MEMORANDUM

DATE:	August 5, 2005
SUBJECT:	Street Lighting Program Issues, Recommendations and proposed lighting master plan policy
AFFECTED COUNCIL DISTRICTS:	City-wide
STAFF REPORT BY:	Jan Aramaki, Constituent Liaison/Policy Analyst
ADMINISTRATIVE DEPT. AND CONTACT PERSON:	Community Development/Tim Harpst & Kurt Larson

The Administration is requesting for the Council's input regarding the attached proposed Street Lighting Master Plan that includes the administrative policies and the City's street lighting plan. According to the Administration, the plan: 1) does not require additional budgetary obligations for maintenance and operating costs for existing lighting; 2) recognizes the public's interest in decorative lighting and provides a description of the styles of poles and lights desired by neighborhoods if funding becomes available; 3) includes existing programs and policies; 4) has gone through a public process to include community councils, the Transportation Advisory Board, and an advisory committee (members' names are listed on the back page of the master plan); 5) and has earned endorsement from Dark Skies International and Utah Skies based upon the light types that manage the amount of light that escapes into the sky.

The Administration is not asking the City Council to adopt the plan, but would like to provide the Council an opportunity to review the plan and provide input. Once Council input has been received and suggested changes are made, the Administration indicates that the document will be finalized and distributed to community councils and other interested parties for their use. Funding issues are significant and would be subject to future Council review. Currently some of the programs rely on City funding that is prioritized against other City program needs. Some of the approaches outlined create a stand-alone approach for lighting.

Also, for the City Council's discussion, the Administration presents four existing City street lighting programs (noted in Key Elements) incorporated as part of the lighting master plan. In the Matters at Issue section of Council staff's report, the issues associated with each program identified by the Administration and their recommendations are outlined for the City Council's discussion.

KEY ELEMENTS: (Current Street Lighting Programs and Draft Lighting Master Plan, March 2005)

As a result of the Administration's review of the four existing street lighting programs, they wish to present five recommendations for the Council's consideration stated as follows (see Attachment A for description of four existing lighting programs):

1. Complete the Traffic Safety Lighting (TSL) Program in FY06 and provide sufficient funding annually to install new TSL when justified.
2. Complete the Continuous Lighting Program by FY07.
3. Convert from UP&L maintenance to private contractor maintenance if economically justified.
4. Discontinue offering Private Lighting program. Allow successful areas to continue and encourage poorly maintained areas to convert to SIDs (Special Improvement Districts).
5. Retain a specialized consultant to analyze options for creating one city-wide lighting program with a discrete funding source.

Matters at Issue /Potential Questions for Administration:

A) Although the street lighting plan and policy are proposed to be administrative, Council Members may wish to discuss with the Administration the potential to formally adopt the proposed lighting master plan as a city-wide policy, rather than as an administrative policy document. An argument can be made that the proposed lighting master plan is similar to a land use plan because street lights are physical improvements to the environment, and similar to the Council adopted CIP 20 year plan which identifies necessary capital improvements within the City.

However, it should be noted that the proposed master plan refers to and is comprised of the City's current four lighting programs: Traffic Safety Lighting, Continuous Lighting System, Private Lighting for residential areas, and Special Improvement Districts for residential and commercial areas. Item B outlines the Administration's recommendations which include: 1) eliminating specific programs, 2) identifying additional funding to complete a particular program, or 3) consolidating all four programs into one city-wide SID. If the City Council's interest is to pursue any one of the recommendations, revisions to the proposed lighting master plan would be necessary.

B) Council Members may wish to discuss with the Administration their five identified issues and recommendations as follows:

1. Traffic Safety Lighting (TSL) Program (Basic City lighting – at intersections and mid-block) -- **ISSUES**:
    a. A great majority of local streets in the City currently have a standard base level of lighting, however additional funding is needed to complete the program city-wide. (Refer to Attachment B for a list of specific locations where safety lighting has not yet been funded.)

b. In instances when a request by the majority of property owners within 150 feet of a requested lighting location is made and sufficient lighting is lacking within the 300 feet spacing, the TSL program provides an option for mid-block lighting. Each year, several requests are received when properties change ownership or owners decide they no longer wish to participate.

c. Older industrial subdivisions did not receive lights years ago due to slow development and low volumes of traffic and pedestrian activity. TSL is requested as activity increases in these areas. Note: a developer in a new industrial area is required to install lighting by signing a waiver that commits the developer or owner to install lights as the subdivision develops.

RECOMMENDATIONS:

The Administration recommends that sufficient funding be provided annually to install new TSL as justified which will complete the TSL program citywide.

For FY06, a Capital Improvement Program (CIP) request was submitted for $50,000 (approved by Council) to complete the TSL city-wide in all residential neighborhoods and currently justified industrial neighborhoods.

2. Complete the Continuous Lighting Program (brighter level and more uniform dispersion of lighting – 6-8 lights per block --on major streets) by FY07 – **ISSUES**:

Although the following streets are presently lit, additional lighting is needed to bring these streets up to the Continuous Lighting level: Redwood Road from 2100 South to North Temple and from 1000 North to 2300 North; California Avenue from 900 West to Redwood Road; and North Temple from 900 West to 2200 West. (Refer to page 3 of the Administration's transmittal for a map illustration.)

RECOMMENDATIONS:

a. 370 lights would complete sections of these streets. A CIP request was submitted for $275,000 for FY06, but was not approved by the Council, therefore future funding will need to be identified. The additional lighting will increase operating and maintenance costs by $44,400.

3. Change UP&L maintenance to private contractor maintenance if economically justified – **ISSUES:**

a. Ongoing issue relating to the extensive time involved when there is a request to maintain the physical structure of the light pole, i.e., bulb burn outs, pole replacements, etc. -- from the time a maintenance request is reported to the time the repair work is completed.

RECOMMENDATIONS:

a. Convert from UP&L's power and maintenance rate to a "power only" rate. The Administration has monitored several communities along the Wasatch Front who have switched to a "power only" rate in conjunction with private contractor maintenance – higher level of repair response times and lower overall power and maintenance costs have been reported.

b. According to the Administration, a draft of a Request for Proposal (RFP) to contract street light maintenance is being reviewed by the City Attorney. The RFP will request bids for various types and levels of maintenance. If submitted bids prove to be favorable, the Administration will inform UP&L to convert the City to a "power only" rate and a contract with a private contractor will be implemented to maintain and service City lights.

   Public Services will also be provided an opportunity to bid on all or portions of the contract relating to the City's traffic signal maintenance to determine if maintenance provided by City staff is more economical and practical.

4. Discontinue offering Private Lighting. Allow successful areas to continue, and encourage poorly maintained areas to convert to SIDs – **ISSUES**:

   a. Upper level income neighborhoods are participating in the Matching Grant Program, but few lower or middle income neighborhoods participate due to inability to pay the one-time, up-front matching dollars required in the program. Therefore, the Administration reports that the vast majority of the lights installed with Matching Grant funds are located east of 700 East.

   b. Poor track record of maintenance by property owners: 30% of the lights are currently not operating as a result of neglect of bulb replacement, physical repair not being maintained due to owner's unwillingness to perform, pay for, or seek funds from neighbors; and circuit breakers being turned off in homes that provide electricity to the lights.

      Although property owners signed a revocable permit to maintain the lights, over the years, maintenance has failed to be met due to: 1) property owners' neglect; and/or 2) neighbors who organized the efforts to have the lights installed have either moved or are no longer capable of encouraging neighbors to keep the lights in operation.

      At one time, the Administration mailed a letter to each property owner to remind them of their responsibility to maintain the lights, but a high level of outages remains to be a common occurrence.

   c. A reported decrease in the number of Matching Grant Program applications in the past year indicates a decline in demand for private street lights.

RECOMMENDATIONS:

a. Discontinue the Private Street Lighting Program due to poor maintenance track record and interest decline in the program.

b. Allow successful private street lighting areas to continue.

c. Encourage identified private street lighting areas that neglect to maintain their lights to convert their private lighting to an SID with new underground wiring to a common conduit.

   There is uncertainty on the part of the Administration whether many neighborhoods would choose this approach because the cost to install underground wiring within the right of way in privately lit areas is estimated at $3,000,000 (approximate cost per light is $1,580).

5. Lighting infrastructure maintenance and replacement is not adequately budgeted and the number of lighting programs and funding sources contributes to the public confusion regarding the various options for lighting – **ISSUES:**

   a. Maintenance and replacement funding: Several years ago, the rates charged in SIDs were adjusted to build funds over time to cover the cost of maintenance and for eventual system replacement; however no such mechanism exists for the 10,000 city-owned lights in the TSL Program or the Continuous Lighting Program.

      To cover the cost of maintenance beyond what is covered in the UP&L power and basic maintenance rate, approximately $100,000 has been budgeted annually in the General Fund street lighting cost center. CIP requests are relied upon to pay for the cost of light replacements. Based on increasing competition for CIP projects, adequate funding for light replacement is inadequately budgeted.

      $500,000 is required annually to replace deteriorated lighting systems based upon a life cycle of 40 years which means replacing 250 lights, poles and wiring annually.

   b. Number of Lighting Programs: TSL, Continuous Lighting, Private Lighting, and SID lighting – contribute to public confusion as to what options are feasible for each neighborhood.

   c. Number of Lighting Funding Sources also contributes to public confusion:

      CDBG: restricted to CDBG eligible areas and used for design and capital costs of lighting in non-SID areas, but can only be used for design in SID area, not to defray capital costs. Cannot be used for O&M.

      RDA: restricted to RDA areas and used for design and capital costs in SID areas and non-SID areas, but cannot be used for O&M.

CIP: no geographic restrictions and can be used for design, purchase, installation of City lighting within TSL and Continuous Lighting programs; and to defray some of the costs in SID areas.

General Fund: no geographic restrictions and can be used for operation costs and has been used for maintenance not covered under the "power and basic maintenance" rate of UP&L as well as replacement of individual lights as needed and to install new traffic safety lighting.

Matching Grant Fund: provides funding for 50% match from property owners for the capital costs to install private lighting, cannot be used for O&M.

For SIDs, although it is the responsibility of the participating property owners to pay for capital costs, funds from CIP and RDA have been applied in some incidences to help offset capital cots since there is no policy to indicate the percentage of the total cost allowed from these sources.

RECOMMENDATIONS:

a. Retain a specialized consultant to analyze options for creating one city-wide lighting program with a discrete funding source.

   A city staff committee consisting of representatives from the Transportation Division, Treasurer's Office, Housing and Neighborhood Development, and the City's Attorney's Office prepared attachment Figure 1 – a comparison of the current lighting programs to two city-wide SID scenarios and a utility or enterprise scenario. It is the Administration's opinion that a city-wide SID would eliminate public confusion and incentives for seeking unique funding mechanisms; and from annual assessments, adequate funding will be available to be used for street lighting.

b. Discussions with several consultants, such as those used in evaluating and setting up the City's impact fee system, resulted in a DRAFT scope of services shown in attachment Figure 2 for an approximate cost of $91,000.

   The Administration recommends that Administrative staff and Council staff work jointly with the consultant to identify a city-wide assessment that could pay for the power and maintenance of all street lights as well as capital replacement and installation costs of new lights as necessary. The Administration's research reveals that several cities along the Wasatch Front have implemented a city-wide assessment with fees ranging from $1.75 to $4.25 per month per residential property.

   Assessments are charged through utility bills, according to property value, on a per property unit value basis.

   City-wide funding would likely require that fees or assessments would need to be set at several levels to reflect what residents have already spent on lighting in

their neighborhoods as well as the cost to provide the different levels of lighting that currently exist.

"Bonding or pay as you collect funding could be used to replace lights as needed and upgrade lights in areas willing to financially support the cost of decorative lights with underground wiring to replace existing lights and wiring."

Attachment Figure 2 is a scope designed to assist the City in drafting an RFP to request for a maximum cost that the Administration will present to the City Council for a budget allocation for the project. It is broken down into two phases:

Phase I: The Administration anticipates that the cost for Phase I of the RFP, Overview of Financial Options, will cost $36,000, broken down as follows:
1) General financing and revenue options ($5,000)
2) analysis of areas to be improved ($6,000)
3) analysis of projects ($8,000)
4) financial review ($8,000)
5) create general approaches ($9,000)

Phase II: Technical Analysis of Service Areas and Final, will cost approximately $55,000, broken down as follows:
1) Update enterprise fund user fees ($15,000)
2) pro-formas of debt service and coverage ratios ($20,000)
3) prepare a complete technical analysis ($20,000)

According to the Administration's paperwork, the RFP would include the following tasks:

- Focus on creating an innovative and optimal financing structure and plan to finance the construction of street lights throughout several areas within the City to achieve the absolute lowest financing costs.

- Recommend an optimal financing structure and provide sufficient analysis to support the plan, timelines for each financing, and policy to facilitate the plan's implementation.

- Demonstrate competence and sufficient experience in creative debt structuring and provide detailed examples of how the consultant has structured debt using a variety of different financing mechanisms to create a creative financing plan that has ultimately saved the client significant financing costs.

- Provide a comprehensive evaluation of all possible financing mechanisms that the City may implement to finance street lights including different classes and structures of user fees.

- Evaluate the areas that the City must improve and the areas' corresponding land uses, the current financial situation of the City, related outstanding debt,

revenue growth, etc. in preparing general financing options.

- Prepare a technical analysis to determine the best of the financing options available.

- Upon completion of the technical analysis, a written report will be prepared and findings presented to the City Council.

Recommendation to have the consultant include an evaluation of how funding could be acquired "in a similar manner to pay for the undergrounding of power lines. Eliminating power lines and street lighting lines from view is a desirable aesthetic and quality of life request often heard."

MASTER PLAN & POLICY CONSIDERATIONS:

According to the Administration's paperwork, the proposed master plan does not commit the City to allocate additional funding – budgetary funds already exist for maintenance and operation costs for existing lighting. Current existing programs and policies are outlined in the document. Council staff prepared a summary of the proposed lighting master plan. (Refer to Attachment C.)

The Administration received input from all community councils, an advisory committee (names listed on the back page of the master plan), and the Transportation Advisory Board. The classification of lights identified in the master plan that manage the amount of light that escapes into the sky have earned the endorsement from Dark Skies International and Utah Skies.

Street lights first began operating on Main, 100 South, and 200 South Streets in 1887. Over the years, the City has used street lighting to improve traveler safety and lighting levels have expanded over the years based on the Illuminating Engineering Society of North America (IES) recommendations. The IES guidelines are based on geometric, operational, and environmental factors. The standards used by Salt Lake City also take into account influencing factors such as traffic volume, accident rates, nighttime pedestrian activity, crime prevention and neighborhood preferences.

Street lighting projects combined with other urban design elements maintain and promote quality of life in neighborhoods, and enhance safety features relating to traffic, pedestrians, and neighborhoods. Supporting policy statements are as follows:

A. Council's Policy Manual, Section E: Land Use, IV, Transit Development and Design -- Policy concepts include statements such as:
   1. A pedestrian and bicycle friendly environment throughout the City.
   2. Reinvestment in existing urban and inner suburban areas.
   3. A rebirth of compact, transit and pedestrian oriented developments that conserve water and energy resources, enhance air quality and help restore community vitality.

B. Council's Policy Manual, Section F.1: Transportation, City-wide Transportation Philosophy, and implemented as part of the City's Transportation Master Plan -- Policy concepts include statements such as:
   1. Considers neighborhoods, residential and commercial, as the building blocks of the community.
   2. Encourages the preservation and enhancement of living environments, particularly the Downtown area.
   3. Will make and support transportation decisions that increase the quality of life in the City, not necessarily the quantity of development.

C. Council's Policy Manual, Section F.4, Commuter Traffic under Capitol Hill and Avenues Joint Statement on Commuter Traffic -- Policy concepts include statements such as:
   1. The residential character and quality of the streets be maintained by alternatives other than traffic signals.

D. Council's Policy Manual, Section F.5, Traffic Calming Funds -- Policy concepts include a statement that relate to the section of "banners" used to promote traffic calming as noted in the Lighting Master Plan such as:
   1. It is the intent of the City Council that the Transportation Division utilize a wide range of traffic calming measures and not rely solely on speed humps or tables to slow down vehicle traffic.

E. The Urban Design Element includes policy concepts and statements that focus on the City's urban design goals noting the important influence of suitable building height, mass, scale and color. The document specifically notes that building heights in the commercial core and fringe should be a function of use, topography, and City scale. Bulk and height controls can be used to direct the urban form of the City. Policy concepts include statements such as:
   1. Emphasize the important role of all development in establishing the City's urban form.
   2. Preserve and improve the visual form of the City through an appropriate building height profile and color scheme.
   3. Treat building height, scale and character as significant features of a district's image.
   4. Ensure that features of building design such as color, detail, materials and scale are responsive to district character, neighboring buildings, and the pedestrian.

F. During the Council's recent discussions relating to growth, annexations and housing policy, Council Members have expressed support for developments that promote livable community concepts such as:
   1. pedestrian and bicycle friendly environments
   2. compact, transit and pedestrian oriented developments
   3. neighborhood anchor areas or commercial and/or business uses that are necessary to the function of residential neighborhoods or are compatible with residential activity
   4. local services that are conveniently available or can be provided and are accessible on foot

G. The City's Strategic Plan and the Futures Commission Report contain statements that support creating attractive conditions for business expansion including retention and attraction of large and small businesses, but not at the expense of minimizing environmental

stewardship or neighborhood vitality. The documents express concepts such as maintaining a prominent sustainable city, ensuring the City is designed to the highest aesthetic standards and is pedestrian friendly, convenient, and inviting.

H. Policy statements noted in the City's Transportation Master Plan, April 16, 1996, include vision and directions as follows:

1.1 Salt Lake City will preserve and enhance residential communities within the City which allow residents to live, work and place in the same area.

1.2 Salt Lake City will promote development that is transit, pedestrian and bicycle friendly.

3.3 Traffic calming strategies will be used to slow traffic and discourage commuter through traffic on collector and local streets. (Banners mentioned in the Lighting Master Plan apply to traffic calming.)

8.1 Salt Lake City will make walking more attractive as an alternative transportation mode for short trips, by creating a friendly walking environment, increasing pedestrian access in residential and commercial areas, and improving safety.

8.2 Salt Lake City will develop and implement strategies to facilitate and enforce safe pedestrian crossings of major streets.

I. Lighting along City streets supports the Salt Lake City Transportation Master Plan's guiding principle: Salt Lake City's transportation system will support and encourage the viability and quality of life of its residential and business neighborhoods.

J. Consistent with the Salt Lake City Vision and Strategic Plan statement: We envision Salt Lake City as a prominent sustainable city the international crossroads of western America, blending family life styles, vibrant artistic and cultural resources, and a strong sense of environmental stewardship with robust economic activity to create a superb place for people to live, work, grow, invest, and visit.

The strategic plan includes capital improvements descriptions of Salt Lake City

- Salt Lake City neighborhoods provide a safe environment for families and promote responsible citizenship among neighbors.

K. Summary of policy statements included within the proposed Lighting Master Plan are attached as a separate document. (Refer to Attachment D.)

BUDGET RELATED FACTS

Currently, the City spends $1,500,000 to $2,000,000 annually on street lighting. Property owners spend approximately $666,000 annually on their portion of SID lighting costs. Additionally, approximately $50,000 of new or replacement installations by private developments are handed over to the City each year.

Recommendations made by the Administration will have the following additional or potential budgetary impacts:

1. Recommendation 1: Traffic Safety Lighting. A CIP request for $50,000 was made for FY 06 to fulfill TSL in all residential neighborhoods and justified industrial neighborhoods – approved by the City Council. An additional CIP request for $75,000 has been made for FY06 to cover the anticipated needs for new TSL lights in the upcoming year – approved by

the City Council. Each additional year, an estimate of needed CIP funds will be made, and any remaining funds would be returned each year. It is anticipated by the Administration that by completing the TSL, there will be a potential increase in annual operating and maintenance costs of $2,500.

2. Recommendation 2: Continuous Lighting Program: A CIP request for $275,000 was submitted for FY06 which will complete the arterial lighting on Redwood Road; however this money was not appropriated for FY06. The Administration stipulates that a capital commitment in the following year of $63,600 is needed to complete California Avenue. Another future budgetary impact would be that the Administration also recommends that the remainder of lights needed on North Temple should be completed as part of the light rail extension to the airport.

3. Recommendation 3: Convert to "power only" with UP&L. An RFP to contract with a private company to provide maintenance and repair for City street lights could potentially prove to be of savings for the City. Currently, the City's annual cost for non-SID operation and maintenance is $1,200,000.

4. Recommendation 4: If residents express interest to convert private lighting to an SID with underground wiring, the cost estimate to install underground wiring within the right of way in privately lit areas is estimated at $3,000,000, or approximately $1,580 per light.

5. Recommendation 5: The Administration provided a scope for an RFP to contract with a consultant to provide expertise to evaluate the City's current lighting programs and funding options to create one city-wide lighting program with a discrete funding source. The estimated cost associated to hire a consultant is approximately $91,000.

   In addition, if a city-wide SID is identified and presented to the City Council, in the future, there may be potential budget impacts relating to implementation of policies and recommendations of the consultant.

cc: Sam Guevera, Rocky Fluhart, Louis Zunguze, Rick Graham, Ed Rutan, Cindy Gust-Jenson, Gary Mumford, Tim Harpst, Kurt Larson, Dan Mulé, Luann Clark, Michael Barry, Cheri Coffey, Sherrie Collins, Dell Cook, Doug Dansie, Garth Limburg, Joel Patterson, Val Pope, Lisa Romney, Barry Esham, Diana Karrenberg, Gwen Springmeyer, Annette Daley, Sylvia Jones, Lehua Weaver, Sylvia Jones, Janice Jardine, Jennifer Bruno, Russell Weeks, Karen Carruthers, Anthony Arrigo, Rebecca Fleischman, Boris Kurz, Kadee Nielson.

File location: Community Development

Attachment A

Current Street Lighting Program Options

For the City Council's discussion, the Administration presents four existing City street lighting programs comprised of a total of 14,100 street lights: Traffic Safety Lighting (TSL) and Continuous Lighting comprised of 10,000 lights; Private Lighting comprised of 1,900 lights; and Special Improvement Districts (SID) comprised of 2,200 lights. The Administration requests input from the City Council before changes to the programs are made and the proposed street lighting administrative master plan is finalized.

Programs that Provide Standard Base Level of City Lighting:

1. Traffic Safety Lighting (TSL):

   Standard base level of lighting is provided on local streets for pedestrian and traffic safety at intersections as well as mid-block lighting (approximate spacing of 300 feet) at property owners' option. Mid-block lighting is an option as long as a majority of the property owners within 150 feet of the light location request are in support and a light is lacking within the 300 foot spacing.

   Lights typically consist of either standard cobra head lighting fixtures on wooden poles or a decorative light and pole with underground wiring.

   100% of lighting costs (purchase cost, installation, maintenance, and operation cost) are paid by the City out of the General Fund.

2. Continuous Lighting System:

   Busier major streets receive a brighter level of lighting and more uniform dispersion of lighting. Major streets handle higher levels of traffic volume, speed limits, and pedestrians. Levels of lighting consist of six to eight lights per block face.

   Lights typically consist of either cobra head lights on wooden poles or decorative fixtures and poles (i.e. State Street and University Light Rail line).

   100% of lighting costs (purchase cost, installation, maintenance, and operation cost) are paid by the City out of the General Fund. However, when new developments fronting on major streets need new or replacement continuous lighting, they are required to cover the costs.

Lighting Programs Beyond the City's Base Standard Level of Lighting:

3. Private Lighting for Residential Areas:

   For approximately eight years, residential neighborhoods have had the option to purchase and install privately owned, decorative lights in the park strip public right of way. There are 1,900 property owners who have lights wired directly to the electric service of their homes. Each resident who owns a light is responsible to maintain and operate the light and is required to sign a revocable permit recorded with the property. Neighborhood groups have the option to identify the style of light pole and fixture they desire.

   Individual property owners pay for the costs to purchase, install, maintain and operate the lights; however, the residents have the option to apply and participate in the City's Matching Grant Program which pays up to 50% of the capital cost to purchase and install the poles, lights, and underground wiring.

4. Special Improvement District (SID) for Residential and Commercial Areas:

   Special Improvement District (SID) provides additional lighting in areas where property owners desire special decorative lighting or more lighting fixtures than the City's standard level of lighting and are willing to be assessed for the additional costs of the lighting. There are currently 50 lighting extensions and the City has combined the individual districts into three super districts to simplify the annual assessment process. These extensions were combined based on assessment due dates, not on geographical location.

   When property owners within a specific neighborhood desire special or additional lighting, they may petition the City for the creation of a special assessment street lighting district. Creating this kind of a district is a legal process whereby property owners can arrange for funding of a public improvement that will benefit their properties. Special assessment districts are formed by ordinance upon agreement of a majority of the area property owners.

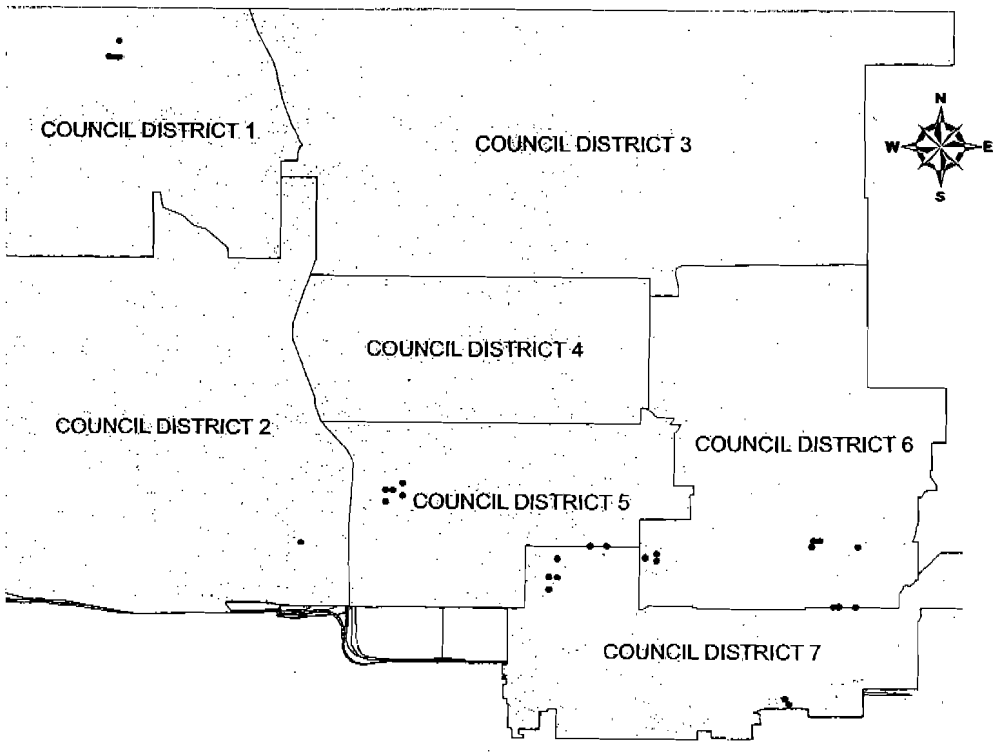
   Street lighting districts require the abutting property owners to pay 100% of the capital costs of the lighting and 75% of the ongoing operating and maintenance cost of the lights. The City pays the remaining 25% of the operating and maintenance cost as the equivalent of lighting that would be provided by the City. The property owners' costs are levied and billed annually in the form of special assessments.

Attachment B

Specific locations where Traffic Safety Lighting (TSL) has not yet been funded

DISTRICT	STREET INTERSECTION
6/7	2100 S and WYOMING ST
7	MABEY DR and 2700 S
7	CRYSTAL AVE and MABEY DR
6	1700 S and WASATCH DR
6/7	2100 S and 2600 E
6/7	2100 S and 2500 E
6	BLAINE AVE and 1400 E
6	WILSON AVE and 1400 E
6	BLAINE AVE and WILSON AVE
5/7	1700 S and 1100 E
5/7	1700 S and 1000 E
7	GARFIELD AVE and 800 E
7	WILSON AVE and 800 E
7	GARFIELD AVE and LAKE ST
7	RAMONA AVE and LAKE ST
2	1700 S and GRANT ST
6	LOGAN WAY and FOOTHILL DR
6	1700 S and LOGAN ST
6	LOGAN WAY and LOGAN CIR
5	1300 S and JEFFERSON ST
5	ALBERMARLE AVE and JEFFERSON ST
5	CALIFORNIA AVE and 200 WEST
5	CALIFORNIA AVE and WASHINGTON ST
5	1400 S and WASHINGTON ST
1	GENERAL DR and MANDALAY RD
1	NEW YORK DR and MANDALAY RD
1	GENERAL DR and CAPTAIN CIR
1	GENERAL DR and COLONEL RD

Council District 1 has 4 intersections
Council District 2 has 1 intersection
Council District 5 has 5 intersections with 2 more on CD 7's border Council District 6 has 7 intersections with 3 more on CD 7's border Council District 7 has 6 intersections with 3 more on CD 6's border, and 2 on CD 5's border.



Attachment C

Summary of Salt Lake City Lighting Master Plan

1. Introduction:
   - Historically, the City's street lighting has been based on guidelines (geometric, operational and environmental factors) from the Illuminating Engineering Society of North America (IES) recommendations.
   - Salt Lake City's lighting standards considers traffic volume, accident rates, nighttime pedestrian activity, crime prevention, and neighborhood preferences.
   - Plan includes: purpose and impacts of street lighting, required lighting levels, acceptable styles of fixtures and poles, plan showing desired lighting for each City neighborhood, recommended implementation priority and aspects of street lighting relating to crime prevention and the use of banners on light poles.

2. Purpose:
   - Lighting technology has evolved over the years - more light sources and interest in decorative poles and underground wiring as an urban design element.
   - Lighting design important component that addresses amount of light produces, minimize light pollution, enhance urban environment, crime prevention, enhance safety, restrict unwanted light onto private property and minimize glare, power consumption, cost and visual impacts.
   - Intention of master plan to be compatible with existing land use master plans and updated to remain compatible.

3. Street Lighting in a Pedestrian Friendly City
   - Street lighting projects should combine with other urban design elements to create a holistic and aesthetic environment for pedestrians.
   - Salt Lake City desires to be a pedestrian friendly city as stated in the 1998 Final Report of the Salt Lake City Futures Commission.
   - Adequate lighting of sidewalks and pedestrian crossing is a significant aspect of new street lighting projects.
   - Large portion of existing street lights are "cobra head" lights at a height of between 25 feet to 30 feet. Pattern effective to the roadway, but not always effective for pedestrians. Illustrations can be found on pages 5-7 of master plan regarding the impact of street light mounting height reflective lighting pattern of sidewalks.

4. Lighting Levels and Design Requirements
   - All new and replacement street lighting of City right of way shall meet the minimum lighting level and design standards as shown in Table 4.1 on page 8 of the master plan.

5. Light Types (Refer to Table 5.1 Lamp Type Comparison chart shown on p. 12 of master plan)
   - Most popular light sources are metal halide and high pressure sodium vapor.
   - Mercury vapor, fluorescent, and incandescent lighting were previously prevalent.
   - Still existing along City streets are a few incandescent lights.

- Induction lighting is a relatively new white light gaining popularity.
- Factors involved in determining acceptable light sources: color rendition (metal halide, induction, mercury vapor and incandescent light sources which more closely mimics daylight); cost to purchase (costs are fairly similar); and cost to operate and maintain.

6. Light Cutoff Classifications of Lighting Fixtures
   - Light pollution describes three distinct negative effects of lighting:
     a) light trespass: uncontrolled light from a street light is allowed to spill into an area such as onto private property/into a window;
     b) sky glow: light is directed upward obscuring view of the night sky;
     c) glare: harsh light source detrimentally reduces an individual's ability to see objects the light is meant to illuminate.
   - Four levels of cutoff classifications developed by Dark Skies International and the Illuminating Engineering Society of North America (IES): full cutoff, semi-cutoff, and non-cutoff. (Refer to pages 14-17 of the Master Plan for illustrations of cutoff classifications and information regarding benefits and limitations.)

7. Fixture and Pole Styles: "Lighting fixtures and poles can uniquely and distinctly enhance the appearance and complement the identity of each neighborhood and district." (Refer to p. 19 of the master plan to view illustration of available options.)
   - Major streets require brighter lighting.
   - Business districts are well lit.
   - Residential neighborhoods prefer lower lighting levels.
   - Input was provided by community councils, citizens, downtown property and business owners, and City planning and technical staff to identify appropriate lighting for each street within Salt Lake City. (Refer to p. 21-23 of the master plan to view tables showing lighting pole and fixture styles identified for major streets and commercial districts; and decorative pole and fixture styles for residential neighborhood street lighting.)

8. Lighting Programs:
   - Traffic Safety Lighting (local streets)
   - Continuous Lighting Systems (major streets)
   - Special Improvement District (SID) lighting
   - Private Lighting (residential areas)
     (Refer to p. 25 of the master plan to view map 8.1 illustrating locations of the four lighting programs within the City.)

9. Using Crime Prevention in Street Lighting Design (CPTED)
   - Principles and standards of CPTED should be given fair and ample consideration relating to street lighting as any other aspect of public space.
   - Lighting is an amenity that encourages interaction of people in public spaces – light does not prevent crime, people prevent crime.
   - Street lighting that is well designed and properly maintained: 1) improves the appearance of public space; 2) encourages people to interact; and 3) contributes to a positive sense of safety and security.
   - General guidelines for lighting in public spaces: 1) public spaces must be well lighted; 2) measure of light type and light level illuminates to identify a face 50

feet away; 3) eliminate glare and shadows; 4) adequate lighting for blind spots, entrapment locations, and hidden areas; 5) best approach, use more lights with lower wattage.
- CPTED approach – ask questions from every possible angle to determine if all possibilities are being considered.
- List of questions that can serve as a guide in determining proper lighting design or identifying deficiencies (refer to p. 27 of the master plan).

10. Banners
    - Neighborhoods can request approval to hang banners on street light poles by contacting the City's Transportation Division.
    - Banners promote a sense of community spirit and identity.
    - Banners promote traffic calming.

11. Street Trees and Lighting Compatibility
    - Compatibility between street lighting and trees within or near the public rights of way is desired, and both add neighborhood character and are highly desirable urban elements of livable communities.
    - Underground wiring eliminates the need for tree pruning around wires.
    - Maintain reasonably similar spacing between lights to maintain the desired uniformity of lighting levels along the streets and sidewalks.

12. Acknowledgements
    - Mayor Ross C. Rocky Anderson
    - City Council Members
    - Mayor's Advisory Committee on Lighting Design

Attachment D

Summary of Salt Lake City Lighting Master Plan Policies

LIGHTING LEVELS AND DESIGN REQUIREMENTS

- All new and replacement street lighting of City right-of-way shall meet the minimum lighting level and design standards shown in Table 4.1on page 8 of the master plan. These standards pertain to all new developments, installation of new lights and replacement of existing lights.

  Notes:
  1. All new streetlights must meet, at a minimum, the "dark sky semi-cutoff" standard with the exception that all new "shoe box" or "cobra head" style streetlights must meet the "dark sky cutoff" standard. Dark Sky classifications are explained in Section 6 of this master plan.
  2. In industrial areas, taller mounting heights and "shoe box" or "cobra head" style streetlights meeting the "dark sky cutoff" standard may be used.
  3. Exceptions to these standards are not desirable and must be approved by the City Transportation Engineer.

- Lighting in new subdivisions and developments
  All new subdivisions and developments are required to place utility lines underground. This includes electric power lines for street lighting in underground conduit. All costs for this work are borne by the development owner. The lighting levels, poles and fixtures used shall meet the requirements of this master plan and policy. The spacing and location of the light fixtures will be determined by an engineered lighting design and approved by the Salt Lake City Transportation Division.

- Lighting along reconstructed streets
  Desiring to minimize construction impacts to neighborhoods and overall costs, street reconstruction projects within Salt Lake City shall include the installation of underground conduit for street lighting, when practical. It is desirable to upgrade the lighting, if needed, at the time of street reconstruction. In cases where this is not practical, underground conduit with appropriately placed access boxes shall be installed to facilitate future lighting.

- New and Replacement Lighting in existing developments and as part of redevelopments
  New and replacement lighting in existing developments and lighting required as part of redevelopments shall include the installation or use of existing underground conduit where practical for street light wiring and meet the illumination standards of this lighting policy at the time of design approval. It is required that the decorative poles and fixtures contained in this policy be used for new and replacement lighting unless circumstances for their use are not practical and approved by the Transportation Engineer. Previously existing lighting is to be removed as part of projects to install replacement lighting.

- Lighting of Alleys and Privately Owned Streets
  Only dedicated publicly-owned streets are eligible for street lighting funded by the City. Public alleys will not be lighted using City funds; however, they may be lighted by

abutting property owners at their expense upon approval of the proposed lighting by the City Transportation Engineer. Privately owned streets, alleys and rights-of-way may be lighted by abutting property owners at their expense.

- Pole Placement

  Street light poles can represent a roadside hazard if located improperly. All new street light poles, in areas with sidewalk abutting the street curb, shall be located behind the sidewalk in a location between the sidewalk and right-of-way line. All new street light poles in areas with a planting strip between the sidewalk and curb are encouraged to be located behind the sidewalk, but may be located in the planting strip if there is a high back street curb and if there is at least 18 inches lateral clearance between the face of curb and nearest side of pole.

  Exceptions to any of the above standards are not desirable and must be approved by the City Transportation Engineer.

LIGHT TYPES:

- Acceptable Light Types

  Only efficient light types of the blue-white spectrum shall be used for new and replacement lighting. This currently translates to metal halide and induction light types. Existing high-pressure sodium vapor and other light types will continue to be supported until it becomes necessary to replace the light fixtures.

  Exceptions to any of the above standards are not desirable and must be approved by the City Transportation Engineer.

LIGHT CUTOFF CLASSIFICATIONS OF LIGHTING FIXTURES:

- Acceptable Light Cut-Off Features

  All new and replacement street lighting shall meet, at a minimum, the requirements of semi-cutoff lighting. In locations where "cobra head" or "shoe box" fixtures are used, they must meet, at a minimum, the requirements for cutoff lighting.

  Exceptions to any of the above standards are not desirable and must be approved by the City Transportation Engineer.

FIXTURE AND POLE STYLES:

- Major Streets and Commercial District Streets

  To insure uniform and safe lighting on major streets which by their nature carry higher speed, higher volume traffic, the light fixtures and poles identified in this chapter shall be used to provide appropriate lighting for the conditions present. Decorative poles and fixtures shall be used for new and replacement lighting on major streets whenever practical, except that cobra head fixtures on wood or steel poles may be used in industrial areas.

  It is desirable to seek public input on the type of fixture and pole used for street lighting in commercial areas. The fixture and pole styles in these areas as identified in this chapter have been selected with public input and consideration of historic and planned urban design elements and land use. Decorative poles and fixtures shall be used for new and

replacement lighting in commercial areas whenever practical.

- Residential Neighborhood Streets
  It is desirable to allow each residential neighborhood to adopt a decorative street light fixture and pole for its non-major streets from an approved list of fixture and pole styles to help the community achieve and maintain its master plan goals and identity. The approved list has been generated in consideration of the public input received and having sufficient variety to allow neighborhood identity while retaining a reasonable ability to obtain and store parts and provide economic maintenance.

  All street lighting poles and fixtures used within Salt Lake City must be approved by the City Transportation Engineer. The currently approved "family" of light poles and fixtures for Salt Lake City is shown in Figures 7.1 and 7.2. Lamp fixtures with optical controls and side shield option capabilities are to be used because they provide flexibility in minimizing sky glow, light trespass, glare and energy waste. In special situations, such as within historic districts or when the installation of underground wiring and decorative poles and fixtures is not practical, exceptions to the above requirements may be approved by the City Transportation Engineer.

USING CRIME PREVENTION IN STREET LIGHTING DESIGN (CPTED):

- It is the policy of the Salt Lake City Transportation Division to support the use of Crime Prevention Through Environmental Design principles in the design and operation of street lighting within Salt Lake City.

BANNERS:

- It is the policy of the Salt Lake City Transportation Division to support the use of banners on street light poles to enhance a sense of community and contribute to traffic calming.

STREET TREES AND LIGHTING COMPATIBILITY:

- It is the policy of the Salt Lake City Transportation Division to coordinate the location of new street lights with the Salt Lake City Forester and, in turn, coordinate on the planting of new trees such that both are compatible in providing desired benefits to the neighborhood.

JUN 2 7 2005

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SALT LAKE CITY CORPORATION

DEPT. OF COMMUNITY DEVELOPMENT
OFFICE OF THE DIRECTOR

ROSS C. "ROCKY" ANDERSON
MAYOR

COUNCIL TRANSMITTAL

TO: Rocky Fluhart, Chief Administrative Officer **DATE:** June 13, 2005

FROM: Louis Zunguze, Community Development Director

RE: **Street Lighting Program Issues, Recommendations and Administrative Master Plan and Policy**

STAFF CONTACT: Tim Harpst, 535-7148
Kurt Larson 535-7151

DOCUMENT TYPE: Briefing

BUDGET IMPACT: The City spends $1,500,000 to $2,000,000 annually on street lighting. Some savings may be realized with private maintenance, but lighting infrastructure replacement is underfunded.

DISCUSSION:
Issue Origin: Council requested a review of the four current street lighting programs and administrative master plan.

Analysis: There are two documents accompanying this transmittal. The first provides a brief history of lighting in Salt Lake City, a description of the four lighting programs currently offered and a description of five lighting issues and recommendations. The second document is the draft administrative lighting master plan and policy. Council input is requested before changes to the programs are made and the master plan is finalized.

The following is a summary of the accompanying documents.

Attachment A. Current Street Lighting Programs and Recommendations

There are currently four lighting programs. Two of the programs, **Traffic Safety and Continuous Lighting**, are provided at 100% City cost and represent the industry-standard base level of lighting provided for traveler safety. CIP requests have been submitted for FY06 that, if approved, will complete the Traffic Safety Lighting Program and substantially complete the Continuous Lighting Program citywide. Completing both programs will mean that the City is providing what is considered the minimum desired level of lighting on all streets and will be primarily in an operation and maintenance/replacement mode.

The other two lighting programs, **Private Lighting and Special Improvement District (SID) Lighting**, are offered to assist property owners who wish to have more than the base level of illumination and/or decorative lighting. Lights in the Private Lighting program are purchased,

installed, owned, maintained and operated by individual property owners. Lights in the SID Lighting program are purchased, installed, owned, maintained and operated by the City with the abutting property owners paying the costs over and above the amount that the City would normally pay if the areas had the base level of lighting.

A review of these programs has led to the following recommendations. Detailed information on each is contained in the attachment.

Recommendation 1: Complete the Traffic Safety Lighting Program in FY06 and provide sufficient funding annually to install new Traffic Safety Lighting when justified.

Recommendation 2: Complete the Continuous Lighting Program by FY07.

Recommendation 3: Convert from UP&L maintenance to private contractor maintenance if economically justified.

Recommendation 4: Discontinue offering Private Lighting due to poor maintenance. Allow successful areas to continue and encourage poorly maintained areas to convert to SIDs.

Recommendation 5: Retain a specialized consultant to analyze options for creating one citywide lighting program with a discrete funding source.

Attachment B. Master Plan and Policy

The attached master plan has been written to include the administrative policies followed in the management of the City's street lighting. Combining the plan and policy into one resource document provides all lighting information in one convenient, user-friendly document. The plan and policy does not commit the City to additional funding obligations beyond what already exist, namely maintenance and operation costs for existing lighting. It does recognize the public's expressed desire for decorative lighting and describes the styles of poles and lights desired by specific neighborhoods should funding be made available. The programs and policies described in the document are existing ones. It is intended that the word DRAFT will be removed from the document which will then be distributed to community councils and other interested parties after Council has had an opportunity to review the plan and any needed changes made.

Public Process: Each of the City's community councils have provided input into the master plan, particularly with respect to the type of lighting desired within their boundaries should decorative lighting be installed. An advisory committee on lighting design provided input on the plan and information that influenced refinement of previous lighting policies. This includes the use of light types that manage the amount of light that escapes into the sky, which has earned the endorsement of Dark Skies International and Utah Skies who participated on the committee. For your information the members of the committee are listed at the end of the plan and policy. The Transportation Advisory Board also provided input.

Relevant Ordinance: N/A

Attachment A
Salt Lake City Street Lighting
Programs and Recommendations

June, 2005

I. Background

History

Salt Lake City has a long history of street lighting. Ours was the fifth city in the United States to have electric street lights. By 1887, street lights were operating on Main, 100 South and 200 South Streets downtown. Over the years, the City has used street lighting to improve traveler safety and accommodate evening activities. In commercial areas such as the downtown, lighting continues to provide an essential service by allowing shopping, cultural and entertainment activities to be viable late into the evening. In residential areas, lower levels of lighting encourages walking, bicycling and neighborhood ambience.

Lighting Programs

For many years, the City offered three lighting programs. A fourth, Private Lighting, was added eight years ago. The Traffic Safety Lighting (local streets) and Continuous Lighting (major streets) programs provide a basic level of street light illumination deemed necessary for traveler safety. The Special Improvement District Lighting and Private Lighting programs provide mechanisms for property owners to provide higher levels of lighting and/or decorative poles and fixtures. A more detailed description of each program and its current status follows.

Traffic Safety Lighting (local streets) Program

For years, lighting has been installed on local streets for pedestrian and traffic safety at intersections and, at the property owners' option, one midblock light per standard city block (approximate 300 foot spacing). These lights typically consist of either standard cobra head lighting fixtures on wooden poles or a decorative light and pole where underground wiring exists. The General Fund covers 100% of the purchase, installation, maintenance and operation cost of this base level of lighting. Traffic Safety lighting has been implemented almost entirely throughout the City.

Continuous Lighting Systems (major streets) Program

A brighter level and a more uniform dispersion of lighting is provided along busier, major streets for traveler safety. These are streets with high traffic volumes and speed limits as well as more pedestrians. This lighting is either cobra head lights on wooden poles or decorative fixtures and poles such as those along State Street and along the University light rail line. There are typically 6 to 8 lights per block face to provide this level of lighting. The General Fund covers 100% of the purchase, installation, maintenance and operation costs, although new developments fronting major streets needing new or replacement continuous lighting are required to provide it to the City. As with traffic safety lighting, the great majority of major streets now have continuous lighting.

Special Improvement District Lighting Program

Additional and decorative lighting in residential and commercial areas is offered via special improvement districts wherein abutting property owners agree to pay 75% of the operating and maintenance costs and the City pays 25%. The City's 25% participation represents the cost of traffic safety lighting the City would typically provide if the higher level of SID lighting was not present. The capital cost for a new or replacement SID lighting project is the responsibility of the abutting property owners. Although there is no guarantee of or policy on City cost participation, in some cases developers have installed lights at their cost and RDA or CIP monies have been provided to pay for all or a portion of the capital cost.

There are currently 50 lighting extensions (SID lighted neighborhoods) grouped within 3 large lighting districts. Approximately half of them are located in the City's central business district and there is one in the Sugar House business district. The other half are in residential neighborhoods. The great majority of the lights in SIDs are decorative lights.

Private Lighting (residential areas) Program

Over the past 8 years the City has allowed residential neighborhoods to purchase and install privately owned, decorative streetlights on the public right of way in the park strip. Each streetlight is wired to the electric service in the home of the owner of the streetlight. Each light owner signs a revocable permit that is recorded with the property. It stipulates that the homeowner is responsible to maintain and operate the light.

Although the property owners are responsible for acquiring and installing the lights, many have availed themselves of the City's Matching Grant program to pay up to 50% of the capital cost.

Number of street lights

There are approximately 14,100 street lights in Salt Lake City. 2,200 are within SID areas, 1,900 are private lights and the remaining 10,000 are continuous lighting and traffic safety lights.

Lighting costs and funding sources

The City spends between $1,500,000 and $2,000,000 annually on street lighting, depending on the amount of funding approved for capital replacement and new installations. Property owners spend approximately $666,000 annually on their portion of SID lighting costs.

The City's annual costs and funding sources break down to:

$1,200,000	GF for non-SID operating and maintenance
$222,000	GF for the City's portion of SID operating and maintenance
$0 to 50,000	GF for Matching Grant funds for private lighting
$0 to $75,000	GF for new lights
$0 to $30,000	CDBG for new or replacement lights
$0 to $500,000	CIP for capital replacement
$0 to $200,000	RDA for capital replacement

Additionally, new or replacement installations by private developments, valued at up to $50,000, are turned over to the City each year.

II. Issues and Recommendations

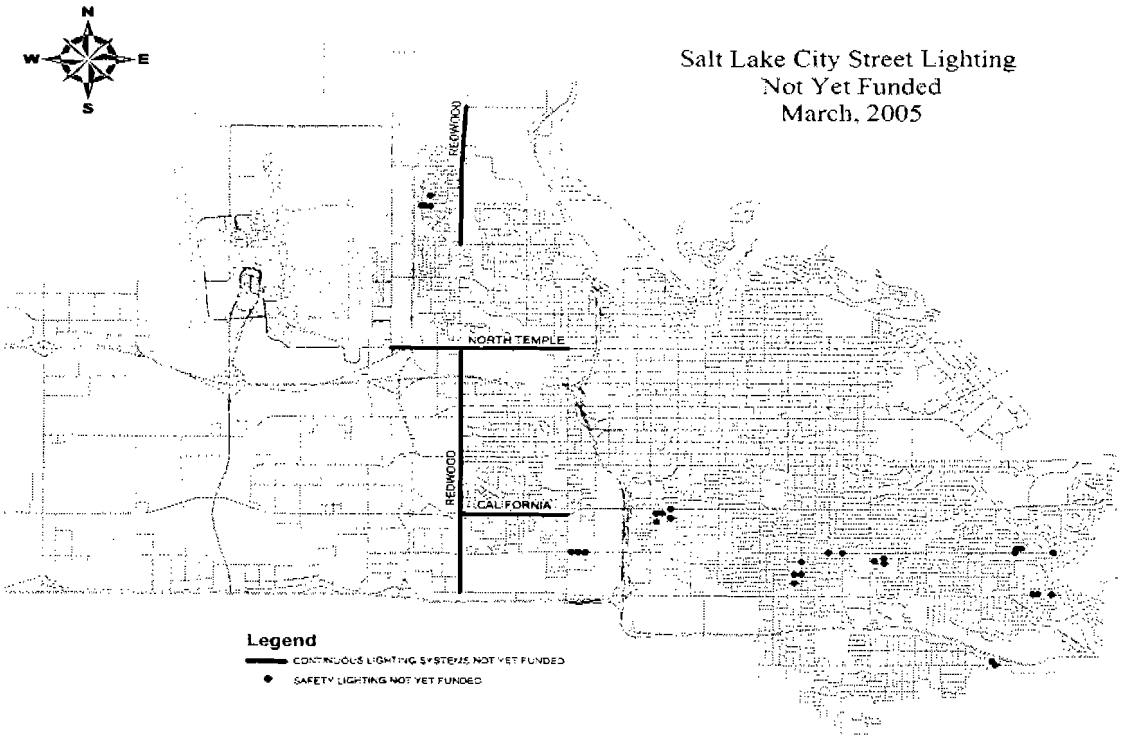
Issue 1. Traffic Safety Lighting (TSL) Program is not quite fully implemented and the ability to provide for new TSL lights is not assured.

The great majority of local streets in the City now have this base level of lighting provided by the City. A relatively small investment would complete the program and provide a minimum standard level of lighting citywide.

Additionally, the TSL program provides midblock lighting as an option if the majority of property owners within 150 feet of the location request it and there is no light within 300 feet. Several requests are received each year as properties change ownership or owners change their minds. Also, streets in existing industrial areas are eligible for TSL, but lights were not installed in the older industrial subdivisions years ago due to slow development and very low volumes of car, truck and pedestrian activity. As activity increases in these areas, TSL is requested and should be installed. Lighting is now required to be installed by the developer in new industrial areas or a waiver signed that commits the developer or owner to install the lights as the subdivision develops.

Recommendation 1. Complete the TSL Program citywide now and provide sufficient funding annually to install new TSL as justified.

CIP proposals for $50,000 and $55,000 have been requested for FY 06 to complete the Traffic Safety Lighting program citywide in all residential neighborhoods and currently justified industrial neighborhoods, respectively. Map A below shows the locations where traffic safety lighting has been requested, but not yet funded. Adding this lighting will require an increase in annual O&M costs of $2,500.



A CIP proposal for $75,000 has been requested for FY06 to cover the anticipated needs for new TSL lights in the coming year. A best judgment on needed funds will be requested each year via CIP. Any unused funds would be returned each year. Budgeting in this manner assures the ability to install justified lights within a reasonable time of the request.

Issue 2. Continuous Lighting Program is not quite complete citywide

Most of the major streets in the City have this lighting which provides a relatively uniform level of lighting along the street. It is brighter and more expensive to implement than Traffic Safety Lighting. The following streets are presently lit, but not to the Continuous Lighting level:

Redwood Road - 2100 South to North Temple and 1000 North to 2300 North

California Avenue - 900 West to Redwood Road

North Temple - 900 West to 2200 West (could be done as part of light rail to airport)

The capital cost estimate to complete the Continuous Lighting program is $444,000 to add 370 lights. Doing so will require an increase in annual O&M costs of $44,400. Major streets not presently lit with continuous lighting are shown on Map A.

Recommendation 2. Complete the Continuous Lighting Program

A CIP proposal for $275,000 has been submitted for FY06 to complete the arterial lighting on Redwood Road. A capital commitment the following year of $63,600 would complete California Avenue. It is recommended completing the remaining North Temple lighting as part of the light rail extension to the airport.

Issue 3. UP&L maintenance service remains inadequate

One of the significant issues with street lighting has long been the inordinate length of time between the reporting of light outages and their repair. Despite a number of different approaches taken by the power company and promises made, lengthy repair times remain and are considered unacceptable. It is possible to convert from the present "power and maintenance" rate to a "power only" rate with UP&L. We have been monitoring the experience of several communities in the Wasatch Front area that have switched to a "power only" rate coupled with private contractor maintenance. Their experience is showing improved repair response times and lower overall power and maintenance costs.

Recommendation 3. Convert to private maintenance of street lights if economically justified.

An RFP for contract street light maintenance has been drafted and is being reviewed by the City Attorney prior to bidding. The concept is to request bids for various types and levels of maintenance. If the bids prove favorable, the City will inform UP&L it will be going onto a power only rate and a contract will be entered into for the level of response time and type of maintenance service deemed most appropriate. The City's traffic signal maintenance section in the Public Services Department will also be given an opportunity to bid on all or portions of the contract to determine if maintenance with City staff is more economical and practical.

Issue 4. Private lighting is not being adequately maintained and only upper income neighborhoods are availing themselves to the program.

Private lighting has been a popular program for the past eight years to provide decorative lighting. Neighbors group to identify a light pole and fixture style they desire for their neighborhood. Funding assistance has been available from the City's Matching Grant Program to help pay the capital cost of purchasing and installing the poles, lights and underground wiring. The lights are wired into nearby homes whose owners pay for the electric power. The 1,900 property owners who have lights connected to their homes are responsible for operating and maintaining them.

Two significant issues have arisen with this program:

a. There is a poor track record of maintenance.
b. Few non-upper income neighborhoods are availing themselves of the matching grants.

Poor maintenance. An inventory of the private lights showed that more than 30% of them were not operating. Clearly, the intent of the program was well intentioned. The experience, however, is that after about four years, many property owners with lights have either changed their minds about operating and/or maintaining them despite having signed a revocable permit to do so or agreeing to this responsibility when purchasing a property from a homeowner who installed the light. Some of the neighbors who helped organize the effort to install the lights in a neighborhood have either moved on or are no longer capable of encouraging their neighbors to keep the lights operating. Some improvement was observed after the City mailed a letter to each property owner with a private light reminding them of their responsibility to maintain the light, but a high level of outages is still common. Some of the lights need only to have bulbs replaced, but residents aren't willing to use a tall ladder to do so. Some lights need physical repair that the owner is unwilling to perform, pay for or seek funds from neighbors. Others have simply turned off the circuit breaker in their homes to the lights.

Few non-upper income neighborhoods choosing private lighting. The vast majority of lights installed with matching funds are east of 700 East. Several efforts to use these funds in other areas of the City have not been successful. The intent of the Matching Grant program as it pertains to converting to decorative street lighting is not being fulfilled in lower or many middle income areas. Residents of these areas have indicated an inability to pay the one-time, up-front matching dollars for this program. Few applications for private lighting have been received in the past year indicating a slowing of demand.

Recommendation 4. Discontinue the Private Lighting Program. Allow successful private light areas to continue. Encourage others to convert their private lighting to SIDs with new underground wiring to a common circuit.

Because of the poor maintenance record and waning interest in installing new private lighting, discontinue offering the program. Although private lighting was an interesting and promising experiment, the local government should retain the ability to insure adequate lighting is maintained on the public right-of-way. Offer to residents of areas having poor maintenance the opportunity to convert the lighting to an SID with new underground wiring to a common circuit in the public right-of-way and City controlled maintenance. It is unclear, but doubtful that many neighborhoods would opt for this approach. The cost to install common underground wiring within the right-of-way in privately lit areas is estimated to be $3,000,000.

Issue 5. Lighting infrastructure maintenance and replacement is not adequately budgeted and the number of lighting programs and funding sources cause public confusion and requests for unique lighting arrangements.

Maintenance and replacement funding. The rates charged in street lighting SIDs were adjusted several years ago to allow existing SIDs to build funds over time to pay for extraordinary maintenance and help pay for eventual system replacement. This has proven valuable. No such mechanism is in place for the city-owned lights in the Traffic Safety Lighting Program or the Continuous Lighting Program.

The approximate 10,000 city-owned Traffic Safety and Continuous Lighting lights represent a significant asset. Approximately $100,000 has been budgeted annually in the General Fund street lighting cost center for maintenance needed beyond what is covered in the UP&L power and basic maintenance rate. Additionally, CIP requests have been relied upon for replacing worn out lights. With the growing competition for CIP monies, lighting replacement funding is not adequately budgeted nor are any funds guaranteed. On a life cycle basis of 40 years, $500,000 is needed annually to replace deteriorated lighting systems. This equates to replacing 250 lights, poles and wiring annually.

Number of lighting programs. The Traffic Safety Lighting and Continuous Lighting programs are both 100% city funded and nearly completed. The difference between them is the former is for local streets and the latter is more intense lighting for major streets. These could simply be combined into one program called "City Standard Lighting" which recognizes the two lighting levels based on street classification. The Private Lighting Program is recommended to be terminated. SID lighting remains viable.

Number of lighting funding sources. Capital funding for street lighting has been made available over time at different participation rates from the General Fund, Matching Grant Program, CDBG, CIP and RDA. Each funding source has its own restrictions on the amount of funding available, use and geographic eligibility. All of this has added to the confusion and wishful thinking of property owners seeking lighting, particularly decorative lighting.

CDBG funding is restricted to CDBG eligible areas. It can be used for design and capital costs of lighting in non-SID areas. It can only be used for design in SID areas. It cannot be used for O&M.

RDA funding is restricted to RDA areas. It can be used for design and capital costs in or out of an SID. It is not used for O&M.

CIP funding has no geographic restriction. It has been used to design, purchase and install city provided lighting within the Traffic Safety Lighting and Continuous Lighting Programs. It has also been used to defray some of the capital costs in SID areas.

General Fund monies have no geographic restriction. It is used for operation costs and has been used for maintenance not covered under the "power and basic maintenance" rate of UP&L as well as for replacement of individual lights as needed. It has also been used to install new Traffic Safety Lighting.

Matching Grant Program funds are available for 50% matching from property owners for the capital costs of installing private lighting. This funding is not available for O&M.

Capital costs in lighting SIDs are the responsibility of the participating property owners. However, funds from the CIP and RDA have been applied in some cases to help offset capital costs. There is no policy governing how much or what percentage of the total cost could come from these sources.

Reliance on a variety of funding sources, many of which require competing with other project proposals, does not guarantee having adequate maintenance or replacement funds.

Recommendation 5. Retain a specialized consultant to analyze options for and create one citywide lighting program with a discrete funding source.

A citywide SID, or perhaps a concept such as a utility or enterprise fund, would result in a single lighting program and one funding source adequate to operate and maintain the level of supported lighting. Public confusion and incentives for seeking unique funding deals would be eliminated and funding needed to maintain a valuable public asset would be assured.

A comparison of the current lighting program to two citywide SID scenarios and a utility or enterprise scenario is shown in Figure 1, below. A City staff committee representing the Transportation Division, Treasurer's Office, Housing and Neighborhood Development and the City Attorney's office prepared this information. Specific expertise not on City staff is needed to evaluate these and perhaps other concepts in more depth to determine the best approach. Consultants such as those used in evaluating and setting up the City's impact fee system should be retained. Discussions with several such consultants have resulted in a draft scope of services shown in Figure 2. Although the scope can be modified to highlight any desired direction in analysis and funding options, this draft estimates the work would cost approximately $91,000. It is recommended that Administration staff and Council staff work jointly with the consultant to assure a thorough evaluation and understanding of the topic.

A citywide assessment could pay for the power and maintenance of all streetlights as well as capital replacement and installation of new lights as necessary. Several cities in the Wasatch Front have done this. The fees range from $1.75 to $4.25 per month per residential property. Large and commercial properties would pay proportionately more. Some communities assess for street lighting on utility bills. Some assess according to property value while others assess on a per property unit value basis. In each of these cities, a street lighting enterprise fund or an SID has been created that installs and maintains all the streetlights. The purpose of these funds and districts is to insure that adequate funds are available and that the funds are only used for street lighting. If a citywide funding mechanism is adopted, fees or assessments would likely need to be set initially at several levels to reflect what residents have already spent on lighting in their neighborhoods as well as the cost to provide the different levels of lighting that currently exist. When various funding mechanisms used in other cities were discussed with Community Councils, a discrete assessment for lighting was generally supported. Bonding or pay-as-collected funding could be used to replace lights as needed and upgrade lights in areas willing to financially support the cost of decorative lights with underground wiring to replace existing lights and wiring.

It is further recommended that the consultant analysis include an evaluation of how funding could be acquired in a similar manner to pay for the undergrounding of power lines. Eliminating power lines and street lighting lines from view is a desirable aesthetic and quality of life request often heard.

Figure 1

March, 2005

Street Lighting Program & Funding Options

1. **Current Program.** Provides basic lighting for traveler safety (Traffic Safety Lighting Program and Continuous Lighting Program) and options for decorative lighting (SIDs and Private Lighting). Issues include neighborhoods requesting a different deal from the city for lighting which creates confusion and the potential for setting precedents. Lower income areas find it difficult to enter into either a matching grant or SID to acquire decorative lighting. After about 4 years, up to 30% of residents are turning off their private lights or are not maintaining them.
2. **Citywide SID "A."** This concept has the City paying 100% of the O&M cost for street lighting and offering the use of an SID for property owners to pay 100% of the cost to convert to decorative lighting or replace decorative lighting. This would allow the use of CDBG funding, under current regulations, for up to 100% of the capital cost of lighting which helps lower income areas. It also reduces the city's administrative costs by no longer needing to manage ongoing O&M SIDs. It has an initial higher O&M cost to the City.
3. **Citywide SID "B."** This concept converts lighting to a citywide SID for both capital and O&M with the City participating in 25% of each. This reduces the City's cost for O&M at the expense of assessing all property owners, but provides the ability for the City to offer more than $1,000,000 annually toward capital costs of converting to decorative lighting should property owners be willing to enter into a capital SID. This option has the disadvantage of assessing lower income areas.
4. **Citywide lighting utility or enterprise fund.** This scenario would assess each property owner to cover all of the costs of street lighting. It could be done in a manner that would allow a steady income to convert lighting at a regular pace or bond to convert more quickly. Under this scenario, consideration could be to reducing the current amount taxed for street lighting. Assessments could be structured in several ways. It is not known how the administrative costs of this approach compare to that of the other methods such as using SIDs.

Program issues:	1. Current Program	2. Citywide SID "A"	3. Citywide SID "B"	4. Citywide Utility or Enterprise Fund
Definition	100% city $ in non-SID various city $ in SID capital 25% city $ in SID O&M	100% prop own. – capital 100% city - O&M and major street capital	25% city $ in SID capital 25% city $ in O&M	100% capital & O&M from fund with some GF tax rollback
Average annual City costs with present lighting	$1,500,000-2,000,000: $1,200,000 non-SID O&M $222,000 SID O&M $0-50,000 GF matching grant $0-30,000 CDBG capital $0-500,000 CIP capital $0-75,000 GF new lights capital $0-200,000 RDA, 0 to $50,000 private develop.	$2,088,000 O&M plus $250,000-500,000 major street capital	$522,000 O&M $1,500,000 capital available to be matched 3:1 by property owners	$2,088,000 O&M plus whatever level desired for capital

Figure 1 (cont.)

Program issues:	1. Current Program	2. Citywide SID "A"	3. Citywide SID "B"	4. Citywide Utility or Enterprise Fund
Annual resident costs with present lighting	$666,000 O&M in SID various capital $ in SID	None, unless new decorative lights desired	$1,566,000 for O&M plus 75% of any capital	$2,088,000 O&M plus any capital
Is there a guaranteed funding source for O&M?	No, must rely on General Fund	No, must rely on General Fund	No, must rely partially on General Fund	Yes
Is there a guaranteed funding source for capital (new or replacement lights)?	Can be in SIDs, but must compete for CIP, RDA, GF and CDBG for non-SID areas	Must create SID, major street paid out of CIP, RDA, GF and CDBG	75 % provided by property owner, major street by CIP, RDA, and GF	Yes
What funding sources/mechanisms can be used for capital costs?				
CDBG	Design only in SID areas	Yes	Design only	Design only
CIP or other General Fund	Yes	Yes for major streets	Yes, various %	Could supplement
RDA	Yes, in RDA areas	Yes, in RDA areas	Yes, in RDA areas	Yes, in RDA areas
SID	Yes	Yes	Yes	N/A
Bonding	Yes	Yes	Yes	Yes
New private development	Yes	Yes	Yes	Yes
New public projects	Yes, except CDBG in SID areas	Yes, except CDBG in SID areas	Yes, but not CDBG	Yes, but not CDBG
Assessment billings	annual in SID areas	annual as needed for capital only	annual	monthly, quarterly or annual
Use flexible assessment rates to account for lights already paid for by private ltg. &/or SID ltg.?	N/A	Yes, use different rates based on each area's capital needs	Yes, use different rates based on each area's capital and O&M needs	Yes, use diff. rates initially based on previous contributions then use flat rate
Can City collect delinquent assessments?	property liens in SIDs	property liens in SIDs	property liens in SIDs or SSDs	*property lien? turn off water?*

Figure 1 (cont.)

Program issues:	1. Current Program	2. Citywide SID "A"	3. Citywide SID "B"	4. Citywide Utility or Enterprise Fund
Are funds available to cover delinquent assessments until collected?	covered by G.F. against property liens	covered by G.F. against property liens	covered by G.F. against property liens	*advanced from funds collected or borrowed?*
Can private lighting be converted to public ownership fairly?	Via SID if majority property owners agree	Yes, when power is connected to grid	Yes, when power is connected to grid	Yes, when power is connected to grid
Effort needed to implement	N/A	convert existing SID areas to citywide SID and add other properties	convert existing SID areas to citywide SID and add other properties	convert existing SID areas to citywide enterprise or utility, add other properties
Effort needed to manage	continue programs and periodic renewals of SIDs	periodic renewal of citywide O&M SID	periodic renewal of citywide capital SID & O&M SID or SSD	Operate citywide enterprise or utility fund
Additional City resources needed to administer	None	Possibly	Possibly	Likely

Figure 2

Conceptual Outline for the SLC Street Light Project - $91,000

Phase I: Overview of Financial Options - $36,000

1) **General Financing and Revenue Options (50hrs X $100= $5,000)**
   a) Current and available types of user fees
   b) Available bonds or financing mechanisms
      i) Legal requirements
      ii) Revenue stability and sufficiency
      iii) Best and worst fit with land uses
      iv) Political considerations
      v) Benefits and difficulties associated with each proposed mechanism

2) **Analysis of Areas to be Improved (60 hrs X $100= $6,000)**
   a) Logical service areas
      i) Grouping of residential, commercial, class c roads, etc.
   b) General land use characteristics
      i) Residential
      ii) Commercial
      iii) RDA areas
      iv) Class C roads
      v) Current related and unrelated special districts

3) **Analysis of Projects (80hrs X $100= $8,000)**
   a) Costs per service areas
   b) Timing of projects
      i) Create a timeline of expenses

4) **Financial Review (80hrs X $100= $8,000)**
   a) Cash available to transportation department or to the project
   b) Analysis of revenues (sales tax, user fees, Class C funds, RDA increment, etc.)
      i) Current and historic levels
      ii) Projected growth
      iii) Bonds to which revenues are pledged
      iv) Pay as you go projects to which revenues are pledged
      v) Collection rates
   c) Cursory calculation of overall debt service requirements

5) **Create General Approaches (90hrs X $100= $9,000)**
   a) Identify political difficulties in different approaches
   b) Timing requirements for each approach
   c) Pros and Cons
   d) Final recommendations
   e) Create a written analysis and present findings

Figure 2 (cont.)

Phase II: Technical Analysis of Service Areas and Final

Recommendations - $55,000

1) **Update enterprise fund user fees (150hrs X $100= $15,000)**
   a) Propose user fees considering capital costs to be recovered through rates and bonds
   b) Review O&M and other costs
   c) Structure fair, stable and sufficient fees

2) **Pro-Formas of Debt Service and Coverage Ratios (200hrs X $100= $20,000)**
   a) Create land use growth projections per service area
   b) Project revenues per service area
   c) Structure proposed financing and calculate debt service for each service area
   d) Calculate debt service coverage ratios

3) **Prepare a Complete Technical Analysis (200hrs X $100= $20,000)**
   a) Include all findings and analysis
   b) Support or modify recommended financing options based upon analysis
   c) Prepare a comprehensive financing plan to clearly define the timing, sizing, structure, and issues related to final proposed approach
   d) Present findings

Note: The purpose of the scope listed above is to assist the City in drafting an RFP and estimating a maximum cost that the roads department will present to the City Council for a budget allocation for the project. The general paragraphs below would be used in the RFP.

General Description of Project

Tasks would focus on creating and innovative and optimal financing structure and plan to finance the construction of street lights throughout several areas within the City to achieve the absolute lowest financing costs. As part of the tasks, the consultant must not only recommend an optimal financing structure but must provide sufficient analysis to support the plan, timelines for each financing, and policy to facilitate the plan's implementation.

Successful applicants must demonstrate competence and sufficient experience in creative debt structuring and provide detailed examples of how the consultant has structured debt using a variety of different financing mechanisms to create a creative financing plan that has ultimately saved the client significant financing costs. Any examples of experience relating to the financing of street lighting will be beneficial.

Figure 2 (cont.)

Description of Tasks

The consultant will be required to provide a comprehensive evaluation of all possible financing mechanisms that the City may implement to finance street lights including different classes and structures of user fees. The comprehensive analysis must include the advantages and disadvantages of each mechanism including consideration of legality, bond purchaser requirements, best fit with land uses, political considerations, and difficulties of implementation and administration.

The consultant must evaluate the areas that the City must improve and the areas' corresponding land uses, the current financial situation of the City, related outstanding debt, revenue growth, etc. in preparing general financing options. The consultant must prepare a summary of general financing option to be presented to the City Staff and Council for consideration.

Following the City's selection of the most feasible financing options, the consultant will prepare a technical analysis to determine the best of the financing options available. The technical analysis will include projections of development within the areas of the City to be improved, evaluation of O&M costs and future financing costs, evaluation of revenue sufficiency and compliance with bond covenants, policy recommendations and methods to minimize political impacts, etc. The technical analysis must support the final recommended financing plan.

Upon completion of the technical analysis a written report will be prepared and findings presented to the City Council. Throughout the process of the report it is envisioned that the consultants will meet with senior city staff and a citizen's advisory board to discuss findings and approaches.

Attachment B
Salt Lake City Street Lighting
Master Plan and Policy

The City had no substantive master planning for street lighting until the late 1980's. Lighting consisted of intersection and mid-block lights on local streets, brighter continuous lighting on major streets and SID lighting for areas desiring more or decorative lights. A general lighting plan was created in the late 80's by the Transportation Division, Planning Division and members of the then informal Salt Lake City Transportation Advisory Committee, a predecessor of today's City Council ordinance-created Transportation Advisory Board. It served as a guideline in determining the light types and pole styles that were used. A companion administrative policy described the lighting programs offered and industry standard minimum light levels to achieve based on the street classification and abutting land use.

More recently, Council provided direction that a street lighting plan and policy should be administrative.

A proactive effort was undertaken to learn what citizens wanted in street lighting with the intent to create a more formal plan. This master planning effort involved meeting with each community council. An advisory committee of residents, and experts in lighting and related fields was also created. Reviews were conducted of the latest lighting products for light types, globes and poles and their costs.

The following are key findings that are incorporated into the accompanying Salt Lake City Street Lighting Master Plan and Policy.

Desire for decorative pedestrian-oriented lighting. There is a strong desire by all 23 community councils to see decorative pedestrian-oriented lighting throughout the City.

Environmental issues. There is growing concern nationwide about stray light and its impact on being able to see the evening skies. The community councils have been supportive of requiring dark sky compliant shielding on street lights. This lighting policy is dark sky compliant for all new lights. Compliance involves using fixtures that direct all or the majority of light downward and either zero or a minimal amount of light upward, usually only enough to illuminate the top of decorative light globes. This not only allows improved observation of the night sky, but also more efficiently directs the light downward to the sidewalk and street. Two organizations interested in stray light issues, Dark Skies International and Utah Skies, are supportive of this policy. Consideration of light placement and tree location is also required.

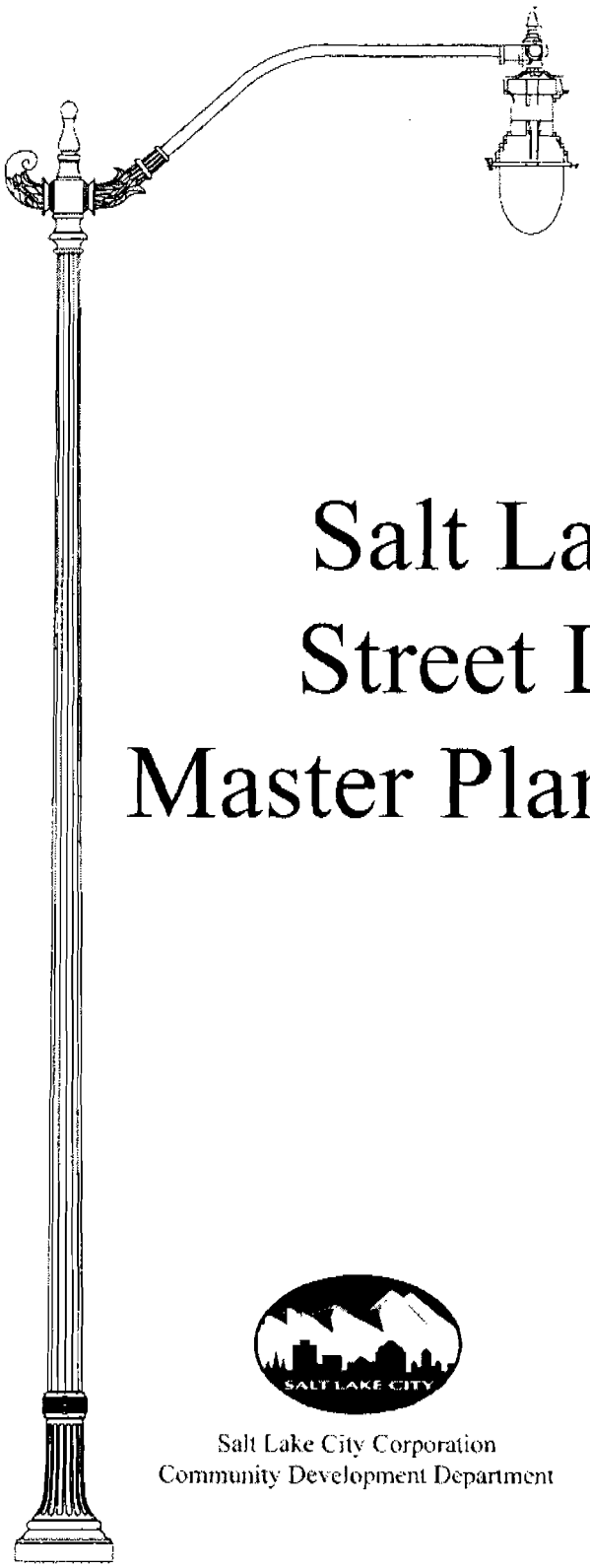
Light source. The community has a desire to replace sodium vapor lights with the whiter, more daylight type light emitted by metal halide and inductive light sources. These lights provide the best color rendition and ease of sight and are among the most energy efficient.

Design. Each community council desires to have distinctive light poles and fixtures for the aesthetics it provides a neighborhood during the day as well as at night. Many have already selected a style of decorative light and pole for their area should they convert their current lighting. CPTED principles are also incorporated into lighting system designs for improved public safety.

Banners. There is public support to allow the use of banners on street light poles throughout the City. A banner ordinance is being crafted with the Planning Commission to replace the currently used Executive Order.

Policies. This plan also includes the administrative policies for providing lighting in Salt Lake City, making it a somewhat uniquely crafted document that is user-friendly. All of the information on why lighting is important, the light types approved for use, the intensity of lighting that is required, the plan on what to install and where, and the requirements for design are all located in one document.

Draft March, 2005



Salt Lake City Street Lighting Master Plan and Policy

Salt Lake City Corporation
Community Development Department

Salt Lake City
Transportation Division
349 South 200 East. Suite 450

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1. INTRODUCTION

Salt Lake City's history illustrates a long-standing concern for the quality and safety of the urban environment influenced by street lighting. Salt Lake City was the fifth city in the United States to have electric streetlights. By 1887, streetlights were operating on Main Street, and along First South and Second South Streets. In 1908 Salt Lake City adopted a systematic plan for locating streetlights at each intersection on long blocks and an additional light midblock, when requested.

Historically, the lighting levels for street lighting, although modified and expanded over the years, were generally based on the Illuminating Engineering Society of North America (IES) recommendations. These are widely considered as generally accepted guidelines and are currently contained in IES publication RP-8-00 Roadway Lighting. They are based on geometric, operational and environmental factors. Salt Lake City's lighting standards also take into account factors such as traffic volume, accident rates, nighttime pedestrian activity, crime prevention and neighborhood preferences.

This is an administrative master plan recognizing lighting levels required for safety and the decorative style of lighting poles and fixtures as expressed by residents and business owners during numerous outreach meetings. *The administrative policies of Salt Lake City that govern the implementation of new and replacement street lighting are shown in italics within this document.* This plan includes information on the purpose and impacts of street lighting, required lighting levels within the City, acceptable styles of fixtures and poles, a plan showing the desired lighting for each neighborhood within the City, the technically recommended implementation priority and associated aspects of street lighting such as designing with crime prevention in mind and the use of banners on street light poles.

2. PURPOSE

Lighting serves many purposes. To many people, public way lighting goals are seemingly achieved by installing brighter or additional lights. However, harmful or negative effects of lighting such as glare and reduced visibility of the night sky were often overlooked. Lighting technology has evolved tremendously in recent years. There are now more light sources, fixtures, poles and materials available. There is also much interest in the use of decorative light poles with underground wiring along with a recognition of street lighting as an important daytime as well as evening urban design element.

Addressing the environmental issues of lighting design is seen as critically important to maintaining quality of life in neighborhoods. These issues go beyond the amount of light produced and include minimizing light pollution, enhancing the urban environment during the day by use of decorative poles and fixtures and at night by the provision of pedestrian level light, deterring undesirable or illegal activities, increasing safety, restricting unwanted truant light onto private property and minimizing glare, power consumption, cost and visual impacts (day and night).

This Street Lighting Master Plan is intended to be used in a compatible manner with existing land use master plans and updated as necessary to remain compatible with them. Defining lighting design policies will help the public, developers and City officials recognize lighting-related issues that must be addressed.

All of these factors have created the need for this comprehensive street lighting master plan and policy applicable to Salt Lake City's public rights-of-way.

3. STREET LIGHTING IN A PEDESTRIAN FRIENDLY CITY

Effective street lighting illuminates the street and sidewalk to offer visibility by and of the users of the public right-of-way for the safe and comfortable interaction of drivers, bicyclists and pedestrians.

Street lighting projects should combine with other urban design elements to create a holistic and aesthetic environment for pedestrians. Effective pedestrian lighting helps people feel safe and comfortable while walking in neighborhoods and to transit stops, stores, and other destinations. To accomplish this, the daytime appearance of the light poles and fixtures and the nighttime appearance of the illumination should reflect the needs and characteristics of each neighborhood and its master plan.

Salt Lake City desires to be a pedestrian friendly city. The Summary Vision Statement of the 1998 Final Report of the Salt Lake City Futures Commission states: "Salt Lake City's transportation system is integrated and multimodal. It moves people and products efficiently into and through the city. If focuses first on pedestrians and bicyclists, second on mass transit, and third on single occupant automobiles in planning and infrastructure support." The report recommends the expansion of late-night recreational programs and the design of streets that are pedestrian friendly. It encourages walking, improvements to the transportation system that promote auto-alternate means of travel such as walking, bicycling, and the use of bus, light rail and commuter rail transit, the adoption of pedestrian- and bicycle-friendly master plans for City neighborhoods and the use of Crime Prevention through Environmental Design (CPTED) techniques to reduce crime.

Adequate lighting of sidewalks and pedestrian crossings is a significant aspect of new street lighting projects. In addition to lighting pedestrian areas, street lighting should provide reasonably uniform illumination of the full width of public travel way.

Much of the existing street lighting in the City is provided by "cobra head" streetlights at a height of between 25 feet to 30 feet. This lighting pattern is effective for the roadway, but not always effective for pedestrians due to shading by trees and the difficulty in providing uniform lighting along sidewalks. The following drawings show the impact of street light mounting height on the lighting pattern of sidewalks.

Figure 3.1 shows the uneven light levels often associated with high-mounted lighting particularly in residential areas with mature trees and long spacing between lights. While this type of lighting may be adequate for drivers because the spot light effect is supplemented by their vehicle's headlights, it is neither pedestrian-friendly nor does it encourage walking.

Figure 3.1. High-mounted Cobra Head Street Lighting

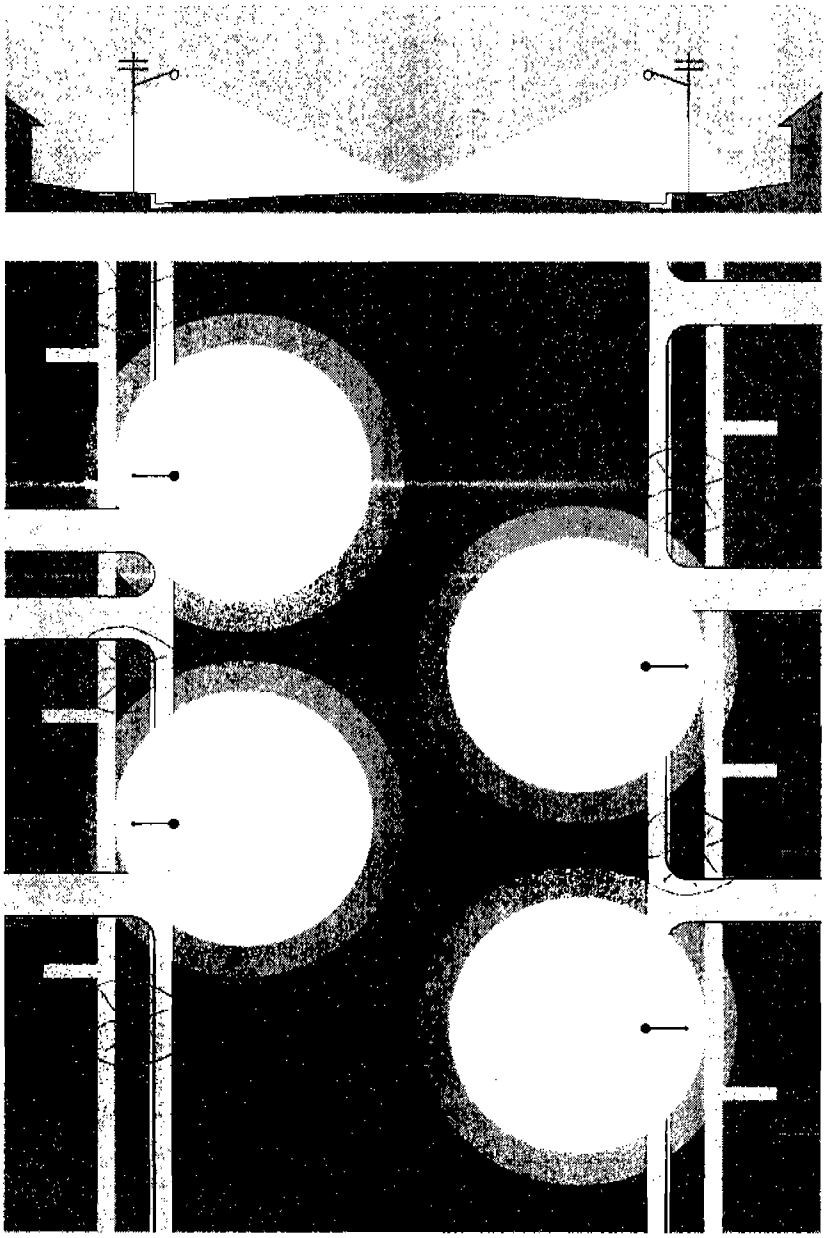


Figure 3.2 illustrates how pedestrian style streetlights with optically controlled light distribution are located below the tree line and provide a more even level of lighting that invites pedestrian activity during evening hours.

Figure 3.2. Pedestrian Style Lighting

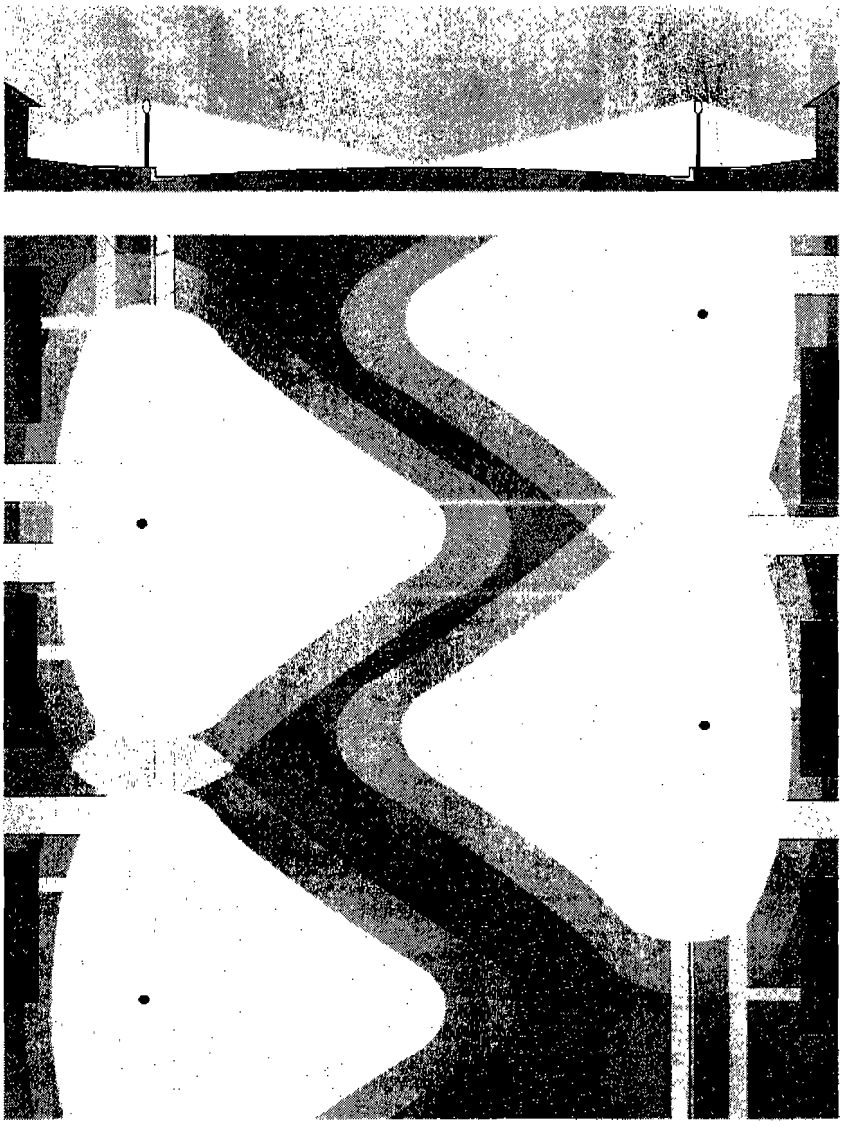
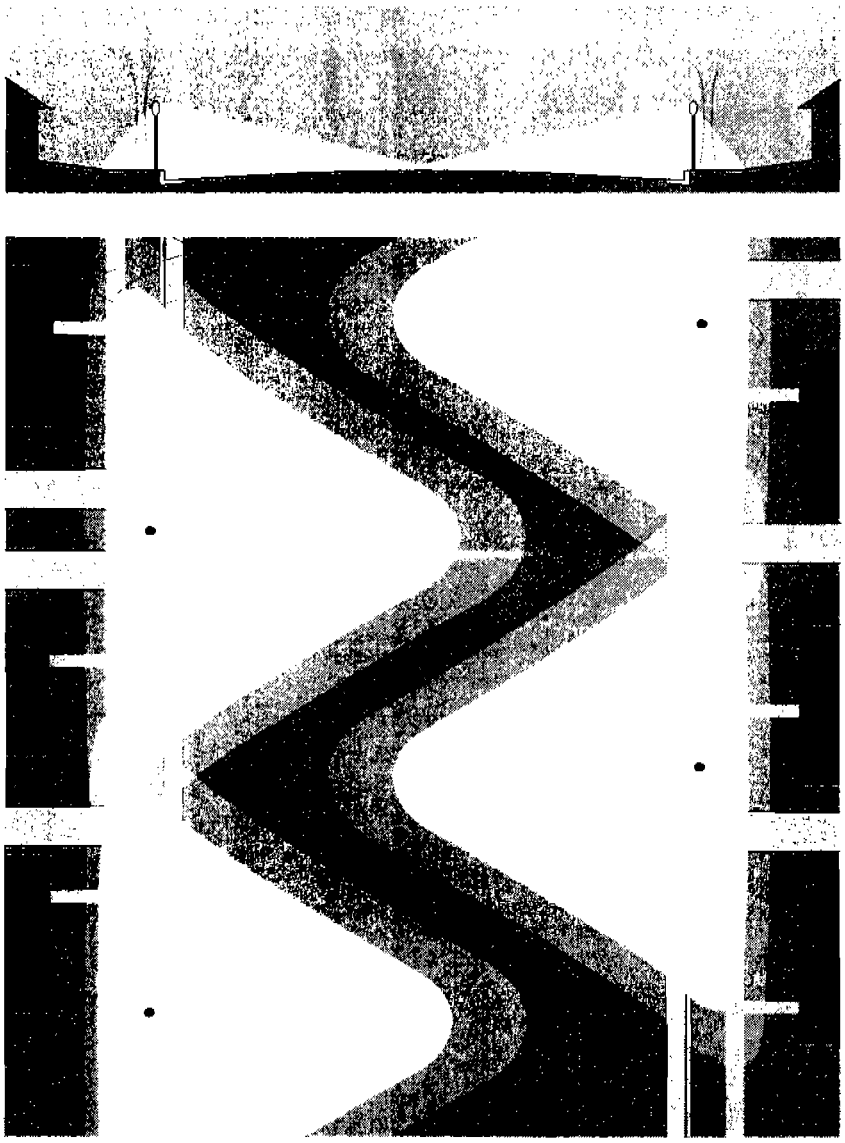


Figure 3.3 is a variation of Figure 3.2 showing how side shields can be placed inside light fixtures to reduce light trespass onto private property and into windows.

Figure 3.3. Pedestrian Style Lighting with Resident Side Light Shield



4. LIGHTING LEVELS AND DESIGN REQUIREMENTS

All new and replacement street lighting of City right-of-way shall meet the minimum lighting level and design standards shown in Table 4.1. These standards pertain to all new developments, installation of new lights and replacement of existing lights.

Table 4.1. Salt Lake City Minimum Roadway Lighting Design standards

Road Class	***Area Classification***	***Average Luminance*** L_{ave} ***(cd/m²)***	***Luminance Uniformity Ratio*** L_{ave} ***to*** L_{min}	***Luminance Uniformity Ratio*** L_{max} ***to*** L_{min}	***Veiling Luminance Ratio*** L_v ***to*** L_{avg}
Major	*Commercial*	*1.2*	*3 to 1*	*5 to 1*	*0.3 to 1*
	Intermediate	*0.9*	*3 to 1*	*5 to 1*	*0.3 to 1*
	Residential	*0.6*	*3.5 to 1*	*6 to 1*	*0.3 to 1*
Collector	*Commercial*	*0.8*	*3 to 1*	*5 to 1*	*0.4 to 1*
	Intermediate	*0.6*	*3.5 to 1*	*6 to 1*	*0.4 to 1*
	Residential	*0.4*	*4 to 1*	*8 to 1*	*0.4 to 1*
Local	*Commercial*	*0.6*	*6 to 1*	*10 to 1*	*0.4 to 1*
	Intermediate	*0.5*	*6 to 1*	*10 to 1*	*0.4 to 1*
	Residential	*0.1*	*6 to 1*	*10 to 1*	*0.4 to 1*

Notes:

1. *All new streetlights must meet, at a minimum, the "dark sky semi-cutoff" standard with the exception that all new "shoe box" or "cobra head" style streetlights must meet the "dark sky cutoff" standard. Dark Sky classifications are explained in Section 6 of this master plan.*
2. *In industrial areas, taller mounting heights and "shoe box" or "cobra head" style streetlights meeting the "dark sky cutoff" standard may be used.*
3. *Exceptions to these standards are not desirable and must be approved by the City Transportation Engineer.*

Lighting in new subdivisions and developments

All new subdivisions and developments are required to place utility lines underground. This includes electric power lines for street lighting in underground conduit. All costs for this work are borne by the development owner. The lighting levels, poles and fixtures used shall meet the requirements of this master plan and policy. The spacing and location of the light fixtures will be determined by an engineered lighting design and approved by the Salt Lake City Transportation Division.

Lighting along reconstructed streets

Desiring to minimize construction impacts to neighborhoods and overall costs, street reconstruction projects within Salt Lake City shall include the installation of underground conduit for street lighting, when practical. It is desirable to upgrade the lighting, if needed, at the time of street reconstruction. In cases where this is not practical, underground conduit with appropriately placed access boxes shall be installed to facilitate future lighting.

New and Replacement Lighting in existing developments and as part of redevelopments

New and replacement lighting in existing developments and lighting required as part of redevelopments shall include the installation or use of existing underground conduit where practical for street light wiring and meet the illumination standards of this lighting policy at the time of design approval. It is required that the decorative poles and fixtures contained in this policy be used for new and replacement lighting unless circumstances for their use are not practical and approved by the Transportation Engineer. Previously existing lighting is to be removed as part of projects to install replacement lighting.

Lighting of Alleys and Privately Owned Streets

Only dedicated publicly-owned streets are eligible for street lighting funded by the City. Public alleys will not be lighted using City funds; however, they may be lighted by abutting property owners at their expense upon approval of the proposed lighting by the City Transportation Engineer. Privately owned streets, alleys and rights-of-way may be lighted by abutting property owners at their expense.

Pole Placement

Street light poles can represent a roadside hazard if located improperly. All new street light poles, in areas with sidewalk abutting the street curb, shall be located behind the sidewalk in a location between the sidewalk and right-of-way line. All new street light poles in areas with a planting strip between the sidewalk and curb are encouraged to be located behind the sidewalk, but may be located in the planting strip if there is a high back street curb and if there is at least 18 inches lateral clearance between the face of curb and nearest side of pole.

Exceptions to any of the above standards are not desirable and must be approved by the City Transportation Engineer.

5. LIGHT TYPES

The preceding section described the level or amount of lighting required on Salt Lake City's public rights-of-way. This section describes the type or source of light to be used. Both affect a person's ability to comprehend what is being seen.

Currently, the most popularly used light sources for street lighting are metal halide and high-pressure sodium vapor. Previously, mercury vapor, fluorescent and incandescent lighting were prevalent. A few incandescent lights still exist along city streets. Mercury vapor and fluorescent lighting are no longer available for new installations. A relatively new white light source gaining popularity is induction lighting. A number of factors are involved in determining acceptable light sources. These include color rendition, cost to purchase and cost to operate and maintain.

Color Rendition and night vision

Colors are more readily identified when seen under blue-white light sources found in the shorter wavelengths of the color spectrum than under the longer wavelengths of yellow-orange light sources. This makes metal halide, induction, mercury vapor and incandescent light sources, which more closely mimic daylight, popular from a visibility and object identification viewpoint. Color rendition is more difficult under the yellow-orange light source of sodium vapor.

Metal halide is the technological successor to the mercury vapor, fluorescent and incandescent blue-white light source lamps and offers more economical operation with a longer lamp life (burn time). It is the current lamp technology of choice among lighting design professionals. Induction lights may prove to be the successor of metal halide lights. They provide good color rendition and promise a very long lamp life which equates to reduced maintenance costs.

Ease and accuracy of color rendition translate into a more attractive night time pedestrian atmosphere. They make streets feel safer and more attractive to pedestrians. For these reasons, the Crime Prevention through Environmental Design (CPTED) process favors white-blue street lighting over yellow-orange lighting.

Purchase Costs

Purchase costs for most light types are fairly similar. The new induction lights have a higher purchase cost offset by its much longer lamp life (burn time) claimed to be up to 100,000 hours (20 years). Cost considerations are generally more important with respect to maintenance and power usage than purchase and installation.

Operating and Maintenance Costs

High-pressure sodium vapor lighting uses less electricity to operate and the bulbs have a longer lamp life than many other light sources. This makes them popular from an economical point of view despite their only moderate color rendition attributes.

The cost to operate metal halide lighting has been reducing as their popularity and availability in the lighting industry has increased.

The cost advantage of induction lights is their long life expectancy which minimizes maintenance costs. Paying for power only on these 20-year bulbs recoups the higher purchase cost of induction lights in a 3 to 6 year period.

The Future

The lighting industry is focusing its attention on white lights for good color rendition, longer lamp life and energy efficiency for economy and a broader range in the light output (size of lamps offered) for use in various situations. This bodes well for metal halide and induction lighting which will likely succeed high-pressure sodium lighting as the most commonly used light sources.

Table 5.1 summarizes the general differences in the lamp types for the most commonly used bulb sizes encountered in street lighting. A comparison of these lights to incandescent lighting is also provided. The values shown are approximate and intended for relative comparisons.

Table 5.1. LAMP TYPE COMPARISON

	Lamp Type			
Factor	**Incandescent**	**Metal Halide**	**High-Pressure Sodium**	**Induction**
Wattage	25-150	50-400	50-400	55-165
Efficiency (lumens/watt)	8-18	38-75	72-115	64-73
Lumen Maintenance (%)	90 (85)	75 (65)	90 (70)	75 (50)
Lamp Life (hours)	750-2000	10,000-20,000	18,000-24,000	100,000
Energy Use	High	Medium	Low	Low
Color Rendition	Very Good	Very Good	Moderate	Very Good

Definitions:

- Wattage - Lamp wattages most commonly used in street lighting
- Efficiency – lamp output efficiency at 50% lifetime of lamp
- Lumen Maintenance - percent of initial lamp output at 50% lifetime of lamp and at end of lamp lifetime (in parentheses)
- Lamp Life - approximate typical lifetime of lamps in hours
- Energy Use – indicator of energy costs
- Color Rendition - relative ability of average observer to accurately perceive colors under the light types shown

Acceptable light types

Only efficient light types of the blue-white spectrum shall be used for new and replacement lighting. This currently translates to metal halide and induction light types. Existing high-pressure sodium vapor and other light types will continue to be supported until it becomes necessary to replace the light fixtures.

Exceptions to any of the above standards are not desirable and must be approved by the City Transportation Engineer.

6. LIGHT CUTOFF CLASSIFICATIONS OF LIGHTING FIXTURES

The term "light pollution" is often used in describing three distinct negative effects of lighting which are light trespass, sky glow and glare. Light trespass occurs when uncontrolled light from a street light is allowed to "spill" into an area where it is unwanted such as onto private property into a building window. Sky glow is the effect of obscuring the view of the night sky as a result of light being directed upward. Glare is created when a harsh light source detrimentally reduces an individual's ability to see objects the light is meant to illuminate.

Salt Lake City experiences all three types of light pollution. Light trespass and sky glow can annoy property owners and detract from enjoyment of their property. If the street lights are more noticeable than the objects they illuminate, then the lights are likely producing glare. Glare can be discomforting and counterproductive to drivers, pedestrians and other users of the public right-of-way.

With the help of environmental groups such as Dark Skies International, the Illuminating Engineering Society of North America (IES) has developed cutoff classifications for the lighting industry which are intended to reduce these negative impacts of lighting. There are four levels of cutoff classifications: Full Cutoff, Cutoff, Semi-Cutoff and Non-Cutoff. Full Cutoff light fixtures offer the most light distribution control and provide significant mitigation to all three types of light pollution; however, there are benefits and limitations to each light cutoff classification.

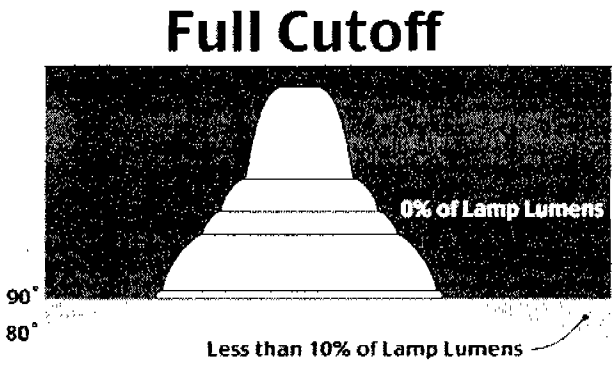
Acceptable light cut-off features

All new and replacement street lighting shall meet, at a minimum, the requirements of semi-cutoff lighting. In locations where "cobra head" or "shoe box" fixtures are used, they must meet, at a minimum, the requirements for cutoff lighting.

Exceptions to any of the above standards are not desirable and must be approved by the City Transportation Engineer.

Figures 6.1 through 6.4 describe each cutoff classification and their associated benefits and limitations.

Figure 6.1. Full Cutoff Light Fixture



No light above horizontal and less than 10 % of the produced lamp lumens shine above the 80° line.

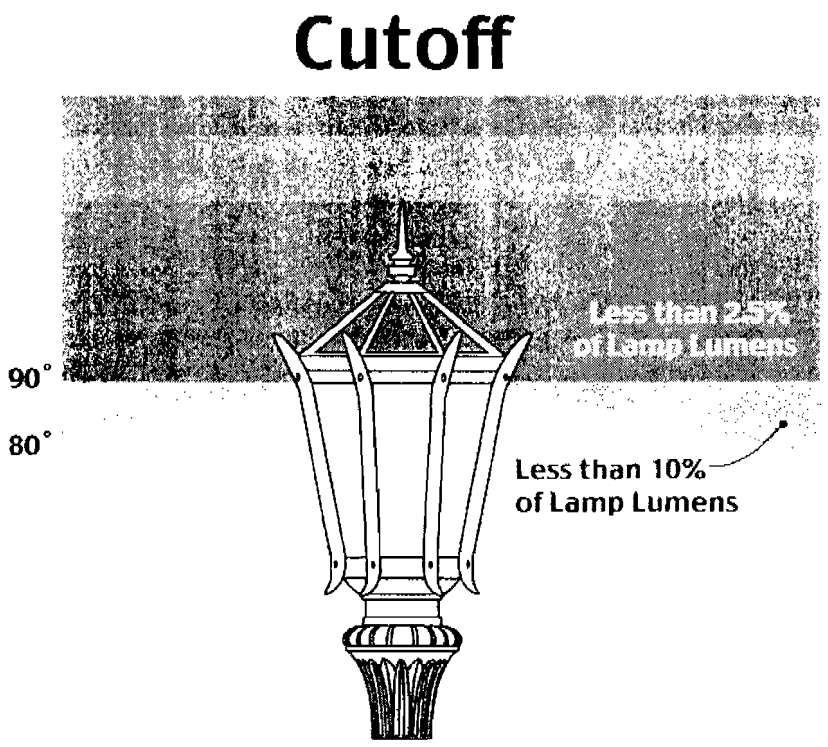
Full Cutoff benefits include:

- No direct up-lighting which is the major cause of sky glow
- Excellent light control at property lines
- Limits light trespass
- Maximum reduction of glare
- Allows greater visual access to the night sky

Full Cutoff limitations include:

- Typically reduces pole spacing (increasing pole and luminaire quantities and cost)
- Typically least cost effective of all cutoff categories
- Concentrated down-light component can result in reflected up-light and increase in sky glow
- Potential for decreased lighting level uniformity due to higher light levels directly under the pole
- Limited number of fixture styles (However, manufacturers are recognizing the importance of providing more light fixture styles meeting the full cutoff classification.)

Figure 6.2. Cutoff Light Fixture



No more then 2.5% of produced lamp lumens above the horizontal and less than 10% of the lamp lumens shine above the 80° line.

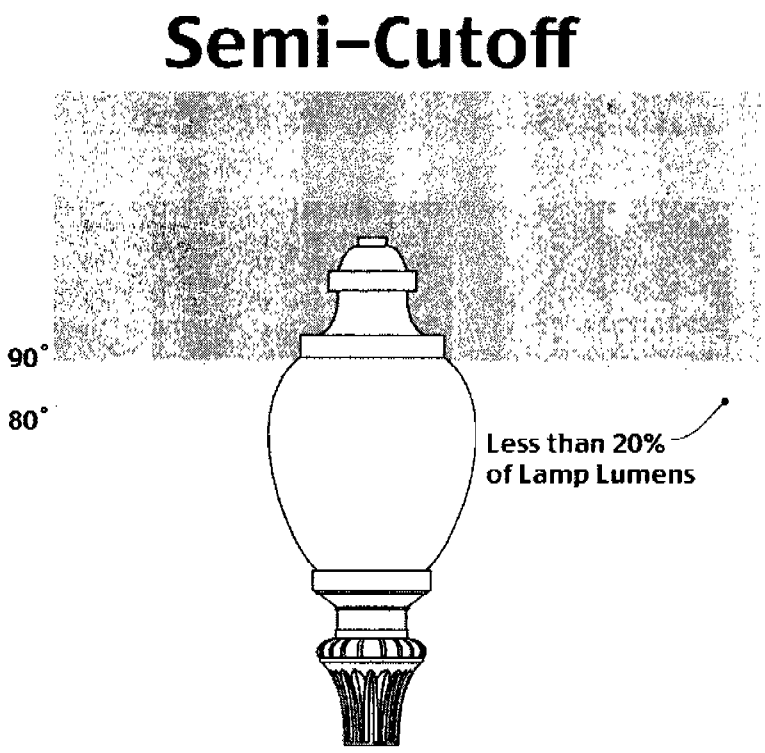
Cutoff benefits include:

- Small amount of high-angle light that can contribute to sky glow
- Limited light trespass
- Potential for increased pole spacing and lower overall power consumption compared to full cutoff
- More fixture styles available than for full cutoffs

Cutoff limitations include:

- Does allow some lighting above horizontal
- Light control at property lines is less than full cutoff
- Reflection off pavement can increase sky glow

Figure 6.3. Semi-Cutoff Light Fixture



No more then 5% of produced lamp lumens above the horizontal and less than 20% of the lamp lumens shine above the 80° line.

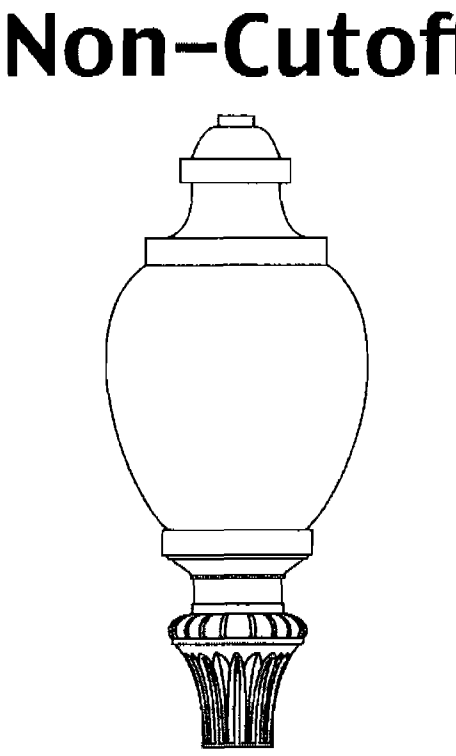
Semi-Cutoff benefits include:

- Potential for increased pole spacing and lower overall power consumption compared to cutoff
- High angle light accents taller surfaces
- Less reflective light off pavement than cutoff fixtures
- Illumination of vertical surfaces increases pedestrian security and sense of safety
- Large selection of fixtures to choose from

Semi-Cutoff limitations include:

- Allows more lighting above horizontal than cutoff fixtures
- Light trespass can be a concern in residential areas
- Increased amount of high-angle light compared to cutoff

Figure 6.4. Non-Cutoff Light Fixture



No limitation on light distribution at any angle.

Non-Cutoff benefits include:

- Potential for maximum pole spacing
- Accents taller surfaces
- Good uniformity of light distribution
- Least amount of reflective light off the pavement
- Largest selection of fixtures to choose from

Non-Cutoff limitations include:

- Greatest potential for direct lighting above horizontal (major cause of sky glow)
- No aiming of light
- Least control of light trespass
- Greatest potential for glare
- Inefficient use of energy compared to fixtures with cutoff features

7. FIXTURE AND POLE STYLES

Certain characteristics and features distinguish each commercial district and residential neighborhood from another within Salt Lake City. Lighting fixtures and poles can uniquely and distinctly enhance the appearance and complement the identity of each neighborhood and district.

Major Streets and Commercial District Streets

To insure uniform and safe lighting on major streets which by their nature carry higher speed, higher volume traffic, the light fixtures and poles identified in this chapter shall be used to provide appropriate lighting for the conditions present. Decorative poles and fixtures shall be used for new and replacement lighting on major streets whenever practical, except that cobra head fixtures on wood or steel poles may be used in industrial areas.

It is desirable to seek public input on the type of fixture and pole used for street lighting in commercial areas. The fixture and pole styles in these areas as identified in this chapter have been selected with public input and consideration of historic and planned urban design elements and land use. Decorative poles and fixtures shall be used for new and replacement lighting in commercial areas whenever practical.

Residential Neighborhood Streets

It is desirable to allow each residential neighborhood to adopt a decorative street light fixture and pole for its non-major streets from an approved list of fixture and pole styles to help the community achieve and maintain its master plan goals and identity. The approved list has been generated in consideration of the public input received and having sufficient variety to allow neighborhood identity while retaining a reasonable ability to obtain and store parts and provide economic maintenance.

All street lighting poles and fixtures used within Salt Lake City must be approved by the City Transportation Engineer. The currently approved "family" of light poles and fixtures for Salt Lake City is shown in Figures 7.1 and 7.2. Lamp fixtures with optical controls and side shield option capabilities are to be used because they provide flexibility in minimizing sky glow, light trespass, glare and energy waste. In special situations, such as within historic districts or when the installation of underground wiring and decorative poles and fixtures is not practical. exceptions to the above requirements may be approved by the City Transportation Engineer.

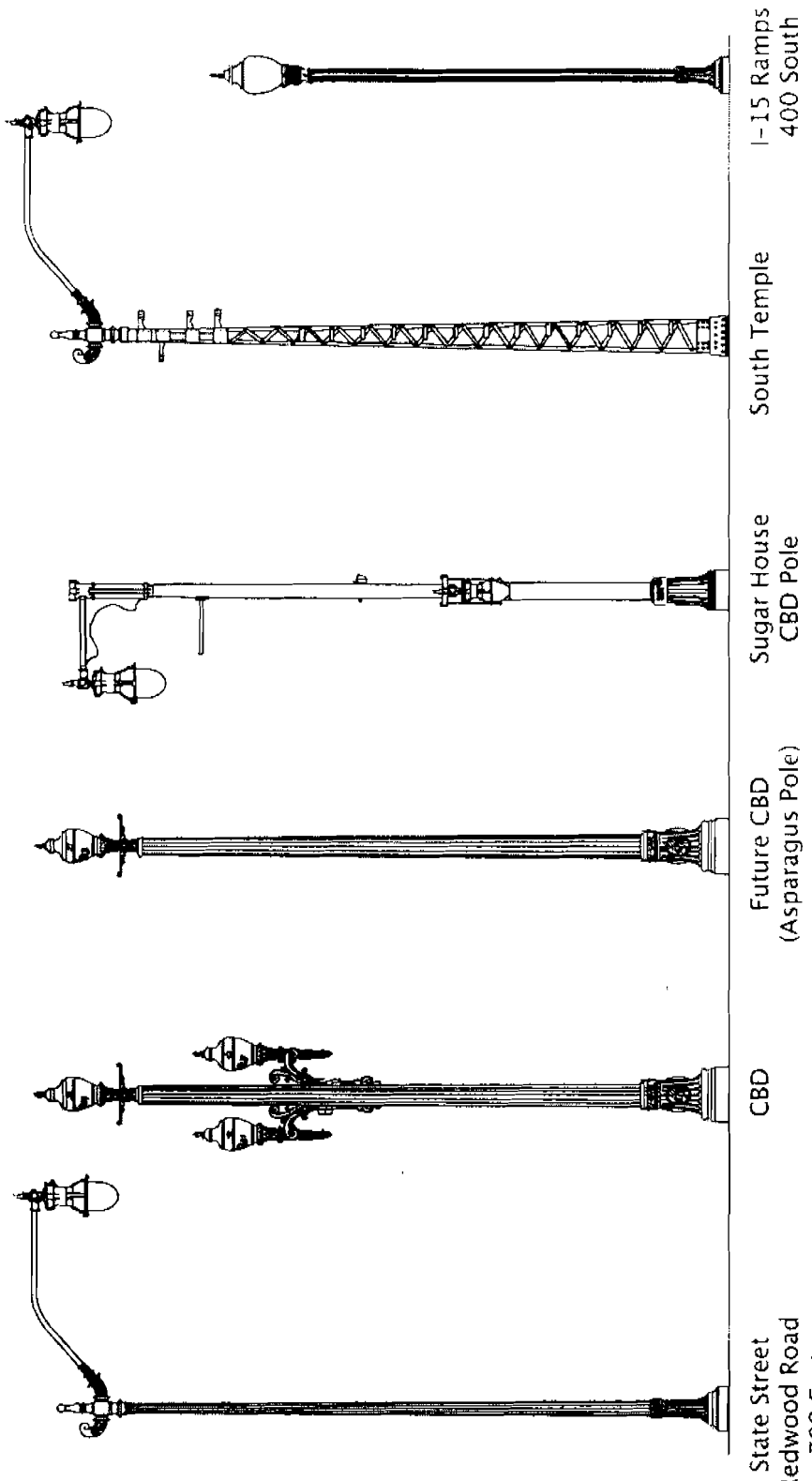


Figure 7.1. Major Street & Commercial Street Lights and Poles

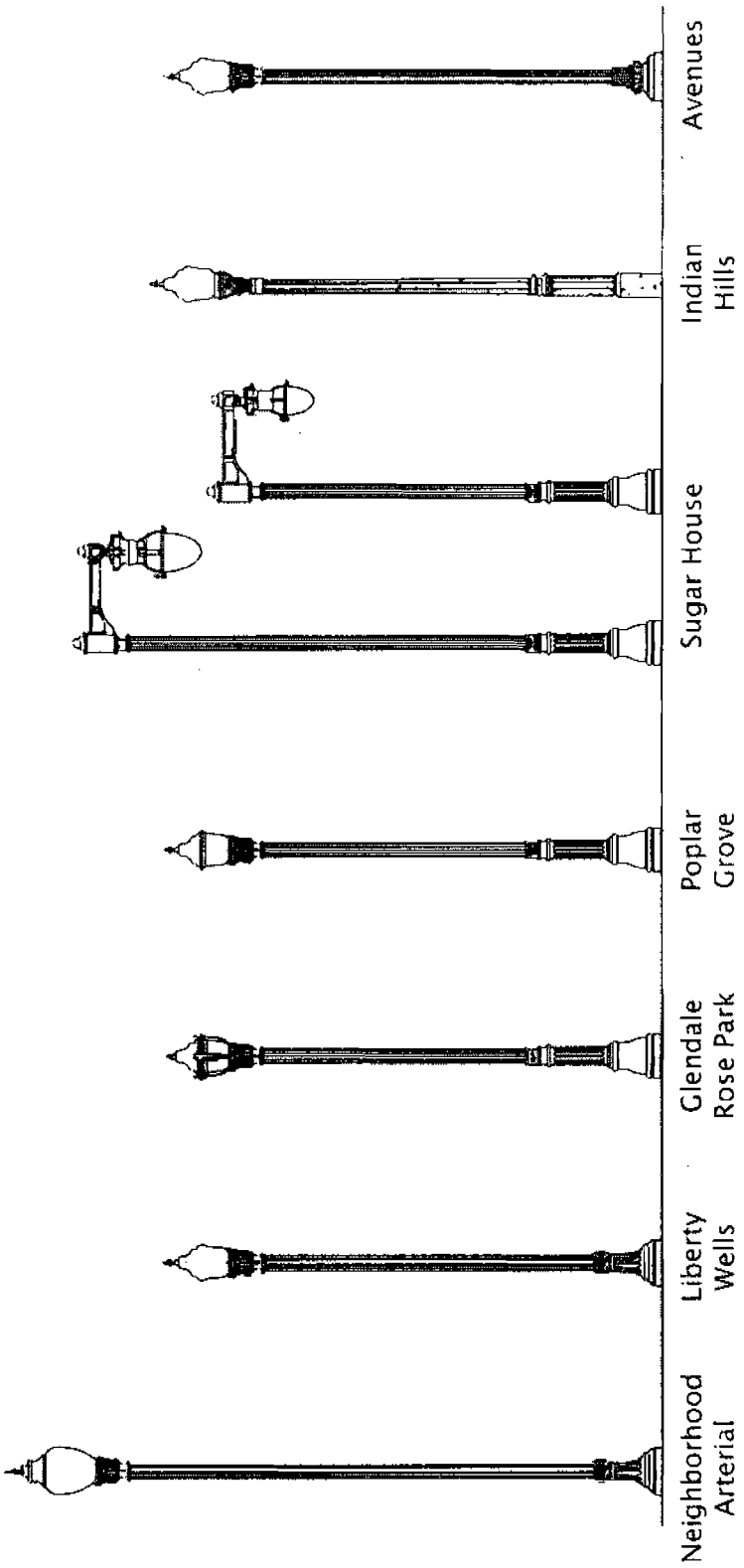


Figure 7.2. Residential Street Lights and Poles

Major streets require brighter lighting than most streets for the safety of the large volumes of vehicles and pedestrians. Business districts are well lit for the comfort of large crowds and to assure good nighttime color rendition in consideration of retailers displaying wares. Residential neighborhoods prefer lower lighting levels that focus on pedestrian ways as much as the paved streets, enhance the quality of life and walkability of neighborhoods and recognize the lower volumes and speeds of vehicles on the streets.

To identify the appropriate lighting for each street within the City, input was provided by community councils, citizens, downtown property and business owners and City planning and technical staff. This master plan incorporates the continuance of the lighting plan developed more than fifteen years ago for the downtown business area and that has been implemented since that time as lighting projects, major land use developments, transit improvements and road rebuild projects have occurred. Community councils and residents have expressed a desire for decorative poles at low mounting height with underground wiring that provides pedestrian scale lighting and a sense of neighborhood identity. Each community council within Salt Lake City was asked to identify their preference should the lighting along their residential neighborhood streets be replaced with decorative poles and fixtures. This has resulted in an approved "family" of decorative light poles and fixtures that provides the opportunity to mix and match pole and fixture styles to create unique lighting systems for each neighborhood while achieving the economy of stocking and maintaining a reasonable number of pole and fixture types.

Major Streets and Commercial District Lighting

The lighting pole and fixture styles identified for Salt Lake City's major streets and commercial districts are shown in Table 7.1.

Table 7.1. Major Streets and Commercial District Street Light Fixtures and Poles

Lighting Area	Pole Style	Light Fixture Style
Downtown	Cactus	Washington
Sugar House	Salem	Tear Drop
Trolley Square	Cactus	Washington
900 East & 900 South (9^{th} & 9^{th})	DB 9	SLA 16
Gateway	Cactus	Cactus
2200 West - North Temple to north City limits	North Yorkshire	Acorn
Redwood Road - 2100 South to 2300 North	Salem	Tear Drop
900 West - 2100 South to I-15	North Yorkshire	Acorn

Table 7.1. (cont.) Major Streets and Commercial District Street Light Fixtures and Poles

Lighting Area	Pole Style	Light Fixture Style
700 North/600 North - 300 West to 2200 West	North Yorkshire	Acorn
North Temple – State to 2200 West	North Yorkshire	Acorn
400 South/500 South/Foothill - Redwood Road to I-80	North Yorkshire	Acorn
Beck Street - I-15 to 100 North	Salem	Tear Drop
Main Street - 500 South to 2100 South	North Yorkshire	Acorn
State Street - 200 North to 2100 South	Salem	Tear Drop
700 East - South Temple to south City limits	Salem	Tear Drop
South Temple - State Street to Wolcott	Lattice Poles	Tear Drop
2100 South	Salem	Triple Tear Drop Sugar House Light
500 West – South Temple to 400 South	North Yorkshire	Acorn
1300 South – I-15 to State Street	Salem	Tear Drop

Residential Neighborhood Street Lighting

The decorative pole and fixture styles selected by community councils for their neighborhoods are shown in Table 7. 2.

Table 7.2. Residential Neighborhood Street Light Fixtures and Poles

Lighting Area	Pole Style	Light Fixture Style
Westpointe	Charleston	Grandville w/ribs and band
Jordan Meadows	Charleston	Grandville
Rose Park	Charleston	Grandville w/ribs and band
Fairpark	Charleston	Grandville
Poplar Grove	Charleston	Grandville w/ band
Glendale	Charleston	Grandville w/ribs and band
Foothill	North York Shire	Grandville
Capital Hill	Wadsworth	Grandville
Marmalade Hill	Wadsworth	Grandville
Ensign Downs	Wadsworth	Grandville
Upper Avenues	Wadsworth	Grandville
Avenues	Wadsworth	Grandville
Federal Heights	North York Shire	Grandville
Central	North York Shire	Grandville
East Central	North York Shire	Grandville
Liberty Park	North York Shire	Grandville
University Park	Concrete	Grandville w/ribs and band
College Avenues	Concrete	Grandville w/ribs and band
Sugar House	Private light style	Tear Drop
Highland Park	North York Shire	Grandville
East Bench	North York Shire	Grandville

8. LIGHTING PROGRAMS

Salt Lake City offers four lighting programs.

Traffic Safety Lighting (local streets)
On local streets, the City provides a light at intersections for pedestrian and traffic safety. Under this program, optional midblock lights at approximately 300 foot spacing are also provided if the majority of property owners within 150 feet of the proposed light location concur in having the optional light. The City funds 100% of the cost for Traffic Safety Lighting.

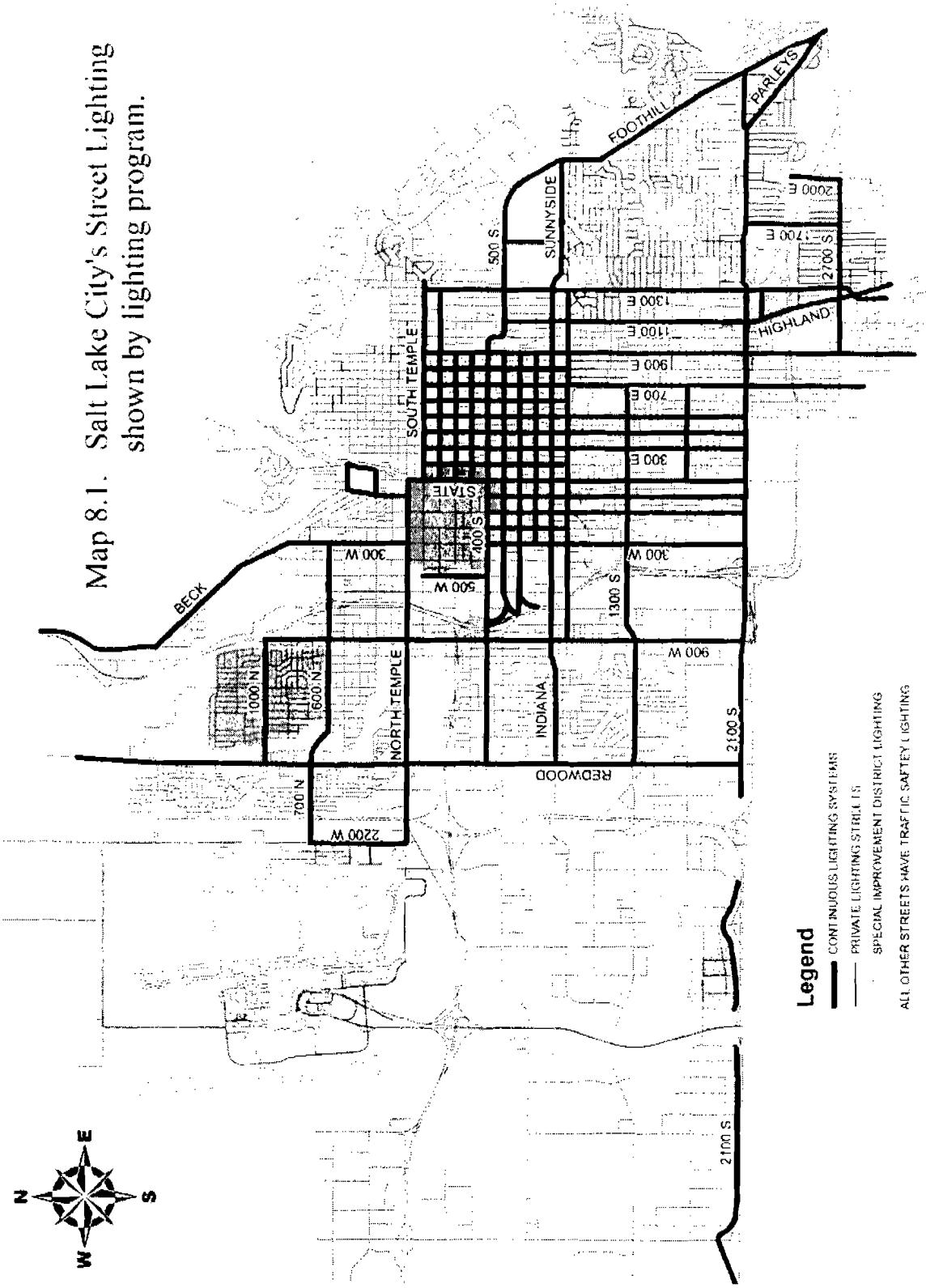
Continuous Lighting Systems (major streets)
Along major streets, the City provides a brighter level and more uniform dispersion of lighting for traveler safety. These are streets with high traffic volumes and speed limits as well as more pedestrians. There are typically 6 to 8 lights per block face. The City funds 100% of the cost for Continuous Lighting.

Special Improvement District (SID) Lighting
Additional and/or decorative lighting in residential and commercial areas is offered via special improvement districts wherein abutting property owners agree to pay the capital cost for new or replacement SID lighting plus 75% of the ongoing operating and maintenance costs of the lights. The City pays 25% of the operation and maintenance cost which represents the approximate cost of lighting that the City would typically provide under either the Traffic Safety Lighting Program or Continuous Lighting Program.

Private Lighting (residential areas)
Under the private lighting program, residents purchase, install, operate, maintain and own decorative lights that are placed in the park strip of the public right-of-way. Each streetlight has underground wiring that is connected to the electrical service in the home of the owner of the streetlight. Each light owner signs a revocable permit issued by the City that is recorded with the property. The permit allows the light to be placed on public property and stipulates that the homeowner is responsible for operating and maintaining the light at the property owner's expense. Each neighborhood works with the City Transportation Division on a design that provides adequate lighting. This includes the type of pole, fixture, size and type of light and the spacing and location of poles. Once a plan is approved, the neighborhood arranges for installation of the lights. All costs of this program are the responsibility of the neighborhood. Since the program's inception, the City has made the Matching Grant Fund available to property owners to apply for up to 50% of the capital cost of private lighting. The City makes an annual budgeting decision on the amount of funding available in the Matching Grant Fund.

Map 8.1 shows the locations where each of the above described lighting programs are deployed.

Map 8.1. Salt Lake City's Street Lighting shown by lighting program.



9. USING CRIME PREVENTION IN STREET LIGHTING DESIGN (CPTED)

In the planning, designing and building of the physical environment, especially in public spaces, it is essential that the principles and standards of Crime Prevention Through Environmental Design (CPTED) be given both fair and ample consideration. The proper design and effective use of the built environment can lead to a reduction in the fear of crime and the incidence of crime, and to an improvement in quality of life. Street lighting is very much a part of the physical environment and must be afforded the same level of CPTED assessment as any other aspect of public space.

Poor street lighting is not the main contributing factor in nighttime crime in public spaces. The lack of people socializing and using the public space contributes to an environment that may actually encourage crime, regardless of the level of lighting. It is important to note that lighting does decrease fear of crime, making public spaces more attractive for the community, thus promoting a process of greater legitimate use and socializing. Light does not prevent crime. People prevent crime. Lighting is an amenity that encourages interaction of people in public spaces, increasing natural surveillance.

In CPTED, *natural surveillance* is defined as: "The organization of physical features, activities, and people in such a way as to maximize visibility. The placement of windows, doors, common areas; the alignment of sidewalks and paths; the locations and levels of lighting; and the proper design and size of open spaces can contribute to natural surveillance opportunities." If a person wants to pursue any illegal activity, good natural surveillance enhanced by proper lighting will discourage the activity.

Street lighting that is well designed and properly maintained will do the following:

- Improve the appearance of the public space.
- Encourage people to interact.
- Contribute to a positive sense of safety and security.

The following are some general guidelines for lighting in public spaces:

- Public spaces must be well lighted for pedestrians.
- The light type and lighting level must not hinder recognition of people; a good measure is being able to identify faces 50 feet away.
- Consistency is essential.
- Glare and shadows must be eliminated to the maximum extent possible
- Blind spots, entrapment locations, and hidden areas need adequate lighting.
- In most cases, the best approach is to use more lights with lower wattage than a few lights with higher wattage.

Many aspects of the built environment, including lighting, must be assessed using the situational approach. The CPTED approach is to ask questions, from every possible angle, to determine if all possibilities are being considered.

The following questions can serve as a guide in determining proper lighting design or identifying deficiencies:

1. Are public spaces lighted to the minimum standard brightness?
2. Is lighting consistent, with little or no glare, shadows or contrasts?
3. Is reflectivity considered in designing the lighting?
4. Does the lighting adequately illuminate pedestrian spaces and possible entrapment areas?
5. Are grade change entrances well lit?
6. Are lights and vegetation compatible?
7. Are light fixtures located to avoid accidental knockdown?
8. Are light fixtures protected from vandalism?
9. Do the users, or residents, in the surrounding area participate and exhibit good ownership efforts?
10. Is maintenance adequate to insure clean fixtures and replacement of broken or burned out bulbs?
11. Are there other physical features that need improvement so that lighting can be effective?
12. Is there regular, on-going surveillance of the area by the community, contributing to ownership and reporting of deficiencies in lighting?
13. Are landscaping elements chosen and maintained so as not to restrict lighting?
14. Are nighttime corridors properly illuminated to eliminate hiding or entrapment areas?
15. Are sightlines and natural surveillance considered in designing lighting for designated nighttime corridors or activity generators?
16. Are movement predictor routes identified and adequately lighted?
17. Are signs, maps, house/building numbers, and other way-finding devices well illuminated?
18. Are the different seasons considered in designing lighting levels?

It is the policy of the Salt Lake City Transportation Division to support the use of Crime Prevention Through Environmental Design principles in the design and operation of street lighting within Salt Lake City.

10. BANNERS

Neighborhoods throughout the City may request approval to place banners on street light poles to provide a sense of community spirit and identity. Banners are also used to promote traffic calming. This master plan supports these uses of banners on street light poles.

An 18-foot high or taller pole will accommodate a 6' tall banner; however, shorter banner sizes may be necessary on neighborhood streets where shorter poles exist. Street light poles must be rated for wind load based on the desired banner size before approval to hang banners will be granted. In neighborhoods where light poles cannot accommodate banners, separate banner poles may need to be used.

Neighborhoods interested in receiving approval to hang banners for neighborhood community spirit and identity purposes must petition the City in accordance with the August 21, 2003 Executive Order: Authorizing the Placement of Street Banners in the Public Way, copies of which can be obtained at the Salt Lake City Transportation Division, 349 South 200 East, Suite 450. The cost associated with producing, hanging and removing these banners is borne by the organization requesting approval.

It is the policy of the Salt Lake City Transportation Division to support the use of banners on street light poles to enhance a sense of community and contribute to traffic calming.

11. STREET TREES AND LIGHTING COMPATIBILITY

It is desired that street lighting and trees located within or near the public rights-of-way be compatible. Both add character to neighborhoods and are highly desirable urban elements of livable communities.

Street lighting powered from underground wiring eliminates the need for tree pruning around wires. Likewise, locating street lights such that the current and future tree canopy does not significantly conflict with the desired lighting dispersion precludes the need for pruning. At the same time, care must be taken to maintain reasonably similar spacing between lights in order to maintain the desired uniformity of lighting levels along the streets and sidewalks.

It is the policy of the Salt Lake City Transportation Division to coordinate the location of new street lights with the Salt Lake City Forester and, in turn, coordinate on the planting of new trees such that both are compatible in providing desired benefits to the neighborhood.

12. ACKNOWEDGMENTS

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Van Blair Turner – District 2
K. Eric Jergensen– District 3
Nancy Saxton – District 4
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