Jan. 26, 2017: Response to neighbor feedback on first test of RSUP light shield

Dear Steve and neighbors,

Thank you for the thorough and coordinated response. It is helpful and appreciated.

We are continuing to make progress on the evaluation of the potential modifications to the lighting along the SR 520 bicycle/pedestrian path. The team that collected the measurements on the 100-watt bulbs has discussed adjusting the shield design. We are working with the manufacturer to modify the design of the first prototype and are including your suggestions in these discussions.

Testing of the first prototype shield on the 50-watt bulbs was delayed due to rain last week. (For consistency, it is important to have similar atmospheric conditions when taking measurements.) Once we have received the second prototype we will conduct the next round of testing. Taking measurements on both versions of the shields under the same conditions will help ensure consistency in the data/measurements. It may take a couple weeks to get the new prototype. We expect to do the next round of testing in mid-February.

We recommend holding the next public technical meeting in late February, after we have collected all measurements. At this time we plan to address the other questions from your email at the meeting. We will continue to keep you, and the neighbors on our list, updated on the next round of measurements and look forward to discussing the evaluations at our next meeting.

Sincerely,

Julie Meredith, PE
SR 520 Program Administrator
SR 520 Bridge Replacement and HOV Program
Washington State Department of Transportation

Jan. 19, 2017: RS 520 RSUP light feedback from neighbors

Dear Julie, Stacey & 520 Project Team,

We've had a chance to review the current shielding prototypes on the 520 bridge both up close and from afar. We wanted to get back to you with consolidated feedback. We thought it might be easier to collect all the various pieces of feedback and send in a single update; hopefully it's given the appropriate weight in the input process.

(1) First and foremost, THANK YOU. Overall, we are potentially on a very good path here. We want to express our sincere appreciation to you, WSDOT and the entire project team for listening, and working on practical solutions. It's clear that you're working hard to come up with some different options. You are all on your way to becoming heroes.
(2) In general, we think shielding coupled with lower wattage could indeed be a practical solution if full replacement is not possible. This iteration (which we’ll call "Prototype 1") does appear to reduce glare depending upon viewing angle. We looked at it directly on the bridge too, and the RSUP light in that area appeared much more than adequate for bikers and pedestrians. That's great news.

We also think it's possible to make small improvements to the design to offer even more glare reduction with no negative effects on RSUP lighting. However, depending upon the viewing angle, significant glare is still visible.

(3) We would very much like to see a second prototype option that delivers more glare-blocking before a final resolution is approved for installation, and they're manufactured in bulk. While the shield is a great start, glare still bleeds through, and is particularly acute depending upon the viewing angle. Some neighbors reported that they could see the full light of 1 or 2 of the 5 shielded lights, which suggests that the glare-reduction effect works only if the angle is just right (shown to a certain extent in one of the photos below.)

The good news is that from some angles, the shield does noticeably reduce glare. And there's room for more: from hands-on review on the bridge, the light onto the path still seems much more than adequate. The stainless steel cover is smart -- it appears cool to the touch (sampled at 10:30pm). It also remains relatively flush to the wall, and it's attractive enough not to detract from the design. It's likely inexpensive, and it's practical since it screws right in. Best of all, it doesn't require any light switchout.

We think another iteration can take a very good design and do even better for the environment, while not significantly reducing path lighting. Some of us are bikers, and would also note that having a shielded sconce will help with safety, as the glare is still distracting and can cause night blindness.

Specifically, we recommend an iteration that extends the length of the side louvers, and also further lengthening and/or “louvering” the front-facing shield. This would likely reduce the glare further when viewed from various horizontal and vertical angles, while still allowing enough path lighting.

Given the visibility of the unshielded lights from some angles, a full installation of Prototype 1 shields across a couple hundred lights would likely look quite inconsistent, with some lights showing glare and some not.

Viewing the shield up-close, we notice that the front-facing part of the shield fully exposes the lower 30% or so of the light. We think lengthening that front-facing coverage, and/or louvering that front face’s lower element would greatly reduce the front-facing glare.

RECOMMENDATION: We recommend another iteration of the shield with the same material and basic design, which further extends the length of the side-louvers perhaps up to an inch, and extends the metal shield in the front, perhaps by two inches, or louvers-out the lower-front.

(4) Lower wattage in the underlying fixture should be further studied -- 100W appears to be unnecessary, and it'll have pretty substantial and unnecessary energy consumption and cost over decades.

RECOMMENDATION: Test the hoods on 50W or ideally even lower bulbs, and please an update on the 50W or lower bulbs before abandoning this option. Some basic searching and discussion with lighting manufacturers does confirm that metal halide fixtures don’t seem to like operate lower than 50W, but many such fixtures and bulbs are sold in the 50W variety. Perhaps other manufacturers have better reliability.

(5) Full replacement is still ideal, but we understand and appreciate it may not be budget-practical. We support WSDOT project leadership, and their commitment to find an optimal, long term solution. If that means another few weeks of iteration, that's well-worth it in our view. We'd appreciate some clarity on
what your preferred path is here, and we look forward to that at either the interim meeting or an email update.

If full lighting replacement like the WABN lighting system isn't possible or funded, we really want to make sure we have the very best glare-reduction on those shields, so we think another iteration seems a good next step here.

(6) If we can help with making the case for incremental funding at the state level for any of this, we are most willing to help where we can.

Happy 2017 -- thanks again for your efforts, and we look forward to working with WSDOT on a great solution for the environment and project neighbors.

Jean and Russ Amick
James Bradburne
Katherine Burk
Brent Ellis
Heather and Steve Murch
Colleen & Bill McAleer
Barney Harford
Claudia Ware
Laurelhurst Community Club

...and other environmental group members

Some estimates that were were able to do from photos suggests that there IS indeed a brightness reduction with Prototype 1. Passing this along in case it's helpful. We have not yet done any light measurements from the water; we do not know how it matches with the footcandle limit on the lake surface.

PS: Steve Murch has volunteered to participate in any technical working group and is most happy to consolidate input from concerned constituents.

~60-68% brightness reduction
This photo illustrates that from one vantage point, glare isn't substantially reduced on all 5 of the lights (but on at least 3 they are.) Definitely progress!

Thanks again!