

MCPB Item No. 7 Date: 11-02-17

Silver Spring Streetscape Standards Update

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Completed: October 25, 2017

Description:

Overview of existing conditions analysis and work plan to update the 1992 Silver Spring Streetscape Standards.

Staff Recommendation:

Provide guidance.

Summary

The Silver Spring Streetscape Standards were approved in 1992. They provided guidance for the installation of paving, trees, lighting and furnishings such as benches, trash receptacles and tree grates in the Silver Spring Central Business District (CBD). Over the past 25 years these standards have resulted in pedestrian-friendly streetscape throughout much of the CBD. However, many of the details in the standards, which were innovative at the time, have become obsolete. In addition, the 1992 Silver Spring Streetscape Standards do not address new approaches or strategies such as the integration of storm water into the public right-of-way, which is now mandated by state law.

Staff, along with consultant, Rhodeside & Harwell, will present the inventory and analysis of the existing conditions of the streetscape in the Silver Spring CBD. To date, Staff has engaged a small group of landowners, developers, engineers, business owners and residents. A project website has launched (<u>http://montgomeryplanning.org/planning/communities/area-1/silver-spring-cbd/streetscape-standards-update/</u>) and notice cards announcing this update were mailed to property owners in the CBD. In addition to continued engagement with the community-at-large, Staff will be working with a small group of professionals in developing the technical details of the plan.

The project team seeks input from the Planning Board to develop the concepts and framework that will inform the updated set of standards.

Anticipated Schedule/Next Steps

November 2, 2017: Presentation of existing conditions and analysis to the Planning Board. Public kick-off to solicit feedback.

November 2017- March 2018: Document development - review and incorporate best practices and specific/key recommendations from Planning Board, stakeholders, and working group.

Early Spring 2018: Present first draft to Planning Board and solicit public comments.

Late Spring 2018: Work session with Planning Board.

Summer2018: Present final draft for Planning Board Approval.

Attachments:

- 1. Stakeholder meeting notes
- 2. Existing Conditions and Analysis
- 3. 1992 Silver Spring Streetscape Standards and Montgomery County Department of Transportation Specifications

ATTACHMENT 1

Notes from Stakeholders Meeting Room 300C – Atrium Conference Room

10:00 – 11:00 Developer and Business Community

Attendees from The Lee Group, Silver Spring Chamber of Commerce (SSCC), United Therapeutics Inc. (UTI), Foulger Pratt and Washington Properties

Comments

- The Lee Group The Urban Design budget has not increased since 1984.
 - \circ $\;$ Trees in the CBD have been cut down by SHA for traffic cameras $\;$
 - Utilities do not replace bricks in sidewalks after repair work.
- SSCC recommended that we keep it simple, so that repairs to sidewalks can be done inexpensively.
- The Lee Group suggested a sand base to make repairs easier and prevent heaving in the winter time.
- Washington Properties the guidelines should incorporate outdoor café seating, display of wares and moveable signage. Today an outdoor café requires an annual permit from DPS.
- SSCC Put outdoor cafes in the guidelines and have it a part of the regular approval process before the Planning Board.
- The Lee Group The State has its own jurisdiction and will not allow or permit café seating in its right of way.
- UTI There are SHA restrictions for what can be done on the sidewalks in State Highway R.O.W.
 Deviations from the standards can be done through an executed agreement. The owner needs to own the deviations must abide by standards in agreement.
- SSCC Trees, such as the Zelkova block business signs on streets with retail.
- M-NCPPC The 1992 Streetscape Standards do not address storm water.
 - Fenton Street sidewalk at new Library does not meet Streetscape Standards.
- UTI- Furnishings the number of trashcans, especially on Fenton Street in the redevelopment area is to large and/or poorly distributed throughout the CBD.
- Foulger Pratt The trashcans should be fully contained with closing openings or lids and powder coated to resist corrosion.

- UTI mentioned that the bottom rail of the trash can is a favorite target of dog urine, which corrodes the bottom of the trash out.
 - have an 'expo' for all furnishing (trash, benches, bike racks ect.) with the overall goal of manufactures competing for the business and negotiate a better deal as a collective unit versus individuals. Public, owners, and developers could vote on their favorite.
- Foulger Pratt allow flexibility; it is nice for an area or project to express a distinct character.
- UTI Benches UTI installed seven benches at beginning of project, four of them have been destroyed by Delta 88's parallel parking. The locations of benches in relationship to the curb must be re-thought.
- The Lee Group Sidewalks are the most important. We must decide where we want brick and where we want concrete. The streetscapes that DHCA did in Fenton village concrete with brick bands. A final decision must be made (finally get brick out the standards)
- The Lee Group for Example brick in driveways is a problem because the turning movement of vehicles tears up the bricks.
- Foulger Pratt All the owners and stakeholder must work together collectively to update the standards and put together a set of standards that everyone can agree on or live with.

11:00 – 12:00 County Agencies

Representatives from Montgomery County Department of Transportation (MCDOT), Maryland State Highway Administration (SHA), Department of Permitting Services (DPS), Department of Environmental Protection (DEP)

Comments

- DOT Is there a difference in cost of maintenance between different paving types?
- DOT Installation on stonedust Anchoring is difficult needs to be a good detail.
- DEP Soil Volume not discussed or mentioned in standards
- DOT there are non-standard bike racks that do not work. The bike rack outside of "Not Your Average Joes" don't work. Robert Kronenberg indicated that City Place has been cited for a violation for this non-standard bike rack.
- DPS Minimum clearance for pedestrian access on sidewalks is 6 feet. This is an ADA standard.
- SHA Indicated that most of the 10 questions deal with SHA. Specifically Question # 5 What is the ownership structure of the recently completed streetscape project along Georgia Avenue between Colesville Rd. and Ellsworth/Wayne Ave.? This project appears to be highly successful. How was this project implemented? Is there a maintenance agreement between SHA and businesses on this section of Georgia Avenue? This particular section of Georgia Avenue turned out well because all the agencies got together and coordinated.
 - State Roads follow their own standards regarding medians and crosswalks.
 - The sidewalk standards are up to local jurisdictions
 - The district office of SHA works with the local jurisdictions to approve sidewalk standards.
 - In order to do work on State Highways, such as tree planting and removal, access permits must be granted.
 - Sometimes the Silver Spring Urban District does not get the proper lane closure permits from SHA to do maintenance on State Highways.
- DEP- The Silver Spring Urban District does not seem to be briefed on the proper maintenance protocols.
- DEP The Urban District does not have properly trained personnel to do tree work. There should be an expert/arborist/landscape architect working with them or assessing their tree situation.

- SHA An SHA Landscape expert should review and sign off on new street tree plantings on State roads.
- DOT We need a hierarchy of needs a priority list of what absolutely must be done first in the streetscape. i.e. ADA standards and Health, Safety and Welfare.
- DPS A standard being considered is for a flat clear area behind the curb to planting beds or structures such as benches or lighting, is 3'-0" to allow clear door swing.
- M-NCPPC The Georgia Avenue renovation used and 18" clear area and that seems to be working very well.
- DPS stated that 2' clear instead of 3' would work.
- SHA Regarding Maintenance, SHA follows the lowest maintenance plan possible. If the streetscape plantings are not maintained by SHA, then SHA typically gets the call.
 - Going forward, working together is important when making decisions and re-doing standards

1:30 – 2:30 Silver Spring Urban District and Citizens Associations

Representatives from the Silver Spring Urban District (SSUD), Lofts 24, and East Silver Spring Citizens' Association (EASS)

Comments

- SSUD Water gets under the bricks, freezes and heaves, causing a tripping hazard
- SSUD Durability of the paving is a concern
- EASS Fenton Street is dark. However, she is aware that brighter LED lamps are going in.
- Lofts 24 There are issues now with dark skies. The new LED's are so bright. There needs to be cutoff lighting specs included.
- EASS There are no bike racks south of Wayne Avenue. Bikers has to lock her bike to a tree or telephone pole when she visits a coffee shop. The bike racks are poorly distributed in Silver Spring.
- Lofts 24 Fenton District will never be DT Silver Spring, therefore the lighting can be a lot less.
- SSUD Way finding through Silver Spring is lacking. Maybe SS entry signage
- Lofts 24 A pedestrian entry into Fenton Village from Wayne avenue would be nice, to the right of the Crescent, looking south.
- Key takeaways:

- 1. Brick pavers discouraged
- 2. Flexibility in tree types encouraged and the SSUD wants to know what to plant on what street
- 3. Because SHA and MCDOT do not allow trees at the intersections of streets, we need to come up with a shading strategy
- 4. If a lot of plants are in the tree pit, there should be irrigation.
- 5. Overhead power lines. How to get them undergrounded, etc
- 6. Shrubbery on the sidewalks has become too wide, obstructing access, where it is between the sidewalk and curb.
- 7. Many of the bus shelters have created bottlenecks where the sidewalk is narrow.
- There is a lack of documentation or MOU's for who is responsible for maintenance. Also SSUD is not clear where the money comes from for their budget or how it is appropriated.

2:30 - 3:00

Wrap up

- There should be outreach to additional stakeholder's groups:
 - Local civil engineering firms that do work in silver Spring CBD
 - The Montgomery County Road Code committee
- M-NCPPC staff will share notes with R&H and they will combine with their notes.
- November 2 is the public meeting/Planning board presentation date.

ATTACHMENT 2

SILVER SPRING STREETSCAPE STANDARDS UPDATE



RHODESIDE&HARWELL

Stakeholder Focus Group Sessions- 9/18/17

AGENDA

- 1. Project Overview
- 2. Existing Conditions Analysis
- 3. Discussion

PROJECT BACKGROUND

- The current Silver Spring Streetscape Plan is **out-of-date**. ulletThe Plan addresses the following elements:
 - Planting details >>
 - Paving details >>>
 - Lighting details and specifications >>>
 - Furnishing details >>>
- **New projects** throughout Silver Spring occasionally specify paving and planting details that deviate from Silver Spring Streetscape Guidelines
- Landscape maintenance and improvements are needed in ulletthe study area
- Integration of the latest **best-practices** in streetscape design are needed
- Streetscape guidelines are needed that are **simple and easy** lacksquareto use



RHODESIDE & HARWELL

SUBJECT STAKEHOLDER INTERVIEWS

EXISTING CONDITIONS



SIX KEY PUBLIC REALM ELEMENTS

- 1. Street Typologies
- 2. Street Trees
- 3. Paving
- 4. Lighting
- 5. Furnishings
- 6. Special Elements & Places

STREET TYPOLOGIES



RHODESIDE&**HARWELL**



Gateway Streets



Neighborhood Collector Streets



Neighborhood Streets

CLIENT **MNCCPC**

PROJECT SILVER SPRING STREETSCAPE STANDARDS UPDATE

» Street types can influence activity levels and user experience

SUBJECT STAKEHOLDER INTERVIEWS

STREET TREES: TYPES







Oaks (358)



London Planetree (127)

Japanese Zelkova (320)



Linden (70)

RHODESIDE&HARWELL

» Six dominant tree species define Silver Spring's streetscape character





Honey Locust (164)





American Elm (51)



STREET TREES: LOCATION





RHODESIDE&HARWELL

CLIENT **MNCCPC**

PROJECT SILVER SPRING STREETSCAPE STANDARDS UPDATE

» Most streets have trees on at least one side of the street

» Streets that have no trees should be prioritized for planting

» Street trees on both sides of the street create an 'alee' which is a significant street character defining element

» Overall, street tree plantings lack diversity along corridors which create monocultures

» Monocultures can be vulnerable to infection, with the possibility of a single virus, fungus, destructive insect, or other disease wiping out all of the trees at once

STREET TREES: HEALTH



Overall Tree Health



Dominant Tree Species

	Oa	ak			Japanes	e Zelkova
Good		190	53%	G	ood	182
Fair		104	29%	F	air	66
Poor		61	17%	P	oor	72
Very P	oor	1	0%	V	ery Poor	
Dead		2	1%	D	ead	
	Total:	358			Total:	320

London Planetree			L	Linden			American Elm		
Good	112	88%	Good	56	80%	Good	46	90%	
Fair	8	6%	Fair	4	6%	Fair	4	8%	
Poor	7	6%	Poor	9	13%	Poor	1	2%	
Very Poor		0%	Very Poor		0%	Very Poor		0%	
Dead		0%	Dead	1	1%	Dead		0%	
Total:	127		Tota	al: 70		Tota	l: 51	070	

- » Georgia Ave. & Colesville Rd. have a high concentration of trees in poor health
- » Prioritize tree replacement in areas with trees in poor health
- » Diversify street tree plantings with trees that thrive in urban conditions



	Honey	Honey Locust		
57%	Good	127	77%	
21%	Fair	21	13%	
23%	Poor	15	9%	
0%	Very Poor		0%	
0%	Dead	1	1%	
	Total:	164		

SUBJECT STAKEHOLDER INTERVIEWS

STREET TREES: PLANTING CONDITIONS





Tree Planter with Cobblestone Surfacing



Open Tree Planter



Planted Verges



Medians

- conditions

Tree Grates

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Protected Tree Planter



» Tree growth & health can be limited by planting

» Groundcover plantings & LID planters in some locations are under-maintained

» Planter accessories vary in styles and finishes

SUBJECT STAKEHOLDER INTERVIEWS

PAVING: QUALITY





Older, Low Quality Streescapes



Newer, High Quality Streescapes

» Prioritize the replacement of lower quality streetscapes particularly in high use / high visibility areas

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SUBJECT STAKEHOLDER INTERVIEWS

PAVING: TYPES





Silver Spring Special Paver (Current)



Beige Concrete Unistone Paver (1992)





Silver Spring Special Paver (Current)

- paving

RHODESIDE & HARWELL

» Older, lower quality streetscapes include older streetscape standards

» As new development has occurred, outdated paving has been replaced

» The 'organic' replacement of paving in the study area has resulted in a mix of streetscape paving characters

PAVING: PATTERN & LOCATION





Herringbone



Square Pavers



Scored Concrete

Basketweave

Special Paving



Building Entrances





PROJECT SILVER SPRING STREETSCAPE STANDARDS UPDATE

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Running Bond



» Special design treatments are often located at key locations (i.e. building entrances)

» Herringbone paving patterns define the Georgia Ave. corridor





Greenways

SUBJECT STAKEHOLDER INTERVIEWS

LIGHTING







Teardrop Luminaires

- lack standard fixtures
- upgrade lighting

Pedestrian Black Pole

Washington

Globe

STUD

RHODESIDE&HARWELL





Utility Pole Cobrahead



Intersection Cobrahead



Black Flat Тор

» Several gateway corridors and neighborhood streets

» Prioritize gateway corridors and primary neighborhood streets for lighting upgrades

» Consider future redevelopment opportunities to

SUBJECT STAKEHOLDER INTERVIEWS

FURNISHINGS



Trash / Recycling Receptacles



Planters



Seating









Bike Racks RHODESIDE&HARWELL

CLIENT MNCCPC

Bus Shelters PROJECT SILVER SPRING STREETSCAPE STANDARDS UPDATE





- » Many streetscape furnishing elements deviate from Streetscape Standard guidelines (particularly trash receptacles and bike racks)
- » Furnishing finishes deviate from Streetscape Guideline recommendations
- » Diversity in furnishing types lends to the eclectic feel of Silver Spring

SPECIAL ELEMENTS & PLACES







Tree Shades



Parklets



Public Spaces





Gateways



Commemorative

RHODESIDE&HARWELL



Public Art

materials

CLIENT **MNCCPC** Destinations

» Silver Spring's CBD is diverse and eclectic » Accommodate and encourage additional enhancements beyond the basic palette of

SUBJECT **STAKEHOLDER INTERVIEWS**

KEY TAKEAWAYS

- **Embrace** the diversity and eclecticism of the Silver Spring CBD 1.
- 2. **Develop** a system of evaluating existing streetscapes for the purpose of determining areas suitable for change
- **Establish** a palette of materials and treatments for moving on the "basics" 3.
- Emphasize the importance of landscape maintenance and improvements 4.
- **Evolve** the tree planting scheme 5.
- **<u>Upgrade</u>** the quality of planting treatments below trees 6.
- 7. **Encourage** special design treatments at key locations
- **Develop** streetscape guidelines that are simple to use 8.
- Embrace beauty and encourage creativity 9.

DISCUSSION



ATTACHMENT 3

SILVER SPRING STREETSCAPE DIAN

PLAN Technical Manual

CONCEPT, MATERIALS, DETAILS AND SPECIFICATIONS

TREES, PAVERS, AND STREET FURNITURE FOR CREATING

ATTRACTIVE STREETS IN DOWNTOWN SILVER SPRING,

MONTGOMERY COUNTY,

MARYLAND



The Maryland-National Capital Park & Planning Commission MONTGOMERY COUNTY PLANNING DEPARTMENT URBAN DESIGN DIVISION 8787 Georgia Avenue, Silver Spring, Maryland, 20910-3760

DRAFT REPORT April 1992

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ABSTRACT

TTTLE:	The Silver Spring Streetscape
AUTHOR:	The Maryland-National Capital Park & Planning Commission, Urban Design Division
SOURCE OF COPIES:	MNCPPC, 8787 Georgia Avenue Silver Spring, MD 20910-3760 (301) 495-4570
DATE:	April 1992
NUMBER OF PAGES:	
ABSTRACT:	This document describes the overall concept for the Silver Spring

Central Business District (CBD) streetscape system and is used for private and public development within the CBD. The M-NCCPC Streetscape (Plan B) was approved by the Planning Board in 1988. The Department of Housing and Community development has been implementing their streetscape (Plan A) since 1979.

Specific streetscape materials and specifications are included.

INTRODUCTION

Urban design integrates the street corridors, public spaces and building masses of an urban center into coherent form. A successful streetscape binds the components of the center together into an attractive whole. When trees, clearly marked pedestrian routes and sidewalk amenities are absent, the lack is felt; when present, streetscape elements greatly contribute to the attractiveness, safety and legibility of a center.

Silver Spring is a major point of vehicular access between the District of Columbia and suburban Maryland. An active transit, business and service destination, it is surrounded by a dense variety of residential neighborhoods and supplied with abundant commuter parking. Safe and attractive pedestrian circulation within the central business district and to metro is critical to the center's viability and vitality.

The center of the Silver Spring CBD is intersected by two major State highways with heavy vehicular and, increasingly, pedestrian traffic. While street trees and pavers exist on both Colesville Road and Georgia Avenue, more emphasis can be placed on the pedestrian nature of these roads as they pass through the core of Silver Spring. The existing streetscape can be augmented and extended to clearly demarcate the pedestrian as well as vehicular nature of Colesville Road and Georgia Avenue within the CBD.

The Silver Spring streetscape is being imple-

Street, Ellsworth Drive, Second, Apple, Wayne and Dixon Avenues, as well as along Georgia Avenue and Colesville Road, street trees are beginning to mature and mitigate the glare off of roads and buildings.

The streetscape on parts of Georgia Avenue and Colesville Road (Plan A) has been implemented over the years by the Department of Housing and Community Development. The Urban Design Division of M-NCPPC designed the streetscape for the remaining streets in the CBD in 1988 (Plan B), and it has been implemented through either the optional method of development or the mandatory referral process.

The map on page 4 indicates the emphasis that has been given to implementing streetscape along the main axes of Georgia Avenue and Colesville Road and along the "ring road" defined by Wayne and Second Avenues and Cameron, Spring and Fenton Streets. East-West Highway is planned as an urban parkway with major public use spaces located between 16th Street and Georgia Avenue, and Georgia Avenue and Colesville Road are planned as urban boulevards, activated by pedestrians and lined with attractive store, restaurant, and office facades.

This draft technical report contains the materials and construction specifications currently in use in the Silver Spring CBD. Additional paving and landscape materials, signage and sidewalk amenities, such as kiosks, may be introduced in the future

AMENDED SOILPANEL

Trees are an essential streetscape element which provide shade, create "outdoor rooms." define edges, lend softness, and add color. However, street trees are often planted in confined areas in poor soils. In urban areas, one to two feet of good soil had traditionally been provided around the rootball, limiting how much the roots could grow. In addition, "urban soils" are often compacted, poorly drained, poorly aerated, and low in organic matter. Water does not readily penetrate the interface of different soil types until saturation of one medium is reached and surface tension forces are overcome. Consequently, moisture extremes often occur in the three adjacent soils of the planting area, i.e., root ball, backfill, and site. The extremes of saturation or drought often result in the acute stress and death of newly transplanted trees and shrubs.

A tree planting technique has been developed in response to the urban soil and growth problems identified by the Center for Urban Ecology of the National Park Service. The Urban Design Division's tree planting detail calls for the construction of an amended soil panel that runs the length of the curb, providing the root system with a large area in which to grow along the curb and beneath the sidewalk. The cross section provides room for a prepared soil mixture, aeration, drainage and drip irrigation.

An earlier, widely-used detail called for a concrete retaining wall along the curb. The wall, however, was extremely costly and its construction required closing travel lanes over an extensive period of time. These problems resulted in a modification to the detail, replacing the wall with timber shoring and a compacted slope.

SOIL PANEL INSTALLATION

Construction begins with removal of all existing soil and pavement. The prepared soil mixture containing 1/3 native soil provides a suitable consistency for the tree in the urban environment. The soil panel increases the amount of amended soil to improve root development, providing a sub-surface drainage system to carry away excess water, avoiding root rot, and an irrigation pipe which will allow for manual watering of several trees at once during times of drought. In addition, the recommended paver detail over the amended soil panel will help minimize soil compaction.

Providing the root system with an amended soil panel and more space to grow promotes the long-term survival and healthy mature growth of urban street trees.



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STREETSCAPE MATERIALS

I. SIL VER SPRING STREETSCAPE: PLAN A: (DHCD)

Georgia Avenue and Colesville Road only. See page 8 and specifications, pages 25-32.

- A. Sidewalk Pavement
 - 1. Pavers: concrete unistone (beige).
 - 2. Base: Four-inch-thick concrete base on gravel.
- B. Tree Grates: Five feet square, R-8742-A 180 degrees, Neenah. Phone: (414) 725-7000.
- C. Backfill: See Planting Details and Specifications.
- D. Street Lights
 - 1. High (30 feet) street lights, 100-120 feet on center.
 - Low (12 feet) pedestrian lights, 33-40' feet on center.Contact MCDOT for specific poles and luminaires.
- E. Bench: Bench Manufacturing Co., Model No. B-76. See specifications.
- F. Trash Receptacle Standard for Montgomery County. Contact MCDOT for specifications.

II. SILVER SPRING STREETSCAPE: PLAN B: (M-NCPPC)

All streets other than Georgia Avenue and Colesville Road. See page 9, Details and Specifications, pages 12-24.

A. Sidewalk Pavement

- , b. Pattern: basket weave set parallel to curb.
- c. Border: Sailor course set perpendicular to curb with 4" trim.
- 2. Setting Bed

3/4" asphalt cement base with brick pavers set in asphalt adhesive or approved equal.

3. Joint Filler

Brick pavers will be set "handtight" with a mixture of sand and Portland cement brushed in joints.

4. Concrete Base

Four-inch-thick concrete base set on gravel (C.R. 6).

B. Granite Setts for Tree Pits

Type: granite, rough cut.

Color: Dakota Mahogany.

Size: 4x4 (60%) 4x8 (40%) 4" minimum thickness

Quantity: Provide enough stone blocks to cover a 5'x8' tree pit. Pagliaro Brothers Stone Co. Phone: (301) 350-8600, or approved equal.

- C. Amended Soil Panel, see page 2 and details.
- D. Street Lights

Washington Globe - see specifications

- 2. Type: Windemere by Country Casual or Winchester by Sherwood.
- F. Landscaping
 - 1. Street Trees
 - a. Georgia Avenue, between Spring Street and East-West Highway, and Colesville Road, between Spring Street and 16th Street.

Type: Zelkova serrata, 'Village Green' (3 - 3-1/2" caliper, Plan A only).

b. East-West Highway between 16th Street and Georgia Ave.

Type: Platanus acerfolia 'Bloodgood', London Plane tree.

c. Wayne Avenue, Second Avenue, Cameron Street between Second Avenue and Fenton Street, Fenton Street to Wayne Avenue.

Type: Quercus phellos, Willow Oak

d. Ellsworth between Spring Street and Georgia Avenue, Spring Street between Georgia Avenue and 16th Street.

Type: Tilia tomentosa 'Green Mountain', Silver Linden.

- e. All other street trees to be determined by M-NCPPC.
- 2. Size (Plan B)

4" - 4-1/2" caliper with branching no less than 7' from the base.

3. Amended Backfill (Plan B).

The backfill shall consist of 2/3 topsoil and 1/3 native soil. See detail and specifications.

F. Trash Receptacle (Plan B).

Pennsylvania Avenue Trash Receptacle without lid.

Canterbury International P.O. Box 5730 Sherman Oaks, CA 91413-5730 Phone: (213) 936-7111

Paint to match Washington Globe street lights, Federal Color 595 B, #14036.

Montgomery County, Maryland Department of Transportation Division of Traffic Engineering

PLAN B

Silver Spring Decorative Luminaire Specifications

DESCRIPTION

This luminaire shall be an outdoor decorative post top fixture, cylindrical in shape with an overall height of 41.0 +/- 1 inches and a overall width of 16.6 +/- 0.5 inches for the globe (see attached drawings). All exterior and structural parts shall be of aluminum alloy or cast iron. Exterior castings shall be cast in one piece, have a smooth surface finish and be free of mold lines. Visible metal surfaces shall have raised decorations integrally molded in the base piece. The luminaire shall come ready for quick and easy field assembly or fully assembled and include the following components:

- 1) lamp, as specified
- 2) button type photocell installed on the metal body of the luminaire
- all necessary hardware and fasteners to assemble and secure on a 3.50 inch nominal diameter cast ferrous or aluminum lamp post tenon

The luminaire must be able to accommodate lamps and ballasts for either 70, 100 or 150 watt high pressure sodium vapor light sources.

ILLUMINATING PERFORMANCE

The luminaire shall be capable of providing

installed in accordance with the following criteria:

- ^o Opposite arrangement with 60 foot spacing between opposite pairs
- ° 15' 1" mounting height to light center
- ° 48 foot wide roadway
- ° 2' 8" setback to the centerline of the poles behind curb faces
- ^o Lamp Lumen Depreciation Factor is 0.9
- ° Luminaire Dirt Depreciation Factor is 0.9
- ° 100 watt high pressure sodium vapor lamp

BALLAST

The ballast shall be securely fastened into the base to the luminaire and have quick release electrical connections. The ballast shall be a high power factor ballast of at least 90% to supply power to a 100 watt high pressure sodium vapor lamp from a 120 volt, 60 cycle AC power supply. The space for the ballast shall have sufficient space to accommodate ballasts for 70, 100 or 150 watt high pressure sodium vapor lamps.

traviolet stabilized, impact resistant polycarbonate. The globe may be made of a maximum of two pieces permanently glued together. The globe shall have an alabaster rippled exterior. The bottom surface of the globe shall interface closely with the metal body so as to provide a weather, dust and insect proof interface. The globe or its mounting ring shall be fastened with three or more recessed set screws in the body of the fixture.

The internal IES Type II glass refractor shall be firmly positioned on the metal body of the fixture.

An internal reflector (s) that would leave the top of the globe dark at night is not permitted.

LAMP

100 watt high pressure sodium vapor. ANSI Code S62ME.

PHOTOCELL

"Button type," 3,000 tork or equal, mounted on the metal body of the luminaire.

METAL BODY

The body shall be cast in one piece and shall have raised surface decorations. The body shall taper smoothly and flow smoothly between the slip fitter and the base of the globe. The body shall be constructed so that rainwater will drain off the globe through weep holes in the mounting ring at the top of the body.

SLIP FITTER

The slip fitter shall have an inside diameter of 23.625 inches and shall be secured to the lamp post tenon with three or four evenly

at the luminaire. The slip fitter shall accommodate a tenon 3.0 inches long.

FINIAL

Cast aluminum securely fastened to the globe.

SOCKET

Four K. V. pulse rated porcelain mogul socket.

FINISH

The exterior surfaces of the finial and luminaire body shall be factory finished prior to shipment. The color shall be federal color number 595B, #14036. The finish shall be either electrostatically applied, thermoset powder coat or polyurethane enamel. The following products shall be used if the finish is polyurethane enamel:

Tnemec Company, Inc.: Series 71 Endura Shield

DuPont: Imron Polyurethane Enamel

Application of the primer and finish system shall be in accordance with the manufacturer's recommendations. A one (1) pint can of touch-up enamel shall be supplied with every ten (10) or fewer luminaires ordered.

SUBMITTALS REQUIRED

The bidder shall submit the following items for approval:

A photometirc test report certified by an independent testing laboratory demonstrating the performance characteristics of the proposed luminaire. The test report shall be in accordance with IES standard testing procedures at time of submission and contain the following data:

- ° isofootcandle plot of the light distribution at grade under test conditions
- ° coefficient of utilization graph
- ^o lamp wattage vs. lamp voltage trapezoid diagram for the 100 watt high pressure sodium vapor ballast being used.

CALCULATED DATA REQUIRED

The bidder shall supply the following data for the middle pair of a total of 5 pairs of luminaires when positioned as described in the illumination performance section of this specification:

° luminaire layout information

- ° luminaire information
- ° a point-by-point maintained footcandle plot at grade with a maximum spacing of five feet between points
- ° maximum maintained footcandles at grade
- ° average maintained footcandles at grade
- ° minimum maintained footcandles at grade
- ° maximum/minimum uniformity ratio at grade
- ° average/minimum uniformity ratio at grade
- ° mean deviation of all points plotted

Silver Spring Decorative Lamp Post Specifications

- 1. The lamp post shall be integrally cast in one piece from cast iron which meets or exceeds the specification ASTM A-48-72, Calss 30. The shaft section shall consist of sixteen (16) equally spaced flutes as shown on the attached cross sections drawings. The outer portion of each flute shall have a flat face 3/8" in width, and this width shall remain constant (+/- 1/16'')from top to bottom of the tapered column. There shall be no visible signs of separation between the cope and drag sections of the mold and the casting technique shall employ pick-off of loose pieces from a pattern arbor, or other suitable methods, to insure the fluting is uniform and conforms to the configurations indicated on the drawings. As an alternate, the lamp post may be cast in one piece in aluminum as described above, the aluminum used in the casting shall have a minimum yield strength of 30.000 PSI when heat treated. Other features of the lamp post shall include:
 - A. The pedestal portion of the base shall measure 24 +/- 1/4' in diameter and shall be 24" in height. The pedestal shall incorporate a removable access door 7" high by 2 34" wide at the top and 7" wide at the bottom. The access door shall be secured with stainless steel tamperproof screws. A drilled and tapped hole shall be provided inside the base opposite the access drawer for the 1/4" - 20 grounding lug.
 - B. The shaft shall taper uniformly from 7" OD at the bottom to 4 9/16" OD at the top. The minimum wall thickness of the shaft, measured from the outermost

1/2" at the top. The shaft shall be straight within 3/16" along the center axis of the lamp post.

- C. The top of the post shall be equipped with an integrally cast luminaire mounting tenon 3 1/2" in outside diameter and 3" long. The overall height of the lamp post, less tenon, shall be 13' 2".
- D. The nominal bolt circle of the lamp post shall be 17" in diameter and consist of four (4) equally spaced holes sized to accommodate 1" diameter anchor bolts. The base of the lamp post shall have a clear opening at grade 11" in diameter to accommodate two 4" ID schedule 40 PVC conduits.
- The lamp post shall be manufactured in accordance with the American Association of State Highway and Transportation Officials' "Standard Specifications for Structural Support for Highway Signs, Luminaires and Traffic Signals."
- The decorative lamp post and all parts shall be painted by the lamp post manufacturer prior to shipment with a shop primer suitable to accept the finish paint system specified.
- 4. All lamp posts and access door covers shall be finished in the field after installation. The color shall be federal color specification number 595B, #14036. The finish shall be a polyure than enamel, as manufactured by one of the following:

Tnemec Company, Inc.: Series 71 Endura Shield

DuPont. Imron Polyurethane Enamel

Application shall be in accordance with manufacturer's recommendations. Alternate systems of equal performance may be considered, but shall be submitted for approval.

5. Each lamp post shall be furnished with four (4) 1" diameter by 36" long anchor bolts. Each 36" long anchor bolt shall have a 4" long "L" bend at the bottom. Each bolt shall be furnished with one nut and one flat washer. Anchor bolts and related hardware shall be furnished in accordance with the following specifications:

The bolts shall be made with high strength, low carbon alloy steel in accordance with ASTM A36-M55.

Guaranteed Minimum Yield Strength: 55,000 PSI

Guaranteed Minimum Tensile Strength: 95,000 PSI

Maximum Elongation: 18%

The nuts shall be in accordance with ASTM A307 and ANSI B 18.2.2

The washers shall be in accordance with ASTM F436

Threading shall be Unified National Course, ANSI B1.1, Class 2.

Threads shall be rolled or cut.

Nuts, washers and anchor bolts shall be fully hot dipped galvanized in accordance with ASTM A153.







SECTION A-A



DIVISION OF TRAFFIC ENGINEERING











MONTGOMERY COUNTY, MARYLAND DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT (DHCP)

PLAN A SPECIFICATIONS

(301) 217-3650

I. PAVING AND SURFACING

A. UNI-STONE PAVER

MATERIALS

All interlocking concrete paving stones shall be as shown on dhcd plans. These products shall be as manufactured and supplied by BALCON, INC., Pulaski Hwy. & Rossville Blvd., Baltimore, MD 21237, Phone 301-687-5200, or approved equal.

All interlocking concrete paving stones shall conform to ASTM C-936-82 "Standard Specification for Solid Concrete Interlocking Paving Units."

- (1) Pavers shall have a minimum compressive strength of 8,000 P.S.I. and a maximum absorption of 5% when tested in accordance with ASTM C-140.
- (2) Materials used to manufacture interlocking concrete paving stones shall conform to the following:
 - a. Cement ASTM C-150 Portland Cement Type II
 - b. Aggregates ASTM C-33 (washed, graded sand and limestone, no expanded shale or lightweight aggregates)
- (3) Size. shape. design and colors shall be

Sieve Size	Percent Passing
3/8"	100
No.4	90-96
No. 100	10-30

- a. The leveling course shall be screeded loose to a thickness of 1" to' 1-1/2". The exact thickness shall be determined at the jobsite. Care will be taken to ensure the leveling base is loose and is not disturbed.
- b. The sand leveling course should be the responsibility of the paving stone in-staller.

CR-6 Stone Aggregate

CR-6 stone aggregate shall be free of asbestos and shall comply with MSHA Standards and Specifications, Article 20.01.

Plastic Edging

Plastic edging shall be 1-3/4" x 3-1/2" in size, manufactured by Pave Tech, Inc., Bloomington, Minnesota 55431, or approved equal. Supply in 15' lengths and with tapered steel spike as shown on drawings. Edging and spike shall be black in color. Spikes shall be galvanized.

Reinforced Concrete Slab Base

Expansion Joints

Expansion joint filler and caulking shall be as specified in DHCD Section 07900 joints and sealants and shall extend through setting bed and concrete slab.

Asphalt Mastic Setting Bed

Asphalt cement to be used in the setting bed shall conform to ASTM designation D-3381. The viscosity grade shall be grade A.C. 10 or A. C 20.

The fine aggregate to be used in the setting bed shall be clean, hard sand with durable Particles and free from adherent coatings, lumps of clay, alkali salts, and organic matter. It shall be uniformly graded from "coarse" to "fine" and all passing the No. 4 sieve and meet the gradation requirements when tested in accordance with the standard methods of test for sieve or screen analysis of fine and coarse aggregates, ASTM Designation C-136-81.

The dried fine aggregate shall be combined with hot asphalt cement, and the mix shall be heated to approximately 300 degrees fahrenheit at an asphalt plant. The approximate proportions of materials, shall be seven (7) percent cement asphalt and ninety- three (93) percent fine aggregate. Each ton shall be apportioned by weight in the approximate ratio of 145 lbs. asphalt to 1,855 lbs. sand. The Contractor shall determine the exact proportions to produce the best possible mixture for construction of the setting bed to meet construction requirements.

Neoprene - Modified Asphalt Adhesive

Mastic (asphalt adhesive):

Melting Point - ASTM D-36 (200 degrees fahrenheit min.)

Penetration - 77 degrees fahrenheit 100 gram load 5 second - 23-27

Ductility - ASTM D-113-44 @25 degrees celsius 5 cms/Min. - 125 cm. min.

EXECUTION

General Requirements

- a. Protect masonry against freezing when the temperature of the surrounding air is 40 degrees Fahrenheit and falling. Heat materials and provide temporary protection of completed portions of masonry work. Comply with the requirements of the "Construction and Protection Recommendations for Cold Weather Masonry Construction: of the Technical Notes on Brick and Tile Construction by the Brick Institute of America (BIA).
- b. Do not use frozen materials or materials mixed or coated with ice or frost. For masonry which is specified to be wetted, comply with BIA recommendations.
- c. Do not build on frozen subgrade or setting beds. Remove and replace masonry work damaged by frost or freezing.
- d. Protect masonry paving in hot weather to prevent excessive evaporation of setting beds. Provide artificial shade, wind breaks, and use cooled materials, as required.
- e. For median strip and other area to be paved with brown paver, the Contractor shall place uni-stone pavers in sand set-

- f. Pavers shall be free of foreign materials before installation.
- g. Cutting of paving stone may be done with either a double bladed splitter or a masonry saw.
- h. Schedule and coordinate work to permit other subcontractors to install their work prior to installing the setting bed and the solid hydraulically pressed concrete masonry paving units.
- i. The area of setting bed placed in any work day shall be scheduled so that no bedding course remains at the end of the day without a paver course. After final shaping the bedding course shall not be disturbed prior to laying the pavers.
- j. Pavers shall be cut to fit around light fixture bases and all structures. Where cutting is required, it shall be done with a high-speed masonry saw producing clean, sharp edges. Cutting of units shall only be permitted when use of fun units is not possible. Cutting to conform to grades shall be done so that proper lines and angles are maintained, including handicapped ramps. All cutting to be included in the unit price bid for installing the pavers.
- k. Maintain surface plan for finished brick paving as required, and not exceeding a tolerance of 1/8" in 10 ft. when tested with a 10 ft. straight edge.
- At expansion joint locations place preformed joint filler strip with top edge of strip set 3/8" below top of paver to allow For sealant. Expansion joint filler shall extend through setting bed and

Pavers Laid on Sand Setting Bed Aggregate Base

- a. Installation should start from a corner or straight edge and proceed forward over the undisturbed sand laying course.
- b. Paving work shall be plumb, level and true to line and grade; shall be installed to properly coincide and with adjacent work and elevations. (All edges must be restrained to secure the perimeter stones and the sand laving course).
- c. Paving stones should be installed hand tight and level on the undisturbed sand laying course. String lines should be used to hold pattern lines true.
- d. A Plate Vibrator or Roller Vibrator should be used to compact the stones and to vibrate the sand up into the joints between the stones.
- e. Fine sand should be spread over the installed paving stones and vibrated into the joints between the stones.
- f. Remaining sand should be swept into the joints until joints are filled flush with the top of the paving stones. Sweep excess sand clear from surface.
- g. The completed paving stone installation should be cleaned and washed down to provide a finished workmanlike installation.

Pavers Laid on Asphalt Mastic Bed and Reinforced Concrete Slab

a. The Contractor shall place 1" deep setting bed directly over the concrete surface. If grade must be adjusted, set wood chocks under depth control bars to proper grade. Set

Place some bituminous bed between the parallel depth control bars. Pull this bed with the striking board over these bars several times. After each passage, low porous spots must be showered with fresh bituminous material to produce smooth, firm and even setting bed. As soon as this initial panel is completed, advance the first bar to the next position in readiness for striking the next panel. Carefully fill up any depressions that remain after removing the depth control bars and wood chocks. The setting bed shall be rolled with a power roller to a nominal depth of 1" while still hot. The thickness shall be adjusted so that when the solid concrete masonry units are placed, the top surface of the pavers will be at the required finished grade.

b. A coating of two percent neoprenemodified asphalt adhesive shall be applied by mopping or squeegeeing or troweling over the top surface of the bituminous setting bed so as to provide a bond under the pavers. If it is troweled, the trowel shall be serrated with serrations not to exceed one-sixteenth (1/16) inch.

c. Uni-stone pavers shall be installed after the modified asphalt adhesive is applied. Pavers shall be carefully placed by hand in the herringbone pattern. Courses shall be straight with hand tight joints and uniform top surface. Hand tight joints shall be no greater than 1/8" and shall be swept with sand until joints are completely filled. The paving surface shall then be fogged lightly with water and cement stains removed from face of pavers.

CONCRETE

- Cement shall be as specified in Section 901.01 of the MSHA Standard Specifications.
- (2) Unless otherwise permitted or required, cement shall be Type II
- (3) The cement used in the work shall correspond to that upon which the selection of concrete proportions was based.
- (4) Only one brand and type of cement shall be used throughout the project, unless otherwise specified.
- b. Aggregates
 - (1) Fine aggregate shall be as specified in Section 903 of the MSHA Standard Specifications.
 - (2) Coarse aggregate shall be as specified in Section 903 of the MSHA Standard Specifications, within the gradation limits of Size No. 57.
- c. Water

Water used in mixing concrete shall be as specified in Section 919 of the MSHA Standard Specifications.

d. Strength

Concrete shall have a compressive strength at 28 days of 3000 psi for sidewalk slabs and 3500 psi for retaining walls.

e. Slump

Concrete mixture shall have a slump of between 2 and 4 inches.

f. Proportions

g. Finishes

Cast-in-place concrete that will be exposed to view shall be medium broom finished.

Reinforcing Steel

Bar reinforcement for slabs, (structure and foundations) shall meet the requirements of ASTM A615, grade 60. Use 6x6 WWM for slab underneath uni-stone pavers.

Expansion Joints

Expansion joints shall be as specified in Section 07900, joints and sealants, in DHCD specs.

Forms

Forms shall conform to the requirements of Section 608 of the MSHA Standard Specifications.

EXECUTION

Installing Reinforcement

- a. Fabricate and install reinforcing and provide standard supporting accessories in accordance with ACI "Manual of Standard Practice for Detailing Reinforced Concrete Structures", ACI 135.
- b. Remove rust, scale, paint, and coatings from reinforcing. Furnish and install additional supports as necessary. Position wire to prevent movement during concrete placement. Provide necessary support bars.
- c. Provide for installation of metal angels, channels, plates, inserts, hangers, ties, anchors, dowels, bolts, slots, sleeves, blocking, conduits furnished by other trades, etc. Coordinate locations with

II. CAST IRON TREE GRATE

- A. Cast iron tree grate shall be the Standard Flat, 5' x 5', by Neenah Foundry Company. Cat. No. R-8742-A, 500 Winneconne Ave., P.O. Box 729, Neenah Wisconsin 54956, phone: 414-725-7000 or approved equal.
- B. All tree grates shall be painted with metal primer and black asphaltic paint in accordance with manufacturer's specifications and details shown on DHCD drawing. Expansion bolts shall meet the requirements of ASTM A325.

III. PLANTING SPECIFICATIONS

MATERIALS

Planting stock shall be well-branched and well-formed, sound, vigorous, healthy, and free from disease, sun-scald, windburn, abrasion, and harmful insects or insect eggs and shall have healthy, normal, and unbroken root systems. Deciduous trees and shrubs shall be symmetrically developed, of uniform habit of growth, with straight boles or stems, and free from objectionable disfigurements. Groundcovers and vines shall be as specified, and be the proper age for the length of runners and clump size specified. Only shrubs and groundcover plants well established in removable containers, integral containers, or formed homogeneous soil sections shall be used. Plants shall have been grown under climatic conditions similar to those in the locality of the project.

The minimum acceptable sizes of all plants, measured before pruning and with branches in normal position, shall conform to the measurements indicated on the drawings. Plants larger in size than specified may be used with

Plant material shall be nursery grown unless otherwise indicated and shall conform to the requirements and recommendations of ANSI Z60.1. Plants shall be dug and prepared for shipment in a manner that will not cause damage to branches, shape, and future development after planting.

 Balled and burlapped (B&B) plants shall have ball sizes conforming to ANSI Z60.1. Plants shall be balled with firm natural balls of soil. B&B plants shall be wrapped firmly with burlap or strong cloth and tied securely.

Anti-desiccant

A. Anti-Desiccant: "Wilt-Pruf " Nursery Specialty Products, Inc., 410 Greenwich Avenue, Greenwich, Connecticut 06830, or approved equivalent.

Peat Moss

- A. Commercially available material consisting of shredded sedge peat and reed peat or sphagnum moss peat, or combinations of such, from fresh water sites. Peats in advanced stages of decay (parent material not identifiable) are not permitted. use peat having a minimum organic content of 80 percent organic matter by weight, a pH value of 3.5 to 5.5, and a maximum ash content of 15 percent.
- B. Compost: well rotted decomposed leaf material.

Fertilizers

A. Commercial Fertilizers: FS 0-F-241, Type 1, of Grade noted, Level B, composite and bearing manufacturer's guaranteed statement of analysis. Unless available phosphoric acid, and 4 percent potash.

Backfill Mixtures

A. Utilize one-half by volume of existing soil and one-half new additional soil consisting of one-third topsoil, onethird peat moss or compost, and onethird sand, plus an amount of 10-6-4 fertilizer per cubic yard specified by soil test results. (1:1:1 ratio.)

Mulch

- A. Mulch material for plants not in grates shall be either composted (shredded) hardwood bark, double shred or approved equivalent. Material shall be mulching grade, uniform in size, and free of foreign matter.
- B. Mulch material for trees in grates shall be washed pea gravel or 3" mulch.

Stakes and Guying Material For Trees

- A. Stakes shall be rough lumber of uniform size, 2 inches by 2 inches in section, or 2-1/2 inches in diameter, pointed at one end with the slope of the point back about 6 inches from the end. Coated with one heavy brush cost of dark walnut oil stain before installation.
- B. Guying cable shall be galvanized steel, 9 gauge wire.
- C. Hose shall be high quality braided rubber or plastic hose, 3/4 inch diameter and suitable length, black in color.

Wrapping Material

 A. Tree wrapping material shall be the following:

B. Tree wrap twine shall be a three-ply jute twine.

Water

A. Potable: To be supplied by Contractor.

Fungicide

A. Fungicide shall be Zinc ethylene bisdithiocarbonate (Zineb), or equal.

Insecticide

A. Isotox by Ortho or eaual.

EXECUTION

Planting Procedures For Trees

Layout of Work:

1. Prior to digging plant pits. Contractor shall lay out and stake proposed locations for all plant materials. Layout shall be approved by the county prior to installation.

Test Pits:

1. Should staked locations lie in proximity to subsurface utilities, the contractor, with approval from the County, may perform subsurface exploration to verify utility locations.

Digging Plant Pits:

- 1. Walls of plant pits shall be dug so that they are vertical and scarified. Bottoms shall be scarified to depth of 3".
- 2. Plant pits must be a minimum of 12 inches larger for trees and 12 inches larger for shrubs on every side of the plant ball.
- 3. Plants shall bear the same relationship to finished grade as at the nursery. Any loose soil at the bottom of the pit shall

Backfilling Plant Pits:

- 1. Backfill plant pit with the soil mixture stated in the specifications.
- 2. Mix soil amendments prior to filling pit.
- 3. Make sure plant remains straight during backfilling procedure.
- 4. Backfill sides of plant pit halfway with soil mixture and tamp as pit is being filled.
- 5. Cut rope or wire from ball and remove from plant. Pull burlap back to the edge of the tree ball. Remove all plastic wraps and twine.
- 6. Finish backfilling sides of plant pit and tamp firmly.
- 7. Never cover top of tree ball with soil.
- 8. Form a saucer above existing grade and around the outer rim of the plant pit, not above root ball, as shown on the Drawings.
- 9. Mulch top of root ball and saucer within 48 hours to a depth of 3 inches, as shown on DHCD Drawings. Mulch trees in tree grates with 2 inches of washed pea gravel as shown on DHCD Drawings.
- 10. Water to saturation on the interior of the tree saucer until it is filled, even if it is raining. A second watering may be necessary to ensure saturation of the root ball.

Fungicide Spraying

1. Immediately after planting, all trunks of deciduous trees shall be sprayed with fungicide spray, applied as directed by manufacturer.

the third branch or two-thirds the height of the tree, whichever is higher. Wrap shall be a applied from base up and securely tied.

Anti-desiccant Application

1. In extremely hot weather, reduce foliage surface by pruning or stripping, and apply anti-desiccant as directed by the county.

Pruning

- 1. Each tree and shrub shall be pruned to preserve the natural character of the plant. Pruning shall be done after delivery of plants and after plants have been inspected and approved by the county.
- 2. DO NOT cut the main leader when pruning trees.
- 3. If side branches are cut to balance tree, make all cuts flush with lateral branch.
- 4. All cuts greater than 1/2 inch shall be carefully pared over with a sharp knife.
- 5. Prune out all dead and broken branches.

N. WOOD BENCH

MATERIALS

Wooden benches shall be manufactured by Bench Manufacturing Co.01 P.O. Box 158, 56 Winthrop Street, Concord, MA 01742, Model No. B-76, or approved equal. Benches shall be 4' long with back, with 8 straight and two molded wood slats (1.06 251 x 2.50" finished dimension) and cast iron stanchion.

Wood Members

All members shall be Douglas Fir and shall be selected for quality and appearance. All wood members must be kiln dried to a moisture content of 19% or less clear all sides. Wood parts shall be free of planer skips, wane, knots, knotholes, rot, white specks and shall be suitable for the use intended. All edges shall be uniformly rounded and exposed ends shall be drilled, sanded and chamfered on all sides. All corners shall be eased. All members will have clear stain.

Stanchions

Stanchions shall be cast gray iron to meet ASTM A48-76 Class 30 Standards with polyester powder coating (.003-.005) coverage in standard deep black color.

Hardware

All hardware necessary for assembly shall be provided in sufficient quantity, sizes, lengths and quality suitable for the use intended.

All nuts, bolts and screws shall be stainless steel. Steel tie rod shall be .625 in diameter. All seat support straps shall be aluminum, .125" x 1.00". Anchor bolt holes shall be .50" in diameter.

EXECUTION

Each contour bench shall be installed according to the manufacturer's specifications and as indicated on the contract drawings. After assembly, all exposed hardware shall receive one coat of primer and be touched up with one color coat, as previously specified.

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Montgomery County Department of Transportation

Lighting Standards

Washington Globe Specifications

MONTGOMERY COUNTY, MARYLAND DEPARTMENT OF TRANSPORTATION DIVISION OF TRAFFIC AND PARKING SERVICES

JUNE 2016

WASHINGTON GLOBE DECORATIVE LED STYLE LUMINAIRE SEMI CUT-OFF HARD TOP

1) <u>PURPOSE</u>

The purpose of these specifications is to provide minimum requirements for the design, manufacture, finishing and delivery of the Washington Globe (hard top) LED luminaire. The Washington Globe is intended to be mounted on decorative pole as specified, along roadways throughout Montgomery County. Any manufacturer, distributor or vendor who submits bid shall agree with these specifications

2) <u>DESCRIPTION</u>

The luminaire shall be an outdoor decorative post top fixture, cylindrical in shape with an overall height between 42.5 +/- 2.0 inches and a overall width between 16.5 +/- 0.5 inches for the globe (see attached drawing). All exterior and structural parts shall consist of aluminum alloy or cast iron. Exterior castings shall be cast in one piece having a smooth surface finish and free of mold lines. A separate cover for a ballast drawer/tray is permitted if the ballast drawer cover is secured to the luminaire body with captive fasteners. All components shall fit together snugly and shall be fitted with continuous neoprene gaskets so as to weather proof joints between metal interfaces. Visible metal surfaces shall have raised decorations integrally molded in the base piece. All metal parts shall be corrosion resistant. The luminaire shall come ready for quick an easy field assembly or fully assembled:

Each luminaire shall include the following components:

- 1) LED Optical Assembly (Type III distribution)
- 2) 120 volt LED Driver
- 3) Button type photocell installed on the metal body of the luminaire or ballast tray cover;
- 4) All necessary hardware and fasteners to assemble and secure on post tenon.

3) <u>DESIGN CRITERIA</u>

3.1) AASHTO Standards

The luminaire shall meet the requirements of the American Association of State Highway and Transportation Officials (AASHTO), Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals" latest edition. 3.2) <u>Wind Load</u>

All components of the luminaire shall be designed to resist (at yield strength of the materials without permanent deflection or destruction), test loads equivalent to the calculated loads developed by the velocity pressure of at least an 80 MPH wind. A minimum safety factor of 1.82 on the yield strength shall be maintained.

4) <u>GLOBE</u>

The globe should be supplied as two pieces, chemically matching material as a unit and permanently sealed together with a chemical bonding process. The globe bottom shall be alabaster rippled and made of UV stabilized acrylic. The globe roof shall be of a spun aluminum design. The roof and bottom globe sections are secured in a slip-fit, 1/2" overlap design and providing a mechanical lock and enabling easy future replacement of either the roof or bottom globe section if required. The roof finish shall be polyester thermoset powdercoat. The globe shall be of a traditional "Washington Globe" (acorn) shape designed to achieve the photometric performance specified by Illumination Engineering Society (IES). The bottom surface of the globe shall interface closely with the metal body of the fixture so as to provide a weather, dust, and insect proof interface. The globe or its mounting ring shall be fastened with three or more recessed set screws to the body of the fixture.

5) DRIVER and SURGE PROTECTOR

The driver shall be mounted to facilitate easy removal for maintenance operations. The driver shall be equipped with a 10KV Surge Protection and suppression system. All electrical connections shall be polarized and of plug-in design. The driver shall be wired to receive 120 volt AC current. The driver shall reliably start and operate the lamp in ambient temperatures down to minus 30 degrees. The terminal block shall be capable of accepting up to a #6 AWG wire.

- <u>LED Color Temperature (CCT) and Rendering Index (CRI)</u> The Correlated Color Temperature (CCT) shall be a nominal Kelvin Temperature of 3500K ±200K with a minimum Color Rendering Index (CRI) of 70.
- 7) <u>PHOTOCELL</u>

The photocell shall be a twist-lock type or equal, mounted on the metal body of the luminaire or the cover of the ballast tray drawer.

8) <u>METAL BODY</u>

The body shall be cast in one piece and shall have raised surface decorations. The body shall taper smoothly between the slip fitter to the base of the globe. The body shall be constructed with weep holes or channels to prevent rainwater from collecting at the top of the body.

9) <u>SLIP FITTER</u>

The slip fitter shall have a nominal inside diameter of 3.375 inches +/- 0.25 and shall be secured to the lamp post tenon with three of four evenly spaced set screws. The slip fitter shall accommodate a tenon 3.0 inches long.

10) <u>FINIAL</u>

The finial shall be made of cast aluminum, and securely fastened to the top of the globe.

11) <u>FINISH</u>

The exterior surface of the finial and luminaire body shall be factory finished with a dark green electrostatically applied polyester powder coat. The color shall be "Federal Green", federal color 595a, #14036.

Washington Globe Cut Sheets

SPECIFICATIONS FOR STREETLIGHT HARDWARE IFB # 1063092







MONTGOMERY COUNTY, MARYLAND DEPARTMENT OF TRANSPORTATION TRAFFIC ENGINEERING AND OPERATIONS

JUNE 2016

DECORATIVE, SILVER SPRING VEHICULAR LED SHALLOW DROP STYLE LUMINAIRE

1) <u>PURPOSE</u>

The purpose of these specifications is to provide minimum requirements for the design, manufacture, finishing and delivery of the Silver Spring Vehicular LED Shallow Drop style luminaires. The Silver Spring Vehicular LED Shallow Drop is intended to be mounted on a decorative post as specified, along roadways in the Silver Spring Central Business District. Any manufacturer, distributor or vendor who submits a bid shall agree to comply with these specifications, or submit specifications for approval that match these specifications.

2) <u>DESCRIPTION</u>

The luminaire shall be an outdoor decorative fixture, cylindrical in shape with an overall height of 30 inches \pm and an overall width of 16 5/8 inches for the globe (see attached drawing). All exterior and structural parts shall consist of cast aluminum alloy. Exterior castings shall be cast in three pieces having a smooth surface finish and free of mold lines. A separate section for the driver is permitted if the driver casting is secured to the luminaire body with captive fasteners. All components shall fit together snugly and shall be fitted with continuous neoprene gaskets so as to weatherproof the joints between metal interfaces. Visible metal surfaces shall be integrally molded as to appear to be a single unit. All metal parts shall be corrosion resistant. The luminaire shall come ready for quick and easy field assembly or be fully assembled and include the following components:

Each luminaire shall include the following:

- 1) LED Optical Assembly (Type III distribution);
- 2) 120 volt LED Driver;
- 3) NEMA twist-lock type photocell installed on the metal body of the decorative post;
- 4) Shallow Drop globe
- 5) All necessary hardware and fasteners to assemble and secure the luminaire onto the post arm.

3) <u>DESIGN CRITERIA</u>

3.1) AASHTO Standards

The luminaire shall meet the requirements of the American Association of State
Highway and Transportation Officials (AASHTO), "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals," latest edition.

3.2 Wind Load

All components of the luminaire shall be designed to resist (at yield strength of the materials without permanent deflection or destruction), test loads equivalent to the calculated loads developed by the velocity pressure of at least an 80 MPH wind. A minimum safety factor of 1.82 on the yield strength shall be maintained.

4) <u>GLOBE</u>

The globe shall be of a Shallow Drop (teardrop) shape, thermal resistant borosilicate glass or Acrylic that controls the light, and provide an IES Type III cutoff distribution. The combination of shallow lens and LED panel shall maximize efficiency and uniformity of illumination while controlling the luminaire brightness. The entire globe shall be luminous with shielding of the top section. The top surface of the globe shall interface closely with the metal body of the fixture so as to provide a weather, dust, and insect proof protection.

5) DRIVER and SURGE PROTECTOR

The driver shall be mounted to facilitate easy removal for maintenance operations. The driver shall be equipped with a 10KV Surge Protection and suppression system. All electrical connections shall be polarized and of plug-in design. The driver shall be wired to receive 120 volt AC current. The driver shall reliably start and operate the lamp in ambient temperatures down to minus 30 degrees. The terminal block shall be capable of accepting up to a #6 AWG wire.

6) <u>LED Color Temperature (CCT) and Rendering Index (CRI)</u> The Correlated Color Temperature (CCT) shall be a nominal Kelvin Temperature of 3500 ± 200 K with a minimum Color Rendering Index (CRI) of 70

7) <u>PHOTOCELL</u>

The photocell shall be a NEMA twist-lock type or equal, mounted on the metal body of the decorative pendant post.

8) <u>METAL BODY</u> The body shall be cast in two pieces and shall have raised surface ridges. The body shall taper smoothly from the slip fitter to the top of the globe. The body shall be constructed to prevent rainwater collecting on the luminaire.

9) <u>TOP ENTRY THREADED SLIPFITTER</u>

The top entry threaded slipfitter shall have a nominal inside diameter of $1\frac{1}{2}$ inches +/-0.05 inches and shall be secured to the pole slipfitter with three or four evenly spaced setscrews or approved top mounting equivalence.

10) <u>FINISH</u>

<u>SPECIFICATIONS FOR STREETLIGHT HARDWARE</u> IFB # 1063092

The exterior surface of the luminaire body shall be factory finished with a dark green electrostatically applied polyester powder coat. The color shall be "Federal Green", federal color 595B, #14036

<u>SPECIFICATIONS FOR STREETLIGHT HARDWARE</u> IFB # 1063092



MONTGOMERY COUNTY, MARYLAND DEPARTMENT OF TRANSPORTATION TRAFFIC ENGINEERING AND OPERATIONS

JUNE 2016

SILVER SPRING DECORATIVE VEHICULAR, TEARDROP STYLE LUMINAIRE

1) <u>PURPOSE</u>

The purpose of these specifications is to provide minimum requirements for the design, manufacture, finishing and delivery of the Silver Spring Vehicular Teardrop style luminaires. The Silver Spring Vehicular Teardrop is intended to be mounted on a decorative post as specified, along roadways in the Silver Spring Central Business District. Any manufacturer, distributor or vendor who submits a bid shall agree to comply with these specifications, or submit specifications for approval that match these specifications.

2) <u>DESCRIPTION</u>

The luminaire shall be an outdoor decorative fixture, cylindrical in shape with an overall height of 34 3/8 inches and an overall width of 16 5/8 inches for the globe (see attached drawing). All exterior and structural parts shall consist of aluminum alloy. Exterior castings shall be cast in three pieces having a smooth surface finish and free of mold lines. A separate section for the ballast is permitted if the ballast casting is secured to the luminaire body with captive fasteners. All components shall fit together snugly and shall be fitted with continuous neoprene gaskets so as to weatherproof the joints between metal interfaces. Visible metal surfaces shall be integrally molded as to appear to be a single unit. All metal parts shall be corrosion resistant. The luminaire shall come ready for quick and easy field assembly or be fully assembled and include the following components:

Each luminaire shall include the following:

- 1) Lamp, as specified;
- 2) 120 volt ballast;
- 3) NEMA twist-lock type photocell installed on the metal body of the decorative post;
- 4) All necessary hardware and fasteners to assemble and secure the luminaire onto the post arm.

The luminaire must be able to accommodate 70, 100, 150, or 250 watt, High Pressure Sodium Vapor (HPSV) lamp or 175, or 250 watt, Metal Halide (MH) lamp and ballast. The luminaire shall be "Holophane AL250MH12N4" with metal uplight shield, or an

approved equal.

3) <u>DESIGN CRITERIA</u>

3.1) AASHTO Standards

The luminaire shall meet the requirements of the American Association of State Highway and Transportation Officials (AASHTO), "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals," latest edition.

3.2 Wind Load

All components of the luminaire shall be designed to resist (at yield strength of the materials without permanent deflection or destruction), test loads equivalent to the calculated loads developed by the velocity pressure of at least an 80 MPH wind. A minimum safety factor of 1.82 on the yield strength shall be maintained.

4) <u>GLOBE AND REFRACTOR</u>

The globe shall be of the traditional "Atlanta" (teardrop) shape, thermal resistant borosilicate glass refractor that controls the light, and provide an IES Type III cutoff distribution. The combination of reflector, refractor and vertical burning lamp shall maximize efficiency and uniformity of illumination while controlling the luminaire brightness. The entire globe shall be luminous with shielding of the top section. The top surface of the globe shall interface closely with the metal body of the fixture so as to provide a weather, dust, and insect proof protection.

5) <u>BALLAST</u>

The ballast shall be securely fastened into the top of the luminaire and have quick release electrical connections. The ballast shall be a high power factor reactor type ballast of at least 90% to supply power for the specified HPSV or MH lamp from a 120 volt power supply. The space for the ballast shall have sufficient space to accommodate the ballast for 70, 100, 150 or 250 watt HPSV or 175, or 250 watt Medial Halide lamps.

6) <u>LAMP</u>

The luminaire may be used with wattage as follows:

ANSI Code - 70 watt (HPSV), with Mogul base socket;

ANSI Code - 100 watt (HPSV), with Mogul base socket;

ANSI Code - 150 watt (HPSV), with Mogul base socket;

ANSI Code - 250 watt (HPSV), with Mogul base socket;

ANSI Code - 175 watt (MH), with Mogul base socket;

ANSI Code - 250 watt (MH), with Mogul base socket, or as specified.

7) <u>PHOTOCELL</u>

The photocell shall be a NEMA twist-lock type or equal, mounted on the metal body of the decorative pendant post.

8) <u>METAL BODY</u>

The body shall be cast in two pieces and shall have raised surface ridges. The body shall taper smoothly from the slip fitter to the top of the globe. The body shall be constructed to prevent rainwater collecting on the luminaire.

9) <u>TOP ENTRY THREADED SLIPFITTER</u>

The top entry threaded slipfitter shall have a nominal inside diameter of 1 $\frac{1}{2}$ inches +/-0.05 inches and shall be secured to the pole slipfitter with three or four evenly spaced setscrews.

10) <u>SOCKET</u>

The lamp socket shall be a four K.V. pulse rated porcelain mogul base socket.

11) <u>FINISH</u>

The exterior surface of the luminaire body shall be factory finished with a dark green electrostatically applied polyester powder coat. The color shall be "Federal Green", federal color 595B, #14036



Teardrop Standard Specifications

MONTGOMERY COUNTY, MARYLAND DEPARTMENT OF TRANSPORTATION TRAFFIC ENGINEERING AND OPERATIONS JUNE 2016 SILVER SPRING DECORATIVE PEDESTRIAN, LED SHALLOW DROP STYLE LUMINAIRE

1) <u>PURPOSE</u>

The purpose of these specifications is to provide minimum requirements for the design, manufacture, finishing and delivery of the Silver Spring Pedestrian LED Shallow drop style luminaires. The Silver Spring Pedestrian LED Shallow drop is intended to be mounted on a decorative post as specified, along roadways in the Silver Spring Central Business District. Any manufacturer, distributor or vendor who submits a bid shall agree to comply with these specifications, or submit specifications for approval that match these specifications.

2) <u>DESCRIPTION</u>

The luminaire shall be an outdoor decorative fixture, cylindrical in shape with an overall height of 25 5/8 inches and an overall width of 14 ½ inches for the globe (see attached drawing). All exterior and structural parts shall consist of cast aluminum alloy. Exterior castings shall be cast in three pieces having a smooth surface finish and free of mold lines. A separate section for the driver is permitted if the driver casting is secured to the luminaire body with stainless steel captive fasteners. All components shall fit together snugly and shall be fitted with continuous neoprene gaskets so as to weatherproof the joints between metal interfaces. Visible metal surfaces shall be integrally molded as to appear to be a single unit. All metal parts shall be corrosion resistant. The luminaire shall come ready for quick and easy field assembly or be fully assembled and include the following components:

Each luminaire shall include the following:

- 1) LED Optical Assembly (Type III distribution);
- 2) 120 volt LED Driver;
- 3) NEMA twist-lock type photocell installed on the metal body of the decorative post;
- 4) Shallow Drop globe
- 5) All necessary hardware and fasteners to assemble and secure the luminaire onto the post arm.
- 3) <u>DESIGN CRITERIA</u>
 - 3.1) AASHTO Standards

The luminaire shall meet the requirements of the American Association of State Highway and Transportation Officials (AASHTO), "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals," latest edition.

3.2 <u>Wind Load</u>

All components of the luminaire shall be designed to resist (at yield strength of the materials without permanent deflection or destruction), test loads equivalent to the calculated loads developed by the velocity pressure of at least an 80 MPH wind. A minimum safety factor of 1.82 on the yield strength shall be maintained.

4) <u>GLOBE</u>

The globe shall be of a Shallow Drop (teardrop) shape, thermal resistant borosilicate glass or Acrylic that controls the light, and provide an IES Type III cutoff distribution. The combination of shallow lens and LED panel shall maximize efficiency and uniformity of illumination while controlling the luminaire brightness. The entire globe shall be luminous with shielding of the top section. The top surface of the globe shall interface closely with the metal body of the fixture so as to provide a weather, dust, and insect proof protection.

5) DRIVER and SURGE PROTECTOR

The driver shall be mounted to facilitate easy removal for maintenance operations. The driver shall be equipped with a 10KV Surge Protection and suppression system. All electrical connections shall be polarized and of plug-in design. The driver shall be wired to receive 120 volt AC current. The driver shall reliably start and operate the lamp in ambient temperatures down to minus 30 degrees. The terminal block shall be capable of accepting up to a #6 AWG wire.

6) <u>LED Color Temperature (CCT) and Rendering Index (CRI)</u>

The Correlated Color Temperature (CCT) shall be a nominal Kelvin Temperature of $3500K \pm 200K$ with a minimum Color Rendering Index (CRI) of 70

7) <u>PHOTOCELL</u>

The photocell shall be a NEMA twist-lock type or equal, mounted on the metal body of the decorative post.

8) <u>METAL BODY</u>

The body shall be cast in two pieces and shall have raised surface ridges. The body shall taper smoothly from the slip fitter to the top of the globe. The body shall be constructed to prevent rainwater collecting on the body.

9) <u>TOP ENTRY THREADED SLIPFITTER</u>

The top entry threaded slipfitter shall have a nominal inside diameter of $1 \frac{1}{2}$ inches and shall be secured to the pole slipfitter with three or four evenly spaced setscrews or approved top mounting equivalence.

10) <u>FINISH</u>

The exterior surface of the luminaire body shall be factory finished with a dark green electrostatically applied polyester powder coat. The color shall be "Federal Green", federal color 595B, #14036

<u>SPECIFICATIONS FOR STREETLIGHT HARDWARE</u> IFB # 1063092



MONTGOMERY COUNTY, MARYLAND DEPARTMENT OF TRANSPORTATION TRAFFIC ENGINEERING AND OPERATIONS

JUNE 2016

SILVER SPRING DECORATIVE PEDESTRIAN, TEARDROP STYLE LUMINAIRE

1) <u>PURPOSE</u>

The purpose of these specifications is to provide minimum requirements for the design, manufacture, finishing and delivery of the Silver Spring Pedestrian Teardrop style luminaires. The Silver Spring Pedestrian Teardrop is intended to be mounted on a decorative post as specified, along roadways in the Silver Spring Central Business District. Any manufacturer, distributor or vendor who submits a bid shall agree to comply with these specifications, or submit specifications for approval that match these specifications.

2) <u>DESCRIPTION</u>

The luminaire shall be an outdoor decorative fixture, cylindrical in shape with an overall height of 25 5/8 inches and an overall width of 14 ½ inches for the globe (see attached drawing). All exterior and structural parts shall consist of aluminum alloy. Exterior castings shall be cast in three pieces having a smooth surface finish and free of mold lines. A separate section for the ballast is permitted if the ballast casting is secured to the luminaire body with stainless steel captive fasteners. All components shall fit together snugly and shall be fitted with continuous neoprene gaskets so as to weatherproof the joints between metal interfaces. Visible metal surfaces shall be integrally molded as to appear to be a single unit. All metal parts shall be corrosion resistant. The luminaire shall come ready for quick and easy field assembly or be fully assembled and include the following components:

Each luminaire shall include the following:

- 1) Lamp, as specified;
- 2) 120 volt ballast;
- 3) NEMA twist-lock type photocell installed on the metal body of the decorative post;
- 4) All necessary hardware and fasteners to assemble and secure the luminaire onto the post arm.

The luminaire must be able to accommodate 70, 100, or 150, watt, High Pressure Sodium Vapor (HPSV) lamp or 175 watt, Metal Halide (MH) lamp and ballast. The luminaire shall be "Holophane ALP(175MH)12N3" without a metal uplight shield, or an approved equal.

3) <u>DESIGN CRITERIA</u>

3.1) <u>AASHTO Standards</u>

The luminaire shall meet the requirements of the American Association of State Highway and Transportation Officials (AASHTO), "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals," latest edition.

3.2 Wind Load

All components of the luminaire shall be designed to resist (at yield strength of the materials without permanent deflection or destruction), test loads equivalent to the calculated loads developed by the velocity pressure of at least an 80 MPH wind. A minimum safety factor of 1.82 on the yield strength shall be maintained.

4) <u>GLOBE AND REFRACTOR</u>

The globe shall be of the traditional "Atlanta" (teardrop) shape, thermal resistant borosilicate glass refractor that controls the light, and provide an IES Type III cutoff distribution. The combination of reflector, refractor and vertical burning lamp shall maximize efficiency and uniformity of illumination while controlling the luminaire brightness. The entire globe shall be luminous with shielding of the top section. The top surface of the globe shall interface closely with the metal body of the fixture so as to provide a weather, dust, and insect proof protection.

5) <u>BALLAST</u>

The ballast shall be securely fastened into the top of the luminaire and have quick release electrical connections. The ballast shall be high power factor refractor type ballast of at least 90% to supply power for the specified HPSV or MH lamp from a 120 volt power supply. The space for the ballast shall have sufficient space to accommodate a ballast for 70, 100, or 150 watt HPSV or 175 watt Medial Halide lamps.

6) <u>LAMP</u>

The luminaire may be used with wattage as follows:

ANSI Code - 70 watt (HPSV), with Mogul base socket;

ANSI Code - 100 watt (HPSV), with Mogul base socket;

ANSI Code - 150 watt (HPSV), with Mogul base socket;

ANSI Code - 175 watt (MH), with Mogul base socket; or as specified.

7) <u>PHOTOCELL</u>

The photocell shall be a NEMA twist-lock type or equal, mounted on the metal body of the decorative post.

8) <u>METAL BODY</u>

The body shall be cast in two pieces and shall have raised surface ridges. The body shall taper smoothly from the slip fitter to the top of the globe. The body shall be constructed to prevent rainwater collecting on the body.

9) <u>TOP ENTRY THREADED SLIPFITTER</u>

The top entry threaded slipfitter shall have a nominal inside diameter of 1 ¹/₂ inches and

shall be secured to the pole slipfitter with three or four evenly spaced setscrews.

10) <u>SOCKET</u>

The lamp socket shall be a four K.V. pulse rated porcelain mogul base socket.

11) <u>FINISH</u>

The exterior surface of the luminaire body shall be factory finished with a dark green electrostatically applied polyester powder coat. The color shall be "Federal Green", federal color 595B, #14036

Teardrop Standard Cut Sheets

1 +em # 39







LED		Distribution				Sutter		276 (2700	K, 70 (:RI)		1	3DK (3000	K, 70 C	RIJ			40K (400	DK, 70 (RI)		-	50K (5000	K, 70 C	RI)	-
ackage	Glass		Watts	Lumens	LPW	B	U	G	Lumens	LPW	8	U	G	Lumens	LPW	B	1 U	G	Lumens	LPW	1 8	U	-			
	TG 3	735	57	6,947	122	1	3	3	7,101	125	1	3	3	7,451	131	1	3	3	7,400	130	1	3	1			
	8G 3	TAM	57	6,731	118	2	3	3	6,880	121	2	3	3	7,220	127	12	3	3	7,170	126	2	3	1			
P105	BG 5	TSS	57	7,087	124	3	3	2	7,244	127	3	3	2	7,601	133	3	3	3	7,549	132	3	3	1			
	5G 3	T35	57	6,822	120	1	3	3	6,973	122	1	3	3	7,317	128	1	3	3	7,266	127	1	3	1			
- 1 - A	SG 5	T55	57	7,164	126	3	2	1	7,322	128	3	3	1	7.683	135	3	3	1	7,631	134	3	3	1			
	IG 3	T35	75	8,651	115	1	5	3	8,843	118	1	5	3	9,279	124	1	5	3	9,215	123	1	5	1			
	BG 3	T4M	75	8,372	112	2	5	3	8,558	114	2	S	3	8,980	120	2	5	3	8,918	119	2	5	1			
PIOU	BG 5	T55	75	8,838	118	3	5	2	9,034	120	3	5	2	9,480	126	3	5	2	9,415	126	3	5	1			
	SG 3	T35	75	8,422	112	1	5	2	8,609	115	1	5	3	9,033	120	1	S	3	8,972	120	1	5	7			
	SG S	TSS	75	8,647	115	2	5	3	8,839	118	2	5	3	9,275	124	2	5	3	9,211	123	2	5	-			
	TG 3	T35	83	9,610	116	2	3	3	9,823	118	2	3	3	10,308	124	2	3	3	10,237	123	2	3	Ĩ			
	8G 3	74M	83	9,312	112	2	3	4	9,519	115	2	3	4	9,988	120	2	3	4	9,919	120	2	3	1			
P205	8G 5	TSS	83	9,804	118	3	3	3	10,021	121	3	3	3	10,515	127	4	3	3	10,443	126	4	3	1			
	SG 3	Tas	83	9,437	214	1	3	3	9,646	116	2	3	3	10,122	122	2	3	3	10,053	121	2	3	1			
	56 5	155	83	9,910	119	3	3	2	10,130	122	3	3	2	10,630	128	3	3	2	10,557	127	1 3	3	-			
	7G 3	T35	109	11,551	105	2	5	3	11,807	108	2	5	3	12,389	114	2	5	3	12,304	113	2	5	-			
	BG 3	T4M	109	11,179	103	2	5	4	11,427	105	2	5	4	11,990	110	2	5	4	11,908	109	2	5	-			
P20U	BG 5	TSS	109	11,801	108	3	5	3	12,053	111	3	5	3	12,657	116	3	5	3	12,571	115	1	1	-			
	563	T35	109	11,245	103	2	5	3	11,495	105	2	5	3	12,061	111	2	5	3	11,979	110	2	5	-			
	5G 5	TSS	109	11,546	106	2	5	3	11,802	108	2	5	3	12,384	114	2	5	3	12,299	113	2	6	-			
	TG 3	735	118	12,634	107	2	3	3	12,914	109	2	3	3	13,551	115	2	3	3	13,458	114	2	3	-			
-	BG 3	TAM	118	12,242	104	2	3	4	12,513	106	2	3	4	13,130	111	3	3	5	13,040	111	3	3	-			
PBUS	865	TSS	118	12,888	109	4	3	3	13,174	112	4	3	3	13,823	117	4	3	3	13,729	116	4	3	-			
5	5G 3	135	118	12,406	105	2	3	3	12,681	107	2	3	3	13,307	113	2	3	3	13,215	112	2	3	ľ			
-	SGS	TSS	118	13,028	110	3	3	2	13,317	113	3	3	2	13,974	118	4	3	2	13,879	118	4	3	1			
	TG 3	T35 1	144	14,335	100	2	3	4	14,653	102	2	3	4	15,375	107	2	3	4	15,270	105	2	3	-			
	8G 3	T4M	144	13,890	96	3	3	5	14,198	99	3	3	5	14,898	103	3	3	5	14,796	103	3	3	-			
P355	BGS	TSS	144	14,623	102	4	3	3	14,948	104	4	3	3	15,685	109	4	3	3	15,577	105	4	3	-			
	56 3	T35	144	14,077	98	2	3	3	14,389	100	2	3	3	15,098	105	2	3	A	14,995	104	2	3	-			
	5G 5	T55	144	14,782	103	4	3	2	15,110	105	4	3	2	15.855	110	4	3	2	15,747	109	4	3	-			
	TG 3	735	140	15,649	112	3	3	4	15,996	114	3	3	A	16,785	120	3	3	4	16,670	119	3	3	-			
1	BG 3	TAM	140	14,746	105	3	4	5	15,073	108	3	4	5	15,816	113	3	4	5	15,707	112		4	1			
405	BGS	T55	140	15,484	111	4	3	4	15,827	113	4	3	4	16,608	119	4	4	4	16,494	118	4	4	1			
	5G 3	T35	140	14,937	107	2	3	4	15,268	109	2	3	4	16,021	114	2	3	4	15,911	114	2	3	1			
	50 5	TSS	140	16,071	115	4	3	3	16,427	117	4	3	3	17,237	123	4	3	3	17,119	122	4	R	1			
	TG 3	135	174	18,715	108	3	3	4	19,130	110	3	3	4	20,073	115	3	3	4	19,935	115	3	1	1			
1	863	T4M	174	17,634	101	3	4	5	18,025	104	3	4	5	18,914	109	3	4	5	18,784	108	3	A	1			
sos	BGS	TSS	174	18,517	106	4	4	4	18,928	109	4	4	4	19,861	114	4	4	4	19,725	213	4	4	1			
i	56.3	T35	174	17,863	103	2	3	4	18,259	105	2	3	4	19,160	110	2	3	5	19,028	109	2	-	1			
t	SGS	TSS	174	19,219	110	4	3	3	19,645	113	4	3	3	20,614	118	0	3	3	20,472	118	4	-	t			
	TG 3	735	242	22,997	95	3	3	5	23,508	97	3	3	5	24,667	102	3	3	5	24,497	101	3	2	t			
	8G 3	T4M	242	21,670	90	3	4	5	22,150	92	-	4	5	23,244	96	3	4	5	23.083	05	-		1			
- C	RGS	TSS	242	22,755	94	5	4	5	23,259	96	5	4	5	24.409	101	6	4	5	24.239	100	5		1			
605		1 1 1 1					-		and the second s						404			2		100			1			
605	56 3	T35	242	21,951	91	2	3	6	22,438	92	3	3	5	23 545	07	2	3	6	23 383	07		-	1			

S = Short M = Medium

Lumen Ambient Temperature Data

	Luman Ambient Temperature (LAT) Multipliers													
°C	PIOU	P2CU	P108	P208	P305	P358	P405	P503	P606					
ø	1.04	1.05	1.94	1 05	1.05	1.07	1 06	1.07	1.09					
10	1.03	1.03	1,03	1 03	1.04	1,04	104	104	1.05					
20	101	1.01	1.01	1.01	1.01	1,01	1.01	1.01	1.02					
25	1.00	1.09	1.00	1.09	1.00	1,00	1,00	1.00	1.00					
20	9.92	0.90	0.99	0.99	0.99	0.00	0,60	0.97	0,93					
40	0 67	0.07	0.97	6.97	0.95	0.95	0.96	0.95	094					

Lumen Maintenance Data

Lumen Maintenance (same for all LED packages)											
Hours	0	25,000	50,000	100,000							
Factor	1	0.9	0,84	0.75							

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19	DRAWN:	RAF	FY DIE, DUSTONCO IN WARTING, ON POLE CROCKS AN AND ON FOLT TOMENTY PRINT WILL BE EXPERIED WITH ENDI AND YOU ROLT CROCK TO WATCH THE POLE PROVIDED THIS PRINT IS THE	NOI OBUANE®	DECORATIVE	Esplanade
4	DATE:	2/17/2016	INSTRUCT DE INCOMINATION DU LONGE DU LE	LEADER IN LIGHTING SOLUTIONS	OUTDOOR	Utility Tear Drop LED 2
	DWG NO:	LUM_ESL2	WHIN MAREAN PLOYADIED AN HER AMANA	An McultyBrandsCompany		

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			Pag	a JIN		-			P	Q5 10K	Contraction of the				P10	5 404	-	-	b		-	-	95-50W	-	-
rd	1G A 6,917	8G 3 6,731	865	5G 9 6,872	56 5 7,164	Watts \$7	7,1	3 BG 3	56 5	53 7 6,973	50 5 7,322	Warts 57	16 ±	853	83 \$ 7,601	56 8 7,317	56.5 7,683	Watts 57		163 7,400	861 7,170	80.5	5G B 7,266	56 5	w
-	6,938 5,326	6,129	6,453	6,212	6,523	54	6,4	6 6.25	6,505	6,349	6,667	51	6,785	6,574	6,921	6,653	6,995	54		5,738	6,579	6,874	6,616	6,948	t
-	5,649	5,512	5,801	5,587	5,867	45	5,6	5 5,60	5,932	5,710	5,996	45	6,102	5,915	6,225	5,992	6,292	45		6,060	5,872	6,182	5,550	6,249	+
-	A. 10.10	3,137	2.474	2,403	3,137	43	3,4	A 3,91-	1,313	3,549	2023	- 43	2,133	3,376	9.675	5,051	3,034	43		9.719	3,730	5,030	5,012	2,8,44	+
	763 8,651	86 7 8,372	BG 5 3.835	303 8,422	5G 5 8.647	Wates 75	1 TG	3 BG 3	8G S	\$63 8,605	56.5 8,839	Watts 75	16 3 9,279	803 8,980	265 9,480	5G 9 9,033	50.5	Watts 75		1G.8 9.215	852	8415	503 8.972	565	W
	8,264 7,873	7,596	8,443 2,044	8,045	8,201	72	8,4	8 8,170	8,550	8,2,24	8,044	72	8,445	8,579	9.056	8,679	8,851 8,441	72		8.337 8,337	8,519	8,974	8,571	8,799	F
	7,478 7,078	7,237 6.850	7,659	7,26D 8,691	7,474	64	7,6	4 7,397	7,839	7,432	7,640	64 61	8,021	7,762	8,194 7,756	7,008	0,017 7,558	64	H	7,965 7,539	7,769	8,138	7,755	7,962	H
	6,674	0,455	6,818	6,497	6,671	\$7	6,8	2 6,601	6,967	6,631	6,819	57	7,158	6,928	7,313	6.918	7,135	\$7		7,109	6,610	7,263	0,721	7,106	- 3
	fd 3 9,610	863 9.312	5G S 9,804	SG 3 9,427	365	Watts 83	10	3 86 S	865	333	\$6.5	Watty	FG 3	#53 0.955	80 5	59.3 10.122	30 S	Watts		10.3	8G3	BG 5	563	\$45	W
	9.712	8,975 8.532	9,398 8,982	9,046	9,459	75	9,41	0 9.175 0 8,725	9,606	9,240	9,710	79	9,681	9,574	10.079	9,703	10,195	79	H	2.633	9,508	10,010	9,637	10,120	P
-	8.389 7.964	8,129	8,556 8,125	8,238 7,520	8.951	71	8,57	5 8,300 0 7,888	5,747 8,304	8,420 7.994	\$,853 6,395	71 .	8,958 8,542	8,719	9,179 8,714	8,430 6.3\$8	9,270 0,809	71 66		8,936 8,463	8,658	9,116	8,775	9,219	-?
	7,530	7,297	7.082	7.395	7,705	62	7.0	7 7,450	7,552	7,559	7,938	62	8.077	1,827	\$.240	7,932	8.530	62		9,027	7,773	6,103	7,678	8.272	1.0
11	68	863 11,179	BG 5	5G 3	50 5	Wates	TG	BG 3	86 5	563	SG 5	Wotis	13 16 3	RG 3	P200 RG 5	56 B	565	Watts		76 3	863	80.5	56.5	585	W
-	13,056	10,730	11,366	10,773	11.051	104	11.3	1 10,94	21,557	13,013	10,801	104	11.869	11,487	12,176	11.555	11,864	104		11,788	11,408	22,043	11,475	11,784	110
	10.057	9,742 9,244	10,2#4	9,800	10,062	93 88	10,2	0 9.958 4 9,419	10.513	10,018	10,285	33	10,797	10,432	11,030	10.511 9.974	10,792	9.3 #2		10,723	10,478	10.955	10,449	10,718	9
9,0	028	8,737	9,123	3,769	9,024	82	9,22	K 8,933	9,428	8,984	9,724	62	9,683	9,371	9,892	9,426	9,679	82		9,615	9,307	9,875	9,362	9,612	8
	TG 1	863	845 845	56 9	50.5	Watts	TG.	UG J	80.5	SG 1	565	Watts	16.3	863	PACS 80 9	59.3	\$0.5	Wates		763	863	865	35.3	505	W
1.	2.177	11,799	12,422	11,937	12,558	112	12,4	7 12.060	12,697	12.742	12.835	112	13.061	12,655	33,325	12,825	13,463	118	-	12,071	12,568	13,732	12,737	13,879	1
11	101	10,854	11.426	10,999	11,551	99	11,4	9 11.054	31.610	11,243	11.807	99	12.014	11.641	12.255	11,759	17,349	99	-	11.932	11,561	12.172	11.716	17,305	1 5
-	0,147	9,833	10.351	9,564	10,464	37	10,5	2 10.059	10,521	10,185	10,896	57	10.554	10,545	13.101	10.618	11,224	87		10,809	10,474	11,027	30.614	\$1,147	1 8
	TG 3	563	60 S	50 3	50.5	Watts	76	893	865	563	\$65	Watts	10.3	863	90.5	50.5	50.9	Walts		103	633	805	50 S	30 9	Wa
11	385	13,455	14,165	23,935	14,819	236	14,10	4 13,753	14,450	13,918	14,637	136	14,591	14,421	15,594	14,625	15,353	130		34,792	14,190	15,029	14,525	15,254	13
11	.872	12,492	18,151	12,660	14.294	121	13,17	6 12,769	13,443	12,910	13.559	121	13.627	33.878	14,109	13,578	14,259	121	1	38.783	13.306	14,000	13,482	14.192	12
	TG 3	063	9405 9415	27% 5G3	505	Watts	16.3	BO 3	940 80 S	5G 3	50.5	Watts	16.3	85.5	BG S	50.3	565	Watts		163	863	96.5	sti 1	165	Wa
1	5.015	14,178	14,587	14.561	15,452	338	15,18	14,492	15,217	14,680	15,724	133	15.125	15,207	15,968	15,404	16,575	140		0.076	15,102	15,858	15,295	10,459	13
1	5,871	12,071	13,725	13,240	14,245	119	24,17	13.361	14,029	13,534	14,561	,119	14,576	14,019	14,721	14,201	15,279	119	1	14,776	13,923	14.020	14,204	15,174	11
	10.5	EG)	1565	50 3	8G 5	Watts	16.3	80.3	050 80 5	504 503	50.5	Wates	163	AG 3	00.5	50 J	5G 5	Watts		10.5	85.3	PSQS BQ 5	503	50.5	Wat
10, 18, 17	100	17,055	17,509	17,895	18,9213	174	19,50	17,433	18,306	17,649	19,000	165	19,411	18,919	10,201	19,180	19,937	105	1	9,975	18,167	19,725	19,024	30,472 19,759	17.
1	16,743 18,037	15,776	16,566	15.981	17,194	147	17,11	10,126	16.934	16.328	17,576	147	17.958	16,922	17,769	17,142	15,462	147	1	7,835	15,605	17,647	17,024	16.315	14
		Derrie.	P601	776					1462	206	MAN		A STREET	in the second	P405 4	cm.						P605	20.45	TUST	
	10.5	8G 3 21,679	89.5 22,755	563	50 5 23,617	Watts 242	23.50	60 J ZZ,150	\$05 23,230	563 22,438	56 5 24,181	Watts	16.3	803	865 24,409	50.5	161 25.381	Wep3	1	103	803	80 5 24,237	50 A 23,585	30.9 78,157	Wat 24
	21,917	20,652	21,615	20,020	22,508 21,828	215	22,40	21,110	22,146	23,393	23.037	210	23,509	22,152	25,262	22,439	24,781	226	2	3,345	21,919	28,100	72.285	23,975	22
		10,343	20.301	19,583	21,070	159	20,97	19.761	20,750	20,018	11.537	189	22.006	20,757	21,376	21,005	22,599	109	17	1,855	20,593	21,674	20,861	22,445	18

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DWG NO:

LUM_ESL2

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option) aids installation speed. A (3) station terminal block that accepts #14 through #2 wires and has a quick disconnect harness with removable electrical module is provided.

ELECTRICAL / REFLECTOR ASSEMBLY

The electrical / reflector assembly hinges down from the wiring chamber for ease in wiring and to facilitate the removal of the electrical module. The assembly is secured in place by a stainless steel latch. The unilized electrical module consists of the electronic driver and components mounted to an aluminum plate that is easily removed by loosening two screws in the base of the housing. The disconnect plug connects the ballast to the terminal block in the wiring chamber. **REFRACTOR / DOOR ASSEMBLY**

The cast aluminum door supports a teardrop, bowl or sag shaped, thermal resistant borosilicate glass refractor that controls the light to provide an I.E.S. asymmetric (teardrop, bowl and sag glass) and symmetric (bowl and sag glass) distribution. I.E.S. asymmetric cut off distribution is available on the bowl glass with the decorative deep skirt option and the sag glass with either the decorative shallow or deep skirt option. The refractor assembly and decorative skirt (when applicable) assembly hinges from the electrical / reflector assembly and is latched by a tamper-resistant, color matched bracket and with nut assembly. DRIVER

LED programmable dimmable driver located in the upper electrical housing. FINISH / MATERIAL

The luminaire is finished with polyester powder paint to insure maximum durability. All castings utilize low copper aluminum for maximum corrosion resistance and all exposed hardware is stainless steel. CERTIFICATION

CSA listing suitable for wet location up to 40°C. Consult factory for details.

ESL2

FUM

DWG NO:

2/17/2016

DATE:

RAF

DRAWN:

4 of 4

ORDER

TYPE

Rectilinear Standards

MONTGOMERY COUNTY, MARYLAND DEPARTMENT OF TRANSPORTATION TRAFFIC ENGINEERING AND OPERATIONS

JUNE 2016

SILVER SPRING DECORATIVE BRONZE COLORED RECTILINEAR, TYPE III MEDIUM CUTOFF LUMINAIRE

1) <u>PURPOSE</u>

The purpose of these specifications is to provide minimum requirements for the design, manufacture, fabrication, finishing and delivery of decorative bronze colored, type III, medium cutoff rectilinear streetlight luminaires. These luminaires are intended for use on the square and dovetail streetlight poles at a 29 feet 5 inch mounting height in urban streetscape areas. The luminaire should be Gardco Form Ten No. EH 1913-120-250 HPS, BRA, CD, PC or approved equal. Any manufacturer, distributor, or vendor who submits a bid shall agree to comply with these specifications.

Each streetlight luminaire shall include the following:

- a) Lamp, as specified;
- b) NEMA standard photoelectric control receptacle on the top cover of the luminaire with NEMA standard photocell;
- c) All necessary hardware for side mounting on specified pole;
- d) Side-mounting bracket arm, eight (8) to twelve (12) inches long and rectangular in cross section as specified under Section 3.9;
- e) Flat, hard tempered glass lens;
- f) "National Park Service Brown" finishing as per these specifications and attachment entitles "Finishing Galvanized Steel and Aluminum Metals."

2) <u>DESIGN CRITERIA</u>

2.1) <u>AASHTO Standards</u>

The luminaire shall meet the requirements of the American Association of State Highway and Transportation Officials (AASHTO), "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals," latest edition.

2.2) Shape and Minimum Size

The luminaire shall be rectangular in shape. The minimum size for the luminaire shall be 36.0 inches (sum of the luminaire's length plus width), when viewed from side.

The maximum allowable Effective Projected Area (EPA) for the luminaire and bracket arm shall be three (3.0) or less square feet. The luminaire shall be of a

suitable size to accommodate up to and including a 400 watt High Pressure Sodium Vapor (HPSV) ballast.

2.3) Wind Load

All components of the luminaire shall be designed to resist (at yield strength of the materials without permanent deflection or destruction), test loads equivalent to the calculated loads developed by the velocity pressure of at least an 80 MPH wind. A minimum safety factor of 1.82 on the yield strength shall be maintained.

2.4) <u>Finish</u>

<u>All visible components</u> shall then be finished to produce the appearance of a decorative "Dark Brown" color, as described in the attachment entitled "Finishing Galvanized Steel and Aluminum Metals." During the finishing process, all critical openings shall be plugged to prevent contamination of the threads or reduction of critical openings.

Other finishing techniques may be considered for the luminaire by Montgomery County. Complete documentation and specifications for any alternate finish must be submitted with the bid documents together with the results of an accelerated life-testing by an independent laboratory which certified an expected life of the alternate finish of at least twenty (20) years.

3) <u>MATERIALS</u>

3.1) <u>Design Uniformity</u>

These specifications are intended to produce a uniform system of hardware that will minimize the number of stock items that the County or its contractor(s) must maintain.

3.2) <u>Housing</u>

The housing shall consist of a water tight shell fabricated with either welded, overlapped seams or with extrusions sealed with silicon seals. Cast aluminum door frames, to hold the flat tempered prismatic glass lens or a cover concealing the ballast, shall be affixed to the housing with full length aluminum piano hinges incorporating removable stainless steel hinge pins. All doors shall be fully gasketed with closed cell or solid neoprene gaskets. All doors shall be closed with two quarter-turn captive fasteners and shall be restrained by captive stainless steel or brass chains.

3.3) <u>Material</u>

The luminaire housing shall be constructed of cast, extruded or 0.051 inch minimum sheet aluminum.

3.4) <u>Castings</u>

All casting used to complete the luminaire shall be clean and smooth, with all details well defined and true to pattern.

3.5) <u>Ballast</u>

The ballast shall be tray mounted to facilitate easy removal and maintenance. All electrical connections shall be for a 250 watt high pressure sodium vapor (HPSV) bulb and shall be of a regulator or auto-regulator design. The ballast shall be delivered to receive nominal 120 volt AC current. The ballast assembly shall be completely accessible and removable without requiring access through the reflector assembly.

- 3.6) <u>Lamp</u> The lamp shall be ANSI Code - S55SC-250 and shall be provided.
- 3.7) <u>Photoelectric Cell</u>

The photoelectric cell shall be of the NEMA twist-lock type and shall be mounted in the top of the luminare housing.

3.8) <u>Reflector</u>

The reflector shall be a one-piece formed aluminum sheet, finished with an "Alzak*R-5" or equivalent anodic process. The segmented reflectors shall be set in a faceted arc image duplicator pattern to achieve a type III distribution. Reflector assemblies shall be equipped with quick disconnects. Lamp holders shall be attached to the reflector assembly.

3.9) <u>Bracket Arm</u>

The bracket shall consist of an extruded rectangular aluminum section 8.0 to 12.0 inchin length, and long enough to permit mounting two luminaires at a 90 degree angle on the a square or dovetail pole.

3.10) Hardware

Mounting bolts, nuts and washers shall be galvanized steel in accordance with ASTM-A-153. All other hardware and fasteners shall be stainless steel.

4) <u>LABELS</u>

All fixtures shall bear U.L. wet location and I.B.E.W. labels.



Evolve" LED Area Lighting





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Product Features

The GE Evolve™ LED Area Light, EALP, is optimized for customers needing an energy saving LED solution while adding flexibility, style and scalability at at higher LPW than our standard EALS Area Light. The EALP luminaire offers a wide range of optical patterns, color temperatures, lumen packages, and mounting configurations to best optimize area light applications, as well as provide versatility in lighting design within the same form-factor. The fixture features innovative heat sinking that produces thermal stability over life in an extremely lightweight housing, while meeting a 3G vibration rating tested on 3-axis. This area light meets DLC Premium requirements for lumen maintenance and superior LPW. The EALP has a product-wide lumen maintenance at L90 @ 50k hours and up to 126LPW.

The Universal Mounting Arm option will provide installers the ability to mount the EALP on round poles ranging in size from 2.38" to 6" in diameter or on square poles. In addition, it has a slide feature, enabling a more universal bolt pattern when faced with many existing bolt patterns in the field. This feature will save both time and money for the contractor and end users. Add the fact that the luminaire weighs just 26-28 lbs – making the EALP truly ideal for installers' needs!

The GE Evolve™ LED Area Light is iintended to replace up to 1000W MH luminaires. It features 0-10V or DALI dimming, along with LightGrid™ wireless control compatibility and is available with optional programmable motion sensing for additional energy savings and Title 24 compliance.

Applications

- Site, area, roadway and general lighting applications utilizing advanced LED optical system providing high uniformity, excellent vertical light distribution, reduced offsite visibility, reduced on-site glare and effective security light levels.
- Ideal for large retailers, commercial to medical properties, and big box retailers. Also suitable for roadways.

Housing

- Slim architectural design incorporates an integral heat sink and light engine, ensuring maximum heat transfer, and long LED life.
- Die cast aluminum housing
- 3G vibration per ANSI C136.31-2010

LED & Optical Assembly

- LM-79 tests and reports in accordance with IESNA standards
- 70CRI at 3000K, 4000K and 5000K
- Distributions: II, III, IV, V (short & medium)
- Upward Light Output Ratio (ULOR) = 0

Lumen Maintenance

- Projected L90 > 50,000 hours per IES TM-21
- Projected Lxx per IES TM-21 at 25 °C for reference:

		oil Oile the	
560	25,94910	10,000,00	100,000,000
EALP	1.98	1.95	L90

NOTES. 11 Projected Lickbased on LN-80 (100,000 hour testing) 2) DDE Lighting Proce Verification Testing Toleronices apply to initial luminous flun and luman mointenance measurements

Lumen Ambient Temperature Factors:

Applaine Tempel CD	higher the state of
10	102
20	1.01
25	1.00
30	0.99
40	0.98

Ratings

- OUL 1598 Listed Suitable for Wet Locations
- IP65 optical enclosure per ANSI C136.25-2013
- Temperature Rated -40°C to +40°C
- Title 24 compliant (w/ "H" motion sensor option)
- Complies with the material restrictions of RoHS.

Mounting

- Option C
- C1 = Integral Slipfitter 2" Pipe (2.378 in, OD) supplied with leads.

Option D

- D1 = Universal Mounting Arm, fitted for round or square pole mounting supplied with 16/3 3ft cable.
 Option K
- option K
- K1 = Knuckle Slipfitter for 1.9 in. -2.3 in. OD Tenon with leads. Restricted aiming angle 0° to +45°.

Option S

 S1 = Knuckle Slipfitter for 2.3in. - 3.0in OD Tenon with leads. Restricted aiming angle 0° to +45°.

Option V

 V1 = Knuckle Wall Mount with leads. Restricted aiming angle 0° to +45°.

Finish

- Corrosion resistant polyester powder paint, minimum thickness 2.0 mil.
- Standard colors: Black & Dark Bronze.
- · RAL & custom colors available.

Electrical

- 120-277 VAC and 347-480 VAC available.
- System power factor is >90% and THD <20%.
- ANSI C136.41 7-pin dimming receptacle, standard.
- ANSI photo electric sensors (PE) available for all
- voltages. Light Grid compatible.
- Dimming/Occupancy:
 - Wired 0-10V continuous dimming
 - DALI digital dimming. Contact manufacturer for availability.
 - Standalone motion sensor based dimming using "H" option code.
- Surge Protection per ANSI C136.2-2015.
 - 6kV/3kA "Basic" surge protection, standard.
 10kV/5kA "Enhanced" surge protection optional.

Warranty

5 Year Standard

Accessories

Photoelectric Controls (see page 7)



Photometrics Evolve™ LED Area Light (EALP)

EALP Type V - Symmetric Medium (L5) 33,600 Lumens, 5000K (EALP01_L5SM750____.IES)





of moximum candlepower at 90° — Vertical plane through horizontal angle of 58°





EALP Type IV - Asymmetric Forward (L4) 33,600 Lumens, 5000K (EALP01_L4AF750____.IES)





of moximum candlepower at 0° ----- Vertical plane through horizontal angle of 58°

EALP Type II - Asymmetric Narrow (L2) 34,900 Lumens, 5000K (EALP01_L2AN750____IES)



Grid Distance in Units of Mounting Height at 40' initial Footcondle Values at Grade



of maximum condlepower at 65° — Vertical plone through horizantal angle of 59°

EALP Type III - Assymetric Wide (L3) 35,900 Lumens, 5000K (EALP01_L3AW750___.IES)





f Mounling Height at 40' Initial Faatcondle Volues at Grade

of maximum condlepower at 20° — Vertical plane through harizantal angle of 51°

EALP - Asymmetric Auto (LA) 38,800 Lumens, 5000K (EALP01_LAAA750___.IES)



Maunting Height at 40' Initial Footcondle Values at Grade





Product Dimensions Evolve™ LED Area Light (EALP)

Slipfitter Mount



Product Dimensions Evolve™ LED Area Light (EALP)

Universal Arm Mount



- Integral Slipfitter C1, EPA = 0.63

Accessories Evolve™ LED Area Light (EALP)

PE Accessories (to be ordered separately)

	Shisting a	Location	CONTROL OF A DECEMBER OF A	$\{i_k\} \geq \{0\}_{k \in \mathbb{N}}$	Fel Fandlinheim	$(1, \dots, 1, M_{1})$ (1)	
	93029237	PED-MV-LED-7	ANSI C136 41 Dimming PE, 120-277V	28299	PECOTL	STANDARD 120-277V	
	93029238	PED-347-LED-7	ANSI C136 41 Dimming PE, 347V	28294	PECSTL	STANDARD 480V	
£	93029239	PED-480-LED-7	ANSI C136 41 Dimming PE, 480V	80436	PECDTL	STANDARD 347V	
				73251	SCCL-PECTL	Shorting cap	

H-Motion Sensing Option

- Intended for applications, between 15-30 ft. mounting height. (4.57-9.14m). For mounting heights exceeding 30 ft., pole mounted sensors are recommended.
- Provides a coverage area radius for walking motion of 15-20 ft. (4.57-6.10m).
- Provides 270° of coverage (~90° is blocked by the pole).
- Standard factory settings:
 - 50% output when unoccupied, 100% output occupied.
 - Integral PE Sensor.
 - 5 minute post-occupancy time delay, 5 minute dimming ramp-down.
- Fixture power increase of 1W expected with sensor use.

Note: Standard options may be reprogrammed in the field. Reprogramming instructions included in product shipment.





Sensing Pattern Area Fixture Up to 30 ft. Mounting Height

20'

Hounting Information

Mounting Arms for Slipfitter Order separately with Mounting Option C1 (Slipfitter)

SQUARE POLE MOUNTING ARM

3 5 TO 4 5-inch (89 to 114mm) SQUARE (WILL ALLOW 4 FIXTURES PER POLE @ 90 DEGREES.)



ORDER SEPARATELY FROM FIXTURE AS CATALOG NUMBER SPA-EAMT10BLCK "Black" SPA-EAMT10DKBZ "Dark Bronze"

ROUND POLE MOUNTING ARM DRILLING TEMPLATE

3.5 TO 4.5-inch (89 to 114mm) OD (WILL ALLOW 4 FIXTURES PER POLE @ 90 DEGREES.)



ORDER SEPARATELY FROM FIXTURE AS CATALOG NUMBER **RPA-EAMT10BLCK "Black" RPA-EAMT10DKB2 "Dark Bronze"**

Wall Mounting Bracket Adapter Place

ORDER SEPERATELY FROM FIXTURE AS CATALOG NUMBER WMB-EAMT06

*NOTE: For Wall Mounting, order luminaire with mounting arm: C1 = Slipfitter 2" Pipe (2.378 in. OD) supplied with leads.

Other mounting patterns are available for retrofit installations. Contact manufacturing for other available mounting patterns.



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ROUND POLE MOUNTING DRILLING TEMPLATE

3.5 TO 4.5-inch (89 to 114mm) OD round pole mounting arm



Montgomery County Department of Transportation

Paving Standards








