Appendix E.

Gatlinburg
Jurisdiction SAP



Appendix E. Gatlinburg Jurisdiction SAP

The City of Gatlinburg lies at the gateway to the Great Smoky Mountains National Park and serves as one of Sevier County's primary tourist destinations. The city's main corridor, the Parkway (US 441), carries a high volume of visitor traffic traveling to and from the National Park. Through downtown Gatlinburg, the Parkway remains a four-lane roadway, but its narrow lanes, lack of a median, and pedestrian-oriented design distinguish it from other commercial and recreational centers in the county. Storefronts sit directly along the sidewalks, and frequent pedestrian crossings create a more walkable environment while naturally reducing vehicle speeds.

Approximately 3% of all crashes in Gatlinburg involved a pedestrian, yet 30% of all serious injury crashes were pedestrian-involved crashes. Crashes along the Parkway (US 441) accounted for 33 of 42 (79%) pedestrian crashes in Gatlinburg. Parkway crashes also accounted for 6 of the 7 serious injury pedestrian crashes, with the other incident occurring on the East Parkway (US 321). All but one of the serious injury crashes occurred at a crosswalk. Figure 1 illustrates the pedestrian crashes and current pedestrian crossing on the Parkway in Gatlinburg. Good coverage exists to provide pedestrians the opportunity to cross at marked crosswalks. Many cross at a traffic signal or have button-actuated warning lights. Although 26 of the 33 pedestrian-involved crashes occurred within 100 feet of a marked crossing, only 3 occurred within 100 feet of a signal-controlled crossing.

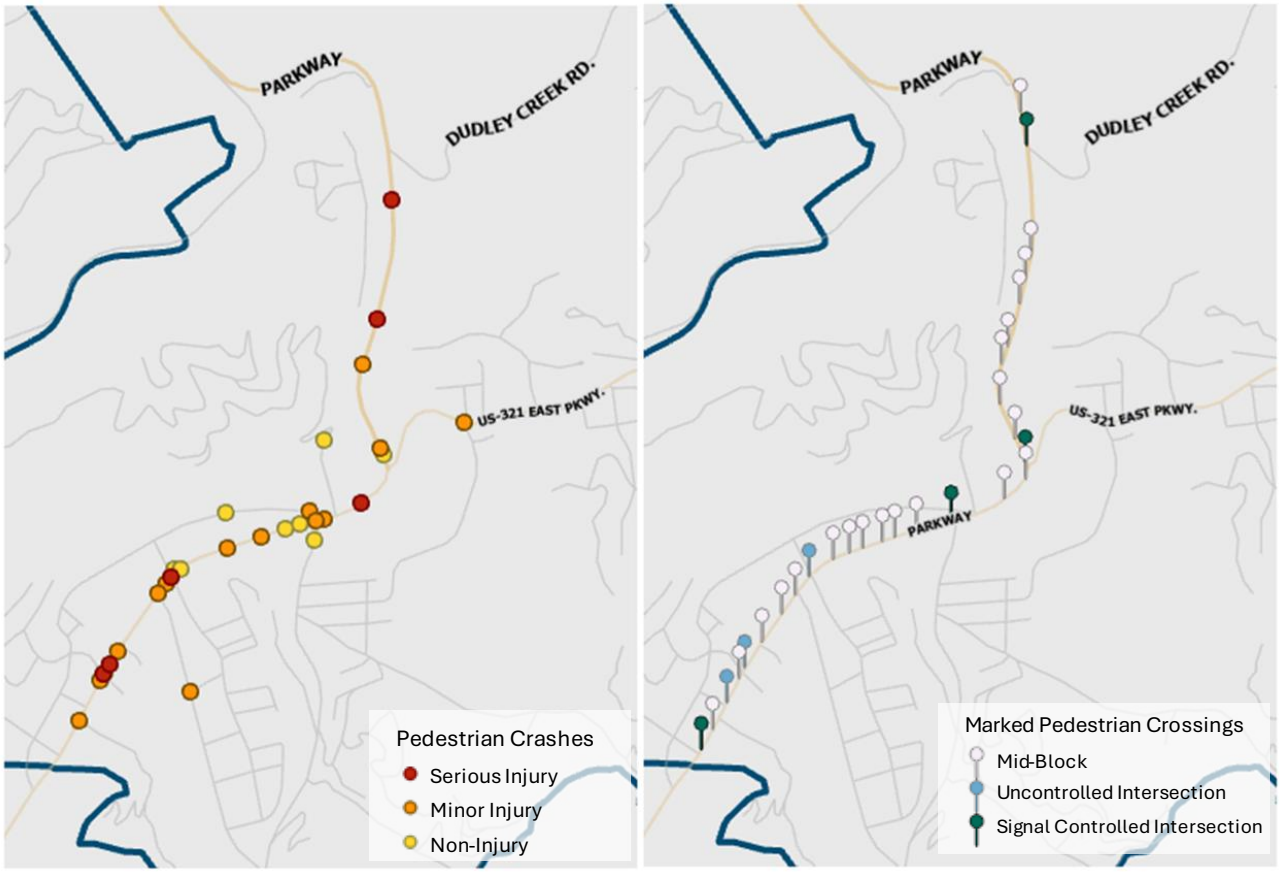


Figure 1 Pedestrian Crashes and Parkway Crossings in Gatlinburg

From January 2019 to April 2024, 1,436 crashes were reported in Gatlinburg. As shown in Figure 2, the majority of these crashes (about 89%) resulted in property damage only, while 7% resulted in possible or minor injuries and less than 2% involved serious or fatal injuries. Although severe crashes are relatively rare, their concentration at key intersections and corridors highlights locations of concern for future safety improvements.

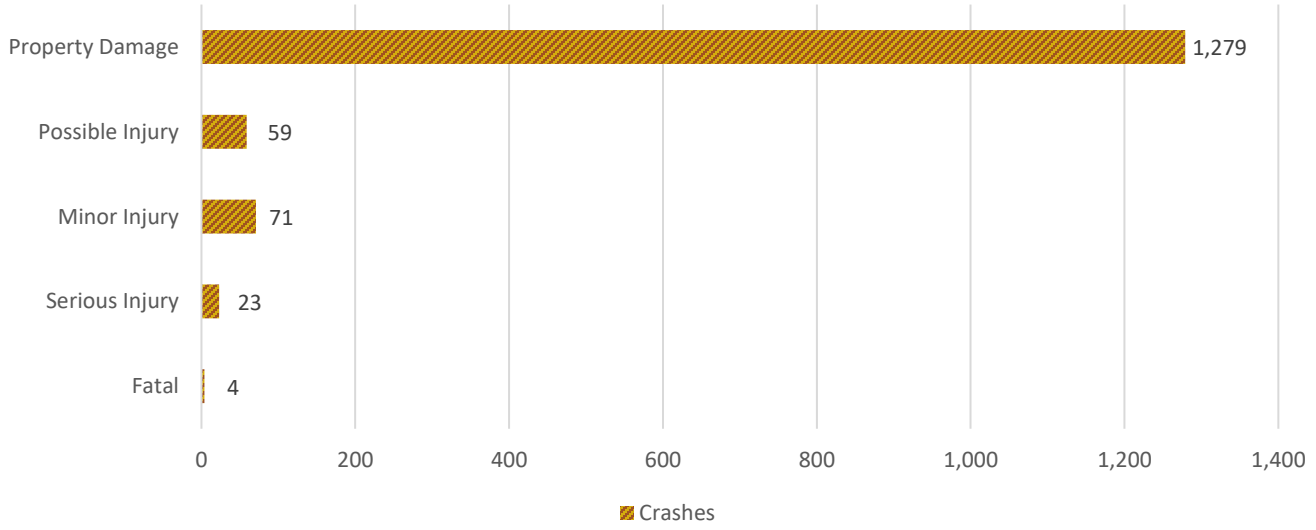


Figure 2 Gatlinburg Crash Severity (January 2019 to April 2024)

Figure 3 provides a breakdown of crashes by manner of collision, revealing that lane departure–related crashes (including head-on, run-off-road, and opposite-direction sideswipe types) account for nearly 44% of all fatal and serious injury crashes in Gatlinburg. These crash types are typically associated with driver error on narrow or curving roadways, a common feature of the city's hilly terrain and limited right-of-way. Other frequent crash types include single-vehicle and rear-end collisions, often occurring in congested areas or along routes with numerous driveways and turning movements that increase conflict points.

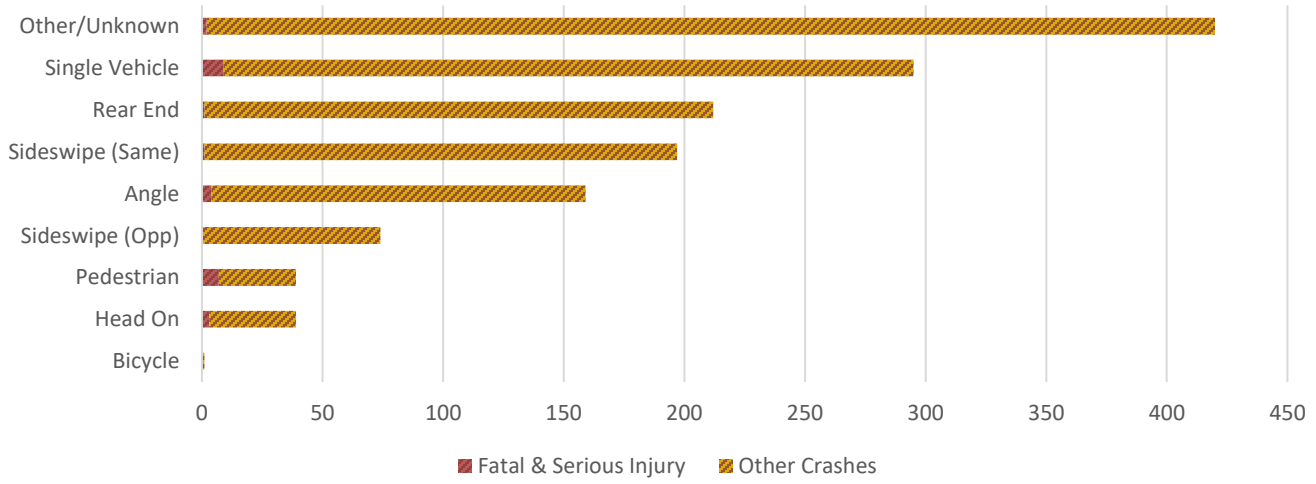


Figure 3 Gatlinburg Crash Manner (January 2019 to April 2024)

Crash clusters are primarily located near the signalized intersections of Parkway (US 441) and Dudley Creek Road, as well as along Glades Road and East Parkway (US 321), where high traffic volumes, mixed vehicle and pedestrian activity, and limited access control contribute to elevated risk. These insights from the crash data analysis (Figures 2 and 4) provide a foundation for identifying priority corridors and intersection improvements under the SS4A framework

A large share of crashes in Gatlinburg are classified as “Unknown”, which limits the ability to fully understand contributing factors and develop targeted safety countermeasures. When crash reports do not specify the manner of collision, it becomes difficult to identify recurring patterns that inform effective engineering and enforcement strategies. Improving the accuracy and completeness of crash data entry is essential for directing resources toward the most impactful safety solutions.

Figure 4 maps the distribution of crashes in Gatlinburg by severity between January 2019 and April 2024. Fatal and serious injury crashes are dispersed throughout the city but show distinct clusters along Parkway (US 441), Ski Mountain Road, and Glades Road, which serve as key access routes to the downtown area, mountain resorts, and the Great Smoky Mountains National Park. The inset highlights downtown Gatlinburg, where a concentration of pedestrian crashes occurs along the Parkway corridor, an area characterized by heavy visitor foot traffic, limited crossing locations, and frequent vehicle-pedestrian interactions.

These patterns indicate that both high-speed roadway segments on the outskirts of Gatlinburg and high-activity pedestrian areas within the city center present significant safety concerns. Corridors such as the Parkway and its intersecting roadways combine high traffic volumes, numerous driveways, and frequent turning movements, creating conditions that elevate both crash frequency and severity.

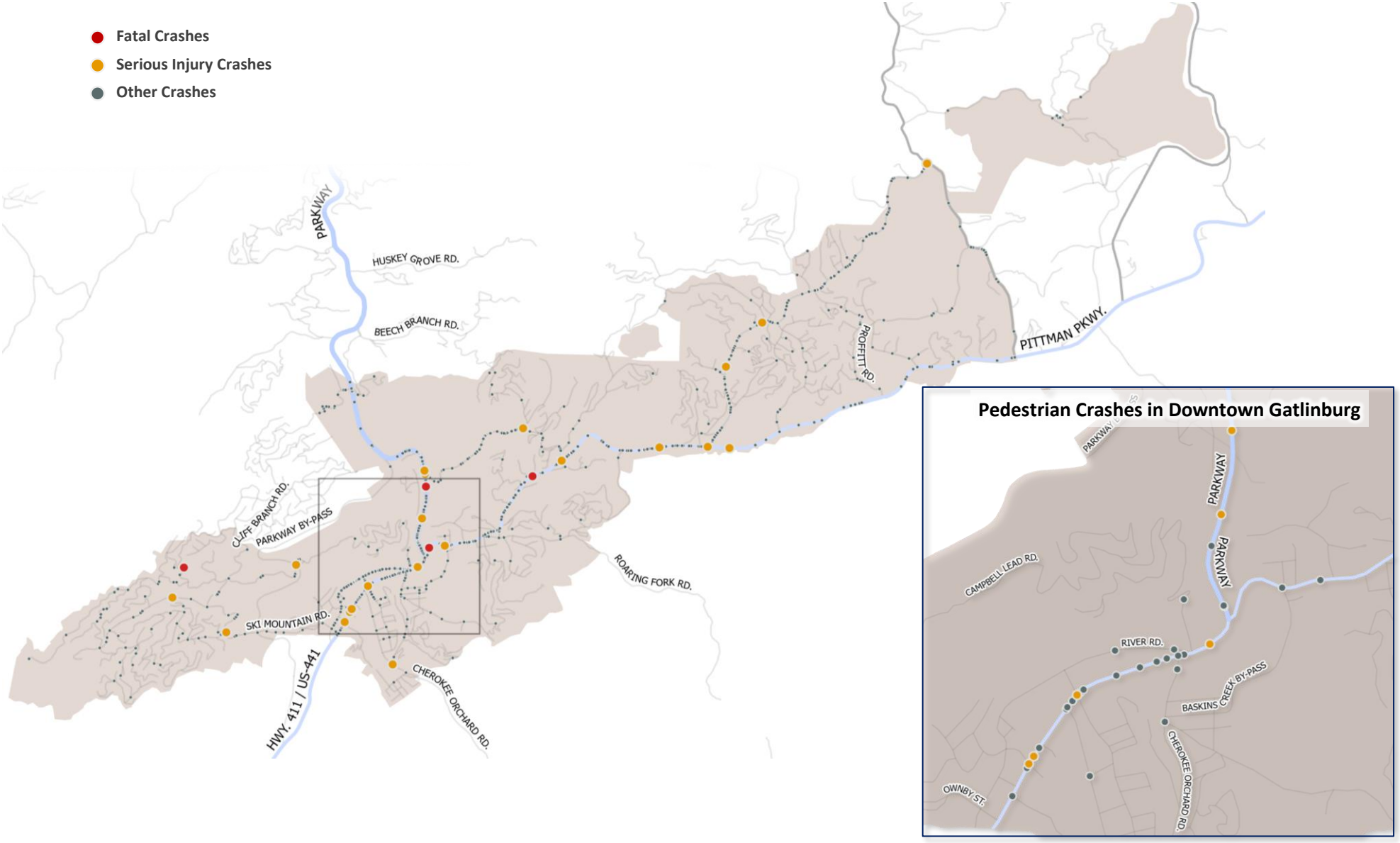


Figure 4 Gatlinburg Crash Severity by Location (January 2019 to April 2024)

Public Survey Responses

Public survey responses in Gatlinburg reflected a range of safety concerns centered around the city's busiest travel corridors, including Parkway (US 441) and East Parkway (US 321). Respondents identified multiple issues related to bicycle and pedestrian safety (10 responses), particularly in areas with high visitor activity and limited sidewalks or crossing opportunities. Speeding concerns (10) and visibility issues (9) were also common, especially along curving mountain roads where limited sight distance and steep grades reduce driver reaction time. Other comments focused on roadway condition concerns (9) and near misses (7), highlighting areas where drivers and pedestrians experience frequent close calls. Collectively, these responses emphasize the challenges of managing safety in a high-volume tourist destination with constrained roadway geometry and a mix of local and visitor traffic.

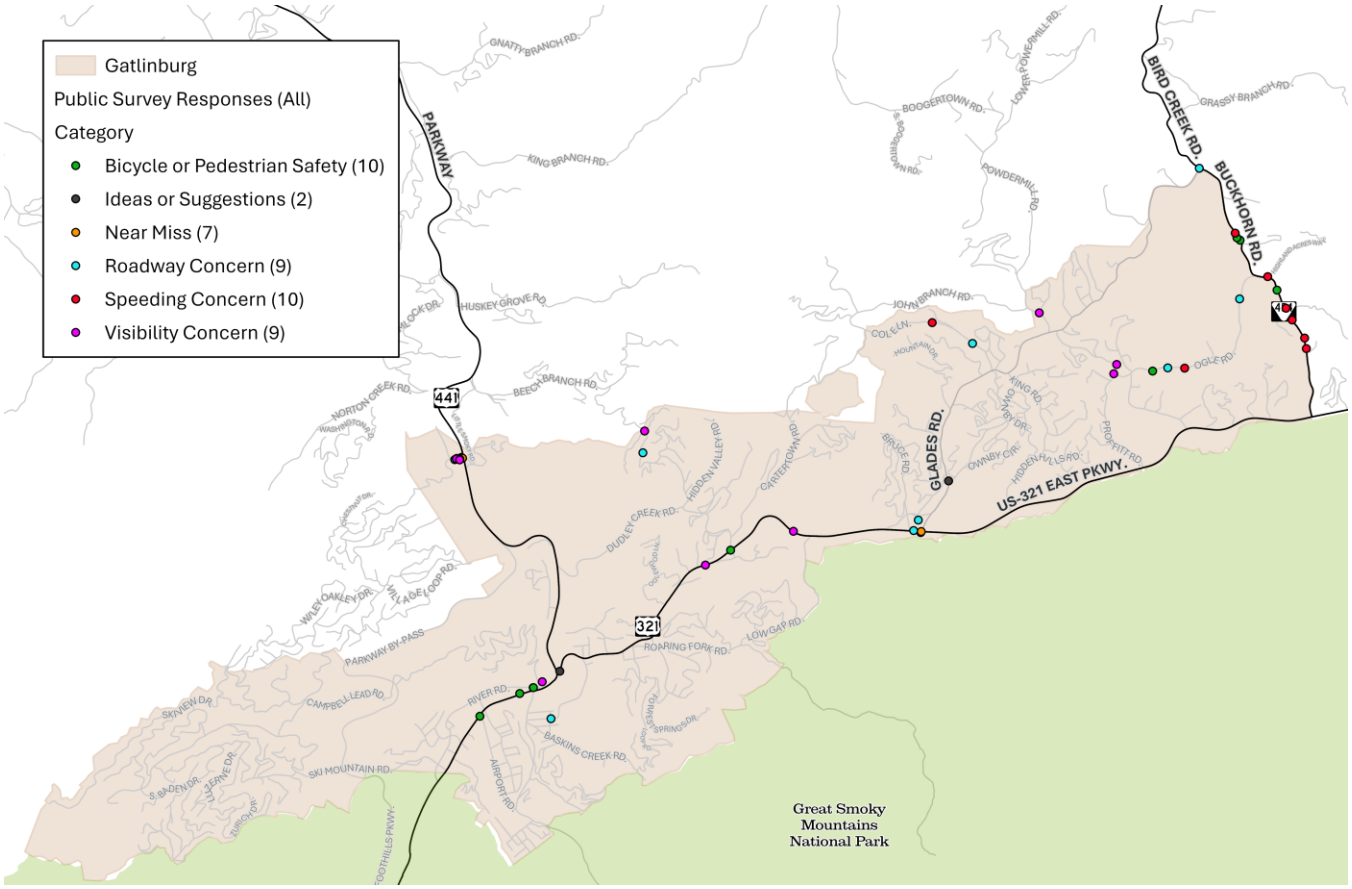


Figure 5 Gatlinburg Public Survey Responses

Safety Networks

The **High Injury Network (HIN)** in Gatlinburg highlights roadway segments where **the highest concentrations of fatal and serious injury (KA) crashes** have occurred. As shown in Figure 6, the HIN is concentrated along Parkway (US 441), East Parkway (US 321), and Glades Road. These routes carry extremely high traffic volumes from both local and tourist travel, including frequent pedestrian crossings and turning movements associated with Gatlinburg's commercial core. The combination of heavy congestion, limited roadway width, and a mix of driver familiarity levels contributes to elevated crash severity along these corridors. By identifying these segments as part of the HIN, the Safety Action Plan focuses attention on Gatlinburg's most critical safety locations—where targeted improvements such as pedestrian infrastructure, speed management, and intersection upgrades will have the greatest potential to reduce fatalities and serious injuries.

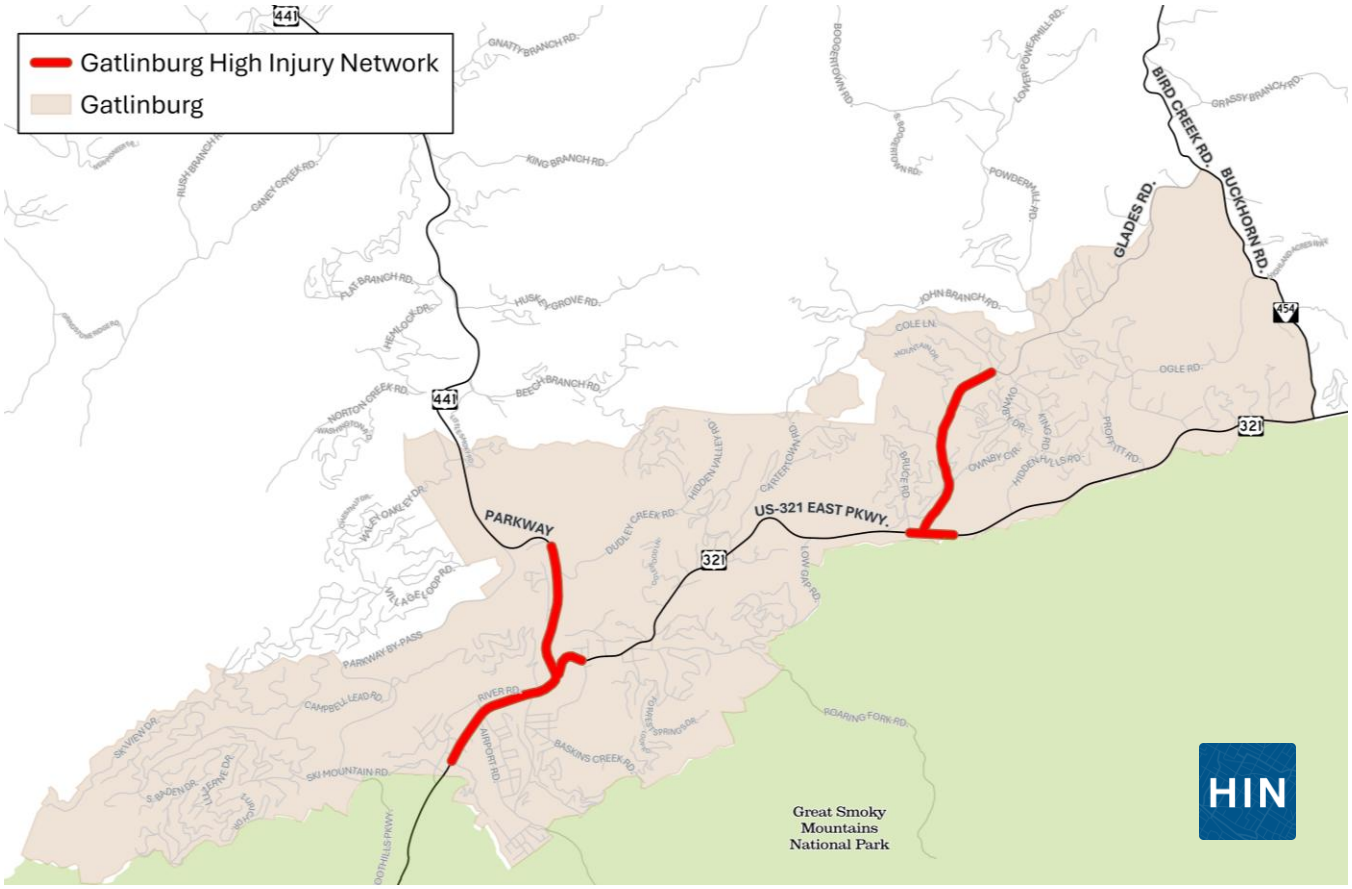


Figure 6 Gatlinburg High Injury Network (HIN)

The **High-Risk Network (HRN)** identifies roadway segments with the greatest potential for future fatal and serious injury (KA) crashes (see Figure 6). Unlike the High Injury Network, which focuses only on corridors with the highest concentration of KA crashes, the HRN considers **all reported crashes** to evaluate risk. A weighted scoring system gives the greatest emphasis to fatal crashes, with progressively lower weights assigned to serious injury, minor injury, and property damage only (PDO) crashes. This approach highlights corridors with recurring crash patterns that, while not always severe today, have a higher likelihood of producing severe outcomes in the future. As shown in Figure 7, the HRN is concentrated along Parkway (US 441), East Parkway (US 321), and

connecting roads in the downtown area where congestion, turning conflicts, and heavy pedestrian activity intersect. These corridors represent areas where proactive countermeasures—such as access management, improved pedestrian crossings, and speed management—can help reduce both the frequency and severity of future crashes.

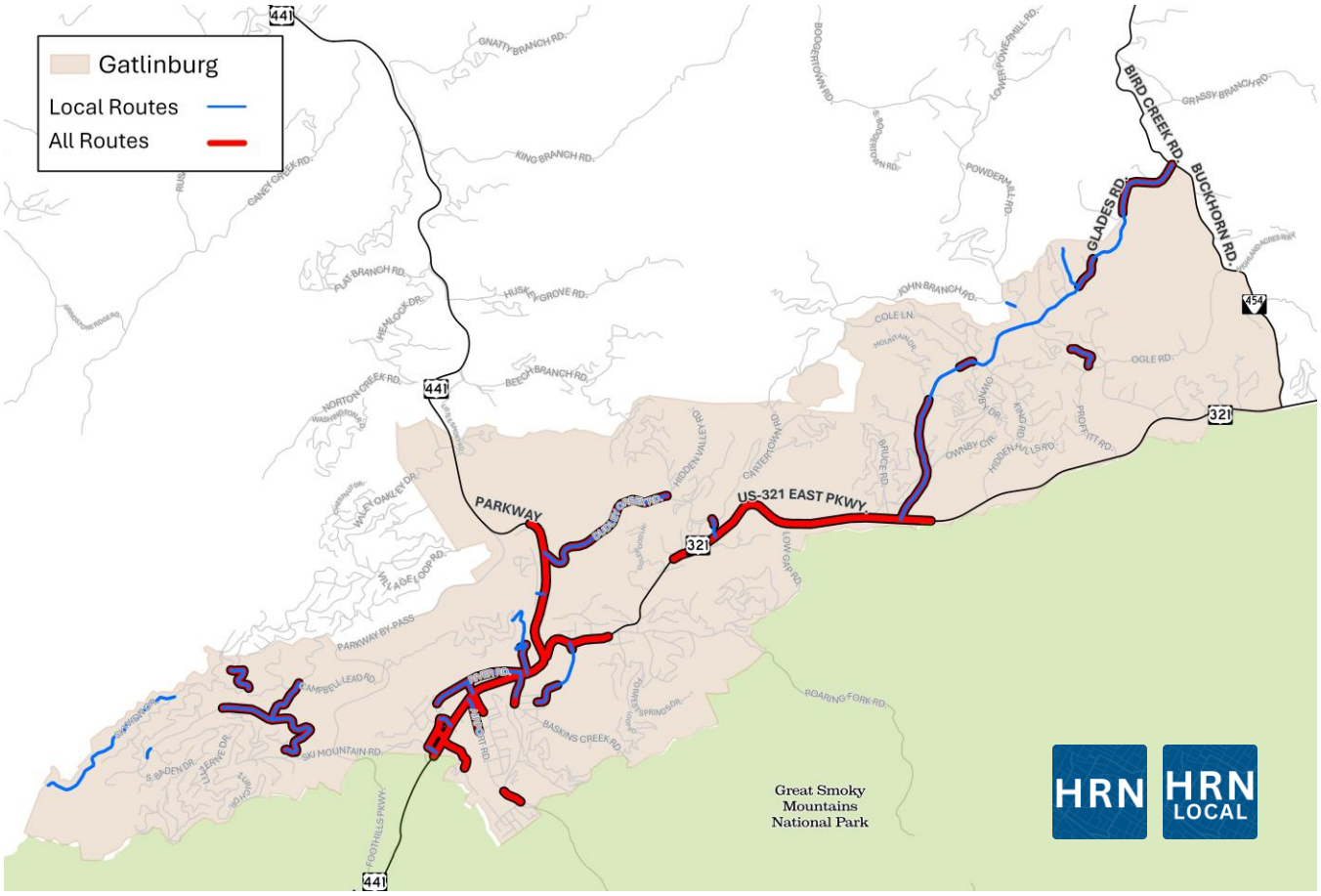


Figure 7 Gatlinburg High Risk Network (HRN)

The **Local High-Risk Network (HRN Local)** refines the HRN analysis by removing state and federal highways to focus on **locally maintained roadways** within Gatlinburg. Although these roads carry less traffic overall, they often feature steep grades, sharp curves, and limited shoulders—conditions that elevate crash risk, particularly for drivers unfamiliar with mountain terrain. As shown in Figure 7, HRN Local segments include portions of Ski Mountain Road, Dudley Creek Road, and Glades Road, which serve both residents and visitors traveling between lodging, recreational areas, and the national park. Identifying these local corridors ensures that safety improvements extend beyond major routes and address the community-scale roadways where crash risks remain high despite lower volumes.

High Priority Projects

In Gatlinburg, **15 High Priority Projects** have been identified to address the city's most critical safety concerns. Of the 1,436 crashes recorded during the study period, **840 crashes** (58.5 percent) were captured within these project locations. Notably, Gatlinburg has a high proportion of vulnerable road user (VRU) activity, with 40 VRU crashes occurring during the study period; the identified projects capture 36 of these crashes, ensuring that pedestrian and bicyclist safety is a key focus. The selected projects prioritize locations with high visitor foot traffic, challenging roadway geometry, and crash patterns that present the greatest opportunity for reducing severe injuries and fatalities.

Table 1 Gatlinburg High Priority Projects

ID	Location	Vehicle Crashes				VRU Crashes			
		Total	K	ABC	O	Total	K	ABC	O
G-1	River Road from US 441 to Oak St	67	0	3	64	2	0	1	1
G-2	Greystone Heights Rd	5	0	0	5	1	0	1	0
G-3	Dudley Creek Rd from US 321 to Ridge Rd	51	0	5	46	0	0	0	0
G-4	US 321 from N Park Ln to Ski Mountain Rd	500	1	20	479	31	0	29	2
G-5	US 321 at Dudley Creek Rd	47	0	6	41	0	0	0	0
G-6	US 441 at US 321	111	0	1	110	2	0	2	0
G-7	US 321 at Baskins Creek Bypass	28	0	3	25	1	0	1	0
G-8	US 441 at River Rd	49	0	2	47	7	0	7	0
G-9	US 441 at Reagan Dr & Maples Ln	33	0	1	32	11	0	10	1
G-10	Glades Rd from US 321 to SR 454	127	0	22	105	0	0	0	0
G-11	SR 454 at Glades Rd	10	0	3	7	0	0	0	0
G-12	US 321 at Glades Rd	32	0	5	27	0	0	0	0
G-13	SR 454 from US 321 to Glades Rd	27	0	2	25	0	0	0	0
G-14	SR 454 Curve near Ogle Rd	15	0	0	15	0	0	0	0
G-15	SR 454 near Berry Clark Dr	1	0	0	1	0	0	0	0

K = Fatal, A = Serious Injury, B = Minor Injury, C = Possible Injury, O = Property Damage Only

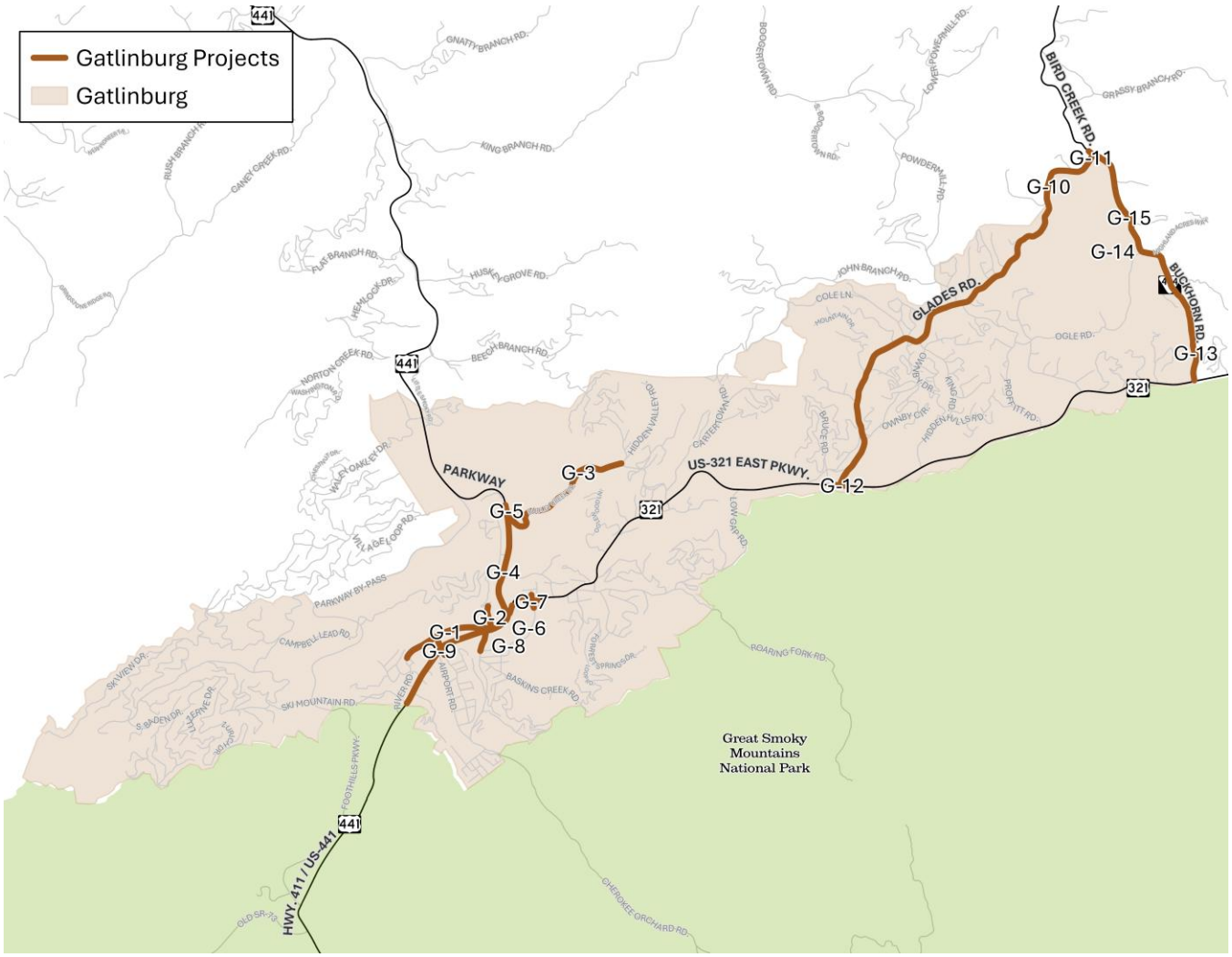


Figure 8 Gatlinburg High Priority Projects

Figure 9 illustrates the layout used for the Gatlinburg High Priority Project Sheets. Each sheet provides a concise summary of safety needs, existing conditions, and recommended countermeasures for specific project locations in Gatlinburg. The layout presents key details in a consistent, easy-to-read format, including the project location and limits, functional classification, traffic conditions, and crash history from January 2019 to April 2024. Identification criteria indicate whether the location was part of the High Injury Network (HIN), High-Risk Network (HRN), HRN Local, Public Concern, Community Task Force or Public Safety Task Forces. Each sheet also includes an aerial map with crashes by severity and a street view image to illustrate site conditions. Recommendations summarize targeted strategies—such as signage improvements, curve warning systems, speed management measures, and geometric enhancements—intended to reduce crash frequency and severity. All High Priority Project Sheets in this section follow this same format.

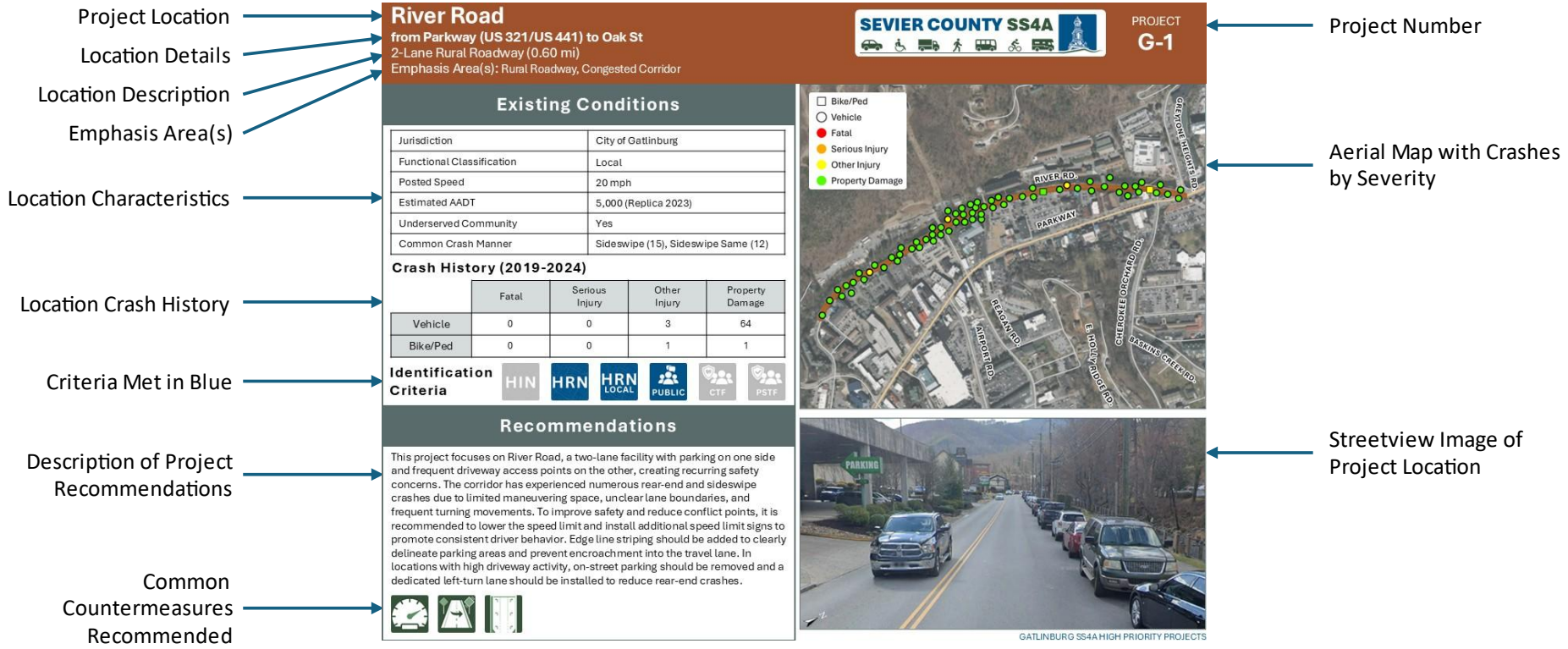


Figure 9 Example Layout of Gatlinburg High Priority Project Sheet

River Road

from Parkway (US 321/US 441) to Oak St

2-Lane Rural Roadway (0.60 mi)

Emphasis Area(s): Rural Roadway, Congested Corridor

SEVIER COUNTY SS4A

PROJECT G-1

Existing Conditions

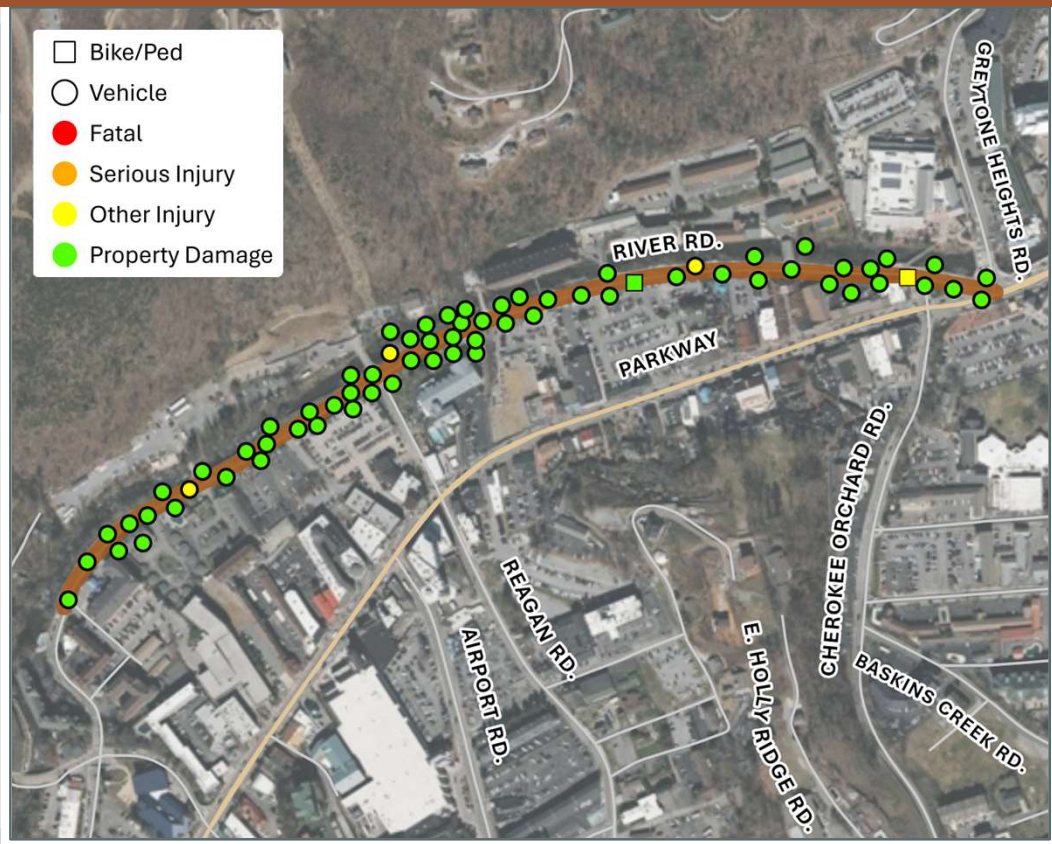
Jurisdiction	City of Gatlinburg
Functional Classification	Local
Posted Speed	20 mph
Estimated AADT	5,000 (Replica 2023)
Underserved Community	Yes
Common Crash Manner	Sideswipe (15), Sideswipe Same (12)

Crash History (2019-2024)

	Fatal	Serious Injury	Other Injury	Property Damage
Vehicle	0	0	3	64
Bike/Ped	0	0	1	1

Identification Criteria

HIN | HRN | HRN LOCAL | PUBLIC | CTF | PSTF



Recommendations

This project focuses on River Road, a two-lane facility with parking on one side and frequent driveway access points on the other, creating recurring safety concerns. The corridor has experienced numerous rear-end and sideswipe crashes due to limited maneuvering space, unclear lane boundaries, and frequent turning movements. To improve safety and reduce conflict points, it is recommended to lower the speed limit and install additional speed limit signs to promote consistent driver behavior. Edge line striping should be added to clearly delineate parking areas and prevent encroachment into the travel lane. In locations with high driveway activity, on-street parking should be removed and a dedicated left-turn lane should be installed to reduce rear-end crashes.



Greystone Heights Road

from Parkway (US 321/US 441) to Gatlinburg Public Parking Garage

2-Lane Rural Roadway (0.15 mi)

Emphasis Area(s): VRU Safety

SEVIER COUNTY SS4A

PROJECT
G-2

Existing Conditions

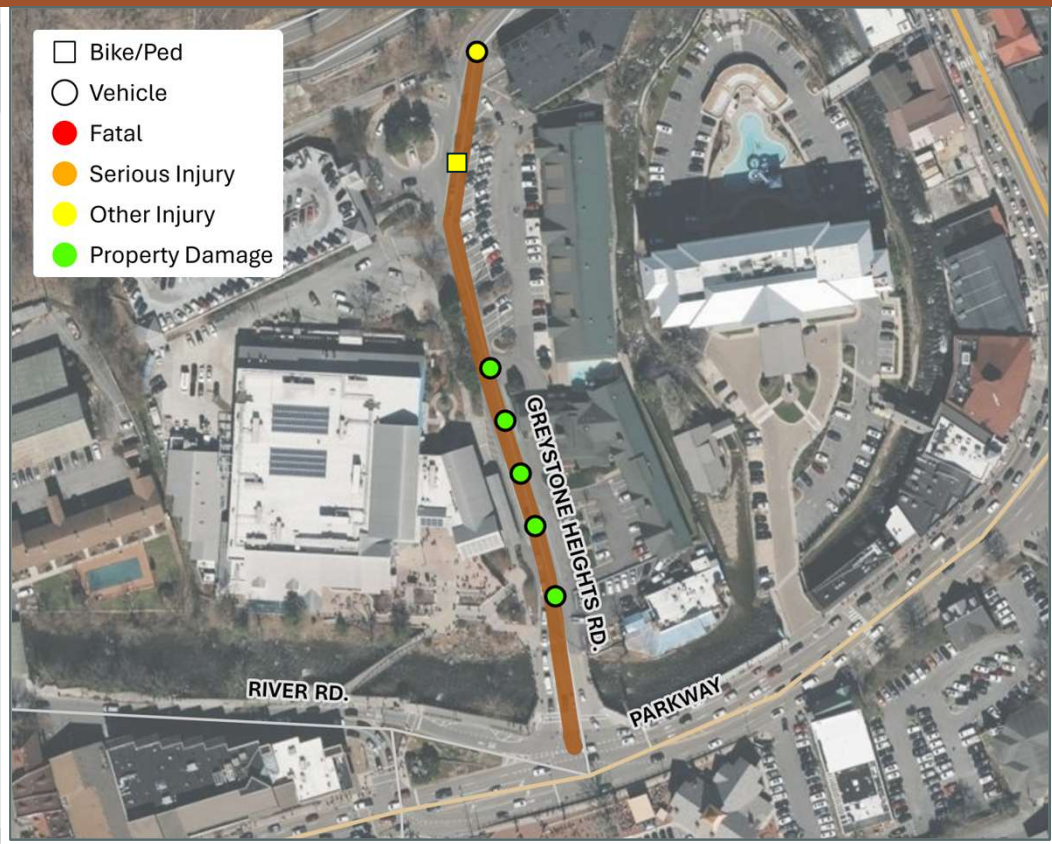
Jurisdiction	City of Gatlinburg
Functional Classification	Local
Posted Speed	20 mph
Estimated AADT	3,500 (Replica 2023)
Underserved Community	Yes
Common Crash Manner	Other/Unknown (3), Pedestrian (1)

Crash History (2019-2024)

	Fatal	Serious Injury	Other Injury	Property Damage
Vehicle	0	0	0	5
Bike/Ped	0	0	1	0

Identification Criteria

HIN | HRN | HRN LOCAL | PUBLIC | CTF | PSTF



Recommendations

This project focuses on a high tourist area that has experienced a pedestrian-involved crash and lacks sufficient pedestrian infrastructure. The corridor includes a major transit stop serving visitors to nearby attractions, yet there is not sidewalk connection leading from the stop to the tourist destination. It is recommended to install sidewalk on the east side of Greystone Heights Road with a high-visibility crosswalk connecting the transit stop to the new sidewalk. To further enhance pedestrian safety , pedestrian-scale lighting should be added to increase visibility during low-light conditions. Additionally, the existing pull-in parking spaces along Greystone Heights Road should be converted to back-in angle parking to reduce the risk of crashes as vehicles exit the parking area.



Dudley Creek Road

from Parkway (US 321/US 441) to Ridge Rd

2-Lane Rural Roadway (1.00 mi)

Emphasis Area(s): Rural Roadway

SEVIER COUNTY SS4A

PROJECT G-3

Existing Conditions

Jurisdiction	City of Gatlinburg
Functional Classification	Local
Posted Speed	25 mph
Estimated AADT	5,000 (Replica 2023)
Underserved Community	No
Common Crash Manner	Single-Vehicle (27)

Crash History (2019-2024)

	Fatal	Serious Injury	Other Injury	Property Damage
Vehicle	0	1	4	46
Bike/Ped	0	0	0	0

Identification Criteria

HIN HRN HRN LOCAL PUBLIC CTF PSTF



Recommendations

This project focuses on a winding two-lane rural roadway with a high number of run-off-road crashes, often caused by limited recovery areas, narrow lanes, and poor curve visibility. Recommended improvements include widening shoulders to provide recovery space, installing edge line rumble strips to alert drifting drivers, and upgrading spot guardrail where hazards are present. Additional measures include wider edge lines for better lane definition, curve warning signs to improve driver guidance, and reflective treatments on utility poles to enhance nighttime visibility. These enhancements aim to reduce roadway departure crashes and improve overall safety along the corridor.



Parkway (US 321/US 441)

from North Park Ln to Ski Mountain Rd

4-Lane Rural Roadway (1.70 mi)

Emphasis Area(s): Rural Roadway, VRU Safety

SEVIER COUNTY SS4A

PROJECT G-4

Existing Conditions

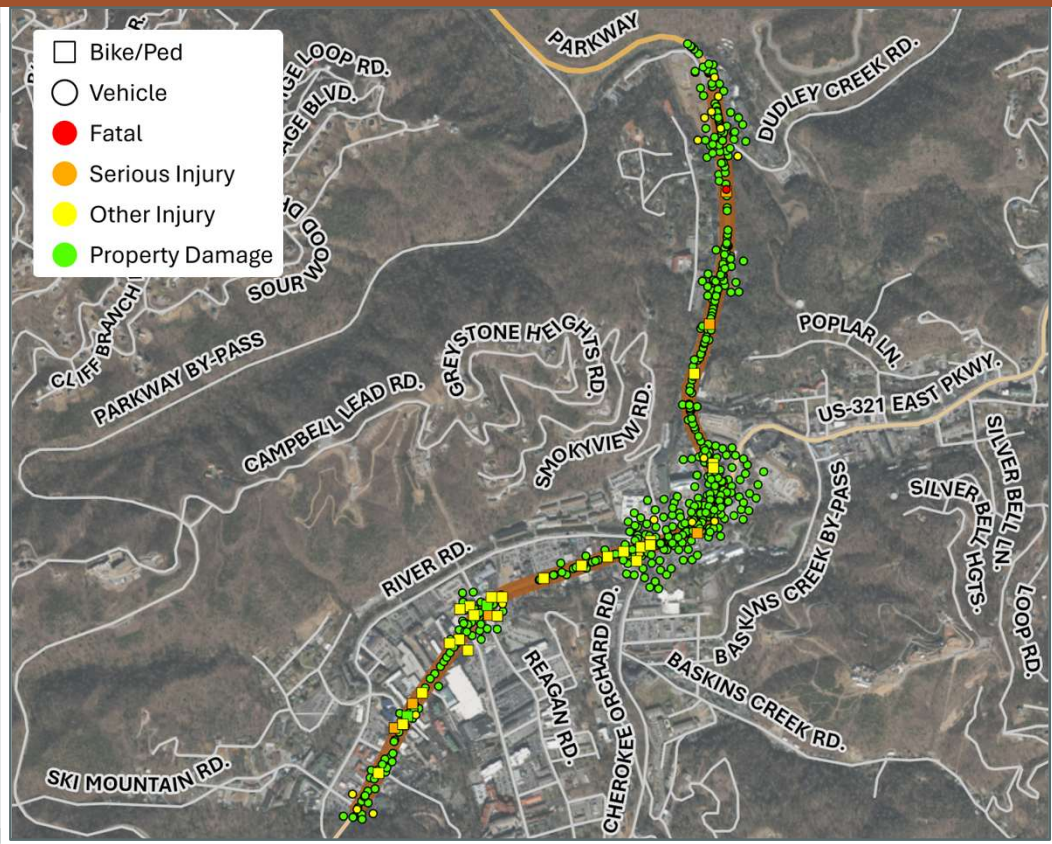
Jurisdiction	City of Gatlinburg
Functional Classification	Principal Arterial
Posted Speed	25 mph
Estimated AADT	24,500 (Replica 2023)
Underserved Community	Yes
Common Crash Manner	Other/Unknown (174), Sideswipe (152)

Crash History (2019-2024)

	Fatal	Serious Injury	Other Injury	Property Damage
Vehicle	1	4	17	479
Bike/Ped	0	5	23	2

Identification Criteria

HIN | HRN | HRN LOCAL | PUBLIC | CTF | PSTF



Recommendations

This project focuses on the Parkway, which experiences heavy pedestrian activity and significant vehicular congestion, much of it caused by the frequent mid-block crossings. Key recommendations include constructing a pedestrian bridge at River Road to provide a safe crossing alternative and installing pedestrian barricades to guide foot traffic to designated crosswalks. A gateway sign is also recommended at the entrance to Gatlinburg to alert drivers to the high volume of pedestrian activity and encourage slower, more cautious driving. Additional improvements include developing a mobile app to help visitors locate parking and track local transit in real time. Relocating utilities underground will reduce visual clutter and free up sidewalk space to better serve pedestrians.



Parkway (US 321/US 441)

at Dudley Creek Rd

Rural Signalized Intersection

Emphasis Area(s): Rural Roadway, Congested Corridor

SEVIER COUNTY SS4A

PROJECT G-5

Existing Conditions

Jurisdiction	City of Gatlinburg
Functional Classification	Principal Arterial
Posted Speed	25 mph
Estimated AADT	25,000 (Replica 2023)
Underserved Community	No
Common Crash Manner	Other/Unknown (19), Rear-end (8)

Crash History (2019-2024)

	Fatal	Serious Injury	Other Injury	Property Damage
Vehicle	0	2	4	41
Bike/Ped	0	0	0	0

Identification Criteria

HIN HRN HRN LOCAL PUBLIC CTF PSTF



Recommendations

This project focuses on the first signalized intersection upon entering Gatlinburg. It is recommended to install "Signal Ahead" warning signs to provide advance notice of the upcoming intersection and reduce sudden braking. Right turns on red should be restricted to minimize conflicts with pedestrians and improve visibility for turning drivers when applicable. Additionally, pedestrian infrastructure should be upgraded by relocating certain pedestrian signal heads and push buttons to improve accessibility, visibility, and alignment with crosswalks. These enhancements aim to improve traffic operations, increase pedestrian safety, and create a more intuitive and navigable entry point into Gatlinburg.





Parkway (US 441)

at East Parkway (US 321)

Rural Signalized Intersection

Emphasis Area(s): Rural Roadway, Unfamiliar & Risky Driver

SEVIER COUNTY SS4A

PROJECT
G-6

Existing Conditions

Jurisdiction	City of Gatlinburg
Functional Classification	Principal Arterial
Posted Speed	25 mph
Estimated AADT	24,500 (Replica 2023)
Underserved Community	Yes
Common Crash Manner	Sideswipe (42), Other/Unknown (36)

Crash History (2019-2024)

	Fatal	Serious Injury	Other Injury	Property Damage
Vehicle	0	0	1	110
Bike/Ped	0	0	2	0

Identification Criteria

HIN | HRN | HRN LOCAL | PUBLIC | CTF | PSTF



Recommendations

This project focuses on a major signalized intersection with frequent sideswipe and rear-end crashes. To improve safety, centerline rumble strips are recommended to reduce lane drifting. Advance right-turn signage or pavement shields should be added on the East Parkway approach to clearly indicate lane assignments before the intersection becomes visible. This will help improve lane discipline and reduce sudden maneuvers that lead to sideswipe crashes. Additionally, the existing pedestrian island should be modified to eliminate its encroachment into the northbound travel lane, which currently creates a potential hazard for vehicles and limits the effective width of the roadway. These improvements aim to enhance driver awareness and reduce sudden maneuvers.



East Parkway (US 321)

at Baskins Creek Bypass and Willow Ln

Rural Two-Way Stop Controlled Intersection

Emphasis Area(s): VRU Safety, Congested Corridor

SEVIER COUNTY SS4A

PROJECT
G-7

Existing Conditions

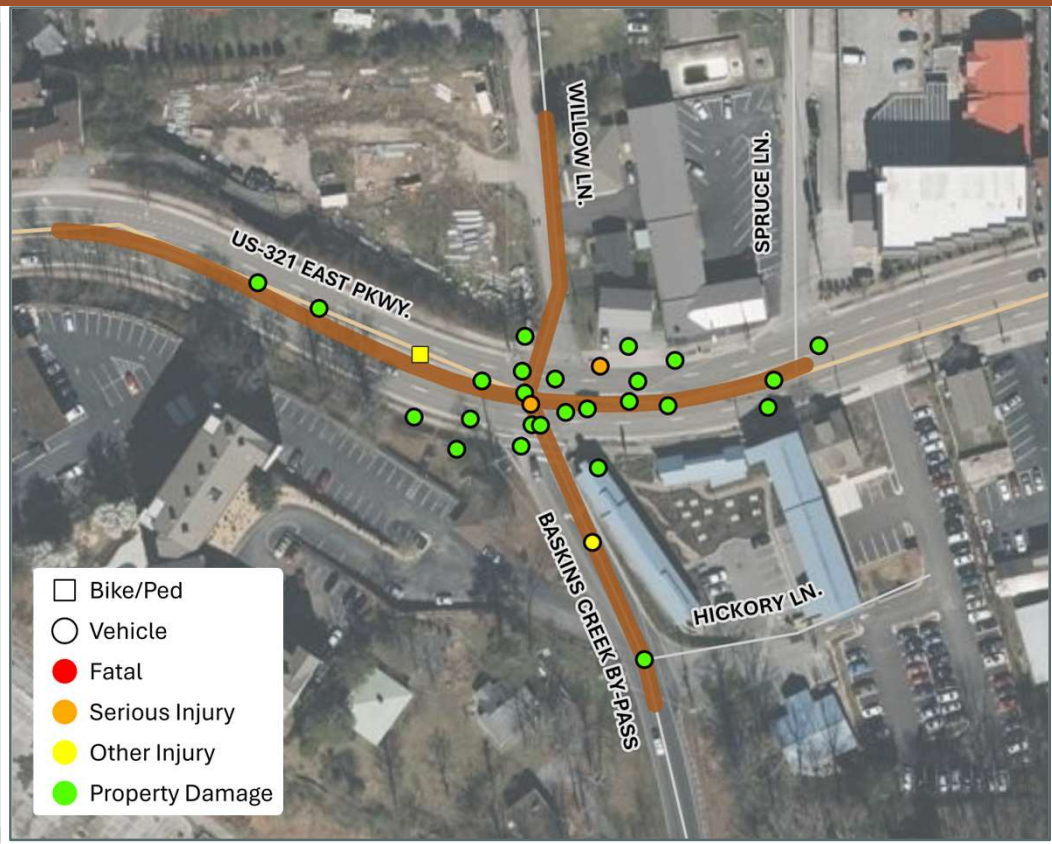
Jurisdiction	City of Gatlinburg
Functional Classification	Minor Arterial
Posted Speed	25 mph
Estimated AADT	13,000 (Replica 2023)
Underserved Community	No
Common Crash Manner	Other/ Unknown (9), Angle (7)

Crash History (2019-2024)

	Fatal	Serious Injury	Other Injury	Property Damage
Vehicle	0	2	1	25
Bike/Ped	0	0	1	0

Identification Criteria

HIN HRN HRN LOCAL PUBLIC CTF PSTF



Recommendations

This project focuses on an unsignalized intersection with a history of sideswipe and angle crashes, likely due to uncontrolled turning movements and limited gap availability. To improve safety and reduce conflict points, it is recommended to install a traffic signal to provide controlled access and reduce the risk of collisions. In addition to signalization, pedestrian crossings at the intersection should be improved by enhancing crosswalk visibility, ensuring ADA-compliant curb ramps, and potentially adding pedestrian signal heads. These improvements aim to create a safer, more predictable environment for both vehicles and pedestrians.



Parkway (US 441)

at River Rd and Cherokee Orchard Rd

Rural Signalized Intersection

Emphasis Area(s): VRU Safety

SEVIER COUNTY SS4A

PROJECT
G-8

Existing Conditions

Jurisdiction	City of Gatlinburg
Functional Classification	Minor Arterial
Posted Speed	25 mph
Estimated AADT	21,000 (Replica 2023)
Underserved Community	Yes
Common Crash Manner	Sideswipe (10), Pedestrian (7)

Crash History (2019-2024)

	Fatal	Serious Injury	Other Injury	Property Damage
Vehicle	0	0	2	47
Bike/Ped	0	0	7	0

Identification Criteria

HIN | HRN | HRN LOCAL | PUBLIC | CTF | PSTF



Recommendations

This project focuses on a high-activity location that has experienced many sideswipe crashes and seven pedestrian-involved crashes. While recent improvements have been made to the signalized intersection, the high pedestrian volumes – driven by the presence of major tourist attractions – continue to strain the intersection's ability to efficiently accommodate both vehicle and pedestrian traffic. To address these challenges, it is recommended to construct a pedestrian bridge to separate pedestrian and vehicular movements, allowing for continuous traffic flow while providing a safer, grade-separated crossing option for pedestrians. This improvement aims to reduce conflicts, enhance pedestrian safety, and improve intersection efficiency.



Parkway (US 441)

at Reagan Dr and Airport Rd

4-Lane Rural Roadway (0.05 mi)

Emphasis Area(s): VRU Safety, Congested Corridor

SEVIER COUNTY SS4A

PROJECT G-9

Existing Conditions

Jurisdiction	City of Gatlinburg
Functional Classification	Minor Arterial
Posted Speed	25 mph
Estimated AADT	16,000 (Replica 2023)
Underserved Community	Yes
Common Crash Manner	Pedestrian (11), Other/Unknown (11)

Crash History (2019-2024)

	Fatal	Serious Injury	Other Injury	Property Damage
Vehicle	0	0	1	32
Bike/Ped	0	1	9	1

Identification Criteria

HIN HRN HRN LOCAL PUBLIC CTF PSTF



Recommendations

This project focuses on two intersections that have experienced a total of 11 pedestrian-involved crashes, highlighting the need for improved pedestrian safety. The intersection of Airport Road is signalized while the Reagan Drive/Maples Lane intersection remains unsignalized. If the unsignalized intersection is upgraded with a traffic signal, it will need to be coordinated with the Airport Road signal to ensure efficient operations. To further enhance safety and reduce mid-block crossings, pedestrian barricades are recommended to guide pedestrians to designated crosswalks and create a more predictable environment for both drivers and pedestrians.



Glades Road

from East Parkway (US 321) to Birds Creek Rd (SR 454)

Two-Lane Rural Roadway (3.20 mi)

Emphasis Area(s): Rural Roadway, Unfamiliar & Risky Driver

SEVIER COUNTY SS4A

PROJECT G-10

Existing Conditions

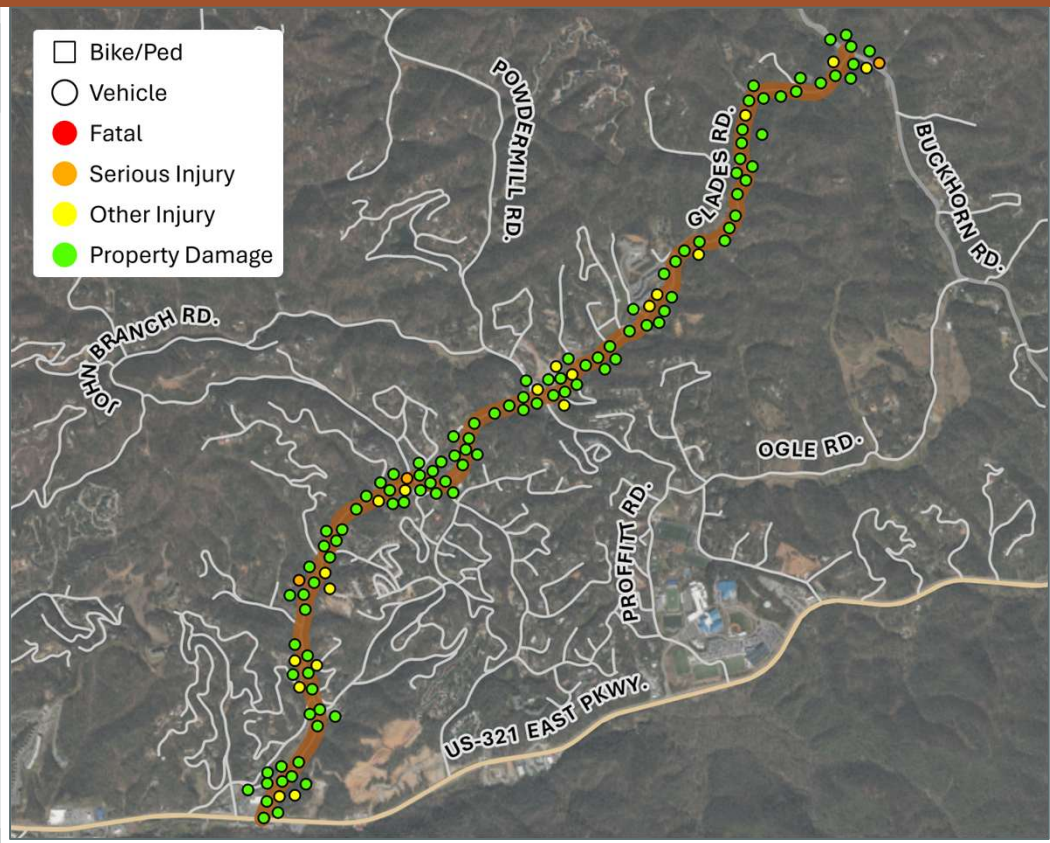
Jurisdiction	City of Gatlinburg
Functional Classification	Minor Collector
Posted Speed	25 mph
Estimated AADT	5,939 (TDOT 2024)
Underserved Community	No
Common Crash Manner	Single-Vehicle (55)

Crash History (2019-2024)

	Fatal	Serious Injury	Other Injury	Property Damage
Vehicle	0	3	19	105
Bike/Ped	0	0	0	0

Identification Criteria

HIN HRN HRN LOCAL PUBLIC CTF PSTF



Recommendations

This project focuses on a curvy two-lane rural roadway with a posted speed limit of 25 mph, where run-off-road crashes are the predominant crash type. To improve safety, it is recommended to widen shoulders where feasible to provide additional recovery space, and implement spot guardrail improvements – particularly near curves – to reduce the severity of roadway departure crashes. Increased speed enforcement is also recommended to encourage compliance with the posted speed limits. Additional countermeasures include enhanced curve signage with chevrons, intersection warning signs for better guidance, and high visibility treatments. Collectively, these improvements aim to enhance driver awareness, reduce roadway departures, and improve corridor safety.



Buckhorn Road (SR 454)

at Birds Creek Rd (SR 454) and Glades Rd

Rural All-Way Stop Controlled Intersection

Emphasis Area(s): Rural Roadway

SEVIER COUNTY SS4A

PROJECT G-11

Existing Conditions

Jurisdiction	City of Gatlinburg
Functional Classification	Major Collector
Posted Speed	25 mph
Estimated AADT	5,000 (Replica 2023)
Underserved Community	No
Common Crash Manner	Sideswipe (4), Single-Vehicle (3)

Crash History (2019-2024)

	Fatal	Serious Injury	Other Injury	Property Damage
Vehicle	0	1	2	7
Bike/Ped	0	0	0	0

Identification Criteria

HIN HRN HRN LOCAL PUBLIC CTF PSTF



Recommendations

This project focuses on a T-intersection with existing all-way stop control where several sideswipe and single-vehicle crashes have occurred, likely due to unclear vehicle positioning and limited visibility of control devices. To improve safety and reduce crash risk, it is recommended to install additional high-visibility stop signs on all approaches to enhance driver awareness and reinforce the stop condition. Pavement guide lines should also be added between the eastbound and westbound approaches to better define lane paths and turning movements, particularly for unfamiliar drivers. These improvements aim to reduce confusion, improve lane discipline, and enhance the overall visibility and functionality of the intersection.



East Parkway (US 321)

at Glades Rd

Rural Signalized Intersection

Emphasis Area(s): Congested Corridor

SEVIER COUNTY SS4A

PROJECT
G-12

Existing Conditions

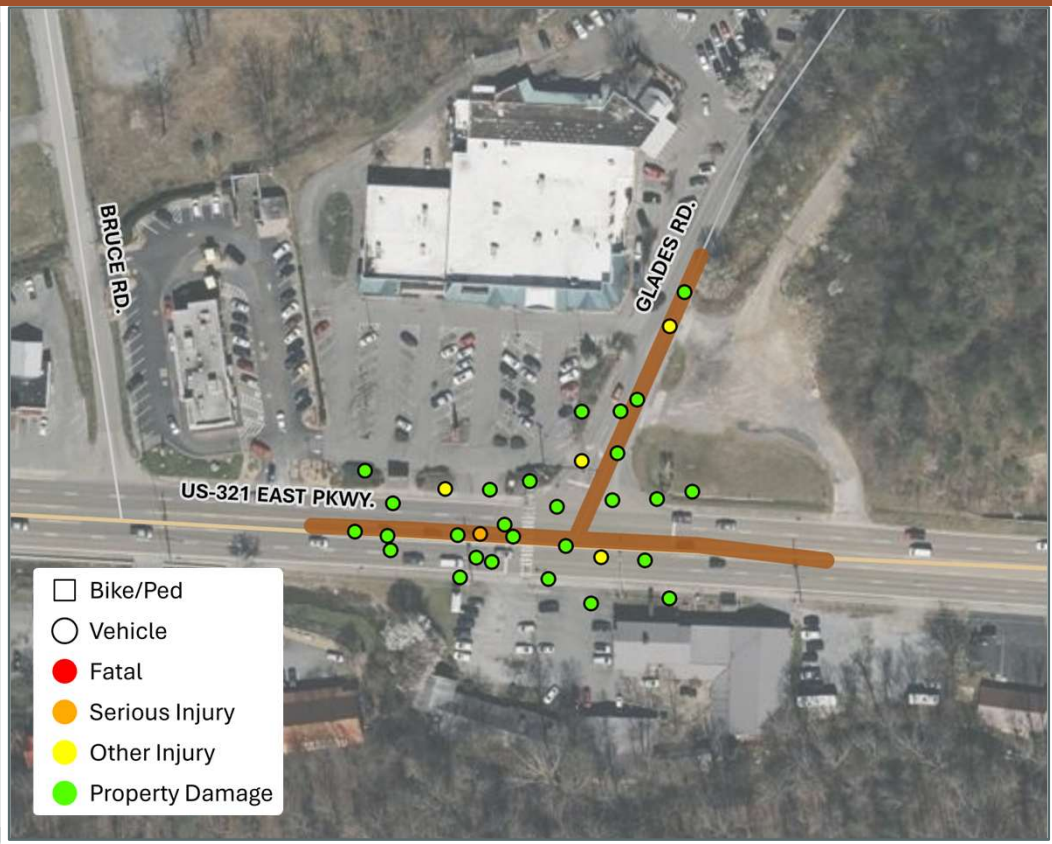
Jurisdiction	City of Gatlinburg
Functional Classification	Minor Arterial
Posted Speed	35 mph
Estimated AADT	10,121 (TDOT 2024)
Underserved Community	No
Common Crash Manner	Angle (11), Other/Unknown (8)

Crash History (2019-2024)

	Fatal	Serious Injury	Other Injury	Property Damage
Vehicle	0	1	4	27
Bike/Ped	0	0	0	0

Identification Criteria

HIN | HRN | HRN LOCAL | PUBLIC | CTF | PSTF



Recommendations

This project focuses on the Glades Road signalized intersection, where there are multiple commercial driveways located near the intersection, contributing to frequent angle crashes. Additionally, drivers often misuse the center turn lane as a travel lane, creating additional conflict points and reducing predictability for turning vehicles. To improve safety and reduce crash frequency, access management strategies are recommended, including the installation of a raised center median to eliminate improper use of the turn lane. Nearby drivers should also be converted to right-in/right-out operation to minimize angle conflicts and streamline vehicle flow. These improvements aim to reduce crash risk, improve traffic operations, and enhance safety for all users at this busy intersection.



Buckhorn Road (SR 454)

from Glades Rd to East Parkway (US 321)

2-Lane Rural Roadway (1.80 mi)

Emphasis Area(s): Rural Roadway, Unfamiliar & Risky Driver

SEVIER COUNTY SS4A

PROJECT G-13

Existing Conditions

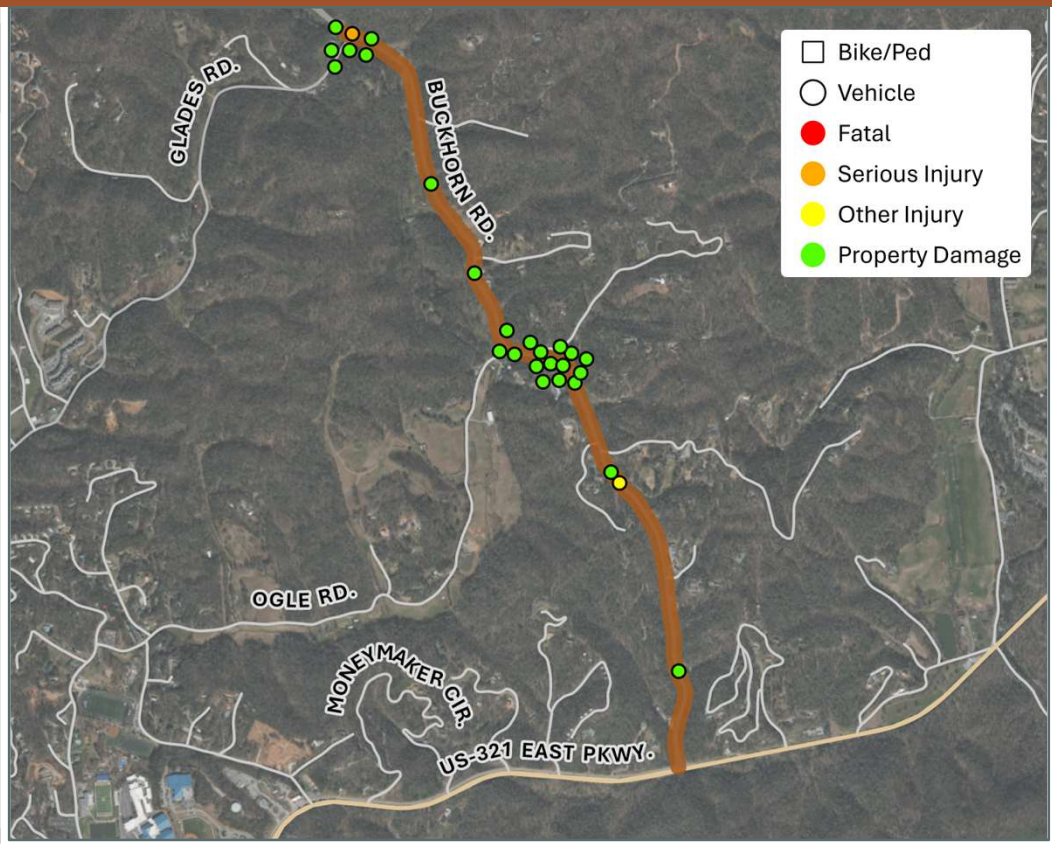
Jurisdiction	City of Gatlinburg
Functional Classification	Major Collector
Posted Speed	25 mph
Estimated AADT	2,388 (TDOT 2024)
Underserved Community	No
Common Crash Manner	Single-Vehicle (16)

Crash History (2019-2024)

	Fatal	Serious Injury	Other Injury	Property Damage
Vehicle	0	1	1	25
Bike/Ped	0	0	0	0

Identification Criteria

HIN HRN HRN LOCAL PUBLIC CTF PSTF



Recommendations

This project focuses on a rural two-lane roadway where the predominant crash type is run-off-road, primarily due to narrow shoulders, sharp curves, and limited recovery space. To reduce the frequency and severity of these crashes, it is recommended to widen shoulders where feasible to provide additional space for vehicles to recover. Spot guardrail improvements should also be implemented near curves and other high-risk locations to protect drivers from roadside hazards. In addition, consistent speed enforcement of the 25 mph posted speed limit is needed to encourage safer travel speeds and improve driver compliance. These measures aim to enhance roadside safety, reduce roadway departures, and improve overall corridor conditions.



Buckhorn Road (SR 454)

Curve near Ogle Rd

2-Lane Rural Roadway (0.15 mi)

Emphasis Area(s): Rural Roadway

SEVIER COUNTY SS4A

PROJECT G-14

Existing Conditions

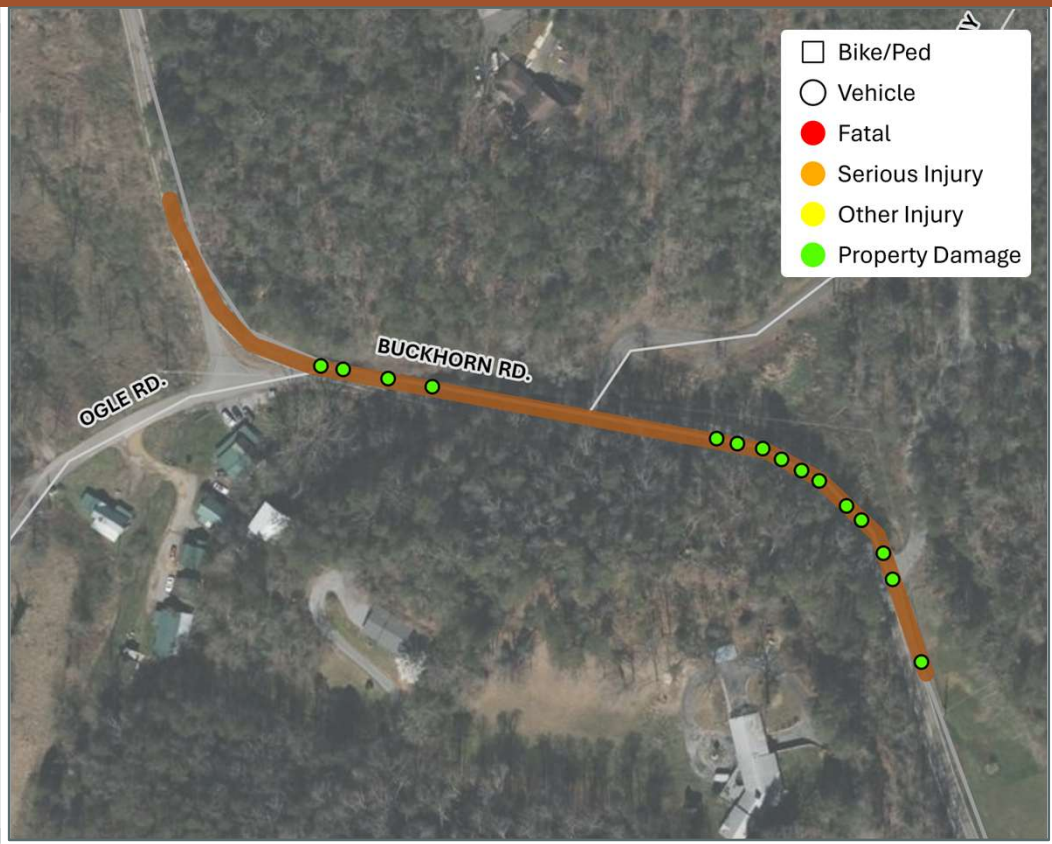
Jurisdiction	City of Gatlinburg
Functional Classification	Major Collector
Posted Speed	25 mph
Estimated AADT	2,388 (TDOT 2024)
Underserved Community	No
Common Crash Manner	Single-Vehicle (12)

Crash History (2019-2024)

	Fatal	Serious Injury	Other Injury	Property Damage
Vehicle	0	0	0	15
Bike/Ped	0	0	0	0

Identification Criteria

HIN | HRN | HRN LOCAL | PUBLIC | CTF | PSTF



Recommendations

This project focuses on an S-curve along a rural two-lane roadway where roadway departure crashes are the predominant crash type, likely due to the sharp curvature, limited recovery space, and inadequate curve guidance. It is recommended to install an advance S-curve warning sign to alert drivers to the upcoming alignment, along with appropriate chevron signs within the curves to provide continuous directional guidance. Where feasible, shoulders should be widened to increase recovery space for errant vehicles. Additionally, guardrail should be installed at high-risk locations within the curve to reduce the severity of run-off-road crashes. These improvements aim to enhance driver awareness, reduce roadway departures, and improve overall safety.



Buckhorn Road (SR 454)

near Berry Clark Dr

2-Lane Rural Roadway

Emphasis Area(s): Speed Management, Rural Roadway, VRU Safety

SEVIER COUNTY SS4A

PROJECT G-15

Existing Conditions

Jurisdiction	City of Gatlinburg
Functional Classification	Major Collector
Posted Speed	25 mph
Estimated AADT	2,388 (TDOT 2024)
Underserved Community	No
Common Crash Manner	Rear-end (1)

Crash History (2019-2024)

	Fatal	Serious Injury	Other Injury	Property Damage
Vehicle	0	0	0	1
Bike/Ped	0	0	0	0

Identification Criteria

HIN HRN HRN LOCAL PUBLIC CTF PSTF



Recommendations

This project focuses on an S-curve with limited visibility in a high pedestrian activity area where frequent crossings occur between retail shops. The curve, combined with poor sight distance and vehicle speeds, presents safety risks for both drivers and pedestrians. It is recommended to widen the shoulder where feasible, install curve warning signs, and place speed feedback signs to encourage safer travel speeds. To alert drivers of increased pedestrian activity, a warning sign should be upstream installed to alert drivers to the presence of a dense, pedestrian-oriented area ahead. A marked crosswalk with flashing warning beacons is also recommended at a crossing, coordinated with an advance warning beacon for northbound traffic before the curve.



