Final Report on
District Wide
Highway Safety Improvement Program (HSIP)
Intersection Skid Resistance Testing

For

District Department of Transportation
Infrastructure Project Management Administration
Safety, Standards, and Quality Control Division

September 11, 2009

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Background

The District Department of Transportation (DDOT) is in the process of implementing a skid resistance testing task under the Highway Safety Improvement Program (HSIP), within the Washington DC area. To this end, DDOT's Infrastructure Project Management Administration (IPMA), Safety, Standards, and Quality Control Division entered into a contract with Applied Research Associates, Inc. (ARA) to perform Skid Resistance Testing at 30 intersections throughout the District. The testing locations were selected from a list of intersections with high numbers of wet-pavement accidents. These locations were identified in 2008 as potential sites for conducting the program.

Scope of Work:

The scope of work for this project consisted of the following activities:

- Coordinate with DDOT/IPMA/Safety, Standard and Quality Control Division to schedule the field work.
- Perform Skid Resistance Testing, in accordance with ASTM E274-90, "Standard Test Method for Skid Resistance of Paved Surfaces Using a Full-Scale Tire", with a smooth tire as described in ASTM E524-08, "Standard Specifications for Standard Smooth Tire for Pavement Skid-Resistance Tests".
- An International Cybernetics Corporation model MDR 4040 Pavement Friction Tester should be utilized for the testing. The MDR 4040 should be equipped with an IBM PC/AT computer for data reduction to automatically calculate and record average speed, average skid number, and mileage location for each test.
- Perform the testing at the posted speed limit, or 40 MPH, whichever is lower.
- Coordinate Traffic Control and Traffic Mobile Operation with the Police Department during all phases of Pavement Skid Resistance Test implementation.
- Provide a shadow vehicle to follow the skid tester and warn traffic of the testing activities.
- Provide water as necessary to perform the Pavement Skid Resistance Tests. Obtain necessary permits and permission from the District Water and Sewer Authority (WASA) to obtain water from one, or more, fire hydrants for the entire period of skid testing. Obtain permission from WASA prior to starting skid testing.
- Perform tests starting at least 50-ft before the Stop Bar, in the direction of travel, and continuing through the intersection to a location adjacent to the Stop Bar for the return direction. Test all through lanes. Multiple passes will be necessary to achieve the desired results.
- Provide DDOT with a comprehensive Skid Resistance Testing report. The report shall document the skid testing operation and its results. Any conditions noted in the field impacting the data collection shall be presented in the report. A percentage graph associated with each data table indicating the percentage of tests at each site that were within the predefined ranges, shown in Table 2, should also be included in the report. The appendix of the report should contain the individual test results for each pass.

- Deliver 1 copy of the draft report and 6 copies of the final report to DDOT. An electronic version of the final report and other supporting files in CD format shall also be provided.
- Take photographs of the sites tested to document existing conditions. Include the photographs in the report.

Equipment

The Skid Resistance Testing was performed using an International Cybernetics Corporation (ICC) MDR 4040 Pavement Friction Tester. This equipment consists of a Ford E350, dual wheel diesel pick-up truck and a trailer mounted friction tester. The on-board computer controls the friction tester and automatically calculates and records average speed, average skid number (SN) and mileage location of each test. The system also records the GPS location of the start of each test. Figure 1 is an overall view of the test equipment. Figure 2 is a close-up showing the smooth test tire mounted on the trailer and the water nozzle which is used to flood the pavement in front of the tire during testing.

Figure 1 MDR 4040

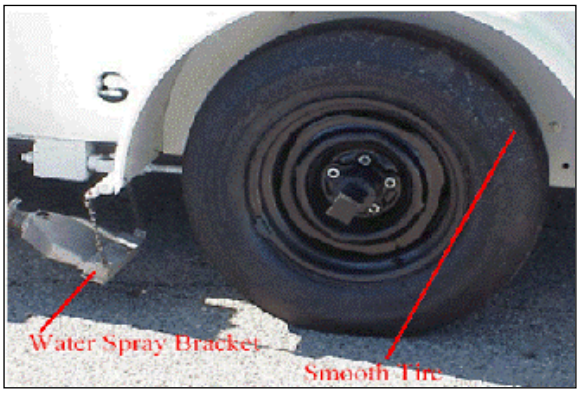


Figure 2 Close-up of Test Tire Apparatus

The Pavement Friction Tester is equipped with a standard test tire, a transducer, instrumentation, a water supply and proper dispensing system, and actuation controls for the brake of the test wheel. This tester can be configured to test in either, or both, wheel paths.

The equipment used on this project consisted of the ICC Pavement Friction Tester and a shadow vehicle equipped with amber warning lights and a caution bar.

Methodology

The Skid Resistance Testing was performed in accordance with ASTM E274-90, “Standard Test Method for Skid Resistance of Paved Surfaces Using a Full-Scale Tire”, with a smooth tire as described in ASTM E524-08, “Standard Specifications for Standard Smooth Tire for Pavement Skid-Resistance Tests”.

The friction tester was brought to the desired test speed: 40 MPH or the posted speed limit whichever was lower. Water was delivered ahead of the test tire and the braking system was actuated to lock the test tire. The resulting friction force acting between the test tire and the pavement surface and the speed of the test vehicle were recorded using the on-board instrumentation. Figure 3 is a force diagram for skid resistance testing.

The skid resistance of the paved surface was determined from the resulting force or torque recorded and reported as skid number (SN). The SN was determined from the force required to slide the locked test tire at a stated speed, divided by the effective wheel load and multiplied by 100.

$$SN_s = \frac{F_{sl}}{L_w} x100$$

Where,

SN_s = Skid Number at speed (s). No speed indicated means testing was done at 40 MPH.
F_{sl} = Force required to slide the locked test tire at the stated speed.
L_w = Effective wheel load.

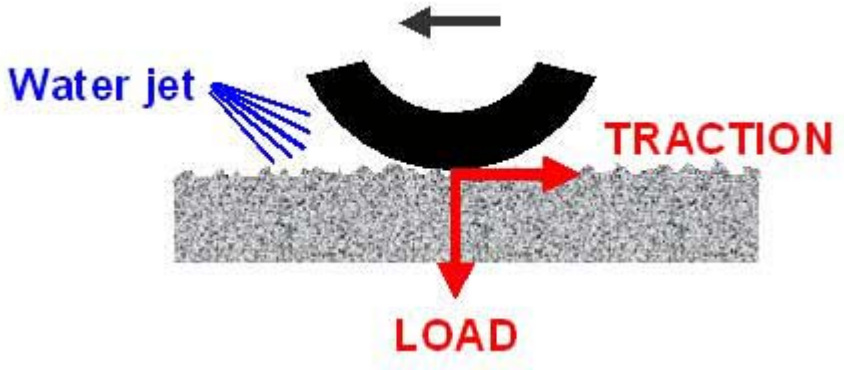


Figure 3 Force Diagram for Skid Resistance Testing

Data Collection and Processing

Prior to starting field operations, ARA coordinated with DDOT/IPMA, Metropolitan Police and Water and Sewer Authority (WASA). During the week of July 6th, ARA obtained a fire hydrant water permit and meter from WASA so that water could be obtained from any hydrant in the District.

The final list of test locations was obtained from DDOT on July 13th, 2009. This list was modified following the first day of field testing to remove the intersection of 3rd St. and Interstate 395, NW. This intersection was replaced with Connecticut Ave. and Nebraska Ave, NW. The final list of test locations is shown in Table 1. Figure 4 shows the distribution of the test locations across the District.

On July 22nd, 2009, ARA mobilized to the District and began Skid Resistance Testing that evening at the intersection of Georgia Ave & Kalmia Road, NW. The skid resistance testing was performed at night as the lower levels of traffic improved the field team's safety while minimizing the effect on the traveling public. Skid testing continued to be performed each night through the evening of July 27th, 2009.

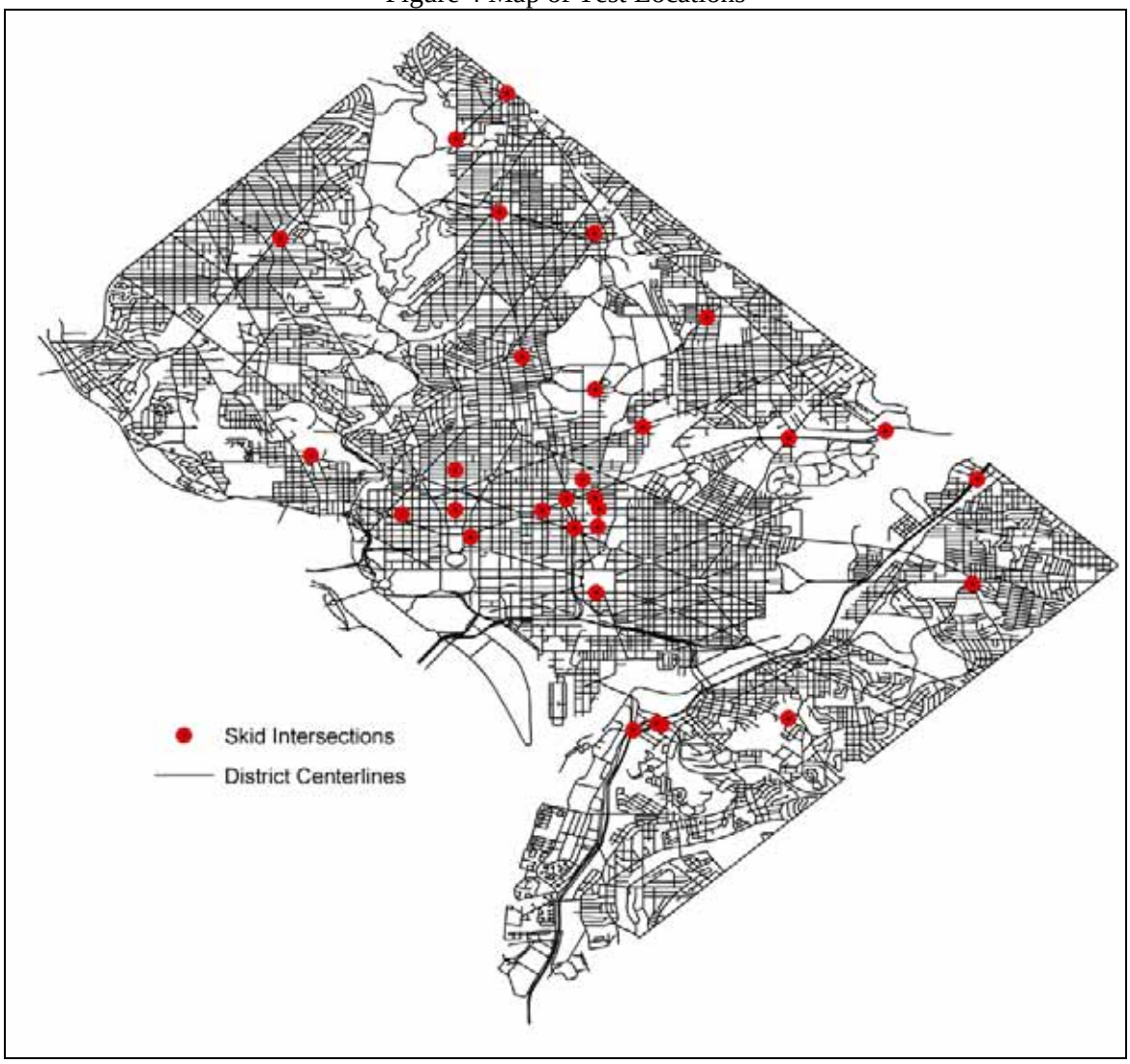
Table1 Final List of Intersections for Testing

Intersection	Quad
Bladensburg Rd and NY Ave	NE
Firth Sterling Ave. & Suitland Parkway	SE
2nd St & H St	NW
4th ST & RI Ave	NE
13th St & MI Ave.	NE
NY Ave & SD Ave	NE
Benning Rd & E. Capitol St.	BN
I-295 & Suitland Parkway (BN)	BN
H St & N. Capitol St.	BN
MI Ave & N. Capitol St.	BN
16th St & Q St	NW
GA Ave & Park Rd	NW
GA Ave & MO Ave	NW
Kenilworth Ave & Polk St.	NE
I-295 & Suitland Parkway (SE)	SE
M St & N. Capitol St.	BN
NH Ave & N Capitol St.	BN
1st St & P St	NW
3rd St & NY Ave	NW
6th St & NY Ave	NW
16th St & AK Ave	NW
Altamont Pl & Good Hope Rd	SE
15th St and G St	NW
16th St and L St	NW
21st St and Pennsylvania Ave	NW
32nd St and R St	NW
Georgia Ave & Kalmia Ave	NW
L St and North Capitol St	BN
Independence Ave and South Capitol St	BN
Connecticut Ave and Nebraska Ave	NW

Each through lane of each approach to an intersection, available when the field team reached a particular intersection, was tested starting at a point between 50-ft and 100-ft before the approach-side stop bar. Testing was performed at speeds between 25 MPH and 40 MPH depending upon the posted speed limit of the street/road being tested. For each test, the test tire was locked for a minimum of 1 second. Therefore, the length of roadway represented by each skid ranged from a minimum of approximately 36-ft at 25 MPH to approximately 59-ft at 40 MPH. If a test resulted in a SN less than 10, it was immediately flagged and retested to verify the result was accurate.

Each through lane of the intersection was also tested within the intersection limits, between the approach side stop bar and an extension of the stop bar on the leave side of the intersection. Figure 5 shows a schematic of the testing at a basic 4-way intersection.

Figure 4 Map of Test Locations



For the interchange areas, testing was performed on each through lane of each roadway and on the ramps connecting the roads of the interchange. Testing started approximately 50-ft before the beginning of the deceleration lane for the off ramp in each direction and continued until past the end of the acceleration lane for the on ramp. These tests occurred at approximately 200-ft intervals. The connecting ramps were tested starting near the beginning of the deceleration lane and continued to the end of the acceleration lane for the connecting road. Figure 6 shows a schematic of testing for a very simple interchange.

Data files for each test were sent to ARA's Mechanicsburg office via E-mail at the conclusion of each test night. The test results for these files were plotted over aerial maps of each intersection or interchange area to ensure that complete coverage was obtained. The field team was notified of any gaps in coverage discovered and the missing data were collected during subsequent test nights.

Figure 5. Intersection Testing Schematic

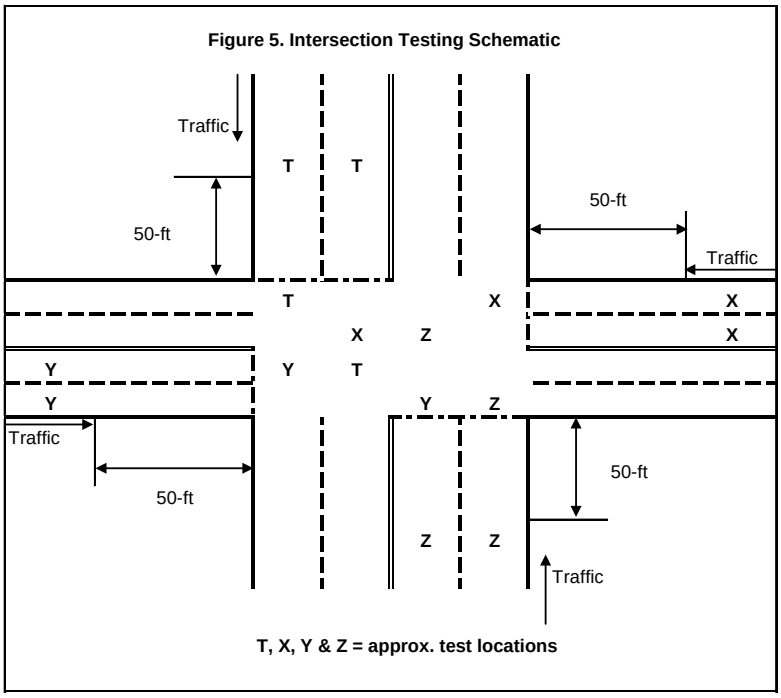
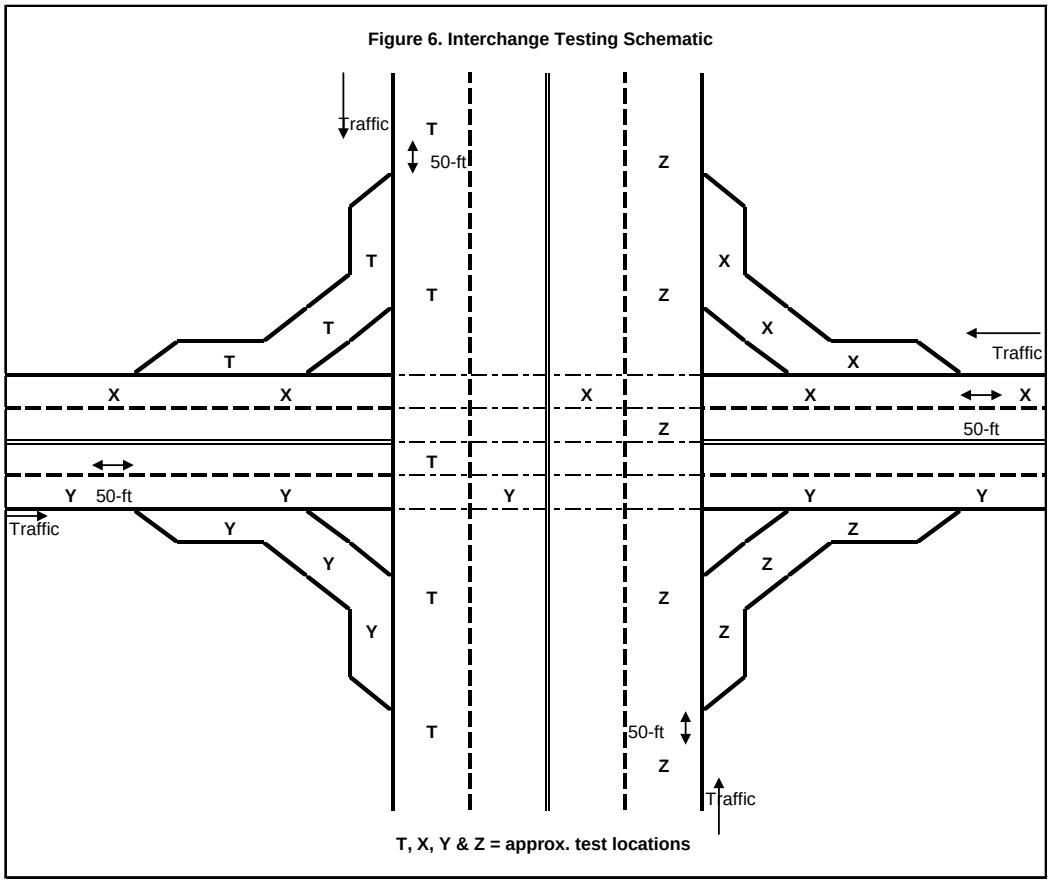


Figure 6. Interchange Testing Schematic



Some of the intersection locations were “T” intersections where the intersecting road met the main road at an angle that made it impossible to perform a skid test in the intersection from the

intersecting road. In these cases, the approach of the intersecting road was tested, but the intersection was only tested on the main road.

Since South Capitol Street (BN) at Independence Avenue (SE) is permanently closed for security reasons, testing was only performed on Independence Avenue through this area.

The data collected were processed in accordance with ASTM E274-90 using ICC's standard reporting software to report a SN value for each test location. A summary of the results are provided in the tables shown in Appendix A. In addition to the skid data, the ARA field team collected digital photographs of the designated intersections or interchanges during daylight hours on July 26th and 27th.

The individual test points for each test location were summarized and grouped according to the SN ranges shown in Table 2. These data tables were used to create a bar graph showing the percent of tests within each SN range at each intersection. These data where also plotted over an aerial image of each test location with each test point color coded by SN range using the ranges shown in Table 2. These data tables, graphs, aerial images and the digital pictures collected are grouped by test location and shown in Appendix B.

Table 2 Color Coded SN Ranges

Color Code	SN Ranges
Red	**SN < 26**
Orange	**26 <= SN < 33**
Yellow	**33 <= SN <= 40**
Green	**SN > 40**

Summary Results

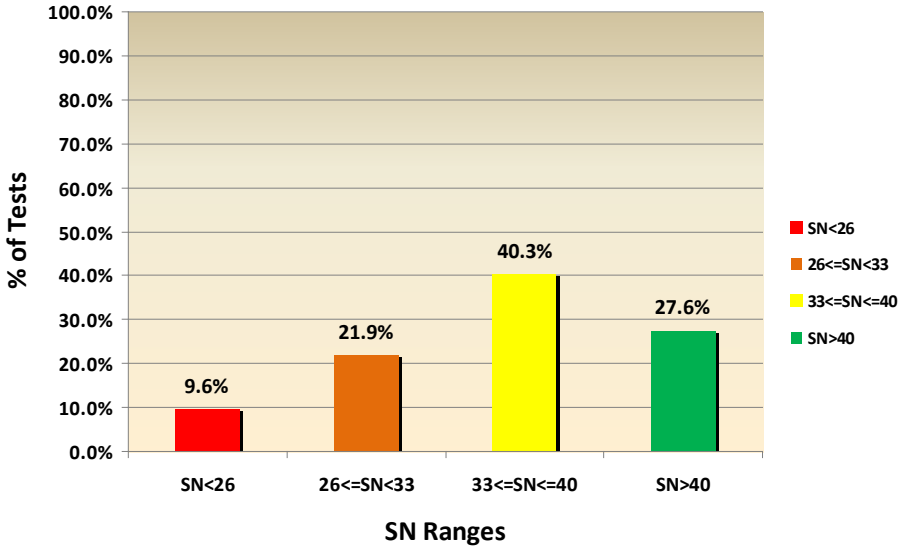
Overall, the results of the skid resistance testing across all test locations were good with 67.9% of the tests resulting in SN>=33. This breaks down further to 27.6% with SN>40 and 40.3% with SN between 33 and 40. Only 9.6% of the tests resulted in SN values less than 26. These results are tabulated in Table 3 and shown graphically in Figure 7.

The distribution of the percent of skid tests in each SN range for each test location is shown in Figures 8A and 8B. Fifteen test locations had at least one test point with SN<26. These locations are listed in Table 4.

Table 3 Total Number of Test Points in each SN Range

SN<26	26<=SN<33	33<=SN<=40	SN>40
51	116	213	146

Figure 7 Percent of SN values in each Range across all Test Locations



Three intersection locations had all skid results greater than or equal to 33. Only the intersection of Kenilworth Ave and Polk St had all skid results greater than 40. The remaining 12 test locations had at least some of their test results fall in the >=26 to <33 range.

Table 4 List of Test Locations with SN<26

Intersection	Quad
2nd St & H St	NW
4th ST & RI Ave	NE
NY Ave & SD Ave	NE
I-295 & Suitland Parkway (BN)	BN
H St & N. Capitol St.	BN
MI Ave & N. Capitol St.	BN
GA Ave & Park Rd	NW
GA Ave & MO Ave	NW
I-295 & Suitland Parkway (SE)	SE
NH Ave & N Capitol St.	BN
6th St & NY Ave	NW
16th St and L St	NW
L St and North Capitol St	BN
Independence Ave and South Capitol St	BN
Connecticut Ave and Nebraska Ave	NW

Figure 8A Summary of Distribution of Test Results by SN Range and Test Location, part 1

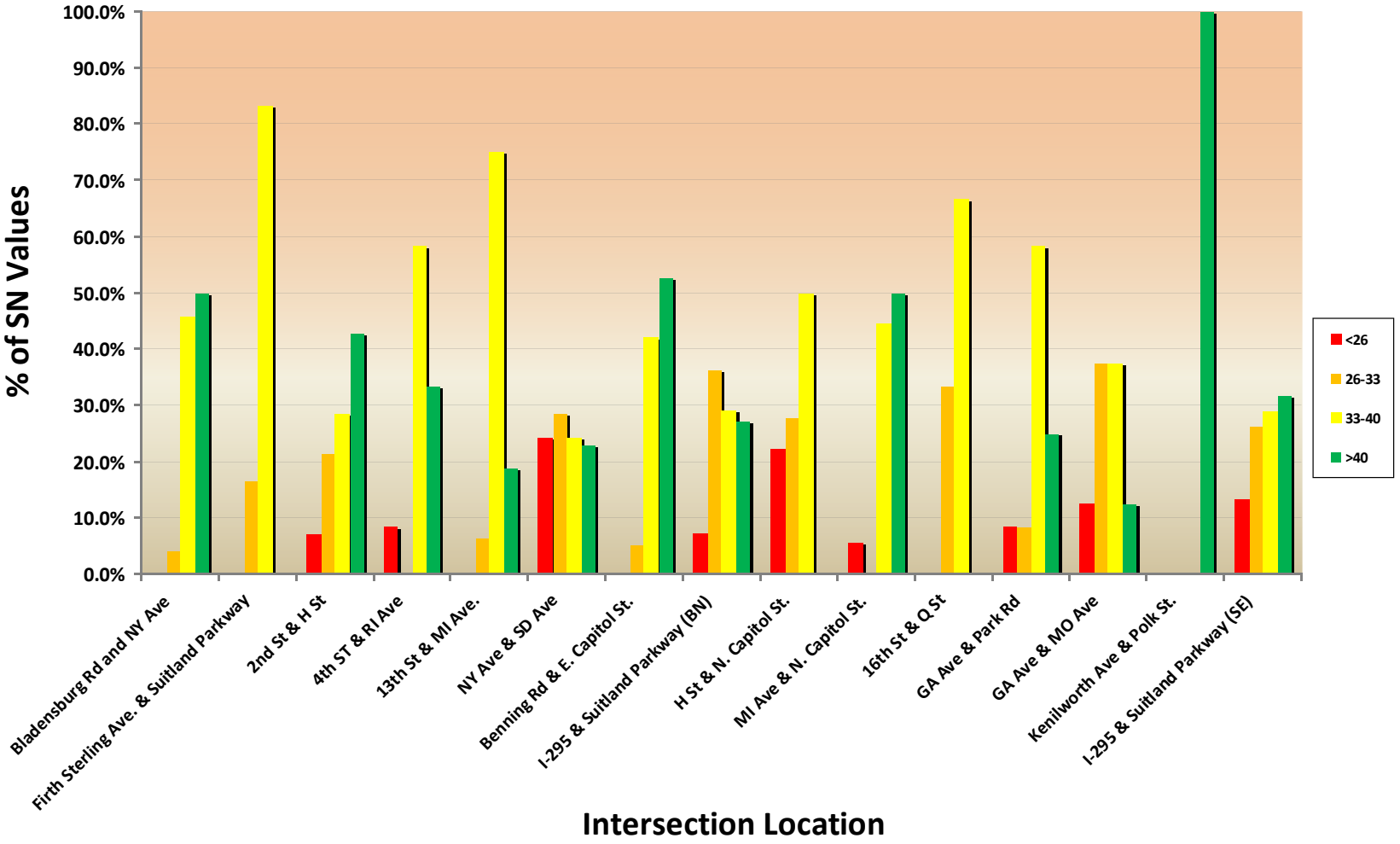
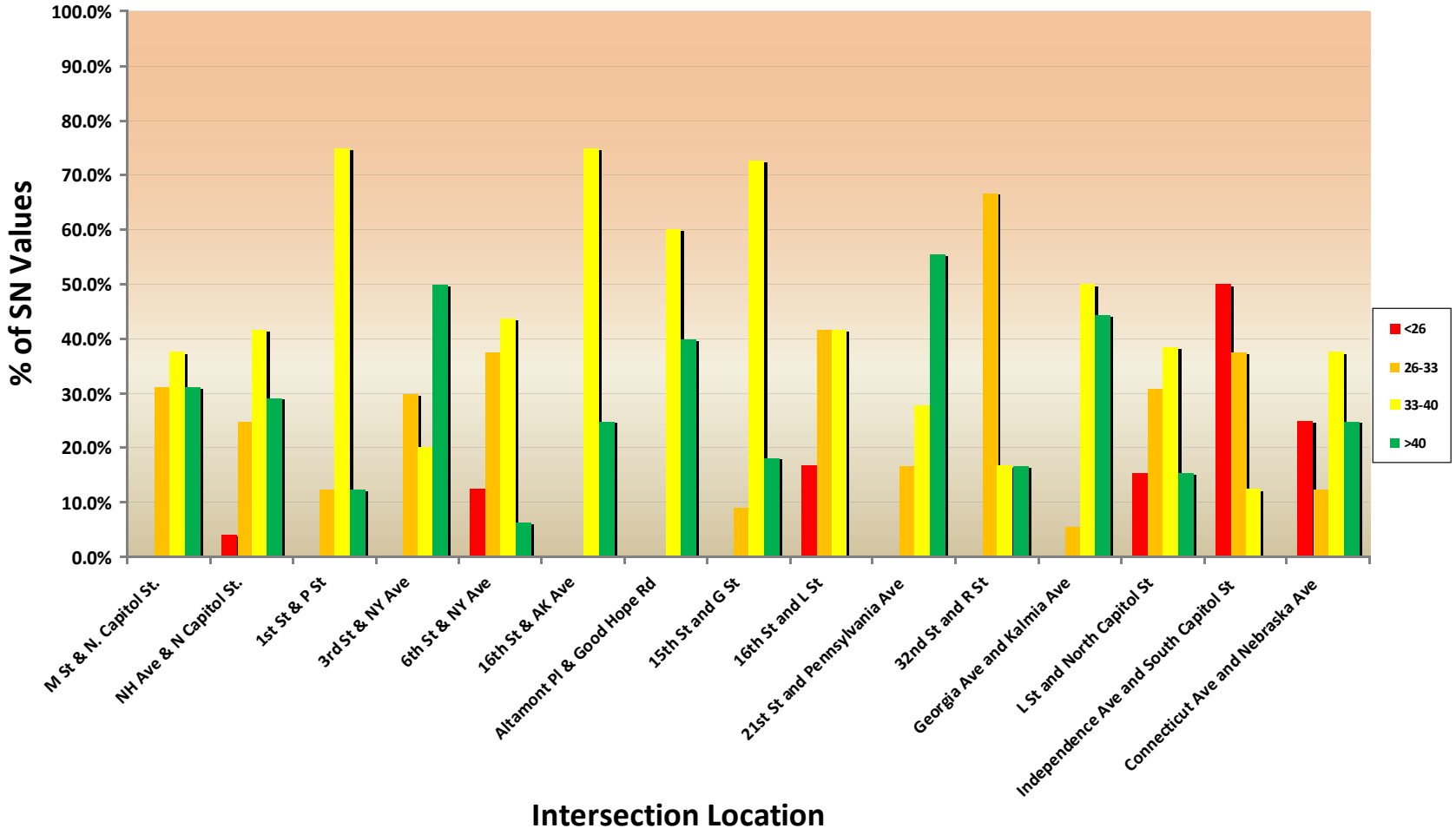


Figure 8B Summary of Distribution of Test Results by SN Range and Test Location, part 2



APPENDIX A

SUMMARY OF SKID RESISTANCE TEST RESULTS

Location		Street	Direction	Lane	Approach		Latitude	Longitude	Intersection		Latitude	Longitude	Comments
Intersection Name	Quad				Speed	SN			Speed	SN			
Bladensburg Rd and New York	**NE**	Bladensburg Rd	North(+)	1	23	58.4	38.916911	-76.972792	28	40.0	38.917226	-76.972530	
		Bladensburg Rd	North(+)	2	26	44.1	38.916938	-76.972726	29	35.3	38.917228	-76.972493	
		Bladensburg Rd	North(+)	3	25	29.9	38.916791	-76.972808	28	44.2	38.917227	-76.972455	
		Bladensburg Rd	South(-)	1	35	38.6	38.918199	-76.971465	27	39.9	38.917466	-76.972380	
		Bladensburg Rd	South(-)	2	27	34.5	38.917930	-76.972077	29	34.1	38.917455	-76.972433	
		Bladensburg Rd	South(-)	3	10	35.2	38.918378	-76.971682	29	40.9	38.917506	-76.972434	
		New York Ave	East(+)	1	30	40.9	38.917258	-76.973110	26	43.6	38.917279	-76.972679	
		New York Ave	East(+)	2	27	36.9	38.917232	-76.973291	27	38.2	38.917241	-76.972729	
		New York Ave	East(+)	3	28	36.8	38.917193	-76.973198	27	40.6	38.917202	-76.972749	
		New York Ave	West(-)	1	26	46.1	38.917459	-76.971637	26	44.7	38.917441	-76.972247	
		New York Ave	West(-)	2	24	36.3	38.917482	-76.971658	23	43.8	38.917464	-76.972260	
		New York Ave	West(-)	3	26	39.2	38.917504	-76.971691	26	42.5	38.917483	-76.972187	
Firth Sterling Ave and Suitland Pky	**SE**	Firth Sterling Ave	East(+)	1	25	37.8	38.862163	-76.998248	25	33.9	38.862307	-76.997870	
		Firth Sterling Ave	West(-)	1	25	33.0	38.862546	-76.997376	26	38.8	38.862446	-76.997649	
		Suitland Pky	North(+)	1	26	37.7	38.862100	-76.996986	26	39.1	38.862280	-76.997411	
		Suitland Pky	North(+)	2	27	36.2	38.862107	-76.996904	27	30.9	38.862322	-76.997400	
		Suitland Pky	South(-)	1	25	33.0	38.862515	-76.998177	26	34.4	38.862408	-76.997921	
		Suitland Pky	South(-)	2	25	27.8	38.862542	-76.998347	25	35.9	38.862385	-76.997949	
2nd St and H St	**NW**	2nd St	North(+)	1	26	27.7	38.899934	-77.013647	27	43.0	38.900099	-77.013708	
		2nd St	North(+)	2	26	25.5	38.899739	-77.013732	29	39.6	38.900092	-77.013719	
		H St	East(+)	1	27	41.0	38.900170	-77.014140	28	41.5	38.900177	-77.013788	
		H St	East(+)	2	27	42.3	38.900150	-77.014093	25	47.8	38.900148	-77.013816	
		H St	West(-)	1	28	31.0	38.900239	-77.012527	28	39.8	38.900230	-77.013600	
		H St	West(-)	2	27	36.6	38.900270	-77.013260	28	41.5	38.900259	-77.013583	
		H St	West(-)	3	28	30.9	38.900297	-77.013307	25	39.6	38.900316	-77.013554	
4th St and Rhode Island Ave	**NE**	4th St	North(+)	1	25	38.9	38.919375	-77.000557	27	38.5	38.919651	-77.000563	
		4th St	South(-)	1	26	25.2	38.920162	-77.000586	27	36.6	38.919887	-77.000585	
		Rhode Island Ave	East(+)	1	26	39.2	38.919646	-77.001145	27	36.2	38.919709	-77.000698	
		Rhode Island Ave	East(+)	2	28	38.1	38.919569	-77.001011	26	33.7	38.919660	-77.000791	
		Rhode Island Ave	West(-)	1	26	41.5	38.919960	-77.000105	26	45.5	38.919850	-77.000429	
		Rhode Island Ave	West(-)	2	22	45.8	38.920002	-77.000068	25	43.0	38.919901	-77.000369	
13th St and Michigan Ave	**NE**	13th St	North(+)	1	30	35.9	38.940089	-76.988269	28	38.4	38.940456	-76.988260	
		13th St	South(-)	1	27	32.2	38.940941	-76.988317	25	39.5	38.940540	-76.988311	
		Michigan Ave	East(+)	1	28	39.5	38.940052	-76.988733	29	37.7	38.940411	-76.988324	
		Michigan Ave	East(+)	2	28	34.4	38.940187	-76.988523	29	37.4	38.940339	-76.988361	
		Michigan Ave	West(-)	1	22	44.1	38.940890	-76.987826	24	35.7	38.940747	-76.988007	
		Michigan Ave	West(-)	2	27	37.4	38.940959	-76.987799	25	34.9	38.940591	-76.988243	
		Taylor St	East(+)	1	28	40.1	38.940768	-76.988757	26	36.3	38.940938	-76.988594	
		Taylor St	West(-)	1	32	54.4	38.940778	-76.987420	26	36.7	38.940773	-76.987862	
Benning Rd and East Capitol St	**BN**	Benning Rd	North(+)	1	28	35.3	38.889287	-76.937282	27	43.4	38.889577	-76.937408	
		Benning Rd	North(+)	2	29	43.2	38.889421	-76.937301	26	42.8	38.889619	-76.937385	
		Benning Rd	South(-)	1	29	29.5	38.890100	-76.937701	26	41.7	38.890011	-76.937701	
		Benning Rd	South(-)	2	27	33.4	38.890257	-76.937845	24	40.2	38.889995	-76.937724	
		East Capitol St	East(+)	1	28	37.6	38.889697	-76.937973	25	41.6	38.889691	-76.937701	
		East Capitol St	East(+)	2	NA	NA	NA	NA	31	34.8	38.889670	-76.938316	
		East Capitol St	East(+)	3	28	36.9	38.889631	-76.938090	29	42.4	38.889630	-76.937646	
		East Capitol St	West(-)	1	27	33.4	38.889875	-76.937180	28	36.5	38.889873	-76.937435	
		East Capitol St	West(-)	2	27	38.4	38.889889	-76.936972	27	40.5	38.889898	-76.937457	
		East Capitol St	West(-)	3	27	43.1	38.889913	-76.936939	26	45.1	38.889920	-76.937472	
H St and North Capitol St	**BN**	H St	East(+)	1	29	24.4	38.900239	-77.009861	27	32.5	38.900204	-77.009240	
		H St	East(+)	2	27	22.7	38.900170	-77.009650	27	38.2	38.900167	-77.009313	
		H St	West(-)	1	26	35.9	38.900227	-77.008517	26	35.7	38.900222	-77.008932	
		H St	West(-)	2	26	35.6	38.900265	-77.008494	26	35.0	38.900245	-77.008938	
		H St	West(-)	3	27	35.8	38.900283	-77.008531	27	36.6	38.900257	-77.008986	
		North Capitol St	North(+)	1	26	32.4	38.899790	-77.009058	25	29.5	38.900071	-77.009057	
		North Capitol St	North(+)	2	26	25.1	38.899842	-77.009016	24	33.2	38.900085	-77.009012	
		North Capitol St	South(-)	1	25	27.3	38.900564	-77.009093	26	31.9	38.900341	-77.009093	
		North Capitol St	South(-)	2	29	22.5	38.900479	-77.009121	23	36.4	38.900337	-77.009127	
Michigan Ave and North Capitol St	**BN**	Michigan Ave	East(+)	1	27	41.5	38.926543	-77.009691	27	43.0	38.926604	-77.009202	
		Michigan Ave	East(+)	2	28	33.3	38.926499	-77.009772	26	44.9	38.926575	-77.009184	
		Michigan Ave	West(-)	1	28	41.6	38.926783	-77.008370	27	44.7	38.926729	-77.008857	
		Michigan Ave	West(-)	2	27	38.4	38.926793	-77.008438	25	43.3	38.926748	-77.008880	
		North Capitol St	North(+)	1	26	37.4	38.926186	-77.009014	26	37.9	38.926549	-77.009014	
		North Capitol St	North(+)	2	26	23.0	38.926553	-77.008979	25	37.2	38.926198	-77.008977	
		North Capitol St	South(-)	1	28	37.6	38.927192	-77.009058	26	42.3	38.926789	-77.009065	
		North Capitol St	South(-)	2	26	36.1	38.927188	-77.009094	26	46.3	38.926787	-77.009102	
		North Capitol St	South(-)	3	28	33.9	38.927072	-77.009140	27	47.4	38.926763	-77.009151	
16th St and Q St	**NW**	16th St	North(+)	1	25	36.5	38.910852	-77.036524	26	35.3	38.911097	-77.036527	
		16th St	South(-)	1	27	30.8	38.911429	-77.036563	25	31.2	38.911242	-77.036566	
		Q St	East(+)	1	24	36.3	38.911159	-77.037137	26	35.9	38.911141	-77.036646	
Georgia Ave and Park Rd	**NW**	Georgia Ave	North(+)	1	26	39.7	38.932444	-77.023693	28	39.0	38.932766	-77.023751	Offset
		Georgia Ave	North(+)	2	29	32.5	38.932472	-77.023661	27	39.9	38.932802	-77.023711	Intersection
		Georgia Ave	South(-)	1	27	36.1	38.933356	-77.023873	27	36.4	38.933062	-77.023824	
		Georgia Ave	South(-)	2	28	39.6	38.933383	-77.023903	29	37.2	38.933060	-77.023860	
		Park Rd	East(+)	1	27	23.9	38.932990	-77.024432	22	40.6	38.932990	-77.023903	
		Park Rd	West(-)	1	26	42.0	38.932905	-77.023168	22	47.5	38.932884	-77.023640	
Georgia Ave and Missouri Ave	**NW**	Georgia Ave	North(+)	1	25	32.6	38.960638	-77.028059	28	34.5	38.960949	-77.028020	Offset
		Georgia Ave	North(+)	2	26	29.3	38.960517	-77.028021	29	29.9	38.960948	-77.027981	Intersection
		Georgia Ave	South(-)	1	26	27.1	38.961724	-77.027979	26	41.4	38.961429	-77.028047	
		Georgia Ave	South(-)	2	26	22.9	38.961814	-77.028016	26	35.2	38.961375	-77.028051	
		Missouri Ave	East(+)	1	25	38.0	38.961424	-77.028868	22	32.0	38.961201	-77.028084	
		Missouri Ave	East(+)	2	26	33.9	38.961353	-77.028555	21	33.7	38.961208	-77.028114	
		Missouri Ave	West(-)	1	24	23.8	38.960808	-77.027344	23	34.4	38.961077	-77.027961	
		Missouri Ave	West(-)	2	26	27.0	38.960844	-77.027290	23	43.5	38.961109	-77.027894	
Kenilworth Ave and Polk St	**NE**	Kenilworth Ave	North(+)	1	25	43.7	38.909335	-76.936404	25	42.9	38.909587	-76.936200	T-Intersection
		Polk St	West(-)	1	26	46.7	38.909356	-76.935876	NA	NA	NA	NA	
M St and North Capitol St	**BN**	M St	East(+)	1	26	29.5	38.905686	-77.009731	25	35.2	38.905668	-77.009270	
		M St	East(+)	2	26	34.2	38.905632	-77.009707	26	32.9	38.905635	-77.009261	
		North Capitol St	North(+)	1	26	27.0	38.905374	-77.009027	24	30.3	38.905521	-77.009028	
		North Capitol St	North(+)	2	23	40.7	38.905253	-77.008993	24	39.2	38.905515	-77.008990	
		North Capitol St	North(+)	3	25	37.2	38.905288	-77.008945	26	40.1	38.905541	-77.008924	
		North Capitol St	South(-)	1	25	40.7	38.906234	-77.009065	26	29.5	38.905732	-77.009074	
		North Capitol St	South(-)	2	25	42.2	38.906126	-77.009106	25	37.1	38.905791	-77.009108	
		North Capitol St	South(-)	3	25	49.4	38.906013	-77.009170	28	36.5	38.905715	-77.009169	

Location		Street	Direction	Lane	Approach		Latitude	Longitude	Intersection		Latitude	Longitude	Comments
Intersection Name	Quad				Speed	SN			Speed	SN			
New Hampshire Ave and Noth Capitol St	BN	Kennedy St	East(+)	1	26	39.6	38.956623	-77.009846	NA	NA	NA	NA	
		Kennedy St	West(-)	1	24	55.3	38.956633	-77.008483	26	45.1	38.956660	-77.008923	
		New Hampshire Ave	North(+)	1	25	36.2	38.956117	-77.009423	NA	NA	NA	NA	Intersection on far side of N. Capitol (One Lane)
		New Hampshire Ave	North(+)	2	24	36.5	38.956081	-77.009437	NA	NA	NA	NA	
		New Hampshire Ave	South(-)	1	29	29.1	38.957508	-77.008622	27	44.9	38.956839	-77.009151	
		New Hampshire Ave	South(-)	2	30	24.3	38.957479	-77.008711	NA	NA	NA	NA	
		North Capitol St	North(+)	1	27	33.9	38.956449	-77.009021	25	29.9	38.956819	-77.009015	Large offset 3-Way Intersection
		North Capitol St	North(+)	2	27	39.4	38.956063	-77.008988	28	50.9	38.957483	-77.008987	
		North Capitol St	North(+)	2	NA	NA	NA	NA	26	38.6	38.956452	-77.008988	
		North Capitol St	North(+)	2	NA	NA	NA	NA	23	31.8	38.956786	-77.008990	
		North Capitol St	North(+)	2	NA	NA	NA	NA	26	43.1	38.957117	-77.008990	
		North Capitol St	South(-)	1	27	35.2	38.957747	-77.009072	29	31.0	38.957242	-77.009067	
		North Capitol St	South(-)	2	NA	NA	NA	NA	29	27.6	38.957141	-77.009086	
		North Capitol St	South(-)	2	NA	NA	NA	NA	28	35.0	38.956783	-77.009121	
		North Capitol St	South(-)	2	NA	NA	NA	NA	25	38.2	38.956427	-77.009119	
		North Capitol St	South(-)	2	NA	NA	NA	NA	26	45.3	38.956515	-77.009370	
		North Capitol St	South(-)	2	NA	NA	NA	NA	25	35.7	38.957532	-77.009127	
		North Capitol St	South(-)	2	24	40.8	38.957764	-77.009117	27	30.2	38.957167	-77.009128	
1st St and P St	NW	1st St	North(+)	1	26	38.4	38.909255	-77.012117	25	40.5	38.909552	-77.012136	
		1st St	South(-)	1	27	33.0	38.910062	-77.012150	28	33.0	38.909726	-77.012153	
		P St	East(+)	1	25	38.9	38.909635	-77.012620	24	39.2	38.909636	-77.012263	
		P St	West(-)	1	31	30.4	38.909661	-77.011707	25	39.8	38.909633	-77.012026	
3rd St and New York Ave	NW	3rd St	South(-)	1	25	32.2	38.905514	-77.015192	NA	NA	NA	NA	T-Intersection
		3rd St	South(-)	2	26	29.4	38.905508	-77.015234	NA	NA	NA	NA	
		New York Ave	East(+)	1	25	47.5	38.905062	-77.015596	NA	NA	NA	NA	Can't Turn Left off 3rd: No Int
		New York Ave	East(+)	2	24	44.4	38.905026	-77.015615	NA	NA	NA	NA	
		New York Ave	East(+)	2	24	46.7	38.905153	-77.015261	NA	NA	NA	NA	
		New York Ave	East(+)	3	27	31.7	38.904639	-77.016631	NA	NA	NA	NA	
		New York Ave	West(-)	1	24	36.0	38.905440	-77.014816	26	34.8	38.905327	-77.015105	
		New York Ave	West(-)	2	26	40.9	38.905430	-77.014916	25	42.4	38.905342	-77.015139	
6th St and New York Ave	NW	6th St	North(+)	1	24	37.7	38.903320	-77.019876	25	28.2	38.903539	-77.019881	
		6th St	North(+)	2	27	36.4	38.903178	-77.019845	24	31.2	38.903548	-77.019843	
		6th St	South(-)	1	29	32.6	38.903802	-77.019908	27	39.0	38.903399	-77.019907	
		6th St	South(-)	2	27	39.0	38.903833	-77.019937	25	41.0	38.903474	-77.019941	
		New York Ave	East(+)	1	26	31.1	38.903442	-77.020322	25	39.7	38.903525	-77.020033	
		New York Ave	East(+)	2	25	29.9	38.903408	-77.020295	25	39.9	38.903498	-77.020009	
		New York Ave	West(-)	1	26	22.6	38.903765	-77.019517	25	24.2	38.903661	-77.019782	
		New York Ave	West(-)	2	24	33.2	38.903662	-77.019877	27	27.2	38.903819	-77.019424	
16th St and Alaska Ave	NW	16th St	North(+)	1	27	43.6	38.974314	-77.036382	27	36.3	38.974716	-77.036360	
		16th St	North(+)	2	25	36.8	38.974369	-77.036317	25	38.5	38.974734	-77.036316	
		16th St	South(-)	1	30	33.0	38.975419	-77.036406	32	34.4	38.975093	-77.036385	
		16th St	South(-)	2	31	33.1	38.975313	-77.036415	31	39.6	38.975073	-77.036432	
		Alaska Ave	West(-)	1	28	37.5	38.975401	-77.035911	24	39.2	38.975023	-77.036245	
		Alaska Ave	West(-)	2	24	41.8	38.975385	-77.035925	22	42.2	38.975147	-77.036221	
Altamont Pl and Good Hope Rd	SE	Altamont Pl	South(-)	1	23	37.1	38.863430	-76.972617	NA	NA	NA	NA	
		Good Hope Rd	East(+)	1	25	41.2	38.863224	-76.973188	24	39.4	38.863125	-76.972971	T-Intersection
		Good Hope Rd	West(-)	1	26	41.6	38.862942	-76.972422	23	33.5	38.863056	-76.972699	
15th St and G St	NW	G St	West(-)	1	25	36.3	38.898562	-77.032571	NA	NA	NA	NA	
		15th St	North(+)	1	28	41.0	38.897988	-77.033642	27	33.6	38.898240	-77.033608	T-Intersection
		15th St	North(+)	2	25	47.7	38.898004	-77.033485	28	35.6	38.898224	-77.033605	
		15th St	South(-)	1	26	26.8	38.898567	-77.033633	29	36.5	38.898357	-77.033679	
		15th St	South(-)	2	27	33.6	38.898625	-77.033706	26	37.1	38.898375	-77.033714	
		15th St	South(-)	3	28	37.0	38.898781	-77.033522	28	38.9	38.898402	-77.033768	
16th St and L St	NW	16th St	North(+)	1	26	29.4	38.903446	-77.036559	26	36.5	38.903627	-77.036707	
		16th St	North(+)	2	25	37.8	38.903301	-77.036627	26	38.3	38.903603	-77.036691	
		16th St	South(-)	1	32	24.7	38.904048	-77.036627	25	31.7	38.903826	-77.036577	
		16th St	South(-)	2	26	34.9	38.904141	-77.036615	27	28.1	38.903820	-77.036617	
		L St	East(+)	1	26	30.2	38.903832	-77.037339	27	28.7	38.904109	-77.036046	
		L St	East(+)	2	26	23.3	38.903940	-77.036878	26	35.5	38.903822	-77.036468	
21st St and Pennsylvania Ave	NW	21st St	South(-)	1	25	45.0	38.902540	-77.046826	17	47.1	38.902388	-77.046646	
		I St	West(-)	1	25	41.7	38.901335	-77.045738	29	35.6	38.901333	-77.046303	
		I St	West(-)	2	26	37.2	38.901341	-77.045749	22	47.1	38.901316	-77.046221	
		Pennsylvania Ave	East(+)	1	30	30.0	38.902067	-77.047797	25	37.3	38.901393	-77.047532	
		Pennsylvania Ave	East(+)	2	26	26.1	38.895734	-77.045827	25	37.7	38.901680	-77.047696	
		Pennsylvania Ave	East(+)	3	30	29.9	38.901857	-77.047650	33	42.1	38.902134	-77.047487	
		Pennsylvania Ave	West(-)	1	26	40.0	38.901238	-77.046317	27	44.2	38.901329	-77.046561	
		Pennsylvania Ave	West(-)	2	26	39.4	38.901253	-77.046285	24	47.0	38.901350	-77.046536	
		Pennsylvania Ave	West(-)	3	26	43.0	38.901277	-77.046255	24	52.7	38.901381	-77.046527	
32nd St and R St	NW	32nd St	South(-)	1	28	32.0	38.913886	-77.064246	30	27.2	38.913734	-77.064235	Slight Offset
		R St	East(+)	1	26	32.5	38.913679	-77.064586	29	32.4	38.913651	-77.064342	
		R St	West(-)	1	25	44.1	38.913536	-77.063833	23	36.4	38.913646	-77.064139	
Georgia Ave and Kalmia Ave	NW	Alaska Ave	North(+)	1	26	48.0	38.983608	-77.027074	24	47.7	38.983755	-77.026873	Large 3-Way
		Alaska Ave	North(+)	2	26	42.8	38.983458	-77.027226	24	50.6	38.983767	-77.026796	
		Alaska Ave	South(-)	1	24	42.3	38.984125	-77.026705	27	44.5	38.983940	-77.026850	
		Georgia Ave	North(+)	1	27	33.5	38.983506	-77.026559	25	36.8	38.983718	-77.026564	
		Georgia Ave	North(+)	2	26	35.7	38.983425	-77.026547	26	34.2	38.983719	-77.026529	
		Georgia Ave	South(-)	1	28	34.8	38.984233	-77.026613	28	30.8	38.983890	-77.026592	
		Georgia Ave	South(-)	2	26	33.9	38.984272	-77.026654	23	35.1	38.983852	-77.026630	
		Kalmia Rd	East(+)	1	29	44.4	38.983922	-77.027390	26	36.3	38.983801	-77.026706	
		Kalmia Rd	West(+)	1	29	34.8	38.983855	-77.026466	24	54.5	38.983861	-77.026107	
L St and North Capitol St	BN	North Capitol St	North(+)	1	25	34.3	38.903433	-77.009035	26	30.2	38.903632	-77.009036	T-Intersection
		North Capitol St	North(+)	2	26	32.7	38.903381	-77.009006	25	33.3	38.903639	-77.009008	
		North Capitol St	North(+)	3	26	39.7	38.903438	-77.008965	23	43.7	38.903672	-77.008967	
		North Capitol St	South(-)	1	26	26.7	38.904074	-77.009084	25	26.9	38.903841	-77.009086	
		North Capitol St	South(-)	2	27	24.8	38.904184	-77.009119	25	24.4	38.903851	-77.009122	
		North Capitol St	South(-)	3	27	41.8	38.904400	-77.009154	NA	NA	NA	NA	
		North Capitol St	South(-)	3	27	37.4	38.904166	-77.009162	26	35.1	38.903826	-77.009151	
Independence Ave and South Capitol St	BN	Independence Ave	East(+)	1	25	36.1	38.887571	-77.009469	24	29.3	38.887584	-77.009164	
		Independence Ave	East(+)	2	26	29.9	38.887551	-77.009441	26	29.9	38.887554	-77.009126	
		Independence Ave	West(-)	1	27	22.8	38.887609	-77.008690	28	21.6	38.887612	-77.008979	
		Independence Ave	West(-)	2	25	25.0	38.887645	-77.008588	27	24.6	38.887632	-77.008948	

Location		Street	Direction	Lane	Approach		Latitude	Longitude	Intersection		Latitude	Longitude	Comments
Intersection Name	Quad				Speed	SN			Speed	SN			
Connecticut Ave and Nebraska Ave	NW	Connecticut Ave	North(+)	1	27	17.0	38.955622	-77.070144	27	22.1	38.955966	-77.070349	
		Connecticut Ave	North(+)	2	28	7.6	38.955732	-77.070176	27	16.2	38.955984	-77.070317	
		Connecticut Ave	South(-)	1	27	38.8	38.956418	-77.070632	24	40.3	38.956156	-77.070480	
		Connecticut Ave	South(-)	2	27	37.8	38.956334	-77.070576	26	32.6	38.955937	-77.070495	
		Nebraska Ave	North(+)	1	25	36.6	38.955661	-77.070707	25	31.4	38.955908	-77.070488	
		Nebraska Ave	North(+)	2	27	36.6	38.955646	-77.070691	27	33.1	38.955898	-77.070475	
		Nebraska Ave	South(-)	1	24	40.1	38.956404	-77.070107	24	37.4	38.956146	-77.070312	
		Nebraska Ave	South(-)	2	23	44.1	38.956459	-77.070052	24	43.9	38.956171	-77.070371	

Location		Street	Direction	Lane	Speed	SN	Latitude	Longitude	Comments
Intersection Name	Quad								
Interstate-295 and Suitland Parkway	BN	I-295 Exit Ramp onto Suitland South	North(+)	1	38	33.8	38.862322	-77.000627	
		I-295 Exit Ramp onto Suitland South	North(+)	1	40	37.6	38.861962	-77.001296	
		I-295 Exit Ramp onto Suitland South	North(+)	1	38	44.1	38.861610	-77.001830	
		I-295 Exit Ramp onto Suitland South	North(+)	1	39	47.3	38.861159	-77.002324	
		I-295 Exit Ramp onto Suitland South	North(+)	1	23	52.4	38.862190	-76.999752	
		I-295 Mainline	North(+)	3	40	24.9	38.863237	-76.997854	
		I-295 Mainline	North(+)	3	40	27.3	38.866126	-76.991464	
		I-295 Mainline	North(+)	3	39	27.9	38.864724	-76.992862	
		I-295 Mainline	North(+)	3	41	28.1	38.862597	-77.000376	
		I-295 Mainline	North(+)	3	40	28.7	38.861411	-77.002154	
		I-295 Mainline	North(+)	3	40	28.8	38.862257	-77.001059	
		I-295 Mainline	North(+)	3	41	29.0	38.863506	-76.996459	
		I-295 Mainline	North(+)	3	40	29.4	38.863369	-76.997173	
		I-295 Mainline	North(+)	3	42	30.0	38.863693	-76.995500	
		I-295 Mainline	North(+)	3	39	30.5	38.864396	-76.993442	
		I-295 Mainline	North(+)	3	38	30.6	38.861917	-77.001563	
		I-295 Mainline	North(+)	3	40	30.7	38.864114	-76.994046	
		I-295 Mainline	North(+)	3	40	30.7	38.865171	-76.992336	
		I-295 Mainline	North(+)	3	41	31.3	38.863874	-76.994732	
		I-295 Mainline	North(+)	3	43	31.4	38.860886	-77.002573	
		I-295 Mainline	North(+)	3	41	31.9	38.862872	-76.999594	
		I-295 Mainline	North(+)	3	40	34.6	38.863071	-76.998731	
		I-295 Mainline	North(+)	3	40	35.8	38.865642	-76.991875	
		I-295 Cloverleaf Ramp onto Suitland North	North(+)	1	24	37.4	38.862634	-76.997412	
		I-295 Cloverleaf Ramp onto Suitland North	North(+)	1	28	39.1	38.862625	-76.997913	
		I-295 Cloverleaf Ramp onto Suitland North	North(+)	1	40	40.8	38.862929	-76.999392	
		I-295 Cloverleaf Ramp onto Suitland North	North(+)	1	24	40.9	38.862881	-76.997166	
		I-295 Cloverleaf Ramp onto Suitland North	North(+)	1	24	42.6	38.863161	-76.997391	
		I-295 Cloverleaf Ramp onto Suitland North	North(+)	1	24	43.8	38.863199	-76.997829	
		I-295 Cloverleaf Ramp onto Suitland North	North(+)	1	27	45.6	38.863113	-76.998314	
		I-295 Cloverleaf Ramp onto Suitland North	North(+)	1	30	45.7	38.862874	-76.998658	
		I-295 Cloverleaf Ramp onto Suitland North	North(+)	1	32	49.3	38.863469	-77.000010	
		I-295 Cloverleaf Ramp onto Suitland North	North(+)	1	26	53.4	38.863036	-76.999080	
		I-295 Mainline	South(-)	3	41	20.2	38.863528	-76.997420	
		I-295 Mainline	South(-)	3	41	24.0	38.863389	-76.998165	
		I-295 Mainline	South(-)	3	40	29.8	38.861437	-77.002452	
		I-295 Mainline	South(-)	3	40	31.6	38.861936	-77.001922	
		I-295 Mainline	South(-)	3	41	34.8	38.863820	-76.995906	
		I-295 Mainline	South(-)	3	39	35.0	38.863965	-76.995221	
		I-295 Mainline	South(-)	3	39	35.5	38.863217	-76.999038	
		I-295 Mainline	South(-)	3	40	37.1	38.862322	-77.001383	
		I-295 Mainline	South(-)	3	40	37.3	38.862678	-77.000725	
		I-295 Mainline	South(-)	3	41	38.1	38.863682	-76.996627	
		I-295 Mainline	South(-)	3	40	40.3	38.862947	-77.000046	
		I-295 Mainline	South(-)	3	39	41.7	38.864166	-76.994495	
		I-295 Exit Ramp onto Suitland North	South(-)	1	40	31.3	38.863957	-76.995635	
		I-295 Exit Ramp onto Suitland North	South(-)	1	31	31.8	38.864017	-76.996472	
		I-295 Exit Ramp onto Suitland North	South(-)	1	38	35.6	38.864093	-76.994851	
		I-295 Cloverleaf Exit onto Suitland South	South(-)	1	26	25.1	38.863508	-77.000761	
		I-295 Cloverleaf Exit onto Suitland South	South(-)	1	29	27.9	38.863347	-77.000256	
		I-295 Cloverleaf Exit onto Suitland South	South(-)	1	37	34.1	38.863014	-76.999926	
		I-295 Cloverleaf Exit onto Suitland South	South(-)	1	46	35.9	38.863186	-76.999244	
		I-295 Cloverleaf Exit onto Suitland South	South(-)	1	26	38.6	38.863362	-77.001156	
		I-295 Cloverleaf Exit onto Suitland South	South(-)	1	30	40.7	38.862851	-77.000504	
		I-295 Cloverleaf Exit onto Suitland South	South(-)	1	24	47.9	38.862868	-77.000980	

Location		Street	Direction	Lane	Speed	SN	Latitude	Longitude	Comments
Intersection Name	Quad								
New York Ave and South Dakota Ave	NE	New York Ave Exit onto South Dakota North	East(+)	1	27	49.0	38.919033	-76.952200	
		New York Ave Exit onto South Dakota North	East(+)	1	38	36.5	38.918608	-76.953976	
		New York Ave Exit onto South Dakota North	East(+)	1	33	33.9	38.918869	-76.953297	
		New York Ave Exit onto South Dakota North	East(+)	1	29	42.3	38.918995	-76.952728	
		New York Ave Exit onto South Dakota North	East(+)	1	28	38.2	38.918915	-76.951713	
		New York Ave Exit onto South Dakota North	East(+)	1	28	40.5	38.918128	-76.951432	
		New York Ave Exit onto South Dakota North	East(+)	1	29	41.1	38.917803	-76.951995	
		New York Ave Exit onto South Dakota North	East(+)	1	28	40.3	38.917739	-76.952516	
		New York Ave Exit onto South Dakota North	East(+)	1	25	49.0	38.917764	-76.953074	
		New York Ave Exit onto South Dakota North	East(+)	1	24	51.7	38.917793	-76.953606	
		New York Ave Exit onto South Dakota North	East(+)	1	27	43.6	38.917865	-76.954185	
		New York Ave Exit onto South Dakota North	East(+)	1	27	53.1	38.918108	-76.954687	
		New York Ave Exit onto South Dakota North	East(+)	1	28	41.4	38.918548	-76.951348	
		New York Ave Exit onto South Dakota North	East(+)	1	25	54.4	38.918415	-76.955147	
		New York Ave Exit onto South Dakota North	East(+)	1	26	36.8	38.918305	-76.954986	
		New York Ave Main	East(+)	3	41	47.3	38.918364	-76.954566	
		New York Ave Main	East(+)	3	42	34.2	38.918666	-76.948109	
		New York Ave Main	East(+)	3	42	32.6	38.918688	-76.953892	
		New York Ave Main	East(+)	3	43	25.1	38.918945	-76.953166	
		New York Ave Main	East(+)	3	42	34.2	38.919079	-76.952447	
		New York Ave Main	East(+)	3	41	32.2	38.919138	-76.951683	
		New York Ave Main	East(+)	3	41	34.2	38.919117	-76.950982	
		New York Ave Main	East(+)	3	41	32.4	38.919025	-76.950269	
		New York Ave Main	East(+)	3	42	34.5	38.918785	-76.948842	
		New York Ave Main	East(+)	3	42	34.4	38.918534	-76.947311	
		New York Ave Main	East(+)	3	41	29.8	38.918409	-76.946555	
		New York Ave Main	East(+)	3	41	32.9	38.918295	-76.945870	
		New York Ave Main	East(+)	3	41	52.9	38.918909	-76.949568	
		New York Ave Exit onto South Dakota North	West(-)	1	40	23.2	38.919176	-76.953427	
		New York Ave Exit onto South Dakota North	West(-)	1	37	24.7	38.919406	-76.950828	
		New York Ave Exit onto South Dakota North	West(-)	1	39	21.2	38.919357	-76.952556	
		New York Ave Exit onto South Dakota North	West(-)	1	39	21.6	38.919436	-76.951885	
		New York Ave Exit onto South Dakota North	West(-)	1	40	26.1	38.919285	-76.950032	
		New York Ave Exit onto South Dakota North	West(-)	1	41	26.4	38.919151	-76.949277	
		New York Ave Exit onto South Dakota North	West(-)	1	41	25.2	38.918980	-76.948446	
		New York Ave Exit onto South Dakota North	West(-)	1	40	29.8	38.918811	-76.947651	
		New York Ave Exit onto South Dakota North	West(-)	1	40	34.2	38.918688	-76.946961	
		New York Ave Exit onto South Dakota North	West(-)	1	40	29.9	38.918559	-76.946201	
		New York Ave Exit onto South Dakota North	West(-)	1	40	24.9	38.918986	-76.954134	
		New York Ave Exit onto South Dakota North	West(-)	1	38	21.5	38.918844	-76.954806	
		New York Ave Exit onto South Dakota North	West(-)	1	35	48.4	38.919137	-76.956032	
		New York Ave Exit onto South Dakota North	West(-)	1	36	23.7	38.918888	-76.955444	
		New York Ave Main	West(-)	3	40	42.6	38.918743	-76.947520	
		New York Ave Main	West(-)	3	41	38.0	38.918594	-76.946607	
		New York Ave Main	West(-)	3	41	32.0	38.918480	-76.945905	
		New York Ave Main	West(-)	3	41	28.0	38.918368	-76.945215	
		New York Ave Main	West(-)	3	41	30.9	38.918171	-76.943719	
		New York Ave Main	West(-)	3	40	39.8	38.918255	-76.944476	
		South Dakota Ave Ramp onto New York North	South(-)	1	36	35.5	38.918518	-76.955366	
		South Dakota Ave Ramp onto New York North	South(-)	1	41	40.7	38.918635	-76.948137	
		South Dakota Ave Ramp onto New York North	South(-)	1	41	31.3	38.918763	-76.948923	
		South Dakota Ave Ramp onto New York North	South(-)	1	40	30.2	38.918846	-76.949626	
		South Dakota Ave Ramp onto New York North	South(-)	1	38	22.9	38.918712	-76.950310	
		South Dakota Ave Ramp onto New York North	South(-)	1	36	24.7	38.918401	-76.950810	
		South Dakota Ave Ramp onto New York North	South(-)	1	34	31.6	38.918092	-76.951250	
		South Dakota Ave Ramp onto New York North	South(-)	1	37	29.5	38.917805	-76.951810	
		South Dakota Ave Ramp onto New York North	South(-)	1	41	20.7	38.917705	-76.952524	
		South Dakota Ave Ramp onto New York North	South(-)	1	42	19.7	38.917743	-76.953397	
		South Dakota Ave Ramp onto New York North	South(-)	1	41	36.3	38.918502	-76.947351	
		South Dakota Ave Ramp onto New York North	South(-)	1	40	28.8	38.917808	-76.954092	
		South Dakota Ave Ramp onto New York North	South(-)	1	34	38.2	38.918908	-76.955943	
		South Dakota Ave Ramp onto New York North	South(-)	1	39	26.4	38.918263	-76.955009	
		South Dakota Ave Ramp onto New York North	South(-)	2	39	32.6	38.918168	-76.951130	
		South Dakota Ave Ramp onto New York North	South(-)	2	38	30.4	38.917822	-76.951678	
		South Dakota Ave Ramp onto New York North	South(-)	2	40	34.4	38.917672	-76.952407	
		South Dakota Ave Ramp onto New York North	South(-)	2	43	21.3	38.917703	-76.953260	
		South Dakota Ave Ramp onto New York North	South(-)	2	41	25.4	38.917743	-76.954047	
		South Dakota Ave Ramp onto New York North	South(-)	2	47	22.5	38.917995	-76.954851	
		South Dakota Ave Ramp onto New York North	South(-)	2	42	25.4	38.918438	-76.955300	
		South Dakota Ave Ramp onto New York North	South(-)	2	40	37.7	38.918843	-76.955898	

Location		Street	Direction	Lane	Speed	SN	Latitude	Longitude	Comments
Intersection Name	Quad								
Interstate-295 and Suitland Parkway	SE	Suitland Cloverleaf Ramp onto I-295 North	North(+)	1	25	34.7	38.862119	-76.998966	
		Suitland Cloverleaf Ramp onto I-295 North	North(+)	1	26	35.4	38.862430	-76.999750	
		Suitland Cloverleaf Ramp onto I-295 North	North(+)	1	24	36.0	38.862423	-76.998753	
		Suitland Cloverleaf Ramp onto I-295 North	North(+)	1	24	36.5	38.862767	-76.999602	
		Suitland Cloverleaf Ramp onto I-295 North	North(+)	1	25	38.2	38.862111	-76.999445	
		Suitland Cloverleaf Ramp onto I-295 North	North(+)	1	22	39.4	38.862661	-76.998918	
		Suitland Cloverleaf Ramp onto I-295 North	North(+)	1	28	42.7	38.863011	-76.998854	
		Suitland Ramp onto I-295 North	North(+)	2	40	27.2	38.865076	-76.992375	
		Suitland Ramp onto I-295 North	North(+)	2	41	27.6	38.865507	-76.991917	
		Suitland Ramp onto I-295 North	North(+)	2	38	28.0	38.863615	-76.994726	
		Suitland Ramp onto I-295 North	North(+)	2	42	28.7	38.863965	-76.994112	
		Suitland Ramp onto I-295 North	North(+)	2	41	30.0	38.865979	-76.991530	
		Suitland Ramp onto I-295 North	North(+)	2	32	30.4	38.863324	-76.995297	
		Suitland Ramp onto I-295 North	North(+)	2	42	37.5	38.864650	-76.992934	
		Suitland Ramp onto I-295 North	North(+)	2	14	47.3	38.863124	-76.995708	
		Suitland Ramp onto I-295 South	South(-)	1	26	44.8	38.863121	-76.999759	
		Suitland Ramp onto I-295 South	South(-)	1	27	35.2	38.862194	-77.001747	
		Suitland Ramp onto I-295 South	South(-)	1	24	37.0	38.864000	-77.001473	
		Suitland Ramp onto I-295 South	South(-)	1	31	42.1	38.861841	-77.002101	
		Suitland Ramp onto I-295 South	South(-)	1	26	43.9	38.863262	-77.001432	
		Suitland Ramp onto I-295 South	South(-)	1	24	44.2	38.862918	-77.001497	
		Suitland Ramp onto I-295 South	South(-)	1	24	44.4	38.862556	-77.001568	
		Suitland Ramp onto I-295 South	South(-)	1	25	44.4	38.864292	-77.001843	
		Suitland Ramp onto I-295 North	North(+)	1	42	27.6	38.864219	-76.993723	
		Suitland Ramp onto I-295 North	North(+)	1	40	31.0	38.863886	-76.994328	
		Suitland Ramp onto I-295 North	North(+)	1	37	32.0	38.863578	-76.994868	
		Suitland Ramp onto I-295 North	North(+)	1	29	37.6	38.863316	-76.995386	
		Suitland Ramp onto I-295 North	North(+)	1	23	47.5	38.863115	-76.995836	
		Suitland Pky Main	West	2	40	24.8	38.862475	-76.997813	
		Suitland Pky Main	West	2	39	29.8	38.862747	-76.998455	
		Suitland Pky Main	West	2	46	45.6	38.863073	-76.999307	
		Suitland Pky Main	East	2	42	18.5	38.863089	-76.999676	
		Suitland Pky Main	East	2	41	18.5	38.863435	-77.000339	
		Suitland Pky Main	East	2	40	20.9	38.864090	-77.001560	
		Suitland Pky Main	East	2	41	23.0	38.863762	-77.000914	
		Suitland Pky Main	East	2	47	34.2	38.862834	-76.999264	
		Suitland Pky Main	East	2	38	40.2	38.864439	-77.002032	
		Suitland Pky Main	East	2	14	50.0	38.862609	-76.998568	

APPENDIX B

SUMMARY OF
SKID RESISTANCE TEST INFORMATION
BY
INDIVIDUAL TEST LOCATION

Bladensburg Road and New York Ave, NE

Skid resistance testing was performed on the intersection of Bladensburg Road and New York Avenue the night of July 24, 2009. This is a major intersection of two multi-lane roadways. Figures B1 & B2 are photographs that show the intersection from two angles. Table B1shows the number of test results that occurred in each of the designated SN ranges. Figure B3 shows the percentage distribution of test results by SN range at this location. None of the test results had an SN<26 and 95.8% of the tests had an SN>=33. Figure B4 is an aerial image of the intersection showing a color coded dot which represents the start point of each skid test.

Figure B1. Taken on Bladensburg Road facing east, this photo shows the intersection with New York Ave.

Figure B2. This photo was taken on New York Ave. generally facing north and shows the intersection with Bladensburg Road.

Table B1 Distribution of Test Results by SN Range, Count

Bladensburg Rd and NY Ave			
SN Values			
<26	26-33	33-40	>40
	1	11	12

Figure B3 Distribution of Test Results by SN Range, Percentage

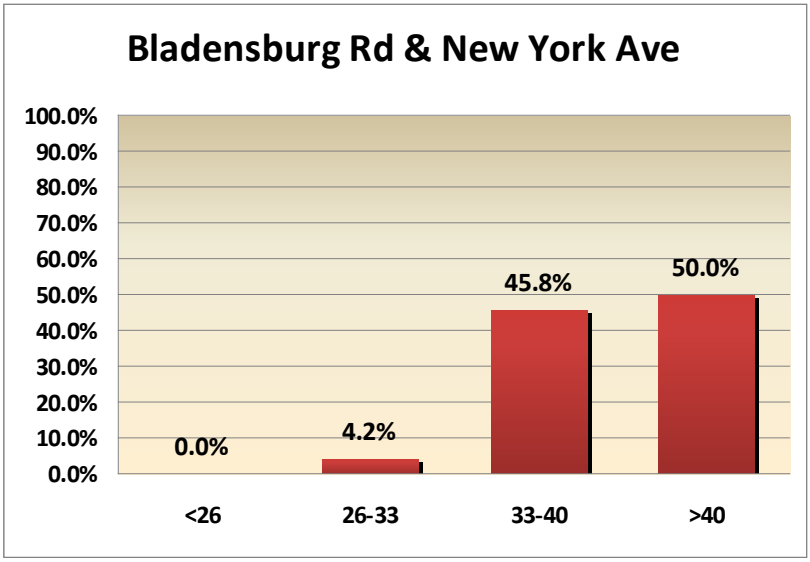
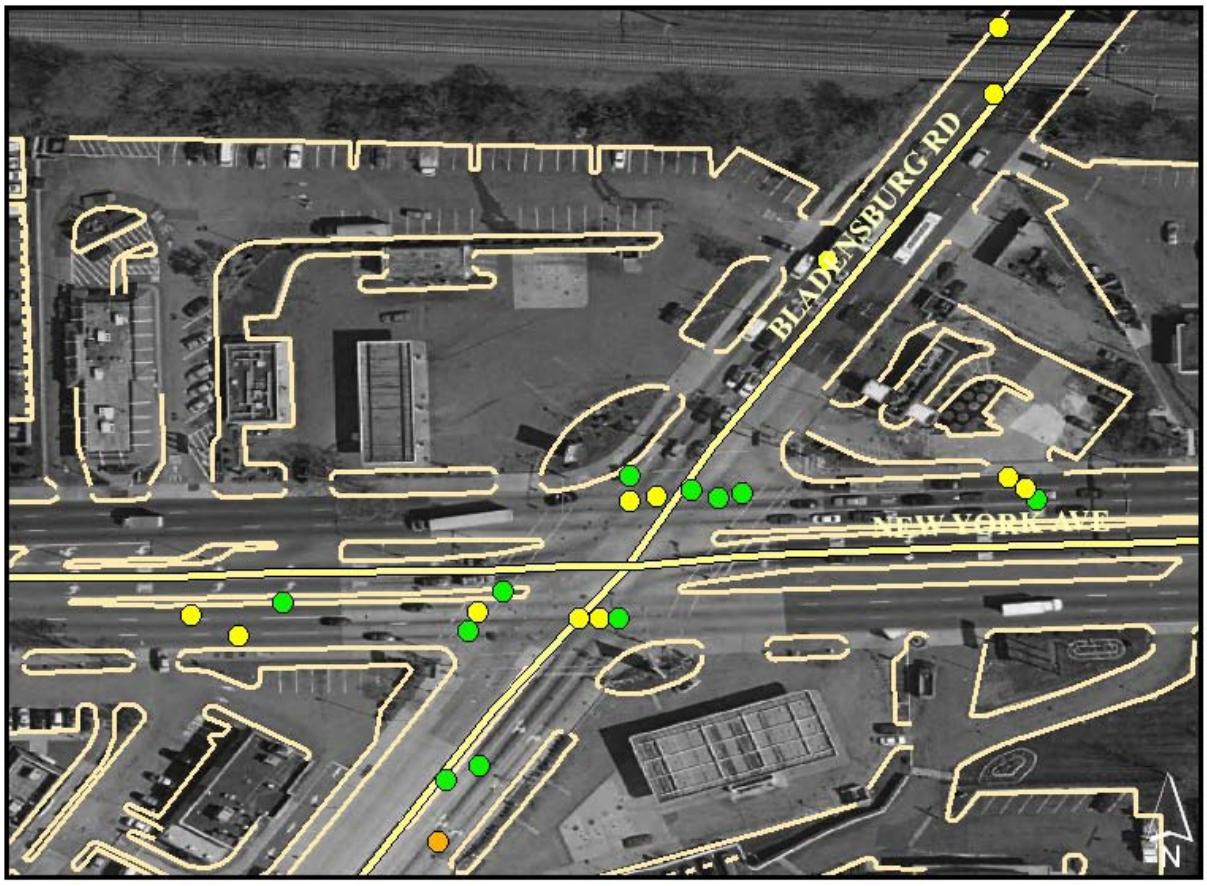


Figure B4 Aerial image of the test location color coded by SN Range.



Firth Sterling Ave and Suitland Parkway, SE

Skid resistance testing was performed on the intersection of Firth Sterling Ave and Suitland Parkway the night of July 25, 2009. Table B2 shows the number of test results that occurred in each of the designated SN ranges. Figure B7 shows the percentage distribution of test results by SN range at this location. None of the test results had an SN<26 and 83.3% of the tests had an SN>=33. Figure B8 is an aerial image of the intersection showing a color coded dot which represents the start point of each skid test.

Figure B5. Taken along Firth Sterling Ave facing generally west, this photo shows the intersection with the Suitland Parkway. It also shows the railroad crossing adjacent to the intersection.

Figure B6. Taken from the shoulder of northbound I-295 this photo provides an overview of the intersection of Suitland Parkway and Firth Sterling Ave.

Table B2. Distribution of Test Results by SN Range, Count

Firth Sterling Ave. & Suitland Parkway			
SN Values			
<26	26-33	33-40	>40
	2	10	

Figure B7 Distribution of Test Results by SN Range, Percentage

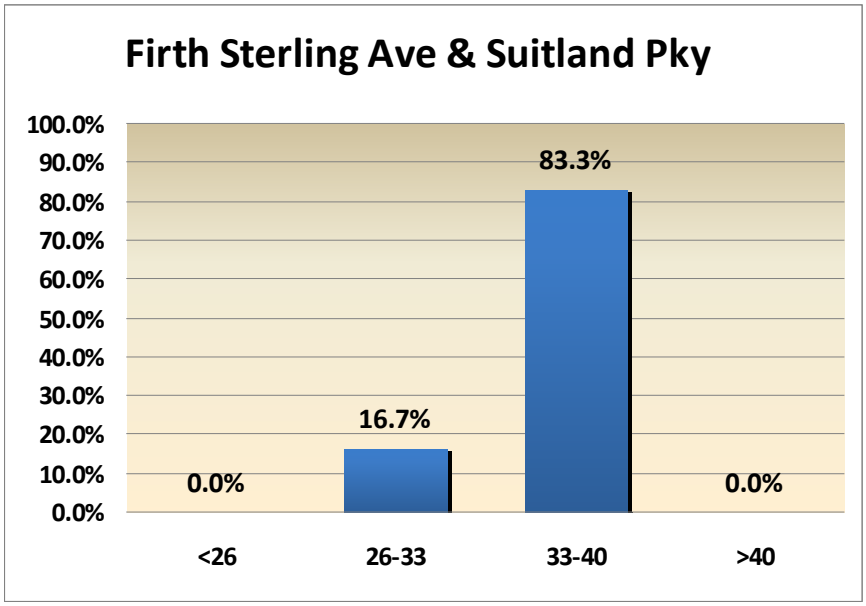
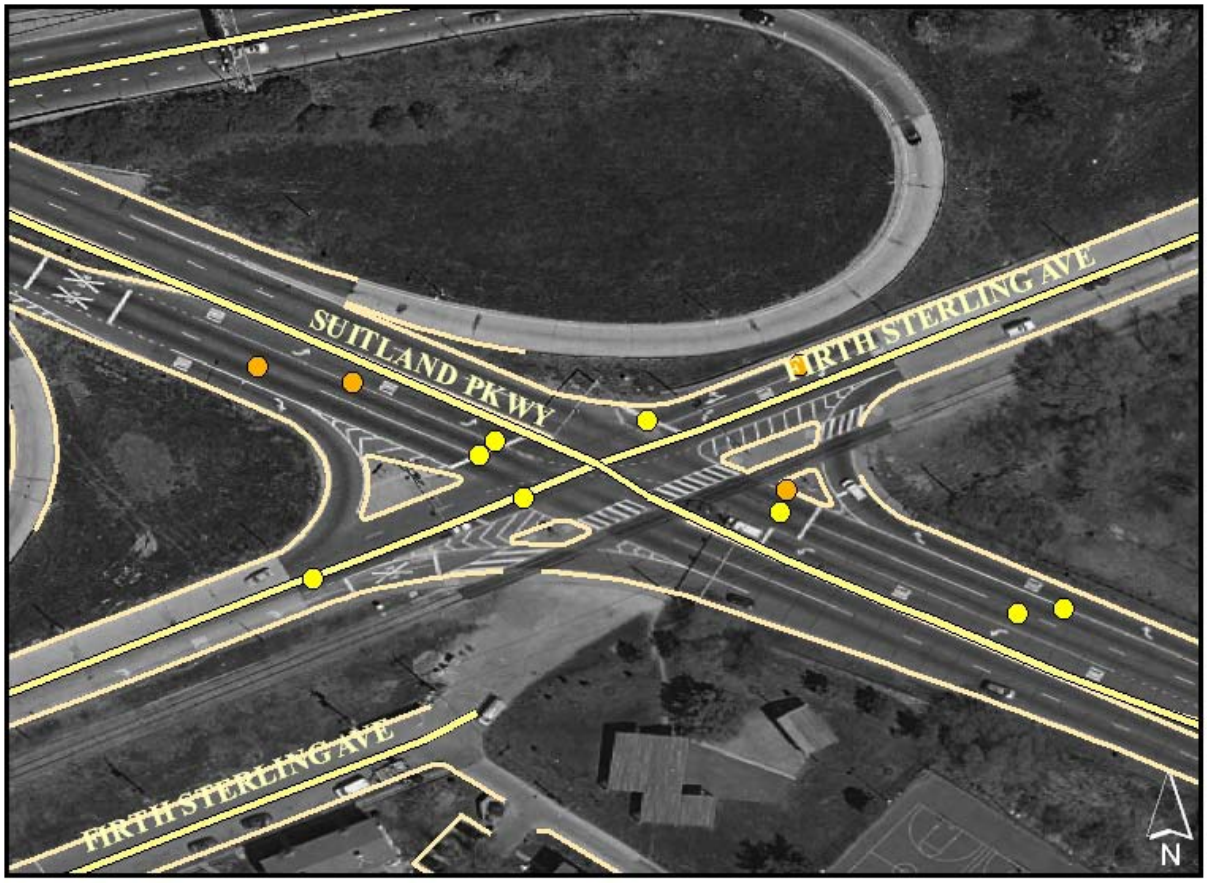


Figure B8 Aerial image of the test location color coded by SN Range.



2nd St and H St, NW

Skid resistance testing was performed on the intersection of 2nd Street & H Street the night of July 26, 2009. 2nd Street is a one-way street northbound and H Street is a multi-lane roadway. Figures B9 & B10 are photographs that show the intersection from two angles. Table B3 shows the number of test results that occurred in each of the designated SN ranges. Figure B11 shows the percentage distribution of test results by SN range at this location. This location had one test with an SN<26, which was located on 2nd Street. Overall, 71.5% of the tests had an SN>=33. Figure B12 is an aerial image of the intersection showing a color coded dot which represents the start point of each skid test.

Figure B9 Taken on H Street facing east, this photo shows the intersection with 2nd Street and a "One Way" sign for 2nd Street.

Figure B10 This photo was taken along 2nd Street facing north and shows the intersection with H Street.

Table B3. Distribution of Test Results by SN Range, Count

2nd St & H St			
SN Values			
<26	26-33	33-40	>40
1	3	4	6

Figure B11 Distribution of Test Results by SN Range, Percentage

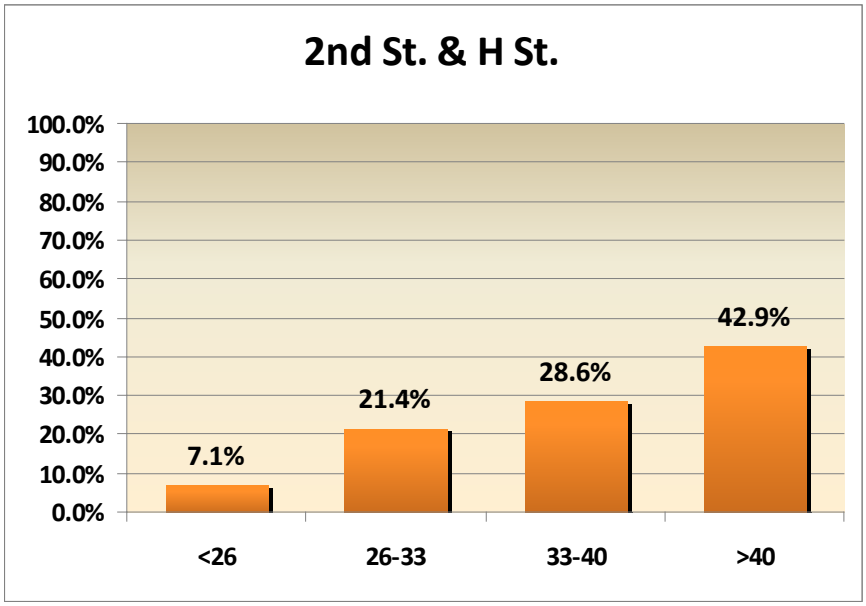


Figure B12 Aerial image of the test location color coded by SN Range.

4th St and Rhode Island Ave, NE

Skid resistance testing was performed on the intersection of 4th Street & Rhode Island Ave the night of July 22, 2009. Figures B13 & B14 are photographs that show the intersection from two angles. Table B4 shows the number of test results that occurred in each of the designated SN ranges. Figure B15 shows the percentage distribution of test results by SN range at this location. This location had one test with an SN<26, which was located on southbound 4th Street. Overall, 91.6% of the tests had an SN>=33. Figure B16 is an aerial image of the intersection showing a color coded dot which represents the start point of each skid test.

Figure B13. This photo shows the intersection of 4th & Rhode Island Ave, as seen from 4th Street facing south.

Figure B14. This photo shows the intersection of 4th and Rhode Island Ave, as seen from the Rhode Island Ave median facing west.

Table B4. Distribution of Test Results by SN Range, Count

4th ST & RI Ave			
SN Values			
<26	26-33	33-40	>40
1	0	7	4

Figure B15 Distribution of Test Results by SN Range, Percentage

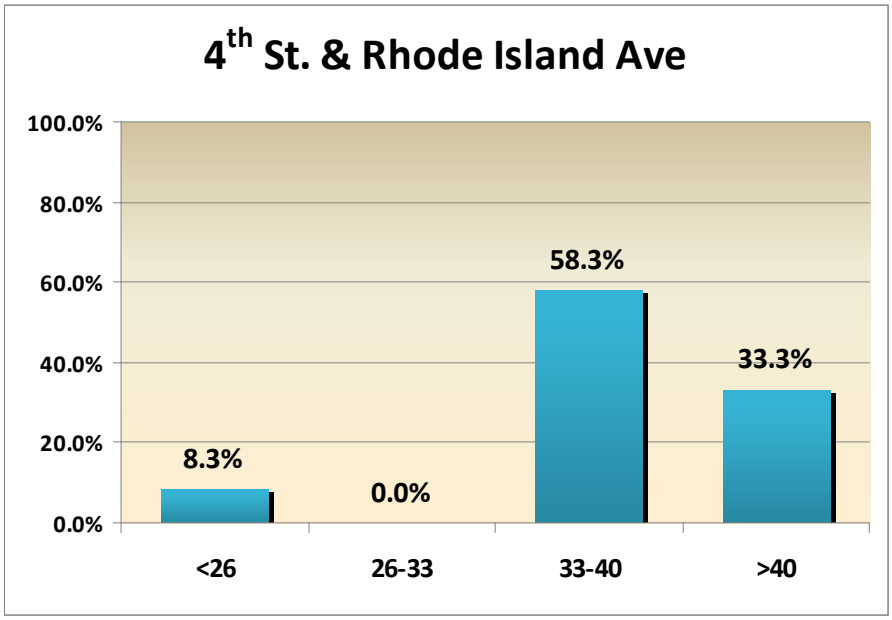


Figure B16 Aerial image of the test location color coded by SN Range.

13th St and Michigan Ave, NE

Skid resistance testing was performed on the intersection of 13th Street & Michigan Ave the night of July 22, 2009. Figures B17 & B18 are photographs that show the intersection from two angles. Taylor Street also intersects at this location. It was tested along with 13th St and Michigan Ave. Table B5 shows the number of test results that occurred in each of the designated SN ranges. Figure B19 shows the percentage distribution of test results by SN range at this location. None of the test results from this location were less than a 26. Overall, 93.8% of the tests had an SN>=33. Figure B20 is an aerial image of the intersection showing a color coded dot which represents the start point of each skid test.

Figure B17. This photo shows the intersection of 13th & Michigan Ave, as seen from Michigan Ave facing northeast.

Figure B18. This photo shows the intersection as seen from 13th Street facing north.

Table B5. Distribution of Test Results by SN Range, Count

13th St & MI Ave.			
SN Values			
<26	26-33	33-40	>40
0	1	12	3

Figure B19 Distribution of Test Results by SN Range, Percentage

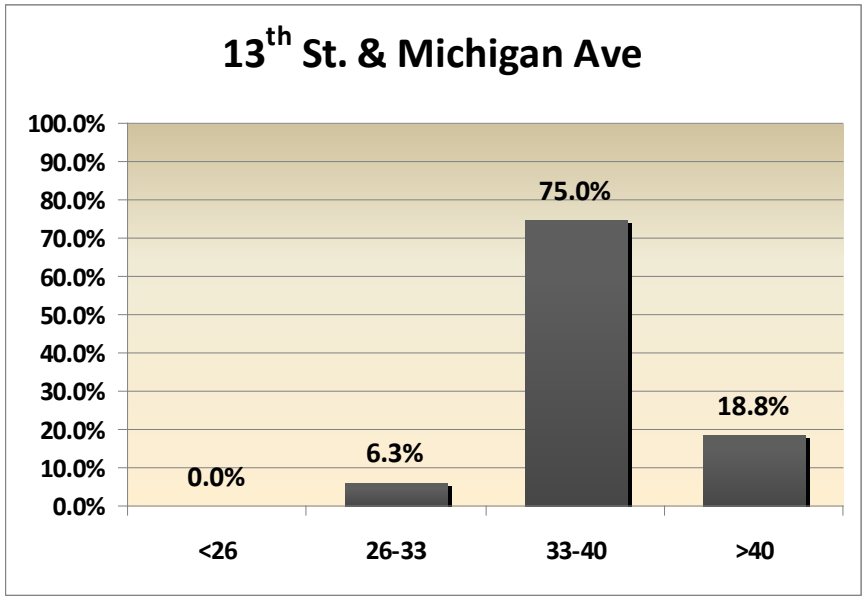


Figure B20 Aerial image of the test location color coded by SN Range.

New York Ave and South Dakota Ave, NE

Skid resistance testing was performed on the intersection of New York Ave & South Dakota Ave the night of July 27, 2009. Figures B21 & B22 are photographs that show the intersection from two angles. Table B6 shows the number of test results that occurred in each of the designated SN ranges. Figure B23 shows the percentage distribution of test results by SN range at this location. The test results from this location included 17 tests with SN<26. These tests were primarily on the ramp from New York Ave west to South Dakota Ave, and the ramp from South Dakota Ave to New York Ave east. Overall, 47.2% of the tests had an SN>=33. Figure B24 is an aerial image of the intersection showing a color coded dot which represents the start point of each skid test.

Figure B21. This photo shows the beginning of the off ramp to South Dakota Avenue from New York Ave facing west.

Figure B22. This photo shows the New York Ave & South Dakota Ave Interchange as seen from the median of South Dakota Ave looking east.

Table B6. Distribution of Test Results by SN Range, Count

NY Ave & SD Ave			
SN Values			
<26	26-33	33-40	>40
17	20	17	16

Figure B23 Distribution of Test Results by SN Range, Percentage

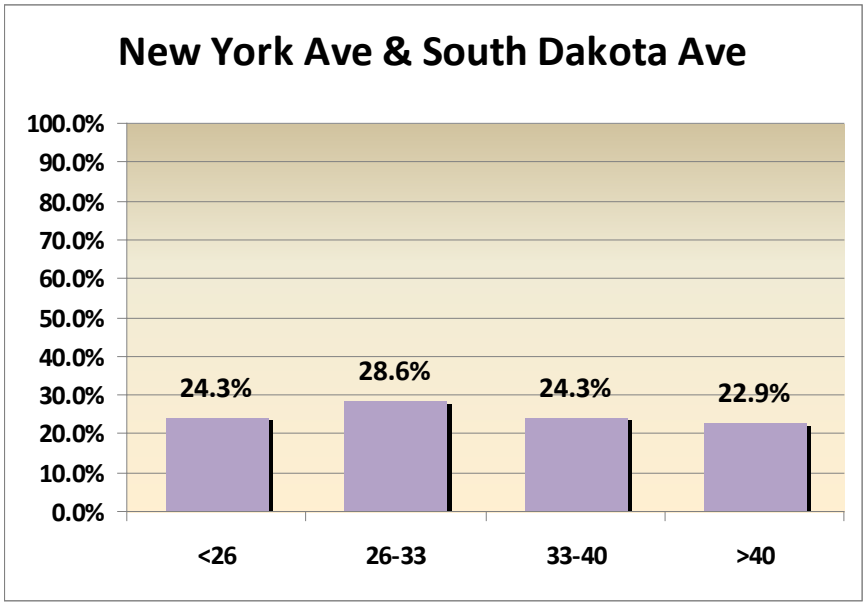
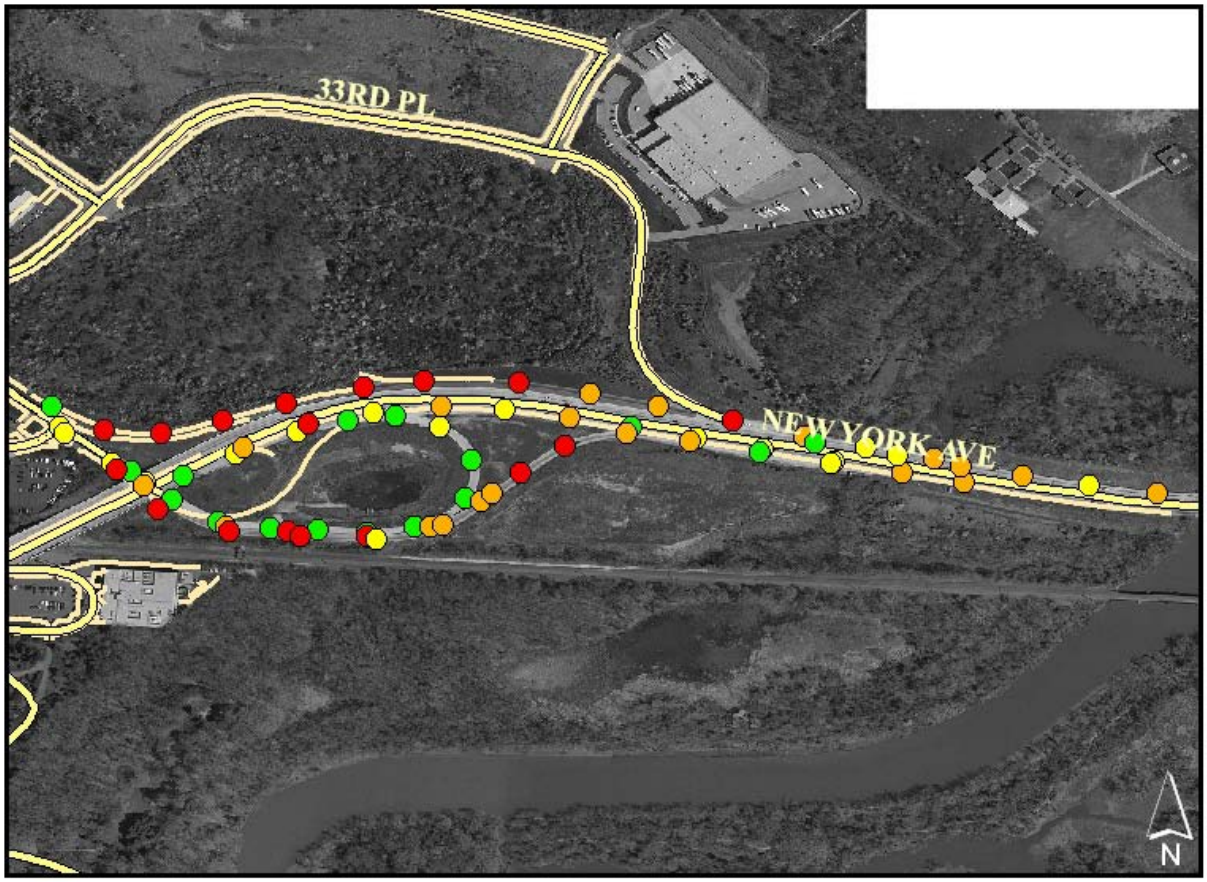


Figure B24 Aerial image of the test location color coded by SN Range.



Benning Rd and East Capitol St, BN

Skid resistance testing was performed on the intersection of Benning Road & East Capitol Street the night of July 25, 2009. Figures B25 & B26 are photographs that show the intersection from two angles. Table B7 shows the number of test results that occurred in each of the designated SN ranges. Figure B27 shows the percentage distribution of test results by SN range at this location. None of the test results from this location had an SN<26. Overall, 94.7% of the tests had an SN>=33. Figure B28 is an aerial image of the intersection showing a color coded dot which represents the start point of each skid test.

Figure B25. This photo shows the intersection from Benning Road facing south.

Figure B26. This photo shows the intersection as seen from the median of East Capitol Street facing east.

Table B7. Distribution of Test Results by SN Range, Count

Benning Rd & E. Capitol St.			
SN Values			
<26	26-33	33-40	>40
0	1	8	10

Figure B27 Distribution of Test Results by SN Range, Percentage

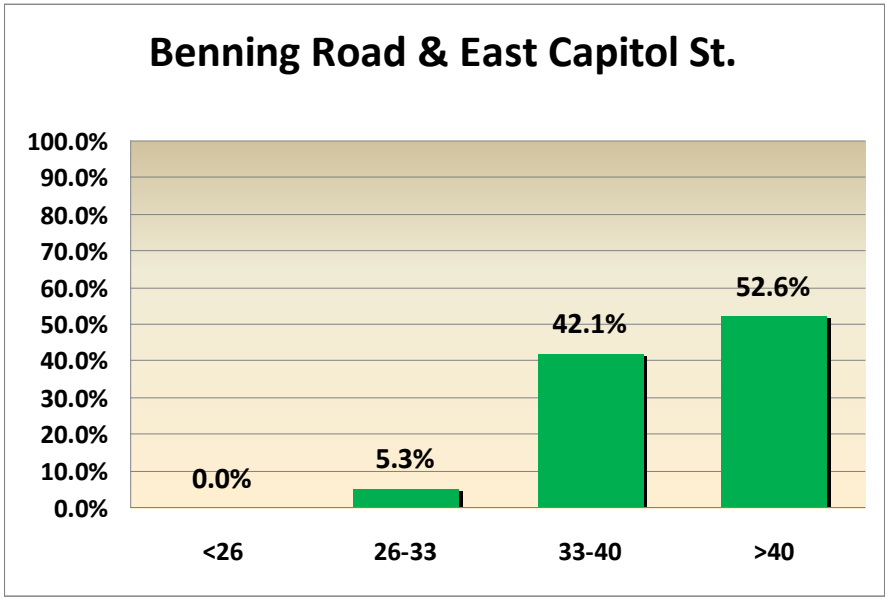
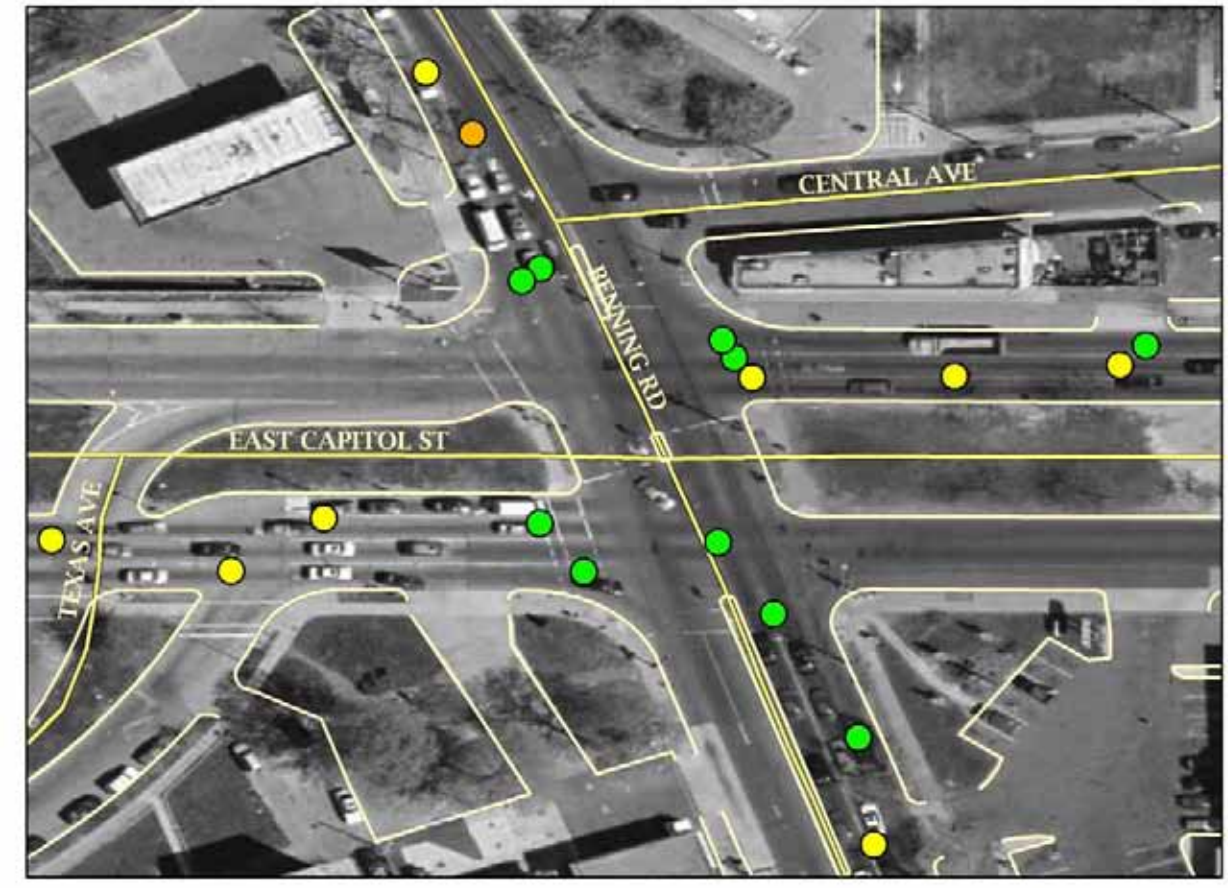


Figure B28 Aerial image of the test location color coded by SN Range.



I-295 and Suitland Parkway (Interchange), BN

Skid resistance testing was performed on the interchange of Interstate 295 and Suitland Parkway the night of July 25, 2009 and July 26, 2009. This is a major interchange consisting of Interstate 295 and all the ramps exiting I-295 leading to Suitland Parkway. Figures B29 & B30 are photographs that show the intersection from two angles. Table B8 shows the number of test results that occurred in each of the designated SN ranges. Figure B31 shows the percentage distribution of test results by SN range at this location. Four tests (7.3%) resulted in a SN<26 and 56.4% of the tests had an SN>=33. Two of the four tests with SN<26 were located on the I-295(N) mainline. One was located on the I-295 (S) cloverleaf exit onto Suitland east, and the final one was located on I-295 (S) mainline. Figure B32 is an aerial image of the intersection showing a color coded dot which represents the start point of each skid test.

Figure B29. This photo shows the interchange from I-295 NB.

Figure B30. Taken from the median of the Suitland Parkway facing east, this photo shows the I-295 Interchange.

Table B8. Distribution of Test Results by SN Range, Count

I-295 & Suitland Parkway (BN)			
SN Values			
<26	26-33	33-40	>40
4	20	15	16

Figure B31 Distribution of Test Results by SN Range, Percentage

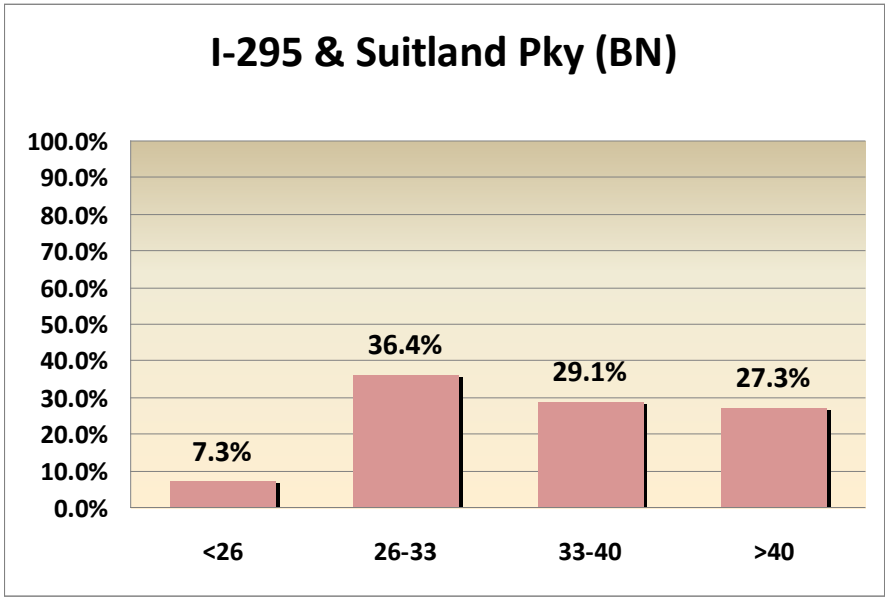
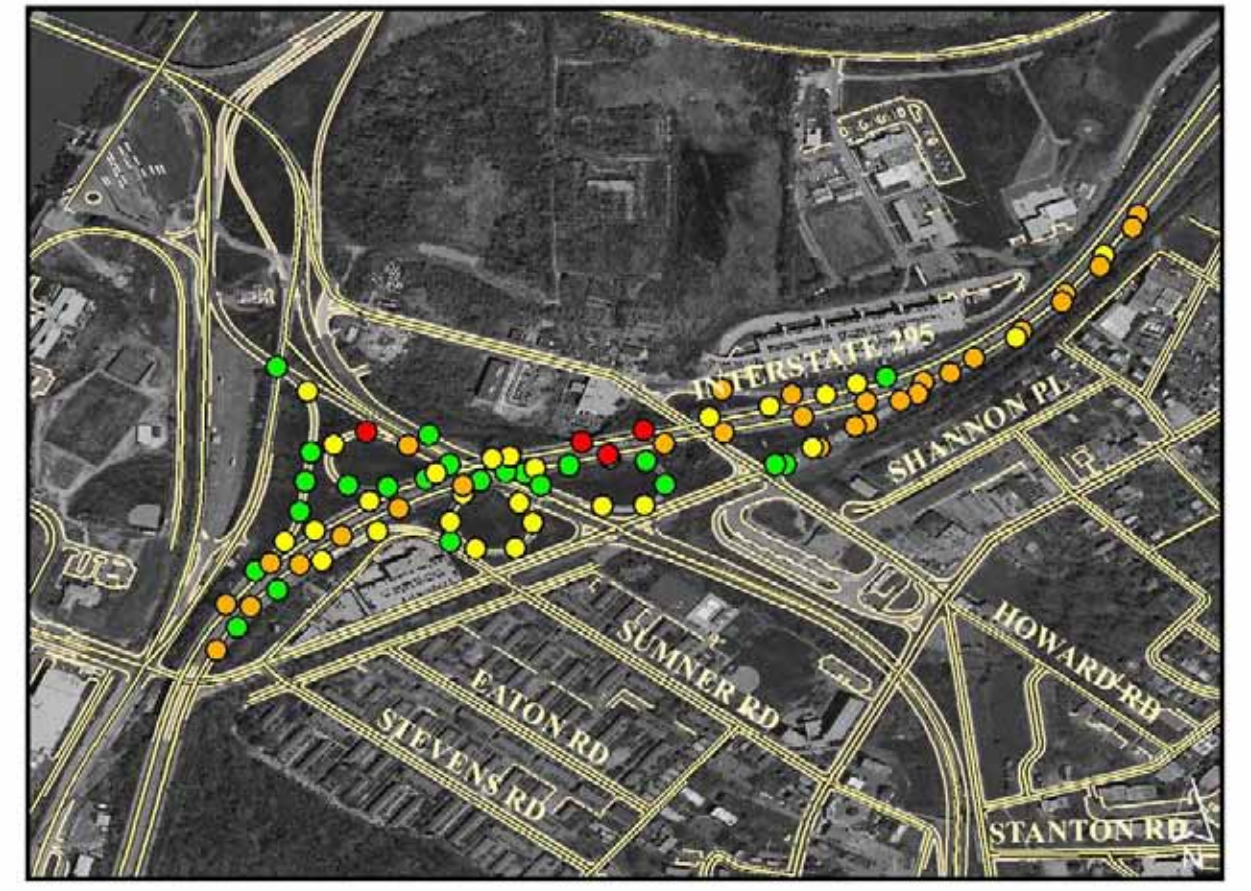


Figure B32 Aerial image of the test location color coded by SN Range.



H St and North Capitol St, BN

Skid resistance testing was performed on the intersection of H Street and North Capitol Street the night of July 25, 2009. This is a major intersection of two multi-lane roadways. Figures B33 & B34 are photographs that show the intersection from two angles. Table B9 shows the number of test results that occurred in each of the designated SN ranges. Figure B35 shows the percentage distribution of test results by SN range at this location. Four tests (22.2%) resulted in a SN<26 and 50.0% of the tests had an SN>=33. Two of the tests with SN<26 were located on eastbound H Street approaching N Capitol St. One each were also located on N Capitol Street approaching H Street from the north and south. Figure B36 is an aerial image of the intersection showing a color coded dot which represents the start point of each skid test.

Figure B33. This photo shows the intersection of H St & N Capitol St form H St facing east.

Figure B34. Taken from the median of N. Capitol Street facing north, this photo shows the intersection with H Street.

Table B9. Distribution of Test Results by SN Range, Count

H St & N. Capitol St.			
SN Values			
<26	26-33	33-40	>40
4	5	9	0

Figure B35 Distribution of Test Results by SN Range, Percentage

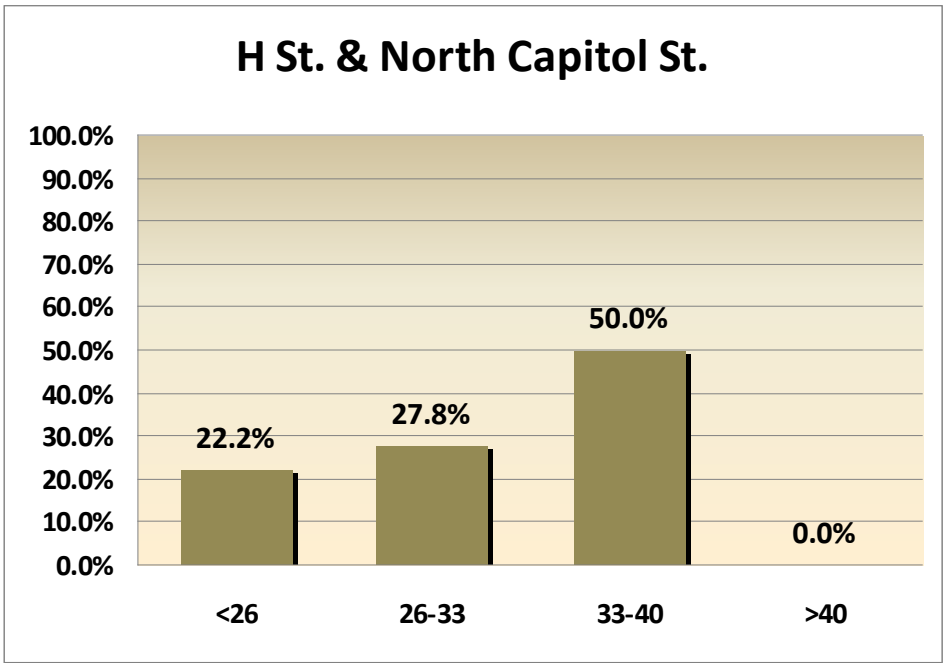
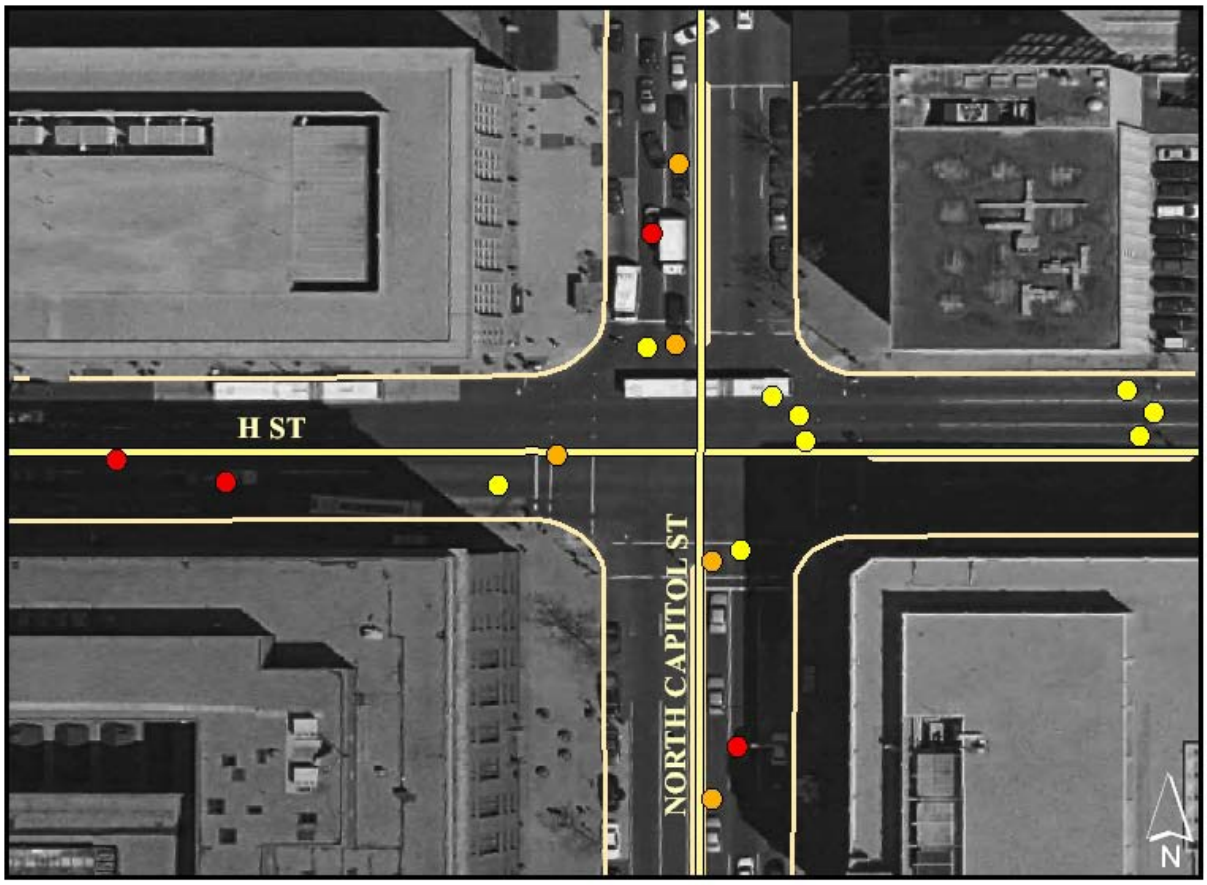


Figure B36 Aerial image of the test location color coded by SN Range.



Michigan Ave and North Capitol St, BN

Skid resistance testing was performed on the intersection of Michigan Avenue and North Capitol Street the night of July 23, 2009. This is a major intersection of two multi-lane roadways. Figures B37 & B38 are photographs that show the intersection from two angles. Table B10 shows the number of test results that occurred in each of the designated SN ranges. Figure B39 shows the percentage distribution of test results by SN range at this location. One test (5.6%) resulted in a SN<26 and 94.4% of the tests had an SN>=33. The only skid resistance test that yielded a SN<26 was located on northbound North Capitol Street. Figure B40 is an aerial image of the intersection showing a color coded dot which represents the start point of each skid test.

Figure B37. This photo shows the intersection of Michigan Ave & N Capitol St form Michigan Ave facing west.

Figure B38. Taken from N. Capitol Street facing north, this photo shows the intersection with Michigan Ave.

Table B10. Distribution of Test Results by SN Range, Count

MI Ave & N. Capitol St.			
SN Values			
<26	**26-33**	**33-40**	**>40**
1	0	8	9

Figure B39 Distribution of Test Results by SN Range, Percentage

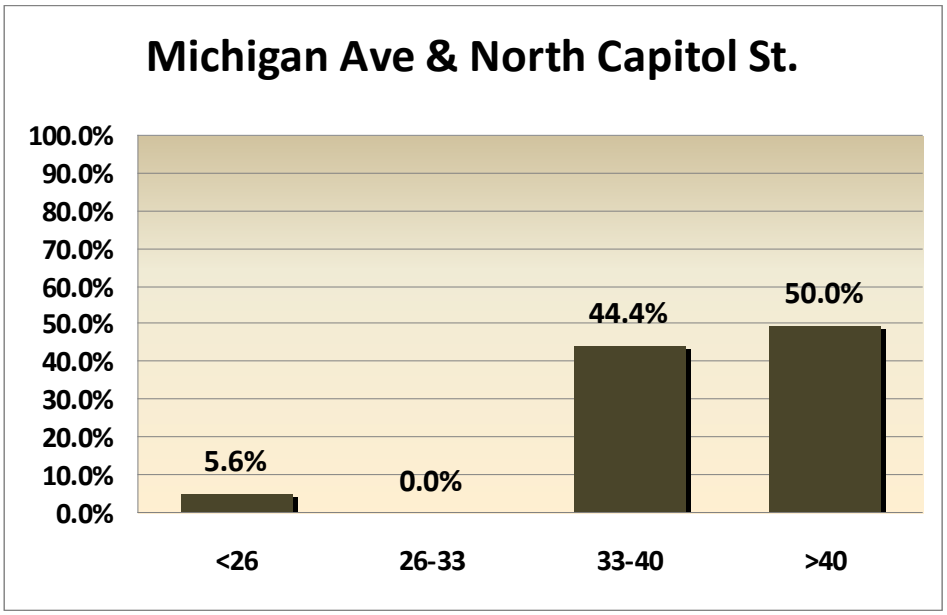


Figure B40 Aerial image of the test location color coded by SN Range.

16th St and Q St, NW

Skid resistance testing was performed on the intersection of 16th Street and Q Street the night of July 24, 2009. This is a major intersection of one multi-lane road (16th St) and a one-way road (Q St) traveling west to east. Figures B41 & B42 are photographs that show the intersection from two angles. Table B11 shows the number of test results that occurred in each of the designated SN ranges. Figure B43 shows the percentage distribution of test results by SN range at this location. None of the test results had an SN<26 and 66.7% of the tests had an SN>=33. Figure B44 is an aerial image of the intersection showing a color coded dot which represents the start point of each skid test.

Figure B41. This photo shows the intersection of 16th St & Q St form 16th St facing north and shows the "One Way" sign for Q St.

Figure B42. This photo shows the intersection of 16th St & Q St form Q St facing west.

Table B11. Distribution of Test Results by SN Range, Count

16th St & Q St			
SN Values			
<26	26-33	33-40	>40
0	2	4	0

Figure B43 Distribution of Test Results by SN Range, Percentage

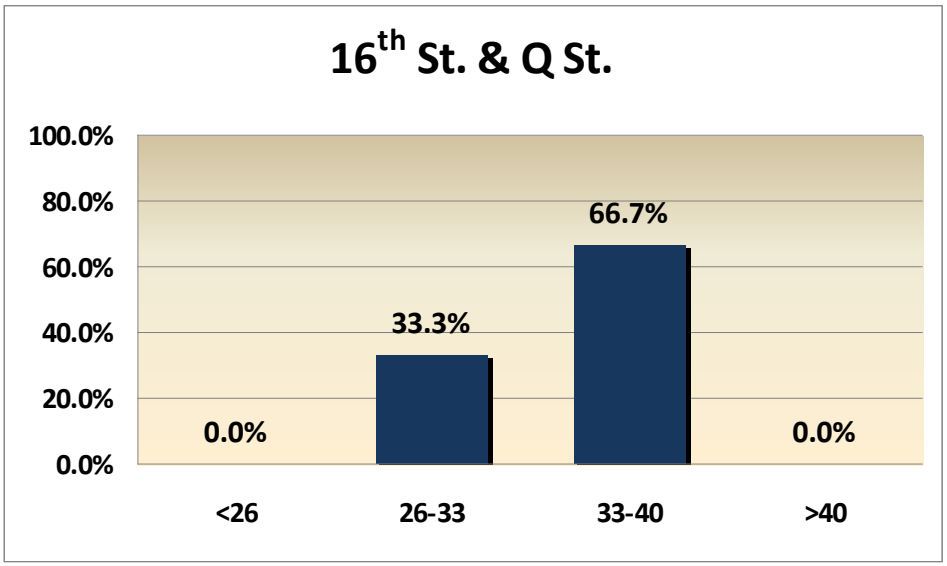


Figure B44 Aerial image of the test location color coded by SN Range.

Georgia Ave and Park Rd, NW

Skid resistance testing was performed on the intersection of Georgia Avenue and Park Road the night of July 23, 2009. Park Road is offset on each side of Georgia Avenue. Figures B45 & B46 are photographs that show the intersection from two angles. Table B12 shows the number of test results that occurred in each of the designated SN ranges. Figure B47 shows the percentage distribution of test results by SN range at this location. One test (8.3%) resulted in a SN<26 and 83.3% of the tests had an SN>=33. The only skid resistance test that yielded a SN below 26 was located on eastbound Park Road. Figure B48 is an aerial image of the intersection showing a color coded dot which represents the start point of each skid test.

Figure B45. This photo shows the intersection of Georgia Ave & Park Rd form Park Rd facing west.

Figure B46. This photo shows the intersection of Georgia Ave & Park Rd from Georgia Ave facing north.

Table B12. Distribution of Test Results by SN Range, Count

GA Ave & Park Rd			
SN Values			
<26	26-33	33-40	>40
1	1	7	3

Figure B47 Distribution of Test Results by SN Range, Percentage

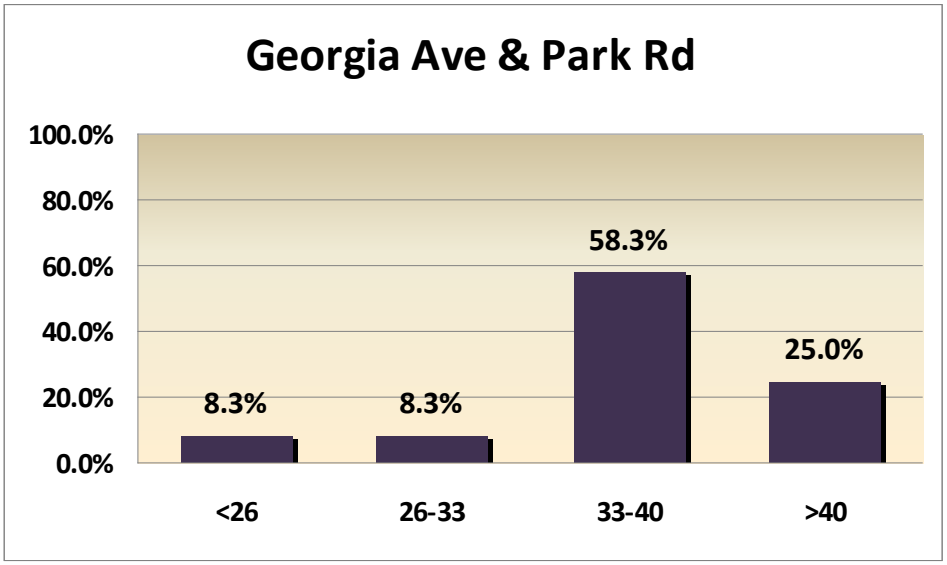


Figure B48 Aerial image of the test location color coded by SN Range.

Georgia Ave and Missouri Ave, NW

Skid resistance testing was performed on the intersection of Georgia Avenue and Missouri Avenue the night of July 22, 2009. This is a major intersection of two multi-lane roadways. Missouri Avenue is offset on each side of Georgia Avenue. Figures B51 & B50 are photographs that show the intersection from two angles. Table B13 shows the number of test results that occurred in each of the designated SN ranges. Figure B51 shows the percentage distribution of test results by SN range at this location. Two tests (12.5%) resulted in a SN<26 and 50.0% of the tests had an SN>=33. One of the skid resistance tests that yielded a SN of less than 26 was located on southbound Georgia Avenue and one was located on westbound Missouri Avenue. Figure B52 is an aerial image of the intersection showing a color coded dot which represents the start point of each skid test.

Figure B49. This photo shows the intersection of Georgia Ave & Missouri Ave as seen form Georgia Ave facing north.

Figure B50. This photo shows the intersection of Georgia Ave & Missouri Ave as seen form Missouri Ave facing west.

Table B13. Distribution of Test Results by SN Range, Count

GA Ave & MO Ave			
SN Values			
<26	26-33	33-40	>40
2	6	6	2

Figure B51 Distribution of Test Results by SN Range, Percentage

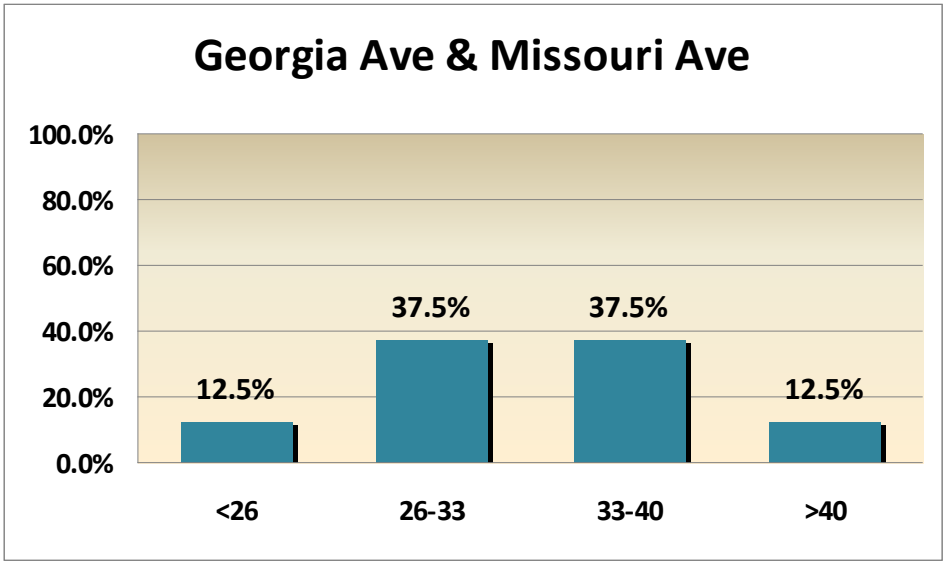


Figure B52 Aerial image of the test location color coded by SN Range.

Kenilworth Ave and Polk St, NE

Skid resistance testing was performed on the intersection of Kenilworth Avenue and Polk Street the night of July 26, 2009. This is a T intersection of a two-lane road (Polk St) and a one-way, one-lane, road (Kenilworth Ave). Figures B53 & B54 are photographs that show the intersection from two angles. Table B14 shows the number of test results that occurred in each of the designated SN ranges. Figure B55 shows the percentage distribution of test results by SN range at this location. None of the test results had an SN<26 and 100.0% of the tests had an SN>=33. Figure B56 is an aerial image of the intersection showing a color coded dot which represents the start point of each skid test.

Figure B53. This photo shows the intersection of Kenilworth Ave & Polk St as seen form Polk St facing west.

Figure B54. This photo shows the intersection of Kenilworth Ave & Polk St as seen form Kenilworth Ave facing north.

Table B14. Distribution of Test Results by SN Range, Count

Kenilworth Ave & Polk St.			
SN Values			
<26	26-33	33-40	>40
0	0	0	3

Figure B55 Distribution of Test Results by SN Range, Percentage

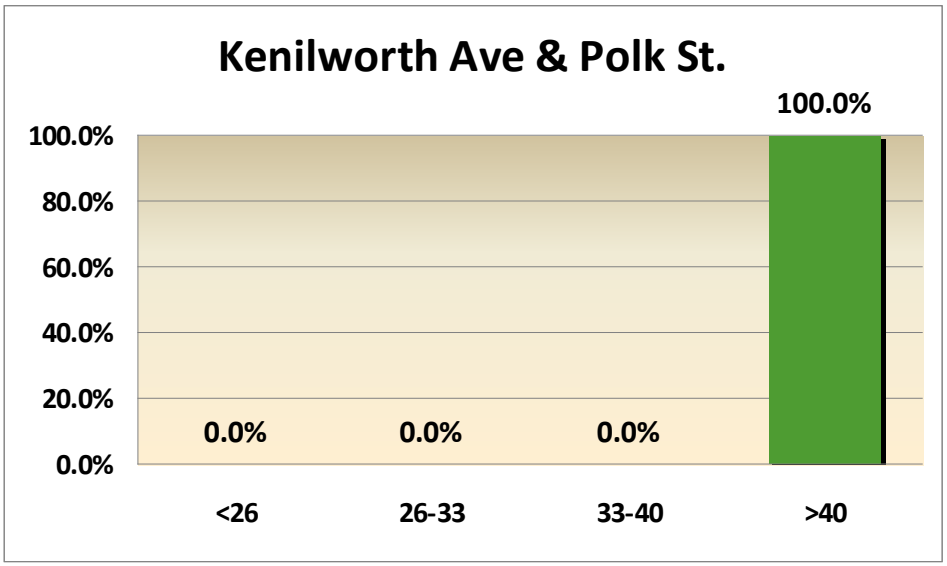


Figure B56 Aerial image of the test location color coded by SN Range.

I-295 and Suitland Parkway, SE

Skid resistance testing was performed on the interchange of Interstate 295 and Suitland Parkway the night of July 26, 2009. This is a major interchange consisting of Suitland Parkway and all the ramps exiting Suitland leading to Interstate 295. Figures B57 & B58 are photographs that show the intersection from two angles. Table B15 shows the number of test results that occurred in each of the designated SN ranges. Figure B59 shows the percentage distribution of test results by SN range at this location. Five tests (13.2%) resulted in an SN<26 and 60.5% of the tests had an SN>=33. Four of the tests that resulted in a SN<26 were located on the Suitland Parkway eastbound and one was located on the Suitland Parkway westbound. Figure B60 is an aerial image of the intersection showing a color coded dot which represents the start point of each skid test.

Figure B57. This photo shows the I-295 & Suitland Parkway Interchange as seen looking south along the northbound lanes of I-295.

Figure B58. This photo shows the I-295 & Suitland Parkway Interchange as seen from Suitland Parkway facing west.

Table B15. Distribution of Test Results by SN Range, Count

I-295 & Suitland Parkway (SE)			
SN Values			
<26	26-33	33-40	>40
5	10	11	12

Figure B59 Distribution of Test Results by SN Range, Percentage

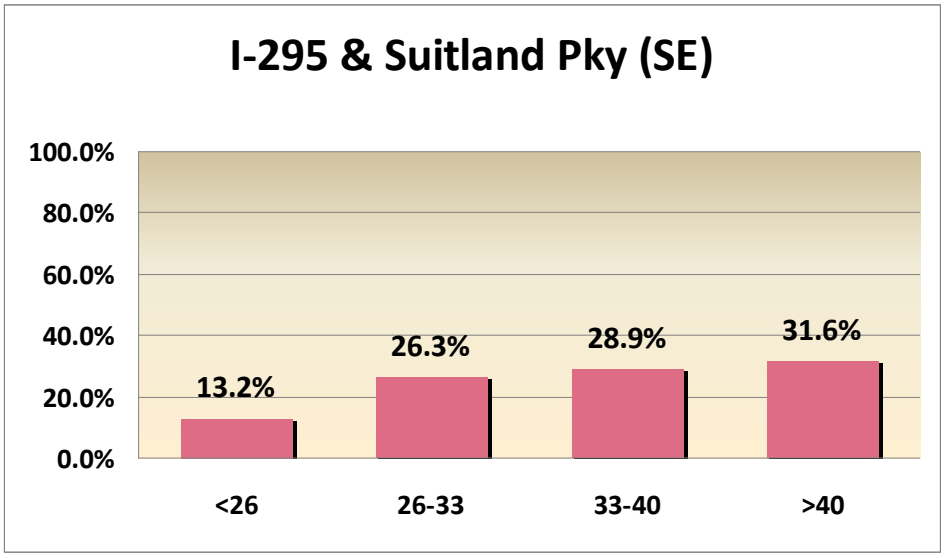


Figure B60 Aerial image of the test location color coded by SN Range.

M St and North Capitol St, BN

Skid resistance testing was performed on the intersection of M Street and North Capitol Street the night of July 25, 2009. M Street is a one way road that travels east across 6 lanes of North Capitol Street. Figures B61 & B62 are photographs that show the intersection from two angles. Table B16 shows the number of test results that occurred in each of the designated SN ranges. Figure B63 shows the percentage distribution of test results by SN range at this location. None of the test results had an SN<26 and 68.8% of the tests had an SN>=33. Figure B64 is an aerial image of the intersection showing a color coded dot which represents the start point of each skid test.

Figure B61. This photo shows the intersection of M St & N Capitol St as seen from M St facing east.

Figure B62. This photo shows the intersection of M St & N Capitol St as seen from N Capitol St facing north.

Table B16. Distribution of Test Results by SN Range, Count

M St & N. Capitol St.			
SN Values			
<26	26-33	33-40	>40
0	5	6	5

Figure B63 Distribution of Test Results by SN Range, Percentage

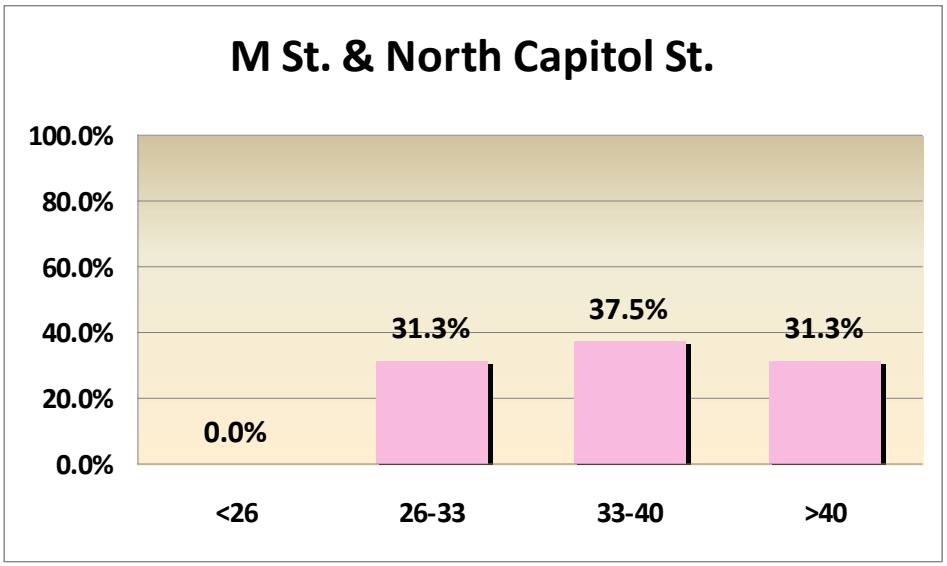
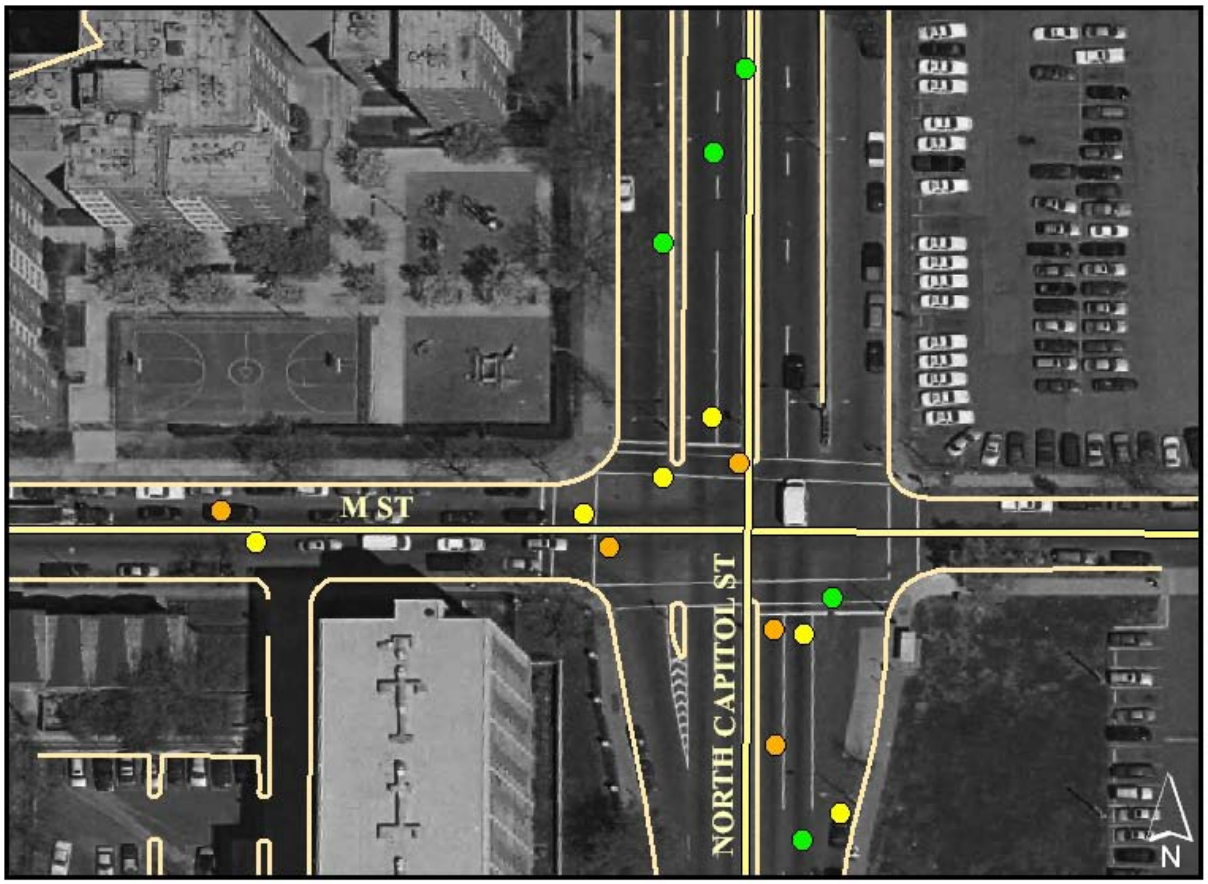


Figure B64 Aerial image of the test location color coded by SN Range.



New Hampshire Ave and North Capitol St, BN

Skid resistance testing was performed on the intersection of New Hampshire Avenue and North Capitol Street the night of July 22, 2009 and July 27, 2009. This is a major intersection of three multi-lane roadways including New Hampshire Avenue, North Capitol Street and Kennedy Street which were skid tested individually. Figures B65 & B66 are photographs that show the intersection from two angles. Table B17 shows the number of test results that occurred in each of the designated SN ranges. Figure B67 shows the percentage distribution of test results by SN range at this location. One test point had an SN<26 and 70.8% of the tests had an SN>=33. The only skid resistance test which yielded a SN below 26 was located on southbound New Hampshire Ave. Figure B68 is an aerial image of the intersection showing a color coded dot which represents the start point of each skid test.

Figure B65. This photo shows the intersection of New Hampshire Ave & N Capitol St as seen from New Hampshire Ave facing west.

Figure B66. This photo shows the intersection of New Hampshire Ave & N Capitol St as seen from N Capitol St facing north.

Table B17. Distribution of Test Results by SN Range, Count

NH Ave & N Capitol St.			
SN Values			
<26	26-33	33-40	>40
1	6	10	7

Figure B67 Distribution of Test Results by SN Range, Percentage

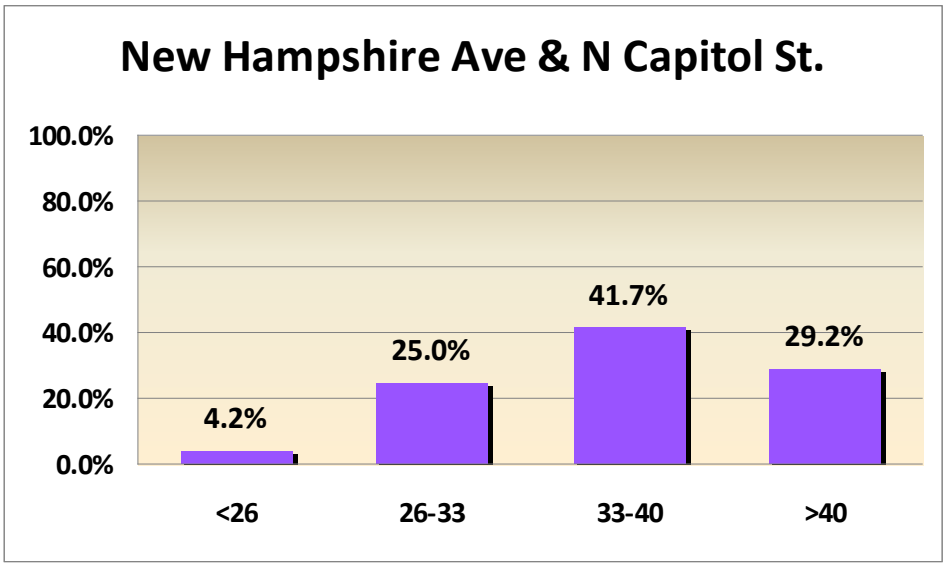


Figure B68 Aerial image of the test location color coded by SN Range.

1st St and P St, NW

Skid resistance testing was performed on the intersection of 1st Street and P Street the night of July 26, 2009. Figures B69 & B70 are photographs that show the intersection from two angles. Table B18 shows the number of test results that occurred in each of the designated SN ranges. Figure B71 shows the percentage distribution of test results by SN range at this location. None of the test results had an SN<26 and 87.5% of the tests had an SN>=33. Figure B72 is an aerial image of the intersection showing a color coded dot which represents the start point of each skid test.

Figure B69. This photo shows the intersection of 1st St & P St as seen from P St facing east.

Figure B70. This photo shows the intersection of 1st ST & P St as seen from 1st St facing south.

Table B18. Distribution of Test Results by SN Range, Count

1st St & P St			
SN Values			
<26	26-33	33-40	>40
0	1	6	1

Figure B71 Distribution of Test Results by SN Range, Percentage

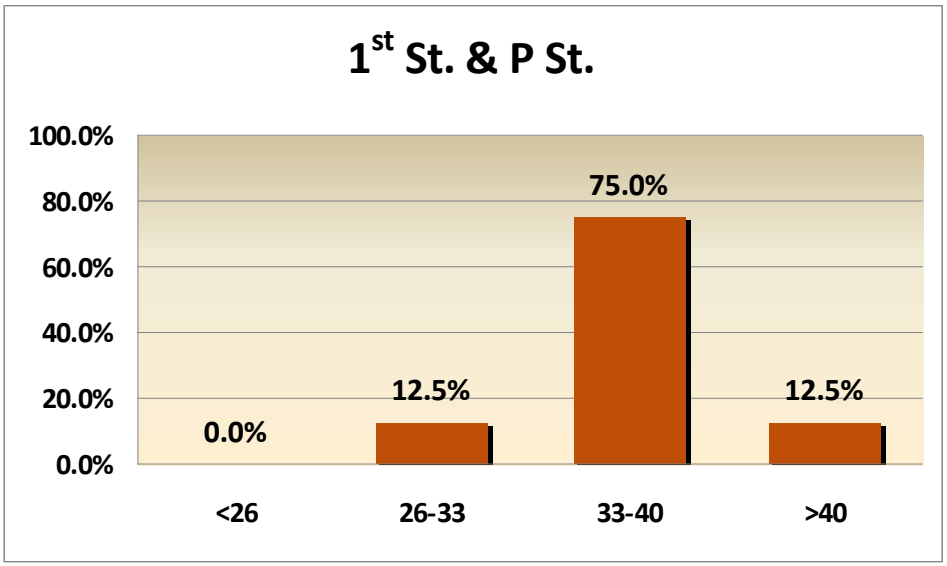


Figure B72 Aerial image of the test location color coded by SN Range.

3rd St and New York Ave, NW

Skid resistance testing was performed on the intersection of 3rd Street and New York Avenue the night of July 26, 2009. 3rd Street is a two lane, T-intersection which only allows right turns onto New York Ave. Figures B73 & B74 are photographs that show the intersection from two angles. Table B19 shows the number of test results that occurred in each of the designated SN ranges. Figure B75 shows the percentage distribution of test results by SN range at this location. None of the test results had an SN<26 and 70.0% of the tests had an SN>=33. Figure B76 is an aerial image of the intersection showing a color coded dot which represents the start point of each skid test.

Figure B73. This photo shows the intersection of 3rd St & New York Ave as seen from the corner of 3rd ST facing west.

Figure B74. This photo shows the intersection of 3rd St & New York Ave as seen from the south side of New York Ave facing west.

Table B19. Distribution of Test Results by SN Range, Count

3rd St & NY Ave			
SN Values			
<26	26-33	33-40	>40
0	3	2	5

Figure B75 Distribution of Test Results by SN Range, Percentage

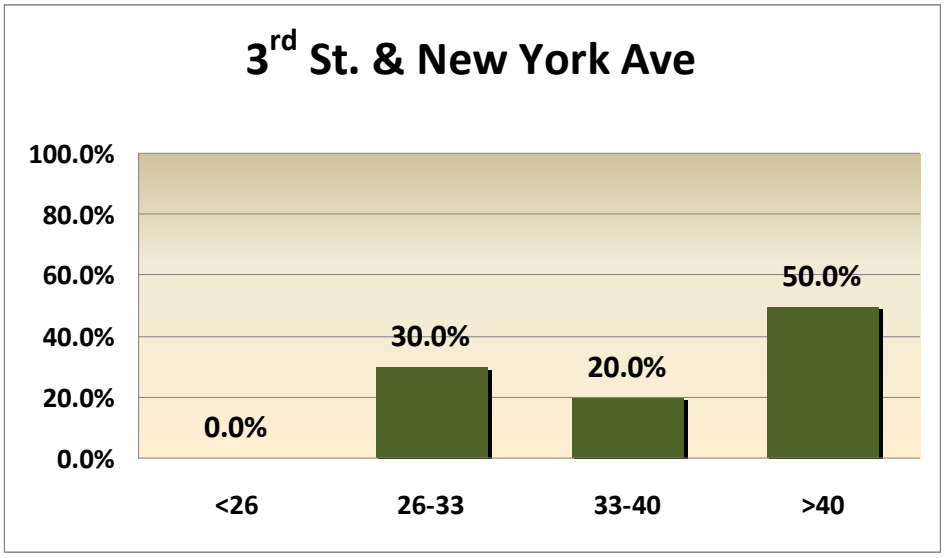


Figure B76 Aerial image of the test location color coded by SN Range.

6th St and New York Ave, NW

Skid resistance testing was performed on the intersection of 6th Street and New York Avenue the night of July 26, 2009. Figures B77 & B78 are photographs that show the intersection from two angles. Table B20 shows the number of test results that occurred in each of the designated SN ranges. Figure B79 shows the percentage distribution of test results by SN range at this location. Two tests (12.5%) resulted in an SN<26 and 50.0% of the tests had an SN>=33. The two tests with SN<26 are located on westbound, New York Ave. Figure B80 is an aerial image of the intersection showing a color coded dot which represents the start point of each skid test.

Figure B77. This photo shows the intersection of 6th St & New York Ave as seen from New York Ave facing east.

Figure B78. This photo shows the intersection of 6th St & New York Ave as seen from 6th ST facing south.

Table B20. Distribution of Test Results by SN Range, Count

6th St & NY Ave			
SN Values			
<26	26-33	33-40	>40
2	6	7	1

Figure B79 Distribution of Test Results by SN Range, Percentage

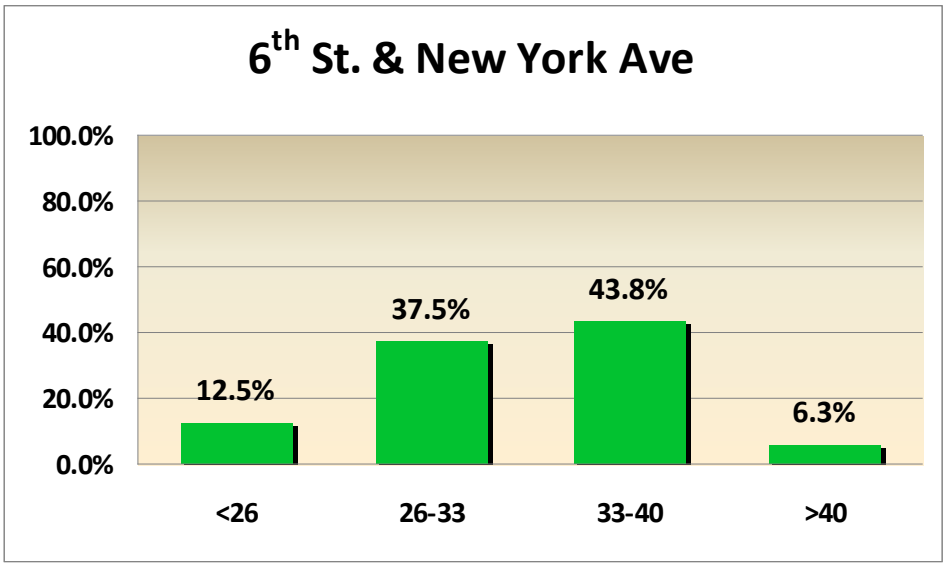


Figure B80 Aerial image of the test location color coded by SN Range.

16th St and Alaska Ave, NW

Skid resistance testing was performed on the intersection of 16th Street and Alaska Avenue the night of July 22, 2009. This is an angled T intersection. Figures B81 & B82 are photographs that show the intersection from two angles. Table B21 shows the number of test results that occurred in each of the designated SN ranges. Figure B83 shows the percentage distribution of test results by SN range at this location. None of the test results had an SN<26 and 100.0% of the tests had an SN>=33. Figure B84 is an aerial image of the intersection showing a color coded dot which represents the start point of each skid test.

Figure B81. This photo shows the intersection of 16th St & Alaska Ave as seen from 16th St facing south.

Figure B82. This photo shows the intersection of 16th St & Alaska Ave as seen from Alaska Ave facing southwest.

Table B21. Distribution of Test Results by SN Range, Count

16th St & AK Ave			
SN Values			
<26	26-33	33-40	>40
0	0	9	3

Figure B83 Distribution of Test Results by SN Range, Percentage

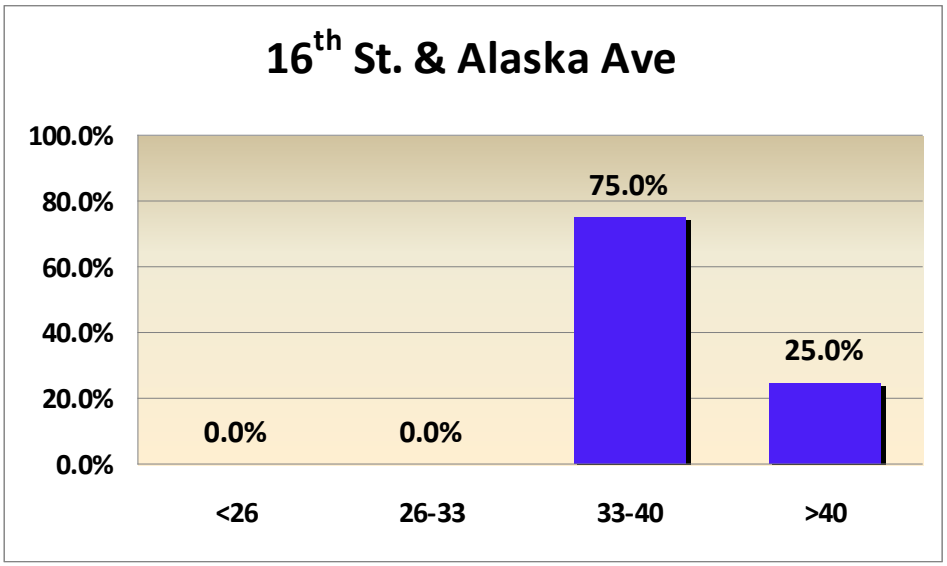
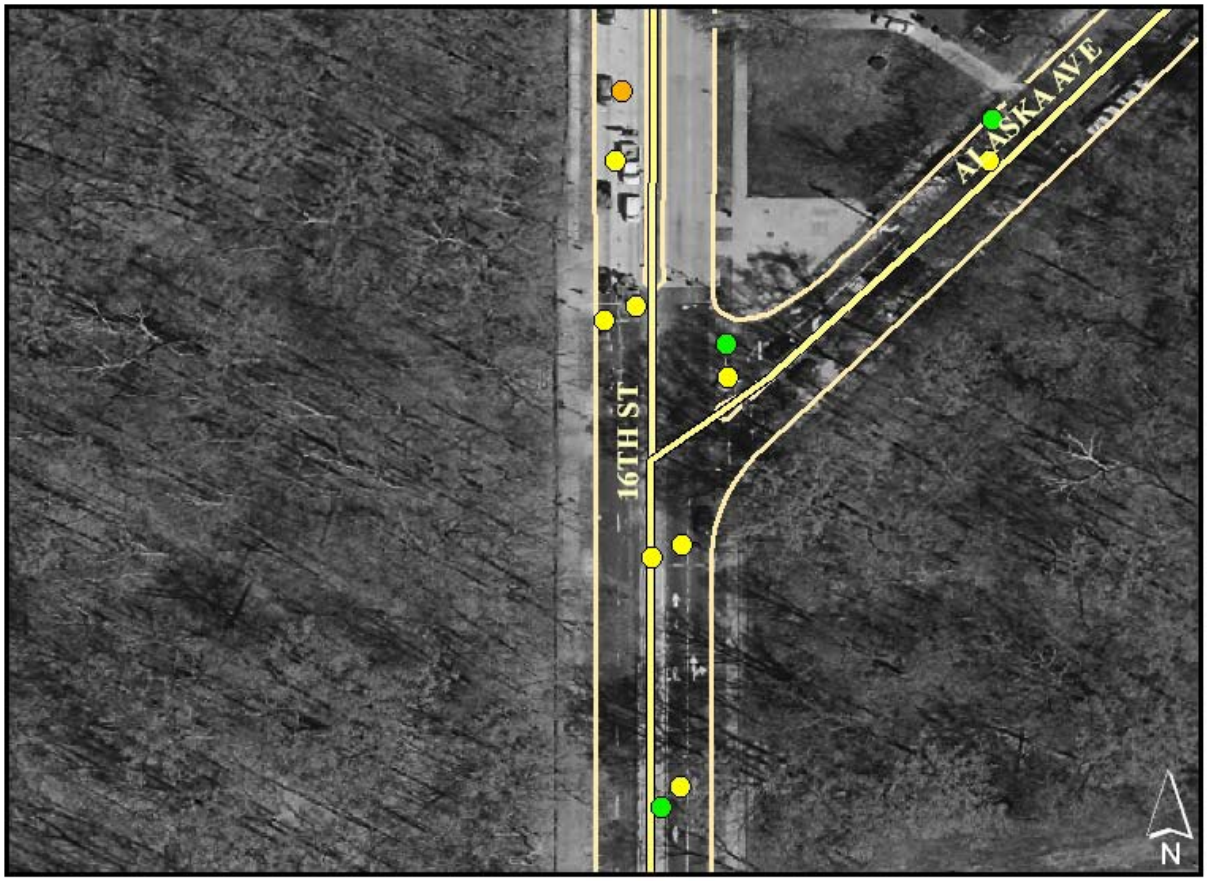


Figure B84 Aerial image of the test location color coded by SN Range.



Altamont Pl and Good Hope Rd, SE

Skid resistance testing was performed on the intersection of Altamont Place and Good Hope Road the night of July 25, 2009. This is a T intersection. Figures B85 & B86 are photographs that show the intersection from two angles. Table B22 shows the number of test results that occurred in each of the designated SN ranges. Figure B87 shows the percentage distribution of test results by SN range at this location. None of the test results had an SN<26 and 100.0% of the tests had an SN>=33. Figure B88 is an aerial image of the intersection showing a color coded dot which represents the start point of each skid test.

Figure B85. This photo shows the intersection of Good Hope Rd & Altamont Pl as seen from Good Hope Rd facing west.

Figure B86. This photo shows the intersection of Good Hope Rd & Altamont Pl as seen from Altamont Pl facing south.

Table B22. Distribution of Test Results by SN Range, Count

Altamont Pl & Good Hope Rd			
SN Values			
<26	26-33	33-40	>40
0	0	3	2

Figure B87 Distribution of Test Results by SN Range, Percentage

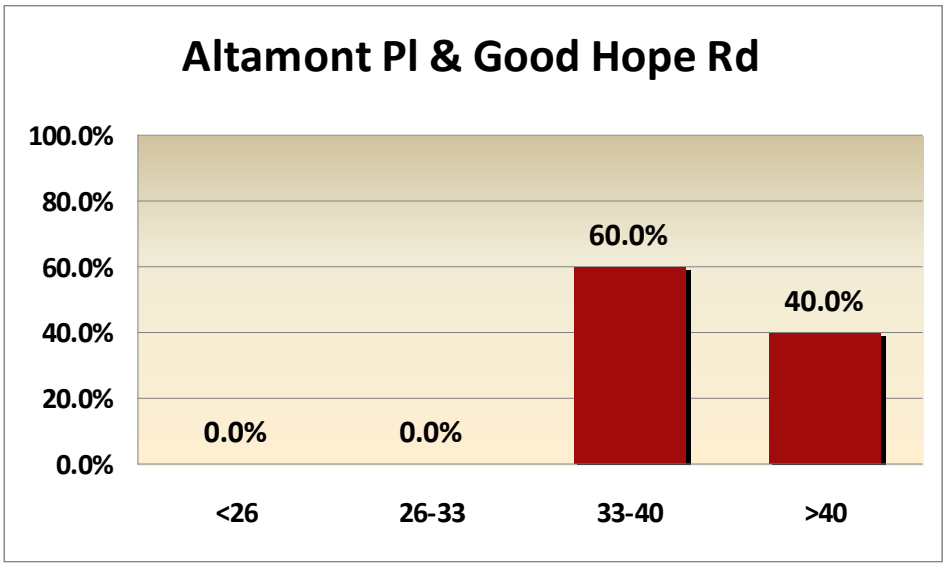


Figure B88 Aerial image of the test location color coded by SN Range.

15th St and G St, NW

Skid resistance testing was performed on the intersection of 15th Street and G Street the night of July 25, 2009. This is a T intersection of two multi-lane roadways. Figures B89 & B90 are photographs that show the intersection from two angles. Table B23 shows the number of test results that occurred in each of the designated SN ranges. Figure B91 shows the percentage distribution of test results by SN range at this location. None of the test results had an SN<26 and 90.9% of the tests had an SN>=33. Figure B92 is an aerial image of the intersection showing a color coded dot which represents the start point of each skid test.

Figure B89. This photo shows the intersection of 15th St & G St as seen from 15th St facing east down G St.

Figure B90. This photo shows the intersection of 15th St & G St as seen from 15th St facing south.

Table B23. Distribution of Test Results by SN Range, Count

15th St and G St			
SN Values			
<26	26-33	33-40	>40
0	1	8	2

Figure B91 Distribution of Test Results by SN Range, Percentage

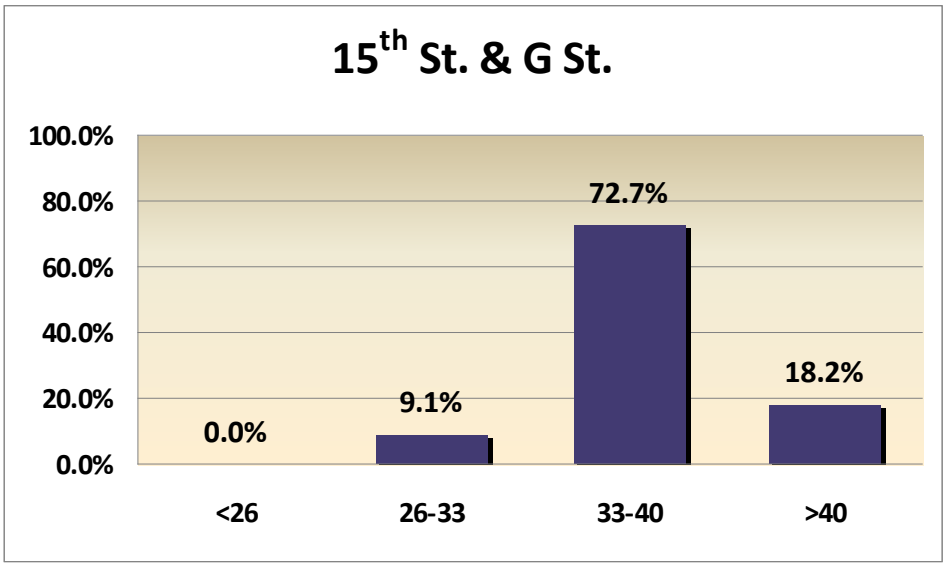
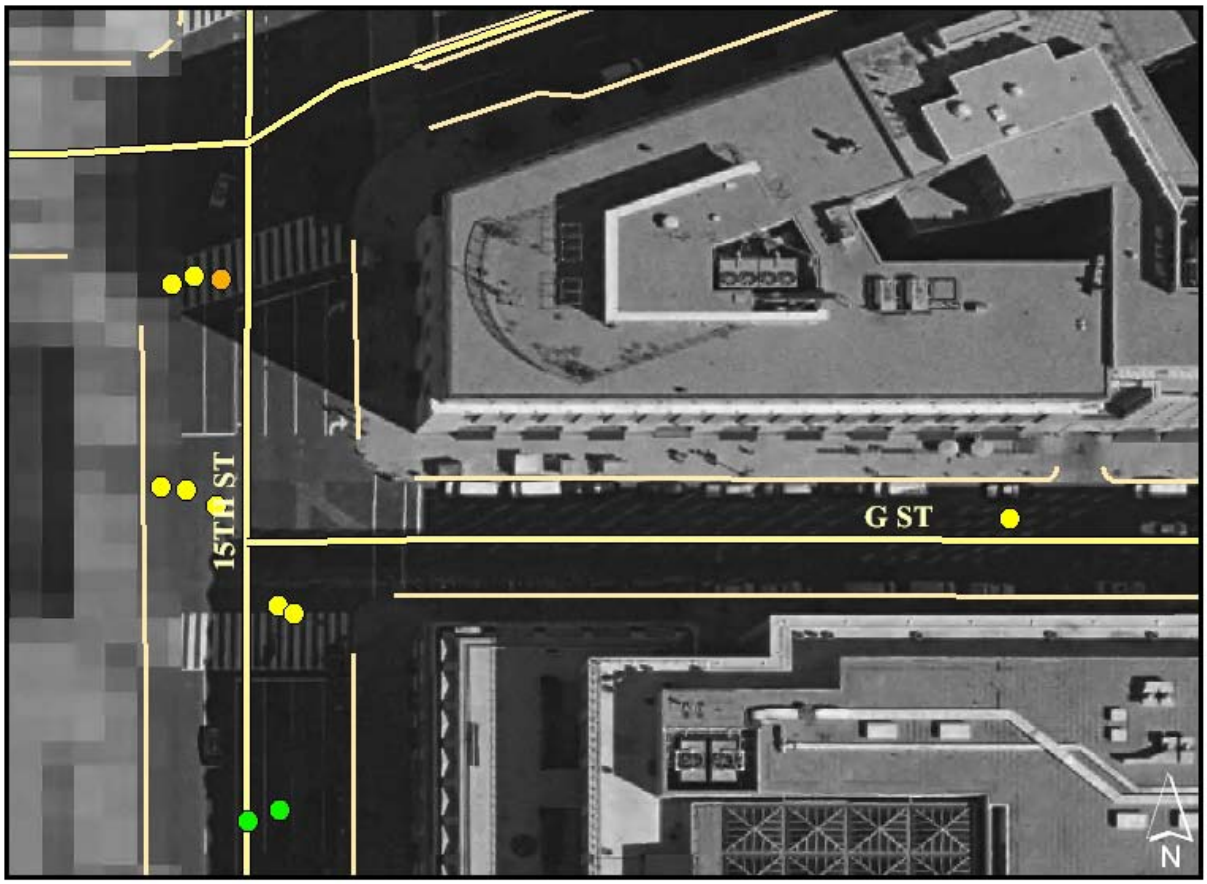


Figure B92 Aerial image of the test location color coded by SN Range.



16th St and L St, NW

Skid resistance testing was performed on the intersection of 16th Street and L Street the night of July 24, 2009. Figures B93 & B94 are photographs that show the intersection from two angles. Table B24 shows the number of test results that occurred in each of the designated SN ranges. Figure B96 shows the percentage distribution of test results by SN range at this location. Two tests (16.7%) resulted in an SN<26 and 41.7% of the tests had an SN>=33. One test with SN<26 was recorded on southbound 16th Street and the other on eastbound L Street. Figure B96 is an aerial image of the intersection showing a color coded dot which represents the start point of each skid test.

Figure B93. This photo shows the intersection of 16th St & L St as seen from L St facing east. L St is an eastbound, one way, street.

Figure B94. This photo shows the intersection of 16th St & L St as seen from 16th St facing south.

Table B24. Distribution of Test Results by SN Range, Count

16th St and L St			
SN Values			
<26	26-33	33-40	>40
2	5	5	0

Figure B95 Distribution of Test Results by SN Range, Percentage

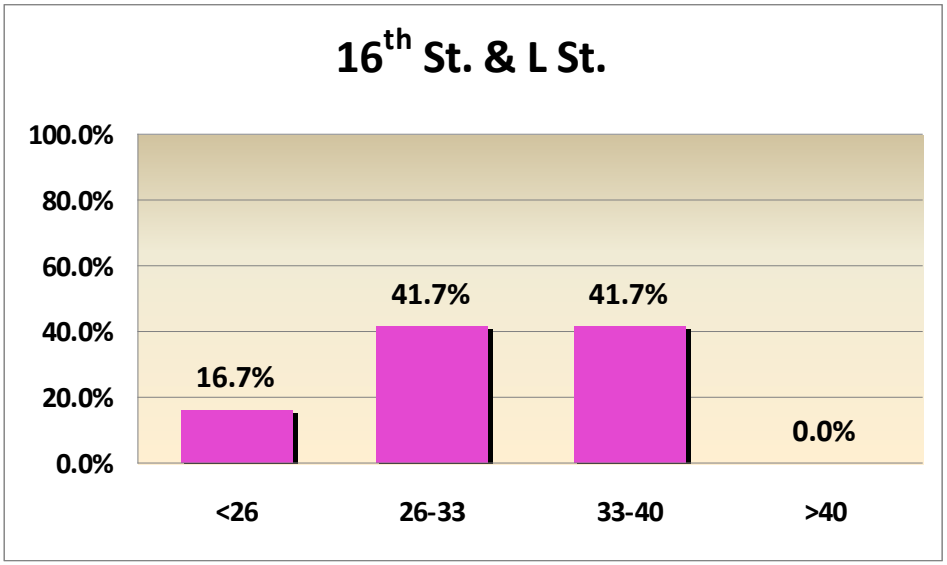
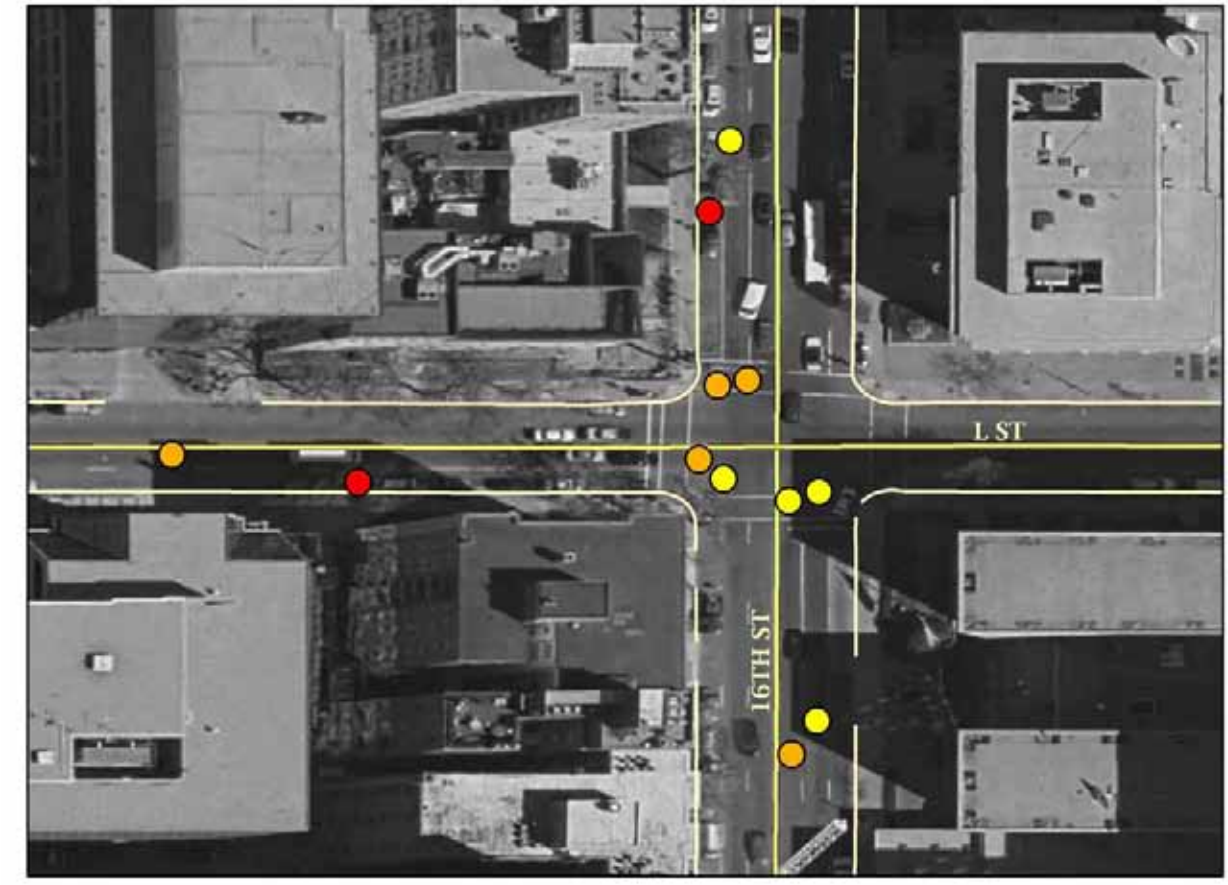


Figure B96 Aerial image of the test location color coded by SN Range.



21st St and Pennsylvania Ave, NW

Skid resistance testing was performed on the intersection of 21st Street and Pennsylvania Avenue the night of July 24, 2009. This is a major intersection of three multi-lane roadways including 21st Street, Pennsylvania Avenue and I Street which were skid tested individually. 21st Street is a one way road on the southern side of the intersection. Figures B97 & B98 are photographs that show the intersection from two angles. Table B25 shows the number of test results that occurred in each of the designated SN ranges. Figure B99 shows the percentage distribution of test results by SN range at this location. None of the test results had an SN<26 and 83.3% of the tests had an SN>=33. Figure B100 is an aerial image of the intersection showing a color coded dot which represents the start point of each skid test.

Figure B97. This photo shows the intersection of 21st St & Pennsylvania Ave as seen from Pennsylvania Ave facing west.

Figure B98. This photo shows the intersection of 21st St & Pennsylvania Ave as seen from 21st St facing south. 21st St is a one way street southbound.

Table B25. Distribution of Test Results by SN Range, Count

21st St and Pennsylvania Ave			
SN Values			
<26	26-33	33-40	>40
0	3	5	10

Figure B99 Distribution of Test Results by SN Range, Percentage

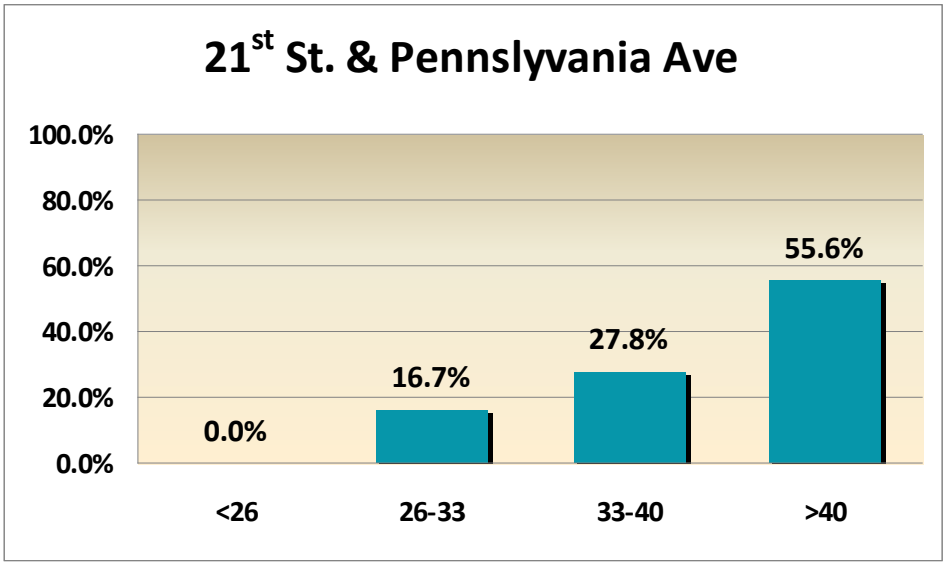


Figure B100 Aerial image of the test location color coded by SN Range.

32nd St and R St, NW

Skid resistance testing was performed on the intersection of 32nd Street and R Street the night of July 25, 2009. This is a four-way stop intersection where two multi-lane roadways converge. Figures B101 & B102 are photographs that show the intersection from two angles. Table B26 shows the number of test results that occurred in each of the designated SN ranges. Figure B103 shows the percentage distribution of test results by SN range at this location. None of the test results had an SN<26 and 33.3% of the tests had an SN>=33. Figure B104 is an aerial image of the intersection showing a color coded dot which represents the start point of each skid test.

Figure B101. This photo shows the intersection of 32nd St & R St as seen from 32nd St facing south.

Figure B102. This photo shows the intersection of 32nd St & R St as seen from R St facing west.

Table B26. Distribution of Test Results by SN Range, Count

32nd St and R St			
SN Values			
<26	26-33	33-40	>40
0	4	1	1

Figure B103 Distribution of Test Results by SN Range, Percentage

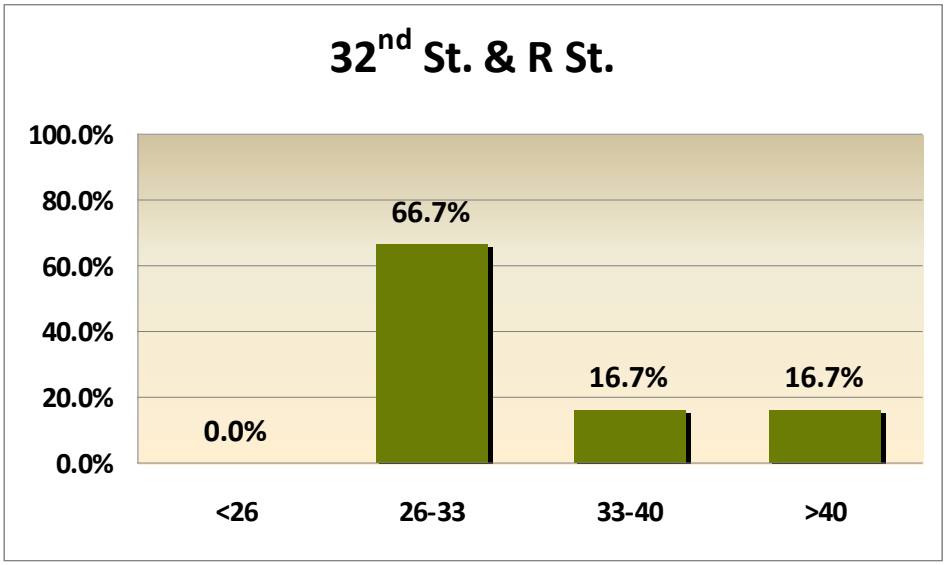


Figure B104 Aerial image of the test location color coded by SN Range.

Georgia Ave and Kalmia Ave, NW

Skid resistance testing was performed on the intersection of Georgia Avenue and Kalmia Road the night of July 22, 2009. This is a major intersection of three multi-lane roadways including Georgia Avenue, Kalmia Avenue and Alaska Avenue which were skid tested individually. Figures B105 & B106 are photographs that show the intersection from two angles. Table B27 shows the number of test results that occurred in each of the designated SN ranges. Figure B107 shows the percentage distribution of test results by SN range at this location. None of the test results had an SN<26 and 94.4% of the tests had an SN>=33. Figure B108 is an aerial image of the intersection showing a color coded dot which represents the start point of each skid test.

Figure B105. This photo shows the intersection of Georgia Ave & Kalmia Ave as seen from Kalmia Rd facing east.

Figure B106. This photo shows the intersection of Georgia Ave & Kalmia Rd as seen from Georgia Ave facing north.

Table B27. Distribution of Test Results by SN Range, Count

Alaska Ave, Georgia Ave, and Kalmia Ave			
SN Values			
<26	26-33	33-40	>40
0	1	9	8

Figure B107 Distribution of Test Results by SN Range, Percentage

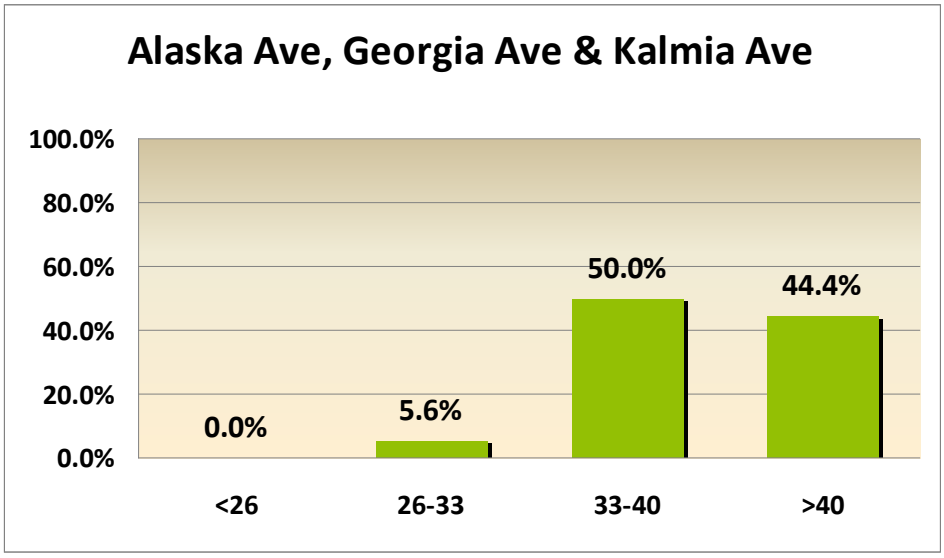
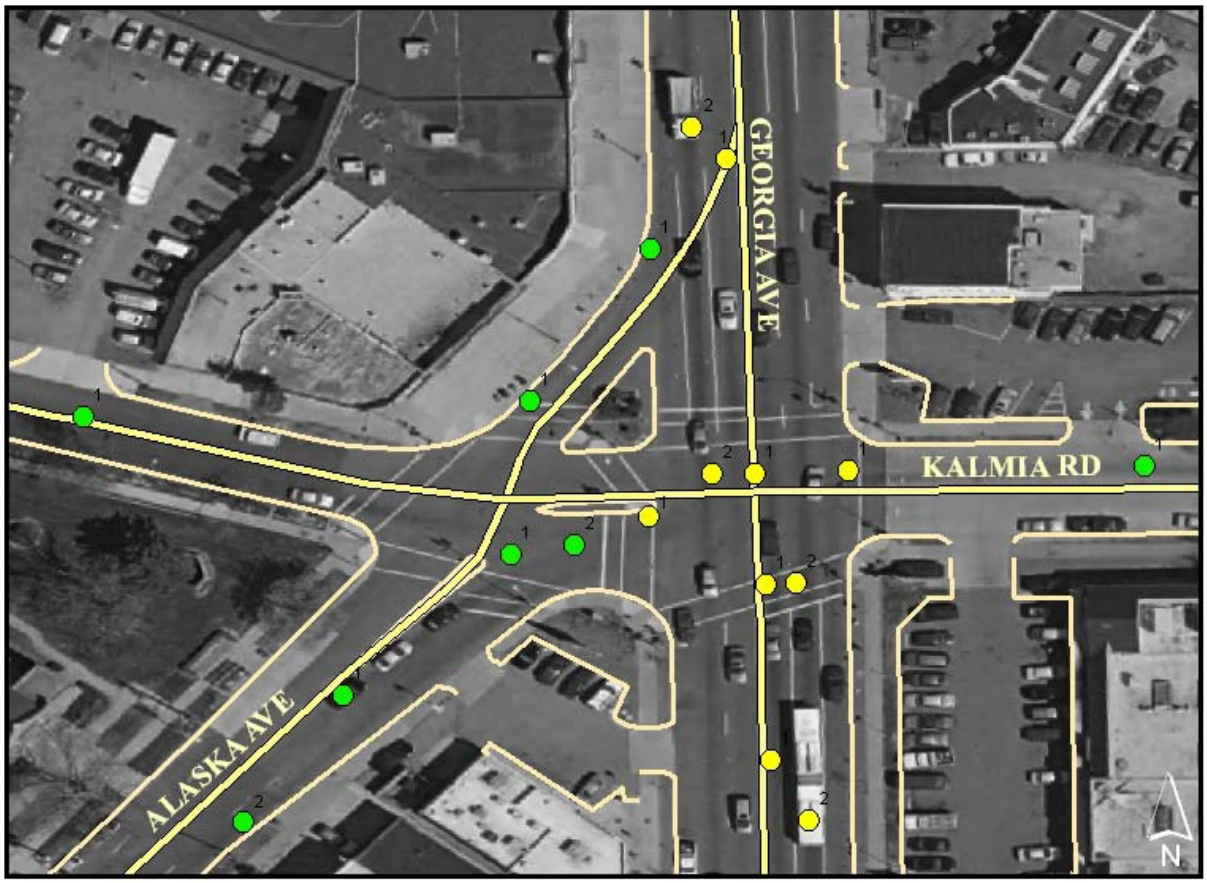


Figure B108 Aerial image of the test location color coded by SN Range.



L St and North Capitol St, BN

Skid resistance testing was performed on the intersection of L Street and North Capitol Street the night of July 25, 2009. This is a T intersection. No skid resistance tests were completed on L Street because it is a one way road exiting the intersection. Figures B109 & B110 are photographs that show the intersection from two angles. Table B28 shows the number of test results that occurred in each of the designated SN ranges. Figure B111 shows the percentage distribution of test results by SN range at this location. Two tests (15.4%) resulted in an SN<26 and 53.8% of the tests had an SN>=33. Both tests that scored below 26 are all located on southbound, lane 2 on North Capitol Street. Figure B112 is an aerial image of the intersection showing a color coded dot which represents the start point of each skid test.

Figure B109. This photo shows the intersection of L St & N Capitol St as seen from N Capitol St facing north.

Figure B110. This photo shows the intersection of L St & N Capitol St as seen from L St facing west. L St is an eastbound one way street at this location.

Table B28. Distribution of Test Results by SN Range, Count

L St and North Capitol St			
SN Values			
<26	26-33	33-40	>40
2	4	5	2

Figure B111 Distribution of Test Results by SN Range, Percentage

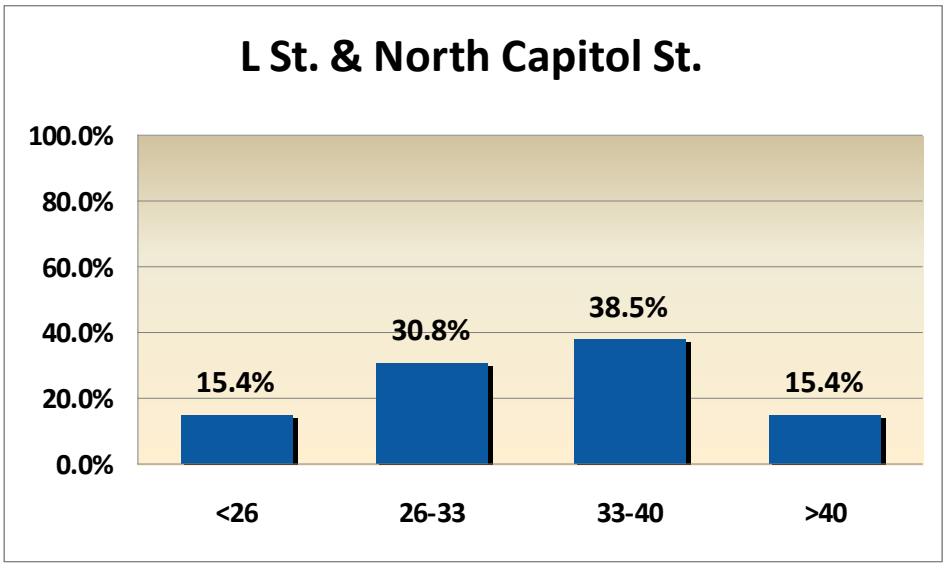


Figure B112 Aerial image of the test location color coded by SN Range.

Independence Ave and South Capitol St, BN

Skid resistance testing was performed on the intersection of Independence Avenue and South Capitol Street the night of July 26, 2009. S Capitol Street is closed due to security concerns. All testing was performed on Independence Ave. Figures B113 & B114 are photographs that show the intersection from two angles. Table B29 shows the number of test results that occurred in each of the designated SN ranges. Figure B115 shows the percentage distribution of test results by SN range at this location. Four tests (50.0%) resulted in an SN<26 and 12.5% of the tests had an SN>=33. The four tests that scored below 26 are all located on westbound Independence Avenue. Figure B116 is an aerial image of the intersection showing a color coded dot which represents the start point of each skid test.

Figure B113. This photo shows the intersection of Independence Ave & S Capitol St as seen from Independence Ave facing east.

Figure B114. This photo shows the intersection of Independence Ave & S Capitol St as seen from Independence Ave. S Capitol St between Independence Ave and C St has been closed to public access for security reasons since 2002.

Table B29. Distribution of Test Results by SN Range, Count

Independence Ave and South Capitol St			
SN Values			
<26	26-33	33-40	>40
4	3	1	0

Figure B115 Distribution of Test Results by SN Range, Percentage

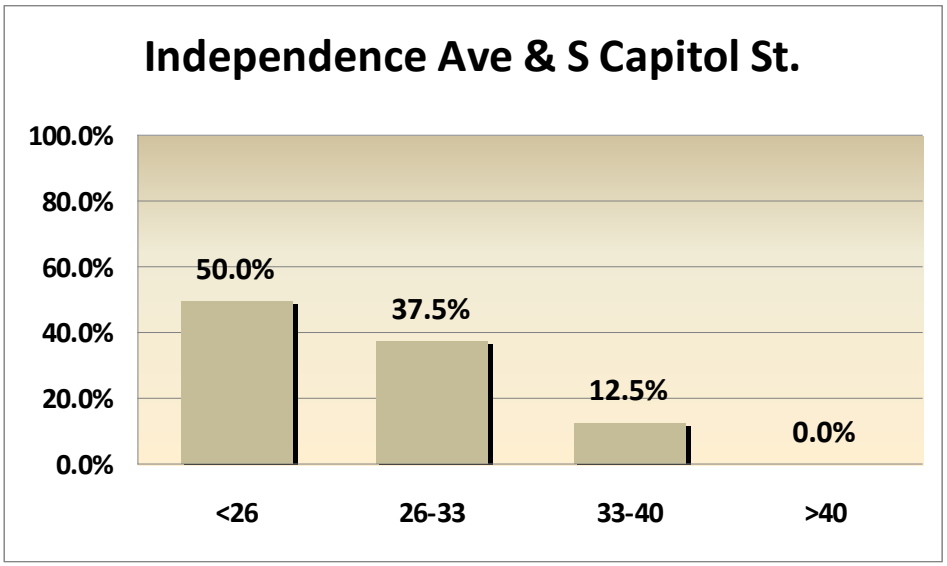
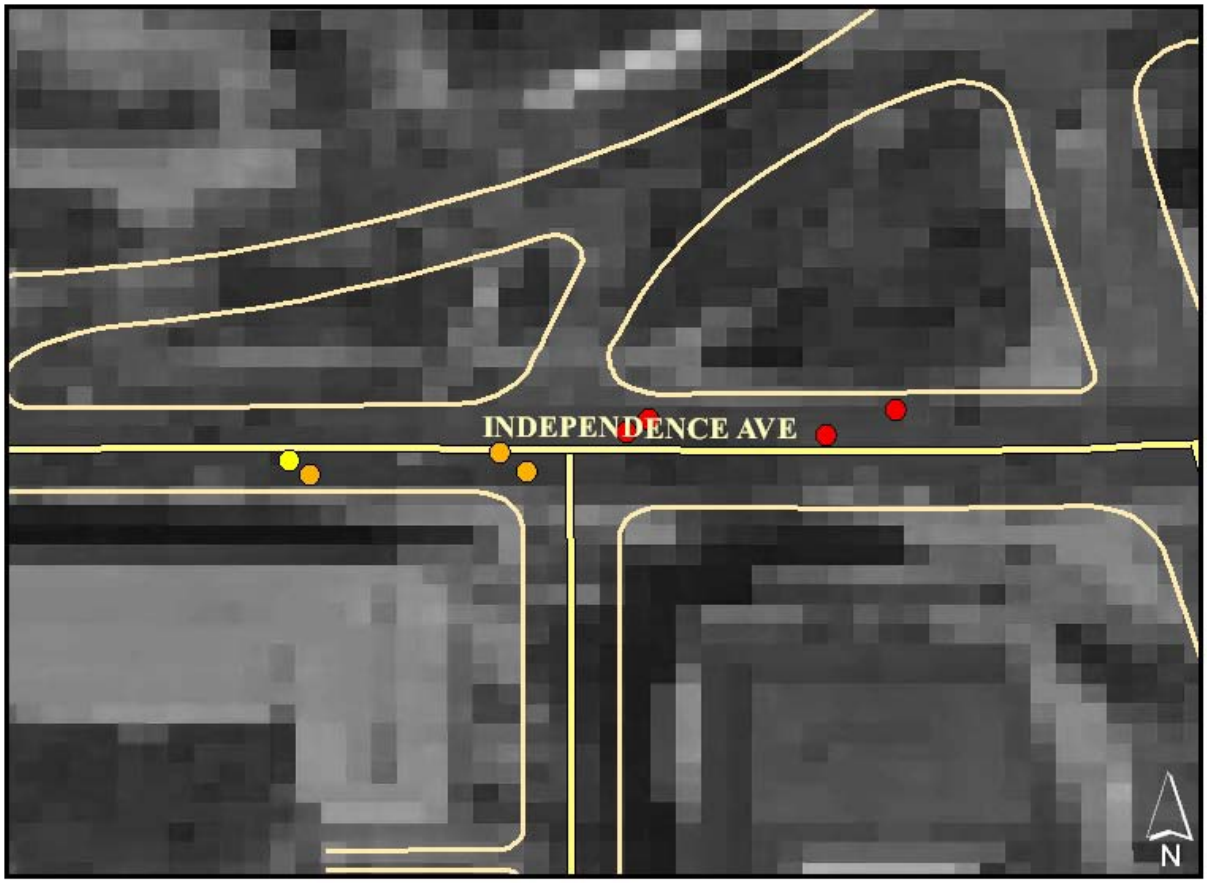


Figure B116 Aerial image of the test location color coded by SN Range.



Connecticut Ave and Nebraska Ave, NW

Skid resistance testing was performed on the intersection of Connecticut Avenue and Nebraska Avenue the night of July 25, 2009. This is a major intersection of two multi-lane roadways. Figures B117 & B118 are photographs that show the intersection from two angles. Table B30 shows the number of test results that occurred in each of the designated SN ranges. Figure B119 shows the percentage distribution of test results by SN range at this location. Four tests (25%) resulted in a SN<26 and 62.5% of the tests had an SN>=33. The four tests that scored below 26 are all located on northbound Connecticut Avenue. Figure B120 is an aerial image of the intersection showing a color coded dot which represents the start point of each skid test.

Figure B117. This photo shows the intersection of Nebraska Ave & Connecticut Ave as seen from Nebraska Ave facing northeast.

Figure B118. This photo shows the intersection of Nebraska Ave & Connecticut Ave as seen from Connecticut Ave facing north.

Table B30. Distribution of Test Results by SN Range, Count

Connecticut Ave and Nebraska Ave			
SN Values			
<26	26-33	33-40	>40
4	2	6	4

Figure B119 Distribution of Test Results by SN Range, Percentage

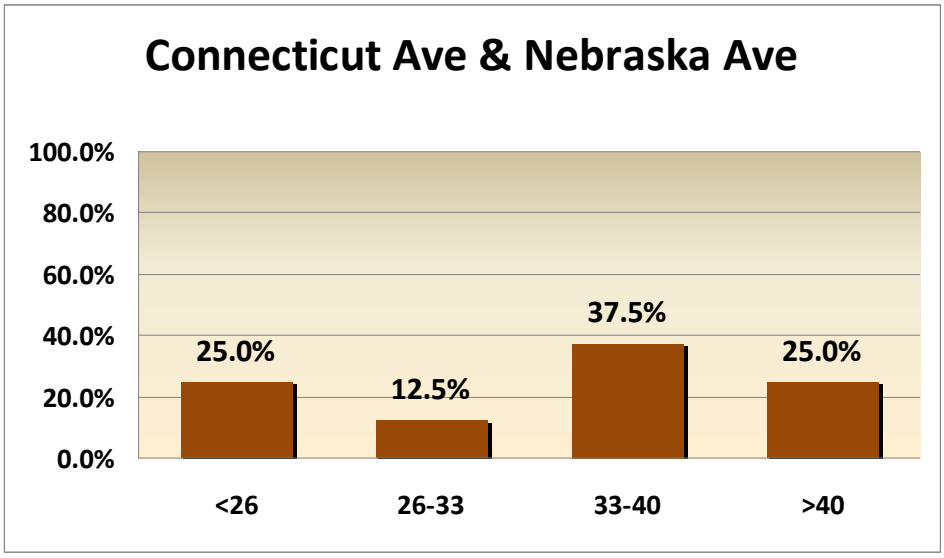


Figure B120 Aerial image of the test location color coded by SN Range.