CITY OF CUPERTINO

CLIMATE ACTION PLAN

2018 Progress Report

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The City of Cupertino's Climate Action Plan defines Cupertino's path toward creating a healthy, livable, and vibrant place for its current and future residents to live, learn, work, and play. The CAP's primary goal is to create a roadmap to reduce greenhouse gas emissions in Cupertino. This 2018 Progress Report is an overview of how Cupertino is meeting its 2020 greenhouse gas emissions reduction goals through City-led action as well as regional and state policies.

CAP Overview

- Goal areas: energy, transportation, water, waste, green infrastructure
- Over 225 municipal and community-wide measures
- Target emissions reduction years: 2020, 2035, and 2050
- 2010 baseline emissions inventory

Cupertino Among the First Bay Area Cities to Declare Climate Emergency

City of Cupertino passed Resolution No. 18-094 on September 18, 2018, declaring a climate emergency and calling on the State of California, the United States, and all governments worldwide to initiate an emergency mobilization effort to mitigate climate change, stop rising greenhouse gas emissions, and immediately initiate an effort to safely draw down carbon from the atmosphere.

> *"I am really glad that we are declaring a climate emergency…this is extremely critically important for not just our community but for the planet and it is something that I'm very glad to be able to bring forward to the community…"*
>
> ***- Councilmember Darcy Paul***
>
> *(Commenting as Mayor in 2018 at time of resolution adoption)*

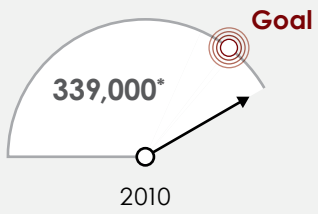
Climate Action Commitments and Resolutions

- Diesel Free by 2033 (August 2018)
- Climate Emergency Declaration (September 2018)
- U.S. Conference of Mayors Climate Protection Agreement
- Global Covenant of Mayors for Climate and Energy
- Bay Area Climate Collaborative / Bay Area Climate Compact

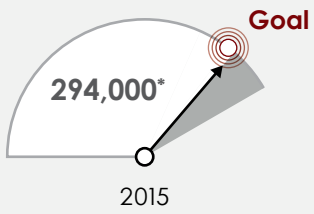
Emissions Target for 2020 Achieved

2018 Emissions 24% Below 2010 Levels

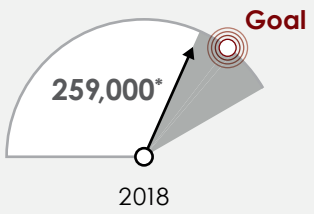
Cupertino completed its first greenhouse gas (GHG) emissions inventory for the year 2010. Cupertino's target is to reduce community emissions by 15% below 2010 levels by 2020, with further reductions in 2035 and 2050. Community-wide emissions in 2018 were estimated at 24% below 2010 levels, achieving our 2020 goal ahead of schedule.



12-year goal: 288,000 MT CO_2e (15% reduction)



By 2015, already 13% reduction



Currently, already 24% reduction

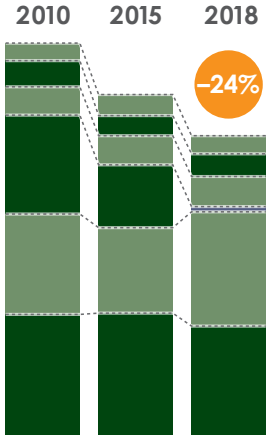
* emissions rounded to nearest 1,000 metric tons CO_2 emission per year

Goal Surpassed Despite More People and Jobs

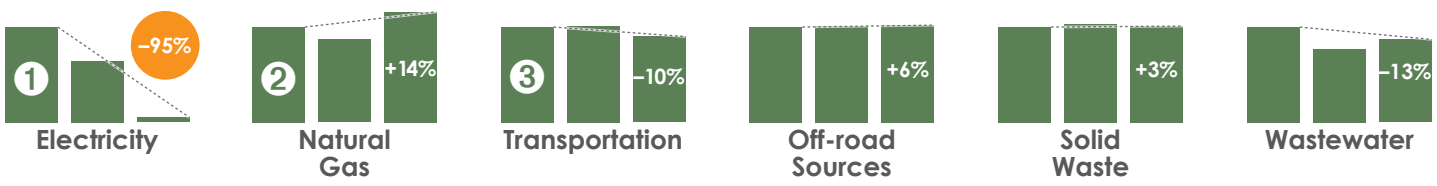
Of all the 200+ measures in our CAP, the most significant action the City has taken to reduce emissions was the launch of Silicon Valley Clean Energy, our clean electricity provider (see ❶ below). The switch to carbon-free electricity for our community opens opportunities for deeper emissions reduction as residents, businesses, and City operations switch to electric vehicles and electric appliances.

	2010	2015	2018
Solid Waste	15,185	18,219	15,709
Wastewater	22,591	17,405	19,635
Off-road Sources	24,496	25,165	25,967
Electricity	85,451	54,318	4,515
Natural Gas	86,837	73,948	98,846
Transportation	104,112	105,225	93,987

MT CO_2e



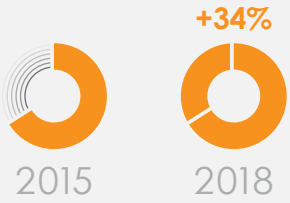
Community emissions are driven by both residential and commercial activity occurring within Cupertino, and some changes in our community increased emissions: since 2010, Cupertino has experienced an estimated 6% increase in population, 18% increase in jobs, and a 10% increase in service population. Natural gas usage increased by 14% since 2010 (see ❷ below). However, due to City's climate actions as well as other systemic changes, we saw an overall 24% decrease in emissions. Transportation showed a 10% decrease in emissions (2018 vs. 2010), despite an 8% increase in vehicle miles traveled (see ❸ below).



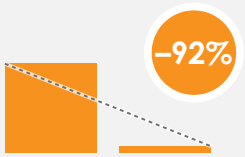
Energy Efficiency and Clean Electricity

Natural Gas

Natural gas usage increased by 34% from 2015 to 2018 and is now the largest source of emissions in Cupertino. Natural gas furnaces, stoves, and water heaters create pollution inside homes and businesses. Gas pipelines leak methane, a potent greenhouse gas and fire risk. Residents and businesses can reduce emissions from natural gas by choosing electric appliances and increasing the energy efficiency in homes and buildings.



Clean Electricity



SILICON VALLEY CLEAN ENERGY

96.6% of residential and commercial electricity accounts in Cupertino used Silicon Valley Clean Energy's clean electricity in 2018

$946,000 in on-bill savings for SVCE customers in Cupertino

$12,491 in cash payments to customers for generating extra solar energy

22,609 households and businesses served

100% renewable energy for all municipal facilities

GREEN CALIFORNIA GREEN BUSINESS NETWORK SANTA CLARA COUNTY

Green Businesses

Since 2010, our award-winning GreenBiz program has helped 60 businesses achieve California Green Business certification, saving over 7,600 metric tons of carbon dioxide and diverting over 22 million pounds of waste cumulatively.

Solar Energy

SOLSMART
NATIONALLY DISTINGUISHED. LOCALLY POWERED.

755 kW of solar capacity installed in homes & businesses (not including Apple Park) in 2018 (est.)

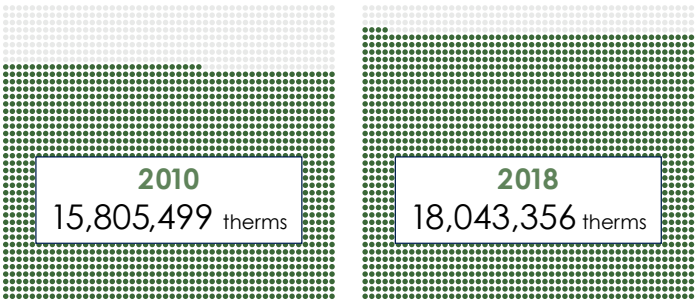
4 MW installed since 2015 (est.), exceeding CAP goal of 1.5 MW by 2020 (goal does not include Apple Park)

17 MW of solar capacity installed at Apple Park

Energy Efficiency and Clean Electricity

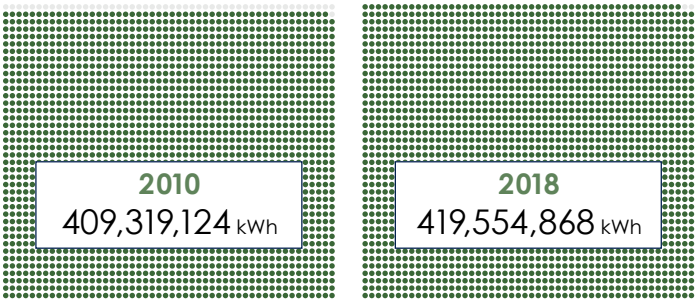
Community

Natural Gas Usage +14%

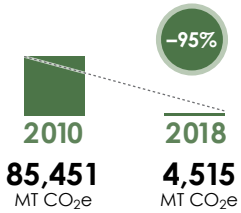


Non-residential natural gas usage increased 54% since 2010 and was the primary driver of the community's increase in natural gas usage overall.

Electricity Usage +3%



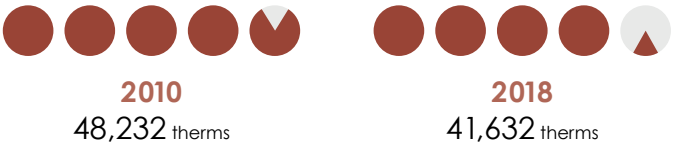
Electricity Emissions Reduction



3% increase in usage from 2010 to 2018 (but a 95% decrease in electricity emissions)

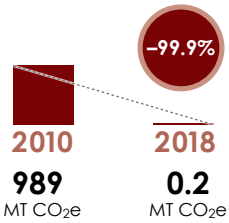
Municipal

Natural Gas Usage –14%



Electricity Usage –36%

Electricity Emissions Reduction



36% decrease in usage from 2010 to 2018 (and a 99.9% decrease in electricity emissions)

2018 Energy Efficiency Project Spotlight: Municipal LED Light Upgrade

47,673 kWh saved

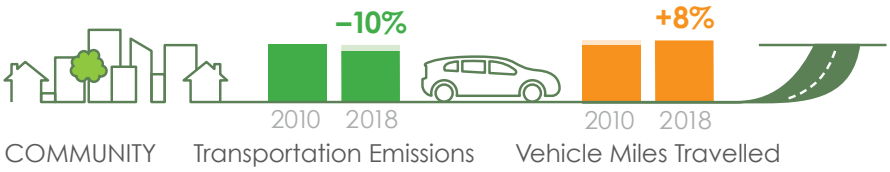
$10,500 less cost

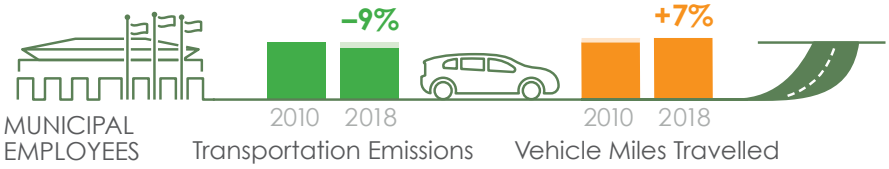
47,673 kWh saved per year and $10,500 in avoided electricity costs from LED light upgrade project at Memorial Park Tennis Courts.

Alternative Transportation

Transportation is the second largest source of emissions in Cupertino as heavy traffic congestion from cars and trucks—powered by dirty fuels (gasoline and diesel)—create pollution in our community. The City encourages alternative ways to travel around Cupertino that reduce pollution: walking, biking, taking public transportation, and switching to clean vehicles (electric and fuel cell vehicles).

2018 Highlights





7% increase in miles traveled to work by municipal employees, but a 9% decrease in emissions compared to 2010. This is a result of municipal employees driving more fuel-efficient vehicles.

Cupertino's 95014 zip code has the second highest number of electric vehicles in the Bay Area.

6,624	EV/hybrid/fuel cell vehicles registered in Cupertino
40,216	gasoline/diesel/other vehicles registered in Cupertino
14%	of vehicles registered in Cupertino are EV/hybrid/fuel cell
9%	of vehicles registered in Santa Clara County are EV/hybrid/fuel cell

Bicycle Transportation Plan

Safer, "Class 4" bike lanes are being installed on McClellan Road from Byrne to Torre (expected to be complete by 2021). Separated bike lanes encourage more bicycling by providing protection from traffic.

Councilmember Rod Sinks joins Cupertino City staff for Bike to Work Day.

Renewable Diesel in City Fleet

Two key actions led to a 32% decrease in City fleet emissions since 2010: Public Works staff added electric vehicles and hybrids to the fleet and switched to renewable diesel for all diesel fleet vehicles. Renewable diesel is made from waste and residues, such as animal fats from food industry waste and used cooking oil.

Compared to 2010

3%	decrease in gallons of fuel used
32%	decrease in City fleet emissions

Water Conservation

2018 Highlights

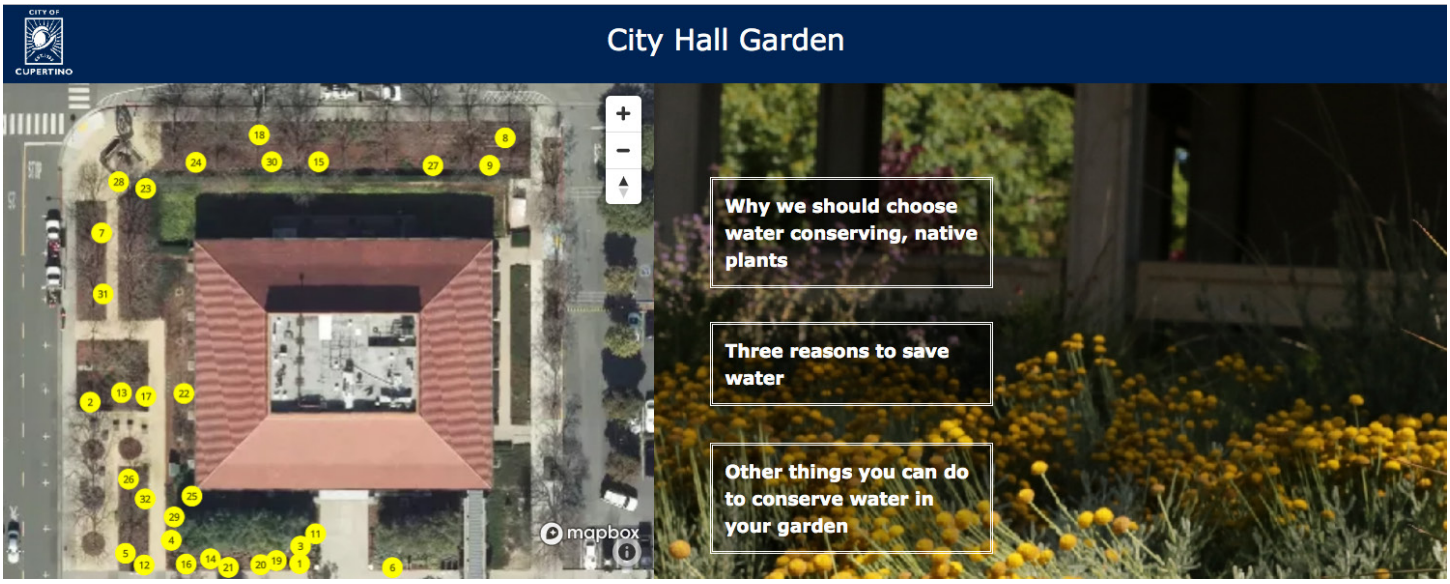
17% reduction in per capita water usage in the community (compared to 2010).

ACHIEVED Bay Area Climate Compact's 2018 Goal for municipal water savings: City reduced municipal water usage by 22% since 2008.

City Hall Demonstration Garden

On August 22, the City of Cupertino held a ribbon cutting ceremony and guided tour of the City Hall Demonstration Garden. **Switching to drought-tolerant plants is saving the City over 400,000 gallons of water annually.** The Demonstration Garden is a place for residents to learn about Bay Area native and drought-tolerant plants. The City's Geographic Information System (GIS) team created an interactive virtual demo garden as a learning tool for drought tolerant plants: Cupertino.org/demogarden.

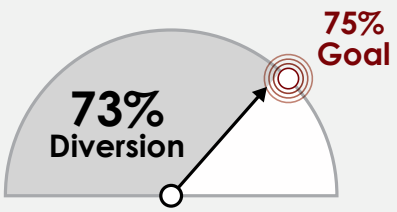
Left to right: Sustainability Commission Chair Anna Weber, Councilmember Darcy Paul, Mayor Steven Scharf, Vice-Mayor Liang Chao, Santa Clara Valley Water Board Vice-Chair Nai Hsueh



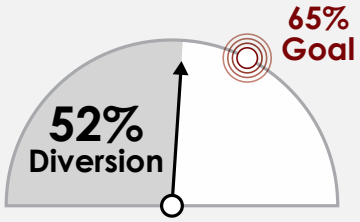
Reduce Solid Waste

The Cupertino City Council adopted a Zero Waste Policy in 2017. The City's Environmental Services team tracks how much Cupertino waste goes to the landfill versus recycling and composting. Methane, a potent greenhouse gas, is released when food scraps, paper, and other organic materials rot in a landfill. The City offers organics collection service to divert food, food soiled paper, and yard waste from the landfill and reduce emissions. In 2018, Environmental Services conducted a single-family waste characterization study and found that nearly 80% food waste was not being diverted. The City is using the results of this study to adjust its programming and outreach efforts.

Current Community Diversion Rates



City's goal is to divert 75% of community-wide solid waste from the landfill. Current diversion rate is 73%.



City's goal is 65% of construction and demolition (C&D) waste diverted from the landfill. Current C&D diversion rate is 52% (2018).

Focus on Composting

57% of commercial and multifamily accounts with organics collection service (2018).

Conducted pilot "lid flip" visual audits and targeted outreach regarding food scraps collection to 393 households in 2018.

Households divert 21% of food scraps and compostable paper.

Households divert 100% of yard waste.

Natural Resources

2018 Highlights

186 Trees Planted

Tree Plotter App

Residents can now visit the new Tree Plotter application to view the benefits of individual City trees or the entire City-wide canopy. The app includes a tree's overall monetary benefit, property value, runoff prevention, energy savings, heat prevention, and air quality benefits among other factors. Residents can also check when a tree was planted, when it was last pruned, and its maintenance history: cupertino.org/trees.

Tree Canopy Assessment

An assessment was conducted to determine the distribution of existing and potential urban tree canopy throughout Cupertino. Cupertino contains 23% urban tree canopy and 48% impervious surface. Inspiration Heights neighborhood had the highest canopy coverage at 39% and comprised 18% of the city's total existing canopy.

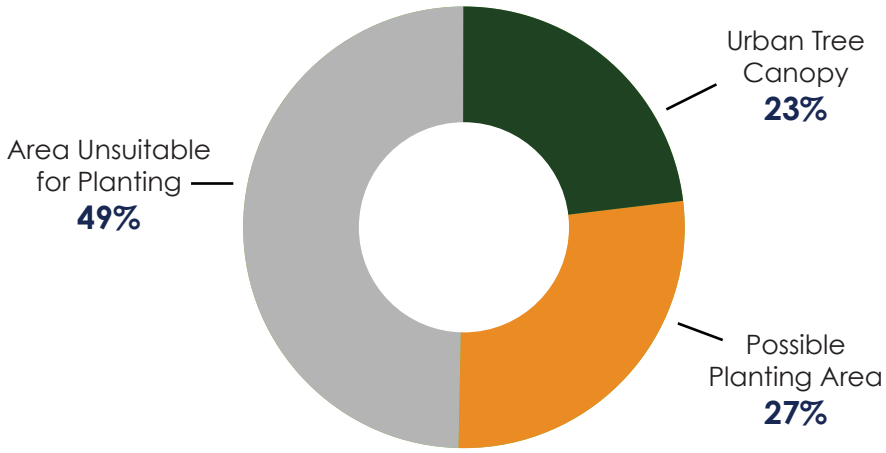
Total Study Area
7,231 Acres

Tree Canopy
2009: 1,718 Acres (23.8%)
2018: 1,684 Acres (23.3%)

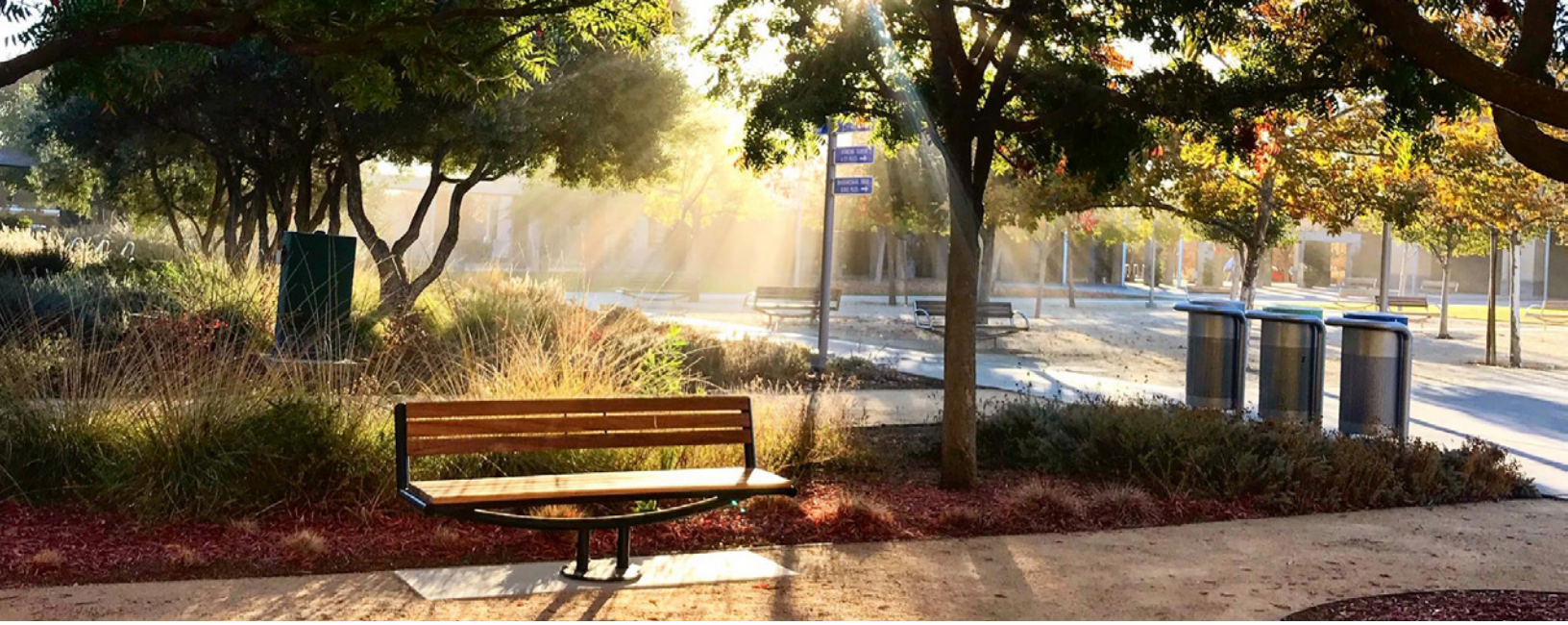
Plantable Space
1,983 Acres (27%)

Note: Urban tree canopy percentages are based on land area only.

Urban Tree Canopy Potential



9%
Tree canopy overhangs an impervious surface.



Active and Upcoming Projects

- Sustainability Commission and City Council considering "reach codes" for Cupertino to require higher standards locally for green building and electrification of newly constructed buildings (expected to be adopted in 2020)
- CAP 2.0 with Adaptation Plan (in planning stage)
- Green Stormwater Infrastructure Plan adopted by City Council September 2019
- Launch of Via-Cupertino shuttle November 2019: cupertino.org/shuttle

Mayor Scharf accepts Beacon Award at League of Cities Conference, October 2019

Via Cupertino Shuttle Launch – left to right, Assistant City Manager Dianne Thompson; City Manager Deb Feng; Councilmember Jon Willey; Mayor Steven Scharf; Chris Corrao, Senior Transit & Transportation Planner; Roger Lee, Director of Public Works

The Challenge Ahead

While Cupertino and other cities have met their 2020 emissions targets, future carbon emissions targets are at risk. It is clear that the path ahead contains some of the most difficult to achieve emissions and air quality improvements – namely fossil fuel combustion in buildings and by cars. A 2018 report by the Bay Area Council Economic Institute* indicates that sustainable, affordable, transit-oriented housing near job centers offers great potential. The U.S. Environmental Protection Agency estimates** that transit-oriented housing will reduce vehicle miles traveled by 20–40% and emissions from transportation by 9–15% by 2050. As our electricity becomes cleaner, decarbonizing buildings - switching from natural gas to electric appliances - is also an effective and economically compelling path. Achieving this goal will require market transformation, consumer engagement, and public policy changes in the short term.

The other great challenge for Cupertino is to address the increasing climate risks to our infrastructure and health. Resilience is demonstrated by the ability of the individuals, institutions, businesses, and systems within the community to survive, adapt, and grow no matter what chronic stress or acute shock it experiences. Because a changing climate affects every sector of our economy and every community in our state, we have the opportunity to prepare for the future together. We are looking forward to working with our community on these challenges in the coming years.

*Bay Area Council Economic Institute, "Continuing Growth and Unparalleled Innovation: Bay Area Economic Profile," July 2018, http://www.bayareaeconomy.org/report/continuing-growth-and-unparalleled-innovation/ (Accessed 11/13/2019)
**U.S. Environmental Protection Agency, "Smart Growth and Climate Change," last modified January 2017, https://www.epa.gov/smartgrowth/smart-growth-and-climate-change

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CUPERTINO GREEN