District Department of Transportation

DDOT/TOA LED Conversion Initiative

- Goals

  - Reduce Energy Cost

  - Reduce Maintenance Cost

  - Reduce CO2 Emissions

  - Enhance Pedestrian Safety and Security

DDOT/TOA LED Studies and Research

- Alley LED Light Study – Howard University
- Street LED Light Study (Cobra head) – SAIC/VTTI
- Street LED Light Study (Decorative) – DDOT/TOA

Alley LED Light Study (By: Howard University in November 2010)

- The intent of this study was to look for an LED product that will replace the existing 70 Watt to 150Watt HPS fixtures in the alley citywide.

- Evaluation Methodology
  - Literature Review and Best Practices
  - Suppliers/Vendors/Manufacturer Contact for LED Applications
  - Field Lighting Tests

Alley LED Light Study (By: Howard University in November 2010)

- Evaluation Criteria
  - DDOT's Minimum LED Specifications
    - LED Life
    - Color Rendering Index (CRI)
    - Color Temperature
    - Lumen and Efficacy
    - Aesthetics
    - Operating Voltage
    - Warranty
  - Resident's Survey

Alley LED Light Study (By: Howard University in November 2010)

- Evaluation Result
  - Howard University has selected three vendors for DDOT's further review.
  - Upon further review, DDOT selected LSG's 75 W to replace 150 W HPS, and subsequently approved LSG's 50 W to replace 70 W and 100 W HPS.

Street LED Light Study (By: SAIC and VTTI in April 2012)

- The object of the project is to provide the data required for the selection of the appropriate LED luminaire by DDOT.

- This study was funded by DOE through DDOE under ARRA of 2009 with the amount of $100,000.00.

- The selected LED luminaires will eventually replace the existing 250 W HPS and 400 W HPS fixtures - cobrahead, Teardrop and Post-top.

Street LED Light Study (By: SAIC and VTTI in April 2012)

- Evaluation Methodology
  - Distributed the minimum requirements to luminaire manufacturers and distributors
  - Requested 5 luminaire samples for evaluations
  - Conducted laboratory testing
  - Conducted field evaluations
  - Residents Survey

Street LED Light Study (By: SAIC and VTTI in April 2012)

- Field Evaluation Criteria
  - Illumination/Visibility
  - Uniformity
  - Light Trespass/Glare
  - Color
  - Aesthetics
  - Safety

Street LED Light Study (By: SAIC and VTTI in April 2012

- Evaluation Result
  - The SAIC/VTTI evaluation results provided DDOT the necessary data to select the appropriate LED cobrahead fixture.
  - Using DDOT's field evaluation criteria, Philips' 135 W LED and 270 W LED fixtures were selected to replace the existing 250 W HPS and 400 W HPS fixtures, respectively.
  - Upon further improvement, DDOT subsequently approved Philips' 110 W and 215 W LED fixtures to replace the 250 W and 400 W HPS fixtures, respectively.

Street LED Light Study (By: SAIC and VTTI in April 2012)

- Evaluation Result (cont'd.)
  - The SAIC/VTTI evaluation results also provided DDOT the necessary data to select the appropriate LED post-top fixture.
  - However, due to the unique illumination requirement of the DC signature post-top fixture, DDOT opted to further search for manufacturer that closely match the illumination requirement for DC post-top fixture.

Street LED Light Study – Teardrop Fixture (By: DDOT in July 2013)

- The object of the study is to find Teardrop LED luminaires that will replace the existing Teardrop and Post-top fixtures.

Street LED Light Study – Teardrop Fixture (By: DDOT in July 2013)

- Evaluation Methodology
  - Distributed the minimum requirements to luminaire manufacturers and distributors
  - Requested 2-3 luminaire samples for evaluations
  - Conducted field evaluations

Street LED Light Study – Decorative Fixture (By: DDOT in July 2013)

- Field Evaluation Criteria
  - Illumination/Visibility
  - Uniformity
  - Glare
  - Color
  - Aesthetics
  - Safety

Street LED Light Study – Teardrop Fixture (By: DDOT in July 2013)

- Evaluation Result
  - Using DDOT's field evaluation criteria, King Luminaire's 200 W LED Teardrop fixture was selected to replace the existing 250 W and 400 W HPS fixtures.
  - In addition, King Luminaire's 100 W Post-top fixture was selected to replace the existing 250 W HPS fixtures and 400 W HPS fixtures in some isolated cases.

DDOT/TOA LED Conversion Projects

- DOE/DDOE/ARRA $1 million Funding for LED Conversion
  - The District received $1 million ARRA funds to replace 1,360 alley lights mostly non-energy efficient incandescent and mercury vapor fixtures with LED fixtures.

- Streetlight Asset Management
  - This program is currently under OCP evaluation. This program is a 5 year contract – a base year and 4 option years.

DDOT/TOA LED Conversion Projects (cont'd.)

- Streetlight Asset Management
  - The Streetlight Asset Management contract is a performance type contract. This means that contractor will assume full ownership and responsibility maintaining all the streetlight assets in the District.
  - In addition, the contractor will invest to convert 32,500 existing fixtures to LED in the first 2 years.
  - In return, the contractor will be paid thru a lump sum amount and will receive incentives from the energy savings.

DDOT/TOA LED Conversion Projects (cont'd.)

Expectation:

- Under the Streetlight Asset Management program, it is expected that by fourth quarter of FY15, all incandescent and mercury vapor fixtures will be replaced with LED fixtures.


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