



City of Covington
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The City of Covington is a place where community, business, and civic leaders work together with citizens to preserve and foster a strong sense of community.

PLANNING COMMISSION AGENDA
May 19, 2011 6:30 pm

CALL TO ORDER

ROLL CALL

Chair Sean Smith, Vice Chair Daniel Key, Jack Brooks, Sonia Foss, Bill Judd, Richard Pfeiffer, and Alex White.

PLEDGE OF ALLEGIANCE

APPROVAL OF CONSENT AGENDA

1. Planning Commission Minutes for May 5, 2011.

PUBLIC COMMUNICATION

CITIZEN COMMENTS - *Note: The Citizen Comment period is to provide the opportunity for members of the audience to address the Commission on items either not on the agenda or not listed as a Public Hearing. The Chair will open this portion of the meeting and ask for a show of hands of those persons wishing to address the Commission. When recognized, please approach the podium, give your name and city of residence, and state the matter of your interest. If your interest is an Agenda Item, the Chair may suggest that your comments wait until that time. Citizen comments will be limited to four minutes for Citizen Comments and four minutes for Unfinished Business. If you require more than the allotted time, your item will be placed on the next agenda. If you anticipate, in advance, your comments taking longer than the allotted time, you are encouraged to contact the Planning Department ten days in advance of the meeting so that your item may be placed on the next available agenda.*

PUBLIC HEARING

UNFINISHED BUSINESS

NEW BUSINESS

2. Discussion of New Electric Vehicle Charging Stations Code Amendments

ATTENDANCE VOTE

PUBLIC COMMENT

COMMENTS AND COMMUNICATIONS OF COMMISSIONERS AND STAFF

ADJOURN

*Any person requiring a disability accommodation should contact the City at least 24 hours in advance.
For TDD relay service please use the state's toll-free relay service (800) 833-6384 and ask the operator to dial (253) 638-1110*

Web Page: www.ci.covington.wa.us

CITY OF COVINGTON
Planning Commission Minutes

May 5, 2011

City Hall Council Chambers

CALL TO ORDER

Vice Chair Key called the regular meeting of the Planning Commission to order at 6:31.

MEMBERS PRESENT

Vice Chair Key, Sonia Foss, Bill Judd, Ed Pfeifer and Alex White.

MEMBERS ABSENT

Chair Smith, Jack Brooks

STAFF PRESENT

Richard Hart, Community Development Director
Salina Lyons, Senior Planner
Kelly Thompson, Planning Commission Secretary

APPROVAL OF CONSENT AGENDA

- Ø 1. Commissioner Foss moved and Commissioner White seconded to amend the Consent Agenda to remove the second Citizen Comment period due to the fact that the Attendance Vote was the only thing between the first and second Citizen Comment periods.
- Ø Commissioner White moved and Commissioner Pfeifer seconded to approve the amended Consent Agenda including the minutes for February 17, 2011 and March 17, 2011. Motion carried 5-0.

The record is noted to reflect that Commissioner Brooks arrived at 6:36 p.m.

PUBLIC COMMUNICATION

2. Barry Anderson of Anderson, Baugh & Associates, LLC., gave a presentation on "The Northern Notch."

Mr. Anderson provided historical background on the property and outlined their proposal to King County to re-designate the entire Notch property from rural to urban.

The Planning Commission asked a few questions of Mr. Anderson. Commissioner White asked how citizens would have their properties re-zoned following the proposed re-designation.

Community Development Director, Richard Hart stated that staff is researching and preparing a report to present to the City Council on May 10, 2011 providing options on how to proceed.

CITIZEN COMMENTS

Barbara Burnsed – 19059 SE Wax Rd – She is an owner of property adjacent to the Branbar property. She would like to be part of the City of Covington. She is the owner of a storage facility.

Camden – Kent resident – wanted information about zoning and was asked to stay after the meeting to discuss.

Zachary Catrell – Maple Valley resident – wanted information about the potential economic impact by annexing the Northern Notch.

PUBLIC HEARING - None

UNFINISHED BUSINESS -None

NEW BUSINESS - None

ATTENDANCE VOTE

- Ø Commissioner Pfeifer moved and Commissioner Judd seconded to excuse the absence of Chair Smith. Motion carried 5-0.

COMMENTS AND COMMUNICATIONS FROM STAFF

Senior Planner, Salina Lyons informed the Planning Commission that the Development Activity Report and associated map have been updated.

In follow-up to the presentation from Anderson, Baugh & Associates, Community Development Director, Richard Hart shared that there are four possible directives that we will receive from the City Council: rearrange priorities for 2011, put it in the 2012 work plan, put it in the 2013 work plan, or engage the participants in a multi-year process to decide what needs to be done, figure out who is going to pay for it and develop a timeline.

Richard also provided a flyer from the City Clerk's Office to recruit members to the Arts Commission.

The next meeting will be held on May 19, 2011 and we will be discussing Electric Vehicle Charging Stations.

Commissioner Pfeifer stated that he may be re-locating to the City of Maple Valley and thus have to leave the Commission in July.

ADJOURN

The May 5, 2011 Planning Commission Meeting adjourned at 7:37 p.m.

Respectfully submitted,

Kelly Thompson, Planning Commission Secretary

Memo

To: Planning Commission Members

From: Richard Hart, Community Development Director; Salina Lyons, Senior Planner; Darren Mhoon, Management Assistant; Brian Bykonen, Associate Planner

CC: Glenn Akramoff, Public Works Director; Don Vondran, City Engineer

Date: May 19, 2011

Re: Research Information and Questions concerning Electric Vehicle Infrastructure and State Requirements for Regulations Governing Vehicle Charging Stations in Local Communities

This New Business Item involves research and data on Electric Vehicle Infrastructure (EVI) and the State requirements that local governments have in place regulations allowing such electric vehicle charging stations in their communities in 2011.

Tonight's meeting only involves the initial discussion on this topic, and the item will appear again several times over the next few months with a public hearing tentatively scheduled for August and then a council decision sometime in September to December, depending upon workload.

Attached are the following items:

- 1.) Why Electric Vehicle charging stations?
- 2.) Electric Vehicle Infrastructure Ordinances (Washington State)
- 3.) Puget Sound Energy Information sheet on Electric Vehicles
- 4.) Gordon Derr, LLP, Attorneys At Law Power Point on "Writing Codes for Electric Vehicle Infrastructure".
- 5.) Land Use Questions for PC Consideration on Electric Vehicle charging Stations

Why Electric Vehicle Charging Stations?

Background

In 2009 the State Legislature passed House Bill 1481 which the Governor signed into law. This law encourages the use of and development of infrastructure required to support electric vehicles. The law requires local governments to develop regulations that allow electric vehicle infrastructure in all zones except resource, residential and critical area zones. The law states:

“The remaining municipalities across the state are required to allow battery charging stations by July 1, 2011.”

This is a lesser requirement than for some other municipalities and unincorporated land in a 1 mile buffer around the freeways (Interstate 5, Interstate 90, Interstate 405 and State Route 520). These locations must allow electric vehicle infrastructure which include Battery Exchange Stations in addition to Battery Charging Stations. We may consider including this additional infrastructure in our code revisions if desired.

Section 2 of RCW 47.80.090 requires the PSRC in collaboration with other agencies to develop model ordinances and guidance for local governments to implement Electric Vehicle Infrastructure regulations. Allowing charging stations is not as simple as adding a line to the permitted use table. Some considerations include on-street and off-street signage, charging station design standards, parking enforcement, accessibility for all users, SEPA exemptions, and more.

It is estimated that by 2012 10-12 models of highway capable electric vehicles (EVs) will be on the market. There doesn't currently seem to be any prohibition to electric vehicle infrastructure but there needs to be regulations to provide consistency across the state.

Battery charging stations include Level 1, Level 2 and Level 3 (Rapid or Fast charging) stations. Level 1 is defined as a 15 to 20 amp 120 volt circuit like your standard power outlet. Level 2 is a 40 to 100 amp 208-240Volt circuit, Level 3 is 60 or more amp, 480 volt or higher, 3 phase dedicated circuit.

For charging an electric vehicle at home you most likely wouldn't need special equipment other than a power cord. Level 1 charging uses a standard wall outlet and would give you about three or four miles per hour of charging. Level 2 charging would

require some special charging equipment and would be a permanently wired in to your home and uses about the same power as home appliances like water heater, dryer or range. Level 2 charging would give you about 10 to 30 miles of charge per hour.

The most likely public charging station would be a level 2 charging station and cost \$15,000 to \$18,000 for two charging stations mounted side by side. Installation of a Fast Charging station would cost \$65,000 to \$70,000.

There are several options for paying to use a public charging station. Some you may pay just like a parking meter, or if you park in a pay lot there may be a charger for you to use. The one issue with public charging is the time required for charging. For this reason the most likely place to have a level 2 charger is some place you will likely be parked for an hour or more like theaters, shopping malls, hotels, parks, sports venues, Museums, libraries. A Fast Charger should only be used where someone will be parked for a shorter period, as little as 15 minutes. These locations include highway rests stops, coffee house, service station, drugstore or fast food restaurant.

Needed code revisions:

EV Charging Stations will need to be added to the permitted use table. Additional EV Infrastructure may be considered as well.

Reminder that regulations need to be descriptive, not prescriptive. For example the regulation the PSRC provided for charging site states "Charging stations equipment shall be maintained in all respects, including the function of the charging equipment." Contacted information will also be posted on the charging station for reporting problems.

Proposed Electric Vehicle Regulations	
<p>Definitions</p> <p>With any new technology a good deal of definitions is</p>	<p>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 19.28 RCW and consistent with rules adopted under RCW 19.27.540. Battery charging stations include Level 1, Level 2, and Level 3 charging stations.</p> <p>Battery electric vehicle (BEV): Any vehicle that operates exclusively on electrical energy from an off-board source that is stored in the vehicle's batteries,</p>

necessary.

and produces zero tailpipe emissions or pollution when stationary or operating.

Comment: Definition is a subcategory of electric vehicles (see "Electric Vehicle" below).

Battery exchange station: A fully automated 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 through a fully automated process, which meets or exceeds any standards, codes, and regulations set forth by chapter 19.27 RCW and consistent with rules adopted under RCW 19.27.540.

Charging levels: The standardized indicators of electrical force, or voltage, at which an electric vehicle's battery is recharged. The terms 1, 2, and 3 are the most common EV charging levels, and include the following specifications:

- Level 1 is considered slow charging.
- Level 2 is considered medium charging.
- Level 3 is considered fast or rapid charging.

Comment: Definitions provided for consistent use and understanding of various charging levels. Level 1 is present in homes and businesses and typically operates on a 15- or 20-amp breaker on a 120-volt Alternating Current (AC) circuit and standard outlet. Level 2 is expected to become the standard for home and public charging and typically operates on a 40-amp to 100-amp breaker on a 208 or 240-volt AC circuit. Level 3 is primarily for commercial and public applications (e.g., taxi fleets and charging along freeways) and typically operates on a 60-amp or higher dedicated breaker on a 480-volt or higher three-phase circuit with special grounding equipment. Note that the term "Level 3" is recommended to identify the increased power need in a numerical fashion (i.e., "3"), but the Level 3 charging level is also sometimes referred to as "Fast" charging, and "Rapid" charging.

It is important to note that only the terms "Level 1" and "Level 2" are consistently used between industry and consumers. The use of "Level 3" is not consistently used at this time. Once a consistent term is defined, local governments should adopt amendments to adopted definitions. Opportunities for amendments to development regulations include a jurisdiction's annual evaluation and amendment process or as part of the required GMA periodic update process (RCW 36.70A.130).

Electric scooters and motorcycles: Any 2-wheel vehicle that operates exclusively on electrical energy from an off-board source that is stored in the vehicle's batteries and produces zero emissions or pollution when stationary or operating.

Comment: These vehicles are defined as being distinct from "electric vehicle" to enable local governments to treat parking and charging locations for them separately.

Electric 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;
- (3) a neighborhood electric vehicle; and
- (4) a medium-speed electric vehicle.

Comment: This definition provides for inclusion of a variety of electric vehicles and is modeled after a definition used in the State of Minnesota and is designed for regulatory purposes, so that factors such as signage are not required to call out detailed differences among BEVs, PHEVs, NEVs, and MSEVs. Note that extended range electric vehicles (EREV) are not separately defined but are included in the definitional components for PHEV (i.e., runs on electricity from its battery, and then it runs on electricity it creates from gas). Other terms, such as Grid Enabled Vehicle (GEV), are also sometimes used when referring to PHEVs and EVs together.

Electric 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 electric energy (by conductive or inductive means) to a battery or other energy storage device in an electric vehicle. An electric vehicle charging station equipped with Level 1 or Level 2 charging equipment is permitted outright as an accessory use to any principal use.

Comment: This definition is modeled after a definition for “electric vehicle parking space” used in the City of Davis. The Davis definition has been modified to combine the parking and battery charging characteristics into one definition as these features are functionally related. As the electric vehicle charging station facility is not a parking facility, its interaction with accessibility provisions is different from that of a parking space.

Regarding allowed uses, Level 1 and Level 2 charging are expected to be a secondary use, not the principal use. However, Level 3 (i.e., Rapid or Fast) may be a primary use given their size and scale, as well as their potential to generate traffic and vehicle queuing, and therefore the need to mitigate the associated impacts. As such, Level 3 is to be permitted differently.

The inclusion of permitted uses in the definition is meant to allow a jurisdiction to add EV charging stations categorically to existing allowed uses tables. If a jurisdiction adds a new Allowed Uses table for the different types of Electric Vehicle Infrastructure, inclusion of permitted uses in the definition may not be necessary.

Electric vehicle charging station –restricted: An electric vehicle charging station that is (1) privately owned and restricted access (e.g., single-family home, executive parking, designated employee parking) or (2) publicly owned and restricted (e.g., fleet parking with no access to the general public).

Comment: This definition is provided to clarify that off-street parking requirements do not apply to “restricted” EV charging stations.

Electric vehicle charging station — public: An electric vehicle charging station that is (1) publicly owned and publicly available (e.g., Park & Ride parking, public library parking lot, on-street parking) or (2) privately owned and publicly available (e.g., shopping center parking, non-reserved parking in multi-family parking lots).

Comment: This definition is provided to clarify the variety of charging stations that are anticipated to be publicly available.

Electric vehicle infrastructure: Structures, machinery, and equipment necessary and integral to support an electric vehicle, including battery charging stations, rapid charging stations, and battery exchange stations.

Comment: As defined in HB 1481 (codified as RCW 35.63.126(5)(c), RCW 35.63.127(5)(c), RCW 35A.63.107(5)(c), RCW 36.70.695(5)(c), RCW 36.70A.695(5)(c) and RCW 47.80.090(3)(c). Per these definitions, this term is broader than Electric Vehicle Service Equipment (ESVE) which refers to the charging equipment, cable and connector.

Electric vehicle parking space: Any marked parking space that identifies the

	<p>use to be exclusively for the parking of an electric vehicle.</p> <p><i>Comment: This term provides the potential for a space to be designated, perhaps as an incentive by a private company, for electric vehicles even if charging equipment is not provided.</i></p> <p>Medium-speed Electric Vehicle: A self-propelled, electrically powered four-wheeled motor vehicle, equipped with a roll cage or crush-proof body design, whose speed attainable in one mile is more than 25 miles per hour but not more than 35 miles per hour and otherwise meets or exceeds the federal regulations set forth in 49 C.F.R. Sec. 571.500.</p> <p><i>Comment: Definition of a subcategory of electric vehicles (see "Electric Vehicle" above). Definition from RCW 46.04.295.</i></p> <p>Neighborhood Electric Vehicle: A self-propelled, electrically powered four-wheeled motor vehicle whose speed attainable in one mile is more than 20 miles per hour and not more than 25 miles per hour and conforms to federal regulations under Title 49 C.F.R. Part 571.500.</p> <p><i>Comment: Definition of a subcategory of electric vehicles (see "Electric Vehicle" above). Definition from RCW 46.04.357.</i></p> <p>Non-Electric Vehicle: Any motor vehicle that does not meet the definition of "electric vehicle."</p> <p>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.</p> <p><i>Comment: Definition of a subcategory of electric vehicles (see "Electric Vehicle" above).</i></p> <p>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.</p> <p><i>Comment: As defined in HB 1481 (codified as RCW 35.63.126(5)(d), RCW 35.63.127(5)(d), RCW 35A.63.107(5)(d), RCW 36.70.695(5)(d), RCW 36.70A.695(5)(d) and RCW 47.80.090(3)(d).</i></p>
Zones allowed	The Downtown Zones, the Community Commercial (CC) Zone, the Neighborhood Commercial (NC) Zone and the Industrial (I) Zone.
Days/Times of operation	Allowed during the days and hours of operation of the business that the charging station is an accessory to.
Permits/licenses required	The local building official, fire protection authority or other building authority having jurisdiction (AHJ) will classify the occupancy and conditions of use in the environment where the charging equipment is installed. Once classified, the property owner or licensed electrical contractor (employing certified electricians)

	will purchase an electrical work permit from the electrical inspection AHJ, and install the electrical equipment in compliance with the appropriate wiring standards for the location. The electrical inspection will verify the electrical installation conforms to the applicable wiring standards for the designated environment.
Size	Parking stall
Parking	A parking space shall be a minimum of 20 feet long and 8 feet wide. ADA parking stalls may also be required.
Signs: On-site	Site restrictions and limitations.
Signs: Off-site	
Other requirements	
Other definitions needed	
Code sections that need to be amended	CMC 18.25.070, CMC 18.25.105 and CMC 18.31.080 permitted use tables need to provide for Battery Charging Station – maybe as an accessory use. CMC 18.20-Definitions. CMC 18.50-Parking and Circulation table may needs updating.

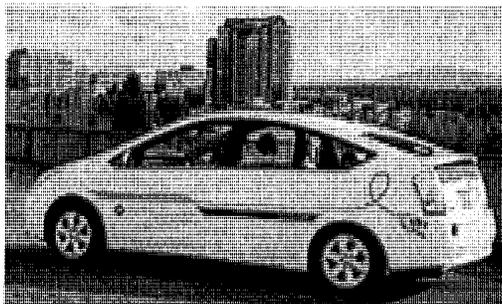
Electric Vehicle Infrastructure Ordinances
(Washington State)

Electric Vehicle Infrastructure: A Guide for Local Governments in Washington State Washington State Dept. of Commerce/ Puget Sound Regional Council		
● Model Ordinance, Model Development Regulations, and Guidance ● Appendices		
Local Jurisdictions	Ordinance - Passage Date	Standards, Regulations and Highlights
Arlington	2011-002 2/07/2011	~Adopts all definitions from the Model Ordinance, including “electric scooters and motorcycles;” ~Suburban Residential And Public/Semi-Public Uses allow Level 3 public charging stations in public parks; ~Outside of specified hours, allows EV’s to charge for an indefinite period of time.
Bellevue	5989 2/07/2011	~ Concentrates on zoning; amended its land use charts to include EVI and battery charging stations. Includes separate subarea land use charts; ~ Incorporates minimal definitions; doesn’t address design criteria, parking issues or signage.
East Wenatchee	2011-02 2/22/2011	~ Close to the “EV friendly scenic byway” along U.S. 2; the purpose statement acknowledges need to “serve the needs of the traveling public;” ~Includes detailed Design Criteria for stations and signs; ~Incorporates city’s Design Standards and Guidelines and Landscaping Standards.
Everett	3210-11 2/09/2011	~”Restricted” charging stations allowed in residential zones as accessory use only, and must meet minimum setback requirements; ~Requires the Planning Dr. to provide an annual report to the City Council on the status of the EV charging stations, with recommendations on changes to the zoning code “based on issues that may arise with new technology...not anticipated at the time of adoption of this regulation.”
Issaquah	2587 8/16/2010	~One of the earliest adopted EVI codes; included with a number of annual housekeeping amendments; ~adopted only state-required definitions; ~Allows EVI as an accessory use in most zones; ~No references to design guidelines or signs.
Kent	3976 10/19/2010	~Level 1 and 2 charging stations allowed in all city zones, including residential; ~ Includes recommended location and design criteria, signage, maintenance; accessibility and lighting.
Lacey	1351 8/12/2010	~Lacey borders the “West Coast Green Highway” (I-5); its purpose statement acknowledges need to “serve the needs of the traveling public;” ~ Refers to “compatibility,” that the charging activity should be

Electric Vehicle Infrastructure Ordinances
(Washington State)

		proportionate to the associated permitted use; i.e. a single family would be served by a Level 1 or 2 charging station, while those “in close proximity to I-5” ...would” be permitted to have multiple ‘fast charging stations’ to serve expected demand.”
Marysville	2853 2/14/2011	~Included in a major code revision project; ~Relied extensively on the Model Development Ordinance, including the expanded sections on accessibility.
Mountlake Terrace	2553 11/01/2010	~ A “very progressive” ordinance: ” ~As of 1/1/2011, new non-sfr uses meeting certain criteria “shall be designed to allow for double the amount of required EV parking” and as of 7/1/2011, the same non-sfr uses will be required to provide EV infrastructure; ~As of 7/1/2011, all new home construction and certain additions shall include one EV Level 2 charging station in its plans, and include installation of the necessary conduit for the future station.
Sea-Tac	10-1024 10/26/2010	~ Includes all definitions from the model ordinance; ~ Provides standards for “retrofitting” Battery or Rapid Charging Stations into existing development; ~Addresses Off-Street, Accessibility and Signage issues.
Tukwila	2324 2/22/2011	~Includes expanded regulations on “EV parking,” and enforcement of both electric and non-electric vehicles in relation to EV charging station spaces.
Tumwater	O2010-015 9/07/2010	~ Concentrates on zoning; amended its land use tables to include EVI, including battery charging stations. Includes separate land use tables specific to the Town Center Zone Subdistricts.
Douglas County	TLS 11-01-01 1/04/2011	~Includes selected definitions from model ordinance; ~ Summarizes location, review process, and design criteria.
Pierce County	2010-7 4/06/2010	~Amended Use Tables to accommodate “electric vehicle battery exchanges and charging stations.”
Snohomish County	10-102 1/19/2011	~Includes detailed use tables for all zones broken down by the following uses: “EV Charging Station -Restricted, Level 1 and Level 2;” “EV Charging Station - Public, Level 1 and Level 2;” “EV Charging Station - Level 3” and Battery Exchange Stations; ~ Definitions include amendments to “park-and-pool lot” and “park-and-ride lot” which may include EVI.
Thurston County	14440 11/16/2010	~Represents a “joint planning” effort for several subareas in the county; ~Includes definitions, and outlines permitted uses; review processes; and design criteria.

Updated: 3/18/2011



Electric Vehicles

Driving change

The latest electric-vehicle technologies will reduce the environmental impact of transportation, including reduced carbon dioxide (CO₂) emissions. They may also offer an alternative to the rising cost of petroleum-based fuels and greater regional and national energy independence.

Puget Sound Energy is committed to working with our residential and business customers, government agencies and automakers to ensure that our region smoothly integrates these next-generation technologies with our transportation and energy systems.

We have tested electric vehicles in our own fleet and worked with auto manufacturers, governments and customers to ensure our energy supplies and power-delivery infrastructure are ready for the future. As new technologies enter the marketplace, we will be doing our part to put Washington on the road to a future of cleaner, greener transportation.

Take our quick survey.

Tips on getting ready for an electric vehicle

We can help you determine what you need to do to get your home or office ready for an electric-vehicle charging station and ensure that your electrical service is able to support the added load of charging your electric vehicle.

1. Choose your equipment

Types of electric vehicles

Electric vehicles come in many different sizes and styles, and with different range and speed specifications. The distance you need to drive between battery charges and how you use your vehicle are important considerations in identifying the right car for you.

Hybrid Electric Vehicle (HEV)

Battery Electric Vehicles (BEVs)

Plug-in Hybrid Electric Vehicles (PHEVs)

Extended Range Electric Vehicle (EREVs)

Neighborhood Electric Vehicles (NEVs)

Charging your electric vehicle at home

Charging at home is the easiest, most convenient way to charge your electric vehicle. There are two levels of charging that are commonly used in homes.

Level 1: This is a normal wall outlet with a ground fault circuit interrupter, usually 15 or 20 amps at 120 volts. Your EV has a specialized plug on it and will come with a charge cord that mates the plug with your standard wall outlet. Using Level 1 charging, a BEV will gain about 3 or 4 miles of driving range for each hour of charging.

Level 2: This is a specialized charger designed for higher power than Level 1, typically anywhere from 15 to 80 amps between 208 and 240 volts. Most units will operate at 30 amps, about the same power as an electric drier, water heater or range. Using Level 2 charging, a BEV will gain 10 to 30 miles or more of driving range for each hour of charging.

depending on the model of BEV and charging power. This requires a specific electric vehicle charger that is permanently wired into your home and contains a number of safety features.

The level of charging you use will depend on the type of EV you drive, and the distance you travel. For someone with a short daily commute who is considering a PHEV, which also runs on gasoline, a Level 1 charging may be sufficient. For someone who drives a BEV and commutes 70 miles each day, a Level 2 charging may be preferred.

Charging your electric vehicle at your business

Providing charging for your company's vehicle fleet, employees, or visitors is similar to charging at home. A few additional points to consider are exactly who will be using the charging station, when they'll be using it (e.g. fleet charging at night, or employee or customer charging during the day) and security (e.g. charging station located in a private fleet lot, or a public location for customers).

Charging on the go

Several thousand publicly available charging stations are being constructed throughout the Puget Sound region. Many of these will be Level 2 charging stations, but there will also be some faster chargers installed. PSE will keep you updated as more information becomes available.

Watch these sites for publicly available charging station locations and information:

King County
The EV Project
Clean Cities/Department of Energy
ChargePoint America
Seattle Electric Vehicle Association

2. Check Your Electrical Supply

Confirm that your wiring is in the right place

Inspect your electrical panel

Your electrician will need to inspect your electrical panel to ensure that its size is adequate to safely power a charging station without affecting your electrical system. This service may be provided by your charging-station provider or vehicle dealer.

Coordinate with PSE

Once you've checked your wiring and electrical panel, but BEFORE filing permits, contact PSE. We will ensure that your service connection is correctly sized, plus discuss other options that you may want to pursue, such as separate metering for charging stations. To get started, please submit your completed EV charging station construction packet, consisting of the following three forms (once you have an electrical plan, these should take about 5 minutes to complete):

Customer service information sheet

Pre-project inquiry

Electric-vehicle project inquiry supplement

For more information or questions, please e-mail us or call a PSE Energy Advisor at 1-800-562-1482, Monday through Friday between 8 a.m. and 5 p.m.

3. Install, Test and go!

Finalize plans with your installer

Get appropriate electrical permits

Schedule the work, then install and test your charging station

Learn to use your new charging station

What are the next steps?

Electric vehicle fact sheet

Electric vehicle brochure

Frequently Asked Question

What is the cost to charge an electric vehicle?

For a compact battery EV, it will cost approximately 3 cents per mile of driving to charge, based on PSE's current residential rates. In comparison, a 35-mpg gasoline vehicle, using \$3 a gallon gas costs 9 cents per mile of driving for fuel, about 3 times as much. If you drive 12,000 miles a year, this would cost about 30 dollars a month with PSE's current residential electric rates.

What sort of emissions come from an EV?

Depending on the type of vehicle, emissions range from none (for a battery electric vehicle) to less than half those of a normal car (for PHEVs and EREVs), depending on how you drive.

Am I just trading tailpipe CO₂ emissions for a power plant?

No. Running on PSE's clean electricity provides lower carbon emissions than a standard car. A four-door EV hatchback charged on PSE's current power supply means carbon emissions of less than one quarter of a pound per mile. A similar gasoline car that gets 35 mpg creates more than twice that much. That means an EV has 60 percent less emissions associated with it than a regular high-mpg car.

However, for PSE's Green Power Program participants, since their energy use is matched with renewable energy in the grid, those EV carbon emissions become zero.

What sort of charger do I need?

A charger may come with or be recommended for your vehicle. Also, there may be an opportunity to receive a charger through The EV Project or ChargePoint America. The time you're usually parked and the distance you usually drive are important factors to consider to be sure that you have the right charger.

Where should I put the charger?

Consider where and in what direction you park your car, where you can mount the charger and get power to it, and where the cords will run when they are connected to your car or hanging on the wall. Your charging-station provider or installer may be able to help with this process. If you live in an apartment or condo, you may need to consult with your building's owner or homeowner's association.

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S517

Writing Codes for Electric Vehicle Infrastructure

2011 APA National Planning Conference

April 11, 2011

Presented by

Anna Nelson, AICP

GordonDerr
ATTORNEYS AT LAW L L P

Land Matters SM

Today's Presentation

- Introduce the Electric Vehicle Industry and Terms
- Discuss Electric Vehicle Infrastructure
- Discuss Washington State House Bill 1481 (2009)
- Discuss Model Document



Photo courtesy of Nissan

Useful Electric Vehicle Terms

These terms will be used throughout the presentation

EV: Electric Vehicle

EVI: Electric Vehicle Infrastructure, i.e. charging stations, battery exchange stations

BEV: Battery Electric Vehicle

PHEV: Plug-In Hybrid Electric Vehicle

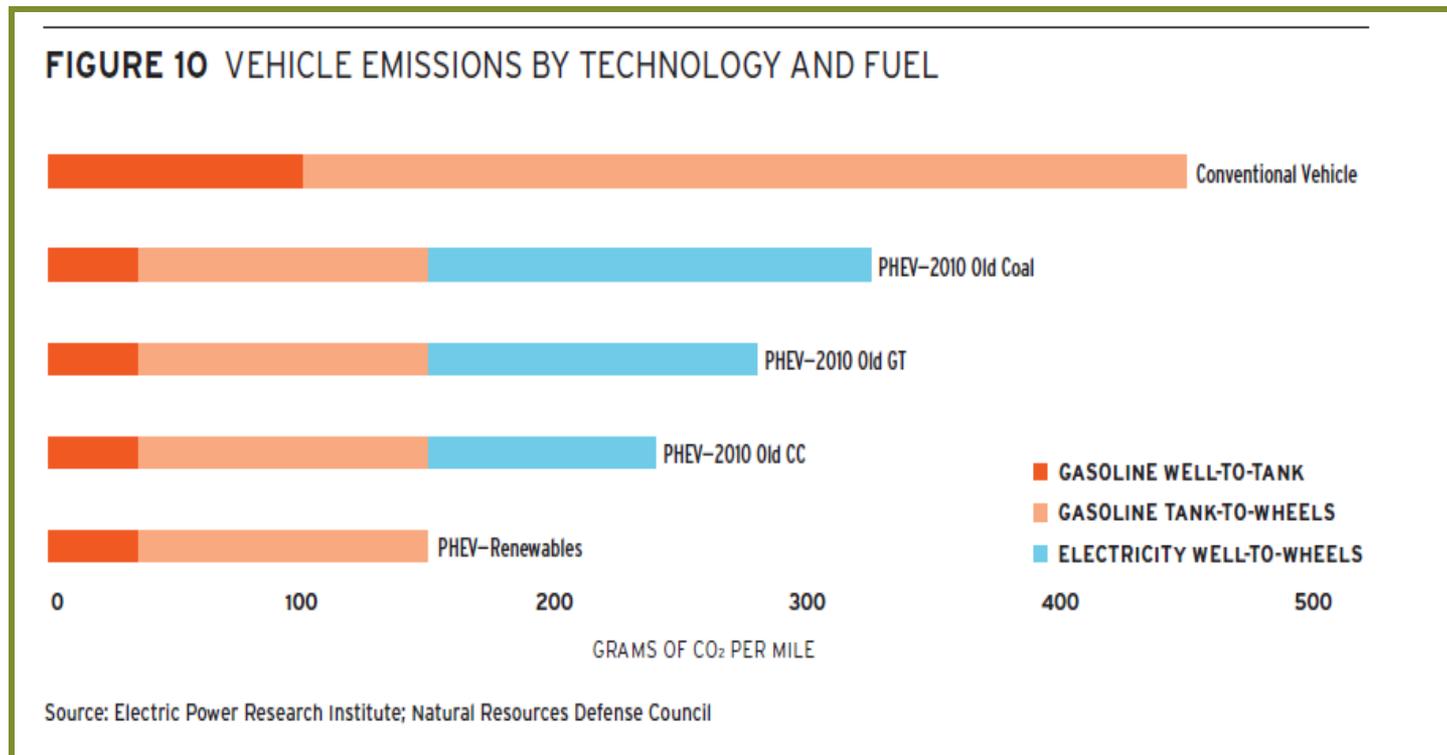
About EV and EVI

What's next? What are possible impediments?

- **More EVs coming to market:**
 - Varying ranges, battery capacities
 - Standards - Plug (J1772), NEC Art 625
- **Federal funding and national interest support use:**
 - Climate change
 - Gulf oil
 - National security
- **Lack of charging infrastructure is impediment:**
 - Range anxiety
 - Level 1 (110-120) slow
 - Level 2 (220-240) medium, only now coming to market
 - Level 3 (440-480 DC) fast, standards still being established

Why EVs?

EVs play a role in reducing greenhouse gasses, especially when power is from renewable sources, e.g. solar, wind, and hydro.



Source: Electrification Roadmap

The EV Industry

Electric Vehicles currently or soon to be on the market



BYD F3DM



Ford Focus EV



BMW Mini E



Citroen C-Zero



GM Chevrolet Volt



Fisker Karma



Ford Transit Connect



Daimler Smart EV



Mitsubishi iMiEV



Nissan Leaf



Hyundai i10



Toyota Prius

Photo montage courtesy of Coulomb Technologies

Electric Vehicle Infrastructure Examples

Level 1 and Level 2 Charging



Level 3 Battery Charging



Battery Exchange Station



Photos courtesy of:
ECotality
(top right and left);
David Dickey
(bottom left); and
Better Place (bottom right)

Style of Charging



Pole Mount



Wall Mount



Bollard

Photos courtesy of Coulomb Technologies

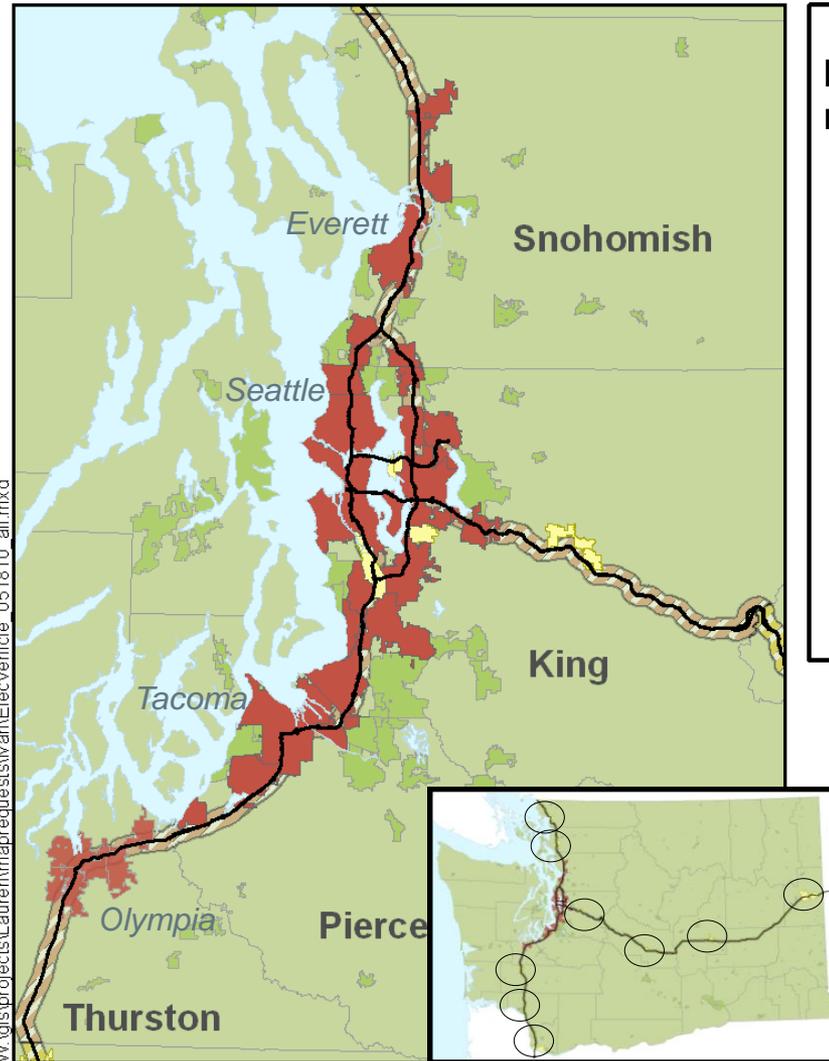
Washington State House Bill 1481 (2009)

An Act Relating to Electric Vehicle Infrastructure

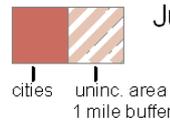
- **Tax breaks for equipment purchase**
- **SEPA exemption for equipment installation**
- **Local jurisdictions required to allow EVI**
- **EV requirements set for local and state fleet vehicles**
- **“Green Highway” (EVI at rest stops)**
- **PSRC Study (included development of EV Model Ordinance and Guidance for Local Governments)**

Requirements for Local Jurisdictions

Greater Central Puget Sound Region

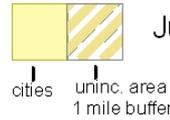


For all areas except those zoned for residential, resource use or critical areas:



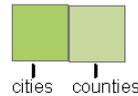
July 2010- Allow EV Infrastructure

Cities: Arlington, Bellevue, Bothell, Des Moines, DuPont, Everett, Federal Way, Fife, Issaquah, Kent, Kirkland, Lacey, Lakewood, Lynnwood, Marysville, Mercer Island, Milton, Mountlake Terrace, Olympia, Redmond, Renton, Sea Tac, Seattle, Shoreline, Tacoma, Tumwater
Counties: King, Pierce, Snohomish, and Thurston, within a one-mile buffer of I-5, I-405, SR 520 and I-90



July 2011- Allow EV Infrastructure

Cities: All cities in King, Pierce, Snohomish and Thurston counties adjacent to I-5, I-90, I-405 and SR-520 under 20,000 population, and all cities in the rest of the state adjacent to I-5 and I-90.
Counties: Adams, Clark, Cowlitz, Grant, Kittitas, Lewis, Lincoln, Skagit, Spokane and Whatcom, within a 1 mile buffer of I-5 and I-90



July 2011- Allow Battery Charging Stations

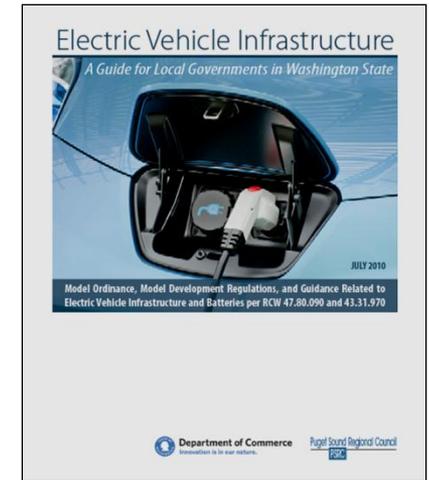
Remainder of cities and county unincorporated areas in Washington State

- Criteria mix of pop thresholds, adjacency to highways
- **July 2010** - core of central Puget Sound
 - Larger freeway adjacent cities
 - 1-mile around freeways in county
- July 2011 – rest of state and region
- Inter-related deadlines with other sections

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EVI Model Document Process

- **Partnership between MPO and State**
- **Model ordinances, model regulations and guidance**
 - Hired consultant team:
 - GordonDerr – attorneys and planners
 - Plug In America – consumer and EV expertise
 - LightMoves – public works and transportation planning
 - Background research
 - Formed Technical advisory committee
 - Vendors, private utilities, Ports, planners and public works officials, city electrical officers, state building code council, state labor and industries, consumer groups
 - Committee work between March and July 2010
 - 4 TAC meetings, interactive with TAC outside meetings
 - Information shared widely via PSRC website
 - Informed a 200+ person interested parties list

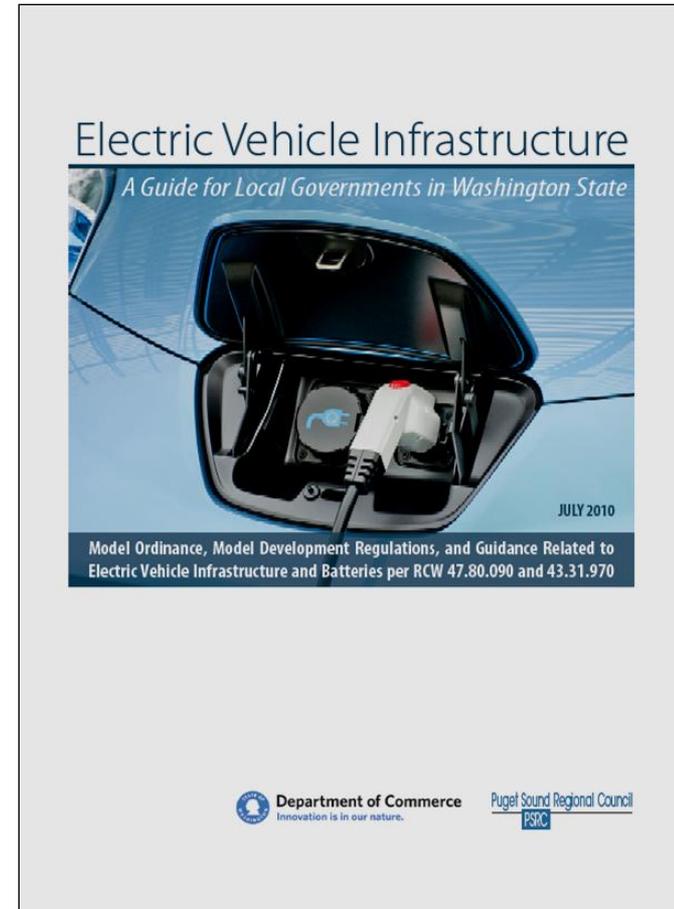


EVI Model Document – cont.

- **Background Research**
 - Compliance with Washington Planning Statutes
 - Growth Management; State Environmental Policy Act; Electric, Fire and Public Works Codes; Utilities Commission; ADA Provisions
 - Best practices – Codes and regulations compilation
 - Nation, international
 - 40+ reports, state laws, white papers
 - Interviews with agencies
 - Permitting, public works, utilities staff
 - Battery Storage and Recycling
 - Web based EV driver survey
 - Demographics, vehicles and use, EVi experience
- **Good resources, but no model to work from**

Model Document

- **Introduction**
- **Sec 1: Model Ordinance**
- **Sec 2: Model Regulations**
- **Sec 3: Resources**
- **Appendices**
- **Explanatory *Comments* provided throughout model document**



Sec 1. Model Ordinance

- **Comprehensive Plan Policies**
- **Model Ordinance Language**
- **Adopted Ordinances and Standards**
 - **16 Jurisdictions**
- **Some Highlights of Adopted Standards**
 - Standards vary from “detailed” to “simple” to “none at all”
 - Standards for signs and accessibility vary
 - Require EVI, in addition to “allowing”
 - Monitoring provisions for future amendments

Sec 2. Model Regulations & Guidance

- Illustrative chapters—reflected differently in different jurisdictions
- Guidance where regulations not needed or standards do not exist

Chapter	Regulation	Guidance
Definitions	EV and EVI related terms	-
Vehicles and Traffic	EV Enforcement	-
Zoning	Allowed Uses Off-street Parking Design	Accessibility Signage
Street, Sidewalks and Public Places	On-street Parking Design	Signage
State Battery, Building & Electric	-	Battery Handling State EVI Rules
SEPA	Categorical exemptions	None

Examples of Definitions

Regulations

- **1.1 “Battery Charging Station”**
 - *Level 1, 2, and 3 (includes Rapid, extended statewide)*
- **1.4 “Charging Levels**
 - *Level 1, 2, and 3 (lots of discussion – users v. technical)*
- **1.6 “Electric Vehicle”**
 - *BEV, PHEV, NEV, MSEV*
 - *Does not include hybrids (affects enforcement)*
- **1.7 “Electric Vehicle Charging Station”**
 - *Space, served by equipment, primary purpose is charging a battery on an EV*
 - *Permitted outright as accessory use if Level 1 and 2*
- **1.8 “Electric Vehicle Charging Station - Restricted”**
- **1.9 “Electric Vehicle Charging Station - Public”**
- **1.10 “Electric Vehicle Infrastructure”**
 - *Not EVSE, a term used by some other agencies or industry groups*

Vehicles and Traffic

Regulations

- **General**
 - EVs can park anywhere, same as other vehicles
- **Prohibitions**
 - In EV charging station, must be EV and must be charging
 - Charging defined as connected to equipment
- **Noticing (Signs)**
 - Three signs (EV charging station, charging only, duration)
- **Violations and Penalties**
 - Infraction, fine amount reference, towing

Zoning

Regulations

- **Allowed Uses Table (also provided in text format)**

EVI TYPE	ZONING DISTRICT						
	LOW-DENSITY RESIDENTIAL	HIGH-DENSITY RESIDENTIAL	MIXED-USE	COMMERCIAL	INDUSTRIAL	INSTITUTIONAL	RESOURCE
EV Charging Station 1, 2	P ₃	P ₃	P	P	P	P	P ₃
Rapid Charging Station 4	P ₅	P _{5,6}	P or P ₆	P	P	P	P ₃
Battery Exchange Station				P	P	P	

P: Use is permitted. Absence of "P": Use is not allowed in the given zoning district.

DEVELOPMENT STANDARDS

1. Level 1 and Level 2 charging only.
2. Level 1 and Level 2 charging are permitted in aquifer recharge areas and in other critical areas when serving an existing use.
3. Allowed only as accessory to a principal outright permitted use or permitted conditional use.
4. The term "Rapid" is used interchangeably with Level 3 and Fast Charging.
5. Only "electric vehicle charging stations - restricted" as defined in Chapter 1, subsection A.1.8.
6. Local governments may choose to allow Level 3 charging stations as an outright permitted use or may determine that it is appropriate to adopt development standards applicable to the mixed-use or high density residential zoning districts. For example, there may be instances where this type of charging station would require screening or placement within a parking garage to meet other objectives of the mixed-use zone (e.g., a pedestrian friendly environment) or high-density residential zone.

Zoning - Off-Street Parking

Regulations – Framework for private installations

Off-Street EV Charging Stations:

- **Number of stations**
- **Minimum parking requirements**
- **Location and Design Criteria**
 - Required:
 - Signs
 - Accessibility Guidelines (guidance)
 - Maintenance
 - Lighting
 - Optional:
 - Charging Equipment Instruction
 - Directional Signage
- **Data collection during permitting**

Zoning – Accessibility

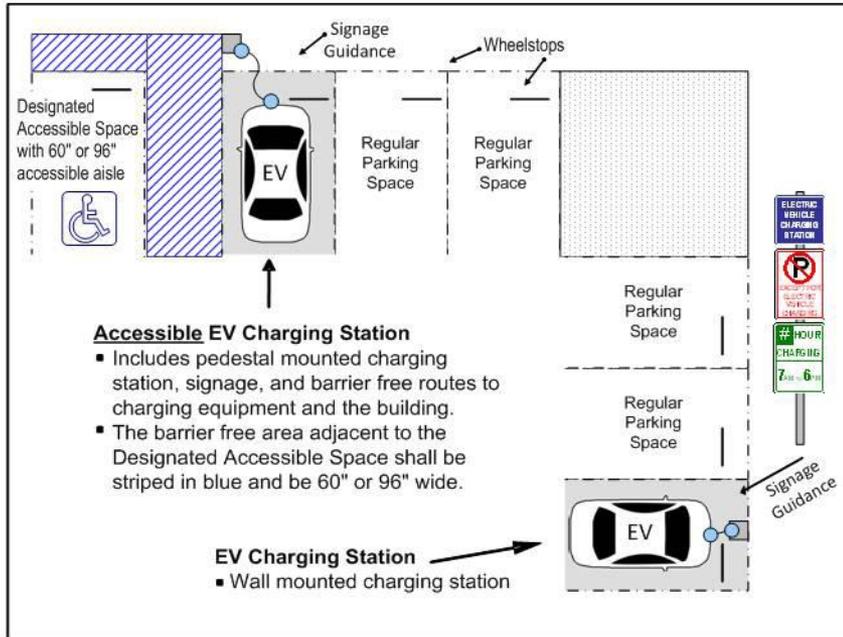
Guidance

- **Market – supply and demand**
- **EV Survey background research**
- **Lack of specific WA standard**
- **Unique facilities with charging as main purpose**
- **ADA parking already in lot**
- **ADA provisions for equipment (controls, heights)**
- **Hotel room analogy – accessible to all, not dedicated**

-
- **First EV Charging Station must have accessible equipment for disabled**
 - **Ratio for subsequent stations**

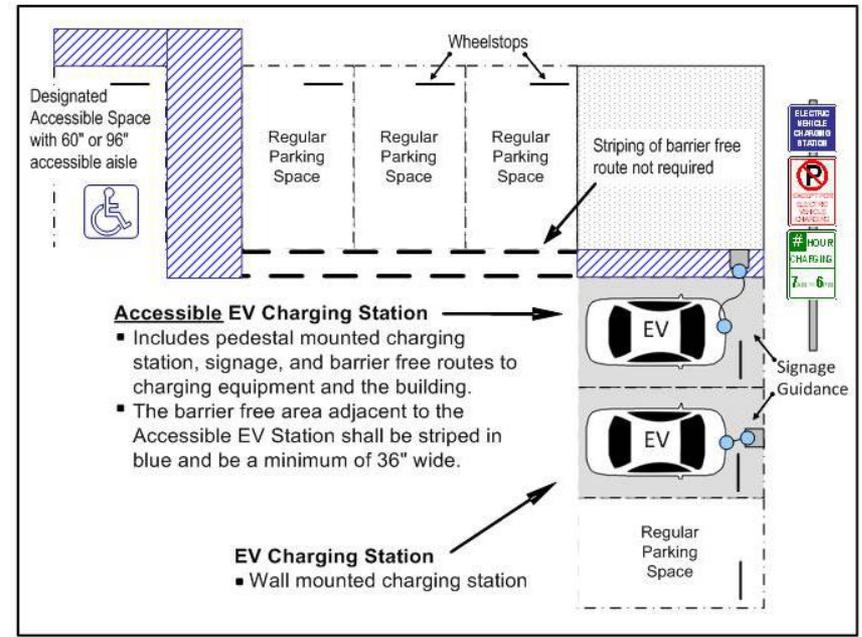
NUMBER OF EV CHARGING STATIONS	MINIMUM ACCESSIBLE EV CHARGING STATIONS
1-50	1
51-100	2
101-150	3
151-200	4
201-250	5
251-300	6

Zoning – Accessibility



OPTION:

- Adjacent to existing spot
- Benefit from existing barrier free route and reach



OPTION:

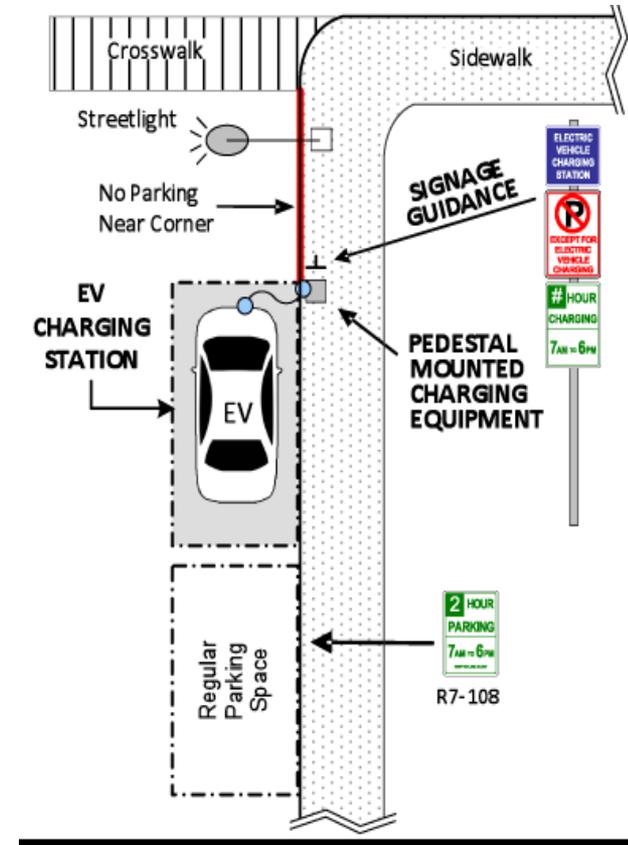
- Alternate site
- Must have barrier free route and reach

Streets, Sidewalks and Public Places

Regulations - Framework for public installations

On-Street EV Charging Stations :

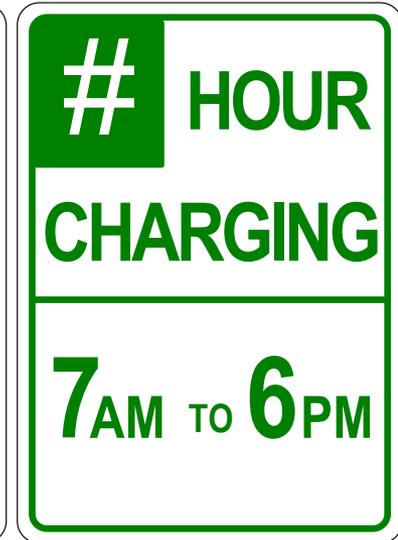
- **Size**
- **Location**
- **Design Criteria - Required**
 - Signage
 - Maintenance
 - Accessibility
 - Clearance and Sidewalk widths
 - Location
 - Lighting
 - Protection of Equipment
- **Data collection during permitting**



Signage Examples

Guidance

At the EV
Charging Station



Experimental sign

- Couldn't get agreement



Additional Information in Model Document

- **Residential and Commercial Installation Guidelines**
- **Electric Vehicle Owner Survey**
- **State Department of Ecology Regulations**
- **State Building Code Council Findings**
- **State Department of Labor & Industries Findings**
- **Glossary, Resource Documents and Appendices**

Example Jurisdictions – Adopted Standards

- **City of Lacey**

- Borders the “West Coast Green Highway (I-5)” - acknowledges the need to “serve the needs of the traveling public...”
- Adopted many definitions and zoning from model regulations
- Includes provisions for retrofitting existing sites

- **City of Mountlake Terrace**

- Strong emphasis on accessibility and forward thinking
- New home construction and certain additions required to include one EV Level 2 station in plans, and also install conduit for future station
- Some new non-sfr uses required to provide EVI, and “design for expansion” to allow for double the amount of required EV parking

Photo courtesy of ECOtality



Resources:

- Model Guidance Document: <http://www.psrc.org/transportation/ev/model-guidance>
- Department of Commerce: <http://www.commerce.wa.gov/site/1342/default.aspx>
- Electrification of Transportation: <http://www.commerce.wa.gov/site/1146/default.aspx>
- West Coast Green Highway: <http://www.westcoastgreenhighway.com>
- Plugin Center: <http://www.plugincenter.net>
- Charge Northwest (Coulomb Technologies): www.chargenw.com
- The EV Project (ECOtality): <http://www.theevproject.com/>

GordonDerr

ATTORNEYS AT LAW ^{L L P}

Land Matters SM

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Northwest Land Matters Blog

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Electric Vehicle Infrastructure (EVI) Questions

1. In what zones should EVI be allowed? Downtown, Neighborhood Commercial, Residential, Multi-family, Public Uses and Church Uses in residential zones?
2. Should there be any type of design regulations or minimal signage requirements?
3. Should the regulations apply only to new development? Or should it also apply to re-development above some threshold of size or parking spaces?
4. What ratio of EVI should there be for the total parking spaces?
5. Should there be a minimum of 1 EVI for any new development? For all or above what threshold of size?
6. Should we also add provisions to allow EVI at existing gasoline stations?