SR 520 Regional Shared-Use Path (RSUP) Light Evaluation Community Update

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Presentation overview

Context
• Bridge lights overview
• Community feedback
• Timeline

SR 520 lighting design process
• Design criteria
• Environmental regulations
• Design review process

Existing conditions
• Technical evaluation
• Documentation

Evaluation of lighting options

Q&A discussion
Corridor Map
SR 520 Floating Bridge lights

From Laurelhurst, looking southeast. April 2016, 100W bulbs and under-deck lighting, I-90 also visible in the lower image, Stephanie Moe

Lights visible from Webster Point. May 2016, RSUP lights are NOT visible in this photo as they were off at this time. Courtesy of Jean Amick
Timeline & community feedback

Timeline of feedback and WSDOT technical evaluation (2016)

- April 8: Lights activated
- April 12: Lights deactivated
- May 1: Twelve, 50-watt test bulbs installed
- May 4 and 5: Light measurements collected
- July 5 – 7: All bridge bulbs replaced with 50W; light measurements collected
- July 22: RSUP opens (lights active dusk to dawn)
- Late 2017: RSUP connection to Seattle

On the path looking east. May 2016, 1st light on the right is a 100W bulb, 2nd light on the right and 11 beyond are 50W bulbs. Light on left is 100W at belvedere, WSDOT

On the path looking southeast. May 2016, 50W 1st bulb on the right, 100W bulb 2nd on the right, WSDOT
SR 520 lighting design

Design criteria
• State Highway Design Manual
• I-90 floating bridge design as example
• Intended use of path
• Crime Prevention Through Environmental Design (CPTED)

Legislative direction
• Design-build contract method

Environmental requirements
SR 520 lighting design

Environmental regulations (2009 – 2012)

- SR 520 Program Supplemental Draft EIS
- Biological Assessment and Biological Opinions
- NMFS Biological Opinions
- Final EIS, Visual Quality and Aesthetics Discipline Report Addendum and Errata
- NEPA/SEPA Environmental Regulation

Updated rendering of path lighting. March 2012, WSDOT

Rendering from NEPA/SEPA Environmental Re-evaluation. Oct. 2012, WSDOT

On path, looking west, with bulb out in foreground. Nov. 2016, 50W, WSDOT
SR 520 lighting design

SR 520 Floating Bridge design rendering presented to Seattle Design Commission. *Feb. 2012, WSDOT*

From a boat, looking south. *Aug. 2016, 50W (sentinel lighting not complete), WSDOT*
Lighting evaluations and changes

Evaluations and methodology

- Lighting measurements (May and July)
- Lighting evaluations

TOP: Team taking light measurements. May 2016, 100W, WSDOT

BOTTOM: WSDOT and KGM teams take simultaneous measurements. May 2016, 100W, WSDOT


WSDOT team checking a measurement. May 2016, 100W, WSDOT
Lighting evaluations and changes

Comparative Kelvin Color Temperature Chart

- 1,900K Candle
- 2,200K High Pressure Sodium Lamp
- 2,700-3,000K Warm White Halogen Incandescent
- 4,000-4,500K Natural White Metal Halide
- 4,800K Direct Sun
- 5,000-6,000K Day White
- 7,000-7,500K Cool White
- 10,000K Blue Sky

I-90, 50-watt Bulbs
100-watt Bulbs
50-watt Bulbs
RFP Specified 3,000 – 5,000K
Evaluation of lighting options

Lights visible on and around the west end of SR 520, looking southwest.  
*Aug. 2016, 50W bulbs, WSDOT (taken from a boat)*

Lights visible on and around SR 520, looking southeast towards Bellevue.  
*Aug. 2016, 50W bulbs, WSDOT (taken from a boat)*

I-90 as seen from Leschi.  *High Pressure Sodium, WSDOT*
Evaluation of lighting options

Criteria
• Safety
• Constructability
• Cost
• Future maintenance
• Potential to address the neighbors’ concerns
• Liability
# Discussion of lighting options

<table>
<thead>
<tr>
<th>Options Evaluated</th>
<th>A: Path User Safety</th>
<th>B: Constructability</th>
<th>C: Cost</th>
<th>D: Future Maintenance</th>
<th>E: Potential to Address Lassa/ HALC</th>
<th>F: Liability</th>
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</thead>
<tbody>
<tr>
<td>1. Reduce wattage of bulbs with minimal adjustments to fixtures</td>
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<td>2. Additional shrouding on existing fixture</td>
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<td>3. Install lower wattage bulbs in existing fixture, including retrofit of fixture</td>
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<td>4. Shrouding/obstruction on railing</td>
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<td>5. Remove some of the bulbs to reduce total light output</td>
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<td>6. Dimmer system for current lights</td>
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<td>7. Change/move lighting to a different location on the path</td>
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<td>8. Change light fixture and bulb type</td>
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<td>9. Turn off lights until WABN opens</td>
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<tr>
<td>10. Turn off lights on the floating bridge forever</td>
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</tbody>
</table>

**Responsiveness to criteria:**
- ● Low responsiveness to criteria
- ○ May respond to criteria
- ○ Mostly or does respond to criteria
Q&A discussion
Next Steps
Questions?

For more information:

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