
A Survey of Bay Area Permitting Procedures for Electric Vehicle Charging Infrastructure

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Authors' Note: This report provides a snapshot of Bay Area permitting procedures for EV charging infrastructure, from the perspective of the average consumer, as of February 2010. We expect that permitting procedures documented within the report will develop and change over time. Our goal is for this report to spur cities and counties to develop user-friendly, streamlined permitting procedures for EV infrastructure that will support widespread adoption of plug-in electric vehicles.

I. EXECUTIVE SUMMARY

The Bay Area is well placed to lead the nation as a model for vehicle electrification. One potential barrier to widespread regional adoption of plug-in electric vehicles (EVs), however, is the sometimes unclear, complicated, and non-uniform set of charging infrastructure permitting requirements. Streamlining and simplifying the permitting process for EV charger installations is an important first step in preparing the Bay Area for widespread adoption of plug-in vehicles.

As a starting point in addressing this issue, Friends of the Earth (FoE) has gathered information about local permitting requirements for EV chargers across all nine Bay Area counties and five select cities with pre-existing EV infrastructure. We surveyed each of these entities regarding existing permit requirements -- the who, what, when, and where -- for charging infrastructure at residential, commercial, and municipal sites.

Information gathered from these sources has been compiled in this report, providing a comparative analysis of the local EV charger permitting processes currently in place in the Bay Area. The report highlights the most effective permitting procedures encountered across the region, as well as instances in which permitting procedures for electric vehicle chargers are undeveloped, unknown, or unduly difficult. Based on the data gathered, the report includes a series of recommendations on developing streamlined permitting procedures for the installation of plug-in electric vehicle chargers. A chart at the end of this report is available summarizing all findings.

Overview of Findings: On average, it took at least three calls and/or emails to each city and county to obtain information on the permitting process for installation of EV chargers. In many cases, because the technology is so new, even officials considered to be knowledgeable on the issue were not entirely sure of the permitting procedures within their own city or county and were able to give only “best guess” answers, with information varying from person to person within the same municipality or department. For that reason, the information presented here may not always be reflective of actual city or county policy.

Despite not always having full knowledge of the permitting process for EV chargers, staff at the cities and counties contacted were nearly universally courteous, responsive, interested, and eager to help promote adoption of green technologies. In almost all cases, city and county staff returned our calls and emails.

II. SURVEY METHODOLOGY AND PROCESS

For six weeks during October and November of 2009, a FoE project consultant contacted the nine Bay Area counties of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma, and five cities with pre-existing EV infrastructure including Campbell, Pleasant Hill, San Jose, Santa Rosa, and Walnut Creek. Surveys were carried out through phone calls, emails, and review of government websites; no walk-ins were conducted. When interacting with government officials, the FoE consultant introduced herself and explained

the purpose of the survey but otherwise attempted to gather information from the perspective of the average person unfamiliar with EV technical issues and terminology, and unaware of what type of permit would be required, or of permitting processes generally. In addition to identifying and speaking with appropriate government officials at relevant city and county agencies, FoE also contacted commercial entities and private individuals who have installed EV charging infrastructure to assess their first-hand experience in navigating local agency permitting requirements. Finally, for comparison, FoE briefly reviewed some examples of electric vehicle charger permit policies adopted by other cities in the U.S. and Canada.

- The FoE consultant reviewed the 14 city and county websites government websites for information about electric vehicle permitting and to determine which department would most likely issue such permits. Contacts for each city and county are listed in Attachment A of the index.
- The FoE consultant conducted outreach through calls and emails to government officials at the nine Bay Area counties and five cities. Questions asked of officials can be found in Attachment B.
- Notes of each call were taken and data was compiled based on the information obtained.

III. RECOMMENDATIONS

Below are FoE's key recommendations based on conversations with government officials from the 14 identified cities and counties, electric vehicle owners, analysts, and industry representatives.

A. ADOPT SPECIFIC PERMITTING POLICY FOR EV CHARGERS AND TRAIN STAFF

With plug-in vehicle models scheduled for release beginning in late 2010, cities and counties that have not already done so should consider immediately developing clearly defined permitting procedures for electrical vehicle charger installations. Developing clear policies and procedures could be as simple as deciding that EV charger permits will be treated as basic electrical permits under current permitting requirements, or it could involve developing a unique permitting process specific to EV chargers. Whatever the form, such a policy must be clearly defined and notice of its existence should be widely disseminated among relevant departments.

Once permitting procedures are adopted, cities and counties should consider designating one or more staff person(s) or department(s) as primary contacts for handling EV-related calls from the public. These staff should know what the government's EV charger policy is and should be able to discuss, in detail, the requirements of the permitting process for EV charger installations. All government staff should know that these are the contacts to whom they should refer EV-related public inquiries.

B. ENSURE PUBLIC ACCESS TO COMPREHENSIVE EV-RELATED INFORMATION

1. POST EV CHARGER SPECIFIC WEBSITE PAGES

Cities and counties should strongly consider posting on their websites the specific steps necessary to obtain a permit for electric vehicle charger installations (both residential and commercial). Ideally, website visitors would be able to access this information easily through the city or county's internal search engine. Search terms such as "electric vehicle," "plug-in," "plug-in vehicle," "plug-in hybrid electric vehicle," and "EV charger(s)" would take the visitor to a list of links, the first of which could be a link to that city or county's relevant pages for potential EV owners. Alternatively, the first link could take the visitor to a more generic, shared EV charger-related website designed by Bay Area cities and counties with input from plug-in electric vehicle manufacturers and dealers, utilities, and other interested parties. Regardless of whether cities or counties develop their own unique website pages or whether they work together to develop a shared site, the information provided should include relevant permit forms; a guide, or instructions for obtaining necessary permits for charger installations; and other pertinent information, such as city or county codes applicable to owning and operating plug-in or electric vehicles. If appropriate pursuant to municipal policies, cities and counties should also consider posting a list of local EVSE installers to assist EV owners in locating reputable EVSE installation companies. Alternatively, they could link to an outside, Bay Area-wide list developed in coordination with other municipalities or by an independent party.

2. DEVELOP COMPREHENSIVE EV CHARGER GUIDE

In regards to the guide for EV charger installations suggested above, the Bay Area Climate Collaborative's Electric Vehicle Working Group should consider developing a sample EV charger installation guide that each of the participating cities and counties could adapt to reflect their own regulations. To date, no county or city studied has such a guide or manual that potential EV owners can use to learn about the permitting, inspection, and installation process for EV chargers. San Mateo, however, has published a series of permitting guides on other subjects for consumer use, which can serve as models for developing an EV charger guide for residents.¹ FoE has additionally drafted a sample guide that can be found as Attachment E.

As a form of consumer service and protection, cities and counties should ensure that the guide is comprehensive and describes *all* the steps homeowners, their contractors, and/or Original Equipment Manufacturers (OEMs) must take in the EV charger installation process, including those that do not involve government interaction. Approximate expense ranges could accompany those steps that involve costs or fees, assisting consumers in understanding the financial commitments associated with these vehicles, as well as helping consumers to avoid vendor price gouging, a situation encountered by at least one individual EV purchaser interviewed by the FoE consultant. Listing all necessary steps and approximate expenses will

¹ For more information, please see San Mateo's website at: <http://www.co.sanmateo.ca.us/portal/site/planning/menuitem.518b61a0b23c8f5565d293e5d17332a0/?vgnextoid=f15025fc98603210VgnVCM1000001937230aRCRD>. San Mateo has the most diversity of on-line guides, but Walnut Creek and San Francisco each offer similar guides or write-ups that include instructions pertinent to specific permits.

ensure that homeowners can more accurately anticipate their true total expenses. Ideally, for example, such a guide would resolve a common concern expressed by government officials that many homeowners do not know they should have an electrician conduct a house inspection to verify the home has sufficient electrical load capacity *prior* to vehicle purchase.²

In addition to providing consumer protection, such a guide would also be useful in alerting customers to some of the advantages of owning electric vehicles. For example, many potential EV owners may not be aware that they can take advantage of lower electric vehicle rates by installing a second meter panel or a dual meter adapter. Such a guide could inform potential EV owners of this benefit and alert them to the steps they would need to take (contacting the utility company to determine rate options, an electrician for an installation cost estimate, and local government agencies to ensure that second meters or dual meter adapters are allowed).

C. STREAMLINE PERMIT ACCESS

To create consistency across the Bay Area, cities and counties could consider working together on a uniform EV permitting policy and set of procedures to be adopted on a region-wide basis. Alternatively, governments could look to each other for best practice policies and procedures that can be shared amongst each other and adapted to suit local needs. In this respect, Sonoma County may serve as a good example. Sonoma county officials are already in the process of developing one streamlined EV permitting, inspection, and installation model that county officials are planning to ask cities within the county to adopt. Regardless of whether cities and counties are able to work together on a regional model or whether best practices are shared across the region, following is a number of recommendations as to how EV permitting processes can be streamlined.

1. REDUCE THE NUMBER OF GOVERNMENT OFFICE VISITS

To reduce the number of time-consuming visits to government offices, cities and counties should consider allowing homeowners and licensed contractors to submit EV charger permit applications on-line. To date, only San Francisco has confirmed that it allows licensed contractors to submit EV charger permit applications in this fashion. San Jose allows homeowners, as well as licensed contractors, to submit electrical permit applications on-line, but it is unclear whether San Jose's on-line permitting process currently encompasses EV charger applications. Broadening such on-line accessibility to the public seems warranted.

2. REDUCE THE NUMBER OF HOME VISITS

a. Allow Self-Certification for Simple Installations

To speed simple installations that do not require an electrical system upgrade, cities and counties should consider adopting a process whereby registered, licensed electricians can self-certify that

² To understand the total costs, as well as benefits, of acquiring an electric vehicle, this inspection is important for potential EV owners; if an inspection reveals that an electrical upgrade is necessary, the additional money and time required can be significant costs that may otherwise not have been anticipated by the homeowner.

they have installed equipment according to code. According to a Senior Policy Advisor with New York City's Office of Long-Term Planning and Sustainability, New York is already utilizing a similar self-certification process, and British Columbia, Canada, is in the midst of discussions to determine whether they should adopt a self-certification model as well.

b. Condense Compliance Review Inspections for More Complicated Installations³

Since multiple home inspections can cause time lags in the installation process, cities and counties that require interim inspections of upgraded electrical equipment should consider terminating this practice in favor of holding one final inspection that includes compliance review of the electrical upgrade as well as the charger installation. Currently, home site visits can include an electrician's initial on-site assessment of a home's capacity load, the electrician's upgrade of electrical systems, the government's inspection of the equipment upgrade, the electrician's installation of charger infrastructure, and the government's final inspection of the charger installation. Having recognized the time delays involved in such visits, officials in New York are currently addressing the problem by revising city code to allow for just one government inspection at the end of project installation.

3. ESTABLISH SET FEES FOR SIMPLE INSTALLATIONS

Because of the lack of transparency involved in variable fees for permits, (i.e. permit fees based on a percentage of the overall cost of the project), and the additional computational steps required for applicants to have an accurate sense of project costs, cities and counties should consider adopting flat fees.

4. PROCESS EV CHARGER PERMITS ON A PRIORITY BASIS

To promote public adoption of green technologies, municipalities should consider processing EV charger permit applications on a priority basis. San Francisco already allows for prioritization of some permits, but requires permit applicants to trigger the expedited process by requesting prioritization; ideally, prioritization of permit processing for EV chargers would be automatic.

5. DISCONTINUE PLAN REQUIREMENTS FOR SIMPLE INSTALLATIONS

Cities and counties that currently require plans for simple residential electric vehicle charger installations should consider abandoning this policy as it complicates and slows the permitting

³ Cities and counties do not typically define "complex" or "major" projects, but such complex or major projects often include panel upgrades and/or plans or do not fall within the classification of "simple" or "minor" projects. Examples of projects often listed as "complex" or "major" include commercial construction/remodel/alteration, structure demolition, unreinforced masonry structures, any work on or within manufactured homes, work which will disturb asbestos, new electrical meter/service, and installation or replacement of interior wall coverings. Projects considered "simple" or "minor" are substantially similar across cities and counties and usually do not require a panel upgrade nor plans; alternatively, they may require plans but are nevertheless relatively uncomplicated projects. Examples of "simple" or "minor" projects include: fences, retaining walls, temporary construction offices and storage sheds, decks, glass / electrical appliance replacement, plumbing repairs, and fixtures replacement.

process. At least two counties – Contra Costa and Santa Clara – do not currently require plans for residential permits, and Alameda County appears to require plans only for more complicated projects.

6. ESTABLISH 24-HOUR INSPECTION REQUEST SYSTEMS

Cities and counties should consider establishing on-line or 24-hour voicemail systems through which EV permit applicants can schedule inspections. Although a number of Bay Area cities and counties already have such systems in place, others offer only restricted daytime hours for scheduling.

D. OTHER POLICIES TO REDUCE THE COSTS OF ELECTRIC CHARGER INSTALLATIONS

1. REQUIRE NEW CONSTRUCTION TO INCLUDE EV CHARGERS, OR AT A MINIMUM, WIRING COMPONENTS FOR LATER EV CHARGER INSTALLATION

Cities and counties should consider requiring that all new residential and commercial properties install EV chargers or at least the conduit, wiring, and components necessary to ensure sufficient electrical capacity and ease of future wiring and installation.

Recognizing the long-term financial and efficiency gains to be won by promoting EV infrastructure through new construction, Vancouver, Canada, now mandates that ten percent of parking spots in new condominium complexes be outfitted with electric vehicle charging stations and that other new residential properties be equipped with a cable raceway from the building's electrical panel to the parking area where an empty outlet box will be supplied. For nearly a decade, Sacramento County has led similar efforts in the United States, requiring that new residential construction include the conduits necessary to run electrical wires for EV chargers.

Of the Bay Area cities and counties surveyed, it appears that only San Mateo County has required that EV chargers be installed to receive planning approval for a new commercial property. However, according to the San Mateo building inspector interviewed for this report, the installation requirement was unique to one particular commercial project and is not a county-wide policy. Currently, none of the Bay Area cities or counties surveyed requires that new residential construction include installation of EV chargers or the wiring components needed for future EV charger installation. Incorporating electric vehicle charger installations into new construction of residential and commercial properties is one method for rapidly expanding the reach of electric vehicles and therefore is another best practice method we recommend for adoption by cities and counties in the Bay Area.

IV. CITY AND COUNTY DATA

For presentation purposes, data gathered from cities and counties about their permitting procedures for EV chargers was split into four main categories:

- Process – although we primarily focus on the processes adopted for acquiring EV charger permits, when possible we also provide post permit acquisition information, such as details regarding final inspections;
- Agencies – we identify the agencies critical to the plan review, permit issuance, and inspection process;
- Fees – we list the fees required for permit issuance (which can include plan review and inspection fees); and
- Time for Permit Issuance – we list the time it generally takes in the city or county surveyed for the issuance of EV charger-related permits. This time estimate does not include final inspections.

A. ALAMEDA COUNTY

At this time, our study indicates that it is difficult for the public to access information about the permitting and inspection process for electric vehicle charger installations in Alameda County. Alameda County has an “Electric Vehicle Projects” page on its website that addresses electric vehicles, yet this page does not provide information on county permit procedures relating to installing electric vehicle charging infrastructure at homes or businesses. Similarly, although the FoE consultant made multiple calls to four county departments, none of the departments were familiar with the county’s permitting and inspection policies for electric vehicle chargers and most referred the caller to other departments. Ultimately, despite a review of the website and six calls to the county, the FoE consultant was able to obtain very little information about the permitting and inspection requirements specific to EV chargers in Alameda. The limited information below was obtained from the county’s website and from speaking with a transportation specialist for Alameda whose name the consultant located via non-public means.

To date, the county does not appear to have adopted a specific permitting procedure for electric vehicle charger installations. Since most cities and counties with permit policies for EV charger installations either apply standard electrical permitting procedures to EV chargers or have adopted a process similar to that in place for electrical permits, it is likely that Alameda will do the same. Therefore, information found on the county’s website about its standard electrical permitting process is outlined below.

According to the website, under very limited circumstances, certain electrical appliance installations do not require permits. Most do, however, in which case applications are submitted over-the-counter. Depending on the complexity of the installation, plans may be required in addition to the permit application. The Building Inspection Division of the Public Works Agency is responsible for reviewing plans and approving electrical permit applications. Permits for “minor”⁴ projects with plans and for projects without plans are generally issued in a few minutes; permit issuance for larger, more complex projects takes several weeks, or even months. The FoE consultant was not able to gather information about the fees incurred in the issuance of electrical permits. Post-installation inspections, even for small projects, are required, and requests can be made over the phone 24 hours a day but must be received before 12 a.m. on the day of the desired inspection.

⁴ According to Alameda’s website, “minor work” consists of projects that do not require plans and may include electrical, plumbing, and mechanical installations, alterations, and repairs.

The FoE consultant was unable to ascertain whether, to date, any resident or business in Alameda has contacted the county seeking a permit for an EV charger installation. According to the transportation specialist with whom we spoke, the county is currently considering proposals for EV charger installations in a number of county locations, which would be accessible to the public.

ALAMEDA	PROCESS	AGENCIES	FEES	TIME FOR PERMIT ISSUANCE
RESIDENTIAL	No specific process for EV chargers but likely to fall within general electrical permitting procedures, which usually require submission of permit application, plan submissions for larger or more complex projects, and post-installation inspection.	Building Inspection Division of Public Works reviews plans, issues electrical permits, and conducts inspections.	Information not provided/readily obtainable.	For projects that do not require plans, and for minor projects with plans, electrical permits are issued over the counter, generally the same day. More complex/larger projects may require several weeks, or even months for permit approval. Inspections often conducted within 24-48 hours of request.
COMMERCIAL	No specific process for EV chargers but likely to fall within general electrical permitting procedures, which usually require submission of permit application, plan submissions for larger or more complex projects, and post-installation	Building Inspection Division of Public Works reviews plans, issues electrical permits, and conducts inspections.	Information not provided/readily obtainable.	For projects that do not require plans, and for minor projects with plans, electrical permits are issued over the counter, generally the same day. More complex/larger projects may require several weeks, or even

ALAMEDA	PROCESS	AGENCIES	FEES	TIME FOR PERMIT ISSUANCE
	inspection.			months for permit approval. Inspections often conducted within 24-48 hours of request.
MUNICIPAL	Self-permitting*: county or private electrician inspects wiring and will verify that charger has SAE International (SAE) & Underwriters Laboratories (UL) certifications.**	Information not provided/readily obtainable.	Information not provided/readily obtainable.	Generally months for new buildings; weeks or occasionally days for existing buildings.

* For this report “self-permitting” of EV charger installations is defined as approving such installations while bypassing a permit process (i.e. the city or county will not seek a formal permit, no fees are paid, nor will a building inspector inspect the site, etc.). Cities and counties that self-permit either hire or use their own qualified electricians to install and verify that EV charger installations are in compliance with applicable codes.

** SAE International, formerly known as the Society of Automotive Engineers, is a standards development organization for the engineering of powered vehicles of all kinds. Underwriters Laboratories is an independent product safety certification organization.

B. CONTRA COSTA COUNTY

Contra Costa County has adopted an explicit policy regarding EV charger permit applications: they are handled as miscellaneous electrical permits and fall under existing regulations. This information is not effectively communicated to the public, however. The county website does not state that to acquire EV charger permits applicants should follow pre-established electrical permitting procedures, nor does it present those existing procedures in an easy to comprehend format. In addition, many Contra Costa officials do not appear to be familiar with the permitting process as it relates to EV chargers and did not know to whom to refer callers despite the fact the county does have staff equipped to handle EV charger inquiries. After four calls to four different departments, the FoE consultant was routed to a staff member from the Building Inspection Department knowledgeable about permitting and inspection procedures for EV chargers. Information below was obtained from that official and from a review of Contra Costa’s website.

Contra Costa County issues all permits for the unincorporated areas of the county as well as for the cities of Lafayette, Moraga, Clayton, and Orinda. The county also issues permits on a case-by-case basis for certain projects within other Contra Costa cities when a city is overwhelmed by permit applications. According to the Contra Costa website, permits can be issued to property owners, licensed contractors, long-term lessees or their certified agents.

The process of acquiring a permit for an electric vehicle charger installation is substantially similar whether the permit is for residential, commercial, or municipal purposes. There are a few significant differences, however, which include the fact that commercial and municipal permits require a plan submission, which is not required for residential permits. In addition, whereas residential permits have a fixed fee of \$80, the fees for commercial and municipal construction are determined based on the scale of the project (i.e. they are variable fees). Finally, whereas residential permits are generally issued over the counter or by fax the same day, it can take weeks or even months for issuance of an electric vehicle charger permit for commercial or municipal purposes. Post-installation inspections are required.

Despite the fact the process for acquiring EV charger permits in Contra Costa County is relatively straightforward, the only permit requests the county has received and issued have been for commercial purposes (for subdivisions and possibly for the new American Automobile Association (AAA) building).

CONTRA COSTA	PROCESS	AGENCIES	FEES	TIME FOR PERMIT ISSUANCE
RESIDENTIAL	Submit electrical permit application. Post-installation inspection required.	Building Department issues permit.	\$80	Issued over the counter or by fax, generally the same day.
COMMERCIAL	Submit electrical permit application. Must also submit a plan including location of charger. Post-installation inspection required.	Building Department issues permit. The County Planning Division or City Planning Division approves plans.	Varies depending on scale of project.	Generally months for new buildings; weeks, or occasionally days, for existing buildings.
MUNICIPAL	Submit electrical permit application. Must also submit a plan including	Building Department issues permit. The County Planning	Depends on whether fees involved. If so, General Services handles permit.	Generally months for new buildings; weeks, or occasionally days, for existing

CONTRA COSTA	PROCESS	AGENCIES	FEEES	TIME FOR PERMIT ISSUANCE
	location of charger. Post-installation inspection required.	Division or City Planning Division approves plans.		buildings.

C. MARIN COUNTY

Marin’s website neither mentions EV charger permitting procedures specifically nor offers information more generally about how to obtain electrical permits. Nevertheless, it was relatively easy to locate government officials in Marin with some knowledge of Marin’s permitting and inspection procedures for EV chargers. After one call and one email, the FoE consultant was able to gather the information below from a staff member in the Building Department and an official specializing in green technologies.

The permitting and inspection process for EV chargers across residential, commercial, and municipal properties is substantially the same. The applicant submits an electrical permit application to the Building Department in person, along with plans. Marin’s website also provides a “construction permit” application for download on-line, but the completed application must still be submitted in person, and it is not clear whether this form can be used for electrical permits. Once a permit application is received, the Building Department reviews the plans and issues the permit, or if necessary, issues the permit after plan approval from another reviewing department such as the Department of Public Works or the Planning Department. An on-site final inspection is required. Fixed fees of at least \$112-\$262 apply to all residential, commercial, and municipal properties, with an additional fixed fee of \$90 for municipal projects. For existing residential and commercial properties, the permitting process generally takes one week but varies for new construction. The permitting process for municipal properties usually takes from six weeks to two months to complete.

MARIN	PROCESS	AGENCIES	FEEES	TIME FOR PERMIT ISSUANCE
RESIDENTIAL	Submit electrical permit application with site plan. Post-installation inspection required.	Building Department reviews plan and issues permit. Department of Public Works also reviews plan if trenching is required. Planning Department reviews	\$112 + \$150-\$200 (for Public Works zoning review of trenching if needed) + additional fee (for Planning Department	For existing projects, approximately one week. For new construction projects, depends on scale/type of

MARIN	PROCESS	AGENCIES	FEES	TIME FOR PERMIT ISSUANCE
		if new construction.	review if needed). No additional inspection fees.	project.
COMMERCIAL	Submit electrical permit application with site plan. Post-installation inspection required.	Building Department reviews plan and issues permit. Department of Public Works also reviews plan: 1) if charger will be located outdoors and the transformer or connector is for public use, 2) if trenching will be required, or 3) if required for ADA compliance. Planning Department reviews if new construction.	\$112 + \$150-\$200 (for Public Works zoning review of trenching if needed) + additional fee (for Planning Department review if needed). No additional inspection fees.	For existing projects, approximately one week. For new construction projects, depends on scale/type of project.
MUNICIPAL	Submit electrical permit application with site plan. Post-installation inspection required.	Building Department reviews plan with Planning Department and issues permit. Department of Public Works also reviews plan: 1) if charger will be located outdoors and the transformer or connector is for public use; 2) if trenching will be required; or 3) if required for ADA compliance. Planning Department reviews if new construction.	\$112 + \$150-\$200 + \$90 (land development fee if project impacts roads, creeks, neighbors, etc.) + additional fee (for Planning Department review if needed). No additional inspection fees.	Likely between 6 weeks to 2 months.

D. NAPA COUNTY

At this time it is somewhat challenging for the public to access information about the permitting and inspection process for electric vehicle charger installations in Napa County. Napa’s website provides a limited breakdown of the county’s general permitting, installation, and inspection procedures, but does not clearly specify the steps electrical permit seekers need to take. In addition to reviewing the website, the FoE consultant made one phone call and sent one email to two different departments. Both departments referred her to the same technician in the Planning Department for information on EV chargers. Information below was obtained from that technician and a review of Napa’s website.

The process for obtaining an EV charger permit is identical to that for any electrical permit. The technician noted that Napa’s permitting process is usually relatively simple and straightforward but ultimately depends on the scope of the project. The Building Inspection Division is responsible for reviewing plans, issuing permits, and conducting inspections. The Planning Division conducts an additional review of the permit application for compliance with the county zoning ordinance. Fees for residential permits for EV charger installations are \$109. Napa has a “quick permit” application process that applies to “solar system” structures and which, given Napa’s interest in promoting green technologies, seems likely to apply to EV charger installations as well. However, even the quick permit process appears to take some time, since applicants are told only to expect “comments” 7-10 business days after submission.

NAPA	PROCESS	AGENCIES	FEES	TIME FOR PERMIT ISSUANCE
RESIDENTIAL	Submit electrical permit application with plans. Process will depend on scope of project, location, and how charger is installed, whether it involves a circuit breaker, and whether it is a listed device. May be eligible for quick permit. Post-install inspection required.	Building Inspection Division reviews plans, issues permits, and conducts inspections. Planning Division reviews permit applications for compliance with county zoning ordinance.	\$109	If eligible for quick permit, then 7-10 days to receive “comments.” Otherwise, information not provided/readily obtainable.

NAPA	PROCESS	AGENCIES	FEES	TIME FOR PERMIT ISSUANCE
COMMERCIAL	Submit electrical permit application with plans. Process will depend on scope of project, location, and how charger is installed, whether it involves a circuit breaker, and whether it is a listed device. May be eligible for quick permit processing. Post-installation inspection required.	Building Inspection Division reviews plans, issues permits, and conducts inspections. Planning Division reviews permit applications for compliance with county zoning ordinance.	Depends on scope of project.	If eligible for quick permit, then 7-10 days to receive “comments.” Otherwise, information not provided/readily obtainable.
MUNICIPAL	Information not provided/readily obtainable.	Information not provided/readily obtainable.	Information not provided/readily obtainable.	Information not provided/readily obtainable.

E. SAN FRANCISCO COUNTY/CITY

At this time, San Francisco’s website addresses many aspects of how the city/county issues permits and conducts inspections generally; it does not, however, include EV charger-specific information. San Francisco’s website does offer “Solar Photovoltaic (PV) System Permit Application” and “Solar Photovoltaic Permit Procedures” forms for download. Although San Francisco does not yet provide information on-line that is specific to EV charger installations, the solar photovoltaic forms offer a useful model to follow in providing EV charger information to the public.

In addition to reviewing the website, the FoE consultant also made four calls to two departments, waiting in one case over an hour to speak with someone before ending the call. She was unable, through these calls, to make contact with an official knowledgeable about the EV charger permitting process. The information below was obtained from the county’s website and with the help of an official from San Francisco’s Department of the Environment, whose contact information the consultant located via non-public means.

In San Francisco, the process for obtaining an EV charger permit is identical to that for any electrical permit. For residential and commercial properties, San Francisco accepts electrical permit applications on-line or over the counter. Homeowners and others with property interests, however, are not allowed to acquire permits on-line; only licensed, registered contractors with valid workman’s compensation are eligible to use the on-line permitting service. To access the service, contractors must obtain a username and password. According to San Francisco’s website, this can take up to one week. Regardless of whether an applicant is a contractor or a homeowner submitting an application in person, Building Inspection issues an electrical permit after fee payment. This fee includes the costs of the first inspection and ranges from approximately \$165 to \$250. If required, additional inspections cost approximately \$175 each. To request an inspection, homeowners or contractors must call during fixed hours or visit the Inspection Services office at least 24 to 48 hours before the preferred inspection date and time. Permit applications for other green technologies, such as solar photovoltaic and wind power, are eligible for prioritized processing if so requested by the permit applicant. It seems reasonable to expect that this policy would be extended to electric vehicle charger installations.

The official contacted noted that on-line, instant permitting has worked well but that the in-person, over-the-counter application process can be time consuming. The official also highlighted the importance of having prospective electric vehicle owners hire licensed contractors to conduct site inspections prior to vehicle purchase to determine whether the home has adequate electrical capacity. While most residences have sufficient capacity, installation costs can be significant for residences that need to upgrade. In San Francisco, if installation involves trenching of 5 or more feet deep, OSHA and excavation building permits are required.

SAN FRANCISCO	PROCESS	AGENCIES	FEES	TIME FOR PERMIT ISSUANCE
RESIDENTIAL	Homeowners and contractors with San Francisco business licenses can submit electrical permit application in person. Only licensed contractors can submit applications on-line.	Building Inspection, Electrical Inspection Division issues permits and conducts inspections.	\$160 + 2% technology fee + \$1 state mandated valuation charge = \$164.20 (if additional inspections are required they are charged at \$173.40 each).	Issued immediately on-line (www.sfdbi.org/) or over the counter.
COMMERCIAL	Homeowners and contractors with San Francisco business licenses can submit	Building Inspection, Electrical Inspection Division issues	Commercial permit is \$240 + 2% technology fee + \$1 state mandated	Issued immediately on-line (www.sfdbi.org/) or over the

SAN FRANCISCO	PROCESS	AGENCIES	FEES	TIME FOR PERMIT ISSUANCE
	electrical permit application in person. Only licensed contractors can submit applications on-line.	permits and conducts inspections.	valuation charge = \$245.80 (if additional inspections are required they are charged at \$173.40 each)	counter.
MUNICIPAL	Information not provided/readily obtainable.	Information not provided/readily obtainable.	Information not provided/readily obtainable.	Information not provided/readily obtainable.

F. SAN MATEO COUNTY

San Mateo has developed user-friendly materials and procedures to assist the public with general permitting and inspection issues. Not only did the FoE consultant find useful information on San Mateo’s website quite easily, but she made only one call before being routed to an official knowledgeable about EV charger installations, making San Mateo one of the easiest counties through which to locate an official knowledgeable about EV chargers. Although San Mateo does not yet have information specific to EV chargers posted on its website, with PDF permitting brochures on its site for everything from dry rot repair permits to sprinkler permits, it is likely that San Mateo will develop a permitting brochure specific to EV chargers. The information below was obtained from the county’s website, with the help of a building inspector.

For residential properties, applicants must submit electrical permit applications along with site plans that detail unit location and specifications. The Planning Department reviews site plans and the department of Building Inspection issues provisional permits. The permitting process for commercial properties is slightly more involved, with additional review and approval required from the Fire Department. Provisional permits for residential properties are usually issued within 24 hours. For commercial properties, it can take from a few weeks to a few months depending on whether the project is for an existing building or instead involves new construction. Fees vary depending on the scale of the project.

The building inspector believes that San Mateo has a good permitting process overall but anticipates further improvement with a shift from project-based to flat fees, which will simplify the process. To date, San Mateo has only received two requests for EV chargers for residential purposes and one request for commercial purposes (a new office development in an unincorporated area) that is still pending. To receive planning approval, the office development had to install electric vehicle chargers. The building inspector believed this requirement to be building-specific and not a countywide policy applicable to all new commercial developments.

SAN MATEO	PROCESS	AGENCIES	FEES	TIME FOR PERMIT ISSUANCE
RESIDENTIAL	Submit electrical permit application along with a plan specifying the location of the charger and the unit's specifications. Charger must not block access to public rights-of-way. If unit is not UL/SAE certified, then County won't issue permit. Post-installation inspection required.	Planning Department reviews plans. Building Inspection issues provisional permit.	Varies depending on total project cost (example: \$300 permit for \$3,000-\$4,000 total project cost).	Within 24 hours, provisional permit is issued.
COMMERCIAL	Submit electrical permit application along with a plan specifying the location of the charger and the unit's specifications. Charger must not block access to public rights-of-way. An additional review and approval from Fire Department required. For new buildings, EV charger permit issued with overall permit for entire	Planning Department and Fire Department review plans. Building Inspection issues provisional permit.	Varies depending on scale of project.	Usually a few months for new buildings; for existing buildings, usually a few weeks.

SAN MATEO	PROCESS	AGENCIES	FEES	TIME FOR PERMIT ISSUANCE
	building. If unit is not UL/SAE certified, then County won't issue permit. Post-installation inspection required.			
MUNICIPAL	Self-permitting.	Information not provided/readily obtainable.	Information not provided/readily obtainable.	Information not provided/readily obtainable.

G. SANTA CLARA COUNTY

It is relatively easy to obtain information about the permitting and inspections process for EV chargers in Santa Clara, although not much information is provided on Santa Clara's website. The website offers an on-line permit application that can be used for acquiring electrical permits in very simple cases, but it is not clear whether most EV chargers would fall into this category. Santa Clara has a designated staff member – a senior building inspector responsible for handling EV charger inquiries – but this fact is not widely known among Santa Clara staff, even within the Building Inspection Department where the staff member works. Nevertheless, it only took the FoE consultant two calls to reach the building inspector. The information below was obtained from the inspector and Santa Clara's website.

Santa Clara County is still in the process of developing permitting and inspections procedures for EV chargers. For both residential and commercial properties, however, applicants must submit permit applications, with the additional requirement of site plans for commercial buildings. Residential and commercial permits can be issued over-the-counter although it is more common for commercial permit approval to take a week, depending on the type of project. After installation, a field inspector conducts a final on-site inspection. Permit fees for residential properties are \$75, with commercial fees varying, but only slightly higher. Inspection fees include the costs of inspection and even re-inspection, so long as the applicant has not purposefully ignored code requirements or official instructions. The General Services Agency handles electric vehicle charger installations for municipal properties.

To date, Santa Clara County has received no residential requests and the only commercial requests have been from Stanford University. Santa Clara is working toward installing EV charging stations at a number of county properties.

SANTA CLARA	PROCESS	AGENCIES	FEES	TIME FOR PERMIT ISSUANCE
RESIDENTIAL	Submit permit application. Post-installation inspection required.	One Building Inspection Department official is designated to issue permits.	\$75 (includes inspection costs).	Likely over the counter.
COMMERCIAL	Submit permit application, along with plans. Post-installation inspection required.	One Building Inspection Department official is designated to issue permits.	Minimal – to highlight the fact that the fee is minimal, no matter what the size of the project, the official offered 2 examples for recently issued permits: 1) \$75 for one 120-volt installation; 2) \$94 for an EV charger project involving eight 220-volt chargers (includes inspection costs).	No clear guidelines yet, but the two recent examples cited by the official each took about one week (including the extra time it took for applications to reach the correct staff member); sometimes commercial permits are issued over the counter.
MUNICIPAL	The General Services Agency handles charger installations. It is unlikely the agency follows a formal permitting process for electric vehicle charger installations.	The General Services Agency handles charger installations.	Information not provided/readily obtainable.	Information not provided/readily obtainable.

H. SOLANO COUNTY

It is relatively easy to obtain information about the permitting and inspections process for EV chargers in Solano County by speaking with officials. The website, on the other hand, does not mention EV charger permitting procedures specifically, nor does it clearly distinguish between requirements for full building permits and for electrical permits (under which EV chargers fall). Despite some lack of clarity on the website, after only two calls to two departments, the FoE consultant was able to reach a building official who was able to provide information about the EV charger permitting and inspections process. The information below was obtained from that building official as well as Solano County’s website.

Solano County hasn’t received any residential or commercial requests for EV charger permits, but the process would be identical to that for any electrical permit. Residential and commercial applicants submit electrical permit applications; commercial applications must be analyzed with respect to access issues under the Americans with Disabilities Act. Solano allows licensed contractors to submit building permits on-line, but it is unclear whether the on-line form can be used for electrical permits. Plans may or may not be required. For both residential and commercial properties, the Building and Safety Division is responsible for issuing the permit. After installation, a field inspector conducts a final on-site inspection, which can be arranged a day in advance via a 24-hour inspection request line. Since the county has not received any residential or commercial permitting requests to date, the contacted official was only able to say he believes the approval process would be speedy. He anticipates fees for both residential and commercial permits to range between \$100-\$200. A self-permitting process applies to municipal properties. Currently, the government center is the only site within the jurisdiction of Solano County that has EV charger installations.

SOLANO	PROCESS	AGENCIES	FEES	TIME FOR PERMIT ISSUANCE
RESIDENTIAL	Submit electrical permit application. Post-installation inspection required.	Building and Safety Division issues permit.	Expected cost between \$100-\$200.	Possibly on-line to licensed contractors. Otherwise officials suggest it would be a speedy process.
COMMERCIAL	Submit electrical permit app; must comply w/ the Americans with Disabilities Act. Post-install inspection required.	Building and Safety Division issues permit.	Expected cost between \$100-\$200.	Possibly on-line to licensed contractors. Otherwise officials suggest it would be a “speedy” process.

SOLANO	PROCESS	AGENCIES	FEES	TIME FOR PERMIT ISSUANCE
MUNICIPAL	Self-permitting.	Information not provided/readily obtainable.	Information not provided/readily obtainable.	Information not provided/readily obtainable.

I. SONOMA COUNTY

Sonoma County is in the midst of establishing formal procedures for the issuance of electric vehicle charger permits, making it difficult to obtain concrete information about the process. Little information is provided on Sonoma County’s website regarding the permitting and inspections process for electrical permits. Although the website allows permit seekers to apply for certain minor electrical permits on-line, it is not clear whether EV chargers would fall within this category. After one e-mail, the FoE consultant was able to speak with an assistant fleet manager knowledgeable about the county’s efforts to develop an effective permitting process for EV charger installations. The information provided below is based on the assistant fleet manager’s email responses and Sonoma County’s website.

Sonoma County is in the process of developing a streamlined EV permitting, inspection, and installation model for residential and commercial properties that officials will urge cities within the county to adopt. The model will require that cities make only small changes in order to fit within current city codes. The plan is to have a simplified permitting process for home charging stations and public/private charging stations, whereby a contractor can purchase a permit over the counter in one day, install the infrastructure, call for an inspector to review the installation, and have it signed off by the inspector.

In addition, the county is also developing a checklist for contractors and potential EV owners so they can estimate, in advance of vehicle purchase, all installation and construction costs that will be incurred to install the necessary charging infrastructure at the subject home or place of business. The official contacted believes the biggest challenge for EV owners/contractors will be identifying the current voltage/amperage availability and determining what it will take to install wiring from a circuit breaker panel to the car’s charging location.

To date, Sonoma County has seven networked charging stations throughout the county for public use during the day and fleet use overnight.

SONOMA	PROCESS	AGENCIES	FEES	TIME FOR PERMIT ISSUANCE
RESIDENTIAL	Process for residential and commercial	Permit and Resource Management	Information not provided/readily obtainable.	Will be over the counter in one day to licensed

SONOMA	PROCESS	AGENCIES	FEES	TIME FOR PERMIT ISSUANCE
	properties not yet developed but officials anticipate that contractor will be able to obtain approved electrical permit application over the counter in one day. Post-installation inspection will be required.	Department will issue permits.		contractors.
COMMERCIAL	Process for residential & commercial properties not yet developed; officials expect that contractor will be able to obtain approved electrical permit application over the counter in one day. Post-installation inspection will be required.	Permit and Resource Management Department will issue permits.	Information not provided/readily obtainable.	Will be over the counter in one day to licensed contractors.
MUNICIPAL	Information not provided/readily obtainable.	Information not provided/readily obtainable.	Information not provided/readily obtainable.	Information not provided/readily obtainable.

J. CAMPBELL

At this time, it is relatively difficult for the public to access information about the permitting and inspection process for electric vehicle chargers in Campbell. Although the permitting information Campbell provides on its website is presented in a user-friendly manner, the website does not mention EV charger permitting procedures specifically and offers little information more generally about how to obtain electrical permits (i.e. the website doesn't state whether

plans are required, what the timeframe is for approval of permits not submitted on-line, or what permitting fees are). Licensed contractors can apply for certain minor electrical permits on-line, but it is not clear whether EV chargers fall within this category. In addition to the website’s lack of information specific to EV chargers, the FoE consultant had to make three calls and send one e-mail to two different departments before finding staff knowledgeable about the permitting and inspections process for EV chargers. The information below is from a planning department official, a building department official, and the city’s website.

Campbell has adopted procedures for issuing EV charger permits, and the permitting process is substantially similar for residential and commercial properties. For both cases, an applicant must submit an electrical permit application along with a plan that includes device specifications. The Planning and Fire Departments review the plan, and the Building Inspection Division issues the permit. According to the planning department official, over-the-counter permits are not issued; it generally takes a few days to approve residential permits and approximately one week for commercial permits. However, according to Campbell’s website, as of November 2009, “Over the Counter” permits have recently been made accessible on-line to licensed, registered contractors with workers compensation insurance, including for certain electrical permits, under which electric vehicle chargers would likely fall. There is no on-site inspection requirement, and the fees for both residential and commercial EV charger permits range from \$120 to \$300. Campbell self permits for municipal properties.

No one, either for residential or for commercial purposes, has requested a permit for EV chargers, although city officials have indicated that they are eager to approve such requests once they receive applications. In contrast, the city has received one request for a compressed natural gas (CNG) unit.

CAMPBELL	PROCESS	AGENCIES	FEES	TIME FOR PERMIT ISSUANCE
RESIDENTIAL	Submit electrical permit application along with plan and device specifications (UL listing, etc.). No on-site inspection.	Planning Department, (for location, setbacks, etc.), and Fire Department review plan. Building Inspection Division issues permit.	Between \$120-\$300.	No over the counter permit issuance. Permit processing takes a few days.
COMMERCIAL	Submit electrical permit application along with plan and device specifications	Planning Department, (for location, setbacks, etc.), and Fire Department	Between \$120-\$300.	Approximately one week.

CAMPBELL	PROCESS	AGENCIES	FEEES	TIME FOR PERMIT ISSUANCE
	(UL listing, etc.). No on-site inspection.	review plan. Building Inspection Division issues permit.		
MUNICIPAL	Information not provided/readily obtainable.	Information not provided/readily obtainable.	Information not provided/readily obtainable.	Information not provided/readily obtainable.

K. PLEASANT HILL

It is relatively easy to obtain information about the permitting and inspections process for EV chargers in Pleasant Hill, although not much relevant information is provided on the county’s website. After only two calls, however, the FoE consultant was able to reach an official knowledgeable about the permitting and inspections process for EV chargers. The information below was provided by that official.

In Pleasant Hill, the process of obtaining an EV charger permit for a residential property is similar to that required for obtaining an electrical permit for installation of a dryer or water heater. For commercial properties, the process may be more complicated. Residential and commercial applicants submit electrical permit applications to the Building Department, at a cost of between \$65-\$100, which includes the cost of inspection. To schedule an on-site inspection, applicants must call the Building Division by 5:00 pm at least one day in advance. According to Pleasant Hill’s website, licensed, registered contractors can now apply on-line for those electrical permits that do not require plan review, but it is not clear whether EV chargers fall within this category. There is no electrical permitting process for municipal properties.

In December, the county installed three electrical vehicle installations for government and public access in Pleasant Hill.

PLEASANT HILL	PROCESS	AGENCIES	FEEES	TIME FOR PERMIT ISSUANCE
RESIDENTIAL	Submit electrical permit application as would for water heater. May require submission of plan. Final on-	Building Division issues permits and conducts inspections.	\$65-\$100	Possibly issued on-line to licensed contractors. Otherwise, information not provided/readily obtainable.

PLEASANT HILL	PROCESS	AGENCIES	FEES	TIME FOR PERMIT ISSUANCE
	site inspection.			
COMMERCIAL	Submit electrical permit application as would for water heater. May be more complicated than residential. May require submission of plan. Final on-site inspection required.	Building Division issues permits and conducts inspections.	\$65-\$100	Possibly issued on-line to licensed contractors. Otherwise, information not provided/readily obtainable.
MUNICIPAL	No electrical permit required.	Information not provided/readily obtainable.	No fees.	Information not provided/readily obtainable.

L. SAN JOSE

Accessing information about the EV charger permitting and inspection process is difficult in San Jose. Although the FoE consultant made four calls and sent two emails to four different departments, none of the contacts were familiar with the county's permitting and inspection policies for electric vehicle chargers and most referred the caller to other departments. The FoE consultant's last call and emails to different officials were never returned. The consultant was ultimately unable to make contact with an official knowledgeable about San Jose's EV charger permitting process.

San Jose's website does not mention EV charger permitting procedures specifically, so the consultant was unable to determine whether or not San Jose has an explicit permitting policy for EV charger installations. However, since most cities and counties either apply standard electrical permitting procedures to EV chargers or have adopted a process similar to that in place for electrical permits, it seems likely that San Jose would do the same.

San Jose's website provides comprehensive information on general electrical permitting processes. The FoE consultant found that San Jose's website is so detailed, however, that it can be difficult to locate all relevant information. In addition, some of the information on permitting procedures is slightly inconsistent across pages, making it somewhat difficult to determine the exact process. Nevertheless, the FoE consultant was able to gain a solid overall sense of the permitting process in San Jose from the city's website.

The Building Division is responsible for issuing electrical permits and for reviewing single-family residential development for zoning compliance. Currently, electrical permits can be obtained by one of three methods. First, permits can be obtained in person at the Building Division Permit Center. If plans are not required, no appointment is needed and permits may be issued over the counter. An appointment is required for those projects that require plan submittal. San Jose offers an “Express Plan Check” process for projects with plans that can be reviewed, approved, and processed in one hour or less, but EV charger installations may not qualify for such review, because “alternative energy installations,” such as photovoltaics and fuel cells do not. A slightly slower approval process for permit submissions accompanied by plans is an “Intermediate Plan Check,” which applies to “qualified” residential projects with a maximum turn-around time of three days. It is unclear whether EV chargers qualify for this procedure. Alternatively, homeowners, state-licensed contractors, and their agents who have completed the on-line registration process with the City (“registered applicants”) can obtain electrical permits on-line for residential projects of four or fewer units that do not require plan review or other departmental approval. Registered, state-licensed contractors can also obtain electrical permits on-line for commercial and industrial purposes if they do not require building plan review or other departmental approval. Finally, permits for projects eligible for on-line permitting can also be obtained through the mail.

At this time, applicants cannot submit permit applications by fax. The city is in the process of developing an on-line function that will permit registered applicants to obtain permits on-line even for projects that require staff review and/or plan approval.

The fee determination process in San Jose is complicated, so the city offers a fee estimation service for a charge of \$38 for the first 20 minutes or \$114 for an hour of fee estimate processing. From what the FoE consultant could gather from San Jose’s website, an electrical permit for an EV charger installation at a residence would cost, at a minimum, \$206 for the electrical permit itself, \$125 for the permit issuance fee, and additional fees if residential plan review and/or other developmental approval are required.

Inspections can be requested over the phone, via fax, or on-line. Inspections are scheduled for the next available inspection day, which is usually the following workday if requested before 12:00 p.m. but may be several days from the date requested. Applicants submitting an inspection request via fax receive a call within two hours confirming the assigned inspection date and time.

SAN JOSE	PROCESS	AGENCIES	FEES	TIME FOR PERMIT ISSUANCE
RESIDENTIAL	Homeowners, contractors and their agents submit: 1) on-line or through mail for electrical permit applications for	Building Division reviews plans, issues permits, and conducts inspections.	At least \$206 for electrical permit + at least \$125 for permit issuance + potential other fees (for plan review and/or	For applications without plans, permit may be issued immediately on-line, over the counter, or through the mail.

	residences of four or fewer units without plans, 2) over the counter for immediate approval for electrical permit applications without plans, or 3) in-person at an appointment for electrical permit applications with plans. Post-installation inspection required.		other developmental approval).	For applications requiring plan review, appears would take more than three days for issuance.
COMMERCIAL	Homeowners / contractors submit: 1) on-line or through mail for electrical permit applications for residences of four or fewer units without plans, 2) over the counter for immediate approval for electrical permit applications without plans, or 3) in-person at appointment for electrical permit applications with plans. Post-install inspection required.	Building Division reviews plans, issues permits, and conducts inspections.	Information not provided/readily obtainable.	For applications without plans, permit may be issued immediately on-line, over the counter, or through the mail. For applications requiring plan review, appears would take more than three days for issuance.
MUNICIPAL	Information not provided/readily obtainable.	Information not provided/readily obtainable.	Information not provided/readily obtainable.	Information not provided/readily obtainable.

M. SANTA ROSA

At this time it is difficult for the public to access information about the permitting and inspection process for electric vehicle charger installations in Santa Rosa. Santa Rosa's website neither mentions EV charger permitting procedures nor offers information more generally about how to obtain electrical permits. The FoE consultant made three calls to three different departments before locating an environmental consultant with whom she spoke about the permitting and inspections process in Santa Rosa. Although this official was courteous, the information provided was relatively general in nature and inconsistent with findings from the other cities and counties surveyed.⁵ The information below was gathered from the county's website and from the consultant.

According to Santa Rosa's website, applicants can apply on-line for electrical permits that do not require plan review, but it is not clear whether EV chargers fall within this category. To schedule on-site inspections, applicants must call the Building Division, Inspection Section, or register on-line by 11:59 p.m. the night before the desired inspection date. Inspection requests can also be submitted via fax.

At the municipal level, Santa Rosa is currently working on the installation of approximately 8 EV chargers.

SANTA ROSA	PROCESS	AGENCIES	FEES	TIME FOR PERMIT ISSUANCE
RESIDENTIAL	Submit permit application. May require plans.	Department of Community Development would issue permit. Building Division, Inspection Section conducts on site final inspection.	Depends on scale of project.	Information not provided/readily obtainable.
COMMERCIAL	Submit permit application. May require plans.	Department of Community Development	Depends on scale of project.	Information not provided/readily obtainable.

⁵ According to the climate control consultant, following the language of the city ordinance related to gas stations, the permitting process for electric vehicle charger installations would fall within the permitting procedures required for gas stations. Therefore, for commercial properties, a full use permit would be required, which would include design review and would cost \$13,000. She noted that the permitting process could change with the adoption of new environmental policies. Since this information appears to be erroneous, we have included information regarding how an electrical permit would be obtained in Santa Rosa.

		would issue permit. Building Division, Inspection Section conducts on site final inspection.		
MUNICIPAL	Information not provided/readily obtainable.	Information not provided/readily obtainable.	Information not provided/readily obtainable.	Information not provided/readily obtainable.

N. WALNUT CREEK

It is somewhat challenging to obtain information about the permitting and inspections process for EV chargers in Walnut Creek. Walnut Creek’s website includes an on-line application form for all permit submittals. The site is not very user friendly, however, and neither mentions EV charger permitting procedures specifically, nor offers very detailed information about the process for obtaining electrical permits. Walnut Creek’s website does provide a series of individual write-ups that detail the submittal requirements for various types of construction, however, and it seems likely that Walnut Creek would add an EV charger write-up in the future. After three calls to three different departments, the FoE consultant was able to speak to a business manager and a permit technician who both had some knowledge of the permitting and inspections process for EV chargers. The information below was gathered from conversations with them and from the city’s website.

According to the permit technician, EV charger permits are likely to fall under the miscellaneous electrical permit category. A permit application form for all submittals is available for download on-line and can be submitted via fax by registered contractors. Permit approval for such applications is usually issued the same or the following day. The Building Department is responsible for issuing permits and for doing plan checks and inspections. For a simple permit, the flat fee is \$67.50, which includes the cost of an inspection. For new commercial buildings, fees start at \$67.50 but are variable based on valuation of the full project. The plan review fee is \$72.50. The same process applies for municipal properties – fees have to be paid, plans must be approved, and a permit must be issued by the Building Department.

Currently, all electric vehicle chargers in Walnut Creek have been installed on city property and are available to the public as well as government officials.

WALNUT CREEK	PROCESS	AGENCIES	FEES	TIME FOR PERMIT ISSUANCE
RESIDENTIAL	No standard permit procedure	Building Department	Permit fee is \$67.50. Plan	Likely to be issued over the

WALNUT CREEK	PROCESS	AGENCIES	FEES	TIME FOR PERMIT ISSUANCE
	in place for EV installations but likely fall within miscellaneous electrical permit category. May require plans. Post-installation inspection required.	reviews plans, issues permits, and conducts inspections.	review fee is \$72.50.	counter or same day via fax.
COMMERCIAL	No standard permit procedure in place for EV installations but likely fall within miscellaneous electrical permit category. May require plans. Post-installation inspection required.	Building Department reviews plans, issues permits, and conducts inspections.	For new commercial building, permit fee is based on valuation of full project but starts at \$67.50. Plan review fee is \$72.50.	Likely to be issued over the counter or same day via fax.
MUNICIPAL	No standard permit procedure in place for EV installations but likely fall within miscellaneous electrical permit category. May require plans. Post-installation inspection required.	Building Department reviews plans, issues permits, and conducts inspections.	For new building, permit fee is based on valuation of full project but starts at \$67.50. Plan review fee is \$72.50.	Likely to be issued over the counter or same day via fax.

V. INDEX

ATTACHMENT A: EV CHARGER PERMITTING CONTACTS

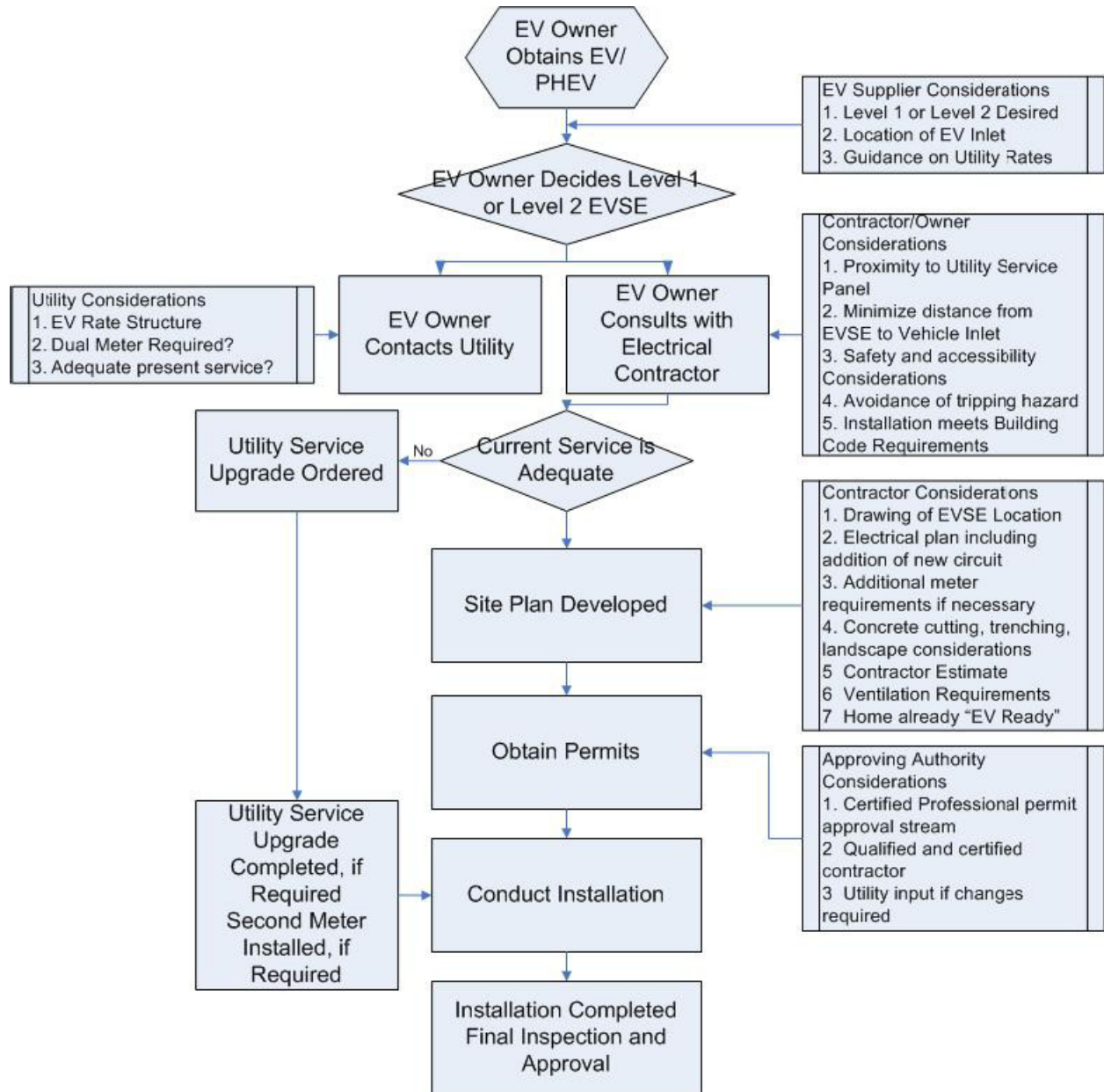
- A. ALAMEDA COUNTY: No contact identified.
- B. CONTRA COSTA COUNTY: Deborah Sandercock, Principal Structural Engineer of Building Inspection (925-335-1136; dsand@bi.cccounty.us)
- C. MARIN COUNTY: Omar Peña, Green Building Program Coordinator (415-507-2797; opena@co.marin.ca.us)
- D. NAPA COUNTY: Chris Riley, Permit Technician of Planning Department (707-259-8122; planning@co.napa.ca.us)
- E. SAN FRANCISCO COUNTY/CITY: No contact identified.
- F. SAN MATEO COUNTY: John Brennan of Building Inspection (650-599-1535; jbrennan@co.sanmateo.ca.us)
- G. SANTA CLARA COUNTY: Don Hughes, Building Inspection Senior Building Inspector (408-299-5700; don.hughes@pln.sccgov.org)
- H. SOLANO COUNTY: David Cliché, Building Official (707-784-4705; dwcliche@solanocounty.com)
- I. SONOMA COUNTY: David Worthington, Assistant Fleet Manager (dworthin@sonoma-county.org; 707-565-3066; 707-565-5423)
- J. CAMPBELL: Steve Prosser, Associate Planner of Planning Department (408-866-2142) and Bill Bruckart, Building Official/Building Division Manager of Building Department (408-866-2130; billb@cityofcampbell.com)
- K. PLEASANT HILL: Bob Costa, Maintenance Superintendent (925-671-4656); Mike Nielsen, Chief Building Officer (925-671-5214); and City Planner Greg Fuz (925-671-5218)
- L. SAN JOSE: Salifu Yakubu, Manager of the City's Permitting Center (Salifu.Yakubu@sanjoseca.gov)
- M. SANTA ROSA: Gillian Hayes, City Planner/Environmental Coordinator of Community Development Department (707-543-4348)
- N. WALNUT CREEK: Fran Duffy, Senior Permit Technician III (925-943-5834)

ATTACHMENT B: SURVEY QUESTIONS

We are interested in learning the distinctive permitting procedures for installation of EV chargers as they apply to a) residences, b) commercial buildings (both new and existing), and c) municipal buildings.

1. What is the process for obtaining a permit(s)?
2. Which agencies are involved in the permitting process?
3. Approximately how long does it take to secure the permit(s)?
4. What are the costs involved in the permit process?
5. What do you think has worked well in your city/county's permitting process? What do you think has not worked well?
6. What would you like to see in terms of a streamlined permitting process? Any recommendations?

ATTACHMENT C: COMMON INSTALLATION PROCESS FOR A RESIDENTIAL GARAGE/CAR PORT



Courtesy of “Electrical Vehicle Charging Infrastructure Deployment Guidelines, British Columbia,” BC HYDRO, July 2009,
www.bchydro.com/.../EVcharging_infrastructure_guidelines09.Par.0001.File.EV%20Charging%20Infrastructure%20Guidelines-BC-Aug09.pdf (last visited January 8, 2010).

ATTACHMENT D: EQUIPMENT PROVIDERS

Aerovironment – <http://www.aerovironment.com>

Address: 824 North Victory Boulevard, 2nd Floor, Burbank, CA 91502

Tel: 866-202-9532

Fax: 818-846-5227

Email: info@mineralstudios.com

Contacts: Jon Bertolino, Sacramento Municipal Utility District (SMUD), 916/732-6980 for Northern California and Nevada; Marc Cortez, Aerovironment, 626/357-9983 x311 for Southern California and Arizona

Avcon - <http://www.avconev.com/>

Address: 4640 Ironwood Drive Franklin, WI 53132

Tel: 877-423-8725

Fax: 414-817-6161

Email: powerpak@webcom.com

Brusa/Metric Mind - <http://www.metricmind.com/>

Address: 9808 SE Derek Court, Happy Valley, OR 97086

Tel: 503-680-0026

Fax: 503-774-4779

Email: ac@metricmind.com

ClipperCreek – <http://clippercreek.net>

Address: 11850 Kemper Road, Auburn, CA 95603

Tel: 530-887-1674

Fax: 530-887-8527

Contact: Dave Packard (office: 912-882-0702, fax: 912-576-6665, email:

Dave@ClipperCreek.net)

Coulomb Technologies – <http://www.coulombtech.com>

Address: 1692 Dell Avenue, Campbell, CA 95008

Telephone: 408-370-3802

Email: info@coulombtech.com

Contacts: Richard Lowenthal, Chief Executive Officer (office: 408-370-3851, cell: 408-529-4395, fax: 408-252-3670, email: richard.lowenthal@coulombtech.com); Michael DiNucci, Vice President of Sales (office: 408-370-3802 x120, cell: 408-828-7812, fax: 408-370-3847, email: mike.dinucci@coulombtech.com)

ETEC/Minit Charger - <http://www.minit-charger.com/>

Address: 430 South 2nd Avenue, Phoenix, Arizona 85003

Tel: 602-716-9576

Fax: 602-256-2606

Contact: Rick Hancock, Regional Manager in Huntington Beach, California (cell: 213-361-9351, email: rhancock@minit-charger.com)

Ev Charge America - <http://www.ev-chargeamerica.com/>
Address: 9030 W. Sahara Ave., Suite 125, Las Vegas, NV 89117
Tel: 702-696-1600
Fax: 866-941-6819
Email: info@EV-ChargeAmerica.com

GoSmart - <http://www.gosmarttechnologies.com/>
Contact: <http://www.gosmarttechnologies.com/contactus.php>

Shorepower - <http://www.shorepower.com/>
Address: 2351 NW York St., Portland, OR 97210
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ATTACHMENT E: SAMPLE EV CHARGER INSTALLATION GUIDE

[SAMPLE] Permitting and Inspections Process for Installing Electric/ Plug-In Vehicle Charger (EV Charger)

What should I do prior to purchasing a Plug-in Vehicle?

Work with an EV seller or EV charger provider, determine whether you want to install a Level I charger (less complicated installation but 8-14 hour charge time) or Level II charger (more complicated but 4-6 hour charge time).

To save money on electrical rates while your electric vehicle charges, contact your utility company to determine what type of installation is required to set up best time-of-use service.

If the utility company indicates you need a second meter panel or a dual meter adapter to take advantage of lower electrical

rates while your electric vehicle is charging, contact your city or county's building division to determine whether the agency allows such installation before proceeding.

Have a private electrician inspect your home to determine whether you have sufficient electrical capacity for the type of EV charger installation you desire (Level I or Level 2). Obtain a cost estimate for electrical upgrade if required as well for other installation work that may be needed.

What kind of permit do I need to install an EV charger?

You need an electrical permit.

Do I need to submit plans with my permit?

No plan is required for simple EV charger installations that will not require trenching.

For projects that do require trenching, plans will be required.

How do I apply for a permit?

Submit an application to the Building Department that identifies the property, lists the name of any person who will work on the project, and describes the proposed work in detail.

If plans are required, along with the permit application,

submit three sets of plans showing the following:

- ✓ Location of service
- ✓ Amperage (size of service)
- ✓ Service entrance conductor size and material
- ✓ Insulation type of the service entrance conductor
- ✓ Size and type of grounding conductor
- ✓ Number of new circuits and their use (if applicable)
- ✓ Wire size and type of any new circuits.

A separate "Plan Requirements" webpage (<http://www.XXXX>), describes plan requirements in greater detail and gives examples of how the various plans should be drawn up. If you are a homeowner and plan to submit the entire application yourself, we recommend that you first prepare preliminary plans and bring them to the Building Department counter so that we can review them. An informal meeting at this stage may save you considerable time and money later on.

All applications, (with or without plans), may be submitted by homeowners or licensed contractors in person, by fax at XXX-XXX-XXX, on-line at <http://www.XXXX>, or through the mail.

Once I've submitted my EV charger permit

application, how long will it take to receive my permit?

For permit applications without plans, permit issuance is immediate. Permits will be issued via the same method - in person, via fax, on-line, or by mail - that applications were received.

Approval for permit applications with plans will take from one hour to XX days. Permits will be issued based on the request of the applicant (i.e. over the counter, via fax, on-line, or by mail).

How do I request an inspection of my project?

You can schedule an inspection by calling our 24-hour inspection phone line at XXX-XXX-XXXX or on-line at <http://www.xxxx>. Inspections are generally scheduled the day following the request, provided the request is made before 12 p.m. Otherwise, inspections are scheduled for the following day.

What fees must I pay?

The fee for a residential EV charger installations is XXXX. For commercial installations it is XXXX+.

Who do I contact if I have questions?

For questions regarding permit submissions, fees, and timing, contact the Building Permit Center at: XXX-XXX-XXXX

or via email at:
XXXX@XXXX.

For questions regarding the plan review process, contact the Planning Department at: XXX-XXX-XXXX or via email at: XXXX@XXXX.

For questions regarding the inspections process, contact the Building Inspections Division at: XXX-XXX-XXXX or via email at: XXXX@XXXX.

SUMMARY OF FINDINGS: RESIDENTIAL AND COMMERCIAL PERMITTING AND INSPECTIONS PROCEDURES FOR EV CHARGER INSTALLATIONS IN ALL NINE BAY AREA COUNTIES AND FIVE CITIES

	PERMIT		PLAN REQUIRED?		FEE		TIME FOR PERMIT APPROVAL				INSPECTION REQUIRED?	AGENCIES	ADDITIONAL INFO	
	TYPE	WHO CAN REQUEST	RES.	COM.	RES.	COM.	SAME DAY ON-LINE OR FAX?		SAME DAY OVER-THE COUNTER?					OTHER
							RES.	COM.	RES.	COM.				
COUNTIES														
ALAMEDA	no formal process yet but likely electrical permit	homeowners and licensed contractors	Yes - for complex* projects	Yes - for complex* projects	unknown	unknown	No	No	Yes - for projects without plans or simple projects with plans	projects without plans or simple projects with plans	for more complex projects with plans, several weeks or months	Yes	Building Inspection reviews plans, issues electrical permits, conducts inspections.	have 20 county properties where could install public use PEV chargers
CONTRA COSTA	electrical permit	homeowners, licensed contractors, long-term lessees or certified agents	No	Yes	\$80	depends on scale of project	Yes - fax	No	Yes	No	generally months for new buildings; weeks or occasionally days for existing buildings	Yes	Building Dept issues permit. County Planning or City Planning approves plans.	to date county has only received PEV charger permit requests for commercial properties
MARIN	electrical permit	homeowners and licensed contractors	Yes	Yes	\$112 + \$150-\$200 (for Public Works review if needed) + additional fee (for Planning Dept review if needed).	\$112 + \$150-\$200 (for Public Works review if needed) + additional fee (for Planning Dept review if needed).	No	No	No	No	for existing projects, approximately 1 week; for new construction, depends on scale/type of project	Yes	Building Dept reviews plan, issues permit. If new construction, Planning Dept reviews. If trenching, Dept of Public Works also reviews plan. For commercial, Dept of Public Works also reviews if 1) charger is outdoors and for public use or 2) to comply with American Disabilities Act.	concerns about public acceptability; would like to see PEV chargers in development code but thinks this will be hard
NAPA	electrical permit	homeowners, licensed contractors, and authorized agents	Yes	Yes	\$109	depends on scale of project	No	No	No	No	unclear; if eligible for quick permit, can expect "comments" within 7-10 business days	Yes	Building Inspection reviews plans, issues permits, and conducts inspections. Planning Division reviews for zoning compliance.	
SAN FRANCISCO	electrical permit	homeowners and licensed contractors, but only licensed contractors can submit on-line	unknown	unknown	\$164.20, which includes the first inspection (plus \$173.40 if additional inspections are required)	\$245.80, which includes the first inspection (plus \$173.40 if additional inspections are required)	Yes - on-line only to licensed contractors	Yes - on-line only to licensed contractors	Yes	Yes	may be eligible for prioritized processing	Yes	Building Inspection issues permits and conducts inspections.	

	PERMIT		PLAN REQUIRED?		FEE		TIME FOR PERMIT APPROVAL				INSPECTION REQUIRED?	AGENCIES	ADDITIONAL INFO	
	TYPE	WHO CAN REQUEST	RES.	COM.	RES.	COM.	SAME DAY ON-LINE OR FAX?		SAME DAY OVER-THE COUNTER?					OTHER
							RES.	COM.	RES.	COM.				
SAN MATEO	electrical permit	unknown	Yes	Yes	depends on total project cost	depends on total project cost	No	No	No	No	for residential, provisional permit within 24 hours; for new commercial buildings, most likely a few months; for existing commercial buildings, probably a few weeks	Yes	Planning Dept reviews plans. For commercial, Fire Dept also reviews plans. Building Inspection issues provisional permits.	only received 2 requests from residential; thinks will shift to flat fees
SANTA CLARA	no formal process yet but would be electrical permit	homeowners and licensed contractors, but only licensed contractors can submit via fax	No	Yes	\$75 (includes cost of reinspection after final inspection if owner/contractor has acted in good faith)	depends on scale of project but minimal (includes cost of reinspection after final inspection if owner/contractor has acted in good faith)	Yes - via fax only to licensed contractors	Yes - via fax only to licensed contractors	No	No	commercial applications can be approved over-the-counter but more common for them to take a week; Santa Clara prioritizes PEV charger permit requests	Yes	One designated Building Inspection Department official.	only PEV charger requests have come from Stanford U.
SOLANO	no formal process yet but would be electrical permit	homeowners, licensed contractors, and authorized agents, but only licensed contractors can submit on-line	unknown	unknown	estimate: \$100-\$200	estimate: \$100-\$200	Yes - on-line only to licensed contractors	Yes - on-line only to licensed contractors	No	No	otherwise, expectation that process would be speedy	X	Building and Safety Division issues permits.	only location Solano has EV chargers is govt center; hope to make on-line process available to homeowners
SONOMA	no formal process yet for residential or commercial, but would be electrical permit	homeowners and licensed contractors	unknown	unknown	unknown	unknown	No	No	Yes - licensed contractors only	Yes - licensed contractors only		Yes	Permit and Resource Management Department issues permits.	currently developing process that county will then encourage cities within its jurisdiction to adopt; also developing pre-EV purchase checklist for residents and businesses

	PERMIT		PLAN REQUIRED?		FEE		TIME FOR PERMIT APPROVAL				INSPECTION REQUIRED?	AGENCIES	ADDITIONAL INFO	
	TYPE	WHO CAN REQUEST	RES.	COM.	RES.	COM.	SAME DAY ON-LINE OR FAX?		SAME DAY OVER-THE COUNTER?					OTHER
							RES.	COM.	RES.	COM.				
CITIES														
CAMPBELL	electrical permit	homeowners and licensed contractors	Yes	Yes	range from \$120-\$300	range from \$120-\$300	Yes - on-line only to licensed contractors	Yes - on-line only to licensed contractors	No	No	generally takes a few days for residential; about one week for commercial	unknown	Planning and Fire Departments review plans. Building Inspection Division issues permits.	
PLEASANT HILL	electrical permit	homeowners and licensed contractors, but only licensed contractors can submit on-line	unknown	unknown	range from \$65-\$100	range from \$65-\$100	Yes - on-line only to licensed contractors for projects without plans	Yes - on-line only to licensed contractors for projects without plans	No	No		Yes	Building Division issues permits and conducts inspections.	
SAN JOSE	likely electrical permit	homeowners, licensed contractors, and authorized agents	unknown	unknown	\$206 (for electrical permit) + \$125 (for permit issuance) + other potential fees	unknown	Yes - on-line if 4 or fewer building units and don't require plan reviewer or other department approval	Yes - on-line to licensed contractors if don't require plan review or other department approval	Yes - for projects without plans	Yes - for projects without plans	projects without plans that are eligible for on-line submission can also be submitted and issued through the mail; appointment is required for projects with plans and appears would usually take more than three days	Yes	Building Division conducts plan review and issues permits.	in process of developing on-line system to accept permit applications that require staff review and/or plan approval
SANTA ROSA	likely electrical permit	homeowners and licensed contractors	unknown	unknown	depends on scale of project	depends on scale of project	Yes - on-line for projects without plans	Yes - on-line for projects without plans	No	No		Yes	Department of Community Development issues permits. Building Division, Inspection Section conducts inspections.	city's currently working on installation of about 8 EV chargers
WALNUT CREEK	no formal process yet but likely electrical permit	homeowners, licensed contractors, authorized agents, and architects/engineers	Yes	Yes	\$67.50 + \$72.50 (plan review fee)	\$67.50 - minimal (depends on scale of project) + \$72.50 (plan review fee)	Yes - via fax only to licensed contractors	Yes - via fax only to licensed contractors	Yes - likely	Yes - likely		Yes	Building Department reviews plans, issues permits, and conducts inspections.	all EV chargers on city property so no permitting involved
<p>* COMPLEX/MAJOR PROJECTS: Counties and cities don't usually define "complex" or "major" projects except through process of elimination: they are projects that require plans and which are not the "simple" or "minor" projects that counties and cities often explicitly exempt from their strictest permitting requirements. Projects considered "simple" or "minor" are substantially similar across cities and counties and usually do not require plans; alternatively, they may require plans but are nevertheless relatively uncomplicated projects. Examples of "simple" or "minor" projects include: fences, retaining walls, sun shade structures, awnings, temporary construction offices and storage sheds, signs, decks, play structures, pools, finishes, cabinet replacement tents, glass, electrical appliance replacement, plumbing repairs, and fixtures replacement. Examples of projects often listed as "complex" or "major" include commercial construction/remodel/alteration, structure demolition, historic structures, unreinforced masonry structures, any work on or within manufactured homes, work which will disturb asbestos, new electrical meter/service, and installation or replacement of interior wall coverings.</p>														