Prepared for:

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DISTRICT DEPARTMENT OF TRANSPORTATION

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Transportation Operations Administration
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Washington, DC 20003

VOLUME-1

SPEED LIMIT & SAFETY NEXUS STUDIES

for Automated Enforcement Locations in the District of Columbia

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10. Abstract

The District Department of Transportation (DDOT) conducted a study to establish a nexus between traffic safety and placement of automated speed enforcement devices (speed cameras) in the District of Columbia. As part of this study, Parsons Brinckerhoff and its team members conducted speed and volume studies, performed field assessments, reviewed speed data and analyzed crash data at the 295 speed camera locations in the District of Columbia. The purpose of this activity was to use real-world data to determine the safety nexus at each of the enforcement locations.

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Speed Limit and Safety Nexus Studies for Automated Enforcement Locations in the District of Columbia

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Executive Summary

Introduction

The District Department of Transportation (DDOT) conducted an engineering study to determine a nexus between traffic safety and placement of automated speed enforcement devices (speed cameras) in the District of Columbia. As part of this study, Parsons Brinckerhoff and its team members conducted speed and volume studies, performed field assessments, reviewed speed data and analyzed crash data at 295 speed camera locations in the District of Columbia. The purpose of this activity was to use real-world data to establish the speed nexus at each of the enforcement locations.

Background and Purpose

In the Budget Support Act of 2014, the District of Columbia (DC) City Council has mandated that DDOT conduct an engineering study to determine nexus between traffic safety and speed cameras throughout the City. The DC City Council specifically required the District Department of Transportation (DDOT) and the Metropolitan Police Department (MPD) to transmit a joint report to the Secretary of the Council on speed camera locations, existing, planned, or proposed, in the District. According to the Act, the report to the Secretary of Council shall include:

- A list of each speed camera in the District;
- An analysis of the speed camera's nexus with safety; and
- If no nexus with safety can be identified, a justification by MPD regarding the speed camera's location

This study supports the objectives of the Section 9029 of the Budget Support Act, which is to instill public trust that speed cameras are installed by the DC Government to improve safety and not just increase local revenues. Determining a safety nexus for speed cameras provides a technical justification for installation of speed cameras among other things throughout the city as a critical tool to improve vehicular and pedestrian safety. Since DC is a pedestrian-focused city, the goal of the District's safety programs is to make the schools, recreation centers, churches, parks, and commercial corridors safe for all users. In addition, since many of the District's roadway layouts and designs are not meant for moderate to high speeds, DDOT utilizes various traffic control devices and traffic calming measures to provide safe environments. The District uses automated speed enforcement as one of several tools to promote safety. This report provides written documentation for 295 existing, planned, and proposed automated speed enforcement locations. The locations cover each of the District's eight Wards.

Scope of Work

The scope of work for this project involved the following steps.

Obtain and Review Available Data

The team obtained and reviewed the following information to determine safety issues and trends that characterized District roadways and streets:

Accident Reports:

- Crash data for all speed camera locations
- Before and after crash data for existing speed camera locations
- 2009-2011 *Traffic Safety Statistics Report*
- 2011 *Highway Safety Improvement Program Report* (HSIP)
- 2012 *Highway Safety Improvement Program Report* (HSIP)
- 2014 *Highway Safety Performance Plan*
- DDOT *Strategic Highway Safety Plan* (SHSP)
- 2010, 2011, 2012 Top 5 Percent High Accident Locations Map

Traffic Data:

- 2010 Traffic Volume Map
- 2011 Traffic Volume Map
- 2012 Traffic Volume Map

Speed Data:

- 2010 *DC Speed Study*
- 2006 *DC Speed Study*
- 2006 *DC Speed Study* Map

Speed Camera Data:

- Location of Speed Cameras
- Installation Date for Existing Speed Camera Locations

Signal Timing Data:

- List of Signalized Intersections
- *Signal Optimization Report*

Field Assessments

DDOT performed field assessments at each of the 295 speed camera locations. The field assessments confirmed the land use around the subject locations, identifying and noting in particular any nearby school zone, work zone, recreational facilities, shopping area and any other area that generates pedestrian activity. The existing roadway geometry was also assessed, with attention to roadway configurations, traffic control devices, pavement conditions, drainages, curb conditions, traffic circulation and on-street parking at the speed camera locations. Areas with multimodal activity, such as bicycle lanes, bike trails, walk paths, and bus depots were noted in the assessment.

Data Collection

As part of the data collection activities to support the speed camera safety nexus, DDOT studied site-specific speeds and average daily traffic (ADT) volumes at all 295 automated speed enforcement locations. The minimum duration for the speed study and ADT study was 24 hours. Speed and volume data collection occurred during the months of October through December 2013.

The data collection team collected site-specific speed data using the Jamar Technologies' TRAX Apollyon Automatic Traffic Data Recorders (ATRs) as shown in **Figure 1**. The ATRs were placed at all 295 locations to obtain vehicle speeds, traffic volumes, and volume data. Tubes were placed at each location near the existing or proposed speed camera location (**Figure 2**). Tubes remained at each location for a 24-hour period on weekdays. In a few locations, particularly those near an active shopping and retail environment, tubes were placed on weekends to capture the more populated weekend traffic. Tubes were placed in a single direction of travel at each camera locations, and in both travel directions for a number of proposed camera locations.

Figure 1 | TRAX Apollyon Automatic Traffic Data Recorder

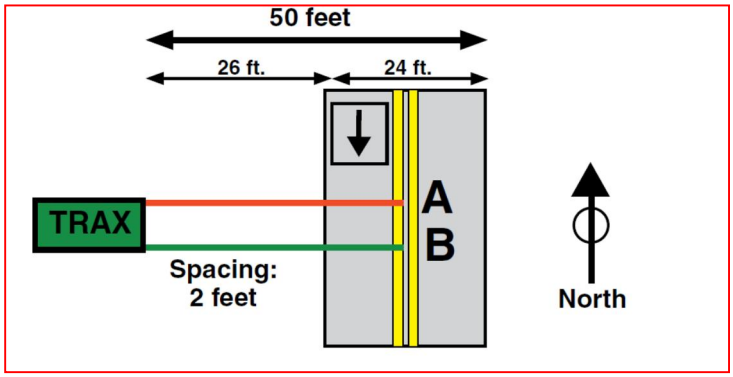

Figure 2 | ATR Tube Placement for Vehicle Speed Data Collection

Safety Analyses

DDOT reviewed the speeds at each location, and derived the 85th percentile speed, mean speed, modal speed, median speed, and pace range (10 mph range). The speed statistics were then compared to the posted speed limit to determine if there has been a reduction of speeds where existing speed cameras are located, or if speeding is present at locations where speed cameras are proposed.

Locations where the 85th percentile speed and the mean speed were lower than the posted speed limits were reviewed in detail to determine if traffic congestion was an issue. At these locations, additional traffic analyses were recommended to be performed.

DDOT performed a comprehensive review of crash data at each location. The team reviewed the crash types, crash frequency, and crash severity to identify trends at locations where speed cameras existed or are proposed. The team also reviewed other conditions, such as day and time of crash, weather conditions, surface conditions, and lighting conditions to note any trends. Also, the team noted if any particular contributing factors identified in the crash reports correlated to speeding at the locations. The team created charts and tables at each location showing the crash characteristics and highlighted areas where an elevated number of speed-related crashes such as Rear End and Side Swipe crashes were noted.

For existing speed camera locations, where historical crash data was available, DDOT analyzed the 3-year crash data before installation of the speed camera and after installation of the speed camera. DDOT also compared the frequency of crashes before and after the installation of a speed camera to determine the safety nexus of the speed camera.

Documentation of Safety Nexus

The team prepared draft reports for each of the 295 automated speed camera locations. The draft report summarized the results and recommendations related to the nexus between traffic safety and the installation of speed cameras, and included all pertinent data, GIS maps and charts. DDOT provided draft copies of each location report to MPD for their staff review. MPD staff reviewed the results and recommendations related to nexus between traffic safety and speed camera installation and provided comments on the draft reports.

DDOT incorporated all comments, including those from MPD, into the location reports and finalized the reports for submission to the DC Council. The complete draft and final reports for existing, planned and proposed automated speed enforcement locations were organized into eight distinct groups, with each group representing specific locations within each of the eight Wards in the District of Columbia.

For the existing speed camera locations, the team reviewed the historical crash data prior to and after camera installation. This review revealed an overall reduction in the number of crashes by as much as 20 percent for these locations. There were a combined total of 2,240 crashes occurring at these locations prior to speed camera installation. The number reduced to 1,863 crashes after speed camera installation. A combined total number of injury crashes prior to speed camera installation was 841 compared with 673 after installation of the speed camera. The number of injuries at these location also decreased by 20 percent, from 1,251 prior to installation to 996 after installation.

Using the analysis results from the speed data analysis and the crash data analysis, as well as reviewing the field assessments results, the team was able to determine the nexus between traffic safety and the speed camera at most of the locations. At locations where the speed data or the crash data did not provide sufficient background information, engineering judgment was used to determine if any elements in the field assessments – such as the proximity to school zones and the presences of bicycle and pedestrian activity – provided additional information for safety considerations. Overall, all of the results supported the nexus between traffic safety and the speed camera at all 295 existing, planned, and proposed locations.

List of Locations

Table 1, Table 2 and Table 3 list the 295 speed camera locations analyzed to determine the nexus between traffic safety and the installation of speed cameras. The list includes 87 existing automated speed camera locations, 39 planned speed camera locations, and 169 proposed speed camera locations.

Table 1 | Speed Camera Locations in the District of Columbia - Existing

District	PSA	Ward	ANC	Phase	Description
4	409	1	1A	Existing	3500 blk Park Pl NW s/b
3	304/305	1	1B	Existing	100 Blk Florida Ave NW nw/b and se/b
5	101	2	2F	Existing	1400 blk New York Ave NE ne/b
2	207	2	2A	Existing	2200 block K St NW e/b
2	202	3	3E	Existing	4400 Blk. River Rd. NW (NB)
2	203	3	3C	Existing	2500 blk Porter St NW w/b
2	203	3	3F	Existing	4900 blk Connecticut Ave NW se/b
2	204	3	3C	Existing	3500 Massachusetts Ave NW (E/B)
2	205	3	3D	Existing	2900 Blk Arizona Av NW SB
2	205	3	3D	Existing	3000 Blk Arizona Av NW SB
2	205	3	3D	Existing	3000 blk Foxhall Rd NW s/b
2	205	3	3D	Existing	4700 Blk MacArthur Blvd NW s/b
2	205	3	3D	Existing	5100 blk Loughboro Rd NW w/b
2	205	3	3D	Existing	5700 Blk MacArthur Blv NW NB
2	205	3	3D	Existing	Canal Rd NW .3 m s/o Az Ave s/b
4	401	4	4A	Existing	1700 blk N Portal Dr NW sw/b
4	401	4	4A	Existing	7700 Blk 16th St NW n/b
4	402	4	4B	Existing	600 blk Missouri Ave NW nw/b
4	402	4	4B	Existing	600 blk Missouri Ave NW se/b
4	403	4	4C	Existing	5200 BLK 14TH STREET NW (S/B)
4	403	4	4A	Existing	5400 Blk 16th Street NW s/b
4	403	4	4A	Existing	Military Rd .1m pri/to 17St NW ne/b
4	403	4	4A	Existing	Military Rd .2m w/o 16St Rmp NW swb
4	404	4	4C	Existing	4800 blk Georgia Ave NW s/b
4	406	4	4B	Existing	400 block Riggs Road NE n/b
4	406	4	4B	Existing	5800 blk New Hampshire Ave NE sw/b
4	405/407	4	4D/5A	Existing	3100 blk N Capitol St NE n/b
5	405	5	5C	Existing	100 Blk Michigan Ave NE w/b
5	405	5	5C	Existing	100 Blk Michigan Avenue NE e/b
5	503	5	5B	Existing	2200 blk South Dakota Ave NE se/b
5	503	5	5B	Existing	2700 BLK NEW YORK AVE NE (W/B)
5	503	5	5B	Existing	2800 Blk New York Ave. NE e/b
5	503	5	5A	Existing	3000 block Rhode Island Ave NE se/b
5	504	5	5A	Existing	1100 blk Michigan Ave NE w/b
5	504	5	5A	Existing	4100 blk S Dakota Ave NE se/b
5	504	5	5A	Existing	4200 blk S Dakota Ave NE nw/b
5	504	5	5C	Existing	700 blk Franklin St NE w/b
5	505	5	5B	Existing	600 Blk New York Avenue NE w/b
5	506	5	5B	Existing	1100 blk Bladensburg Rd NE ne/b
5	506	5	5B	Existing	1100 blk Bladensburg Rd NE sw/b
5	506	5	5B	Existing	1200 blk Mt Olivet Rd NE nw/b
5	506	5	5B	Existing	1500 blk West Virginia Ave NE ne/b
1	103	6	6C	Existing	3rd St Tunnel NW n/b at MA Ave Exit
1	104	6	61	Existing	1200 blk Maryland Ave NE ne/b
1	104	6	6C	Existing	300 blk H St NE e/b

District	PSA	Ward	ANC	Phase	Description
1	105	6	6D	Existing	9th St Tunnel NW s/b
1	106	6	6D	Existing	200 blk M St SE e/b
1	106	6	6B	Existing	700 blk 11th St SE s/b
1	108	6	6B	Existing	1300 blk Pennsylvania Ave SE nw/b
1	108	6	6A	Existing	1700 blk C St NE w/b
1	108	6	6B	Existing	1900 blk Independence Ave SE e/b
1	108	6	6A	Existing	200 blk 17th St NE s/b
1	108	6	6B	Existing	200 blk 19th St SE n/b
1	108	6	6B	Existing	300 block 17th St SE s/b
1	207	6	6D	Existing	400 blk 14th St SW n/b
1	102/103	6	6C	Existing	3rd St Tunnel NW s/b at 3rd St Exit
6	601	7	7D	Existing	2800 block Benning Rd NE e/b
6	601	7	7D	Existing	3400 blk Benning Rd NE w/b
6	601	7	7D	Existing	3600 Jay St NE ne/b
6	602	7	7C/7D	Existing	DC295 .4 mi s/o Burroughs Av NE s/b
6	602	7	7C/7D	Existing	DC295 NE .1mile s/o Eastern Ave n/b
6	602	7	7C/7D	Existing	DC295 NE .1mile s/o Eastern Ave s/b
6	604	7	7A	Existing	3300 Blk Minnesota Ave SE (NE/B)
6	604	7	7A	Existing	3300 Blk Minnesota Ave SE sw/b
6	605	7	7B	Existing	1200 block Branch Ave SE s/b
6	605	7	7A	Existing	3000 blk Minnesota Ave SE ne/b
6	605	7	7B	Existing	3100 blk Minnesota Ave SE sw/b
6	605	7	7B	Existing	3700 blk Massachusetts Ave SE se/b
6	605	7	7B	Existing	3900 blk Pennsylvania Ave SE se/b
6	605	7	7B	Existing	3900 block Pennsylvania Ave SE nw/b
6	606	7	7B	Existing	3700 BLK SOUTHERN AVENUE SE (SW/B)
6	607	7	7B	Existing	1900 blk Branch Ave SE n/b
6	607	7	7B	Existing	3600 blk Alabama Ave SE ne/b
6	608	7	7C	Existing	1400 blk Southern Ave SE sw/b
6	608	7	7C	Existing	5400 block N H Burroughs Ave NE e/b
7	701	7	7B	Existing	2300 blk Good Hope Rd SE nw/b
7	701	7	7B	Existing	2500 block Naylor Rd SE n/b
6	602/603	7	7A/7D	Existing	DC295 NE at Benning Rd Exit n/b
6	604/608	7	7C/7E	Existing	5500 blk E Capitol St NE e/b
7	703	8	8C	Existing	100 block Malcolm X Ave SE w/b
7	703	8	8C	Existing	Suitland Pk .3m pr F Strl Av SE nwb
7	704	8	8E	Existing	1900 BLK SOUTHERN AVENUE SE (NE/B)
7	708	8	8D	Existing	4200 blk S Capitol St SW s/b
7	708	8	8D	Existing	DC 295 SW . 7 miles south of Exit 1 S/B
7	708	8	8D	Existing	DC295 SW .3 miles s/o exit 1 n/b
5	306	5/6	5B/6C	Existing	600 Blk Florida Ave NE nw/b
6	506/507	5 & 6	5B/6A	Existing	5000 block Benning Rd SE nw/b

Table 2 | Speed Camera Locations in the District of Columbia - Planned

District	PSA	Ward	ANC	Phase	Description
4	408	1	1A/1D	Planned	16th St s/b @ Irving St NW
2	206	2	2E	Planned	M St w/b @ Whitehurst Frwy NW
2	207	2	2A	Planned	K St e/b @ 27th St NW
2	207	2	2A	Planned	K St w/b @ 25th St NW
2	201	3	3G	Planned	Conn Ave n/b @ Military Rd NW
2	202	3	3E/3F	Planned	Wisconsin Ave n/b @ Brandywine St NW
2	203	3	3F/3G	Planned	Connecticut Ave s/b @ Nebraska Ave NW
2	203	3	3C	Planned	Connecticut Ave s/b @ Porter St NW
2	204	3	3C	Planned	Connecticut Ave n/b @ Calvert St NW
2	201/203	3	3F/3G	Planned	Nebraska Ave ne/b @ Fessenden St NW
5	404	4	4C	Planned	1200 blk Taylor St NE w/b
4	406	4	4B	Planned	100 blk Riggs Rd NE e/b
4	402/403	4	4B/4C	Planned	Georgia Ave s/b @ Missouri Ave NW
4	402/403	4	4A	Planned	Military Rd w/b @ 14th St NW
4	403/404	4	4A/4C	Planned	16th St s/b @ Colorado Ave NW
4	405	5	5C	Planned	N Capitol St n/b @ Harewood Rd NE
5	501	5	5C	Planned	Rhode Island Ave sw/b @ 1st St NW
5	503	5	5A/5B	Planned	S Dakota se/b @ Bladensburg Rd NE
5	506	5	5B	Planned	1100 blk Florida Ave NE nw/b
5	506	5	5B	Planned	1100 blk Florida Ave NE se/b
5	503/506	5	5B	Planned	Bladensburg Rd ne/b @ NY Ave NE
5	504/505	5	5B	Planned	Rhode Island Ave sw/b @ Reed St NE
5	505/506	5	5B	Planned	Mt Olivet se/b @ W Virginia Ave NE
1	103	6	6C	Planned	N Capitol St s/b @ H St NW
1	105	6	6D	Planned	14th St n/b @ C St SW
1	108	6	6B	Planned	1300 block Pennsylvania Ave SE se/b
6	603	7	7A	Planned	100 blk Ridge Rd SE nw/b
6	605	7	7E	Planned	700 Blk Ridge Rd SE se/b
6	606	7	7B	Planned	Branch Ave n/b @ Alabama Ave SE
6	603/604/608	7	7A/7D/7E	Planned	E Capitol St e/b @ Texas Ave SE
6	603/604/608	7	7D/7E	Planned	E Capitol St w/b @ Benning Rd NE
6	604/608	7	7C7E	Planned	E Capitol St w/b @ Southern Ave NE
7	703	8	8C	Planned	Suitland Pkwy e/b @ Firth Sterling SE
7	703	8	8C	Planned	Suitland Pkwy w/b @ Stanton Rd SE
3	303	1 & 2	1C/2B	Planned	Connecticut Ave NW s/b @ Florida Ave
4	405	4 & 5	4D/5A	Planned	N Capitol St s/b @ Gallatin St NW
4	403/405/406	4 & 5	4B/4D/5A	Planned	N Capitol St n/b @ Riggs Rd NE
5	501/502/506	5 & 6	5C/6C	Planned	New York Ave sw/b @ N Capitol St NE
6	605/607	7 & 8	7A/8A	Planned	Pennsylvania Ave w/b @ Minnesota Ave SE

Table 3 | Speed Camera Locations in the District of Columbia - Proposed

District	PSA	Ward	ANC	Phase	Description
3	302	1	1A	Proposed	400 blk Warder Street, NW e/b
5	302	1	1A	Proposed	1500 Blk. Monroe St. NE (EB)
3	302	1	1C	Proposed	Columbia Rd n/b @ 17th St NW
3	303	1	1C	Proposed	1800 blk Harvard St NW nw/b
3	304	1	1B	Proposed	2400 Blk Sherman Av NW SB
3	304	1	1B	Proposed	2500 blk Georgia Ave NW
3	305	1	1B	Proposed	1300 blk W St NW e/b
4	408	1	1D	Proposed	1800 to 2000 blocks of Park Road NW
4	408	1	1D	Proposed	Irving St NW from Adams Mill Rd to Mt. Pleasant Rd
4	409	1	1A	Proposed	3500 blk New Hampshire Ave NW
3	302/304	1	1B	Proposed	700 blk Harvard St NW
1	101	2	2C/2F	Proposed	10th St @ H St NW
2	206	2	2E	Proposed	Reservoir Rd NW between 37th and 35th Sts
2	207	2	2A	Proposed	2200 blk K St NW w/b
2	207	2	2A	Proposed	Rock Crk Pky n/b NW .2mi s/o VA Ave
2	208	2	2D	Proposed	2300 blk Connecticut Ave NW s/b
2	208	2	2B	Proposed	Connecticut Ave NW under Dupont Circle
2	301	2	2B	Proposed	1500 blk T St NW e/b
3	308	2	2C	Proposed	1500 blk New Jersey Ave NW s/b
2	201	3	3G	Proposed	2600 Blk Military Rd. NW (W/B)
2	201	3	3G	Proposed	2800 BLK MILITARY RD NW (W/B)
2	201	3	3G	Proposed	2900 BLK MILITARY RD NW (E/B)
2	201	3	3G	Proposed	5300 blk Reno Rd NW
2	201	3	3G	Proposed	5800 blk Nebraska Ave NW nw/b
2	201	3	3G	Proposed	6500 blk Western Ave NW ne/b
2	201	3	3G	Proposed	Oregon Ave NW between Military Rd and Northampton
2	201	3	3G	Proposed	33rd St @ Northampton St NW
2	202	3	3E	Proposed	4100 blk Albemarle St NW w/b
2	202	3	3E	Proposed	4200 blk Van Ness St NW w/b
2	202	3	3F	Proposed	4500 blk Nebraska Ave NW
2	202	3	3E	Proposed	4500 Blk. River Rd. NW (SB)
2	202	3	3E	Proposed	4700 blk Western Ave NW ne/b
2	202	3	3E	Proposed	5000-5200 blks Wisconsin Ave NW
2	203	3	3C	Proposed	2300 blk of Porter St NW e/b
2	203	3	3C	Proposed	2300 blk of Porter St NW w/b
2	203	3	3C	Proposed	3200 blk Porter St NW e/b
2	203	3	3F	Proposed	4800 blk Connecticut Ave NW nw/b
2	203	3	3C	Proposed	3800 to 4000 Reno Road NW n/b
2	204	3	3C	Proposed	2800 blk Calvert St NW e/b
2	204	3	3C	Proposed	2900 blks Cleveland Ave NW
2	204	3	3C	Proposed	3000 Blk Cleveland Av NW SB
2	204	3	3C	Proposed	3100 blk Wisconsin Ave NW s/b
2	204	3	3C	Proposed	3400-3500 blks Cathedral Ave NW
2	204	3	3B	Proposed	4100 blk Cathedral Ave NW
2	204	3	3C	Proposed	Wisconsin Ave s/b @ Massachusetts Ave NW

District	PSA	Ward	ANC	Phase	Description
2	205	3	3D	Proposed	1900 block Foxhall Rd NW n/b
2	205	3	3D	Proposed	1900 block Foxhall Rd NW s/b
2	205	3	3E	Proposed	4100 blk Massachusetts Ave NW nw/b
2	205	3	3D	Proposed	4500 blk Massachusetts Ave NW nw/b
2	205	3	3D	Proposed	5000 Blk MacArthur Blv NW n/b
2	205	3	3D	Proposed	5000 Blk MacArthur Blv NW SB
2	205	3	3D	Proposed	5000 blk Massachusetts Ave NW se/b
2	205	3	3D	Proposed	5400 Blk MacArthur Blvd NW nw/b
2	205	3	3D	Proposed	5600 Blk MacArthur Blv NW n/b
2	205	3	3D	Proposed	Canal Rd NW .3 m s/o Az Ave n/b
2	205	3	3D	Proposed	Dalecarlia Pkwy s/b and n/b
2	205	3	3D	Proposed	Foxhall Rd s/b @ Reservoir Rd NW
2	205	3	3D	Proposed	Reservoir Rd NW between Foxhall and 44th Sts
2	203/204	3	3C	Proposed	35th St @ Macomb St, NW
4	401	4	4A	Proposed	6600 blk 16th St NW
4	401	4	4B	Proposed	7400 blk Blair Rd NW se/b
4	401	4	4A/4B	Proposed	7600 blk Georgia Ave NW s/b
4	401	4	41	Proposed	7700 block 16th St NW s/b
4	402	4	4A	Proposed	6100 blk Georgia Ave NW s/b
4	403	4	4C	Proposed	5100 block 13th St NW s/b
4	404	4	4C	Proposed	1300 blk Quincy St NW
4	404	4	4A	Proposed	4200 to 4500 blks Blagden Ave NW w/b
4	404	4	4C	Proposed	14th St n/b @ Farragut St NW
4	406	4	4B	Proposed	5900 blk New Hampshire Ave NE ne/b
4	406	4	4B	Proposed	6300-6600 Blks Blair Road NW s/b
4	407	4	4C	Proposed	300 Block of Rock Creek Church RD NW (SW/B)
4	407	4	4C	Proposed	4400 blk New Hampshire Ave NW
4	407	4	4D/5A	Proposed	5000 7th St NW s/b
4	405	5	5A	Proposed	5500 blk Eastern Ave NE se/b
4	405	5	5C	Proposed	Unit blk Irving St NW e/b
4	405	5	5C	Proposed	Unit blk Irving St NW w/b
4	405	5	5A	Proposed	4600 to 5000 blks Fort Totten Dr NE n/b
5	405	5	5C	Proposed	4500 blk Clermont Dr NE s/b
5	405	5	5C	Proposed	N Capitol s/b @ Michigan Ave NW
5	501	5	5C	Proposed	1400 blk New Jersey Ave NW n/b
4	502	5	5A	Proposed	Monroe St NE e/b & Rhode Island Ave
5	502	5	5C	Proposed	2500 blk N. Capitol St NE n/b
5	502	5	5C	Proposed	2600 blk Lincoln Rd NE n/b
5	502	5	5C	Proposed	3000-3400 blks 7th St NE
5	502	5	5C	Proposed	3100 blk 4th St NE n/b
5	503	5	5A	Proposed	2200-2300 blks Rhode Island Ave NE ne/b
5	503	5	5B	Proposed	2800 blk 20th St NE n/b
5	503	5	5A	Proposed	2800 blk Bladensburg Rd NE sw/b
5	503	5	5A	Proposed	3100 blk Bladensburg Rd NE ne/b
5	503	5	5A	Proposed	3600 blk S Dakota NE Ave nw/b
5	503	5	5A	Proposed	3800 BLK EASTERN AVENUE NE (SE/B)
5	503	5	5A	Proposed	3900 blk S Dakota Ave NE se/b

District	PSA	Ward	ANC	Phase	Description
5	503	5	5A/5B	Proposed	S. Dakota Ave NE w/b prior to V St
5	504	5	5B	Proposed	1700 Blk Rhode Island Ave NE ne/b
5	504	5	5A/5B	Proposed	1800 blk Rhode Island Ave NE sw/b
5	504	5	5B	Proposed	2600-2800 blks 10th St NE
5	504	5	5A	Proposed	18th St n/b @ Randolph NE
6	504	5	5A	Proposed	4000 blk 12th St NE s/b
5	505	5	5B	Proposed	1300 blk New York Ave NE sw/b
5	505	5	5B	Proposed	1800 block Montana Ave NE se/b
5	505	5	5B	Proposed	2000 blk West Virginia Ave NE sw/b
5	505	5	5B	Proposed	2400 blk Queens Chapel Rd NE ne/b
5	507	5	5B	Proposed	700 blk 26th St NE n/b
5	503/504	5	5A	Proposed	Michigan Ave w/b @ S Dakota Ave NE
1	103	6	6C	Proposed	700 blk 4th St NE
1	104	6	6C	Proposed	1100 blk 4th St NE s/b
1	104	6	6C	Proposed	6th St @ G St NE
1	105	6	6D	Proposed	800 blk Maine Ave SW nw/b
1	105	6	6D	Proposed	Southwest Fwy SW @ Exit 4 w/b
1	105	6	6D	Proposed	400 to 700 G Street, SW e/b
1	106	6	6B	Proposed	200-300 blks E St SE
1	107	6	6B	Proposed	1000 blk Pennsylvania Ave SE se/b
1	107	6	6B	Proposed	Pennsylvania Ave e/b @ 11th St SE
1	107	6	6B	Proposed	4th St s/b @ E St SE
1	108	6	6A	Proposed	1400 blk E Capitol St e/b and w/b
1	108	6	6b	Proposed	400 blk 17th St SE s/b
1	108	6	6B	Proposed	100 - 200 blk of Kentucky Ave SE ne/b & sw/b
5	507	6	6A	Proposed	1800 blk C St NE e/b
1	101/103/105	6	6D	Proposed	SE/SW Frwy @ 8th St Exit SE w/b
1	101/103/105	6	6D	Proposed	SE/SW Frwy @ 9th St Entrance SE e/b
1	104/107	6	6C	Proposed	700 blk Maryland Ave NE sw/b
5	507	7	7D	Proposed	300 blk Oklahoma Ave NE ne/b
5	601	7	7D	Proposed	3300 Blk. E. Capitol St. NE w/b
6	602	7	7C	Proposed	4600 Blk N H Burroughs Ave NE nw/b
6	602	7	7C	Proposed	5000 blk Sheriff Rd NE w/b
6	602	7	7C/7D	Proposed	DC295 NE at 8.2 mile marker ne/b
6	602	7	7D	Proposed	44th and Brooks, NE w/b and e/b
6	603	7	7A	Proposed	4000 blk East Capitol St NE w/b
6	603	7	7A	Proposed	4100 blk East Capitol St SE e/b
6	603	7	7A	Proposed	4800 blk Texas Ave SE n/b
6	604	7	7E	Proposed	5400 blk Central Ave SE NW/B
6	605	7	7B	Proposed	4100 Blk Alabama Ave SE w/b
6	605	7	7A	Proposed	4300 blk Texas Ave SE s/b
6	605	7	7E	Proposed	800 Blk Ridge Rd SE nw/b
6	605	7	7E	Proposed	800 blk Ridge Rd SE se/b
6	605	7	7E	Proposed	Bowen Road @ Stanley St, SE
7	605	7	7A	Proposed	DC 295 .4 mi S/O Penn. Ave SE sw/b
6	606	7	7B	Proposed	2100 blk 38th St SE
6	606	7	7B	Proposed	2700 Blk Branch Ave SE n/b

District	PSA	Ward	ANC	Phase	Description
6	606	7	7B	Proposed	5200 Blk Southern Ave SE ne/b
6	606	7	7B	Proposed	5200 BLK Southern Ave SE se/b
7	606	7	7B	Proposed	Suitland Rd from Alabama to Southern Ave SE
6	607	7	7B	Proposed	1900 blk Branch Ave SE s/b
6	608	7	7C	Proposed	800 BLK EASTERN AVENUE NE (E/B)
6	608	7	7C	Proposed	800 BLK EASTERN AVENUE NE (W/B)
7	608	7	7C	Proposed	5000 blk E Capitol NE w/b
6	604/608	7	7C/7E	Proposed	5500 blk E Capitol St NE w/b
1	701	8	8A	Proposed	I395 SW after Exit 4 e/b
7	702	8	8B	Proposed	3000 blk Southern Ave ne/b
7	703	8	8E	Proposed	1400 BLK Alabama Ave. S.E. e/b and w/b
7	703	8	8C	Proposed	2700 Blk M L King Jr. Ave SE n/b
7	703	8	8C	Proposed	2800 Blk South Capitol St SE n/b
7	703	8	8C	Proposed	I-295 At Exit 2 SE n/b
7	703	8	8C	Proposed	Suitland Pk .6 mi So Stanton SE NWB
7	703	8	8C	Proposed	Suitland Pk .8 mi No. Stanton SE SB
7	703	8	8A/8B/8E	Proposed	Suitland PKWY S.E. .9 mi South of Stanton Road SE/B
7	703	8	8C	Proposed	Suitland PKWY SE .2mi South Of Stanton Rd. S.E. NW/B
7	704	8	8B	Proposed	2200 blk Southern Ave SE ne/b
7	705	8	8E	Proposed	1300 blk Mississippi Ave SE ne/b
7	705	8	8D/8E	Proposed	1500 Blk Alabama Ave SE sw/b
7	706	8	8D	Proposed	4200 blk 6th St SE n/b
7	706	8	8D	Proposed	600 blk Southern Ave SE sw/b
7	707	8	8C	Proposed	3500 BLK M.L. King Jr. Ave. SE NE/B
7	707	8	8C	Proposed	3500 BLK M.L.King Jr. Ave. S.E. SW/B
7	707	8	8C	Proposed	3600 Blk M L King Jr. Ave SE sw/b
7	605/607	7/8	7A/8A	Proposed	DC295 SE .75 mi s/o PA Ave SE ne/b
7	605/607	7/8	7A/8A	Proposed	DC295 SE .75 mi s/o PA Ave SE sw/b
1	105	2 & 6	2C/6D	Proposed	Independence Ave e/b @ 6th St SW
1	102/103	2 & 6	2C/6D	Proposed	Inside southern part of 3rd St Tunnel n/b and s/b

Literature Review

DDOT conducted a literature review of all elements of speed management and automated traffic enforcement. The results of literature review helped the team in performing the speed data collection efforts, the field assessments, and the speed and crash data analyses. The following summarizes the literature review.

Highway Safety Manual

The American Association of State Highway and Transportation Officials (AASHTO) *Highway Safety Manual, 1st Edition* (HSM) provides jurisdictions with methods to integrate quantitative estimates of crash frequency and severity into planning, project alternatives analysis, and program development and evaluation. This allows safety to be considered at all levels of transportation decision-making. The tools presented in the HSM are scalable so they can be implemented by departments of transportation with robust data warehouses and processing capability or by local authorities with little more than a laptop. The HSM has predictive tools that can demonstrate the expected number and severity of crashes of multiple design alternatives and innovative techniques including red-light running cameras and automated speed enforcement.

With regards to speed-related crashes and determining improvements to mitigate these types of crashes, the HSM states "assuming the lead driver will go through a green or yellow light, but the lead driver stops" and "changing lanes to avoid a slowing or stopped vehicle" as two errors leading to Rear End and Side Swipe crashes.[1] Both of these errors can be reduced with a decrease in travel speed. With regards to multimodal crashes, the HSM reports "a pedestrian hit at 40 MPH has an 85 percent chance of being killed; at 30 MPH the risk is reduced to 45 percent; at 20 MPH the risk is reduced to 5 percent."[1]

The Royal Automobile Club Foundation (RAC Foundation)

The RAC Foundation has published many reports on the relationship between safety and speed camera technology. In *Guidance on the Use of Speed Camera Transparency Data*, Dr. Richard Allsop provided guidance on how best to analyze speed camera data, commenting that personal injury collisions and fatal or serious collisions are best to review in order to determine systematic influences such as the presence of a speed camera. The report also suggests that the number of collisions and casualties should fall after installation of a camera, and the expected reduction can be assessed by a regression to the mean analysis.[2]

The Effectiveness of Speed Cameras: a Review of Evidence documents a 4-year speed camera evaluation of 2,000 sites before and after camera deployment. The analysis revealed a substantial improvement in speed limit compliance, a reduction in extreme speeding, a marked reduction in average speed at fixed camera locations, and a modest reduction in average speeds at mobile camera locations.[3]

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[1] AASHTO, Highway Safety Manual, 1st Edition, 2010; Volume 1, page 2-14
[2] RAC Foundation, Guidance on the Use of Speed Camera Transparency Data, May 2013, page vii-viii
[3] RAC Foundation, The Effectiveness of Speed Cameras: A Review of Evidence, November 2010, page iv

Internet Research

The website www.speedcameras.org provides facts, figures, news and links about speed cameras in the United Kingdom. The site provides guidelines for placement of fixed, mobile, and digital speed camera enforcement sites. This information is useful in determining appropriate field assessment criteria for speed camera studies.

Previous DDOT Safety Study Reports

As part of the study, DDOT confirmed if any of the 295 speed camera locations were previously identified in the DDOT's Highway Safety Improvement Program (HSIP). **Table 4** shows that, of the 295 locations, the HSIP identified six existing speed camera locations as the Top 5 Percent High Accident Locations for 2010-2012.[4]

Table 4 | Speed Camera Locations Identified as Top 5 Percent High Accident Locations

Ward	Phase	Description
7	Planned	E Capitol St w/b at Benning Rd NE
8	Planned	Suitland Pkwy e/b at Firth Sterling SE
8	Planned	Suitland Pkwy w/b at Stanton Rd SE
4 & 5	Planned	N Capitol St n/b at Riggs Rd NE
5 & 6	Planned	New York Ave sw/b at N Capitol St NE
7 & 8	Planned	Pennsylvania Ave w/b at Minnesota Ave SE

Table 5 shows that 13 locations (nine existing locations and four proposed locations) were identified as being located within a 0.5-mile radius of a Top 5 Percent High Accident Location.

Table 5 | Speed Camera Locations within 0.5-Mile Radius of Top 5 Percent High Accident Locations

Ward	Phase	Description
1	Existing	100 blk Florida Ave NW nw/b and se/b
2	Existing	1400 blk New York Ave NE ne/b
5	Existing	100 blk Michigan Ave NE w/b
5	Existing	100 blk Michigan Avenue NE e/b
5	Existing	2700 blk New York Ave NE w/b
5	Existing	2800 blk New York Ave NE e/b
5	Existing	600 blk New York Avenue NE w/b
5	Planned	Bladensburg Rd ne/b at New York Ave NE
6	Planned	N Capitol St s/b at H St NW
5	Proposed	N Capitol s/b at Michigan Ave NW
5	Proposed	1300 blk New York Ave NE sw/b
5	Proposed	1800 blk Montana Ave NE se/b
8	Proposed	Suitland Parkway 0.8 mi north of Stanton SE s/b

[4] DDOT, Top 5 Percent High Accident Locations for 2010-2012

Table 6 shows the four existing speed camera locations that were identified in DDOT's 2009-2011 *Traffic Safety Statistics Report* as being one of the Top 20 Hazardous Intersections by Crash Frequency.[5]

Table 6 | Speed Camera Locations Identified as Top 20 Hazardous Intersections by Crash Frequency

Ward	Phase	Description
8	Planned	Suitland Pkwy e/b at Firth Sterling SE
8	Planned	Suitland Pkwy w/b at Stanton Rd SE
5 & 6	Planned	New York Ave sw/b at N Capitol St NE
7 & 8	Planned	Pennsylvania Ave w/b at Minnesota Ave SE

Table 7 shows the locations within a 0.5-mile radius of the Top 20 Hazardous Intersections by Crash Frequency.

Table 7 | Speed Camera Locations within 0.5-Mile Radius of Top 20 Hazardous Intersections

Ward	Phase	Description
1	Existing	100 blk Florida Ave NW nw/b and se/b
2	Planned	M St w/b @ Whitehurst Frwy NW
5	Existing	2800 blk New York Ave. NE e/b
5	Existing	600 blk New York Avenue NE w/b
6	Existing	3rd St Tunnel NW n/b at MA Ave Exit
6	Existing	3rd St Tunnel NW s/b at 3rd St Exit
7	Existing	2800 blk Benning Rd NE e/b
7	Existing	3400 blk Benning Rd NE w/b
7	Existing	DC-295 0.4 mi south of Burroughs Av NE s/b
7	Existing	DC-295 NE 0.1 mi south of Eastern Ave n/b
7	Existing	DC-295 NE 0.1 mi south of Eastern Ave s/b
7	Existing	2500 blk Naylor Rd SE n/b
8	Existing	Suitland Parkway 0.3 mi prior to F Str Av SE nw/b
5/6	Existing	600 blk Florida Ave NE nw/b
1	Proposed	2400 blk Sherman Av NW s/b
1	Proposed	1300 blk W St NW e/b
2	Proposed	10th St at H St NW
2	Proposed	1500 blk T St NW e/b
2	Proposed	1500 blk New Jersey Ave NW s/b
5	Proposed	1400 blk New Jersey Ave NW n/b
5	Proposed	1300 blk New York Ave NE sw/b
5	Proposed	1800 block Montana Ave NE se/b
5	Proposed	2000 blk West Virginia Ave NE sw/b
5	Proposed	2400 blk Queens Chapel Rd NE ne/b
6	Proposed	700 blk 4th St NE
6	Proposed	1100 blk 4th St NE s/b
7	Proposed	DC-295 NE at 8.2 mile marker ne/b
7	Proposed	4000 blk East Capitol St NE w/b
7	Proposed	4100 blk East Capitol St SE e/b

[5] DDOT, 2009-2011 Traffic Safety Statistics Report, Table 5.1, pg.69

Ward	Phase	Description
7	Proposed	DC-295 0.4 mi south of Pennsylvania Ave SE sw/b
8	Proposed	Suitland Parkway 0.8 mi north of Stanton SE s/b
8	Proposed	Suitland Parkway SE 0.2 mi south of Stanton Rd SE nw/b
8	Proposed	1500 Blk Alabama Ave SE sw/b

Table 8 shows the speed camera locations that were identified in DDOT's 2009-2011 *Traffic Safety Statistics Report* as being located on one of the High Frequency Crash Corridors for Each Year.[6]

Table 8 | Speed Camera Locations Identified as High Frequency Crash Corridor

High Frequency Crash Corridor	Ward	Phase	Description
16th Street NW	1	Planned	16th St s/b @ Irving St NW
	4	Existing	16th St s/b @ Colorado Ave NW
	4	Proposed	6600 blk 16th St NW
	4	Proposed	7700 blk 16th St NW s/b
Benning Road NE	7	Existing	2800 blk Benning Rd NE e/b
	7	Existing	3400 blk Benning Rd NE w/b
	7	Existing	DC-295 NE at Benning Rd Exit n/b
	7	Planned	E Capitol St w/b @ Benning Rd NE
Benning Road SE	5 & 6	Existing	5000 blk Benning Rd SE nw/b
Bladensburg Road NE	5	Existing	1100 blk Bladensburg Rd NE ne/b
	5	Existing	1100 blk Bladensburg Rd NE sw/b
	5	Planned	Bladensburg Rd ne/b @ NY Ave NE
	5	Proposed	2800 blk Bladensburg Rd NE sw/b
	5	Proposed	3100 blk Bladensburg Rd NE ne/b
Connecticut Avenue NW	3	Planned	Connecticut Ave n/b @ Military Rd NW
	3	Existing	4900 blk Connecticut Ave NW se/b
	3	Existing	Connecticut Ave s/b @ Nebraska Ave NW
	3	Existing	Connecticut Ave s/b @ Porter St NW
	3	Existing	Connecticut Ave n/b @ Calvert St NW
	1 & 2	Existing	Connecticut Ave NW s/b @ Florida Ave
	2	Proposed	2300 blk Connecticut Ave NW s/b
	2	Proposed	Connecticut Ave NW under Dupont Circle
	3	Proposed	4800 blk Connecticut Ave NW nw/b
Florida Avenue NE	5	Planned	1100 blk Florida Ave NE nw/b
	5	Planned	1100 blk Florida Ave NE se/b
	5	Existing	600 blk Florida Ave NE nw/b
Florida Avenue NW	1	Existing	100 blk Florida Ave NW nw/b and se/b
Georgia Avenue NW	4	Existing	4800 blk Georgia Ave NW s/b
	4	Planned	Georgia Ave s/b @ Missouri Ave NW
	1	Proposed	2500 blk Georgia Ave NW
	4	Proposed	7600 blk Georgia Ave NW s/b

[6] DDOT, 2009-2011 *Traffic Safety Statistics Report*, Table 5.10, page 80

High Frequency Crash Corridor	Ward	Phase	Description
	4	Proposed	6100 blk Georgia Ave NW s/b
New York Avenue NE	2	Existing	1400 blk New York Ave NE ne/b
	5	Existing	2700 blk New York Ave NE w/b
	5	Existing	2800 blk New York Ave. NE e/b
	5	Existing	600 blk New York Avenue NE w/b
	5 & 6	Existing	New York Ave sw/b @ N Capitol St NE
	5	Proposed	1300 blk New York Ave NE sw/b
North Capitol Street	5	Proposed	N Capitol s/b @ Michigan Ave NW
	4	Existing	3100 blk N Capitol St NE n/b
	5	Planned	N Capitol St n/b @ Harewood Rd NE
	6	Planned	N Capitol St s/b @ H St NW
	4 & 5	Planned	N Capitol St s/b @ Gallatin St NW
	4 & 5	Existing	N Capitol St n/b @ Riggs Rd NE
	5 & 6	Planned	New York Ave sw/b @ N Capitol St NE
	5	Proposed	2500 blk N. Capitol St NE n/b
Pennsylvania Avenue SE	6	Existing	1300 blk Pennsylvania Ave SE nw/b
	6	Existing	1300 blk Pennsylvania Ave SE se/b
	7	Existing	3900 blk Pennsylvania Ave SE se/b
	7	Existing	3900 blk Pennsylvania Ave SE nw/b
	7 & 8	Planned	Pennsylvania Ave w/b @ Minnesota Ave SE
	6	Proposed	1000 blk Pennsylvania Ave SE se/b
	6	Proposed	Pennsylvania Ave e/b @ 11th St SE
Rhode Island Avenue NE	5	Existing	3000 blk Rhode Island Ave NE se/b
	5	Planned	Rhode Island Ave sw/b @ Reed St NE
	5	Proposed	Monroe St NE e/b & Rhode Island Ave
	5	Proposed	2200-2300 blk Rhode Island Ave NE ne/b
	5	Proposed	1700 blk Rhode Island Ave NE ne/b
	5	Proposed	1800 blk Rhode Island Ave NE sw/b
Southern Avenue SE	7	Existing	3700 blk Southern Ave SE sw/b
	7	Existing	1400 blk Southern Ave SE sw/b
	7	Planned	E Capitol St w/b @ Southern Ave NE
	8	Existing	1900 blk SOUTHERN AVENUE SE ne/b
	7	Proposed	5200 blk Southern Ave SE ne/b
	7	Proposed	5200 blk Southern Ave SE se/b
	8	Proposed	3000 blk Southern Ave ne/b
	8	Proposed	2200 blk Southern Ave SE ne/b
	8	Proposed	600 blk Southern Ave SE sw/b
Wisconsin Avenue NW	3	Planned	Wisconsin Ave n/b @ Brandywine St NW
	3	Proposed	5000-5200 blks Wisconsin Ave NW
	3	Proposed	3100 blk Wisconsin Ave NW s/b
	3	Proposed	Wisconsin Ave s/b @ Massachusetts Ave NW

Speed Data Study Results

Of the existing speed camera locations in the District, 13 of those locations, approximately 15 percent, recorded mean vehicular speeds higher than the posted speed limits at these locations. The mean vehicular speeds recorded did not exceed 15 MPH over the posted speed limit. Of the existing speed camera locations, 85 percent of those locations were in compliance with the posted speed limit. In the locations under compliance, mean speeds were as low as 21 MPH below the posted speed limit, with 29 locations recording speed reductions of 10 MPH or greater.

Forty-five of the existing locations, or approximately 51 percent of the locations, recorded the 85th percentile speeds as being higher than the posted speed limit in these locations. The 85th percentile speeds did not exceed 35 MPH over the posted speed limit. Of the existing speed camera locations, 49 percent of those locations were in compliance with the posted speed limit. In locations under compliance, the 85th percentile speeds were as low as 18 MPH below the posted speed limit, with 9 locations recording speeds of 10 MPH or greater.

The speed data study results reveal that there is a good level of compliance for speed limits for a majority of existing speed cameras locations.

For the planned locations, 2 locations (5 percent) recorded mean vehicular speeds higher than the posted speed limit. The mean speeds did not exceed 10 MPH over the posted speed limit. Twelve locations (32 percent) recorded the 85th percentile speeds as higher than the posted speed limit. The 85th percentile speeds did not exceed 15 MPH over the posted speed limit.

For the proposed locations, 42 locations (21 percent) recorded mean vehicular speeds higher than the posted speed limit. The mean speeds did not exceed 25 MPH over the posted speed limit. One hundred-fourteen locations (42 percent) recorded the 85th percentile speeds as higher than the posted speed limit. The 85th percentile speeds did not exceed 35 MPH over the posted speed limit.

For the combined planned and proposed locations, a greater number of locations in comparison with the existing speed camera locations were not in compliance with the posted speed limits.

Crash Data Analysis Results

Historical crash data was made available for analysis for the existing speed camera locations. Crash data reports were available for up to 3 years prior to camera installation, and for up to 3 years after camera installation. Because the crash data included various time frames of before and after data at each camera location, where some locations had 3 years data, and some had less than 3 years data, the data needed to be normalized before analyzing. For the purposes of analysis, the team reviewed the crash data for one year prior to and one year after speed camera installation so as to normalize the analysis.

Table 9 shows that there were a combined total of 2,240 crashes occurring at these locations prior to speed camera installation. The number reduced to 1,863 crashes after speed camera installation. A combined total number of injury

crashes prior to speed camera installation was 841 compared with 673 after installation of the speed camera. Table 9 shows before and after crash statistics. The number of injuries also decreased by 20 percent, from 1,251 prior to installation to 996 after installation. Further crash data analysis revealed that the number of crash types also reduced over the period of time since speed cameras were installed at these locations.

Table 9 | Total Number of Crashes for Existing Speed Camera Locations

Type	Before	After	Change	% Change
Total Crashes	2,240	1,863	-377	16.83%
Injury Crashes	841	673	-168	19.98%
Number of Injuries	1,251	996	-255	20.38%

Safety Nexus

The safety nexus for each of the locations were determined by reviewing the speed study analysis results, the crash data analysis results, the before and after crash data (where available), and the field assessment results at each location. Along with the analysis results, engineering judgment was also used to determine if a nexus was met at a particular location. Each location was individually assessed to determine the safety nexus.

The safety nexus at all the speed camera locations was determined after an extensive review of:

a. Speed Data Analysis
b. Crash Data Analysis
c. Field Assessment / Engineering Judgment

In regards to the speed data analysis, the team reviewed the speeds at each location, and derived the 85th percentile speed, mean speed, modal speed, median speed, and pace range (10 mph range). The speed statistics were then compared to the posted speed limit to determine if there has been a reduction of speeds where existing speed cameras are located, or if speeding is present at locations where speed cameras are proposed.

For the crash data analysis, the team reviewed the crash types, crash frequency, and crash severity to identify trends at locations where speed cameras existed or are proposed. The team also reviewed other conditions, such as day and time of crash, weather conditions, surface conditions, and lighting conditions to note any trends. Also, the team noted if any particular contributing factors identified in the crash reports correlated to speeding at the locations. The team also highlighted areas where an elevated number of speed-related crashes or injury-related crashes occurred, as this would suggest a need for a safety improvement. Too, for existing speed camera locations, where historical crash data was available, the team analyzed the 3-year crash data before installation of the speed camera and after installation of the speed camera to observe any reductions in number of crashes after the installation of speed camera.

The field assessments were also a critical piece to determining the safety nexus at each of the speed camera locations. At each location, the land use at the site and in the vicinity of the location played a factor in determining the safety nexus. The proximity pedestrian generators such as of school zones, recreational areas, shopping areas, religious

centers / churches, bus stops, and Metrorail stations gave support in determining safety nexus as these elements require safe travel environments to promote the safety of all users. Locations with multimodal activity, such as bicycle lanes, bike trails, and walk paths also were noted and considered in the determination of a safety nexus.

In determining the safety nexus for an existing speed camera location, if the review of the speed study analysis data and crash data analysis for a location revealed a reduction in speeds and number of crashes after speed camera installation, the conclusion supported a nexus between traffic safety and the speed camera location. Whereas if the review of the speed study analysis data and crash data analysis for a location did not satisfactorily show a reduction in speeds and number of crashes after speed camera installation, then engineering judgment was also used to determine if a nexus was met by reviewing the field assessment data including the location of the site in relation to residential areas, school zones, playground and recreational area, the presence of traffic calming elements, and other factors deemed important in the matter of safety.

For determining the safety nexus for planned and proposed locations, a review of the speed study analysis data and crash data analysis was made to determine if a speeding or safety issue was present due to the high speeds and high frequency of crashes, especially injury-related crashes. If a safety or speeding issue was found, then the location revealed a nexus between traffic safety and the speed camera location. Whereas, if the review of the speed study analysis data and crash data analysis for a location did not satisfactorily show a safety or speeding issue, then engineering judgment was also used to determine if a nexus was met.

Based on the analysis results from the speed data analysis, the crash data analysis, the field assessments results, and engineering judgment, the team was able to determine the nexus between traffic safety and the speed camera at all 295 existing, planned, and proposed locations. It was found that at most of the locations, the speed data alone or the crash data alone provided sufficient results to determine a safety nexus. There were a number of locations where both the speed data and crash data results provided more than enough information to support a safety nexus. This was apparent at most of the freeway locations, and the high accident locations around the District. At many of the sites that were located in residential areas, the field assessments and engineering judgment was heavily relied upon to determine safety nexus. Overall, a technical justification is provided for all speed camera locations.

In conclusion, the results of this study can be used to establish a nexus between traffic safety and the placement of automated speed enforcement devices in the District of Columbia.

The individual location reports provide further details as to the safety nexus for each location. The individual location reports follow this Executive Summary.

Definition of Terms

15th-Percentile Speed - The speed at or below which 15 percent of the motorized vehicles travel.

50th-Percentile Speed - The median speed of the observed data set; the average speed of the traffic stream.

85th-Percentile Speed - The speed at or below which 85 percent of the motorized vehicles travel.

95th-Percentile Speed - The speed at or below which 95 percent of the motorized vehicles travel.

Accident Rate - Accidents per one million vehicle miles traveled.

Advisory Speed - A recommended speed for all vehicles operating on a section of highway and based on the highway design, operating characteristics, and conditions.

Alley—A street or highway intended to provide access to the rear or side of lots or buildings in urban areas and not intended for the purpose of through vehicular traffic.

ANC – Advisory Neighborhood Commission. Local bodies of government to consider policies and programs affecting neighborhoods.

Arterials - An Arterial is that part of the roadway system serving as the principal network for through traffic flow. The routes connect areas of principal traffic generation and important rural highways entering the urban areas. Arterials may contain two, four, or six through lanes, as designated on the Entity Master Sheet Plan.

Average Annual Daily Traffic (AADT) — The total volume of traffic passing a point or segment of a highway facility in both directions for one year divided by the number of days in the year. Normally, periodic daily traffic volumes are adjusted for hours of the day counted, days of the week, and seasons of the year to arrive at average annual daily traffic.

Average Daily Traffic (ADT) — The average 24 hour volume, being the total volume during a stated period divided by the number of days in that period. Normally, this would be periodic daily traffic volumes over several days, not adjusted for days of the week or seasons of the year.

Average Day — A day representing traffic volumes normally and repeatedly found at a location, typically a weekday when volumes are influenced by employment or a weekend day when volumes are influenced by entertainment or recreation.

Average Speed (or Mean Speed) - The summation of the instantaneous or spot-measured speeds at a specific location of vehicles divided by the number of vehicles observed.

Barrier-Separated Lane—A preferential lane or other special purpose lane that is separated from the adjacent general-purpose lane(s) by a physical barrier.

Bicycle Path (Bike Path) - A bikeway physically separated from motorized vehicular traffic by open space or barriers and either within the City ROW or within an easement.

Bicycle Lane (Bike Lane) - The portion of the shoulder or roadway that has been designated by striping, signing, and pavement markings for the preferential or exclusive use of bicyclists.

Bicycle - A manually powered vehicle consisting of a seat, two wheels, two pedals, and a handle bar.

Bikeway - Any road or path that is designed for bicycle or pedestrian traffic, but not necessarily for their exclusive use.

Centerline Markings - The yellow pavement marking line(s) that delineates the separation of traffic lanes that have opposite directions of travel on a roadway. These markings need not be at the geometrical center of the pavement.

Channelization - A series of traffic control devices erected to divert traffic around temporary obstructions or to guide traffic through restricted areas.

Channelizing Line Marking - A wide or double solid white line used to form islands where traffic in the same direction of travel is permitted on both sides of the island.

City Streets - A public street administered by the City.

City - The District of Columbia.

Collector - A street that provides both land access service and traffic circulation within residential neighborhoods and commercial and industrial areas. The primary purpose is to collect traffic from local streets and properties and channel it into the arterial system.

Commercial - A business area where ordinarily there are many pedestrians during day or night hours. This definition applies to densely developed business areas outside, as well as within, the central section of the District.

Cross Slope - Slope of the pavement surface, excluding gutter perpendicular to the street centerline.

Crosswalk: That part of a roadway intersection included within the connections of the lateral lines of the sidewalks on opposite sides of the highway measured from the curbs, or in the absence of curbs, from the edges of the transversable roadway; OR any portion of a roadway at an intersection or elsewhere distinctly indicated for pedestrians crossing by lines or other markings on the surface.

Culvert - A structure other than a bridge that provides an opening under a roadway for drainage or other uses.

DDOT - The District Department of Transportation.

Department - The Department of Transportation, District of Columbia.

Design Speed - A selected speed used to determine the various geometric design features of a roadway.

Detector — A device used for determining the presence or passage of vehicles or pedestrians.

Director – The executive officer of the Department of Transportation.

District – The District of Columbia

District – Police District.

Downstream — A term that refers to a location that is encountered by traffic subsequent to an upstream location as it flows in an "upstream to downstream" direction. For example, "the downstream end of a lane line separating the turn lane from a through lane on the approach to an intersection" is the end of the lane line that is closest to the intersection.

Dropped Lane — A through lane that becomes a mandatory turn lane on a conventional roadway, or a through lane that becomes a mandatory exit lane on a freeway or expressway. The end of an acceleration lane and reductions in the number of through lanes that do not involve a mandatory turn or exit are not considered dropped lanes.

Engineering Judgment - The evaluation of available pertinent information and the application of appropriate principles, Standards, Guidance, and practices as contained in this Manual and other sources, for the purpose of deciding upon the applicability, design, operation, or installation of a traffic control device. Engineering judgment shall be exercised by an engineer or by an individual working under the supervision of an engineer, through the application of procedures and criteria established by the engineer. Documentation of engineering judgment is not required.

Engineering Study - The comprehensive analysis and evaluation of available pertinent information and the application of appropriate principles, Standards, Guidance, and practices as contained in this Manual and other sources, for the purpose of deciding upon the applicability, design, operation, or installation of a traffic control device. An engineering study shall be performed by an engineer or by an individual working under the supervision of an engineer, through the application of procedures and criteria established by the engineer. An engineering study shall be documented.

Expressway - A divided highway with partial access control.

FHWA - Federal Highway Administration of the United States Department of Transportation.

Freeway - A divided major roadway with full control of access and with no crossings at grade, and with operating speed of at least 35 mph.

Frontage - The distance along the street ROW line of a single property or development within the property lines. Corner property at an intersection would have a separate frontage along each street.

High Volume Driveways - Private access from a public roadway designed to service 250 or more vehicle trips per day.

Highway, Street or Road - The entire right-of-way reserved for use in constructing or maintaining the roadway and its appurtenances.

Highway - The entire width between the boundary lines of every publicly maintained way –in other words, the entire area within the right-of-way, where any part thereof is open to the use of the public for purposes of vehicular or pedestrian travel.

Intersection — Intersection is defined as follows:

- The area embraced within the prolongation or connection of the lateral curb lines, or if none, the lateral boundary lines of the roadways of two highways that join one another at, or approximately at, right angles, or the area within which vehicles traveling on different highways that join at any other angle might come into conflict.
- The junction of an alley or driveway with a roadway or highway shall not constitute an intersection, unless the roadway or highway at said junction is controlled by a traffic control device.
- If a highway includes two roadways that are 30 feet or more apart (see definition of Median), then every crossing of each roadway of such divided highway by an intersecting highway shall be a separate intersection.
- If both intersecting highways include two roadways that are 30 feet or more apart, then every crossing of any two roadways of such highways shall be a separate intersection.
- At a location controlled by a traffic control signal, regardless of the distance between the separate intersections as defined in (c) and (d) above:

- If a stop line, yield line, or crosswalk has not been designated on the roadway (within the median) between the separate intersections, the two intersections and the roadway (median) between them shall be considered as one intersection;
- Where a stop line, yield line, or crosswalk is designated on the roadway on the intersection approach, the area within the crosswalk and/or beyond the designated stop line or yield line shall be part of the intersection; and
- Where a crosswalk is designated on a roadway on the departure from the intersection, the intersection shall include the area extending to the far side of such crosswalk.

Interstate - A high-speed divided highway with control of access and designated by the U.S. Department of Transportation.

Island — A defined area between traffic lanes for control of vehicular movements, for toll collection, or for pedestrian refuge. It includes all end protection and approach treatments. Within an intersection area, a median or an outer separation is considered to be an island.

Landscaping - Materials including, without limitation: grass, ground cover, shrubs, vines, trees, and non-living materials, commonly used in landscape development, as well as attendant irrigation systems.

Lane Line Markings - White pavement marking lines that delineate the separation of traffic lanes having the same direction of travel on a roadway.

Lane Width - The width of a travel lane measured from the centerline of the lane striping to the centerline of the parallel lane stripe, to the face of the curb, or lip of gutter whichever is applicable.

Local Streets - All facilities that are not in one of the higher systems. Their primary purpose is to provide direct access to abutting lands and connections to the higher classification streets.

Major Streets - These streets include all Major Collector and Arterial streets and are typically designated on the Master Street Plan or Transportation Master Plan.

Mean Speed (or Average Speed) - The summation of the instantaneous or spot-measured speeds at a specific location of vehicles divided by the number of vehicles observed.

Median - The area between two roadways of a divided highway measured from the edge of traveled way to the edge of traveled way. The median excludes turn lanes. The median width might be different between intersections, interchanges, and at opposite approaches of the same intersection.

Metropolitan Police Department – The police department for the District of Columbia.

Minor Street - These streets include Local or Minor Collector Streets.

Multiple Lanes - Two or more through traffic lanes in any one direction.

Number in Pace - The total number of vehicles that were in the pace speed range.

Operating Speed — A speed at which a typical vehicle or the overall traffic operates. Operating speed might be defined with speed values such as the average, pace, or 85th-percentile speeds.

Pace — The 10 mph speed range representing the speeds of the largest percentage of vehicles in the traffic stream.

Peak Traffic Hours - The hours of 7:00 a.m. to 9:30 a.m. and 4:00 p.m. to 6:30 p.m. Monday through Friday, except holidays.

Peak Hour Volume (PHV) - The peak hour volume is the volume of traffic that uses the approach, lane, or lane group in question during the hour of the day that observes the highest traffic volumes for that intersection

Pedestrian Walkway - A public facility for pedestrian traffic not necessarily within the ROW of the vehicular traffic roadway but within public easements (e.g., public tunnels).

Pedestrian - Any person on foot or who is using a wheelchair, motorized wheelchair, or tricycle.

Percent in Pace – The percentage of the Number in Pace of the overall data.

Phase – The current stage of the speed camera: existing, planned or proposed.

Police Department: The Metropolitan Police Department.

Police District – MPD designation of area of coverage. MPD has seven (7) districts in the City. Each district is headed by a Commander. Each police district has between seven and nine Police Service Areas.

Posted Speed - The speed limit determined by law and shown on Speed Limit signs.

Principal Arterials - All streets designated as principal arterials on the current District of Columbia Functional Street Map, the latest copy of which is on file with the Office of Policy and Planning.

PSA – Police Service Area .Every resident lives in a Police Service Area (PSA), and every PSA has a team of police officers and officials assigned to it. Residents should get to know their PSA team members and learn how to work with them to fight crime and disorder in their neighborhoods. There are a total of 56 PSAs in the District of Columbia.

Quadrants – Washington, DC is divided into four quadrants of unequal area: Northwest 9NW), Northeast (NE), Southeast (SE), and Southwest (SW). The axes bounding the quadrants radiate from the US Capitol Building. All road names include the quadrant abbreviation to indication their location and house numbers generally correspond with the number of blocks away from the Capitol.

Reversible Lane - A lane in which the direction of travel is reversed during certain hours in order to increase the capacity in the direction of the heavier traffic demand.

Roadbed - Graded portions of highway upon which soils base, pavement or base, surface, shoulder, sidewalk, and median are constructed.

Roadway - The portion of the highway, arterial, collector, or local street, including shoulders, intended for vehicle and/or bicycle use.

Roundabout - The roundabout is a circular street intersection used as a traffic control device in lieu of a multi-way stop or a traffic signal.

ROW (Right-of-Way) - Also “Public ROW (ROW)." A public street, way, alley, sidewalk, easement, park, square, plaza, tract, or District-owned lands. In addition, any other public property owned and controlled by the District, or dedicated to public use.

Rumble Strip - A series of intermittent, narrow, transverse areas of rough-textured, slightly raised, or depressed road surface that is installed to alert road users to unusual traffic conditions.

School Zone — A designated roadway segment approaching, adjacent to, and beyond school buildings or grounds, or along which school related activities occur.

School — A public or private educational institution recognized by the state education authority for one or more grades K through 12 or as otherwise defined by the State.

Shared Roadway - A roadway that is officially designated and marked as a bicycle route but which is open to motor vehicle travel and upon which no bicycle lane is designated.

Shared-Use Path - A bikeway physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right-of-way or within an independent alignment. Shared-use paths might also be used by pedestrians, skaters, wheelchair users, joggers, and other non-motorized users.

Sidewalks - Paved or otherwise improved area for pedestrian use, located within the public street Right -of- Ways that also contain roadway for vehicular traffic.

Sign - Any traffic control device that is intended to communicate specific information to road users through a word or symbol legend. Signs do not include traffic control signals, pavement markings, delineators, or channelization devices.

Sight Distance – The length along a roadway over which a driver has uninterrupted visibility.

Speed Humps - Speed Humps are paved humps used in the street roadway. The geometrics of the Speed Hump determine how fast it can be navigated.

Speed Zone - A section of highway with a speed limit that is established by law but which may be different from a legislatively specified statutory speed limit.

Speed Limit Sign Beacon — A beacon used to supplement a SPEED LIMIT sign.

Speed Limit — The maximum (or minimum) speed applicable to a section of highway as established by law or regulation.

Speed Measurement Markings — A white transverse pavement marking placed on the roadway to assist the enforcement of speed regulations.

Speed Zone — A section of highway with a speed limit that is established by law or regulation, but which might be different from a legislatively specified statutory speed limit.

Statutory Speed - A speed limit established by legislative action that is typically applicable for highways with specified design, functional, jurisdictional, and/or location characteristic and is not necessarily shown on Speed Limit signs.

Stop Line - A solid white pavement marking line extending across approach lanes to indicate the point at which a stop is intended or required to be made.

Street - A public highway as shown on the records of the District, whether designated as a street, alley, avenue, freeway, road, drive, lane, place, boulevard, parkway, circle, or by some other term.

Streetscape - Pedestrian and landscape improvements in the ROW generally occurring between the curb and the ROW line. Streetscape generally includes sidewalks, street trees, pedestrian lighting, fencing, furnishings, and landscaped areas including medians and irrigation.

Traffic Control Devices - Signs, parking meters, traffic signals, barricades, and/or channelizing devices existing and/or temporary as defined and/or illustrated in the Manual on Uniform Traffic Control Devices (MUTCD) used to regulate,

warn, or guide traffic, placed on, over, or adjacent to a street, highway, pedestrian facility, or bicycle path by authority of a public agency having jurisdiction.

Traffic Monitoring Equipment Installations - Devices placed below, on, above, or adjacent to a highway for observing traffic, collecting traffic data, or providing traffic information.

Traffic Control Signal (Traffic Signal) - Any device, whether manually, electrically, or mechanically operated, by which traffic is alternately directed to stop and proceed.

Traffic Lane - Marked pathway, not less than 10 feet wide, for vehicle traffic on streets.

Traffic Services Administration (TSA) - Administration of the District Department of Transportation responsible for administering traffic operations and safety.

Traffic - Pedestrians, bicyclists, ridden or herded animals, vehicles, streetcars, and other conveyances either singularly or together while using any highway for purposes of travel.

Trail - Any path used by pedestrians or bicyclists within a public ROW or easement. This would include concrete, gravel, or natural surfaces.

Transverse Markings—Pavement markings that are generally placed perpendicular and across the flow of traffic such as shoulder markings; word, symbol, and arrow markings; stop lines; crosswalk lines; speed measurement markings; parking space markings; and others.

Urban Street - A type of street normally characterized by relatively low speeds, wide ranges of traffic volumes, narrower lanes, frequent intersections and driveways, significant pedestrian traffic, and more businesses and houses.

Vehicle - Any device for carrying or conveying persons or objects.

Ward - The District is divided into eight wards or subdivisions. Each ward is represented on the City Council.

Warning Sign - A sign that gives notice to road users of a situation that might not be readily apparent.

Weekdays - The days of the week starting at 5:00 a.m. on Monday and ending at 10:00 p.m. on Friday, except holidays.

Weekends - The days of the week starting at 10:00 p.m. on Friday and ending at 5:00 a.m. on Monday.

References for Definitions List

DDOT, *Design and Engineering Manual*, April 2009
DDOT, *DC Temporary Traffic Control Manual Guidelines and Stations*, 2006 Edition
DDOT, *Policy and Process for Access to the DC Interstate and Freeway System*
FHWA, *Manual on Uniform Traffic Control Devices*, 2009 Edition
DDOT, *Standards and Specifications*, 2013 Edition
MPD, Metropolitan Police Department Website, www.mpdc.dc.gov
FHWA, *Speed Concepts: Informational Guide*, December 2009
Iowa State University Center for Transportation Research and Education, *Handbook of Simplified Practice for Traffic Studies*, November 2002
Jamar Technologies, Inc. Website, http://jamartech.com

Acronyms and Abbreviations List

The following acronyms and abbreviations, when used in this Report, shall have the following meanings:

AADT - Annual average daily traffic

AASHTO - American Association of State Highway and Transportation Officials

ADA - Americans with Disabilities Act

ADT - Average daily traffic

ANC - Advisory Neighborhood Commission

AVE - Avenue

BLK / blk - Block

BLVD - Boulevard

DDOT - District Department of Transportation

DR - Drive

E/B - Eastbound

FHWA - Federal Highway Administration

FRA - Federal Railroad Administration

FTA – Federal Transit Administration

ITE – Institute of Transportation Engineers

ITS - Intelligent transportation systems

LED - Light emitting diode

MPD - Metropolitan Police Department

MPH / mph - miles per hour

MUTCD - Manual on Uniform Traffic Control Devices

N/B - northbound

NE - Northeast

NE/B - northeast-bound

NW - Northwest

NW/B - Northwest-bound

PSA - Police Service Area

RD - Road

S/B - Southbound

SE - Southeast

SE/B - Southeast-bound

ST - Street

SW - Southwest

SW/B - Southwest-bound

TOA - Transportation Operations Administration

U.S. - United States

USDOT - United States Department of Transportation

VPH / vph - Vehicles per hour

W/B - Westbound

References for Acronyms / Abbreviations List

DDOT, *Design and Engineering Manual*, April 2009
DDOT, *DC Temporary Traffic Control Manual Guidelines and Stations*, 2006 Edition
DDOT, *Policy and Process for Access to the DC Interstate and Freeway System*
FHWA, *Manual on Uniform Traffic Control Devices*, 2009 Edition
DDOT, Standards and Specifications, 2013 Edition
MPD, Metropolitan Police Department Website, www.mpdc.dc.gov

Location Reports

Location #	District	PSA	Ward	ANC	Phase	Description
2	4	409	1	1A	Existing	3500 blk Park Pl NW s/b
3	3	304/305	1	1B	Existing	100 Blk Florida Ave NW nw/b and se/b
1	4	408	1	1A/1D	Planned	16th St s/b @ Irving St NW
131	3	302	1	1A	Proposed	400 blk Warder Street, NW e/b
132	5	302	1	1A	Proposed	1500 Blk. Monroe St. NE (EB)
133	3	302	1	1C	Proposed	Columbia Rd n/b @ 17th St NW
134	3	303	1	1C	Proposed	1800 blk Harvard St NW nw/b
135	3	304	1	1B	Proposed	2400 Blk Sherman Av NW SB
136	3	304	1	1B	Proposed	2500 blk Georgia Ave NW
137	3	305	1	1B	Proposed	1300 blk W St NW e/b
138	4	408	1	1D	Proposed	1800 to 2000 blocks of Park Road NW
139	4	408	1	1D	Proposed	Irving St NW from Adams Mill Rd to Mt. Pleasant Rd
140	4	409	1	1A	Proposed	3500 blk New Hampshire Ave NW
141	3	302/304	1	1B	Proposed	700 blk Harvard St NW
4	5	101	2	2F	Existing	1400 blk New York Ave NE ne/b
6	2	207	2	2A	Existing	2200 block K St NW e/b
5	2	206	2	2E	Planned	M St w/b @ Whitehurst Frwy NW
7	2	207	2	2A	Planned	K St e/b @ 27th St NW
8	2	207	2	2A	Planned	K St w/b @ 25th St NW
142	1	101	2	2C/2F	Proposed	10th St @ H St NW
143	2	206	2	2E	Proposed	Reservoir Rd NW between 37th and 35th Sts
144	2	207	2	2A	Proposed	2200 blk K St NW w/b
145	2	207	2	2A	Proposed	Rock Crk Pky n/b NW .2mi s/o VA Ave
146	2	208	2	2D	Proposed	2300 blk Connecticut Ave NW s/b
147	2	208	2	2B	Proposed	Connecticut Ave NW under Dupont Circle
148	2	301	2	2B	Proposed	1500 blk T St NW e/b
149	3	308	2	2C	Proposed	1500 blk New Jersey Ave NW s/b
10	2	202	3	3E	Existing	4400 Blk. River Rd. NW (NB)
12	2	203	3	3C	Existing	2500 blk Porter St NW w/b
13	2	203	3	3F	Existing	4900 blk Connecticut Ave NW se/b
16	2	204	3	3C	Existing	3500 Massachusetts Ave NW (E/B)
18	2	205	3	3D	Existing	2900 Blk Arizona Av NW SB
19	2	205	3	3D	Existing	3000 Blk Arizona Av NW SB
20	2	205	3	3D	Existing	3000 blk Foxhall Rd NW s/b
21	2	205	3	3D	Existing	4700 Blk MacArthur Blvd NW s/b
22	2	205	3	3D	Existing	5100 blk Loughboro Rd NW w/b
23	2	205	3	3D	Existing	5700 Blk MacArthur Blv NW NB
25	2	205	3	3D	Existing	Canal Rd NW .3 m s/o Az Ave s/b
9	2	201	3	3G	Planned	Conn Ave n/b @ Military Rd NW
11	2	202	3	3E/3F	Planned	Wisconsin Ave n/b @ Brandywine St NW
14	2	203	3	3F/3G	Planned	Connecticut Ave s/b @ Nebraska Ave NW
15	2	203	3	3C	Planned	Connecticut Ave s/b @ Porter St NW
17	2	204	3	3C	Planned	Connecticut Ave n/b @ Calvert St NW
26	2	201/203	3	3F/3G	Planned	Nebraska Ave ne/b @ Fessenden St NW
150	2	201	3	3G	Proposed	2600 Blk Military Rd. NW (W/B)

Location #	District	PSA	Ward	ANC	Phase	Description
151	2	201	3	3G	Proposed	2800 BLK MILITARY RD NW (W/B)
152	2	201	3	3G	Proposed	2900 BLK MILITARY RD NW (E/B)
154	2	201	3	3G	Proposed	5300 blk Reno Rd NW
155	2	201	3	3G	Proposed	5800 blk Nebraska Ave NW nw/b
156	2	201	3	3G	Proposed	6500 blk Western Ave NW ne/b
157	2	201	3	3G	Proposed	Oregon Ave NW between Military Rd and Northampton
158	2	201	3	3G	Proposed	33rd St @ Northampton St NW
159	2	202	3	3E	Proposed	4100 blk Albemarle St NW w/b
160	2	202	3	3E	Proposed	4200 blk Van Ness St NW w/b
161	2	202	3	3F	Proposed	4500 blk Nebraska Ave NW
162	2	202	3	3E	Proposed	4500 Blk. River Rd. NW (SB)
163	2	202	3	3E	Proposed	4700 blk Western Ave NW ne/b
164	2	202	3	3E	Proposed	5000-5200 blks Wisconsin Ave NW
165	2	203	3	3C	Proposed	2300 blk of Porter St NW e/b
166	2	203	3	3C	Proposed	2300 blk of Porter St NW w/b
167	2	203	3	3C	Proposed	3200 blk Porter St NW e/b
168	2	203	3	3F	Proposed	4800 blk Connecticut Ave NW nw/b
169	2	203	3	3C	Proposed	3800 to 4000 Reno Road NW n/b
170	2	204	3	3C	Proposed	2800 blk Calvert St NW e/b
171	2	204	3	3C	Proposed	2900 blks Cleveland Ave NW
172	2	204	3	3C	Proposed	3000 Blk Cleveland Av NW SB
173	2	204	3	3C	Proposed	3100 blk Wisconsin Ave NW s/b
174	2	204	3	3C	Proposed	3400-3500 blks Cathedral Ave NW
175	2	204	3	3B	Proposed	4100 blk Cathedral Ave NW
176	2	204	3	3C	Proposed	Wisconsin Ave s/b @ Massachusetts Ave NW
177	2	205	3	3D	Proposed	1900 block Foxhall Rd NW n/b
178	2	205	3	3D	Proposed	1900 block Foxhall Rd NW s/b
179	2	205	3	3E	Proposed	4100 blk Massachusetts Ave NW nw/b
180	2	205	3	3D	Proposed	4500 blk Massachusetts Ave NW nw/b
181	2	205	3	3D	Proposed	5000 Blk MacArthur Blv NW n/b
182	2	205	3	3D	Proposed	5000 Blk MacArthur Blv NW SB
183	2	205	3	3D	Proposed	5000 blk Massachusetts Ave NW se/b
184	2	205	3	3D	Proposed	5400 Blk MacArthur Blvd NW nw/b
185	2	205	3	3D	Proposed	5600 Blk MacArthur Blv NW n/b
186	2	205	3	3D	Proposed	Canal Rd NW .3 m s/o Az Ave n/b
187	2	205	3	3D	Proposed	Dalecarlia Pkwy s/b and n/b
188	2	205	3	3D	Proposed	Foxhall Rd s/b @ Reservoir Rd NW
189	2	205	3	3D	Proposed	Reservoir Rd NW between Foxhall and 44th Sts
190	2	203/204	3	3C	Proposed	35th St @ Macomb St, NW
27	4	401	4	4A	Existing	1700 blk N Portal Dr NW sw/b
28	4	401	4	4A	Existing	7700 Blk 16th St NW n/b
29	4	402	4	4B	Existing	600 blk Missouri Ave NW nw/b
30	4	402	4	4B	Existing	600 blk Missouri Ave NW se/b
31	4	403	4	4C	Existing	5200 BLK 14TH STREET NW (S/B)
32	4	403	4	4A	Existing	5400 Blk 16th Street NW s/b
33	4	403	4	4A	Existing	Military Rd .1m pri/to 17St NW ne/b
34	4	403	4	4A	Existing	Military Rd .2m w/o 16St Rmp NW swb
35	4	404	4	4C	Existing	4800 blk Georgia Ave NW s/b

Location #	District	PSA	Ward	ANC	Phase	Description
38	4	406	4	4B	Existing	400 block Riggs Road NE n/b
39	4	406	4	4B	Existing	5800 blk New Hampshire Ave NE sw/b
43	4	405/407	4	4D/5A	Existing	3100 blk N Capitol St NE n/b
36	5	404	4	4C	Planned	1200 blk Taylor St NE w/b
37	4	406	4	4B	Planned	100 blk Riggs Rd NE e/b
40	4	402/403	4	4B/4C	Planned	Georgia Ave s/b @ Missouri Ave NW
41	4	402/403	4	4A	Planned	Military Rd w/b @ 14th St NW
42	4	403/404	4	4A/4C	Planned	16th St s/b @ Colorado Ave NW
191	4	401	4	4A	Proposed	6600 blk 16th St NW
192	4	401	4	4B	Proposed	7400 blk Blair Rd NW se/b
193	4	401	4	4A/4B	Proposed	7600 blk Georgia Ave NW s/b
194	4	401	4	41	Proposed	7700 block 16th St NW s/b
195	4	402	4	4A	Proposed	6100 blk Georgia Ave NW s/b
196	4	403	4	4C	Proposed	5100 block 13th St NW s/b
197	4	404	4	4C	Proposed	1300 blk Quincy St NW
198	4	404	4	4A	Proposed	4200 to 4500 blks Blagden Ave NW w/b
199	4	404	4	4C	Proposed	14th St n/b @ Farragut St NW
200	4	406	4	4B	Proposed	5900 blk New Hampshire Ave NE ne/b
201	4	406	4	4B	Proposed	6300-6600 Blks Blair Road NW s/b
202	4	407	4	4C	Proposed	300 Block of Rock Creek Church RD NW (SW/B)
203	4	407	4	4C	Proposed	4400 blk New Hampshire Ave NW
204	4	407	4	4D/5A	Proposed	5000 7th St NW s/b
45	5	405	5	5C	Existing	100 Blk Michigan Ave NE w/b
46	5	405	5	5C	Existing	100 Blk Michigan Avenue NE e/b
48	5	503	5	5B	Existing	2200 blk South Dakota Ave NE se/b
49	5	503	5	5B	Existing	2700 BLK NEW YORK AVE NE (W/B)
50	5	503	5	5B	Existing	2800 Blk New York Ave. NE e/b
51	5	503	5	5A	Existing	3000 block Rhode Island Ave NE se/b
53	5	504	5	5A	Existing	1100 blk Michigan Ave NE w/b
54	5	504	5	5A	Existing	4100 blk S Dakota Ave NE se/b
55	5	504	5	5A	Existing	4200 blk S Dakota Ave NE nw/b
56	5	504	5	5C	Existing	700 blk Franklin St NE w/b
57	5	505	5	5B	Existing	600 Blk New York Avenue NE w/b
58	5	506	5	5B	Existing	1100 blk Bladensburg Rd NE ne/b
59	5	506	5	5B	Existing	1100 blk Bladensburg Rd NE sw/b
62	5	506	5	5B	Existing	1200 blk Mt Olivet Rd NE nw/b
64	5	506	5	5B	Existing	1500 blk West Virginia Ave NE ne/b
44	4	405	5	5C	Planned	N Capitol St n/b @ Harewood Rd NE
47	5	501	5	5C	Planned	Rhode Island Ave sw/b @ 1st St NW
52	5	503	5	5A/5B	Planned	S Dakota se/b @ Bladensburg Rd NE
60	5	506	5	5B	Planned	1100 blk Florida Ave NE nw/b
61	5	506	5	5B	Planned	1100 blk Florida Ave NE se/b
65	5	503/506	5	5B	Planned	Bladensburg Rd ne/b @ NY Ave NE
66	5	504/505	5	5B	Planned	Rhode Island Ave sw/b @ Reed St NE
67	5	505/506	5	5B	Planned	Mt Olivet se/b @ W Virginia Ave NE
205	4	405	5	5A	Proposed	5500 blk Eastern Ave NE se/b
206	4	405	5	5C	Proposed	Unit blk Irving St NW e/b
207	4	405	5	5C	Proposed	Unit blk Irving St NW w/b

Location #	District	PSA	Ward	ANC	Phase	Description
208	4	405	5	5A	Proposed	4600 to 5000 blks Fort Totten Dr NE n/b
209	5	405	5	5C	Proposed	4500 blk Clermont Dr NE s/b
210	5	405	5	5C	Proposed	N Capitol s/b @ Michigan Ave NW
211	5	501	5	5C	Proposed	1400 blk New Jersey Ave NW n/b
212	4	502	5	5A	Proposed	Monroe St NE e/b & Rhode Island Ave
213	5	502	5	5C	Proposed	2500 blk N. Capitol St NE n/b
214	5	502	5	5C	Proposed	2600 blk Lincoln Rd NE n/b
215	5	502	5	5C	Proposed	3000-3400 blks 7th St NE
216	5	502	5	5C	Proposed	3100 blk 4th St NE n/b
217	5	503	5	5A	Proposed	2200-2300 blks Rhode Island Ave NE ne/b
218	5	503	5	5B	Proposed	2800 blk 20th St NE n/b
219	5	503	5	5A	Proposed	2800 blk Bladensburg Rd NE sw/b
220	5	503	5	5A	Proposed	3100 blk Bladensburg Rd NE ne/b
221	5	503	5	5A	Proposed	3600 blk S Dakota NE Ave nw/b
222	5	503	5	5A	Proposed	3800 BLK EASTERN AVENUE NE (SE/B)
223	5	503	5	5A	Proposed	3900 blk S Dakota Ave NE se/b
224	5	503	5	5A/5B	Proposed	S. Dakota Ave NE w/b prior to V St
225	5	504	5	5B	Proposed	1700 Blk Rhode Island Ave NE ne/b
226	5	504	5	5A/5B	Proposed	1800 blk Rhode Island Ave NE sw/b
227	5	504	5	5B	Proposed	2600-2800 blks 10th St NE
228	5	504	5	5A	Proposed	18th St n/b @ Randolph NE
229	6	504	5	5A	Proposed	4000 blk 12th St NE s/b
230	5	505	5	5B	Proposed	1300 blk New York Ave NE sw/b
231	5	505	5	5B	Proposed	1800 block Montana Ave NE se/b
232	5	505	5	5B	Proposed	2000 blk West Virginia Ave NE sw/b
233	5	505	5	5B	Proposed	2400 blk Queens Chapel Rd NE ne/b
234	5	507	5	5B	Proposed	700 blk 26th St NE n/b
235	5	503/504	5	5A	Proposed	Michigan Ave w/b @ S Dakota Ave NE
68	1	103	6	6C	Existing	3rd St Tunnel NW n/b at MA Ave Exit
70	1	104	6	61	Existing	1200 blk Maryland Ave NE ne/b
71	1	104	6	6C	Existing	300 blk H St NE e/b
73	1	105	6	6D	Existing	9th St Tunnel NW s/b
74	1	106	6	6D	Existing	200 blk M St SE e/b
75	1	106	6	6B	Existing	700 blk 11th St SE s/b
76	1	108	6	6B	Existing	1300 blk Pennsylvania Ave SE nw/b
78	1	108	6	6A	Existing	1700 blk C St NE w/b
79	1	108	6	6B	Existing	1900 blk Independence Ave SE e/b
80	1	108	6	6A	Existing	200 blk 17th St NE s/b
81	1	108	6	6B	Existing	200 blk 19th St SE n/b
82	1	108	6	6B	Existing	300 block 17th St SE s/b
83	1	207	6	6D	Existing	400 blk 14th St SW n/b
84	1	102/103	6	6C	Existing	3rd St Tunnel NW s/b at 3rd St Exit
69	1	103	6	6C	Planned	N Capitol St s/b @ H St NW
72	1	105	6	6D	Planned	14th St n/b @ C St SW
77	1	108	6	6B	Planned	1300 block Pennsylvania Ave SE se/b
236	1	103	6	6C	Proposed	700 blk 4th St NE
237	1	104	6	6C	Proposed	1100 blk 4th St NE s/b
238	1	104	6	6C	Proposed	6th St @ G St NE

Location #	District	PSA	Ward	ANC	Phase	Description
239	1	105	6	6D	Proposed	800 blk Maine Ave SW nw/b
240	1	105	6	6D	Proposed	Southwest Fwy SW @ Exit 4 w/b
241	1	105	6	6D	Proposed	400 to 700 G Street, SW e/b
242	1	106	6	6B	Proposed	200-300 blks E St SE
243	1	107	6	6B	Proposed	1000 blk Pennsylvania Ave SE se/b
244	1	107	6	6B	Proposed	Pennsylvania Ave e/b @ 11th St SE
245	1	107	6	6B	Proposed	4th St s/b @ E St SE
246	1	108	6	6A	Proposed	1400 blk E Capitol St e/b and w/b
247	1	108	6	6b	Proposed	400 blk 17th St SE s/b
248	1	108	6	6B	Proposed	100 - 200 blk of Kentucky Ave SE ne/b & sw/b
249	5	507	6	6A	Proposed	1800 blk C St NE e/b
250	1	101/103/105	6	6D	Proposed	SE/SW Frwy @ 8th St Exit SE w/b
251	1	101/103/105	6	6D	Proposed	SE/SW Frwy @ 9th St Entrance SE e/b
252	1	104/107	6	6C	Proposed	700 blk Maryland Ave NE sw/b
85	6	601	7	7D	Existing	2800 block Benning Rd NE e/b
86	6	601	7	7D	Existing	3400 blk Benning Rd NE w/b
87	6	601	7	7D	Existing	3600 Jay St NE ne/b
88	6	602	7	7C/7D	Existing	DC295 .4 mi s/o Burroughs Av NE s/b
89	6	602	7	7C/7D	Existing	DC295 NE .1mile s/o Eastern Ave n/b
90	6	602	7	7C/7D	Existing	DC295 NE .1mile s/o Eastern Ave s/b
92	6	604	7	7A	Existing	3300 Blk Minnesota Ave SE (NE/B)
93	6	604	7	7A	Existing	3300 Blk Minnesota Ave SE sw/b
94	6	605	7	7B	Existing	1200 block Branch Ave SE s/b
95	6	605	7	7A	Existing	3000 blk Minnesota Ave SE ne/b
96	6	605	7	7B	Existing	3100 blk Minnesota Ave SE sw/b
97	6	605	7	7B	Existing	3700 blk Massachusetts Ave SE se/b
98	6	605	7	7B	Existing	3900 blk Pennsylvania Ave SE se/b
99	6	605	7	7B	Existing	3900 block Pennsylvania Ave SE nw/b
101	6	606	7	7B	Existing	3700 BLK SOUTHERN AVENUE SE (SW/B)
103	6	607	7	7B	Existing	1900 blk Branch Ave SE n/b
104	6	607	7	7B	Existing	3600 blk Alabama Ave SE ne/b
105	6	608	7	7C	Existing	1400 blk Southern Ave SE sw/b
106	6	608	7	7C	Existing	5400 block N H Burroughs Ave NE e/b
107	7	701	7	7B	Existing	2300 blk Good Hope Rd SE nw/b
109	7	701	7	7B	Existing	2500 block Naylor Rd SE n/b
110	6	602/603	7	7A/7D	Existing	DC295 NE at Benning Rd Exit n/b
113	6	604/608	7	7C/7E	Existing	5500 blk E Capitol St NE e/b
91	6	603	7	7A	Planned	100 blk Ridge Rd SE nw/b
100	6	605	7	7E	Planned	700 Blk Ridge Rd SE se/b
102	6	606	7	7B	Planned	Branch Ave n/b @ Alabama Ave SE
111	6	603/604/608	7	7A/7D/7E	Planned	E Capitol St e/b @ Texas Ave SE
112	6	603/604/608	7	7D/7E	Planned	E Capitol St w/b @ Benning Rd NE
114	6	604/608	7	7C7E	Planned	E Capitol St w/b @ Southern Ave NE
253	5	507	7	7D	Proposed	300 blk Oklahoma Ave NE ne/b
254	5	601	7	7D	Proposed	3300 Blk. E. Capitol St. NE w/b
255	6	602	7	7C	Proposed	4600 Blk N H Burroughs Ave NE nw/b
256	6	602	7	7C	Proposed	5000 blk Sheriff Rd NE w/b
257	6	602	7	7C/7D	Proposed	DC295 NE at 8.2 mile marker ne/b

Location #	District	PSA	Ward	ANC	Phase	Description
258	6	602	7	7D	Proposed	44th and Brooks, NE w/b and e/b
259	6	603	7	7A	Proposed	4000 blk East Capitol St NE w/b
260	6	603	7	7A	Proposed	4100 blk East Capitol St SE e/b
261	6	603	7	7A	Proposed	4800 blk Texas Ave SE n/b
262	6	604	7	7E	Proposed	5400 blk Central Ave SE NW/B
263	6	605	7	7B	Proposed	4100 Blk Alabama Ave SE w/b
264	6	605	7	7A	Proposed	4300 blk Texas Ave SE s/b
265	6	605	7	7E	Proposed	800 Blk Ridge Rd SE nw/b
266	6	605	7	7E	Proposed	800 blk Ridge Rd SE se/b
267	6	605	7	7E	Proposed	Bowen Road @ Stanley St, SE
268	7	605	7	7A	Proposed	DC 295 .4 mi S/O Penn. Ave SE sw/b
269	6	606	7	7B	Proposed	2100 blk 38th St SE
270	6	606	7	7B	Proposed	2700 Blk Branch Ave SE n/b
271	6	606	7	7B	Proposed	5200 Blk Southern Ave SE ne/b
272	6	606	7	7B	Proposed	5200 BLK Southern Ave SE se/b
273	7	606	7	7B	Proposed	Suitland Rd from Alabama to Southern Ave SE
274	6	607	7	7B	Proposed	1900 blk Branch Ave SE s/b
275	6	608	7	7C	Proposed	800 BLK EASTERN AVENUE NE (E/B)
276	6	608	7	7C	Proposed	800 BLK EASTERN AVENUE NE (W/B)
277	7	608	7	7C	Proposed	5000 blk E Capitol NE w/b
278	6	604/608	7	7C/7E	Proposed	5500 blk E Capitol St NE w/b
115	7	703	8	8C	Existing	100 block Malcolm X Ave SE w/b
116	7	703	8	8C	Existing	Suitland Pk .3m pr F Strl Av SE nwb
119	7	704	8	8E	Existing	1900 BLK SOUTHERN AVENUE SE (NE/B)
120	7	708	8	8D	Existing	4200 blk S Capitol St SW s/b
121	7	708	8	8D	Existing	DC 295 SW . 7 miles south of Exit 1 S/B
122	7	708	8	8D	Existing	DC295 SW .3 miles s/o exit 1 n/b
117	7	703	8	8C	Planned	Suitland Pkwy e/b @ Firth Sterling SE
118	7	703	8	8C	Planned	Suitland Pkwy w/b @ Stanton Rd SE
279	1	701	8	8A	Proposed	I395 SW after Exit 4 e/b
280	7	702	8	8B	Proposed	3000 blk Southern Ave ne/b
281	7	703	8	8E	Proposed	1400 BLK Alabama Ave. S.E. e/b and w/b
282	7	703	8	8C	Proposed	2700 Blk M L King Jr. Ave SE n/b
283	7	703	8	8C	Proposed	2800 Blk South Capitol St SE n/b
284	7	703	8	8C	Proposed	I-295 At Exit 2 SE n/b
285	7	703	8	8C	Proposed	Suitland Pk .6 mi So Stanton SE NWB
286	7	703	8	8C	Proposed	Suitland Pk .8 mi No. Stanton SE SB
287	7	703	8	8A/8B/8E	Proposed	Suitland PKWY S.E. .9 mi South of Stanton Road SE/B
288	7	703	8	8C	Proposed	Suitland PKWY SE .2mi South Of Stanton Rd. S.E. NW/B
289	7	704	8	8B	Proposed	2200 blk Southern Ave SE ne/b
290	7	705	8	8E	Proposed	1300 blk Mississippi Ave SE ne/b
291	7	705	8	8D/8E	Proposed	1500 Blk Alabama Ave SE sw/b
292	7	706	8	8D	Proposed	4200 blk 6th St SE n/b
293	7	706	8	8D	Proposed	600 blk Southern Ave SE sw/b
294	7	707	8	8C	Proposed	3500 BLK M.L. King Jr. Ave. SE NE/B
295	7	707	8	8C	Proposed	3500 BLK M.L.King Jr. Ave. S.E. SW/B
296	7	707	8	8C	Proposed	3600 Blk M L King Jr. Ave SE sw/b
129	5	306	5/6	5B/6C	Existing	600 Blk Florida Ave NE nw/b

Location #	District	PSA	Ward	ANC	Phase	Description
299	7	605/607	7/8	7A/8A	Proposed	DC295 SE .75 mi s/o PA Ave SE ne/b
300	7	605/607	7/8	7A/8A	Proposed	DC295 SE .75 mi s/o PA Ave SE sw/b
124	3	303	1 & 2	1C/2B	Planned	Connecticut Ave NW s/b @ Florida Ave
297	1	105	2 & 6	2C/6D	Proposed	Independence Ave e/b @ 6th St SW
298	1	102/103	2 & 6	2C/6D	Proposed	Inside southern part of 3rd St Tunnel n/b and s/b
125	4	405	4 & 5	4D/5A	Planned	N Capitol St s/b @ Gallatin St NW
126	4	403/405/406	4 & 5	4B/4D/5A	Planned	N Capitol St n/b @ Riggs Rd NE
128	6	506/507	5 & 6	5B/6A	Existing	5000 block Benning Rd SE nw/b
127	5	501/502/506	5 & 6	5C/6C	Planned	New York Ave sw/b @ N Capitol St NE
130	6	605/607	7 & 8	7A/8A	Planned	Pennsylvania Ave w/b @ Minnesota Ave SE