History of LED Lighting in District & Status of LED Lights in ANC 3/4G as known to the Lighting Task Force (LTF)

I. Background

A. Historical Overview: the District's Conversion to LED Street Lighting (2009-2015)

Nina Dodge of DC Climate Action** (and ANC 3/4G resident), gave an overview of the District's move to convert its street lighting to LEDs, a decision driven by energy conservation/emissions mitigation and financial savings.

In 2009, DDOT in partnership with Howard University Research Center conducted a study and analysis of LED lighting products with a million-dollar grant under the American Recovery and Reinvestment Act of 2009 (ARRA).

The LED conversion process began with a preliminary alley pilot in 2009. The LED project received support

Then in 2011, DDOT commissioned Virginia Tech Transportation Institute & the Science Applications International Corporation (SAIC) to conduct evaluative studies and make recommendations regarding the conversion to LEDs. The Department of Energy funded this new 2011 study with $100,000 to conduct these tests and analyses.

http://tbd.ly/n6Ko5k

The study recommendations included, among other things, a 10-year deployment process that would not add any additional capital outlay over what was already in the budget. It would pay for itself through annual savings in energy consumption. A 10-year procurement would also allow the city to capitalize on innovation and incorporate improved technologies (procurement adjusted accordingly) and/or address failures in the technology. The inclusion of a smart ballast ("smart" communications) system that would enable citywide dimming of the lights at night and early diagnosis of problem lights was also included in the discussions.

The process continued in 2011 with stakeholders meeting and field demonstrations leading to a choice of fixtures. Affected agencies took part in the evaluation of the alley pilots and a public survey regarding the new LED lights was conducted. The early alley deployment focused on Wards 7 & 8 where the perceived need for security lighting was a powerful driver.

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* DC Climate Action a local civic association, formerly "Politics & Prose Climate Action Project," was involved in advocating for District's conversion to LEDs as of 2009.

Based on the above, the decision was made to convert to LEDs District wide, using existing poles. The LED conversion was added to the overall District lighting contract. The initial contract was awarded in February of 2012. Subsequent contract challenges began and obstacles emerged re: inclusion of the smart ballast system (partly relating to Pepco's metering dimmable lights). The contract challenges are still ongoing.

Also in 2012, Mayor Gray abandoned the 10-year plan and made the decision to fast-track the citywide conversion to LEDs.

In the fall of 2013, LEDs were deployed in several alleyways in ANC 3/4G.

In December of 2013, a 100-million dollar contract was awarded for an 18-month citywide roll-out /conversion to LED lighting. Smart ballasts were not included in the contract.

B. ANC 3/4G LED Deployment & Lighting Task Force (2013-2015)

Laura Phinizy, Co-chair of the LTF, provided an overview of the evolution of the ANC 3/4G Lighting Task Force and its collaboration with DDOT.

In Fall 2013, DDOT installed LEDs in its Quesada Street test "Green Alleyways" network, with no notice to the neighborhood. Objections arose immediately to the brightness and light quality of the new lighting. Following DDOT's December announcement of the 18-month city-wide conversion of District's lighting to LEDs contract, the Quesada Street neighborhood residents wrote a petition that requested DDOT to provide scope of work for the lighting contract, show that the rollout plan was consistent with Sustainable DC goal (Nature 2.2) and Comprehensive Plan (624.1), and would provide an appropriate amount and type of lighting for our area.

http://sustainable.dc.gov/sites/default/files/dc/sites/sustainable/page_content/attachments/SDC Summary Document 2-19_0.pdf

http://www.anc3g.org/wp-content/uploads/2015/05/DC-Comprehensive-plan-624.1.doc

On January 13, 2014, the neighbors brought the petition and their concerns to ANC. The ANC endorsed the formation of an ANC 3/4G Lighting Task Force (LTF) to investigate and work in collaboration with DDOT regarding neighborhood installation of LED lighting within its boundaries.

Also in January, the ANC/LTF sent a letter to DDOT (cc'd the Mayor & Councilmembers) registering concerns about the planned rapid implementation to LED lighting without community input.

http://www.anc3g.org/wp-content/uploads/2015/05/12914-ANCletter-to-DDOT-LED-Lights.pdf

In March 2014, DDOT responded to the ANC letter and agreed to meet with the LTF.

http://www.anc3g.org/wp-content/uploads/2015/05/DDOT-Response-to-ANC-Letter-3.10.14.pdf

In April 2014, the LTF meets with DDOT. DDOT staff agrees to LTF request for low-wattage trials, warmer temperature LEDs, and promises a moratorium on new lighting in the neighborhood until agreeable lighting solutions are found. DDOT removes ANC 3/4G alleys from city-wide contract allowing for greater flexibility and piloting, and proceeds with site-specific rather than "one-size-fits-all" approach.

In Spring 2014 , some Green Alley lights changed to 50W, and 2 to 35W. LTF still deems lights too blue. Also DC announces PlayDC renovation of Lafayette Park. Neighbors persist in calls for no additional lighting. No lighting is worked into the park renovation plan.

In July 2014, The NW Current reports that DC will be installing new lighting in Lafayette Park. Friends of Lafayette Park stated they supported the Play DC project because among other things, it addressed new lighting for the park. DGS states they will work with the LTF.

http://www.currentnewspapers.com/admin/uploadfiles/NW%2007-23-2014.pdf (see page 5)

In July 2014, the LTF writes guidelines for any new lighting in Lafayette Park. LTF sends recommendations to DGS.

http://www.anc3g.org/wp-content/uploads/2015/05/012914-LTF-Recom.-lafayette-playdc-lights.docx

In September 2014, International Dark Sky (IDA) meets with DDOT to express concerns about blue-rich light.

In the Fall of 2014, the Oregon Avenue Reconstruction Project planners host meeting at the Chevy Chase Community Center. There is widespread support from audience for LTF guidelines (warm tones, minimal lighting levels, no glare into homes/sky (full cutoff), no light trespass, energy efficient).

In November 2014, DDOT agrees to LTF request for pilot lights on Oregon Ave. (Pilot lights installed near St. John's H.S.)

In January 2015, LTF meeting with DGS and School Design Team re: Lafayette Park. LTF recommendations/guidelines (from summer) endorsed by all attendees.

On February 23, 2015, LTF meeting with DDOT re: the Oregon Avenue lighting pilot. LTF recommendations repeated; LTF asked for photometric data and additional concurrent pilots with lower wattage and warmer CCT (Color Correlating Temperature).

On February 25, 2015, DDOT holds community meeting re: Oregon Ave update at St. Johns College H.S. It was noted that DDOT's design posters cite a list of advantages of LED Lighting. Among other things, advantages listed:

- LEDs are available in a wide range of CCT (Color Correlated Temperature, down to 2000K
- Ability to focus exact luminous area
- Focus area and color design help eliminate light pollution

http://www.anc3g.org/wpcontent/uploads/2015/05/IMG_20150225_185400765.jpg

C. 2014-2015 Pilots** Status and announced upcoming lighting projects in ANC 3/4G (alley/park/street lighting):

Quesada Alley: with community input, DDOT testing continues on alley lights around Quesada Street to solve brightness, color warmth, glare, light direction and particularly in narrow alleys, light "trespass." Technology evolving fast with new options, though none "ideal" so far. DDOT is working with manufacturers. Policy of using existing poles/spacing, one of the challenges to solving lighting issues.

Per DDOT:

- The Quesada Street Alleyways are "off-contract"
- In 4-8 weeks new shields will be tested on the alley lights.
- They have one 22 Watt light, Distribution Type 2 (oblong/hot dog) and it will be installed in a Quesada alley. (It has a BUG rating of G1-G0. The current lights have a BUG rating of G3.)

Oregon Avenue: in Fall 2014, city planners host consultative meeting with neighborhood residents for input on conversion of Oregon Ave. to LED lighting; community expresses support for applying LTF Lafayette Park guidelines. February 2015, DDOT provides update on Oregon Ave. lighting at community meeting. DDOT begins test lighting along Oregon Ave up to Chestnut St.

There are two separate lighting pilots on Oregon Ave.

1. Two 110 Watt, 4,000K LED lights near St. Johns

   Per DDOT: "The results of the previous online poll and the comments received during the third public meeting indicate that the two demonstration lights near St. John's College High School are too bright and the color is too white."

2. Two 70 Watt, 4000K LED light in front of 6830 and 6840 Oregon Avenue (near Chestnut/Wise)

*Link to survey/comment on pilot lights near Chestnut/Wise: ** http://oregonaveddot.com/public-involvement/

* LTF and the community refer to these test areas as "pilots." However, they are on-going tests with collaboration between the community and DDOT, with no specific deadlines. So far, the plan is to continue the testing of new technologies and installation methods until a mutually satisfactory outcome is reached. The process has not been formally codified.

***Lafayette Park*:** in summer 2014, LTF recommends guidelines endorsed by International Dark-sky Association, to DDOT re: new lighting in Lafayette Park. Guidelines endorsed by attendees at January 7, 2015 neighborhood meeting with LTF, Dept. of General Services (DGS) and the Lafayette School Modernization Design Team.

The new park lighting is currently considered part of the Modernization of Lafayette E.S. Project which will begin in June 2015 and be completed in August of 2016. The intent is to have the school and park lighting design to be treated holistically.

At this time, no design plans for the lighting have been shared and a timeline for the installation of the lights has not been determined.

D. International Dark Sky Association (IDA)[**]

Mitt Roney and Wayne Savage of IDA stated the IDA was founded in 1988, to address the growing problem of light pollution. It has expanded it's expertise in lighting design to help limit and fight light pollution to preserve our starry skies. IDA researched how LED lighting and light pollution impacts the immediate vicinity and broader environment. There are new deployment protocols for mitigation that meet required standards.

Over a period of seven years, the IDA in partnership with the Illuminating Engineering Society, (EIS) developed The Model Lighting Ordinance (MLO), a guide for environmentally responsible outdoor lighting in North America . The MLO defines lighting zones recognizing that some zones need more light than others. It further defines a rating system for luminaires that determines the amount of light pollution a light is creating: B.U.G. rating (**B**acklight, **U**plight and **G**lare/ Frontlight).

www.darksky.org/outdoorlighting/mlo
Reference the MLO page 5 for Lighting Zones, page 26, Table C for BUG Rating and page 42 for Streetlights.

It was noted that the American Medical Association is recognizing the harm to human health negative effect of exposure to "blue light" (blue-rich) at night. Not only does it effect the wildlife and the nighttime environment, blue light is harmful to human health including a probable link to breast cancer.

http://www.darksky.org/assets/documents/IDA-Blue-Rich-Light-White-Paper.pdf

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[*] U.S. based non-profit, see: www.darksky.org, working to protect the natural night time environment and our heritage of dark skies through environmentally responsible outdoor lighting.

Studies have shown neighborhoods with less light have less crime. It is a common for high crime areas to request more light.

www.darksky.org/light-pollution-topics/lighting-crime-safety

In March 2015, IDA wrote a letter to DDOT advocating lighting with

1. full cutoff or shielding to prevent uplighting, backlight and glare/frontlight (light pollution),
2. the lowest level of light necessary per AASHTO (American Association of State Highway and Transportation Officials) Standards,
3. warm color (3000K or less in CCT (Color Correlating Temperature) as per IDA guidelines.

http://www.anc3g.org/wp-content/uploads/2015/05/IDA-Letter-to-DDOT-3-2-15.pdf

IDA is advocating that the District Council legislate adherence to these protocols.

III. DDOT Update as of April 2, 2015

Greer Gillis, new Deputy Director of DDOT, said the streetlight contract is still in litigation, "so we cannot talk in too much detail about that particular contract." She said, however, "This has given us an opportunity to stop and regroup" and "rethink" the contract. "In our rethink," she said, "we recognize that it cannot be one size fits all." She further mentioned the possibility of "neighborhood-specific" lighting and the adoption of different lighting "zones." She said DDOT is waiting for the litigation to be resolved and, in the meantime, is asking "What can we do differently?" Her colleague added that if the contract goes forward, the Best and Final Offer can be "revised to reflect the new reality."

Smart ballasts are on the table again.

In the meantime, as part of its conversion policy, DDOT is replacing the current fixtures that fail with new LED fixtures.

DDOT stated 4000K "is the standard now," and that lower-temperature LEDs are not used because they are not as efficient. Their primary concerns are meeting AASHTO's minimum requirements and avoiding dark spaces between lights. However, "if (LED) technology changes, we'll change with it."

Regarding concerns expressed about LEDs in the Chevy Chase neighborhood, DDOT said, "if you do not like the light, we'll work with you."

DDOT's new process of alley installation is to first measure the width of the alley and, if it is narrow, to investigate ways to reduce light trespass.

DDOT is a member of the Department of Energy (DOE) Municipal Solid State Street Lighting Consortium* (MSSLC) and is in discussions with cities including Seattle and Boston regarding best practices.

DDOT says it has installed two 35-watt, Type II (hot-dog bun) lights on Normanstone, 32nd/Fulton, off Mass (between the mosque and the British embassy).

*** PLEASE NOTE: On April 8, 2015, DDOT canceled the RFP described above for the citywide conversion to LED lights

‘ “In the annals of D.C. government contracting, the August 2011 solicitation for a firm to oversee the city's 70,000 streetlights may go down as one of the most dysfunctional.

On April 8, this saga . . . came to an end, when the D.C. Department of Transportation formally canceled the request for proposals. A bitter competition between two lighting firms, appeals that required months to litigate and numerous procurement violations on the part of District sealed the fate of the estimated $108 million, five-year contract.

Mayor Muriel Bowser's administration has concluded that the "approach contained in the solicitation no longer reflects its current and future business needs," Leif Dormsjo, DDOT director, wrote to the Contract Appeals Board.

‘"The ultimate goals of the requirement included putting the District on a path to lasting energy costs savings and a more environmentally sustainable approach to lighting the District," Dormsjo wrote in the Determination and Findings memo, which details the justification for canceling the longstanding RFP. "The District is in its fourth year of soliciting for this effort under the current solicitation, and has achieved none of these goals." ‘

http://www.bizjournals.com/washington/breaking_ground/2015/04/the-light-goes-out-on-a-108m-d-c-solicitation.html

* The DOE Municipal Solid-State Street Lighting Consortium shares technical information and experiences related to LED street and area lighting demonstrations and serves as an objective resource for evaluating new products on the market intended for those applications.