

December 20, 2011

## MEMORANDUM

### Feedback Summary · Partner Focus Groups

To Heather Nelson Kent, Metro

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On November 29 and 30, Metro's Sustainable Building and Landscaping team hosted three focus groups with government, non-profit, and business partners to explore opportunities for expansion of sustainable building and landscaping practices throughout the region. Metro staff also conducted an internal focus group on November 22. The goals of the facilitated discussions were:

- Identify trends, barriers, overlapping services or gaps in existing services;
- Identify opportunities and challenges for these program areas over the next five years; and
- Solicit suggestions for the best role(s) Metro can play in these efforts.

For 90 minutes, the participants worked through four questions, which were sent out ahead of time. Feedback was obtained through a facilitated dialogue and through written comment. Each focus group was asked the same questions:

1. What would it look like if there were deeper and more widespread adoption of sustainable building and landscaping practices in our region?
2. What are the greatest opportunities or trends you are seeing that might change or alter Metro's approach over the next 3-5 years?

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3. What is preventing this from happening? Where are builders, developers, property owners, landscaping firms and others getting stuck implementing sustainable building and landscaping practices? Which are the greatest barriers?
4. How can Metro help?

Following is a summary of the emerging themes, feedback, and outcomes from the focus groups. Appended to this memorandum are detailed notes from the sessions and a list of participants.

### **What happens next**

Input obtained from partner discussions will be used for further dialogue with industry professionals in a second round of focus groups scheduled for January/February 2012. Ideas regarding the future role of Metro are being studied and, along with findings from a literature review, will be considered for potential inclusion in a package of recommendations. Once a set of preliminary recommendations is complete (anticipated in February/March 2012), Metro will host feedback sessions with partners and other industry professionals to gain further input. It is expected that the project of refining Metro's future role in sustainable building and landscaping practices will be complete in Spring 2012, with subsequent implementation.

## Memo Contents

Emerging Themes .....	4
Discussion Summary .....	6
Near-term trends .....	6
Barriers to progress .....	9
How Metro can help .....	11

### Appended

Compiled Focus Group Notes

Participants

## Emerging Themes

The focus groups were generally organized by interest in the field of sustainable building and landscaping: planning/policy/regulatory, implementation/education/outreach, and businesses on the leading edge of sustainability. Every effort was made to ensure invitees could participate, so there was some mingling of interests and perspectives in each of the groups.

Through the course of listening to the three discussions a few major themes emerged. Without seeking consensus, almost all participants agreed with the following:

### **Consolidated Consumer Information**

**There is willingness among consumers in the region to adopt sustainable building and landscaping practices; in order to make better decisions they need relevant, accessible, and accurate information from a trusted source.**

Many ideas that emerged from the focus groups were centered on educating end-users: materials guide, ad campaigns, community courses, promotional materials. There was broad recognition that on a whole the region's citizens want to 'do the right thing', but there is an overwhelming amount of information to sort through and it is not always clear who's information can be trusted. It was viewed that Metro's positive reputation for communicating about recycling and collecting hazardous household waste can be leveraged into a new campaign about sustainable building and landscaping materials and methods.

### **Industry Training**

**Industry professionals, especially those who aid consumers in making decisions (designers, general contractors, engineers, building suppliers), need more opportunity to learn about integrating sustainable practices and the lifecycle cost/benefit relationships of the practices.**

There is a strong desire to expand technical assistance and training offerings for industry professionals. The need was mentioned with regard to design and building methods as well as materials.

A few focus group members mentioned the idea of Metro developing and administering a 'sustainable contractor / landscaper / building manager' certification program. It is viewed that such a program could motivate greater participation in trainings and also help the consumer find qualified professionals.

## Local Research and Analysis

**Leaders and industry professionals need more research and information on best practices specific to this region.**

Participants are especially interested in regionally-specific development proformas, life cycle cost analysis for various sustainable improvements, cost/benefit analysis that includes community impacts and environmental externalities, and testing of landscaping and building materials that work best in the area. There is recognition that many best practices being explored in the region rely on data from other parts of the country or the world. It was often noted that in order to realize sustainable practices as mainstream in our region, localized knowledge is required.

## Performance-based Practices

**Participants generally desire a new system of policies, codes, and possibly rating programs that emphasize energy and materials performance as a guide for building and landscaping improvements.**

The energy performance code was most-often noted with regard to retrofitting existing building stock. It was also mentioned that a materials-performance system, including reclaiming/reused products, could greatly aid consumers in decision-making. As mentioned above, additional research and analysis would support greater understanding of how systems perform under local conditions and which practices could achieve a higher performance.

## Systems Approach

**There was much discussion in the focus groups about full integration of sustainable practices into a systems-based approach.**

The general direction is to think about sustainable building and landscaping as an ecosystem of professionals and a physical network seamlessly tying together the built and natural environments of the region. It was emphasized that the natural environment needs to be linked and spread throughout the region (not just at the edges) and needs to incorporate public rights of way as part of the system.

The building and management professions need to be integrated from concept through ongoing maintenance to ensure the entire built/natural ecosystem is considered, rather than just a collection of sometimes-dissociated plans or projects. Through a 'systems' lens, professionals from public, private, and non-profit sectors would operate as a coordinated team.

## Toxin Regulation

**Harmful pesticides / herbicides, used for aesthetic purposes, and invasive plant species require a regulatory approach to mitigate damaging effects on the health of people, wildlife, and the natural environment.**

There was broad recognition by participants that harmful pesticides / herbicides and invasive plant species are widely available and constitute a significant barrier to realizing an environmentally sustainable region. Participants believe these dangerous products and materials should be banned. Metro's role could be to advocate at the state and federal levels for a response and/or to regulate the products regionally. Canada's pesticide controls are seen as a policy example to pursue.

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## Discussion Summary

In addition to the emerging themes, there were many more fine-grained details and ideas captured in the discussions. What follows is a summary of the focus groups. Comments have been grouped into general topic areas with example comments beneath. Notes, in entirety, are appended.

## Near-term trends

Participants were asked to write down trends that could change Metro's approach to broadening adoption of sustainable building and landscaping practices over the next three to five years. Following the written exercise, groups were asked to discuss the most prominent trends and near-term opportunities.

Frequently noted ideas include: economic instability, demographic shifts, greater consumer awareness, increase in native and low maintenance landscapes, growing concerns about climate change, and adoption of system-based approaches to change.

## ECONOMIC INSTABILITY

Poor economic trends are causing consumers and builders to consider alternatives to traditional building and operations practices. There is a desire to look at long term cost effectiveness of improvements, re-using and/or reclaiming buildings or materials, and operational costs, especially related to energy efficiency.

'Poor economic trends are encouraging reuse'

'Increasing costs of materials, fuel, etc. creates a climate where people and businesses are willing to be more efficient, less wasteful.'

'Economic downturn provides an opportunity for more robust partnerships and volunteerism, grant-supported projects and social change.'

## DEMOGRAPHIC SHIFTS

A younger, more urbanized generation (Gen Y), combined with downsizing of the Baby Boomer generation are resulting in increased demand for compact, low maintenance living with easy access to urban amenities.

'Gen Y is willing to live differently: no car, smaller space, urban'

'20-minute neighborhoods: access to parks, resources, public transportation, etc. This can be a tool for equity and inclusion.'

'Current economics involved with household formation and the cost of gas creates an opportunity to transform this region.'

## CONSUMER AWARENESS AND DEMAND

The average citizen is becoming more aware of sustainable practices. In turn, the consumer is demanding marketplace response to their desires of living more simply and to having a smaller impact on the natural environment.

'General population is getting smarter about sustainability; becoming easier to make the business case for it.'

'There is growing awareness that sustainability is good business in the long term.'

'Citizens have knowledge about and openness to sustainability benefits and willingness to engage in community systems design.'

## NATIVE / LOW MAINTENANCE LANDSCAPINGS

The region's property owners and stewards are realizing the environmental impacts of non-native landscapes and also the benefits of taking guidance from natural areas. Increased consumer awareness of sustainable practices combined with a desire for lower building maintenance requirements are resulting in broader incorporation of native landscaping within the urbanized areas.

'More use of natives and food production in landscapes'

'Older generation and empty-nesters looking to move out of labor-intensive housing'

'Increased use of natural stormwater management: rain gardens, swales, reduction or elimination of pipes onsite for stormwater'

## CLIMATE CHANGE

It is perceived that extreme weather events in recent years are increasing concerns about the ability to sustainably live in parts of the United States, especially the desert southwest. These weather events combined with evidence regarding sea level rise and long term impacts of climate change could result in an influx of 'climate refugees' to the region. While the migration is not likely to take place in the next three to five years, there is a desire for the region to begin to model possible population alternatives and plan for how growth will be managed with relationship to clean air, water, and natural environments.

'Growing awareness and concern about climate change, carbon footprints, etc. among citizens, local governments, and private sector.'

'Extreme weather and global warming will continue to worsen. Buildings and landscaping will have to adapt.'

'Our metro area is going to be perceived as a haven for environmental refugees from other regions that experience extreme weather - how will we integrate them into a sustainable lifestyle?'

## SYSTEMS THINKING

The industry, and to some degree consumers, are increasingly adopting a systems-based approach to building and landscaping practices. The result has been re-imagining sustainable natural areas as a regionwide system intertwined through the urban environment. It has also meant small, local areas of property owners imagining cooperative energy and water (re)generation systems, as well as design and building professionals working in a more integrated

fashion from the beginning of a project idea.

'District-scale planning for energy, water, and waste (i.e. eco district)'

'Green building' is starting to move toward holistic/system perspective

'Lots of parallel tracks between government agencies, non-profits, etc: opportunity to convene groups to create a common platform and plan for shared resources, etc.'

## Barriers to progress

Following discussions for a vision of the region's future with widespread adoption of sustainable practices and of observed trends and opportunities, participants were asked to catalog the issues and behaviors preventing change. Overwhelmingly, two major barriers to deeper and more widespread sustainable practices emerged: lack of an accurate and sufficient business / financial model and lack of a highly-knowledgeable citizenry and building industry to drive the change. Other barriers worth noting included cost premiums (real or perceived), outdated codes and policies, and a focus on capital-intensive and high-tech solutions.

### BUSINESS / FINANCIAL MODEL

There was much discussion in each of the focus groups about the need for a more inclusive and robust financial model that expresses all costs and benefits, including monetary and externality implications. There is also recognition that the models need to consider not just the short, mid and long term costs and benefits, but also who is likely to benefit at each stage. And, finally, there is a growing need on behalf of the industry to find a new model that is widely adopted by bankers, appraisers, and others in the financial industry and gives commensurate value to sustainable building and landscaping investments.

'Products do not clearly identify long and short term cost/benefit.'

'Some strategies are too dependent on subsidies resulting in an unstable supply side if funding comes and goes; industry does not mature with demand.'

'Developments often have different owners in short and long term: short term developer likely not benefitting by long term lifecycle costing.'

'Outdated lending criteria by funders, banks, etc. that does not recognize or value long-term sustainability.'

'Economic model of what is 'cost effective' doesn't address greenhouse gas emissions, long term lifecycle costs.'

'Governments do not always understand business models / realities.'

## CONSUMER AND INDUSTRY KNOWLEDGE

There was broad recognition that the Portland region has a citizenry who embraces the sustainability ethic and is motivated to change. However, there was also much discussion about the level of knowledge the general public has now and will need to increase deeper and more widespread adoption of sustainable practices. The consumer is working to self-educate, but must filter through an overwhelming number of product and method choices with little background. Similarly, those helping the consumer make choices are sometimes not as informed as they could be to help in the decision-making.

'Navigation of options is overwhelming: understanding costs, filtering through the vast number of options - need simple roadmap to change.'

'There is a lack of clear, accessible, easily understood information at the consumer level'

'Building professionals' level of training is lacking in integrated sustainable practices'

'General lack of knowledge about tools, techniques and concepts for sustainability (example: triple bottom line pro forma templates, accessible lifecycle assessment tools)'

## OTHER COMMON BARRIERS

Some of the participants noted a concern about the image of sustainability as a 'niche' movement, unattainable to the average consumer. It was generally believed that this perception relates to sustainable practices costing more than the old way of doing business (real or perceived) and an industry focused on high-tech and gadget solutions.

The participants also provided details on various codes and policies that are standing in the way of good building and maintenance practices. Government allowances/regulations have been unable to keep pace with best practices research and innovations in the field.

'There is a perception of cost premium for sustainable practices'

'Emphasis on high-tech solutions and gadgets; too costly and/or unavailable for widespread use'

'State legislature is slow to act on health risks (such as code revisions or toxic product controls).'

'Metrics sometimes don't lead to the best outcomes (ex: 'durable', 'recyclable', insulation vs. reduction of building materials) and multiple metrics must be balanced without clear guidance.'

'Sustainable practices are not included in basic life/safety/health charge of government.'

'Conflicting regulations, for example street width requirements (ASHTO) and sustainability aspirations'

'Local jurisdictions can't adopt building code more strict or different than state code and the state code doesn't keep up with new innovations quickly enough.'

## How Metro can help

Focus group participants were provided a brief introduction to the roles Metro performs in the region and the types of sustainable building and landscaping work currently underway. For the purposes of this project, Metro is described as functioning to:

- Set regional policy
- Educate, train, inform consumers and professionals
- Research and analyze
- Administer regional waste management
- Advocate for change
- Lead and innovate
- Seed implementation

Suggestions from focus groups on the actions Metro can take toward achieving a more sustainable building and landscaping environment are categorized by these roles. High-level action ideas have been generated from the input and will be used for discussion amongst Metro staff, industry professionals and other stakeholders.

### SET REGIONAL POLICY

#### **Develop and set standards / regulations for sustainable practices that are consistent between regional jurisdictions**

- 'Provide regional consistency of requirements and practices'
- 'Help develop and advocate for universal accessory dwelling unit policy/code - consistency across jurisdictions'
- 'Develop regional green building standards, certifications, regulations'
- 'Support an alternative code pathway for increased sustainable practices'
- Participate in bird-friendly guidelines effort

#### **Prohibit (regionally) sale or distribution of invasive plants and noxious weed, harmful pesticides / herbicides used for cosmetic purposes; prohibit use of harmful pesticides / herbicides and switch to non-toxic building supplies at any Metro-owned property or facility**

- 'Ban invasive species from being sold in the region'
- 'Be the regulator of last resort (where the State fails), i.e. harmful products, invasive plants'
- 'Expand regulatory role to reduce toxins (pesticides and other) and invasive species'
- Participate in lights-out program at Metro facilities

### **Develop and set integrated performance standards and measurement tools for regional decision-making (i.e. MTIP, 2040 Plan implementation, corridor planning, etc)**

- 'Mandatory energy performance scores'
- 'Help change the planning paradigm from a focus only on hardware (pipes, buildings, parks, etc) to one that incorporates software (integrated systems of community energy, water, waste, money, information, and food flows)'
- 'Develop community-scaled, aspirational, integrated resource plans (food, ecosystems, etc); use new plans for decision-making, tag onto the 2040 plan'
- 'Goal-setting: develop comprehensive, sustainability goal and development measurement (ex: ecological footprint)'
- Take a performance-based approach on use of materials, water, energy, health, and equity in projects: restorative building should guide the way. How do we develop projects that improve our natural resources?

### **Convene and facilitate development of a regional stormwater system**

- Analyze stormwater standards and provide recommendations for regional guidance (consistency)
- Convene / facilitate regional stormwater system: understand system impacts and steps to take. A vision for how it should function

## **EDUCATE / TRAIN / INFORM / PROMOTE**

### **Industry, consumer and local government staff training and education on products, design, methods, permitting, and costs/benefits**

- 'Provide training for industry professionals who help consumers make choices: include ROI, cost/benefit, and lifecycle details'
- 'Provide education program for contractors - materials and methods; consider contractor certification program'
- 'Sponsor design symposia on sustainable design for design professionals as well as for homeowners and small commercial property owners'
- 'Create a remodeling audit program to assist with choices'
- 'Partner with K-12 education for seamless integration into school curriculum'
- 'Assist consumer with permitting - become a regional clearinghouse for assistance with sustainable building and landscaping practices'
- 'Consistently train and educate local government permit and engineering professionals'
- 'Work with landscape and nursery industry to prevent sale of certain, invasive plants'
- 'Develop 'green lease' standard; coordinate with large leasing institutions (OHSU, PSU, etc)'

**Develop and administer certification program for products and/or contractors**

- 'Help develop rating systems for various elements that can aid an already-motivated public
- 'Support landscape trainings: grow into certification program; use existing efforts such as TILTH, eco-biz'
- 'Develop energy performance scoring system'

**Provide staff and/or resource partnership to expand existing education and outreach programs (i.e. downspout disconnect, solarize Portland, etc)**

- 'Expand current support of green building outreach, focusing on benefits to occupants of buildings'
- 'Sponsor or promote expansion of programs that are working: downspout disconnect, solarize Portland, etc.'

**Organize and maintain a regional clearinghouse of information sustainable practices and materials (online, searchable database)**

- 'Be a resource / repository for practical information: make sure everyone knows about a single place for information'
- 'Be the central hub for information, technical assistance and training on sustainable building and landscaping'
- 'Be a connector / resource for information and conduit to market/business practices that are sustainable'
- 'Provide a call service: non-intimidating, helpful, available to the consumer. No one will call the cities / counties with questions because they're seen as enforcers'
- 'Clearinghouse for information exchange about what everyone in the region is doing to advance sustainable practices'

**Produce and maintain sustainable materials selection guide**

- 'Provide detailed materials selection guidance'
- 'Support use of specific materials (partner with PDC)'
- 'Increase availability of product information for partners to conduct consumer outreach, especially regarding health and environmental impacts'
- 'Materials selection guide (DEQ as a partner)'

**Produce consumer pamphlets for various sustainable practices/materials (brief, clear, simple, accessible, emphasize benefits)**

- 'Provide well-developed information on sustainable practices emphasizing benefits to individuals and community: make it web based with access to savings and discounts'
- 'Provide resources on native plant species and natural habitat: web based with access to savings and discounts from partner businesses'
- 'Develop a series of 'one-pagers' for different building projects, such as decks, additions, landscaping, etc; include sustainable materials, costs, where they can be purchased, why they are more sustainable than other choices, additional resources for design and construction advice'

**Conduct direct-consumer campaigns: ads for simple living, re-use, dark sky, pharmaceutical take-back, low tech/low cost options, native plants / natural habitat**

- 'Ad campaign about simple living'
- 'Promote re-use'
- 'Promote dark sky code'
- 'Educate next generation of consumers: apps for good consumption choices'
- 'Become a catalyst - partner for the most effective public education campaigns re: toxins; targeted and focused'
- 'Expand equity and climate change discussions into the community'
- 'Expand drug take-back program'
- 'Develop and /or promote low tech and low cost options'

**Sponsor / support consumer shows**

- 'Support / sponsor / collaborate with existing consumer based shows'

**RESEARCH AND ANALYZE**

**Support for people and organizations to make product or design choices: lifecycle cost/benefit, relative performance**

- 'Research / analyze local cost / benefit to various sustainable options: provide a consistent baseline and define who is paying throughout the lifecycle'
- 'Explore low tech and low costs strategies that are attainable by many and have a large cumulative effect'
- 'Develop the true lifecycle costing of certain practices or products'
- 'Increase technical capacity regarding lifecycle analyses, share with partners'

**Research to understand better the market drivers and barriers: standards, lifecycle costs and who benefits over time, market demand, etc.**

- 'Explore market drivers to increase market demand'
- 'Create template for sustainable development proforma'
- 'Develop accessory dwelling unit demonstration project'
- 'Research: why practices aren't being used (ex: Tualatin Valley)'

**Analysis to justify sustainable practices: research post-occupancy performance, optimal glazing amount and type, regionally-applicable I.i.d./stormwater mgmt, etc.**

- 'Conduct post-occupancy studies: do green development practices really work?'
- 'Study, research, and report on, the optimal amount of glass for various building types. Glass is the least efficient element in any building envelope. Understand the pull/balance between energy efficiency of the window, reduction in lighting consumption, and market response.'
- 'Develop feasibility study with cost / benefit analysis to demonstrate low impact development is a smart way forward'
- 'Research (identify, fund, do) for low impact development specific to this region: values of different habitat approaches in urban setting'
- 'Help to coordinate zoning/design review with ecological and cultural systems throughout the region - calculate the net present value / benefits'

## ADMINISTER REGIONAL WASTE MANAGEMENT

**Develop and implement system for re-use materials collection and trade, including modification of recycling system: topsoil, construction materials, demo waste**

- 'Develop a soil transfer station for construction trade - excavation soil depots that are convenient throughout region'
- 'Change find-a-recycler to include re-use'
- 'Re-look at Boneyard NW'

**Develop and implement a new business/financial model for regional waste management emphasizing re-use and waste reduction**

- 'Develop central drop off for re-use, recycle: operate transfer stations in a different way and involve haulers; work with haulers to define a new business model that is focused on waste reduction'

## ADVOCATE FOR CHANGE

### **Advocate for legislative changes, at the state and/or federal level that bans harmful pesticides/herbicides used for cosmetic purposes and invasive plants**

- 'Advocate / lead on product ban (harmful pesticides/herbicides, invasive plants)'

### **Work with state legislature and local governments to make building code changes that remove barriers to sustainable building and landscaping practices**

- 'Incent at the local level to push beyond the building code'
- 'Advocate for state code changes, including 'green' building options'

## LEAD AND INNOVATE

### **Develop sustainable innovation competition, support with funding for participation (ex: Nature in Neighborhoods competition)**

- 'Continue efforts like Nature in Neighborhoods design competition to inspire and engage'

### **Create 'biologist designer' program: lend biologist/staff to design teams throughout region**

- 'Lend biologists to design teams: "biologist at the design table" program'

### **Seed / fund demonstration projects: green infrastructure, eco-charrettes, eco-industrial district**

- 'Look at Southwest Corridor project as an opportunity to continue and expand integrated regional / system approach'
- 'Develop targeted and focused restoration / conservation strategy rather than scattershot approach (ex: habitat corridors)'
- 'Focus on neighborhood and district scale sustainability'
- 'Seed an eco-industrial development somewhere in the region'
- 'Facilitate eco-charrettes with all projects and use integrated design'

## SEED IMPLEMENTATION

### **Seed revolving loan fund to assist consumers with upfront cost premiums for sustainable building or landscaping (loans administered through Metro or through other local governments)**

- 'Capitalize fund to aid with upfront costs (ex: district-level efforts)'
- 'Develop building improvement loan partnerships with banks, and possibly utilities, to provide very low cost weatherization loans - allow loans for owner-installed improvements'
- 'Create funding banks to allow for this throughout the region'

### **Provide grants to consumer for Nature in Neighborhoods, retrofits, natural landscaping**

- 'Offer mini-grants / low-interest loans to people who want to retrofit existing building or landscaping'
- 'Make Nature in Neighborhoods grant opportunities easier for people to attain'

### **Create and provide financial incentives to increase consumer use of sustainable practices: SDC waivers/grants, energy and water performance grants, loan partnerships with banks, re-use, etc.**

- 'Create incentives to help improve the existing building stock: energy and water performance, re-use'
- 'Using funding to get at multiple-objective projects, not just demonstration projects'
- 'Research and recommend methods to incentivize retrofits of existing building stock'
- 'Eliminate SDC for all accessory dwelling units'
- 'Seed green infrastructure projects'

### **Convene local jurisdictions and partners throughout the region to facilitate a dialogue, resolve conflicting sustainability policies and code standards, assist with cross-disciplinary connections, etc.**

- 'Catalog conflicting regulations and develop plan to bring parties together to resolve conflicts'
- 'Help to make linkages / connections across disciplines to help people evaluate their choices'
- 'Convene / facilitate getting together local governments and development community'
- 'Convene partners regarding plumbing code update'

**Support and assist jurisdictions to adopt sustainable building and landscaping standards and policies**

- 'Assist smaller jurisdictions with adopting a comprehensive 'sustainability' program'

**Expand volume-discount program to include various sustainable building or landscaping products**

- 'Offer volume-access pricing for rainwater capture assemblies, similar to black compost bins, or resources for cost effectively building own'
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## COMPILED FOCUS GROUP NOTES

### Q1 What does a future with sustainable building and landscaping look like?

- There is an eco-system of expertise: designers, funders, builders, developers, etc
- No cost premium to do the right thing - costs are internalized, reduced
- Standards will be applied regionally or site-specific, conditions depending
- Lifecycle costing is the norm
- Integrated systems: permaculture way of thinking
- More adoption of re-use
- Reuse has a common language
- Lessened restrictions on re-using historic buildings (Europe as an example)
- Contractor education / training, including minority-owned and small businesses
- More technical assistance for businesses, especially covering the 'nuts and bolts'
- Better grasp of the holistic, defined net community benefit
- Building codes keep up with innovation
- Regional / jurisdictional consistency in codes
- The region's sustainable building and landscaping efforts are aligned with Washington's
- Governments have shifted/blended into teams
- Metro provides models for successful sustainability efforts and addresses barriers
- More demonstrations on the difference between recycling and reclaiming - education
- Occupants are active players in sustainable practices
- New materials are diverted from the waste stream
- Reverence and celebration of sustainable practices
- Sustainability is no longer a 'niche'
- Increase of locally-sourced materials - a new economy is developed
- Public realm is also central to change (rights of way are re-used differently than we currently allow, including habitat and people)
- It is understood that hog-fuel is not the same as recycling
- Children are educated owners - we start with the schools
- Standards are based on performance - codes have an option for performance code
- Construction process recognizes cost differentials with varying types of performance
- There is consistent enforcement of codes
- Carbon offset market exists
- Deconstruction is more cost effective and widely used
- Broad, low cost, low technology options are emphasized - opportunities for many people to adopt that are economically and environmentally sustainable
- More low tech options exist - not just widgets
- We have moved beyond metrics into system-based thinking
- More multi-objective options

## Q1

- Practices are widespread throughout industry and its workforce
- 'Green building' / 'eco' isn't a niche
- Designing for sustainable results is the way of doing business
- There is a consistent platform of requirements used by all regional jurisdictions: site-specific and integrated into the built and natural environment
- Local hubs for high quality, sustainable materials located throughout the region - new and reclaimed - self-sustaining and includes reduction of greenhouse gas emissions as a goal
- Healthier people: kids, workers, etc
- Clearly defined difference between 'green' and truly 'sustainable (vs. less bad); living building challenge working in this direction
- Natural systems are part of the equation, not just buildings
- Balancing between density and natural environment: protected resources, but also natural space where we live (not just on the edges of the region)
- Building inspections include more than life and safety: occupant health and natural environment equally important
- Appraisers apply real value to sustainable building features
- Increased opportunity to live car-free: smaller units, infill, multi-family
- Retrofits of 1-family to multi-family is allowed in zoning
- Energy efficiency score have more widespread application and include materials lifecycle costing
- Decrease in subsidies for non-cost effective sustainable strategies and more critical evaluation of what is being subsidized (energy efficiency vs. solar energy)
- No harmful pesticides/herbicides are being used for aesthetic purposes
- Build/natural system that is balanced with climate changes
- More dense, urbanized areas with more green areas near development (ex: schools are very inefficient with land consumption)
- Broader public knowledge and action on sustainable practices, increased sense of ownership
- Increased choices (edited) for consumers (ex: get more aggressive on invasive plants, harmful pesticides/herbicides)
- Houses are smaller
- Less energy consumed
- There is connectivity of landscaping system through use of public space, natural areas, parking strips, etc
- Reduction of heat sinks: parking lots and impervious surface
- No use of high hazard toxins - market response, no longer available
- Integrated ecosystem in built environment
- Early consideration of hazards
- Housing costs include externalities
- More sustainable living examples are available: different models for different families, including financial models
- More educated consumer

**Q1**

- Financial institutions acknowledge value of sustainable practices
  - Case studies available to support sustainability: include ongoing consumer impacts and incentives to support
  - Houses take up less land, smaller footprint
  - Single-family homes can serve multiple families
  - Sustainable improvements to existing structures and landscaping are monetized, especially with form-based codes
  - Informed development professionals who can educate the consumer
  - Energy performance scope for homes: expansion of metrics to include landscaping and materials
  - Building feedback mechanisms are more widely available to track energy use
  - Market values recognize gentrification pressures
  - Re-use is mainstream way of thinking
  - Agriculture is integrated into the urban environment, edible landscapes
  - Development is responsible for sustainable practices beyond the footprint/property line: consider the system
  - Consumer recognizes sustainability beyond the new, nifty, 'green' thing
  - Strategies that produce REAL results and provide direct benefits to the building owner
  - Established definition and standards for rating 'sustainable' strategies: economic and total environmental payback, including all embedded costs and embodied energy
  - Greater density as a way to preserve open space for farm, forest industry, habitat, recreation
  - Buildings as platforms; less focus on buildings as iconic objects
  - Less master planning, more framework planning which allows for greater flexibility
  - Greater focus on adaptive re-use of buildings and infrastructure
  - Greater integration of buildings, landscape, infrastructure - where does one begin and the other let off?
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**Q2** What are near term trends and opportunities for Metro?

- DEQ's Materials Management 2050 Vision project might change the framework and direction of solid waste management to more comprehensive materials management
- Increasing activity developing environmental performance standards, especially for building products could mean more life cycle impact data will be available
- Improvements in analytics / tools to quantify environmental impacts (e.g. carbon footprinting, ecological footprint, etc.)
- Home habitat development (yards)
- Habitat roofs on large flat roofs
- Evidence continues to support that global warming is real. This apparent reality is VERY scary but it also offers an opportunity to get people's attention and hopefully stimulate action to stop the trend.

## Q2

- Native plant programs
- Pesticide/herbicide reduction and natural yard care
- Experimental water re-use systems
- Litter awareness and response: receptacles, signage, enforcement and financial penalties (including cigarette butts)
- LEED pilot credit 55: bird collision deterrence will incentivize hazard reduction for architects
- Bird-friendly building guidelines are under development in Portland, but Metro not yet involved
- Lights-out program underway in Portland - Metro not participating with its properties
- New generation moving up with new ideas and values: more connectedness to place, land, natural resources
- 20-minute neighborhoods: access to parks, resources, public transport, etc. Can be a tool for equity and inclusion
- Poor economic trends are encouraging reuse
- Less new construction and more remodeling taking place
- Less need for unneeded building improvements due to economic instability
- Opportunity for education on making change with less money ('remodeling for less')
- Turf replacement - limited grass and mowing
- Low-maintenance landscaping
- Mix of natives and food production in landscapes
- Commercial spaces and businesses are interested in more native landscaping
- Connecting indoor and outdoor living - bringing nature close to home
- Increase in prairie/meadow landscaping (especially related to turf removal)
- Struggling homeowners not sure what the 'right' sustainable decision is; desire is there, but not sure what to do.
- Extreme weather and global warming will continue to worsen. Buildings and landscaping will have to adapt.
- Our metro area is going to be perceived as a haven for environmental refugees from other regions that experience extreme weather - how will we integrate them into a sustainable lifestyle?
- Gen "Y" is willing to live without a car!
- More housing choices and mixed use along with better transit and non-vehicular mode choice. Current economics involved with household formation and the cost of gas creates an opportunity to turn this region into something other than what baby boomers created.
- Simplicity/frugality back in vogue
- Great examples for stormwater management exist (BC)
- Canadian pesticide bans for aesthetic use - great opportunity for a similar US response to start in this region
- Increasing public understanding of health risks from toxins
- Proven technologies available for green building and costs are starting to come down
- Economic downturn provides an opportunity for more robust partnerships and volunteerism,

## Q2

grant-supported projects and social change

- Developers are on the sustainability train but are seeking flexibility in codes, permitting, processes and fees in order to innovate
- Public/private partnerships, new economic models for innovations are emerging
- Living building challenge
- Citizens value clean air, clean water as central regional issues
- Increasing costs of materials, fuel, etc. creates a climate where people and businesses are willing to be more efficient, less wasteful
- Buying 'green' is more fashionable
- Increasing availability of 'smart' technology to manage resources, costs, materials
- Growing consumer awareness
- Buy-in from elected officials
- Lots of parallel tracks between government agencies, non-profits, etc: opportunity to convene groups to create a common platform and plan for shared resources, etc.
- Building industry is transforming - more 'green' builders and more infill
- Easier communication opportunities exist
- Sustainability is moving beyond the early adopters
- Consumers are becoming more informed
- Older generation and empty-nesters looking to move out of labor-intensive housing, but do not want to separate themselves from their community/city/neighborhood
- Poor economy has people looking for ways to cut household expenses - often can be achieved by reducing consumption, energy conservation, etc.
- Reach code revision and adoption into building code will add requirements for recycling enclosures at multifamily communities
- Support for EcoBiz model for landscapers: encourage use of EcoBiz certified businesses; needs help to become more well-known amongst the general public
- Energy independence: net zero energy and water
- EcoDistricts and stormwater districts - shared systems
- Smaller utility systems, less centralization
- District-scaled sustainability and shared infrastructure: leveraging the power of scale beyond building by building
- Citizens have knowledge about and openness to sustainability benefits and willingness to engage in community systems design
- Growing awareness and concern about climate change, carbon footprints, etc. among citizens, local governments, and private sector
- Recognition by federal government about need to integrate economic, environmental, and social concerns in all problem solving
- Growing awareness that sustainability is good business in the long term
- Growing interest in operational sustainability amongst contractors. They're unsure how to go about it - time is ripe for someone to step in and show them the way before they give up. Guide them in becoming leaders instead of followers in sustainability.

## Q2

- Waste haulers worrying about lost income from decreased trash/recycling. Opportunity to help them transition to re-use/waste reduction.
- District-scale planning for energy, water, and waste (i.e. 'eco district')
- Integrated multi-purpose designs for community lifestyles: multiple outcome project concepts
- Improved open space performance for natural and cultural systems
- Role of urban areas to process water efficiently and cost-effectively
- Developing green economies that benefit all.
- Increase use of solar energy
- Developers and builders are looking for ways to do better business in this economy.
- District approach to achieving sustainability goals: water, waste, energy, transportation
- Public sector demand for leased space - opportunity to establish minimum green building standards similar to GSA standards to get property owners to adopt/achieve green building.
- General population is getting smarter about sustainability; becoming easier to make the business case for it.
- Increasing energy costs are increasing motivation for people to conserve.
- Metro citizens embrace sustainability.
- Science continues to support that global warming is real.
- Getting for more 'green' for less money
- Innovation in sustainability continues to accelerate which provides more options and drives down costs.
- Increase in biomimicry - looking to nature and natural forces to drive best practices and development
- New technologies: irrigation smart controllers that are remote and/or weather-based
- More natural stormwater management: rain gardens, swales, reduction or elimination of pipes onsite for stormwater
- Alternative fuel equipment and vehicles on the rise - biodiesel, propane
- Gen Y is willing to live differently: no car, smaller space, urban
- Increased desire for low maintenance landscaping: less grass and water hungry plants
- Consumer is understanding ecosystem connection
- 'Green building' is starting to move toward holistic/system perspective
- Bird watching is increasing: people are connecting to the environment more
- Marketplace sees 'green' as opportunity: new products, innovation
- Economy is encouraging re-use and affordable retrofits
- A lot of variation in zoning between cities (ex: ADUs); seems to be growing
- HOAs are amending bylaws to affect landscape management practices (eliminating toxins)
- Environmental impacts are related to consumption
- Insecticide bans and similar changes in Washington and California
- Emergence of eco district as model for organization
- Globalization impacts what we do here: opportunity for learning / teaching best practices
- Economic and demographic changes are opportunities for outreach and new collaboration
- Existing building stock is an opportunity to revise the way we think about re-use and incentives

- Places are increasingly modeling development pacts and climate change
- 

### Q3 What are barriers to achieving greater participation?

- Costs: time of process as well as hard costs
- Community education / knowledge, especially about economics of recycle, reuse, and landfill
- Community will / community role
- Local politics: acceptance, land use rights, (ex: tree protection codes)
- Bad policy is everywhere
- Conflicting policies
- 'Sustainability' term is too broad
- Governments listen to the market / public
- Lack of trust and common knowledge between governments and industry.
- Governments don't always understand business models / realities
- Lack of control on harmful products (ways to stay on par with CA and WA)
- State legislature is slow to act on health risks
- Harmful practices cost less
- Costing doesn't include externalities
- Perception of cost premium for sustainable practices
- Regional identity of 'sustainability' makes it seem too special, unattainable to average citizen
- Sustainable practices are not included in basic life/safety/health charge of governments
- Lack of information and education on low-tech options - training for industry and knowledge for consumer
- Emphasis on high-tech solutions and gadgets; too costly and/or unavailable for widespread use
- Developments often have different owners in short and long term: short term developer likely not long term lifecycle costing
- Maintenance costs of 'sustainable' features
- Initial costs, especially for residents
- Products don't clearly identify long and short term cost/benefit
- Lack of current information from trusted sources; lack of impact data so we default to values/attributes
- Metrics sometimes don't lead to the best outcomes (ex: 'durable', 'recyclable', insulation vs. reduction of building materials) and multiple metrics must be balanced without clear guidance
- Information for choices is too complicated for the consumer
- Conflicting regulations, especially with street width requirements (ASHTO) and sustainability aspirations

- Q3**
- Site development isn't regulated beyond the building - building codes don't go far enough
  - Local jurisdictions can't adopt building code more strict or different than state code and the state code doesn't keep up with new innovations quickly enough
  - Economic model of what is 'cost effective' doesn't address greenhouse gas emissions, long term lifecycle costs
  - Bankers, appraisers are using an old model - look to Europe as an example for change
  - Challenges with multifamily financing
  - Tax incentives that encourage unsustainable actions
  - Normative behavior - need a thinking shift
  - Building professionals level of training is lacking in integrated sustainable practices
  - Lack of clear, accessible, easily understood information at the consumer level (native plants, toxins, etc)
  - Lack of monetizing sustainable practices
  - Massive existing built environment - how do we retrofit the stock? Change maintenance/operations practices?
  - Navigation of options is overwhelming: understanding costs, filtering through the vast number of options - need simple roadmap to change
  - Lack of knowledge about tools, techniques and concepts for sustainability (ex: lack of triple bottom line pro forma templates, accessible lifecycle assessment tools)
  - Lack of larger scale, district and neighborhood level sustainability plans that can direct creation of sustainable systems to optimize resource flows. Comp plans, concept plans need a systems component. Need a focus on software as much as hardware
  - Lack of sustainability codes, zoning, building, etc.
  - Outdated lending criteria by funders, banks, etc. that does not recognize or value long-term sustainability
  - Perception that the public does not care about these issues and will not be willing to pay for them.
  - 'Green' is too difficult for the average citizen
  - Real benefit / value is not clear or defined and often not realized
  - Some strategies are too dependent on subsidies resulting in an unstable supply side if funding comes and goes; industry does not mature with demand
  - Market/buyer demand needs to increase based on real benefit
  - Opportunistic business expansion based on availability of subsidized funding: business offering services don't have staying power and don't develop sufficient growing expertise to move the industry forward.

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**Q4** What can Metro do to help?

- Many of the ideas generated by participants were focused on education/training for the consumer and professional and on promotional campaigns. The regional scale of Metro is

## Q4

seen as an opportunity to reach a greater number of people in with a consistent message than could be accomplished by individual organizations or other local governments. In some cases

- Promote re-use
- Increase availability of product information for partners to conduct consumer outreach, especially regarding health and environmental impacts
- Materials selection guide (DEQ as a partner)
- Become a catalyst - partner for the most effective public education campaigns re: toxins; targeted and focused
- Tying landscape benefits to other benefits - resonates with people
- Provide a call service: non-intimidating, helpful, available to the consumer. No one will call the cities / counties with questions because they're seen as enforcers
- Sponsor or promote expansion of programs that are working: downspout disconnect, solarize Portland, etc.
- Work with landscape and nursery industry to prevent sale of certain, invasive plants
- Create a remodeling audit program to assist with choices
- Assist consumer with permitting - become a regional clearinghouse for assistance with sustainable building and landscaping practices
- Support use of specific materials (partner with PDC)
- Provide education program for contractors - materials and methods; consider contractor certification program
- Help develop rating systems for various elements that can aid an already-motivated public
- Convene / coordinate
- Convene partners regarding plumbing code update
- Convene / facilitate regional stormwater system: understand system impacts and steps to take. A vision for how it should function
- Clearinghouse for information exchange about what everyone in the region is doing to advance sustainable practices
- Connect benefits to actions in system
- Advocate for state code changes, including 'green' building options
- Advocate / lead on product ban (harmful pesticides/herbicides, invasive plants)
- Support efforts with incentives via jurisdictions
- Incent at the local level to push beyond the building code
- Manage (Metro-owned property)
- Participate in lights-out program at Metro facilities
- Participate in bird-friendly guidelines effort
- Study, research, and report on, the optimal amount of glass for various building types. Glass is the least efficient element in any building envelope. Understand the pull/balance between energy efficiency of the window, reduction in lighting consumption, and market response. Windows typically perform in the U=.25 (R4) to U=.5 (R2) range while the rest of the wall typically performs in the R-12 to R-20 range, or hopefully a little better. There are windows that

## Q4

perform better, but they have a large cost premium that doesn't typically provide a good ROI. As you can see there are many orders of magnitude difference between glass and opaque wall systems when one talks about performance. Architects will tell you that all of this glass provides daylighting and will then sell you on the benefits of same. Building scientists will tell you to get rid of the glass because of its dramatic negative influence on energy efficiency.

- Monetize externalities
- Research (identify, fund, do) for low impact development specific to this region: values of different habitat approaches in urban setting
- Research: why practices aren't being used (ex: Tualatin Valley)
- Be the 'get ready for climate change' agency - help to make the transition
- Promote dark sky code
- Help develop and advocate for universal accessory dwelling unit policy/code - consistency across jurisdictions
- Get a better REACH code; make REACH code and other similar efforts (Earth Advantage, LEED, etc) mainstream
- Source of equity / balance
- Expand equity and climate change discussions into the community
- Convene / facilitate getting together local governments and development community
- Use business recycling program as a regional model for eliminating harmful products
- Regulator of last resort (where the State fails), i.e. harmful products, invasive plants
- Expand education roles, where Metro is seen as positive and trusted (ex: RIC, household hazardous waste, etc)
- Expand drug take-back program
- Educate people to what Metro really does in the community (beyond hazardous waste and recycling)
- Be a connector / resource for information and conduit to market/business practices that are sustainable
- Technical assistance and industry educator
- Simplify incentive processes
- Be more accessible and available (ex: finding and navigation of website)
- Increase technical capacity regarding lifecycle analyses, share with partners
- Goal-setting: develop comprehensive, sustainability goal and development measurement (ex: ecological footprint)
- Add value to what the jurisdictions are already doing
- Increase the scale - connecting the dots
- Include suburban and rural communities
- Provide regional consistency of requirements and practices
- Be a leveraging force for retrofit financing
- REACH code - construction waste management alternative
- Engage in public/private partnerships

- Q4
- Develop 'green lease' standard; coordinate with large leasing institutions (OHSU, PSU, etc)
  - Measure, pre-plan way ahead to have adequate information in decision making (ex: likely flood of computer waste due to tablet conversion)
  - Assist smaller jurisdictions with adopting a comprehensive 'sustainability' program
  - Help to coordinate zoning/design review with ecological and cultural systems throughout the region - calculate the net present value / benefits
  - Hone in on what has already been done and what it will cost
  - Be a resource / repository for practical information: make sure everyone knows about a single place for information
  - Research / analyze local cost / benefit to various sustainable options: provide a consistent baseline and define who is paying throughout the lifecycle
  - Capitalize fund to aid with upfront costs (ex: district-level efforts)
  - Provide training for industry professionals who help consumers make choices: include ROI, cost/benefit, and lifecycle details
  - Develop and /or promote low tech and low cost options
  - Using funding to get at multiple-objective projects, not just demonstration projects
  - Re-look at Boneyard NW
  - Find-a-recycler: change to include re-use
  - Continue support of Oregon Residential Builders Alliance
  - Support / sponsor / collaborate with existing consumer based shows
  - Develop central drop off for re-use, recycle: operate transfer stations in a different way and involve haulers; work with haulers to define a new business model that is focused on waste reduction
  - Continue efforts like Nature in Neighborhoods competition to inspire and engage
  - Look at Southwest Corridor project as an opportunity to continue and expand integrated regional / system approach
  - Develop community-scaled, aspirational, integrated resource plans (food, ecosystems, etc); use new plans for decision-making, tag onto the 2040 plan
  - Be the central hub for information, technical assistance and training on sustainable building and landscaping
  - Support landscape trainings: grow into certification program; use existing efforts such as TILTH, eco-biz
  - Develop a soil transfer station for construction trade - excavation soil depots that are convenient throughout region
  - Create template for sustainable development proforma
  - Consistently train and educate local government permit and engineering professionals
  - Become a clearinghouse, multi-jurisdictional cooperative
  - Increase emphasis on lifecycle cost of ownership in the built environment (ex: some commercial flooring that is more expensive to purchase initially may be less expensive to own and maintain over the life of the product. Fewer chemicals to maintain the product or repair.)
  - Take a performance-based approach on use of materials, water, energy, health, and equity

**Q4** in projects: restorative building should guide the way. How do we develop projects that improve our natural resources?

- Support an alternative code pathway for increased sustainable practices
- Create incentives to help improve the existing building stock: energy and water performance, re-use
- Facilitate eco-charrettes with all projects and use integrated design
- Lend biologists to design teams: "biologist at the design table" program
- Analyze stormwater standards and provide recommendations for regional guidance (consistency)
- Focus on redefining the public rights of way into truly innovative and progressive public spaces that begin to heal our urban environments
- Focus conservation on regional water use and technology that may reduce water use
- Connect local sources for desirable building materials with contractors/industry
- Continue to reach out to smaller communities about sustainability and the benefits/programs available
- Partner with K-12 education for seamless integration into school curriculum
- Develop regional green building standards, certifications, regulations
- Train staff on implementing Metro's rules, regulations and guidelines
- Work closely with private sectors to be nimble enough to change with the times and the way industry is doing business, which is always changing (ex: allow stormwater detention and proprietary devices that fit in catch basins)
- Provide consumer education - capture the homeowner's desire to learn
- Solar is a positive trend now: instead of setting a % canopy cover desired, instead county how many trees are on a lot to allow flexibility for open roofs for solar
- Develop feasibility study with cost / benefit analysis to demonstrate low impact development is a smart way forward
- Seed green infrastructure projects
- Create funding banks to allow for this throughout the region
- Help change the planning paradigm from a focus only on hardware (pipes, buildings, parks, etc) to one that incorporates software (integrated systems of community energy, water, waste, money, information, and food flows)
- Focus on neighborhood and district scale sustainability
- Seed an eco-industrial development somewhere in the region
- Expand regulatory role to reduce toxins (pesticides and other products) and invasive species: remove from market place
- Facilitate regional consistency: REACH code, land use code
- Develop energy performance scoring system
- Create mandatory ADU and cottage housing code
- Mandatory energy performance scopes
- Provide detailed materials selection guidance
- Ad campaign about simple living

- Q4
- Educate next generation of consumers: apps for good consumption choices
  - Set examples, develop pilot projects
  - Eliminate SDC for all
  - Develop ADU demonstration project
  - Provide post-occupancy studies: do green development practices really work?
  - Develop targeted and focused restoration / conservation strategy rather than scattershot approach (ex: habitat corridors)
  - Maintain high critical habitat while also improving degraded habitat
  - Help to make linkages / connections across disciplines to help people evaluate their choices
  - Help with developing the true lifecycle costing of certain practices or products
  - Develop a series of 'one-pagers' for different building projects, such as decks, additions, landscaping, etc; include sustainable materials, costs, where they can be purchased, why they are more sustainable than other choices, additional resources for design and construction advice
  - Update materials list every 2-3 years
  - Expand current support of green building outreach, focusing on benefits to occupants of buildings
  - Ban invasive species from being sold in the region
  - Research and recommend methods to incentivize retrofits of existing building stock
  - Catalog conflicting regulations and develop plan to bring parties together to resolve conflicts
  - Provide well-developed information on sustainable practices emphasizing benefits to individuals and community: make it web based with access to savings and discounts
  - Offer volume-access pricing for rainwater capture assemblies, similar to black compost bins, or resources for cost effectively building own
  - Provide resources on native plant species and natural habitat: web based with access to savings and discounts from partner businesses
  - Sponsor design symposia on sustainable design for design professionals as well as for homeowners and small commercial property owners
  - Explore low tech and low costs strategies that are attainable by a lot of people and have a large cumulative effect
  - Explore market drivers to increase market demand (this does not mean subsidizing production or installation)
  - Develop building improvement loan partnerships with banks, and possibly utilities, to provide very low cost weatherization loans - allow loans for owner-installed improvements
  - Keep programs broad-based with high accessibility to a large number of people
  - Make Nature in Neighborhoods grant opportunities easier for people to attain
  - Offer mini-grants / low-interest loans to people who want to retrofit existing building or landscaping

## SB+L FOCUS GROUPS

November 29 · 9:30-11:00 am · Planning / Policy / Regulatory

November 30 · 9:30-11:00 am · Education / Outreach / Implementation

November 30 · 1:30-3:00 pm · For-profit Leaders

### Participants

David Allaway	Oregon DEQ, Materials Management Policy
Kelley Beamer	Cascadia GBC
Gaylen Beatty	Columbia Land Trust
Dan Blue	City of Gresham, Solid Waste
Nestor Campos	Verde
Erik Carr	Clackamas County, Soil & Water CD
Joe Connell	Habitat ReStore
Mary Coolidge	Audubon Society of Portland
Colin Cooper	City of Hillsboro, MTAC rep
Dean DeSantis	DeSantis Landscapes
Linda Dobson	City of Portland BES, Grey to Green
Randy Ealy	City of Beaverton
Sara Eddie	SD Deacon Construction
Dave Elkin	Green Depot
Shane Endicott	ReBuilding Center
Steve Fancher	City of Gresham
Jean Fike	East Multnomah Soil & Water CD
Charles Kelley	ZGF Architects
Tom Kelly	Neil Kelly Inc
Clair Klock	Clackamas County, Soil & Water CD

Palmer Mason	DEQ, Legislative Liaison
Weston Miller	OSU
Ricardo Moreno	Verde
Brian Newman	OHSU
Mike O'Brien	Mike O'Brien Photography
Carrie Pak	Clean Water Services
Jordan Palmeri	DEQ, LCA Project
Heather Robinson	Washington County, Recycling
Patrick Rutledge	Green Depot
Gabrielle Schiffer	State of Oregon, Building Codes Division
Ed Sloop	Walsh Construction
Tim Smith	SERA Architects
Greg Sparks	Port of Portland
Doug Spiro	Oregon Landscape Contractors Association
Shaina Sullivan	Homebuilders Building Green Council
Sheri Wantland	Clean Water Services
Nikkie West	Audubon Society of Portland
Douglas Tsoi	Partners for Sustainable Washington County
Susan Ziolk	Clackamas County, Sustainability