

Date: May 12, 2023

To: Oregon Department of Transportation OTP Project Team

Re: Draft Oregon Transportation Plan

Thank you for the opportunity to comment on the 2023 Public Review Draft of the Oregon Transportation Plan (OTP). Please accept these comments on behalf of the Oregon Audubon Chapter network (OAC), a statewide network of Audubon chapters that serve as vital advocates for local communities who care about the health of their environment. The OAC represents a broad geographic distribution of chapters around Oregon that collaborate on statewide priorities to protect native birds and their habitats.

We appreciate the document reflects broad consideration of equity, climate change, sustainability, economic and community vitality, transportation safety and emerging technology; we also believe that there are some significant oversights in each of these areas that merit thoughtful inclusion in this plan's framework. We would like to see significant consideration of ODOT's role in reducing light pollution integrated meaningfully into the OTP. We would also like to see a more thoughtful roadside vegetation management program, the establishment of a wildlife corridor program, a more meaningful community engagement standard, and a more active Marbled Murrelet management plan integrated into the OTP.

Each of these topics are addressed in more depth below.

LIGHTING:

With jurisdiction over statewide roadways and numerous transportation facilities with associated lighting systems across the state, we would like to see more careful consideration given to the impacts of light pollution on Oregon's wildlife, communities and night skies. ODOT can play a significant role in curtailing light pollution on its own properties by adopting the International Dark-sky Association (IDA) and the Illuminating Engineering Society's (IES) best practices in lighting design in order to minimize of impacts to environmental health, human health, safety and equity, as well as to support access to the night sky both as a livability index and to help facilitate the growth of astrotourism as an economic driver in rural communities throughout Oregon.

According to *Light Pollution Environmental Effects of Roadway Lighting* by Carl Shaflik, BASc, Peng, UBC Department of Civil Engineering, "It has been estimated that up to 50% of all light pollution may be the result of roadway lighting. This puts finding adequate and economic solutions to light pollution firmly in the hands of traffic engineers." Furthermore, according to the <u>US DOE 2022 Solid State Lighting R&D Opportunities</u> published in Feb 2022 <u>https://www.energy.gov/sites/default/files/2022-02/2022-ssl-rd-opportunities.pdf</u>:

"Roadway lighting, signage, and light spillage from buildings at night all have negative impacts on local wildlife. The IES and the IDA as well as the NPS have converged upon a set of best practices for outdoor lighting to reduce skyglow and ecological impacts from lighting. Currently, most LED lighting products and installations do not follow these practices, but LED technology has the capability to fully optimize all of these practices. Migratory birds, hatchling turtles, fish, marine birds, insects, bats, and numerous other animal species are negatively impacted by anthropogenic light at night."

It is possible to simultaneously provide roadway lighting for safety and follow best practices produced by IES and IDA. As written, the draft OTP makes scant mention of lighting, and no mention at all is made of design considerations to reduce the unintended impacts of light at night. Three mentions of lighting in the OTP are: lighting as a countermeasure to crashes, lighting as a security measure at transportation facilities, and the reduction of emissions generated by lighting systems. There are, however, many more ways that lighting can and should be overtly considered in this plan, including minimization of impacts to environmental health, human health and safety, contribution to climate change, impacts to Oregon's night skies including to astrotourism, and impacts to rural communities. A very recent and comprehensive 90 page Technical Note has been published by the BLM: Night SKy and Dark Environments: Best Management Practices for Artificial Light at Night on BLM-Managed Lands (Technical Note 457, April 2023

https://www.blm.gov/sites/default/files/docs/2023-04/Library_BLMTechnicalNote457.pdf). This report details the impact of light at night on insects, mammals, birds, reptiles, fish, amphibians and plants and outlines the importance of minimizing light pollution as well as best management practices for doing so.

As discussed in the Introduction of American National Standards Institute (ANSI) and Illuminating Engineering Society RP-8-21: Design Of Roadway Facility Lighting (https://blog.ansi.org/?p=160622), lighting design criteria needs to carefully consider a number of goals, including "minimiz[ing] environmental impacts of light at night." ANSI goes on to say that "Knowing how lighting can impact animal communities and influence plants' abilities to respond to light quantity, spectrum, directionality, timing, and duration by affecting their photoreceptors could aid in the decision making of roadway lighting design and installation." This warrants explicit attention by ODOT in the draft OTP.

While technological advancements are addressed in the draft OTP, this section includes no consideration of the potential for adaptive lighting control systems, which can control both color temperature and brightness. As written in <u>The Future of Roadway Lighting</u> by Ronald Gibbons, Joseph Cheung and Paul Lutkevich (Nov/Dec 2015 FWHA-HRT-001), "Traditional approaches to lighting design result in significant over-lighting of roadways and excessive energy usage. Adaptive lighting, that is, adjusting illumination levels based on the needs of roadway users, offers an approach to overcome these challenges" and is a "growing trend in the roadway industry." The potential for adaptive lighting systems warrants inclusion in the OTP.

Background information on light pollution:

We believe the following information summarizing the negative impacts of artificial light at night demonstrates the need for ODOT to include light pollution reduction measures as part of the analysis that goes into its statewide lighting systems.

Ecological Impacts

Deleterious impacts of light pollution have been demonstrated in over 200 species with representatives from every taxa, including birds, fish, mammals, amphibians, invertebrates, and plants. Oregon hosts many millions of night migrating birds during peak spring and fall migration, and light pollution threatens to pull them off their migration courses where they are at risk of colliding with buildings, being cat caught, and other secondary hazards. Nesting birds exposed to dim white light at night show elevated corticosterone (stress) hormones, and an associated reduction in ability to fledge young. Birds exposed to dim white light at night take nearly twice as long to kick West Nile Virus (WNV) out of their systems than birds that are kept in darkness overnight; this poses a potential public health issue, as WNV is a zoonotic disease. Of 15 bat species documented in Oregon, fully 8 are species of conservation concern on ODFW's

Oregon Conservation Strategy Species list. Bats perform important ecosystem services and are highly impacted by artificial light at night—some repelled by light, which functionally fragments their habitat and others attracted to lights to take advantage of insect traps, thus putting themselves at great risk of predation while hunting at streetlights. This is but a tiny snapshot of the impacts of light at night on our ecosystems.

Human Health, Safety and Equity

The American Medical Association published a report in 2016 recommending that municipal conversion of HPS to LED street lighting minimize the emission of blue-rich white light because of concerns about the association between melatonin suppression, dysregulated sleep and breast and prostate cancers, diabetes, cardiovascular disease as well as retinal damage and dangers of direct glare for both drivers and pedestrians.

Again, from the <u>US DOE 2022 Solid State Lighting R&D Opportunities</u> (Feb 2022) <u>https://www.energy.gov/sites/default/files/2022-02/2022-ssl-rd-opportunities.pdf</u>: "We now know that lighting unavoidably affects human health and well-being beyond basic visual function. Lighting provides signals to the human endocrine system that can support or disrupt healthy circadian rhythms with broad implications for health and well-being... Based on the discovery of non-visual photo-receptors within the human eye and subsequent research, it is now clearly understood that existing lighting practices can negatively impact human health and well-being."

Additionally, light pollution and associated health impacts are becoming subjects of environmental justice research. Two recent papers: <u>Cross-sectional association between</u> <u>outdoor artificial light at night and sleep duration in middle to older-aged adults: the NIH-AARP</u> <u>Diet and Health Study</u> (Xiao et al 2020) and <u>Light pollution inequities in the continental United</u> <u>States: A distributive environmental justice analysis</u> (Nadybal et al 2020) show this as an emerging equity concern, including that associations between higher artificial light at night and shorter sleep were larger in neighborhoods with higher levels of poverty, and that Asian, Hispanic and Black Americans have twice the mean exposure to light pollution at night in their neighborhoods than White Americans. Neighborhoods with higher proportions of Black, Hispanic and Asian Americans or renter-occupants also experienced greater exposures to ambient light at night, whether in urban or rural areas.

To reiterate, we believe that there is ample information available at this point to warrant the inclusion of light pollution reduction measures as part of the analysis that goes into our statewide lighting system. These measures should seek to limit both light trespass and the emission of blue light into the nighttime environment, be it urban, suburban or rural.

Community Effort to Work with ODOT to Establish a maximum 2700-3000K CCT standard

We appreciate that with the conversion of much of its roadway lighting from HPS to LED, new cobrahead fixtures have improved the overall shielding of lighting. However, ODOT has made little discernible progress to date on adapting to stakeholder recommendations and broader industry and agency shifts regarding lower color temperature lighting. Shielding alone, while beneficial, is not enough to mitigate the emission of blue-rich white light into the environment. Even with a conversion to largely 3000K, fully shielded cobrahead streetlight fixtures throughout Chelan County, WA, the National Park Service Natural Night Skies division found night sky brightness in the county to have increased 60% post retrofit

(<u>https://www.sciencedirect.com/science/article/pii/S0301479721008380</u>). This is simply because of the increase in blue light emission by the 3000K lamps when compared to the previous drop lens HPS lamps.

We began advocating on the need to consider shifting to maximum 2700-3000K CCT standard in 2018, meeting with ODOT personnel numerous times and testifying at the May 2019 Transportation Commission hearing on the Region 1 Pilot Project and the Marquam Bridge Relamping Project, encouraging ODOT to consider concerns about light trespass from neighbors adjacent to the Marquam Bridge as well as broader impacts to the environment, human health and the night sky. The overall goal of this community collaboration was to encourage ODOT to adopt best practices in lighting design by adopting a maximum 3000K (or below) standard and shielding lighting to minimize impacts on adjacent properties. The outcome of this was ultimately an email communication dated June 27, 2019, which quoted a letter from ODOT staff to ODOT Commissioners, indicating that:

"As a great example of ODOT listening to community concerns and adjusting its approach" ODOT would deploy "3000K fixtures where the ODOT lighting standard was met", with a follow up that

"Overall, we anticipate most lights will be able to meet design standards using 3000K lights".

However, it remains unclear whether, where and when 3000K versus 4000K lamps are being used and requests for some transparency around this information have gone unanswered to date. We have also received significant pushback from ODOT on fiscal impacts of HB3202, a bill which would require new and replacement lamps on state property and projects to be 3000K or below beginning January 1, 2025. Pushback from ODOT on this bill sends a strong message that ODOT remains resistant to a 3000K or below standard and that this is likely still not a standard CCT being deployed by ODOT to date in spite of the email communication cited above.

Many jurisdictions are now specifying 2700-3000K for their roadway lighting. Washington Department of Transportation has moved to 3000K lighting statewide after using it first in the vicinity of the Puget Sound, North Cascades National Park, and Goldendale Observatory at the request of their own WSDOT environmental department, the National Park Service, and the Observatory itself, respectively. Based on their overall satisfaction with both the performance and efficacy of the 3000K lighting systems, they have switched entirely to this CCT statewide, and they report no safety concerns whatsoever associated with this shift. Cities including Tucson, Phoenix, San Jose and Hillsboro have moved to specifying 2700-3000K (or below) for their roadway lighting. There is no public safety hazard associated with this temperature lighting, there is no energy or cost penalty, and 2700-3000K or below CCT is better for the night sky, better for the nocturnal environment, and better for human health and safety than 4000K lamps because they emit less blue rich white light and create less glare than 4000K lamps. Additionally, blue rich white light is particularly hard for the aging human eye (over 40) to recover from once exposed pupils are constricted, so when considering equity, this is an important safety issue for an aging populace in Oregon.

Astrotourism

Astrotourism is a growing area of recreation and driver of travel in Oregon and worldwide. More and more people are traveling to see starry skies, even right here in Oregon. Oregon's Great Basin is in fact the largest intact area of world class dark skies in the lower 48 states. This is an invaluable and threatened natural resource worth preserving for livability, for connection with our cultural heritage, and as an economic driver for rural communities. Astrotourism is a growing industry, evidenced by the emphasis that Travel Oregon, Travel Southern Oregon, and Visit Central Oregon are all placing on stargazing, astral photography, and dark sky tourism. Travel Oregon has recently developed a Dark Sky Tourism Toolkit, and Travel Southern Oregon is leading an effort to designate a large swath of SE Oregon as an International Dark Sky Place (IDSP). Oregon Parks and Recreation District has begun certifying parks as IDSPs, recognizing that the nighttime experience is increasingly a high value resource that parks can offer overnight visitors. Port Orford has updated its Dark Sky Ordinance (originally developed in 2010) and Yachats and many other small towns have developed lighting ordinances aimed at protecting the condition of their night skies.

ROADSIDE VEGETATION MANAGEMENT: TREE CUTTING, MOWING, and SPRAYING

The plan makes no mention of exploring alternatives to ODOT's growing overreliance on roadside pesticide use and tree cutting, such as development of a more environmentally sustainable integrated vegetation management plan. The current approach to vegetation management is unsustainable—for pollinators, for greenhouse gas emissions, for native plant

regenerations, and for impacts of airborne and waterborne toxins on nearby human and wildlife communities. We would like to see this addressed in the OTP.

ESTABLISHMENT OF WILDLIFE CORRIDORS

According to the Oregon Department of Fish and Wildlife, "ODOT documents more than 6,000 vehicle collisions with deer and elk each year," a number which likely does not reflect the true number of collisions as many go unreported, especially if vehicle damage is minimal. We urge ODOT to support current or future legislation that addresses improving wildlife corridors. HB 2999 (2023) would establish a program to reduce wildlife vehicle collisions in areas where wildlife corridors (which have been identified in the Wildlife Corridor Action Plan by Oregon Department of Fish and Wildlife) intersect with proposed or existing public roads. The program would support feasibility studies and plans for creating or modifying road infrastructure in a manner that reduces wildlife-vehicle collisions and promotes public safety. ODOT should support the bill's request to allocate \$5 million from the general fund allocated to the Oregon Conservation Recreation Fund to support this program. Current human-wildlife collision conflicts will only increase as the population of our state increases so ODOT should do all it can to support this program.

COMMUNITY ENGAGEMENT AND STAKEHOLDER INPUT

While we appreciate past opportunities to meet with ODOT to discuss these issues, little measurable progress has materialized from this effort. We would like to see ODOT take more seriously its commitment to engage with community stakeholders in the future on issues addressed in these comments, as described in MO.5: "Tailor transportation solutions to the local context, allowing for different solutions to achieve OTP goals in rural, suburban and urban communities." It is our understanding that when asked to install human scale lighting with full cut off shielding in some rural communities in Oregon, community requests were dismissed and as a result, increased light pollution and light trespass in these areas. This is not only unfortunate, but an unacceptable outcome at a time when LED technology allows an incredible amount of lighting control. We have also heard that concerns about roadside tree cutting, mowing and pesticide use have also been dismissed. Based on language in this plan, we would expect to see meaningful engagement with local communities in the future about the real impacts of noise, air and light pollution resulting from construction and maintenance projects as well as operational policies.

MARBLED MURRELET HABITAT MANAGEMENT

ODOT is one of 10 state agencies named in the Draft Endangered Species Management Plan for Marbled Murrelets, and yet Marbled Murrelets receive no mention in the OTP. Given that 1175 acres of ODOT lands correspond to high murrelet nesting probability, with only 278 acres of that falling outside of ODOT highways and ODOT-maintained right-of-way, it bears mention in the OTP. We believe that the OTP should identify habitat restoration goals and other active management practices to help accelerate marbled murrelet recovery, including clear 5-year goals and benchmarks of intended actions, as well as prioritization of specific parcels for active management efforts. ODOT's current overreliance on simple take avoidance falls short of ODOT's own espoused responsibility to preserve and improve the quality of Oregon's natural ecosystems laid out in SC.2 of this plan.

SPECIFIC RECOMMENDATIONS BY SECTION:

Equity

2.1 Equity intro (page 7)—Equity goals should include examination of both lighting-deficient areas and over lighting, especially in high density, low income areas where housing may be constructed adjacent to state roadways, resulting in significant light trespass into residential spaces when lighting is not adequately shielded, especially those where residents do not have control over external factors like using trees to buffer lighting nor the economic means to buy room darkening curtains.

2.2 Climate Change intro (page 7)—This section should include evaluation of the amount of light pollution currently contributed by roadway lighting in the transportation sector and opportunities to mitigate that using lower kelvin temperature lighting, shields, and adaptive lighting systems, and where appropriate, decommissioning of unnecessary lighting. Other state transportation departments, including Washington, are doing this and we would like to see Oregon follow suit.

2.3 Population and Labor Force Changes (page 8) —This section discusses the impact of an aging population in Oregon, but does not discuss the impact of blue-rich white light on the aging human eye and the need to include this consideration in the selection of roadway lighting. This section also addresses urbanization but does not herein address the increase of high density, low income housing situated in close proximity to high volume streets and highways which have higher levels of roadway lighting; this creates the need to mitigate residential light trespass with shields and lower kelvin temperature lighting.

4.1 Vision and Values Statement (page 20) — In the discussion of climate-friendliness, equity, and safety with a goal of having a "minimal adverse impact on the natural environment", we would like to see that include the well-researched and well-documented impacts of light

pollution on whole ecosystems as well as on human health and safety. This section also addresses economic vitality and livability as well as stewardship of public resources. The OTP acknowledges that "Tourism to Oregon's towns, cities, and beautiful natural wonders enriches lives and supports economies across the state" and "transportation investments that reflect the values of open decision making, environmental stewardship public health, safety and thoughtful management of the transportation system". Taken together, ODOT should prioritize the engagement of small communities and their lighting needs as well as the growing astrotourism industry, which provides tremendous economic benefit to rural communities, and is under threat by poorly designed lighting which increases skyglow, including blue rich white light.

5.1 Policy framework (page 23) The Center Equity section acknowledges that "transportation decisions have disproportionately impacted communities and populations," which have "affected neighborhoods, economic development and air quality for generations." We would like to see light pollution identified here as one of the cumulative impacts that ODOT's road system and associated projects and infrastructure have on impacted communities; light pollution has demonstrated health impacts on already vulnerable populations, including sleep dysregulation, cardiovascular disease, high blood pressure, and certain cancers, and research has shown that light pollution levels are higher in neighborhoods with more people of color and lower income residents. This section also addresses the need to reduce GHG emissions in order to rapidly decarbonize, which can, in part, be addressed by utilizing adaptive lighting systems and looking for opportunities to decommission lighting where appropriate.

Section 6 Goals, Objectives, Policies and Strategies

6.1 Economic and Community Vitality (page 27): Improve prosperity, opportunity, and livability for all people who live, work, and recreate in Oregon

Under Objective EC:2 (page 29) Provide safe and reliable movement of goods and materials

 Policy EC:2.3 Fund innovative technology, <u>recommend addition of a Strategy EC2.3.4</u>: <u>Transition to maximum 2700-3000K or below, fully shielded lighting on all roadways and</u> <u>ODOT properties and explore options for integrating adaptive lighting systems where</u> <u>appropriate.</u>

Under Objective EC:3 (page 30) Provide transportation systems to promote healthy prosperous and cohesive communities

• Policy EC: 3.1 Provide a transportation system that...allows all segments of the economy (industries, communities and individuals) to thrive, <u>add a Strategy EC:3.1.3: Adhere to</u>

IES/IDA principles for reducing light pollution in order to protect the astrotourism industry, especially in rural areas of the state.

- Policy EC3.3 Emphasize public health outcomes and maintain and restore community cohesion through system design and investments:
 - Modify Strategy EC.3.3.2 Coordinate...resources to provide flexible and responsive transportation improvements and services to... <u>add language about</u> <u>preserving the nighttime character of rural Oregon communities and engage</u> <u>directly with the community members to ensure right-sizing of new and</u> <u>converted lighting.</u>
 - Modify Strategy EC.3.3.3 Maintain and improve community members' ability to walk, roll and bike safely where they live... <u>add language about minimizing glare</u> and the emission of blue-rich white light by shielding lighting and selecting <u>2700-3000K or below lamps, both of which are especially important safety</u> <u>considerations for aging populations.</u>
- Policy EC3.4 When designing new or replacement transportation infrastructure, use the latest design guidance and approved standards appropriate to the context to enhance the comfort and quality of the space for the benefit of the surrounding community
 - Modify Strategy EC.3.4.2 Create welcoming, visible, and well lit spaces that reinforce personal security while naturally deterring illegal or dangerous activity. <u>Add language about using the appropriate amount of layered, warm lighting,</u> which has been shown to improve the perception of safety in public, especially for women and girls.
 - Modify Strategy EC.3.4.3 Reduce or avoid negative air quality, noise and visual impacts from the transportation system on adjacent communities. <u>Add language</u> <u>about cumulative impacts as well as about reducing or avoiding light pollution.</u>

Under Objective EC:4 (page 32) Provide and maintain multimodal intercity connections that support access to ORs natural, cultural and heritage destinations.

- Policy EC4.1 Support Tourism by coordinating transportation investments and operations with the tourist industry and affected communities
 - Modify Strategy EC.4.1.1: Plan for travel related to tourism throughout the state as a critical economic tool for both urban and rural communities and a meaningful, affordable option for families to enjoy Oregon's many natural and urban areas. <u>Add language about planning lighting accordingly to protect</u> <u>astrotourism, particularly in rural portions of the state where organizations like</u> <u>Travel Oregon, Travel Southern Oregon, Visit Bend, Oregon Parks and Recreation</u>

<u>District and The National Park Service are actively promoting access to starry</u> <u>skies.</u>

Under Objective SE:4 (page 38) Expand access to essential services and economic opportunities through programs and investments.

- Policy SE.4.1 Ensure the needs of the most transportation vulnerable people and systemically excluded or underserved populations are meaningfully addressed and that policies produce improved outcomes.
 - Modify Strategy SE.4.1.2 Increase transportation investments that benefit systemically excluded or underserved populations <u>Add language about research</u> <u>showing that communities of color and lower income neighborhoods experience</u> <u>twice the level of light pollution as predominantly white neighborhoods, much of</u> <u>which comes from street lighting</u>.

Under Objective MO.5 (page 44) Tailor transportation solutions to the local context, allowing for different solutions to achieve OTP goals in rural, suburban and urban communities

- Policy MO.5.1 Apply a context and performance based approach to planning and designing roadways to integrate flexibility, enhance intermodal connections and improve user experience and safety.
 - Modify Strategy MO5.1.1: Establish transportation design standards (add including lighting CCT and lumen levels) appropriate for various land use contexts.

Under Objective SP.6 (page 59) — Increase the resiliency of the transportation systems to better withstand and recover from the anticipated impacts of climate change...

- Policy SP.6.1 Leverage transportation investments to support community health and increase community resilience to chronic climate change impacts.
 - Strategy SP.6.1.1 Seek to mitigate the transportation system's role in the differing social, economic, public health, and other adverse effects of climate change on people throughout the state...<u>Add language about mitigating the impacts of light</u> <u>pollution on systemically excluded or underserved populations.</u>
 - Strategy SP.6.1.3 Identify opportunities to address the public health hazards of social isolation and poor air quality. <u>Add: and exposure to light pollution.</u>

6.6 Sustainability and Climate Action

Objective SC.2 (page 72) Preserve and improve the quality of Oregon's water, air and natural ecosystems. Add language: including Oregon's natural night skies.

- Policy SC.2.1 Require siting, design and development of new and reconstructed transportation infrastructure to reduce the impact on environmentally sensitive areas; enhance and avoid the degradation of the natural environment; and protect water, air and wildlife.
 - Strategy SC.2.1.4: Minimize and mitigate harms to sensitive fish and wildlife species, for example, by providing space for terrestrial animal movement along habitat corridors. Amend this strategy to explicitly include consideration of wildlife corridors as proposed in HB2999, as well as identification of marbled murrelet habitat restoration goals and recovery benchmarks and other active management practices to help accelerate marbled murrelet recovery on ODOT lands.
 - Add a strategy SC2.1.5. Minimize and mitigate harms to sensitive fish and wildlife species by adopting IES/IDA best practices in lighting design including minimizing total lumen output and Kelvin temperature threshold of 2700-3000K or below.
- Policy SC 2.2 Provide transportation system that is environmentally responsible and encourages conservation and protection of natural resources
 - Strategy SC.2.2.1 Create transportation systems compatible with native habitats and species and help restore ecological processes. <u>Add language about</u> <u>development of an integrated vegetation management plan for roadside</u> <u>vegetation in order to reduce the overreliance on tree clearing, mowing and</u> <u>pesticide spraying wherever possible. Integrated vegetation management is</u> <u>better for wildlife and human health and reduces ODOT's contribution to both air</u> <u>and water pollution. Also add language about minimizing ODOT's contribution to</u> <u>light pollution.</u>

7.2 Cross sector coordination (page 76)

 Economic and Tourism — Transportation Coordination — Transportation infrastructure has a major role in supporting business owners, employees, and customers... This will require regular coordination between Travel Oregon, Business Oregon, and ODOT to maximize economic potential and wealth creation while providing a positive experience for visitors... <u>Add language addressing the ways that ODOT can support the robust</u> <u>development of astrotourism throughout our state by reducing its contribution to light</u> <u>pollution and sky glow. Add additional partners for ODOT to be working with on this</u> <u>front, including Travel Southern Oregon, Visit Bend, OPRD, Rose Clty Astronomers, and</u> <u>other astronomy clubs across the state.</u> Thank you for your time and consideration of these comments. We look forward to engaging with ODOT on the issues we've raised in this letter.

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