TO: Columbia River Gorge Commission

FROM: Sage Ebel, Vital Signs Program Manager, Columbia River Gorge Commission

DATE: July 8, 2025

RE: **Information Item*:** New Vital Sign Indicators Portal

Purpose

The Vital Sign Indicators (VSI) program evaluates the long-term health of scenic, natural, cultural, and recreation resources, and local economies, of the Columbia River Gorge National Scenic Area (CRGNSA). A data hub has been developed to share the indicator data, analyses and findings with the public, partners and commissioners. This report provides a brief overview of the Vital Signs program, and the Vital Signs Data hub including the status of monitoring efforts for the 17 vital signs and 31 indicators.

Program Background

The Management Plan directs the Gorge Commission to design a monitoring and evaluation program in collaboration with the USDA Forest Service, the counties, the Columbia River treaty tribes, and other key partners to evaluate the effectiveness of the Management Plan in protecting the resources and supporting and protecting the economy of the National Scenic Area (Part IV, Chapter 1: Gorge Commission Role).

With this directive as a guide, the Gorge Commission staff developed a list of 17 vital signs and associated indicators. The vital signs were selected based on several factors including their connection to the management plan, data availability, feasibility for long term monitoring and spatial extent, among others. The Columbia River Gorge National Scenic Area is a complex, interconnected ecological and human system within a larger regional landscape. While this list is meant to span the full range of protected resources in the CRGNSA it does not capture all key attributes that could be monitored at various spatial and temporal scales. This list along with the associated 31 indicators, which are the direct measures of each vital sign, was approved by the full Commission in December of 2023. For more information on how the vital signs and indicators were selected please review the History of VSI staff report (appendix A), and the Recommended Vital Sign Indicators staff report on the Columbia River Gorge Commission website.

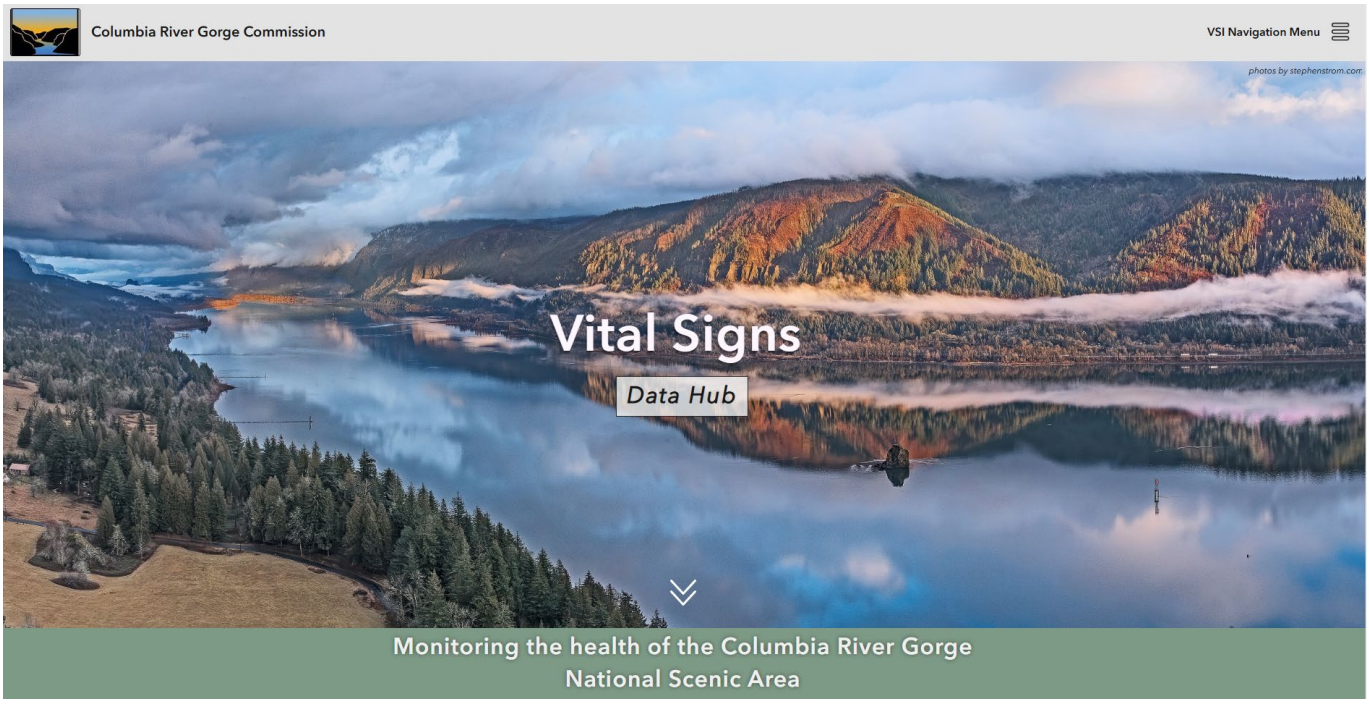
Vital Signs Data Hub

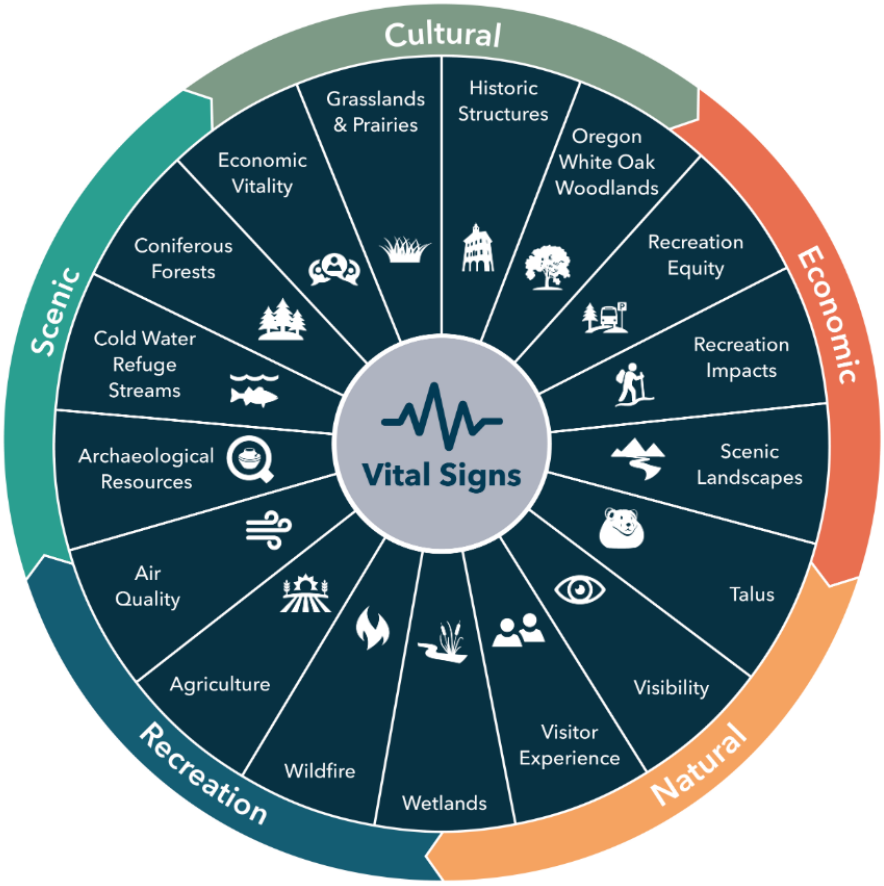
Following approval of the final list of vital signs and indicators, staff began the work of compiling, collecting and in some cases developing the key datasets for each indicator. A main goal of the vital signs program is to monitor the trends in each of the vital signs over time, and communicate these trends to the public, partners, and commissioners so that they can make informed decisions about the management of the CRGNSA. Together with ESA, we developed a publicly accessible data hub that will store the data for each indicator, outline key trends, and provide the required background

to understand the utility of each dataset in helping commissioners and staff answer important questions about the efficacy of the Management Plan.

The data hub will be updated regularly to reflect the most up to date data, and to communicate new findings. It was built to be accessible and informative to as wide of a range of users as possible through use of plain language, and simple visual tools such as figures and photographs. The data hub will be available to the public at the end of July 2025. An image of the homepage is included as Figure 1 below, and the link to the interactive data hub will be available on the new Columbia River Gorge Commission website following a two week preview period for commissioners.

Figure 1: Vital Signs Data Hub.





Data Hub Status

There is still work to be done to compile and analyze the first round of data for each of the indicators. In addition to updates that are pending, the data hub will be updated at least annually to reflect additions to datasets where there is continuous data collection and new findings available. A summary of the status and next steps for each indicator is provided below as figure 2.

Next Steps

The next phase of the program will include the continuing support of monitoring across all the Vital Signs while updating and maintaining the data hub. The desired conditions for each of the indicators will be developed where appropriate. Development of desired conditions and thresholds will likely require research, consultation with experts and partners, and careful consideration of the Commission's role. Establishing a desired condition for achieving a "protection" goal presents a unique challenge, as it differs from a "restoration" goal tied to specific, measurable actions like restoring stream miles or acres. Discussion of such challenges and opportunities will be part of the next phase of the VSI program.

As a first step in the next phase of this work, the Columbia River Gorge Commission staff have been working with a student research intern from Heritage University. A Hunter, an environmental studies major, has been conducting research through literature review and planning interviews with a range of different Gorge community members to better understand their relationship with recreation in the Gorge. He is guided by the larger questions of "What is recreation?" and ultimately "How does recreation foster social and ecological connections to place?" His work will help inform the interpretation of the recreation equity and visitation data and increase our understanding of the needs and desires of different communities in the Gorge as we work to provide meaningful recreation opportunities as directed by the management plan.

Figure 2: Status of Vital Sign Indicator Data and Analyses.
Green cells show data fully compiled through December 2024. Yellow cells indicate partial progress—some data still needs to be compiled to fully determine status of indicator. Red cells indicate that data for this indicator is not yet available.

Vital Sign	Indicator	Status & Next Steps
Agriculture	Extent & Distribution	Waiting on refinements to Special Habitats map "Cultivated" category from USDA Forest Service.
	Crop Type	Complete for 2024
Air Quality	Precipitation Chemistry	Complete for 2024
	Terrestrial Effects of Pollution and Climate Change	Data has been obtained, waiting on analyses
Archeological Resources	Significant Archeological Resources Identified Annually	Data is incomplete - Plan to report on this indicator by the end of the calendar year
Cold Water Refuge Streams	Stream Temperature	Data obtained from 7 of 10 streams. Working with USDA Forest Service to install additional temperature monitors.
	Stream Flow	Data available from 7 of 10 streams. Working with partners to improve and expand monitoring.
Coniferous Forests	Extent & Distribution	Data obtained for current condition.
	Land Cover Change	Waiting on additional years of the Special Habitats Map from USDA Forest Service for time series analysis.
Economic Vitality	Distribution and Type of OIB and WIB Loans	Complete for 2024
	Economic Impact of Loans on Local Businesses	Complete for 2024
Grasslands/Prairies	Extent & Distribution	Data obtained for current condition.
	Land Cover Change	Waiting on additional years of the Special Habitats Map from USDA Forest Service for time series analysis.
Historic Structures	Significant Historic Structures Identified Annually	Data is incomplete - Plan to report on this indicator by the end of the calendar year
Oregon White Oak Woodlands	Extent & Distribution	Data obtained for current condition.
	Land Cover Change	Waiting on additional years of the Special Habitats Map from USDA Forest Service for time series analysis.

Vital Sign (cont)	Indicator	Status & Next Steps
Recreation Equity	% of Recreation Sites Accessible via Public Transport	Complete for 2024
	% of Recreation Sites that Require a Fee	Complete for 2024
Recreation Impacts on Other Protected Resources	Extent and Distribution of Official Trails	Complete for 2024
	Extent and Distribution of Unofficial Trails	Complete for 2024
Scenic Landscapes	Intactness of Landscape Setting as Seen From Key Viewing Areas	Waiting on analyses of seen area and scenic integrity map products.
	Intactness of Landscape Setting	Complete for 2024
Talus	Pika presence	Complete for 2024
Visibility	Haze	Complete for 2024
	Light Pollution	Sky Quality Monitors installed and collecting data at all 10 locations across the NSA. Modeled data obtained and analyzed.
Visitor Experience	Visitation	Complete for 2024
	Visitor Satisfaction	Complete for 2024
Wetlands	Extent & Distribution	Data obtained for current condition.
	Land Cover Change	Waiting on additional years of the Special Habitats Map from USDA Forest Service for time series analysis.
Wildfire	Extent and Distribution	Complete through 2023
	Fuels Reduction on NFS lands	Waiting on confirmation of spatial accuracy from USDA Forest Service.

Appendix A

TO: Columbia River Gorge Commission

FROM: Sage Ebel, VSI & Natural Resources Planner, Columbia River Gorge Commission
Lisa Naas Cook, Climate Program Manager, Columbia River Gorge Commission

DATE: March 11, 2025

RE: **Information Item:** Vital Sign Indicators Overview

Purpose

The Vital Sign Indicators (VSI) program evaluates the long-term health of scenic, natural, cultural, and recreation resources, and local economies, of the Columbia River Gorge National Scenic Area (CRGNSA). In preparation for the first annual VSI monitoring report in the summer of 2025, this report provides a brief overview of the history of the program, detailing the process and rationale for selecting the final list of Vital Signs and Indicators.

Program Background

The Management Plan directs the Gorge Commission to design a monitoring and evaluation program in collaboration with the USDA Forest Service, the counties, the Columbia River treaty tribes, and other key partners to evaluate the effectiveness of the Management Plan in protecting the resources and supporting and protecting the economy of the National Scenic Area (Part IV, Chapter 1: Gorge Commission Role).

A Vital Sign Indicator program is well suited to accomplish the goals outlined in the management plan. These programs evaluate ecosystem health at a broad scale through a variety of specific metrics. Vital sign indicators for human health, such as blood pressure, alert us to problems in the body, but specific follow-up tests are needed to understand the full range of factors that may be contributing to blood pressure outside the normal range. As surrogates for underlying, complex ecological and human systems, Vital Sign Indicators provide critical information on long-term status and trends to better understand if we are making progress toward Management Plan goals. Vital Sign Indicators are designed to track a change in condition over time rather than diagnose the cause of the change. Performance indicators are other evaluation measures designed to track the direct results of interventions or management actions. These may be developed to compliment condition-based Vital Sign Indicators, though they cannot replace them.

A brief explanation of terms in this section is noted here:

Vital Sign: The topic for a high-level indicator. Represents important components or attributes of protected resources that guide assessment of progress toward Management Plan goals (e.g., Oregon White Oak Woodlands). Each Vital Sign is represented by one or more indicators.

Indicator: A brief description of what is being measured (e.g., extent and distribution).

Metric: The specific measurement method or unit of measurement for an indicator (e.g. acres of Oregon White Oak Woodlands).

Threshold: A minimally acceptable condition associated with each indicator, typically based on physical, biological, or social conditions. (To be developed)

VSI Project History
In 2007, the Gorge Commission, USDA Forest Service, partner agencies, Gorge residents, and nonprofit organizations began working on the VSI project as a community-driven planning initiative.

Through a public process involving a Technical Advisory Team, a Community Advisory Team, the Gorge Commission Assessment Committee, and many partner agencies, 51 Vital Sign Indicators were created to assess the condition of scenic, natural, economic, cultural, and recreation resources in the National Scenic Area. In May 2009, the Commission prepared a "State of the Gorge" report that summarized data for 24 indicators with the goal of reporting on the remaining 27 indicators in the second phase of the project in 2011. Of the 24 indicators included in the 2009 report, only 5 indicators had data available "off the shelf"; 13 indicators required staff to perform extensive analysis on existing information to create useful measures; and 6 indicators required staff to develop data from scratch.

As a result of budget cuts and staff changes in 2010, the VSI project did not move forward as anticipated, and was shelved until the Gorge Commission secured dedicated funding and staff resources to begin work on the revitalization of the VSI program in 2021. Since then, it has been a Commission priority to revitalize this program in alignment with the revised Gorge 2020 Management Plan.

VSI Program Revitalization
Building on the 2009 VSI effort, the Commission and USDA Forest Service initiated a comprehensive update in 2021, following adoption of the updated Management Plan in October 2020. Incorporating input from the USDA Forest Service, counties, and key partners, this update refined the final list of Vital Sign Indicators by aligning them with management priorities and identifying key questions that data could help address. The VSI update process also coincided with development of the Climate Change Action Plan (adopted in December 2022), which influenced the selection of indicators. Key considerations from this update are summarized below.

Vital Sign Indicators Update Process
The update process involved three key phases:

1. **Defining Program Objectives:** Staff conducted interviews with USDA Forest Service and Commission staff, as well as regional monitoring experts, to assess needs, challenges, and opportunities related to the original VSI effort. This VSI Assessment informed the following program objectives:

    - Track the status and trends of protected resources over time to assess how well we are achieving Management Plan goals.
    - Use indicator data to guide adaptive management, including ongoing decision-making and future Management Plan review.
    - Build new and strengthen existing partnerships with the four Columbia River treaty tribes and our partner agencies, counties, and communities to leverage information

and capacity toward shared monitoring goals.
- Communicate our findings through accessible, interactive formats to raise awareness of the health of the National Scenic Area.

2. **Refining the Indicator List:** The original 51 indicators from 2009 were reassessed based on new data availability, evolving climate risks, and feasibility of ongoing monitoring.

   During the period from March 2021 through May 2022, Gorge Commission and USDA Forest Service staff held joint work sessions and partner work group meetings for all key VSI topic areas: climate change, natural resources, scenic resources, recreation, cultural resources, and economic vitality. The main factors considered for prioritizing Vital Sign topics for indicator development include connection to Management Plan, USDA Forest Service and Gorge Commission opportunity to affect resource condition, equity outcomes, and stressors to protected resources. Once Vital Sign topics were determined, indicators were developed and selected based on the following criteria:

   - **Measurable:** Indicators must have data already established and available whenever possible.
   - **Relevant to Management Actions:** Indicators should provide information on the condition of protected resources related to specific Management Plan provisions. Many potential indicators that are important for understanding the health of the NSA, but where the Commission has no ability to affect the condition, were eliminated based on this feasibility criteria.
   - **Clear:** Indicators should be understandable by the public and policymakers.
   - **Consistently Available:** Indicators data should be reliably available over time to track long-term status and trends.
   - **Obtainable:** Indicator data should be available through existing monitoring programs whenever possible.
   - **Cost-Effective:** Indicator data acquisition, analysis and reporting should make efficient use of limited financial and staff resources.
   - **Compelling Story:** While the above criteria were the primary criteria for selecting indicators, the ability of indicators to tell a *compelling story* that calls attention to the status of scenic, natural, cultural, and recreation resources, and economies, of the National Scenic Area, were also considered.

   In some cases, important metrics are not well suited to be indicators, such as the quality of priority heritage assets, which was considered as an archeological resource indicator, but we were able to incorporate learning opportunities for the Commission and public through annual reports or other avenues. To learn more about the specific rationale behind each Vital Sign Indicator please review the staff reports available on the CRGC website.

3. **Finalizing Full Indicator List:** Staff presented draft indicators to the Commission in phases, according to topic area. The timeline below highlights the main VSI Commission work sessions for each topic. Feedback from Commission work sessions, VSI work groups, and partner meetings guided refinements to methodologies and data sources. In December 2023, the Commission approved a final set of indicators designed to provide scientifically credible

insights, while remaining practical and sustainable for long-term monitoring. The approved list reflects several fundamental considerations:

- The Columbia River Gorge National Scenic Area is a complex, interconnected ecological and human system within a larger regional landscape. Vital Sign Indicators represent critical components of this system based on their connection to the Management Plan, however they do not capture all key attributes that could be monitored at various spatial and temporal scales.
- Vital Sign Indicators are interconnected and span multiple protected resources within the Management Plan. For example, cultural resources can include water and native plants and wildlife used for food, medicine, and ceremony, called First Foods by some Tribes. While the habitats that support these species may be described as natural resources in the Management Plan, we continue to learn from Tribal partners about the importance of holistic management approaches based on traditional knowledges that natural and cultural resources are connected. The VSI program seeks to honor this understanding through an integrated organization of Vital Signs that highlights relationships among resources and connections to specific Management Plan provisions as well.
- The VSI monitoring effort identifies the establishment of the CRGNSA in 1986 as a baseline year where possible, based on data availability for each topic. Historic data are available for some indicators.

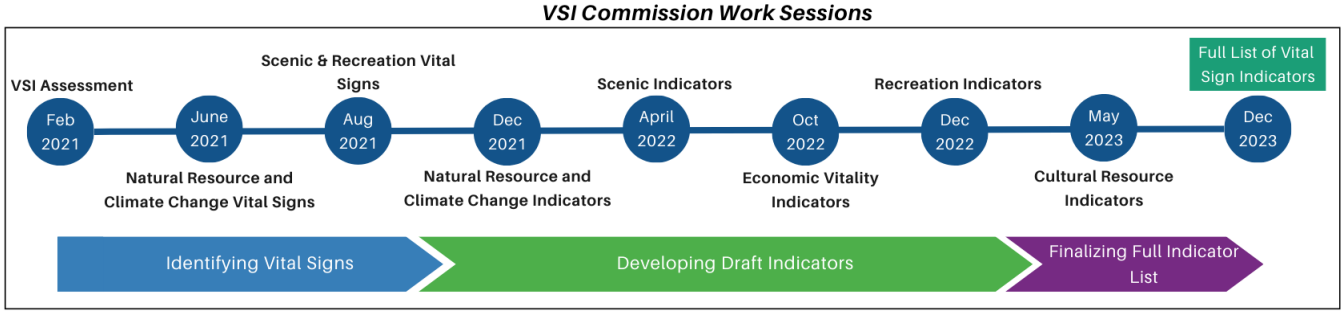


Figure 1. VSI update process timeline featuring Commission work sessions by topic.

The final 17 Vital Signs are included in the graphic below and a list of all indicators is included in the December 2023 Staff Report.

Figure 2. Final List of Vital Signs.

Staff reports throughout the VSI update process included appendices with tables describing how the updated Vital Sign Indicators build upon the 2009 Vital Sign Indicators, more details on the rationale explained herein, and details on considerations specific for each resource area. These past staff reports are available on the Gorge Commission website: https://www.gorgecommission.org/initiatives/vital-sign-indicators/.

Next Steps

The Vital Sign Indicators Program first annual report is scheduled for the summer of 2025. This report will be in the form of a public-facing data hub that will house the indicator data, outline key trends, explain the rationale behind each vital sign and allow users to explore different datasets simultaneously (such as land use designations alongside habitat indicators).

The next phase of the program will include the continuing support of monitoring across all the Vital Signs, and the establishment of desired conditions for indicators where appropriate. Development of desired conditions and thresholds will likely require research, consultation with experts and partners, and careful consideration of the Commission's role. Establishing a desired condition for achieving a "protection" goal presents a unique challenge, as it differs from a "restoration" goal tied to specific, measurable actions like restoring stream miles or acres. Discussion of such challenges and opportunities will be part of the next phase of the VSI program.

Appendix A: VSI Update Contributors

Thanks to all who contributed to the VSI update process from 2021-2023. Many of those below served on VSI work groups, shared technical expertise, and offered input during this period. We offer this list in gratitude for *all* who have shared their knowledge and feedback with us and acknowledge this list is not exhaustive of the network of people with whom we work. Thank you all for your support.

- Cascade Pika Watch Program, Oregon Zoo (Johanna Varner and Shervin Hess)
- Columbia Land Trust/East Cascades Oak Partnership (Mary Bushman, Lindsay Cornelius, Kat Shepard, and Stacy Simanonok)
- Columbia River Inter-Tribal Fish Commission (Elaine Harvey, Buck Jones, and Seth White)
- Columbia Gorge Tourism Alliance (Emily Reed)
- Confederated Tribes of the Umatilla Indian Reservation (Audie Huber, Joe Pitt, Colleen Sanders, and Kristen Tiede)
- Confederated Tribes of Warm Springs (Bobby Brunoe, Brad Houslet, Lyman Jim, Christian Nauer, Max Oates, and Austin Smith)
- Gorge Grown Food Network (Sarah Sullivan)
- Gorge Stewardship Network (includes many recreation partners)
- International Dark-Sky Association of Oregon (Michael McKeag)
- Mid-Columbia Economic Development District (Jessica Metta)
- National Ecological Observatory Network Program (Ben Vierra)
- Orchard View Farms (Ken Bailey)
- Oregon and Washington Investment Boards (Gil Kelley, OIB Chair)
- Oregon Department of Ecology (Smita Mehta)
- Oregon Department of Forestry (Kristen Dodd)
- Oregon Employment Department (Dallas Fridley)
- Oregon Governor's Office, Regional Solutions (Nate Stice)
- Oregon Parks and Recreation Department (Clay Courtright and David Spangler)
- Oregon State University Extension Service, Tree Fruit Horticulture (Ashley Thompson)
- Oregon Wheat Commission (Amanda Hoey)
- Skamania County Economic Development Council (Kevin Waters)
- Skamania County Planning Department (Alan Peters)
- Thrive Hood River (Heather Staten)
- Trailkeepers of Oregon (Steven Kruger)
- Underwood Conservation District (Carly Lemon and Tova Tillinghast)
- USDA Forest Service, Columbia River Gorge National Scenic Area (Nathaniel Brodie, Sarah Callaghan, Brett Carre, Chris Donnermeyer, Stephen Elgart, Aiden Forsi, Casey Gatz, Lorelei Haukness, Morai Helfen, Stan Hinatsu, Diane Hopster, Luciano Legnini, Donna Mickley, Brance Morefield, Roland Rose, Katie Santini, Jodi Schoenen, Tessa Smith, Christine Stillman, and Rashawn Tama)

- USDA Forest Service, National Air Resource Management and Lichen Monitoring Programs (Linda Geiser and Amanda Hardman)
- USDA Forest Service, Northwest Oregon Area Ecology Program (Doug Glavich and Upekala Wijayratne)
- USDA Forest Service, Pacific Northwest Research Station (Eric White)
- USDA Forest Service, Region 6 Air Quality Program (Rick Graw)
- USDA National Agriculture Statistics Service (Dave Losh)
- US Environmental Protection Agency (John Palmer and Mary Lou Soscia)
- US Geological Survey (Erik Beever, Tim Counihan, and Steve Waste)
- Washington Department of Natural Resources (Jennifer Watkins)
- Washington Department of Ecology (Ben Rau)
- Washington Employment Security Department (Scott Bailey)
- Washington Natural Heritage Program (Walter Fertig)
- Washington State Parks (Heath Yeats and Jill Sprance-Carr)
- Washington Trails Association (Ryan Ojerio)
- West Virginia University (Robert Burns)
- Yakama Nation (Casey Barney, Adrianne Grimm, Greg Kiona, Jessica Lally, and Noah Oliver)