



Memorandum

To: Emily Dalphy
DDOT

Date: August 31, 2017

Project #: 38559.01

From: Dan Lovas, P.E.
Alvaro Calle, EIT

Re: 2017 High Crash Intersections 3rd Street NW and D Street NW
Summary and Next Steps

Introduction

The District of Department of Transportation (DDOT) coordinated site visits to five “high crash” intersections in 2017. The site visits were attended by representatives from the local Advisory Neighborhood Commissions (ANCs), the Metropolitan Police Department (MPD), the District Department of Public Works (DPW), the Washington Metropolitan Area Transit Authority (WMATA), Department of Housing and Community Development (DCHD), and other advocacy organizations.

As part of the Vision Zero initiative, DDOT and the District hope to eliminate traffic-related fatalities and serious injuries by 2024. Accomplishing this goal first requires analyzing the behaviors and physical conditions at “high crash” intersections that contribute to traffic deaths. Historical crash data also needs to be reviewed to support this effort.

This memorandum summarizes the 3rd Street NW and D Street NW site visit. The site visit summary includes a summary of the traffic and pedestrian data, crash data, discussion of the site visit observations, and the proposed next steps and action items. Each next step and action item is identified as a short-term, mid-term, or long-term improvement to increase the safety at the location.

3rd Street NW and D Street NW

The intersection of 3rd Street NW and D Street NW is located northwest of the United States Capitol and is adjacent to Interstate I-395. It is one block from the Judiciary Square Metro station. See Figure 1 for a map of the site.

D Street NW/Indiana Avenue NW is a four-lane divided collector roadway at the study intersection. On-street parking is provided in both directions, mostly for law enforcement vehicles. Access to I-395 South via a tunnel, which is heavily used by vehicles on all approaches during the evening peak period, is provided east of the intersection. Additionally, a right-turn channelized movement is provided for the eastbound approach. 3rd Street NW is a four-lane undivided collector roadway at the study intersection. On-street parking is provided for law enforcement vehicles south of the intersection and for the general public north of the intersection. 3rd Street NW also provides access to the basement garage of the United States Department of Labor and the restricted entry port of the Metropolitan Police Department. The intersection is an important connection for people walking between the Judiciary Square Metro station and the nearby federal buildings.

VHB, Inc.
8300 Boone Boulevard
Suite 700
Vienna, VA 22182

3rd St NW

Intersection at D Street NW



Figure 1. 3rd Street NW and D Street NW Location

Traffic and Pedestrian Data

According to DDOT data, the 2015 AADT on 3rd Street NW was 14,300 vehicles per day (vpd) south of D Street NW and 11,800 vehicles per day (vpd) north of D Street NW. The following summarizes the vehicular peak hour and pedestrian data obtained by Quality Counts on Tuesday December 18th, 2012:

- AM peak hour: 8:15 AM – 9:15 AM
- Mid-day peak hour: 11:00 AM – 12:00 PM
- PM peak hour: 4:30 PM – 5:30 PM
- AM peak pedestrian volume: 366
- Mid-day peak pedestrian volume: 270
- PM peak pedestrian volume: 391

It should be noted as part of the Capital Crossing real estate development project, the traffic patterns around 3rd Street NW and D Street NW have changed since the counts were taken. Prior to the Capital Crossing project, another I-395 access ramp was open approximately 3 blocks north of the intersection. This ramp has been closed, shifting more vehicular traffic to the intersection. See Appendix A for the detailed turning movement counts.

Crash Data

From January 2013 to December 2015, 61 total crashes were reported at this intersection. Approximately 30 percent of the crashes were sideswipe collisions with a parked or non-parked vehicle. This crash type is common in locations where drivers quickly change lanes or where on-street parking is allowed. About 21 percent of the crashes were fixed object collisions. The severity of the crashes at this intersection is low, as there were no fatalities and the 10 injury crashes resulted in non-disabling injuries. See Appendix B for a crash diagram and the summary report of the crashes at this intersection.

Site Visit Observations

On Thursday June 29, 2017, participants visited the 3rd Street NW and D Street NW intersection to identify issues related to all travel modes. The following are initial observations based on the site visit and DDOT's preliminary assessment of crash data.

Overall Issues

- O1. No roadway markings for the southbound 3rd Street NW approach.
- O2. No lane configuration signage on all approaches.
- O3. Debris and damage near crosswalks, especially at the southwest corner of the intersection.
- O4. Major regional congestion on I-395 contributes to queuing and traffic conflicts at the intersection.
- O5. Visibility can be poor on northbound 3rd Street approach during dusk/nighttime conditions. The approach is situated under the US Department of Labor and Metropolitan Police Department buildings, and this approach can be difficult to see from the other approaches due to the observed shadow that the buildings create, and there is reduced vehicle conspicuity.

Pedestrian Issues

- P1. Pedestrian signal on northeast corner, facing northbound 3rd Street NW, of intersection is partially blocked by another pedestrian signal.
- P2. Crosswalk markings are faded.
- P3. Sidewalk on the southeast corner of the intersection is not ADA complaint, as it is very narrow and no ramps are provided in the median on the east side of the intersection.
- P4. Pedestrian platooning was observed. Majority of pedestrians crossing during the "Do Not Walk" indication.
- P5. Short Walk/Flash Don't Walk time for pedestrians crossing north-south.

Bicycle Issues

- B1. No bicycle facilities present at intersection. Bicyclists tend to use the sidewalks and crosswalks.

Vehicle Issues

- V1. Vehicles tend to stop past the stop bars on all approaches.
- V2. Vehicles were observed to violate the No Parking/Standing signs on the northbound 3rd Street approach.
- V3. Law enforcement vehicles tend to park on the channelized right turn lane from the eastbound D Street approach, which makes right turns difficult.
- V4. Vehicles exiting the parking garage on southbound 3rd Street add to vehicle queuing and additional blockages for southbound left and through movements.

- V5. Vehicles were observed blocking the intersection box from all approaches.
- V6. Heavy left-turn southbound 3rd Street traffic towards the I-395 tunnel. Majority of drivers force themselves into the intersection during the permissive green phase and turn from multiple lanes.
- V7. Vehicles were observed failing to yield to pedestrians at every approach, particularly in the southbound approach as vehicles are queued into the intersection and crosswalk. There was observed aggressive driving behavior.

The main issue that was noted by all participants was the heavy vehicle congestion and aggressive driving on the southbound approach of the intersection. The access to I-395 is the main contributing factor to the congestion, as the Capital Crossing project construction has rerouted additional I-395 traffic to this intersection. The vehicle queues were observed to extend for blocks north of the intersection. There are no lane configuration markings or signage at this approach, which has resulted in a defacto double left-turn lane condition entering the single receiving lane of the I-395 tunnel. This results in box blocking and a complete gridlock of traffic at the intersection during the weekday evening peak period. Many pedestrians and bicyclists are forced to maneuver around the vehicles. See Figure 2 for a detailed indication of the noted issues.

Traffic safety issues on other approaches are primarily related to the proximity of the on-street parking to the travel lanes and the poor maintenance of the pedestrian facilities. For instance, law enforcement vehicles are parked on the channelized right-turn lane on D-Street NW, which makes right turns difficult for all vehicles. Additionally, the crash history shows most crashes occurred on 3rd Street NW south of the intersection. Collisions related to entering and exiting US Department of Labor traffic with parked vehicles and fixed-objects have been recorded at this location. Second, the pedestrian facilities were observed to have grade issues and debris blocking the crosswalk on the southeast and southwest corner of the intersection, respectively. At the west leg of the intersection, pedestrians crossing north/south have a 7-second Walk time and a 14-second Flash Don't Walk time. Pedestrians do not clear the intersection in their allotted time and are affected by the conflicting I-395 entering traffic. See Figure 3 for a detailed indication of the noted issues.

3rd St NW

Intersection at D Street NW



V4. Vehicles exiting the parking garage on southbound 3rd Street add to vehicle queuing and additional blockages.



P4. Pedestrian platooning was observed. Majority crossing during the “Do Not Walk” indication.
B1. No bicycle facilities present at intersection.



O4. Major regional congestion on I-395.
V6. Heavy left-turn southbound 3rd Street traffic.



V5. Vehicles were observed blocking the intersection box.

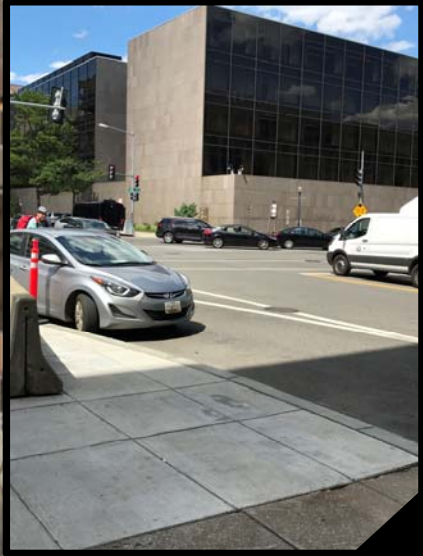
Figure 2. 3rd Street NW Observations



3rd St NW

Intersection at D Street NW

V3. Law enforcement vehicles tend to park on the channelized right turn lane.



O5. Visibility can be poor on northbound 3rd Street approach.



O3. Debris and damage near crosswalks.



Figure 3. 3rd Street and D Street NW Observations



Next Steps and Proposed Recommendations

Tables 1 to 3 present each issue with its proposed short-term, mid-term, or long-term improvement. Further evaluation of some proposed improvement measures may be necessary to assess efficacy and feasibility.

Table 1. Proposed Short-Term Improvements

Issue	Next Step
No roadway markings for southbound 3 rd Street NW approach.	Install pavement markings.
No lane configuration signage on all approaches.	Install lane configuration signs on signal pole, mast arm, and/or upstream light poles. Also, consider installing a "No U-Turn" sign on the westbound D-Street NW approach.
Crosswalk markings are faded.	Refurbish all crosswalk markings and install ladder marked crosswalks.
Law enforcement vehicles tend to park on the channelized right turn lane from the eastbound D Street approach, which makes right turns difficult.	Install No Parking signs at the appropriate locations adjacent to the intersection along the right-turn lane.
Vehicles were observed to violate the No Parking/Standing signs on the northbound 3 rd Street approach.	Inform the Metropolitan Police Department (MPD), as majority of these parked vehicles are law enforcement vehicles.
Vehicles were observed blocking the intersection box from all approaches.	Install "Do Not Block Intersection" signage at every approach.
Major regional congestion on I-395 contributes to queuing and traffic conflicts at the intersection.	Conduct turning movement counts for vehicles, pedestrians, and bicycles. Latest counts were taken in 2012.
Debris and damage near crosswalks, especially in the southwest corner of the intersection.	Remove debris and repair curbs and sidewalks.

Table 2. Proposed Mid-term Improvements

Issue	Next Step
Heavy left-turn southbound 3 rd Street traffic towards the I-395 tunnel. Majority of vehicles force themselves into the intersection during the permissive green phase and turn from multiple lanes.	Investigate changing signal phasing to split phasing for northbound and southbound 3 rd Street NW approaches. Another option can be to allow protected only southbound left-turn movements.
Vehicles tend to stop past the stop bars on all approaches.	Relocate stop bars on each approach to improve sight distance.
Vehicles were observed failing to yield to pedestrians at every approach, particularly in the southbound approach as vehicles are queued into the intersection and crosswalk. There was observed aggressive driving behavior.	Relocate stop bars and install "Stop Here on Red" sign on each approach.
No bike facilities present at intersection. Bikers tend to use the sidewalks and crosswalks.	Install bike lanes or investigate if bike lane pavement markings are feasible on 3 rd Street NW travel lanes.
Short Walk/Flash Don't Walk time for pedestrians crossing north-south.	Analyze signal timings to possible extend Walk/Flash Don't Walk time to match the pedestrian timings on the west leg of the intersection.
Sidewalk at southeast corner of intersection is not ADA complaint, as it is very narrow and no ramps are provided in the median on the east side of the intersection.	Construct a pedestrian refuge with ADA compliant ramps.
Vehicles exiting the parking garage on southbound 3 rd Street add to vehicle queuing and additional blockages for southbound left and through movements.	Consider installing post-mounted delineators that limit garage traffic from entering/blocking turning lanes. Additionally, investigate moving parking on 3 rd Street back from garage driveway to increase sight distance.

Table 3. Proposed Long-Term Improvements

Issue	Next Step
Visibility can be poor on northbound 3 rd Street approach during dusk/nighttime conditions. The approach is situated under the US Department of Labor and Metropolitan Police Department buildings, and this approach can be difficult to see from the other approaches due to the observed shadow that the buildings create, and there is reduced vehicle conspicuity.	Install enhanced lighting options under and adjacent to the buildings.
Major regional congestion on I-395 contributes to queuing and traffic conflicts at the intersection.	Investigate alternate circulating options to reroute I-395 entering traffic using wayfinding signage. One recommendation is to make the west leg of the intersection (D Street NW/Indiana Avenue NW) into a one-way westbound street. Traffic can divert to 5 th Street or 6 th Street.

Appendices

Appendix A – Turning Movement Counts

Appendix B – Crash Diagram

Appendix A – Turning Movement Counts

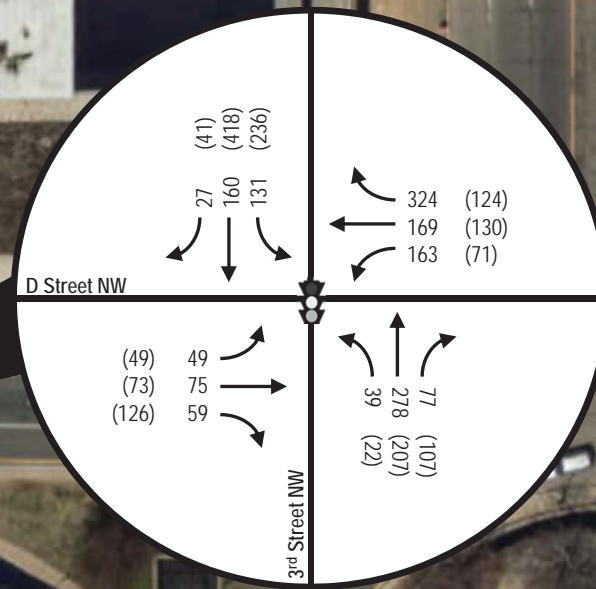
3rd St NW

Intersection at D Street NW

3rd Street NW

D Street NW

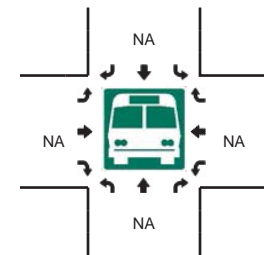
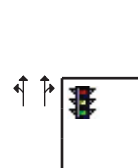
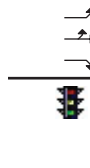
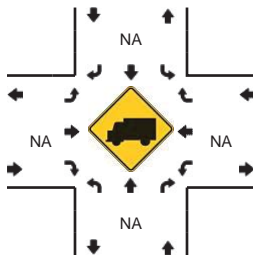
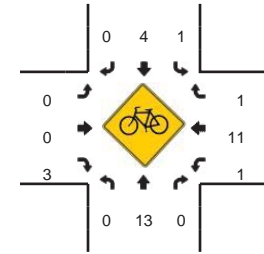
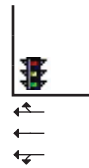
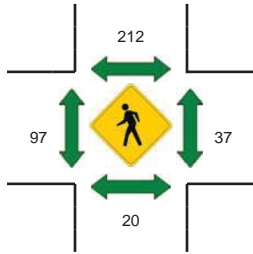
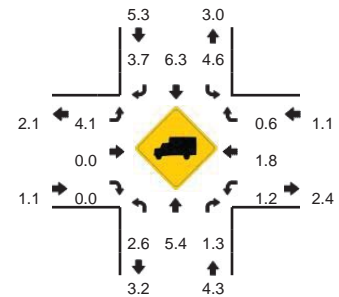
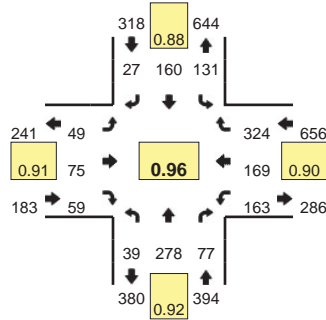
US 201
South State St



LOCATION: 3rd St -- D St NW
CITY/STATE: Washington, DC

QC JOB #: 10862207
DATE: Tue, Dec 18 2012

Peak-Hour: 8:15 AM -- 9:15 AM
Peak 15-Min: 9:00 AM -- 9:15 AM



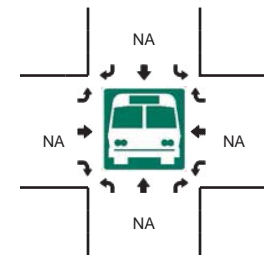
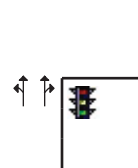
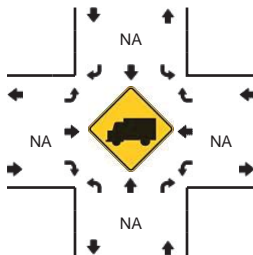
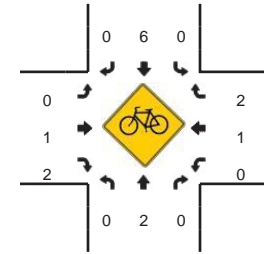
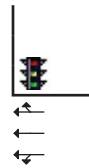
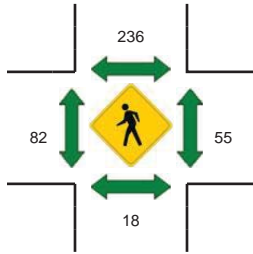
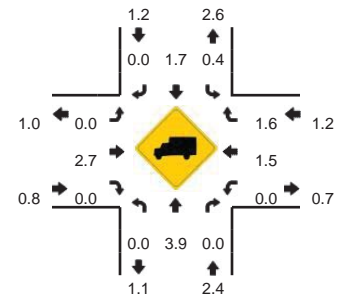
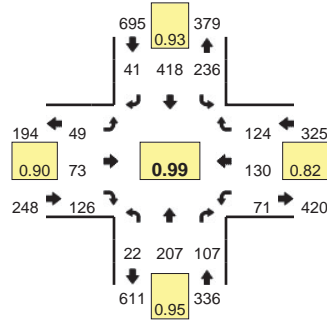
15-Min Count Period Beginning At	3rd St (Northbound)				3rd St (Southbound)				D St NW (Eastbound)				D St NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:30 AM	4	27	4	0	12	22	3	0	2	7	7	0	19	14	43	1	165	916 1025 1030 1121 1267 1389 1475 1551
6:45 AM	6	46	7	0	40	18	3	0	2	12	5	0	17	29	72	0	257	
7:00 AM	6	41	20	0	32	17	0	0	3	17	11	0	19	25	48	0	239	
7:15 AM	6	40	21	0	31	15	2	0	2	11	3	1	22	38	63	0	255	
7:30 AM	8	68	18	0	21	27	3	0	6	13	6	0	19	18	67	0	274	
7:45 AM	5	44	11	0	23	28	2	0	6	7	10	0	22	32	72	0	262	
8:00 AM	5	70	29	0	28	22	1	0	10	13	13	1	31	35	72	0	330	
8:15 AM	9	55	24	1	36	47	2	0	10	22	10	2	43	49	91	0	401	
8:30 AM	8	78	18	0	26	36	10	0	15	19	17	1	35	48	84	1	396	1389 1475 1551
8:45 AM	10	69	15	0	28	36	5	0	10	18	15	0	36	35	69	2	348	
9:00 AM	11	76	20	0	41	41	10	0	7	16	17	4	46	37	80	0	406	
9:15 AM	8	69	12	0	31	47	13	0	8	23	18	1	28	35	54	0	347	1497
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	44	304	80	0	164	164	40	0	28	64	68	16	184	148	320	0	1624	
Heavy Trucks	4	16	0		12	4	0		0	0	0		0	0	0		36	
Pedestrians		32				264				96				68			460	
Bicycles	0	6	0		0	1	0		0	0	0		1	2	0		10	
Railroad																		
Stopped Buses																		

Comments: 2017

LOCATION: 3rd St -- D St NW
CITY/STATE: Washington, DC

QC JOB #: 10862209
DATE: Tue, Dec 18 2012

Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:15 PM -- 5:30 PM



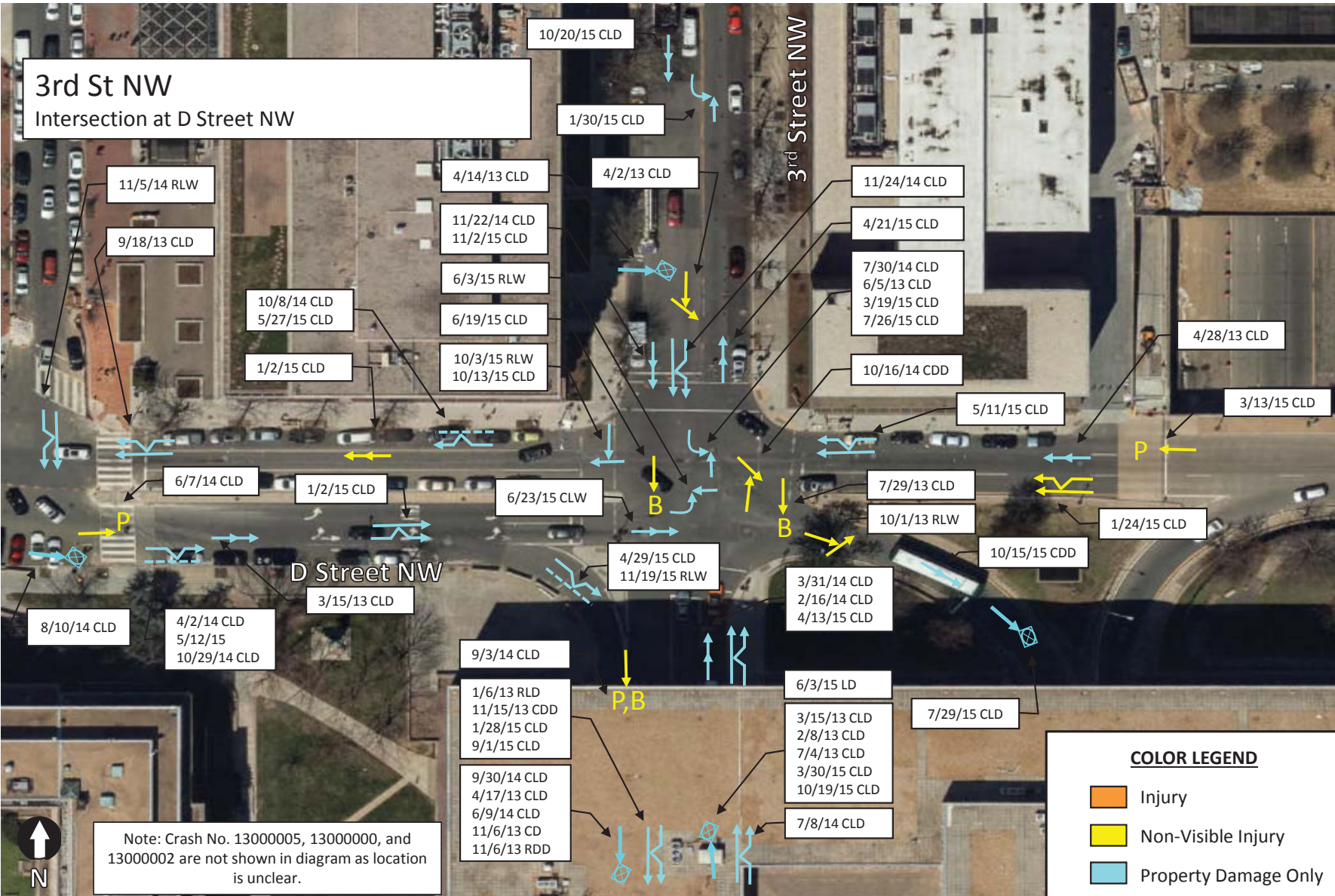
15-Min Count Period Beginning At	3rd St (Northbound)				3rd St (Southbound)				D St NW (Eastbound)				D St NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:30 PM	4	34	31	0	107	49	6	0	5	36	17	0	17	18	19	0	343	
3:45 PM	3	31	29	0	112	36	4	0	6	16	12	0	13	18	10	3	293	
4:00 PM	5	52	37	0	125	42	3	0	13	29	14	0	19	28	20	4	391	
4:15 PM	3	42	24	1	76	83	3	0	11	15	18	0	20	26	31	0	353	1380
4:30 PM	3	50	22	0	64	92	6	0	10	16	36	0	32	30	35	2	398	1435
4:45 PM	6	53	27	0	54	100	10	0	20	19	27	1	11	37	31	0	396	1538
5:00 PM	6	48	34	0	57	112	9	0	13	23	33	0	16	25	27	1	404	1551
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5:30 PM	4	61	28	0	77	89	12	0	7	22	24	0	13	30	23	0	390	1596
5:45 PM	3	47	20	0	80	72	6	0	11	19	18	0	10	24	25	0	335	1535
6:00 PM	6	38	30	0	64	57	3	0	13	7	18	0	17	28	21	1	303	1434
6:15 PM	4	38	18	0	68	63	5	0	4	12	14	0	11	20	16	2	275	1303
6:30 PM	3	25	21	0	77	39	4	0	5	17	7	0	7	31	23	1	260	1173
6:45 PM	4	19	30	0	74	24	5	0	4	15	5	1	8	27	13	0	229	1067
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	28	224	96	0	244	456	64	0	20	60	120	0	32	152	124	4	1624	
Heavy Trucks	0	8	0		0	4	0		0	0	0		0	0	0		12	
Pedestrians	4				232				52				44				332	
Bicycles	0	0	0		0	0	0		0	1	0		0	0	0		1	
Railroad																		
Stopped Buses																		

Comments: 2017

Appendix B – Crash Diagram

3rd St NW

Intersection at D Street NW



SYMBOL LEGEND

- Angle
- Left Turn
- Rear End
- Side Swipe
- Side Swipe (Parked Vehicle)
- P Pedestrian
- B Bicycle
- Fixed Object

WEATHER

- C Clear/Cloudy
- R Raining/Foggy

LIGHT

- L Light
- D Dark/Dusk

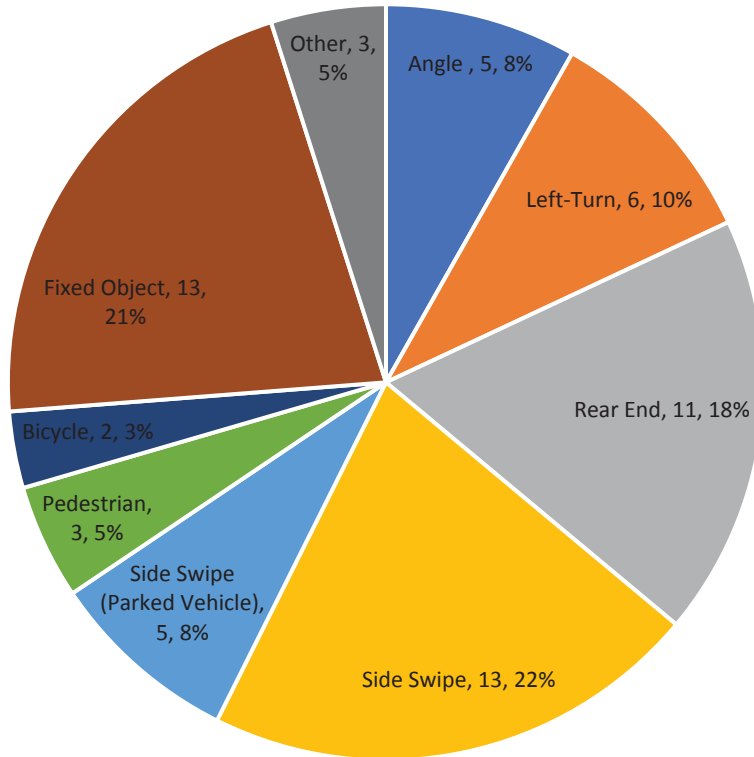
SURFACE

- D Dry
- W Wet

COLOR LEGEND

- Injury
- Non-Visible Injury
- Property Damage Only

**Vehicle Crashes by Crash Type
3rd St NW and D St NW
2013-2015**



61 Total Crashes