



District Department of Transportation

Traffic Safety Review

Illinois Avenue between Decatur and Jefferson Streets, NW

DDOT Traffic Engineering and Safety Team

June 29, 2015





This study summarizes the findings of a preliminary engineering safety analysis into the existing pedestrian safety concerns along Illinois Avenue, NW between Decatur Street, NW and Jefferson Street, NW, as outlined in a letter submitted to the District Department of Transportation's Transportation Operations Administration (DDOT TOA) by ANC 4D on January 21, 2015. The letter submitted by the Commissioner for ANC 4D-04 requested a safety study along Illinois Avenue, NW to address pedestrian safety along the corridor, as well as concerns about speeding and on-street parking.

This study includes the following information:

- An overview of the study area;
- A review of the existing crash data;
- A evaluation of the existing pedestrian and crosswalk signage along the corridor;
- An assessment of the existing on-street parking signage along the corridor;
- An evaluation of the existing speed data collected along the corridor;
- An analysis of the existing stop-sign configuration at the intersections of Illinois Avenue with Emerson and Farragut Streets, NW;
- A summary of the proposed recommendations in response to the submitted request.

1. Study Area Overview

The existing study area consists of Illinois Avenue, NW between Decatur Street, NW and Jefferson Street, NW. The corridor is located north of Sherman Circle in the Petworth and Brightwood Park neighborhoods and is approximately one half-mile long. Figure 1 shows the boundaries of the study area.

Illinois Avenue, NW is oriented northwest-southeast with one travel lane and a parking lane in each direction. It is classified by DDOT as a collector roadway and carries an estimated Average Annual Daily Traffic (AADT) volume of 4,200 vehicles. Within the study area, Illinois Avenue, NW intersects the following roadways:

- Decatur Street, NW
- Emerson Street, NW
- 8th Street, NW
- Farragut Street, NW
- Gallatin Street, NW
- Hamilton Street, NW
- 9th Street, NW
- Ingraham Street, NW
- Jefferson Street, NW

The intersecting roadways in the study are all classified by DDOT as local roadways.

Figure 2 shows the existing traffic controls along the study corridor. The majority of the intersections along Illinois Avenue, NW are stop-controlled, with several all-way-stops. However, the existing intersections with Emerson, 8th, Farragut, and Jefferson Streets, NW are two-way-stop controlled with Illinois Avenue, NW running free-flow through the intersection. Within the study area, the only signalized intersection is located at Ingraham Street, NW. An additional signalized intersection is located just north of the study area, at Kennedy Street, NW.



Illinois Avenue, NW travels through a primarily residential neighborhood, consisting of row houses, duplexes, and small single-family homes. To the west is Georgia Avenue, NW, which is lined with mixed use development, including small office, residential, and on-street retail. Sherman Circle Park is located on the south end of the study area; additional small green-spaces are provided north of the Circle and at the intersection with Hamilton and 9th Streets, NW. The Truesdell Education Campus is located along Illinois Avenue, NW at the intersection with Hamilton and 9th Streets, NW. The Truesdell Education Campus is part of the District of Columbia Public Schools system and includes students in Pre-K (age 3) through Eighth Grade.

2. Existing Crash Data

Crash data was examined for the study intersections for the three-year period of 2012 through 2014. The crash data provides a summary of the date and time of the accident, the location, the type of accident (right-angle, rear-end, etc.), the number of vehicles and pedestrians involved, and the number of injuries that occurred.

Over the three-year period, 47 accidents were recorded along the corridor. Table 1 shows a breakdown of the number of accidents and resulting injuries at each intersection along Illinois Street, NW, as well as the number of pedestrians and bicycles involved.

Table 1: Summary of Crash Data

Intersection	Number of Accidents	Number of Injuries	Number of Pedestrians Involved	Number of Bicycles Involved
Illinois Avenue & Decatur Street, NW	8	5	0	0
Illinois Avenue & Emerson Street/8 th Street, NW	6	4	0	0
Illinois Avenue & Farragut Street, NW	7	3	1	1
Illinois Avenue & Gallatin Street, NW	6	4	0	1
Illinois Avenue & Hamilton Street/9 th Street, NW	3	0	0	0
Illinois Avenue & Ingraham Street, NW	6	2	2	0
Illinois Avenue & Jefferson Street, NW	11	1	0	0
Total	47	19	3	2

As shown in Table 1, over the three-year period, one pedestrian-involved accident was recorded at the intersection with Farragut Street, NW, and two were recorded at the intersection with Ingraham Street, NW. One bicycle-involved accident was recorded at the intersection with Farragut Street, NW and with Gallatin Street, NW. No fatalities were recorded at any of the study area intersections.



District Department of Transportation

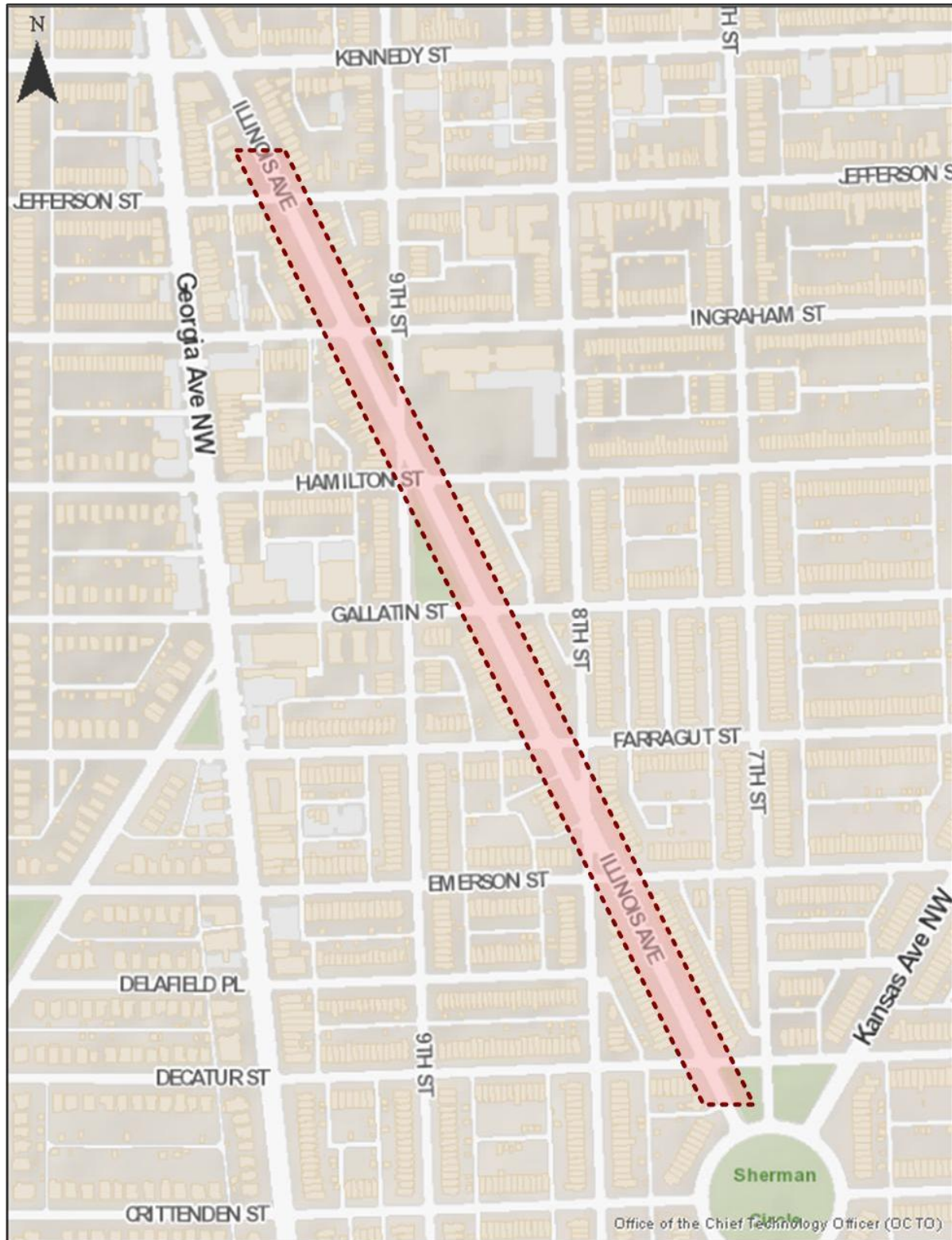


Figure 1: Study Area

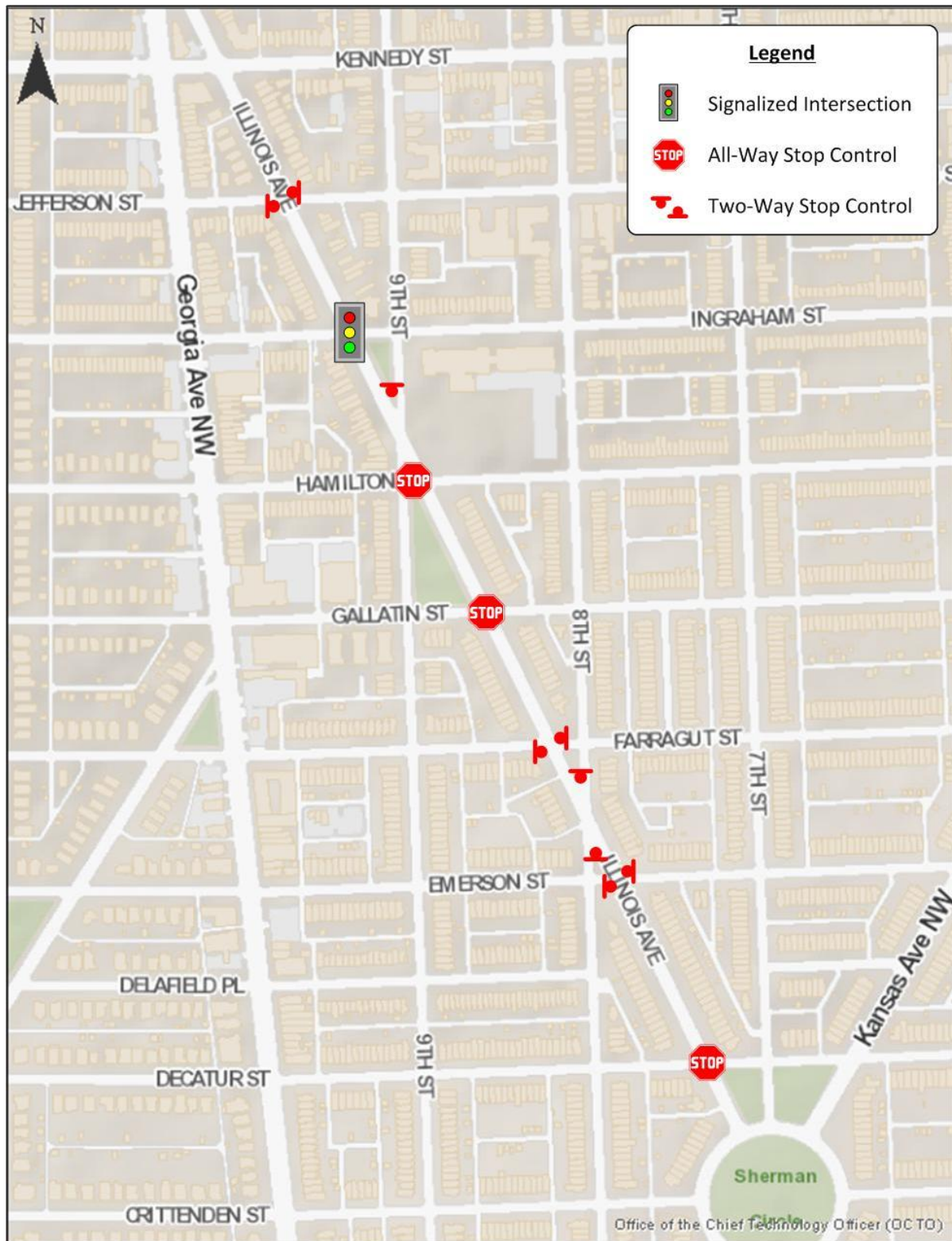


Figure 2: Existing Intersection Controls



3. Existing Pedestrian and Crosswalk Signage

In the study area, crosswalks are provided along the majority of the approaches at each intersection. Figure 3 shows the locations of the existing crosswalks in the study area, including which crosswalks are controlled by a signal or stop sign and which crosswalks are uncontrolled.

Figure 3 also includes photos of each crosswalk location along Illinois Avenue NW. As shown in the photos, the crosswalks between Gallatin and Jefferson Streets, NW are striped as ladder crosswalks. The crosswalks between Decatur and Farragut Streets, NW are striped only with lines denoting the crosswalk location.

Very few pedestrian warning signs are provided along the corridor. At the intersection of Illinois Avenue and 9th Street, NW, one pedestrian warning sign is provided for the crosswalk across the southbound approach of 9th Street, NW and one for the crosswalk across the southeastbound approach of Illinois Avenue, NW, as shown in Photo 1. Additionally, one pedestrian warning sign for a school zone is provided along northwestbound Illinois Avenue, NW, north of Ingraham Street, NW, as shown in Photo 2. An additional sign is provided along southeastbound Illinois Avenue, north of Jefferson Street, NW.

4. Existing On-Street Parking

Between Decatur and Ingraham Streets, NW, Illinois Avenue, NW has unrestricted on-street parking. North of Ingraham Street, NW, the on-street parking is restricted to two-hour parking, except for Residential Parking Permit (RPP) holders. The intersecting roadways along the corridor have a mix of unrestricted and RPP (with two-hour or restricted to RPP-only) parking. The existing parking restrictions are shown on Figure 4.

Chapter 18 of the District of Columbia Municipal Regulations (DCMR) specifies in Rule 2405.2 that no persons may park:

- In front of or within five feet of an alley or driveway;
- Within ten feet of a fire hydrant;
- Within 40 feet of the intersection of curb lines of intersecting streets or within 25 feet of the intersection curb lines on the far (non-approach) side of a one-way street;
- Within 25 feet of the approach side of any “STOP” or “YIELD” sign; or
- In or on any street or roadway where such parking will reduce the width of the open roadway to less than ten feet.

The letter submitted by the Commissioner for ANC 4D-04 noted that drivers park their vehicles too close to the intersections along Illinois Avenue, NW. As shown in Photo 3 and Photo 4 below, the majority of the blocks south of Ingraham Street, NW, where parking is unrestricted, do not have signage denoting the areas where parking is prohibited along the corridor. Vehicles parked in these prohibited areas lead to site distance deficiencies for drivers along the roadway and block the visibility of pedestrians within crosswalks.

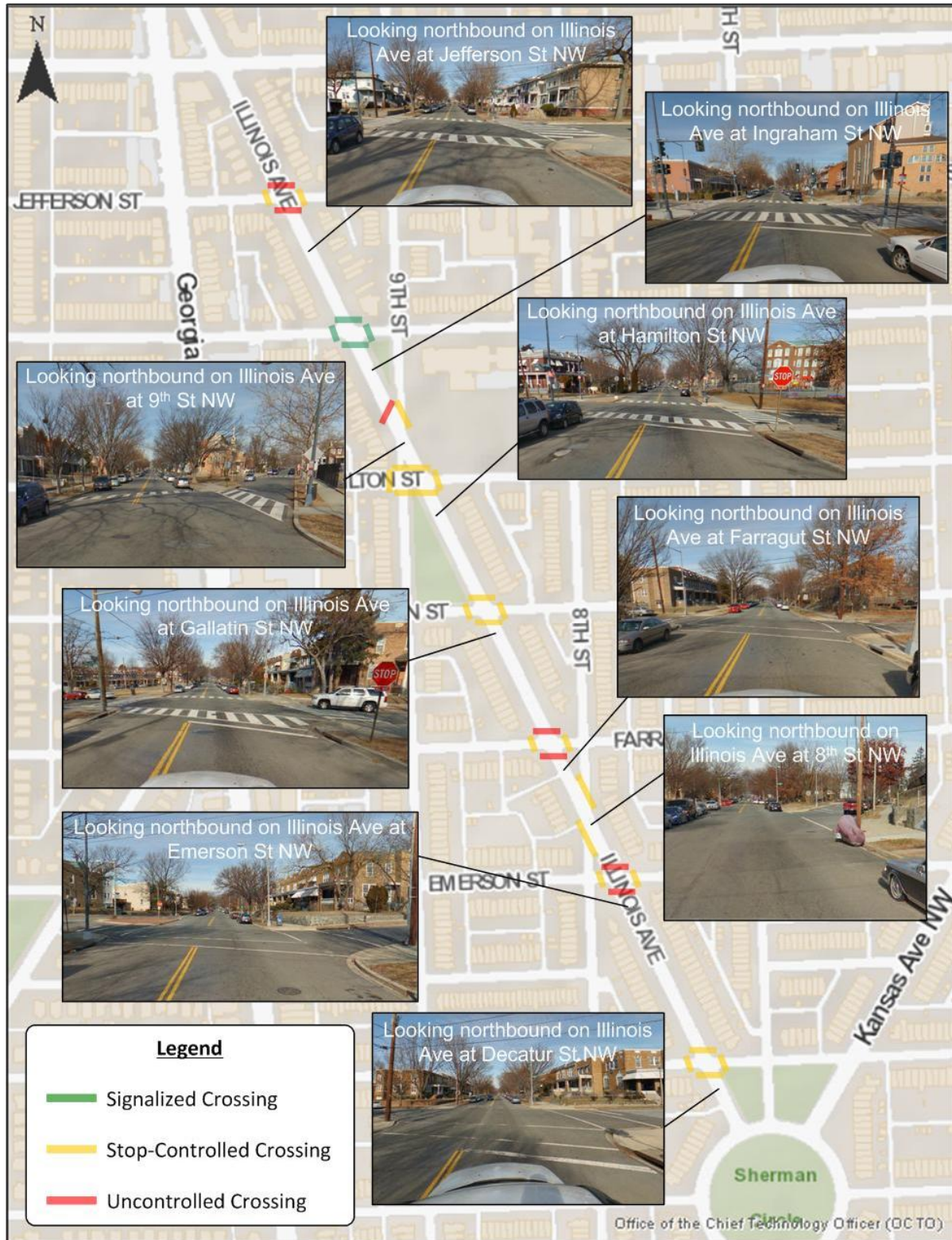


Figure 3: Existing Crosswalk Locations



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Photo 1: Looking Southbound on Illinois Avenue, NW at 9th Street, NW



Photo 2: Looking Northbound on Illinois Avenue, NW at Ingraham Street, NW





Figure 4: Existing On-Street Parking Regulations



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Photo 3: Southwest corner of Illinois Avenue, NW at Hamilton Street, NW



Photo 4: Northwest corner of Illinois Avenue, NW at Farragut Street, NW





5. Speed Study Data

The letter submitted by the Commissioner for ANC 4D-04 noted that drivers speed along Illinois Avenue, NW, especially in between Emerson and Farragut Streets, NW. In order to determine if speeding along the corridor is an existing issue, speed data was collected on Illinois Avenue, NW between Emerson and Farragut Streets, NW on February 19, 2015. The results of the speed study are shown in Figure 5.

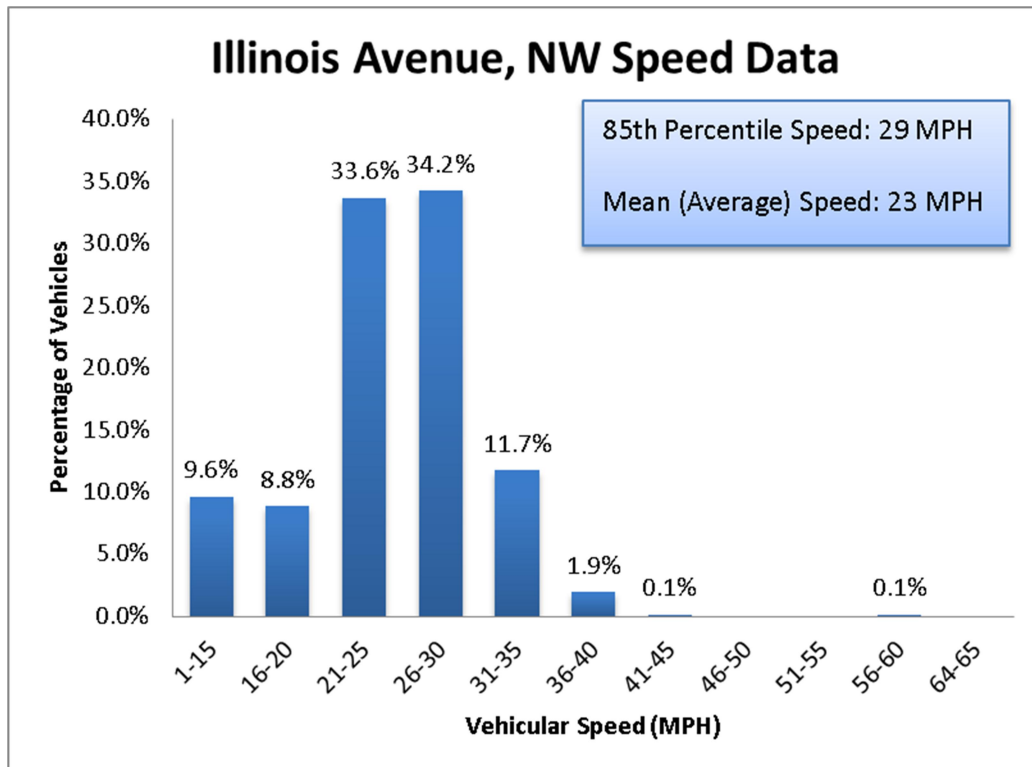


Figure 5: Speed Data on Illinois Avenue, NW

As shown on Figure 5, the majority of the drivers on Illinois Avenue, NW travel between 21 and 30 miles per hour (approximately 67.8%). The average speed recorded was 23 miles per hour, and the 85th percentile speed was 29 miles per hour. The speed limit on Illinois Avenue, NW is 25 miles per hour. Thus, the speed data shows that the average speed on Illinois Avenue, NW is less than the speed limit. Additionally, the 85th percentile speed is within an acceptable range for the posted speed.

Of note, the criteria typically employed by DDOT for installation of traffic calming measures requires the measured 85th percentile speed to substantially exceed the posted speed limit, defined as exceeding by at least 25 percent (31 miles per hour in this location). Thus, while the 85th percentile speed is 4 miles per hour above the 25 miles per hour speed limit, this measured speed does not substantially exceed the posted speed limit.



6. Existing Stop Configuration at Farragut and Emerson Streets, NW

The letter submitted by the Commissioner for ANC 4D-04 requested that the intersections of Illinois Avenue, NW with Farragut and Emerson Streets, NW be converted from two-way to all-way stop control. According to the Manual of Uniform Traffic Control Devices (MUTCD), the following criteria should be considered for the instillation of multi-way stop control:

- Temporary use at a location where a traffic signal is justified as an interim improvement;
- Five or more right- or left-turn or right-angle crashes reported in a year at the existing intersection; or
- Major-street vehicular volume of at least 300 vehicles per hour and combined minor-street volume (vehicular, pedestrian, and bicycle) of least 200 units per hour during at least eight hours of the day, with an average minor-street vehicular traffic delay of at least 30 seconds per vehicle.

Additionally, the MUTCD notes that multi-way stop control is typically installed where traffic volumes of the intersecting roads are approximately equal. In residential neighborhoods, multi-way stop control may be installed at the intersection of two collector streets of similar design and operating characteristics.

Reported Crash Data:

As noted in Table 1 previously, the intersection of Illinois Avenue, NW and Farragut Street, NW had a total of seven crashes reported during the three-year time period of 2012 through 2014. Of these seven crashes, three occurred in 2012, two occurred in 2013, and three occurred in 2014. Based on the number of crashes reported, this intersection does not meet the criteria for installation of a four-way stop control.

As noted in Table 1 previously, the intersection of Illinois Avenue, NW and Emerson Street, NW had a total of six crashes reported during the three-year time period of 2012 through 2014. Of these six crashes, two occurred in 2012, two occurred in 2013, and two occurred in 2014. Based on the number of crashes reported, this intersection does not meet the criteria for installation of a four-way stop control.

Existing Traffic Volumes:

In order to evaluate the traffic volume criteria for a multi-way stop sign at the intersections of Illinois Avenue, NW with Farragut and Emerson Streets, NW, tube counts were collected on Thursday, February 19, 2015. Hourly traffic volumes were collected on Illinois Avenue, NW between Farragut and Emerson Streets, NW. The results of the counts are shown in Table 2.

As shown in Table 2, only five hours of the day (highlighted in **bold red** text) have a total volume of greater than 300 vehicles. The traffic volume criteria for installation of a multi-way stop control specifies that at least eight hours of the day must have a total hourly volume of greater than 300 vehicles. Based on the traffic volumes, the two intersections do not meet the criteria for installation of a four-way stop control.



Table 2: Hourly Traffic Volumes on Illinois Avenue, NW

Hour Beginning	Illinois Avenue, NW between Farragut and Emerson Streets, NW		
	<i>Northwestbound</i>	<i>Southeastbound</i>	<i>Total</i>
12:00 AM	10	15	25
1:00 AM	3	7	10
2:00 AM	6	9	15
3:00 AM	3	7	10
4:00 AM	5	9	14
5:00 AM	19	19	38
6:00 AM	41	84	125
7:00 AM	114	222	336
8:00 AM	185	316	501
9:00 AM	91	178	269
10:00 AM	91	110	201
11:00 AM	84	95	179
12:00 PM	94	110	204
1:00 PM	87	106	193
2:00 PM	114	137	251
3:00 PM	118	167	285
4:00 PM	224	166	390
5:00 PM	227	184	411
6:00 PM	190	164	354
7:00 PM	134	110	244
8:00 PM	76	122	198
9:00 PM	51	69	120
10:00 PM	40	52	92
11:00 PM	34	58	92
Total	2,041	2,516	4,557

As noted previously, Illinois Avenue, NW is designated as a collector roadway by DDOT. Farragut and Emerson Streets, NW are designed as local roadways. Therefore, based on the additional guidance provided by MUTCD for the installation of multi-way stop control in residential neighborhoods (both roadways must be collector roadways of similar design and operation), the two intersections do not meet the criteria for installation of four-way stop control.

7. Recommended Improvements

The following signing and striping improvements are recommended to enhance the pedestrian environment along the Illinois Avenue, NW corridor. As noted previously, the installation of four-way stop control is not recommended at the intersections with Emerson and Farragut Streets, NW as the existing intersections do not meet the criteria for multi-way stop control as outlined in the MUTCD.

Install ladder crosswalks: The existing crosswalks across Illinois Avenue, NW at Decatur, Emerson, and Farragut Streets, NW are striped with lines to denote the location of the crosswalks. It is



recommended that longitudinal lines be striped (ladder crosswalks) on the crosswalks across Illinois Avenue, NW at these locations, as shown on Figure 6.

Install pedestrian warning signage (W11-2) with arrow plaques (W16-7P): Existing pedestrian warning signage is only provided at the crosswalk across Illinois Street, NW at 9th Street, NW. It is recommended that additional pedestrian warning signage be installed at each uncontrolled crosswalks at Emerson, Farragut, and Jefferson Streets, NW, as shown on Figure 7.

Install in-street pedestrian warning signage (R1-6a): No existing in-street pedestrian signage is provided at the unsignalized crosswalks along the Illinois Avenue, NW corridor. It is recommended that in-street pedestrian signage be installed in the uncontrolled crosswalks at Emerson, Farragut, and Jefferson Streets, NW, as shown on Figure 7.

Install school crossing assembly warning signage (S1-1) with “AHEAD” designation (W16-9P) and with arrow plaques (W16-7P): Only one school crossing warning sign is installed along Illinois Avenue, NW near the existing Truesdell Education Campus. It is recommended that additional advance school crossing assembly warning signage be placed along Illinois Avenue, NW south of Hamilton Street, NW and north of Ingraham Street, NW. Additionally, it is recommended that school crossing assembly warning signage be placed at the crosswalks across Illinois Avenue, NW at Ingraham, 9th, and Hamilton Streets, NW. In the uncontrolled crosswalk at 9th Street, NW, it is also recommended that in-street pedestrian warning signage be installed, as shown on Figure 8.

Install parking signs: Signage designating the areas of prohibited parking is not installed on all blocks along the corridor. It is recommended that signage be placed along Illinois Avenue, NW, to designate to drivers where on-street parking is prohibited. Additionally, it is recommended that any parking signage not installed on the side streets within one block of Illinois Avenue, NW be placed. An example is shown on Figure 9.

Install speed limit signage: Along the Illinois Avenue, NW corridor, there is only one speed limit sign installed for each the northwest- and southeastbound approaches. While Chapter 18 of the District of Columbia Municipal Regulations (DCMR) specifies in Rule 2200.2 that the maximum lawful speed limit on all streets and highways, unless otherwise designated, is 25 miles per hour, additional signage is recommended on the corridor. Speed limit signage is recommended to be installed at the beginning and end of the study area (at Decatur and Jefferson Streets, NW), as shown on Figure 10.

Together, the ladder crosswalks and pedestrian warning signage will increase visibility of the existing unsignalized crosswalks across Illinois Avenue, NW. Additionally, the installation of school crossing assembly warning signage will increase the visibility of the crosswalks used by students at the adjacent Truesdell Education Campus and alert drivers to the presence of the school.

The installation of the parking signs will inform drivers of how close they can park to the existing crosswalks along Illinois Avenue, NW and increase visibility of pedestrians crossing the roadway. The installation of speed limit signage along the corridor will also inform drivers of the speed limit along Illinois Avenue, NW. The recommended signing and striping improvements will have negligible impact on vehicular capacity at the intersection.



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Figure 6: Recommended Improvement – Stripe Ladder Crosswalks at Three Locations

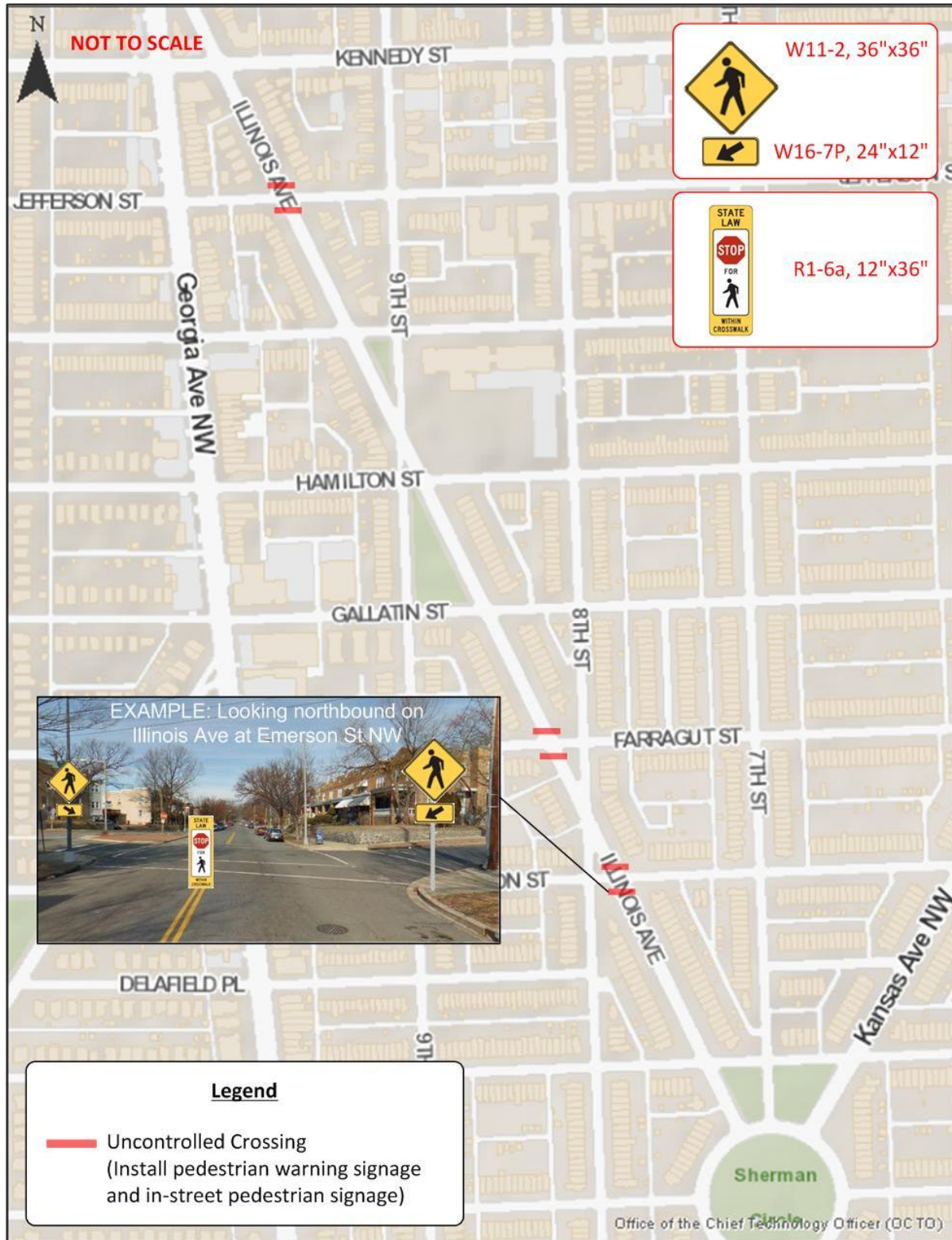


Figure 7: Recommended Improvement – Install Pedestrian Warning and In-Street Signage



Figure 8: Recommended Improvement – Install School Crossing Assembly Signage

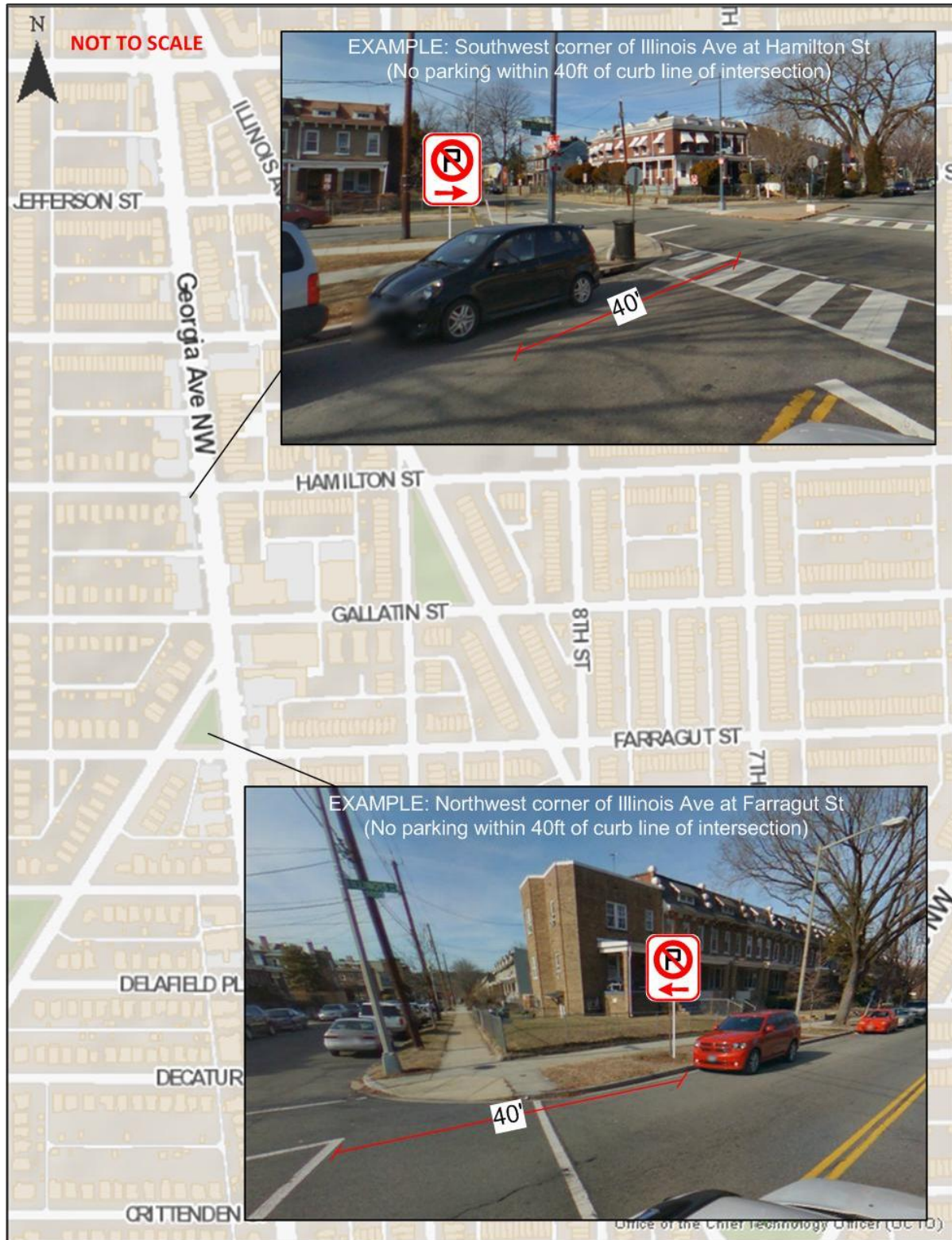


Figure 9: Recommended Improvement – Install Parking Signage

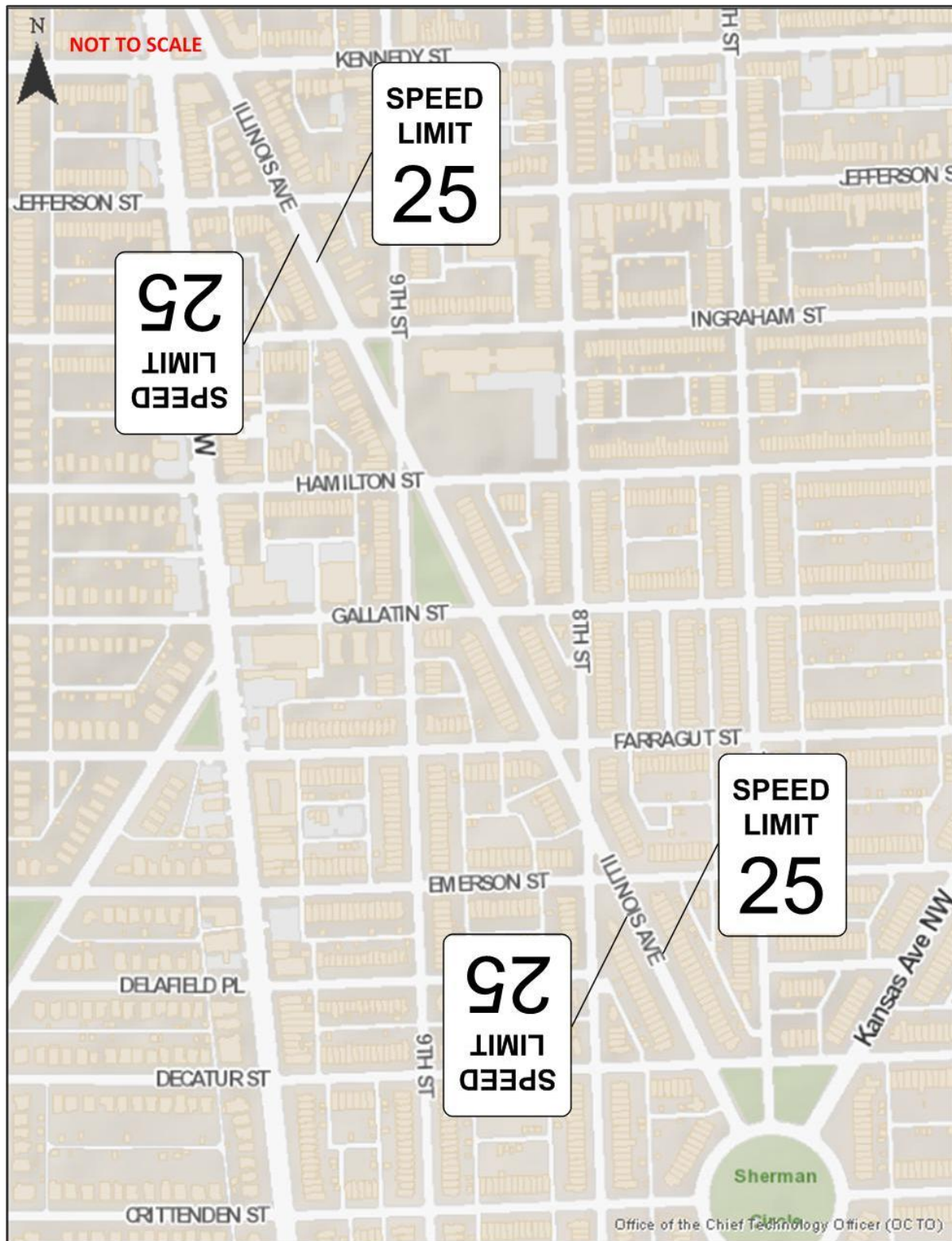


Figure 10: Recommended Improvement – Install Speed Limit Signage