

Sustainable Buildings and Sites Policy Update
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Section 1. Purpose and goals

- 1.1. The purpose of the Metro Sustainable Buildings and Sites Policy is to set standards for design, construction, operations and maintenance of Metro buildings and developed properties that support achievement of Metro's five Sustainability goals and the Strategic Plan to Advance Equity, Diversity and Inclusion.
- 1.2. This policy applies to all buildings owned and/or operated by Metro, including visitor venues.
 - 1.2.1. Buildings are defined as "A complete, permanent enclosed structure that is regularly occupied by people and contains conditioned space (heated or cooled)."¹ Solid waste transfer stations are included in the policy, though they do not contain conditioned space.
 - 1.2.1.1. Some built structures do not meet the policy definition of "building", and some buildings are operated—but not owned—by Metro. They may not require certification standards, however they are required to meet policy operational requirements and set performance targets in alignment with the five Sustainability goals.
 - 1.2.2. Residential buildings (houses) located on Metro natural area properties are specifically excluded from this policy.
 - 1.2.3. Requests for exemptions to this policy shall be made to the Capital Asset Management Director, who will make a recommendation to the Deputy Chief Operating Officer (DCOO) for final approval.
- 1.3. The Metro Council adopted the Sustainability Plan for Internal and Business Operations (Plan) through Resolution 10-4198 in October 2010² which included an action to adopt an agency-wide green building policy to set standards for new construction and operations of existing buildings. Council adopted a Green Building Policy in 2011. An update to the Green Building Policy was conducted in 2021 to recalibrate the policy requirements and procedures to support Metro goals.
- 1.4. The Sustainability Plan also directs Metro to adopt sustainable site retrofit, development and management practices and standards for Metro's parks to meet Salmon Safe certification³ and Gold-rated Sustainable Sites certification for new parks.⁴

¹ Buildings are defined as, "A complete, permanent enclosed structure that is regularly occupied by people (1 FTE [full time equivalent] minimum. Based on an 8-hour day, the building must be occupied by either one full-time staff, or a combination of part-time staff to equal eight hours.) and contains conditioned space (heated or cooled)."

² Metro Council Resolution 03-3338, "For the Purpose of Directing the Metro Chief Operating Officer to Establish a Sustainable Business Model for Metro Departments and Facilities and Undertake Related Duties," 2003. <http://rim.oregonmetro.gov/webdrawer/rec/20828/>.

³ Salmon-Safe is an independent 501(c)3 nonprofit focused on transformation of land management practices so Pacific salmon can thrive in West Coast watersheds

⁴ (SITES is a comprehensive rating system designed to distinguish sustainable landscapes, measure their performance and elevate their value administered by Green Business Certification Inc.

- 1.5. The Plan outlines environmental goals for internal operations, which the Metro Council adopted through Resolution 03-3338 in May 2003.⁵ This Sustainable Buildings and Sites Policy supports implementation of building construction and maintenance practices that support achievement of the following five goals.
- a. Reduce direct and indirect greenhouse gas emissions to 80 percent below 2008 levels by 2050.
 - b. Eliminate the use or emissions of persistent bioaccumulative toxics (PBTs) and other priority toxic and hazardous substances by 2025.
 - c. Recover all waste for recycling or composting, and reduce overall generation of waste by 2025.
 - d. Reduce water use to 50 percent below 2008 levels by 2025.
 - e. Ensure that Metro's parks, trails and developed properties positively contribute to healthy, functioning urban ecosystems and watershed health and that Metro's natural areas are healthy, functioning ecosystems.

Section 2. Approach

- 2.1. The buildings in the Metro portfolio are highly varied and distinct from each other. Metro's buildings range from large-scale venues (Oregon Convention Center, Expo Center) to a campus of many buildings and exhibits (Oregon Zoo) to solid waste processing buildings (Metro Central and South transfer stations) to office buildings (Metro Regional Center) to park buildings (Blue Lake Park, Oxbow Park).

Acknowledging the different building sizes and types in Metro's portfolio, the policy incorporates flexibility and exemptions in standards. Each project's unique attributes should be considered to inform the highest and best outcome in terms of advancing Metro's sustainability, climate justice and resilience goals.

Section 3. Equity

- 3.1. This policy goes beyond environmental performance to address the triple bottom line of sustainability: environment, economy and social equity. Based on the racial equity goals in Metro's Strategic Plan to Advance Racial Equity, Diversity and Inclusion⁶ and departmental equity plans, the Sustainable Buildings and Sites policy strives to achieve the following racial equity outcomes:
- a. Metro buildings provide healthy, accessible, welcoming spaces where staff and visitors can thrive.
 - b. Metro's buildings contribute to climate and environmental justice outcomes in the region.
 - c. Metro's capital investments in buildings create opportunities for COVID-certified firms and advance construction workforce diversity.

For details on how this policy update incorporates recommendations from the racial equity framework see Appendix A.

⁶ <https://www.oregonmetro.gov/sites/default/files/2016/06/15/Steps-to-complete-the-Strategic-Plan-to-Advance-Racial-Equity-draft-2-04042016.pdf>

- 3.2 Sustainable building certification standards for new construction, major renovation and operation and maintenance of existing buildings were analyzed and selected based on their ability to advance Metro’s sustainability goals and achieve racial equity outcomes. In addition to policy requirements, all new construction, major renovation and existing building operations must adhere to the following requirements, as applicable:
- a. Clean Air Construction (CAC) Standard
 - b. Construction Career Pathways Program
 - c. Administrative Rules for Equity in Contracting
 - d. Strategic Plan to Advance Racial Equity Diversity and Inclusion and respective departmental racial equity plans.

Project teams will determine applicability of policy requirements that may be superseded by jurisdictional requirements specific to the project.

- 3.3 To further center and achieve policy equity outcomes, all new siting, design, construction, major renovation, and operation and maintenance of existing buildings will:
- a. Prioritize sites that are served by public transit and are accessible by walking and biking.
 - b. Promote environmental justice by preventing and mitigating the negative impacts on adjacent communities related to siting and displacement, traffic, noise, and diesel emissions and other pollution from building and site construction.
 - c. Site and design buildings for climate adaptation and resiliency and to minimize urban heat island effect.
 - d. Ensure buildings and parks are welcoming to staff, the public, and all Metro constituents, including strategies like signage in multiple languages.
 - e. Ensure buildings and parks are accessible and inclusive to people of all abilities and include accessibility features for those with mobility, hearing or vision needs.
 - f. Minimize the use of toxic building materials, and require the use of non/low-toxic chemicals for operations and maintenance.
 - g. Ensure equity in contracting and advance workforce diversity.
 - h. Respect culturally significant areas and honor the history of the original inhabitants of the land.

- 3.4 Metro will conduct meaningful and inclusive engagement for projects subject to this policy when appropriate to incorporate community feedback, to elevate the voices of those who are most impacted by projects and who have historically had the least amount of influence and to help inform, guide, and improve project outcomes. Each project team will follow recommendations from departmental racial equity plans and/or Metro’s Strategic Plan to Advance Racial Equity, Diversity and Inclusion to determine the level and extent of community engagement required for the project. Best practices to consider include:

- Prioritizing participation by communities of color and historically disadvantaged populations in community outreach and decision making.
- Building appropriate time into the project timeline to ensure inclusive public participation.
- Partnering with community-based organizations (CBOs) to advance racial equity.
- Reducing common barriers to public participation by making engagement more accessible including:
 - Accommodating people with different abilities and needs
 - Presenting materials and information in multiple languages and formats
 - Providing childcare, food, and transportation services

- Including multiple ways of participating and offering feedback
- Engaging local organizations in the development of outreach events

Section 4. Standards for New Construction and Major Renovations

- 4.1. The following standards shall apply to the new construction of Metro buildings and parks as well as all major renovations of buildings and parks Metro owns and operates.
- 4.2. New construction and major renovations of structures meeting the policy definition of “building” 1,000 square feet and over and \$1,000,000 in total project cost shall be built to meet at minimum the Core Green Building Certification standard certified by the International Living Future Institute (ILFI)⁷.
 - 4.2.1. If the project sponsor believes that Core Green Building Certification is not applicable for a specific project, they must submit an exemption form documenting why the project cannot meet Core Green Building Certification to the Metro Chief Operating Officer for approval. If a Core Green Building Certification exemption is approved, refer to the policy Appendix B for alternative sustainable building standards.
 - 4.2.2. New construction and major renovations under 1,000 square feet and \$1,000,000 in total project cost, and/or structures that do not meet the policy definition of “building” do not require certification by the aforementioned standards. However, they are required to meet operational requirements and set performance targets in alignment with the five Sustainability goal areas of greenhouse gas emissions (including building energy), waste, toxics, water and habitat.
- 4.3. All new construction and major renovation of Metro developed park sites over 2,000 square feet and \$1,000,000 in total project cost shall achieve at minimum SITES Gold certification while any park structure(s) 1,000 sf and over and \$1,000,000 meeting the definition of “building” must achieve Core green building certification.
- 4.4. All new construction and major renovation projects shall meet the following additional requirements if applicable:
 - 4.4.1. Project planning: Incorporate resources needed to comply with the requirements of this policy in the project budget, starting with the initial design phase. Resources shall include staff time necessary to complete documentation requirements for the sustainable building standard applicable to the building. Integrated design practices should be utilized early in the design process.
 - 4.4.2. Green Energy Technology: New buildings that meet the criteria outlined by the State of Oregon in the “1.5% for Green Energy Technology in Public Building Construction Contracts” rule are required to spend an amount equal to at least 1.5 percent of the total contract price of a public improvement contract for the construction,

⁷ The Core Green Building CertificationSM (Core) is a framework that outlines the 10 best practice achievements that a building must obtain to be considered a green or sustainable building as certified by the International Living Future Institute.

reconstruction, or major renovation of a public building for the inclusion of appropriate green energy technology in the building.⁸

- 4.4.3. Fossil fuel infrastructure: Exclude the use of fossil fuels and dedicated fossil fuel infrastructure and fossil gas combustion.⁹
- 4.4.4. Electrification infrastructure: Include vehicle electrification infrastructure consistent with requirements for the Core Green Building Certification.
- 4.4.5. Additional requirements in policy appendices: All new construction and major renovation shall follow the Bird-Friendly Design, Materials Carbon Reduction, and Sustainable Roof requirements in policy Appendix C during project design, procurement, contracting, and implementation.

Section 5. Standards for Operations and Maintenance of Existing Facilities

- 5.1. Develop a plan with allocated resources to achieve Salmon-Safe certification for the Metro Parks system by 2025.
- 5.2. If an existing Metro building meets eligibility and prioritization criteria selected by Metro, the building shall apply for the LEED Rating System for Existing Buildings: Operations & Maintenance (LEED O+M) certification at the Silver level or higher. The most recently accepted version of the LEED standard for existing buildings shall be followed.
- 5.3. For LEED-ineligible projects, facility operations managers will pursue other certifications best-suited to the specific project to meet Metro goals such as LEED Zero for water reduction, Zero Carbon for emissions reduction, Zero Energy for energy reduction, WELL for toxics reduction, Salmon-Safe for habitat and TRUE for waste reduction.
- 5.4. For existing certified buildings, scale operations to incrementally achieve higher certification, such as LEED Gold, Platinum or Zero (carbon, waste, energy, water), or Zero Carbon or Zero Energy with the International Living Future Institute.
- 5.5. Operational requirements: All Metro buildings, regardless of their eligibility for LEED O+M certification, shall meet the following sustainable operations requirements.
 - 5.5.1. Recycling: All Metro buildings shall meet the following Business Recycling Requirements:¹⁰
 - 5.5.1.1. Source-separate all recyclable paper, cardboard, glass and plastic bottles and jars, and aluminum and tin cans for reuse or recycling.

⁸ Oregon Administrative Rules (OAR) 330-135-0010 to 330-135-0055, "1.5 Percent for Green Energy Technology in Public Building Construction Contracts. <https://secure.sos.state.or.us/oard/displayDivisionRules.action?selectedDivision=1113>

⁹ An exception could be made for low-carbon technologies such as anaerobic digestion, that can reduce carbon emissions from the fossil gas system, which Metro could use in combination with energy efficiency and other measures to accelerate decarbonization.

¹⁰ Metro requires all local governments in the region to adopt Business Recycling Requirements. <http://www.oregonmetro.gov/index.cfm/go/by.web/id=26294>

- 5.5.1.2. Provide recycling receptacles for internal maintenance or work areas where recyclable materials may be collected, stored, or both; and post accurate signs where recyclable materials are collected, stored, or both that identify the materials that the business must source-separate for reuse or recycling and that provide recycling instructions.
- 5.5.2. Food Waste: All Metro buildings shall separate food waste where hauling services for these source-separated materials are available in accordance with local government requirements including:¹¹
- 5.5.2.1. Separate food waste from all other solid waste for collection.
- 5.5.2.2. Recover food waste that is controlled by the business, agents, and employees. This requirement does not apply to food wastes controlled by customers or the public. At its discretion, a Covered Business may also collect food waste from customers but must ensure that food wastes are free of non-food items.
- 5.5.3. Roofs: For all roofing projects that require a tear-off or full roof replacement, complete sustainable roof assessment worksheet to evaluate the highest and best use of rooftop opportunities including solar generation, green roof installation, or solar reflectivity treatment, as well as some combination thereof, and comply with any jurisdictional requirements applicable to the project location such as the City of Portland's ecoroof requirement¹². (See Appendix C.)
- 5.5.4. Lighting. During any renewal and replacement of lighting, all fluorescent light fixtures and lamps shall be replaced with high efficiency LED fixtures whenever feasible and comply with the bird-friendly design appendix. Any remaining linear fluorescent lamps shall meet the standard set in the European Union Restriction on Hazardous Substances (RoHS) Directive for mercury levels in lamps. (See Appendix C.)
- 5.5.5. All new appliances and electronic equipment purchased shall achieve the highest Energy Star efficiency rating¹³, where certified products are available. An alternative product can be chosen if an assessment demonstrates a better performance over the life of the product.

¹¹ Metro requires all local governments in the region to follow regional food waste policy.

<https://www.oregonmetro.gov/sites/default/files/2021/03/30/Metro-Code-chapter-5-15-effective-20210310.pdf>

¹² Refer to ecoroof requirements 35.510.243 in Portland's Central City Plan at <https://www.portland.gov/sites/default/files/code/510-central-city.pdf>.

¹³ The U.S. EPA certification program for energy efficient equipment and appliances is **Energy Star**. Find certified products at http://www.energystar.gov/index.cfm?fuseaction=find_a_product.

- 5.5.6. All water fixtures purchased shall be EPA Water Sense certified,¹⁴ where certified products are available. An alternative product can be chosen if its lifecycle assessment demonstrates a better performance over time.
- 5.5.7. Develop and adopt operational policies and procedures that reduce the use of and exposure to toxins, including but not limited to a green cleaning policy with requirements for the use of third party certified cleaning products such as Green Seal or EPA Safer Choice¹⁵, compliance with Metro's Integrated Pest Management Policy, and additional strategies to maximize the use of safe alternatives to toxic materials.
- 5.6. All occupied Metro buildings larger than 10,000 square feet shall have an Energy Efficiency Action Plan in place, which shall include, but not be limited to, the following measures:
 - 5.6.1. Audits: For occupied buildings larger than 10,000 square feet, complete a comprehensive energy audit of the building using the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) standard for Energy Survey and Engineering Analysis. A Level I, Level II, or Level III audit shall be conducted based on the building need and upon progression from past audit completion. Funding for energy audits shall be built into the budgets for the building. If the Energy Trust of Oregon (ETO) provides funding for energy audits, the ETO audit process is acceptable. Energy audits should be completed every ten years, after a major renovation, or upon change to two or more systems.
 - 5.6.2. Compile a prioritized list of energy efficiency measures (EEM) appropriate to the building. Examples of EEM include upgrades or replacement of lighting, heating, ventilation and cooling (HVAC), insulation, motors or any custom measures unique to the facility as identified during an energy audit.
 - 5.6.3. Integrate the EEM into the building Capital Improvement Project (CIP) and Renewal and Replacement (R&R) project lists.
 - 5.6.4. Track utility usage through Metro's Energy Manager database.
 - 5.6.5. Manage plug load and occupant energy use through best practices for energy conservation including but not limited to implementation of building energy policies, installation of lighting sensors, automatic electrical outlet shutoffs, turning off of all non-essential lights, computers, and monitors during non-business hours, reducing phantom or standby power use and restricting excessive use of personal appliances.
- 5.7. Electric Vehicle-Ready Infrastructure: Facility managers shall plan for capital investment and installation of electrification infrastructure to meet vehicle electrification infrastructure requirements consistent with the Core Green Building Certification. At a minimum,

¹⁴ The U.S. EPA certification program for water efficient fixtures is **Water Sense**. Find certified products at <http://www.epa.gov/WaterSense/>.

¹⁵ The U.S. EPA Safer Choice program certifies products that meet stringent human health and environmental criteria reviewed by EPA scientists including requirements for performance, packaging, pH, and volatile organic compounds (VOCs). <https://www.epa.gov/saferchoice>. Other standards include [Green Seal](#), [UL Ecologo](#) and [Cradle to Cradle](#).

renovation and system upgrades to infrastructure and/or parking projects must include pre-installation or installation of wiring and connections to support electric vehicle charging.

- 5.8. Fossil fuel use: work to reduce the use of fossil fuels and fossil fuel combustion at existing facilities through efficiency and the replacement in part or in whole with less, or non-emitting renewable or low-carbon alternatives.
- 5.9. Policy requirements in Appendices: Follow the applicable Bird-Friendly Design, Materials Carbon Reduction, and Sustainable Roof standards (Appendix C) during project procurement, contracting, and implementation of building operations.
- 5.10. Sustainability criteria for building systems upgrades
 - 5.10.1. Systems upgrades in Metro buildings shall require selection of most efficient options available and applicable for that system.
 - 5.10.2. Replacement or upgrade of lighting, HVAC equipment and domestic hot water equipment shall, at a minimum, require installation of energy efficient options for which financial incentives are available from the ETO Oregon Cash Incentives¹⁶ or other energy efficiency incentive resources. Project managers shall apply for any incentives available from ETO for energy efficient equipment at the start of a project. If options are available that conserve more energy than those that are incented by ETO, those may be selected.
 - 5.10.3. Sub-metering. At minimum, system upgrade projects shall be evaluated for the installation of submeters to provide energy use information to help optimize energy performance.
 - 5.10.4. Total cost of ownership and lifecycle assessment shall be used in the decision-making criteria for selection of retrofit or replacement projects for funding, rather than simple comparison of the initial first costs.
- 5.11. Guidance for campus-wide upgrades. When multi-building redesign projects occur at a campus site, such as at the Oregon Zoo or Expo Center, a holistic approach to sustainable operations will be integrated into the design process to address the challenges and opportunities in campus projects towards achieving Metro sustainability goals. Design teams will explore economies of scale through shared or complementary systems. Sustainable building certification standards (International Living Future Institute, LEED) have guidance for going outside single building boundaries for better solutions that may reduce certification documentation requirements and costs.

Section 6. Implementation

- 6.1. This policy will be implemented by the groups of people identified in Section 7, Roles and Responsibilities.

¹⁶The Energy Trust of Oregon's current listing of Existing Buildings Oregon Cash Incentives is available online at <https://energytrust.org/commercial/existing-buildings-oregon-cash-incentives/>.

New construction and major renovation

- 6.2. Capital Planning Oversight Committee (CPOC): Department CPOCs will review annual Sustainable Building and Sites Policy strategic investment recommendations and prioritize and integrate them into the annual Capital Improvement Plan (See Section 7).
- 6.3. Project concept form: The project sponsor will complete the sustainability section in the project concept form to identify possible sustainable building opportunities and budget needs, when initiating a new construction and/or major renovation project.
- 6.4. Capital Improvement Plan (CIP): Upon approval of annual departmental Capital Improvement Plans, the CIP will identify all sustainable building projects and their associated budgets.
- 6.5. Requirements: The project sponsor and project manager will review policy requirements related to their specific project and identify the appropriate sustainable building certification path.
 - 6.5.1. The project manager will identify Sustainable Buildings and Sites Policy outcomes including the intended pathway for sustainable building certification(s) and outline the required resources and steps the project will take to achieve them in the Project Management Plan.
- 6.6. Equity: The project manager and project sponsor will identify the relevant racial equity outcomes and guidelines in this policy, as well as the goals and actions in the Strategic Plan to Advance Racial Equity Diversity and Inclusion and departmental equity plans requirements and outline the steps the project will take to achieve them in the Project Management Plan.
- 6.7. Energy Trust of Oregon incentives: The project manager will enroll applicable projects with Energy Trust of Oregon once it is funded.
- 6.8. Other funding opportunities: The project sponsor and project manager will consider various funding opportunities and resources listed in the Sustainable Building and Sites Policy resource library.
- 6.9. Solicitation: The project manager will work with Procurement to incorporate the appropriate procurement language into request for proposals and final contracts in accordance with relevant Metro policies.
- 6.10. Community Engagement. Each project team will follow recommendations from departmental racial equity plans and/or Metro's Strategic Plan to Advance Racial Equity Diversity and Inclusion to determine the level and extent of community engagement required for the project.
- 6.11. Eco-Charette. The project manager will manage consultant teams to follow Sustainable Buildings and Sites Policy requirements including hosting an eco-charrette during the initial design phase to explore viable sustainability features to include in the final design.
- 6.12. Progress Tracking. The project manager will regularly report on the status and progress of meeting the policy requirements to ensure design is on track, and reserve the right to follow

up with teams and require narrative descriptions of strategies and project documents on a project-by-project basis as needed. At least two status reports are required at the following milestones: 50% design development phase and 100% construction documents/permit set phase. Reports shall include:

- 6.12.1. Status of meeting Core Green Building Certification imperatives, or anticipated LEED credits
- 6.12.2. Anticipated Sustainable SITES certification points
- 6.13. Close-out. At the end of a project, the project manager will ensure policy reporting requirements are met in accordance with Section 9.1. The project manager will review and submit materials to Metro's Sustainability Program for reporting purposes.

Existing Properties & Operations

- 6.14. The Sustainability Program will work with facility staff to document the current performance of existing Metro properties in meeting environmental sustainability goal areas for energy usage, water usage, waste generation and recycling, toxics, habitat-friendly development practices and stormwater impact on an annual basis to identify areas for improvement. Sustainability accomplishments shall be shared with the Sustainability Program, as described in Section 9.
- 6.15. Metro facility operations managers will conduct an energy audit and create energy efficiency action plans as described in Section 5.
- 6.16. Facility managers and the Capital Planning Oversight Committee will evaluate the list of existing capital and renewal and replacement projects annually and identify opportunities to integrate Sustainable Buildings and Sites Policy requirements into these projects.
- 6.17. Facility managers will implement LEED O+M certification for priority eligible buildings.
 - 6.17.1. Metro facility operations managers shall complete LEED O+M eligibility analysis with support from a LEED Accredited Professional (AP) and submit the analysis to the Sustainability Program. Buildings that are determined to be good candidates for LEED O+M certification shall be ranked in order of priority by the Sustainability Program and facility staff with certification pursued starting with the highest priority building or buildings first.
 - 6.17.2. For existing LEED certified buildings, facility managers will scale operations to incrementally achieve higher certification, such as LEED Gold, Platinum or LEED Zero (carbon, waste, energy, water) as outlined in Section 5.4.
 - 6.17.3. For LEED-ineligible projects, facility operations managers will pursue other relevant certifications to meet Metro sustainability goals such as Zero Carbon for emissions reduction, Zero Energy for energy reduction, WELL for toxics reduction, Salmon-Safe for habitat and TRUE for waste reduction as outlined in Section 5.3.

Section 7. Roles and Responsibilities

- 7.1. Deputy Chief Operating Officer
 - 7.1.1. Review and grant exemptions from policy requirements as applicable.
- 7.2. Capital Asset Management Director
 - 7.2.1. Assists project sponsors with interpretation of policy language, when required, to determine applicability.
- 7.3. Directors
 - 7.3.1. Department and facility directors will ensure sustainable building policy requirements are incorporated into their annual CIP and budget proposals.
 - 7.3.2. Appoint a Sustainable Buildings and Sites Policy Coordinator for their department/venue.
 - 7.3.3. As project executive sponsor, review and endorse requests for exemptions from policy requirements as applicable.
 - 7.3.4. Hold department project sponsors, building operations managers and project managers accountable for implementation of the Sustainable Buildings and Sites Policy.
- 7.4. Building operations managers
 - 7.4.1. Conduct assessments of building performance and energy efficiency action plans, as described in Section 6.
 - 7.4.2. Implement all standards for operations and maintenance of existing buildings outlined in Section 6.
 - 7.4.3. Complete LEED O+M eligibility assessments for buildings, as described in Section 6.
 - 7.4.4. Ensure training for operations staff and project managers in sustainable building operations and maintenance.
- 7.5. Capital Planning Oversight Committee (CPOC)
 - 7.5.1. Review and prioritize annual Sustainable Building and Sites Policy strategic investment recommendations.
 - 7.5.2. Integrate annual Sustainable Buildings and Sites Policy strategic investment recommendations into the annual Capital Improvement Plan.
- 7.6. Construction Project Management Office (CPMO)
 - 7.6.1. Integrate sustainable building requirements from this policy into the CPMO manual and project management tools and documentation.

- 7.6.2. Ensure training for project managers on sustainable building standards required by this policy, as well as training and tools for implementation of this policy.
- 7.6.3. Hold CPMO project managers accountable for implementation of the Sustainable Buildings and Sites Policy. Encourage consistent application of the policy by project managers across departments.

7.7. Project sponsor

- 7.7.1. Sponsor a project from beginning to end and ensure the integration of Sustainable Buildings and Sites Policy requirements into all new construction, major renovations and systems upgrades projects where required.
- 7.7.2. Incorporate sustainable building requirements in the project budget starting with project initial design phase as described in Section 6.

7.8. Project managers

- 7.8.1. Attend sustainable building trainings.
- 7.8.2. Integrate Sustainable Buildings and Sites Policy requirements into all new construction and major renovations where required and reflect accordingly in the project management plan.
- 7.8.3. For new construction and major renovation projects, submit the following:

Projects working toward Core Green Building Certification or LEED-BD+C certification: submit Core imperatives or LEED checklist and review comments from the International Living Future Institute or Green Building Certification Institute at project completion indicating that the project has achieved Core imperatives and LEED credits.
 - 7.8.3.1. Ensure post-occupancy tracking and documentation requirements for certification are met, as required.
- 7.8.4. For new construction of new parks, submit the following:
 - 7.8.4.1. Projects seeking SITES Gold certification: submit SITES credits checklist and review comments at project completion indicating that the project has achieved SITES Gold certification.

7.9. Sustainable Buildings and Sites Coordinator

- 7.9.1. Appointed by Director as department/venue point person for Sustainable Buildings and Sites Policy coordination and implementation.
- 7.9.2. Meet with department and facility directors and Capital Planning Oversight Committee to provide guidance on how to integrate sustainable building policy requirements into projects and annual budget proposals.
- 7.9.3. Support project sponsors and project managers in compliance with the policy, to include: review of policy requirements and potential exemptions at project

initiation; review of policy-related project documentation for reporting; and sharing information with the Sustainability Program for the annual sustainability report.

- 7.9.4. Participates in quarterly meetings with Sustainability Program and other agency Sustainable Building Coordinators to support successful policy implementation, training on sustainable building standards required by this policy, and training on the implementation of this policy.

7.10. Sustainability Steering Committee

7.10.1. The primary function of the Sustainability Steering Committee is to oversee implementation of the Metro Sustainability Plan for internal operations. The intention is that all departments and facilities are represented on the committee.

7.10.2. Provide accountability and policy reinforcement by identifying barriers to successful policy implementation and helping to develop strategies to overcome barriers while serving as a point of contact between venues and departments and the Sustainability Program.

7.10.3. Contribute to annual sustainability report by sharing key accomplishments related to implementation of this policy.

7.11. Finance

7.11.1. Revise and update all funding processes to be consistent with the Sustainable Buildings and Sites Policy as described in Section 8.

7.12. Procurement services

7.12.1. Align procurement policies and procedures to support Sustainable Buildings and Sites Policy requirements, including template language for solicitations and contracts.

7.12.2. Align new construction, major renovation, and existing building maintenance contracts in accordance with Sustainable Buildings and Sites Policy and other relevant Metro policies.

7.13. Sustainability Program

7.13.1. Ensure that staff with knowledge of Sustainable Buildings and Sites Policy requirements are in attendance at CPOC meetings.

7.13.2. Support Sustainable Building Policy Coordinators through training, quarterly meetings, and as needed. Provide training for policy awareness and implementation and maintain up-to-date policy resources.

7.13.3. Regularly review data from projects and annual sustainability reporting, audits, studies, as well as partnerships and grant opportunities, to inform recommendations POCs regarding which strategic opportunities Metro should pursue to advance sustainability across Metro's portfolio.

- 7.13.4. Meet with department and facility directors to provide guidance on how to integrate Sustainable Buildings and Sites Policy requirements into projects and budget proposals.
- 7.13.5. Evaluate and prioritize Metro buildings eligible for potential LEED O+M certification and recommend buildings for certification to Department Directors.
- 7.13.6. Develop and adopt operational policies and procedures that support the Sustainable Buildings and Sites Policy as needed.
- 7.13.7. Curate an accessible library of policy resources for project teams to use.
- 7.13.8. Report on progress toward implementing the Sustainable Buildings and Sites Policy in the annual Sustainability Report, as described in Section 9.

Section 8. Funding Methods and Tools

- 8.1. Funding methods: Annually, identify funding needs for increasing sustainability of projects in Metro's Capital Improvement Program and Renewal and Replacement Program. Develop budgetary, funding and accounting methods for achieving sustainable outcomes consistent with this policy and with adopted sustainability goals.
- 8.2. Return on investment (ROI): Projects which result in a measurable reduction in electricity, fossil (natural) gas or water consumption by increasing efficiency, and that will result in an avoided cost for ongoing operations, have a positive ROI to Metro. Energy efficiency projects which have a ROI of ten years or less will be prioritized for funding from Metro's various funding sources even if there is an up-front capital investment required.
 - 8.2.1. ROI for energy efficiency projects is typically estimated by the Energy Trust of Oregon or its partner service providers.
- 8.3. Energy Trust of Oregon incentives: When incentive funds are available from the Energy Trust of Oregon for energy efficiency projects, project managers will apply these to their projects.
- 8.4. Total cost of ownership: Projects will use a total cost of ownership model to determine the best value for Metro over the expected life of the building or equipment, consistent with Metro's Sustainable Procurement Policy and Capital Asset Management Policy.
- 8.5. Fund applicability and department directors: Implementation of this policy will be consistent with the administration process appropriate for each fund, including the General Fund, Solid Waste Fund, Bond and Levy funds, and Metro Exposition and Recreation Commission Fund.
- 8.6. Department and facility directors will have the authority to integrate sustainable building strategies and projects that support this policy into their proposed annual budgets.

Section 9. Reporting Requirements

- 9.1. At the end of each new construction or major renovation project, the project manager is responsible for submitting the following information to the Sustainability Program: (1)

amount of construction and demolition waste diverted from each project and reused on the job site (total tons, percent diverted, and list of primary materials diverted); (2) documentation of all Core imperatives and/or LEED credits that were incorporated in the project, (3) verification of certification for either Core, LEED, Sustainable SITES, and/or other third-party standards when available.

- 9.2. At the end of each fiscal year, operations managers are responsible for submitting a summary of key sustainable building operations and maintenance projects completed in the previous fiscal year including capital improvement projects as well as renewal and replacement projects that implement this policy. These summaries will include: (1) a one to two-paragraph summary of the project; (2) which of the Metro Sustainability goals the project addresses; (3) any anticipated resource or financial savings expected from the project.
- 9.3. Key accomplishments toward implementation of the Sustainable Buildings and Sites Policy will be included in the annual sustainability report prepared by the Sustainability Program.
- 9.4. Environmental sustainability performance of Metro buildings in the five goal areas of climate, toxics, waste, water and habitat/stormwater will be reported in absolute terms (e.g., total gallons or cubic feet of water consumed from a building in a given year) and in normalized terms (e.g. gallons consumed per visitor per year, per full-time equivalent worker per year, per square foot area per year, depending on building type).

Section 10. Definitions and Terms

For the purposes of this policy, the following terms and definitions apply:

- 10.1. **Bioswale:** Landscape elements designed to remove silt and pollution from surface runoff water. They consist of a swaled drainage course with gently sloped sides and often filled with vegetation.
- 10.2. **Building:** A complete, permanent enclosed structure that is regularly occupied by people (1 FTE or full time equivalent minimum) and contains conditioned space (heated or cooled). Based on an 8-hour day, the building must be occupied by either one full-time staff, or a combination of part-time staff to equal eight hours.
- 10.3. **Core Green Building Certification:** The Core Green Building CertificationSM (Core) is a framework that outlines the 10 best practice achievements that a building must obtain to be considered a green or sustainable building as certified by the International Living Future Institute.
- 10.4. **Eco-charrette:** An eco-charrette is an intensive workshop where the project stakeholders and expert consultants convene to brainstorm on project sustainable design goals and objectives.
- 10.5. **Ecoroof:** An ecoroof consists of a layer of vegetation over a growing medium on top of a synthetic, waterproof membrane. According to the City of Portland Ecoroof program, an ecoroof significantly decreases stormwater runoff, saves energy, reduces pollution and erosion and helps preserve fish habitat.

- 10.6. **Energy Trust of Oregon (ETO):** An independent nonprofit organization dedicated to helping utility customers benefit from saving energy and generating renewable energy.
- 10.7. **Fossil Fuels:** Fossil fuels are made from decomposing plants and animals. These fuels are found in the Earth's crust and contain carbon and hydrogen, which when burned for energy contribute greenhouse gas emissions that cause climate change. Coal, oil, and natural gas are examples of fossil fuels.
- 10.8. **FSC certified:** Forest Stewardship Council certification is an independent standard for sustainable management of forests and forest products, developed and maintained by the Forest Stewardship Council.
- 10.9. **Green Building Certification Institute (GBCI):** A third-party organization that provides independent oversight of professional credentialing and project certification programs related to green building. GBCI administers certifications and professional designations within the framework of the U.S. Green Building Council's LEED® Green Building Rating Systems™ and the SITES Rating System.
- 10.10. **IAQ:** Indoor air quality – the nature of air inside the space that affects the health and well-being of building occupants.
- 10.11. **International Living Future Institute (ILFI):** The International Living Future Institute is a nonprofit organization that seeks to lead the transformation toward a civilization that is socially just, culturally rich, and ecologically restorative. They offer several types of certification including Living Building Certification, Core Green Building Certification, Petal Certification, Zero Energy Certification, or Zero Carbon Certification.
- 10.12. **Integrated design:** Multidisciplinary collaboration, including key stakeholders and design professionals, from conception to completion of a building project, rather than the traditional series of hand-offs from owner to architect, from builder to occupant.
- 10.13. **LEED:** Leadership in Energy and Environmental Design, a green building certification standard and rating system developed and maintained by the U.S. Green Building Council.
- **LEED BD+C:** LEED for New Construction and Major Renovations, latest version available
 - **LEED O+M:** LEED for Existing Buildings Operations and Maintenance, latest version available
- 10.14. **Life Cycle Assessment:** Life cycle assessment (LCA) is an evaluation of the environmental impacts of a product or service across its life cycle, from extraction of raw materials through manufacturing and transportation to end of life. LCAs function like nutrition labels.
- 10.15. **Major renovation or retrofit:** Extensive alteration work in addition to work on the exterior shell of the building and/or primary structural components and/or the core and peripheral mechanical, electrical and plumbing (MEP) and service systems and/or site work. Typically, the extent and nature of the work is such that the primary function space cannot be used for its intended purpose while the work is in progress and where a new certificate of occupancy is required before the work area can be reoccupied.

- 10.16. **Return on Investment:** Return on investment (ROI) is a simple formula that measures the gain or loss from an investment relative to the cost of the investment.
- 10.17. **RoHS:** The European Union Restriction on Hazardous Substances (RoHS) Directive restricts the use of six hazardous materials in the manufacture of various types of electronic and electrical equipment, including mercury levels in fluorescent lamps.
- 10.18. **Salmon-Safe Certification:** Salmon-Safe Certification involves a comprehensive evaluation of overall management policies and planning related to habitat and water quality protection.
- 10.19. **SITES:** Administered by Green Business Certification Inc., SITES offers a comprehensive rating system for projects on sites with or without buildings to enhance their sustainability, implement green infrastructure strategies and improve resilience.
- 10.20. **Solar Reflectance Index:** A measure of a material's ability to reject solar heat, as shown by a small temperature rise. It is defined so that a standard black (reflectance 0.05, emittance 0.90) is 0 and a standard white (reflectance 0.80, emittance 0.90) is 100. Materials with the highest SRI values are the coolest choices for roofing.
- 10.21. **Sustainability:** Metro adopted the State of Oregon's definition of sustainability in 2008, as defined in ORS 184.421(4), as the working definition that will be used at Metro:
"Sustainability' means using, developing and protecting resources in a manner that enables people to meet current needs and provides that future generations can also meet future needs, from the joint perspective of environmental, economic and community objectives."
- 10.22. **Total Cost of Ownership:** The comprehensive accounting of the total cost of ownership, including the initial costs, energy and operational costs, longevity and efficacy of service, and disposal costs.

APPENDICES

Appendix A

Part 1: Applying a Racial Equity Framework to the Policy Update

Metro's Strategic Plan to Advance Racial Equity

The goals of the Metro Strategic Plan to advance Racial Equity, Diversity and Inclusion in the region are:

- Goal A: Metro convenes and supports regional partners to advance racial equity
- Goal B: Metro meaningfully engages communities of color
- Goal C: Metro hires, trains and promotes a racially diverse workforce
- Goal D: Metro creates safe and welcoming services, programs and destinations
- Goal E: Metro's resource allocation advances racial equity

As part of the update of the Sustainable Buildings and Sites Policy, Metro applied a racial equity framework in accordance with Metro's [Strategic Plan to Advance Racial Equity](#). Metro convened a staff racial equity team and held focus groups with COBID-certified (Certification Office for Business Inclusion and Diversity) construction and design firms. Their feedback informed how the policy advances racial equity.

In summary, the updated policy will advance racial equity on Metro's projects by:

- Identifying racial equity outcomes and principles for all projects,
- Requiring new construction and major renovation projects to achieve the [Core Green Building Certification](#) that addresses the key environmental/climate justice and equity issues related to buildings, including: the climate impact of buildings, air quality, healthy/nontoxic building materials, accessibility, equity in contracting, workforce diversity and respecting the cultural and historical significance of land where development occurs, and
- Requiring meaningful and inclusive community engagement on Metro construction projects subject to the policy, when appropriate.

The Racial Equity Framework

To apply a racial equity framework to the policy update, Metro:

1. Convened an internal racial equity team,
2. Identified who tends to benefit and be burdened by the siting, construction and operation of Metro facilities,
3. Reviewed data sets from the Regional Barometer and other sources to evaluate community conditions related to racial equity and impacts from construction projects
4. Conducted stakeholder power analysis to determine who has influence to inform the policy decision as well as who is most impacted,
5. Reviewed and incorporated past input from community members on Metro facilities, and
6. Engaged COBID-certified design and construction firms to get feedback on the proposed policy.

Applying this framework led Metro to:

1. Identify racial equity outcomes the policy will strive to achieve,
2. Include racial equity principles to guide projects subject to the policy,
3. Include policy requirements to achieve racial equity outcomes,

4. Identify best practices for meaningful and inclusive community engagement for projects subject to the policy,
5. Develop implementation strategies to reflect and address the needs of COBID firms.

Forming a Racial Equity Team

Metro formed a Racial Equity Team (RET) of staff from across Metro with experience in racial equity analysis, accessibility, serving the public, and the operation and maintenance of Metro facilities, as well as staff with lived experience.

Identifying benefits and burdens

RET members were asked to identify who tends to benefit or be burdened by the planning, design, construction, and maintenance and operation of Metro facilities. Those who tend to benefit from construction, renovation, and operation of new and existing Metro buildings include residents who already know about and use Metro services, people who can access reliable transportation, established design, engineering and construction firms who are often awarded contracts over smaller minority-owned firms, and households near public transit and public amenities who can more easily access services. People with higher incomes and formal education who English are more readily involved in the planning of new public facilities and benefit from having a more direct path to influence the decision making process.

Those who tend to be burdened include people living nearby who can be impacted by traffic, noise, pollution, and communities and neighborhoods disrupted or displaced by the siting and construction of new facilities. People with unreliable transportation or who have difficulty accessing public transit tend to lack access to Metro facilities and services. Non-English speaking people are often overlooked or ignored in building wayfinding and signage. People with mobility and accessibility issues often lack physical access to public facilities.

The people most impacted by new facilities are often those least represented in public engagement and decision making processes. Communities of color suffer a disproportionate share of diesel particulate pollution and environmental toxins from the construction and operation of existing facilities. Those same communities often experience higher rates of dangerous urban heat island effect. BIPOC-owned businesses often get edged out by larger firms during contracting. Frontline staff who maintain buildings and interact with community members using buildings are often not involved in the planning, design, or decision making.

Evaluating community data

The RET examined data sets from the [Metro Regional Barometer](#) and other sources to help evaluate community conditions related to racial equity and the possible impacts from Metro projects past, present, and future. Data evaluation showed that a higher percentage of low income, people of color, and English-limited language residents live in equity focus areas¹⁷ with corresponding inequities related to environmental hazards, transportation, access to greenspace, language barriers, socioeconomic conditions, accessibility, urban heat island effect, and toxic chemicals and health. These same equity focus areas within the Portland metropolitan region also correlate with

¹⁷ Equity focus areas are Census tracts that represent communities where the rate of people of color (POC) or people with limited English proficiency (LEP) is greater than the regional average, or people with low income, i.e., incomes equal to or less than 200% of the Federal Poverty Level (LI). Additionally the density (persons per acre) of one or more of these populations must be double the regional average.

areas of historic disinvestment, redlining, and are largely located along or near transportation corridors where development by public agencies has resulted in displacement.

There is a lack of diversity in the construction trades in greater Portland – especially across higher skilled construction occupations. Black, Indigenous, and People of Color and women face multiple barriers in accessing and sustaining construction careers. The inconsistent nature of construction work, lack of career ladders at construction firms, and insufficient funding and resources for education, job training and support services are among the factors that limit career employment.

Stakeholder power analysis

Metro conducted a stakeholder power analysis with some members of the Racial Equity Team to determine who has influence to inform policy decisions related to siting, design, construction and operation of Metro facilities as well as who is most impacted. Stakeholder analysis helped inform policy development engagement efforts.

Reviewing recent public engagement feedback on Metro facilities

As part of applying a racial equity framework to the policy development, Metro examined previous feedback from community members received in recent years related to the planning and siting, operation and use of existing and prospective Metro facilities, including:

1. Metro South Transfer Station - Public Involvement Summary Report and Future South Community Lens document
2. Metro's Americans with Disabilities Act (ADA) Compliance Initiative Community Engagement Report and ADA Compliance Initiative Transition Plan for Parks and Nature
3. Oregon Zoo Community Accessibility Workshop

Metro did a crosswalk of the input received through these engagement efforts with the proposed policy to determine how prior community input is reflected and addressed in the policy.

Metro South Transfer Station - Public Involvement Summary Report and Future South Community Lens document

In 2019 Metro's Waste Prevention and Environmental Services department worked with Unite Oregon to form a Metro South Advisory Group to apply a robust community lens when considering site selection and planning of a new transfer station and services in Clackamas County. In facilitated sessions, the advisory group established community values and goals to prioritize when siting and planning a new Metro facility. When construction and operating facilities the advisory group asked Metro to:

- Minimize harmful impacts to the environment
- Demonstrate respect for the natural environment
- Promote environmental justice and protect wildlife, plants, air and water
- Monitor air quality to mitigate negative environmental impacts
- Ensure accessibility for people with mobility, hearing, and vision needs
- Provide safe pathways, sidewalks, and vehicle speed control around facilities
- Address odors, trash, and noise pollution of new construction and ongoing operation
- Include signage in multiple languages and prioritize the needs of vulnerable populations
- Honor the history of First Nations and the original inhabitants of the land whether through design, land acknowledgement, signage, and/or ongoing education and outreach
- Build community assets that serve as focal points for the community
- Allow communities to determine the services provided by new facilities
- Ensure fair, equitable decision making and transparency of process

- Maximize resiliency in the design of future development and facilities in anticipation and response to natural disasters or emergencies such floods, earthquakes and serve as a resource hub in the event of community emergencies

This feedback is addressed in the following requirements included in the Sustainable buildings and Sites policy:

- Core Imperative 1: Ecology of Place
- Core Imperative 2: Human Scaled Living
- Core Imperative 3: Responsible Water Use
- Core Imperative 4: Energy + Carbon Reduction
- Core Imperative 7: Universal Access
- Core Imperative 9: Beauty and Biophilia
- Core Imperative 10: Education and Inspiration

Metro's Americans with Disabilities Act (ADA) Compliance Initiative Community Engagement Report and the Metro Americans with Disabilities Transition Plan for Parks & Nature

Starting in 2017 Metro conducted an accessibility audit of the Metro Regional Center and at a series of selected Metro parks and facilities to prepare a phased retrofit schedule to address access deficits. As part of this work, in 2018, Metro solicited feedback at a series of community engagement events when developing an American Disabilities Transition Plan for compliance with the American Disabilities Act for the Metro Parks & Nature department. Participants included people who represented themselves as having disabilities and organizations advocating for people with disabilities.

Feedback received centered on how to ensure accessibility of spaces and public participation in the planning and designing of Metro facilities, including the outlining of specific and prescriptive approaches Metro can take to ensure safety and accessibility. Throughout engagement discussions, participants communicated the following community accessibility priorities:

- Remove physical barriers across Metro properties, parks, and natural areas
- Design parking with exterior accessible routes, signage, with accessible restrooms
- Deploy a variety of seating including some with arm rests, some without, single seats, and group seating with more seats available at sites.
- Provide disability access
- Ensure everyone has equal access to services
- Make spaces welcoming
- Provide accessible recreation opportunities for people across the region with prioritization on communities of color
- Document requests from people with disabilities and routinely consider potential changes or additions
- Host a community discussions to solicit public feedback on trails and parks amenities

This feedback is addressed in the following requirements included in the Sustainable buildings and Sites policy:

- Core Imperative 1: Ecology of Place
- Core Imperative 2: Human Scaled Living
- Core Imperative 7: Universal Access

Oregon Zoo Community Accessibility Workshop

In 2019, Metro hosted an accessibility workshop at the Oregon Zoo to better understand how to make facilities like the Oregon Zoo more accessible, inviting, and welcoming for people, including people with disabilities. Workshop participants emphasized that removing barriers to accessibility is not enough and to let users determine what is actually accessible. Themes from the workshop that are transferable on how to make Metro buildings more inclusive and accessible include:

- Include representation by disability communities throughout a project
- Ensure visitors of all abilities can access spaces, amenities, and experiences in comparable ways
- Work with local organizations in the planning, design, and testing of spaces
- Clearly communicate what accommodations facilities provide
- Include representation of people with disabilities on staff, as volunteers, and part of decision making.
- Make Metro facilities more welcoming, safe, and accessible for people of all abilities

This feedback is addressed in the following requirements included in the Sustainable buildings and Sites policy:

- Core Imperative 1: Ecology of Place
- Core Imperative 2: Human Scaled Living
- Core Imperative 7: Universal Access

Engagement of COBID-certified Firms

In June 2022, Metro staff worked with a consultant to engage COBID-certified construction and design firms about the policy update process. Metro recruited focus group participation from community based organizations who support COBID firms including the Professional Business Development Group (PBDG), National Association of Minority Contractors (NAMC), Oregon Association of Minority Entrepreneurs (OAME), and LatinoBuilt. Metro hosted two paid, virtual focus groups with a total of ten COBID firms to:

- Get feedback on the potential benefits or challenges that the new policy requirements could create for them, from competing for projects through the delivery of services once a contract is awarded.
- Use feedback to identify ways that Metro could support COBID firms in working with Metro and meeting the policy requirements.

Key takeaways

- Participants support Metro's commitment to sustainability with the new standards.
- Tracking certifications and specific requirements across different agencies is an ongoing challenge. Participants asked Metro to coordinate with other agencies to use similar standards when possible.
- The cost and process of learning about and obtaining new accreditations can be prohibitive and exclusionary for smaller firms with limited capital, staff, and other resources.
- Firms have a wide range of experience with third-party certifications. LEED was the most familiar certification. Only a couple participants recognized CORE, Sustainable SITES, and Salmon Safe.
- The policy should have flexibility built into it to consider which requirements make sense for individual projects.
- Participants requested more information about the certifications and policy requirements and expressed interest in a variety of offerings including online and in-person trainings, informational sessions, site visits, and charrettes.

- Participants cited a need for Metro to help facilitate connections between COBID firms, subject matter experts, and suppliers so they can form competitive teams that include the expertise required by the updated policy.

Incorporating COBID firm engagement feedback

To address COBID focus group feedback and the ability for COBID firms to successfully compete for Metro projects, the policy implementation plan includes the following::

- Clarification within policy materials how projects can apply for a Core certification exemption if not feasible for the project. If the exemption is approved, a project can pursue an alternative path of LEED certification with baseline LEED credits required.
- Metro to provide as much advance notice as possible regarding Metro's upcoming request for proposals (RFPs) and requirements.
- Metro procurement will ensure solicitations include an estimated project schedule and cost, so contractors can assess and better meet expectations in the request for proposal.
- Metro procurement will include detailed requirements and scoring metrics in project RFPs and specifications.
- Metro will reimburse the cost for firms to earn JUST certification within project budgets to ease certification burdens
- A policy toolkit with a comprehensive and accessible library of resources on policy requirements, resources, and implementation tools.
- Trainings and informational sessions on policy requirements.
- Outreach to COBID firms to connect COBID firms with professionals and firms following best practice in order to grow capacity within the industry.

Part 2: Racial Equity outcomes and requirements in the Policy

Applying a racial equity framework to the policy update resulted in the inclusion of racial equity outcomes, principles and requirements within the policy.

Racial equity outcomes:

1. Metro buildings provide healthy, accessible, welcoming spaces where staff and visitors can thrive.
2. Metro's buildings contribute to climate and environmental justice outcomes in the region.
3. Metro's capital investments in buildings create opportunities for COBID-certified firms and advance construction workforce diversity.

Racial equity principles:

To achieve the identified racial equity outcomes, the policy includes the following racial equity principles that policy requirements are designed to advance:

1. Prioritize sites that are served by public transit and are accessible by walking and biking.
2. Promote environmental justice by preventing and mitigating the negative impacts on adjacent communities related to siting and displacement, traffic, noise, and diesel emissions and other pollution from building and site construction.
3. Site and design buildings for climate adaptation, resiliency and to minimize urban heat island effect.
4. Ensure buildings and parks are welcoming to staff, the public, and all Metro constituents, including strategies like signage in multiple languages.
5. Ensure buildings and parks are accessible and inclusive to people with disabilities and include accessibility features for those with mobility, hearing or vision needs.

6. Minimize the use of toxic building materials, and require the use of non/low-toxic chemicals for operations and maintenance.
7. Ensure equity in contracting and advance workforce diversity.
8. Respect culturally significant areas and honor the history of the original inhabitants of the land.

Policy requirements that address racial equity

Core Green Building certification

New construction and major renovation projects must achieve Core Green Building Certification, which includes requirements that address environmental and climate impacts, accessibility, climate adaptation and resiliency, toxic building materials, equity in contracting, and respecting the cultural and historical significance of land where development occurs.

To address **environmental and climate justice** while protecting ecology of place, Core certification requirements all new construction and major renovation must meet the following requirements:

- Achieve a 70% reduction in total energy consumption compared to a typical existing building
- Prohibit combustion of fossil fuels
- Demonstrate a 20% reduction in the embodied carbon of primary materials (wood, concrete, steel, etc.) compared to an equivalent baseline building
- Select interior materials with lower than industry average carbon footprint
- Design projects to be “zero ready” for electric vehicle charging and future installation of renewable energy systems
- Avoid building on pristine greenfield, wilderness, prime farmland or in a floodplain, and preserve thriving vibrant ecological environments and habitats.
- Demonstrate how a project contributes positively to the ecology of place and restore or enhance the ecological performance of the site towards a healthy ecological baseline.
- Design on-site landscaping to mature and evolve and emulate the functionality of the reference habitat
- Not use potable water for irrigation.
- Treat all stormwater on site, through natural or mechanical means and without chemicals.
- Eliminate persistent bioaccumulative toxicants, and known or suspect carcinogenic, mutagenic and reprotoxic chemicals, including Red List ingredients in operational emissions.
- Address noise related to construction and operation of facilities.

To ensure **accessibility** and public safety of facilities all new construction and major renovation must meet the following requirements:

- Advance human-scale transportation to reduce single occupancy vehicle use
- Provide pedestrian routes, weather protection, and community advocacy in support of human-powered and public transportation
- Follow principles of universal access including not blocking access to fresh air, sunlight, and natural waterways

- Make all primary transportation, roads and non-building infrastructure (e.g. plazas, seating or park space) equally accessible to all members of the public regardless of background, age, ability, and socioeconomic class— including the homeless
- Design public realm features to be accessible to all members of society, including street furniture, public art, gardens, and benches
- Safeguard access for those with physical disabilities by meeting either the Principles of Universal design, the Americans with Disabilities Act and the Architectural Barriers Act Accessibility Guidelines, or international equivalent

To ensure **inclusive public participation and honoring of the cultural and historical context** of a place, new construction and major renovation must meet the following requirements:

- Assess cultural and social equity factors and needs in the community to inform design and process decisions.
- Integrate public art and design features intended for human delight and the celebration of culture, spirit, and place appropriate to the project's function.
- Examine the historical, cultural, ecological, and climatic studies of the site

To ensure **equity in contracting and workforce diversity**, new construction and major renovation projects must meet the following requirements:

- Have a Just label for at least two project team organizations
- Include 20% of design contract and/or construction contracts, and 10% of maintenance contracts with JUST organizations that achieve the Diversity category, or are registered Minority, Woman, or Disadvantaged Business Enterprises (MWDBE) organizations, or international equivalent; and
- 10% of the General Contractor project contracts include workforce development/training/community benefits agreements, registered apprentice programs employed

Projects ineligible for Core certification

If a project is unable to achieve the Core Green Building Certification standard the policy establishes a fall back sustainable building standard of LEED v.4.1 Rating System for Building Design and Construction (LEED BD+C) with some required credits to align with Metro sustainability and equity goals.

Sustainable site standards for Parks

New construction and major renovation of Metro developed parks and green spaces over 2,000 square feet must meet the SITES Gold certification standard, which is designed to enhance sustainability, implement green infrastructure strategies and improve resilience.

Requirements for all new construction and major renovation projects

All new construction and major renovation projects, regardless of size or certification standard must meet additional sustainability requirements:

- Exclude the use of fossil fuels and dedicated fossil fuel infrastructure
- Include electric vehicle charging infrastructure
- Evaluate highest and best use of rooftop space for onsite solar generation, green roof installation, and/or solar reflectivity
- Reduce diesel emissions
- Reduce embodied carbon in primary materials by 20%
- Conduct meaningful and inclusive engagement, when appropriate (Section 3.4)

Existing Sites and Buildings

To address community feedback asking for ecological responsibility and accountability, the policy requires Metro's parks and natural areas to earn Salmon Safe certification to validate Metro's responsible stewardship of salmon habitat.

In the operation and maintenance of existing Metro buildings, buildings shall apply for the LEED Rating System for Existing Buildings: Operations & Maintenance (LEED O+M) certification at the Silver level or higher. Existing LEED certified buildings will incrementally achieve higher certification, such as LEED Gold, Platinum or LEED Zero (carbon, waste, energy, water).

All existing Metro buildings, regardless of their eligibility for LEED O+M certification, shall meet the following sustainable operations requirements:

- Conduct energy audits and develop energy efficiency plans (10,000 SF or larger)
- Meet business recycling requirements and separate food waste
- Complete a sustainable roof assessment upon roof tear off or replacement to evaluate highest and best use of rooftop including solar generation, green roof installation and increasing solar reflectivity
- Replace lighting fixtures and lamps with high efficiency LED alternatives
- Select new appliances and equipment with highest Energy Star efficiency rating
- Purchase EPA Water Sense certified fixtures
- Develop and adopt operational policies and procedures that reduce use and exposure to environmental toxins
- Follow sustainability criteria during upgrades such as submetering, and using total cost of ownership and lifecycle analysis upon retrofit or replacement

Community engagement

Section 3.4 of the policy was added to require meaningful and inclusive engagement for projects subject to this policy to incorporate community feedback, to elevate the voices of those who are most impacted by projects and who have historically had the least amount of influence and to help inform, guide, and improve project outcomes.

Part 3: Accountability and Progress Tracking

The policy includes the following measures to track progress and ensure accountability:

- Reporting on sustainability achievements and certification results at the end of each new construction or major renovation project
- Annual reporting by facility of key projects completed and how they address Metro's sustainability and racial equity goals
- Annual reporting by the Sustainability Program of environmental sustainability performance data

APPENDIX B

Alternative standards for new construction and major renovation

If the project sponsor believes that Core Green Building Certification is not applicable for a specific project, they must submit an exemption request documenting why the project cannot meet Core Green Building Certification to the Metro Chief Operating Officer for approval.

If a Core Green Building Certification exemption is approved, the LEED Rating System for Building Design + Construction (LEED BD+C) certification will be required instead. The most recent version of the LEED standard will be followed.

If LEED certification is pursued, project teams should attempt to achieve the highest level of certification possible. At minimum, the following LEED-BD+C credits are required to be incorporated into each project. Metro selected the following required credits due to their alignment with Metro's environmental sustainability goals for internal operations and racial equity goals.

- a. Location and Transportation: Access to Quality Transit
- b. Energy & Atmosphere: Optimize Energy Performance
- c. Energy & Atmosphere: Renewable Energy
- d. Water Efficiency: Outdoor Water Use Reduction
- e. Water Efficiency: Indoor Water Use Reduction
- f. Materials and Resources: Building Life-Cycle Impact Reduction
- g. Materials and Resources: Construction and Demolition
- h. Sustainable Sites: Rainwater Management, Quality Control
- i. Sustainable Sites: Heat Island Reduction – Roof
- j. Sustainable Sites: Light Pollution Reduction
- k. Indoor Environmental Quality: Low-Emitting Materials

The following credits (which closely align with Metro's sustainability goals) are preferred, but not required, for LEED-BD+C projects as applicable to each project and site. These credits align with Metro's environmental sustainability goals for internal operations and racial equity goals.

- a. Location and Transportation: High Priority Site and Equitable Development Credit
- b. Energy & Atmosphere: Enhanced Commissioning
- c. Energy & Atmosphere: Enhanced Refrigerant Management
- d. Materials and Resources: Environmental Product Declarations
- e. Materials and Resources: Sourcing of Raw Materials
- f. Materials and Resources: Material Ingredients
- g. Sustainable Sites: Protect or Restore Habitat
- h. Sustainable Sites: Heat Island Reduction – Non-Roof

APPENDIX C

Additional Bird-Friendly Design, Materials Carbon Reduction, Sustainable Roof Requirements for all applicable projects/operations

Bird-Friendly Design Standards

Background

Portland sits on the Pacific Flyway, a major north-south flight route extending from Alaska to South America. The region is home or a critical stopping point for more than 200 species of birds. Many of these bird species are in decline due to multiple risk factors. Structural hazards are a primary threat to both resident and migratory birds, ranked second as a mortality factor after habitat destruction.

Purpose

Implement bird-friendly requirements in new, existing, and renovated buildings to prevent bird injury and mortality from in-flight collisions with buildings.

Compliance

1. Meet Bird-Friendly Design Requirements, OR
2. Achieve [LEED Pilot Credit 55: Bird Collision Deterrence](#)

Applicability

Bird friendly requirements apply if any of the following conditions are true:

- The project includes one or more structures with a footprint of more than 500 square feet
- The project includes one or more monopole structures
- The project includes one or more wind energy facilities
- The project involves a change to 25% of an existing building façade with exterior alterations
- The project involves installation of trail or building lighting, glass railings or exhibit windows, or a glass corridor/walkway, etc.
- Exemptions are allowed when accidents, severe weather events, and other emergency situations require immediate replacement of existing glass and infrastructure.

Bird-Friendly Design Requirements

Window Treatments

This section applies to projects with at least 10 percent exterior glass, exhibit windows, sky-bridges or atriums with exterior glazing, or glass railings. (All measures apply unless not applicable)

To reduce reflectivity and make exterior glass visible to birds, apply at least one of the following treatments to 100 percent of new windows or other exterior glass: a.) between the ground and 60 feet above the ground, and b.) for one story above a vegetated roof.

- Non reflective, opaque or translucent glass
- Glass that reflects ultraviolet light (which some birds can see), such as Ornilux, effective for use in bright sunlit conditions (not recommended in backlit conditions or densely forested settings).
- Glass that has photovoltaic cells embedded, such as IQ Glass or Voltalux.
- Application of patterns (e.g., dots, stripes, images, abstract patterns) to exterior (first outside facing) glass surfaces. Patterns may be etched, fritted or in films. Spaces between

pattern elements must be no more than two inches horizontally or two inches vertically, or both, i.e. patterns must conform to the "two by two" rule.

- ❑ External screens, decorative grills, interior screens, netting, louvers, shutters or exterior shades placed as close to the outside glass surfaces as possible cannot exceed a 9" maximum spacing between exterior elements including a 1:1 depth to spacing ratio (whether horizontal or vertical).

Reducing Light Attractants (all measures apply unless not applicable)

- ❑ Minimize exterior lighting.
- ❑ No up-lighting or light beams.
- ❑ Install full cut off, shielded, or directional lighting to minimize light spillage, glare, or light trespass.
- ❑ No lighting should be brighter than necessary to reduce glare off of adjacent surfaces.
- ❑ Install time switch control devices, motion-occupancy sensors, or non-emergency interior lights that can be programmed to turn off during non-work hours or otherwise designated hours.
- ❑ LED lighting must meet a rating of 3000 kelvin or below and 2700 kelvin in all natural areas including areas Metro defines as high value habitat.

Use best available science to select light intensity, color, and flash frequencies that reduce bird hazard if complying with federal aviation safety requirements.

Additions or exterior alterations to existing development, must comply with *Window Treatments* and *Reducing Light Attractants* requirements above by retrofitting existing windows or light fixtures if to do so will more effectively reduce hazards to birds.

Additional measures (all measures apply unless not applicable)

- ❑ Mirrored glass, exterior mirrors or mirroring materials with exterior reflectivity greater than 15% are not allowed in building or landscape design.
- ❑ Minimize the number and co-locate rooftop antennas and other rooftop structures.
- ❑ Wind generators must appear solid when in motion.
- ❑ Tower structures must not include guy wires.
- ❑ Bird attractants (exterior/interior landscaped areas, vegetated roofs, water features) may not be placed where they could be reflected in, or be viewed through, exterior glass unless the glass incorporates bird-friendly treatments (see *Window Treatments* above).
- ❑ Free-standing glass for exhibits, railing, and signage must comply with *Reducing Light Attractants*
- ❑ Trail lighting in parks and at Metro facilities must comply with *Reducing Light Attractants* guidelines¹⁸
- ❑ Upon construction of new building, or upon installation of after-market retrofit on existing building, develop a three-year post-construction monitoring plan to routinely monitor (especially in the spring and fall) the effectiveness of the building and site design in preventing bird collisions. Include methods to identify and document locations where repeated bird strikes occur, the number of collisions, the date, the approximate time, and features that may be contributing to collisions. List potential design solutions and provide a process for corrective action.

¹⁸For more information see the *Lighting Regional Trails Best Practices and Recommendations*, Lake McTighe 2016.

Best Management Practices (optional and encouraged)

The following BMPs are intended to promote bird safety through construction practices and building operation/site and management.

Avoid adversely affecting nesting birds (required per federal Migratory Bird Treaty Act)

- Schedule the timing of construction-related activities (e.g., vegetation removal, site preparation, demolition) during non-nesting season September 1 – January 31.
 - During early nesting season, February 1 – April 15, (March 30) apply best practices to avoid disturbance to vegetation, especially trees, and impact to local and migrating bird populations.
 - During primary nesting season, April 15 – July 31, avoid disturbance to vegetation.
 - Additional guidance can be found in the [City of Portland's Protecting Nesting Birds¹⁹](#).
 - Conduct nest searches if applicable.
- Extinguish nighttime non-security illumination during the spring (February 15 to May 31) and fall (August 15 to November 30) bird migration periods.
 - Recommend at minimum, exterior lighting should be programmed to be extinguished by 11 pm or midnight until 6 am unless necessary for safety and circulation.
 - Distribute educational materials on bird-friendly building and lighting practices to building managers and occupants.
- Install interior blinds, shades or other window coverings in windows with clear glass on the ground floor, visible from the exterior, as part of the construction project contract, lease agreement or covenants, conditions, and restrictions *in addition to* following window treatment and lighting attractant guidelines.
- Install screens on windows that open *in addition to* following window treatment and lighting attractant guidelines.
- Request employees to turn off task lighting at work stations and draw office window coverings at end of the day.
 - Schedule maintenance activities to occur during the day, or conclude before 11 p.m. if possible, and avoid maintenance activities that could cause disturbance during nesting seasons.
- Modify mowing practices during bird nesting times in accordance with [City of Portland's Protecting Nesting Birds](#).
- If hosting bird feeders at a Metro site follow best feeding practices to avoid creating unsafe situations for birds and wildlife²⁰.
- When designing and constructing new buildings incorporate treatments into the design to deter bird congregation and prevent nuisance problems.

Glossary

- **Frit pattern** – a bird safe frit pattern involves the application of a uniform treatment over an entire window with a consistent element of any shape (lines, dots, other geometric

¹⁹ The City of Portland's Protecting Nesting Birds provides guidance on the times of the year birds are more likely to be present or nesting in a project area within the Portland region and describes actions that minimize risk without stopping a project. Advanced planning can minimize problems later on. <https://www.portlandoregon.gov/bes/index.cfm?a=322164>

²⁰ Audubon of Oregon recommends allowing feeders only in front of treated glass facades and/or placing feeders within 3 feet of glass (to reduce momentum of birds flushed off feeders) or placing them farther than 30 feet (absolute minimum) from facade.

figures, etc.) to reduce bird collisions. Birds can see the visual markers in the pattern and avoid a strike.

- **High value habitat** - Areas that meet criteria of high ecological function, having structures to support wildlife and healthy plant diversity; Metro has documentation of these areas based on the Regional Conservation Strategy.

Materials Carbon Reduction Standards

Purpose

The intent is to reduce embodied carbon in materials and move Metro towards net-zero carbon status by 2050. Throughout their life cycle, building materials are responsible for nearly 40% of all global greenhouse gas emissions and many adverse environmental issues, including personal illness, habitat and species loss, pollution, and resource depletion.

Applicability

All new construction, major renovation and existing buildings shall comply with the requirements of this appendix, except as noted below:

- Any new construction or major renovation seeking ILFI Core Green Building Certification is exempt from Requirement 1 through 2029. Core Green Building Certification requires a 20% reduction as is. (Requirement 2, low-carbon concrete, still required.)
- Any new construction or major renovation seeking LEED v4.1 Materials Recovery Exemplary Performance credit for Building Product Disclosure and Optimization – Environmental Product Declaration (EPD) is exempt from Goal 1 through 2029. (Goal 2, low-carbon concrete, still required.)
- Non-applicable projects or existing buildings. If project or existing building-type doesn't seem applicable to the requirements of this appendix, an explanation shall be submitted within a Sustainable Buildings and Sites Policy exemption form and submitted by the Project Manager (PM) or site Operations Manager to the project Executive Sponsor and Sustainable Buildings and Sites Policy (SBSP) Coordinator. Upon their approval the project will be exempt from requirements.

Requirements

1. All new construction and major renovation must demonstrate 20% reduction in the embodied carbon of primary materials. Primary materials refer to the majority by cost of permanently installed components that make up the structural, foundation and enclosure systems of a building (i.e., concrete, steel, wood, roofing, cladding, glass and insulation).
 - Future updates to this policy will include an incremental increase in embodied carbon reductions over time to achieve net zero carbon by 2050.
2. All projects utilizing concrete shall comply with the most recent version of the City of Portland's Concrete Embodied Carbon Thresholds.
3. All existing buildings must meet the same incremental mandatory embodied carbon reductions as new construction for purchases such as new furniture, equipment and interior finishes (wood trim, carpet, ceiling tile, gypsum wallboard, wall coverings, etc.).

Implementation

1. **For new construction/renovation.** Step one: Consultant and/or contractor use free, open-source software (Athena, Tally, GaBi, EC3, One Click LCA, etc.) to calculate embodied carbon baseline and reductions and deliver to Sustainable Buildings and Sites Coordinator. Step two: Follow up by providing Sustainable Buildings and Sites Coordinator approved submittals validating that materials used in calculations were used on building, and/or substitutions (if any) matched same embodied carbon requirements. PM can forward the approved submittals from project team.
2. **For all projects using concrete.** PM ensures that consultants and contractors comply with specifications and documentation of City of Portland's Concrete Embodied Carbon

Thresholds. All specifications, EPDs and approved submittals will be forwarded by the PM to the Sustainable Buildings and Sites Coordinator.

3. **For existing buildings.** Step one: Consultant and/or contractor use free, open-source software (Athena, Tally, GaBi, EC3, One Click LCA, etc.) and/or carbon-neutral interiors' databases to calculate embodied carbon baseline and reductions and deliver to GBP Coordinator. Step two: Follow up by providing GBP Coordinator approved submittals or invoices validating that materials used in calculations were used on building, and/or substitutions (if any) matched same embodied carbon requirements. PM can forward the approved documentation from project team.
4. **For operations and maintenance purchases.** PM or site Operations Manager requests EPDs, contingent with purchase, and forwards them to Sustainable Buildings and Sites Coordinator. Procurement will make EPDs mandatory for these "top 10%" purchases, and a condition of contract execution, in procurement documents.

Glossary

- **Embodied carbon** is the carbon dioxide (CO₂) emissions created during the extraction, manufacturing, and transport of building materials used in a construction project, or the carbon footprint of a building or infrastructure project before it becomes operational.
- **Primary materials** include wood, steel, and concrete and constitute the majority of materials used in a building or infrastructure project.
- **Low carbon concrete** uses a lower embodied carbon material as the binder such as fly ash or slag to produce a concrete that results in a less overall production of greenhouse gas emissions from the mining, refining, and transport of ingredients.
- **Global warming potential (GWP)** was developed to allow comparisons of the global warming impacts of different gases. Specifically, it is a measure of how much energy the emissions of 1 ton of a gas will absorb over a period of time, relative to the emissions of 1 ton of carbon dioxide (CO₂).
- **Environmental product declarations (EPD) or EPDS** are third-party verified reports of all the environmental impacts of a product or service across its life cycle. The life cycle analysis looks at every stage of that product's or service's life. They function like a nutrition label.

Sustainable Roof Standards

Purpose

Sustainable building rooftop technologies, such as low reflectance roofs, ecoroofs, and solar photovoltaic(s) (PV) panels, are becoming more common as a result of their associated environmental benefits. *The purpose of this policy appendix is to maximize the environmental benefit of rooftops at new or existing Metro facilities.*

Requirements

Evaluate and implement sustainable rooftop technologies based on the hierarchy below to maximize environmental benefit.

1. Solar PV – highest priority due to clean energy generation
2. Ecoroof – next-highest priority to mitigate storm water, provide habitat and reduce heat island effect
3. High reflectance roof – third priority; reduces heat island effect but may contribute to higher heating costs in winter and higher maintenance needs (keeping clean)

Applicability

For the purposes of this policy the applicable roof area excludes roof area covered by mechanical equipment, skylights, and any other appurtenances.

1. All new Construction and Major Renovation projects, 1,000 sf or larger.
2. For all Existing Buildings, 1,000 sf or larger, analysis shall be completed for all roofing projects that require a tear-off or full roof replacement.
 - a. Existing building roofing projects will first consider roof restoration before tear-off due to the cost savings and environmental benefits.
 - b. If the roof does not have insulation or the existing insulation has damage, contact the Energy Trust of Oregon to see if this project is eligible for incentives.
3. Non-applicable building types must get an exemption approved by Sustainable Buildings and Sites Coordinator and project Executive Sponsor using standard project exemption process.

Approach/Implementation

4. **For New Construction and Major Renovation projects:** design consultant works with PM and design team to complete the roof assessment worksheet to evaluate the highest and best use of rooftop opportunities including solar generation, ecoroof installation, or solar reflectivity treatment, as well as some combination thereof. The completed optimal roof opportunities worksheet is submitted to Sustainable Buildings and Sites Coordinator and Executive Sponsor.
 - a. Worksheet will include a calculation of project site's total solar resource fraction (TSRF) and help project team evaluate cost/benefit opportunities for solar generation, solar reflectivity, solar-ready infrastructure design, heat island effect mitigation, storm water treatment and mitigation, and ecoroof viability based on project-specific constraints and opportunities.
 - i. Energy Trust of Oregon (ETO) offers incentives for early design assistance, solar development assistance, solar-ready design and up to \$35,000 for solar

- installation²¹. These incentives should be incorporated to help fund assessment worksheet work as well as evaluation of installation costs.
- b. Develop a project-specific roof plan for the worksheet submittal that could incorporate solar-ready design, solar generation, an ecoroof, roof reflectivity, etc. or some combination of roof treatments to encourage maximum environmental benefit from roof area.
 - c. Submit plan for approval to Sustainable Buildings and Sites Coordinator and Executive Sponsor.
 - d. If approved, PM ensures that roof plan requirements are included in design specifications. Approved submittals and summary narrative are provided by PM to the GBP Coordinator to document compliance with policy.
 - e. If rejected, PM documents decision and ensures fallback roof runoff requirements are met, documented and reported.
5. **For Existing Building projects:** after restoration vs. tear-off replacement analysis of existing roof is complete, design consultant works with Building Operations Manager and/or PM to complete roof assessment worksheet to evaluate the highest and best use of rooftop opportunities including solar generation, ecoroof installation, or solar reflectivity treatment, as well as some combination thereof. The completed optimal roof opportunities worksheet is submitted to Sustainable Buildings and Sites Coordinator and Executive Sponsor.
- a. If engineering and cost analysis shows work is feasible, the project moves forward pending a decision on practicality by the Executive Sponsor and GBP Coordinator.
 - b. If approved, PM ensures that policy requirements are included in design specifications. Approved submittals and summary narrative are provided by PM to the Sustainable Buildings and Sites Coordinator to document compliance with policy.
 - c. If rejected, PM documents decision and ensures fallback roof runoff requirements are met, documented and reported.

Glossary

- **Ecoroof** – *An ecoroof is intended to minimize the urban heat island effect, enhance urban habitats for wildlife, and reduce storm water runoff. An ecoroof consists of a layer of vegetation over a growing medium on top of a synthetic, waterproof membrane.*
- **Total Solar Resource Fraction** – (TSRF) is the amount of sunlight the measured area will receive over the year. In more scientific terms, it is the ratio of insolation available accounting for both shading and Tilt and Orientation Factor (TOF), compared to the total insolation available at a given location at the optimum tilt and orientation and with no shading.

²¹ https://insider.energytrust.org/wp-content/uploads/Part_5_Solar_Development_Assistance.pdf

Sustainable Building Roof Assessment Worksheet

Sustainable building rooftop technologies, such as solar photo-voltaic(s) (PV) panels, ecoroofs, and high reflectance roofs are becoming increasingly implemented as a result of their associated environmental benefits. Multiple rooftop technologies may be employed on the same roof simultaneously. *The purpose of this worksheet is to maximize the environmental benefit of rooftops at new or existing Metro facilities by evaluating sustainable rooftop technologies based on the hierarchy below:*

1. **Solar power generation** – highest priority due to clean energy generation
2. **Ecoroof** – next-highest priority to mitigate storm water, provide habitat and combat heat island effect
3. **High reflectance roof** – lowest priority; combats heat island effect

General Information

Project Manager _____

Project Sponsor _____

Project Name/Description _____

Project Address/Location _____

Does project site zoning or historical designation affect the type of roof that can be used?

Yes No

1. Solar Power Generation

What is the project site's total solar resource fraction (TSRF)? _____

Physical assessment Remote assessment

Projects with a TSRF greater than or equal to 75% with a Physical Assessment and 80% for a Remote Assessment are recommended for solar power installation.

Based on TSRF, does this project qualify? Yes No

If "yes" above, what is the minimum anticipated yearly output for project solar power _____
_____ kWh

What are the anticipated yearly savings in electricity costs? _____

What is constraining the project's anticipated power output?

Size/area of project

Cost/budget

Other, describe _____

For existing buildings, is the weight-bearing capacity of the facility sufficient for solar power generation?

Yes No

If "no", what upgrades are needed? _____

What is the estimated cost of the upgrades? _____

2. Ecoroof

Approximate size of the project site's total ecoroof area _____

What is constraining the project's ecoroof area?

- Size/area of project
- Cost/budget
- Other, describe _____

What is the primary purpose for project ecoroof?

- Manage storm water runoff
- Provide habitat
- Mitigate heat island effect
- Education/demonstration
- Aesthetics
- Other, describe _____

Why is an ecoroof the best strategy to address for this purpose for this project? _____

Are there/will there be resources (a maintenance plan, funding, trained staff and/or contractors) for ongoing maintenance of the ecoroof? Yes No

What is the estimated yearly cost to maintain ecoroof? _____

How will maintenance be funded? _____

For existing buildings, is the weight-bearing capacity of the facility sufficient for ecoroof?

Yes No

If "no", what upgrades are needed? _____

What is the estimated cost of the upgrades? _____

3. **High-Reflectance Roofing**

Ascertain solar reflectance index (SRI) from roofing product manufacturer.

Low-reflectance roofing shall meet the following requirements:

- Solar reflectance index (SRI) of Low-sloped (< or equal 2:12) roofs minimum SRI = 82
- Solar reflectance index (SRI) of Steep-sloped (> 2:12) roofs minimum SRI = 32

What is the approximate percentage of total applicable low-sloped project roof area? _____
_____%

What is the SRI of the proposed roofing product for the low-sloped area? _____

Does the proposed roofing product meet the SRI requirements for low-sloped roof?

Yes No

What is the approximate percentage of total applicable steep-sloped project roof area? _____
_____%

What is the SRI of the proposed roofing product for the steep-sloped area? _____

Does the proposed roofing product meet the SRI requirements for steep-sloped roof?

Yes No

If "no" for either, what is constraining the product choice?

- Aesthetics

- Cost/budget
- Specific product performance requirement
- Other, describe _____

What is the estimated yearly cost to maintain low-reflectance roof material? _____

For existing buildings, is this more or less than existing roof material?

More Less About the same

Roof Plan

Based on analysis of worksheet responses above, develop and attach a project-specific roof plan that briefly summarizes how the project will incorporate solar power generation, solar-ready design, an ecoroof, roof reflectivity, or some combination thereof, to maximize environmental benefit of project roof area. Include anticipated outcomes and cost/benefit of approach(es). Please identify anticipated grants, incentives and other resources contributing to the project's success.

Submit completed worksheet, including roof strategic plan summary, to the Sustainable Buildings and Sites Policy Coordinator and Project Executive Sponsor for approval.

APPENDIX D

Reporting template for new construction, major renovation and operations and maintenance projects that support the Sustainable Building and Sites Policy

New construction and major renovation projects

At the end of each new construction or major renovation project, the project manager is responsible for submitting the following information to the Sustainability Program:

- (1) Report the amount of construction and demolition (C&D) waste diverted from each project and reused on the job site (total tons, percent diverted, and list of primary materials diverted).
- (2) Provide a summary of Core imperatives or all LEED credits, SITES credits that were incorporated in the project.
- (3) Provide a copy of certification document for either Core, LEED, or SITES when available.

Operations and maintenance projects

At the end of each fiscal year, operations managers are responsible for submitting a summary of sustainable building operations and maintenance projects completed in the previous fiscal year, including capital improvement projects and renewal and replacement projects that implement this policy.

- (1) Provide a one to two-paragraph summary of the project.
- (2) Note which of the [Metro sustainability goals](#) the project addresses and how.
- (3) Are there any anticipated resource or financial savings expected from the project? If so, please summarize.