

CLIMATE SMART SAN JOSE

A People-Centered Plan for a
Low-Carbon City



City Council Meeting
February 27, 2018
Item 7.1

AGENDA

1. Why we're doing this
2. Our journey to date
3. Climate Smart San José
4. How City Hall and the Community can implement Climate Smart San José
5. Q&A

1

WHY WE'RE DOING THIS

WE DON'T NEED TO LOOK VERY FAR TO SEE THE EFFECTS OF CLIMATE CHANGE



CITY COUNCIL DIRECTION

- In 2015, Mayor Liccardo and City Council outlined a Green Focus effort to support two goals of the 2007 Green Vision:
 - Ensuring a more sustainable water supply and;
 - Reducing GHG emissions – tied to energy and mobility.



ENERGY



MOBILITY



WATER

A LOT HAS ALREADY HAPPENED: SAN JOSE'S COMMUNITY CHOICE ENERGY SUCCESS



The Mercury News

San Jose City Council approves new community choice energy plan, the largest in California

Proponents say the plan offers consumers another choice, reduces rates and reduces greenhouse gas emissions

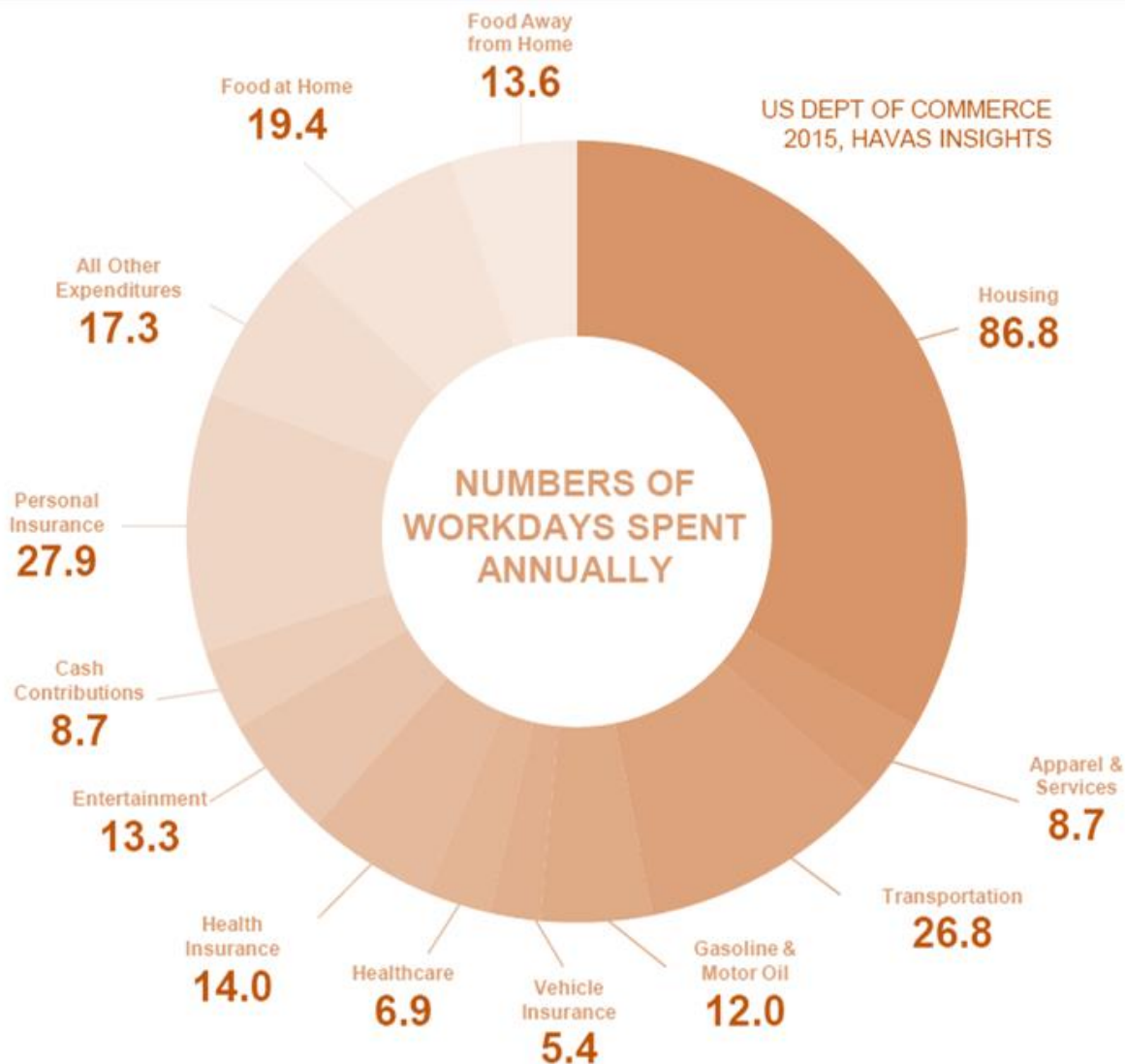
Rethinking the Good Life 1.0: What does the Good Life 2.0 look like for San Joséans?



- Spend more time with family and friends
- Be more healthy and active
- Have access to parks and nature



WHAT DOES THE GOOD LIFE COST THE AVERAGE AMERICAN?



Sources: US Census Bureau, Federal Reserve Bank of St. Louis, Wall Street Journal

When adjusted for inflation, the median US family home now costs \$305,400, compared to \$202,379 in 1978. The median family home in San José in 2016 cost \$1,085,000.

We're working an extra month or two each year to pay for the additional bedrooms that nobody uses

We're working two full weeks to pay for our extended commute to work

2

OUR JOURNEY TO DATE

CHAPTERS		GOALS																				
THRIVING COMMUNITY	Diverse and Innovative Economy	IE-1 Land Use and Employment	IE-2 Business Growth and Retention	IE-3 Regional, State, & National Leadership	IE-4 Connections to Promote Economic Development	IE-5 Cultural Attractions	IE-6 Broad Economic Prosperity	IE-7 Clean Technology														
	Arts and Culture	AC-1 San José as the Silicon Valley Cultural Center	AC-2 High Impact Public Art																			
	Community Engagement	CE-1 Active Community Engagement	CE-2 Community Partnerships																			
	Fiscal Sustainability	FS-1 City Operations	FS-2 Cultivate Fiscal Resources	FS-3 Fiscally Sustainable Land Use Framework	FS-4 Promote Fiscally Beneficial Land Use	FS-5 Fiscally Sustainable Service Delivery	FS-6 Fiscally Sustainable Waste Management															
ENVIRONMENTAL LEADERSHIP	Measurable Environmental Sustainability	MS-1 Green Building Policy Leadership	MS-2 Energy Conservation and Renewable Energy Use	MS-3 Water Conservation and Quality	MS-4 Healthful Indoor Environment	MS-5 Waste Diversion	MS-6 Waste Reduction	MS-7 Environmental Leadership and Innovation	MS-8 Environmental Stewardship	MS-9 Service Delivery	MS-10 Air Pollutant Emission Reduction	MS-11 Toxic Air Contaminants	MS-12 Objectional Odors	MS-13 Construction Air Emissions	MS-14 Reduce Consumption and Increase Efficiency	MS-15 Renewable Energy	MS-16 Energy Security	MS-17 Responsible Management of Water Supply	MS-18 Water Conservation	MS-19 Water Recycling	MS-20 Water Quality	MS-21 Community Forest
	Environmental Resources	ER-1 Grassland, Oak Woodlands, Chaparral, and Coast Scrub	ER-2 Riparian Corridors	ER-3 Bay and Baylands	ER-4 Special-Status Plants and Animals	ER-5 Migratory Birds	ER-6 Urban Natural Interface	ER-7 Wildlife Movement	ER-8 Stormwater	ER-9 Water Resources	ER-10 Archaeology and Paleontology	ER-11 Extractive Resources										
	Environmental Considerations/ Hazards	EC-1 Community Noise Levels and Land Use Compatibility	EC-2 Vibration	EC-3 Seismic Hazards	EC-4 Geologic and Soil Hazards	EC-5 Flooding Hazards	EC-6 Hazardous Materials	EC-7 Environmental Contamination	EC-8 Wildland and Urban Fire Hazards													
	Infrastructure	IN-1 General Provision of Infrastructure	IN-2 Infrastructure Management	IN-3 Water Supply, Sanitary Sewer, and Storm Drainage	IN-4 Wastewater Treatment and Water Reclamation	IN-5 Solid Waste-Materials Recovery / Landfill	IN-6 Telecommunications															
QUALITY OF LIFE	Vibrant Neighborhoods	VN-1 Vibrant, Attractive, and Complete Neighborhoods	VN-2 Community Empowerment	VN-3 Access to Healthful Foods	VN-4 Cultural Opportunities	VN-5 Private Community Gathering Facilities																
	Community Design	CD-1 Attractive City	CD-2 Function	CD-3 Connections	CD-4 Compatibility	CD-5 Community Health, Safety, and Wellness	CD-6 Downtown Urban Design	CD-7 Urban Villages	CD-8 Building Height	CD-9 Access to Scenic Resources	CD-10 Attractive Gateways											
	Housing	H-1 Housing - Social Equity and Diversity	H-2 Affordable Housing	H-3 High Quality Housing and Great Places	H-4 Housing - Environmental Sustainability																	
	Education and Services	ES-1 Education	ES-2 Libraries	ES-3 Law Enforcement and Fire Protection	ES-4 Emergency Management	ES-5 Code Enforcement	ES-6 Access to Medical Services															
	Parks, Open Space and Recreation	PR-1 High Quality Facilities and Programs	PR-2 Contribute to a Healthful Community	PR-3 Provide an Equitable Park System	PR-4 Community Identity	PR-5 Grand Parks	PR-6 Sustainable Parks and Recreation	PR-7 Interconnected Parks System	PR-8 Fiscal Management of Parks and Recreation Resources													
LAND USE AND TRANSPORTATION	Land Use Policies	LU-1 General Land Use	LU-2 Growth Areas	LU-3 Downtown	LU-4 Commercial	LU-5 Neighborhood Serving Commercial	LU-6 Industrial Preservation	LU-7 Attract New Industrial Uses	LU-8 Maintain Employment Lands	LU-9 High-Quality Living Environments	LU-10 Efficient Use of Residential and Mixed-Use Lands	LU-11 Residential Neighborhoods	LU-12 Urban Agriculture	LU-13 Landmarks and Districts	LU-14 Historic Structures of Lesser Significance	LU-15 Public Awareness	LU-16 Sustainable Practices	LU-17 Hillside / Rural Preservation	LU-18 Hillside Development Hazard Avoidance	LU-19 Urban Growth Boundary (Open Hillside / Agriculture Lands)	LU-20 Rural Agriculture	
	Transportation Policies	TR-1 Balanced Transportation System	TR-2 Walking and Bicycling	TR-3 Maximize Use of Public Transit	TR-4 Passenger Rail Service	TR-5 Vehicular Circulation	TR-6 Goods Movement	TR-7 Transportation Demand Management	TR-8 Parking Strategies	TR-9 Tier I Reduction of Vehicle Miles Traveled	TR-10 Tier II Vehicle Miles Traveled Reduction	TR-11 Regional and State VMT Reduction Efforts	TR-12 Intelligent Transportation System	TR-13 Attractive and Accessible Airport	TR-14 Safe Airport	TR-15 Moffett Field	TN-1 National Model for Trail Development and Use	TN-2 Trails as Transportation	TN-3 Accessible, Safe, and Well-Functioning Trails			
IMPLEMENTATION	Implementation	IP-1 Land Use / Transportation Diagram	IP-2 General Plan Phasing / Planning Horizons / Major Review	IP-3 General Plan Annual Review and Measureable Sustainability	IP-4 General Plan Annual Review Hearing Process	IP-5 Urban Village Planning	IP-6 Capital Improvement Program	IP-7 Specific Plans	IP-8 Zoning	IP-9 Subdivision	IP-10 Site Development	IP-11 Annexations	IP-12 Environmental Clearance	IP-13 Building Permits	IP-14 Citizen Participation and Community Engagement	IP-15 Development Fees, Taxes, and Improvement Requirements	IP-16 Implementation of the General Plan by Other Agencies	IP-17 Environmental Leadership / Stewardship	IP-18 Economic Development	IP-19 Housing Development		

Climate Smart San José

Requires Activation 73% of General Plan's goals

KEY

CSSJ drives progress on this goal

CSSJ enables progress on this goal

CSSJ aligns with this goal

CSSJ does not actively consider this goal

Climate Smart San José

Requires Activation 73% of General Plan’s goals

KEY

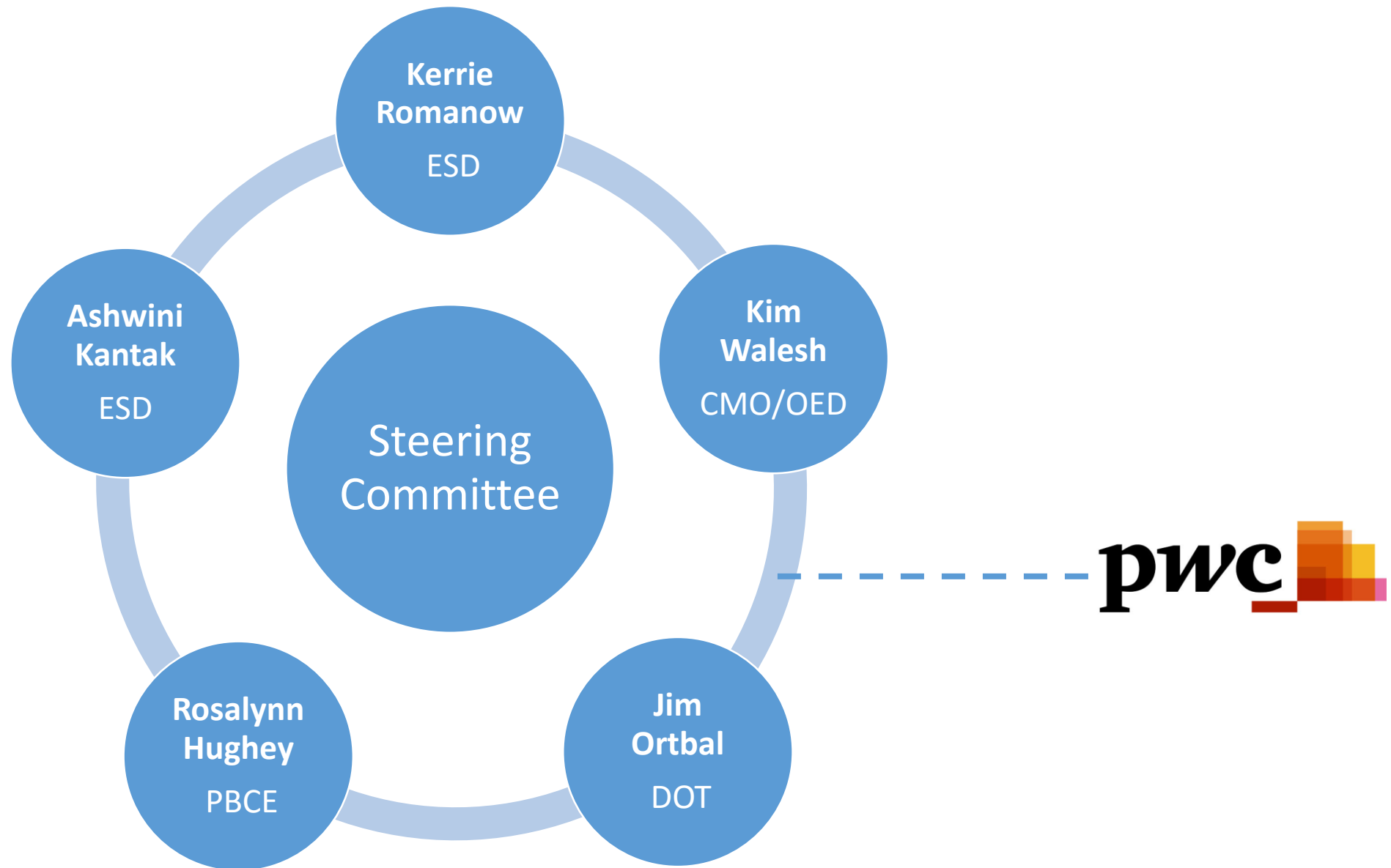
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CLIMATE SMART SAN JOSE STEERING COMMITTEE



- Coordinated with Public Works, Housing and Community Energy

WE ENGAGED THE BAY AREA'S LEADING CLIMATE AND WATER EXPERTS

Expert Survey – April 2017

- Collect ideas on innovations and leading edge measures
- 119 responses



Technical Workshops

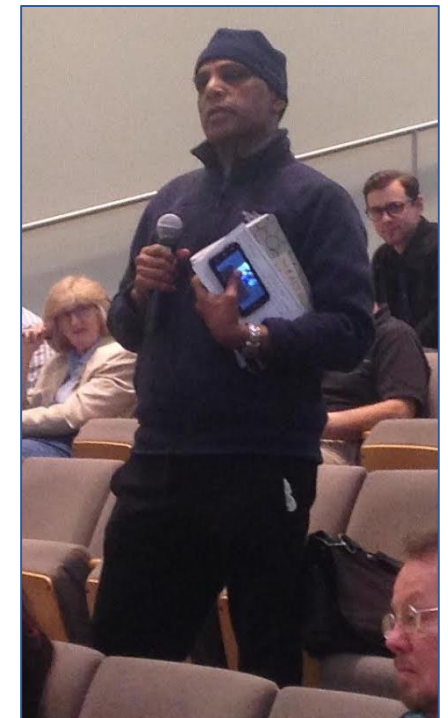
May 2017 – January 2018

- Six workshops focused on energy water, mobility and open space
- Approx. 120 attendees



INVITED FEEDBACK FROM SAN JOSE RESIDENTS & COMMUNITY GROUPS

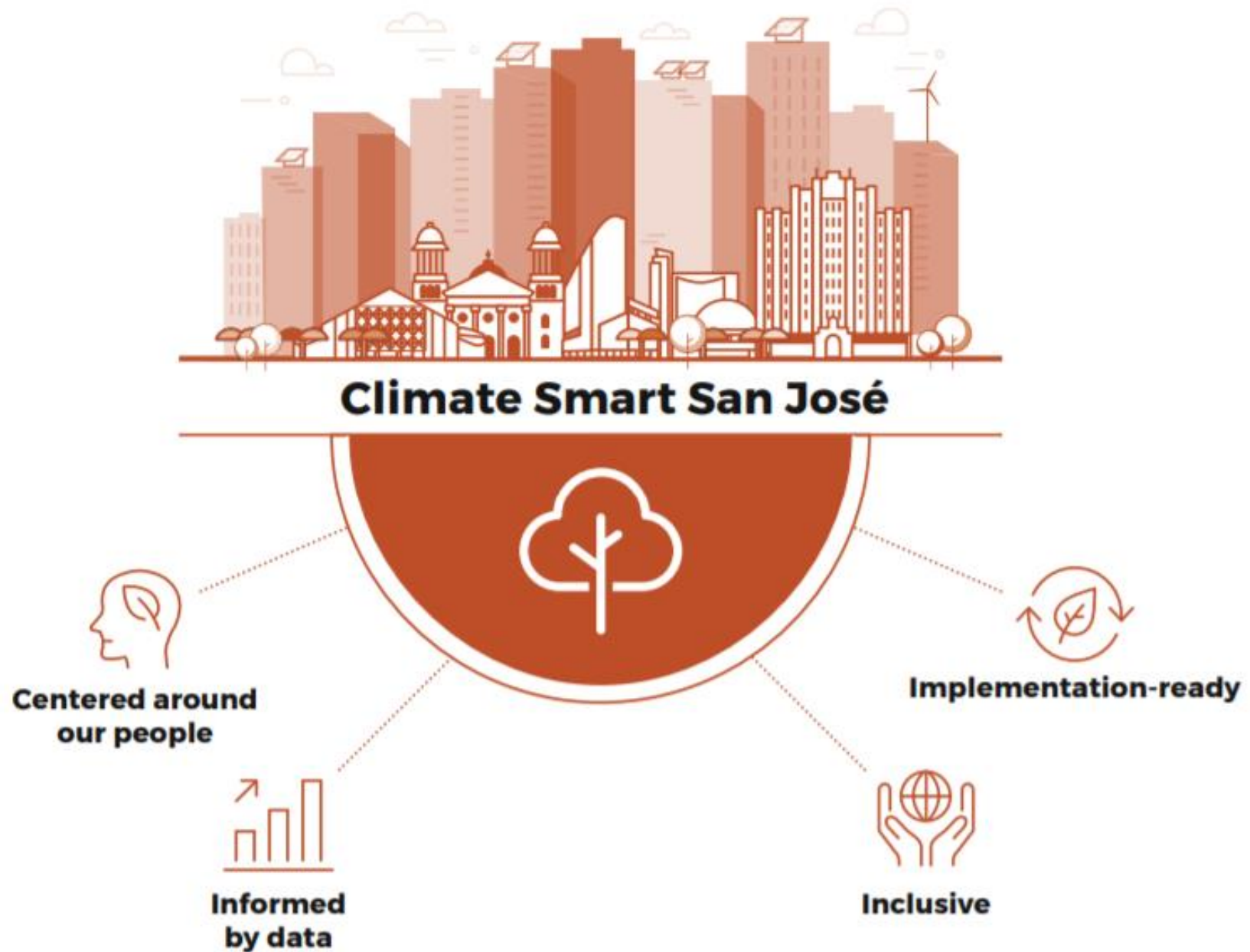
- Town Hall meetings
- Council District meetings
- Neighborhood community meetings
- Council study sessions
- Neighborhoods Commission meeting



3

CLIMATE SMART SAN JOSE PLAN

CLIMATE SMART SAN JOSE FRAMING



COMPARISON TO OTHER CITIES: CARBON FOOTPRINT

Citywide Carbon Footprint (tCO2e per capita)

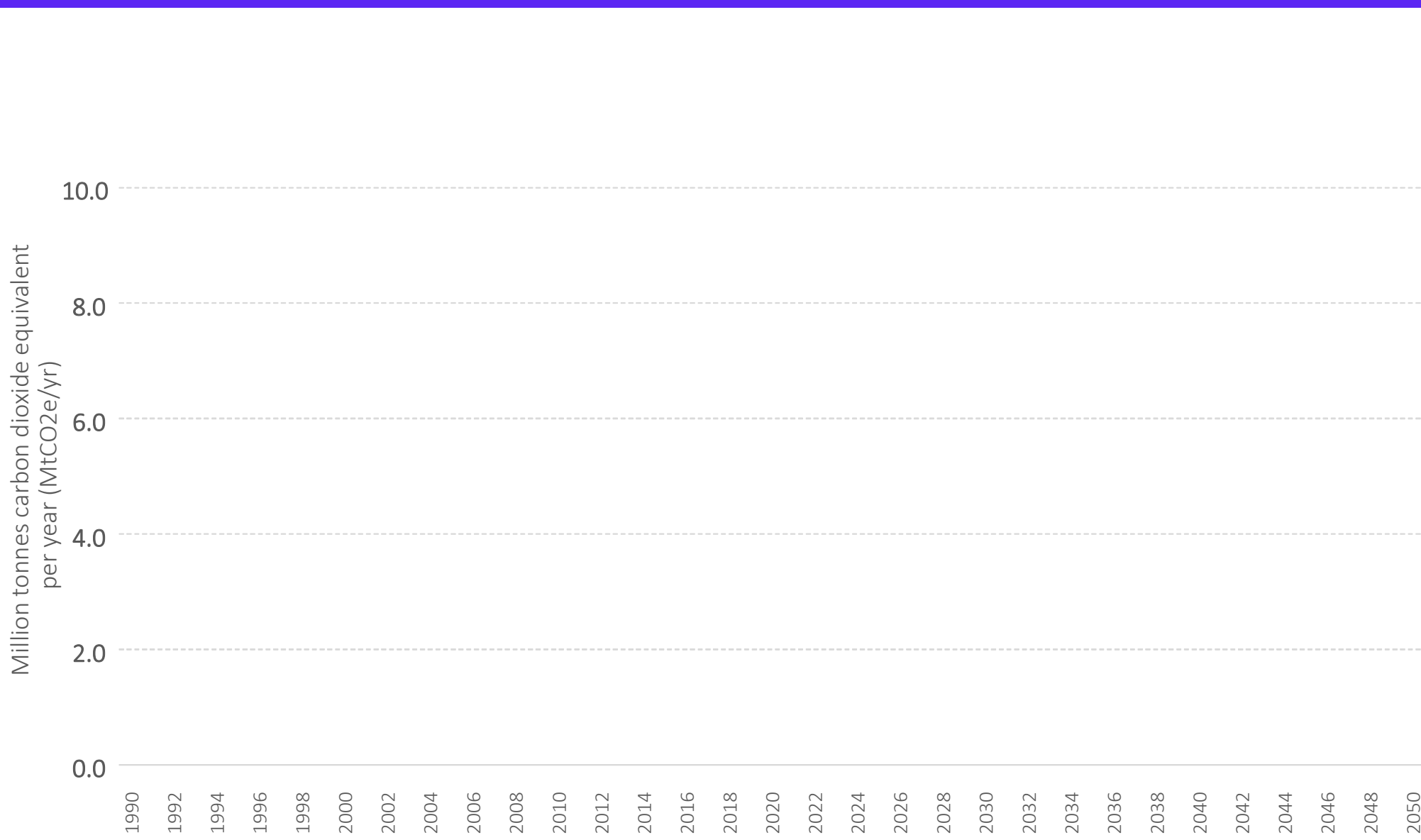


Source: Cities reporting to Carbon Disclosure Project (CDP)
*denotes C40 city

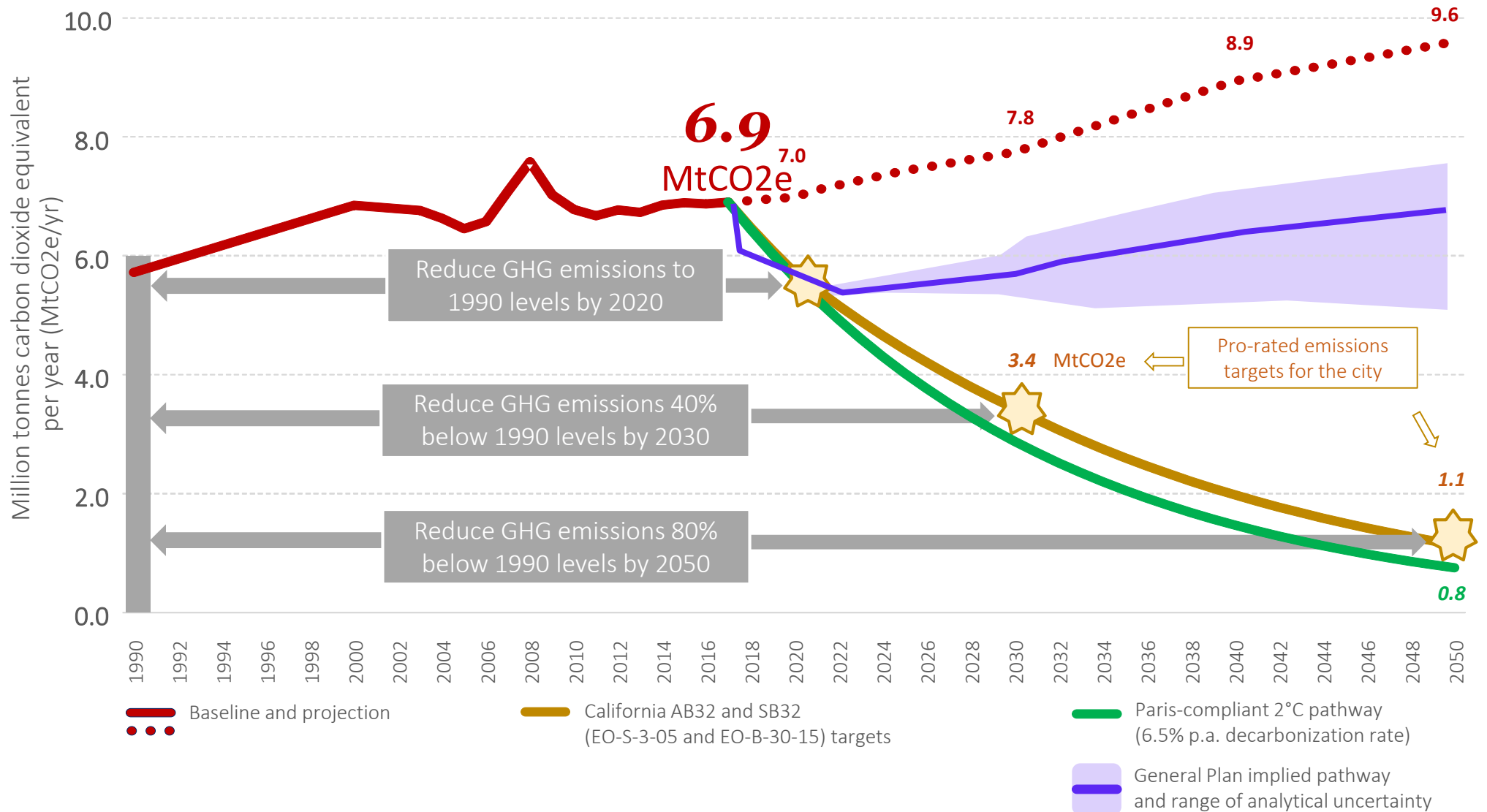
one tonne
of CO₂



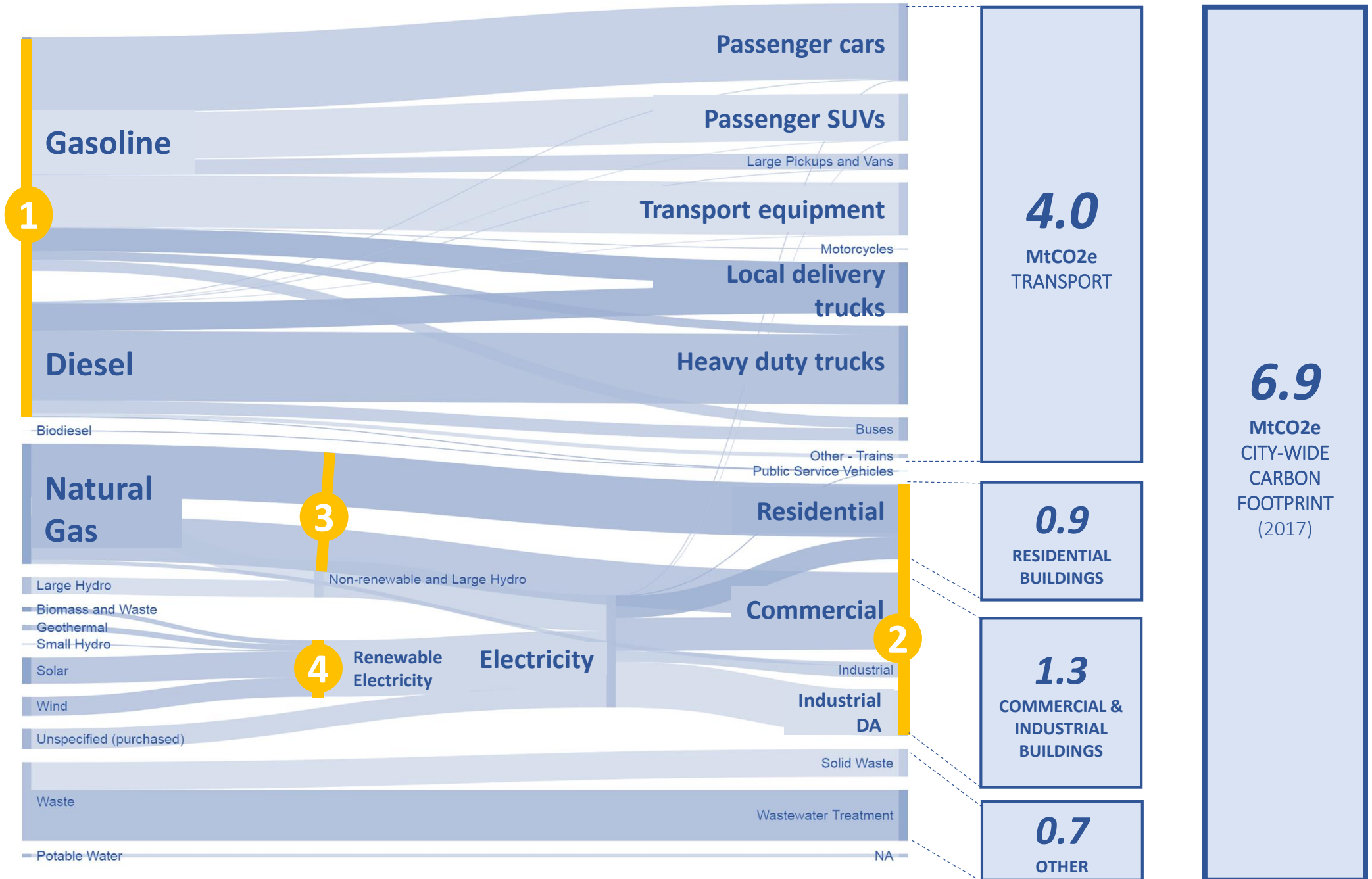
SAN JOSE'S EMISSIONS PROFILE



SAN JOSE'S EMISSIONS PROFILE



...AND ITS DRIVERS, WHICH TOLD US WHERE TO FOCUS



WE USED THIS DATA TO GENERATE IDEAS TO ADDRESS THE PROBLEM OF CARBON EMISSIONS

1. Addressed key supply/use node in the GHG-fossil fuel use profile
2. Effective at reducing emissions at-scale
3. Would 'zero-out' carbon impact of additional pop' growth
4. Remain relevant for the continued growth of the city
5. Reasonable marginal abatement costs
6. Supported by Town Hall attendees and survey respondents

THERE ARE 53 MEASURES THAT HELP US GET THERE

 San José Clean Energy	 Distributed solar generation	 LED lighting retrofit	 Energy efficient electronics	 Energy efficient refrigerators	 Gas to electric stove replacement	 Gas to electric water heater replacement	 Gas to electric ground source heat pumps	 Smart thermostats	 Residential building thermal envelope retrofit	 Residential building thermal envelope new-build	 Commercial building thermal envelope retrofit	 Commercial building thermal envelope new-build										
 Commercial building energy efficient HVAC new-build	 Commercial building HVAC recommissioning	 Commercial building LED lighting	 Commercial building data center energy efficiency	 Residential dishwasher efficiency	 Residential clothes washer efficiency	 Passenger car EV	 SUV EV	 Passenger car autonomous EV	 SUV autonomous EV	 Ride-sharing cars	 Ride-sharing shuttles	 Ride-sharing autonomous cars	 Ride-sharing autonomous shuttles									
 Large pick-up EVs	 Local delivery EVs	 Hybrid heavy goods vehicle (HGVs)	 Electric heavy goods vehicle (HGVs)	 CNG heavy goods vehicle (HGVs)	 Efficient heavy goods vehicle (HGVs)	 Cal train Modernization	 BART Silicon Valley Extension	 California High Speed Rail	 VTA Bus Rapid Transit & Light Rail	 VTA Next Network & Enhanced Bus Service	 San Jose Bike Plan	 Creating local jobs	 Densification / focused growth	 Streets for People	 Drought resilient landscaping	 Drip irrigation in landscaping	 Domestic rainwater storage	 Low flush toilets (residential)	 Low flow showers	 Showers instead of baths	 Aerated faucets in homes	 Fixing leaks in homes
 Aerated faucets commercial buildings	 Low flush toilets (commercial)	 Commercial greywater reuse	 Residential greywater	 KEY	 ENERGY	 TRANSPORT	 LAND USE	 WATER														

ECONOMIC COST BENEFIT ANALYSIS

Worked example: electric vehicles

	Climate Smart Measure	Business as Usual
[1] Fuel source	Electricity	Gasoline and diesel
[2] Utilization	16,800 miles/yr	12,000 miles/yr
[3] Efficiency	103 mpg-e	30 mpg
[4] Capital cost	\$28,000	\$18,490
[5] Operational cost	$[2] \times [3] \times \text{fuel price}$	$\Sigma [2] \times [3] \times \text{fuel price}$
[6] Stock in year	% of total vehicles	% of total vehicles

Outputs: Energy, CO2, \$ saving

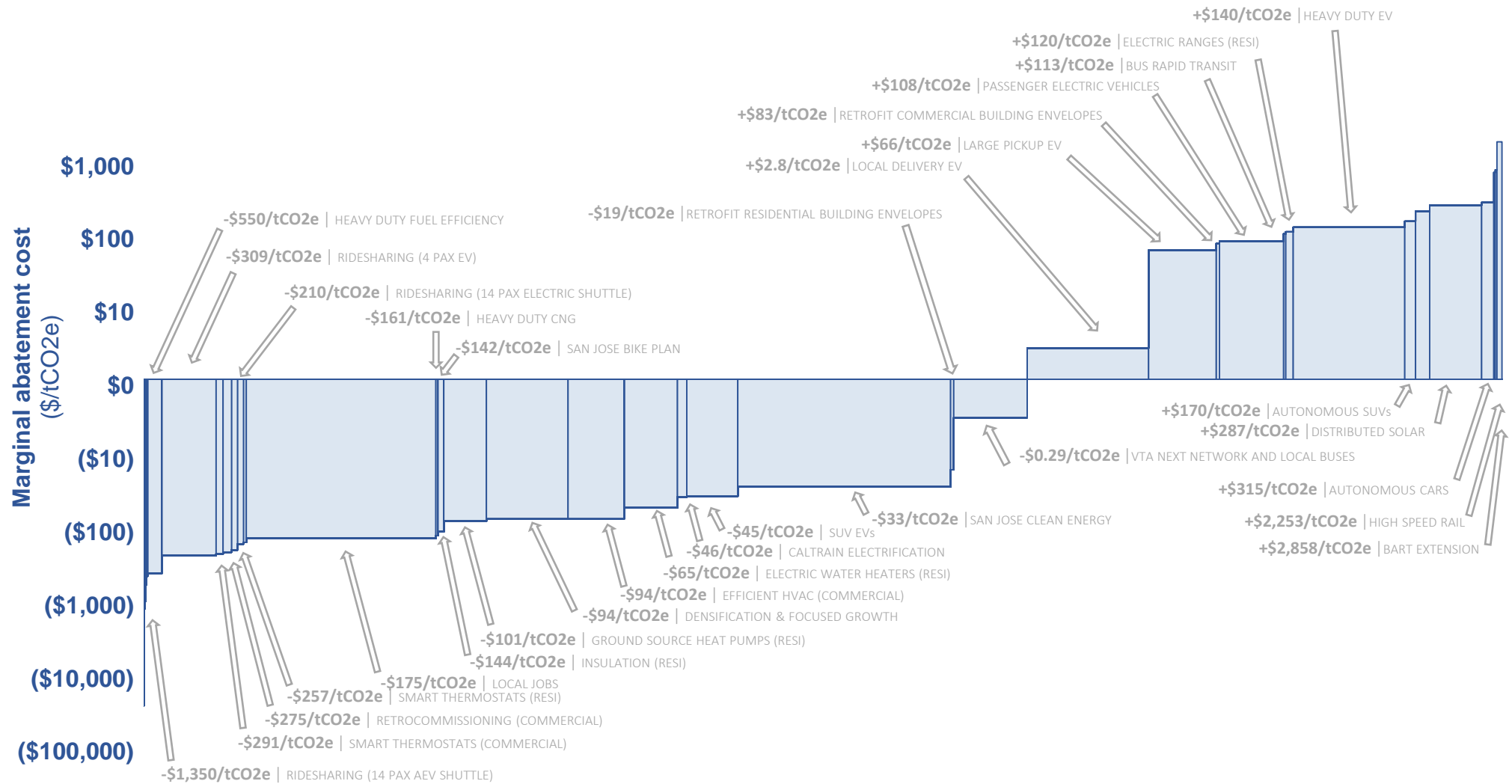
[2](Climate Smart, Business as Usual) - EMFAC

[3] - Derived from San Jose GHG Inventory

[4](BAU) - Bay Area, Plug-In Electric Vehicle Readiness Plan - BAAQMD

N.b. - electric vehicle charging infrastructure has been modelled but excluded from this worked example for simplicity

ECONOMIC COST BENEFIT ANALYSIS



THE BUILDING BLOCKS OF CLIMATE SMART SAN JOSE

The Nine Strategies of Climate Smart **SAN JOSE**



1.1

Transitioning to a renewable energy future provides clean electricity that supplies the entire city

2.1

Densifying our city in focused growth areas increases walkability and cycling and also makes our neighborhoods more vibrant, distinctive, and enjoyable

2.3

New technology can enable clean, electric, and personalized mobility choices that make it convenient to move between any two points in the City

3.1

Creating local jobs in our City makes it possible for our residents to work close to where they live, saving time, money, and gas spent commuting

3.3

Moving commercial goods through our City more efficiently with new technology and fleet management practices

1.2

Embracing our Californian climate means creating an urban landscape, in our homes and public places, that is not just low water use, but attractive and enjoyable

2.2

Making our homes energy efficient and fully electric can make them affordable for our families and more comfortable to live in

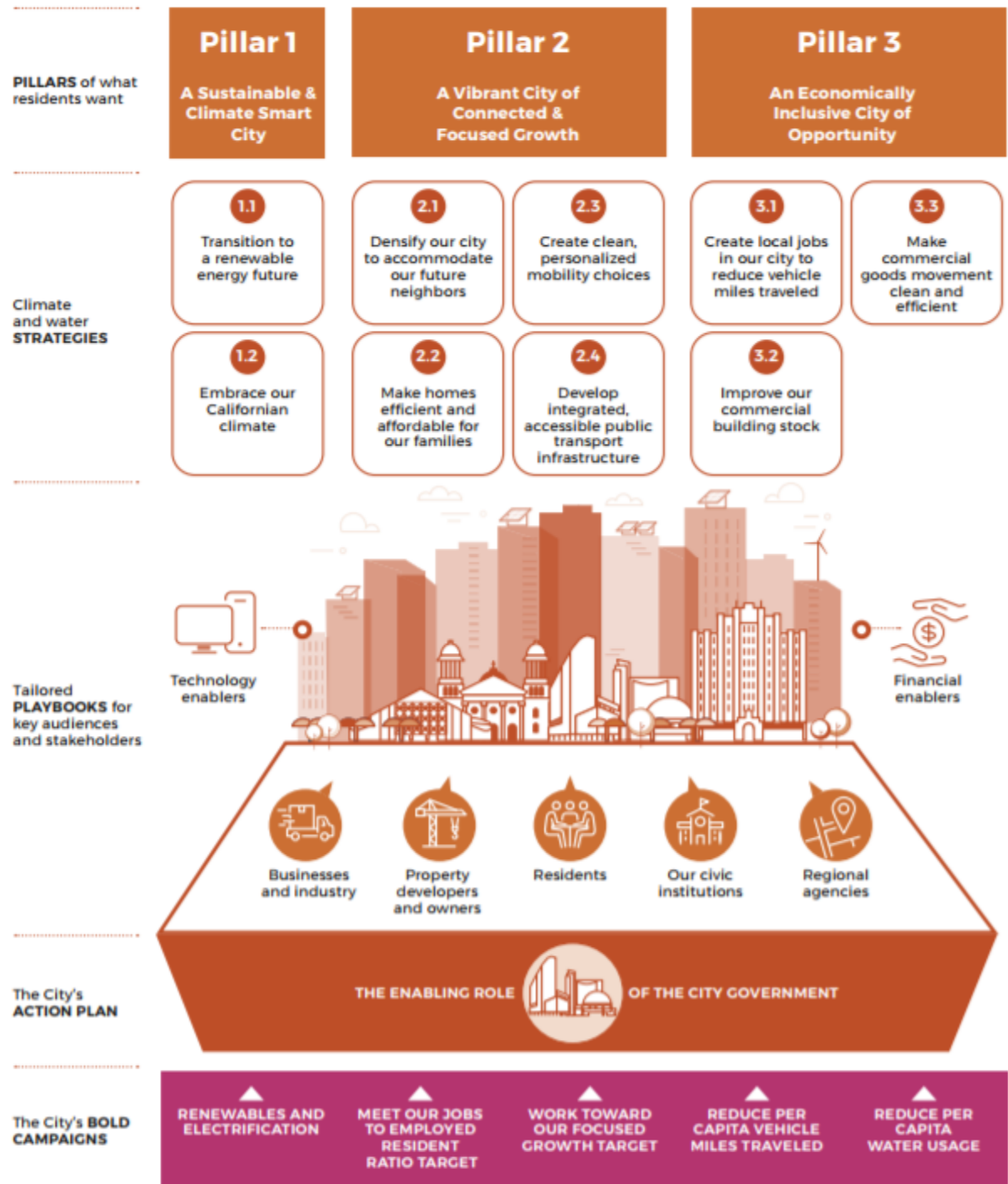
2.4

Developing integrated, accessible public and active transport infrastructure reduces the dependency on the car to move within the City

3.2

Making our commercial buildings high-performance and siting them close to transit lowers water and energy use

THE BUILDING BLOCKS OF CLIMATE SMART SAN JOSE



San José will create SJCE, a community choice energy (CCE) program that will make 100 percent carbon-free electricity available as a base offering to all users in the city by 2021.

Good Life Benefits for Our City

By creating its own electricity service provider in the form of SJCE, the people of San José will have direct control over how much they pay and where their energy comes from. Households generating energy through on-site solar panels will also stand to receive benefits from the sale of distributed energy through net energy metering.

Our Leadership to Date

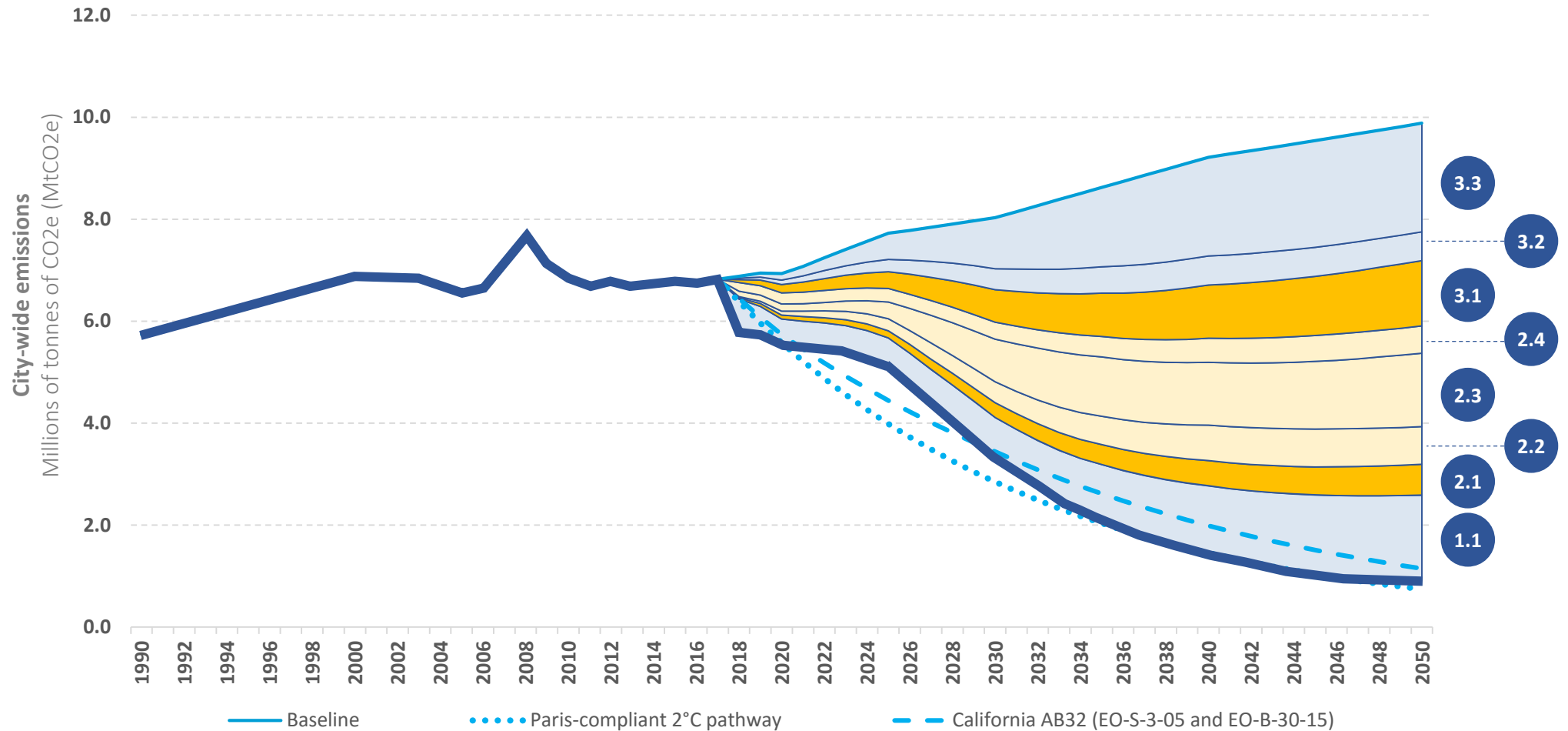
In our 2007 San José Green Vision (Green Vision), we committed to receive 100 percent of our electrical power from clean, renewable sources. Ten years later, in May 2017, the city council voted unanimously to establish SJCE, making San José the largest city with a CCE program in the country with the option to choose the level of renewable power. Combined with 131 MW of distributed solar generating capacity in the city, San José is well-placed to transition to a renewable energy future.

Low-Carbon Growth Milestones



INDICATORS	CARBON REDUCTIONS	RENEWABLE ENERGY	LOCAL RENEWABLES
METRICS	Emissions reduction from this strategy	Share of eligible renewable energy generation provided by SJCE	Amount of renewable energy capacity installed in San José
PROGRESS MILESTONES	Thousands of tons of carbon reduced per year	Percentage of SJCE's power mix	Installed capacity of local renewables (MW)
TODAY	-	-	131
2030	784	60%	668
2040	1,341	87%	1,113
2050	1,666	100%	1,430

CONTRIBUTIONS OF ALL STRATEGIES TO THE PARIS PATHWAY



- 1.1 Transition to a renewable energy future
- 2.1 Densify our city to accommodate our future neighbors
- 2.2 Affordable, efficient homes for our families

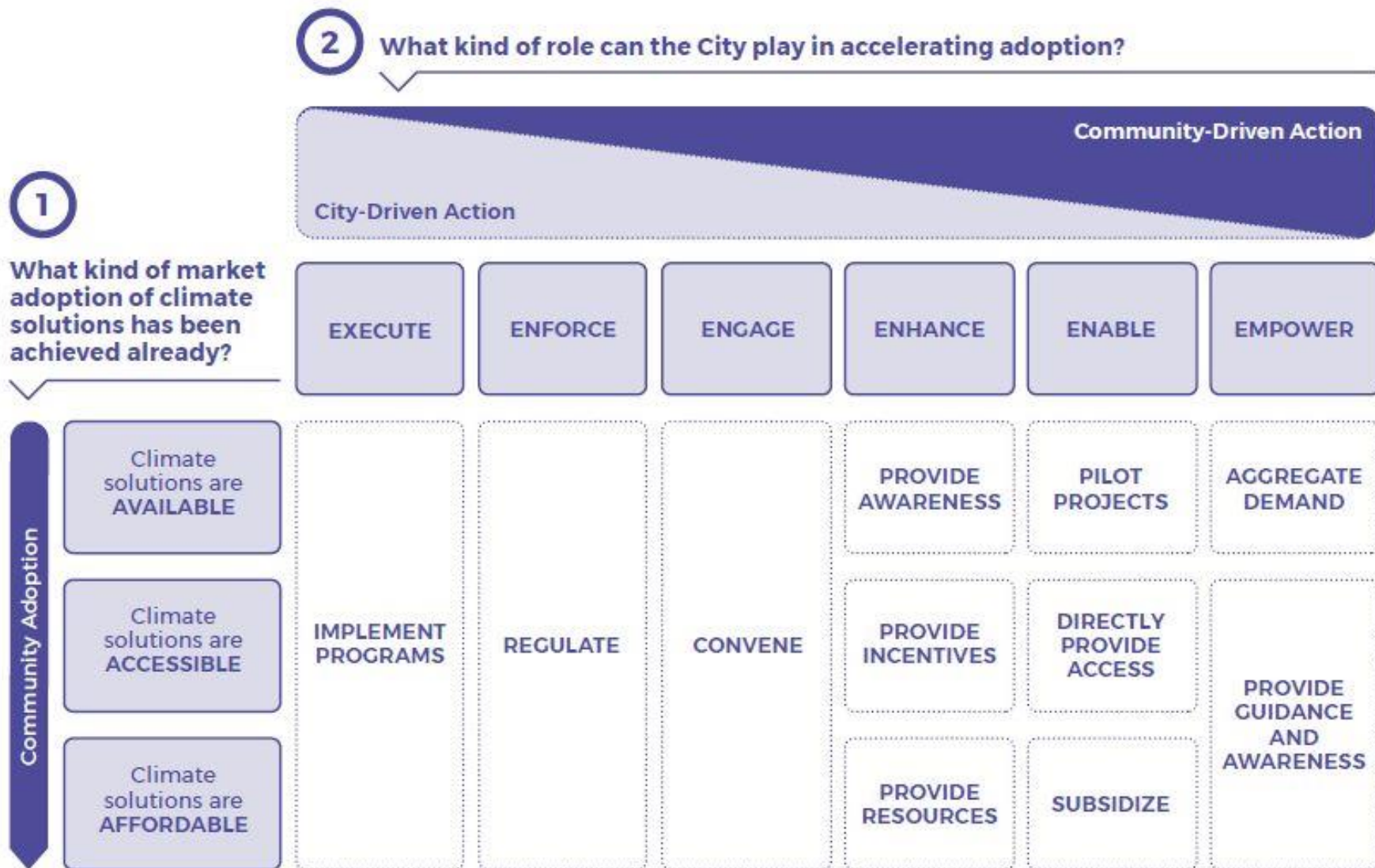
- 2.3 Create clean, personalized mobility choices
- 2.4 High quality, accessible public transit infrastructure

- 3.1 Create good jobs in our city
- 3.2 Improve our commercial building stock
- 3.3 Make commercial goods movement clean and efficient

4

HOW CITY HALL AND THE COMMUNITY CAN IMPLEMENT CLIMATE SMART SAN JOSE

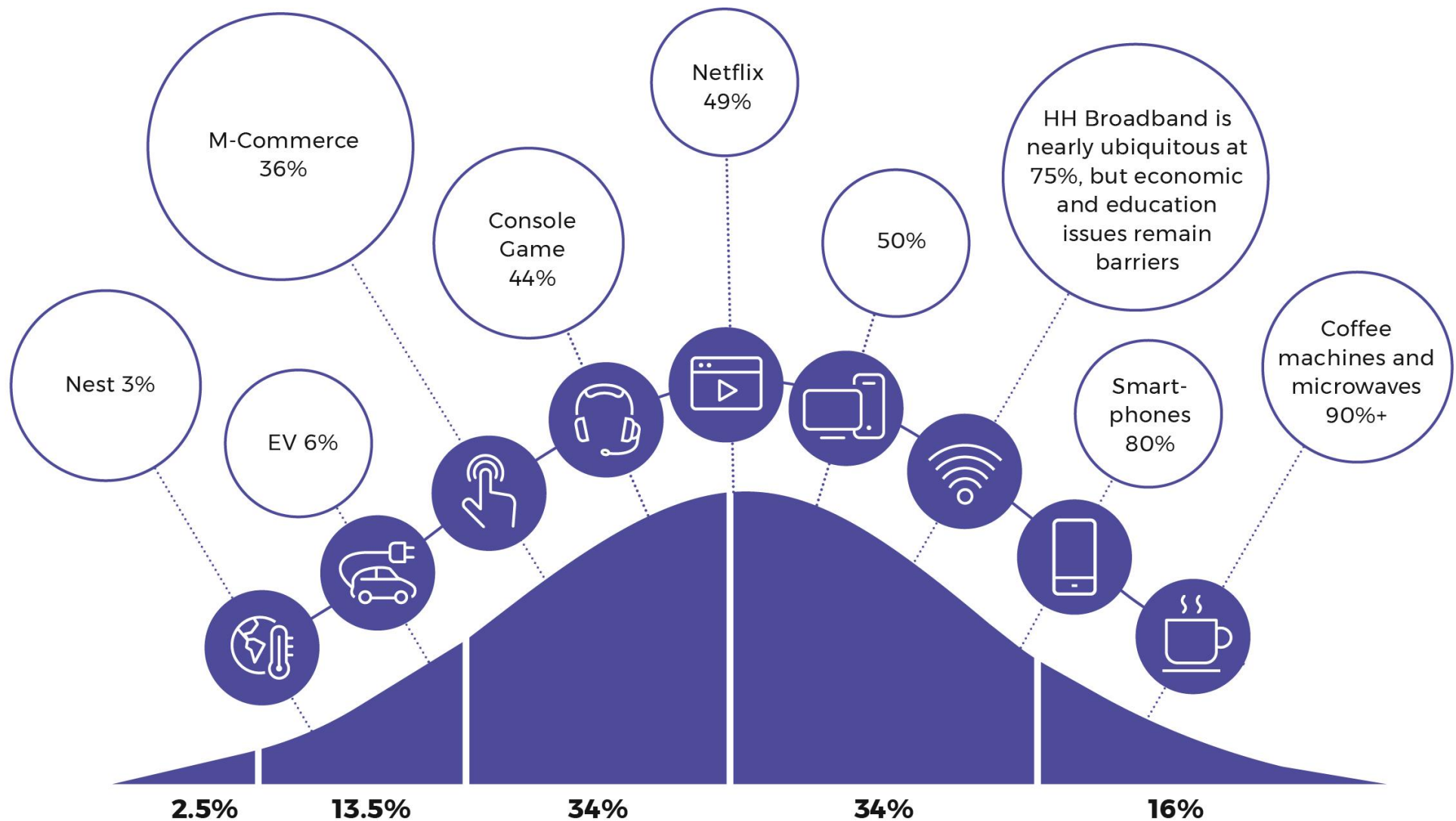
ROLES: CITY HALL AND THE COMMUNITY



CITY ACTION PLAN – EXAMPLES OF ACTIONS CITY HALL CAN TAKE

FOCUS AREA	OPTIONS FOR SUPPORTING CITY ACTIONS	LEAD DEPARTMENTS
SAN JOSÉ CLEAN ENERGY	Run program to stand up SJCE which will provide the community a choice in their electricity provider. EXISTING	DCE
	Support legislative and regulatory items that further the city's transition to renewable energy.	DCE
ENABLE FINANCING	Evaluate options such as performance-based electric rates and on-bill financing to incentivize fully-electric homes.	DCE
	Evaluate feed-in tariff program options where SJCE pays for excess residential and/or commercial solar generation.	DCE
	Provide guidance and explore improvements to energy efficiency financing options, especially for commercial businesses.	ESD

PROGRESS THROUGH THE ADOPTION CURVE



2005

*Rapid mass market adoption of
sustainable products and
technologies*

Luca Bruno / AP

2013

NBC NEWS

Michael Sohn / AP

5th Ave New York City, April 15, 1900

1900:
Where
is THE
CAR?

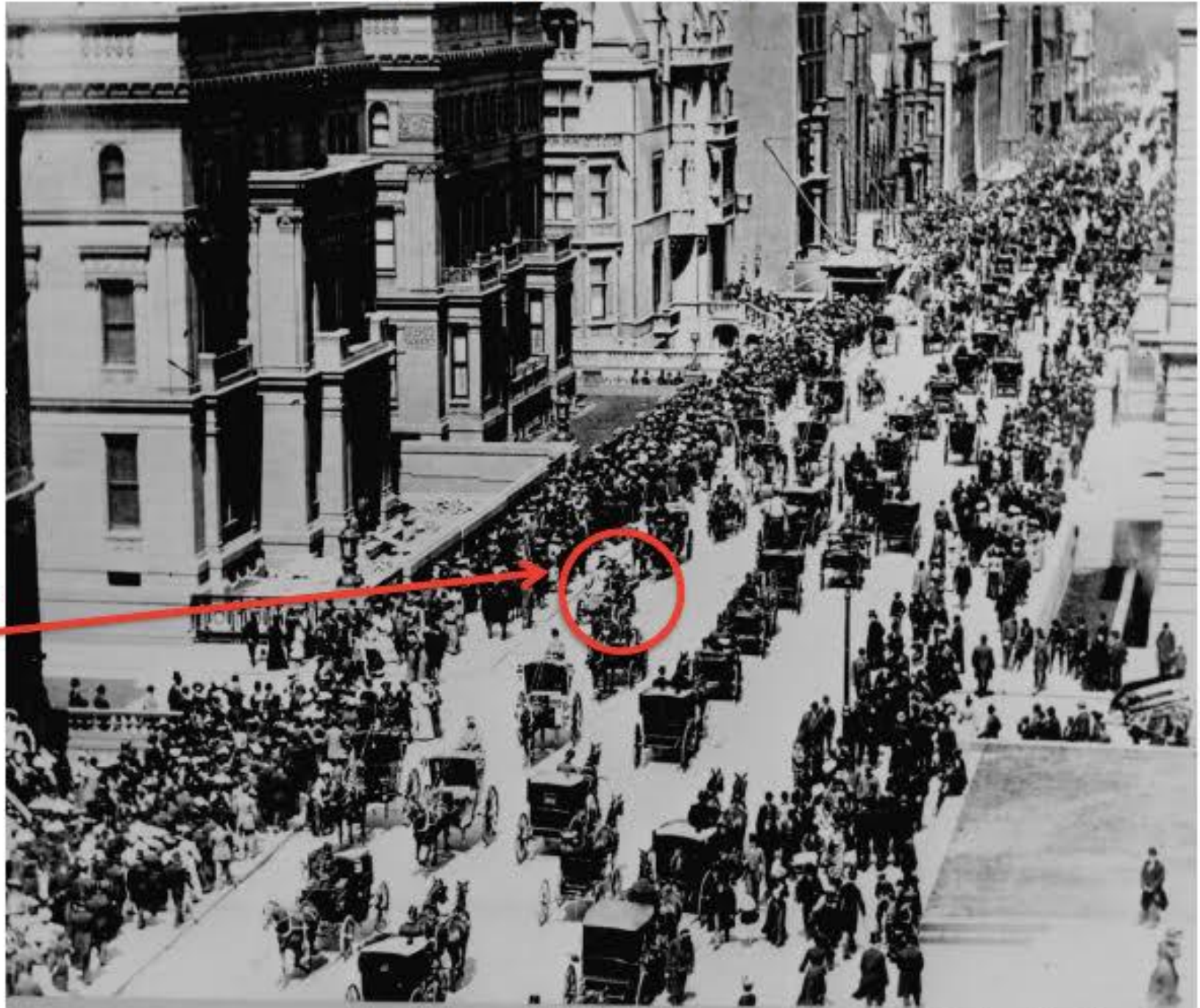


Photo: Fifth Ave NYC on Easter Morning 1900

Source: US National Archives from
(Wikipedia)

5th Ave New York City, March 23, 1913

1913:
Where is
THE
HORSE?



Photo: Easter 1913, New York. Fifth Avenue looking north. George Grantham Bain Collection

Source: shorpy.com

PLAYBOOKS DESIGNED TO GIVE A FOCUSED SHORTLIST OF ACTIONS THAT RESIDENTS CAN ADOPT

Highlights:

- Live close to where you work
- Automate efficiency
- Walk, bike, carpool and take public transit

SECTION 3.4

Resident Playbook on Energy

What will have the biggest impact in making your home more comfortable, save you money and reduce your carbon footprint? Replace your gas appliances for electric. Switch to LED light bulbs. Natural gas, not so much. The following actions will help you make your home more comfortable, save you money and reduce your carbon footprint.



Use Smart Thermostats

In an afternoon, you can install a smart thermostat which gives you the power to automate your home climate to make it more comfortable.



SECTION 3.4

Resident Playbook on Mobility

Innovations in transportation are giving us more freedom to move than ever before. The alternatives to driving a gas-powered car in rush hour are becoming more enjoyable, reliable, and less expensive.



Income Level	CO2 Saved (kg per household)
<\$1,000	<50
\$1,000-\$2,999	50-99
\$3,000-\$9,999	100-499
>\$10,000	500-999



Live Close to Where You Work

Living close to where you work can radically improve the Good Life. Telecommuting, walking/biking to work, and access to good public transit mean less time stuck in traffic and more time for your friends, family, and the other things you love.

Live in a Walkable Neighborhood

Making your home in a neighborhood where the grocery store, parks, and schools are within walking or biking distance creates more connected communities and provides regular exercise.

PLAYBOOKS DESIGNED TO GIVE A FOCUSED SHORTLIST OF ACTIONS THAT BUSINESSES CAN ADOPT

Highlights:

- Locate your businesses close to where your employees work
- Telecommuting where possible
- SRI 401ks

SECTION 3.4

Business Employee Engagement Playbook



Providing employees incentives and opportunities to take action on climate change can further enhance your business's competitiveness in attracting and retaining talent as an increasing number of people, especially millennials, are looking for companies that provide meaningful work and enable them to live the Good Life.



Telecommuting
The cost benefits of telecommuting and commute times. Remote working from home results in job satisfaction. Win, win.

Preferred Pricing on Residential Solar
Many leading Silicon Valley companies are part of programs that enable employees to purchase solar systems at discounted prices at no cost to the company.



EV Charging Stations
Installing a charging station can enable some employees to use and purchase an EV.



Discounted Transit Passes
Programs such as VTA's Eco Pass provide deeply discounted transit passes to people through their employers.



SRI 401k Options
Expanding the selection of 401k plans to include green and Socially Responsible Investing (SRI) funds can enable employees to invest in companies with values that match their own and also support low-carbon sectors of the economy.



PLAYBOOKS DESIGNED TO GIVE A FOCUSED SHORTLIST OF ACTIONS THAT AGENCIES CAN ADOPT

- VTA
- CPUC
- SCVWD
- PG&E
- BART
- And many others

Civic & Regional Agency Playbook

PILLAR 1: A SUSTAINABLE & CLIMATE-SMART CITY	
1.1 TRANSITION TO A RENEWABLE ENERGY FUTURE San José will create San José Clean Energy (SJCE), a community choice aggregation, that will make 100 percent carbon-free electricity available as a base offering to all users in the city by 2021.	CEC, PUC, PG&E, BayREN: Partner on acceptance of small-scale feed-in tariffs for distributed solar. NGOs: Support installation of solar for low-income communities.
1.2 EMBRACE OUR CALIFORNIAN CLIMATE San José will effectively employ sustainable use practices of local water and green infrastructure to achieve a 30 percent reduction in residential water consumption to 42 gallons per day per capita by 2030.	SCVWD: Continue to invest in expanding incentives for conservation efforts and regional water storage. Water agencies and NGOs: Connect people with resources, including training, to do climate-smart landscaping.
PILLAR 2: A VIBRANT CITY OF CONNECTED & FOCUSED GROWTH	
2.1 DENSIFY OUR CITY TO ACCOMMODATE OUR FUTURE NEIGHBORS San José will embrace its expected 319,000 additional residents through managed, mixed-use densification around its urban villages.	NGO: Support developers of dense housing and office projects in urban villages during entitlement process. Advocate for housing at all price points and safe, comfortable places to walk.
2.2 MAKE HOMES EFFICIENT AND AFFORDABLE FOR OUR RESIDENTS All new homes built in San José from 2020 will be ZNE, and existing homes will be retrofitted to reduce their energy consumption and eliminate their use of natural gas.	NGO: Support cities and developers in being able to design and construct homes that meet or exceed Title 24 and CalGreen standards. Help make resources available for lower income communities to take advantage of the kind of retrofits needed. PG&E, BayREN, CEC: Provide funding and resources for energy efficiency and potential energy storage.
2.3 CREATE CLEAN, PERSONALIZED MOBILITY CHOICES San José will work to develop clean, personalized, and shared mobility choices, reducing single-passenger gasoline-car use through a combination of bike- and ridesharing, passenger vehicle electrification and, in the future, autonomous vehicles.	CalTrans, MTA, CARB: Create commercial transit policies that accelerate the development and adoption of clean, personal mobility technologies. Biking advocates: Continue advocating for embedded and enhanced bike networks and teaching bike safety for adults and kids.
2.4 DEVELOP INTEGRATED, ACCESSIBLE PUBLIC TRANSPORT INFRASTRUCTURE San José will continue supporting public transit infrastructure as a means of getting around the city, particularly the integration of multiple transport modes at Diridon Station.	VTA: Match growth of VTA network to the growth of urban villages. BART: Focus growth on mixed-use development at sites near stations. BART, Caltrain, Cal High Speed Rail: Enable efficient first-mile, last-mile connections. All Transit: Increase transit frequency to make it more attractive and convenient for riders. Encourage jobs to be located on the transit infrastructure.

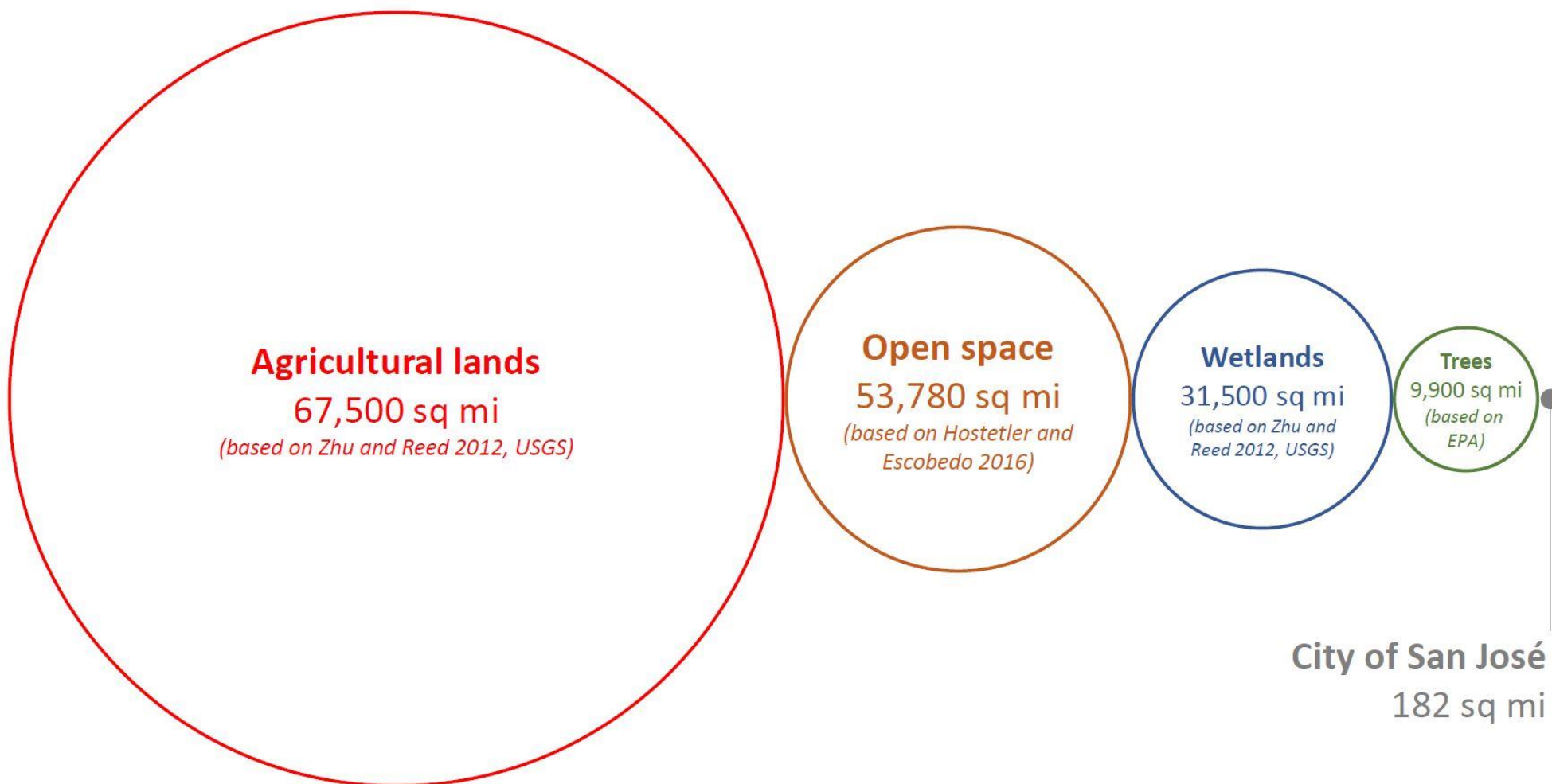
CLIMATE SMART SAN JOSE

A People-Centered Plan for a
Low-Carbon City



LIVING BETTER TODAY FOR TOMORROW

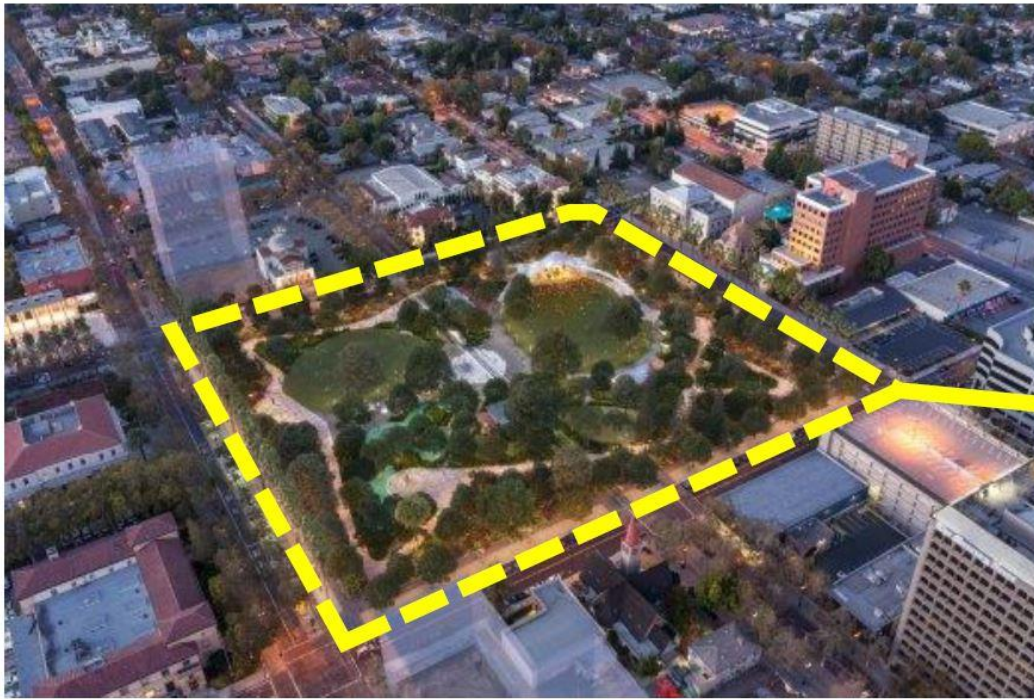
BACK-UP SLIDES



St James Park, San Jose
7 acres



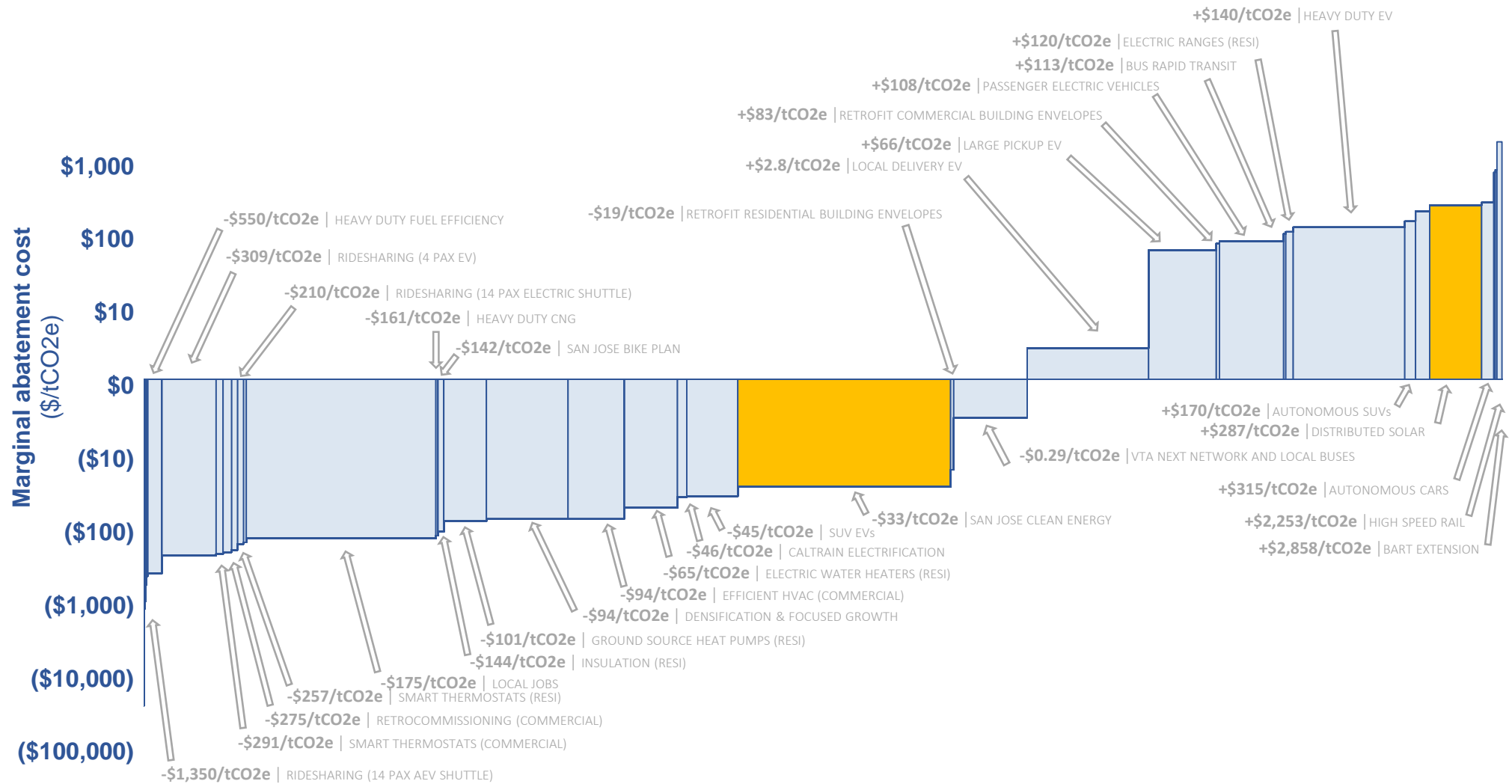
1 car
Driving 20,000 miles/yr



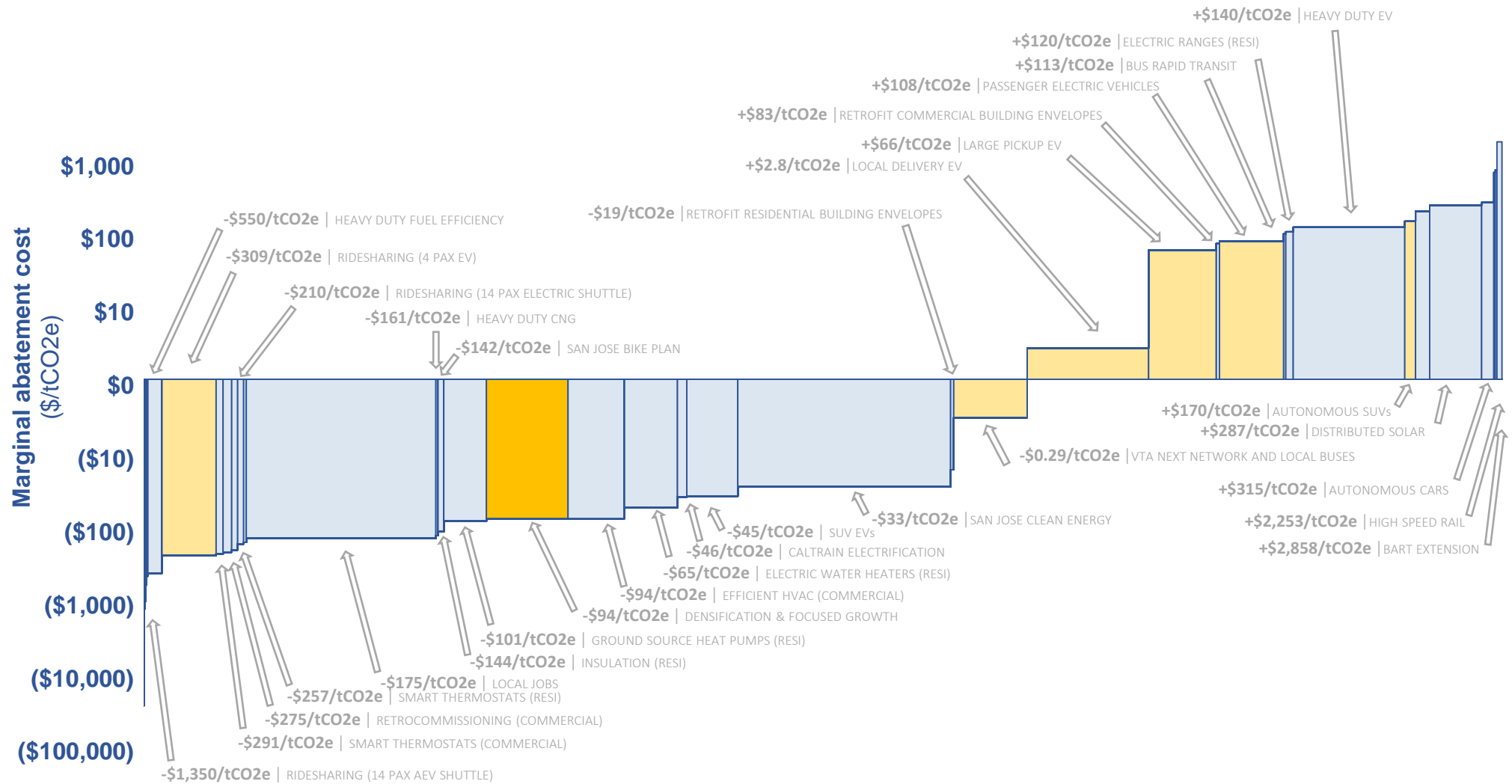
NETWORK ACTIVATION ACCELERATES CLIMATE SMART HOME ADOPTION TO EARLY MAINSTREAMERS



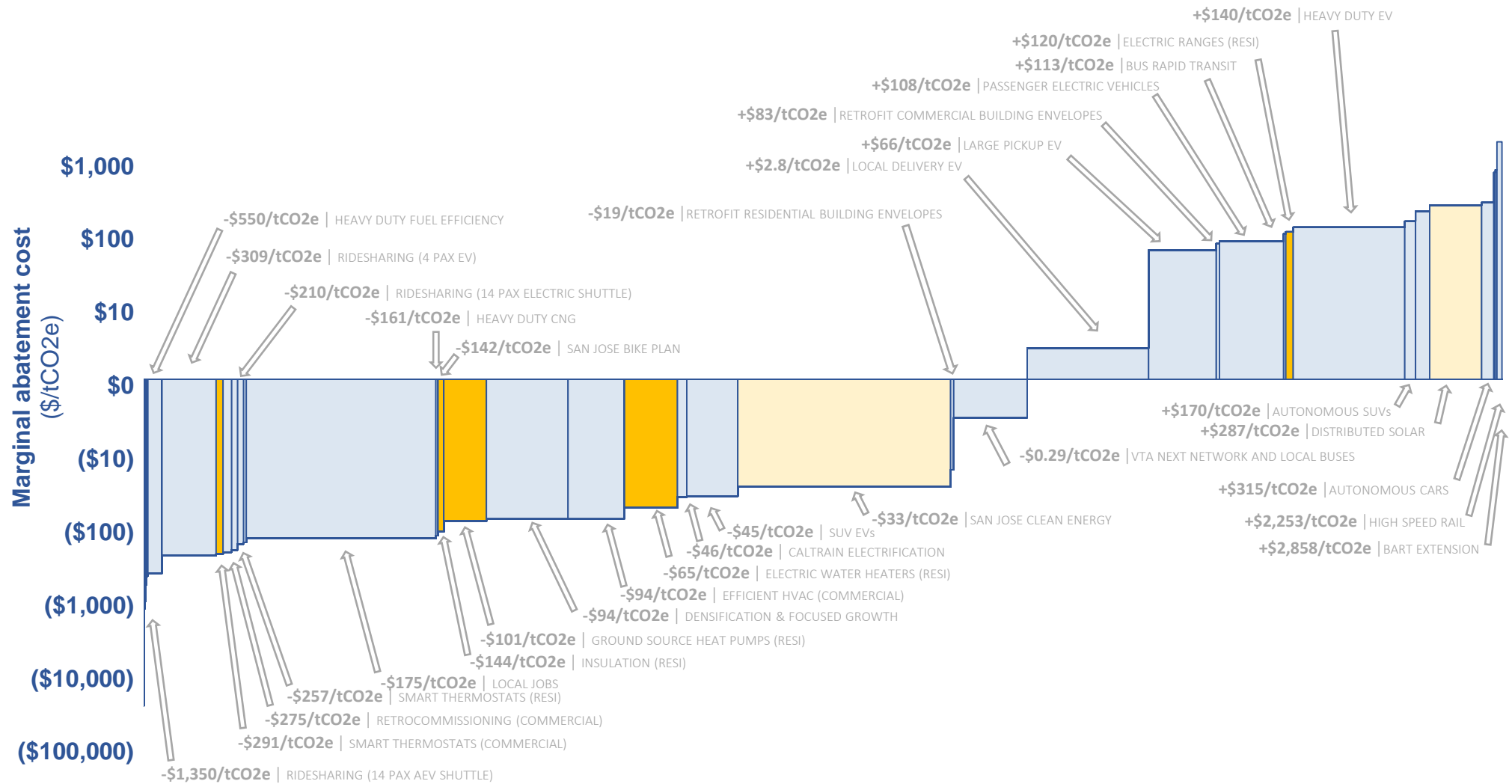
STRATEGY 1.1



STRATEGY 2.1 DENSIFICATION AND FOCUSED GROWTH



STRATEGY 2.2 EFFICIENT HOMES



STRATEGY 2.3 CLEAN PERSONALIZED MOBILITY

