

Government of the District of Columbia
Department of Transportation



February 13, 2017

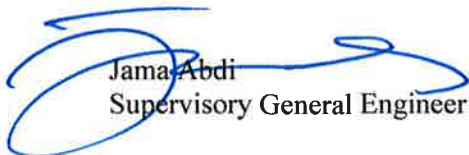
Faith Wheeler, Chair
Public Works/Infrastructure Committee
ANC 4B

Dear Ms. Wheeler:

The District Department of Transportation (DDOT) Streetlight Division conducted a lighting assessment at the intersection of 4th Street-Cedar Street-Blair Road NW intersection and nearby areas on February 3, 2017 in response to a request from the community of ANC 4B to upgrade the lighting condition of the area. Attached is the report that took into account the general assessment of existing lighting conditions; and encompasses the method of selecting study locations, DC Streetlight Policy and Design Guide, light level measurements, evaluation, and recommendations going forward to rectify the lighting conditions where it is needed.

Should you have any questions about the report, feel free to contact me.

Sincerely,


Jama Abdi
Supervisory General Engineer

Lighting Assessment Report

4th/Blair/Cedar NW Intersection and nearby areas Lighting Assessment

Executive Summary

The District Department of Transportation (DDOT) Streetlight Division conducted a lighting assessment at the above location in response to a request from the community of ANC 4B to upgrade the lighting condition of the area. This report takes into account the general assessment of existing lighting conditions; and encompasses the method of selecting study locations, DC Streetlight Policy and Design Guide, light level measurements, evaluation, and recommendations.

The street locations included in this assessment are as follows:

- Butternut Street NW from Blair Road to 4th Street
- Butternut Street NW from 4th Street to 260 feet from 4th Street
- 4th Street NW from Butternut Street to Blair Road
- Cedar Street from 5th Street to Blair Road
- 4th/Blair/Cedar Intersection

Butternut Street, 4th Street, and Blair Road NW are classified as collector roads while Cedar Street is classified as local under the DC Functional Classification map.

Field Investigation

The light fixtures in this community are a mix of 150, 250, and 400 Watts (W) High Pressure Sodium (HPS) fixtures with average pole spacing of 110 feet. The fixture type is cobra-head cutoff and semi-cutoff. On 4th and Butternut Streets, the existing lights are mounted on utility wood poles while on Cedar Street and the intersection at 4th/Cedar/Blair the lights are mounted on metal poles. The streetlights are fed from overhead and underground power source. Other utility lines are also attached to the same wood pole with the street light.

DDOT staff conducted a lighting assessment and collected light level measurements on the sidewalk and street on Butternut, 4th, Cedar Street and at the intersection of 4th/Cedar/Blair. There were no light outages found during this investigation. In general, the lighting condition in most of the streets in this neighborhood is acceptable. However, the lighting condition in some areas needs improvement particularly on the sidewalks.

Assessment Methodology

DDOT crew walked around the street locations and measured the lighting levels which will be compared to DDOT lighting level standard published in DC Streetlight Policy and Design Guide (Tables 1, & 2) to get a better gauge of the lighting condition of these street segments. Using a photometer, DDOT measured the foot-candle values on selected portion of the streets and

sidewalks to get enough sample data. The data is illustrated in Table 3 - Existing Lighting Level Conditions. DDOT crew also took photos (see below).

Roadway Classifications

Below is the standard of lighting levels used for District roadways as published in DDOT Streetlight Policy and Design Guide, February 2013. These recommendations are also based on Roadway Lighting Design Guide, AASHTO, 2005. In this study, the parameters that are applicable and will be used to gauge the lighting conditions in this neighborhood are highlighted below.

Table 1. Recommended Average Maintained Illuminance for District Roadways

DC Street Classification	Land Use	Recommended Average Maintained Illuminance (foot-candle)		
		R1	R2 & R3	R4
Interstate and other freeways	Residential	0.6 to 0.8	0.6 to 0.8	0.6 to 0.8
	Intermediate	0.6 to 0.9	0.6 to 0.9	0.6 to 0.9
	Commercial	0.6 to 1.1	0.6 to 1.1	0.6 to 1.1
Other Principal Arterials	Residential	0.6	0.8	0.8
	Intermediate	0.8	1.2	1.0
	Commercial	1.1	1.6	1.4
Minor Arterials	Residential	0.5	0.7	0.7
	Intermediate	0.8	1.0	0.9
	Commercial	0.9	1.4	1.0
Collectors	Residential	0.4	0.6	0.5
	Intermediate	0.6	0.8	0.8
	Commercial	0.8	1.1	0.9
Local Street	Residential	0.3	0.4	0.4
	Intermediate	0.5	0.7	0.6
	Commercial	0.6	0.8	0.8
Alleys	Residential	0.2	0.3	0.3
	Intermediate	0.3	0.4	0.4
	Commercial	0.4	0.6	0.5

Table 2. Recommended Average Maintained Illuminance for Sidewalks

DC Sidewalk Locations	Recommended Average Maintained Illuminance (foot-candle)		
	R1	R2 & R3	R4
Residential Areas	0.3	0.4	0.4
Intermediate Areas	0.6	0.8	0.8
Commercial Areas	0.9	1.3	1.2

The recommended average maintained illuminance is the average level of horizontal illuminance on the pavement when the output of the lamp and luminaire is reduced by the maintenance factors. This is expressed in foot-candles.

Existing Lighting Level Conditions

The information gathered during the night inspections were translated into comprehensible information that can be gauged and compared to the recommended lighting standard for District roadways as illustrated in Tables 1, and 2. This is shown in Table 3.

Table 3. Existing Lighting Level Conditions

Street Name	Roadway Classification	Existing Fixture & Wattage Rating	Roadway Part (Classification)	Average Illuminance (foot-candles)
Butternut from 4th street to 260' West from 4th NW	Collector			
		150W HPS	Street (intermediate) - Right Travel lane (cars were parked on right most lane)	1.74
			Sidewalk Southside (intermediate)	0.76
Butternut from Blair Street to 4th Street NW	Collector			
		400W & 250W HPS	Street (commercial)	2.00
			Sidewalk North side (commercial)	0.78
4th Street NW from Butternut to Blair Street	Collector			
		250W HPS	Sidewalk Westside (commercial)	1.3
Cedar Street from 5th Street to Blair Street NW	Local			
		250W HPS	Street (local) - Right Travel lane (cars were parked on right most lane)	2.05
			Sidewalk North side (local)	1.32
Blair/Cedar/4th Street Intersection	Minor Arterial			
		400W HPS	Street Arterial	3.61

Evaluation

The average foot-candle values of the existing lighting conditions in the above street locations, comparing its values to the given parameters, in general are acceptable and for the most part exceed the recommended values. However, there are locations particularly sidewalks of 4th Street from Butternut to Blair Road (west side) and on Butternut from Blair Road to 4th Street (North side) that need lighting improvement. Dark areas are caused by uneven pole spacing, trees blocking light, or the luminaire is approaching end of life.

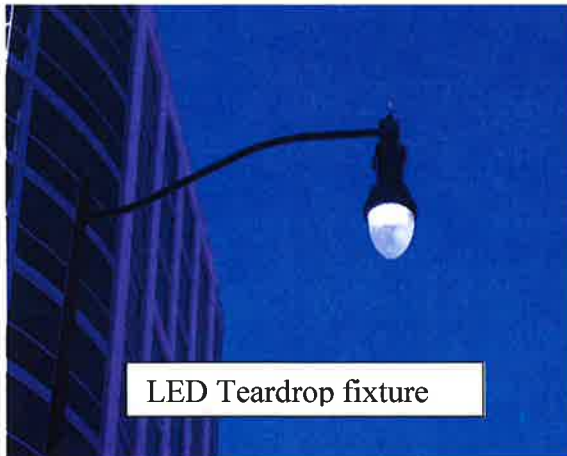
Additionally, the existing overhead power and communication cables limits our ability to install new metal poles as it would be in conflict with these cables.

Recommendation

DDOT recommends implementing the following to enhance safety, visibility, lighting uniformity and aesthetics:

1. Convert existing streetlights to LED Teardrop fixture (Photo 1) in the following areas: 4th Street NW from Butternut Street to Blair Street; and Butternut Street from Blair Street to 4th Street NW. This work will be completed by September 15, 2017.
2. Replace existing streetlights that are approaching end of life with new lamps or fixtures. This work will be completed in 8-10 weeks.
3. Once 1 and 2 are completed, DDOT will reassess the lighting level of these locations and if found that it is not meeting the requirements, then DDOT will install supplemental lights on existing poles.

Photo 1. LED Teardrop Fixture



The following were the photos taken during the inspection.

Photo 2. Butternut Street from Blair Road to 4th Street NW



Photo 3. 4th Street between Butternut Street and Blair Road (West side sidewalk)



Photo 4. 4th Street between Butternut Street and Blair Road (East side sidewalk)



Photo 5. 4th Street between Butternut Street and Blair Road (East side sidewalk)



Photo 6. 4th Street between Butternut Street and Blair Road (East side sidewalk)

