

# FINAL REPORT

## ANALYSIS OF 2010 SPEED DATA IN THE DISTRICT OF COLUMBIA



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<b>10. Supplementary Notes</b>  COTR: Mr. Mesfin Lakew			
<b>11. Abstract</b>  <p>Vehicular speeds on roadway segments in the District of Columbia were evaluated in 2006. Since then, various safety and traffic improvements projects were implemented in order to improve traffic flow and increase motorist compliance with speeding. This research is aimed at evaluating and comparing speeds on some of the same roadway sections that were evaluated in 2006.</p> <p>The project team, in collaboration with the District Department of Transportation (DDOT), chose 193 site locations throughout Washington DC at which spot speed data was collected between August and December 2010. The sites chosen were a broad subset of the 400 locations at which speed data was collected in 2006. This research examines the effectiveness of safety programs implemented between 2006 and 2010 on speed reduction.</p> <p>Compared with the 2006 speed statistics, the results showed that there was a reduction in the mean and 85<sup>th</sup> percentile speeds by 64% and 68%, respectively at the locations studied. Of the 193 locations, however, 51 (26%) locations recorded increases in the mean speeds while 49 (25%) locations recorded increases in the 85<sup>th</sup> percentile speeds. At 19 of the 193 locations, there were no changes in the mean speed while no changes in the 85<sup>th</sup> percentile speeds were recorded at 12 locations. Statistical significance for the changes in the mean speeds was confirmed at 5% level of significance.</p>			
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## **1.0 INTRODUCTION AND BACKGROUND**

A fundamental objective in highway transportation is the movement of goods and people safely and efficiently. Each state has the responsibility of monitoring and regulating speeds on its highways. Speed regulations are formulated under a fundamental concept that drivers are required to operate their vehicles at a speed that is reasonable and prudent for existing conditions. Motorists decide their choice of driving speed by taking into consideration conditions along their route such as safety, and delay.

Posted speed limits are used to inform motorist of a speed that is considered safe and appropriate for a majority of drivers on a particular segment of roadway. Speed limits are imposed so as not to force reasonable motorists to drive at speeds that they consider unreasonable nor should they violate the acceptable limits of roadway engineering or traffic characteristics. Speed management techniques are also used to improve traffic safety. These techniques include engineering measures, enforcing of speed laws, and educating and informing the public of the risks and consequences of speeding.

The District of Columbia, like all states, is required by the Federal Highway Administration to develop and maintain a highway safety program in order to ensure that road safety problems are detected and resolved in an organized manner. Speed management is one of the proactive initiatives of the city and involves, among other things, a periodical inventory of speed on selected road segments across the City. A city-wide speed inventory of 400 segments was conducted in 2006 to serve as a benchmark and to characterize speeding on City streets. Between 2006 and 2010

numerous safety projects, aimed at improving traffic operation and managing speed, were implemented. The impact of the collection of safety improvement projects can be measured by studying several variables. However, this research is limited to the use of speed change to the use of speed change to indicate the collective success of D.C. safety programs.

## **2.0 OBJECTIVES**

The following objectives formed the basis of the speed study:

- Collect and summarize speed data at 193 locations in the District.
- Analyze the collected speed data (2010).
- Compare key speed statistics of collected data (2010) with the 2006 data, at 5% level of significance.
- Prepare a technical report that documents the work conducted in the research.

## **3.0 LITERATURE REVIEW**

### ***3.1 Speed and Safety***

The subject of vehicular speed is one that affects everyone: non-motorists, motorists, law-makers, politicians, commercial business owners and residential occupants. Speed is used as a measure or indicator of two different transportation performance characteristics: mobility and safety [2]. Higher speeds are generally equated with shorter travel times, which is an indication of good mobility. However, the relationship between speed and safety is more complex and controversial. Consequently, there is a great deal of interest surrounding how speeds affect road safety. This literature review will focus on speed as it relates to safety.

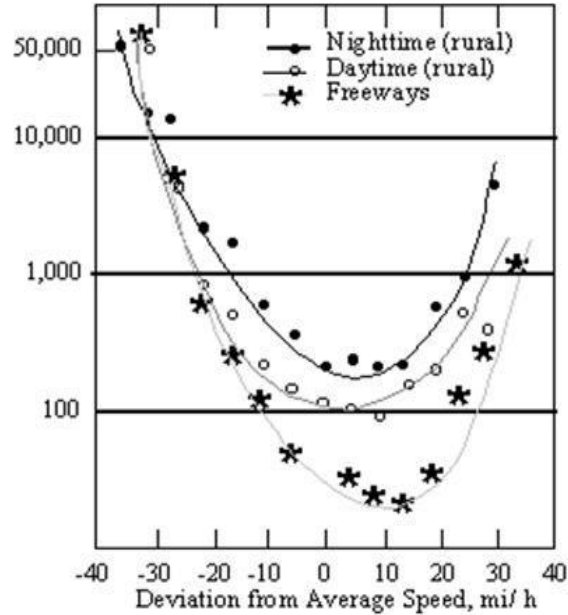
### **3.1.1 Relationship between Speed and Crashes**

There is an indirect relationship between speed and crashes, since many other factors, such as roadway design, traffic conditions, road environments and driver behaviors may result in a crash. The inherent lack of information prior to a crash and the possible inaccuracies in police reporting adds to the difficulties in establishing speed as the single cause of crashes. Despite the complexity of establishing the role of speeding in crashes and fatalities, research has consistently indicated that speeding is often a contributing factor. In fact, studies have shown that in approximately one third of all fatal crashes, speed has played a contributory role [1, 3].

Speed plays a more definitive role in the severity of crashes and injuries. This relation can be explained in theory and has also been found to be consistently proven from various studies. The theoretical basis under which speed affects the intensity of crashes is found from the physical laws of kinetic energy. A vehicle's kinetic energy is proportional to the square of its velocity. During a crash, the kinetic energy is dispersed primarily into friction and mass deformation and as the kinetic energy increases with speed so also does the likelihood of mass deformation of the vehicle including its occupants [2]. The correlation between vehicular speed and severity of injuries has been substantiated by studies. Bowie and Waltz [4], concluded that the chance of being injured in a crash depended on the change in speed on impact and that the risk of having a moderate or more serious injury increased by more than 50% when the speed at impact exceeds 30 miles per hour. Also, Joksch [5] determined that the probability of a crash being fatal increased above 30 miles per hour, with fatality being 15 times more likely from an impact speed of 50 miles per hour compared to 25 miles per hour.

### **3.1.2 Speed Variation and Crash Risk**

Another factor that is often considered in the issue of speed and safety is variation in speed. Speed variation is defined as a vehicles' speed deviation from the mean speed of free-flowing traffic [6]. The theory behind speed variation and safety, as it relates to crashes, is that drivers with speeds much higher or much lower than the mean speed will have a greater probability of conflict [3]. Solomon [6, 7] conducted one of the first studies relating speed deviation to accident rate [7]. From that study, a U-shaped curve relationship between crash involvement rate and the deviation from average speed was developed as illustrated in Figure 1. The rate of crash occurrence was smallest at the mean speed but increased with greater deviation above and below the mean speed. This suggests that there is the danger of crash involvement for faster drivers as well for slower drivers. Though there are notable flaws in his study such as its use of police and driver reports which are not always accurate and the fact that the study was limited to only rural highways, other similar research [8, 9, 10] have confirmed the positive relationship above the average speed while considering other average speeds and road types. Hauer [11], in his analysis of over-takings replicated the U-shaped curve model established by Solomon and indicated that there is a increased risk of conflict as drivers increase their speed to catch up with and overtake one or more vehicles which are moving at a slower speed.



**Figure 1 : Crash involvement rate by deviation from average speed  
(Source: Solomon, 1964) <sup>[7]</sup>**

Subsequent studies have refuted the U-shaped curve relationship in part, finding no significant correlation between lower speeds and an increased rate of crashes. Fildes et al [12], from their study of self-reported crash data discovered that on both rural and urban roads, for speeds above the mean, motorists had a higher rate of crash involvement but they found no such relationship for speeds below the mean. In a review of the literature regarding speed deviation and crash occurrences conducted by the National Research Council of the Transportation Research Board [3], it was reported that recent studies have shown a more linear relationship between speed differential and crash frequency with the occurrences of crashes increasing with higher speeds.

Controversially, Davis [13] has suggested that the correlations between speed dispersion and crash rate could be due to the use of aggregated crash data and the relationship as such, is explained as being a mathematical property of a very large class



of individual risk functions. In his argument he presents mathematically based examples that infer that the aggregation of data used to study the relationship between speed variation and crash risk will always produce a positive correlation but does not conclusively indicate a positive relationship for individual risk.

In general there is some uncertainty regarding the role speed dispersion plays in crash risk and occurrence as the studies on speed variation and safety tend to be less controlled. This is due to the fact that, the crash data obtained is usually based on incomplete knowledge of drivers' speed moments before an accident. Also, such studies do not often consider other factors such as road design features or traffic conditions with the road class in investigating the speed variation and crash risk problem [3]. As suggested by Davis [13], it would auger well for research in this area if more emphasis was placed on developing case controlled study design for different crash conditions in order to establish the relationship between individual vehicle speeds, the speed of vehicles in its environment and crash risk. In spite of the uncertainties, there appears to be a consensus in the related studies that higher speeds above the mean speed do increase the risk of crashes.

### ***3.1.3 Driver's Perception of Speeding***

In understanding the problem of speeding as it relates to safety, it is important that a driver's inclination to speed be considered as a factor. As stated prior, there is a multi-facet of factors that can contribute to the act of speeding and consequently crashes; drivers' perception of speed is one such factor. A frequently cited report by Fildes, et al [12] that compares motorists' attitude toward speeding with their observed speeds, showed that more than half of the motorists observed were travelling above the

posted speed limit with a significant number of speeders exceeding approximately 6 mph over the speed limit. Compounding the apparently excessive act of speeding was the discovery, based on analysis of the interviews conducted, that a significant number of motorists believed that it was not dangerous to exceed the posted speed limit by approximately 19 mph. In addition, the overall interviewed drivers' perception of the risk of being stopped by speed enforcers was low. The results of that study indicated that not only is there a significant number of motorists traveling above the posted speed limit but there is also a common perception that driving above the speed limit is neither dangerous nor risky. Another report [14], using a similar self-reporting methodology, indicated a discord between driver's belief and actual behavior. In that study, two-thirds of the drivers interviewed believed that driving over the speed limit was not worth the risk. Yet, over 50 percent of the participants acknowledged a preference to exceed the limit; a third of whom preferring to exceed the limit by 6 to 12 mph. The factors that were found to significantly affect the occurrence of speeding included: "*exposure to role models who speed; favorable attitudes to speeding; experiences of punishment avoidance; and the perceived certainty of punishment for speeding*" [14].

Motorist perception of other drivers' speed has also been found to affect their own choice of speed. In what has been coined as the 'false consensus effect' [15], motorists who speed have reportedly overestimated the speeding frequency of other drivers and researchers have discovered that this perception is linked to their own speeding violations [16]. There was no indication of a "*false consensus effect*" for low speed drivers in their view of other drivers' speeds and these groups of drivers were

less inclined to believe that there was an overestimated occurrence of speeding among other drivers [16, 17].

In summary, based on the research of driver's attitude and perception to speeding, drivers' behavior should be addressed in such a way as to effectively inform motorists, particularly those more inclined to speeding, of the high cost of speeding. Measures that may curb the positive attitude towards speeding can include a more visible enforcement of violations and an increased dissemination of information concerning the harm and danger of speeding.

### ***3.2 Speed management and Control Strategies***

There are many factors that contribute to speeding and its subsequent adverse effect on safety. Consequently, an interdisciplinary and multi-faceted approach should be used to reduce speeding-related crashes, fatalities and injuries. This overall approach is called speed management. It incorporates a balanced effort that involves defining the relationship between speed, speeding and safety, applying road design and engineering measures to obtain appropriate speeds, setting speed limits that are safe and reasonable, applying enforcement efforts and appropriate technology that effectively targets crash producing speeders and deters speeding, effectively marketing communication and educational messages that focus on high-risk drivers, and soliciting the cooperation, support and leadership of traffic safety stakeholders including traffic court judges, lawyers, policy makers, safety organizations, and health professionals [18]. Speed management techniques are used by public transportation in partnership with police departments to improve traffic safety along the nation's roadways. These

techniques can be categorized into three groups: engineering, enforcement and education. Speed management strategies include the following:

- Setting speed limits and advisory speeds
- Designing roads to manage speed
- Traditional speed enforcement (detection and punishment of specific drivers who exceed the speed limit by mobile patrol officers)
- Speed enforcement by automation (photo radar systems)
- Traffic calming techniques
- Public information programs

### **3.3 Speed Laws**

Traditionally a state and its local governments are typically responsible for determining speed regulation laws. There have been a few notable historical exceptions. In 1942 the War Department, in order to conserve rubber and gasoline during the time of war, mandated a nationwide speed limit of 35 miles per hour [18]. This mandate ended in 1945. In 1973 Congress enacted the National Maximum Speed Limit (NMSL), set at 55 mph [18]. The initial purpose for this enactment was to conserve energy but after experiencing a significant decline in traffic fatalities just one year after the speed limit was put in place; Congress proceeded to make the NMSL permanent. Congress then allowed states to raise the maximum speed limits outside of urban areas in 1987 and again in 1991 to 65 mph. However, in 1995, the NMSL was rescinded and responsibility was returned to each state for setting the speed limits and laws for its roadways.

### 3.3.1 Statewide Speed Laws

Each state develops its speed regulations and laws based on the experience in that state. The basic speed law states that a driver shall operate a vehicle at a speed that is reasonable and prudent for existing conditions regardless of any other speed limit that may be applicable at a location at any given time [19]. A corollary to this rule, usually applied by State laws, is that "*every person shall drive at a safe and appropriate speed when approaching and crossing an intersection or railroad grade crossing, when approaching a curve, when approaching a hill crest, when traveling upon any narrow or winding roadway, and when special hazards exist with respect to pedestrians or other traffic or by reason of weather or highway conditions [19].*" It is the responsibility of the driver to consider the existing conditions and choose a speed which is appropriate for those conditions while being cognizant of any potential hazards.

Most states have laws which designate a speed limit in lieu of a posted speed limit. This default speed limit is called the "*statutory speed limit*" [20] and is usually defined for various types of roadways and land uses in the state such as urban residential street, urban business districts, rural and urban arterials and rural and urban freeways. State laws may or may not require for these limits to be posted [19]. Table 4 presents a summary of the maximum speed limits in each state, Puerto Rico and the District of Columbia.

The statutory speed limits are to be observed by law unless a speed zone is established. A speed zone is defined as a segment of highway where the speed limit is established on the basis of an engineering study for a particular section of road, for which the statutory speed limit is not appropriate [2].

**Table 1: State maximum speed limits** <sup>[20]</sup>

State	Limit	Type	State	Limit	Type
Alabama	70	A	Montana	75	A
Alaska	65	A	Nebraska	75	A
Arizona	75	*	Nevada	75	A
Arkansas	70	A	New Hampshire	65	*
California	70	*	New Jersey	65	A
Colorado	75	*	New Mexico	75	A
Connecticut	65	*	New York	65	A
Delaware	65	A	North Carolina	70	A
DC	50	A	North Dakota	75	A
Florida	70	A	Ohio	65	*
Georgia	70	A	Oklahoma	75	A
Hawaii	60	A	Oregon	65	*
Idaho	75	A	Pennsylvania	65	A
Illinois	65	A	Puerto Rico	65	A
Indiana	70	A	Rhode Island	65	P
Iowa	70	A	South Carolina	70	A
Kansas	70	A	South Dakota	75	A
Kentucky	70	A	Tennessee	70	A
Louisiana	70	A	Texas	70	P
Maine	65	A	Utah	75	P
Maryland	65	A	Vermont	65	A
Massachusetts	65	*	Virginia	70	A
Michigan	70	*	Washington	70	A
Minnesota	70	*	West Virginia	70	A
Mississippi	70	A	Wisconsin	65	A
Missouri	70	A	Wyoming	75	A

Key:

1. The "limit" column lists the maximum speed limit in the state.
2. In the "type" column, "A", "P" and "\*" indicates absolute, prima facie or a mixture of both respectively as the types of maximum numerical speed limit for each state.

There are two types of maximum speed limits in the United States: the absolute and the prima facie. The absolute speed limit is a limit above which it is lawful to drive regardless of roadway conditions, amount of traffic, or other influencing factors while a prima facie speed limit is a limit above which drivers are presumed to be driving unlawfully [20]. In the states where prima facie speed limits are established, if caught violating the speed limit, the burden lies with the operator of the vehicle to prove that the higher speed was reasonable and prudent. The majority of states apply absolute speed limits since these tend to be easier to enforce and violations are easier to obtain

convictions for. However some states use prima facie speed limits or a mixture of both types of speed limits as shown in Table 4.

### 3.3.2 Speed Laws in the District of Columbia

The District, like the states, derives its vehicle law provisions from the basic speed law which is founded on the belief that a driver's behavior is reasonable and prudent. The speed laws are written so as to separate the reasonable majority of drivers and indict the minority of unreasonable drivers. The following summarizes the District of Columbia statutes basis for speed law violation, and regulations related to speed [19]:

**Basic Speed Rule:**

*"No person shall drive a vehicle at a speed greater than is reasonable and prudent under the conditions and having regard to the actual and potential hazards then existing." D.C. Code 40-703(a)(6) & 40-712(a) and CDCR 18-22-2200.3*

**Statutory Speed Limit:**

*"25 MPH" D.C. Code "40-703(a)(6) & 40-712(a) and CDCR 18-22-2200.6*

*"15 MPH in alleys" D.C. Code "40-703(a)(6) & 40-712(a) and CDCR 18-22-2200.7*

*"15 MPH in streets adjacent to school buildings or playgrounds when indicated by official signs" D.C. Code 40-703(a) & 40-712(a) and CDCR 18-22-2200.8 & 18-22-2200.9*

**Posted (Maximum) Speed Limit:**

*"Based upon engineering and traffic investigations, the statutory speed limits may be increased or decreased on any highway." D.C. Code '40-703(a) & 40-712(a) and CDCR 18-22-2200.2 Note: D.C. law does not specifically state whether different highway speed limits may be established either for different types of vehicles, for various weather conditions or for different times of the day.*

**Minimum Speed Limit:**

*I. "No person shall drive a vehicle at such a slow speed as to impede or block the normal and reasonable movement of traffic." D.C. Code '40-703(a) and CDCR 18-22-2200.10*

*II. "A person, driving at less than the normal speed of traffic, shall drive in the right-hand*

*lane then available for traffic or as close as practicable to the right-hand curb or edge of the roadway.” 40-703(a) and CDCR 18-22-2201.3*

**Posted (Minimum) Speed Limit:** *None*

## 4.0 RESEARCH METHODOLOGY

### 4.1 Data Collection

The technical approach for this study consists primarily of data collection, analysis of data, and summarization of results. The research team in collaboration with the District Department of Transportation (DDOT) chose 193 site locations throughout Washington DC at which spot speed data was collected in the late summer and fall 2010. The sites chosen were a broad subset of the 400 locations at which a similar speed data had been conducted in 2006. The selection of the same sites for the two different years provided a basis for comparing speed statistics over time at the same locations.

Speed data was collected at the selected sites through non-intrusive methods beginning August 28<sup>th</sup> 2010 through to November 8<sup>th</sup> 2010. The speeds of at least 100 vehicles were sampled at each site. At low volumes segments, the speeds of 70 vehicles were obtained while 50 speed measurements were collected at a few other locations. In order to have uniformity and to minimize the skewing of data, the data collection included the following criteria:

- No study was conducted when the weather or non-typical conditions influenced prevailing speeds;
- Data collection was conducted at each location once.



- Data for trucks, buses, motorcycles and emergency operating vehicles were not collected;
- Traffic data was collected during weekdays only (Monday to Friday);
- All traffic data was collected during non-peak hour traffic (i.e. between 9 am and 3 pm);
- The data collected would be aborted if a traffic or pedestrian incident occurred;
- The posted speed limit, direction of travel, weather and road surface condition was recorded at each site.

The field technicians inconspicuously recorded vehicle speeds using an M.P.H. Industries K55 radar unit (radar gun) which uses digital technology to provide accurate ( $\pm 1$  mph) real time measurements. Radar guns operates on the principle of the Doppler Effect, whereby a radio wave reflected form a moving target has its frequency changed in proportion to the speed of the target. The radar gun consists of a radio receiver and a radio transmitter which sends out a cone of radio waves over a wide range of distances. Due to the Doppler Effect, if the target object is moving, the frequency of the radio waves is different when they come back, and from that difference the radar gun can calculate the object's speed.

In conducting the speed measurements, the technicians recorded vehicle speeds at an angel less than  $10^0$ , to minimize the cosine effect. If a vehicle is in direct line with the radar gun the measured speed will be exact. However as the angle of incidence increases, the accuracy decrease marginally (cosine effect), since the actual speed measured is directly related to the cosine of the angle between the gun and the vehicles direction of travel.

The speed data collected at each of the 193 locations was subsequently compiled in an excel database. The raw data was analyzed in order to obtain key speed statistics for each site. The key speed statistics include the mean speeds and the 85<sup>th</sup> percentile speeds.

## 4.2 Statistical Analysis

Statistical analysis was performed on the data collected in order to determine inferences based on the following hypotheses:

Means Speeds: The 2010 mean or average speed of each location was compared with the mean speeds of the 2006 study. It was hypothesized that the mean speed per location in the recent 2010 speed data will be less than the mean speed in 2006. That is, the following hypotheses in the mean speed will be tested for say location 1:

$$H_1: \mu_{B1} > \mu_{A1}$$

$$H_0: \mu_{B1} \leq \mu_{A1}$$

where the subscript “B” corresponds to the 2006 speed data, the subscript “A” corresponds to the 2010 speed data, “ $\mu$ ” represents the mean speed, and “1” represents location number 1.

The Welch’s t-test was used to compare the means. This two sample t-test can be used to analyze samples from two pre-existing populations or to analyze the results of subjecting two randomly assigned samples to two different experimental conditions. The criteria for using the two-sample t-test are:

- i. The variable being measured is normally distributed;

- ii. Both groups should be simple random samples that are completely independent of each other;
- iii. The two populations have possibly unequal variances.

The formula for Welch t-test is as follows:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{s_{\bar{X}_1 - \bar{X}_2}}$$

where,

$$s_{\bar{X}_1 - \bar{X}_2} = \sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}$$

$\bar{X}_{1,2}$  = the mean for each sample group

$s_{1,2}^2$  = the variance for each sample group

$n_{1,2}$  = the sample size

The degrees of freedom associated with this variance estimate were approximated using the Welch-Satterthwaite equation:

$$\text{d.f.} = \frac{(s_1^2/n_1 + s_2^2/n_2)^2}{(s_1^2/n_1)^2/(n_1 - 1) + (s_2^2/n_2)^2/(n_2 - 1)}$$

The obtained  $t$ -value was compared with the critical  $t$  derived from statistical  $t$ -tables and based on the degrees of freedom and the level of significance ( $\alpha = 0.05$ ). A  $t$ -value which is greater than the critical  $t$  obtained from the tables

indicates that the means for the two samples are, within the level of confidence, statistically significant.

85<sup>th</sup> Percentile Speeds: The 85<sup>th</sup> percentile speeds for each location were compared to determine whether there was an increase or decrease in speeds.

## 5.0 RESULTS

The detailed results and analysis are presented in the Appendix. A summary of the number of locations where the mean and 85<sup>th</sup> percentile speeds increased or decreased from 2006 to 2010 are presented in Table 2. Note that the values presented in Table 2 contain the increases and decreases of all the locations that were studied inclusive of those locations that did not have a statistically significant difference in mean speeds.

**Table 2: Comparison of 2010 Speed Statistics against 2006 Statistics**

Speed Statistic	Experience By Number of Locations			
	<i>Increase</i>	<i>Decrease</i>	<i>No Change</i>	<i>Total</i>
Mean Speed	51 (26.4%)	123 (63.7%)	19 (9.8%)	193
85th Percentile Speed	49 (25.4%)	132 (68.4%)	12 (6.2%)	193

Table 3 presents the decreases and increases in mean speeds for each location at 5% level of significance, since the 2006 study. A comparison of the 85<sup>th</sup> percentile speeds at each location is compiled in Table 4.

**Table 3: Comparison of 2006 and 2010 Mean Speeds, Part 1 of 11**

District of Columbia Speed Study						
ROUTE NAME (Begin/End Study Location)	POSTED SPEED (MPH)	2006 Speed Data	2010 Speed Data	Analysis		
		Mean Speed (MPH)	Mean Speed (MPH)	2006 vs 2010 Mean Speed	Increase or Decrease in Mean Speed	Statistically Significant?
<b>Adams Mill Road</b>						
Klinge Rd/ Harvard St	25	31	24	-7	DECREASE	YES
<b>Alabama Avenue</b>						
MLK Jr Ave/ Good Hope Rd	25	28	28	0	NO CHANGE	NO
Good Hope Rd/ 38th St	25	30	29	-1	DECREASE	NO
<b>Alaska Avenue</b>						
Holly St/ 14th St	30	31	26	-5	DECREASE	YES
14th St/ 16th St	30	32	31	-1	DECREASE	NO
<b>Anacostia Freeway (DC 295)</b>						
East Capitol St (Ramps)/ Pennsylvania Ave	45	51	49	-2	DECREASE	YES
Pennsylvania Ave (Ramps) / I-295	50	60	47	-13	DECREASE	YES
<b>Arizona Avenue</b>						
Loughboro Rd/ McArthur Blvd	25	30	30	0	NO CHANGE	NO
<b>Arkansas Avenue</b>						
16th St/ Georgia Ave	25	29	28	-1	DECREASE	NO
<b>Arland D. Williams Junior Bridge (14th St)</b>						
I-395 Route 1 / District Line	40	49	37	-12	DECREASE	YES
<b>Arlington Memorial Bridge</b>						
Memorial Dr/ Potomac Pkwy	25/30	40	31	-9	DECREASE	YES
<b>Beach Drive</b>						
Wise Rd/ Rock Cr and Potomac Pkwy	25	32	30	-2	DECREASE	YES
<b>Benning Road</b>						
25th Pl/ Minnesota Ave	30	37	31	-6	DECREASE	YES
East Capitol St/ District Line	25/30	38	30	-8	DECREASE	YES
<b>Bladensburg Road</b>						
Douglas St/ New York Ave	30	31	33	2	INCREASE	YES
New York Ave/ Mount Olivet Rd	25	37	32	-5	DECREASE	YES
<b>Blair Road</b>						
District Line/ Aspen St	25	29	25	-4	DECREASE	YES
Aspen St/ Peabody St	25/30	37	32	-5	DECREASE	YES

**Table 3: Comparison of 2006 and 2010 Mean Speeds, Part 2 of 11**

District of Columbia Speed Study						
ROUTE NAME (Begin/End Study Location)	POSTED SPEED (MPH)	2006 Speed Data	2010 Speed Data	Analysis		
		Mean Speed (MPH)	Mean Speed (MPH)	2006 vs 2010 Mean Speed	Increase or Decrease in Mean Speed	Statistically Significant?
<b>Bowen Road</b>						
Stanley St- Burns St/ District Line	30	27	32	5	INCREASE	YES
<b>Branch Avenue</b>						
District Line/ Alabama Ave	25	32	28	-4	DECREASE	YES
Alabama Ave/ Pennsylvania Ave	25	41	31	-10	DECREASE	YES
<b>Brentwood Parkway</b>						
Penn St/ New York Ave	25	34	30	-4	DECREASE	YES
<b>C Street</b>						
21st St/ 15th St	25	31	31	0	NO CHANGE	NO
15th St/ 6th St	25	27	27	0	NO CHANGE	NO
<b>Calvert Street</b>						
24th St/ Adams Mill Rd	25	27	29	2	INCREASE	YES
<b>Canal Road</b>						
Whitehurst Fwy/ Foxhall Rd	25/35	39	32	-7	DECREASE	YES
Foxhall Rd/ Arizona Ave	35	45	38	-7	DECREASE	YES
<b>Central Avenue</b>						
East Capitol St/ 53rd Pl	25/30	36	32	-4	DECREASE	YES
<b>Chain Bridge</b>						
Canal St/ District Line	25	35	34	-1	DECREASE	NO
<b>Clara Barton Parkway</b>						
Chain Br/ District Line	35	47	38	-9	DECREASE	YES
<b>Cleveland Avenue</b>						
34th St/ 29th St	25	31	30	-1	DECREASE	NO
<b>Columbia Road</b>						
Warder St / 16th St.	25	23	23	0	NO CHANGE	NO
16th St / Biltmore St.	25	21	23	2	INCREASE	YES
<b>Connecticut Avenue</b>						
District Line / Nebraska Ave	30	36	33	-3	DECREASE	YES
Nebraska Ave / Porter St.	30	36	26	-10	DECREASE	YES

**Table 3: Comparison of 2006 and 2010 Mean Speeds, Part 3 of 11**

District of Columbia Speed Study						
ROUTE NAME (Begin/End Study Location)	POSTED SPEED (MPH)	2006 Speed Data	2010 Speed Data	Analysis		
		Mean Speed (MPH)	Mean Speed (MPH)	2006 vs 2010 Mean Speed	Increase or Decrease in Mean Speed	Statistically Significant?
<b>Constitution Avenue</b>						
North Carolina Ave. / 3rd St.	25	26	28	2	INCREASE	YES
12 St. / 23rd St.	25	33	25	-8	DECREASE	YES
<b>Dalecarlia Parkway</b>						
Loughboro Rd. / Massachusetts Ave.	35/40	39	41	2	INCREASE	YES
<b>E Street</b>						
13th St. / 5th St.	25	20	25	5	INCREASE	YES
5th St. / Columbus Cir.	25	25	22	-3	DECREASE	YES
<b>East Capitol Street</b>						
District Line / Benning Rd.	30	36	40	4	INCREASE	YES
Benning Rd. / Kennilworth (Ramp)	30/35	44	40	-4	DECREASE	YES
<b>Eastern Avenue</b>						
5th St. / Chillum Pl.	25	26	30	4	INCREASE	YES
Addison Rd-Minnesota Ave. / District Line	25	33	32	-1	DECREASE	NO
<b>Florida Avenue</b>						
9th St. / North Capitol St.	25	29	25	-4	DECREASE	YES
15th St. / V St.	25	25	25	0	NO CHANGE	NO
North Capitol St. / M St.	25	34	27	-7	DECREASE	YES
<b>Foxhall Road</b>						
44 St. / Reservoir Rd.	25	29	29	0	NO CHANGE	NO
Reservoir Rd. / St. Partrick's School Rd.	25	33	29	-4	DECREASE	YES
<b>Francis Scott Key Bridge</b>						
M St. / District Line	30	36	29	-7	DECREASE	YES
<b>Franklin Street</b>						
Rhode Islane Ave. / 12th St.	25	30	22	-8	DECREASE	YES
7th St. / Michigan Ave.	25	29	28	-1	DECREASE	NO
<b>George Mason Bridge</b>						
I-395-Route 1 / District Line	40	44	52	8	INCREASE	YES
<b>George Washington Memorial Parkway</b>						
District Line / District Line	40	48	46	-2	DECREASE	YES

**Table 3: Comparison of 2006 and 2010 Mean Speeds, Part 4 of 11**

District of Columbia Speed Study						
ROUTE NAME (Begin/End Study Location)	POSTED SPEED (MPH)	2006 Speed Data	2010 Speed Data	Analysis		
		Mean Speed (MPH)	Mean Speed (MPH)	2006 vs 2010 Mean Speed	Increase or Decrease in Mean Speed	Statistically Significant?
<b>Georgia Avenue</b>						
Piney Branch Rd. / Webster St.	30	32	27	-5	DECREASE	YES
Webster St. / Bryant St.	30	29	32	3	INCREASE	YES
<b>Good Hope Road</b>						
Martin Luther King Jr. Ave. / Alabama Ave.	25	35	22	-13	DECREASE	YES
<b>H Street</b>						
New York Ave. / 6th St.	25	24	25	1	INCREASE	YES
<b>Harewood Road</b>						
4th St. / Taylor St.	30	36	30	-6	DECREASE	YES
<b>Harvard Street</b>						
16th St - Columbia Rd. / 6th St.	25	24	24	0	NO CHANGE	NO
<b>Henry Bacon Drive</b>						
Constitution Ave. / Lincoln Cir.	25	28	29	1	INCREASE	NO
<b>Martin Luther King Junior Avenue</b>						
W St./ Eaton Rd.	25	28	30	2	INCREASE	YES
Eaton Rd. / Lebaum St.	30	32	30	-2	DECREASE	YES
<b>Maryland Avenue</b>						
6th St. / Bladensburg Rd. -Benning Rd.	25	32	26	-6	DECREASE	YES
<b>Massachusetts Avenue</b>						
11th St. / 1st St.	25	30	24	-6	DECREASE	YES
R St. / Observatoty Cir.	25	32	30	-2	DECREASE	YES
<b>Michigan Avenue</b>						
South Dakota Ave. / Perry St.	25	32	28	-4	DECREASE	YES
Perry St. / Franklin St.	25	28	23	-5	DECREASE	YES
<b>Military Road</b>						
District Line / Nebraska Ave.	25	30	27	-3	DECREASE	YES
Oregon Ave. / 13th St.	35	30	46	16	INCREASE	YES
<b>Minnesota Avenue</b>						
A St. / Pennsylvania Ave.	25	28	34	6	INCREASE	YES
Pennsylvania Ave. / Good Hope Rd.	25	31	26	-5	DECREASE	YES



**Table 3: Comparison of 2006 and 2010 Mean Speeds, Part 5 of 11**

District of Columbia Speed Study						
ROUTE NAME (Begin/End Study Location)	POSTED SPEED (MPH)	2006 Speed Data	2010 Speed Data	Analysis		
		Mean Speed (MPH)	Mean Speed (MPH)	2006 vs 2010 Mean Speed	Increase or Decrease in Mean Speed	Statistically Significant?
<b>Missouri Avenue</b>						
13th St. / North Capitol St	25	34	30	-4	DECREASE	YES
<b>Monroe Street</b>						
Michigan Ave. / 15th St.	25	27	26	-1	DECREASE	NO
15th St. / South Dakota Ave.	25	31	30	-1	DECREASE	NO
<b>Mount Olivet Road</b>						
9th St- Brentwood Rd. / Bladensburg Rd	25	31	31	0	NO CHANGE	NO
<b>Mount Vernon Place</b>						
7th St / 9th St	25	21	27	6	INCREASE	YES
<b>Nannie Helen Burroughs Avenue</b>						
Kenilworth Ave / Lowrie Pl	30	29	28	-1	DECREASE	NO
Lowrie Pl / District Line	30	30	31	1	INCREASE	NO
<b>Naylor Road</b>						
District Line / S St	25	36	27	-9	DECREASE	YES
<b>Nebraska Avenue</b>						
Military Rd / Wisconsin Ave	30	36	30	-6	DECREASE	YES
Wisconsin Ave / Chain Bridge Rd - Indian Ln	30	31	29	-2	DECREASE	YES
<b>New Hampshire Avenue</b>						
Park Rd / Illinois Ave	30	31	26	-5	DECREASE	YES
Illinois Ave / North Capitol St	25/30	31	29	-2	DECREASE	YES
<b>New Jersey Avenue</b>						
Florida Ave / O St	25	28	29	1	INCREASE	NO
<b>New Mexico Avenue</b>						
Nebraska Ave / Fulton St	25	27	28	1	INCREASE	NO
<b>New York Avenue</b>						
15th St / 9th St	25	25	36	11	INCREASE	YES
Penn St -4th St / 16th St	35	26	23	-3	DECREASE	YES
<b>North Capitol Street</b>						
Allison St / Michigan Ave	25/35	32	43	11	INCREASE	YES
S St / F St	25	22	27	5	INCREASE	YES

**Table 3: Comparison of 2006 and 2010 Mean Speeds, Part 6 of 11**

District of Columbia Speed Study						
ROUTE NAME (Begin/End Study Location)	POSTED SPEED (MPH)	2006 Speed Data	2010 Speed Data	Analysis		
		Mean Speed (MPH)	Mean Speed (MPH)	2006 vs 2010 Mean Speed	Increase or Decrease in Mean Speed	Statistically Significant?
<b>North Carolina Avenue</b>						
Constitution Ave. / C. St. NE	25	30	31	1	INCREASE	NO
<b>P Street</b>						
Wisconsin Ave./Connecticut Ave.	25	29	27	-2	DECREASE	YES
<b>Park Place</b>						
Rock Creek Church Rd. / Michigan Ave-Columbia	25	36	31	-5	DECREASE	YES
<b>Pennsylvania Avenue</b>						
29th St/17th St.	25	24	28	4	INCREASE	YES
<b>Piney Branch Parkway</b>						
Arkansas Ave. / Beach Dr.	25	37	32	-5	DECREASE	YES
<b>Piney Branch Road</b>						
District Line / Underwood St.	30	31	28	-3	DECREASE	YES
Underwood St. / Fort Stevens Dr.	30	34	28	-6	DECREASE	YES
<b>Porter Street</b>						
Williamsburg La / 30th St.	30	32	34	2	INCREASE	YES
30th St. / 34th St.	25	27	28	1	INCREASE	YES
<b>Potomac Avenue</b>						
18th St. / 19th St.	25	31	32	1	INCREASE	YES
<b>Potomac River Freeway</b>						
Whitehurst Fwy / 27th St. (Ramp)	40	36	31	-5	DECREASE	YES
I-66 (Ramp) / Ohio Dr.	40	43	33	-10	DECREASE	YES
<b>Q Street</b>						
Wisconsin Ave. / 22nd St.-Florida Ave.	25	21	26	5	INCREASE	YES
22nd St.-Florida Ave. / Rhode Island Ave.	25	22	22	0	NO CHANGE	NO
<b>R Street</b>						
Florida Ave. / 15th St.	25	24	23	-1	DECREASE	YES
15th St. / Massachusetts Ave.	25	23	21	-2	DECREASE	YES
<b>Reno Road</b>						
Chevy Chase Pkwy. / Van Ness St.	25	30	29	-1	DECREASE	YES
Van Ness St. / Quebec Pl.	25	30	29	-1	DECREASE	YES

**Table 3: Comparison of 2006 and 2010 Mean speeds, Part 7 of 11**

District of Columbia Speed Study						
ROUTE NAME (Begin/End Study Location)	POSTED SPEED (MPH)	2006 Speed Data	2010 Speed Data	Analysis		
		Mean Speed (MPH)	Mean Speed (MPH)	2006 vs 2010 Mean Speed	Increase or Decrease in Mean Speed	Statistically Significant?
<b>Reservoir Road</b>						
Wisconsin Ave. / Foxhall Rd.	25	30	25	-5	DECREASE	YES
Foxhall Rd. / MacArthur Blvd.	25	29	27	-2	DECREASE	YES
<b>Rhode Island Avenue</b>						
10th St. / 17th St.	30	30	25	-5	DECREASE	YES
17th St. / District Line	30	32	28	-4	DECREASE	YES
<b>Ridge Road</b>						
Burns St. / G St.	25	33	33	0	NO CHANGE	NO
G St. / Minnesota Ave.	25	29	29	0	NO CHANGE	NO
<b>Riggs Road</b>						
North Capitol St. / South Dakota Ave.	25	24	28	4	INCREASE	YES
South Dakota Ave. / District Line	25	30	27	-3	DECREASE	YES
<b>River Road</b>						
District Line / 44th St.	25	31	29	-2	DECREASE	YES
44th St. / Wisconsin Ave.	25	27	28	1	INCREASE	NO
<b>Rochambeau Memorial Bridge</b>						
I-395 Route 1 / District Line	45	52	40	-12	DECREASE	YES
<b>Rock Creek and Potomac Parkway</b>						
Waterside Dr. / Virginia Ave.	35	38	38	0	NO CHANGE	NO
Virginia Ave. / Ohio Dr.	25	39	39	0	NO CHANGE	NO
<b>Route 1</b>						
Maine Ave. / Maine Ave. (Ramp)	35	41	38	-3	DECREASE	YES
Maine Ave. (Ramp) / George Mason Br.	35	42	47	5	INCREASE	YES
<b>Saraloga Avenue</b>						
Brentwood Rd / Rhode Island Ave.	25	20	23	3	INCREASE	YES
<b>Sargent Road</b>						
DL/Galatin St.	25	30	28	-2	DECREASE	YES
Galatin St. / Webster St.	25	32	26	-6	DECREASE	YES
<b>Sheriff Road</b>						
Kane PL / District Line	30	34	30	-4	DECREASE	YES
<b>Sherman Avenue</b>						
Park Rd / Florida Ave.	25	31	31	0	NO CHANGE	NO

**Table 3: Comparison of 2006 and 2010 Mean Speeds, Part 8 of 11**

District of Columbia Speed Study						
ROUTE NAME (Begin/End Study Location)	POSTED SPEED (MPH)	2006 Speed Data	2010 Speed Data	Analysis		
		Mean Speed (MPH)	Mean Speed (MPH)	2006 vs 2010 Mean Speed	Increase or Decrease in Mean Speed	Statistically Significant?
<b>South Capitol Street</b>						
Xenia St. MLK Jr. Ave. /MLK Jr. Ave	35/40	30	30	0	NO CHANGE	NO
MLK Jr. Ave. /Suitland Pkwy	40	34	43	9	INCREASE	YES
<b>South Dakota Avenue</b>						
Riggs Rd. / Webster St.	25	38	30	-8	DECREASE	YES
Rhode Island Ave. /US Route 50 (NY Ave)	25	42	26	-16	DECREASE	YES
<b>Southeast Freeway SW/SE</b>						
I-295 Split / I-395 Split	45	57	45	-12	DECREASE	YES
<b>Southern Avenue</b>						
24th St. / 13th St.	30	36	38	2	INCREASE	YES
13th St. / Indian Head Hwy	30	31	32	1	INCREASE	NO
<b>Suitland Parkway</b>						
South Capitol St. / Firth Stering Ave.	30/45	41	36	-5	DECREASE	YES
Firth Stering Ave. / Sheridan Rd. (Ramp)	35/45	47	40	-7	DECREASE	YES
<b>Taylor Street</b>						
South Dakota Ave. / Hawai Ave.	25	28	23	-5	DECREASE	YES
<b>Theodora Roosevelt Bridge (I-66)</b>						
Rock Cr. And Potomac Pkwy. /District Line	40	52	32	-20	DECREASE	YES
<b>Tilden Street</b>						
Beach Dr. / Reno Rd.	25	35	28	-7	DECREASE	YES
<b>Tunlaw Road</b>						
Fulton St. / Calvert St.	25	28	28	0	NO CHANGE	NO
<b>U Street</b>						
9th St. / 18th St.	25	24	25	1	INCREASE	NO
<b>Vermont Avenue</b>						
Massachusetts Ave. / K. St.	25	20	18	-2	DECREASE	YES
<b>Virginia Avenue</b>						
Constitution Ave. / C St.	25	26	22	-4	DECREASE	YES
New Hampshire Ave / Rock Creek & potomac Pkwy	25	29	34	5	INCREASE	YES
<b>W Street</b>						
MLK Jr. Ave. / 13th St.	25	24	25	1	INCREASE	NO

**Table 3: Comparison of 2006 and 2010 Mean Speeds, Part 9 of 11**

District of Columbia Speed Study						
ROUTE NAME (Begin/End Study Location)	POSTED SPEED (MPH)	2006 Speed Data	2010 Speed Data	Analysis		
		Mean Speed (MPH)	Mean Speed (MPH)	2006 vs 2010 Mean Speed	Increase or Decrease in Mean Speed	Statistically Significant?
<b>Walbridge Place</b>						
Park Rd. / Adams Mill Rd	25	33	25	-8	DECREASE	YES
<b>Washington Avenue</b>						
Independence Ave. / I-395(Ramp)	25	26	28	2	INCREASE	YES
I-395 (Ramp) / South Capitol St.	25	26	28	2	INCREASE	YES
<b>Western Avenue</b>						
Chevy Chase Cir. / 47th St.	25	25	24	-1	DECREASE	YES
47th St. / Westmoreland Cir	25	34	35	1	INCREASE	NO
<b>West Virginia Avenue</b>						
17th St. / K. St.	25	28	30	2	INCREASE	YES
<b>Wheeler Road</b>						
Alabama Ave. / District Line	25	37	30	-7	DECREASE	YES
<b>Whitehurst Freeway</b>						
M St. Canal Rd / 27th St.	25/35	34	39	5	INCREASE	YES
<b>Wisconsin Avenue</b>						
District Line / Nebraska Ave.	30/35	29	29	0	NO CHANGE	NO
Nebraska Ave. / Massachusetts Ave.	30	33	34	1	INCREASE	NO
<b>3rd Street</b>						
Pennsylvania Avenue/Jefferson St	25	25	23	-2	DECREASE	YES
<b>4th Street</b>						
Pennsylvania Avenue/ SL	25	26	22	-4	DECREASE	YES
Michigan Ave / Adams SL	25	29	28	-1	DECREASE	NO
<b>5th Street</b>						
New Hampshire Ave/ Rock Creek Church Rd	25	24	23	-1	DECREASE	YES
Hopart PL/ McMillan Dr- Howard PL	25	36	33	-3	DECREASE	YES
<b>6th Street</b>						
Penn St/ Florida Ave	25	21	26	5	INCREASE	YES
Rhode Island Ave / Pennsylvania Ave	25	29	30	1	INCREASE	NO
<b>7th Street</b>						
Florida Ave/ MST	25	30	25	-5	DECREASE	YES
Pennsylvania Ave/Mling Ave	25	28	26	-2	DECREASE	YES

**Table 3: Comparison of 2006 and 2010 Mean Speeds, Part 10 of 11**

District of Columbia Speed Study						
ROUTE NAME (Begin/End Study Location)	POSTED SPEED (MPH)	2006 Speed Data	2010 Speed Data	Analysis		
		Mean Speed (MPH)	Mean Speed (MPH)	2006 vs 2010 Mean Speed	Increase or Decrease in Mean Speed	Statistically Significant?
<b>8th Street</b>						
Pennsylvania Ave Virginia Ave	25	24	20	-4	DECREASE	YES
<b>9th Street</b>						
V St/ Mt Vernon PL + Massachusetts Ave	25	28	27	-1	DECREASE	NO
Constitution Ave / I- 395	35	43	42	-1	DECREASE	NO
<b>11th Street</b>						
Massachusetts Ave /Pennsylvania Ave	25	27				
Rhode Island / Pennsylvania Ave	25	28	20	-8	DECREASE	YES
<b>12th Street Expressway</b>						
I -395/Southwest Fwy ( Ramp)	35	40	34	-6	DECREASE	YES
<b>12th Street</b>						
Pennsylvania Ave / Massachusetts Ave	25	26	25	-1	DECREASE	NO
Lawrence St/ South Dakota Ave	25	28	25	-3	DECREASE	YES
<b>13th Street</b>						
Fort Stevens Dr / Allison St	25	31	28	-3	DECREASE	YES
Allison St/ Kenyon St	25	30	21	-9	DECREASE	YES
<b>14th street</b>						
Aspen St/ Monroe St	25	30	26	-4	DECREASE	YES
S ST / Pennsylvania Ave	25	25	21	-4	DECREASE	YES
<b>15th Street</b>						
Independence Ave/ Alexander Hamilton PL	25	32	29	-3	DECREASE	YES
Q ST / ST	30	31	28	-3	DECREASE	YES
<b>16th Street</b>						
District Line/ Alaska Ave	30	41	31	-10	DECREASE	YES
Arkansas Ave/ Irwing ST	25	34	29	-5	DECREASE	YES
<b>17th Street</b>						
Benning Rd/ Potomac Ave	25	31	29	-2	DECREASE	YES
Connecticut Ave / Florida Ave	25	21	21	0	NO CHANGE	NO
<b>19th Street</b>						
Connecticut Ave / K St	25	19	24	5	INCREASE	YES
K St /E St	25	22	25	3	INCREASE	YES

**Table 3: Comparison of 2006 and 2010 Mean Speeds, Part 11 of 11**

District of Columbia Speed Study						
ROUTE NAME (Begin/End Study Location)	POSTED SPEED (MPH)	2006 Speed Data	2010 Speed Data	Analysis		
		Mean Speed (MPH)	Mean Speed (MPH)	2006 vs 2010 Mean Speed	Increase or Decrease in Mean Speed	Statistically Significant?
<b>20th Street</b>						
E St / New Hampshire Ave	25	22	26	4	INCREASE	YES
<b>22nd Street</b>						
Pennsylvania Ave / Massachusetts Ave	25	25	21	-4	DECREASE	YES
<b>23rd Street</b>						
Pennsylvania Ave / Lincoln Cir	25	30	28	-2	DECREASE	YES
<b>25th Street</b>						
Naylor Rd / Alabama Ave	25	28	27	-1	DECREASE	NO
<b>27th Street</b>						
Pennsylvania Ave / Texas Ave	25	28	22	-6	DECREASE	YES
Texas Ave / Naylor Rd	25	32	27	-5	DECREASE	YES
<b>34th Street</b>						
Massachusetts Ave / Woodley Rd	25	27	28	1	INCREASE	NO
<b>41st Street</b>						
District Line / Military Rd	25	29	28	-1	DECREASE	NO
<b>63rd Street</b>						
District Line / District Line	25	29	28	-1	DECREASE	NO

For all the sites a comparison of the 85<sup>th</sup> percentile speeds was conducted. This analysis is tabled as follows.

**Table 4: Comparison of 2006 and 2010 85<sup>th</sup> Percentile Speeds, Part 1 of 13**

District of Columbia Speed Study					
ROUTE NAME (Begin/End Study Location)	POSTED SPEED (MPH)	2006 Speed Data	2010 Speed Data	Analysis	
		85th Percentile Speed	85th Percentile Speed	2006 vs 2010 85th Percentile	Increase or Decrease in 85th percentile speed
<b>Adams Mill Road</b>					
Klinge Rd/ Harvard St	25	34	26	-8	DECREASE
<b>Alabama Avenue</b>					
MLK Jr Ave/ Good Hope Rd	25	31	31	0	NO CHANGE
Good Hope Rd/ 38th St	25	34	32	-2	DECREASE
<b>Alaska Avenue</b>					
Holly St/ 14th St	30	34	30	-4	DECREASE
14th St/ 16th St	30	36	34	-2	DECREASE
<b>Anacostia Freeway (DC 295)</b>					
East Capitol St (Ramps)/ Pennsylvania Ave	45	55	53	-2	DECREASE
Pennsylvania Ave (Ramps) / I-295	50	63	50	-13	DECREASE
<b>Arizona Avenue</b>					
Loughboro Rd/ McArthur Blvd	25	33	34	1	INCREASE
<b>Arkansas Avenue</b>					
16th St/ Georgia Ave	25	34	31	-3	DECREASE
<b>Arland D. Williams Junior Bridge (14th St)</b>					
I-395 Route 1 / District Line	40	54	40	-14	DECREASE
<b>Arlington Memorial Bridge</b>					
Memorial Dr/ Potomac Pkwy	25/30	45	33	-12	DECREASE
<b>Beach Drive</b>					
Wise Rd/ Rock Cr and Potomac Pkwy	25	35	32	-3	DECREASE



**Table 4: Comparison of 2006 and 2010 85<sup>th</sup> Percentile Speeds, Part 2 of 13**

District of Columbia Speed Study					
ROUTE NAME (Begin/End Study Location)	POSTED SPEED (MPH)	2006 Speed Data	2010 Speed Data	Analysis	
		85th Percentile Speed	85th Percentile Speed	2006 vs 2010 85th Percentile	Increase or Decrease in 85th percentile speed
<b>Benning Road</b>					
25th Pl/ Minnesota Ave	30	40	36	-4	DECREASE
East Capitol St/ District Line	25/30	41	32	-9	DECREASE
<b>Bladensburg Road</b>					
Douglas St/ New York Ave	30	34	35	1	INCREASE
New York Ave/ Mount Olivet Rd	25	41	40	-1	DECREASE
<b>Blair Road</b>					
District Line/ Aspen St	25	31	29	-2	DECREASE
Aspen St/ Peabody St	25/30	39	34	-5	DECREASE
<b>Bowen Road</b>					
Stanley St- Burns St/ District Line	30	30	35	5	INCREASE
<b>Branch Avenue</b>					
District Line/ Alabama Ave	25	35	33	-2	DECREASE
Alabama Ave/ Pennsylvania Ave	25	47	37	-10	DECREASE
<b>Brentwood Parkway</b>					
Penn St/ New York Ave	25	37	32	-5	DECREASE
<b>C Street</b>					
21st St/ 15th St	25	36	36	0	NO CHANGE
15th St/ 6th St	25	30	29	-1	DECREASE
<b>Calvert Street</b>					
24th St/ Adams Mill Rd	25	30	31	1	INCREASE
<b>Canal Road</b>					
Whitehurst Fwy/ Foxhall Rd	25/35	44	36	-8	DECREASE
Foxhall Rd/ Arizona Ave	35	51	42	-9	DECREASE
<b>Central Avenue</b>					
East Capitol St/ 53rd Pl	25/30	40	34	-6	DECREASE

**Table 4: Comparison of 2006 and 2010 85<sup>th</sup> Percentile Speeds, Part 3 of 13**

District of Columbia Speed Study					
ROUTE NAME (Begin/End Study Location)	POSTED SPEED (MPH)	2006 Speed Data	2010 Speed Data	Analysis	
		85th Percentile Speed	85th Percentile Speed	2006 vs 2010 85th Percentile	Increase or Decrease in 85th percentile speed
<b>Chain Bridge</b>					
Canal St/ District Line	25	37	36	-1	DECREASE
<b>Clara Barton Parkway</b>					
Chain Br/ District Line	35	52	42	-10	DECREASE
<b>Cleveland Avenue</b>					
34th St/ 29th St	25	35	32	-3	DECREASE
<b>Columbia Road</b>					
Warder St / 16th St.	25	26	24	-2	DECREASE
16th St / Biltmore St.	25	21	25	4	INCREASE
<b>Connecticut Avenue</b>					
District Line / Nebraska Ave	30	40	36	-4	DECREASE
Nebraska Ave / Porter St.	30	40	28	-12	DECREASE
<b>Constitution Avenue</b>					
North Carolina Ave. / 3rd St.	25	30	32	2	INCREASE
12 St. / 23rd St.	25	36	29	-7	DECREASE
<b>Dalecarlia Parkway</b>					
Loughboro Rd. / Massachusetts Ave.	35/40	44	43	-1	DECREASE
<b>E Street</b>					
13th St. / 5th St.	25	21	28	7	INCREASE
5th St. / Columbus Cir.	25	28	25	-3	DECREASE
<b>East Capitol Street</b>					
District Line / Benning Rd.	30	41	42	1	INCREASE
Benning Rd. / Kennilworth (Ramp)	30/35	50	44	-6	DECREASE
<b>Eastern Avenue</b>					
Addison Rd-Minnesota Ave. / District Line	25	36	35	-1	DECREASE
5th St. / Chillum Pl.	25	29	35	6	INCREASE

**Table 4: Comparison of 2006 and 2010 85<sup>th</sup> Percentile Speeds, Part 4 of 13**

District of Columbia Speed Study					
ROUTE NAME (Begin/End Study Location)	POSTED SPEED (MPH)	2006 Speed Data	2010 Speed Data	Analysis	
		85th Percentile Speed	85th Percentile Speed	2006 vs 2010 85th Percentile	Increase or Decrease in 85th percentile speed
<b>Florida Avenue</b>					
9th St. / North Capitol St.	25	32	27	-5	DECREASE
15th St. / V St.	25	29	27	-2	DECREASE
North Capitol St. / M St.	25	37	31	-6	DECREASE
<b>Foxhall Road</b>					
Reservoir Rd. / St. Partrick's School Rd.	25	37	33	-4	DECREASE
44 St. / Reservoir Rd.	25	30	34	4	INCREASE
<b>Francis Scott Key Bridge</b>					
M St. / District Line	30	39	31	-8	DECREASE
<b>Franklin Street</b>					
Rhode Islane Ave. / 12th St.	25	33	23	-10	DECREASE
7th St. / Michigan Ave.	25	32	31	-1	DECREASE
<b>George Mason Bridge</b>					
I-395-Route 1 / District Line	40	48	57	9	INCREASE
<b>George Washington Memorial Parkway</b>					
District Line / District Line	40	52	50	-2	DECREASE
<b>Georgia Avenue</b>					
Piney Branch Rd. / Webster St.	30	38	30	-8	DECREASE
Webster St. / Bryant St.	30	32	34	2	INCREASE
<b>Good Hope Road</b>					
Martin Luther King Jr. Ave. / Alabama Ave.	25	40	25	-15	DECREASE
<b>H Street</b>					
New York Ave. / 6th St.	25	25	28	3	INCREASE
<b>Harewood Road</b>					
4th St. / Taylor St.	30	40	33	-7	DECREASE

**Table 4: Comparison of 2006 and 2010 85<sup>th</sup> Percentile Speeds, Part 5 of 13**

District of Columbia Speed Study					
ROUTE NAME (Begin/End Study Location)	POSTED SPEED (MPH)	2006 Speed Data	2010 Speed Data	Analysis	
		85th Percentile Speed	85th Percentile Speed	2006 vs 2010 85th Percentile	Increase or Decrease in 85th percentile speed
<b>Harvard Street</b>					
16th St - Columbia Rd. / 6th St.	25	28	26	-2	DECREASE
<b>Henry Bacon Drive</b>					
Constitution Ave. / Lincoln Cir.	25	32	31	-1	DECREASE
<b>Martin Luther King Junior Avenue</b>					
W St. / Eaton Rd.	25	32	32	0	NO CHANGE
Eaton Rd. / Lebaum St.	30	35	33	-2	DECREASE
<b>Maryland Avenue</b>					
6th St. / Bladensburg Rd. -Benning Rd.	25	35	31	-4	DECREASE
<b>Massachusetts Avenue</b>					
11th St. / 1st St.	25	34	28	-6	DECREASE
R St. / Observatoty Cir.	25	34	33	-1	DECREASE
<b>Michigan Avenue</b>					
South Dakota Ave. / Perry St.	25	35	32	-3	DECREASE
Perry St. / Franklin St.	25	31	25	-6	DECREASE
<b>Military Road</b>					
District Line / Nebraska Ave.	25	34	30	-4	DECREASE
Oregon Ave. / 13th St.	35	33	50	17	INCREASE
<b>Minnesota Avenue</b>					
A St. / Pennsylvania Ave.	25	32	37	5	INCREASE
Pennsylvania Ave. / Good Hope Rd.	25	35	29	-6	DECREASE
<b>Missouri Avenue</b>					
13th St. / North Capitol St	25	37	34	-3	DECREASE
<b>Monroe Street</b>					
Michigan Ave. / 15th St.	25	29	28	-1	DECREASE
15th St. / South Dakota Ave.	25	33	34	1	INCREASE

**Table 4: Comparison of 2006 and 2010 85<sup>th</sup> Percentile Speeds, Part 6 of 13**

District of Columbia Speed Study					
ROUTE NAME (Begin/End Study Location)	POSTED SPEED (MPH)	2006 Speed Data	2010 Speed Data	Analysis	
		85th Percentile Speed	85th Percentile Speed	2006 vs 2010 85th Percentile	Increase or Decrease in 85th percentile speed
<b>Mount Olivet Road</b>					
9th St- Brentwood Rd. / Bladensburg Rd	25	36	35	-1	DECREASE
<b>Mount Vernon Place</b>					
7th St / 9th St	25	24	28	4	INCREASE
<b>Nannie Helen Burroughs Avenue</b>					
Kenilworth Ave / Lowrie Pl	30	33	32	-1	DECREASE
Lowrie Pl / District Line	30	34	36	2	INCREASE
<b>Naylor Road</b>					
District Line / S St	25	39	30	-9	DECREASE
<b>Nebraska Avenue</b>					
Military Rd / Wisconsin Ave	30	38	33	-5	DECREASE
Wisconsin Ave / Chain Bridge Rd - Indian Ln	30	33	31	-2	DECREASE
<b>New Hampshire Avenue</b>					
Park Rd / Illinois Ave	30	34	29	-5	DECREASE
Illinois Ave / North Capitol St	25/30	34	34	0	NO CHANGE
<b>New Jersey Avenue</b>					
Florida Ave / O St	25	32	31	-1	DECREASE
<b>New Mexico Avenue</b>					
Nebraska Ave / Fulton St	25	30	31	1	INCREASE
<b>New York Avenue</b>					
15th St / 9th St	25	26	39	13	INCREASE
Penn St -4th St / 16th St	35	31	24	-7	DECREASE
<b>North Capitol Street</b>					
Allison St / Michigan Ave	25/35	35	47	12	INCREASE
S St / F St	25	25	29	4	INCREASE

**Table 4: Comparison of 2006 and 2010 85<sup>th</sup> Percentile Speeds. Part 7 of 13**

District of Columbia Speed Study					
ROUTE NAME (Begin/End Study Location)	POSTED SPEED (MPH)	2006 Speed Data	2010 Speed Data	Analysis	
		85th Percentile Speed	85th Percentile Speed	2006 vs 2010 85th Percentile	Increase or Decrease in 85th percentile speed
<b>P Street</b>					
Wisconsin Ave./Connecticut Ave.	25	31	28	-3	DECREASE
<b>Park Place</b>					
Rock Creek Church Rd. / Michigan Ave-Columbia	25	42	34	-8	DECREASE
<b>Pennsylvania Avenue</b>					
29th St/17th St.	25	28	30	2	INCREASE
<b>Piney Branch Parkway</b>					
Arkansas Ave. / Beach Dr.	25	41	35	-6	DECREASE
<b>Piney Branch Road</b>					
District Line / Underwood St.	30	34	31	-3	DECREASE
Underwood St. / Fort Stevens Dr.	30	37	31	-6	DECREASE
<b>Porter Street</b>					
Williamsburg La / 30th St.	30	36	37	1	INCREASE
30th St. / 34th St.	25	30	30	0	NO CHANGE
<b>Potomac Avenue</b>					
18th St. / 19th St.	25	32	36	4	INCREASE
<b>Potomac River Freeway</b>					
Whitehurst Fwy / 27th St. (Ramp)	40	39	33	-6	DECREASE
I-66 (Ramp) / Ohio Dr.	40	47	37	-10	DECREASE
<b>Q Street</b>					
Wisconsin Ave. / 22nd St.-Florida Ave.	25	24	28	4	INCREASE
22nd St.-Florida Ave. / Rhode Island Ave.	25	24	24	0	NO CHANGE
<b>R Street</b>					
Florida Ave. / 15th St.	25	27	24	-3	DECREASE
15th St. / Massachusetts Ave.	25	26	22	-4	DECREASE

**Table 4: Comparison of 2006 and 2010 85<sup>th</sup> Percentile Speeds, Part 8 of 13**

District of Columbia Speed Study					
ROUTE NAME (Begin/End Study Location)	POSTED SPEED (MPH)	2006 Speed Data	2010 Speed Data	Analysis	
		85th Percentile Speed	85th Percentile Speed	2006 vs 2010 85th Percentile	Increase or Decrease in 85th percentile speed
<b>Reno Road</b>					
Chevy Chase Pkwy. / Van Ness St.	25	32	31	-1	DECREASE
Van Ness St. / Quebec Pl.	25	32	31	-1	DECREASE
<b>Reservoir Road</b>					
Wisconsin Ave. / Foxhall Rd.	25	32	26	-6	DECREASE
Foxhall Rd. / MacArthur Blvd.	25	31	30	-1	DECREASE
<b>Rhode Island Avenue</b>					
10th St. / 17th St.	30	26	27	1	INCREASE
17th St. / District Line	30	36	33	-3	DECREASE
<b>Ridge Road</b>					
Burns St. / G St.	25	39	38	-1	DECREASE
G St. / Minnesota Ave.	25	32	33	1	INCREASE
<b>Riggs Road</b>					
North Capitol St. / South Dakota Ave.	25	26	31	5	INCREASE
South Dakota Ave. / District Line	25	35	30	-5	DECREASE
<b>River Road</b>					
District Line / 44th St.	25	35	32	-3	DECREASE
44th St. / Wisconsin Ave.	25	31	30	-1	DECREASE
<b>Rochambeau Memorial Bridge</b>					
I-395 Route 1 / District Line	45	56	43	-13	DECREASE
<b>Rock Creek and Potomac Parkway</b>					
Waterside Dr. / Virginia Ave.	35	41	40	-1	DECREASE
Virginia Ave. / Ohio Dr.	25	42	40	-2	DECREASE
<b>Route 1</b>					
Maine Ave. / Maine Ave. (Ramp)	35	45	41	-4	DECREASE
Maine Ave. (Ramp) / George Mason Br.	35	45	51	6	INCREASE

**Table 4: Comparison of 2006 and 2010 85<sup>th</sup> Percentile Speeds, Part 9 of 13**

District of Columbia Speed Study					
ROUTE NAME (Begin/End Study Location)	POSTED SPEED (MPH)	2006 Speed Data	2010 Speed Data	Analysis	
		85th Percentile Speed	85th Percentile Speed	2006 vs 2010 85th Percentile	Increase or Decrease in 85th percentile speed
<b>Saraloga Avenue</b>					
Brentwood Rd / Rhode Island Ave.	25	21	24	3	INCREASE
<b>Sargent Road</b>					
DL/Galatin St.	25	31	31	0	NO CHANGE
Galatin St. / Webster St.	25	34	28	-6	DECREASE
<b>Sheriff Road</b>					
Kane PL / District Line	30	39	34	-5	DECREASE
<b>Sherman Avenue</b>					
Park Rd / Florida Ave.	25	34	34	0	NO CHANGE
<b>South Capitol Street</b>					
Xenia St. MLK Jr. Ave. / MLK Jr. Ave	35/40	35	32	-3	DECREASE
MLK Jr. Ave. / Suitland Pkwy	40	37	47	10	INCREASE
<b>South Dakota Avenue</b>					
Riggs Rd. / Webster St.	25	45	33	-12	DECREASE
Rhode Island Ave. / US Route 50 (NY Ave)	25	44	28	-16	DECREASE
<b>Southeast Freeway SW/SE</b>					
I-295 Split / I-395 Split	45	62	52	-10	DECREASE
<b>Southern Avenue</b>					
24th St. / 13th St.	30	41	41	0	NO CHANGE
13th St. / Indian Head Hwy	30	34	35	1	INCREASE
<b>Suitland Parkway</b>					
South Capitol St. / Firth Sterling Ave.	30/45	46	40	-6	DECREASE
Firth Sterling Ave. / Sheridan Rd. (Ramp)	35/45	52	43	-9	DECREASE
<b>Taylor Street</b>					
South Dakota Ave. / Hawai Ave.	25	30	25	-5	DECREASE



**Table 4: Comparison of 2006 and 2010 85<sup>th</sup> Percentile Speeds, Part 10 of 13**

District of Columbia Speed Study					
ROUTE NAME (Begin/End Study Location)	POSTED SPEED (MPH)	2006 Speed Data	2010 Speed Data	Analysis	
		85th Percentile Speed	85th Percentile Speed	2006 vs 2010 85th Percentile	Increase or Decrease in 85th percentile speed
<b>Theodora Roosevelt Bridge (I-66)</b>					
Rock Cr. And Potomac Pkwy. /District Line	40	56	35	-21	DECREASE
<b>Tilden Street</b>					
Beach Dr. / Reno Rd.	25	38	31	-7	DECREASE
<b>Tunlaw Road</b>					
Fulton St. / Calvert St.	25	30	30	0	NO CHANGE
<b>U Street</b>					
9th St. / 18th St.	25	26	28	2	INCREASE
<b>Vermont Avenue</b>					
Massachusetts Ave. / K. St.	25	23	20	-3	DECREASE
<b>Virginia Avenue</b>					
Constitution Ave. / C St.	25	28	25	-3	DECREASE
New Hampshire Ave / Rock Creek & potomac Pkwy	25	32	37	5	INCREASE
<b>W Street</b>					
MLK Jr. Ave. / 13th St.	25	27	27	0	NO CHANGE
<b>Walbridge Place</b>					
Park Rd. / Adams Mill Rd	25	34	28	-6	DECREASE
<b>Washington Avenue</b>					
Independence Ave. / I-395(Ramp)	25	29	32	3	INCREASE
I-395 (Ramp) / South Capitol St.	25	29	32	3	INCREASE
<b>Western Avenue</b>					
Chevy Chase Cir. / 47th St.	25	27	25	-2	DECREASE
47th St. / Westmoreland Cir	25	36	39	3	INCREASE
<b>West Virginia Avenue</b>					
17th St. / K. St.	25	31	33	2	INCREASE

**Table 4: Comparison of 2006 and 2010 85<sup>th</sup> Percentile Speeds, Part 11 of 13**

District of Columbia Speed Study					
ROUTE NAME (Begin/End Study Location)	POSTED SPEED (MPH)	2006 Speed Data	2010 Speed Data	Analysis	
		85th Percentile Speed	85th Percentile Speed	2006 vs 2010 85th Percentile	Increase or Decrease in 85th percentile speed
<b>Wheeler Road</b>					
Alabama Ave. / District Line	25	41	36	-5	DECREASE
<b>Whitehurst Freeway</b>					
M.St. Canal Rd / 27th St.	25/35	39	42	3	INCREASE
<b>Wisconsin Avenue</b>					
District Line / Nebraska Ave.	30/35	32	34	2	INCREASE
Nebraska Ave. / Massachusetts Ave.	30	37	36	-1	DECREASE
<b>3rd Street</b>					
Pennsylvania Avenue/Jefferson St	25	28	26	-2	DECREASE
<b>4th Street</b>					
Pennsylvania Avenue/ SL	25	31	25	-6	DECREASE
Michigan Ave / Adams SL	25	33	31	-2	DECREASE
<b>5th Street</b>					
New Hampshire Ave/ Rock Creek Church Rd	25	26	25	-1	DECREASE
Hopart PL/ McMillan Dr- Howard PL	25	41	35	-6	DECREASE
<b>6th Street</b>					
Penn St/ Florida Ave	25	24	28	4	INCREASE
Rhode Island Ave / Pennsylvania Ave	25	32	33	1	INCREASE
<b>7th Street</b>					
Florida Ave/ MST	25	32	28	-4	DECREASE
Pennsylvania Ave/Mling Ave	25	32	29	-3	DECREASE
<b>8th Street</b>					
Pennsylvania Ave Virginia Ave	25	27	23	-4	DECREASE
<b>9th Street</b>					
V St/ Mt Vernon PL + Massachusetta Ave	25	33	30	-3	DECREASE
Constitution Ave / I- 395	35	48	45	-3	DECREASE

**Table 4: Comparison of 2006 and 2010 85<sup>th</sup> Percentile Speeds, Part 12 of 13**

District of Columbia Speed Study					
ROUTE NAME (Begin/End Study Location)	POSTED SPEED (MPH)	2006 Speed Data	2010 Speed Data	Analysis	
		85th Percentile Speed	85th Percentile Speed	2006 vs 2010 85th Percentile	Increase or Decrease in 85th percentile speed
<b>11th Street</b>					
Rhode Island / Pennsylvania Ave	25	32	21	-11	DECREASE
<b>12th Street Expressway</b>					
I -395/Southwest Fwy ( Ramp)	35	43	37	-6	DECREASE
<b>12th Street</b>					
Pennsylvania Ave / Massachusetta Ave	25	29	29	0	NO CHANGE
Lawrence St/ South Dakota Ave	25	32	27	-5	DECREASE
<b>13th Street</b>					
Fort Stevens Dr / Allison St	25	35	31	-4	DECREASE
Allison St/ Kenyon St	25	32	23	-9	DECREASE
<b>14th street</b>					
Aspen St/ Monroe St	25	34	30	-4	DECREASE
S ST / Pennsylvania Ave	25	30	23	-7	DECREASE
<b>15th Street</b>					
Independence Ave/ Alexander Hamilton PL	25	35	32	-3	DECREASE
Q ST / ST	30	34	30	-4	DECREASE
<b>16th Street</b>					
District Line/ Alaska Ave	30	45	33	-12	DECREASE
Arkansas Ave/ Irwing ST	25	41	32	-9	DECREASE
<b>17th Street</b>					
Benning Rd/ Potomac Ave	25	34	32	-2	DECREASE
Connecticut Ave / Florida Ave	25	34	22	-12	DECREASE
<b>19th Street</b>					
Connecticut Ave / K St	25	21	26	5	INCREASE
K St /E St	25	25	28	3	INCREASE

**Table 4: Comparison of 2006 and 2010 85<sup>th</sup> Percentile Speeds, Part 13 of 13**

District of Columbia Speed Study					
ROUTE NAME (Begin/End Study Location)	POSTED SPEED (MPH)	2006 Speed Data	2010 Speed Data	Analysis	
		85th Percentile Speed	85th Percentile Speed	2006 vs 2010 85th Percentile	Increase or Decrease in 85th percentile speed
<b>20th Street</b>					
E St / New Hampshire Ave	25	24	30	6	INCREASE
<b>22nd Street</b>					
Pennsylvania Ave / Massachusetts Ave	25	27	23	-4	DECREASE
<b>23rd Street</b>					
Pennsylvania Ave / Lincoln Cir	25	32	30	-2	DECREASE
<b>25th Street</b>					
Naylor Rd / Alabama Ave	25	30	31	1	INCREASE
<b>27th Street</b>					
Pennsylvania Ave / Texas Ave	25	32	23	-9	DECREASE
Texas Ave / Naylor Rd	25	38	31	-7	DECREASE
<b>34th Street</b>					
Massachusetts Ave / Woodley Rd	25	29	30	1	INCREASE
<b>41st Street</b>					
District Line / Military Rd	25	32	31	-1	DECREASE
<b>63rd Street</b>					
District Line / District Line	25	34	31	-3	DECREASE

Table 5 presents the summary of the number of locations with increases in mean and 85<sup>th</sup> percentile speeds.

**Table 5: Extent of Increases in Speeds**

INCREASE OF	SPEED STATISTICS	
	<i>Mean</i>	<i>85<sup>th</sup> Percentile</i>
5 mph or more	13 (6.7%)	12 (6.2%)
Less than 5 mph	38 (19.7%)	37 (19.2%)

## 6.0 DISCUSSIONS

In comparing the mean speeds for 2010 with those for 2006, of the 193 locations analyzed, there were 123 (~64%) locations for which the mean speeds were reduced. However, 38 sites (26%) of these locations had mean speeds in 2010 higher than those in 2006. The results also indicate that, over the 4-year period, 106 of the 123 reductions (86%) in mean speeds were statistically significant. Only 9.8% (19) of the locations showed no change in mean speeds. There were a total of 51 locations that recorded increases in mean speeds of which 13 were 5 mph or more.

A review and comparison of the 85<sup>th</sup> percentile speeds showed that, of the 193 locations, 132 locations showed a reduction in the 85<sup>th</sup> percentile speed. This indicates that approximately 68% of the locations studied had a reduction in the 85<sup>th</sup> percentile speeds since 2006. Of the 193 locations studied, 12 sites recorded no change in the 85<sup>th</sup> percentile speeds compared with the 2006 speed data. Approximately 6% (12) of the locations showed no change in 85<sup>th</sup> percentile speeds. A total of 49 locations recorded increases in 85<sup>th</sup> percentile speeds of which 12 were 5 mph or more.

## **7.0 CONCLUSIONS AND RECOMMENDATIONS**

For the 193 sites studied, the results demonstrate that there has been a generally favorable outcome from speed managing programs implemented over the last four years. Approximately 55% (106 sites) of the locations assessed had a statistically significant reduction in mean speeds since 2006. The reductions ranged from a minimum of 1 mph to 20 mph. A comparison of the 85<sup>th</sup> percentile speeds also showed that there were reductions at approximately 68% of the locations. Overall, for both speed characteristics, less than 33% of the locations studied experienced increases in speed compared with the 2006 data. The increases in speed ranged from 1 mph to a maximum of 16 mph.

The study highlights locations where there may be a need for effective speed management techniques to reduce the occurrence of speeding at those locations. In addition to investigating those locations where there has been increases in speed characteristics, sites which show a significant reduction in speeds should also be looked at in order to determine if any particular speed managing technique was implemented and may have aided in the reduction in speeds. Further research would help to identify and establish effective speed reducing measures that can subsequently be used at locations with a high incidence of speeding.

The 2006 report investigated 400 locations throughout Washington DC. In order to provide a more comprehensive analysis of speed in the District, a review of the remaining 207 locations would be worthwhile and could provide a more robust database for investigation of speeds for a broader road classifications or posted speed limits. A

periodical analysis of speed data of different years is fundamental in understanding the impact of various speed management program.

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## **APPENDIX: RESULTS FROM FIELD DATA**

District of Columbia Speed Study													
ROUTE NAME (Begin/End Study Location)	POSTED SPEED (MPH)	2006 Speed Data				2010 Speed Data				Analysis			
		Sample Size (N)	Mean Speed (MPH)	Standard Deviation	Variance	Sample Size (N)	Mean Speed (MPH)	Standard Deviation	Variance	t <sub>obt</sub> (Welsh's t- test)	Df	t <sub>exp</sub>	Significant?
<b>Adams Mill Road</b>													
Klinge Rd/ Harvard St	25	100	31	4.04	16.32	105	24	3.19	10.18	13.72	188.28	1.98	YES
<b>Alabama Avenue</b>													
MLK Jr Ave/ Good Hope Rd	25	101	28	3.95	15.60	111	28	3.24	10.50	0.00	193.87	1.98	NO
Good Hope Rd/ 38th St	25	72	30	4.21	17.72	115	29	4.02	16.16	1.61	145.64	1.98	NO
<b>Alaska Avenue</b>													
Holly St/ 14th St	30	70	31	3.94	15.52	89	26	4.26	18.15	7.66	152.88	1.98	YES
14th St/ 16th St	30	70	32	5.16	26.63	62	31	4.19	17.56	1.23	129.06	1.98	NO
<b>Anacostia Freeway (DC 295)</b>													
East Capitol St (Ramps)/ Pennsylvania Ave	45	100	51	5.09	25.91	153	49	7.68	58.98	2.49	250.94	1.98	YES
Pennsylvania Ave (Ramps) / I-295	50	100	60	5.19	26.94	154	47	7.82	61.15	15.92	251.86	1.98	YES
<b>Arizona Avenue</b>													
Loughboro Rd/ McArthur Blvd	25	71	30	4.07	16.56	115	30	4.41	19.45	0.00	157.46	1.98	NO
<b>Arkansas Avenue</b>													
16th St/ Georgia Ave	25	69	29	5.48	30.03	101	28	4.13	17.06	1.29	118.84	1.98	NO
<b>Arland D. Williams Junior Bridge (14th St)</b>													
I-395 Route 1/ District Line	40	104	49	4.95	24.50	153	37	7.46	55.65	15.50	254.88	1.98	YES
<b>Arlington Memorial Bridge</b>													
Memorial Dr/ Potomac Pkwy	25/30	100	40	4.61	21.25	158	31	6.58	43.30	12.90	253.32	1.98	YES
<b>Beach Drive</b>													
Wise Rd/ Rock Cr and Potomac Pkwy	25	100	32	3.39	11.49	111	30	2.7	7.29	4.71	188.95	1.98	YES
<b>Benning Road</b>													
25th Pl/ Minnesota Ave	30	100	37	4.87	23.72	107	31	5.17	26.73	8.60	204.99	1.98	YES
East Capitol St/ District Line	25/30	100	38	3.96	15.68	105	30	3.27	10.69	15.73	192.18	1.98	YES
<b>Bladensburg Road</b>													
Douglas St/ New York Ave	30	101	31	4.01	16.08	124	33	3.58	12.82	-3.90	202.57	1.98	YES
New York Ave/ Mount Olivet Rd	25	100	37	3.22	10.37	109	32	3.35	11.22	11.00	206.54	1.98	YES

District of Columbia Speed Study													
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<b>Blair Road</b>													
District Line/ Aspen St	25	70	29	3.35	11.22	142	25	5.26	27.67	6.71	196.56	1.98	YES
Aspen St/ Peabody St	25/30	100	37	3.22	10.37	109	32	3.35	11.22	11.00	206.54	1.98	YES
<b>Bowen Road</b>													
Stanley St- Burns St/ District Line	30	70	27	3.91	15.29	113	32	3.58	12.82	-8.68	136.58	1.98	YES
<b>Branch Avenue</b>													
District Line/ Alabama Ave	25	100	32	4.22	17.81	111	28	4.59	21.07	6.59	208.91	1.98	YES
Alabama Ave/ Pennsylvania Ave	25	100	41	5.61	31.47	115	31	5.98	35.76	12.64	211.76	1.98	YES
<b>Brentwood Parkway</b>													
Penn St/ New York Ave	25	69	34	4.3	18.49	112	30	3.42	11.70	6.55	120.15	1.98	YES
<b>C Street</b>													
21st St/ 15th St	25	102	31	5.96	35.52	136	31	6.13	37.58	0.00	220.84	1.98	NO
15th St/ 6th St	25	72	27	3.74	13.99	120	27	3.63	13.18	0.00	146.10	1.98	NO
<b>Calvert Street</b>													
24th St/ Adams Mill Rd	25	70	27	3.46	11.97	102	29	4.04	16.32	-3.48	161.77	1.98	YES
<b>Canal Road</b>													
Whitehurst Fwy/ Foxhall Rd	25/35	100	39	5.37	28.84	105	32	3.15	9.92	11.31	158.33	1.98	YES
Foxhall Rd/ Arizona Ave	35	100	45	5.64	31.81	113	38	3.82	14.59	10.47	170.81	1.98	YES
<b>Central Avenue</b>													
East Capitol St/ 53rd Pl	25/30	70	36	4.95	24.50	105	32	2.43	5.90	6.28	91.39	1.99	YES
<b>Chain Bridge</b>													
Canal St/ District Line	25	100	35	4.17	17.39	106	34	3.71	13.76	1.81	197.97	1.98	NO
<b>Clara Barton Parkway</b>													
Chain Br/ District Line	35	100	47	4.51	20.34	124	38	4.32	18.66	15.13	208.03	1.98	YES
<b>Cleveland Avenue</b>													
34th St/ 29th St	25	50	31	5.29	27.98	105	30	3.14	9.86	1.24	65.95	2	NO

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<b>Columbia Road</b>													
Warder St / 16th St.	25	101	23	4.07	16.56	108	23	2.2	4.84	0.00	151.54	1.98	NO
16th St / Biltmore St.	25	101	21	3.65	13.32	114	23	2.35	5.52	-4.71	167.00	1.98	YES
<b>Connecticut Avenue</b>													
District Line / Nebraska Ave	30	99	36	5.32	28.30	81	33	4.04	16.32	4.30	177.07	1.98	YES
Nebraska Ave / Porter St.	30	100	36	4.19	17.56	105	26	2.83	8.01	19.93	172.68	1.98	YES
<b>Constitution Avenue</b>													
North Carolina Ave. / 3rd St.	25	59	26	4.69	22.00	108	28	4.33	18.75	-2.71	111.49	1.98	YES
12 St. / 23rd St.	25	100	33	4.85	23.52	109	25	3.94	15.52	13.02	190.99	1.98	YES
<b>Dalecarlia Parkway</b>													
Loughboro Rd. / Massachusetts Ave.	35/40	70	39	5.88	34.57	94	41	3.78	14.29	-2.49	110.26	1.98	YES
<b>E Street</b>													
13th St. / 5th St.	25	70	20	2.96	8.76	104	25	2.82	7.95	-11.14	143.24	1.98	YES
5th St. / Columbus Cir.	25	70	25	4.16	17.31	114	22	3.37	11.36	5.09	123.56	1.98	YES
<b>East Capitol Street</b>													
District Line / Benning Rd.	30	100	36	5.3	28.09	107	40	2.59	6.71	-6.82	141.54	1.98	YES
Benning Rd. / Kennilworth (Ramp)	30/35	100	44	6.88	47.33	108	40	3.55	12.60	5.21	145.64	1.98	YES
<b>Eastern Avenue</b>													
5th St. / Chillum Pl.	25	69	26	4.06	16.48	105	30	5.32	28.30	-5.61	168.10	1.98	YES
Addison Rd-Minnesota Ave. / District Line	25	100	33	4.82	23.23	107	32	4.88	23.81	1.48	204.37	1.98	NO
<b>Florida Avenue</b>													
9th St. / North Capitol St.	25	99	29	3.47	12.04	115	25	3.19	10.18	8.73	201.01	1.98	YES
15th St. / V St.	25	70	25	4.74	22.47	114	25	2.66	7.08	0.00	96.07	1.99	NO
North Capitol St. / M St.	25	100	34	3.88	15.05	108	27	4.39	19.27	12.20	205.56	1.98	YES

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<b>Foxhall Road</b>													
44 St. / Reservoir Rd.	25	100	29	2.71	7.34	109	29	4.26	18.15	0.00	185.02	1.98	NO
Reservoir Rd. / St. Partrick's School Rd.	25	101	33	4.61	21.25	102	29	3.6	12.96	6.89	189.00	1.98	YES
50													
<b>Francis Scott Key Bridge</b>													
M St. / District Line	30	100	36	4.27	18.23	154	29	6.57	43.16	10.29	252.00	1.98	YES
<b>Franklin Street</b>													
Rhode Island Ave. / 12th St.	25	50	30	4.31	18.58	102	22	3.23	10.43	11.62	76.87	1.99	YES
7th St. / Michigan Ave.	25	70	29	3.79	14.36	118	28	4.12	16.97	1.69	154.79	1.98	NO
<b>George Mason Bridge</b>													
I-395-Route 1 / District Line	40	99	44	4.65	21.62	155	52	7.76	60.22	-10.27	251.11	1.98	YES
<b>George Washington Memorial Parkway</b>													
District Line / District Line	40	100	48	4.68	21.90	153	46	7.52	56.55	2.61	250.48	1.98	YES
<b>Georgia Avenue</b>													
Piney Branch Rd. / Webster St.	30	100	32	5.92	35.05	103	27	3.39	11.49	7.36	156.66	1.98	YES
Webster St. / Bryant St.	30	100	29	3.89	15.13	109	32	4.09	16.73	-5.43	206.73	1.98	YES
<b>Good Hope Road</b>													
Martin Luther King Jr. Ave. / Alabama Ave.	25	100	35	5.25	27.56	104	22	3.19	10.18	21.27	162.13	1.98	YES
<b>H Street</b>													
New York Ave. / 6th St.	25	100	24	2.51	6.30	105	25	3.39	11.49	-2.41	191.52	1.98	YES
<b>Harewood Road</b>													
4th St. / Taylor St.	30	100	36	4.36	19.01	110	30	4.5	20.25	9.81	207.15	1.98	YES
<b>Harvard Street</b>													
16th St - Columbia Rd. / 6th St.	25	72	24	5.71	32.60	105	24	3.06	9.36	0.00	99.09	1.99	NO

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<b>Henry Bacon Drive</b>													
Constitution Ave. / Lincoln Cir.	25	70	28	5.12	26.21	103	29	3.55	12.60	-1.42	113.27	1.98	NO
<b>Martin Luther King Junior Avenue</b>													
W St./ Eaton Rd.	25	70	28	4.76	22.66	117	30	3.56	12.67	-3.04	115.23	1.98	YES
Eaton Rd. / Lebaum St.	30	70	32	4.89	23.91	108	30	3.85	14.82	2.89	122.80	1.98	YES
<b>Maryland Avenue</b>													
6th St. / Bladensburg Rd. -Benning Rd.	25	70	32	4.84	23.43	110	26	5.31	28.20	7.80	156.91	1.98	YES
<b>Massachusetts Avenue</b>													
11th St. / 1st St.	25	100	30	4.27	18.23	102	24	4.7	22.09	9.50	198.86	1.98	YES
R St. / Observatoty Cir.	25	100	32	3.74	13.99	122	30	4.29	18.40	3.71	219.14	1.98	YES
<b>Michigan Avenue</b>													
South Dakota Ave. / Perry St.	25	71	32	3.59	12.89	111	28	5.2	27.04	6.13	178.91	1.98	YES
Perry St. / Franklin St.	25	70	28	3.14	9.86	112	23	3.42	11.70	10.10	155.96	1.98	YES
<b>Military Road</b>													
District Line / Nebraska Ave.	25	70	30	4.7	22.09	100	27	3.89	15.13	4.39	130.18	1.98	YES
Oregon Ave. / 13th St.	35	104	30	3.68	13.54	102	46	4.89	23.91	-26.50	187.60	1.98	YES
<b>Minnesota Avenue</b>													
A St. / Pennsylvania Ave.	25	100	28	4.4	19.36	104	34	4.4	19.36	-9.74	201.69	1.98	YES
Pennsylvania Ave. / Good Hope Rd.	25	100	31	5.25	27.56	117	26	3.48	12.11	8.12	167.19	1.98	YES
<b>Missouri Avenue</b>													
13th St. / North Capitol St	25	100	34	4.6	21.16	100	30	4.25	18.06	6.39	196.77	1.98	YES
<b>Monroe Street</b>													
Michigan Ave. / 15th St.	25	71	27	3.9	15.21	106	26	2.67	7.13	1.88	113.40	1.98	NO
15th St. / South Dakota Ave.	25	72	31	3.65	13.32	113	30	3.87	14.98	1.77	157.81	1.98	NO



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<b>Mount Olivet Road</b>													
9th St- Brentwood Rd. / Bladensburg Rd	25	70	31	5.57	31.02	112	31	3.96	15.68	0.00	112.50	1.98	NO
<b>Mount Vernon Place</b>													
7th St / 9th St	25	71	21	3.64	13.25	109	27	1.87	3.50	-12.83	94.33	1.99	YES
<b>Nannie Helen Burroughs Avenue</b>													
Kenilworth Ave / Lowrie Pl	30	99	29	4.03	16.24	118	28	4.53	20.52	1.72	214.24	1.98	NO
Lowrie Pl / District Line	30	70	30	4.31	18.58	112	31	4.52	20.43	-1.49	151.86	1.98	NO
<b>Naylor Road</b>													
District Line / S St	25	71	36	3.77	14.21	109	27	3.28	10.76	16.46	134.80	1.98	YES
<b>Nebraska Avenue</b>													
Military Rd / Wisconsin Ave	30	100	36	3.6	12.96	106	30	4.65	21.62	10.39	196.63	1.98	YES
Wisconsin Ave / Chain Bridge Rd - Indian Ln	30	101	31	2.86	8.18	105	29	3.42	11.70	4.56	200.16	1.98	YES
<b>New Hampshire Avenue</b>													
Park Rd / Illinois Ave	30	150	31	4.32	18.66	107	26	3.94	15.52	9.63	240.13	1.98	YES
Illinois Ave / North Capitol St	25/30	99	31	2.86	8.18	105	29	3.42	11.70	4.54	199.20	1.98	YES
<b>New Jersey Avenue</b>													
Florida Ave / O St	25	100	28	4.25	18.06	114	29	3.33	11.09	-1.90	186.86	1.98	NO
<b>New Mexico Avenue</b>													
Nebraska Ave / Fulton St	25	70	27	3.25	10.56	102	28	3.44	11.83	-1.94	153.79	1.98	NO
<b>New York Avenue</b>													
15th St / 9th St	25	99	25	2.16	4.67	111	36	4.46	19.89	-23.12	162.82	1.98	YES
Penn St -4th St / 16th St	35	100	26	4.72	22.28	103	23	2.4	5.76	5.68	146.01	1.98	YES
<b>North Capitol Street</b>													
Allison St / Michigan Ave	25/35	100	32	3.75	14.06	121	43	5.59	31.25	-17.42	210.58	1.98	YES
S St / F St	25	50	22	3.34	11.16	110	27	3.25	10.56	-8.85	92.55	1.99	YES

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<b>North Carolina Avenue</b>													
Constitution Ave. / C. St. NE	25	68	30	4.8	23.04	101	31	4.17	17.39	-1.40	129.91	1.98	NO
<b>P Street</b>													
Wisconsin Ave./Connecticut Ave.	25	70	29	3.23	10.43	104	27	2.19	4.80	4.53	111.18	1.98	YES
<b>Park Place</b>													
Rock Creek Church Rd. / Michigan Ave-Columbia	25	70	36	6.55	42.90	103	31	3.3	10.89	5.90	92.99	1.99	YES
<b>Pennsylvania Avenue</b>													
29th St/17th St.	25	100	24	4.43	19.62	104	28	3.35	11.22	-7.25	184.26	1.98	YES
<b>Piney Branch Parkway</b>													
Arkansas Ave. / Beach Dr.	25	100	37	4.71	22.18	103	32	4.38	19.18	7.83	198.92	1.98	YES
<b>Piney Branch Road</b>													
District Line / Underwood St.	30	75	31	3.95	15.60	107	28	4.64	21.53	4.69	173.24	1.98	YES
Underwood St. / Fort Stevens Dr.	30	100	34	4.87	23.72	108	28	4.02	16.16	9.65	192.45	1.98	YES
<b>Porter Street</b>													
Williamsburg La / 30th St.	30	72	32	4.12	16.97	104	34	3.08	9.49	-3.50	123.79	1.98	YES
30th St. / 34th St.	25	100	27	3.33	11.09	108	28	3.33	11.09	-2.16	204.77	1.98	YES
<b>Potomac Avenue</b>													
18th St. / 19th St.	25	50	31	2.07	4.28	122	32	3.7	13.69	-2.25	154.24	1.98	YES
<b>Potomac River Freeway</b>													
Whitehurst Fwy / 27th St. (Ramp)	40	70	36	4.29	18.40	155	31	6.82	46.51	6.66	199.78	1.98	YES
I-66 (Ramp) / Ohio Dr.	40	100	43	5	25.00	153	33	7.17	51.41	13.06	249.92	1.98	YES
<b>Q Street</b>													
Wisconsin Ave. / 22nd St.-Florida Ave.	25	71	21	3.76	14.14	107	26	2.56	6.55	-9.80	112.65	1.98	YES
22nd St.-Florida Ave. / Rhode Island Ave.	25	49	22	2.76	7.62	103	22	2.92	8.53	0.00	99.46	1.99	NO

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<b>R Street</b>													
Florida Ave. / 15th St.	25	70	24	3.63	13.18	101	23	2.5	6.25	2.00	113.37	1.98	YES
15th St. / Massachusetts Ave.	25	70	23	3.67	13.47	101	21	2.84	8.07	3.83	123.48	1.98	YES
<b>Reno Road</b>													
Chevy Chase Pkwy. / Van Ness St.	25	100	30	3.15	9.92	101	29	3.26	10.63	2.21	198.88	1.98	YES
Van Ness St. / Quebec Pl.	25	100	30	3.01	9.06	103	29	3.04	9.24	2.35	200.92	1.98	YES
<b>Reservoir Road</b>													
Wisconsin Ave. / Foxhall Rd.	25	103	30	3.33	11.09	111	25	2.5	6.25	12.35	188.73	1.98	YES
Foxhall Rd. / MacArthur Blvd.	25	70	29	3.63	13.18	109	27	3.23	10.43	3.75	134.75	1.98	YES
<b>Rhode Island Avenue</b>													
10th St. / 17th St.	30	100	30	3.33	11.09	111	25	2.5	6.25	12.23	182.67	1.98	YES
17th St. / District Line	30	99	32	3.73	13.91	105	28	4.79	22.94	6.68	195.13	1.98	YES
<b>Ridge Road</b>													
Burns St. / G St.	25	50	33	5.92	35.05	123	33	5.95	35.40	0.00	91.32	1.99	NO
G St. / Minnesota Ave.	25	48	29	4.7	22.09	112	29	4.05	16.40	0.00	78.31	1.99	NO
<b>Riggs Road</b>													
North Capitol St. / South Dakota Ave.	25	100	24	3.14	9.86	118	28	4.69	22.00	-7.49	205.54	1.98	YES
South Dakota Ave. / District Line	25	98	30	4.61	21.25	157	27	4.69	22.00	5.02	208.67	1.98	YES
<b>River Road</b>													
District Line / 44th St.	25	69	31	4.19	17.56	101	29	3.17	10.05	3.36	119.19	1.98	YES
44th St. / Wisconsin Ave.	25	100	27	4.28	18.32	112	28	2.9	8.41	-1.97	171.15	1.98	NO
<b>Rochambeau Memorial Bridge</b>													
I-395 Route 1 / District Line	45	100	52	5.17	26.73	152	40	6.96	48.44	15.68	246.28	1.98	YES
<b>Rock Creek and Potomac Parkway</b>													
Waterside Dr. / Virginia Ave.	35	101	38	4.07	16.56	110	38	2.18	4.75	0.00	150.07	1.98	NO
Virginia Ave. / Ohio Dr.	25	100	39	3.82	14.59	107	39	2.29	5.24	0.00	159.83	1.98	NO

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<b>Route 1</b>													
Maine Ave. / Maine Ave. (Ramp)	35	100	41	4.93	24.30	155	38	6.89	47.47	4.05	250.25	1.98	YES
Maine Ave. (Ramp) / George Mason Br.	35	99	42	4.02	16.16	158	47	7.63	58.22	-6.86	248.72	1.98	YES
<b>Saraloga Avenue</b>													
Brentwood Rd / Rhode Island Ave.	25	66	20	2.59	6.71	108	23	3.28	10.76	-6.69	160.94	1.98	YES
<b>Sargent Road</b>													
DL/Galatin St.	25	70	30	2.93	8.58	103	28	3.85	14.82	3.87	168.75	1.98	YES
Galatin St. / Webster St.	25	70	32	2.88	8.29	105	26	3.11	9.67	13.07	155.59	1.98	YES
<b>Sheriff Road</b>													
Kane PL / District Line	30	100	34	5.14	26.42	104	30	3.75	14.06	6.33	180.76	1.98	YES
<b>Sherman Avenue</b>													
Park Rd / Florida Ave.	25	70	31	4.93	24.30	101	31	3.77	14.21	0.00	122.39	1.98	NO
<b>South Capitol Street</b>													
Xenia St. MLK Jr. Ave. /MLK Jr. Ave	35/40	99	30	5.31	28.20	112	30	3.74	13.99	0.00	173.36	1.98	NO
MLK Jr. Ave. /Suitland Pkwy	40	102	34	5.17	26.73	111	43	4.48	20.07	-13.52	200.72	1.98	YES
<b>South Dakota Avenue</b>													
Riggs Rd. / Webster St.	25	100	38	6.16	37.95	111	30	4.54	20.61	10.64	180.66	1.98	YES
Rhode Island Ave. /US Route 50 (NY Ave)	25	100	42	4.44	19.71	113	26	2.57	6.60	31.65	154.41	1.98	YES
<b>Southeast Freeway SW/SE</b>													
I-295 Split / I-395 Split	45	100	57	5.38	28.94	159	45	8.17	66.75	14.25	256.43	1.98	YES
<b>Southern Avenue</b>													
24th St. / 13th St.	30	100	36	5.82	33.87	139	38	5.72	32.72	-2.64	211.23	1.98	YES
13th St. / Indian Head Hwy	30	70	31	4.76	22.66	122	32	4.49	20.16	-1.43	137.06	1.98	NO
<b>Suitland Parkway</b>													
South Capitol St. / Firth Stering Ave.	30/45	101	41	5.94	35.28	107	36	4.88	23.81	6.61	193.80	1.98	YES
Firth Stering Ave. / Sheridan Rd. (Ramp)	35/45	100	47	4.98	24.80	129	40	4.15	17.22	11.33	191.38	1.98	YES

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<b>Taylor Street</b>													
South Dakota Ave. / Hawai Ave.	25	70	28	3.87	14.98	102	23	2.34	5.48	9.66	103.52	1.99	YES
<b>Theodora Roosevelt Bridge (I-66)</b>													
Rock Cr. And Potomac Pkwy. /District Line	40	100	52	4.92	24.21	153	32	7.12	50.69	26.41	250.19	1.98	YES
<b>Tilden Street</b>													
Beach Dr. / Reno Rd.	25	100	35	3.48	12.11	107	28	3.37	11.36	14.68	202.97	1.98	YES
<b>Tunlaw Road</b>													
Fulton St. / Calvert St.	25	50	28	2.85	8.12	107	28	2.7	7.29	0.00	91.30	1.99	NO
<b>U Street</b>													
9th St. / 18th St.	25	70	24	3.46	11.97	101	25	3.51	12.32	-1.85	149.91	1.98	NO
<b>Vermont Avenue</b>													
Massachusetts Ave. / K. St.	25	70	20	3.97	15.76	101	18	2.83	8.01	3.62	116.21	1.98	YES
<b>Virginia Avenue</b>													
Constitution Ave. / C St.	25	71	26	3.29	10.82	102	22	3.29	10.82	7.87	150.75	1.98	YES
New Hampshire Ave / Rock Creek & potomac Pkwy	25	70	29	4.22	17.81	102	34	3.77	14.21	-7.97	137.17	1.98	YES
<b>W Street</b>													
MLK Jr. Ave. / 13th St.	25	50	24	3.2	10.24	116	25	3.76	14.14	-1.75	108.33	1.98	NO
<b>Walbridge Place</b>													
Park Rd. / Adams Mill Rd	25	50	33	2.7	7.29	103	25	4.21	17.72	14.19	139.54	1.98	YES
<b>Washington Avenue</b>													
Independence Ave. / I-395(Ramp)	25	70	26	4.76	22.66	103	28	5.44	29.59	-2.56	160.38	1.98	YES
I-395 (Ramp) / South Capitol St.	25	70	26	3.59	12.89	106	28	4.15	17.22	-3.40	161.74	1.98	YES
<b>Western Avenue</b>													
Chevy Chase Cir. / 47th St.	25	100	25	3.11	9.67	116	24	2.54	6.45	2.56	191.17	1.98	YES
47th St. / Westmoreland Cir	25	100	34	3.22	10.37	104	35	4.46	19.89	-1.84	187.59	1.98	NO

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<b>West Virginia Avenue</b>													
17th St. / K. St.	25	69	28	3.44	11.83	108	30	3.29	10.82	-3.84	140.26	1.98	YES
<b>Wheeler Road</b>													
Alabama Ave. / District Line	25	100	37	4.95	24.50	108	30	3.29	10.82	11.91	170.20	1.98	YES
<b>Whitehurst Freeway</b>													
MSt. Canal Rd / 27th St.	25/35	100	34	5.16	26.63	159	39	7.11	50.55	-6.54	251.71	1.98	YES
<b>Wisconsin Avenue</b>													
District Line / Nebraska Ave.	30/35	100	29	3.16	9.99	105	29	4.54	20.61	0.00	186.12	1.98	NO
Nebraska Ave. / Massachusetts Ave.	30	100	33	4.28	18.32	104	34	3.16	9.99	-1.89	181.94	1.98	NO
<b>3rd Street</b>													
Pennsylvania Avenue/Jefferson St	25	70	25	4.47	19.98	105	23	4.44	19.71	2.91	147.33	1.98	YES
<b>4th Street</b>													
Pennsylvania Avenue/ SL	25	70	26	4.22	17.81	103	22	3.35	11.22	6.64	125.22	1.98	YES
Michigan Ave / Adams SL	25	71	29	3.69	13.62	102	28	4.24	17.98	1.65	162.60	1.98	NO
<b>5th Street</b>													
New Hampshire Ave/ Rock Creek Church Rd	25	50	24	2.97	8.82	102	23	2.56	6.55	2.04	85.68	1.99	YES
Hopart PL/ McMillan Dr- Howard PL	25	100	36	4.94	24.40	119	33	3.73	13.91	4.99	181.61	1.98	YES
<b>6th Street</b>													
Penn St/ Florida Ave	25	100	21	3.69	13.62	116	26	3.59	12.89	-10.06	207.53	1.98	YES
Rhode Island Ave / Pennsylvania Ave	25	100	29	4.02	16.16	116	30	3.85	14.82	-1.86	206.38	1.98	NO
<b>7th Street</b>													
Florida Ave/ MST	25	100	30	3.08	9.49	118	25	3.39	11.49	11.40	214.93	1.98	YES
Pennsylvania Ave/Mling Ave	25	100	28	4.21	17.72	100	26	4.36	19.01	3.30	197.76	1.98	YES
<b>8th Street</b>													
Pennsylvania Ave Virginia Ave	25	70	24	3.57	12.74	118	20	3.25	10.56	7.68	134.37	1.98	YES

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<b>9th Street</b>													
V St/ Mt Vernon PL + Massachusetts Ave	25	70	28	5.26	27.67	120	27	3.76	14.14	1.40	110.57	1.98	NO
Constitution Ave / I- 395	35	100	43	5	25.00	105	42	3.72	13.84	1.62	182.59	1.98	NO
<b>11th Street</b>													
Massachusetts Ave /Pennsylvania Ave	25	71	27	3.33	11.09								
Rhode Island / Pennsylvania Ave	25	100	28	4.48	20.07	106	20	1.87	3.50	16.55	130.89	1.98	YES
<b>12th Street Expressway</b>													
I-395/Southwest Fwy ( Ramp)	35	101	40	4.17	17.39	151	34	7.75	60.06	7.95	240.40	1.98	YES
<b>12th Street</b>													
Pennsylvania Ave / Massachusetts Ave	25	70	26	4.57	20.88	105	25	3.36	11.29	1.57	117.56	1.98	NO
Lawrence St/ South Dakota Ave	25	71	28	3.67	13.47	106	25	2.75	7.56	5.87	121.13	1.98	YES
<b>13th Street</b>													
Fort Stevens Dr / Allison St	25	70	31	4.35	18.92	106	28	3.89	15.13	4.67	136.17	1.98	YES
Allison St/ Kenyon St	25	70	30	3.88	15.05	107	21	2.81	7.90	16.75	115.62	1.98	YES
<b>14th street</b>													
Aspen St/ Monroe St	25	100	30	4.98	24.80	101	26	4.46	19.89	6.00	196.19	1.98	YES
S ST / Pennsylvania Ave	25	100	25	5.2	27.04	105	21	2.45	6.00	6.99	139.36	1.98	YES
<b>15th Street</b>													
Independence Ave/ Alexander Hamilton PL	25	100	32	4.09	16.73	118	29	4.17	17.39	5.35	211.42	1.98	YES
Q ST / ST	30	100	31	3.98	15.84	101	28	3.75	14.06	5.50	198.05	1.98	YES
<b>16th Street</b>													
District Line/ Alaska Ave	30	100	41	5.22	27.25	137	31	2.92	8.53	17.28	143.92	1.98	YES
Arkansas Ave/ Irwing ST	25	100	34	5.85	34.22	108	29	3.12	9.73	7.60	148.49	1.98	YES
<b>17th Street</b>													
Benning Rd/ Potomac Ave	25	100	31	4.05	16.40	124	29	4.71	22.18	3.42	221.06	1.98	YES
Connecticut Ave / Florida Ave	25	70	21	2.48	6.15	104	21	2.3	5.29	0.00	140.48	1.98	NO

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<b>19th Street</b>													
Connecticut Ave / K St	25	50	19	2.78	7.73	101	24	2.97	8.82	-10.17	103.78	1.99	YES
K St / E St	25	70	22	4.35	18.92	106	25	3.24	10.50	-4.94	118.38	1.98	YES
<b>20th Street</b>													
E St / New Hampshire Ave	25	70	22	2.96	8.76	105	26	4.33	18.75	-7.26	172.87	1.98	YES
<b>22nd Street</b>													
Pennsylvania Ave / Massachusetts Ave	25	71	25	3.71	13.76	111	21	2.11	4.45	8.27	99.26	1.99	YES
<b>23rd Street</b>													
Pennsylvania Ave / Lincoln Cir	25	100	30	3.31	10.96	101	28	3.54	12.53	4.14	198.35	1.98	YES
<b>25th Street</b>													
Naylor Rd / Alabama Ave	25	70	28	3.4	11.56	108	27	3.97	15.76	1.79	162.83	1.98	NO
<b>27th Street</b>													
Pennsylvania Ave / Texas Ave	25	68	28	4.02	16.16	47	22	2.2	4.84	10.28	108.09	1.98	YES
Texas Ave / Naylor Rd	25	100	32	6.02	36.24	106	27	4.01	16.08	6.97	170.98	1.98	YES
<b>34th Street</b>													
Massachusetts Ave / Woodley Rd	25	50	27	3.04	9.24	87	28	2.55	6.50	-1.96	88.40	1.99	NO
<b>41st Street</b>													
District Line / Military Rd	25	50	29	3.85	14.82	107	28	2.95	8.70	1.63	76.90	1.99	NO
<b>63rd Street</b>													
District Line / District Line	25	100	29	4.71	22.18	123	28	4.19	17.56	1.66	200.14	1.98	NO