



## MEMORANDUM

**To:** Planning Commission

**From:** David Barnes, Green Building Lead and Project Manager  
Paul Stewart, Deputy Planning Director

**Date:** June 3, 2011

**Subject:** Green Codes Project  
File NO. ZON10-00031

### **RECOMMENDATION**

Staff recommends the Planning Commission review and provide direction on the following:

- Review and discuss the draft code for Electrical Vehicle Infrastructure (Issue A3, p.3)
- Review the approach to the Clustered Housing/LID concept (Issue B2, p. 12)
- Provide comments on any other sections of the code changes previously reviewed by the Commission and HCC.

### **BACKGROUND**

Staff met with the Houghton Community Council on May 23, 2011 to present the draft codes. Notes from that meeting are summarized in the comment section below for each Issue item. Planning staff also provided comments. At the April 28<sup>th</sup> 2011 Planning Commission meeting, Staff presented draft code language for review. The Planning Commission comments from that meeting have been incorporated into the draft code language provided in this memo.

The **Planning Commission Review** items shown on the Phase One Sustainable Actions Matrix (See Attachment 1) have been previously discussed with the Planning Commission and the Houghton Community Council. Even though the Planning Commission does not have a formal role, the **City Council Review** items (See Attachment 1) will be brought to the Commission at a future meeting for information and comment.

### **DISCUSSION**

Staff would like the Planning Commission to review the draft code for Electric Vehicle Infrastructure (Issue A3) and discuss direction for Low Impact Development/Clustered Housing (Issue B2).

In the column under "Proposed Code Change" new text is indicated as **bold** and deleted text is indicated with ~~strikeouts~~.

#### **Green Infrastructure**

**ISSUE (A1):** Bicycle stalls are required for all new development (except single family and duplex) at the rate of one space for each 12 parking stalls. Covered bicycle stalls are a requirement in the Zoning Code regulations (KZC 105.32). However, this code language has not consistently yielded quality covered bicycle stalls. In addition, due to lack of showers and changing facilities, employees of medium to large

office and commercial establishments are less likely to bike to work as an alternative transportation option.

<b>Zoning Code</b>	<b>Current Code Language</b>	<b>Proposed Code Language</b>
KZC 105.34	New Section	<b>If covered and secured bicycle storage is provided on site, a credit towards parking requirements at a ratio of one less parking stall per 6 bicycle spaces will be granted. The Planning Official may increase credits according to size of development and anticipated pedestrian and bicycle activity and proximity to transit facilities. A maximum reduction of 5% of required parking stalls may be granted. If a reduction of 5 or more stalls is granted, then changing facilities including showers, lockers shall be required.</b>
KZC 5.177	Definition for Covered Bicycle Storage	<b>An enclosure or shelter in which bicycles can be secured and provides protection for bicycles from inclement weather and theft.</b>

**Houghton Community Council Comments:** Provide better definition of Covered bicycle Storage.

**ISSUE (A2):** Kirkland's Parking Regulations do not reflect priority parking for hybrid, low emission, electric or fuel efficient vehicles.

<b>Zoning Code</b>	<b>Current Code Language</b>	<b>Proposed Code Language</b>
<b>KZC 105.67</b> Parking Area Design - Preferential Parking Allowance	New Section	<b>5% of parking Stalls may be allocated for Preferential Parking.</b>
<b>KZC 5.682</b>	New definition for Preferential Parking	<b>Parking for carpools, HOV's, high efficiency/low emission, electric and alternative fuel vehicles. A restriction on types of vehicles using preferred stalls applies from 7AM-10AM daily.</b>
<b>KZC 5.036</b>	New definition for Alternative fuel vehicle.	<b>A vehicle that runs on a fuel other than "traditional" petroleum fuels (gasoline or diesel); and also</b>

		<b>refers to any technology of powering an engine that does not involve solely petroleum (e.g. electric car, hybrid electric vehicles, solar powered)</b>
<b>KZC 5.388</b>	New definition for HOV	<b>High-occupancy vehicle (HOV): A car or other vehicle carrying a minimum of two passengers.</b>

**ISSUE (A3):**

The City of Kirkland, based on its population and proximity to Interstate 405, is required to allow Electric Vehicle Infrastructure (EVI) in all zones with the exception of residential and critical areas. This requirement is codified in [RCW 35.63.126](#). EVI includes battery charging stations (Level I, II and III) and battery exchange stations. The Puget Sound Regional Council and the Washington State Department of Commerce have created a [Guide for Local Governments](#) to provide assistance in adopting new regulations for EVI.

The approach with the draft code is to allow (Level I & II) charging stations in all zones. Level I charging stations would be appropriate for residential use in a garage. Level II charging stations could be used in residential settings, but would probably be sited in parking lots of larger residential, office and commercial developments. The rapid battery charging (Level III) is slightly larger and it more appropriately sited in Commercial and Industrial Zones where Vehicle Service Stations and other businesses that service and repair vehicles would typically be located. Battery Exchange Stations are appropriate in Commercial Zones where battery exchange or replacement may currently occur and is closely related to activities at Vehicle Service Stations or other establishments that repair or service vehicles. Examples of the Battery Charging Stations and the Battery Exchange Stations are provided in Attachment 2.

<b>Zoning Code</b>	<b>Current Code Language</b>	<b>Proposed Code Language</b>
<b>5.10.071</b>	New Definition – Battery Charging Station (Level I, II and III)	<b>Battery Charging Station - An electrical component assembly or cluster of component assemblies designed specifically to charge batteries within electric vehicles, which meet or exceed any standards, codes, and regulations set forth by chapter <a href="#">19.28 RCW</a> and consistent with rules adopted under <a href="#">RCW 19.27.540</a>. The terms 1, 2, and 3 are the most common electric vehicle charging levels, and include the following specifications:</b> <ul style="list-style-type: none"> <li>• Level 1 is considered slow charging.</li> <li>• Level 2 is considered medium</li> </ul>

<p><b>5.10.071.5</b></p>	<p>New Definition- Battery Electric Vehicle (BEV)</p>	<p>charging. • Level 3 is considered fast or rapid charging.</p> <p><b>Battery Electrical Vehicle (BEV) - Any vehicle that operates exclusively on electrical energy from an off-board source that is stored in the vehicle's batteries, and produces zero tailpipe emissions or pollution when stationary or operating.</b></p>
<p><b>5.10.071.6</b></p>	<p>New Definition – Battery Exchange Station</p>	<p><b>Battery Exchange Station - A facility that will enable an electric vehicle with a swappable battery to enter a drive lane and exchange the depleted battery with a fully charged battery.</b></p>
<p><b>5.10.271</b></p>	<p>New Definition – Electric Vehicle</p>	<p><b>Electrical Vehicle - Any vehicle that operates, either partially or exclusively, on electrical energy from the grid, or an off-board source, that is stored on-board for motive purpose. "Electric vehicle" includes: (1) a battery electric vehicle; (2) a plug-in hybrid electric vehicle.</b></p>
<p><b>5.10.272</b></p>	<p>New Definition- Electric Vehicle charging station</p> <p>New Definition – Electric Vehicle Infrastructure</p>	<p><b>Electrical Vehicle Charging Station - A public or private parking space that is served by battery charging station equipment that has as its primary purpose the transfer of</b></p>

<p><b>5.10.273</b></p>	<p>New Definition – Electric Vehicle Parking Space</p>	<p>electric energy (by conductive or inductive means) to a battery or other energy storage device in an electric vehicle.</p>
<p><b>5.10.274</b></p>	<p>New Definition – Plug-in Hybrid Electric Vehicle (PHEV)</p>	<p><b>Electric Vehicle Infrastructure (EVI) - Structures, machinery, and equipment necessary and integral to support an electric vehicle, including battery charging stations, rapid charging stations, and battery exchange stations.</b></p>
<p><b>5.10.667</b></p>	<p>New Definition – Rapid Charging Station</p>	<p><b>Electrical Vehicle Parking Space - Any marked parking space that identifies the use to be exclusively for the parking of an electric vehicle.</b></p>
<p><b>5.10.756</b></p>	<p>New Definition – Rapid Charging Station</p>	<p><b>Plug-In Hybrid Electric Vehicle (PHEV) - An electric vehicle that (1) contains an internal combustion engine and also allows power to be delivered to drive wheels by an electric motor; (2) charges its battery primarily by connecting to the grid or other off-board electrical source; (3) may additionally be able to sustain battery charge using an on-board internal-combustion-driven generator; and (4) has the ability to travel powered by electricity.</b></p>
<p><b>115.33</b></p>	<p><b>New Section – Electric Vehicle Infrastructure</b></p> <p><b>Purpose and Intent:</b></p> <p><b>It is the intent of these development regulations to encourage the use and viability of</b></p>	<p><b>Rapid Charging Station - An industrial grade electrical outlet that allows for faster recharging of electric vehicle batteries through higher power levels and that meets or exceeds any standards, codes, and regulations set forth by chapter 19.28 RCW and consistent with rules adopted under RCW 19.27.540.</b></p> <p><b>Electric Vehicle Infrastructure</b></p>

	<p>electric vehicles as they have been identified as a solution to energy independence, cleaner air and significantly lower green house gas emissions.</p> <p>Electric vehicles need access to Electric Vehicle Infrastructure (EVI) in appropriate locations. In 2009 the Washington State Legislature passed House Bill 1481 relating to electric vehicles. The bill addressed EVI which includes the structures, machinery, and equipment necessary and integral to support an electric vehicle, including battery charging stations, rapid charging stations, and battery exchange stations.</p> <p>The purpose of the development regulations in this section is to meet the State of Washington requirements and to also allow battery charging stations and battery exchange stations in appropriate use zones throughout the City.</p>	<p>(EVI)</p> <p>1. General – This section establishes where the components of Electric Vehicle Infrastructure are allowed within the City.</p> <p>Exceptions-</p> <p>Electric Vehicle Infrastructure may not be located in any sensitive areas, their buffers or buffer setbacks.</p> <p>2. All Use Zones</p> <p>Level I and Level II Battery Charging Stations are allowed as an accessory use to an approved use within all Use Zones.</p> <p>3. Commercial Zones</p> <p>a. A Battery Exchange station is allowed as an accessory use to all commercial zones where repair or maintenance of vehicles is permitted. Do we want to allow at Vehicle Service Stations?</p> <p>b. A Rapid Battery (Level III) Charging Station is allowed as an accessory use to all commercial zones where repair and maintenance of vehicles is permitted. Do we want to allow at Vehicle Service Stations?</p> <p>4. Industrial Zones</p> <p>a. A Rapid Battery (Level III) Charging Station is allowed as an accessory use to an approved use within the Light Industrial Technology (LIT) or other Industrial zones where Repair and Maintenance of</p>
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	<p>See Attachment 3 for sample of recommended signage from State of Washington Model Ordinance Guide</p>	<p>vehicles is permitted.</p> <p>b. A Battery Exchange Station is allowed as an accessory use to an approved use within the Light Industrial Technology (LIT) or other industrial zones where repair and maintenance of vehicles is permitted.</p> <p>5. Institutional Uses</p> <p>A Rapid Battery Charging Station (Level III) is allowed as an accessory use to an approved institutional use. Do we want to allow this?</p> <p>6. Signage is required to identify a charging station for the exclusive use of an electric vehicle. Onsite signage shall also be required to provide directional assistance. (See Plate 45 in KZC 180). (Note: Staff will bring additional code language on this at the next meeting.)</p>
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**Stormwater and Landscaping**

**ISSUE (B1 & B2):** Stormwater runoff when uncontrolled from impervious surfaces, such as roofs and paved surfaces, can lead to channel and soil erosion. The growing area of impervious surfaces in Kirkland contributes to the increase of both volume and velocity of polluted runoff. This section discusses revisions to lot coverage requirements. Staff is continuing to work on this approach and considering revisions to the proposed code changes.

Zoning Code	Current Code Language	Proposed Code Change
<p><b>KZC 115.90</b> Calculating Lot Coverage</p>	<p>1. General – The area of all structures and pavement and any other impervious surface on the subject property will be calculated as a percentage of total lot area. If</p>	<p>1. General – The area of all structures and pavement and any other impervious surface on the subject property will be calculated as a percentage of</p>

	<p>the subject property contains more than one (1) use, the maximum lot coverage requirements for the predominant use will apply to the entire development.</p> <p>2. Exceptions</p> <p>a. Wood decks may be excluded if constructed with gaps between the boards and if there is pervious surface below the decks.</p> <p>b. An access easement or tract that is not included in the calculation of lot size will not be used in calculating lot coverage for any lot it serves or crosses.</p> <p>c. For detached dwelling units in low density zones and having a front yard, 10 feet of the width of a driveway, outside of the required front yard, serving a garage or carport; provided, that:</p> <p>1) This exception cannot be used for flag or panhandle lots;</p> <p>2) The portion of the driveway excepted from lot coverage calculations shall not exceed 10 percent of the lot area; and</p> <p>3) The portion of the driveway excepted is not located in an access easement.</p> <p>d. Grass grid or brick pavers and compact gravel, when installed over a pervious surface, will be calculated as impervious surface at a ratio of 50 percent of the total area covered.</p> <p>e. Outdoor swimming pools.</p> <p>f. Pedestrian walkways required by Chapter <a href="#">83</a> KZC and KZC <a href="#">105.18</a>.</p>	<p>total lot area. If the subject property contains more than one (1) use, the maximum lot coverage requirements for the predominant use will apply to the entire development. <b>The following exceptions shall not exceed an area equal to ten percent of the total lot area. Lot area not calculated under lot coverage must be devoted to open space.</b></p> <p>2. Exceptions</p> <p><del>a. Wood decks may be excluded if constructed with gaps between the boards and if there is pervious surface below the decks.</del></p> <p>ab. An access easement or tract that is not included in the calculation of lot size will not be used in calculating lot coverage for any lot it serves or crosses.</p> <p><del>c. For detached dwelling units in low density zones and having a front yard, 10 feet of the width of a driveway, outside of the required front yard, serving a garage or carport; provided, that:</del></p> <p><del>1) This exception cannot be used for flag or panhandle lots;</del></p> <p><del>2) The portion of the driveway excepted from lot coverage calculations shall not exceed 10 percent of the lot area; and</del></p> <p><del>3) The portion of the driveway excepted is not located in an access easement.</del></p> <p><del>d. Grass grid or brick pavers and compact gravel, when installed over a pervious surface, will be calculated as impervious surface at a ratio of 50 percent of the</del></p>
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	<p>g. Pervious areas below eaves, balconies, and other cantilevered portions of buildings.</p> <p>h. Landscaped areas at least two (2) feet wide and 40 square feet in area located over subterranean structures if the Planning Official determines, based on site-specific information submitted by the proponent and prepared by a qualified expert, soil and depth conditions in the landscaped area will provide cleansing and percolation similar to that provided by existing site conditions.</p> <p>i. Retaining walls not immediately adjacent to other impervious areas.</p>	<p><del>total area covered.</del></p> <p><del>e. Outdoor swimming pools.</del></p> <p><del>f. Pedestrian walkways required by Chapter <u>83</u> KZC and KZC <u>105.18</u>.</del></p> <p>bg. Pervious areas below eaves, balconies, and other cantilevered portions of buildings.</p> <p>ch. Landscaped areas at least two (2) feet wide and 40 square feet in area located over subterranean structures if the Planning Official determines, based on site-specific information submitted by the proponent and prepared by a qualified expert, soil and depth conditions in the landscaped area will provide cleansing and percolation similar to that provided by existing site conditions.</p> <p><del>i. Retaining walls not immediately adjacent to other impervious areas.</del></p> <p><b>3.Exemptions – The following exemptions will be calculated at a ratio of 50 percent of the total area covered. Exempted area shall not exceed an area equal to ten percent of the total lot area.</b></p> <ol style="list-style-type: none"> <li><b>1. Permeable pavement (non-grassed).</b></li> <li><b>2. Grassed modular grid pavement.</b></li> <li><b>3. Open grid decking over pervious area.</b></li> <li><b>4. Pervious surfaces in compliance with the stormwater design manual adopted in KMC 15.52.060.</b></li> </ol>
<p><b>KMC 22.28</b></p>	<p>Discussed Below</p>	<p>Clustered housing/LID Development</p>

		Concept
<p><b>KZC 5.610 Open Space Definition</b></p>	<p>Land not covered by buildings, roadways, parking areas or surfaces through which water can percolate into the underlying soils.</p>	<p><del>Land not covered by buildings, roadways, parking areas or surfaces through which water can percolate into the underlying soils.</del></p> <p><b>Open space is vegetated and pervious land not covered by buildings, roadways, sidewalks, driveways, parking areas, plazas, terraces, swimming pools, patios, decks, or other similar impervious or semi-impervious surfaces.</b></p>
<p><b>KMC15.52.060</b></p>	<p><b>Design and construction standards and requirements.</b>                      (a) The standard plans as defined in Section <a href="#">15.04.340</a> shall include requirements for temporary erosion control measures, storm water detention, water quality treatment and storm water conveyance facilities that must be provided by all new development and redevelopment projects. These standards shall meet or exceed the thresholds, definitions, minimum requirements, and exceptions/variances criteria found in Appendix I of the Western Washington Phase II Municipal Stormwater Permit, the 2009 King County Surface Water Design Manual, and the City of Kirkland Addendum to the 2009 King County Surface Water Design Manual as presently written or hereafter amended.                      (b) Unless otherwise provided, it shall be the developer's and property owner's responsibility to design, construct, and maintain a system which complies with the standards and minimum requirements as set forth in the standard plans.                      (c) In addition to providing storm water quality treatment facilities as required in this section and as outlined in the standard</p>	<p><b>Design and construction standards and requirements.</b>                      (a) The standard plans as defined in Section <a href="#">15.04.340</a> shall include requirements for temporary erosion control measures, storm water detention, water quality treatment and storm water conveyance facilities that must be provided by all new development and redevelopment projects. These standards shall meet or exceed the thresholds, definitions, minimum requirements, and exceptions/variances criteria found in Appendix I of the Western Washington Phase II Municipal Stormwater Permit, the 2009 King County Surface Water Design Manual, and the City of Kirkland Addendum to the 2009 King County Surface Water Design Manual as presently written or hereafter amended.                      (b) Unless otherwise provided, it shall be the developer's and property owner's responsibility to design, construct, and maintain a system which complies with the standards and minimum requirements as set forth in the standard plans.                      (c) In addition to providing storm water quality treatment facilities as required in this section and as outlined in the standard plans, the developer and/or property</p>

	<p>plans, the developer and/or property owner shall provide source control BMPs as described in Volume IV of the 2005 Stormwater Management Manual for Western Washington, such as structures and/or a manual of practices designed to treat or prevent storm water pollution arising from specific activities expected to occur on the site. Examples of such specific activities include, but are not limited to, car washing at multifamily residential sites and oil storage at auto repair businesses.</p> <p>(d) The city will inspect all permanent storm water facilities prior to final approval of the relevant permit. All facilities must be clean and fully operational before the city will grant final approval of the permit. A performance bond may not be used to obtain final approval of the permit prior to completing the storm water facilities required under this chapter.</p> <p>(e) Adjustment Process. Any developer proposing to adjust the requirements for, or alter design of, a system required as set forth in the standard plans must follow the adjustment process as set forth in the standard plans.</p> <p>(f) Other Permits and Requirements. It is recognized that other city, county, state, and federal permits may be required for the proposed action. Further, compliance with the provisions of this chapter when developing and/or improving land may not constitute compliance with these other jurisdictions' requirements. To the extent required by law, these other requirements must be met. (Ord. 4214 § 1, 2009; Ord. 3711 § 4 (part), 1999)</p>	<p>owner shall provide source control BMPs as described in Volume IV of the 2005 Stormwater Management Manual for Western Washington, such as structures and/or a manual of practices designed to treat or prevent storm water pollution arising from specific activities expected to occur on the site. Examples of such specific activities include, but are not limited to, car washing at multifamily residential sites and oil storage at auto repair businesses.</p> <p><b>(d) Privately maintained storm water structures are not allowed within the public right-of-way, except on a case by case basis with approval from the Public Works Director.</b></p> <p><del>(d)</del> (e) The city will inspect all permanent storm water facilities prior to final approval of the relevant permit. All facilities must be clean and fully operational before the city will grant final approval of the permit. A performance bond may not be used to obtain final approval of the permit prior to completing the storm water facilities required under this chapter.</p> <p><del>(e)</del> (f) Adjustment Process. Any developer proposing to adjust the requirements for, or alter design of, a system required as set forth in the standard plans must follow the adjustment process as set forth in the standard plans.</p> <p><del>(f)</del> (g) Other Permits and Requirements. It is recognized that other city, county, state, and federal permits may be required for the proposed action. Further, compliance with the provisions of this chapter when developing and/or improving land may not constitute compliance with these other jurisdictions' requirements. To the extent required by law, these other requirements must be met. (Ord. 4214 § 1, 2009; Ord. 3711 § 4 (part), 1999)</p>
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Houghton Community Council Comments: For lot coverage calculations: Allow decks over pervious surfaces and swimming pools to be exempt and regarded as pervious. Define the term vegetated as used in the open space definition. Should we consider cisterns for a break in lot coverage?

Planning Department Comments:

Policy question on eliminating or revising the required Pedestrian Walkway (Approach could be that we give 50% exemption, but provide 100% exemption to lot coverage if pervious materials are used)

Look at KZC 162.55 as these code changes could create non-conformances and therefore should look at thresholds for conforming with the lot coverage provisions

## Clustered Housing/Low Impact Development Concept

The purpose of these proposed amendments are to provide options to jump start the use of specific Low Impact Development techniques (LID) and sustainable building design for subdivisions. This can include sustainable site design, preservation of native vegetation, the use of pervious surfaces instead of hard surfaces, clustering of housing and construction of high performance homes and structures. Project sites should have a minimum of 4 lots in order for the LID techniques to be most effective. The benefits to the community and the City of a holistically designed and built sustainable community will need to be compared with the costs and benefits of the developer of the land. It is the intent to make that exchange advantageous for the developer and it is the goal of this code to develop sites that don't generate polluted runoff, but that share infrastructure and produce homes that use substantially less water and energy than homes of similar sizes.

### Existing Zoning Code Requirements for LID:

#### A. Cottage Housing Code -

Chapter 113 of the Zoning Code provides standards for a cottage housing development including low impact development techniques (KZC 113.35.1.d).

##### *d. Low Impact Development*

*The proposed site design shall incorporate the use of low impact development (LID) strategies to meet stormwater management standards. LID is a set of techniques that mimic natural watershed hydrology by slowing, evaporating/transpiring, and filtering water, which allows water to soak into the ground closer to its source. The design should seek to meet the following objectives:*

- 1) Preservation of natural hydrology.*
- 2) Reduced impervious surfaces.*
- 3) Treatment of stormwater in numerous small, decentralized structures.*
- 4) Use of natural topography for drainageways and storage areas.*
- 5) Preservation of portions of the site in undisturbed, natural conditions.*
- 6) Reduction of the use of piped systems. Whenever possible, site design should use multifunctional open drainage systems such as vegetated swales or filter strips which also help to fulfill landscaping and open space requirements.*

The Cottage Home code focuses on the size of the homes and promotes LID techniques.

## **B. Public Works Low Impact Development**

- It is a requirement that 10% of new impervious area on a site be diverted to an LID feature as feasible. Although we cannot predict, we can anticipate that some of the LID techniques that are part of our Department of Ecology NPDES II (National Pollutant Discharge Elimination Discharge) permit will become mandatory or that thresholds will increase within the next few years. Department of Ecology is now **suggesting** that 100% of stormwater from new impervious surfaces be diverted to LID features. The actual percentage of diversion will be recommended after receiving feedback from stakeholders. This increase may not become effective for 3 to 4 years.

## **C. Proposed Clustered Housing/LID Project Concept**

If we choose to do so, a targeted reduction of stormwater and increased infiltration could be a prerequisite for this incentive program. The means to achieving the reduction could be from a menu of items that are all measurable and could guarantee the results that we need to make a difference in Kirkland's watershed. This approach focuses on quantifiable results of diversion of stormwater to LID features that will ensure that water infiltrates on the project site that is being developed.

### **Incentives**

- Reduced lot sizes (3,600 square feet)
- Reduced driveway widths
- Reduced setback yards
- Reduced access road widths

### **Requirements**

- Divert 50% of water from new impervious surfaces to LID features\*
- Clustered Housing
- Shared driveways
- Process I review

### **\*Menu of LID techniques that could be options to meeting targeted reductions:**

- Rain Garden
- Permeable pavement
- Rainwater Harvesting
- Vegetated Roof
- Proven Best Management Practices as defined in the current adopted King County Stormwater Design Manual

**Discussion Points:**

- What are appropriate incentives to consider?
- Do requirements seem in line with current development climate?
- What questions do we need to ask from Development Community and Neighborhoods in evaluating this concept?
- What other incentives should be considered?
- Would Bonus density or height be an incentive for future consideration?

**ISSUE (B3):** Development Standards do not allow pervious surfaces for driveways, private roads and parking lots. KZC requires surfaces comparable to right-of-way.

<b>Zoning Code</b>	<b>Current Code Language</b>	<b>Proposed Code Change</b>
<p><b>KZC 105.100</b> Parking Area Design – Surface Materials</p>	<p>1. General – The applicant shall surface the parking area and driveway with a material comparable or superior to the right-of-way providing direct vehicle access to the parking area.</p> <p>2. Exception – Grass grid pavers may be used for emergency access areas that are not used in required permanent circulation and parking areas.</p>	<p>1. General – The applicant shall surface the parking area and driveway with a material comparable or superior to the right-of-way providing direct vehicle access to the parking area. <b>Pervious surfaces (such as pervious concrete or asphalt, and modular grid pavement) can be used in compliance with the stormwater design manual adopted in KMC 15.52.060. Approval by the Public Works Director is required for areas containing a public utility.</b></p> <ul style="list-style-type: none"> <li>• 2. Exception – <del>Grass grid pavers</del> <b>Grassed Modular Pavement</b> may be used for emergency access areas that are not used in required permanent circulation and parking areas.</li> </ul>
<p><b>KZC 105.10</b> Vehicular Access Easement or Tract Standards</p>	<p>2. General (item d)</p> <p>d. The paved surface in an easement or tract shall have a minimum of two inches of asphalt concrete over a suitably prepared base which has a minimum thickness of four inches of crushed rock or three inches of asphalt-treated base. The Department of Public Works is authorized to modify the</p>	<p>2. General (item d)</p> <p>d. The paved surface in an easement or tract shall have a minimum of two inches of asphalt concrete over a suitably prepared base which has a minimum thickness of four inches of crushed rock or three inches of asphalt-treated base. The Department of Public Works is authorized to modify the standards for a paved surface on a case-by-case basis. <b>Pervious surfaces (such as pervious concrete or</b></p>

	standards for a paved surface on a case-by-case basis.	<b>asphalt, and modular or grasseed modular grid pavement) can be used in compliance with the stormwater design manual adopted in KMC 15.52.060. Approval by the Public Works Director is required for areas containing a public utility.</b>
<b>KZC 105.77</b> Parking Area Design - Curbing	All parking areas and driveways, for uses other than detached dwelling units, must be surrounded by a 6-inch high vertical concrete curb.	All parking areas and driveways, for uses other than detached dwelling units, must be surrounded by a 6-inch high vertical concrete curb. <b>Gaps in Curbs are allowed for stormwater runoff, as approved by the Public Works Director.</b>
<b>KZC 110.25</b> Required Public Improvements	2.b.3) The applicant shall pave outward 20 feet from the curb adjacent to his/her property or as required by the Public Works Director.  3. In all cases except for alleys, if the access point for the subject site is not connected to an existing improved street by an improved hard surface, the applicant shall provide a hard surface improvement, of at least 20 feet in width, to the existing improved street. The applicant may request a modification, deferment or waiver of this requirement through KZC <a href="#">110.70</a> .	2.b.3) The applicant shall pave outward 20 feet from the curb adjacent to his/her property or as required by the Public Works Director. <b>Pervious pavement is permitted.</b>  3. In all cases except for alleys, if the access point for the subject site is not connected to an existing improved street by an improved hard surface, the applicant shall provide a hard surface improvement, of at least 20 feet in width, to the existing improved street. <b>Pervious pavement can be permitted as the hard surface.</b> The applicant may request a modification, deferment or waiver of this requirement through KZC <a href="#">110.70</a> .
<b>KZC 110.27</b> Alleys	The pavement width of an alley must be at least 12 feet but may be required to be increased by the Public Works Director or Fire Marshall. For all commercial, industrial, office, or multifamily projects, the applicant shall improve the alley abutting the subject property and extend it to	The pavement width of an alley must be at least 12 feet but may be required to be increased by the Public Works Director or Fire Marshall. For all commercial, industrial, office, or multifamily projects, the applicant shall improve the alley abutting the subject property and extend it to the existing improved street, and may be required

	<p>the existing improved street, and may be required to improve an additional 30 feet past the property frontage to provide emergency turnaround. For single-family dwellings using the alley for primary vehicular access, the applicant shall pave a 12-foot-wide asphalt apron extending 20 feet from the nearest improved street toward the subject property. For all types of development permits, the Public Works Director shall determine the extent and nature of other improvements required in alleys on a case-by-case basis. Typical improvements include, but are not limited to, replacement of the alley driveway apron and curb, installation of storm drainage, repair of existing paving, and installation of crushed rock in gravel alleys.</p>	<p>to improve an additional 30 feet past the property frontage to provide emergency turnaround. For single-family dwellings using the alley for primary vehicular access, the applicant shall pave a 12-foot-wide asphalt apron extending 20 feet from the nearest improved street toward the subject property. For all types of development permits, the Public Works Director shall determine the extent and nature of other improvements required in alleys on a case-by-case basis. Typical improvements include, but are not limited to, replacement of the alley driveway apron and curb, installation of storm drainage, repair of existing paving, and installation of crushed rock in gravel alleys. <b>The use of pervious pavement in alleys will be considered if approved by the Public Works Director.</b></p>
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**ISSUE (B4):** Natural drainage solutions such as bio-swales, rain gardens, bio-infiltration boxes, native plants and amended soil are not mentioned in Zoning Code as an option.

<b>Zoning Code</b>	<b>Current Code Language</b>	<b>Proposed Code Change</b>
<p><b>KZC 95.44</b> Internal Parking Lot Landscaping Requirements</p>	<p>1. The parking lot must contain 25 square feet of landscaped area per parking stall planted as follows: a. The applicant shall arrange the required landscaping throughout the parking lot to provide landscape islands or peninsulas to separate groups of parking spaces (generally every eight stalls) from one another and each row of spaces from any adjacent driveway that runs perpendicular to the row. This island or peninsula must be surrounded by a six-inch-high vertical curb and be of similar dimensions as the adjacent parking stalls.  b. Landscaping shall be installed pursuant to the following standards:</p>	<p>1. The parking lot must contain 25 square feet of landscaped area per parking stall planted as follows:  a. The applicant shall arrange the required landscaping throughout the parking lot to provide landscape islands or peninsulas to separate groups of parking spaces (generally every eight stalls) from one another and each row of spaces from any adjacent driveway that runs perpendicular to the row. This island or peninsula must be surrounded by a six-inch-high vertical curb and be of similar dimensions as the adjacent parking stalls. <b>Gaps in Curbs are allowed for stormwater runoff, as approved</b></p>

	<p>1) At least one deciduous tree, two inches in caliper, or a coniferous tree five feet in height.</p> <p>2) Groundcover shall be selected and planted to achieve 60 percent coverage within two years.</p> <p>c. Exception. The requirements of this subsection do not apply to any area that is fully enclosed within or under a building.</p>	<p><b>by the Public Works Director.</b></p> <p>b. Landscaping shall be installed pursuant to the following standards:</p> <p>1) At least one deciduous tree, two inches in caliper, or a coniferous tree five feet in height.</p> <p>2) Groundcover shall be selected and planted to achieve 60 percent coverage within two years.</p> <p>3. Natural drainage landscapes (such as rain gardens, bioinfiltration swales, and bioretention planters) are allowed when designed in compliance with the stormwater design manual adopted in KMC 15.52.060.</p> <p>c. Exception. The requirements of this subsection do not apply to any area that is fully enclosed within or under a building.</p>
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**ISSUE (B5):** Specific soil criteria for amended soil and for compost are not specified in KZC 95.50. Therefore, it is not likely that existing soil or soil brought to site will help retain moisture or provide fertile grounds for new or existing vegetation.

<b>Zoning Code</b>	<b>Current Code Language</b>	<b>Proposed Code Change</b>
<p><b>KZC 95.50</b> Installation Standards for Required Plantings</p>	<p>4. Soil Specifications. Soils in planting areas shall have adequate porosity to allow root growth. Soils which have been compacted to a density greater than one and three-tenths grams per cubic centimeters shall be loosened to increase aeration to a minimum depth of 24 inches or to the depth of the largest plant root ball, whichever is greater. Imported topsoils shall be tilled into existing soils to prevent a distinct soil interface from forming. After soil preparation is completed, motorized vehicles shall be kept off to prevent excessive compaction and underground pipe damage. The organic content of soils in any landscape area shall be as necessary to provide adequate nutrient and</p>	<p>4. Soil Specifications. Soils in planting areas shall have adequate porosity to allow root growth. Soils which have been compacted to a density greater than one and three-tenths grams per cubic centimeters shall be loosened to increase aeration to a minimum depth of 24 inches or to the depth of the largest plant root ball, whichever is greater. Imported topsoils shall be tilled into existing soils to prevent a distinct soil interface from forming. After soil preparation is completed, motorized vehicles shall be kept off to prevent excessive compaction and underground pipe damage. The <b>soil quality</b> <del>organic content of soils</del> in any landscape area shall <b>comply with the soil quality</b></p>

	<p>moisture-retention levels for the establishment of plantings. See subsection (9) of this section for mulch requirements.</p>	<p><b>requirements of the Public Works Pre-Approved Plans.</b> <del>be as necessary to provide adequate nutrient and moisture-retention levels for the establishment of plantings.</del> See subsection (9) of this section for mulch requirements.</p>
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**ISSUE (B6):** KZC 95.32 only provides for retention of high value trees and does not allow applicant to propose those same variations for the retention of moderate value trees. The intent of this Code Amendment is to allow more flexibility and incentivize applicants to preserve moderate value trees when possible.

<b>Zoning Code</b>	<b>Current Code Language</b>	<b>Proposed Code Change</b>
<p><b>KZC 95.32</b></p>	<p>In order to retain trees, the applicant should pursue provisions in Kirkland's codes that allow development standards to be modified. Examples include but are not limited to number of parking stalls, right-of-way improvements, lot size reduction under Chapter 22.28 KMC, lot line placement when subdividing property under KMC Title 22, Planned Unit Developments, and required landscaping, including buffers for lands use and parking/driving areas.</p> <p>Requirements of the Kirkland Zoning Code may be modified by the Planning Official as outlined below when such modifications would further the purpose and intent of this chapter as set forth in KZC <a href="#">95.05</a> and would involve trees with a high retention value.</p> <ol style="list-style-type: none"> <li>1. Common Recreational Open Space. Reductions or variations of the area, width, or composition of required common recreational open space may be granted.</li> <li>2. Parking Areas and Access. Variations in parking lot design and/or access driveway requirements may be granted when the Public Works and Planning Officials both determine the variations to be consistent with</li> </ol>	<p>In order to retain trees, the applicant should pursue provisions in Kirkland's codes that allow development standards to be modified. Examples include but are not limited to number of parking stalls, right-of-way improvements, lot size reduction under Chapter 22.28 KMC, lot line placement when subdividing property under KMC Title 22, Planned Unit Developments, and required landscaping, including buffers for lands use and parking/driving areas.</p> <p>Requirements of the Kirkland Zoning Code may be modified by the Planning Official as outlined below when such modifications would further the purpose and intent of this chapter as set forth in KZC <a href="#">95.05</a> and would involve trees with a high <b>or moderate retention</b> value.</p> <ol style="list-style-type: none"> <li>1. Common Recreational Open Space. Reductions or variations of the area, width, or composition of required common recreational open space may be granted.</li> <li>2. Parking Areas and Access. Variations in parking lot design and/or access driveway requirements may be granted when the Public Works and</li> </ol>

	<p>the intent of City policies and codes.</p> <p>3. Required Yards. Initially, the applicant shall pursue options for placement of required yards as permitted by other sections of this code, such as selecting one (1) front required yard in the RSX zone and adjusting side yards in any zone to meet the 15-foot total as needed for each structure on the site. The Planning Official may also reduce the front or side required yards; provided, that:</p> <p>a. No required side yard shall be less than five (5) feet; and</p> <p>b. The required front yard shall not be reduced by more than five (5) feet in residential zones. There shall not be an additional five (5) feet of reduction beyond the allowance provided for covered entry porches.</p> <p>4. Storm Water. Requirements pertaining to stormwater may be varied if approved by the Public Works Official under KMC 15.52.060.</p> <p>5. Additional Variations. In addition to the variations described above, the Planning Official is authorized to require site plan alterations to retain trees with a high retention value. Such alterations include minor adjustments to the location of building footprints, adjustments to the location of driveways and access ways, or adjustment to the location of walkways, easements or utilities. The Planning Official and the applicant shall work in good faith to find reasonable solutions</p>	<p>Planning Officials both determine the variations to be consistent with the intent of City policies and codes.</p> <p>3. Required Yards. Initially, the applicant shall pursue options for placement of required yards as permitted by other sections of this code, such as selecting one (1) front required yard in the RSX zone and adjusting side yards in any zone to meet the 15-foot total as needed for each structure on the site. The Planning Official may also reduce the front, <del>or</del> side <b>or rear</b> required yards; provided, that:</p> <p>a. No required side yard shall be less than five (5) feet; and</p> <p>b. The required front yard shall not be reduced by more than five (5) feet in residential zones. There shall not be an additional five (5) feet of reduction beyond the allowance provided for covered entry porches.</p> <p>c. <b>Rear yards that are not directly adjacent to another parcels rear yard and that are classified as a rear yard due to proximity to an access easement or tract, may be reduced by five (5) feet.</b></p> <p>d. <b>No required rear yard shall be reduced by more than five (5) feet in residential zones.</b></p> <p>4. Storm Water. Requirements pertaining to stormwater may be varied if approved by the Public Works Official under KMC 15.52.060.</p> <p>5. Additional Variations. In addition to the variations</p>
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		<p>described above, the Planning Official is authorized to require site plan alterations to retain trees with a high retention value. Such alterations include minor adjustments to the location of building footprints, adjustments to the location of driveways and access ways, or adjustment to the location of walkways, easements or utilities. The Planning Official and the applicant shall work in good faith to find reasonable solutions</p>

**Planning Department Comments:** There may be situations where an access road is regarded as a rear yard because it is 21 feet or less in width, however that access road may function more like a side yard. In situations like this, the Planning official should be allowed to reduce the rear yard by 5 feet as long as said rear yard does not abut another parcels rear yard.

**Energy Efficiency and Independence**

**ISSUE (C1):** There are barriers to installation of solar panels and the KZC is silent on language that could help residents and businesses place solar panels on their rooftops.

Zoning Code	Current Code Language	Proposed Code Language
KZC 115.60.2.a.4	New code language	<p><b>Solar panels on sloped roof forms (greater than 2:12) may exceed the height limits by a maximum of six (6) inches.</b></p> <p><b>Solar panels on flat roof forms (less than or equal to 2:12) may exceed the height limits by a maximum of twenty (20) inches.</b></p>
KZC 115.60.2.b.4	New code language	<p><b>Solar panels on sloped roof forms (greater than 2:12) may exceed the height limits by a maximum of six (6)</b></p>

		<p>inches.</p> <p><b>Solar panels on flat roof forms (less than or equal to 2:12) may exceed the height limits by a maximum of twenty (20) inches.</b></p>
<b>KZC 5.882</b>	New definition	<b>Solar Panel: A panel designed to absorb the sun's rays for generating electricity or heating.</b>
<b>KZC 5.817</b>	Revise definition for Rooftop Appurtenances	– HVAC equipment, mechanical or elevator equipment and penthouses, roof access stair enclosures, and similar equipment or appurtenances that extend above the roofline of a building, but not including personal wireless service facilities as defined by KZC <a href="#">117.15</a> or solar panels as defined by KZC 5.882.

Houghton Community Council Comments: Moving in right direction. Look for opportunities to go higher with neighbor approval and where views are neither blocked nor solar access denied to others. A concern exists for flat roofs that utilize the 20 inches exemption.

**ISSUE (C2):** The Passive House movement in the United States is now certifying homes that meet rigid standards for energy efficiency. The design and implementation using these Passive House concepts can be used when retrofitting existing structures to help them perform better and use less energy. Passive houses are designed to have exterior wall thicknesses of 12 inches and often include rigid or similar insulation products.

<b>Zoning Code</b>	<b>Current Code Language</b>	<b>Proposed Code Language</b>
<b>KZC 115.115.3.p</b>	New Code language – Option 1	<b>115.115.3.p) Insulation, installed on an existing structure, may encroach 4 inches into a required yard unless precluded by Fire or Building Codes.</b>
	New code language –Option 2	<b>115.115.3.p) Insulation, installed on or inside an existing structure, may encroach 6 inches into a required yard unless precluded by Fire or Building Codes.</b>
	New code language – Option 3	<b>115.115.3.p) Insulation, installed in or on an existing structure, may encroach 8 inches into a</b>

		<b>required yard unless precluded by Fire or Building Codes.</b>
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**Staff Recommends:** Option 3

**Attachments**

1. Phase One Sustainable Actions Matrix
2. Examples of Level I, II, III (Rapid Charging) Stations and Battery Exchange Stations
3. Sample Plate 45 for Electric Vehicle Charging Stations and onsite directional signage

PHASE ONE - SUSTAINABLE ACTIONS			
CITY COUNCIL REVIEW			
		PROJECT TEAM	REQUIRED ACTION
<b>A SUSTAINABLE "GREEN" INFRASTRUCTURE</b>			
1	LEED Gold certification for all new facilities and LEED Silver for all renovated facilities	Green Building Team (GBT)	Policy Decision/Ordinance
	Create ordinance requiring all new City facilities to achieve a LEED Gold certification and all renovated facilities to meet LEED Silver certification and/ or meet Energy Star requirements. Currently, policy is to achieve LEED Certification, but the level is not defined.	Scott Guter/Green Building Intern	
2	Evaluate existing policies for City Capital Improvement Roads Projects and consider comparing to Green Roads program or similar rating program.	GBT, CIP Department	
	Currently, best management practices are used and certification programs are being tested for possible use as a standard.		
3	Develop measurable goals for the Green Building Section of the Climate Protection Action Plan with an emphasis on GHG reduction.	Green Building Team	Policy Decision
	Revise Green Building section of the Climate Protection Action Plan to include new Green Building Program goals. The Green Building Program will establish goals for GHG reduction through updated program incentives. Possible program amendments to include a deconstruction v.s.demolition program.		
4	Require all project applicants to complete a Sustainability and/or Carbon Footprint checklist with building permit applications.	GBT	Policy Decision
	Require all building permit applicants to complete a Sustainability Feasibility Checklist (Pierce Co), or Carbon Calculator Checklist (King Co) prior to submitting building permit. New SEPA rules may require this.		
<b>B POTABLE WATER CONSERVATION</b>			
1	Develop tools to help manage gray water and its reuse by creating an educational program	GBT	Educational Program
<b>C STORMWATER &amp; LANDSCAPING</b>			
1	Adopt the the City of Seattle's "Green Factor" list after comparing with current landscaping standards.	GBT	Policy Decision/Ordinance
	Need to compare with existing landscape standards and note differences. Green Factor will require additional City staff time in review and inspection.		
2	Modify Surface Water Utility Rate to give discounts for storm Low Impact Development (LID) installed on site	GBT, Jenny, Rob	Policy Decision
	Consider a discounted rate for new single-family, Multi-family and Commercial development based on actual impervious area. We would need to increase basic rate, and require verification of discount eligibility.		
3	Provide a rebate ("Treebate") to residential homeowners to encourage them to plant trees on their private property.	GT, UF	Policy Decision/Program

PHASE ONE - SUSTAINABLE ACTIONS, CONTINUED			
PLANNING COMMISSION REVIEW			
		PROJECT TEAM	REQUIRED ACTION
<b>A</b>	<b>SUSTAINABLE "GREEN" INFRASTRUCTURE</b>		
1	Modify design regulations to incorporate bicycle storage and low-emission & fuel-efficient vehicle parking.	Green Building Team (GBT)	Zoning Code Amendment
	Increase ratio of bicycle racks to required parking stalls. Require a portion of parking areas to include stalls for low emission & fuel efficient vehicles (much like requirements for ADA stalls). LEED Req. for commercial & multi-family.		
2	Create regulations for Electric Vehicle Infrastructure (EVI) in Use Zones as required by WA State Law	GBT	Zoning Code Amendment
	Amend Zoning Code Chapter 115 for allowed zones and chapter 5 for definitions for EVI.		
<b>B</b>	<b>STORMWATER &amp; LANDSCAPING</b>		
1	Promote LID through lot coverage/open space standards. Incorporate vegetated roof provisions into KZC Chapter 5 (definitions) and KZC 115.90 (lot coverage exemptions).	GBT, UF, PW and PCD	Zoning Code Amendment
	The issue is that most storm LID uses more open space than traditional sw structures (like dispersion and rain gardens vs. underground pipes). Possibly reduce standard lot coverage from 50% to 40% (or other), but allow 50% if the applicant uses stormwater LID. Goal is to keep more existing trees and existing landscape. Trees and existing landscape detain more runoff. Reducing allowable lot coverage to 40% would help keep some existing landscape. Use KC definition for compatibility with KMC standards. Example: Reduce lot coverage from 50 to 40%, but then allow back up to 50% if structure has vegetated roof.		
2	Provide incentives for single family use regulations to encourage clustered housing (like King County).	GBT, Jeremy	Zoning /Municipal Code Amendment
	Consider modifying subdivision regulations removing minimum lot size requirements and replacing with units per acre.		
3	Revise standards to encourage pervious surfaces for driveways, private roads and parking lots.	GBT, Jenny, Rob	Zoning Code Amendment
	Modular grid pavement, grassed modular grid pavement, or ribbon grass strips for residential driveways or private streets - incorporate into KZC Chapter 105? Recently added LID section to 2010 Pre-Approved Plans, with rain gardens and porous concrete sidewalks. Could be expanded to include other pervious pavement, bioinfiltration boxes, etc. Verify if other standards should be updated.		
4	Revise landscape regulations to incorporate natural drainage structures and native plants requirements for commercial and multi-family sites	GBT	Zoning Code Amendment
	Incorporate natural drainage landscapes (bioswales, rain gardens, and bioengineered planting strips) within parking lots in KZC Chapter 105 and 95.		
5	Incorporate soil amendment provisions into KZC Chapter 95	GBT, Jenny, Rob	Zoning Code Amendment
	Zoning code requires amended soil for tree installation, but does not define amended soil. Apply Ecology definition of amended soil for consistency with stormwater KMC.		
<b>C</b>	<b>ENERGY EFFICIENCY &amp; INDEPENDENCE</b>		
1	Create regulations and incentives for small scale wind, photovoltaic, solar hot water, and passive solar design.	GBT	Zoning Code Amendment
	1. Possible incentives: height exemption for solar equipment installations 2. Add code language to prevent development from impeding the solar access of neighboring properties. 3. Allow height and setback encroachments for small scale wind energy systems (KZC 115.60 and 115.115)		
	Allow building envelopes to encroach into required setback yards for exterior rigid insulation	GBT	Zoning Code Amendment
2	Add language to allow reasonable encroachment into required yards to exceed energy code in new construction or to retro fit existing structure. Consider using Passive House concepts as a guideline.		

**LEVEL I Charger (Residential Garage)**



**LEVEL II Charging Stations (Parking Lots & Garages)**



**RAPID CHARGING STATIONS (LEVEL III) (Gas Stations and Commercial Uses)**



## BATTERY EXCHANGE STATION



Section 3.4: Signage

3.4.01: Directional — Off-street Parking Lot or Parking Garage

**Comment:** The directional sign for an on-site parking lot or parking garage should be used in the parking facility with a directional arrow at all decision points.



12" X 12"



12" X 6"

Section 3.4.02: Off-street EV Parking — Parking Space with Charging Station Equipment

**Comment:** Combination sign identifying space as an electric vehicle charging station, prohibiting non-electric vehicles, with charging time limits. The use of time limits is optional. The blue/white and red/black signs define that only an electric vehicle that is charging can use the spaces. The green sign defines time limits for how long an electric vehicle can be in the space during the specified hours. Outside of the specified hours, electric vehicles can charge for an indefinite period of time.



12" X 12"



12" X 18"



12" X 18"