

Seattle Chinatown International District
Preservation and Development Authority

Neighborhood Lighting Study

July 23, 2018



SCIDpda

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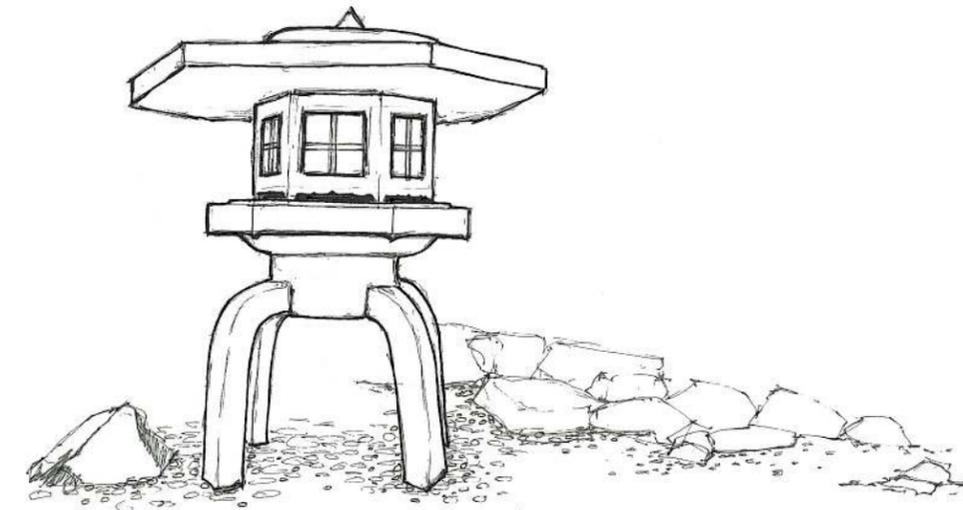
Prepared by SparkLab Lighting Design

01 PROJECT PURPOSE

The Chinatown-International District of Seattle, Washington (also known as the C-ID) is a unique cultural hub for Seattleites, Asian Americans and Pacific Islanders. A district listed in the National Register of Historic Places, it serves an important social function as gateway and home to new immigrants, as a guardian of art, history and heritage, and as a refuge from discrimination.

The neighborhood, which constitutes two of eight historic districts established by the city of Seattle, has been a focal point of the city's Asian community since the early 20th century. Seattle's first Chinese settlers came to the northwestern United States in the 1860s and 1870s and served as a valuable work-force. Japanese immigration surpassed Chinese at one point, and other ethnic groups arrived, giving the area regionalized nicknames (e.g., "Manilatown").*

The first two iterations of Chinatown were located in what is now known as Pioneer Square. Many changes physically altered or divided Chinatown; the dockworker Seattle Riot of 1866 and Great Seattle Fire of 1889, the internment of Japanese Americans during WWII, the construction of I-5, the Kindome Stadium, further development in Pioneer Square, and local transit hubs all shaped the footprint of the C-ID. Today the area is most notably shaped into three areas - Chinatown, Japantown, and Little Saigon.



C-ID Lighting Design Vision and Action Strategy

Purpose of this study

The Seattle Chinatown International District Preservation and Development Authority (SCIDpda) is a community development organization whose mission is to preserve, promote and develop the C-ID as a vibrant community and unique ethnic neighborhood. The area faces challenges such as poverty, and many of the residents affected are senior citizens. Neighborhood residents live amid poor health and sanitation, homelessness, and general public safety concerns. Additionally, regional development pressures threaten to displace vulnerable, locally-owned small businesses that define neighborhood culture. **

Relevant to this study, it is notable that the C-ID suffers from lighting challenges, such as sporadic and inconsistent fixtures which lead to poor conditions for pedestrians at night. Of particular note is the need to connect Little Saigon better with the Chinatown and Japantown core.

The purpose of this study is to develop an action plan for improving the neighborhood lighting. Improving lighting should address some of the challenges mentioned above. Good lighting should encourage more evening activity, especially for pedestrians and retail businesses, and may increase the perception of the C-ID as a safe and welcoming environment for all.

Funding for this study is provided by the City of Seattle's Office of Economic Development.

* National Park Service NPS.gov

** SCIDpda Request for Proposal

02 DESIGN TENENTS

What is good neighborhood Lighting?

The design of “good lighting” is a subjective and often an elusive treatment of the built environment that balances electrical engineering, architectural design, landscape and urban design, the physics of light, and the physiology of human perception. The impact of lighting relative to safety and security is nuanced; safe passage may refer to ones’ ability to see well enough not to trip, and security can be defined by lighting that contributes to ones’ sense of well-being in a place.

For the purpose of this study the following three categories of analysis for lighting within the CID have been defined:

Visual Acuity

- Faces should be identifiable from 30’ away.
- Accurate color rendering makes it easier to identify people and objects.
- Uniform distribution of lighting reduces the need for your eye to adjust between bright and dark areas.
- Glare (light shining directly into your eyes) can obstruct your view.

Comfort

- The color temperature of a light can influence how a location feels to the user.
- Irritating glare should be avoided.

Sense of Place

- Landmarks should be well lit and prominent at night.
- Repeated decorative elements enhance community identity.
- Colorful awnings, colored light and signage can add visual excitement.
- Consistent color temperature of white light throughout the entire neighborhood enhances feeling of unity.

LIGHTING SHOULD ENABLE...
照明应该启用...

VISUAL ACUITY
视觉敏锐度

COMFORT
安慰

SENSE OF PLACE
地方感

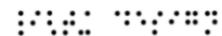
Reference: Illumination Engineering Society guidelines, i.e. IES G-1-16 Guide for Security Lighting for People, Property, and Critical Infrastructure

Comments from Seattle Police Department

When thinking of lighting and safety, a few things to keep in mind are:

- Lighting helps an individual observe their surroundings and respond to potential threats.
- Pathways or pedestrian connectors should be illuminated to the point where faces of pedestrians can be observed.
- Poor lighting, whether too bright or not bright enough can diminish safety.
- Quality of lighting is as important as the amount of lighting.

(Barb Biondo, Crime Prevention Coordinator)



03 SCOPE

Initial Neighborhood Findings

Lighting throughout the neighborhood is varied, and multi-faceted. As anticipated, it is easy to identify locations that are darker than desired, brighter than necessary, areas impacted by glare, and light sources with poor color quality. There are also wonderful examples of lighting that reinforces neighborhood character and vibrancy. The scope of this project is extensive, and itemizing all of the findings in one compiled document is not feasible. The images below show a few examples of study findings, and a comprehensive map of neighborhood night-time photographs may be found here: [link](#)



Lack of illumination



Varying color temperatures and the impacts of foliage



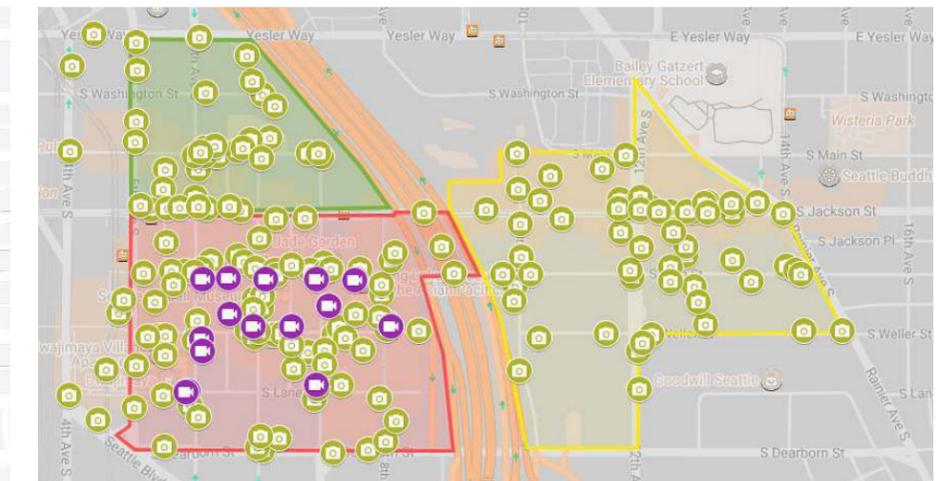
Missed opportunities for feature illumination



Vibrant signage



SCIDpda district map

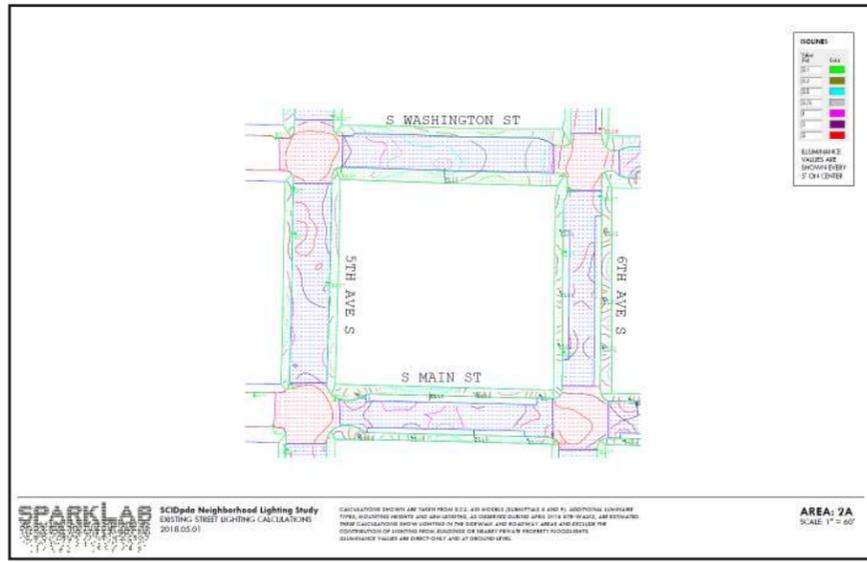


Neighborhood Lighting Assessment map - security camera locations and photos

04 PROCESS

Assessing Illuminance

To provide context for this study, the 2016 Submittal 8 and Submittal 9 SDOT roadway illuminance calculations were reviewed, along with site investigations, light-level spot readings, and additional calculations to cover luminaire locations now present in the neighborhood. As such, all provide information to enable assessment of existing conditions. This map contains calculation layers: [link](#)



Example illuminance calculation - Block 2A

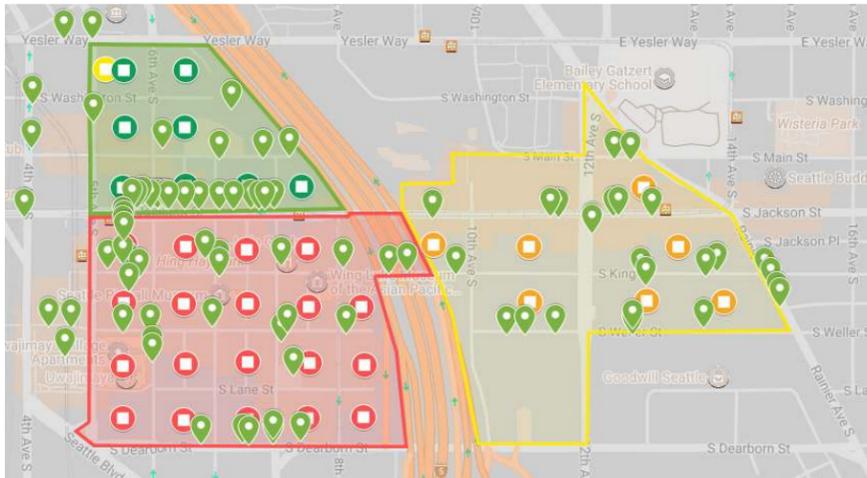
Light level readings taken at known SPD hotspots did not indicate a correlation between quantity of light and crime.



Known high crime alley: 1.2 - 4 Footcandles



Area of minimal crime: 0.5 - 0.9 Footcandles

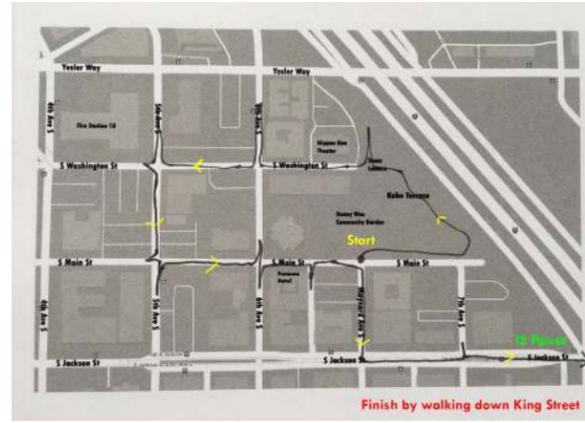


Neighborhood Lighting Assessment map - light level readings and calculations

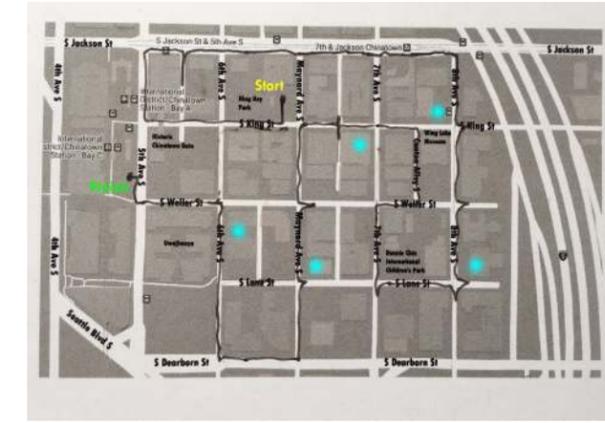
04 PROCESS

Community Feedback

To provide greater insight into specific neighborhood concerns the SCIDpda hosted a meeting with neighborhood residents in Chinatown and several night-time walking tours with community members and the Seattle Police Department. Participants were encouraged to write their comments on handout cards. Compiled, the information provides valuable data on perceptions of existing lighting conditions and priority areas. The map link contains community feedback layers: [link](#)



Walking tour routes



4.16.2018



4.11.2018

LIGHTING SHOULD ENABLE...

VISUAL ACUITY
 Focus should be identifiable from 30' away*
 Accurate color rendering make it easier to identify people and objects*
 Uniform distribution of lighting reduces the need for your eye to adjust between bright and dark areas.
 Glare (light shining directly into your eyes) can obstruct your view.

COMFORT
 2700°K
 3500°K
 6000°K
 The color temperature of light can influence how a location feels to the user.
 Irritating glare should be avoided.

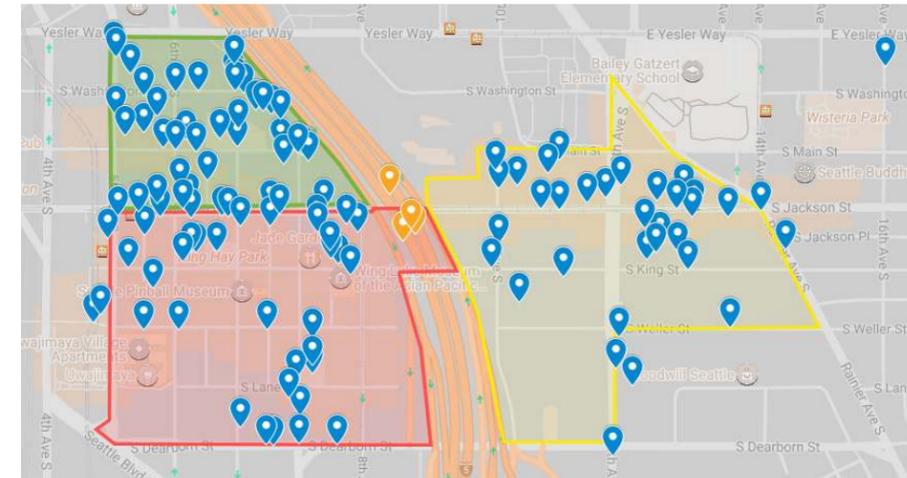
SENSE OF PLACE
 Landmarks should be well lit and prominent at night
 Repeated decorative elements enhance community identity
 Colorful awnings, colored light and signage can add visual excitement
 Consistent color temperature of white light throughout the entire neighborhood enhances the feeling of unity.

Example walking tour handout

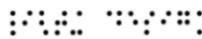
IDENTIFY PROBLEM AREAS AND FEATURES:
 SCIDpda Lighting Study - Little Saigon

○ Circle problem areas
 ★ Star features or favorite spots

Comments:



Neighborhood Lighting Assessment map - community feedback



05 ASSESSING THE PROBLEM

How does neighborhood lighting fare relative to the “Visual Acuity” category of analysis?

Visual Acuity



Faces should be identifiable from 30' away

Generally, the neighborhood has sufficient illumination levels to meet SDOT guidelines. There are select troublesome locations, some as a result of lack of maintenance, some because of trees that interfere with light reaching sidewalks, and others owing to lack of light emanating from local businesses. Facial illumination is commonly accomplished through vertical illumination, or side-light. High Pressure Sodium lamping makes it difficult to recognize accurate clothing and skin color in many locations. (A)



Accurate color rendering makes it easier to identify people and objects

Existing color rendering index (see definition for CRI in the Lighting Best Practices section) of most lighting in the neighborhood is poor. The High Pressure Sodium (HPS) floodlights are exceptionally poor CRI (~22 CRI) and make it difficult to identify colors of vehicles and clothing. The current pedestrian scale poles (~70 CRI) could also be improved. (B)



Glare (light shining directly into your eyes) can obstruct your view

Illumination from high intensity sources, while enabling greater visual acuity in select locations, may have a negative impact overall. Dark areas adjacent to bright areas seem even darker when taking the adaptation mechanism of the human eye into consideration. (C)

Unshielded wall-packs with light that emanates from high angles, and high contrast luminaire locations are commonly found throughout the neighborhood. (D)



Uniform distribution of lighting reduces the need for your eye to adjust between bright and dark areas

05 ASSESSING THE PROBLEM

How does neighborhood lighting fare relative to the “Comfort” category of analysis?

Comfort



The color temperature of a light can influence how a location feels to the user



Correlated Color Temperature (CCT)* of light sources throughout the neighborhood is typically 3500K in the case of the current pedestrian pole light, 4000K for roadway lights, and 2200K for High Pressure Sodium floodlights. As such, the variety of sources create a patchwork experience of lighting color at night. (A)

Numerous fixtures in the neighborhood warrant retrofitting to an improved color temperature source. (B)

Retail awnings and building mounted lights are also varied, but generally not as objectionable as the inconsistency of municipally maintained lights. The occasional colored lighting treatment can be a fun diversion and contribute to neighborhood vibrancy. (C)

Nuisance glare, defined as that which obscures views, can influence the comfort of many spaces throughout the neighborhood and may make a space feel institutional. This type of glare is often found in alleyways or parking lots lighted by high-angle floodlights. (D)

Spaces considered to be public amenity would benefit from alternative, more inviting lighting treatments. (E)

* CCT may be shortened to “Color Temperature”. For a definition of CCT, see the Lighting Best Practices section of this report.



Colored light can contribute to neighborhood vibrancy



Irritating glare should be avoided



Irritating glare should be avoided

05 ASSESSING THE PROBLEM

How does neighborhood lighting fare relative to “Sense of Place” category of analysis?

Sense of Place



Landmarks should be well lit and prominent at night

The C-ID has many distinct landmarks that fall into darkness during night-time hours. (A)

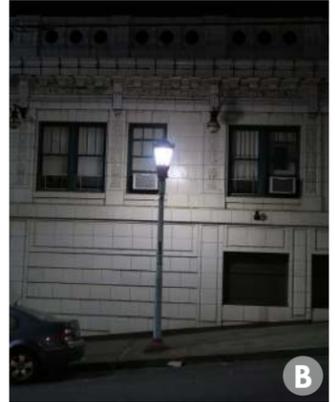
Elements such as red pedestrian lanterns (B) and pole mounted dragons (C) help to create a more unified appearance and bring familiar visual language to the neighborhood.

While there are many good examples of well-lit awnings and building signage throughout the neighborhood, many have fallen into disrepair. (D)



Colorful awnings, colored light and signage can add visual excitement

Generally, a language of cool street light and warm pedestrian light would help to unify the neighborhood. The lack of consistency in color temperature of white light throughout the neighborhood is problematic. (E)



Repeated decorative elements enhance community identity



Lack of consistent color temperature of white light

05 ASSESSING THE PROBLEM

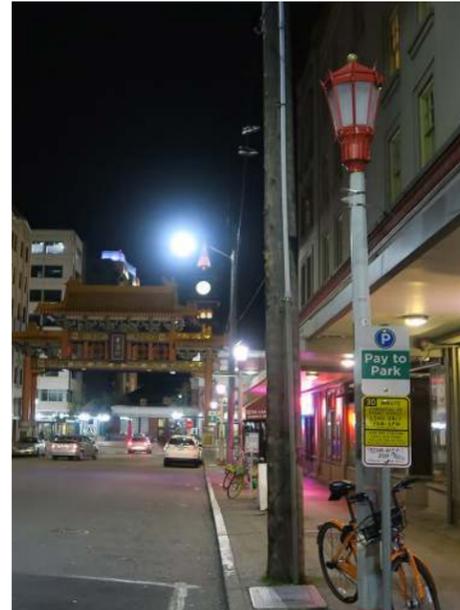
Are there other concerns that stand out?

Maintenance

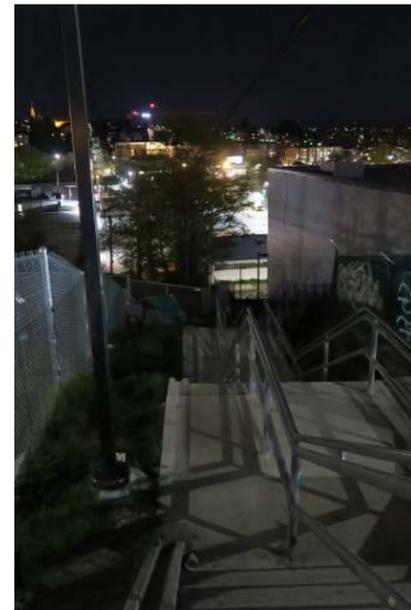
Lighting maintenance refers to the regular cleaning of luminaires, lamp replacements, and repair of inoperable control components, etc. The municipal utility appreciates public complaints and the reporting of outages. Private lighting maintenance is up to individual property owners. Both publicly maintained and privately maintained lighting are problematic in the neighborhood.

After Hours

Lighting mounted to buildings and that which emanates from within storefront windows contributes greatly to the pedestrian experience. Lighting that is left on after hours can be of significant benefit. In many commercial strips around the neighborhood lighting can be found turned-off, even in early evening hours.



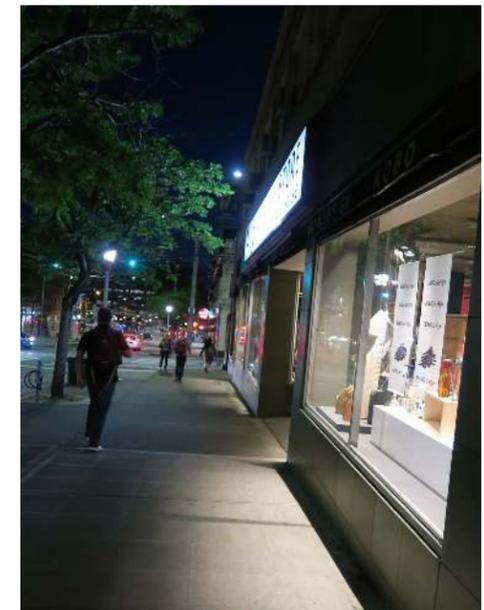
Municipal outages



Existing pole lights off in hazardous stairwell



Lighting turned off contributes to desirable sleeping place



Lighting from building windows influences streetscape

06 APPRECIATING THE GOOD

The C-ID has numerous elements of significance, some of which are historical and some that are not very old. A few of the more-recent favorite elements were conceived as part of the 1973 International Special Review District revitalization effort, and may or may not be lighted. Regardless of antiquity, many artistically conceived or designed elements contribute to neighborhood character.

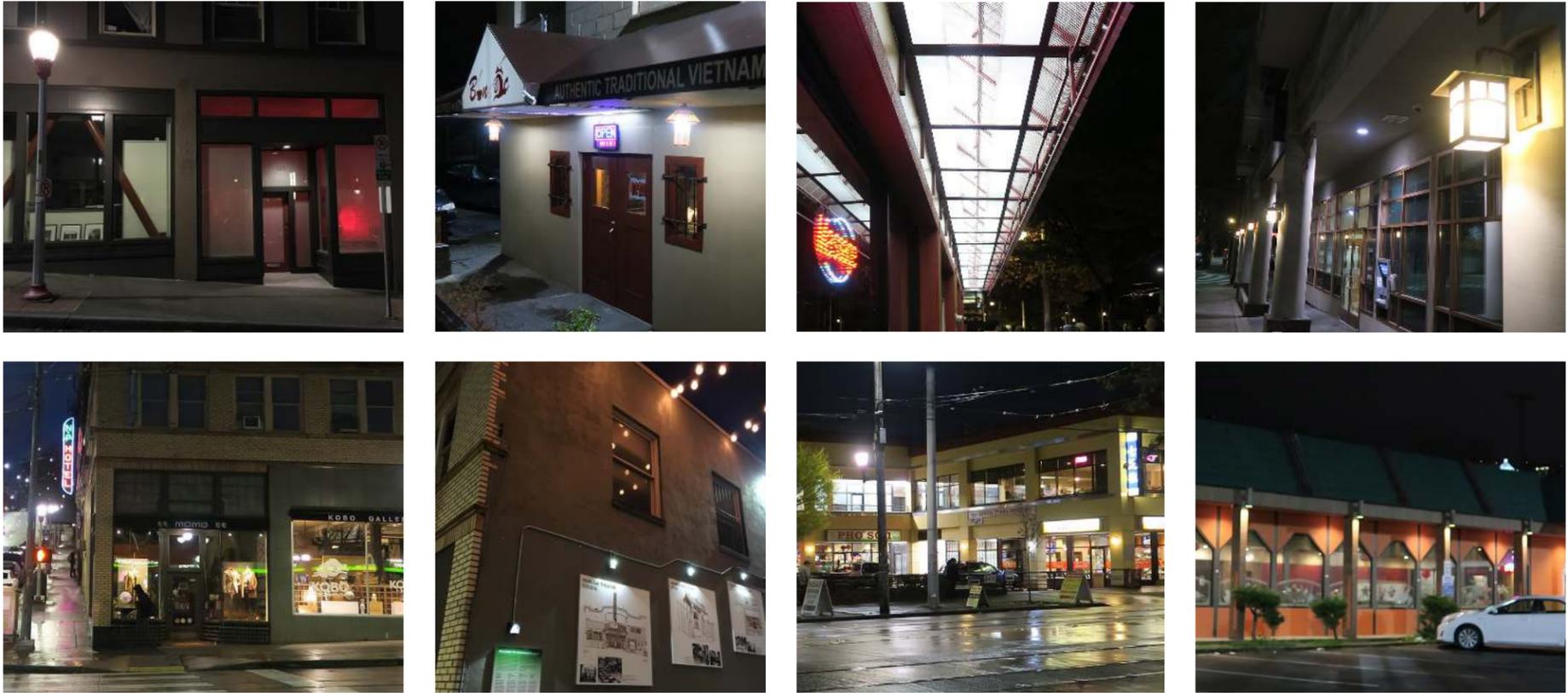


Top row: Hing Hay Park bamboo lighting and color, Ornat Chinese Pavilion, gift from Taipei, 1974. Various facades, including the Governor Apartments, 1926. Kobe Terrace pole fixture. Historic photo of S. Jackson Street, circa 1922, courtesy of the Museum of History & Industry. Bottom row: Kobe Terrace Park, Yukimidoro "snow viewing lantern", pole lights and Mt. Fuji cherry trees. Danny Woo Gardens, 1975. Pole mounted dragons, 2002, Martin Brunt. Various signage, including the neon Panama Hotel sign



06 APPRECIATING THE GOOD

There are many examples of excellent lighting in the C-ID. Numerous businesses maintain lighted awnings, signage, wall-sconces, and keep interior street-level lighting on during evening hours. Some of these locations may be highlighted as positive examples for others to emulate. See the map for a more comprehensive survey: [link](#)



Top row: active nighttime storefronts, excellent canopies and lantern elements, awnings that shield interior lighting elements and provide protection from birds, sconces at pedestrian-scale
Bottom row: lively streetscape, alleys used to share historic relevance, multi-story retail experience, rhythmic architectural embellishment

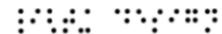
07 COMMUNITY FEEDBACK

Synopsis of Community Comments

- The red lantern streetlights are considered culturally significant and festive. People generally like their appearance and lighting quality, including color and distribution. There is strong support for adding more of these fixtures in locations where they are missing, especially up into Little Saigon.
- The community would like to see the city do a better job of maintaining existing streetlights. They would also like to see more “consistency in the quality of the large streetlights” [understood to mean the full adoption of LED vs. continued use of High Pressure Sodium (HPS), and the regular spacing of fixtures].
- Light emanating from storefronts and signage has significant value. Business owners can help by doing better maintenance of their own lighting, and by keeping luminaires on later into the evening hours.
- The district should feel safer to older residents, who need better lighting to be able to see well, especially to navigate uneven sidewalks, or to walk in areas where there is a perception of safety hazard, such as alleys, parking lots, and at public transit stops.
- Parks generally feel unsafe at night as there are often dark “hiding places” for vagrants.
- Community landmarks should be illuminated. Major landmarks mentioned were: The Historic Chinatown Gate, Hing Hay Pagoda, Kobe Terrace Lantern and Cherry Trees, Nisei Veterans Memorial, dragons on poles, and artwork throughout.

SparkLab’s Top 10 List of Neighborhood Findings

1. The existing pedestrian-scale (~14’ tall) red “King K56 Fixture” light poles are a functional solution for illuminating both sidewalks and building facades.
2. Maintenance of all lighting is a problem - lights are dirty, old technology, and often turned-off for no apparent reason.
3. HPS lighting should be replaced everywhere due to poor color quality. Where LED fixtures are planned to replace HPS floodlights, additional assessment on product glare should be performed prior to full implementation as current SCL material standard LED fixtures provide more glare.
4. Undercanopy and column lights are a problem below the I-5 underpass. SCL may be planning to replace existing fixtures with LED fixtures, however a retrofit-in-place solution will not solve the problem. WSDOT and SDOT must be involved. Columns throughout will soon be seismically retrofit.
5. Overgrowth of trees near light fixtures is a problem where vegetation blocks light from illuminating sidewalk areas, illuminating building facades, and features (e.g., iconic artwork).
6. Sidewalk-level building canopies, while often in disrepair or using old lighting technology, provide valuable pedestrian illumination and add to the overall character of the neighborhood.
7. Retail establishments that have street-level windows with lighting left on after-hours make the neighborhood seem lively and inviting, and in some locations contribute critical illumination.
8. Lighted signage throughout the neighborhood contributes to both urban vibrancy and ambient illumination, and could be improved.
9. Lighting that exists in multiple vertical layers creates a complex, urban lighting experience that enhances the perception of brightness by illuminating surfaces from the ground to building tops.
10. The Chinatown International District is a vibrant, amazing place with significant cultural pride and a long, rich history. Numerous feature elements and artworks, both new and old, are worthy of celebration.

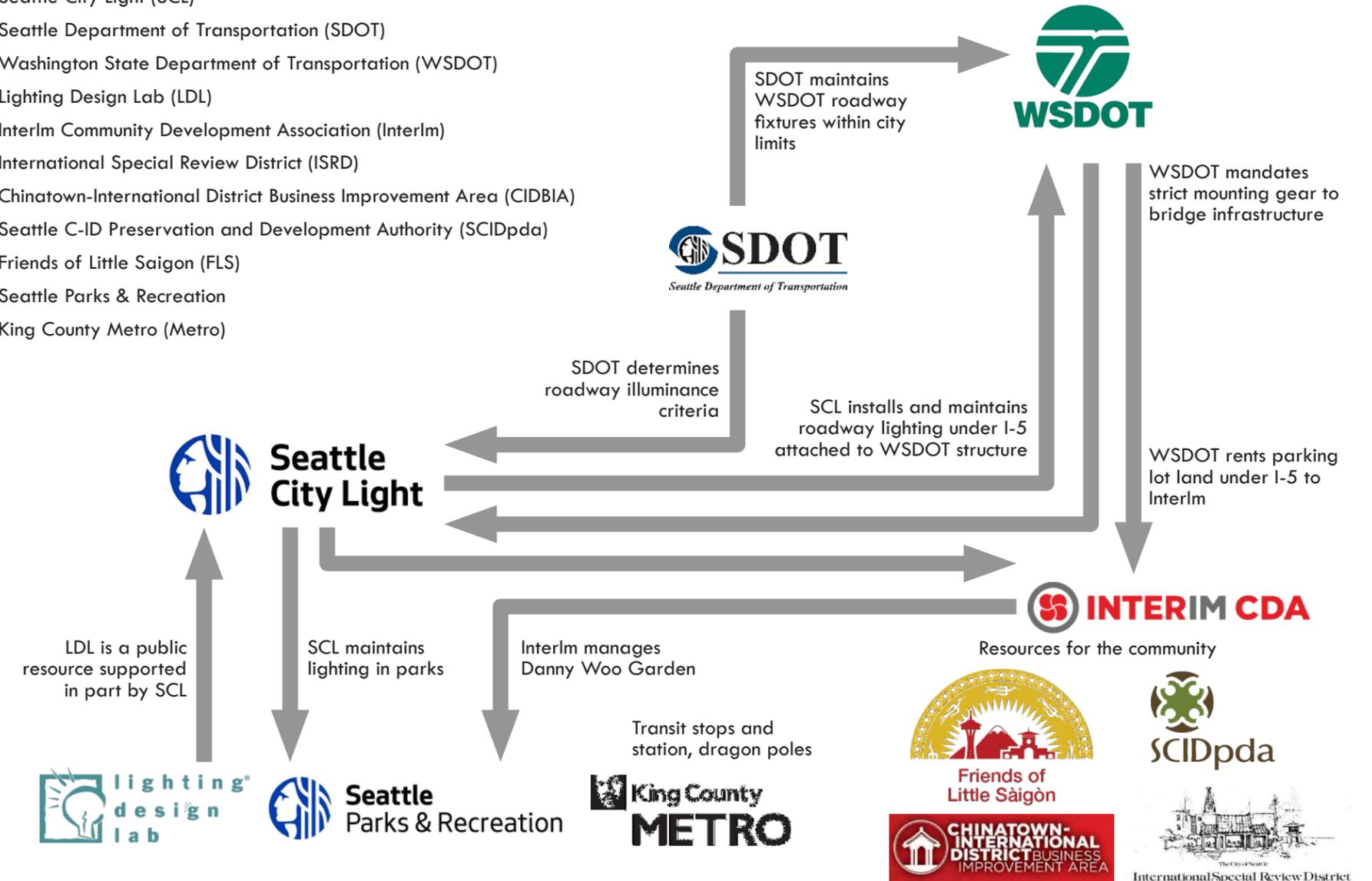


07 COMMUNITY FEEDBACK

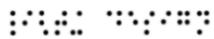
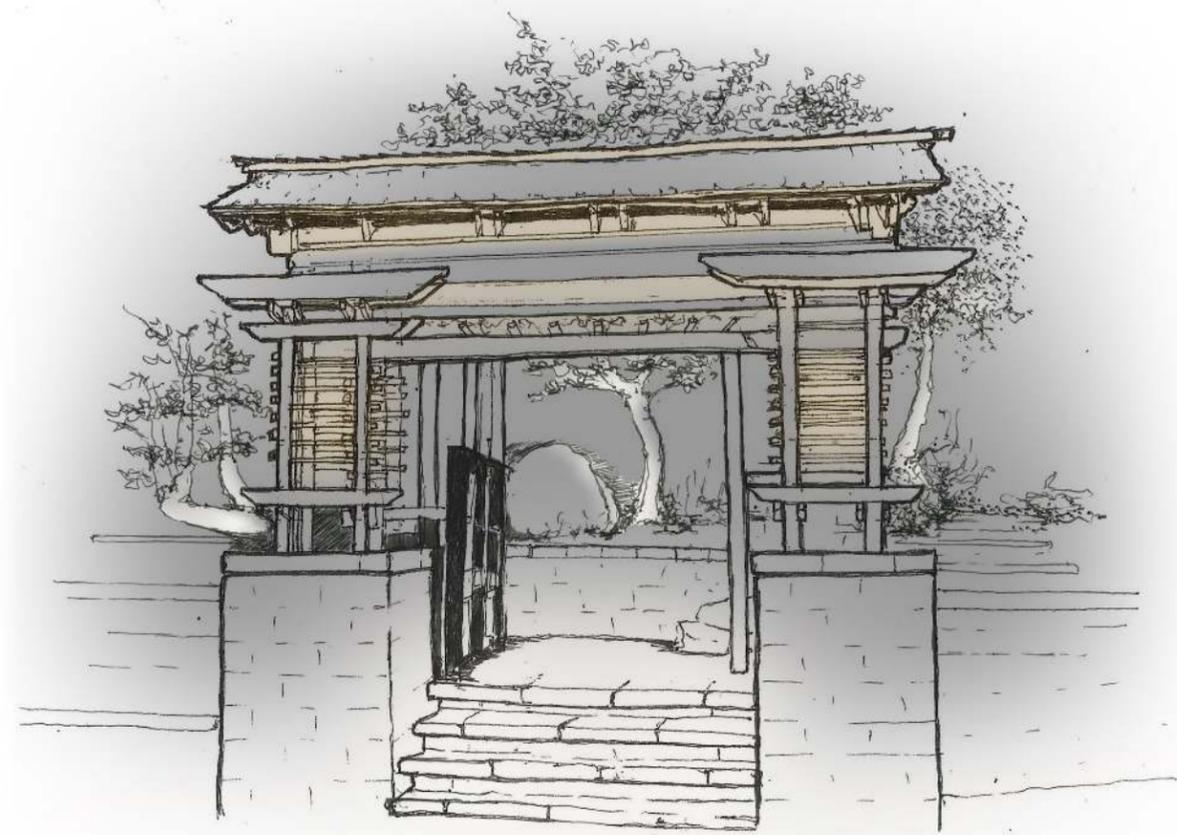
Community Partners

- Seattle City Light (SCL)
- Seattle Department of Transportation (SDOT)
- Washington State Department of Transportation (WSDOT)
- Lighting Design Lab (LDL)
- InterIm Community Development Association (InterIm)
- International Special Review District (ISRD)
- Chinatown-International District Business Improvement Area (CIDBIA)
- Seattle C-ID Preservation and Development Authority (SCIDpda)
- Friends of Little Saigon (FLS)
- Seattle Parks & Recreation
- King County Metro (Metro)

Note, this is an unofficial diagram and subject to change. There are many inter-related entities involved in the decision-making process for projects in the C-ID, and many more than are identified here.



08 RECOMMENDED IMPROVEMENTS



JAPANTOWN

This map shows prominent lighting elements and priorities in Japantown that will be further defined as **BASE** or **TARGETED** improvements in following pages.

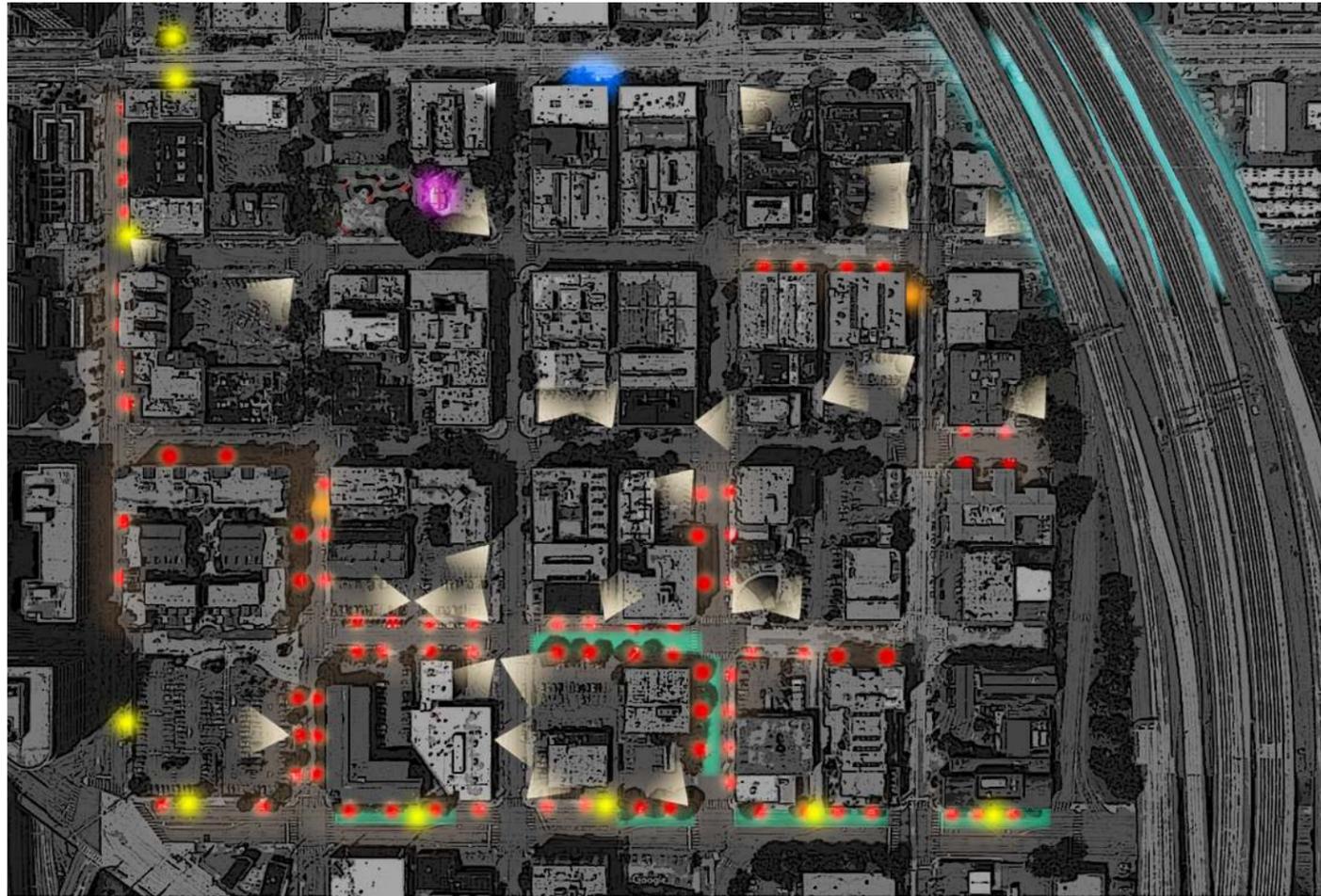


Diagrammatic rendered night-time birdseye view

-  **Additional King Luminaires**
-  **I-5 Underpass**
-  **Floodlights**
- **Maintenance**
- **Street Presence**
-  **Danny Woo Garden**
-  **Kobe Terrace**
-  **Signage Upgrades**
-  **Dragons**
-  **Bus Stop Shelters**

CHINATOWN

This map shows prominent lighting elements and priorities in Chinatown that will be further defined as **BASE** or **TARGETED** improvements in following pages.

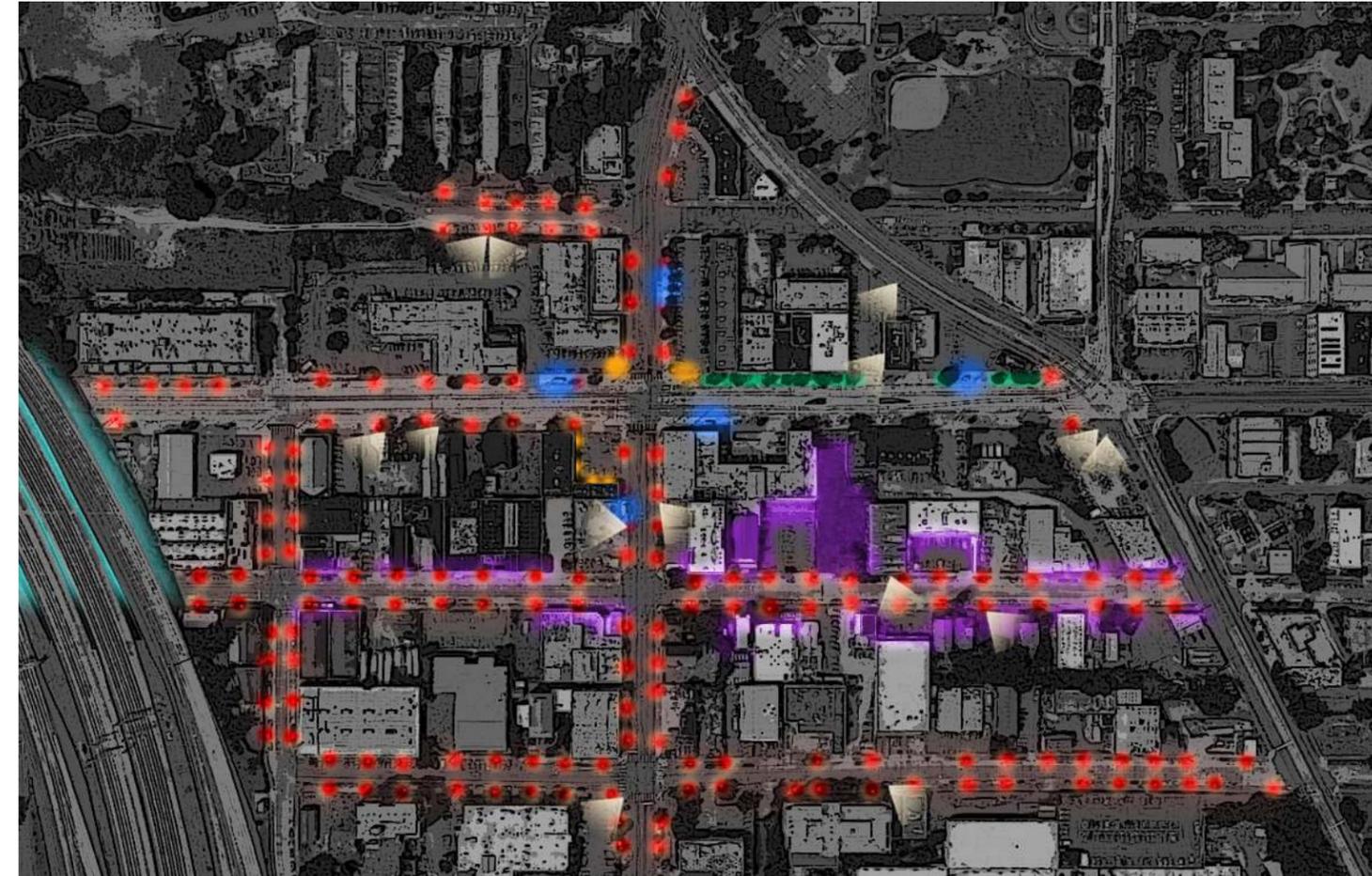


Diagrammatic rendered night-time birdseye view

-  **Additional King Luminaires**
-  **I-5 Underpass**
-  **Floodlights**
- **Maintenance**
 - **Street Presence**
-  **Tree Pruning**
-  **Hing Hay Pagoda**
-  **Signage Upgrades**
-  **Dragons**
-  **Bus Stop Shelters**

LITTLE SAIGON

This map shows prominent lighting elements and priorities in Little Saigon that will be further defined as **BASE** or **TARGETED** improvements in following pages.



Diagrammatic rendered night-time birdseye view

-  **Additional King Luminaires**
-  **I-5 Underpass**
-  **Floodlights**
- **Maintenance**
 - **Street Presence**
-  **Tree Pruning**
-  **Signage Upgrades**
-  **Bus Stop Shelters**
-  **King Street Corridor**



09 BASELINE IMPROVEMENTS



09.1 I-5 UNDERPASS

Community Comments

“Area feels uncomfortable, you can see, but you don’t notice people near you.”

“...just looks dingy lighting - makes everything too yellow - like a bad indie film, and looks sketchy, even if it is very open and you can see everywhere.”

Goal

Create an environment under the I-5 bridge that encourages pedestrian use, and connects Little Saigon to the rest of the Chinatown International District. The area should feel pleasant, safe, and connected to the neighborhood. The lighting must meet SDOT requirements and be flexible enough to allow for proposed future uses.

Design Challenge

The existing lighting of the area under I-5 meets, even exceeds SDOT requirements for horizontal arterial street illumination, but does not sufficiently light the dark corners beneath the freeway. The overall environment feels unsafe, unpleasant, poorly maintained, and high contrast. Wall packs (the high intensity fixtures mounted to columns) create a disorienting and uncomfortable glare in the parking lot area. Low color rendering (22 CRI) light from older high-pressure sodium sources feels unnatural and makes it difficult to identify people and cars. The excessively warm color temperature (2200°K) is inconsistent with surrounding area streetlights (4000°K) and pedestrian scale fixtures (3500°K). The area feels disconnected from the surrounding neighborhoods and creates a psychological barrier between Chinatown and Little Saigon.

Logistical Considerations

There are many entities that have a stake in the lighting beneath I-5 as to what it is, what criteria must be met, how it should be installed, and how it should be maintained. SDOT has strict roadway illuminance requirements. SCL will only install approved luminaires. WSDOT has requirements for how things are mounted to freeway infrastructure, SCL maintains lighting in the area, but Metro manages the trolley-lines that run along S Jackson, which require 15’ clearance for maintenance. WSDOT rents the parking area below the freeway to InterIm CDA. The current proposed King Street Neighborhood Greenway project proposes pedestrian pole fixtures along King Street. WSDOT will likely seismically retrofit freeway columns in the near future, which impacts both light fixture mounting to columns and existing artwork, and coordination.



View looking East on S. Jackson under I-5



Glare from column-mounted wall-packs



Strong color temperature contrast between existing HPS underpass lighting and surrounding LED streetlights



09.1 I-5 UNDERPASS

Proposed Lighting Strategy

To improve the lighting under I-5, a completely new strategy for lighting should be implemented. A change to LED for fixtures mounted in existing locations would solve the color problem, however it would not solve for dark-corners or glare mitigation. The wall-pack fixtures mounted to the columns need to be removed. Additionally, fewer fixtures are needed than currently shown over roadways, which supports energy efficiency goals, lighting uniformity for improved visual acuity, fewer connections to WSDOT structure, and improves maintenance around trolley-lines.

Per community request, and as requested in the current proposed King Street Neighborhood Greenway project design, new pedestrian scale King K56 luminaires should be extended down both sides of S King Street through the underpass. These fixtures should be added along S Jackson Street as well. Light from these fixtures will add vertical illumination to help identify faces at a pedestrian scale, will help fill-in dark corners, and help create visual continuity for pedestrians walking between the Chinatown and Little Saigon neighborhood areas. Side-light from the pedestrian poles will provide illumination of currently painted art columns.

To light the roadway, a single row of centrally located, ceiling-mounted LED canopy fixtures should replace the double row of existing fixtures. Locating these in the center of the roadway provides more even illumination and puts them in locations that are easier to maintain between trolley lines. Shifting fixtures away from columns will enable more uniformity of appearance throughout the area.

Parking area column-mounted wall-pack lights should be removed owing to their hazardous glare. Consistent lighting from ceiling-mounted under-canopy fixtures should be added overhead. All new lighting should have a color temperature consistent with other neighborhood lighting and 80+ CRI to enable good visibility.



Calculation study - rendered view of proposed lighting strategy looking East up S Jackson Street and into InterIm Parking Lot

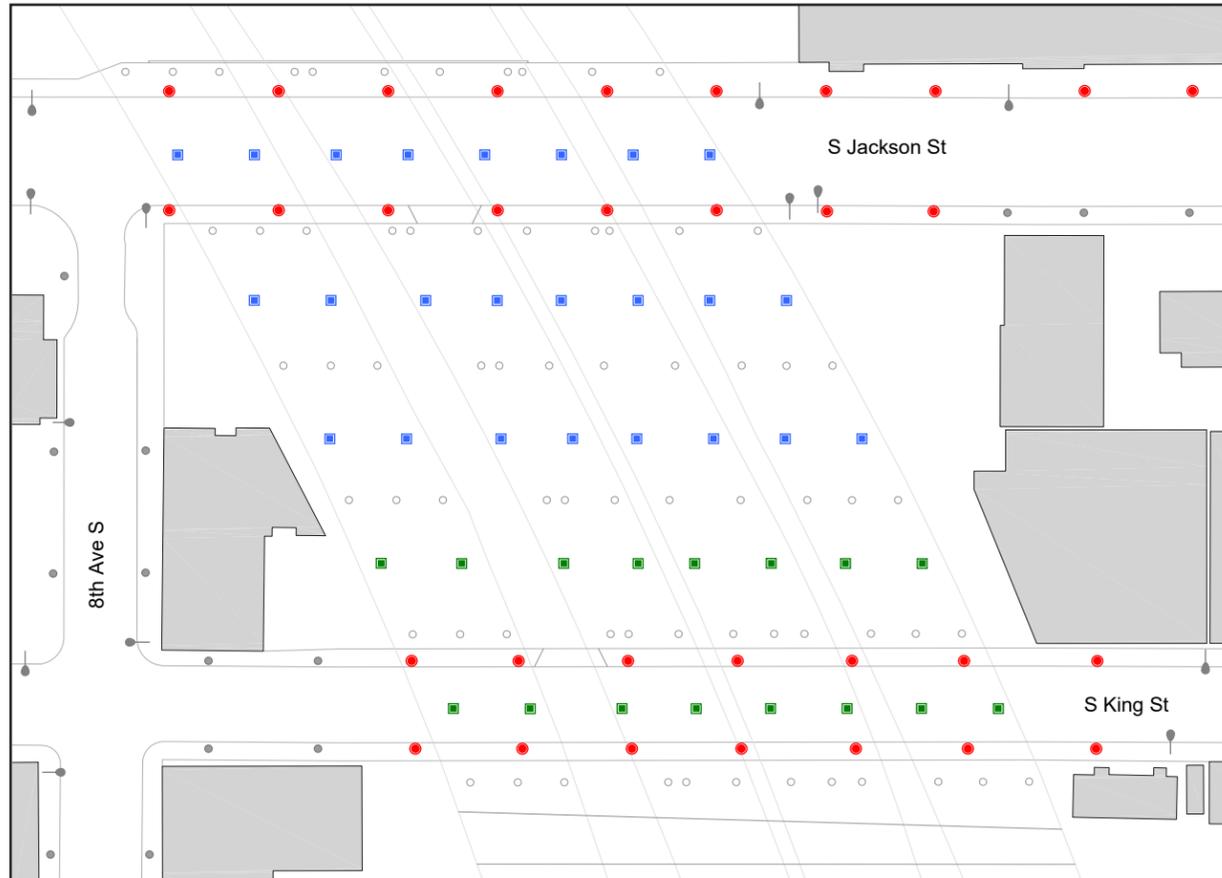
09.1 I-5 UNDERPASS

Proposed Lighting Layout

See layout below for proposed solution. Because of the sloping ceiling condition, two different light outputs of canopy fixtures should be used. Pedestrian pole spacing should be consistent with other streets in the neighborhood, and should flank entries to the parking area. With trolley lines and installation issues, pole fixtures may need to be hinged (per WSDOT approval).

A survey with SDOT / SCL / WSDOT revealed that existing power infrastructure is varied throughout the area. Further investigation by utility entities will be required.

Note, existing HPS floodlights that are located on the back-side of the underpass columns facing dark north and south corners should be replaced in-place with new LED alternatives. These fixtures are not shown in the plan below, the locations of which should be confirmed. Also, the King Fixtures shown on S King St are also proposed as part of the Neighborhood Greenway Project, though plans may indicate different locations.



Not to scale plan view - proposed lighting layout



Calculation study - view looking East on S. Jackson under I5



09.1 I-5 UNDERPASS

Implementation Plan

Phase 1. SCL, SDOT and WSDOT confirm proposed strategy

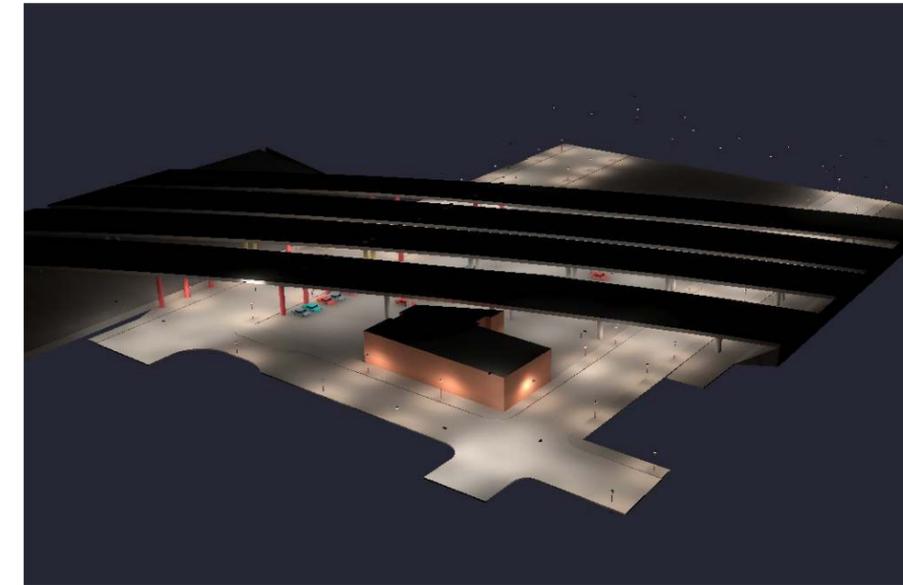
Phase 2. Secure funding

Phase 3. Procure lighting (assume 12-16 weeks product lead-time)

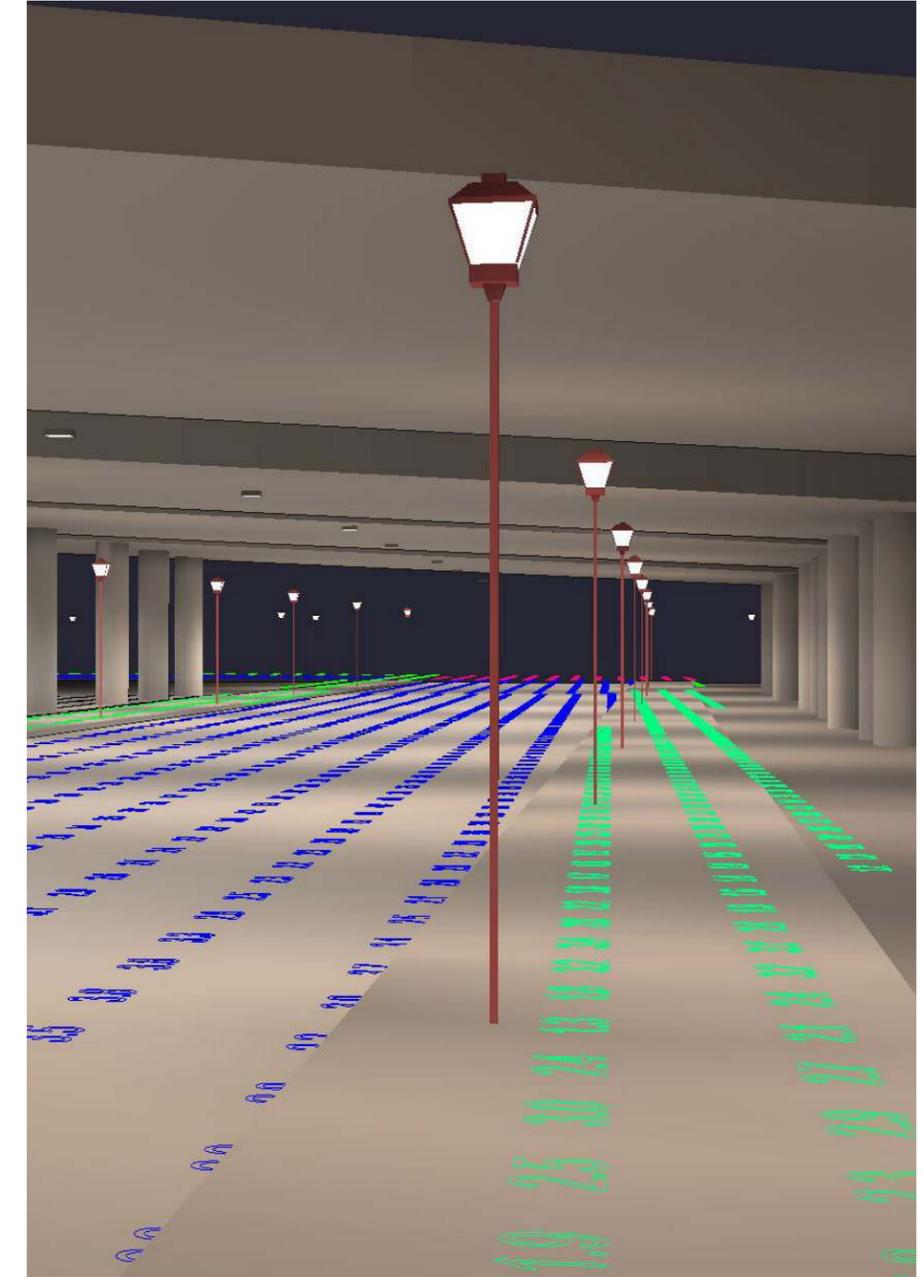
Phase 4. Installation of fixtures on King / S Jackson / above parking area - may require separate schedules to accommodate road closures

All aspects of implementation to be further assessed by SCL, SDOT, METRO and WSDOT.

Note: The Jackson + King St. Underpass design study currently in progress, led by InterIm, may warrant additional specialty lighting for community features. The proposed lighting in this study should serve as a uniform base layer. Areas where the bridge meets the ground at the north and south ends could be used for additional art lighting treatments, if floodlights are removed.



Calculation study - top perspective view of proposed lighting strategy



Calculation study - View looking East on King Street

09.2 KING FIXTURE EXPANSION

Community Comments

“The red lantern street lights are culturally significant and festive. City should finish extending this lighting through Little Saigon on King and Jackson Streets without waiting for individual property owners to complete the missing links when their property is redeveloped.”

Goal

Encourage pedestrian travel between Chinatown and Little Saigon. Improve visibility along Dearborn. Enhance visibility (and therefore perception of safety) with vertical illumination of faces and vertical surfaces. Expand a unifying visual element.

Design Challenge

The prevalent use of pedestrian scale poles with red King K56 fixture heads (aka., King fixtures) has become a defining visual element of the Chinatown International District. These fixtures contribute vertical illumination to faces and surfaces, enabling visibility and the perception of safety. The distinctive character is unique to the district and significantly contributes to the neighborhood sense of place. These fixtures, however, are only prevalent in Chinatown and Japantown and missing on certain streets, and are generally missing in Little Saigon.

To walk from Chinatown to Little Saigon, one must go under a roughly 300' freeway underpass and down the long blocks of Jackson or King street. These streets have a generally inhospitable and industrial character, leading to the perception that these areas as unsafe and undesirable.

Logistical Considerations

Seattle City Light will install and maintain pole fixtures that meet their material standard when paid-for by others. Often developers will add luminaires in the sidewalk Right of Ways alongside their projects. Unfortunately this has the potential for ad-hoc fixture implementation. Other considerations include fixture placement between drive entries, proximity to street trees, and various conflicts along each stretch of sidewalk. Every street must be considered with development plans in mind.

Fixtures are either top-mounted to gray fiberglass poles that enable 14' overall fixture height, or arm-mounted to poles at approximately 18' height above grade.



Arm-mounted version of King fixture



Light distribution contributes to both city sidewalks and building facades



Contribution to visual comfort and character of neighborhood

09.2 KING FIXTURE EXPANSION

(Additional) Logistical Considerations

Fixture costs can vary greatly, based on accessories desired for the product, banner mounts, additional control gear, and whether the fixture requires a new foundation. In addition to the equipment cost of each fixture, installation costs can vary depending on trenching difficulty and the volatility of contractor bid.

Existing pole fixtures are 3500°K CCT, 70CRI. As neighborhoods change to alternate CCT and CRI (3000°K, 80+CRI), existing fixtures require retrofit lamp assemblies to match the updated lamp change and enable color consistency throughout the neighborhood. The cost of retrofit modules is not high but there may be resistance to replacing functional existing modules until failures occur, which could take a very long time (estimate 10 years).

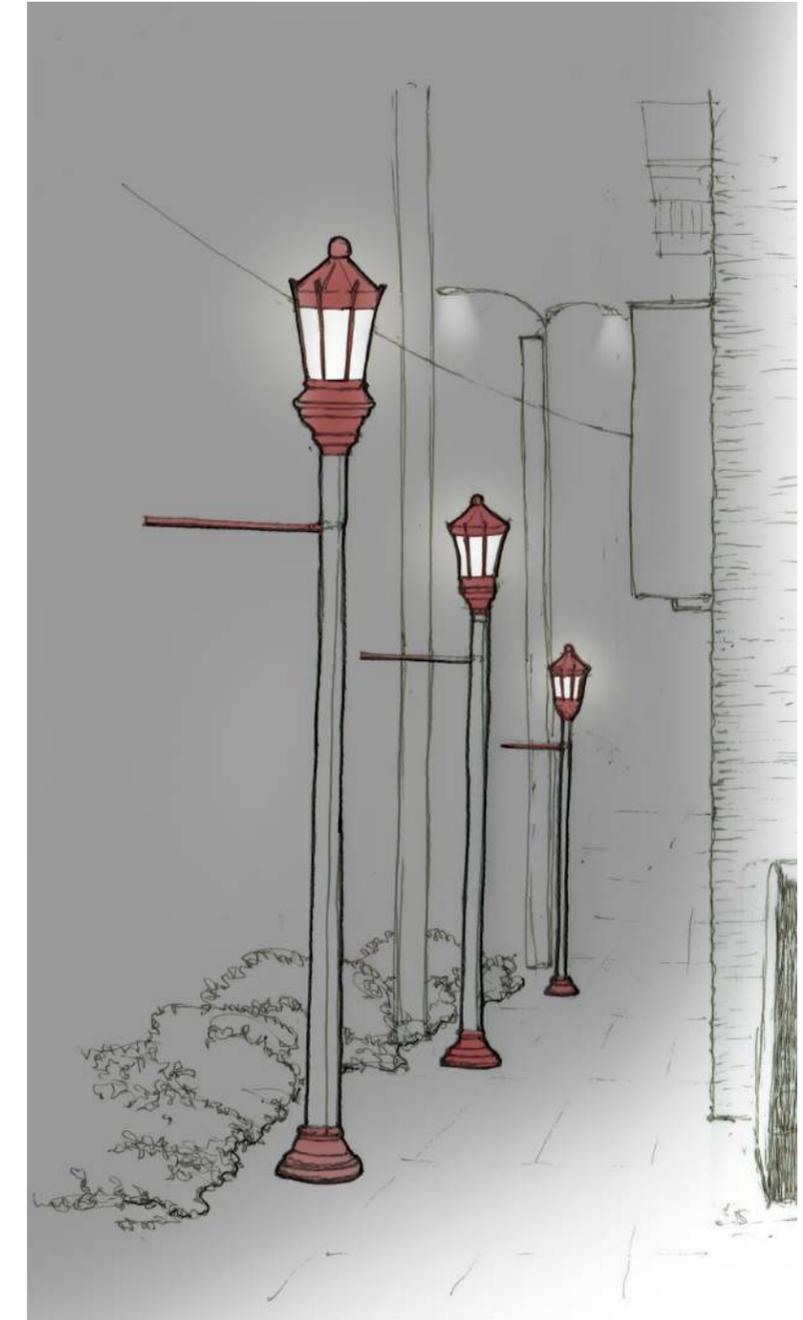
The manufacturer, King Luminaire, indicates that the current fixture head will not accommodate control gear that would enable networked connectivity / outage or maintenance reporting - such devices would need to be externally mounted.

The King Street Neighborhood Greenway project has specified red pole finish underneath I-5 along King Street. For consistency, it would be desirable for all poles in the neighborhood to be the same, either keep gray fiberglass or change all to red. The cost difference is not inconsequential, however, and consideration should be given to the determination of which poles should also have banner-mounts.

Proposed Lighting Strategy

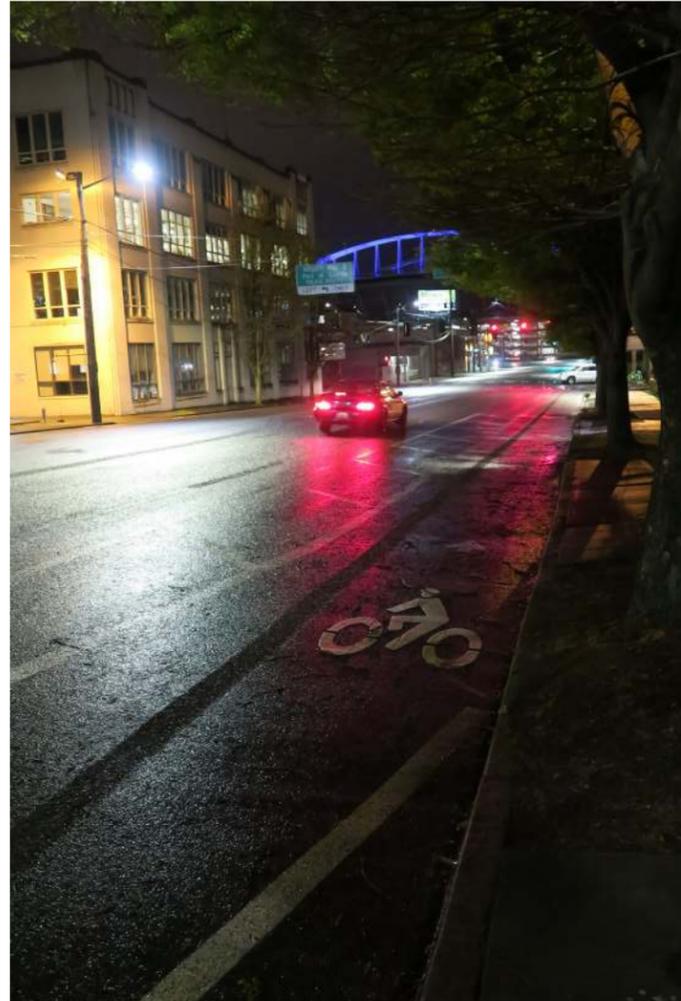
Regardless of complexity, this study recommends the addition of pedestrian poles throughout the Chinatown International District and consistent color temperature. New fixtures should match the existing SCL material standard for King K56 fixtures, or if SCL has decided to replace the existing 3500°K LED sources with 3000°K, 80+CRI sources soon, then all new fixtures should adopt the new, warmer, improved color quality standard and existing fixtures should be retrofit to match. Pole finish color should be consistent throughout the neighborhood.

Priority should be given to the streets in Little Saigon, specifically along South Jackson Street and South King Street as they are the main connectors between Little Saigon and the rest of the C-ID. Pedestrian poles located along Dearborn are also important, especially with the implementation of Vision Zero bike lanes.

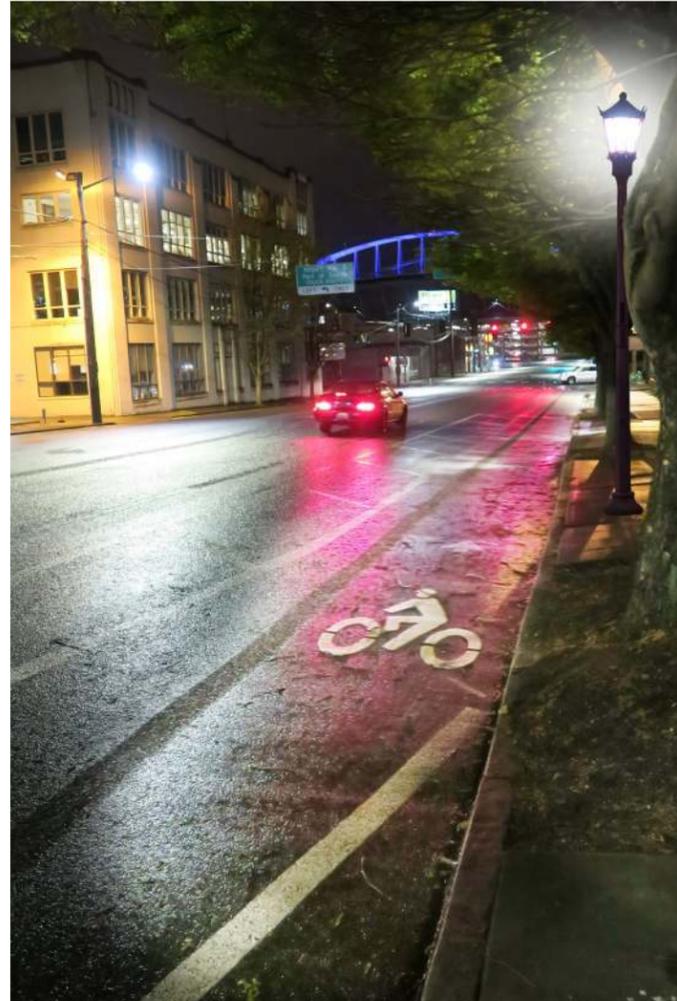


Rendered sketch of rhythmic pedestrian pole lights with banner mounts

09.2 KING FIXTURE EXPANSION



Dark bike lane along Dearborn



Rendering of contribution from pedestrian pole light

09.2 KING FIXTURE EXPANSION

Proposed Lighting Layout

See layout options for consideration. The design of the pedestrian poles along each street will need to be assessed individually based on specific sidewalk / tree / property owner and ROW parameters.

Typically in the C-ID the King fixtures evenly flank a street at between 60' - 70' on center spacing. It is observed that the shorter North/South blocks in the neighborhood often have (3) luminaires on each side versus (4) on the East/West blocks.

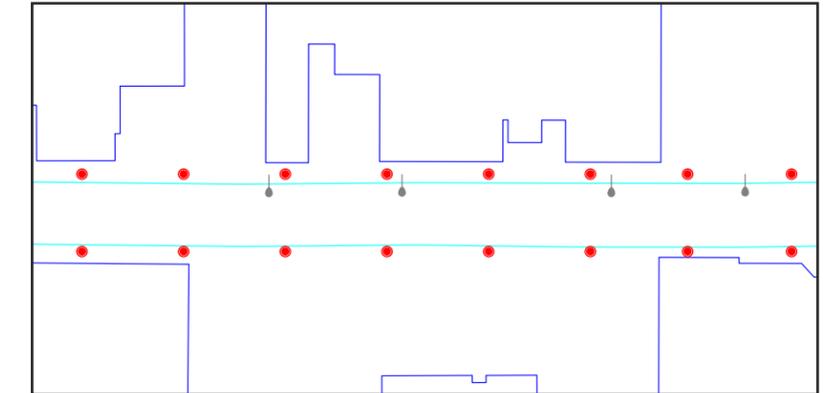
Optionally, as a quantity reduction strategy and to avoid redundancy, pedestrian pole fixtures may be spaced between roadway fixtures. This strategy must take potential tree canopy blockages into consideration. Also, for cost savings, and to reduce visual monotony, long East/West blocks in Little Saigon may elect to have pedestrian poles only on one-side of the street (e.g., S Weller St).

For each street, and as part of community design review, the board should determine if fixtures should be provided with banner mounts.

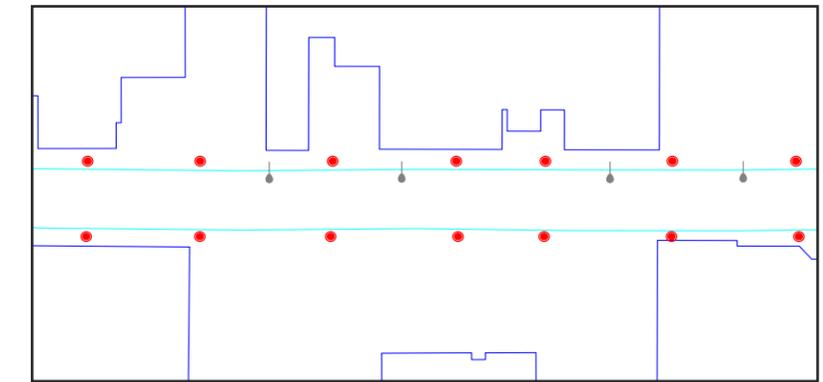
Networked lighting controls are not suggested as part of this plan until SCL has an overall city strategy to monitor outages remotely. Fixtures are currently designed to include photosensors which turn lights on at dusk and off at dawn. As currently in practice, each pole has a number that citizens may reference for reporting on Find It Fix It: [link](#).

Implementation Plan

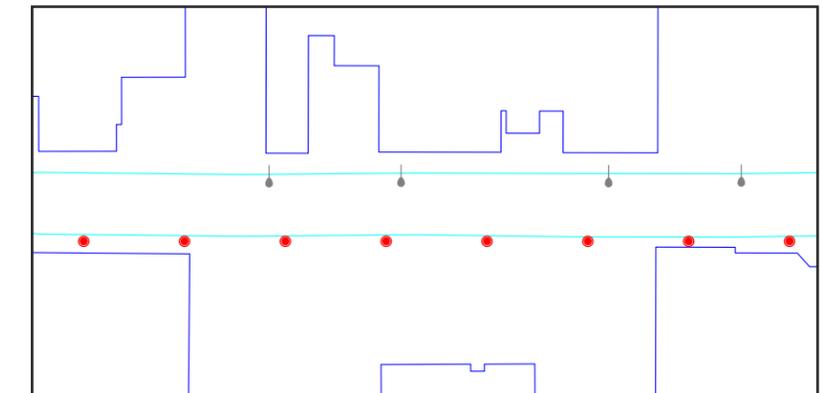
Given the enormous coverage proposed as part of this improvement, the first step is to secure funding. As indicated, there are layout options which should be further assessed at each location in order to resolve fixture quantities. A phased implementation plan is anticipated to be required for complete neighborhood coverage. Order of priority from most critical to least: S Jackson and S King Streets in Little Saigon, S Dearborn Street and 12th Avenue, other streets in Little Saigon, and the rest of the areas shown in the Chinatown and Japantown maps.



Not to scale plan view - proposed lighting layout: pedestrian poles evenly spaced opposite each other on both sides of the street



Not to scale plan view - alternate layout: pedestrian poles spaced between cobra-head streetlights

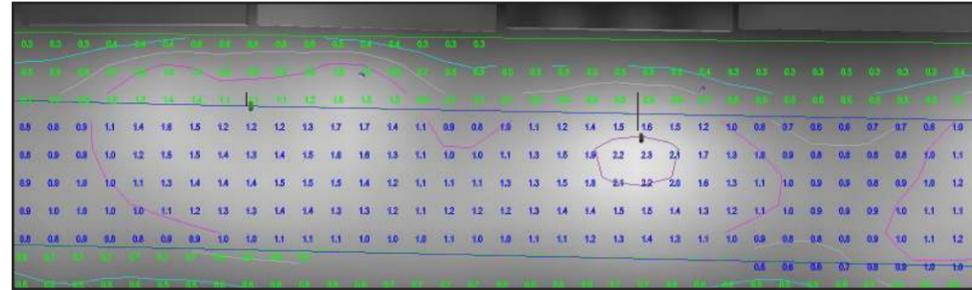


Not to scale plan view - alternate layout: pedestrian poles evenly spaced on one side of street only

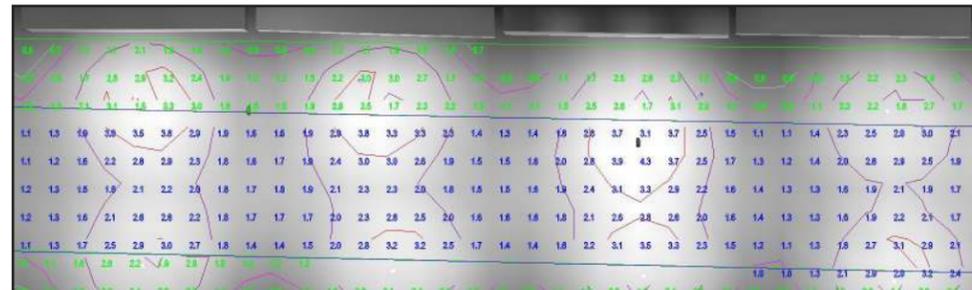
09.2 KING FIXTURE EXPANSION

Calculation Example

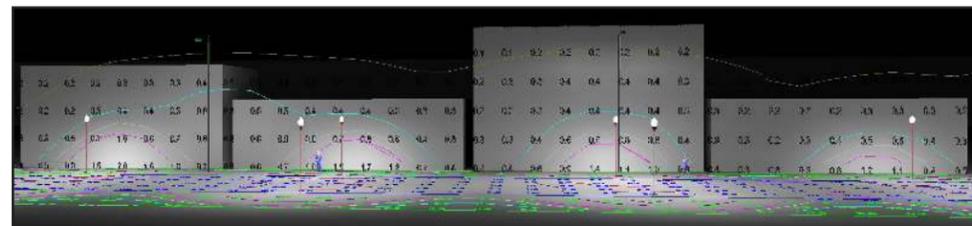
The contribution of light from pedestrian poles should not just be assessed relative to horizontal illuminance levels along the sidewalk, but also vertically. Pedestrian poles illuminate tripping hazards, as well as faces of passersbys and building facades. Good color rendering is critical in color recognition.



PLAN VIEW - Calculation study without pedestrian poles - note, roadway light pole distribution and arms may differ. Not to Scale

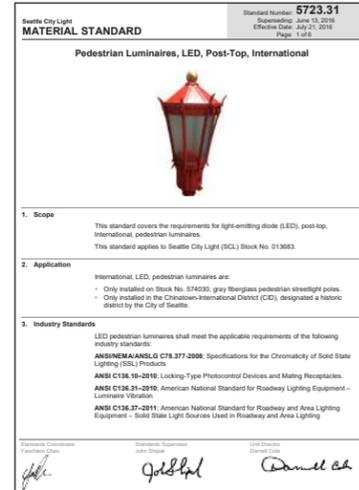


PLAN VIEW - Calculation study including pedestrian poles
Not to Scale



ELEVATION/PERSPECTIVE VIEW - Calculation study showing vertical illuminance levels
Not to Scale

26' Roadway pole fixture height
14' Pedestrian pole fixture height



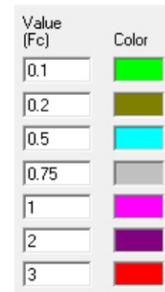
SCL Materials Standard, 2016 - [link](#)



Light with "after-market" banner-mount



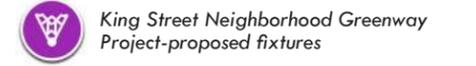
Community art element attached to pole



Illuminance Isolines shown in calculation studies at left, in Footcandles (Fc)

Calculations show Type V light distribution pattern for King fixtures.

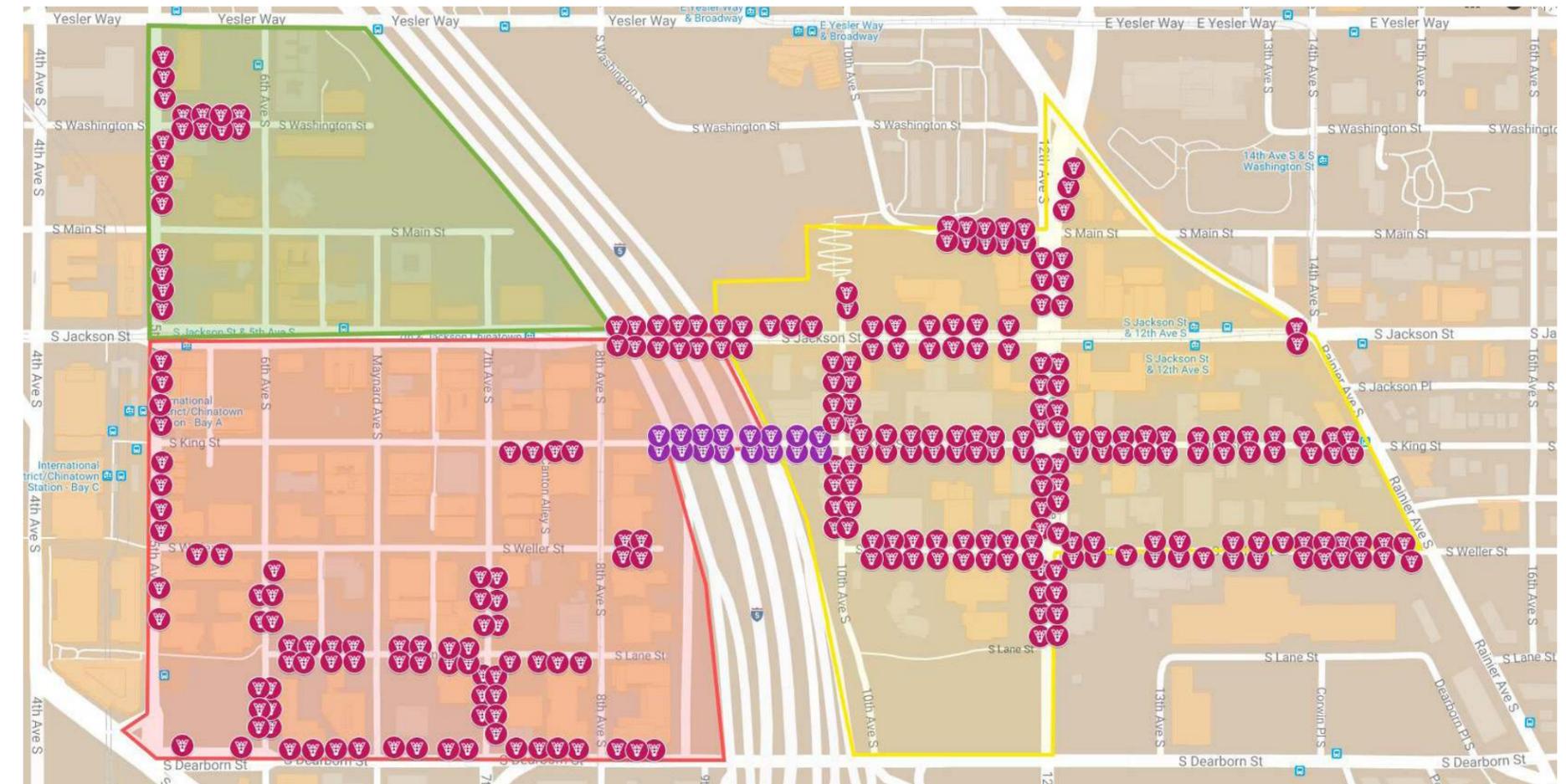
09.2 KING FIXTURE EXPANSION



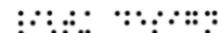
Proposed Scope

For budget assessment purposes, estimated fixture locations are shown in the map below. Some streets require comprehensive new fixture installation; others only select additions. Fixture spacing and quantities are drawn similarly to those elsewhere in the neighborhood, and per the highest-quantity layout options shown in prior pages. More critical assessment of each location should be performed including coordination with projects that are in development along sidewalks, review of driveways, trees, and all ROW considerations.

This link offers the ability to zoom into specific streets, and to turn on additional layers showing existing roadway fixtures: [link](#)



C-ID Map of streets where King Fixtures are proposed



09.3 FLOODLIGHTING

Community Comments

“The floodlights... are very glary and do not provide good lighting.”

“Parking lot has glary wall-packs, people still sleep in the area.”

“A floodlight aims directly into the... park entrance, creating glare for one leaving the park.”

Goal

Mitigate complaints when existing High Pressure Sodium (HPS) floodlights are replaced with cool color temperature, poor color rendering, multi-chip LED fixtures. Enhance color consistency in the neighborhood. Reduce glare.

Design Challenge

For many years SCL has rented HPS floodlights to property owners ([link](#)) for use mounted to poles, roofs, or other architectural features to broadly illuminate areas below. These fixtures are innately glary in order to cover large areas with light from single fixture locations. There is no fix to this. There are, however, some products that produce less glare than others.

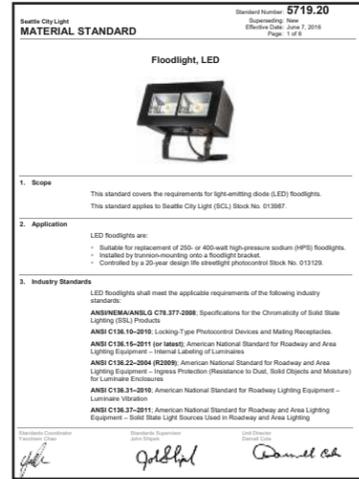
Seattle City Light cares greatly about citizen complaints, and is currently in the process of changing their material standard from 3500°K CCT to 3000°K. A change to something better than the current 70CRI adjustment is not yet clear.

Logistical Considerations

All SCL-procured lighting must be extremely cost-effective. The process for changing an SCL materials standard depends on the level of interest, as voiced by the community. Evaluation of potential alternates to the current materials standard fixture must be by mock-up.

Proposed Lighting Strategy

The community should proactively request alternative lighting for an example project, such as Donnie Chin International Children’s Park, and do assessment of installation comparing a new LED fixture to the existing HPS version. Compare alternate product(s) samples, obtained from local lighting manufacturers representatives, to existing floodlight and current SCL material standard fixture. Samples should be 3500°K CCT, 80+ CRI. Share findings with SCL. Alternatively, SCL could do a mockup at the Lighting Design Lab, or elsewhere, prior to city-wide implementation.



SCL Materials Standard, 2016 - [link](#)

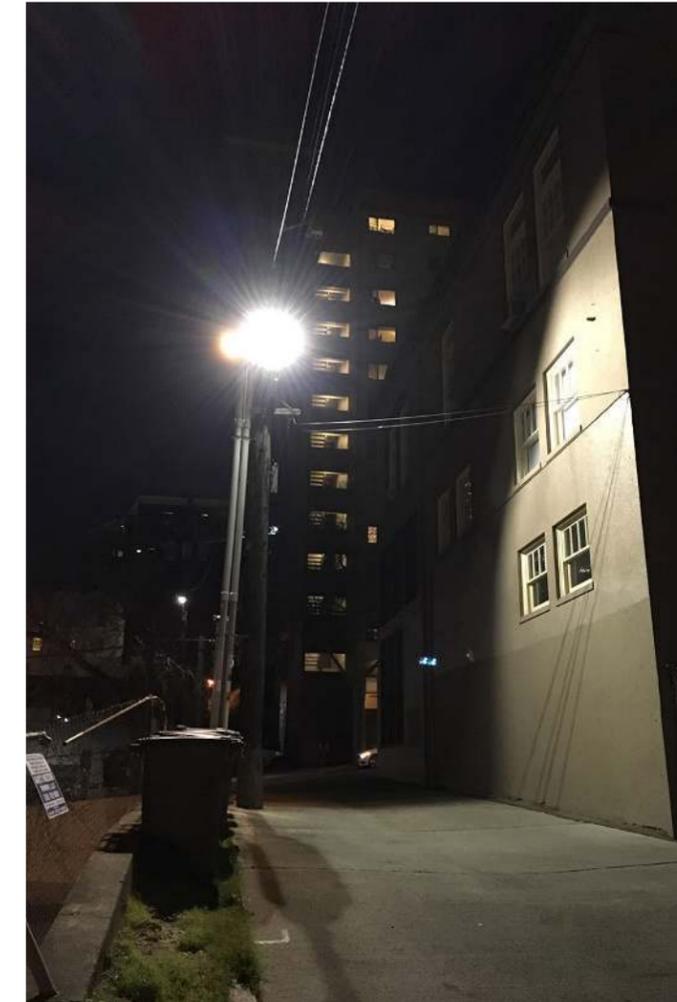


Typical Floodlight mounting

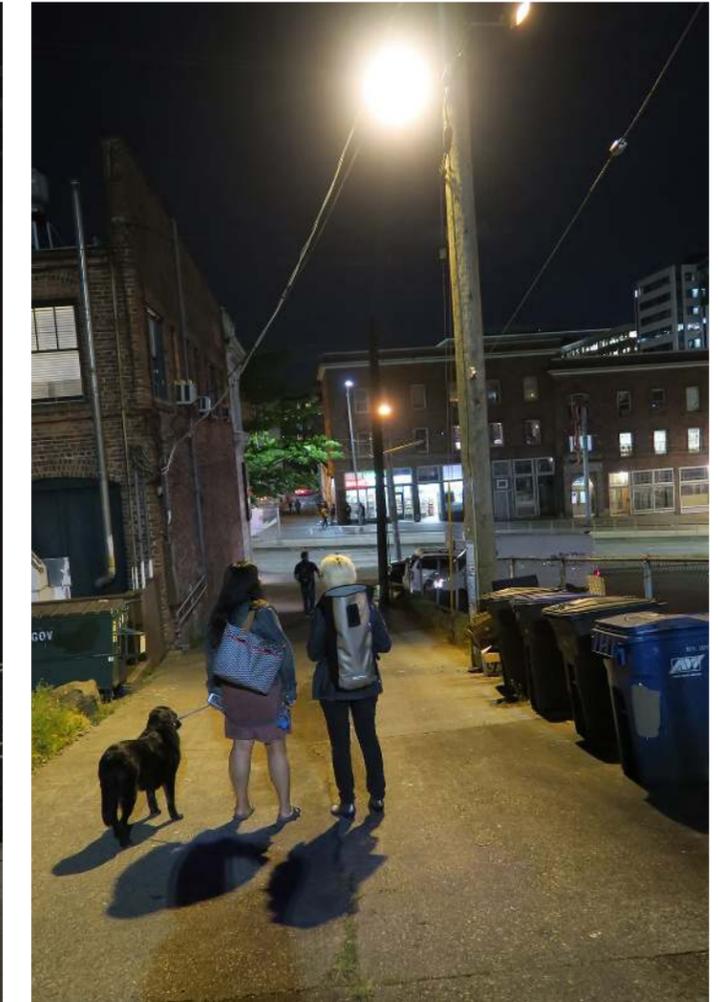


Existing warm, poor color rendering HPS floodlights are commonly found throughout the neighborhood

09.3 FLOODLIGHTING



New LED floodlight - cool CCT, poor CRI, and more glare from multi-cell source



Old HPS floodlight - warm CCT, poor CRI, yet less glare due to single soft reflector

09.4 MAINTENANCE

Community Comments

“Bright parking lot fixture is strobing, needs repair.”

“Large lit sign for... is out. Many other signs in... are in need of maintenance.”

“Why is a city maintained pole light at a prominent bus stop out?”

Goal

Improve maintenance of both public and private lighting fixtures throughout the neighborhood.

Design Challenge

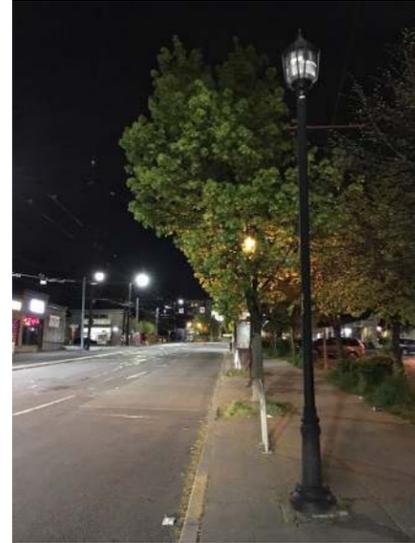
Lighting in the public realm that is the responsibility of the municipality will be maintained on a regular schedule, or when an outage is acknowledged and reported through online or mobile portals (e.g., Find It, Fix It - [link](#)). Occasionally there are also “Find It, Fix It Community Walks”. Seattle City Light states their goal to respond quickly when alerted to a problem.

Note, in the future networked control technology may make it easier for problems and outages to be reported to Seattle City Light.

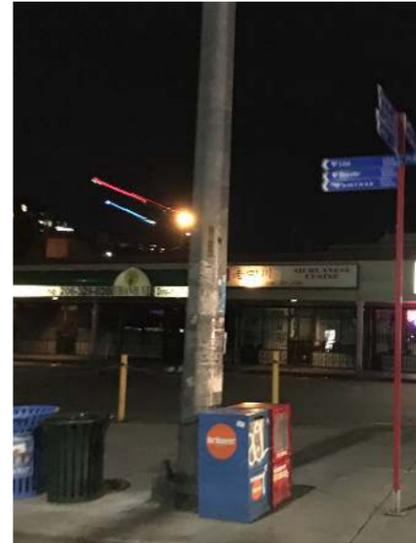
Private property maintenance is much more challenging, as the onus of responsibility to report and do maintenance falls on the shoulders of property or business owners.

Logistical Considerations

Cleaning can be as important as replacing lamps. LEDs may last a long time but fixtures become dirty at the same rate as in years’ past, with technology that mandated more frequent servicing. Additionally, LED technology is more complicated to fix. Property owners may not appreciate reminders to fix things they perceive as unimportant.



Pedestrian pole outages



Storefronts and signage outages

Proposed Lighting Strategy

See Lighting Best Practices section. The Business Improvement Association (CIDBIA) or SCIDpda could submit these pages to new and existing neighborhood property owners and tenants. Encourage a regimen of fastidious neighborhood lighting maintenance.

Pursue networked lighting control strategy for outage reporting on SCL fixtures.

Assist community business owners in accessing retrofit/rebate opportunities.

Implementation Plan

Share Lighting Best Practices document with property owners during the ISRD approval process. Share Lighting Best Practices document with business owners during community welcome.

09.5 TREE PRUNING

Community Comments

“The trees around here block light from the streetlights from reaching the sidewalk.”

“People want to walk on Dearborn but can’t for various reasons (tripping, dark, encampments...). Bike lanes not lit well, it’s even a hard street for drivers.”

“Dragons up high on poles are not lighted and buried in trees.”

Goal

Provide regular pruning of trees throughout the neighborhood in order to improve the distribution of light from streetlights and pedestrian pole lights, and to enable the view to/of select neighborhood feature elements.

Design Challenge

People love trees. Trees block light, especially when foliage is full and lush. The Department of Urban Forestry prunes trees owned by the city on a seven-year cycle. Trees that they do not own require pruning by associated property owners, who are required to have a permit for their own pruning.

Logistical Considerations

The Department of Neighborhoods prunes two districts per year. Entities doing the pruning may not understand the distribution of light impacted by the tree foliage they cut.

Proposed Strategy

Work with the Department of Urban Forestry to report tree foliage / lighting challenges throughout the neighborhood. Identify and report specific areas of concern.

Work with private property owners to understand the available reporting mechanism and general impact overgrown trees can have on neighborhood lighting and safety.

C-ID Lighting Design Vision and Action Strategy



Tree impacting light distribution and view of public dragon art

Proposed Strategy (continued)

See Lighting Best Practices section. Submit these pages to new and existing neighborhood property owners and tenants. Encourage community members to report overgrown plants and trees that affect light.

Implementation Plan

The Business Improvement Association (CIDBIA) or SCIDpda could share the Lighting Best Practice pages of this document with new and existing neighborhood property owners and tenants through community newsletters, or welcome procedures. Assist community business owners in accessing grant/funding opportunities.

To report overgrown plants and trees in the public right of way, one can fill-out a Service Request Form: [link](#)

09.6 ENHANCED STREET PRESENCE

Community Comments

“There are lights, but they are not turned on. Existing lighting may be poor.”

“The... building has pleasant lighting, attractive lantern sconces.”

“I like it, it’s lit high, lit low, and has a somewhat random feel.”

Goal

Use exterior lighting of buildings, lighting mounted to buildings, and internal lighting emanating from within buildings to enliven the streetscape. Increase the overall neighborhood night-time lighting experience during the most active evening hours. Encourage digital lighting controls.

Design Challenge

Lighting in and of private buildings is not under the purview of the municipality. While pedestrian lighting can illuminate sidewalk areas, unlighted alcoves and storefront windows contribute to a general feeling of neighborhood inactivity or abandonment. Decorative treatments may seem fragile, difficult to maintain, and of insufficient output to provide sufficient value.

Lighting that is left on during active evening hours should be energy efficient and utilize lighting controls that some may perceive as cost-prohibitive. If too bright, too glary or of poor color quality, lighting treatments could backfire, causing an over-lit, institutional feeling. Lighting that is left on at night has the potential to be a nuisance to surrounding properties. Not all interior lighting should be left on.

Logistical Considerations

Lighting should be on during active pedestrian hours, but not left on all night long. Lighting both inside and outside of buildings requires regular cleaning and maintenance. Property owners may not want to spend money to power lighting they don’t believe affects their property.



Lighting from within businesses



Unlighted storefronts feel inactive

Proposed Lighting Strategy

Suggest to new and existing neighborhood property owners and tenants that they have an ability to contribute meaningfully to their neighborhood through their efforts enlivening the streetscape appearance at night. Encourage use of select lighting to be left on inside street-level windows. Sconces, canopies and street-level illumination of building facades is beneficial. Encourage the use of digital timers so that lighting may be turned-off for at least (6) hours per night. Lighting controls should be suggested as part of the ISRD Guidelines, which may be modeled after the Lighting Best Practices section.

Lighting that is left on and at night should not be a source of nuisance to surrounding properties, and should avoid “light trespass”. Consider luminance values less than 80 cd/m² (candelas/square meter) for lensed decorative sconces. Note, suitable luminances should be determined in situ.

Implementation Plan

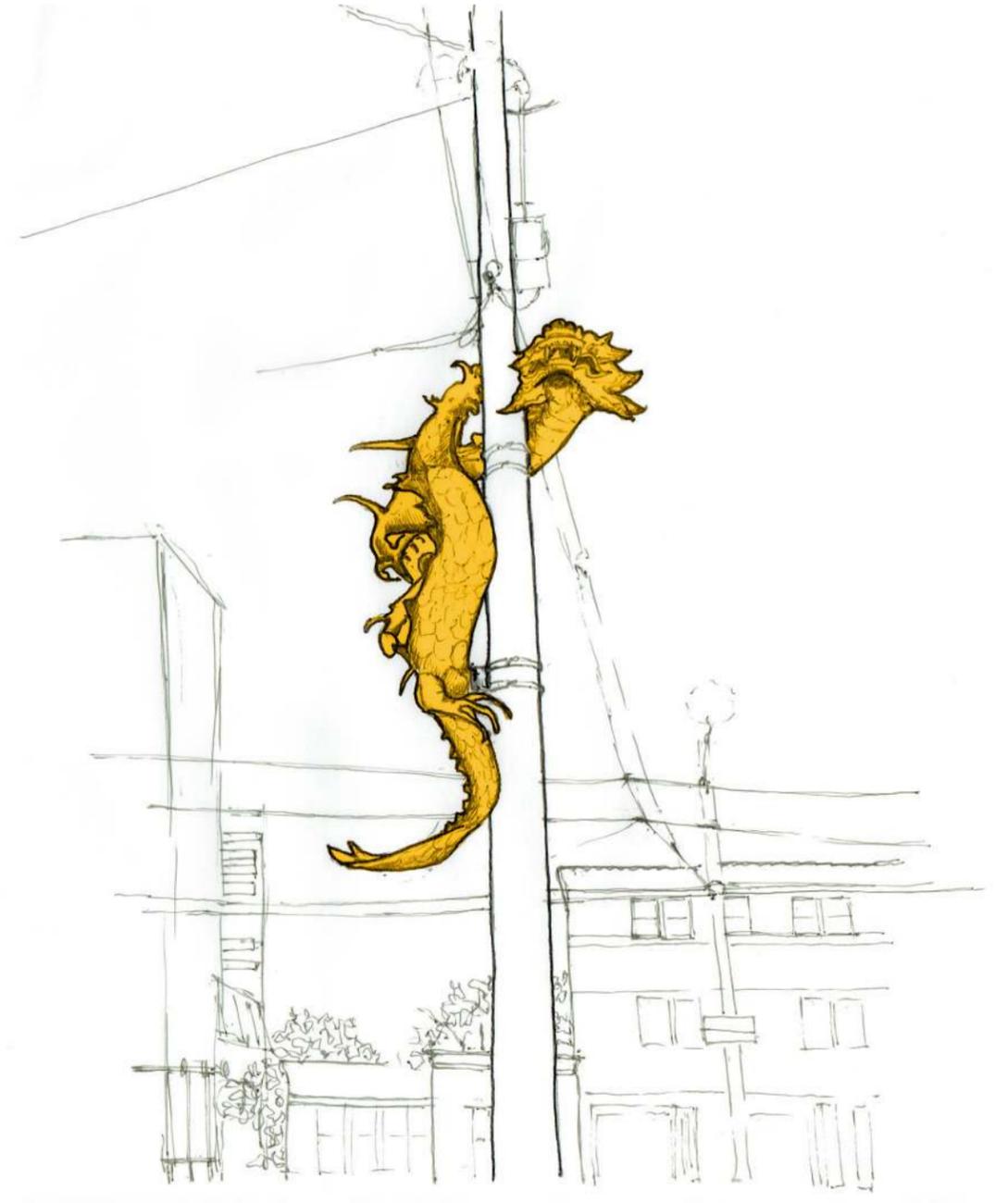
The Business Improvement Association (CIBIA) or SCIDpda could share the Lighting Best Practice pages of this document with new and existing neighborhood property owners and tenants through community newsletters, or welcome procedures. Assist community business owners in accessing retrofit/rebate opportunities.



Street presence, as conveniently illustrated in this photo where one side of the street is in-construction and un-illuminated, involves a layered, vertical approach to light. From ground-up, light spilling from retail windows, awnings, building-mounted fixtures, pedestrian poles, signage, upper level windows, roadway poles, and other facade treatments impact overall illumination and neighborhood character.



10 TARGETED IMPROVEMENTS



10.1 GRAND PAVILION

Plaque Statement:

“Dedicated jointly by the Municipal Governments of Taipei, The Republic of China, and Seattle, Washington, USA, symbolizing the good will and close friendship of their people.

Designed and constructed in Taipei and donated to and erected in Seattle on the day of June 20, 1975.”

Goal

Create an appealing presence and visual balance in Hing Hay park after hours by making the historic pavilion a prominent feature after dark. The Pavilion should have prominence from both distant viewing across the park and up close. It should continue to be a welcoming place of shelter and entertainment in the evening hours.

Design Challenge

The lighting currently installed in the pavilion is partially dysfunctional. The white recessed light fixtures located in the ceiling of the existing ornate ceiling illuminate surfaces below, but do nothing to highlight the intriguing shape of the pavilion. Existing fixtures are inefficient technology and poorly integrated with the pavilion, stylistically. If retrofit, they still only focus light to the ground and not the structure itself. Additionally, light emanating from the interior of the pavilion makes the rest of the park seem dark.

Logistical Considerations

The historic nature of the Pavilion along with the fragility of the structure and tile may be difficult to keep safe during refurbishment, and the regular maintenance of installed fixtures may be challenging. The potential for vandalism means that all fixtures should be kept out of reach and tamper-proof.



Interior lighting does not contribute to the exterior architectural form



Glare from recessed downlights is a visual distraction from intricate ceiling treatment



Ornamental exterior roof and fascia

10.1 GRAND PAVILION

Proposed Lighting Strategy

The illumination of traditional architecture, in modern times, emphasizes traditional art, imagery, architectural style and form. In urban nightscapes it provides a lure for tourism and practical gathering place. Subtle lighting that emphasizes structural detail has the potential to bring attention to elements not often considered during the daytime, when natural light more evenly covers all pavilion surfaces. Select emphasis through electric lighting at night offers the potential to expose greater detail.

Lighting improvements should serve the following functions: give the pavilion a strong street presence from across the park or down the street, allow nearby viewers to enjoy architectural details, create a welcoming interior space (ideally highlighting the intricate ceiling), discourage vandalism, and preserve the historic structure.

Implementation Plan

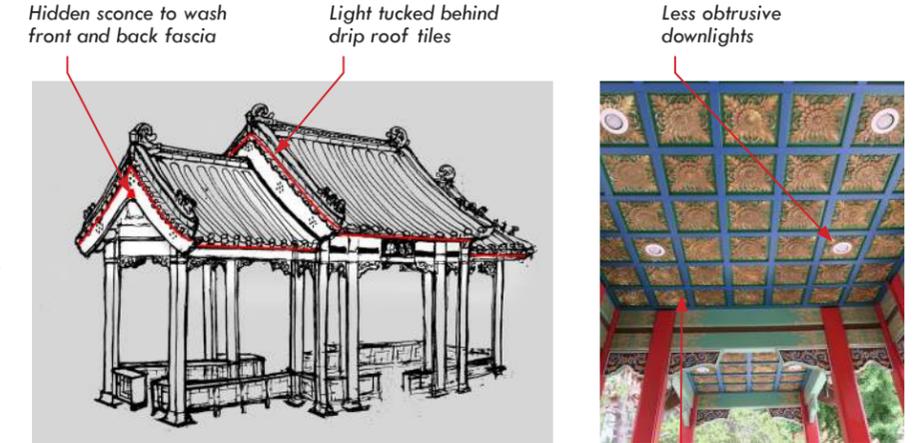
After securing funding, a more comprehensive design study should be performed. Fixture installation logistics and electrical wiring provisions should be assessed by an electrical contractor.

Layers

Proposed lighting strategy includes:

Layer Description	Estimated Cost
Soft wash lighting aimed at the tile roof from external locations - this lighting should be controlled and not cause glare	\$5,000
Light tucked behind drip tiles and eaves to emphasize the strong lines of the architecture and green fascia	\$20,000
Hidden sconce to wash front and back fascia	\$1,000
Replace existing down-lights to less obtrusive pinhole LED fixtures	\$1,500
Gentle uplight wash to highlight the interior ornamental ceiling	\$2,500

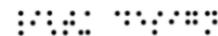
Costs shown include fixture equipment and control costs only.



Markups outlining a potential lighting strategy.



Nighttime Rendering



10.2 DANNY WOO GARDEN

Community Comments

“I like warm light in Danny Woo.”

“Terraced seating is a dark area. Entrance has missing fixtures.”

History

A beloved community garden, local elders have been growing fruits and vegetables here since Danny Woo allowed Interlm to turn it into a P-Patch in 1975. After more than (40) years, the landscaping and lighting, designed and built by students in the University of Washington’s Landscape Architecture program between 1989-2005, is in need of refurbishment and repair.

Goal

Update and improve-upon the existing lighting, enabling future generations of gardeners to safely use the garden space after dusk. Encourage more activity in the garden during evening hours, helping to keep the space occupied and to discourage nefarious activities.

Design Challenge

Much of the existing lighting is still functional, yet numerous fixtures require repair. For consistency, one should either repair or replace all. Existing fixtures use antiquated technology light sources (compact fluorescent) and, in some locations, crumbling infrastructure. Other locations within the garden are poorly illuminated because of the over growth of vegetation along pathways. The existing HPS floodlight disrupts the overall view from the garden, and provides poor illumination for garden workers.

Logistical Considerations

The lighting in the gardens is maintained by the community and Interlm. A current improvement process is in action to improve the timber garden walls and irrigation, and is anticipated to start construction in fall 2018 - [link](#). Funding is not expected to extend to lighting improvements, but lighting has already been included as a needed item. Suggested improvements must be low-cost. Involvement from UW landscape students is desired, and lighting students, if possible.



Glare from HPS floodlight interrupts view to the south from the garden terrace



Lighting integrated into garden entrance trellis on Main St. has fallen into disrepair



Integrated lighting may benefit future mural-wall location

10.2 DANNY WOO GARDEN

Proposed Lighting Strategy

Updated lighting technology, new path lighting, and improved light distribution through more comfortable pole fixture coverage can generally improve the overall garden experience at night. A more inviting approach to lighting in the garden area, with its latticework and maze-like experience, would bring comfort during evening hours and potential year-round gardening use. With exquisite seating nooks, communal spaces and feature vegetation, lighting can help encourage the garden’s sense of respite at dusk, and encourage more active use.

Implementation Plan

After securing funding, a more comprehensive design study should be performed, possibly by student groups hosted by professional landscape and lighting designers. With roots as community garden and gathering space, volunteer efforts may be utilized to reduce costs. Fixture installation logistics and electrical wiring provisions should be assessed by an electrical contractor.

Layers

Lighting improvements should serve the following functions:

Layer Description	Estimated Cost
Entry trellises - replace existing lighting	\$5,000
Tool shed lighting - replace existing	\$1,000
Garden pole lights	\$24,000
Bollards - update existing fixtures or replace with new fixtures	\$10,000
Expand path lighting and Wave Benches	\$5,000
Tree uplighting and signage accents	\$20,000
Cookery area	\$1,000
Pig Roast Pit area string lighting or special feature	\$2,500
Chicken coop area	\$1,000
Mural wall lighting (~300')	\$9,000
Add digital lighting controls	\$1,500

Costs shown include fixture equipment and control costs only.



Existing trellis lights



Perspective view of garden area - www.dannywoogarden.org



Existing bollard lights



Reference image - Hakodate Park, Japan



Conceptual rendered night-time birdseye view

10.2 DANNY WOO GARDEN



Rendered birdseye view - First Priority Improvements



Rendered birdseye view - Second Priority Improvements



Rendered birdseye view - Third Priority Improvements

Entry trellises

Trellis archways at the Main Street entrances to the garden are illuminated, but the light fixtures are in disrepair. A new, integrated strategy is necessary.

Garden pole lights

Instead of overhead floodlighting, a system of pole lights can more comfortably illuminate gardening areas. Quantity of poles, style and spacing to be further assessed.

Tool shed

Upgrade existing lighting in and around tool shed. Replace existing timer with a photosensor system. With the exception of decorative or special-use features, lighting of this park should remain on all night long.

Bollards

Existing bollards originally created by UW students use fluorescent technology and are often leaning-over or in disrepair. Repair or upgrade of the fixtures is recommended. **Blue** lines indicate the paths currently lighted by these fixtures.

Expanded path lighting and wave benches

Add lighting on pathways and stairwells not currently lit by bollards to ease passage through the park after hours and reduce hiding places. Wave benches at the southwest corner of the park may benefit from tree uplighting.

Tree up-lighting and signage accents

Illumination of featured trees and signage can increase vertical illumination, create a more inviting experience, and facilitate better wayfinding.

Cookery area

Illumination in the cookery area would enable increased area use on dark winter afternoons.

Pig Roast Pit and Chicken coop

The pig roast pit and patio area outside the chicken coop may be used for annual evening events. Current HPS floodlights lighting the area are uncomfortable. There is an opportunity here for adding something decorative, such as catenary or string lighting.

Mural wall accentuation

A mural being planned for the retaining wall along Main St may benefit from integrated illumination. Lighting would bring additional presence to the area.

10.3 KOBE TERRACE

Community Comments

“Washington Street / Kobe Terrace entrance is almost too bright - glaring into eyes, and too much backlight when looking at someone walking towards you.”

“Would be better to have more landscape lighting, to have it be lit from both above on the light poles, and below in all the landscaping - then it wouldn't feel like people are lurking in the shadows so much, especially where people sleep near the fence along 15 there.”

“Problems that lighting alone can't fix.”

History

Named for Seattle's sister city in Japan, Kobe Terrace's shady paths and benches look over the Danny Woo Community Garden. Special, Mt. Fuji cherry trees adorn the slope and the feature, 200-year old stone Yukimidoro lantern was a gift from Kobe to commemorate the US Bicentennial and completion of the park. Yukimidoro means “View of the Snow”.

Goal

Encourage more pedestrian traffic and use of the park during evening hours. Improve the quality of light emanating from the pedestrian pole fixtures. Bring a more hospitable feeling to the park, celebrating the beautiful cherry trees and peaceful refuge.

Design Challenge

The unlighted feature lantern may or may not have integrated lighting. The HPS pedestrian poles may or may not be an easy retrofit. Adding new ground-level lighting infrastructure may not be simple.

Logistical Considerations

The lighting in the gardens is maintained by InterIm, and is part of Danny Woo Community Garden. Adjustments to the glaring wall-packs mounted to the side of Nippon Kan Theatre building require property owner interest and approval.



Unlighted feature stone lantern and distracting glare from wall-packs beyond



Poor color rendering HPS decorative lanterns



Opportunity for ground-level embellishment at Kobe Terrace entrance and cherry tree accent lights

10.3 KOBE TERRACE

Proposed Lighting Strategy

A simple, layered strategy is proposed for improving Kobe Terrace. Four treatments are recommended through the park, to include lighting of the stone lantern, retrofit of the existing HPS lamp decorative pole lights, select cherry tree uplighting, and entry area signage lighting or other feature element.

In addition, excessively bright wall-pack lights on the side of the Nippon Kan Theatre building produce glare that causes poor uniformity of light levels in the area. Collaboration with property owners is recommended to replace wall fixtures with something less institutional and more befitting of the historic building architecture.

Implementation Plan

After securing funding, an assessment with a local electrical contractor and lighting refurbishment manufacturer should be performed, under the guidance of a lighting designer who should specify cost-vetted lighting improvements and provide layouts for the final strategy.



Top: Stone lantern sketch
Bottom: Conceptual rendered night-time birdseye view, Pedestrian Pole sketch

10.3 KOBE TERRACE

Layers

Lighting improvements should serve the following functions:

Layer Description	Estimated Cost
1. Stone Lantern - interior or exterior lighting	\$5,000
2. Ornate pedestrian poles - retrofit existing HPS lamps with 3000K 90+CRI LED	\$8,000
3. Add cherry tree uplights (estimate 25) - style to be confirmed	\$20,000
4. Main Street entry area signage or feature element	\$1,000

Costs shown include fixture equipment and control costs only.



Improved color rendering pole light



Image showing cherry tree uplighting example



Entry signage could be illuminated - e.g., Kabota Garden stone signage

10.4 BUS STOP SHELTERS

Community Comments

“The roadway pole light illuminates the bus station very well, but the area is still a known ‘hot spot’ for crime and drug use.”

“Bus stations that flank the Jose Rizal Bridge have wimpy internal lighting.”

Goal

Facilitate visual acuity, comfort, and sense of place by implementing improved lighting at bus stop shelters in the C-ID, and utilize their presence to enable more distinctive neighborhood character.

Design Challenge

Change the integrated lighting to an alternate solution that is warmer and enables superior color rendering. Consider improved luminaire aesthetics. Re-brand the bus stop shelters to become “gateways” to the C-ID. Do this with approved King County Metro arts funding modifications, not custom shelters.

Logistical Considerations

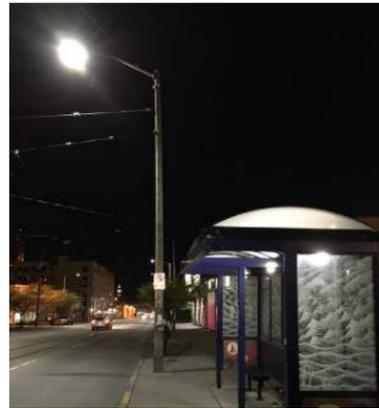
Bus stop shelters, of which there are over 1700 in the city, are managed and maintained by King County Metro (Metro), and are vital to the functionality and ease of transportation in the city. Changes to current products and design must be rigorously vetted, and should not be proposed without thorough assessment of impact on cost and maintenance viability. Existing cool-blue color temperature (CCT), low color rendering (CRI) light sources are installed with hard-wiring in some locations, and served by solar-power in others. Solar lights are supplied by Urban Solar, who has a limited product offering, but may be willing to make adjustments to CCT and CRI, per municipality request and further cost assessment. Metro’s rationale for cooler CCT sources is that they enable higher visual acuity due to mesopic visual stimuli, in other words cooler light helps people to see better based on the way our eyes work in low-light level environments. While there is truth to this claim and human reaction times can be reduced under cooler CCT sources*, this does not necessarily help a space to feel “safer”, or more comfortable. Per SPD comments relative to lighting and safety, “poor lighting, whether too bright or not bright enough can diminish safety”.**

* “The Impact of LED Correlated Color Temperature on Visual Performance Under Mesopic Conditions”, IEEE Photonics Journal, Volume: 9, Issue: 6, December 2017

** See Page 2 of this report.



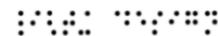
Bus stop shelters are prominent points of focus in the pedestrian right of way



Some bus stop shelters rely heavily on external sources, others have internal lights



Internal lights are of various types, some lighting the roof, others lighting glass patterns - all are direct view and have significant glare.



10.4 BUS STOP SHELTERS

Proposed Lighting Strategy

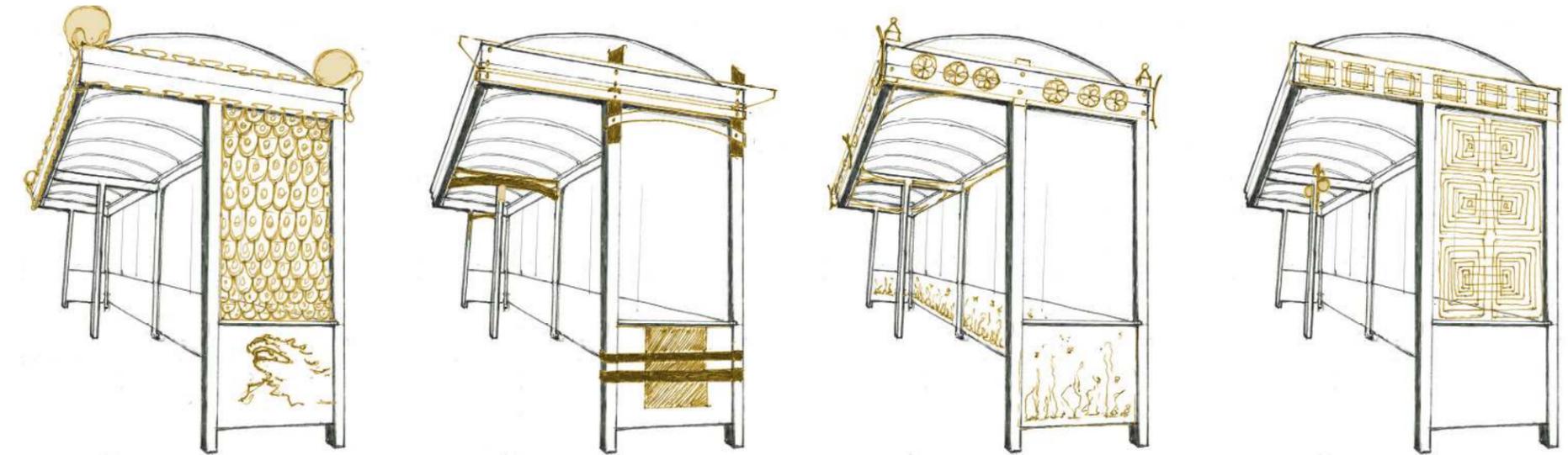
The primary lighting improvement should improve the current Metro standard integrated lighting to 3000K CCT, 80+ CRI light sources. Additional base improvements should include: community-identity paint color, community-identity film/frit on shelter glass, and accessory sculptural features. The selection of these should be determined by a community-selected artist as part of a formal “call for artists” competition, with Metro approval. Metro has a precedent of select laser-cut or other sculptural element additions, typically mounted to the top of bus stop shelters, elsewhere in the city. The artist should recognize that sculptural additions to the stations must meet Metro requirements for ongoing maintenance. Further, Metro will only offer custodial maintenance of metro-approved fixtures. Below are sketches that convey a sense of how these stations might be enhanced. These can include decorative lighting as well as graphics.

Implementation Plan

- Step 1. Work with Metro to request improved CCT and CRI sources for bus stop shelter lighting during Metro’s next upgrade cycle
- Step 2. Obtain approval by Metro and funding for an artist-competition to brand bus stop shelters
- Step 3. Work with selected artist and confirm branded additions with Metro
- Step 4. Install treatments per Metro requirements and schedule



Rendered lighting hierarchy study with King Fixture



Studies of potential ways to bring visual neighborhood identity to bus stop shelters

10.5 KING STREET CORRIDOR

Community Comments

“Street light too warm on 12th between Main & S Jackson.”

“Overall, visibility seems good but block-to-block consistency is spotty. Number of places using floodlights equals an area with high glare.”

Goal

Set the stage for future development along the King Street corridor by offering an improved, more vibrant pedestrian lighting experience. Help existing and future civic use areas to provide community benefit during evening hours.

Design Challenge

The existing lighting along King Street is devoid of the distinctive C-ID pedestrian fixtures, and uses a combination of LED roadway fixtures and HPS floodlights. Businesses are often set-back from the sidewalks and utilize floodlighting for large parking areas, which contributes to the semi-industrial feel of the area. Select feature locations are unlit at night, such as the Nisei Veterans Memorial Wall (which appears to have existing lighting that is not turned on).

Logistical Considerations

As will be mentioned in the Proposed Lighting Strategy section, additional pedestrian pole fixtures require significant funding to be implemented throughout the neighborhood. Blocks are long, driveways are frequent, and achieving consistent fixture spacing will be a challenge. Additionally, development that is occurring throughout the area may alter the shape of sidewalks, and proposed tree plantings will influence roadway and King fixture lighting infrastructure.

A park is proposed to be cut through between S Jackson and S King streets near a historic apartment building and Lam’s Seafood Market. Traffic on 12th Avenue is fast, and pedestrians may feel uncomfortable crossing the street to continue their progress into Little Saigon from elsewhere in the C-ID. Businesses tend to close early.

Property owners where floodlights contribute negatively to community appearance may be reluctant to make changes.



An area targeted for development, new buildings feel surrounded by an industrial vibe



Established businesses fall into darkness during evening hours



Community features, such as the NVC memorial wall, fall into darkness and are surrounded by glaring pole and wall lights

10.5 KING STREET CORRIDOR

Proposed Lighting Strategy

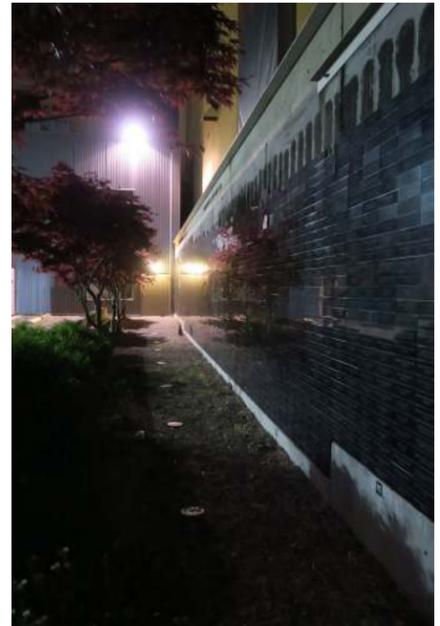
The addition of King K56 pedestrian pole fixtures is recommended throughout the neighborhood. Specific information on development plans, sidewalk / civil improvements in the neighborhood, and information specific to upcoming projects is required to provide more accurate fixture locations and quantities. See King Fixture section proposed lighting layouts for options. Note, S King street may warrant pedestrian lights on both sides of the street, whereas the needs of S Weller Street may be met with a single row on only one side of the street. Future pocket-park plans should include lighting treatments that add to community sense of place. A “heart” or community-core area could be supported through night-time lighting around this area, to include the Nisei Veteran’s Memorial.

Property owners who rent floodlights from SCL should consider the use of alternate lighting strategies to enable a less industrial feel to the area. See section on Street Presence for after-hours lighting suggestions that can help to make the pedestrian experience more comfortable. Increased night-time walking traffic and a more inviting environment will enhance the sense of safety and security.

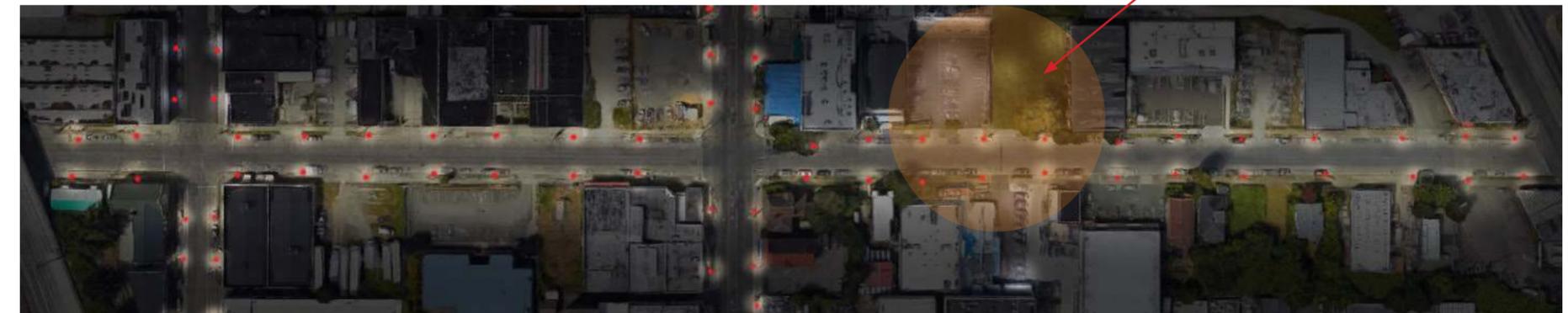
Implementation Plan

The proposed King Street Neighborhood Greenway project suggests some additions of King fixtures along S King Street, but is limited to the I-5 underpass area. If possible, use a similar mechanism for adding more lights. After securing funding, a more comprehensive design study should be performed. Fixture installation logistics and electrical wiring provisions should be assessed by an electrical contractor.

The Business Improvement Association (CIDBIA) or SCIDpda could share the Lighting Best Practice pages of this document with new and existing neighborhood property owners and tenants through community newsletters, or welcome procedures. Assist community business owners in accessing grant/funding opportunities for culturally-specific lighting improvements.



Existing lighting, observed below feature wall, is not turned on during evening hours



Conceptual rendered night-time birdseye view

Possible heart-or core area for night-experience along the street.

10.6 SIGNAGE UPGRADES

Community Comments

“The Little Saigon marker in the median of Jackson is lighted, but not prominent. Maybe it should be lit from below so that it feels more like a statue?”

“The soup bowl used to light up, but not for a long time.”

Goal

Improve community sense of place through lighted signage and illuminated architectural features. Encourage business owners to leave signs on during active evening hours.

Signage can help create a dynamic and exciting street environment by the creative use of light, color, and non-western characters. From neon tubes to light-boxes, lighted letters mounted to walls or specialty graphics, the lighting of signage contributes to neighborhood sense of place and community vibrancy.

Design Challenge

Signage technology may be challenging to maintain and repair, and is often owned by private businesses.

Logistical Considerations

Cleaning can be as important as replacing lamps. Additionally, ultraviolet light from sunlight and fluorescent tubes will degrade acrylic over time, causing some signage to yellow and emit less light. Both LED and neon technology can be complicated to repair. Despite contributing positively to the streetscape, private businesses may not want to keep their signage illuminated during all hours of the night.

Proposed Lighting Strategy

Seattle and Tacoma have a very healthy signage industry. Numerous purveyors and contractors are available to provide quotations on upgrades, and signage with special historic relevance may be eligible for funding. Specific technology upgrades should be individually reviewed, based on the specifics of a historic sign. Photosensors and digital timers should be used to turn lights on and off when suitable.



Ornate building features and signs could be further embellished at night



Historic signage contributes to sense of place, and a luminous glow to surroundings



Hours of use may be limited to business operation hours



The intensity of signage elements should be balanced with other lit elements so as to achieve suitable contrast

10.7 DRAGONS

Community Comments

“Dragons cannot be seen at night.”

“Dragons up high on poles are not lighted, and buried in trees.”

Goal

Enhance neighborhood sense of place and bring prominence to a cherished community art feature. Dragons are the celebrated symbol of power, strength and good luck in East Asian culture. Lighting of the dragons would help define neighborhood perimeters, and would contribute valuable vertical illumination at repeated moments throughout the district that helps to bring ones’ eye upwards and towards other rich architectural features.

Design Challenge

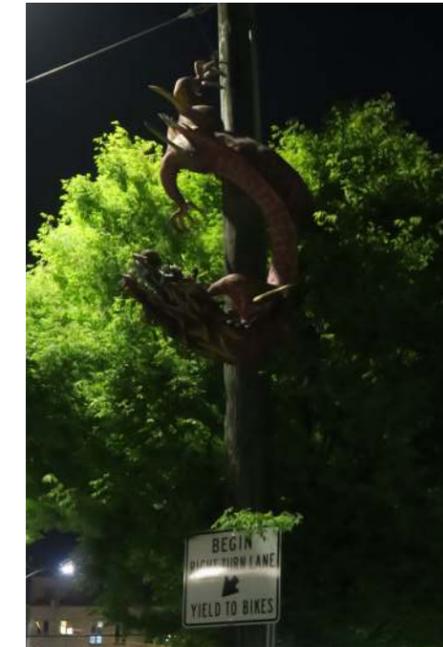
Lighting the dragons, a first-pass winner of this study’s findings, has numerous challenges to overcome. See logistical considerations below.

Logistical Considerations

Despite simple fixture specification easy mounting, the dragons are mounted on Metro poles and to install / maintain them requires shutting-off of the high-voltage transportation trolley. Working around high-voltage Trolley-lines with low-voltage below requires the need to disconnect power service - 15’ de-energizing clearance, and fees associated with service disruption. There are three types of poles: Metro poles, joint-use poles (Metro, Century Link, City of Seattle), and City of Seattle poles, and associated coordination challenges.

Proposed Lighting Strategy

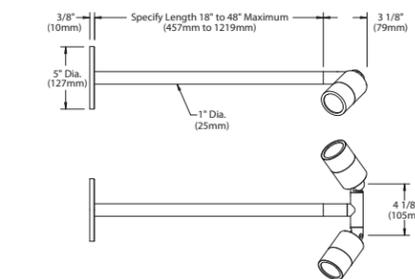
Uplight dragons from two or three small accent lights mounted to short arms secured to dragon posts. Lighting from nearby buildings or other local mounting is worthy of consideration, but unlikely due to glare and the complications of inconsistency and private property use. Each dragon should be assessed individually relative to quantities of fixtures and precise mounting locations. Mock-ups are advised.



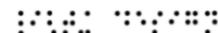
Un-lighted pole-mounted dragons



Rendering of potential lighting method for pole-mounted dragons



Example product - BK Lighting Twin Sign Star (further assessment required)
- Warm LED source, 2700K CCT, 90+ CRI



11 LIGHTING BEST PRACTICES

Suggested Guidelines for Lighting in the CID Business District

The following suggested guidelines for lighting in the Chinatown-International District (C-ID) are intended to improve visual acuity, comfort, and sense of place. The strategies can positively influence the perception of safety and security, contribute to an increase in night-time activity, and improve the overall neighborhood appeal and character.

Architectural Considerations

Selectively illuminating elaborate and historic architectural features and details on buildings is highly encouraged. Directing light toward historic building façades, walls and rooflines, or integrated lighting within such elements, helps to emphasize neighborhood character and provide valuable vertical surface illumination. Illumination of vertical surfaces, as experienced in layers, e.g., at the ground, eye-level, tree canopy, from building windows and on building surfaces above, helps the surroundings to appear brighter and more welcoming.

The aesthetics of a building should be considered when selecting exterior decorative lighting fixtures. For older buildings it may be appropriate to select fixtures inspired by the historic nature of the building, or it may be appropriate to select luminaires with unobtrusive contemporary design. The selection of façade lighting can sometimes be accomplished with smaller fixtures that blend in with the façade so as not to distract from the overall lighting effect.

Pedestrian Scale Light

Exterior lighting fixtures incorporated onto buildings at the pedestrian scale is a welcome enhancement of the streetscape, providing both safety and security for the neighborhood. Lighting between the ground and about 16’ benefits both the visual acuity of pedestrians as well as providing the neighborhood a “sense of place”. Lighting within this height range also illuminates areas often blocked by tree canopies. Pedestrian scale pole fixtures, when installed within the public right of way, should comply with the City of Seattle’s Material Standard for the selected neighborhood. Elsewhere, it is recommended to use lighting fixtures that follow the Light Color and Light Quality guidelines (see next section).

Light Color and Light Quality

Light Color: Correlated Color Temperature (CCT) is used to describe the color of white light and is defined in Kelvin (°K). For example, a 2700°K lamp will appear to be warm and similar to incandescent, whereas a 4000°K lamp will appear to be cool and similar to roadway streetlights. The CCT shall be selected harmoniously with the aesthetic character of the building. It is recommended that street level light sources are consistent wherever possible and match the City of Seattle Standard. Colored light (e.g., blue, red, yellow) is encouraged, along with alternate CCT choices, when proposed with a purposeful and specific design intent.

Light Quality: Color Rendering Index (CRI) is the current method of assessing the quality of a light source on a scale of 0-100 and is independent of the Correlated Color Temperature (CCT). All light sources selected should have a CRI rating no lower than 80 CRI, and if possible 90+ CRI.

For Property Owners

Property owners, developers, and community design review board entities can use these guidelines as a tool to assist the review of proposed projects, in order to better assess if the lighting will contribute positively to the neighborhood. Used prescriptively, each paragraph section can serve as a loose checklist.

For Business Owners

Businesses, especially small ones with illuminated store fronts, can contribute significantly to neighborhood character and night-time experience. They must be subject to guidelines, but should not be held to unreasonably high standards that impact their profitability or pose a hardship. The suggested guidelines intentionally do not mandate specific strategies, but offer recommended practices by which best practice decisions can be made.



11 LIGHTING BEST PRACTICES

Suggested Guidelines for Lighting (continued)

Glare

Glare can be distracting and sometimes debilitating and should be avoided. It is most often found when high intensity light is emitted at an angle higher than 60° from nadir. To reduce glare emitted from decorative fixtures, use fixtures that shield direct view of the lamp source, specify shades or lenses that are translucent, and specify lamps of lower intensity and generally acceptable visual comfort. Luminance comfort is based not only on the element, but that of the surrounding visual field. Unshielded wall pack style fixtures are strongly discouraged. Pole mounted general floodlights, while rent-able from Seattle City Light, are not recommended where other means of property illumination is feasible (e.g., installing more decorative parking lot pole fixtures is preferred over installing pole mounted perimeter floodlights).

Signage

Prominent, creative and colorful illuminated signage is recommended. The use of neon, and the restoration of historic signage, is encouraged.

Awnings and Canopies

Building-mounted awnings and canopies are dominant elements found throughout the neighborhood and should include illumination. Luminaires placed within awnings should be encased or screened from view underneath and be consistent with the above mentioned Light Color and Light Quality guidelines. Bird spikes or screens should be employed where feasible, along with regular maintenance.

Window Displays

Lighted displays or prominent decorative luminaires placed in street level windows are encouraged due to their contribution to pedestrian scale illumination and neighborhood sense of place. Offices, or other spaces that do not directly benefit from night-time retail presence, will benefit the community by following suit, and displaying lighted elements as well, even in upper-level windows. It is recommended that lighting in windows be left on until midnight (see lighting controls section).

Energy Efficiency and Dark Skies

The selection of lighting should consider that sometimes the most efficient lighting product may also produce the most glare, however all lighting technology used within the neighborhood should strive to meet the Washington State Governor’s mandate for energy efficiency. Illumination strategies should not be wasteful and not direct light needlessly upwards, although sometimes a small amount of uplighting can be of value to a building façade or for vegetation. Side-lighting can be helpful for vertical surface illumination.

Lighting Controls

Whether via simple photo-sensors, digital timeclocks or more sophisticated controls, all exterior lighting must comply with local code requirements to turn lights off when they are not in use unless automatic shutoff would endanger safety or security. Lighting controls that dim to save energy during certain hours of the night, or lighting controls that respond to human presence are encouraged. Lighting within street level windows should be left on during evening hours where feasible and should be separately controlled from other interior lighting.

Tree Pruning

Trees along sidewalks and property perimeters should be pruned back sufficiently so limbs do not impede light from both roadway and pedestrian scale pole fixtures.

Maintenance

All lighting should be regularly maintained in the neighborhood. Maintenance involves regular cleaning, lamp and control gear replacements when failures occur, and the occasional upgrade to higher efficacy lighting products. Such products may be eligible for utility rebate programs.

Often the difference between “good” or “bad” lighting may be the selection of color temperature or color rendering of a light source, something for which the cost difference may be relatively minor.

12 COST AND FUNDING

Potential Resources or Funding Sources

The entities below have been identified as possible resources or funding sources for CID Baseline and Targeted Improvement projects. Follow links for more information.

- **SEATTLE CHINATOWN-INTERNATIONAL DISTRICT PRESERVATION AND DEVELOPMENT AUTHORITY (SCIDpda)** <https://scidpda.org/> *Resource for the community*
- **CHINATOWN ID BUSINESS IMPROVEMENT AREA (CIDBIA)** <http://cidbia.org/> *Resource for the community*
- **INTERIM COMMUNITY DEVELOPMENT ASSOCIATION** <http://interimicda.org/> *Resource for the community*
- **FRIENDS OF LITTLE SAIGON (FLS)** <https://flsseattle.org/> *Resource for the community*
- **DEPARTMENT OF NEIGHBORHOODS, NEIGHBORHOOD MATCHING FUND (DON-NMF)** SMALL SPARKS FUND (up to \$5000), COMMUNITY PARTNERSHIP FUND (up to \$100,000) <http://www.seattle.gov/neighborhoods/programs-and-services/neighborhood-matching-fund> Potential funding source
- **DEPARTMENT OF NEIGHBORHOODS, YOUR CHOICE YOUR VOICE (DON-YCYV)** <https://www.seattle.gov/neighborhoods/programs-and-services/your-choice-your-choice> Potential funding source
- **ONLY IN SEATTLE (OIS)** <https://www.seattle.gov/economicdevelopment/business-districts/about-only-in-seattle> Potential funding source
- **WSDOT TAP GRANT** <https://www.wsdot.wa.gov/LocalPrograms/ProgramMgmt/TAP.htm> Potential funding source
- **NATIONAL ENDOWMENT FOR THE ARTS (NEA)** <https://www.arts.gov/grants/apply-grant/grants-organizations> Potential funding source
- **WASHINGTON STATE CAPITAL PROJECTS** <https://des.wa.gov/about/boards-committees/capital-projects-advisory-review-board> Potential funding source
- **4 CULTURE** <https://www.4culture.org/> Potential funding source
- **HISTORIC SOUTH DOWNTOWN (HSD)** <http://www.historicsouthdowntown.org/> Potential funding source
- **SEATTLE PARKS FOUNDATION** <https://www.seattleparksfoundation.org/> Potential funding source



12 COST AND FUNDING

IMPROVEMENT	ESTIMATED COST	MAINTENANCE CONSIDERATIONS	POSSIBLE FUNDING SOURCES	PRIORITY / TIMEFRAME
BASELINE IMPROVEMENTS:				
I-5 UNDERPASS	<p>WSDOT, SDOT, SCL and Metro must confirm installation costs owing to the complexity of the location.</p> <p>Fixture and control equipment is estimated at \$5,500 per pedestrian pole and \$700 per undercanopy fixture. See Proposed Lighting Layout for quantities.</p> <p>This plan assumes that SCL would need to coordinate with Metro for installation of fixtures near trolley-lines. SCL would install overhead fixtures utilizing WSDOT approved mounting hardware and methods.</p>	Municipal maintenance is anticipated to include semi-yearly cleaning because of high dirt accumulation in the area. LED source and control component replacements should be anticipated to be between 10-15 years.	<ul style="list-style-type: none"> • WSDOT TAP Grant • WA State Capitol Projects • DON-NMF Community Partnership Fund • NEA <p>Note: the proposed C-ID Neighborhood Greenway project already suggest pedestrian pole fixtures mounted along S King Street, so funding may be secured for half of the pedestrian poles under I-5.</p>	High priority / See Implementation Plan
KING FIXTURE EXPANSION	<p>This plan assumes that SCL would install and maintain new fixtures, procured by others. SCL must confirm installation costs, which are based on whether or not trenching is required and foundations are already installed (most are not). Complete fixtures are comprised of K56 heads, photosensors, poles, pole bases, and accessories (e.g., banner mounts). Excluding installation, each fixture may cost around \$5,000. Banner mount (\$200) and red pole (\$100) are not included in the current materials standard, and are additional costs. Retrofit LED modules for existing fixtures (e.g., to change to 3000°K CCT, 80+CRI) are approximately \$600 each. Labor cost for installation is approximately \$3,000 per fixture/foundation/pole. Hinged poles (those required under 15 near trolley-lines), and specialty networked controls are not included, nor is the cost to shut-down transportation infrastructure or city streets during installation. Note, about 250 evenly spaced new poles are estimated for the entire neighborhood.</p>	Municipal maintenance is anticipated to include yearly cleaning. LED source and control component replacements should be anticipated to be between 10-15 years.	<ul style="list-style-type: none"> • DON-NMF Community Partnership Fund • DON-YCYV (maximum \$90K for SCL-maintained lighting in District 2) • OIS • HSD <p>Note: the proposed C-ID Neighborhood Greenway project already suggest pedestrian pole fixtures mounted along S King Street, so funding may be secured for half of the pedestrian poles under I-5.</p>	High priority / See Implementation Plan

12 COST AND FUNDING

IMPROVEMENT	ESTIMATED COST	MAINTENANCE CONSIDERATIONS	POSSIBLE FUNDING SOURCES	PRIORITY / TIMEFRAME
FLOODLIGHTING	No cost to C-ID. The goal is for SCL to update their materials standard to a more satisfactory product and then implement them throughout the neighborhood during their next scheduled fixture replacement.	Proposed alternate fixtures must be as efficient, as easy to maintain as those approved in the SCL materials standard.	Floodlights will be procured by SCL and rented to customers	Medium priority / Mock-up occurring at LDL already
MAINTENANCE	Costs must be considered on a case-by-case basis. The cost to send neighborhood Lighting Best Practices to new and existing C-ID entities is per CIDBIA/SCIDpda/FLS.	Maintenance is anticipated to include yearly cleaning, and LED source replacements every ten years or so. Light fixture manufacturers often warranty their products for five years. Control components may occasionally fail, and replacement parts vary by product.	<ul style="list-style-type: none"> CIDBIA/SCIDpda/FLS Utility rebates may also be available for high efficacy technology retrofits, however general maintenance funding is not normally offered. Digital timeclocks are required.	High priority / Share Best Practices
ENHANCED STREET PRESENCE	Costs must be considered on a case-by-case basis. The cost to send neighborhood Lighting Best Practices to new and existing C-ID entities is per CIDBIA/SCIDpda/FLS.	Consistent approach to other project lighting maintenance, more cleaning if in high traffic area. Lighting that is located high on buildings may need to be accessed via lift.	<ul style="list-style-type: none"> CIDBIA/SCIDpda/FLS DON-NMF Small Sparks Fund For lighting used within business windows with prominent street presence, there may be utility rebate offers for high efficacy technology retrofits. As with general maintenance, digital (not analog) timeclocks are required.	High priority / Share Best Practices

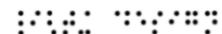


12 COST AND FUNDING

IMPROVEMENT	ESTIMATED COST	MAINTENANCE CONSIDERATIONS	POSSIBLE FUNDING SOURCES	PRIORITY / TIMEFRAME
TREE PRUNING	Trees owned by the city include pruning costs during regular cycles. Pruning may also be covered when specific problems have been identified. For trees owned by private entities, a bid is required by a tree-service to assess grant funding requirements, if the property owner needs assistance.	The Department of Urban Forestry provides maintenance of city-owned trees on a seven year cycle.	Individual grants may be available to help pay for private street tree pruning and tree-pit improvements (need sign-off by property owners). SCIDpda available to review grant opportunities with neighborhood entities seeking support.	High priority / Share Best Practices Document, work with Department of Urban Forestry to address select problem areas
TARGETED IMPROVEMENTS:				
GRAND PAVILION	See Proposed Lighting Strategy Layers. Estimated fixture equipment costs total \$30,000. Installation costs and design fees are separate from fixture equipment costs. Bids from multiple contractors suggested.	Maintenance is anticipated to include yearly cleaning. LED source and control component replacements should be anticipated around 10-15 years.	<ul style="list-style-type: none"> HSD Seattle Parks Foundation CIDBIA NEA 4 CULTURE DON-YCYV 	Medium priority / See Implementation Plan
DANNY WOO GARDEN	See Proposed Lighting Strategy Layers. Estimated fixture equipment costs total \$80,000. Installation costs and design fees are separate from fixture equipment costs. Bids from multiple contractors suggested. Retrofit lighting treatments of existing fixtures should be inspection by a UL listed local lighting manufacturer. The Danny Woo Garden has a special opportunity for student engagement. Labor and design could be part of a school assignment. Coordinate with UW instructors for both landscape architecture and lighting design for possible engagement.	Maintenance is anticipated to include semi-yearly cleaning because of garden growth. LED source and control component replacements should be anticipated around 10-15 years.	<ul style="list-style-type: none"> Friends of the Danny Woo Community Garden DON-YCYV Seattle Parks Foundation HSD There may also be some interest in community engagement to support food programs and early learning through the Office of Sustainability & Environment.	Medium priority / See Implementation Plan

12 COST AND FUNDING

IMPROVEMENT	ESTIMATED COST	MAINTENANCE CONSIDERATIONS	POSSIBLE FUNDING SOURCES	PRIORITY / TIMEFRAME
KOBE TERRACE	See Proposed Lighting Strategy Layers. Estimated fixture equipment costs total \$34,000. Nippon Kan replacemnet wall fixtures to be separately assessed. Installation costs and design fees are separate from fixture equipment costs. Bids from multiple contractors suggested. Retrofit lighting treatments of existing fixtures should be inspection by a UL listed local lighting manufacturer.	Maintenance is anticipated to include semi-yearly cleaning because of garden growth. LED source and control component replacements should be anticipated around 10-15 years.	<ul style="list-style-type: none"> DON-YCYV Seattle Parks Foundation HSD NEA <p>Note: Nippon Kan wall lights may be eligible for special historic grant funds.</p>	Medium priority / See Implementation Plan
BUS STOP SHELTERS	Custom bus shelters (not suggested in this proposal) can cost \$50K-\$100K. Metro is unlikely to advocate for custom lighting. The bus shelter mural artwork is part of an official program funded by the Cultural Development Authority of King County (4 Culture), more information here: http://metro.kingcounty.gov/prog/sheltermural/ Metro indicates that sculptural artwork additions to shelters have cost \$5K-\$10K in the past. Hard-wired lighting has the potential to be improved as part of Metro's next maintenance or technology upgrade cycle. Metro to confirm if costs will be neighborhood-specific. Painting all the stops in the neighborhood a unique color requires Metro approval, they currently have 3-4 standard paint finishes they use throughout the county. Metro to confirm paint cost.	Metro has not provided specific amounts, but indicates that bus shelters are costly to maintain. They will not maintain custom shelters. Maintaining standard shelters (with approved art additions) includes custodial maintenance and trash service. Consideration should be given to pressure-washing of the roof and windows, and electrical wiring infrastructure.	<ul style="list-style-type: none"> 4 Culture Metro NEA DON-NMF Small Sparks Fund for special shelter paint color <p>Note: Metro marketing department can advocate for community-branded stops, including this project. Sculptural artwork additions have been funded through 4 Culture in the past but could also be eligible for NEA funding. Metro also supports competitions for artwork, as they are a great way to involve the community.</p>	Low priority / See Implementation Plan



12 COST AND FUNDING

IMPROVEMENT	ESTIMATED COST	MAINTENANCE CONSIDERATIONS	POSSIBLE FUNDING SOURCES	PRIORITY / TIMEFRAME
KING STREET CORRIDOR	Cost assessment for this project is multi-faceted. Some King K56 Fixtures may be procured as part of development projects, however for overall corridor consistency and installation coordination (e.g., trenching and pouring foundations), it is recommended to procure them all together. For the park and other focused enhancements along the corridor the cost for lighting should be assessed on a case-by-case basis.	Municipal maintenance is anticipated to include yearly cleaning. LED source and control component replacements should be anticipated to be between 5-10 years.	<ul style="list-style-type: none"> Neighborhood Greenway Project CIDBIA DON-NMF Community Partnership Fund OIS Seattle Parks Foundation 	High priority / See Implementation Plan, assess entire corridor before development occurs
SIGNAGE UPGRADES	Costs must be considered on a case-by-case basis. Neon signage vendors can provide more specific cost information for historic element restoration. Neon and other signage vendors can provide more specific cost information for internally lighted signs. Awning repair and cleaning can be done by building owners. Simple fluorescent or LED internal lighting can be retrofit by most electrical contractors.	Maintenance is anticipated to include yearly cleaning, and LED source replacements every ten years or so. Neon last as long as LED but requires specialty contractors for repairs due to high voltage.	<ul style="list-style-type: none"> Property owner outreach CIDBIA Historic funding sources 4 Culture 	Medium priority / Non time-critical
DRAGONS	Fixture costs are low (estimate \$1,600 per pole), installation is high. A more thorough investigation on this would be required, with implementation logistics rigorously vetted by Metro.	Maintenance is anticipated to include yearly cleaning. LED source and control component replacements should be anticipated around 10-15 years.	<ul style="list-style-type: none"> HSD Metro 4 Culture NEA 	Low priority / Non time-critical