



HPWH Permitting in San Mateo County – Implementation Pilot Report

Countywide Heat Pump Water Heater Permitting Simplification Pilot

Prepared for:

Emma Grossman | egrossman@smcgov.org
San Mateo County Sustainability Department

Alhad Dighe | adighe@stopwaste.org

BayREN Codes and Standards | StopWaste

Prepared by:

TRC | Taylor Taylor
Managing Research Consultant
TTaylor@TRCcompanies.com

Acknowledgements

This report was prepared on behalf of the San Mateo County Sustainability Department by the following members of the TRC Team:

- David Douglass-Jaimes
- Marianne Olson

This project is funded by the [BayREN Codes and Standards Program](#).

The Bay Area Regional Energy Network (BayREN) is a coalition of the Bay Area's nine counties and the Association of Bay Area Governments (ABAG) - empowering residents, businesses and local governments to improve buildings, save energy and reduce climate impacts through equitable and scalable solutions.

<https://www.bayren.org/>





Table of Contents

Executive Summary	ES-1
Executive Summary	1
1 Strategy Selection.....	2
1.1 Express Permitting.....	2
1.1.1 Baseline: Manual	2
1.1.2 Enhanced: Automate	3
1.1.3 Maximum Impact: AI Plan Check Tool	4
1.2 Inspection	4
1.2.1 Baseline: In-Person Inspections	4
1.2.2 Enhanced: Virtual or Asynchronous Inspections	4
1.2.3 Maximum Impact: Sampled Inspections	5
1.3 Standardize Online User Experience	6
1.3.1 Baseline: Permit Portal	6
1.3.2 Enhanced: Webpages	7
1.3.3 Maximum Impact: County Web Hub	7
1.4 Single Permit	8
1.4.1 Baseline: Plumbing/Combination Permit	8
1.4.2 Enhanced: HPWH-Specific Permit	8
1.5 Fee Structure	8
1.5.1 Baseline: Master Fee Schedule (Do Nothing)	8
1.5.2 Enhanced: Transparent Fee	9
1.5.3 Maximum Impact: Reduced Flat Fee	9
1.6 Training Resources	9
1.6.1 Baseline: Informational Materials.....	9
1.6.2 Enhanced: Active Outreach	10
2 Content Creation	11
2.1 Applicant-Facing	11
2.2 Internal-Facing.....	11

3 Pilot Performance Metrics	12
3.1 Minimum Metrics	12
3.2 Estimated Permit Compliance Rate / Number of Permits	12
3.3 Survey of Jurisdictions	13
3.4 Survey of Contractors	14
3.5 Days to Process Permits	14
3.6 Number of Contractors	15
4 Jurisdiction Selection	16
4.1 Jurisdiction Size	16
4.2 Current Permitting Practices	16
4.3 Geographic Proximity	17
4.4 Resourcing and Priorities	17
5 Next Steps	18

Tables

Table 1-1. Level of Effort per Strategy Option	2
Table 4-1. Example Summary of Current Jurisdiction Practices	17

Figures

Figure 1-1. Summary of Selected Strategies	1
Figure 4-1. Map Displaying All Jurisdictions in San Mateo County	18

Appendices

Appendix A: Content Creation	A-1
Permit Application Form	A-1
Standardized Web Structure & Content	A-2
Electrification Education Webpage	A-2
Water Heater Permit Webpage	A-2
Express Permit Webpage	A-2
Survey of Jurisdictions and Contractors	A-3

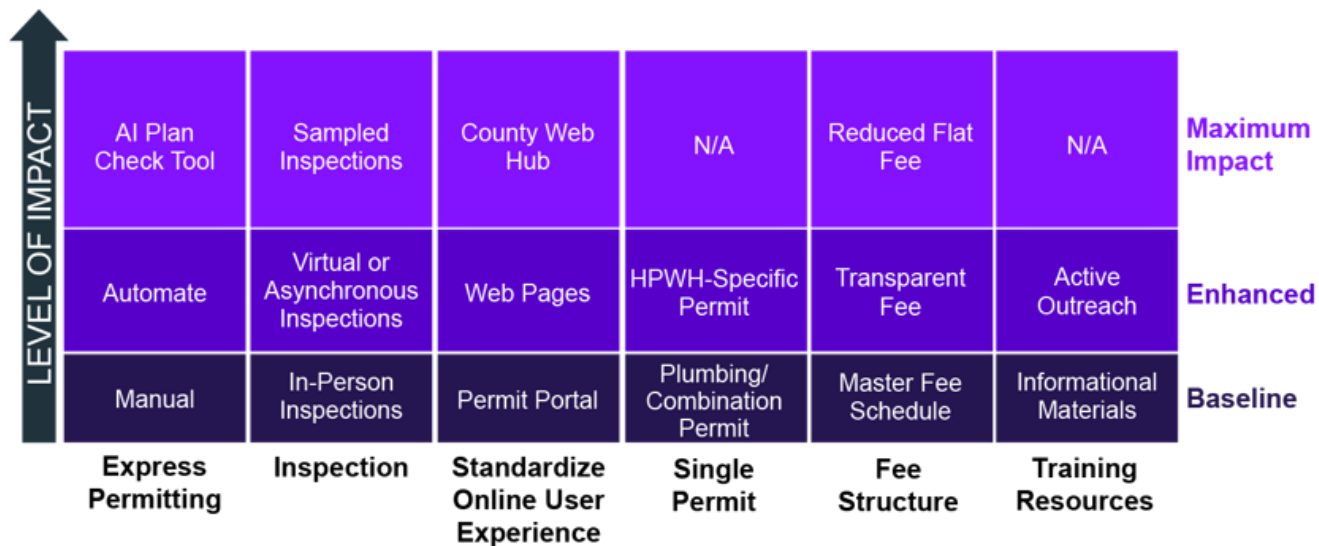
Executive Summary

The County of San Mateo contracted TRC to conduct the Countywide Heat Pump Water Heater Permit Simplification Pilot. The primary objective of the pilot project is to study, develop, and implement strategies to help make the permitting process for heat pump water heaters (HPWH) more user-friendly, efficient, and consistent across the 21 jurisdictions within the County. This pilot will focus on HPWH retrofits in single family homes and retrofits serving individual multifamily residential units. Prior to this report, the TRC team conducted in-depth research into current HPWH permitting processes, and comparative analysis identifying commonalities and distinctions in processes between San Mateo jurisdictions, as well as practices and strategies in place outside the county. The TRC Team also developed a report identifying potential strategies to simplify the permitting process based on all available ideas.

Building on this previous work, this report outlines the implementation strategy for the County of San Mateo HPWH Permit Simplification Pilot. It documents the specific pilot strategies and implementation framework that will be tested with the goal of reducing permitting complexity and saving time for contractors, homeowners, and building department staff. The pilot also aims to lower barriers to permit application and approval, thereby improving code compliance. In support of implementation, this report identifies the key guidance, tools, and materials required to support participating jurisdictions, as well as the performance metrics that will be tracked before, during, and after the pilot to evaluate its effectiveness.

Pilot strategies are summarized in Figure 1-1.

Figure 1-1. Summary of Selected Strategies



LEVEL OF IMPACT ↑	AI Plan Check Tool	Sampled Inspections	County Web Hub	N/A	Reduced Flat Fee	N/A	Maximum Impact
	Automate	Virtual or Asynchronous Inspections	Web Pages	HPWH-Specific Permit	Transparent Fee	Active Outreach	Enhanced
	Manual	In-Person Inspections	Permit Portal	Plumbing/Combination Permit	Master Fee Schedule	Informational Materials	Baseline
	Express Permitting	Inspection	Standardize Online User Experience	Single Permit	Fee Structure	Training Resources	

1 Strategy Selection

Working with the San Mateo County Sustainability Department and the participating jurisdictions, the TRC team determined which solutions to implement during the pilot. Strategy selection was based on several factors, including:

- **Relevance** - How the solution is projected to improve permitting operations, in comparison to the challenges it may facing.
- **Smoothness** - How the solution will integrate with existing processes technologically.
- **Timeliness** – Availability of staff and department resources to effectively implement the solution within the pilot project timeline.

Change management is a central idea of the strategy selection. Often, permitting changes rely on a comprehensive shift in several resources. One goal of the pilot implementation plan is to document the specifics of which things need to change, as well as why and how. Within the specifications for what will change, there will be flexible options to meet jurisdictions where they are today and allow for some improvements, even if an idealized future state is not possible to pilot at this time.

To facilitate this flexibility, there are two to three options given for each selected strategy. The “Baseline” option will be the most accessible to all jurisdictions, and a minimum for pilot participation. One to two other options will be available. The “Enhanced” option will be an intermediate strategy that most jurisdictions will be able to implement. The “Maximum Impact” option will display advanced strategies, which are appropriate for jurisdictions already implementing simplification strategies today that they would like to elevate to the next level. The “Maximum Impact” strategies will make the greatest impact. Strategy options will be complementary, and their implementation will use the same or similar resources as described in **Content Creation**.

1.1 Express Permitting

Express permitting is a process that allows for expedited permit issuances and approvals. In this pilot, an express permit option would have a set of standardized criteria that allow for a HPWH permit to be obtained immediately at the time of application. No plan check or construction drawings would be required for projects that meet the express permitting criteria. The criteria should be set so that most HPWH projects are eligible for express permitting. Under express permitting, a permit application containing relevant information to the project is still submitted. Nine of twenty one jurisdictions in San Mateo County offer some form of express permitting.

1.1.1 Baseline: Manual

Offer manual reviews, sometimes called “over-the-counter” (OTC) reviews, to allow for an expedited up-front review. This can be done in-person, over-the-phone, or potentially by an online form. For an online form, applicants submit their responses to the criteria questions and wait for a reply from the department to confirm or deny the issuance of the express permit. Building staff follow the same checklist of criteria to determine if the permit can be issued immediately, or if it requires further review, regardless of whether the review is in-person, over-the-phone, or online. In addition to the criteria responses, each applicant would need to fill out a standardized permit application form. The permit application form includes required information that the building department would need to inspect the project, and comply with state requirements.

Criteria to qualify for an express permit include:

- Demonstrate that equipment will be installed with an appropriate volume of space for equipment function by providing the following details:
 - What is the required volume (length x width x height) of space to install the water heater, per the manufacturer's installation instructions? _____ ft³
 - If in conditioned space, what is the volume (length x width x height) of the space where the water heater is located? _____ ft³
 - Does the space provide forced ventilation?
- Demonstrate available electrical capacity by one of the following:
 - The project is replacing an existing HPWH with a like-for-like HPWH.
 - Installing a 120V unit with an existing available 120V electrical receptacle nearby.
 - Attached demonstration of electrical load capacity – Electrical load calculation, such as BayREN's Electrical Load Estimator
 - Attached demonstration of electrical load capacity – Peninsula Clean Energy Peak Hourly Load Form
- Providing required CF1R information by ensuring one of the following:
 - The heat pump meets the requirements of NEEA Advanced Water Heater Specification Tier 3 or higher.
 - The storage tank is not installed outdoors and is placed on an incompressible, rigid insulated surface with a minimum thermal resistance of R-10. The water heater is installed with a communication interface that meets either the requirements of Section 110.12(a) or has an ANSI/CRA-2045-B communication port.

Standard permit information will also be captured, such as project address, contractor name and contact information, owner name and contact information, etc.

1.1.2 Enhanced: Automate

Use an online software program to implement the manual review process described in the Baseline and the Enhanced options to remove the need for human involvement. Some software, like Accela, may be equipment to do this today. Applicants go to the jurisdiction's permit portal and complete the checklist of criteria and permit application form. Approval would be automatic for permits that meet the criteria, and those applicants would then be directed to an online portal to pay for the permit. If the express permit criteria are not met, the applicant is re-directed to a standard plan review. This is an advanced option because it requires modification to existing or new online portal software tools (such as Accela or Symbium).

Criteria are the same as Enhanced, and include:

- Demonstrate available electrical capacity by one of the following:
 1. The service is greater than 100 amps; or
 1. Attach electrical load calculation with application

1.1.3 Maximum Impact: AI Plan Check Tool

Use AI tools to reduce the work needed to complete express permitting and plan check. Building department time is best spent on reviewing building code requirements that impact safety and quality. To reserve their time for those tasks, AI can be used as a first-pass screen on permit applications to catch straightforward errors, such as incorrect or incomplete information. An AI tool could automate responses to those permit applicants to explain what change is needed. Automating these more logistical permitting tasks cuts out unneeded review time by building staff, delivering them complete and correct permit applications the first time they see them. AI could also potentially help with batching applications for review, pairing similar topics together to prevent task-switching for building department staff.

One AI tool available today is **Blitz AI**¹. One jurisdiction in San Mateo County is currently evaluating Blitz AI as a AI plan review screening tool. This tool is planned to verify cover sheet information, egress and accessible elements, and basic information in the plans.

1.2 Inspection

There are many potential strategies available for this pilot. Some jurisdictions may prefer to change up-front variables, others may prefer to simplify the inspection process. Below are the recommended inspection strategies for this pilot.

1.2.1 Baseline: In-Person Inspections

The first option for jurisdictions is to maintain in-person inspections. Some jurisdictions may not have the capacity to change multiple aspects of the process at once. Other jurisdictions may wish to maintain oversight of the installations and avoid inspection changes given the removal of application requirements. For most jurisdictions this would result in no change to the current process, as most jurisdictions currently offer only in-person inspections.

1.2.2 Enhanced: Virtual or Asynchronous Inspections

Virtual Inspections

Offer virtual inspections for HPWH projects. Virtual inspections maintain a full review process while minimizing burden on staff and applicants. For this strategy, the volume of HPWH permits received each month is an important consideration. A key component of successful virtual inspections is the ability to batch virtual inspections back-to-back. Otherwise, travel times and other inefficiencies would not result in time and effort savings for either the building department or contractors. A jurisdiction may consider allowing virtual inspections for other simple projects to ensure an efficient volume of inspections. One option for ensuring adequate volume is to use virtual inspections for other projects with express permits.

Many jurisdictions utilized virtual-inspections during COVID-19, therefore process and infrastructure may still be in place to offer virtual inspections. The City of San Mateo currently offers **Virtual Inspections**.

A common concern of virtual inspections is connectivity issues. This is possible, particularly in rural areas. If connectivity issues are common in the jurisdiction, putting a disclaimer in the virtual

¹ <https://blitzpermits.ai/>

inspection scheduling system will prevent some applicants from scheduling a virtual inspection that would end up unproductive. It will also help redirect those who are less comfortable with technology such as smartphone video calls. Lastly, a jurisdiction could recommend that photos be submitted when scheduling a virtual inspection. The inspector can compare and zoom-in on details of the photos that match the video being shown. If the video is imperfect, the photos can help fill-in gaps and clear uncertainty. Another benefit of requesting photos is that the contractor completes a “double check” of the key inspection criteria in the act of taking the photos.

It is possible to hire a consultant that specializes in HPWHs to conduct virtual inspections. This consultant could work for multiple jurisdictions, which would increase the volume of inspections, allow small jurisdictions to test virtual inspections, streamline the inspection process, and keep inspections consistent between jurisdictions.

Asynchronous Inspections

Offer asynchronous inspections for HPWH projects. Asynchronous inspections allow inspections to occur without the contractor and building inspector being simultaneously present during the inspection. In the event that the inspector finds something requiring clarification, they may call the contractor over the phone or by video.

As with virtual inspections, it is particularly helpful to batch asynchronous inspections to gain efficiency. A jurisdiction may open asynchronous inspection to other simple projects, such as projects with express permits, to ensure adequate volumes.

Asynchronous inspections can also help with connectivity issues. The owner and building inspector would be on-site together. In the event that communication with the contractor is needed, the owner may call the contractor. Since heat pumps are typically installed as replacement equipment in lived-in houses, the owner is more likely to have a reliable connection.

1.2.3 Maximum Impact: Sampled Inspections

Offer a way for contractors to avoid an inspection if they meet requirements to demonstrate their expertise. The County of San Mateo would keep a public list of contractors that are “HPWH Inspection Exempt”. Contractors who meet certain criteria would be eligible to submit an application online to the County to enroll in the “HPWH Inspection Exempt” program and get added to the list. Once on the list, they would no longer need inspections on HPWH equipment after installation.

The criteria for the “HPWH Inspection Exempt” list are:

- Licensed contractor
- Minimum three years of experience with jurisdictions in San Mateo County.
- Minimum of three issued permits that entailed inspections by the Building Division in the 12 months prior to enrolling you must have acted as the professional of record or project lead.
- Completion of a HPWH Inspection Exempt training class offered by the County of San Mateo. This training could be an online pre-recorded training, or a list of creditable classes offered from BayREN.

The enrollment process is:

- Applicants download, complete, and digitally sign the HPWH Inspection Exempt Enrollment Application.

- Applicants submit the application to '[County email address]' with the subject line "HPWH Inspection Exempt Enrollment Application."
- Building department staff will verify applicant eligibility.
- Building department staff will notify applicant via email of acceptance into the program and provide a HPWH Inspection Exempt ID number.
- County staff add contractors to the public list of professionals with HPWH Inspection Exempt privileges.

Once on the list, permits are issued using the following process:

- Contractors install the equipment according to all federal, state and local requirements.
- Contractors call the building department for the related permit and provide their HPWH Inspection Exempt ID number.
- The building department staff check if the HPWH Inspection Exempt ID number matches the County's public list. If so, they check the listed date of last inspection.
 - If the last inspection was over a year ago, an inspection is required.
 - If the last inspection was within a year, an inspection is not required.
- If an inspection was required, contractors fill out the brief fields on the County's webpage to update their date of last inspection by submitting their most recently inspected permit project for a HPWH.

The framework for this program is based on the City of San Jose's **Best Prepared Designer Program**². This is an advanced option because it requires a significant change to existing processes like contractor education and outreach. It also requires that the County of San Mateo invests resources to maintain a contractor list.

1.3 Standardize Online User Experience

Online processes that are user-friendly, clear and transparent are critical for applicants to easily apply for the correct permit. When the application process is laid out easily for applicants, the building department will save time from reduced workload of guiding applicants through the process. Additionally, when nearby jurisdictions follow a standardized process, applicants no longer need to learn different processes. One process across multiple jurisdictions reduces the barriers to applying for a permit. See details about online practices in Table 4-1.

1.3.1 Baseline: Permit Portal

Many jurisdictions already fulfill this option with the current features of their online permit portal systems. To encourage applicants to obtain permits for smaller projects such as water heater replacements, an online option for inputting information and reducing unnecessary in-person visits is important. Jurisdictions would provide the following basic features:

- Online permit portal system
- Online permit payment system

² <https://www.sanjoseca.gov/your-government/departments-offices/planning-building-code-enforcement/building-division/best-prepared-designer-program>

Several jurisdictions lack an online portal system and online payment system.

1.3.2 Enhanced: Webpages

In addition to basic online infrastructure, Enhanced is to standardize permit application processes by using the same content as other jurisdictions, as set forth by the pilot program. Jurisdictions would provide the following basic features:

- Online permit portal system
- Online permit payment system

The following standardized online resources would be made available:

- Water Heater Permit webpage
- Express Permit webpage
- FAQs webpage

1.3.3 Maximum Impact: County Web Hub

If the County of San Mateo and several jurisdictions agree, the County could host a website on HPWH permitting. This website would define the process for HPWH permitting. By selecting this option, jurisdictions agree to be consistent with the County's process selection. The County would be responsible for updating the website. This option maximizes consistency within the county, and would reduce effort needed by individual jurisdictions to update their website materials. Another added value is that jurisdictions don't have to rely on third party websites that may not be locally relevant. They can be assured that the County website has the local information that is most relevant for community members. County website materials would include the following:

- Benefits of Electrification webpage
 - Why choose a HPWH
 - Realistic considerations for moving to a HPWH
 - Sizing up tank
- HPWH Page
 - What is it?
 - How does it work?
 - How is it different from gas?
- Panel Upgrades (and how to avoid them) webpage
- HPWH Installations
 - Best practices
 - Utilize contractors from specific HPWH databases
 - Common items checked at inspection
- Water Heater Permit webpage
- FAQs webpage
- Directory to individual jurisdiction online portals for HPWH permit application

An analogous example is the **County's ADU Resource Hub**.³

1.4 Single Permit

Heat pump water heaters involve both electrical and plumbing components. Because of this, three jurisdictions in San Mateo County require both an electrical and plumbing permit for a HPWH install. However, eighteen of the twenty one jurisdictions in San Mateo County offer a single permit for HPWHs. Offering just one permit type for HPWHs is a minimum requirement for pilot participation, although there are two options for how that strategy can be implemented.

1.4.1 Baseline: Plumbing/Combination Permit

Offer a single plumbing permit for HPWH projects by changing how staff categorize the project. This can be done by categorizing a HPWH project as either a plumbing permit, or, if available, a combination permit such as a Mechanical, Electrical, and Plumbing (MEP) permit.

A plumbing permit is an acceptable permit type for HPWHs. The Contractors State Licensing Board (CSLB) states "The CSLB classifications currently licensed for installation/repair of heat pump water heaters are C-20 – Warm-Air Heating, Ventilating and Air-Conditioning (HVAC) or C-36 – Plumbing. The C-20 classification includes 'water heating heat pumps.' The C-36 classification includes 'any type of equipment to heat water.'"⁴ Where minor electric work is required, plumbers with a C36 license are authorized to install the 240V or 120V circuit needed to power a heat pump water heater as "incidental electrical work" associated with completing the main project.⁵

1.4.2 Enhanced: HPWH-Specific Permit

Create a new permit category for HPWH projects. A dedicated category for these installs acknowledges that there are some nuances to HPWH installation. It also allows for easier tracking of HPWH permits which can simplify data analysis, which would include data tracking during the pilot. This option is more advanced because it requires application and software changes that are more difficult than classification changes, but likely add value in terms of data clarity.

1.5 Fee Structure

There are several opportunities related to the HPWH permit fee and fee structure that could be incorporated into the pilot.

1.5.1 Baseline: Master Fee Schedule (Do Nothing)

For jurisdictions with limited resources to dedicate to this pilot, fee structure may have limited impact compared to other strategy options. Therefore, the standard process of listing fee information within the Master Fee Schedule could be followed.

³ <https://smcadu.org/>

⁴ https://www.cslb.ca.gov/Resources/GuidesAndPublications/2023/Fast_Facts_for_Heat_Pump_Water_Heaters_and_HVAC_Heat_Pumps.pdf

⁵ [https://govt.westlaw.com/calregs/Document/ID591B1334C8111EC89E5000D3A7C4BC3?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=\(sc.Default\)](https://govt.westlaw.com/calregs/Document/ID591B1334C8111EC89E5000D3A7C4BC3?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=(sc.Default))

1.5.2 Enhanced: Transparent Fee

The Master Fee Schedule is a necessary foundational document for jurisdictions. However, that document can frequently be confusing to applicants. Often, the master fee schedule lists the permit type, but it is not always clear which projects are commonly covered by certain permits, if there are standard or state fees applied to permits, and how much a given project will cost. Establishing a clear link between project type, permit type, and approximate fee encourages permit applications.

A jurisdiction can outline common, simple project applications, their typical permit type, and a typical permit fee, or typical permit fee range on their website or online permit portal. Since fees can change over time, it is important to demonstrate example values or typical ranges, and to link to the fee schedule for the exact price.

It is highly recommended to set a flat permit fee to encourage messaging consistency on HPWHs. One strategy to ensure this doesn't have a negative impact on the building department finances is to set a clear, flat fee for an express permitted HPWH project, but not for HPWH projects that don't meet the express criteria. This allows the building department to recover costs as needed for more complicated projects, while having a standardized fee for most HPWH projects. This fee structure is also an accurate reflection of building staff time spent on the project.

Additionally, portions of a fee can be inadvertently hidden, such as a "document storage fee", and other fees that apply as an added percentage, or a one-time business registration fee. Compiling additional fees added at the end of the process can be discouraging and frustrating for contractors. If additional fees apply, it's important to state this clearly and early in the process. Practices that result in jurisdiction-specific business or contractor registration fees should be retired.

1.5.3 Maximum Impact: Reduced Flat Fee

Some jurisdictions incentivize HPWH installations to support their climate goals. One strategy to incentivize HPWH installations is to reduce the permit fee for HPWHs or heat pumps in general. This is an advanced strategy because it may require coordination and alignment between multiple offices in a jurisdiction.

Atherton and Burlingame both offer a \$0 permit fee for certain "Green" permits. In Atherton's case, **Green Identified-Plumbing, Mechanical, Electrical (MP&E) Permits**⁶ are \$0. In Burlingame's case, **heat pump permits**⁷ are \$0.

1.6 Training Resources

As part of the management of change process for the pilot, jurisdictions will select a strategy for providing training on new tool and process change.

1.6.1 Baseline: Informational Materials

There are many ways for a jurisdiction to offer informational materials on the pilot program. Options include posting information on the jurisdiction website (such as listed in **Standardize Online User Experience**) providing handout materials at the building counter, or both. Materials address items such as:

⁶ https://www.athertonca.gov/DocumentCenter/View/11670/ATHERTON-MASTER-FEE-schedule_FY24-25-effective--July

⁷ <https://www.burlingame.org/DocumentCenter/View/6473>

- Benefits of a HPWH / Electrification
- Upcoming water heater regulations
- FAQs
- Electrical load calculations, panel upgrades and how to avoid them
- The details of this pilot program

1.6.2 Enhanced: Active Outreach

In addition to the online resources of the Baseline option, jurisdictions can offer to host external training to help contractors and other applicants understand how the process will change in their jurisdiction. This training expands local code compliance education and awareness.

Community training will focus on contractor and homeowner applicants who will be directly engaging with the simplified permitting process. These training will be on-demand, whether presented live to attendees and subsequently recorded or as pre-recorded content. On-demand training describing the new simplified permit process provides convenience for homeowners and contractors to access content at any time, revisit materials as necessary, and engage with the content at their own pace—reducing barriers to adoption and supporting successful permit applications.

The training may be eligible for Continuing Education Units (CEUs) (pending International Code Council (ICC) approval). Trainings that offer approved ICC CEUs add value for participants, driving training attendance and supporting ongoing professional development requirements for building officials, inspectors, and code enforcement professionals.

In addition to trainings, a jurisdiction may spread awareness about the changes taking place during the pilot with general outreach. This would include posting on social media and sending emails.

2 Content Creation

To facilitate the strategies in the prior section, several key documents will be created. These documents will use existing resources to present key information simply and concisely. Resources are categorized by audience: “applicant-facing” resources assist applicants in filling out applications correctly, and “internal-facing” resources assist jurisdiction staff with internal processes.

2.1 Applicant-Facing

New resources will be available to applicants to allow them to comply with the new pilot processes. These new documents are summarized as follows:

- Permit Application Form
 - Demonstration of electrical load capacity
- Standardized Web Structure & Content
 - Website structure layout map
 - Electrification education
 - Permitting / Express permitting webpage
 - Water heating webpage
 - FAQ webpage

See **Appendix B: Content Creation** for more details on these materials.

2.2 Internal-Facing

Instructions to facilitate the pilot strategies will be developed for building departments participating in the pilot. These will list the need-to-know information from **Strategy Selection** to focus on jurisdiction selections. Important metrics highlighted in these documents are as follows:

- Pilot Instructions
 - Single permit selection
 - Express permitting procedure
 - Online user experience strategy
 - Inspection procedure
 - Fee structure changes
 - Training resources plan
- Performance Metric Resources
 - Jurisdiction survey
 - Contractor survey

See **Appendix B: Content Creation** for more details on the pilot instructions, and **Pilot Performance Metrics** for more details on those materials.

3 Pilot Performance Metrics

The team selected the following performance metrics to prioritize:

1. Number of Participating Jurisdictions
2. Strategy Adoption and Uniformity
3. Estimated Permit Compliance Rate / Number of Permits
4. Survey of Participating Jurisdictions
5. Survey of Contractors
6. Days to Process Permits
7. Number of Contractors

3.1 Minimum Metrics

Number of Participating Jurisdictions and Strategy Adoption and Uniformity are the minimum metrics that must be tracked with the pilot. These metrics summarize how many jurisdictions are participating, and which strategies they are implementing. These metrics are both simple to track and a necessary foundation for the rest of the metrics.

3.2 Estimated Permit Compliance Rate / Number of Permits

Estimating Permit Compliance Rate is the most complicated metric, but also one of the most important. The team expects to create a strategy that limits the amount of work needed, while collecting information on compliance rates. One strategy is to find AI tools to help pull, sort, and estimate permit data.

To facilitate this, each jurisdiction which agrees to participate in the pilot will be sent a request for information. They will receive this request at the start of the pilot, and after the pilot has concluded. The request will include:

- **What are we looking for?**
 - An excel spreadsheet with individual rows for each permit filed, with data from the past 3-5 years, with columns that show:
 - Permit number
 - Permit type
 - Permit subtype
 - Issue date
 - Status
 - Project valuation
 - Contractor name or license (if available)
 - Square footage impacted (if available)
 - Permit description
- **Why do we want this?**

- Generally, to reduce the workload needed to apply for and process water heater permits, and to improve code compliance for water heaters. More specifically:
 - To estimate the number of water heater permits per year.
 - To estimate permit compliance rate for water heaters.
 - To estimate processing time of water heaters.
 - To estimate the number of contractors installing water heaters.

3.3 Survey of Jurisdictions

Each jurisdiction that participates in the pilot will be sent a brief survey to quantify their impressions of the current process. After the pilot is over, a matching survey will be sent to document changes in answers through the pilot process. The survey will be focused on the following people:

- Chief Building Officials
- Deputy Building Officials
- Plan Checkers/Examiners
- Inspectors
- Permit Technicians/Specialists

The survey will ask the following questions:

- Pre-Pilot
 - Rate the degree to which you agree with the following statements, as they relate to HPWHs (5-point scale: Strongly Disagree / Disagree / Neutral / Agree / Strongly Agree)
 - “Building staff can quickly and easily process HPWH permits.”
 - “Jurisdictions around me process HPWH permits in a similar way.”
 - “Contractors understand how to navigate the HPWH permitting process.”
 - “Jurisdictions around me process HPWH permits in a similar way.”
 - “I feel comfortable offering express permitting.”
 - “My leadership thinks permit simplification is important.”
 - “Simplifying HPWH permitting would not increase safety or compliance risk.”
 - “I’d like to implement permit simplification measures for electrification.”
- Post-Pilot
 - Repeat all “pre-pilot” questions
 - Rate the degree to which you agree with the following statements, as they relate to HPWHs (5 point “Strongly Disagree” to “Strongly Agree” scale)
 - “The strategies implemented in the pilot were successful.”
 - “The strategies implemented in the pilot reduced the time to process permits.”
 - “I’d like to implement more permit simplification measures for electrification.”

3.4 Survey of Contractors

Building departments have relationships with contractors who frequently interact with the building counter, both over the phone, and in-person. Jurisdictions participating in the pilot could use these relationships to target key contractors to solicit for feedback. Peninsula Clean Energy may also identify contractors to ask for feedback. Contractors are licensed professionals who are already pulling HPWH permits.

These contractors could be emailed a web-based survey (or given a paper survey copy for in-person) to quantify their impressions of the current permitting process. After the pilot is complete, a matching survey will be sent to document any changes in answers through the pilot process.

The survey will contain the following questions:

- Pre-Pilot
 - Rate the degree to which you agree with the following statements, as they relate to HPWHs (5-point scale: Strongly Disagree / Disagree / Neutral / Agree / Strongly Agree)
 - “The permitting process at (jurisdiction) is easy to figure out for the first time.”
 - “The permitting process at (jurisdiction) is easy after the first couple permit applications.”
 - “(Jurisdiction) has a similar permitting process for HPWHs as other jurisdictions nearby.”
 - “(Jurisdiction) has a better permitting process for HPWHs than other jurisdictions nearby.”
 - “I would recommend other contractors pull a permit for HPWH installs.”
 - “Jurisdictions should do more to simplify the permit process.”
- Post-Pilot
 - Repeat all “pre-pilot” questions
 - Rate the degree to which you agree with the following statements, as they relate to HPWHs (5-point scale: Strongly Disagree / Disagree / Neutral / Agree / Strongly Agree)
 - “The HPWH permitting process has improved.”
 - “The HPWH permit application form is easier to use.”

3.5 Days to Process Permits

The permit data obtained in **Estimated Permit Compliance Rate / Number of Permits** may also contain data relevant to permit processing times. Jurisdictions often track application date, issue date, and permit final date. This information can be found in the excel of permit data that will be obtained for the Estimated Permit Compliance Rate / Number of Permits metric. These dates can be translated into several key metrics:

- Days from application to issue (A2I) of the permit
- Days from issue to finalization (I2F) of the permit
- Days from application to finalization (A2F) of permit

Time or data quality issues may result in this metric being analyzed only for a subset of jurisdictions.

3.6 Number of Contractors

The permit data obtained in **Estimated Permit Compliance Rate / Number of Permits** may also contain data relevant to the number of contractors. Jurisdictions often track contractor name, business name, applicant name, or contractor license. The TRC team can analyze the number of distinct contractors who applied for a permit and determine if distinct contractors increase during the pilot, compared to the same time period pre-pilot.

The team may choose to analyze this metric for a only subset of jurisdictions if time or data quality constraints are common. If a contractor license number is not available, this metric may not yield useful information.

4 Jurisdiction Selection

The TRC team collaborated with the Sustainability Department to engage with at least seven specific jurisdictions in the county to pilot the strategies. Incorporating different types of jurisdictions is essential to the pilot to test how successfully the proposed strategies can be implemented in different conditions, and how well the strategies produce a consistent applicant experience between jurisdictions. Some key considerations in the jurisdiction selection process are:

1. Prioritize high population impact while still reflecting a range of jurisdiction sizes.
2. Reflect a range of current permitting conditions. Some jurisdictions may already be implementing some simplification measures, where others may be doing none.
3. Close geographic proximity to each other, increasing the impact of consistency to adjacent jurisdictions.
4. Be willing to implement the selected simplification strategies during the pilot period, and provide candid feedback to the team on the implementation of the proposed strategies.

4.1 Jurisdiction Size

Involving large jurisdictions in the pilot is a priority because that will impact the highest number of people. However, it's important that the pilot strategies work for a range of jurisdiction sizes for regional uniformity. The pilot should include a minimum of 1 small jurisdiction, 1 medium jurisdiction, and 3 large jurisdictions. Additional jurisdictions will ideally be large or medium jurisdictions.

4.2 Current Permitting Practices

Jurisdictions selected reflect a range of current permitting conditions so that the pilot materials are applicable and flexible to varying needs. Table 4-1 summarizes current jurisdiction practices. In the table, a check (✓) indicates that a jurisdiction is implementing a strategy; an X indicates they are not implementing that strategy.

Table 4-1. Example Summary of Current Jurisdiction Practices

Jurisdiction	Express Permit for HPWH	Single Permit for HPWH	Online Portal System	Online Fee Payment	Standardized Web Materials	Virtual Inspection	Reduced Fee
Jurisdiction 1	✓	✓	✓	✓	X	X	✓
Jurisdiction 2	✓	✓	✓	✓	X	X	X
Jurisdiction 3	X	✓	✓	✓	X	✓	X
Jurisdiction 4	X	✓	✓	✓	X	X	✓
Jurisdiction 5	X	✓	X	X	X	X	X

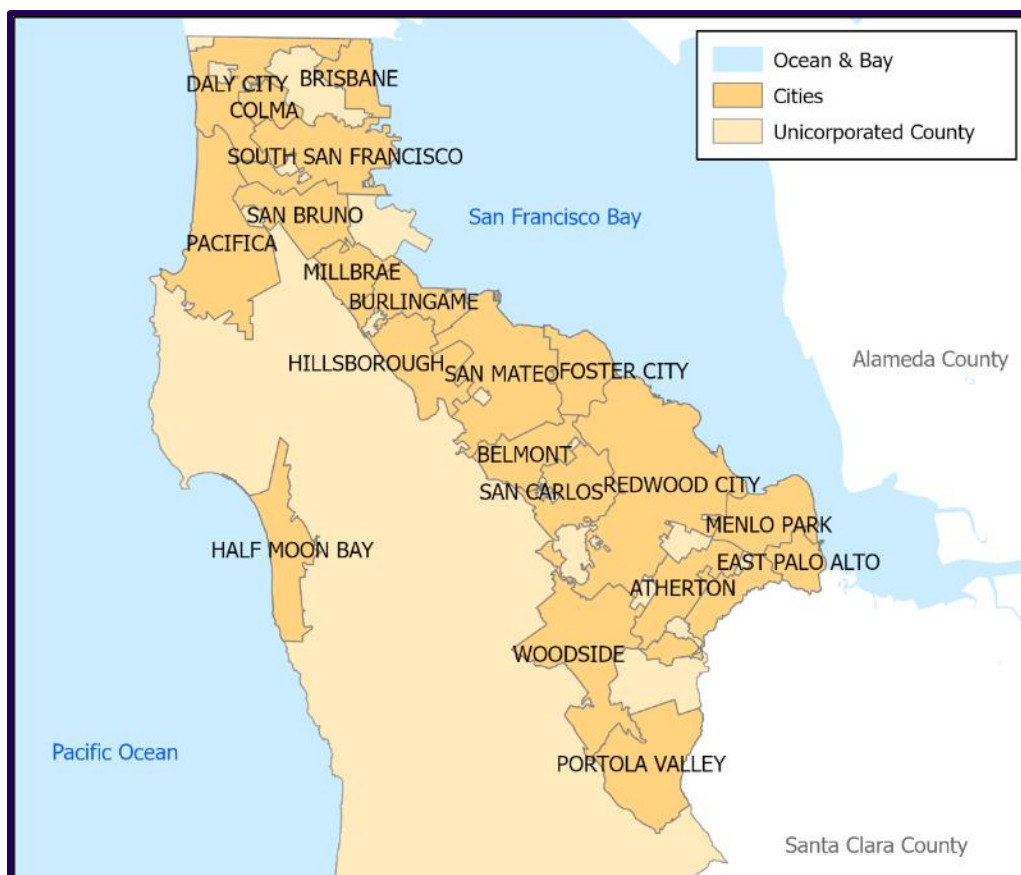


4.3 Geographic Proximity

Ideally, jurisdictions that share many adjacent borders with other jurisdictions will participate in the pilot. Shared borders between participating jurisdictions means improved consistency and impact for contractors pulling permits. Jurisdictions that are farther apart may not see as large of an impact from consistent permitting processes because it is less likely for further jurisdictions to have overlapping contractors. Figure 4-1 shows a map of San Mateo County jurisdictions.

Participation from coastal cities could be advantageous as it would increase the diversity of the participating jurisdictions and make the pilot more broadly applicable.

Figure 4-1. Map Displaying All Jurisdictions in San Mateo County



4.4 Resourcing and Priorities

Jurisdictions have varying availability to participate in the pilot, depending on perceived need, other priorities and staff resourcing. For some jurisdictions, the pilot is a priority and something important to dedicate staff resources to. For others, the pilot is not a priority and not something they have resources for.

5 Next Steps

The TRC team is working to start the pilot (4/26). The remaining steps before a pilot program launch are:

- Content creation
- Jurisdiction engagement in pilot
- Jurisdiction training/prep work

The TRC team will begin content creation for resources documented in **Content Creation** and described in **Appendix B: Content Creation**. Resources will be outlined by the project team, reviewed with the County of San Mateo, and then sent to the graphic design team for finalization.

The TRC team will continue to engage with subcontractors to support pilot startup. ID360 will begin to develop training plans to outline proposed content. Once the TRC team and the County of San Mateo approve of those plans, ID360 will develop the trainings.

In parallel to content creation, the TRC team and the County of San Mateo will begin outreach to the jurisdictions identified as “primary” candidates. This outreach will have the following goals:

- Finalize jurisdictions participating in the pilot, with at least 7 jurisdictions participating.
- Have jurisdictions select which options they will pursue.
- Send jurisdictions pre-pilot survey (as drafted in **Survey of Jurisdictions**).

The pilot implementation plan will be flexible to accommodate the newest and best information. The team will collaborate to ensure the pilot is utilizing the latest information, reducing inefficiencies, and minimizing workload to jurisdictions.



Appendix A: Content Creation

Content is needed to support jurisdictions as they implement the various simplification strategies of the pilot program. The following acts as the starting point for content to be developed. Further conversations with jurisdictions will help the TRC team understand what is most useful to jurisdictions and how to develop this content.

Permit Application Form

The following items may be required at the time of a permit application. In order to eliminate barriers to getting this information, it is best to make the information as specific as possible, such as by using multiple choice questions where possible.

- Confirm adequate air ventilation/circulation for the HPWH installation (Yes/No)
- Electrical Load Calculation Form (if required)
- Circuit size and voltage required
- Manufacturer's specifications and installation requirements for the unit (Attachment)
- CF1R Form Information, such as the following:
 - Number of water heaters in system (Multiple Choice: 1, 2 or More)
 - Water Heating System ID or Name (Short answer)
 - Size of water heater (Number of gallons)
 - Is natural gas connected to the existing water heater? (Yes/No)
 - Which of the following is being installed? (Multiple Choice)
 - A natural gas or propane water-heating system.
 - A single HPWH. The storage tank shall not be located outdoors and be placed on an incompressible, rigid insulated surface with a minimum thermal resistance of R-10. The water heater shall be installed with a communication interface that either meets the requirements of Section 110.12(a) or has an ANSI/CTA-2045-B communication port.
 - A single HPWH that meets the requirements of NEEA Advanced Water Heater Specification Tier 3 or higher.
 - If the existing water heater is electric resistance, a consumer electric water heater.
 - A water-heating system determined by the Executive Director to use no more energy than a natural gas or propane water-heating system; or if no natural gas is connected to the existing water heater location, a water-heating system determined by the executive director to use no more energy than a consumer electric water heater.

Standardized Web Structure & Content

Developing a standard web layout and content is important for permit simplification and increased code compliance. Having clear, transparent information available online makes information accessible and de-mystifies the permitting process.

Electrification Education Webpage

A general webpage with high-level details on electrification would be beneficial for residents education. Ideally, that would include topics and resources such as the following:

- Benefits of electrification
- Addressing common myths of electrification
- How to avoid a panel upgrade
- Information on 120V HPWHs
- Links to rebate information

Water Heater Permit Webpage

A specific webpage on water heating would be beneficial to help contractors and homeowners with specific questions. Especially given the Bay Area Air District coming changes, this is instrumentally in providing a source of early information. Ideally, this webpage would include topics and resources such as the following:

- Types of water heaters
 - Bay Area Air District context
- Application process
- Installation requirements
 - Water heaters must be anchored or strapped to prevent toppling during an earthquake.
 - To conserve energy, water heaters must be wrapped with an insulation blanket having an R-value of at least 12. Internal and external insulation together must equal R-16. Both hot and cold water pipes must be insulated for the first 5 feet from the water heater.
 - Water heaters located in garages must have the source of ignition raised a minimum of 18 inches above the floor.
 - Temperature/pressure relief valves must be extended to an approved location on the exterior of the structure.
 - A bonding jumper sized in accordance with the National Electric Code, Article 250-80 must be installed across the hot and cold water piping.
- Example: <https://www.smcgov.org/planning/water-heater-permit>

Express Permit Webpage

A webpage documenting the jurisdictions express permitting practices is very helpful for contractors and owners trying to learn about pulling a permit. Ideally, this webpage would include topics and resources such as the following:

- Specify projects eligible for express permits
- Where to apply for a permit
- Example: <https://www.cityofsanmateo.org/3197/Express-Building-Permits>

FAQs:

A webpage documenting overall frequent permitting questions helps make the process clear and connects people with easy-to-access information. FAQ pages can help harder-to-find information become quicker to find, reducing the workload to comply with local requirements

Examples of local FAQ pages:

- <https://www.smcgov.org/planning/building-frequently-asked-questions>
- <https://www.cityofsanmateo.org/481/Frequently-Asked-Questions>

Survey of Jurisdictions and Contractors

A draft survey can be found in **Survey of Jurisdictions** and **Survey of Contractors**. ID360 will collaborate with TRC to add questions related to training/education resources. TRC will develop a comprehensive survey to be sent to jurisdictions who agree to participate in the pilot program.



Sustainable.
Reliable.
Resilient.

Giving you the power to
adapt to new possibilities.

