T & E AGENDA: 09/09/19
ITEM: d(3)

CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY

Memorandum

TO: TRANSPORTATION AND ENVIRONMENT COMMITTEE

FROM: Kerrie Romanow
Rosalynn Hughey

SUBJECT: BUILDING REACH CODE FOR NEW CONSTRUCTION

DATE: August 21, 2019

Approved

Date 8-30-19

RECOMMENDATION

Accept the report and refer to the full City Council on September 17 for consideration of:

1. Approval of an Ordinance amending various sections of Title 24 (Technical Codes) to adopt Provisions of the 2019 California Green Building Standards and California Building Energy Efficiency Standards with certain exceptions, modifications, and additions which serve as a reach code to increase building efficiency, mandate solar readiness, and increase requirements related to electric vehicle charging stations; and
2. Acceptance of findings related to local modifications based upon local geographical, topographical, and climatic conditions and cost effectiveness; and
3. Authorization for the City Manager to submit a reach code submittal package to the California Energy Commission for its approval as required by law.

OUTCOME

City Council approval of a San José Reach Code Ordinance for new construction will further community-wide progress on meeting the goals of the following Climate Smart San José strategies:

- Strategy 1.1: Transition to a renewable energy future
- Strategy 2.2: Make homes efficient and affordable for our residents
- Strategy 2.3: Create clean, personalized mobility choices
- Strategy 3.2: Improve our commercial building stock

EXECUTIVE SUMMARY

The effects of climate change are devastating and increasing. To do its part to reduce greenhouse gas emissions and address climate change, the City adopted Climate Smart San José ("Climate Smart") which sets aggressive goals around electric vehicle (EV) adoption, solar installation, and zero net energy/carbon (ZNE/ZNC) buildings. The proposed reach code is designed to lower and eventually eliminate greenhouse gas (GHG) emissions from new construction.

The California Energy Commission (CEC) updates the California Building Energy Efficiency Standards every three years. The 2019 California Code will go before City Council in October 2019 for approval, with an effective date of January 1, 2020. Jurisdictions may also adopt "reach codes" that require development projects to exceed the minimum Building Energy Efficiency requirements. A proposed reach code would need to be approved by City Council in September 2019 in order to submit to the CEC in time for an effective date of January 1, 2020, corresponding with the effective date of the new 2019 California Code.

As part of its American Cities Climate Challenge (ACCC) commitment, the City agreed to pursue adoption of a "reach code" for new residential and commercial construction, aligned with Climate Smart goals. To this end, the Environmental Services Department (ESD) and Planning, Buildings and Code Enforcement (PBCE) Departments co-led the development of the proposed reach code with the New Buildings Institute (NBI), a technical partner that specializes in building codes and ZNE buildings. Staff reached out to over 250 stakeholders and conducted seven public meetings and several individual meetings to get community and developer input on a potential reach code. Several considerations influenced the scope of the proposed reach code including: input from various City departments; input from external stakeholders; impact on GHG emissions; the economic impact on development projects; regional reach code efforts; and alignment with the State's longer term decarbonization efforts.

The proposed reach code will apply only to new residential and non-residential construction in San José. It incentivizes all-electric construction, a cost-effective construction option for all building types. It also requires increased energy efficiency and electrification-readiness for those choosing to maintain the presence of natural gas, a fossil fuel and powerful GHG, and construct mixed-fuel buildings. It requires that non-residential construction include solar readiness. It also requires additional EV charging readiness and/or electric vehicle service equipment (EVSE) installation for all development types.

The reach code will provide many benefits including: significant GHG emissions reductions; financial benefits related to lower cost electric construction, facilitate the transition to EVs, and avoidance of significant EV charging retrofit costs; and public health benefits by reducing both indoor and outdoor air pollution. All of these benefits are specifically pertinent to San José's low-income communities, which are inordinately impacted by the negative environmental and financial impacts associated with natural gas in buildings and gasoline-powered vehicles.

BACKGROUND

The climate challenges of this century directly affect the quality of life of all residents in San José. Over the past two years, across California, the United States, and worldwide, there have been more frequent and disruptive flooding events, degraded air quality from massive wildfires, and record-breaking extreme heat events. San José has been no stranger to such occurrences. Coyote Creek flooded in February 2017, affecting adjacent neighborhoods and causing an estimated $73 million in property damage to San José homes and businesses, and forcing 14,000 residents to evacuate, some even by boat[1]. Flooding and displaced residents, particularly in coastal zones, may also become a familiar site, according to a new study that declared tens of thousands of Bay Area homes are at risk of flooding from rising sea levels by 2050[2]. This summer, the world experienced the hottest month (July 2019) ever recorded in human history[3]. Furthermore, the Bay Area experienced a record heat wave first in June 2019[4] and then again in July 2019[5], a trend that seems to be exacerbating rather than diminishing, considering that 2018 was previously dubbed the hottest year on record worldwide[6]. San José has been impacted by these events which affect the health of residents and visitors, the safety of neighborhoods, the success of businesses and institutions, and the viability of local plants and wildlife.

In response to the experienced and potential impacts of climate change, the City of San José was one of the first U.S. cities to adopt a Paris Climate Agreement-aligned climate action plan, Climate Smart San José. Approved by City Council in February 2018, Climate Smart includes the following goals and milestones to ensure the City can reduce GHG emissions on target:

- All new residential (by 2020) and commercial (by 2030) buildings as ZNE[i,7], in alignment with the State of California's ambitious ZNE goals[8].
- 100 percent carbon-free base power from San José Clean Energy (SJCE) by 2021.
- 1 GW of solar installed in San José by 2040.
- 61 percent of passenger vehicles are EVs by 2030.
- Reimagining the "Good Life 2.0," that harnesses the benefits of sustainable actions and improves our quality of life.

In 2018, the California Legislature passed Senate Bill 1477 with strong support from the City. SB 1477 authorizes $50 million in Cap and Trade funds for two pilot programs, the Building Initiative for Low Emission Development (BUILD) and Technology and Equipment for Clean Heating (TECH) programs, which will enable California to lead the way toward decarbonization of new and existing building stock. The California Public Utilities Commission is currently in proceedings to establish the parameters for providing this funding throughout California.

The CEC updates the California Building Energy Efficiency Standards every three years, in alignment with the California Code of regulations. Title 24 Parts 6 and 11 of the California Building Energy Efficiency Standards and the California Green Building Standards Code

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[i] As defined in Climate Smart, a ZNE building is one which is zero net carbon emissions, meaning that it would need to be all-electric with a clean energy source (i.e. via the grid and/or on-site renewable energy).

(CALGreen) address the need for regulations to improve energy efficiency and combat climate change.

California State law and the Building Energy Efficiency Standards require new construction to meet certain energy efficiency and renewable energy criteria which is documented in the Building Code. There are two pathways, prescriptive and performance set forth in Section 100.0(e)2 of Part 6, to demonstrate compliance with the Building Code. The prescriptive path relies on employing specific measures to achieve compliance whereas the performance pathway is based on an energy budget allowance.

The California Building Energy Efficiency Standards apply to "residential" and "non-residential" building types. The residential category covers low-rise residential buildings with three or fewer habitable stories. The non-residential category covers all non-residential occupancies, as well as hotels/motels and high-rise residential buildings with four or more habitable stories. The 2019 California Building Energy Efficiency Standards includes some substantive changes to increase the energy efficiency of buildings and encourage the installation of solar and heat pump water heaters in low-rise residential buildings. PBCE staff will separately present the 2019 California Codes, with any related amendments, for Council adoption in October 2019 in order to allow for a January 1, 2020 implementation date.

Jurisdictions also have the authority to adopt "reach codes" that require development projects to exceed minimum requirements established in the 2019 California Energy Code's Building Energy Efficiency Standards (Title 24, Part 6). In order to be approved by the CEC, a reach code must: 1) be at least as stringent as the statewide code; 2) be cost effective as defined by standards set by the CEC; 3) be submitted to and approved by the CEC; and 4) not preempt federal appliance regulations.

Nineteen cities, including eight in the Bay Area (e.g. San Francisco, Oakland, and Fremont), adopted reach codes in the current (2016) code cycle to encourage or require building electrification, increased building energy efficiency, the installation of electric vehicle infrastructure (EVCI), and/or solar installation. According to the CEC, over 50 cities are considering reach codes, with a focus on encouraging or requiring building and transportation electrification, for implementation in the 2019 building code cycle. In the Bay Area alone, more than 45 jurisdictions are pursuing a reach code including eight in Alameda County, 19 in San Mateo County, 14 in Santa Clara County, the City and County of San Francisco, and five in Sonoma County. Many cities, including San José, have been coordinating to support and encourage consistency of reach codes, particularly among those located in the same geographic area.

At the February 26, 2019 City Council meeting, City Council approved the City's scope of work in its ACCC memorandum of understanding, which included a support package of in-kind services valued at $2.5 million over a two-year period concluding at the end of 2020. As part of its ACCC commitment, the City agreed to pursue adoption of a reach code for EV and solar-readiness in new residential and commercial construction, aligned with Climate Smart goals. In

order to advance this initiative, the City has partnered with the NBI through the ACCC to facilitate the reach code development process, including stakeholder engagement.

In May 2019, staff included an update on the City's reach code initiative at the Transportation and Environment (T&E) Committee meeting (May 6, 2019) and a City Council meeting (May 21, 2019) as part of the Climate Smart semi-annual update. In addition, ESD and PBCE staff presented an update on the reach code work completed to-date at the June 24, 2019 Community and Economic Development Committee meeting.

ANALYSIS

There are several factors influencing: 1) whether San José should adopt a reach code, 2) what San José's reach code should consist of, and 3) when San José should adopt a reach code. The following sections provide context informing staff's proposed reach code.

Greenhouse Gas Emissions Reduction Benefits

One of the reasons why moving away from natural gas would have such a large impact on greenhouse gas emissions in San José is because natural gas is made up primarily of methane, a super pollutant that is 84 times more effective at trapping heat in the atmosphere than CO_2 over the short term[9].

In order to further San José's Climate Smart GHG reduction goals, new construction in San José will need to be designed to exceed the requirements of the 2019 Building Energy Efficiency Standards and CALGreen Building Standards. Based on the City's latest five-year development forecast[10], San José can conservatively expect approximately 350 single-family new residences, 2,400 new multi-family residences, and 2.4 million additional square feet of commercial/industrial construction per year over the next three years. If these buildings use natural gas, an estimated increase of 897,000 tons of greenhouse gas emissions would result over the expected life of the buildings (50 years for residential and 50 years for commercial). This equates to almost 300,000 Metric Tons of CO_2 emissions per year, equivalent to 1.7 trillion car miles[11], as shown in Table 1 below.

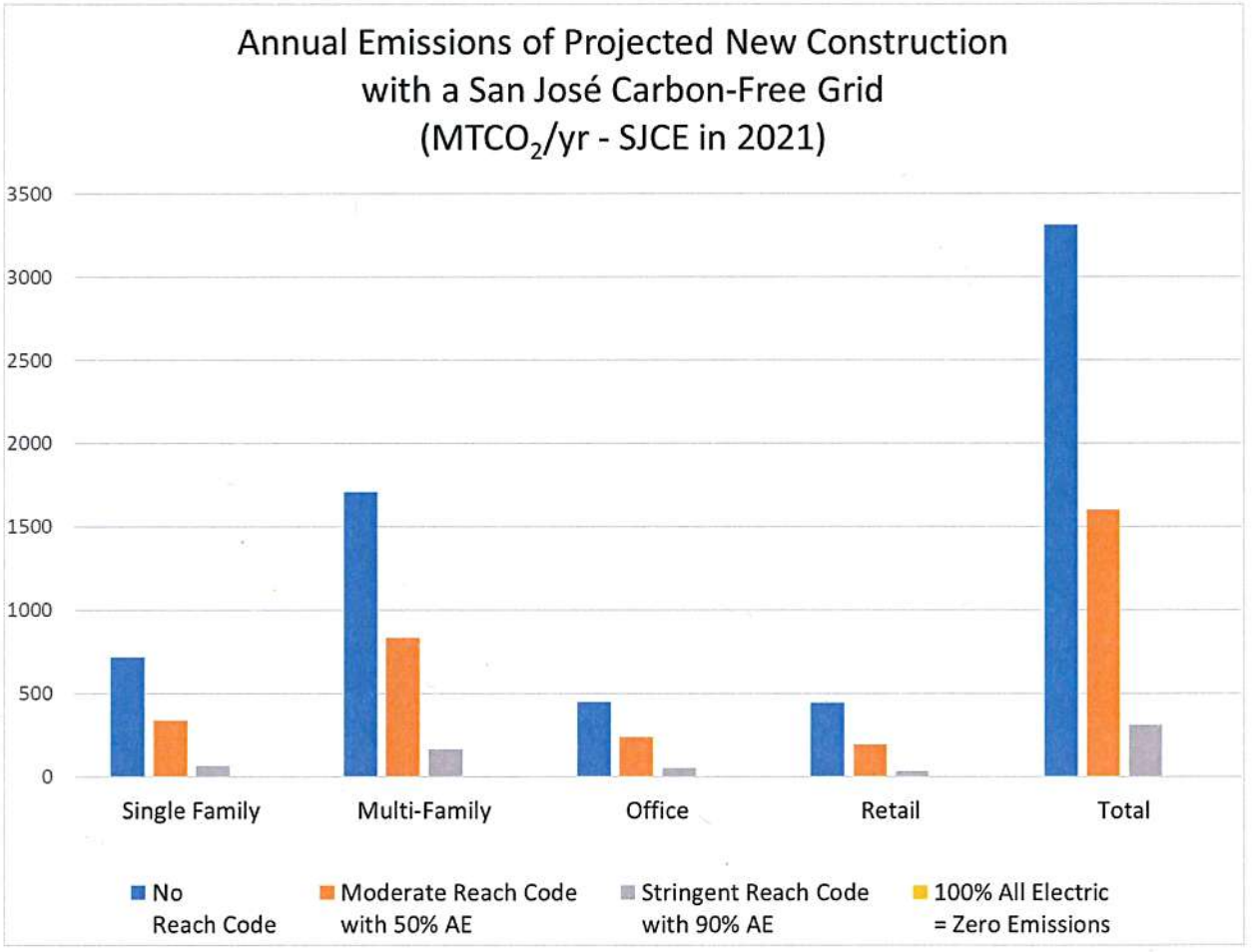
Table 1. Projected New Construction Development in San José and CO_2 Impact[10]

Building Type	Sq. Ft.	CO_2/Yr.	x	Units/Yr.	x	Years in service	Total tons of CO_2
Single-Family	2,700	2 tons	x	350	x	50	105,000 tons
Multi-Family	1,000	1 ton	x	2400	x	50	360,000 tons
Commercial/ Industrial	100,000	120 tons	x	24	x	50	432,000 tons
						Total CO_2:	**897,000 tons**

Graph 1 compares the potential GHG emissions offset by San José's proposed reach code when compared with the Title 24 Base Code (based on the development forecast as shown in Table 1).

The graph looks at the emissions impact for each building category for mixed fuel and all-electric buildings. It is important to note that this graph assumes 100 percent of electricity is carbon neutral and begins in 2021, in accordance with SJCE's scheduled delivery plans. The emissions offset by mixed fuel buildings come from increased efficiency requirements as required by the reach code. The graph shows emissions if no reach code is implemented (blue), if 50 percent (orange) and 90 percent (gray) of all new construction is all-electric. Emissions from all-electric buildings are zero or negligible and therefore are not shown. The emissions impact of the proposed reach code will largely depend on how much it incentivizes all-electric new construction, but it is estimated that staff's recommendation will reduce emissions from new construction to at least 1,500 $MTCO_2$/year.

Graph 1: Carbon Impact from Reach Code in Mixed Fuel vs All-Electric New Construction[12]



Based on the City and State goals to reduce GHG emissions, electrification retrofits will be necessary and ultimately required for existing buildings. Addressing electrification now in new buildings avoids hardships and retrofit costs for building owners in the future and acknowledges the GHG impacts of taking no action, particularly considering the benefits of building and

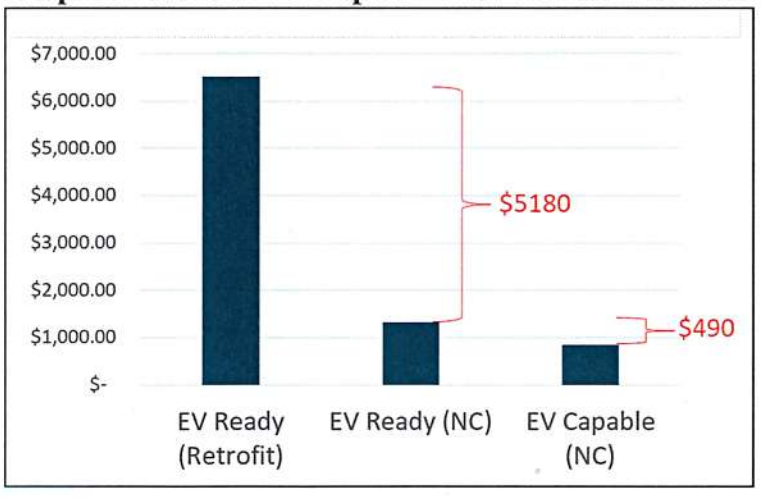
transportation electrification when paired with carbon-free electricity that will be provided by SJCE.

Promoting EV adoption and solar infrastructure represents further opportunity to reduce GHGs. Since EVs are powered by electricity, they have the potential for zero tailpipe emissions and, therefore, represent a significant potential to reduce GHGs in San José. SJCE purchases renewable energy from sources such as solar and wind, helping reduce GHG emissions dramatically from the electricity sector and reduce energy costs for consumers. Solar heating and cooling systems can provide about 80 percent of the energy used for space heating and water heating needs[13], as well as provide clean emissions-free energy sources to charge EVs.

Financial Benefits

Adding additional amenities (e.g. conduit, wiring, breaker space) to accommodate building electrification or Electric Vehicle Charging Infrastructure (EVCI) during initial construction is more efficient and significantly more cost effective than retrofitting a building after it is constructed. There are three different levels of EVCI: 1) EV Capable: a parking space with conduit sized for a 40-amp, 208/240 Volt dedicated branch circuit and sufficient physical space on the service panel, 2) EV Ready (full circuit): a space with conduit and wiring for a 40-amp, 208/240 Volt circuit, electrical service capacity, and outlet, 3) Electric Vehicle Service Equipment (EVSE): a parking space with electric vehicle supply equipment capable of supplying current at 40amps at 208/240 volts. The amount of EVCI needed in each building will depend primarily on the type of building and occupant use. The importance of adding the right level of EVCI at the time of new construction is critical. The Graph 2 shows the EVCI cost differences in new construction (NC) versus building retrofits for EV Ready (essentially plug and play) and EV Capable (conduit and breaker space only) parking spaces. One of the reasons why requiring electrification-ready spaces at the time of new construction is so important is because the retrofit cost is often a barrier to installing EVSE.

Graph 2. Cost of EVCI/ Space – New Construction versus Retrofit[14]



Providing EVCI encourages the uptake of EVs and EVs offer owners a lower operating cost versus standard vehicles, which is particularly significant to our lower-income communities as detailed in the following section.

Benefits to Low-Income Communities

Promoting electrification of buildings and EV charging access is expected to have positive economic and health-related effects on low-income communities. A recent study by U.S. Environmental Protection Agency (EPA) scientists shows that low-income communities, particularly those of color, are disproportionately affected by air pollution[15]. It is therefore imperative that clean fuel options (i.e., electric) are incorporated into San José's low-income community housing to promote the reduction of indoor and outdoor air pollution.

EV charging can be perceived by some as incongruent with low-income housing needs, however recent studies suggest otherwise. EVs are becoming more affordable to purchase and their fuel costs are considerably lower than fossil fuel powered vehicles. While price point has traditionally been a barrier for low-income communities to purchase EVs or hybrids, recent market research suggests that prices are falling at a dramatic rate due to lowering battery costs and government rebate programs[16]. According to a recent CB Insights Report, the general industry consensus is that EVs will reach price analogy with fossil fuel vehicles within the next decade, possibly as soon as 2021[17]. Further lowering upfront costs, the California Clean Vehicle Rebate Project offers rebates of up to $4,500, with additional rebates for low-income buyers, for the purchase or lease of new, eligible battery electric vehicles[18]. In terms of operational costs, compared with $2,550 per year for similar fossil fuel vehicles[19], an EV will save the average user an estimated $10,000 in fuel costs over the course of 10 years at current fuel and SJCE utility rates. For these reasons, EV charging access, which would be facilitated by the proposed reach code, is therefore just as relevant if not more critical to low-income housing projects as market-based or commercial projects.

Public Health Benefits

Moving toward all-electric buildings will result in reduced GHG emissions and better indoor and outdoor air quality. When emissions from natural gas are compared with those from PG&E's electricity fuel mix, emissions from natural gas are almost double.

Another concern with using natural gas as a fuel source involves leaks associated with transmission. Since the majority of natural gas (84 percent) used in California is imported from other states and Canada, interstate pipelines must be operated in order to deliver natural gas to California[20]. The EPA currently estimates the national methane leakage rate to be 1.4 percent[21]. However, a study conducted by the Environmental Defense Fund shows the methane leakage rate at 2.3 percent[22]. Recent studies exposing the leaks coming from the State's natural gas pipelines predict emissions to be a lot higher, about double, when accounting for the leaks[23].

In recent years, issues over natural gas safety have caused growing concern. In 2010, an underground gas pipe explosion killed eight people and destroyed or damaged more than 100 homes in San Bruno, California. The largest natural gas leak in U.S. history occurred just a few

years ago in Southern California at the SoCalGas Aliso Canyon Gas Storage Facility site. Between 2015 and 2016, a natural gas leak at Aliso Canyon was responsible for approximately 100,000 MT of methane and forced the evacuation of more than 8,300 households for more than 100 days[24].

Statewide Cost Effectiveness Study

The California Statewide Codes and Standards Program completed cost effectiveness residential[25] and non-residential studies[26] for use statewide in the current building code adoption cycle to justify the cost effectiveness of certain types of reach codes for new construction. Jurisdictions may also develop additional cost effectiveness studies, if needed, to proceed with their specific reach code. San José's proposal is based on data in the existing studies, so additional studies were not needed. EVCI requirements going beyond building code do not need a cost effectiveness study or separate CEC approval since they are not directly related to a building's energy efficiency.

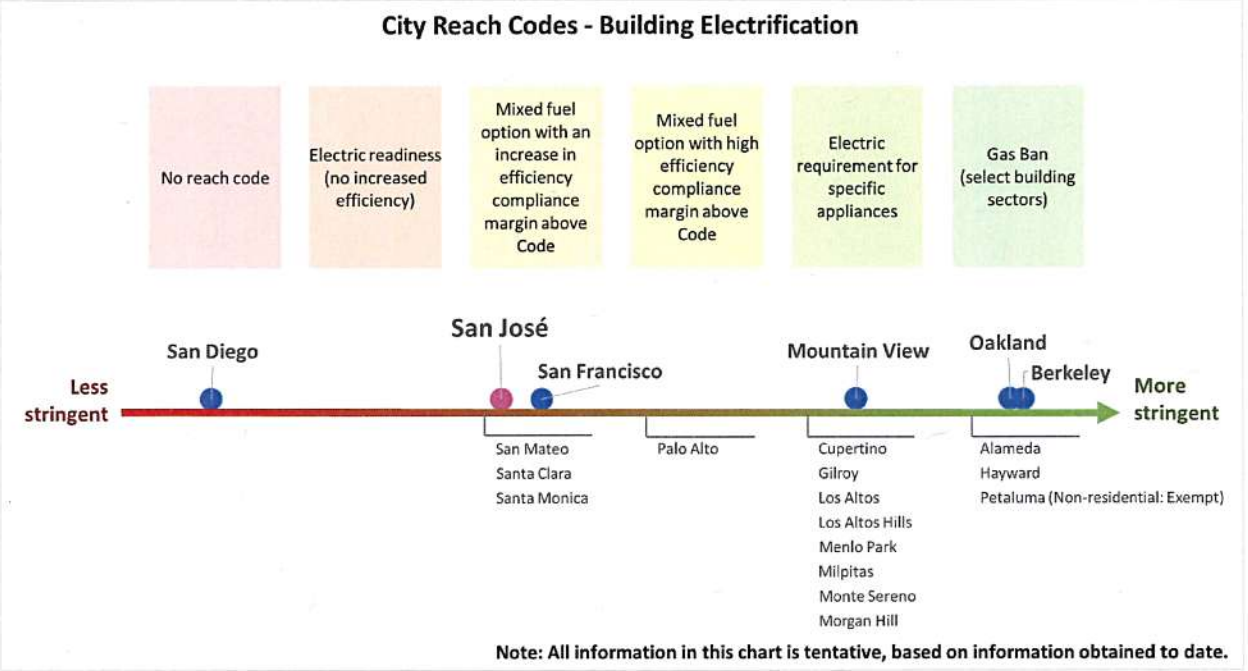
Regional Reach Code Efforts

Current regional reach code efforts are generally focused on both residential and non-residential new construction and EVCI, and incentivize or require:

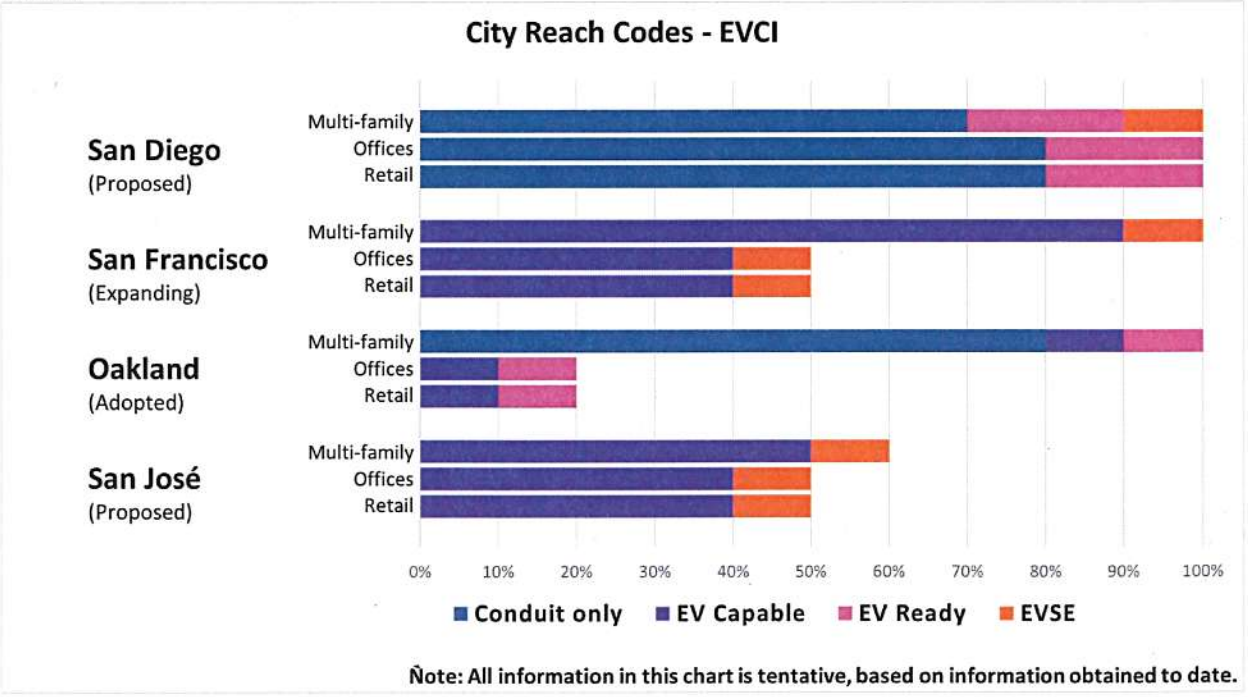
1. All-electric buildings for new construction; or
1. Mixed fuel (i.e. natural gas and electric) buildings, when allowed, go above building energy code (up to maximum limits set by existing cost effectiveness studies) and include electrification readiness in order to incentivize all-electric buildings; and
2. Additional EVCI requirements for all building types to further and prepare for current and anticipated future EV uptake.

While it is important to consider San José's unique building development characteristics, there is also a clear benefit on both the City implementation and development customer side to align as much as possible with regional reach codes for consistency. The proposed San José reach code built off of the draft reach code language released by regional partners representing jurisdictions in the rest of Santa Clara County and in San Mateo County[27]. City staff also communicated with other California jurisdictions outside of the region to vet reach code options. Regional collaboration offers local municipalities the opportunity to collectively encourage building electrification that will be similarly implemented across Silicon Valley and/or the State, therefore reducing the risk of competitive disadvantage between municipalities. For reference, Attachment A explains the components and shows the current known status of reach codes planned or under consideration in the 2019 building code cycle by a variety of California jurisdictions. Based on the information that City staff has been able to obtain to-date, Image 1 and Graph 3 below provides visual summaries of the level of San Jose's proposed building and EVCI reach code requirements versus other California cities.

Image 1. San José Proposed Building Reach Code Requirements versus Other California Cities



Graph 3. San José Proposed EVCI Reach Code Requirements versus Other California Cities



Stakeholder Input

Throughout the reach code development process, PBCE and the ESD staff informed and coordinated with other City departments including the Departments of Community Energy, Housing, Public Works, San José Mineta International Airport, Department of Transportation, and the Office of Economic Development. With the assistance of various City departments, City staff developed a stakeholder engagement list including:

- Over 65 stakeholders, including developers, contractors, environmental and transportation or energy non-profits, industry organizations, business associations, realtor organizations, labor groups, technical experts, educational groups, EV and solar companies, construction management and engineering firms, and utilities.
- More than 200 Neighborhood Associations for all ten City Council Districts.

Reach code stakeholder engagement activities included:

- Four stakeholder engagement workshops covering:
  - Introduction to San José 's reach code development process (May 29, 2019)
  - New non-residential construction focus (June 4, 2019)
  - New residential construction focus (June 25, 2019)
  - Final input on draft reach code language (July 10, 2019), with an extended public comment period through July 23, 2019.
- Presentation at the Silicon Valley Organization Housing & Development Policy Committee meeting (June 13, 2019)
- Presentation at the City's Developers and Construction Roundtable (June 21, 2019)
- Presentation to the City's Community and Economic Development Subcommittee (June 24, 2019)
- Individual meetings, as requested, with organizations representing the affordable housing and market-rate development community
- City Reach Code webpage (www.sanjoseca.gov/reachcode) to keep the public informed about the City's reach code development process and timeline, including key meeting dates, agendas and content for stakeholder meetings, and draft reach code language.

Cost Concerns

The primary concern raised by external stakeholders and other City departments is whether there is a cost increase to build and/or operate all-electric buildings. According to the statewide cost effectiveness studies, all-electric buildings offer savings on "first" construction cost for all building types when compared to mixed fuel buildings. Table 2 shows the first, annual utility, and life-cycle costs for all-electric buildings and mixed fuel buildings under a reach code compared to base code, and demonstrates that beyond the costs inherent to base code compliance, all-electric construction has no added costs for San José's proposed reach code. The cost effectiveness studies do however show an increase in the annual utility costs for all electric buildings, which is the primary reason why lifecycle costs for all electric buildings show an increase in certain building types. The life cycle costs in the table below include annual utility costs (over a 30-year period), maintenance, and the Net Present Value of building equipment. It is important to note that the costs presented below do not account for the projected change in fuel

costs for electricity and natural gas. These projections are based on the notion that a considerable amount of gas infrastructure is nearing the end of its life and will need to be replaced and/or seismically retrofitted. For example, in 2018, SoCalGas requested a rate increase from the CPUC on the cost of natural gas[28]. If approved, SoCalGas ratepayers will see an increase of 19% in 2019, 8.1% in 2020 and 6.1% in 2021, which will be used to replace existing infrastructure, increase safety and cover transportation costs. If these factors are accounted for, the LCC and annual utility costs are reduced, relative to increasing gas costs, for all electric buildings.

Table 2. Costs of Reach Code All-Electric and Mixed Fuel Buildings over 2019 Base Code[25, 26]

	Costs of a Reach Code All-Electric Building over 2019 Title 24 Base Code			Costs of a Reach Code Mixed Fuel Building[ii] over 2019 Title 24 Base Code		
	First Cost	Annual Utility	Life-Cycle	First Cost	Annual Utility	Life-Cycle
Single-family	$0/unit	$0/unit	$0/unit	+$5,434/unit	-$17.43/unit	+$4,911/unit
Low-Rise Multi-family	$0/unit	$0/unit	$0/unit	+$2,429/unit	-$9.60/unit	+$2,141/unit
Office	$0/sf	$0/sf	$0/sf	+1.24/sf	-$0.10/sf	-$1.78/sf
Retail	$0/sf	$0/sf	$0/sf	+$0.23/sf	-$0.10/sf	-$2.85/sf
Small Hotel	$0/sf	$0/sf	$0/sf	+$0.51/sf	-$0.02/sf	-$0.06/sf

Other recent studies found lower upfront and/or lifecycle costs for both residential and non-residential all-electric buildings[29] [30]. Multi-family, affordable housing, and non-residential development projects in California (including several in San José) are already building all-electric (see Attachment B for examples all-electric development projects in the Bay Area).

In terms of EVCI, increased construction costs will be incurred by requiring new construction to provide additional charging infrastructure. Table 3 provides a hypothetical scenario to illustrate how additional EVCI requirements could impact first construction costs under the proposed reach code. The costs represented in Table 3 are for a multi-family building and a commercial

[ii] Figures are based on the highest Energy Design Rating and compliance margins possible for mixed fuel buildings while still maintaining cost-effectiveness.

office building each with 100 parking spaces. The incremental costs are projected to be less than one percent of total project costs.

Table 3. EVCI Additional Construction Costs for Multi-family and Non-Residential Buildings Scenarios[12]

	Multi-family 2019 Base Code	Multi-family Reach Code	Non-Res 2019 Base Code	Non-Res Reach Code
EV Capable Spaces	0	50	0	40
EV Ready Spaces	10	0	10	0
EVSE Spaces	0	10	0	10
Total Cost of EV Capable (w/8A capacity)	$ -	$ 49,500	$ -	$ 39,600
Total Cost of EV Ready[1]	$ 13,300	$ -	$ 13,300	$ -
Total Cost of EVSE	$ -	$ 23,300	$ -	$ 23,300
Total EVCI Cost	**$ 13,300**	**$ 72,800**	**$ 13,300**	**$ 62,900**
Total Project Cost[2]		$ 23,000,000		$ 30,000,000
Incremental Cost of reach code over 2019 base code		0.26%		0.17%

1. Pike, Ed P.E., (2018, June 20). Opportunities to Support PEV Adoption, Roadmap 11, Portland, OR. Energy Solutions [PowerPoint Slides] Retrieved from http://roadmapforth.org/program/presentations18/EdPike.pdf
2. Assumed $250/sf for a 92,000 sf MF development and $300/sf for a 100,000 sf non-res development.

San José Reach Code Components

Considering stakeholder input and the various benefits that can be achieved through a reach code, San José updated the draft reach code language (see Attachment C for a redlined version).

The proposed reach code, codified in the San José Reach Code Ordinance (Attachment D), includes the following:

1. Incentivizes all-electric buildings by requiring that mixed-fuel buildings achieve a higher energy efficiency (demonstrated through a higher Energy Design Rating or compliance margin[iii]) and be electrification ready for all building types;
2. Requires additional electric vehicle charging infrastructure requirements across all building types; and
3. Requires solar readiness for non-residential buildings.

The specific components of San José's proposed reach code are summarized in Table 4.

[iii] Compliance Margin, applicable to non-residential buildings, is the percentage difference between the energy use of the proposed building project over the baseline requirement. An Energy Design Rating, applicable to low-rise residential projects, is a way to express the energy consumption of a building as a rating score index from 1-100 wherein a score of 0 represents a building that has zero energy consumption.

Table 4. Proposed Reach Code Components

	Proposed Reach Code Compliance Pathways	
Occupancy Type	**All-Electric***	**Mixed Fuel***
Single-family & Low-Rise Multi-family	**Efficiency:** To code	**Efficiency:** Energy Design Rating ≤10, electrification-ready
High-rise Multi-family & Hotel	**Efficiency:** To code **EVCI:** Same as mixed fuel	**Efficiency:** 5% (compliance margin), electrification-ready **EVCI:** 10% EVSE, 50% EV Capable
Non-Residential	**Efficiency:** To code **EVCI:** Same as mixed fuel	**Efficiency:** 10% office/retail, 0% industrial/manufacturing, 5% all other occupancies, electrification-ready **EVCI:** 10% EVSE, 40% EV Capable

*Solar-readiness required for all buildings.

Both the mixed fuel building and EVCI requirements were reduced in response to concerns raised by other City departments and external stakeholders around construction costs. A comparison of the proposed components versus the draft components is included in Attachment E.

Reach Code Implementation

City staff intended for the reach code implementation timing to be aligned with the City's implementation of the 2019 California Code, which will go into effect on January 1, 2020. Due to the CEC's review and approval period for a reach code, the ordinance for the San José Reach Code should be approved by City Council and submitted to the CEC no later than September 2019, in order to align with the January 1, 2020 implementation date.

This implementation timing will allow for:

1. Simultaneous implementation of the updated California Code and the reach code requirements, streamlining the process for both City staff and for those submitting development projects;
2. An efficient process that maximizes the implementation period of the reach code since a reach code needs to be re-approved with each code update;
3. Maximization of the impact of the reach code by ensuring it applies to development in San José as soon as possible; and
4. City fulfillment of its commitment to the ACCC and furtherance of its Climate Smart goals.

Next Steps
Pending City Council approval of the proposed reach code, the reach code would be implemented with existing staff and resources with the following next steps:

1. Submit reach code to the CEC for review and approval.
2. File the CEC-approved reach code with the California Buildings Standards Commission.
3. Work with NBI and regional cities to develop implementation resources, such as trainings and checklists, for City staff.
4. Implement San José 's reach code starting January 1, 2020.
5. Continue to provide building and transportation electrification educational opportunities to both City staff and the public.
6. Pursue funding opportunities to incentivize all-electric buildings and transportation in San José, such as the SB 1477 BUILD program funding for decarbonization efforts in new construction.
7. Collect and document data on the reach code impact to consider for future reach code updates

EVALUATION AND FOLLOW-UP

Staff will provide progress updates to T&E Committee and City Council on Climate Smart San José activities, including the reach code, on a semi-annual basis.

POLICY ALTERNATIVES

Alternative #1: Adopt a reach code that requires all-electric buildings while maintaining all other proposed reach code provisions.
Pros: An all-electric building requirement would significantly reduce GHG emissions from new construction and supports the State and City GHG emissions reduction goals. All-electric new construction is also supported by the State's cost effectiveness studies. There would be no incremental costs associated with efficiency performance requirements since all-electric buildings would not be required to go further than the base 2019 Building Code.
Cons: This approach would rapidly transition construction to all-electric with no flexibility.
Reason for not recommending: This approach would offer less flexibility for development as it continues to transition to all-electric in a still emerging and developing marketplace.

Alternative #2: Adopt a reach code that increases energy efficiency requirements for non-residential mixed fuel buildings to the maximum allowable under the 2019 Non-residential New Construction Cost Effectiveness Study and increases EVCI requirements for non-residential and multi-family developments while maintaining all other proposed reach code provisions.
Pros: Increased energy efficiency requirements for non-residential mixed fuel buildings would have a greater impact on GHG emissions due to increased efficiency. Requiring increased energy

efficiency requirements for mixed fuel buildings would also send a stronger signal to more rapidly transition to all-electric buildings.
Cons: This would result in an increased construction cost for mixed fuel buildings.
Reason for not recommending: There are concerns about increasing construction costs for mixed fuel buildings.

PUBLIC OUTREACH

The City established its Reach Code webpage (www.sjenvironment.org/reachcode) in May 2019, which includes FAQs as well as a pathway to receive updates and to sign up for stakeholder meetings. City staff reached out to over 250 stakeholders and presented at seven public meetings since May 2019.

This memorandum will be posted on the City's website for the September 9, 2019 T&E agenda as well on the September 17, 2019 City Council's Agenda website.

COORDINATION

This memorandum has been coordinated with the City Attorney's Office, the Department of Transportation, Department of Community Energy, Housing Department, Office of Economic Development, and Public Works.

FISCAL/POLICY ALIGNMENT

The reach code components align with the Climate Smart San José strategies and the City's Envision 2040 General Plan approved by City Council.

CEQA

Categorically Exempt, File No. PP19-067, CEQA Guidelines Section 15308, Actions by Regulatory Agencies for Protection of the Environment.

/s/
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/s/
KERRIE ROMANOW
Director, Environmental Services

For questions, please contact Ken Davies, Deputy Director, at (408) 975-2587.

Attachments:
Attachment A – Reach Code Efforts in Other Jurisdictions
Attachment B – Bay Area All-Electric Development Projects
Attachment C – Redlined Draft Reach Code Components
Attachment D – San José Reach Code Ordinance
Attachment E – Summary of San José Reach Code Components

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