

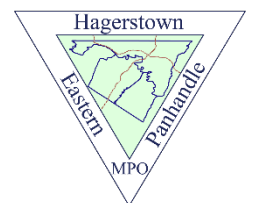


Draft for Public Comment



Safety Corridor Assessment Washington Street

May 2025



Acknowledgements

The Hagerstown/Eastern Panhandle Metropolitan Planning Organization (HEPMPO) would like to thank the Washington Street Corridor Stakeholders for their valuable contributions throughout the planning process and development of the Safety Corridor Assessment for Washington Street.

- Charles Town City Council
- Charles Town Community Development
- Charles Town Police Department
- Eastern Panhandle Transit Authority (EPTA)
- Federal Highway Administration (FHWA)–WV Community Planning Office
- FHWA–WV Safety and Operations Office
- FHWA Office of Safety
- Jefferson County Engineering
- Jefferson County Planning & Zoning
- Jefferson County Sheriff's Office
- WV Governor's Highway Safety Program
- WVDOT District 5 Engineering Division
- WVDOT Planning and Programming Division
- WVDOT Traffic

Disclaimer

Under 23 U.S. Code § 409 and 23 U.S. Code § 148, safety data, reports, surveys, schedules, lists compiled or collected for the purposes of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damage arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

The analysis and recommendations in this report are conceptual in nature based upon limited information, and before implementing any changes, or using any of its information for design or construction, HEPMPO or local jurisdiction, should conduct a more detailed analysis and make sure that the design or construction documents reflect specific, detailed, local and field conditions.

The scope of this work, including study locations, time frame, and topics, was determined by the client. While it is possible that some locations or issues were not addressed in this report, nothing should be inferred by their omission.

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Introduction

Study Purpose

The HEPMPO Regional Safety Action Plan (SAP) identified a high-injury network (HIN) highlighting roadway segments with disproportionate severe or fatal crashes, particularly for pedestrians, cyclists, and motorcyclists. Three safety corridors were selected for further analysis, including the Washington Street corridor in Charles Town, WV. This report summarizes the corridor's existing conditions, concept development for safety countermeasures, and funding strategies.

About Washington Street

Washington Street is part of WV-51, a feeder roadway in Jefferson County, West Virginia. It connects to US-340 to the east and to I-81 to the west, serving as a critical transportation corridor. The study area for this assessment consists of a 1.2-mile segment between West Street and Flowing Springs Road/Flowing Springs Way in Charles Town (**Figure 1**).

Figure 1: Washington Street Safety Corridor Study Area Map



HEPMPO Regional Safety Action Plan

The HEPMPO Regional SAP was developed to address roadway safety challenges and was officially adopted in May 2024. The plan prioritizes strategies to enhance safety for all users, including pedestrians, cyclists, transit riders, and commercial vehicle operators. A key component is the HIN, which identifies high-crash locations for targeted interventions. Using a data-driven approach and stakeholder input, HEPMPO selected one HIN segment per county for safety assessments: Washington Street (Jefferson County, WV), Edwin Miller Boulevard (Berkeley County, WV), and Virginia Avenue (Washington County, MD). These assessments aim to identify solutions and position jurisdictions for funding opportunities like the Highway Safety Improvement Program (HSIP) or the Safe Streets and Roads for All (SS4A) program.

Needs Assessment Process

The needs assessment process involved collecting and analyzing data, as well as reviewing previous plans.

Data Collection & Evaluation

The project team collected data on crash history (2018–2023), survey responses, future planning designations, and corridor profiles. They also analyzed traffic volumes, land use, roadway characteristics, transit stops, pedestrian and bicycle infrastructure, signal operations, and right-of-way details to assess the study area's safety and mobility needs.

Previous Plans or Work Reviewed

The project team reviewed local documents that provide guidance on existing and future land use and transportation vision for the study corridor:

- HEPMPO Regional Safety Action Plan
- Historically HIP Charles Town Comprehensive Plan
- WV Vulnerable Road User Assessment
- Jefferson County 2035 Comprehensive Plan
- Charles Town's Zoning Ordinances
- Jefferson County Zoning Ordinance

Existing and Future Conditions

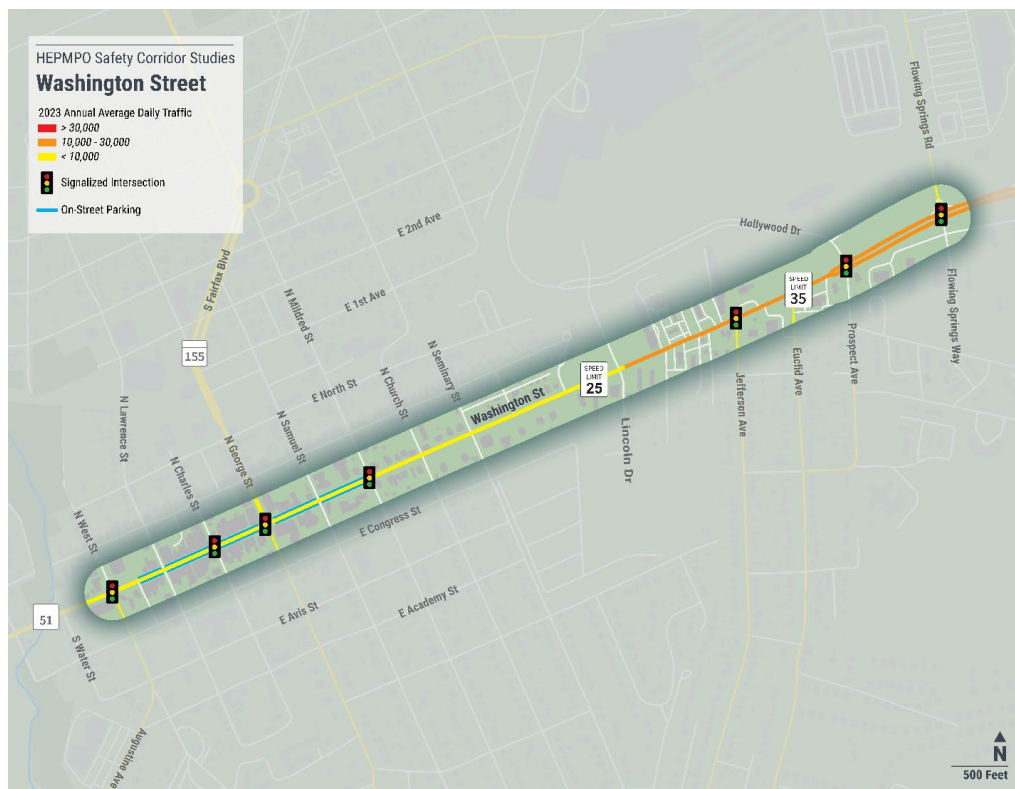
Existing Conditions

This section summarizes the existing conditions along the Washington Street safety corridor study area including roadway, active transportation, and transit facilities, as well as reviewing corridor safety and community context.

Roadway Facilities

The Washington Street priority corridor is a 1.2-mile segment of WV-51, connecting US-340 to the east and I-81 to the west. It features seven signalized intersections, with all other intersections stop-controlled on minor approaches (**Figure 2**). The roadway transitions from two to four lanes, with widths ranging from 12 to 14 feet. Street parking is available near businesses and government buildings between the Liberty gas station and Mildred Street. The posted speed limit varies from 25 to 35 mph, and traffic volumes range from 9,780 average daily vehicles between West Street and Lincoln Drive to 22,650 average daily vehicles from Lincoln Drive to Flowing Springs Road.

Figure 2: Washington Street Safety Corridor Roadway Map



Source: WVDOT, Fehr and Peers, 2025

Active Transportation and Transit

Bicycle and Pedestrian Infrastructure

The corridor lacks designated bicycle facilities and has inconsistent pedestrian infrastructure. Sidewalks vary in width and continuity, with the north side featuring a 6-foot sidewalk with a buffer until KFC, where it ends, while the south side narrows to 4 feet with sections becoming discontinuous. Crosswalks are mainly at major intersections, varying in design, with one uncontrolled crosswalk at Alla Willa Drive (**Figure 3**). Curb ramps were upgraded in 2022, but pedestrian signals are limited to key intersections. Brick curb extensions exist downtown, but gaps in pedestrian infrastructure remain, especially outside the historic core.

Figure 3: Washington Street Safety Corridor Pedestrian and Bicycle Facilities Map



Transit System

The Eastern Panhandle Transit Authority (EPTA) serves Jefferson and Berkeley Counties, with Routes 16 and 20 operating along Washington Street in Charles Town. Key stops include the Jefferson County Courthouse (northbound) and Charles Washington Hall (southbound), with Route 20 also stopping at City Hall and Walgreens on Flowing Springs Way. However, these stops lack passenger amenities such as benches, shelters, trash cans, and lighting.

Figure 4: Washington Street Safety Corridor Transit Facilities Map



Safety

Crash History

The Washington Street segment between Water Street and George Street ranks 51st in West Virginia's High Injury Network, based on the 2023 West Virginia Vulnerable Road Users (VRU) Assessment. A VRU is anyone on the road who is not protected by a vehicle, such as pedestrians, cyclists, and motorcyclists, and is therefore at greater risk of injury in a crash. **Figure 5** shows all crashes by severity that occurred in Washington Street from 2018 to 2023. During this period, motor vehicle crashes made up 96.9% of all incidents, while VRU crashes accounted for only 3.1% (**Table 1**). However, VRU crashes posed a significantly higher risk, comprising 66.7% of serious injury crashes. The most common crash types on Washington Street were rear-end, right-angle, and sideswipe collisions, with the only fatal crash being a right-angle collision. Approximately 86% of crashes occurred at intersections, with the highest concentrations at Flowing Springs Road and West Street. The only fatal crash occurred at Prospect Avenue, while 50% of severe injury crashes happened at Flowing Springs Road.

Table 1: Washington Street Safety Corridor - Crashes by Mode and Severity (Total) from 2018 to 2023

Mode	Fatal	Severe Injury	Minor Injury	Possible Injury	No Apparent Injury	Total
Pedestrian	0 (0%)	4 (66.7%)	0 (0%)	1 (2.6%)	0 (0%)	5 (1.7%)
Bicycle	0 (0%)	0 (0%)	2 (12.5%)	0 (0%)	0 (0%)	2 (0.7%)
Motorcycle	0 (0%)	0 (0%)	1 (6.3%)	0 (0%)	1 (0.4%)	2 (0.7%)
Vehicle	1 (100%)	2 (33.3%)	13 (81.3%)	37 (97.4%)	231 (99.6%)	284 (96.9%)
Total	1	6	16	38	232	293

Figure 5: Washington Street Safety Corridor Crash Map – 2018 to 2023



Source: WVDOT, Fehr and Peers, 2025

Risk Factors and SSA Alignment Along Washington Street

The project team used the FHWA's 2024 Safe System Project-Based Alignment Framework to proactively identify risk factors along the corridor. The completed Safe System Project-Based Alignment Framework for the Washington Street Corridor is included in **Appendix A**. This tool supports agencies in aligning with the Safe System Approach (SSA), adopted by FHWA in 2022 to guide efforts toward zero traffic deaths by encouraging a comprehensive evaluation of safety strategies. A high-level summary of the SSA alignment along the corridor is listed below:

- There is higher alignment with the SSA along the western portion of the corridor (between West Street and Mildred Street) for intersections and segments.
- VRU exposure is higher along the western portion of the corridor, but operating speeds and roadway width are lower along the same portion of the corridor.

- The largest risk factors for VRUs across the entire corridor include no bicycle facilities, limited separation in time for pedestrians and bicyclists, right turn on reds, permissive left turns, insufficient lighting, and occasional obstructed sight distance.
- Euclid Avenue to Flowing Springs Road is notably less aligned with the SSA, due to incomplete or missing sidewalks, more lanes, wider overall roadway width, and increased operation speed.
- **Table 2** highlights the top three least aligned intersections and segments along the corridor. The higher the score the less alignment.

Table 2: Least Safety Aligned Intersections and Segments along the Washington Street Safety Corridor

LOCATION TYPE	LOCATION NAME	LOCATION SCORE
INTERSECTION	Flowing Springs Road & Washington Street et	12,000
	Prospect Avenue/Hollywood Drive & Washington Street	9,360
	Jefferson Avenue & Washington Street	8,760
SEGMENT	Euclid Avenue to Prospect Avenue/Hollywood Drive	5,760
	Jefferson Avenue to Euclid Avenue	5,760
	Prospect Avenue/Hollywood Drive to Flowing Springs Road	5,040

Community Context

Demographics

Most of the Washington Street corridor is within a federally designated Area of Persistent Poverty (APP), as shown by the red dashed boundary in **Figure 6**. Around 30% of residents live at or below 200% of the federal poverty line (less than double the federal poverty level for their household size), with a median household income of \$58,393. Households spend an average of 16% of their income (\$11,375 annually) on transportation, and 33% of households face high housing costs. Additionally, 17% of households lack a personal vehicle, limiting access to essential services.

Public Input

A survey was conducted to gather public input on transportation safety concerns in the HEPMPO region (**Figure 6**). Along the Washington Street corridor, common issues reported included unsafe intersections, a lack of sidewalks, and inadequate crosswalks. Many respondents felt at risk due to gaps in pedestrian infrastructure, especially where pedestrian and vehicle traffic intersect. Additional concerns

included near-miss incidents at certain intersections. Suggested improvements focused on expanding sidewalk availability, installing crosswalks, and enhancing traffic safety measures to reduce crash risks and improve pedestrian accessibility.

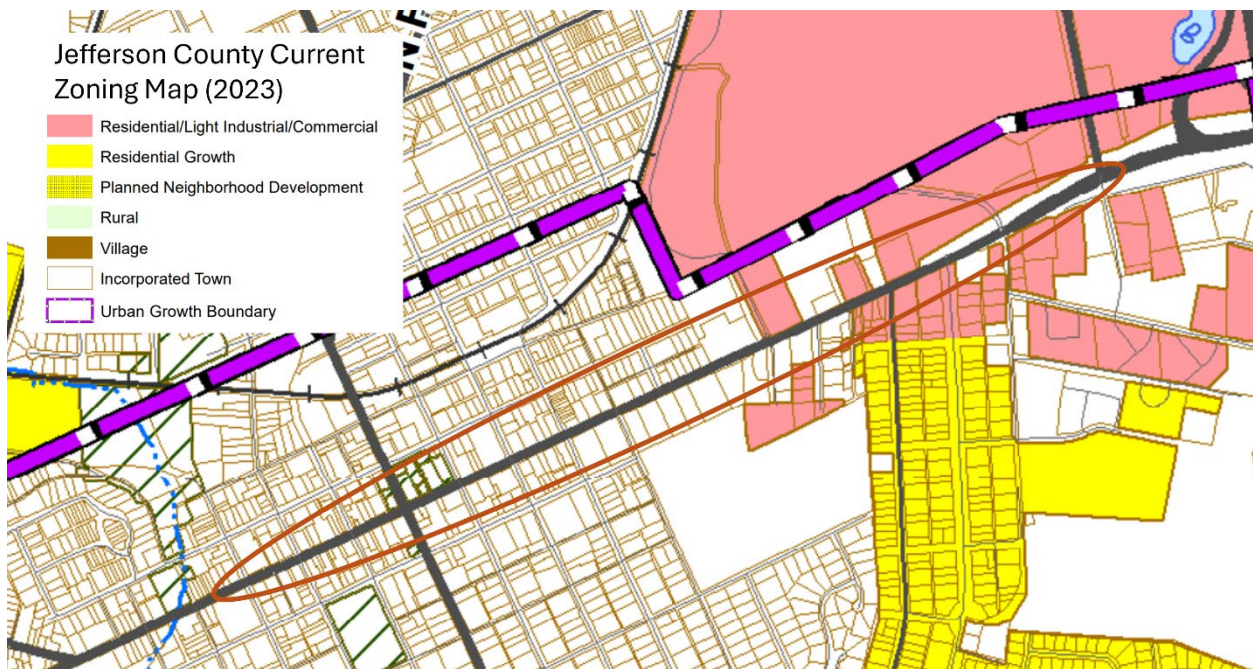
Figure 6: Washington Street Corridor Community Need and Public Input Map



Future Conditions

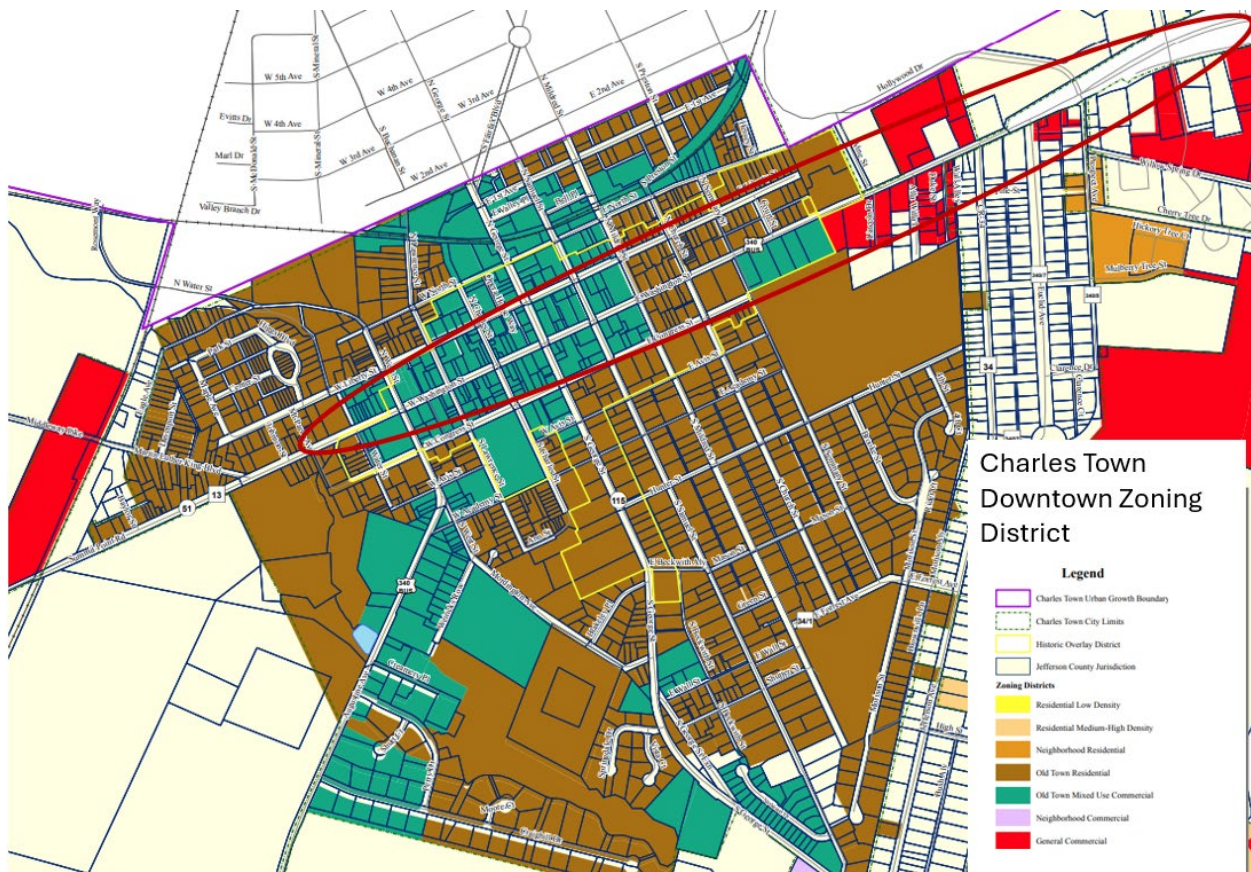
In addition to examining existing conditions, the project team also explored potential future conditions along the corridor. Future conditions could impact countermeasure selection and improvement recommendations. **Figure 7** highlights existing Jefferson County land use and zoning along the corridor. All of the corridor is within the incorporated town and inside the urban growth boundary. The map shows that portions further east along the corridor are adjacent to light industrial and commercial areas. The Charles Town Downtown Zoning District Map (**Figure 8**) fills in the gaps and shows that most of the Washington Street corridor is surrounded by Old Town Residential, Old Town Commercial, and some General Commercial uses.

Figure 7: Jefferson County Current Zoning Map (2023)



Source: Jefferson County Office of Planning and Zoning

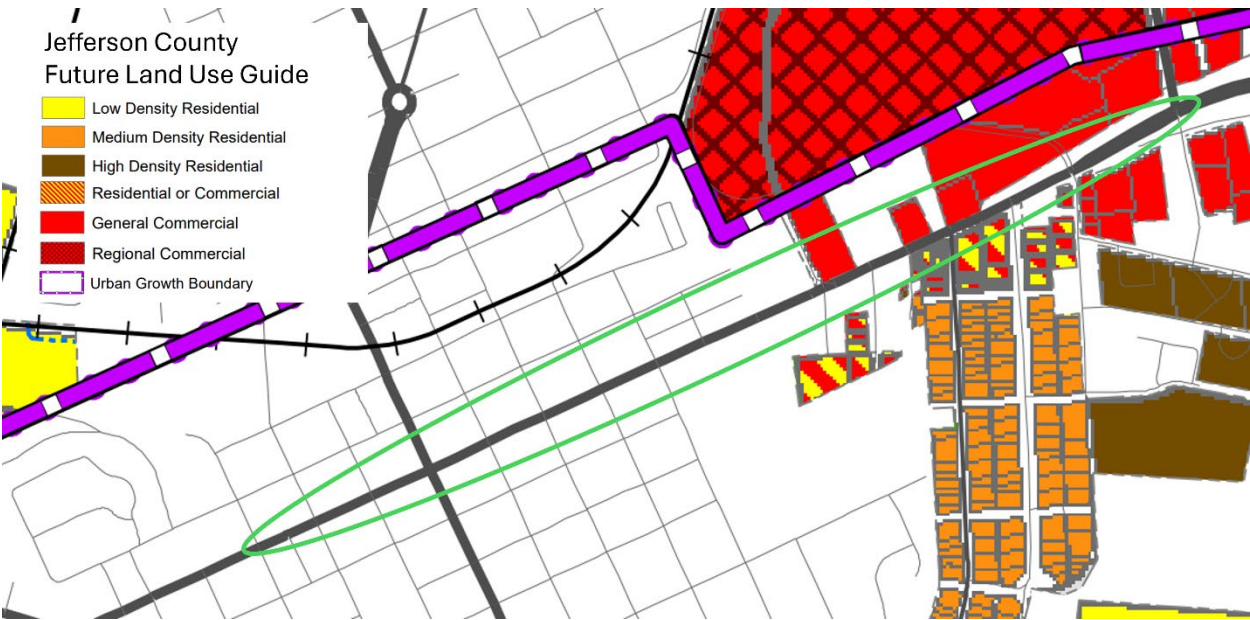
Figure 8: Charles Town Downtown Zoning Districts (2018)



Source: City of Charles Town

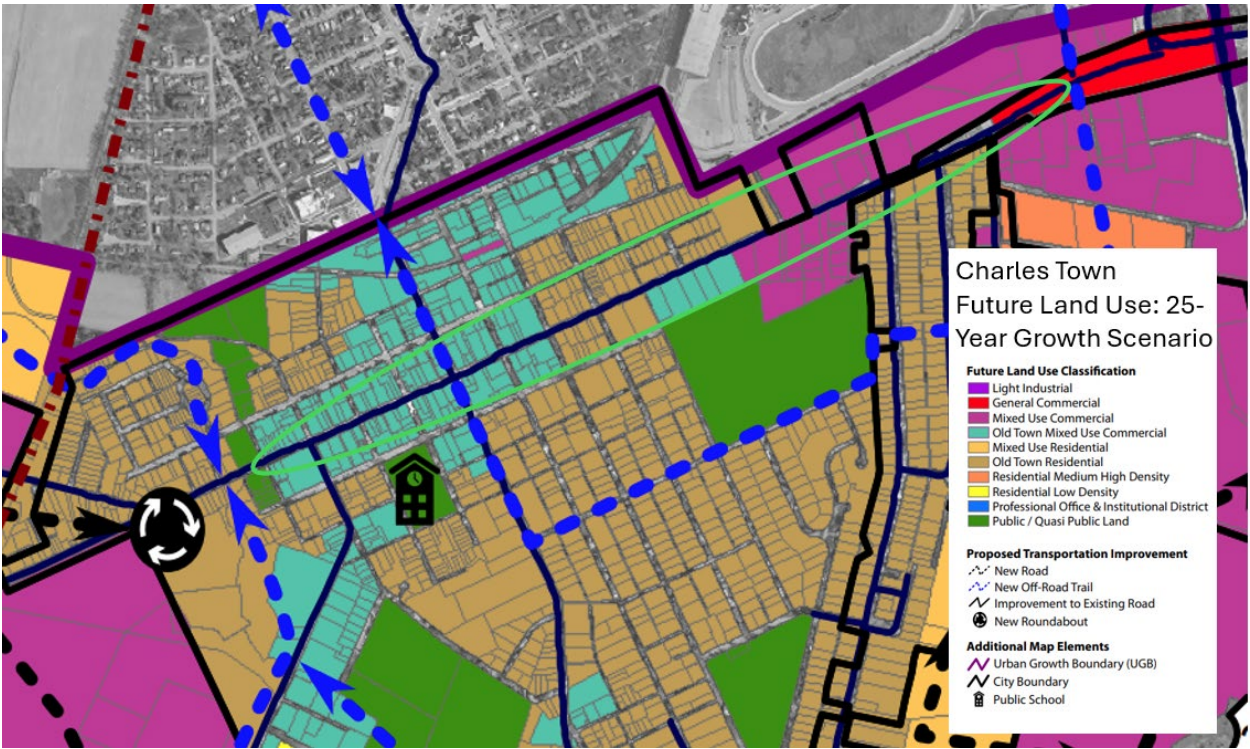
While no specific future development sites were identified along the corridor for the Jefferson County Comprehensive Plan, **Figure 9** highlights the future land use guide from the 2035 Plan. Existing light industrial and commercial areas are expected to remain consistent, while some residential areas are designated for higher density by 2035. In the Charles Town Future Land Use: 25-Year Growth Scenario (**Figure 10** most land uses remain the same, with a few exceptions in the western and central portions of the corridor, where Old Town Residential areas are reclassified as Public/Quasi-Public land.

Figure 9: Jefferson County Future Land Use Guide



Source : Jefferson County Office of Planning and Zoning

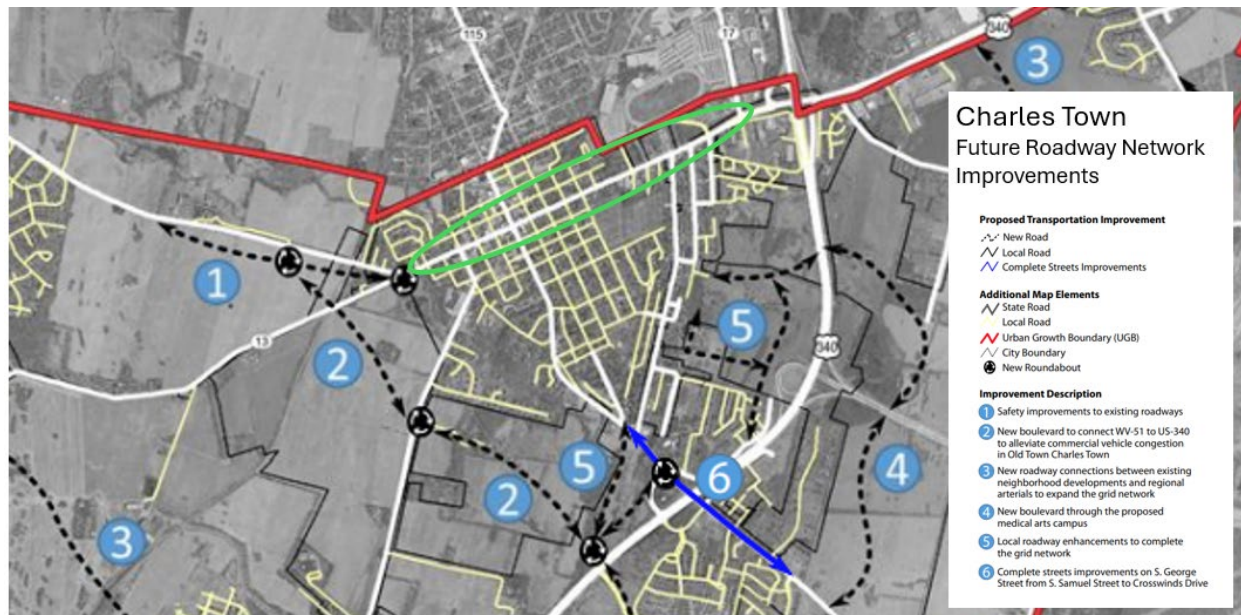
Figure 10: Charles Town Future Land Use – 25 – Year Growth Scenario (2017)



Source: City of Charles Town Comprehensive Plan

Washington Street is a key focus in the *Historically Hip Charles Town 2040 Comprehensive Plan*. The plan promotes a Complete Streets approach, proposing to narrow travel lanes to 10 feet and widen sidewalks to 13 feet to enhance comfort and safety for pedestrians and cyclists, while also supporting retail activity and public uses. However, the *Future Roadway Network Improvements Map* created by the city in 2018 (**Figure 11**), does not show any planned improvements along the Washington Street corridor.

Figure 11: Charles Town Future Roadway Network Improvements (2018)



Source: Source: City of Charles Town

Additionally, the team identified a handful of planned, committed, or recommended projects along or near the corridor (**Table 3**).

Table 3: Potential Existing Projects or Recommendations

REFERENCE	DESCRIPTION
HISTORICALLY HIP CHARLES TOWN 2040 COMPREHENSIVE PLAN	Narrow travel lanes (10') and wider sidewalk (13') along Washington Street in the downtown district.
TRANSPORTATION IMPROVEMENT PLAN (TIP) PROJECTS	J2024-09 Washington Street (at West Street)
LONG RANGE TRANSPORTATION PLAN – FISCALLY CONSTRAINED PROJECTS	C34 Washington Street Intersection Improvements (at Jefferson Avenue)
WEST VIRGINIA VULNERABLE ROAD USER ASSESSMENT	Portion of corridor is designated as a VRU priority corridor for the State: West Street to George Street.
LOCAL NEWS OUTLETS	Jefferson County Commission purchases American Public University System (APUS) buildings to repurpose as county government center.

Engagement Opportunities and Takeaways

Site Visit

On October 22, 2024, the project team held a stakeholder presentation and site visit along the Washington Street corridor. The presentation, conducted at Charles Town City Hall, provided an overview of the corridor and included training on the FHWA Safe System Project-Based Alignment Framework. Following the training, stakeholders participated in a site visit, making strategic stops at key intersections and walking a portion of the corridor to assess existing conditions and identify potential safety improvements, as shown in **Figure 12**.

Attendees included representatives from local, regional, and state agencies, such as Charles Town City Council, city staff, law enforcement, the Eastern Panhandle Transit Authority, the Hagerstown/Eastern Panhandle Metropolitan Planning Organization, Jefferson County Planning & Zoning, the West Virginia Division of Highways, and FHWA officials. The event facilitated discussions on transportation safety and helped align project efforts with FHWA's Safe System Approach.

Figure 12: Stakeholders Visiting and Evaluating the Washington Street Corridor



Stakeholders and project team members were able to document safety challenges and risk factors along Washington Street, particularly at key intersections. Common issues included inadequate pedestrian infrastructure, such as missing crosswalks, uncontrolled pedestrian crossings, and poor visibility due to obstructions or lighting conditions, show described in **Table 4**. Many intersections experienced vehicle conflicts, including right-turn conflicts, permissive left turns without adequate control, and congestion leading to unsafe driving behaviors like passing on the right or cutting through adjacent properties. Additional hazards included poor road conditions, such as water pooling in winter, wide pedestrian crossings without clear markings, and limited sight distance due to recent construction or topographical constraints. Some locations, like Prospect Avenue, had a history of fatal crashes, highlighting the need for targeted safety interventions.

Table 4: Washington Street Intersection Safety Challenges Identified During Site Visit

Location	Safety challenges and risk factors
West Street	<ul style="list-style-type: none"> No crosswalk at northbound approach. Cars driving on Liberty sidewalk at northbound approach to make right turn. Limited intersection lighting. Obstructed sight distance for northbound and southbound approaches, and right turn on red allowed. Permissive left turn at all approaches Eastbound and westbound topographical sight distance issues over hill. Driveways along both sides of westbound approach and one side of northbound and southbound approach. Right turn conflict at all approaches. Undivided roadway. Context change west of the intersection. Sunset and sunrise glare on roadway, and no backplates Congestion and backups due to left turn vehicles which leads to vehicles cutting through gas station.
Lawrence Street	<ul style="list-style-type: none"> Street level bulb outs generally ignored by vehicular traffic. Pedestrian crossing hazard. Left turn vehicles passed on right. Created a multi-lane crosswalk and false sense of security to pedestrians.
Charles Street	<ul style="list-style-type: none"> Water pools and ices over at curb ramp during winter.
George Street	<ul style="list-style-type: none"> Crosswalks are brick only. Signal timed for all-pedestrian phase and not actual scramble (diagonal crossing). City Hall corner attractors protestors, which anecdotally identified as roadside distraction/safety hazard.

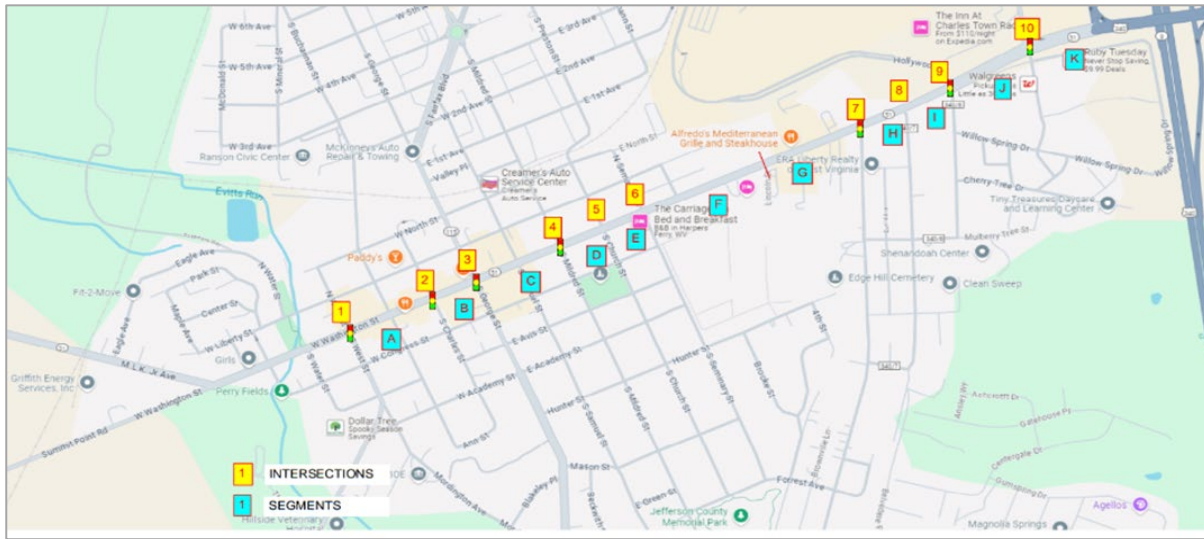
Location	Safety challenges and risk factors
Samual Street	<ul style="list-style-type: none"> No pedestrian crossing opportunity at Samual Street despite previous crosswalk and destinations (public library and farmer's market).
Lincoln Drive	<ul style="list-style-type: none"> Westbound left turn lane recently installed to replace two-way left turn lane, but extends driveway instead of public road.
Alla Willa Drive	<ul style="list-style-type: none"> Existing uncontrolled pedestrian crossing uses brick and has no advance yield markings or signage.
KFC Driveway	<ul style="list-style-type: none"> Visibility issues due to hill combined with wide lanes likely increases speeds.
Euclid Avenue	<ul style="list-style-type: none"> Recent construction has added a dual stop turn lane on south leg which is set back – sight distance to stop sign is out of line with sight of vehicles approaching from neighborhood.
Prospect Avenue	<ul style="list-style-type: none"> Fatal crash history.
Flowing Springs Road	<ul style="list-style-type: none"> Wide pedestrian crossing. No connecting pedestrian facilities despite destination demand (DHHR, Walmart, Martins). More traffic volume on south leg than anticipated.

Risk Assessment Summary

In coordination with the FHWA Office of Safety, the Washington Street Corridor was evaluated for potential safety risks using the Safe System Project-Based Alignment Framework. The Project-Based Framework tool was developed to assess roadway locations at the intersection and segment level, as highlighted in **Figure 13**, to identify potential hazards and improvements through the lens of the Safe System Approach (SSA).

This framework emphasizes a holistic view of road safety, aiming to minimize the risk of severe injuries and fatalities by considering all aspects of the transportation system. By integrating principles of the SSA, the Project-Based Framework ensures that safety is a fundamental priority in the planning, design, and operation of roadways, ultimately fostering a safer and more resilient transportation network for all users.

Figure 13: Washington Street Corridor Intersections and Segments



The assessment estimates the potential risk to vehicle drivers and vulnerable road users based on existing conditions, and is later reevaluated by considering potential safety countermeasures. The assessment is based on the following:

- *Exposure* – the volume and/or length (distance) various users are using a facility and could be involved in a potential crash.
- *Likelihood* – the elements and/or risks that impact the probability of a crash taking place by influencing the opportunity for conflict or user error rates.
- *Severity* – the elements and/or risks that impact the probability of a crash taking place by influencing the opportunity for conflict or user error rates.

The results demonstrate improved safety along the corridor through the implementation of proven countermeasures. **Table 5** provides a summary of the assessment. Detailed results are included in **Appendix A**.

Table 5: Washington Street Project Summary Assessment by Segment & Intersection

Name	Existing Risk Score	Implementation Risk Score	% Improvement	Any Countermeasures Implemented
Segments				
1: West St	1,512	1,470	3%	Yes
2: Lawrence St	1,260	1,260	0%	No
3: Charles St	864	864	0%	No
4: George St	984	984	0%	No
5: Mildred St	4,320	4,320	0%	No
6: Church St	4,320	4,320	0%	No
7: Seminary St	4,104	4,104	0%	No
8: Jefferson Ave	8,760	7,200	18%	Yes
9: Euclid Ave	7,200	6,048	16%	Yes
10: Prospect Ave/ Hollywood Dr	9,360	7,680	18%	Yes
11: Flowing Springs Way	12,000	10,200	15%	Yes
Total Segments	54,684	48,450	11%	-
Intersections				
A: West St – Lawrence St	1,080	1,080	0%	Yes
B: Lawrence St – Charles St	390	390	0%	No
C: Charles St – George St	630	630	0%	No
D: George St – Mildred St	603	603	0%	No
E: Mildred St – Church St	2,880	2,880	0%	No
F: Church St – Seminary St	2,880	2,880	0%	No
G: Seminary St – Private Driveway/KFC	3,600	3,600	0%	No
H: Private Driveway/KFC – Lincoln Dr	2,880	2,880	0%	Yes
I: Lincoln Dr – Jefferson Ave	2,754	2,646	4%	Yes
J: Jefferson Ave – Euclid Ave	5,760	4,320	25%	Yes
K: Euclid Ave – Prospect Ave/Hollywood Dr	5,760	4,680	19%	Yes
L: Prospect Ave/Hollywood Dr – Flowing Springs Way	5,040	5,040	0%	Yes
Total intersections	34,257	31,629	8%	-
Total Corridor	88,941	80,079	10%	-

Concept Development

Three action item concepts were developed, each with proposed safety countermeasures for specific locations along Washington Street. These locations were selected based on safety challenges and risk factors identified during the stakeholder meeting and field visit. The selected locations are:

- West Street and Washington Street Intersection
- Flowing Springs and Washington Street Intersection
- Washington Street Commercial area between Western Driveway of KFC and Flowing Springs Road Intersection

West Street and Washington Street Intersection Safety Focus Action Items

Figure 14: Proposed West Street Improvements



- Restripe the NB West Street approach to add an exclusive left-turn lane.
 - Install ground-mounted lane use control signs at the beginning of the left-turn lane and at the stop bar.
 - Install arrow pavement markings for both the new left-turn lane and the thru-right lane to help motorists adjust to the new lane configuration.

- Install a flashing yellow arrow signal head and relocate the second primary three-section signal head closer to, or onto, the mast arm pole.
- Obtain turning movement traffic counts and retime and rephase traffic signal to provide a variable mode (time-of-day) protected-permitted left-turn phase for the newly installed left turn lane. Update all timing and phasing for all approaches at the signal, including cycle lengths, allocation of green times, yellow change, all red clearance and pedestrian clearance intervals.
- Implement access control and construct channelized driveways with curbed sidewalks at the gas station on the southeast corner. Construct curb, driveways and sidewalk along both the West Street and Washington Street frontages.
 - Construct a grass buffer between proposed curb and sidewalk along the gas station frontage on West Street to discourage vehicles from driving over the curb.
 - Install bollards along back of sidewalk at the corner to separate vehicles at gas station pumps from pedestrians using the sidewalk.
- Stripe/restripe high-visibility crosswalk across West Street NB approach. Pretreat the concrete roadway surface for adherence of thermoplastic pavement markings or use epoxy paint suitable for concrete application and durability.
- To improve signal conspicuity, address rear end crash history for all approaches, and address glare reported during the field visit, install backplates with retroreflective strips on all signal heads.

Figure 15: West Street and Washington Street Intersection Proposed Countermeasures



Washington Street between West Street and Mildred Street

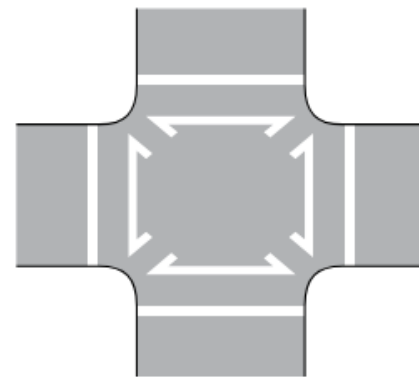
All Signalized Intersections (West Street, Charles Street, George Street and Mildred Street)

- To enhance traffic signal visibility and implement a proven safety countermeasure, install backplates with retroreflective strips on all signal heads.
- Install a full suite of pedestrian features at the intersection:
 - APS pedestrian push buttons
 - Countdown pedestrian signal heads
 - ADA-compliant ramps/access pads
 - High-visibility crosswalks
 - Pedestrian-actuated traffic signal phasing
- Replace five-section protected-permissive left turn signal heads for exclusive left-turn lanes with Flashing Yellow Arrow protected-permissive signal heads.
- Obtain updated turning movement traffic counts and revise signal timing to provide variable-mode protected-permitted left turns based on time of day and pedestrian actuation.
- Utilize updated traffic counts to update corridor signal coordination. Update phasing, cycle lengths, splits and offsets to reduce corridor congestion and mainline queue lengths.

Location Specific Action Items

- Revise exclusively the pedestrian phase of the signal at George Street to include sufficient pedestrian walk and clearance times to accommodate a pedestrian scramble (i.e. walk diagonally across the intersection instead of across only one leg of the intersection). Consider revising pedestrian markings accordingly to MUTCD.

Figure 16: Example of Crosswalk Markings for an Exclusive Pedestrian Phase that Permits Diagonal Crossings



Note: High-visibility crosswalks can be used for the crosswalks around the perimeter of the intersection

Flowing Springs Road and Washington Street Intersection Safety Focus Action Items

Figure 17: Flowing Springs Road and Washington Street Intersection Proposed Countermeasures



- Eliminate the channelized yield right turn from WB Washington Street to NB Flowing Springs Road. Reduce the northeast corner radius and operate as a standard exclusive right turn lane.
- Update the right-turn lane drop pavement markings and signing on SB Flowing Springs Road to meet /match MUTCD recommendation for lane drops. Reduce the radius for this right-turn movement to WB Washington Street to reduce turning speeds and reduce pedestrian crossing distances.
- Eliminate the painted channelized right-turn merge lane from the SB US 340 off-ramp to WB Washington St. Reduce the northeast corner radius and have the ramp traffic merge with the Washington Street through lane in a yield condition.
- Construct 6 ft to 10 ft wide median islands on both Washington Street approaches to serve as pedestrian refuge areas.
 - Install KEEP RIGHT signs and OBJECT MARKERS at median noses.

- Install ADA ramps for pedestrian crossing and pedestrian refuge within median islands.
- Install APS pedestrian push buttons and countdown pedestrian signal heads on pedestals in median islands.
- Consider implementing split pedestrian phases/ timings for crossing Washington St, allowing pedestrians to wait safely in the refuge islands.
- Install a full suite of pedestrian features at the intersection:
 - APS pedestrian push buttons
 - Countdown pedestrian signal heads
 - ADA-compliant ramps/access pads
 - High-visibility crosswalks
 - Pedestrian-actuated traffic signal phasing
- Replace the five-section protected-permissive left-turn signal heads for Washington Street exclusive left-turn lanes with Flashing Yellow Arrow protected-permissive signal heads.
- Obtain updated turning movement traffic counts and revise signal timing to provide variable-mode protected-permitted left-turns based on time of day and pedestrian actuation.
- To enhance traffic signal visibility and implement a proven safety countermeasure, install backplates with retroreflective strips on all signal heads.

Figure 18: Proposed Washington Street Improvements

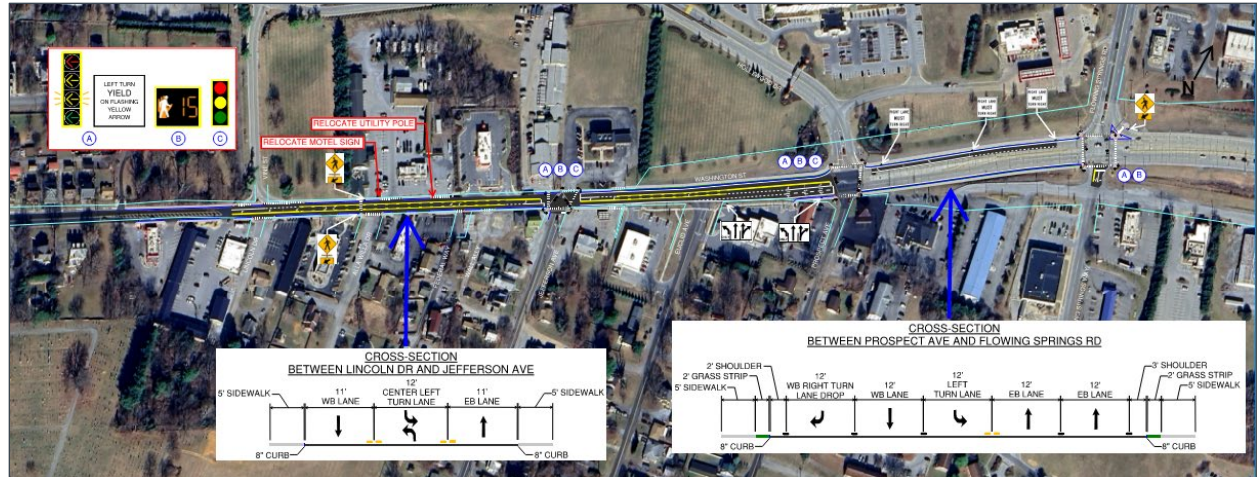


Washington Street Between KFC Western Driveway and Flowing Springs Road – Commercial Area – Safety Focus Action Items

Corridor Length

- Reduce travel lane widths to 11 ft to discourage higher travel speeds.
- Create a consistent corridor cross section and convey a suburban/urban context to motorists by constructing a continuous curbline along both sides of the corridor.
 - Implement access management by reducing the number of driveways and uncontrolled parking lot accesses.
- Install/construct continuous ADA-complaint sidewalk along full length of both sides of corridor.
 - Install ADA-compliant ramps at all public streets, public alleys, and high- and medium-volume driveways.
 - Install high-visibility crosswalks across all public streets and high- and medium-volume driveways.

Figure 19: Washington Street Between KFC Western Driveway & Flowing Springs Road Proposed Countermeasures



All Signalized Intersections (Jefferson Avenue, Hollywood Drive/Prospect Avenue, Flowing Springs Road)

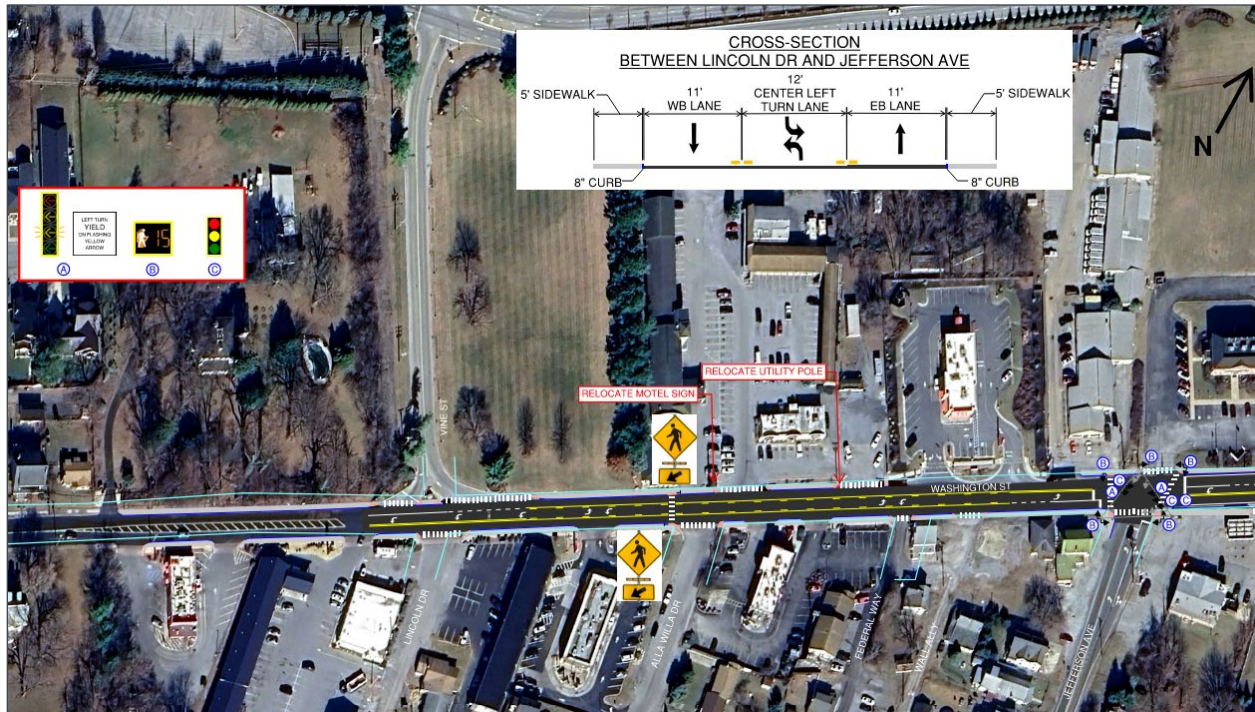
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 - Countdown pedestrian signal heads
 - ADA-compliant ramps/access pads
 - High-visibility crosswalks
 - Pedestrian-actuated traffic signal phasing
- Replace five-section protected-permissive left turn signal heads for exclusive left-turn lanes with Flashing Yellow Arrow protected-permissive signal heads.
- Obtain updated turning movement traffic counts and revise signal timing to provide variable-mode protected-permitted left turns based on time of day and pedestrian actuation.
- Utilize updated traffic counts to update corridor signal coordination. Update phasing, cycle lengths, splits and offsets to reduce corridor congestion and mainline queue lengths.

Location Specific Action Items

- Upgrade existing brick crosswalk uncontrolled crossing of Washington Street at Alla Willa Drive with a Rectangular Rapid Flashing Beacon (RRFB), high-visibility crosswalk markings, and ADA ramps.
 - Implement access management by closing the Rodeway Hotel driveway immediately adjacent to the crosswalk (the hotel has another driveway 10 ft away).

Figure 20: Washington Street Commercial Area KFC to Jefferson Avenue



- Implement access management at the Charlies Too property opposite Jefferson Avenue at the signalized intersection. Close and construct curb and sidewalk along the street frontage and create a channelized driveway area to eliminate uncontrolled access into the intersection within the stop bar areas.
- Implement access management at the properties located in the southern quadrants of the Jefferson Avenue signalized intersection.
- Revise the lane configuration of WB Washington Street between Hollywood Drive and Jefferson Avenue such that the second through lane becomes a right turn lane drop at Hollywood Drive, rather than a left turn lane drop at Jefferson Avenue. Develop a center left-turn lane/exclusive left-turn lane at Jefferson Avenue.
 - Eliminate the existing WB Washington Street right-turn lane and right-turn overlap at Hollywood Drive. Construct a curbline and buffered sidewalk in the existing right-turn lane area.
 - Implement MUTCD recommended pavement markings and signing for the proposed right-turn lane drop at Hollywood Drive.
 - Eliminate the rightmost Washington Street through lane west of Hollywood Drive. Use the existing lane and shoulder area to construct a curbline and buffered sidewalk.

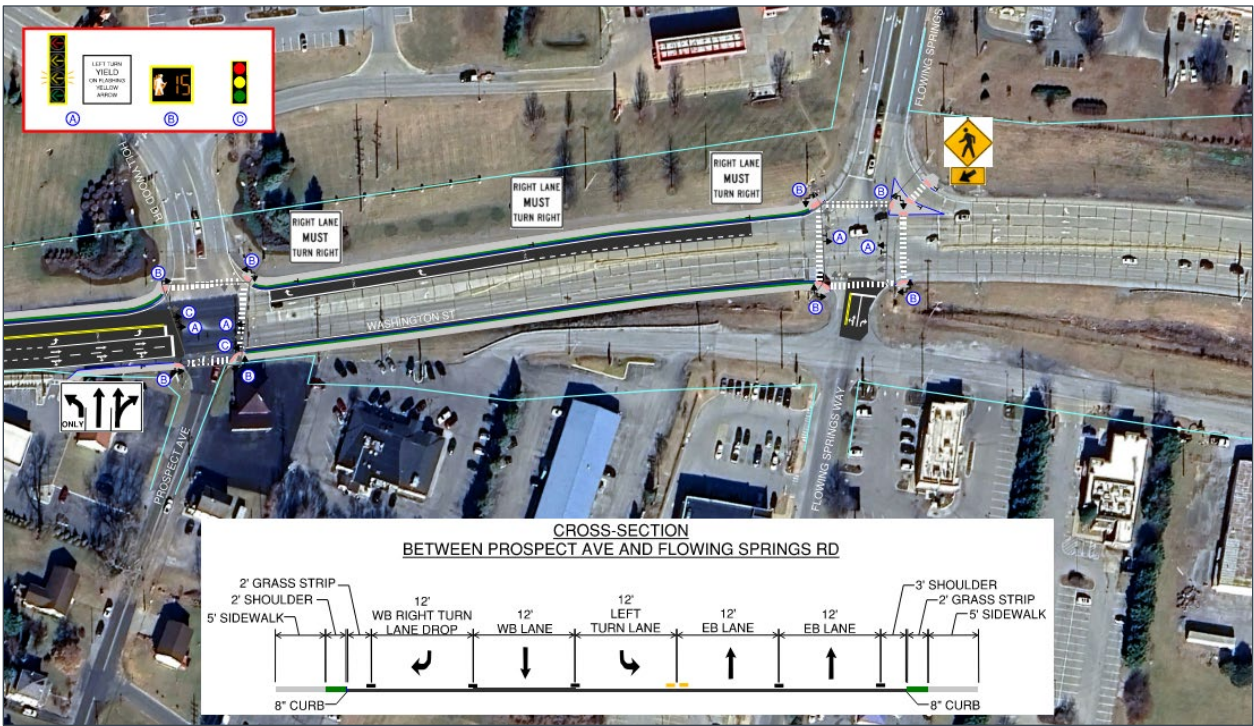
- Transition /taper the single through lane downstream from Hollywood Drive to align with the existing through lane at Jefferson Avenue, while simultaneously developing the center turn lane through this segment.

Figure 21: Washington Street Commercial Area Jefferson Avenue to Hollywood Drive/Prospect Avenue



- Flowing Springs Road Intersection Action Items may be implemented concurrently with this action item plan or with the signalized intersection recommendations listed above. For this action item:
 - Construct a curbed right run channelizing island in place of the existing painted island for the WB Washington Street right turn to NB Flowing Springs Road.
 - Install a full suite of pedestrian features, including pedestrian signal equipment on the newly constructed island.
 - Install high-visibility crosswalk across channelized right-turn lane, along with PEDESTRIAN warning signs with downward ARROW plaques.

Figure 22: Washington Street Commercial Area Hollywood Drive/Prospect Avenue to Flowing Springs Road



Monitoring and Evaluation

To support the ongoing evaluation of the Washington Street corridor, the project team defined a set of performance metrics to assess the change in crash rates over time. As part of this effort, the team developed a crash data monitoring tool for the Hagerstown/Eastern Panhandle Metropolitan Planning Organization (HEPMPO). The tool allows staff to update and maintain corridor-level data and analyze trends in crash rates, severity, and mode. The tool emphasizes crashes involving vulnerable road users and those that result in someone being killed or seriously injured, while also capturing vehicle-only and non-KSI crashes.

Key features of the tool include:

- An inputs tab labeled “Crashes”, which organizes crash data. Users enter 5-year crash counts segregated by mode and severity into designated cells, and the tool calculates the mode percent shares. The tables are formatted to help visualize the distribution of crashes involving VRUs and the share that resulted in KSI.
- An outputs tab labeled “Summary Stats”, which calculates Annual Average Crash Rates to help identify long-term trends. A rolling average is used to smoothen any seasonal or one-time variations. This tab also calculates the percent change between the data being evaluated and the baseline or previous iteration of this process.

This method provides a practical and feasible way for HEPMPO to monitor changes in crashes over time using existing data sources. **Table 6** shows the Annual Average Crash Rates for the 2019–2023 Baseline Crashes. As the agency starts to keep track of crashes in the corridor this table will expand to show the new crash rates and percent changes.

Table 6: Baseline Annual Average Crash Rates

Crash Type	Baseline
VRU-KSI	0.8
VRU-nonKSI	1
Vehicle-KSI	0.6
Vehicle-nonKSI	56.2
All Crashes	58.6

Appendix A: FHWA Safe System Project-Based Alignment Framework

Segments

Segments Data	A: West St – Lawrence St (CM)	West St – Lawrence St (CM)	B: Lawrence St – Charles St	Lawrence St – Charles St (CM)	C: Charles St – George St	Charles St – George St (CM)	D: George St – Mildred St	George St – Mildred St (CM)	E: Mildred St – Church St	Mildred St – Church St (CM)	F: Church St – Seminary St	Church St – Seminary St (CM)	G: Seminary St – Private Driveway /KFC	Seminary St – Private Driveway /KFC (CM)	H: Private Driveway /KFC – Lincoln Dr	Private Driveway /KFC – Lincoln Dr (CM)	I: Lincoln Dr – Jefferson Ave	Lincoln Dr – Jefferson Ave (CM)	J: Jefferson Ave – Euclid Ave	Jefferson Ave – Euclid Ave (CM)	K: Euclid Ave – Prospect Ave/Holly wood Dr	Euclid Ave – Prospect Ave/Holly wood Dr (CM)	L: Prospect Ave/Holly wood Dr – Flowing Springs Way	Prospect Ave/Holly wood Dr – Flowing Springs Way (CM)
Exposure Scoring Sheet																								
Vulnerable Road Users																								
Vulnerable Road Users Present (users per day)	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	50	50	50	50	50	50
Vulnerable Users Score	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	6	6	6	6	6
Crossing Distance (Max Number of Lanes)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	5	4	6	5
Crossing Distance (Max Number of Lanes) Score	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	6	6	6	6	10	8	10	10
Exposure - Vulnerable Road Users Score	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	14	14	12	12	16	14	16	16
Motor Vehicles																								
Motor Vehicle Volumes (AADT)	6950	6950	6950	6950	6950	6950	6950	6950	6950	6950	6950	6950	6950	6950	6950	6950	17334	17334	18300	18300	18300	18300	18300	18300
Motor Vehicle Volumes	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	10	10	10	10	10	10	10	10

Segments Data	A: West St – Lawrence St	West St – Lawrence St (CM)	B: Lawrence St – Charles St	Lawrence St – Charles St (CM)	C: Charles St – George St	Charles St – George St (CM)	D: George St – Mildred St	George St – Mildred St (CM)	E: Mildred St – Church St	Mildred St – Church St (CM)	F: Church St – Seminary St	Church St – Seminary St (CM)	G: Seminary St – Private Driveway /KFC	Seminary St – Private Driveway /KFC (CM)	H: Private Driveway /KFC – Lincoln Dr	Private Driveway /KFC – Lincoln Dr (CM)	I: Lincoln Dr – Jefferson Ave	Lincoln Dr – Jefferson Ave (CM)	J: Jefferson Ave – Euclid Ave	Jefferson Ave – Euclid Ave (CM)	K: Euclid Ave – Prospect Ave/Hollywood Dr	Euclid Ave – Prospect Ave/Hollywood Dr (CM)	L: Prospect Ave/Hollywood Dr – Flowing Springs Way	Prospect Ave/Hollywood Dr – Flowing Springs Way (CM)
(AADT) Score																								
Roadway Width (feet)	40	40	30	30	30	30	25	25	30	30	30	30	30	30	35	34	40	34	40	38	58	48	90	64
Roadway Width Score	6	6	4	4	4	4	1	1	4	4	4	4	4	4	4	4	6	4	6	6	10	10	10	10
Exposure – Motor Vehicles Score	12	12	10	10	10	10	7	7	10	10	10	10	10	10	10	10	16	14	16	16	20	20	20	20
Likelihood Risk Factors (Motor Vehicle)																								
Roadside																								
Risk Factor: Lighting Conditions	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	3	3	3	3	1.5	1.5	1.5	1.5	1.5	1.5	3	3	3	3	3	3
Risk Factor: Fixed Objects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3	3	3
Roadway and Intersection Geometry																								
Risk Factor: Obstructed Sight Distance	3	3	0	0	1.5	1.5	1.5	1.5	0	0	0	0	1.5	1.5	1.5	1.5	0	0	0	0	0	0	0	0
Risk Factor: Topographical Risks	1.5	1.5	0	0	0	0	0	0	0	0	0	0	3	3	1.5	1.5	0	0	0	0	0	0	0	0
Risk Factor: Roadside Characteristics	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

Segments Data	A: West St – Lawrence St	West St – Lawrence St (CM)	B: Lawrence St – Charles St	Lawrence St – Charles St (CM)	C: Charles St – George St	Charles St – George St (CM)	D: George St – Mildred St	George St – Mildred St (CM)	E: Mildred St – Church St	Mildred St – Church St (CM)	F: Church St – Seminary St	Church St – Seminary St (CM)	G: Seminary St – Private Driveway /KFC	Seminary St – Private Driveway /KFC (CM)	H: Private Driveway /KFC – Lincoln Dr	Private Driveway /KFC – Lincoln Dr (CM)	I: Lincoln Dr – Jefferson Ave	Lincoln Dr – Jefferson Ave (CM)	J: Jefferson Ave – Euclid Ave	Jefferson Ave – Euclid Ave (CM)	K: Euclid Ave – Prospect Ave/Hollywood Dr	Euclid Ave – Prospect Ave/Hollywood Dr (CM)	L: Prospect Ave/Hollywood Dr – Flowing Springs Way	Prospect Ave/Hollywood Dr – Flowing Springs Way (CM)
Risk Factor: Driveways	3	3	0	0	0.75	0.75	1.5	1.5	3	3	3	3	3	3	3	3	3	3	3	3	0.75	0.75	0	0
Risk Factor: Separation of Opposing Vehicular Direction of Travel	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1.5	1.5	1.5	1.5	3	3	3	3	3	3
Risk Factor: Crossing Conflict Driveway	3	3	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0	0
Risk Factor: Curvature	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.5	1.5	0	0
Likelihood – Risk Factor Score – Motor Vehicles	6	6	2	2	4	4	4	4	5	5	5	5	6	6	5	5	4	4	6	6	5	5	4	4
Likelihood Score – Motor Vehicles Subtotal	15	15	3	3	9	9	9	9	12	12	12	12	15	15	12	12	9	9	15	15	12	12	9	9

Segments Data	A: West St – Lawrence St	West St – Lawrence St (CM)	B: Lawrence St – Charles St	Lawrence St – Charles St (CM)	C: Charles St – George St	Charles St – George St (CM)	D: George St – Mildred St	George St – Mildred St (CM)	E: Mildred St – Church St	Mildred St – Church St (CM)	F: Church St – Seminary St	Church St – Seminary St (CM)	G: Seminary St – Private Driveway /KFC	Seminary St – Private Driveway /KFC (CM)	H: Private Driveway /KFC – Lincoln Dr	Private Driveway /KFC – Lincoln Dr (CM)	I: Lincoln Dr – Jefferson Ave	Lincoln Dr – Jefferson Ave (CM)	J: Jefferson Ave – Euclid Ave	Jefferson Ave – Euclid Ave (CM)	K: Euclid Ave – Prospect Ave/Hollywood Dr	Euclid Ave – Prospect Ave/Hollywood Dr (CM)	L: Prospect Ave/Hollywood Dr – Flowing Springs Way	Prospect Ave/Hollywood Dr – Flowing Springs Way (CM)
Likelihood Risk Factors (VRU)																								
Pedestrian and Bicycle Accommodation																								
Risk Factor: Pedestrian Space Separation	1.5	1.5	1.5	1.5	1.5	1.5	2.25	2.25	1.5	1.5	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	3	0.75	1.5	0.75	3	2.25
Risk Factor: Bike Space Separation	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Risk Factor: Pedestrian /Bike Time Separation	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	1	3	3	3	3	3	3
Roadside																								
Risk Factor: Lighting Conditions	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	3	3	3	3	1.5	1.5	1.5	1.5	1.5	1.5	3	3	3	3	3	3
Roadway and Intersection Geometry																								
Risk Factor: Obstructed Sight Distance	3	3	0	0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	0	0	0	0	0	0	0	0
Risk Factor: Topographical Risks	1.5	1.5	0	0	0	0	0	0	0	0	0	0	3	3	1.5	1.5	0	0	0	0	0	0	0	0

Segments Data	A: West St – Lawrence St	West St – Lawrence St (CM)	B: Lawrence St – Charles St	Lawrence St – Charles St (CM)	C: Charles St – George St	Charles St – George St (CM)	D: George St – Mildred St	George St – Mildred St (CM)	E: Mildred St – Church St	Mildred St – Church St (CM)	F: Church St – Seminary St	Church St – Seminary St (CM)	G: Seminary St – Private Driveway /KFC	Seminary St – Private Driveway /KFC (CM)	H: Private Driveway /KFC – Lincoln Dr	Private Driveway /KFC – Lincoln Dr (CM)	I: Lincoln Dr – Jefferson Ave	Lincoln Dr – Jefferson Ave (CM)	J: Jefferson Ave – Euclid Ave	Jefferson Ave – Euclid Ave (CM)	K: Euclid Ave – Prospect Ave/Hollywood Dr	Euclid Ave – Prospect Ave/Hollywood Dr (CM)	L: Prospect Ave/Hollywood Dr – Flowing Springs Way	Prospect Ave/Hollywood Dr – Flowing Springs Way (CM)
Risk Factor: Driveways	3	3	0	0	0.75	0.75	1.5	1.5	3	3	3	3	3	3	3	3	3	3	3	3	0.75	0.75	0	0
Risk Factor: Curvature	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.5	1.5	0	0
Likelihood Risk Factor Score – Vulnerable Road Users	6	6	3	3	4	4	4	4	5	5	5	5	6	6	5	5	4	4	5	4	4	4	4	4
Likelihood Score – Vulnerable Road Users Subtotal	15	15	6	6	9	9	9	9	12	12	12	12	15	15	12	12	9	9	12	9	9	9	9	9
Severity Scoring Sheet																								
Vulnerable Road Users																								
Risk Factor: Operating Speed (mph) or Speed Limit +7 mph	25	25	25	25	25	25	25	25	32	32	32	32	32	32	32	32	32	32	42	40	42	40	42	42
Severity – Vulnerable Road Users Score	5	5	5	5	5	5	5	5	15	15	15	15	15	15	15	15	15	15	20	20	20	20	20	20
Motor Vehicles																								

Segments Data	A: West St – Lawrence St	West St – Lawrence St (CM)	B: Lawrence St – Charles St	Lawrence St – Charles St (CM)	C: Charles St – George St	Charles St – George St (CM)	D: George St – Mildred St	George St – Mildred St (CM)	E: Mildred St – Church St	Mildred St – Church St (CM)	F: Church St – Seminary St	Church St – Seminary St (CM)	G: Seminary St – Private Driveway /KFC	Seminary St – Private Driveway /KFC (CM)	H: Private Driveway /KFC – Lincoln Dr	Private Driveway /KFC – Lincoln Dr (CM)	I: Lincoln Dr – Jefferson Ave	Lincoln Dr – Jefferson Ave (CM)	J: Jefferson Ave – Euclid Ave	Jefferson Ave – Euclid Ave (CM)	K: Euclid Ave – Prospect Ave/Hollywood Dr	Euclid Ave – Prospect Ave/Hollywood Dr (CM)	L: Prospect Ave/Hollywood Dr – Flowing Springs Way	Prospect Ave/Hollywood Dr – Flowing Springs Way (CM)
Risk Factor: Operating Speed (mph) or Speed Limit +7 mph	25	25	25	25	25	25	25	25	32	32	32	32	32	32	32	32	32	32	42	40	42	40	42	42
Severity – Motor Vehicles Score	1	1	1	1	1	1	1	1	6	6	6	6	6	6	6	6	6	6	12	9	12	9	12	12
Summary Scoring Sheet																								
Exposure – Motor Vehicles Score	12	12	10	10	10	10	7	7	10	10	10	10	10	10	10	10	16	14	16	16	20	20	20	20
Likelihood – Motor Vehicles Score	15	15	3	3	9	9	9	9	12	12	12	12	15	15	12	12	9	9	15	15	12	12	9	9
Severity – Motor Vehicles Score	1	1	1	1	1	1	1	1	6	6	6	6	6	6	6	6	6	6	12	9	12	9	12	12
Mode Subtotal – Motor Vehicles Score	180	180	30	30	90	90	63	63	720	720	720	720	900	900	720	720	864	756	2,880	2,160	2,880	2,160	2,160	2,160
Exposure – Vulnerable Road Users Score	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	14	14	12	12	16	14	16	16
Likelihood – Vulnerable Road	15	15	6	6	9	9	9	9	12	12	12	12	15	15	12	12	9	9	12	9	9	9	9	9

Segments Data	A: West St – Lawrence St	West St – Lawrence St (CM)	B: Lawrence St – Charles St	Lawrence St – Charles St (CM)	C: Charles St – George St	Charles St – George St (CM)	D: George St – Mildred St	George St – Mildred St (CM)	E: Mildred St – Church St	Mildred St – Church St (CM)	F: Church St – Seminary St	Church St – Seminary St (CM)	G: Seminary St – Private Driveway /KFC	Seminary St – Private Driveway /KFC (CM)	H: Private Driveway /KFC – Lincoln Dr	Private Driveway /KFC – Lincoln Dr (CM)	I: Lincoln Dr – Jefferson Ave	Lincoln Dr – Jefferson Ave (CM)	J: Jefferson Ave – Euclid Ave	Jefferson Ave – Euclid Ave (CM)	K: Euclid Ave – Prospect Ave/Hollywood Dr	Euclid Ave – Prospect Ave/Hollywood Dr (CM)	L: Prospect Ave/Hollywood Dr – Flowing Springs Way	Prospect Ave/Hollywood Dr – Flowing Springs Way (CM)
Users Score																								
Severity – Vulnerable Road Users Score	5	5	5	5	5	5	5	5	15	15	15	15	15	15	15	15	15	15	20	20	20	20	20	20
Mode subtotal – Vulnerable Road Users Score	900	900	360	360	540	540	540	540	2,160	2,160	2,160	2,160	2,700	2,700	2,160	2,160	1,890	1,890	2,880	2,160	2,880	2,520	2,880	2,880
TOTAL SCORE	1,080	1,080	390	390	630	630	603	603	2,880	2,880	2,880	2,880	3,600	3,600	2,880	2,880	2,754	2,646	5,760	4,320	5,760	4,680	5,040	5,040

Intersections

Intersections Data	1: West St	West St (CM)	2: Lawrence St	Lawrence St (CM)	3: Charles St	Charles St (CM)	4: George St	George St (CM)	5: Mildred St	Mildred St (CM)	6: Church St	Church St (CM)	7: Seminary St	Seminary St (CM)	8: Jefferson Ave	Jefferson Ave (CM)	9: Euclid Ave	Euclid Ave (CM)	10: Prospect Ave/Hollywood Dr	Prospect Ave/Hollywood Dr (CM)	11: Flowing Springs Way	Flowing Springs Way (CM)
Exposure Scoring Sheet																						
Vulnerable Road Users																						
Vulnerable Road Users Present (users per day)	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	50	50	50	50	50	50
Vulnerable Users Score	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	6	6	6	6	6
Crossing Distance (Max Number of Lanes)	3	3	2	2	2	2	3	3	2	2	2	2	2	2	3	3	3	3	6	5	6	4
Crossing Distance (Max Number of Lanes) Score	6	6	4	4	4	4	6	6	4	4	4	4	4	4	6	6	6	6	10	10	10	8
Exposure Vulnerable Road Users Score	14	14	12	12	12	12	14	14	12	12	12	12	12	12	14	14	12	12	16	16	16	14
Motor Vehicles																						
Motor Vehicle Volumes (AADT)	9099	9099	7950	7950	7950	7950	9462	9462	8950	8950	7950	7950	7950	7950	20414	20414	18834	18834	19334	19334	22848	22848
Motor Vehicle Volumes (AADT) Score	6	6	6	6	6	6	6	6	6	6	6	6	6	6	10	10	10	10	10	10	10	10
Roadway Width (feet)	45	45	40	40	41	41	39	39	41	41	40	40	37	37	36	36	39	39	72	62	76	64
Roadway Width Score	8	8	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	10	10	10	10
Exposure Motor Vehicles Score	14	14	12	12	12	12	12	12	12	12	12	12	12	12	16	16	16	16	20	20	20	20
Likelihood Risk Factors (Motor Vehicle)																						

Intersections Data	1: West St	West St (CM)	2: Lawrence St	Lawrence St (CM)	3: Charles St	Charles St (CM)	4: George St	George St (CM)	5: Mildred St	Mildred St (CM)	6: Church St	Church St (CM)	7: Seminary St	Seminary St (CM)	8: Jefferson Ave	Jefferson Ave (CM)	9: Euclid Ave	Euclid Ave (CM)	10: Prospect Ave/Hollywood Dr	Prospect Ave/Hollywood Dr (CM)	11: Flowing Springs Way	Flowing Springs Way (CM)
Roadside																						
Risk Factor: Lighting Conditions																						
(Washington St) Eastbound	3	3	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	3	3	3	3	3	3	3	3	3	3	3	
(Washington St) Westbound	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	3	3	3	3	3	3	3	3	3	3	1.5	1.5	3	3
Northbound	3	3	3	3	3	3	1.5	1.5	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Southbound	3	3	3	3	3	3	1.5	1.5	3	3	3	3	3	3	1.5	1.5			1.5	1.5	3	3
Intersection Operations																						
Risk Factor: Turn Right on Red Conditions																						
(Washington St) Eastbound	3	3	0	0	0	0	1.5	1.5	3	3	0	0	0	0	3	3	0	0	3	3	3	3
(Washington St) Westbound	3	3	0	0	3	3	1.5	1.5	3	3	0	0	0	0	3	3	3	3	3	3	3	3
Northbound	3	3	3	3	3	3	1.5	1.5	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Southbound	3	3	3	3	0	0	1.5	1.5	3	3	3	3	3	3	3	3			3	3	3	3
Risk Factor: Permissive Left Turns																						
(Washington St) Eastbound	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			2	1	2	1
(Washington St) Westbound	3	3	3	3	0	0	3	3	3	3	3	3	3	3	2	1	3	3	2	1	2	1

Intersections Data	1: West St	West St (CM)	2: Lawrence St	Lawrence St (CM)	3: Charles St	Charles St (CM)	4: George St	George St (CM)	5: Mildred St	Mildred St (CM)	6: Church St	Church St (CM)	7: Seminary St	Seminary St (CM)	8: Jefferson Ave	Jefferson Ave (CM)	9: Euclid Ave	Euclid Ave (CM)	10: Prospect Ave/Hollywood Dr	Prospect Ave/Hollywood Dr (CM)	11: Flowing Springs Way	Flowing Springs Way (CM)
Northbound	3	1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0	0	3	3
Southbound	3	3	3	3	0	0	3	3	3	3	3	3	3	3	3	3			0	0	3	3
Risk Factor: Obstructed Sight Distance																						
(Washington St) Eastbound	0	0	3	3	1.5	1.5	1.5	1.5	1.5	1.5	3	3	0	0	0	0	0	0	0	0	1.5	1.5
(Washington St) Westbound	0	0	3	3	1.5	1.5	1.5	1.5	1.5	1.5	3	3	3	3	0	0	3	3	1.5	1.5	0	0
Northbound	1.5	1.5	3	3	1.5	1.5	1.5	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	1.5	1.5	3	3	1.5	1.5	1.5	1.5	1.5	1.5	3	3	0	0	0	0			0	0	0	0
Risk Factor: Topographical Risks																						
(Washington St) Eastbound	1.5	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.5	1.5
(Washington St) Westbound	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.5	1.5
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			3	3	0	0
Risk Factor: Roadside Characteristics																						
(Washington St) Eastbound	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	3	1.5	1.5	1.5	1.5	1.5
(Washington St) Westbound	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	0	0	0	1.5	0	0

Intersections Data	1: West St	West St (CM)	2: Lawrence St	Lawrence St (CM)	3: Charles St	Charles St (CM)	4: George St	George St (CM)	5: Mildred St	Mildred St (CM)	6: Church St	Church St (CM)	7: Seminary St	Seminary St (CM)	8: Jefferson Ave	Jefferson Ave (CM)	9: Euclid Ave	Euclid Ave (CM)	10: Prospect Ave/ Hollywood Dr	Prospect Ave/ Hollywood Dr (CM)	11: Flowing Springs Way	Flowing Springs Way (CM)
Northbound	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Southbound	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5			1.5	1.5	3	3
Risk Factor: Channelized Right-Turn Lane																						
(Washington St) Eastbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(Washington St) Westbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.5	0
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			0	0	1.5	0
Risk Factor: Driveways																						
(Washington St) Eastbound	0	0	0	0	0	0	1.5	1.5	0	0	0	0	0	0	3	3	0	0	1.5	1.5	0	0
(Washington St) Westbound	3	3	0	0	0	0	0	0	1.5	1.5	0	0	0	0	3	3	0	0	0	0	0	0
Northbound	1.5	1.5	0	0	0	0	1.5	1.5	0	0	0	0	0	0	3	3	1.5	1.5	3	3	3	3
Southbound	1.5	1.5	0	0	0	0	0	0	0	0	0	0	0	0	3	3			1.5	1.5	1.5	1.5
Risk Factor: Separation of Opposing Vehicular Direction of Travel																						
(Washington St) Eastbound	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1.5	1.5	3	1.5	3	1.5	0.75	0.75
(Washington St) Westbound	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1.5	3	1.5	3	3	0.75	0.75

Intersections Data	1: West St	West St (CM)	2: Lawrence St	Lawrence St (CM)	3: Charles St	Charles St (CM)	4: George St	George St (CM)	5: Mildred St	Mildred St (CM)	6: Church St	Church St (CM)	7: Seminary St	Seminary St (CM)	8: Jefferson Ave	Jefferson Ave (CM)	9: Euclid Ave	Euclid Ave (CM)	10: Prospect Ave/ Hollywood Dr	Prospect Ave/ Hollywood Dr (CM)	11: Flowing Springs Way	Flowing Springs Way (CM)
Northbound	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
Southbound	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			3	3	3	3
Risk Factor Crossing Conflict Driveway (Roundabout)																						
(Washington St) Eastbound	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
(Washington St) Westbound	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Northbound	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Southbound	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			3	3	3	3
Risk Factor: Skewed Intersection																						
(Washington St) Eastbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
(Washington St) Westbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3	3	3	3	3
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			0	0	3	3
Roadway Information																						
Number of Legs	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	4	4	4	4
Likelihood Risk Factor Score - Motor Vehicles	7	6	6	6	5	5	5	5	6	6	6	6	5	5	6	6	6	5	6	5	7	7
Likelihood Score: Motor	18	15	15	15	12	12	12	12	15	15	15	15	12	12	15	15	15	12	15	12	18	18

Intersections Data	1: West St	West St (CM)	2: Lawrence St	Lawrence St (CM)	3: Charles St	Charles St (CM)	4: George St	George St (CM)	5: Mildred St	Mildred St (CM)	6: Church St	Church St (CM)	7: Seminary St	Seminary St (CM)	8: Jefferson Ave	Jefferson Ave (CM)	9: Euclid Ave	Euclid Ave (CM)	10: Prospect Ave/Hollywood Dr	Prospect Ave/Hollywood Dr (CM)	11: Flowing Springs Way	Flowing Springs Way (CM)
Vehicle Subtotal																						
Likelihood Risk Factors (VRU)																						
Pedestrian and Bicycle Accommodation																						
Risk Factor: Pedestrian Space Separation																						
(Washington St) Eastbound	1.5	1.5	3	3	1.5	1.5	0.75	0.75	1.5	1.5	3	3	3	3	3	1.5	3	3	3	2.25	1.5	1.5
(Washington St) Westbound	1.5	1.5	3	3	1.5	1.5	0.75	0.75	3	3	3	3	3	3	3	1.5	3	3	3	1.5	3	1.5
Northbound	3	1.5	2.25	2.25	3	3	0.75	0.75	1.5	1.5	3	3	3	3	3	1.5	1.5	1.5	3	1.5	3	1.5
Southbound	1.5	1.5	2.25	2.25	1.5	1.5	0.75	0.75	1.5	1.5	3	3	3	3	3	1.5			3	1.5	3	1.5
Risk Factor: Bike Space Separation																						
(Washington St) Eastbound	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
(Washington St) Westbound	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Northbound	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Southbound	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			3	3	3	3
Risk Factor: Pedestrian/Bike Time Separation																						
(Washington St) Eastbound	2.25	2.25	3	3	2.25	2.25	0.75	0.75	3	3	3	3	3	3	3	2.25	3	3	3	2.25	2.25	2.25

Intersections Data	1: West St	West St (CM)	2: Lawrence St	Lawrence St (CM)	3: Charles St	Charles St (CM)	4: George St	George St (CM)	5: Mildred St	Mildred St (CM)	6: Church St	Church St (CM)	7: Seminary St	Seminary St (CM)	8: Jefferson Ave	Jefferson Ave (CM)	9: Euclid Ave	Euclid Ave (CM)	10: Prospect Ave/Hollywood Dr	Prospect Ave/Hollywood Dr (CM)	11: Flowing Springs Way	Flowing Springs Way (CM)
(Washington St) Westbound	2.25	2.25	3	3	2.25	2.25	0.75	0.75	3	3	3	3	3	3	3	2.25	3	3	3	2.25	3	2.25
Northbound	2.25	2.25	3	3	2.25	2.25	0.75	0.75	3	3	3	3	3	3	3	2.25	3	3	3	2.25	3	2.25
Southbound	2.25	2.25	3	3	2.25	2.25	0.75	0.75	3	3	3	3	3	3	3	2.25			3	2.25	3	2.25
Risk Factor: Bicycle Time Separation																						
(Washington St) Eastbound	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
(Washington St) Westbound	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Northbound	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Southbound	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			3	3	3	3
Risk Factor: Lighting Conditions																						
(Washington St) Eastbound	3	3	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	3	3	3	3	3	3	3	3	3	3	3	3
(Washington St) Westbound	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	3	3	3	3	3	3	3	3	3	3	1.5	1.5	3	3
Northbound	3	3	3	3	3	3	1.5	1.5	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Southbound	3	3	3	3	3	3	1.5	1.5	3	3	3	3	3	3	1.5	1.5			1.5	1.5	3	3
Intersection Operations																						
Risk Factor: Right Turn on Red Conditions																						
(Washington St) Eastbound	3	3	0	0	0	0	1.5	1.5	3	3	0	0	0	0	3	3	0	0	3	3	3	3

Intersections Data	1: West St	West St (CM)	2: Lawrence St	Lawrence St (CM)	3: Charles St	Charles St (CM)	4: George St	George St (CM)	5: Mildred St	Mildred St (CM)	6: Church St	Church St (CM)	7: Seminary St	Seminary St (CM)	8: Jefferson Ave	Jefferson Ave (CM)	9: Euclid Ave	Euclid Ave (CM)	10: Prospect Ave/ Hollywood Dr	Prospect Ave/ Hollywood Dr (CM)	11: Flowing Springs Way	Flowing Springs Way (CM)
(Washington St) Westbound	3	3	0	0	3	3	1.5	1.5	3	3	0	0	0	0	3	3	3	3	3	3	3	3
Northbound	3	3	3	3	3	3	1.5	1.5	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Southbound	3	3	3	3	0	0	1.5	1.5	3	3	3	3	3	3	3	3			3	3	3	3
Risk Factor: Permissive Left Turns																						
(Washington St) Eastbound	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			2	1	2	1
(Washington St) Westbound	3	3	3	3	0	0	3	3	3	3	3	3	3	3	2	1	3	3	2	1	2	1
Northbound	3	1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0	0	3	3
Southbound	3	3	3	3	0	0	3	3	3	3	3	3	3	3	3	3			0	0	3	3
Roadway and Intersection Geometry																						
Risk Factor: Obstructed Sight Distance																						
(Washington St) Eastbound	0	0	3	3	0	0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	0	0	0	0	0	0	0	0
(Washington St) Westbound	0	0	3	3	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	0	0	0	0	0	0	0	0	0	0
Northbound	1.5	1.5	3	3	1.5	1.5	1.5	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	1.5	1.5	3	3	0	0	1.5	1.5	1.5	1.5	0	0	1.5	1.5	0	0			0	0	0	0
Risk Factor: Topographical Risks																						
(Washington St) Eastbound	1.5	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.5	1.5

Intersections Data	1: West St	West St (CM)	2: Lawrence St	Lawrence St (CM)	3: Charles St	Charles St (CM)	4: George St	George St (CM)	5: Mildred St	Mildred St (CM)	6: Church St	Church St (CM)	7: Seminary St	Seminary St (CM)	8: Jefferson Ave	Jefferson Ave (CM)	9: Euclid Ave	Euclid Ave (CM)	10: Prospect Ave/Hollywood Dr	Prospect Ave/Hollywood Dr (CM)	11: Flowing Springs Way	Flowing Springs Way (CM)
(Washington St) Westbound	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.5	1.5
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			3	3	0	0
Risk Factor: Channelized Right-Turn Lane																						
(Washington St) Eastbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(Washington St) Westbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.5	0
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			0	0	1.5	0
Risk Factor: Driveways																						
(Washington St) Eastbound	0	0	0	0	0	0	1.5	1.5	0	0	0	0	0	0	3	3	0	0	1.5	1.5	0	0
(Washington St) Westbound	3	3	0	0	0	0	0	0	1.5	1.5	0	0	0	0	3	3	0	0	0	0	0	0
Northbound	1.5	1.5	0	0	0	0	1.5	1.5	0	0	0	0	0	0	3	3	1.5	1.5	3	3	3	3
Southbound	1.5	1.5	0	0	0	0	0	0	0	0	0	0	0	0	3	3			1.5	1.5	1.5	1.5
Risk Factor: Skewed Intersection																						
(Washington St) Eastbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
(Washington St) Westbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
Northbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3	3	3	3	3

Intersections Data	1: West St	West St (CM)	2: Lawrence St	Lawrence St (CM)	3: Charles St	Charles St (CM)	4: George St	George St (CM)	5: Mildred St	Mildred St (CM)	6: Church St	Church St (CM)	7: Seminary St	Seminary St (CM)	8: Jefferson Ave	Jefferson Ave (CM)	9: Euclid Ave	Euclid Ave (CM)	10: Prospect Ave/ Hollywood Dr	Prospect Ave/ Hollywood Dr (CM)	11: Flowing Springs Way	Flowing Springs Way (CM)
Southbound	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			0	0	3	3
Roadway Information																						
Number of Legs	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	4	4	4	4
Likelihood Risk Factor Score – Vulnerable Road Users	7	7	7	7	5	5	5	5	7	7	7	7	7	7	8	7	7	7	7	6	9	8
Likelihood Score: VRU Subtotal	18	18	18	18	12	12	12	12	18	18	18	18	18	18	21	18	18	18	18	15	24	21
Severity Scoring Sheet																						
Vulnerable Road Users																						
Risk Factor: Operating Speed (mph) or Speed Limit +7 mph	25	25	25	25	25	25	25	25	32	32	32	32	32	32	42	40	42	40	42	42	42	42
Severity – Vulnerable Road Users Score	5	5	5	5	5	5	5	5	15	15	15	15	15	15	20	20	20	20	20	20	20	20
Motor Vehicles																						
Risk Factor: Operating Speed (mph) or Speed Limit +7 mph	25	25	25	25	25	25	25	25	32	32	32	32	32	32	42	40	42	40	42	42	42	42
Severity – Motor Vehicles Score	1	1	1	1	1	1	1	1	6	6	6	6	6	6	12	9	12	9	12	12	12	12
Summary Scoring Sheet																						
Exposure – Motor Vehicles Score	14	14	12	12	12	12	12	12	12	12	12	12	12	12	16	16	16	16	20	20	20	20

Intersections Data	1: West St	West St (CM)	2: Lawrence St	Lawrence St (CM)	3: Charles St	Charles St (CM)	4: George St	George St (CM)	5: Mildred St	Mildred St (CM)	6: Church St	Church St (CM)	7: Seminary St	Seminary St (CM)	8: Jefferson Ave	Jefferson Ave (CM)	9: Euclid Ave	Euclid Ave (CM)	10: Prospect Ave/Hollywood Dr	Prospect Ave/Hollywood Dr (CM)	11: Flowing Springs Way	Flowing Springs Way (CM)
Likelihood - Motor Vehicles Score	18	15	15	15	12	12	12	12	15	15	15	15	12	12	15	15	15	12	15	12	18	18
Severity - Motor Vehicles Score	1	1	1	1	1	1	1	1	6	6	6	6	6	6	12	9	12	9	12	12	12	12
Mode Subtotal - Motor Vehicles Score	252	210	180	180	144	144	144	144	1080	1080	1080	1080	864	864	2880	2160	2880	1728	3600	2880	4320	4320
Exposure - Vulnerable Road Users Score	14	14	12	12	12	12	14	14	12	12	12	12	12	12	14	14	12	12	16	16	16	14
Likelihood - Vulnerable Road Users Score	18	18	18	18	12	12	12	12	18	18	18	18	18	18	21	18	18	18	18	15	24	21
Severity - Vulnerable Road Users Score	5	5	5	5	5	5	5	5	15	15	15	15	15	15	20	20	20	20	20	20	20	20
Mode subtotal - Vulnerable Road Users Score	1,260	1,260	1,080	1,080	720	720	840	840	3,240	3,240	3,240	3,240	3,240	3,240	5,880	5,040	4,320	4,320	5,760	4,800	7,680	5,880
TOTAL SCORE	1,512	1,470	1,260	1,260	864	864	984	984	4,320	4,320	4,320	4,320	4,104	4,104	8,760	7,200	7,200	6,048	9,360	7,680	12,000	10,200

Appendix B: Countermeasures Cost Estimates

Corridor Wide Estimates

	Other	Backplate Retrofit (per head)	Mobilization (4%)	Maintenance and Protection of Traffic (10%)	Contingencies (25%)	Inspection (12%)	Engineering (25%)	TOTAL
Between KFC Dwy and Flowing Springs Road Commercial Area								
Reduce Travel Lanes to 11ft	\$16,620	-	\$665	\$1,662	\$4,155	\$1,994	\$4,155	\$29,252
Consistent Corridor Cross-Section with Continuous Curbline	\$219,229	-	\$8,769	\$21,923	\$54,807	\$26,308	\$54,807	\$385,844
ADA Compliant Sidewalk	\$1,829,586	-	\$73,183	\$182,957	\$457,397	\$219,550	\$457,397	\$3,220,072
All signalized Intersections								
Signal Backplates	-	\$9,800	\$392	\$980	\$2,450	\$1,176	\$2,450	\$17,248
Ped Features	\$574,110	-	\$22,964	\$57,411	\$143,528	\$68,893	\$143,527	\$1,010,434
FYA Protected Permissive	-	\$42,270	\$1,691	\$4,227	\$10,568	\$5,072	\$10,568	\$74,395
Revise Signal Timings for Protected Permitted Left Turns	\$46,935	-	\$1,877	\$4,694	\$11,733	\$5,632	\$11,734	\$82,606
Location Specific								
RRFB and High Visibility Crosswalk at Alla Willa Dr	\$58,411	-	\$2,336	\$5,841	\$14,603	\$7,009	\$14,603	\$102,803
Access Management at Charlies Too property	\$16,750	-	\$670	\$1,675	\$4,188	\$2,010	\$4,188	\$29,480
Access Management at Jefferson Ave Southern Quadrant Properties	\$73,700	-	\$2,948	\$7,370	\$18,425	\$8,844	\$18,425	\$129,712
Lane Reconfiguration of Washington St WB between Hollywood Dr and Jefferson Ave	\$562,973	-	\$22,519	\$56,297	\$140,743	\$67,557	\$140,743	\$990,837
Total (Rounded) - \$5,595,000								

Location Specifications Estimates

	Other	Backplate Retrofit	Pavement Marking Removal	W/24" Thermo	Mobilization (4%)	Maintenance and Protection of Traffic (10%)	Contingencies (25%)	Inspection (12%)	Engineering (25%)	TOTAL
Washington Street and West Street										
Restripe NB West St for Left Turn Lane	\$5,053	-	-	-	\$202	\$202	\$1,263	\$606	\$1,263	\$8,892
Protected Permissive Left Turn & Restripe NB West for Left Turn	\$18,705	-	-	-	\$748	\$748	\$4,676	\$2,245	\$4,676	\$32,920
Curbed Driveways	\$92,378	-	-	-	\$3,695	\$3,695	\$23,094	\$11,085	\$23,094	\$162,585
High-Visibility Crosswalk NB approach	-	-	\$1,824	\$1,824	\$146	\$146	\$912	\$438	\$912	\$6,420
Signal Backplates	-	\$2,800	-	-	\$112	\$112	\$700	\$336	\$700	\$4,928
Washington Street and Flowing Springs										
Eliminate Channelized Yield Right Turn at NE Corner	\$3,927	-	-	-	\$157	\$393	\$982	\$471	\$982	\$6,912
Update Right Turn Lane Drop Markings & Signing on SB Flowing Springs Rd	\$1,629	-	-	-	\$65	\$163	\$407	\$195	\$407	\$2,866
Eliminate Painted Channelized Right Turn Merge Lane from US 340. Convert to Yield Condition	\$6,232	-	-	-	\$249	\$623	\$1,558	\$748	\$1,558	\$10,967
Construct Median Islands as Pedestrian Refugee Areas	\$232,151	-	-	-	\$9,286	\$23,215	\$58,038	\$27,858	\$58,038	\$408,586
Install Ped Features at Intersection	\$252,641	-	-	-	\$10,106	\$25,264	\$63,160	\$30,317	\$63,160	\$444,648
Replace 5-Section Heads to FYA Protected Permissive	\$14,090	-	-	-	\$564	\$1,409	\$3,523	\$1,691	\$3,527	\$24,798
Revise Signal Timings for Protected Permitted Left Turns	\$15,645	-	-	-	\$626	\$1,565	\$3,911	\$1,877	\$3,911	\$27,535
Signal Backplates	-	\$3,500	-	-	\$140	\$350	\$875	\$420	\$875	\$6,160
Total (Rounded) - \$1,108,000										



Appendix C: Public Feedback

Public Comment Period

Response Summary

Public Comment	Response

Public Meeting