Greenroads® Technical Report

Multnomah County | Earthquake Ready Burnside Bridge Project

Portland, OR

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Earthquake Ready Burnside Bridge Greenroads® Technical Report

Prepared for

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CERTIFICATION

The technical material and data contained in this document were prepared under the supervision and direction of the undersigned, as an envision professional.

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Appendix A. EQRB Greenroads Alignment Matrix at EIS Draft Phase A-1

Acronyms, Initialisms, and Abbreviations

API	Area of Potential Impact
CSZ	Cascadia Subduction Zone
EIS	environmental impact statement
EQRB	Earthquake Ready Burnside Bridge
ENV SP	Envision Professional
NEPA	National Environmental Policy Act of 1969
STP	Sustainable Transportation Professional (Greenroads Credential)

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1 Introduction

As a part of the preparation of the Environmental Impact Statement (EIS) for the Earthquake Ready Burnside Bridge (EQRB) Project, this technical report has been prepared to identify and evaluate Greenroads applicability within the Project's Area of Potential Impact (API). While Greenroads is not part of the formal NEPA review, using the rating system early in planning has provided criteria to confirm that the environmental process is considering a broad range of environmental, social, and economic factors. Greenroads will also inform the approach to design and construction by providing a standard by which to measure and manage project sustainability.

1.1 Project Location

The Project Area is located within the central city of Portland. The Burnside Bridge crosses the Willamette River connecting the west and east sides of the city. The Project Area encompasses a one-block radius around the existing Burnside Bridge and W/E Burnside Street, from NW/SW 3rd Avenue on the west side of the river and NE/SE Grand Avenue on the east side. Several neighborhoods surround the area including Old Town/Chinatown, Downtown, Kerns, and Buckman. Figure 1 shows the Project Area.

1.2 Project Purpose

The primary purpose of the Project is to build a seismically resilient Burnside Street lifeline crossing over the Willamette River that will remain fully operational and accessible for vehicles and other modes of transportation following a major Cascadia Subduction Zone (CSZ) earthquake. The Burnside Bridge will provide a reliable crossing for emergency response, evacuation, and economic recovery after an earthquake. Additionally, the bridge will provide a long-term safe crossing with low-maintenance needs.

Figure 1. Project Area

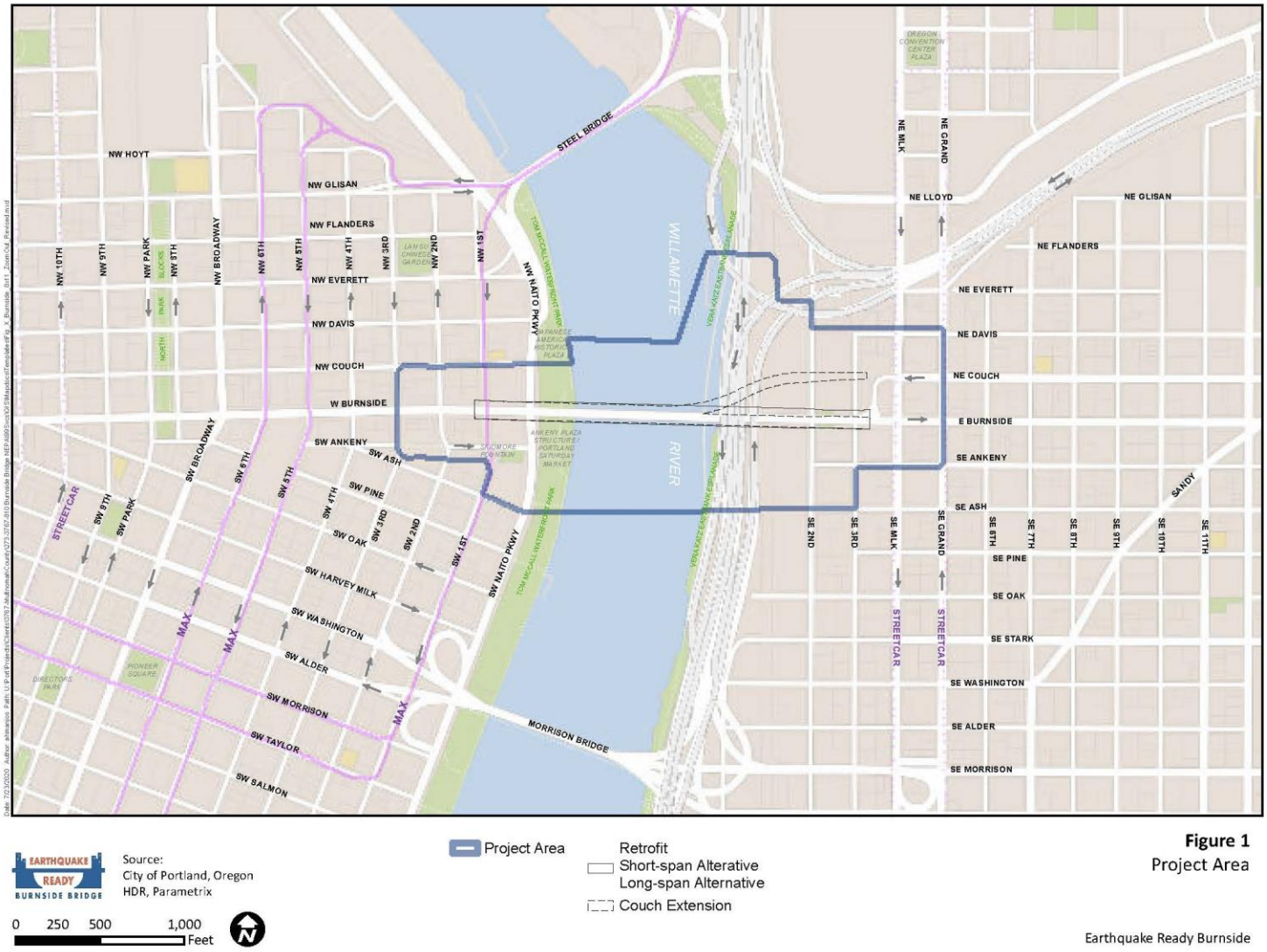

Figure 1
Project Area

Earthquake Ready Burnside

2 Project Alternatives

The project alternatives are described in detail with text and graphics in the *EQRB Description of Alternatives Report* (Multnomah County 2021). That report describes the alternatives' current design as well as operations and construction assumptions.

Briefly, the DEIS evaluates the No-Build Alternative and four Build Alternatives. Among the Build Alternatives there is an Enhanced Seismic Retrofit Alternative that would replace certain elements of the existing bridge and retrofit other elements. There are three Replacement Alternatives that would completely remove and replace the existing bridge. In addition, the DEIS considers options for managing traffic during construction. Nomenclature for the alternatives/options are:

- No-Build Alternative
- Build Alternatives:
  - Enhanced Seismic Retrofit (Retrofit Alternative)
  - Replacement Alternative with Short-span Approach (Short-span Alternative)
  - Replacement Alternative with Long-span Approach (Long-span Alternative
  - Replacement Alternative with Couch Extension (Couch Extension Alternative)
- Construction Traffic Management Options
  - Temporary Detour Bridge Option (Temporary Bridge) includes three modal options:
    - Temporary Bridge: All modes
    - Temporary Bridge: Transit, Bicycles and Pedestrians only
    - Temporary Bridge: Bicycles and Pedestrians only
  - Without Temporary Detour Bridge Option (No Temporary Bridge)

3 Definitions

The following terminology will be used when discussing geographic areas in the EIS:

- **Project Area –** The area within which improvements associated with the Project Alternatives would occur and the area needed to construct these improvements. The Project Area includes the area needed to construct all permanent infrastructure, including adjacent parcels where modifications are required for associated work such as utility realignments or upgrades. For the EQRB Project, the Project Area includes approximately a one-block radius around the existing Burnside Bridge and W/E Burnside Street, from NW/SW 3rd Avenue on the west side of the river and NE/SE Grand Avenue on the east side.

- **Area of Potential Impact (API) –** This is the geographic boundary within which physical impacts to the environment could occur with the Project Alternatives. The API is resource-specific and differs depending on the environmental topic being addressed. For all topics, the API will encompass the Project Area, and for some topics, the geographic extent of the API will be the same as that for the Project Area; for other topics (such as for transportation effects) the API will be substantially larger to account for impacts that could occur outside of the Project Area. The API for Greenroads applicability is defined in Section 4.1.
- **Project vicinity –** The environs surrounding the Project Area. The Project vicinity does not have a distinct geographic boundary but is used in general discussion to denote the larger area, inclusive of the Old Town/Chinatown, Downtown, Kerns, and Buckman neighborhoods.

4 Greenroads

4.1 Introduction

As part of the EQRB review and analysis, the project team is evaluating bridge design and construction topics from a sustainability and resiliency perspective using the Greenroads Project Rating Program. This analysis will support the overall decision-making framework. The following section describes the Greenroads program.

4.2 Greenroads Rating System

Established in 2010, Greenroads offers guidance to public entities that seek a resilient and sustainable future and are interested in measuring and managing sustainability on transportation projects like the EQRB Project. The Greenroads Foundation has developed a set of sustainability best practices, or credits, that relate to transportation design and construction. Projects that achieve these credits earn points, which can be used to calculate a "score" that provides an indicator of sustainability performance.

The Greenroads Project Rating Program requires project teams to exceed minimum environmental, social, and economic (i.e., Triple Bottom Line) practices, by documenting project performance and participating in an independent, third-party review. There are 61 credits in the current version of the Greenroads Rating System, and each sustainable practice is assigned a point value according to its lifecycle impact on a transportation project. Within the 61 credits, there are two types of credits:

1. Mandatory: All projects must complete these credits or they do not earn points.
2. Voluntary: Credits track different Triple Bottom Line measures against specific performance targets. They are intended to encourage behaviors and performance above and beyond minimum compliance.

Mandatory credits are called "Project Requirements," forming a baseline for a transportation project to be considered "green." No points are associated with these minimum expectations. They span a project's lifecycle, from early environmental planning through operational management. Voluntary credits are arranged in five Core

Categories, and a project team can choose to pursue them or not. The five categories are:

1. Environment & Water (10 credits and up to 30 points)
2. Construction Activities (11 credits and up to 20 points)
3. Materials & Design (6 credits and up to 24 points)
4. Utilities & Controls (8 credits and up to 20 points)
5. Access & Livability (10 credits and up to 21 points)

There are Extra Credits that can be achieved as well, related to Creativity & Effort. The total points associated with the achieved credits are summed to give a final Greenroads score. The more points, the higher the certification level. There are four Certification levels:

1. Bronze (40 points minimum)
2. Silver (50 points minimum)
3. Gold (60 points minimum)
4. Evergreen (80 points minimum).[1]

During the EIS phase, the Greenroads rating system is being used by the project team to understand how different design and construction options for the Burnside Bridge vary in terms of their sustainability value. It is by design that the framework is being used at this stage of the project; it is important to consider sustainability trade-offs early on, as many decisions that impact sustainability are made during the first phases of a project design.

4.2.1 Greenroads Framework Applicability to EQRB

To aid in understanding what is needed to support pursuing a Greenroads certification for the EQRB Project, an alignment matrix was developed to explore Greenroads credits in relation to project phases – planning, design, construction, and O&M – as well as which associated documents would be useful in substantiating project processes and decisions in the eventual submittal to Greenroads. Refer to the EQRB Greenroads Alignment Matrix at Draft EIS Phase (Appendix A).

The matrix is organized by Greenroads credits, cross-referenced by related phases. Each phase lists related tasks and/or notes and potential additional effort that could improve sustainable performance.

Greenroads certification includes Alignment Ratings that can be completed at various project milestones to demonstrate that the project is progressing toward a certification at the end of construction. The matrix outlines which credits are required and optional for the Alignment Milestone Rating. To complete an Alignment Milestone Rating, six Project Requirements must be fulfilled, and the project must satisfy the criteria and provide documentation to support credits that total at least 20 points (of 57 available optional points). Additional Greenroads Project Requirements and credits may be eligible for extra credit points in the Creativity & Effort category for Credit CE – 3 Enhanced

[1] Greenroads website: https://www.greenroads.org/howitworks

Performance. Credits needed for the Alignment Milestone Rating primarily correspond to documentation available from the environmental documentation and project design.

4.2.2 Overview of Limitations at this Phase of the Project

As the project progresses, the project team will need to review all Greenroads credits to confirm which credits the project plans to pursue. For each of those credits, there may be multiple potential pathways and/or multiple approaches to achieving points within the rating system. The documentation needs will be dependent on which approach(es) are selected. Once determinations are made, the project team can be more specific as to what direction should be discussed related to design and construction. Listed EIS documentation from this tool may be a foundation to responding to the Greenroads credits, but many will likely need additional information from other sources. Some of those sources are listed in the "Related Tasks" column and others will arise as the project progresses (Appendix A).

The Greenroads process began very early for this project, which provides substantial benefits to more easily achieving prerequisites. This also provides opportunities for input into the design and construction phases to ensure the project takes advantage of opportunities to improve sustainable performance. The project team will want to keep sustainability and Greenroads on meeting agendas to make sure the topics continue to receive attention as the project progresses.

Greenroads issued version 3 (v3) for public comment in September 2020. At that time, Greenroads also published a beta version of the v3 checklist. A preliminary evaluation was completed based on the beta and the matrix was updated to indicate apparent relationships between v2 and v3 credits, as well as credits newly introduced in v3. A "v3 notes" column was added to the "EQRB Greenroads Alignment Matrix" to note differences between v2 and v3. The public comment period for v3 ended on November 6, 2020. Credit changes should be reviewed again once v3 is launched. The Greenroads organization has committed to supporting the EQRB Project through the transition to the new version of the rating system.

5 Preparers

Name	Professional Affiliation [firm or organization]	Education [degree or certification]	Years of Experience
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6 References

Greenroads Foundation.
2020 https://www.greenroads.org/howitworks

Multnomah County
2021 EQRB Description of Alternatives Report. https://multco.us/earthquake-ready-burnside-bridge/project-library

Appendix A. EQRB Greenroads Alignment Matrix at EIS Draft Phase

Appendix A: EQRB Greenroads Alignment Matrix at EIS Draft Phase - Greenroads v3 Comparison

Green shading denotes phase related to Greenroads

v3 Credit	Related v2 Credit(s)	V3 Points	Related Tasks include, but are not limited to: *[NEPA Tasks in blue if drafted, in red if needed]*	v3 Notes	EIS Phase Notes or Potential additional LOE	Design Phase Notes or Potential additional LOE	Construction Phase Notes or Potential additional LOE
Project Requirements							
PR-1 Ecological Impact Analysis	PR-1 Ecological Impact Analysis	Required	Task 3.2.20 Cumulative Effects Task 3.3 Permitting and Approval Support **a. Air, surface water, groundwater, stormwater, earthen materials, and energy** - Task 3.2.11 Air - Task 3.2.13 Wetlands and Waters - Task 3.2.10 Soils, Geology and Hazardous Materials - Task 3.2.15 Stormwater **b. Noise, odor, light, and glare** - Task 3.2.12 Noise and Vibration - Task 3.2.5 Visual Resources (minimal mention of light and glare impacts) **c. Wildlife and vegetation** - Task 3.2.16 Vegetation, Wildlife and Aquatic Species - Task 3.3.1 Endangered Species analysis and ESA Section 7 compliance (Biological Assessment) (est. Fall 2020) **d. Environmental hazards, including spills and contamination** - Task 3.2.10 Soils, Geology and Hazardous Materials **e. Environmentally sensitive or critical areas** - Task 3.2.16 Vegetation, Wildlife and Aquatic Species - Task 3.3.1 Endangered Species analysis and ESA Section 7 compliance (Biological Assessment) (est. Fall 2020) - Task 3.2.12 Noise and Vibration **f. Land use, farmland, floodplain designation, and shoreline** - Task 3.2.1 Economic Impact - Task 3.2.1 Land Use	No significant changes from v2 to v3.	This credit is primarily about project evaluation. The detailed evaluations cover most of the requirements. These documents will need to be supplemented with other information for energy impacts, light, glare and odor. It is anticipated that the following can be used: Energy use will be quantified using FHWA ICE. *Light and glare impacts generally addressed in the EIS. Light and glare credits appear to have been removed from v3. Contractor will need to confirm if those criteria have been included with this updated credit or added to another at Design or Construction Phase for documentation.*		
PR-2 Energy & Carbon Footprint	PR-2 Energy & Carbon Footprint	Required	Task 3.2.11 Air Task 3.2.18 Sustainability and Climate Change	No signifcant changes, although the requirements include a little more detail on required inventory lifecycle phases. This credit will likely require an additional level of effort over typical projects.	It appears using the FHWA Infrastructure Carbon Estimator will meet the credit requirements. **Confirm that all required elements are included.**		
PR-3 Low Impact Development	PR-3 Low Impact Development	Required	Task 3.2.10 Soils, Geology and Hazardous Materials Task 3.2.15 Stormwater Task 4.4 Roadway Engineering and Geometric Approval	No significant changes from v2 to v3.	Information from noted tasks likely will support this credit. Given the urbanized area and existing bridge, stormwater treatment is likely to be a 'capture, hold and treat' system in coordination with the City. There are few infiltration options or vegetated areas that can provide LID opportunities in the project area if continued to be planned/designed for.		
PR-4 Social Impact Analysis	PR-4 Social Impact Analysis	Required	Task 3.2.1 Economic Impact Task 3.2.1 Land Use Task 3.2.2 Displacements and Relocations Task 3.2.3 Neighborhoods and Social Environment Task 3.2.4 Environmental Justice and Equity Task 3.2.5 Visual Resources ~~Task 3.2.6 Urban Design~~ Task 3.2.7 Parks and Recreation Task 3.2.8 Archaeological and Historic Preservation Task 3.2.9 Public Services and Utilities Task 4.6 Multimodal Transportation Analysis and Design Task 4.7 Transit Analysis and Design Criteria Task 4.8 Freight Rail Analysis and Design Task 4.9 River Navigation Study Task 4.11 Utility Technical Report Task 5.1 Transportation Analysis and Operations	Credit update removes these requirements: - Demonstrate that the social evaluation process has been completed prior to the start of detailed design during project development and before any construction has begun. - List any necessary approvals and/or permits required to perform the work and identify the governing authorities for the approvals and/or permits. - List the parties that performed or contributed to the social impact evaluation and a short description of their scope of work Credit update adds the statement: "**prepare a comprehensive study** describing how the social impacts of the Project will be managed by the Project Team."	Team will need to review additional reports as they become available to compare transportation reports to required social impact criteria.		
PR-5 Participatory Planning	PR-5 Community Engagement	Required	Task 6 Public Involvement Task 9.8 Public Involvement	Credit update adds: The Project Team must also prepare a record of comments and responses demonstrating how the community, agency, and stakeholder input influenced the final proposed design. A completed response matrix shall: • Include all comments provided by responsive parties with a written answer • Be available to the public		If not already planned, create an overall Community Engagement Plan (CEP) for the project that incorporates EIS public involvement activities and those going forward through design, and construction.	
PR-6 Lifecycle Cost Analysis	PR-6 Lifecycle Cost Analysis	Required	Task 4.13 Constructability And Cost Estimating Task 5.2 Preliminary Tolling Feasibility Analysis Task 9.6.2 Bridge Design and Analysis Task 9.6.12 Constructability and Cost Estimating	No significant changes from v2 to v3.		Compile a lifecycle cost analysis (LCCA) report for the final alternative. **Greenroads has a LCCA tool and FHWA has LCCA tools available**, including download of RealCost software, which provides a tool to perform an LCCA in accordance with FHWA best practice methods.	
PR-7 Workzone Environmental Management	PR-8 Pollution Prevention CA-1 Environmental Excellence	Required	None - Construction specific	Workzone Environmental Management was Path 1 under CA-1 Environmental Excellence in v2. As a full credit, this now requires the contraactor to establish, implement, and maintain a formal, comprehensive Construction Environmental Management Plan (CEMP) that applies throughout construction and to all subcontractors. Review credit for CEMP elements and other requirements.		Note for design phase so contractor direction can be included in specifications if Path 1 is selected, i.e., certified prime contractor or construction management team with an ISO 14001 EMS, designated environmental compliance manager, or Environmental Training.	Designated environmental compliance manager or Environmental Training.
PR-8 Workzone Waste Management	PR-9 Waste Management	Required	None - Construction specific	Credit update adds: Designate a suitably qualified waste management officer(s) who is accountable for waste management operations on the Project's construction site for the entire duration of the Project.		Note for design phase so contractor direction can be included in specifications. Establish, implement, and maintain a formal Construction and Demolition Waste Management Plan (CWMP).	Establish, implement, and maintain a formal Construction and Demolition Waste Management Plan (CWMP).
PR-9 Workzone Health & Safety	CA-2 Workzone Health & Safety	Required	None - Construction specific	Combines both paths and options from CA-2 Workzone Health & Safety into one credit with multiple requirements.		Note for design phase so contractor direction can be included in specifications if Path 1 is selected, i.e., certified prime contractor or construction management firm with an OSHAS 18001 Health & Safety Management System, Job Hazard Analyses and/or Safety Officer.	Job Hazard Analyses and/or Safety Officer.
PR-10 Workzone Quality Management	PR-7 Quality Control CA-3 Quality Process	Required	None - Construction specific	Credit update adds: - Designate a suitably qualified quality control officer who is accountable for quality management on the Project's construction site. - Maintain records of quality control monitoring for all activities throughout construction. - Report any modifications to the QCP throughout construction.		Note for design phase so contractor direction can be included in specifications. The prime contractor shall establish, implement, and maintain a formal construction Quality Control Plan.	Establish, implement, and maintain a formal construction Quality Control Plan.
PR-11 Coordinated Utilities	PR-11 Utility Conflict Analysis UC-1 Utility Upgrades	Required	Task 3.2.9 Public Services and Utilities Task 4.8 Freight Rail Analysis and Design Task 4.11 Utilities Coordination Task 9.6.10 Utilities Coordination Task 3.2.1 Economic Impact Task 4.11 Utilities Coordination Task 9.6.10 Utilities Coordination	Credit update adds: Completing a utility conflict matrix (UCM), plan drawing, or spreadsheet(s) and notes required content.			
PR-12 Asset Management	PR-12 Asset Management Systems	Required	This credit is Maintenance specific. There may be related information in Task 4.13 Constructability and Cost Estimating re: 20-year maintenance costs.	Credit update adds detail, including: Summarize the planned site maintenance activities and asset management system(s) in place and effective at the end of construction for the Project area. Prepare a table, spreadsheet, geographic information system, or other contract record documenting asset management procedures and systems benefiting the project and reporting for each activity:			

Appendix A: EQRB Greenroads Alignment Matrix at EIS Draft Phase - Greenroads v3 Comparison

	v3 Credit	Related v2 Credit(s)	V3 Points	Related Tasks include, but are not limited to: *[NEPA Tasks in blue if drafted, in red if needed]*	v3 Notes	*Green shading denotes phase related to Greenroads* EIS Phase Notes or Potential additional LOE	Design Phase Notes or Potential additional LOE	Construction Phase Notes or Potential additional LOE
		Environment and Water						
Environment and Water	EW-1 Climate Preparedness & Resilience	EW-1 Preferred Alignment		Task 3.3.1 Endangered Species analysis and ESA Section 7 compliance (Biological Assessment) (est. Fall 2020) Task 3.2.13 Wetlands and Waters Task 3.2.1 Economic Impact Task 3.2.1 Land Use Task 3.2.16 Vegetation, Wildlife and Aquatic Species Task 3.2.18 Sustainability and Climate Change Task 3.3.7 Natural Resources Agency Working Group Task 4.2 Bridge Seismic Retrofit Design and Analysis Task 4.3 Bridge Replacement Design and Analysis	v3 separates and details several options that were included in 1 credit (EW-1 Preferred Alignment) in v2. This credit is far more detailed than the instructions under v2, including requirements to Complete a Climate Change Vulnerability Assessment. See v3 for details.			
	EW-2 Responsible Siting	EW-1 Preferred Alignment	1-3	Task 3.3.1 Endangered Species analysis and ESA Section 7 compliance (Biological Assessment) (est. Fall 2020) Task 3.2.13 Wetlands and Waters Task 3.2.1 Economic Impact Task 3.2.1 Land Use Task 3.2.16 Vegetation, Wildlife and Aquatic Species Task 3.2.18 Sustainability and Climate Change Task 3.3.7 Natural Resources Agency Working Group Task 4.2 Bridge Seismic Retrofit Design and Analysis Task 4.3 Bridge Replacement Design and Analysis	v3 separates and details several options that were included in 1 credit (EW-1 Preferred Alignment) in v2. This credit is far more detailed than the instructions under v2, and has two path options for fulfiling requirements: Environmentally Preferred Site and Socioeconomically Preferred Site. See v3 for details.			
	EW-3 Habitat Conservation	EW-3 Habitat Conservation	1-3	Task 3.3.1 Endangered Species analysis and ESA Section 7 compliance (Biological Assessment) (est. Fall 2020) Task 3.2.13 Wetlands and Waters Task 3.2.16 Vegetation, Wildlife and Aquatic Species	Credit is much more detailed in v3 than it was in v2. It is possible that additional effort would be needed for the patch connectivity or pollinator habitat calculations. Review with EW-4 for overlap in tasks and effort.		Criteria: Preserve, create or restore habitat areas outside the project as part of the project budget and scope, equal to or greater than the minimum restoration area. See manual for calculation. Related preservation or restoration efforts will be defined in ROD and in later permits.	
	EW-4 Ecological Connectivity	EW-2 Ecological Connectivity	1-3	Task 3.3.1 Endangered Species analysis and ESA Section 7 compliance (Biological Assessment) (est. Fall 2020) Task 3.2.12 Noise and Vibration Task 3.2.16 Vegetation, Wildlife and Aquatic Species	Credit expands detail and requirements from v2. Points are now awarded for decreasing the barrier effect index or increasing crossing opportunities. Review with EW-3 for overlap in tasks and effort.		Criteria: Mitigate any and all losses in connective spaces and roosting areas, such that mitigation efforts result in no net loss of connectivity within and immediately adjacent to the Project boundary. Related mitigation efforts will be part of ROD and later permits.	
	EW-5 Landscaping & Biodiversity	EW-2 Ecological Connectivity EW-5 Vegetation Quality	1-3	Task 3.2.16 Vegetation, Wildlife and Aquatic Species	Credit has changed significantly from v2 credits that reference biodiversity. It is likely that the EIS reports meet some requirements, but additional work may be needed to fulfill either calculation, for patch density or species richness.		*Vegetation must be a part of the Project budget and scope to earn this credit.* Note for design phase: Project plant palette and landscaping plan is determined by a registered landscape architect and: - Does not use invasive species and/or - Removes invasive species; and removes and replants unhealthy vegetation and/or - Uses vegetation species that are native or adapted	
	EW-6 Site Remediation	EW-6 Soil Management	1-3	Task 3.2.10 Soils, Geology and Hazardous Materials	Credit uses requirements from one path in v2 EW-6. Credit requirements include selecting property with known or suspected contaminated soil or groundwater. Check applicability to project.		Prepare calculations showing the project does up to three of the following: - Does not import fill materials. - Does not export fill, topsoil, or clearing and grubbing materials. - Balances cut and fill volumes within 10% export/import volumes. - Improves the haul efficiency for the Project by at least 10% from the baseline haul conditions.	Prepare calculations showing the project does up to three of the following: - Does not import fill materials. - Does not export fill, topsoil, or clearing and grubbing materials. - Balances cut and fill volumes within 10% export/import volumes. - Improves the haul efficiency for the Project by at least 10% from the baseline haul conditions.
	EW-7 Watershed Restoration	EW-4 Land Use Enhancements	1-3	Task 3.2.13 Wetlands and Waters Task 3.2.14 Hydraulics	Path 1 in this credit, Reduce Hardscape is taken from v2 EW-4. Path 2, Stream Daylighting, is new and requires daylighting feasibility study.			
	EW-8 Runoff Flow Control	EW-8 Runoff Flow Control	1-3	Task 3.2.13 Wetlands and Waters Task 3.2.14 Hydraulics Task 3.2.15 Stormwater Task 3.2.10 Soils, Geology and Hazardous Materials Task 4.4 Roadway Engineering and Geometric Approval	Credit similar to v2 requirements. Add requirement for preparing a design study addressing the stormwater, snowmelt, and other hydraulic or hydrological conditions relevant to the project area; and calculating • Historic Total Discharge Volume (HDV).	Will the project **reduce or eliminate stormwater** flow impacts to receiving water bodies due to the Project? Yes. Stormwater runoff from the bridge will be captured and treated with any build alternative. Preliminary calculation provided in the DEIS.		
	EW-9 Enhanced Treatment - Metals	EW-9 Enhanced Treatment: Metals	1-3	Task 3.2.10 Soils, Geology and Hazardous Materials Task 3.2.15 Stormwater	Credit requirements appear to be similar, but add the task of preparing a design study addressing the stormwater, snowmelt, and other hydraulic or hydrological conditions relevant to the project area.		Will the project provide stormwater treatment to remove metals? Project will be required to treat stormwater runoff (and prevent from entering river) in accordance with NPDES. This may not meet requirements of this credit, as criteria note that "Pretreatment must be applied to all stormwater leaving the project boundary to earn points for this credit."	
	EW-10 Enhanced Treatment - Non-Metals	EW-10 Oil & Contaminant Treatment	1-3	Task 3.2.10 Soils, Geology and Hazardous Materials Task 3.2.15 Stormwater	Credit requirements appear to be similar, but add the task of preparing a study addressing the stormwater, snowmelt, and other hydraulic or hydrological conditions relevant to the project area.		Will the project provide stormwater treatment to reduce oils and non-metal contaminants? Project will be required to treat stormwater runoff (and prevent from entering river) in accordance with NPDES. This may not meet requirements of this credit, as criteria note that "Pretreatment must be applied to all stormwater leaving the project boundary to earn points for this credit."	

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	v3 Credit	Related v2 Credit(s)	V3 Points	Related Tasks include, but are not limited to: *[NEPA Tasks in blue if drafted, in red if needed]*	v3 Notes	*Green shading denotes phase related to Greenroads* EIS Phase Notes or Potential additional LOE	Design Phase Notes or Potential additional LOE	Construction Phase Notes or Potential additional LOE
		Construction Activities						
Construction Activities	CA-1 Accelerated Construction	CA-7 Accelerated Construction	1	Task 4.4 Roadway Engineering and Geometric Approval Task 5.1 Transportation Analysis and Operations Task 9.7.1 Traffic Analysis and Operations			Note for design phase so contractor direction can be included in specifications if pursuing Path 1 on this credit, re: preparing the Project work schedule such that the Project has no impact on peak hour traffic, and/or preparing a workzone user cost analysis.	Preparing the Project work schedule such that the Project has no impact on peak hour traffic, and/or preparing a workzone user cost analysis.
	CA-2 Workzone Connectivity		1	Potential that technical reports could support credit as background information.				
	CA-3 Smart Site Preparation		1	Potential that technical reports could support credit as background information.				
	CA-4 Haul Efficiency	CA-4 Equipment Fuel Efficiency	1-3 1	None - Construction specific			Note for design phase so contractor direction can be included in specifications if pursuing this credit, re: preparing an equipment-tracking spreadsheet and reporting the total number of operating hours for construction equipment that avoided diesel fuel or gasoline.	Preparation of an equipment-tracking spreadsheet and reporting the total number of operating hours for construction equipment that avoided diesel fuel or gasoline.
	CA-5 Green Fleet	CA-4 Equipment Fuel Efficiency	1-3 1	None - Construction specific			Note for design phase so contractor direction can be included in specifications if pursuing this credit, re: preparing an equipment-tracking spreadsheet and reporting the total number of operating hours for construction equipment that avoided diesel fuel or gasoline.	Preparation of an equipment-tracking spreadsheet and reporting the total number of operating hours for construction equipment that avoided diesel fuel or gasoline.
	CA-6 Enhanced Workzone Health		1-2	None - Construction specific				
	CA-7 Mental Health Awareness		1-2	None - Construction specific				
	CA-8 Sustainability Excellence	CA-1 Environmental Excellence	1-3	None - Construction specific			Note for design phase so contractor direction can be included in specifications if Path 1 is selected, i.e., certified prime contractor or construction management team with an ISO 14001 EMS, designated environmental compliance manager, or Environmental Training.	Designated environmental compliance manager or Environmental Training.
		Procurement & Delivery						
Procurement & Delivery	PD-1 Local Jobs	CA-11 Local Economic Developmen	1	None - Construction specific *Note - May be supported programs the agency already has in place.	v3 separates and details two paths that were included in credit CA-11 Local Economic Development in v2. Local Employment was path 2. This credit is similar to the path requirements, and adds one additional calculation option.		Consult Multnomah County implemented a Sustainable Purchasing and Social Equity Policy. Determine if policy directives meet criteria or if anything else needs to be specified for contractor to fulfill credit requirements.	
	PD-2 Early Contractor Involvement		1		New credit.			
	PD-3 Small Business Opportunities	CA-11 Local Economic Development	1	*Note - May be supported programs the agency already has in place.	v3 separates and details two paths that were included in credit CA-11 Local Economic Development in v2. Small Business Engagement was path 1. This credit is now more detailed, with four alternatives for calculating SBE and/or DBE engagement.			
	PD-4 Sustainable Transport Professionals	CE-1 Educated Team	1-2	Information about project team	Credit similar to v2 requirements.			
	PD-5 Workforce Development Goals	CA-10 Fair & Skilled Labor	1	*Note - May be supported programs the agency already has in place.	v3 separates and details two paths that were included in credit CA-10 Fair & Skilled Labor in v2. Education and Skill Development was path 2. Credit is similar to path requirements.			
	PD-6 Fair Labor Practices	CA-10 Fair & Skilled Labor	1	None - Construction specific *Note - May be supported programs the agency already has in place.	v3 separates and details two paths that were included in credit CA-10 Fair & Skilled Labor in v2. Equitable Employment was path 1. Credit is similar to path requirements. PD-6 adds a Tean Diversity path.		Consider how Multnomah County's construction workforce development approach can meet some of the credit criteria and if anything else needs to be done to fulfill credit requirements.	
	PD-7 Ethics & Integrity	CA-8 Procurement Integrity	1	None	Credit is similar to v2, but Scoring Criteria is more detailed.		Likely something the agency would develop and implement for design and construction consultants. "Develop an ethics program for all parties on the Project that meets the standards outlined in the Federal Acquisition Regulation (2011) and the Contractor Code of Business Ethics and Conduct (2015)."	
	PD-8 Sustainable Finance		1		New credit.			
	PD-9 Green Incentives		1		New credit.			
	PD-10 Construction Performance	CA-3 Quality Proccess	1		Path 1 in this credit, Extended Warranty is taken from v2 CA-3 Quality Process. Path 2, Pay for Performance, is new and requires the project team to establish performance criteria with procedures for corrective action for each work area in all construction contracts related to the project for a minimum of 5 years.			

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	v3 Credit	Related v2 Credit(s)	V3 Points	Related Tasks include, but are not limited to: *[NEPA Tasks in blue if drafted, in red if needed]*	v3 Notes	*Green shading denotes phase related to Greenroads* EIS Phase Notes or Potential additional LOE	Design Phase Notes or Potential additional LOE	Construction Phase Notes or Potential additional LOE
	Materials & Production							
Materials & Production	MP-1 Long-Life Design	MD-6 Long-Life Design	1-5	Task 4.12 Survey Task 4.2 Bridge Seismic Retrofit Design and Analysis Task 4.3 Bridge Replacement Design and Analysis Task 4.4 Roadway Engineering and Geometric Approval Task 5.1 Transportation Analysis and Operations Task 9.6.2 Bridge Design and Analysis Task 9.7.1 Traffic Analysis and Operations Task 9.9 Bridge Type Selection Methodology and Report	Credit similar to v2 requirements.		Likely additional LOE later in project to compile a report for this credit. Note for design phase, 3 optional calculations to fulfill credit requirements: - Long Life Criteria - 75-year design life and/or 100-year minimum expected service life for new and replaced or reconstructed major structures. - Extended Service Criteria - At least 5-year service life extension or 20% longer than the age of the facility, whichever is greater.	
	MP-2 Resource Tracking		1-2	None	New credit, although tracking was included in various credits in v2.			
	MP-3 Preservation & Reuse	MD-1 Preservation & Reuse	1-5	None	Credit seems similar to v2 requirements. Credit requirements mentions calculation, but those aren't yet available online.		Note for design phase, consider if the project can preserve and reuse at least 50% of existing material within the Project boundary. May need to include direction to contractor for preparing a spreadsheet that calculates the overall percentage of material reused by volume. Can received extra credit by preparing a bid alternate that includes a complete remove-and-replace alternative and compute the difference in cost.	Contractor preparation of spreadsheet that calculates the overall percentage of material reused by volume.
	MP-4 Recycled & Recovered Content	MD-2 Recycled & Recovered Content	1-3	None	Credit seems similar to v2 requirements. Credit requirements mentions calculation, but those aren't yet available online.		Note for design phase, consider if the project can use recycled or recovered materials for any one of the following -- binder materials and reinforcing steel, Hot Mix Asphalt and Portland Cement Concrete, all structural materials -- or all project materials. Extra credit for keeping track of material and product costs and highlight savings (or additional expenses) for materials and products with recycled and recovered content.	
	MP-5 Local Resources	MD-5 Local Materials	1-3	None	Credit seems similar to v2 requirements. Credit requirements mentions calculation, but those aren't yet available online.		Note for design phase, consider if the project can specify purchase of local materials, parts, components, and products. May need to include direction to contractor for computing total cost of materials and percentage of total cost that has been paid to materials suppliers, processors, distributors, and producers within a 50-mile radius.	Computation of total cost of materials and percentage of total cost that has been paid to materials suppliers, processors, distributors, and producers within a 50-mile radius.
	MP-6 Responsible Sourcing		1-3	None	New credit.			
	MP-7 Environmental Product Declarations	MD-3 Environmental Product Declarations	1-5	None	Credit similar to v2 requirements.		Note for design phase, consider if the project can list all products used on the Project and identify products with an environmental product declaration (EPD).	
	MP-8 Health Product Declarations	MD-4 Health Product Declarations	1-2	None	Credit similar to v2 requirements.		Note for design phase, consider if the project can list all products used on the Project and identify products with health product declaration (HPD).	
	Energy & Mobility							
Energy & Mobility	EM-1 Electric Vehicle Infrastructure	UC-3 Electric Vehicle Infrastructure	1	None	Credit similarities to v2 credit UC-3 Electric Vehicle Infrastructure path 1, but more detail required.		Note for design phase, consider connected vehicle infrastructure; Complete a feasibility study for installation of vehicle-to-infrastructure (V2I) technology.	
	EM-2 Smart Infrastructure	UC-3 Electric Vehicle Infrastructure	1	Potential that technical reports could support credit.	Credit similarities to v2 credit UC-3 Electric Vehicle Infrastructure path 2, but more detail required.			
	EM-3 Energy Efficiency	UC-4 Energy Efficiency	1		Credit similar to v2 requirements.	Energy and lighting not detailed in EIS.	This credit has two paths. - Path 1. Reduced Energy Use - Create an energy model of existing conditions for lighting and control systems on the Project. Compute baseline energy use. - Path 2. Energy Efficient Systems - Create an energy model of the annual baseline energy use for the Project using standard lighting and controls according to Project Owner's standard specifications. Note for design phase for either path: select, specify, and install fixtures, controls, and systems that can reduce Project electricity demand. Compute the net change from baseline.	
	EM-4 Renewable Energy	UC-5 Alternative Energy	1-3		Credit moves from a baseline calculation to lifecycle energy cost model; 3 calculation options: Renewable Energy Systems, Renewable Energy Credits, Clean Power Grid	Energy and lighting not detailed in EIS.	If pursuing this credit, - Compute the baseline annual energy requirements for all electrical components projected for the as-built condition on the Project for typical operation. - Include electrical components powered by alternative energy systems to offset at least 50% of the project's total annual energy requirements.	
	EM-5 Multimodal Connectivity	AL-3 Multimodal Connectivity	1-3	Task 2.5/Task 9.2.4 Other Agency and Focus Group Meetings Task 3.2.5 Visual Resources ~~Task 3.2.6 Urban Design~~ Task 3.2.9 Public Services and Utilities Task 4.4 Roadway Engineering and Geometric Approval Task 4.6 Multimodal Transportation Analysis and Design (Bicycles, Pedestrian, AND ADA) Task 4.7 Transit Analysis and Design Criteria Task 4.8 Freight Rail Analysis and Design Task 4.9 River Navigation Study Task 5.1 Transportation Analysis and Operations Task 6.4.5 Canvassing and Intercept Surveys Task 9.6.5 Multimodal Transportation Analysis and Design Task 9.6.6 Transit Analysis and Design Task 9.6.7 Freight Rail Analysis and Design	Requirements for this credit are changed rather substantially. New requirements include: 1. Prepare a traffic analysis for peak hour traffic, comparing baseline and proposed conditions. 2. Establish the baseline level of service, expressed as delay per traveler per mode. 3. Compute the proposed multimodal level of service (MMLOS) achieved and user delay reduced for priority modes in the as-built condition, including all modes. 4. Install emergency vehicle priority systems at 100% signalized crossings. 5. Install systems that prioritize non-motorized modes and/or transit. 6. Prepare a map with the locations of the proposed systems. There are 3 calculation options: Multimodal Level of Service (MMLOS), HOV and Transit Priority, and Non-Motorized Priority			
	EM-6 Multimodal Priority		1-3	Potential that technical reports could support credit.	New credit - Credit is in design.			
	EM-7 Travel Time Reliability	UC-8 Travel Time Reduction	1	Task 5.1 Transportation Analysis and Operations Task 9.7.1 Traffic Analysis and Operations	Credit similar to v2 requirements; requirements overlap with EM-5 Multimodal Connectivity			
	EM-8 Air Emissions Reduction	UC-7 Traffic Emissions Reduction	1-5	Task 3.2.11 Air	Credit is in design.			
	EM-9 Measurement & Verification		1-5	Potential that technical reports could support credit.	Credit is in design.			

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	v3 Credit	Related v2 Credit(s)	V3 Points	Related Tasks include, but are not limited to: [*NEPA Tasks in blue if drafted, in red if needed*]	v3 Notes	*Green shading denotes phase related to Greenroads* EIS Phase Notes or Potential additional LOE	Design Phase Notes or Potential additional LOE	Construction Phase Notes or Potential additional LOE
		Access & Livability						
Access & Livability	AL-1 Active Transportation	AL-5 Active Transportation	1-2	Task 3.2.1 Economic Impact Task 3.2.1 Land Use ~~Task 3.2.6 Urban Design~~ Task 4.4 Roadway Engineering and Geometric Approval Task 4.6 Multimodal Transportation Analysis and Design (Bicycles, Pedestrian, AND ADA) Task 4.7 Transit Analysis and Design Criteria Task 5.1 Transportation Analysis and Operations Task 9.6.5 Multimodal Transportation Analysis and Design Task 9.6.6 Transit Analysis and Design	Credit is in design.			
	AL-2 Safety & Security Audits	AL-1 Safety Audit	1-2	Task 2.5/9.2.4 Other Agency & Focus Group Meetings Task 5.1 Transportation Analysis and Operations Task 6 Public Involvement Task 6.4.5 Canvassing and Intercept Surveys Task 9.8 Public Involvement	The credit's Path 1: Formal Safety Audit is similar to v2, with more detailed requirements. Path 2: Site Security Audit is new.		Conduct design safety audit before construction begins OR Note for design phase so contractor direction for conduct an as-built safety audit during construction can be included in specifications.	Conduct as-built safety audit during construction but prior to opening to traffic.
	AL-3 Safety Enhancements	AL-2 Safety Enhancements	1-2	Task 2.5/9.2.4 Other Agency & Focus Group Meetings Task 4.2 Bridge seismic retrofit design and analysis Task 4.3 Bridge replacement design and analysis Task 4.4 Roadway engineering and geometric approval Task 5.1 Transportation Analysis and Operations	Credit is in design.			
	AL-4 Emergency Preparedness & Recovery		1-2		New credit.		Note for design phase, consider credit criteria for maintenance activities and vehicles, emergency vehicle services, distressed vehicles, and related signage.	
	AL-5 Healthy & Quiet Places	AL-6 Health Impact Analysis	1-3	Task 3.2.19 Health Impact Assessment Coordination Air pollution - Task 3.2.11 Air Environmental health hazards - Task 3.2.10 Soils, Geology and Hazardous Materials Safety and accessibility / Active Transportation - Task 4.6 Multimodal Transportation Analysis and Design - Task 4.7 Transit Analysis and Design Criteria - Task 5.1 Transportation Analysis and Operations - Evaluation Criteria and process (used to rate the alternatives for selecting a preferred alternative) included Crime and Personal Safety Health Demographics	Credit is in design.	HIA is important to documenting this credit.	-	-
	AL-6 Reconfigured Spaces	EW-4 Land Use Enhancements	1-3	Task 3.2.1 Economic Impact Task 3.2.1 Land Use Task 3.2.5 Visual Resources ~~Task 3.2.6 Urban Design~~ Task 3.2.7 Parks and Recreation	Credit is in design.		Remove hardscape areas and replace them with permeable surfaces. Or Revegetate See manual for calculations.	
	AL-7 Community Connectivity		1-2	Likely that technical reports can support this credit.	New credit - Credit is in design.			
	AL-8 Equity & Inclusion	AL-4 Equity & Accessibility	1-2	Task 3.2.1 Economic Impact Task 3.2.1 Land Use Task 3.2.2 Displacements and Relocations Task 3.2.3 Neighborhoods and Social Environment Task 3.2.4 Environmental Justice and Equity Task 3.2.5 Visual Resources ~~Task 3.2.6 Urban Design~~ Task 4.13 Constructability and Cost Estimating Task 4.6 Multimodal Transportation Analysis and Design (Bicycles, Pedestrian, AND ADA) Task 4.7 Transit Analysis and Design Criteria Task 5.1 Transportation Analysis and Operations Task 6.2 Public Involvement Strategy Task 6.2.2 Equity and Diversity Outreach Plan Task 9.8.4.5 Community Engagement Liaisons Program	Credit is in design.	Likely the LOE on this would be low, given the data that is being collected for the EIS. If pursuing Path A, note requirement for quantitative economic analysis to understand the total value (benefits and costs) of the social, economic development, community, and cultural impacts of the Project for the alternatives considered.		
	AL-9 Cultural Resources	AL-9 Archaeology & History	1-2	Task 2.5/Task 9.2.4 Other Agency and Focus Group Meetings Task 3.2.8 Archaeological and Historic Preservation Task 3.2.17 Section 4(f) Evaluation and 6(f) Compliance Task 3.3.2 Section 106 Historic Preservation Act compliance	Credit similar to v2 requirements.		Dedicate capital to enhancing significant historical and archaeological sites or features located in or immediately adjacent to the Project. Provide wayfinding signage directed toward and educational information about features.	
	AL-10 Aesthetics & Amenities	AL-8 Culture & Recreation AL-10 Scenery & Aesthetics	1	Task 3.2.1 Economic Impact Task 3.2.1 Land Use Task 3.2.3 Neighborhoods and Social Environment Task 3.2.5 Visual Resources ~~Task 3.2.6 Urban Design~~ Task 3.2.7 Parks and Recreation Task 3.2.8 Archaeological and Historic Preservation Task 3.2.17 Section 4(f) Evaluation and 6(f) Compliance Task 4.9 River Navigation Study	Credit is in design.		Dedicate capital to enhancing significant cultural, community, and recreational sites or features located in or immediately adjacent to the Project. Provide wayfinding signage directed toward and educational information about features.	

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	v3 Credit	Related v2 Credit(s)	V3 Points	Related Tasks include, but are not limited to: [*NEPA Tasks in blue if drafted, in red if needed*]	v3 Notes	*Green shading denotes phase related to Greenroads* EIS Phase Notes or Potential additional LOE	Design Phase Notes or Potential additional LOE	Construction Phase Notes or Potential additional LOE
		Creativity & Effort						
Creativity & Effort	CE-1 Innovative Ideas	CE-2 Innovative Ideas	1-5	May be some policy research that could apply to this credit.	Credit paths similar to v2 requirements for Alternative Path and New Credit Idea.		Consider pursuing this credit via alternative path, local policy review, or new credit idea. Likely, additional time would be needed for either option. This effort could also happen later in the project.	
	CE-2 Emerging Practices & Technology		1		New credit.			
	CE-3 Policy Commitments	CE-2 Innovative Ideas	1		Credit similar to "Local Policy Review" in v2: CE-2 Innovative Ideas.			
	CE-4 Local Values	CE-4 Local Values	1-3		Credit similar to v2 requirements.		Consider pursuing this credit.	
	CE-5 Enhanced Performance	CE-3 Enhanced Performance	1-5		Credit includes 2 paths with requirements similar to those in v2; one path from v2 was removed.		Consider pursuing this credit.	
CREDITS REMOVED								
		PR-10 Noise & Glare Control		~~**"Note - this PR is "due to construction activities"**~~ ~~Task 3.2.1 Economic Impact~~ ~~Task 3.2.3 Neighborhoods and Social Environment~~ ~~Task 3.2.12 Noise and Vibration~~			~~Note for design phase so contractor direction can be included in specifications. Establish, implement, and maintain a formal Construction Impact Mitigation Plan (CIMP) during construction. EIS information will likely inform this guidance and may be included or referenced in the specification, i.e., Identify the location and distance to the closest receptors for noise, vibration, light, and glare; and describe the surrounding zoning and parcel information. *Note - there is no information about lighting in the EIS.~~	~~Establish, implement, and maintain a formal Construction Impact Mitigation Plan (CIMP) during construction.~~
		EW-7 Water Conservation		~~None~~			~~Will project use an potable water? If there are irrigation systems, review this credit. Path 1 gives 1 point for choosing climate-appropriate vegetation that does not require irrigation or watering past establishment period; 1 point for non-potable sources of water for irrigation; 2 points for stormwater capture feeding irritation systems.~~	
		CA-5 Workzone Air Emissions		~~Task 3.2.11 Air~~			~~Note for design phase so contractor direction can be included in specifications if pursuing this credit, re: preparing an equipment tracking spreadsheet and reporting the total number of operating hours for construction equipment that used emissions retrofits, technologies, or fuels, expressed as a percentage of total operating hours. May be informed by EIS Task 3.2.11 Air.~~	~~Preparation of an equipment tracking spreadsheet and reporting the total number of operating hours for construction equipment that used emissions retrofits, technologies, or fuels, expressed as a percentage of total operating hours.~~
		CA-6 Workzone Water Use		~~None - Construction specific~~			~~Note for design phase so contractor direction can be included in specifications if pursuing this credit, re: creating a spreadsheet that records total water use during Project construction and reporting the percentage of non-potable water sources used for construction activities.~~	~~Creating a spreadsheet that records total water use during Project construction and reporting the percentage of non-potable water sources used for construction activities.~~
		CA-9 Communications & Outreach		~~Task 6.2 Public Involvement Strategy~~ ~~Task 9.8 Public Involvement~~			~~Note for design phase so contractor direction can be included in specifications if pursuing this credit, re: creating a Strategic Communications Plan. See also PR-5 Community Engagement .~~	~~Create Strategic Communications Plan.~~
		AL-7 Noise & Glare Reduction		~~Task 3.2.12 Noise and Vibration~~		~~Path 1 is for noise abatement. The Noise and Vibration Technical Report seems to respond to all criteria, except the project is not reducing noise, so likely would not receive any points. This technical report will also be used for documentation in other credits. If Path 2 is preferred, Glare abatement, lighting and glare topics will need additional attention.~~		
		UC-2 Maintenance and Emergency Access			Some elements of this credit may now be included in AL-4: Emergency Preparedness & Recovery			
		UC-6 Lighting & Controls				~~Energy and lighting not detailed in EIS.~~	~~Note for design phase, 2 paths available: - Path 1. Reduce Light Pollution - Install fixed lighting systems or controls with zero uplight above the nadir, and/or lighting systems mounted at 0 degrees with no tilt, and/or Correlated color temperatures (CCT) approximating moonlight; OR Lighting features have a Fixture Seal of Approval (FSA) by the International Dark Sky Association; OR compute output of the existing light system and design lighting to reduce light output by at least 25%. - Path 2. Environmental Monitoring Systems - Install systems of programmable sensors, actuators, and controls to manage and monitor environmental quality during Project operation. 1 Point each for energy, water, air.~~	