Fehr & Peers

Memo

Date: August 28, 2025

To: Michael Ruiz-Leon, City of Berkeley

From: Greg Riessen and Ken Der, Fehr & Peers

Subject: Zachary's Corner – Existing Conditions Memorandum

Background

This memorandum documents existing transportation conditions within the vicinity of Zachary's Corner, located at the intersection of Warring Street and Derby Street in the City of Berkeley.

Zachary's Corner is named in honor of Zachary Cruz, a five-year-old child who was walking northbound in the east crosswalk of the intersection with his teacher and other students in February 2009 when he was struck by a truck turning left from southbound Warring Street onto eastbound Derby Street. He died at the scene of the collision.

As a result of the fatality and other pedestrian injuries that have occurred at this location, the City of Berkeley has launched a project to improve Zachary's Corner. The study corridor of the project extends to the north and east of the intersection, with Zachary's Corner in the middle of a study corridor approximately 0.8 miles in length. The study corridor extends from the intersection of Bancroft Way/Piedmont Avenue in the north to the intersection of Belrose Avenue/Garber Street in the south, as shown in yellow in **Figure 1**. The Zachary's Corner intersection is shown in **Figure 2**.

The information presented in this Existing Conditions memorandum serves to inform stakeholders and the community about conditions at the intersection and along the corridor. This memorandum will also help inform proposed modifications that would address documented safety issues at the intersection.

Figure 1: Study corridor shown in yellow. Zachary's Corner shown in red.

Figure 2: Zachary's Corner

Existing Conditions

This section includes the following subsections:

- Transportation Facilities and Service
- Collision Data
- Traffic Data Collection
- Traffic Operations Analysis

Transportation Facilities and Service

Roadway Facilities

The study corridor illustrated in **Figure 1** begins at Piedmont Avenue/Bancroft Way at the north end, and continues along Piedmont Avenue, Warring Street, Derby Street, and Belrose Avenue, terminating at the intersection of Belrose Avenue/Claremont Avenue and Garber Street. These streets are described below, with intersection geometries and traffic control devices presented in **Figure 11**.

Piedmont Avenue is a north-south collector street with a posted speed limit of 25 mph. Within the study area, Piedmont Avenue has a landscaped median, one travel lane in each direction, and on-street parking and sidewalks on both sides of the roadway. The Vision Zero Action Plan identifies Piedmont Avenue as a High-Injury Street.[1] The street is designated as an Emergency Access & Evacuation Route, and trucks over three tons are prohibited.

[1] City of Berkeley Vision Zero Action Plan, March 2020, p. 17

Piedmont Avenue transitions into Warring Street at Dwight Way. **Warring Street** is a north-south collector street with a posted speed limit of 25 mph. In the study area, Derby Street has one travel lane in each direction with on-street parking and sidewalks on both sides of the roadway. The Vision Zero Action Plan identifies Warring Street as a High-Injury Street. The street is designated as an Emergency Access & Evacuation Route, and trucks over three tons are prohibited. Warring Street has Class III shared bicycle lanes.

Derby Street is an east-west collector street with a posted speed limit of 25 mph. Within the study area, Derby Street has one travel lane in each direction with on-street parking and sidewalks on both sides of the roadway. The street is designated as an Emergency Access & Evacuation Route, and trucks over three tons are prohibited. Derby Street has Class III shared bicycle lanes.

Belrose Avenue is a north-south collector street with a posted speed limit of 25 mph. Within the study area, Belrose Avenue has one travel lane in each direction with on-street parking and sidewalks on both sides of the roadway. Trucks over three tons are prohibited, and the street is designated as an Emergency Access & Evacuation Route.

Bicycle Facilities

According to the Draft 2025 Berkeley Bike Plan, there are no existing bicycle facilities in the vicinity of Zachary's Corner or along the study corridor. However, there are sharrow markings along the study corridor in both directions on Warring Street and Derby Street.

The Draft Plan recommends the possible implementation of a cycletrack (Class IV) along and extending beyond the study corridor south along Claremont Avenue to Alcatraz Avenue. The cycletrack would be a part of Berkeley's Low-Stress Bikeway Network[2] and follow a Complete Streets Corridor Study that will include a traffic study, evacuation sensitivity analysis, and consideration of needs from relevant stakeholders.[3]

Public Transit

AC Transit

The study area is served by AC Transit route 36, which travels along Piedmont Avenue, Warring Street, Derby Street, and Claremont Boulevard at a 30-minute frequency. Hours of operation are 5 AM to 12 AM on weekdays and 6 AM to 12 AM on weekends. **Figure 3** shows the route and bus stops within the study corridor.

At Zachary's Corner, the northbound bus stop is on the far side of the intersection, while the southbound bus stop is on the near side of the intersection.

[2] City of Berkeley Bicycle Plan, July 2025, p. 78
[3] City of Berkeley Bicycle Plan, July 2025, p. 89

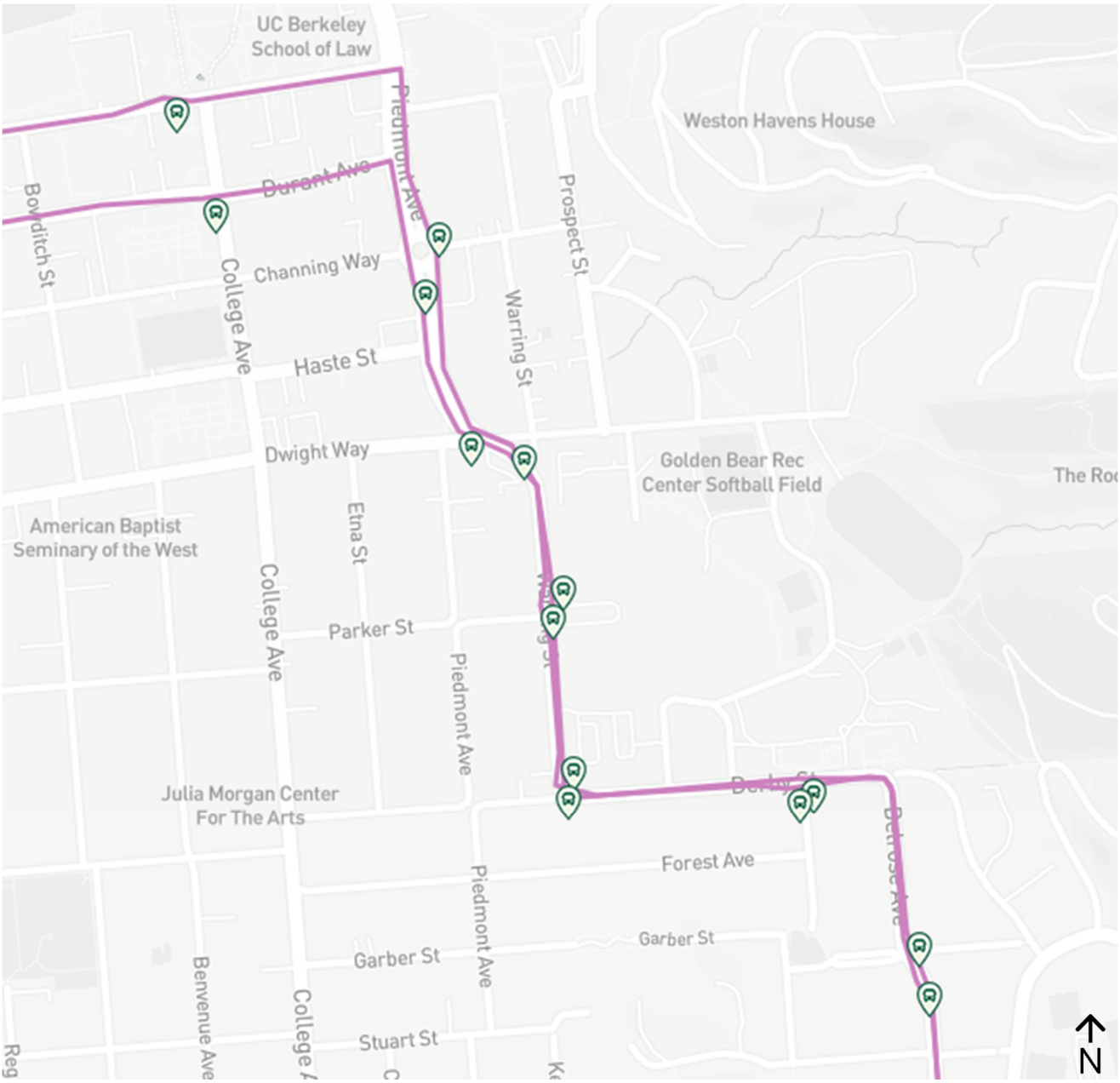


Figure 3: AC Transit Route 36

Other Transit Routes

The University of California at Berkeley operates Bear Transit bus service for the campus population, with separate routes serving the project vicinity during the daytime (7 AM to 7 PM) on weekdays and nighttime (7 PM to 3 AM) on weekdays and weekends. Routes operate at 30-minute intervals; the routes are shown on **Figure 4** and **Figure 5**.

The Lawrence Berkeley National Laboratory also operates a daytime shuttle route, as shown on **Figure 6**, which traverses the study corridor on weekdays from 6:15 AM to 11:15 AM (inbound from Rockridge BART) and 3:15 PM to 7:15 PM (outbound to Rockridge BART).

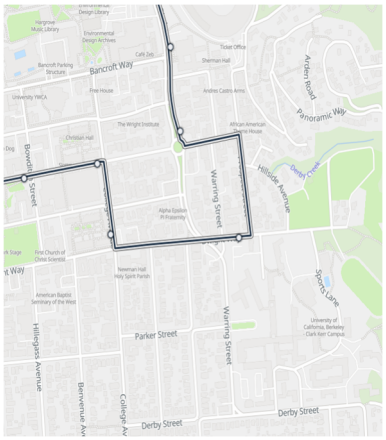


Figure 4: Bear Transit Daytime Service (northbound)

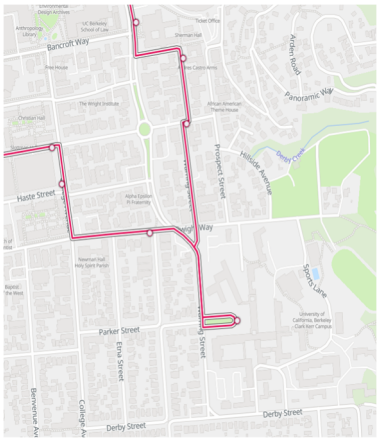


Figure 5: Bear Transit Nighttime Service (northbound)

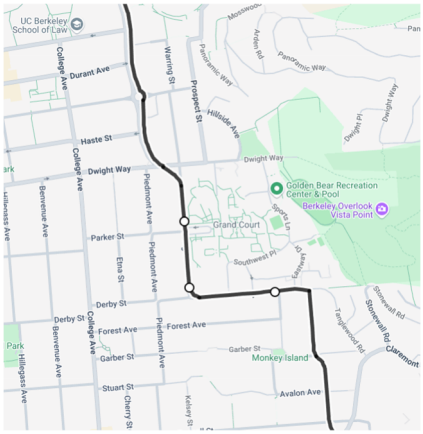


Figure 6: Berkeley Lab Rockridge Route (northbound)

Transit Travel Speed

Transit travel speed data is available for former AC Transit route 79 (which was replaced by route 36 in August 2025) through the California Transit Speed Maps published by Caltrans.

Figure 7: Weekday AM Transit Speed

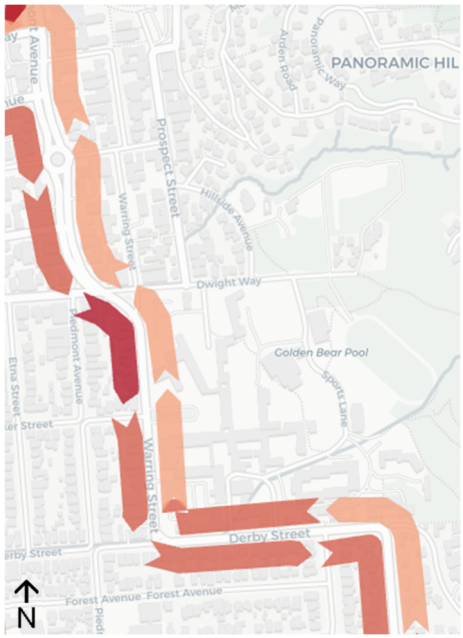
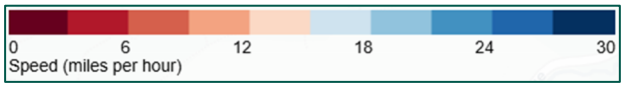


Figure 8: Weekday PM Transit Speed



As shown in **Figure 7** and **Figure 8**, transit travel speeds in the corridor range between 6 and 15 miles per hour during the weekday peak periods. Similar to private vehicles, transit vehicles experience congestion at the northern and southern ends of the study corridor.

School Bus Operations

Berkeley Unified School District (BUSD) operates school buses up to 40 feet long across the city.

BUSD does not have a school bus stop on Derby Street at Warring Street. However, school buses may travel eastbound on Derby Street, and either turn left onto northbound Warring Street, or continue straight along eastbound Derby Street. BUSD avoids routing school buses through the channelized right turn movement from westbound Derby Street to northbound Warring Street.

Parking Conditions

On-street parking conditions were evaluated for supply and occupancy. The parking study area is shown in **Figure 9**.

Figure 9: Parking Study Area

Within the parking study area, parking is limited to two hours on weekdays, except for residents with residential parking permits for zones D or I. North of Dwight Way and west of Piedmont Avenue, metered parking is also available, allowing vehicles without a permit to park for up to eight hours.

Additional parking restrictions are in effect all day when Cal hosts a home football game—parking regulations become increasingly restrictive in proximity to the stadium. In the northern segment of Piedmont Avenue on game days, on-street parking is prohibited for all vehicles, including vehicles with parking permits.

Parking supply and occupancy data is presented below in **Table 1** across three analysis scenarios: at Zachary's Corner, along the study corridor, and along adjoining streets in the larger parking study area. These three analysis scenarios are presented for the weekday afternoon (1–3 PM), weekday evening (8–10 PM), weekend afternoon, and weekend evening periods, which represent hours during which peak parking demand typically occurs. Detailed parking survey results by block are attached in **Appendix D**.

Table 1. Parking Conditions

Analysis Scenario	Parking Supply	Weekday Afternoon	Weekday Evening	Weekend Afternoon	Weekend Evening
Zachary's Corner Intersection	90	47 (52.2%)	44 (48.9%)	45 (50.0%)	38 (42.2%)
Project Study Corridor	216	104 (48.1%)	92 (42.6%)	94 (43.5%)	90 (41.7%)
Parking Study Area	1,127	725 (64.3%)	585 (51.9%)	640 (56.8%)	608 (53.9%)

Format: Parked Cars Observed (Percent Occupied).
Source: Fehr & Peers 2025. Data collected May 8 and May 10, 2025.

As shown in **Table 1**, parking occupancy ranges from 41% to 64% across the different analysis scenarios and at different times of the week. Furthermore, during the four parking surveys shown, no instances of double-parking of passenger or commercial vehicles were observed,

Collision Data

Collision data was retrieved from the Berkeley Police Department's Transparency Hub, which contains traffic safety data from the years 2011 through 2025. Collision data in the charts and tables below is presented for the citywide level, corridor level, and intersection level.

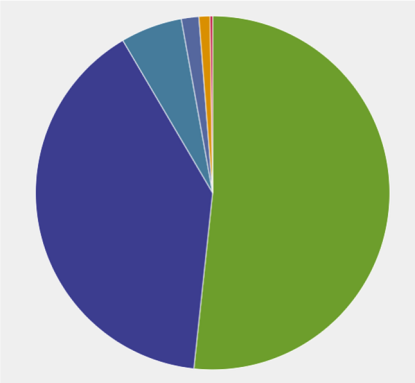
Collision Patterns

Citywide

At the citywide level, 0.2% of reported collisions result in a fatality and 1.0% resulted in serious injury (**Table 2**). As summarized in **Table 3**, the most common Primary Collision Factors include the following:

- Turning, Starting, Signaling: 32.1%
- Speed Laws: 22.3%
- Right of Way: 10.6%

Citywide – 15,050 collisions



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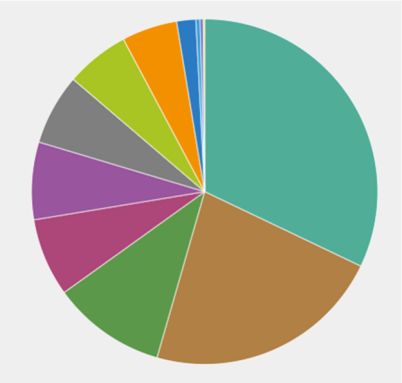


Primary Collision Factor

Table 2. Collision Severity – Citywide

Collision Severity	Number of Collisions	Percentage of Collisions
No Injury	7,779	51.7%
Unspecified Injury	5,996	39.8%
Minor Injury	847	5.6%
Possible Injury	241	1.6%
Serious Injury	153	1.0%
Fatal	35	0.2%
Total	**15,050**	**100%**

Source: Berkeley Police Department's Transparency Hub, 2011–2025.

Table 3. Primary Collision Factor – Citywide

Collision Severity	Number of Collisions	Percentage of Collisions
Turning, Starting, Signaling	4,831	32.1%
Speed Laws	3,362	22.3%
Right of Way	1,600	10.6%
Pedestrians	1,100	7.3%
Signs, Signals, Markings	1,092	7.3%
Other	999	6.6%
Alcohol, DUI, Drug Offenses	894	5.9%
Driving, Overtaking, Passing	779	5.2%
Stopping, Standing, Park	269	1.8%
PCFs not included above	124	0.8%
Total	**15,050**	**100%**

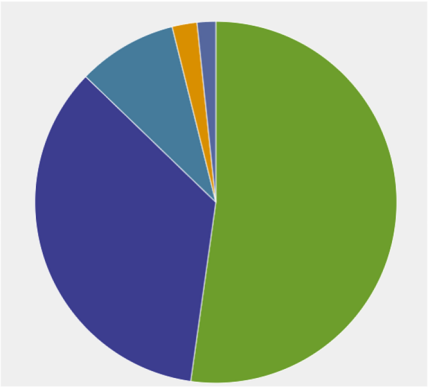
Source: Berkeley Police Department's Transparency Hub, 2011–2025.

Study Corridor

Along the study corridor level, 2.2% of reported collisions resulted in serious injury, higher than the citywide rate (**Table 4**). There were no fatalities along the study corridor from 2011 to 2025. As summarized in **Table 5**, the most common Primary Collision Factors are similar to the citywide level, specifically the following:

- Turning, Starting, Signaling: 30.6%
- Speed Laws: 22.8%
- Right of Way: 11.1%

Study Corridor – 180 collisions



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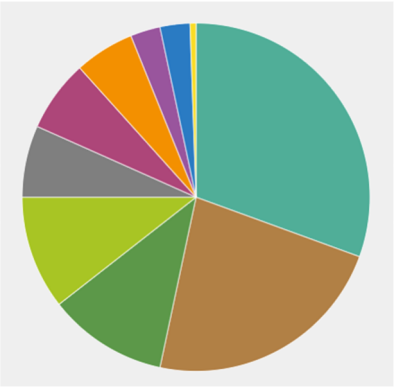


Primary Collision Factor

Table 4. Collision Severity – Study Corridor

Collision Severity	Number of Collisions	Percentage of Collisions
No Injury	94	52.2%
Unspecified Injury	63	35.0%
Minor Injury	16	8.9%
Possible Injury	3	1.7%
Serious Injury	4	2.2%
Total	**180**	**100%**

Source: Berkeley Police Department's Transparency Hub, 2011–2025.

Table 5. Primary Collision Factor – Study Corridor

Collision Severity	Number of Collisions	Percentage of Collisions
Turning, Starting, Signaling	55	30.6%
Speed Laws	41	22.8%
Right of Way	20	11.1%
Pedestrians	12	6.7%
Signs, Signals, Markings	5	2.8%
Other	12	6.7%
Alcohol, DUI, Drug Offenses	19	10.6%
Driving, Overtaking, Passing	10	5.6%
Stopping, Standing, Park	5	2.8%
PCFs not included above	1	0.5%
Total	**180**	**100%**

Source: Berkeley Police Department's Transparency Hub, 2011–2025.

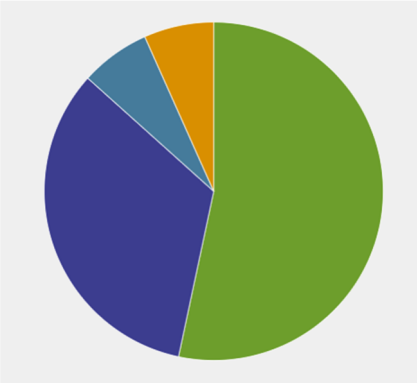
Zachary's Corner Intersection

At the Zachary's Corner intersection, 6.7% of reported collisions resulted in serious injury (**Table 6**), which is substantially larger than the citywide and study corridor rate; as noted above, the Vision Zero Action Plan identifies Warring Street as within the High Injury Network. There were no fatalities at the intersection from 2011 to 2025.

As summarized in **Table 7**, the most common Primary Collision Factors at the intersection level include the following:

- Alcohol, DUI, Drug Offenses: 26.7%
- Turning, Starting, Signaling: 20.0%
- Pedestrians: 13.3%

Zachary's Corner (Derby Street at Warring Street) – 15 collisions



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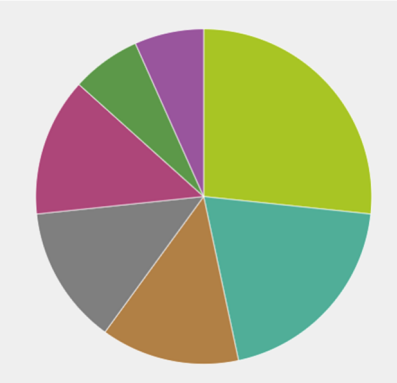

Primary Collision Factor

Table 6. Collision Severity – Zachary's Corner

Collision Severity	Number of Collisions	Percentage of Collisions
No Injury	8	53.3%
Unspecified Injury	5	33.3%
Minor Injury	1	6.66%
Serious Injury	1	6.66%
Total	**15**	**100%**

Source: Berkeley Police Department's Transparency Hub, 2011–2025.

Table 7. Primary Collision Factor – Zachary's Corner

Collision Severity	Number of Collisions	Percentage of Collisions
Turning, Starting, Signaling	3	20.0%
Speed Laws	2	13.3%
Right of Way	1	6.7%
Pedestrians	2	13.3%
Signs, Signals, Markings	1	6.7%
Other	2	13.3%
Alcohol, DUI, Drug Offenses	4	26.7%
Total	**15**	**100%**

Source: Berkeley Police Department's Transparency Hub, 2011–2025.

Collision Circumstances at Zachary's Corner

As presented above, there were 15 collisions between 2011 and 2025 at the Zachary's Corner intersection. A single serious injury was reported, which occurred in September 2024. The circumstances of that collision involved a bus[4] turning left from southbound Warring Street onto eastbound Derby Street; the bus struck a pedestrian walking northbound in the east crosswalk, resulting in a serious injury to the pedestrian.

This intersection collision data for Zachary's Corner does not include the 2009 fatal collision of Zachary Cruz, because the collision database is available only from 2011. However, the circumstances of the 2009 collision are similar to the 2024 collision. Specifically, a truck[5] was turning left from southbound Warring Street onto eastbound Derby Street and struck a pedestrian walking northbound in the east crosswalk.

A diagram depicting both collisions is shown in **Figure 10**.

Figure 10: Collision pattern at Zachary's Corner:
Vehicle turning southbound-left shown in red,
pedestrian walking northbound in east crosswalk shown in cyan,
collision location shown in yellow.

[4] FHWA Class 4: Bus
[5] FHWA Class 5: Single-Unit Truck

In addition to the two vehicle/pedestrian collisions described above, of the 15 reported collisions at the Zachary's Corner intersection from 2011 to 2025, a third vehicle/pedestrian collision occurred in 2014. While this third collision did not involve serious injury to the pedestrian, the circumstances were similar to the two previously mentioned collisions shown in **Figure 10**: a vehicle turning left from southbound Warring Steet onto eastbound Derby Street, striking a pedestrian walking northbound in the east crosswalk.

Traffic Data Collection

Speed and Volume Counts

Traffic volume counts were collected at the following three locations on Thursday, May 8, Saturday, May 10, and Thursday, May 15, using rubber hoses stretched across the roadway:

1. Warring Street, between Derby Street and Parker Street
2. Derby Street, between Warring Street and Claremont Boulevard
3. Piedmont Avenue, between Channing Way and Haste Street

The posted speed limit along each of these three roadways is 25 mph. Average speed, 85th percentile speed, and average daily traffic (ADT) at each of these locations are summarized in **Table 8** and **Table 9**:

- On Warring Street, the average speed ranges from 21 to 22 mph in the northbound direction and 24 to 25 mph in the southbound direction. The 85th percentile speed is 26 mph in the northbound direction and ranges from 28 to 29 mph in the southbound direction.
- On Derby Street, the average speed ranges from 22 mph to 24 mph in the eastbound direction and is 25 mph in the westbound direction. The 85th percentile speed ranges from 27 mph to 28 mph in the eastbound direction and is 30 mph in the westbound direction.
- On Piedmont Avenue, the average speed ranges from 21 mph to 22 mph in the northbound direction and 20 mph to 21 mph in the southbound direction. The 85th percentile speed ranges from 26 mph to 27 mph in the northbound direction and 23 mph to 24 mph in the southbound direction.

Table 8. Weekday Speeds and ADT

Roadway	Direction	Average Speed (mph)	85th Percentile Speed (mph)	ADT
Warring St	Northbound	21	**26**	7,243
	Southbound	24	**28**	7,520
Derby St	Eastbound	22	**27**	7,490
	Westbound	25	**30**	8,040
Piedmont Ave	Northbound	21	**26**	5,940
	Southbound	20	23	6,047

Values in **bold** represent exceeding the 25 mph speed limit.
Source: Fehr & Peers. Data collected May 8, May 10, and May 15, 2025.

Table 9. Weekend Speeds and ADT

Roadway	Direction	Average Speed (mph)	85th Percentile Speed (mph)	ADT
Warring St	Northbound	22	**26**	6,188
	Southbound	25	**29**	6,912
Derby St	Eastbound	24	**28**	6,797
	Westbound	25	**30**	6,220
Piedmont Ave	Northbound	22	**27**	5,074
	Southbound	21	24	5,609

Values in **bold** represent exceeding the 25 mph speed limit.
Source: Fehr & Peers. Data collected May 8, May 10, and May 15, 2025.

Tube count data is attached in **Appendix A**.

Intersection Turning Movement Counts

Vehicle turning movement counts, including pedestrian and bicycle volumes, were collected at the nine study corridor intersections along Piedmont Avenue, Warring Street, and Derby Street during weekday AM (7–9 AM), weekday PM (4–6 PM), and weekend midday (12–2 PM) peak periods. This data was collected on Thursday, May 8, Saturday, May 10, and Thursday, May 15.

The nine study intersections, along with turning movement counts, are shown in **Figure 11**:

1. Warring Street/Derby Street – Zachary's Corner (shown in red)
2. Claremont Avenue/Derby Street
3. Warring Street/Parker Street
4. Piedmont Avenue/Dwight Way
5. Piedmont Avenue/Haste Street
6. Piedmont Avenue/Channing Way
7. Piedmont Avenue/Durant Avenue
8. Piedmont Avenue/Bancroft Way (East of Piedmont Avenue)
9. Piedmont Avenue/Bancroft Way (West of Piedmont Avenue)

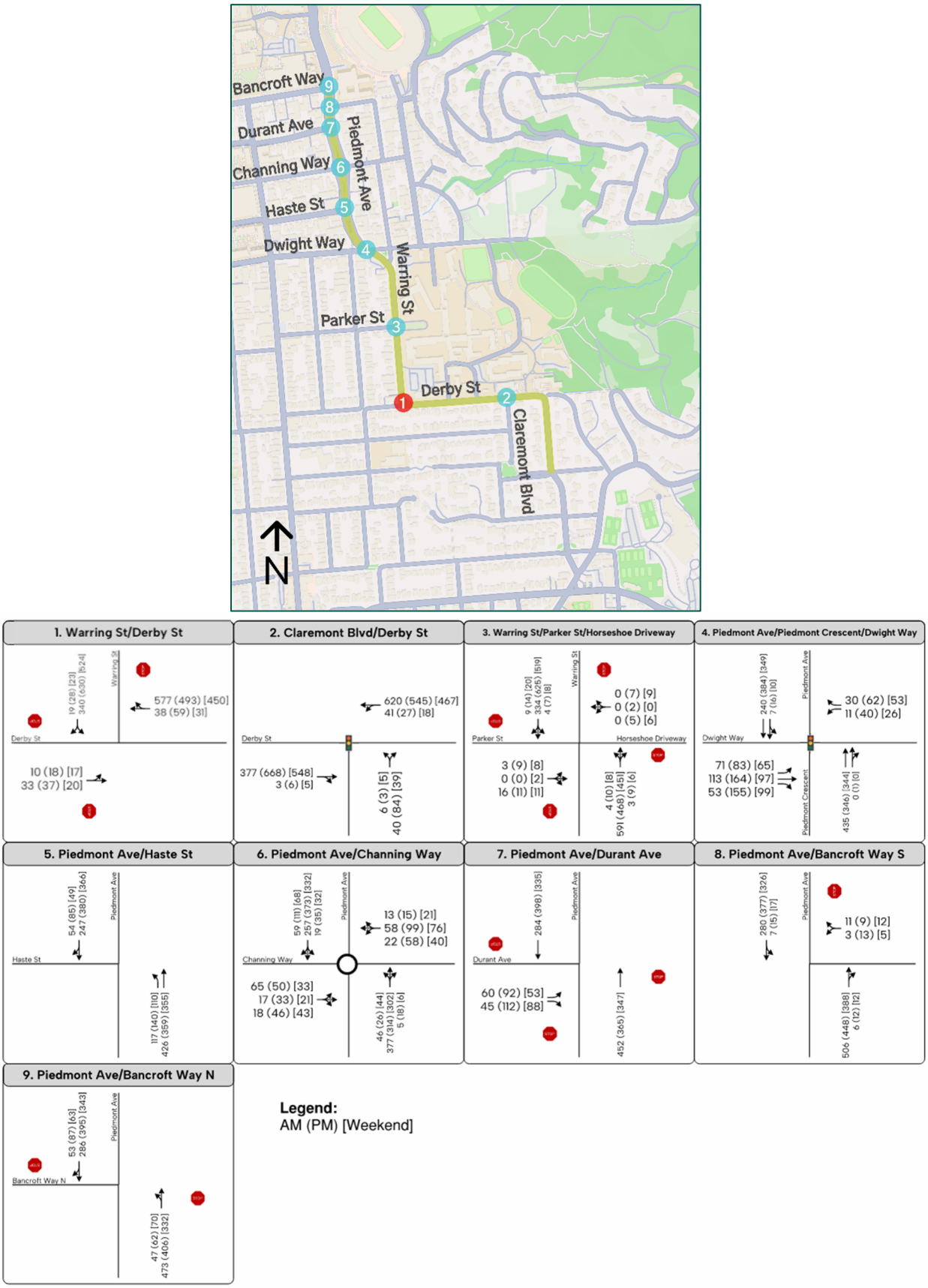

Figure 11: Traffic Operation Study Intersections

Traffic Operations Analysis

Intersection operations are analyzed by "level of service" (LOS). LOS is a quantitative description of traffic flow based on factors such as speed, travel time, delay, and freedom to maneuver. Letter grades range from LOS A, with no congestion and little delay, to LOS F, which represents over-capacity conditions with excessive vehicle delay. The Transportation Research Board's *Highway Capacity Manual* (HCM) provides a methodology to calculate LOS at intersections based on average vehicle delay.

Synchro 12 software is used to estimate delay and the corresponding LOS for the study intersections. Synchro uses the equations provided in the HCM, 7th Edition to calculate control delay and queues. These equations use intersection characteristics, such as vehicle and pedestrian volumes, lane geometry, and signal phasing, as inputs in estimating control delay. At intersections that cannot be evaluated using the HCM 7th Edition methodology due to complicated geometry or unconventional signal timing, the 2000 HCM is used.

Intersection operations are summarized in **Table 10**. **Appendix B** contains traffic counts, and **Appendix C** contains detailed level of service calculations.

As shown in **Table 10**, traffic operations at the northern end of the study corridor (#9 Piedmont Avenue/Bancroft Way west leg) and near the southern end of the study corridor (#1 Warring Street/Derby Street intersection, Zachary's Corner) experience LOS F conditions, especially during the PM peak period. These conditions are due to the presence of all-way stop control at these intersections, which has the effect of reducing vehicle operational capacity. At intersection #9 Piedmont Avenue/Bancroft Way west leg, congestion is exacerbated by the high volume of pedestrians during the PM peak period. In contrast, in the middle of the study corridor, intersections operate at LOS A through C.

Table 10. Intersection LOS Summary

#	Intersection	Existing Traffic Control[4]	Peak Hour	Delay (Seconds)[1,2]	LOS[1,2]
1	Derby Street/ Warring Street	AWSC	AM	24.9	C
			PM	**56.6**	**F**
			Weekend	31.6	D
2	Claremont Avenue/ Derby Street[3]	Signal	AM	18.9	B
			PM	17.9	B
			Weekend	15.5	B
3	Warring Street/ Parker Street	AWSC	AM	17.8	B
			PM	20.6	C
			Weekend	17.5	C
4	Piedmont Avenue/ Dwight Way[3]	Signal	AM	12.7	B
			PM	12.3	B
			Weekend	12.5	B
5	Piedmont Avenue/ Haste Street	Uncontrolled	AM	<5.0	A
			PM	<5.0	A
			Weekend	<5.0	A
6	Piedmont Avenue/ Channing Way	Roundabout	AM	6.2	A
			PM	6.9	A
			Weekend	6.3	A
7	Piedmont Avenue/ Durant Ave	AWSC	AM	13.3	B
			PM	13.2	B
			Weekend	11.8	B
8	Piedmont Avenue/ Bancroft Way (E)	SSSC	AM	<5.0 (14.0)	A (B)
			PM	<5.0 (20.5)	A (C)
			Weekend	<5.0 (14.5)	A (B)
9	Piedmont Avenue/ Bancroft Way (W)[3]	AWSC	AM	26.4	C
			PM	**>80.0**	**F**
			Weekend	**>80.0**	**F**

Notes:

1. Values in **bold** represent intersections with LOS F.
2. Average intersection delay and LOS based on the HCM, 7th Edition method, unless noted. The worst approach delay is presented in parentheses for side-street stop-controlled intersections.
3. Average intersection delay and LOS based on the HCM 2000 method because the intersection cannot be evaluated in the HCM, 7th Edition.
4. SSSC = Side-Street Stop Control. AWSC = All-Way Stop Control.

Source: Fehr & Peers, 2025.

Appendices

- **Appendix A**: Speed and classification tube counts
- **Appendix B**: Intersection turning movement counts
- **Appendix C**: Intersection level of service calculations
- **Appendix D**: Parking survey results by block