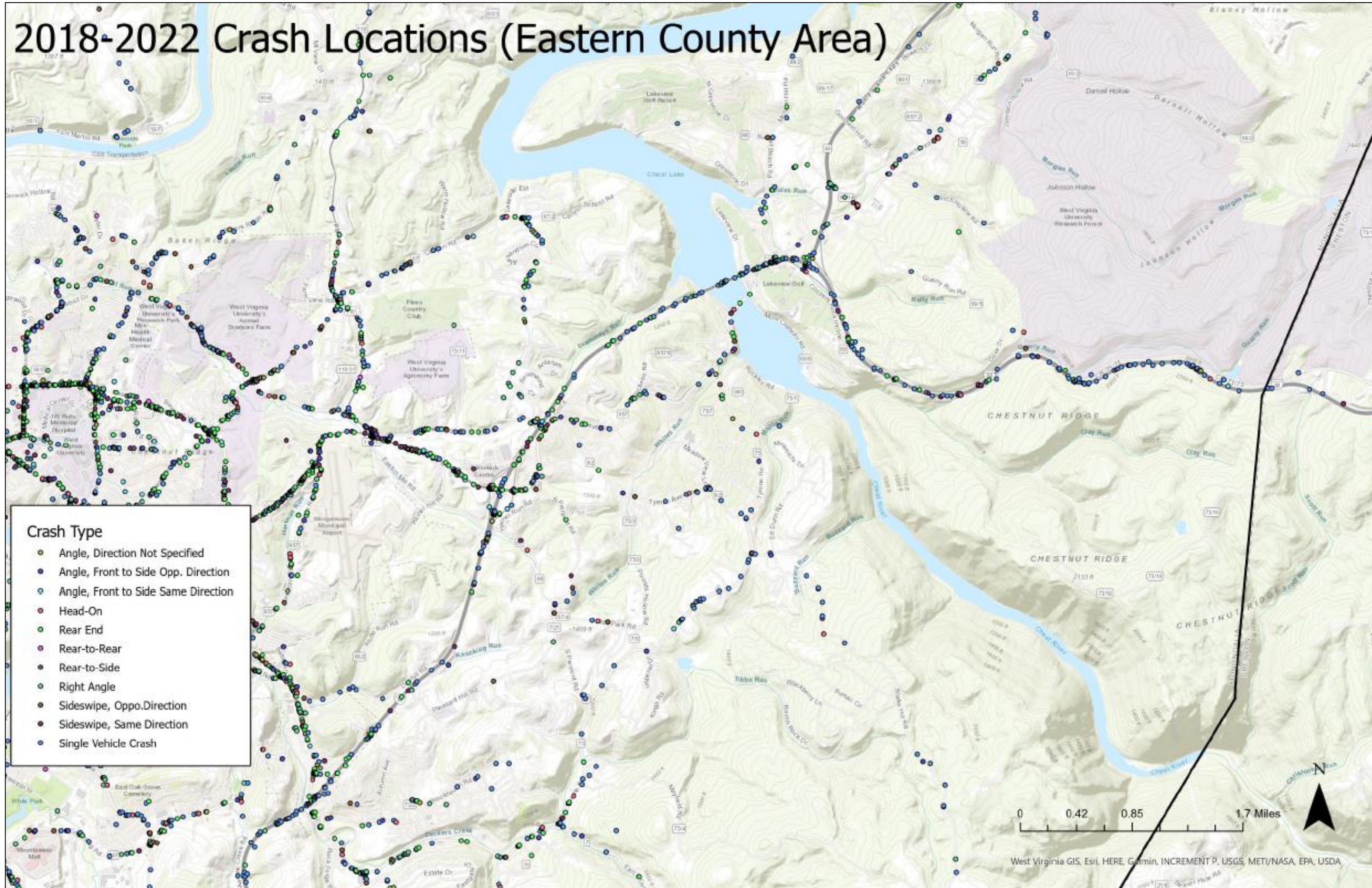


- Crash Type**
- Angle, Direction Not Specified
 - Angle, Front to Side Opp. Direction
 - Angle, Front to Side Same Direction
 - Head-On
 - Rear End
 - Rear-to-Rear
 - Rear-to-Side
 - Right Angle
 - Sideswipe, Oppo.Direction
 - Sideswipe, Same Direction
 - Single Vehicle Crash

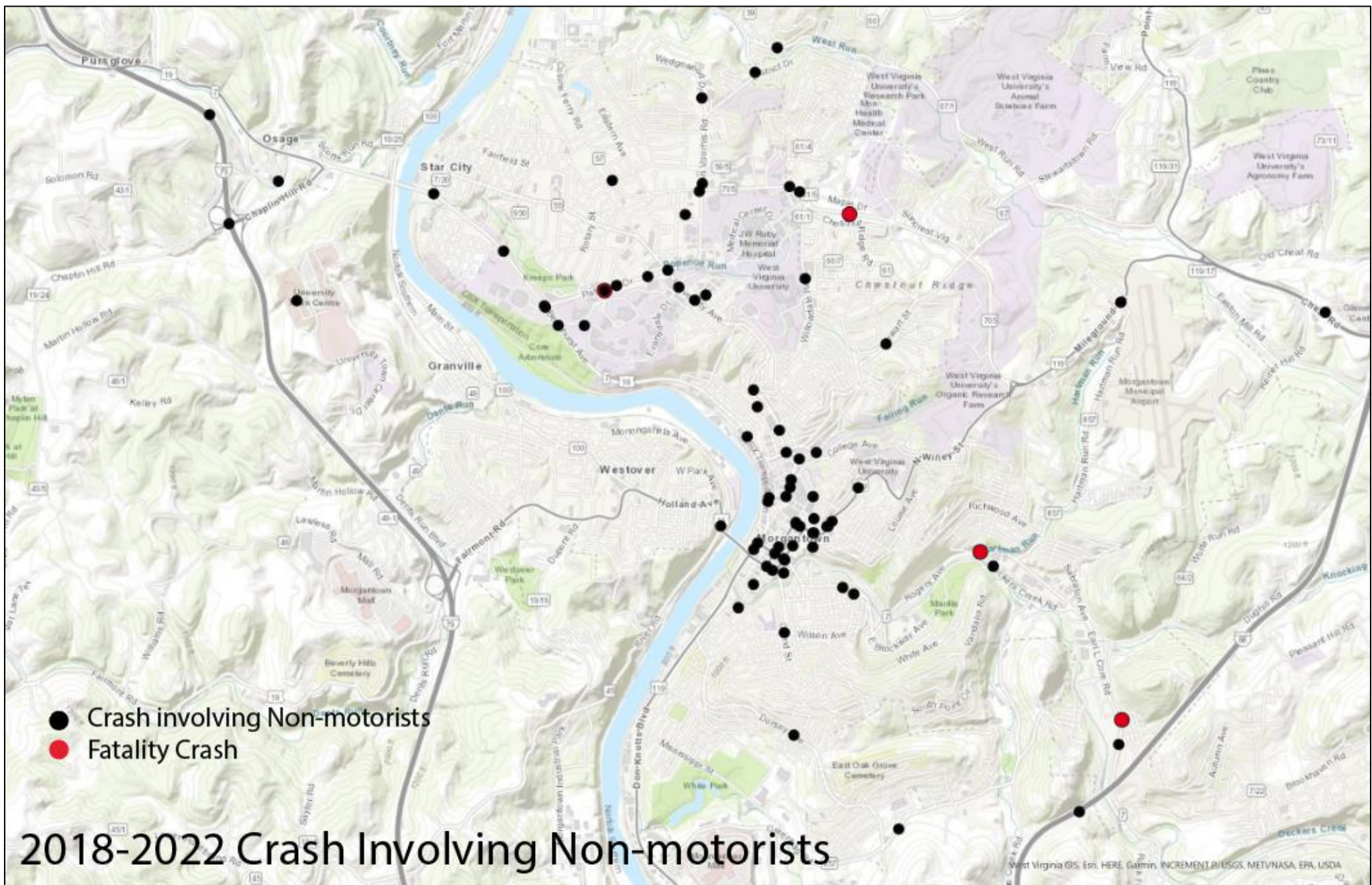
0 0.75 1.5 3 Miles

West Virginia GIS, Esri, HERE, Garmin, INCREMENT P, USGS, MET/NASA, EPA, USDA

2018-2022 Crash Locations (Eastern County Area)

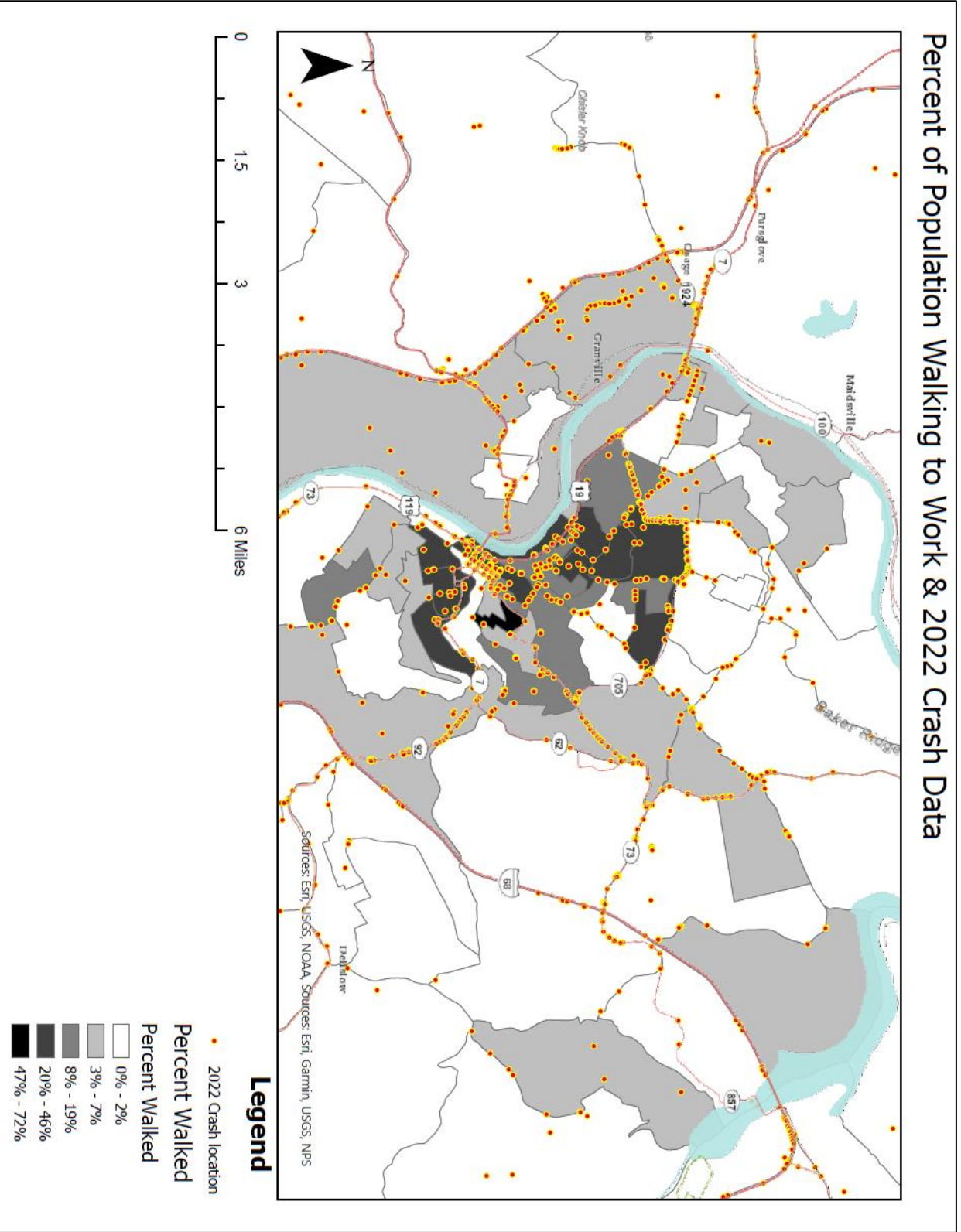


Appendix B:
Crashes Involving Non-Motorist

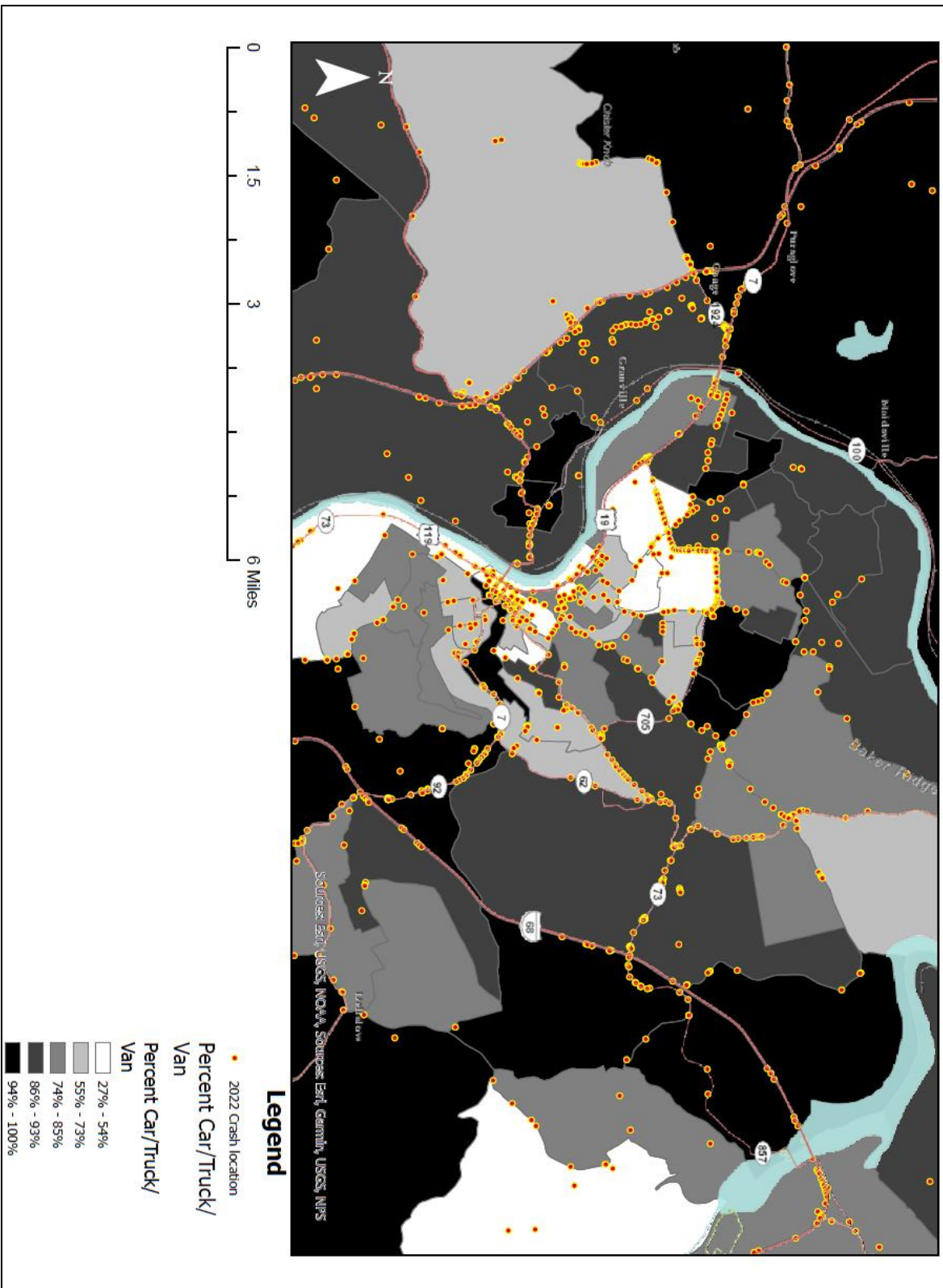


Appendix C:
Demographic Information Overlay

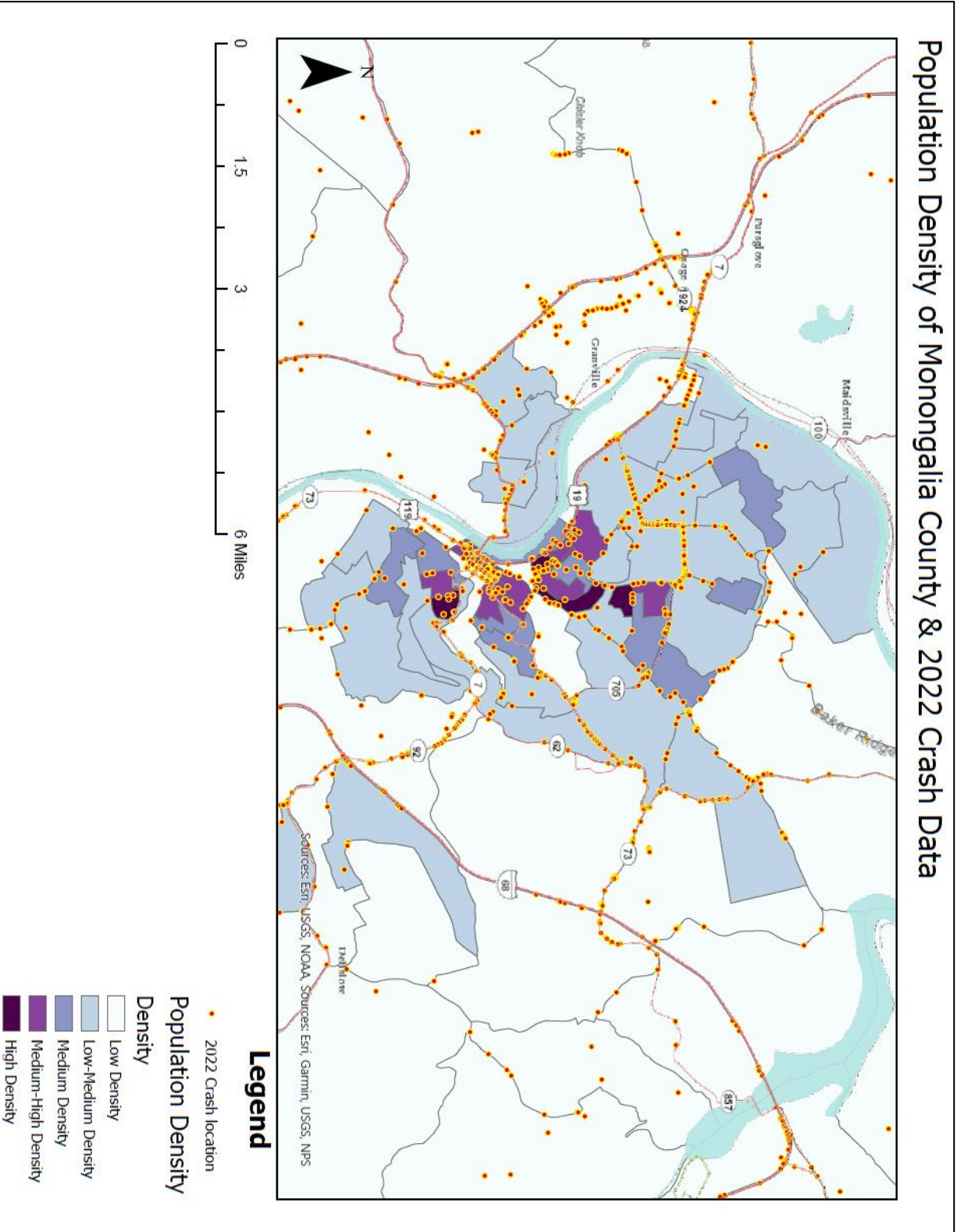
Percent of Population Walking to Work & 2022 Crash Data



Percent of Population Driving to Work & 2022 Crash Data



Population Density of Monongalia County & 2022 Crash Data



Appendix D:
Areas of Concerns

Head-on Crashes

Street	From	To	Length (mi)	# of crash	Crash/Length Ratio	AADT	Crash Rate ¹
Earl L Core Rd	Deckers Creek Rd	I-68 Ramp	1.51	10	6.6	19,500	0.19
Greenbag Rd	Aarons Creed Rd	Kingwood Pike	0.77	6	7.8	9,658	0.44
Hampton Ave	N. Willey St	N. Willey St - EB 0.3 mile	0.3	8	26.7	N/A	N/A
Harman Run Rd	Mileground Rd	Earl L Core Rd	1.45	8	5.5	7,800	0.39
Protzman St	Mason St	Yoke St	0.23	7	30.4	N/A	N/A
Stewart St	Jones Ave	Beechurst Ave	0.3	6	20.0	7,200	1.52
University Ave	Fayette St	Foundry St	0.12	5	41.7	21,600	1.06
Van Voorhis Rd	WV 705	West Run Rd	0.85	8	9.4	10,316	0.50
West Run Rd	Point Marion Rd	Riddle St	1.94	10	5.2	8,367	0.34
WV 7	Chaplin Hill Rd	Walnut Hill Rd	2.69	9	3.3	5,095	0.36

Street	Intersecting Street	# of crash	Map ID
Point Marion Rd	Canyon Rd	5	11
Point Marion Rd	Cheat Rd	4	12
Don Knotts Blvd	Smithtown Rd	4	13

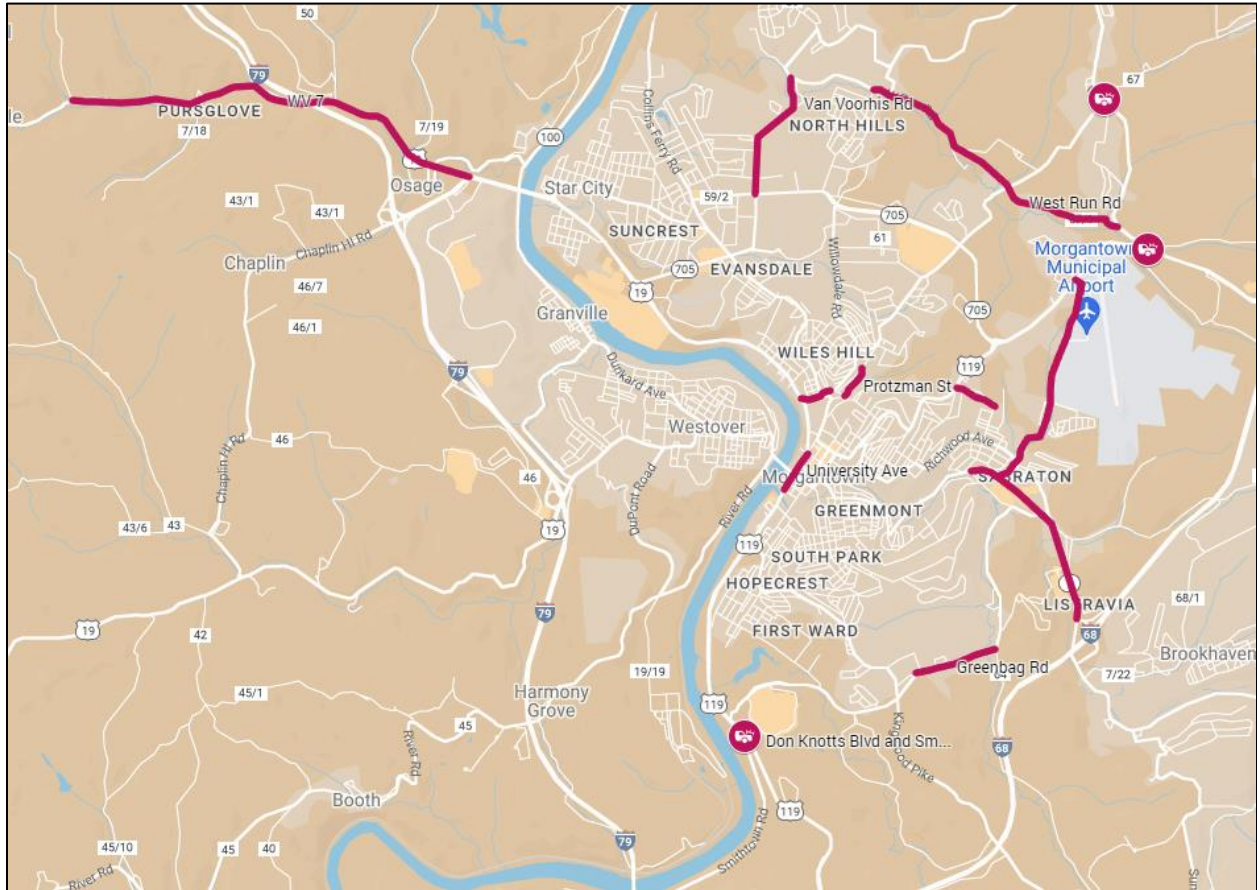
Potential Causes

- **Inadequate Lane Separation:** Roads without proper separation between opposite lanes, such as medians or barriers, can lead to head-on crashes when vehicles cross into oncoming traffic.
- **Poor Road Design:** Roads with inadequate curvature, lack of proper banking on curves, or poorly designed intersections can create situations where drivers may inadvertently cross into oncoming lanes, increasing the risk of head-on collisions.
- **Inadequate Pavement Markings:** Faded or missing centerline and lane markings can lead to driver confusion and an increased likelihood of unintentional lane departure.
- **Lack of Clear Signage:** Inadequate or unclear signage, particularly at intersections and curves, can contribute to driver errors and head-on collisions.
- **Insufficient Sight Distances:** Obstacles, vegetation, or inadequate signage that obstruct a driver's line of sight at curves, intersections, or over hills can lead to head-on collisions as drivers may not see oncoming traffic in time.

¹ Crash Rate Per Million Vehicle Miles

- Poorly Marked Passing Zones: Inadequate or unclear marking of passing and no-passing zones can lead to unsafe passing attempts and head-on collisions.
- Inadequate Guardrails or Barriers: Roads without appropriate guardrails or barriers may increase the risk of vehicles running off the road and colliding head-on with oncoming traffic.

Head-on Crashes Hotspot Map



Right Angle Crashes

Street	From	To	Length (mi)	# of crash	Crash/Length Ratio	AADT	Crash Rate
University Ave	Fayette St	Foundry St	0.3	22	73.3	21,600	1.86
Fairmont Ave	Hartford St	Race St	0.11	8	72.7	11,314	3.52
WV 705	Burroughs St	Mon General Dr	0.57	41	71.9	32,854	1.20
Fairmont Ave	Exit 152	Riverview Ave	0.35	24	68.6	10,908	3.44
University Ave	WV 705	Laurel St	0.38	21	55.3	30,000	1.01
University Ave	Falling Run Rd	Beverly Ave	0.27	13	48.1	13,105	2.01
Patteson Dr	University Ave	Mon Blvd	0.69	32	46.4	30,000	0.85
University Town Centre Dr	Chaplin Hill Rd	Exit 153	1.22	50	41.0	16,500	1.36
Earl L Core Rd	Deckers Creek Rd	Eljadid St	0.98	23	23.5	19,500	0.66

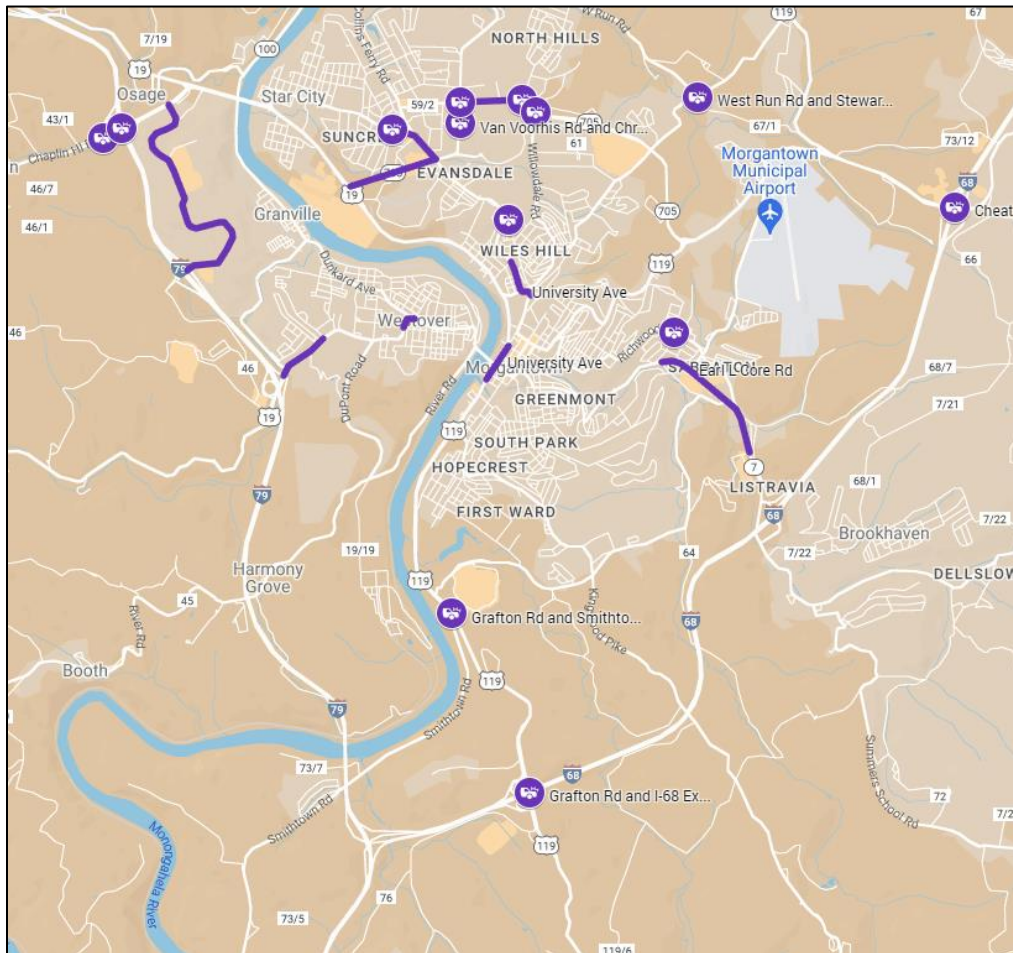
Street	Intersecting Street	# of crash
University Ave	Laurel St	6
University Ave	North St	5
Van Voorhis Rd	Christy St	5
Van Voorhis Rd	Burroughs St	5
Van Voorhis Rd	Pineville Dr	8
West Run Rd	Stewartstown Rd	5
WV 705	Mon General Dr	8
Grafton Rd	Exit 1 - Area	15
Cheat Rd	Exit 7 - Area	12
Grafton Rd	Smithtown Rd	5
University Ave	North St	5
Richwood Ave	Darst St	5
Chaplin Hill Rd	Malone Dr	5
Chaplin Hill Rd	I-79 Exit 155 (area)	11
Cheat Rd	I-68 Exit 7 (area)	12

Potential Causes

- Inadequate Intersection Design: Poorly designed intersections with limited visibility, confusing traffic patterns, or ambiguous right-of-way rules can lead to right-angle crashes as drivers struggle to navigate safely.

- Absence of Traffic Control Devices: Intersections lacking traffic signals, stop signs, or yield signs can result in chaotic or unregulated traffic flow, increasing the risk of right-angle crashes.
- Inadequate Signal Coordination: Traffic signals that are not properly synchronized or coordinated can lead to unexpected stops or delays, increasing the likelihood of right-angle collisions.
- Limited Sight Distances: Obstructions, parked vehicles, or landscaping that obstruct a driver's line of sight at intersections can lead to collisions as drivers may not see oncoming traffic in time.
- Insufficient Lighting: Poorly lit intersections, especially at night, can reduce visibility and reaction time, increasing the risk of right-angle crashes.
- Poorly Designed Left-Turn Lanes: Inadequate left-turn lanes or poorly designed turn lanes can create conflicts between turning and through-traffic, leading to right-angle collisions.
- Inadequate Roadway Width: Narrow roads at intersections can make it difficult for vehicles to navigate turns safely, increasing the likelihood of right-angle collisions.

Right-angle Crashes Hotspot Map



Single Vehicle Crashes

Street	From	To	Length (mi)	# of crash	Crash/Length Ratio	AADT	Crash Rate
Van Voorhis Rd	West Run Rd	Southview Dr	0.54	32	59.3	10,316	3.15
Bakers Ridge Rd	St Clair Hill Rd	St Clair Hill Rd - EB 0.21 mile	0.21	13	61.9	1,452	23.36
West Run Rd	Stewartstown Rd - EB 0.32 mile	Stewartstown Rd - EB 0.66 mile	0.34	32	94.1	3,496	14.75
Canyon Rd	Point Marion Rd - EB 0.50 mile	Point Marion Rd - EB 0.64 mile	0.14	9	64.3	2,881	12.23
Goshen Rd	Hornbeck Rd - WB 0.21 mile	Hornbeck Rd - WB 0.46 mile	0.25	17	68.0	1,781	20.92
Kingwood Pike	Kennedy Store Rd - NB 0.20 mile	Kennedy Store Rd - SB 0.27 mile	0.47	11	23.4	3,093	4.15
Don Knotts Blvd	Greenbag Rd	Smithtown Rd - SB 0.44 mile	0.59	21	35.6	12,971	1.50
Earl L Core Rd	Hartman Rd	Deckers Creed Rd	0.2	10	50.0	10,578	2.59
Fairmont Rd	Savannah St	Maple Grove Ave	0.3	15	50.0	15,155	1.81
Dorsey Ave	Parkway Rd	Dorsey Ln	0.23	10	43.5	5,947	4.01

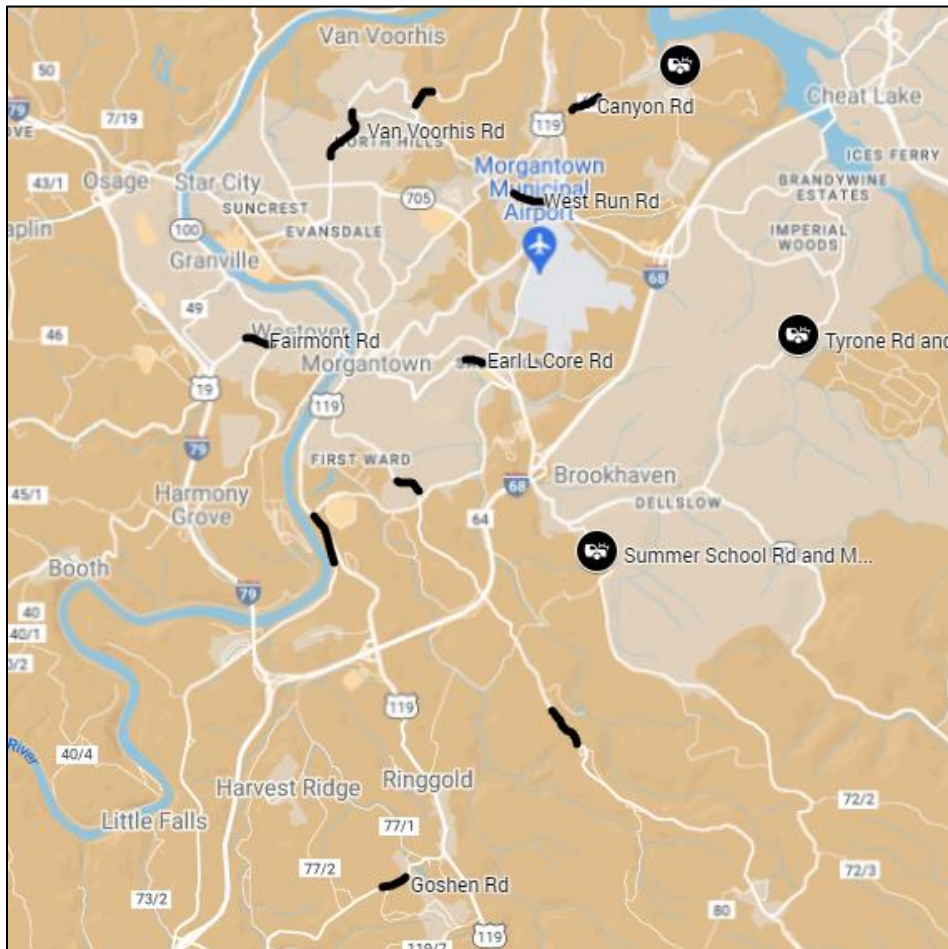
Street	Intersecting Street	# of crash
Canyon Rd	Canyon School Rd	15
Tyrone Rd	Rifle Club Rd	7
Summer School Rd	Marie Ln	5

Potential Causes

- **Poor Roadway Maintenance:** Roads with potholes, cracks, debris, or uneven surfaces can lead to a loss of vehicle control and result in single-vehicle accidents.
- **Inadequate Road Design:** Roads with sharp curves, sudden changes in elevation, or poorly banked turns can make it challenging for drivers to navigate safely, potentially causing single-vehicle crashes.
- **Lack of Proper Signage:** Insufficient or unclear signage, especially at sharp curves, intersections, or hazardous areas, can contribute to driver errors and single-vehicle accidents.

- Limited Shoulder Space: Roads with narrow or poorly maintained shoulders may not provide drivers with a safe area to recover if they drift off the roadway, increasing the risk of single-vehicle crashes.
- Poor Drainage Systems: Inadequate drainage can lead to standing water or ice on the road, causing hydroplaning or reduced traction and leading to single-vehicle accidents.
- Absence of Guardrails: Roads without appropriate guardrails or barriers may increase the likelihood of vehicles running off the road and crashing into obstacles, such as trees, embankments, or ditches.
- Inadequate Lighting: Poorly lit roads, particularly at night, can reduce visibility and increase the risk of single-vehicle accidents.
- Insufficient Warning Signs: The lack of warning signs indicating upcoming hazards, such as sharp curves, intersections, or pedestrian crossings, can catch drivers off guard and lead to accidents.
- Distracting or Hazardous Elements: Elements like roadside billboards, distracting features, or obstacles close to the road can divert drivers' attention and lead to single-vehicle crashes.

Single Vehicle Crashes Hotspot Map



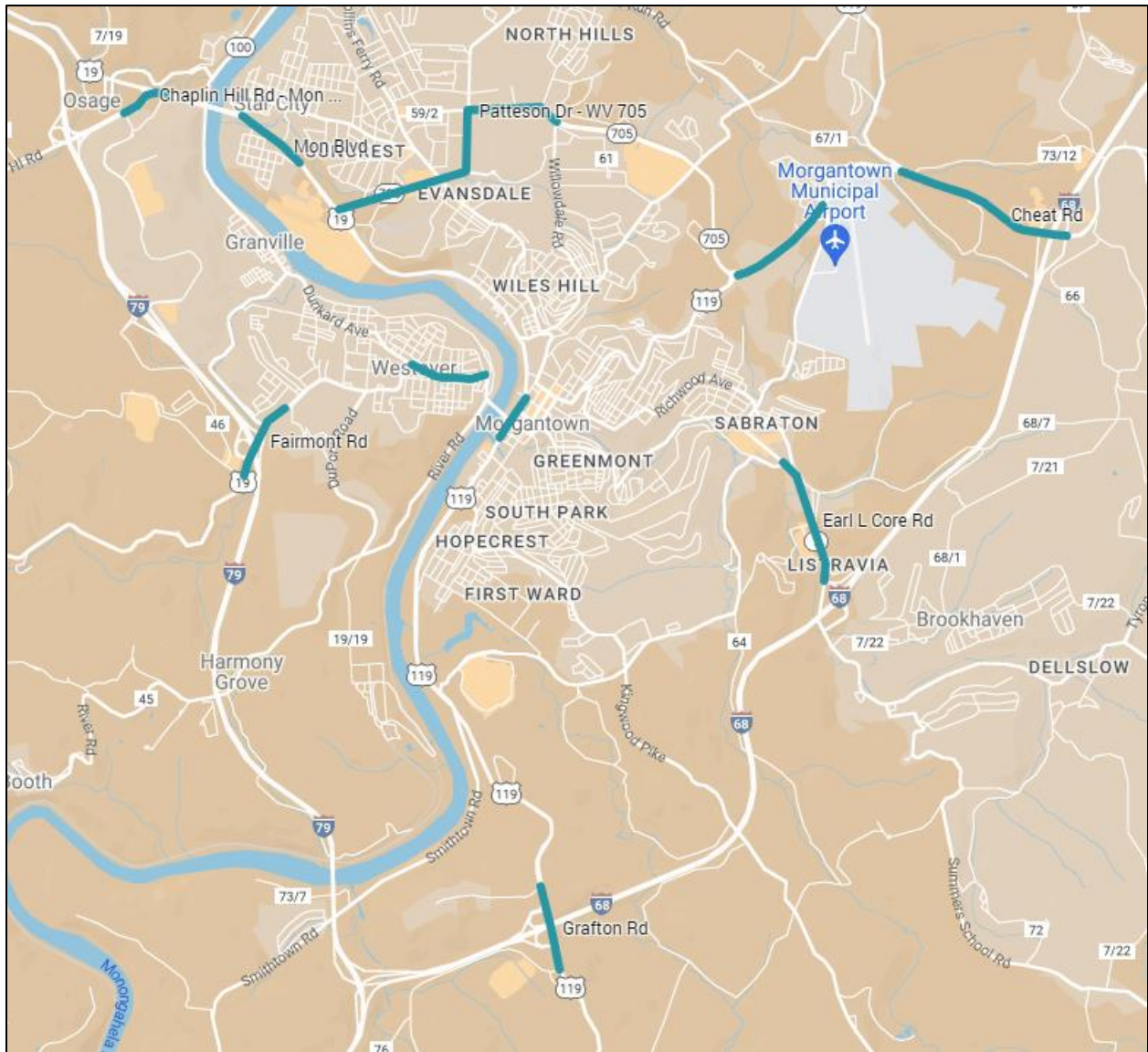
Rear End Crashes

Street	From	To	Length (mi)	# of crash	Crash/Length Ratio	AADT	Crash Rate
Chaplin Hill Rd - Mon Blvd	University Town Centre Dr	Ennett Dr	0.49	111	226.5	34,300	3.62
Mon Blvd	Boyers Ave	Saratoga Ave	0.65	173	266.2	29,300	4.98
Patteson Dr - WV 705	Mon Blvd	Mon General Dr	1.53	455	297.4	32,854	4.96
Mileground	Hartman Rd	WV 705	0.81	95	117.3	7,800	8.24
University Ave	Fayette St	Foundry St	1.32	77	58.3	21,600	1.48
Earl L Core Rd	Greenbag Rd	I-68 Exit 7 Ramp WB	1.21	83	68.6	19,500	1.93
Cheat Rd	Mileground Rd	I-68 Ramp EB	1.22	163	133.6	22,400	3.27
Fairmont Rd	Commerce Dr	Mall Rd	0.64	74	115.6	14,900	4.25
Fairmont Rd	W Park Ave	Holland Ave	0.48	106	220.8	11,135	10.87
Grafton Rd	Scott Ave	Four H Camp Rd	0.62	73	117.7	12,971	4.97

Potential Causes

- Inadequate Following Distance: Roads that encourage high-speed travel with limited space between vehicles can lead to rear-end crashes, especially in congested traffic.
- Sudden Lane Changes or Merging: Inadequate merging lanes or poorly designed entrance and exit ramps can result in abrupt lane changes, increasing the risk of rear-end collisions.
- Poor Traffic Flow: Roads with inconsistent traffic flow, such as stop-and-go traffic or frequent traffic signal changes, can lead to rear-end collisions as drivers react to changing conditions.
- Lack of Warning Signs or Signals: Insufficient signage or signals, especially at intersections, can lead to confusion and unexpected stops, contributing to rear-end crashes.
- Inadequate Intersection Design: Poorly designed intersections with limited visibility, complex traffic patterns, or ambiguous right-of-way rules can result in rear-end collisions as drivers struggle to navigate them safely.
- Poorly lit roads, especially at night or in adverse weather conditions, can reduce a driver's visibility and reaction time, contributing to rear-end crashes.

Rear-end Crashes Hotspot Map



Sideswipe Same Direction Crashes

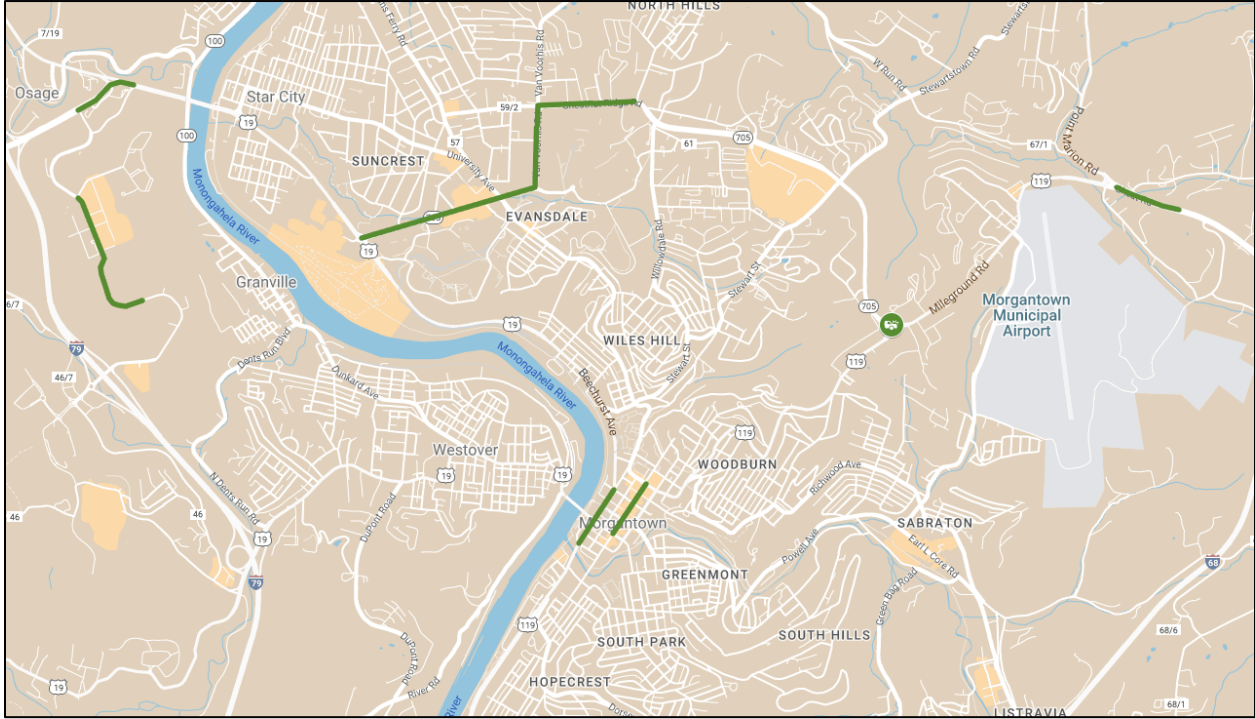
Street	From	To	Length (mi)	# of crash	Crash/Length Ratio	AADT	Crash Rate
Chaplin Hill Rd - Mon Blvd	University Town Centre Dr	Ennett Dr	0.49	32	65.3	34,300	1.04
University Town Centre Dr	Mountaineer Dr	Walmart Dr Way South End	0.58	25	43.1	16,500	1.43
Patteson Dr - WV 705	Mon Blvd	Pineview Dr	0.45	69	153.3	20,571	4.08
Cheat Rd	Point Marion Rd	Point Marion Rd - EB 0.35 mile	0.35	26	74.3	22,400	1.82
High St	Willey St	Pleasant St	0.28	31	110.7	9,455	6.42
University Ave	Fayette St	Foundry St	1.32	42	31.8	21,600	0.81

Street	Intersecting Street	# of crash
Mileground	WV 705 (Roundabout)	31

Potential Causes

- Inadequate Lane Width: Narrow lanes can make it difficult for vehicles to safely share the road, increasing the risk of sideswipe collisions, especially when drivers attempt to pass other vehicles within the same lane.
- Lack of Shoulder Space: Insufficient or poorly maintained shoulders can lead to sideswipe crashes when drivers drift onto the shoulder or attempt to move aside to avoid an obstacle.
- Poorly Marked Lanes:
- Inadequate Merging and Weaving Areas: Inadequate merging lanes and weaving areas for vehicles entering or exiting the highway can lead to conflicts and sideswipe crashes as vehicles try to adjust to the flow of traffic.
- High Traffic Density: High traffic congestion can increase the likelihood of sideswipe collisions, as drivers may jockey for position in congested traffic or make sudden lane changes.
- Lack of Adequate Signage: Insufficient or unclear signage can lead to confusion among drivers, increasing the risk of lane changes and sideswipe collisions.

Sideswipe Same Direction Crashes Hotspot Map



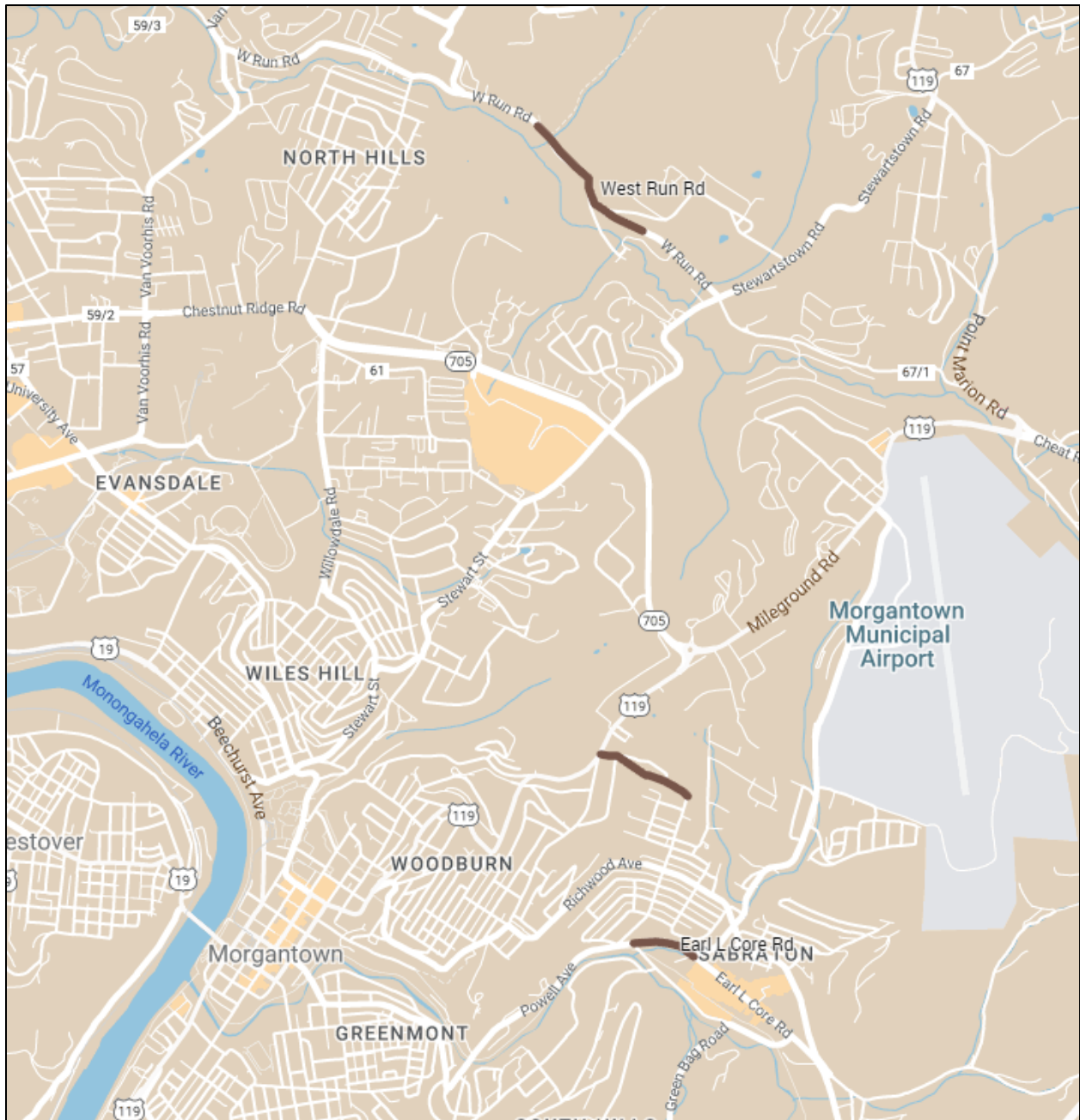
Sideswipe Opposite Direction Crashes

Street	From	To	Length (mi)	# of crash	Crash/Length Ratio	AADT	Crash Rate
West Run Rd	Bierer Ln - EB 0.23 mile	Bierer Ln - WB 0.25 mile	0.47	9	19.1	3,496	3.00
Earl L Core Rd	Hartman Rd	Deckers Creed Rd	0.2	7	35.0	10,578	1.81
Hampton Ave	N.Willey St	N. Willey St - EB 0.3 mile	0.3	8	26.7	n/a	n/a

Potential Causes

- **Inadequate Lane Width:** Narrow lanes make it more challenging for vehicles to safely share the road with those traveling in the opposite direction, increasing the risk of sideswipe collisions.
- **Lack of Lane Separation:** In areas without sufficient separation between opposing lanes (such as a lack of medians or barriers), there is a higher likelihood of vehicles drifting into oncoming traffic.
- **Poor Road Geometry:** Sharp curves, unexpected bends, or poorly designed intersections can create situations where drivers have difficulty maintaining their lanes, increasing the potential for sideswipe collisions.
- **Inadequate Shoulder Width:** Narrow or poorly maintained shoulders may not provide enough space for drivers to recover if they veer out of their lane, leading to sideswipe crashes.
- **Inadequate Sight Distances:** Poor visibility due to obstacles, vegetation, or inadequate signage can make it difficult for drivers to see oncoming traffic, especially on winding roads, contributing to sideswipe crashes.
- **Insufficient Lighting:** Inadequate or non-functioning road lighting can reduce visibility at night, making it harder for drivers to stay in their lanes and avoid opposite direction collisions.
- **Substandard Road Maintenance:** Potholes, rough road surfaces, and debris can affect a driver's ability to maintain control of their vehicle and stay within their lane.
- **Lack of Warning Signs:** Insufficient or missing warning signs, such as those indicating sharp curves, can lead to drivers taking turns at unsafe speeds and potentially colliding with oncoming traffic.

Sideswipe Opposite Direction Crashes Hotspot Map



Crashes with First Harmful Event: Ditch, Overturn, Embankment, and Guardrail

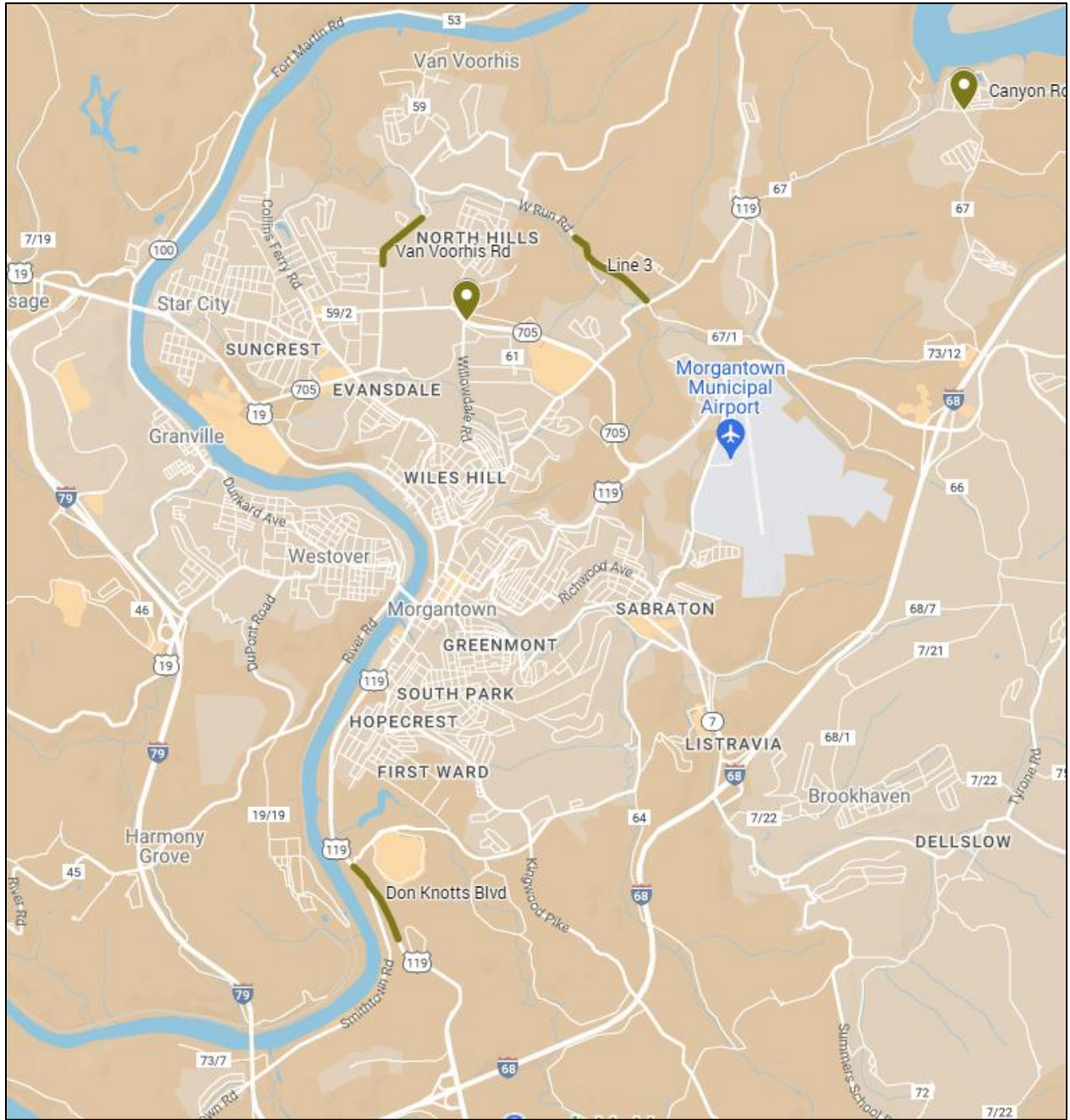
Street	From	To	Length (mi)	# of crash	Crash/Length Ratio	AADT	Crash Rate
Van Voorhis Rd	Southview Dr	Southview Dr-NB 0.41 mile	0.41	16	39.0	10,316	2.07
Don Knotts Blvd	Greenbag Rd	Greenbag Rd - SB 0.57	0.57	12	21.1	12,971	0.89
West Run Rd	Stewartstown Rd	Stewartstown Rd - WB 0.64 mile	0.64	14	21.9	3,496	3.43
Don Knotts Blvd	Greenbag Rd	Greenbag Rd - SB 0.57	0.57	10	17.5	16,616	0.58

Street	Intersecting Street	# of crash
WV 705	Mon General Dr	5
Canyon Rd	Canyon School Rd	16

Potential Causes

- Narrow or poorly maintained shoulders may lead to vehicles drifting into ditches.
- Inadequate Road markings or warning signs may fail to alert drivers to the presence of ditches.
- Ineffective drainage can lead to standing water in ditches, increasing the risk of hydroplaning or loss of control.
- Sharp curves or steep grades without proper signage or warning may lead to vehicles overturning.
- Lack of proper banked curves can cause vehicles to lose control and overturn.
- Potholes, uneven road surfaces, or debris can cause a vehicle to overturn.
- Lack of proper barriers to prevent vehicles from leaving the road can result in embankment-related crashes.
- Improper guardrail placement: Guardrails that are too close to the roadway can increase the risk of vehicle impact and cause injury.

Crashes Hotspot Map - Crashes with First Harmful Event: Ditch, Overturn, Embankment, and Guardrail



Crashes Involving Non-motorists

Street	From	To	Length (mi)	# of crash
Wiley St	Richwood Ave	High St	0.25	8
Walnut St	Spruce St	University Ave	0.18	4

Street	Intersecting Street	# of crash
Walnut St	Spruce St	2
WV 705	Van Voorhis Rd	2
Patteson Dr	Mon Blvd	2
Patteson Dr	Morrill Way	4

Potential Causes

- **Insufficient or Inadequately Marked Crosswalks:** Crosswalks that are poorly marked, faded, or not clearly visible to drivers can make it more dangerous for pedestrians to cross the road safely.
- **Poor Intersection Design:** Intersections with inadequate or confusing pedestrian signalization, such as missing or poorly timed walk signals, can increase the risk of pedestrian-vehicle conflicts.
- **Missing or insufficient signage** to indicate pedestrian and bicycle crossing points can lead to driver inattention and failure to yield to non-motorists.
- **High Traffic Speeds:** Excessive speed limits or high vehicle speeds can make it more dangerous for pedestrians and cyclists to navigate roadways and intersections.
- **Lack of physical barriers or buffer zones** between roadways and pedestrian/cycling facilities can result in non-motorists coming into close proximity with vehicles.
- **Limited Sight Distances:** Obstacles, vegetation, or improperly placed signage that obstruct the sightlines of drivers or non-motorists can lead to accidents at intersections and crosswalks.

Crashes Involving Non-motorists

