


April 07, 2016

MEMORANDUM

From: Carson Anderson, Senior Planner
To: Planning Commission 
Re: Redwood Coast Energy Authority Plug-in Electric Vehicle Readiness Plan Implementation

On March 25th, staff met with Pierce Schwalb of the Redwood Coast Energy Authority (RCEA) Kristen Radecsky of the Schatz Energy Research Center at Humboldt State University -- Partners for the North Coast Plug-in Electric Vehicle Readiness Plan Implementation Project. The two institutions are working together to pursue California Energy Commission grant funding to increase the number of electric vehicle charging facilities within the region, including Del Norte, Humboldt and Trinity Counties. A description of the program is attached.

The RCEA noted the absence of facilities in Trinity County and is particularly interested in establishing new charging stations here. Because of the parameters for this upcoming round of grant funding, Level 2-type charging stations are being considered. As these require 4 to 6-hour vehicle recharge timeframes, the partners are looking at locations in Trinity County that are activity centers where people can accomplish other tasks while the charging occurs. Prior to our meeting, Schwalb and Radecsky assessed various potential locations in central Weaverville and Hayfork, including the Weaverville Public Library parking lot, and in vicinity to the Hayfork Post Office.

A letter of interest from the County, as well as participation letters from hosting locations, are expected by RCEA and will be included as part of the grant application package to show support for the program. If so choosing, the Planning Commission's expression of support for the project can be conveyed to the Board of Supervisors and to the RCEA.

Attachments

North Coast Plug-In Electric Vehicle Readiness Plan Implementation



Electric buses at 2008 Beijing Olympics

The North Coast Plug-In Electric Vehicle Readiness Plan Implementation Project is taking the next steps to promote electric vehicles in Del Norte, Humboldt, and Trinity Counties.

Expand EV Charging Infrastructure

- Operate and maintain a non-profit local charging network to keep public charging costs low;
- Identify 30-40 sites for future public electric charging stations, including detailed siting assessments;
- Develop equipment and installation standards for electric vehicle public charging stations, and engage with local contractors to encourage best practices.

Support Municipal Responsibilities

To support regional governments as they tackle emerging electric vehicle charging equipment, this project:

- Helps to develop streamlined processes for permitting, inspection, and zoning;
- Provides input on differences between residential, commercial, and public charging equipment;
- Encourages streamlined municipal processes that are consistent throughout the North Coast;
- Encourages adoption of voluntary local codes for electric vehicle charging.

Encourage Electric Vehicle Adoption

- Promote electric vehicles at public events and in traditional and social media;
- Install roadway signs for existing public charging stations to build awareness of in-town charging opportunities;
- Present to elected officials and city staff, community events, and service groups;
- Work with fleet operators to assess opportunities for electric vehicles in their fleet;
- Provide technical assistance to municipal and commercial fleet operators.
- Publicize and promote green fleet activities.

Keep Up With the Future

Electric vehicles are experiencing adoption rates faster than hybrid cars, and we need to ensure that codes, charging stations and services are in place to support electric cars today and into the future.





Align with State Goals

The State of California has set ambitious goals for adopting electric vehicles. Through the California Zero Emission Vehicle (ZEV) Program, current State policy is to:

- Achieve 1.5 million zero emission vehicles on California roadways by 2025;
- Advance zero emission vehicles to be cost-competitive with conventional combustion vehicles;
- Ensure that infrastructure is in place to support a growing population of zero emission vehicles;
- Promote battery electric vehicles and plug-in hybrids that can recharge from the electric grid.

Clean, Sustainable, and Secure

Electric Vehicles provide us with the opportunity to shift from petroleum fuel to electricity, which can be sourced from renewable energy with dramatically lower greenhouse gas emissions. Transportation accounts for about half of the energy consumption in the North Coast, so this is an important step in meeting California State emission reduction targets. For more information, visit our website at www.RedwoodEnergy.org.

Project Community Engagement

The North Coast Plug-In Electric Vehicle Readiness Plan Implementation Project promotes State goals to expand public awareness and interest in zero emission vehicles, streamline the installation and permitting process for local charging infrastructure, and pursue siting opportunities and funds for future charging stations.

Numerous stakeholders will be engaged in this project, including:

- Local governments
- Commercial property owners
- Auto dealers
- Fleet operators
- General public
- Many others

Community Outreach Timeline



- | | |
|---|-------------------------------|
| • Develop streamlined permitting and inspection processes with local jurisdictions (model, and official ordinances and processes) | December 2015 - December 2016 |
| • Document EV charging station installation process (equipment specifications, contractor checklists, and best practices) | July 2015 - July 2016 |
| • Identify future EV charging sites in Del Norte, Humboldt, and Trinity counties | December 2015 - June 2016 |
| • Install roadway signs (surface streets, Caltrans right-of-way) | February 2015 - August 2016 |
| • Promote plug-in electric vehicle awareness (ride and drive events, public events, print and social media) | July 2015 - August 2016 |
| • Promote EV code adoption (present and meet with local jurisdictions) | April 2016 - December 2016 |

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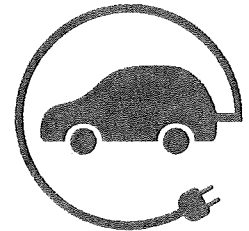
Plug-in Electric Vehicles

What are Plug-in Electric Vehicles (PEV)?

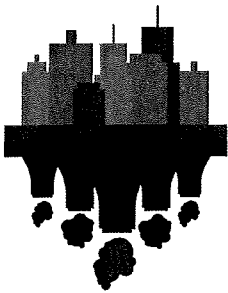
A Plug-in Electric Vehicle (PEV) is a vehicle that runs at least partially on battery power and can be recharged using electricity. Both a BEV and PHEV (see below) are called PEVs.

A Battery Electric Vehicle (BEV) runs completely on electricity stored in batteries and has an electric motor. The vehicle can be plugged in and recharged using electricity.

A Plug-in Hybrid Electric Vehicle (PHEV) combines an electric motor and a gasoline engine and typically runs between 5 and 40 miles on electricity only (depending on the vehicle make and model) before switching over to gasoline.



What are the benefits of PEVs?



- Fewer tailpipe emissions result in better air quality and community health
- Typically fewer greenhouse gas emissions per mile traveled
- Supports clean energy job creation
- Reduced dependence on foreign oil imports enhances energy and national security
- Fuel cost savings that can help stimulate the local economy
- Leverage California's culture of leadership in technology and innovation
- On average, in California it costs approximately \$1.50 per gallon of gas equivalent to run a PEV

State and Federal Leadership Embrace the Change

In 2012, Governor Jerry Brown strengthened the State's commitment to zero emission vehicles (ZEV) and infrastructure in order to protect the environment, stimulate economic growth, and improve air quality. He established aggressive PEV vehicle infrastructure targets that call for 1.5 million ZEVs and easy access to charging stations for all of California by 2025.



The West Coast Electric Highway connects electric vehicle drivers with fast charging between communities along major roadways in Washington, Oregon and California. The initiative complements the EV Project, a \$230 million US Department of Energy project, to deploy electric vehicle charging infrastructure in six states including California.



<http://gov.ca.gov/news.php?id=17463>

www.evproject.com

www.westcoastgreenhighway.com

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www.redwoodenergy.org/index.php/transportation

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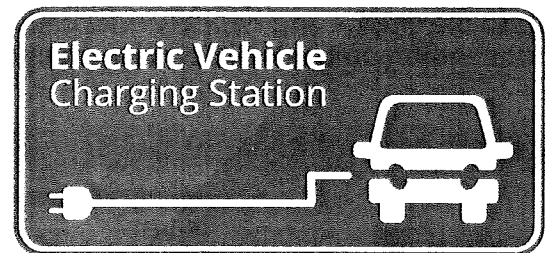


Plug-in Electric Vehicles

Electric Vehicle Infrastructure in Northern California

The North Coast Region of California includes three county jurisdictions: Humboldt, Trinity and Del Norte. The North Coast Region is preparing for the rollout of Plug-in Electric Vehicles and is already a key participant in the expansion of the West Coast Electric Highway. Planning and coordination for electric vehicle infrastructure in the North Coast Region will help link communities along the 101, 299, and 199 corridors and provide connectivity for electric vehicles with limited range between population centers in the region. In conjunction, other organizations are implementing PEV charging infrastructure throughout the state of California.

The Redwood Coast Energy Authority (RCEA) and Schatz Energy Research Center (SERC) are implementing multiple projects in the Northern California region to coordinate the successful introduction of plug-in electric vehicles and the strategic development of charging infrastructure to support PEVs. RCEA is a local government joint powers authority that is installing, owning, and operating charging stations along the North Coast. RCEA is currently owner and operator of 6 electric vehicle charging stations in Humboldt County. SERC is an academic research institution at Humboldt State University with 25 years of expertise in alternative and renewable energies. SERC offers engineering and planning services for electric vehicle infrastructure projects.



Types of Electric Vehicle Charging Stations

	Vehicle Type	Approximate Charge Time	Volatge
 LEVEL 1	All PHEVs and BEVs	5 miles/ hour of charge	120V e.g. Standard Outlet
 LEVEL 2	All PHEVs and BEVs	13-25 miles/ hour of charge	240V e.g. Dryer Outlet
 DC FAST CHARGING	Most Battery Electric Vehicles, check with auto manufacturer for details	30 minutes for 80% of a full charge	480V e.g. non-residential

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_____ (Site Host) is interested in partnering with the Redwood Coast Energy Authority to develop the Redwood Electric Vehicle Charging Network (RCEA Network). The RCEA Network operates under a not-for-profit business model, currently provides charging stations at 14 different sites in Humboldt County, and is intended to facilitate and support the adoption of electric vehicles in our community. Site Host supports plug-in electric vehicles as a valuable transportation option for our state and local community, and we see the RCEA Network as an excellent step towards adoption of electric vehicles by our residents, businesses, and local governments.

Site Host commits to serve as a host site for electric vehicle charging infrastructure at the following location (Location):

Address and/or description of location such as cross street, parcel number, etc.

Site Host will make a good faith effort to establish a mutually agreeable partnership with the Redwood Coast Energy Authority on the licensing, installation and ongoing future operations and maintenance of the electric vehicle charging infrastructure. Site Host also commits to facilitate the long-term success of the RCEA Network by recognizing that the partnership will require Site Host to:

- Allow public access to the charging station 24 hours per day 7 days per week,
- Make a commitment to host publicly accessible electric vehicle charging infrastructure at the Location for a period of at least five years.

Site Host also acknowledges this letter as a show of commitment to any grant funding entity that the Redwood Coast Energy Authority pursues in search of funding for the installation and/or operation of electric vehicle charging stations.

Sincerely,

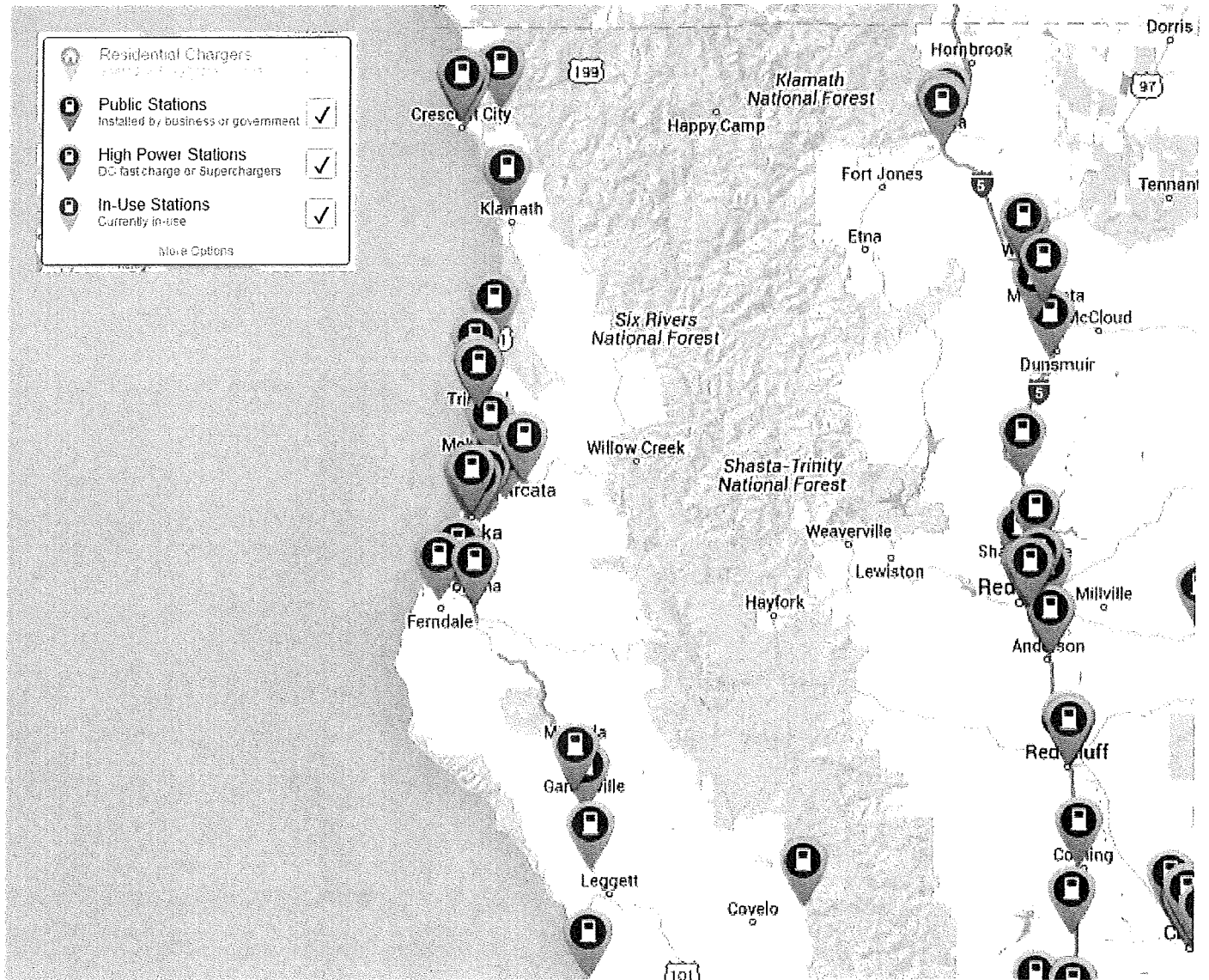
Signature

Name

Title:

Date:

Public Electric Vehicle Charging Stations California's North Coast



Map from www.plugshare.com
Charging stations shown are current as of February 2016

North Coast Plug-In Electric Vehicle Charging Network



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Accessible Electric Vehicle Charging Stations

This guide applies to Electric Vehicle Charging Stations (EVCS) that will be installed in existing parking lots.



Photo by the Town of Danville, California

EV drivers with disabilities need to have access to EVCS, but the best way to ensure this access is still evolving. Changes to the 2016 edition of the California Building Code include requirements for accessible EVCS.¹

As of January 2017, the requirements described in this fact sheet will represent California Building Code requirements regarding the installation of electric vehicle charging stations.

Design

If the EVCS will be available for use by the public, the first station needs to be accessible by EV drivers with disabilities. Code will require the first EVCS to be installed at a “van accessible” space. While this first space is designed to be van accessible, it is available for use by all EV drivers and not placarded for exclusive use by disabled EV drivers.²

Installation of an EVCS at an existing ADA parking space will not satisfy this requirement.³

- Van accessible requirements as shown in Figure 1:
 - 216 inches long
 - 144 inches wide
 - Adjacent to an access aisle on the passenger’s side.
 - The access aisle is at least 60 inches wide.
- The access aisle for the EVCS space can be shared with another accessible parking space.
- Access aisles need to be on the same level as the parking space and have no more than a 1:48 slope.
- An accessible route needs to be provided between the parking space and the EVCS.⁵

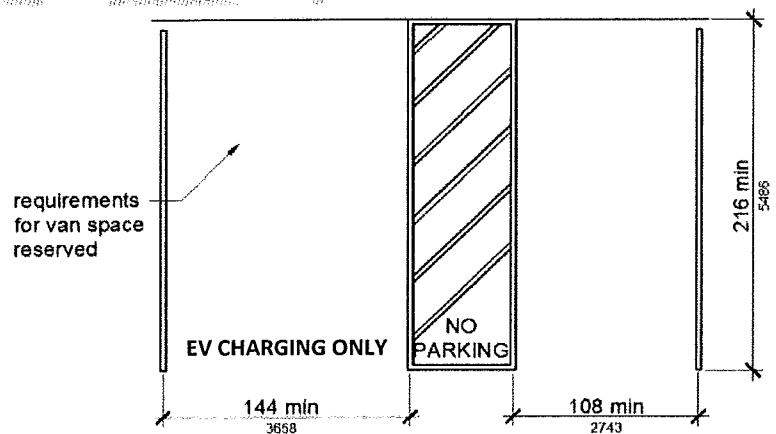


Figure 1, On-site EVCS Spaces Dimensions.⁴

¹ See the 2016 CBC proposed changes at: www.documents.dgs.ca.gov/dsa/access/2016-Pt2_Final-Express-Terms_12-22-15.pdf

² When less than five EVCS are installed. When five or more are installed, the van accessible space becomes ADA exclusive. 11B-812.8.2 pg. 76 of the proposed changes to the 2016 CBC, found here: www.documents.dgs.ca.gov/dsa/access/2016-Pt2_Final-Express-Terms_12-22-15.pdf

³ This is DSA’s interpretation of the proposed code as provided by Dennis Corelis, Deputy State Architect: California Department of General Services, Division of the State Architect. Personal email communication, February 4th, 2016.

⁴ PEVs: Universal Charging Access, Pg 9. www.opr.ca.gov/docs/PEV_Access_Guidelines.pdf

EVCS Thresholds

Total Number of EVCS at the Facility	Van Accessible: 144 inches wide	Standard Accessible: 108 inches wide
1 to 4	1	0
5 to 25	1	1

Table 1, EVCS Thresholds⁶

Accessibility requirements vary based on the number of EVCS installed.

The code considers the number of EVCS equivalent to the number of EVs that can charge simultaneously.

As shown in Table 1, if four or fewer stations will be installed, one needs to be van accessible. If between five and 25 stations will be installed, one station needs to be van accessible and one needs to be standard accessible.

Configuration

Installing one accessible EVCS (with two charging heads) will require reconfiguration of three standard parking spaces. The following examples show how to maximize space while accommodating an accessible EVCS.

- In Figure 2, two EVs can be charged simultaneously.
- The first space needs to be van accessible, while the second has no accessibility requirements.
- The access aisle for the van accessible EVCS space can be shared with a standard accessible space.

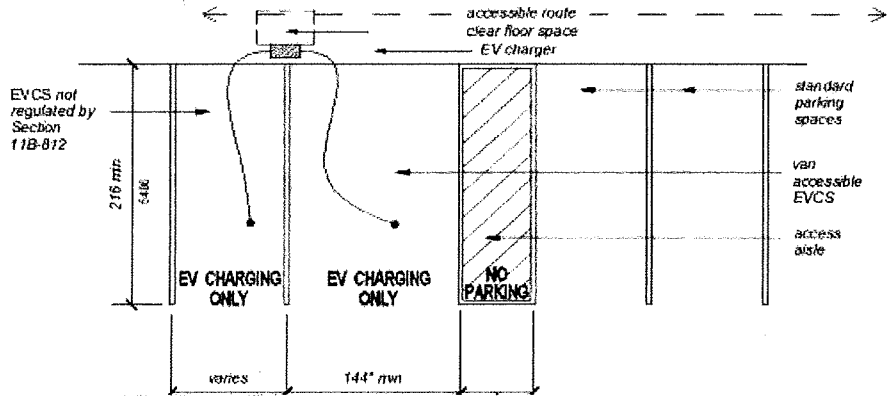


Figure 2, Configuration with two EVCS⁷

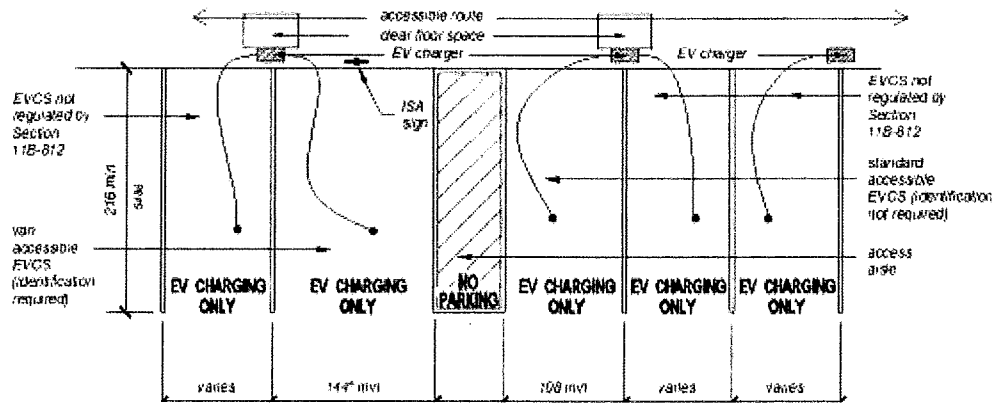


Figure 3, Configuration with five EVCS⁸

- In Figure 3, five EVs can be charged simultaneously.
- One space needs to be van accessible and one needs to be standard accessible.
- The van accessible space is now reserved for **exclusive use** by EV drivers with disabilities.

⁵ For full specifications, see pg. 13 of ADA-TA, www.ada.gov/adata1.pdf

⁶ TABLE 11B-228.3.2.1 Electric Vehicle Charging Stations for Public and Common Use, Pg. 81, www.documents.dgs.ca.gov/dsa/access/2016-Pt2_Final-Express-Terms_12-22-15.pdf

⁷ Access California, presentation by Dennis Corelis, DSA. Slide 18. www.pevcollaborative.org/webinars

⁸ Access California, presentation by Dennis Corelis, DSA. Slide 21. www.pevcollaborative.org/webinars

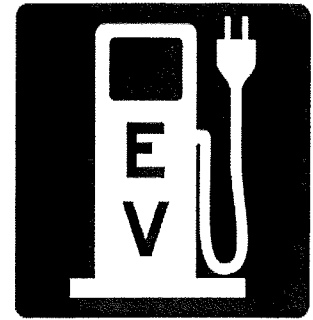
Signage

Two signs need to be displayed at the accessible space:

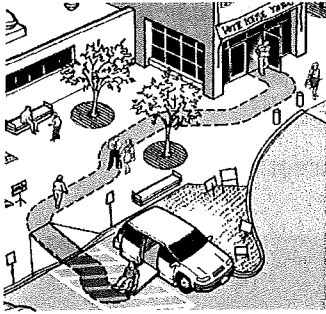
- A standard EV charging sign
- A sign stating the space is “Van Accessible”
- **Even though the first space is designed for disabled access, it is available for use by the general public when less than five stations are installed.**⁹



MUTCD # D9-6p



MUTCD # D9-11b



Accessible route illustration¹¹

Location

Like regular accessible spaces, accessible EVCS spaces need to be as close as possible to the facility and on an accessible route. However, due to the availability of electricity or terrain considerations, they may be located further away.

An accessible path of travel is defined as a “continuous, unobstructed way of pedestrian passage”¹⁰ from the EVCS to the facility.

Primary Function

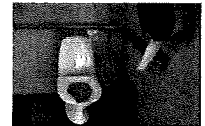
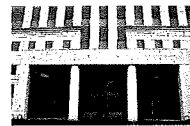
Beyond accessibility to the EVCS, requirements for additional accessibility upgrades differ based on the facility’s “primary function”. The primary function is a major activity for which the facility is intended.

If the facility’s primary function is not vehicle fueling, recharging, parking or storage and the installation does not affect access to the facility, no other ADA upgrades are required.¹²

If the facility’s primary function is vehicle fueling, recharging, parking or storage:

Path of travel upgrades are required when installing an EVCS. Path of travel elements include services offered by the facility to the public. If not already in compliance, these elements need to be upgraded¹³:

- The facility’s primary entrance
- The route to the EVCS
- Toilet and bathing facilities
- Drinking fountains
- Public telephones
- Signage



Freeimages.com

⁹ 11B-812.8.2 Where five to twenty-five total EVCS are provided, one van accessible EVCS shall be identified by an ISA. pg. 76 www.documents.dgs.ca.gov/dsa/access/2016-Pt2_Final-Express-Terms_12-22-15.pdf

¹⁰ See 49 CFR § 37.43 (2013)

¹¹ See ADA Checklist for Polling Places. www.ada.gov/votingck.htm

¹² Federal 2010 ADA standards require “path of travel” upgrades for alterations, but make an exception for projects that do not affect the usability or accessibility of the facility. See chapter 11B-202.4 of the California Building Code.

¹³ See Item 11B.51.03, pg. 79 www.documents.dgs.ca.gov/dsa/access/2016-Pt2_Final-Express-Terms_12-22-15.pdf



For facilities with pull-through fueling, an accessible route must be provided to all path of travel elements present at the location. If none of these elements are present, an accessible route should be provided to a pedestrian walkway if some of these elements can be found nearby (i.e. a coffee shop located a few blocks away).¹⁴

To reduce the financial burden on site hosts, the code will limit the cost of accessibility upgrades to 20% of the total project cost. For example:

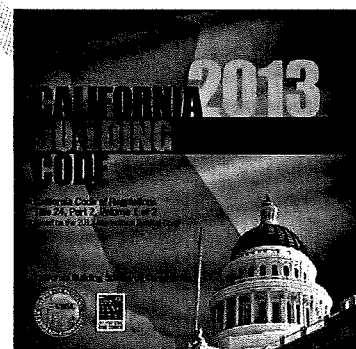
Project Cost	Maximum Cost of Upgrades
\$10,000	\$2,000
\$1,000,000	\$200,000

* If all of the path of travel elements cannot be upgraded within the 20% budget, the preceding list is in order of priority.

Safe Harbor

To reduce the burden of upgrading path of travel elements, the code will use a “Safe Harbor” exception.

- If any path of travel elements were in compliance with the immediately preceding edition of the California Building Code, they do not need to be upgraded.¹⁵
- For example, if the bathroom facilities are in compliance with the 2013 California Building Code, and an EVCS is installed, no upgrades are required.
- They also address a grievance process for “unreasonable hardship”.
 - If the cost of compliance makes the project unfeasible, you can appeal to the enforcing agency.
 - Determinations are made on a case-by-case basis.¹⁶



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For general information about electric vehicle charging in the North Coast region, please contact:



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(707) 269-1700
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For more information about accessible EVCS, please consult:

The Proposed Changes to the 2016 California Building Code, Title 24, Part 2.

http://www.documents.dgs.ca.gov/dsa/access/2016-Pt2_Final-Express-Terms_12-22-15.pdf

A presentation by the Division of the State Architect on the proposed changes:

http://www.pevcollaborative.org/sites/all/themes/pev/files/DSA_EVCS%20Webinar%2009%20Sep%202015.pdf

¹⁴In response to a proposed unmanned fueling station scenario, explained by Dennis Corelis, Deputy State Architect: California Department of General Services, Division of the State Architect. Personal email communication, January 22nd, 2016.

¹⁵ For more information on the safe harbor exception, see section (b)(4)(ii)(c) of 28 CFR 35.151 found in the 2010 ADA Standards for Accessible Design: www.ada.gov/regs2010/2010ADASTandards/2010ADASTandards.htm

¹⁶ For more information on unreasonable hardship, see pg. 27 of the proposed changes to the 2016 CBC, found here: www.documents.dgs.ca.gov/dsa/access/2016-Pt2_Final-Express-Terms_12-22-15.pdf



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