



REGULAR MEETING AGENDA

Date: 11/1/2022
Time: 6:00 p.m.
Locations: [Zoom.us/join](https://zoom.us/join) – ID# 831 3316 9409 and
City Council Chambers
701 Laurel St., Menlo Park, CA 94025

NOVEL CORONAVIRUS, COVID-19, EMERGENCY ADVISORY NOTICE

Consistent with Government Code section 54953(e), and in light of the declared state of emergency, and maximize public safety while still maintaining transparency and public access, members of the public can listen to the meeting and participate using the following methods.

How to participate in the meeting

- Access the live meeting, in-person, at the City Council Chambers
- Submit a written comment online up to 1-hour before the meeting start time:
city.council@menlopark.org
Please include the agenda item number you are commenting on.
- Access the meeting real-time online at:
[Zoom.us/join](https://zoom.us/join) – Meeting ID 831 3316 9409
- Access the meeting real-time via telephone at:
(669) 900-6833
Meeting ID 831 3316 9409
Press *9 to raise hand to speak
- Watch meeting:
 - Cable television subscriber in Menlo Park, East Palo Alto, Atherton, and Palo Alto:
Channel 26
 - City Council Chambers

Note: City Council closed sessions are not broadcast online or on television and public participation is limited to the beginning of closed session.

Subject to Change: Given the current public health emergency and the rapidly evolving federal, state, county and local orders, the format of this meeting may be altered or the meeting may be canceled. You may check on the status of the meeting by visiting the city website menlopark.gov. The instructions for logging on to the webinar and/or the access code is subject to change. If you have difficulty accessing the webinar, please check the latest online edition of the posted agenda for updated information (menlopark.gov/agendas).

According to City Council policy, all meetings of the City Council are to end by midnight unless there is a super majority vote taken by 11 p.m. to extend the meeting and identify the items to be considered after 11 p.m.

Regular Session

A. Call To Order

B. Roll Call

C. Agenda Review

D. Public Comment

Under “Public Comment,” the public may address the City Council on any subject not listed on the agenda. Each speaker may address the City Council once under public comment for a limit of three minutes. Please clearly state your name and address or political jurisdiction in which you live. The City Council cannot act on items not listed on the agenda and, therefore, the City Council cannot respond to non-agenda issues brought up under public comment other than to provide general information.

E. Presentations and Proclamations

- E1. Proclamation: Ruby Bridges Walk to School Day ([Attachment](#))

F. Advisory Body Vacancies and Appointments

- F1. Consider applicants and make appointments to fill vacancies on various advisory bodies ([Staff Report #22-211-CC](#))

G. Consent Calendar

- G1. Accept the City Council meeting minutes for October 11 and 18, 2022 ([Attachment](#))
- G2. Adopt a resolution to continue conducting the City’s Council and advisory body meetings remotely due to health and safety concerns for the public and to authorize the use of hybrid meetings ([Staff Report #22-209-CC](#))
- G3. Reject all bids for the Chrysler Stormwater Pump Station Improvement project and direct staff to rebid the project at a future date ([Staff Report #22-208-CC](#))
- G4. Authorize the Mayor to sign the City’s response to the San Mateo County Civil Grand Jury Report: “A Delicate Balance Between Knowledge and Power: Government Transparency and the Public’s Right to Know.” ([Staff Report #22-212-CC](#))

H. Regular Business

- H1. Waive the first reading and introduce an ordinance adopting the 2022 Building Standards Code to include amending Title 12 [Buildings and Construction] of the Menlo Park Municipal Code to adopt local amendments to the California Building Standards Code, and discussion regarding proposed revisions to Fire Code by Menlo Park Fire Protection District ([Staff Report #22-210-CC](#))
- H2. Adopt a resolution establishing City Council Policy CC-22-XXX Commemorative Park Amenities Policy ([Staff Report #22-213-CC](#))

I. Informational Items

I1. City Council agenda topics: November 15 – December 6, 2022 ([Staff Report #22-214-CC](#))

I2. Transmittal of city attorney billing ([Staff Report #22-215-CC](#))

J. City Manager's Report

K. City Councilmember Reports

L. Adjournment

At every regular meeting of the City Council, in addition to the public comment period where the public shall have the right to address the City Council on any matters of public interest not listed on the agenda, members of the public have the right to directly address the Council on any item listed on the agenda at a time designated by the chair, either before or during the City Council's consideration of the item.

At every special meeting of the City Council, members of the public have the right to directly address the City Council on any item listed on the agenda at a time designated by the chair, either before or during consideration of the item. For appeal hearings, appellant and applicant shall each have 10 minutes for presentations.

If you challenge any of the items listed on this agenda in court, you may be limited to raising only those issues you or someone else raised at the public hearing described in this notice, or in written correspondence delivered to the City of Menlo Park at, or prior to, the public hearing.

Any writing that is distributed to a majority of the City Council by any person in connection with an agenda item is a public record (subject to any exemption under the Public Records Act) and is available by request by emailing the city clerk at jaherren@menlopark.org. Persons with disabilities, who require auxiliary aids or services in attending or participating in City Council meetings, may call the City Clerk's Office at 650-330-6620.

Agendas are posted in accordance with Government Code Section 54954.2(a) or Section 54956. Members of the public can view electronic agendas and staff reports by accessing the City website at menlopark.gov/agendas and can receive email notification of agenda and staff report postings by subscribing to the "Notify Me" service at menlopark.gov/notifyme. Agendas and staff reports may also be obtained by contacting City Clerk at 650-330-6620. (Posted: 10/27/2022)

RECOGNIZING MONDAY, NOVEMBER 14, 2022 AS RUBY BRIDGES WALK TO SCHOOL DAY

WHEREAS, Ruby Bridges is an icon of the American civil rights movement who at the age of six years old in 1960, became the youngest member to integrate public schools in the American South; and

WHEREAS, segregation continued to exist in various states despite the Supreme Court of the United States' 1954 ruling in *Brown v. Board of Education* barring any state laws allowing racial segregation in public schools; and

WHEREAS, Ruby Bridges was the lone student of her group of African-American students to integrate William Frantz Elementary School in the City of New Orleans on November 14, 1960, being escorted by four federal agents while bravely walking amongst protesters full of vitriol; and

WHEREAS, the San Mateo County Board of Education adopted a resolution in 2019 that November 14, or the following Wednesday should it fall on a weekend, be henceforth annually known as Ruby Bridges Walk to School Day in the County of San Mateo to celebrate the spirit of inclusivity; and

WHEREAS, the California State Senate adopted a resolution in 2021 that November 14, or the following Wednesday should it fall on a weekend, be henceforth annually known as Ruby Bridges Walk to School Day in the State of California to recognize Ruby Bridges' role in the civil rights movement; and

WHEREAS, the City of Menlo Park Safe Routes to School program encourages children to bicycle and walk to school to develop life-long skills and independence in their community; and

WHEREAS, the City of Menlo Park will participate in its fourth annual Ruby Bridges Walk to School Day, partnering with local schools and the community in promoting walking to school and inclusive communities.

NOW THEREFORE, BE IT PROCLAIMED that I, Betsy Nash, Mayor of the City of Menlo Park, on behalf of the City Council, do hereby proclaim Monday, November 14, 2022 as Ruby Bridges Walk to School Day in the City of Menlo Park.

DocuSigned by:

Betsy Nash

415EAB216DBF480

Betsy Nash, Mayor
November 1, 2022



STAFF REPORT

City Council

Meeting Date: 11/1/2022
Staff Report Number: 22-211-CC

Advisory Body Vacancies: Consider applicants and make appointments to fill vacancies on various advisory bodies

Recommendation

Staff recommends the City Council consider applicants for appointment to vacant seats on the following advisory bodies:

- Environmental Quality Commission (EQC)
- Library Commission (LC)
- Planning Commission (PC)

Policy Issues

City Council Policy CC-22-004 (Attachment A) establishes the policies, procedures, roles and responsibilities for the City's appointed advisory bodies, including the manner in which members are selected.

Background

The EQC, LC, and PC have unexpected vacancies which should be filled prior to the annual recruitment in April 2023. These positions will fill the current term and expire:

- EQC – April 30, 2024
- LC – April 30, 2026
- PC – April 30, 2026

This recruitment involved a four-week period of advertisements and announcements. In addition, the City Council conducted interviews of the PC applicants on October 20, 2022.

Following City Council's appointment, the city clerk's office provides onboarding and orientation for the new advisory body members. This includes the oath of office, advisory body handbook, introduction of advisory body liaison staff, Form 700 Statement of Economic Interests filing (if applicable), real property reporting form (if applicable), and Brown Act training.

The city clerk's office regularly reviews all agendas and minutes, tracks attendance (Attachment B) and serves as the principal staff liaison contact for all advisory bodies. The City has designated staff to act as a subject matter expert and serves as a liaison between the advisory body and the City Council. City Councilmembers are assigned to serve in a liaison capacity with one or more city commission/committee. The purpose of the liaison assignment is to facilitate communication between the City Council and the advisory body. The liaison also helps to increase the City Council's familiarity with the membership, programs and issues of the advisory body.

Analysis

Applications are provided as Attachment C. The City Council has the opportunity to ask applicants if they would consider appointments to an alternate commission. These appointments can be made by the City Council at this meeting.

The City received the following applications and are listed in alphabetical order by last name.

- EQC – one vacancy, expiring April 30, 2024
 - Maria Doerr – District 5
 - Andrew Ehrich – District 2
 - Also applied for PC
 - Nicole Kemeny – District 5
 - Brian Kissel – District 5
 - John McKenna – District 4
 - Michael Meyer – District 2
 - Also applied for PC
 - Susan Prohaska – District 2
 - Nabil Saad – District 4

- LC – one vacancy, expiring April 30, 2026
 - Gail Ann McEachron – District 5
 - Ada Chen Rekhi – District 2
 - Jennifer Wise – District 5

- PC – one vacancy, expiring April 30, 2026
 - Nicole Chessari – District 2
 - Andrew Ehrich – District 2
 - Also applied for EQC
 - Michael Meyer – District 2
 - Also applied for EQC
 - Jennifer Schindler – District 5
 - Ross Silverstein – District 2

Note, all applications will be provided to the City Council under separate cover and are also available for public viewing at the city clerk's office during regular business hours or by request (Attachment C.) Attachment D lists all applicants including their residency District and Attachment E lists currently seated members and their residency District.

Impact on City Resources

Staff support for advisory bodies and funds for recruitment advertising are provided in the annual budget.

Public Notice

Public notification was achieved by posting the agenda, with the agenda items being listed, at least 72 hours prior to the meeting.

Attachments

- A. City Council Policy CC-22-004
- B. Hyperlink – March 22 City Council attendance Staff Report #22-054-CC:
menlopark.gov/files/sharedassets/public/agendas-and-minutes/city-council/2022-meetings/agendas/20220322-city-council-agenda-packet.pdf#page=436
- C. Applications
- D. Applications by District
- E. Current advisory body members by District

Report prepared by:

Judi A. Herren, Assistant to the City Manager/ City Clerk

COMMISSIONS/COMMITTEES POLICIES AND PROCEDURES, ROLES AND RESPONSIBILITIES

City Council Policy #CC-22-004

Adopted September 20, 2022

Resolution No. 6776



<p>Purpose</p>
<p>To define policies and procedures and roles and responsibilities for Menlo Park appointed commissions and committees.</p>
<p>Authority</p>
<p>Upon its original adoption, this policy replaced the document known as “Organization of Advisory Commissions of the City of Menlo Park.”</p>
<p>Background</p>
<p>The City of Menlo Park currently has seven active Commissions and Committees. The active advisory bodies are: Complete Streets Commission, Environmental Quality Commission, Finance and Audit Committee, Housing Commission, Library Commission, Parks and Recreation Commission, and Planning Commission. Those not specified in the City Code are established by City Council ordinance or resolution. Most of these advisory bodies are established in accordance with Resolution 2801 and its amendments. Within specific areas of responsibility, each advisory body has a primary role of advising the City Council on policy matters or reviewing specific issues and carrying out assignments as directed by the City Council or prescribed by law.</p> <p>Six of the seven commissions and committees listed above are advisory in nature. The Planning Commission is both advisory and regulatory and organized according to the City Code (Ch. 2.12) and State statute (Government Code 65100 et seq., 65300-65401).</p> <p>The City has an adopted Anti-Harassment and Non-Discrimination Policy (CC-21-0022), and a Travel, Meal, and Lodging Policy (CC-19-002), which are also applicable to all advisory bodies.</p>
<p>Policies and Procedures</p>
<p><u>Relationship to City Council, staff and media</u></p> <ul style="list-style-type: none"> • Upon referral by the City Council, the commission/committee shall study referred matters and return their recommendations and advise to the City Council. With each such referral, the City Council may authorize the City staff to provide certain designated services to aid in the study. • Upon its own initiative, the commission/committee shall identify and raise issues to the City Council’s attention and from time to time explore pertinent matters and make recommendations to the City Council. • At a request of a member of the public, the commission/committee may consider appeals from City actions or inactions in pertinent areas and, if deemed appropriate, report and make recommendations to the City Council. • Each commission/committee is required to develop an annual work plan which will be the foundation for the work performed by the advisory body in support of City Council annual work plan. The plan, once finalized by a majority of the commission/committee, will be formally presented to the City Council for direction and approval no later than September 30 of each year and then reported out on by a representative of the advisory body at a regularly scheduled City Council meeting at least annually, but recommended twice a year. The proposed work plan must align with the City Council’s adopted work plan. When modified, the work plan must be taken to the City Council for approval. The Planning Commission is exempt from this requirement as its functions are governed by the Menlo Park municipal code (Chapter 2.12) and State law (Government Code 65100 et seq, 65300-65401). • Commissions and committees shall not become involved in the administrative or operational matters of City departments. Members may not direct staff to initiate major programs, conduct large studies or establish department policy. City staff assigned to furnish staff services shall be available to provide general staff assistance, such as preparation of agenda/notice materials and minutes, general review of department programs and activities, and to perform limited studies, program reviews, and other services of a general staff nature. Commissions/Committees may not establish department work programs or determine department program priorities. The responsibility for setting policy and allocating scarce City resources rests with the City’s duly elected representatives, the City Council. • Additional or other staff support may be provided upon a formal request to the City Council. • The staff liaison shall act as the commission/committee’s lead representative to the media concerning matters before the commission/committee. Commission/Committee members should refer all media inquiries to their respective liaisons for response. Personal opinions and comments may be expressed so long as the commission/committee member clarifies that their statements do not represent the position of the City Council. • Commission/Committee members will have mandatory training every two years regarding the Brown Act and

parliamentary procedures, anti-harassment training, ethics training, and other training required by the City Council or State Law. The commission/committee members may have the opportunity for additional training, such as training for chair and vice chair. Failure to comply with the mandatory training will be reported to the City Council and may result in replacement of the member by the City Council.

- Requests from commission/committee member(s) determined by the staff liaison to take one hour or more of staff time to complete, must be directed by the City Council.

Role of City Council commission/committee liaison

City Councilmembers are assigned to serve in a liaison capacity with one or more city commission/committee. The purpose of the liaison assignment is to facilitate communication between the City Council and the advisory body. The liaison also helps to increase the City Council's familiarity with the membership, programs and issues of the advisory body. In fulfilling their liaison assignment, City Councilmembers may elect to attend commission/committee meetings periodically to observe the activities of the advisory body or simply maintain communication with the commission/committee chair on a regular basis.

City Councilmembers should be sensitive to the fact that they are not participating members of the commission/committee, but are there rather to create a linkage between the City Council and commission/committee. In interacting with commissions/committee, City Councilmembers are to reflect the views of the City Council as a body. Being a commission/committee liaison bestows no special right with respect to commission/committee business.

Typically, assignments to commission/committee liaison positions are made at the beginning of a City Council term in December. The Mayor will ask City Councilmembers which liaison assignments they desire and will submit recommendations to the full City Council regarding the various committees, boards, and commissions which City Councilmembers will represent as a liaison. In the rare instance where more than one City Councilmember wishes to be the appointed liaison to a particular commission, a vote of the City Council will be taken to confirm appointments.

City Staff Liaison

The City has designated staff to act as a liaison between the commission/committee and the City Council. The City shall provide staff services to the commission/committee which will include:

- Developing a rapport with the Chair and commission/committee members
- Providing a schedule of meetings to the city clerk's office and commission/committee members, arranging meeting locations, maintaining the minutes and other public records of the meeting, and preparing and distributing appropriate information related to the meeting agenda.
- Advising the commission/committee on directions and priorities of the City Council.
- Informing the commission/committee of events, activities, policies, programs, etc. occurring within the scope of the commission/committee's function.
- Ensuring the city clerk is informed of all vacancies, expired terms, changes in offices, or any other changes to the commission/committee.
- Providing information to the appropriate appointed official including reports, actions, and recommendations of the committee/commission and notifying them of noncompliance by the commission/committee or chair with City policies.
- Ensuring that agenda items approved by the commission/committee are brought forth in a timely manner taking into consideration staff capacity, City Council priorities, the commission/committee work plan, and other practical matters such as the expense to conduct research or prepare studies, provided appropriate public notification, and otherwise properly prepare the item for commission/committee consideration.
- Take action minutes; upon agreement of the commission, this task may be performed by one of the members (staff is still responsible for the accuracy and formatting of the minutes)
- Maintain a minute book with signed minutes

Recommendations, requests and reports

As needed, near the beginning of City Council meetings, there will be an item called "Advisory Body Reports." At this time, commissions/committees may present recommendations or status reports and may request direction and support from the City Council. Such requests shall be communicated to the staff liaison in advance, including any written materials, so that they may be listed on the agenda and distributed with the agenda packet. The materials being

provided to the City Council must be approved by a majority of the commission/committee at a commission/committee meeting before submittal to the City Council. The City Council will receive such reports and recommendations and, after suitable study and discussion, respond or give direction.

City Council referrals

The city clerk shall transmit to the designated staff liaison all referrals and requests from the City Council for advice and recommendations. The commissions/committees shall expeditiously consider and act on all referrals and requests made by the City Council and shall submit reports and recommendations to the City Council on these assignments.

Public appearance of commission/committee members

When a commission/committee member appears in a non-official, non-representative capacity before the public, for example, at a City Council meeting, the member shall indicate that they are speaking only as an individual. This also applies when interacting with the media and on social media. If the commission/committee member appears as the representative of an applicant or a member of the public, the Political Reform Act may govern this appearance. In addition, in certain circumstances, due process considerations might apply to make a commission/committee member's appearance inappropriate. Conversely, when a member who is present at a City Council meeting is asked to address the City Council on a matter, the member should represent the viewpoint of the particular commission/committee as a whole (not a personal opinion).

Disbanding of advisory body

Upon recommendation by the Chair or appropriate staff, any standing or special advisory body, established by the City Council and whose members were appointed by the City Council, may be declared disbanded due to lack of business, by majority vote of the City Council.

Meetings and officers

1. *Agendas/notices/minutes*

- All meetings shall be open and public and shall conduct business through published agendas, public notices and minutes and follow all of the Brown Act provisions governing public meetings. Special, canceled and adjourned meetings may be called when needed, subject to the Brown Act provisions.
- Support staff for each commission/committee shall be responsible for properly noticing and posting all regular, special, canceled and adjourned meetings. Copies of all meeting agendas, notices and minutes shall be provided to the City Council, city manager, city attorney, city clerk and other appropriate staff, as requested.
- Original agendas and minutes shall be filed and maintained by support staff in accordance with the City's adopted records retention schedule.
- The official record of the commissions/committees will be preserved by preparation of action minutes.

2. *Conduct and parliamentary procedures*

- Unless otherwise specified by State law or City regulations, conduct of all meetings shall generally follow Robert's Rules of Order.
- A majority of commission/committee members shall constitute a quorum and a quorum must be seated before official action is taken.
- The chair of each commission/committee shall preside at all meetings and the vice chair shall assume the duties of the chair when the chair is absent.
- The role of the commission/committee chair (according to Roberts Rules of Order): To open the session at the time at which the assembly is to meet, by taking the chair and calling the members to order; to announce the business before the assembly in the order in which it is to be acted upon; to recognize members entitled to the floor; to state and put to vote all questions which are regularly moved, or necessarily arise in the course of the proceedings, and to announce the result of the vote; to protect the assembly from annoyance from evidently frivolous or dilatory motions by refusing to recognize them; to assist in the expediting of business in every compatible with the rights of the members, as by allowing brief remarks when undebatable motions are pending, if they think it advisable; to restrain the members when engaged in debate, within the rules of order, to enforce on all occasions the observance of order and decorum among the members, deciding all questions of order (subject to an appeal to the assembly by any two members) unless when in doubt he prefers to submit the question for the decision of the assembly; to inform the assembly when necessary, or when referred to for the purpose, on a point of order to practice pertinent to pending business; to authenticate by their signature, when necessary, all the acts, orders, and proceedings of the assembly declaring it will and in all things obeying its commands.

3. *Lack of a quorum*

- When a lack of a quorum exists at the start time of a meeting, those present will wait 15 minutes for additional members to arrive. If after 15 minutes a quorum is still not present, the meeting will be adjourned by the staff liaison due to lack of a quorum. Once the meeting is adjourned it cannot be reconvened.
- The public is not allowed to address those commissioners present during the 15 minutes the commission/committee is waiting for additional members to arrive.
- Staff can make announcements to the members during this time but must follow up with an email to all members of the body conveying the same information.
- All other items shall not be discussed with the members present as it is best to make the report when there is a quorum present.

4. *Meeting locations and dates*

- Meetings shall be held in designated City facilities, as noticed.
- All commissions/committees with the exception of the Planning Commission, and Finance and Audit Committee shall conduct regular meetings once a month. Special meetings may also be scheduled as required by the commission/committee. The Planning Commission shall hold regular meetings twice a month and the Finance and Audit Committee shall hold quarterly meetings.
- Monthly regular meetings shall have a fixed date and time established by the commission/committee. Changes to the established regular dates and times are subject to the approval of the City Council. An exception to this rule would include any changes necessitated to fill a temporary need in order for the commission/committee to conduct its meeting in a most efficient and effective way as long as proper and adequate notification is provided to the City Council and made available to the public.

The schedule of Commission/Committee meetings is as follows:

- Complete Streets Commission – Every second Wednesday at 6:30 p.m.
- Environmental Quality Commission – Every third Wednesday at 6:00 p.m.
- Finance and Audit Committee – Third Wednesday of every quarter at 5:30 p.m.,
- Housing Commission – Every first Wednesday at 6:30 p.m.
- Library Commission – Every third Monday at 6:30 p.m.
- Parks and Recreation Commission – Every fourth Wednesday at 6:30 p.m.
- Planning Commission – Twice a month on a Monday at 7 p.m.

Each commission/committee may establish other operational policies subject to the approval of the City Council. Any changes to the established policies and procedures shall be subject to the approval of the City Council.

5. *Off-premises meeting participation*

While technology allows commission/committee members to participate in meetings from a location other than the meeting location (referred to as “off-premises”), off-premises participation is discouraged given the logistics required to ensure compliance with the Brown Act and experience with technological failures disrupting the meeting. In the event that a commission/committee member believes that their participation is essential to a meeting, the following shall apply:

- Any commission/committee member intending to participate from an off-premise location shall inform the staff liaison at least two weeks in advance of the meeting.
- The off-premise location must be identified in the notice and agenda of the meeting.
- Agendas must be posted at the off-premise location.
- The off-premise location must be accessible to the public and be ADA compliant.
- The commission/committee member participating at a duly noticed off-premises location does not count toward the quorum necessary to convene a meeting of the commission/committee.
- For any one meeting, no more than one commission/committee member may participate from an off-premise location.
- All votes must be by roll call.

6. *Selection of chair and vice chair*

- The chair and vice chair shall be selected in May of each year by a majority of the members and shall serve for one year or until their successors are selected.
- Each commission/committee shall annually rotate its chair and vice chair.

G. Memberships

Appointments/Oaths

- The City Council is the appointing body for all commissions/committees. All members serve at the pleasure of the City Council for designated terms.
- All appointments and reappointments shall be made at a regularly scheduled City Council meeting, and require an affirmative vote of not less than a majority of the City Council present.
- Before taking office, all members must complete an Oath of Allegiance required by Article XX, §3, of the Constitution of the State of California. All oaths are administered by the city clerk or their designee.
- Appointments made during the middle of the term are for the unexpired portion of that term.

Application and selection process

- The application process begins when a vacancy occurs due to term expiration, resignation, removal or death of a member.
- The application period will normally run for a period of four weeks from the date the vacancy occurs. If there is more than one concurrent vacancy in a Commission, the application period may be extended. Applications are available from the city clerk's office and on the City's website.
- The city clerk shall notify members whose terms are about to expire whether or not they would be eligible for reappointment. If reappointment is sought, an updated application will be required.
- Applicants are required to complete and return the application form for each commission/committee they desire to serve on, along with any additional information they would like to transmit, by the established deadline. Applications sent by email are accepted.
- After the deadline of receipt of applications, the city clerk shall schedule the matter at the next available regular City Council meeting. All applications received will be submitted and made a part of the City Council agenda packet for their review and consideration. If there are no applications received by the deadline, the city clerk will extend the application period for an indefinite period of time until sufficient applications are received.
- Upon review of the applications received, the City Council reserves the right to schedule or waive interviews, or to extend the application process in the event insufficient applications are received. In either case, the city clerk will provide notification to the applicants of the decision of the City Council.
- If an interview is requested, the date and time will be designated by the City Council. Interviews are open to the public.
- The selection/appointment process by the City Council shall be conducted at a City Council meeting. The city clerk will ask each City Councilmember for their nominations; the number of nominations is limited to the number of vacancies. The candidate that receives a majority of nominations will be appointed. If there is a tie, multiple rounds of voting will occur.
- Following a City Council appointment, the city clerk shall notify successful and unsuccessful applicants accordingly, in writing. Appointees will receive copies of the City's Non-Discrimination and Sexual Harassment policies, and disclosure statements for those members who are required to file under State law as designated in the City's Conflict of Interest Code. Copies of the notification will also be distributed to support staff and the commission/committee chair.
- An orientation will be scheduled by the city clerk following an appointment (but before taking office) and a copy of this policy document will be provided at that time.

Attendance

- A compilation of attendance will be submitted to the City Council at least annually listing absences for all commissions/committee members.
- Absences, which result in attendance at less than two-thirds of their meetings during the calendar year, will be reported to the City Council and may result in replacement of the member by the City Council.
- Any member who feels that unique circumstances have led to numerous absences can appeal directly to the City Council for a waiver of this policy or to obtain a leave of absence.
- While it is expected that members be present at all meetings, the chair and staff liaison should be notified if a member knows in advance that they will be absent.
- When reviewing commissioners for reappointment, overall attendance at full commission meetings will be given significant consideration.

Compensation

- Members shall serve without compensation (unless specifically provided) for their services, provided, however,

members shall receive reimbursement for necessary travel expenses and other expenses incurred on official duty when such expenditures have been authorized by the City Council (See Policy CC-19-002).

Conflict of interest and disclosure requirements

- A Conflict of Interest Code has been updated and adopted by the City pursuant to Government Code §87300 et seq. Copies of the conflict of interest code are filed with the city clerk. Pursuant to the adopted Conflict of Interest Code, members serving on the Complete Streets Commission, Housing Commission, and Planning Commission are required to file a Statement of Economic Interest with the city clerk to disclose personal interest in investments, real property and income. This is done within 30 days of appointment and annually thereafter. A statement is also required within 30 days after leaving office.
- If a public official has a conflict of interest, the Political Reform Act may require the official to disqualify themselves from making or participating in a governmental decision, or using their official position to influence a governmental decision. Questions in this regard may be directed to the city attorney.

Qualifications, compositions, number

- In most cases, members shall be residents of the City of Menlo Park and at least 18 years of age.
- Current members of any other City commission/committee are disqualified for membership, unless the regulations for that advisory body permit concurrent membership. Commission/Committee members are strongly advised to serve out the entirety of the term of their current appointment before seeking appointment on another commission/committee.
- Commission/Committee members shall be permitted to retain membership while seeking any elective office. However, members shall not use the meetings, functions or activities of such bodies for purposes of campaigning for elective office.
- There shall be seven (7) members on each commission/committee.

Reappointments, resignations, removals

- Incumbents seeking a reappointment are required to complete and file an application with the city clerk by the application deadline. No person shall be reappointed to a commission/committee who has served on that same body for two consecutive terms; unless a period of one year has lapsed since the returning member last served on that commission/committee (the one-year period is flexible subject to City Council's discretion).
- Resignations must be submitted in writing to the city clerk, who will distribute copies to City Council and appropriate staff.
- The City Council may remove a member by a majority vote of the City Council without cause, notice or hearing.

Term of office

- Unless specified otherwise, the term of office for all commission/committee shall be four (4) years unless a resignation or a removal has taken place. The Finance and Audit Committee term of office shall be two (2) years.
- If a person is appointed to fill an unexpired term and serves less than two years, that time will not be considered a full term. However, if a person is appointed to fill an unexpired term and serves two years or more, that time will be considered a full term.
- Terms are staggered to be overlapping four-year terms, so that all terms do not expire in any one year.
- If a member resigns before the end of their term, a replacement serves out the remainder of that term.

Vacancies

- Vacancies are created due to term expirations, resignations, removals or death.
- Vacancies are posted by the city clerk in the City Council Chambers bulletin board and on the city website.
- Whenever an unscheduled vacancy occurs in any commission/committee, a special vacancy notice shall be posted within 20 days after the vacancy occurs. Appointment shall not be made for at least 10 working days after posting of the notice (Government Code 54974).
- On or before December 31 of each year, an appointment list of all regular advisory commissions/committees of the City Council shall be prepared by the city clerk and posted in the City Council Chambers bulletin board and on the City's website. This list is also available to the public (Government Code 54972, Maddy Act).

Roles and Responsibilities

Complete Streets Commission

The Complete Streets Commission is charged primarily with advising the City Council on realizing the City's adopted goals for complete streets, vision zero, climate action plan, and provide input on major land use and development projects as it relates to transportation. The Complete Streets Commission's responsibilities include:

- To advance the goals of the city's newly adopted climate action plan by making alternatives to driving safer and more attractive
- Advise City Council on the implementation of the transportation master plan.
- Continue to advocate for and advise the City Council on planning and installing pedestrian and bicycle rail crossing and safe cycling/pedestrian infrastructure.
- Continue to support City Council in ongoing initiatives to improve access to Downtown and support downtown businesses.
- Continue to support the implementation of the Safe Routes to School strategy and advocate for community engagement, program continuity and engineering implementation.
- Continue to support City Council's role as a stakeholder with regard to regional multi-modal and transportation demand management programs projects to increase

Environmental Quality Commission

The Environmental Quality Commission is charged primarily with advising the City Council on matters involving environmental protection, improvement and sustainability. Specific focus areas include:

- Preserving heritage trees
- Using best practices to maintain city trees
- Preserving and expanding the urban canopy
- Making determinations on appeals of heritage tree removal permits
- Administering annual Environmental Quality Awards program
- Organizing annual Arbor Day Event; typically, a tree planting event
- Advising on programs and policies related to protection of natural areas, recycling and waste reduction, environmentally sustainable practices, air and water pollution prevention, climate protection, and water and energy conservation.

Finance and Audit Committee

The Finance and Audit Committee is charged primarily to support delivery of timely, clear and comprehensive reporting of the City's fiscal status to the community at large. Specific focus areas include:

- Review the process for periodic financial reporting to the City Council and the public, as needed
- Review financial audit and annual financial report with the City's external auditors
- Review of the resolution of prior year audit findings
- Review of the auditor selection process and scope, as needed

Housing Commission

The Housing Commission is charged primarily with advising the City Council on housing matters including housing supply and housing related problems. Specific focus areas include:

- Community attitudes about housing (range, distribution, racial, social-economic problems)
- Programs for evaluating, maintaining, and upgrading the distribution and quality of housing stock in the City
- Planning, implementing and evaluating City programs under the Housing and Community Development Act of 1974
- Review and recommend to the City Council regarding the Below Market Rate (BMR) program
- Initiate, review and recommend on housing policies and programs for the City
- Review and recommend on housing related impacts for environmental impact reports
- Review and recommend on State and regional housing issues
- Review and recommend on the Housing Element of the General Plan
-

Library Commission

The Library Commission is charged primarily with advising the City Council on matters related to the maintenance and operation of the City's libraries and library systems. Specific focus areas include:

- The scope and degree of library activities
- Maintenance and protection of City libraries
- Evaluation and improvement of library service
- Acquisition of library materials
- Coordination with other library systems and long range planning
- Literacy and ESL programs

Parks and Recreation Commission

The Parks and Recreation Commission is charged primarily with advising the City Council on matters related to City programs and facilities dedicated to recreation. Specific focus areas include:

- Those programs and facilities established primarily for the participation of and/or use by residents of the City, including adequacy and maintenance of such facilities as parks and playgrounds, recreation buildings, facilities and equipment
- Adequacy, operation and staffing of recreation programs
- Modification of existing programs and facilities to meet developing community needs
- Long range planning and regional coordination concerning park and recreational facilities

Planning Commission

The Planning Commission is organized according to State Statute.

- The Planning Commission reviews development proposals on public and private lands for compliance with the General Plan and Zoning Ordinance.
- The Commission reviews all development proposals requiring a use permit, architectural control, variance, minor subdivision and environmental review associated with these projects. The Commission is the final decision-making body for these applications, unless appealed to the City Council.
- The Commission serves as a recommending body to the City Council for major subdivisions, rezoning's, conditional development permits, Zoning Ordinance amendments, General Plan amendments and the environmental reviews and Below Market Rate (BMR) Housing Agreements associated with those projects.
- The Commission works on special projects as assigned by the City Council.

Special Advisory Bodies

The City Council has the authority to create standing committees, task forces or subcommittees for the City, and from time to time, the City Council may appoint members to these groups. The number of persons and the individual appointee serving on each group may be changed at any time by the City Council. There are no designated terms for members of these groups; members are appointed by and serve at the pleasure of the City Council.

Any requests of city commissions or committees to create such ad hoc advisory bodies shall be submitted in writing to the city clerk for City Council consideration and approval.

Procedure history

Action	Date	Notes
Procedure adoption	1991	Resolution No. 3261
Procedure adoption	2001	
Procedure adoption	2011	
Procedure adoption	2013	Resolution No. 6169
Procedure adoption	2017	Resolution No. 6377
Procedure adoption	6/8/2021	Resolution No. 6631
Procedure adoption	3/1/2022	Resolution No. 6706
Procedure adoption	3/8/2022	Resolution No. 6718

Procedure adoption	9/20/2022	Resolution No. 6776
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Advisory body application



Submission date: 14 October 2022, 3:54PM

Receipt number: 41

Related form version: 4

Applicant's full name (first and last) Maria Doerr

Desired advisory body (check all that apply) Environmental Quality Commission

Applicant interest, experience and qualifications

Education B.S. in Civil & Environmental Engineering, Stanford University
Notation in Scientific Communication
Class of 2017

Civic affiliations and community activities, including service on other advisory bodies, commissions or committees

Rosalie Rendu Center, ESL Tutor (East Palo Alto, CA) – 2022-Present
o Leading one-on-one conversational language tutoring with an East Palo Alto resident

California Water Data Consortium, Equity Workgroup Member (Bay Area, CA) – 2021-Present

o Advising on opportunities to strengthen equity and transparency through water policies and new opportunities in partnership with communities and community-based organizations.

SanDiego350, Legislative Team Member (San Diego, CA) – 2021-2022

o Organizing and participating in calls with local/state representatives to discuss and advocate for environmental policies that would benefit San Diegan communities and California at large.

The Association for Conflict Resolution, Environmental Policy DEI Leadership Committee Member (remote) – 2020-2022

o Co-developed new diversity, equity, and inclusion initiatives for the Association, including a 2-year fellowship to provide professional development opportunities to emergent practitioners of color that work on environmental conflict resolution.

o Led a workshop on how to proactively center communities in conflict resolution and collaborative processes. The conversation brought together 35 practitioners from across the U.S. to explore how to create more accountability to communities.

Climate Policy Committee of the Biden-Harris Campaign, Member (remote) – 2020

o Developed Day 1 recommendations for the incoming administration on climate resilience and equity under the leadership of Dr. Beverly Wright of the Deep South Center for Environmental Justice. Helped deliver a proposal for amending the Clean Air Act to address disproportional and negative impacts of poor air quality on Black and Brown communities in places like Cancer Alley.

UN Climate Conference Youth Delegate, SustainUS (Katowice, Poland) – 2018

o Youth delegate to the UN Climate Conference to advocate for resilience and reparations for frontline communities. Helped organize live climate justice actions and media events centering frontline leadership at the Conference.

Describe your understanding of the responsibilities of the advisory body that you are applying for and how your personal community or professional experience relate to these responsibilities

The Environmental Quality Commission serves Menlo Park and the City Council and helps achieve environmental and sustainability goals, especially as laid out in the Climate Action Plan and the General Plan Elements.

I am well prepared to help Menlo Park reach the ambitious goal of zero emissions by 2030 through my professional experiences and academic background. As an environmental consultant over the last four years, I've worked with nonprofits, foundations, federal agencies, utilities, and local governments to deepen their sustainability initiatives with and for communities. My clients have included San Diego County, the Santa Clara Valley Water Agency, the Environmental Defense Fund, the Hewlett Foundation, and others. Before consulting, I worked in Mexico on community-based watershed conservation and sustainable agriculture projects, supported small-grid solar projects on the eastern coast of Nicaragua, and facilitated public hearings on Cap & Trade grants for disadvantaged communities across California. To the EQC, I bring analytic skills that let me assess high-impact sustainability opportunities and a passion for facilitation to support understanding and enable dialogue between diverse stakeholders. In addition, I graduated in civil and environmental engineering at Stanford in 2017 and would relish getting into the details of specific energy, land use, and built environment solutions that could benefit Menlo Park.

The Environmental Quality Commission is especially responsible to the communities in Menlo Park that are most vulnerable to environmental injustices and the impacts of climate change (as per CAP Goal #6). I'm deeply committed to environmental justice and ensuring communities, especially the Belle Haven neighborhood and other low-income communities, communities of color, the elderly, youth, and other groups experiencing marginalization, are centered in environmental solutions.

My personal experience as a young person and a low-income person can bring a valuable perspective to the EQC. My approach to environmental work is shaped by my firsthand experiences coming to age during the evolving climate crisis and living with my mother on \$20k a year throughout my childhood. I grew up with asthma downwind from the coal-fired power plant and next to a polluted creek that floods with increasing frequency each year, threatening our home. Over the last seven years, I've had the chance to live in and work for communities more greatly impacted by climatic and environmental threats than my own. This work has been extremely rewarding while not always reflected in the pay: I qualify as "low-income" in San Mateo County and resonate with the challenges of living in a city designed for those who make much, much more and/or come from intergenerational wealth. I have lent my voice and experiences to support other low-income residents and frontline communities as a Youth Delegate to the UN Climate Conference, a member of the Legislative Committee of San Diego 350, and an election volunteer. I am eager to bring lessons learned from these civic and policy experiences and my own lived experiences to the EQC.

Describe why you want to serve on this advisory body and what you hope to accomplish as a member

I want to help Menlo Park equitably achieve its climate and environmental goals through active youth involvement. Through grassroots youth organizing from my work with SustainUS and the Green Schools Alliance, I've developed working relationships with leaders at youth-led environmental groups like the Sunrise Movement and would bring these connections and experiences in youth organizing to the EQC. I would look for low-stakes and meaningful avenues to bring the perspectives of young people of all ages from across Menlo Park's diverse neighborhoods into EQC initiatives. It is critical that the decision-making spaces that shape young people's futures actively include them. Nearly 25% of Menlo Park's residents are under 18. Another 15% are 18-35. If I were to be brought onto the EQC, I would be the youngest member at 27 and the main connection, by age cohort, to 40% of Menlo Park's residents.

I want my community to achieve its climate goals, be a model for other cities, and create livable futures for all residents, especially those who are low-income. I'm eager to lend my skills and experiences to support the EQC's work, especially around electrification and climate adaptation with a specific lens toward the needs, priorities, and perspectives of fellow low-income residents. In conversation with Commissioner Angela Evans and Climate Resilient Communities' Caroline Beckman (Resilient Homes Program Manager), respectively, I was excited to discuss the BlocPower initiative in more depth and specific efforts to ensure low-income and renting residents, like myself, could actively benefit from this program.

I admire local leaders and want to support their visions for climate action. At the San Mateo Climate Summit, I greatly appreciated the words and visions shared by Councilmember Cecilia Taylor, Ms. Violet Wulf-Seana (Climate Resilient Communities), Ms. Miriam Yupanqui (Nuestra Casa), and others. Speaking to local leaders like Ms. Pam Jones (Belle Haven resident), the MP City Team, and Vice Mayor Wolosin has made me all the more eager to combine the experiences I bring with the expertise of long-time residents.

I am ready to devote my time, energy, and care to the EQC.

Contact and residency information

Email	[REDACTED]
Cell phone	[REDACTED]
Home phone	[REDACTED]
Business phone	[REDACTED]
Address 1	[REDACTED]
Address 2	
City	Menlo Park

State	CA
Zip code	94025
Business address	
Number of years as a Menlo Park resident	<1
Current City Council district	District 5
How did you hear about this opportunity (check all that apply)	<input checked="" type="checkbox"/> City website <input checked="" type="checkbox"/> Other: EQC Call

If I am appointed, the City is authorized to post the following information on the city website (please select at least one):

Cellphone: **No**
Business phone: **No**
Home phone: **No**
Email: **Yes**

Application acknowledgement and submittal

I certify that the answers given here are true and complete to the best of my knowledge. **I agree**

Signature



[Link to signature](#)

Advisory body application



Submission date: **12 October 2022, 8:32PM**

Receipt number: **37**

Related form versions: **4**

Applicant's full name (first and last)

Andrew Ehrich

Desired advisory body (check all that apply)

Complete Streets Commission
Environmental Quality Commission
Housing Commission
Housing Element Community Engagement and Outreach Committee
Parks and Recreation Commission
Planning Commission

Applicant interest, experience and qualifications

Education

Masters - Public Management and Governance, London School of Economics (2012)
Masters - Regional and Urban Planning Studies, London School of Economics (2011)
Bachelors - Mathematics, Stanford University (2009)

Civic affiliations and community activities, including service on other advisory bodies, commissions or committees

City Data Lead, City of San Jose
Development Committee, Hillel at Stanford
Intern, San Francisco Bicycle Coalition

Describe your understanding of the responsibilities of the advisory body that you are applying for and how your personal community or professional experience relate to these responsibilities

From November 2019 - January 2021, I was the City Data Lead for the City of San Jose, working in the City Manager's Office. During that time, I also served as the Deputy Director for San Jose's Emergency COVID-19 Operations Center in charge of coordinating the response to COVID-19 for the entire city. This role required not only coordinating with Santa Clara County on the public health response, but also managing the response to all the downstream repercussions of the pandemic: food insecurity, housing insecurity, economic development, homelessness, renters policy, functioning of parks during the pandemic, and more.

As the person that San Jose entrusted to bring data to bear these important problems, my job was to help bring quantitative rigor to decision making, program design, and policy. I deeply value the perspective that data can bring to city government and being data-driven would be a core philosophy of my service on a commission in Menlo Park.

However, I also know that data is only one part of the puzzle. Data is most useful when paired with clearly defined goals, and in the context of local government, setting goals and priorities is the job of the City Council and City Commissions (engaging constituents in the process). As a former City staff member in a council-manager form of government, I could best do my job when City Commissioners brought clear-eyed community perspective that shed light on the goals worth focusing on. I loved it even more when commissioners asked great questions about staff and council work that helped ensure we were keeping community priorities front of mind.

Local government presents an amazing opportunity to have a tangible impact, and it is a team sport. I deeply value the different roles that the City council, City staff, and City commissions can play in creating a responsive, effective local government. My goal as part of an advisory body in Menlo Park would be to play my part on the team by engaging the community, asking good questions, looking at data, and helping our city to function well on behalf of everyone who lives here.

Describe why you want to serve on this advisory body and what you hope to accomplish as a member

Menlo Park is an amazing place. In the heart of Silicon Valley, it is rife with opportunity. It is beautiful. It is community oriented with distinct neighborhoods that each have a unique character. I have now lived in 3 different neighborhoods in my 6 years in Menlo Park –Downtown, Linfield Oaks, and The Willows – and in each one I have found friends and neighbors invested in creating a wonderful community.

I want to help make sure that Menlo Park is preparing for how it will extend what is special about its present into its future. I want to see the City make the right investments in housing, transportation, infrastructure, and public space. We need these investments so that we can grow in a way that maintains the strengths of Menlo Park while also expanding its ability to serve as an opportunity-rich home for all the communities it houses and the people who contribute to its vibrancy.

Planning and adapting for the future require engaging as much of our community as possible in envisioning and imagining what we want our city to look like in 5, 10, 20, and 30 years. It is not realistic to believe that we can maintain everything as-is, but it is wholly within our grasp to capture what is special about Menlo Park and ensure we build that into our future.

I think advisory bodies have an important role to play in engaging the community to help shape that vision. In so doing, they can help City Council and City Staff do their jobs with as much information and community input as possible, which can ultimately lead to the considered planning and tangible outcomes that will keep Menlo Park a truly special place.

Contact and residency information

Email	[REDACTED]
Cell phone	[REDACTED]
Home phone	[REDACTED]
Business phone	[REDACTED]
Address 1	[REDACTED]
Address 2	
City	Menlo Park
State	CA
Zip code	94025
Business address	
Number of years as a Menlo Park resident	6
Current City Council district	District 2
How did you hear about this opportunity (check all that apply)	City website

If I am appointed, the City is authorized to post the following information on the city website (please select at least one):

Cellphone: **Yes**

Business phone: **Yes**

Home phone: **Yes**

Email: **Yes**

Application acknowledgement and submittal

I certify that the answers given herein are true and complete to the best of my knowledge. **I agree**

Signature

A handwritten signature in black ink, consisting of a series of connected loops and a long horizontal stroke at the end.

[Link to signature](#)

Advisory body application



Submitted on date: 20 September 2022, 10:59AM

Receipt number: 29

Related form versions: 4

Applicant's full name (first and last) Nicole Kemeny

Desired advisory body (check all that apply) Environmental Quality Commission

Applicant interest, experience and qualifications

Education
 Master of Urban Planning
 University of Michigan, 1986
 Bachelor of Arts, Political Science
 University of Michigan, 1984

Civic affiliations and community activities, including service on other advisory bodies, commissions or committees
 President
 [Redacted]

Board of Directors
 [Redacted]

Intern
 Sierra Club Loma Prieta Global Warming Program
 2010-2011

Describe your understanding of the responsibilities of the advisory body that you are applying for and how your personal community or professional experience relate to these responsibilities
 Researching and advising City Council on best practices to protect and improve all aspects of the environment, including such elements as the canopy, sustainability, climate, and waste reduction.

I have devoted my time voluntarily to climate advocacy and the growth and administration of a climate organization for over 10 years. In that time I have developed relationships with many experts in energy and climate, taken adult education courses at Stanford, read widely, and gained a deep understanding of climate issues and barriers to a transition to clean energy.

My background in urban planning gives me a fundamental understanding of transportation and housing issues, which are inextricably linked to environmental quality.

Describe why you want to serve on this advisory body and what you hope to accomplish as a member
 I am a devoted environmentalist, and wish to remain active in my community furthering sustainable practices, helping to further Menlo Park's adoption of helpful climate policies, and generally trying to ensure we are good stewards of our environment. I enjoy working as part of a team, as I did on the Board of 350 Silicon Valley.

Contact and residency information

Email	[REDACTED]
Cell phone	[REDACTED]
Home phone	[REDACTED]
Business phone	[REDACTED]
Address 1	[REDACTED]
Address 2	
City	Menlo Park
State	CA
Zip code	94025
Business address	
Number of years as a Menlo Park resident	13
Current City Council district	District 5
How did you hear about this opportunity (check all that apply)	Other: friend
If I am appointed, the City is authorized to post the following information on the city website (please select at least one):	Cellphone: Yes Business phone: No Home phone: No Email: Yes

Application acknowledgement and submittal

I certify that the answers given herein are true and complete to the best of my knowledge. I agree

Signature 

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Advisory body application



Submitted on date: 28 September 2022, 2:54PM

Receipt number: 30

Related form versions on: 4

Applicant's full name (first and last) Brian Kissel

Desired advisory body (check all that apply) Environmental Quality Commission

Applicant interest, experience and qualifications

Education BS Mechanical Engineering, US Naval Academy
MBA, Stanford Graduate School of Business

Civic affiliations and community activities, including service on other advisory bodies, commissions or committees

1. Advisory Board of RE-volv.org, nonprofit providing solar power solutions to other nonprofits nationwide
2. Co-founder and board of directors, ClimateDonor.org, nonprofit providing crowdfunding for environmental sustainability projects from universities, national labs, government agencies, and nonprofits
3. Alternate for the recent Menlo Park Independent Redistricting Commission (IRC)
4. Volunteer with Habitat for Humanity of Greater San Francisco
5. Volunteer advocate working with the city council on the forthcoming Park Protection Ordinance

Describe your understanding of the responsibilities of the advisory body that you are applying for and how your personal community or professional experience relate to these responsibilities

The Environmental Quality Commission is charged primarily with advising the City Council on matters involving environmental protection, improvement and sustainability. I have been a strong advocate of environmental sustainability since co-founding ClimateDonor.org 7 years ago and with my recent work with RE-volv.org, a nonprofit providing solar power to other nonprofits nationwide. I believe my engineering and business degrees provide additional foundational skills to help the city prioritize the cost-effective and impactful programs and services that will allow Menlo Park to continue to be a leader in environmental sustainability. I am also aware of the upcoming partnership with BlocPower to electrify 10,000 buildings in support of Menlo Park's Climate Action Plan goal of carbon neutrality by 2030. I would welcome an opportunity to contribute to that project.

Describe why you want to serve on this advisory body and what you hope to accomplish as a member

I believe that Menlo Park and California overall have the opportunity to provide national and international leadership and examples of success in helping combat climate change and global warming. I would welcome an opportunity to be of service of that mission.

Contact and residency information

Email [REDACTED]

Cell phone	[REDACTED]
Home phone	[REDACTED]
Business phone	[REDACTED]
Address 1	[REDACTED]
Address 2	
City	Menlo Park
State	CA
Zip code	94025
Business address	
Number of years as a Menlo Park resident	11
Current City Council district	District 5
How did you hear about this opportunity (check all that apply)	<input checked="" type="checkbox"/> City website <input type="checkbox"/> Email

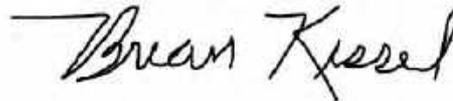
If I am appointed, the City is authorized to post the following information on the city website (please select at least one):

- Cellphone: No
- Business phone: No
- Home phone: No
- Email: Yes

Application acknowledgement and submittal

I certify that the answers given herein are true and complete to the best of my knowledge. I agree

Signature:



[Link to signature](#)

Advisory body application



Submission date: 14 October 2022, 3:22PM

Receipt number: 39

Related form versions: 4

Applicant's full name (first and last)

John McKenna

Desired advisory body (check all that apply)

Environmental Quality Commission

Applicant interest, experience and qualifications

Education

B.A. UCLA Economics/Business

Civic affiliations and community activities, including service on other advisory bodies, commissions or committees

I currently co-lead both 1) Sierra Club Loma Prieta Chapter's Climate Action Leadership Team and 2) 350 Silicon Valley's Menlo Park Climate Team. I have also recently been selected to serve on the Community Advisory Board for BlocPower Menlo Park. I was on the organizing team and made opening remarks for a climate movie and community conversation event held on October 9, 2022 at The Guild Theatre. I volunteer significant amounts of my spare time to several other local organizations that are working on implementing solutions that address the climate emergency – this work has included doing door to door canvassing in San Mateo and having 1:1 conversations with folks about their thoughts, feelings and concerns related to climate change. I have volunteered several times with Sunwork.org to help install heat pump water heaters throughout the Bay Area from San Mateo to Richmond to Menlo Park. I have volunteered with Rebuilding Together (home improvement projects in Menlo Park, East Palo Alto, Redwood City, etc.) and was a co-lead one year. Also, I have participated in community clean-up events (picking-up roadside trash, etc.) and have coached some youth baseball in the past. I regularly attend the monthly EQC meetings and make public comments where appropriate. My goal, going forward, is to get more involved and to serve the community as best I can – thus my interest and strong desire in serving on the Environmental Quality Commission.

Describe your understanding of the responsibilities of the advisory body that you are applying for and how your personal community or professional experience relate to these responsibilities

The main responsibility of the EQC is to advise City Council on matters involving environmental protection, improvement, and sustainability. This involves working with city staff to research and provide recommendations to City Council on all environmental matters which City Council requests guidance. Such environmental matters primarily consist of issues related to trees, the urban canopy, protection of natural areas, recycling and waste reduction, air and water pollution, water and energy conservation, and, climate change (both mitigation and adaptation). As it relates to climate change, the EQC plays an important and key role in helping City Council adopt policies and programs that ensure the goals of the city's 2030 Climate Action Plan (as amended April 20, 2021) are met in a manner that is both 1) expeditious and 2) socially and economically equitable.

As a resident of Menlo Park for the past 15 years and a local commercial real estate agent for the past 22 years, I would offer the EQC and City Council the following qualities:

- **Appreciation for our community and its diverse residents**
- **Established relationships with local commercial building owners and businesses**
- **Knowledge of various building electrification solutions**
- **A desire to listen and learn from others in the process of making well-considered decisions**
- **A focus on solving problems and implementing solutions**
- **Empathy and an ability to appreciate varying perspectives**
- **A results-oriented philosophy**
- **A personal responsibility to follow-through on commitments**
- **A willingness to make personal sacrifices for the common good**
- **An aspiration to dedicate a significant portion of my time to public service**
- **Integrity and honesty**

Describe why you want to serve on this advisory body and what you hope to accomplish as a member

I would like to serve on the EQC because I have a desire to learn, educate, and contribute. I have a deep appreciation for the natural and living world. I know how integral a healthy planet is to our existence to nourish us both physically, and emotionally. I want to do what I can to ensure that both our community and our planet thrive so that future generations can enjoy the environment in a sustainable way.

My goal is to accomplish the following:

- My primary objective is to engage with City Council, city staff, and the community to help City Council adopt policies and programs that will ensure the city meets the goals of the 2030 Climate Action Plan in a socially equitable manner. Of the utmost importance is that all community members throughout Menlo Park benefit from both the mitigation and the adaptation measures enacted in pursuit of the CAP goals.
- Participate and contribute in a meaningful way to a community outreach program that:
 - 1) engages with and listens to various stakeholders throughout the city to understand what is important to them, what are their needs, and what solutions they desire,
 - 2) promotes the financial assistance that is available thru
 - a. the recently enacted Inflation Reduction Act
 - b. state programs
 - c. rebates offered thru local and regional entities such as Peninsula Clean Energy, BayREN and others
 - 3) promotes the concierge service, job-training, and no-cost home upgrades to qualifying low-income households in Belle Haven that may become available from BlocPower
 - 4) highlights the many co-benefits (health, efficiency, lower operating costs, environmental justice, job creation, air quality, noise reduction, etc.) of electrification
- Significantly increase the tree canopy in Belle Haven
- Provide the City Council with well-researched advice on any environmental matter on which the City Council requests direction.

It would be an honor to serve on this advisory board and I sincerely appreciate your consideration.

Contact and residency information

Email	[REDACTED]
Cell phone	[REDACTED]
Home phone	[REDACTED]
Business phone	[REDACTED]
Address 1	[REDACTED]
Address 2	
City	MENLO PARK

State	CA
Zip code	94025
Business address	[REDACTED]
Number of years as a Menlo Park resident	15
Current City Council district	District 4
How did you hear about this opportunity (check all that apply)	Other: Learned of the opening from a recent EQC meeting and other sources

If I am appointed, the City is authorized to post the following information on the city website (please select at least one):

Cellphone: **Yes**
 Business phone: **No**
 Home phone: **No**
 Email: **Yes**

Application acknowledgement and submittal

I certify that the answers given herein are true and complete to the best of my knowledge. **I agree**

Signature



[Link to signature](#)

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RECEIVED

COMMISSION/COMMITTEE APPLICATION

Please type or print clearly. You may attach additional pages, if necessary. This is a public document.

Date: 3/26/2014

Commission/Committee of Interest: Planning Commission and Environmental Quality Commission

Name: Michael Meyer

Education: Several years of college/ no degree

Civic affiliations and community activities, including service on other commissions or committees:

Coached Little League and AYSO. I served 4 years on the Transportation Commission several years ago. I recently served on the Bicycle Commission and am currently a Transportation Commissioner.

Describe your understanding of the responsibilities of the commission/committee that you are applying for and how your personal, community or professional experience relate to these responsibilities:

My understanding of the Commission responsibilities is to review use permits and variances as well as help maintain the ever evolving relationship between the General Plan and the cities needs. I believe that my unique view on multi-modal transportation as well as 15 years of residency as a renter and homeowner will bring a balanced and needed point of view to the Commission.

Describe why you want to serve on this commission/committee and what you hope to accomplish as a member:

I would like to bring a little more transportation related point of view to the commission and hope to bring a fair and balanced voice to the commission.

Terms

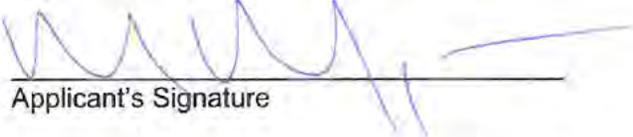
Terms for most commissions/committees are for a period of four years. Members are limited to two consecutive full terms. If a person is appointed to fill an unexpired term and serves less than two years, that time will not be considered a full term. However, if a person is appointed to fill an unexpired term and serves two years or more, that time will be considered a full term.

Specific Information

Serving on a commission or committee may require one or two night meetings per month, with each meeting averaging three to four hours. You may also be asked to serve on additional subcommittees. Members are expected to attend all meetings. Attendance at less than two-thirds of scheduled meetings may result in removal by the Council. Commissioners are not paid for their volunteer service. General information related to the charge of the commissions and committees and their schedules are shown on the attachment. More specific information may be obtained by viewing the City's website at http://www.menlopark.org/city_commissions.html and by contacting the staff liaison.

Information about the Appointment Process

The application process may take from six weeks to two months. Vacancies are advertised for approximately 30 days with a specific filing deadline. Deadlines may be extended. Please return your application, along with any attachments, to the City Clerk, at the address listed below. Applications are kept on file for one year. The City Council will review all applications, may contact you individually or may decide to hold interviews. All appointments will be made by nomination and vote of the City Council at a Council meeting. Questions about the application process should be directed to Pamela Aguilar, Acting City Clerk, at (650) 330-6620 or by e-mail at PIAguilar@menlopark.org.



Applicant's Signature

Return to the City Clerk, City of Menlo Park,
701 Laurel Street, Menlo Park, CA 94025
(Phone: (650) 330-6620 or e-mail at PIAguilar@menlopark.org)

OFFICE USE ONLY

Application Received: <u>10/12/2022</u>	Address Verified in City Limits: <input checked="" type="checkbox"/> By: <u>JAH</u> Initials
Considered by City Council: _____	Appointed: Yes <input type="checkbox"/> No <input type="checkbox"/>
Considered by City Council: _____	Appointed: Yes <input type="checkbox"/> No <input type="checkbox"/>
Considered by City Council: _____	Appointed: Yes <input type="checkbox"/> No <input type="checkbox"/>
If Appointed Term ends: <u>Various</u>	

PERSONAL INFORMATION

Name: Michael Meyer _____

Residence Address: _____
(Note: Residency within the City limits is required)

Telephone No: _____ Number of years as a Menlo Park resident: 15 _____

Occupation: IT Infrastructure _____

Email address: _____

Business Address/Telephone No: _____

Are you a registered voter?

Yes No

How did you hear about this opportunity?

Newspaper Email City's Website Nextdoor.com
 Patch.com Other _____

Internet Posting

If I am appointed, the City is authorized to post the following information on the City's website:

	YES	NO
Home Address:	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Home Phone:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Mailing Address (if not home address):	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Business Address:	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Business Phone:	<input type="checkbox"/>	<input checked="" type="checkbox"/>
E-mail:	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Advisory body application



Submission date: 14 October 2022, 4:13PM

Receipt number: 42

Related form versions: 4

Applicant's full name (first and last)

Susan S Prohaska

Desired advisory body (check all that apply)

Environmental Quality Commission

Applicant interest, experience and qualifications

Education

After getting my undergraduate degree at UC Berkeley, I did my PhD in immunology, and postdoctoral studies in stem cell biology at Stanford University. I have spent the last 30 years as a scientist and entrepreneur in biotechnology field.

Civic affiliations and community activities, including service on other advisory bodies, commissions or committees

In addition to my education and professional experience including founding biotech company, I have served on two small non-profit boards of directors: I was previously president of my condominium homeowners association in Mountain View, and am currently on the board of the Zohar Dance Company in Palo Alto. I am also volunteering to help restore the habitat for the burrowing owls at Shoreline. By planting native plants and supporting their survival by weeding and mulching, etc, the ecosystem providing the insects and small animals that support the burrowing owls' survival is being regenerated.

Describe your understanding of the responsibilities of the advisory body that you are applying for and how your personal community or professional experience relate to these responsibilities

The Environmental Quality Commission provides guidance to the City Council on matters involving environmental protection, improvement, and sustainability. As a scientist in the biomedical field I have always been interested in nature, health and our environment. I also personally am committed to reducing my impact where I can and believe that everyone doing a little is the best way to start, but collectively we need to do a lot to overcome the challenges to our environment including climate change, with sustainable practices.

Describe why you want to serve on this advisory body and what you hope to accomplish as a member

I am very concerned about climate change and its impacts, as well as and the overuse and overproduction of single use plastics in the world today. I think we need to make better options such as electrification of homes and businesses, creating and improving green spaces with native drought tolerant trees and plants more easily available, and reduce costs and logistical barriers to their implementation. It can be overwhelming even for those of us who want to make meaningful changes, to sift through the available information to identify tangible, actionable steps. It can also be challenging to combat the "gloom and doom" of the messaging around climate change globally, our drought locally, etc. I want to be part of the solution and I would hope that being a member of this Environmental Quality Commission would allow me to learn more about solutions and their implementation, and to participate in the process by being part of the team that advises the City Council on these matters.

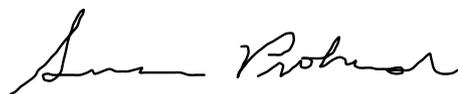
Contact and residency information

Email	[REDACTED]
Cell phone	[REDACTED]
Home phone	[REDACTED]
Business phone	[REDACTED]
Address 1	[REDACTED]
Address 2	
City	Menlo Park
State	CA
Zip code	94025
Business address	
Number of years as a Menlo Park resident	1
Current City Council district	District 2
How did you hear about this opportunity (check all that apply)	Other: I attended the "What is your 2040" event at the Guild and Nancy Larocca Hedley mentioned it.
If I am appointed, the City is authorized to post the following information on the city website (please select at least one):	Cellphone: No Business phone: No Home phone: No Email: Yes

Application acknowledgement and submittal

I certify that the answers given here are true and complete to the best of my knowledge. I agree

Signature

A handwritten signature in black ink that reads "Susan Prohman". The signature is written in a cursive style with a long horizontal stroke at the beginning.

[Link to signature](#)

Advisory body application



Submission date: 29 September 2022, 7:20PM

Receipt number: 31

Related form version: 4

Applicant's full name (first and last) **Nabil Saad**
 Desired advisory body (check all that apply) **Environmental Quality Commission**

Applicant interest, experience and qualifications

Education **I am a Ph.D. holder in Environmental Toxicology with 20+ yrs of experience in high-tech environmental protection technologies and regulatory compliance.**

Civic affiliations and community activities, including service on other advisory bodies, commissions or committees **I served as a commissioner on the City of Menlo Park Independent Redistricting Commission (IRC) in 2021/2022. In addition, I am an environmental justice advocate on the local, state, and federal levels.**

Describe your understanding of the responsibilities of the advisory body that you are applying for and how your personal community or professional experience relate to these responsibilities **My understanding of the responsibilities of the EQC and their priorities, and quoting from their website:**
 1)Preserving heritage trees
 2)Using best practices to maintain city trees
 3)Preserving and expanding the urban canopy
 4)Making determinations on appeals of heritage tree removal permits
 5)Administering annual Environmental Quality Awards program
 6)Organizing annual Arbor Day Event; typically a tree planting event
 7)Advising on programs and policies related to the protection of natural areas, recycling and waste reduction, environmentally sustainable practices, air and water pollution prevention, climate protection, and water and energy conservation.
My 20+ yrs of professional expertise in the environmental protection high-tech sector and as a clean energy and conservation advocate, my professional acumen and personal background unequivocally qualify me to assist the EQC in achieving its priorities, especially when it comes to point #7, listed above. This is a colossal undertaking that will require deep personal commitment and professional experience to advise the city council on those topics and marshal MP to a leading position, nationwide, on the greenhouse gas emissions reduction agenda while fostering real equity on the Environmental Justice front.

Describe why you want to serve on this advisory body and what you hope to accomplish as a member

I am an environmentalist at heart and dedicated to the education of my community on the best practical and behavioral changes to protect our planet by acting on a local scale. As a member of the EQC, I want to provide the city council with the best professional advice and scientifically-based data for them to enact environmental policies and take actions that would protect our community and our environment while fostering true environmental equity and justice that will benefit all the constituents of our city, especially the disadvantaged ones in our community.

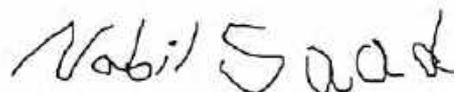
Contact and residency information

Email	[REDACTED]
Cell phone	[REDACTED]
Home phone	[REDACTED]
Business phone	[REDACTED]
Address 1	[REDACTED]
Address 2	
City	Menlo Park
State	CA
Zip code	94025
Business address	
Number of years as a Menlo Park resident	
Current City Council district	District 4
How did you hear about this opportunity (check all that apply)	Email
If I am appointed, the City is authorized to post the following information on the city website (please select at least one):	Cellphone: No Business phone: No Home phone: Yes Email: Yes

Application acknowledgement and submittal

I certify that the answers given herein are true and complete to the best of my knowledge. I agree

Signature



[Link to signature](#)

Advisory body application



Submission date: 10 October 2022, 6:59PM

Receipt number: 35

Related form versions: 4

Applicant's full name (first and last)

Gail Ann McEachron

Desired advisory body (check all that apply)

Library Commission

Applicant interest, experience and qualifications

Education

Ph.D., Curriculum & Instruction, The University of Texas at Austin, 1979
(Vita and publications available upon request)

Civic affiliations and community activities, including service on other advisory bodies, commissions or committees

PROFESSIONAL SERVICE

2021-22 Mid-Peninsula Newcomers Club
Palo Alto Arts Center
Palo Alto YMCA
College committee service
College-wide committees:
2016-17 Diversity and Inclusion Committee
2016 Search Committee for Director of English Language Program, Reves Center
2012-14 The Marine Silk Road, School of Education Representative
2013-14 Educational Studies Planning Committee
2012-16 Language Center Advisory Committee, Reves Center for International Studies
2007-12 Muscarelle Art Museum Acquisitions Committee
2003-5 Reves Center for International Studies Executive Committee
1999-03; 05 International Studies Committee
2001 Library Policy Committee (Fall)
1999-02 British Royal Navy School, Search Committee for Student Intern
2000 Accurate Reliable Information Access Committee (ARIA)
1999-00 British Studies Exploratory Committee
1995-97 Women's Studies Advisory Committee
1995-97 Women's Caucus Executive Board
1993-94 Self-Study Committee for Undergraduate Programs
1990-93 Affirmative Action Committee, Chair 1992-1993
1991-94 Teacher Education Advisory Council
1990-91 Women's Studies Long-Range Planning Committee
1990-92 Faculty Compensation Board
1990-03 International Studies Faculty; Long-Range Planning, 1990-91

School of Education Committees:

2017-20 Janet Brown Strafer Social Justice Award Committee
2015-16 TESOL Search Committee, Chair
2015-17 Strategic Planning Diverse Committee
2013-16 Diversity Committee; Chair (2014-15); School of Education
2014-15 Faculty Evaluation Committee
2014-16 Self-Study Diversity Committee
2014-15 Reading Search Committee

2009-11 Academic Affairs Committee, Chair 2010-11
 2008-09 Admissions and Financial Aid Committee
 2007 Learning Plan Committee
 2004-06 Promotion and Tenure Evaluation Committee
 2004-05 Elementary Program Co-Convener
 2004 School-wide Assessment Committee
 2004 Promotion and Tenure Policy Revisions Committee
 2002-03 NCATE Assessment Committee
 2001-14 Elementary Program; Coordinator/Convener ('01-'05; '07-'08)
 1987-18 Curriculum and Instruction
 2001 Reading Search Committee
 1998-01 Social Studies Curriculum Development, Project Faculty,
 Program Director, Joyce VanTassel-Baska.
 1995-97 Curriculum Committee
 1992-93 Language Arts Advisory Committee, Center for Gifted
 Education
 1991-94 Executive Committee
 1991-98 Learning Resource Center Advisory Committee
 1990-93 Affirmative Action Committee; Chair, 1992-1993
 1989-90 Project Mandala, Project Faculty, grant funded by the Jacob K.
 Javits Gifted and Talented Students Education Act, U. S. Department of
 Education.
 1989-91 Special Education Curriculum Committee
 1989-03 Curriculum and Instruction; Coordinator, Elementary and
 Secondary Education, 1993-1995
 1988-97 Gifted and Talented Advisory Committee
 1991-93 College-wide Search Committee for the Assistant to the
 President for Affirmative
 Action

Appointments:

2012-16 Director and Member of the Advisory Board for The Foundation
 for
 Aging Studies and Exercise Science Research (TFASESR)
<http://www.tfasesr.com/board.htm>
 2011-16 Program Director, ESL Dual Endorsement, School of Education
 2010 School of Education, Grade Review Committee
 2005-06 Acting Dean/Director, Reves Center for International Studies
 2005 Colonial Academic Association Meeting, Washington, D.C., Fall.
 2003 Reves Center for International Studies Executive Committee
 2002 School of Education Assessment Committee
 2000-02 Search Committee, Royal Navy Hospital School, Teacher Intern,
 Ipswich, England
 2001 Library Policy Committee, Fall
 2000 Academic Board, Visiting Appointment, Advanced Studies in
 England; Bath, England

1999 Academic Board, Visiting Appointment, Advanced Studies in
 England; Bath, England
 1998 Search Committee, Royal Navy Hospital School, Teacher Intern,
 Ipswich, England; Reves Center for International Studies
 1998 Administrative Evaluation Committee for Dean Virginia McLaughlin

1995-97 Search Committees for Math Educator, Chair 1995-96
1994-95 Search Committee for Dean of the School of Education
1994-95 Committee to Evaluate the Endowed Chair Appointment for
Brian Blouet
1992 Search Committee for Reading/Language Arts Position,
Elementary and Secondary Education

c. Other professional service

College Service:

2011-15 Faculty Advisor, Student Virginia Education Association for
School of Education
2005 Established Zeta Delta Chapter of Phi Beta Delta, an International
Honorary Organization, College of William and Mary
2003-2005 Freshman Advisor
1992-1993 Curriculum Consultant, Language Arts Grant, Center for
Gifted Education, The College of William and Mary.
1990-1991 Co-Faculty Advisor, Kappa Delta Pi, Alpha Xi Chapter, The
College of William and Mary, Williamsburg, VA.

Community Service:

ESL tutor, Richmond, Virginia, 2018-2019; focus on workplace language
for adult from Brazil

Literacy for Life Partnership, Summer 2014; students in CRIN 591 taught
courses for ESL adults; coordination with Director, Joan Peterson and
three associates.

With the Friends of the Reves Center Steering Committee, Second
Annual Global Forum, Fall, 2005; sponsored Ambassador to the U.S.
from Pakistan, Jehangir Karamat.

With Patron Lois Critchfield and Kenan Professor Tamara Sonn, hosted
Prince Hassan Bin Talal of Jordan, Reves Center for International
Studies, Fall 2005.

Counselor, Camp Okizu, Novato, California. (2004, July). Camp is for
children who have cancer and their families. Provided art experiences
from Hospital Art Donations.

Clinical Faculty Panel, Berkeley Middle School, Williamsburg/James City
Council, July 2004.

Educational Outreach, with Dr. Ghazala Bhatti, Exchange of information
about the Muslim community members whose children attend Crestview
Elementary; Tarick Jangda, Manager, Islamic Society of Greater
Richmond, March 2001.

Grafton Middle School and James River Elementary Partnerships,
Preparing Teachers for Tomorrow's Technology, Dr. Robert Hannafin
Grant, December 1999.

Advisory Committee for International Magnet School,

Williamsburg/James City County, 1991-1992; coordinated by Loretta Hannum, Social Studies Coordinator for Williamsburg-James City County.

Social Studies Textbook Adoption Committee, Williamsburg/James City County, January-March 1991; coordinated by Loretta Hannum, Social Studies Coordinator for Williamsburg-James City County.

Chairperson (1986-87), Community Council, Jackson Davis Elementary School, Henrico County, Richmond, VA, 1985-87; advisor for parent-teacher survey, 1990.

Regional Service:

ESL Program Director, Five ESL Summer Institutes, College of William and Mary, Williamsburg, Virginia, 2011-2016; established partnerships with Henrico County, Newport News and Williamsburg/James City County Public Schools.

William and Mary and Henrico County Partnership to promote professional development in ESL/ELL, with Val Gooss, Director of ESL and Foreign Language Programs, Henrico County, Richmond, Virginia, 2008-2009; supported by Mini-Grant from School of Education.

Partnerships for Differentiated Populations. Created partnerships with three summer school programs: ESL Summer Academy in Richmond, Joy Martin; D.J. Montague Summer School, Lynda Heath; and Gifted Summer Enrichment Program, Sharron Gatling. For students in CRIN 591, Curriculum and Assessment, Summers, 2007-2008. First effort to provide early practica experiences in summer program, thus aligning graduate and undergraduate programs.

Partnerships for Art and Social Science. Created partnerships with Muscarelle Museum, Amy Gorman, Director of Educational Programs, 2007-2009, for practica experiences.

Co-coordinator of three-way Partnership Program: Endview Civil War Living History Museum & Lee Hall Mansion Museum, Newport News School District, and William and Mary Pre-service Teachers. Historical Interpretation, Docent Experiences, and Educational Outreach, Fall, 2004.

Henrico County and William and Mary pilot partnership. Set up partnership with Val Gooss, ESL Coordinator, Henrico County, whereby 65 William and Mary graduate and undergraduate students designed and taught ESL lessons to students in Henrico County; students collaborated with 36 teachers, teaching more than 300 students; 2002-2003.

Social Studies Consultant, History and Social Standards K-5, Chesapeake Public Schools, March and August 1999.

Advisory Board; Math, Science, Technology Center, Godwin High

School, Henrico County, Virginia, 1995-1997.

The Northern Neck Community: Its Past and Present; institute for K-12 teachers representing the following districts: Chesterfield, Hanover, Gloucester, Richmond City, Prince William, Lancaster, York, Northumberland, Middlesex, and Westmoreland; Summers, 1994-1999, with Miriam Beckwith.

Multi-Age Grouping and Interdisciplinary Teaching, three professional development workshops presented for elementary teachers, Middlesex County Virginia, January-February 1993.

Language Arts Professional Development, for elementary teachers, New Kent County, October 1991.

State Service:

President-elect (2016-17), President (2017-18), Past-president (2018-19) Virginia Educational Research Association.

Faculty Sponsor, Student Virginia Education Association, 2011-15; re-launched Student Virginia Education Association, 2011-2012

Virginia ESL Supervisors Association, Bi-annual meetings, 2002-2005; set up a website for all Virginia ESL teachers to access lessons designed and taught by William and Mary undergraduate and graduate students enrolled in Social Studies 405 and E05.

Bailey's Elementary, Fairfax County; Evaluator for Mammals in the Schools, Smithsonian Institution, National Museum of Natural History, June 2001, with Peg Koetsch.

Multicultural Consortium, Commonwealth of Virginia, Richmond, VA, 1992-1993.

Commonwealth Seminars Faculty/Staff: East Asia—China, Japan, and Korea, 1988; Latin America, 1989; Europe: From the Atlantic to the Urals, 1990; Staff, The College of William and Mary; grants supported by Governor Baliles. Facilitated interdisciplinary team building among teachers, students, and business leaders.

The Fall 1988 Commonwealth Conference on Significant K-12 International Education Initiatives in Virginia, Staff, The College of William and Mary, December.

National Service:

Elementary Education Unit Representative, National Council for the Accreditation of Teacher Education, Portfolio Preparation Training, Washington, D.C., September 2002.

Evaluator, Docent Program, Smithsonian Institution, National Museum of Natural History and Naturalist Center, Spring, 2002.

Evaluator, Mammals in the Schools, Smithsonian Institution, National Museum of Natural History, educational outreach for four schools in Virginia, New Jersey, California, and Indiana; Summer, 2001.

State Representative to Board of Examiner's Team, National Council for the Accreditation of Colleges of Teacher Education, Institutional Visit-- Longwood College, Farmville, VA, October 4-7, 1992.

The Center for Occupational Curriculum Development, The University of Texas at Austin; Representative to Annual Convention of the Virginia Home Economics Teachers' Association, June 1982.

Describe your understanding of the responsibilities of the advisory body that you are applying for and how your personal community or professional experience relate to these responsibilities

My understanding of the responsibilities of the advisory body is what is listed on the webpage as follows:

- *The scope and degree of library activities
- *Maintenance and protection of City libraries
- *Evaluation and improvement of library service
- *Acquisition of library materials
- *Coordination with other library systems and long range planning
- *Literacy and English as a second language (ESL) programs

Based on my experiences as a professor who prepared teachers for 32 years at The College of William and Mary, I feel that I can bring important perspectives regarding the importance of access to quality literature for children and young adults. I taught graduate and undergraduate students Language Arts and as a part of those courses we discussed censorship, utilizing the research in *The Language Police* by Diane Ravitch. As the pendulum continues to swing, we are witnessing the resurgence of debates and I would like to be on a committee that values the importance of access to all kinds of literature for young people. A public library plays a key role in providing access, especially when school boards may be under pressure to set limits regarding access.

In addition, I was the Director of the ESL Program in the School of Education at William and Mary, and with my colleagues in the Arts and Sciences, advanced the add-on endorsement in ESL for future teachers. The program was so popular that we were able to hire a full-time ESL director. Learning more than one language is a way to open windows for enhanced cultural understanding. I am currently taking Spanish courses at the intermediate level at Cal State University, East Bay with the hope of becoming fluent in Spanish. With my commitment to language learning and support to ESL learners, I would like to advance the services offered by Menlo Park to adult learners as well as promote dual language books at the library.

Describe why you want to serve on this advisory body and what you hope to accomplish as a member

In 2019, I retired from The College of William and Mary. Then the pandemic hit so I had a great deal of time to reflect. The importance of family crystallized so I decided to move to Menlo Park in 2021 to be close to my daughter and her family who live in Palo Alto. I love the progressive area and have participated in Menlo Park library activities. Yet, I feel that I would like greater civic engagement in a way that would allow me to utilize my career experiences in education and also expand them to fit the needs of the local community as necessary. As a professor, it was important to be sensitive to many points of view and to create a classroom ethos in which each student was respected. I would like to be a member of a library committee whose members demonstrate respect for multiple points of view yet recognize the important role they play in advancing human rights and the dignity of all people through access to quality literature and programming.

Contact and residency information

Email	[REDACTED]
Cell phone	[REDACTED]
Home phone	[REDACTED]
Business phone	[REDACTED]
Address 1	[REDACTED]
Address 2	[REDACTED]
City	Menlo Park
State	CA
Zip code	94025
Business address	
Number of years as a Menlo Park resident	1 year, 4 months
Current City Council district	District 5
How did you hear about this opportunity (check all that apply)	Email
If I am appointed, the City is authorized to post the following information on the city website (please select at least one):	Cellphone: No Business phone: No Home phone: No Email: Yes

Application acknowledgement and submittal

I certify that the answers given here are true and complete to the best of my knowledge. I agree

Signature

Paul M^c Jackson

[Link to signature](#)

Advisory body application



Submission date: 11 October 2022, 1:45PM

Receipt number: 36

Related form version: 4

Applicant's full name (first and last) **Ada Chen Rekhi**

Desired advisory body (check all that apply) **Library Commission**

Applicant interest, experience and qualifications

Education **B.S. Economics, University of Pennsylvania (Wharton)**

Civic affiliations and community activities, including service on other advisory bodies, commissions or committees **N/A**

Describe your understanding of the responsibilities of the advisory body that you are applying for and how your personal, community or professional experience relate to these responsibilities.

It's my understanding that Library Commission members provide the City Council with input and feedback on library facilities, services, and programs. It's also my understanding that this is an advisory role focused on providing feedback as opposed to a decision-making body. The minimum responsibility is attending the monthly Monday meetings, but could extend further into sub-committee or project-based work depending on the situation or needs.

Professionally I am the founder of a small software business, Notejoy, and have previously worked in larger companies such as SurveyMonkey and LinkedIn. In those experiences, I spent a significant amount of my time thinking about how to take the information and data available and apply sound decision-making rationale to reach optimal solutions. My career background is in marketing and I could lend perspective as well on how to increase awareness and utilization of library services to the city's diverse population. I think there are parallels from some of my professional experiences that can help the city make better, more informed decisions on library services.

In the community I haven't served an "official" capacity but I've been an organizer of putting together music and dance classes with a revolving group of 10-12 families through the pandemic. I'm a parent to a toddler and access to library activities is a huge part of why I love living here. I've also been actively involved in Menlo Park oriented Facebook groups to help people connect with resources.

Describe why you want to serve on this advisory body and what you hope to accomplish as a member

On a personal level, joining the library commission appeals to me because of the role the library has played in my life. I grew up in the Seattle library system. As an immigrant to the United States, the library was a haven for me and provided significant access to books and Internet that I didn't have otherwise. My mother used to drop me off at the library every Saturday for a few hours when she needed to run errands, and I eagerly devoured books and befriended librarians. As a parent of a young child and a library user myself, participating on this commission also gives me a way to input on services that are really important to me.

As a member of the commission, I'm eager to give back to the community and provide input to make this a great place to live and grow up. I reached out to one of the commission members, Pavneet, and was really inspired by the opportunities to weigh in on projects like the new library and rec facility. To the extent that we can make it accessible to the broader community, I'd be interested in making a difference on this and other projects.

I'm also a heavy user of the library's online services, especially through COVID. While Internet connectivity is one limitation to access, schedule and transportation access is another limiter. It's a shock to me when I'm on local parent Facebook groups and they're asking to borrow books from each other – sometimes, the library is not top of mind as an option! Building awareness is a key to access. I'd also love to think about how to bring Menlo Park's library systems to be more accessible to kids and adults in the city that aren't able to easily make it in person.

Contact and residency information

Email	[REDACTED]
Cell phone	[REDACTED]
Home phone	[REDACTED]
Business phone	[REDACTED]
Address 1	[REDACTED]
Address 2	
City	Menlo Park
State	CA
Zip code	94025
Business address	NA
Number of years as a Menlo Park resident	9
Current City Council district	District 2
How did you hear about this opportunity (check all that apply)	Other; Facebook post in Menlo Park group by Nancy Larocca Hedley

If I am appointed, the City is authorized to post the following information on the city website (please select at least one):

Cellphone: **No**

Business phone: **No**

Home phone: **No**

Email: **Yes**

Application acknowledgement and submittal

I certify that the answers given here are true and complete to the best of my knowledge. **I agree**

Signature

A handwritten signature in black ink, appearing to be 'J. J. ...', written over a light gray background.

[Link to signature](#)

Advisory body application



Submitted on date: 10 October 2022, 10:35AM

Receipt number: 34

Related form versions on: 4

Applicant's full name (first and last) Jennifer Wise

Desired advisory body (check all that apply) Library Commission

Applicant interest, experience and qualifications

Education U.C. Berkeley, B.A. Legal Studies
Santa Clara University School of Law, J.D.

Civic affiliations and community activities, including service on other advisory bodies, commissions or committees I was appointed by President Barack Obama to serve in various positions at the U.S. Department of Education, working in programs including early childhood education, K-12, higher education, and strategic initiatives. After the Administration ended, I worked as the Director of a preschool for two years before going back to school and earning my J.D.

Describe your understanding of the responsibilities of the advisory body that you are applying for and how your personal community or professional experience relate to these responsibilities It is my understanding that the library commission maintains the public library in all facets including acquiring new books and products, scheduling and organizing events, and conducting long term planning. As an estate planning and tax attorney, I research complicated tax matters, and conduct future planning for families. During my time in the Obama Administration, I organized symposiums for hundreds of people in the education space. As the Director of a preschool, I facilitated age-appropriate activities for children on a daily basis.

Describe why you want to serve on this advisory body and what you hope to accomplish as a member. I have always had a passion for reading and education and would love to support the public library, a service which has benefited me greatly throughout my life. I have been looking for opportunities to get involved in my local community and am excited by the possibility of a long-term commitment. I hope to maintain the library's high standards, and create engaging ways for the community to interact with the library.

Contact and residency information

Email [REDACTED]

Cell phone [REDACTED]

Home phone [REDACTED]

Business phone [REDACTED]

Address 1 [REDACTED]

Address 2

City	Menlo Park
State	CA
Zip code	94025
Business address	
Number of years as a Menlo Park resident	1.5
Current City Council District	District 5
How did you hear about this opportunity (check all that apply)	<input checked="" type="checkbox"/> City website <input checked="" type="checkbox"/> Local newspaper
If I am appointed, the City is authorized to post the following information on the city website (please select at least one):	Cellphone: No Business phone: No Home phone: No Email: Yes

Application acknowledgement and submittal

I certify that the answers given here are true and complete to the best of my knowledge. **I agree**

Signature



[Link to signature](#)

Advisory body application



Submitted on date: 7 October 2022, 9:06AM

Receipt number: 33

Related form versions on: 4

Applicant's full name (first and last) Nicole Chessari

Desired advisory body (check all that apply) Planning Commission

Applicant interest, experience and qualifications

Education Bachelors Degree, University of California, San Diego
Juris Doctor Degree, University of California, Davis

Civic affiliations and community activities, including service on other advisory bodies, commissions or committees Sponsor of Measure V; co-founder of Menlo Balance. Purpose to ensure balanced and responsible growth in Menlo Park.

Describe your understanding of the responsibilities of the advisory body that you are applying for and how your personal community or professional experience relate to these responsibilities I understand the primary responsibilities to be reviewing development proposals, potential rezoning, and other potential land use changes in Menlo Park to ensure compliance with Menlo Park's General Plan and to advise City Council on appropriate treatment of those proposed projects/land use changes.

Through my own civic involvement leading up to Measure V and my advocacy for passage of Measure V, I have become an expert on local zoning, land use and the housing element process. I've walked nearly every street in Menlo Park canvassing, participated in numerous city council meetings, reviewed the housing element and related staff reports, and have thoroughly analyzed CA land use law.

Describe why you want to serve on this advisory body and what you hope to accomplish as a member I care about how our city grows. I care about our neighborhoods and about ensuring that affordable housing is created in the most optimal locations, in compliance with state and federal affirmatively furthering fair housing laws. Although various new state housing laws take discretion away from City Council and the planning commission, I'd like to be able to meaningfully influence development and planning for growth in our city as much as local government is still capable of influencing it.

Contact and residency information

Email [REDACTED]

Cell phone [REDACTED]

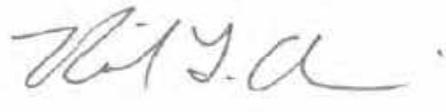
Home phone [REDACTED]

Business phone [REDACTED]

Address 1	[REDACTED]
Address 2	
City	Menlo Park
State	CA
Zip code	94025
Business address	[REDACTED]
Number of years as a Menlo Park resident	9.5
Current City Council district	District 2
How did you hear about this opportunity (check all that apply)	Email Nextdoor
If I am appointed, the City is authorized to post the following information on the city website (please select at least one):	Cellphone: No Business phone: Yes Home phone: No Email: No

Application acknowledgement and submittal

I certify that the answers given herein are true and complete to the best of my knowledge. I agree

Signature 

[Uploaded signature image: Signature file.jpg](#)

Advisory body application



Submission date: 12 October 2022, 8:32PM

Receipt number: 37

Related form versions: 4

Applicant's full name (first and last) **Andrew Ehrich**

Desired advisory body (check all that apply)

- Complete Streets Commission
- Environmental Quality Commission
- Housing Commission
- Housing Element Community Engagement and Outreach Committee
- Parks and Recreation Commission
- Planning Commission

Applicant interest, experience and qualifications

Education

- Masters - Public Management and Governance, London School of Economics (2012)**
- Masters - Regional and Urban Planning Studies, London School of Economics (2011)**
- Bachelors - Mathematics, Stanford University (2009)**

Civic affiliations and community activities, including service on other advisory bodies, commissions or committees

- City Data Lead, City of San Jose**
- Development Committee, Hillel at Stanford**
- Intern, San Francisco Bicycle Coalition**

Describe your understanding of the responsibilities of the advisory body that you are applying for and how your personal community or professional experience relate to these responsibilities

From November 2019 - January 2021, I was the City Data Lead for the City of San Jose, working in the City Manager's Office. During that time, I also served as the Deputy Director for San Jose's Emergency COVID-19 Operations Center in charge of coordinating the response to COVID-19 for the entire city. This role required not only coordinating with Santa Clara County on the public health response, but also managing the response to all the downstream repercussions of the pandemic: food insecurity, housing insecurity, economic development, homelessness, renters policy, functioning of parks during the pandemic, and more.

As the person that San Jose entrusted to bring data to bear these important problems, my job was to help bring quantitative rigor to decision making, program design, and policy. I deeply value the perspective that data can bring to city government and being data-driven would be a core philosophy of my service on a commission in Menlo Park.

However, I also know that data is only one part of the puzzle. Data is most useful when paired with clearly defined goals, and in the context of local government, setting goals and priorities is the job of the City Council and City Commissions (engaging constituents in the process). As a former City staff member in a council-manager form of government, I could best do my job when City Commissioners brought clear-eyed community perspective that shed light on the goals worth focusing on. I loved it even more when commissioners asked great questions about staff and council work that helped ensure we were keeping community priorities front of mind.

Local government presents an amazing opportunity to have a tangible impact, and it is a team sport. I deeply value the different roles that the City council, City staff, and City commissions can play in creating a responsive, effective local government. My goal as part of an advisory body in Menlo Park would be to play my part on the team by engaging the community, asking good questions, looking at data, and helping our city to function well on behalf of everyone who lives here.

Describe why you want to serve on this advisory body and what you hope to accomplish as a member

Menlo Park is an amazing place. In the heart of Silicon Valley, it is rife with opportunity. It is beautiful. It is community oriented with distinct neighborhoods that each have a unique character. I have now lived in 3 different neighborhoods in my 6 years in Menlo Park –Downtown, Linfield Oaks, and The Willows – and in each one I have found friends and neighbors invested in creating a wonderful community.

I want to help make sure that Menlo Park is preparing for how it will extend what is special about its present into its future. I want to see the City make the right investments in housing, transportation, infrastructure, and public space. We need these investments so that we can grow in a way that maintains the strengths of Menlo Park while also expanding its ability to serve as an opportunity-rich home for all the communities it houses and the people who contribute to its vibrancy.

Planning and adapting for the future require engaging as much of our community as possible in envisioning and imagining what we want our city to look like in 5, 10, 20, and 30 years. It is not realistic to believe that we can maintain everything as-is, but it is wholly within our grasp to capture what is special about Menlo Park and ensure we build that into our future.

I think advisory bodies have an important role to play in engaging the community to help shape that vision. In so doing, they can help City Council and City Staff do their jobs with as much information and community input as possible, which can ultimately lead to the considered planning and tangible outcomes that will keep Menlo Park a truly special place.

Contact and residency information

Email	[REDACTED]
Cell phone	[REDACTED]
Home phone	[REDACTED]
Business phone	[REDACTED]
Address 1	[REDACTED]
Address 2	
City	Menlo Park
State	CA
Zip code	94025
Business address	
Number of years as a Menlo Park resident	6
Current City Council district	District 2
How did you hear about this opportunity (check all that apply)	City website

If I am appointed, the City is authorized to post the following information on the city website (please select at least one):

Cellphone: **Yes**

Business phone: **Yes**

Home phone: **Yes**

Email: **Yes**

Application acknowledgement and submittal

I certify that the answers given here are true and complete to the best of my knowledge. **I agree**

Signature

A handwritten signature in black ink, consisting of a series of connected loops and a long horizontal stroke.

[Link to signature](#)

OFFICE USE ONLY
RECEIVED

COMMISSION/COMMITTEE APPLICATION

Please type or print clearly. You may attach additional pages, if necessary. This is a public document.

Date: 3/26/2014

Commission/Committee of Interest: Planning Commission and Environmental Quality Commission

Name: Michael Meyer

Education: Several years of college/ no degree

Civic affiliations and community activities, including service on other commissions or committees:

Coached Little League and AYSO. I served 4 years on the Transportation Commission several years ago. I recently served on the Bicycle Commission and am currently a Transportation Commissioner.

Describe your understanding of the responsibilities of the commission/committee that you are applying for and how your personal, community or professional experience relate to these responsibilities:

My understanding of the Commission responsibilities is to review use permits and variances as well as help maintain the ever evolving relationship between the General Plan and the cities needs. I believe that my unique view on multi-modal transportation as well as 15 years of residency as a renter and homeowner will bring a balanced and needed point of view to the Commission.

Describe why you want to serve on this commission/committee and what you hope to accomplish as a member:

I would like to bring a little more transportation related point of view to the commission and hope to bring a fair and balanced voice to the commission.

Terms

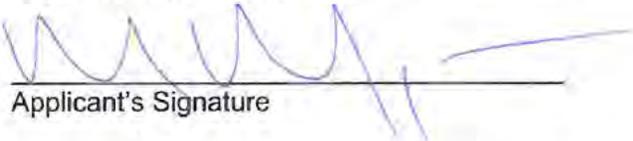
Terms for most commissions/committees are for a period of four years. Members are limited to two consecutive full terms. If a person is appointed to fill an unexpired term and serves less than two years, that time will not be considered a full term. However, if a person is appointed to fill an unexpired term and serves two years or more, that time will be considered a full term.

Specific Information

Serving on a commission or committee may require one or two night meetings per month, with each meeting averaging three to four hours. You may also be asked to serve on additional subcommittees. Members are expected to attend all meetings. Attendance at less than two-thirds of scheduled meetings may result in removal by the Council. Commissioners are not paid for their volunteer service. General information related to the charge of the commissions and committees and their schedules are shown on the attachment. More specific information may be obtained by viewing the City's website at http://www.menlopark.org/city_commissions.html and by contacting the staff liaison.

Information about the Appointment Process

The application process may take from six weeks to two months. Vacancies are advertised for approximately 30 days with a specific filing deadline. Deadlines may be extended. Please return your application, along with any attachments, to the City Clerk, at the address listed below. Applications are kept on file for one year. The City Council will review all applications, may contact you individually or may decide to hold interviews. All appointments will be made by nomination and vote of the City Council at a Council meeting. Questions about the application process should be directed to Pamela Aguilar, Acting City Clerk, at (650) 330-6620 or by e-mail at PIAguilar@menlopark.org.



Applicant's Signature

Return to the City Clerk, City of Menlo Park,
701 Laurel Street, Menlo Park, CA 94025
(Phone: (650) 330-6620 or e-mail at PIAguilar@menlopark.org)

OFFICE USE ONLY

Application Received: <u>10/12/2022</u>	Address Verified in City Limits: <input checked="" type="checkbox"/> By: <u>JAH</u> Initials
Considered by City Council: _____	Appointed: Yes <input type="checkbox"/> No <input type="checkbox"/>
Considered by City Council: _____	Appointed: Yes <input type="checkbox"/> No <input type="checkbox"/>
Considered by City Council: _____	Appointed: Yes <input type="checkbox"/> No <input type="checkbox"/>
If Appointed Term ends: <u>Various</u>	

PERSONAL INFORMATION

Name: Michael Meyer _____

Residence Address: _____
(Note: Residency within the City limits is required)

Telephone No: _____ Number of years as a Menlo Park resident: 15 _____

Occupation: IT Infrastructure _____

Email address: _____

Business Address/Telephone No: _____

Are you a registered voter?

Yes No

How did you hear about this opportunity?

Newspaper Email City's Website Nextdoor.com
 Patch.com Other _____

Internet Posting

If I am appointed, the City is authorized to post the following information on the City's website:

	YES	NO
Home Address:	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Home Phone:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Mailing Address (if not home address):	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Business Address:	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Business Phone:	<input type="checkbox"/>	<input checked="" type="checkbox"/>
E-mail:	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Advisory body application



Submission date: 14 October 2022, 3:42PM

Receipt number: 40

Related form versions: 4

Applicant's full name (first and last)

Jennifer Schindler

Desired advisory body (check all that apply)

Planning Commission

Applicant interest, experience and qualifications

Education

Dartmouth College, 1995, AB - Economics, magna cum laude

Civic affiliations and community activities, including service on other advisory bodies, commissions or committees

No on Measure V Campaign, 2022 - organizing team member
 > Canvassing & community discussion - outreach to hundreds of residents about the details and impacts of Measure V
 > Created scaled messaging to educate team members & residents

As Google employee, led my department's women's resource group
 > Built community of hundreds of employees; advocated for women in tech business teams, raising visibility and connections of an underrepresented group
 > Set quarterly/ annual goals and operational plans, including speakers, annual summit, informal mentoring
 > Advocacy to department's executive leadership, on behalf of women's group

MPCSD parent volunteering - Oak Knoll & Hillview (2010-2021)
 > Room parent (5 years), myriad on-site volunteer roles (e.g. hot lunches, playground monitor, debate team judge, math & reading support)

Soccer parent volunteering - AYSO soccer coach - boys & girls (6 years); Alpine Strikers, team-level treasurer (7 years)

Describe your understanding of the responsibilities of the advisory body that you are applying for and how your personal community or professional experience relate to these responsibilities

Menlo Park's Planning Commission reviews, analyzes and makes decisions about land use proposals that need a use permit, architectural control, variance, minor subdivision or environmental review. In specific cases, like major subdivisions or BMR housing agreements, the Commission makes recommendations to the City Council. The Planning Commission is accountable to City Council and ensures that proposed developments are consistent with the city's General Plan and zoning statutes.

Complex decision-making was the consistent theme of my business career. As a management consultant, I learned the importance of listening carefully to clients to understand their challenges and the value of extensive research and analysis to find solutions. For the last 20+ years, I've used those skills daily in technology business roles, retiring from Google last year. At Google, my team sat at the intersection of Sales and Product Development. We used market input to decide what products to build, setting quarterly, annual and multi-year product plans. I want to bring my extensive skills in facilitating decision-making into a new arena, supporting public service and governance for Menlo Park.

Additionally, my expertise in messaging and communicating at scale could help me foster wider public engagement in the city's planning processes. At Google, my team set the launch strategies for new products. That meant deciding on the right messages to communicate, picking the best communication channels, setting launch timing and defining how to measure success. Through my involvement with Measure V, I came to appreciate that the vast majority of Menlo Park residents are, for valid reasons, not aware of how land use planning is done and even fewer understand how they can participate in the decision making. With Measure V, that lack of awareness and understanding resulted in confusion, frustration and, for some, divisiveness. I will help the Planning Division develop new goals for community education and outreach to key neighborhood stakeholders. For example, we should be tracking the number of different people who are giving input into our planning processes, per district, and aiming to double or triple that number, each year.

Describe why you want to serve on this advisory body and what you hope to accomplish as a member

I have lived in what is now District 5 since 2004, raising my family and cultivating a deep appreciation for this unique city. Menlo Park, like the rest of California, faces significant societal challenges: political and cultural divisiveness, environmental degradation and economic uncertainties. I am excited to invest my time and passion in addressing these challenges at the most local civic level, in the context of land use decisions. Land is Menlo Park's most precious and limited resource. Decisions about land use have implications that last for decades and are very difficult to change or reverse, so it's absolutely essential that thoughtful, comprehensive analysis precedes all land use decisions. My coworkers, family and friends will tell you that I am the kind of analytical, strategically-minded person who would invest deeply in that decision-making.

I believe that living near people who have different opinions and life experiences is essential to having a tolerant and strong community. Decisions about how to use (or not use) land can help ensure our city is attractive and inviting to residents of varying income levels, different cultural and political backgrounds and of all ages - school children to seniors.

Land use decisions are also the bedrock of economic growth for our city, generating revenue, attracting new residents and regular visitors. Menlo Park needs to ensure decisions are consistent with our General Plan and that they support smaller businesses, as well as large business developments. I believe more residents want to - and deserve to - shop, eat, recreate, and find essential services near where they live. Planning decisions can help move our neighborhoods in that direction.

And finally, planning decisions have huge implications for the quality of our air, water and green spaces. I want to help protect the amazing public spaces that we have in Menlo Park, make them more accessible and inviting. Governing locally, with a sharp eye for environmental impact, is essential to slowing global warming, protecting our air quality, managing the impact of rising sea levels and addressing the scarcity of freshwater, especially in California.

Contact and residency information

Email	[REDACTED]
Cell phone	[REDACTED]
Home phone	[REDACTED]
Business phone	n/a
Address 1	[REDACTED]
Address 2	
City	Menlo Park
State	CA

Zip code	94025
Business address	n/a
Number of years as a Menlo Park resident	17 years, 11 months
Current City Council district	District 5
How did you hear about this opportunity (check all that apply)	Other: From current members of the Complete Streets and Planning commissions.
If I am appointed, the City is authorized to post the following information on the city website (please select at least one):	Cellphone: No Business phone: No Home phone: No Email: Yes

Application acknowledgement and submittal

I certify that the answers given here are true and complete to the best of my knowledge. **I agree**

Signature



[Link to signature](#)

Advisory body application



Submission date: 29 September 2022, 11:49PM

Receipt number: 32

Related form versions: 4

Applicant's full name (first and last) **Ross Silverstein**

Desired advisory body (check all that apply) **Planning Commission**

Applicant interest, experience and qualifications

Education **Economics degree from UC Berkeley**

Civic affiliations and community activities, including service on other advisory bodies, commissions or committees

No formal advisory or committee history. I've voted in every election I've been eligible for and continue to be active in our community. I have reached out to multiple city employees about issues or possible improvements when I have noticed them.

Describe your understanding of the responsibilities of the advisory body that you are applying for and how your personal community or professional experience relate to these responsibilities

Planning Commission:

It's my understanding that the Planning Commission of Menlo Park's primary responsibilities are to review development proposals & permits and makes decisions regarding the approval or denial of said development. The commission also works closely with the City Council and can recommend changes or improvements to our city's zoning, permits, and overall development process.

I am an amateur urban-planning enthusiast, having read much literature and papers on urban planning. I have lived in 4 different countries, including Hong Kong and the Netherlands, but have lived in California for the last 20 years and the Bay Area for the last 10. I feel that the diverse set of environments in which I've lived gives me a good understanding of the pros & cons of those urban environments.

My economics background gives me a good basis point for which to evaluate various city proposals and try to identify what type of ROI (either monetary or otherwise) we as a community might get out of any given project.

Describe why you want to serve on this advisory body and what you hope to accomplish as a member

I would love to serve on the Planning Commission and be a voice in the growth and development of Menlo Park.

I would say that my overall philosophy for City Planning is one of pro-smart-development. I absolutely love the cute neighborhoods of Menlo Park and how friendly everyone is while I'm going for a walk or riding my bike around town. That being said, I recognize that there's a desperate housing shortage in California and the Bay Area and would want to be part of the solution to allow that housing to be developed in Menlo Park.

I'm a strong proponent of blurring the lines (although not entirely) between residential and commercial areas in towns and feel that it's important for people to be able to shop, work, dine, all within a short walk or bike ride of where they live.

Specifically, as California has recently passed a number of bills (more notably AB 2097, AB 2011, and SB 6), I imagine that the next 5-10 years will be very important in influencing and informing how Menlo Park will grow and develop for decades to come.

Contact and residency information

Email	[REDACTED]
Cell phone	[REDACTED]
Home phone	n/a
Business phone	n/a
Address 1	[REDACTED]
Address 2	
City	Menlo Park
State	CA
Zip code	94025
Business address	
Number of years as a Menlo Park resident	1
Current City Council district	District 2
How did you hear about this opportunity (check all that apply)	City website
If I am appointed, the City is authorized to post the following information on the city website (please select at least one):	Cellphone: Yes Business phone: No Home phone: No Email: Yes

Application acknowledgement and submittal

I certify that the answers given here are true and complete to the best of my knowledge. **I agree**

Signature

A handwritten signature in black ink that reads "Ross Silverstein". The signature is written in a cursive style with a horizontal line above the "i" in "Silverstein".

[Link to signature](#)

Table 1: Environmental Quality Commission by District

Advisory body	Applicant	District
Environmental Quality Commission	Maria Doerr	5
Environmental Quality Commission	Andrew Ehrich	2
Environmental Quality Commission	Nicole Kemeny	5
Environmental Quality Commission	Brian Kissel	5
Environmental Quality Commission	John McKenna	4
Environmental Quality Commission	Michael Meyer	2
Environmental Quality Commission	Susan Prohaska	2
Environmental Quality Commission	Nabil Saad	4

Table 2: Library Commission by District

Advisory body	Applicant	District
Library Commission	Gail Ann McEachron	5
Library Commission	Ada Chen Rekhi	2
Library Commission	Jennifer Wise	5

Table 3: Planning Commission by District

Advisory body	Applicant	District
Parks and Recreation Commission	Nicole Chessari	2
Parks and Recreation Commission	Andrew Ehrich	2
Planning Commission	Michael Meyer	2
Planning Commission	Jennifer Schindler	5
Planning Commission	Ross Silverstein	2

Table 1: Environmental Commission by District		
Applicant	Last appointment date	District
Leah Elkins	10/13/2020	2
Angela Evans	5/25/2021	5
Tom Kabat	4/26/2022	2
Nancy Larocca Hedley	4/26/2022	4
Jeffrey Lin	4/26/2022	1
Jeff Schmidt	4/26/2022	3

Table 2: Library Commission by District		
Applicant	Last appointment date	District
Alan Cohen	4/26/2022	5
David Erhart	4/16/2019	1
Katie Hadrovic	6/9/2020	2
Kristen Leep	4/16/2019	4
Pavneet Singh	9/21/2021	4
Vamsi Velagapudi	5/25/2021	4

Table 3: Planning Commission by District		
Applicant	Last appointment date	District
Andrew Barnes	6/9/2020	2
Linh Dan Do	4/26/2022	3
Chris DeCardy	4/16/2019	2
Cynthia Harris	5/25/2021	3
Henry Riggs	6/9/2020	2
Michele Tate	4/16/2019	1



REGULAR MEETING MINUTES – DRAFT

Date: 10/11/2022
Time: 6:00 p.m.
Locations: Zoom and
City Council Chambers
701 Laurel St., Menlo Park, CA 94025

Regular Session

A. Call To Order

Mayor Nash called the meeting to order at 6:03 p.m.

B. Roll Call

Present: Combs, Mueller (exited the meeting at 6:15 p.m.), Nash, Taylor, Wolosin
Absent: None
Staff: City Manager Justin I. C. Murphy, City Attorney Nira F. Doherty, Assistant to the City Manager/City Clerk Judi A. Herren

C. Agenda Review

None.

D. Public Comment

- Jasmine Soria-Delgado spoke on a mural project by MidPen Housing seeking muralists for Gateway Rising at 1345 Willow Road.

E. Presentations and Proclamations

E1. Proclamation: Latino Heritage Month (Attachment)

Mayor Nash read the proclamation (Attachment).

F. Consent Calendar

F1. Accept the City Council meeting minutes for September 13 and 20, 2022 (Attachment)

F2. Receive and file the annual inflation protection adjustment of \$0.45 per hour for an approved local minimum wage effective January 1, 2023 of \$16.20 per hour (Staff Report #22-189-CC)

F3. Adopt a resolution to continue conducting the City's Council and advisory body meetings remotely due to health and safety concerns for the public and to authorize the use of hybrid meetings (Staff Report #22-196-CC)

F4. Authorize the Mayor to submit a letter in support of efforts to mitigate community impacts associated with Stanford University's development (Staff Report #22-194-CC)

ACTION: Motion and second (Wolosin/ Taylor), to approved the consent calendar, passed unanimously.

G. Regular Business

- G1. Provide input on a request for proposals for an aquatics operator at Burgess Pool and the future Menlo Park Community Campus aquatics center (Staff Report #22-191-CC)

Library and Community Services Director Sean Reinhart and Library and Community Services Supervisor Tricia Mullan made the presentation (Attachment).

City Councilmember Mueller was recused and exited the meeting.

- Lynne Bramlett spoke in support of a policy regulating oversight of public/private partnerships.
- Janet Davis spoke in support of a City operated pool and to prioritize residents' needs in the request of proposals (RFP).

The City Council discussed forming a City Council subcommittee to assist in the contract negotiations after RFP award, incentivizing resident programming, seasonal reporting of resident/non-resident and revenues opposed to annual, lane hour allocations, selection criteria to include an explanation of experiences, documentation of emergency calls and issues for the operator, therapeutic classes, a transparent process, and utilizing the Parks and Recreation Commission.

The City Council received clarification on a City operated pool, competitive proposals, baseline hours and days, and incentivizing resident programming.

- G2. Award vehicle purchase contracts to Deere & Company, National Auto Fleet Group, Toro Company, Vermeer Manufacturing Company, and Volvo Construction Equipment and Services for the purchase and modification of police vehicles and motorcycles, light-duty trucks, and heavy-duty equipment for the fiscal year 2022-23 vehicle purchase (Staff Report #22-193-CC)

Assistant Public Works Director Brian Henry and Public Works Supervisor – Fleet Don Weber made the presentation (Attachment).

The City Council discussed replacing the senior shuttle before 2025.

The City Council received clarification on the total amount of all vehicles, total cost compared to potential recovery through maintenance and fuel, Citywide electric vehicles in fleet, and the senior shuttle replacement schedule.

ACTION: Motion and second (Taylor/ Nash), to award vehicle purchase contracts to Deere & Company, National Auto Fleet Group, Toro Company, Vermeer Manufacturing Company, and Volvo Construction Equipment and Services for approximately \$1.11 million, plus a contingency of \$50,000 (held by the City), for the purchase and modification of five electric police vehicles, three lower emission police motorcycles, three electric light-duty public works trucks, one piece of electric equipment, and four pieces of renewable diesel powered equipment, and direct staff to conduct a study to replace senior shuttle sooner than 2025, passed 4-0 (Mueller absent).

H. Informational Items

- H1. City Council agenda topics: October 18 – November 1, 2022 (Staff Report #22-195-CC)
- H2. Drought update for Menlo Park Municipal Water (Staff Report #22-190-CC)
- Jenny Michel spoke in support of deterring excess water use for single-family residences.
- H3. Menlo Park local hazard mitigation plan annex to the San Mateo County multijurisdictional local hazard mitigation plan update (Staff Report #22-192-CC)
- Pam Jones spoke in support of addressing comprehensive communications outside of electronic communications.
 - Lynne Bramlett spoke in support of the annual progress report and on concerns on policy issues, emergency coordinator position, and the lack of a disaster preparedness plan.

The City Council received clarification on the City's mechanisms to mitigate ornamental water usage, water regulations throughout multiple water districts within Menlo Park, and the "Lawn Be Gone" incentive program.

I. City Manager's Report

City Manager Justin Murphy reported out on environmental documents released for the proposed Hotel Moxy and Willow Village projects, current advisory body recruitments, hybrid advisory body meeting schedule, and the Halloween Hoopla and parade downtown on October 29.

J. City Councilmember Reports

City Councilmember Combs expressed condolences to family and co-workers of the landscaper who passed away today, reported out on a walking tour Flood Triangle for transportation improvements, and requested a left turn lane from Bay Road onto Willow Road return to the City Council.

Vice Mayor Wolosin reported out on attending the Palo Alto Community Fund Advisory Board and the Community Trust meetings and requested City Council liaisons be appointed in December.

Mayor Nash reported out on Peninsula Clean Energy 2021 Community Benefits Summary (Attachment).

K. Adjournment

Mayor Nash adjourned the meeting at 7:41 p.m.

Judi A. Herren, Assistant to the City Manager/City Clerk



REGULAR MEETING MINUTES – DRAFT

Date: 10/18/2022
Time: 6:00 p.m.
Locations: Zoom and
City Council Chambers
701 Laurel St., Menlo Park, CA 94025

Regular Session

A. Call To Order

Mayor Nash called the meeting to order at 6:05 p.m.

B. Roll Call

Present: Combs, Mueller (exited the meeting at 7:05 p.m. and reentered the meeting at 7:38 p.m.), Nash, Taylor, Wolosin
Absent: None
Staff: City Manager Justin I. C. Murphy, City Attorney Nira F. Doherty, Assistant to the City Manager/City Clerk Judi A. Herren

C. Agenda Review

Staff will provide an update on item F2.

D. Public Comment

- John McKenna spoke in support of bolder action on climate change on an expedited timeline.
- Nisha Advani spoke in support of advocacy for domestic violence victims and survivors and requested a proclamation.
- Bernard Clouse spoke in support of increased safety measures on Bay Road for all modes of transportation.

E. Study Session

E1. Provide direction regarding a zero-emission landscape equipment (ZELE) ordinance to regulate gas-powered equipment such as leaf blowers (Staff Report #22-207-CC)

Sustainability Manager Rebecca Lucky made the presentation (Attachment).

- David Axelrod spoke in support of the ZELE ordinance.
- Bernard Clouse requested clarification on the municipal codes that enforce landscaping equipment and prohibition of leaf blower use on Spare-the-Air days.
- Sean Vandrill spoke in support of the ZELE ordinance.
- Leah Elkins spoke in support of the ZELE ordinance.
- Jennifer Johnson spoke in support of the ZELE ordinance and accommodating independent landscapers.

- Bill Kirsch spoke in support of the ZELE ordinance.

The City Council received clarification on timing and grace periods, reporting mechanisms, staffing needs, hardship assistance for smaller landscape and gardening operations, public outreach material already available from other agencies, and a City equipment replacement grant.

The City Council discussed moving up the enforcement dates for zero-emission landscape equipment, process for enforcement, and community engagement and public outreach.

The City Council directed staff to proceed with staff recommendation, and provided further direction on public outreach leading up to a first reading in 2023 that includes: pamphlets, utility bill inserts, flyers, and leaflets, working with neighboring jurisdictions materials for zero-emission landscape equipment, reaching out to small business landscapers and gardeners during their hours of operation in the community, developing case studies, prioritizing the replacement of the City's gas-powered equipment and proceeding with the State grant, studying the frequency and triggers of City's use of leaf-blowers, and reporting ability through a mobile application (e.g., Menlo ACT).

F. Consent Calendar

- F1. Adopt a resolution to continue conducting the City's Council and advisory body meetings remotely due to health and safety concerns for the public and to authorize the use of hybrid meetings (Staff Report #22-201-CC)
- F2. Approve an amendment to the agreement with AECOM to conduct the next phase of work for the Caltrain grade separation project (Staff Report #22-197-CC)

Public Works Director Nikki Nagaya announced that staff is aware of requests from residents to add tasks for the current scope of work and would need to return to the City Council to authorize these changes.

The City Council received clarification on the cost and timeline impacts related to adding new tasks and resident outreach.

- Maria Amundson spoke in opposition of elevated train tracks.
- Amy Mushlin spoke in opposition of the grade separation construction and elevated train tracks.

The City Council discussed grade separation options, residential impacts, and recommendations and also directed staff to coordinate with residents on the additional requested tasks.

ACTION: Motion and second (Combs/ Wolosin), to approve an amendment to AECOM's existing agreement for the Caltrain grade separation project, passed 4-1 (Nash dissenting).

- F3. Authorize the city manager to enter into an amended contract with ICF Jones & Stokes Inc. to prepare an environmental impact report for the proposed master plan project at 333 Ravenswood Avenue (Parkline) for the amount of \$688,817 and future augments as may be necessary to complete the environmental review for the proposed project (Staff Report #22-200-CC)
- F4. Authorize the Mayor to sign the City's response to the San Mateo County Civil Grand Jury Report: "Waiter! There's a Car in My Soup!" (Staff Report #22-202-CC)

ACTION: Motion and second (Wolosin/ Nash), to approved the consent calendar with the exception of item F2., passed 4-0 (Mueller absent).

G. Regular Business

G1. Adopt a resolution authorizing installation of no parking zones on both sides of Middle Avenue, installation of an all-way stop at Middle Avenue and San Mateo Drive, replacement of an all-way stop at Middle Avenue and University Drive with a roundabout with yield control, and temporary closure of Blake Street at Middle Avenue (Staff Report #22-198-CC)

Assistant Public Works Director Hugh Louch made the presentation (Attachment).

The City Council received clarification on impacts to the Stanford funding and the timing of Middle Avenue parking options returning to the City Council.

The City Council discussed increased notification and outreach to Middle Avenue residents.

The City Council directed staff to bifurcate the item by removing Middle Avenue parking from the elements of the project.

- Neil Wolf spoke in opposition of no parking zones on both sides of Middle Avenue.
- Bill Kirsch spoke in support of a pilot for no parking zones on both sides of Middle Avenue.
- Sean Van Dril spoke in support of a narrower Middle Avenue.
- Brendan Visser spoke in support of a pilot for no parking zones on both sides of Middle Avenue.
- Robert Lencioni spoke in opposition of the roundabout with yield control and the no parking zones on both sides of Middle Avenue.
- Jerry Jones spoke in support of bicycles routes and in opposition of the no parking zones on both sides of Middle Avenue.
- Chief Executive Officer Peninsula Volunteer representative Peter Olson spoke in opposition of no parking zones on both sides of Middle Avenue.
- Kay Li Lee spoke in opposition of no parking zones on both sides of Middle Avenue and in support of parking time restrictions.
- Misha Silin spoke in support of no parking zones on both sides of Middle Avenue.
- Sandy Napel spoke in support of pilot program and the closure of Blake Street at Middle Avenue.
- Jeff Piper spoke in support of the Blake Street closure.
- Sally Cole provided information on history of Middle Avenue safety needs and of the other proposed safety measures proposed on September 13.
- Ryan Padrez spoke in support for the installation of no parking zones on both sides of Middle Avenue, installation of an all-way stop at Middle Avenue and San Mateo Drive, replacement of an all-way stop at Middle Avenue and University Drive with a roundabout with yield control, and temporary closure of Blake Street at Middle Avenue.
- Adina Levin spoke in support of the Middle Avenue no parking pilot.
- Randy Avalos spoke in support of the public outreach of the proposed projects.
- Ashley Callahan spoke in support of the installation of an all-way stop at Middle Avenue and San Mateo Drive, replacement of an all-way stop at Middle Avenue and University Drive with a roundabout with yield control, temporary closure of Blake Street at Middle Avenue, and automobile traffic calming measures on Middle Avenue.
- Peter Lee spoke on the safety of Middle Avenue and the lack of need for the proposed measures.

- Katie Behroozi spoke in support of the proposed safety measures.
- Joe Nootbaar spoke in opposition of an all-way stop at Middle Avenue and San Mateo Drive and additional traffic controls on Middle Avenue.

The City Council received clarification on approved measures, Blake Street parking restrictions and permitting, and public engagement with New Community Church and Peninsula Volunteers.

The City Council discussed the upcoming 25-mph (miles per hour) zones, impacts of parking removal for the legacy apartments, public engagement to residents on Middle Avenue before the City Council approves a no-parking pilot, impacts to other streets by the Blake Street closure at Middle Avenue, and the timeline impacts by pushing the Middle Avenue no parking component.

The City Council took a recess at 10:02 p.m.

The City Council reconvened at 10:17 p.m.

The City Council directed staff to return the Middle Avenue parking measures to a future City Council meeting incorporating potential accommodations for existing multifamily apartments, New Community Church, and Peninsula Volunteers, communicate information to all City subscribers with a minimum two-week notice before the meeting that Middle Avenue parking will be heard, and present options for alternative parking removal.

ACTION: Motion and second (Nash/ Combs), to adopt a resolution, as read into the record (Attachment), authorizing the installation of an all-way stop at Middle Avenue and San Mateo Drive and authorize a temporary closure of Blake Street at Middle Avenue using temporary materials, passed 4-0 (Mueller absent).

G2. Provide direction on the process for recommending stop sign installation and consider adopting a resolution to install stop signs at several intersections (Staff Report #22-203-CC)

Senior Transportation Engineer Kevin Chen made the presentation (Attachment).

The City Council received clarification on objectives of the public outreach measured with and against current qualitative data, adding a stop sign at Santa Monica Avenue and Coleman Avenue, and guidance on how a resident can request a stop sign.

ACTION: Motion and second (Combs/ Wolosin), to adopt a resolution to install all-way stops at the following six intersections:

- Van Buren Road and Ringwood Avenue
- Elm Street and Pope Street
- Elm Street and Central Avenue
- Walnut Street and Pope Street-Beacon Streets
- Pope Street and Gilbert Avenue
- Terminal Avenue and Del Norte Avenue;

convert the two-way stop at Elm Street and Laurel Avenue to face Laurel Avenue instead of Elm Street, and direct staff to pursue a stop sign at Santa Monica Avenue and Coleman Avenue, passed unanimously.

G3. Consider and adopt a resolution approving the water supply assessment for the Housing Element Update Project (Staff Report #22-199-CC)
Acting Principal Planner Tom Smith made the presentation (Attachment).

The City Council discussed when the Bay-Delta Plan amendment will be resolved.

ACTION: Motion and second (Wolosin/ Combs), to adopt a resolution approving the water supply assessment prepared for the proposed Housing Element Update Project, passes unanimously.

H. Informational Items

- H1. City Council agenda topics: October 20 – November 15, 2022 (Staff Report #22-205-CC)
- H2. Preliminary considerations for commemorative park amenities (Staff Report #22-204-CC)
- H3. Consideration of recommended sustainable reach codes for inclusion as part of the upcoming 2022 California Building Standards Code adoption process (Staff Report #22-206-CC)

I. City Manager's Report

City Manager Justin Murphy reported out on the special City Council meeting on October 20 for Planning Commission interviews.

J. City Councilmember Reports

City Councilmember Taylor reported out on the SFO Community Roundtable, Stanford Community Resources, San Mateo County Flood and Sea Level Rise Resiliency District, Reimagining Policing subcommittee and Community Amenities subcommittee meetings.

K. Adjournment

Mayor Nash adjourned the meeting at 11:09 p.m.

Judi A. Herren, Assistant to the City Manager/City Clerk



STAFF REPORT

City Council

Meeting Date:

11/1/2022

Staff Report Number:

22-209-CC

Consent Calendar:

Adopt a resolution to continue conducting the City's Council and advisory body meetings remotely due to health and safety concerns for the public and to authorize the use of hybrid meetings

Recommendation

Staff recommends that the City Council adopt a resolution (Attachment A) to continue conducting the City's Council and advisory body meetings remotely due to health and safety concerns for the public and to authorize the use of hybrid meetings.

Policy Issues

Assembly Bill 361 (AB 361) was signed into law September 16, 2021 allowing cities to continue holding virtual meetings during any emergency proclaimed by the governor. AB 361 sunsets January 1, 2024. The City Council would need to declare every 30 days that the City's legislative bodies must continue to meet remotely or in a hybrid format whereby City Councilmembers, appointed officials, staff and the public may participate in person or remotely, in order to ensure the health and safety of the public.

Background

The California Legislature approved AB 361, which was signed by the governor September 16, 2021 for signature. The bill allows local legislative bodies to continue to meet remotely through January 1, 2024. A local agency will be allowed to continue to meet remotely when:

- The local agency holds a meeting during a declared state of emergency
- State or local health officials have imposed or recommended measures to promote social distancing
- Legislative bodies declare the need to meet remotely due to present imminent risks to the health or safety of attendees

The City meets the requirements to continue holding meetings remotely in order to ensure the health and safety of the public:

- The City is still under a local state of emergency
- County Health urges that all individuals in public spaces maintain social distancing and wear masks

A hybrid meeting allows members of City Council and advisory bodies, staff, and members of the public to participate in meetings either virtually and in-person.

Analysis

The City is still under a local state of emergency and the emergency findings required under AB 361 are still in effect. San Mateo County is still in the Low COVID-19 Community Level category and the Centers for

Disease Control and Prevention (CDC) recommends that people may choose to mask at any time and people with symptoms, a positive test, or exposure to someone with COVID-19 should wear a mask. The resolution authorizes the use of hybrid meetings, whereby City Councilmembers, participants, and staff may choose to attend either remotely or in person due to health and safety concerns and needs. The City Council finds that reducing the number of persons present in City Council chambers may continue to reduce imminent health risks associated with large groups and/or members of varying households gathering indoors.

Impact on City Resources

Additional technologies will need to be purchased and implemented in the Main Library (Senior Annex), Cypress Room (Arrillaga Recreation Center), and the Downtown Conference Room (City Hall) in order to hold hybrid meetings. There will also be the need to train staff and advisory body members on the new technology.

Environmental Review

This action is not a project within the meaning of the California Environmental Quality Act (CEQA) Guidelines §§ 15378 and 15061(b)(3) as it is an organizational structure change that will not result in any direct or indirect physical change in the environment.

Public Notice

Public notification was achieved by posting the agenda, with the agenda items being listed, at least 72 hours prior to the meeting.

Attachments

A. Resolution

Report prepared by:

Judi A. Herren, Assistant to the City Manager/City Clerk

RESOLUTION NO. XXXX**RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MENLO PARK AND ON BEHALF OF COMMISSIONS AND COMMITTEES CREATED BY THE CITY COUNCIL PURSUANT TO CALIFORNIA GOVERNMENT CODE SECTION 54952(b) AUTHORIZING TELECONFERENCE MEETINGS IN COMPLIANCE WITH AB 361 (GOVERNMENT CODE SECTION 54953(e)) TO CONTINUE TO ALLOW MEMBERS OF THE PUBLIC TO SAFELY PARTICIPATE IN LOCAL GOVERNMENT MEETINGS**

WHEREAS, the City Council is committed to ensuring public access to observe and participate in local government meetings; and

WHEREAS, all meetings of the City Council and other legislative bodies created pursuant to Government Code Section 54952(b) are open and public, as required by the Ralph M. Brown Act, so that any member of the public may participate in local government meetings; and

WHEREAS, the AB 361, codified at Government Code section 54953(e), makes provisions for remote teleconferencing participation in local government meetings, without compliance with the requirements of 54953(b)(3), during a Governor-proclaimed state of emergency and if the local legislative body determines, by majority vote, that as a result of the emergency, meeting solely in person would present imminent risks to the health or safety of attendees; and

WHEREAS, on March 4, 2020, Governor Newsom proclaimed a State of Emergency due to the outbreak of respiratory illness due to a novel coronavirus (now known as COVID-19) and that State of Emergency is still in effect in the State of California; and

WHEREAS, on March 11, 2020 the City Council proclaimed the existence of a local state of emergency within the City, pursuant to Section 8625 of the California Emergency Services Act in response to the COVID-19 pandemic; and

WHEREAS, COVID-19 continues to threaten the health and lives of City residents; and

WHEREAS, the SARS-CoV-2 Delta and Omicron Variants are highly transmissible in indoor settings; and

WHEREAS, the Omicron subvariants of the SARS-CoV-2 virus is overtaking other variants in San Mateo County; and

WHEREAS, according to data from the County's Health Administrator and County website, the County is averaging approximately nine new cases per 100,000 of COVID-19 per day; and

WHEREAS, although the City has returned to in-person meetings, due to the prevalence of BA strains of the SARS-CoV-2 virus overtaking other variants in San Mateo County, the City Council finds that reducing the number of persons present in City Council chambers is necessary to reduce imminent health risks associated with large groups and/or members of varying households gathering indoors; and

WHEREAS, the State of California and the City of Menlo Park continue to follow safety measures in response to COVID-19 as ordered or recommended by the Centers for Disease Control and Prevention (CDC), California Department of Public Health (DPH), and/or County of

San Mateo, as applicable, including facial coverings when required; and based upon that guidance, in-person attendance indoors at public meetings continues to present a health risk for certain segments of the population, necessitating the need to reduce the number of in-person meeting attendees; and

WHEREAS, the City Council, acting as a legislative body pursuant to Government Code section 54952(a) and for the benefit of the commissions, committees and other bodies that were created by the City Council pursuant to Government Code section 54952(b) (collectively referred to as “Legislative Bodies”), finds that the current conditions meet the circumstances set forth in Government Code section 54953(e)(3) to allow Legislative Bodies to continue to use teleconferencing to hold open and public meetings if the Legislative Bodies comply with the requirements set forth in Government Code section 54953(e)(2) to ensure the public can safely participate in and observe local government meetings.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Menlo Park that the City Council does hereby:

1. Find that current conditions authorize teleconference public meetings of Legislative Bodies. Based on the California Governor’s continued declaration of a State of Emergency and current conditions, the City Council finds that meeting in person, without the option for certain populations and persons to participate remotely, would present imminent risks to the health or safety of attendees. The City Council does therefore find that Legislative Bodies and members of Legislative Bodies of the City may elect to use teleconferencing to hold public meetings in accordance with Government Code section 54953(e)(2) to ensure members of the public have continued access to safely observe and participate in local government meetings.
2. Authorize Legislative Bodies to conduct teleconference meetings. The Legislative Bodies are hereby authorized to take all actions necessary to carry out the intent and purpose of this Resolution, including conducting open and public meetings in accordance with Government Code section 54953(e)(2) and other applicable provisions of the Brown Act.
3. Authorize Legislative Bodies to conduct hybrid meetings. The Legislative Bodies are hereby further authorized to conduct meetings in a “hybrid” format, where both members of the Body may elect to be present in person, utilizing appropriate distancing and masking practices, or participate by teleconferencing technology. Such meetings of the Legislative Bodies that occur using teleconferencing technology will provide an opportunity for any and all members of the public who wish to address Legislative Bodies and will otherwise occur in a manner that protects the statutory and constitutional rights of parties and the members of the public attending the meeting via teleconferencing.

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I, Judi A. Herren, City Clerk of Menlo Park, do hereby certify that the above and foregoing City Council Resolution was duly and regularly passed and adopted at a meeting by said City Council on the first day of November, 2022, by the following votes:

AYES:

NOES:

ABSENT:

ABSTAIN:

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the Official Seal of said City on this ___ day of November, 2022.

Judi A. Herren, City Clerk



STAFF REPORT

City Council

Meeting Date: 11/1/2022
Staff Report Number: 22-208-CC

Consent Calendar: **Reject all bids for the Chrysler Stormwater Pump Station Improvement project and direct staff to rebid the project at a future date**

Recommendation

Staff recommends that the City Council reject all bids received for the Chrysler Stormwater Pump Station Improvement project and direct staff to re-bid the project at a future date.

Policy Issues

The City Council must take action to award or reject construction bids for capital improvement projects per public contracting requirements.

Background

The Chrysler Stormwater Pump Station is located at 1395 Chrysler Drive in Menlo Park, CA, adjacent to lands owned by Bohannon Development Group (Bohannon.) The pump station drains approximately 297 surface acres in an area roughly bounded by Marsh Road, Bayfront Expressway, Chilco Street and the Dumbarton railroad tracks. The existing facility is designed to discharge a 10-year rain event and consists of two pumps, a below-ground wet well, and a building that houses the pumps and the electrical room. Stormwater is pumped to a Caltrans-owned ditch on the opposite side of Bayfront Expressway and empties into Flood Slough near the Bedwell Bayfront Park entrance.

The pump station was built in 1958 and has reached the end of its useful life. In 2015, the City contracted with Schaaf & Wheeler to provide construction bid documents for a replacement pump station that could discharge a 100-year rain event. The new pump station is elevated two feet above the Federal Emergency Management Agency (FEMA) designated 100-year base flood elevation and includes three new, larger pumps designed to discharge flows associated with sea level rise in San Francisco Bay. This project is included in the City's capital improvement program with partial funding from a five million federal FEMA hazard mitigation program grant (awarded to the City April 27, 2020.)

The new pump station requires a larger building footprint that entails a mutual exchange of property and provision of easements with Bohannon. On December 8, 2020, the City Council authorized the city manager to negotiate and execute a funding agreement with Bohannon that addressed the aforementioned project needs. To date, City staff drafted the final form of deeds for the mutual exchange of property, and lot line adjustment, with Bohannon. Additionally, General Plan and Zoning Map Amendments were approved for this action November 16, 2021 and December 7, 2021, respectively. The exchange of property with Bohannon is anticipated to be complete before the City Council's award of the project's construction contract.

Analysis

On August 5, 2022, staff advertised the project for construction bidding with an engineer’s estimate of \$9,500,000. The project was advertised on the City website and posted twice in a newspaper with local circulation. On September 27, 2022, the City received six bids for the project as summarized in Table 1.

Table 1: Bid results (Engineer’s estimate \$9,500,000)	
Contractor	Base bid total
Mitchell Engineering	\$10,994,352
Anvil Builders	\$11,494,800
Anderson Pacific Engineering Construction, Inc.	\$11,995,000
Ranger Pipelines, Inc.	\$12,485,000
Valentine Corporation	\$13,117,369
Mountain Cascade, Inc.	\$15,573,000

The project specifications stipulated that the contract award would be based on the base bid and the bidders’ responsiveness to the project documents. Mitchell Engineering, with a listed base bid of \$10,994,352, was identified as the apparent low bidder pending review of the bid documentation by staff. Upon documentation review, staff discovered irregularities with each of the bids received. For example, four of the six bids did not fulfill a required sub-contractor’s license for bypass pumping per project specifications. The remaining two bids had omissions in the mandatory federal non-lobbying and list of sub-contractor forms. Staff discussed these irregularities with the city attorney and determined that all bids are non-responsive pursuant to Public Contracting Code.

On September 30, 2022, a bid protest was received from Anvil Builders, protesting the bid submitted by Mitchell Engineering. The bid protest identified that Mitchell Engineering did not fulfill the required sub-contractor’s licensing for bypass pumping per the project specifications.

Staff recommends that the City Council reject all bids received for the Chrysler Pump Station Improvement project and direct staff to re-bid the project. Staff proposes the following actions to facilitate rebidding of the project:

- Allow bypass pumping subcontractors to have a general construction license and/or a specialized pumping license
- Host a non-mandatory pre-bid meeting with prospective bidders, during the re-advertisement period, to discuss the noted bid irregularities and communicate that future bids should comply with project requirements

Subject to the City Council’s approval, staff will re-advertise the project later this calendar year and schedule an award of contract in January 2023 (contingent upon bids received.)

Impact on City Resources

There is no impact on City resources.

Environmental Review

This action is not a project within the meaning of the California Environmental Quality Act (CEQA) Guidelines §§ 15378 and 15061(b)(3) as it will not result in any direct or indirect physical change in the environment.

Public Notice

Public notification was achieved by posting the agenda, with the agenda items being listed, at least 72 hours prior to the meeting.

Attachments

None.

Report prepared by:

Michael Fu, Senior Civil Engineer

Report reviewed by:

Tanisha Werner, Assistant Public Works Director - Engineering



STAFF REPORT

City Council

Meeting Date: 11/1/2022

Staff Report Number: 22-212-CC

Consent Calendar: **Authorize the Mayor to sign the City's response to the San Mateo County Civil Grand Jury Report: "A Delicate Balance Between Knowledge and Power: Government Transparency and the Public's Right to Know."**

Recommendation

Staff recommends the City Council authorize the Mayor to sign the City's response to the San Mateo County Civil Grand Jury Report: "A Delicate Balance Between Knowledge and Power: Government Transparency and the Public's Right to Know."

Policy Issues

The City of Menlo Park intends to meet its obligations under the California Public Records Act (Government Code Section 6252 *et seq.* and provide transparency into the People's business.

Background

The California Public Records Act (CPRA) was enacted in 1968, and requires government records be made accessible to the public upon request, unless exempted by law. Complying with the CPRA is an obligation of city staff, and requires balancing the need to provide access to public records against the governments need to perform its other functions in a reasonably efficient manner. As such, the CPRA provides timelines and authorizes extensions on those timelines where appropriate. (Government Code Section 6253.) The CPRA also provides numerous exemptions to disclosure on a myriad of issues which the legislature and the development of the law over the years determined appropriately balanced the public's right to know against various interests which intersect with running a City (e.g., privacy, confidentiality, privileges, etc.)

On August 9, 2022, the San Mateo County Civil Grand Jury (Grand Jury) issued a report titled, "A Delicate Balance between Knowledge and Power: Government Transparency and the Public's Right to Know." (Attachment A.) A copy of this report was forwarded to the City Council August 2022. The report was sent to all municipalities within San Mateo County. The report summarizes the Grand Jury's assessment of the CPRA programs across the county, and is a follow-up on a previous report from 2006 – 2007 where the Grand Jury attempted to address the rise in use of electronic forms of communication and how to treat and manage such documents under the CPRA. As noted in the report, reviewing that 2006 – 2007 Grand Jury Report alerted this Grand Jury that "cities may be facing increased complexity and potential burdens in the processing of requests for public records."

The Grand Jury thus sought to understand how the municipalities in San Mateo County were responding to requests, the types of requests they were receiving, policies and procedures put in place regarding public records.

The report then makes several findings and recommendations. Each City is then requested to respond to

certain findings and recommendation identified in the report.

Here, the city clerk's office and the city attorney's office have prepared a response letter for City Council consideration, which addresses all applicable findings and recommendations. If approved, the Mayor will sign on behalf of the City Council and City staff will then submit the letter.

Analysis

Proposed responses to recommendations

The Grand Jury made five finds and five recommendations in its report. The report requires that the City of Menlo Park respond to two findings and three recommendations. Below are the findings and recommendations specific to Menlo Park with responses to each. The City is required to respond to each finding whether it agrees or disagrees wholly or partially, and specify any portion that is disputed. As to the recommendation, the response is to provide whether a response has been implemented, will be implemented (and when), requires further analysis, or whether the recommendation will not be implemented along, with an explanation.

Finding 1: The city has no written documentation of its PRA policy and internal procedures, making it more likely that requests could be handled inconsistently.

The City agrees with this finding and is in the process of adopting policies and procedures.

Finding 2: The city uses a commercially available software application that includes a web portal enabling the public to easily request records and track their disposition.

The City agrees with this finding. The City commenced using GovQA in the beginning of 2022.

Recommendation 1: the city council should direct city staff to consider and report back by June 30, 2023, on the creation of a written PRA policy or procedures document for circulation to all relevant staff.

The City is in the process of implementing this recommendation. Before receiving the Grand Jury Report, City staff had already drafted procedures for processing public records act requests. City staff have been operating under these procedures for the entirety of 2022 and finds that the processing of requests have been improved. City staff will nevertheless review and where appropriate, revise the procedures in order to more efficiently meet the obligations of the CPRA. Although it is only a recommendation, and no formal adoption of these procedures are required, City staff is prepared to report to City Council before June 30, 2023, on its written policies and procedures.

Recommendation 3: By June 30, 2023, the city council should consider directing staff to place information about how to access public records on the home page of the city's official website.

This recommendation requires further analysis. The City is in the process of launching a new website, and we are still considering how best to utilize the space and direct the community. The City is evaluating under which heading on the website would be most appropriate. The City anticipates resolving where to provide clear access to making a records request through the website from the home page before June 30, 2023.

Recommendation 4: By June 30, 2023, the city council should direct city staff to review and consider adopting a records management practice analogous to the City of San Mateo's "Records Cleanup Day."

This recommendation will not be implemented. Currently the City has a program for completing routine

records destruction with individual city departments. The process involves the city clerk's office working with individual departments to list records proposed for destruction and the city clerk then brings those to the City Council for approval, and eventual destruction. This process has proven effective. There is not currently a budget for creating a "Records Destruction Day" with food trucks and other amenities. The City finds that the one-on-one work between the city clerk's office and individual departments, as opposed to an entire day dedicated to records cleanup across the City, allows the City to better conduct a thorough records cleanup while also maintaining services for the community. However, the City will continue to review whether creating a "Records Cleanup Day" similar to that of San Mateo, but by department, is a desirable route in future years.

City staff has prepared a proposed response contained in a letter attached to this staff report (Attachment B.)

Impact on City Resources

There is no impact on City resources.

Environmental Review

This action is not a project within the meaning of the California Environmental Quality Act (CEQA) Guidelines § § 15378 and 15061(b) (3) as it will not result in any direct or indirect physical change in the environment.

Public Notice

Public notification was achieved by posting the agenda, with the agenda items being listed, at least 72 hours prior to the meeting.

Attachments

- A. San Mateo Civil Grand Jury's Report titled, "A Delicate Balance Between Knowledge and Power: Government Transparency and the Public's Right to Know."
- B. Draft response to Grand Jury Report

Report prepared by:

Eli Flushman, Deputy City Attorney

Judi Herren, Assistant to the City Manager/City Clerk

Reviewed by:

Justin Murphy, City Manager

Nira Doherty, City Attorney

This is an advance copy of a Grand Jury report that will be publicly released on August 9, 2022. Penal Code section 933.05 (f) prohibits any officer, agency, department, or governing body of a public agency from disclosing any contents of the report prior to the public release of this report.



A Delicate Balance between Knowledge and Power: Government Transparency and the Public's Right to Know

Release Date: August 9, 2022

[Issue](#) | [Summary](#) | [Background](#) | [Discussion](#) | [Findings](#) | [Recommendations](#)
[Request for Responses](#) | [Methodology](#) | [Bibliography](#) | [Appendices](#) | [Responses](#)

ISSUE

The California Public Records Act requires that inspection or disclosure of governmental records be available to the public upon request. How do the cities in San Mateo County meet the requirements of this Act?

SUMMARY

The California Public Records Act (PRA) is an essential tool for the public to find out what their government agencies are doing. It's one of the freedom of information laws enacted in every state in the Union to ensure that the public can witness the actions of their governments. The PRA's purpose is to promote government transparency in California.

Fifteen years ago, the 2006-2007 San Mateo County Civil Grand Jury's report, "Electronic Communication Among City Officials: A Valuable Tool in Need of Careful Guidance," addressed the rise in local governments' use of electronic forms of communication between elected and appointed officials.¹ As it observed, these valuable and efficient tools can quickly disseminate information, and they can constitute public documents subject to public disclosure. Reviewing that Grand Jury's report alerted the 2021-2022 San Mateo County Civil Grand Jury to the potential that cities may be facing increased complexity and potential burdens in the processing of requests for public records.

The Grand Jury sought to understand how San Mateo County's 20 cities respond to PRA requests, including:

- Cities' policies and procedures for handling requests;
- The types of records requests they receive;

¹ 2006-2007 San Mateo County Civil Grand Jury, Electronic Communication Among City Officials: A Valuable Tool in Need of Careful Guidance
https://sanmateocourt.org/documents/grand_jury/2006/ElectronicCommunicationfinal.pdf, retrieved June 9, 2022.

This is an advance copy of a Grand Jury report that will be publicly released on August 9, 2022. Penal Code section 933.05 (f) prohibits any officer, agency, department, or governing body of a public agency from disclosing any contents of the report prior to the public release of this report.

- The training of key employees, elected officials, and appointed officials about PRA-related matters; and
- How legal changes may impact cities with regard to fulfilling PRA requests.

While the PRA does not require cities to adopt a formal policy, the Grand Jury sought to identify the cities that have written policy or procedure documents and the methods cities use to process the public's requests. It also wanted to learn how key staff keep up to date with changes in PRA law. Failing to comply with these laws can subject a city to litigation and, more importantly, lead to erosion of the public's trust.

The Grand Jury recommends that city councils of the subject cities should:

1. Consider directing staff to create a written PRA procedures document for circulation to all relevant staff.
2. Consider directing staff to perform a cost/benefit analysis regarding the purchase of commercially available public records request software.
3. Consider directing staff to place information about how to access public records on the home page of their official website.
4. Consider directing staff to create a submittable online PRA request form.
5. Consider directing staff to review and consider adopting a records management practice analogous to the City of San Mateo's "Records Cleanup Day."

BACKGROUND

Two centuries ago, James Madison wrote these words:

"A popular Government, without popular information, or the means of acquiring it, is but a Prologue to a Farce or a Tragedy; or perhaps both. Knowledge will forever govern ignorance: And a people who mean to be their own Governors, must arm themselves with the power which knowledge gives."²

He further asserted, "Knowledge [is] the only Guardian of true liberty."³

John Moss, a California member of the U.S. House of Representatives, used Madison's quote to generate support for a bill he was introducing in Congress. In 1967, after a 12-year struggle, he

² Letter from James Madison to W.T. Barry (August 4, 1822), in *The Writings of James Madison* (Gaillard Hunt ed.).

³ Letter from James Madison to George Thomson (June 30, 1825) (on file with *The James Madison Papers* at The Library of Congress).

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was finally successful in passing the Federal Freedom of Information Act (FOIA). It served as the model for California’s similar Public Records Act enacted one year later.

The California Public Records Act was signed into law by Governor Ronald Reagan in 1968 and acknowledges one simple concept – that secrecy is contrary to a democratic system of “government of the people, by the people, and for the people”. Specifically, the PRA declares that “access to information concerning the conduct of the people’s business is a fundamental and necessary right of every person in this state”.⁴

Every state has some form of freedom of information law that governs public access to state and local government documents.⁵ In addition, every state has some form of a “Sunshine Law” or “Open Meetings” law that requires public access to meetings of public legislative bodies. California’s Ralph M. Brown Act is such a Sunshine Law.⁶ Passed in 1953, it guarantees the public’s right to attend and participate in meetings of local legislative bodies. The PRA and the Brown Act are California’s primary laws intended to promote government transparency.

What are Public Records?

The PRA defines the term “public records” as any “writing containing information relating to the conduct of the public’s business that is prepared, owned, used, or retained by a state or local agency regardless of physical form or characteristics.”⁷ Thus, a “writing” is not simply a hand-written or printed document; writings include an ever-broadening range of communications including audio and video recordings, emails, photos, drawings, computer data, and more.⁸

The agencies that hold these public records, and are subject to the PRA, include every county, city, town, school district, special district, police and fire department, commission, and board in California.⁹ Certain private entities that carry out public functions using funding from a local agency may also be subject to the PRA. The PRA applies to nearly every public agency one can imagine except for the Legislature and the courts.¹⁰

A public record refers to information that has been recorded or maintained by a public agency. Typical examples of records that the public might request include:

- Property records
- Building permits

⁴ California Government Code, Section 6250 (2021).

⁵ FOIA Advocates, State Public Records Laws. <http://www.foiadvocates.com/records.html> Retrieved May 11, 2022

⁶ CA Govt Code § 54950 et seq.

⁷ CA Govt Code § 6252(e).

⁸ CA Govt Code § 6252(g).

⁹ CA Govt Code § 6252(f). Excluded from the definition of state agency are those agencies provided for in article IV (except section 20(k)) and article VI of the Cal. Constitution.

¹⁰ The Legislature has its own sunshine law, Gov. Code, § 1070. Most court records are disclosable under a number of legal decisions and the First Amendment of the U.S. Constitution.

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- Business registrations
- Employee compensation information
- Financial documents
- Code enforcement records
- Public works documents, and
- Police records.

Merely addressing a question to a local agency official or employee is not sufficient to constitute a public records request under the PRA. “What time do the lights go off at the neighborhood park?” Or “Why are there so many potholes on my street?” are not public records requests. However, a request to see the contract for the vendor who installed the lights or paved the street would be a public records request.

The Form of PRA Request

The PRA ensures that all persons must receive equal access to public records. “Persons” can be corporations, partnerships, homeowners’ associations, and the media.¹¹ Simply put, every person has the right to inspect public records, and no one type of person has a greater right of access to public records than any other person.¹²

Because the intent of the law is to enable easy access to public records, it is expansive in the available ways requests may be made. The request can be made in writing or orally, by physical or electronic means, remotely or in person. Persons making a PRA request are not required to explain the reason for the request.¹³

Public records are to be open for inspection during office hours at the local agency. To preserve the orderly function of their offices, agencies may establish reasonable policies for the inspection and copying of records. If the request asks for copies of documents, the agency is required to respond within ten days to determine whether they have disclosable records in their possession and to notify the person making the request of that determination. The agency must then make the records “promptly” available.¹⁴

An agency may extend the normal ten-day requirement for responding whether it has any disclosable documents for up to 14 additional days under certain circumstances.¹⁵ For example, if the agency needs to search through and collect a voluminous number of records or to consult with another agency with an interest in the requested records, such an extension is available.

¹¹ CA Govt Code § 6252(c); *Connell v. Superior Court (Intersource, Inc.)* (1997) 56 Cal.App.4th 601.

¹² CA Govt Code § 6252.5; *Los Angeles Unified School Dist. v. Superior Court* (2007) 151 Cal.App.4th 759; *Dixon v. Superior Court* (2009) 170 Cal.App.4th 1271, 1279.

¹³ CA Govt Code § 6250; California. Constitution, Article. I, Section 3.

¹⁴ CA Govt Code § 6253(c).

¹⁵ CA Govt Code § 6253(c)(1-4).

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The agency is required to assist the requester who is having difficulty making a focused and effective PRA request.¹⁶ And while the request may be burdensome, that burden alone is not sufficient to justify noncompliance. However, the agency is also not required to perform a “needle in a haystack” search for records.¹⁷ Additionally, a PRA request only applies to records that exist at the time of the request, not for records to be created in the future.

Widespread Use of Electronic Communications

The public’s business increasingly relies on electronic communications. Email, social media postings, video and audio recordings, and the use of personal devices have created enormous volumes of public records for cities. In a case with broad consequences related to PRA requests, *City of San Jose v. Superior Court of Santa Clara County* (2017), the California Supreme Court ruled that communications carried out using a personal account or device were disclosable if the communication was related to the conduct of public business.¹⁸

For example, such a PRA request might be for all communications between city officials and a vendor that was granted a city-awarded contract. The search for responsive records could include reviewing all the emails, voice mails, and texts between the parties for relevant material, including on officials’ personal devices. This can be problematic since this communication, especially if voluminous, could require attorneys to determine what might be non-disclosable for reasons of privacy or privilege. In *Getz v County of El Dorado* (2021), a California appeals court ruled that El Dorado County’s unsubstantiated claim that a PRA request was overly broad and burdensome was not a valid reason for denial of records. The court explained that establishing that a request is overly burdensome requires more than the vague prospect of having to review lots of records. The County was ultimately compelled to produce over 40,000 email records.¹⁹

Law Enforcement Records

In recent years the most publicized form of an electronic record has been police body-cam footage. Landmark legislation has broadened PRA access to law enforcement records, including a limited subset of these audio and video recordings. On January 1, 2019, SB 1421 became law. Called the Peace Officers: Release of Records bill, it requires law enforcement agencies to make records (including body-cam footage) related to certain serious officer use of force incidents, sexual assault, and acts of dishonesty available under the PRA.²⁰ Police unions have filed multiple challenges to the law asserting concerns about officers’ privacy, retroactivity of the law,

¹⁶ CA Govt Code § 6253.1.

¹⁷ Cal. First Amend Coalition v. Superior Court (1998) 67 Cal. App. 4th 159, 166.

¹⁸ Latham & Watkins, Client Alert Commentary, <https://www.lw.com/thoughtLeadership/california-supreme-court-government-communications-on-private-accounts-are-public>, retrieved May 11, 2022.

¹⁹ *Getz v. The Superior Court*, 72 Cal.App.5th 637, 287 Cal. Rptr. 3d 722 (Cal. Ct. App. 2021) <https://law.justia.com/cases/california/court-of-appeal/2021/c091337.html>, retrieved June 1, 2022.

²⁰ CA Penal Code § 832.7 and § 832.8.

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and the cost of producing records.²¹ These challenges have been consistently denied by courts.²² And in January 2022, SB 16, became effective. This new law now requires additional police disciplinary records, involving allegations of discrimination, unlawful arrest, and cover-ups of excessive force by fellow officers, to be made available under the PRA.²³

Methods of Handling Requests

The PRA does not mandate any specific method for agency handling of records requests. Some local agencies simply monitor the process manually using an internally created document. Many other agencies now use commercially available software that links to information on their public websites. Often marketed to city clerks through professional organizations, such as the City Clerks Association of California, these software applications offer solutions to manage large portions of the PRA request process.

These applications can:

- Manage intake of requests through a public portal;
- Provide an automated response of receipt to the person making a request;
- Alert agency staff to deadlines;
- Promote coordination across departments;
- Gather records and track their production to person making a request;
- Provide tools to redact information; and
- Display and store responsive records.

The software enables anyone making a PRA request to see the status of their request through a portal. It also enables cities to make both the request and the records responsive to the request visible to the public.

Fees

An agency may charge a fee for costs of complying with the PRA, but only for the direct costs of making copies of responsive records – typically a nominal fee per page of paper copies. Since today most records are produced and delivered to the requester electronically, many responsive records are cost-free to the requesting party.

In *National Lawyers Guild v. City of Hayward* (2019), the California Supreme Court held that an effort by the city to charge \$3,000 for labor related to redacting requested bodycam footage was

²¹ Voice of San Diego, A Brief History of Police Challenges. <https://voiceofsandiego.org/2019/06/10/brief-history-of-police-challenges-and-losses-sb-1421/>, retrieved March 18, 2022.

²² JD Supra, Another SB1421 Decision Against Law Enforcement. <https://www.jdsupra.com/legalnews/another-sb-1421-decision-against-law-45114/>, retrieved March 18, 2022.

²³ BBK Attorneys at Law, SB 16 Compliance Expanded Public Access. <https://www.bbklaw.com/News-Events/Insights/2021/Legal-Alerts/12/SB-16-Compliance-Expanded-Public-Access-to-Law-Enf>, retrieved March 18, 2022.

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not permissible as a “data extraction” cost.²⁴ With this decision, the Court reaffirmed that local agencies may not charge for ancillary costs such as the labor required to retrieve documents or the inspection and handling of files.²⁵

Voter-approved Propositions Affecting the PRA

In 2004, voters overwhelmingly passed Proposition 59, the “Public Records, Open Meetings Legislative Constitutional Amendment.” It essentially adds a “sunshine” amendment to the Declaration of Rights section of the California Constitution (similar to the U.S. Constitution’s Bill of Rights) stating, “The people have the right of access to information concerning the conduct of the people’s business, and, therefore, the meetings of public bodies and the writings of public officials and agencies shall be open to public scrutiny.”²⁶

Proposition 42, the “Public Records. Open Meetings. State Reimbursement to Local Agencies. Legislative Constitutional Amendment” was approved by voters in 2014. It was the result of a dispute over a controversial bill that would stop local governments from being required to follow key provisions of the PRA. The State legislature had considered the bill to be a budget move, since at that time it was required to reimburse local governments for complying with some aspects of records requests. The backlash over the signing of this bill caused the legislature to rescind it and put the matter before the voters as a constitutional amendment. When it passed, by a 62% yes vote, it required local governments to comply with the PRA without being reimbursed by the State for the cost of public access to records.²⁷ The full financial burden of compliance with the PRA now falls entirely on local governments.

Exemptions

While the PRA states that “the people” have the right to know what their government is doing, clearly circumstances arise where a balance must be achieved between the public interest and individual privacy rights. The PRA contains at least 76 express exemptions, for matters as diverse as library circulation records, copyright protected building plans, and medical and personnel records.²⁸ In some instances a public document may not be considered exempt but may contain private information such as social security numbers and home addresses. Those specific portions will be redacted before release to the public.

²⁴ Reporters Committee, National Lawyers Guild v City of Hayward. <https://www.rcfp.org/briefs-comments/national-lawyers-guild-v-hayward-california-supreme-court>, retrieved June 14, 2022.

²⁵ BBK Attorneys at Law, California Public Records Act Update. <https://www.bbklaw.com/news-events/insights/2021/legal-alerts/01/california-public-records-act-update>, retrieved March 16, 2022.

²⁶ Cal. Const., Art I, § 3, subd. (b)(1)

²⁷ Cal. Const., Art. I, § 3, subd. (b)(7)

²⁸ CA Govt Code § 6254

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Government Code section 6254 specifies a large number of exemptions under the PRA. Several of the more notable exemptions are listed below:

- **Records Not in Existence**

The agency is under no obligation to create records where none exist; agencies are not required to provide records that may be produced in the future relevant to the original request.

- **Disclosure of records exempted by Federal or other State law**

Records shielded from disclosure by existing state or federal law, such as individual health records, are not accessible using the PRA.

- **Public Interest Test and Deliberative Process Privilege**

Agencies may withhold certain records if they can demonstrate that the public interest served by not disclosing the record clearly outweighs the public interest served by its disclosure.

- **Preliminary Drafts**

Preliminary drafts, notes, or memos not normally preserved in the course of business are exempt.

- **Attorney Client Communications**

Confidential communications between lawyers and clients, and attorney work product, are exempt from disclosure.

- **Pending Litigation**

Records pertaining to pending litigation or claims to which a public agency is a party until the litigation or claim has been finally adjudicated or otherwise settled.

- **Personal Information**

This exemption is intended to protect the confidentiality of personnel, medical or other similar files which would constitute an unwarranted invasion of personal privacy.

- **Trade Secrets**

Businesses engaged in public contracts are not required to disclose their trade secrets in response to a PRA request.

Recourse When Responsive Documents Are Not Produced

If a local agency has unlawfully refused to disclose a public record, a person may ask a judge to enforce their rights under the PRA. This enforcement is primarily through a special, expedited civil judicial process.²⁹ The PRA provides specific relief in the form of court costs and attorneys' fees when an agency unlawfully denies access or copies of public records.

²⁹ CA Govt Code § 6258 and 6259.

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Conversely, a local agency cannot bring an action for relief to determine its obligation to disclose records.³⁰ That would require the person requesting documents to defend a civil action and discourage them from requesting records in the first place. It would frustrate the central purpose of the act and the constitutional amendments specifically designed to provide access to information.

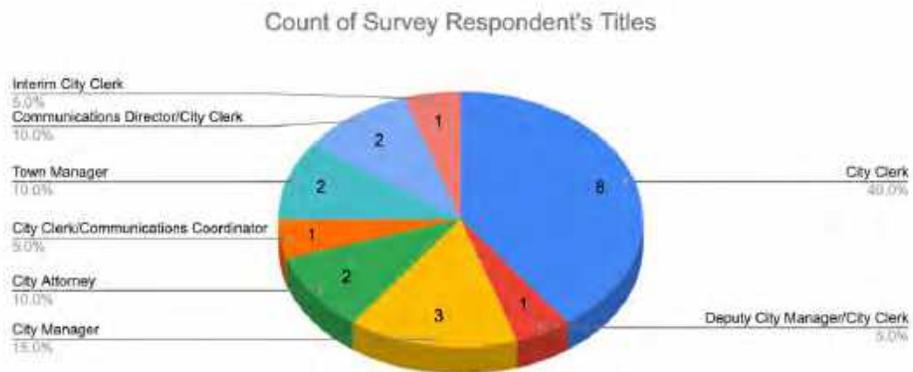
The PRA is an indispensable tool for the responsible exercise of democracy in California. Government transparency, accountability and effectiveness depend on how our local agencies handle the information they create and are entrusted with maintaining. A changing legal framework, the ubiquity of electronic records, new communications technologies and the treatment of their related records, and the public’s demonstrated desire for “open government” present significant challenges to the efficient handling of PRA requests for the cities in our county.

DISCUSSION

As stated above, the PRA applies to all of the public agencies in San Mateo County. To narrow the focus of our investigation, the Grand Jury opted to concentrate on the 20 cities, including their police and other departments, and the committees and commissions formed by those cities.

Survey Respondents

The Grand Jury began by sending a survey to the 20 city managers in the County (a copy of the survey appears in Appendix A). It asked six questions related to the processing of public records requests, policies and procedures used, and the PRA training of staff and officials. In most cases (13 of 20) the responses came from city clerks who are responsible for maintaining a city’s public records. Some of the clerks perform multiple roles for their cities, reflected in some cases (15%) by an additional job title. The following graphic illustrates the various job titles of survey respondents.



³⁰ Filarsky v. Superior Court (2002) 28 Cal.4th 419, 426.

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In two cities, the city clerk position is determined by public election; in the remainder of the cities, clerks are appointed by the city manager. Our investigation found that the city clerk is typically the official primarily responsible for the acknowledging receipt of a PRA request, tracking it through the city's internal processes, and delivering correspondence and responsive records to the person submitting the request.³¹

The Grand Jury conducted follow-up interviews with representatives of all 20 cities, confirming their survey responses and gathering additional information. We asked the cities to provide written documentation of their PRA policies and procedures, if any exist. Fourteen cities replied that they had existing policies or procedures and supplied them to the Grand Jury. We also conducted in-depth interviews with five selected cities.³² These cities were chosen to give us a cross section sample based on city population, method of tracking, and volume of requests. The Grand Jury notes that respondents from all 20 cities were entirely cooperative and knowledgeable about their city's PRA request procedures.

Documentation of PRA Policies and Procedures

The PRA does not require local agencies to create policies or documentation of how they receive, route, track, and fulfill records requests. When the Grand Jury asked respondents and interviewees to provide documentation describing how they handled PRA requests, we learned that six cities had no such documentation.³³ In some cases, the documentation received from the remaining 14 cities was simply a description of the PRA's requirements (perhaps supplied to staff for training for information). The Grand Jury also received documents such as the city's internal procedures, as well as some that were formal policies signed and dated by the city manager. In interviews, all respondents could describe their processes.

³¹ In one city, the city attorney assumed most of this role, but even there the city clerk was involved in the process.

³² Belmont, Daly City, San Bruno, San Mateo, and South San Francisco

³³ Grand Jury survey (December 2021) Belmont, Daly City, Half Moon Bay, Hillsborough, Menlo Park, and Woodside.

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The documentation received and reviewed by the Grand Jury varied widely. Atherton's document is a colorful presentation defining the PRA and describing what is and isn't a public record.

Public Records Requests

Town of Atherton Records Coordinators

What is the California Public Records Act?

The Public Records Act assures the public's right to access information concerning *the People's Business*. Adopted in 1968, the CPRA's legislative findings declare that access to information about the conduct of the public's business is a *fundamental and necessary right* of every person in the state. The findings also assert that the Legislature is mindful of the right of individual's privacy, and for the past 40+ years, courts have balanced those competing interests within the CPRA.

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It generally outlines city staff's role in responding to a request. In contrast, Redwood City's document is an administrative policy detailing the purpose and scope of how they respond to PRA requests. It notes specific types of records such as political reform act records and requests for electronic communications. It also specifies that the document will be reviewed every two years. Copies of the PRA documentation provided by Atherton and Redwood City can be found in Appendix B.

The Grand Jury noted that some cities relied on an individual staff member (city clerk or city attorney) to respond to records requests. In the event of illness, vacation, resignation or other interruption of service, no documentation exists to guide replacement personnel.

Written PRA policies or procedures provided to the Grand Jury typically covered subjects such as:

- The purpose of the PRA;
- Resources for PRA training;
- The steps in processing a request; and
- Specific staff responsibilities.

Website Portals

The Grand Jury found that while cities do receive PRA requests in various ways - submitted in-person at city offices, by telephone, and postal mail - they are most frequently submitted via email. We found that 16 of the 20 city websites included a portal containing a submittable form for the filing of a PRA request and four cities had no such form.³⁴

Every city website somewhere provides instructions on how to make a PRA request. Some have links to those instructions on the home page, but most require steps to navigate to it. In some cases, the Grand Jury found broken links indicating inconsistencies in the level of maintenance of the PRA related pages. Some city websites simply instruct the public to send a public records request to the city clerk and provide contact information including an email address, a phone number, or a physical address at which to file.

³⁴ Belmont, Brisbane, Hillsborough, and Portola Valley.

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Example of Easy and Accessible PRA-Information on a City Website

The website for the City of South San Francisco provides easily accessible information regarding PRA requests. The home page includes a “Public Records Request” link.



Clicking on the link brings up a page full of useful titles including how to make a request, the city’s PRA policy, who can make a request, and tips to expedite requests.



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Clicking on “Public Records Request” takes the user to a third-party public records web application where they can search by request reference number, track the status of a previous request, view a public archive, and submit a new request.



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Tracking a Public Records Request

Since the PRA mandates specific deadlines for public agencies to respond to a public records request, the ability to track submissions is vital in order to ensure legal compliance.³⁵ All cities informed the Grand Jury that they track PRA requests, utilizing a variety of methods to do so. Regardless of the specific method used by a city, the workflow is generally as follows.



³⁵ CA Govt Code § 6253(c).

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Ten cities, which were generally smaller and field fewer requests, reported that they track PRA requests manually using an Excel spreadsheet or similar internal document.³⁶ These documents require manual data entry and maintenance by staff. For example, see San Bruno's spreadsheet at Appendix C. While these cities indicated general satisfaction with their current methods of tracking, one city was actively seeking proposals from commercial software vendors and others were considering doing so. Appendix D shows such a vendor's proposal.

The ten other cities, including most of the larger ones, use third-party software that automates the handling of PRA requests.³⁷ These cities use one of two software applications.³⁸ In interviews, staff generally expressed satisfaction with both products, citing their effectiveness and efficiency. Pricing of these applications will vary based on the configuration and storage options selected. One city indicated a desire to purchase software but cited the city's budget constraints. Another city noted that the cost was prohibitive for a city of their size and volume of requests.

Volume of Requests

Thirteen cities reported receiving more than 100 PRA requests in the past year. Two cities reported receiving fewer than 50 requests, while one city indicated that it received more than 1,600 requests for records. Another city noted a 500% increase from the previous year. All cities reported significant increases in the volume of requests received since the outset of the Covid pandemic.

Subjects of Requested Records

All 20 cities reported that the majority of the PRA requests they received were for routine records such as property-related documents, police records, public works documents, and business registrations. For example, in San Mateo, the City Clerk's office recorded 1,695 PRA requests in the fiscal year ended June 30, 2021. The largest percentage (46%) were directed to the Community Development Department and typically asked for property records of some kind, including planning applications, building permits, blueprints, inspections, and code violations. Requests for police records (35%) were the next most frequently requested type of record. The clerk's office noted that the police department directly receives substantially more requests than come to the clerk through their PRA request software.

³⁶ Atherton, Brisbane, Burlingame, Colma, Daly City, East Palo Alto, Hillsborough, Portola Valley, San Bruno, and Woodside as of May 16, 2022.

³⁷ Foster City, Half Moon Bay, Menlo Park, Millbrae, Pacifica, Redwood City, San Carlos, San Mateo, and South San Francisco as of May 16, 2022.

³⁸ GovQA, If You Have a Public Records Problem. <https://www.govqa.com/solutions/public-records-software/> Retrieved May 16, 2022, and NextRequest, The All-In-One Open Records Request Platform. <https://www.nextrequest.com/>, retrieved May 16, 2022.

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Time-Consuming Requests

The Grand Jury learned that a relatively small number of records requests are disproportionately time-consuming to fulfill. In particular, requests for communications records may fall into this category. The request may require a broad search of all relevant communications created and stored on electronic devices, including employees' cell phones and laptops. Recently, Portola Valley received what was characterized as a "massive" PRA request for "all town communications regarding the housing element since July 1, 2021, including communications among elected officials, staff, consultants or members of the committee, like emails and text messages, including on personal devices."³⁹ The request was the result of a potential change to the town's zoning laws to allow for more dense housing in one residential neighborhood.

Several cities reported to the Grand Jury that on rare occasions a disgruntled citizen or ex-employee has intentionally crafted a detailed records request intending to be time-consuming and annoying for the city. One respondent reported that the search and review of electronics communications in response to one request took months to complete, due to the number of responsive records and the broad search of multiple devices.

³⁹ Angela Swartz, "'Massive' public records request escalates battle over Portola Valley's housing element," *Almanac*, March 21, 2022.
<https://www.almanacnews.com/news/2022/03/21/massive-public-records-request-escalates-battle-over-portola-valleys-housing-element>, retrieved June 9, 2022.

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Training

State law does not mandate training for those implementing its provisions. City clerks often attend training through annual City Clerks Association of California conferences and other professional associations.



Half of the cities interviewed by the Grand Jury mandate formal PRA training for their key employees. Others offer training but do not mandate it, while some cities have no formal arrangements for PRA training at all.⁴⁰ Training, if offered, is conducted by the city attorney. In our investigation, respondents agreed that formal training for key city employees would make the handling of records requests more efficient and consistent.

Twelve cities informed the Grand Jury that they provide PRA training for their appointed and elected officials. This training is also typically provided by the city attorney, sometimes with the assistance of the city clerk. Eight cities reported that they do not offer specific PRA training to such officials, but some noted that their training in Brown Act compliance includes PRA training content.⁴¹

While the PRA does not include criminal penalties for noncompliance with its provisions, civil actions, as described earlier, may be filed and cities can be liable for court costs and attorneys' fees.

⁴⁰ Burlingame, Portola Valley, and Woodside.

⁴¹BBK, Attorneys at Law, Summary of the Major Provisions and Requirements of the Ralph M. Brown Act. <https://www.bbklaw.com/bbk/media/library/pdf/major-provisions-and-requirements-of-the-brown-act.pdf>, retrieved June 9, 2022.

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Increasing Efficiency in Records Request Processing

Some cities have demonstrated how commonly requested records can be made available to the public without formal PRA requests.

Making public records available online is a convenient and efficient mechanism for both the requester and the municipality. Cities generally do this for many common records, such as meeting agendas for public meetings (which are legally required to be posted publicly).⁴² At the time of this investigation, some cities, such as San Carlos, also posted many records online. Using the search term “public records” on the San Carlos city website brings up “Records Available Online for Your Easy Access,” which connects to records such as budgets, building permits, and public works documents.

Submit a Public Records Request

If you are unable to locate the records you want online, please submit a Public Records Request via our NextRequest portal:



Our goal is to provide you with timely access to the City's public records. All requests for documents will be reviewed and responded to within ten (10) days, in compliance with the California Public Records Act. Fees are charged according to our fee schedule, however, there is no charge to review records in person at City Hall.

- [Master fee schedule](#)

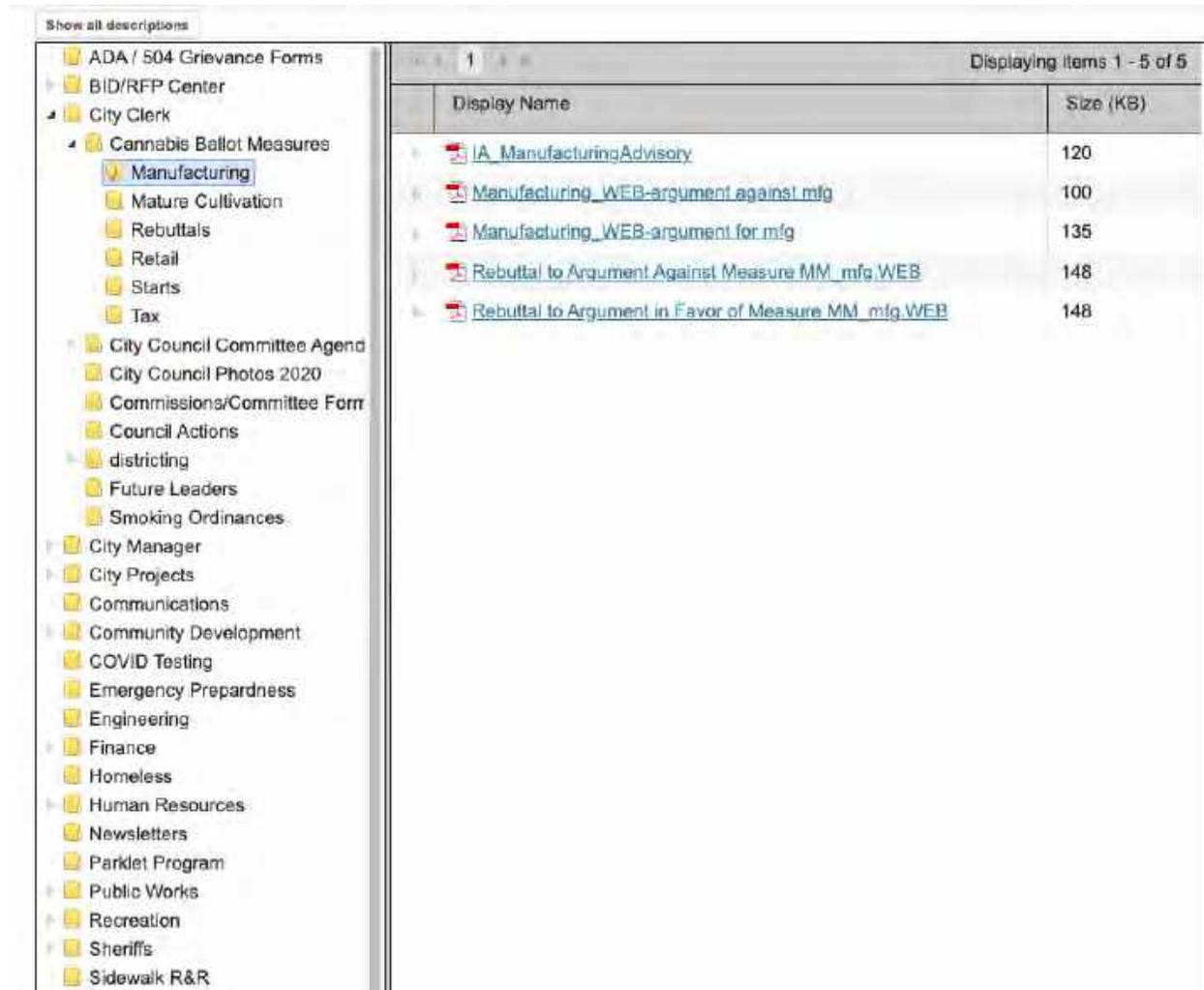
Records Available Online for Your Easy Access

- [Accounts payable cash disbursements journal](#)
- [Active business registrations](#)
- [Budgets](#)
- [Building Permits](#)
- [City Council and Commission agendas, minutes and videos](#)
- [City Municipal Code](#)
- [Citywide Reports](#)
- [Financial Reports and Documents](#)
- [Ordinances and Resolutions](#)
- [Various Public Works Documents, including documents pertaining to sewers, streets, traffic, etc.](#)

⁴² CA Govt Code § 54954.2.

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The Half Moon Bay website offered a “Document Center” containing more than 2,000 city documents going back a decade.



Several cities noted that they often receive requests for the same records repeatedly. For example, this can occur when a sought-after property is offered for sale and brokers, architects, attorneys, and potential buyers are doing their due diligence. Cities using commercially provided software applications, or that post public records as do San Carlos and Half Moon Bay, can reduce the number of such duplicative PRA requests.

Records Management

Proper records management policies and practices facilitate effective compliance with the PRA. Having better control of these records makes their timely and appropriate production more accurate and efficient. All cities in the County reported having records retention schedules that determine what documents must be retained and for how long. For example, in South San

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Francisco, leases for city owned properties must be kept in hard copy for the current year plus two-years. Board and commission resolutions must be kept permanently (a copy of the records retention schedule for South San Francisco is at Appendix E).

The City of San Mateo reported a unique method for encouraging city staff in one element of the effective management of public records. There, the city clerk held a “Records Clean Up Day” (related materials are contained in Appendix F). During this event employees are tasked with:

- Reducing the number of duplicate records;
- Preparing records for off-site storage;
- Imaging and indexing electronic records; and
- Identifying electronic records eligible for destruction.

The retention life cycle of various records determined how different categories of documents are handled. The program was designed to create an enjoyable environment around these tedious tasks by employing a food truck, encouraging casual dress, creating contests with prizes, and printing T-shirts commemorating the day. The program included an on-site shred truck, and the city attorney was available for consultation.



In an email to the Grand Jury, a city staffer wrote, “In addition to elevating the employee understanding that these public records are an asset of the city (just like the vac truck, fleet, and streets) ...we have a duty to manage and maintain them well; reinforce the policy and procedures we have adopted; and let’s face it, maintaining records can become back burner in the flurry of day-to-day needs and requests. Setting aside time to honor the need, accomplish an objective and

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then celebrate it – keeps it more in the forefront of the mind and honors the importance of the public’s records.”⁴³

Law Enforcement Records

Some cities reported receiving significant numbers of requests for police records. All such requests were forwarded directly to city police departments or the County Sheriff’s Office (for those cities contracting for police services).⁴⁴ Law enforcement agencies typically employ a records manager tasked with responding to public records requests. In some cities the disposition of these requests was reported back to the city clerk for inclusion in their tracking systems; in others, the city clerk had no knowledge of the status of a police records request. The Grand Jury did not investigate how these requests for law enforcement records were handled in compliance with the PRA. It is of note that most law enforcement records are exempted from the Public Records Act pursuant to Government Code Section 6254(f).

FINDINGS

- F1. The city has no written documentation of its PRA policy and internal procedures, making it more likely that requests could be handled inconsistently.
- F2. The city uses a commercially available software application that includes a web portal enabling the public to easily request records and track their disposition.
- F3. Information about how to access public records requires multiple clicks to find on the city’s website, which hinders the public’s access to public records.
- F4. The City of San Mateo implements a Records Cleanup Day with the purpose of increasing employee understanding of the need to effectively maintain public records, thereby improving PRA request responsiveness.
- F5. The city has no PRA request form online, making public access to public records less efficient.

⁴³ Grand Jury correspondence April 26, 2022.

⁴⁴ Contracting cities are Half Moon Bay, Millbrae, San Carlos, Woodside, and Portola Valley.

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RECOMMENDATIONS

- R1. The city council should direct city staff to consider and report back by June 30, 2023, on the creation of a written PRA policy or procedures document for circulation to all relevant staff.
- R2. The city council should direct city staff to consider performing a cost/benefit analysis and report back by September 1, 2023, on the purchase of commercially available public records request software.
- R3. By June 30, 2023, the city council should consider directing city staff to place information about how to access public records on the home page of the city’s official website.
- R4. By June 30, 2023, the city council should direct city staff to review and consider adopting a records management practice analogous to the City of San Mateo’s “Records Cleanup Day.”
- R5. By June 30, 2023, the city council should direct city staff to create, on the city clerk’s page of its website, a submittable PRA request form.

REQUEST FOR RESPONSES

Pursuant to Penal Code Section 933.05, the Grand Jury requests responses from the selected city and town councils as follows (x):

City	F1	F2	F3	F4	F5	R1	R2	R3	R4	R5
Atherton			x		x		x	x	x	
Belmont	x		x		x	x	x	x	x	x
Brisbane			x		x		x	x	x	x
Burlingame							x		x	
Colma							x		x	
Daly City	x	x				x			x	
East Palo Alto							x		x	
Foster City		x							x	
Half Moon Bay	x	x				x		x	x	
Hillsborough	x		x		x	x	x		x	x
Menlo Park	x	x				x		x	x	
Millbrae		x							x	

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City	F1	F2	F3	F4	F5	R1	R2	R3	R4	R5
Pacifica		x							x	
Portola Valley			x		x		x	x	x	x
Redwood City		x						x	x	
San Bruno			x		x		x	x	x	
San Carlos		x							x	
San Mateo		x		x						
South San Francisco		x							x	
Woodside	x				x	x	x		x	

The governing bodies indicated above should be aware that the comment or response of the governing body must be conducted subject to the notice, agenda, and open meeting requirements of the Brown Act.

RESPONSE REQUIREMENTS

California Penal Code Section 933.05, provides (emphasis added):

(a) For purposes of subdivision (b) of Section 933, as to each grand jury finding, the responding person or entity shall report one of the following:

- (1) The respondent **agrees** with the finding.
- (2) The respondent **disagrees** wholly or partially with the finding; in which case the response shall **specify the portion of the finding that is disputed and shall include an explanation of the reasons therefor.**

(b) For purposes of subdivision (b) of Section 933, as to each grand jury recommendation, the responding person or entity shall report one of the following actions:

- (1) The recommendation has been implemented, **with a summary regarding the implemented action.**
- (2) The recommendation has not yet been implemented, but will be implemented in the future, **with a timeframe for implementation.**
- (3) The recommendation requires further analysis, **with an explanation and the scope and parameters of an analysis or study, and a timeframe for the matter to be prepared for discussion by the officer or head of the agency or department being investigated or reviewed, including the governing body of the public agency when applicable. This**

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timeframe shall not exceed six months from the date of publication of the grand jury report.

(4) The recommendation will not be implemented because it is not warranted or is not reasonable, **with an explanation therefor.**

METHODOLOGY

Through examination of surveys, interviews, the documentation provided by the cities, a demonstration of third-party software, and a site visit, the Grand Jury studied how cities respond to public records requests, and how they keep up with changes in the law.

Survey

- The Grand Jury developed an online survey consisting of six questions and a request for copies of their PRA policies and procedures.
- The survey was sent to all 20 city managers in the County and various respondents completed the survey.
- We then followed up with a brief phone interview to confirm the responses received from those completing the survey, and to request written policy and procedures documents and records retention policies.

Documents

The Grand Jury reviewed:

- Policy and procedure documents from all cities that indicated having them.
- Records retention policies from several cities.
- Proposals and contracts for third-party software received from various vendors
- Marketing material of third-party software vendors
- Research on best practices in records management

Site Tour

- GJ conducted a site visit to the San Bruno City Attorney's office.
- San Mateo conducted a virtual demonstration of their third-party software.

Interviews

- The Grand Jury conducted further interviews with city attorneys, city clerks and city managers based on those with written policies or procedures documents, training of key employees and elected and appointed officials (advisory bodies), number of public records requests received per year, and those with an elected city clerk.

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Web Sites

- The official websites of the 20 cities in the County were reviewed to assess the ease in locating information relating to public records, the methods of submission of a public records request, as well as users' direct access to commonly requested public records.

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LIST OF APPENDICES

Appendix A – The Grand Jury Survey Results

Appendix B – PRA Policies and Procedures: Atherton and Redwood City

Appendix C – San Bruno PRA Request Log

Appendix D – GovQA Proposal for Services

Appendix E – South San Francisco Retention Schedule

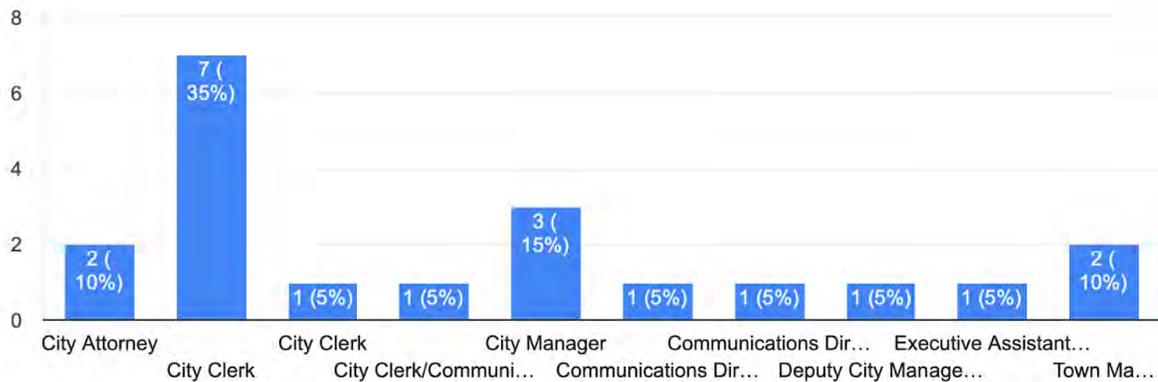
Appendix F – City of San Mateo’s Clean-Up Day Staff Plan and Flyer

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APPENDIX A The Grand Jury Survey Results

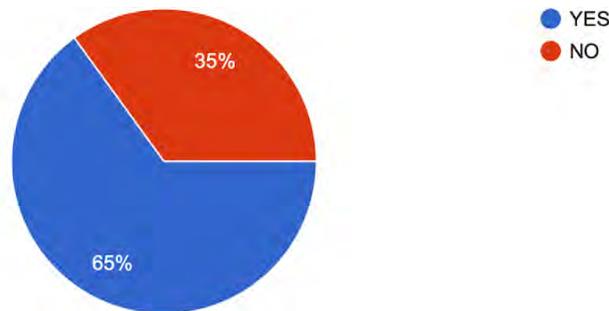
What is your job title?

20 responses



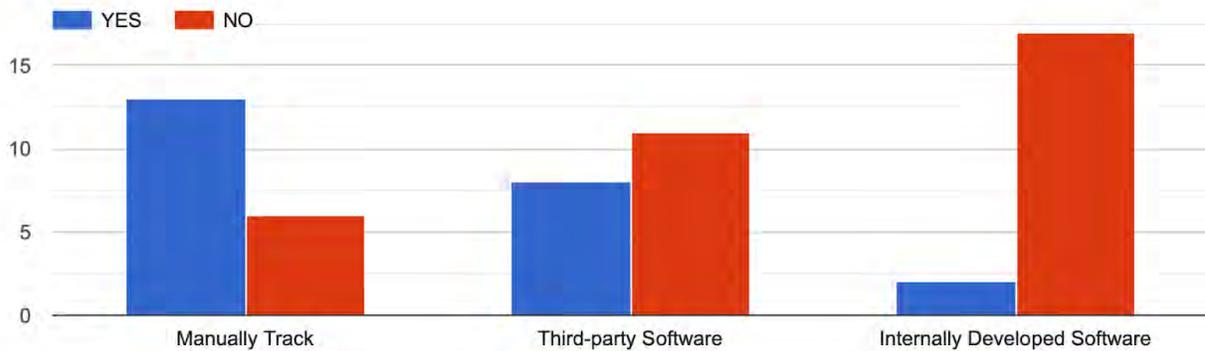
2. Have you established internal written procedures, or policies, for handling Public Records Act requests? If YES, please provide documentation to: rweiss@smcivilgrandjury.org.

20 responses



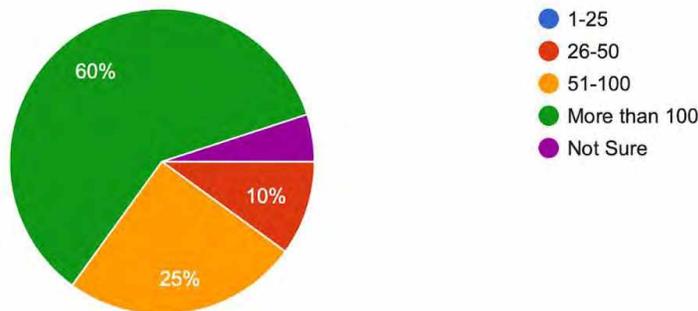
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3. Please indicate if you use any of the following to track the status of each Public Records Act request.



4. How many requests do you receive per year?

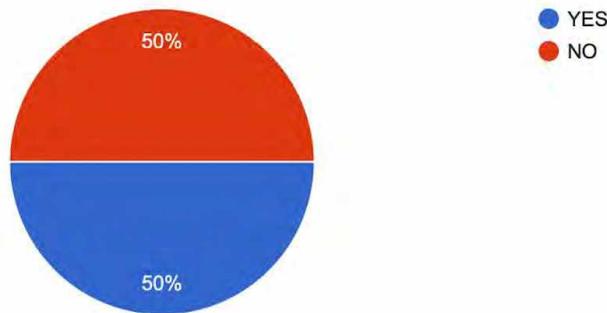
20 responses



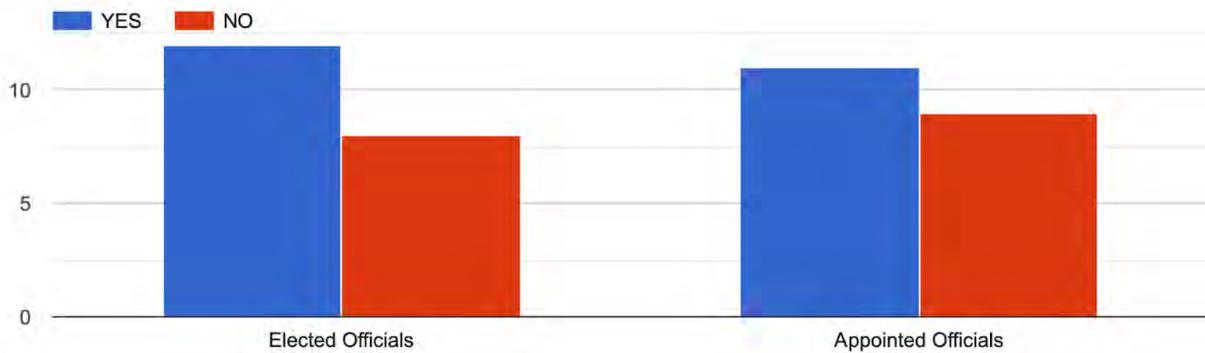
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5. Does your city mandate formal Public Records Act training for key employees?

20 responses



6. Does your city offer Public Records Act training for elected and appointed officials (i.e. advisory boards, commissions, committees)?



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7. Have you adopted a written document retention policy?

20 responses



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APPENDIX B

PRA Policies and Procedures: Atherton and Redwood City

Atherton: https://www.sanmateocourt.org/documents/grand_jury/2021/Appendix B - PRA PAP Atherton.pdf

Redwood City: https://www.sanmateocourt.org/documents/grand_jury/2021/Appendix B - PRA PAP Redwood City.pdf

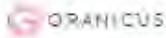
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APPENDIX C
San Bruno PRA Request Log
(sample page with requester names removed)

#	PRA	Sbpna	Date of Request	Date Received	Requester Name	Description of Request(s)	Dept(s)	Response Due Date	Acknowledgment Letter Date	Records Provided
1	X		07/01/21	07/01/21		June 2021 Building permits	CD	07/12/21	Emailed rsp s on 07/08/21	07/08/21
2	X		07/01/21	07/01/21		Docs re CPUC approval of purchase of streetlights from	PW	07/12/21	Emailed rsp s on 07/08/21	7/8/2021
3	X		07/07/21	07/07/21		Records involving code enforcement, utility shut offs, and fire damaged properties	CD/CE/FD/ Finance	07/19/21 08/18/21	req 30 day ext - now due 08/18/21. Emailed rsp s on 08/18/21	08/18/21
4	X		07/08/21	07/08/21		June 2021 Business licenses	Finance	07/19/21	Emailed report on 07/19/21	07/19/21
5	X		07/13/21	7/13/2021		June 2021 Building permits	CD	07/23/21	Emailed rsp s on 07/13/21	7/13/2021
6	X		07/13/21	07/13/21		Records involving code enforcement, utility shut offs, and fire damaged properties	CD/CE/FD/ Finance	7/23/2021 08/23/21	07/23/21 req 30 day ext - now due 08/23/21. Emailed rsp s on 08/18/21.	08/18/21
7		X				Subpoena for records involving 692 Green Ave	CE/CD/ PW	07/19/21	Emailed rcds on 07/23/21	07/23/21
8	X		07/14/21	07/15/21		Oldest current standing houses in SB	CD??	07/26/21	Emailed rsp s on 07/23/21	X
9	X		07/15/21	07/15/21		Private tows from 04/01/21 thru 06/30/21	PD	07/26/21	Emailed report on 07/26/21	07/26/21
10	X		07/17/21	07/19/21		Electronic copy of all payment transactions for fiscal year 2020	Finance	07/29/21	Emailed link to agenda packets on 07/29/21	7/29/2021
11	X		07/20/21	07/20/21		2020 Pension Benefit/Payout Report	Finance	07/30/21	Request was meant for City of Concord - withdrawn on 07/31/21	Withdrawn
12	X		07/19/21	07/20/21		Uncashed checks	Finance	07/30/21	Emailed link to website on 07/29/21	7/29/2021
13	X		07/22/21	07/22/21		Building & FD rcds for 787 E SB Ave	CD/FD	08/02/21	Emailed rcds on 08/02/21	8/2/2021
14	X		07/09/21	07/09/21		Firearm & Ammunition arrests & related demographic	PD	7/19/2021 08/18/21	req 30 day ext - now due 08/18/21. Emailed rsp s on 08/18/21	8/18/2021

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APPENDIX D
GovQA Proposal for Services



Order Form

PRICING SUMMARY

The pricing and terms within this Proposal are specific to the products and volumes contained within this Proposal.

One-Time Fees			
Solution	Billing Frequency	Quantity/Unit	One-Time Fee
FOIA Platform Onboarding	Up Front	1 Each	\$0.00
Online Training - Administrator	Up Front	1 Each	\$0.00
Online Training - Users	Up Front	1 Each	\$0.00
SUBTOTAL:			\$0.00
New Subscription Fees			
Solution	Billing Frequency	Quantity/Unit	Annual Fee
Essentials Package 3	Annual	1 Each	\$10,500.00
PST Email Extractor	Annual	1 Each	\$1,500.00
Payments Module	Annual	1 Each	\$0.00
Hosted Data Storage (TB)	Annual	1 Each	\$0.00
Invoicing Module	Annual	1 Each	\$0.00
FOIA Module for Enterprise Sales	Annual	1 Each	\$0.00
Redaction License (per named user)	Annual	3 Each	\$0.00
ADFS/Single Sign-on Module	Annual	1 Each	\$0.00
Advanced Email Tracking	Annual	1 Each	\$0.00
SUBTOTAL:			\$12,000.00

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Order Form

GRANICUS
FUTURE YEAR PRICING

Solution(s)	Period of Performance	
	Year 2	Year 3
Essentials Package 3	\$11,235.00	\$12,021.45
PST Email Extractor	\$1,605.00	\$1,717.35
Payments Module	\$0.00	\$0.00
Hosted Data Storage (TB)	\$0.00	\$0.00
Invoicing Module	\$0.00	\$0.00
FOIA Module for Enterprise Sales	\$0.00	\$0.00
Redaction License (per named user)	\$0.00	\$0.00
ADFS/Single Sign-on Module	\$0.00	\$0.00
Advanced Email Tracking	\$0.00	\$0.00
SUBTOTAL:	\$12,840.00	\$13,738.80

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APPENDIX E
South San Francisco Records Retention Schedule 2016

[https://www.sanmateocourt.org/documents/grand_jury/2021/Appendix E - SSF Retention Schedule 2016.pdf](https://www.sanmateocourt.org/documents/grand_jury/2021/Appendix_E_-_SSF_Retention_Schedule_2016.pdf)

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APPENDIX F
City of San Mateo's Clean-Up Day Staff Plan and Flyer

San Mateo Records Clean-Up Day Staff Plan

Department/Location/Division: _____
Your Name: _____

Date of Clean-Up: May 05, 2022 Cinco De Mayo
This Form Due To Your Dept. Record Coordinator 4/28/22

Goal(s) for clean-up day (select all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Prepare paper records for destruction | <input type="checkbox"/> Email clean-up (delete unnecessary emails. Move attachments that are records to the correct records repository e.g., One Drive, SharePoint, Laserfiche.) |
| <input type="checkbox"/> Dispose of duplicate records | <input type="checkbox"/> Identify electronic records that are eligible for destruction |
| <input type="checkbox"/> Prepare records for off-site storage | <input type="checkbox"/> Focus on imaging, indexing electronic records |
| <input type="checkbox"/> Sort through off-site storage records | <input type="checkbox"/> Ensure website content is accurate and up-to-date (Remove old/outdated documents and/ or pages from website) |
| <input type="checkbox"/> File paper files | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Develop file inventory | |

Key Activities and Strategies: What will you do to accomplish these goals? Be as specific as possible.

Welcome Back San Mateo

ANNUAL CINCO DE MAYO

RECORDS CLEAN-UP DAY PICNIC

*Let's Celebrate being together in person again
with a picnic of specialty tacos in our backyard with your colleagues!*

How to join the fun (and yes, records clean-up is fun!)

1. Ask your Department's Records Coordinator for a records clean-up commitment form.
2. Choose from a list of clean-up activities or create your own
3. Sign the form and provide it to your Records Coordinator by **April 28, 2022** - this is your RSVP for the luncheon. Sorry: No form - no tacos.
4. On or before 5/5/22 clean-up, purge, & organize those records!

Questions? Talk to your Records Coordinator
or Alesha Boyd in the City Clerk's Office

Join us here!



**Join us for Tacos in City Hall Backyard
11:00 am - 12:30 pm**

*Courtesy of the Clerks for anyone who committed to
Records Clean-up*

- Salad
- Tacos - Grilled Chicken, Steak, Carnitas
- Veggie Spanish Rice and Veggie Beans
- Grilled Veggies
- Guacamole, sour cream and cheese fixins
- Corn tortillas
- Chips and Salsa
- Churros for dessert! Yum!





November 1, 2022

The Honorable Judge Amarra A. Lee
Judge of the Superior Court
C/O Jenarda Dubois, Civil Grand Jury Coordinator
San Mateo County Superior Court, Hall of Justice
400 County Center, 2nd Floor
Redwood City, CA 94063-1655

RE: Civil Grand Jury Report: “A Delicate Balance Between Knowledge and Power: Government Transparency and the Public’s Right to Know.”

Dear Honorable Judge Lee:

Thank you for the opportunity to review and comment on the above referenced Grand Jury Report issued on August 9, 2022. The City of Menlo Park’s responses to both the findings and recommendations are listed below. Please note the Grand Jury Report requested responses from the City of Menlo Park only as to Findings 1 and 2, and Recommendations 1, 3, and 4.

Response to Grand Jury Findings

- F1.** The city has no written documentation of its PRA policy and internal procedures, making it more likely that requests could be handled inconsistently.

City Response: *The City is in the process of adopting such policies and procedures; however, the City handles all PRA requests pursuant to State law which requires substantial consistency in the response to all PRA requests.*

- F2.** The city uses a commercially available software application that includes a web portal enabling the public to easily request records and track their disposition.

City Response: *The respondent agrees with the finding.*

Response to Grand Jury Recommendations

- R1.** The city council should direct city staff to consider and report back by June 30, 2023, on the creation of a written PRA policy or procedure document for circulation to all relevant staff.

City Response: *The recommendation has not yet been implemented, but will be implemented in the future. Prior to receiving the Grand Jury Report City staff had already drafted procedures for processing public records act requests. City staff have been operating under these procedures for the entirety of 2022 and finds that the processing of requests have improved. City staff plans to review, and where appropriate, revise the procedures in order to more efficiently meet the obligations of the CPRA. No formal adoption of these procedures is required. However, City staff will report to Council prior to June 30, 2023, on the written policies and procedures.*

- R3.** By June 30, 2023, the city council should consider directing city staff to place information about how to access public records on the home page of the city’s official website.

City Response: *The recommendation has not yet been implemented. However, the city anticipates complying with this recommendation by June 30, 2023, and likely well before.*

- R4.** By June 30, 2023, the city council should direct city staff to review and consider adopting a records management practice analogous to the City of San Mateo’s “Records Cleanup Day.”.

City Response: *This recommendation will not be implemented. Currently the City has a program for completing routine records destruction with individual city departments, which complies with State laws regarding records destruction. The timelines for retention and destruction of various records are determined based on subject matter and reference relevant State law requirements. The process involves the city clerk’s office working with individual departments to list records proposed for destruction and the city clerk then brings those to the City Council for approval, and eventual destruction with an outside vendor. This process has proven effective. Further, there is not currently a budget for creating a “Records Destruction Day” with food trucks and other amenities. The City will continue to review whether creating a “Records Cleanup Day” by department or in another similar fashion is a desirable route in future years.*

Pursuant to Penal Code Section 933.05 and the Brown Act, this response was considered and acted on by motion of the City Council at a public meeting on November 1, 2022. Should you have any questions concerning this response, please contact City Clerk Judi Herren at jaherren@menlopark.org.

Sincerely,

Betsy Nash
Mayor



STAFF REPORT

City Council

Meeting Date:

11/1/2022

Staff Report Number:

22-210-CC

Regular Business:

Introduction and First Reading of an ordinance adopting the 2022 Building Standards Code to include amending Title 12 [Buildings and Construction] of the Menlo Park Municipal Code to adopt local amendments to the California Building Standards Code, and discussion regarding proposed revisions to Fire Code by Menlo Park Fire Protection District

Recommendation

Staff recommends that the City Council:

1. Introduce by title only and waive first reading of an ordinance, Ordinance of the City Council of the City of Menlo Park amending Title 12 [Buildings and Construction] of the Menlo Park Municipal Code to adopt Title 24, California Code of Regulations, 2022 Building Standards Code and Local Amendments to the 2022 California Building Standards Code, adding requirements for pools under construction, and amending flood damage prevention requirements; and
2. Review proposed revisions to California Fire Code to be adopted by Menlo Park Fire Protection District, and provide direction to staff.

Policy Issues

Every three years, the State of California Building Standards Commission adopts a revised Building Standards Code, Title 24 of the California Code of Regulations. The Building Standards Code includes the Building Code, Residential Code, Electrical Code, Mechanical Code, Plumbing Code, Energy Code, Historical Building Code, Fire Code, Existing Building Code and Green Building Standards Code. Cities and counties across the state can also adopt local amendments and reach codes pursuant to various provisions in state law. The adoption of the proposed local amendments to the State Building Standards Code and City's Municipal Code generally support local City goals and policies. The proposed ordinance would implement local amendments to the building code. The City Council declared a climate emergency (Resolution No. 6535) committing to accelerating actions to address climate change at a local level and adopted a 2030 Climate Action Plan (CAP) with the bold goal to be carbon neutral (zero emissions) by 2030.

Background

To promote uniform building standards, state law requires all cities and counties to adopt and enforce the California Building Standards Code, Title 24 California Code of Regulations, which is updated every three years by the California Building Standards Commission. Upon adoption of every new code cycle, local jurisdictions are required to review the new codes and decide whether to readopt any local amendments. As

a result, the City must amend Title 12 of the Municipal Code every three years to adopt the new versions of the Building Standards Code, as well as readopt any local amendments that the City wishes to continue to enforce during this code cycle.

Process for adopting local amendments to Building Standards Code

The California Building Standards Code prescribes the minimum standards to safeguard life or limb, health, property, and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, location and maintenance of all buildings, structures and certain equipment.

The Building Standards Commission adopted and published the 2022 Building Standards Code July 1, 2022, and it will go into effect statewide January 1, 2023. The State provides a six-month window between publication and effective date to allow cities and counties to review the model codes and determine whether to adopt any local amendments. A City may adopt local amendments to the State codes if the following two criteria are met:

1. The local modifications must be substantially equivalent to, or more stringent than, building standards published in the California Building Standards Code; and
2. The local jurisdiction is required to make specific or express findings that such changes are reasonably necessary because of local geological, climatic or topographic conditions.

For amendments to be effective, the local governing body must make the necessary findings, approve an ordinance adopting the amendments, and file a copy of the express findings and the local ordinance with the California Building Standards Commission.

Additionally, the City of Menlo Park may adopt increased energy efficiency standards beyond those prescribed by the California Energy Commission in the Energy Code and Green Building Standards Code, upon finding that the increased energy efficiency requirements will be cost effective. Such energy efficiency requirements must first be reviewed by the California Energy Commission before going into effect.

Timing of adoption of local amendments

The State Building Standards Code automatically go into effect January 1, 2023 without any action of the City and would be enforced by the building division. Local amendments to the building standards code can be approved by the City Council at any time during a triennial code cycle. However, the standard practice is to have these local amendments approved before the effective date of the new building standards code to allow for a smooth transition and ensure that local amendments that the City desires to enforce do not lapse. Staff is asking the City Council to introduce the attached ordinance making amendments to the Building Code, Residential Code, Electrical Code, Mechanical Code, Plumbing Code, Energy Code, Historical Building Code, Existing Building Code and Green Building Standards Code.

Fire Code amendments

As Menlo Park does not have its own fire department, the Menlo Park Fire Protection District (Fire District) takes the lead in adopting any local amendments to the California Fire Code. Under state law, the Fire District has authority to adopt local amendments to the California Fire Code by adopting its own ordinance, and its modifications will go into effect within Menlo Park as long as they are ratified by the City. The Fire District is currently in the process of adopting an ordinance making such modifications to the 2022 California Fire Code, which are being previewed in this staff report for the City Council (Attachment B.) Once the Fire District adopts its ordinance, staff will then present a resolution to the City Council ratifying the Fire District's ordinance so that it may go into effect in Menlo Park, and designating the Fire District as the primary entity for enforcement of the Fire Code as amended. Information on the anticipated amendments to the Fire Code are also being presented in this report.

Analysis

Proposed local amendments to California Building Standards Code

The recommended local amendments are described below. In addition, staff has carried forward many of the local amendments made during the last building code cycle. The complete set of local amendments are contained in Attachment A.

The administrative sections Chapter 1, Division 1, of the California Residential and Building State Codes address critical elements of enforcement such as the requirements for permits, minimum submittal documents, inspections, and authorizes the building division of the local jurisdiction to collect fees and issue stop work orders. Staff is recommending adoption of local amendments to clarify the kinds of projects subject to building permit requirements. Staff is requiring building permit requirements for platforms, walks and driveways more than 12 inches above grade, where the state law would only require permits for works 30 inches above grade. Additionally, staff is requiring building permits for all fences except for wooden fences under seven feet high. These local amendments have been adopted in the past triennial cycle.

Additionally, plumbing code 808.2 allows the use of single pass or once through with clean running water used exclusively as a cooling medium in an appliance, device or apparatus. Single-pass or once-through cooling systems provide significant water waste in these systems water is circulated once through a piece of equipment and is then disposed down the drain. The recommendation is for single pass or once-through systems be prohibited. This local amendment has been adopted in the past triennial cycle.

Proposed sustainability Reach Codes

In recent years, the term reach code has been used to describe a local government's ability to exceed state building code regulations to support or implement its environmental goals, such as a CAP, through the building permit process. Menlo Park has demonstrated leadership in adopting reach codes over the last few building code cycles by requiring all new buildings to be all-electric with very few exceptions and increased electric vehicle charging requirements.

Menlo Park requirements still exceed the 2022 state code requirements. Staff recommends re-adopting Menlo Park's requirements to remain effective on and after January 1, 2023. In addition, minor modifications to Menlo Park's current requirements are proposed and are considered feasible, and in some instances decrease construction costs for electric vehicle (EV) charging.

The proposed modifications and additions include the following, and are described in greater detail in the October 18 informational report (Attachment D):

- Readopt the current Menlo Park all-electric buildings requirements (including exceptions); applies only to new buildings (not existing buildings.)
- Readopt current Menlo Park photovoltaic requirements for newly constructed commercial buildings (nonresidential), and make the finding that the measure remains cost effective based on the cost effectiveness analysis provided in 2019 (Attachment C.)
- Include a new measure that prohibits electric buildings from being converted to mixed fuel buildings that use natural gas (applies to residential and commercial buildings.)

- Adopt the Bay Area Reach Code (BARC) Initiative¹ EV charging recommendations for new multifamily permits as they closely mirror Menlo Park's current EV charging requirements, and can reduce construction costs using a combination of approaches that help "right size" EV charging needs for new multifamily developments.
- Adopt Tier 1 table A5.106.5.3.1 California Green Building Standards (CALGreen) EV charging requirements for new nonresidential (commercial) permits as it closely mirrors Menlo Park's current EV charging requirements and provides consistency with the state's method of EV charging requirements.
- Readopt Menlo Park's current EV charging requirements for existing commercial (nonresidential) addition and alteration building permit projects.

Proposed other amendments to Municipal Codes

Staff recommends a new section 12.36.060 to require protective measures for pools during the course of construction, in line with the Swimming Pool Safety Act, Health and Safety Code sections 115920 through 115929, to provide a barrier to occupants of a building and the public. This is also in line with the new Appendix AX that was added to the 2022 California Residential Code and required to be enforced by the City.

Staff has also made clerical corrections to sections 12.32.050. Staff also added provisions for floodproofing and breakaway walls in the Chapter 12.42, aligning code requirements with FEMA standards and ASCE 24.

Overview of Fire District Local Amendments to Fire Code

With the 2022 CA Fire Code and proposed amendments, the following items are being modified that help bring alignment with San Mateo County Fire Chiefs policies and operational procedures. This impacts Emergency Responder Radio Communications and fire suppression operations for large and multistory buildings.

- (Chapter 4) Emergency Planning for Fire Watch personnel, Public Safety for gatherings and crowd managers is added and has remained consistent with the past nine years. This is added to provide guidance and safety measures for large gatherings and allow business to remain open without any temporary impairment of life safety systems.
- (Chapter 5) Address identification remains unchanged in modification to the CFC so that emergency responders and the public can clearly see addresses for emergency identification.
- [Chapter 5 (new add)] A fire control room is added to be consistent with many fire agencies in San Mateo County. This is requiring new buildings or change of use occupancies to have a fire control room so that all controls and functions are located in one area for quick and efficient fire suppression information and functions for life safety operations.
- (Chapter 5) Emergency Responder Radio Coverage shall be designed and installed per San Mateo County Fire Chiefs Policy 500 to maintain system integrity throughout the County.
- (Chapter 9) Fire sprinkler modifications remain unchanged for over 30 years. It has provided a high level of fire protection within the Fire District and allows building owner flexibility in tenant options without expensive cost modifications during tenant changes. Residential fire sprinklers remain unchanged from agreed upon thresholds with City of Menlo Park City Council.
- (Chapter 12) Electrical disconnects are added and described to allow for proper shutdown of electrical for firefighter and occupant safety during emergency operations.

¹ Peninsula Clean Energy (PCE), Silicon Valley Clean Energy (SVCE), East Bay Community Energy (EBCE), Alameda County, Santa Clara County and the San Mateo County Office of Sustainability (OOS) joined together to reduce greenhouse gas (GHG) emissions within their service territories by developing forward-thinking building and transportation electrification reach codes recommendations.

- (Appendix B) Water Table sets threshold minimum to match many County thresholds within the State for built out communities to aid in water availability for mitigation of conflagration.

Next steps

State law requires two City Council actions, a first reading and a second reading, to amend a city's municipal code. The second reading is anticipated to take place November 15, 2022 — under state law, adoption of codes by reference, such as adoption of the new 2022 Building Standards Code, requires that a public hearing be conducted for the second reading. Additionally, staff anticipate bringing a resolution ratifying the Fire District's ordinance on or after November 15, 2022.

Items of note

Building code adoption for the 2022 code cycle goes into effect January 1, 2023. In order to minimize any impacts by these new code changes, we are encouraging applicants to submit their complete Building pre-application package no later than 5:30 p.m. December 15, 2022. Submitting by December 15 will allow sufficient time to complete the process that results in successful conversion to a building permit by December 31, 2022. Completed applications that are submitted after January 1, 2023 will be subject to the new 2022 Building Standards Code.

Impact on City Resources

The adoption of the current State codes and proposed local amendments will not result in any direct costs to the City. Public informational materials, such as City webpages and/or handouts, will need to be updated to reflect minor modifications.

Environmental Review

This action is not a project within the meaning of the California Environmental Quality Act (CEQA) Guidelines §15061(b)(3) as it will not result in any direct or indirect physical change in the environment.

Public Notice

Public notification was achieved by posting the agenda, with the agenda items being listed, at least 72 hours prior to the meeting and posting a notice at the City Hall front counter.

Attachments

- A. Ordinance amending Title 12
- B. Menlo Fire Protection District Ordinance No. 50-2022
- C. Menlo Fire Protection District Excel summary table
- D. Cost effectiveness study
- E. Hyperlink – October 18, 2022 Staff Report #22-206-CC recommending sustainable reach codes for inclusion in 2022 Building Standards code: menlopark.gov/files/sharedassets/public/agendas-and-minutes/city-council/2022-meetings/agendas/20221018-city-council-agenda-packet.pdf#page=236

Report prepared by:

Sergio Rudin, Assistant City Attorney

Chuck Andrews, Assistant Community Development Director

Staff Report #: 22-210-CC

Rebecca Lucky, Sustainability Manager

Reviewed by:

Deanna Chow, Assistant Community Development Director

ORDINANCE NO. XXXX**ORDINANCE OF THE CITY COUNCIL OF THE CITY OF MENLO PARK
AMENDING TITLE 12 [BUILDINGS AND CONSTRUCTION] OF THE MENLO
PARK MUNICIPAL CODE TO ADOPT TITLE 24, CALIFORNIA CODE OF
REGULATIONS, 2022 BUILDING STANDARDS CODE AND LOCAL
AMENDMENTS TO THE 2022 CALIFORNIA BUILDING STANDARDS CODE,
ADDING REQUIREMENTS FOR POOLS UNDER CONSTRUCTION, AND
AMENDING FLOOD DAMAGE PREVENTION REQUIREMENTS**

WHEREAS, the City of Menlo Park ("City") is required pursuant to state law to adopt and enforce the 2022 Building Standards Code, Title 24 California Code of Regulations, as adopted by the California Standards Building Commission, subject to such local amendments as may be adopted by the City of in accordance with applicable law;

WHEREAS, California Health and Safety Code Sections 17958.5, 17958.7 and 18941.5 provide that the City may make changes or modifications to the building standards contained in the California Building Standards based upon express findings that such changes or modifications are reasonably necessary because of local climatic, geological or topographical conditions;

WHEREAS, the City Council of the City of Menlo Park finds that each of the amendments, additions and deletions to the California Energy Code contained in this ordinance are reasonably necessary because of local climatic, geological or topographical conditions described in Section 1;

WHEREAS, Public Resources Code Section 25402.1(h)2 establishes a process which allows local adoption of energy standards that are more stringent than the statewide Standards, provided that such local standards are cost effective and the California Energy Commission finds that the standards will require buildings to be designed to consume no more energy than permitted by the California Energy Code;

WHEREAS, the California Codes and Standards Reach Code Program, has determined specific modifications to the Energy Code for each climate zone that are cost effective, and the City of Menlo Park is proposing adoption of measures previously studied;

WHEREAS, that such modifications will result in designs that consume less energy than they would under the 2022 California Energy Code;

WHEREAS, based upon these analyses, the City Council of the City of Menlo Park finds that the local amendments to the California Energy Code contained in this ordinance are cost effective and will require buildings to be designed to consume no more energy than permitted by the California Energy Code;

WHEREAS, because of the City's unique local climatic, geologic and topographic conditions, the City desires to make amendments and additions to the code.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF MENLO PARK DOES ORDAIN
AS FOLLOWS:

SECTION 1: Findings and Determinations.

The City Council of the City of Menlo Park hereby finds that the following local climatic, geological, and topographic conditions justify the adoption of local modifications to the California Building Standards Code, as further set forth in this Ordinance:

- A. Climatic: The City is located in Climate Zone 3 as established in the 2022 California Energy Code. Climate Zone 3 incorporates mostly coastal communities from Marin County to southern Monterey County including San Francisco. The City experiences precipitation ranging from 13 to 20 inches per year with an average of approximately 15 inches per year. Ninety-five percent of precipitation falls during the months of November through April, leaving a dry period of approximately six months each year. Relative humidity remains moderate most of the time. Temperatures in the summer average around 80 degrees Fahrenheit and in the winter in the mid 50 degrees Fahrenheit. Prevailing winds in the area come from the west with velocities generally in the 12 miles per hour range, gusting from 25 to 35 miles per hour. These climatic conditions along with the greenhouse emissions generated from structures in both the residential and non-residential sectors requires exceeding the energy standards for building construction established in the 2022 California Buildings Standards Code. The City Council also adopted a Climate Action Plan that has a goal of reducing greenhouse gas emissions 27% below 2005 levels by 2020. In order to achieve and maintain this goal, the City needs to adopt policies and regulations that reduce the use of fossil fuels that contribute to climate change, such as natural gas in buildings, in new development. Human activities, such as burning natural gas to heat buildings, releases greenhouse gases into the atmosphere and causes an overall increase in global average temperature. This causes sea levels to rise, affecting the City's shoreline and infrastructure.

Many new buildings in Menlo Park will be built near the coastline in an area known as the Bayfront Area that is situated on marshlands and former salt ponds. San Francisquito Creek also runs through the City, which creates an increasing potential flooding risk with climate change as a result of human generated greenhouse gas emissions. Menlo Park is vulnerable to sea level rise where new development is proposed in this code cycle. New buildings that are directly vulnerable to sea level rise should avoid generating additional greenhouse gas emissions. The proposed Reach Code would ensure that new buildings use cleaner sources of energy that are greenhouse gas free.

- B. Geologic: The City of Menlo Park is subject to earthquake hazard caused by its proximity to San Andreas Fault. This fault runs from Hollister, through the Santa Cruz Mountains, epicenter of the 1989 Loma Prieta earthquake, then on up the San Francisco Peninsula, then offshore at Daly City near Mussel Rock. This is the approximate location of the epicenter of the 1906 San Francisco earthquake. The other fault is Hayward Fault. This fault is about 74 mi long, situated mainly along the western base of the hills on the east side of San Francisco Bay. Both of these faults are considered major Northern California earthquake faults, which may experience rupture at any time. Thus, because the City is within a seismic area, which includes these earthquake faults, the modifications and changes cited herein are designed to better limit property damage as a result of seismic activity and to establish criteria for repair of damaged properties following a local emergency.
- C. Topographic: The City of Menlo Park is contiguous with the San Francisco Bay, resulting in a natural receptor for storm and waste water run-off. Also the City is located in an area that is relatively high liquefaction potential given its proximity to the Bay. The surface condition consists mostly of stiff to dense sandy clay, which is highly plastic and expansive in nature. The aforementioned conditions within the City create hazardous conditions for which departure from California Building Standards Code is warranted.

SECTION 2: Adoption of 2022 Building Standards Code.

Section 12.040.10 of Chapter 12.04 [Adoption of Codes] Title 12 [Buildings and Construction] of the Menlo Park Municipal Code is hereby repealed and replaced to read in entirety as follows:

12.04.010 – Adoption of California Building Standards Code.

The following codes, as approved by the California Building Standards Commission, are hereby adopted by reference:

- 1) The 2022 California Administrative Code, Part 1 of the California Building Standards Code, Title 24 California Code of Regulations;
- 2) The 2022 California Building Code, Part 2 of the California Building Standards Code, Title 24 California Code of Regulations, including Appendices I and J;
- 3) The 2022 California Residential Code, Part 2.5 of the California Building Standards Code, Title 24 California Code of Regulations, including Appendices AH, AQ, AS, and AX;
- 4) The 2022 California Electrical Code, Part 3 of the California Building Standards Code, Title 24 California Code of Regulations;
- 5) The 2022 California Mechanical Code, Part 4 of the California Building Standards Code, Title 24 California Code of Regulations;
- 6) The 2022 California Plumbing Code, Part 5 of the California Building Standards Code, Title 24 California Code of Regulations;
- 7) The 2022 California Energy Code, Part 6 of the California Building Standards Code, Title 24 California Code of Regulations;
- 8) The 2022 California Historical Building Code, Part 8 of the California Building Standards Code, Title 24 California Code of Regulations;
- 9) The 2022 California Fire Code, Part 9 of the California Building Standards Code, Title 24 California Code of Regulations;
- 10) The 2022 California Existing Building Code, Part 10 of the California Building Standards Code, Title 24 California Code of Regulations;
- 11) The 2022 California Green Building Standards Code, Part 11 of the California Building Standards Code, Title 24 California Code of Regulations; and
- 12) The 2022 California Referenced Standards Code, Part 12 of the California Building Standards Code, Title 24 California Code of Regulations.

A copy of each code, subject to such amendments as may be adopted by the City in this Title 12, is on file in the office of the city clerk. The provisions of this title, including said codes and amendments thereto, shall be known as the building code of the city.

SECTION 3: Adoption of Penalties.

Section 12.04.020 of Chapter 12.04 [Adoption of Codes] Title 12 [Buildings and Construction] of the Menlo Park Municipal Code is hereby repealed and replaced to read in entirety as follows:

12.04.020 – Penalties for Violations of California Building Standards Code.

Persons who shall violate a provision of the code adopted under section 12.04.010, as may be amended by this title, or who fail to comply with any of the requirements thereof or who shall erect, install, alter, repair or do work in violation of the approved construction documents or directive of the Building Official or Fire Official, or of a permit or certificate used under provisions of the above codes, shall be subject to penalty in accordance with chapter 1.12. Persons committing such violation shall be guilty of a misdemeanor, punishable by a fine of not more than \$1000 or by imprisonment not exceeding six months, or both fine and imprisonment, unless the violation is made an infraction by the prosecuting authority.

SECTION 4: Amendment of 2022 California Building Code.

Chapter 12.06 of Title 12 [Buildings and Construction] of the Menlo Park Municipal Code is hereby repealed and replaced to read as follows:

Chapter 12.06
California Building Code Amendments

Sections:

12.06.010 – Amendment of Section 105.2 – Work exempt from permit.

12.06.020 – Appendix J, Section J107.4.1 – Imported Fill added.

12.06.010 – Amendment of Section 105.2 – Work exempt from permit.

Section 105.2 of the California Building Code, Part 2 of the California Building Standards Code, Title 24 California Code of Regulations is amended for the first paragraph and “Building” exemptions to read as follows:

105.2 Work exempt from permit. Exemptions from permit requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other law or ordinance of the City of Menlo Park. Permits shall not be required for the following:

Building:

1. One-story detached accessory buildings used as tool and storage sheds, playhouses, garden sheds or similar uses, provided the height does not exceed eight feet, the projected roof area does not exceed 64 square feet, and the structure complies with Section 16.68.030 of the City of Menlo Park Municipal Code. These structures shall still be regulated by section 710A, despite exemption from permit.
2. Wood fences not over seven feet high.
3. Oil Derricks.
4. Retaining walls which are not over two feet high measured from the top of the footing to the top of the wall, unless supporting a surcharge or impounding Class I, II, or III liquids.
5. Detached free-standing water tanks supported directly on a concrete foundation at grade if the capacity does not exceed 500 gallons and the height above grade does not exceed six feet and the height to width ratio does not exceed two to one.
6. Platforms, walks, and driveways not more than 12 inches above grade and not over any basement or story below and are not part of an accessible route.
7. Painting, papering, carpeting, tiling except in showers, cabinets, countertops and similar finish work.
8. Temporary motion picture, television and theater stage sets and scenery.
9. Prefabricated swimming pools accessory to a Group R Division 3 occupancy that are less than 24 inches deep, do not exceed 5,000 Gallons and are installed entirely above ground.
10. Shade cloth structures constructed for nursery or agricultural purposes, not including service systems
11. Swings and other playground equipment accessory to detached one- and two-family dwellings not exceeding 120 square feet as measured at the supports or nine feet in height as measured from existing natural grade to the top of the highest structural member, guard rail, or appendage.
12. Windows awnings supported by an exterior wall of Group R Division 3 occupancy when projecting not more than 36 inches from the exterior wall and do not require additional support.
13. Non-fixed and moveable fixtures, cases, racks, counters, and partitions not over five feet nine inches in height.

12.06.020 – Appendix J, Section J107.4.1 – Imported Fill added.

Section J107.4.1 is added to Appendix J 2 of the California Building Standards Code, Title 24 California Code of Regulations to read in entirety as follows:

J107.4.1 Imported Fill. Prior to the import of fill, the origin of the fill shall be identified by a licensed geotechnical engineer and samples of the soil shall be tested and shown to meet the standards established in the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) guidelines for clean imported fill material. The test results from the samples shall be submitted to and approved by the Building Official prior to the fill being brought on site.

SECTION 5: Amendment of 2022 California Residential Code.

Chapter 12.08 [California Residential Code Amendments] of Title 12 [Buildings and Construction] of the Menlo Park Municipal Code is hereby repealed and replaced to read in entirety as follows:

Chapter 12.08
California Residential Code Amendments

Sections:

12.08.010 – Amendment of Section R105.2 – Work exempt from permit.

12.08.020 – Amendment of Table R301.2 – Climatic and Geographic Design Criteria.

12.08.030 – Amendment of Section R322.1 – General.

12.08.040 – Limits on Repair and Remodel.

12.08.010 Amendment of Section R105.2 – Work exempt from permit.

Section R105.2 of the California Residential Code, Part 2.5 of the California Building Standards Code, Title 24 California Code of Regulations is amended for the first paragraph and “Building” exemptions to read as follows:

R105.2 Work exempt from permit. Exemptions from permit requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other law or ordinance of the City of Menlo Park. Permits will not be required for the following:

Building:

1. Other than storm shelters, one story detached accessory structures, provided the height does not exceed eight feet, the projected roof area does not exceed 64 square feet, and the structure complies with Section 16.68.030 of the City of Menlo Park Municipal Code. These structures shall still be regulated by section 710A despite exemption from permit.
2. Wood fences not over seven feet high.
3. Retaining walls which are not over two feet high measured from the top of the footing to the top of the wall, unless supporting a surcharge.
4. Detached free-standing water tanks supported directly on a concrete foundation at grade if the capacity does not exceed 500 gallons and the height above grade does not exceed six feet and the height to width ratio does not exceed two to one.
5. Sidewalks and driveways.
6. Painting, papering, carpeting, tiling except in showers, cabinets, countertops and similar finish work.
7. Temporary television and theater stage sets and scenery.
8. Prefabricated swimming pools that are less than 24 inches deep.
9. Swings and other playground equipment accessory to detached one- and two-family dwellings not exceeding 120 square feet as measured at the supports or nine feet in height as

- measured from existing natural grade to the top of the highest structural member, guard rail, or appendage.
10. Windows awnings supported by an exterior wall of Group R Division 3 occupancy when projecting not more than 36 inches from the exterior wall and do not require additional support.
 11. Non-fixed and moveable fixtures, cases, racks, counters, and partitions not over five feet nine inches in height.
 12. Decks not exceeding 200 square feet in area, that are not more than 30 inches above grade at any point, are not attached to a dwelling unit and do not serve the exit door required by Section 311.4.

12.08.020 – Amendment of Table R301.2 – Climatic and Geographic Design Criteria.
Table R301.2 of the California Residential Code, Part 2.5 of the California Building Standards Code, Title 24 California Code of Regulations is amended to read as follows:

Table R301.2 Climatic and Geographic Design Criteria

GROUND SNOW LOAD	WIND DESIGN				SEISMIC DESIGN CATEGORY ^f
	Speed ^d (mph)	Topographic effects ^k	Special wind region ^l	Wind-borne debris zone ^m	
NA	110	NA	NA	NA	D-E

SUBJECT TO DAMAGE FROM			WINTER DESIGN TEMP ^e	ICE BARRIER UNDER- LAYMENT REQUIRED ^h	FLOOD HAZARDS ^g	AIR FREEZING INDEX ⁱ	MEAN ANNUAL TEMP ^j
Weathering ^a	Frost line depth ^b	Termite ^c					
NA	NA	NA	NA	NA	National Flood Insurance program Date – Feb 4, 1981 revised April 21, 1999. Adoption of first code management of flood hazard areas – June 14, 1974 Flood insurance Study - Oct 16, 2012 revised July 16, 2015 Panel number – 06081C0195F, 06081C0215F, 06081C0302F, 06081C0306F,	NA	58.55

SUBJECT TO DAMAGE FROM			WINTER DESIGN TEMP ^e	ICE BARRIER UNDER-LAYMENT REQUIRED ^h	FLOOD HAZARDS ^g	AIR FREEZING INDEX ⁱ	MEAN ANNUAL TEMP ^j
Weathering ^a	Frost line depth ^b	Termite ^c					
					06081C0307F, 06081C0308E, 06081C0309F, 06081C0311E, 06081C0326F, 06081C0328F,		

For SI: 1 pound per square foot = 0.0479 kPa, 1 mile per hour = 0.447 m/s.

- a. Weathering may require a higher strength concrete or grade of masonry than necessary to satisfy the structural requirements of this code. The weathering column shall be filled in with the weathering index, "negligible," "moderate" or "severe" for concrete as determined from Figure R301.2(1). The grade of masonry units shall be determined from ASTM C34, C55, C62, C73, C90, C129, C145, 0216 or C652.
- b. The frost line depth may require deeper footings than indicated in Figure R403.1(1). The jurisdiction shall fill in the frost line depth column with the minimum depth of footing below finish grade.
- c. The jurisdiction shall fill in this part of the table to indicate the need for protection depending on whether there has been a history of local subterranean termite damage.
- d. The jurisdiction shall fill in this part of the table with the wind speed from the basic wind speed map [Figure R301.2(2)]. Wind exposure category shall be determined on a site-specific basis in accordance with Section R301.2.1.4.
- e. Temperatures shall be permitted to reflect local climates or local weather experience as determined by the building official.
- f. The jurisdiction shall fill in this part of the table with the seismic design category determined from Section R301.2.2.1.
- g. The jurisdiction shall fill in this part of the table with (a) the date of the jurisdiction's entry into the National Flood Insurance Program (date of adoption of the first code or ordinance for management of flood hazard areas), (b) the date(s) of the Flood Insurance Study and (c) the panel numbers and dates of the currently effective Flood Insurance Study or other flood hazard map adopted by the authority having jurisdiction, as amended.
- h. In accordance with Sections R905.1.2, R905.4.3.1, 8905.5.3.1, R905.6.3.1, R905.7.3.1 and R905.8.3.1, where there has been a history of local damage from the effects of ice damming, the jurisdiction shall fill in this part of the table with "YES." Otherwise, the jurisdiction shall fill in this part of the table with "NO."
- i. The jurisdiction shall fill in this part of the table with the 100-year return period air freezing index (BF-days) from Figure R403.3(2) or from the 100-year (99 percent) value on the National Climatic Data Center data table "Air Freezing Index-USA Method (Base 32°F)."
- j. The jurisdiction shall fill in this part of the table with the mean annual temperature from the National Climatic Data Center data table "Air Freezing Index-USA Method (Base 32°F)."
- k. In accordance with Section R301.2.1.5, where there is local historical data documenting structural damage to buildings due to topographic wind speed-up effects, the jurisdiction shall fill in this part of the table with "YES." Otherwise, the jurisdiction shall indicate "NO" in this part of the table.

- l. In accordance with Figure R301.2(4)A, where there is local historical data documenting unusual wind conditions, the jurisdiction shall fill in this part of the table with "YES" and identify any specific requirements, Otherwise, the jurisdiction shall indicate "NO" in this part of the table.
- m. In accordance with Section R301.2.1.2.1. the jurisdiction shall indicate the wind-borne debris wind zone(s). Otherwise, the jurisdiction shall indicate "NO" in this part of the table.
- n. The jurisdiction shall fill in these sections of the table to establish the design criteria using Table 1a or 1b from ACCA manual J or established criteria determined by the jurisdiction.
- o. The jurisdiction shall fill in this section of the table using the ground snow loads in figures R301.2(3) and R301.2(4).

12.308.30 – Amendment of Section R322.1 – General.

Section R322.1 of the California Residential Code, Part 2.5 of the California Building Standards Code, Title 24 California Code of Regulations is amended to read in entirety as follows:

R322.1 General. Buildings and structures constructed in whole or part in flood hazard areas including A or V Zones and Coastal A Zones, as established in Table R301.2, and substantial improvement and restoration of substantial damaged of buildings and structures in flood hazard areas, shall be designed and constructed in accordance with the provisions contained in this section and Chapter 12.42, Flood Damage Prevention, of the City of Menlo Park’s Municipal Code. Buildings and structures that are located in more than one flood hazard area shall comply with the provisions of associated with the most restrictive flood hazard area. Buildings and structures located in whole or in part in identified floodways shall be designed and constructed in accordance with ASCE 24.

12.08.040 – Limits on Repair and Remodel

When the scope of work for R3 and U occupancies involves the alteration or removal of any existing structural framing that meets or exceeds seventy-five percent (75%) or greater of the linear footage of interior and exterior walls, including the removal of roof structure in those wall areas, cumulative within a two (2) year period, the project shall be considered as new construction.

SECTION 6: Amendment of 2022 California Plumbing Code.

Chapter 12.14 [California Plumbing Code Amendments] of Title 12 [Buildings and Construction] of the Menlo Park Municipal Code is hereby repealed and replaced to read in entirety as follows:

Chapter 12.14
California Plumbing Code Amendments

Sections:

12.14.010 – Addition of Section 808.2 - Single pass water systems prohibited.

12.14.010 – Addition of Section 808.2 of Chapter 8.

Section 808.2 is added to the 2022 California Plumbing Code, Part 5 of the California Building Standards Code, Title 24 California Code of Regulations to read in entirety as follows:

808.2 Single Pass Cooling Water Systems Prohibited. Clean running water used only once for exclusively as a cooling medium in an appliance, device, or apparatus is prohibited.

SECTION 7: Amendment of 2022 California Energy Code.

Chapter 12.16 [California Energy Code Amendments] of Title 12 [Buildings and Construction] is hereby repealed and replaced to read as follows:

Chapter 12.16
California Energy Code Amendments

Sections:

12.16.010 – California Energy Code amendments.

12.16.020 – Prohibition on Conversion to Mixed-Fuel Buildings.

12.16.010 – California Energy Code amendments.

The 2022 California Energy Code, Part 6 of the California Building Standards Code, Title 24 California Code of Regulations is amended with the modifications set forth below:
Section 100.0(e), paragraphs (1) and (2) are modified to read as follows:

SECTION 100.0 – Scope.

e) Sections applicable to particular buildings. TABLE 100.0-A and this subsection list the provisions of Part 6 that are applicable to different types of buildings covered by Section 100.0(a).

1. All buildings. Sections 100.0 through 110.12 apply to all buildings.

EXCEPTION to Section 100.0(e) 1: Spaces or requirements not listed in TABLE 100.0-A

2. Newly constructed buildings.

a) All newly constructed buildings. Sections 110.0 through 110.12 apply to all newly constructed buildings within the scope of Section 100.0(a). In addition, newly constructed buildings shall meet the requirements of Subsections B, C, D or E, as applicable and shall be an All-Electric Building as defined in Section 100.1(b).

Exception 1: Non-Residential Buildings containing a Scientific Laboratory Building, such area may apply for approval to contain a non-electric Space Conditioning System or appliances or laboratory equipment, subject to demonstrating infeasibility or lack of cost-effectiveness in accordance with administrative guidelines as may be established by the Building Official.

To take advantage of this exception applicant shall provide third party verification that All-Electric space heating requirement is not cost effective and feasible.

Exception 2: All Residential buildings may contain non-electric Cooking Appliances and Fireplaces except buildings defined in the Energy Code as “Multifamily buildings” that are four stories or more.

Exception 3: Exemption for public agency owned and operated emergency centers. To take advantage of this exception applicant shall provide third party verification that All-Electric space heating requirement is not cost effective and feasible.

Exception 4: Non-residential buildings containing a for-profit restaurant open to the public or an employee kitchen may apply to the Environmental Quality Commission (EQC) for an exception to install gas-fueled cooking appliances. This request must be based on a business-related reason to cook with a flame that cannot be reasonably achieved with an electric fuel source. Examples include barbeque-themed restaurants and pizza ovens. The Environmental Quality Commission (EQC) shall grant this exception if they find the following:

1. There is a business-related reason to cook with a flame;
2. This need cannot be reasonably achieved with an electric fuel source;
3. The applicant has employed reasonable methods to mitigate the greenhouse gas impacts of the gas-fueled appliance;
4. The applicant shall comply with the pre-wiring provision of Note 1 below.

The Environmental Quality Commission's decision shall be final unless the applicant appeals to the City Council within 15 days of the appointed body's decision. The City Council's decision on the appeal shall be final.

Note 1: If natural gas appliances are used in any of the above exceptions 1-4, natural gas appliance locations must also be electrically pre-wired for future electric appliance installation. They shall include the following:

1. A dedicated circuit, phased appropriately, for each appliance, with a minimum amperage requirement for a comparable electric appliance (see manufacturer's recommendations) with an electrical receptacle or junction box that is connected to the electric panel with conductors of adequate capacity, extending to within 3 feet of the appliance and accessible with no obstructions. Appropriately sized conduit may be installed in lieu of conductors;
2. Both ends of the unused conductor or conduit shall be labeled with the words "For Future Electric appliance" and be electrically isolated;
3. A reserved circuit breaker space shall be installed in the electrical panel adjacent to the circuit breaker for the branch circuit and labeled for each circuit, an example is as follows (i.e "For Future Electric Range;") and
4. All electrical components, including conductors, receptacles, junction boxes, or blank covers, related to this section shall be installed in accordance with the California Electrical Code.

Note 2: If any of the exceptions 1-4 are granted, the Building Official shall have the authority to approve alternative materials, design and methods of construction or equipment per CBC 104.

Subdivision (b), Definitions, of Section 100.1 — Definitions and Rules of Construction, is modified by adding the following definitions of "All Electric Building" "Scientific Laboratory Building" and replacing the definition of "Shading" as follows:

ALL ELECTRIC BUILDING is a building that has no natural gas or propane plumbing installed within the building, and that uses electricity as the source of energy for its space heating, water heating, cooking appliances, and clothes drying appliances. All Electric Buildings may include solar thermal pool heating.

SCIENTIFIC LABORATORY BUILDING is a building or area where research, experiments, and measurement in medical, and life sciences are performed and/or stored requiring examination of fine details. The building may include workbenches, countertops, scientific instruments, and supporting offices.

SHADING is the protection from heat gains because of direct solar radiation by permanently attached exterior devices of building elements, interior shading devices, glazing material,

adherent materials, including items located outside the building footprint such as heritage trees or Multifamily buildings that may affect shading.

Section 110.2, Mandatory Requirements for Space Conditioning Equipment is amended for the first paragraph to read as follows:

Certification by Manufacturers. Any space-conditioning equipment listed in this section, may be installed only if the manufacturer has certified to the Commission that the equipment complies with all the applicable requirements of this section and the building will still meet applicable All-Electric Building requirements as set forth in section 100.0 (e)2A.

Subdivision (a), Certification by manufacturers, of Section 110.3, Mandatory Requirements for Service Water-Heating Systems and Equipment, is modified for the first sentence to read as follows:

- a) Certification by manufacturers. Any service water-heating system or equipment may be installed only if the manufacturer has certified that the system or equipment complies with all of the requirements of this subsection for that system or equipment, and the building will still meet applicable All-Electric Building requirements as set forth in section 100.0 (e)2A.

Subdivision (a), Certification by manufacturers, of Section 110.4, Mandatory Requirements for Pool and Spa Systems and Equipment, is modified to read as follows:

- a) Certification by Manufacturers. Any pool or spa heating system or equipment, may be installed only if the manufacturer has certified that the system or equipment has all of the following, and the building will still meet applicable All-Electric Building requirements as set forth in section 100.0 (e)2A.:
 1. Efficiency. For equipment subject to state or federal appliance efficiency standards, listings in the commissions directory of certified equipment showing compliance with applicable standards; and
 2. On-off Switch. A readily accessible on-off switch, mounted on the outside of the heater that allows shutting off the heater without adjusting the thermostat setting; and
 3. Instructions. A permanent, easily readable and weatherproof plate or card that gives instruction for the energy efficient operation of the pool or spa heater and for the proper care of pool or spa water when a cover is used; and
 4. Electric resistance heating. No electric resistance heating.
Exception 1 to section 110.4(a) 4: Listed package units with fully insulated enclosures, and with tight-fitting covers that are insulated to at least R-6.
Exception 2 to section 110.4 (a) 4: Pools or spas deriving at least 60 percent of the annual heating energy from site solar energy or recovered energy.
- b) Installation. Any pool or spa system or equipment shall be installed between with all of the following:
 1. Piping. At least 36 inches of pipe shall be installed between the filter and the heater or dedicated suction and return lines, or built-in or built-up connection shall be installed to allow for the future addition of solar heating equipment;
 2. Covers. A cover for outdoor pools or outdoor spas that have a heat pump or gas heater; and
 3. Directional inlets and time switches for pools. If the system or equipment is for a pool:
 - i. The pool shall have directional inlets the adequately mix the pool water; and

- ii. A time switch or similar control mechanism shall be installed as part of a pool water circulation control system that will allow all pumps to be set or programmed to run only during off-peak electric demand periods, and for the minimum time necessary to maintain the water the condition required by applicable public health standards.

Subdivision (a), Certification by manufacturers, of Section 110.5, Natural Gas Central Furnaces, Cooking Equipment, Pool and Spa Heaters, is modified for the first sentence to read as follows:

Any natural gas system or equipment listed below may be installed only if it does not have a continuously burning pilot light, and the building will still meet applicable All-Electric Building requirements as set forth in section 100.0 (e)2A:

- a. Fan-type central furnaces.
- b. Household cooking appliances

Exception to Section 110.5(b): Household cooking appliances without an electrical supply voltage connection and in which each pilot consumes less than 150 Btu/hr.

- c. Pool Heaters
- d. Spa Heaters
- e. Indoor and outdoor fireplaces.

Section 110.10, Mandatory Requirements for Solar Readiness, is amended to read as follows:

SECTION 110.10 – Mandatory Requirements for Solar Readiness.

a) Covered Occupancies.

1. Single Family Residences. Single family residences located in subdivisions with ten or more single family residences and where the application for a tentative subdivision map for the residences has been deemed complete approved by the enforcement agency, which do not have a photovoltaic system installed, shall comply with the requirements of Section 110.10(b) through 110.10(e).
2. Low-rise multifamily buildings. Residential buildings, other than single family, with less than 4 stories that do not have a photovoltaic system installed shall comply with the requirements of Section 110.10(b) through 110.10(d).
3. Hotel/motel occupancies and high rise multifamily buildings that do not have a photovoltaic system installed shall comply with the requirements of Section 110.10(b) through 110.10(d) and Table 2.
4. Nonresidential buildings with three habitable stories or fewer, other than I-2 and I-2.1 buildings, that do not have a photovoltaic system installed, shall comply with the requirements of Sections 110.10(b) through 110.10(d) and Table 2.

Table 2: Solar panel requirements for all new nonresidential and high rise residential buildings	
Square footage of building	Size of panel
Less than 10,000 sq. ft.	Minimum of 3-kilowatt PV systems

Table 2: Solar panel requirements for all new nonresidential and high rise residential buildings	
Square footage of building	Size of panel
Greater than or equal to 10,000 sq. ft.	Minimum of 5-kilowatt PV systems
EXCEPTION: As an alternative to a solar PV system, the building type may provide a solar hot water system (solar thermal) with a minimum collector area of 40 square feet, additional to any other solar thermal equipment otherwise required for compliance with Part 6.	

b) Solar Zone.

1. Minimum Solar Zone Area. The solar zone shall have a minimum total area as described below. The solar zone shall comply with access, pathway, smoke ventilation, and spacing requirements as specified in Title 24, Part 9 or other Parts of Title 24 or in any requirements adopted by a local jurisdiction. The solar zone total area shall be comprised of areas that have no dimension less than five feet and are no less than 80 square feet each for buildings with roof areas less than or equal to 10,000 square feet or no less than 160 square feet each for buildings with roof areas greater than 10,000 square feet.

A. Single Family Residences. The solar zone shall be located on the roof or overhang of the building and have a total area no less than 250 square feet.

EXCEPTION 1 to Section 110.10(b)1A: Single family residences with a permanently installed domestic solar water-heating system meeting the installation criteria specified in the Reference Residential Appendix RA4 and with a minimum solar savings fraction of 0.50.

EXCEPTION 2 to Section 110.10(b)1A: Single family residences with three habitable stories or more and with a total floor area less than or equal to 2000 square feet and having a solar zone total area no less than 150 square feet.

EXCEPTION 3 to Section 110.10(b)1A: Single family residences located in the Wildland-Urban Interface Fire Area as defined in Title 24, Part 2 and having a whole house fan and having a solar zone total area no less than 150 square feet.

EXCEPTION 4 to Section 110.10(b)1A: Buildings with a designated solar zone area that is no less than 50 percent of the potential solar zone area. The potential solar zone area is the total area of any low-sloped roofs where the annual solar access is 70 percent or greater and any steep-sloped roofs oriented between 90 degrees and 300 degrees of true north where the annual solar access is 70 percent or greater. Solar access is the ratio of solar insolation including shade to the solar insolation without shade. Shading from obstructions located on the roof or any other part of the building shall not be included in the determination of annual solar access.

EXCEPTION 5 to Section 110.10(b)1A: Single family residences having a solar zone total area no less than 150 square feet and where all thermostats are demand responsive controls and comply with Section 110.12(a), and are capable of receiving and responding to Demand Response Signals prior to granting of an occupancy permit by the enforcing agency.

EXCEPTION 6 to Section 110.10(b)1A: Single family residences meeting the following conditions:

- A. All thermostats are demand responsive controls that comply with Section 110.12(a), and are capable of receiving and responding to Demand Response Signals prior to granting of an occupancy permit by the enforcing agency.
- B. Comply with one of the following measures:
 - i. Install a dishwasher that meets or exceeds the ENERGY STAR Program requirements with a refrigerator that meets or exceeds the ENERGY STAR Program requirements, a whole house fan driven by an electronically commutated motor, or an SAE J1772 Level 2 Electric Vehicle Supply Equipment (EVSE or EV Charger) with a minimum of 40 amperes; or
 - ii. Install a home automation system capable of, at a minimum, controlling the appliances and lighting of the dwelling and responding to demand response signals; or
 - iii. Install alternative plumbing piping to permit the discharge from the clothes washer and all showers and bathtubs to be used for an irrigation system in compliance with the California Plumbing Code and any applicable local ordinances; or
 - iv. Install a rainwater catchment system designed to comply with the California Plumbing Code and any applicable local ordinances, and that uses rainwater flowing from at least 65 percent of the available roof area.

B. Low-rise and High-rise Multifamily Buildings, Hotel/Motel Occupancies, and Nonresidential Buildings. The solar zone shall be located on the roof or overhang of the building or on the roof or overhang of another structure located within 250 feet of the building or on covered parking installed with the building project, and shall have a total area no less than 15 percent of the total roof area of the building excluding any skylight area. The solar zone requirement is applicable to the entire building, including mixed occupancy.

EXCEPTION 1 to Section 110.10(b)1B: High-rise Multifamily Buildings, Hotel/Motel Occupancies, and Nonresidential Buildings with a permanently installed solar electric system having a nameplate DC power rating, measured under Standard Test Conditions, of no less than one watt per square foot of roof area.

EXCEPTION 2 to Section 110.10(b)1B: High-rise multifamily buildings, hotel/motel occupancies with a permanently installed domestic solar water-heating system complying with Section 150.1(c)8Biii and an additional collector area of 40 square feet.

EXCEPTION 3 to Section 110.10(b)1B: Buildings with a designated solar zone area that is no less than 50 percent of the potential solar zone area. The potential solar zone area is the total area of any low-sloped roofs where the annual solar access is 70 percent or greater and any steep-sloped roofs oriented between 90 degrees and 300 degrees of true north where the annual solar access is 70 percent or greater. Solar access is the ratio of solar insolation including shade to the solar insolation without shade. Shading from obstructions located on the

roof or any other part of the building shall not be included in the determination of annual solar access.

EXCEPTION 4 to Section 110.10(b)1B: Low-rise and high-rise multifamily buildings with all thermostats in each dwelling unit are demand response controls that comply with Section 110.12(a), and are capable of receiving and responding to Demand Response Signals prior to granting of an occupancy permit by the enforcing agency. In addition, either A or B below:

- A. In each dwelling unit, comply with one of the following measures:
 - i. Install a dishwasher that meets or exceeds the ENERGY STAR Program requirements with either a refrigerator that meets or exceeds the ENERGY STAR Program requirements or a whole house fan driven by an electronically commutated motor; or
 - ii. Install a home automation system that complies with Section 110.12(a) and is capable of, at a minimum, controlling the appliances and lighting of the dwelling and responding to demand response signals; or
 - iii. Install alternative plumbing piping to permit the discharge from the clothes washer and all showers and bathtubs to be used for an irrigation system in compliance with the California Plumbing Code and any applicable local ordinances; or
 - iv. Install a rainwater catchment system designed to comply with the California Plumbing Code and any applicable local ordinances, and that uses rainwater flowing from at least 65 percent of the available roof area.
- B. Meet the Title 24, Part 11, Section A4.106.8.2 requirements for electric vehicle charging spaces.

EXCEPTION 5 to Section 110.10(b)1B: Buildings where the roof is designed and approved to be used for vehicular traffic or parking or for a heliport.

EXCEPTION 6 to section 110.10(b)1B: Performance equivalency approved by the building official.

- 2. Azimuth. All sections of the solar zone located on steep-sloped roofs shall have an azimuth range and be oriented between 90 degrees and 300 degrees of true north.
- 3. Shading.
 - A. No obstructions, including but not limited to, vents, chimneys, architectural features, and roof mounted equipment, shall be located in the solar zone.
 - B. Any obstruction, located on the roof or any other part of the building that projects above a solar zone shall be located at least twice the distance, measured in the horizontal plane, of the height difference between the highest point of the obstruction and the horizontal projection of the nearest point of the solar zone, measured in the vertical plane.

EXCEPTION to Section 110.10(b)3: Any roof obstruction, located on the roof or any other part of the building, that is oriented north of all points on the solar zone.

- C. The solar zone needs to account for shading from obstructions that may impact the area required in 110.10(b)1B. When determined by the Building Official that conditions exist where excessive shading occurs and solar zones cannot be met, a performance equivalency approved by the Building Official may be used as an alternative.

4. Structural Design Loads on Construction Documents. For areas of the roof designated as solar zone, the structural design loads for roof dead load and roof live load shall be clearly indicated on the construction documents.

NOTE: Section 110.10(b)4 does not require the inclusion of any collateral loads for future solar energy systems.

c) Interconnection Pathways.

1. The construction documents shall indicate a location reserved for inverters and metering equipment and a pathway reserved for routing of conduit from the solar zone to the point of interconnection with the electrical service.
2. For single family residences and central water-heating systems, the construction documents shall indicate a pathway for routing of plumbing from the solar zone to the water-heating system.

d) Documentation. A copy of the construction documents or a comparable document indicating the information from Sections 110.10(b) through 110.10(c) shall be provided to the occupant.

e) Main Electrical Service Panel.

1. The main electrical service panel shall have a minimum busbar rating of 200 amps.
2. The main electrical service panel shall have a reserved space to allow for the installation of a double pole circuit breaker for a future solar electric installation. The reserved space shall be permanently marked as "For Future Solar Electric".

12.16.020 – Prohibition on Conversion to Mixed-Fuel Buildings.

No building that is required to be constructed as an All-Electric building, or that currently uses electricity as its sole fuel source for appliances, space conditioning systems, water heating systems, pool and spa systems, or any other building systems, shall be altered or modified to use any fuel source other than electricity for appliances, space conditioning systems, water heating systems, pool and spa systems, or any other building systems.

SECTION 8: Amendment of Green Building Standards Code.

Chapter 12.18 of Title 12 [Buildings and Construction] of the Menlo Park Municipal Code is hereby repealed and replaced to read in entirety as follows:

California Green Building Standards Code Amendments

Sections:

12.18.010 – Amendments to Section 202 – Definitions.

12.18.020 – Amendment of Section 4.106.4 – Electric vehicle (EV) charging for new construction.

12.18.030 – Amendment of Section 4.106.4.1 – New one and two-family dwellings and town houses with attached private garages.

12.18.040 – Amendment of Section 4.106.4.2 – Multifamily dwellings with residential parking facilities.

12.18.050 – Amendment of Section 4.408.1 – Construction Waste Management.

12.18.060 – Amendment of Section 5.106.5.3 – Electric Vehicle Charging.

12.18.070 – Addition of Section 5.106.5.5.1 – Additions and Alterations.

12.18.080 – Amendment of Section 5.408.1 – Construction Waste Management.

12.18.010 – Amendment to Section 202 – Definitions.

Section 202 of the California Green Building Standards Code, Part 11 of the California Building Standards Code, Title 24 California Code of Regulations is amended to (1) add definitions of Affordable Housing and Direct Current Fast Charging, Level 1 EV Ready, Level 2 EV Capable, Level 2 EV Ready, Low Power Level 2 EV Ready, and (2) revise definitions of Automatic Load Management System (ALMS), Electric Vehicle Charging Station, with enacted definitions to read as follows:

AFFORDABLE HOUSING. Residential buildings that entirely consist of units below market rate and whose rents or sales prices are governed by local agencies to be affordable based on area median income.

AUTOMATIC LOAD MANAGEMENT SYSTEM (ALMS). A control system designed to manage load across one or more electric vehicle supply equipment (EVSE), circuits, panels and to share electrical capacity and/or automatically manage power at each connection point. ALMS systems shall be designed to deliver no less than 3.3 kVa (208/240 volt, 16-ampere) to each EV Capable, EV Ready or EVCS space served by the ALMS, and meet the requirements of California Electrical Code Article 625. The connected amperage to the building site for the EV charging infrastructure shall not be lower than the required connected amperage per California Green Building Standards Code, Title 24 Part 11.

DIRECT CURRENT FAST CHARGING (DCFC). A parking space provided with electrical infrastructure that meets the following conditions:

- i. A minimum of 48 kVa (480 volt, 100-ampere) capacity wiring.
- ii. Electric vehicle supply equipment (EVSE) located within three (3) feet of the parking space providing a minimum capacity of 80-ampere.

ELECTRIC VEHICLE CHARGING STATION (EVCS). A parking space that includes installation of electric vehicle supply equipment (EVSE) at an EV Ready space. An EVCS space may be used to satisfy EV Ready space requirements. EVSE shall be installed in accordance with the California Electrical Code, Article 625.

LEVEL 1 EV READY. A parking space that is served by a complete electric circuit with the following requirements:

- i. A minimum of 2.2 kVa (110/120 volt, 20-ampere) capacity wiring.
- ii. A receptacle labeled “Electric Vehicle Outlet” or electric vehicle supply equipment located within three (3) feet of the parking space. If EVSE is provided the minimum capacity of the EVSE shall be 16-ampere.
- iii. Conduit oversized to accommodate future Level 2 EV Ready (208/240 volt, 40-ampere) at each parking space.

LEVEL 2 EV CAPABLE. A parking space provided with electrical infrastructure that meets the following requirements:

- i. Conduit that links a listed electrical panel with sufficient capacity to a junction box or receptacle located within three (3) feet of the parking space.

- ii. The conduit shall be designed to accommodate at least 8.3 kVa (208/240 volt, 40-ampere) per parking space. Conduit shall have a minimum nominal trade size of 1 inch inside diameter and may be sized for multiple circuits as allowed by the California Electrical Code. Conduit shall be installed at a minimum in spaces that will be inaccessible after construction, either trenched underground or where penetrations to walls, floors, or other partitions would otherwise be required for future installation of branch circuits, and such additional elements deemed necessary by the Building Official. Construction documents shall indicate future completion of conduit from the panel to the parking space, via the installed inaccessible conduit.
- iii. The electrical panel shall reserve a space for a 40-ampere overcurrent protective device space(s) for EV charging, labeled in the panel directory as “EV CAPABLE.”
- iv. Electrical load calculations shall demonstrate that the electrical panel service capacity and electrical system, including any on-site distribution transformer(s), have sufficient capacity to simultaneously charge all EVs at all required EV spaces at a minimum of 40 amperes.
- v. The parking space shall contain signage with at least a 12” font adjacent to the parking space indicating the space is EV Capable.

LEVEL 2 EV READY. A parking space that is served by a complete electric circuit with the following requirements:

- i. A minimum of 8.3 kVa (208/240 volt, 40-ampere) capacity wiring.
- ii. A receptacle labeled “Electric Vehicle Outlet” or electric vehicle supply equipment located within three (3) feet of the parking space. If EVSE is provided the minimum capacity of the EVSE shall be 30-ampere.

LOW POWER LEVEL 2 EV READY. A parking space that is served by a complete electric circuit with the following requirements:

- i. A minimum of 4.1 kVA (208/240 Volt, 20-ampere) capacity wiring.
- ii. A receptacle labeled “Electric Vehicle Outlet” or electric vehicle supply equipment located within three (3) feet of the parking space. If EVSE is provided the minimum capacity of the EVSE shall be 16-ampere.

Conduit oversized to accommodate future Level 2 EV Ready (208/240 volt, 40-ampere) at each parking space.

12.18.020 – Amendment of Section 4.106.4 – Electric Vehicle (EV) charging for new construction.

Section 4.106.4 of the California Green Building Standards Code, Part 11 of the California Building Standards Code, Title 24 California Code of Regulations is amended to read in entirety as follows:

4.106.4 Electric vehicle (EV) charging. Residential construction shall comply with Section 4.106.4.1 or 4.106.4.2, and 4.106.4.3, to facilitate future installation and use of EV chargers. Electric vehicle supply equipment (EVSE) shall be installed in accordance with the California Electrical Code, Article 625. For EVCS signs, refer to Caltrans Traffic Operations Policy Directive 13-01 (Zero Emission Vehicle Signs and Pavement Markings) or its successor(s). Calculation for spaces shall be rounded up to the nearest whole number.

Exceptions:

1. On a case-by-case basis, where the local enforcing agency has determined EV charging and infrastructure are not feasible based on one or more of the following conditions:
 - 1.1 Where there is no local utility power supply or the local utility is unable to supply adequate power.
 - 1.2. Where there is evidence suitable to the local enforcing agency substantiating that meeting the requirements will alter the local utility infrastructure design requirements may increase construction cost by an average of \$4,500 per parking space for market rate housing or \$400 per parking space for affordable housing. EV infrastructure shall be provided up to the level that would not exceed this cost for utility service. For 100 percent Below Market Rate affordable housing developments, EVSE with a minimum of Level 2 ready shall be provided for a minimum of 10 percent of the total number of dwelling units.
2. Accessory Dwelling Units (ADU) and Junior Accessory Dwelling Units without additional parking facilities

12.18.030 – Amendment of Section 4.106.4.1 – New one and two-family dwellings and town houses with attached private garages.

Section 4.106.4.1 of the California Green Building Standards Code, Part 11 of the California Building Standards Code, Title 24 California Code of Regulations is amended to read in entirety as follows:

4.106.4.1 New one and two-family dwellings and town houses with attached private garages.

For each dwelling unit, one parking space provided shall be a Level 2 EV Ready space. If a second parking space is provided, it shall be provided with a Level 1 EV Ready space.

12.18.040 – Amendment of Section 4.106.4.2 – Multifamily dwellings with residential parking facilities.

Section 4.106.4.2 of the California Green Building Standards Code, Part 11 of the California Building Standards Code, Title 24 California Code of Regulations is amended revise sections 4.106.4.2 and 4.106.4.2.1, and 4.106.4.2.2 to read as follows:

4.106.4.2 Multifamily dwellings with residential parking facilities. Requirements apply to parking spaces that are assigned or leased to individual dwelling units, as well as unassigned residential parking. Visitor or common area parking is not included. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number.

4.106.4.2.1 New Construction. At least fifteen percent (15%) of dedicated parking spaces for any project shall be EVCS with minimum of Level 2 EV Ready. Automatic Load Management System (ALMS) shall be permitted to reduce load when multiple vehicles are charging. All remaining dedicated parking spaces required for a project shall, at a minimum, meet requirements to be considered a Low Power Level 2 EV Ready space. EVCS shall comply with the accessibility provisions for EV chargers in the California Building Code,

Chapter 11B. EV ready spaces and EVCS in multifamily developments shall comply with California Building Code, Chapter 11A, Section 1109A.

Note: The total number of EV spaces should be one-hundred percent (100%) of dwelling units or one-hundred percent (100%) of parking spaces, whichever is less. Construction plans and specifications shall include the following:

- The type and location of the vehicle supply equipment (EV Ready and / or EVSE).
- The raceway shall not be less than trade size 1"
- The raceway and wiring shall originate at a service panel or a subpanel serving the area and shall terminate into a receptacle or EVSE.
- The service panel or subpanel shall have sufficient capacity to accommodate a 208/240 minimum 40-ampere dedicated branch circuit for the future installation of the EVSE. The service panel or subpanel circuit directory shall identify the overcurrent protective device as "EV Ready or EV Capable" in accordance with the California Electrical Code
- Electrical calculations shall substantiate the design of the electrical system to include the rating of equipment and any on-site distribution transformers and have sufficient capacity to charge required EV at its full rated amperage
- Plan design shall be capable of accommodating a 208/240-volt dedicated circuit based upon 40 ampere branch circuit requirements. Required raceways and related components that are planned to be installed underground, enclosed, inaccessible or in concealed areas and spaces shall be installed at the time of original construction.

4.106.4.2.2 EVCS Provisions.

4.106.4.2.2.1 Electric Vehicle Charging Stations (EVCS).

Electric vehicle charging stations shall comply with the following requirements, except for EVCS serving public accommodations, public housing, motels and hotels shall not be required to comply with this section (see California Building Code, Chapter 11B, for applicable requirements):

4.106.4.2.2.1.1 Location.

EVCS shall comply with at least one of the following options:

1. The charging space shall be located adjacent to an accessible parking space meeting the requirements of the California Building Code, Chapter 11A, to allow use of the EV charger from the accessible parking space
2. The charging space shall be located on an accessible route, as defined in California Building Code, Chapter 2, to the building.

Exception: EVCS designed and constructed in compliance with California Building Code, Chapter 11B, are not required to comply with Section 4.106.4.2.2.1.1 and Section 4.106.4.2.2.1.2, Item 3.

4.106.4.2.2.1.2 EVCS Dimensions

The charging spaces shall be designed to comply with the following:

1. The minimum length of each EV space shall be 18 feet.
 2. The minimum width of each EV space shall be 9 feet.
 3. One in every 25 charging spaces, but not less than one, shall also have an 8-foot wide minimum aisle. A 5 foot wide minimum aisle shall be permitted provided the minimum width of the EV space is 12 feet.
- a. Surface slope for this EV space and the aisle shall not exceed 1 unit vertical in 48 units horizontal (2.083 percent slope) in any direction.

4.106.4.2.2.1.3 Accessible EV spaces.

In addition to the requirements in Sections 4.106.4.2.2.1.1 and 4.106.4.2.2.1.2, all EVSE, when installed, shall comply with the accessibility provisions for EV chargers in the California Building Code, Chapter 11B. EV ready spaces and EVCS in multifamily developments shall comply with California Building Code, Chapter 11A, Section 1109A.

12.18.050 – Amendment of Section 4.408.1 – Construction Waste Management.

Section 4.408.1 of the California Green Building Standards Code, Part 11 of the California Building Standards Code, Title 24 California Code of Regulations is amended to read in entirety as follows:

4.408.1 Construction waste management. Recycle and/or salvage for reuse a minimum of 65 percent of both inert and non-inert nonhazardous demolition waste and 65 percent of both inert and non-inert nonhazardous construction waste in accordance with Section 4.408.2, 4.408.3 or 4.408.4 and meet the requirements of Chapter 12.48 Recycling and Salvaging of Construction and Demolition Debris City of Menlo Park Municipal Code.

Exceptions:

1. Excavated soil and land clearing debris.
2. Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist or are not located reasonably close to the job site.
3. The enforcing agency may make exceptions to the requirements of this section when isolated jobsites are located in areas beyond the haul boundaries of the diversion facility.

12.18.060 – Amendment of Section 5.106.5.3 – Electric Vehicle Charging.

Section 5.106.5.3 of the California Green Building Standards Code, Part 11 of the California Building Standards Code, Title 24 California Code of Regulations is amended to read in entirety as follows:

5.106.5.3 Electric vehicle (EV) charging. [N] Construction to provide electric vehicle infrastructure and facilitate electric vehicle charging shall comply with Section 5.106.5.3.1 and shall be provided in accordance with regulations in the California Building Code and the California Electrical Code. Accessible EVCS shall be provided in accordance with the California Building Code Chapter 11B Section 11B-228.3. For EVCS signs, refer to Caltrans Traffic Operations Policy Directive 13-01 (Zero Emission Vehicle Signs and Pavement Markings) or its successor(s). Calculation for spaces shall be rounded up to the nearest whole number.

Exceptions:

1. On a case-by-case basis where the local enforcing agency has determined compliance with this section is not feasible based upon one of the following conditions:
 - a. Where there is no local utility power supply.
 - b. Where the local utility is unable to supply adequate power.
 - c. Where there is evidence suitable to the local enforcement agency substantiating that additional local utility infrastructure design requirements, directly related to the implementation of Section 5.106.5.3, may increase construction cost by an average of \$4,500 per parking space. EV infrastructure shall be provided up to the level that would not exceed this cost for utility service.

Table 5.106.5.3.1 of Chapter 5 is amended and replaced with:

Table A5.106.5.3.1 Electric Vehicle (EV) charging Tier 1 [N] shall be used to determine the number of EV capable spaces required. Refer to Section 5.106.5.3.2 for design space requirements. When EV capable spaces are provided with EVSE to create EVCS per Table A5.106.5.3.1 refer to Section 5.106.5.3.2 for allowed use of Level 2 or Direct Current Fast Charger (DCFC) and Section 5.106.5.3.3 for the allowed use of Automatic Load Management System (ALMS).

Total Number of actual parking spaces	Tier 1 Number of Required EV capable spaces	Tier 1 Number of EVCS (EV capable spaces provided with EVSE) ²
0-9	2	0
10-25	5	2
26-50	11	4
76-100	26	9
101-105	38	13
151-150	38	13
151-200	53	18
201 and over	30 percent of total parking spaces ¹	33 percent of EV capable spaces ¹

1. Calculation for spaces shall be rounded up to the nearest whole number.

2. The number of required EVCS (EV capable spaces provided with EVSE) in column 3 count toward the total number of required EV capable spaces shown in column 2.

12.18.070 – Addition of Section 5.106.5.5.1 – Additions and Alterations.

Section 5.106.5.5.1 is added to the California Green Building Standards Code, Part 11 of the California Building Standards Code, Title 24 California Code of Regulations is amended to read in entirety as follows:

Section 5.106.5.5.1 Additions and Alterations. Level 2 EV capable spaces and EVSE spaces that meet Level 2 Ready requirements shall be constructed and installed for additions and alterations as specified below in Table 5.105.5.1.

Table 5.106.5.5.1 Additions and Alterations ¹		
	NUMBER OF REQUIRED LEVEL 2 EV CAPABLE SPACES	NUMBER OF REQUIRED EVSE THAT ARE LEVEL 2 EV READY ³
1 - 9,999 sq.ft.	Voluntary	Voluntary
10,000 - 25,000 sq.ft.	5%	1 Can be located in an EV capable space
Greater than 25,000 sq.ft.	10%	One + 1% of total required parking spaces for the affected area. Can be located in an EV capable space

¹The EV space requirement is based on the required parking associated with the building where the work is being performed, inclusive of landscape reserve parking. For additions and alterations, percentages are based on the required parking for the affected area of the scope of work.

²Calculations for spaces shall be rounded up to the nearest whole number.

³The maximum number of required EV spaces and electric vehicle supply equipment (EVSE) shall not exceed the requirement for EV spaces for new construction of an equivalent development on a parcel or project site unless it is voluntary.

Construction plans and specifications shall include, all of the below:

1. The type and location of the EVSE.
2. A listed raceway capable of accommodating a 208/240-volt dedicated branch circuit.
3. The raceway shall not be less than trade size 1"
4. The raceway shall originate at a service panel or a subpanel serving the area and shall terminate in close proximity to the proposed location of the charging equipment and into a listed suitable cabinet, box, enclosure or equivalent.
5. The service panel or subpanel shall have sufficient capacity to accommodate a minimum 40-ampere dedicated branch circuit for the future installation of the EVSE.

6. Electrical calculations shall substantiate the design of the electrical system to include the rating of equipment and any on-site distribution transformers and have sufficient capacity to charge required EV at its full rated amperage. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number.

12.18.080 – Amendment of Section 5.408.1 – Construction Waste Management.

Section 5.408.1 of the California Green Building Standards Code, Part 11 of the California Building Standards Code, Title 24 California Code of Regulations is amended to read in entirety as follows:

5.408.1 Construction waste management. Recycle and/or salvage for reuse a minimum of 65 percent of both inert and non-inert nonhazardous demolition waste and 65 percent of both inert and non-inert nonhazardous construction waste in accordance with Section 5.408.2, 5.408.3 or 5.408.4 and meet the requirements of Chapter 12.48 Recycling and Salvaging of Construction and Demolition Debris City of Menlo Park Municipal Code.

Exceptions:

1. Excavated soil and land clearing debris.
2. Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist or are not located reasonably close to the job site.
3. The enforcing agency may make exceptions to the requirements of this section when isolated jobsites are located in areas beyond the haul boundaries of the diversion facility.

SECTION 9: Amendment of Section 12.32.050.

Section 12.32.050 [Filing Fee] of Chapter 12.32 [Moving Buildings] of Title 12 [Buildings and Construction] of the Menlo Park Municipal Code is hereby amended to read in entirety as follows:

Section 12.32.040 – Filing Fee.

Prior to, or at the time of, filing any application for a permit to move or remove a building or structure a fee in an amount established by resolution of the City Council shall be paid to the building department by the applicant to defray the reasonable cost of investigations and other services required of the building department pursuant to this chapter. The filing fee provided in this section shall be in addition to other permit fees which are required to erect, construct, enlarge, alter, repair, improve and convert any structural, electrical, plumbing, and heating work required for any building, or to demolish any building or structure pursuant to other applicable laws or ordinances.

SECTION 10: Enactment of Section 12.36.060.

Section 12.36.060 [Pools under construction] is hereby added to Chapter 12.36 [Swimming Pools] of Title 12 [Buildings and Construction] of the Menlo Park Municipal Code, to read as follows:

Section 12.36.060 – Pools under construction.

During construction, pools shall be enclosed by a fence or solid structure with a height of 60-84 inches. The fence shall not have any openings larger than 50 square inches other than a gate. Fences with rectangular openings having a horizontal dimension 4 inches or less may exceed 50 square inches. All gates leading into the area shall be self-closing self-latching. The latch shall be at least 60 inches above the ground.

SECTION 11: Amendment of Code on Flood Damage Prevention.

Chapter 12.42 [Flood Damage Prevention] of Title 12 [Buildings and Construction] of the Menlo Park Municipal Code is hereby amended to modify Sections 12.42.12, 12.42.20, 12.42.41, 12.42.43, 12.42.51 to read as set forth below:

Section 12.42.12 – Findings of fact.

- a. The flood hazard areas of the city of Menlo Park are subject to periodic inundation which results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief and impairment of the tax base, all of which adversely affect the public health, safety and general welfare.
- b. These flood losses are caused by the cumulative effect of obstructions in areas of special flood hazards which increase flood heights and velocities, and when inadequately anchored, damage uses in other areas. Uses that are inadequately floodproofed, elevated or otherwise protected from flood damage also contribute to the flood loss.

Section 12.42. – Definitions.

Unless specifically defined below, words and phrases used in this chapter shall be interpreted so as to give them the meaning they have in common usage and to give this chapter its most reasonable application.

1. "Accessory structure" means a structure that is either: solely for the parking of no more than two (2) cars or a small, low cost shed for limited storage, less than one hundred fifty (150) square feet and one thousand five hundred dollars (\$1,500) in value.
2. "Appeal" means a request for a review of the floodplain administrator's interpretation of any provision of this chapter or a request for a variance.
3. "Area of shallow flooding" means a designated AO or AH zone on the flood insurance rate map (FIRM). The base flood depths range from one (1) to three (3) feet; a clearly defined channel does not exist; the path of flooding is unpredictable and indeterminate; and velocity flow may be evident. Such flooding is characterized by ponding or sheet flow.
4. "Area of special flood hazard." See "Special flood hazard area."
5. "Base flood elevation (BFE)" means the elevation shown on the flood insurance rate map for zones AE, AH, A1-30, VE and V1-V30 that indicates the water surface elevation resulting from a flood that has a one percent (1%) or greater chance of being equaled or exceeded in any given year.
6. "Basement" means any area of the building having its floor subgrade (below ground level) on all sides.
7. "Breakaway walls" are any type of walls, whether solid or lattice, and whether constructed of concrete, masonry, wood, metal, plastic or any other suitable building materials, which are not part of the structural support of the building and which are designed to break away under abnormally high tides or wave action without causing any damage to the structural integrity of the building on which they are used or any buildings to which they might be carried by floodwaters. A breakaway wall shall have a safe design loading resistance of not less than ten (10) and no more than twenty (20) pounds per square foot. Use of breakaway walls must be certified by a registered engineer or architect and shall meet the following conditions:
 - A. Breakaway wall collapse shall result from a water load less than that which would occur during the base flood; and

- B. The elevated portion of the building shall not incur any structural damage due to the effects of wind and water loads acting simultaneously in the event of the base flood.
8. "Building." See "structure."
 9. "Coastal A Zones" means a special flood hazard area landward of a V Zone or landward of an open coast without a mapped V Zone, where the principle source of flooding are associated with astronomical tides, storm surges, seiches or tsunamis, not riverine flooding. During base flood conditions, the potential for breaking wave heights between 1.5 feet and 3.0 feet will exist.
 10. "Coastal high hazard area" means an area of special flood hazard extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or seismic sources. It is an area subject to high velocity waters, including coastal and tidal inundation or tsunamis. The area is designated on a flood insurance rate map (FIRM) as zone V1-V30, VE, or V.
 11. "Design Flood Elevation (DFE)" means the elevation of the design flood, including wave height, relative to the datum specified on a community's flood hazard map.
 12. "Development" means any manmade change to improved or unimproved real estate including, but not limited to, buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials.
 13. "Dry floodproofing" means a combination of measures that results in a structure, including the attendant utilities and equipment, being watertight with all elements substantially impermeable to the entrance of floodwater and with structural components having the capacity to resist flood loads.
 14. "Encroachment" means the advance or infringement of uses, plant growth, fill, excavation, buildings, permanent structures or development into a floodplain which may impede or alter the flow capacity of a floodplain.
 15. "Existing manufactured home park or subdivision" means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed before the effective date of the floodplain management regulations adopted by a community.
 16. "Expansion to an existing manufactured home park or subdivision" means the preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).
 17. "Flood, flooding, or floodwater" means a general and temporary condition of partial or complete inundation of normally dry land areas from (A) the overflow of floodwaters; (B) the unusual and rapid accumulation or runoff of surface waters from any source; and/or (C) the collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature, such as flash flood or an abnormal tidal surge, or by some similarly unusual and unforeseeable event which results in flooding as defined in this definition.
 18. "Flood boundary and floodway map" means the official map on which the Federal Emergency Management Agency or Federal Insurance Administration has delineated both the areas of flood hazard and the floodway.
 19. "Flood hazard boundary map" means the official map on which the Federal Emergency Management Agency or Federal Insurance Administration has delineated the areas of flood hazards.

20. "Flood insurance rate map" means the official map on which the Federal Emergency Management Agency or Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.
21. "Flood insurance study" means the official report provided by the Federal Insurance Administration that includes flood profiles, the FIRM, the flood boundary and floodway map, and the water surface elevation of the base flood and supporting technical data.
22. "Floodplain or flood-prone area" means any land area susceptible to being inundated by water from any source (see definition of "flooding").
23. "Floodplain administrator" means the community official designated by title to administer and enforce the floodplain management regulations.
24. "Floodplain management" means the operation of an overall program of corrective and preventive measures for reducing flood damage and preserving and enhancing, where possible, natural resources in the floodplain including, but not limited to, emergency preparedness plans, flood control works and floodplain management regulations and open space plans.
25. "Floodplain management regulations" means zoning ordinances, subdivision regulations, building codes, health regulations, special purpose ordinances (such as floodplain ordinance, grading ordinance and erosion control ordinance) and other applications of police power. This term describes such federal, state or local regulations, in any combination thereof, which provide standards for the purpose of flood damage prevention and reduction.
26. "Floodproofing" means any combination of structural and nonstructural additions, changes, or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents.
27. "Floodway" means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. Also referred to as "regulatory floodway."
28. "Floodway fringe" means that area of the floodplain on either side of the regulatory floodway where encroachment may be permitted.
29. "Fraud and victimization," as related to Section 12.42.61, means that the variance granted must not cause fraud on or victimization of the public. In examining this requirement, the city will consider the fact that every newly constructed building adds to government responsibilities and remains a part of the community for fifty (50) to one hundred (100) years. Buildings that are permitted to be constructed below the base flood elevation are subject during all those years to increased risk of damage from floods, while future owners of the property and the community as a whole are subject to all the costs, inconvenience, danger, and suffering that those increased flood damages bring. In addition, future owners may purchase the property, unaware that it is subject to potential flood damage, and can be insured only at very high flood insurance rates.
30. "Functionally dependent use" means a use which cannot perform its intended purpose unless it is located or carried out in close proximity to water. The term includes only docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and ship building and ship repair facilities, but does not include long-term storage or related manufacturing facilities.
31. "Governing body" means the City Council.
32. "Hardship," as related to Section 12.42.61, means the exceptional hardship that would result from a failure to grant the requested variance. The city requires that the variance be exceptional, unusual, and peculiar to the property involved. Mere economic or financial hardship alone is not exceptional. Inconvenience, aesthetic considerations, physical handicaps, personal preferences, or the disapproval of one's neighbors likewise cannot,

as a rule, qualify as an exceptional hardship. All of these problems can be resolved through other means without granting a variance, even if the alternative is more expensive, or requires the property owner to build elsewhere, or put the parcel to a different use than originally intended.

33. "Highest adjacent grade" means the highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.
34. "Historic structure" means any structure that is:
 - A. Listed individually in the National Register of Historic places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;
 - B. Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district;
 - C. Individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of the Interior; or
 - D. Individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either by an approved state program as determined by the Secretary of the Interior or directly by the Secretary of the Interior in states without approved programs.
35. "Levee" means a manmade structure, usually an earthen embankment, designed and constructed in accordance with sound engineering practices to contain, control or divert the flow of water so as to provide protection from temporary flooding.
36. "Levee system" means a flood protection system which consists of a levee or levees, and associated structures, such as closure and drainage devices, which are constructed and operated in accord with sound engineering practices.
37. "Lowest floor" means the lowest floor of the lowest enclosed area, including basement (see "basement" definition).
 - A. An unfinished or flood resistant enclosure below the lowest floor that is usable solely for parking of vehicles, building access or storage in an area other than a basement area, is not considered a building's lowest floor provided it conforms to applicable nonelevation design requirements, including, but not limited to:
 - i. The wet floodproofing standard in Section 12.42.51(3)(D);
 - ii. The anchoring standards in Section 12.42.51(1);
 - iii. The construction materials and methods standards in Section 12.42.51(2);
 - iv. The standards for utilities in Section 12.42.52.
 - B. For residential structures, all subgrade enclosed areas are prohibited as they are considered to be basements. This prohibition includes below-grade garages and storage areas.

(Note: This definition allows attached garages to be built at grade. Below grade garages are not allowed as they are considered to be basements.)

38. "Manufactured home" means a structure, transportable in one (1) or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. For floodplain management purposes the term "manufactured home" also includes park trailers, travel trailers and other similar vehicles placed on a site for greater than one hundred eighty (180) consecutive days.
39. "Manufactured home park or subdivision" means a parcel (or contiguous parcels) of land divided into two (2) or more manufactured home lots for sale or rent.
40. "Market value" is defined in the city of Menlo Park's substantial damage/improvement procedures.

41. "Mean sea level" means, for purposes of the National Flood Insurance Program, the National Geodetic Vertical Datum (NGVD) of 1929 or other datum, to which base flood elevations shown on a community's flood insurance rate map are referenced.
42. "New construction" means, for floodplain management purposes, structures for which the "start of construction" commenced on or after the effective date of a floodplain management regulation adopted by this community and includes any subsequent improvements to such structure.
43. "New manufactured home park or subdivision" means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after the effective date of floodplain management regulations adopted by this community.
44. "Obstruction" includes, but is not limited to, any dam, wall, wharf, embankment, levee, dike, pile, abutment, protection, excavation, channelization, bridge, conduit, culvert, building, wire, fence, rock, gravel, refuse, fill, structure, vegetation or other material in, along, across or projecting into any watercourse which may alter, impede, retard or change the direction and/or velocity of the flow of water, or due to its location, its propensity to snare or collect debris carried by the flow of water, or its likelihood of being carried downstream.
45. "One-hundred-year flood" or "100-year flood" means a flood which has a one percent (1%) annual probability of being equaled or exceeded in any given year. It is identical to the "base flood," which will be the term used throughout this chapter.
46. "Person" means an individual or his agent, firm, partnership, association or corporation, or agent of the aforementioned groups, or this state or its agencies or political subdivisions.
47. "Primary frontal dune" means a continuous or nearly continuous mound or ridge of sand with relatively steep seaward and landward slopes immediately landward and adjacent to the beach and subject to erosion and overtopping from high tides and waves during major coastal storms. The inland limit of the primary frontal dune occurs at the point where there is a distinct change from a relatively mild slope.
48. "Public safety and nuisance," as related to Section 12.42.62, means that the granting of a variance must not result in anything which is injurious to safety or health of an entire community or neighborhood, or any considerable number of persons, or unlawfully obstructs the free passage of use, in the customary manner, of any navigable lake, river, bay, stream, canal or basin.
49. "Recreational vehicle" means a vehicle which is:
 - A. Built on a single chassis;
 - B. Four hundred (400) square feet or less when measured at the largest horizontal projection;
 - C. Designed to be self-propelled or permanently towable by a light-duty truck; and
 - D. Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.
50. "Regulatory floodway" means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one (1) foot.
51. "Remedy a violation" means to bring the structure or other development into compliance with state or local floodplain management regulations, or, if this is not possible, to reduce the impacts of its noncompliance. Ways that impacts may be reduced include protecting the structure or other affected development from flood damages, implementing the enforcement provisions of this chapter or otherwise deterring future similar violations, or

reducing state or federal financial exposure with regard to the structure or other development.

52. "Riverine" means relating to, formed by, or resembling a river (including tributaries), stream, brook, etc.
53. "Sand dunes" mean naturally occurring accumulations of sand in ridges or mounds landward of the beach.
54. "Sheet flow area." See "area of shallow flooding."
55. "Special flood hazard area (SFHA)" means an area having special flood or flood related erosion hazards, and shown on an FHBM or FIRM as zone A, AO, A1-A30, AE, A99, AR, AO, AH, E, M, V1-V30, VO, VE or V.
56. "Start of construction" includes substantial improvement and other proposed new development, and means the date the building permit was issued; provided, the actual start of construction, repair, reconstruction, rehabilitation, addition, placement, or other improvement was within one hundred eighty (180) days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the state of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers or foundations or the erection of temporary forms; nor does it include the installation of the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.
57. "Structure" means a walled and roofed building, including a gas or liquid storage tank, that is principally above ground, as well as a manufactured home.
58. "Substantial damage" means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed fifty percent (50%) of the market value of the structure before the damage occurred.
59. "Substantial improvement" means any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds fifty percent (50%) of the market value of the structure either:
 - A. Before the improvement or repair is started; or
 - B. If the structure has sustained substantial damage, any repairs are considered substantial improvement regardless of the actual repair work performed.

For the purpose of this definition "substantial improvement" is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure. The term does not, however, include either:

- A. Any project for improvement of a structure to comply with existing state or local health, sanitary, or safety code violations identified by the building official and are the minimum necessary to assure safe living conditions; or
 - B. Any alterations of a structure meeting the "historic structure" definition as defined in this section; provided, that the alteration will not preclude the structure's continued designation as a historic structure.
60. "V zone." See "coastal high hazard area."
 61. "Variance" means a grant of relief from the requirements of this chapter which permits construction in a manner that would otherwise be prohibited by this chapter.
 62. "Violation" means the failure of a structure or other development to be fully compliant with this chapter. A structure or other development without the elevation certificate, other

certifications, or other evidence of compliance required in this chapter is presumed to be in violation until such time as that documentation is provided.

63. "Water surface elevation" means the height, in relation to the North American Vertical Datum of 1988 (NAVD 88), (or other datum, where specified) of floods of various magnitudes and frequencies in the flood plains of coastal or riverline areas.
64. "Watercourse" means a lake, river, creek, stream, wash, arroyo, channel or other topographical feature on or over which waters flow at least periodically. "Watercourse" includes specifically designated areas in which substantial flood damage may occur. (Ord. 1022 § 8 (part), 2016).
65. "Wet floodproofing" means the use of flood damage resistant materials and construction techniques to minimize flood damage to areas below the flood protection level of a structure, which is intentionally allowed to flood.

Section 12.42.41 – Development Permit.

- a) A development permit shall be obtained before construction or development begins within any area of special flood hazards established in Section 12.42.32. Application for a development permit shall be made on forms furnished by the floodplain administrator and may include, but not be limited to: Plans in duplicate, drawn to scale, showing:
 - 1) Location, dimensions, and elevation of the area in question, existing or proposed structures, storage of materials and equipment and their location;
 - 2) Proposed locations of water supply, sanitary sewer, and other utilities;
 - 3) Grading information showing existing and proposed contours, any proposed fill, and drainage facilities;
 - 4) Location of the regulatory floodway when applicable;
 - 5) Base flood elevation information as specified in Section 12.42.32 or 12.42.43(3);
 - 6) Proposed elevation in relation to mean sea level of the lowest floor (including basement) of all structures; and
 - 7) Proposed elevation in relation to mean sea level to which any nonresidential structure will be floodproofed, as required in Section 12.42.51(3)(C) and detailed in FEMA Technical Bulletin TB 3-93.
- b) Certification from a registered civil engineer or architect that the nonresidential floodproofed building meets the floodproofing criteria in Section 12.42.51(3)(C).
- c) For a crawl-space foundation, location and total net area of foundation openings as required in Section 12.42.51(3)(D) of this ordinance and detailed in FEMA Technical Bulletins 1 and 7.
- d) Description of the extent to which any watercourse will be altered or relocated as a result of proposed development.
- e) All appropriate certifications listed in Section 12.42.43(7).

Section 12.42.43 – Duties and responsibilities of floodplain administrator.

The duties and responsibilities of the floodplain administrator shall include, but not be limited to:

- 1) Permit Review.
 - A. Review all development permits to determine that the permit requirements of this ordinance have been satisfied;
 - B. All other required state and federal permits have been obtained;
 - C. The site is reasonably safe from flooding;
 - D. The proposed development does not adversely affect the carrying capacity of areas where base flood elevations have been determined but a floodway has not been

designated. For purposes of this chapter, "adversely affects" means that the cumulative effect of the proposed development when combined with all other existing and anticipated development will increase the water surface elevation of the base flood more than one (1) foot at any point.

- E. All letters of map revision (LOMRs) for flood control projects are approved prior to the issuance of building permits. Building permits must not be issued based on conditional letters of map revision (CLOMRs). Approved CLOMRs allow construction of the proposed flood control project and land preparation as specified in the "start of construction" definition.
- 2) Development of Substantial Improvement and Substantial Damage Procedures.
 - A. Using FEMA publication FEMA 213, "Answers to Questions About Substantially Damaged Buildings," develop detailed procedures for identifying and administering requirements for substantial improvement and substantial damage, to include defining "market value."
 - B. Assure procedures are coordinated with other departments/divisions and implemented by community staff.
- 3) Review, Use, and Development of Other Base Flood Data. When base flood elevation data has not been provided in accordance with Section 12.42.32, the floodplain administrator shall obtain, review, and reasonably utilize any base flood elevation and floodway data available from a federal, state or other source, in order to administer Sections 12.42.51 through 12.42.56. Any such information shall be submitted to the city council for adoption.

NOTE: A base flood elevation may be obtained using one (1) of two (2) methods from the FEMA publication FEMA 265, "Managing Floodplain Development in Approximate Zone A Areas – A Guide for Obtaining and Developing Base (100-year) Flood Elevations" dated July 1995.
- 4) Whenever a watercourse is to be altered or relocated:
 - A. Notify adjacent communities and the California Department of Water Resources prior to such alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Emergency Management Agency; and
 - B. Require that the flood-carrying capacity of the altered or relocated portion of said watercourse is maintained.
- 5) Base Flood Elevation Changes Due to Physical Alterations.
 - A. Within six (6) months of information becoming available or project completion, whichever comes first, the floodplain administrator shall submit or assure that the permit applicant submits technical or scientific data to FEMA for a letter of map revision (LOMR).
 - B. All LOMR's for flood control projects are approved prior to the issuance of building permits. Building permits must not be issued based on conditional letters of map revision (CLOMRs). Approved CLOMRs allow construction of the proposed flood control project and land preparation as specified in the "start of construction" definition. Such submissions are necessary so that upon confirmation of those physical changes affecting flooding conditions, risk premium rates and floodplain management requirements are based on current data.
- 6) Changes in Corporate Boundaries. Notify FEMA in writing whenever the corporate boundaries have been modified by annexation or other means and include a copy of a map of the community clearly delineating the new corporate limits.
- 7) Obtain and maintain for public inspection and make available as needed:
 - A. The certification required in Section 12.42.51(3)(A)
(lowest floor elevations);

- B. The certification required in Section 12.42.51(3)(C)(iii) (elevation or floodproofing of nonresidential structures);
 - C. The certification required in Section 12.42.51(3)(D)(i) or (3)(D)(ii) or (3)(D)(iv) (wet floodproofing standard);
 - D. The certification required in Section 12.42.53(b) (subdivision standards);
 - E. The certification required in Section 12.42.55(1) (floodway encroachments);
 - F. Information required by Section 12.42.56 (coastal construction standards).
- 8) Make interpretations where needed, as to the location of the boundaries of the areas of special flood hazards. Where there appears to be a conflict between a mapped boundary and actual field conditions, grade and base flood elevations shall be used to determine the boundaries of the special flood hazard area. The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in Sections 12.42.61 and 12.42.62.
- 9) Take action to remedy violations of this chapter as specified in Section 12.42.33.

Section 12.42.51 – Standards of construction.

In all areas of special flood hazards the following standards are required:

- 1) Anchoring.
 - A. All new construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.
 - B. All manufactured homes shall meet the anchoring standards of Section 12.42.54.
- 2) Construction Materials and Methods.
 - A. All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.
 - B. All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.
 - C. All new construction and substantial improvements shall be constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.
 - D. All new construction and substantial improvements shall be constructed within zone AH or AO, so that there are adequate drainage paths around structures on slopes to guide floodwaters around and away from proposed structures.
- 3) Elevation and Floodproofing.
 - A. Residential construction (as defined by the California Residential Code as amended from time to time, i.e., single-family homes, duplex and townhomes) shall comply with the elevation requirement provisions of the California Residential Code in effect at the time of permit submittal. Other residential construction, and new or substantial improvement, shall have the lowest floor, including basement, comply with the following:
 - i. In areas of shallow flooding (AO zone), elevated to a height above the highest adjacent grade of not less than the depth number specified in feet on the FIRM plus one (1) foot, or not less than three (3) feet if no depth number is specified;
 - ii. In all other Zone A, including Coastal A zones, elevated to or above the base flood elevation plus 1 foot, or the design flood elevation, whichever is higher.
 - iii. In all other zones, elevated to or above the base flood elevation.

Upon the completion of the structure, the elevation of the lowest floor including basement shall be certified by a registered professional engineer or surveyor, and verified by the community building inspector to be properly elevated. Such certification and verification shall be provided to the floodplain administrator.

- B. Nonresidential new construction shall be elevated to conform with subsection (3)(A) of this section and have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.
- C. Nonresidential substantial improvement shall either be elevated to conform with subsection (3)(A) of this section or together with attendant utility and sanitary facilities:
 - i. Be dry floodproofed below the elevation required under subsection (3)(A) of this section so that the structure is watertight with walls substantially impermeable to the passage of water;
 - ii. Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and
 - iii. Be certified by registered professional engineer or architect that the standards of subsection (3)(C) of this section are satisfied in accordance with ASCE 24 and shall include the flood emergency plan specified in Chapter 6 of ASCE 24. Such certification shall be provided to the floodplain administrator.
- D. All new construction and substantial improvement with fully enclosed areas below the lowest floor that are usable solely for parking of vehicles, building access or storage, and which are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwater. Designs for meeting this requirement shall follow the guidelines in FEMA Technical Bulletins 1, 7 and 11 as revised, amended and constructed to meet the following requirements:
 - i. Be certified by a registered professional engineer or architect;
 - ii. Have a minimum of two (2) openings having a total net area of not less than one (1) square inch for every square foot of enclosed area subject to flooding. The bottom of all openings shall be no higher than one (1) foot above exterior adjacent grade. Openings may be equipped with screens, louvers, valves or other coverings or devices provided that they permit the automatic entry and exit of floodwater;
 - iii. The building must be designed and adequately anchored to resist flotation, collapse, and lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy. Crawl space construction is not allowed in areas with flood velocities greater than five (5) feet per second unless the design is reviewed by a qualified design professional, such as a registered architect or professional engineer;
 - iv. The crawl space is an enclosed area below the DFE and, as such, must have openings that equalize hydrostatic pressures by allowing for the automatic entry and exit of floodwaters. For guidance on flood openings, see Technical Bulletin 1, Openings in Foundation Walls. For fully enclosed areas below the design flood elevation where provisions to allow for the automatic entry and exit of floodwaters do not meet the minimum requirements in Section 2.7.2.1 of ASCE 24, construction documents shall include a statement that the design will provide for equalization of hydrostatic flood forces in accordance with Section 2.7.2.2 of ASCE 24;
 - v. Crawl space construction is not permitted in V zones. Open pile or column foundations that withstand storm surge and wave forces are required in V zones;
 - vi. Portions of the building below the DFE must be constructed with materials resistant to flood damage that conform to the provisions of FEMA Technical Bulletin 2. This includes not only the foundation walls of the crawl space used to elevate the building, but also any joists, insulation, or other materials that extend below the DFE; and
 - vii. Any building utility systems within the crawl space must be elevated above DFE or designed so that floodwaters cannot enter or accumulate within the system components during flood conditions.
 - viii. Requirements for all below-grade crawl space construction, in addition to the above requirements, include the following provisions, per Technical Bulletin 11:

- a. The interior grade of a crawl space below the DFE must not be more than two (2) feet below the lowest adjacent exterior grade (LAG), shown as D in figure 3 of Technical Bulletin 11;
 - b. The height of the below-grade crawl space, measured from the interior grade of the crawl space to the top of the crawl space foundation wall must not exceed four (4) feet (shown as L in figure 3 of Technical Bulletin 11) at any point;
 - c. There must be an adequate drainage system that removes floodwaters from the interior area of the crawl space within a reasonable period of time after a flood event;
 - d. The velocity of floodwaters at the site should not exceed five (5) feet per second for any crawl space. For velocities in excess of five (5) feet per second, other foundation types should be used; and
 - e. Below-grade crawl space construction in accordance with the requirements listed above will not be considered basements.
- E. Manufactured homes shall also meet the standards in Section 12.42.54.
- F. Accessory structures defined in Section 16.68.030 used solely for parking (two (2) car detached garages or smaller) or limited storage (low cost, not exceeding one hundred fifty (150) square feet) may be constructed such that its floor is below the design flood elevation (DFE) and not be required to apply for a variance, provided the structure is designed and constructed in accordance with the following requirements:
- i. Use of the accessory structure must be limited to parking or limited storage;
 - ii. The portion of the accessory structure located below the DFE must be built using flood damage resistant materials;
 - iii. The accessory structure must be adequately anchored to prevent flotation, collapse or lateral movement of the structure and meet the FEMA regulations as specified in this section;
 - iv. Any mechanical and utility equipment in the accessory structure must be elevated to or above the DFE or wet-floodproofed as defined in FEMA regulations;
 - v. The accessory structure must comply with floodplain encroachment provisions in FEMA Regulation 60.3(C)(10) or (d)(3); and
 - vi. The accessory structure must be designed to allow for the automatic entry of floodwaters. (Ord. 1022 § 8 (part), 2016).

Section 12.42.56 – Coastal high hazard areas and Coastal A zones.

Within coastal high hazard areas and coastal A zones, as established under Section 12.42.32, the following standards shall apply:

- 1) Dry floodproofing of structures is not permitted in coastal high hazard areas and coastal A zones.
- 2) All new construction and substantial improvement shall be elevated on adequately anchored pilings or columns and securely anchored to such pilings or columns so that the lowest horizontal portion of the structural members of the lowest floor (excluding the pilings or columns) is elevated to or above the base flood level. The pile or column foundation and structure attached thereto is anchored to resist flotation, collapse and lateral movement due to the effects of wind and water loads acting simultaneously on all building components. Water loading values used shall be those associated with the base flood. Wind loading values used shall be those required by applicable state or local building standards. Construction documents shall include a statement that the building is designed in accordance with ASCE 24.

- 3) All new construction and other development shall be located on the landward side of the reach of mean high tide.
- 4) All new construction and substantial improvement shall have the space below the lowest floor free of obstructions or constructed with breakaway walls in accordance with FEMA Technical Bulletins 5 and 9 as amended or revised and as defined in Section 12.42.20. Such enclosed space shall not be used for human habitation and will be usable solely for parking of vehicles, building access or storage.
- 5) Fill shall not be used for structural support of buildings.
- 6) Manmade alteration of sand dunes which would increase potential flood damage is prohibited.
- 7) For breakaway walls designed to have a resistance of more than 20 psf determined using allowable stress design, construction documents shall include a statement that the breakaway wall is designed in accordance with ASCE 24.
- 8) For breakaway walls where provisions to allow for the automatic entry and exit of floodwaters do not meet the minimum requirements in Section 2.7.2.1 of ASCE 24, construction documents shall include a statement that the design will provide for equalization of hydrostatic flood forces in accordance with Section 2.7.2.2 of ASCE 24.
- 9) The floodplain administrator shall obtain and maintain the following records:
 - A. Certification by a registered engineer or architect that a proposed structure complies with subsection (1) of this section.
 - B. (B) The elevation (in relation to mean sea level) of the bottom of the lowest structural member of the lowest floor (excluding pilings or columns) of all new and substantially improved structures, and whether such structures contain a basement. (Ord. 1022 § 8 (part), 2016).

SECTION 12: Exemption from CEQA.

The City Council finds, pursuant to Title 14 of the California Administrative Code, Section 15061(b)(3) that this Ordinance is exempt from the requirements of the California Environmental Quality Act ("CEQA") on the grounds that these standards are more stringent than the State standards, there are no reasonably foreseeable adverse impacts and there is no possibility that the activity in question may have a significant effect on the environment.

SECTION 13: Severability.

If any part of this Ordinance is held to be invalid or inapplicable to any situation by a court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of this Ordinance or the applicability of this Ordinance to other situations.

SECTION 14: Effective Date.

This Ordinance shall become effective thirty days following adoption or on January 1, 2023, whichever is later. However, where applications and plans for building have been filed and are pending for building permits prior to the effective date of this Ordinance, such permits may be issued, and the applicant may proceed with construction in strict compliance with the California Building Standards Codes, 2019 Editions, California Code of Regulations, Title 24, as previously adopted and amended by any ordinances of the City of Menlo Park, but only to the extent that the issuance of such permit is required by Health and Safety Code section 18938.5 and any other applicable law.

SECTION 15: Posting and Filing.

Within fifteen (15) days of its adoption, the Ordinance shall be posted in three (3) public places within the City of Menlo Park, and the Ordinance, or a summary thereof shall be published in a local newspaper used to publish official notices for the City of Menlo Park prior to the effective

date. The City Clerk shall file this ordinance with the California Energy Commission and/or California Building Standards Commission in the manner as may be required by law.

INTRODUCED on the first day of November, 2022.

PASSED AND ADOPTED as an ordinance of the City of Menlo Park at a regular meeting of said City Council on the __ day of __, 2022, by the following votes:

AYES:

NOES:

ABSENT:

ABSTAIN:

APPROVED:

Betsy Nash, Mayor

ATTEST:

Judi A. Herren, City Clerk

MENLO PARK FIRE PROTECTION DISTRICT
ORDINANCE NO. 50-2022
DISTRICT FIRE PREVENTION CODE
For the City of Menlo Park

AN ORDINANCE OF THE MENLO PARK FIRE PROTECTION DISTRICT ADOPTING THE 2021 EDITION OF THE INTERNATIONAL FIRE CODE WITH THE 2022 CALIFORNIA FIRE CODE AND LOCAL AMENDMENTS.

WHEREAS, pursuant to Title 24 of the California Code of Regulations, also known as the California Building Standards Code (“CBSC”) and California Health and Safety Code Section 13869 *et seq.*, a fire protection district may adopt a fire prevention code by reference and may also, when reasonably necessary due to local climatic, geological or topographical conditions, establish more stringent local building standards relating to fire and safety than those set forth in the CBSC; and

WHEREAS, pursuant to California Health and Safety Code sections 18941.5 and 17958, the Board of Directors of the Menlo Park Fire Protection District hereby finds that the amendments adopted herein are reasonably necessary because of local climatic, geologic, and topographic conditions; and

WHEREAS, the Menlo Park Fire Protection District is required to formally adopt a Fire Code, and to comply with California Health and Safety Code Sections, 13143.5, 13145, and 13146, for the enforcement provisions of the California Fire Code; and

WHEREAS, the Menlo Park Fire Protection District (the “District”) now desires to adopt by reference an amended and restated District Fire Prevention Code that makes local amendments to the 2022 Edition of the California Fire Code based upon the 2021 Edition of the International Fire Code, and

WHEREAS, this Ordinance was introduced and was adopted after the holding of a public hearing pursuant to California Health and Safety Code Section 13869.7 and California Government Code Section 50022.3.

WHEREAS, the City of Menlo Park agrees to ratify and implement this adoption by reference

NOW, THEREFORE, the Board of Directors of the Menlo Park Fire Protection District ordains as follows:

SECTION 1: LOCAL CLIMATIC GEOLOGICAL AND TOPOGRAPHICAL CONDITIONS

Pursuant to Section 17958.5 and 17958.7 of the State of California Health and Safety Code, the Board of Directors of the Menlo Park Fire District finds that the below changes or modifications are needed and are reasonably necessary because of certain local climatic, geological and topographic conditions as follows:

Finding 1: Climatic

The District, on average, experiences an annual rainfall of 19.7 inches. This rainfall can be expected between October and April of each year. However, during the summer months there is little, if any measurable precipitation. During this dry period the temperatures are usually between 70 – 95 F degrees with light to gusty westerly winds. These drying winds, combined with the natural and imported vegetation which is dominant throughout the area, create a hazardous fuel condition that can cause extensive encroaching into these wooded and grass covered areas where wind-driven fires can have severe consequences. This has been demonstrated in a number of like climatic areas within the State of California and the western United States.

Because of variable weather patterns, normal rainfall cannot always be relied upon. This can result in water rationing and water allocation programs, as demonstrated in past drought patterns. Water shortages may also be expected in the future due to limited water storage capabilities and increased consumption. The District is bounded by San Francisco Bay on the east and the foothills of the Santa Cruz Coastal Range of mountains on the west. This setting allows for strong gusty winds to blow through the Fire District. These winds are a common occurrence each afternoon during summer months. Wind increases a fire's ability to spread and has been attributed to the rapid spread of both vegetation and structure fires. Automatic fire sprinkler protection as required in buildings specified in Chapter 9 of the Fire Code and the local requirements and standards of Menlo Park Fire Protection District would significantly reduce the fire's ability to spread rapidly, especially when the jurisdiction is affected by the typical wind patterns.

Finding 2: Geologic and Geographic

- A. Geographic Location. The District is located at the southeastern most part of San Mateo County.
- B. Seismic Location. The District is situated on alluvial soils between San Francisco Bay and the San Andreas Fault zones. The location makes it particularly vulnerable to damage to taller and older structures caused by seismic events. The relatively young geological processes that have created the San Francisco Bay Area are still active today. Seismically, the District sits between two active earthquake faults, the San Andreas fault and the Hayward/Calaveras fault, and numerous potentially active faults. A majority of the District's land surface is in the high-to-moderate seismic hazard zones, as established by the U.S. Geological Survey.
- C. Seismic and Fire Hazards. Fires following an earthquake have the potential of causing greater loss of life and damage than the earthquake itself. A significant portion of the District's residential, commercial and industrial structures are located in seismic risk zones. Should a significant seismic event occur, fire suppression resources would have to be prioritized to mitigate the greatest threat, and may not be available for every structural

fire. In such an event, individual structures should be equipped to help in mitigation of the risk of damage.

Other variables could aggravate the situation: (i) the extent of damage to the water system; (ii) the extent of isolation due to bridge and/or freeway overpass collapse; (iii) the extent of roadway damage and/or amount of debris blocking the roadways; (iv) climatic conditions (hot, dry weather with high winds); (v) time of day will influence the amount of traffic on roadways and could intensify the risk to life during normal business hours; and; (vi) the availability of timely mutual aid or military assistance.

- D. Waterways. The Fire District's south and east boundary lines are waterways, the south side being the San Francisquito Creek, and the east side being the San Francisco Bay. Both waterways are influenced by tides. The San Francisquito Creek is fed from Searsville Dam, located along the Jasper Ridge, and also collects water from storm drains along its drainage pathway. The creek finally empties into San Francisco Bay, and is therefore influenced by tidal activity. During periods of heavy rainfall in combination with high tides in the Bay, San Francisquito Creek has overflowed its banks, causing floods in both East Palo Alto and Menlo Park. The floods have hampered fire apparatus making a timely response to emergencies and providing needed service to the community. Proper roadway widths as defined in Chapter 5 of the Fire Code and the minimum roadway standards established by Menlo Park Fire District can provide fire apparatus with accessibility while helping to divert excess water flow during rainy seasons.
- E. Transportation. The District is dissected by a major state highway (El Camino Real) and two major interstate freeways (I-280 and U.S. 101). However, the interconnecting road system is significantly less well developed. These conditions are likely to affect response times of fire suppression personnel and apparatus during periods of heavy traffic or conditions of major emergencies.

The Fire District is also split in half by an active railway that serves commuters during daylight hours and transports freight in the evening. There are seven railroad crossings that allow fire apparatus to cross from one side of the Fire District to the other. The railroad limits the Fire District's ability to not only make a timely response to an emergency, but also hampers our ability to provide a safe number of fire fighters to the scene of an emergency to begin operations that are compliant with Cal-OSHA Safety Regulations. Again, a structure's ability to control a fire or emergency condition with fire sprinkler protection, would play a key role in reducing losses.

A single toll bridge connects the Fire District with a substantial workforce that resides in Alameda County. This single point source connection significantly adds to traffic congestion through the jurisdiction during commute hours. With alternative work schedules, commute hours may last from 5:00 am through 7:00 pm, with significant traffic backups also noted during the lunch hour.

- F. Soil Conditions. The District lies near the southern end of San Francisco Bay and is built atop the alluvial deposits that surround the margins of the Bay. The alluvium was created by the flooding of the many streams emptying into the San Francisco Bay depression, and from intermittent sea water inundation occurring over the last two or three million years. The areas closest to the Bay are overlain by unconsolidated fine silty clay, known as Bay Mud which varies in thickness from a few feet to as much as 30 feet. Generally, the older more stable alluvium is to the south and the younger less stable material is to the north. Bedrock lies beneath the area at depths generally 300 feet or more. The predominant soils patterns actuate the adverse effects on structures that may be expected from major seismic events.
- G. Building Design. Many of the older and taller buildings are of designs which greatly limit accessibility by District resources. This includes large narrow parcels that have been subdivided into “flag-lots” on narrow residential streets.

The infrastructure that supports these buildings is old and not in compliance with current Codes. Some water purveyors and water mains in residential and commercial areas deliver water supplies that do not meet fire flow requirements required by Appendix B of the Fire Code. Some fire hydrant locations in both residential and commercial do not meet distance requirements of Appendix C of the Fire Code. This will not only hamper fire suppression operations, but limits building design. When water supplies must be altered to accommodate new construction, Menlo Park Fire District Standards on Underground Water Piping and the Standard on Water Supplies attempt to work with the existing infrastructure to accommodate the needs of fire fighters.

Residential properties in the Fire District consist primarily of one-acre or smaller parcels, flag lots and single and multi-family infill developments. Common to the larger parcels is the development of additional residential or in-law type occupancies for which fire department access is difficult based on existing driveway configurations for the original single-family parcels. Flag lots, for example, typically have driveways in excess of 150 feet, with narrow access, necessitating additional requirements, which the Fire District has added to Section 503, by creating Standards for driveways and private roadways that includes minimum driveway widths, fire apparatus turnaround specifications, and minimum vertical clearances. Areas in the District have older narrow roads, less than 20 feet wide and unimproved sidewalks or gutters, and allow parking on both sides. Parking is a regional issue which plagues the streets causing streets to be narrow allowing only one vehicle to pass. Regional traffic has increased causing neighborhoods to be flooded with increased pass through traffic, reducing alternative emergency response routes. Neighborhoods are increasing traffic control measure installations which also increase emergency response times. Additionally, fire department response times are increased due to gated access roads, a lack of street or address illumination, and existing vegetation barriers. Section 505.1 provides minimum standards for addresses on buildings and now requires new buildings to have illuminated addressing. However, neighborhood street lighting continues to be an issue.

Proper roadway widths as required by Chapter 5 and Appendix D of the Fire Code, along with minimum Menlo Park Fire District Fire Prevention Code, would allow fire apparatus to set up fire suppression operations and access both driveways that extend greater than 150 feet, and private roadways serving minor developments.

With the aging infrastructure, many water supplies do not meet current fire flow requirements. When redevelopment occurs, compliance to Fire Code Section 507 in addition to Menlo Park Fire District Fire Prevention Code on Water Supplies and on Underground (Piping) Standards is required. The Water Supply Standard provides for the type and size of the approved fire hydrant, its location in relationship to “flag-lots”, and placement of “blue-dots” to indicate their placement.

Due to the close proximity to San Francisco Bay, salt content in the soil is highly corrosive. Menlo Park Fire District’s Underground Standards provides requirements for underground piping of both fire hydrant installations as well as underground piping for automatic fire sprinkler system.

Finding 3: Topographical

The District’s topographic conditions are closely associated with the geological /geographical element. With the elevation changes within the District, development has followed the path of least resistance, creating a meandering pattern. This circumstance does not lend itself to a good systematic street and road layout, which would promote easy traffic flow. It has, in fact, resulted in few major cross-town thoroughfares that tend to be heavily congested, primarily during commute hours and seasonal periods of the year. This creates barriers that reduce the response time of fire equipment and other emergency services.

The topography of the District is also challenged by major development patterns. Employment areas are located adjacent to and throughout the jurisdiction. The people who work in these areas have added to the traffic congestion in the District thereby reducing the District’s response time capabilities.

Inherent delays caused by these traffic patterns make it necessary to mitigate these problems with greater requirements for built-in automatic fire protection systems, noted in Section 903 of the Fire Code, along with local requirements and standards. In addition, the Fire District has added Fire Alarm maintenance requirements, specifically UL Certification noted in Section 907, to reduce false alarms and insure system reliability.

Finding 4

The climatic conditions along the Peninsula affect the acceleration, intensity and size of a fire within the jurisdiction. Times of little or no rainfall, low humidity, and high temperatures have created extremely hazardous fire conditions, particularly as they relate to roof fires and conflagrations. The winds experienced in the Fire District can have a tremendous impact upon structure fires by carrying sparks and burning brands to other structures, thus spreading the fire and causing conflagrations. In building fires, winds can literally force the fire back into the

structure, creating a blow torch effect, in addition to preventing the natural and cross ventilation efforts of firefighters. In 1997, a fire at Green Oaks School in East Palo Alto resulted in a multi-million-dollar loss. The fire's unusually rapid spread was attributed to wind conditions occurring at the time of the fire. Other fires within the jurisdiction's housing tracts have also experienced unusually rapid spread due to the gusty winds that occur daily off the San Francisco Bay.

Finding 5

By the use of automatic early fire detection and suppression systems, the Fire District will have the ability to curb losses of life and property attributed to the local climate's influence on fires. With the use of an early, automatic fire suppression system, major fire losses can be controlled. For example, in 1989, a flammable liquid fire occurred at Romic Environmental Services, a former chemical recycling company that was located at the south end of the Fire District. The area suspected as the point of the fire's origin was an open-air, un-sprinklered building subject to wind conditions. The fire grew rapidly. It was finally brought under control several hours after discovery, with the assistance of neighboring fire departments and resulted in a multi-million-dollar loss of property, equipment and product. Two years later, after the area had been rebuilt and retrofitted with an automatic fire sprinkler system, another fire occurred at the same location. This fire was contained to a single piece of equipment and was controlled by one fire crew.

Finding 6

The geological conditions experienced within the Fire District increase the magnitude, exposure and accessibility to fire events. For example, a fire following an earthquake has the potential of causing greater loss of life and damage than the earthquake itself. Hazardous materials, particularly toxic gases, could pose the greatest threat to the largest number of people, should a significant seismic event occur. Fire protection resources would have to be prioritized to mitigate the greatest threat, and may likely be unavailable for smaller single-family dwelling or smaller business occupancy fires. Other variable conditions could include damage to the water system, freeway overpass collapse, roadways blocked by debris, and time of day, which could affect traffic patterns during or after the event.

In 1989 a 7.0 magnitude earthquake struck the San Francisco Bay Area via the San Andres Fault. For three hours following the event, firefighters from Menlo Park Fire District responded to over 100 incidents per hour. Though during this event, losses in the Fire District due to fire were minimal, however other neighboring jurisdictions were not as lucky. Had automatic fire sprinkler protection been a requirement at the time, it could have assisted firefighters in setting their priorities and assisting those citizens who needed emergency services the most.

Finding 7

Heavy traffic congestion on city streets already acts as a barrier to the timely response of fire equipment and emergency services. Continued growth, both residential and commercial from both inside and outside the Fire District will only serve to continue the traffic problem. In the event of an accident or other emergency at certain key point intersections, portions of the Fire

District could be isolated or response times could be sufficiently slowed, thus increasing the risk of substantial injury and damage.

A year long time study of response times for fire apparatus indicates significant increases in response to emergencies during the commute hours of 6:00 am to 10:00 am and again from 3:00 pm to 7:00 pm. In conjunction with the increased response time, fire losses also showed the same pattern of higher losses for fires starting during commute hours. From 2003 to 2012, the Fire District experienced 22 structural fires where the property loss was greater than \$300,000. From 2013 to July 2016, 40% of dollar loss occurred during commute traffic time. A \$2,561,485 loss of \$6,389,086 during this time, indicating significant losses that could be directly attributed to typical traffic congestion experienced within the Fire District.

If fire apparatus is hindered in their response, automatic fire sprinkler protection will help. According to IFSTA Training Manuals, the temperature inside a structure can go from ambient to an excess of 1,000 degrees F within the first ten minutes of a fire. Delay of fire apparatus will only allow the fire to grow, thus making efforts to suppress the fire more difficult. Additionally, the ability to perform an effective rescue is diminished if fire fighters are delayed in their response. With an automatic fire sprinkler protection system in place, the fire should be held to a controllable level, allowing the ability of citizens to escape from the burning structure, as well as allowing firefighters to contain the fire in a safe manner in its beginning stages.

Finding 8

It is due to these climatic, geographical and topographical conditions that the Fire District supports the need for structures within the jurisdiction to at least be capable of initial fire suppression capacity.

Finding 9

For the above reasons, taken individually and cumulatively, that the Board of Directors of the Menlo Park Fire Protection District finds there to be building and fire hazards particular to the jurisdiction that require the increased fire protection detailed as set forth in this Ordinance.

SECTION 2: TITLE, ENFORCEMENT & RECORDKEEPING

This set of regulations, including provisions adopted and incorporated by reference, shall be known as the "District Fire Prevention Code" of the Menlo Park Fire Protection District ("the District") and may be cited as such. It is also referred to as the "Fire Code" in these regulations.

- A. No section of the Fire Prevention Code shall impose a mandatory duty of enforcement on the Fire District, or on any officer, official, agent, employee, board, or commission thereof. Instead, if any section purports to impose a mandatory duty of enforcement, said section shall be deemed to invest the Fire District, and the appropriate officer, official, agent, employee, board, council, or commission with discretion to enforce the section, or not to enforce it.

- B. A copy of the Fire Prevention Code, as defined herein, shall be kept on file in the office of the Menlo Park Fire Protection District Fire Marshal.

SECTION 3: AUTHORITY

The District Fire Prevention Code is adopted pursuant to the Fire Protection District Act of 1987 (California Health and Safety Code Sections 13800 *et seq.*) and in particular the following provisions of that Act:

- A. Section 13861(h), which empowers the District to adopt ordinances;
- B. Section 13861(i), which empowers the District to establish and enforce rules and regulations for the administration, operation and maintenance of the governmental services which it is authorized to provide;
- C. Section 13862, which empowers the District to provide certain governmental services including fire protection services;
- D. Section 13869, which empowers the District to adopt a fire prevention code by reference; Section 13870, which empowers the District's authorized representatives to order correction or elimination of fire and life hazards;
- E. Section 13871(b), which provides that failure to correct or eliminate a fire or life hazard after a duly issued order is a misdemeanor;
- F. Section 13872, which empowers the District's authorized representatives to issue citations for certain violations;
- G. Section 13873, which provides that the District's employees shall have the powers of peace officers while engaged in the prevention and suppression of fires and the preservation of life and property; and,
- H. Sections 13916, 13917, 13918 and 13919, which, among other things, empower the District's Board of Directors to charge a fee to cover the cost of any services, which the District provides and the cost of enforcing any regulation for which a fee is charged.

SECTION 4: ADOPTION BY REFERENCE

- A. The Menlo Park Fire Protection District hereby adopts the 2022 California Fire Code (California Code of Regulations, Title 24, Part, 9 [based on the 2021 International Fire Code published by the International Code Council]), with California Amendments as amended, including Appendix D except to the extent portions of the CFC may be added, deleted, modified or amended by Section 6 (Local Amendments) of this Code. The 2022 California Fire Code, with the changes, additions, and deletions set forth this ordinance, is adopted by this reference as though fully set forth in this ordinance. As of the effective date of this ordinance, the provisions of the fire code are controlling and enforceable within the limits of each town or city within the jurisdiction of the District.
- B. The Menlo Park Fire Protection District hereby adopts the 2022 California Fire Code (California Code of Regulations, Title 24, Part, 9 [based on the 2021 International Fire Code published by the International Code Council]), with California Amendments as amended, together with the non-building standards reproduced therein except otherwise provided by this ordinance, are adopted by reference as the Fire Code of the Menlo Park Fire Protection District. This Code including all amendments thereto, shall hereafter be

called the “Fire Code,” and/or this “Code” and are adopted as and for the rules, regulations, and standards within the Jurisdiction as to all matters therein, except otherwise provided.

SECTION 5: AUTHORITY AND DUTIES OF THE BUREAU OF FIRE PREVENTION AND LIFE SAFETY

The California Fire Code, including California Fire Code Standards as adopted and amended herein, shall be enforced by the Menlo Park Fire Protection District and managed by the Bureau of Fire Prevention and Life Safety, and shall operate under the direction of the Fire Chief and the Fire Marshal of the Menlo Park Fire Protection District. Both Fire Officers shall be known as the Fire Code Officials.

SECTION 6: LOCAL AMENDMENTS, MODIFICATIONS AND DELETIONS TO THE CALIFORNIA FIRE CODE

Based upon the findings of the Board of Directors of the Menlo Park Fire Protection District regarding local climatic, topographical, and geological conditions, the following sections and/or subsections of the 2022 California Fire Code and the 2021 International Fire Code are amended or modified as set forth in this section. If a section is not referenced below, it remains unchanged.

SECTION 101 SCOPE AND GENERAL REQUIREMENTS is *amended* to read as follows:

101.1 Title. These regulations shall be known as the 2022 CALIFORNIA FIRE CODE, and with amendments adopted by the Menlo Park Fire Protection District, will be referred to herein as the “CODE,” and/or the “FIRE PREVENTION CODE.”

SECTION 102.6 HISTORIC BUILDINGS is added and *amended* to read as follows:

102.6 The provisions of this code relating to the construction, alteration, repair, enlargement, restoration, relocation or moving of buildings or structures shall not be mandatory for existing buildings or structures identified and classified by the state or local jurisdiction as historic buildings where such buildings or structures do not constitute a distinct hazard to life or property. Fire protection in designated historic buildings shall be provided in accordance with the California Historic Building Code.

SECTION 107 FEES is added and *amended* to read as follows:

107.1 The fees for the permits and other services shall be established by resolution of the Menlo Park Fire Protection District Fire Board Fee Schedule (“Fee Schedule”). The fee shall be set to cover the cost of the Fire District to review and inspect the intended activities, operations or functions.

Exception: Fees for a permit may be waived at the discretion of the Fire Chief when the work or event to be conducted is for the Town of Atherton, City of East Palo Alto, City of Menlo Park or County of San Mateo.

107.2 Schedule of permit fees. Where a permit or other inspection fee is required, a fee for each permit shall be paid as required, in accordance with the Menlo Park Fire Protection District Fee Schedule.

SECTION 111 MEANS OF APPEALS is *amended* to read as follows:

111.1 Board of Appeals established. All decisions and rulings of the Fire Code Official are final and any appeals shall be made through the legal process.

SECTION 112 VIOLATIONS is *amended* to read as follows:

SECTION 112.4 Violation Penalties is added and *amended* to read as follows:

112.4 Violation penalties. Persons who shall violate a provision of this code or shall fail to comply with any of the requirements thereof or who shall erect, install, alter, repair or do work in violation of the approved construction documents or directive of the fire code official, or of a permit or certificate used under provisions of this code, shall be guilty of a misdemeanor, punishable by a fine of not more than \$1000 or by imprisonment not exceeding 6 months, or both such fine and imprisonment. Each day that a violation continues after due notice has been served shall be deemed a separate offense.

112.4.1 Abatement of violation. In addition to the imposition of the penalties herein described, the fire code official is authorized to institute appropriate action to prevent unlawful construction or to restrain, correct or abate a violation; or to prevent illegal occupancy of a structure or premises; or stop an illegal act, conduct of business or occupancy of a structure on or about any premise.

SECTION 202 GENERAL DEFINITIONS are amended to *add* the following:

All Weather Driving Surface. A roadway designed to carry the imposed weight loads of fire apparatus complete with all underground utilities, curbs, gutters, and a minimum surface finish of one layer of asphalt or concrete or road pavers.

Essential Service Facility. Shall mean that building or structure which has been designated by the local government to house facilities that are necessary for emergency operations.

Fire Code Official. The fire code official shall mean the District's Fire Chief, employees of the District's Fire Prevention and Fire Suppression Divisions and such other representatives of the District as may be authorized by the Menlo Park Fire District Board of Directors or the Fire Chief.

Floor Area, Gross. The floor area within the inside perimeter of the exterior walls of the building under consideration, exclusive of vent shafts and courts, without deduction for corridors, stairways, closets, the thickness of interior walls, columns or other features. The floor area of a building, or portion thereof, not provided with surrounding exterior walls shall be the usable area under the horizontal projection of the roof or floor above. The gross floor area shall not include shafts with no openings or interior courts.

Areas to be included in the new gross floor area square footage calculation include:

1. Garages or carports if under a habitable space, or covers egress
2. New attached garage
3. All additions
4. Total square footage of any room that received alterations or additions. Removing sheetrock exposing structural framing or any structural change in a room involves the total square footage of that room.

Existing square footage shall be obtained from the San Mateo County Tax Assessor's Office or may be submitted by a licensed architect.

Jurisdiction. Jurisdiction shall mean the territorial boundaries of the Menlo Park Fire Protection District. In that case "Jurisdiction" would mean, as appropriate, the County of San Mateo, the City of East Palo Alto, the City of Menlo Park and the Town of Atherton. The Fire District's map book shall be adopted by reference to indicate the territorial boundaries of the Menlo Park Fire Protection District.

Except where in the code the term "jurisdiction" is used in a context which implies the ability to exercise governmental powers, such as "the authority having jurisdiction," then in that context "jurisdiction" shall mean the particular public agency authorized to and exercising that governmental power.

Local Law Enforcement. “Local law enforcement” shall mean the local police departments of the City of East Palo Alto, the City of Menlo Park, the Town of Atherton, the San Mateo County Sheriff’s Department, and the California Highway Patrol.

Substantial Alteration. The renovation of any structure and/or which combined with any additions to the structure, affects a *gross floor area* which exceeds fifty percent (50%) of the existing floor area of the structure. This may include but is not limited to:

1. Removal of exterior walls and/or roof assembly

When any structural changes are made to the building, such as walls, columns, beams or girders, floor or ceiling joists and covering, roof rafters, roof diaphragms, foundations, piles or retaining walls or similar components, the floor area of all rooms affected by the changes shall be included in computing floor areas for purposes of applying this definition. This definition does not apply to the replacement and upgrading of residential roof coverings.

SECTION 308.3.2 THEATRICAL PERFORMANCES is added and *amended* to read as follows:

308.3.2 Theatrical performances. Where approved, open-flame devices used in conjunction with theatrical performances are allowed to be used where adequate safety precautions have been taken in accordance with NFPA 160 and Title 19 CCR.

SECTION 324 MOBILE FOOD PREPARATION VEHICLES is added to read as follows:

SECTION 324.1 HEALTH DEPARTMENT APPROVAL

324.1 Health department approval. Mobile food preparation vehicles shall display a San Mateo County Health Department sticker as prescribed by County Health.

SECTION 403.11 SPECIAL REQUIREMENTS FOR PUBLIC SAFETY is *added* in its entirety.

403.11 Special requirements for public safety. Special requirements for public safety shall be in accordance with Sections 403.11.1 through 403.11.3.3.

CHAPTER 5 IS ADOPTED IN ITS ENTIRETY AND AMENDED BELOW:

SECTION 501.1 SCOPE. AMENDED

501.1 Scope. Fire service features for buildings, structures and premises shall comply with this chapter, and appendix D.

SECTION 503 FIRE APPARATUS ACCESS ROADS is *amended* to read as follows:

503.1 Where required. Fire apparatus access roads shall be provided and maintained in accordance with Sections 503.1.1 through 503.1.3 and according to The Bureau of Fire Prevention and Life Safety Standards and Guidelines Manual.

SECTION 503.1.1 BUILDINGS AND FACILITIES is *amended* to read as follows:

503.1.1 Approved fire apparatus access roads shall be provided for every facility, building or portion of a building hereafter constructed or moved into or within the jurisdiction. The fire apparatus access road shall comply with the requirements of this section and Appendix D, and shall extend to within 150 feet (45 720 mm) of all portions of the facility and all portions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the building or facility.

Exceptions: *No Changes*

503.1.1.2 is *added* to read as follows: Nothing in the California Fire Code shall prevent the Town or City from designating or maintaining a street as a "Fire Lane" which does not meet the requirements of a fire apparatus access road under the California Fire Code.

503.3 Marking. Where required by the *fire code official*, approved signs and markings designating fire lanes shall comply with California Vehicle Code section 22500.1. The designation shall be indicated (1) by a sign posted immediately adjacent to, and visible from, the designated place clearly stating in letters not less than one inch in height that the place is a fire lane, (2) by outlining or painting the place in red and, in contrasting color, marking the place with the words "FIRE LANE", which are clearly visible from a vehicle, or (3) by a red curb or red paint on the edge of the roadway upon which is clearly marked the words "FIRE LANE". Signs and markings shall not be obstructed, and shall be maintained in a clean and legible condition at all times and be replaced or repaired when necessary to provide adequate visibility.

503.7 - Restrictions and requirements as specified in the California Vehicle Code shall apply to fire lanes established by this section.

SECTION 505 PREMISES IDENTIFICATION is *amended* to read as follows:

505.1 Address Identification. New and existing buildings shall have approved address numbers, building numbers or approved building identification placed in a position that is plainly legible and visible from the street or road fronting the property. These numbers shall contrast with their background. Address numbers shall be Arabic numerals or English alphabet letters. Numbers shall not be spelled out. Where required by the fire code official, address identification shall be

provided in additional approved locations to facilitate emergency response. Where access is by means of a private road and the building cannot be viewed from the public way, a monument, pole or other sign or means shall be used to identify the structure. Address identification shall be maintained. Said numbers shall be either internally or externally illuminated in all new construction. Numbers shall be as follows:

1. Minimum of one-half inch (1/2") stroke by eight inches (8") high.
Exception: Single-Family dwelling minimum of one-half inch (1/2") stroke by four inches (4") high.
2. When the structure is more than fifty (50) feet from the street or fire apparatus access, a minimum of one-inch (1") stroke by twelve inches (12") high is required.

SECTION 505.1.1 Multi-tenant buildings is *added* to read as follows:

505.1.1 Multi -Tenant Buildings. Numbers or letters shall be designated on all occupancies within a building. Size shall be one-half inch (1/2") stroke by four inches (4") high and on a contrasting background. Directional address numbers or letters shall be provided. Said addresses or numbers shall be posted at a height no greater than 5 feet, 6 inches (5' 6") above the finished floor and shall be either internally or externally illuminated in all new construction.

SECTION 505.1.2 Rear Addressing is *added* to read as follows:

505.1.2 Rear Addressing. When required by the fire code official, approved numbers or addresses shall be placed on all new and existing buildings in such a position as to be plainly visible and legible from the fire apparatus road at the back of a property or where rear parking lots or alleys provide an acceptable vehicular access. Number stroke and size shall comply with 505.1.

SECTION 506 KEY BOXES is *amended* to read as follows:

506.1 Where required. Where access to or within a structure or an area is restricted because of secured openings or where immediate access is necessary for life-saving or fire-fighting purposes, the fire code official is authorized to require a key box to be installed in an approved location and shall be at a height not more than 6 ft. above the finished floor. The key box shall be of an approved type listed in accordance with UL 1037, and shall contain keys to gain necessary access as required by the fire code official. Where a new gate or barrier is installed on a fire access roadway, the fire department shall have emergency access. Gates or barriers shall have a Knox® key switch.

SECTION 506.3 Key Box contents requirements is *added* to read as follows:

506.3 Key box contents requirements. The keys provided shall be a master key to all spaces including multi-tenant spaces. Additional keys shall be included for card access, elevator control, fire alarm control panels, and fire sprinkler control valve access.

Exceptions:

1. Multi-tenant spaces which provide a key box for each tenant and installed per Section 506.1.
2. Electronic card keys and codes may not be utilized as a substitute for manual keys.

SECTION 508.2 FIRE CONTROL ROOM is *added* to read as follows:

508.2 Fire control room. An approved fire control room shall be provided for all new buildings or occupancies with a change of use, requiring protection by an automatic fire sprinkler system. The room shall contain the fire alarm control panels, ERCCS control equipment, and other fire equipment required by the Fire Code Official. Fire control rooms shall be located within the building at a location approved by the Fire Code Official, and shall be provided at grade with a means to access the room directly from the exterior. Durable signage shall be provided on the exterior side of the access door to identify the fire control room. Fire Control Rooms shall not be less than 50 square feet.

Exceptions:

1. Group R-3 Occupancies.
2. Occupancies with a fire pump shall have a fire control room that is a minimum of 200 square feet.
3. In high-rise buildings, the fire control room shall not be less than 200 square feet.

SECTION 510.1 EXCEPTION #1 IS DELETED

SECTION 510.3 is *amended* to read as follows:

510.3 Permits required. *Permits shall be required as set forth in Sections 105.5 and 105.6 for the installation of or modification to and the operation of in-building two-way emergency responder communication coverage systems and related equipment. Maintenance performed in accordance with this code is not considered a modification and does not require a permit.*

SECTION 510.4.2 is *amended* to read as follows:

510.4.2 System Design. The in-building, two-way emergency responder communication coverage system shall be designed in accordance with Sections 510.4.2.1 through 510.4.2.8, *NFPA 1221, NFPA 1225, NFPA 72 and San Mateo County ERCCS (P-500).*

SECTION 510.4.2.9 UL CERTIFICATION. ADDED

510.4.2.9 UL CERTIFICATION. New ERCES systems shall be UL-Certified. A Certificate of Completion and other documentation as listed in NFPA 72 shall be

provided for all new fire alarm system installations. It is the responsibility of the building owner or owner's representative to obtain and maintain a current and valid Certificate.

Section 510.5 is amended to read as follows:

510.5 Installation requirements. The installation of the in-building, two-way emergency responder communication coverage system shall be in accordance with *San Mateo County ERCCS (P-500)*, *NFPA 72*, *NFPA 1221*, and Sections 510.5.2 through 510.5.5 of the Fire Code.

SECTION 903 AUTOMATIC SPRINKLER SYSTEMS is amended as follows:

903.2 Where required. Approved automatic fire sprinkler systems in new buildings and structures shall be provided in all Group A, B, E, F, M, R, S, and U Occupancies greater than 1,000 square feet and in locations described in subsections 903.2.2, 903.2.5, 903.2.6, 903.2.8, 903.2.11, 903.2.12. Sections and Subsections of 903.2.1, 903.2.3, 903.2.4, 903.2.9, 903.2.10, and 903.2.11.3 of Chapter 9 of the code are deleted in their entirety.

Approved automatic fire sprinkler system in existing buildings and structures shall be provided as described in section 903.6.

Exceptions:

1. Independent solar carports or structures, non-combustible carports or shade structures.
2. Canopies less than 1000 square feet over motor vehicle fuel dispensing facilities when constructed in accordance with Section 406.7.2 of the 2022 California Building Code.

903.2.7 Group M. Automatic fire sprinkler systems shall be provided throughout buildings containing a Group M occupancy with a fire area greater than 1,000 square feet and any Group M occupancy used for the display and sale of upholstered furniture.

903.2.7.1 High Pile storage {CFC text not modified}

903.2.11.1 Stories without Openings is amended as follows:

Stories and basements without openings. Automatic sprinkler systems shall be installed in every building with a basement.

Automatic sprinkler systems shall be installed in every story of all buildings where the floor area exceeds 1000 square feet and where the following type of exterior wall opening is not provided.

1. Openings entirely above the adjoining ground level totaling at least 20 square feet (1.86 m²) in each 50 linear feet (15 240 mm), or fraction thereof, of exterior wall in the story on at least one side.

903.3.1.1.2 Bathrooms is Deleted.

903.3.1.2 NFPA 13R sprinkler systems. Where in the code a NFPA 13R sprinkler system is allowed, a NFPA 13 sprinkler system shall be used.

903.3.3 Obstructed locations. Automatic sprinklers shall be installed with regard to obstructions that will delay activation or obstruct the water distribution pattern and shall be in accordance with the applicable automatic sprinkler system standard that is being used. Automatic fire sprinklers shall be installed in or under covered kiosks, displays, booths, concession stands, laboratory fume hoods, bio safety cabinets that use flammable liquids in processes, or equipment that exceeds 4 feet (1219 mm) in width. Not less than a 3-foot (914 mm) clearance shall be maintained between automatic sprinklers and the top of piles of combustible fibers. Sprinklers shall be provided in all areas including combustible or noncombustible concealed spaces, 6 inches or more.

Exceptions:

1. Combustible or noncombustible concealed spaces if the building owner and the fire code official agree in writing that combustible or noncombustible concealed spaces, 6 inch or less are unlikely to change in the future.
2. Kitchen equipment under exhaust hoods protected with a fire-extinguishing system in accordance with Section 904.

903.3.10 Partial Systems in new buildings or structures is added to read as follows: Automatic fire sprinkler systems that only protect a portion of the building shall not be allowed.

903.6 WHERE REQUIRED IN EXISTING BUILDINGS AND STRUCTURES. An *automatic sprinkler system* shall be provided in existing buildings and structures where required in Chapter 11 or when improvements are conducted in accordance with this section.

903.6.1 Where required due to improvements to buildings and structures is added and *amended* to read as follows: The provisions of this section are intended to provide a reasonable degree of fire safety in existing structures by requiring installation of an automatic fire-extinguishing system.

903.6.1.1 Where Required. All existing buildings and structures, regardless of type of occupancy or area, shall be provided with an automatic fire sprinkler system when any of the following conditions occur:

1. Where the *gross floor area* of a proposed alteration, addition, or combination of alterations and additions and the *gross floor area* of any alterations, additions, or combination of alterations and additions exceeds 50% of the existing *gross floor area* of the building or 75% of the existing *gross floor area* of the building for R-3 occupancies.

Exception: Buildings or structures less than 1,000 square feet.

2. When a change in occupancy classification, as defined within the Building Code, results in an increased fire hazard or risk due to business operations and/or number of occupants permitted in the building.
3. When an existing occupancy constructs a basement that is 250 square feet or larger, a fire sprinkler system shall be provided throughout the basement and the rest of the building or structure.

903.6.1.2 Partial Systems in existing buildings and structures is *added* to read as follows: Automatic fire sprinkler systems that only protect a portion of the building shall not be allowed.

Exception: A phased installation of an automatic fire sprinkler system may be accepted as an alternate materials and method application, as prescribed in Section 104.9, when different tenant spaces in the same building are occupied, and the installation of a fire sprinkler system may disrupt business. Not to exceed five (5) years for final completion from initial permit date.

907 FIRE ALARM AND DETECTION SYSTEMS is *amended* to read as follows:

Section 907.1.6 is added to read as follows:

907.1.6 Certification. New fire alarm systems shall be UL-Certified. A certificate of Completion and other documentation as listed in NFPA 72 shall be provided for all new fire alarm system installation. It is the responsibility of the building owner or owner's representative to obtain and maintain a current and valid UL Certificate. The protected premise shall be issued a UUFX type certification from Underwriters Laboratories (UL).

907.7 Acceptance tests and completion is amended as follows: Upon completion of the installation, the fire alarm system and all fire alarm components shall be tested in accordance with NFPA 72. Fire alarms systems in commercial structures shall obtain a UL Certificate for the system prior to final inspection.

907.9 Where required in existing buildings and structures is amended as follows: An *approved* fire alarm system shall be provided in existing buildings and structures where required in Chapter 11. When an alteration to any existing building or structure requires an upgrade or new fire alarm system, multiple fire alarm systems shall be approved by the fire code official.

SECTION 1207.11.5.1 ELECTRICAL DISCONNECT is *added* to read as follows:

1207.11.5.1 Electrical Disconnect. The ESS disconnect shall be located on the exterior of the building and at the main panel.

SECTION 1207.11.11 INTERCONNECTED ELECTRICAL POWER SOURCES is *added* to read as follows:

1207.11.11 Interconnected Electrical Power Sources. A permanent directory site plan plaque denoting the location of all electrical power source disconnecting means on or in the premises shall be installed at each service equipment location and at the location(s) of the system disconnect(s) for all electric power production sources capable of being interconnected.

Appendix B of the 2022 California Fire Code is *amended* to read as follows:

APPENDIX B
FIRE-FLOW REQUIREMENTS FOR BUILDINGS

California Fire Code, Appendix B Table B105.1(1) is amended to read as follows:

TABLE B105.1(1)
REQUIRED FIRE-FLOW FOR ONE- AND TWO-FAMILY DWELLINGS, GROUP R-3
AND R-4 BUILDINGS AND TOWNHOUSES

FIRE-FLOW CALCULATION AREA (square feet)	AUTOMATIC SPRINKLER SYSTEM (Design Standard)	MINIMUM FIRE-FLOW (gallons per minute)	FLOW DURATION (hours)
0-3,600	No automatic sprinkler system	1,000	1
3,601 and greater	No automatic sprinkler system	Value in Table B105.1(2)	Duration in Table B105.1(2) at The required fire-flow rate
0-3,600	Section 903.3.1.3 of the <i>California Fire Code</i> or Section 313.3 of the <i>California Residential Code</i>	1,000	1
3,601 and greater	Section 903.3.1.3 of the <i>California Fire Code</i> or Section 313.3 of the <i>California Residential Code</i>	$\frac{1}{2}$ value in Table B105.1(2) ^a	1

For SI: 1 square foot = 0.0929 m², 1 gallon per minute = 3.785 L/m.

a. The reduced fire-flow shall be not less than 1,000 gallons per minute.

California Fire Code, Appendix B Table B105.2 is amended to read as follows:

**TABLE B105.2
REQUIRED FIRE-FLOW FOR BUILDINGS OTHER THAN ONE- AND
TWO-FAMILY DWELLINGS, GROUP R-3 AND R-4 BUILDINGS AND
TOWNHOUSES**

AUTOMATIC SPRINKLER SYSTEM (Design Standard)	MINIMUM FIRE-FLOW (gallons per minute)	FLOW DURATION (hours)
No automatic sprinkler system	Value in Table B105.1(2)	Duration in Table B105.1(2)
Section 903.3.1.1 of the <i>California Fire Code</i>	50% of the value in Table B105.1(2) ^a	Duration in Table B105.1(2) at the reduced flow rate
Section 903.3.1.2 of the <i>California Fire Code</i>	50% of the value in Table B105.1(2) ^a	Duration in Table B105.1(2) at the reduced flow rate

For SI: 1 gallon per minute = 3.785 L/m.

- a. The reduced fire-flow shall be not less than 1,500 gallons per minute.

Appendix D FIRE APPARATUS ACCESS ROADS is *added*

Appendix L REQUIREMENTS FOR PIPED AIR SCBA REFILLING SYSTEMS is *added* as follows:

For buildings more than 10 stories in height, shall install Firefighter Air Replenishment System per Menlo Park Fire Protection District Standards and Guidelines Manual.

SECTION 7: DATE OF EFFECT

This ordinance shall take effect and be in full force on January 1, 2023.

SECTION 8: PUBLIC POSTING

This ordinance shall be publicly posted in the following places:

1. Front Door of the Menlo Park Fire Protection District
2. Bulletin Board in Front of the Classroom at the Menlo Park Fire Protections District
3. Menlo Park Fire District Website, and published pursuant to law

2022 CA Fire Code vs. Ordinance - City of Menlo Park

MPFPD Ordinance

IFC/CFC Code Section	MPFD Change (in Red)	Reason
CALIFORNIA ADMINISTRATIVE		
[A] 101 General		
101.1 Title. These regulations shall be known as the <i>Fire Code</i> of [NAME OF JURISDICTION], hereinafter referred to as “this code.”	101.1 Title. These regulations shall be known as the 2022 CALIFORNIA FIRE CODE, and with amendments adopted by the Menlo Park Fire Protection District , will be hereinafter referred to as the “CODE,” and/or the “FIRE PREVENTION CODE.” See also Paragraph 3 of this ordinance.	Section 101.1 is the Title of the Code and is required to be filled in by the jurisdiction. The referral to Paragraph 3 of the Ordinance is parallel language adopting the entire Fire Code with District amendments.
102.6 Historic Buildings	102.6 The provisions of this code relating to the construction, alteration, repair, enlargement, restoration, relocation or moving of buildings or structures shall not be mandatory for existing buildings or structures identified and classified by the state or local jurisdiction as historic buildings where such buildings or structures do not constitute a distinct hazard to life or property. Fire protection in designated historic buildings shall be provided in accordance with the California Historic Building Code.	Section 102.6 is to provide guidance on how to properly construct and protect CA Historic Buildings.
107 Fees	107.1 The fees for the permits and other services shall be established by resolution of the Menlo Park Fire Protection District Fire Board Fee Schedule (“Fee Schedule”). The fee shall be set to cover the cost of the Fire District to review and inspect the intended activities, operations or functions. Exception: Fees for a permit may be waived at the discretion of the Fire Chief when the work or event to be conducted is for the Town of Atherton, City of East Palo Alto, City of Menlo Park or County of San Mateo.	Establishes reference to established cost recovery fees for services related to construction, occupancy permits, etc.
	107.2 Where a permit or other inspection fee is required, a fee for each permit shall be paid as required, in accordance with the Menlo Park Fire Protection District Fee Schedule.	States fees shall be paid for permits and inspections
111.1 Means of Appeals	111.1 Board of Appeals. All decisions and rulings of the Fire Code Officials are final and any appeals shall be made through the legal process.	Appeals process describes to follow legal process.
112 Violations	112.4 Violation penalties. Persons who shall violate a provision of this code or shall fail to comply with any of the requirements thereof or who shall erect, install, alter, repair or do work in violation of the approved construction documents or directive of the fire code official, or of a permit or certificate used under provisions of this code, shall be guilty of a misdemeanor , punishable by a fine of not more than \$1000 or by imprisonment not exceeding 6 months , or both such fine and imprisonment. Each day that a violation continues after due notice has been served shall be deemed a separate offense.	Allows District to abate code violations.

	112.4.1 Abatement of violation. In addition to the imposition of the penalties herein described, the fire code official is authorized to institute appropriate action to prevent unlawful construction or to restrain, correct or abate a violation; or to prevent illegal occupancy of a structure or premises; or stop an illegal act, conduct of business or occupancy of a structure on or about any premise	Allows District to abate code violations.
CHAPTER 2 DEFINITIONS		
None	All Weather Driving Surface. A roadway designed to carry the imposed weight loads of fire apparatus complete with all underground utilities, curbs, gutters, and a minimum surface finish of one layer of asphalt or concrete or road pavers.	Clarify a driving surface that includes fire apparatus
None	Essential Service Facility. Shall mean that building or structure which has been designated by the local government to house facilities that are necessary for emergency operations.	Clarify fire stations, EOCs and other public facilities.
FIRE CODE OFFICIAL. The fire chief or other designated authority charged with the administration and enforcement of the code, or a duly authorized representative.	FIRE CODE OFFICIAL. The fire code official shall mean the District's Fire Chief, employees of the District's Fire Prevention and Fire Suppression Divisions and such other representatives of the District as may be authorized by the Menlo Park Fire District Board of Directors or the Fire Chief	In the International Fire Code, the term Fire Code Official is used generically to allow other agencies, besides the Fire Department, to enforce the Fire Code. For Menlo Park Fire District, the Fire Chief and employees of the Fire District are charged with the enforcement of the Fire Code.
[B] FLOOR AREA, GROSS. The floor area within the inside perimeter of the exterior walls of the building under consideration, exclusive of vent shafts and courts, without deduction for corridors, stairways, closets, the thickness of interior walls, columns or other features. The floor area of a building, or portion thereof, not provided with surrounding exterior walls shall be the usable area under the horizontal projection of the roof or floor above. The gross floor area shall not include shafts with no openings or interior courts.	The floor area within the inside perimeter of the exterior walls of the building under consideration, exclusive of vent shafts and courts, without deduction for corridors, stairways, closets, the thickness of interior walls, columns or other features. The floor area of a building, or portion thereof, not provided with surrounding exterior walls shall be the usable area under the horizontal projection of the roof or floor above. The gross floor area shall not include shafts with no openings or interior courts. Areas to be included in the square footage calculation include: 1. Garages or carports if under a habitable space, or covers egress 2. New attached garage 3. All additions 4. Total square footage of any room that received alterations or additions. Removing sheetrock exposing structural framing or any structural change in a room involves the total square footage of that room. Existing square footage shall be obtained from the San Mateo County Tax Assessor's Office or	Definition from the CA Building Code Ammended

<p>[A] JURISDICTION. The governmental unit that has adopted this code under due legislative authority.</p>	<p>[A] JURISDICTION. Jurisdiction shall mean the territorial boundaries of the Menlo Park Fire Protection District. In that case “Jurisdiction” would mean, as appropriate, the County of San Mateo, the City of East Palo Alto, the City of Menlo Park and the Town of Atherton. The Fire District’s map book shall be adopted by reference to indicate the territorial boundaries of the Menlo Park Fire Protection District. Except where in the code the term "jurisdiction" is used in a context which implies the ability to exercise governmental powers, such as “the authority having jurisdiction,” then in that context "jurisdiction" shall mean the particular public agency authorized to and exercising that governmental power.</p>	<p>The term Jurisdiction has two meanings. One, indicates the boundary lines which make up the Menlo Park Fire Protection District, and Two, indicates the government agency exercising its governmental powers.</p>
<p>None</p>	<p>LOCAL LAW ENFORCEMENT. Local law enforcement” shall mean the local police departments of the City of East Palo Alto, the City of Menlo Park, the Town of Atherton, the San Mateo County Sheriff’s Department, and the California Highway Patrol.</p>	<p>The term Local Law Enforcement is used in the Code in Chapters 1, 4 and 5. This ordinance uses the term when referring to fire lanes and parking enforcement. A definition in the ordinance defines exactly who the local law enforcement agency is.</p>
<p>None</p>	<p>SUBSTANTIAL ALTERATION. The renovation of any structure and/or which combined with any additions to the structure, affects a gross floor area which exceeds fifty percent (50%) of the existing floor area of the structure. This may include but is not limited to :</p> <p>1) Removal of exterior walls and/or roof assembly</p> <p>When any structural changes are made to the building, such as walls, columns, beams or girders, floor or ceiling joists and covering, roof rafters, roof diaphragms, foundations, piles or retaining walls or similar components, the floor area of all room affected by the changes shall be included in computing floor areas for purposes of applying this definition. This definition does not apply to the replacement and upgrading of residential roof coverings.</p>	<p>The term <i>substantial alteration</i> is used in the ordinance in section 505.1 when referring to the lighted address requirement, and the of definition of a substantial alteration is used as the foundation in section 903.6.1.1 for determining when improvements occur to an existing building and it becomes reasonable to include fire sprinkler protection as a portion of the improvement.</p>
CHAPTER 3 GENERAL REQUIREMENTS		
<p>308.3.2 Theatrical Performances.</p>	<p>Where approved, open-flame devices used in conjunction with theatrical performances are allowed to be used where adequate safety precautions have been taken in accordance with NFPA 160 and Title 19 CCR.</p>	<p>Added and amended to allow state approved devices in theatrical shows.</p>
<p>324.1 Mobile Food Preparation Vehicles</p>	<p>Health department approval. Mobile food preparation vehicles shall display a San Mateo County Health Department sticker as prescribed by County Health.</p>	<p>Added to verify compliance with County Health rules and maintenance of fire extinguishing equipment.</p>
CHAPTER 4 EMERGENCY PLANNING		
<p>403.11 Special requirements for public safety. Special requirements for public safety shall be in accordance with Sections 403.11.1 through 403.11.3.3.</p>		<p>Added to describe fire watch requirements</p>

<p>403.11.1 Fire watch personnel. Where, in the opinion of the fire code official, it is essential for public safety in a place of assembly or any other place where people congregate, because of the number of persons, or the nature of the performance, exhibition, display, contest or activity, the owner, agent or lessee shall provide one or more fire watch personnel, as required and approved. Fire watch personnel shall comply with Sections 403.11.1.1 and 403.11.1.2.</p>		<p>Added to describe fire watch personnel</p>
<p>403.11.1.1 Duty times. Fire watch personnel shall remain on duty while places requiring a fire watch are open to the public, or when an activity requiring a fire watch is being conducted.</p>		<p>Added to describe fire watch required times</p>
<p>403.11.1.2 Duties. On duty fire watch personnel shall have the following responsibilities: 1. Keep diligent watch for fires, obstructions to means of egress and other hazards. 2. Take prompt measures for remediation of hazards and extinguishment of fires that occur. 3. Take prompt measures to assist in the evacuation of the public from structures.</p>		<p>Added to describe fire watch duties</p>
<p>403.11.2 Public safety plan for gatherings. Where the fire code official determines that an indoor or outdoor gathering of persons has an adverse impact on public safety through diminished access to buildings, structures, fire hydrants and fire apparatus access roads or where such gatherings adversely affect public safety services of any kind, the fire code official shall have authority to order the development of or prescribe a public safety plan that provides an approved level of public safety and addresses the following items: 1) Emergency vehicle ingress and egress; 2) Fire protection; 3) Emergency egress or escape routes; 4) Emergency medical services; 5) Public assembly areas; 6) The directing of both attendees and vehicles, including the parking of vehicles; 7) Vendor and food concession distribution; 8) The need for the presence of law enforcement; 9) The need for fire and emergency medical services personnel; 10) The need for weather monitoring person</p>		<p>Added to describe large gatherings safety plan</p>
<p>403.11.3 Crowd managers. Where facilities or events involve a gathering of more than 500 people, crowd managers shall be provided in accordance with Sections 403.11.3.1 through 403.11.3.3</p>		<p>Added to describe crowd managers</p>
<p>403.11.3.1 Number of crowd managers. Not fewer than two trained crowd managers, and not fewer than one trained crowd manager for each 250 persons or portion thereof, shall be provided for the gathering. Exceptions: 1) Outdoor events with fewer than 1,000 persons in attendance shall not require crowd managers; 2) Assembly occupancies used exclusively for religious worship with an occupant load not exceeding 1,000 shall not require crowd managers; 3) The number of crowd managers shall be reduced where, in the opinion of the fire code official, the fire protection provided by the facility and the nature of the event warrant a reduction.</p>		<p>Added to describe crowd managers requirements</p>
<p>403.11.3.2 Training. Training for crowd managers shall be approved.</p>		

<p>403.11.3.3 Duties. The duties of crowd managers shall include, but not limited to: 1) Conduct an inspection of the area of responsibility and identify and address any egress barriers; 2) Conduct an inspection of the area of responsibility to identify and mitigate any fire hazard; 3) Verify compliance with all permit conditions, including those governing pyrotechnics and other special effects; 4) Direct and assist the event attendees in evacuation during an emergency; 5) Assist emergency response personnel where requested; 6) Other duties required by the fire code official; 7) Other duties as specified in the fire safety plan</p>		<p>Added to describe crowd manager training</p>
CHAPTER 5 FIRE SERVICE FEATURES		
<p>501.1 Scope. Fire service features for buildings, structures and premises shall comply with this chapter.</p>	<p>501.1 Scope. Fire service features for buildings, structures and premises shall comply with this chapter, and appendix D.</p>	<p>Added for more detailed criteria.</p>
503 Fire Apparatus Access Roads		
<p>503.1 Where Required. Fire apparatus access roads shall be provided and maintained in accordance with Sections 503.1.1 through 503.1.3</p>	<p>503.1 Where required. Fire apparatus access roads shall be provided and maintained in accordance with Sections 503.1.1 through 503.1.3 and according to Menlo Park Fire District Fire District Standards and Guidelines Manual.</p>	<p>Added to describe fire access road requirements</p>
<p>503.1.1 Buildings and facilities. Approved fire apparatus access roads shall be provided for every facility, building or portion of a building hereafter constructed or moved into or within the jurisdiction. The fire apparatus access road shall comply with the requirements of this section and shall extend to within 150 feet of all portions of the facility and all portions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the building or facility.</p>	<p>503.1.1 Approved fire apparatus access roads shall be provided for every facility, building or portion of a building hereafter constructed or moved into or within the jurisdiction. The fire apparatus access road shall comply with the requirements of this section and Appendix D, and shall extend to within 150 feet (45 720 mm) of all portions of the facility and all portions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the building or facility. Exceptions: No Changes</p>	<p>Amended to provide required fire access during construction for medical or fire emergencies during any weather conditions.</p>
<p>None</p>	<p>503.1.1.2 is added to read as follows: Nothing in the California Fire Code shall prevent the Town or City from designating or maintaining a street as a “Fire Lane” which does not meet the requirements of a fire apparatus access road under the California Fire Code. 503.1.2 - 5.3.6 (CFC text not modified)</p>	<p>Added to allow jurisdictions to recognize public roads as Fire Lanes or Fire Access Roads.</p>

<p>503.3 Marking. Where required by the <i>fire code official, approved</i> signs or other <i>approved</i> notices or markings that include the words NO PARKING—FIRE LANE shall be provided for fire apparatus access roads to identify such roads or prohibit the obstruction thereof. The means by which <i>fire lanes</i> are designated shall be maintained in a clean and legible condition at all times and be replaced or repaired when necessary to provide adequate visibility.</p>	<p>503.3 Marking. Where required by the <i>fire code official approved</i> signs and markings designating fire lanes shall comply with California Vehicle Code section 22500.1. The designation shall be indicated (1) by a sign posted immediately adjacent to, and visible from, the designated place clearly stating in letters not less than one inch in height that the place is a fire lane, (2) by outlining or painting the place in red and, in contrasting color, marking the place with the words "FIRE LANE", which are clearly visible from a vehicle, or (3) by a red curb or red paint on the edge of the roadway upon which is clearly marked the words "FIRE LANE". Signs and markings shall not be obstructed, and shall be maintained in a clean and legible condition at all times and be replaced or repaired when necessary to provide adequate visibility.</p>	<p>Local law enforcement has asked that designated fire lanes are marked with both signs AND red curbs AND lettering stating "No Parking - Fire Lane." Section changed to follow language from the California Vehicle Code, per Menlo Park Police.</p>
	<p>503.7 Restrictions and requirements as specified in the CA Vehicle Code shall apply to fire lanes established by this section.</p>	<p>Added to follow CA Vehicle Code</p>
<p>505.1 Address identification. New and existing buildings shall be provided with approved address identification. The address identification shall be legible and placed in a position that is visible from the street or road fronting the property. Address numbers shall be Arabic numbers or alphabetical letters. Numbers shall not be spelled out. Each character shall be not less than 4 inches high with a minimum stroke width of 1/2 inch. Where required by the fire code official, address identification shall be provided in additional approved locations to facilitate emergency response. Where access is by means of a private road and the building cannot be viewed from the public way, a monument, pole or other sign or means shall be used to identify the structure. Address identification shall be maintained.</p>	<p>505.1 Address Identification. New and existing buildings shall have approved address numbers, building numbers or approved building identification placed in a position that is plainly legible and visible from the street or road fronting the property. These numbers shall contrast with their background. Address numbers shall be Arabic numerals or English alphabet letters. Where required by the fire code official, address identification shall be provided in additional approved locations to facilitate emergency response. Where access is by means of a private road and the building cannot be viewed from the public way, a monument, pole or other sign or means shall be used to identify the structure. Address identification shall be maintained. Said numbers shall be either internally or externally illuminated in all new construction. Numbers shall be as follows: 1. Minimum of one-half inch (1/2") stroke by eight inches (8") high. Exception: Single-family dwelling minimum of one-half inch (1/2") stroke by four inches (4") high. 2.</p>	<p>The Fire District responds to many types of emergencies, including medical calls, critical home services such as flooding or natural gas leaks, and smoke or carbon monoxide alarms, just to name a few. In many areas of the Fire District, street lighting is not available, which makes finding addresses difficult, especially when seconds count. The Fire District ordinance requires new buildings and buildings undergoing a substantial alteration to include an illuminated address, so that emergency responders can more easily find the location needing help.</p> <p>The ordinance also provides minimum size requirements for address numbers on larger structures for better visibility, where the International Fire Code is silent.</p>
<p>None</p>	<p>505.1.1 Multi -Tenant Buildings. Numbers or letters shall be designated on all occupancies within a building. Size shall be one-half inch (1/2") stroke by four inches (4") high and on a contrasting background. Directional address numbers or letters shall be provided. Said addresses or numbers shall be posted at a height no greater than 5 feet, 6 inches (5' 6") above the finished floor and shall be either internally or externally illuminated in all new construction.</p>	<p>The ordinance requires individual tenant spaces to have address numbers, and provides guidance as to height and size of the numbers. The International Fire Code is silent on this issue.</p>

None	505.1.2 Rear Addressing. When required by the fire code official, approved numbers or addresses shall be placed on all new and existing buildings in such a position as to be plainly visible and legible from the fire apparatus road at the back of a property or where rear parking lots or alleys provide an acceptable vehicular access. Number stroke and size shall comply with 505.1.	The ordinance requires rear entrances to tenant spaces to have corresponding address, so fire fighters can orientate themselves when approaching the rear of a single building that has multiple addresses. The International Fire Code is silent on this issue.
506.1 Where required. Where access to or within a structure or an area is restricted because of secured openings or where immediate access is necessary for life-saving or fire-fighting purposes, the fire code official is authorized to require a key box to be installed in an approved location. The key box shall be an approved type listed in accordance to UL 1037, and shall contain keys to gain necessary access as required by the fire code official.	506.1 Where required. Where access to or within a structure or an area is restricted because of secured openings or where immediate access is necessary for life-saving or fire-fighting purposes, the fire code official is authorized to require a key box to be installed in an approved location. The key box shall be of an approved type listed in accordance with UL 1037, and shall contain keys to gain necessary access as required by the fire code official. Where a new gate or barrier is installed on a fire access roadway, the fire department shall have emergency access. Gates or barriers shall have a Knox® key switch.	Added to require knox key box
None	506.3 Key box content requirements. The keys including multi-tenant spaces. Additional keys shall be included for card access, elevator control, fire alarm control panels, and fire sprinkler control valve access. Exceptions: 1) Multi-tenant spaces which provide a key box for each tenant and installed per Section 506.1 2) Electronic card keys and codes may be be utilized as a substitute for manual keys.	Description of keys required for fire department access box.
508.2 Fire Control Room	An approved fire control room shall be provided for all new buildings or occupancies with a change of use, requiring protection by an automatic fire sprinkler system. The room shall contain the fire alarm control panels, ERCCS control equipment, and other fire equipment required by the Fire Code Official. Fire control rooms shall be located within the building at a location approved by the Fire Code official, and shall be provided at grade with a means to access the room directly from the exterior. Durable signage shall be provided on the exterior side of the access door to identify the fire control room. Fire Control Rooms shall not be less than 50 square feet. Exceptions: 1. Group R-3 Occupancies. 2. Occupancies with a fire pump shall have a fire control room that is a minimum of 200 square feet. 3. In high-rise buildings, the fire control room shall not be less than 200 square feet	Added to follow standard for San Mateo County fire jurisdictions operational consistency.
510.1 Emergency Responder Communication Coverage in new buildings.	Exception 1. Where approved by the building official and the fire code official, a wired communication system in accordance with Section 907.2.13.2 shall be permitted to be installed or maintained instead of an approved radio coverage system.	Deleted. No hard wire is accepted for fire and police communications.

510.3 Permits required	<i>Permits shall be required as set forth in Sections 105.5 and 105.6 for the installation of or modification to and the operation of in-building two-way emergency responder communication coverage systems and related equipment. Maintenance performed in accordance with this code is not considered a modification and does not require a permit.</i>	Amended to follow MPFPD permit process
510.4.2 System design	The in-building, two-way emergency responder communication coverage system shall be designed in accordance with Sections 510.4.2.1 through 510.4.2.8, NFPA 1221, <i>NFPA 1225, NFPA 72 and San Mateo County ERCCS (P-500)</i> .	Amended to follow San Mateo County Fire Chiefs policy for coverage design.
510.4.2.9	<i>510.4.2.9 UL CERTIFICATION. New ERCES systems shall be UL-Certified. A Certificate of Completion and other documentation as listed in NFPA 72 shall be provided for all new fire alarm system installations. It is the responsibility of the building owner or owner's representative to obtain and maintain a current and valid Certificate.</i>	In the early 1980's UL established a program for certification of fire alarm systems. NFPA 72 Standards were used as the requirements for the certification. The certificate is a declaration by the alarm company responsible for the installation that the system as described on the certificate form has been installed and will be maintained in accordance with the NFPA Standard. This standard is now including ERCES beginning January 1, 2023
510.5 Installation requirements	The installation of the in-building, two-way emergency responder communication coverage system shall be in accordance with <i>San Mateo County ERCCS (P-500), NFPA 72, NFPA 1221, and Sections 510.5.2 through 510.5.5.</i>	Amended to follow San Mateo County Fire Chiefs policy for coverage design.
CHAPTER 9 FIRE PROTECTION SYSTEMS		
903 Automatic Sprinkler Systems		
Town of Atherton		
903.2 Where required. <i>Approved automatic sprinkler systems</i> in new buildings and structures shall be provided in the locations described in Sections 903.2.1 through 903.2.12.	903.2 Where required. Approved automatic fire sprinkler systems in new buildings and structures shall be provided in <i>all Group A, B, E, F, M, R, S, and U Occupancies greater than 1,000 square feet and in locations described in subsections 903.2.2, 903.2.5, 903.2.6, 903.2.8, 903.2.11, 903.2.12. Sections and Subsections of 903.2.1, 903.2.3, 903.2.4, 903.2.9, 903.2.10 and 903.2.11.3 of Chapter 9 of the code are deleted in their entirety. Approved automatic fire sprinkler system in existing buildings and structures shall be provided as described in section 903.6.</i> Exceptions: <i>1. Independent solar carports or structures, non-combustible carports or shade structures.</i> <i>2. Canopies less than 1000 square feet over motor vehicle fuel dispensing facilities when constructed in accordance with Section 406.7.2 of the 2022 California Building Code.</i>	Maintaining Ordinance requirements that has been in place since 1984 to aid in fire propagation and spread. Aging water infrastructure, inadequate hydrant spacing and increased response times due to traffic, road width, traffic calming devices slow down response requiring increased protection. These subsections refer to Group A, B, E, F, and S Occupancies where the fire sprinkler threshold is greater than 1,000 square feet, and would conflict with the ordinance.

<p>903.2.7 Group M. An <i>automatic sprinkler system</i> shall be provided throughout buildings containing a Group M occupancy where one of the following conditions exists:</p> <ol style="list-style-type: none"> 1. A Group M <i>fire area</i> exceeds 12,000 square feet (1115 m²). 2. A Group M <i>fire area</i> is located more than three stories above grade plane. 3. The combined area of all Group M <i>fire areas</i> on all floors, including any mezzanines, exceeds 24,000 square feet (2230 m²). 4. A Group M occupancy used for the display and sale of upholstered furniture or mattresses exceeds 5,000 square feet (464 m²). 	<p>903.2.7 Group M. Automatic fire sprinkler systems shall be provided throughout buildings containing a Group M occupancy with a fire area greater than 1,000 square feet and any Group M occupancy used for the display and sale of upholstered furniture.</p> <p>903.2.7.1 High-piled storage. To remain unchanged</p>	<p>The ordinance requires new M occupancies to have automatic fire sprinklers when the square footage exceeds 1,000 square feet.</p> <p>Section 903.2.7.1 requires Group M Occupancies with high piled storage to follow the fire sprinkler requirements of Chapter 32 on High Piled Combustible Storage.</p>
<p>903.2.11.1 Stories without openings. An <i>automatic sprinkler system</i> shall be installed throughout all stories, including <i>basements</i>, of all buildings where the floor area exceeds 1,500 square feet (139.4 m²) and where there is not provided at least one of the following types of <i>exterior wall</i> openings:</p> <ol style="list-style-type: none"> 1. Openings below grade that lead directly to ground level by an exterior <i>stairway</i> complying with Section 1009 or an outside ramp complying with Section 1010. Openings shall be located in each 50 linear feet (15 240 mm), or fraction thereof, of <i>exterior wall</i> in the story on at least one side. The required openings shall be distributed such that the lineal distance between adjacent openings does not exceed 50 feet (15 240 mm). 	<p>903.2.11.1 Stories and basements without openings. Automatic sprinkler systems shall be installed in every building with a basement.</p> <p>Automatic sprinkler systems shall be installed in every story of all buildings where the floor area exceeds 1000 square feet and where the following type of exterior wall opening is not provided.</p> <ol style="list-style-type: none"> 1. Openings entirely above the adjoining ground level totaling at least 20 square feet (1.86 m²) in each 50 linear feet (15 240 mm), or fraction thereof, of exterior wall in the story on at least one side. 	<p>Adjustments in this section require automatic fire sprinkler protection in basements of occupancies. The threshold begins at square footage exceeding 250 square feet, except for the Town of Atherton which has no threshold square footage.</p> <p>Basement fires bring a different tactic to fire suppression operations. Entry is obscured by thick smoke. Opening doors to basement create a rush of hot gases typically exceeding 900 degrees F. A fire in a basement can cause the floor to giveaway under firefighters as they enter the structure to attempt extinguishment.</p>
<p>903.3.1.1.2 Bathroom</p>	<p>Deleted</p>	<p>MPFPD standard to delete bathrooms due to fire history</p>
<p>903.3.1.2 NFPA 13R sprinkler systems. <i>Automatic sprinkler systems</i> in Group R occupancies up to and including four stories in height not exceeding 60 feet in height above grade plane shall be permitted to be installed throughout in accordance with NFPA 13R as amended in Chapter 80.</p>	<p>903.3.1.2 NFPA 13R sprinkler systems. Where in the code a NFPA 13R sprinkler system is allowed, a NFPA 13 sprinkler system shall be used.</p>	<p>NFPA 13R sprinkler systems are used in multi-family dwellings (apartments). They allow un-sprinklered spaces and installation practices inconsistent with similar size occupancies. This change requires a full fire sprinkler system, which is consistent with similar size buildings.</p>
<p>903.3.3 Obstructed locations. Automatic sprinklers shall be installed with regard to obstructions that will delay activation or obstruct the water distribution pattern. Automatic sprinklers shall be installed in or under covered kiosks, displays, booths, concession stands or equipment that exceeds 4 feet (1219 mm) in width. Not less than a 3-foot (914 mm) clearance shall be maintained between automatic sprinklers and the top of piles of combustible fibers.</p> <p>Exception: Kitchen equipment under exhaust hoods protected with a fire-extinguishing system in accordance with Section 904.</p>	<p>903.3.3 Obstructed locations. Automatic sprinklers shall be installed with regard to obstructions that will delay activation or obstruct the water distribution pattern and shall be in accordance with the applicable automatic sprinkler system standard that is being used. Automatic fire sprinklers shall be installed in or under covered kiosks, displays, booths, concession stands, laboratory fume hoods, bio safety cabinets that use flammable liquids in processes, or equipment that exceeds 4 feet (1219 mm) in width. Not less than a 3-foot (914 mm) clearance shall be maintained between automatic sprinklers and the top of piles of combustible fibers. Sprinklers shall be provided in all areas including combustible or noncombustible concealed spaces, 6 inches or more.</p> <p>Exception: 1. Sprinkler protection for concealed spaced 6 inches or more may be omitted if the building owner and the fire code official agree in writing that the use of the space is unlikely to change in the future.</p>	<p>The Fire District requires fire sprinkler protection in obstructed locations that are 6 inches or more in height or width. These spaces are typically used to run electrical wiring, and have been collection points for combustible debris. Fires in these concealed spaces have the ability to overcome automatic fire sprinkler protection. By providing fire sprinkler protection in these spaces, early fire detection is established and the fire is controlled.</p> <p>Industrial areas of the District cater to Research and Development Laboratories. Due to fire histories in these labs, the Fire District requires fire sprinkler protection inside lab fume hoods, and in biosafety cabinets that use flammable liquids in processes.</p> <p>By including an exception, for sprinklering the 6 inch concealed space, the ordinance allows for flexibility depending on the occupancy and the use of the space.</p>

None	903.3.10 Partial Systems in new buildings or structures. Automatic fire sprinkler systems that only protect a portion of the building shall not be allowed.	The Fire District added a section to the ordinance that requires a full fire sprinkler system in a building, and to not allow for a partial system. When firefighters respond to a fire in a sprinklered building, it is assumed that the all portions of the building have fire sprinkler protection. If the fire's origin happened to be in an unsprinklered portion of a sprinklered building, the fire's heat can overcome the sprinklered portion of the building.
903.6 Where required in existing buildings and structures. An automatic sprinkler system shall be provided in existing buildings and structures where required in Chapter 11.	903.6 Where required in existing buildings and structures. An automatic sprinkler system shall be provided in existing buildings and structures where required in Chapter 11 or when improvements are conducted in accordance with this section.	No changes to the introductory statement.
None	903.6.1 Where required due to improvements to buildings and structures. The provisions of this section are intended to provide a reasonable degree of fire safety in existing structures by requiring installation of an automatic fire-extinguishing system.	The Fire Code does not specify whether or not an existing building that under goes improvements should include automatic fire sprinkler protection. The Fire District has specified in this section, what it believes to be reasonable requirements to add fire sprinkler protection when buildings are improved or occupancies are changed to become hazardous.
None	903.6.1.1 Where Required. All existing buildings and structures, regardless of type of occupancy or area, shall be provided with an automatic fire sprinkler system when any of the following conditions occur: (1) Where the gross floor area of a proposed alteration, addition, or combination of alterations and additions and the gross floor area of any alterations, additions, or combination of alterations and additions exceeds 50% of the existing gross floor area of the building or 75% of the existing gross floor area of the building for R-3 occupancies. Exception: Buildings or structures less than 1,000 square feet. (2) When a change in occupancy classification, as defined within the Building Code, results in an increased fire hazard or risk due to business operations and/or number of occupants permitted in the building. (3) When an existing occupancy constructs a basement that is 250 square feet or larger, a fire sprinkler system shall be provided throughout the basement and the	The Fire Code does not specify whether or not an existing building that under goes improvements should include automatic fire sprinkler protection. The Fire District has specified in this section, what it believes to be reasonable requirements to add fire sprinkler protection when buildings are improved or occupancies are changed to become hazardous.

None	903.6.1.2 Partial Systems in existing buildings and structures. Automatic fire sprinkler systems that only protect a portion of the building shall not be allowed. Exception: A phased installation of an automatic fire sprinkler system may be allowed as an alternate materials and method application, as prescribed in Section 104.9, when different tenant spaces in the same building are occupied, and the installation of a fire sprinkler system may disrupt business. Not to exceed five (5) years for final completion from initial permit date.	Description of not allowing partial systems. Allows exceptions for existing multi-tenant buildings.
907.1.6 Certification	907.1.6 Certification. New fire alarm systems shall be UL-Certified. A certificate of Completion and other documentation as listed in NFPA 72 shall be provided for all new fire alarm system installation. It is the responsibility of the building owner or owner's representative to obtain and maintain a current and valid Certificate. The protected premise shall be issued a UUFX type certification from Underwriters Laboratories (UL).	Added for system integrity and reduction of false alarms. Been a MPFPD Standard for over 20 years. Now becoming a San Mateo County standard
907.7 Acceptance tests and completion. Upon completion of the installation, the fire alarm system and all fire alarm components shall be tested in accordance with NFPA 72.	907.7 Acceptance tests and completion. Upon completion of the installation, the fire alarm system and all fire alarm components shall be tested in accordance with NFPA 72. Fire alarms systems in commercial structures shall obtain a UL Certificate for the system prior to final inspection.	In the early 1980's UL established a program for certification of fire alarm systems. NFPA 72 Standards were used as the requirements for the certification. The certificate is a declaration by the alarm company responsible for the installation that the system as described on the certificate form has been installed and will be maintained in accordance with the NFPA Standard
907.9 Where required in existing buildings and structures. An <i>approved</i> fire alarm system shall be provided in existing buildings and structures where required in Chapter 11.	907.9 Where required in existing buildings and structures. An <i>approved</i> fire alarm system shall be provided in existing buildings and structures where required in Chapter 11. When an alteration to any existing building or structure requires an upgrade or new fire alarm system, multiple fire alarm systems shall be approved by the fire code official.	If a fire occurs in a single space of a multi-tenanted building, occupants of the other spaces should also be notified of the fire and evacuated. However, NFPA 72 allows individual tenants to install their own fire alarm system, thus NOT notifying other tenants of a fire. To correct this problem, the Fire District will require a single fire alarm system for multi-tenanted spaces. Fire code official will approve multiple systems with
None	1207.11.5.1 Electrical Disconnect. The ESS disconnect shall be located on the exterior of the building and at the main panel.	Added to allow firefighters to secure utilities from the exterior of the house in the event of an emergency
None	1207.11.11 Interconnected Electrical Power Sources. A permanent directory site plan plaque denoting the location of all electrical power source disconnecting means on or in the premises shall be installed at each service equipment location and at the location(s) of the system disconnect(s) for all electric power production sources capable of being interconnected.	Added to provide notification to firefighters of multiple power sources and locations to secure utilities and aid in firefighter safety and safe operations.
Appendix B Table B105.1(1) Minimum fire flow for Section 903.3.1.3 - minimum fire flow shall be 1000gpm for 1 hour duration minimum	Table B105.1(1) Minimum fire flow for Section 903.3.1.3 shall be 1000 gpm for 1 hour duration	The CA Fire Code historically allowed the AHJ to reduce fire flow requirements. The code now makes it automatic, which takes away the local AHJ ability to mitigate local water issues and conflagration potential. This provides MPFPD what we have historically provided for over 30 years and allows proper fire protection for our increasing density and larger buildings and potential for

<p>Appendix B Table B105.2 Minimum fire flow for Section 903.3.1.1 - 25% of the value in Table B105.1(2)^a; Section 903.3.1.2 - 25% of the value in Table B105.1(2)^b</p>	<p>Table B105.2 Minimum fire flow for Section 903.3.1.1 - 50% of the value in Table B105.1(2)^a; Section 903.3.1.2 - 50% of the value in Table B105.1(2)^b</p>	<p>The CA Fire Code historically allowed the AHJ to reduce fire flow requirements. The code now makes it automatic, which takes away the local AHJ ability to mitigate local water issues and conflagration potential. This provides MPFPD what we have historically provided for over 30 years and allows proper fire protection for our increasing density and larger buildings and potential for</p>
<p>Appendix D</p>	<p>Added - Fire Apparatus Access Roads</p>	<p>To clarify requirements of fire access roads for uniformity.</p>
<p>Appendix L</p>	<p>Appendix L Requirements for PIPED AIR SCBA REFILLING SYSTEMS is added as follows: For buildings more than 10 stories in height, shall install Firefighter Air Replenishment System per Menlo Park Fire Protection District Standards and Guidelines Manual.</p>	<p>Currently, a firefighter's air bottle lasts about 20 (plus) minutes before it needs to be refilled. With a Firefighter Air System installed in a multi story building, firefighters can refill their air supply from the interior of the building, without having to leave the fire area. Without such a system, an air bottle would need to be refill from an air-refill truck located on the street. This requirement allows for a more efficient use of the firefighters time on the fire scene</p>



A STATEWIDE UTILITY PROGRAM

Title 24, Parts 6 and 11
Local Energy Efficiency Ordinances

2019 Nonresidential New Construction Reach Code Cost Effectiveness Study

Prepared for:
Christopher Kuch
Codes and Standards Program
Southern California Edison Company

Prepared by:
TRC
EnergySoft

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Table of Contents

1	Introduction	1
2	Methodology and Assumptions	3
2.1	Building Prototypes	3
2.2	Cost Effectiveness	5
3	Measure Description and Cost	7
3.1	Energy Efficiency Measures	7
3.1.1	Envelope	1
3.1.2	HVAC and SWH	1
3.1.3	Lighting	2
3.2	Solar Photovoltaics and Battery Measures	6
3.2.1	Solar Photovoltaics	6
3.2.2	Battery Storage	8
3.2.3	PV-only and PV+Battery Packages	9
3.3	All Electric Measures	9
3.3.1	HVAC and Water Heating	9
3.3.2	Infrastructure Impacts	13
3.4	Preempted High Efficiency Appliances	15
3.5	Greenhouse Gas Emissions	15
4	Results	16
4.1	Cost Effectiveness Results – Medium Office	17
4.2	Cost Effectiveness Results – Medium Retail	26
4.3	Cost Effectiveness Results – Small Hotel	34
4.4	Cost Effectiveness Results – PV-only and PV+Battery	43
5	Summary, Conclusions, and Further Considerations	48
5.1	Summary	48
5.2	Conclusions and Further Considerations	51
6	Appendices	53
6.1	Map of California Climate Zones	53
6.2	Lighting Efficiency Measures	54
6.3	Drain Water Heat Recovery Measure Analysis	54
6.4	Utility Rate Schedules	55
6.5	Mixed Fuel Baseline Energy Figures	56
6.6	Hotel TDV Cost Effectiveness with Propane Baseline	58
6.7	PV-only and PV+Battery-only Cost Effectiveness Results Details	62
6.7.1	Cost Effectiveness Results – Medium Office	62
6.7.2	Cost Effectiveness Results – Medium Retail	72
6.7.3	Cost Effectiveness Results – Small Hotel	81
6.8	List of Relevant Efficiency Measures Explored	90

List of Figures

Figure 1. Measure Category and Package Overview	2
Figure 2. Prototype Characteristics Summary	4
Figure 3. Utility Tariffs used based on Climate Zone	6
Figure 4. Energy Efficiency Measures - Specification and Cost.....	3
Figure 5. Medium Office – Annual Percent kWh Offset with 135 kW Array	6
Figure 6. Medium Retail – Annual Percent kWh Offset with 110 kW Array	7
Figure 7. Small Hotel – Annual Percent kWh Offset with 80 kW Array	7
Figure 8. Medium Office Upfront PV Costs.....	8
Figure 9. All-Electric HVAC and Water Heating Characteristics Summary.....	10
Figure 10. Medium Office HVAC System Costs	11
Figure 11. Medium Retail HVAC System Costs	12
Figure 12. Small Hotel HVAC and Water Heating System Costs	13
Figure 13. Medium Office Electrical Infrastructure Costs for All-Electric Design	14
Figure 14. Natural Gas Infrastructure Cost Savings for All-Electric Prototypes.....	15
Figure 15. High Efficiency Appliance Assumptions	15
Figure 16. Package Summary	16
Figure 17. Cost Effectiveness for Medium Office Package 1A – Mixed-Fuel + EE	19
Figure 18. Cost Effectiveness for Medium Office Package 1B – Mixed-Fuel + EE + PV + B.....	20
Figure 19. Cost Effectiveness for Medium Office Package 1C – Mixed-Fuel + HE	21
Figure 20. Cost Effectiveness for Medium Office Package 2 – All-Electric Federal Code Minimum	22
Figure 21. Cost Effectiveness for Medium Office Package 3A – All-Electric + EE	23
Figure 22. Cost Effectiveness for Medium Office Package 3B – All-Electric + EE + PV + B	24
Figure 23. Cost Effectiveness for Medium Office Package 3C – All-Electric + HE	25
Figure 24. Cost Effectiveness for Medium Retail Package 1A – Mixed-Fuel + EE.....	27
Figure 25. Cost Effectiveness for Medium Retail Package 1B – Mixed-Fuel + EE + PV + B	28
Figure 26. Cost Effectiveness for Medium Retail Package 1C – Mixed-Fuel + HE.....	29
Figure 27. Cost Effectiveness for Medium Retail Package 2 – All-Electric Federal Code Minimum	30
Figure 28. Cost Effectiveness for Medium Retail Package 3A – All-Electric + EE.....	31
Figure 29. Cost Effectiveness for Medium Retail Package 3B – All-Electric + EE + PV + B	32
Figure 30. Cost Effectiveness for Medium Retail Package 3C – All-Electric + HE	33
Figure 31. Cost Effectiveness for Small Hotel Package 1A – Mixed-Fuel + EE	36
Figure 32. Cost Effectiveness for Small Hotel Package 1B – Mixed-Fuel + EE + PV + B	37
Figure 33. Cost Effectiveness for Small Hotel Package 1C – Mixed-Fuel + HE.....	38
Figure 34. Cost Effectiveness for Small Hotel Package 2 – All-Electric Federal Code Minimum	39
Figure 35. Cost Effectiveness for Small Hotel Package 3A – All-Electric + EE	40
Figure 36. Cost Effectiveness for Small Hotel Package 3B – All-Electric + EE + PV + B	41
Figure 37. Cost Effectiveness for Small Hotel Package 3C – All-Electric + HE.....	42
Figure 38. Cost Effectiveness for Medium Office - PV and Battery	45
Figure 39. Cost Effectiveness for Medium Retail - PV and Battery.....	46
Figure 40. Cost Effectiveness for Small Hotel - PV and Battery	47
Figure 41. Medium Office Summary of Compliance Margin and Cost Effectiveness	49
Figure 42. Medium Retail Summary of Compliance Margin and Cost Effectiveness.....	50
Figure 43. Small Hotel Summary of Compliance Margin and Cost Effectiveness	51
Figure 44. Map of California Climate Zones.....	53
Figure 45. Impact of Lighting Measures on Proposed LPDs by Space Function	54
Figure 46. Utility Tariffs Analyzed Based on Climate Zone – Detailed View	55

Figure 47. Medium Office – Mixed Fuel Baseline	56
Figure 48. Medium Retail – Mixed Fuel Baseline.....	57
Figure 49. Small Hotel – Mixed Fuel Baseline	58
Figure 50. TDV Cost Effectiveness for Small Hotel, Propane Baseline – Package 2 All-Electric Federal Code Minimum.....	59
Figure 51. TDV Cost Effectiveness for Small Hotel, Propane Baseline – Package 3A (All-Electric + EE)	60
Figure 52. TDV Cost Effectiveness for Small Hotel, Propane Baseline – Package 3B (All-Electric + EE + PV) 60	
Figure 53. TDV Cost Effectiveness for Small Hotel, Propane Baseline – Package 3C (All Electric + HE)	61
Figure 54. Cost Effectiveness for Medium Office - Mixed Fuel + 3kW PV	64
Figure 55. Cost Effectiveness for Medium Office – Mixed Fuel + 3kW PV + 5 kWh Battery	65
Figure 56. Cost Effectiveness for Medium Office – Mixed Fuel + 135kW PV	66
Figure 57. Cost Effectiveness for Medium Office – Mixed Fuel + 135kW PV + 50 kWh Battery	67
Figure 58. Cost Effectiveness for Medium Office– All-Electric + 3kW PV	68
Figure 59. Cost Effectiveness for Medium Office – All-Electric + 3kW PV + 5 kWh Battery	69
Figure 60. Cost Effectiveness for Medium Office – All-Electric + 135kW PV	70
Figure 61. Cost Effectiveness for Medium Office – All-Electric + 135kW PV + 50 kWh Battery	71
Figure 62. Cost Effectiveness for Medium Retail – Mixed-Fuel + 3kW PV.....	73
Figure 63. Cost Effectiveness for Medium Retail – Mixed Fuel + 3kW PV + 5 kWh Battery	74
Figure 64. Cost Effectiveness for Medium Retail – Mixed-Fuel + 110kW PV	75
Figure 65. Cost Effectiveness for Medium Retail – Mixed-Fuel + 110 kW PV + 50 kWh Battery.....	76
Figure 66. Cost Effectiveness for Medium Retail – All-Electric + 3kW PV	77
Figure 67. Cost Effectiveness for Medium Retail – All-Electric + 3kW PV + 5 kWh Battery.....	78
Figure 68. Cost Effectiveness for Medium Retail – All-Electric + 110kW PV	79
Figure 69. Cost Effectiveness for Medium Retail – All-Electric + 110kW PV + 50 kWh Battery	80
Figure 70. Cost Effectiveness for Small Hotel – Mixed Fuel + 3kW PV	82
Figure 71. Cost Effectiveness for Small Hotel – Mixed Fuel + 3kW PV + 5 kWh Battery	83
Figure 72. Cost Effectiveness for Small Hotel - Mixed Fuel +80kW PV.....	84
Figure 73. Cost Effectiveness for Small Hotel – Mixed Fuel + 80kW PV + 50 kWh Battery	85
Figure 74. Cost Effectiveness for Small Hotel – All-Electric + 3kW PV.....	86
Figure 75. Cost Effectiveness for Small Hotel – All-Electric + 3kW PV + 5 kWh Battery	87
Figure 76. Cost Effectiveness for Small Hotel – All-Electric + 80kW PV.....	88
Figure 77. Cost Effectiveness for Small Hotel – All-Electric + 80kW PV + 50 kWh Battery.....	89
Figure 78. List of Relevant Efficiency Measures Explored	90

1 Introduction

The California Building Energy Efficiency Standards Title 24, Part 6 (Title 24) (CEC, 2019) is maintained and updated every three years by two state agencies: the California Energy Commission (the Energy Commission) and the Building Standards Commission (BSC). In addition to enforcing the code, local jurisdictions have the authority to adopt local energy efficiency ordinances—or reach codes—that exceed the minimum standards defined by Title 24 (as established by Public Resources Code Section 25402.1(h)2 and Section 10-106 of the Building Energy Efficiency Standards). Local jurisdictions must demonstrate that the requirements of the proposed ordinance are cost-effective and do not result in buildings consuming more energy than is permitted by Title 24. In addition, the jurisdiction must obtain approval from the Energy Commission and file the ordinance with the BSC for the ordinance to be legally enforceable. This report was developed in coordination with the California Statewide Investor Owned Utilities (IOUs) Codes and Standards Program, key consultants, and engaged cities—collectively known as the Reach Code Team.

This report documents cost-effective combinations of measures that exceed the minimum state requirements for design in newly-constructed nonresidential buildings. Buildings specifically examined include medium office, medium retail, and small hotels. Measures include energy efficiency, solar photovoltaics (PV), and battery storage. In addition, the report includes a comparison between a baseline mixed-fuel design and all-electric design for each occupancy type.

The Reach Code team analyzed the following seven packages as compared to 2019 code compliant mixed-fuel design baseline:

- ◆ **Package 1A – Mixed-Fuel + Energy Efficiency (EE):** Mixed-fuel design with energy efficiency measures and federal minimum appliance efficiencies.
- ◆ **Package 1B – Mixed-Fuel + EE + PV + Battery (B):** Same as Package 1A, plus solar PV and batteries.
- ◆ **Package 1C – Mixed-fuel + High Efficiency (HE):** Baseline code-minimum building with high efficiency appliances, triggering federal preemption. The intent of this package is to assess the standalone contribution that high efficiency appliances would make toward achieving high performance thresholds.
- ◆ **Package 2 – All-Electric Federal Code-Minimum Reference:** All-electric design with federal code minimum appliance efficiency. No solar PV or battery.
- ◆ **Package 3A – All-Electric + EE:** Package 2 all-electric design with energy efficiency measures and federal minimum appliance efficiencies.
- ◆ **Package 3B – All-Electric + EE + PV + B:** Same as Package 3A, plus solar PV and batteries.
- ◆ **Package 3C – All-Electric + HE:** All-electric design with high efficiency appliances, triggering federal preemption.

Figure 1 summarizes the baseline and measure packages. Please refer to *Section 3* for more details on the measure descriptions.



Figure 1. Measure Category and Package Overview

Measure Category	Report Section	Mixed Fuel				All-Electric			
		Baseline	1A	1B	1C	2	3A	3B	3C
		Fed Code Minimum Efficiency	EE	EE+ PV + B	HE	Fed Code Minimum Efficiency	EE	EE+ PV + B	HE
Energy Efficiency Measures	3.1		X	X			X	X	
Solar PV + Battery	3.2			X				X	
All-Electric Measures	3.3					X	X	X	X
Preemptive Appliance Measures	3.4				X				X

The team separately developed cost effectiveness results for PV-only and PV+Battery packages, excluding any efficiency measures. For these packages, the PV is modeled as a “minimal” size of 3 kW and a larger size based on the available roof area and electric load of the building. PV sizes are combined with two sizes of battery storage for both mixed fuel and all electric buildings to form eight different package combinations as outlined below:

- ◆ **Mixed-Fuel + 3 kW PV Only**
- ◆ **Mixed-Fuel + 3 kW PV + 5 kWh Battery**
- ◆ **Mixed-Fuel + PV Only:** PV sized per the roof size of the building, or to offset the annual electricity consumption, whichever is smaller
- ◆ **Mixed-Fuel + PV + 50 kWh Battery:** PV sized per the roof size of the building, or to offset the annual electricity consumption, whichever is smaller, along with 50 kWh battery
- ◆ **All-Electric + 3 kW PV Only**
- ◆ **All-Electric + 3 kW PV + 5 kWh Battery**
- ◆ **All-Electric + PV Only:** PV sized per the roof size of the building, or to offset the annual electricity consumption, whichever is smaller
- ◆ **All-Electric + PV + 50 kWh Battery:** PV sized per the roof size of the building, or to offset the annual electricity consumption, whichever is smaller, along with 50 kWh battery.

Each of the eight packages are evaluated against a baseline model designed as per 2019 Title 24 Part 6 requirements. The Standards baseline for all occupancies in this report is a mixed-fuel design.

The Department of Energy (DOE) sets minimum efficiency standards for equipment and appliances that are federally regulated under the National Appliance Energy Conservation Act (NAECA), including heating, cooling, and water heating equipment.¹ Since state and local governments are prohibited from adopting

¹ https://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&SID=8de751f141aaa1c1c9833b36156faf67&mc=true&n=pt10.3.431&r=PART&ty=HTML#se10.3.431_197



higher minimum efficiencies than the federal standards require, the focus of this study is to identify and evaluate cost-effective packages that do not include high efficiency equipment. However, because high efficiency appliances are often the easiest and most affordable measures to increase energy performance, this study provides an analysis of high efficiency appliances for informational purposes. While federal preemption would limit a reach code, in practice, builders may install any package of compliant measures to achieve the performance requirements, including higher efficiency appliances that are federally regulated.

2 Methodology and Assumptions

With input from several stakeholders, the Reach Codes team selected three building types—medium office, medium retail, and small hotel—to represent a predominant segment of nonresidential new construction in the state.

This analysis used both on-bill and time dependent valuation of energy (TDV) based approaches to evaluate cost-effectiveness. Both methodologies require estimating and quantifying the energy savings associated with energy efficiency measures, as well as quantifying the costs associated with the measures. The main difference between the methodologies is the valuation of energy and thus the cost savings of reduced or avoided energy use. TDV was developed by the Energy Commission to reflect the time dependent value of energy including long-term projected costs of energy such as the cost of providing energy during peak periods of demand and other societal costs including projected costs for carbon emissions. With the TDV approach, electricity used (or saved) during peak periods has a much higher value than electricity used (or saved) during off-peak periods.²

The Reach Code Team performed energy simulations using EnergyPro 8.0 software for 2019 Title 24 code compliance analysis, which uses CBECC-Com 2019.1.0 for the calculation engine. The baseline prototype models in all climate zones have been designed to have compliance margins as close as possible to 0 to reflect a prescriptively-built building.³

2.1 Building Prototypes

The DOE provides building prototype models which, when modified to comply with 2019 Title 24 requirements, can be used to evaluate the cost effectiveness of efficiency measures. These prototypes have historically been used by the California Energy Commission to assess potential code enhancements. The Reach Code Team performed analysis on a medium office, a medium retail, and a small hotel prototype.

Water heating includes both service water heating (SWH) for office and retail buildings and domestic hot water for hotels. In this report, water heating or SWH is used to refer to both. The Standard Design HVAC and SWH systems are based on the system maps included in the 2019 Nonresidential Alternate

² Horii, B., E. Cutter, N. Kapur, J. Arent, and D. Conotyannis. 2014. "Time Dependent Valuation of Energy for Developing Building Energy Efficiency Standards." Available at: http://www.energy.ca.gov/title24/2016standards/prerulemaking/documents/2014-07-09_workshop/2017_TDV_Documents

³ EnergySoft and TRC were able to develop most baseline prototypes to achieve a compliance margin of less than +/-1 percent except for few models that were at +/- 6 percent. This indicates these prototypes are not exactly prescriptive according to compliance software calculations. To calculate incremental impacts, TRC conservatively compared the package results to that of the proposed design of baseline prototypes (not the standard design).



Calculation Method Reference Manual.⁴ The Standard Design is the baseline for all nonresidential projects and assumes a mixed-fuel design using natural gas as the space heating source in all cases. Baseline HVAC and SWH system characteristics are described below and in Figure 2:

- ◆ The baseline medium office HVAC design package includes two gas hot water boilers, three packaged rooftop units (one for each floor), and variable air volume (VAV) terminal boxes with hot water reheat coils. The SWH design includes one 8.75 kW electric resistance hot water heater with a 30-gallon storage tank.
- ◆ The baseline medium retail HVAC design includes five single zone packaged rooftop units (variable flow and constant flow depending on the zone) with gas furnaces for heating. The SWH design includes one 8.75 kW electric resistance hot water heater with a 30-gallon storage tank.
- ◆ The small hotel has two baseline equipment systems, one for the nonresidential spaces and one for the guest rooms.
 - ◆ The nonresidential HVAC design includes two gas hot water boilers, four packaged rooftop units and twelve VAV terminal boxes with hot water reheat coils. The SWH design include a small electric resistance water heater with 30-gallon storage tank.
 - ◆ The residential HVAC design includes one single zone air conditioner (AC) unit with gas furnace for each guest room and the water heating design includes one central gas water heater with a recirculation pump for all guest rooms.

Figure 2. Prototype Characteristics Summary

	Medium Office	Medium Retail	Small Hotel
Conditioned Floor Area	53,628	24,691	42,552
Number of Stories	3	1	4
Number of Guest Rooms	0	0	78
Window-to-Wall Area Ratio	0.33	0.07	0.11
Baseline HVAC System	Packaged DX VAV with gas furnaces + VAV terminal units with hot water reheat. Central gas hot water boilers	Single zone packaged DX units with gas furnaces	<u>Nonresidential:</u> Packaged DX VAV with hot water coil + VAV terminal units with hot water reheat. Central gas hot water boilers. <u>Residential:</u> Single zone DX AC unit with gas furnaces
Baseline Water Heating System	30-gallon electric resistance water heater	30-gallon electric resistance water heater	<u>Nonresidential:</u> 30-gallon electric resistance water heater <u>Residential:</u> Central gas water heater with recirculation loop

⁴ Nonresidential Alternative Calculation Method Reference Manual For the 2019 Building Energy Efficiency Standards. Available at: <https://www.energy.ca.gov/2019publications/CEC-400-2019-006/CEC-400-2019-006-CMF.pdf>



2.2 Cost Effectiveness

The Reach Code Team analyzed the cost effectiveness of the packages by applying them to building prototypes (as applicable) using the life cycle cost methodology, which is approved and used by the Energy Commission to establish cost effective building energy standards (Title 24, Part 6).⁵

Per Energy Commission's methodology, the Reach Code Team assessed the incremental costs of the energy efficiency measure packages and compared them to the energy cost savings over the measure life of 15 years. Incremental costs represent the equipment, installation, replacements, and maintenance costs of the proposed measure relative to the 2019 Title 24 Standards minimum requirements. The energy savings benefits are estimated using both TDV of energy and typical utility rates for each building type:

- ◆ **Time Dependent Valuation:** TDV is a normalized monetary format developed and used by the Energy Commission for comparing electricity and natural gas savings, and it considers the cost of electricity and natural gas consumed during different times of the day and year. Simulation outputs are translated to TDV savings benefits using 2019 TDV multipliers and 15-year discounted costs for the nonresidential measure packages.
- ◆ **Utility bill impacts (On-bill):** Utility energy costs are estimated by applying appropriate IOU rates to estimated annual electricity and natural gas consumption. The energy bill savings are calculated as the difference in utility costs between the baseline and proposed package over a 15-year duration accounting for discount rate and energy cost escalation.

In coordination with the IOU rate team, and rate experts at a few electric publicly owned utilities (POUs), the Reach Code Team used the current nonresidential utility rates publicly available at the time of analysis to analyze the cost effectiveness for each proposed package. The utility tariffs, summarized in Figure 3, were determined based on the annual load profile of each prototype, and the most prevalent rate in each territory. For some prototypes there are multiple options for rates because of the varying load profiles of mixed-fuel buildings versus all-electric buildings. Tariffs were integrated in EnergyPro software to be applied to the hourly electricity and gas outputs. The Reach Code Team did not attempt to compare or test a variety of tariffs to determine their impact on cost effectiveness.

The currently available and applicable time-of-use (TOU) nonresidential rates are applied to both the base and proposed cases with PV systems.⁶ Any annual electricity production in excess of annual electricity consumption is credited at the applicable wholesale rate based on the approved NEM tariffs for that utility. For a more detailed breakdown of the rates selected refer to *Appendix 6.4 Utility Rate Schedules*. Note that most utility time-of-use rates will be updated in the near future, which can affect cost effectiveness results. For example, Pacific Gas and Electric Company (PG&E) will introduce new rates for new service connections in late 2019, and existing accounts will be automatically rolled over to new rates in November 2020.

⁵ Architectural Energy Corporation (January 2011) Life-Cycle Cost Methodology. California Energy Commission. Available at: http://www.energy.ca.gov/title24/2013standards/prerulemaking/documents/general_cec_documents/2011-01-14_LCC_Methodology_2013.pdf

⁶ Under NEM rulings by the CPUC (D-16-01-144, 1/28/16), all new PV customers shall be in an approved TOU rate structure. As of March 2016, all new PG&E net energy metering (NEM) customers are enrolled in a time-of-use rate. (<http://www.pge.com/en/myhome/saveenergymoney/plans/tou/index.page?>).



Figure 3. Utility Tariffs used based on Climate Zone

Climate Zones	Electric / Gas Utility	Electricity (Time-of-use)	Natural Gas
IOUs			
1-5,11-13,16	PG&E	A-1/A-10	G-NR1
5	PG&E / Southern California Gas Company	A-1/A-10	G-10 (GN-10)
6,8-10,14,15	SCE / Southern California Gas Company	TOU-GS-1/TOU-GS-2/TOU-GS-3	G-10 (GN-10)
7,10,14	San Diego Gas and Electric Company (SDG&E)	A-1/A-10	GN-3
Electric POUs			
4	City of Palo Alto (CPAU)	E-2	n/a
12	Sacramento Municipal Utility District (SMUD)	GS	n/a
6,7,8,16	Los Angeles Department of Water and Power (LADWP)	A-2 (B)	n/a

The Reach Code Team obtained measure costs through interviews with contractors and California distributors and review of online sources, such as Home Depot and RS Means. Taxes and contractor markups were added as appropriate. Maintenance costs were not included because there is no assumed maintenance on the envelope measures. For HVAC and SWH measures the study assumes there are no additional maintenance cost for a more efficient version of the same system type as the baseline. Replacement costs for inverters were included for PV systems, but the useful life all other equipment exceeds the study period.

The Reach Code Team compared the energy benefits with incremental measure cost data to determine cost effectiveness for each measure package. The calculation is performed for a duration of 15 years for all nonresidential prototypes with a 3 percent discount rate and fuel escalation rates based on the most recent General Rate Case filings and historical escalation rates.⁷ Cost effectiveness is presented using net present value and benefit-to-cost ratio metrics.

- ◆ **Net Present Value (NPV):** The Reach Code Team uses net savings (NPV benefits *minus* NPV costs) as the cost effectiveness metric. If the net savings of a measure or package is positive, it is considered cost effective. Negative savings represent net costs. A measure that has negative energy cost benefits (energy cost increase) can still be cost effective if the costs to implement the measure are more negative (i.e., material and maintenance cost savings).
- ◆ **Benefit-to-Cost Ratio (B/C):** Ratio of the present value of all benefits to the present value of all costs over 15 years (NPV benefits *divided by* NPV costs). The criteria for cost effectiveness is a B/C greater than 1.0. A value of one indicates the savings over the life of the measure are equivalent to the incremental cost of that measure.

⁷ 2019 TDV Methodology Report, California Energy Commission, Docket number: 16-BSTD-06
<https://efiling.energy.ca.gov/GetDocument.aspx?tn=216062>



There are several special circumstances to consider when reviewing these results:

- ◆ Improving the efficiency of a project often requires an initial incremental investment. However, some packages result in initial construction cost savings (negative incremental cost), and either energy cost savings (positive benefits), or increased energy costs (negative benefits). Typically, utility bill savings are categorized as a ‘benefit’ while incremental construction costs are treated as ‘costs.’ In cases where both construction costs are negative and utility bill savings are negative, the construction cost savings are treated as the ‘benefit’ while the utility bill negative savings are the ‘cost.’
- ◆ In cases where a measure package is cost effective immediately (i.e., there are upfront cost savings and lifetime energy cost savings), cost effectiveness is represented by “>1”.
- ◆ The B/C ratios sometimes appear very high even though the cost numbers are not very high (for example, an upfront cost of \$1 but on-bill savings of \$200 over 30 years would equate to a B/C ratio of 200). NPV is also displayed to clarify these potentially confusing conclusions – in the example, the NPV would be equal to a modest \$199.

3 Measure Description and Cost

Using the 2019 Title 24 code baseline as the starting point, The Reach Code Team identified potential measure packages to determine the projected energy (therm and kWh) and compliance impacts. The Reach Code Team developed an initial measure list based on experience with designers and contractors along with general knowledge of the relative acceptance and preferences of many measures, as well as their incremental costs.

The measures are categorized into energy efficiency, solar PV and battery, all-electric, and preempted high efficiency measures in subsections below.

3.1 Energy Efficiency Measures

This section describes all the energy efficiency measures considered for this analysis to develop a non-preempted, cost-effective efficiency measure package. The Reach Code Team assessed the cost-effectiveness of measures for all climate zones individually and found that the packages did not need to vary by climate zone, with the exception of a solar heat gain coefficient measure in hotels, as described in more detail below. The measures were developed based on reviews of proposed 2022 Title 24 codes and standards enhancement measures, as well as ASHRAE 90.1 and ASHRAE 189.1 Standards. Please refer to *Appendix Section 6.86.7* for a list of efficiency measures that were considered but not implemented.



Figure 4 provides a summary of the cost of each measure and the applicability of each measure to the prototype buildings.

3.1.1 Envelope

- ◆ **Modify Solar Heat Gain Coefficient (SHGC) fenestration**
 - ◆ Office and Retail - All Climate Zones: reduce window SHGC from the prescriptive value of 0.25 to 0.22
 - ◆ Hotel
 - ◆ Climate zones 1, 2, 3, 5, and 16: Increase the SHGC for all nonresidential spaces from the prescriptive value of 0.25 to 0.45 in both common and guest room spaces.
 - ◆ Climate zones 4, and 6-15: Reduce window SHGC from the prescriptive value of 0.25 to 0.22, only for common spaces.

In all cases, the fenestration visible transmittance and U-factor remain at prescriptive values.

- ◆ **Fenestration as a function of orientation:** Limit the amount of fenestration area as a function of orientation. East-facing and west-facing windows are each limited to one-half of the average amount of north-facing and south-facing windows.

3.1.2 HVAC and SWH

- ◆ **Drain water heat recovery (DWHR):** Add shower drain heat recovery in hotel guest rooms. DWHR captures waste heat from a shower drain line and uses it to preheat hot water. Note that this measure cannot currently be modeled on hotel/motel spaces, and the Reach Code Team integrated estimated savings outside of modeling software based on SWH savings in residential scenarios. Please see *Appendix Section 6.3* for details on energy savings analysis.
- ◆ **VAV box minimum flow:** Reduce VAV box minimum airflows from the current T24 prescriptive requirement of 20 percent of maximum (design) airflow to the T24 zone ventilation minimums.
- ◆ **Economizers on small capacity systems:** Require economizers and staged fan control in units with cooling capacity $\geq 33,000$ Btu/hr and $\leq 54,000$ Btu/hr, which matches the requirement in the 2018 International Green Construction Code and adopts ANSI/ASHRAE/ICC/USGBC/IES Standard 189.1. This measure reduces the T24 prescriptive threshold on air handling units that are required to have economizers, which is $> 54,000$ Btu/hr.
- ◆ **Solar thermal hot water:** For all-electric hotel only, add solar thermal water heating to supply the following portions of the water heating load, measured in solar savings fraction (SSF):
 - ◆ 20 percent SSF in CZs 2, 3, and 5-9
 - ◆ 25 percent in CZ4
 - ◆ 35 percent SSF in CZs 1 and 10-16.



3.1.3 Lighting

- ◆ **Interior lighting reduced lighting power density (LPD):** Reduce LPD by 15 percent for Medium Office, 10 percent for Medium Retail and by 10 percent for the nonresidential areas of the Small Hotel.
- ◆ **Institutional tuning:** Limit the maximum output or maximum power draw of lighting to 85 percent of full light output or full power draw.
- ◆ **Daylight dimming plus off:** Turn daylight-controlled lights completely off when the daylight available in the daylit zone is greater than 150 percent of the illuminance received from the general lighting system at full power. There is no associated cost with this measure, as the 2019 T24 Standards already require multilevel lighting and daylight sensors in primary and secondary daylit spaces. This measure is simply a revised control strategy and does not increase the number of sensors required or labor to install and program a sensor.
- ◆ **Occupant sensing in open plan offices:** In an open plan office area greater than 250 ft², control lighting based on occupant sensing controls. Two workstations per occupancy sensor.

Details on the applicability and impact of each measure by building type and by space function can be found in *Appendices 6.2*. The appendix also includes the resulting LPD that is modeled as the proposed by building type and by space function.



Figure 4. Energy Efficiency Measures - Specification and Cost

Measure	Baseline T24 Requirement	Measure Applicability				Incremental Cost	Sources & Notes
		• Included in Packages 1A, 1B, 3A, 3C – Not applicable					
		Med Office	Med Retail	Small Hotel			
Guest rooms	Comm Spaces						
Envelope							
Modify SHGC Fenestration	SHGC of 0.25	•	•	•	•	\$1.60 /ft ² window for SHGC decreases, \$0/ft ² for SHGC increases	Costs from one manufacturer.
Fenestration as a Function of Orientation	Limit on total window area and west-facing window area as a function of wall area.	•	–	–	–	\$0	No additional cost associated with the measure which is a design consideration not an equipment cost.
HVAC and SHW							
Drain Water Heat Recovery	No heat recovery required	–	–	•	–	\$841 /unit	Assume 1 heat recovery unit for every 3 guestrooms. Costs from three manufacturers.
VAV Box Minimum Flow	20 percent of maximum (design) airflow	•	–	–	•	\$0	No additional cost associated with the measure which is a design consideration not an equipment cost.
Economizers on Small Capacity Systems	Economizers required for units > 54,000 Btu/hr	–	•	–	–	\$2,857 /unit	Costs from one manufacturer's representative and one mechanical contractor.



Measure	Baseline T24 Requirement	Measure Applicability				Incremental Cost	Sources & Notes
		• Included in Packages 1A, 1B, 3A, 3C – Not applicable					
		Med Office	Med Retail	Small Hotel			
Guest rooms	Comm Spaces						
Solar Thermal Hot Water	For central heat pump water heaters, there is no prescriptive baseline requirement.	–	–	• (electric only)	–	\$33/therm-yr	Installed costs reported in the California Solar Initiative Thermal Program Database, 2015-present. ⁸ Costs include tank and were only available for gas backup systems. Costs are reduced by 19 percent per federal income tax credit average through 2022.
Lighting							
Interior Lighting Reduced LPD	Per Area Category Method, varies by Primary Function Area. Office area 0.60 – 0.70 W/ft ² depending on area of space. Hotel function area 0.85 W/ft ² . Retail Merchandise Sales 1.00 W/ft ²	•	•	–	•	\$0	Industry report on LED pricing analysis shows that costs are not correlated with efficacy. ⁹

⁸ <http://www.csithermalstats.org/download.html>

⁹ http://calmac.org/publications/LED_Pricing_Analysis_Report_-_Revised_1.19.2018_Final.pdf



Measure	Baseline T24 Requirement	Measure Applicability				Incremental Cost	Sources & Notes
		● Included in Packages 1A, 1B, 3A, 3C – Not applicable					
		Med Office	Med Retail	Small Hotel			
Guest rooms	Comm Spaces						
Institutional Tuning	No requirement, but Power Adjustment Factor (PAF) credit of 0.10 available for luminaires in non-daylit areas and 0.05 for luminaires in daylit areas ¹⁰	●	●	–	●	\$0.06/ft ²	Industry report on institutional tuning ¹¹
Daylight Dimming Plus Off	No requirement, but PAF credit of 0.10 available.	●	–	–	–	\$0	Given the amount of lighting controls already required, this measure is no additional cost.
Occupant Sensing in Open Plan Offices	No requirement, but PAF credit of 0.30 available.	●	–	–	–	\$189 /sensor; \$74 /powered relay; \$108 /secondary relay	2 workstations per sensor; 1 fixture per workstation; 4 workstations per master relay; 120 ft ² /workstation in open office area, which is 53% of total floor area of the medium office

¹⁰ Power Adjustment Factors allow designers to tradeoff increased lighting power densities for more efficient designs. In this study, PAF-related measures assume that the more efficient design is incorporated without a tradeoff for increased lighting power density.

¹¹ <https://slipstreaminc.org/sites/default/files/2018-12/task-tuning-report-mndoc-2015.pdf>



3.2 Solar Photovoltaics and Battery Measures

This section describes the PV and battery measures considered for this analysis. The Reach Code Team estimated the required PV sizes for each building prototype for the efficiency measure packages and the stand alone PV and battery options.

3.2.1 Solar Photovoltaics

2019 Title 24 requires nonresidential buildings to reserve at least 15 percent of the roof area as a “solar zone,” but does not include any requirements or compliance credits for the installation of photovoltaic systems. The Reach Code Team analyzed a range of PV system sizes to determine cost effectiveness. To determine upper end of potential PV system size, the Reach Code Team assumed a PV generation capacity of either

- ◆ 15 W/ft² covering 50 percent of the roof area, or
- ◆ Enough to nearly offset the annual energy consumption.

The medium office and small hotel prototypes had small roof areas compared to their annual electricity demand, thus the PV system capacity at 50 percent of the roof area was less than the estimated annual usage. The medium office and small hotel had a 135 kW and 80 kW array, respectively. The medium retail building has a substantially large roof area that would accommodate a PV array that generates more than the annual electricity load of the building. The PV array for the medium retail building was sized at 110 kW to not exceed the annual electricity consumption of the building when accounting for the minimum annual energy demand across climate zones with efficiency packages.

The modeling software for nonresidential buildings does not allow auto-sizing of PV based on a desired percent offset of electricity use. Moreover, the PV size is also constrained by the availability of roof area. Hence, a common size of PV is modeled for all the packages including all electric design. Figure 5 through Figure 7 below demonstrate the percent of electricity offset by PV for both mixed fuel and all electric buildings over their respective federal minimum design package.

Figure 5. Medium Office – Annual Percent kWh Offset with 135 kW Array

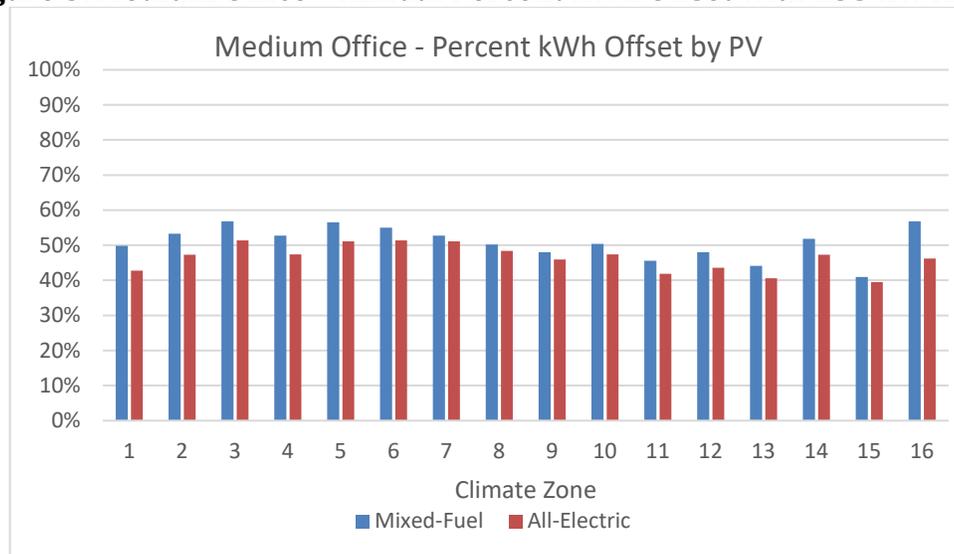


Figure 6. Medium Retail – Annual Percent kWh Offset with 110 kW Array

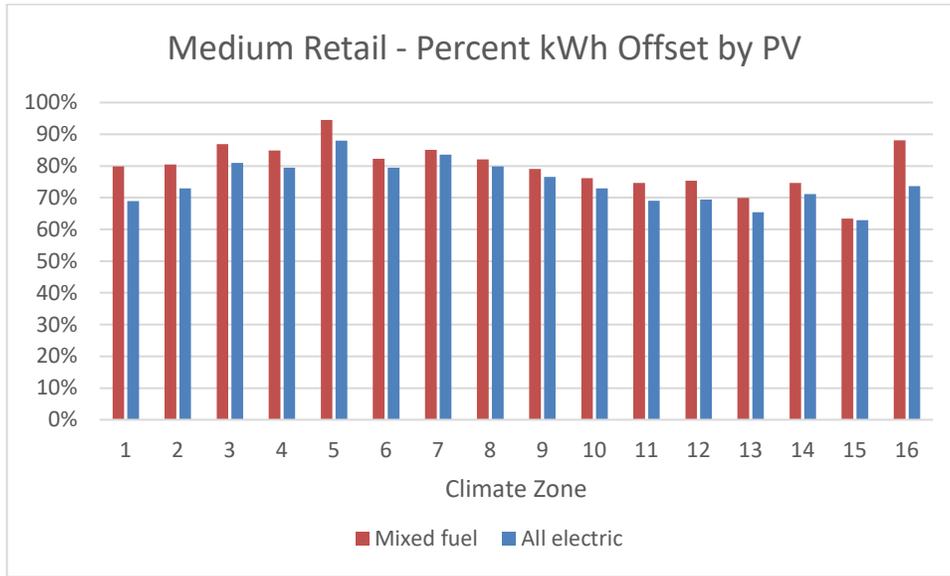
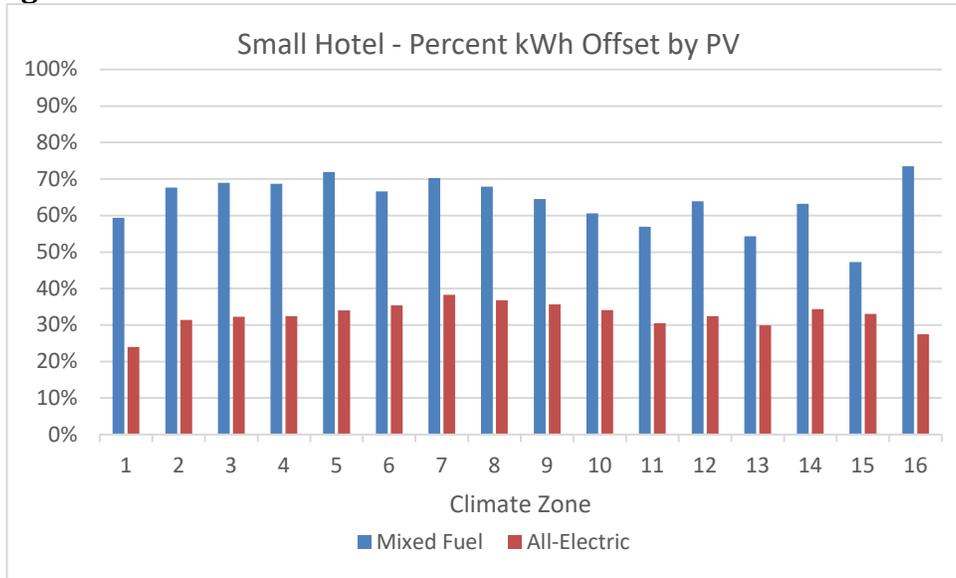


Figure 7. Small Hotel – Annual Percent kWh Offset with 80 kW Array



The costs for PV include first cost to purchase and install the system, inverter replacement costs, and annual maintenance costs. A summary of the medium office costs and sources is given in Figure 8. Upfront solar PV system costs are reduced by the federal income tax credit (ITC), approximately 19 percent due to a phased reduction in the credit through the year 2022.¹²

¹² The federal credit drops to 26% in 2020, and 22% in 2021 before dropping permanently to 10% for commercial projects and 0% for residential projects in 2022. More information on federal Investment Tax Credits available at: <https://www.seia.org/initiatives/solar-investment-tax-credit-itc>



Figure 8. Medium Office Upfront PV Costs

	Unit Cost	Cost	Useful Life (yrs.)	Source
Solar PV System	\$2.30 / Wdc	\$310,500	30	National Renewable Energy Laboratory (NREL) Q1 2016 ¹³
Inverter Replacement	\$0.15 / Wdc	\$20,250	10	E3 Rooftop Solar PV System Report ¹⁴
Maintenance Costs	\$0.02 / Wdc	\$2,700	1	

PV energy output is built into CBECC-Com and is based on NREL’s PVWatts calculator, which includes long term performance degradation estimates.¹⁵

3.2.2 Battery Storage

This measure includes installation of batteries to allow energy generated through PV to be stored and used later, providing additional energy cost benefits. This report does not focus on optimizing battery sizes or controls for each prototype and climate zone, though the Reach Code Team ran test simulations to assess the impact of battery sizes on TDV savings and found diminishing returns as the battery size increased.

The team set battery control to the Time of Use Control (TOU) method, which assumes batteries are charged anytime PV generation is greater than the building load but discharges to the electric grid beginning during the highest priced hours of the day (the “First Hour of the Summer Peak”). Because there is no default hour available in CBECC-Com, the team applied the default hour available in CBECC-Res to start discharging (hour 19 in CZs 2, 4, and 8-15, and hour 20 in other CZs). This control option is most reflective of the current products on the market. While this control strategy is being used in the analysis, there would be no mandate on the control strategy used in practice.

The current simulation software has approximations of how performance characteristics change with environmental conditions, charge/discharge rates, and degradation with age and use. More information is on the software battery control capabilities and associated qualification requirements are available in the Residential Alternative Calculation Method Reference Manual and the 2019 Reference Appendices for the 2019 Title 24 Standards.^{16,17}

The Reach Code Team used costs of \$558 kWh based on a 2018 IOU Codes and Standards Program report, assuming a replacement is necessary in year 15.¹⁸ Batteries are also eligible for the ITC if they are installed at the same time as the renewable generation source and at least 75 percent of the energy used to charge

¹³ Available at: <https://www.nrel.gov/docs/fy16osti/66532.pdf>

¹⁴ Available at: <https://efiling.energy.ca.gov/getdocument.aspx?tn=221366>

¹⁵ More information available at: <https://pvwatts.nrel.gov/downloads/pvwattsv5.pdf>

¹⁶ Battery controls are discussed in Sections 2.1.5.4 and Appendix D of the Residential Alternative Calculation Method Reference Manual, available here: <https://ww2.energy.ca.gov/2019publications/CEC-400-2019-005/CEC-400-2019-005-CMF.pdf>

¹⁷ Qualification Requirements for Battery Storage Systems are available in JA12 of the 2019 Reference Appendices: <https://ww2.energy.ca.gov/2018publications/CEC-400-2018-021/CEC-400-2018-021-CMF.pdf>

¹⁸ Available at: http://localenergycodes.com/download/430/file_path/fieldList/PV%20Plus%20Battery%20Storage%20Report



the battery comes from a renewable source. Thus, the Reach Code Team also applied a 19 percent cost reduction to battery costs.

3.2.3 PV-only and PV+Battery Packages

The Reach Code Team analyzed solar PV and battery storage only, without other efficiency measures in both mixed-fuel and all-electric building designs. Two different sizes of solar PV and battery storage were analyzed.

- ◆ **Small PV Size:** 3 kW, assumed to be the minimal PV system considered for installation in a nonresidential building.
- ◆ **Large PV Size:** PV capacity equal to 15 W/ft² over 50 percent of the roof area, or sized to nearly offset annual electricity consumption, as described in Section 3.2.1.
- ◆ **Small Battery Size:** 5 kWh, assumed to be the minimal battery system considered for installation in a nonresidential building, and representative of smaller products currently available on the market.
- ◆ **Large Battery Size:** 50 kWh, assumed to be a substantially large size for a nonresidential setting. Generally, the reach code team found diminishing on-bill and TDV benefits as the battery size increased.

As described in Section 1 and Section 4.4, each PV size was run as a standalone measure. When packaged with a battery measure, the small PV size was paired with the small battery size, and the large PV size was paired with the large battery size.

3.3 All Electric Measures

The Reach Code Team investigated the cost and performance impacts and associated infrastructure costs associated with changing the baseline HVAC and water heating systems to all-electric equipment. This includes heat pump space heating, electric resistance reheat coils, electric water heater with storage tank, heat pump water heating, increasing electrical capacity, and eliminating natural gas connections that would have been present in mixed-fuel new construction. The Reach Code Team selected electric systems that would be installed instead of gas-fueled systems in each prototype.

3.3.1 HVAC and Water Heating

The nonresidential standards use a mixed-fuel baseline for the Standard Design systems. In most nonresidential occupancies, the baseline is natural gas space heating. Hotel/motels and high-rise residential occupancies also assume natural gas baseline water heating systems for the guest rooms and dwelling units. In the all-electric scenario, gas equipment serving these end-uses is replaced with electric equipment, as described in Figure 9.



Figure 9. All-Electric HVAC and Water Heating Characteristics Summary.

		Medium Office	Medium Retail	Small Hotel
HVAC System	Baseline	Packaged DX + VAV with HW reheat. Central gas boilers.	Single zone packaged DX with gas furnaces	<u>NonRes</u> : Packaged DX + VAV with HW reheat. Central gas boilers. <u>Res</u> : Single zone DX AC unit with gas furnaces
	Proposed All-Electric	Packaged DX + VAV with electric resistance reheat.	Single zone packaged heat pumps	<u>NonRes</u> : Packaged DX + VAV with electric resistance reheat <u>Res</u> : Single zone heat pumps
Water Heating System	Baseline	Electric resistance with storage	Electric resistance with storage	<u>NonRes</u> : Electric resistance storage <u>Res</u> : Central gas storage with recirculation
	Proposed All-Electric	Electric resistance with storage	Electric resistance with storage	<u>NonRes</u> : Electric resistance storage <u>Res</u> : Individual heat pumps

The Reach Code Team received cost data for baseline mixed-fuel equipment as well as electric equipment from an experienced mechanical contractor in the San Francisco Bay Area. The total construction cost includes equipment and material, labor, subcontractors (for example, HVAC and SHW control systems), and contractor overhead.

3.3.1.1 Medium Office

The baseline HVAC system includes two gas hot water boilers, three packaged rooftop units, and VAV hot water reheat boxes. The SHW design includes one 8.75 kW electric resistance hot water heater with a 30-gallon storage tank.

For the medium office all-electric HVAC design, the Reach Code Team investigated several potential all-electric design options, including variable refrigerant flow, packaged heat pumps, and variable volume and temperature systems. After seeking feedback from the design community, the Reach Code Team determined that the most feasible all-electric HVAC system, given the software modeling constraints is a VAV system with an electric resistance reheat instead of hot water reheat coil. A parallel fan-powered box (PFPB) implementation of electric resistance reheat would further improve efficiency due to reducing ventilation requirements, but an accurate implementation of PFPBs is not currently available in compliance software.

Note that the actual natural gas consumption for the VAV hot water reheat baseline may be higher than the current simulation results due to a combination of boiler and hot water distribution losses. A recent research study shows that the total losses can account for as high as 80 percent of the boiler energy use.¹⁹

¹⁹ Raftery, P., A. Geronazzo, H. Cheng, and G. Paliaga. 2018. Quantifying energy losses in hot water reheat systems. Energy and Buildings, 179: 183-199. November. <https://doi.org/10.1016/j.enbuild.2018.09.020>. Retrieved from <https://escholarship.org/uc/item/3qs8f8qx>



If these losses are considered savings for the electric resistance reheat (which has zero associated distribution loss) may be higher.

The all-electric SHW system remains the same electric resistance water heater as the baseline and has no associated incremental costs.

Cost data for medium office designs are presented in Figure 10. The all-electric HVAC system presents cost savings compared to the hot water reheat system from elimination of the hot water boiler and associated hot water piping distribution. CZ10 and CZ15 all-electric design costs are slightly higher because they require larger size rooftop heat pumps than the other climate zones.

Figure 10. Medium Office HVAC System Costs

Climate Zone	Mixed Fuel Baseline	All Electric System	Incremental cost for All-Electric
CZ01	\$1,202,538	\$1,106,432	\$(96,106)
CZ02	\$1,261,531	\$1,178,983	\$(82,548)
CZ03	\$1,205,172	\$1,113,989	\$(91,183)
CZ04	\$1,283,300	\$1,205,434	\$(77,865)
CZ05	\$1,207,345	\$1,113,989	\$(93,356)
CZ06	\$1,216,377	\$1,131,371	\$(85,006)
CZ07	\$1,227,932	\$1,148,754	\$(79,178)
CZ08	\$1,250,564	\$1,172,937	\$(77,626)
CZ09	\$1,268,320	\$1,196,365	\$(71,955)
CZ10	\$1,313,580	\$1,256,825	\$(56,755)
CZ11	\$1,294,145	\$1,221,305	\$(72,840)
CZ12	\$1,274,317	\$1,197,121	\$(77,196)
CZ13	\$1,292,884	\$1,221,305	\$(71,579)
CZ14	\$1,286,245	\$1,212,236	\$(74,009)
CZ15	\$1,357,023	\$1,311,994	\$(45,029)
CZ16	\$1,295,766	\$1,222,817	\$(72,949)

3.3.1.2 Medium Retail

The baseline HVAC system includes five packaged single zone rooftop ACs with gas furnaces. Based on fan control requirements in section 140.4(m), units with cooling capacity $\geq 65,000$ Btu/h have variable air volume fans, while smaller units have constant volume fans. The SHW design includes one 8.75 kW electric resistance hot water heater with a 30-gallon storage tank.

For the medium retail all-electric HVAC design, the Reach Code Team assumed packaged heat pumps instead of the packaged ACs. The all-electric SHW system remains the same electric resistance water heater as the baseline and has no associated incremental costs.

Cost data for medium retail designs are presented in Figure 11. Costs for rooftop air-conditioning systems are very similar to rooftop heat pump systems.



Figure 11. Medium Retail HVAC System Costs

Climate Zone	Mixed Fuel Baseline	All Electric System	Incremental cost for All-Electric
CZ01	\$328,312	\$333,291	\$4,978
CZ02	\$373,139	\$373,702	\$563
CZ03	\$322,849	\$326,764	\$3,915
CZ04	\$329,900	\$335,031	\$5,131
CZ05	\$359,888	\$362,408	\$2,520
CZ06	\$335,728	\$341,992	\$6,265
CZ07	\$345,544	\$349,808	\$4,265
CZ08	\$368,687	\$369,792	\$1,104
CZ09	\$415,155	\$411,069	\$(4,087)
CZ10	\$345,993	\$346,748	\$755
CZ11	\$418,721	\$414,546	\$(4,175)
CZ12	\$405,110	\$400,632	\$(4,477)
CZ13	\$376,003	\$375,872	\$(131)
CZ14	\$405,381	\$406,752	\$1,371
CZ15	\$429,123	\$427,606	\$(1,517)
CZ16	\$401,892	\$404,147	\$2,256

3.3.1.3 Small Hotel

The small hotel has two different baseline equipment systems, one for the nonresidential spaces and one for the guest rooms. The nonresidential HVAC system includes two gas hot water boilers, four packaged rooftop units and twelve VAV terminal boxes with hot water reheat coil. The SHW design includes a small electric water heater with storage tank. The residential HVAC design includes one single zone AC unit with gas furnace for each guest room and the water heating design includes one central gas storage water heater with a recirculation pump for all guest rooms.

For the small hotel all-electric design, the Reach Code Team assumed the nonresidential HVAC system to be packaged heat pumps with electric resistance VAV terminal units, and the SHW system to remain a small electric resistance water heater.

For the guest room all-electric HVAC system, the analysis used a single zone (packaged terminal) heat pump and a central heat pump water heater serving all guest rooms. Central heat pump water heating with recirculation serving guest rooms cannot yet be modeled in CBECC-Com, and energy impacts were modeled by simulating individual heat pump water heaters in each guest room. The reach code team believes this is a conservative assumption, since individual heat pump water heaters will have much higher tank standby losses. The Reach Code Team attained costs for central heat pump water heating installation including storage tanks and controls and used these costs in the study.

Cost data for small hotel designs are presented in Figure 12. The all-electric design presents substantial cost savings because there is no hot water plant or piping distribution system serving the nonresidential spaces, as well as the lower cost of packaged terminal heat pumps serving the residential spaces compared to split DX/furnace systems with individual flues.



Figure 12. Small Hotel HVAC and Water Heating System Costs

Climate Zone	Mixed Fuel Baseline	All Electric System	Incremental cost for All-Electric
CZ01	\$2,337,531	\$1,057,178	\$(1,280,353)
CZ02	\$2,328,121	\$1,046,795	\$(1,281,326)
CZ03	\$2,294,053	\$1,010,455	\$(1,283,598)
CZ04	\$2,302,108	\$1,018,675	\$(1,283,433)
CZ05	\$2,298,700	\$1,015,214	\$(1,283,486)
CZ06	\$2,295,380	\$1,011,753	\$(1,283,627)
CZ07	\$2,308,004	\$1,026,029	\$(1,281,975)
CZ08	\$2,333,662	\$1,053,717	\$(1,279,946)
CZ09	\$2,312,099	\$1,030,355	\$(1,281,744)
CZ10	\$2,354,093	\$1,075,348	\$(1,278,745)
CZ11	\$2,347,980	\$1,068,426	\$(1,279,554)
CZ12	\$2,328,654	\$1,047,660	\$(1,280,994)
CZ13	\$2,348,225	\$1,068,858	\$(1,279,367)
CZ14	\$2,345,988	\$1,066,263	\$(1,279,725)
CZ15	\$2,357,086	\$1,079,241	\$(1,277,845)
CZ16	\$2,304,094	\$1,019,973	\$(1,284,121)

3.3.2 *Infrastructure Impacts*

Electric heating appliances and equipment often require a larger electrical connection than an equivalent natural gas appliance because of the higher voltage and amperage necessary to electrically generate heat. Thus, many buildings may require larger electrical capacity than a comparable building with natural gas appliances. This includes:

- ◆ Electric resistance VAV space heating in the medium office and common area spaces of the small hotel.
- ◆ Heat pump water heating for the guest room spaces of the small hotel.

3.3.2.1 *Electrical Panel Sizing and Wiring*

This section details the additional electrical panel sizing and wiring required for all-electric measures. In an all-electric new construction scenario, heat pumps replace packaged DX units which are paired with either a gas furnace or a hot water coil (supplied by a gas boiler). The electrical requirements of the replacement heat pump would be the same as the packaged DX unit it replaces, as the electrical requirements would be driven by the cooling capacity, which would remain the same between the two units.

VAV terminal units with hot water reheat coils that are replaced with electric resistance reheat coils require additional electrical infrastructure. In the case of electric resistance coils, the Reach Code Team assumed that on average, a VAV terminal unit serves around 900 ft² of conditioned space and has a heating capacity of 5 kW (15 kBtu/hr/ft²). The incremental electrical infrastructure costs were determined based on RS Means. Calculations for the medium office shown in Figure 13 include the cost to add electrical panels as well as the cost to add electrical lines to each VAV terminal unit electric resistance coil in the medium office prototype. Additionally, the Reach Code Team subtracted the electrical infrastructure costs associated with hot water pumps required in the mixed fuel baseline, which are not required in the all-electric measures.



The Reach Code Team calculated costs to increase electrical capacity for heat pump water heaters in the small hotel similarly.

Figure 13. Medium Office Electrical Infrastructure Costs for All-Electric Design

A	-	No. VAV Boxes	60
B	-	VAV box heating capacity (watts)	4,748
C	-	No. hot water pumps	2
D	-	Hot water pump power (watts)	398
E	-	Voltage	208
F	$(A \times B - C \times D) / E$	Panel ampacity required	1,366
G	$F / 400$	Number of 400-amp panels required	4
H	-	Cost per 400-amp panel	\$3,100
I	$G \times H$	Total panel cost	\$12,400
J	-	Total electrical line length required (ft)	4,320
K	-	Cost per linear foot of electrical line	\$3.62
L	$J \times K$	Total electrical line cost	\$15,402
	I + L	Total electrical infrastructure incremental cost	\$27,802

3.3.2.2 Natural Gas

This analysis assumes that in an all-electric new construction scenario natural gas would not be supplied to the site. Eliminating natural gas in new construction would save costs associated with connecting a service line from the street main to the building, piping distribution within the building, and monthly connection charges by the utility.

The Reach Code Team determined that for a new construction building with natural gas piping, there is a service line (branch connection) from the natural gas main to the building meter. In the medium office prototype, natural gas piping is routed to the boiler. The Reach Code Team assumed that the boiler is on the first floor, and that 30 feet of piping is required from the connection to the main to the boiler. The Reach Code Team assumed 1" corrugated stainless steel tubing (CSST) material is used for the plumbing distribution. The Reach Code Team included costs for a natural gas plan review, service extension, and a gas meter, as shown in Figure 14 below. The natural gas plan review cost is based on information received from the City of Palo Alto Utilities. The meter costs are from PG&E and include both material and labor. The service extension costs are based on guidance from PG&E, who noted that the cost range is highly varied and that there is no "typical" cost, with costs being highly dependent on length of extension, terrain, whether the building is in a developed or undeveloped area, and number of buildings to be served. While an actual service extension cost is highly uncertain, the team believes the costs assumed in this analysis are within a reasonable range based on a sample range of costs provided by PG&E. These costs assume development in a previously developed area.



Figure 14. Natural Gas Infrastructure Cost Savings for All-Electric Prototypes

Cost Type	Medium Office	Medium Retail	Small Hotel
Natural Gas Plan Review	\$2,316	\$2,316	\$2,316
Service Extension	\$13,000	\$13,000	\$13,000
Meter	\$3,000	\$3,000	\$3,000
Plumbing Distribution	\$633	\$9,711	\$37,704
Total Cost	\$18,949	\$28,027	\$56,020

3.4 Preempted High Efficiency Appliances

The Reach Code Team developed a package of high efficiency (HE) space and water heating appliances based on commonly available products for both the mixed-fuel and all-electric scenarios. This package assesses the standalone contribution that high efficiency measures would make toward achieving high performance thresholds. The Reach Code Team reviewed the Air Conditioning, Heating, and Refrigeration Institute (AHRI) certified product database to estimate appropriate efficiencies.²⁰

The Reach Code Team determined the efficiency increases to be appropriate based on equipment type, summarized in Figure 15, with cost premiums attained from a Bay Area mechanical contractor. The ranges in efficiency are indicative of varying federal standard requirements based on equipment size.

Figure 15. High Efficiency Appliance Assumptions

	Federal Minimum Efficiency	Preempted Efficiency	Cost Premium for HE Appliance
Gas space heating and water heating	80-82%	90-95%	10-15%
Large packaged rooftop cooling	9.8-12 EER 11.4-12.9 IEER	10.5-13 EER 15-15.5 IEER	10-15%
Single zone heat pump space heating	7.7 HSPF 3.2 COP	10 HSPF 3.5 COP	6-15%
Heat pump water heating	2.0 UEF	3.3 UEF	None (market does not carry 2.0 UEF)

3.5 Greenhouse Gas Emissions

The analysis uses the greenhouse gas (GHG) emissions estimates from Zero Code reports available in CBECC-Com.²¹ Zero Code uses 8760 hourly multipliers accounting for time dependent energy use and carbon emissions based on source emissions, including renewable portfolio standard projections. Fugitive

²⁰ Available at: <https://www.ahridirectory.org/Search/SearchHome?ReturnUrl=%2f>

²¹ More information available at: <https://zero-code.org/wp-content/uploads/2018/11/ZERO-Code-TSD-California.pdf>



emissions are not included. There are two strings of multipliers – one for Northern California climate zones, and another for Southern California climate zones.²²

4 Results

The Reach Code Team evaluated cost effectiveness of the following measure packages over a 2019 mixed-fuel code compliant baseline for all climate zones, as detailed in Sections 4.1 -- 4.3 and reiterated in Figure 16:

- ◆ **Package 1A – Mixed-Fuel + EE:** Mixed-fuel design with energy efficiency measures and federal minimum appliance efficiencies.
- ◆ **Package 1B – Mixed-Fuel + EE + PV + B:** Same as Package 1A, plus solar PV and batteries.
- ◆ **Package 1C – Mixed-fuel + HE:** Alternative design with high efficiency appliances, triggering federal preemption.
- ◆ **Package 2 – All-Electric Federal Code-Minimum Reference:** All-electric design with federal code minimum appliance efficiency. No solar PV or battery.
- ◆ **Package 3A – All-Electric + EE:** All-electric design with energy efficiency measures and federal minimum appliance efficiencies.
- ◆ **Package 3B – All-Electric + EE + PV + B:** Same as Package 3A, plus solar PV and batteries.
- ◆ **Package 3C – All-Electric + HE:** All-electric design with high efficiency appliances, triggering federal preemption.

Figure 16. Package Summary

Package	Fuel Type		Energy Efficiency Measures	PV & Battery (PV + B)	High Efficiency Appliances (HE)
	Mixed Fuel	All-Electric			
Mixed-Fuel Code Minimum Baseline	X				
1A – Mixed-Fuel + EE	X		X		
1B – Mixed-Fuel + EE + PV + B	X		X	X	
1C – Mixed-fuel + HE	X				X
2 – All-Electric Federal Code-Minimum Reference		X			
3A – All-Electric + EE		X	X		
3B – All-Electric + EE + PV + B		X	X	X	
3C – All-Electric + HE		X			X

²² CBECC-Com documentation does not state which climate zones fall under which region. CBECC-Res multipliers are the same for CZs 1-5 and 11-13 (presumed to be Northern California), while there is another set of multipliers for CZs 6-10 and 14-16 (assumed to be Southern California).



Section 4.4 presents the results of the PV-only and PV+Battery analysis.

The TDV and on-bill based cost effectiveness results are presented in terms of B/C ratio and NPV in this section. What constitutes a ‘benefit’ or a ‘cost’ varies with the scenarios because both energy savings and incremental construction costs may be negative depending on the package. Typically, utility bill savings are categorized as a ‘benefit’ while incremental construction costs are treated as ‘costs.’ In cases where both construction costs are negative and utility bill savings are negative, the construction cost savings are treated as the ‘benefit’ while the utility bill negative savings are as the ‘cost.’

Overarching factors to keep in mind when reviewing the results include:

- ◆ To pass the Energy Commission’s application process, local reach codes must both be cost effective and exceed the energy performance budget using TDV (i.e., have a positive compliance margin). To emphasize these two important factors, the figures in this Section highlight in green the modeling results that have **either** a positive compliance margin or are cost effective. This will allow readers to identify whether a scenario is fully or partially supportive of a reach code, and the opportunities/challenges that the scenario presents. Conversely, Section 4.4 only highlights results that **both** have a positive compliance margin and are cost effective, to allow readers to identify reach code-ready scenarios.
- ◆ **Note:** Compliance margin represents the proportion of energy usage that is saved compared to the baseline, measured on a TDV basis.
- ◆ The Energy Commission does not currently allow compliance credit for either solar PV or battery storage. Thus, the compliance margins in Packages 1A are the same as 1B, and Package 3A is the same as 3B. However, The Reach Code Team did include the impact of solar PV and battery when calculating TDV cost-effectiveness.
- ◆ When performance modeling residential buildings, the Energy Commission allows the Standard Design to be electric if the Proposed Design is electric, which removes TDV-related penalties and associated negative compliance margins. This essentially allows for a compliance pathway for all-electric residential buildings. Nonresidential buildings are not treated in the same way and are compared to a mixed-fuel standard design.
- ◆ Results do not include an analysis and comparison of utility rates. As mentioned in *Section 2.2*, The Reach Code Team coordinated with utilities to select tariffs for each prototype given the annual energy demand profile and the most prevalent rates in each utility territory. The Reach Code Team did not compare a variety of tariffs to determine their impact on cost effectiveness. Note that most utility time-of-use rates are continuously updated, which can affect cost effectiveness results.
- ◆ As a point of comparison, mixed-fuel baseline energy figures are provided in *Appendix 6.5*.

4.1 Cost Effectiveness Results – Medium Office

Figure 17 through Figure 23 contain the cost-effectiveness findings for the Medium Office packages. Notable findings for each package include:

- ◆ **1A – Mixed-Fuel + EE:** Packages achieve +12 to +20 percent compliance margins depending on climate zone. All packages are cost effective in all climate zones using the TDV approach. All packages are cost effective using the On-Bill approach except for LADWP territory.



- ◆ **1B – Mixed-Fuel + EE + PV + B:** All packages are cost effective using the On-Bill and TDV approaches, except On-Bill in LADWP territory. When compared to 1A, the B/C ratio changes depending on the utility and climate zone (some increase while others decrease). However, NPV savings are increased across the board, suggesting that larger investments yield larger returns.
- ◆ **1C – Mixed-Fuel + HE:** Packages achieve +3 to +5 percent compliance margins depending on climate zone, but no packages were cost effective. The incremental costs of a high efficiency condensing boiler compared to a non-condensing boiler contributes to 26-47% of total incremental cost depending on boiler size. Benefits of condensing boiler efficiency come from resetting hot water return temperature as boiler efficiency increases at lower hot water temperature. However, hot water temperature reset control cannot currently be implemented in the software. In addition, the natural gas energy cost constitutes no more than 5% of total cost for 15 climate zones, so improving boiler efficiency has limited contribution to reduction of total energy cost.
- ◆ **2 – All-Electric Federal Code-Minimum Reference:**
 - ◆ Packages achieve between -27 percent and +1 percent compliance margins depending on climate zone. This is likely because the modeled system is electric resistance, and TDV values electricity consumption more heavily than natural gas. This all-electric design without other efficiency measures does not comply with the Energy Commission’s TDV performance budget.
 - ◆ All incremental costs are negative due to the elimination of natural gas infrastructure.
 - ◆ Packages achieve utility cost savings and are cost effective using the On-Bill approach in CZs 6-10 and 14-15. Packages do not achieve savings and are not cost effective using the On-Bill approach in most of PG&E territory (CZs 1,2,4, 11-13, and 16). Packages achieve savings and are cost effective using TDV in all climate zones except CZ16.
- ◆ **3A – All-Electric + EE:** Packages achieve positive compliance margins except -15 percent in CZ16, which has a higher space heating load than other climate zones. All packages are cost effective in all climate zones except CZ16.
- ◆ **3B – All-Electric + EE + PV + B:** Packages achieve positive compliance margins except -15 percent in CZ16. All packages are cost-effective from a TDV perspective in all climate zones. All packages are cost effective from an On-Bill perspective in all climate zones except in CZ 2 and CZ 16 in LADWP territory.
- ◆ **3C – All-Electric + HE:** Packages achieve between -26 percent and +2 percent compliance margins depending on climate zone. The only packages that are cost effective and with a positive compliance margin are in CZs 7-9 and 15. As described in Package 1C results, space heating is a relatively low proportion of energy costs in most climate zones, limiting the costs gains for higher efficiency equipment.



Figure 17. Cost Effectiveness for Medium Office Package 1A – Mixed-Fuel + EE

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 1A: Mixed Fuel + EE												
CZ01	PG&E	34,421	-808	4.5	18%	\$66,649	\$125,902	\$71,307	1.9	1.1	\$59,253	\$4,658
CZ02	PG&E	40,985	-505	8.1	17%	\$66,649	\$163,655	\$99,181	2.5	1.5	\$97,005	\$32,532
CZ03	PG&E	36,266	-463	7.0	20%	\$66,649	\$141,897	\$84,051	2.1	1.3	\$75,248	\$17,401
CZ04	PG&E	40,590	-547	7.7	14%	\$66,649	\$162,139	\$95,410	2.4	1.4	\$95,489	\$28,761
CZ04-2	CPAU	40,590	-547	7.7	14%	\$66,649	\$85,537	\$95,410	1.3	1.4	\$18,887	\$28,761
CZ05	PG&E	38,888	-499	7.4	18%	\$66,649	\$154,044	\$91,115	2.3	1.4	\$87,395	\$24,465
CZ05-2	SCG	38,888	-499	7.4	18%	\$66,649	\$156,315	\$91,115	2.3	1.4	\$89,665	\$24,465
CZ06	SCE	39,579	-305	8.7	20%	\$66,649	\$86,390	\$100,469	1.3	1.5	\$19,741	\$33,820
CZ06-2	LADWP	39,579	-305	8.7	20%	\$66,649	\$51,828	\$100,469	0.8	1.5	(\$14,821)	\$33,820
CZ07	SDG&E	41,817	-6	11.3	20%	\$66,649	\$204,394	\$112,497	3.1	1.7	\$137,745	\$45,848
CZ08	SCE	41,637	-60	10.8	18%	\$66,649	\$89,783	\$113,786	1.3	1.7	\$23,134	\$47,137
CZ08-2	LADWP	41,637	-60	10.8	18%	\$66,649	\$54,876	\$113,786	0.8	1.7	(\$11,773)	\$47,137
CZ09	SCE	42,539	-210	10.1	16%	\$66,649	\$95,636	\$115,647	1.4	1.7	\$28,987	\$48,998
CZ09-2	LADWP	42,539	-210	10.1	16%	\$66,649	\$58,168	\$115,647	0.9	1.7	(\$8,481)	\$48,998
CZ10	SDG&E	41,857	-216	9.8	17%	\$66,649	\$210,303	\$108,726	3.2	1.6	\$143,654	\$42,077
CZ10-2	SCE	41,857	-216	9.8	17%	\$66,649	\$92,736	\$108,726	1.4	1.6	\$26,087	\$42,077
CZ11	PG&E	42,523	-390	9.1	13%	\$66,649	\$166,951	\$104,001	2.5	1.6	\$100,301	\$37,352
CZ12	PG&E	41,521	-466	8.4	14%	\$66,649	\$161,594	\$100,135	2.4	1.5	\$94,945	\$33,486
CZ12-2	SMUD	41,521	-466	8.4	14%	\$66,649	\$71,734	\$100,135	1.1	1.5	\$5,085	\$33,486
CZ13	PG&E	42,898	-434	9.0	13%	\$66,649	\$169,107	\$99,992	2.5	1.5	\$102,457	\$33,343
CZ14	SDG&E	42,224	-441	8.6	14%	\$66,649	\$211,529	\$106,913	3.2	1.6	\$144,880	\$40,264
CZ14-2	SCE	42,224	-441	8.6	14%	\$66,649	\$95,809	\$106,913	1.4	1.6	\$29,160	\$40,264
CZ15	SCE	45,723	-147	11.2	12%	\$66,649	\$102,714	\$118,034	1.5	1.8	\$36,065	\$51,384
CZ16	PG&E	37,758	-736	5.8	14%	\$66,649	\$145,947	\$79,755	2.2	1.2	\$79,297	\$13,106
CZ16-2	LADWP	37,758	-736	5.8	14%	\$66,649	\$40,115	\$79,755	0.6	1.2	(\$26,534)	\$13,106



Figure 18. Cost Effectiveness for Medium Office Package 1B – Mixed-Fuel + EE + PV + B

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (mtons)	Compliance Margin (%)	Incremental Package Cost	Lifecycle Energy Cost Savings	\$-TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Mixed Fuel + PV + Battery												
CZ01	PG&E	211,225	-808	39.9	18%	\$397,405	\$645,010	\$454,284	1.6	1.1	\$247,605	\$56,879
CZ02	PG&E	255,787	-505	50.6	17%	\$397,405	\$819,307	\$573,033	2.1	1.4	\$421,902	\$175,628
CZ03	PG&E	245,421	-463	48.8	20%	\$397,405	\$777,156	\$536,330	2.0	1.3	\$379,751	\$138,925
CZ04	PG&E	267,612	-547	52.7	14%	\$397,405	\$836,221	\$597,471	2.1	1.5	\$438,816	\$200,066
CZ04-2	CPAU	267,612	-547	52.7	14%	\$397,405	\$621,879	\$597,471	1.6	1.5	\$224,474	\$200,066
CZ05	PG&E	264,581	-499	52.5	18%	\$397,405	\$897,216	\$578,856	2.3	1.5	\$499,811	\$181,451
CZ05-2	SCG	264,581	-499	52.5	18%	\$397,405	\$899,487	\$578,856	2.3	1.5	\$502,082	\$181,451
CZ06	SCE	257,474	-305	52.1	20%	\$397,405	\$484,229	\$594,416	1.2	1.5	\$86,824	\$197,011
CZ06-2	LA	257,474	-305	52.1	20%	\$397,405	\$282,360	\$594,416	0.7	1.5	(\$115,045)	\$197,011
CZ07	SDG&E	264,530	-6	55.7	20%	\$397,405	\$817,528	\$610,548	2.1	1.5	\$420,123	\$213,143
CZ08	SCE	258,348	-60	54.0	18%	\$397,405	\$479,073	\$625,249	1.2	1.6	\$81,668	\$227,844
CZ08-2	LA	258,348	-60	54.0	18%	\$397,405	\$275,704	\$625,249	0.7	1.6	(\$121,701)	\$227,844
CZ09	SCE	262,085	-210	54.3	16%	\$397,405	\$480,241	\$622,528	1.2	1.6	\$82,836	\$225,123
CZ09-2	LA	262,085	-210	54.3	16%	\$397,405	\$282,209	\$622,528	0.7	1.6	(\$115,196)	\$225,123
CZ10	SDG&E	258,548	-216	53.4	17%	\$397,405	\$839,931	\$595,323	2.1	1.5	\$442,526	\$197,918
CZ10-2	SCE	258,548	-216	53.4	17%	\$397,405	\$485,523	\$595,323	1.2	1.5	\$88,118	\$197,918
CZ11	PG&E	253,623	-390	50.9	13%	\$397,405	\$826,076	\$585,682	2.1	1.5	\$428,671	\$188,277
CZ12	PG&E	252,868	-466	50.3	14%	\$397,405	\$802,715	\$582,866	2.0	1.5	\$405,310	\$185,461
CZ12-2	SMUD	252,868	-466	50.3	14%	\$397,405	\$415,597	\$582,866	1.0	1.5	\$18,192	\$185,461
CZ13	PG&E	250,915	-434	50.4	13%	\$397,405	\$806,401	\$573,606	2.0	1.4	\$408,996	\$176,201
CZ14	SDG&E	283,684	-441	56.4	14%	\$397,405	\$874,753	\$676,271	2.2	1.7	\$477,348	\$278,866
CZ14-2	SCE	283,684	-441	56.4	14%	\$397,405	\$493,888	\$676,271	1.2	1.7	\$96,483	\$278,866
CZ15	SCE	274,771	-147	56.0	12%	\$397,405	\$476,327	\$640,379	1.2	1.6	\$78,922	\$242,974
CZ16	PG&E	266,490	-736	51.8	14%	\$397,405	\$842,205	\$575,563	2.1	1.4	\$444,800	\$178,158
CZ16-2	LA	266,490	-736	51.8	14%	\$397,405	\$260,372	\$575,563	0.7	1.4	(\$137,033)	\$178,158



Figure 19. Cost Effectiveness for Medium Office Package 1C – Mixed-Fuel + HE

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 1C: Mixed Fuel + HE												
CZ01	PG&E	288	688	4.1	3%	\$61,253	\$18,656	\$12,314	0.3	0.2	(\$42,597)	(\$48,939)
CZ02	PG&E	3,795	550	4.3	4%	\$68,937	\$36,683	\$24,676	0.5	0.4	(\$32,254)	(\$44,261)
CZ03	PG&E	1,241	439	2.9	3%	\$57,529	\$20,150	\$11,885	0.4	0.2	(\$37,379)	(\$45,644)
CZ04	PG&E	5,599	529	4.7	5%	\$72,074	\$44,915	\$30,928	0.6	0.4	(\$27,158)	(\$41,145)
CZ04-2	CPAU	5,599	529	4.7	5%	\$72,074	\$24,175	\$30,928	0.3	0.4	(\$47,898)	(\$41,145)
CZ05	PG&E	3,470	453	3.6	4%	\$60,330	\$35,072	\$18,232	0.6	0.3	(\$25,258)	(\$42,097)
CZ05-2	SCG	3,470	453	3.6	4%	\$60,330	\$32,777	\$18,232	0.5	0.3	(\$27,553)	(\$42,097)
CZ06	SCE	3,374	298	2.6	3%	\$55,594	\$19,446	\$16,132	0.3	0.3	(\$36,148)	(\$39,462)
CZ06-2	LADWP	3,374	298	2.6	3%	\$55,594	\$13,450	\$16,132	0.2	0.3	(\$42,145)	(\$39,462)
CZ07	SDG&E	5,257	140	2.3	4%	\$54,111	\$41,086	\$19,903	0.8	0.4	(\$13,025)	(\$34,208)
CZ08	SCE	5,921	176	2.7	4%	\$60,497	\$22,210	\$24,055	0.4	0.4	(\$38,287)	(\$36,442)
CZ08-2	LADWP	5,921	176	2.7	4%	\$60,497	\$14,064	\$24,055	0.2	0.4	(\$46,434)	(\$36,442)
CZ09	SCE	7,560	224	3.5	4%	\$61,311	\$28,576	\$31,835	0.5	0.5	(\$32,735)	(\$29,476)
CZ09-2	LADWP	7,560	224	3.5	4%	\$61,311	\$18,262	\$31,835	0.3	0.5	(\$43,049)	(\$29,476)
CZ10	SDG&E	5,786	288	3.2	4%	\$62,685	\$50,717	\$24,628	0.8	0.4	(\$11,968)	(\$38,057)
CZ10-2	SCE	5,786	288	3.2	4%	\$62,685	\$24,575	\$24,628	0.4	0.4	(\$38,110)	(\$38,057)
CZ11	PG&E	8,128	441	4.9	5%	\$71,101	\$54,188	\$37,849	0.8	0.5	(\$16,912)	(\$33,252)
CZ12	PG&E	6,503	478	4.7	5%	\$68,329	\$47,329	\$34,556	0.7	0.5	(\$20,999)	(\$33,773)
CZ12-2	SMUD	6,503	478	4.7	5%	\$68,329	\$24,003	\$34,556	0.4	0.5	(\$44,325)	(\$33,773)
CZ13	PG&E	8,398	432	5.0	5%	\$69,474	\$51,347	\$37,229	0.7	0.5	(\$18,128)	(\$32,246)
CZ14	SDG&E	7,927	470	5.0	5%	\$69,463	\$62,744	\$37,133	0.9	0.5	(\$6,718)	(\$32,329)
CZ14-2	SCE	7,927	470	5.0	5%	\$69,463	\$32,517	\$37,133	0.5	0.5	(\$36,946)	(\$32,329)
CZ15	SCE	15,140	219	5.5	5%	\$66,702	\$43,773	\$52,359	0.7	0.8	(\$22,929)	(\$14,344)
CZ16	PG&E	3,111	912	6.3	5%	\$71,765	\$36,002	\$24,914	0.5	0.3	(\$35,763)	(\$46,851)
CZ16-2	LADWP	3,111	912	6.3	5%	\$71,765	\$23,057	\$24,914	0.3	0.3	(\$48,708)	(\$46,851)



Figure 20. Cost Effectiveness for Medium Office Package 2 – All-Electric Federal Code Minimum

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost*	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 2: All-Electric Federal Code Minimum												
CZ01	PG&E	-53,657	4967	10.1	-15%	(\$87,253)	(\$98,237)	(\$58,420)	0.9	1.5	(\$10,984)	\$28,833
CZ02	PG&E	-49,684	3868	5.0	-7%	(\$73,695)	(\$101,605)	(\$41,429)	0.7	1.8	(\$27,910)	\$32,266
CZ03	PG&E	-35,886	3142	5.6	-7%	(\$82,330)	(\$57,345)	(\$29,592)	1.4	2.8	\$24,986	\$52,738
CZ04	PG&E	-48,829	3759	4.7	-6%	(\$69,012)	(\$90,527)	(\$40,570)	0.8	1.7	(\$21,515)	\$28,443
CZ04-2	CPAU	-48,829	3759	4.7	-6%	(\$69,012)	(\$19,995)	(\$40,570)	3.5	1.7	\$49,018	\$28,443
CZ05	PG&E	-40,531	3240	4.5	-8%	(\$84,503)	(\$63,663)	(\$39,997)	1.3	2.1	\$20,840	\$44,506
CZ06	SCE	-26,174	2117	3.1	-4%	(\$76,153)	\$24,908	(\$20,571)	>1	3.7	\$101,061	\$55,581
CZ06-2	LADWP	-26,174	2117	3.1	-4%	(\$76,153)	\$26,366	(\$20,571)	>1	3.7	\$102,518	\$55,581
CZ07	SDG&E	-12,902	950	0.9	-2%	(\$70,325)	\$46,879	(\$11,407)	>1	6.2	\$117,204	\$58,918
CZ08	SCE	-15,680	1219	1.5	-2%	(\$68,774)	\$17,859	(\$12,648)	>1	5.4	\$86,633	\$56,125
CZ08-2	LADWP	-15,680	1219	1.5	-2%	(\$68,774)	\$18,603	(\$12,648)	>1	5.4	\$87,376	\$56,125
CZ09	SCE	-19,767	1605	2.4	-2%	(\$63,102)	\$20,920	(\$14,462)	>1	4.4	\$84,022	\$48,640
CZ09-2	LADWP	-19,767	1605	2.4	-2%	(\$63,102)	\$21,929	(\$14,462)	>1	4.4	\$85,030	\$48,640
CZ10	SDG&E	-27,414	2053	2.2	-4%	(\$47,902)	\$38,918	(\$23,339)	>1	2.1	\$86,820	\$24,562
CZ10-2	SCE	-27,414	2053	2.2	-4%	(\$47,902)	\$20,765	(\$23,339)	>1	2.1	\$68,666	\$24,562
CZ11	PG&E	-40,156	3062	3.6	-4%	(\$63,987)	(\$72,791)	(\$32,837)	0.9	1.9	(\$8,804)	\$31,150
CZ12	PG&E	-43,411	3327	4.1	-5%	(\$68,343)	(\$85,856)	(\$35,463)	0.8	1.9	(\$17,512)	\$32,880
CZ12-2	SMUD	-43,411	3327	4.1	-5%	(\$68,343)	(\$5,109)	(\$35,463)	13.4	1.9	\$63,234	\$32,880
CZ13	PG&E	-39,649	3063	3.8	-4%	(\$62,726)	(\$70,705)	(\$32,408)	0.9	1.9	(\$7,980)	\$30,318
CZ14	SDG&E	-44,322	3266	3.4	-5%	(\$65,156)	\$6,043	(\$38,422)	>1	1.7	\$71,199	\$26,735
CZ14-2	SCE	-44,322	3266	3.4	-5%	(\$65,156)	\$4,798	(\$38,422)	>1	1.7	\$69,954	\$26,735
CZ15	SCE	-19,917	1537	1.8	-2%	(\$36,176)	\$12,822	(\$15,464)	>1	2.3	\$48,998	\$20,711
CZ16	PG&E	-94,062	6185	5.6	-27%	(\$64,096)	(\$212,158)	(\$150,871)	0.3	0.4	(\$148,062)	(\$86,775)
CZ16-2	LADWP	-94,062	6185	5.6	-27%	(\$64,096)	\$1,493	(\$150,871)	>1	0.4	\$65,589	(\$86,775)

*The Incremental Package Cost is equal to the sum of the incremental HVAC and water heating equipment costs from

Figure 10, the electrical infrastructure incremental cost of \$27,802 (see section 3.3.2.1), and the natural gas infrastructure incremental costs of \$(18,949) (see section 3.3.2.2).



Figure 21. Cost Effectiveness for Medium Office Package 3A – All-Electric + EE

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 3A: All-Electric + EE												
CZ01	PG&E	-19,115	4967	19.4	7%	(\$20,604)	\$20,630	\$28,112	>1	>1	\$41,234	\$48,716
CZ02	PG&E	-11,811	3868	15.2	10%	(\$7,046)	\$39,260	\$58,563	>1	>1	\$46,306	\$65,609
CZ03	PG&E	2,530	3142	16.2	16%	(\$15,681)	\$85,241	\$68,682	>1	>1	\$100,922	\$84,363
CZ04	PG&E	-10,839	3759	14.8	9%	(\$2,363)	\$59,432	\$58,420	>1	>1	\$61,795	\$60,783
CZ04-2	CPAU	-10,839	3759	14.8	9%	(\$2,363)	\$70,680	\$58,420	>1	>1	\$73,043	\$60,783
CZ05	PG&E	-2,316	3240	14.6	12%	(\$17,854)	\$85,380	\$58,802	>1	>1	\$103,234	\$76,656
CZ06	SCE	15,399	2117	14.3	18%	(\$9,503)	\$114,962	\$89,921	>1	>1	\$124,466	\$99,425
CZ06-2	LADWP	15,399	2117	14.3	18%	(\$9,503)	\$82,389	\$89,921	>1	>1	\$91,893	\$99,425
CZ07	SDG&E	33,318	950	13.8	20%	(\$3,676)	\$256,704	\$111,399	>1	>1	\$260,380	\$115,076
CZ08	SCE	30,231	1219	14.2	18%	(\$2,124)	\$110,144	\$111,781	>1	>1	\$112,268	\$113,906
CZ08-2	LADWP	30,231	1219	14.2	18%	(\$2,124)	\$76,069	\$111,781	>1	>1	\$78,194	\$113,906
CZ09	SCE	24,283	1605	14.3	15%	\$3,547	\$119,824	\$108,249	33.8	30.5	\$116,277	\$104,702
CZ09-2	LADWP	24,283	1605	14.3	15%	\$3,547	\$83,549	\$108,249	23.6	30.5	\$80,001	\$104,702
CZ10	SDG&E	12,344	2053	12.6	13%	\$18,748	\$230,553	\$82,905	12.3	4.4	\$211,806	\$64,158
CZ10-2	SCE	12,344	2053	12.6	13%	\$18,748	\$105,898	\$82,905	5.6	4.4	\$87,150	\$64,158
CZ11	PG&E	929	3062	14.5	10%	\$2,662	\$85,988	\$75,030	32.3	28.2	\$83,326	\$72,368
CZ12	PG&E	-3,419	3327	14.8	10%	(\$1,694)	\$68,866	\$69,589	>1	>1	\$70,560	\$71,283
CZ12-2	SMUD	-3,419	3327	14.8	10%	(\$1,694)	\$71,761	\$69,589	>1	>1	\$73,455	\$71,283
CZ13	PG&E	1,398	3063	14.8	9%	\$3,923	\$89,799	\$71,307	22.9	18.2	\$85,875	\$67,384
CZ14	SDG&E	-5,469	3266	13.5	9%	\$1,493	\$206,840	\$69,016	138.6	46.2	\$205,347	\$67,523
CZ14-2	SCE	-5,469	3266	13.5	9%	\$1,493	\$94,143	\$69,016	63.1	46.2	\$92,650	\$67,523
CZ15	SCE	25,375	1537	13.7	10%	\$30,474	\$114,909	\$104,335	3.8	3.4	\$84,435	\$73,862
CZ16	PG&E	-65,877	6185	12.7	-15%	\$2,553	(\$91,477)	(\$85,673)	-35.8	-33.6	(\$94,030)	(\$88,226)
CZ16-2	LADWP	-65,877	6185	12.7	-15%	\$2,553	\$72,780	(\$85,673)	28.5	-33.6	\$70,227	(\$88,226)



Figure 22. Cost Effectiveness for Medium Office Package 3B – All-Electric + EE + PV + B

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (mtons)	Compliance Margin (%)	Incremental Package Cost	Lifecycle Energy Cost Savings	-\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
All-Electric + PV + B												
CZ01	PG&E	157,733	4967	54.9	7%	\$310,152	\$518,421	\$410,946	1.7	1.3	\$208,269	\$100,794
CZ02	PG&E	203,026	3868	57.8	10%	\$323,710	\$692,336	\$532,273	2.1	1.6	\$368,626	\$208,563
CZ03	PG&E	211,706	3142	58.0	16%	\$315,075	\$708,235	\$520,866	2.2	1.7	\$393,160	\$205,791
CZ04	PG&E	216,204	3759	59.9	9%	\$328,393	\$741,382	\$560,576	2.3	1.7	\$412,989	\$232,183
CZ04-2	CPAU	216,204	3759	59.9	9%	\$328,393	\$607,074	\$560,576	1.8	1.7	\$278,681	\$232,183
CZ05	PG&E	223,399	3240	59.8	12%	\$312,902	\$799,992	\$546,592	2.6	1.7	\$487,090	\$233,690
CZ06	SCE	233,299	2117	57.7	18%	\$321,252	\$509,969	\$583,963	1.6	1.8	\$188,716	\$262,711
CZ06-2	LA	233,299	2117	57.7	18%	\$321,252	\$311,931	\$583,963	1.0	1.8	(\$9,322)	\$262,711
CZ07	SDG&E	256,034	950	58.3	20%	\$327,079	\$870,156	\$609,498	2.7	1.9	\$543,076	\$282,419
CZ08	SCE	246,944	1219	57.4	18%	\$328,631	\$499,506	\$623,292	1.5	1.9	\$170,874	\$294,661
CZ08-2	LA	246,944	1219	57.4	18%	\$328,631	\$296,991	\$623,292	0.9	1.9	(\$31,640)	\$294,661
CZ09	SCE	243,838	1605	58.5	15%	\$334,303	\$504,498	\$615,178	1.5	1.8	\$170,195	\$280,875
CZ09-2	LA	243,838	1605	58.5	15%	\$334,303	\$307,626	\$615,178	0.9	1.8	(\$26,677)	\$280,875
CZ10	SDG&E	229,044	2053	56.2	13%	\$349,503	\$851,810	\$569,549	2.4	1.6	\$502,306	\$220,046
CZ10-2	SCE	229,044	2053	56.2	13%	\$349,503	\$491,383	\$569,549	1.4	1.6	\$141,880	\$220,046
CZ11	PG&E	212,047	3062	56.4	10%	\$333,418	\$743,403	\$556,758	2.2	1.7	\$409,985	\$223,340
CZ12	PG&E	207,955	3327	56.7	10%	\$329,062	\$713,054	\$552,415	2.2	1.7	\$383,993	\$223,353
CZ12-2	SMUD	207,955	3327	56.7	10%	\$329,062	\$414,371	\$552,415	1.3	1.7	\$85,310	\$223,353
CZ13	PG&E	209,431	3063	56.3	9%	\$334,679	\$728,822	\$544,969	2.2	1.6	\$394,143	\$210,289
CZ14	SDG&E	236,002	3266	61.3	9%	\$332,249	\$865,181	\$638,517	2.6	1.9	\$532,933	\$306,269
CZ14-2	SCE	236,002	3266	61.3	9%	\$332,249	\$488,163	\$638,517	1.5	1.9	\$155,914	\$306,269
CZ15	SCE	254,426	1537	58.5	10%	\$361,229	\$487,715	\$626,728	1.4	1.7	\$126,486	\$265,499
CZ16	PG&E	162,915	6185	58.6	-15%	\$333,309	\$580,353	\$406,746	1.7	1.2	\$247,044	\$73,437
CZ16-2	LA	162,915	6185	58.6	-15%	\$333,309	\$290,566	\$406,746	0.9	1.2	(\$42,742)	\$73,437



Figure 23. Cost Effectiveness for Medium Office Package 3C – All-Electric + HE

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 3C: All-Electric + HE												
CZ01	PG&E	-53,390	4967	10.2	-14%	(\$43,987)	(\$93,740)	(\$57,752)	0.5	0.8	(\$49,753)	(\$13,765)
CZ02	PG&E	-45,916	3868	6.1	-5%	(\$22,722)	(\$77,212)	(\$26,394)	0.3	0.9	(\$54,490)	(\$3,672)
CZ03	PG&E	-34,656	3142	6.0	-6%	(\$38,261)	(\$45,796)	(\$25,153)	0.8	1.5	(\$7,535)	\$13,108
CZ04	PG&E	-43,248	3759	6.3	-3%	(\$15,229)	(\$56,932)	(\$18,996)	0.3	0.8	(\$41,703)	(\$3,767)
CZ04-2	CPAU	-43,248	3759	6.3	-3%	(\$15,229)	(\$5,298)	(\$18,996)	2.9	0.8	\$9,932	(\$3,767)
CZ05	PG&E	-37,068	3240	5.4	-6%	(\$40,434)	(\$38,330)	(\$29,544)	1.1	1.4	\$2,104	\$10,890
CZ06	SCE	-22,805	2117	4.0	-2%	(\$30,237)	\$39,812	(\$9,594)	>1	3.2	\$70,050	\$20,644
CZ06-2	LADWP	-22,805	2117	4.0	-2%	(\$30,237)	\$35,414	(\$9,594)	>1	3.2	\$65,651	\$20,644
CZ07	SDG&E	-7,646	950	2.5	1%	(\$22,564)	\$86,159	\$6,062	>1	>1	\$108,722	\$28,625
CZ08	SCE	-9,761	1219	3.2	1%	(\$18,443)	\$37,375	\$8,305	>1	>1	\$55,818	\$26,748
CZ08-2	LADWP	-9,761	1219	3.2	1%	(\$18,443)	\$29,973	\$8,305	>1	>1	\$48,416	\$26,748
CZ09	SCE	-12,211	1605	4.5	2%	(\$10,282)	\$46,335	\$13,364	>1	>1	\$56,617	\$23,646
CZ09-2	LADWP	-12,211	1605	4.5	2%	(\$10,282)	\$37,030	\$13,364	>1	>1	\$47,313	\$23,646
CZ10	SDG&E	-21,642	2053	3.7	-1%	\$11,340	\$84,901	(\$3,818)	7.5	-0.3	\$73,561	(\$15,158)
CZ10-2	SCE	-21,642	2053	3.7	-1%	\$11,340	\$40,659	(\$3,818)	3.6	-0.3	\$29,319	(\$15,158)
CZ11	PG&E	-32,052	3062	5.9	0%	(\$8,519)	(\$29,013)	(\$3,007)	0.3	2.8	(\$20,495)	\$5,512
CZ12	PG&E	-36,926	3327	6.0	-1%	(\$15,443)	(\$48,955)	(\$9,546)	0.3	1.6	(\$33,511)	\$5,898
CZ12-2	SMUD	-36,926	3327	6.0	-1%	(\$15,443)	\$9,916	(\$9,546)	>1	1.6	\$25,359	\$5,898
CZ13	PG&E	-31,253	3063	6.3	0%	(\$7,257)	(\$27,782)	(\$3,055)	0.3	2.4	(\$20,525)	\$4,202
CZ14	SDG&E	-36,402	3266	5.7	-1%	(\$10,651)	\$61,605	(\$9,832)	>1	1.1	\$72,256	\$819
CZ14-2	SCE	-36,402	3266	5.7	-1%	(\$10,651)	\$30,625	(\$9,832)	>1	1.1	\$41,276	\$819
CZ15	SCE	-4,775	1537	6.0	3%	\$28,927	\$52,955	\$32,790	1.8	1.1	\$24,028	\$3,863
CZ16	PG&E	-90,949	6185	6.5	-26%	(\$8,467)	(\$194,115)	(\$142,041)	0.0	0.1	(\$185,648)	(\$133,574)
CZ16-2	LADWP	-90,949	6185	6.5	-26%	(\$8,467)	\$37,127	(\$142,041)	>1	0.1	\$45,594	(\$133,574)



4.2 Cost Effectiveness Results – Medium Retail

Figure 24 through Figure 30 contain the cost-effectiveness findings for the Medium Retail packages. Notable findings for each package include:

- ◆ **1A – Mixed-Fuel + EE:**
 - ◆ Packages achieve +9% to +18% compliance margins depending on climate zone, and all packages are cost effective in all climate zones.
 - ◆ Incremental package costs vary across climate zones because of the HVAC system size in some climate zones are small enough (<54 kBtu/h) to have the economizers measure applied.
 - ◆ B/C ratios are high compared to other prototypes because the measures applied are primarily low-cost lighting measures. This suggests room for the inclusion of other energy efficiency measures with lower cost-effectiveness to achieve even higher compliance margins for a cost effective package.
- ◆ **1B – Mixed-Fuel + EE + PV + B:** All packages are cost effective using both the On-Bill and TDV approach, except On-Bill in LADWP territory. Adding PV and battery to the efficiency packages reduces the B/C ratio but increases overall NPV savings.
- ◆ **1C – Mixed-fuel + HE:** Packages achieve +1 to +4% compliance margins depending on climate zone, and packages are cost effective in all climate zones except CZs 1, 3 and 5 using the TDV approach.
- ◆ **2 – All-Electric Federal Code-Minimum Reference:**
 - ◆ Packages achieve between -12% and +1% compliance margins depending on climate zone.
 - ◆ Packages achieve positive savings using both the On-Bill and TDV approaches in CZs 6-10 and 14-15. Packages do not achieve On-Bill or TDV savings in most of PG&E territory (CZs 1, 2, 4, 5, 12-13, and 16).
 - ◆ Packages are cost effective in all climate zones except CZ16.
 - ◆ All incremental costs are negative primarily due to elimination of natural gas infrastructure.
- ◆ **3A – All-Electric + EE:** Packages achieve between +3% and +16% compliance margins depending on climate zone. All packages are cost effective in all climate zones.
- ◆ **3B – All-Electric + EE + PV + B:** All packages are cost effective using both the On-Bill and TDV approaches, except On-Bill in LADWP territory. Adding PV and Battery to the efficiency package reduces the B/C ratio but increases overall NPV savings.
- ◆ **3C – All-Electric + HE:** Packages achieve between -8% and +5% compliance margins depending on climate zone, and packages are cost effective using both On-Bill and TDV approaches in all CZs except CZs 1 and 16.



Figure 24. Cost Effectiveness for Medium Retail Package 1A – Mixed-Fuel + EE

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 1A: Mixed Fuel + EE												
CZ01	PG&E	15,210	1209	11.10	18%	\$2,712	\$68,358	\$60,189	25.2	22.2	\$65,646	\$57,478
CZ02	PG&E	18,885	613	8.73	13%	\$5,569	\$76,260	\$59,135	13.7	10.6	\$70,691	\$53,566
CZ03	PG&E	18,772	462	7.87	16%	\$5,569	\$66,813	\$57,135	12.0	10.3	\$61,244	\$51,566
CZ04	PG&E	19,100	439	7.84	14%	\$5,569	\$75,989	\$58,036	13.6	10.4	\$70,420	\$52,467
CZ04-2	CPAU	19,100	439	7.84	14%	\$5,569	\$51,556	\$58,036	9.3	10.4	\$45,987	\$52,467
CZ05	PG&E	17,955	415	7.41	16%	\$5,569	\$63,182	\$55,003	11.3	9.9	\$57,613	\$49,435
CZ05-2	SCG	17,955	415	7.41	16%	\$5,569	\$61,810	\$55,003	11.1	9.9	\$56,241	\$49,435
CZ06	SCE	12,375	347	5.54	10%	\$2,712	\$31,990	\$41,401	11.8	15.3	\$29,278	\$38,689
CZ06-2	LADWP	12,375	347	5.54	10%	\$2,712	\$21,667	\$41,401	8.0	15.3	\$18,956	\$38,689
CZ07	SDG&E	17,170	136	5.65	13%	\$5,569	\$73,479	\$49,883	13.2	9.0	\$67,910	\$44,314
CZ08	SCE	12,284	283	5.15	10%	\$2,712	\$30,130	\$41,115	11.1	15.2	\$27,419	\$38,403
CZ08-2	LADWP	12,284	283	5.15	10%	\$2,712	\$20,243	\$41,115	7.5	15.2	\$17,531	\$38,403
CZ09	SCE	13,473	302	5.51	10%	\$5,569	\$32,663	\$46,126	5.9	8.3	\$27,094	\$40,557
CZ09-2	LADWP	13,473	302	5.51	10%	\$5,569	\$22,435	\$46,126	4.0	8.3	\$16,866	\$40,557
CZ10	SDG&E	19,873	267	6.99	12%	\$5,569	\$83,319	\$58,322	15.0	10.5	\$77,751	\$52,753
CZ10-2	SCE	19,873	267	6.99	12%	\$5,569	\$39,917	\$58,322	7.2	10.5	\$34,348	\$52,753
CZ11	PG&E	21,120	578	9.14	13%	\$5,569	\$86,663	\$67,485	15.6	12.1	\$81,095	\$61,916
CZ12	PG&E	20,370	562	8.85	13%	\$5,569	\$81,028	\$64,409	14.6	11.6	\$75,459	\$58,840
CZ12-2	SMUD	20,370	562	8.85	13%	\$5,569	\$44,991	\$64,409	8.1	11.6	\$39,422	\$58,840
CZ13	PG&E	22,115	620	9.98	15%	\$2,712	\$109,484	\$83,109	40.4	30.6	\$106,772	\$80,398
CZ14	SDG&E	25,579	406	9.38	13%	\$2,712	\$116,354	\$80,055	42.9	29.5	\$113,643	\$77,343
CZ14-2	SCE	26,327	383	9.42	13%	\$2,712	\$57,290	\$83,065	21.1	30.6	\$54,578	\$80,354
CZ15	SCE	26,433	169	8.35	12%	\$2,712	\$57,152	\$79,506	21.1	29.3	\$54,440	\$76,794
CZ16	PG&E	15,975	752	8.72	13%	\$2,712	\$72,427	\$55,025	26.7	20.3	\$69,715	\$52,314
CZ16-2	LADWP	15,975	752	8.72	13%	\$2,712	\$31,906	\$55,025	11.8	20.3	\$29,194	\$52,314



Figure 25. Cost Effectiveness for Medium Retail Package 1B – Mixed-Fuel + EE + PV + B

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Compliance Margin (%)	Incremental Package Cost	Lifecycle Energy Cost Savings	-\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Mixed Fuel + PV + Battery												
CZ01	PG&E	158,584	1209	40.79	18%	\$277,383	\$509,092	\$383,683	1.8	1.4	\$231,709	\$106,300
CZ02	PG&E	189,400	613	43.75	13%	\$280,240	\$590,043	\$465,474	2.1	1.7	\$309,803	\$185,234
CZ03	PG&E	191,016	462	43.52	16%	\$280,240	\$578,465	\$452,795	2.1	1.6	\$298,224	\$172,554
CZ04	PG&E	195,014	439	44.14	14%	\$280,240	\$605,369	\$480,989	2.2	1.7	\$325,129	\$200,748
CZ04-2	CPAU	195,014	439	44.14	14%	\$280,240	\$451,933	\$480,989	1.6	1.7	\$171,693	\$200,748
CZ05	PG&E	196,654	415	44.30	16%	\$280,240	\$589,771	\$464,749	2.1	1.7	\$309,530	\$184,509
CZ05-2	SCG	196,654	415	44.30	16%	\$280,240	\$588,407	\$464,749	2.1	1.7	\$308,167	\$184,509
CZ06	SCE	185,903	347	41.61	10%	\$277,383	\$322,495	\$456,596	1.2	1.6	\$45,111	\$179,213
CZ06-2	LA	185,903	347	41.61	10%	\$277,383	\$191,428	\$456,596	0.7	1.6	(\$85,955)	\$179,213
CZ07	SDG&E	197,650	136	43.24	13%	\$280,240	\$496,786	\$477,582	1.8	1.7	\$216,545	\$197,342
CZ08	SCE	187,869	283	41.48	10%	\$277,383	\$326,810	\$478,132	1.2	1.7	\$49,427	\$200,749
CZ08-2	LA	187,869	283	41.48	10%	\$277,383	\$190,379	\$478,132	0.7	1.7	(\$87,004)	\$200,749
CZ09	SCE	191,399	302	42.32	10%	\$280,240	\$334,869	\$472,770	1.2	1.7	\$54,629	\$192,530
CZ09-2	LA	191,399	302	42.32	10%	\$280,240	\$201,759	\$472,770	0.7	1.7	(\$78,481)	\$192,530
CZ10	SDG&E	200,033	267	44.01	12%	\$280,240	\$547,741	\$472,880	2.0	1.7	\$267,501	\$192,640
CZ10-2	SCE	200,033	267	44.01	12%	\$280,240	\$340,822	\$472,880	1.2	1.7	\$60,582	\$192,640
CZ11	PG&E	192,846	578	44.07	13%	\$280,240	\$582,969	\$490,855	2.1	1.8	\$302,728	\$210,615
CZ12	PG&E	191,720	562	43.70	13%	\$280,240	\$586,836	\$485,076	2.1	1.7	\$306,596	\$204,836
CZ12-2	SMUD	191,720	562	43.70	13%	\$280,240	\$319,513	\$485,076	1.1	1.7	\$39,273	\$204,836
CZ13	PG&E	195,031	620	45.19	15%	\$277,383	\$605,608	\$486,285	2.2	1.8	\$328,225	\$208,901
CZ14	SDG&E	217,183	406	47.86	13%	\$277,383	\$559,148	\$534,915	2.0	1.9	\$281,765	\$257,532
CZ14-2	SCE	217,927	383	47.91	14%	\$277,383	\$354,757	\$538,058	1.3	1.9	\$77,373	\$260,674
CZ15	SCE	208,662	169	44.51	12%	\$277,383	\$338,772	\$496,107	1.2	1.8	\$61,389	\$218,724
CZ16	PG&E	210,242	752	48.76	13%	\$277,383	\$608,779	\$490,262	2.2	1.8	\$331,395	\$212,879
CZ16-2	LA	210,242	752	48.76	13%	\$277,383	\$207,160	\$490,262	0.7	1.8	(\$70,223)	\$212,879



Figure 26. Cost Effectiveness for Medium Retail Package 1C – Mixed-Fuel + HE

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 1C: Mixed Fuel + HE												
CZ01	PG&E	57	346	2.04	2%	\$9,006	\$6,301	\$6,065	0.7	0.7	(\$2,705)	(\$2,941)
CZ02	PG&E	2,288	229	2.01	3%	\$9,726	\$23,016	\$13,998	2.4	1.4	\$13,291	\$4,273
CZ03	PG&E	1,087	171	1.31	2%	\$9,063	\$6,782	\$7,186	0.7	0.8	(\$2,282)	(\$1,877)
CZ04	PG&E	1,862	159	1.46	3%	\$9,004	\$17,891	\$10,878	2.0	1.2	\$8,887	\$1,874
CZ04-2	CPAU	1,862	159	1.46	3%	\$9,004	\$7,821	\$10,878	0.9	1.2	(\$1,182)	\$1,874
CZ05	PG&E	664	162	1.11	1%	\$9,454	\$5,119	\$4,725	0.5	0.5	(\$4,335)	(\$4,729)
CZ05-2	SCG	664	162	1.11	1%	\$9,454	\$4,558	\$4,725	0.5	0.5	(\$4,896)	(\$4,729)
CZ06	SCE	2,648	90	1.24	3%	\$8,943	\$11,646	\$11,427	1.3	1.3	\$2,703	\$2,484
CZ06-2	LADWP	2,648	90	1.24	3%	\$8,943	\$7,329	\$11,427	0.8	1.3	(\$1,614)	\$2,484
CZ07	SDG&E	2,376	49	0.95	2%	\$9,194	\$20,103	\$9,779	2.2	1.1	\$10,909	\$585
CZ08	SCE	2,822	72	1.20	3%	\$9,645	\$11,989	\$12,877	1.2	1.3	\$2,344	\$3,233
CZ08-2	LADWP	2,822	72	1.20	3%	\$9,645	\$7,427	\$12,877	0.8	1.3	(\$2,218)	\$3,233
CZ09	SCE	4,206	88	1.73	4%	\$10,446	\$16,856	\$18,745	1.6	1.8	\$6,410	\$8,299
CZ09-2	LADWP	4,206	88	1.73	4%	\$10,446	\$10,604	\$18,745	1.0	1.8	\$158	\$8,299
CZ10	SDG&E	4,226	119	1.88	4%	\$9,514	\$36,412	\$19,008	3.8	2.0	\$26,898	\$9,494
CZ10-2	SCE	4,226	119	1.88	4%	\$9,514	\$17,094	\$19,008	1.8	2.0	\$7,580	\$9,494
CZ11	PG&E	4,188	225	2.56	4%	\$10,479	\$31,872	\$22,393	3.0	2.1	\$21,392	\$11,913
CZ12	PG&E	3,675	214	2.34	4%	\$10,409	\$29,653	\$20,525	2.8	2.0	\$19,243	\$10,115
CZ12-2	SMUD	3,675	214	2.34	4%	\$10,409	\$12,823	\$20,525	1.2	2.0	\$2,414	\$10,115
CZ13	PG&E	4,818	180	2.46	4%	\$9,809	\$34,149	\$23,623	3.5	2.4	\$24,340	\$13,814
CZ14	SDG&E	6,439	153	2.71	4%	\$12,103	\$44,705	\$26,348	3.7	2.2	\$32,601	\$14,245
CZ14-2	SCE	6,439	153	2.71	4%	\$12,103	\$22,032	\$26,348	1.8	2.2	\$9,929	\$14,245
CZ15	SCE	8,802	48	2.76	5%	\$12,534	\$25,706	\$31,402	2.1	2.5	\$13,171	\$18,868
CZ16	PG&E	2,316	390	2.97	3%	\$11,999	\$22,663	\$13,888	1.9	1.2	\$10,665	\$1,890
CZ16-2	LADWP	2,316	390	2.97	3%	\$11,999	\$11,921	\$13,888	1.0	1.2	(\$78)	\$1,890



Figure 27. Cost Effectiveness for Medium Retail Package 2 – All-Electric Federal Code Minimum

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost*	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 2: All-Electric Federal Code Minimum												
CZ01	PG&E	-29,155	3893	13.85	-4.1%	(\$23,048)	(\$8,333)	(\$13,910)	2.8	1.7	\$14,715	\$9,138
CZ02	PG&E	-21,786	2448	7.49	-1.0%	(\$27,464)	(\$16,476)	(\$4,483)	1.7	6.1	\$10,987	\$22,981
CZ03	PG&E	-14,583	1868	6.26	-0.4%	(\$24,111)	\$263	(\$1,450)	>1	16.6	\$24,374	\$22,661
CZ04	PG&E	-14,186	1706	5.30	-0.1%	(\$22,896)	(\$8,753)	(\$220)	2.6	104.2	\$14,143	\$22,676
CZ04-2	CPAU	-14,186	1706	5.30	-0.1%	(\$22,896)	\$12,493	(\$220)	>1	104.2	\$35,389	\$22,676
CZ05	PG&E	-14,334	1746	5.47	-1.2%	(\$25,507)	(\$1,567)	(\$4,197)	16.3	6.1	\$23,940	\$21,309
CZ06	SCE	-7,527	1002	3.32	0.5%	(\$21,762)	\$18,590	\$1,868	>1	>1	\$40,351	\$23,630
CZ06-2	LADWP	-7,527	1002	3.32	0.5%	(\$21,762)	\$19,309	\$1,868	>1	>1	\$41,071	\$23,630
CZ07	SDG&E	-3,812	522	1.76	0.3%	(\$23,762)	\$54,345	\$1,318	>1	>1	\$78,107	\$25,080
CZ08	SCE	-5,805	793	2.70	0.4%	(\$26,922)	\$16,735	\$1,846	>1	>1	\$43,658	\$28,768
CZ08-2	LADWP	-5,805	793	2.70	0.4%	(\$26,922)	\$17,130	\$1,846	>1	>1	\$44,052	\$28,768
CZ09	SCE	-7,241	970	3.32	0.4%	(\$32,113)	\$18,582	\$1,978	>1	>1	\$50,695	\$34,091
CZ09-2	LADWP	-7,241	970	3.32	0.4%	(\$32,113)	\$19,089	\$1,978	>1	>1	\$51,202	\$34,091
CZ10	SDG&E	-10,336	1262	3.99	0.1%	(\$27,272)	\$54,453	\$505	>1	>1	\$81,724	\$27,777
CZ10-2	SCE	-10,336	1262	3.99	0.1%	(\$27,272)	\$20,996	\$505	>1	>1	\$48,268	\$27,777
CZ11	PG&E	-19,251	2415	7.95	0.5%	(\$32,202)	(\$7,951)	\$2,615	4.1	>1	\$24,251	\$34,817
CZ12	PG&E	-19,471	2309	7.28	-0.1%	(\$32,504)	(\$14,153)	(\$461)	2.3	70.4	\$18,351	\$32,042
CZ12-2	SMUD	-19,471	2309	7.28	-0.1%	(\$32,504)	\$12,939	(\$461)	>1	70.4	\$45,443	\$32,042
CZ13	PG&E	-16,819	1983	6.15	-0.4%	(\$28,158)	(\$10,575)	(\$2,022)	2.7	13.9	\$17,582	\$26,136
CZ14	SDG&E	-13,208	1672	5.44	0.7%	(\$26,656)	\$41,117	\$4,461	>1	>1	\$67,772	\$31,117
CZ14-2	SCE	-13,208	1672	5.44	0.7%	(\$26,656)	\$18,467	\$4,461	>1	>1	\$45,123	\$31,117
CZ15	SCE	-2,463	518	2.14	0.9%	(\$29,544)	\$16,796	\$5,823	>1	>1	\$46,339	\$35,367
CZ16	PG&E	-41,418	4304	13.23	-12.2%	(\$25,771)	(\$49,862)	(\$52,542)	0.5	0.5	(\$24,091)	(\$26,771)
CZ16-2	LADWP	-41,418	4304	13.23	-12.2%	(\$25,771)	\$39,319	(\$52,542)	>1	0.5	\$65,090	(\$26,771)

*The Incremental Package Cost is the addition of the incremental HVAC and water heating equipment costs from Figure 11 and the natural gas infrastructure incremental cost savings of \$28,027 (see section 3.3.2.2).



Figure 28. Cost Effectiveness for Medium Retail Package 3A – All-Electric + EE

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 3A: All-Electric + EE												
CZ01	PG&E	-5,478	3893	20.64	15%	(\$20,336)	\$63,593	\$51,224	>1	>1	\$83,929	\$71,560
CZ02	PG&E	2,843	2448	14.58	13%	(\$21,895)	\$74,997	\$56,893	>1	>1	\$96,892	\$78,788
CZ03	PG&E	7,791	1868	12.73	16%	(\$18,542)	\$68,968	\$56,586	>1	>1	\$87,511	\$75,128
CZ04	PG&E	8,572	1706	11.89	14%	(\$17,327)	\$81,957	\$57,904	>1	>1	\$99,284	\$75,231
CZ04-2	CPAU	8,572	1706	11.89	14%	(\$17,327)	\$63,082	\$57,904	>1	>1	\$80,408	\$75,231
CZ05	PG&E	6,973	1746	11.68	15%	(\$19,938)	\$63,677	\$51,949	>1	>1	\$83,615	\$71,887
CZ06	SCE	7,431	1002	7.72	11%	(\$19,050)	\$47,072	\$42,610	>1	>1	\$66,122	\$61,660
CZ06-2	LADWP	7,431	1002	7.72	11%	(\$19,050)	\$37,078	\$42,610	>1	>1	\$56,128	\$61,660
CZ07	SDG&E	14,350	522	6.98	13%	(\$18,193)	\$127,461	\$50,828	>1	>1	\$145,654	\$69,021
CZ08	SCE	8,524	793	6.90	10%	(\$24,210)	\$43,679	\$42,258	>1	>1	\$67,890	\$66,468
CZ08-2	LADWP	8,524	793	6.90	10%	(\$24,210)	\$34,038	\$42,258	>1	>1	\$58,248	\$66,468
CZ09	SCE	8,403	970	7.81	10%	(\$26,545)	\$47,819	\$47,356	>1	>1	\$74,364	\$73,901
CZ09-2	LADWP	8,403	970	7.81	10%	(\$26,545)	\$37,934	\$47,356	>1	>1	\$64,478	\$73,901
CZ10	SDG&E	11,737	1262	10.23	12%	(\$21,703)	\$137,436	\$58,761	>1	>1	\$159,139	\$80,464
CZ10-2	SCE	11,737	1262	10.23	12%	(\$21,703)	\$58,257	\$58,761	>1	>1	\$79,959	\$80,464
CZ11	PG&E	5,892	2415	15.13	12%	(\$26,633)	\$85,256	\$65,859	>1	>1	\$111,889	\$92,492
CZ12	PG&E	5,548	2309	14.46	12%	(\$26,935)	\$80,631	\$63,903	>1	>1	\$107,566	\$90,838
CZ12-2	SMUD	5,548	2309	14.46	12%	(\$26,935)	\$59,311	\$63,903	>1	>1	\$86,246	\$90,838
CZ13	PG&E	10,184	1983	14.15	14%	(\$25,446)	\$110,105	\$80,604	>1	>1	\$135,551	\$106,050
CZ14	SDG&E	16,583	1672	13.83	15%	(\$23,944)	\$171,200	\$88,471	>1	>1	\$195,145	\$112,415
CZ14-2	SCE	16,583	1672	13.83	15%	(\$23,944)	\$656,178	\$159,604	>1	>1	\$680,122	\$183,548
CZ15	SCE	23,642	518	9.44	12%	(\$26,832)	\$65,573	\$76,781	>1	>1	\$92,404	\$103,612
CZ16	PG&E	-18,232	4304	19.80	3%	(\$23,059)	\$38,796	\$14,152	>1	>1	\$61,855	\$37,211
CZ16-2	LADWP	-18,232	4304	19.80	3%	(\$23,059)	\$67,793	\$14,152	>1	>1	\$90,852	\$37,211



Figure 29. Cost Effectiveness for Medium Retail Package 3B – All-Electric + EE + PV + B

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Compliance Margin (%)	Incremental Package Cost	Lifecycle Energy Cost Savings	\$-TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
All-Electric + PV + B												
CZ01	PG&E	137,956	3893	50.51	15%	\$254,335	\$510,831	\$374,432	2.0	1.5	\$256,496	\$120,097
CZ02	PG&E	173,387	2448	49.87	13%	\$252,777	\$590,112	\$463,431	2.3	1.8	\$337,336	\$210,654
CZ03	PG&E	180,055	1868	48.55	16%	\$256,129	\$585,861	\$452,399	2.3	1.8	\$329,732	\$196,270
CZ04	PG&E	184,499	1706	48.38	14%	\$257,345	\$608,814	\$481,011	2.4	1.9	\$351,470	\$223,666
CZ04-2	CPAU	184,499	1706	48.38	14%	\$257,345	\$465,690	\$481,011	1.8	1.9	\$208,345	\$223,666
CZ05	PG&E	185,690	1746	48.84	15%	\$254,734	\$600,933	\$461,804	2.4	1.8	\$346,199	\$207,071
CZ06	SCE	180,968	1002	43.91	11%	\$255,621	\$335,909	\$457,959	1.3	1.8	\$80,288	\$202,337
CZ06-2	LADWP	180,968	1002	43.91	11%	\$255,621	\$206,021	\$457,959	0.8	1.8	(\$49,601)	\$202,337
CZ07	SDG&E	194,837	522	44.67	13%	\$256,478	\$550,714	\$478,637	2.1	1.9	\$294,236	\$222,159
CZ08	SCE	184,120	793	43.32	10%	\$250,461	\$340,301	\$479,406	1.4	1.9	\$89,840	\$228,945
CZ08-2	LADWP	184,120	793	43.32	10%	\$250,461	\$203,813	\$479,406	0.8	1.9	(\$46,648)	\$228,945
CZ09	SCE	186,346	970	44.77	10%	\$248,127	\$349,524	\$474,176	1.4	1.9	\$101,397	\$226,049
CZ09-2	LADWP	186,346	970	44.77	10%	\$248,127	\$216,654	\$474,176	0.9	1.9	(\$31,473)	\$226,049
CZ10	SDG&E	191,923	1262	47.46	12%	\$252,969	\$593,514	\$473,605	2.3	1.9	\$340,545	\$220,636
CZ10-2	SCE	191,923	1262	47.46	12%	\$252,969	\$356,958	\$473,605	1.4	1.9	\$103,989	\$220,636
CZ11	PG&E	177,639	2415	50.26	12%	\$248,039	\$585,689	\$489,317	2.4	2.0	\$337,650	\$241,278
CZ12	PG&E	176,919	2309	49.46	12%	\$247,736	\$591,104	\$484,702	2.4	2.0	\$343,368	\$236,966
CZ12-2	SMUD	176,919	2309	49.46	12%	\$247,736	\$335,286	\$484,702	1.4	2.0	\$87,550	\$236,966
CZ13	PG&E	183,129	1983	49.48	14%	\$249,226	\$608,560	\$483,670	2.4	1.9	\$359,334	\$234,444
CZ14	SDG&E	208,183	1672	52.54	15%	\$250,727	\$593,232	\$544,079	2.4	2.2	\$342,505	\$293,351
CZ14-2	SCE	264,589	1672	80.97	15%	\$250,727	\$656,178	\$580,403	2.6	2.3	\$405,450	\$329,676
CZ15	SCE	205,869	518	45.67	12%	\$247,840	\$347,125	\$493,339	1.4	2.0	\$99,285	\$245,499
CZ16	PG&E	176,114	4304	60.13	3%	\$251,612	\$567,822	\$446,795	2.3	1.8	\$316,210	\$195,183
CZ16-2	LADWP	176,114	4304	60.13	3%	\$251,612	\$241,757	\$446,795	1.0	1.8	(\$9,856)	\$195,183



Figure 30. Cost Effectiveness for Medium Retail Package 3C – All-Electric + HE

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 3C: All-Electric + HE												
CZ01	PG&E	-26,199	3893	14.76	-2%	(\$587)	\$369	(\$5,757)	>1	0.1	\$956	(\$5,170)
CZ02	PG&E	-16,989	2448	8.95	3%	(\$4,211)	\$12,323	\$11,251	>1	>1	\$16,534	\$15,463
CZ03	PG&E	-11,703	1868	7.15	2%	(\$2,213)	\$9,159	\$6,944	>1	>1	\$11,372	\$9,157
CZ04	PG&E	-10,675	1706	6.37	3%	(\$316)	\$14,317	\$11,383	>1	>1	\$14,633	\$11,700
CZ04-2	CPAU	-10,675	1706	6.37	3%	(\$316)	\$20,599	\$11,383	>1	>1	\$20,915	\$11,700
CZ05	PG&E	-11,969	1746	6.19	1%	(\$2,298)	\$5,592	\$1,824	>1	>1	\$7,890	\$4,122
CZ06	SCE	-3,919	1002	4.35	3%	\$1,418	\$29,751	\$13,734	21.0	9.7	\$28,333	\$12,316
CZ06-2	LADWP	-3,919	1002	4.35	3%	\$1,418	\$25,891	\$13,734	18.3	9.7	\$24,473	\$12,316
CZ07	SDG&E	-955	522	2.59	3%	(\$710)	\$74,518	\$11,229	>1	>1	\$75,227	\$11,939
CZ08	SCE	-2,224	793	3.74	4%	(\$3,719)	\$28,067	\$15,075	>1	>1	\$31,785	\$18,793
CZ08-2	LADWP	-2,224	793	3.74	4%	(\$3,719)	\$23,848	\$15,075	>1	>1	\$27,566	\$18,793
CZ09	SCE	-2,089	970	4.84	4%	(\$8,268)	\$34,648	\$21,162	>1	>1	\$42,916	\$29,430
CZ09-2	LADWP	-2,089	970	4.84	4%	(\$8,268)	\$28,837	\$21,162	>1	>1	\$37,105	\$29,430
CZ10	SDG&E	-4,868	1262	5.58	4%	(\$5,222)	\$91,136	\$20,041	>1	>1	\$96,358	\$25,263
CZ10-2	SCE	-4,868	1262	5.58	4%	(\$5,222)	\$37,200	\$20,041	>1	>1	\$42,422	\$25,263
CZ11	PG&E	-12,651	2415	9.95	5%	(\$8,217)	\$29,015	\$26,172	>1	>1	\$37,232	\$34,389
CZ12	PG&E	-13,479	2309	9.10	4%	(\$9,239)	\$20,839	\$21,228	>1	>1	\$30,078	\$30,466
CZ12-2	SMUD	-13,479	2309	9.10	4%	(\$9,239)	\$26,507	\$21,228	>1	>1	\$35,746	\$30,466
CZ13	PG&E	-9,935	1983	8.23	4%	(\$4,975)	\$30,123	\$24,063	>1	>1	\$35,097	\$29,037
CZ14	SDG&E	-5,407	1672	7.71	5%	\$121	\$88,669	\$31,029	732.5	256.3	\$88,547	\$30,908
CZ14-2	SCE	-5,407	1672	7.71	5%	\$121	\$40,709	\$31,029	336.3	256.3	\$40,588	\$30,908
CZ15	SCE	6,782	518	4.77	6%	(\$2,508)	\$42,238	\$37,379	>1	>1	\$44,745	\$39,887
CZ16	PG&E	-35,297	4304	15.03	-8%	\$1,102	(\$21,384)	(\$33,754)	-19.4	-30.6	(\$22,486)	(\$34,856)
CZ16-2	LADWP	-35,297	4304	15.03	-8%	\$1,102	\$48,625	(\$33,754)	44.1	-30.6	\$47,523	(\$34,856)



4.3 Cost Effectiveness Results – Small Hotel

The following issues must be considered when reviewing the Small Hotel results:

- ◆ The Small Hotel is a mix of residential and nonresidential space types, which results in different occupancy and load profiles than the office and retail prototypes.
- ◆ A potential laundry load has not been examined for the Small Hotel. The Reach Code Team attempted to characterize and apply the energy use intensity of laundry loads in hotels but did not find readily available data for use. Thus, cost effectiveness including laundry systems has not been examined.
- ◆ Contrary to the office and retail prototypes, the Small Hotel baseline water heater is a central gas storage type. Current compliance software cannot model central heat pump water heater systems with recirculation serving guest rooms.²³ The only modeling option for heat pump water heating is individual water heaters at each guest room even though this is a very uncommon configuration. TRC modeled individual heat pump water heaters but as a proxy for central heat pump water heating performance, but integrated costs associated with tank and controls for central heat pump water heating into cost effectiveness calculations.
- ◆ Assuming central heat pump water heating also enabled the inclusion of a solar hot water thermal collection system, which was a key efficiency measure to achieving compliance in nearly all climate zones.

Figure 31 through Figure 37 contain the cost-effectiveness findings for the Small Hotel packages. Notable findings for each package include:

- ◆ **1A – Mixed-Fuel + EE:**
 - ◆ Packages achieve +3 to +10% compliance margins depending on climate zone.
 - ◆ Packages are cost effective using either the On-Bill or TDV approach in all CZs except 12 (using SMUD rates), 14 (using SCE rates), and 15 (with SCE rates).
 - ◆ The hotel is primarily guest rooms with a smaller proportion of nonresidential space. Thus, the inexpensive VAV minimum flow measure and lighting measures that have been applied to the entirety of the Medium Office and Medium Retail prototypes have a relatively small impact in the Small Hotel.²⁴
- ◆ **1B – Mixed-Fuel + EE + PV + B:** Packages are cost effective using either the On-Bill or TDV approach in all CZs. Solar PV generally increases cost effectiveness compared to efficiency-only, particularly when using an NPV metric.
- ◆ **1C – Mixed-Fuel + HE:** Packages achieve +2 to +5% compliance margins depending on climate zone. The package is cost effective using the On-Bill approach in a minority of climate zones, and cost effective using TDV approach only in CZ15.

²³ The IOUs and CEC are actively working on including central heat pump water heater modeling with recirculation systems in early 2020.

²⁴ Title 24 requires that hotel/motel guest room lighting design comply with the residential lighting standards, which are all mandatory and are not awarded compliance credit for improved efficacy.



◆ **2 – All-Electric Federal Code-Minimum Reference:**

◆ This all-electric design does not comply with the Energy Commission’s TDV performance budget. Packages achieve between -50% and -4% compliance margins depending on climate zone. This may be because the modeled HW system is constrained to having an artificially low efficiency to avoid triggering federal pre-emption, and the heat pump space heating systems must operate overnight when operation is less efficient.

◆ All packages are cost effective in all climate zones.

◆ **3A – All-Electric + EE:** Packages achieve positive compliance margins in all CZs ranging from 0% to +17%, except CZ16 which had a -18% compliance margin. All packages are cost effective in all climate zones. The improved degree of cost effectiveness outcomes in Package 3A compared to Package 1A appear to be due to the significant incremental package cost savings.

◆ **3B – All-Electric + EE + PV + B:** All packages are cost effective. Packages improve in B/C ratio when compared to 3A and increase in magnitude of overall NPV savings. PV appears to be more cost-effective with higher building electricity loads.

◆ **3C – All-Electric + HE:**

◆ Packages do not comply with Title 24 in all CZs except CZ15 which resulted in a +0.04% compliance margin.

◆ All packages are cost effective.



Figure 31. Cost Effectiveness for Small Hotel Package 1A – Mixed-Fuel + EE

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 1A: Mixed Fuel + EE												
CZ01	PG&E	3,855	1288	5.65	9%	\$20,971	\$34,339	\$36,874	1.6	1.8	\$13,368	\$15,903
CZ02	PG&E	3,802	976	3.91	7%	\$20,971	\$26,312	\$29,353	1.3	1.4	\$5,341	\$8,381
CZ03	PG&E	4,153	1046	4.48	10%	\$20,971	\$31,172	\$35,915	1.5	1.7	\$10,201	\$14,944
CZ04	PG&E	5,007	395	0.85	6%	\$21,824	\$24,449	\$24,270	1.1	1.1	\$2,625	\$2,446
CZ04-2	CPAU	4,916	422	0.98	6%	\$21,824	\$18,713	\$24,306	0.9	1.1	(\$3,111)	\$2,483
CZ05	PG&E	3,530	1018	4.13	9%	\$20,971	\$28,782	\$34,448	1.4	1.6	\$7,810	\$13,477
CZ05-2	SCG	3,530	1018	4.13	9%	\$20,971	\$23,028	\$34,448	1.1	1.6	\$2,057	\$13,477
CZ06	SCE	5,137	418	1.16	8%	\$21,824	\$16,001	\$26,934	0.7	1.2	(\$5,823)	\$5,110
CZ06-2	LADWP	5,137	418	1.16	8%	\$21,824	\$11,706	\$26,934	0.5	1.2	(\$10,118)	\$5,110
CZ07	SDG&E	5,352	424	1.31	8%	\$21,824	\$26,699	\$27,975	1.2	1.3	\$4,876	\$6,152
CZ08	SCE	5,151	419	1.21	7%	\$21,824	\$15,931	\$23,576	0.7	1.1	(\$5,893)	\$1,752
CZ08-2	LADWP	5,151	419	1.21	7%	\$21,824	\$11,643	\$23,576	0.5	1.1	(\$10,180)	\$1,752
CZ09	SCE	5,229	406	1.16	6%	\$21,824	\$15,837	\$22,365	0.7	1.0	(\$5,987)	\$541
CZ09-2	LADWP	5,229	406	1.16	6%	\$21,824	\$11,632	\$22,365	0.5	1.0	(\$10,192)	\$541
CZ10	SDG&E	4,607	342	0.92	5%	\$21,824	\$25,506	\$22,219	1.2	1.0	\$3,683	\$396
CZ10-2	SCE	4,607	342	0.92	5%	\$21,824	\$13,868	\$22,219	0.6	1.0	(\$7,956)	\$396
CZ11	PG&E	4,801	325	0.87	4%	\$21,824	\$22,936	\$19,503	1.1	0.9	\$1,112	(\$2,321)
CZ12	PG&E	5,276	327	0.90	5%	\$21,824	\$22,356	\$21,305	1.0	0.98	\$532	(\$519)
CZ12-2	SMUD	5,276	327	0.90	5%	\$21,824	\$15,106	\$21,305	0.7	0.98	(\$6,717)	(\$519)
CZ13	PG&E	4,975	310	0.87	4%	\$21,824	\$23,594	\$19,378	1.1	0.9	\$1,770	(\$2,445)
CZ14	SDG&E	4,884	370	0.82	4%	\$21,824	\$24,894	\$21,035	1.1	0.96	\$3,070	(\$789)
CZ14-2	SCE	4,884	370	0.82	4%	\$21,824	\$14,351	\$21,035	0.7	0.96	(\$7,473)	(\$789)
CZ15	SCE	5,187	278	1.23	3%	\$21,824	\$13,645	\$18,089	0.6	0.8	(\$8,178)	(\$3,735)
CZ16	PG&E	2,992	1197	4.95	6%	\$20,971	\$27,813	\$30,869	1.3	1.5	\$6,842	\$9,898
CZ16-2	LADWP	2,992	1197	4.95	6%	\$20,971	\$19,782	\$30,869	0.9	1.5	(\$1,190)	\$9,898



Figure 32. Cost Effectiveness for Small Hotel Package 1B – Mixed-Fuel + EE + PV + B

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 1B: Mixed Fuel + EE + PV + B												
CZ01	PG&E	107,694	1288	28.73	9%	\$228,341	\$366,509	\$295,731	1.6	1.3	\$138,168	\$67,390
CZ02	PG&E	130,144	976	31.14	7%	\$228,341	\$359,248	\$336,575	1.6	1.5	\$130,907	\$108,233
CZ03	PG&E	129,107	1046	31.57	10%	\$228,341	\$430,737	\$335,758	1.9	1.5	\$202,396	\$107,416
CZ04	PG&E	132,648	395	28.46	6%	\$229,194	\$355,406	\$338,455	1.6	1.5	\$126,212	\$109,262
CZ04-2	CPAU	132,556	422	28.59	6%	\$229,194	\$322,698	\$338,492	1.4	1.5	\$93,504	\$109,298
CZ05	PG&E	136,318	1018	32.73	9%	\$228,341	\$452,611	\$352,342	2.0	1.5	\$224,269	\$124,001
CZ05-2	SCG	136,318	1018	32.73	9%	\$228,341	\$446,858	\$352,342	2.0	1.5	\$218,516	\$124,001
CZ06	SCE	131,051	418	28.47	8%	\$229,194	\$217,728	\$336,843	0.9	1.5	(\$11,466)	\$107,649
CZ06-2	LADWP	131,051	418	28.47	8%	\$229,194	\$131,052	\$336,843	0.6	1.5	(\$98,142)	\$107,649
CZ07	SDG&E	136,359	424	29.63	8%	\$229,194	\$306,088	\$345,378	1.3	1.5	\$76,894	\$116,184
CZ08	SCE	132,539	419	28.85	7%	\$229,194	\$227,297	\$353,013	1.0	1.5	(\$1,897)	\$123,819
CZ08-2	LADWP	132,539	419	28.85	7%	\$229,194	\$134,739	\$353,013	0.6	1.5	(\$94,455)	\$123,819
CZ09	SCE	131,422	406	28.82	6%	\$229,194	\$230,791	\$343,665	1.0	1.5	\$1,597	\$114,471
CZ09-2	LADWP	131,422	406	28.82	6%	\$229,194	\$136,024	\$343,665	0.6	1.5	(\$93,170)	\$114,471
CZ10	SDG&E	134,146	342	29.05	5%	\$229,194	\$339,612	\$342,574	1.5	1.5	\$110,418	\$113,380
CZ10-2	SCE	134,146	342	29.05	5%	\$229,194	\$226,244	\$342,574	1.0	1.5	(\$2,949)	\$113,380
CZ11	PG&E	128,916	325	27.62	4%	\$229,194	\$352,831	\$337,208	1.5	1.5	\$123,637	\$108,014
CZ12	PG&E	131,226	327	28.04	5%	\$229,194	\$425,029	\$338,026	1.9	1.5	\$195,835	\$108,832
CZ12-2	SMUD	131,226	327	28.04	5%	\$229,194	\$213,176	\$338,026	0.9	1.5	(\$16,018)	\$108,832
CZ13	PG&E	127,258	310	27.33	4%	\$229,194	\$351,244	\$324,217	1.5	1.4	\$122,050	\$95,023
CZ14	SDG&E	147,017	370	30.96	4%	\$229,194	\$861,445	\$217,675	3.8	0.9	\$632,251	(\$11,518)
CZ14-2	SCE	147,017	370	30.96	4%	\$229,194	\$244,100	\$381,164	1.1	1.7	\$14,906	\$151,970
CZ15	SCE	137,180	278	29.12	3%	\$229,194	\$225,054	\$348,320	1.0	1.5	(\$4,140)	\$119,127
CZ16	PG&E	141,478	1197	34.60	6%	\$228,341	\$377,465	\$357,241	1.7	1.6	\$149,124	\$128,899
CZ16-2	LADWP	141,478	1197	34.60	6%	\$228,341	\$136,563	\$357,241	0.6	1.6	(\$91,778)	\$128,899



Figure 33. Cost Effectiveness for Small Hotel Package 1C – Mixed-Fuel + HE

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 1C: Mixed Fuel + HE												
CZ01	PG&E	10	632	3.76	2%	\$22,839	\$11,015	\$10,218	0.5	0.4	(\$11,823)	(\$12,621)
CZ02	PG&E	981	402	2.69	3%	\$23,092	\$16,255	\$11,808	0.7	0.5	(\$6,837)	(\$11,284)
CZ03	PG&E	81	383	2.30	2%	\$20,510	\$7,066	\$6,850	0.3	0.3	(\$13,444)	(\$13,660)
CZ04	PG&E	161	373	2.26	2%	\$22,164	\$8,593	\$7,645	0.4	0.3	(\$13,571)	(\$14,519)
CZ04-2	CPAU	161	373	2.26	2%	\$22,164	\$7,097	\$7,645	0.3	0.3	(\$15,067)	(\$14,519)
CZ05	PG&E	154	361	2.19	2%	\$21,418	\$6,897	\$6,585	0.3	0.3	(\$14,521)	(\$14,833)
CZ05-2	SCG	154	361	2.19	2%	\$21,418	\$4,786	\$6,585	0.2	0.3	(\$16,632)	(\$14,833)
CZ06	SCE	237	201	1.27	2%	\$20,941	\$3,789	\$4,882	0.2	0.2	(\$17,152)	(\$16,059)
CZ06-2	LADWP	237	201	1.27	2%	\$20,941	\$3,219	\$4,882	0.2	0.2	(\$17,722)	(\$16,059)
CZ07	SDG&E	1,117	158	1.28	2%	\$19,625	\$13,771	\$7,342	0.7	0.4	(\$5,854)	(\$12,283)
CZ08	SCE	1,302	169	1.39	2%	\$20,678	\$8,378	\$8,591	0.4	0.4	(\$12,300)	(\$12,088)
CZ08-2	LADWP	1,302	169	1.39	2%	\$20,678	\$5,802	\$8,591	0.3	0.4	(\$14,877)	(\$12,088)
CZ09	SCE	1,733	178	1.56	3%	\$20,052	\$10,489	\$11,164	0.5	0.6	(\$9,563)	(\$8,888)
CZ09-2	LADWP	1,733	178	1.56	3%	\$20,052	\$7,307	\$11,164	0.4	0.6	(\$12,745)	(\$8,888)
CZ10	SDG&E	3,170	220	2.29	4%	\$22,682	\$35,195	\$19,149	1.6	0.8	\$12,513	(\$3,533)
CZ10-2	SCE	3,170	220	2.29	4%	\$22,682	\$16,701	\$19,149	0.7	0.8	(\$5,981)	(\$3,533)
CZ11	PG&E	3,343	323	2.96	4%	\$23,344	\$27,633	\$20,966	1.2	0.9	\$4,288	(\$2,379)
CZ12	PG&E	1,724	320	2.44	4%	\$22,302	\$11,597	\$15,592	0.5	0.7	(\$10,705)	(\$6,710)
CZ12-2	SMUD	1,724	320	2.44	4%	\$22,302	\$11,156	\$15,592	0.5	0.7	(\$11,146)	(\$6,710)
CZ13	PG&E	3,083	316	2.81	3%	\$22,882	\$23,950	\$17,068	1.0	0.7	\$1,068	(\$5,814)
CZ14	SDG&E	3,714	312	2.99	4%	\$23,299	\$35,301	\$21,155	1.5	0.9	\$12,002	(\$2,144)
CZ14-2	SCE	3,714	312	2.99	4%	\$23,299	\$18,460	\$21,155	0.8	0.9	(\$4,839)	(\$2,144)
CZ15	SCE	8,684	97	3.21	5%	\$20,945	\$26,738	\$31,600	1.3	1.5	\$5,792	\$10,655
CZ16	PG&E	836	700	4.42	3%	\$24,616	\$18,608	\$14,494	0.8	0.6	(\$6,007)	(\$10,121)
CZ16-2	LADWP	836	700	4.42	3%	\$24,616	\$15,237	\$14,494	0.6	0.6	(\$9,378)	(\$10,121)



Figure 34. Cost Effectiveness for Small Hotel Package 2 – All-Electric Federal Code Minimum

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost*	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 2: All-Electric Federal Code Minimum												
CZ01	PG&E	-159,802	16917	53.92	-28%	(\$1,296,784)	(\$582,762)	(\$115,161)	2.2	11.3	\$714,022	\$1,181,623
CZ02	PG&E	-118,739	12677	40.00	-12%	(\$1,297,757)	(\$245,434)	(\$51,620)	5.3	25.1	\$1,052,322	\$1,246,137
CZ03	PG&E	-110,595	12322	40.48	-14%	(\$1,300,029)	(\$326,633)	(\$51,166)	4.0	25.4	\$973,396	\$1,248,863
CZ04	PG&E	-113,404	11927	36.59	-13%	(\$1,299,864)	(\$225,307)	(\$53,134)	5.8	24.5	\$1,074,556	\$1,246,730
CZ04-2	CPAU	-113,404	11927	36.59	-13%	(\$1,299,864)	(\$17,768)	(\$53,134)	73.2	24.5	\$1,282,096	\$1,246,730
CZ05	PG&E	-108,605	11960	38.34	-15%	(\$1,299,917)	(\$350,585)	(\$54,685)	3.7	23.8	\$949,332	\$1,245,232
CZ06	SCE	-78,293	8912	29.36	-5%	(\$1,300,058)	(\$61,534)	(\$28,043)	21.1	46.4	\$1,238,524	\$1,272,015
CZ06-2	LA	-78,293	8912	29.36	-5%	(\$1,300,058)	\$43,200	(\$28,043)	>1	46.4	\$1,343,258	\$1,272,015
CZ07	SDG&E	-69,819	8188	28.04	-7%	(\$1,298,406)	(\$137,638)	(\$23,199)	9.4	56.0	\$1,160,768	\$1,275,207
CZ08	SCE	-71,914	8353	28.21	-6%	(\$1,296,376)	(\$53,524)	(\$22,820)	24.2	56.8	\$1,242,852	\$1,273,556
CZ08-2	LA	-71,914	8353	28.21	-6%	(\$1,296,376)	\$42,841	(\$22,820)	>1	56.8	\$1,339,217	\$1,273,556
CZ09	SCE	-72,262	8402	28.38	-6%	(\$1,298,174)	(\$44,979)	(\$21,950)	28.9	59.1	\$1,253,196	\$1,276,224
CZ09-2	LA	-72,262	8402	28.38	-6%	(\$1,298,174)	\$46,679	(\$21,950)	>1	59.1	\$1,344,853	\$1,276,224
CZ10	SDG&E	-80,062	8418	26.22	-8%	(\$1,295,176)	(\$172,513)	(\$36,179)	7.5	35.8	\$1,122,663	\$1,258,997
CZ10-2	SCE	-80,062	8418	26.22	-8%	(\$1,295,176)	(\$63,974)	(\$36,179)	20.2	35.8	\$1,231,202	\$1,258,997
CZ11	PG&E	-99,484	10252	30.99	-10%	(\$1,295,985)	(\$186,037)	(\$49,387)	7.0	26.2	\$1,109,948	\$1,246,598
CZ12	PG&E	-99,472	10403	32.08	-10%	(\$1,297,425)	(\$340,801)	(\$45,565)	3.8	28.5	\$956,624	\$1,251,860
CZ12-2	SMUD	-99,067	10403	32.21	-10%	(\$1,297,425)	\$5,794	(\$44,354)	>1	29.3	\$1,303,219	\$1,253,071
CZ13	PG&E	-96,829	10029	30.60	-10%	(\$1,295,797)	(\$184,332)	(\$50,333)	7.0	25.7	\$1,111,465	\$1,245,464
CZ14	SDG&E	-101,398	10056	29.68	-11%	(\$1,296,156)	(\$325,928)	(\$56,578)	4.0	22.9	\$970,228	\$1,239,578
CZ14-2	SCE	-101,398	10056	29.68	-11%	(\$1,296,156)	(\$121,662)	(\$56,578)	10.7	22.9	\$1,174,494	\$1,239,578
CZ15	SCE	-49,853	5579	18.07	-4%	(\$1,294,276)	\$209	(\$21,420)	>1	60.4	\$1,294,485	\$1,272,856
CZ16	PG&E	-216,708	17599	41.89	-50%	(\$1,300,552)	(\$645,705)	(\$239,178)	2.0	5.4	\$654,847	\$1,061,374
CZ16-2	LA	-216,708	17599	41.89	-50%	(\$1,300,552)	\$30,974	(\$239,178)	>1	5.4	\$1,331,526	\$1,061,374

*The Incremental Package Cost is the addition of the incremental HVAC and water heating equipment costs from Figure 12, the electrical infrastructure incremental cost of \$26,800 (see section 3.3.2.1), and the natural gas infrastructure incremental cost savings of \$56,020 (see section 3.3.2.2).



Figure 35. Cost Effectiveness for Small Hotel Package 3A – All-Electric + EE

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 3A: All-Electric + EE												
CZ01	PG&E	-113,259	16917	62.38	1.3%	(\$1,251,544)	(\$200,367)	\$5,460	6.2	>1	\$1,051,177	\$1,257,005
CZ02	PG&E	-90,033	12677	45.46	4%	(\$1,265,064)	(\$108,075)	\$15,685	11.7	>1	\$1,156,989	\$1,280,749
CZ03	PG&E	-83,892	12322	45.93	6%	(\$1,267,509)	(\$198,234)	\$20,729	6.4	>1	\$1,069,274	\$1,288,237
CZ04	PG&E	-91,197	11927	40.36	0.2%	(\$1,263,932)	(\$112,892)	\$703	11.2	>1	\$1,151,041	\$1,264,635
CZ04-2	CPAU	-90,981	11927	40.42	0.2%	(\$1,263,932)	\$32,557	\$918	>1	>1	\$1,296,489	\$1,264,850
CZ05	PG&E	-82,491	11960	43.62	5%	(\$1,267,355)	(\$221,492)	\$18,488	5.7	>1	\$1,045,863	\$1,285,843
CZ06	SCE	-61,523	8912	32.45	7%	(\$1,267,916)	(\$33,475)	\$15,142	37.9	>1	\$1,234,441	\$1,283,057
CZ06-2	LADWP	-61,523	8912	32.45	7%	(\$1,267,916)	\$57,215	\$15,142	>1	>1	\$1,325,130	\$1,283,057
CZ07	SDG&E	-53,308	8188	31.22	7%	(\$1,266,354)	(\$81,338)	\$22,516	15.6	>1	\$1,185,015	\$1,288,870
CZ08	SCE	-55,452	8353	31.33	3%	(\$1,264,408)	(\$23,893)	\$9,391	52.9	>1	\$1,240,515	\$1,273,800
CZ08-2	LADWP	-55,452	8353	31.33	3%	(\$1,264,408)	\$57,058	\$9,391	>1	>1	\$1,321,466	\$1,273,800
CZ09	SCE	-55,887	8402	31.40	2%	(\$1,266,302)	(\$19,887)	\$9,110	63.7	>1	\$1,246,415	\$1,275,412
CZ09-2	LADWP	-55,887	8402	31.40	2%	(\$1,266,302)	\$60,441	\$9,110	>1	>1	\$1,326,743	\$1,275,412
CZ10	SDG&E	-60,239	8418	29.96	2%	(\$1,256,002)	(\$126,072)	\$7,365	10.0	>1	\$1,129,930	\$1,263,367
CZ10-2	SCE	-60,239	8418	29.96	2%	(\$1,256,002)	(\$33,061)	\$7,365	38.0	>1	\$1,222,940	\$1,263,367
CZ11	PG&E	-77,307	10252	35.12	1%	(\$1,256,149)	(\$80,187)	\$3,114	15.7	>1	\$1,175,962	\$1,259,263
CZ12	PG&E	-75,098	10403	36.73	2%	(\$1,256,824)	(\$234,275)	\$9,048	5.4	>1	\$1,022,550	\$1,265,872
CZ12-2	SMUD	-75,098	10403	36.73	2%	(\$1,256,824)	\$54,941	\$9,048	>1	>1	\$1,311,765	\$1,265,872
CZ13	PG&E	-75,052	10029	34.72	0.3%	(\$1,256,109)	(\$79,378)	\$1,260	15.8	>1	\$1,176,731	\$1,257,369
CZ14	SDG&E	-76,375	10056	34.28	0.1%	(\$1,255,704)	(\$170,975)	\$543	7.3	>1	\$1,084,729	\$1,256,247
CZ14-2	SCE	-76,375	10056	34.28	0.1%	(\$1,255,704)	(\$34,418)	\$543	36.5	>1	\$1,221,286	\$1,256,247
CZ15	SCE	-33,722	5579	21.43	2%	(\$1,257,835)	\$26,030	\$12,262	>1	>1	\$1,283,864	\$1,270,097
CZ16	PG&E	-139,676	17599	55.25	-14%	(\$1,255,364)	(\$197,174)	(\$66,650)	6.4	18.8	\$1,058,190	\$1,188,714
CZ16-2	LADWP	-139,676	17599	55.25	-14%	(\$1,255,364)	\$165,789	(\$66,650)	>1	18.8	\$1,421,153	\$1,188,714



Figure 36. Cost Effectiveness for Small Hotel Package 3B – All-Electric + EE + PV + B

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 3B: All-Electric + EE + PV + B												
CZ01	PG&E	-8,900	16917	87.15	1%	(\$1,044,174)	\$90,964	\$324,376	>1	>1	\$1,135,139	\$1,368,551
CZ02	PG&E	36,491	12677	73.03	4%	(\$1,057,694)	\$242,514	\$313,711	>1	>1	\$1,300,208	\$1,371,405
CZ03	PG&E	41,239	12322	73.43	6%	(\$1,060,139)	\$155,868	\$308,385	>1	>1	\$1,216,007	\$1,368,524
CZ04	PG&E	36,628	11927	69.70	0.2%	(\$1,056,562)	\$240,799	\$308,682	>1	>1	\$1,297,361	\$1,365,244
CZ04-2	CPAU	36,844	11927	69.76	0.2%	(\$1,056,562)	\$336,813	\$418,836	>1	>1	\$1,393,375	\$1,475,398
CZ05	PG&E	36,365	11960	73.11	5%	(\$1,059,985)	\$119,173	\$317,952	>1	>1	\$1,179,158	\$1,377,937
CZ06	SCE	64,476	8912	60.47	7%	(\$1,060,545)	\$156,327	\$311,730	>1	>1	\$1,216,872	\$1,372,275
CZ06-2	LADWP	64,476	8912	60.47	7%	(\$1,060,545)	\$180,648	\$311,730	>1	>1	\$1,241,193	\$1,372,275
CZ07	SDG&E	77,715	8188	60.45	7%	(\$1,058,983)	\$197,711	\$330,458	>1	>1	\$1,256,694	\$1,389,441
CZ08	SCE	71,990	8353	59.49	3%	(\$1,057,038)	\$165,393	\$320,814	>1	>1	\$1,222,432	\$1,377,852
CZ08-2	LADWP	71,990	8353	60.24	3%	(\$1,057,038)	\$180,367	\$443,809	>1	>1	\$1,237,405	\$1,500,847
CZ09	SCE	70,465	8402	59.29	2%	(\$1,058,932)	\$175,602	\$301,459	>1	>1	\$1,234,534	\$1,360,391
CZ09-2	LADWP	70,465	8402	59.29	2%	(\$1,058,932)	\$183,220	\$301,459	>1	>1	\$1,242,152	\$1,360,391
CZ10	SDG&E	69,581	8418	58.04	2%	(\$1,048,632)	\$161,513	\$294,530	>1	>1	\$1,210,145	\$1,343,162
CZ10-2	SCE	69,581	8418	58.04	2%	(\$1,048,632)	\$164,837	\$294,530	>1	>1	\$1,213,469	\$1,343,162
CZ11	PG&E	47,260	10252	61.57	1%	(\$1,048,779)	\$253,717	\$286,797	>1	>1	\$1,302,496	\$1,335,576
CZ12	PG&E	51,115	10403	64.07	2%	(\$1,049,454)	\$104,523	\$305,446	>1	>1	\$1,153,977	\$1,354,900
CZ12-2	SMUD	51,115	10403	64.99	2%	(\$1,049,454)	\$253,197	\$430,977	>1	>1	\$1,302,651	\$1,480,431
CZ13	PG&E	47,757	10029	60.77	0.3%	(\$1,048,739)	\$251,663	\$281,877	>1	>1	\$1,300,402	\$1,330,616
CZ14	SDG&E	66,084	10056	64.54	0.1%	(\$1,048,334)	\$148,510	\$334,938	>1	>1	\$1,196,844	\$1,383,272
CZ14-2	SCE	66,084	10056	64.54	0.1%	(\$1,048,334)	\$185,018	\$334,938	>1	>1	\$1,233,352	\$1,383,272
CZ15	SCE	98,755	5579	49.04	2.1%	(\$1,050,465)	\$233,308	\$311,121	>1	>1	\$1,283,772	\$1,361,585
CZ16	PG&E	-873	17599	84.99	-14%	(\$1,047,994)	\$191,994	\$240,724	>1	>1	\$1,239,987	\$1,288,718
CZ16-2	LADWP	-873	17599	84.99	-14%	(\$1,047,994)	\$291,279	\$240,724	>1	>1	\$1,339,273	\$1,288,718



Figure 37. Cost Effectiveness for Small Hotel Package 3C - All-Electric + HE

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 3C: All-Electric + HE												
CZ01	PG&E	-154,840	16917	56.24	-24%	(\$1,281,338)	(\$606,619)	(\$101,272)	2.1	12.7	\$674,719	\$1,180,066
CZ02	PG&E	-118,284	12677	41.18	-11%	(\$1,283,243)	(\$395,641)	(\$44,505)	3.2	28.8	\$887,602	\$1,238,738
CZ03	PG&E	-113,413	12322	40.80	-14%	(\$1,288,782)	(\$522,458)	(\$51,582)	2.5	25.0	\$766,324	\$1,237,200
CZ04	PG&E	-115,928	11927	37.09	-13%	(\$1,287,878)	(\$383,177)	(\$53,285)	3.4	24.2	\$904,701	\$1,234,593
CZ04-2	CPAU	-115,928	11927	37.09	-13%	(\$1,287,878)	(\$24,170)	(\$53,285)	53.3	24.2	\$1,263,708	\$1,234,593
CZ05	PG&E	-111,075	11960	38.75	-15%	(\$1,288,242)	(\$530,740)	(\$56,124)	2.4	23.0	\$757,502	\$1,232,119
CZ06	SCE	-83,000	8912	29.41	-15%	(\$1,288,695)	(\$154,625)	(\$32,244)	8.3	40.0	\$1,134,069	\$1,256,451
CZ06-2	LADWP	-83,000	8912	29.41	-15%	(\$1,288,695)	(\$17,626)	(\$32,244)	73.1	40.0	\$1,271,068	\$1,256,451
CZ07	SDG&E	-73,823	8188	28.32	-7%	(\$1,285,759)	(\$268,207)	(\$24,069)	4.8	53.4	\$1,017,552	\$1,261,690
CZ08	SCE	-75,573	8353	28.56	-6%	(\$1,281,241)	(\$157,393)	(\$21,912)	8.1	58.5	\$1,123,848	\$1,259,329
CZ08-2	LADWP	-75,573	8353	28.56	-6%	(\$1,281,241)	(\$18,502)	(\$21,912)	69.2	58.5	\$1,262,739	\$1,259,329
CZ09	SCE	-74,790	8402	29.04	-4%	(\$1,285,139)	(\$138,746)	(\$16,992)	9.3	75.6	\$1,146,393	\$1,268,147
CZ09-2	LADWP	-74,790	8402	29.04	-4%	(\$1,285,139)	(\$6,344)	(\$16,992)	202.6	75.6	\$1,278,794	\$1,268,147
CZ10	SDG&E	-80,248	8418	27.57	-5%	(\$1,278,097)	(\$235,479)	(\$24,107)	5.4	53.0	\$1,042,617	\$1,253,990
CZ10-2	SCE	-80,248	8418	27.57	-5%	(\$1,278,097)	(\$123,371)	(\$24,107)	10.4	53.0	\$1,154,726	\$1,253,990
CZ11	PG&E	-98,041	10252	32.73	-7%	(\$1,279,528)	(\$278,242)	(\$35,158)	4.6	36.4	\$1,001,286	\$1,244,370
CZ12	PG&E	-100,080	10403	33.24	-9%	(\$1,282,834)	(\$480,347)	(\$38,715)	2.7	33.1	\$802,487	\$1,244,119
CZ12-2	SMUD	-100,080	10403	33.24	-9%	(\$1,282,834)	(\$23,362)	(\$38,715)	54.9	33.1	\$1,259,472	\$1,244,119
CZ13	PG&E	-94,607	10029	32.47	-7%	(\$1,279,301)	(\$276,944)	\$244,552	4.6	>1	\$1,002,357	\$1,523,853
CZ14	SDG&E	-97,959	10056	31.91	-7%	(\$1,279,893)	(\$302,123)	(\$37,769)	4.2	33.9	\$977,770	\$1,242,124
CZ14-2	SCE	-97,959	10056	31.91	-7%	(\$1,279,893)	(\$129,082)	(\$37,769)	9.9	33.9	\$1,150,811	\$1,242,124
CZ15	SCE	-45,226	5579	20.17	0.04%	(\$1,276,847)	(\$6,533)	\$227	195.4	>1	\$1,270,314	\$1,277,074
CZ16	PG&E	-198,840	17599	47.73	-39%	(\$1,288,450)	(\$605,601)	(\$185,438)	2.1	6.9	\$682,848	\$1,103,011
CZ16-2	LADWP	-198,840	17599	47.73	-39%	(\$1,288,450)	\$40,268	(\$185,438)	>1	6.9	\$1,328,718	\$1,103,011



4.4 Cost Effectiveness Results – PV-only and PV+Battery

The Reach Code Team ran packages of PV-only and PV+Battery measures, without any additional efficiency measures, to assess cost effectiveness on top of the mixed-fuel baseline building and the all-electric federal code minimum reference (Package 2 in Sections 4.1 – 4.3).

Jurisdictions interested in adopting PV-only reach codes should reference the mixed-fuel cost effectiveness results because a mixed-fuel building is the baseline for the nonresidential prototypes analyzed in this study. PV or PV+Battery packages are added to all-electric federal code minimum reference which (in many scenarios) do not have a positive compliance margin compared to the mixed-fuel baseline model, and are solely provided for informational purposes. Jurisdictions interested in reach codes requiring all-electric+PV or all-electric+PV+battery should reference package 3B results in Sections 4.1 – 4.3.²⁵

Each of the following eight packages were evaluated against a mixed fuel baseline designed as per 2019 Title 24 Part 6 requirements.

- ◆ **Mixed-Fuel + 3 kW PV Only:**
- ◆ **Mixed-Fuel + 3 kW PV + 5 kWh battery**
- ◆ **Mixed-Fuel + PV Only:** PV sized per the roof size of the building, or to offset the annual electricity consumption, whichever is smaller
- ◆ **Mixed-Fuel + PV + 50 kWh Battery:** PV sized per the roof size of the building, or to offset the annual electricity consumption, whichever is smaller, along with 50 kWh battery
- ◆ **All-Electric + 3 kW PV Only**
- ◆ **All-Electric + 3 kW PV + 5 kWh Battery**
- ◆ **All-Electric + PV Only:** PV sized per the roof size of the building, or to offset the annual electricity consumption, whichever is smaller
- ◆ **All-Electric + PV + 50 kWh Battery:** PV sized per the roof size of the building, or to offset the annual electricity consumption, whichever is smaller, along with 50 kWh battery

Figure 38 through Figure 40 summarize the on-bill and TDV B/C ratios for each prototype for the two PV only packages and the two PV plus battery packages. Compliance margins are 0 percent for all mixed-fuel packages. For all-electric packages, compliance margins are equal to those found in Package 2 for each prototype in Sections 4.1 – 4.3. The compliance margins are not impacted by renewables and battery storage measures and hence not shown in the tables. These figures are formatted in the following way:

- ◆ Cells highlighted in green have a B/C ratio greater than 1 and are cost-effective. The shade of green gets darker as cost effectiveness increases.
- ◆ Cells not highlighted have a B/C ratio less than one and are not cost effective.

²⁵ Because this study shows that the addition of battery generally reduces cost effectiveness, removing a battery measure would only increase cost effectiveness. Thus, a jurisdiction can apply the EE+PV+Battery cost effectiveness findings to support EE+PV reach codes, because EE+PV would still remain cost effective without a battery.



Please see Appendix 6.7 for results in full detail. Generally, for mixed-fuel packages across all prototypes, all climate zones were proven to have cost effective outcomes using TDV except in CZ1 with a 3 kW PV + 5 kWh Battery scenario. Most climate zones also had On-Bill cost effectiveness. The addition of a battery slightly reduces cost effectiveness.

In all-electric packages, the results for most climate zones were found cost effective using both TDV and On-Bill approaches with larger PV systems or PV+Battery systems. Most 3 kW PV systems were also found to be cost effective except in some scenarios analyzing the Medium Office using the On-Bill method. CZ16 results continue to show challenges being cost effective with all electric buildings, likely due to the high heating loads in this climate. The addition of a battery slightly reduces the cost effectiveness for all-electric buildings with PV.



Figure 38. Cost Effectiveness for Medium Office - PV and Battery

CZ	PV Battery Utility	Mixed Fuel								All-Electric							
		3kW		3kW		135kW		135kW		3kW		3kW		135kW		135kW	
		0		5kWh		0		50kWh		0		5kWh		0		50kWh	
		On-Bill	TDV	On-Bill	TDV	On-Bill	TDV	On-Bill	TDV	On-Bill	TDV	On-Bill	TDV	On-Bill	TDV	On-Bill	TDV
CZ01	PG&E	2.8	1.5	1.7	0.9	1.7	1.3	1.6	1.2	0.9	1.6	0.9	1.6	2.5	2.0	2.1	1.7
CZ02	PG&E	3.7	1.9	2.1	1.1	2.2	1.6	2.0	1.4	0.8	2.2	0.9	2.6	3.2	2.4	2.7	2.1
CZ03	PG&E	3.7	1.8	2.2	1.0	2.1	1.5	1.9	1.4	1.9	3.9	2.0	4.0	3.4	2.5	2.9	2.2
CZ04	PG&E	3.6	2.0	2.1	1.2	2.3	1.6	2.1	1.5	0.9	2.1	1.1	2.7	3.3	2.5	2.9	2.2
CZ04-2	CPAU	2.1	2.0	1.3	1.2	1.8	1.6	1.6	1.5	7.7	2.1	9.8	2.7	2.9	2.5	2.5	2.2
CZ05	PG&E	4.2	1.9	2.4	1.1	2.5	1.6	2.3	1.5	1.8	2.7	1.9	2.7	4.0	2.7	3.4	2.3
CZ05-2	SCG	4.2	1.9	2.4	1.1	2.5	1.6	2.3	1.5	>1	>1	>1	>1	>1	3.0	9.4	2.6
CZ06	SCE	2.0	2.0	1.2	1.1	1.3	1.6	1.2	1.5	>1	7.2	>1	8.2	2.4	2.7	2.1	2.3
CZ06-2	LA	1.2	2.0	0.7	1.1	0.8	1.6	0.7	1.5	>1	7.2	>1	8.2	1.5	2.7	1.3	2.3
CZ07	SDG&E	3.2	2.0	1.9	1.2	2.1	1.6	1.9	1.5	>1	>1	>1	>1	3.7	2.7	3.2	2.3
CZ08	SCE	1.9	2.0	1.1	1.2	1.3	1.7	1.2	1.5	>1	>1	>1	>1	2.2	2.7	1.9	2.4
CZ08-2	LA	1.2	2.0	0.7	1.2	0.7	1.7	0.7	1.5	>1	>1	>1	>1	1.3	2.7	1.1	2.4
CZ09	SCE	1.9	2.0	1.1	1.2	1.3	1.7	1.2	1.5	>1	>1	>1	>1	2.2	2.6	1.9	2.3
CZ09-2	LA	1.1	2.0	0.7	1.2	0.7	1.7	0.7	1.5	>1	>1	>1	>1	1.3	2.6	1.2	2.3
CZ10	SDG&E	3.8	1.9	2.2	1.1	2.1	1.6	1.9	1.5	>1	3.3	>1	6.3	3.3	2.3	2.9	2.0
CZ10-2	SCE	2.1	1.9	1.2	1.1	1.3	1.6	1.2	1.5	>1	3.3	>1	6.3	2.0	2.3	1.8	2.0
CZ11	PG&E	3.6	1.9	2.1	1.1	2.2	1.6	2.0	1.5	1.1	2.6	1.5	3.6	3.2	2.4	2.8	2.1
CZ12	PG&E	3.5	1.9	2.1	1.1	2.2	1.6	2.0	1.5	0.9	2.5	1.2	3.2	3.1	2.4	2.7	2.1
CZ12-2	SMUD	1.4	1.9	0.8	1.1	1.1	1.6	1.04	1.5	>1	2.5	>1	3.2	1.9	2.4	1.6	2.1
CZ13	PG&E	3.5	1.8	2.0	1.1	2.2	1.5	2.0	1.4	1.1	2.5	1.5	3.6	3.1	2.3	2.7	2.0
CZ14	SDG&E	3.4	2.3	2.0	1.3	2.2	1.9	2.0	1.7	>1	2.3	>1	3.1	3.6	2.8	3.2	2.5
CZ14-2	SCE	1.9	2.3	1.1	1.3	1.3	1.9	1.2	1.7	>1	2.3	>1	3.1	2.2	2.8	1.9	2.5
CZ15	SCE	1.8	2.1	1.1	1.2	1.2	1.7	1.1	1.6	>1	7.5	>1	>1	1.8	2.4	1.6	2.1
CZ16	PG&E	3.9	2.0	2.3	1.1	2.3	1.6	2.1	1.5	0.3	0.4	0.4	0.6	2.5	1.8	2.2	1.6
CZ16-2	LA	1.2	2.0	0.7	1.1	0.7	1.6	0.7	1.5	>1	0.4	>1	0.6	1.3	1.8	1.2	1.6



Figure 39. Cost Effectiveness for Medium Retail - PV and Battery

CZ	Utility	Mixed Fuel								All-Electric							
		3kW		3kW		90 kW		90 kW		3kW		3kW		90 kW		90 kW	
		0		5kWh		0		50kWh		0		5kWh		0		50kWh	
		On-Bill	TDV	On-Bill	TDV	On-Bill	TDV	On-Bill	TDV	On-Bill	TDV	On-Bill	TDV	On-Bill	TDV	On-Bill	TDV
CZ01	PG&E	2.3	1.5	1.3	0.9	1.8	1.3	1.6	1.2	>1	3.0	>1	2.7	2.5	1.6	2.2	1.5
CZ02	PG&E	3.2	1.8	1.9	1.1	1.9	1.5	1.8	1.5	>1	>1	>1	>1	2.7	2.1	2.3	1.9
CZ03	PG&E	2.7	1.8	1.6	1.1	2.2	1.5	2.0	1.4	>1	>1	>1	>1	3.0	2.1	2.6	1.9
CZ04	PG&E	3.3	1.9	1.9	1.1	2.0	1.6	1.9	1.5	>1	>1	>1	>1	2.7	2.1	2.5	2.0
CZ04-2	CPAU	2.1	1.9	1.2	1.1	1.7	1.6	1.5	1.5	>1	>1	>1	>1	2.4	2.1	2.1	2.0
CZ05	PG&E	2.8	1.9	1.6	1.1	2.3	1.6	2.0	1.5	>1	>1	>1	>1	3.2	2.1	2.7	2.0
CZ05-2	SCG	2.8	1.9	1.6	1.1	2.3	1.6	2.0	1.5	>1	>1	>1	>1	3.7	1.9	3.2	1.6
CZ06	SCE	2.0	1.9	1.2	1.1	1.2	1.6	1.1	1.5	>1	>1	>1	>1	1.7	2.2	1.5	2.0
CZ06-2	LA	1.3	1.9	0.7	1.1	0.7	1.6	0.6	1.5	>1	>1	>1	>1	1.01	2.2	0.9	2.0
CZ07	SDG&E	4.0	2.0	2.4	1.2	1.5	1.6	1.6	1.6	>1	>1	>1	>1	2.4	2.3	2.3	2.1
CZ08	SCE	2.1	2.0	1.2	1.2	1.2	1.7	1.1	1.6	>1	>1	>1	>1	1.7	2.4	1.5	2.1
CZ08-2	LA	1.3	2.0	0.8	1.2	0.7	1.7	0.6	1.6	>1	>1	>1	>1	1.01	2.4	0.9	2.1
CZ09	SCE	2.0	2.0	1.2	1.2	1.2	1.7	1.1	1.5	>1	>1	>1	>1	1.8	2.4	1.6	2.1
CZ09-2	LA	1.2	2.0	0.7	1.2	0.7	1.7	0.7	1.5	>1	>1	>1	>1	1.1	2.4	0.99	2.1
CZ10	SDG&E	3.8	2.0	2.2	1.2	1.7	1.6	1.7	1.5	>1	>1	>1	>1	2.6	2.3	2.5	2.0
CZ10-2	SCE	2.0	2.0	1.2	1.2	1.2	1.6	1.1	1.5	>1	>1	>1	>1	1.8	2.3	1.6	2.0
CZ11	PG&E	2.8	1.9	1.6	1.1	1.9	1.6	1.8	1.5	>1	>1	>1	>1	2.7	2.3	2.5	2.1
CZ12	PG&E	3.0	1.9	1.7	1.1	1.9	1.6	1.8	1.5	>1	>1	>1	>1	2.7	2.3	2.5	2.1
CZ12-2	SMUD	1.5	1.9	0.9	1.1	1.1	1.6	0.997	1.5	>1	>1	>1	>1	1.7	2.3	1.4	2.1
CZ13	PG&E	3.0	1.9	1.7	1.1	1.9	1.6	1.8	1.4	>1	>1	>1	>1	2.7	2.2	2.4	1.9
CZ14	SDG&E	3.5	2.2	2.1	1.3	1.6	1.8	1.5	1.6	>1	>1	>1	>1	2.5	2.6	2.2	2.2
CZ14-2	SCE	1.8	2.2	1.1	1.3	1.2	1.8	1.1	1.6	>1	>1	>1	>1	1.7	2.6	1.5	2.2
CZ15	SCE	1.9	2.0	1.1	1.2	1.1	1.7	1.02	1.5	>1	>1	>1	>1	1.7	2.4	1.5	2.1
CZ16	PG&E	3.7	2.0	2.1	1.2	2.1	1.7	1.9	1.6	0.6	0.5	0.5	0.4	2.7	2.0	2.3	1.8
CZ16-2	LA	1.3	2.0	0.7	1.2	0.7	1.7	0.6	1.6	>1	0.5	>1	0.4	1.2	2.0	1.0	1.8



Figure 40. Cost Effectiveness for Small Hotel - PV and Battery

CZ	Utility	Mixed Fuel								All-Electric							
		3kW		3kW		80kW		80kW		3kW		3kW		80kW		80kW	
		0		5kWh		0		50kWh		0		5kWh		0		50kWh	
		On-Bill	TDV	On-Bill	TDV	On-Bill	TDV	On-Bill	TDV	On-Bill	TDV	On-Bill	TDV	On-Bill	TDV	On-Bill	TDV
CZ01	PG&E	2.3	1.5	1.3	0.9	1.9	1.2	1.6	1.1	2.3	>1	2.3	>1	4.8	>1	4.7	>1
CZ02	PG&E	2.3	1.9	1.3	1.1	1.8	1.5	1.6	1.4	5.6	>1	5.6	>1	>1	>1	>1	>1
CZ03	PG&E	2.7	1.8	1.6	1.05	2.3	1.5	1.9	1.4	4.2	>1	4.2	>1	>1	>1	>1	>1
CZ04	PG&E	2.4	1.9	1.4	1.1	1.8	1.6	1.6	1.5	6.2	>1	6.2	>1	>1	>1	>1	>1
CZ04-2	CPAU	2.1	1.9	1.2	1.1	1.7	1.6	1.5	1.5	>1	>1	>1	>1	>1	>1	>1	>1
CZ05	PG&E	2.9	1.9	1.7	1.1	2.4	1.6	2.0	1.5	3.9	>1	3.9	>1	>1	>1	>1	>1
CZ05-2	SCG	2.9	1.9	1.7	1.1	2.4	1.6	2.0	1.5	>1	>1	>1	>1	>1	>1	>1	>1
CZ06	SCE	1.8	1.9	1.1	1.1	1.1	1.6	0.9	1.4	>1	>1	>1	>1	>1	>1	>1	>1
CZ06-2	LA	1.1	1.9	0.7	1.1	0.7	1.6	0.6	1.4	>1	>1	>1	>1	>1	>1	>1	>1
CZ07	SDG&E	2.6	2.0	1.5	1.1	1.4	1.6	1.3	1.5	>1	>1	>1	>1	>1	>1	>1	>1
CZ08	SCE	1.9	2.0	1.1	1.2	1.2	1.7	1.0	1.5	>1	>1	>1	>1	>1	>1	>1	>1
CZ08-2	LA	1.2	2.0	0.7	1.2	0.7	1.7	0.6	1.5	>1	>1	>1	>1	>1	>1	>1	>1
CZ09	SCE	1.9	1.9	1.1	1.1	1.2	1.6	0.997	1.4	>1	>1	>1	>1	>1	>1	>1	>1
CZ09-2	LA	1.1	1.9	0.7	1.1	0.7	1.6	0.6	1.4	>1	>1	>1	>1	>1	>1	>1	>1
CZ10	SDG&E	2.9	1.9	1.7	1.1	1.5	1.6	1.4	1.4	8.2	>1	8.2	>1	>1	>1	>1	>1
CZ10-2	SCE	1.7	1.9	0.99	1.1	1.2	1.6	0.99	1.4	>1	>1	>1	>1	>1	>1	>1	>1
CZ11	PG&E	2.6	1.9	1.5	1.1	1.8	1.6	1.5	1.4	7.6	>1	7.6	>1	>1	>1	>1	>1
CZ12	PG&E	2.7	1.9	1.6	1.1	2.3	1.6	1.9	1.4	4.0	>1	4.0	>1	>1	>1	>1	>1
CZ12-2	SMUD	1.4	1.9	0.8	1.1	1.1	1.6	0.95	1.4	>1	>1	>1	>1	>1	>1	>1	>1
CZ13	PG&E	2.6	1.8	1.5	1.1	1.8	1.5	1.5	1.4	7.7	>1	7.7	>1	>1	>1	>1	>1
CZ14	SDG&E	3.0	2.2	1.7	1.3	1.7	1.8	1.5	1.6	4.2	>1	4.2	>1	>1	>1	>1	>1
CZ14-2	SCE	1.8	2.2	1.1	1.3	1.3	1.8	1.1	1.6	>1	>1	>1	>1	>1	>1	>1	>1
CZ15	SCE	1.7	2.0	1.002	1.2	1.2	1.7	1.003	1.4	>1	>1	>1	>1	>1	>1	>1	>1
CZ16	PG&E	2.7	2.0	1.6	1.2	1.9	1.6	1.7	1.5	2.1	5.7	2.1	5.6	5.8	>1	5.8	>1
CZ16-2	LA	1.02	2.0	0.6	1.2	0.6	1.6	0.6	1.5	>1	5.7	>1	5.6	>1	>1	>1	>1



5 Summary, Conclusions, and Further Considerations

The Reach Codes Team developed packages of energy efficiency measures as well as packages combining energy efficiency with PV generation and battery storage systems, simulated them in building modeling software, and gathered costs to determine the cost effectiveness of multiple scenarios. The Reach Codes team coordinated assumptions with multiple utilities, cities, and building community experts to develop a set of assumptions considered reasonable in the current market. Changing assumptions, such as the period of analysis, measure selection, cost assumptions, energy escalation rates, or utility tariffs are likely to change results.

5.1 Summary

Figure 41 through Figure 43 summarize results for each prototype and depict the compliance margins achieved for each climate zone and package. Because local reach codes must both exceed the Energy Commission performance budget (i.e., have a positive compliance margin) and be cost-effective, the Reach Code Team highlighted cells meeting these two requirements to help clarify the upper boundary for potential reach code policies:

- ◆ Cells highlighted in green depict a positive compliance margin and cost-effective results using both On-Bill and TDV approaches.
- ◆ Cells highlighted in yellow depict a positive compliance and cost-effective results using either the On-Bill or TDV approach.
- ◆ Cells not highlighted either depict a negative compliance margin or a package that was not cost effective using either the On-Bill or TDV approach.

For more detail on the results in the Figures, please refer to *Section 4 Results*. As described in Section 4.4, PV-only and PV+Battery packages in the mixed-fuel building were found to be cost effective across all prototypes, climate zones, and packages using the TDV approach, and results are not reiterated in the following figures.



Figure 41. Medium Office Summary of Compliance Margin and Cost Effectiveness

CZ	Utility	Mixed Fuel			All Electric			
		EE	EE + PV + B	HE	Fed Code	EE	EE + PV + B	HE
CZ01	PG&E	18%	18%	3%	-15%	7%	7%	-14%
CZ02	PG&E	17%	17%	4%	-7%	10%	10%	-5%
CZ03	PG&E	20%	20%	3%	-7%	16%	16%	-6%
CZ04	PG&E	14%	14%	5%	-6%	9%	9%	-3%
CZ04-2	CPAU	14%	14%	5%	-6%	9%	9%	-3%
CZ05	PG&E	18%	18%	4%	-8%	12%	12%	-6%
CZ05-2	SCG	18%	18%	4%	NA	NA	NA	NA
CZ06	SCE	20%	20%	3%	-4%	18%	18%	-2%
CZ06-2	LADWP	20%	20%	3%	-4%	18%	18%	-2%
CZ07	SDG&E	20%	20%	4%	-2%	20%	20%	1%
CZ08	SCE	18%	18%	4%	-2%	18%	18%	1%
CZ08-2	LADWP	18%	18%	4%	-2%	18%	18%	1%
CZ09	SCE	16%	16%	4%	-2%	15%	15%	2%
CZ09-2	LADWP	16%	16%	4%	-2%	15%	15%	2%
CZ10	SDG&E	17%	17%	4%	-4%	13%	13%	-1%
CZ10-2	SCE	17%	17%	4%	-4%	13%	13%	-1%
CZ11	PG&E	13%	13%	5%	-4%	10%	10%	0%
CZ12	PG&E	14%	14%	5%	-5%	10%	10%	-1%
CZ12-2	SMUD	14%	14%	5%	-5%	10%	10%	-1%
CZ13	PG&E	13%	13%	5%	-4%	9%	9%	0%
CZ14	SDG&E	14%	14%	5%	-5%	9%	9%	-1%
CZ14-2	SCE	14%	14%	5%	-5%	9%	9%	-1%
CZ15	SCE	12%	12%	5%	-2%	10%	10%	3%
CZ16	PG&E	14%	14%	5%	-27%	-15%	-15%	-26%
CZ16-2	LADWP	14%	14%	5%	-27%	-15%	-15%	-26%



Figure 42. Medium Retail Summary of Compliance Margin and Cost Effectiveness

CZ	Utility	Mixed Fuel			All Electric			
		EE	EE + PV + B	HE	Fed Code	EE	EE + PV + B	HE
CZ01	PG&E	18%	18%	2%	-4.1%	15%	15%	-2%
CZ02	PG&E	13%	13%	3%	-1.0%	13%	13%	3%
CZ03	PG&E	16%	16%	2%	-0.4%	16%	16%	2%
CZ04	PG&E	14%	14%	3%	-0.1%	14%	14%	3%
CZ04-2	CPAU	14%	14%	3%	-0.1%	14%	14%	3%
CZ05	PG&E	16%	16%	1%	-1.2%	15%	15%	1%
CZ05-2	SCG	16%	16%	1%	NA	NA	NA	NA
CZ06	SCE	10%	10%	3%	0.5%	11%	11%	3%
CZ06-2	LADWP	10%	10%	3%	0.5%	11%	11%	3%
CZ07	SDG&E	13%	13%	2%	0.3%	13%	13%	3%
CZ08	SCE	10%	10%	3%	0.4%	10%	10%	4%
CZ08-2	LADWP	10%	10%	3%	0.4%	10%	10%	4%
CZ09	SCE	10%	10%	4%	0.4%	10%	10%	4%
CZ09-2	LADWP	10%	10%	4%	0.4%	10%	10%	4%
CZ10	SDG&E	12%	12%	4%	0.1%	12%	12%	4%
CZ10-2	SCE	12%	12%	4%	0.1%	12%	12%	4%
CZ11	PG&E	13%	13%	4%	0.5%	12%	12%	5%
CZ12	PG&E	13%	13%	4%	-0.1%	12%	12%	4%
CZ12-2	SMUD	13%	13%	4%	-0.1%	12%	12%	4%
CZ13	PG&E	15%	15%	4%	-0.4%	14%	14%	4%
CZ14	SDG&E	13%	13%	4%	0.7%	15%	15%	5%
CZ14-2	SCE	13%	13%	4%	0.7%	15%	15%	5%
CZ15	SCE	12%	12%	5%	0.9%	12%	12%	6%
CZ16	PG&E	13%	13%	3%	-12.2%	3%	3%	-8%
CZ16-2	LADWP	13%	13%	3%	-12.2%	3%	3%	-8%



Figure 43. Small Hotel Summary of Compliance Margin and Cost Effectiveness

CZ	Utility	Mixed Fuel			All Electric			
		EE	EE + PV + B	HE	Fed Code	EE	EE + PV + B	HE
CZ01	PG&E	9%	9%	2%	-28%	1%	1%	-24%
CZ02	PG&E	7%	7%	3%	-12%	4%	4%	-11%
CZ03	PG&E	10%	10%	2%	-14%	6%	6%	-14%
CZ04	PG&E	6%	6%	2%	-13%	0.2%	0.2%	-13%
CZ04-2	CPAU	6%	6%	2%	-13%	0.2%	0.2%	-13%
CZ05	PG&E	9%	9%	2%	-15%	5%	5%	-15%
CZ05-2	SCG	9%	9%	2%	NA	NA	NA	NA
CZ06	SCE	8%	8%	2%	-5%	7%	7%	-15%
CZ06-2	LADWP	8%	8%	2%	-5%	7%	7%	-15%
CZ07	SDG&E	8%	8%	2%	-7%	7%	7%	-7%
CZ08	SCE	7%	7%	2%	-6%	3%	3%	-6%
CZ08-2	LADWP	7%	7%	2%	-6%	3%	3%	-6%
CZ09	SCE	6%	6%	3%	-6%	2%	2%	-4%
CZ09-2	LADWP	6%	6%	3%	-6%	2%	2%	-4%
CZ10	SDG&E	5%	5%	4%	-8%	2%	2%	-5%
CZ10-2	SCE	5%	5%	4%	-8%	2%	2%	-5%
CZ11	PG&E	4%	4%	4%	-10%	1%	1%	-7%
CZ12	PG&E	5%	5%	4%	-10%	2%	2%	-9%
CZ12-2	SMUD	5%	5%	4%	-10%	2%	2%	-9%
CZ13	PG&E	4%	4%	3%	-10%	0.3%	0.3%	-7%
CZ14	SDG&E	4%	4%	4%	-11%	0.1%	0.1%	-7%
CZ14-2	SCE	4%	4%	4%	-11%	0.1%	0.1%	-7%
CZ15	SCE	3%	3%	5%	-4%	2%	2%	0.04%
CZ16	PG&E	6%	6%	3%	-50%	-14%	-14%	-39%
CZ16-2	LADWP	6%	6%	3%	-50%	-14%	-14%	-39%

5.2 Conclusions and Further Considerations

Findings are specific to the scenarios analyzed under this specific methodology, and largely pertain to office, retail, and hotel-type occupancies. Nonresidential buildings constitute a wide variety of occupancy profiles and process loads, making findings challenging to generalize across multiple building types.

Findings indicate the following overall conclusions:

1. This study assumed that electrifying space heating and service water heating could eliminate natural gas infrastructure alone, because these were the only gas end-uses included the prototypes. Avoiding the installation of natural gas infrastructure results in significant cost savings and is a primary factor toward cost-effective outcomes in all-electric designs, even with necessary increases in electrical capacity.
2. There is ample opportunity for cost effective energy efficiency improvements, as demonstrated by the compliance margins achieved in many of the efficiency-only and efficiency + PV packages. Though much of the energy savings are attributable to lighting measures, efficiency measures selected for these prototypes are confined to the building systems that can be modeled. There is



likely further opportunity for energy savings through measures that cannot be currently demonstrated in compliance software, such as high-performance control sequences or variable speed parallel fan powered boxes.

3. High efficiency appliances triggering federal preemption do not achieve as high compliance margins as the other efficiency measures analyzed in this study. Cost effectiveness appears to be dependent on the system type and building type. Nonetheless, specifying high efficiency equipment will always be a key feature in integrated design.
4. Regarding the Small Hotel prototype:
 - a. The Small Hotel presents a challenging prototype to cost-effectively exceed the state's energy performance budget without efficiency measures. The Reach Code Team is uncertain of the precision of the results due to the inability to directly model either drain water heat recovery or a central heat pump water heater with a recirculation loop.
 - b. Hotel results may be applicable to high-rise (4 or more stories) multifamily buildings. Both hotel and multifamily buildings have the same or similar mandatory and prescriptive compliance options for hot water systems, lighting, and envelope. Furthermore, the Alternate Calculation Method Reference Manual specifies the same baseline HVAC system for both building types.
 - c. Hotel compliance margins were the lowest among the three building types analyzed, and thus the most conservative performance thresholds applicable to other nonresidential buildings not analyzed in this study. As stated previously, the varying occupancy and energy profiles of nonresidential buildings makes challenging to directly apply these results across all buildings.
5. Many all-electric and solar PV packages demonstrated greater GHG reductions than their mixed-fuel counterparts, contrary to TDV-based performance, suggesting a misalignment among the TDV metric and California's long-term GHG-reduction goals. The Energy Commission has indicated that they are aware of this issue and are seeking to address it.
6. Changes to the Nonresidential Alternative Calculation Method (ACM) Reference Manual can drastically impact results. Two examples include:
 - a. When performance modeling residential buildings, the Standard Design is electric if the Proposed Design is electric, which removes TDV-related penalties and associated negative compliance margins. This essentially allows for a compliance pathway for all-electric residential buildings. If nonresidential buildings were treated in the same way, all-electric cost effectiveness using the TDV approach would improve.
 - b. The baseline mixed-fuel system for a hotel includes a furnace in each guest room, which carries substantial plumbing costs and labor costs for assembly. A change in the baseline system would lead to different base case costs and different cost effectiveness outcomes.
7. All-electric federal code-minimum packages appear to be cost effective, largely due to avoided natural gas infrastructure, but in most cases do not comply with the Energy Commission's minimum performance budget (as described in item 7a above). For most cases it appears that adding cost-effective efficiency measures achieves compliance. All-electric nonresidential projects can leverage the initial cost savings of avoiding natural gas infrastructure by adding energy efficiency measures that would not be cost effective independently.



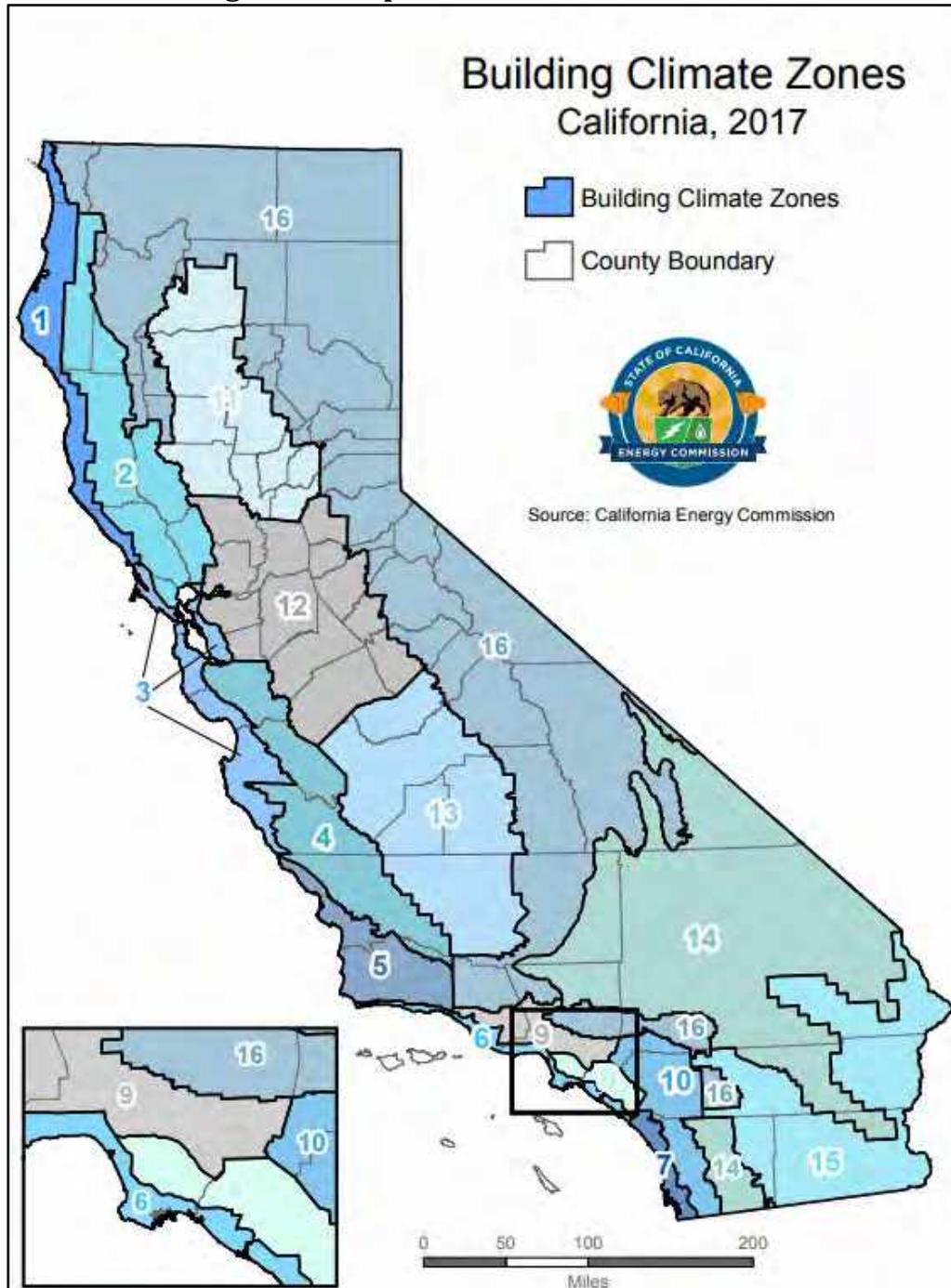
6 Appendices

6.1 Map of California Climate Zones

Climate zone geographical boundaries are depicted in Figure 44. The map in Figure 44 along with a zip-code search directory is available at:

https://ww2.energy.ca.gov/maps/renewable/building_climate_zones.html

Figure 44. Map of California Climate Zones



6.2 Lighting Efficiency Measures

Figure 45 details the applicability and impact of each lighting efficiency measure by prototype and space function and includes the resulting LPD that is modeled as the proposed by building type and by space function.

Figure 45. Impact of Lighting Measures on Proposed LPDs by Space Function

Space Function	Baseline	Impact				Modeled Proposed
	LPD (W/ft ²)	Interior Lighting Reduced LPD	Institutional Tuning	Daylight Dimming Plus OFF	Occupant Sensing in Open Office Plan	LPD (W/ft ²)
Medium Office						
Office Area (Open plan office) - Interior	0.65	15%	10%	-	17%	0.429
Office Area (Open plan office) - Perimeter	0.65	15%	5%	10%	30%	0.368
Medium Retail						
Commercial/Industrial Storage (Warehouse)	0.45	10%	5%	-	-	0.386
Main Entry Lobby	0.85	10%	5%	-	-	0.729
Retail Sales Area (Retail Merchandise Sales)	0.95	5%	5%	-	-	0.857
Small Hotel						
Commercial/Industrial Storage (Warehouse)	0.45	10%	5%	-	-	0.386
Convention, Conference, Multipurpose, and Meeting	0.85	10%	5%	-	-	0.729
Corridor Area	0.60	10%	5%	-	-	0.514
Exercise/Fitness Center and Gymnasium Areas	0.50	10%	-	-	-	0.450
Laundry Area	0.45	10%	-	-	-	0.405
Lounge, Breakroom, or Waiting Area	0.65	10%	5%	-	-	0.557
Mechanical	0.40	10%	-	-	-	0.360
Office Area (>250 ft ²)	0.65	10%	5%	-	-	0.557

6.3 Drain Water Heat Recovery Measure Analysis

To support potential DWHR savings in the Small Hotel prototype, the Reach Code Team modeled the drain water heat recovery measure in CBECC-Res 2019 in the all-electric and mixed fuel 6,960 ft² prototype residential buildings. The Reach Code Team assumed one heat recovery device for every three showers assuming unequal flow to the shower. Based on specifications from three different drain water heat recovery device manufacturers for device effectiveness in hotel applications, the team assumed a heat recovery efficiency of 50 percent.

The Reach Code Team modeled mixed fuel and all-electric residential prototype buildings both with and without heat recovery in each climate zone. Based on these model results, the Reach Code Team determined the percentage savings of domestic water heating energy in terms of gas, electricity, and TDV for mixed fuel and all-electric, in each climate zone. The Reach Code Team then applied the savings



percentages to the Small Hotel prototype domestic water heating energy in both the mixed-fuel and all-electric to determine energy savings for the drain water heat recovery measure in the Small Hotel. The Reach Code Team applied volumetric energy rates to estimate on-bill cost impacts from this measure.

6.4 Utility Rate Schedules

The Reach Codes Team used the IOU and POU rates depicted in Figure 46 to determine the On-Bill savings for each prototype.

Figure 46. Utility Tariffs Analyzed Based on Climate Zone – Detailed View

Climate Zones	Electric / Gas Utility	Electricity (Time-of-use)			Natural Gas
		Medium Office	Medium Retail	Small Hotel	All Prototypes
CZ01	PG&E	A-10	A-1	A-1 or A-10	G-NR1
CZ02	PG&E	A-10	A-10	A-1 or A-10	G-NR1
CZ03	PG&E	A-10	A-1 or A-10	A-1 or A-10	G-NR1
CZ04	PG&E	A-10	A-10	A-1 or A-10	G-NR1
CZ04-2	CPAU/PG&E	E-2	E-2	E-2	G-NR1
CZ05	PG&E	A-10	A-1	A-1 or A-10	G-NR1
CZ05-2	PG&E/SCG	A-10	A-1	A-1 or A-10	G-10 (GN-10)
CZ06	SCE/SCG	TOU-GS-2	TOU-GS-2	TOU-GS-2 or TOU-GS-3	G-10 (GN-10)
CZ06	LADWP/SCG	TOU-GS-2	TOU-GS-2	TOU-GS-2 or TOU-GS-3	G-10 (GN-10)
CZ07	SDG&E	AL-TOU+EECC (AL-TOU)	AL-TOU+EECC (AL-TOU)	AL-TOU+EECC (AL-TOU)	GN-3
CZ08	SCE/SCG	TOU-GS-2	TOU-GS-2	TOU-GS-2 or TOU-GS-3	G-10 (GN-10)
CZ08-2	LADWP/SCG	A-2 (B)	A-2 (B)	A-2 (B)	G-10 (GN-10)
CZ09	SCE/SCG	TOU-GS-2	TOU-GS-2	TOU-GS-2 or TOU-GS-3	G-10 (GN-10)
CZ09-2	LADWP/SCG	A-2 (B)	A-2 (B)	A-2 (B)	G-10 (GN-10)
CZ10	SCE/SCG	TOU-GS-2	TOU-GS-2	TOU-GS-2	G-10 (GN-10)
CZ10-2	SDG&E	AL-TOU+EECC (AL-TOU)	AL-TOU+EECC (AL-TOU)	AL-TOU+EECC (AL-TOU)	GN-3
CZ11	PG&E	A-10	A-10	A-10	G-NR1
CZ12	PG&E	A-10	A-10	A-1 or A-10	G-NR1
CZ12-2	SMUD/PG&E	GS	GS	GS	G-NR1
CZ13	PG&E	A-10	A-10	A-10	G-NR1
CZ14	SCE/SCG	TOU-GS-3	TOU-GS-3	TOU-GS-3	G-10 (GN-10)
CZ14-2	SDG&E	AL-TOU+EECC (AL-TOU)	AL-TOU+EECC (AL-TOU)	AL-TOU+EECC (AL-TOU)	GN-3
CZ15	SCE/SCG	TOU-GS-3	TOU-GS-2	TOU-GS-2	G-10 (GN-10)
CZ16	PG&E	A-10	A-10	A-1 or A-10	G-NR1
CZ16-2	LADWP/SCG	A-2 (B)	A-2 (B)	A-2 (B)	G-10 (GN-10)



6.5 Mixed Fuel Baseline Energy Figures

Figures 47 to 49 show the annual electricity and natural gas consumption and cost, compliance TDV, and GHG emissions for each prototype under the mixed fuel design baseline.

Figure 47. Medium Office – Mixed Fuel Baseline

Climate Zone	Utility	Electricity Consumption (kWh)	Natural Gas Consumption (Therms)	Electricity Cost	Natural Gas Cost	Compliance TDV	GHG Emissions (lbs)
Medium Office Mixed Fuel Baseline							
CZ01	PG&E	358,455	4,967	\$109,507	\$6,506	84	266,893
CZ02	PG&E	404,865	3,868	\$130,575	\$5,256	122	282,762
CZ03	PG&E	370,147	3,142	\$116,478	\$4,349	88	251,759
CZ04	PG&E	431,722	3,759	\$140,916	\$5,144	141	299,993
CZ04-2	CPAU	431,722	3,759	\$75,363	\$5,144	141	299,993
CZ05	PG&E	400,750	3,240	\$131,277	\$4,481	106	269,768
CZ05-2	SCG	400,750	3,240	\$131,277	\$3,683	106	269,768
CZ06	SCE	397,441	2,117	\$74,516	\$2,718	105	253,571
CZ06-2	LA	397,441	2,117	\$44,311	\$2,718	105	253,571
CZ07	SDG&E	422,130	950	\$164,991	\$4,429	118	257,324
CZ08	SCE	431,207	1,219	\$79,181	\$1,820	132	265,179
CZ08-2	LA	431,207	1,219	\$46,750	\$1,820	132	265,179
CZ09	SCE	456,487	1,605	\$86,190	\$2,196	155	287,269
CZ09-2	LA	456,487	1,605	\$51,111	\$2,196	155	287,269
CZ10	SDG&E	431,337	2,053	\$173,713	\$5,390	130	272,289
CZ10-2	SCE	431,337	2,053	\$80,636	\$2,603	130	272,289
CZ11	PG&E	464,676	3,062	\$150,520	\$4,333	163	310,307
CZ12	PG&E	441,720	3,327	\$142,902	\$4,647	152	299,824
CZ12-2	SMUD	441,720	3,327	\$65,707	\$4,647	152	299,824
CZ13	PG&E	471,540	3,063	\$150,919	\$4,345	161	316,228
CZ14	SDG&E	467,320	3,266	\$185,812	\$6,448	165	314,258
CZ14-2	SCE	467,320	3,266	\$92,071	\$3,579	165	314,258
CZ15	SCE	559,655	1,537	\$105,388	\$2,058	211	347,545
CZ16	PG&E	405,269	6,185	\$127,201	\$8,056	116	312,684
CZ16-2	LA	405,269	6,185	\$43,115	\$8,056	116	312,684



Figure 48. Medium Retail – Mixed Fuel Baseline

Climate Zone	Utility	Electricity Consumption (kWh)	Natural Gas Consumption (Therms)	Electricity Cost	Natural Gas Cost	Compliance TDV	GHG Emissions (lbs)
Medium Retail Mixed Fuel Baseline							
CZ01	PG&E	184,234	3,893	\$43,188	\$5,247	155	156,972
CZ02	PG&E	214,022	2,448	\$70,420	\$3,572	202	157,236
CZ03	PG&E	199,827	1,868	\$47,032	\$2,871	165	140,558
CZ04	PG&E	208,704	1,706	\$66,980	\$2,681	187	143,966
CZ04-2	CPAU	208,704	1,706	\$36,037	\$2,681	187	143,966
CZ05	PG&E	195,864	1,746	\$45,983	\$2,697	155	135,849
CZ05-2	SCG	195,864	1,746	\$45,983	\$2,342	155	135,849
CZ06	SCE	211,123	1,002	\$36,585	\$1,591	183	135,557
CZ06-2	LA	211,123	1,002	\$21,341	\$1,591	183	135,557
CZ07	SDG&E	211,808	522	\$75,486	\$4,055	178	130,436
CZ08	SCE	212,141	793	\$36,758	\$1,373	190	133,999
CZ08-2	LA	212,141	793	\$21,436	\$1,373	190	133,999
CZ09	SCE	227,340	970	\$40,083	\$1,560	218	146,680
CZ09-2	LA	227,340	970	\$23,487	\$1,560	218	146,680
CZ10	SDG&E	235,465	1,262	\$87,730	\$4,700	228	154,572
CZ10-2	SCE	235,465	1,262	\$41,000	\$1,853	228	154,572
CZ11	PG&E	234,560	2,415	\$76,670	\$3,547	244	170,232
CZ12	PG&E	228,958	2,309	\$75,084	\$3,426	234	165,133
CZ12-2	SMUD	228,958	2,309	\$32,300	\$3,426	234	165,133
CZ13	PG&E	242,927	1,983	\$81,995	\$3,034	258	170,345
CZ14	SDG&E	264,589	1,672	\$97,581	\$5,059	277	178,507
CZ14-2	SCE	264,589	1,672	\$46,217	\$2,172	277	178,507
CZ15	SCE	290,060	518	\$50,299	\$1,083	300	179,423
CZ16	PG&E	212,204	4,304	\$67,684	\$5,815	197	180,630
CZ16-2	LA	212,204	4,304	\$20,783	\$5,815	197	180,630



Figure 49. Small Hotel – Mixed Fuel Baseline

Climate Zone	Utility	Electricity Consumption (kWh)	Natural Gas Consumption (Therms)	Electricity Cost	Natural Gas Cost	Compliance TDV	GHG Emissions (lbs)
Small Hotel Mixed Fuel Baseline							
CZ01	PG&E	184,234	3,893	\$43,188	\$5,247	155	340,491
CZ02	PG&E	214,022	2,448	\$70,420	\$3,572	202	293,056
CZ03	PG&E	199,827	1,868	\$47,032	\$2,871	165	284,217
CZ04	PG&E	208,704	1,706	\$66,980	\$2,681	187	281,851
CZ04-2	CPAU	208,704	1,706	\$36,037	\$2,681	187	281,851
CZ05	PG&E	195,864	1,746	\$45,983	\$2,697	155	281,183
CZ05-2	SCG	195,864	1,746	\$45,983	\$2,342	155	281,183
CZ06	SCE	211,123	1,002	\$36,585	\$1,591	183	244,664
CZ06-2	LA	211,123	1,002	\$21,341	\$1,591	183	244,664
CZ07	SDG&E	211,808	522	\$75,486	\$4,055	178	233,884
CZ08	SCE	212,141	793	\$36,758	\$1,373	190	236,544
CZ08-2	LA	212,141	793	\$21,436	\$1,373	190	236,544
CZ09	SCE	227,340	970	\$40,083	\$1,560	218	242,296
CZ09-2	LA	227,340	970	\$23,487	\$1,560	218	242,296
CZ10	SDG&E	235,465	1,262	\$87,730	\$4,700	228	255,622
CZ10-2	SCE	235,465	1,262	\$41,000	\$1,853	228	255,622
CZ11	PG&E	234,560	2,415	\$76,670	\$3,547	244	282,232
CZ12	PG&E	228,958	2,309	\$75,084	\$3,426	234	270,262
CZ12-2	SMUD	228,958	2,309	\$32,300	\$3,426	234	270,262
CZ13	PG&E	242,927	1,983	\$81,995	\$3,034	258	284,007
CZ14	SDG&E	264,589	1,672	\$97,581	\$5,059	277	283,287
CZ14-2	SCE	264,589	1,672	\$46,217	\$2,172	277	283,287
CZ15	SCE	290,060	518	\$50,299	\$1,083	300	260,378
CZ16	PG&E	212,204	4,304	\$67,684	\$5,815	197	358,590
CZ16-2	LA	212,204	4,304	\$20,783	\$5,815	197	358,590

6.6 Hotel TDV Cost Effectiveness with Propane Baseline

The Reach Codes Team further analyzed TDV cost effectiveness of the all-electric packages with a mixed-fuel design baseline using propane instead of natural gas. Results for each package are shown in Figure 50. through Figure 53. below.

All electric models compared to a propane baseline have positive compliance margins in all climate zones when compared to results using a natural gas baseline. Compliance margin improvement is roughly 30 percent, which also leads to improved cost effectiveness for the all-electric packages. These outcomes are likely due to the TDV penalty associated with propane when compared to natural gas.



Across packages, TDV cost effectiveness with a propane baseline follows similar trends as the natural gas baseline. Adding efficiency measures increased compliance margins by 3 to 10 percent depending on climate zone, while adding high efficiency HVAC and SHW equipment alone increased compliance margins by smaller margins of about 2 to 4 percent compared to the All-Electric package.

Figure 50. TDV Cost Effectiveness for Small Hotel, Propane Baseline – Package 2 All-Electric Federal Code Minimum

Climate Zone	Compliance Margin (%)	Incremental Package Cost	\$-TDV Savings	B/C Ratio (TDV)	NPV (TDV)
CZ01	-4%	(\$1,271,869)	(\$28,346)	44.9	\$1,243,523
CZ02	27%	(\$1,272,841)	\$170,263	>1	\$1,443,104
CZ03	-3%	(\$1,275,114)	(\$16,425)	77.6	\$1,258,689
CZ04	26%	(\$1,274,949)	\$155,466	>1	\$1,430,414
CZ05	27%	(\$1,275,002)	\$154,709	>1	\$1,429,710
CZ06	17%	(\$1,275,143)	\$126,212	>1	\$1,401,355
CZ07	25%	(\$1,273,490)	\$117,621	>1	\$1,391,111
CZ08	24%	(\$1,271,461)	\$122,087	>1	\$1,393,548
CZ09	23%	(\$1,273,259)	\$123,525	>1	\$1,396,784
CZ10	18%	(\$1,270,261)	\$109,522	>1	\$1,379,783
CZ11	19%	(\$1,271,070)	\$129,428	>1	\$1,400,498
CZ12	-4%	(\$1,272,510)	(\$26,302)	48.4	\$1,246,208
CZ13	18%	(\$1,270,882)	\$124,357	>1	\$1,395,239
CZ14	17%	(\$1,271,241)	\$117,621	>1	\$1,388,861
CZ15	-7%	(\$1,269,361)	(\$45,338)	28.0	\$1,224,023
CZ16	9%	(\$1,275,637)	\$68,272	>1	\$1,343,908



Figure 51. TDV Cost Effectiveness for Small Hotel, Propane Baseline – Package 3A (All-Electric + EE)

Climate Zone	Compliance Margin (%)	Incremental Package Cost	-\$-TDV Savings	B/C Ratio (TDV)	NPV (TDV)
CZ01	35%	(\$1,250,898)	\$252,831	>1	\$1,503,729
CZ02	34%	(\$1,251,870)	\$217,238	>1	\$1,469,108
CZ03	37%	(\$1,254,142)	\$218,642	>1	\$1,472,784
CZ04	31%	(\$1,250,769)	\$191,393	>1	\$1,442,162
CZ05	36%	(\$1,254,031)	\$208,773	>1	\$1,462,804
CZ06	25%	(\$1,250,964)	\$159,714	>1	\$1,410,677
CZ07	32%	(\$1,249,311)	\$154,111	>1	\$1,403,422
CZ08	29%	(\$1,247,282)	\$146,536	>1	\$1,393,818
CZ09	27%	(\$1,249,080)	\$146,671	>1	\$1,395,751
CZ10	22%	(\$1,246,081)	\$134,477	>1	\$1,380,559
CZ11	23%	(\$1,246,891)	\$157,138	>1	\$1,404,029
CZ12	27%	(\$1,248,330)	\$167,945	>1	\$1,416,276
CZ13	22%	(\$1,246,703)	\$149,270	>1	\$1,395,973
CZ14	21%	(\$1,247,061)	\$145,269	>1	\$1,392,331
CZ15	14%	(\$1,245,182)	\$93,647	>1	\$1,338,829
CZ16	20%	(\$1,254,665)	\$154,035	>1	\$1,408,701

Figure 52. TDV Cost Effectiveness for Small Hotel, Propane Baseline – Package 3B (All-Electric + EE + PV)

Climate Zone	Compliance Margin (%)	Incremental Package Cost	-\$-TDV Savings	B/C Ratio (TDV)	NPV (TDV)
CZ01	35%	(\$1,043,528)	\$511,688	>1	\$1,555,215
CZ02	34%	(\$1,044,500)	\$524,460	>1	\$1,568,960
CZ03	37%	(\$1,046,772)	\$518,485	>1	\$1,565,257
CZ04	31%	(\$1,043,399)	\$505,579	>1	\$1,548,978
CZ05	36%	(\$1,046,660)	\$526,668	>1	\$1,573,328
CZ06	25%	(\$1,043,594)	\$469,623	>1	\$1,513,216
CZ07	32%	(\$1,041,941)	\$471,513	>1	\$1,513,454
CZ08	29%	(\$1,039,912)	\$475,973	>1	\$1,515,885
CZ09	27%	(\$1,041,710)	\$467,971	>1	\$1,509,681
CZ10	22%	(\$1,038,711)	\$454,832	>1	\$1,493,543
CZ11	23%	(\$1,039,521)	\$474,844	>1	\$1,514,364
CZ12	27%	(\$1,040,960)	\$484,667	>1	\$1,525,627
CZ13	22%	(\$1,039,333)	\$454,108	>1	\$1,493,441
CZ14	21%	(\$1,039,691)	\$505,398	>1	\$1,545,090
CZ15	14%	(\$1,037,811)	\$423,879	>1	\$1,461,691
CZ16	20%	(\$1,047,295)	\$480,407	>1	\$1,527,702



Figure 53. TDV Cost Effectiveness for Small Hotel, Propane Baseline – Package 3C (All Electric + HE)

Climate Zone	Compliance Margin (%)	Incremental Package Cost	\$.TDV Savings	B/C Ratio (TDV)	NPV (TDV)
CZ01	27%	(\$1,256,423)	\$194,975	>1	\$1,451,398
CZ02	28%	(\$1,258,328)	\$177,378	>1	\$1,435,706
CZ03	28%	(\$1,263,867)	\$164,094	>1	\$1,427,961
CZ04	26%	(\$1,262,963)	\$155,314	>1	\$1,418,277
CZ05	26%	(\$1,263,327)	\$153,271	>1	\$1,416,598
CZ06	17%	(\$1,263,779)	\$122,011	>1	\$1,385,790
CZ07	24%	(\$1,260,844)	\$116,751	>1	\$1,377,594
CZ08	25%	(\$1,256,326)	\$122,995	>1	\$1,379,321
CZ09	24%	(\$1,260,223)	\$128,482	>1	\$1,388,706
CZ10	20%	(\$1,253,181)	\$121,595	>1	\$1,374,776
CZ11	21%	(\$1,254,613)	\$143,658	>1	\$1,398,271
CZ12	23%	(\$1,257,919)	\$142,901	>1	\$1,400,820
CZ13	21%	(\$1,254,386)	\$138,625	>1	\$1,393,011
CZ14	20%	(\$1,254,978)	\$136,430	>1	\$1,391,407
CZ15	14%	(\$1,251,932)	\$96,087	>1	\$1,348,019
CZ16	15%	(\$1,263,534)	\$122,011	>1	\$1,385,545



6.7 PV-only and PV+Battery-only Cost Effectiveness Results Details

The Reach Code Tea evaluated cost effectiveness of installing a PV system and battery storage in six different measure combinations over a 2019 code-compliant baseline for all climate zones. The baseline for all nonresidential buildings is a mixed-fuel design.

All mixed fuel models are compliant with 2019 Title24, whereas all electric models can show negative compliance. The compliance margin is the same as that of their respective federal minimum design and is not affected by addition of solar PV or battery. These scenarios evaluate the cost effectiveness of PV and/or battery measure individually. The climate zones where all-electric design is not compliant will have the flexibility to ramp up the efficiency of appliance or add another measure to be code compliant, as per package 1B and 3B in main body of the report. The large negative lifecycle costs in all electric packages are due to lower all-electric HVAC system costs and avoided natural gas infrastructure costs. This is commonly applied across all climate zones and packages over any additional costs for PV and battery.

6.7.1 Cost Effectiveness Results – Medium Office

Figure 54 through Figure 61 contain the cost-effectiveness findings for the Medium Office packages. Notable findings for each package include:

- ◆ **Mixed-Fuel + 3 kW PV Only:** All packages are cost effective using the On-Bill and TDV approaches.
- ◆ **Mixed-Fuel + 3 kW PV + 5 kWh Battery:** The packages are mostly cost effective on a TDV basis except in CZ1. As compared to the 3 kW PV only package, battery reduces cost effectiveness. This package is not cost effective for LADWP and SMUD territories using an On-Bill approach.
- ◆ **Mixed-Fuel + PV only:** The packages are less cost effective as compared to 3 kW PV packages in most climate zones. In areas served by LADWP, the B/C ratio is narrowly less than 1 and not cost effective.
- ◆ **Mixed-Fuel + PV + 50 kWh Battery:** The packages are cost effective in all climate zones except for in the areas served by LADWP. On-Bill and TDV B/C ratios are slightly lower compared to the PV only package.
- ◆ **All-Electric + 3 kW PV:** Packages are on-bill cost effective in ten of sixteen climate zones. Climate zones 1,2,4,12, and 16 were not found to be cost-effective from an on-bill perspective. These zones are within PG&E’s service area. Packages are cost effective using TDV in all climate zones except CZ16.
- ◆ **All-Electric + 3 kW PV + 5 kWh Battery:** Packages are slightly more cost effective than the previous minimal PV only package. Packages are on-bill cost effective in most climate zones except for 1,2 and 16 from an on-bill perspective. These zones are within PG&E’s service area. Packages are cost effective using TDV in all climate zones except CZ16.
- ◆ **All-Electric + PV only:** All packages are cost effective and achieve savings using the On-Bill and TDV approaches.



- ◆ **All-Electric + PV + 50 kWh Battery:** All packages are cost effective and achieve savings using the On-Bill and TDV approaches. On-Bill and TDV B/C ratios are slightly lower compared to the PV only package.



Figure 54. Cost Effectiveness for Medium Office - Mixed Fuel + 3kW PV

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	Lifecycle \$-TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Mixed Fuel + 3kW PV											
CZ01	PG&E	3,941	0	0.8	\$5,566	\$15,743	\$8,448	2.8	1.5	\$10,177	\$2,882
CZ02	PG&E	4,785	0	0.9	\$5,566	\$20,372	\$10,500	3.7	1.9	\$14,806	\$4,934
CZ03	PG&E	4,660	0	0.9	\$5,566	\$20,603	\$9,975	3.7	1.8	\$15,037	\$4,409
CZ04	PG&E	5,056	0	1.0	\$5,566	\$20,235	\$11,073	3.6	2.0	\$14,669	\$5,507
CZ04-2	CPAU	5,056	0	1.0	\$5,566	\$11,945	\$11,073	2.1	2.0	\$6,379	\$5,507
CZ05	PG&E	5,027	0	1.0	\$5,566	\$23,159	\$10,834	4.2	1.9	\$17,593	\$5,268
CZ06	SCE	4,853	0	0.9	\$5,566	\$10,968	\$10,930	2.0	2.0	\$5,402	\$5,364
CZ06-2	LADWP	4,853	0	0.9	\$5,566	\$6,575	\$10,930	1.2	2.0	\$1,009	\$5,364
CZ07	SDG&E	4,960	0	1.0	\$5,566	\$17,904	\$11,025	3.2	2.0	\$12,338	\$5,459
CZ08	SCE	4,826	0	0.9	\$5,566	\$10,768	\$11,359	1.9	2.0	\$5,202	\$5,793
CZ08-2	LADWP	4,826	0	0.9	\$5,566	\$6,503	\$11,359	1.2	2.0	\$937	\$5,793
CZ09	SCE	4,889	0	1.0	\$5,566	\$10,622	\$11,216	1.9	2.0	\$5,056	\$5,650
CZ09-2	LADWP	4,889	0	1.0	\$5,566	\$6,217	\$11,216	1.1	2.0	\$651	\$5,650
CZ10	SDG&E	4,826	0	0.9	\$5,566	\$21,280	\$10,787	3.8	1.9	\$15,714	\$5,221
CZ10-2	SCE	4,826	0	0.9	\$5,566	\$11,598	\$10,787	2.1	1.9	\$6,032	\$5,221
CZ11	PG&E	4,701	0	0.9	\$5,566	\$19,869	\$10,644	3.6	1.9	\$14,303	\$5,078
CZ12	PG&E	4,707	0	0.9	\$5,566	\$19,643	\$10,644	3.5	1.9	\$14,077	\$5,078
CZ12-2	SMUD	4,707	0	0.9	\$5,566	\$8,005	\$10,644	1.4	1.9	\$2,439	\$5,078
CZ13	PG&E	4,633	0	0.9	\$5,566	\$19,231	\$10,262	3.5	1.8	\$13,665	\$4,696
CZ14	SDG&E	5,377	0	1.0	\$5,566	\$18,789	\$12,600	3.4	2.3	\$13,223	\$7,034
CZ14-2	SCE	5,377	0	1.0	\$5,566	\$10,512	\$12,600	1.9	2.3	\$4,946	\$7,034
CZ15	SCE	5,099	0	1.0	\$5,566	\$10,109	\$11,550	1.8	2.1	\$4,543	\$5,984
CZ16	PG&E	5,096	0	1.0	\$5,566	\$21,836	\$10,882	3.9	2.0	\$16,270	\$5,316
CZ16-2	LADWP	5,096	0	1.0	\$5,566	\$6,501	\$10,882	1.2	2.0	\$935	\$5,316



Figure 55. Cost Effectiveness for Medium Office – Mixed Fuel + 3kW PV + 5 kWh Battery

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	-\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Mixed Fuel + 3kW PV + 5kWh Battery											
CZ01	PG&E	3,941	0	0.8	\$9,520	\$15,743	\$8,448	1.7	0.9	\$6,223	(\$1,072)
CZ02	PG&E	4,785	0	0.9	\$9,520	\$20,372	\$10,500	2.1	1.1	\$10,852	\$980
CZ03	PG&E	4,660	0	0.9	\$9,520	\$20,603	\$9,975	2.2	1.0	\$11,083	\$455
CZ04	PG&E	5,056	0	1.0	\$9,520	\$20,235	\$11,073	2.1	1.2	\$10,714	\$1,553
CZ04-2	CPAU	5,056	0	1.0	\$9,520	\$11,945	\$11,073	1.3	1.2	\$2,425	\$1,553
CZ05	PG&E	5,027	0	1.0	\$9,520	\$23,159	\$10,834	2.4	1.1	\$13,639	\$1,314
CZ06	SCE	4,853	0	0.9	\$9,520	\$10,968	\$10,930	1.2	1.1	\$1,448	\$1,410
CZ06-2	LADWP	4,853	0	0.9	\$9,520	\$6,575	\$10,930	0.7	1.1	(\$2,945)	\$1,410
CZ07	SDG&E	4,960	0	1.0	\$9,520	\$17,904	\$11,025	1.9	1.2	\$8,384	\$1,505
CZ08	SCE	4,826	0	0.9	\$9,520	\$10,768	\$11,359	1.1	1.2	\$1,248	\$1,839
CZ08-2	LADWP	4,826	0	0.9	\$9,520	\$6,503	\$11,359	0.7	1.2	(\$3,017)	\$1,839
CZ09	SCE	4,889	0	1.0	\$9,520	\$10,622	\$11,216	1.1	1.2	\$1,102	\$1,696
CZ09-2	LADWP	4,889	0	1.0	\$9,520	\$6,217	\$11,216	0.7	1.2	(\$3,303)	\$1,696
CZ10	SDG&E	4,826	0	0.9	\$9,520	\$21,280	\$10,787	2.2	1.1	\$11,760	\$1,267
CZ10-2	SCE	4,826	0	0.9	\$9,520	\$11,598	\$10,787	1.2	1.1	\$2,078	\$1,267
CZ11	PG&E	4,701	0	0.9	\$9,520	\$19,869	\$10,644	2.1	1.1	\$10,349	\$1,123
CZ12	PG&E	4,707	0	0.9	\$9,520	\$19,643	\$10,644	2.1	1.1	\$10,123	\$1,123
CZ12-2	SMUD	4,707	0	0.9	\$9,520	\$8,005	\$10,644	0.8	1.1	(\$1,515)	\$1,123
CZ13	PG&E	4,633	0	0.9	\$9,520	\$19,231	\$10,262	2.0	1.1	\$9,711	\$742
CZ14	SDG&E	5,377	0	1.0	\$9,520	\$18,789	\$12,600	2.0	1.3	\$9,269	\$3,080
CZ14-2	SCE	5,377	0	1.0	\$9,520	\$10,512	\$12,600	1.1	1.3	\$992	\$3,080
CZ15	SCE	5,099	0	1.0	\$9,520	\$10,109	\$11,550	1.1	1.2	\$589	\$2,030
CZ16	PG&E	5,096	0	1.0	\$9,520	\$21,836	\$10,882	2.3	1.1	\$12,316	\$1,362
CZ16-2	LADWP	5,096	0	1.0	\$9,520	\$6,501	\$10,882	0.7	1.1	(\$3,019)	\$1,362



Figure 56. Cost Effectiveness for Medium Office – Mixed Fuel + 135kW PV

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	Lifecycle TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Mixed Fuel +135kW PV											
CZ01	PG&E	177,340	0	34.3	\$302,856	\$526,352	\$380,399	1.7	1.3	\$223,497	\$77,544
CZ02	PG&E	215,311	0	41.5	\$302,856	\$666,050	\$471,705	2.2	1.6	\$363,194	\$168,849
CZ03	PG&E	209,717	0	40.7	\$302,856	\$645,010	\$449,797	2.1	1.5	\$342,154	\$146,942
CZ04	PG&E	227,535	0	44.0	\$302,856	\$686,434	\$497,431	2.3	1.6	\$383,578	\$194,575
CZ04-2	CPAU	227,535	0	44.0	\$302,856	\$537,521	\$497,431	1.8	1.6	\$234,665	\$194,575
CZ05	PG&E	226,195	0	44.1	\$302,856	\$753,230	\$486,596	2.5	1.6	\$450,374	\$183,741
CZ06	SCE	218,387	0	42.3	\$302,856	\$401,645	\$492,515	1.3	1.6	\$98,789	\$189,659
CZ06-2	LADWP	218,387	0	42.3	\$302,856	\$233,909	\$492,515	0.8	1.6	(\$68,947)	\$189,659
CZ07	SDG&E	223,185	0	43.3	\$302,856	\$623,078	\$496,667	2.1	1.6	\$320,223	\$193,811
CZ08	SCE	217,171	0	42.0	\$302,856	\$389,435	\$510,270	1.3	1.7	\$86,579	\$207,414
CZ08-2	LADWP	217,171	0	42.0	\$302,856	\$222,066	\$510,270	0.7	1.7	(\$80,790)	\$207,414
CZ09	SCE	220,010	0	43.2	\$302,856	\$387,977	\$505,783	1.3	1.7	\$85,122	\$202,928
CZ09-2	LADWP	220,010	0	43.2	\$302,856	\$226,516	\$505,783	0.7	1.7	(\$76,340)	\$202,928
CZ10	SDG&E	217,148	0	42.5	\$302,856	\$632,726	\$485,451	2.1	1.6	\$329,870	\$182,595
CZ10-2	SCE	217,148	0	42.5	\$302,856	\$394,884	\$485,451	1.3	1.6	\$92,028	\$182,595
CZ11	PG&E	211,556	0	40.9	\$302,856	\$671,691	\$478,912	2.2	1.6	\$368,835	\$176,056
CZ12	PG&E	211,824	0	40.9	\$302,856	\$653,242	\$478,101	2.2	1.6	\$350,386	\$175,245
CZ12-2	SMUD	211,824	0	40.9	\$302,856	\$345,255	\$478,101	1.1	1.6	\$42,399	\$175,245
CZ13	PG&E	208,465	0	40.5	\$302,856	\$651,952	\$462,732	2.2	1.5	\$349,096	\$159,876
CZ14	SDG&E	241,965	0	46.7	\$302,856	\$659,487	\$566,351	2.2	1.9	\$356,632	\$263,496
CZ14-2	SCE	241,965	0	46.7	\$302,856	\$401,712	\$566,351	1.3	1.9	\$98,856	\$263,496
CZ15	SCE	229,456	0	43.9	\$302,856	\$378,095	\$520,102	1.2	1.7	\$75,239	\$217,246
CZ16	PG&E	229,317	0	44.8	\$302,856	\$707,095	\$489,508	2.3	1.6	\$404,239	\$186,652
CZ16-2	LADWP	229,317	0	44.8	\$302,856	\$223,057	\$489,508	0.7	1.6	(\$79,799)	\$186,652



Figure 57. Cost Effectiveness for Medium Office – Mixed Fuel + 135kW PV + 50 kWh Battery

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	Lifecycle TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Mixed Fuel + 135kW PV + 50 kWh Battery											
CZ01	PG&E	176,903	0	35.3	\$330,756	\$525,948	\$381,450	1.6	1.2	\$195,192	\$50,694
CZ02	PG&E	214,861	0	42.6	\$330,756	\$665,864	\$472,898	2.0	1.4	\$335,108	\$142,142
CZ03	PG&E	209,255	0	41.8	\$330,756	\$644,170	\$451,611	1.9	1.4	\$313,414	\$120,855
CZ04	PG&E	227,076	0	45.0	\$330,756	\$685,605	\$502,108	2.1	1.5	\$354,849	\$171,352
CZ04-2	CPAU	227,076	0	45.0	\$330,756	\$536,463	\$502,108	1.6	1.5	\$205,707	\$171,352
CZ05	PG&E	225,752	0	45.1	\$330,756	\$753,558	\$487,742	2.3	1.5	\$422,803	\$156,986
CZ06	SCE	217,939	0	43.4	\$330,756	\$401,356	\$494,042	1.2	1.5	\$70,601	\$163,286
CZ06-2	LADWP	217,939	0	43.4	\$330,756	\$233,673	\$494,042	0.7	1.5	(\$97,083)	\$163,286
CZ07	SDG&E	222,746	0	44.4	\$330,756	\$628,383	\$498,147	1.9	1.5	\$297,627	\$167,391
CZ08	SCE	216,724	0	43.1	\$330,756	\$389,184	\$511,511	1.2	1.5	\$58,428	\$180,755
CZ08-2	LADWP	216,724	0	43.1	\$330,756	\$221,839	\$511,511	0.7	1.5	(\$108,917)	\$180,755
CZ09	SCE	219,563	0	44.2	\$330,756	\$387,728	\$506,929	1.2	1.5	\$56,972	\$176,173
CZ09-2	LADWP	219,563	0	44.2	\$330,756	\$226,303	\$506,929	0.7	1.5	(\$104,453)	\$176,173
CZ10	SDG&E	216,700	0	43.5	\$330,756	\$638,040	\$486,644	1.9	1.5	\$307,284	\$155,888
CZ10-2	SCE	216,700	0	43.5	\$330,756	\$394,633	\$486,644	1.2	1.5	\$63,877	\$155,888
CZ11	PG&E	211,129	0	41.9	\$330,756	\$670,932	\$481,298	2.0	1.5	\$340,177	\$150,543
CZ12	PG&E	211,386	0	41.9	\$330,756	\$652,465	\$482,826	2.0	1.5	\$321,709	\$152,070
CZ12-2	SMUD	211,386	0	41.9	\$330,756	\$344,668	\$482,826	1.0	1.5	\$13,913	\$152,070
CZ13	PG&E	208,045	0	41.5	\$330,756	\$651,191	\$473,280	2.0	1.4	\$320,435	\$142,524
CZ14	SDG&E	241,502	0	47.7	\$330,756	\$672,601	\$569,454	2.0	1.7	\$341,846	\$238,698
CZ14-2	SCE	241,502	0	47.7	\$330,756	\$401,450	\$569,454	1.2	1.7	\$70,694	\$238,698
CZ15	SCE	229,062	0	44.8	\$330,756	\$377,827	\$521,963	1.1	1.6	\$47,071	\$191,208
CZ16	PG&E	228,825	0	45.9	\$330,756	\$706,201	\$496,190	2.1	1.5	\$375,445	\$165,434
CZ16-2	LADWP	228,825	0	45.9	\$330,756	\$222,802	\$496,190	0.7	1.5	(\$107,953)	\$165,434



Figure 58. Cost Effectiveness for Medium Office– All-Electric + 3kW PV

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	Lifecycle TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
All-Electric + 3kW PV											
CZ01	PG&E	-49,716	4967	10.9	(\$80,523)	(\$84,765)	(\$49,972)	0.9	1.6	(\$4,242)	\$30,551
CZ02	PG&E	-44,899	3868	6.0	(\$66,965)	(\$83,115)	(\$30,928)	0.8	2.2	(\$16,150)	\$36,037
CZ03	PG&E	-31,226	3142	6.5	(\$75,600)	(\$39,441)	(\$19,617)	1.9	3.9	\$36,159	\$55,983
CZ04	PG&E	-43,772	3759	5.7	(\$62,282)	(\$70,999)	(\$29,496)	0.9	2.1	(\$8,717)	\$32,786
CZ04-2	CPAU	-43,772	3759	5.7	(\$62,282)	(\$8,050)	(\$29,496)	7.7	2.1	\$54,232	\$32,786
CZ05	PG&E	-35,504	3240	5.5	(\$77,773)	(\$42,559)	(\$29,162)	1.8	2.7	\$35,214	\$48,611
CZ06	SCE	-21,321	2117	4.0	(\$69,422)	\$35,862	(\$9,641)	>1	7.2	\$105,284	\$59,781
CZ06-2	LADWP	-21,321	2117	4.0	(\$69,422)	\$32,936	(\$9,641)	>1	7.2	\$102,358	\$59,781
CZ07	SDG&E	-7,943	950	1.9	(\$63,595)	\$64,781	(\$382)	>1	166.6	\$128,376	\$63,214
CZ08	SCE	-10,854	1219	2.5	(\$62,043)	\$28,651	(\$1,289)	>1	48.1	\$90,694	\$60,755
CZ08-2	LADWP	-10,854	1219	2.5	(\$62,043)	\$25,122	(\$1,289)	>1	48.1	\$87,165	\$60,755
CZ09	SCE	-14,878	1605	3.3	(\$56,372)	\$31,542	(\$3,246)	>1	17.4	\$87,913	\$53,126
CZ09-2	LADWP	-14,878	1605	3.3	(\$56,372)	\$28,145	(\$3,246)	>1	17.4	\$84,517	\$53,126
CZ10	SDG&E	-22,588	2053	3.1	(\$41,171)	\$59,752	(\$12,553)	>1	3.3	\$100,924	\$28,619
CZ10-2	SCE	-22,588	2053	3.1	(\$41,171)	\$32,039	(\$12,553)	>1	3.3	\$73,211	\$28,619
CZ11	PG&E	-35,455	3062	4.5	(\$57,257)	(\$53,776)	(\$22,194)	1.1	2.6	\$3,481	\$35,063
CZ12	PG&E	-38,704	3327	5.0	(\$61,613)	(\$66,808)	(\$24,819)	0.9	2.5	(\$5,195)	\$36,794
CZ12-2	SMUD	-38,704	3327	5.0	(\$61,613)	\$2,897	(\$24,819)	>1	2.5	\$64,510	\$36,794
CZ13	PG&E	-35,016	3063	4.7	(\$55,996)	(\$52,159)	(\$22,146)	1.1	2.5	\$3,836	\$33,849
CZ14	SDG&E	-38,945	3266	4.5	(\$58,426)	\$24,867	(\$25,821)	>1	2.3	\$83,293	\$32,605
CZ14-2	SCE	-38,945	3266	4.5	(\$58,426)	\$15,338	(\$25,821)	>1	2.3	\$73,764	\$32,605
CZ15	SCE	-14,818	1537	2.8	(\$29,445)	\$22,852	(\$3,914)	>1	7.5	\$52,298	\$25,532
CZ16	PG&E	-88,966	6185	6.6	(\$57,366)	(\$193,368)	(\$139,989)	0.3	0.4	(\$136,002)	(\$82,623)
CZ16-2	LADWP	-88,966	6185	6.6	(\$57,366)	\$36,354	(\$139,989)	>1	0.4	\$93,720	(\$82,623)



Figure 59. Cost Effectiveness for Medium Office – All-Electric + 3kW PV + 5 kWh Battery

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	-\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
All-Electric + 3kW PV + 5 kWh Battery											
CZ01	PG&E	-49,716	4967	10.9	(\$78,897)	(\$84,765)	(\$49,972)	0.9	1.6	(\$5,868)	\$28,925
CZ02	PG&E	-44,899	3868	6.0	(\$78,897)	(\$83,115)	(\$30,928)	0.9	2.6	(\$4,218)	\$47,969
CZ03	PG&E	-31,226	3142	6.5	(\$78,897)	(\$39,441)	(\$19,617)	2.0	4.0	\$39,456	\$59,280
CZ04	PG&E	-43,772	3759	5.7	(\$78,897)	(\$70,999)	(\$29,496)	1.1	2.7	\$7,898	\$49,400
CZ04-2	CPAU	-43,772	3759	5.7	(\$78,897)	(\$8,050)	(\$29,496)	9.8	2.7	\$70,847	\$49,400
CZ05	PG&E	-35,504	3240	5.5	(\$78,897)	(\$42,559)	(\$29,162)	1.9	2.7	\$36,338	\$49,735
CZ06	SCE	-21,321	2117	4.0	(\$78,897)	\$35,862	(\$9,641)	>1	8.2	\$114,759	\$69,256
CZ06-2	LADWP	-21,321	2117	4.0	(\$78,897)	\$32,936	(\$9,641)	>1	8.2	\$111,833	\$69,256
CZ07	SDG&E	-7,943	950	1.9	(\$78,897)	\$64,781	(\$382)	>1	206.6	\$143,678	\$78,515
CZ08	SCE	-10,854	1219	2.5	(\$78,897)	\$28,651	(\$1,289)	>1	61.2	\$107,548	\$77,608
CZ08-2	LADWP	-10,854	1219	2.5	(\$78,897)	\$25,122	(\$1,289)	>1	61.2	\$104,019	\$77,608
CZ09	SCE	-14,878	1605	3.3	(\$78,897)	\$31,542	(\$3,246)	>1	24.3	\$110,439	\$75,651
CZ09-2	LADWP	-14,878	1605	3.3	(\$78,897)	\$28,145	(\$3,246)	>1	24.3	\$107,042	\$75,651
CZ10	SDG&E	-22,588	2053	3.1	(\$78,897)	\$59,752	(\$12,553)	>1	6.3	\$138,649	\$66,344
CZ10-2	SCE	-22,588	2053	3.1	(\$78,897)	\$32,039	(\$12,553)	>1	6.3	\$110,936	\$66,344
CZ11	PG&E	-35,455	3062	4.5	(\$78,897)	(\$53,776)	(\$22,194)	1.5	3.6	\$25,121	\$56,703
CZ12	PG&E	-38,704	3327	5.0	(\$78,897)	(\$66,808)	(\$24,819)	1.2	3.2	\$12,089	\$54,078
CZ12-2	SMUD	-38,704	3327	5.0	(\$78,897)	\$2,897	(\$24,819)	>1	3.2	\$81,794	\$54,078
CZ13	PG&E	-35,016	3063	4.7	(\$78,897)	(\$52,159)	(\$22,146)	1.5	3.6	\$26,738	\$56,751
CZ14	SDG&E	-38,945	3266	4.5	(\$78,897)	\$24,867	(\$25,821)	>1	3.1	\$103,764	\$53,076
CZ14-2	SCE	-38,945	3266	4.5	(\$78,897)	\$15,338	(\$25,821)	>1	3.1	\$94,235	\$53,076
CZ15	SCE	-14,818	1537	2.8	(\$78,897)	\$22,852	(\$3,914)	>1	20.2	\$101,749	\$74,983
CZ16	PG&E	-88,966	6185	6.6	(\$78,897)	(\$193,368)	(\$139,989)	0.4	0.6	(\$114,472)	(\$61,092)
CZ16-2	LADWP	-88,966	6185	6.6	(\$78,897)	\$36,354	(\$139,989)	>1	0.6	\$115,250	(\$61,092)



Figure 60. Cost Effectiveness for Medium Office – All-Electric + 135kW PV

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	Lifecycle TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
All-Electric + 135kW PV											
CZ01	PG&E	123,683	4967	44.5	\$163,217	\$405,731	\$321,979	2.5	2.0	\$242,514	\$158,762
CZ02	PG&E	165,627	3868	46.6	\$176,775	\$562,528	\$430,276	3.2	2.4	\$385,753	\$253,501
CZ03	PG&E	173,831	3142	46.3	\$168,140	\$575,864	\$420,205	3.4	2.5	\$407,725	\$252,066
CZ04	PG&E	178,706	3759	48.7	\$181,458	\$601,431	\$456,861	3.3	2.5	\$419,973	\$275,403
CZ04-2	CPAU	178,706	3759	48.7	\$181,458	\$517,526	\$456,861	2.9	2.5	\$336,069	\$275,403
CZ05	PG&E	185,664	3240	48.6	\$165,967	\$664,842	\$446,600	4.0	2.7	\$498,875	\$280,633
CZ06	SCE	192,214	2117	45.3	\$174,317	\$423,657	\$471,944	2.4	2.7	\$249,340	\$297,626
CZ06-2	LADWP	192,214	2117	45.3	\$174,317	\$259,270	\$471,944	1.5	2.7	\$84,953	\$297,626
CZ07	SDG&E	210,282	950	44.3	\$180,145	\$669,979	\$485,260	3.7	2.7	\$489,834	\$305,115
CZ08	SCE	201,491	1219	43.5	\$181,696	\$407,277	\$497,622	2.2	2.7	\$225,580	\$315,925
CZ08-2	LADWP	201,491	1219	43.5	\$181,696	\$240,657	\$497,622	1.3	2.7	\$58,960	\$315,925
CZ09	SCE	200,242	1605	45.6	\$187,368	\$408,922	\$491,322	2.2	2.6	\$221,554	\$303,953
CZ09-2	LADWP	200,242	1605	45.6	\$187,368	\$248,452	\$491,322	1.3	2.6	\$61,084	\$303,953
CZ10	SDG&E	189,734	2053	44.7	\$202,568	\$667,551	\$462,111	3.3	2.3	\$464,982	\$259,543
CZ10-2	SCE	189,734	2053	44.7	\$202,568	\$412,659	\$462,111	2.0	2.3	\$210,091	\$259,543
CZ11	PG&E	171,399	3062	44.5	\$186,483	\$597,807	\$446,074	3.2	2.4	\$411,324	\$259,592
CZ12	PG&E	168,413	3327	45.0	\$182,127	\$571,758	\$442,638	3.1	2.4	\$389,632	\$260,511
CZ12-2	SMUD	168,413	3327	45.0	\$182,127	\$343,602	\$442,638	1.9	2.4	\$161,475	\$260,511
CZ13	PG&E	168,817	3063	44.3	\$187,744	\$581,964	\$430,324	3.1	2.3	\$394,220	\$242,580
CZ14	SDG&E	197,643	3266	50.1	\$185,314	\$667,762	\$527,930	3.6	2.8	\$482,449	\$342,616
CZ14-2	SCE	197,643	3266	50.1	\$185,314	\$408,424	\$527,930	2.2	2.8	\$223,110	\$342,616
CZ15	SCE	209,539	1537	45.7	\$214,294	\$390,267	\$504,638	1.8	2.4	\$175,972	\$290,343
CZ16	PG&E	135,255	6185	50.4	\$186,374	\$470,199	\$338,637	2.5	1.8	\$283,825	\$152,263
CZ16-2	LADWP	135,255	6185	50.4	\$186,374	\$250,807	\$338,637	1.3	1.8	\$64,433	\$152,263



Figure 61. Cost Effectiveness for Medium Office – All-Electric + 135kW PV + 50 kWh Battery

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	Lifecycle TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
All-Electric + 135kW PV + 50 kWh Battery											
CZ01	PG&E	123,280	4967	45.4	\$191,117	\$404,994	\$323,077	2.1	1.7	\$213,877	\$131,960
CZ02	PG&E	165,200	3868	47.7	\$204,675	\$561,747	\$431,469	2.7	2.1	\$357,072	\$226,795
CZ03	PG&E	173,384	3142	47.4	\$196,040	\$575,043	\$422,019	2.9	2.2	\$379,003	\$225,979
CZ04	PG&E	178,259	3759	49.8	\$209,358	\$600,621	\$461,634	2.9	2.2	\$391,263	\$252,276
CZ04-2	CPAU	178,259	3759	49.8	\$209,358	\$516,495	\$461,634	2.5	2.2	\$307,137	\$252,276
CZ05	PG&E	185,229	3240	49.7	\$193,867	\$664,046	\$447,793	3.4	2.3	\$470,179	\$253,926
CZ06	SCE	191,767	2117	46.5	\$202,217	\$423,369	\$473,519	2.1	2.3	\$221,152	\$271,301
CZ06-2	LADWP	191,767	2117	46.5	\$202,217	\$259,033	\$473,519	1.3	2.3	\$56,816	\$271,301
CZ07	SDG&E	209,848	950	45.4	\$208,045	\$675,307	\$486,787	3.2	2.3	\$467,262	\$278,743
CZ08	SCE	201,047	1219	44.7	\$209,596	\$407,027	\$498,910	1.9	2.4	\$197,430	\$289,314
CZ08-2	LADWP	201,047	1219	44.7	\$209,596	\$240,432	\$498,910	1.1	2.4	\$30,835	\$289,314
CZ09	SCE	199,802	1605	46.6	\$215,268	\$408,676	\$492,515	1.9	2.3	\$193,408	\$277,246
CZ09-2	LADWP	199,802	1605	46.6	\$215,268	\$248,242	\$492,515	1.2	2.3	\$32,974	\$277,246
CZ10	SDG&E	189,293	2053	45.7	\$230,468	\$672,867	\$463,352	2.9	2.0	\$442,399	\$232,884
CZ10-2	SCE	189,293	2053	45.7	\$230,468	\$412,412	\$463,352	1.8	2.0	\$181,944	\$232,884
CZ11	PG&E	170,987	3062	45.5	\$214,383	\$597,062	\$448,509	2.8	2.1	\$382,680	\$234,126
CZ12	PG&E	167,995	3327	46.0	\$210,027	\$571,002	\$447,411	2.7	2.1	\$360,975	\$237,384
CZ12-2	SMUD	167,995	3327	46.0	\$210,027	\$343,043	\$447,411	1.6	2.1	\$133,017	\$237,384
CZ13	PG&E	168,408	3063	45.3	\$215,644	\$581,225	\$440,920	2.7	2.0	\$365,580	\$225,275
CZ14	SDG&E	197,188	3266	51.2	\$213,214	\$680,893	\$531,080	3.2	2.5	\$467,679	\$317,866
CZ14-2	SCE	197,188	3266	51.2	\$213,214	\$408,166	\$531,080	1.9	2.5	\$194,952	\$317,866
CZ15	SCE	209,148	1537	46.6	\$242,194	\$390,000	\$506,499	1.6	2.1	\$147,806	\$264,305
CZ16	PG&E	134,809	6185	51.4	\$214,274	\$469,378	\$341,978	2.2	1.6	\$255,105	\$127,704
CZ16-2	LADWP	134,809	6185	51.4	\$214,274	\$250,580	\$341,978	1.2	1.6	\$36,306	\$127,704



6.7.2 Cost Effectiveness Results – Medium Retail

Figure 62 through Figure 69 contain the cost-effectiveness findings for the Medium Retail packages. Notable findings for each package include:

- ◆ **Mixed-Fuel + 3 kW PV:** Packages are cost effective and achieve savings for all climate zones using the On-Bill and TDV approaches.
- ◆ **Mixed-Fuel + 3 kW PV + 5 kWh Battery:** The packages are less cost effective as compared to the 3 kW PV only package and not cost effective for LADWP and SMUD service area.
- ◆ **Mixed-Fuel + PV only:** Packages achieve positive energy cost savings and are cost effective using the On-Bill approach for all climate zones except for LADWP territory (CZs 6, 8, 9 and 16). Packages achieve positive savings and are cost effective using the TDV approach for all climate zones.
- ◆ **Mixed Fuel + PV + 5 kWh Battery:** Adding battery slightly reduces On-Bill B/C ratios but is still cost effective for all climate zones except for LADWP territory. Packages achieve savings and cost effective using the TDV approach for all climate zones.
- ◆ **All-Electric + 3 kW PV:** Packages are cost effective using the On-Bill and TDV approach for all climate zones except for CZ16 under PG&E service.
- ◆ **All-Electric + 3 kW PV + 5 kWh Battery:** Similar to minimal PV only package, adding battery is cost effective as well using the On-Bill and TDV approach for all climate zones except for CZ16 under PG&E service.
- ◆ **All-Electric + PV only:** Packages are cost effective and achieve savings in all climate zones for both the On-Bill and TDV approaches
- ◆ **All-Electric + PV + 50 kWh Battery:** Adding battery slightly reduces B/C ratios for both the On-Bill and TDV approaches. Packages are not cost effective for all climate zones except CZ6, CZ8 and CZ9 under LADWP service area.



Figure 62. Cost Effectiveness for Medium Retail – Mixed-Fuel + 3kW PV

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	Lifecycle TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Mixed Fuel + 3kW PV											
CZ01	PG&E	3,941	0	0.76	\$5,566	\$12,616	\$8,460	2.3	1.5	\$7,050	\$2,894
CZ02	PG&E	4,685	0	0.91	\$5,566	\$17,635	\$10,262	3.2	1.8	\$12,069	\$4,696
CZ03	PG&E	4,733	0	0.92	\$5,566	\$15,146	\$10,152	2.7	1.8	\$9,580	\$4,586
CZ04	PG&E	4,834	0	0.94	\$5,566	\$18,519	\$10,614	3.3	1.9	\$12,953	\$5,048
CZ04-2	CPAU	4,834	0	0.94	\$5,566	\$11,507	\$10,614	2.1	1.9	\$5,941	\$5,048
CZ05	PG&E	4,910	0	0.95	\$5,566	\$15,641	\$10,548	2.8	1.9	\$10,075	\$4,982
CZ06	SCE	4,769	0	0.93	\$5,566	\$11,374	\$10,724	2.0	1.9	\$5,808	\$5,158
CZ06-2	LA	4,769	0	0.93	\$5,566	\$7,069	\$10,724	1.3	1.9	\$1,503	\$5,158
CZ07	SDG&E	4,960	0	0.96	\$5,566	\$22,452	\$11,031	4.0	2.0	\$16,886	\$5,465
CZ08	SCE	4,826	0	0.93	\$5,566	\$11,838	\$11,339	2.1	2.0	\$6,272	\$5,773
CZ08-2	LA	4,826	0	0.93	\$5,566	\$7,342	\$11,339	1.3	2.0	\$1,776	\$5,773
CZ09	SCE	4,889	0	0.96	\$5,566	\$11,187	\$11,229	2.0	2.0	\$5,621	\$5,663
CZ09-2	LA	4,889	0	0.96	\$5,566	\$6,728	\$11,229	1.2	2.0	\$1,162	\$5,663
CZ10	SDG&E	4,948	0	0.97	\$5,566	\$20,999	\$10,987	3.8	2.0	\$15,433	\$5,421
CZ10-2	SCE	4,948	0	0.97	\$5,566	\$11,384	\$10,987	2.0	2.0	\$5,818	\$5,421
CZ11	PG&E	4,718	0	0.91	\$5,566	\$15,381	\$10,680	2.8	1.9	\$9,815	\$5,114
CZ12	PG&E	4,707	0	0.91	\$5,566	\$16,442	\$10,614	3.0	1.9	\$10,876	\$5,048
CZ12-2	SMUD	4,707	0	0.91	\$5,566	\$8,247	\$10,614	1.5	1.9	\$2,681	\$5,048
CZ13	PG&E	4,750	0	0.92	\$5,566	\$16,638	\$10,592	3.0	1.9	\$11,072	\$5,026
CZ14	SDG&E	5,258	0	1.01	\$5,566	\$19,576	\$12,218	3.5	2.2	\$14,010	\$6,652
CZ14-2	SCE	5,258	0	1.01	\$5,566	\$10,227	\$12,218	1.8	2.2	\$4,661	\$6,652
CZ15	SCE	4,997	0	0.96	\$5,566	\$10,476	\$11,339	1.9	2.0	\$4,910	\$5,773
CZ16	PG&E	5,336	0	1.04	\$5,566	\$20,418	\$11,361	3.7	2.0	\$14,852	\$5,795
CZ16-2	LA	5,336	0	1.04	\$5,566	\$6,987	\$11,361	1.3	2.0	\$1,421	\$5,795



Figure 63. Cost Effectiveness for Medium Retail – Mixed Fuel + 3kW PV + 5 kWh Battery

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	-\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Mixed Fuel + 3kW PV + 5 kWh Battery											
CZ01	PG&E	3,941	0	0.76	\$9,520	\$12,616	\$8,460	1.3	0.9	\$3,096	(\$1,060)
CZ02	PG&E	4,685	0	0.91	\$9,520	\$17,635	\$10,262	1.9	1.1	\$8,115	\$742
CZ03	PG&E	4,733	0	0.92	\$9,520	\$15,146	\$10,152	1.6	1.1	\$5,626	\$632
CZ04	PG&E	4,834	0	0.94	\$9,520	\$18,519	\$10,614	1.9	1.1	\$8,999	\$1,094
CZ04-2	CPAU	4,834	0	0.94	\$9,520	\$11,507	\$10,614	1.2	1.1	\$1,987	\$1,094
CZ05	PG&E	4,910	0	0.95	\$9,520	\$15,641	\$10,548	1.6	1.1	\$6,120	\$1,028
CZ05-2	SCG	4,910	0	0.95	\$9,520	\$15,641	\$10,548	1.6	1.1	\$6,120	\$1,028
CZ06	SCE	4,769	0	0.93	\$9,520	\$11,374	\$10,724	1.2	1.1	\$1,854	\$1,204
CZ06-2	LA	4,769	0	0.93	\$9,520	\$7,069	\$10,724	0.7	1.1	(\$2,452)	\$1,204
CZ07	SDG&E	4,960	0	0.96	\$9,520	\$22,452	\$11,031	2.4	1.2	\$12,932	\$1,511
CZ08	SCE	4,826	0	0.93	\$9,520	\$11,838	\$11,339	1.2	1.2	\$2,317	\$1,819
CZ08-2	LA	4,826	0	0.93	\$9,520	\$7,342	\$11,339	0.8	1.2	(\$2,178)	\$1,819
CZ09	SCE	4,889	0	0.96	\$9,520	\$11,187	\$11,229	1.2	1.2	\$1,667	\$1,709
CZ09-2	LA	4,889	0	0.96	\$9,520	\$6,728	\$11,229	0.7	1.2	(\$2,792)	\$1,709
CZ10	SDG&E	4,948	0	0.97	\$9,520	\$20,999	\$10,987	2.2	1.2	\$11,479	\$1,467
CZ10-2	SCE	4,948	0	0.97	\$9,520	\$11,384	\$10,987	1.2	1.2	\$1,863	\$1,467
CZ11	PG&E	4,718	0	0.91	\$9,520	\$15,381	\$10,680	1.6	1.1	\$5,861	\$1,160
CZ12	PG&E	4,707	0	0.91	\$9,520	\$16,442	\$10,614	1.7	1.1	\$6,922	\$1,094
CZ12-2	SMUD	4,707	0	0.91	\$9,520	\$8,247	\$10,614	0.9	1.1	(\$1,273)	\$1,094
CZ13	PG&E	4,750	0	0.92	\$9,520	\$16,638	\$10,592	1.7	1.1	\$7,117	\$1,072
CZ14	SDG&E	5,258	0	1.01	\$9,520	\$19,576	\$12,218	2.1	1.3	\$10,056	\$2,698
CZ14-2	SCE	5,258	0	1.01	\$9,520	\$10,227	\$12,218	1.1	1.3	\$707	\$2,698
CZ15	SCE	4,997	0	0.96	\$9,520	\$10,476	\$11,339	1.1	1.2	\$956	\$1,819
CZ16	PG&E	5,336	0	1.04	\$9,520	\$20,418	\$11,361	2.1	1.2	\$10,898	\$1,841
CZ16-2	LA	5,336	0	1.04	\$9,520	\$6,987	\$11,361	0.7	1.2	(\$2,533)	\$1,841



Figure 64. Cost Effectiveness for Medium Retail – Mixed-Fuel + 110kW PV

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	Lifecycle TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Mixed Fuel + 110kW PV											
CZ01	PG&E	144,499	0	27.97	\$201,904	\$454,462	\$309,935	2.3	1.5	\$252,558	\$108,031
CZ02	PG&E	171,790	0	33.31	\$201,904	\$477,584	\$376,300	2.4	1.9	\$275,681	\$174,396
CZ03	PG&E	173,534	0	33.55	\$201,904	\$538,530	\$372,146	2.7	1.8	\$336,626	\$170,243
CZ04	PG&E	177,229	0	34.42	\$201,904	\$489,934	\$389,067	2.4	1.9	\$288,030	\$187,163
CZ04-2	CPAU	177,229	0	34.42	\$201,904	\$418,173	\$389,067	2.1	1.9	\$216,269	\$187,163
CZ05	PG&E	180,044	0	34.84	\$201,904	\$556,787	\$386,958	2.8	1.9	\$354,883	\$185,054
CZ06	SCE	174,855	0	33.92	\$201,904	\$288,188	\$393,198	1.4	1.9	\$86,284	\$191,295
CZ06-2	LA	174,855	0	33.92	\$201,904	\$165,538	\$393,198	0.8	1.9	(\$36,366)	\$191,295
CZ07	SDG&E	181,854	0	35.32	\$201,904	\$373,974	\$404,713	1.9	2.0	\$172,070	\$202,809
CZ08	SCE	176,954	0	34.23	\$201,904	\$284,481	\$415,789	1.4	2.1	\$82,577	\$213,885
CZ08-2	LA	176,954	0	34.23	\$201,904	\$161,366	\$415,789	0.8	2.1	(\$40,538)	\$213,885
CZ09	SCE	179,267	0	35.18	\$201,904	\$289,050	\$412,097	1.4	2.0	\$87,146	\$210,193
CZ09-2	LA	179,267	0	35.18	\$201,904	\$168,822	\$412,097	0.8	2.0	(\$33,082)	\$210,193
CZ10	SDG&E	181,443	0	35.41	\$201,904	\$410,310	\$402,999	2.0	2.0	\$208,406	\$201,095
CZ10-2	SCE	181,443	0	35.41	\$201,904	\$291,236	\$402,999	1.4	2.0	\$89,332	\$201,095
CZ11	PG&E	172,983	0	33.46	\$201,904	\$464,776	\$391,550	2.3	1.9	\$262,872	\$189,646
CZ12	PG&E	172,597	0	33.33	\$201,904	\$467,870	\$389,573	2.3	1.9	\$265,966	\$187,669
CZ12-2	SMUD	172,597	0	33.33	\$201,904	\$267,086	\$389,573	1.3	1.9	\$65,182	\$187,669
CZ13	PG&E	174,151	0	33.81	\$201,904	\$478,857	\$387,968	2.4	1.9	\$276,953	\$186,065
CZ14	SDG&E	192,789	0	36.97	\$201,904	\$396,181	\$448,268	2.0	2.2	\$194,277	\$246,364
CZ14-2	SCE	192,789	0	36.97	\$201,904	\$288,782	\$448,268	1.4	2.2	\$86,878	\$246,364
CZ15	SCE	183,214	0	35.12	\$201,904	\$277,867	\$415,789	1.4	2.1	\$75,963	\$213,885
CZ16	PG&E	195,665	0	37.97	\$201,904	\$522,352	\$416,558	2.6	2.1	\$320,448	\$214,654
CZ16-2	LA	195,665	0	37.97	\$201,904	\$171,802	\$416,558	0.9	2.1	(\$30,101)	\$214,654



Figure 65. Cost Effectiveness for Medium Retail – Mixed-Fuel + 110 kW PV + 50 kWh Battery

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	Lifecycle TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Mixed Fuel + 110kW PV + 50 kWh Battery											
CZ01	PG&E	143,423	0	29.48	\$229,804	\$452,119	\$324,373	2.0	1.4	\$222,315	\$94,569
CZ02	PG&E	170,542	0	35.14	\$229,804	\$486,704	\$398,363	2.1	1.7	\$256,900	\$168,559
CZ03	PG&E	172,266	0	35.66	\$229,804	\$535,974	\$395,374	2.3	1.7	\$306,170	\$165,570
CZ04	PG&E	175,940	0	36.32	\$229,804	\$525,788	\$422,579	2.3	1.8	\$295,984	\$192,775
CZ04-2	CPAU	175,940	0	36.32	\$229,804	\$416,019	\$422,579	1.8	1.8	\$186,216	\$192,775
CZ05	PG&E	178,728	0	36.91	\$229,804	\$554,968	\$409,086	2.4	1.8	\$325,164	\$179,283
CZ06	SCE	173,567	0	35.99	\$229,804	\$290,599	\$412,690	1.3	1.8	\$60,795	\$182,886
CZ06-2	LA	173,567	0	35.99	\$229,804	\$169,786	\$412,690	0.7	1.8	(\$60,018)	\$182,886
CZ07	SDG&E	180,508	0	37.61	\$229,804	\$425,793	\$427,040	1.9	1.9	\$195,989	\$197,236
CZ08	SCE	175,616	0	36.29	\$229,804	\$296,318	\$434,687	1.3	1.9	\$66,514	\$204,883
CZ08-2	LA	175,616	0	36.29	\$229,804	\$170,489	\$434,687	0.7	1.9	(\$59,315)	\$204,883
CZ09	SCE	177,966	0	36.74	\$229,804	\$300,540	\$421,195	1.3	1.8	\$70,736	\$191,391
CZ09-2	LA	177,966	0	36.74	\$229,804	\$178,852	\$421,195	0.8	1.8	(\$50,952)	\$191,391
CZ10	SDG&E	180,248	0	36.91	\$229,804	\$459,486	\$410,537	2.0	1.8	\$229,683	\$180,733
CZ10-2	SCE	180,248	0	36.91	\$229,804	\$301,219	\$410,537	1.3	1.8	\$71,415	\$180,733
CZ11	PG&E	171,779	0	34.85	\$229,804	\$490,245	\$417,679	2.1	1.8	\$260,442	\$187,875
CZ12	PG&E	171,392	0	34.77	\$229,804	\$497,363	\$417,371	2.2	1.8	\$267,559	\$187,567
CZ12-2	SMUD	171,392	0	34.77	\$229,804	\$273,783	\$417,371	1.2	1.8	\$43,979	\$187,567
CZ13	PG&E	173,052	0	34.97	\$229,804	\$488,196	\$397,791	2.1	1.7	\$258,392	\$167,987
CZ14	SDG&E	191,703	0	38.31	\$229,804	\$420,241	\$452,641	1.8	2.0	\$190,437	\$222,837
CZ14-2	SCE	191,703	0	38.31	\$229,804	\$294,010	\$452,641	1.3	2.0	\$64,206	\$222,837
CZ15	SCE	182,299	0	36.01	\$229,804	\$279,036	\$416,382	1.2	1.8	\$49,232	\$186,578
CZ16	PG&E	194,293	0	40.00	\$229,804	\$535,137	\$432,951	2.3	1.9	\$305,333	\$203,147
CZ16-2	LA	194,293	0	40.00	\$229,804	\$175,573	\$432,951	0.8	1.9	(\$54,231)	\$203,147



Figure 66. Cost Effectiveness for Medium Retail – All-Electric + 3kW PV

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	Lifecycle TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
All-Electric + 3kW PV											
CZ01	PG&E	-25,214	3893	14.61	(\$16,318)	\$4,288	(\$5,450)	>1	3.0	\$20,606	\$10,868
CZ02	PG&E	-17,101	2448	8.40	(\$20,734)	\$859	\$5,779	>1	>1	\$21,593	\$26,513
CZ03	PG&E	-9,851	1868	7.18	(\$17,381)	\$15,418	\$8,702	>1	>1	\$32,799	\$26,083
CZ04	PG&E	-9,353	1706	6.24	(\$16,166)	\$9,110	\$10,394	>1	>1	\$25,276	\$26,560
CZ04-2	CPAU	-9,353	1706	6.24	(\$16,166)	\$24,000	\$10,394	>1	>1	\$40,166	\$26,560
CZ05	PG&E	-9,423	1746	6.42	(\$18,776)	\$14,076	\$6,351	>1	>1	\$32,852	\$25,127
CZ06	SCE	-2,759	1002	4.24	(\$15,032)	\$29,710	\$12,592	>1	>1	\$44,741	\$27,623
CZ06-2	LA	-2,759	1002	4.24	(\$15,032)	\$26,292	\$12,592	>1	>1	\$41,324	\$27,623
CZ07	SDG&E	1,148	522	2.72	(\$17,032)	\$76,810	\$12,350	>1	>1	\$93,842	\$29,382
CZ08	SCE	-979	793	3.64	(\$20,192)	\$28,576	\$13,185	>1	>1	\$48,768	\$33,377
CZ08-2	LA	-979	793	3.64	(\$20,192)	\$24,475	\$13,185	>1	>1	\$44,667	\$33,377
CZ09	SCE	-2,352	970	4.28	(\$25,383)	\$29,776	\$13,207	>1	>1	\$55,159	\$38,590
CZ09-2	LA	-2,352	970	4.28	(\$25,383)	\$25,823	\$13,207	>1	>1	\$51,207	\$38,590
CZ10	SDG&E	-5,388	1262	4.95	(\$20,541)	\$75,458	\$11,493	>1	>1	\$95,999	\$32,034
CZ10-2	SCE	-5,388	1262	4.95	(\$20,541)	\$32,394	\$11,493	>1	>1	\$52,936	\$32,034
CZ11	PG&E	-14,533	2415	8.86	(\$25,471)	\$7,618	\$13,295	>1	>1	\$33,090	\$38,766
CZ12	PG&E	-14,764	2309	8.19	(\$25,774)	\$2,210	\$10,152	>1	>1	\$27,984	\$35,926
CZ12-2	SMUD	-14,764	2309	8.19	(\$25,774)	\$21,215	\$10,152	>1	>1	\$46,988	\$35,926
CZ13	PG&E	-12,069	1983	7.08	(\$21,428)	\$5,647	\$8,570	>1	>1	\$27,075	\$29,998
CZ14	SDG&E	-7,950	1672	6.45	(\$19,926)	\$60,412	\$16,679	>1	>1	\$80,338	\$36,605
CZ14-2	SCE	-7,950	1672	6.45	(\$19,926)	\$28,631	\$16,679	>1	>1	\$48,557	\$36,605
CZ15	SCE	2,534	518	3.10	(\$22,813)	\$27,271	\$17,162	>1	>1	\$50,084	\$39,976
CZ16	PG&E	-36,081	4304	14.26	(\$19,041)	(\$30,111)	(\$41,181)	0.6	0.5	(\$11,070)	(\$22,140)
CZ16-2	LA	-36,081	4304	14.26	(\$19,041)	\$45,706	(\$41,181)	>1	0.5	\$64,747	(\$22,140)



Figure 67. Cost Effectiveness for Medium Retail – All-Electric + 3kW PV + 5 kWh Battery

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	-\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
All-Electric + 3kW PV + 5 kWh Battery											
CZ01	PG&E	-25,214	3893	14.61	(\$14,692)	\$4,288	(\$5,450)	>1	2.7	\$18,980	\$9,242
CZ02	PG&E	-17,101	2448	8.40	(\$14,692)	\$859	\$5,779	>1	>1	\$15,551	\$20,472
CZ03	PG&E	-9,851	1868	7.18	(\$14,692)	\$15,418	\$8,702	>1	>1	\$30,110	\$23,394
CZ04	PG&E	-9,353	1706	6.24	(\$14,692)	\$9,110	\$10,394	>1	>1	\$23,802	\$25,086
CZ04-2	CPAU	-9,353	1706	6.24	(\$14,692)	\$24,000	\$10,394	>1	>1	\$38,693	\$25,086
CZ05	PG&E	-9,423	1746	6.42	(\$14,692)	\$14,076	\$6,351	>1	>1	\$28,768	\$21,043
CZ06	SCE	-2,759	1002	4.24	(\$14,692)	\$29,710	\$12,592	>1	>1	\$44,402	\$27,284
CZ06-2	LA	-2,759	1002	4.24	(\$14,692)	\$26,292	\$12,592	>1	>1	\$40,984	\$27,284
CZ07	SDG&E	1,148	522	2.72	(\$14,692)	\$76,810	\$12,350	>1	>1	\$91,502	\$27,042
CZ08	SCE	-979	793	3.64	(\$14,692)	\$28,576	\$13,185	>1	>1	\$43,268	\$27,877
CZ08-2	LA	-979	793	3.64	(\$14,692)	\$24,475	\$13,185	>1	>1	\$39,167	\$27,877
CZ09	SCE	-2,352	970	4.28	(\$14,692)	\$29,776	\$13,207	>1	>1	\$44,468	\$27,899
CZ09-2	LA	-2,352	970	4.28	(\$14,692)	\$25,823	\$13,207	>1	>1	\$40,516	\$27,899
CZ10	SDG&E	-5,388	1262	4.95	(\$14,692)	\$75,458	\$11,493	>1	>1	\$90,150	\$26,185
CZ10-2	SCE	-5,388	1262	4.95	(\$14,692)	\$32,394	\$11,493	>1	>1	\$47,086	\$26,185
CZ11	PG&E	-14,533	2415	8.86	(\$14,692)	\$7,618	\$13,295	>1	>1	\$22,310	\$27,987
CZ12	PG&E	-14,764	2309	8.19	(\$14,692)	\$2,210	\$10,152	>1	>1	\$16,902	\$24,845
CZ12-2	SMUD	-14,764	2309	8.19	(\$14,692)	\$21,215	\$10,152	>1	>1	\$35,907	\$24,845
CZ13	PG&E	-12,069	1983	7.08	(\$14,692)	\$5,647	\$8,570	>1	>1	\$20,339	\$23,262
CZ14	SDG&E	-7,950	1672	6.45	(\$14,692)	\$60,412	\$16,679	>1	>1	\$75,104	\$31,371
CZ14-2	SCE	-7,950	1672	6.45	(\$14,692)	\$28,631	\$16,679	>1	>1	\$43,323	\$31,371
CZ15	SCE	2,534	518	3.10	(\$14,692)	\$27,271	\$17,162	>1	>1	\$41,963	\$31,855
CZ16	PG&E	-36,081	4304	14.26	(\$14,692)	(\$30,111)	(\$41,181)	0.5	0.4	(\$15,419)	(\$26,489)
CZ16-2	LA	-36,081	4304	14.26	(\$14,692)	\$45,706	(\$41,181)	>1	0.4	\$60,398	(\$26,489)



Figure 68. Cost Effectiveness for Medium Retail – All-Electric + 110kW PV

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	Lifecycle TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
All-Electric + 110kW PV											
CZ01	PG&E	115,344	3893	41.82	\$143,932	\$454,277	\$296,025	3.2	2.1	\$310,345	\$152,093
CZ02	PG&E	150,004	2448	40.80	\$139,516	\$470,236	\$371,817	3.4	2.7	\$330,720	\$232,301
CZ03	PG&E	158,951	1868	39.82	\$142,869	\$544,095	\$370,696	3.8	2.6	\$401,226	\$227,827
CZ04	PG&E	163,043	1706	39.73	\$144,084	\$488,619	\$388,847	3.4	2.7	\$344,534	\$244,763
CZ04-2	CPAU	163,043	1706	39.73	\$144,084	\$432,905	\$388,847	3.0	2.7	\$288,821	\$244,763
CZ05	PG&E	165,711	1746	40.30	\$141,473	\$565,525	\$382,760	4.0	2.7	\$424,051	\$241,287
CZ06	SCE	167,328	1002	37.24	\$145,218	\$306,670	\$395,066	2.1	2.7	\$161,452	\$249,848
CZ06-2	LA	167,328	1002	37.24	\$145,218	\$184,797	\$395,066	1.3	2.7	\$39,579	\$249,848
CZ07	SDG&E	178,042	522	37.07	\$143,218	\$428,332	\$406,032	3.0	2.8	\$285,114	\$262,814
CZ08	SCE	171,149	793	36.94	\$140,058	\$301,219	\$417,635	2.2	3.0	\$161,161	\$277,577
CZ08-2	LA	171,149	793	36.94	\$140,058	\$178,419	\$417,635	1.3	3.0	\$38,361	\$277,577
CZ09	SCE	172,027	970	38.50	\$134,867	\$307,640	\$414,075	2.3	3.1	\$172,773	\$279,208
CZ09-2	LA	172,027	970	38.50	\$134,867	\$187,813	\$414,075	1.4	3.1	\$52,946	\$279,208
CZ10	SDG&E	171,107	1262	39.40	\$139,708	\$463,692	\$403,505	3.3	2.9	\$323,984	\$263,796
CZ10-2	SCE	171,107	1262	39.40	\$139,708	\$311,464	\$403,505	2.2	2.9	\$171,755	\$263,796
CZ11	PG&E	153,732	2415	41.41	\$134,778	\$467,356	\$394,165	3.5	2.9	\$332,578	\$259,387
CZ12	PG&E	153,126	2309	40.61	\$134,476	\$467,106	\$389,111	3.5	2.9	\$332,630	\$254,635
CZ12-2	SMUD	153,126	2309	40.61	\$134,476	\$283,343	\$389,111	2.1	2.9	\$148,867	\$254,635
CZ13	PG&E	157,332	1983	39.97	\$138,822	\$477,831	\$385,947	3.4	2.8	\$339,008	\$247,124
CZ14	SDG&E	179,582	1672	42.42	\$140,324	\$437,575	\$452,729	3.1	3.2	\$297,251	\$312,405
CZ14-2	SCE	179,582	1672	42.42	\$140,324	\$309,064	\$452,729	2.2	3.2	\$168,740	\$312,405
CZ15	SCE	180,751	518	37.26	\$137,436	\$294,877	\$421,612	2.1	3.1	\$157,440	\$284,176
CZ16	PG&E	154,248	4304	51.20	\$141,209	\$473,892	\$364,016	3.4	2.6	\$332,682	\$222,807
CZ16-2	LA	154,248	4304	51.20	\$141,209	\$211,677	\$364,016	1.5	2.6	\$70,467	\$222,807



Figure 69. Cost Effectiveness for Medium Retail – All-Electric + 110kW PV + 50 kWh Battery

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	Lifecycle TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
All-Electric + 90kW PV + 50 kWh Battery											
CZ01	PG&E	114,356	3893	43.52	\$171,832	\$451,043	\$310,265	2.6	1.8	\$279,211	\$138,433
CZ02	PG&E	148,793	2448	42.89	\$167,416	\$475,081	\$394,099	2.8	2.4	\$307,664	\$226,683
CZ03	PG&E	157,707	1868	42.12	\$170,769	\$541,418	\$394,034	3.2	2.3	\$370,649	\$223,265
CZ04	PG&E	161,769	1706	41.82	\$171,984	\$523,603	\$422,535	3.0	2.5	\$351,618	\$250,551
CZ04-2	CPAU	161,769	1706	41.82	\$171,984	\$430,567	\$422,535	2.5	2.5	\$258,582	\$250,551
CZ05	PG&E	164,408	1746	42.68	\$169,373	\$561,966	\$405,087	3.3	2.4	\$392,592	\$235,714
CZ06	SCE	166,052	1002	39.48	\$173,118	\$306,697	\$414,756	1.8	2.4	\$133,579	\$241,638
CZ06-2	LA	166,052	1002	39.48	\$173,118	\$187,941	\$414,756	1.1	2.4	\$14,823	\$241,638
CZ07	SDG&E	176,705	522	39.47	\$171,118	\$479,038	\$428,490	2.8	2.5	\$307,920	\$257,372
CZ08	SCE	169,825	793	39.14	\$167,958	\$312,602	\$436,709	1.9	2.6	\$144,645	\$268,751
CZ08-2	LA	169,825	793	39.14	\$167,958	\$187,142	\$436,709	1.1	2.6	\$19,185	\$268,751
CZ09	SCE	170,747	970	40.23	\$162,767	\$318,113	\$423,370	2.0	2.6	\$155,346	\$260,604
CZ09-2	LA	170,747	970	40.23	\$162,767	\$197,006	\$423,370	1.2	2.6	\$34,240	\$260,604
CZ10	SDG&E	169,935	1262	41.08	\$167,608	\$503,504	\$411,284	3.0	2.5	\$335,896	\$243,675
CZ10-2	SCE	169,935	1262	41.08	\$167,608	\$317,927	\$411,284	1.9	2.5	\$150,319	\$243,675
CZ11	PG&E	152,559	2415	42.99	\$162,678	\$491,775	\$420,667	3.0	2.6	\$329,096	\$257,989
CZ12	PG&E	151,956	2309	42.21	\$162,376	\$494,703	\$417,063	3.0	2.6	\$332,327	\$254,687
CZ12-2	SMUD	151,956	2309	42.21	\$162,376	\$288,950	\$417,063	1.8	2.6	\$126,573	\$254,687
CZ13	PG&E	156,271	1983	41.25	\$166,722	\$485,422	\$395,770	2.9	2.4	\$318,699	\$229,047
CZ14	SDG&E	178,505	1672	43.94	\$168,224	\$452,456	\$457,387	2.7	2.7	\$284,232	\$289,163
CZ14-2	SCE	178,505	1672	43.94	\$168,224	\$311,520	\$457,387	1.9	2.7	\$143,296	\$289,163
CZ15	SCE	179,840	518	38.23	\$165,336	\$296,004	\$422,293	1.8	2.6	\$130,668	\$256,957
CZ16	PG&E	152,965	4304	53.53	\$169,109	\$483,205	\$378,299	2.9	2.2	\$314,096	\$209,190
CZ16-2	LA	152,965	4304	53.53	\$169,109	\$215,341	\$378,299	1.3	2.2	\$46,231	\$209,190



6.7.3 Cost Effectiveness Results – Small Hotel

Figure 70 through Figure 77 contain the cost-effectiveness findings for the Small Hotel packages. Notable findings for each package include:

- ◆ **Mixed-Fuel + 3 kW PV:** Packages are cost effective and achieve savings for all climate zones for both the On-Bill and TDV approaches.
- ◆ **Mixed-Fuel + 3 kW PV + 5 kWh Battery:** The packages are less cost effective as compared to the previous minimal PV only package and not cost effective for LADWP and SMUD service area. The addition of battery reduces the cost effectiveness of packages.
- ◆ **Mixed-Fuel + PV only:** Packages are cost effective and achieve savings for the On-Bill approach for all climate zones except for LADWP territory. Packages are cost effective and achieve savings for the TDV approach for all climate zones.
- ◆ **Mixed-Fuel + PV + 50 kWh Battery:** Adding battery slightly reduces On-Bill B/C ratios. Packages are not cost effective for LADWP territory, SMUD territory as well as for climate zones 6,8,9 under PG&E service area.
- ◆ **All-Electric + 3 kW PV:** All packages are cost effective using the On-Bill approach. All packages are cost effective using the TDV approach but do not achieve positive energy cost savings.
- ◆ **All-Electric + 3 kW PV + 5 kWh Battery:** Similar to minimal PV only package, all packages are cost effective using the On-Bill approach. All packages are cost effective using the TDV approach but do not achieve positive energy cost savings.
- ◆ **All-Electric + PV only:** All packages are cost effective for both On-Bill and TDV approaches. Packages achieve on-bill savings for all climate zones.
- ◆ **All-Electric + PV + 50 kWh Battery:** Adding battery slightly reduces On-Bill B/C ratios but is still cost effective for all climate zones.



Figure 70. Cost Effectiveness for Small Hotel – Mixed Fuel + 3kW PV

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	Lifecycle \$-TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Mixed Fuel + 3kW PV											
CZ01	PG&E	3,941	0	0.8	\$5,566	\$12,616	\$8,326	2.3	1.5	\$7,050	\$2,760
CZ02	PG&E	4,785	0	0.9	\$5,566	\$12,639	\$10,332	2.3	1.9	\$7,073	\$4,766
CZ03	PG&E	4,733	0	0.9	\$5,566	\$15,146	\$9,991	2.7	1.8	\$9,580	\$4,425
CZ04	PG&E	4,834	0	1.0	\$5,566	\$13,266	\$10,445	2.4	1.9	\$7,700	\$4,879
CZ04-2	CPAU	4,834	0	1.0	\$5,566	\$11,507	\$10,445	2.1	1.9	\$5,941	\$4,879
CZ05	PG&E	5,027	0	1.0	\$5,566	\$16,048	\$10,634	2.9	1.9	\$10,482	\$5,068
CZ06	SCE	4,769	0	0.9	\$5,566	\$10,276	\$10,559	1.8	1.9	\$4,710	\$4,993
CZ06-2	LA	4,769	0	0.9	\$5,566	\$6,307	\$10,559	1.1	1.9	\$741	\$4,993
CZ07	SDG&E	4,960	0	1.0	\$5,566	\$14,576	\$10,861	2.6	2.0	\$9,010	\$5,295
CZ08	SCE	4,824	0	0.9	\$5,566	\$10,837	\$11,202	1.9	2.0	\$5,271	\$5,636
CZ08-2	LA	4,824	0	0.9	\$5,566	\$6,505	\$11,202	1.2	2.0	\$939	\$5,636
CZ09	SCE	4,779	0	0.9	\$5,566	\$10,298	\$10,824	1.9	1.9	\$4,732	\$5,258
CZ09-2	LA	4,779	0	0.9	\$5,566	\$6,201	\$10,824	1.1	1.9	\$635	\$5,258
CZ10	SDG&E	4,905	0	1.0	\$5,566	\$16,302	\$10,710	2.9	1.9	\$10,736	\$5,144
CZ10-2	SCE	4,905	0	1.0	\$5,566	\$9,468	\$10,710	1.7	1.9	\$3,902	\$5,144
CZ11	PG&E	4,701	0	0.9	\$5,566	\$14,193	\$10,483	2.6	1.9	\$8,627	\$4,917
CZ12	PG&E	4,770	0	0.9	\$5,566	\$15,262	\$10,596	2.7	1.9	\$9,696	\$5,030
CZ12-2	SMUD	4,770	0	0.9	\$5,566	\$7,848	\$10,596	1.4	1.9	\$2,282	\$5,030
CZ13	PG&E	4,633	0	0.9	\$5,566	\$14,674	\$10,105	2.6	1.8	\$9,108	\$4,539
CZ14	SDG&E	5,377	0	1.1	\$5,566	\$16,615	\$12,375	3.0	2.2	\$11,049	\$6,809
CZ14-2	SCE	5,377	0	1.1	\$5,566	\$10,021	\$12,375	1.8	2.2	\$4,455	\$6,809
CZ15	SCE	4,997	0	1.0	\$5,566	\$9,542	\$11,164	1.7	2.0	\$3,976	\$5,598
CZ16	PG&E	5,240	0	1.0	\$5,566	\$14,961	\$10,975	2.7	2.0	\$9,395	\$5,409
CZ16-2	LA	5,240	0	1.0	\$5,566	\$5,670	\$10,975	1.0	2.0	\$104	\$5,409



Figure 71. Cost Effectiveness for Small Hotel – Mixed Fuel + 3kW PV + 5 kWh Battery

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	-\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Mixed Fuel + 3kW PV + 5kWh Battery											
CZ01	PG&E	3,941	0	0.8	\$9,520	\$12,616	\$8,326	1.3	0.9	\$3,096	(\$1,194)
CZ02	PG&E	4,785	0	0.9	\$9,520	\$12,639	\$10,332	1.3	1.1	\$3,119	\$811
CZ03	PG&E	4,733	0	0.9	\$9,520	\$15,146	\$9,991	1.6	1.0	\$5,626	\$471
CZ04	PG&E	4,834	0	1.0	\$9,520	\$13,266	\$10,445	1.4	1.1	\$3,746	\$925
CZ04-2	CPAU	4,834	0	1.0	\$9,520	\$11,507	\$10,445	1.2	1.1	\$1,987	\$925
CZ05	PG&E	5,027	0	1.0	\$9,520	\$16,048	\$10,634	1.7	1.1	\$6,528	\$1,114
CZ05-2	SCG	5,027	0	1.0	\$9,520	\$16,048	\$10,634	1.7	1.1	\$6,528	\$1,114
CZ06	SCE	4,769	0	0.9	\$9,520	\$10,276	\$10,559	1.1	1.1	\$756	\$1,039
CZ06-2	LA	4,769	0	0.9	\$9,520	\$6,307	\$10,559	0.7	1.1	(\$3,213)	\$1,039
CZ07	SDG&E	4,960	0	1.0	\$9,520	\$14,576	\$10,861	1.5	1.1	\$5,056	\$1,341
CZ08	SCE	4,824	0	0.9	\$9,520	\$10,837	\$11,202	1.1	1.2	\$1,317	\$1,682
CZ08-2	LA	4,824	0	0.9	\$9,520	\$6,505	\$11,202	0.7	1.2	(\$3,015)	\$1,682
CZ09	SCE	4,779	0	0.9	\$9,520	\$10,298	\$10,824	1.1	1.1	\$778	\$1,303
CZ09-2	LA	4,779	0	0.9	\$9,520	\$6,201	\$10,824	0.7	1.1	(\$3,319)	\$1,303
CZ10	SDG&E	4,905	0	1.0	\$9,520	\$16,302	\$10,710	1.7	1.1	\$6,782	\$1,190
CZ10-2	SCE	4,905	0	1.0	\$9,520	\$9,468	\$10,710	0.99	1.1	(\$52)	\$1,190
CZ11	PG&E	4,701	0	0.9	\$9,520	\$14,193	\$10,483	1.5	1.1	\$4,673	\$963
CZ12	PG&E	4,770	0	0.9	\$9,520	\$15,262	\$10,596	1.6	1.1	\$5,742	\$1,076
CZ12-2	SMUD	4,770	0	0.9	\$9,520	\$7,848	\$10,596	0.8	1.1	(\$1,672)	\$1,076
CZ13	PG&E	4,633	0	0.9	\$9,520	\$14,674	\$10,105	1.5	1.1	\$5,154	\$584
CZ14	SDG&E	5,377	0	1.1	\$9,520	\$16,615	\$12,375	1.7	1.3	\$7,095	\$2,855
CZ14-2	SCE	5,377	0	1.1	\$9,520	\$10,021	\$12,375	1.1	1.3	\$501	\$2,855
CZ15	SCE	4,997	0	1.0	\$9,520	\$9,542	\$11,164	1.0	1.2	\$22	\$1,644
CZ16	PG&E	5,240	0	1.0	\$9,520	\$14,961	\$10,975	1.6	1.2	\$5,441	\$1,455
CZ16-2	LA	5,240	0	1.0	\$9,520	\$5,670	\$10,975	0.6	1.2	(\$3,851)	\$1,455



Figure 72. Cost Effectiveness for Small Hotel - Mixed Fuel +80kW PV

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	Lifecycle TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Mixed Fuel + 80kW PV											
CZ01	PG&E	105,090	0	20.6	\$179,470	\$336,440	\$221,883	1.9	1.2	\$156,970	\$42,413
CZ02	PG&E	127,592	0	25.0	\$179,470	\$320,009	\$275,130	1.8	1.5	\$140,539	\$95,660
CZ03	PG&E	126,206	0	24.8	\$179,470	\$403,900	\$266,426	2.3	1.5	\$224,430	\$86,956
CZ04	PG&E	128,894	0	25.4	\$179,470	\$322,782	\$278,536	1.8	1.6	\$143,312	\$99,066
CZ04-2	CPAU	128,894	0	25.4	\$179,470	\$306,862	\$278,536	1.7	1.6	\$127,392	\$99,066
CZ05	PG&E	134,041	0	26.5	\$179,470	\$427,935	\$283,834	2.4	1.6	\$248,465	\$104,364
CZ06	SCE	127,168	0	25.0	\$179,470	\$200,425	\$281,488	1.1	1.6	\$20,955	\$102,018
CZ06-2	LA	127,168	0	25.0	\$179,470	\$119,357	\$281,488	0.7	1.6	(\$60,113)	\$102,018
CZ07	SDG&E	132,258	0	26.1	\$179,470	\$247,646	\$289,700	1.4	1.6	\$68,176	\$110,230
CZ08	SCE	128,641	0	25.3	\$179,470	\$207,993	\$298,594	1.2	1.7	\$28,523	\$119,124
CZ08-2	LA	128,641	0	25.3	\$179,470	\$122,591	\$298,594	0.7	1.7	(\$56,879)	\$119,124
CZ09	SCE	127,447	0	25.3	\$179,470	\$211,567	\$288,830	1.2	1.6	\$32,096	\$109,360
CZ09-2	LA	127,447	0	25.3	\$179,470	\$123,486	\$288,830	0.7	1.6	(\$55,984)	\$109,360
CZ10	SDG&E	130,792	0	25.8	\$179,470	\$274,832	\$285,386	1.5	1.6	\$95,361	\$105,916
CZ10-2	SCE	130,792	0	25.8	\$179,470	\$206,865	\$285,386	1.2	1.6	\$27,395	\$105,916
CZ11	PG&E	125,366	0	24.6	\$179,470	\$316,781	\$279,331	1.8	1.6	\$137,311	\$99,861
CZ12	PG&E	127,203	0	25.0	\$179,470	\$406,977	\$282,358	2.3	1.6	\$227,507	\$102,888
CZ12-2	SMUD	127,203	0	25.0	\$179,470	\$198,254	\$282,358	1.1	1.6	\$18,784	\$102,888
CZ13	PG&E	123,535	0	24.4	\$179,470	\$317,261	\$269,908	1.8	1.5	\$137,791	\$90,437
CZ14	SDG&E	143,387	0	28.1	\$179,470	\$309,521	\$330,345	1.7	1.8	\$130,051	\$150,875
CZ14-2	SCE	143,387	0	28.1	\$179,470	\$225,083	\$330,345	1.3	1.8	\$45,612	\$150,875
CZ15	SCE	133,246	0	25.9	\$179,470	\$207,277	\$297,648	1.2	1.7	\$27,807	\$118,177
CZ16	PG&E	139,738	0	27.3	\$179,470	\$341,724	\$292,728	1.9	1.6	\$162,254	\$113,258
CZ16-2	LA	139,738	0	27.3	\$179,470	\$114,215	\$292,728	0.6	1.6	(\$65,255)	\$113,258



Figure 73. Cost Effectiveness for Small Hotel – Mixed Fuel + 80kW PV + 50 kWh Battery

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	Lifecycle TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Mixed Fuel + 80kW PV + 50kWh Battery											
CZ01	PG&E	104,026	0	23.2	\$207,370	\$332,596	\$237,740	1.6	1.1	\$125,226	\$30,370
CZ02	PG&E	126,332	0	28.1	\$207,370	\$336,179	\$296,058	1.6	1.4	\$128,809	\$88,688
CZ03	PG&E	124,934	0	28.0	\$207,370	\$399,220	\$289,360	1.9	1.4	\$191,850	\$81,990
CZ04	PG&E	127,602	0	28.5	\$207,370	\$332,161	\$308,887	1.6	1.5	\$124,790	\$101,517
CZ04-2	CPAU	127,602	0	28.5	\$207,370	\$303,828	\$308,887	1.5	1.5	\$96,458	\$101,517
CZ05	PG&E	132,725	0	29.8	\$207,370	\$423,129	\$303,627	2.0	1.5	\$215,758	\$96,257
CZ06	SCE	125,880	0	28.4	\$207,370	\$193,814	\$297,950	0.9	1.4	(\$13,556)	\$90,580
CZ06-2	LA	125,880	0	28.4	\$207,370	\$123,083	\$297,950	0.6	1.4	(\$84,287)	\$90,580
CZ07	SDG&E	130,940	0	29.5	\$207,370	\$274,313	\$309,682	1.3	1.5	\$66,943	\$102,312
CZ08	SCE	127,332	0	28.5	\$207,370	\$199,786	\$312,899	1.0	1.5	(\$7,584)	\$105,529
CZ08-2	LA	127,332	0	28.5	\$207,370	\$124,651	\$312,899	0.6	1.5	(\$82,719)	\$105,529
CZ09	SCE	126,232	0	28.2	\$207,370	\$206,706	\$292,804	1.0	1.4	(\$664)	\$85,433
CZ09-2	LA	126,232	0	28.2	\$207,370	\$126,710	\$292,804	0.6	1.4	(\$80,660)	\$85,433
CZ10	SDG&E	129,683	0	28.4	\$207,370	\$292,202	\$287,278	1.4	1.4	\$84,832	\$79,908
CZ10-2	SCE	129,683	0	28.4	\$207,370	\$206,171	\$287,278	1.0	1.4	(\$1,199)	\$79,908
CZ11	PG&E	124,337	0	26.9	\$207,370	\$315,330	\$283,683	1.5	1.4	\$107,960	\$76,313
CZ12	PG&E	126,013	0	27.8	\$207,370	\$403,127	\$297,118	1.9	1.4	\$195,757	\$89,748
CZ12-2	SMUD	126,013	0	27.8	\$207,370	\$198,007	\$297,118	1.0	1.4	(\$9,363)	\$89,748
CZ13	PG&E	122,591	0	26.5	\$207,370	\$315,541	\$280,996	1.5	1.4	\$108,171	\$73,626
CZ14	SDG&E	142,257	0	30.7	\$207,370	\$317,565	\$334,697	1.5	1.6	\$110,195	\$127,327
CZ14-2	SCE	142,257	0	30.7	\$207,370	\$224,195	\$334,697	1.1	1.6	\$16,824	\$127,327
CZ15	SCE	132,418	0	27.8	\$207,370	\$208,044	\$299,199	1.0	1.4	\$674	\$91,829
CZ16	PG&E	138,402	0	30.7	\$207,370	\$358,582	\$315,699	1.7	1.5	\$151,212	\$108,329
CZ16-2	LA	138,402	0	30.7	\$207,370	\$118,770	\$315,699	0.6	1.5	(\$88,600)	\$108,329



Figure 74. Cost Effectiveness for Small Hotel – All-Electric + 3kW PV

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost*	Lifecycle Energy Cost Savings	Lifecycle TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
All-Electric + 3kW PV											
CZ01	PG&E	-155,861	16917	54.7	(\$1,265,139)	(\$568,892)	(\$106,835)	2.2	11.8	\$696,246	\$1,158,304
CZ02	PG&E	-113,954	12677	40.9	(\$1,266,111)	(\$229,433)	(\$41,288)	5.5	30.7	\$1,036,679	\$1,224,823
CZ03	PG&E	-105,862	12322	41.4	(\$1,268,383)	(\$309,874)	(\$41,175)	4.1	30.8	\$958,510	\$1,227,208
CZ04	PG&E	-108,570	11927	37.5	(\$1,268,218)	(\$208,239)	(\$42,689)	6.1	29.7	\$1,059,980	\$1,225,530
CZ04-2	CPAU	-108,570	11927	37.5	(\$1,268,218)	(\$6,261)	(\$42,689)	202.6	29.7	\$1,261,958	\$1,225,530
CZ05	PG&E	-103,579	11960	39.3	(\$1,268,272)	(\$332,879)	(\$44,051)	3.8	28.8	\$935,393	\$1,224,221
CZ06	SCE	-73,524	8912	30.3	(\$1,268,413)	\$48,898	(\$17,484)	>1	72.5	\$1,317,311	\$1,250,929
CZ06-2	LA	-64,859	8188	29.0	(\$1,266,760)	(\$120,842)	(\$12,337)	10.5	102.7	\$1,145,918	\$1,254,423
CZ07	SDG&E	-67,090	8353	29.2	(\$1,264,731)	(\$43,964)	(\$11,618)	28.8	108.9	\$1,220,767	\$1,253,113
CZ08	SCE	-67,090	8353	29.2	(\$1,264,731)	\$48,736	(\$11,618)	>1	108.9	\$1,313,467	\$1,253,113
CZ08-2	LA	-67,483	8402	29.3	(\$1,266,529)	(\$35,547)	(\$11,126)	35.6	113.8	\$1,230,982	\$1,255,403
CZ09	SCE	-67,483	8402	29.3	(\$1,266,529)	\$52,410	(\$11,126)	>1	113.8	\$1,318,939	\$1,255,403
CZ09-2	LA	-75,157	8418	27.2	(\$1,263,531)	(\$156,973)	(\$25,469)	8.0	49.6	\$1,106,558	\$1,238,061
CZ10	SDG&E	-75,157	8418	27.2	(\$1,263,531)	(\$54,711)	(\$25,469)	23.1	49.6	\$1,208,820	\$1,238,061
CZ10-2	SCE	-94,783	10252	31.9	(\$1,264,340)	(\$169,847)	(\$38,904)	7.4	32.5	\$1,094,493	\$1,225,436
CZ11	PG&E	-94,702	10403	33.0	(\$1,265,779)	(\$324,908)	(\$34,968)	3.9	36.2	\$940,872	\$1,230,811
CZ12	PG&E	-94,297	10403	33.1	(\$1,265,779)	\$13,603	(\$33,757)	>1	37.5	\$1,279,382	\$1,232,022
CZ12-2	SMUD	-92,196	10029	31.5	(\$1,264,152)	(\$168,358)	(\$40,229)	7.5	31.4	\$1,095,794	\$1,223,923
CZ13	PG&E	-96,021	10056	30.7	(\$1,264,510)	(\$308,542)	(\$44,202)	4.1	28.6	\$955,969	\$1,220,308
CZ14	SDG&E	-96,021	10056	30.7	(\$1,264,510)	(\$110,730)	(\$44,202)	11.4	28.6	\$1,153,780	\$1,220,308
CZ14-2	SCE	-44,856	5579	19.0	(\$1,262,631)	\$8,996	(\$10,256)	>1	123.1	\$1,271,627	\$1,252,375
CZ15	SCE	-211,468	17599	42.9	(\$1,268,907)	(\$625,671)	(\$228,203)	2.0	5.6	\$643,236	\$1,040,704
CZ16	PG&E	-211,468	17599	42.9	(\$1,268,907)	\$37,142	(\$228,203)	>1	5.6	\$1,306,049	\$1,040,704
CZ16-2	LA	-155,861	16917	54.7	(\$1,265,139)	(\$568,892)	(\$106,835)	2.2	11.8	\$696,246	\$1,158,304



Figure 75. Cost Effectiveness for Small Hotel – All-Electric + 3kW PV + 5 kWh Battery

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	-\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
All-Electric + 3kW PV + 5kWh Battery											
CZ01	PG&E	-155,861	16917	54.7	(\$1,288,428)	(\$568,892)	(\$106,835)	2.3	12.1	\$719,536	\$1,181,593
CZ02	PG&E	-113,954	12677	40.9	(\$1,288,428)	(\$229,433)	(\$41,288)	5.6	31.2	\$1,058,996	\$1,247,140
CZ03	PG&E	-105,862	12322	41.4	(\$1,288,428)	(\$309,874)	(\$41,175)	4.2	31.3	\$978,554	\$1,247,253
CZ04	PG&E	-108,570	11927	37.5	(\$1,288,428)	(\$208,239)	(\$42,689)	6.2	30.2	\$1,080,190	\$1,245,740
CZ04-2	CPAU	-108,570	11927	37.5	(\$1,288,428)	(\$6,261)	(\$42,689)	205.8	30.2	\$1,282,167	\$1,245,740
CZ05	PG&E	-103,579	11960	39.3	(\$1,288,428)	(\$332,879)	(\$44,051)	3.9	29.2	\$955,549	\$1,244,377
CZ06	SCE	-73,524	8912	30.3	(\$1,288,428)	(\$52,341)	(\$17,484)	24.6	73.7	\$1,236,087	\$1,270,944
CZ06-2	LA	-73,524	8912	30.3	(\$1,288,428)	\$48,898	(\$17,484)	>1	73.7	\$1,337,326	\$1,270,944
CZ07	SDG&E	-64,859	8188	29.0	(\$1,288,428)	(\$120,842)	(\$12,337)	10.7	104.4	\$1,167,586	\$1,276,091
CZ08	SCE	-67,090	8353	29.2	(\$1,288,428)	(\$43,964)	(\$11,618)	29.3	110.9	\$1,244,464	\$1,276,810
CZ08-2	LA	-67,090	8353	29.2	(\$1,288,428)	\$48,736	(\$11,618)	>1	110.9	\$1,337,164	\$1,276,810
CZ09	SCE	-67,483	8402	29.3	(\$1,288,428)	(\$35,547)	(\$11,126)	36.2	115.8	\$1,252,881	\$1,277,302
CZ09-2	LA	-67,483	8402	29.3	(\$1,288,428)	\$52,410	(\$11,126)	>1	115.8	\$1,340,838	\$1,277,302
CZ10	SDG&E	-75,157	8418	27.2	(\$1,288,428)	(\$156,973)	(\$25,469)	8.2	50.6	\$1,131,455	\$1,262,959
CZ10-2	SCE	-75,157	8418	27.2	(\$1,288,428)	(\$54,711)	(\$25,469)	23.5	50.6	\$1,233,718	\$1,262,959
CZ11	PG&E	-94,783	10252	31.9	(\$1,288,428)	(\$169,847)	(\$38,904)	7.6	33.1	\$1,118,582	\$1,249,524
CZ12	PG&E	-94,702	10403	33.0	(\$1,288,428)	(\$324,908)	(\$34,968)	4.0	36.8	\$963,520	\$1,253,460
CZ12-2	SMUD	-94,297	10403	33.1	(\$1,288,428)	\$13,603	(\$33,757)	>1	38.2	\$1,302,031	\$1,254,671
CZ13	PG&E	-92,196	10029	31.5	(\$1,288,428)	(\$168,358)	(\$40,229)	7.7	32.0	\$1,120,071	\$1,248,199
CZ14	SDG&E	-96,021	10056	30.7	(\$1,288,428)	(\$308,542)	(\$44,202)	4.2	29.1	\$979,887	\$1,244,226
CZ14-2	SCE	-96,021	10056	30.7	(\$1,288,428)	(\$110,730)	(\$44,202)	11.6	29.1	\$1,177,698	\$1,244,226
CZ15	SCE	-44,856	5579	19.0	(\$1,288,428)	\$8,996	(\$10,256)	>1	125.6	\$1,297,425	\$1,278,172
CZ16	PG&E	-211,468	17599	42.9	(\$1,288,428)	(\$625,671)	(\$228,203)	2.1	5.6	\$662,757	\$1,060,225
CZ16-2	LA	-211,468	17599	42.9	(\$1,288,428)	\$37,142	(\$228,203)	>1	5.6	\$1,325,570	\$1,060,225



Figure 76. Cost Effectiveness for Small Hotel – All-Electric + 80kW PV

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	-\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
All-Electric + 80kW PV											
CZ01	PG&E	-54,712	16917	74.6	(\$1,123,442)	(\$240,170)	\$106,722	4.7	>1	\$883,272	\$1,230,164
CZ02	PG&E	8,853	12677	65.0	(\$1,124,415)	\$128,649	\$223,510	>1	>1	\$1,253,063	\$1,347,925
CZ03	PG&E	15,612	12322	65.3	(\$1,126,687)	\$44,532	\$215,260	>1	>1	\$1,171,219	\$1,341,947
CZ04	PG&E	15,490	11927	62.0	(\$1,126,522)	\$145,778	\$225,402	>1	>1	\$1,272,300	\$1,351,924
CZ04-2	CPAU	15,490	11927	62.0	(\$1,126,522)	\$289,094	\$225,402	>1	>1	\$1,415,616	\$1,351,924
CZ05	PG&E	25,436	11960	64.8	(\$1,126,575)	\$56,019	\$229,149	>1	>1	\$1,182,594	\$1,355,724
CZ06	SCE	48,875	8912	54.4	(\$1,126,716)	\$163,343	\$253,445	>1	>1	\$1,290,060	\$1,380,161
CZ06-2	LA	62,439	8188	54.1	(\$1,125,064)	\$115,822	\$266,502	>1	>1	\$1,240,886	\$1,391,565
CZ07	SDG&E	56,727	8353	53.5	(\$1,123,034)	\$147,987	\$275,773	>1	>1	\$1,271,022	\$1,398,808
CZ08	SCE	56,727	8353	53.5	(\$1,123,034)	\$163,971	\$275,773	>1	>1	\$1,287,005	\$1,398,808
CZ08-2	LA	55,185	8402	53.7	(\$1,124,832)	\$155,101	\$266,880	>1	>1	\$1,279,933	\$1,391,712
CZ09	SCE	55,185	8402	53.7	(\$1,124,832)	\$169,010	\$266,880	>1	>1	\$1,293,843	\$1,391,712
CZ09-2	LA	50,731	8418	52.0	(\$1,121,834)	\$113,936	\$249,207	>1	>1	\$1,235,770	\$1,371,041
CZ10	SDG&E	50,731	8418	52.0	(\$1,121,834)	\$138,265	\$249,207	>1	>1	\$1,260,099	\$1,371,041
CZ10-2	SCE	25,882	10252	55.6	(\$1,122,643)	\$162,626	\$229,944	>1	>1	\$1,285,269	\$1,352,587
CZ11	PG&E	27,731	10403	57.1	(\$1,124,083)	\$12,954	\$236,794	>1	>1	\$1,137,037	\$1,360,876
CZ12	PG&E	28,136	10403	57.2	(\$1,124,083)	\$206,756	\$238,005	>1	>1	\$1,330,839	\$1,362,087
CZ12-2	SMUD	26,706	10029	55.0	(\$1,122,455)	\$165,991	\$219,574	>1	>1	\$1,288,446	\$1,342,030
CZ13	PG&E	41,989	10056	57.8	(\$1,122,814)	\$22,333	\$273,768	>1	>1	\$1,145,147	\$1,396,582
CZ14	SDG&E	41,989	10056	57.8	(\$1,122,814)	\$120,943	\$273,768	>1	>1	\$1,243,757	\$1,396,582
CZ14-2	SCE	83,393	5579	44.0	(\$1,120,934)	\$210,511	\$276,228	>1	>1	\$1,331,445	\$1,397,162
CZ15	SCE	-76,971	17599	69.2	(\$1,127,210)	(\$199,308)	\$53,550	5.7	>1	\$927,902	\$1,180,760
CZ16	PG&E	-76,971	17599	69.2	(\$1,127,210)	\$172,787	\$53,550	>1	>1	\$1,299,997	\$1,180,760
CZ16-2	LA	-54,712	16917	74.6	(\$1,123,442)	(\$240,170)	\$106,722	4.7	>1	\$883,272	\$1,230,164



Figure 77. Cost Effectiveness for Small Hotel – All-Electric + 80kW PV + 50 kWh Battery

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	-\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
All-Electric + 80kW PV + 50kWh Battery											
CZ01	PG&E	-55,323	16917	75.7	(\$1,095,542)	(\$238,351)	\$118,605	4.6	>1	\$857,191	\$1,214,147
CZ02	PG&E	7,849	12677	67.4	(\$1,096,515)	\$129,794	\$239,632	>1	>1	\$1,226,309	\$1,336,146
CZ03	PG&E	14,594	12322	67.7	(\$1,098,787)	\$43,166	\$235,280	>1	>1	\$1,141,953	\$1,334,067
CZ04	PG&E	14,459	11927	64.4	(\$1,098,622)	\$148,698	\$249,244	>1	>1	\$1,247,320	\$1,347,866
CZ04-2	CPAU	14,459	11927	64.4	(\$1,098,622)	\$286,573	\$249,244	>1	>1	\$1,385,195	\$1,347,866
CZ05	PG&E	24,292	11960	67.6	(\$1,098,675)	\$53,719	\$244,514	>1	>1	\$1,152,394	\$1,343,189
CZ06	SCE	47,762	8912	57.2	(\$1,098,816)	\$165,763	\$267,221	>1	>1	\$1,264,579	\$1,366,037
CZ06-2	LA	61,252	8188	57.1	(\$1,097,164)	\$138,060	\$283,797	>1	>1	\$1,235,223	\$1,380,960
CZ07	SDG&E	55,588	8353	56.2	(\$1,095,134)	\$138,718	\$286,483	>1	>1	\$1,233,852	\$1,381,618
CZ08	SCE	55,588	8353	56.2	(\$1,095,134)	\$165,932	\$286,483	>1	>1	\$1,261,066	\$1,381,618
CZ08-2	LA	54,162	8402	56.1	(\$1,096,932)	\$149,615	\$269,453	>1	>1	\$1,246,548	\$1,366,386
CZ09	SCE	54,162	8402	56.1	(\$1,096,932)	\$171,168	\$269,453	>1	>1	\$1,268,101	\$1,366,386
CZ09-2	LA	49,832	8418	54.1	(\$1,093,934)	\$120,627	\$250,720	>1	>1	\$1,214,561	\$1,344,654
CZ10	SDG&E	49,832	8418	54.1	(\$1,093,934)	\$136,144	\$250,720	>1	>1	\$1,230,078	\$1,344,654
CZ10-2	SCE	25,148	10252	57.3	(\$1,094,743)	\$160,744	\$233,842	>1	>1	\$1,255,487	\$1,328,585
CZ11	PG&E	26,813	10403	59.2	(\$1,096,183)	\$10,314	\$247,504	>1	>1	\$1,106,497	\$1,343,686
CZ12	PG&E	27,217	10403	59.3	(\$1,096,183)	\$206,749	\$248,790	>1	>1	\$1,302,931	\$1,344,973
CZ12-2	SMUD	26,027	10029	56.5	(\$1,094,555)	\$164,506	\$229,300	>1	>1	\$1,259,061	\$1,323,856
CZ13	PG&E	41,123	10056	59.7	(\$1,094,914)	\$25,707	\$276,947	>1	>1	\$1,120,621	\$1,371,860
CZ14	SDG&E	41,123	10056	59.7	(\$1,094,914)	\$119,382	\$276,947	>1	>1	\$1,214,296	\$1,371,860
CZ14-2	SCE	82,697	5579	45.5	(\$1,093,034)	\$209,837	\$277,287	>1	>1	\$1,302,871	\$1,370,321
CZ15	SCE	-77,815	17599	71.1	(\$1,099,310)	(\$193,758)	\$65,850	5.7	>1	\$905,552	\$1,165,160
CZ16	PG&E	-77,815	17599	71.1	(\$1,099,310)	\$175,872	\$65,850	>1	>1	\$1,275,182	\$1,165,160
CZ16-2	LA	-55,323	16917	75.7	(\$1,095,542)	(\$238,351)	\$118,605	4.6	>1	\$857,191	\$1,214,147



6.8 List of Relevant Efficiency Measures Explored

The Reach Code Team started with a potential list of energy efficiency measures proposed for 2022 Title 24 codes and standards enhancement measures, as well as measures from the 2018 International Green Construction Code, which is based on ASHRAE Standard 189.1-2017. The team also developed new measures based on their experience. This original list was over 100 measures long. The measures were filtered based on applicability to the prototypes in this study, ability to model in simulation software, previously demonstrated energy savings potential, and market readiness. The list of 28 measures below represent the list of efficiency measures that meet these criteria and were investigated to some degree. The column to the far right indicates whether the measure was ultimately included in analysis or not.

Figure 78. List of Relevant Efficiency Measures Explored

Building Component	Measure Name	Measure Description	Notes	Include?
Water Heating	Drain water Heat Recovery	Add drain water heat recovery in hotel prototype	Requires calculations outside of modeling software.	Y
Envelope	High performance fenestration	Improved fenestration SHGC (reduce to 0.22).		Y
Envelope	High SHGC for cold climates	Raise prescriptive fenestration SHGC (to 0.45) in cold climates where additional heat is beneficial.		Y
Envelope	Allowable fenestration by orientation	Limit amount of fenestration as a function of orientation		Y
Envelope	High Thermal Mass Buildings	Increase building thermal mass. Thermal mass slows the change in internal temperature of buildings with respect to the outdoor temperature, allowing the peak cooling load during summer to be pushed to the evening, resulting in lower overall cooling loads.	Initial energy modeling results showed marginal cooling savings, negative heating savings.	N
Envelope	Opaque Insulation	Increases the insulation requirement for opaque envelopes (i.e., roof and above-grade wall).	Initial energy modeling results showed marginal energy savings at significant costs which would not meet c/e criteria.	N
Envelope	Triple pane windows	U-factor of 0.20 for all windows	Initial energy modeling results showed only marginal energy savings and, in some cases, increased energy use.	N



Building Component	Measure Name	Measure Description	Notes	Include?
Envelope	Duct Leakage Testing	Expand duct leakage testing requirements based on ASHRAE Standard 215-2018: Method of Test to Determine Leakage of Operating HVAC Air Distribution Systems (ANSI Approved).	More research needs to be done on current duct leakage and how it can be addressed.	N
Envelope	Fenestration area	Reduce maximum allowable fenestration area to 30%.	Instead of this measure, analyzed measure which looked at limiting fenestration based on wall orientation.	N
Envelope	Skinny triple pane windows	U-factor of 0.20 for all windows, with no changes to existing framing or building structure.	Market not ready. No commercially-available products for commercial buildings.	N
Envelope	Permanent projections	Detailed prescriptive requirements for shading based on ASHRAE 189. PF >0.50 for first story and >0.25 for other floors. Many exceptions. Corresponding SHGC multipliers to be used.	Title 24 already allows owner to trade off SHGC with permanent projections. Also, adding requirements for permanent projections would raise concerns.	N
Envelope	Reduced infiltration	Reduce infiltration rates by improving building sealing.	Infiltration rates are a fixed ACM input and cannot be changed. A workaround attempt would not be precise, and the practicality of implementation by developers is low given the modeling capabilities and the fact that in-field verification is challenging. Benefits would predominantly be for air quality rather than energy.	N



Building Component	Measure Name	Measure Description	Notes	Include?
HVAC	Heat recovery ventilation	For the hotel, recover and transfer heat from exhausted air to ventilation air.	<p>For small hotels, the ventilation requirement could be met by various approaches, and the most common ones are:</p> <ul style="list-style-type: none"> a. Exhaust only system, and ventilation is met by infiltration or window operation. b. Through a Z-duct that connects the zone AC unit's intake to an outside air intake louver. c. Centralized ventilation system (DOAS) <p>The prototype developed for the small hotel is using Type 2 above. The major consideration is that currently, HRV + PTACs cannot be modeled at each guest room, only at the rooftop system. Option 1 would require the same type of HRV implementation as Option 2. Option 3 may be pursuable, but would require a significant redesign of the system, with questionable impacts. Previous studies have found heat recovery as cost effective in California only in buildings with high loads or high air exchange rates, given the relatively mild climate.</p>	N
HVAC	Require Economizers in Smaller Capacity Systems	Lower the capacity trigger for air economizers. Previous studies have shown cost effectiveness for systems as low as 3 tons.		Y
HVAC	Reduce VAV minimum flow limit	Current T24 and 90.1 requirements limit VAV minimum flow rates to no more than 20% of maximum flow. Proposal based on ASHRAE Guideline 36 which includes sequences that remove technical barriers that previously existed. Also, most new DDC controllers are now capable of lower limits. The new limit may be as low as the required ventilation rate. A non-energy benefit of this measure is a reduction in over-cooling, thus improving comfort.		Y



Building Component	Measure Name	Measure Description	Notes	Include?
HVAC	Building Automation System (BAS) improvements	With adoption of ASHRAE Guideline 36 (GDL-36), there is now a national consensus standard for the description of high-performance sequences of operation. This measure will update BAS control requirements to improve usability and enforcement and to increase energy efficiency. BAS control requirement language will be improved either by adoption of similar language to GDL-36, or reference to GDL-36. Specific T24 BAS control topics that will be addressed include at a minimum: DCV, demand-based reset of SAT, demand-based reset of SP, dual-maximum zone sequences, and zone groups for scheduling.	In order to realize any savings in the difference, we would need a very detailed energy model with space-by-space load/occupant diversity, etc. We would also need more modeling capability than is currently available in CBECC-Com.	N
HVAC	Fault Detection Devices (FDD)	Expand FDD requirements to a wider range of AHU faults beyond the economizer. Fault requirements will be based on NIST field research, which has consequently been integrated into ASHRAE Guideline 36 Best in Class Sequences of Operations. Costs are solely to develop the sequences, which is likely minimal, and much of the hardware required for economizer FDD is also used to detect other faults.	Market not ready.	N
HVAC	Small circulator pumps ECM, trim to flow rate	Circulator pumps for industry and commercial.	Hot water pump energy use is small already (<1% building electricity usage) so not much savings potential. More savings for CHW pumps. Modeling limitations as well.	N
HVAC	High Performance Ducts to Reduce Static Pressure	Revise requirements for duct sizing to reduce static pressure.	Preliminary energy modeling results showed only marginal energy savings compared to measure cost.	N
HVAC	Parallel fan-powered boxes	Use of parallel fan-powered boxes	Unable to model PFPB with variable speed fans in modeling software.	N
Lighting	Daylight Dimming Plus OFF	Automatic daylight dimming controls requirements include the OFF step.		Y
Lighting	Occupant Sensing in Open Plan Offices	Take the PAF without allowing for increased design wattage		Y
Lighting	Institutional tuning	Take the PAF without allowing for increased design wattage		Y



Building Component	Measure Name	Measure Description	Notes	Include?
Lighting	Reduced Interior Lighting Power Density	Reduced interior LPD values.		Y
Lighting	Shift from general to task illumination	Low levels of general illumination with task and accent lighting added to locations where higher light levels are required. The shift from general to task illumination measure is based on the assumption that proper lighting of a desk surface with high efficacy lighting can allow for the significant reduction of ambient general lighting.	This is a tough measure to require as the LPDs decrease.	N
Lighting	Future-proof lighting controls	Fill any holes in the current code that could lead to the situations where TLEDS or LED fixtures that are not dimmable or upgradable in the future, or any other issues with code that make it hard to transition to ALCS/IoT lighting in the future	Major lighting controls already covered in other measures being considered	N
Lighting	Integrated control of lighting and HVAC systems	Formalize the definition of "lighting and HVAC control integration" by defining the level of data sharing required between systems and the mechanism needed to share such data. The highest savings potential would likely be generated from VAV HVAC systems by closing the damper in unoccupied zones based on the occupancy sensor information from the lighting systems.	Not market ready enough.	N
Other	NR Plug Load Controls	Energy savings opportunities for plug loads, which may include: energy efficient equipment, equipment power management, occupancy sensor control, and occupant awareness programs. The proposal could be extending controlled receptacles requirements in Section 130.5(d) to more occupancy types. It would also consider circuit-level controls.	Office equipment now all have their own standby power modes that use very little power, making plug load controls very difficult to be cost-effective.	N





STAFF REPORT

City Council

Meeting Date: 11/1/2022

Staff Report Number: 22-213-CC

Regular Business: Adopt a resolution establishing City Council Policy CC-22-XXX Commemorative Park Amenities Policy

Recommendation

Staff recommends that the City Council adopt a resolution (Attachment A) establishing City Council Policy #CC-22-XXX Commemorative Park Amenities Policy (Exhibit A to resolution) to institute procedures and criteria for evaluating, approving, installing, and maintaining commemorative park amenities (also referred to as “memorials”) in City parks, for example memorial plaques on park benches and similar installations that honor private individuals.

Policy Issues

City Council establishes policies and authorizes the use and prioritization of City resources to serve the community.

Background

On September 28, 2022, the Parks and Recreation Commission reviewed a draft proposed policy, procedure and criteria for evaluating, installing, and maintaining commemorative park amenities in City parks-- for example memorial plaques on park benches and similar installations that honor private individuals-- and assented with the proposed policy, procedure and criteria as presented.

On October 18, 2022, the City Council received an informational item outlining the key considerations for establishing a commemorative park amenities policy.

Analysis

The City of Menlo Park owns and operates 15 public parks of various sizes and featuring a range of outdoor public amenities including benches, tables, shade structures, play structures, walking paths, ponds, public art and heritage trees. Most of the City’s parks contain one or more commemorative park amenities, i.e., plaques or other memorials placed in parks, typically to honor deceased individuals. Memorials are found in most parks in various locations, including park benches, stones, occasionally trees.

Recent practice for installing commemorative park amenities has been request-driven and evaluated on a case-by-case basis. Typically, interested parties requested placement of a commemorative amenity, then City staff coordinated directly with the requesting party on the desired location, verbiage, type and cost of the commemorative amenity. In a typical year, staff receives between 6-10 unsolicited commemorative amenity requests from private individuals. The requesting party typically donated the cost to install a memorial – approximately \$5,000 to \$7,000 for a bench with commemorative plaque. This practice has resulted in several dozen memorial installations in City-owned parks (Attachment B.)

Recently, as the number of existing commemorative amenities has accumulated, additional new requests received, and older amenities fallen into disrepair, staff has identified a need for process improvements for reviewing, evaluating, approving, and maintaining commemorative park amenities in City parks. For example, the City lacks written objective criteria for evaluating memorial requests. The City also lacks a written policy for repairing, replacing or removing memorials. Additionally, no written policy is in place to define the quantity and types of memorials a given park can and should have. No established process exists for funding memorial requests from individuals who lack financial resources to donate the cost of installation. And, there currently is no public visibility into the process for reviewing, approving and installing memorials to private individuals in public spaces.

Criteria

The proposed policy in prioritizes memorials that meet the following criteria:

- Honoree has been deceased at least one year at the time of the request
- Honoree had a significant impact to the Menlo Park community, e.g.:
 - Served on an elected or appointed body in Menlo Park
 - Made significant volunteer contributions to Menlo Park
 - Was a longtime employee of the City of Menlo Park
 - Was a recognized Menlo Park community leader
 - Contributed meaningfully to the civic health and progress of Menlo Park
 - Other notable contributions to the community above and beyond the ordinary.

Approval procedures

The proposed policy, if adopted by City Council, will require one or more of the following steps before installing a memorial to a private individual in a City park:

1. A City Council proclamation in memory of the departed individual that includes direction to install a memorial in their memory
2. A recommendation by the Parks and Recreation Commission to install a memorial to the departed individual (installation remains subject to approval by the City Council and/or City Manager)
3. A formal written request (application) submitted to and approved by the City Manager or their designee.

Repair, maintenance and removal procedures

The proposed policy would establish procedures for the ongoing maintenance, repair, removal and/or replacement of commemorative park amenities, as follows:

- The City will maintain any commemorative amenity until it deteriorates beyond its usable life span or is damaged beyond reasonable repair
- The City reserves the right to remove any memorial that has been evaluated and deemed beyond reasonable repair
- Once removed, the City will not replace any memorial unless the approval process is completed again
- The City shall maintain an inventory of all memorials on City property and shall evaluate their condition at least every four years or as needed in response to reports of damage or loss.
- Honoree's family may take possession of any amenity that is removed by the City.

Cost of installation and maintenance

The proposed policy, if authorized by City Council, will establish options for offsetting the cost of installing commemorative park amenities:

- Community members are welcome and encouraged to donate toward the cost of installing memorials
- Memorials made by proclamation of the City Council shall be installed at the City's expense
- Selection and placement of commemorative amenities shall not be influenced by the ability or inability of

interested parties to financially contribute or donate toward the cost of the memorial.

Impact on City Resources

The total cost to produce and install one bench with commemorative plaque in a City-owned park is approximately \$5,000 to \$7,000. If City Council adopts the resolution in Attachment A, then memorials made by proclamation of the City Council would be installed at the City's expense, and selection and placement of commemorative amenities would not be influenced by the ability or inability of interested parties to financially contribute or donate toward the cost of the memorial. Staff receives between 6-10 unsolicited commemorative amenity requests from private individuals in a typical year. The estimated cost to the City to install 10 commemorative park amenities would be up to approximately \$70,000, however any donations received from private individuals would offset these costs to some extent. There is sufficient funding available in the general fund operating budget to accommodate this cost in the current fiscal year. If City Council adopts the resolution in Attachment A establishing the commemorative park amenities policy, then staff will track the volume of memorial requests and their costs starting from the time of policy adoption and report back to City Council with any recommendations in the context of the fiscal year 2023-24 budget deliberations.

Environmental Review

This informational item is not a project within the meaning of the California Environmental Quality Act (CEQA) Guidelines §§ 15378 and 15061(b)(3) as it will not result in any direct or indirect physical change in the environment.

Public Notice

Public notification was achieved by posting the agenda, with the agenda items being listed, at least 72 hours prior to the meeting.

Attachments

- A. Resolution and Exhibit A
- B. Inventory of commemorative park amenities in City-owned parks

Report prepared by:
Sean Reinhart, Library and Community Services Director

RESOLUTION NO. XXXX

**RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MENLO PARK
ESTABLISHING CITY COUNCIL POLICY CC-22-XXX COMMEMORATIVE
PARK AMENITIES POLICY REGARDING INSTALLATION OF MEMORIALS IN
CITY-OWNED PARKS**

WHEREAS, the City of Menlo Park owns and operates public parks of various sizes and featuring a range of outdoor public amenities including benches, tables, shade structures, play structures, walking paths, ponds, public art, and heritage trees; and

WHEREAS, some City-owned parks contain one or more commemorative park amenities (also referred to as “memorials”); and

WHEREAS, the City Council desires to establish a procedure and criteria for evaluating, approving, installing, and maintaining commemorative park amenities in City parks, for example memorial plaques on park benches and similar installations that honor private individuals.

NOW, THEREFORE, IT IS RESOLVED, that City Council Policy CC-22-XXX Commemorative Park Amenities Policy is hereby established as set forth in Exhibit A.

I, Judi A. Herren, City Clerk of Menlo Park, do hereby certify that the above and foregoing City Council Resolution was duly and regularly passed and adopted at a meeting by said City Council on the first day of November, 2022, by the following votes:

AYES:

NOES:

ABSENT:

ABSTAIN:

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the Official Seal of said City on this ___ day of November, 2022.

Judi A. Herren, City Clerk

Exhibit:

A. City Council Policy CC-22-xxx Commemorative Park Amenities Policy

COMMEMORATIVE PARK AMENITIES POLICY

City Council Policy #CC-22-XXX
Adopted _____, 2022
Resolution No. XXXX



Purpose
This policy establishes the procedure and criteria for evaluating, approving, installing, and maintaining commemorative park amenities (also referred to as “memorials”) in City parks, for example memorial plaques on park benches and similar installations that honor private individuals.
Background
The City of Menlo Park owns and operates public parks of various sizes and featuring a range of outdoor public amenities including benches, tables, shade structures, play structures, walking paths, ponds, public art, and heritage trees. Some City parks contain one or more commemorative park amenities, i.e., plaques or other memorials placed in parks, typically to honor deceased individuals. Memorials are found in most parks in various locations, including park benches, stones, occasionally trees.
Criteria
The City prioritizes commemorative park amenities and other memorials that meet the following criteria: <ul style="list-style-type: none">• Honoree has been deceased at least one year at the time of the request• Honoree had a significant impact to the Menlo Park community, e.g.:<ul style="list-style-type: none">• Served on an elected or appointed body in Menlo Park• Made significant volunteer contributions to Menlo Park• Was a longtime employee of the City of Menlo Park• Was a recognized Menlo Park community leader• Contributed meaningfully to the civic health and progress of Menlo Park• Other notable contributions to the community above and beyond the ordinary.
Approval procedures
One or more of the following steps shall be completed prior to installing a memorial to a private individual in a City park: <ul style="list-style-type: none">• A City Council proclamation in memory of the departed individual that includes direction to install a memorial in their memory• A recommendation by the Parks and Recreation Commission to install a memorial to the departed individual (installation remains subject to approval by the City Council and/or City Manager)• A formal written request (application) submitted to and approved by the City Manager or their designee.
Repair, maintenance, and removal procedures
The ongoing maintenance, repair, removal and/or replacement of commemorative park amenities shall proceed as follows: <ul style="list-style-type: none">• The City will maintain any commemorative amenity until it deteriorates beyond its usable life span or is damaged beyond reasonable repair• The City reserves the right to remove any memorial that has been evaluated and deemed beyond reasonable repair• Once removed, the City will not replace any memorial unless the approval process is completed again• The City shall maintain an inventory of all memorials on City property and shall evaluate their condition at least every four years or as needed in response to reports of damage or loss.• Honoree’s family may take possession of any amenity that is removed by the City.
Cost of installation and maintenance
Options for offsetting the cost of installing commemorative park amenities shall include: <ul style="list-style-type: none">• Memorials made by proclamation of the City Council shall be installed at the City’s expense• Community members are welcome and encouraged to donate toward the cost of installing memorials• Selection and placement of commemorative park amenities shall not be influenced by the ability or inability of interested parties to financially contribute or donate toward the cost of the memorial.

Policy history		
Action	Date	Notes
Policy adoption	_____, 2022	Resolution No. XXXX

Inventory of commemorative park amenities in City-owned parks
 Updated November 1, 2022

LOCATION	LOCATION INFO	AMENITY TYPE & SIZE (wxh)	NAME	DATE	DESCRIPTION
ALMA ST PEDESTRIAN BRIDGE	Alma St & East Creek Dr	8"x5" on a concrete pad	Ira E. Bonde Bridge	2001	THIS BRIDGE IS DEDICATED TO THE MEMORY OF IRA E. BONDE FOR HIS EFFORTS TO PRESERVE SAN FRANCISQUITO CREEK/ JULY 2001
ARRILLAGA FAMILY GYMNASIUM 600 ALMA ST	In lobby	3'x3'	Dedication of Gymnasium	2010	CITY OF MENLO PARK / ARRILLAGA FAMILY GYMNASIUM / JOHN ARRILLAGA / CITY COUNCIL / RICHARD CLINE, MAYOR JOHN BOYLE, VICE MAYOR / KELLY FERGUSSON, ANDREW COHEN, HEWARD ROBINSON / CITY OF MENLO PARK / GLEN ROJAS - CITY MANAGER / DEDICATED 2010
ARRILLAGA FAMILY GYMNASTICS CENTER 501 LAUREL ST	In lobby	3'x3'	Dedication of Gymnastics Center	2012	CITY OF MENLO PARK / ARRILLAGA FAMILY GYMNASTICS CENTER / JOHN ARRILLAGA FAMILY / CITY COUNCIL / KRISTEN KEITH, MAYOR PETER OHTAKI, VICE MAYOR / RICHARD CLINE KELLY FERGUSSON ANDREW COHEN / CITY OF MENLO PARK / ALEX D. McINTYRE - CITY MANAGER / DEDICATED 2012
	In lobby	3'x3'	Recognition of John Arrillaga Family	None	CITY OF MENLO PARK / IN RECOGNITION OF THE / JOHN ARRILLAGA FAMILY / FOR YOUR CONTRIBUTIONS TO THE / ARRILLAGA FAMILY / GYMNASTICS CENTER / AND YOUR SUPPORT OF A / HEALTHY, ACTIVE COMMUNITY
	Under a cape myrtle near the entrance of the Arrillaga Gymnastics Center	Plaque	Catherine Elizabeth Fisher		"Seeds soar to the ground. In time, they blossom skyward / bright, sunny poppies." / In loving memory of / Catherine Elizabeth Fisher / "Teacher Cate" -Original poem by Catherine Fisher in her handwriting

	Inside the gymnastics center, in a small corner of the viewing area dedicated to Catherine Fisher with books for young children to read	Plaque	Catherine Elizabeth Fisher		Cate's Corner (written in Cate's handwriting at her mother's request)
ARRILLAGA FAMILY RECREATION CENTER 700 ALMA ST	Inner courtyard	8"x6" on a rock	Marianne Crowder	4/23/1991	Tree dedicated in honor of MARIANNE CROWDER on her 85th birthday by her grateful students/ APRIL 23, 1991
	At main entrance	3'x3'	Recognition of John Arrillaga Family	None	CITY OF MENLO PARK / IN RECOGNITION OF THE / JOHN ARRILLAGA FAMILY / FOR YOUR CONTRIBUTIONS TO THE / ARRILLAGA FAMILY / RECREATION CENTER / AND YOUR SUPPORT OF A / HEALTHY, ACTIVE COMMUNITY
BURGESS PARK 701 LAUREL ST	On brick pillars in two locations	5"x4"	Burgess Park Improvements	2004	BURGESS PARK / IMPROVEMENTS / 2004 / "In appreciation of the efforts of the Measure T Committee"
		8x6" on brick column	Improvements	2004	BURGESS PARK / IMPROVEMENTS / 2004 / "In appreciation of the efforts of the Measure T Committee"
	To the left of the Arrillaga Recreation Center, close to Burgess Field	bench	Jim McGovern		His dedication to Walking for Ben, from the Leukemia and Lymphoma Society

	In front of police department. Between lobby doors and duck pond.	Bench	Estelle "ET" Tobias-Mayhew	1927-2022	A treasured member of the MPPD / Her heart and soul live on / in the Menlo Park Community.
CIVIC CENTER 701 LAUREL ST		11"x21"	DeAnza Expedition	1976	LT. COLONEL JUAN BAUTISTA DE ANZA AND PARTY CROSSED THIS AREA--DE ANZA EXPEDITION 1775-1776--IN MARCH 1776 EN ROUTE TO SELECT SITES FOR THE PRESIDIO AND THE MISSION OF SAN FRANCISCO
		10-11" diameter	Fountain Sculpture	9/20/1974	1874 CENTENNIA 1974/ 100/ MENLO PARK FOUNTAIN SCULPTURE PRESENTED/ IN COMMENORATION OF THE 100TH ANNIVERSARY OF THE CITY OF MENLO PARK/ SCULPTOR/ GENE M. FLORES/ SANTA CRUZ CALIFORNIA/ GIFT OF/ Sunset/ LANE PUBLISHING CO/ MENLO PARK CALIFORNIA/ IN MEMORY OF LAWRENCE W. LANE, SR./ DEDICATED 20 SEPTEMBER 1974
	front, south	10"x8" on a rock	Beverly Beasley	2008	BEVERLY S. BEASLEY/ In appreciation of her 33 years of dedicated and caring service to the City of Menlo Park/ 1975 to 2008/ We miss you .
	Near council chambers	4"x10"	Jerome Jacobs	None	JEROME 'JERRY' JACOBS / IN MEMORY OF A DEAR FRIEND / AND DEDICATED MEMBER / MENLO PARK LIVE OAK LIONS
	Between Administration building and Recreation Center		Garden Club	3/7/1964	THE / GARDEN CLUB OF MENLO PARK / 7-Mar-64
	behind Gate House	24x12" on a rock	James Block	1981	THE JAMES L. BLOCH / MEMORIAL GROVE / 1923 - 1981 / COUNCIL MEMBER 1976 - 1981 / MAYOR MARCH 1978 - MARCH 1979
	behind Gate House on Flood Estate fountain	13.5x8" on a rock	Michael L Belange	1974	RESTORED AND DEDICATED / IN MEMORY OF / MICHAEL L. BELANGIE / 1908 - 1974 / COUNCILMAN 1950-55, 1957-71 / MAYOR 1954-54

	behind Gate House. By the Menlo Children's Center, under an oak tree	18x9" on a rock	Esther K Kessenich	1983	IN MEMORY / ESTHER K KESSENICH / 1889 - 1983 / EARTH SMILES IN FLOWERS / FROM FAMILY & FRIENDS
COUNCIL CHAMBER 701 LAUREL ST	Front, south side. On brick planter	Plaque 16"x12". Planter 32"x17"	Civic Center Transfer	10/22/1994	CITY OF MENLO PARK/ COMMEMORATING THE TRANSFER OF OWNERSHIP OF THE CIVIC CENTER FROM THE CIVIC CENTER BOARD TO THE CITY OF MENLO PARK/ OCTOBER 22, 1994/ CIVIC CENTER CORPORATION BOARD / John Black, President/ John Gertrude, Vice President/ John Johnson, Secretary-Treasurer/ PAUL NEWMAN, COUNSEL/ CITY COUNCIL / Robert McNamara, Mayor/ Calvin Jones, Mayor Pro Tem/ R.P. (Dee) Tolles/ Jack Morris/ Gail Slocum/ JAN DOLAN, CITY MANAGER
	Next to flag pole	8"x5" 24" round concrete step	Time Capsule	1974	1874 CENTENNIAL 1974/ TIME CAPSULE - OPEN IN 2074/ 100/ MENLO PARK CALIFORNIA
	Backside, near creek. On concrete base. Between police department and City Council Chambers	Plaque 14"x12". Concrete base 16"x14" stone/monument	Civic Center Corporation	1994	CITY OF MENLO PARK/ CITY OF MENLO PARK CIVIC CENTER CORPORATION/ 1968 - 1994/ IN MEMORY OF THE CIVIC CENTER BOARD MEMBERS WHO SERVED UNSELFISHLY FOR THE BENEFIT OF THE CITIZENS OF MENLO PARK/ IRA BONDE/ LAWRENCE JOHNSTON/ WILLIAM LAWSON/ WARREN MOREY/ HONORABLE JAMES O'KEEFE
	Next to sidewalk & parking lot	Plaque 8"x4". Concrete base 12"x9"	William C. Mills	1970	IN MEMORIUM. WILLIAM C MILLS. 1936 - 1970
	Front, north side	Plaque 11"x9". On brick planter 32"x17"	Civic Center	10/17/1970	Civic Center. Created by and for the people of Menlo Park. DEDICATED OCTOBER 17, 1970
	Near lake next to a live oak	Plaque 14"x12". 16"x14" concrete base	Ira E. Bonde 1918 - 1933 (75)	1993	In memory of Ira Bonde for his many years of dedicated service and relentless pursuit of excellence for the citizens of Menlo Park / City Council 1955-1978 / Mayor 1969-1976 / Civic Center Corp 1981-1993

	To the right of Recreation Center, across from the duck pond	8x3" Bench	Daniel Gere		In honor and memory of / DANIEL E.GERE / Menlo Park T'ai Chi & Chi Gong teacher 1985-2014, / Chen Family Taijiquan 20th Generation Descendant
FREMONT PARK 1047 UNIVERSITY DR		5"x3", 16"x14" concrete base	Benjamin Gallegos	1944	This tree planted in memory of Benjamin Gallegos
		5"x3", 16"x14" concrete base	Buddy Viarisio	1944	This tree planted in memory of Buddy Viarisio
		5"x3", 16"x14" concrete base	Carroll Harris	1944	This tree planted in memory of Carroll Harris
		5"x3", 16"x14" concrete base	Wing Su Chuck	1944	This tree planted in memory of Wing Su Chuck
		5"x3", 16"x14" concrete base	John Tavares	1944	This tree planted in memory of John Tavares
		5"x3", 16"x14" concrete base	Paul Ellis	1945	This tree planted in memory of Paul Ellis
		23"x19", 45"x28" concrete backboard	Camp Fremont	8/30/1964	Site of Camp Fremont, 1917-1919. Here was trained the 8th Division, Regular Army, consisting of Division Headquarters, 319th Engineers, 320th Field Signal Battalion, 8th Artillery Brigade, 81st Light Artillery, 83rd Light Artillery, 2nd Heavy Field Artillery, 8th French Mortar Battery, 22nd Machine Gun Battalion, 15th Infantry Brigade, 12th Infantry, 62nd Infantry, 23rd Machine Gun Battalion, 16th Infantry Brigade, 8th Infantry, 13th Infantry, 24th Machine Gun Battalion, Trains, Train Headquarters and Military Police, 319th Engineers Train, Sanitary Train, Ammunition Train, Supply Train
	18"x8"	Col. Otwell	8/30/1964	1875 - Col . Curtis W. Otwell - 1964/ Commanding Officer 319th Engineers/ 1918/ Dedicated to a faithful leader and friend by the men of the regiment/ 8/30/64	
HAMILTON PARK 777 HAMILTON RD	At the north end of the park. Just off hamilton	Bench	Dr H.L. Bostic	2011	n/a

JACK W. LYLE PARK 1060			Officer Jack W. Lyle	None	JACK W. LYLE PARK/ Officer Jack W. Lyle/ Generous, friendly, good-humored/ A loving, compassionate, family man/ Killed in the line of duty/ September 22, 1960
LIBRARY 800 ALMA ST	Facing Ravenswood Av	7"x4" , 12"x9" concrete base	Thomas F. Cuff	5/1/1962	In memory of Fire Chief Thomas F. Cuff, Menlo Park Womens Club, May 1, 1962
	Facing Ravenswood Av	8"x4" , 12"x12" concrete base	Donald E. Johnson	none	Recognizing thirty-five years of outstanding service to the City of Menlo Park, Donald E. Johnson
	Near the Gate House	13"x8" , on a 20"x16" rock	California Live Oak	3/7/1985	California Live Oak (Quercus Agrifolia)/ Adopted by the California Arborists Assoc
	In front, under tree	12"x6" , on a 14"x14" rock	The "Moles"	1985	Honoring the "Moles". Those dedicated people who spent hours in the basement sorting and pricing book fair donations. With deep appreciation from the Friends of the Library, 1985
	side under the trees	Sculpture	Raoul Wallenberg	1983	RAOUL! WHERE ARE YOU?/ BY JAMES STOVAL/ c1983
	side under the trees		Raoul Wallenberg	None	"RAOUL WALLENBERG'S MISSION OF MERCY ON BEHALF OF THE UNITED STATES BEHIND ENEMY LINES DURING WORLD WAR II WAS UNPRECEDENTED IN THE HISTORY OF MANKIND. HE IS RESPONSIBLE FOR SAVING 100,000 LIVES PROVING THAT ONE MAN CAN MAKE A DIFFERENCE. HE WAS A SHINING LIGHT IN A DARK AND DEPRAVED WORLD AND WITH HIS MISSION OF MERCY REDEEMED THE REPUTATION OF HUMANITY." ANNETTE LANTOS
NEALON PARK	800 Middle Ave	Bench	Helen Blood	1919-2021	Forever in our hearts
	800 Middle Ave	Stone/Monument	Eugene Gananian	1909-1975	In memory of...
POLICE DEPARTMENT 701 LAUREL ST	Under a tree	Plaque 12"x6". 14"x12" concrete base	Jaye M. Carr	11/14/1999	JAYE M. CARR, CITY CLERK / In Appreciation for her 28 years of / Dedicated Service to the City of Menlo Park / 11/14/1999
	In front, near lake	Plaque 9"x4" 15"x8" rock in concrete	John T. Riecks	1979	John T. Riecks/ In Memory, 1906 - 1979
	In front, near lake	14"x12" , 22"x22" on brick pedestal	William R. Lawson Plaza	Sep-83	Dedicated to the spirit of community involvement as exemplified by Bill Lawson's more than 50 years of public service, including Menlo

					Park Council member 1952-1972 and Mayor 1958-1969. Erected by his friends September 1983
	In lawn, backside of building	8"x4", 12"x9" concrete base	9-11 Memorial & Tree	9/11/2001	In Memory / and with Hopes for / Lasing Peace / 11-Sep-01
	In front, facing duck pond	8"x4", 12"x9" concrete base stone/monument	L. W. "Duke" Neuer	1970	IN MEMORIUM / L.W. "DUKE" NEUER / 1884 - 1970
	Outside of front lobby	Sculpture	Accompanying a sculpture		MOTHER WITH CHILD/ BY JAMES STOVALI/ FUNDED BY THE BOHANNON / FOUNDATION AND CITY OF MENLO PARK/ cr 1985
RAVENSWOOD AT ALMA		24x20"	The Menlo Gates Project	3/12/2019	Menlo Park Historical Association / The Menlo Gates Project / 2019 / Gates Committee (16 names) / Matching Grant (City of Menlo Park) / Gatekeepers (2 names) / Historians (5 names) / Pioneers (10 names) / Boosters (7 names)
SANTA CRUZ AVE	at Chestnut St		Mini Plaza	1971	MINI-PLAZA/ DONATED TO THE COMMUNITY OF MENLO PARK BY THE ROTARY CLUB OF MENLO PARK/ 1971
	median near Crane St		Downtown Beautification	Oct-93	MENLO PARK/ CITY COUNCIL/ GAILSLOCUM, BOB McNAMARA, CAL JONES, DEE TOLLES, JACK MORRIS/ FOSTERING AN ACTIVE, VIABLE AND ATTRACTIVE DOWNTOWN/ DOWNTOWN BEAUTIFICATION PROJECT/ OCTOBER 1993
	Median near Crane St		Downtown Beautification	Oct-93	CITY OF MENLO PARK/ IN APPRECIATION TO KIWANIS CLUB OF MENLO PARK, DOWNTOWN STUDY GROUP, DOWNTOWN BUSINESS AND PROPERTY OWNERS, COMMUNITY VOLUNTEERS/ DOWNTOWNBEAUTIFICATION PROJECT/ OCTOBER 1993
	at Johnson Dr on front wall	~12"x10"	Menlo Park Presbyterian	1950	MENLO PARK PRESBYTERIAN CHURCH/ FOUNDED 1873/ 1950

SHARON HILLS PARK VALPARISO AVE & HALLMARK CIRCLE	Top of the park	Bench	Michale Enright	2004-2021	Loyal friend, loving brother, Cherished son
	East side of park near Valparaiso	Stone/Monument	John Davis	1908-1989	Memorial Grove
SHARON PARK 1100 MONTE ROSA DR		~6"x3" on a bench	Lauren C. Clement	1989	"Go Placidly Amid the Noise and Haste..."/ In Memory of/ LAUREN C. CLEMENT/ "CLEM"/ 1934 - 1989
		~8" x3" on a bench	Gene Sincich	2008	In Living Memory of/ GENE SINCICH 1946 - 2008/ Eagle Scout, Nature and Animal Lover/ "I want to fly like an eagle... let my spirit carry me."
	East side of the duck pond	~6"x3" on a bench	Atefeh Bijan	2004	In Memory of Atefeh Bijan/ April 9, 1928 - January 9, 2004/ You graced the lives of all who knew you.
	East side of the duck pond	~6"x3" on a bench	Clara Cohn	1998	A place to reflect & remember/ In loving Memory of/ CLARA G. COHN/ Sept. 28, 1911 - Sept. 11, 1998
	Next to duck pond, south side	~8"x3" on a bench	Harry Kirkwood	2008	In Memory of/ Harry Kirkwood 1917 - 2008/ Loving father & husband/ in appreciation of his life in Menlo Park
	West side of the duck pond	~6"x3" on a bench	Ethel Freeman	None	In loving memory of our wonderful mom,/ Ethel K. Freeman
		~8"x3" on a bench	Raymond Francis Halloran & Donna Peterman Halloran	None	Dedicated to our parents/ Raymond Francis Halloran & Donna Peterman Halloran/ "As we grow old...the beauty steals inward" - Emerson

	Behind the playground	Bench	Ron Reis	n/a	Ron taught us to love fully and celebrate life at any age...
	Behind the playground	Bench	Ron Reis	1947-2020	... his memory brings smiles to all who knew him
	North East side of the pond	Bench	Bob Dressler	1939-2015	"A celebration of our love"
	East side on the pond	Bench	Gene Sinich	1946-2008	Eagle scout, nature and animal lover/ personal quote
	south lawn on top of the hill, near a tree	Stone/Monument	Patricia Freitas	n/a	a mentor, friend and inspiration of courage. May this oak signify the enduring strength you were to us
WILLOW OAKS PARK 490 WILLOW RD	Willow Rd at Coleman Av	8"x4" On a rock with tree behind	Ted Sorensen, Ester Bugna	2019	In Memory of / Ted I. Sorensen / 1929 - 2006 / Ester Bugna/ 1934-2019
	Willow Rd at Coleman Ave	12x8"	Convertibles	2001	Brian Goggin, b.1966 / with / Michael Eckerman, b.1946 / "Convertibles" / 2001 / Stone, concrete, cement, steel / Commissioned by the City of Menlo Park and the Arts Commission / Special thanks to: Bayshore Metals, Terry Goggin, Pacific Cement and Charlie Walker / Assistants: Dana Albany, Michael Hopkins and Jeff Stephenson



STAFF REPORT

City Council

Meeting Date: 11/1/2022
Staff Report Number: 22-214-CC

Informational Item: City Council agenda topics: November 15 – December 6, 2022

Recommendation

The purpose of this informational item is to provide the City Council and members of the public access to the anticipated agenda items that will be presented to the City Council. The mayor and city manager set the City Council agenda so there is no action required of the City Council as a result of this informational item.

Policy Issues

In accordance with the City Council procedures manual, the mayor and city manager set the agenda for City Council meetings.

Analysis

In an effort to provide greater access to the City Council's future agenda items, staff has compiled a listing of anticipated agenda items, Attachment A, through December 6, 2022. The topics are arranged by department to help identify the work group most impacted by the agenda item.

Specific dates are not provided in the attachment due to a number of factors that influence the City Council agenda preparation process. In their agenda management, the mayor and city manager strive to compile an agenda that is most responsive to the City Council's adopted priorities and work plan while also balancing the business needs of the organization. Certain agenda items, such as appeals or State mandated reporting, must be scheduled by a certain date to ensure compliance. In addition, the meeting agendas are managed to allow the greatest opportunity for public input while also allowing the meeting to conclude around 11 p.m. Every effort is made to avoid scheduling two matters that may be contentious to allow the City Council sufficient time to fully discuss the matter before the City Council.

Public Notice

Public notification was achieved by posting the agenda, with the agenda items being listed, at least 72 hours prior to the meeting.

Attachments

A. City Council agenda topics: November 15 – December 6, 2022

Report prepared by:

Judi A. Herren, Assistant to the City Manager/City Clerk

Tentative City Council Agenda

#	Title	Department	Item type	City Council action
1	AB 1600 impact fees report	ASD	Consent	Receive and file
2	ACFR update-June 2022	ASD	Consent	Receive and file
3	Quarterly Personnel Activity Report	ASD	Informational	No action
4	Sept 30, 2022 investment report	ASD	Consent	Receive and file
5	Single audit-June 2021	ASD	Consent	Receive and file
6	135 El Camino Real - Appeal of Planning Commission decision	CDD	Public Hearing	Adopt resolution
7	Housing Element Update	CDD	Study Session	Direction to staff
8	Ratification of the Menlo Park fire protection district ordinance	CDD	Consent	Adopt resolution
9	Second reading and adoption for building code adoption	CDD	Public Hearing	Second read/adopt ordinance
10	Willow Village - project review and 1st reading	CDD	Public Hearing	First read/intro ordinance
11	Willow Village - second reading and adoption	CDD	Consent	Second read/adopt ordinance
12	Presentation: Menlo Park Historical Association City's 95th year	CMO	Presentation	No action
13	Presentation: Senator Becker	CMO	Presentation	No action
14	Adopt a resolution approving the 2023 City Council regular meeting schedule	CMO	Consent	Adopt resolution
15	Adopt a resolution approving the City Council Community Funding Subcommittee's recommendations for 2022-23 community funding allocations	CMO	Regular	Adopt resolution
16	Adopt Resolution to continue conducting the City's Council and advisory body meetings remotely due to health and safety concerns for the public	CMO	Consent	Adopt resolution
17	Authorize the city manager to execute an agreement with MPCSD and MPAEF and approve a budget amendment	CMO	Regular	Approve, Contract award or amend
18	BlocPower: prevailing wage	CMO	Informational	Decide, Direction to staff
19	Receive and file 2021 priorities, work plan quarterly report as of September 30, 2022 and advisory body work plan update	CMO	Consent	Receive and file
20	Authorize the City Manager to accept a California State Library Building Forward infrastructure grant to replace the deteriorating main library roof and update the fire alarm system	LCS	Consent	Approve
21	MPCC project update	LCS	Informational	No action
22	Provide direction for updating City Council Policy CC-86-001, "Naming and/or changing the name of facilities" (1986)	LCS	Regular	Direction to staff
23	Adopt resolution accepting fiscal year 22-23 COPS-SLESF Funding and Approve Spending Plan	PD	Consent	Adopt resolution
24	Adopt resolution approving Alcoholic Beverage Control (ABC) Grant	PD	Consent	Adopt resolution
25	Police department quarterly update – Q3 July 2022 - September 2022	PD	Informational	No action
26	Additional conceptual design options for Willow Oaks Park	PW	Regular	Approve
27	Adopt a resolution for the intention of PUE vacation for 1701 and 1715 Bay Laurel Drive	PW	Consent	Adopt resolution
28	Authorize an agreement with consultant for local road safety plan	PW	Consent	Contract award or amend

Tentative City Council Agenda

#	Title	Department	Item type	City Council action
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STAFF REPORT

City Council

Meeting Date: 11/1/2022

Staff Report Number: 22-215-CC

Informational Item: Transmittal of city attorney billing

Recommendation

This is an informational item and does not require City Council action.

Policy Issues

In accordance with the City Council informational requests, this staff report transmits information to the public.

Background

On February 23, 2021, the City Council approved an agreement with Burke Williams Sorenson, LLP (BWS) for city attorney services.

Analysis

As requested by the City Council, the city attorney has prepared monthly summaries of billing activity (costs/fees) for legal services that could be shared with the public. This staff report transmits the summaries for the months of May, June, July and August 2022.

Public Notice

Public notification was achieved by posting the agenda, with the agenda items being listed, at least 72 hours prior to the meeting.

Attachments

- A. Billing summaries – May through August 2022

Report prepared by:

Justin I.C. Murphy, City Manager

May 2022 Legal Services - Burke, Williams & Sorensen, LLP

Description	Fees	Costs	Total Billed
GENERAL MUNICIPAL MATTERS	\$ 25,546.00	\$ 391.81	\$ 25,937.81
REAL ESTATE, COMPLEX HOUSING, CEQA, NEPA	\$ 7,259.00	\$ 99.00	\$ 7,358.00
CONSTRUCTION AND COMPLEX PUBLIC WORKS	\$ 854.00	\$ -	\$ 854.00
MENLO UPTOWN	\$ 6,792.50	\$ -	\$ 6,792.50
WILLOW VILLAGE	\$ 26,480.00	\$ -	\$ 26,480.00
1350 ADAMS COURT	\$ 2,280.00	\$ -	\$ 2,280.00
1075 O'BRIEN/CS BIO	\$ 332.50	\$ -	\$ 332.50
162-164 JEFFERSON	\$ 20,282.50	\$ -	\$ 20,282.50
1105-1165 O'BRIEN DRIVE	\$ 6,460.00	\$ -	\$ 6,460.00
BOHANNAN DEVELOPMENT	\$ 16,542.50	\$ -	\$ 16,542.50
FEES	\$ 1,860.50	\$ -	\$ 1,860.50
CODE ENFORCEMENT/ PITCHES / NUISANCE PR	\$ 213.50	\$ -	\$ 213.50
SRI CAMPUS	\$ 95.00	\$ -	\$ 95.00
MPCC PG&E EMINENT DOMAIN	\$ 427.00	\$ -	\$ 427.00
HOTEL MOXY / 3723 HAVEN AVENUE	\$ 1,377.50	\$ -	\$ 1,377.50
INDEPENDENT REDISTRICTING COMMITTEE	\$ 152.50	\$ -	\$ 152.50
1005 O'BRIEN	\$ 95.00	\$ -	\$ 95.00
UUT CLAIM/LITIGATION	\$ 3,812.50	\$ 1,450.81	\$ 5,263.31
ZONING INITIATIVE PETITION	\$ 4,453.00	\$ 301.75	\$ 4,754.75
PUBLIC RECORDS ACT	\$ 3,339.00	\$ -	\$ 3,339.00

FEES PAID BY CITY	\$ 50,160.37
FEES PAID BY DEVELOPERS	\$ 80,737.50

June 2022 Legal Services - Burke, Williams & Sorensen, LLP

Description	Fees	Costs	Total Billed
GENERAL MUNICIPAL MATTERS	\$ 35,059.50	\$ 134.80	\$ 35,194.30
REAL ESTATE, COMPLEX HOUSING, CEQA, NEPA	\$ 9,095.00	\$ -	\$ 9,095.00
CONSTRUCTION AND COMPLEX PUBLIC WORKS	\$ 2,684.00	\$ -	\$ 2,684.00
MENLO UPTOWN	\$ 1,947.50	\$ -	\$ 1,947.50
123 INDEPENDENCE	\$ 2,375.00	\$ -	\$ 2,375.00
WILLOW VILLAGE	\$ 39,115.00	\$ -	\$ 39,115.00
1350 ADAMS COURT	\$ 142.50	\$ -	\$ 142.50
1075 O'BRIEN/CS BIO	\$ 1,615.00	\$ -	\$ 1,615.00
162-164 JEFFERSON	\$ 4,085.00	\$ -	\$ 4,085.00
1105-1165 O'BRIEN DRIVE	\$ 2,422.50	\$ -	\$ 2,422.50
BOHANNAN DEVELOPMENT	\$ 950.00	\$ -	\$ 950.00
FEES	\$ 427.00	\$ 153.57	\$ 580.57
SRI CAMPUS	\$ 7,220.00	\$ -	\$ 7,220.00
MPCC PG&E EMINENT DOMAIN	\$ 1,037.00	\$ 147.45	\$ 1,184.45
HOTEL MOXY / 3723 HAVEN AVENUE	\$ 3,515.00	\$ -	\$ 3,515.00
UUT CLAIM/LITIGATION	\$ 7,289.50	\$ 743.65	\$ 8,033.15
ZONING INITIATIVE PETITION	\$ 7,350.50	\$ -	\$ 7,350.50
PUBLIC RECORDS ACT	\$ 1,881.50	\$ -	\$ 1,881.50
CITY COUNCIL	\$ 2,623.50	\$ -	\$ 2,623.50
FEES PAID BY CITY			\$68,626.97
FEES PAID BY DEVELOPERS			\$63,387.50

July 2022 Legal Services - Burke, Williams Sorensen, LLP

Description	Fees	Costs	Total Billed
GENERAL MUNICIPAL MATTERS	\$ 22,491.00	\$ -	\$ 22,491.00
REAL ESTATE, COMPLEX HOUSING, CEQA, NEPA	\$ 7,730.50	\$ -	\$ 7,730.50
CONSTRUCTION AND COMPLEX PUBLIC WORKS	\$ 2,853.50	\$ -	\$ 2,853.50
MENLO PORTAL	\$ 3,648.00	\$ -	\$ 3,648.00
MENLO UPTOWN	\$ 3,120.00	\$ -	\$ 3,120.00
123 INDEPENDENCE	\$ 4,464.00	\$ -	\$ 4,464.00
WILLOW VILLAGE	\$ 32,581.00	\$ 16.25	\$ 32,597.25
1350 ADAMS COURT	\$ 4,128.00	\$ -	\$ 4,128.00
1075 O'BRIEN/CS BIO	\$ 864.00	\$ -	\$ 864.00
162-164 JEFFERSON	\$ 3,408.00	\$ -	\$ 3,408.00
1105-1165 O'BRIEN DRIVE	\$ 1,536.00	\$ -	\$ 1,536.00
BOHANNAN DEVELOPMENT	\$ 96.00	\$ -	\$ 96.00
FEES	\$ 1,023.00	\$ 236.11	\$ 1,259.11
SRI CAMPUS	\$ 1,824.00	\$ -	\$ 1,824.00
MPCC PG&E EMINENT DOMAIN	\$ 155.00	\$ -	\$ 155.00
HOTEL MOXY / 3723 HAVEN AVENUE	\$ 7,296.00	\$ -	\$ 7,296.00
UUT CLAIM/LITIGATION	\$ 4,176.00	\$ 399.25	\$ 4,575.25
ZONING INITIATIVE PETITION	\$ 10,186.00	\$ 143.33	\$ 10,329.33
PUBLIC RECORDS ACT	\$ 1,593.00	\$ -	\$ 1,593.00
CITY COUNCIL	\$ 1,404.00	\$ -	\$ 1,404.00
FEES PAID BY CITY			\$ 52,390.69
FEES PAID BY DEVELOPERS			\$ 62,981.25

Client.Matter	Description	Fees	Costs	Total Billed
8241.0001	GENERAL MUNICIPAL MATTERS	\$ 18,603.00	\$ 185.00	\$ 18,788.00
8241.0002	REAL ESTATE, COMPLEX HOUSING, CEQA, NEPA	\$ 13,210.00	\$ -	\$ 13,210.00
8241.0003	CONSTRUCTION AND COMPLEX PUBLIC WORKS	\$ 2,121.50	\$ -	\$ 2,121.50
8241.0004	MENLO PORTAL	\$ 3,312.00	\$ -	\$ 3,312.00
8241.0005	MENLO UPTOWN	\$ 2,352.00	\$ -	\$ 2,352.00
8241.0006	123 INDEPENDENCE	\$ 6,768.00	\$ -	\$ 6,768.00
8241.0009	WILLOW VILLAGE	\$ 56,469.00	\$ 215.00	\$ 56,684.00
8241.0010	1350 ADAMS COURT	\$ 8,640.00	\$ -	\$ 8,640.00
8241.0011	1075 O'BRIEN/CS BIO	\$ 192.00	\$ -	\$ 192.00
8241.0012	162-164 JEFFERSON	\$ 1,824.00	\$ -	\$ 1,824.00
8241.0013	1105-1165 O'BRIEN DRIVE	\$ 2,208.00	\$ -	\$ 2,208.00
8241.0014	BOHANNAN DEVELOPMENT	\$ 672.00	\$ -	\$ 672.00
8241.0015	FEES	\$ -	\$ 53.75	\$ 53.75
8241.0019	CODE ENFORCEMENT/ PITCHES / NUISANCE PR	\$ 558.00	\$ -	\$ 558.00
8241.0021	SRI CAMPUS	\$ 1,584.00	\$ -	\$ 1,584.00
8241.0022	MPCC PG&E EMINENT DOMAIN	\$ 1,023.00	\$ -	\$ 1,023.00
8241.0023	HOTEL MOXY / 3723 HAVEN AVENUE	\$ 2,064.00	\$ -	\$ 2,064.00
8241.0027	UUT CLAIM/LITIGATION	\$ 7,333.50	\$ -	\$ 7,333.50
8241.0029	ZONING INITIATIVE PETITION	\$ 5,952.00	\$ -	\$ 5,952.00
8241.0030	PUBLIC RECORDS ACT	\$ 6,048.00	\$ -	\$ 6,048.00
8241.0031	WATER ENTERPRISE FUND	\$ 620.00	\$ -	\$ 620.00
8241.0032	CITY COUNCIL	\$ 1,971.00	\$ -	\$ 1,971.00
FEES PAID BY CITY				\$ 57,678.75
FEES PAID BY DEVELOPERS				\$ 86,300.00

TOTAL

\$ 143,978.75