
BURNSIDE BRIDGE STREET LIGHTING

AESTHETIC RESTORATION AND TECHNICAL IMPROVEMENTS

A single vision for Burnside Street cannot be created by only addressing transportation and design improvements for its eastside and westside segments. Burnside Street, of central importance because it stretches virtually from the eastern to the western edges of the city, does so only by the grace of the Burnside Bridge. Returning “period” street lighting fixtures to the bridge will link streetfront design elements on either side, complement the architectural style of the bridge itself, improve night vision on the bridge for motorized and non-motorized travelers, emphasize the east/west connection provided by the continuity of the bridge and street, and eliminate current fixtures which detract from the landmark structure.

HISTORY

In its original design, the deck of the Burnside Bridge was illuminated using pole lights spaced about 66’ apart and integrated into the design of the bridge’s railings. The luminaries topped out at about 15’ above the deck. The design, both ornamental and functional, enhanced the experience for those on and off the bridge, whether walking or riding. It was part of the beauty of the bridge—the only bridge across the Willamette in Portland designed with the help of an architect.

At some point the original streetlights were replaced with highway-style cobra head lights on mast arms extended from narrow poles. The poles were attached to the deck, rather than to the railing, and spaced approximately every 100’-120’. The luminaries were set about 25’ above the deck

RECOMMENDATION

To preserve and celebrate the original bridge design, decorative pole lights with optical performance luminaries will replace the existing cobra head streetlights, including their related poles and mast arms.

This proposal by Willamette Light Brigade (WLB), the non-profit dedicated to adding architectural lights to all of the Willamette river bridges in Portland, was adopted as one of the elements of the City Council-approved Burnside Transportation Plan. Period streetlights are part of WLB’s overall design to illuminate the structure of the bridge. The design concept was developed by Bill Will, a local artist noted for his public art (see design at www.lightthebridges.org). WLB’s working committee includes several professional lighting designers who have confirmed the feasibility of returning period-style street lights to the Burnside.

Specifics concerning poles and luminaries will be deferred until the project planning phase to incorporate industry and technological improvements and to evaluate choices for efficiency, system-wide compatibility and maintenance issues. As with all WLD-sponsored bridge-lighting projects, Multnomah County, owner of the Burnside Bridge, will be involved in design development and will exercise its installation authority. Several elements of style, composition and installation, however, are included in this recommendation, along with one manufacturer's illustration of sample lamp bases, poles and luminaries.

LAMP POST STYLE AND LIGHT SOURCE

The cobra head lights currently mounted on the bridge are considered efficient and, because they are equipped with semi cut-off luminaries, they limit light pollution somewhat. However, their style evokes a mid-century highway atmosphere not at all befitting the historic Burnside Bridge or downtown Portland.

An ornamental style pole and lamp fixture is more appropriate for the bridge's urban setting and its distinctive architecture (decorative railings and Italian Renaissance towers, which reflect the early 20th century City Beautiful Movement).

There are several fixtures appropriate for the Burnside Bridge, including the "Portland ornamentals" already widely used east and west of the bridge (and elsewhere downtown).

They can use any light source and, if outfitted with cut-off opticals or with internal shields and refractors (as well as with good quality globes), they can be quite efficient and produce low amounts of light trespass and pollution and meet or exceed Illumination Engineering Society (IESAA) recommendations.

WLB recommends white light (i.e., typically a metal halide source for streetlights) to complement the effect of architectural lights to be installed on the bridge and because it produces superior human visual performance and sense of security.

STRUCTURAL CONSIDERATIONS

Lighting poles will be placed on both sides of the bridge, consistent with the original design as well as current practice. The structural conditions now (or in the near future) of the railings will determine in large part whether poles will be integrated into the railings or placed on the sidewalk against the railing (as most are now). It is believed that many of the applications will be applied to existing pole bases, in which case the base plate can have a bolt pattern to match the existing base.

To reduce weight and maintenance, WLB recommends cast aluminum poles and bases supplied with modern ornamentals. That pole weight is believed to be similar to existing poles, but by eliminating the mast arm the structure load will be more symmetric. The combination of straight pole and larger luminary is expected to be similar to the existing mast arm poles with respect to wind load. A state of the art composite pole is another possibility to be discussed as part of the final design and engineering phase.

Installing ornamentals at approximately the same distance as originally designed (i.e., more than the current number of cobra heads) should achieve both the desired aesthetic and optical effects. The exact number of poles and height of luminaries will be determined during the final planning to assure compliance with all applicable visibility requirements. Preliminary calculations for either single or double-headed luminaries, mounted at original locations and 20' – 25' above the deck, show that appropriate lighting levels and uniformity can be achieved, consistent with IESNA requirements.

FUNDING/IMPLEMENTATION

Mayor Katz's "Legacy Committee" adopted adding architectural lighting to the downtown bridges as a memorial of the millennium and "gift to the City" for its 150th birthday. City Commissioner Sam Adams, then chief of staff to Mayor Katz, chaired a series of meetings for representatives of all stakeholders (City and County offices, WLB and public and private lighting experts) to ensure mutual understanding of process and issued relevant to WLB's lighting proposals.

It was decided that the street light portion of the Burnside proposal would be pursued separately from the architectural lights and that the new fixtures would be contributed by the City's street light fund (purchases and installation to be scheduled once the City, county and WLB agreed on specific poles and luminaires).

"When period lampposts are re-installed along the balustrade railing, they will restore by day as well as night a component of the bridge's original charm. Their lights, like a string of pearls, will punctuate above deck what the bridge architectural lights will reveal below—Portland's central, graceful, expansive crossing, the Burnside jewel across the Willamette."

~Paddy Tillett
Willamette Light Brigade Chair

The above provided by the Willamette Light Brigade, a nonprofit organization dedicated to lighting Portland's bridges.