City and County of Denver

Vision Zero Road Safety Audit

University Boulevard from

Yale Avenue to Iowa Avenue

DENVER
TRANSPORTATION &
INFRASTRUCTURE

FELSBURG
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Table of Contents

1 City and County of Denver RSA Process 11

2 RSA Team 13

3 Background Information, Observations, and Recommendations 14

3.1 Pre-Audit Meeting 14

3.2 Field Observations 15

3.3 Recommendation Process 15

3.4 University Boulevard Corridor 16

3.4.1 Corridor Overview 16

3.4.2 Development 19

3.4.3 Corridor Crash Review 22

3.4.4 Crash Data Summary 25

3.4.5 City Staff and RSA Stakeholder Comments 25

3.4.6 Field Observations 25

3.4.7 University Blvd Corridor-wide Recommendations 33

4 Intersection and Midblock Summaries 39

4.1 University Boulevard and Yale Avenue 40

4.1.1 Background Information 40

4.1.2 Crash Review 41

4.1.3 City Staff and RSA Stakeholder Pre-Audit Comments 41

4.1.4 Observations 42

4.1.5 Recommendations 43

4.2 2600 Block – Harvard Gulch Trail 45

4.2.1 Background Information 45

4.2.2 Crash Review 46

DENVER TRANSPORTATION & INFRASTRUCTURE

4.2.3 City Staff and RSA Stakeholder Pre-Audit Comments 47
4.2.4 Observations 47
4.2.5 Recommendations 48
4.3 University Boulevard and Harvard Avenue 50
4.3.1 Background Information 50
4.3.2 Crash Review 51
4.3.3 City Staff and RSA Stakeholder Pre-Audit Comments 52
4.3.4 Observations 52
4.3.5 Recommendations 53
4.4 University Boulevard and Wesley Avenue 55
4.4.1 Background Information 55
4.4.2 Crash Review 56
4.4.3 City Staff and RSA Stakeholder Pre-Audit Comments 57
4.4.4 Observations 57
4.4.5 Recommendations 58
4.5 University Boulevard and Iliff Avenue 61
4.5.1 Background Information 61
4.5.2 Crash Review 62
4.5.3 City Staff and RSA Stakeholder Pre-Audit Comments 63
4.5.4 Observations 63
4.5.5 Recommendations 64
4.6 University Boulevard and Warren Avenue 66
4.6.1 Background Information 66
4.6.2 Crash Review 67
4.6.3 City Staff and RSA Stakeholder Pre-Audit Comments 68

4.6.4 Observations 68
4.6.5 Recommendations 69
4.7 University Boulevard and Evans Avenue 72
4.7.1 Background Information 72
4.7.2 Crash Review 73
4.7.3 City Staff and RSA Stakeholder Pre-Audit Comments 73
4.7.4 Observations 74
4.7.5 Recommendations 74
4.8 University Boulevard between Asbury and Evans Avenue – 2000 Block 75
4.8.1 Background Information 75
4.8.2 Crash Review 76
4.8.3 City Staff and RSA Stakeholder Pre-Audit Comments 77
4.8.4 Observations 77
4.8.5 Recommendations 78
4.9 University Boulevard and Asbury Avenue 80
4.9.1 Background Information 80
4.9.2 Crash Review 81
4.9.3 City Staff and RSA Stakeholder Pre-Audit Comments 81
4.9.4 Observations 82
4.9.5 Recommendations 83
4.10 University Boulevard and Jewell Avenue 85
4.10.1 Background Information 85
4.10.2 Crash Review 86
4.10.3 City Staff and RSA Stakeholder Pre-Audit Comments 86
4.10.4 Observations 87

4.10.5 Recommendations 88
4.11 University Boulevard and Buchtel Boulevard 91
4.11.1 Background Information 91
4.11.2 Crash Review 92
4.11.3 City Staff and RSA Stakeholder Pre-Audit Comments 93
4.11.4 Observations 94
4.11.5 Recommendations 95
4.12 University Boulevard and I-25 Highway 97
4.12.1 Background Information 97
4.12.2 Crash Review 98
4.12.3 City Staff and RSA Stakeholder Pre-Audit Comments 99
4.12.4 Observations 99
4.12.5 Recommendations 100
4.13 University Boulevard and Iowa Avenue 103
4.13.1 Background Information 103
4.13.2 Crash Review 104
4.13.3 City Staff and RSA Stakeholder Pre-Audit Comments 105
4.13.4 Observations 105
4.13.5 Recommendations 106

List of Figures

Figure 1. Project Location Map. 12
Figure 2. University Study Area. 18
Figure 3. Existing Land Use on University Boulevard between Iowa Avenue and Yale Avenue 20
Figure 4. Future Land Use on University Boulevard Between Iowa Avenue and Yale Avenue 21
Figure 5. Corridor Crash Map. 23

Figure 6. Crashes By Location. 24
Figure 7. Drivers experience sun glare issues. 27
Figure 8. Vehicles stopped within crosswalks during congestion. 27
Figure 9. Damaged curb ramps requiring maintenance and repair. 28
Figure 10. Damaged sidewalk requiring maintenance and repair. 28
Figure 11. Delivery vehicles stopping in travel lanes adjacent to businesses. 30
Figure 12. Signal cabinet near curb restricting sight distance at crossing. 30
Figure 13. Tree canopy blocking streetlight, creating dark sidewalk areas. 31
Figure 14. Higher vehicle speeds observed during off-peak periods. 32
Figure 15. City of Denver Left-Turn Warrant Flow Chart. 34
Figure 16. Example of standard pedestrian-level lighting. 37
Figure 17. University Boulevard and Yale Avenue Intersection. 40
Figure 18. Recommendations for the University Boulevard & Yale Avenue Intersection. 44
Figure 19. University Boulevard (2600 Block – Harvard Gulch Trail). 45
Figure 20. Recommendations for University Blvd (2600 Block – Harvard Gulch Trail) 49
Figure 21. University Boulevard and Harvard Avenue Intersection 50
Figure 22. Recommendations for the University Blvd and Harvard Ave Intersection. 54
Figure 23. University and Wesley Avenue Intersection. 55
Figure 24. Recommendations for the University Boulevard and Wesley Avenue Intersection. 59
Figure 25. Concept for the University Boulevard and Wesley Avenue Intersection. 60
Figure 26. University and Iliff Avenue Intersection. 61
Figure 27. Recommendations for the University Boulevard and Iliff Avenue Intersection. 65
Figure 28. University and Warren Avenue Intersection. 66
Figure 29. Recommendations for the University Boulevard and Warren Avenue Intersection. 70
Figure 30. Concept for the University Boulevard and Warren Avenue Intersection. 71

Figure 31. University and Evans Avenue Intersection. 72
Figure 32. University Boulevard (2000 Block – between Asbury Avenue and Evans Avenue). 75
Figure 33. Recommendations for the University Boulevard University Boulevard (2000 Block)..... 79
Figure 34. University Boulevard and Asbury Avenue Intersection..... 80
Figure 35. Recommendations for University Boulevard and Asbury Avenue Intersection. 84
Figure 36. University Boulevard and Jewell Avenue Intersection. 85
Figure 37. Recommendations for the University Boulevard and Jewell Avenue Intersection. 89
Figure 38. Concept for the University Boulevard and Jewell Avenue Intersection. 90
Figure 39. University Boulevard and Buchtel Boulevard Intersection. 91
Figure 40. Recommendations for University Boulevard and Buchtel Boulevard Intersection. 96
Figure 41. University and I-25 Highway Intersection. 97
Figure 42. Recommendations for the University Boulevard and I-25 Highway Intersection. 101
Figure 43. Concept for the University Boulevard and I-25 Highway Intersection. 102
Figure 44. University Boulevard and Iowa Avenue Intersection. 103
Figure 45. Recommendations for the University Boulevard and Iowa Avenue Intersection. 107
Figure 46. Concept for the University Boulevard and Iowa Avenue Intersection. 108

List of Tables

Table 1. Recommended Left-Turn Phasing. 33
Table 2. University Boulevard and Yale Avenue Intersection Crash Summary. 41
Table 3. Recommendations for University Boulevard & Yale Avenue. 43
Table 4. University Boulevard (2600 – Harvard Gulch Trail) Crash Summary. 46
Table 5. Recommendations for University Boulevard (2600 – Harvard Gulch Trail). 48
Table 6. University Boulevard and Harvard Avenue Intersection Crash Summary. 51
Table 7. Recommendations for the University Boulevard and Harvard Avenue. 53
Table 8. University Boulevard and Wesley Avenue Intersection Crash Summary. 56

Table 9. Recommendations at the University Boulevard and Wesley Avenue. 58
Table 10. University Boulevard and Iliff Avenue Intersection Crash Summary. 62
Table 11. Recommendations for University Boulevard and Iliff Avenue..... 64
Table 12. University Boulevard and Warren Avenue Intersection Crash Summary. 67
Table 13. Recommendations for the University Boulevard and Warren Avenue. 69
Table 14. University Boulevard and Evans Avenue Intersection Crash Summary. 73
Table 15. University Boulevard (2000 Block) Crash Summary. 76
Table 16. Recommendations for the University Boulevard (2000 Block). 78
Table 17. University Boulevard and Asbury Avenue Intersection Crash Summary. 81
Table 18. Recommendations for University Boulevard and Asbury Avenue..... 83
Table 19. University Boulevard and Jewell Avenue Intersection Crash Summary. 86
Table 20. Recommendations for University Boulevard and Jewell Avenue..... 88
Table 21. University Boulevard and Buchtel Boulevard Intersection Crash Summary. 93
Table 22. Recommendations for University Boulevard and Buchtel Boulevard. 95
Table 23. University Boulevard and I-25 Highway Intersection Crash Summary. 98
Table 24. Recommendations for University Boulevard and I-25 Highway Intersection..... 100
Table 25. University Boulevard and Iowa Avenue Intersection Crash Summary..... 104
Table 26. Recommendations for University Boulevard and Iowa Avenue Intersection. 106

List of Appendices

Appendix A: Broadway Road Recommendations Table

Appendix B: RSA Pre-Audit Meeting Presentation

Appendix C: RSA Intent Memorandum

Appendix D: Preliminary Findings (Post-Audit) Presentation

Appendix E: Signal Timing Operation Recommendations

Appendix F: Intersection Lighting

Appendix G: Evans Design Plans

Appendix H: Buchtel Design Plans

NOT FOR CONSTRUCTION – Recommendations contained in this document are intended ONLY for use by the local agency in determining possible future changes at the RSA location.

Information provided in this report does not reflect the opinion of any one team member. The recommendations reflect the collective suggestions of all team members based on their individual education, training, and experience.

RSA Team:

- George Shackil, EI, Consor
- Nikki Riemer, PE, RSP1, Consor
- Ben Waldman, PE, PTOE, Consor
- Jay Pawar, EI, Consor
- Travis Moe, PE, Consor
- Gaurav Vasisht, PE, PTOE, RSP21, Felsburg Holt & Ullevig
- Ryan Saline, PE, RSP1, Felsburg Holt & Ullevig
- Omar Aboughazala, Felsburg Holt & Ullevig
- Melissa Gende, PE, PTOE, RSP1, Y2K Engineering

1 City and County of Denver RSA Process

The Denver Vision Zero program provides traffic safety professionals with a unique opportunity to work as part of a dedicated traffic safety improvement program by collaborating with law enforcement, first responders, government officials, and other stakeholders. The University Boulevard corridor from Yale Avenue to Iowa Avenue has been identified by the City and County of Denver (CCD) as part of the High Injury Network, which includes corridors with an elevated number of fatal and injury crashes for all travel modes. The choice of Road Safety Audit (RSA) corridors is driven by their proximity to the Equity Index Areas, (i.e., areas of Denver where more vulnerable populations live). As stated in Denver's Vision Zero statement, these areas are places with higher speeds, in closer proximity to schools and high school density, elderly populations, people with disabilities, and people without vehicles. **Figure 1** displays the project location of University Boulevard between Yale Avenue and Iowa Avenue (University Boulevard corridor).

RSAs are formal examinations of selected roadway infrastructure conducted from a safety performance viewpoint. All RSAs are performed by a qualified, independent, multidisciplinary team and are highly benefited by including one or more professionals trained in performing RSAs. An RSA qualitatively estimates and reports on potential road safety issues and identifies opportunities for safety improvements for all road users. RSAs can be used in any phase of project development from planning to preliminary engineering to design and construction. RSAs can also be used on any sized project from a minor intersection and roadway retrofits to long corridors. The RSA team considers the safety of all road users, qualitatively estimates and reports on potential road safety issues, and identifies opportunities for safety improvements. The RSA team reviews police crash reports, reviews local agency crash data, and conducts field observations during different times of the day such as day/night and peak/non-peak hours.

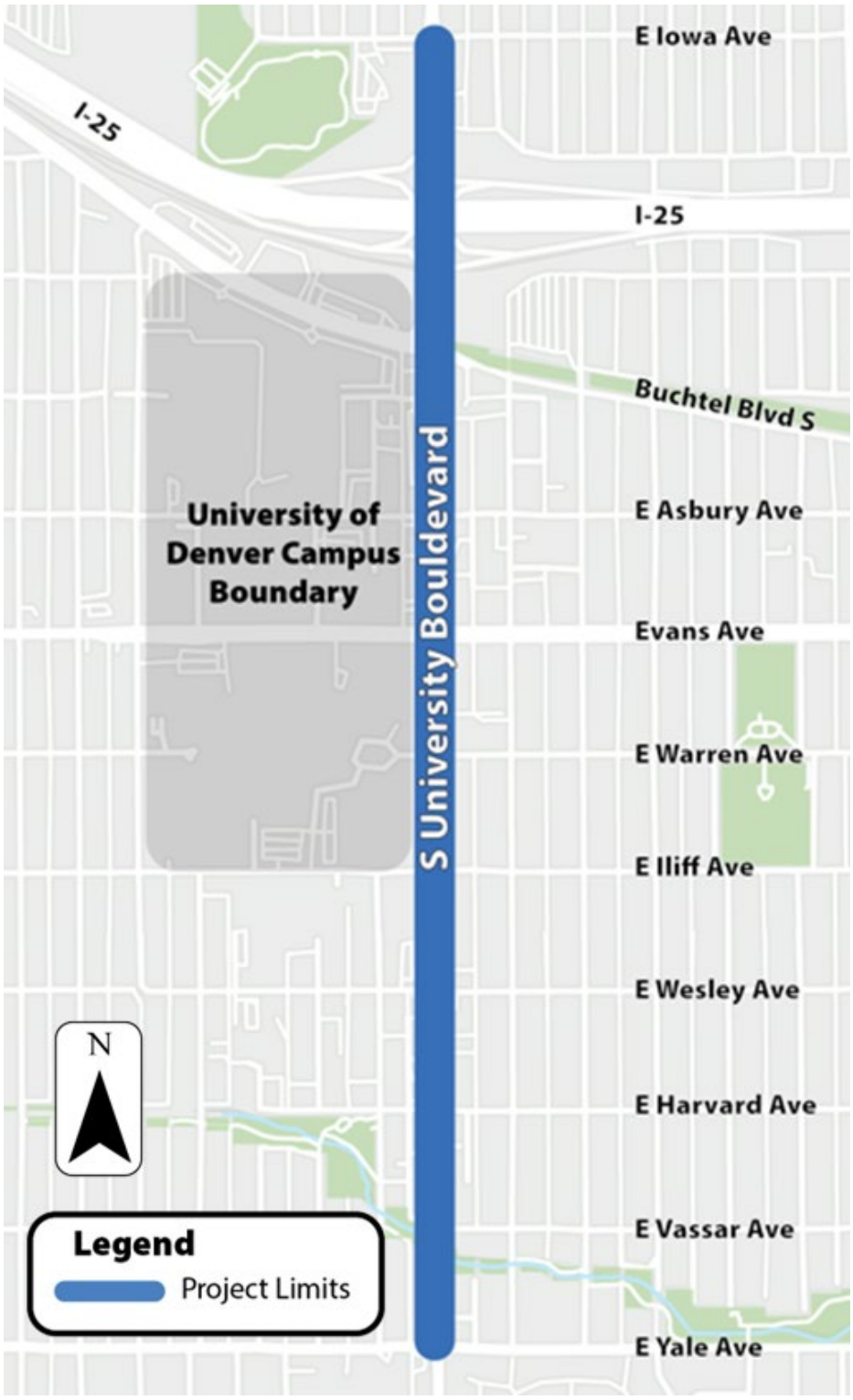

Figure 1. Project Location Map.

2 RSA Team

George Shackil of Consor led the independent multidisciplinary RSA team, which included:

- George Shackil, EI, Consor
- Nikki Riemer, PE, RSP1, Consor
- Ben Waldman, PE, PTOE, Consor
- Jay Pawar, EI, Consor
- Travis Moe, PE, Consor
- Gaurav Vasisht, PE, PTOE, RSP21, Felsburg Holt & Ullevig
- Ryan Saline, PE, RSP1, Felsburg Holt & Ullevig
- Omar Aboughazala, Felsburg Holt & Ullevig
- Melissa Gende, PE, PTOE, RSP1, Y2K Engineering

The RSA team conducted this road safety audit to the best of its ability within the time and budget allotted. The initial recommendations are based on background information provided during the Pre-Audit meeting, an evaluation of historic crash data, and both day and night field reviews. This information assisted the RSA team in identifying potential opportunities to improve the safety performance of University Boulevard from Yale Avenue to Iowa Avenue. This information was initially presented to stakeholders at the Pre-Audit meeting. While every attempt has been made to identify potential safety issues, the safety performance of the roadway remains the responsibility of the roadway owner and roadway users.

3 Background Information, Observations, and Recommendations

The following sections provide corridor background information, details on team meetings, field observations, intersection crash data, and recommendations for the corridor and individual intersections. **Appendix A** includes a comprehensive list of all recommendations, including location, countermeasures, and planning-level cost estimates.

3.1 Pre-Audit Meeting

The Pre-audit Meeting for the University corridor took place virtually on September 15, 2025, on Microsoft Teams. The Pre-audit Meeting's purpose was to introduce all team members and stakeholders involved in the project with the existing conditions and information regarding the subsequent field visit. Stakeholders had the opportunity to share known concerns in the corridor. Below are the participants who attended the meeting.

- Jon Johnson - City and County of Denver
- Rolf Eisinger – City and County of Denver
- Molly Lanphier – City and County of Denver
- Emma De Vos Tidd - City and County of Denver
- Sam Beneck – City and County of Denver
- George Shackil – Consor Engineers
- Ben Waldman - Consor Engineers
- Jay Pawar - Consor Engineers
- Travis Moe – Consor Engineers
- Gaurav Vasisht – FHU Engineering
- Ryan Saline - FHU Engineering
- Omar Aboughazala – FHU Engineering
- Melissa Gende – Y2K

The RSA Pre-Audit Meeting presentation can be found in **Appendix B**. Information presented and discussed at the Pre-Audit Meeting is included in this section under background information, crash review, and comments provided by City staff and RSA stakeholders.

3.2 Field Observations

Field observations were collected by the RSA team on the week of September 15, 2025. Observations took place on:

- Tuesday, September 16, 2025 - 3:00 PM to 6:00 PM (PM Peak)
- Tuesday, September 16, 2025 - 7:00 PM to 9:00 PM (Nighttime)
- Wednesday, September 17, 2025 - 7:00 AM to 10:00 AM (AM Peak)
- Wednesday, September 17, 2025 - 11:00 AM to 2:00 PM (Mid-day)

Further information regarding site visits can be found in the RSA Intent Memorandum in **Appendix C.** The weather on the first day of observations included rain during the beginning of the PM observation and then cleared up for the remainder of observations. During nighttime observations, a storm with heavy rain and wind occurred. The weather on the second day of observations had clear skies. The purpose of the field observations was to note potential safety concerns and identify potential improvements for safety. Observations included roadway geometry, roadway striping, signage, signal timing, bike and pedestrian facilities, vehicle and pedestrian activity, access to transit and transit amenities, lighting, general maintenance, and traffic patterns.

Field observations were obtained by walking, driving, and video recording. The team observed the entirety of the corridor on foot to collect detailed information. Select individuals drove the corridor to collect observations on the comfort of navigating the roadway and side street movements. All midblock, unsignalized, and signalized intersections were observed. The RSA team members met after the mid-day observation period on September 17, 2025, to summarize findings and discuss recommendations. Observations for the corridor and individual intersections can be found in their respective sections found throughout this document.

3.3 Recommendation Process

The recommendations and concepts developed as part of this project were based on analyzed crash data, field observations, and feedback received during the pre-audit meeting. The recommendations are a compilation of contributions from all team members. All road users were considered in the development of the recommendations.

Timeframes were developed to categorize recommendations based on how quickly it was estimated that they could be implemented. These categories include:

- Short-term: (Less than 1 year) Denoted by a green circle
- Medium-term: (1 to 3 years) Denoted by a blue square
- Long-term: (Greater than 3 years) Denoted by a black diamond

Appendix A summarizes the recommendations and includes a planning level cost estimate. This estimate is based on the following assumptions:

- Low: Operational Improvements
- Medium: Up to $100,000
- High: Greater than $100,000

The recommendations and concepts were presented to the RSA team and stakeholders virtually on Microsoft Teams on Thursday, September 25, 2025. Stakeholders were able to provide background information and suggestions for the recommendations and concepts during this meeting. The presentation slides from this meeting are provided in **Appendix D**. The refined recommendations and concepts for each location can be found in their respective sections throughout this document.

3.4 University Boulevard Corridor

This section presents existing conditions information for the segment of University Boulevard from Iowa Avenue to Yale Avenue (which will be referred to as University for the remainder of this document) including a general overview, crash data, geometry, general comments, field observations, and corridor-wide recommendations.

3.4.1 Corridor Overview

The study corridor includes intersections and midblock locations from Iowa Avenue to Yale Avenue, running north-south for approximately 1.4 miles. A median is present on the northern end of the corridor, spanning approximately 500 feet, for both the north and south approaches of the University Boulevard and I-25 Highway intersection. This transitions to a painted two-way-left-turn (TWLTL) median that ends just south of Warren Avenue. The remainder of the corridor has no median but has left-turn auxiliary lanes at several intersections.

The corridor is currently surrounded primarily by a mix of office, mixed use, commercial/retail land use with multi-unit residential developments, and the University of Denver. Situated on the south-east side of Denver's downtown core, University Boulevard accommodates a diverse mix of modes traversing the roadway including high bicycle and pedestrian connectivity, bus, and rail. University Boulevard is

classified as an arterial and serves demand to I-25. While the area's land use is relatively built out, the existing levels of local activity from motor vehicle traffic, transit, bicycle, and pedestrian trips presents the risk of elevated crash occurrences with increased potential of serious injury and fatal crashes. This is a major reason for the corridor being selected for a Road Safety Audit.

The focus of this study's analysis, observations, and recommendations included eight signalized intersections, four unsignalized intersections, and nine midblock sections. **Figure 2** presents the speed and volume information along the University corridor. A combination of speed and volume data previously collected, as well as speed and volume data collected specifically for this project, was evaluated to develop a better understanding of corridor conditions. Volumes on University obtained using the MS2 database were limited to locations that had counts collected no earlier than 2024. This included the intersections at University Boulevard and I-25, University Boulevard and Buchtel Boulevard, University Boulevard and Asbury Avenue, and University Boulevard and Evans Avenue. Volumes for all other intersections were collected on 9/18/25 and 9/23/25. These counts were collected shortly after DU student move-in to ensure that traffic patterns had stabilized and were representative of typical corridor operations. The project team also collected speed and volume data at three locations along University Boulevard south of Iowa Avenue, south of Buchtel Boulevard, and north of Yale Avenue.

The 85th percentile speeds, defined as the speed at or below which 85% of drivers travel, in the north portion of the corridor are 37 MPH in the northbound direction and 35 MPH in the southbound direction. In the middle portion of the corridor, the 85th percentile speeds are 34 MPH in the northbound and the southbound direction. The 85th percentile speeds in the south portion of the corridor are 35 MPH in the northbound direction and 33 MPH in the southbound direction. The speed limit for the University Boulevard corridor is 30 MPH.

The Average Daily Traffic (ADT) is approximately 33,900 vehicles per day (vpd) in the north portion of the corridor, 30,100 vpd in the middle portion of the corridor, and 23,100 vpd in the south portion of the corridor.

The Regional Transportation District (RTD) Route 24 bus route runs along the corridor with limits from the C-470 and South University Park-n-Ride at the south end of the route to the 40th and Colorado Station Platform on the north end with a one hour headway.

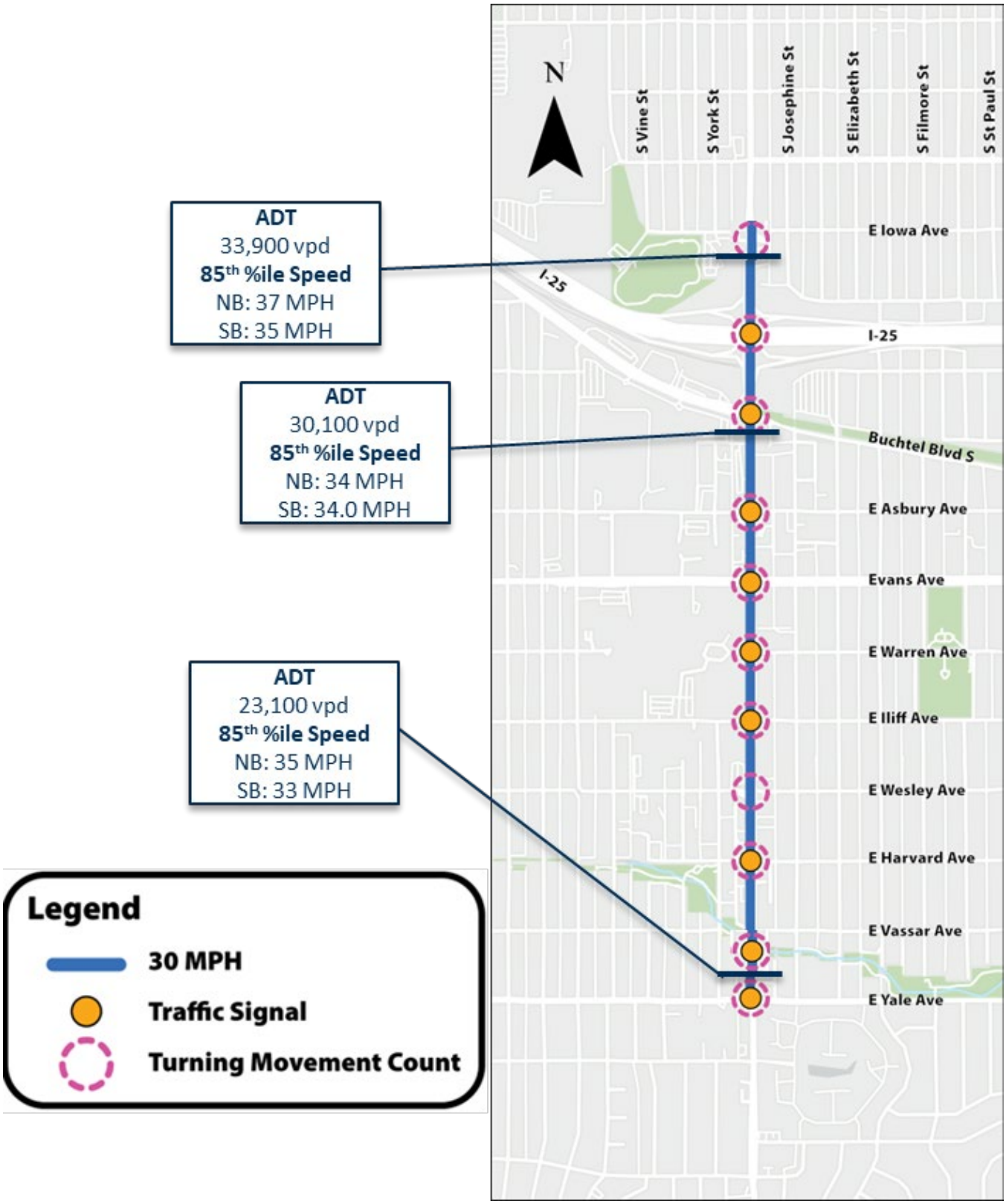

Figure 2. University Study Area.

3.4.2 Development

Figure 3 and Figure 4 display the 2020 existing land uses and the future proposed land uses as shown in *Blueprint Denver*, respectively. Land use remains mostly the same, with future changes limited to designation and naming. In the existing land use map, the corridor is primarily made up of public/semi - public and multi-unit residential. In the future, the primary land uses are campus-related and mixed-use commercial corridors. Based on review of DOTI's site development plan resource, there are no major projects in the area that will add significant demand to study intersections. However, several large, multi-unit apartment buildings have been constructed along the corridor in the past decade.

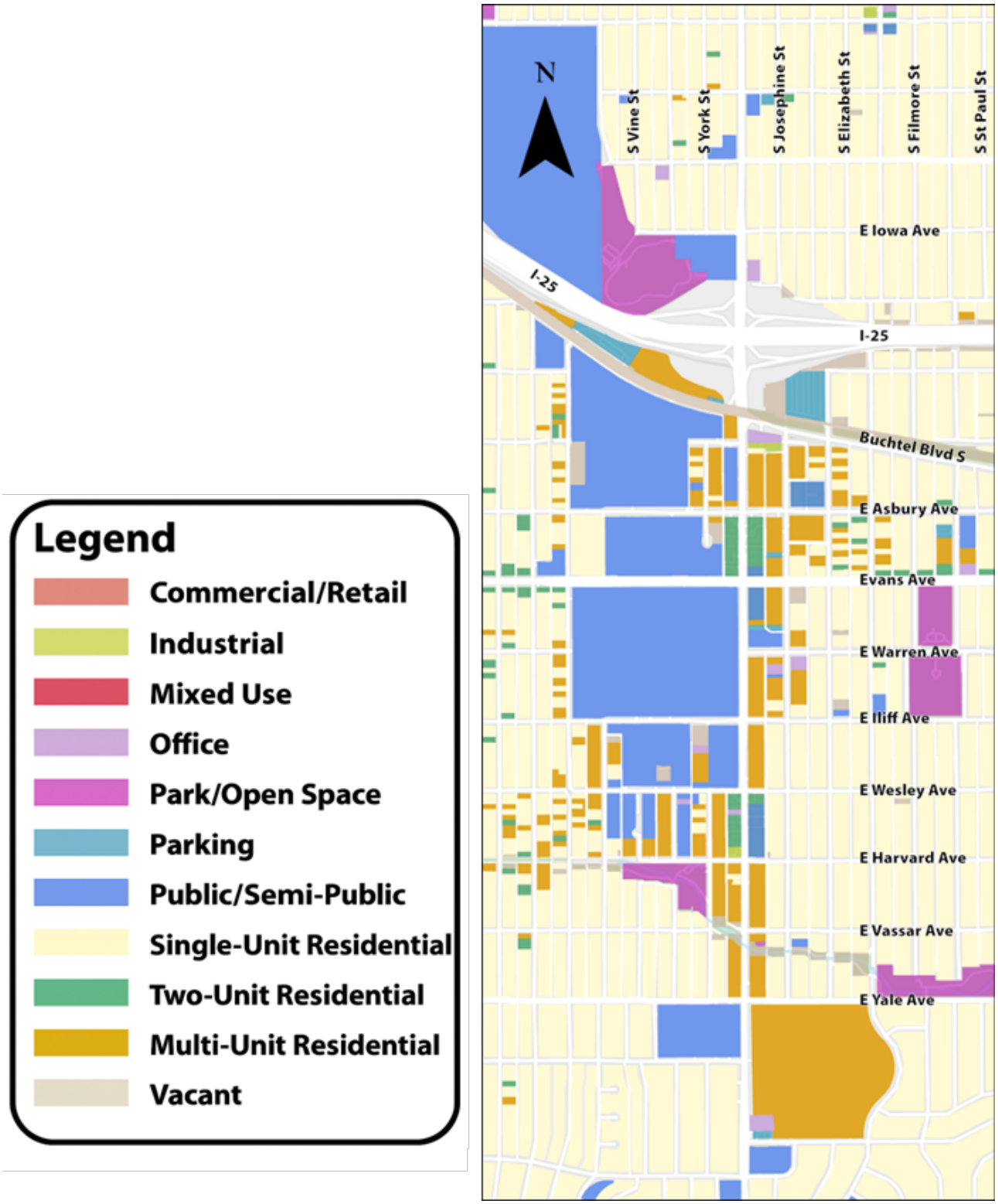

Figure 3. Existing Land Use on University Boulevard between Iowa Avenue and Yale Avenue

(Source: Denver Open Data Catalog: Existing Land Use 2020).

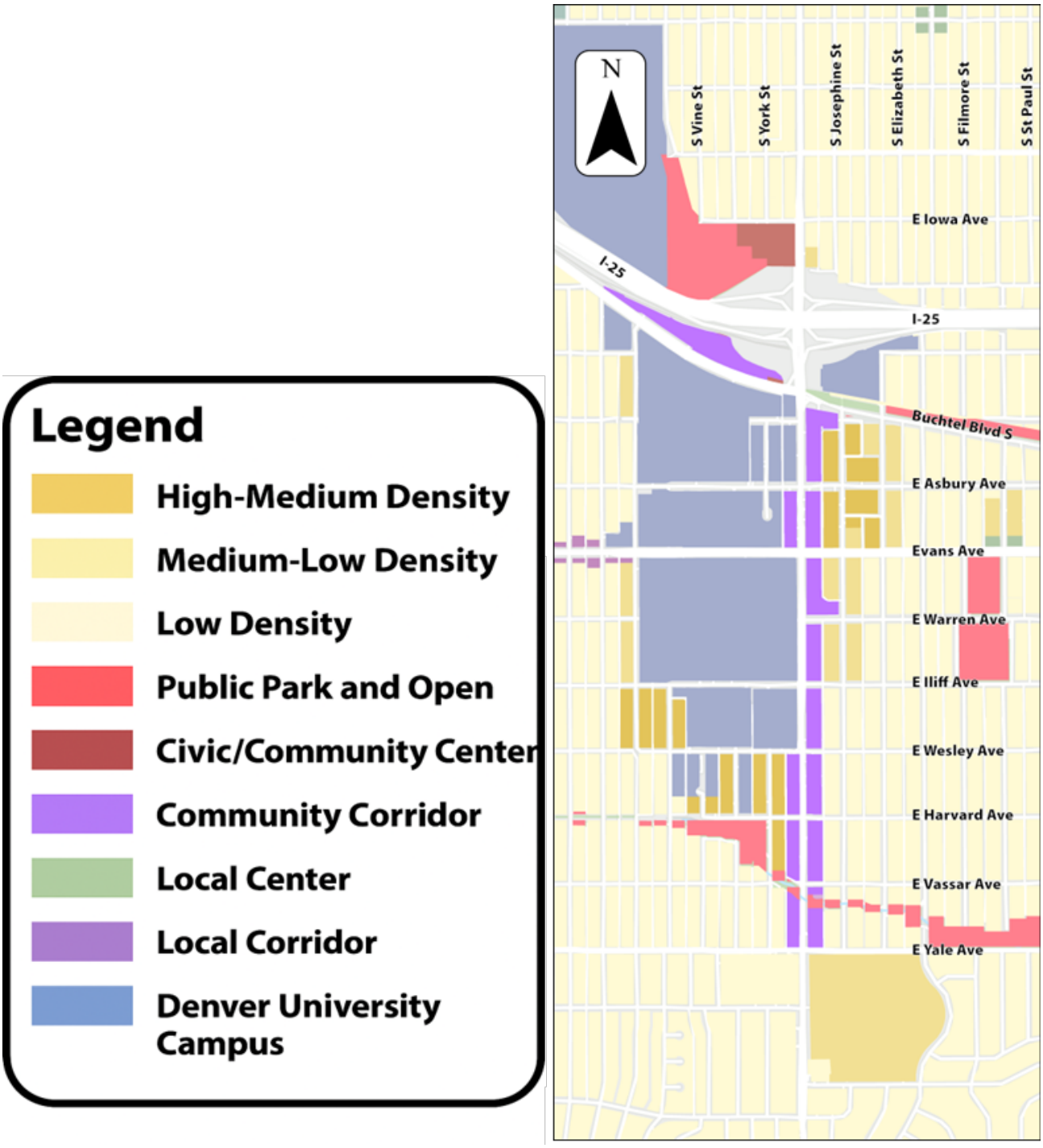

Figure 4. Future Land Use on University Boulevard Between Iowa Avenue and Yale Avenue

(Source: Denver Open Data Catalog: Blueprint Denver Future Places).

3.4.3 Corridor Crash Review

Five years of crash data from June 2020 to May 2025 was analyzed for University Boulevard. There was a total of 359 reported crashes in the study period. **Figure 5** shows the locations and counts of these crashes, highlighting serious injury crashes, pedestrian crashes, and bicycle crashes. **Figure 6** shows Property Damage Only (PDO) and Killed-Severely Injured (KSI) crashes by intersection and midblock. Key crash information includes:

- 1 fatal crash at University Boulevard and Buchtel Boulevard.
- 8 serious injury crashes.
- 6 crashes involved pedestrians.
- 3 crashes involved bicycles.
- 43 percent of all crashes were rear-end crashes, 22 percent of all crashes were broadside crashes, and 19 percent of all crashes were sideswipe crashes.
- 25 percent of KSI crashes were broadside crashes, 25 percent of KSI crashes were head on crashes, 25 percent of KSI crashes were curb crashes, 12.5 percent of crashes were pedestrian crashes, and 12.5 percent of crashes were bicycle crashes.
- 12:00 AM - 3:00 AM and 9:00 PM - 12:00 PM were the most common time periods for KSI crashes.
- University Boulevard and Evans Avenue had the most crashes of all intersections with a total of 69 crashes, including 1 KSI crash.

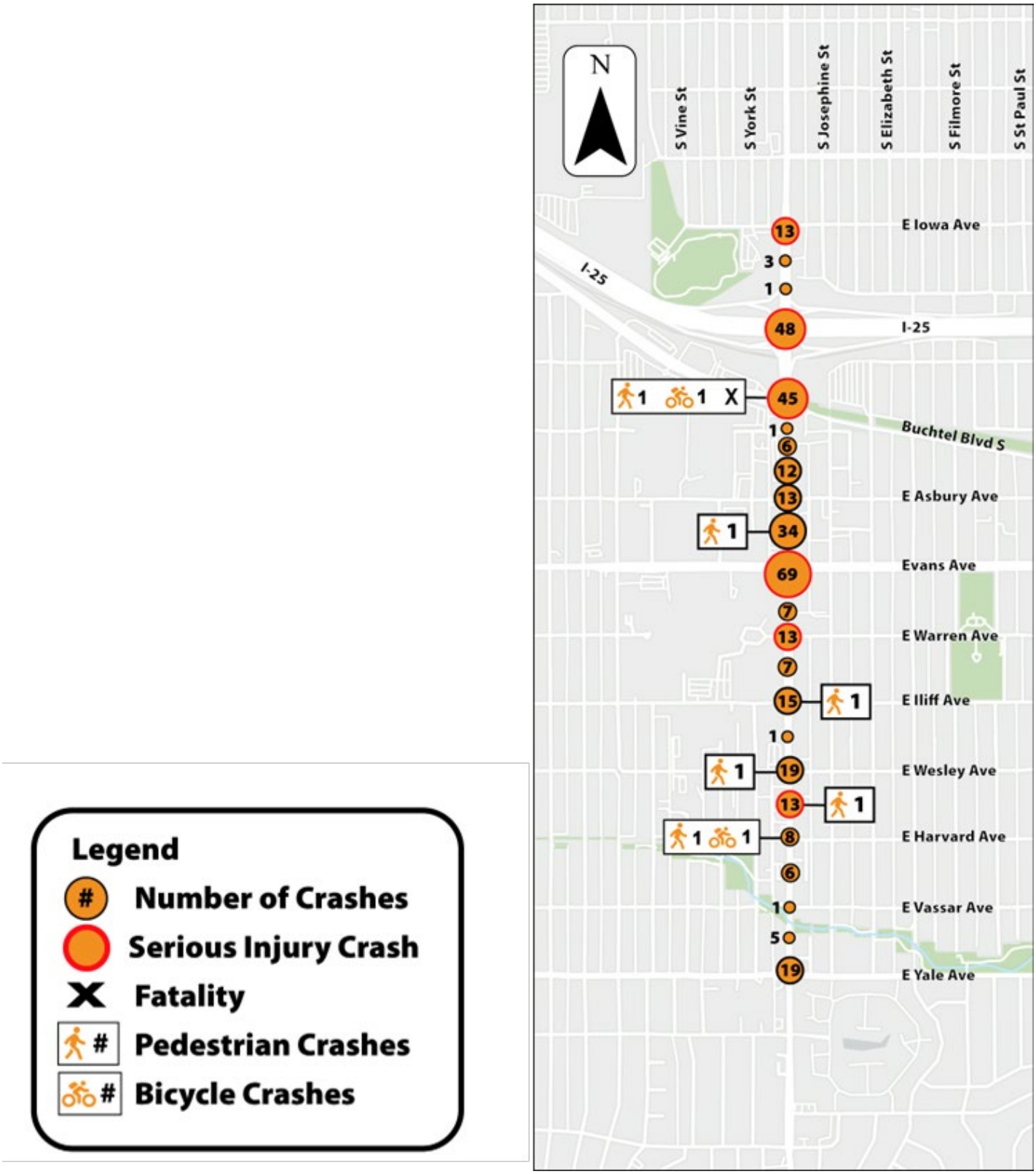

Figure 5. Corridor Crash Map.

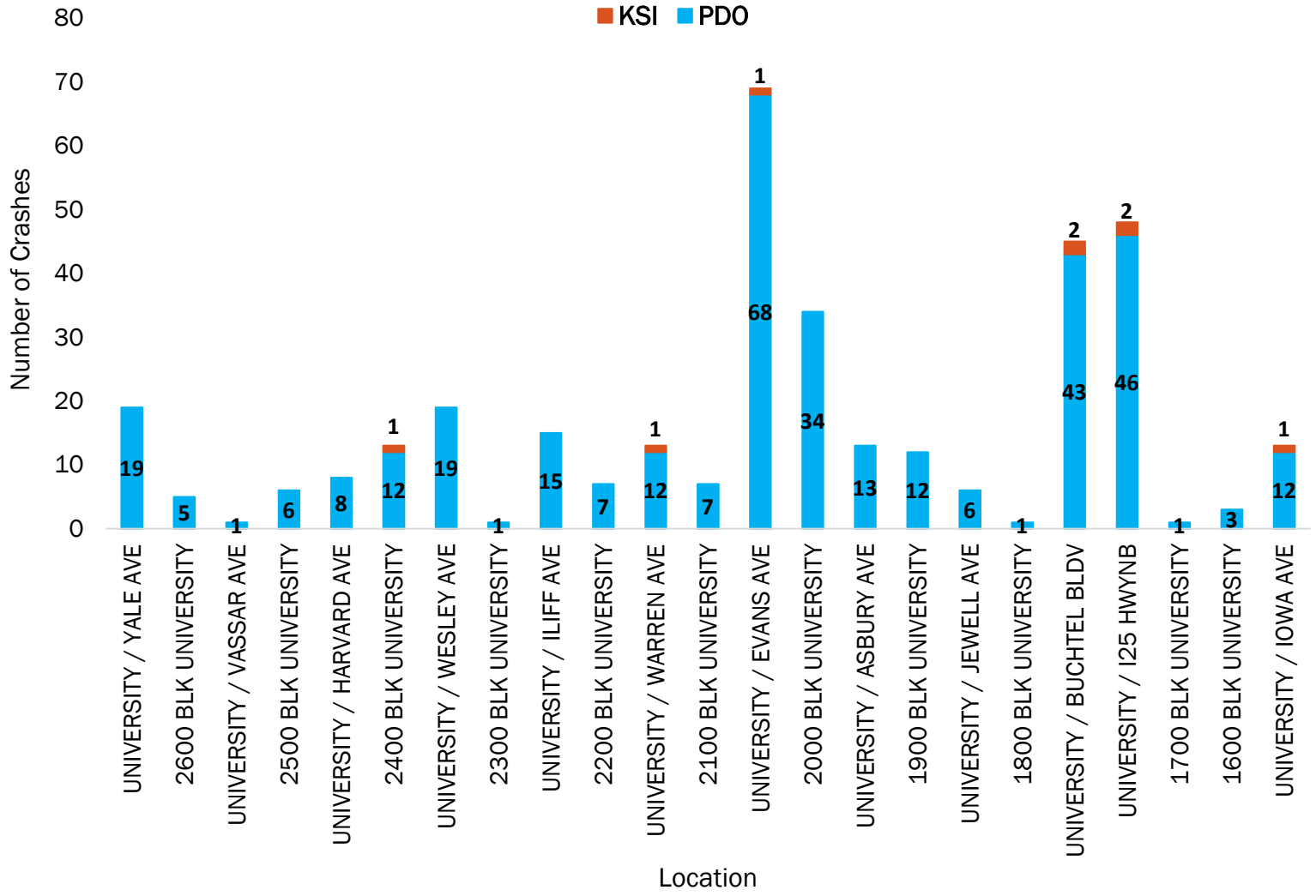

Figure 6. Crashes By Location - PDO and KSI.

3.4.4 Crash Data Summary

- Rear-end and broadside crashes were the most common crash types during the study period. Rear-end crashes were commonly associated with drivers following too closely, which suggests driving conditions that are stop-and-go and require frequent braking. Broadside crashes were commonly associated with left-turning drivers failing to yield the right of way, which suggests that there could be an issue with left-turn movements made during permissive phasing.
- Pedestrian crashes accounted for 2 percent of total crashes and 12.5 percent of KSI crashes during the study period, though this included only 1 KSI crash.
- All crashes occurred at the highest frequency between 9 AM and 6 PM. The 8 KSI crashes were largely distributed throughout the day, though 2 of the KSI crashes occurred between 12AM and 3AM.
- University Boulevard and Evans Avenue was the location with the highest number of crashes, with 68 PDO crashes and 1 KSI crashes during the 5-year study period.

3.4.5 City Staff and RSA Stakeholder Comments

- City staff and RSA stakeholders did not provide comments on crash data.
- A full intersection redesign is planned at University Boulevard and Evans Avenue.
- A full intersection redesign is planned at University Boulevard and Buchtel Avenue.

3.4.6 Field Observations

Road Users

The following road users were observed during field observations by the RSA Team:

- Motor Vehicles
- Pedestrians
- Motorcycles
- Mopeds
- Bicyclists
- Emergency Vehicles
- Buses
- Heavy vehicles

Corridor-Wide Themes

Common themes throughout the corridor related to safety include:

Pedestrian Crossings

- High student crossing activity was observed between the campus and nearby housing, particularly during class change periods, resulting in heavy pedestrian volumes.
- Midblock pedestrian activity is common between Asbury Avenue and Evans Avenue, with many individuals choosing direct paths to food and retail destinations rather than crossing at the nearest intersections.
- Countdown timers and Accessible Pedestrian Signals (APS) functionality were inconsistent along the corridor; some intersections lack pedestrian countdown timers, and APS are not consistently available or operational.
- Sun glare at certain times reduced visibility of signal indications and pedestrians for approaching motorists, particularly at east–west crossings.
- Crosswalks were blocked by vehicles during high-congestion periods, drivers frequently stopped within or over marked crosswalks, impeding pedestrian movements.
- Many pedestrians were observed crossing against the signal to avoid excessive delay, as signals operated on 120-second cycles even during lower off-peak volumes.

Figure 7. Drivers experience sun glare issues.

Figure 8. Vehicles stopped within crosswalks during congestion.

Curb Ramps

- Many ramps are diagonal rather than directional, with missing or damaged truncated domes and uneven or non-level landings (e.g., Yale Avenue).
- Several pedestrian ramps require repair, particularly along the north end of the corridor (e.g., Evans Avenue), where curb ramps show deterioration.

Figure 9. Damaged curb ramps requiring maintenance and repair.

Figure 10. Damaged sidewalk requiring maintenance and repair.

Operations / Signing / Striping

- Lane-assignment signing/striping is largely absent along the corridor, including at locations with left-turn–only lanes, reducing driver guidance.
- Trees and foliage partially block signal heads, regulatory/guide signs, and pedestrian crossings at several locations.
- Queues and delay concentrate at/near University Boulevard & Evans Avenue, with upstream impacts. Queues and delay occur southbound in the PM peak and northbound in the AM peak.
- Limited wayfinding results in a lack of clear directional and locational signage for campus access and nearby activity nodes.
- Loading and delivery activities, including short-duration pick-ups, drop-offs, and brief parking, frequently occur in the outside through lane adjacent to businesses, disrupting traffic flow.
- Pedestrians were observed crossing against signals due to long signal cycles (120 seconds) during off-peak conditions.
- Reflective backplates are absent at most intersections, reducing visual contrast against the background.
- Five-section “doghouse” heads/older signal hardware remains in use at multiple intersections.
- Large signal cabinets positioned close to curb lines limit sight distance for motorists and pedestrians at crossings.
- Traffic signal posts and mast arms are an older design at most intersections through the study area.

Figure 11. Delivery vehicles stopping in travel lanes adjacent to businesses.

Figure 12. Signal cabinet near curb restricting sight distance at crossing.

Lighting

- Mature trees sometimes obscure luminaires, creating localized shadowing and dark spots.
- Midblock lighting is staggered; when a fixture is out or blocked by foliage, long segments can be left without effective lighting.
- Some blocks have very good pedestrian-scale lighting, often associated with recent development or updated lighting. Locations without pedestrian-level light fixtures experience the most shadowing and dark areas.
- Illumination at signalized intersections is generally adequate.

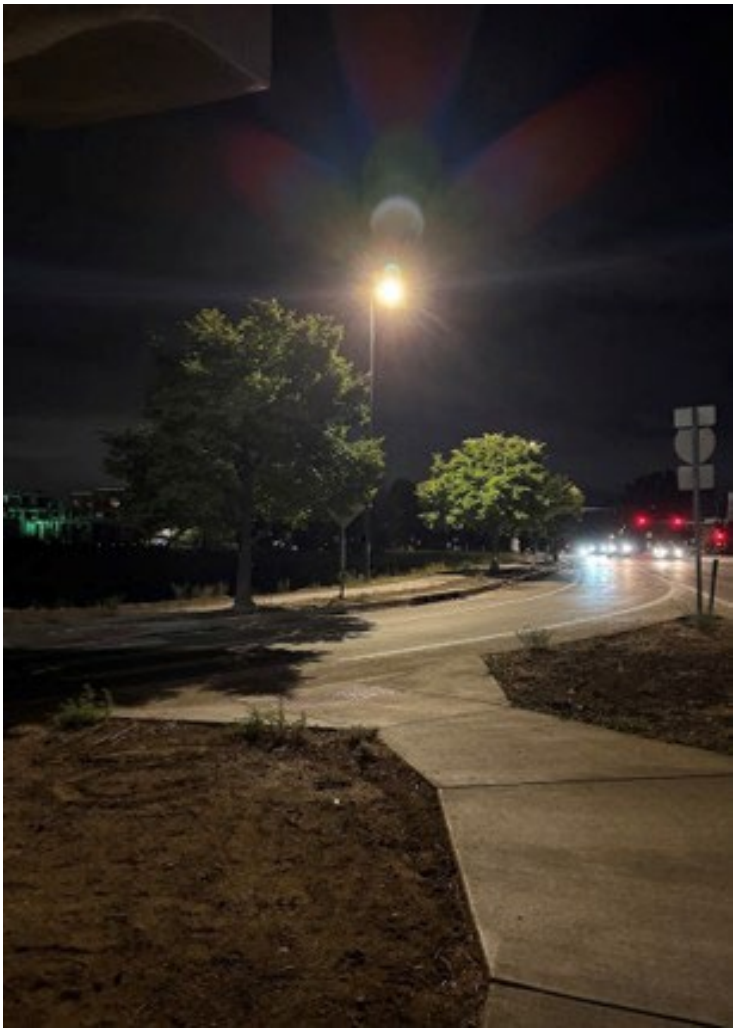

Figure 13. Tree canopy blocking streetlight, creating dark sidewalk areas.

Vehicle Speeds

- Though the posted speed limit is 30 MPH on this corridor, the spot speed measurements taken on site by the RSA team and the speed data collected as part of this study indicate average operating speeds closer to 35 MPH in both directions.
- Speeds are often reduced by congestion during peak hours, though instances of speeding were observed once vehicles cleared Evans Avenue.
- Vehicle speeds were generally higher during off-peak hours compared to peak periods, particularly at night.
- A maximum observed speed of 46 MPH was recorded.

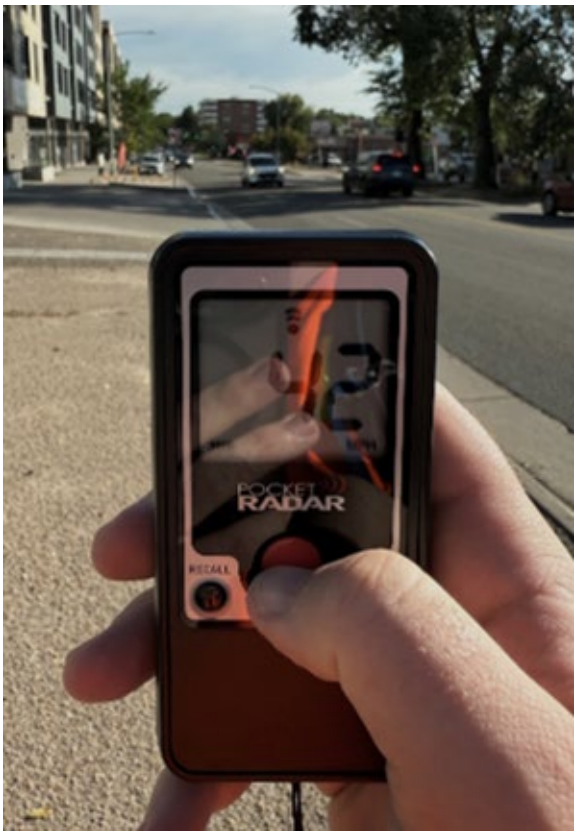

Figure 14. Higher vehicle speeds observed during off-peak periods.

Planned Improvements

- Full intersection redesign at University Boulevard and Evans Avenue.
- Full intersection redesign at University Boulevard and Buchtel Avenue.

3.4.7 University Blvd Corridor-wide Recommendations

The RSA team developed corridor-wide recommendations based on field observations and the field walkthrough. These items address common themes along University Boulevard and focus on corridor-wide safety improvements rather than intersection-specific issues. Recommendations for individual intersections are provided in later sections. Common corridor-wide recommendations include:

Left-turn Operations

During the field visit, signal timing, pedestrian phasing, and left-turn operations were observed and recorded. Left-turn phasing was evaluated using Denver's Left-Turn Warrant Flow Chart shown in **Figure 15**. It was determined that left-turn phasing could be updated at one intersection, Asbury Avenue, to better reflect existing conditions for both operations and safety. While no other locations currently warrant an upgraded left-turn phase, the corridor should be monitored closely in the future to determine if protected left-turn phasing would be beneficial to the safety of the heavy pedestrian traffic along the corridor as the area continues to evolve. **Appendix E** presents the signal timing operation recommendations.

Recommendations:

- Update left-turn phasing to better reflect traffic conditions.
- Recommendations by intersection can be seen in **Table 1.** Items in red indicate a recommended change in phasing. Items with strikethroughs indicate the removal of a phasing type.

Table 1. Recommended Left-Turn Phasing.

Intersection	NBLT	SBLT	EBLT	WBLT
Yale Avenue	Prot/Perm	Prot/Perm	Prot/Perm	Prot/Perm
Harvard Avenue	Prohibited	Prohibited	Perm	Perm
Iliff Avenue	Perm	Perm	Perm	Perm
Warren Avenue	Perm	Perm	Perm	Perm
Evans Avenue	Prot/Perm	Prot/Perm	Prot/Perm	Prot/Perm
Asbury Avenue	Perm	Perm	Prot ~~Perm~~	Prot ~~Perm~~
Buchtel Boulevard	Prot/Perm	Prot/Perm	Prot	Perm
I-25	Prot	Prot	Prot	Prot

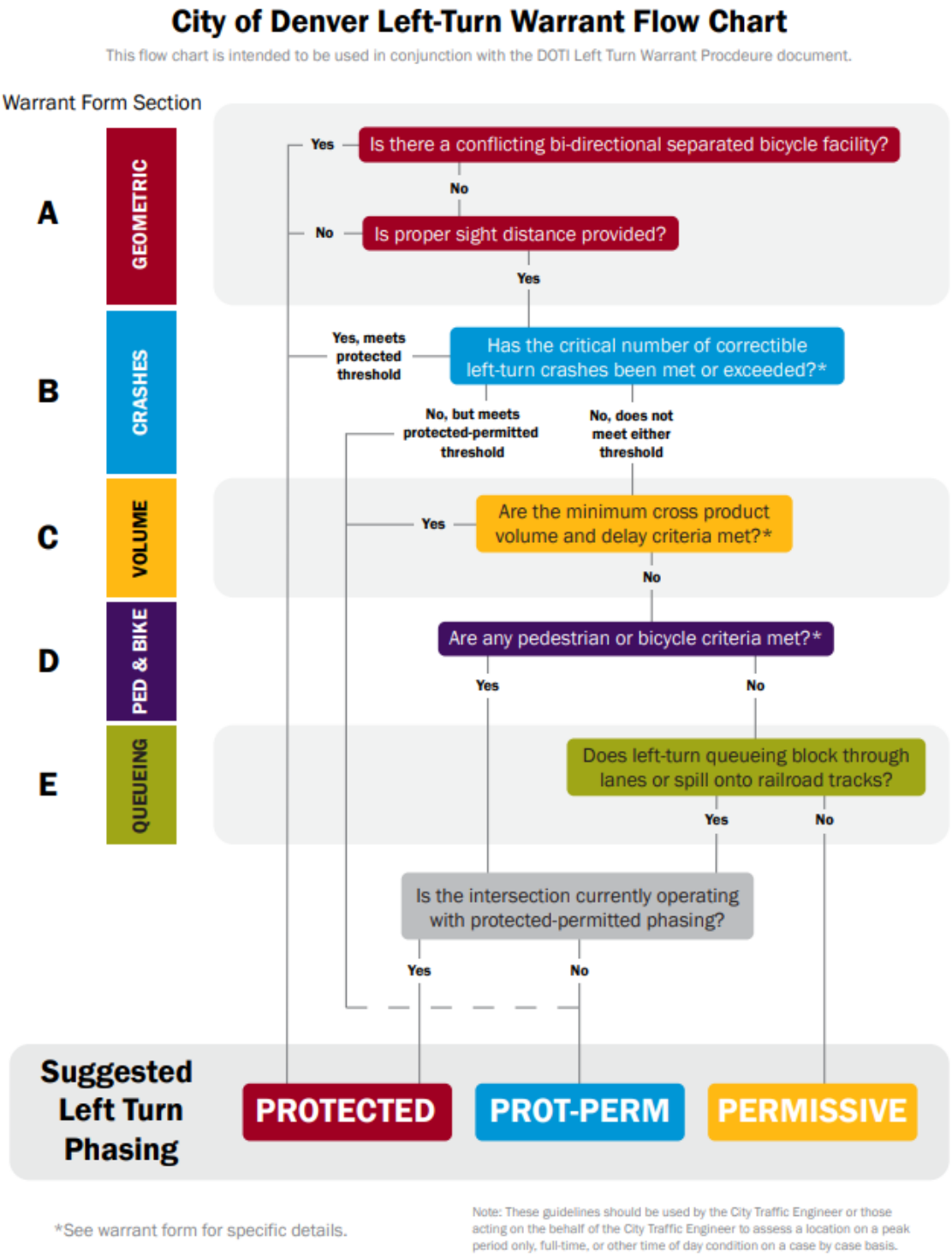

Figure 15. City of Denver Left-Turn Warrant Flow Chart.

Pedestrian Crossings

Field observations along the corridor documented consistently high pedestrian activity, especially between the DU campus and nearby housing, with many people choosing midblock paths to reach food and retail. At several locations, sun glare and vehicles queuing into crosswalks reduced visibility and yielded occasional conflicts, while long signal cycles led some pedestrians to cross against the pedestrian signal indication. In addition, pedestrian equipment varies by intersection: countdown timers and APS features are inconsistent, some crosswalk markings are faded or missing, and many curb ramps are diagonal or lack compliant truncated domes. Collectively, these conditions increase exposure and delay for people walking, particularly during class-change and evening/nighttime periods.

Recommendations:

- Restripe crosswalks where faded or missing. Refresh markings to improve visibility and guidance.
- Install pedestrian countdown indications and APS features. Provide consistent countdowns and accessible push-buttons on all legs.
- Upgrade curb ramps to directional, ADA-compliant designs. Replace diagonal ramps and add compliant truncated domes and level landings.
- Consider Leading Pedestrian Interval or Pedestrian Scramble phases at locations where sun-glare increases risks of pedestrian-vehicle conflicts.
- Re-install stop bars to maintain a minimum 10-foot setback from the crosswalk at signalized intersections to improve visibility.

Signage & Infrastructure Maintenance

Maintenance and signage upgrades should be implemented corridor-wide to keep traffic control devices clear, visible, and easy to understand. Some maintenance items include trimming vegetation that block signal heads and/or signs, restoring damaged or non-retroreflective signs and posts, and restriping faded pavement markings so guidance is legible day and night. A set of signs can be added to address recurring issues such as queue spillback, driver wayfinding, and turn-lane compliance. Together, these actions improve visibility and create more predictable driver and pedestrian behavior.

Recommendations:

- Install wayfinding signage along the corridor.
- Install “Do Not Block Intersection” signs at locations with queue spillback into crosswalks (Buchtel Boulevard, Asbury Avenue, Evans Avenue, Warren Avenue, Iliff Avenue).
- Maintain landscaping/foliage to prevent obstruction of traffic signal equipment or signage.
- Install modified R10-15a “Turning Vehicles STOP for Pedestrians” signs at all intersections (included in the Buchtel Boulevard and Evans Avenue plans).
- Install W11-2 pedestrian crossing signs at intersections with campus connectivity (included in the Evans Avenue plans).
- Install lane assignment markings and provide overhead lane assignment signs on signal mast arms.

Lighting

Lighting conditions along the corridor vary, with adequate coverage at many signalized intersections but notable gaps in between. Broken or flickering luminaires reduce overall lighting consistency, while mature tree canopies and staggered midblock lighting patterns contribute to inconsistent illumination and occasional dark spots. Pedestrian-level lighting is strong in a few newer development areas, but absent in many other locations, creating safety concerns at crossings and along heavily used walking routes. Collectively, these issues impact visibility for both drivers and pedestrians, particularly at night.

Recommendations:

- Fix overhead luminaires that are currently broken.
- Place pedestrian-level lights near I-25 crosswalks (example from CDOT in **Figure 16**).
- Develop and implement a corridor-wide plan for consistent pedestrian-level lighting.

Figure 16. Example of standard pedestrian-level lighting.

Speeding & Signal Timing

Vehicle speeds along the corridor were generally reduced during peak hours due to congestion but increased noticeably during off-peak and nighttime periods, creating safety concerns. Long signal cycle lengths contribute to pedestrian delay and non-compliance, while left-turn queues and inconsistent progression further impact efficiency. Signal timing adjustments, combined with proven strategies from similar corridors, could help reduce speeding, improve progression, and enhance pedestrian safety.

Recommendations:

- Re-time corridor signals, including shortening cycle lengths to reduce pedestrian delay, congestion, off-peak speeding, and left-turn queues.
- Apply strategies from the Federal Boulevard and Alameda Avenue “SPEED” program, for nighttime periods, including corridor progression for 30 MPH, speed feedback signs, more frequent speed limit signs, and side street recall operations.

Signalized Intersection Enhancements

Many of the corridor's signals use older hardware and lack modern safety features, which can reduce visibility and operational consistency. Updating signals to match current citywide standards would improve driver expectancy, enhance visibility in all conditions, and provide more consistent operations for left-turn movements. These upgrades would also address long-term maintenance needs and support safer pedestrian and vehicle interactions.

Recommendations:

- Upgrade signals to current standards.
- Upgrade signals to include capabilities for updated technologies including preemption, detection, and speed enforcement in appropriate locations.
- Provide retroreflective backplates at all intersections.
- Install 4-section flashing yellow arrow (FYA) signal heads for left-turn movements.
- Place signal heads over each lane to improve visibility and compliance.

4 Intersection and Midblock Summaries

This section provides information for individual intersections within the study area. Section contents include background information, geometry, accesses, pedestrian facilities, crash types, contributing factors, crash direction, City Staff and Stakeholder comments, field observations, recommendations, and concepts. Directions for crash types and contributing factures are provided and indicate the direction of travel of the vehicle at fault. Summaries for crash types were provided if they make up a substantial amount of the crashes or they could contribute to crashes resulting in serious injury or fatalities. In some cases, due to missing data in crash records, the summaries may not always add up to a complete total.

It should be noted that crash data was analyzed for several midblock sections. Many recommendations associated with midblock sections are addressed in the corridor wide recommendations and in intersections adjacent to midblock locations. Any midblock locations that do have specific recommendations are included in the sections below. Appendix A presents all recommendations by intersection and includes planning level cost estimates as part of the recommendations.

4.1 University Boulevard and Yale Avenue

4.1.1 Background Information

The University Boulevard and Yale Avenue intersection is a four-leg signalized intersection, surrounded by a mix of commercial and residential land uses, as well as a parking lot. The intersection can be seen in **Figure 17**.

The north leg of University Boulevard has a shared through/right-turn lane, a through lane, and a dedicated left-turn lane. The south leg of University Boulevard has two through lanes, a dedicated left-turn lane, and a dedicated right-turn lane. The east and west legs of Yale Avenue each have a shared through/ right-turn lane, and a dedicated left-turn lane. Crosswalks are present on all four legs of the intersection. The speed limit on University Boulevard through this intersection is 30 MPH, while Yale Avenue operates at 20 MPH within the school zone, 25 MPH on the east leg outside of the school zone, and 30 MPH on the west leg outside of the school zone.

Auxiliary lanes for this location include:

- North Leg (University): Single southbound left-turn lane.
- South Leg (University): Single northbound left-turn lane and a dedicated right-turn lane.
- East Leg (Yale Avenue): Single westbound left-turn lane.
- West Leg (Yale Avenue): Single eastbound left-turn lane.

Figure 17. University Boulevard and Yale Avenue Intersection.

4.1.2 Crash Review

Between June 2020 and May 2025, there were 19 crashes at the intersection of University Boulevard and Yale Avenue. **Table 2** presents details of the crash summary.

- 8 broadside crashes account for 42 percent of all crashes.
- 8 rear-end crashes account for 42 percent of all crashes
- 2 sideswipe crashes account for 11 percent of all crashes.

Table 2. University Boulevard and Yale Avenue Intersection Crash Summary.

		Severity*			Direction**			
		All	KSI	Fatal	N	S	E	W
	Total Crashes	**19**	**0**	**0**	**16%**	**53%**	**10%**	**21%**
Crash Type	Broadside	**8 (42%)**	0 (0%)	0 (0%)	13%	63%	13%	13%
	Rear-End	**8 (42%)**	0 (0%)	0 (0%)	13%	38%	13%	38%
	Sideswipe	**2 (11%)**	0 (0%)	0 (0%)	50%	50%	0%	0%
Driver Action	Followed too Closely	**7 (37%)**	0 (0%)	0 (0%)	14%	29%	14%	43%
	Failed to Stop at Signal	**6 (32%)**	0 (0%)	0 (0%)	0%	83%	0%	17%
	Failed to Yield ROW	**2 (11%)**	0 (0%)	0 (0%)	0%	50%	50%	0%
Movement	Going Straight	**12 (63%)**	0 (0%)	0 (0%)	8%	75%	0%	17%

** Percentages are for the Severity column total. Because only the top Crash Types, Driver Actions, and Movements are shown, percentages may not add up to 100%.*

*** Percentages are for the Crash Type / Driver Action / Movement row total. Due to crash data limitations, columns may occasionally not add up to 100%.*

4.1.3 City Staff and RSA Stakeholder Pre-Audit Comments

City staff and the RSA Stakeholders mentioned the school related traffic at this location during the start and end of the school day.

4.1.4 Observations

The RSA team observed conditions at University Boulevard and Yale Avenue on September 16, 2025, and September 17, 2025, during morning, afternoon, and evening periods. The observations are as follows:

Road Design

- Curb ramps on the southwest and southeast corners are not ADA-compliant, missing truncated domes, level landings, and pole locations encroach on ramp landings.
- Oversized curb radii on the southern corners increase turning speeds and lengthen pedestrian crossing distances.
- Protected bicycle lane begins/ends on the east leg of Yale Avenue, creating a transition point at the intersection.

Traffic Operations

- Denver Police Department (DPD) operated the traffic signals at University Boulevard and Yale Avenue and at Yale Avenue and Gaylord Street for Saint Anne School, with officers present approximately 7:45–8:05 AM and 3:00–3:30 PM during school arrival and afternoon high-demand periods.
- Southbound queues on University Boulevard extended to Harvard Gulch during school arrival.
- Eastbound queues on Yale Avenue extended past Gaylord Street and continued after drop-off.

Traffic Signals

- The southbound left-turn phase appeared very short, indicating either potential issues with vehicle detection or signal timing that may not reflect current traffic volumes.
- Legacy five-section (“doghouse”) left-turn signal heads were observed in poor condition.

4.1.5 Recommendations

Recommendations for the University Boulevard and Yale Avenue intersection are provided in **Table 3** and shown in **Figure 18** below.

Short-term: (Less than 1 year)

Medium-term: (1 to 3 years)

Long-term: (More than 3 years)

Table 3. Recommendations for University Boulevard & Yale Avenue.

1A	A	Confirm southbound left-turn detection is functioning and adjust phase timing if needed.
1B	B	Upgrade curb ramps to ADA-compliant directional ramps with detectable warnings and level landings; relocate conflicting poles to clear landings.
1C	C	Tighten oversized curb radii on the southwest and southeast corners to lower turning speeds and shorten pedestrian crossing distances.
1D	D	Develop and implement a school congestion management plan for Saint Anne School to address recurring AM/PM queues at University & Yale and Yale & Gaylord.
1E	E	Evaluate the need for the northbound right-turn lane based on turning-movement counts and traffic volumes.
1F	F	If the right-turn lane is not warranted, extend the curb line to remove the lane and reduce pedestrian crossing distances.
1G	G	Replace legacy five-section (“doghouse”) left-turn signal heads with four-section flashing yellow arrow (FYA) assemblies and upgrade signal poles and mast arms from slip-fit installations to current standards.
1H	H	Upgrade and harden the protected bike lane at the intersection to meet current design standards.

Figure 18. Recommendations for the University Boulevard & Yale Avenue Intersection.

4.2 2600 Block – Harvard Gulch Trail

4.2.1 Background Information

The 2600 Block – Harvard Gulch Trail segment of University Boulevard is a midblock location between Yale Avenue and Harvard Avenue, surrounded by a mix of residential, commercial, and open-space land uses. The segment includes a bridge structure where University Boulevard crosses Harvard Gulch, located just north of the Harvard Gulch Trail pedestrian signal shown in **Figure 19**.

University Boulevard carries two through lanes in each direction, no dedicated auxiliary turn lanes are provided within the block. Vassar Avenue forms an unsignalized, stop-controlled connection to University Boulevard, while a new pedestrian signal at the Harvard Gulch Trail (just south of Vassar Avenue) provides a marked crossing with pedestrian signal indications. Crosswalks are provided at the trail signal. Sidewalks are present on both sides of University Boulevard. The posted speed on University Boulevard is 30 MPH.

Figure 19. University Boulevard (2600 Block – Harvard Gulch Trail).

4.2.2 Crash Review

Between June 2020 and May 2025, 11 crashes were reported along the 2600 Block – Harvard Gulch Trail segment of University Boulevard (combined total for the 2600 Block south of Vassar and the 2500 Block north of Vassar). **Table 4** presents details of the crash summary.

- 4 sideswipe crashes account for 36 percent of all crashes.
- 3 rear-end crashes account for 27 percent of all crashes
- 1 curb crash which accounts for about 9 percent of all crashes.
- 1 parked-vehicle crash which accounts for about 9 percent of all crashes.

Table 4. University Boulevard (2600 – Harvard Gulch Trail) Crash Summary.

		Severity*			Direction**			
		All	KSI	Fatal	N	S	E	W
	Total Crashes	**11**	**0**	**0**	**36%**	**55%**	**10%**	**9%**
Crash Type	Sideswipe	**4 (36%)**	0 (0%)	0 (0%)	75%	25%	0%	0%
	Parked Vehicle	**1 (9%)**	0 (0%)	0 (0%)	0%	100%	0%	0%
	Curb	**1 (9%)**	0 (0%)	0 (0%)	100%	0%	0%	0%
Driver Action	Lane Violation	**3 (27%)**	0 (0%)	0 (0%)	33%	66%	0%	0%
	Careless Driving	**3 (27%)**	0 (0%)	0 (0%)	66%	33%	0%	0%
	Improper Turn	**2 (18%)**	0 (0%)	0 (0%)	0%	100%	0%	0%
Movement	Going Straight	**5 (45%)**	0 (0%)	0 (0%)	40%	60%	0%	0%

** Percentages are for the Severity column total. Because only the top Crash Types, Driver Actions, and Movements are shown, percentages may not add up to 100%.*

*** Percentages are for the Crash Type / Driver Action / Movement row total. Due to crash data limitations, columns may occasionally not add up to 100%.*

4.2.3 City Staff and RSA Stakeholder Pre-Audit Comments

City staff and RSA stakeholders noted that a new pedestrian signal was recently installed at the Harvard Gulch Trail crossing along University Boulevard. No additional comments were provided during the Pre-Audit meeting.

4.2.4 Observations

The RSA team observed conditions at University Boulevard at the midblock location between Yale Avenue and Harvard Avenue on September 16, 2025, and September 17, 2025, during morning, afternoon, and evening periods. The observations are as follows:

Road Design

- No curb ramp is provided at the southwest corner of Vassar Avenue at University Boulevard, limiting accessible crossing options at this unsignalized intersection.
- Sidewalk width is constrained on the west side of University Boulevard, and a bench located just north of Vassar Avenue further reduces usable width, creating accessibility challenges for wheelchair users and other mobility-impaired individuals.

Traffic Operations

- Delivery vehicles frequently stop along the curb north of the pedestrian signal, and drivers cross midblock to nearby buildings, creating unexpected pedestrian movements in live traffic.
- Multiple driveways along the block generate frequent in/out turning movements, producing additional conflict points for through traffic and pedestrians along this segment.

4.2.5 Recommendations

Recommendations for the University Boulevard (2600 – Harvard Gulch Trail) at the midblock location between Yale Ave and Harvard Ave are provided in **Table 5** and shown in **Figure 20** below.

Short-term: (Less than 1 year)

Medium-term: (1 to 3 years)

Long-term: (More than 3 years)

Table 5. Recommendations for University Boulevard (2600 – Harvard Gulch Trail).

2A	A	Assign a designated loading zone north of Vassar Avenue to reduce delivery vehicles parking in travel lanes.
2B	B	Add edge line to clearly define the travel lane and denote legal parking areas.
2C	C	Install “No Parking” signage near intersections and driveways along this segment to improve sight distance and visibility.
2D	D	Extend the sidewalk on the southwest corner of University Boulevard and Vassar Avenue and install an ADA-compliant curb ramp.

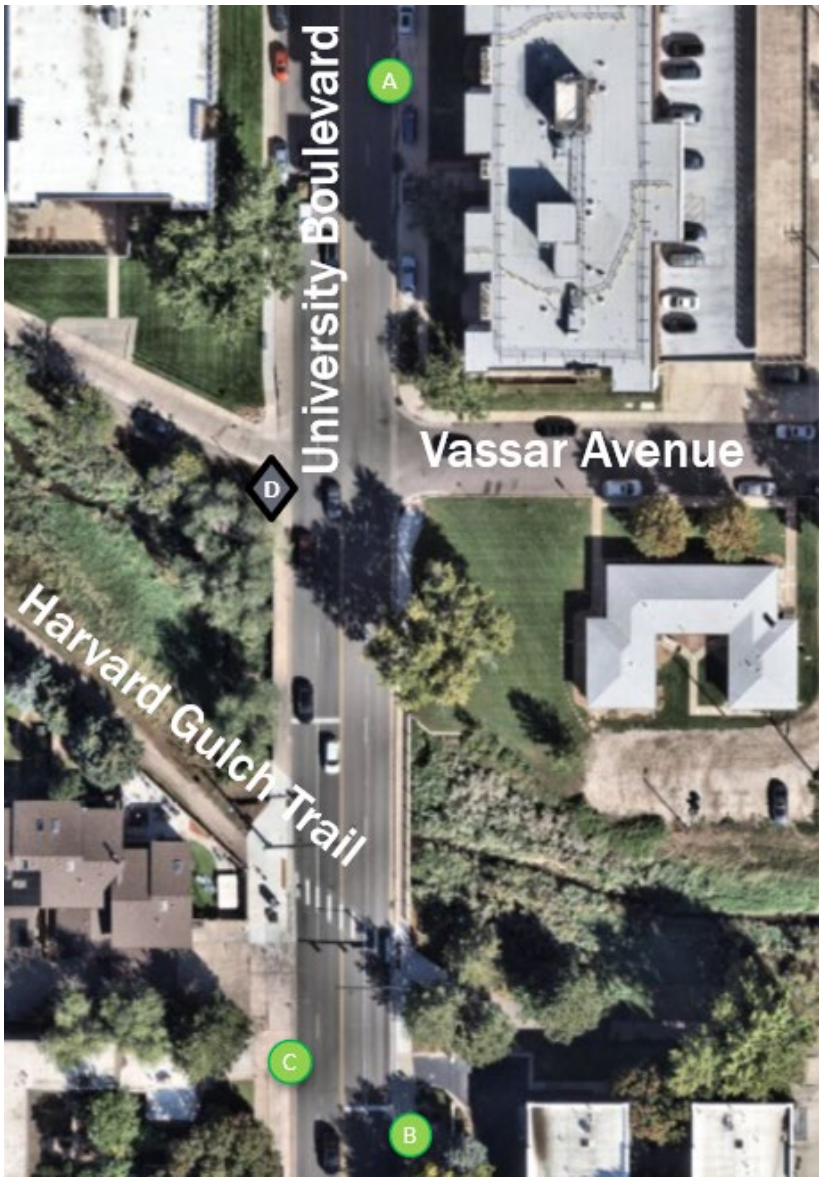

Figure 20. Recommendations for University Blvd (2600 Block – Harvard Gulch Trail).

4.3 University Boulevard and Harvard Avenue

4.3.1 Background Information

The University Boulevard and Harvard Avenue intersection is a four-leg signalized intersection, surrounded by a mix of commercial and residential land uses. The intersection can be seen in Figure 21.

The north and south legs of University Boulevard each have a through lane, and a shared through/right-turn lane. Left-turn movements are prohibited from University Boulevard. The east leg of Harvard Avenue has a shared through/right-turn lane, and a dedicated left-turn lane. The west leg of Harvard Avenue has a shared left/through/right-turn lane. Crosswalks are present on all four legs of the intersection. The speed limit on University Boulevard through this intersection is 30 MPH, while Harvard Avenue operates at 20 MPH.

Auxiliary lanes for this location include:

- East Leg (Harvard Avenue): Single westbound left-turn lane.

Figure 21. University Boulevard and Harvard Avenue Intersection.

4.3.2 Crash Review

Between June 2020 and May 2025, there were 8 crashes at the intersection of University Boulevard and Harvard Avenue. **Table 6** presents details of the crash summary.

- 1 pedestrian crash accounts for 13 percent of all crashes.
    - A pedestrian crash occurred when an eastbound left-turning vehicle failed to yield right of way and struck a pedestrian crossing westbound in the north leg of the intersection.
- 1 bicycle crash accounts for 13 percent of all crashes.
    - A bicycle crash occurred when a cyclist travelling eastbound ignored the traffic signal and was struck by a vehicle travelling northbound.

Table 6. University Boulevard and Harvard Avenue Intersection Crash Summary.

		Severity*			Direction**			
		All	KSI	Fatal	N	S	E	W
	Total Crashes	**8**	**0**	**0**	**0%**	**50%**	**37%**	**13%**
Crash Type	Sideswipe	**3 (38%)**	0 (0%)	0 (0%)	0%	67%	33%	0%
	Pedestrian	**1 (13%)**	0 (0%)	0 (0%)	0%	0%	100%	0%
	Bicycle	**1 (13%)**	0 (0%)	0 (0%)	0%	0%	100%	0%
Driver Action	Lane Violation	**3 (38%)**	0 (0%)	0 (0%)	0%	67%	33%	0%
	Failed to Stop at Signal	**2 (25%)**	0 (0%)	0 (0%)	0%	0%	50%	50%
	Followed too Closely	**1 (13%)**	0 (0%)	0 (0%)	0%	100%	0%	0%
Movement	Making a Left-Turn	**2 (25%)**	0 (0%)	0 (0%)	0%	0%	100%	0%

** Percentages are for the Severity column total. Because only the top Crash Types, Driver Actions, and Movements are shown, percentages may not add up to 100%.*

*** Percentages are for the Crash Type / Driver Action / Movement row total. Due to crash data limitations, columns may occasionally not add up to 100%.*

4.3.3 City Staff and RSA Stakeholder Pre-Audit Comments

City staff and the RSA Stakeholders did not provide any comments on this intersection during the Pre-Audit meeting.

4.3.4 Observations

The RSA team observed conditions at University Boulevard and Harvard Avenue on September 16, 2025, and September 17, 2025, during morning, afternoon, and evening periods. The observations are as follows:

Road Design

- Narrow sidewalk on the west side between Harvard Avenue and Vassar Avenue (approximately 3.5 feet). Overhanging tree branches encroach into the walkway, creating pinch points near the curb and bus stop area.
- Far-side bus pullout bay present on the northbound curb line; curbside space is constrained adjacent to the stop. The southbound stop on the west side of University Boulevard south of Harvard Avenue lacks an ADA-compliant boarding area, provides only a narrow landing surface, and offers no shelter or seating, resulting in substandard passenger accessibility and comfort.

Traffic Operations

- The far-side bus pullout bay was frequently occupied by parked or stopped vehicles, limiting available space for transit operations and creating curbside conflicts.
- Northbound drivers were observed making illegal left-turns onto Harvard Avenue, despite the posted prohibition.
- Northbound curbside parking begins at the stop bar with no parking setback between the intersection and the first space, which reduces visibility and limits maneuvering at the corner.

Traffic Signals

- Pedestrian push-button operation is inconsistent, pressing the button on the north side does not provide a concurrent WALK on the south side, resulting in mismatched pedestrian indications across the intersection.

4.3.5 Recommendations

Recommendations for the University Boulevard and Harvard Avenue intersection are provided in **Table 7** and shown in **Figure 22** below.

Short-term: (Less than 1 year)

Medium-term: (1 to 3 years)

Long-term: (More than 3 years)

Table 7. Recommendations for the University Boulevard and Harvard Avenue.

3A	A	Update pedestrian WALK operations so that pedestrians crossing the north and south legs receive the WALK indication simultaneously.
3B	B	Add a parking setback on the northbound approach at the southeast corner to improve pedestrian visibility.
3C	C	Add curb extensions on side streets to reduce turning vehicle speeds and shorten pedestrian crossing distances.
3D	D	Install centerline extensions on Harvard Avenue to discourage illegal left-turn movements.
3E	E	Evaluate whether the northbound left-turn lane is warranted. If not, consolidate movements into a single lane to reduce pedestrian crossing distance.
3F	F	Reconfigure the curb line to remove the northbound bus pullout so buses stop in-lane.
3G	G	Widen the sidewalk on the southwest side of the intersection to provide more pedestrian space and add transit amenities for the southbound bus stop.

Figure 22. Recommendations for the University Blvd and Harvard Ave Intersection.

4.4 University Boulevard and Wesley Avenue

4.4.1 Background Information

The University Boulevard and Wesley Avenue intersection is a four-leg stop-controlled intersection, with free-flow movements on University Boulevard and stop signs on Wesley Avenue. The intersection is surrounded by a mix of academic, residential, and commercial land uses. The intersection can be seen in **Figure 23.**

The north leg of University Boulevard has two through lanes and a dedicated right-turn lane. Left-turn movements are prohibited in the southbound direction. The south leg of University Boulevard has a shared through/right-turn lane and a shared through/left-turn lane. The east and west legs of Wesley Avenue each have a shared left/through/right-turn lane. The speed limit on University Boulevard through this intersection is 30 MPH, while Wesley Avenue operates at 20 MPH. Auxiliary lanes for this location include:

- North Leg (University): Single southbound right-turn lane.

Figure 23. University and Wesley Avenue Intersection.

4.4.2 Crash Review

Between June 2020 and May 2025, there were 19 crashes at the intersection of University Boulevard and Wesley Avenue. **Table 8** presents details of the crash summary.

- 7 broadside crashes account for 37 percent of all crashes.
- 6 rear-end crashes account for 32 percent of all crashes.
- 1 pedestrian crash accounts for 5 percent of all crashes.
    - A pedestrian crash occurred when a northbound left-turning vehicle failed to yield right of way and struck a pedestrian on the west crosswalk.

Table 8. University Boulevard and Wesley Avenue Intersection Crash Summary.

		Severity*			Direction**			
		All	KSI	Fatal	N	S	E	W
	Total Crashes	**19**	**0**	**0**	**21%**	**47%**	**16%**	**16%**
Crash Type	Broadside	**7 (37%)**	0 (0%)	0 (0%)	0%	43%	29%	29%
	Rear-End	**6 (32%)**	0 (0%)	0 (0%)	33%	50%	0%	17%
	Pedestrian	**1 (5%)**	0 (0%)	0 (0%)	100%	0%	0%	0%
Driver Action	Failed to Yield ROW	**10 (56%)**	0 (0%)	0 (0%)	20%	40%	20%	20%
	Followed Too Closely	**5 (28%)**	0 (0%)	0 (0%)	40%	60%	0%	0%
	Careless Driving	**1 (6%)**	0 (0%)	0 (0%)	0%	100%	0%	0%
Movement	Making Left-Turn	**8 (42%)**	0 (0%)	0 (0%)	25%	50%	0%	25%

** Percentages are for the Severity column total. Because only the top Crash Types, Driver Actions, and Movements are shown, percentages may not add up to 100%.*

*** Percentages are for the Crash Type / Driver Action / Movement row total. Due to crash data limitations, columns may occasionally not add up to 100%.*

4.4.3 City Staff and RSA Stakeholder Pre-Audit Comments

Several 311 comments were provided for this intersection which cited frequent illegal southbound left-turns, which have been prohibited with signage since around 2021-2022.

4.4.4 Observations

The RSA team observed conditions at University Boulevard and Wesley Avenue intersection on September 16, 2025, and September 17, 2025, during morning, afternoon, and evening periods. The observations are as follows:

Road Design

- The southbound right-turn lane appears oversized and underutilized relative to observed demand, with excess pavement width compared to volumes.
- Curb ramps on the west side of the intersection are aged and not ADA-compliant; they are diagonal, lack tactile surfaces, and have small or sloped landing areas that do not align with the crosswalk.
- Southbound approach signs are partially obscured by tree foliage, including the “No Southbound Left-Turn” sign, reducing visibility for approaching drivers.

Traffic Operations

- Multiple drivers were observed making the prohibited southbound left-turn at the intersection, indicating recurring violations.
- Frequent midblock crossings south of the intersection: pedestrians crossed outside of marked crosswalks to reach nearby destinations, creating potential conflict points.

4.4.5 Recommendations

Recommendations for the University Boulevard and Wesley Avenue intersection are provided in **Table 9** and shown in **Figure 24** below. A concept for this location can be found in **Figure 25**.

Short-term: (Less than 1 year)

Medium-term: (1 to 3 years)

Long-term: (More than 3 years)

Table 9. Recommendations at the University Boulevard and Wesley Avenue.

4A	A	Improve lighting conditions at the intersection to enhance nighttime visibility for all users.
4B	B	Trim vegetation at the north end of the intersection to improve visibility for pedestrians and approaching drivers.
4C	C	Upgrade curb ramps on the west side to directional, ADA-compliant ramps with truncated domes and level landings.
4D	D	Add curb extensions on side streets to reduce turning speeds and shorten pedestrian crossing distances.
4E	E	Remove the underutilized southbound right-turn lane to reduce excess pavement and simplify intersection operations.
4F	F	Install channelized islands to convert access to right-in/right-out on Wesley Avenue and prevent prohibited left-turn movements, and harden the centerline on University Boulevard to reinforce turn restrictions.
4G	G	Relocate the southbound bus stop between Iliff Avenue and Wesley Avenue closer to the Wesley intersection to support safer pedestrian crossings.

Figure 24. Recommendations for the University Boulevard and Wesley Avenue Intersection.

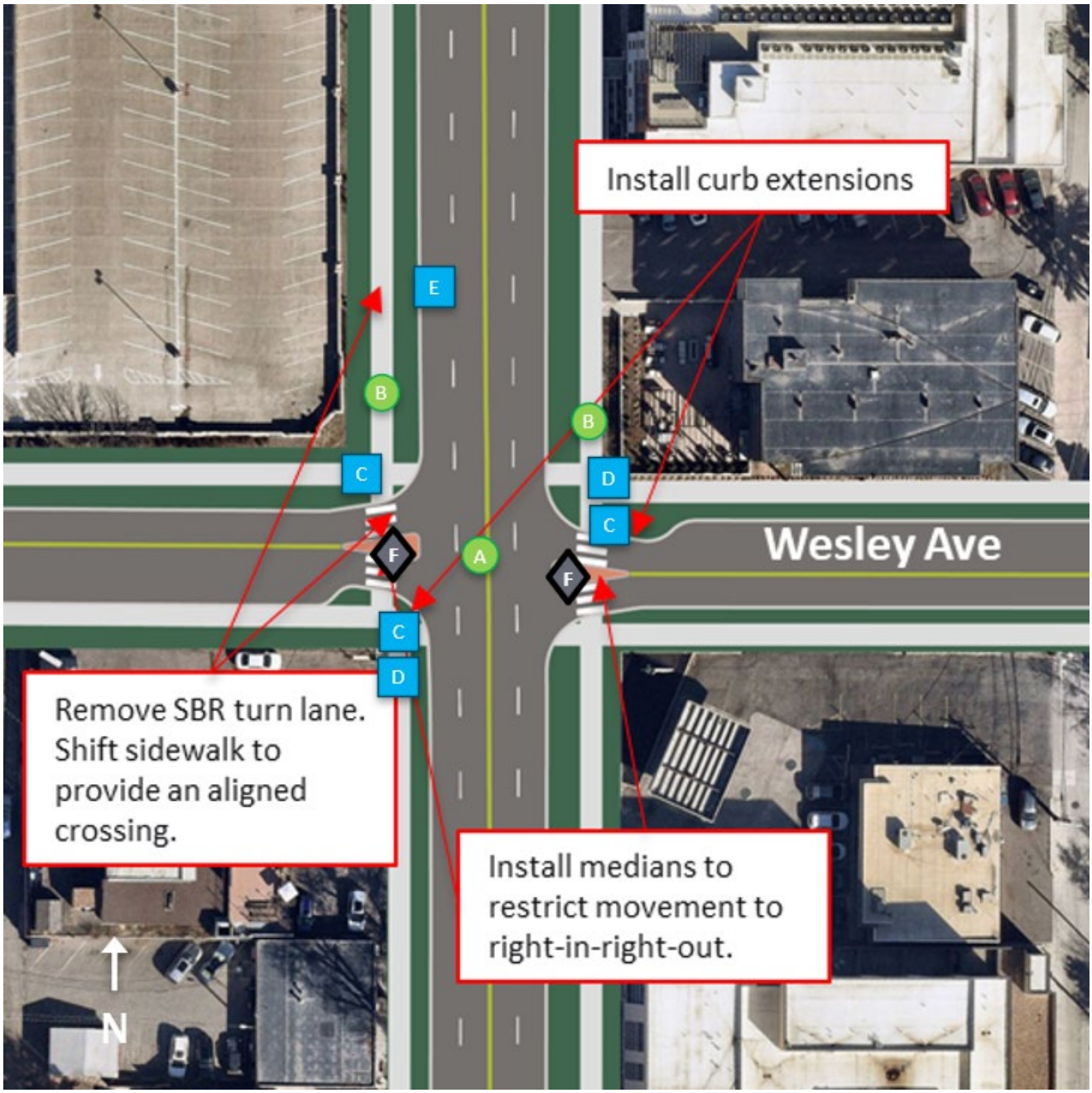

Figure 25. Concept for the University Boulevard and Wesley Avenue Intersection.

4.5 University Boulevard and Iliff Avenue

4.5.1 Background Information

The University Boulevard and Iliff Avenue intersection is a four-leg signalized intersection, surrounded by a mix of academic and residential land uses, including areas associated with the University of Denver. The intersection can be seen in **Figure 26**.

The north and south legs of University Boulevard each have a through lane, a shared through/right-turn lane, and a dedicated left-turn lane. The east and west legs of Iliff Avenue each have a shared through/right-turn lane and a dedicated left-turn lane. Crosswalks are present on all four legs of the intersection. The speed limit on University Boulevard through this intersection is 30 MPH, while Iliff Avenue operates at 25 MPH. Auxiliary lanes for this location include:

- North Leg (University): Single southbound left-turn lane.
- South Leg (University): Single northbound left-turn lane.
- East Leg (Iliff Avenue): Single westbound left-turn lane.
- West Leg (Iliff Avenue): Single eastbound left-turn lane.

Figure 26. University and Iliff Avenue Intersection.

4.5.2 Crash Review

Between June 2020 and May 2025, there were 15 crashes at the intersection of University Boulevard and Iliff Avenue. **Table 10** presents details of the crash summary.

- 5 broadside crashes account for 33 percent of all crashes.
- 2 head on crashes account for 13 percent of all crashes.
- 1 pedestrian crash accounts for 7 percent of all crashes.
    - A pedestrian crash occurred when a westbound left-turning vehicle failed to yield right of way and struck a pedestrian on the south crosswalk.

Table 10. University Boulevard and Iliff Avenue Intersection Crash Summary.

		Severity*			Direction**			
		All	KSI	Fatal	N	S	E	W
	Total Crashes	**15**	**0**	**0**	**27%**	**53%**	**7%**	**7%**
Crash Type	Broadside	**5 (33%)**	0 (0%)	0 (0%)	0%	100%	0%	0%
	Head On	**2 (13%)**	0 (0%)	0 (0%)	50%	50%	0%	0%
	Pedestrian	**1 (7%)**	0 (0%)	0 (0%)	0%	0%	0%	100%
Driver Action	Failed to Yield ROW	**4 (31%)**	0 (0%)	0 (0%)	25%	50%	0%	25%
	Careless Driving	**3 (13%)**	0 (0%)	0 (0%)	0%	100%	0%	0%
	Followed Too Closely	**2 (13%)**	0 (0%)	0 (0%)	50%	50%	0%	0%
Movement	Going Straight	**6 (40%)**	0 (0%)	0 (0%)	17%	83%	0%	0%

** Percentages are for the Severity column total. Because only the top Crash Types, Driver Actions, and Movements are shown, percentages may not add up to 100%.*

*** Percentages are for the Crash Type / Driver Action / Movement row total. Due to crash data limitations, columns may occasionally not add up to 100%.*

4.5.3 City Staff and RSA Stakeholder Pre-Audit Comments

City staff and the RSA Stakeholders did not provide any comments on this intersection during the Pre-Audit meeting.

4.5.4 Observations

The RSA team observed conditions at University Boulevard and Iliff Avenue on September 16, 2025, and September 17, 2025, during morning, afternoon, and evening periods. The observations are as follows:

Road Design

- East-leg crosswalk markings are faded with reduced contrast to the pavement.
- Southwest corner curb ramps are not ADA-compliant; detectable warnings (truncated domes) are missing.

Traffic Operations

- Sun glare reduced visibility at the north leg crosswalk during the morning peak and at the south leg crosswalk during the afternoon peak, making pedestrian indications difficult to see.
- High pedestrian activity related to University of Denver school operations created frequent conflicts between pedestrians and left-turning motorists, which was further exacerbated by sun glare issues.

Traffic Signals

- The southeast-corner pedestrian push-button is mounted on the traffic signal controller cabinet, this atypical placement (vs. pedestal posts) may be different than what pedestrians usually expect.
- APS is not present; no audible features were observed at this intersection.
- Flashing Yellow Arrow (FYA) left-turn indications are not provided on the side-street approaches.
- Emergency-vehicle pre-emption was not observed during the review period at this intersection.

4.5.5 Recommendations

Recommendations for the University Boulevard and Iliff Avenue intersection are provided in **Table 11** and shown in **Figure 27**

Short-term: (Less than 1 year)

Medium-term: (1 to 3 years)

Long-term: (More than 3 years)

Table 11. Recommendations for University Boulevard and Iliff Avenue.

5A	A	Install emergency-vehicle pre-emption equipment at this intersection to enhance emergency response.
5B	B	Install Accessible Pedestrian Signals (APS) with audible and vibrotactile features at all pedestrian crossings.
5C	C	Realign crosswalks to shorten pedestrian crossing distances and improve alignment with curb ramps.
5D	D	Upgrade directional curb ramps on the southwest corner to meet ADA standards, including the installation of truncated domes.
5E	E	Rebuild signal infrastructure with upgraded equipment: - Relocate the control box outside of sight triangles. - Provide flashing yellow arrows (FYA) for permissive left-turn operations. - Install “Turning Vehicles Yield to Pedestrians” signage on signal mast arms.

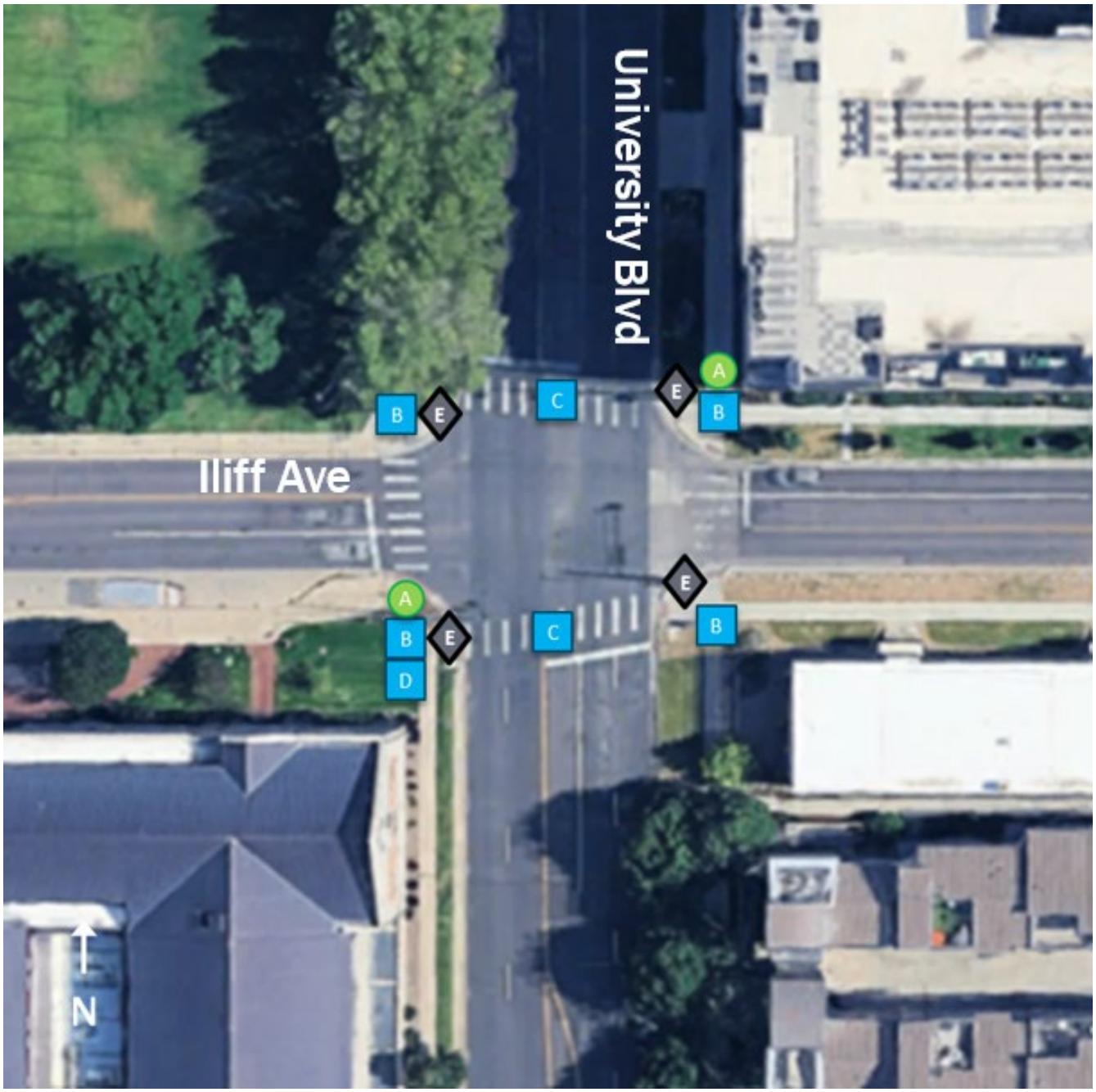

Figure 27. Recommendations for the University Boulevard and Iliff Avenue Intersection.

4.6 University Boulevard and Warren Avenue

4.6.1 Background Information

The University Boulevard and Warren Avenue intersection is a four-leg signalized intersection, surrounded by a mix of academic and residential land uses and open green space, including areas associated with the University of Denver. The intersection can be seen in **Figure 28**.

The north leg of University Boulevard has two through lanes, a dedicated left-turn lane, and a dedicated right-turn lane. The south leg of University Boulevard has a through lane, a shared through/right-turn lane, and a dedicated left-turn lane. The east and west legs of Warren Avenue each have a shared left/through/right-turn. Crosswalks are present on all four legs of the intersection. The speed limit on University Boulevard through this intersection is 30 MPH, while Warren Avenue operates at 20 MPH. Auxiliary lanes for this location include:

- North Leg (University): Single southbound left-turn lane and a dedicated right-turn lane.
- South Leg (University): Single northbound left-turn lane.

Figure 28. University and Warren Avenue Intersection.

4.6.2 Crash Review

Between June 2020 and May 2025, there were 13 crashes at the intersection of University Boulevard and Warraen Avenue. **Table 12** presents details of the crash summary.

- 9 rear-end crashes account for 69 percent of all crashes.
- 2 sideswipe crashes account for 15 percent of all crashes.
- 1 broadside crash account for 8 percent of all crashes and 100 percent of all KSI crashes.
    - A broadside crash resulted in a fatality when a northbound vehicle failed to stop at a red light and struck an eastbound through vehicle.

Table 12. University Boulevard and Warren Avenue Intersection Crash Summary.

		Severity*			Direction**			
		All	KSI	Fatal	N	S	E	W
	Total Crashes	**13**	**1**	**0**	**14%**	**64%**	**11%**	**0%**
Crash Type	Rear-End	**9 (69%)**	0 (0%)	0 (0%)	67%	22%	0%	11%
	Sideswipe	**2 (15%)**	0 (0%)	0 (0%)	50%	0%	0%	50%
	Broadside	**1 (8%)**	1 (100%)	0 (0%)	100%	0%	0%	0%
Driver Action	Followed Too Closely	**6 (46%)**	0 (0%)	0 (0%)	67%	33%	0%	0%
	Careless Driving	**4 (31%)**	1 (100%)	0 (0%)	75%	0%	0%	25%
	Lane Violation	**1 (8%)**	0 (0%)	0 (0%)	0%	0%	0%	100%
Movement	Going Straight	**7 (54%)**	1 (100%)	0 (0%)	71%	29%	0%	0%

** Percentages are for the Severity column total. Because only the top Crash Types, Driver Actions, and Movements are shown, percentages may not add up to 100%.*

*** Percentages are for the Crash Type / Driver Action / Movement row total. Due to crash data limitations, columns may occasionally not add up to 100%.*

4.6.3 City Staff and RSA Stakeholder Pre-Audit Comments

City staff and the RSA Stakeholders did not provide any comments on this intersection during the Pre-Audit meeting.

4.6.4 Observations

The RSA team observed conditions at University Boulevard and Warren Avenue on September 16, 2025, and September 17, 2025, during morning, afternoon, and evening periods. The observations are as follows:

Road Design

- The southbound right-turn lane and adjacent corner space appear oversized and underutilized, with excess curb radius/pavement relative to observed demand.
- ADA curb ramps with truncated domes are missing on three corners; only the southeast corner has ramps with truncated domes.
- Drainage at the southeast corner can be improved, standing water/ponding at the ramp serving the east leg, reduces accessibility at the landing and gutter.

Traffic Signals

- Countdown timers on pedestrian signal heads are missing on some corners. Overall signal equipment could be upgraded.
- Emergency vehicle preemption is not present. Emergency vehicles were observed proceeding through the red indication under siren.
- Eastbound approach / right-turn-on-red (RTOR): Poor sight distance due to adjacent foliage and building.
- Pedestrian push-button (southeast corner) is mounted on the traffic signal controller cabinet, which is an unconventional location compared to standard pedestal post placement.

4.6.5 Recommendations

Recommendations for the University Boulevard and Warren Avenue intersection are provided in **Table 13** and shown in **Figure 29** below. A concept design of some of the recommendations can be found in **Figure 30.**

Short-term: (Less than 1 year)

Medium-term: (1 to 3 years)

Long-term: (More than 3 years)

Table 13. Recommendations for the University Boulevard and Warren Avenue.

6A	A	Install emergency vehicle preemption at this intersection to improve response times and safety for emergency vehicles.
6B	B	Foliage trimming near the eastbound approach to improve sight distance.
6C	C	Upgrade directional curb ramps at all corners to meet ADA compliance standards, including the installation of truncated domes where they are currently missing.
6D	D	Add curb extensions on the east leg to reduce vehicle turning speeds and shorten pedestrian crossing distances.
6E	E	Remove the underutilized southbound right-turn lane and extend the curb into University Blvd to reduce turning speeds and shorten pedestrian crossing distances.
6F	F	Rebuild the traffic signal with upgraded equipment, including: -Relocating the signal control cabinet outside of sight triangles. -Adding flashing yellow arrows (FYA) for permissive left-turn operations. -Installing “Turning Vehicles Yield to Pedestrians” signage on signal mast arms.

Figure 29. Recommendations for the University Boulevard and Warren Avenue Intersection.

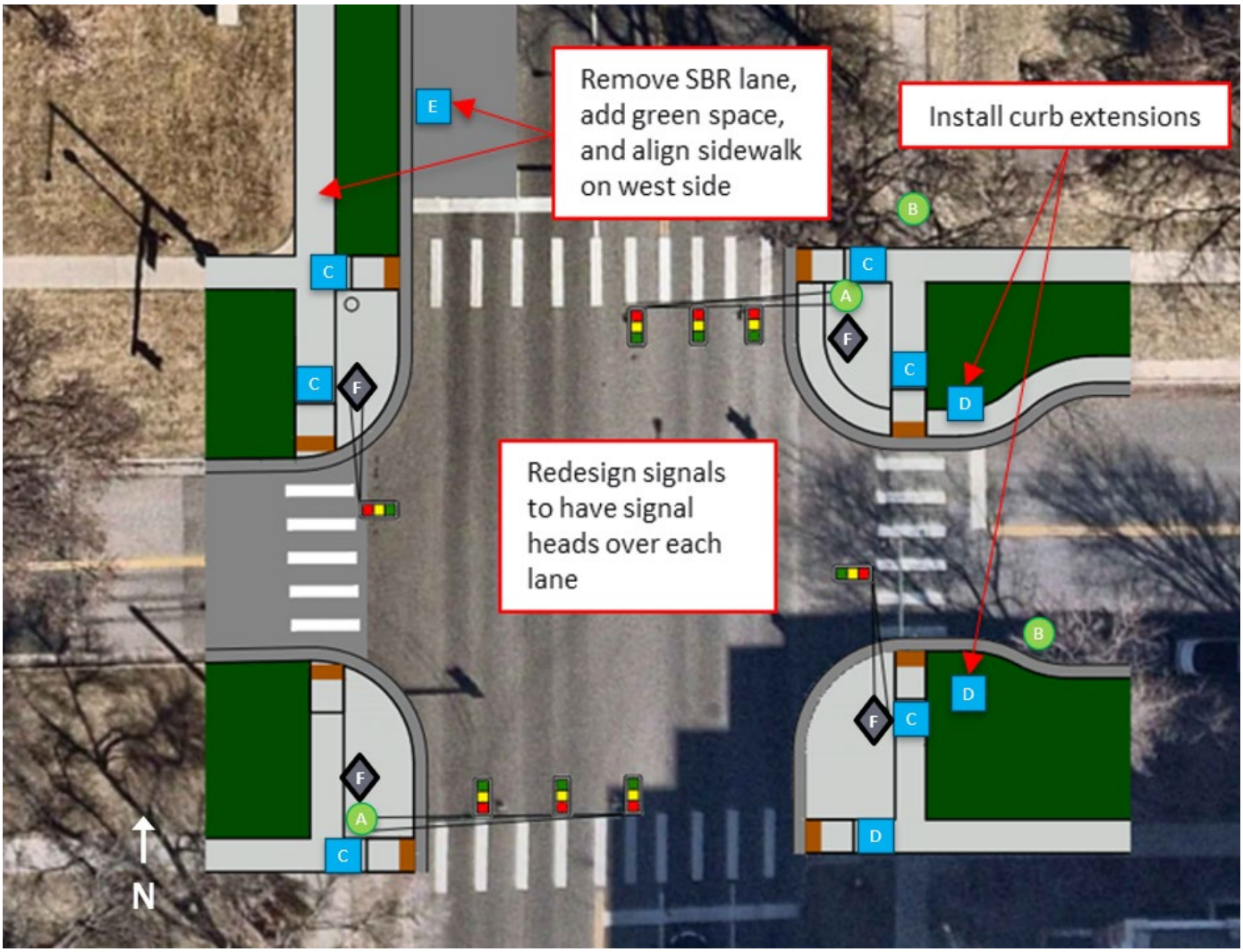

Figure 30. Concept for the University Boulevard and Warren Avenue Intersection.

4.7 University Boulevard and Evans Avenue

4.7.1 Background Information

The University Boulevard and Evans Avenue intersection is a four-leg signalized intersection, surrounded primarily by commercial land uses and the University of Denver located at the southwest corner. The intersection can be seen in **Figure 31.**

The north and south legs of University Boulevard each have a through lane, a through/right-turn lane, and a dedicated left-turn lane. The east and west legs of Evans Avenue each have two through lanes, a dedicated left-turn lane, and a dedicated right-turn lane. Crosswalks are present on all four legs of the intersection. The speed limit on University Boulevard and Evans Avenue through this intersection is 30 MPH. Auxiliary lanes for this location include:

- North Leg (University): Single southbound left-turn lane.
- South Leg (University): Single northbound left-turn lane.
- West Leg (Evans Avenue): Single eastbound left-turn lane and a dedicated right-turn lane.
- East Leg (Evans Avenue): Single westbound left-turn lane and a dedicated right-turn lane.

Figure 31. University and Evans Avenue Intersection.

4.7.2 Crash Review

Between June 2020 and May 2025, there were 69 crashes at the intersection of University Boulevard and Evans Avenue. **Table 14** presents details of the crash summary.

- 35 rear-end crashes account for 50 percent of all crashes.
- 16 broadside crashes account for 23 percent of all crashes.
- 3 head on crashes (One resulting in a serious injury) account for 4 percent of all crashes and 100 percent of all KSI crashes.

Table 14. University Boulevard and Evans Avenue Intersection Crash Summary.

		Severity*			Direction**			
		All	KSI	Fatal	N	S	E	W
	Total Crashes	**69**	**1**	**0**	**26%**	**25%**	**28%**	**19%**
Crash Type	Rear-End	**35 (50%)**	0 (0%)	0 (0%)	35%	33%	22%	12%
	Broadside	**16 (23%)**	0 (0%)	0 (0%)	19%	13%	38%	31%
	Head On	**3 (4%)**	1 (100%)	0 (0%)	0%	0%	67%	33%
Driver Action	Followed Too Closely	**26 (39%)**	0 (0%)	0 (0%)	31%	35%	23%	12%
	Careless Driving	**19 (22%)**	1 (100%)	0 (0%)	27%	27%	20%	27%
	Failed to Yield ROW	**5 (7%)**	0 (0%)	0 (0%)	60%	20%	20%	0%
Movement	Going Straight	**29 (42%)**	0 (0%)	0 (0%)	24%	28%	28%	21%
	Making a Left-Turn	**9 (13%)**	1 (100%)	0 (0%)	33%	0%	44%	22%

** Percentages are for the Severity column total. Because only the top Crash Types, Driver Actions, and Movements are shown, percentages may not add up to 100%.*

*** Percentages are for the Crash Type / Driver Action / Movement row total. Due to crash data limitations, columns may occasionally not add up to 100%.*

4.7.3 City Staff and RSA Stakeholder Pre-Audit Comments

City staff and RSA stakeholders noted during the pre-audit meeting that this intersection is scheduled for a full redesign.

4.7.4 Observations

The RSA team observed conditions at University Boulevard and Evans Avenue on September 16, 2025, and September 17, 2025, during morning, afternoon, and evening periods. The observations are as follows:

Road Design

- The curb ramp at the northwest corner lacks detectable warnings (truncated domes).
- Crosswalk and stop-bar markings are faded on all approaches, with reduced contrast, most notably on the south leg.

Traffic Operations

- Morning sun glare on the eastbound approach reduced visibility of mast-arm signal faces, pedestrian signal heads, and adjacent sign panels. Indications appeared washed out.
- This intersection is the corridor's first recurring bottleneck—queues form here before upstream intersections and slow progression.
- During the morning peak, northbound queues frequently extended back to Warren Avenue; during the evening peak, southbound queues frequently extended toward Interstate 25, contributing to a recurring bottleneck and degraded progression.

4.7.5 Recommendations

The recommendations that the RSA team developed at this intersection are already being addressed through the ongoing redesign project. These recommendations, which can be seen in the designs in Appendix G, include:

- Install an ADA compliant curb ramp at the northwest corner.
- Repaint pavement markings for crosswalks and stop bars on all approaches.
- Insall pole mounted left-turn signal heads on southeast corner.
- Install curb extensions on northwest, southeast, and southwest corners and relocate bus stops to far side of intersection.
- Install lane assignment striping and signs.

4.8 University Boulevard between Asbury and Evans Avenue – 2000 Block

4.8.1 Background Information

This midblock segment of University Boulevard, between Asbury Avenue and Evans Avenue, is characterized by predominantly commercial land uses. The midblock location can be seen in Figure 32.

The roadway provides two through lanes in each direction, with auxiliary turn lanes for downstream intersections extending through the entire block. There are no intersecting side streets; access is primarily via multiple commercial driveways serving restaurants and retail parking lots. Sidewalks are present on both sides, and on-street parking is not marked. The posted speed along this segment of University Boulevard is 30 MPH.

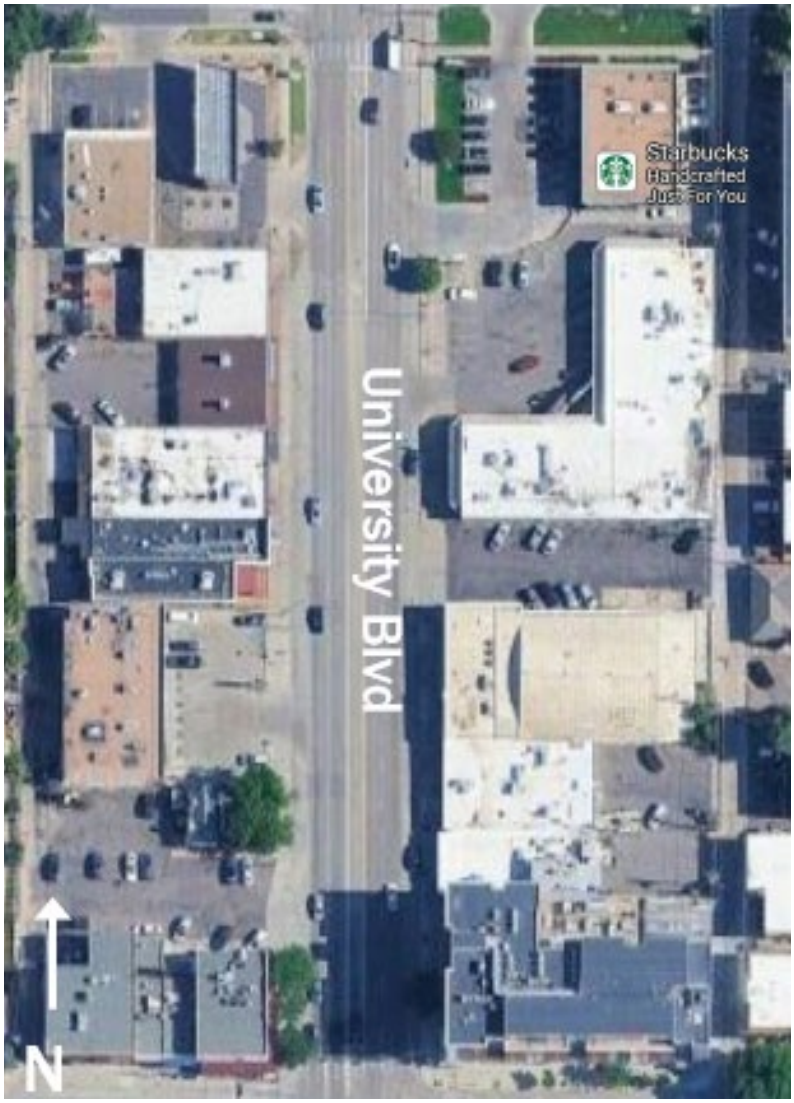

Figure 32. University Boulevard (2000 Block – between Asbury Avenue and Evans Avenue).

4.8.2 Crash Review

Between June 2020 and May 2025, there were 33 crashes along the 2000 Block of University Boulevard between Asbury Avenue and Evans Avenue. **Table 15** presents details of the crash summary.

- 17 rear-end crashes account for 52 percent of all crashes.
- 7 broadside crashes account for 21 percent of all crashes.
- 5 sideswipe crashes account for 15 percent of all crashes.
- 1 pedestrian crash accounts for 3 percent of all crashes.

Table 15. University Boulevard (2000 Block) Crash Summary.

		Severity*			Direction**			
		All	KSI	Fatal	N	S	E	W
	Total Crashes	**33**	**0**	**0**	**21%**	**55%**	**18%**	**3**
Crash Type	Rear-End	**17 (52%)**	0 (0%)	0 (0%)	35%	33%	22%	12%
	Broadside	**7 (21%)**	0 (0%)	0 (0%)	19%	13%	38%	31%
	Pedestrian	**1 (3%)**	0 (0%)	0 (0%)	0%	0%	67%	33%
Driver Action	Followed Too Closely	**10 (32%)**	0 (0%)	0 (0%)	10%	90%	0%	0%
	Improper Backing	**6 (19%)**	0 (0%)	0 (0%)	50%	33%	17%	0%
	Failed to Yield ROW	**6 (19%)**	0 (0%)	0 (0%)	17%	0%	67%	17%
Movement	Going Straight	**13 (38%)**	0 (0%)	0 (0%)	15%	85%	0%	0%

** Percentages are for the Severity column total. Because only the top Crash Types, Driver Actions, and Movements are shown, percentages may not add up to 100%.*

*** Percentages are for the Crash Type / Driver Action / Movement row total. Due to crash data limitations, columns may occasionally not add up to 100%.*

4.8.3 City Staff and RSA Stakeholder Pre-Audit Comments

City staff and the RSA Stakeholders did not provide any comments on this intersection during the Pre-Audit meeting.

4.8.4 Observations

The RSA team observed conditions at 2000 Block – University Boulevard between Asbury Avenue and Evans Avenue on September 16, 2025, and September 17, 2025, during morning, afternoon, and evening periods. The observations are as follows:

Road Design

- East-side driveways with steep slopes were observed along the corridor, which may contribute to drainage and runoff issues.
- Pedestrian lighting is limited throughout this segment, reducing nighttime visibility for sidewalk users.

Traffic Operations

- Delivery vehicles frequently park within the travel lanes, creating safety risk and temporary obstruction for through traffic.
- Pedestrians were observed crossing midblock where no designated crossing facilities exist, likely due to adjacent commercial land uses.
- Several parking signs appear damaged or misaligned, possibly struck by vehicles, which may affect ADA accessibility and wayfinding clarity.

4.8.5 Recommendations

Recommendations for the 2000 Block of University Boulevard between Asbury Avenue and Evans Avenue are provided in **Table 16** and shown in **Figure 33**.

Short-term: (Less than 1 year)

Medium-term: (1 to 3 years)

Long-term: (More than 3 years)

Table 16. Recommendations for the University Boulevard (2000 Block).

8A	A	Replace damaged or misaligned parking signs and set them to meet ADA requirements.
8B	B	Improve pedestrian lighting along this midblock segment to enhance nighttime visibility.
8C	C	Remove street parking and designate as loading zone only.
8D	D	Remove parking and extend sidewalk to improve pedestrian experience.
8E	E	Enhance placemaking elements to alert drivers that they are passing through DU campus (driver awareness to pedestrians, encourage slower vehicle speeds).
8F	F	Evaluate the feasibility of adding a midblock pedestrian crossing to address observed midblock activity and improve pedestrian safety.
8G	G	Evaluate access control along University Boulevard to improve safety and reduce conflict points.

Figure 33. Recommendations for the University Boulevard University Boulevard (2000 Block).

4.9 University Boulevard and Asbury Avenue

4.9.1 Background Information

The University Boulevard and Asbury Avenue intersection is a four-leg signalized intersection, surrounded by a mix of commercial, residential, and academic land uses. The intersection can be seen in Figure 34.

The north and south legs of University Boulevard each have a through lane, a through/right-turn lane, and a dedicated left-turn lane. The west leg of Asbury Avenue has a dedicated left-turn lane, a through lane, and a dedicated right-turn lane. The east leg of Asbury Avenue has a shared left/through/right-turn lane. Crosswalks are present on all four legs of the intersection. The speed limit on University Boulevard through this intersection is 30 MPH, while the posted speed limit on Asbury Avenue is 20 MPH.

Auxiliary lanes for this location include:

- North Leg (University Boulevard): Single southbound left-turn lane.
- South Leg (University Boulevard): Single northbound left-turn lane.
- West Leg (Asbury Avenue): Single dedicated eastbound left-turn lane and a dedicated right-turn lane.

Figure 34. University Boulevard and Asbury Avenue Intersection.

4.9.2 Crash Review

Between June 2020 and May 2025, there were 13 crashes at the intersection of University Boulevard and Asbury Avenue. **Table 17** presents details of the crash summary.

- 6 rear-end crashes account for 46 percent of all crashes.
- 2 broadside crashes account for 15 percent of all crashes.
- 2 head-on crashes account for 15 percent of all crashes.

Table 17. University Boulevard and Asbury Avenue Intersection Crash Summary.

		Severity*			Direction**			
		All	KSI	Fatal	N	S	E	W
	Total Crashes	**13**	**0**	**0**	**38%**	**38%**	**8%**	**15%**
Crash Type	Rear-End	**6 (46%)**	0 (0%)	0 (0%)	50%	50%	0%	0%
	Broadside	**2 (15%)**	0 (0%)	0 (0%)	50%	0%	50%	0%
	Head On	**2 (15%)**	0 (0%)	0 (0%)	0%	0%	0%	100%
Driver Action	Followed Too Closely	**5 (38%)**	0 (0%)	0 (0%)	60%	40%	0%	0%
	Failed to Yield ROW	**3 (23%)**	0 (0%)	0 (0%)	33%	0%	0%	67%
	Careless Driving	**3 (23%)**	0 (0%)	0 (0%)	67%	0%	33%	0%
Movement	Making Left-Turn	**4 (31%)**	0 (0%)	0 (0%)	25%	25%	0%	50%

- ** Percentages are for the Severity column total. Because only the top Crash Types, Driver Actions, and Movements are shown, percentages may not add up to 100%.*
- *** Percentages are for the Crash Type / Driver Action / Movement row total. Due to crash data limitations, columns may occasionally not add up to 100%.*

4.9.3 City Staff and RSA Stakeholder Pre-Audit Comments

City staff and the RSA Stakeholders did not provide any comments on this intersection during the Pre-Audit meeting.

4.9.4 Observations

The RSA team observed conditions at University Boulevard and Asbury Avenue on September 16, 2025, and September 17, 2025, during morning, afternoon, and evening periods. The observations are as follows:

Road Design

- Crosswalk and stop-bar markings are faded on all approaches, with reduced contrast.

Traffic Operations

- High pedestrian activity associated with the University of Denver, frequent crossings occur throughout the day and night times.
- Peak-period queues were observed. Recurring queues extended through the intersection, northbound in the morning peak and southbound in the evening peak, degrading corridor progression.
- Observed crash during the AM peak: A bicycle crash occurred during the field review when an eastbound vehicle making a left turn (northbound movement) failed to yield right-of-way and struck a bicyclist.

Traffic Signals

- The eastbound pole-mounted signal face had an inoperative red indication at the time of review (maintenance could be required).
- Few overhead signal heads and lane-assignment signs are provided, and visibility is periodically reduced by sun glare on the eastbound approach.

4.9.5 Recommendations

Recommendations for the University Boulevard and Asbury Avenue intersection are provided in **Table 18** and shown in **Figure 35** below.

Short-term: (Less than 1 year)

Medium-term: (1 to 3 years)

Long-term: (More than 3 years)

Table 18. Recommendations for University Boulevard and Asbury Avenue.

9A	A	Repair the inoperative red signal indication on the southeast corner.
9B	B	Repaint faded crosswalk markings and stop bars on all approaches.
9C	C	Install overhead lane assignment signage and striping.
9D	D	Provide reflective backplates on signal equipment to improve visibility.
9E	E	Extend leading pedestrian interval (currently 3 seconds).
9F	F	Consider implementing a pedestrian scramble phase, which stops all vehicle movements and gives pedestrians an exclusive crossing interval in all directions, including diagonal crossings.
9G	G	Evaluate the need for auxiliary lanes on Asbury Avenue.
9H	H	Rebuild the signal to include protected-only eastbound and westbound left-turn phases, and upgrade all signal equipment to current standards.
9I	I	Add curb extensions on all corners and adjust parking setbacks to improve pedestrian visibility.
9J	J	Close the eastbound right-turn lane on Asbury Avenue to better align the curb line and reduce pedestrian crossing distance.

Figure 35. Recommendations for University Boulevard and Asbury Avenue Intersection.

4.10 University Boulevard and Jewell Avenue

4.10.1 Background Information

The University Boulevard and Jewell Avenue intersection is a three-leg stop-controlled intersection, with free-flow movement on University Boulevard and a stop sign on Jewell Avenue. The intersection is surrounded by a mix of commercial and residential land uses, sporting complexes, and a parking lot. The intersection can be seen in **Figure 36**.

The north and south legs of University Boulevard each have two through lanes and a shared center two-way left-turn lane. The west leg of Jewell Avenue has a shared left/right-turn lane. The speed limit on University Boulevard through this intersection is 30 MPH, while Jewell Avenue operates at 20 MPH. Auxiliary lanes for this location include:

- North Leg (University): Shared center two-way left-turn lane.
- South Leg (University): Shared center two-way left-turn lane.

Figure 36. University Boulevard and Jewell Avenue Intersection.

4.10.2 Crash Review

Between June 2020 and May 2025, there were 6 crashes at the intersection of University Boulevard and Jewell Avenue. **Table 19** presents details of the crash summary.

- 2 broadside crashes account for 33% of all crashes.
- 2 rear-end crashes account for 33% of all crashes.
- 1 head on crash accounts for 17% of all crashes.

Table 19. University Boulevard and Jewell Avenue Intersection Crash Summary.

		Severity*			Direction**			
		All	KSI	Fatal	N	S	E	W
	Total Crashes	**6**	**0**	**0**	**17%**	**50%**	**17%**	**17%**
Crash Type	Broadside	**2 (33%)**	0 (0%)	0 (0%)	50%	0%	50%	0%
	Rear-End	**2 (33%)**	0 (0%)	0 (0%)	0%	50%	0%	50%
	Head On	**1 (17%)**	0 (0%)	0 (0%)	0%	100%	0%	0%
Driver Action	Careless Driving	**2 (33%)**	0 (0%)	0 (0%)	50%	50%	0%	0%
	Failed to Yield ROW	**1 (17%)**	0 (0%)	0 (0%)	0%	0%	100%	0%
	Improper Backing	**1 (17%)**	0 (0%)	0 (0%)	0%	100%	0%	0%
Movement	Going Straight	**3 (50%)**	0 (0%)	0 (0%)	0%	67%	0%	33%

** Percentages are for the Severity column total. Because only the top Crash Types, Driver Actions, and Movements are shown, percentages may not add up to 100%.*

*** Percentages are for the Crash Type / Driver Action / Movement row total. Due to crash data limitations, columns may occasionally not add up to 100%.*

4.10.3 City Staff and RSA Stakeholder Pre-Audit Comments

City staff and the RSA Stakeholders did not provide any comments on this intersection during the Pre-Audit meeting.

4.10.4 Observations

The RSA team observed conditions at the University Boulevard and Jewell Avenue on September 16, 2025, and September 17, 202, during morning, afternoon, and evening periods. The observations are as follows:

Road Design

- Southbound 30 MPH regulatory sign is misaligned/out of position.
- No marked crosswalks or stop bars across Jewell Avenue.
- Crossing width is approximately 46 feet, increasing pedestrian exposure.
- Southbound bus stop lacks a boarding pad and shelter; limited accessible waiting/landing area.
- Intersection serves large event buses for Magness Arena; turning movements onto Jewell Avenue require adequate curb radii and clearances.

Traffic Operations

- Eastbound vehicles queuing on Jewell Avenue to turn southbound onto University Boulevard frequently block the west-side pedestrian crossing.
- Conflicts between left-turning drivers and through-moving vehicles were observed. Drivers turning left across University Boulevard were navigating three lanes with sight distance restricted by heavy queues, increasing conflict risk.
- Tree foliage limits visibility of pedestrians at the crossing for approaching drivers.

4.10.5 Recommendations

Recommendations for the University Boulevard and Jewell Avenue intersection are provided in **Table 20** and shown in **Figure 37** below. A concept of some of the recommendations can be found in **Figure 38**.

Short-term: (Less than 1 year)

Medium-term: (1 to 3 years)

Long-term: (More than 3 years)

Table 20. Recommendations for University Boulevard and Jewell Avenue.

10A	A	Improve intersection lighting conditions.
10B	B	Provide marked crosswalks and stop bars on Jewell Avenue.
10C	C	Extend the NB left-turn lane from Buchtel Ave through the Jewell Avenue intersection and remove the existing two-way left-turn lane (TWLTL).
10D	D	Add curb extensions and/or a raised median on Jewell Avenue to narrow the intersection cross-section and reduce pedestrian crossing distances. Restrict eastbound movement on Jewell to right-out only using a median with pedestrian refuge.
10E	E	Install an ADA-compliant boarding pad at the southbound bus stop south of Jewell Avenue.

Figure 37. Recommendations for the University Boulevard and Jewell Avenue Intersection.

Figure 38. Concept for the University Boulevard and Jewell Avenue Intersection.

4.11 University Boulevard and Buchtel Boulevard

4.11.1 Background Information

The University Boulevard and Buchtel Boulevard intersection is a four-leg signalized intersection, surrounded by a mix of commercial land use, parking areas, and open space. The University of Denver RTD Light Rail transit station is located west of the intersection. The intersection can be seen in **Figure 39**.

The north leg and south leg of University Boulevard have two through lanes, a dedicated left-turn lane, and a dedicated channelized right-turn lane. The west leg of Buchtel Boulevard has two dedicated left-turn lanes, a through lane, and a shared through/right lane. The east leg of Buchtel Boulevard has a dedicated left-turn lane, two through lanes, and a dedicated right-turn lane. Crosswalks are present on all four legs of the intersection. The speed limit on University Boulevard and Buchtel Boulevard through this intersection is 30 MPH. Auxiliary lanes for this location include:

- North Leg (University Boulevard): Single southbound left-turn lane and a dedicated channelized right-turn lane.
- South Leg (University Boulevard): Single northbound left-turn lane.
- West Leg (Buchtel Boulevard): Dual eastbound left-turn lanes.
- East Leg (Buchtel Boulevard): Single left-turn lane and a dedicated right-turn lane.

Figure 39. University Boulevard and Buchtel Boulevard Intersection.

4.11.2 Crash Review

Between June 2020 and May 2025, there were 46 crashes at the intersection of University Boulevard and Buchtel Boulevard. Table 21 presents details of the crash summary.

- 16 broadside crashes account for 36 percent of all crashes and 50 percent of all KSI crashes.
    - A broadside crash resulted in a fatality when an eastbound vehicle failed to stop at a red light and struck a northbound through vehicle.
- 14 rear-end crashes account for 31 percent of all crashes.
- 2 bicycle crashes account for 4 percent of all crashes and 50 percent of all KSI crashes.
    - A bicycle crash resulted in a serious injury when a cyclist travelling westbound on the north leg crosswalk ignored the traffic signal and was struck by a vehicle travelling northbound.
    - A bicycle crash occurred when a vehicle was leaving a parking lot just west of the intersection and struck a cyclist travelling westbound.
- 1 pedestrian crash accounts for 2 percent of all crashes.
    - A pedestrian crash occurred when a scooter travelling westbound disobeyed the signal and was struck by a right-turning vehicle travelling westbound.

Table 21. University Boulevard and Buchtel Boulevard Intersection Crash Summary.

		Severity*			Direction**			
		All	KSI	Fatal	N	S	E	W
	Total Crashes	**46**	**2**	**1**	**22%**	**49%**	**13%**	**16%**
Crash Type	Broadside	**16 (35%)**	1 (50%)	1 (100%)	25%	25%	31%	19%
	Bicycle	**2 (4%)**	1 (50%)	0 (0%)	0%	50%	0%	50%
	Pedestrian	**1 (2%)**	0 (0%)	0 (0%)	0%	0%	0%	100%
Driver Action	Careless Driving	**13 (29%)**	1 (50%)	1 (100%)	17%	67%	8%	8%
	Failed to Yield ROW	**9 (20%)**	0 (0%)	0 (0%)	13%	38%	38%	13%
	Failed to Stop at Signal	**4 (9%)**	1 (50%)	0 (0%)	50%	0%	0%	50%
Movement	Going Straight	**16 (36%)**	2 (100%)	1 (100%)	31%	44%	19%	6%
	Making a Left-Turn	**12 (27%)**	0 (0%)	0 (0%)	0%	58%	25%	17%

** Percentages are for the Severity column total. Because only the top Crash Types, Driver Actions, and Movements are shown, percentages may not add up to 100%.*

*** Percentages are for the Crash Type / Driver Action / Movement row total. Due to crash data limitations, columns may occasionally not add up to 100%.*

4.11.3 City Staff and RSA Stakeholder Pre-Audit Comments

City staff and RSA stakeholders noted during the pre-audit meeting that this intersection is scheduled for a full redesign.

4.11.4 Observations

The RSA team observed conditions at University Boulevard and Buchtel Boulevard on September 16, 2025, and September 17, 2025, during morning, afternoon, and evening periods. The observations are as follows:

Road Design

- Southwest-corner curb ramps are diagonal and direct users toward the middle of the intersection rather than toward the crosswalks.
- West-leg crosswalk markings are faded with reduced contrast.
- Northwest-corner streetlight is out, reducing nighttime visibility.

Traffic Operations

- Fence near the southeast corner restricts visibility for both motorists and pedestrians approaching the intersection.
- Southbound PM peak queues extend toward the I-25 ramp, encroaching on the marked crosswalk and reducing pedestrian access.
- “Do Not Block Intersection” sign is present on the southbound approach, however, crosswalk blockage by queued vehicles was still observed.

Traffic Signals

- Pedestrian indications countdown timers are missing on the north and west legs; countdowns are present on the south and east legs.
- Southbound left-turn detection could be unreliable. Detection issues with southbound left-turn detection were observed.

4.11.5 Recommendations

Many recommendations that the RSA team developed at this intersection are already being addressed through the ongoing redesign project. These recommendations, which can be seen in the designs in **Appendix H**, include:

- Replace diagonal ramps with directional ADA compliant ramps in the SW corner.
- Refresh crosswalk markings on the west leg.
- Install countdown timers on the north and west legs of this intersection.
- Install 4-section FYA signal heads for left-turn movements.

Additional recommendations for the University Boulevard and Buchtel Boulevard are provided below. Recommendation locations can be found in **Table 22** and are shown in **Figure 40** below.

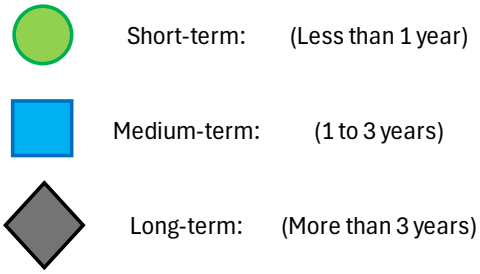

Table 22. Recommendations for University Boulevard and Buchtel Boulevard.

11A	A	Verify that detection equipment for the southbound left-turn phase is functioning correctly.
11B	B	Maintain landscaping on the southwest corner to improve visibility of signal heads for approaching motorists.
11C	C	Coordinate with the property owner on the southeast corner to relocate or modify fencing that restricts pedestrian crossing visibility.
11D	D	Enhance lighting conditions, particularly at the northwest corner, to improve nighttime visibility and overall safety.

Figure 40. Recommendations for University Boulevard and Buchtel Boulevard Intersection.

4.12 University Boulevard and I-25 Highway

4.12.1 Background Information

The University Boulevard and I-25 Highway intersection is a six-leg signalized diamond interchange, surrounded primarily by open space and undeveloped land. The intersection can be seen in **Figure 41.**

The north and south legs of University Boulevard each have two through lanes, and two dedicated left-turn lanes. Additionally, a right-turn lane for the on ramp is provided approximately 400 feet upstream of the intersection for both directions.

The ramp configurations at this location include both exit and entrance ramps with multiple turning and receiving lanes. The westbound and eastbound I-25 exit ramps include one right-turn lane and two left-turn lanes. Entrance ramps onto I-25 include two metered lanes from University Boulevard. Crosswalks are present on the I-25 ramp legs of the intersection. The speed limit on University Boulevard through this intersection is 30 MPH, while the exit ramp advisory speeds are 45 MPH. Auxiliary lanes for this location include:

- North Leg (University): Single southbound channelized right-turn lane and dual left-turn lanes.
- South Leg (University): Single northbound channelized right-turn lane and dual left-turn lanes.
- East and West Legs (I-25 ramps): Two exit ramp left-turn lanes at the intersection and one exit ramp right-turn lane.

Figure 41. University and I-25 Highway Intersection.

4.12.2 Crash Review

Between June 2020 and May 2025, there were 48 crashes at the intersection of University Boulevard and the I-25 Ramp Terminal Intersections. **Table 23** presents details of the crash summary.

- 23 rear-end crashes account for 48 percent of all crashes.
- 10 sideswipe crashes account for 21 percent of all crashes.
- 6 curb crash accounts for 13 percent of all crashes and 100 percent of all KSI crashes.
    - A curb crash resulted in a serious injury when a vehicle travelling westbound at a high speed on the I-25 off-ramp struck the median on University Boulevard and flipped over.

Table 23. University Boulevard and I-25 Highway Intersection Crash Summary.

		Severity*			Direction**			
		All	KSI	Fatal	N	S	E	W
	Total Crashes	**48**	**2**	**0**	**31%**	**29%**	**2%**	**35%**
Crash Type	Rear-End	**23 (48%)**	0 (0%)	0 (0%)	35%	26%	0%	39%
	Sideswipe	**10 (21%)**	0 (0%)	0 (0%)	40%	40%	0%	20%
	Curb	**6 (13%)**	2 (100%)	0 (0%)	17%	0%	17%	67%
Driver Action	Followed Too Closely	**18 (38%)**	0 (0%)	0 (0%)	33%	17%	0%	50%
	Careless Driving	**14 (29%)**	2 (100%)	0 (0%)	17%	42%	0%	42%
	Lane Violation	**6 (13%)**	0 (0%)	0 (0%)	50%	50%	0%	0%
Movement	Slowing	**13 (27%)**	0 (0%)	0 (0%)	38%	23%	8%	31%
	Entering Traffic Way/Merge	**7 (15%)**	2 (100%)	0 (0%)	43%	0%	0%	57%

** Percentages are for the Severity column total. Because only the top Crash Types, Driver Actions, and Movements are shown, percentages may not add up to 100%.*

*** Percentages are for the Crash Type / Driver Action / Movement row total. Due to crash data limitations, columns may occasionally not add up to 100%.*

4.12.3 City Staff and RSA Stakeholder Pre-Audit Comments

No comments were received regarding the University Boulevard and I-25 Highway Intersection from City Staff and RSA Stakeholders during the Pre-audit meeting.

4.12.4 Observations

The RSA team observed conditions at University Boulevard and I-25 Highway on September 16, 2025, and September 17, 2025, during morning, afternoon, and evening periods. The observations are as follows:

Road Design

- Curbs are chipped and damaged along the segment; concrete spalls and loose fragments were observed near the gutter line.
- Ramp-terminal right-turn geometry on both the southbound and northbound I-25 off-ramps makes it difficult to see approaching traffic and pedestrians on University Boulevard.
- The northbound I-25 off-ramp to University Boulevard does not provide a dedicated acceleration lane.
- Southbound I-25 off-ramp weaving toward the southbound left at Buchtel conflicts with through movements on University Boulevard.
- Yield striping/lines are not present at the ramp terminals.
- Multiple luminaires under the bridge and nearby high-mast fixtures are out, resulting in very low illumination at the right-turn slip-lane crosswalks and dark crosswalks overall.

Traffic Operations

- Drivers exiting I-25 SB toward southbound left-turn Buchtel Boulevard create weaving and conflict points with through movements on University Boulevard.
- Instances of red-light running were observed at this intersection during the review period.
- The I-25 southbound right-turn slip lane from University northbound has limited sight distance to the crosswalk, impacting pedestrian safety.

Traffic Signals

- Northbound/southbound green splits appeared long relative to observed demand, queues persisted during extended greens.
- Reflective backplates are not provided on signal heads. Signal hardware upgrades can be made.

4.12.5 Recommendations

Recommendations for the University Boulevard and I-25 Highway intersection are provided in **Table 24** and shown in **Figure 42** below. A concept of some of the recommendations can be found in **Figure 43**.

Short-term: (Less than 1 year)

Medium-term: (1 to 3 years)

Long-term: (More than 3 years)

Table 24. Recommendations for University Boulevard and I-25 Highway Intersection.

12A	A	Install W11-2 (ped crossing warning signs) and YIELD markings at I-25 northbound and southbound off-ramps.
12B	B	Add through-lane pavement markings, lane assignment signage, and 'through-arrow' signal heads.
12C	C	Improve intersection lighting conditions.
12D	D	Maintain landscaping that blocks line of sight to crossing pedestrians.
12E	E	Add reflective backplates on all signal heads to improve visibility.
12F	F	Repair damaged curbs under I-25 overpass.
12G	G	Add transverse rumble strips on exit ramps to help reduce speeds.
12H	H	Improve channelized right-turn geometry and add raised pedestrian crossing with rectangular rapid flashing beacon (RRFB).
12I	I	Consider analysis for traffic signalization of I-25 northbound off-ramp, which could include a double right-turn.

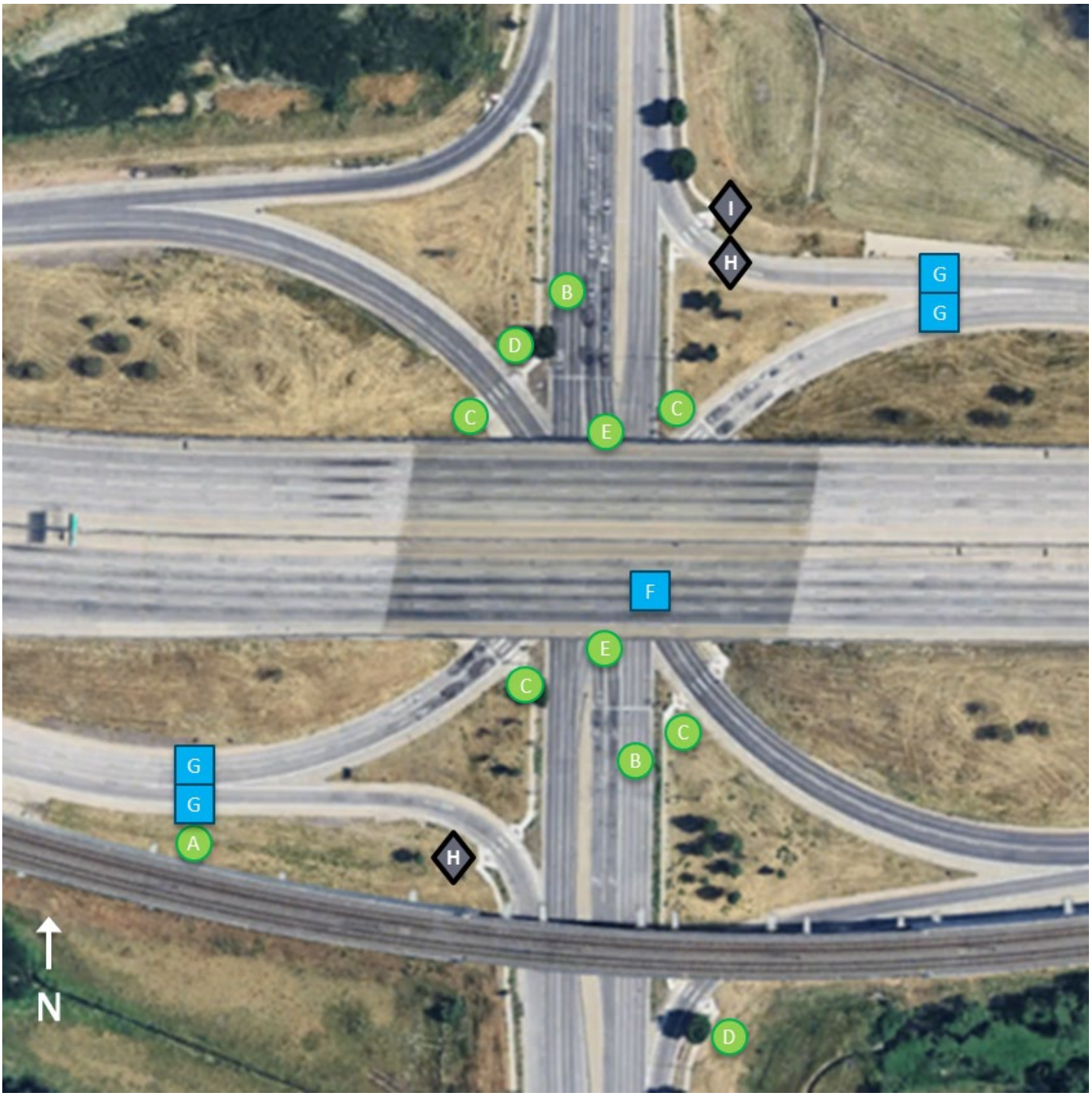

Figure 42. Recommendations for the University Boulevard and I-25 Highway Intersection.

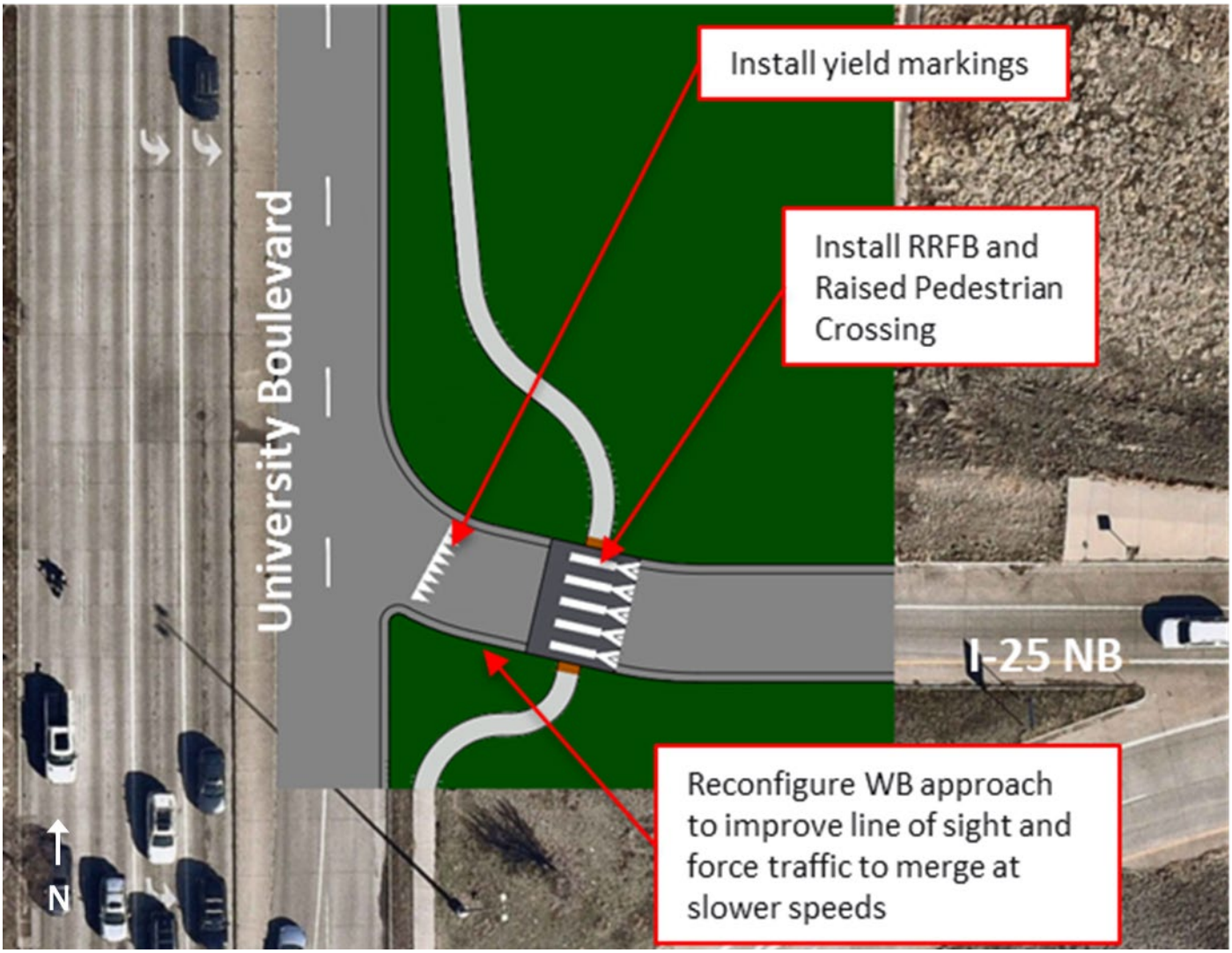

Figure 43. Concept for the University Boulevard and I-25 Highway Intersection.

4.13 University Boulevard and Iowa Avenue

4.13.1 Background Information

The University Boulevard and Iowa Avenue intersection is a four-leg stop-controlled intersection, with free flow movement on University Boulevard, and stop signs on Iowa Avenue. The intersection is surrounded by residential land use, with a police department and Veteran's Park in the southwest quadrant. The intersection can be seen in **Figure 44**.

The north and south legs of University Boulevard have a through/right lane, a through lane, a dedicated left-turn lane. The east and west legs of Iowa Avenue have a left/through/right lane. The speed limit on University Boulevard through this intersection is 30 MPH. The speed limit on Iowa Avenue through this intersection is 20 MPH. Auxiliary lanes for this location include:

- North Leg (University): Single southbound left-turn lane.
- South Leg (University): Single northbound left-turn lane.

Figure 44. University Boulevard and Iowa Avenue Intersection.

4.13.2 Crash Review

Between June 2020 and May 2025, there were 13 crashes at the intersection of University Boulevard and Iowa Avenue. **Table 25** presents details of the crash summary.

- 4 broadside crashes account for 31 percent of all crashes.
- 4 rear-end crashes account for 31 percent of all crashes.
- 1 head on crashes account for 8 percent of all crashes and 100 percent of all KSI crashes.
    - A head on crash resulted in a serious injury when a northbound left-turning vehicle failed to yield ROW and struck a southbound motorcycle.

Table 25. University Boulevard and Iowa Avenue Intersection Crash Summary.

		Severity*			Direction**			
		All	KSI	Fatal	N	S	E	W
	Total Crashes	**13**	**1**	**0**	**38%**	**23%**	**15%**	**23%**
Crash Type	Broadside	**4 (31%)**	0 (0%)	0 (0%)	25%	0%	0%	75%
	Rear-End	**4 (31%)**	0 (0%)	0 (0%)	0%	0%	50%	50%
	Head On	**1 (8%)**	1 (100%)	0 (0%)	100%	0%	0%	0%
Driver Action	Failed to Yield ROW	**3 (23%)**	1 (100%)	0 (0%)	67%	0%	0%	33%
	Careless Driving	**2 (15%)**	0 (0%)	0 (0%)	50%	0%	0%	50%
	Lane Violation	**2 (15%)**	0 (0%)	0 (0%)	50%	50%	0%	0%
Movement	Making a Left-Turn	**4 (16%)**	1 (100%)	0 (0%)	50%	0%	0%	50%

** Percentages are for the Severity column total. Because only the top Crash Types, Driver Actions, and Movements are shown, percentages may not add up to 100%.*

*** Percentages are for the Crash Type / Driver Action / Movement row total. Due to crash data limitations, columns may occasionally not add up to 100%.*

4.13.3 City Staff and RSA Stakeholder Pre-Audit Comments

No comments were received regarding the University Boulevard and Iowa Avenue Intersection from City Staff and RSA Stakeholders during the Pre-audit meeting.

4.13.4 Observations

The RSA team observed conditions at University Boulevard and Iowa Avenue on September 16, 2025, and September 17, 2025, during morning, afternoon, and evening periods. The observations are as follows:

Road Design

- West-side curb ramp is diagonal and misaligned; no receiving ramp is present on the opposite side.
- Oversized curb radii at all corners encourage higher turning speeds.
- Iowa Avenue lanes are wide, increasing pedestrian crossing distance.
- Marked crosswalks across Iowa Avenue are not present.
- Nighttime visibility is poor; the area was observed to be dark with limited lighting coverage.

Traffic Operations

- Limited traffic gaps in traffic on University Boulevard were observed, making it difficult for side-street vehicles and pedestrians to cross or turn safely.

4.13.5 Recommendations

Recommendations for the University Boulevard and Iowa Avenue intersection are provided in **Table 26** and shown in **Figure 45** below. A concept of some of the recommendations can be found in **Figure 46.**

Short-term: (Less than 1 year)

Medium-term: (1 to 3 years)

Long-term: (More than 3 years)

Table 26. Recommendations for University Boulevard and Iowa Avenue Intersection.

13A	A	Stripe crosswalks across Iowa Avenue to provide defined pedestrian crossing locations.
13B	B	Upgrade west-side curb ramps to be directional and ADA compliant, ensuring truncated domes are installed.
13C	C	Add curb extensions on all corners and reduce curb radii to shorten crossing distances and reduce turning speeds.
13D	D	Improve intersection lighting conditions to address poor nighttime visibility and enhance pedestrian safety.
13E	E	Install hatching in acceleration lane.
13F	F	Evaluate the need for the southbound acceleration and deceleration lanes and, if unnecessary, remove excess pavement and shift the curb line to reduce outside lane widths.

Figure 45. Recommendations for the University Boulevard and Iowa Avenue Intersection.

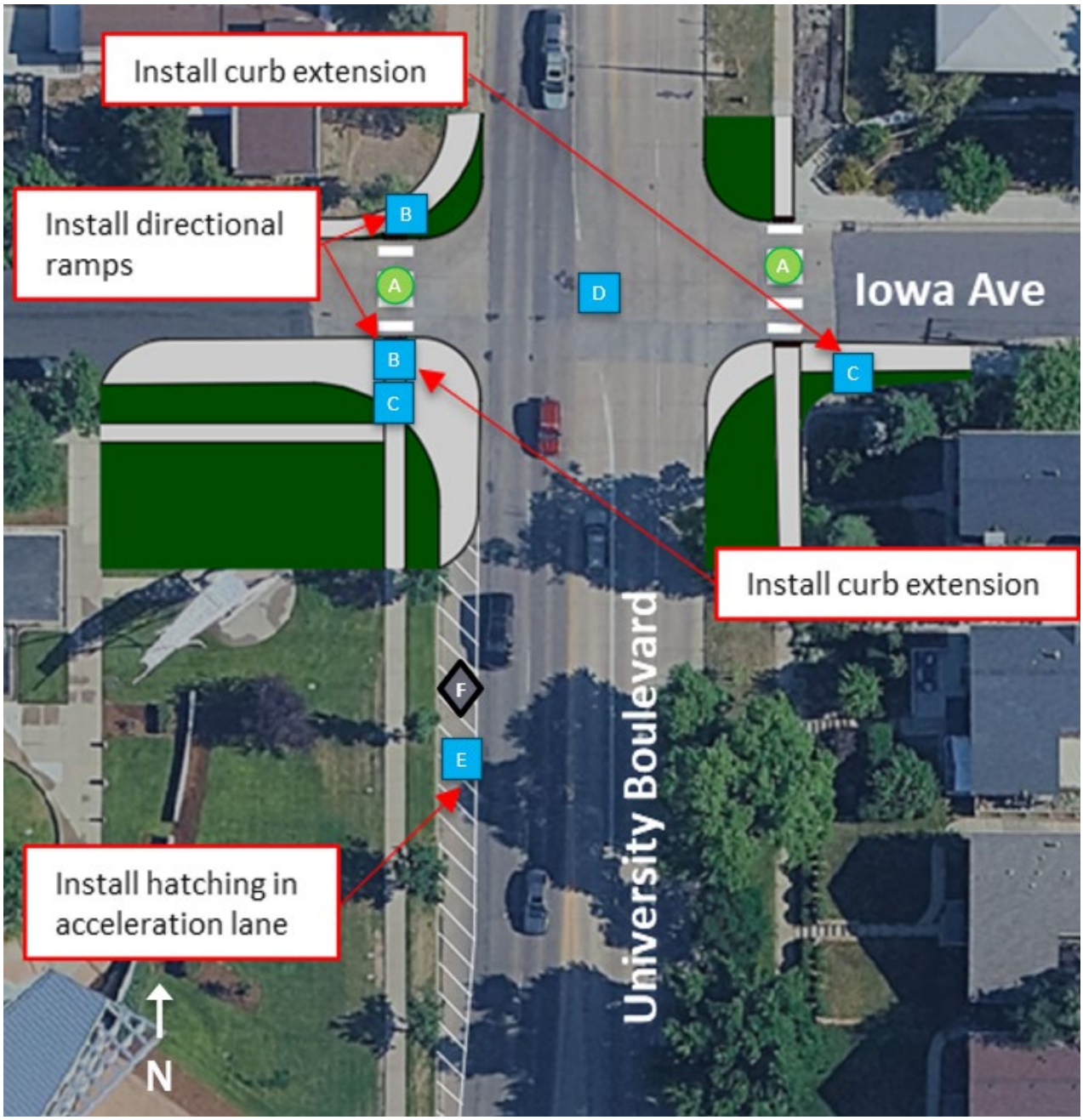

Figure 46. Concept for the University Boulevard and Iowa Avenue Intersection.

Appendix A. RSA Recommendations Table

Appendix B. RSA Pre-Audit Meeting Presentation

Appendix C. RSA Intent Memorandum

Appendix D. Preliminary Findings (Post-Audit) Presentation

Appendix E. Signal Timing Operation Recommendations

Appendix F. Intersection Lighting

Appendix G. Evans Design Plan

Appendix H. Buchtel Design Plan