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APPENDIX A

Complete Sustainability Recommendations List with Notes

#	RECOMMENDATIONS	NOTES
City Operations, Practices & Outreach		
1	**Integrate sustainability into City and departmental missions, functions and decision making at all levels using clear and transparent tools.**	Sustainability is not just another program, it is now central to the very mission of the City. Establish and reinforce sustainability as a consistent and unifying factor in policy development and program analysis across all departments. Evaluate the impact of potential decisions and actions on sustainability in a structured and transparent manner (e.g. Sustainable Decision-Making Tool).
2	**Create baselines for all Sustainability Strategy focus areas and implement indicator tracking system to track progress over time.**	Establish and maintain sustainability indicators tracking system with indicators identified in the Shoreline Sustainability Strategy, Appendix F.
3	**Create standard office procedures, training and department expectations that support sustainability goals; then measure, reward and promote individual and departmental achievement of these goals.**	Represents a "quick win". Use the move to the planned new City Hall as a key opportunity for internal change. Employee of the quarter and other new programs could be used to reward sustainability. Currently, there are no formal standards or clear employee and department expectations related to sustainability. Performance should be measured, and a "carrots rather than sticks" approach should be used to build and maintain support.
4	**Establish a permanent GREEN team or interdepartmental committee(s) to focus on sustainability program management and sustainability techniques.**	Current working structure of leadership team and technical working group could be formalized and enhanced. Establishing a "Sustainability Coordinator" is not recommended at this time due to budget constraints. It is very important to have clear leadership and emphasis at the highest levels of the City.

Notes:
1) The number (#) assigned to each recommendation is for reference purposes only and is not intended to indicate priority or sequence. The number used here is the same number used in the Capacity Assessment Matrix, in Appendix C in the strategy.
2) An * in the # column indicates that this is a continuation or expansion of an existing City of Shoreline program, policy or project. These recommendations are presented in the context of the existing programs in Appendix B.

#	RECOMMENDATIONS	NOTES
City Operations, Practices & Outreach – continued		
5	**Pursue funding to establish a key City staff position or contracted consultant related to sustainability.**	For example, the need for a Volunteer Coordinator position was mentioned several times by different people in staff interviews. Volunteers require organization and guidance to leverage this resource effectively. Other ideas included a mid or senior level Sustainability Coordinator Position to oversee the overall effort. Current budget needs and projections do not appear to support an additional general funded position.
6	**Develop a comprehensive environmental purchasing policy (EPP) for all City purchasing decisions.**	EPP represents a "quick win". Use the move to the planned new City Hall as a key opportunity for internal change. Existing programs from King County, Seattle and elsewhere can be modified and adopted. Guidelines for specific areas should be separate and updatable.
7 *	**Create a green business certification and promotion program.**	Chamber of Commerce has received grant funding to start this program. The City should collaborate on this effort with the Chamber. The City's existing sustainable business program, part of the Economic Development Program, is not a certification program and does not currently appear to be a high priority. More emphasis, structure and focus would be helpful here. Consider stronger efforts to attract and promote environmentally friendly businesses.
8 *	**Provide expanded "how to" sustainability info to the community through varied approaches (e.g. mailers, events, City website and informational brochures).**	Use the move to the planned new City Hall and website update as key opportunities to promote community outreach. City currently uses website effectively and regularly mails out information. Additional sustainability outreach can be achieved through the City's informational mailers. Time and resources for additional outreach are always an issue to consider.

#	RECOMMENDATIONS	NOTES
Energy & Carbon Reduction		
9	**Develop a baseline for energy consumption and carbon data using ICLEI "5 Milestones Toolkit."**	Using ICLEI's process (provided in a toolkit to cities who "sign on" to ICLEI, the City creates a baseline for their carbon emissions. The City (generally with the use of volunteers) collects energy and waste data, and calculates greenhouse gas emissions for a base year (e.g., 2000) and for a forecast year (e.g. 2015). The inventory and the forecast capture emissions from all municipal operations (e.g., city owned and/or operated buildings, streetlights, transit systems, wastewater treatment facilities) and from all community-related activities (e.g., residential and commercial buildings, motor vehicles, waste streams, industry). The inventory and forecast provide a benchmark against which the city can measure progress.
10	**For all new construction of City facilities (including the City Hall), meet requirements specified in LEED Core Performance Guide, referenced in the prescriptive path for LEED Energy and Atmosphere Credit 1.**	The purpose of the LEED EA Credit 1 is to achieve increasing levels of energy performance over a prescribed baseline. Credit requirements can be met through whole building energy simulation or one of two applicable prescriptive compliance paths. City buildings that get state funding must comply with the state requirement to achieve LEED Silver. Regardless of whether state funding is used, the City should consider implementation of this and related recommendations. For recommendations #10, #11 and #24, the City should consider the definitions, thresholds and exemptions defined in the recent Washington State High Performance Public Buildings Law (ESSB 5509). For example, the LEED requirements apply to "major facility projects," which for new construction is defined as buildings larger than five thousand gross square feet of occupied or conditioned space as defined in the Washington State Energy Code.
11	**For all new construction of City facilities (including the City Hall), require the use of Commissioning as outlined by the ASHRAE Commissioning Process Guideline 0-2005.**	Commissioning is a process that ensures buildings operate as intended, thus ensuring energy efficiencies are actually achieved.

#	RECOMMENDATIONS	NOTES
Energy & Carbon Reduction – continued		
12	**Upgrade existing City facilities to meet Energy Star building performance standard for similar building types.**	Shoreline can also become an ENERGY STAR partner. As part of the City's partnership commitment, they agree to: measure, track, and benchmark energy performance; develop and implement a plan to improve energy efficiency; and educate staff and the public about the partnership and achievements with ENERGY STAR, or similar, efficiency improvements (Energy Star provides tools to develop the plan, and benchmark buildings against similar types, including local government facilities).
13	**Include requirements to meet Energy Star for building equipment and appliances in purchasing guidelines.**	Energy Star provides lists of equipment and appliances that meet their standards. Their website shows a range, including equipment that goes well beyond their minimal standards.
14	**Engage in Seattle City Light's (SCL) green power program (Green Up). Increase green power purchase to 100% during annual budget planning.**	Greater coordination with power utilities could be pursued. In addition, zoning and permitting incentives could specifically target energy efficient construction. Local non-profit groups, such as Shoreline Solar Project could be approached as partners.
15 *	**Require all new fleet vehicles be alternatively fueled, or rated by EPA for 45 mpg or higher for fossil fuel vehicles.**	This requirement would only apply to vehicle types where these options are generally available and cost effective. For exempt vehicles, require the most efficient options available. Fleet decisions must consider the use and initial cost of the vehicles as well as maintenance costs.
16	**Conduct a campaign for City staff to reward "smart" trip planning to reduce unnecessary trips and the total miles traveled for work related trips.**	The campaign could reward staff for "smart" trip planning, including using the most efficient vehicle for the job, combining trips and planning the trip route to reduce miles traveled and gas used.
17	**Promote use of SCL and Puget Sound Energy (PSE) incentives, or other encouragement for conservation and alternative energy as part of an outreach campaign.**	Utilities promote these incentives through bill stuffers. The city could include information in its public outreach campaign (see General recommendations).

#	RECOMMENDATIONS	NOTES
Energy & Carbon Reduction - continued		
18	**Work with SCL and PSE to prepare a report showing the Shoreline community's overall energy use as of baseline year; update figures provided by SCL/PSE.**	The City should work with Seattle City Light and Puget Sound Energy to gain their support for the City's Sustainability Strategy by assisting with collection of baseline data. The City of Kirkland has successfully engaged Puget Sound Energy in components of their sustainability efforts. Data in such a report would need to be normalized and explain other factors that impact utility rates such as house size and annual temperature variations.
19	**Collect information about greenhouse gas emissions and energy use through the State Environmental Policy Act (SEPA) review process.**	The SEPA Checklist already requires a project applicant to estimate the air emissions that will result from the project. The Washington State Department of Ecology is currently working to clarify the SEPA Checklist to include greenhouse gas emissions. The City of Seattle and King County recently starting requiring project applicants to include greenhouse gas emissions in the air emissions estimate. See worksheet: http://www.metrokc.gov/ddes/forms/SEPA-GHG-EmissionsWorksheet-Bulletin26.pdf. An effort to collect this information should be rolled out first. This will set the stage for eventual regulation and requiring mitigation of impacts through the SEPA process. Particular attention needs to be paid to how threshold levels would be structured and set.
20	**Employ PLACE^{3}S (PLA**nning for **C**ommunity **E**nergy, **E**conomic and **E**nvironmental **S**ustainability) **or similar software, for future land use planning efforts (e.g. the next major Comprehensive Plan update).**	PLACE^{3}S is an innovative planning method that fully integrates focused public participation, community development and design, and computer-assisted quantification tools (GIS) to help communities produce plans that retain dollars in the local economy, save energy, attract jobs and development, reduce pollution and traffic congestion and conserve open space. It creates an information base to function as a common yardstick, empowering a community to compare components of each plan (apples-to-apples), make informed trade-offs, and arrive at a consensus. The consensus-based plan would be broadly supported, economically and environmentally realistic, make investment sense, and encourage Smart Growth benefits to be tracked and reported annually.

#	RECOMMENDATIONS	NOTES
Sustainable Development & Green Infrastructure		
21 *	**Prioritize and promote Green Building and Low Impact Development (LID) proficiencies for select staff (e.g. Planning and Development Services, Environmental Services and Capital Projects Engineers).**	Emphasize training where it will do the most good. Planners, Building Plan Reviewers, Engineers, Grant Coordinator, and Surface Water and Environmental Services personnel appear to be the highest priorities. Some of these personnel have already received training. By being "literate" in green building, City staff can be available to provide information at the permitting counter to those interested in green building and LID, and help when developers have innovative projects.
22 *	**Establish a Residential Green Building Program, including worksheets on specific innovations for permitting clients.**	Provide information to homeowners and builders on residential green building practices, resources, and opportunities. Concurrently establish a green building permitting process and expertise in the Planning Department. Funding was just obtained to start outreach in 2008. City of Seattle has produced informational sheets on innovative systems; these can be used as a model for Shoreline worksheets.
23 *	**Revise zoning and engineering standards to provide guidance and incentives for Low Impact Development (LID) and Green Building.**	Many opportunities exist in this area and they will be detailed in consultant recommendations. These range from LID engineering details and specific standards to provide guidance, modifying how impervious surface coverage is calculated, and creating development flexibility and incentives for green building projects. The City's stormwater engineering standards are currently under review. Over forty jurisdictions in the country have enacted policies to incentivize green building standards. Most do this with the carrot: expedited permitting, tax credits, grants, technical assistance, density bonuses, FAR allowances tied to meeting a standard are examples. Both Issaquah and Kirkland for example allow a verified five star Built Green project to receive expedited permitting.

#	RECOMMENDATIONS	NOTES
Sustainable Development & Green Infrastructure - continued		
24 *	**Adopt a Green Building Policy for the City's capital projects. Construct new buildings and additions to LEED Silver Standard (with Washington State exemption limits). Specify a commitment to LID principles as outlined in Low Impact Development: Technical Guidance Manual for Puget Sound.**	City staff have indicated that this is something that they intend to examine, but do not expect to take action in the short-term. This item should be considered for short-term, high priority status. Current plans for new City Hall/Civic Center are consistent with this recommendation. Phase II plan for Aurora Corridor is generally in line with the intent of this recommendation. Additional specifics regarding LID should be in new adopted policy.
25 *	**Prioritize and structure the development of the Green Streets program.**	A demonstration project is needed, but emphasis should also be on planning, site selection criteria, and implementation strategies using an "opportunistic" approach that addresses site conditions, neighbor interest and budgets. Priority should be placed on funding and specific goals for this program. The Transportation and Storm Water Master Plans should be revised to include additional guidance for where and how this initiative should be pursued.
26	**Modify the stormwater utility fee to promote low impact development, calibrate for true system impact/cost and encourage natural drainage improvements.**	This would require a fee study and is potentially a medium-term time frame action. Current fee is collected with property taxes. It is a flat fee for residential users and for commercial is based on the amount of impervious surface on the property without any consideration of LID practices that might reduce the effective impervious. Fee structure for commercial properties only provides incentives for proper maintenance of required private stormwater facilities such as detention tanks.
27 *	**Expand and reorient the existing priority sidewalk improvement program to focus on linking destinations and network connectivity.**	Aurora corridor program will represent a major achievement. Existing focus on sidewalks near schools will result in benefits, but there is a recognized need to both broaden and reorient the program as budget constraints allow. The Transportation Master Plan should be revised to provide clear guidance on the development of an overall pedestrian system for utilitarian walking. A bond issue or other funding mechanism could be explored as a funding mechanism for this future work.

#	RECOMMENDATIONS	NOTES
Sustainable Development & Green Infrastructure - continued		
28 *	**Improve identification, mapping, designation, surfacing and signage of existing trails. Develop a plan for future trail expansion.**	City has recently convened a trail user and planning group to identify and prioritize improvements. Specific priorities and locations should result from this effort. City should also focus on linking destinations with trails and treating them as part of the transportation system – focus not just on trails pleasure walking, but for utilitarian walking as well. The Parks and Transportation Master Plan scheduled updates should provide clear guidance on the development of an overall pedestrian system, including trails.
29 *	**Develop bicycle and pedestrian plans in the Transportation Master Plan that identify a cohesive network which connects major destinations.**	Improvements include Interurban Trail "feeders," completing gaps on 155th and 185th, and connections in the Fircrest, North City and Richmond Beach areas. The Transportation Master Plan should be revised to provide clear guidance on the development of an overall pedestrian system for utilitarian, as well as recreational, walking.
30 *	**Update the Transportation Master Plan and provide a stronger link to the Land Use Element in the Comprehensive Plan.**	Provide a vision for the future of all major streets consistent with the land use plan to guide future investment and capital improvement decisions, including transit routes, street classifications and Right-of-Way improvement standards and needs.
31 *	**Develop a plan with near-term and long-term priorities for transit system improvements prior to or as part of the Transportation Master Plan process to guide advocacy, intergovernmental coordination and advance planning.**	Clear consensus between the City staff and Council on specific priorities and a strong commitment to pursuing these transit improvements through all available means will increase the likelihood that progress is made in this area. Adoption of resolutions outlining such priorities, such as recently adopted Resolutions 272 and 273, is a good first step.

#	RECOMMENDATIONS	NOTES
Sustainable Development & Green Infrastructure - continued		
32 *	**Advocate for a revised Sound Transit Phase II Plan (ST2) which includes improvements that serve the City of Shoreline.**	Under the current version of the ST2 proposal, Shoreline residents will receive no direct benefits for their additional financial contributions. Current Sound Transit service to Shoreline is very limited. In Resolution No. 272, the Shoreline City Council expresses support for changes to the current ST2 proposal, including continuation of the light rail system to North 205th, light rail stops at North 145th and North 185th, Bus Rapid Transit stops at those locations if light rail is not feasible, and $40 million financial contribution toward the completion of the Business Access Transit (BAT) lanes in the Aurora Corridor.
33 *	**Advocate for a single, integrated and continuous bus rapid transit system on Aurora Ave. (SR 99) between Everett and Seattle.**	Coordination between Community Transit, Metro and Sound Transit is needed along Aurora Ave (State Route 99). Current transit agency plans will result in two different systems and no regional coordination. The lack of integration results in service gaps, significant delay and inconvenience that decreases rider-ship. The Shoreline City Council recently adopted Resolution 273 which states these concerns and directs staff to contact adjacent communities along the corridor, transit agencies, neighboring city council and planning commissions and State legislators to engage them on this matter.
34	**Consider advocating for a Metro "feeder" route to improve east-west transit and support Aurora backbone.**	Residents and staff have noted that east-west transportation in the City is poor. City should try and capitalize on Aurora corridor investment and service levels. Where the demand exists or is likely with future densities, additional east-west service should be a priority for the City and its lobbying efforts.

#	RECOMMENDATIONS	NOTES
Sustainable Development & Green Infrastructure - continued		
35 *	**Consider providing a program based on the State's commute trip reduction (CTR) program for medium-sized sites, not currently required to participate in the State CTR program.**	This is another potential idea that was mentioned by a City staff member that should be investigated. More incentives for non-SOV commuters can be targeted for large and medium size employers not currently required to participate in the CTR program. Current program only requires participation of six employers in the City. Funding options for a program expansion would need to be researched as it is significant issue for this program. Current support and administration of this program for the City is provided through an inter-local agreement with Metro, however voluntary expansion of the program might not get additional funding/support. Options for expansion of the CTR program should be explored the next time the CTR plan is updated.
36 *	**Future updates to Comprehensive Plan and/or Housing Strategy should include a focus on Transit Oriented Development (TOD) and transit supportive neighborhoods to create density nodes that support transit use. Continue to focus new development near existing and proposed transit corridors and improvements.**	Existing park and ride at 192nd and Aurora has been considered as a key potential location in the past for a TOD. This location is more convenient for riders making connections on Aurora than the current Aurora Village location. Sustainability factors (e.g. managing growth in locations near existing and future transportation investment, such as light rail stations, where density will help support transit use) should be given strong consideration in public conversations and subarea plan development. The Housing Strategy emphasizes the need for housing choice, affordability and use of design to attain neighborhood compatibility. These concepts should also be considered in proposals to create density nodes.
Resource Conservation & Waste Reduction		
37 *	**Expand existing efforts to reduce, reuse, and recycle in City offices, parks, and other facilities.**	Build on existing plan to implement plastic bottle recycling in Twin Ponds Park. Extend program to additional parks and City facilities and the recycling of additional materials as feasibility issues are worked out and as funding is available. Current recycling program at City Hall should be emphasized and improved.

#	RECOMMENDATIONS	NOTES
Resource Conservation & Waste Reduction - continued		
38 *	**Include in purchase guidelines preference/requirement for products that promote reduction and reuse (e.g. duplex copiers, durable goods); reduce consumption of raw materials (e.g. recycled content and recyclable materials) and present reduced risk to human and ecological health (non-toxic materials).**	This is perhaps the most mature element of most EPP guidelines (Seattle, King County EPA).
39	**Provide convenient opportunities (prominent and labeled bins) for sorting, collecting, and composting solid waste streams in the community.**	This recommendation has strong potential for engagement of volunteers. Efforts should be focused on obtaining partnerships with businesses and schools. Focus should be on waste generated outside the home and items that are difficult to dispose of because they are not allowed in residential curbside collection.
40 *	**Implement construction and business waste reduction outreach and incentives through the permitting process and municipal waste contract.**	Both King County and City of Seattle have had tremendous success using education and technical assistance to help reduce construction and business waste. Expedited permitting is a popular incentive with builders. The reduction of construction waste should be an important focus, e.g. free and early demo permit issuance for projects that recycle construction waste as well as outreach materials to promote building "deconstruction" and related recycling and reuse of materials. Rate structure could encourage construction waste recycling. Currently there is no drop-off for commercial hazardous waste near Shoreline. At a minimum, information and outreach materials are needed on this issue.

#	RECOMMENDATIONS	NOTES
Resource Conservation & Waste Reduction - continued		
41 *	**For high use operations including irrigation and park restrooms replace fixtures and equipment with the highest efficiency, cost-effective water conservation options available.**	Examples include more efficient irrigation equipment, automatic low-flow fixtures in park restrooms, grey water reuse systems, etc. Retrofit if funding is available, develop a phased plan for replacement or at a minimum require when existing equipment reaches end of serviceable lifespan. A supporting recommendation is to include expanded use of naturalized drought tolerant plantings in low use park areas. Fixture and equipment selection must take into consideration product performance, maintenance and replacement constraints and costs.
42 *	**For retrofits and new construction of City indoor facilities, specify/replace fixtures with high efficiency, low flow alternatives.**	Examples include automatic low flow fixtures in bathrooms, two-stage flush toilets, etc. Require for new facilities. For existing facilities, retrofit if funding is available, develop a phased plan for replacement or at a minimum require when existing equipment reaches end of serviceable lifespan. Fixture and equipment selection must take into consideration product performance, maintenance and replacement constraints and costs.
43	**Investigate the use of non-potable sources or non-potable uses, such as grey water reuse for toilet flushing.**	There are a range of opportunities to save potable water use for indoor water consumption, from conserving water consumption overall, to replacing potable water used for non-drinking purposes, such as toilet flushing, with grey water. Rainwater catchment for outdoor use/irrigation is less effective in our climate, because the rain comes mostly in the seasons when it is not needed. However, a new Built Green residential project near Shoreline Community College includes rainwater catchment for irrigation and it can be used to supplement irrigation needs in some applications.

#	RECOMMENDATIONS	NOTES
Resource Conservation & Waste Reduction - continued		
44	**Work with utilities to expand existing and develop new incentives to reduce potable and irrigation water consumption.**	For example, not all utility districts in Shoreline bill based on consumption, so there is no financial incentive to conserve and not all utility districts actively promote conservation. Shoreline Water District used to give out rain barrels at cost and such programs should be reinstated. Overall, more strategic direction and expansion of water and wastewater conservation programs are needed. City should meet with utilities and see what is planned and where they can partner.
45 *	**Implement residential waste incentives and requirements through the municipal waste contract and permit process. Expand community outreach and information efforts to reduce waste and recycle.**	The recent CleanScapes contract is a major achievement in the City's efforts to reduce waste and improve recycling efforts. By linking the familiar three R's with the Sustainability Strategy in community outreach efforts it will both revitalize interest in three R's and bridge to other less familiar concepts. Specific requirements should be established for waste and recycling facilities in new residential construction.
Ecosystem Management		
46 *	**Identify underutilized park lands and other City property and use for habitat improvements, infiltration, water treatment and other compatible purposes.**	This is another great idea that was mentioned by City staff during the interviews. Transform some underutilized grass areas into plant and wildlife habitat. Reduction in maintenance costs would partially offset cost of habitat improvements. Improvements at Cromwell Park provide an example. Areas at Hamlin Park, Ronald Bog and elsewhere could also be considered.
47	**Consider the development of a Natural Resources and Habitat Action Plan.**	A focused and strategic planning effort is needed to establish or synthesize key goals, specific objectives, priority locations, targets, partners and funding mechanisms. An action Plan will organize this effort and improve the City's ability to obtain grant funding.

#	RECOMMENDATIONS	NOTES
Ecosystem Management - continued		
48 *	**Continue and expand restoration and enhancement priority locations and targets for publicly funded or assisted wetland and stream enhancement projects.**	The City has some established priorities and targets for habit improvement in the current Surface Water Master Plan. Specific City goals should be updated and expanded for enhancement of wetlands and streams in future updates of the Surface Water and Parks Master Plans and in other logical project or planning processes. Focus can be on City owned property at first, but outreach efforts should seek partners and opportunities on private property as well.
49 *	**Implement the Cascade Land Conservancy's (CLC) Green Cities Program by prioritizing forest health data collection and improvement projects and strengthening partnerships to increase the acreage analyzed and enhanced.**	City staff has identified this as a medium timeframe priority, however it should be considered for earlier implementation to strengthen the Green Cities Partnership. Existing work with Seattle Urban Nature Project includes Hamlin, Shoreview, Boeing and South Woods parks as a priority and findings will be reported to City Council in early 2008. Current program budget is $50K and program should be continued and enhanced if possible. Next steps will include looking at additional parks and acting on implementation recommendations. City should look at grants and volunteers through CLC and Ivy OUT to leverage greater implementation support if possible.
50 *	**Promote and expand environmental mini-grant program, with focus on critical area and urban forest enhancement.**	Existing City environmental grant program should be expanded to leverage greater community support of restoration and enhancement efforts.

Notes:
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2) An * in the # column indicates that this is a continuation or expansion of an existing City of Shoreline program, policy or project. These recommendations are presented in the context of the existing programs in Appendix B.

APPENDIX B

Existing Program Evaluation Summary Matrix

Existing Program Evaluation/Recommendation Summary Matrix

Notes: Existing Programs inventory was generated prior to finalization of the Focus Areas so this table is not organized into the Strategy's Focus Areas as are like the recommendations and Appendicies A and C. RECOMMENDATION CATEGORIES: Ensure Continuation, Modify Overall Approach and Expand Current Efforts. The City department with primary responsibility for the item are noted in parentheses - see acronym list inside front cover.

INVENTORY ITEM	ANALYSIS	RECOMMENDATION
Climate Protection and Transportation Management		
Business Access/Transit Lanes on Aurora (PW) – The Aurora Corridor Project includes lanes dedicated to transit and making transit more efficient, competitive and attractive to users.	**Expand Current Efforts:** Aurora Corridor Project is an excellent foundation on which to build a comprehensive transit program. Next steps should include setting clear priorities for improving transit service and connectivity, considering the specifics outlined in the recommendations.	**#31:** Update Transportation Master Plan with transit priorities to guide increased advocacy. **#32**: Advocate for a revised Sound Transit Phase II Plan that serves Shoreline directly. **#33**: Advocate for a single, integrated and continuous bus rapid transit system on Aurora Ave. (SR 99) between Everett and Seattle. **#34**: Consider advocating for a metro "feeder" route to improve east-west transit and support Aurora backbone.
Promoting Alternatives to Driving(PW/PADS) – The City of Shoreline promotes non-motorized transportation through installation of dedicated bicycle and pedestrian pathways such as the Interurban Trail, installation of bicycle lanes on City streets, promotion of the Commute Trip Reduction (CTR) program for City employees and citizens, installation of pedestrian walkways near local schools, and construction and maintenance of urban trails as part of the City's 2006 Parks Bond.	**Expand Current Efforts:** This comprehensive approach to Alternatives to Driving should be a major focal point of community outreach efforts and a revised website, providing that the City demonstrates its commitments to improving transit and non-motorized transportation in its capital investments and regional coordination, so that residents have real alternatives.	**#27**: Expand and re-orient the existing sidewalk improvement program to focus on linking destinations and connectivity. **#28:** Improve identification, mapping, designation, surfacing and signage of existing trails. Develop a plan for future trail expansion. **#31:** Update Transportation Master Plan with transit priorities to guide increased advocacy. **#32:** Advocate for a revised Sound Transit Phase II Plan that serves Shoreline directly. **#33:** Advocate for a single, integrated and continuous bus rapid transit system on Aurora Ave. (SR 99) between Everett and Seattle. **#35**: Consider providing a program based on the existing commute trip reduction program to include medium-size employers. **#36**: Future update to Comp Plan and/or Housing strategy should include a focus on Transit Oriented Development (TOD) and transit-supportive neighborhoods to create transit nodes.

INVENTORY ITEM	ANALYSIS	RECOMMENDATION
Climate Protection and Transportation Management - continued		
Climate Protection Campaign (PW) – In 2007 and 2008, the City of Shoreline will collect baseline data from local practices that contribute to global warming. In fall/winter 2008, a pilot education program will be proposed.	**Modify Overall Approach:** This City Inventory Item can really be divided into separate categories -- energy consumption and greenhouse gas emissions, in both City and public arenas. Need to include language from US Mayors Climate Protection Agreement and other commitments, and continue to develop more specific initiatives. Good starts are Recommendations at right.	**#1:** Integrate sustainability into all City functions and decision-making using clear and tranparent tools. **#2:** Create baselines for all environmental focus areas. **#9**: Develop a baseline for energy consumption and carbon data using ICLEI "5 Milestones Toolkit." **#10**: For all new construction of City facilities (including the City Hall), meet requirements specified in LEED Core Performance Guide, referenced in the prescriptive path for LEED Energy & Atmosphere Credit 1. **#11**: For all new construction of City facilities (including the City Hall), require the use of Commissioning as outlined by the ASHRAE Commissioning Process Guideline 0-2005. **#12**: Upgrade existing City facilities to meet Energy Star building performance standard for similar building types. **#13**: Include requirements to meet Energy Star for building equipment and appliances in purchasing guidelines. **#14**: Engage in Seattle City Light's (SCL) green power program (Green Up). As part of annual budget planning, increase proportion of green power purchase to 100%. **#16**: Conduct a campaign for City staff to reward "smart" trip planning to reduce unnecessary trips/miles travelled. **#17**: Promote use of SCL/PSE and other incentives for conservation and alternative energy as part of public outreach program. **#18**: Work with SCL/PSE to prepare a report showing Shoreline Community's overall energy use as of baseline year; update figures provided by SCL/PSE. **#20**: Employ energy software such as PLACE^{3}S or similar for land use planning.
Fleet Vehicles (PW-operations) – The City of Shoreline has begun incorporating hybrid fuel cell vehicles into its vehicle fleet. Staff is also investigating the possibility of purchasing electric vehicles.	**Modify Overall Approach:** Targets should be more ambitious -- current target is 2% of fleet per year, which just follows the replacement schedule. Also, continue to reevaluate and increase targets as technology changes dictate.	**#15**: Require all new fleet vehicles be alternatively fueled, or rated by EPA for 45 mpg or higher for fossil fuel vehicles (only applies to vehicle types where these options exist).
Regional Roads Maintenance Forum (PW) – As an active member of this program, the City of Shoreline implements and tracks Best Management Practices in its municipal maintenance activities such as regular inspection of vehicles for leaks and street sweeping to prevent solid and hazardous waste from entering waterways.	**Ensure Continuation (As Is):** This is an existing program that should be continued, and expanded in time to include maintenance specific to Green Streets.	**#25**: Prioritize and structure the development of the Green Streets program.
Community Building and Outreach		
Earth Day Celebration (PCS/PW) – In partnership with local businesses and Shoreline Community College, the City of Shoreline offers a variety of Earth Day programs including habitat restoration projects at local parks and the Natural Yard Care for Earth Day & Everyday	**Expand Current Efforts:** Sustainability calls to action will occur more often. For example, have one Shoreline volunteer work day each quarter and engage greater volunteer participation.	**#8**: Provide expanded "how to" sustainability information to the community through varied approaches (e.g. mailers, events, website and City Hall brochures).

INVENTORY ITEM	ANALYSIS	RECOMMENDATION
Community Building and Outreach - continued		
Neighborhood Environmental Stewardship Team (PW) – The Neighborhood Environmental Stewardship Team (NEST) program actively involves community residents in learning about and selecting environmental changes that promote health and sustainability in their neighborhood and homes.	**Expand Current Efforts:** This program can be expanded and developed using Internet resources. Creation of "how to" sheets with technical guidance and available resources might help grow the program. This initiative can be greatly helped through either a sustainability coordinator or volunteer coordinator position.	**#5:** Pursue grants to establish a key City staff position related to sustainability (e.g., Volunteer Coordinator). **#8:** Provide expanded "how to" sustainability information to the community through varied approaches (e.g. mailers, events, website and City Hall brochures).
Environmental Mini Grant Program (PW/C&IR) – This new program supports local non-profits, youth and community groups that want to implement environmental projects to benefit the Shoreline community.	**Expand Current Efforts:** Program is doing well and should be ramped up. Make sure funding source is reliable. Volunteer Coordinator position and a specific focus on critical area and urban forest enhancement would help expand, leverage and focus resources.	**#5:** Pursue grants to establish a key City staff position related to sustainability (e.g., Volunteer Coordinator). **#50:** Promote and expand environmental mini-grant program, with focus on critical area and urban forest enhancement.
Adopt-a-Road and Adopt-a-Trail Programs (PW/C&IR/PRCS) – The City of Shoreline Adopt-a-Road Program helps clean up litter and debris on City streets. Since the program began, over 100 volunteers have removed over 5,000 lbs of litter. An Adopt-a-Trail program was started in 2007 to care for the new Inter-urban Trail system.	**Ensure Continuation (As Is):** As part of overall community building and outreach initiative, both Adopt-a programs can be continued and perhaps further developed. Adopt-a-Trail program might even be used to develop linkages -- volunteer labor and a focus on maintenance and signage in addition to litter.	**#5:** Pursue grants to establish a key City staff position related to sustainability (e.g., Volunteer Coordinator). **#28:** Improve identification, mapping, designation surface and signage of existing trails. Develop a plan for future trail expansion.
Habitat Conservation and Restoration		
Urban Forest Assessment Planning (PRCS) – The City of Shoreline is contracting with Seattle Urban Nature Project to perform an urban forest assessment for Hamlin, Shoreview, Boeing Creek and South Woods parks. These assessments will help the City determine the health of major forested park sites in Shoreline and prioritize areas that need the most attention from Park maintenance staff and Ivy OUT volunteers.	**Expand Current Efforts:** While this has been tagged as a low-priority Inventory Item for consultant analysis, it is the gateway to other Items and Recommendations. Forest enhancement provides public amenities, habitat, and opportunities for stormwater infiltration that reduce burdens on infrastructure. Adopt an integrated approach to UFA Planning.	**#46:** Identify underutilized park lands and use for habitat improvements, infiltration, water treatment and other compatible purposes. **#47:** Consider development of a Natural Resources Action Plan. **#49:** Implement the Cascade Land Conservancy's (CLC) Green Cities Program by prioritizing forest health data collection and improvement projects and pursue partnerships to increase the acreage analyzed and enhanced. **#50:** Promote and expand environmental mini-grant program, with focus on critical area and urban forest enhancement.
Open Space Acquisition (PRCS) – The City of Shoreline is always seeking opportunities to ensure the protection of natural habitat. The 2006 Park Bond recently approved by Shoreline voters includes funding for the acquisition of 25 acres of open space.	**Modify Overall Approach:** Create specific targets for acquisition, conservation and/or restoration of open space and habitat (different things!).	**#46:** Identify underutilized park lands and use for habitat improvements, infiltration, water treatment and other compatible purposes. **#47** Consider the development of a Natural Resources Action Plan.

INVENTORY ITEM	ANALYSIS	RECOMMENDATION
Habitat Conservation and Restoration - continued		
Critical Areas Ordinance (PADS) – The City of Shoreline updated its Critical Areas Ordinance in March 2006 to comply with State guidelines as well as provide greater protection for local streams, wetlands, steep slopes and fish and wildlife habitat areas.	**Ensure Continuation (As is):** CAO was recently revised and no immediate modification of regulations are recommended. However, additional efforts are needed in the larger arena of critical area stewardship. Create specific targets for acquisition, conservation and/or restoration of wetland and stream enhancement projects	**#48**: Establish restoration and enhancement targets for publicly funded or assisted wetland and stream enhancement projects.
WRIA 8 Participation (PW) – Since 2001, the City of Shoreline has participated in the Water Resource Inventory Area (WRIA) 8 regional process to develop and implement a plan for the recovery of endangered Chinook salmon.	**Ensure Continuation (As is):** Existing participation in WRIA process has been useful in identifying regional prioririties and some local priorities. Additional work needed to set clear targets for local watershed enhancement efforts and demonstrate greater progress.	**#48**: Establish restoration and enhancement targets for publicly funded or assisted wetland and stream enhancement projects.
Ivy Out Volunteer Program (PRCS/C&IR) – The City of Shoreline initiated Ivy O.U.T. (Off Urban Trees) events in parks in 2005 and in 2006 formalized a monthly schedule of rotating work parties in City parks.	**Expand Current Efforts:** This is an good example of using community resources. This overlaps with recommendations to develop volunteer resources and community education. The Ivy O.U.T. format can be broadened to include other initiatives and used as a template for new programs.	**#49:** Implement the Cascade Land Conservancy's (CLC) Green Cities program by prioritizing forest health data collection and improvement projects and pursue partnerships to increase the acreage analyzed and enhanced.
Habitat Restoration Projects (PADS/PW/PRCS) – The City of Shoreline has partnered with the community to improve stream systems and fish & wildlife habitats through vegetation restoration in the City.	**Modify Overall Approach:** Opportunities to increase public involvement through greater education (via Web resources). Additional work needed to truly prioritize, ramp up commitment and set specific targets. More structure and hard targets needed. Natural Resources Action Plan is recommended.	**#48**: Establish restoration and enhancement targets for publicly funded or assisted wetland and stream enhancement projects. **#50:** Promote and expand enviromental mini-grant program, with focus on critical area. **#47:** Consider the development of a Natural Resources Action Plan.

INVENTORY ITEM	ANALYSIS	RECOMMENDATION
Land Use and Development		
Green Building Program implementation	**Modify Overall Approach:** See Recommendations.	**#10:** For major new City facilities meet LEED Core Performance Requriements for Energy and Atmosphere Credit #1. **#11:** For new construction of major City facilities (including City Hall), require the use of Commissioning as outlined by the ASHRAE Commissioning Process Guideline 0-2005. **#12:** Upgrade existing City facilities to meet Energy Star building performance standard for similar building types. **#13:** Include requirements to meet Energy Star for building equipment and appliances in purchasing guidelines. **#21**: Prioritize and promote Green Building and LID training for select staff (e.g., PADS, Grants & Engineers). **#22:** Establish a Residential Green Buidling program, including outreach and worksheets. **#23**: Revise zoning and engineering standards to provide guidance and incentives for LID and Green Building. **#24** Adopt a Green Building Policy for City Capital Projects - LEED Silver and LID principles as outlined in Puget Sound Manual. **#26**: Modify the stormwater utility fee to promote LID, calibrate for true system impact/cost and encourage natural drainage improvements.
Civic Center/City Hall (PW/PADS) – The new Civic Center/City Hall is to be built to a minimum LEED Silver standard. It will serve as a model for sustainable practices throughout the community by implementing standards of construction to the extent possible that support re-use of materials, energy conservation, water efficiency, landscaping and indoor environmental quality. To parallel the construction of the new Civic Center/City Hall, a Green Building brochure will offer examples and resources for residents to incorporate sustainable building practices into their home remodeling projects.	**Ensure Continuation (As Is):** This is the flagship for the City, and in all ways should be used to advance and model sustainable design strategies.	
Green Street Demonstration (PW) – Green Street Demonstration Projects will focus on developing opportunities that will provide a "living demonstration" to serve as an educational experience, support sound environmental practices and improve water quality in the City of Shoreline.	**Modify Overall Approach:** Need to develop a plan with specific priorities and siting critieria. Focus should continue to be on "oppotunistic approach" however and not a "one size fits all". Demo project important, but need to jumpstart the planning piece and identify capital improvement plans and integrate with Transportation Master Plan and Surface Water Master Plan.	**#25**: Prioritize and structure the development of the Green Streets program - focus on surface water enhancements, connectivity and linking destinations.
Sustainable Business Extension Service (CMO) – economic development program) - SBES promotes resource conservation programs and environmentally sound business practices to Shoreline's local businesses. This free confidential service provides improved access to government programs, rebates and technical assistance in the ever-changing world of environmental and safety regulations.	**Modify Overall Approach:** Collaborate with Shoreline Chamber of Commerce and identify local business champions to sponsor and/or assume leadership roles in implementing the program. The Chamber of Commerce is using a King County grant to develop a Sustainable Business Program similar to Kirkland's, with the intent of partnering with the City to implement and administer. Emphasis should be on supporting, enabling and coordinating with the Chamber of Commerce efforts.	**#7**: Work with the Shoreline Chamber of Commerce to create a green business certification and promotion program.

INVENTORY ITEM	ANALYSIS	RECOMMENDATION
Land Use and Development - continued		
City Buildings Operations Practices and Policies – This is not necessarily sustainable now, but future decisions should be made to reduce the carbon/ecological footprints of our buildings, purchasing decisions, and standard operations.	**Modify Overall Approach:** This is a major area of opportunity, as reflected in Recommendations. Specific targets should be adopted, and as mentioned above, City Hall is a great way to kick off all new initiatives, including public outreach and possibly new requirements for developers.	**#14**: Engage in Seattle City Light green power program (Green Up). As part of annual budget planning, increase proportion of green power purchase to 100%. **#37**: Expand existing efforts to reduce, reuse, and recycle in City offices, parks, and other facilities. **#38**: Include in purchase guidelines preference/requirement for products that promote reduction and reuse; reduce consumption of raw materials; and, present reduced risk to human and ecological health (non-toxic materials). **#3**: Create standard office procedures, training and department expectations that support sustainability goals; then measure, reward and promote individual and departmental achievement of these goals. **#4**: Establish a permanent green team or interdepartmental committee to focus on sustainability program management and sustainability techniques. **#6**: Develop a comprehensive environmental purchasing policy for all City purchasing decisions.
Toxics Reduction		
No Spray Zones in Richmond Beach (PW) – Based on community interest, the City of Shoreline initiated a pilot "No Spray Zone" in the Richmond Beach neighborhood in 2004. The City agreed not to spray pesticides in the right-of-way for four years, and local residents agreed to maintain the six-inch area adjacent to the road pavement.	**Expand Current Efforts:** Increase awareness of this program and make an explicit offer to expand it to other communities if they are interested.	**#7**: Provide expanded "how to" sustainability information to the community through varied approaches (e.g. mailers, events, website and City Hall brochures).
Natural Yard Care Program (PW) - This program is currently limited to outreach during the annual Earth Day Celebration and about three neighborhood workshops annually. The annual event includes informational booths, workshops, and free tools given away.	**Expand Current Efforts:** Surveys have indicated behavior change as a result of this program to date. Opportunities exist to expand program to include additional workshops and demonstration gardens at the new City Hall and other City properties.	No specific recommendations in Strategy for expansion of this program, but grant funding is currently being pursued for expansion of this program.
Pesticide-Free Parks (PCS) – The City of Shoreline is proud to say that it makes every effort to not use pesticides or herbicides in the maintenance of City parks. Chemical pesticide or herbicide use is prohibited for use near City-owned critical areas such as streams and wetlands. The current Shoreline Parks and Maintence Standards manual includes best management practices from the Tri-County Integrated Pest Management Model Policy.	**Ensure Continuation (As Is):** Program is working well. Possible future efforts might include the creations of specific lists of banned products and preferred providers of environmentally sustainable products. Make lists publicly available. Adopt new best management practices when they are safe, reliable and cost effective.	**#38**: Include in purchase guidelines preference/requirement for products that promote reduction and reuse; reduce consumption of raw materials; and, present reduced risk to human and ecological health (non-toxic materials). **#2:** Create standard office procedures, training and department expectations that support sustainability goals; then measure, reward and promote individual and departmental achievement of these goals.

INVENTORY ITEM	ANALYSIS	RECOMMENDATION
Waste Reduction and Management		
Solid & Hazardous Waste Management Program (PW) – The City of Shoreline coordinates hazardous waste and recycling collection programs for residents and businesses including: • Two Clean Sweep Recycling Events are offered annually to provide an easy and affordable way for residents to dispose of and recycle bulky household items. • To help recycle Christmas trees, the City of Shoreline offers an annual chipping event in conjunction with various community groups that collect trees from residents.	**Modify Overall Approach:** This is a major area of opportunity, as reflected in Recommendations. Waste management should be a comprehensive approach to environmental sustainability, from household decisions (e.g., sorting and recycling) to City operations (e.g., proper disposal and diversion at transfer stations). Recycling must be made a priority in the City - recycling in City operations is the biggest need. Construction Waste Management is also essential to reducing overall waste volumes and is integrated with green building initiatives; residential recycling is another way of providing focus and generating momentum within the community for the Sustainability Strategy.	**#37**: Expand existing efforts for staff to reduce, reuse, and recycle in City offices, parks, and other facilities. **#39**: Provide convenient opportunities (prominent and labeled bins) for sorting, collecting, and composting solid waste streams in the community. **#40**: Implement commercial, residential, and construction waste information outreach and incentives through the permit process and municipal waste contract. **#3**: Create standard office procedures, training and department expectations that support sustainability goals; then measure, reward and promote individual and departmental achievement of these goals. **#7**: Work with the Shoreline Chamber of Commerce to create a green business certification and promotion program.
Municipal Compost Facility (PW/PCS) – Located on the grounds of Shorecrest High School, the compost facility allows the City of Shoreline to reuse green waste collected from the right-of-way.	**Expand Current Efforts:** Compost is a major opportunity for reducing waste and building a community focus on sustainability. An integrated program of collection, processing, and distribution (especially in concert with a pea-patch/community garden program) is one way of building an IDENTITY for the Shoreline Sustainability Strategy. Residents will rally around an objective of reducing waste and composting; the community may even be able to accept and process (for revenue) other muncipalities' compost; and, distribution of compost and development of community garden network is a benefit to the City.	
Business Solid Waste Reduction, Recycling & Resource Conservation Program (PW) – In 2007, the City of Shoreline began conducting outreach, site assessment and assistance to businesses to reduce solid waste and encourage recycling.	**Expand Current Efforts:** Important to coordinate current ECOSS work with the new Chamber of Commerce work on development of a Sustainable Business Program	
Free Wood Chips at Hamlin Park (PCS) – Wood chips are offered free to the public at the Hamlin Park Maintenance Facility, 16006 15th Avenue NE, from 7:00 a.m. to 3:30 p.m., seven days a week.	**Ensure Continuation (As Is):** No signficant change to program is recommended.	

INVENTORY ITEM	ANALYSIS	RECOMMENDATION
Battery Recycling (PW) – The Household Battery Collection program provides bins year-round for collection of household batteries at each of the libraries in Shoreline, as well as at City Hall, the City Hall Annex and the Shoreline Police Station.	**Ensure Continuation (As Is):** No significant change to program is recommended.	
Water Resources Management		
Clean & Green Car Wash Kits (PW) – The City of Shoreline loans easy-to-use car wash kits to community groups for fundraising events that allows them to wash cars in an environmentally sustainable way by keeping soap and other pollutants out of our streams.	**Expand Current Efforts:** Additional outreach needed. Current kits are well used, but many car washes do not use them. More kits may be needed.	**#8:** Provide expanded "how to" sustainability information to the community through varied approaches (e.g. mailers, events, website and City Hall brochures). **#26**: Modify the stormwater utility fee to promote LID, calibrate for true system impact/cost and encourage natural drainage improvements. **#41**: For high-use operations including irrigation and park restrooms, replace fixtures and equipment with the highest efficiency cost-effective water conservation options available. **#42**: For retrofits and new construction of City indoor facilities, specify/ replace fixtures with high-efficiency, low-flow alternatives. Investigate the use of non-potable sources, such as greater reuse and rainwater catchment. **#44**: Work with utilities to expand existing incentives and develop new incentives to reduce potable and irrigation water consumption.
City of Shoreline Stormwater Standards update (PW) – The City of Shoreline is updating its stormwater standards. Improvements in these standards will result in cleaner water being discharged to our streams and the Puget Sound.	**Ensure Continuation (As Is):** Need specific targets here	
Aurora Corridor Project Stormwater Solutions (PW) – The first mile of the Aurora Corridor Project includes stormwater quality improvements such as filters, swirl separators and oil-water separators. The next two miles of the Aurora project will include exploration of natural water treatment systems as well as methods used in the first mile.	**Expand Current Efforts:** Demonstration project should be closely monitored, lessons learned used to influence future projects (need targets) and to shape policy/codes.	
Storm Drain Medallions & Stenciling (PW) – The City of Shoreline provides free training and loans stencil kits to community groups who want to stencil the message "Dump No Waste, Leads to Stream" at catch basins on residential streets. Staff place medallions with the same message at catch basins on arterial roads.	**Ensure Continuation (As Is):** Program has been successful and is noticed in the community. Volunteers have been effectively engaged.	

APPENDIX C

Capacity Assessment Matrix

CAPACITY ASSESSMENT LEGEND

Costs categories identified in Chapter 4 and this Capacity Assessment Matrix refer to the percentage above the current or conventional or in addition to what is currently budgeted annually for that item, project or program. These include both first and lifecyle costs where (and only where) a recommendation refers to a new item, project or program, where no comparison of current or conventional costs is possible, cost categories were determined based on the dollar cost maximums listed below.

Where potential cost savings have been identified, these items are italisized in the Capacity Assessment Matrix.

COST CATEGORIES - COSTS BEYOND CONVENTIONAL OR CURRENT

NEGLIGIBLE	up to 2% over existing practices or under $5,000 if new
LOW	up to 10% or under $20,000
MEDIUM	up to 30% or under $75,000
HIGH	over 30% or over $75,000

PRIORITY CATEGORIES

1	High Priority
2	Medium Priority
3	Lower Priority

TIME-FRAME CATEGORIES

Short	1-3 years (Budget cycle)
Medium	3-6 years (CIP cycle)
Long	7-10 years (Comprehensive Plan)

DEPARTMENT ABBREVIATIONS

C	Clerks
CMO	City Manager's Office
CS	Community Services
ED	Economic Development
F	Finance
IT	Information Technology
HR	Human Resources
PDS	Planning and Development Services
PRCS	Parks, Recreation, and Cultural Services
PW	Public Works
PW-E	Public Works - Engineering
PW-ES	Public Works - Environmental Services
PW-F/O	Public Works - Facilities/Operations
PW-S/A	Public Works - Streets/Aurora
PW-SW	Public Works - Surface Water

Note: Italics indicates cost savings.

#	POTENTIAL ACTION	FIRST COST PREMIUM	LIFECYCLE COST SAVINGS	BENEFITS	ADDITIONAL STAFF OR CONSULTANT REQUIRED	CITY OPERATING BUDGET COSTS
FOCUS AREA 1: City Operations, Practices & Outreach						
1	**Integrate sustainability into City and departmental missions, functions and decision-making at all levels using clear and transparent tools.**	NEGLIGIBLE	Not directly	Will provide continuity & leadership.	No. But adjustment of staff responsibilities and workloads necessary.	NEGLIGIBLE
2	**Create baselines for all Sustainability Strategy focus areas and implement system to track progress over time.**	Yes. Additional MODERATE staff time commitment	Not directly. LOW indirect savings possible from overall program.	Performance measures for City and community will help assess progress.	No. Can accomplish with existing staff w/ some training. See above.	Yes, LOW
3	**Create standard office procedures, training & expectations; measure, reward & promote individual and departmental achievements.**	NEGLIGIBLE	*LOW. Procedures & training should help reduce resource use and related cost.*	City operations savings and leadership that can be used to educate/guide community motivation.	No. Existing staff can accomplish.	No
4	**Green Team**	NEGLIGIBLE	Not directly	Will provide continuity & leadership.	Not required, but would help. At a minimum, adjustment of staff responsibility and workloads necessary.	NEGLIGIBLE
5	**Pursue funding to establish a key City staff position or contracted consultant.**	NEGLIGIBLE If done in house.	Not directly. Depends on implementation outcome. Indirect savings expected to be LOW to MEDIUM.	Leadership and expertise continuity/ tracking of effort.	Existing finance staff aided by Environmental Services can pursue funding.	Depends on funding obtained.

1 http://www.kingcounty.gov/

APPENDIX C — Capacity Assessment Matrix

CITY CAPITAL BUDGET COSTS	INTERNAL RSPNSBLTY	EXTERNAL RSPNSBLTY	IMPLMNTN RESOURCES	REQUIRED TO MEET EXISTING AGREEMENT	PRIORITY	TIMEFRAME
No	City-wide, CMO	No	City of Seattle Green Team is an excellent model.	No	1	S
No	City -wide, Green Team Structure. Leadership & Management.	Yes. Community participation.	Many federal, State, and local resources are available .	Yes. Energy baseline required by Mayor's Climate Agreement, other baselines recommended.	1 Baseline data collection will likely take 1-2 years.	S-M
No	City-wide, CMO	No	Many internal "sustainable practices" programs as models.[1]	No	1 - Quick win.	S-M
No	City-wide, CMO	No	City of Seattle Green Team is an excellent model.	No, however sustainability management structure is vital.	1	S
No	CMO, F, PW-ES	No	Yes, necessary given budget forecast.	No, but could support Cascade Agenda requirement to appoint a staff representative to program.	1	M

FOCUS AREA 1: City Operations, Practices & Outreach *continued*

#	POTENTIAL ACTION	FIRST COST PREMIUM	LIFECYCLE COST SAVINGS	BENEFITS	ADDITIONAL STAFF OR CONSULTANT REQUIRED	CITY OPERATING BUDGET COSTS
6	**Develop an environmental purchasing policy for all City purchasing decisions.**	Initial development should require only LOW to MEDIUM additional staff investment.	*Yes. LOW energy & resource efficiency reduces operations costs savings; durable products reduce maintenance costs & replacement schedules.*	Promotes sustainable, non-toxic and efficient products and businesses.	No. City should be able to accomplish with existing staff and resources in this Strategy.	NEGLIGIBLE
7	**Create a green business certification and promotion program.**	NEGLIGIBLE	No direct savings expected. Potential for business promotion and expansion though, which could impact tax base positively.	Makes Strategy visible to the community; operations savings for businesses, promotes green businesses.	No. Chamber of Commerce is creating a program. City and Chamber should coordinate.	NEGLIGIBLE
8	**Provide expanded "how to" sustainability info to the community through varied approaches (e.g. mailers, event, website and city hall brochures).**	NEGLIGIBLE	No direct savings expected. Indirect savings to larger community possible.	Benefits all residents and business owners through greater efficiencies; City benefits via reduced burden on infrastructure and services.	No. Existing staff appears adequate.	Yes. But negligible and can be absorbed into current budget..

FOCUS AREA 2: Energy & Carbon Reduction

9	**Develop a baseline for energy consumption and carbon data using ICLEI "5 Milestones Toolkit."**	Yes, NEGLIGIBLE to LOW depending on which ICLEI services/ products the City chooses to use.	*Yes. Predicted to be LOW. 5 Milestones Toolkit helps reduce energy consumption, saving money.*	Enables community- and City-wide planning specific to energy use standardized comparisons to other jurisdictions using program.	Yes. Can be accomplished with existing staff but training will be required.	Yes. LOW direct costs of establishing a baseline. Indirect costs expected.

CITY CAPITAL BUDGET COSTS	INTERNAL RSPNSBLTY	EXTERNAL RSPNSBLTY	IMPLMNTN RESOURCES	REQUIRED TO MEET EXISTING AGREEMENT	PRIORITY	TIMEFRAME
No. However, actual items often have LOW increased initial costs.	F and support from all departments.	No	King County and City of Seattle EPP are excellent models.	No	1	S
No	Limited. Some coordination will likely rest with GREEN TEAM.	Shoreline Chamber of Commerce	Department of Ecology, ECOSS	No	1 City and Chamber should meet. Chamber is moving forward.	S-M
No	GREEN TEAM, PW-ES PW, PDS, CS	No	Model materials on other municipalities; partner with other municipalities or utilities to pursue non-profit partnerships.	Yes: Res. #242: Help educate the public, schools, other jurisdictions, professional associations, business and industry and about reducing global warming pollution. [1A]	1	S-M
No	Yes, creation of baseline and regular updates PW-SW, PW-ES.	Not for creation of the baseline, but community is involved in data collection and target setting.	Yes, the City should pursue volunteer assistance and partnerships with Seattle City Light and PSE in establishing baselines.	Yes: Res. #242: Inventory global warming emissions in City operations and in the community, set reduction targets and create an action plan.	1	S-M

1A Reference: City of Shoreline Resolution 242 Authorizing support for the US Conference of Mayors Climate Protection Agreement. http://cosweb.ci.shoreline.wa.us/uploads/attachments/cck/

FOCUS AREA 2: Energy & Carbon *continued*

#	POTENTIAL ACTION	FIRST COST PREMIUM	LIFECYCLE COST SAVINGS	BENEFITS	ADDITIONAL STAFF OR CONSULTANT REQUIRED	CITY OPERATING BUDGET COSTS
10	**For all new major City facilities (City Hall), meet requirements for LEED Energy & Atmosphere Credit # 1.** [2]	Yes, NEGLIGIBLE. Strategies sometimes incur a first-cost premium.	*Yes, energy savings generally to fall within MEDIUM range.*	Standards save money in operations.	Yes. LEED Consultant for new buildings.	*No. MEDIUM savings expected.*
11	**For all new major City facilities (City Hall), require Commissioning.**[3]	Yes. Expected to be LOW. Activities add development costs.	*Yes. Savings expected to be MEDIUM. The process can lead to greater efficiencies and quality of construction.*	Commissioning identifies inefficiency and potential conflicts. Can ensure proper bldg function.	Yes. LEED Consultant for new buildings.	*No. MEDIUM positive budget savings impacts are expected.*
12	**Upgrade existing City facilities to meet Energy Star (ES) building performance standard for similar building types.**	Yes, expected to result in increased costs in the MEDIUM to LOW range.	*Yes. Expected to result in MEDIUM or HIGH savings over building life. Substantial savings possible from ES performance strategies.*	The City will save money in operations and maintenance by upgrading existing facilities to use less energy.	Yes. Fleets and Facilities will manage this process but consultant likely necessary.	*No, operating budget savings expected to be MEDIUM*
13	**Include requirements to meet Energy Star (ES) for building equipment in purchasing guidelines.**	Yes. LOW TO NEGLIGIBLE. ES often costs more. Increasingly, quality models meet standard.	*Yes -- energy savings expected and will vary from LOW to MEDIUM depending on the specific equipment.*	City will save money in operations and maintenance costs.	No	*No. LOW to MEDIUM savings expected.*
14	**Engage in Seattle City Light's (SCL) green power program (Green Up). Increase green power purchase to 100% through annual budget planning.**	NEGLIGIBLE. Costs relate to ongoing operating budget impacts.	No. Green power can be expected to cost more. NEGLIGIBLE.	Green power is consistent with commitment to reducing carbon emissions and aligning operations w/ Kyoto Protocol.	No	Yes. Annual budget will increase due to cost of green power, expected to be LOW.

2 The purpose of the LEED EA Credit 1 is to achieve increasing levels of energy performance over a prescribed baseline. Credit requirements can be met through whole building energy simulation or one of two applicable prescriptive compliance paths.

3 "Commissioning" defined and outlined by the ASHRAE Commissioning Process Guidelines 0-2005.

4 http://www.northwestenergystar.com/

CITY CAPITAL BUDGET COSTS	INTERNAL RSPNSBLTY	EXTERNAL RSPNSBLTY	IMPLMNTN RESOURCES	REQUIRED TO MEET EXISTING AGREEMENT	PRIORITY	TIMEFRAME
Yes, first costs may increase, though expected to be NEGLIGIBLE.	Yes -- requires City staff familiarity with Guide PW-F/O,PDS.	No	Developers working with LEED; consultants.	Yes: Res. #242: Practice and promote sustainable building practices using the US Green Building Council's LEED program or a similar system.	1	M-L
Yes, LOW. 1st costs will increase when commissioning is added to scope.	Yes -- requires City staff familiarity w/procedures and benefits PW-F/O.	No	Local commissioning authorities .	Yes: Res. #242: Prioritize energy efficiency through building code, energy efficient lighting and employee conservation.	1	M-L
Yes, see first cost premium, capital costs expected in the MEDIUM to LOW range.	Yes PW-F/O	No	NW Energy Star (via WSU Energy Extension) is an invaluable resource.	Yes: Res. #242: Prioritize energy efficiency through building code, retrofitting City facilities w/energy efficient lighting & urging employees to conserve energy.	3	S-L
Yes, NEGLIGIBLE to LOW will vary depending on replacement schedules	Yes -- Purchasing F	No	NW Energy Star (via WSU Energy Extension) is an invaluable resource.[4]	Yes: Res. #242: Purchase only Energy Star equipment and appliances for City use.	1 - Quick win	S
No. This is an operating cost.	Yes PDS, PW-F/O, F	Not yet -- future plans could include expansion to all City buildings.	SCL	Yes: Res. #242: Increase alternative energy: invest in "green tags;" advocate renewable energy; recover landfill methane; support waste-to-energy technology.	1 - Initial efforts 2 - 100% green power.	M

FOCUS AREA 2: Energy & Carbon *continued*

#	POTENTIAL ACTION	FIRST COST PREMIUM	LIFECYCLE COST SAVINGS	BENEFITS	ADDITIONAL STAFF OR CONSULTANT REQUIRED	CITY OPERATING BUDGET COSTS
15	**Require all new fleet vehicles be alternatively fueled, or rated by EPA for 45 mpg or higher for fossil fuel vehicles.** [5]	Cost premium expected to be MEDIUM.	*Yes. Fuel efficiency results in operations savings. MEDIUM expected when compared to existing costs.*	Fuel-efficient vehicles save $$ and contribute to stated goals of reducing carbon emissions, a public symbol of commitment.	No	*No. Should result in savings in MEDIUM (30%) range or greater.*
16	**Conduct a campaign for City staff to reward "smart" trip planning to reduce unnecessary trips/ miles traveled.**	Expected to be NEGLIGBLE.	*LOW savings expected for modest trip consolidation. MEDIUM if more aggressive tools are used (e.g., GIS trip routing).*	Smart trip planning reduces dependence on vehicles, reducing carbon emissions.	No	*No, LOW savings expected from reduced fuel use..*
17	**Promote SCL, Puget Sound Energy (PSE), or other incentives for conservation and alternative energy as part of an outreach campaign.**	NEGLIGIBLE to LOW if existing incentives are used.	Indirect benefits to larger Shoreline community. LOW savings expected, depending on effectiveness.	Will reduce energy use & carbon emissions, resulting in savings and alignment with Kyoto Protocol.	No	TBD. LOW to NEGLIGIBLE, depending on scope.
18	**Work with SCL & PSE to report Community's overall energy use as of baseline year. Update SCL/PSE figures.**	Partnership requirements unclear. Potential costs in the LOW range.	No direct or indirect cost savings. Will help determine baselines and monitor progress.	Helps determine baselines and monitor progress toward goals.	No. Should be able to do with existing utility assistance.	NEGLIGIBLE
19	**Collect information about greenhouse gas emissions and energy use through State Environmental Policy Act (SEPA) review process.**	Negligible direct costs to City to get training and to review this information.	No direct lifecycle cost savings. SEPA reporting, self-mitigation, & eventual mitigation may result in higher performance buildings and LOW lifecycle cost savings in community.	High performance buildings & energy efficient construction. Helps determine baselines and monitor progress toward goals.	No additional City Staff, however planners should get additional training to implement.	Negligible

5 For exempt vehicles, require the most efficient options available.
6 http://www.pugetsoundcleancities.org/
7 http://greencarcongress.com/
8 http://nwbiodiesel.org/

CITY CAPITAL BUDGET COSTS	INTERNAL RSPNSBLTY	EXTERNAL RSPNSBLTY	IMPLMNTN RESOURCES	REQUIRED TO MEET EXISTING AGREEMENT	PRIORITY	TIMEFRAME
Yes. Fleets & Facilities will need more $$/ vehicle, unless replacement schedules are extended.	Yes PW-F/O	No	Puget Sound Clean Cities Coalition,[6] Green Car Congress[7] and NW Biodiesel Network[8]	Yes: Res. #242: Increase avg. fuel efficiency of municipal fleet; reduce # of vehicles; educate employees; convert diesel to bio-diesel.	1	M-L
No	Yes HR, PW-S/A	No	Use ESRI GIS or similar software for trip routing. See UPS example in Implementation section. Must develop specific resources.	Yes. Helps reduce carbon emissions.	1 - Quick win.	S-M
No	Yes CS, PW-ES	Yes. Shoreline partners, residents and businesses participation encouraged.	SCL[9] and PSE[10]	Yes: Res. #242: Increase alternative energy: invest in "green tags;" advocate renewable energy; recover landfill methane; support waste-to-energy technology.	1	M
No	Yes CS, PW-SW, PW-ES	No	SCL[9] and PSE[10]	Yes	1 Must establish a baseline for reporting.	M
No	Yes - PDS	DOE likely to provide additional guidance.	Department of Ecology (DOE). King County Greenhouse Gas (GHG) emissions worksheet.[11]	Yes: Res. #242: Inventory emissions in City and Community; Set targets; create Action Plan; Recent interpretations by DOE reinforce that now required by State Law.	1 Immediate implemen-tation recom-mended.	S

9 http://www.seattle.gov/light/
10 http://www.pse.com/Pages/default.aspx
11 http://www.metrokc.gov/ddes/forms/SEPA-GHG-EmissionsWorksheet-Bulletin26.pdf

FOCUS AREA 2: Energy & Carbon *continued*

#	POTENTIAL ACTION	FIRST COST PREMIUM	LIFECYCLE COST SAVINGS	BENEFITS	ADDITIONAL STAFF OR CONSULTANT REQUIRED	CITY OPERATING BUDGET COSTS
20	**Employ PLACE³S software or similar for future land use planning efforts (e.g. next major Comp Plan update).**	NEGLIGIBLE TO LOW, PLACE³S has free and fee versions, depending on desired functions.	*Indirect LOW to MEDIUM savings depending on how aggressively findings are implemented.*	PLACE³S fully integrates public participation & computer-assisted tools (GIS) to produce plans.[12]	Yes. Staff training will be needed, including GIS and Planners. PLACE³S requires data input and analysis by City staff.	Yes, staffing and any fees associated with the tool but expected to be LOW.

FOCUS AREA 3: Sustainable Development & Green Infrastructure

21	**Prioritize and promote Green Building and Low Impact Development (LID) proficiencies for select staff.**	NEGLIGIBLE. TO LOW. Many instructional materials for Green Building and LID have been developed and are available.	*Low savings can be expected in larger community as a result of reduction in stormwater conveyance and treatment, energy use, and use of non-sustainable building materials.*	Encourages and supports internal & external sustainable development, saving energy & waste & reducing toxics.	Yes. Training but will require outside resources. Some staff required for organizing training and consultants to provide training.	LOW
22	**Establish a Residential Green Building Program, including worksheets on specific innovations for permitting clients.**	LOW to MEDIUM. Would require some initial staff time to set up program and establish green permitting system.	*Indirect NEGLIGIBLE to LOW savings expected in larger community.*	Encourages and supports internal & external sustainable development, saving energy & waste & reducing toxics.	No	NEGLIGIBLE
23	**Revise zoning and engineering standards to provide guidance and incentives for Low Impact Development (LID) and Green Building.**	Minimal staff time for quick fixes. LOW to MEDIUM cost for complete overhaul of standards.	*Indirect NEGLIGIBLE to LOW savings expected in larger community.*	Improved water surface water quality. Establish City as leader and example.	Yes. Consultant may be needed for code revisions	NEGLIGIBLE - once. Part of the Code, LOW to MEDIUM for initial effort.

12 These plans retain dollars in the local economy, save energy, attract jobs and development, reduce pollution and traffic congestion and conserve open space.
13 http://cpr.ca.gov/report/cprrpt/issrec/res/res22.htm
14 http://www.psat.wa.gov/Programs/LID.htm
15 http://www.seattle.gov/dpd/GreenBuilding/
16 http://www.ci.issaquah.wa.us/Page.asp?NavID=326

CITY CAPITAL BUDGET COSTS	INTERNAL RSPNSBLTY	EXTERNAL RSPNSBLTY	IMPLMNTN RESOURCES	REQUIRED TO MEET EXISTING AGREEMENT	PRIORITY	TIMEFRAME
No	GIS and PDS	Yes, PLACE^{3}S is a fully integrated tool, meaning community members are active participants.	City partners and participants; PLACE^{3}S and DOE support.[13]	Yes: Not this tool in particular, but overall objectives and results will result in greater energy efficiency and reduced carbon emissions.	3 Energy analysis necessary during future Comp Plan update.	M
No	Yes PDS, PW, F/IT, PRCS	No	Yes. Puget Sound Partnership LID handbook.[14]	Yes: Res. #242: Practice and promote sustainable building practices using the US Green Building Council's LEED program or a similar system.	1	S
No	Yes PW-ES, PDS	No	Existing programs such as Green Built, LEED. See Seattle[15], Issaquah[16], and Seattle technical resources.[17]	Yes: Res. #242: Practice and promote sustainable building practices using the US Green Building Council's LEED program or a similar system.	1	S
No	Yes PDS, PW	No	Numerous federal, private, state and King County funding programs available.[18,19]	Yes: Res. #242: Practice and promote sustainable building practices using the US Green Building Council's LEED program or a similar system.	1	S

17 http://www.seattle.gov/util/About_SPU/Drainage_&_Sewer_System/Natural_Drainage_Systems/Natural_Drainage_Overview/SPU01_002593.asp
18 http://www.epa.gov/greenbuilding/tools/funding.htm
19 www.dsireusa.com

FOCUS AREA 3: Sustainable Development & Green Infrastructure *continued*

#	POTENTIAL ACTION	FIRST COST PREMIUM	LIFECYCLE COST SAVINGS	BENEFITS	ADDITIONAL STAFF OR CONSULTANT REQUIRED	CITY OPERATING BUDGET COSTS
24	**Adopt a Green Building Policy for Capital Projects. Construct new buildings and additions according to LEED Silver Standard and specify a commitment to LID principles.**	NEGLIGIBLE TO LOW - generally this standard will result in a first-cost premium, e.g. to document action for LEED.	Yes, expected to result in LOW cost savings for City, potential MEDIUM when combined with other recommendations such as commissioning.	Annual savings of 20% energy & water, 38% in waste water production and 22% reduction in construction waste projected.[20] LEED can be implemented in concert with LID.	No additional City Staff, however architect selected for building construction must have LEED training.	*No, LOW savings are expected.*
25	**Prioritize and structure the development of the Green Streets program.**	LOW to MEDIUM. Some staff time required for establishing program.	Not for program development. See Capital Costs.	Decreased demand on stormwater conveyance and treatment systems.	Not required. Some staff time required for establishing program and integrating into Transportation and Stormwater Master Plans.	LOW to MEDIUM
26	**Modify the stormwater utility fee to promote low impact development, calibrate for true system impact/cost and encourage natural drainage improvements.**	MEDIUM one-time costs, consultant likely needed for Fee Study.	*Yes. This item will generate increased revenue in the LOW range & decreased system impacts in the LOW to MEDIUM range.*	Encourages private improvement, more funds for improved pedestrian facilities, greater user safety, neighborhood beautification, traffic calming, extension of park system.	Yes, consultant Fee Study needed.	LOW, but only for one budget cycle. Will likely require hiring of a consultant.

20 Washington State Law Mandates Green Building, Renewable Energy Access, 2005-04-21. Retrieved 2007-02-10
21 http://www.usgbc.org/DisplayPage.aspx?CategoryID=19

CITY CAPITAL BUDGET COSTS	INTERNAL RSPNSBLTY	EXTERNAL RSPNSBLTY	IMPLMNTN RESOURCES	REQUIRED TO MEET EXISTING AGREEMENT	PRIORITY	TIMEFRAME
Yes, see first cost premium, capital costs expected in the LOW range.	Yes	No	LEED trained building consultants, developers and/or architects.[21]	Yes: Res. #242: Practice and promote sustainable building practices using the US Green Building Council's LEED program or a similar system.	1 - need to adopt a policy, however, existing City Hall plans are consistent.	S-M
Yes, funds would be needed to establish a demonstration project, however, *MEDIUM savings are expected from implementation.* Seattle estimates that their SEA-Street design saves >20% of traditional street drainage cost.	Yes PW-S/A, PW-SW	No	Existing programs such as SeaStreets[22] and programs in Portland[23]	No, but strongly supports Green Cities Partnership.	1	S-M
No. May preclude need for future stormwater infrastructure enhancements in long-term & will provide increased revenue in LOW range.	Yes CMO, PW-SW	No	See other municipal programs, e.g. City of Portland	No	2	S-M

22 http://www.seattle.gov/util/About_SPU/Drainage_&_Sewer_System/ Natural_Drainage_Systems/Street_Edge_Alternatives/index.asp

23 http://www.portlandonline.com/BES/index.cfm?c=eeeah

FOCUS AREA 3: Sustainable Development & Green Infrastructure *continued*

#	POTENTIAL ACTION	FIRST COST PREMIUM	LIFECYCLE COST SAVINGS	BENEFITS	ADDITIONAL STAFF OR CONSULTANT REQUIRED	CITY OPERATING BUDGET COSTS
27	**Expand and reorient the existing sidewalk improvement program to focus on linking destinations and connectivity.**	LOW to MEDIUM. Revise the Transportation Master Plan.	No direct savings.	Would improve sidewalk continuity and overall walkability in targeted areas. Encourages walking and healthier lifestyles.	Depends if consultant retained to revise Transportation Master Plan. However, revision is planned.	NEGLIGIBLE
28	**Improve identification, mapping, designation, surfacing and signage of existing trails. Develop a plan for future trail expansion and regional connections.**	MEDIUM to HIGH costs associated with improvement plan.	No direct savings.	Would improve safety and comfort of user, and potentially increase trail usage. Encourages walking and healthier lifestyles.	Yes. Trail improvements likely contracted out. Staff time required to coordinate effort.	LOW
29	**Strengthen the bike and pedestrian facility elements to strategize a network.**	NEGLIGIBLE. Rolled into Transportation Plan Update.	Not directly. More bicycle and pedestrian trips means less car trips, precluding road widenings and other infrastructure investments.	Potentially better mode split and improved air quality. Non-motorized improvements encourage walking and healthier lifestyles.	Potential for outside assistance. Staff time required to do updating, but update planned.	NEGLIGIBLE
30	**Update the Transportation Master Plan (TMP) and provide a stronger link to the Land Use Element in the Comp Plan.**	NEGLIGIBLE. Staff time req to do updating, but update already planned.	No direct savings.	More consistency & coordination among plans would result in better implementation of planning goals.	NEGLIGIBLE. Staff time required to do updating, but update planned.	NEGLIGIBLE

24 http://www.bicyclealliance.org/saferoutes/minigrants.phprg/saferoutes/minigrants.php
25 http://www.wildliferecreation.org/wwrp-projects
26 http://www.wsdot.wa.gov/ta/operations/localplanning/pdf/GMA_Ammend.pdf

CITY CAPITAL BUDGET COSTS	INTERNAL RSPNSBLTY	EXTERNAL RSPNSBLTY	IMPLMNTN RESOURCES	REQUIRED TO MEET EXISTING AGREEMENT	PRIORITY	TIMEFRAME
Yes. Expansion of program would require capital funding. Costs in MEDIUM to ***HIGH*** range expected.	Yes PW and PDS	No	Grants available - WSDOT Safe Routes to Schools Program and Washington State Transportation Improvement Board.[24]	Yes: Res. #242: Adopt and enforce land-use policies that reduce sprawl, preserve open space, and create compact, walkable urban communities.	1 - non-motorized improve-ments	M
Yes, MEDIUM to ***HIGH***. Signage, surfacing, future planning would require funding. Recommend incremental increases in the 30% range.	Yes PRCS, PW and PDS	No	Grants available - Washington Wildlife and Recreation Program and other sources.[25]	No, but supports Green Cities Partnership.	1 - Initial efforts ongoing 2 - Trail improve-ments	M
N/A for planning. Facility construction would require funding. Recommend incremental increase in the 30% range.	Yes PW-E, PRCS	No	CTED Grants possible.[26]	Yes: Res. #242: Adopt and enforce land-use policies that reduce sprawl, preserve open space, and create compact, walkable urban communities.	2	M-L
N/A for planning.	Yes PDS, PW-E	No	CTED Grants possible.	Yes: Res. #242: Adopt and enforce land-use policies that reduce sprawl, preserve open space, and create compact, walkable urban communities.	2	M

FOCUS AREA 3: Sustainable Development & Green Infrastructure *continued*

#	POTENTIAL ACTION	FIRST COST PREMIUM	LIFECYCLE COST SAVINGS	BENEFITS	ADDITIONAL STAFF OR CONSULTANT REQUIRED	CITY OPERATING BUDGET COSTS
31	**Identify clear and specify near- and long-term priorities for transit improvements as part of the TMP process.**	NEGLIGIBLE. Part of TMP update process.	No direct savings.	Potentially improved transit service. Priority setting is needed to coordinate actions, develop momentum and achieve results.	Yes. May require funding for increased lobbyist or new position.	NEGLIGIBLE
32	**Advocate for a revised Sound Transit Phase II Plan (ST2) which includes improvements that serve the City of Shoreline.**	LOW to MEDIUM depending on level of involvement.	No direct savings. Improved transit Will encourage smart growth investment & reduce carbon emissions.	Improved transit means better mode split. Improved transit services would result in less car use, improved air quality, etc.	Yes. May require funding for increased lobbyist or new position.	LOW to MEDIUM
33	**Advocate for a single, integrated and continuous bus rapid transit system on Aurora Ave. (SR 99) between Everett and Seattle.**	NEGLIGIBLE	No direct savings.	Improved transit creates better mode split. Improved transit services would result in less car use, improved air quality, etc.	Yes. May require funding for increased lobbyist or new position.	NEGLIGIBLE
34	**Advocate for a Metro "feeder" route to improve east-west transit and support Aurora backbone.**	NEGLIGIBLE	No direct savings.	Improved transit = better mode split. Improved transit services would result in less car use, improved air quality, etc.	Yes. May require funding for increased lobbyist or new position.	NEGLIGIBLE

27 http://transit.metrokc.gov/
28 http://www.soundtransit.org/
29 http://commtrans.org/

CITY CAPITAL BUDGET COSTS	INTERNAL RSPNSBLTY	EXTERNAL RSPNSBLTY	IMPLMNTN RESOURCES	REQUIRED TO MEET EXISTING AGREEMENT	PRIORITY	TIMEFRAME
No direct costs. N/A for planning.	Yes. PDS, PW-E	No	CTED grants possible.	Yes: Res. #242: Adopt and enforce land-use policies that reduce sprawl, preserve open space, and create compact, walkable urban communities.	1	M
No direct costs. TBD - future transit investments may require local match.	Yes CMO, PW, PDS	Yes	Partner with: Metro[27] Sound Transit[28] Community Transit.[29]	No, but strongly supports Res. #272 which states Council's position on the current ST2 proposal.	2	S-M
No direct costs.	Yes CMO, PW, PDS	Yes	Partner with: Metro[27] Sound Transit[28] Community Transit.[29]	No, but strongly supports Res. #273 which states Council's position on the current transit agency plans for the Aurora corridor.	2	S-M
No direct costs. TBD - future transit investments may require local match.	Yes CMO, PDS, PW	Yes	Partner with: Metro[27] Sound Transit[28] Community Transit.[29]	No	2	M-L

FOCUS AREA 3: Sustainable Development & Green Infrastructure *continued*

#	POTENTIAL ACTION	FIRST COST PREMIUM	LIFECYCLE COST SAVINGS	BENEFITS	ADDITIONAL STAFF OR CONSULTANT REQUIRED	CITY OPERATING BUDGET COSTS
35	**Consider providing a program based on the State's commute trip reduction (CTR) program for medium-sized sites not currently required to participate in the State CTR program.**	MEDIUM	Not directly. Potentially less car trips may preclude future road widenings and other infrastructure investments.	Reduced demand on roads would reduce need for road expansions, improve air quality.	Yes. Creation of new program will require staff	LOW. Staff time for maintaining the program.
36	**Future updates to Comprehensive Plan and/or Housing Strategy should include a focus on Transit Oriented Development (TOD) and transit supportive neighborhoods to create density nodes that support transit use. Continue to focus new development near existing and proposed transit corridors and improvements.**	NEGLIGIBLE, if done during future update.	Not directly. Potentially less car trips may preclude future road widenings and other infrastructure investments.	Reduced demand on roads would reduce need for expansion, improve air quality and reduce carbon emissions.	No	No

FOCUS AREA 4: Resource Conservation & Waste Reduction

37	**Expand existing efforts to get City employees to reduce, reuse, and recycle in City offices, parks, and other facilities.**	NEGLIGIBLE. Additional receptacles, staff training and coordination with CleanScapes.[30]	*NEGLIGIBLE to LOW savings may be achieved by diverting additional solid waste.*	Reduces waste directed to landfills and increases recycling; may include energy generation from waste.	See short-term priorites.	NEGLIGIBLE to LOW, depending on extent of program.

30 http://www.cleanscapes.com/

CITY CAPITAL BUDGET COSTS	INTERNAL RSPNSBLTY	EXTERNAL RSPNSBLTY	IMPLMNTN RESOURCES	REQUIRED TO MEET EXISTING AGREEMENT	PRIORITY	TIMEFRAME
LOW to MEDIUM. Depending on County or State funding or employer support.	Yes PW-S/A	Yes	Possibly County, CTED, WSDOT grant funding for CTR expansion pilot.	Yes: Res. #242: Promote transportation options such as bicycle trails, commute trip reduction programs.	3	M
N/A	Yes PDS, PW, Council	No	King County TOD program, Puget Sound Regional Council (PSRC), Municipal Research and Services Center (MRSC).	Yes: GMA and Res. #242: Adopt and enforce land-use policies that reduce sprawl, preserve open space, and create compact, walkable urban communities.	3	M
NEGLIGIBLE- - additional receptacles and other capital assets may be needed.	Yes. PW -ES, PW-F/O, PW-SW	CleanScapes	CleanScapes[30]	Yes: Res. #242: Prioritize energy efficiency through building code, energy efficient lighting and employee conservation.	1	S

FOCUS AREA 4: Resource Conservation & Waste Reduction *continued*

#	POTENTIAL ACTION	FIRST COST PREMIUM	LIFECYCLE COST SAVINGS	BENEFITS	ADDITIONAL STAFF OR CONSULTANT REQUIRED	CITY OPERATING BUDGET COSTS
38	**Include in purchase guidelines preference/ requirement for products that promote reduction and reuse, reduce consumption of raw materials and present reduced risk to human and ecological health.**	LOW. Green products may cost more than current. Recommend 10% premium cap on certain items.	NEGLIGIBLE. Reduced consumption will save money, however this may be offset by product premium.	Established EPPs can save money; reduced consumption reduces waste; environmental considerations benefit all residents.	Potential for consultant but with guidance and examples from this Strategy, existing staff should be able to develop and implement this.	LOW. Additional costs may be incurred, both for additional staffing hours and for regular purchases
39	**Provide Shoreline residents with convenient opportunities (prominent and labeled bins) for sorting, collecting, and composting solid waste streams in the community at public places and events.**	Yes. Can be LOW and incremental as budget allows.	*Indirect savings in the LOW range expected due to overall reduction in waste sent to sorting facility and to landfills.*	Reduce generated solid waste. Programs allow communities to embrace sustainability. May act as "gateways" of participation.	No. Should be accommodated within Fleets and Facilities/Parks Departments and existing CleanScapes contract.	Yes, if additional collection services are required. Recommend incremental improvements in the LOW range as budgets allow.
40	**Implement construction and business waste reduction outreach and incentives through the permitting process and municipal waste contract.**	NEGLIGIBLE. Add to existing outreach efforts; partner with ECOSS and Chamber or Commerce.	No direct savings expected. LOW savings for average business. Construction recycling savings NEGLIGIBLE and LOW increased costs possible.	Reduce burden on infrastructure, transfer stations & landfills; Reduce env't damage; Savings for residents and businesses.	Existing staff may need additional training. Research and development of incentives may require consultant resources.	NEGLIGIBLE to LOW depending on whether consultant resources are used.
41	**Replace equipment in high-use outdoor operations with highest efficiency, cost-effective water conservation options available.**	LOW. Fixtures to be replaced as needed.	*MEDIUM savings. Reduced water consumption results in reduced operations costs.*	Reduced operations costs, reduced burden on City and regional infrastructure, responsible management of water resources.	No. Fleets and Facilities aware of options. Can add requirement to replacement & maintenance schedules.	*MEDIUM savings. Potential impacts to maintenance staff. Potential savings in operations for offset.*

31 http://www.newdream.org/procure/start/develop.php

CITY CAPITAL BUDGET COSTS	INTERNAL RSPNSBLTY	EXTERNAL RSPNSBLTY	IMPLMNTN RESOURCES	REQUIRED TO MEET EXISTING AGREEMENT	PRIORITY	TIMEFRAME
Increased costs in the LOW range possible for major machines and appliances.	F with support from purchasing personnel from all major departments, particularly Fleets and Facilities.	No	King County may be willing to partner. KC and City of Seattle EPPs are excellent models.[31]	No	1	S
NEGLIGIBLE. Additional bins required.	PW-ES PW-F/O, PRCS	Yes Community participation	CleanScapes. Business partners such as Shoreline Community College and School District.	Yes: Res. #242: Increase recycling rates in City operations and in the community.	2 Explore additional opportunities after CleanScapes transition.	S
No	PDS, PW-ES, PW-SW	CleanScapes, Chamber, ECOSS	ECOSS, Shoreline Chamber of Commerce, CleanScapes.	Yes: Res. #242: Increase recycling rates in City operations and in the community.	2 Need contractors	S
LOW additional costs for efficient fixtures. Many not considered capital items. Irrigation system would be considered a capital item.	PRCS, PW-F/O	No	ECOSS and some utilities provide rebates, incentives.	No	2	M-L

FOCUS AREA 4: Resource Conservation & Waste Reduction *continued*

#	POTENTIAL ACTION	FIRST COST PREMIUM	LIFECYCLE COST SAVINGS	BENEFITS	ADDITIONAL STAFF OR CONSULTANT REQUIRED	CITY OPERATING BUDGET COSTS
42	**For retrofits and new construction of City indoor facilities, specify/replace fixtures with high efficiency, low flow alternatives.**	LOW cost premium expected.	*MEDIUM savings. Decreased operations costs. Durable alternatives must be selected to see this savings.*	Reduced operations costs, reduced burden on City and regional infrastructure, and responsible management of water resources.	No. Fleets and Facilities aware of options. Can add requirement to replacement & maintenance schedules.	*MEDIUM savings Potential impacts to maintenance staff. Potential savings in operations for offset.*
43	**Investigate non-potable sources uses, such as grey water reuse and rainwater catchment for toilet flushing.**	LOW to MEDIUM. Applicability determination will require consultant resources.	TBD. Dependent on implementation.	Reduced burden on City and regional infrastructure and decreased operations costs.	Yes. Consultant research of feasibility	LOW, increased maintenance costs.
44	**Work with utilities to expand existing incentives and develop new incentives to reduce potable and irrigation water consumption.**	NEGLIGIBLE - coordination effort only if utilities offer incentives.	TBD -- depends on implementation.	Reduction of potable water use reduces burden on City and regional infrastructure and decreases operations costs.	Yes. Research into applicability	Negligible
45	**Implement residential waste incentives & requirements through municipal waste contract & permits. Expand community outreach.**	UNDERWAY. Additional may be considered. Recommend only additional expenditures that are LOW.	No direct. Indirect LOW savings in larger community as a result of reduction in solid waste generated and disposed.	Reduce burden on infrastructure, transfer stations & landfills; Reduce env't damage; Savings for residents.	Existing staff has demonstrated skills and competence in research and coordination w/ CleanScapes.	Potentially LOW -- depending on scope of outreach.

FOCUS AREA 5: Ecosystem Management

46	**ID under-utilized City property and use for habitat improvements, water treatment and other compatible purposes.**	LOW costs associates with identification. Cost may jump to MEDIUM depending on nature of any improvements.	Dependent on size of areas and how natural they're allowed to become. LOW direct cost savings for vegetation maintenance expected.	Potential habitat improvement. "On-site" stormwater treatment. Less maintenance costs.	Potential for consultant assistance.	NEGLIGIBLE. Cost of maintaining habitat my be offset by reduced maintenance costs.

32 http://yosemite.epa.gov/R10/HOMEPAGE.NSF/webpage/Grants

CITY CAPITAL BUDGET COSTS	INTERNAL RSPNSBLTY	EXTERNAL RSPNSBLTY	IMPLMNTN RESOURCES	REQUIRED TO MEET EXISTING AGREEMENT	PRIORITY	TIMEFRAME
Yes. LOW additional costs for efficient fixtures.	PW-F/O	No	ECOSS and some utilities provide rebates, incentives, and free fixtures.	No	2	M
Yes. LOW to MEDIUM. Implementation of reuse and catchments systems will require capital	Yes. PRCS, PW-F/O	No	Consultant resources, DOE, Shoreline Water District.	Yes: Res. #242: Evaluate opps to increase pump efficiency in systems; recover wastewater treatment methane.	3	M-L
No	Yes CMO, PW-SW, PW-ES	Yes., Utilities	Shoreline Water District	No	2	M-L
No	Yes PW-SW, PW-ES	Yes. Community participation.	CleanScapes and Identify champions in the community.	Yes: Res. #242: Increase recycling rates in City operations and in the community.	1	S
Yes, improvements may require MEDIUM costs, but may be partially offset by savings.	Yes PRCS, PW-SW	No	Local grants offered by EPA.[32]	Yes: Res. #242: Maintain healthy urban forests; promote tree planting to increase shading and to absorb CO^2 Supports Cascade Agenda Principle using land efficiently.	2	M

FOCUS AREA 5: Ecosystem Management *continued*

#	POTENTIAL ACTION	FIRST COST PREMIUM	LIFECYCLE COST SAVINGS	BENEFITS	ADDITIONAL STAFF OR CONSULTANT REQUIRED	CITY OPERATING BUDGET COSTS
47	**Consider the development of a Natural Resources and Habitat Master Plan.**	MEDIUM	*No direct savings.* ***HIGH*** *indirect savings by acting sooner rather than later.*	Increase City's ability to obtain grant funding.	Yes. Potential for consultant services.	LOW
48	**Continue and expand restoration & enhancement priority locations & targets for publicly funded or assisted wetlands & stream enhancement projects.**	NEGLIGIBLE cost to ID targets could be rolled into Action plan efforts .	No savings expected. MEDIUM TO **HIGH** costs. Critical area improvement costs depends on size and number of locations targeted.	Healthier wetland and stream habitats.	Yes. Ramp up likely to require 5 FTE.	NEGLIGIBLE for target identified
49	**Implement Cascade Land Conservancy's (CLC) Green Cities Program by prioritizing forest health data collection & improvement projects & strengthening partnerships to increase the acreage analyzed & enhanced.**	Recommend incremental increases at the LOW to MEDIUM level.	No cost savings. MEDIUM TO **HIGH**. Forest health improvement takes a concerted effort over many years to control invasive vegetation.	Enhanced urban forests in the community.	Yes. Consultant services needed.	LOW to MEDIUM. Volunteer coordination could assist.
50	**Promote & expand environmental mini-grant program, with focus on critical area & urban forest enhancement.**	LOW to MEDIUM, depending on level of expansion.	No direct cost savings.	Increased community support & action to achieve goals.	Yes. Ramp up of likely to require 5 FTE.	Low - Existing program.

32 http://yosemite.epa.gov/R10/HOMEPAGE.NSF/webpage/Grants
33 http://www.fws.gov/birdhabitat/Grants/NAWCA/Small/2005.shtm
34 http://www.greenseattle.org/

CITY CAPITAL BUDGET COSTS	INTERNAL RSPNSBLTY	EXTERNAL RSPNSBLTY	IMPLMNTN RESOURCES	REQUIRED TO MEET EXISTING AGREEMENT	PRIORITY	TIMEFRAME
Yes	Yes PRCS, PDS, PW-SW	Yes, indirectly for grant applications.	Local grants offered by EPA[32].	No, but strongly supports Green Cities Partnership.	1	L
LOW for ID efforts MED to **HIGH** for actual improvements	Yes PRCS, PW-SW, PDS	No	USFWS Small Grants and Marching Funds (2005 list[33]).	Yes: Res. #242: Maintain healthy urban forests; promote tree planting to increase shading and to absorb CO2; and strongly supports Green Cities Partnership.	1	M-L
LOW	Yes PRCS	Yes - Partnerships with Seattle Urban Nature Project and Cascade Land Conservancy.	Green Seattle[34] Potential partnership with CLC.	Yes: Implements CLC's Green Cities Parntership and Res. #242: Maintain healthy urban forests; promote tree planting to increase shading and to absorb CO2.	1	S-M
MEDIUM	Yes PRCS, PW-SW, PW-ES, PDS	No	Lake Forest Park[35] Weyerhaeuser[36]	No	2	S-M

35 http://www.cityoflfp.com/city/eqcomm/documents/eqcminigrant2007.pdf]

36 Potential partnerhip with Weyerhaeuser [partnered with schools with Arkansas (http://www.arcf.org/images/2006-07_Mini-Grant_form.pdf)]

APPENDIX D

LID and Green Building Code Assessment

Project Memo

TO: Juniper Nammi

FROM: Alyse Nelson and Wayne Carlson, AICP, LEED®AP and Gabe Snedeker, AICP

DATE: February 13, 2007

PROJECT: Shoreline Sustainability Strategy

OUR FILE NO.: 207323.30

SUBJECT: Regulatory Code & Engineering Development Guide Gap Analysis for Low Impact Development

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As a piece of this effort, AHBL has reviewed portions of Shoreline's Municipal Code and its Engineering Development Guide to better understand the challenges to the application of Low Impact Development Best Management Practices (BMPs) within the City of Shoreline. This analysis also highlighted areas of the code and standards that were supportive of Low Impact Development (LID) techniques. This summary memo introduces key themes found in the municipal code (SMP) and the Engineering Development Guide (EDG). It also underlines considerations for providing a greater foundation for LID within these documents. Finally, it summarizes the next steps of the project.

User Guide to the Gap Analysis Table

The attached Gap Analysis Table is ordered by code reference, which appear in column one. A second column calls out the LID Principle or Best Management Practice that largely defines what the referenced code or standard is addressing (or not addressing). A third column further explains the LID concept behind the Principle or BMP. The fourth column lists a description of the referenced code or standard. Finally, a brief explanation of the problem or "gap" is provided.

Summary of Findings

Shoreline's code offers a good base to support LID BMPs and techniques, including tree conservation, flexible setback standards, parking regulations that allow reductions in minimum standards and encourage compact stalls, incentives for tree protection and retention, and acceptable site development standards. Areas where there was an opportunity to expand support for LID or remove impediments include:

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- The Shoreline Municipal Code does not include provisions for Planned Unit Developments (PUD), Cottage Housing Developments, or Master Planned Developments. While they utilize a master planning process on large sites, there seems to be minimal code language to support such processes. Flexible zoning regulations such as the PUD or other discretionary process could provide developers with an opportunity for flexibility from the dimensional standards of the code in exchange for the provision of benefits. LID could be used as one of the potential methods to receive a PUD/Cottage Housing incentive, such as relaxed dimensional standards or bonus density.

- Communities have considered a broad range of incentives - the most common incentive being relief from bulk and dimensional standards and identifying a dedicated review team for projects. We can provide you with a matrix detailing some of the ideas that local communities are considering as a follow-up.

- The Engineering Development Guide would benefit from alternative LID road sections that encourage open conveyance and other LID features. For example:

    - Medians and cul-de-sacs could be utilized for bioretention,

    - Road widths could be reduced in some instances, particularly for low volume roadways such as local streets,

    - Pervious pavement should be encouraged where feasible, particularly for sidewalks, alleys, residential streets, on- and off-street parking areas, trails, and bicycle paths.

- Encourage amenity zones and other landscape areas, such as areas within parking lots, to function as places for bioretention. While landscape areas are typically considered chiefly for their aesthetic value, they also present an important opportunity to utilize LID.

- Consider expanding the protection of trees that are retained on a site to include the critical tree root zone, which has been found to be a better method of protection than the dripline method currently used by Shoreline.

- Expand site development code language to incorporate support for LID tools such as protecting and stockpiling native soils, reducing compaction by limiting building footprint pads and construction roadway access, and encouraging clearing and grading activities during the dry season.

Next Steps

This gap analysis of the Shoreline Municipal Code and Engineering Development Standards is a portion of the larger Shoreline Sustainability Strategy effort taken on by the City at this time. This summary memo and attached table will be used as a basis for future efforts to implement Low Impact Development within the municipal code and development standards. We look forward to discussing the ideas presented in this memo and how LID can be integrated into the City of Shoreline Municipal Code and Engineering Development Standards.

Code Reference	LID Principle (P:) or BMP:	LID Concept	Description	Problem or Gap
EDG 1.2.9	**LID Concept Overall**		**Alternative Methods -** As provided for in Section 20.10.050 of the SMC and for the purpose of meeting the need to consider Low Impact Development (LID) and LEED systems as acceptable "alternate facility designs", LID designs that are consistent with the BMPs outlined in Low Impact Development Technical Guidance Manual for Puget Sound, the 2005 King County Surface Water Design Manual, and/or LEED techniques employed to meet the intent of the adopted Surface Water Management Code shall be considered a Blanket Stormwater Adjustment and individual variances to use these design methodologies are not required. Provided, developments that employee LID BMPs and LEED technologies must be designed using the methodologies outlined in the 2005 KCSWDM.	It is good that they are providing an easier method to utilize LID BMPs. It would be even better if Shoreline provides alternative sections to give developers a clear sense of what they want for broader objectives, such as minimizing impervious surface.
EDG 2.03	**P: Narrow Streets**	Minimize total imperviousness	**Private Streets, Minimum Width** - Minimum widths are 20' of pavement/traveled way width for those serving 4 or fewer lots and 24' for those serving more than 4.	These widths seem reasonable. Pervious pavement and open drainage should be used to further minimize impervious surface coverage.
EDG 2.05.A	**P: Loop Roads in Preference to Cul-de-sacs**	Minimize total imperviousness	**Cul-de-sacs -** Cul-de-sac Islands are optional features for any cul-de-sac. If provided, it must have a full-depth vertical curb. The island shall be landscaped.	Cul-de-sacs and dead-ends should be discouraged for LID projects. Where unavoidable, they should allow for biofiltration/bioretention facilities within the landscape area. Curb cuts to allow water to enter this area and/or a no curb design should be allowed.
EDG 2.05.A	**P: Loop Roads in Preference to Cul-de-sacs**	Minimize total imperviousness	**Cul-de-sacs, Minimum Width -** Minimum right-of-way diameter across a bulb section shall be 100 feet in a permanent cul-de-sac and 84 feet in a temporary cul-de-sac. Right-of-way may be reduced, provided utilities and necessary drainage are accommodated on permanent easements w/n the development. Minimum surfacing across the bulb shall be 90 feet of paving in curb type road. Sidewalks shall be constructed on both sides of the stem and on the bulb.	Consider LID alternative designs, including the reduction of width, encouraging bioretention, and using pervious pavement.
EDG 2.05.C	**P: Loop Roads in Preference to Cul-de-sacs**	Minimize total imperviousness	The Director of Public Works may require an off-street walk or an emergency vehicle access to connect a cul-de-sac at its terminus with other streets, parks, schools, bus stops, or other pedestrian traffic generators, if the need exists. Off-street sidewalks shall be contained in the right-of-way or a sidewalk easement.	These pedestrian/emergency vehicle access easements could be encouraged to be paved with pervious surfaces where feasible.
EDG 2.05.G	**P: Loop Roads in Preference to Cul-de-sacs**	Minimize total imperviousness	**Hammerheads -** A hammerhead per Standard Detail 209 may be used to fulfill the requirement to provide a turnaround facility where the street serves (or will serve) 4 or fewer single family residential units.	It is good that hammerheads can be used without special approval requirements. Hammerheads may be a feasible option in more cases than presented here. They are beneficial over cul-de-sac designs for LID projects because they minimize impervious surface.
EDG 2.06	**P: Alley Access**	Minimize total imperviousness	**Alleys** - Alleys shall have a minimum easement/tract width of 20' with a paved surface of 16', based on a 10' structure setback. For differing structure setback requirements, alley configuration shall be designated to provide for safe turning access to properties. Paved surface shall have a thickened edge on one side and cross slope in one direction. Public streets to which an alley connects or which provide access to the front boundary of the properties served by the alley shall be 28' minimum paved width with vertical curb. Alley entry shall be provided by a driveway approach.	There may be additional ways to incorporate LID into alley designs, such as using pervious pavers with reinforced grass in between as is done with Vancouver, B.C.'s Country Lane model.

Code Reference	LID Principle (P:) or BMP:	LID Concept	Description	Problem or Gap
EDG 2.12	**P: Minimize Curb & Gutter**	Minimize effective imperviousness	**Medians -** Edges shall be similar to outer road edges: formed vertical curb; except that median shoulders shall be minimum five feet in width. Twenty feet of drivable surface (which includes traveled way and paved shoulders) shall be provided on either side of the median. Median may be landscaped or planted. Street trees shall be planted in median subject to approval by the Director of Public Works.	Medians offer an opportunity to utilize a part of the road right-of-way for biofiltration. Instead of the typical design, medians could be lower than the road with curb cuts to allow water to flow into it. Landscaping should be required, with trees and shrubs particularly suited for biofiltration/bioretention utilized. Special approval by the Director of Public Works should not be required if using trees from a City-approved list.
EDG 2.15	**P: Narrow Streets**	Minimize total imperviousness	**Right-of-Way Reduction on Local Streets -** In proposed developments served by underground utilities within easements, the right-of-way may be reduced to the minimum roadway width plus sidewalk and amenity zones with the approval of the City. Where it is desired to reduce right-of-way to a minimum width, the right-of-way, plus easement, shall allow for construction and maintenance of the following as appropriate, sidewalks, amenity zone, drainage facilities, sign placement, and also allow sidewalk widening around mailbox locations. On local streets, installation of fixed objects, other than required above ground utility structures, greater than four inches in diameter within four feet of back of sidewalk shall not be permitted.	It is good that Shoreline allows right-of-way reductions when underground utilities are in easements. ROW reductions for LID utilization could be considered, but the width of the ROW is not as important as the width of paved area. The City of Woodinville is considering road sections that are slightly more narrow than existing Shoreline standards. To acquire support by the Fire Marshall, City staff offered to support an ordinance that would require sprinklers on structures smaller than IBC would require. Also see Vancouver, B.C. as a model for alternative residential alleys/access streets. http://www.city.vancouver.bc.ca/engsvcs/streets/design/enviro.htm
EDG 201	**P: Narrow Streets**	Minimize total imperviousness	Typical Local Street Section	Shoreline should create an alternative local street section that incorporates LID principles and BMPs such as open drainage, narrow street design, and pervious pavement.
EDG 202	**P: Narrow Streets**	Minimize total imperviousness	Typical Arterial Street Section	An alternative arterial street section may allow for open drainage and pervious pavement where feasible (perhaps over on-street parking/sidewalk areas).
EDG 203	**P: Narrow Streets**	Minimize total imperviousness	Typical Alley Section	The alley section does not feature curb/gutter/sidewalk, but could offer additional options such as pervious pavement.
EDG 204	**P: Narrow Streets**	Minimize total imperviousness	Half Street Section	An alternative half street section could allow for LID principles and BMPs.
EDG 205	**P: Minimize Curb & Gutter**	Minimize effective imperviousness	Shoulder Treatment Section	Shoulder treatment section shows a ditch conveyance, but lacks detail. An alternative shoulder treatment might provide for LID provisions such as biofiltration in the ditch area. Consider requiring existing ditches on redeveloped sites to be brought up to swale specs.
EDG 207	**P: Minimize Curb & Gutter**	Minimize effective imperviousness	Median Section/Plan View	This section/plan shows the typical raised median with curb. An alternative could be a LID-inspired median with curb cuts and a depressed median with bioretention facilities. Specific planting requirements may also be needed.
EDG 209	**P: Narrow Streets**	Minimize total imperviousness	Street Ends Plans	These drawings show the cul-de-sac and hammerhead standard designs. They should be evaluated for the potential to reduce widths. The ability to utilize pervious pavement should also be included where it would be feasible.
EDG 211/212	**P: Minimize Curb & Gutter**	Minimize effective imperviousness	Traffic Circle Details	Traffic circles are a good place to use bioretention facilities - curb cuts and a depressed landscape area inside the traffic circle would be an alternative design that would make this possible.

Code Reference	LID Principle (P:) or BMP:	LID Concept	Description	Problem or Gap
EDG 217	**P: Minimize Curb & Gutter**	Minimize effective imperviousness	Chicane	A chicane is a traffic calming technique that incorporates raised areas that requires cars to slow down and weave around the obstacles. These raised areas might be a place to incorporate bioretention facilities through the use of curb cuts and depressed landscape areas. Sight distance would be a key issue to deal with in this alternative section.
EDG 3.01.A.13/14	**P: Driveways**	Minimize total imperviousness	A residential driveway shall serve no more than two parcels. A joint use driveway easement may be used to serve two adjacent parcels: Minimum width shall be sufficient to accommodate the driveway, cross slope in one direction and curb or thickened edge on one side. Minimum easement length shall extend 20 feet from right-of-way line. Driving surface shall be paved with appropriate materials. A paved approach shall be provided from the edge of pavement of the intersecting street to the edge of the right-of-way consistent with Details 301-304.	It is good that Shoreline allows joint use driveways, it could encourage them and also encourage pervious pavement options.
EDG 3.01.B	**P: Driveways**	Minimize total imperviousness	**Minimum Driveway Approach Widths -** Sets minimum and maximum widths: 1-2 Dwelling Units (attached or detached) on a local or arterial street 10 foot min, 20 foot max; Multifamily on a local street 20' min, 30' max; on an arterial street 24' min, 36' max ; Commercial on a local street 24' min, 30' max; on an arterial street 30' min, 36' max Thirty-six foot wide driveways may be allowed when separate left- and right-turn exist lanes are approved by the Director. A commercial driveway wider than 36' requires an Engineering Variance. Joint use single family and multifamily driveway approaches may be reduced to a minimum of 16 feet in width, subject to approval of the Director and the Fire Marshal.	It is good to set both minimum and maximum driveway approach widths. It is also good to allow reductions to the standards - perhaps specific approval from the Director and Fire Marshal wouldn't be required when utilizing LID.
EDG 3.02	**BMP: Permeable Paving**	Runoff flow and volume control	**Concrete Sidewalks -** All sidewalks shall be constructed with Class 4000 concrete 5-inches thick with a non-slip broom finish. All local streets and arterials abutting residential areas shall have a 6-foot wide sidewalk on either side of the street. All arterial streets abutting zoning designations CB, I, NB, O, or RB zones - 8' on both sides of the street. Alleys - no sidewalks are required.	Pervious surfacing should be allowed where feasible.
EDG 3.03.A	**P: Minimize Curb & Gutter**	Minimize effective imperviousness	**Curbs, Gutters, and Sidewalks -** Type A vertical curb and gutter shall be used for street edges and shall always be used under the following conditions: (1) on all arterials, neighborhood collectors, and local streets (2) in drainage low spots where special drainage facilities are required (3) on streets with grades greater than 8%. Type A vertical curb and gutter shall be used on all street classifications. All curb and gutter shall be constructed with Class 4000 concrete. Rolled curbs may only be used to replace or match existing conditions as approved by the Director of PW.	Curb and gutter concentrates surface flows, increasing effective imperviousness. Where possible, runoff should be dispersed to open areas or diverted to infiltration facilities. Where infiltration is not possible, runoff should be diverted to biofiltration areas for water quality treatment before final disposal to the storm sewer system. Curb and gutter can still be used if desired. However, breaks in the curb which allow stormwater to flow to roadside bioinfiltration areas should be allowed.
EDG 3.05	**P: Pedestrian Paths**	Minimize total imperviousness	**Soft-Surface Path Construction -** Minimum 5' width; acceptable surface materials are crushed rock, wood chips, and asphalt or other materials as approved by the Director of PW. Maximum grade shall not exceed 10% - depending on site conditions, stairs and/or switchbacks may be required. For grades greater than 5%, the Director of PW may specify the type of paving material to be used.	Great that pervious pavement standards are given here - soft-surface paths should be required in LID projects.

Code Reference	LID Principle (P:) or BMP:	LID Concept	Description	Problem or Gap
EDG 3.06	**P: Pedestrian Paths**	Minimize total imperviousness	**Paved Path Construction -** Width minimum 5'; acceptable surface materials are asphalt concrete and Portland cement concrete or other materials as approved by the Director of PW. Max grade shall not exceed 10% (5% where bicycle use is anticipated). Director may specify type of paving for grades greater than 5%. Paths shall be a minimum 5' from the edge of the vehicular travel way (or require a physical barrier). A 2' graded shoulder is required on either side of a paved bicycle pathway. When asphalt paths are used, the widths shall correspond to the widths required for concrete sidewalks.	Materials, separation between roadway and path could be a place for biofiltration facilities.
EDG 3.09	**BMP: Bioretention Areas**	Runoff quality and volume control	**Amenity Zone** - All streets shall have an amenity zone except where protection of critical areas requires special consideration. Minimum width is 4'. Amenity zone shall be located between the curb and the sidewalk on all streets. Street tree type and placement shall conform to section 20.50.480 SMC. Utilities, street light poles, and traffic signs may be located in the amenity zone.	This amenity zone may be a place to use for biofiltration/bioretention facilities.
EDG 3.11	**P: Pedestrian Paths**	Minimize total imperviousness	**Separated Walkways, Bikeways, and Trails** - Gives specific details of widths/allowed materials for different types of paths	Should provide incentives/encourage pervious pavement options. Bicycle lanes/paths could be pervious.
EDG 301-305	**P: Minimize Curb & Gutter**	Minimize effective imperviousness	Curb and Gutter Section Driveway Approach Standards	An alternative LID design could be appropriate (particularly in amenity zones or for open drainage crossings).
EDG 306	**P: Minimize Curb & Gutter**	Minimize effective imperviousness	Shoulder & Ditch Section Driveway	An alternative LID design should show more "ditch" detail, where the ditch could be used for biofiltration.
EDG 307	**P: Shared Driveways**	Minimize total imperviousness	Joint Use Driveway	It is good that Shoreline encourages joint use driveways. Pervious pavement and other LID alternatives should be encouraged.
EDG 312	**P: Minimize Curb & Gutter**	Minimize effective imperviousness	Curb Sections	Type A curb and gutter could allow breaks in the curb to allow water to enter biorention areas.
EDG 329	**P: Pedestrian Paths**	Minimize total imperviousness	Typical Section for Trails	Drainage/pavement - could allow for LID features
EDG 4.01.A	**BMP: Permeable Paving**	Runoff quality and volume control	**Local and Arterial Streets, Pedestrian Facilities, and Bikeways: Surfacing -** See Standard Details 201 or 202 and Appendix A and B for the minimum paved section. Any proposed exception to these materials will be subject to soils strength testing and traffic loading analysis and subject to review and approval by the Director of PW as outlined in EDG 4.02.	Pervious pavement options should be an allowed alternative where feasible without unnecessary difficulty of requiring studies and approval by the Director of PW. Pervious pavement would be particularly viable on pedestrian and bikeways, alleys, and residential access streets.
EDG 4.01.C	**BMP: Permeable Paving**	Runoff quality and volume control	**Driveway Approaches: Surfacing** - Surface material depends on street type - curbed street requires driveway approach paved with portland cement concrete Class 4000 from curb to back edge of sidewalk. Shoulder and ditch sections require driveway approaches surfaces as required by SD 306. Thickened edge roadways with underground utilities, portland cement concrete may be used for driveways between the thickened edge and the right-of-way line provided that a construction joint is installed at the right-of-way line.	Pervious surfacing should be allowed where feasible.

Code Reference	LID Principle (P:) or BMP:	LID Concept	Description	Problem or Gap
EDG 5.03	**BMP: Bioretention Areas**	Runoff quality and volume control	**Street Trees & Amenity Zones** - Landscaping in the right-of-way shall be coordinated with off-street landscaping required on developer's property under the provisions of Chapter 20.50 SMC. Existing trees and landscaping shall be preserved where desirable and placement of new trees shall be compatible with other features of the environment. New trees must be consistent with the approved street tree list (App C).	Amenity zones may be a useful place for LID features. Street trees/landscaping should be compatible with LID BMPs. It is good that they are encouraging tree/landscaping retention. Tree box design for street trees might be something to consider.
EDG 7.01	**LID Concept Overall**		**Drainage -** Drainage facilities shall be designed consistent with the 1998 King County Surface Water Design Manual (urban environments only) and Chapter 20.60, subchapter 3 or the SMC and the City of Shoreline Surface Water Design Code (Section 1: Addendum to the 1998 KCSWDM).	While the '98 KCSWDM is weak in terms of LID principles, Section 1 provides for alternative methods in 1.2.9 to encourage LID/LEED projects. This could be expanded to incorporate alternative LID sections for additional support.
EDG 739	**P: Minimize Curb & Gutter**	Minimize effective imperviousness	Rock Lined Shoulder Ditches & Curbed or Turnpike Shoulders	Consider providing alternative sections that include bioretention.
EDG Appendix A	**P: Narrow Streets**	Minimize total imperviousness	Street Minimum Widths Alley Minimum Pavement Width: 16' Neighborhood Collector Min. Pavement Width: 28' Local Street Min. Pavement Width: 24'	It may be possible to further reduce these minimum pavement widths in some cases. In particular, the local street minimum pavement width might be reduced. However, Shoreline has done a good job of minimizing road widths and these standards are reasonable.
EDG Appendix A	**P: Minimize Curb & Gutter**	Minimize effective imperviousness	Street Curb Requirements Alleys: no curb requirement Neighborhood Collectors: Type A curb required Local Streets: Type A curb required	Alternative standards should be considered where curb and gutter are not required for all street sections.
EDG Appendix C	**BMP: Bioretention Areas**	Runoff quality and volume control	Street Tree Planting Schedule	This street tree list should be evaluated to determine if it includes trees that will be effective for LID purposes. Comments/notes section could incorporate those trees good for LID bioretention areas.
SMC 15.05.030	**BMP: Minimal excavation foundations**	Runoff flow and volume control	International Building Code Amendments	Minimal excavation foundations (pin foundations) should be evaluated to ensure that the IBC does not preclude them. Further, a local amendment might be incorporated to encourage pin foundations.
SMC 20.30.410	**P: Cluster Development/ Open Space**	Minimize total imperviousness	Preliminary subdivision review procedures and criteria. A. Environmental. 1. Where environmental resources exist, such as trees, streams, ravines or wildlife habitats, the proposal shall be designed to fully implement the goals, policies, procedures and standards of the critical areas chapter, Chapter 20.80 SMC, Critical Areas, and the tree conservation, land clearing and site grading standards sections. 2. The proposal shall be designed to minimize grading by using shared driveways and by relating street, house site and lot placement to the existing topography. 3. Where conditions exist which could be hazardous to the future residents of the land to be divided, or to nearby residents or property, such as, flood plains, steep slopes or unstable soil or geologic conditions, a subdivision of the hazardous land shall be denied unless the condition can be permanently corrected, consistent with subsections (A)(1) and (2) of this section. 4. The proposal shall be designed to minimize off-site impacts, especially upon drainage and views.	There is good language here that would encourage LID. With more regulations, guidance, and engineering design standards, LID could be a feasible approach for developers to use when designing subdivisions. Since there seems to be limited application of such zoning techniques as PRD/PUD/Cottage Housing, a LID incentive program tied to such techniques could be considered.

Code Reference	LID Principle (P:) or BMP:	LID Concept	Description	Problem or Gap
SMC 20.30.410.B	**P: Pedestrian Paths**	Minimize total imperviousness	Pedestrian paths w/n subdivisions 4. Pedestrian walks or bicycle paths shall be provided to serve schools, parks, public facilities, shorelines and streams where street access is not adequate.	Should allow such paths to use pervious materials.
SMC 20.30.410.D	**P: Minimize Curb & Gutter**	Minimize effective imperviousness	1. Improvements which may be required, but are not limited to, streets, curbs, pedestrian walks and bicycle paths, critical area enhancements, sidewalks, street landscaping, water lines, sewage systems, drainage systems and underground utilities. 2. Improvements shall comply with the development standards of Chapter 20.60 SMC, Adequacy of Public Facilities.	Chapter 20.60 contains general language that wouldn't preclude LID. Alternative sections and standards for LID would be one way to encourage LID projects.
SMC 20.30.420.J	**P: Alley Access**	Minimize total imperviousness	**Alleys -** Alleys shall be used for loading and vehicle access wherever practicable.	Good opportunity to reduce impervious surface and reduce front yard setbacks.
SMC 20.50.020	**P: Cluster Development/ Open Space**	Minimize total imperviousness	**Impervious Surface Coverage -** R-4 45%, R-6 50%, R-8 65%, R-12 75%, R-18 85%, R-24 85%, R-48 90%	Impervious surface reduction would be an asset to LID - perhaps a reduced coverage for lower density development might be considered. In addition, higher density development could be encouraged to use pervious pavement and other LID BMPs that would reduce impervious coverage consistent with the modeling assumptions in the DOE Manual. The 2005 DOE Manual allows pervious pavement to be modeled at the half the area (e.g., 5,000 square feet of pervious pavement is only modeled as 2,500 square feet). Until the City adopts the 2005 DOE Manual (or equivalent), most public works professionals would not recommend this reduction because it is widely believed that the predicted volume under the 1992 Manual will not accommodate the modeled storm event.
SMC 20.50.020, .040, .070, .080	**P: Cluster Development/ Open Space**	Minimize total imperviousness	**Dimensional Standards -** Min Front Yard/Rear Yard/Side Yard setbacks and exceptions, such as: 20.50.040.F - Allowance for Optional Aggregate Setback, for lots w/ unusual geometry, flag lots, an existing cluster of significant trees, etc. City may reduce the individual required setbacks.	Shoreline has relatively small setback requirements and a variety of exceptions that offer developers a chance to preserve native vegetation or unique characteristics of the site. They offer opportunities to use zero lot line and alley loaded designs.
SMC 20.50.140.E	**P: Cluster Development/ Open Space**	Minimize total imperviousness	**Parking -** Break large parking areas into smaller ones to reduce their visual impact and provide easier access for pedestrians. Limit individual parking areas to no more than 30 parking spaces.	While this standard is meant to serve urban design purposes, it could also be an opportunity to utilize LID BMPs for stormwater management by utilizing the landscape areas for bioretention.
SMC 20.50.140.F	**P: Cluster Development/ Open Space**	Minimize total imperviousness	**Individual Garages/Curb Cuts -** Minimize the impact of individual garage entrances where they face the street by limiting the curb cut width and visually separating the garage entrance from the street with landscaped areas. Emphasize pedestrian entrances in order to minimize the garage entrances.	This is another urban design standard which could serve LID purposes as well. The landscaped areas could be used for stormwater management with features such as raingardens or biofiltration areas. Moreover, minimizing driveway cuts serves to maximize uninterrupted flow paths.
SMC 20.50.160	**P: Cluster Development/ Open Space**	Minimize total imperviousness	**Open Space Standards for Multifamily development -** Multifamily projects are required to set aside a certain square footage of the site for common recreational open space. Exception 20.50.160(A)(3) provides an opportunity to use stormwater runoff tracts as credit up to 50% for the open space requirement.	Open space areas, particularly stormwater runoff tracts, could be a good place to encourage LID features such as raingardens and preservation of native vegetation.

Code Reference	LID Principle (P:) or BMP:	LID Concept	Description	Problem or Gap
SMC 20.50.170	**P: Pedestrian Paths**	Minimize total imperviousness	**Pedestrian circulation and safety -** Provide direct pedestrian access from building entries to public sidewalks, other buildings, on site open space, and parking spaces. Connect buildings in multifamily complexes such as courtyard bungalows with sidewalks or paved paths.	Pedestrian paths/sidewalks could be encouraged to utilize pervious pavement where feasible.
SMC 20.50.230	**P: Cluster Development/ Open Space**	Minimize total imperviousness	Impervious Surface Coverage NB & O 85%, CB 85%, RB & I 90%	While commercial and industrial uses demand a higher impervious surface coverage, it could be possible to encourage LID BMPs such as the use of pervious pavement, native vegetation preservation, and biofiltration systems in landscape areas as development incentives.
SMC 20.50.230	**P: Cluster Development/ Open Space**	Minimize total imperviousness	**Bonus for Mixed-Use Projects in NB/O Zones** - (3) Bonus for mixed-use development in NB and O zones: In order to provide flexibility in types of housing and to meet the policies of the Comprehensive Plan, the base height may be increased for mixed-use development to four stories or up to 50 feet, if the added story is stepped back from the third story walls at least eight feet, and subject to the following requirement: Residential dwelling units shall occupy a minimum of 25 percent to a maximum of 90 percent of the total floor area of the building.	This bonus density opportunity for mixed-use projects could be a model for how to utilize bonuses for projects that incorporate LID BMPs. It should be evaluated where bonus density would make sense.
SMC 20.50.240(A)(1)	**P: Cluster Development/ Open Space**	Minimize total imperviousness	**Street Frontage/Exception for Plazas -** In order to form an outdoor plaza or courtyard with a clear walkway connecting the sidewalk to the building entry, the 50 percent building street frontage may be reduced.	Plazas present a place to encourage the incorporation of bioretention facilities in landscaped areas and pervious pavement in more dense situations.
SMC 20.50.240(A)(2)	**P: Parking**	Minimize total imperviousness	**Street Frontage/Parking Standards -** In cases where buildings have little relationship to pedestrians, pedestrian frontage may be created by connecting design elements to the street...Such pedestrian accesses through parking shall provide the following elements: 1. Vertical plantings, such as trees or shrubs; 2. Texture, pattern, or color to differentiate and maximize the visibility of the pedestrian path; 3. Emphasis on the building entrance by landscaping and/or lighting, and avoiding location of parking spaces directly in front of the entrance. 4. The pedestrian walkway or path shall be raised three to six inches above grade in a tapered manner similar to a speed table.	This might be a place to encourage the incorporation of bioretention facilities in landscaped areas and pervious pavement for walkways.
SMC 20.50.250	**P: Pedestrian Paths**	Minimize total imperviousness	**Pedestrian circulation and safety** A. Pedestrian and bicycle access shall be incorporated to and through all developments where the total site area exceeds 28,000 square feet (half a City block). B. Minimize curb cuts for vehicle access that will disrupt pedestrian and/or bicycle flow, and provide shared driveway access where possible.	Consider additional language encouraging pervious pavement for walkway material. It is good Shoreline encourages shared driveways as a mechanism to reduce impervious surface.

Code Reference	LID Principle (P:) or BMP:	LID Concept	Description	Problem or Gap
SMC 20.50.300	**LID Concept Overall**		**20.50.300 General requirements** A. Tree cutting or removal by any means is considered a type of clearing and is regulated subject to the limitations and provisions of this subchapter. B. All land clearing and site grading shall comply with all standards and requirements adopted by the City of Shoreline. Where a Development Code section or related manual or guide contains a provision that is more restrictive or specific than those detailed in this subchapter, the more restrictive provision shall apply. C. Permit Required. No person shall conduct clearing or grading activities on a site without first obtaining the appropriate permit approved by the Director, unless specifically exempted by SMC 20.50.310. D. When clearing or grading is planned in conjunction with development that is not exempt from the provisions of this subchapter, all of the required application materials for approval of tree removal, clearing and rough grading of the site shall accompany the development application to allow concurrent review.	Site analysis requirements/encouragement could be incorporated into the Subchapter 5 - Tree Conservation, Land Clearing, and Site Grading Standards on tree retention/site development. In particular, this Subchapter lacks attention to the need to map and preserve native soils. It may fit here or merit an entirely new section.
SMC 20.50.300	**BMP: Limit clearing, grading, and construction to dry season**	Runoff reduction	General Requirements	There is no mention of encouraging clearing and grading activity during the dry season.
SMC 20.50.330.D	**P: Soil Analysis**	Maximize site infiltration capacity	**Preconstruction Meeting Requirements** - An on-site meeting is required prior to the commencement of permitted clearing and grading activities. The site must be marked to indicate: (1) The extent of clearing and grading to occur, (2) Delineation of any critical areas and critical area buffers, (3) Trees to be removed and retained; and, (4) Property lines.	Add to this that native soils and vegetation protection areas should be delineated on-site with fencing.
SMC 20.50.330.D	**P: ID and protect important tree and native vegetation stands from root damage, soil compaction, stockpiling**	Runoff minimization	1. For the following areas, the retention and planting plan and any application and permit plans shall show all trees designated for protection. 2. The Director may require that protected trees be permanently preserved within a tract, easement or other permanent protective mechanism.	It is great that Shoreline encourages retention areas to be designated and protected. This language could be expanded to offer additional support for LID principles and BMPs, provided those areas have drought-tolerant plantings.
SMC 20.50.330.E	**BMP: Write a site construction plan**	Runoff minimization	Preconstruction Meeting E. Preconstruction Meeting Required. Prior to the commencement of any permitted clearing and grading activity, a preconstruction meeting shall be held on-site with the permittee and appropriate City staff. The project site shall be marked in the field as follows: 1. The extent of clearing and grading to occur; 2. Delineation of any critical areas and critical area buffers; 3. Trees to be removed and retained; and 4. Property lines.	A preconstruction meeting is an important way to educate permittees to the importance of clearing and grading activities and its impact on LID. A fifth item to delineate onsite might be native soil and vegetation protection areas. Trees to be retained should be fenced along their critical tree root zone. Perhaps add that areas to be preserved will be marked with fencing. This requirement may be useful in tandem with encouraging a site construction plan.

Code Reference	LID Principle (P:) or BMP:	LID Concept	Description	Problem or Gap
SMC 20.50.3370.B/C	**BMP: Fence vegetation and soils that are to be protected**	Runoff reduction	B. Tree dripline areas shall be protected. No fill, excavation, construction materials, or equipment staging or traffic shall be allowed in the dripline areas of trees that are to be retained. C. Prior to any land disturbance, temporary construction fences must be placed around the dripline of trees to be preserved. If a cluster of trees is proposed for retention, the barrier shall be placed around the edge formed by the drip lines of the trees to be retained.	This is great; however, Shoreline needs to determine if it should continue protecting driplines or move toward protecting critical tree root zones. Per the Technical Guidance Manual for LID: "The dripline method may be applicable for broad-canopy trees; however, this method will likely underestimate the extent of roots and lead to extensive root damage for narrow-canopied trees and leaning trees....As a general guideline, the trunk diameter method provides more design flexibility for variable growth patterns. Also - should consider incorporating similar requirements for soil preservation areas. Gig Harbor, for example, goes 10 feet beyond the dripline.
SMC 20.50.340.A	**BMP: Establish Erosion and Sediment Controls just before or immediately after clearing and grading begins**	Runoff reduction	A. Any activity that will clear, grade or otherwise disturb the site, whether requiring a clearing or grading permit or not, shall provide erosion and sediment control (ESC) that prevents, to the maximum extent possible, the transport of sediment from the site to drainage facilities, water resources and adjacent properties. Erosion and sediment controls shall be applied as specified by the temporary ESC measures and performance criteria and implementation requirements in the adopted stormwater management design manual.	Erosion and sediment control measures should be applied just before the commencement of site development activities.
SMC 20.50.340.B.4	**BMP: Designate stockpile areas and establish away from protection areas**	Runoff reduction	**Fill Material -** Detrimental amounts of organic material shall not be permitted in fills. Only earth materials which have no rock or similar irreducible material with a maximum dimension greater than 12 inches shall be used. In absence of an approved soils engineering report, these provisions may be waved.	More could be said here about creating areas for stockpiling and keeping them separate from protection areas. Also, this could be a place to talk about amending site soils and the value of stockpiling on-site topsoil for later use in landscape areas.
SMC 20.50.340.B.4	**BMP: Stockpile and reuse excavated soils**	Runoff reduction	Fill Material	This could be a place to encourage the stockpiling and reuse of excavated soils. Also need to incorporate requirements to cover or seed stockpiled soils to prevent erosion (LID BMP).
SMC 20.50.340.C	**BMP: Phase construction to limit activities that can damage vegetation and soil, this includes phasing clearing and grading activities**	Runoff reduction	**Access Roads** - Access roads to grading sites shall be maintained and located to the satisfaction of the Director to minimize problems of dust, mud and traffic circulation.	Access roads should be limited to one, if at all possible. In addition, if they can be located at the site of the future road, unnecessary soil compaction can be avoided.
SMC 20.50.340.F	**BMP: Fence vegetation and soils that are to be protected**	Runoff reduction	**Temporary Fencing -** Temporary fencing, where required by the Director, to protect life, limb and property, shall be installed. Specific fencing requirements shall be determined by the Director.	Fencing is an important component in the protection of trees, vegetation, and soils from site development activities. More instruction about what is required to be fenced might be appropriate here.
SMC 20.50.350(B)1	**P: Attempt to keep existing vegetation interconnected**	Runoff minimization	1. The Director may allow a reduction in the minimum significant tree retention percentage to facilitate preservation of a greater number of smaller trees, a cluster or grove of trees, contiguous perimeter buffers, distinctive skyline features, or based on the City's concurrence with a written recommendation of an arborist certified by the International Society of Arboriculture and approved by the City that retention of the minimum percentage of trees is not advisable on an individual site.	This section gives an opportunity to maintain vegetation in an interconnected manner. More explicit support for such practices might be incorporated.

Code Reference	LID Principle (P:) or BMP:	LID Concept	Description	Problem or Gap
SMC 20.50.350.C	**P: Attempt to keep existing vegetation interconnected**	Runoff minimization	**Incentives for Higher Levels of Tree Protection -** The Director may grant reductions or adjustments to other site development standards if the protection levels identified in subsection (B) of this section are exceeded. On a case-by-case review, the Director shall determine the balance between tree protection that exceeds the established minimum percentage and variations to site development requirements. If the Director grants adjustments or reductions to site development standards under this provision, then tree protection requirements shall be recorded on the face of the plat, as a notice to title, or on some other legal document that runs with the property. Adjustments that may be considered are: 1. Reductions or variations of the area, width, or composition of required open space and/or landscaping; 2. Variations in parking lot design and/or any access driveway requirements; 3. Variations in building setback requirements; 4. Variations of grading and stormwater requirements.	The minimum tree retention requirements are 20% of the significant trees on a given site, excluding critical areas and buffers, or at least 30% of the significant trees, including critical areas and buffers. If these are exceeded, this section provides incentives in the form of relaxed development standards (approved by the Director). This type of flexibility could be used with LID projects as well.
SMC 20.50.350.D	**P: Attempt to keep existing vegetation interconnected**	Runoff minimization	1. Trees should be protected within vegetated islands and stands rather than as individual, isolated trees scattered throughout the site.	This is good support for the LID principle to keep vegetation interconnected. More support might be considered for this principle.
SMC 20.50.350.D	**P: Attempt to keep existing vegetation interconnected**	Runoff minimization	2. Site improvements shall be designed to give priority to protection of trees with the following characteristics, functions, or location: •Existing stands of healthy trees that have a reasonable chance of survival once the site is developed, are well shaped to withstand the wind and maintain stability over the long term, and will not pose a threat to life or property. •Trees which exceed 50 feet in height. •Trees and tree clusters which form a continuous canopy. •Trees that create a distinctive skyline feature. •Trees that have a screening function or provide relief from glare, blight, commercial or industrial harshness. •Trees providing habitat value, particularly riparian habitat. •Trees within the required yard setbacks or around the perimeter of the proposed development. •Trees having a significant land stability function. •Trees adjacent to public parks, open space, and sensitive area buffers. •Trees having a significant water-retention function, such as cottonwoods.	This is good support/prioritization of trees to preserve that also supports LID. The prioritization of trees with water-retention function is particularly relevant for LID projects.
SMC 20.50.350.D	**P: Attempt to keep existing vegetation interconnected**	Runoff minimization	3. Building footprints, parking areas, roadways, utility corridors and other structures shall be designed and located with a consideration of tree protection opportunities.	This is good site analysis language - good to encourage developers to think up front about preserving native vegetation.
SMC 20.50.350.D	**BMP: Fence vegetation and soils that are to be protected**	Runoff reduction	**Grading/Trees** 4. The project grading plans shall accommodate existing trees and avoid alteration to grade around existing significant trees to be retained.	This is good - could be stronger and state that excavation or changing of grade near trees designated for protection will be limited to the absolute minimum within the trees' critical root zones. Trenching within the critical root zones should be restricted. Stockpiling/disposal of excavated or construction materials should be prohibited within vegetation retention areas. Efforts should be taken to minimize soil compaction within these zones.

Code Reference	LID Principle (P:) or BMP:	LID Concept	Description	Problem or Gap
SMC 20.50.360	**BMP: Bioretention Areas**	Runoff quality and volume control	Tree replanting and site restoration	Add language to encourage a selection of species based on the underlying soils and the historic, native indigenous plant community type for the site. Emphasize climax species and encourage a mix similar to native forests (2 evergreen to 1 deciduous)
SMC 20.50.360.K	**BMP: Perform post-construction inspection to verify re vegetated areas are stabilized and stormwater management systems are working properly**	Runoff minimization	Performance Assurance - performance bond and maintenance bond for tree replacement and site restoration permits	Consider adding a section here that addresses the need for clearly written plans and tools are necessary to maintain the benefits of native vegetation/replanting areas over time. Key mechanisms include HOA covenants, transfers/dedication of land to City or land trusts, easements/tracts, and property owner education. Such language could be incorporated into this section.
SMC 20.50.360.L	**BMP: Perform post-construction inspection to verify re vegetated areas are stabilized and stormwater management systems are working properly**	Runoff minimization	Monitoring - The Director may require submittal of periodic monitoring reports as necessary to ensure the survival of replacement trees.	Consider adding a section here that addresses the need for clearly written plans and tools are necessary to maintain the benefits of native vegetation/replanting areas over time. Key mechanisms include HOA covenants, transfers/dedication of land to City or land trusts, easements/tracts, and property owner education. Such language could be incorporated into this section.
SMC 20.50.390.C	**P: Parking**	Minimize total imperviousness	For all nonresidential uses, the maximum amount of allowed parking shall not exceed 50 percent over the minimum required number of stalls. Any proposal for parking that exceeds 10 percent over the minimum required number of stalls must be approved by the Director.	This is a good start to creating maximum standards. It is unclear as to if it applies to residential uses (second sentence seems to). The 50% maximum might be too high for nonresidential uses.
SMC 20.50.390A, B, C, D	**P: Parking**	Minimize total imperviousness	Minimum off-street parking requirements - Standards	Shoreline does not use maximum requirements, just minimum requirements. They could consider further reducing their minimum requirement and incorporating a maximum standard. (See below)
SMC 20.50.400	**P: Parking**	Minimize total imperviousness	Reductions to minimum parking requirements A. Required parking may be reduced by 20 percent with coordinated design and shared access to consolidated parking areas linked by pedestrian walkways.Multiple parcels may be treated as a single development site if all owners sign a binding and recorded agreement. The requirement for primarily nighttime uses, such as theaters, bowling alleys and restaurants, may be supplied in part by parking serving primarily daytime uses, such as banks, offices and retail stores. B. The Director may approve a reduction of up to 50 percent of the minimum required number of spaces if: 1. The applicant can prove that parking demand can be adequately met with a reduced parking requirement through measures such as proximity to transit routes, commuter trip reduction programs, supplementary on-site nonmotorized and high occupancy vehicle facilities, or 2. The applicant can prove that parking demand can be adequately met through a shared parking agreement.	Shoreline offers ways to reduce minimum parking requirements through shared parking agreements, commute trip reduction programs, and close proximity to transit routes. Parking is a key source of impervious surface, particularly in commercial, multifamily, and industrial projects. It is great that Shoreline is considering alternatives. Additional alternatives/incentives to minimize parking should be considered.
SMC 20.50.410	**P: Parking**	Minimize total imperviousness	4. No more than 50 percent of the required minimum number of parking stalls may be compact spaces.	It is good that Shoreline allows compact spaces - this percentage is respectable. Compact stalls could be encouraged or required in certain situations.

Code Reference	LID Principle (P:) or BMP:	LID Concept	Description	Problem or Gap
SMC 20.50.410	**BMP: Permeable Paving**	Runoff quality and volume control	A. All vehicle parking for single-family detached dwellings and duplexes must be in a garage, carport or on an approved impervious surface.	Pervious pavement should be allowed where it is feasible.
SMC 20.50.410(C)(1)	**P: Parking**	Minimize total imperviousness	In commercial zones, the Director may allow required parking to be supplied in a shared parking facility that is located more than 500 feet from the building it is designed to serve if adequate pedestrian access is provided and the applicant submits evidence of a long-term, shared parking agreement.	Shared parking agreements offer an opportunity to reduce impervious surfaces by sharing parking between uses with either day- or night-orientation.
SMC 20.50.410J, K	**P: Parking**	Minimize total imperviousness	Loading Requirements	The use of pervious pavement in loading zones should be considered.
SMC 20.50.430	**P: Pedestrian Paths**	Minimize total imperviousness	Nonmotorized access and circulation - Pedestrians A. Commercial or residential structures with entries not fronting on the sidewalk should have a clear and obvious pedestrian path from the street front sidewalk to the building entry. B. Pedestrian paths should be separate from vehicular traffic where possible, or paved, raised and well marked to clearly distinguish it as a pedestrian priority zone.	Pervious pavement options could be encouraged.
SMC 20.50.460	**BMP: Bioretention Areas**	Runoff quality and volume control	Landscaping Standards C. Existing, healthy trees and shrubs, vegetated critical areas, landscaped bio-swales, or trees and their area within the dripline may substitute for required landscaping tree-for-tree and area-for-area. In order to promote the retention of existing mature trees during site development, credit shall be given for one additional required tree if the retained tree is significant (eight-inch diameter at breast height for conifer and 12-inch diameter at breast height if deciduous). (See Subchapter 5 of this chapter, Tree Conservation, Land Clearing, and Site Grading Standards, and Chapter 20.80 SMC, Critical Areas, for additional requirements).	This is a good alternative that would encourage LID-type projects. It should be considered whether Shoreline wants to continue using the dripline approach or transition to critical tree root zone preservation.
SMC 20.50.470	**BMP: Bioretention Areas**	Runoff quality and volume control	Street frontage landscaping Standards A. A 10-foot width of Type II landscaping for all development including parking structures, surface parking areas, service areas, gas station islands, and similar paved surfaces. B. A 20-foot width of Type II for institutional and public facilities in residential zone areas. C. Frontage landscaping can be substituted in multifamily, commercial, office, and industrial zones with two-inch caliper street trees 40 feet on center if they are placed in tree pits with iron grates or in planting strips along the backside of curbs. Institutional and public facilities may substitute 10 feet of the required 20 feet with street trees. D. Trees spacing may be adjusted to accommodate sight distance requirements for driveways and intersections. See SMC 20.50.520(O) for landscaping standards.	Alternative frontage landscaping requirements for LID projects could be considered.

Code Reference	LID Principle (P:) or BMP:	LID Concept	Description	Problem or Gap
SMC 20.50.480	**BMP: Bioretention Areas**	Runoff quality and volume control	Street Tree Standards	Ensure that the City-approved list incorporates key native trees, specify which ones are appropriate with regard to soils/site constraints to encourage proper utilization. The Technical Guidance Manual for LID encourages creating multi-layer canopy structures with small, medium, and large threes and shrubs; emphasizing climax species; and mixing trees similarly to native forest situations with 2 evergreen trees to 1 deciduous.
SMC 20.50.490	**BMP: Bioretention Areas**	Runoff quality and volume control	Landscaping along interior lot lines A. Type I landscaping in a width determined by the setback requirement shall be included in all nonresidential development along any portion adjacent to single-family and multifamily residential zones or development. All other nonresidential development adjacent to other nonresidential development shall use Type II landscaping within the required setback. If the setback is zero feet then no landscaping is required. B. Multifamily development of more than four units shall use Type I landscaping when adjacent to single-family residential zones and Type II landscaping when adjacent to multifamily residential and commercial zoning within the required yard setback. C. A 20-foot width of Type I landscaping shall be provided for institutional and public facility development adjacent to single-family residential zones. Portions of the development that are unlit playgrounds, playfields, and parks are excluded.	Consider adding support for bioretention and native vegetation preservation.
SMC 20.50.500	**BMP: Bioretention Areas**	Runoff quality and volume control	Landscaping of Surface Parking Area - Standards A. Multifamily developments with common parking areas shall provide planting areas in parking lots at the rate of 20 square feet per parking stall. B. Commercial, office, industrial, or institutional developments shall provide landscaping at a rate of: 1. Twenty square feet per parking stall when 10 to 30 parking stalls are provided or; 2. Twenty-five square feet per parking stall when 31 or more parking stalls are provided. D. Permanent curbs or structural barriers shall be provided to protect shrub and trees from vehicle barriers.	Parking lot landscaping areas offer a place for bioretention facilities. Perhaps a less prescriptive approach could be used for LID projects that consider site characteristics as well as aesthetics.
SMC 20.50.510	**BMP: Bioretention Areas**	Runoff quality and volume control	**Alternative landscape design -** Alternative landscape designs may be allowed, subject to City approval, if the design accomplishes equal or better levels of Type I or II landscaping.	This section might be a place to incorporate LID standards more explicitly.
SMC 20.50.520	**BMP: Bioretention Areas**	Runoff quality and volume control	General standards for landscape installation and maintenance E. Plant selection shall consider adaptability to climatic, geologic, and topographical conditions of the site. Preservation of existing vegetation is encouraged.	This is good language that is supportive of LID. Perhaps some of this information can be incorporated into the City approved lists of trees.
SMC 20.50.520	**BMP: Bioretention Areas**	Runoff quality and volume control	General standards for landscape installation and maintenance N. Applicants shall provide a landscape maintenance and replacement agreement to the City prior to issuance of a certificate of occupancy.	The LID Technical Guidance Manual supports clearly written management plans and protection mechanisms to maintain landscape/open space areas over time. HOA covenants, property owner education, dedicated tracts/easements, and dedication to City or land trusts are key methods.

Code Reference	LID Principle (P:) or BMP:	LID Concept	Description	Problem or Gap
SMC 20.60.090	**LID Concept Overall**		Core surface water and stormwater requirements This section features additional core requirements required for development proposals subject to drainage review and are additional requirements to those described in the Surface Water Design Manual. Core requirements include: (1) Discharge at a Natural Location (2) Off-site analysis (3) Flow control (4) Conveyance system (5) Erosion and sediment plan (6) Maintenance and operation (7) Financial guarantees and liability (8) Water quality	These are good additional requirements, which often are in line with LID principles and BMPs. Perhaps additional support for LID could be inserted here, either as separate core requirements in certain impacted drainage basins or revisions to include LID support within the existing core requirements.
SMC 20.60.100	**LID Concept Overall**		Any applicable special requirements are required to be met for all development proposals required to have drainage review. They include: (1) Other adopted area-specific requirements, such as critical areas (2) Floodplain/floodway delineation in areas adjacent to floodplains, streams, wetlands, etc. (3) Flood protection facilities when adjacent to a class 1 or 2 stream w/ existing flood protection facilities (4) Source control, where a proposal requires a commercial building or commercial site development permit, then water quality source controls are applied to prevent rainfall and runoff from coming into contact with pollutants, (5) Oil control, where developments are a high-use site or a redevelopment proposal is proposing $100,000 or more of improvements to an existing high-use site, oil control shall be applied to all runoff from the high-use portion of the site.	Some of these special requirements might offer a place to encourage LID principles or BMPs, in certain sensitive basins.
SMC 20.60.130	**LID Concept Overall**		Best Management Practices A. The City adopts "Urban Landuse BMPs, Volume IV of the 1992 Stormwater Management Manual for the Puget Sound Basin" (DOE SWMM), and future amendments by reference as the Source Control BMP Manual for the City of Shoreline.	The City should additionally adopt the 2005 LID Technical Guidance Manual (PSAT).
SMC 20.100.010	**P: Cluster Development/ Open Space**	Minimize total imperviousness	Master Plans	Shoreline seems to use Master Planning processes, such as SMC 20.100.010, First Northeast Transfer Station Master Plan and the Fircrest Campus Excess Property Master Plan (in the works in Seattle's AHBL office). Master planning processes offer a great opportunity to utilize LID. There does not appear to be any code support for master planning processes w/n the SMC - but this could be a key place to encourage LID.
SMC 20.xx.xxx	**P: Cluster Development/ Open Space**	Minimize total imperviousness	No PUD/PRD/Cottage Housing regs	There are no provisions for PUDs/PRDs/Cottage Housing that were found in the SMC. Cottage housing was repealed by Ord 408. These types of regulations can encourage innovation through design flexibility. Affordable housing was the only density bonus found (SMC 20.40.230). LID could be encouraged/required as a mechanism to get additional density or other developer benefits.
SMC 20.xx.xxx	**P: Establish Soil Conservation Areas**	Runoff minimization	Except for erosion hazard areas, soil conservation areas are not specifically included in the SMC.	Soil conservation is a key principle of LID. This should be incorporated in a variety of places throughout the code.
SMC 20.xx.xxx	**BMP: Vegetated Roofs**	Runoff quality, flow, and volume control	No mention of green roof standards.	There should be standards/guidelines created to encourage green roofs in a variety of settings.

APPENDIX E

Sustainable Decision Making

Sustainability Assessment: Draft Working Tool (Task 1.A.5)

Step 1: Identify and Distill Potential Action or Decision
Clearly identify a topic, policy issue, or action that you would like to evaluate for its impact on sustainability. The action should be phrased as a statement, such as "establish detailed sustainability purchasing policies and procedures" – and should be as specific and concrete as possible.

Step 2: Initial Qualitative Evaluation and Comparison
Evaluate each idea based on the sustainability criteria below (which are based on the Draft Guiding Principles) by putting a check in each box where the potential action, on balance, positively impacts the criterion listed. It is helpful to list potential actions and/or alternative actions within the same table to aid in benefit comparison, gap analysis and prioritization. Some users may also want to sum the checkmarks for each potential action, however certain criteria deserve greater emphasis. An action should address at least one of the four environmental focus areas (in green), to be considered a potential sustainability initiative or action. Preferred actions will also usually provide a clear or direct economic, social, and/or human health and safety benefit as well (in yellow).

POTENTIAL ACTION	SUSTAINABILITY					FEASIBILITY			
	Advances sustainable development & transportation	Directly + Impacts Energy Conservation and Carbon Reduction	Likely to result in Improved Local Ecosystem Health	Tangible Waste Reduction and Resource Efficiency Benefits	Provides Clear or Direct Economic, Social, or Human Health and Safety Benefits	Relies upon existing system, proven technology or incremental change	Promotes City Leadership and/or Broader Participation	Represents a Potential Quick Win	Recommendation:
Develop Sustainable Purchasing Guidelines for All Staff		✓	✓	✓	✓	✓	✓	✓	
									
									
									

If the initial evaluation indicates an idea presented is worthy of further thought, it should be given the "green light" for a modified SWOT analysis. Eliminate items (red light) or hold items (yellow light) for future consideration if more information is needed or there are higher priorities. When eliminating, or "holding" ideas, record rationale for future reference.

Step 3: Modified SWOT Analysis
This step allows more detailed qualitative analysis of those potential actions that are able to pass through the filter of Step 2. Although presented here as Step 3, the Modified SWOT Analysis is also useful when evaluators find it difficult to establish whether an action is consistent with a criterion, and represents a "feedback" loop that provides an opportunity to revise the Step 2 evaluation.

POTENTIAL ACTION:	RECOMMENDATION & RATIONALE:	
Develop Sustainable Purchasing Guidelines for All Staff		

Evaluation Criterion	Strengths	Weakness	Unknowns or Level of Control Over Outcome
Advances sustainable development & transportation	None.	None.	Not clear how this would impact criterion.
Directly Impacts Energy Conservation and Carbon Reduction	Products purchased under sustainable purchasing guidelines would be more energy efficient and have lower carbon emissions.		
Likely to result in Improved Local Ecosystem Health	Products purchased under sustainable purchasing guidelines would reduce impacts to local air and water quality.		Benefits to local ecosystem health may be difficult to quantify. Measurement of change could be difficult.
Tangible Waste Reduction and Resource Efficiency Benefits	Products purchased under sustainable purchasing guidelines would emphasize reducing, reusing, and recycling resources.	Adjustments to perceived quality of sustainable products may be slow.	
Provides clear or direct economic, social, or human health and safety benefits	Products purchased under sustainable purchasing guidelines should be more economical in the long term, less harmful to ecosystem/human health., and promote sustainable business .		Unknowns regarding lifecycle costs could require more investigation and documentation.
Relies upon existing system, proven technology or incremental change	Existing sustainable products could be substituted for less sustainable products and more could be added as they become available or more cost effective.	Unproven, yet potentially beneficial products may be dismissed.	
Promotes City Leadership and/or Broader Participation	City leadership in the purchase of sustainable products would strengthen the market for sustainable goods leading to greater availability.		City's ability to influence availability of sustainable products and purchasing by general public could be limited.
Represents a Potential Quick Win	Using sustainable purchasing guidelines could be implemented quickly and benefits documented.	Documenting benefits would require coordination and training city-wide. Product lists would be very useful, but would take a greater level of effort.	

If, on balance, the idea seems worthy of further analysis, it should be given the "green light" for cost and resource evaluation. Eliminate (red light) or table (yellow light) items. When eliminating or "holding" ideas, be sure to record rationale for future reference.

Step 4: Preliminary Cost and Resource Evaluation
Evaluate potential actions that are given the "green light" in Step 2 on the basis of cost and other resource availability factors. Red should be selected if costs appear to be an insurmountable barrier when compared to potential benefits, yellow if costs represent a barrier to short term implementation and possible long-term implementation, and green should be selected if after evaluation of costs, the idea appears to be worthy of further consideration.

POTENTIAL ACTION	Initial Cost Increase?	Lifecycle Cost Savings?	Cost Estimate (if known)	Able to Accomplish Using Existing Resources?	Resource Assistance Availability and Details	Summary Cost Evaluation (TBD)
Develop Sustainable Purchasing Guidelines for All Staff	No, not if done by existing staff	Yes	TBD	Yes, with implementation steps to be described in Sustainability Strategy	Yes, details TBD	
						
						
						
						
						

APPENDIX F

Draft Indicators

City Operations, Practices & Outreach		
1)	Objective:	Increase purchasing of environmentally preferred products for City operations.
	Target:	Adopt a comprehensive Environmental Purchasing Policy (EPP) with specific targets in four key areas: Reduce consumption, reduce toxic materials, increase use of recycled-content materials, and increase use of recyclable materials.
	Indicator:	Percentage of purchases that meet top-tier EPP requirements.
	Discussion:	Shoreline can adapt policies already in place in Seattle, King County, and Washington State.
2)	Objective:	Promote sustainability among Shoreline businesses
	Target:	Upward trend. Specific target TBD. E.g. Increase by 10% each year the number of participating green businesses for the next five years.
	Indicator:	Number of participating (or certified) green businesses (per year as compared to previous 4 years)
	Discussion:	Requires establishment of green business program. Sustainable Business Extension program does not currently have a CERTIFICATION component, but the Shoreline Chamber of Commerce has started developing a Green Business Program. City could track number of businesses that participate in program based on criteria that they offer an environmentally preferable product or service alternative (similar to Chinook book criteria) and implement recommended changes to the Sustainable Business Extension program.
Energy & Carbon Reduction		
3)	Objective:	Reduce energy consumption in City facilities.
	Target:	Reduce energy consumption in City facilities from baseline by 5% per year and 20% by 2012.
	Indicator:	Percentage decrease in City's monthly electric and gas usage (measured in consumption unit/sf or similar) -- obtainable from SCL and PSE.
	Discussion:	2012 is both consistent with the US Mayors Climate Protection Agreement language and aligned with the City of Shoreline update to its Comprehensive Plan.
	Dept/Data Source:	PW-F/O or PCRS – whoever manages each facility. Data from PSE and SCL bills or directly from utility companies.

Note: 1) the number (#) assigned to each recommendation is for reference purposes only and is not intended to indicate priority or sequence. The number used here does not correlate with the numbers used for the recommendations in this Strategy. 2) FI – before a number means that the indicator is more involved to develop and is reserved as a potential Future Indicator for consideration.

Department Acronyms:

C – Clerks
CMP – City Manager's Office
CS – Community Services
ED – Economic Development
F – Finance
HR – Human Resources
IT – Information Technology
PDS – Planning and Development Services
PRCS – Parks, Recreation and Cultural Services
PW – Public Works
PW-E – Public Works-Engineering
PW-ES – Public Works-Environmental Services
PW-F/O – Public Works-Facilities/Operations
PW-S/A – Public Works-Streets/Aurora

Energy & Carbon Reduction - continued		
4)	Objective:	Increase reliance on Green Power in City facilities, in order to reduce carbon emissions from facilities, consistent with US Mayors Climate Protection Agreement and Kyoto Protocol target of 7% reduction from 1990 levels by 2012.
	Target:	Increase Green Power consumption as a proportion of total electricity consumption in City facilities by 10% per year, and 50% by 2012.
	Indicator:	Proportion of City Consumption supplied by alternative energy sources though Seattle City Light "Green Up" Program.
	Discussion:	Could also offset carbon emissions from natural gas and other sources through various initiatives.
	Dept/Data Source:	PW-F/O or PCRS – whoever manages each facility. Data from PSE and SCL bills or directly from utility companies.
5)	Objective:	Increase use of alternative fuel vehicles in City fleet.
	Target:	Reduce carbon emissions from City fleet vehicles and equipment by replacing 2% of petroleum-based-fuel vehicles per year with hybrid or alternative fuel vehicles.
	Indicator:	Percentage of fleet that is hybrid or alternative fuel
	Discussion:	This target is consistent with the existing vehicle purchase and replacement policy.
	Dept/Data Source:	PW-F/O – fleet manager.
6)	Objective:	Reduce carbon emissions from fleet vehicles and equipment, consistent with US Mayors Climate Protection Agreement and Kyoto Protocol target of 7% reduction from 1990 levels by 2012.
	Target:	Reduce carbon emissions from city fleet vehicles and equipment by increasing average miles/gallon of fleet 5% per year and 25% by 2012.
	Indicator:	Average fleet miles per gallon.
	Dept/Data Source:	PW-F/O – fleet manager.
7)	Objective:	Reduce energy consumption.
	Target:	Reduce per capita/per household energy consumption by 10% in the first year and an additional 3% per year through 2012.
	Indicator:	Percentage decrease in consumption units of electric and gas annually (measured in % change per capita or per household).
	Discussion:	Further discussion with PSE and SCL needed, but appears feasible. Could also potentially get at this through statistically valid survey.
	Dept/Data Source:	PW-ES, Data from PSE and SCL directly or survey.

Sustainable Development & Green Infrastructure		
8)	Objective:	Increase staff training on sustainability issues.
	Target:	Upward trending number for next 5 years, than stabilize at appropriate level based on FTE, specific number TBD, including targets for certain positions.
	Indicator:	Number of staff hours devoted to sustainability training per year per full time employee equivalent (as compared to previous 4 years).
	Discussion:	The City already gathers and tracks training hours and establishes a training budget by department and by employee for some departments. A specific amount could be devoted to sustainability.
9)	Objective:	Decrease stormwater impacts through use of natural drainage techniques.
	Target:	Upward trending number, specific target could be established.
	Indicator:	Area (square feet) of new natural drainage constructed (by both private applicants and through public CIP projects) and total system area meeting defined minimum standard.
	Discussion:	Realistic goal can be set for public improvements following review of CIP. Target for private development will be harder to establish, should be modest at first, but should be attempted. Need to define a minimum standard, e.g. consistent with LID Manual and King County Surface Water Design Manual.
10)	Objective:	Reduce impervious surfaces in new development.
	Target:	Downward trending number or possibly the goal of no net increase over existing baseline is more realistic given increasing population and density.
	Indicator:	Median percentage of effective impervious surface in new projects (as compared to previous 4 years).
	Discussion:	Could also establish a defined numeric target, calculations derived from permitting data that is not currently tracked or aggregated. Current calculations do not identify "effective" impervious or distinguish between pervious and impervious paving systems.
11)	Objective:	Promote efficient energy and material use in buildings.
	Target:	Upward trending number, Potential goal might be 3 projects in 2008.
	Indicator:	Number of certified LEED and 3+ star BuiltGreen projects within the City (by public and private).
	Discussion:	Seems like an easy measure, but current permit system does not appear to track this.

Sustainable Development & Green Infrastructure - continued		
12)	Objective:	Increase pedestrian facility network length on major streets to make walking to destinations easier and safer.
	Target:	Upward trend; specific target TBD.
	Indicator:	Percentage of the total major street length (principal arterials, minor and neighborhood collector) citywide that has separated pedestrian facilities (sidewalk or paved off street trail) on at least one side of the street.
	Discussion:	Target TBD by City based on analysis of GIS data, CIP and internal discussion. Future Transportation Plan update is an opportunity to set the target. May also want to consider establishing a target and indicator for trail improvements as well. Additional investigation of sidewalk connectivity measurements may also be needed - see Pedestrian LOS indicator.
13)	Objective:	Improve pedestrian/bicyclist access to open space and parks.
	Target:	Upward trending number, specific numeric goal TBD.
	Indicator:	Percentage of households within a 1/4 mile of a neighborhood park or 1/2 mile of a community/regional park.
	Discussion:	Similar to measure currently identified in Parks Plan. An alternative measure could also try to get at accessibility through the presence of pedestrian/bicycle facilities on major streets within 1/4 and 1/2 mile of park boundary.
14)	Objective:	Increase number of bicycle facilities throughout the city to encourage this mode and improve safety.
	Target:	Upward trending number, specific target TBD.
	Indicator:	Total miles of designated bicycle routes meeting minimum standard.
	Discussion:	Bike lanes and interurban trail will be measured using GIS. City would need to define a minimum standard for other bike improvements that constitute a "bike route", map these and track year to year or change over 5 years.
15)	Objective:	Increase use of modes of transportation other than single occupant vehicles.
	Target:	Upward trend (relative to increasing population), specific number TBD based on review of data.
	Indicator:	Public transit rider-ship or number of transit boardings per year in Shoreline (as compared to previous 4 yrs).
	Discussion:	Obtain data from 3 transit agencies, could establish a specific target after baseline data collection. This indicator could also be combined with change in transit rider-ship compared with employment growth and/or park and ride usage (e.g. King County Benchmarks Program) when establishing a trend. Note: The City already conducts a statistically valid survey for "Strategic Objectives" and we could get more directly at mode split by asking about it in the survey. Please see "potential future indicator" for additional suggestions.

Sustainable Development & Green Infrastructure - continued		
16)	Objective:	Increase number of new households (density) near transit.
	Target:	Upward trend, specific number could be established through future comprehensive plan or housing strategy updates.
	Indicator:	Percentage of new residential units within 1/4 mile of transit stop with 30 minute minimum headway.
	Discussion:	Requires integrating permit data with GIS analysis, could establish a specific target after baseline data collection and policy discussion.
17)	Objective:	Concentrate new growth in proximity of services and transit.
	Target:	Upward trending number, specific numeric goal TBD.
	Indicator:	Number of new residential units and total units (or average density) within a designated commercial center (and perhaps a 1/8 mile or other distance from boundary).
	Discussion:	Would need to define boundaries of designated commercial centers, 1/8 mile may be appropriate to the size of the centers themselves.
FI-18)	Objective:	Reduce the number of single occupant vehicle commuters (SOV).
	Target:	TBD by City after collection and analysis of baseline data.
	Indicator:	Percent of commute trips taken by a mode other than SOV.
	Discussion:	More info needed to develop and apply this, but this is a more encompassing indicator than #1. The City collects Commute Trip Reduction (CTR) data from the City's largest employers and this data could be reported, however it would over estimate the number of workers who take alternative modes if extrapolated and it does not capture people who commute from Shoreline to jobs elsewhere. The City should consider using a statistically valid phone survey to get this data (e.g. expand the existing survey used to obtain the "strategic objectives" measurements). Census numbers can be compared with the phone survey every 10 years. Could also do this in conjunction with an expansion of the CTR program.
FI-19)	Objective:	Measure and improve the overall pedestrian "level of service."
	Target:	TBD by City after collection of baseline data and refinement of the methodology to match local conditions and factors.
	Indicator:	Pedestrian LOS - combination of measuring continuity and directness of pedestrian network.
	Discussion:	More info needed to develop and apply this. Adapt Fort Collins Pedestrian LOS methodology, assigning a LOS of A,B,C,D,E, or F in terms of continuity, directness, street crossings, visual interest, and security. Concurrency requirements currently focus on cars and concurrency for other modes, especially pedestrians, is not currently measured in Shoreline. http://www.ci.fortcollins.co.us/transportationplanning/pdf/levelofservice.pdf

Sustainable Development & Green Infrastructure - continued		
FI-20)	Objective:	Reduce impervious surfaces citywide.
	Target:	Downward trend or possibly the goal of no net increase from baseline is more realistic given increasing population and density. A specific goal could also be established.
	Indicator:	Percentage of impervious surface citywide.
	Discussion:	LIDAR data can be interpreted to create an impervious data layer - research partnership, internship or thesis opportunity with UW. Given cost and rate of change considerations, data would be updated perhaps every 5 years.
Resource Conservation & Waste Reduction		
21)	Objective:	Reduce solid waste land-filled as a result of City operations.
	Target:	Downward (positive) trend. Specific target TBD. E.g. Reduce by 10% per year total volume directed to landfills from City operations.
	Indicator:	Volume of total waste generated (as compared to previous 4 years).
	Discussion:	Internal discussion necessary to establish target, but this appears to be plausible at least in the short to medium-term.
22)	Objective:	Increase recycling in City operations.
	Target:	Upward trend. Specific target TBD. E.g. Increase by 10% the percentage of materials sorted and recycled from City operations waste stream.
	Indicator:	Percentage of total waste recycled (as compared to previous 4 years).
	Discussion:	Internal discussion necessary to establish target, but this appears to be plausible at least in the short to medium-term.
23)	Objective:	Increase recycling rates in the community.
	Target:	Upward trend. Specific target TBD. E.g. Divert an additional 10% per year of total volume from landfills.
	Indicator:	Percentage of total solid waste recycled by the Community (via CleanScapes).
	Discussion:	City to determine if this can be measured or monitored through existing waste contract.
24)	Objective:	Reduce potable water use in City outdoor operations.
	Target:	Downward (positive) trend. Specific target TBD. E.g. Reduce total potable water use for irrigation by 100% by 2012.
	Indicator:	Consumption units per year for outdoor operations based on utility billing.
	Discussion:	Data based on water bill. Potential strategies include storm water storage and reuse, and Citywide moisture sensors, centrally controlled. Need to investigate how and if consumption units for irrigation are or can be separated.

Resource Conservation & Waste Reduction - continued		
25)	Objective:	Reduce potable water use in City indoor operations.
	Target:	Downward (positive) trend. Specific target TBD. E.g. Reduce water use in City office facilities by 50% by 2012.
	Indicator:	Consumption units per year for indoor operations based on utility billing.
	Discussion:	Baseline will be established to include new City Hall/Civic Center facility. Need to investigate how and if consumption units for indoor operation are or can be separated. Probably want to calibrate this by units/per square foot of space or per employee.
26)	Objective:	Reduce residential potable water consumption.
	Target:	Downward (positive) trend. Specific target TBD. E.g. Reduce water use in Shoreline households by 50% by 2012.
	Indicator:	Consumption units per year per residential customer.
	Discussion:	Data would be gathered from water district billing data. Potential strategies include information outreach, changes to plumbing code interpretation, subsidization for the installation of low-flow and waterless fixtures, and grey water re-use for toilet flushing and irrigation. City will need to coordinate data collection with Shoreline Water District. Could broaden measure to include commercial customers, but size of business customers is more diverse. Could do measures of both units/per employee and units/per resident.
Ecosystem Management		
27)	Objective:	Improve surface water quality.
	Target:	Upward trend. Specific target could be established through trend analysis.
	Indicator:	Washington Department of Ecology (DOE) Water Quality Index (WQI).
	Discussion:	The City has begun collecting data to use in the WQI and is determining whether or not it is appropriate as a reporting tool for the sustainability indicators. The WQI is intended as a tool to summarize and report Ecology's Freshwater Monitoring Unit's routine stream monitoring data. The WQI is a unit less number ranging from 1 to 100; a higher number is indicative of better water quality. Scores are determined for temperature, pH, fecal coliform bacteria, dissolved oxygen, total suspended sediment, turbidity, total phosphorus, and total nitrogen. Constituent scores are then combined and results aggregated over time to produce a single yearly score for each sample station.

Ecosystem Management - continued		
28)	Objective:	Improve/restore habitat areas.
	Target:	Upward trending number, specific goal TBD based on City input.
	Indicator:	Acres of stream, wetland and related buffers that are enhanced and/or restored (as compared to previous 4 years).
	Discussion:	City does not currently track and aggregate this data. Data should be broken out by voluntary/public projects and those done as permit requirements and mitigation. Invasive species removal could be tracked as a subset.
29)	Objective:	Improve health of public forests.
	Target:	Upward trending number, specific acreage goal TBD based on City input.
	Indicator:	Acres (and percentage) of public forests enhanced that year through removal of invasive species, replacement of dead or dying, thinning and other forest health management practices (as compared to previous 4 years).
	Discussion:	This is most actively occurring under Urban Forests Program and Ivy Out efforts in parks. SF can be hard to track but should be measured. We will continue to study the Green Seattle program to look at ways to improve and refine this indicator.
30)	Objective:	Increase citywide tree canopy and natural vegetation through strategic use of the right of way.
	Target:	Upward trending number, Specific target TBD following collection of baseline data and City review of existing, planned and possible CIP efforts.
	Indicator:	Number of street trees and square feet of landscaping planted in the right-of-way (ROW) per year by City services or programs (or private development in the ROW) as compared to previous 4 years.
	Discussion:	Data from CIP projects, operations and DSG permit data related to right of way improvements would be combined. Might want to measure every 2 to 5 yrs to be more tangible and show change.
31)	Objective:	Increase volunteer hours devoted to sustainability projects.
	Target:	Upward trending number, based on current City "strategic objectives" program, target is 3,800 for all volunteer programs in 2008.
	Indicator:	Number of volunteer hours and distinct individuals devoted to sustainability projects per year (as compared to previous 4 years).
	Discussion:	The City already gathers and tracks volunteer hours through "strategic objectives" program and could track hours in future years devoted to sustainability projects, e.g. habitat, recycling, right-of-way landscaping and other similar projects with a sustainability benefit.

Ecosystem Management - continued		
FI-32)	Objective:	Improve surface water quality.
	Target:	Upward trending number for each stream reach and other surface water body as compared to previous 4 yrs or other study period, specifics TBD.
	Indicator:	Index of Benthic Invertebrate Diversity (IBID).
	Discussion:	IBID was developed and used by UW - Derek Booth. There is an opportunity to partner with the Homewaters project and schools like Evergreen and Meridian Park that have done IBID sampling over the years in Thornton creek.
FI-33)	Objective:	Increase and maintain citywide tree canopy
	Target:	Target to be established following collection of baseline data. E.g. 40% or potentially break down further by broad zoning category using American Forest's goals.
	Indicator:	Percentage of tree canopy coverage citywide
	Discussion:	Establish baseline in medium-term and update every 5 to 10 years based on remote sensing imagery. Consider use of CityGreen software.
FI-34)	Objective:	Measure and reduce the rate of tree canopy loss due to permitted development.
	Target:	Target to be established following collection of baseline data and further discussion. No net loss at least in single family areas may not be realistic given increasing density.
	Indicator:	Median tree retention percentage achieved (better to use canopy coverage) and replacement trees planted on lots reviewed under the tree code.
	Discussion:	Data could be tracked, but is tedious and replacement trees may not survive. More input from City needed to establish an appropriate indicator for private development. Overall City canopy coverage is a better potential future indicator and may be sufficient.

APPENDIX G
Implementation Resources

Appendix G: Implementation Resources

In performing the Capacity Assessment process, it was important to identify resources that may assist the City directly or indirectly in achieving specific recommendations. Resources may facilitate sustainability either by promoting it or simply by removing barriers. For this Strategy, research on resources for three areas was conducted: Funding, Regulations and Planning Policy, and Business Partnerships. For each suggested resource, possible models have been provided, along with recommendations for City action with regard to the resource type. A summary of this research is provided in Chapter IV of the Strategy Document.

Funding

Sustainable Enterprise Funds

This funding type helps municipalities invest in sustainability projects that require additional incentive to overcome technical or financial risks. The City of Shoreline should explore partnerships with other municipalities to maximize available resources.

Sustainable Enterprise Fund (GVRD)

An example of a successful partnership involves six BC municipalities including Vancouver, Richmond, Whistler, Delta, Burnaby and North Vancouver. These communities will purchase up to 80 million liters of biodiesel blend for use in vehicle fleets during the next five years. Delta's participation in this project is being supported by the GVRD's Sustainability Enterprise Fund. The Corporation applied to the fund last year and was awarded $12,000 to test the use of biodiesel to demonstrate operational, technical and economic feasibility.

Greater Vancouver Regional District (GVRD) member municipalities have access to money that complements municipal, provincial and federal funding sources. This funding is for projects that utilize technology established elsewhere but is new to the region, or to adapt best practices to conditions specific to the region. The focus is on improving sustainability in parks, housing, air quality and energy management, drinking water supply and treatment, wastewater conveyance and treatment, storm water management and solid waste management. A maximum contribution guideline of $25,000 covers up to 1/3 of costs for projects that derive regional benefits, and 10% of costs for projects that focus on single municipal sustainability issues.

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Sustainability Grants

Cities can leverage substantial amounts of work by having a volunteer coordinator on staff who seeks out community groups willing to dedicate labor and resources to sustainability efforts. Often, seed money in the form of a grant is used for first-year costs (e.g., salary, administrative

needs). The benefits often lead to City Councils approving permanent allocations for volunteer coordinator positions.

Some resources for sustainability grants specific to volunteerism include:

- The Abell Foundation, Inc.
- Atherton Family Foundation
- Brico Fund
- Claneil Foundation, Inc.
- Cottonwood Foundation
- Elkind Family Foundation
- The Hugh and Jane Ferguson Foundation
- Gates Family Foundation
- Walter and Duncan Gordon Foundation
- Levi Strauss Foundation
- Massachusetts Environmental Trust
- New England Grassroots Environment Fund
- Norcross Wildlife Foundation, Inc.
- Patagonia, Inc.
- Recreational Equipment, Inc. (REI)
- Russell Family Foundation

Recommendation: We recommend the City create a job description for a Volunteer Coordinator position and pursue grants to fund the first year of expenses for the position. A second, less-secure option would be to approach the Retired Senior Volunteer Program (RSVP) or similar group to solicit a retiree to coordinate the program on a voluntary basis. Some funding or the coordinator's activities should still be secured.

Creative Tax Programs

Tax Incentives:

Berkeley and San Francisco have created programs for residential solar electricity implementation. The cities pay installation costs up-front, and the loans are repaid via property taxes over a 20-year period. Installations are required to be maintained and remain with the property. The extra property tax includes administrative fees and interest, predicted to be lower than for private loans because the city will secure low-interest bonds and loans. Over two decades, the total taxes are approximately what property owners would save on electric bills.

Many tax programs are applied at the State level, e.g. Oregon and New Mexico:

- The Oregon Department of Energy offers the Business Energy Tax Credit to those who invest in energy conservation, recycling, renewable energy resources and less-polluting transportation fuels. The tax credit is 35 percent of the eligible project costs — the incremental cost of the system or equipment that's beyond standard practice. Recipients take the credit over five years: 10 percent in the first and second years and 5 percent each year thereafter. If recipients cannot take the full tax credit each year, they can carry the unused credit forward up to eight years. Those with eligible project costs of $20,000 or less may take the tax credit in one year.
- New Mexico Senate Bill 463 (SB463) encourages private sector design and construction of energy efficient, sustainable buildings for commercial and residential use. The amount of the tax credit is based on the qualified occupied square footage of the building and the

sustainable building rating achieved. The tax credit can be substantial: A LEED Silver-certified 2,000 square foot home that is at least 40% more energy efficient than a home built to the standard building code can receive a $10,000 tax credit.

Analysis: Shoreline may find that its citizens are willing to take the lead in sustainability efforts – i.e., voting with their pocketbooks – through creative property tax programs. Residents may approve higher property tax rates in exchange for improved waste management programs, green building assistance, or alternative energy strategies, for example. Because repayment is tied to property taxes, the City's can project annual budgets with little additional risk.

Tax Penalties:
Portland city officials are proposing a "carbon tax" on new homes and commercial buildings – in reality, this "tax" is a fee penalty. Program components include:

- For new homes and commercial buildings, there are three options for energy efficiency: 1) Meet the state's code and pay a fee to the city; 2) beat the code's efficiency requirements by 30 percent and pay no fee but qualify for incentives from the state and local non-profits; 3) beat the code by 45 percent and get a cash rebate from the city in addition to the other incentives.
- For existing homes and commercial buildings, owners would be required to disclose energy and storm water performance to potential buyers or tenants.
- Incentives for developers building green, and energy efficiency training for building trades workers.
- As part of every existing home sale, an energy efficiency report must be done by home inspectors.

Recommendation: Both the construction industry and realtors associations are fighting the proposal, citing prohibitive costs. As in Portland, tax or fee penalties may meet substantial opposition from builders, developers, owners, and others in Shoreline. We recommend alternative strategies to encourage and provide incentives for sustainability initiatives. Where proposed strategies may encounter opposition, a dedicated public involvement process is recommended.

Utility and Permit Fees

Enterprise Fund – Santa Monica has its own water and waste utilities, so the city can impose a fee on levels-of-service that is directed to related improvement programs; e.g., a portion of water and sewer bills directed to improved treatment facilities and storm water management education programs

Permit Fees – Portland imposes a fee on every building permit, which is directed toward green building mini-grants, education and outreach, and staff training. The key is volume – demand within the UGB (Urban Growth Boundary) will remain high, and the small fee is acceptable to most developers. While there is no threshold for the number of permits necessary to support a related green building program, Shoreline likely receives substantially fewer than Portland, so Shoreline may choose to dedicate fees to a limited set of initiatives. For instance, fees can be dedicated to obtaining green building accreditations for staff and to education/outreach efforts.

Recommendation: We recommend an additional fee for each building permit application, dedicated to staff training and accreditation. Internal capacity is essential to subsequent education/outreach efforts and code revisions.

Utility Rebate Programs

Puget Sound Energy

- Commercial HVAC Equipment Energy Efficiency Rebate Program
- Commercial Kitchen and Refrigeration Energy Efficient Equipment Rebate Programs
- Commercial Lighting & Lighting Controls Energy Efficiency Rebate Programs
- High Efficiency Commercial Clothes Washer Rebate Program
- High Efficiency ENERGY STAR® Qualified Transformer Rebate Program
- Manufactured Home Rebate Program
- Portable Classroom Energy Efficient Controls Rebate Program
- Residential Energy Efficiency Rebate Programs

Puget Sound Energy

- Commercial Energy Efficiency Rebate Programs
- Cool Rebates Program
- Multi-Family Residential Energy Efficiency Rebate Program
- New Construction Incentive Program
- Residential Energy Efficiency Rebate Program
- Vending Machine Rebate Program

Recommendation: The City can use web resources and other outreach/education tools to inform developers of rebate opportunities. All rebates should be pursued in new City-owned and operated projects, in order to gain first-hand knowledge of application processes.

Municipal Grants for Green Building

- King County's Department of Natural Resources and Parks provides financial grants and free technical assistance to new construction and major renovation commercial building projects in King County, outside the City of Seattle, seeking LEED* certification. Private, nonprofit, and public projects are eligible to apply for grant awards based on the level of certification achieved. Eligible projects can receive a grant in the amount of $15,000 for achieving a certification level of LEED Silver, $20,000 for LEED Gold, or $25,000 for LEED Platinum. **Web site:** www.seattle.gov/dpd/GreenBuilding
- The Seattle/King County Built Green Grant Program provides competitive grants for single-family residential and community development projects to help offset the cost of certifying and designing innovative green projects throughout Seattle and King County. The grants are funded through the Department of Natural Resources and Parks, Water and Land Resource Division and Seattle Public Utilities. To be eligible for this grant, buildings need to achieve either Built Green 4-star or 5-star certification. **Web site:** http://www.builtgreen.net
- Puget Sound Energy (PSE) offers its commercial and industrial customers financing when building a new facility or expanding an existing one through the New Construction Grants program. Grants and rebates are available for many high-efficiency electric and natural gas applications that are at least 10% beyond the applicable energy code. **Web site:** http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=WA50F&state=WA&CurrentPageID=1&RE=1&EE=1
- Puget Sound Energy (PSE) offers grants to its customers who install efficiency upgrades to their existing equipment or facility. Grants often range from several hundred dollars to over a hundred thousand dollars, and typically pay for about 50% of a project's cost; sometimes up to 70% of the installed cost. **Web site:**

http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=WA49F&state=WA&CurrentPageID=1&RE=1&EE=1

- The City of Santa Monica offers a grant program to encourage construction of LEED™ certified buildings and implementation of Innovative Green Building Technologies. Grants for LEED™ certified buildings will range from $20,000 to $35,000 depending on the level of certification. Innovative Technology Grants will cover 50% of project costs up to $5000 for new construction or renovation projects that involve cutting edge energy efficiency or urban runoff mitigation technologies.
- See available online resources for additional grant opportunities:
    - http://www.dsireusa.org
    - http://www.epa.gov/greenbuilding/tools/funding.htm
    - http://www.mrsc.org/Subjects/Planning/GreenBuild.aspx#grants

Recommendation: The City can use Web resources and other outreach/education tools to inform developers of grant opportunities. All possible grants should be pursued in new City-owned and operated projects, in order to gain first-hand knowledge of application processes.

Regulations and Planning Policy

Codes and Ordinances

Many major jurisdictions require public projects to be built green, typically meaning LEED (Leadership in Energy and Environmental Design) certified. Other cities, such as Arlington, Virginia and Seattle, also offer incentives such as floor area ratio bonuses or, as with the Austin, Texas Green Building Program, technical assistance for private construction projects. Some municipalities, such as Ft. Collins, Boston, and Washington, D.C., have even experimented with green requirements for private buildings.

Many small municipalities assume that more stringent codes will discourage development, thereby damaging economic growth. However, through a combination of expedited permitting and applications of existing green building standards, many small municipalities have found that developers save money – in construction time and operations and maintenance benefits. The key to most successful efforts is increasing city staff capacity to allow expedited permitting once new codes are in place.

The Mayor of Seattle signed new downtown zoning legislation on April 12, 2006 which established an incentive for the construction of green buildings. The incentive applies to buildings in the central office core and adjoining areas, including Denny Triangle and a portion of Belltown. Commercial and residential buildings in those portions of downtown which achieve a minimum LEED* certification at the Silver level can be built to greater heights and/or greater maximum floor areas. The Downtown Zoning Ordinance allows owners and developers to use either the LEED for New Construction (LEED–NC) or LEED for Core & Shell (LEED–CS) products.

Austin Energy, the City of Austin's energy utility, has a full kit of resources available for developers and builders, including design assistance and education. The City and its utility partner on regular workshops.

Recommendation: Shoreline should systematically review current codes and compile a comprehensive list of proposed code revisions specific to green building strategies. This list should be vetted with representatives from development and construction fields in order to win support for proposed changes

Shoreline can devise a set of incentives, including variances and exceptions that can be applied to projects incorporating sustainability strategies. One example is a simple tradeoff such as allowing greater heights in exchange for smaller footprints and more open space and/or infiltration capability.

Design assistance and education resources should be pursued in Shoreline, especially if other small municipalities can pool resources and work with local utilities to share cost and take advantage of existing expertise.

Green Permitting Processes

The City of Issaquah passed Resolution #2004-11 in December, 2004, adopting a sustainable building and infrastructure policy. Developers intending to use LEED may receive free professional consultation. Projects achieving LEED certification are placed at the head of the building permit review line.

The City of Santa Monica has passed an ordinance that will expedite plan checks for LEED registered projects. This expediting process may take weeks off of the approval process. Applicants must submit their LEED checklist and proof of LEED registration (if any) for the project.

The Chicago Department of Construction and Permits Green Permit Program is the first of its kind in a large U.S. jurisdiction, and its success—from 19 permits in 2005 to 71 in 2006 and a goal of over 100 this year—has helped significantly accelerate the growth of private-sector green building in the city. Today, Chicago leads the nation in the number of LEED registered projects. Chicago's Green Permit Program offers two main incentives:

- First, permits for large or complex projects can be issued in as little as six weeks from the time of construction document submission—approximately half the typical time. This time savings can translate into substantial financial benefit for developers because earlier construction starts mean earlier sales or leasing and reduced interest on construction loans.
- The program also offers a more direct financial incentive in the form of reduced fees. Developers of larger projects typically pay additional fees for the services of City plan review consultants, and up to $25,000 of these fees are waived for projects that qualify for Chicago's Green Permit Program. Whereas expedited permitting is mostly of interest to for-profit developers, the reduction of fees associated with permitting can be a major benefit to nonprofit and affordable housing developers. Even $50,000 is a nearly invisible line item in a $100 million development, but $15,000 or $20,000 is a substantial contribution to the bottom line of a proposed $10 million affordable housing project with 10 different funders.

Recommendation: The City permitting department should begin training staff in green building strategies and standards, leading to proficiency that will allow for expedited permitting and technical assistance. Currently, residential permits require 2 to 6 weeks review time – quicker than many municipalities. However, permit applications for site development, subdivisions, and commercial projects with green building strategies that are departures from conventional practice

are subject to individual reviews, without predictability for builders and developers. This often leads to prolonged review periods and can discourage builders from incorporating strategies if there is no consistent standard.

Green Building Code(s)

Sustainable design strategies are considered by Shoreline's permitting department on a case-by-case basis – no different than a conventional building permit. New, unfamiliar strategies and technologies must be researched and vetted, which often delays processing. Additionally, Shoreline does not emphasize green building beyond IBC and State requirements such as the Washington State Energy Code (which is more stringent than IECC), citing a lack of resources dedicated to code revisions and enforcement. [1]

However, resource-constrained departments such as Shoreline's can implement performance standards that do not require significant code changes and that are compatible with IBC standards. In a 2006 report issued to the ICC Industry Advisory Committee by its Task Group on Green Buildings, it concluded that there were very few, if any, serious barriers in the IBC that would inhibit green building techniques and methods as specified in the most commonly used green building guidelines in the U.S. — LEED, by the US Green Building Council (USGBC), and Green Globes, by the Green Building Initiative. A key element of that conclusion was the provisions of both the IBC and IRC that permits the use of alternative materials and methods of construction when those materials and methods of construction are demonstrated to be equivalent to that prescribed in the code in terms of quality, strength, effectiveness, fire resistance, durability and safety.

In other words, designs are in compliance with IBC as long as a proposed design is demonstrated to be as safe and durable as that which uses the more conventional materials and designs anticipated in the IBC and International Residential Code (IRC). The key to encouraging green building from the permitting side is increasing proficiency among permitting and review staff such that new green building strategies can be quickly reviewed and accepted or denied, thereby placing no undue additional burden on developers.

The ongoing development of the IECC, the National Green Building Standard (for residential construction), and ASHRAE/IESNA/USGBC 189 *Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings*, are making it increasingly possible for the full range of concerns associated with sustainable and environmentally responsible building to be addressed. With regard to the IECC, more performance-based methods will be incorporated, according to ICC. The result will be a range of thresholds, up to and including the zero net energy goal envisioned by the 2030 Challenge, which will allow individual jurisdictions to designate achievable levels of energy conservation with few, if any, code amendments. This will in turn eliminate redundant or even contradictory regulations and levels of enforcement.

Recommendation: The City of Shoreline should focus resources on increasing staff proficiency to provide timely technical assistance and green building advocacy within the City's own development initiatives and the private sector. Technical guidance via print materials is one way

[1] The International Code Council (ICC), a membership association dedicated to building safety and fire prevention, develops the codes used to construct residential and commercial buildings. Most U.S. cities, counties and states that adopt codes choose the International Codes developed by the ICC, specifically the International Building Code (IBC). Additionally, the U.S. Department of Energy continues to reference the International Energy Conservation Code (IECC) as the benchmark for conserving resources used in construction and daily living.

of providing assistance with limited resources. For example, the City of Seattle provides Client Assistance Memos for a variety of development strategies. CA Memos include design strategies and code compliance considerations. For a full list of City of Seattle CA Memos, visit http://web1.seattle.gov/DPD/CAMs/CamList.aspx. An example – Green Parking Lots – is included as Appendix 1. Made available both electronically and at permit counters, these technical resources can help promote green building without placing undue additional burden on staff.

Business Partnerships

Green Business Certification

A green-business program can be used to encourage sustainable practices within the private sector with minimal City investment. The City of Shoreline currently partners with the Environmental Coalition of South Seattle (ECOSS) to help educate Shoreline businesses regarding sustainable business practices. Through this Sustainable Business Extension Service ECOSS provides information and education on industrial innovations that will lead to energy and water conservation, and pollution prevention, in small- to medium-size businesses. According to the Shoreline Economic Development Program, businesses have been slow to take advantage of the Sustainable Business Extension Service.

In late 2007, King County awarded a grant to the Shoreline Chamber of Commerce for development of a sustainable business program. Chamber of Commerce board member Maryn Wynne, also on the board of the Shoreline Solar Project, wrote the grant proposal and is directing the partnership program.[2] The Chamber is seeking to use the grant to create a "one-stop shop" to educate businesses to be more efficient – to use less, waste less, and save money – and to be recognized for sustainability efforts.

The Chamber is organizing a committee to develop the mission and scope of the program, and to identify key stakeholders. Interested parties include CleanScapes (the City's solid waste contractor), Seattle City Light, and Puget Sound Energy. The Chamber is also working with Shoreline Community College to determine opportunities for a partnership in conjunction with the College's increased focus on alternative energy. Next steps include branding – creation of a logo and website – and creation of an implementation and administration plan.

Some other municipalities are making sustainable businesses the centerpiece of their economic development programs, including Kirkland.

Kirkland Green Business Program

The Kirkland Green Business Program is an incentive program created in partnership between the City of Kirkland, Kirkland Chamber of Commerce and Puget Sound Energy to recognize Kirkland businesses for environmentally-friendly practices.[3] The City's Tourism Marketing Plan and tourism website, www.ExploreKirkland.com, feature certified Green Businesses.

[2] Maryne Wynne: (206) 306-9233
[3] Brenda Nunes, Associated Earth Sciences: (425) 827-7701

Kirkland's Sustainable Business Program includes certifications in six categories: Green Building, Waste Reduction and Recycling, Water Conservation, Energy Efficiency, Transportation, and Pollution Prevention. Certification standards are either derived from existing standards, such as LEED and Built Green for Green Building Certification, or are simple checklists, as shown for Water Conservation in Appendix 1.

Bay Green Business Program

The Bay Area Green Business Program verifies that businesses meet higher standards of environmental performance. The program is a partnership of government agencies and utilities helps local businesses comply with all environmental regulations and take actions to conserve resources, prevent pollution, and minimize waste. More than 1,000 businesses and public agencies have been certified since 1997.

The Program was developed by Bay Area local governments in collaboration with US EPA, Cal EPA Department of Toxic Substances Control and the business community. The Association of Bay Area Governments coordinates the Program, which is implemented by Green Business Coordinators in 9 participating counties. The regional and local programs are funded by their partners, including local and regional government agencies, utilities, special districts and nonprofit organizations that promote environmental compliance, pollution prevention and resource conservation. Some funding also comes from government and non-profit foundation grants.

Santa Monica Sustainable Business Certification Program

The City of Santa Monica has based its tourism and business development initiatives on its Sustainable Business Certification program. Santa Monica's Green Map is a web-based tool that guides residents and visitors to products and services provided by certified Sustainable Businesses. In part because of this program, the business community has adopted sustainability as its guiding development principle.

Through the program, Green Businesses receive recognition through:

- Local and Regional Green Business Program websites
- City and agency newsletters
- Press coverage, promotional events and special recognition
- Window decals, certificates and promotional materials
- Green Business logo to use in advertising

Recommendation: Shoreline should continue to partner with ECOSS and seek other partnerships to enhance offerings for the Sustainable Business Program.

The City can also use existing resources to promote sustainable business practices. Puget Sound Energy and Seattle City Light can provide data that can be used to create an overall "business footprint" for Shoreline businesses. This may be used to encourage businesses to pursue sustainable business strategies and take advantage of resources in order to promote their business

(Example) Client Assistance Memo:

Seattle -- Green Parking Lots (2 pp. of 8)

Department of Planning and Development

Client Assistance Memo **515**

Seattle Permits

— part of a multi-departmental City of Seattle series on getting a permit

Green Parking Lots

September 30, 2005

WHO SHOULD CONSIDER GREEN PARKING LOTS?

If you're looking for a cost-effective option for meeting landscaping and water quality requirements when building or redeveloping a parking lot, consider "going green."

WHAT ARE GREEN PARKING LOTS?

Green parking lots reduce runoff that is discharged into local water bodies by using permeable paving and natural drainage landscapes.

Alone or together, these two strategies can be used to meet water quality and landscape requirements and provide credit toward flow control requirements for parking lots.

Permeable Paving

Permeable pavements include pavers, grid systems, porous asphalt and porous concrete. Pavers may be pre-cast sections or individual units that fit together. They are available in a variety of patterns and colors and can be used to enhance the project's aesthetic. Grid or lattice systems are rigid plastic forms that are filled with gravel or soil and vegetation. Porous asphalt and porous concrete are similar to conventional asphalt and concrete in structure and form except that the fines (sand and finer material) have been removed.

When installed over a drainage storage bed, these permeable pavements allow rain to infiltrate through the voids of the permeable surface. Beneath the permeable surface, runoff storage is achieved and/or infiltration occurs where soil permits. Surfaces that infiltrate 100% of the six-month storm runoff may be eligible to be removed from area calculations for water quality requirements. See attached handout for more information on different types of permeable paving.

Natural Drainage Landscapes

Natural drainage landscapes include bio-swales, rain gardens, and bioengineered planting strips that can improve water quality and reduce runoff.

Bio-swales are open, linear channels that filter stormwater as the water flows through vegetation to the discharge point. Although their width and length vary as needed to achieve function, at a minimum they are two feet wide at the bottom and have a maximum slope of 2.5:1.

Rain gardens are shallow depressions in the landscape and are designed to hold and infiltrate runoff. They are amended with bioengineered soil and vegetated with plants that are adapted to both wet and dry conditions.

Bioengineered planting strips are similar to bio-swales but they include an infiltration component. As with rain gardens, native soil below the swale is excavated and backfilled with gravel and loamy sand and planted with shrubs and groundcover.

All systems include an overflow system such as a perforated pipe or a raised overflow device to convey excess drainage to another system or discharge point. These natural drainage landscapes can help reduce the volume of runoff generated from parking lots and filter, infiltrate and store runoff for slower discharge. Existing landscape features such as planters and landscape strips can be converted to natural drainage landscapes.

HOW DO GREEN PARKING LOTS MEET REQUIREMENTS?

The green parking lot strategies described above may help meet requirements for several City codes, including:

- Seattle Municipal Code (SMC) Ch.22.800, Stormwater, Grading, and Drainage Control Code
- SMC 23.47.016, Screening and Landscape Standards
- DPD Director's Rule (DR) 26-2000, Volume 3, Flow Control Technical Requirements Manual

www.seattle.gov/dpd

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- DPD DR 27-2000, Volume 4, Stormwater Treatment Technical Requirements Manual
- DPD DR 13-92, Landscape Standards for Compliance with the Land Use Code and SEPA Requirements

Stormwater Treatment Technical Requirements

Depending on the site, SMC 22.800-22.808 and DPD DR 27-2000 require new and redeveloped parking lots to meet water quality treatment requirements.

Landscaping Requirements

SMC 23.47.016 specifies landscaping requirements for parking lots. These requirements are articulated further in DPD DR 13-92.

Water Quality Treatment Requirements

Permeable paving can reduce the size of engineered stormwater treatment facilities by reducing the amount of runoff needing treatment. If designed to infiltrate the six-month storm, permeable pavement can be used to get a one-to-one impervious surface reduction credit for water quality treatment requirements.

Credit Toward Flow Control Requirements

DPD DR 26-2000 specifies how credit toward flow control requirements can be achieved.

Natural drainage landscapes may be used to meet both landscaping and water quality requirements. Parking lot areas that direct runoff to natural drainage landscapes may be eligible for water quality credit if they are sized to filter or infiltrate the six-month storm event. Permeable paving can be designed to meet water treatment requirements and provide credit toward flow control requirements. Refer to the codes and manuals listed above for design requirements.

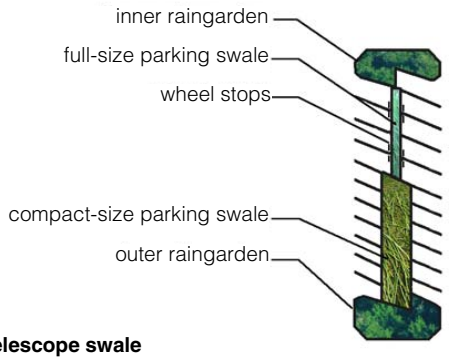
ADDITIONAL BENEFITS FROM GREEN PARKING LOTS

In addition to achieving landscaping, water quality treatment and flow control requirements, green parking lots may reduce capital costs and overall facility maintenance costs. Green parking lots also enhance the pedestrian experience for clients and customers by providing green islands in a sea of asphalt. Additional benefits include an increase in the amount of infiltration surfaces that filter and attenuate stormwater runoff flows, which can enhance the protection of nearby water bodies. The next section illustrates how these benefits can be achieved.

GREEN PARKING LOT DESIGN OPTIONS

Three innovative design options were developed for an existing 15-acre commercial parking lot to evaluate the feasibility and cost-effectiveness of green parking lots. Each of the three options uses permeable pavements and/or natural drainage landscapes. These options demonstrate that parking lots can achieve water quality treatment requirements using green strategies. Although unquantified for this project, the use of a natural drainage landscape is anticipated to reduce the total volume of stormwater from the site through some infiltration. For this case study, each green parking lot design option was compared to a conventional parking lot design that was being considered. A long-term economic analysis of the capital and maintenance costs found the green parking lot design options to be equal to or less expensive than the conventional parking lot design.

The green parking lot design options demonstrate that different combinations of porous asphalt, unit pavers, rain gardens and telescope swales can be used to meet the water quality treatment requirement. With the exception of the telescope swale, each of these elements has specific technical requirements for their design and construction that can be found in DPD DR 26-2000. The telescope swales are a strategy specifically designed to integrate into parking lots. Telescope swales are designed to have multiple sections that vary in width over the length of the swale to accommodate both compact and standard size parking spaces (see figure).



Telescope swale
Image courtesy of SvR Design Company

Source: http://www.seattle.gov/dpd/publications/cam/CAM515.pdf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