A Master Plan for Street Lights

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Table of Contents

Introduction to the Planning Process ........................................ 3
Executive Summary ......................................................... 4
  Policies of the Master Plan ............................................. 6
Part I - Street Light Education ............................................. 7
  Introduction ........................................................................ 8
  Philosophy of Street Lights ................................................ 9
  Importance of Good Lighting ........................................... 10
  Street Light Definitions ................................................... 11
  Anatomy of a Street Light ................................................. 12
  Basics of Street Light Design ........................................... 14
  Street Light Maintenance .................................................. 15
Part II - Street Lighting in the City of Columbus ...................... 16
  Introduction ........................................................................ 17
  Division of Electricity History .......................................... 18
  Operation and Budget ..................................................... 19
  Project 2000 .................................................................... 20
  Street Light Installation Since 1988 ................................... 21
  The Columbus Comprehensive Plan .................................. 26
  Issues ............................................................................. 27
Part III - The Master Plan .................................................... 28
  Introduction ........................................................................ 29
  Street Lighting Priorities .................................................... 30
  Goals and Objectives ....................................................... 31
  Future Project Ranking Format ....................................... 34
  Planning Principles and Design ........................................ 35
  A City-wide Lighting System ............................................ 36
  Introduction to Columbus Neighborhoods ..................... 42
  Inventory Description ..................................................... 57
  Street Light Inventory and Index ..................................... 64
  Implementation .............................................................. 65
Appendix .............................................................................. 72
  Street Lighting by Planning Area .......................................
The City of Columbus Division of Electricity (DOE) has been maintaining and operating street lights since 1899. Street lighting was and still is the DOE’s primary mission. As of 1998 the DOE maintains over 40,000 street lights. The City has kept up to date with new technology as it is very aggressively replacing outdated or obsolete circuits. Approximately 59% of the City’s 1,842 miles of streets are lighted. In 1992, the Mayor initiated Project 2020 which has as its primary goal the lighting of all Columbus neighborhoods.

As the installation of street lights has progressed beyond the relatively compact central city neighborhoods, the DOE’s planners anticipate new growth and development related issues to be faced by the City. Due to the potential size of the system and the number of varied neighborhood interests it will eventually serve, the DOE concluded that the size of the Columbus street lighting system now warrants the adoption of updated written policies and guidelines. As the system grows, the DOE will be in a much better position to serve the citizens of Columbus. In response to this desire, the City of Columbus has initiated a comprehensive street lighting master plan process.

A 15-member planning oversight panel representing the Columbus Neighborhood Review Board has been created and was charged with this mission:

To conduct a citizen based street lighting master plan process that will result in the development of a comprehensive and planned approach to installing and upgrading lighting for the streets of Columbus. In addition to promoting the goals of providing safety and security, the master plan will also serve to establish a lighting system on public ways that will contribute to the appearance and image of the City’s distinctive neighborhoods in a manner that is within the City’s resources to implement.

The Panel will make its recommendations to the Neighborhood Review Board who in turn will make recommendations to the Department of Public Utilities. The Department will use the recommendations to prepare and submit a plan to the City Council.

The Street Lighting Master Plan will be divided into three parts:

Part I (Street Light Education) serves to educate the public about street lights. The planning process cannot start from ground zero. The Division of Electricity is obligated to adhere to many standards for safety, liability and economics. The DOE is seeking to provide lighting and implementation choices to neighborhoods with different needs and interests. The range of choice will be determined during the planning process. These choices must meet certain operating standards and be within the City's resources to implement.

Part II (Street Lighting in the City of Columbus) will provide an overview of the Columbus street lighting operation from its beginning in 1899 to the present. The DOE’s history, mission, funding and inventory will be identified in order to frame the planning issues found at the end of this section.

Part III is the Master Plan. The Master Plan will be divided into three phases as follows:

• Street Lighting Priorities - This phase will include an examination of functional, design and financial issues so that broad city policies may be developed with respect to city-wide goals, objectives, priorities and implementation.

• Planning Principles and Design - This phase will address design issues. Design guidelines will be developed to satisfy the desire for functional as well as aesthetically pleasing street lights. The Master Plan will establish requirements for appropriate luminaire choices for the various neighborhoods. A process will be developed by which each neighborhood may choose a luminaire as the preferred neighborhood standard.

• Payment and Procedures - This part of the process will deal with implementation issues. This phase will consider and provide options that will balance the desire for more decorative fixtures and the willingness of property owners to pay for them. Underlying these issues is the desire to bring order, consistency and economy to the street light system.
Executive Summary

The City of Columbus has been distributing electricity for nearly 100 years. In 1910, the City began selling power to private companies in an effort to pay for the cost of generating and supplying power to the public street lighting system. The Columbus Division of Electricity (DOE) purchases power from American Municipal Power (AMP) Ohio and sells a portion of that power to retail electric customers to cover nearly all of the Division's operation and expenses. As of 1998, the Division of Electricity maintains over 40,000 street lights.

In 1992, Mayor Gregory Lashutka instituted Project 2020 which set the DOE on a course to light the public ways of Columbus by the year 2020. Street lights are installed as part of the City’s bond program. Street lights are also installed by a petition assessment of property owners. The third means of implementation is by developers who have been required to install street lights in new subdivisions since 1990.

Since the inception of Project 2020 in 1992, a number of trends and conditions have emerged which has caused the need to reexamine how Project 2020 is implemented. These trends and conditions include:

- An increased public awareness and advocacy for improved urban design.
- A desire by many residents to have more control over what happens within the public right-of-way.
- The planning recommendations of the Columbus Comprehensive Plan, Priorities '95, and Campus Partners, all of which recommended that municipal decision making be strongly linked to goals related to increasing the character and desirability of Columbus’ neighborhoods. These decisions involve the delivery of city services, scheduling of capital improvements, and the regulation of private development.
In response to these trends and conditions, the Columbus Street Lighting Master Plan establishes street lighting development and design policies that balance safety, security and aesthetics. The guiding principles of the Street Lighting Master Plan include:

- The development of a city-wide street lighting system that has a well-developed inventory of readily available fixtures and poles that are compatible with most urban situations found on the streets and in the neighborhoods of Columbus.
- A provision for neighborhood choice in determining appropriate street lighting installations.
- An operating principle that recognizes street lighting installations with underground wiring to be preferable to those with overhead wiring.
- Implementation procedures that encourage and aid Columbus residents in their effort to have decorative lighting installed.

Part I Street Lighting Priorities

The Street Lighting Master Plan recommends that the City alter its concentric implementation pattern and engage large areas in the planning process with the intention of implementing projects city-wide. As the Division of Electricity formulates its next five year capital improvement program, it is recommended that appropriate funds be budgeted to accommodate lighting projects to complete potential basic service projects, as well as to contribute to assessment projects.

The Divisons first priority will be to light scattered pockets of unlit neighborhoods that exist throughout the City. Projects should be in these areas as they are identified. The Division may then institute projects within partially lit planning areas and/or the large neighborhoods inside of I-270. The partially lit planning areas are likely to be the large neighborhoods that serve as transitional neighborhoods between pre-1910 development and development of the 1960’s and 1970’s. This would include all of the neighborhoods that comprise Clintonville, Hilltop, North Linden, Eastmoor/Walnut Ridge area and Near South/Buckeye area. The Master Plan estimates that it will take approximately five years to light all of these neighborhoods. This includes alley lights where feasible. To establish smaller priority targets within the larger areas, the Division of Electricity will initiate a review process that will prioritize areas using specific criteria developed within the Plan. The Division’s contribution to an assessment project will represent the same budget amount as the cost of installing the basic service. In addition to budgeting for potential basic service installation projects, the Division of Electricity must also budget for contributions to future assessment projects throughout the City, most likely to be in the neighborhoods of the Northland area and in the Northwest part of the City.

As the Master Plan recognizes that underground installations are preferable, the DOE will promote and facilitate the installation of ornamental fixtures more than it has in the past. To do this the Division will proactively participate in the assessment petition process. The keys to proactive implementation will include:

- An affirmation to property owners that the post top street lights are the preferred installation; however, the standard service option is available.
- Pre-designated assessment area boundaries.
- A city letter campaign advising residents of the program.
- Neighborhood pre-selection of a preferred ornamental fixture.
- Pre-engineering and cost estimate at the commencement of the process.

Within neighborhoods in which the City initiates lighting projects, property owners will choose between the standard option at no cost to property owners or an ornamental option whose cost will be assessed. Non-targeted areas for the time being will only have the assessment petition option. The Division must continually monitor citizen preferences to determine how the goals of the Master Plan may best be achieved over the years.

The Street Lighting Master Plan identifies the minimum hardware and design requirements that are necessary for public street lighting as urban trends and conditions change. The Master Plan recognizes a need to provide street lighting that exists beyond typical or standard situations. The use of specialty lighting should be limited to “districts” that have design characteristics that do not fit typical urban design characteristics found throughout the City. The Street Lighting Master Plan establishes a process by which City Council will designate special districts where it has been demonstrated that:

- The street has well articulated design goals that are consistent with city-wide design goals.
- The district includes special pedestrian-oriented functions.
- The architecture of the district bears consistent relation to the street.
- The project is associated with the community and economic development goals of the community.

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- The development of a city-wide street lighting system that has a well-developed inventory of readily available fixtures and poles that are compatible with most urban situations found on the streets and in the neighborhoods of Columbus.
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- An operating principle that recognizes street lighting installations with underground wiring to be preferable to those with overhead wiring.
- Implementation procedures that encourage and aid Columbus residents in their effort to have decorative lighting installed.

Part II Planning and Design Principles

The Street Lighting Master Plan differentiates between the various classifications of pedestrian and vehicular ways in order to establish lighting level and quality standards. The standards are in large part based on the national standard established by the Illuminating Engineering Society (IES). Wattage requirements, mounting height, pole arrangement and spacing recommendations are also made for each type of traveled way. Optional light styles are also offered for the various classifications. Series of planning principles are recommended for major streets where lighting design must primarily be designed to guide the motorist along the roadway. On major streets, mast arm type installations are recommended to provide consistency along major segments of the road. Post top type installations may be used along major streets in older neighborhoods where they are installed on long stretches of road and where there are no substantial existing power poles and overhead wires.

On collector intermediate and local streets, decorative fixtures are recommended when the street has no substantial existing aerial lines, and directly serves residences in the same manner as neighborhood streets.

The Street Lighting Master Plan uses the neighborhood prototype delineations of the Columbus Comprehensive Plan to make street light hardware recommendations for local streets.

The street light installations of the entire city-wide system will come from an inventory that was developed from a sample of fixtures and poles installed at Wolfe Park. The chosen inventory was determined to be compatible with most urban design situations found along the streets of Columbus. Deviations from this inventory are not permitted unless it can be demonstrated how or why the urban design of a particular area requires special treatment.

Part III Implementation

The Street Lighting Master Plan recommends that Project 2020 continue to be implemented with bond projects, by petition assessment projects and developer installations. The Division of Electricity must begin to prepare a five (5) year capital improvement program that will install street and alley lights in the four priority areas beginning in the year 2000. These areas include North/South/Buckeye in the north, Eastmoor/Walnut Ridge in the east, Hilltop in the west, and Clintonville/North Linden in the north.

Executive Summary, cont.
Given the goals of the Plan:

1. All street light installations must first meet standards for safety and security.
2. All planning for street lighting projects will strive for consistency and quality.
3. It will be the Division of Electricity’s first implementation priority to make street lighting available to areas of the City that are not currently serviced or partially lighted.
4. It is the City’s policy to encourage and enable property owners to conduct an assessment/petition process for street lighting.
5. All new decorative installations are to be paid for with funds other than what is available through the Division of Electricity. When funds are available, the City will contribute up to 20% of the cost of decorative fixtures in unlighted areas. Within new subdivisions, the entire cost will be paid by developers.
6. Decorative street lighting project requests will be evaluated against the larger urban design/aesthetic context of the neighborhood, major street or development in which it is proposed. Each project must be of a size and scope to be part of a well-defined neighborhood, precinct or subarea.
7. All street and alley light installations will be limited to the City’s inventory as approved in the Master Plan. The DOE inventory was established to provide decorative street lighting that is complementary to most urban design instances throughout the City. Requests for installations other than those found in the City’s inventory must meet the criteria established for special districts and be approved by City Council.

8. Existing light poles may be used for regulatory signage after the review and approval of the Division of Electricity. This measure will minimize clutter within right-of-way.
9. Existing power poles will be utilized for the installation of mast arm fixtures to minimize clutter in the right-of-way.
10. Post top fixtures are not recommended when these fixtures will be under existing overhead lines. These installations will only serve to increase clutter along the right-of-way and will result in over lighting and energy waste if the post top fixtures merely supplement existing street lighting.
11. Requests for decorative streetlights will be reviewed by existing neighborhood associations or commissions (where they exist) to ensure the desirability of the proposed installation and potential for increasing the size of the assessment area.
12. For purposes of consistency and continuity, assessment projects within large unlit neighborhoods must have the minimum participation of 100 households.
13. The proportional benefits or per lot method is recognized as the preferred method of assessment.
14. The Division of Electricity will incorporate cut-off mast arm fixtures to reduce glare and decrease sky pollution whenever possible.
Part I:
Street Light Education
Introduction

To effectively participate in the planning process, it is important that all panel members have a basic knowledge of street lighting philosophy, hardware and design. Technical lighting terminology will be kept to a minimum; however, a basic understanding of street and alley light systems is necessary to understand the Division of Electricity’s current policies and guidelines. This understanding will also be relevant later in the process to recommend ways the operation may be improved.
Safety refers to the ability of the users, both pedestrians and drivers, to reach their destinations without causing inadvertent physical harm to themselves or others. Particular concern in the City context are areas of conflict between automobiles and pedestrians.

Security is the freedom from deliberate harm or threat by others. Street lighting must therefore create a sense of security. Good lighting design contributes to an environment that appears well maintained, well defined and without shadowy hiding places. This not only promotes a sense of security but also deters potential assailants. These two illustrations depict an alley without and with, respectively, proper lighting - important for a secure environment.

Orientation is the development of the visual sense of location, destination, direction and route. This assists drivers and pedestrians with their desired activities (understanding driving lanes, intersections, pedestrian crosswalks, locating buildings, entrances, etc.) Patterns of luminaires and the alignment of poles should be designed to provide visual guidances.

Aesthetics refers to the contributions that street lights make toward a visually appealing and distinctive image for the neighborhoods and for the City of Columbus as a whole. Street lights should be compatible with their surroundings during the day; should not contribute to visual clutter; and should help transform a street into an attractive, public place for its users day or night.

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Planning Questions:

• Should the City go beyond the goals of safety and security and use street lighting to improve the City’s appearance and image?

• If yes, how can this best be accomplished given varied neighborhood needs and preferences, and limited city resources?

Philosophy of Street Lights

The basic functions of street and alley lighting are to provide safety and security. However, to promote the image of a visually appealing and uncluttered city, it is also very important that street lighting be approached from the standpoint of both orientation and aesthetics. Essentially, street and alley lighting allows people to complete tasks at night.

Aesthetically, street lighting must go beyond its primary function of illumination and serve to reinforce the existing physical organization of the City at night and to enhance the image and best features of the City during the day.

The illustrations on this page are graphic representations of lighting patterns. Actual lighting will differ depending on the situation.
Modern street lighting technology has come a long way in the last 30 years to provide lighting that better satisfies visual needs, is more energy efficient, and serves to reduce the various nuisances associated with some older style lighting fixtures. The Division of Electricity worked hard to develop a system that is well planned. Poorly designed lighting often results in light straying where it doesn’t belong, causing light pollution, and reducing safety by causing distracting and blinding glare for drivers and pedestrians. Wasted light, glare, overlighting, light trespass and clutter all contribute to light pollution. (The Division of Electricity adheres to standards developed by the Illuminating Engineering Society [IES]).

Good lighting is important and must be planned. When planning for street lights—more is not necessarily better and not every fixture will meet the City’s design requirements for a good street lighting system.

The Importance of Good Lighting

Street Light Education

The illustrations on this page are graphic representations of lighting patterns. Actual lighting will differ depending on the situation. These illustrations identify the nuisances created by poor lighting fixtures and design. The basics of good lighting design are found on the pages that follow.

Planning Questions:

• How should neighborhood groups, various City Divisions, and other agencies work together to promote consistently good lighting and design practices?
• What should the DOE do to further implement and promote a well planned street lighting system?
• As a user of the City’s streets and sidewalks, what suggestions do you have that would enhance the street lighting system?
Ballast: a device that modifies incoming voltage and controls current to provide the electrical conditions necessary to start and operate electrical discharge lamps.

Brightness: as commonly applied, brightness is the intensity of the sensation which results from viewing a surface or space which directs light into the eye.

Footcandle: a unit for measuring the amount of illumination on the street or sidewalk. One footcandle is equal to the amount of light generated by one candle shining on a square foot surface one foot away.

HID (High Intensity Discharge) Lamp: a lamp that generates large quantities of light with electric arches through small tubes. Most lamps in the City of Columbus are HID Lamps.

High Pressure Sodium (HPS): "pinkish/amber" energy efficient light source. HPS lamps have about a four year life span. This is the DOE’s standard light source.

Illuminance: the amount of light falling on a surface—measured in lux (lx) or footcandles (fc).

Illuminating Engineering Society Standards: standards devised by the Illuminating Engineering Society (IES) to provide guidelines for the lighting industry. The DOE adheres to these standards.

Iso-footcandle line: a line plotted on a set of coordinates to show all points on a surface where equal illuminances occur. Iso-lines are usually drawn in concentric circular patterns.

Lamp: a light source, commonly called a bulb or tube.

Lumens: a unit for measuring the amount of light energy given off by a light source (lamp).

Luminaires: a complete lighting fixture including one or more lamps and a means for connection to a power source. Many luminaires also include one or more ballasts and elements to position and protect lamps and distribute the light.

Lateral light distribution: light patterns can be varied according to the needs of a particular situation. The proper light pattern and fixture should be chosen for specific purposes.

Low Pressure Sodium (LPS): yellow light with poor color rendition but very energy efficient. This is the light that DOE uses in alleys and underpasses. This fixture used in these instances is very vandal proof.

Trenchless Construction: a means of installing underground cable by boring from fixture to fixture. This method of installation is used by DOE to leave tree lawns and sidewalks undisturbed.

Watts: a unit of electrical power. Lights on residential streets are 100 watts. Lights on major streets can range from 250 watts to 400 watts (on freeways) depending on the mounting height and the width of the road.

Street Light Education

Street Lighting Definitions

An attempt will be made to keep technical terminology to a minimum, however some basic knowledge of lighting definitions and terminology is necessary to understand the principles of lighting design as described on the next page.

The design of street lighting systems involves the provision of adequate lighting levels over a uniform or even pattern. The definitions on this page pertain to the planning and design of lighting systems.

...
Cobrahead fixture - The standard fixture of the City

Post-top fixture - A luminaire that is mounted on top of a light pole. In most instances the post top luminaire is decorative in appearance; due to its lower luminaire mounting, it utilizes lower wattage lamps (100 watt to 150 watt HPS). Its use is limited to narrower streets, unless supplemented with other conventional style lighting.

Full cutoff fixture - directs all the light toward the ground so none escapes out of the sides or into the sky.

When street lights are installed the lamp position is aimed to determine a desired light distribution. The light output and direction are further controlled by reflector and optical assemblies within the fixture. A luminaire consists of a light source and its apparatus such as a globe, reflector, refractor, etc.

A reflector changes the direction of light rays and redirects light into a more desirable light pattern. A reflector consists of a specular surface usually mounted above the lamp.

A refractor controls and redirects the light emitted by the lamp and advancing off the reflector by means of prisms. A refractor is constructed of glass or polycarbonate material. The refractor usually is integral to the outer globe or is a separate piece installed within the globe surrounding the lamp.

A bracket is an attachment to a pole from which the luminaire is suspended.

A modern street light is much more than a light bulb housed within a fixture. There are many different lamps and pole types of various color, shape and wattage. The DOE currently maintains an inventory of different fixtures and poles. The city inventory of lighting hardware was chosen based on the technical attributes of the lamp to produce a desired light quality and quantity. The lights also underwent an economic evaluation of energy and maintenance costs.

For reasons of cost and efficiency, the cobra head fixture on a treated wood pole is the City’s standard fixture. As will be explained later in this report, the DOE has estimated that it can service the entire City with this fixture at no cost to the taxpayer. Other more distinctive fixtures and underground wiring are much more costly and therefore beyond the DOE’s resources to install without supplemental resources (see Street Lighting in Columbus).

A comprehensive city-wide street lighting diagram organizes the City by providing a perceptible transition from major roadways to local streets. The fixtures may also be used to highlight historical neighborhoods, areas of special architecture and other neighborhood urban design qualities. This organization is achieved by using different combinations of pole heights, location, lighting levels and fixture types.

Anatomy of a Street Light

Street Light Education
<table>
<thead>
<tr>
<th>Pole types</th>
<th>Base types</th>
<th>Wiring Installation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treated Wood Pole - The standard pole of the City</td>
<td>Transformer Base</td>
<td>Overhead</td>
</tr>
<tr>
<td>Aluminum Pole</td>
<td>Decorative Base - (typical of post-top fixtures)</td>
<td>Underground</td>
</tr>
<tr>
<td>Cast Iron Pole/ Fiberglass Pole - no visual difference</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Street Light Education

#### Anatomy of a Street Light, cont.

- **Is the DOE's hardware inventory capable of meeting the urban design goals of all Columbus neighborhoods?**
- **Are there fixtures in the City's existing inventory that are outdated and not likely to be a fixture of choice?**
- **Can the City develop a hardware inventory that is adaptable to technological change, yet is consistent over time?**
- **What fixture and pole combinations are appropriate in distinct Columbus neighborhoods?**
- **How should residents select the appropriate lighting fixture for their neighborhood?**
- **How can smaller pockets of lighted areas build up coherently over time into a consistent lighting treatment for the whole neighborhood?**
The design of roadway lighting systems involves consideration of visibility, economic, aesthetics, safety, and environmental conditions, as well as appropriate material and equipment. It is important that roadway lighting is planned on the basis of traffic information, which includes the factors necessary to provide for traffic safety and pedestrian security. Some of the factors applicable to the specific problems that should be considered are:

1. The type of land use development adjacent to the roadway or walkway.
2. The type of route (roadway classification).
3. Traffic accident experience.
4. Nighttime security needs.
5. Roadway conditions such as:
   - width of pavement and location of curbs
   - steep grades and curves
   - location and width of sidewalks and shoulders
   - location of very high volume driveways, intersections, and interchanges; underpasses and overpasses;
   - location of trees.
6. The DOE adheres to lighting design criteria that are based on national standards of good visibility. These standards are developed by the Illuminating Engineering Society (IES).

Planning Question:
1. How should the master plan balance the relationship between traffic/pedestrian safety, low initial construction cost, minimal operation and maintenance expenses and aesthetic appearance?

Quality of Lighting
Quality of lighting (illuminance value) relates to the relative ability of the available light to permit people to make quick, accurate and comfortable detection and/or recognition of the cues required for a seeing task. The maintained illuminance value is expressed in candelas per square foot. The DOE requires an average of .4 to 1.7 footcandles depending on the classification of the roadway.

Lighting Uniformity
Uniformity standards were developed to eliminate an abrupt light to dark pattern between fixtures. The ratio is calculated by using the average illumination of the roadway design area between two adjacent luminaires, divided by the lowest value at any point in the area.

Luminaire Mounting Heights
The proper luminaire mounting height is a function of pole spacing, proximity to the street, luminaire type (light output) and distribution (size of area to be lighted). These factors all work together to achieve the desired uniformity and levels of illuminance.

Luminaire Spacing
The spacing of luminaires is influenced by the location of utility poles, block lengths, property lines and roadway geometry. The spacing-to-mounting height ratio must be within the range of lighting distribution for which the luminaire is designed.

Average Illuminance
The average illuminance is the sum value of all points included in the analysis divided by the number of points.
Planning Questions:

• What consideration should be given to ongoing maintenance programs within the Master Plan?
• How does fixture inventory affect maintenance capability?
• What is the recommended cycle of lamp replacement and how does that affect the projected budget of the DOE?

The term light maintenance has a double meaning. On one hand maintenance refers to the care and upkeep of the lighting hardware. This would include cleaning, refurbishing and replacing poles, fixtures, lamps and ballasts. Lighting maintenance also refers to the maintenance of the proper illumination levels on the streets and walkways. A publication of the New England Light Pollution Advisory reports that “under severe conditions, fixtures can lose in excess of 50 percent of their original efficiency and seem to still be doing its job.”

The report goes on to say that “no lighting installation continues to provide the original design levels over time, because lamps become less efficient, fixtures become dirty, and lamp and fixture electrical components fail.”

When these factors are combined with knocked over poles and downed wires, the City’s maintenance function becomes a considerable portion of the overall budget. As the number of street lights grows, the expense of maintaining the system is one of the largest concerns.

The DOE responds to over 20 reports of failed lamps per night.

The DOE responds very quickly to reports of damaged or failed lamps. Not only is the unlighted area affected by the loss of visibility, but the contrast between lighted and dark areas may decrease the effectiveness of the adjacent lights. In the interest of safety and security the City responds to over 20 reports of failed lights every night.

A well planned lighting system when combined with a program of regular light replacement will serve to keep maintenance costs in check as well as ensure light uniformity.

Planning Questions:

• What consideration should be given to ongoing maintenance programs within the Master Plan?
• How does fixture inventory affect maintenance capability?
• What is the recommended cycle of lamp replacement and how does that affect the projected budget of the DOE?
Part II:
Street Lighting in the City of Columbus
This portion of the text/presentation is to familiarize the Panel and the public with the Division of Electricity, its history, mission, budget and its commitment to a long-range lighting program called Project 2020. The information as it will be presented, develops a logical framework in which the current issues surrounding street lighting may be identified. Participants in the process will share a common perspective as the planning issues are identified and discussed.

Introduction

Street Lighting in the City of Columbus
A Historical Perspective

• 1899 - The Municipal Light Plant is on line.
• 1910 - The City begins to sell power to private companies.
• 1933 - Revenues from the sale of electricity exceed operating costs of the plant and street lights. No tax money is needed to operate the service.
• 1933 - The municipal power operation is transferred from the Water Department and becomes the Division of Electricity (DOE).
• 1970 - The old municipal power plant is the subject of EPA scrutiny over emissions from the boilers.
• 1977 - Voters approve a bond issue for a Waste Energy Power Plant.
• 1983 - The Waste to Energy Facility is on line.
• 1988 - Voters approve a bond issue for street lighting within pre-designated target areas. Prior to this, projects were selected from a running list of petitions.
• 1990 - Developers are required to install street lights within new subdivisions.
• 1994 - The Solid Waste Authority of Central Ohio closes the Waste to Energy Facility.
• 1994 - New street light bond issue is approved by the voters.
• 1995 - DOE purchases all of its power from AMP-Ohio.
• 1998 - DOE conducts a comprehensive street lighting process.

Street Lighting in the City of Columbus

Division of Electricity History

The Division of Electricity (DOE), originally part of the Water Department, began operations in 1899 with the completion of the municipal power plant. The plant was specifically constructed to generate power for street lighting. The plant operated only at night, until the City discovered that the plant could also make money. From 1910 to the present, the power plant gradually increased the sale of its surplus energy and the revenues from this were credited against the cost of operating the plant and street lighting system. Beginning with the year 1933, the revenues had exceeded the operating and fixed charges sufficiently to provide free lighting without using tax money from the General Fund. This is still the mission of the DOE in 1997.

Planning Questions:

• Is the DOE mission of providing a revenue-supported street lighting service still a valid pursuit?
• How can the DOE remain healthy and robust over the next 100 years?
• How can DOE build on the past to become an exciting model of the future?
AMP-Ohio

The DOE purchases all of its power from an organization called AMP-Ohio. AMP-Ohio is an acronym for American Municipal Power Ohio, a nonprofit wholesale power supplier and trade association. This corporation serves 79 municipalities by purchasing and generating power to serve their customers, and by arranging transmission services to deliver that power. Other support services are also provided to ensure that member municipalities serve their electric customers at the least possible cost.

There are 84 community-owned electric systems operating statewide. Among the local governments with their own systems are Columbus, Cleveland, Hamilton, Bowling Green, and Westerville. These municipal systems pay public utility excise taxes on wholesale power purchases through AMP-Ohio and investor owned utilities.

Division of Electricity Budget

The DOE’s budget for street lighting projects has been approximately $2.1 million for each of the three years prior to 1998. It is the DOE’s long term plan to budget an amount of money that would cover the entire cost of approximately 1,500 standard fixtures and cover the partial cost of 150 decorative fixtures installed through assessment. Developers pay for and install approximately 660 lights per year.

In 1998...

- 1,451 street lights were installed using voter approved bond funds.
- There were no street lights installed under the Urban Infrastructure Recovery Program although there are a number of projects in the planning stage. 344 street lights were installed in 1996.
- 830 street lights were installed by developers.

Electricity operations including maintenance and energy for the street lighting system are self-sustaining. The City distributes and sells enough energy to pay these costs.

Street Lighting in the City of Columbus

- Operation and Budget of the Division of Electricity
- Missions

These mission and vision statements below are printed on cards carried by every employee of the Division of Electricity.

Mission Statement

“The Columbus Department of Public Utilities, Division of Electricity provides reliable street lighting for people living in or traveling through the City, with the total cost of the system supported by the sale of electricity.”

Vision

The Division of Electricity is responsible for maintaining the City’s street lighting system, and providing reliable, competitively priced electricity to residential, commercial and industrial customers. Our responsibility for efficient, high quality service extends to the general public, because we are a locally owned electric utility. We believe our commitment to provide the resources necessary for our employees to perform to their potential translates into an above average level of service to the public and our electric customers.

Planning Questions:

- How can the City’s street lighting resources be allocated to fulfill street lighting goals and objectives that are adopted as part of the master plan?
- What should the DOE do to increase its level of service to the citizens of Columbus?
- ...
Excerpts from Project 2020

"It Began in 1899...."

Project 2020 is the latest program in a proud history of service to the community from the Columbus Division of Electricity. One hundred years ago when City fathers decided to start a municipal electric system, they recognized the benefits of street lighting. Columbus was much smaller then, just a few well kept neighborhoods. Several hundred street lights illuminated our Midwestern community at the fan of the century.

By the 1990's we were maintaining a massive street lighting network of over 39,000 lights. We estimate tripling this number before we have reached our goal of totally illuminating Columbus by the year 2000.

Customer Service As Our Goal....

Whether it is providing a sound, long range program to light all our neighborhoods or providing reliable, low cost electricity to support this ambitious goal, the bottom line is excellence in customer service.

Everyone benefits from these devices. Wherever you go in Columbus, you will feel more secure because of street lighting. Even if you do not buy electricity from the Columbus Division of Electricity, your rates are lower because of competition. Giving you a choice of electricity providers keeps utility costs in line.

Mayor Greg Lashutka recognized the importance of street lighting as an integral part of a modern city's efforts to upgrade its infrastructure. He charged us with maximizing this service by developing a long-range plan which culminated with adoption of Project 2020. Throughout the planning process our concept was how to construct a program to continuously improve this valuable customer service. We believe the foresight, which began with the Mayor, will be recognized as a major improvement in the quality of living in this community in the future.

Columbus is your community, one of the greatest cities in America. We want it to be recognized nationwide as one of the premier places to live and work.

How We Do It...

The way we pay for our comprehensive, and complex street lighting program is a combination of sound fiscal methods. Under Project 2020 these methods will not change.

The majority of neighborhood lighting will be paid for with voter approved bond funding. We borrow the money and pay it back out of our revenues. This is a sound business approach.

As the City grows with new commercial and residential developments, street lights are installed. The City passed landmark legislation in 1990 which requires developers to pay for the installation of lights. After the lights are installed, the Division of Electricity maintains them and provides free energy.

Also, existing neighborhoods that want new street lights are offered the option of petitioning for lighting. Many neighborhood residents have taken this option to pay for a portion of the lights on their property tax bills over a period of ten years.

We work with all neighborhood organizations to find solutions to their lighting needs.

We’re Public Powerful....

The Columbus Division of Electricity exemplifies the best to be found in municipally owned utilities. We are locally owned and operated. We often solicit community input concerning street lighting. The driving force behind the development of Project 2020 is the many requests we receive from neighborhoods for improved lighting. The strength of this program comes from our shareholders, the people of Columbus.

Safer Neighborhoods....

Columbus is not one, large metropolitan area. It is a collection of close knit neighborhoods of friendly people. The City’s residents take pride in their neighborhoods, striving to maintain a warm atmosphere as well as a comfortable quality of life.

Street lighting, our primary mission, helps keep neighborhoods safer from the threat of crime. Law enforcement officials will tell you criminals like to lurk in the dark. Take the dark away and they are less likely to strike. Eventually, when every street is lighted, we’ll have a much safer city.

Street lighting protects motorists and pedestrians traveling neighborhood streets at night. We adhere to strict standards for lighting construction so you have the best protection we can provide.

Quality means a lot to us. We know it means a lot to you too. That is why making Project 2020 a reality, helping provide greater security for every neighborhood in the city, is our highest priority.

Street Lighting in the City of Columbus

Project 2020

Project 2020 is the long range lighting program developed by Mayor Gregory Lashutka in 1992 to address the requirements of neighborhoods throughout the City for greater security against crime. Since its inception, more than 14,000 new lights have been added to the City’s intricate system of street and alley lights. By the time the job is done, after every street in Columbus is lighted, there will be nearly 90,000 lights within the system.

Planning Questions:

• How should Project 2020 be implemented in light of the desire for ornamental fixtures and the City’s limited resources to pay for them?
• Is implementation by the year 2020 a realistic or desirable goal?
• What can the DOE do to promote neighborhood street lighting projects and to get residents involved in the planning process?
• How can the City strengthen its assessment process?

Implementation of Project 2020 is to be accomplished in the following ways:

• City installation paid for with voted bond funds.
• Voluntary assessments by property owners.
• Developer installed street lighting.
• City installation paid for with Urban Infrastructure recovery funds and Neighborhood Commercial Revitalization funds.

Supporting Project 2020 through the sale of electricity to thousands of homes and businesses makes sense. Tax dollars do not have to be diverted for our operations. This gives the Mayor and City Council greater flexibility in supporting other, critically important City services.
Prior to 1988, street light projects were chosen from a list of petitions and in conjunction with other city neighborhood stabilization projects. A specific list of street lighting projects was included in the Columbus Capital Improvement Bond package approved by the voters in 1988. The projects were chosen by the DOE in consideration of other city planning efforts with public review and comment. This program was called "Illuminate Columbus." The 1988 Bond Package made up the majority of the DOE's Capital Improvement Plan for the next five years.
Installation of Street Lights since 1988

In 1994, the City of Columbus prepared another bond package to submit to the voters. The DOE went through the same process as in 1988 to prepare the list of street lighting projects. A series of public meetings were held. A project list was developed as a result of these neighborhood meetings and meetings with other city divisions. This package was also approved by the voters. The projects identified as part of this bond issue are the foundation of the DOE's Capital Improvement Plan that began in 1995 continuing through 1999.
Installation of Street Lights since 1988

In 1990, the City Council passed legislation to require street lights to be installed in new residential and commercial developments. This new requirement went hand in hand with the initiation of Project 2020 to light all Columbus neighborhoods by the year 2020.

Since 1990, 2,600 lights have been installed by developers. This has been effective in dealing with growth in outlying areas of Columbus.
Installation of Street Lights since 1988

Assessment Installations

Street lights have also been installed through the City’s assessment program. In this instance, property owners get together to petition the City for street lights and to voluntarily assess themselves for the cost of the improvements.

The DOE uses a direct mail process to notify all property owners in a project area of their options for lighting. These options include the use of the standard fixture or decorative lighting and whether the wiring is to be overhead or underground. The DOE also works closely with area commissions on individual projects. This includes meetings, community surveys, and media notification.
Street Lighting in the City of Columbus

Installation of Street Lights since 1988

Urban Infrastructure Recovery Fund (UIRF)

Established by the City Council in 1992, the Urban Infrastructure Recovery Fund (UIRF) focuses capital improvements on central city neighborhoods. The Planning Division is responsible for facilitating project selection, which is completed by both community and staff representatives.

The groups evaluate proposals based on a high, medium, and low priority ranking. Projects were selected based on their priority ranking, UIRF project selection criteria, and ability to complement ongoing efforts.
The Columbus Comprehensive Plan recommends that:

- The City of Columbus continue to expand Project 2020 through additional bond funding to increase the number of existing neighborhoods receiving safe, modern street lighting.
- The City of Columbus increase funding available for street lighting projects where the residents agree to share the cost through an assessment.
- A funding mechanism be made available to assist neighborhoods wanting decorative street lighting with underground wiring.
- The Division of Electricity, with the assistance of the Planning Division, expand efforts to communicate with neighborhoods about street lighting programs.
- The City of Columbus require street lighting be installed, using DOE funds, or wherever possible, highway safety funds, in conjunction with all arterial street widening projects.
- All street lighting fixtures used within neighborhoods be selected from city-approved lists.
- The City of Columbus increase funding for improvements to the Division of Electricity's power delivery system so that it can continue to provide reliable service for the street lighting system and its retail customers.
1. The program is expanding into areas where there is less overhead wiring and a greater desire for underground utilities.

2. The styles of various decorative lighting fixtures now existing within the City were chosen by relatively small groups of property owners and may not necessarily reflect the desire of the larger neighborhood.

3. The City's inventory of light fixtures and poles is in transition. New fixtures have been recently added and there are other fixtures that appear to be no longer desirable. The City has a need to maintain a well developed consistent menu of lighting components.

4. There is a desire for functional as well as aesthetically pleasing luminaires.

5. The varied and sporadic installation of fixtures has made maintenance and replacement more difficult.

6. There are currently a number of instances of overlighting and clutter within the City.

7. The trend toward fixture customizing has the potential of expanding the City’s inventory of component parts beyond reasonable economic and maintenance parameters.

8. The DOE has found that maintenance of scattered, odd shaped and/or small assessment areas or new subdivisions has become more difficult as areas are added.

9. There is a need to strive for a better balance between the functional and aesthetic characteristics of street lighting.

10. There is a lack of consistency in street light installation over large areas.

Additional Issues:

11. Income levels should be taken into consideration when using assessment in neighborhoods (i.e., problems with landlords who do not live on their properties and oppose any assessment or improvement for the community or those on fixed incomes such as senior citizens).

12. Some panel members would rather wait longer for more decorative fixtures (post-tops) than have the standard light installed immediately. There are other options available so that a compromise can be reached regarding decorative fixtures (Example: German Village).

13. Street trees should be considered when spacing street lights. Street trees are a key factor of why post-top light fixtures are preferred. Coordinate with the Division of Recreation and Parks for recommendation of trees that top out at 20’ - 25’ or ones that can mask wires.

14. Handicapped access is a problem in certain areas. Often, light poles are placed within the sidewalk and wheelchairs cannot access around them; sidewalks on the other side of the street cannot be accessed due to curbs and other barriers. Such situations should be taken into consideration and implemented into policies regarding ADA and access.

15. There is a concern about the assessment petition process.

16. New developments are allowed to use any and all lights and then the City is expected to maintain these streets and lights when annexed. There is no current policy to prevent this from occurring. Thus, a process and policy for future growth is extremely critical.

17. The distinction between County and City territory is also an issue. There are gaps in street lighting along major roads where the corporation line changes. Also when roads are built in the County without lights and then annexed, the City must then install lighting at its expense. There must be more coordination between the City and County on development improvement projects.

18. The lack of or overabundance of lights in alleys is another concern that should be addressed.

19. Improved coordination between utilities: if a street is being torn up for another utility, there should be a process which allows collaboration with the Division of Electricity. Thus, everyone saves money to have utilities and lights replaced/installed.

20. Acknowledgment and better interaction/communication between the City and historic commissions is needed.
Part III:
The Master Plan
The Master Plan

• Introduction
  
  The Columbus Street Lighting Master Plan is divided into three distinct parts:
  
  • Part I: Street Lighting Priorities
  • Part II: Planning Principles and Design
  • Part III: Implementation.
  
  Each part addresses particular issues that were identified prior to the Master Plan process, as well as those issues that emerged during the planning process. The three parts when acted upon together represent a solid direction by which the Columbus Division of Electricity will run its street lighting program over the course of Project 2020.
  
  The Street Lighting Master Plan begins with the goals and objectives of Project 2020. The goals are directed toward the quality of street lighting as a public service; the need to provide a safe and secure streetscape environment; and the need to make the City streetscape more attractive. The Master Plan presents a series of planning guidelines that were crafted and endorsed by the Planning Committee. These qualities became the basic focus of many Master Plan initiatives.
  
  Part I: Street Lighting Priorities - Establishes capital improvement program strategies and develops criteria by which street lighting may be installed in the areas of most need.
  
  Part II: Planning Principles and Design - Establishes principles for planning and design. Planning recommendations will establish appropriate lighting installation standards, light styles, mounting heights, and pole spacing. Lighting design recommendations will be made for major arterial streets, collector streets, and local streets. This portion of the Master Plan will require a well-developed vocabulary of street lights that is well matched to the major urban design situations present throughout the City.
  
  Part I establishes priorities and Part II adopts appropriate hardware and design principles for the planning areas.
  
  Part III: Implementation identifies the actions that must be taken to successfully impact Project 2020 over the next 10 years.
The Master Plan
Part I: Street Lighting Priorities
Street Lighting Master Plan Goals and Objectives

Goal: To pursue and maintain street lighting as a basic city-wide service.

Objectives:
- To install street lights on all existing traveled ways within the City of Columbus.
- To continue to require street lights be installed within developing subdivisions.
- To provide special lighting options that will promote decorative fixtures and underground installations that have been predetermined by and for each neighborhood of the City.
- To maintain equity by requiring the majority cost of decorative and underground installations to be borne by the property owners who will enjoy the additional benefits of those fixtures.
- To work with other City agencies in using street lighting hardware and funding options to advance city-wide development goals and objectives.
- To establish specific permitting procedures for the promotion of specialty lighting installations.
- To meet all standards for safety and security.

Goal: To provide a safe and secure streetscape for pedestrians and motorists.

Objectives:
- To minimize shadows and dark spots along streets and sidewalks.
- To minimize conflict between vehicles and pedestrians.
- To provide maximum orientation and optical guidance with minimal visual clutter and noise.
- To insure that all areas meet standards for safety and security; variations may occur only after this standard is met.
- To install fixtures that are easily maintained and serviced, and efficient.
- To work with other City Divisions over time to combine lighting poles and fixtures, traffic signs and signals, street trees, and paving patterns to enhance the streetscape.

Goal: To establish a street lighting system that conveys information necessary to orient motorists to the traveled ways; that contributes to the appearance and image of the City’s streetscape and reinforces the City’s positive image.

Objectives:
- To use appropriate lighting to differentiate the logical hierarchies of pedestrian and vehicular circulation (standards for major, collector and local streets).
- To design lighting treatments that are consistent in similar urban design and development situations.
- To maintain consistency in street lighting installations over larger areas.
- To establish and maintain an appealing inventory of street light fixtures and poles that enhance and promote the special character of Columbus’ neighborhoods.
- To minimize visual noise and clutter and to reduce glare.
- To work with other City Divisions over time to combine lighting poles and fixtures, traffic signs and signals, street trees, and paving patterns to enhance the streetscape.

The Master Plan

The City of Columbus has chosen to provide street lighting as a basic city service to be made available to all Columbus residents. In order to accomplish the primary objective of Project 2020, which is to light all streets of the City, the DOE has been using specific planning principles to guide implementation of the Project. A summary of existing planning principles are found below:

- The City strongly believes that a street light system confers a city-wide public benefit and enhances individual property values.
- The City has deemed the basic residential service to consist of the power supply necessary for all public street lights and the installation of overhead street lights. This street light consists of a cobrahead luminaire, a wood pole, and overhead electric lines in all areas that are currently not lit.
- The City will replace all existing older arc lighting fixtures with modern HPS fixtures. Existing underground systems will be replaced with underground systems. Existing overhead systems will be replaced with overhead systems.
- The installation of ornamental poles and luminaires or underground systems, while encouraged by the City, are considered to be of special benefit to the property owners and residents on whose streets these assemblies are installed. The additional costs of ornamental lighting or underground systems are to be paid with property assessment or from specially designated public funding sources.
- It is the policy of the City to apply the cost of the basic service toward the cost of the special installations in residential areas.
- Street lights must be installed along public streets in all developing subdivisions at developer expense.
- To date it has been the City’s overall implementation plan to expand street light installation from the core of the City outward toward the fringe areas.
Planning Precepts

1. The Street Lighting Master Plan should make Columbus’ defined neighborhoods the basis on which priorities are assessed, installations are recommended, and the program is implemented.
   - The Master Plan should identify three different strategies:
     - Areas of new installations
     - Areas that are currently underlit
     - Area upgrades to existing systems.

2. Street lighting within the neighborhoods must build toward a unified and comprehensive city-wide system.

3. Neighborhood residents should have a choice in determining appropriate street light installations for their neighborhood.
   - The neighborhoods will be defined in advance and will include commercial areas or other mixed use areas when applicable.
   - Identify funding sources.

4. A planning process will be conducted within neighborhoods that will first evaluate and choose a preferred street light installation and then institute a program to install the fixtures. This process must incorporate the following:
   - The Division of Electricity must be extremely proactive in working with resident groups and with existing neighborhood resources - associations, commission groups, etc.
   - There must be strong communication between the City, neighborhood residents, the residents must have input into the process.
   - A standard notification must be developed to get the word out to residents.
   - The notification must clearly indicate that there is a choice - some lighting choices require additional funds, some do not.
   - There must be intercity division cooperation.

5. The street lighting program will work toward raising the base level of lighting by:
   - Providing lighting choices that are sensitive to price, but still provide an opportunity to raise the base level.
   - Developing an improvement process that encourages underground wiring and/or decorative fixtures.
   - Considering additional funding, payment options, and mechanisms that promote the highest design quality possible within the neighborhoods.

6. The street lighting installations with underground wiring are preferable to overhead wiring.

7. Street lights on major (arterial) streets should extend through developed unincorporated areas in order to maintain lighting levels and continuity. This will require cooperation among different jurisdictions.

8. Major streets will primarily contain mast arm type installations; however, there may be areas where pedestrian lighting is appropriate such as neighborhood commercial centers or residential areas along major streets.

9. Post-top lighting under aerial wiring is not recommended due to the high cost of installation and the potential for clutter. All utilities and property owners must look for opportunities to install underground wiring, share poles, consolidate wiring and move existing wiring along the street to the rear.
   - The plan should identify the process for this to be accomplished.

10. The City should conduct an implementation process that:
    - Proactively seeks owners to agree to assessment
    - Determines the size of area to be assessed ahead of time
    - Considers the potential for city-wide assessments for all street related improvements as recommended in the Columbus Comprehensive Plan
    - Stretches the assessment over a longer period of time
    - Involves more city participation, pro-action and support
    - Considers fund raising to achieve higher standards

11. All citizens (renters and property owners) should have an opportunity to participate in the street lighting program.

The Master Plan

Street Lighting Priorities

Planning Guidelines - Towards the Future

The planning guidelines printed on this page represent a new focus for Project 2020. They were crafted by the Planning Panel over the course of two meetings. These guidelines stem from a belief that Project 2020 is at a crossroads. In the future, the desire for street lights is likely to be well balanced between safety, security and aesthetics. These three elements must go hand in hand if Project 2020 is to continue its success.

The Street Lighting Master Plan will use these guidelines to conduct a street lighting program that promotes neighborhood choice. This approach will give the residents of Columbus more control over what happens within the public streetscape.

The Street Lighting Master Plan weaves the City’s existing public service commitments with the opportunity to achieve the broader goals of the street lighting program.

The City has the ongoing obligation to provide its citizens the opportunity to receive the benefits of a public lighting system in the form of the basic service that has been extended to over a third of the City. But now, the City also has the unique opportunity to incorporate new street light planning principles to community development and design.
Street Lighting Priorities

Priority Areas

Existing street lights were mapped and analyzed by planning areas established by the Columbus Division of Planning. The Planning Division maintains an extensive data base for each of the 37+ planning areas. The Planning Division has also identified individual neighborhoods within each of the planning areas. The Street Lighting Master Plan will use these planning areas and neighborhoods as the primary means of reporting information and establishing policy.

To date it has been the City's plan to install lighting within the older (pre-1950) areas of the City and work outward. Since 1988, the City has had active projects in all parts of the City ensuring a good geographic distribution of lighting projects. In future years, the Master Plan recommends that the City generate projects city-wide. To accomplish this, it is recommended that the Division of Electricity adopt different strategies to fit the needs of the various neighborhoods. For this purpose, the City's street lighting needs have been categorized by Planning Areas. The categories are as follows:

1. Scattered unlit neighborhood areas - complete lighting installations in neighborhoods that are only partially lit.
2. Partially lit neighborhood areas - complete lighting within neighborhoods that are part of a planning area that already has street lights (1950 boundary neighborhoods).
3. Unit neighborhood areas inside of the I-270 outerbelt.
4. Unit areas outside of the I-270 outerbelt.
5. Large unlit planning areas outside I-270.

It has been estimated that areas one and two may be completed within five years given the DOE's general street lighting budget of 2 million dollars per year. When street lighting projects are completed in these central city neighborhoods, Project 2020 will lose its ability to be geographically distributed. Within the outerbelt only Northland and Northwest will remain unit. It is estimated that both of these neighborhoods will take 5 years to complete. By the year 2010 all Columbus neighborhoods within the I-270 outerbelt could be lit.
Street Lighting Priorities

The priority area recommendations on the previous page identified general locations for ongoing installations. These general locations must be further subdivided for implementation. A more detailed site-specific installation strategy may be developed by using the criteria identified below.

The Division of Electricity will initiate the installation prioritization process by identifying the boundaries of the neighborhoods that are targeted for street lighting. This information will be forwarded to the Divisions of Planning, Police and Traffic. Each of these divisions will:

- Review and refine each of the areas projects based on existing data as well as local knowledge of existing conditions.
- Evaluate and rank the areas to the degree possible using the criteria of the Street Lighting Master Plan.
- Attend a workshop sponsored by the DOE to establish priorities.
- Publish results.
- Verify results with neighborhood groups.

The rating will be accomplished by applying local knowledge of the conditions within the neighborhood. The results will be used as a starting point in working with neighborhoods to devise an implementation strategy that addresses the greatest needs at the beginning of the program.

The evaluation is completed by multiplying the weight by the rating and adding the product of each criteria.

The rating is not designed to provide absolute answers, but to provide guidance to those that have been charged with developing priorities.

The Master Plan

Future Project Ranking Format

The priority area recommendations on the previous page identified general locations for ongoing installations. These general locations must be further subdivided for implementation. More detailed site-specific installation strategy may be developed by using the criteria identified below.

Criteria 1. Existence of a request for street lights within the neighborhood. (Weight = 3)

<table>
<thead>
<tr>
<th>Range</th>
<th>Rating</th>
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<tr>
<td>50+ signatures</td>
<td>10</td>
</tr>
<tr>
<td>35 to 49 signatures</td>
<td>7</td>
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<td>15 to 29</td>
<td>5</td>
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<tr>
<td>1 to 14</td>
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Criteria 2. Relative crime rate. (Weight = 4)

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<tr>
<td>High</td>
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<tr>
<td>Medium</td>
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<tr>
<td>Low</td>
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Criteria 3. Relative traffic conditions. (Weight = 4)

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<td>High</td>
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<td>Medium</td>
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<tr>
<td>Low</td>
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Criteria 4. Density of the neighborhood. (Weight = 1)

<table>
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<tbody>
<tr>
<td>&gt; 12 units per acre - Street lighting in higher density neighborhoods</td>
<td>4</td>
</tr>
<tr>
<td>8 to 12 units per acre - Serves more people, greater levels of vehicles</td>
<td>3</td>
</tr>
<tr>
<td>4 to 8 units per acre and pedestrian activity</td>
<td>2</td>
</tr>
<tr>
<td>&lt; 4 units per acre</td>
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Criteria 5. Activity areas (Schools, churches, parks) within the neighborhood. (Weight = 3)

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<tbody>
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</table>

Criteria 6. Neighborhoods with special districts or adjacent to special districts (mixed uses-entertainment tourist activity). (Weight = 3)

<table>
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<tbody>
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Criteria 7. Coordination with other known (CIP) street projects within the neighborhood. (Weight = 2)

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Criteria 8. Associated Community development strategy. (Weight = 2)

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Criteria 9. Activity areas within the neighborhood. (Weight = 3)

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Criteria 10. Coordination with other known (CIP) street projects within the neighborhood. (Weight = 2)

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</table>
The Master Plan
Part II: Planning Principles and Design
### Recommended Light Luminaire and Pole Styles for Various Classifications of Roadways

<table>
<thead>
<tr>
<th>Street Type</th>
<th>Land Use</th>
<th>Recommended Illumination</th>
<th>Typ.</th>
<th>Recommended Lamp Wattage</th>
<th>General Style Recommendation</th>
<th>Recommended Luminaire Mounting Height</th>
<th>Recommended Light Pole Arrangement</th>
<th>Typ. Pole Spacing</th>
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<td>55 Watt LPS - 70 Watt HPS</td>
<td>Basic Service: LPS</td>
<td>28'</td>
<td>one side</td>
<td>300'-400'</td>
</tr>
<tr>
<td>Intermediate</td>
<td>Residential</td>
<td>0.4</td>
<td>12'-20'</td>
<td>55 Watt LPS - 100 Watt HPS</td>
<td>Basic Service: LPS</td>
<td>28'</td>
<td>one side</td>
<td>180'-200'</td>
</tr>
<tr>
<td>Commercial</td>
<td>Residential</td>
<td>0.4</td>
<td>12'-20'</td>
<td>100 Watt LPS - 200 Watt HPS</td>
<td>Basic Service</td>
<td>28'</td>
<td>one side</td>
<td>180'-200'</td>
</tr>
<tr>
<td>Local</td>
<td>Residential</td>
<td>0.3</td>
<td>8 to 1</td>
<td>20'-30'</td>
<td>100 Watt HPS</td>
<td>Basic Service/Option #1</td>
<td>28'</td>
<td>one side</td>
</tr>
<tr>
<td>Intermediate</td>
<td>Residential</td>
<td>0.6</td>
<td>6 to 1</td>
<td>20'-30'</td>
<td>100 Watt HPS</td>
<td>Basic Service/Option #1</td>
<td>28'</td>
<td>one side</td>
</tr>
<tr>
<td>Collector</td>
<td>Residential</td>
<td>0.6</td>
<td>4 to 1</td>
<td>26'-36'</td>
<td>100 Watt - 250 Watt HPS</td>
<td>Basic Service/Option #1</td>
<td>28'</td>
<td>one side</td>
</tr>
<tr>
<td>Intermediate</td>
<td>Commercial</td>
<td>0.9</td>
<td>4 to 1</td>
<td>26'-36'</td>
<td>200 Watt - 250 Watt HPS</td>
<td>Basic Service/Option #1</td>
<td>28'</td>
<td>one side</td>
</tr>
<tr>
<td>Commercial</td>
<td>Commercial</td>
<td>1.7</td>
<td>4 to 1</td>
<td>26'-36'</td>
<td>200 Watt - 400 Watt HPS</td>
<td>Basic Service/Option #1</td>
<td>28'</td>
<td>one side</td>
</tr>
<tr>
<td>Major</td>
<td>Residential</td>
<td>0.9</td>
<td>3 to 1</td>
<td>40'-50'</td>
<td>200 Watt - 250 Watt HPS</td>
<td>Basic Service/Option #1</td>
<td>28'</td>
<td>one side</td>
</tr>
<tr>
<td>(Downtown Arterial)</td>
<td>Intermediate</td>
<td>1.3</td>
<td>3 to 1</td>
<td>40'-60'</td>
<td>200 Watt - 250 Watt HPS</td>
<td>Basic Service/Option #1</td>
<td>28'</td>
<td>one side</td>
</tr>
<tr>
<td>Commercial</td>
<td>Commercial</td>
<td>1.7</td>
<td>3 to 1</td>
<td>40'-140'</td>
<td>200 Watt - 400 Watt HPS</td>
<td>Basic Service/Option #1</td>
<td>30'-40'</td>
<td>staggered or opposite</td>
</tr>
</tbody>
</table>

### Planning Principles and Design

1. **Alleys:** Resident access only.
2. **Local Residential streets:** Plan for pedestrian traffic and casual smaller scale activity.
3. **Local Intermediate street:** Plan for greater levels of pedestrian activity, drop-off/pickup activities, and group activity areas.
4. **Collector Residential streets:** Plan for slightly higher traffic volumes but maintain neighborhood scale.
5. **Intermediate Collector street:** Plan for higher traffic and pedestrian activity. Three lane streets with residential driveways plan at a pedestrian scale. Wider streets or those without driveways may be planned at a vehicular scale.
6. **Commercial Collector street:** Plan for vehicular orientation and pedestrian activity.
7. **Major Residential collector:** Plan for vehicular orientation on wide streets. Ensure sidewalks are illuminated.
8. **Major Intermediate street:** Plan for vehicular orientation and on-street parking, and moderate pedestrian activity. Ensure sidewalks are illuminated.
9. **Major Commercial street:** Plan for vehicular orientation, through traffic and on-street parking. Ensure sidewalks are illuminated.

### Installation Inventory

**Basic Service:** Wood Poles, Aerial Cables, Cobrahead Luminaire

**Optional Service #1:** Mast Arm Pole, Aerial Cables, Ornamental Luminaire

**Optional Service #2:** Underground, Ornamental Luminaire and Pole (Post Top Style)

**Optional Service #3:** Underground, Arm Mounted Luminaire

The frequent request for all upgrades from Basic Service to Optional Services 2 or 3 shall be by petition and the additional cost shall be paid by assessment.

Note: Foot candle values listed above are per the current City of Columbus specifications (MIS Booklet) and coincide with IES recommended standards for maintained horizontal illumination.

### The Street Lighting Master Plan Recognizes Nine Different Street Lighting Conditions Based on Street Hierarchies

1. Alleys: Resident access only.
2. Local Residential streets: Plan for pedestrian traffic and casual smaller scale activity.
3. Local Intermediate street: Plan for greater levels of pedestrian activity, drop-off/pickup activities, and group activity areas.
4. Collector Residential streets: Plan for slightly higher traffic volumes but maintain neighborhood scale.
5. Intermediate Collector street: Plan for higher traffic and pedestrian activity. Three lane streets with residential driveways plan at a pedestrian scale. Wider streets or those without driveways may be planned at a vehicular scale.
7. Major Residential collector: Plan for vehicular orientation on wide streets. Ensure sidewalks are illuminated.
9. Major Commercial street: Plan for vehicular orientation, through traffic and on-street parking. Ensure sidewalks are illuminated.

### A City-Wide Street Lighting System

- **The Street Type Generally Conveys the Appropriate Design Criteria for Street Lighting:** Illuminating Engineering Society Standards and other lighting plans (including this one) have used the level of traffic, the intensity of pedestrian use and the type of adjacent land use to primarily determine appropriate light levels. These factors are also variables used to establish a basic vocabulary of fixtures and poles. Working together, the various lighting levels and various fixture types combine to establish a good street lighting system. A good street lighting system is one that differentiates the logical hierarchies of pedestrian and vehicular circulation; is consistent in its application; establishes an intensity of light that reflects the extent of vehicular and pedestrian use; and is of a scale that relates to the scale of street activity.

- **The Street Lighting System Matrix on this page contains the Master Plan's Recommended Illumination Levels and the Requirements for a Basic Street Light Vocabulary:** This vocabulary identifies the fixture styles that are appropriate on the various street types within the City of Columbus.
Proposed Street Lighting Policy for Illuminating Street Intersections

<table>
<thead>
<tr>
<th>STREET CLASSIFICATION</th>
<th>ALLEY</th>
<th>LOCAL</th>
<th>COLLECTOR</th>
<th>MAJOR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RESIDENTIAL</td>
<td>RESIDENTIAL</td>
<td>RESIDENTIAL</td>
<td>RESIDENTIAL</td>
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<tr>
<td>ALLEY</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>INTERMEDIATE</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>RESIDENTIAL</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>COMMERCIAL</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>INTERMEDIATE</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>RESIDENTIAL</td>
<td>1</td>
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<td>1</td>
</tr>
<tr>
<td>COMMERCIAL</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>INTERMEDIATE</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>RESIDENTIAL</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>COMMERCIAL</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>INTERMEDIATE</td>
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<td>1</td>
</tr>
<tr>
<td>RESIDENTIAL</td>
<td>1</td>
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</tr>
<tr>
<td>COMMERCIAL</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Notes:
1. Numbers shown above are the recommended minimum number of luminaires to be installed at each intersecting roadway. All proposed layouts should have illumination calculated for verification with compliance of desired values and uniformly. Where the word "design" is displayed it is especially important to verify values with calculations.
2. Number of light poles are based on providing the basic service light pole and luminaire style.
3. Luminaires located at intersections with alleys and primary streets (local, collector or major classification) should match the style installed on the primary street.
4. Existing city standards call for the illumination of intersections in foot candles to be the sum of the values recommended for each roadway that forms the intersection.
Major Streets

Major (arterial) streets as defined by the Columbus Thoroughfare Plan are ones that carry traffic in high volumes for long distances at moderate to high speeds. These streets generally face commercial development. Streets within this classification include High Street, Broad Street, Cleveland Avenue, Sawmill Road, Dublin Granville Road, Morse Road, Main Street and portions of Refugee Road.

Lighting on these streets should be designed to guide the motorist along the roadway and to orient the driver to potential destinations. Consistency in lighting treatment is of utmost importance. The basic service along arterial streets with no existing overhead lines consists of underground wires, aluminum poles and cobrahead fixtures. Lighting installations along these streets should consist of 250 to 400 watt, high pressure sodium lamps mounted at 35’ above the roadway. The recommended fixture on major streets is the overhead mast arm type. In an effort to reduce clutter along the streetscape, it is recommended that the overhead fixtures be attached to existing power poles when present. As the majority of installations in Columbus are currently on one side of the street, the Master Plan recommends continued one-sided installations. This consistency will result in better guidance and orientation. If two-sided installations are necessary, it is recommended that overhead fixtures be aligned or staggered along the roadway in a consistent manner. The widespread use of residential scale decorative fixtures on major streets will corrupt the hierarchical nature of the street lighting systems; therefore, they are not recommended along the major streets unless within a special district.

Planning Principles for Major Streets:

- Consistency in lighting is of utmost importance.
- Avoid visual clutter by installing new lights with underground wiring or by mounting decorative lights on existing poles.
- Avoid overlighting by not duplicating light fixtures (i.e., by adding residential scale fixtures to a street with existing overhead lights).

The Master Plan

Planning Principles and Design

Major Streets

- Consistency in lighting is of utmost importance.
- Avoid visual clutter by installing new lights with underground wiring or by mounting decorative lights on existing poles.
- Avoid overlighting by not duplicating light fixtures (i.e., by adding residential scale fixtures to a street with existing overhead lights).

Boulevards

Boulevards pose a special urban design situation. Depending on the width of the boulevard and the street in which they serve, boulevards visually break a wide street. This illustration depicts a wide street and wide boulevard. By narrowing the appearance of the street, the street conveys a more pedestrian friendly environment. Therefore, the use of pedestrian scale decorative lights is appropriate.

Wide major residential streets pose a difficult design situation. One, the traffic volume traveling on a major street is usually high and thus, the street must be safe and well-lit. However, residents also live on this street and prefer to walk in a more pedestrian friendly atmosphere. Consistency is very important for orientation purposes; mast arm installations would be the recommended choice.

This illustration exemplifies both overlighting and clutter. With both existing overhead lights and pedestrian scale light fixtures, this major street appears visually cluttered. The purpose of using pedestrian scale decorative fixtures is to help create a visually pleasing environment; with both lights, this purpose is defeated.

This illustration conveys the design principle of reducing clutter on a major street. By adding decorative light fixtures to the existing wood poles, there is less distraction for drivers; these fixtures also contribute to the special and unique character of the street.
Planning Principles and Design

Neighborhood Collector Streets

Neighborhood collector streets as defined within the Columbus Thoroughfare Plan carry less volume, have lower posted speeds and are narrower than arterial streets. Many of these streets have residential curb cuts. In pre-1960 developments, collectors generally extend through many neighborhoods. There may be more pedestrians along these streets than local streets.

It is recommended that new installations consist of 100 to 250 watt, high pressure sodium lamps mounted in either overhead or decorative fixtures. Overhead fixtures are recommended when the street does not have curbs; when the street is wider than three lanes; or otherwise serves to organize the local streets and to guide motorists to various destinations. If there are existing power poles, it is recommended that the fixtures be mounted on these poles to minimize visual clutter. The overhead installation will provide more guidance and orientation along these streets if they are located just on one side of the street. Decorative fixtures are recommended when the collector street has no existing aerial lines, when the street is three lanes or less, and serves residential driveways in the same manner as neighborhood streets.

Planning Principles for Neighborhood Collector Streets:

- Street widths
- Streets without curbs or sidewalks
- Existing power poles

The Master Plan

Street widths, building setbacks, sidewalks and curbs help determine the use of mast arm street lights or pedestrian scale street lights along neighborhood collectors. In this illustration of a wide residential street, post tops have been used to bring a more pedestrian character to the street. However, even with the sidewalks and curbs, the large house setbacks give the street an even wider appearance. Mast arm structures would appear more appropriate, even blending into the street environment.

This illustration demonstrates the design situation involving neighborhood collector streets without curbs or sidewalks. To avoid clutter, the mast arm light fixtures have been added to the existing wood power poles.

This illustration depicts the best example of street lights along wide streets with deep building setbacks. Although sidewalks and curbs are present, the mast arm street lights do not obstruct the street environment, blending in with the mature trees.

Streets without sidewalks obviously discourage pedestrian movement. The use of pedestrian scale street lights seems inappropriate, as seen in this illustration. Although the neighborhood collector street is narrow, the houses and buildings are set back far enough to merit the use of mast arm structures.
Street lighting in residential areas is planned to primarily benefit the pedestrian. At night, street lighting should provide the perception of safety and security and serve to invite pedestrian use of the street. During the day, lighting fixtures and poles must serve to complement the area. How street lighting can complement the area or neighborhood is a function of many variables. These variables include the physical condition, design and appearance of the neighborhood. The different variables include street widths, house styles, building setbacks, distances, whether the street has curbs or sidewalks, the maturity of the street tree canopy and the presence of existing power poles along the street.

It is recommended that new installations consist of 100 watt high pressure sodium lamps mounted in the City's standard overhead fixture or if so desired mounted in decorative overhead or decorative post top lamp fixtures. Installation of overhead lines should be limited to one side of the street. Underground installations within residential areas are most attractive when staggered.

As recommended by the Columbus Comprehensive Plan, street lighting decisions, like all capital improvements, should be based on an understanding of individual neighborhoods. The Comprehensive Plan provides considerable guidance in the designation of lighting installations. The Columbus Comprehensive Plan has classified Columbus neighborhoods into prototypes based upon shared common physical characteristics. These common physical characteristics suggest similar street lighting treatments. It is the intent of the Street Lighting Master Plan process to make hardware recommendations for each of the neighborhood prototypes. The designation of a preferred lighting treatment will accentuate the distinguishing characteristics of the neighborhood, increase the likelihood of one fixture being consistently applied throughout the neighborhoods, and bring continuity to the whole Columbus street lighting system.
**Wolfe Park Mock-up Site**

The purpose of the Mock-up site was to aid planning participants in making recommendations for a complete city-wide inventory of street light hardware. Located in Wolfe Park along the east side and on Broad Street, the Mock-up site allowed the public the opportunity to view a range of fixture and pole styles. The DOE, in collaboration with the consultants, chose a range of fixture and pole styles that were believed to have the greatest appeal to Columbus Neighborhoods. The site had a variety of post-top poles and fixtures, as well as different mast arm fixtures and poles.

The Columbus Division of Electricity and the street lighting consultants developed a sample menu of fixtures and poles, some or all of which permit the City to achieve the goals, objectives and planning principles listed above. The DOE sought public comment on which of these poles and fixtures should represent the City’s planned menu of street lighting choices. The survey concentrated on three important questions:

1. Which fixture and pole is most appropriate for your neighborhood?
2. Are you willing to pay a reasonable share of the installation cost over a ten-year period for an ornamental fixture and pole?
3. Is there a fixture of pole style that is not displayed but should be evaluated for inclusion within the City’s street light inventory?

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**The Master Plan**

**Planning Principles and Design**

**Street Light Inventory**

The essence of a city-wide street lighting system is a well-developed vocabulary of readily available fixtures and poles that are compatible with most urban design situations found on the streets and in the neighborhoods of Columbus. The fixtures and poles that will be incorporated into the Division of Electricity inventory will be those fixtures and poles that:

- meet manufacturer standards specified by the City
- obtain the illumination levels established by IES
- have the flexibility to work interchangeably with various fixtures and poles
- are economical and easy to maintain.

Most importantly, the fixtures and poles must be those that are preferred and desired by residents and property owners.

To meet its goals, at minimum the City should have a street light vocabulary consisting of the following:

- The basic service installation consisting of a cobrahead fixture and wood pole for both arterial and residential installations.
- An overhead decorative fixture and pole for arterial and business collector installations.
- A decorative post top type fixture and pole for residential installations.
- An overhead decorative fixture and pole for residential installations.
Planning Principles and Design

Introduction to Columbus Neighborhoods

A basic objective of this Street Lighting Master Plan is to establish and maintain an appealing inventory of street light fixtures and poles that enhance and promote the special character of the City’s neighborhoods.

Columbus neighborhoods can be classified into different neighborhood prototypes:

- Renaissance (Mid-1800’s to Early 1900’s)
- Streetcar (Late 1800’s to Early 1900’s)
- Postwar (Mid-1940’s to Late 1950’s)
- 1960’s Expansion (1960’s to 1970’s)
- Suburban (1970’s to Present)
- In City Estates (Predominantly Late 1800’s to Early 1900’s)**

Requirements for appropriate light fixtures and poles for a certain prototypical neighborhood will be made based upon enhancing and maintaining the positive identity and image of that neighborhood. The following are excerpts from the Columbus Comprehensive Plan describing the physical condition, design and appearance of each prototype neighborhood.

** Please note that this study has slightly altered the more detailed and defined neighborhood prototypes found in the Columbus Comprehensive Plan. For purposes of selecting appropriate street lights, it was determined that there were only slight differences in some neighborhood types, and therefore, they were combined.
Renaissance Neighborhoods (Mid-1800’s to Early 1900’s):

Renaissance neighborhoods are among Columbus’ oldest neighborhoods. They developed from the mid-1800’s to the early 1900’s spurred by the emergence of streetcar lines. Developed on a grid street system, Renaissance neighborhoods are characterized by single-family homes oriented to the street, with rear alley garages and carriage houses. Churches, stores, and restaurants are often integrated into residential areas. These activity centers are neighborhood-oriented and convenient for pedestrian access.

Another type of activity center that occurs in Renaissance neighborhoods is the mixed use corridor. Development is high density, generally more than two stories, with an intact streetscape. The market focus is both neighborhood and community. Streets are narrow, generally fewer than four lanes, with minimal setbacks, on-street parking, parking in the rear and few curb cuts. The Short North and Parsons Avenue between Broad and Town Streets are good examples of this type of activity center.

The character of Renaissance neighborhoods stems from mature vegetation, historic structures and infrastructure components (such as brick streets), mix of land uses, and passive recreation parks. Most Renaissance neighborhoods have experienced, and continue to experience, some degree of private reinvestment. Renaissance neighborhoods are located close to downtown and include German Village and portions of the near south; Victorian Village, Italian Village and portions of the Short North; and the Olde Towne East and Franklin Park areas on the near east.

- The Columbus Comprehensive Plan, 1993
The Master Plan

Planning Principles and Design

Required Fixtures for Renaissance Neighborhoods
(Mid 1800's to early 1900's)
Columbus Neighborhoods

Streetcar Neighborhoods (Late 1800's to Early 1900's):

Streetcar Neighborhoods (or The Way We Were) were developed on a grid street pattern. The residential component of these neighborhoods is comprised primarily of moderate to large single-family homes with some duplexes and apartments on the edge of the community. Houses generally have an on-street orientation with small front yards sloping up to wide front porches. Some neighborhoods have rear alleys as sole access to detached garages, while other neighborhoods have driveways through side yards to garages.

Churches, schools, stores, and restaurants are often integrated into residential areas. These activity centers are neighborhood-oriented and convenient for pedestrian access. Commercial/light industrial uses often occur on arterials. These corridors are generally four to six lanes wide, with minimal setbacks, on-street parking and remote parking, and few curb cuts.

The Streetcar neighborhoods sometimes experience parking congestion as they were not designed to handle large numbers of automobiles. Mature trees often create a "canopy" effect over the sidewalk and street and contribute to a strong sense of place. The Streetcar neighborhoods are found predominantly in the Clintonville, South Linden, and Hilltop areas with more isolated pockets on the east and south sides.

- The Columbus Comprehensive Plan, 1993
The Master Plan

Planning Principles and Design

Required Fixtures for Streetcar Neighborhoods - (Late 1800's to Early 1900's) and University Areas

Street Light #1
- 150 WATT HPS ACORN STYLE LUMINAIRE
- DECORATIVE POST TOP STYLE, FIBERGLASS PAINTED BLACK 15'

Street Light #2
- 100 WATT HPS LANTERN STYLE OCTAGONAL LUMINAIRE
- ARCADIAN DECORATIVE POST TOP STYLE, CAST IRON OR CAST ALUMINUM (PAINTED BLACK 13')

Street Light #3
- 55 WATT ATT LPS LUMINAIRE
- ALUMINUM BRACKET
- WOOD POLE

Street Light #4
- 250 WATT ATT HP STEARDROP STYLE LUMINAIRE
- TYPICAL MOUNTING HEIGHT 30'-0"

Street Light #5
- 100 WATT ATT HPS LANTERN STYLE OCTAGONAL LUMINAIRE
- ARCADIAN DECORATIVE POST TOP STYLE, CAST IRON OR CAST ALUMINUM (PAINTED BLACK 13')

Street Light #6
- 150 WATT HPS ACORN STYLE LUMINAIRE
- DECORATIVE POST TOP STYLE, FIBERGLASS PAINTED BLACK 15'

Street Light (Alley Light) #7
- 100 WATT HP STEARDROP STYLE LUMINAIRE
- TYPICAL MOUNTING HEIGHT 26'-0"

Street Light #8
- NEW POLAR RECOMMENDED TO ADD TO INVENTORY (PAINTED DARK GREEN)
- 250 WATT ATT HP STEARDROP STYLE LUMINAIRE
- TYPICAL MOUNTING HEIGHT 30'-0"

Street Light #9
- 150 WATT HPS ACORN STYLE LUMINAIRE
- DECORATIVE POST TOP STYLE, FIBERGLASS PAINTED BLACK 15'

Street Light (Alley Light) #7
- 100 WATT HP STEARDROP STYLE LUMINAIRE
- TYPICAL MOUNTING HEIGHT 26'-0"

Street Light #10
- 150 WATT HPS ACORN STYLE LUMINAIRE
- DECORATIVE POST TOP STYLE, FIBERGLASS (PAINTED BLACK)
The Master Plan

Planning Principles and Design

Columbus Neighborhoods

Postwar Neighborhoods (Mid-1940's to Late 1950's):

...The Postwar (or American Dream) neighborhoods were developed during the building boom that followed World War II. Land uses in these neighborhoods are separated. Most of the single-family housing is small to moderate in size. Apartments and townhouses are often found on the edge of the community. There is a greater similarity in housing than is found in Renaissance and Streetcar neighborhoods.

Postwar neighborhoods provided the seeds for the suburban development pattern, as these neighborhoods were the first to be auto-oriented. Although streets remained in the grid pattern, often with alleys, houses were situated in the center of lots and the wide front porches disappeared. With the beginning of the American Dream era, backyards were used more frequently as the on-street orientation of social activity began to dwindle. Consistent setbacks and minimal landscaping are common in these neighborhoods. Driveways through side yards to detached rear garages are also common.

Activity centers within the American Dream neighborhoods are generally characterized by community-oriented commercial land uses, often in the form of early shopping centers, such as Graceland, Central Point, and Town and Country. Highway-oriented commercial strips such as East Main Street and Cleveland Avenue are also common in Postwar neighborhoods. These strips are characterized by low density development of mixed age and use with little or no landscaping. Since initial development many of these corridors have undergone several cycles of transition, with a general erosion of vitality being the overall result. This decline was brought about by the construction of the interstate highway system.

Postwar neighborhoods are found in many locations, including portions of the Hilltop; south of Sullivant Avenue; the Beilows area in Franklin; and the Beechwold area of northern Clintonville...

- The Columbus Comprehensive Plan, 1993
The Master Plan

Planning Principles and Design

Required Fixtures for Postwar Neighborhoods - (Mid 1940's to late 1950's)

Street Light #1
- 100 WATT HPS ACORN STYLE LUMINAIRE
- DECORATIVE POST TOP STYLE, FIBERGLASS (PAINTED BLACK)
- TYPICAL MOUNTING HEIGHT 26'-0"

Street Light #2
- 150 WATT HPS ACORN STYLE LUMINAIRE
- DECORATIVE POST TOP STYLE, FIBERGLASS PAINTED BLACK
- TYPICAL MOUNTING HEIGHT 26'-0"

Street Light #3
- 100 WATT HPS LANTERN STYLE OCTAGONAL LUMINAIRE
- ARCADIAN DECORATIVE POST TOP STYLE, CAST IRON OR CAST ALUMINUM (PAINTED BLACK)
- TYPICAL MOUNTING HEIGHT 26'-0"

Street Light #4
- 100 WATT HPS CORBAREAD LUMINAIRE
- ALUMINUM BRACKET
- TYPICAL MOUNTING HEIGHT 26'-0"

Street Light #5
- 150 WATT HPS ACORN STYLE LUMINAIRE
- DECORATIVE POST TOP STYLE, FIBERGLASS PAINTED BLACK
- TYPICAL MOUNTING HEIGHT 15'

Street Light #6
- 100 WATT HPS ACORN STYLE LUMINAIRE
- DECORATIVE POST TOP STYLE, FIBERGLASS PAINTED BLACK
- TYPICAL MOUNTING HEIGHT 15'

...Development patterns changed dramatically in these neighborhoods, as the grid street pattern of earlier neighborhoods was replaced with a curvilinear system of wider streets. Building lots became larger; greater variation was achieved in housing styles with backyard-oriented ranch, split-level and two-story homes; and the natural environment became more dominant with park-like landscaping. Garage, landscaping and house designs obscure front doors and windows, continuing the trend toward residents' privacy. Sense of place or identity is moderate to weak, despite some physical consistency of setbacks, lot sizes and house designs. Multi-housing often serves as a buffer between single-family areas and activity centers.

Activity centers in the 1960's expansion neighborhoods are largely low density commercial and tend to be very automobile-oriented. They include early open shopping centers such as Northern Lights, and more modern shopping centers, such as Northland, Westland, and Eastland. Wide streets, large setbacks, surrounding parking, multiple curb cuts, and internal circulation systems are typically present. Schools and parks are often integrated into residential areas.

The 1960's Expansion neighborhoods are located in Northland, North Linden, and Eastmoor areas; in scattered locations on the west and south sides in the Knolls in the northwest; and in a corridor south of Livingston Avenue extending through Eastmoor and Berwick to the far east....

- The Columbus Comprehensive Plan, 1993

The Master Plan

Planning Principles and Design

Columbus Neighborhoods

Required Fixtures for 1960's Expansion Neighborhoods - (1960's to 1970's)

Planning Principles and Design

The Master Plan

Street Light #3

- 100 WATT HPS
- ACORN STYLE LUMINAIRE
- NEW POLE RECOMMENDED TO ADD TO INVENTORY (PAINTED BLACK)
- CAST ALUMINUM BASE

Street Light #4

- 100 WATT HPS
- TRADITIONAL STYLE LUMINAIRE
- NEW POLE RECOMMENDED TO ADD TO INVENTORY (PAINTED BLACK)
- CAST ALUMINUM BASE

Street Light #6

- 100 WATT HPS
- COBRAHEAD LUMINAIRE
- ALUMINUM BRACKET
- WOOD POLE
- TYPICAL MOUNTING HEIGHT 26'-0"

Street Light #13

- CUT-OFF STYLE LUMINAIRE
- 100/150/250 WATT HPS
- ALUMINUM SHORT ARM STYLE (PAINTED BRONZE)
- TRANSFORMER BASE
- CAST ALUMINUM BASE
- NEW POLE RECOMMENDED TO ADD TO INVENTORY (PAINTED BLACK)

Street Light #14

- CUT-OFF STYLE LUMINAIRE
- 100/150/250 WATT HPS
- TYPICAL MOUNTING HEIGHT 30' - 40'
- ALUMINUM SHORT ARM STYLE (PAINTED BRONZE)

Street Light #15

- 100 WATT HPS
- ACORN STYLE LUMINAIRE
- NEW POLE RECOMMENDED TO ADD TO INVENTORY (PAINTED BLACK)
- CAST ALUMINUM BASE

Street Light #16

- 100 WATT HPS
- TRADITIONAL STYLE LUMINAIRE
- CAST ALUMINUM BASE
- 14'

CITY OF COLUMBUS, OHIO

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF ELECTRICITY
Planning Principles and Design

Columbus Neighborhoods

Suburban Neighborhoods (1970's to Present):

...The Suburban (Up and Coming) neighborhoods represent Columbus' newest communities. They are heavily automobile-dependent and are generally segregated by land use. The residential component consists of single-family subdivisions containing moderate to larger homes with backyard orientation on curvilinear and court streets. Consistent curb cuts for attached garages and curb mailboxes establish uniformity along the street. In some instances mature vegetation and trees were left in place at the time of development. Moderate to upscale townhouses and apartments appear on the periphery of the single-family areas.

Most nonresidential uses in the Suburban neighborhoods are focused on or near major arterials. Such activity centers are characterized by single story buildings, having low-density suburban regional and community-oriented commercial land uses with some community facilities. Very wide streets, large setbacks, surrounding parking, multiple curb cuts, and internal circulation systems are typical.

The suburban neighborhoods are located predominantly in the northwest; however, some examples are found in the west and northeast with more expected in the next few years.

- The Columbus Comprehensive Plan, 1993
The Master Plan

Planning Principles and Design

Required Fixtures for Suburban Neighborhoods - (1970's to Present)

- Street Light #3
  - 100 WATT HPS ACORN STYLE LUMINAIRE
  - NEW POLE RECOMMENDED TO ADD TO INVENTORY (PAINTED BLACK)
  - CAST ALUMINUM BASE
  - ALUMINUM BRACKET
  - WOOD POLE
  - TYPICAL MOUNTING HEIGHT 26'-0"

- Street Light #6
  - 100 WATT HPS COBRAHEAD LUMINAIRE
  - ALUMINUM BRACKET
  - TRANSFORMER BASE
  - TYPICAL MOUNTING HEIGHT 30'-40'

- Street Light #9
  - 100 WATT HPS TRADITIONAL STYLE LUMINAIRE
  - NEW POLE RECOMMENDED TO ADD TO INVENTORY (PAINTED BLACK)
  - CAST ALUMINUM BASE
  - ALUMINUM SHORT ARM STYLE (PAINTED BRONZE)
  - TRANSFORMER BASE
  - TYPICAL MOUNTING HEIGHT 30'-40'

- Street Light #13
  - 100 WATT HPS CUT-OFF STYLE LUMINAIRE
  - 100/150/250 WATT HPS
  - TYPICAL MOUNTING HEIGHT 30'-40'
  - ALUMINUM SHORT ARM STYLE (PAINTED BRONZE)
  - TRANSFORMER BASE

- Street Light #14
  - 100 WATT HPS ACORN STYLE LUMINAIRE
  - TYPICAL MOUNTING HEIGHT 30'-40'
  - ALUMINUM SHORT ARM STYLE (PAINTED BRONZE)
  - TRANSFORMER BASE

- Street Light #16
  - 100 WATT HPS COBRAHEAD LUMINAIRE
  - ALUMINUM BRACKET
  - WOOD POLE
  - TYPICAL MOUNTING HEIGHT 26'-0"
In City Estates (Predominantly Late 1800's to Early 1900's):

...In City Estates neighborhoods are characterized by the commanding presence of environmental features including mature trees, natural vegetation, and in some instances, ravines and watercourses. Their attraction and desirability as single-family neighborhoods is drawn almost exclusively from their natural setting, although some boast large distinctive homes. Neighborhood streets are neither grid nor curvilinear, but follow more natural routes dictated by the terrain. Streets are generally narrow without curbs and sidewalks.

In City Estates neighborhoods are not associated with any one type of activity center. Rather, they are typically designed to mitigate the impact of adjacent nonresidential uses. In City Estates neighborhoods include Old Beechwold, Iuka Ravine, Overbrook Ravine, Wahhalo Ravine, and Glen Echo Ravine...

- The Columbus Comprehensive Plan, 1993
The Master Plan

Planning Principles and Design

Required Fixtures for In City Estate Neighborhoods - (Predominantly Late 1800's to Early 1900's)
The Master Plan

Planning Principles and Design

Listing of Required Fixtures for Major Streets and High Volume Collectors

Street Light #2

150 WATT HPS CORN STYLE LUMINAIRE

DECORATIVE PORT TOP STYLE, FIBERGLASS PAINTED BLACK

TYPICAL MOUNTING HEIGHT 26'-0"

WOOD POLE

Street Light #6

250 WATT HPS CORN STYLE LUMINAIRE

ALUMINUM BRACKET

NEW POLE RECOMMENDED TO ADD TO INVENTORY (PAINTED DARK GREEN)

TYPICAL MOUNTING HEIGHT 30'-0"

WOOD POLE STYLE

Street Light #8

250 WATT HPS TEARDROP STYLE LUMINAIRE

ALUMINUM BRACKET

TYPICAL MOUNTING HEIGHT 26'-0"

WOOD POLE

Street Light #10

250 - 400 WATT HPS CORN HEAD LUMINAIRE

TRUSS ARM STYLE ALUMINUM NATURAL FINISH OR PAINTED BRONZE

4'-12

MOUNTING HEIGHT

Street Light #11

400 WATT HPS HIGH MAST STYLE

WOOD POLE STYLE

ALUMINUM DECORATIVE UPRISE ARM (PAINTED GREEN)

4'-12'

MOUNTING HEIGHT

Street Light #13

CUT-OFF STYLE LUMINAIRE 250/400 WATT HPS

TRANSFORMER BASE

10'-0" OR 12'-0"

MOUNTING HEIGHT

Street Light #14

250 WATT HPS TEARDROP STYLE LUMINAIRE

TRANSFORMER BASE

5'-6"
The Master Plan

Planning Principles and Design

Listing of Required Fixtures for Local Residential Streets

Street Light #1
- 100 WATT HPS ACORN STYLE LUMINAIRE
- DECORATIVE POST TOP STYLE, FIBERGLASS (PAINTED BLACK)
- 12'-6"

Street Light #2
- 100 WATT HPS ACORN STYLE LUMINAIRE
- 14'

Street Light #3
- 100 WATT HPS TRADITIONAL STYLE LUMINAIRE
- NEW POLE RECOMMENDED TO ADD TO INVENTORY (PAINTED BLACK)
- CAST ALUMINUM BASE
- 14'

Street Light #4
- 100 WATT HPS LANTERN STYLE OCTAGONAL LUMINAIRE
- ARCADAHN DECORATIVE POST TOP STYLE, CAST IRON OR CAST ALUMINUM (PAINTED BLACK)
- 13'

Street Light #5
- 100 WATT HPS COBRA HEAD LUMINAIRE
- 4'-12'

Street Light #6
- 55 WATT LPS LUMINAIRE
- TYPICAL MOUNTING HEIGHT 26'-0"
- ALUMINUM BRACKET
- WOOD POLE

Street Light #7
- 100 WATT HPS TEARDROP STYLE LUMINAIRE
- TYPICAL MOUNTING HEIGHT 26'-0"
- ALUMINUM BRACKET
- WOOD POLE Style

Street Light #8
- 100 WATT HPS ACORN STYLE LUMINAIRE
- NEW POLE RECOMMENDED TO ADD TO INVENTORY (PAINTED BLACK)
- CAST ALUMINUM BASE
- 14'

Street Light #9
- 100 WATT HPS ACORN STYLE LUMINAIRE
- NEW POLE RECOMMENDED TO ADD TO INVENTORY (PAINTED BLACK)
- CAST ALUMINUM BASE
- 14'

Street Light #10
- 100 WATT HPS OCTAGONAL LUMINAIRE
- ARCADAHN DECORATIVE POST TOP STYLE, CAST IRON OR CAST ALUMINUM (PAINTED BLACK)
- 13'

Street Light #11
- 100 WATT HPS ACORN STYLE LUMINAIRE
- 12'-6"
- DECORATIVE POST TOP STYLE, FIBERGLASS (PAINTED BLACK)
- NEW POLE RECOMMENDED TO ADD TO INVENTORY (PAINTED BLACK)
- CAST ALUMINUM BASE
- 14'

Street Light #12
- 100 WATT HPS COBRA HEAD LUMINAIRE
- NEW POLE RECOMMENDED TO ADD TO INVENTORY (PAINTED BLACK)
- CAST ALUMINUM BASE
- 14'

Street Light #13
- 100 WATT HPS TRADITIONAL STYLE LUMINAIRE
- TYPICAL MOUNTING HEIGHT 13'-0"
- ALUMINUM SHORT ARM STYLE (PAINTED BRONZE)
- TRANSFORMER BASE

Street Light #14
- 100 WATT HPS LANTERN STYLE OCTAGONAL LUMINAIRE
- ARCADAHN DECORATIVE POST TOP STYLE, CAST IRON OR CAST ALUMINUM (PAINTED BLACK)
- 13'

Street Light #15
- 100 WATT HPS COBRA HEAD LUMINAIRE
- NEW POLE RECOMMENDED TO ADD TO INVENTORY (PAINTED BLACK)
- CAST ALUMINUM BASE
- 14'

Street Light #16
- 100 WATT HPS TRADITIONAL STYLE LUMINAIRE
- TYPICAL MOUNTING HEIGHT 13'-0"
- ALUMINUM SHORT ARM STYLE (PAINTED BRONZE)
- TRANSFORMER BASE

Street Light #17
- 100 WATT HPS LANTERN STYLE OCTAGONAL LUMINAIRE
- ARCADAHN DECORATIVE POST TOP STYLE, CAST IRON OR CAST ALUMINUM (PAINTED BLACK)
- 13'

Street Light #18
- 100 WATT HPS COBRA HEAD LUMINAIRE
- NEW POLE RECOMMENDED TO ADD TO INVENTORY (PAINTED BLACK)
- CAST ALUMINUM BASE
- 14'

Street Light #19
- 100 WATT HPS TRADITIONAL STYLE LUMINAIRE
- TYPICAL MOUNTING HEIGHT 13'-0"
- ALUMINUM SHORT ARM STYLE (PAINTED BRONZE)
- TRANSFORMER BASE

Street Light #20
- 100 WATT HPS LANTERN STYLE OCTAGONAL LUMINAIRE
- ARCADAHN DECORATIVE POST TOP STYLE, CAST IRON OR CAST ALUMINUM (PAINTED BLACK)
- 13'
The Master Plan

Planning Principles and Design

Inventory Description

Street Light #1

Existing City Location: Installed in the James-Thurber Street Area; Weber-North Broadway Area

150 WATT HPS ACORN STYLE LUMINAIRE
100 WATT HPS ACORN STYLE LUMINAIRE

Acor Style Luminaire
100 HPS Lamp
12'-6" Lamp Mounting Height
Luminaire Cost: $650.00*

Decorative Post Top Style
Pole - Fiberglass (Painted Black)
Typical Pole Spacing: 180'
Staggered Pole Arrangement
Pole Cost: $950.00*

Underground Wiring
Foundation Pole Mounting

Standard Inventory
Combined Cost: $1,600.00*

*Cost Does Not Include Cost of Installation

Street Light #2

Existing City Location: None installed (proposed pole)

150 WATT HPS ACORN STYLE LUMINAIRE

Acor Style Luminaire
150 HPS Lamp
15' Lamp Mounting Height
Luminaire Cost: $675.00*

Decorative Post Top Style
Pole - Fiberglass (Painted Black)
Typical Pole Spacing: 180'
Staggered Pole Arrangement
Pole Cost: $1,350.00*

Underground Wiring
Foundation Pole Mounting

These both will require DOE review and approval for installation. Cast iron pole may be used in areas where vandalism is a concern and in high pedestrian usage areas. This post top fixture may be an option when there are no existing utility poles and overhead wires along the same side of the street.

Combined Cost: $2,025.00
Planning Principles and Design

Inventory Description

The Master Plan

Street Light #3

Existing City Location: Non installed (Proposed Pole)

- Acorn Style Luminaire
  - 100 HPS Lamp
  - 14' Lamp Mounting Height
  - Luminaire Cost: $650.00*
- Pole with decorative base
  - Cast Aluminum
- Typical Pole Spacing: 180'
- Staggered Pole Arrangement (One Side with DOE approval)
- Pole Cost: $450.00*
- Underground Wiring
  - Direct Burial
- Direct burial and one sided installations will be approved at the discretion of the DOE. This installation will generally be limited to instances where the street lights are installed during the construction of new roads.
- Combined Cost: $1,100.00

*Cost Does Not Include Cost of Installation

Street Light #4

Existing City Location: None installed - (Proposed pole)

- 100 WATT HPS
  - TRADITIONAL STYLE LUMINAIRE
- NEW POLE RECOMMENDED TO ADD TO INVENTORY (PAINTED BLACK)
- CAST ALUMINUM BASE
- 14'

- New Pole Recommended to Add to Inventory (Painted Black)
- Cast Aluminum Base
- 14'

- Traditional Style Luminaire
  - 100 WPS Lamp
  - 14' Lamp Mounting Height
  - Luminaire Cost: $650.00*
- Decorative Stick Pole with Decorative Split Base - Cast Aluminum
- Typical Pole Spacing: 180'
- Staggered Pole Arrangement
- Pole Cost: $450.00*
- Underground Wiring
- Foundation Pole Mounting
- Combined Cost: $1,100.00
**Planning Principles and Design**

**Inventory Description**

**The Master Plan**

**Cost Does Not Include Cost of Installation**

Cobrahead Luminaires

- 100 WATT HPS Lamp
- 26' Lamp Mounting Height
- Luminare Cost: $150.00*

Wood Poles

- Typical Pole Spacing: 180'
- Staggered Pole Arrangement
- Pole Cost: $450.00*

Arcadian Decorative Post Top Style Poles - Cast Iron or Cast Aluminum (Painted Black)

- Typical Pole Spacing: 180'
- Staggered Pole Arrangement
- Pole Cost: $1,300.00*

Underground Wiring

- Pole Standard Inventory - Luminaire Proposed
- Combined Cost: $1,900.00*

*100 WATT HPS LANTERN STYLE OCTAGONAL LUMINAIRE

- **Street Light #5**

**Existing City Location:** None Installed - (Proposed Luminaire)

- **100 WATT HPS COBRAHEAD LUMINAIRE**

**Street Light #6**

**Existing City Location:** Installed in the James-Broad Street Area

- **100 WATT HPS COBRAHEAD LUMINAIRE**
Planning Principles and Design

Inventory Description

The Master Plan

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**Street Light (Alley Light) #7**

**Existing City Location:** Alleys only - Clinton Heights Area

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**Street Light #8**

**Existing City Location:** German Village

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Low Pressure Sodium (LPS) Luminaire
55 LPS Lamp
26' Lamp Mounting Height
Luminaire Cost: $150.00*

Wood Pole
Typical Pole Spacing - As Needed
One Side Pole Arrangement
Pole Cost: $450.00*

Aerial Wiring
Direct Burial

Standard Inventory - Should be used in alleys only

Combined Cost: $600.00*

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Teardrop Style Luminaire
100 HPS Lamp
26' Typical Lamp Mounting Height
Luminaire Cost: $950.00*

Wood Pole
Typical Pole Spacing - 180'
Staggered/One Side Pole Arrangement

Pole Cost: $450.00*

Aerial Wiring
Direct Burial

This installation is to be used on streets with existing aerial cables or to fill in the gaps of existing lighting systems.

Combined Cost: $1,400.00*

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*Cost Does Not Include Cost of Installation*
**Street Light #9**

**Existing City Location:** None installed - pole proposed

- **Teardrop Style Luminaire**
  - 250 HPS Lamp
  - 30' Lamp Mounting Height
  - Luminaire Cost: $950.00
  - Aluminum Base with Steel Fluted Shaft (Painted Green)
  - Pole Spacing: 180' - 200'
  - Staggered Pole Arrangement
  - Pole Cost: $2,900.00
  - Underground Wiring
  - Foundation Pole
  - Requires DOE approval for installation
  - Combined Cost: $3,850.00

*Cost Does Not Include Cost of Installation

**Cost Includes:** Luminaires, Poles, Underground Wiring, Foundation Pole Mounting

This installation should be used on streets located outside of dense existing or developing commercial areas where standardization and uniform appearance are desired. Typical application includes streets extending through many commercial developments. These commercial developments have deep building setbacks and are generally not extensively landscaped. This installation should also be utilized to fill in the gaps in existing lighting systems of similar style in order to provide continuity of street appearance.

Combined Cost: $2,050.00

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**Street Light #10**

**Existing City Location:** None installed - pole proposed

- **Cobrahead Style Luminaire**
  - 250 - 400 HPS Lamp
  - 30'-40' Lamp Mounting Height
  - Luminaire Cost: $250.00
  - Aluminum Truss Arm Style Pole (Natural Finish)
  - Pole Spacing: 200'
  - Opposite/Staggered/ One Side Pole Arrangement
  - Pole Cost: $1,800.00
  - Underground Wiring
  - Foundation Pole Mounting

**Cost Includes:** Luminaires, Poles, Underground Wiring, Foundation Pole Mounting

This installation should be used on streets located outside of dense existing or developing commercial areas where standardization and uniform appearance is desired. Typical application includes streets extending through many commercial developments. These commercial developments have deep building setbacks and are generally not extensively landscaped. This installation should also be utilized to fill in the gaps in existing lighting systems of similar style in order to provide continuity of street appearance.

Combined Cost: $2,050.00
Street Light #1

Existing City Location: Pole and luminaire located on portions of West Dublin-Granville Road and at certain intersections on Bethel Road.

Cutoff Style Luminaire
100/150/250 WATT HPS
TYPICAL MOUNTING HEIGHT 30' - 40'
ALUMINUM SHORT ARM STYLE (PAINTED BRONZE)
TRANSFORMER BASE

High Mast Style Luminaire
400 HPS Lamp
40' Lamp Mounting Height
Luminaire Cost: $700.00*

Aluminum Low Mast Style Pole
(Natural Finish)
Pole Spacing: 200'
Opposite Pole Arrangement
Pole Cost: $1,600.00*

Underground Wiring
Foundation Pole Mounting

This installation should be used on high traffic volume streets with exceptionally wide pavement surfaces; and wide streets with adjacent service roads and intersections that need illumination. It is recommended that this installation be restricted from streets where adjacent properties are extensively landscaped. This installation will be used at the discretion of the DOE.

Combined Cost: $2,300.00*

*Cost Does Not Include Cost of Installation

Street Light #3

Existing City Location: Installed on Mt. Vernon Avenue (Luminaire Only) and Downtown Areas

Cutoff Style Luminaire
100/150/250 WATT HPS
TYPICAL MOUNTING HEIGHT 30' - 40'
ALUMINUM SHORT ARM STYLE (PAINTED BRONZE)
TRANSFORMER BASE

Combined Cost: $2,300.00*

*Cost Does Not Include Cost of Installation
Street Light #14

Existing City Location: Installed on Fodor Road

Teardrop Luminaires
- 250 HPS Lamp
- 29' Lamp Mounting Height
- Luminaire Cost: $950.00*

Decorative Up Rise Arm Pole - Aluminum (Painted Green)
- Pole Spacing by Design
- Opposite Pole Arrangement
- Pole Cost: $1,200.00*

Underground Wiring

Foundation Pole Mounting

Use of this installation by developers will require DOE review and approval of detailed development plans. This installation is to be used on streets located within historic neighborhoods or planned development areas. Typical application includes streets with shallow building setbacks or streets where adjacent properties are extensively landscaped.

Combined Cost: $2,150.00*

*Cost Does Not Include Cost of Installation

The Master Plan

Planning Principles and Design

Inventory Description
Lights #1,3,4,5,6,7,8,13 are fixtures for local residential streets.

Lights #2,6,8,9,10,11,13,14 are fixtures for major streets and high volume collectors.
The Master Plan
Part III: Implementation
Project 2020 Priorities

Five year strategy

1. Capital proposal:
   - Earmark system improvements in poorly lit areas.
   - Concentrate on small remaining scattered pockets of unlit areas.
   - Develop bond package to light neighborhoods that are within planning areas that are part of the 1950 boundaries.
   - Set aside additional funds to contribute toward assessment projects.

2. Preparation:
   - The Division of Electricity (DOE) staff, with support from the Divisions of Planning and Traffic, and the Police Department, will use established criteria to develop a phasing strategy to begin and complete lighting projects in the following areas:
     - South:
       - Near South/Buckeye
     - East:
       - Eastmoor/Walnut Ridge
     - West:
       - Hilltop
     - North:
       - Clintonville/North Linden
   - The DOE staff will meet with existing neighborhood groups or form a street lighting committee. The process should include property owners as well as renters.

3. Decisions:
   - The neighborhood group or committee will:
     - Establish the preferred ornamental fixture.
     - Fine tune the phasing strategy.
     - Initiate a process that will determine if at least 60% of the lot owners are willing to pay for ornamental street lights.

4. Cost Estimation
   - The DOE will have the proposed project designed and engineered in order to determine the cost to each property owner within the project area.

5. Petition
   - A petition will be circulated in the neighborhood to determine if the City’s basic service is to be installed at no cost, or if underground wiring and decorative fixtures are to be installed at a specified cost per lot.
   - Lighting Choices:
     - Overhead at no cost
     - Underground at a specific predetermined cost per lot to be spread over 10 years

6. Time frame:
   - Two years (flexible) to collect signatures of 60% of the lot owners.

7. Potential Results:
   - The preferred ornamental fixtures will be installed throughout the neighborhood.
   - The basic service will be installed if it is determined that residents want street lights but prefer not to be assessed.
   - The program will move to a different area if residents do not want the overhead service and prefer not to be assessed for ornamental fixtures.

8. Evaluation:
   - The process described above begins to integrate the bond package strategy of past years with planning objectives that work toward more do want the overhead wiring and others want the underground installation. Project 2020 may continue along the same process. If neighborhoods are opting entirely for ornamental fixtures and poles, Project 2020 may become strictly an assessment/ request program. If the strategy results in little implementation, then the whole goals and timing of Project 2020 may change and new priorities will be established.

The Master Plan

Implementation

- To address the issues identified at the beginning of the process, it is recommended that the Division of Electricity conduct a five year implementation process. This process unites the past approach (the opportunity to obtain overhead street lights at no charge) with a new proactive approach to easing the assessment process for underground installation. The general strategy recommended by the Street Lighting Master Plan will accomplish the following:
  - Serve to initiate lighting projects city-wide.
  - Designate project areas within partially lit planning areas representing up to 80% of the City's street lighting bond capacity. (Provide the choice between the basic service and assessment.)
  - Designate the remainder of the funds toward contributions to assessment projects in smaller areas.
  - Identify a step by step process to choose these areas using the criteria developed within the Master Plan.
  - Provide for a neighborhood based implementation process.
Existing Assessment Process

Part I

1. Interested property owner(s) contact the Division of Electricity (DOE).
2. The DOE mails a packet of materials to the requestor.
3. A petition is prepared by the City (estimated cost).
4. The requestor canvasses an area of his/her choice in order to:
   • Get a consensus on a preferred street light.
   • Choose a method of assessment.
   • Secure signatures of owners of 60% of the foot
     frontage of property abutting the improvement.

Part II

1. The petitions are submitted to the DOE and the City Clerk.
2. The City Council passes a resolution to prepare plans.
3. The City Council passes a resolution of necessity.
4. The DOE engineers file estimated assessment with the City Clerk.
5. The City clerk sends notices to affected property owners.
6. There is a two-week waiting period for objections to the assessment.
7. A Board of Revision is appointed if there are objections.
8. An ordinance to proceed is prepared.
9. A construction contract is prepared, opened and awarded.
10. Street lights are installed.
11. Property owners are billed for assessment; this may be paid in 30 days or it may be added to the tax
duplicate with interest. To be paid over 10 years.

Three Methods of Assessment

Property owners agree to pay for the cost of the street light improvements that will benefit their property. The actual cost of the improvement is divided among all of the property owners within the assessment boundaries. There are three methods for assessment. The most popular method is one that establishes the cost in direct proportion to the benefits which may result from the improvement. In the case of a single family neighborhood, the project costs are equally divided among the homeowners within the petition area. Other methods include dividing the costs by a percentage of tax value of the property assessed, or by front footage of all of the property abutting the project. The latter method may be preferable when there is a large discrepancy in the width of lots within the neighborhood or a mix of different types of land uses.

The Master Plan recommends the proportional benefit method be used as most homeowners will benefit equally from the installation of street lights.

Master Plan Implementation

The Master Plan will establish implementation procedures for three (3) types of areas:

1. Partially lit planning areas - these neighborhoods are where the City will concentrate its capital improvement efforts over a five to six year period. This effort will provide the residents the opportunity to receive the City’s basic service or to participate in a city-facilitated assessment process.
2. Larger unlit neighborhoods - these neighborhoods will eventually become the focus of a city-initiated installation program; in the meantime, residents will still have the opportunity to petition for decorative street lights. In these areas, the petition process will be initiated and completed by the property owners with less assistance from the City. The Street Light Master Plan will establish minimum size assessment boundaries for the areas.
3. Small unlit areas - these areas will address the lighting needs of residents who request ornamental lighting that is identical to the lighting that is present on adjacent streets. There will be no minimum assessment size for these areas throughout the City.

The Master Plan

Implementation

Assessment Procedure

Since 1993, the DOE has assessed owners of approximately 1,650 lots the cost of installing decorative street lights. To date the burden has been on the interested property owners to generate interest among their neighbors, to choose a fixture style for the area, and finally, to secure names on a petition.

There are presently many fine examples of successful voluntary projects; however the voluntary assessment process is not without some issues that need to be addressed. These issues include the following:

1. Only petitioners are involved in choosing the fixture and pole style.
2. The effort and difficulty necessary to secure signed petitions results in relatively small assessment areas.
3. From request to installation, the process takes approximately two years to complete.
4. It is very likely that given the future preference for ornamental street lights, Project 2020 may be exclusively an assessment process.

To resolve these issues, the Street Lighting Master Plan will make recommendations that will streamline Part I of the assessment process as it is generally described at left. Part II is prescribed by state and municipal law.
Proactive Implementation

In order to achieve the goals and objectives of the Street Lighting Master Plan, (to provide neighborhood choice, to maintain consistency and continuity in application, and to actively put new wiring installation underground), the City government must become much more proactive in the street lighting assessment process.

1. Meet with established neighborhood groups to discuss phasing strategies and choices.
   - Send out standard notice to targeted areas that the DOE is planning to install street lights.
   - Indicate that the City is actively pursuing safety, security and aesthetic design and planning objectives.
   - Identify the lighting choices provided in the Master Plan for that neighborhood. The letter will also invite residents to a meeting at which the available choices and process will be explained. Those in attendance may vote on their choice.

2. Form a neighborhood decision making panel to make decisions on the appropriate installation if not already done.
   - Conduct meeting(s) with the panel.
   - Decisions will be forwarded to the applicable area or neighborhood commission for review and approval.

3. A petition is prepared by the City.
   - City will choose boundaries of the area and provide an estimated cost of the preferred installation.

4. The neighborhood will circulate the petition to property owners and hope for good response. Solicit neighborhood help to circulate petitions and do follow ups.

5. Plot the returns on the Auditor’s property map of the neighborhood.

6. Initiate project when 60% of households have signed.

Columbus has deemed street lighting to be a public service provided to all residents. By eliminating all cost to the taxpayer, as part of the basic service, the City will only install lighting that includes overhead wiring. Underground decorative lighting must be paid for by the benefiting property owner through a property assessment.

Although the City is prepared to install the basic service, all residents are encouraged to participate in a voluntary assessment program for decorative street lights. This program will result in a more safe and secure, as well as more attractive, neighborhood. The assessment program will require residents to circulate a petition.

Please review the information on the back of this notice. For further information or questions, please call Linda Scothorn at 645-7295 or Ted Vollmuth at 645-7038. There will also be a neighborhood meeting to explain the program and to answer questions.

Lighting choices for your neighborhood were established by the Columbus Street Lighting Master Plan.

Basic Service Street Light:
- Installed at no cost to the property owner.
- Power costs to be paid by the City.

Preferred Neighborhood Street Light:
- Requires the signatures of at least 60% of the property owners abutting the improvement.
- Each property owner’s share of the cost will be $1200.00 per lot.
- This cost may be put on a tax duplicate and spread over 10 years (with interest not to exceed $25.00)
- Power cost to be paid by the City.

The Master Plan

Implementation

- Partially Lit Planning Areas/Target Neighborhoods

- Target Neighborhoods within partially lit planning areas will be the boundaries of the City of Columbus’ direct involvement of providing the street lighting public service.
- It’s within these neighborhoods that the City will use voted bond money to install the basic service installation as it has done under Project 2020 throughout the City. Unlike previous years, given the adopted goals and objectives of the Street Lighting Master Plan, the street lighting program will include a city-facilitated process to guide petitions for decorative street lights. This program will include:
  - An affirmation that post top street lights are the preferred installation; however, the basic service is still available.
  - Pre-designated assessment area boundaries.
  - A City letter campaign advising residents of the program.
  - Pre-engineering and cost estimate at the commencement of the process.

- Proactive Implementation

- In order to achieve the goals and objectives of the Street Lighting Master Plan, (to provide neighborhood choice, to maintain consistency and continuity in application, and to actively put new wiring installation underground), the City government must become much more proactive in the street lighting assessment process.

- 1. Meet with established neighborhood groups to discuss phasing strategies and choices.
  - Send out standard notice to targeted areas that the DOE is planning to install street lights.
  - Indicate that the City is actively pursuing safety, security and aesthetic design and planning objectives.
  - Identify the lighting choices provided in the Master Plan for that neighborhood. The letter will also invite residents to a meeting at which the available choices and process will be explained. Those in attendance may vote on their choice.

- 2. Form a neighborhood decision making panel to make decisions on the appropriate installation if not already done.
  - Conduct meeting(s) with the panel.
  - Decisions will be forwarded to the applicable area or neighborhood commission for review and approval.

- 3. A petition is prepared by the City.
  - City will choose boundaries of the area and provide an estimated cost of the preferred installation.

- 4. The neighborhood will circulate the petition to property owners and hope for good response. Solicit neighborhood help to circulate petitions and do follow ups.

- 5. Plot the returns on the Auditor’s property map of the neighborhood.

- 6. Initiate project when 60% of households have signed.

The Master Plan

Implementation

- Partially Lit Planning Areas/Target Neighborhoods

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Implementation
Non-target Neighborhoods

The assessment program is not to be limited to target areas. All neighborhoods are encouraged to participate and actively pursue street light improvements. The StreetLighting Master Plan has identified three types of neighborhood situations and developed implementation recommendations to ensure consistency, timely installation, and to ensure a sizeable impact within the neighborhood.

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These neighborhoods [or areas] include the following:

1. Large Neighborhoods within unlit planning areas
2. Small areas adjacent to area with street lighting
3. Developing neighborhoods.

The Master Plan
Implementation
Non-target Neighborhoods

1. Large Neighborhoods within unlit planning areas
2. Small areas adjacent to area with street lighting
3. Developing neighborhoods.

Large Neighborhoods in Unlit Planning Areas

These neighborhoods include Northland, Northwest Civic, West Olentangy, North East, Far North and others. These are neighborhoods where street lights have not been installed to any extent within the planning area. There is no record of any assessments within these neighborhoods, although there may be some developer installed street lights in new subdivisions.

The expressed need for street lighting within these areas is mixed and scattered. Since utility lines are mostly underground within these neighborhoods, it is presumed if not expected, that property owners will prefer the underground decorative installations.

In the meantime, the City will support and provide guidance to citizen-initiated assessment campaigns in all neighborhoods. These petition requests may be commenced at any time. The only change recommended to the existing assessment process is to establish a minimum size assessment area. This size requirement will serve to create a noticeable impact within the neighborhood, maintain momentum and enthusiasm for street lights, and most importantly, maintain consistency and continuity of street light installations.

The strategy within non-targeted neighborhoods will:

• Require an assessment area of 90 to 100 households (approximately 25 fixtures).
• Provide ongoing guidance to assessment initiatives.
• Replace citizen initiative with City program in future years.

Scattered Unlit Neighborhoods Adjacent to Lighted Areas

The Master Plan also recommends a lighting improvement strategy for neighborhood areas that are adjacent to areas that already have street lights. If the unlit area is adjacent to or within a targeted area, the area should be included within the target area and improved along with the rest of the neighborhood. If the area is adjacent to an area with the basic service installation, and residents of the area want the basic service, the City should install the basic service as funding is available.

In the instance where the neighborhood area is adjacent to an area with decorative fixtures, the City should support petitions of any size for installations of the same decorative fixture found on the adjacent street.

Developing Neighborhoods

Street lighting has been required in new subdivisions since 1990. Developers have primarily chosen the direct burial fiberglass pole and acorn fixture or the spun aluminum pole with a cobra head fixture. The acorn fixture has been chosen almost exclusively over the last few years. In the interest of consistency, continuity and the enhancement of a city-wide street lighting system, it is recommended that the acorn/fiberglass post top installation be installed city-wide. This installation is more attractive in a staggered pattern along the street. Timely installation at the time of construction may require the straight line pattern to be used.
Special Permit Criteria

While the Street Lighting Master Plan addresses the minimum needs of a public street lighting system, a need still exists for specialty lighting that addresses the functional and design needs of certain areas of the City. The use of special lighting should be limited to “districts” that have design characteristics that do not fit typical urban design characteristics found throughout the City. Public improvements alone should not be used to create a special district, but rather be used to accentuate the existing or proposed building design or pedestrian activity. In designating a special district the following must be demonstrated:

- The district has well articulated urban design goals that are consistent with city-wide design goals.
- The district includes special pedestrian-oriented functions.
- The architecture of the district bears consistent relation to the street.
- The project is associated with the community and economic development goals of the community.

For public and quasi-public proposals, the City Council must make a finding that the special public improvements that are afforded to a district will have benefits that accrue to the entire City and not just the property owners within the district. In the case of private proposals, the City Council must make the following findings:

- That the street lighting proposal is consistent with the goals and objectives of the Street Lighting Master Plan.
- That all street lighting hardware is of a standard that meets the DOE’s requirements for hardness and lighting levels.
- That the developer/property owner enter into an agreement with the DOE to purchase and install the specialty hardware.
- That the developer/property owner enter into an agreement with the DOE to:
  - maintain the installations and
  - pay for additional electricity costs if the proposal requires more street lights than the City typically provides.

Review and Approval Process

1. A request for special district status is filed with the DOE.
   The request will contain the following information:
   - Proposed district location and boundaries
   - Names and addresses of the property owners within the district
   - A conceptual street lighting plan identifying existing and proposed street lighting within the district
   - A detailed statement justifying how the unique characteristics of the proposed district warrant the use of distinctive lighting hardware and/or design.
   This statement may incorporate the following:
   - Identify the urban design goals of the proposed district. How are these goals consistent with city-wide community development and design goals?
   - Is the proposal associated with the economic development goals of the community? If so, how?
   - Describe the special pedestrian-oriented functions that require specialty lighting.
   - Indicate how the building architecture of the district and the proposed street lights will work together to maintain a consistent relation to the street.

2. The DOE will review the request for clarity and completeness and forward copies of the completed request to the Division of Planning and to the Division of Engineering and Construction.
3. The staff of these divisions will review the request and prepare a report that will be sent to the Division of Electricity.
4. The DOE will prepare its report and forward the request and the staff reports to City Council for approval.

The Master Plan

Implementation

- Special Permits
  - The Street Lighting Master Plan identifies the minimum hardware and design requirements that are necessary for public street lighting. The Master Plan recognizes that there is a need for street lighting that exists beyond typical or standard situations. However, there are a number of issues that must be addressed and/or considered before a decision on specialty lighting can be made. These issues include the following:
    - Implementation - the extra cost for the City to maintain many installations styles.
    - Poor lighting designs may be a safety problem and overlighting will waste electricity.
    - The additional costs for hardware and electricity will negatively impact the City’s ability to maintain the self-sustaining nature of the street lighting program.
    - Poor continuity of fixture types will look haphazard and be disorienting.
    - The City will never be able to satisfy the design tastes of small groups or individuals.
    - Often requests for specialty lighting will involve multiple municipal goals that need prioritizing.
Maintenance Factors

No lighting installation continues to provide the original design levels over time because lamps become less efficient, fixtures become dirty, lamp and fixture electrical components fail and there will always be the usual number of knocked down poles and downed wires. As the number of street lights grows, the expense of maintaining the system will become a greater concern.

A systematic maintenance program must be based on certain factors, included among some of the non-technical factors are the following:

- General lamp lumen depreciation—each lamp has a rated life that is based on the number of hours the lamp is illuminated. The efficiency of a lamp diminishes over time even though it appears the lamp is still burning brightly. The rated life of the high pressure sodium lamps used by the City of Columbus is approximately five years.
- Dirty lamps—The accumulation of dirt on the luminaire also results in a loss of light output. There may be certain areas of the City where the lamps may get dirty rather quickly such as construction areas or certain roadway conditions.
- Luminaire component depreciation—The metal, paint and plastic of the various component parts all depreciate under various conditions. The standard inventory adopted as part of this Plan will reduce the need for mixed component parts throughout the system.
- Burnouts—burnouts will generally occur at various times even on lamps that are illuminated the same number of hours. A systematic replacement program will estimate the number of burnouts that will occur before the time of replacement is reached.

Recommended Maintenance Program

It is the recommendation of the Master Plan that the Division of Electricity (DOE) prepare and implement a systematic maintenance program that will relamp major areas of the City every five years. In determining group replacement areas the following should be considered:

- The total light standards included in group replacements should equal about one-fifth of the total light pole inventory.
- Group replacements should consist of complete circuits.
- Neighborhoods identified in the plan should be the basis of the replacement program as they represent logical service boundaries within the system.
- Group replacement areas should be distributed around the entire City on a yearly basis.
- Over each maintenance cycle each fixture will have its lamp replaced, the luminaire will be cleaned, the ballast and electric wiring will be checked and replaced as necessary and the pole will be painted or refurbished as necessary.
- The DOE should collaborate with the Recreation and Parks Department in dealing with street trees and their maintenance. The DOE should follow recommendations for tree pruning to minimize conflict with street lighting.

Benefits of a Relamping Program

A regular ongoing relamping program will serve to accomplish the following:

- It will increase overall system reliability and reduce cost.
- The regular program will increase safety as there will be fewer outages over the years.
- Systematic maintenance may be effective in reducing exposure to liability.
- The program will demonstrate to the public that all areas within the City receive equal proactive maintenance on a regular basis.
- Converting the old system will result in more efficient light sources.

Special Note on GIS

The geographical information system (GIS) now being evaluated for use by all city divisions is sure to become an invaluable tool. The Division of Electricity will use to map its entire lighting system, to track all items related to maintaining the system and to eventually keep and maintain all records and actions related to hardware and parts inventory.

The inventory map prepared as part of the Master Plan is to serve as the first step toward GIS programing. This work included the mapping of all circuits presently on the lighting system and identifying whether the circuit consists of an overhead or underground system. The inventory map may easily be electronically updated as new lines and circuits are installed. It is also recommended that the Division begin a program that will locate every installation with the system. This may be done in conjunction with other city divisions who must also locate utilities along the city's rights of way, or individual lights may be inventoried over time as the system is maintained. The inventory will include such attributes as the date installed, lamp style, the type of luminaire and pole and other special notes as to installation and maintenance.

Once the individual poles and fixtures are mapped and cataloged, the geographical and attributable data may be examined in an effort to develop detailed maintenance strategies, complete with mapped target areas, a listing of needed replacement parts and a listing of all maintenance actions and man hours. The GIS system is also likely to become an invaluable planning tool as it will have the capability to track all data necessary to conduct an assessment effort.

The Master Plan

Implementation

- The City of Columbus utilizes a highly energy efficient high pressure sodium light source as the basis of its street lighting program. By the year 2000, the Columbus street lighting system will have been completely converted to this modern light source. Since 1988, the Division of Electricity has focused almost exclusively on installing new lights as determined by the capital bond packages of 1988 and 1995. Maintenance of the street light system has largely been performed on a spot basis. To date, the Division has been able to adequately maintain the system by responding to approximately 20 calls per night.
- Considering the number of new lights that have been installed over the last few years, it is understandable that the spot maintenance policy has been the method of choice—more emphasis has been placed on installing needed lighting fixtures.

Street Light Maintenance

- The Division will never entirely get away from spot maintenance as “knock downs”, storm damage and burn outs will continue to occur. However, a number of factors now exist that make systematic maintenance a more appealing policy. The major factor influencing this change is the sheer size of the system, both in terms of the number of fixtures and the large geographical area the system now covers. The maintenance function will increasingly require a greater budget share as the system grows. It will also require greater man hours to be devoted to service individual lamps throughout the City. This will become even more evident as the nearly 2,000 fixtures installed by developers at the fringes of the City begin to require more maintenance as the installations age. The increased use of decorative fixtures is also very likely to increase maintenance calls as damaged or burned out installations will be much more noticeable.
- Property owners who paid for the fixtures through assessment will be particularly apt to require immediate service. Also as the system continues to grow it will become increasingly cheaper to systematically maintain the system with regular ongoing maintenance programs.
-
Appendix
The Master Plan

Street Lighting Priorities

Priority Areas

Existing street lights were mapped and analyzed by planning areas established by the Columbus Division of Planning. The Planning Division maintains an extensive data base for each of the 27 planning areas. The Planning Division has also identified individual neighborhoods within each of the planning areas. The Street Lighting Master Plan will use these planning areas and neighborhoods as the primary means of reporting information and establishing policy.

To date it has been the City’s plan to install lighting within the older (pre-1950) areas of the City and work outward. Since 1988, the City has had active projects in all parts of the City insuring a good geographic distribution of lighting projects. In future years, the Master Plan recommends that the City generate projects city-wide. To accomplish this, it is recommended that the Division of Electrical adopt different strategies to fit the needs of the various neighborhoods. For this purpose, the City’s street lighting needs have been categorized by Planning Areas. The categories are as follows:

1. Scattered unlit neighborhood areas - complete lighting installations in neighborhoods that are only partially lit.
2. Partially lit neighborhood areas - complete lighting within neighborhoods that are part of a planning area that already has street lights (1950 boundary neighborhoods).
4. Unlit areas outside of the I-270 outerbelt.

It has been estimated that areas one and two may be completed within five years given the DOE’s general street lighting budget of 2 million dollars per year. When street lighting projects are completed in these central city neighborhoods, Project 2020 will lose its ability to be geographically distributed. Within the outerbelt only Northland and Northwest will remain unlit. It is estimated that both of these neighborhoods will take 5 years to complete. By the year 2010 all Columbus neighborhoods within the I-270 outerbelt could be lit.

CITY OF COLUMBUS, OHIO

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF ELECTRICITY

The existing street lighting by planning area is shown in the map below.

Lit Planning Areas
Small unlit areas
Partially lit planning areas
Large unlit planning areas
areas inside I-270
Large unlit planning areas
outside I-270

Key

Existing Street Lighting by Planning Area

<table>
<thead>
<tr>
<th>Planning Areas</th>
<th>Planning Principles and Design</th>
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<tbody>
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<td>(See Appendix)</td>
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<td>16. Franklin</td>
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<td>26B Southwest</td>
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<td>12. Agler/Cassady</td>
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<td>17. Greenlawn/Frank Rd.</td>
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<td>22. Near South</td>
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<td>24. Marion-Franklin</td>
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<td>Partially Lit Planning Areas</td>
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<td>10. Clintonville</td>
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<td>11. North Linden</td>
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<td>15. Hilltop</td>
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<td>8. West Scioto</td>
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<td>1. Dublin</td>
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<td>3. Spring Hill/Josephinum</td>
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<td>4. Northeast</td>
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</tbody>
</table>
The Master Plan

Planning Principles and Design

Planning Area 1

Arterial Streets:
- Avery Rd.
- Britton Parkway
- Coffman Rd.
- Columbus-Marysville Rd.
- Cosgray Rd.
- Dublin Rd.
- Frantz Rd.
- Hayden Run Rd.
- Rings Rd.
- Paul Blazer Parkway
- Tuttle Crossing Blvd.
- Tuttle Rd.

Collector Streets:
- Brand Rd.

Neighborhoods:
- Number: Prototype: Fixture/Pole:
- All neighborhoods Suburban 3,4,6

Please refer to appendix page 31 for inventory index.
Planning Area 2

Arterial Streets:
- Hard Rd.
- Dublin-Granville Rd.
- Sawmill Rd.
- Smoky Row Rd.
- Snouffer Rd.
- Linworth Rd.
- Olentangy River Rd.

Collectors:
- Olentangy River Rd.
- Linworth Rd.
- Snouffer Rd.

Neighborhoods:

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Please refer to appendix page 31 for inventory index.
The Master Plan

Planning Principles and Design

Planning Area 3

Arterial Streets:
- Campus View Rd.
- Cleveland Ave.
- Dublin-Granville Rd.
- Huntley Rd.
- Lazelle Rd.
- Main St.
- N. High St.
- Park Rd.
- Polaris Parkway
- Sancus Blvd.
- Wilson Bridge Rd.
- Worthington-Galena Rd.

Collectors:
- Flint Rd.
- W. Schrock Rd.

Neighborhoods:

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Please refer to appendix page 31 for inventory index.
Planning Principles and Design

Planning Area 4

Arterial Streets:
- Cherry Bottom Rd.
- Dublin-Granville Rd.
- Fodor Rd.
- Johnstown Rd.
- Hamilton Rd.
- Morse Rd.
- Sunbury Rd.

Collectors:
- Greensward Rd.
- Harlem Rd.
- Uly Rd.
- Warner Rd.

Neighborhoods:

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Please refer to appendix page 31 for inventory index.
The Master Plan

Planning Principles and Design

Planning Area 5

Arterial Streets:
- Bethel Rd.
- Reed Rd.
- Hayden Rd.
- Sawmill Rd.
- Dublin-Granville Rd.
- Riverside Dr.
- Olentangy River Rd.
- Godown Rd.
- Henderson Rd.

Collectors:
- Olentangy River Rd.
- Godown Rd.
- Henderson Rd.
- West Case Rd.

Neighborhoods:

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