

City of San José

Environmental Sustainability

accelerating the transition to a clean energy economy

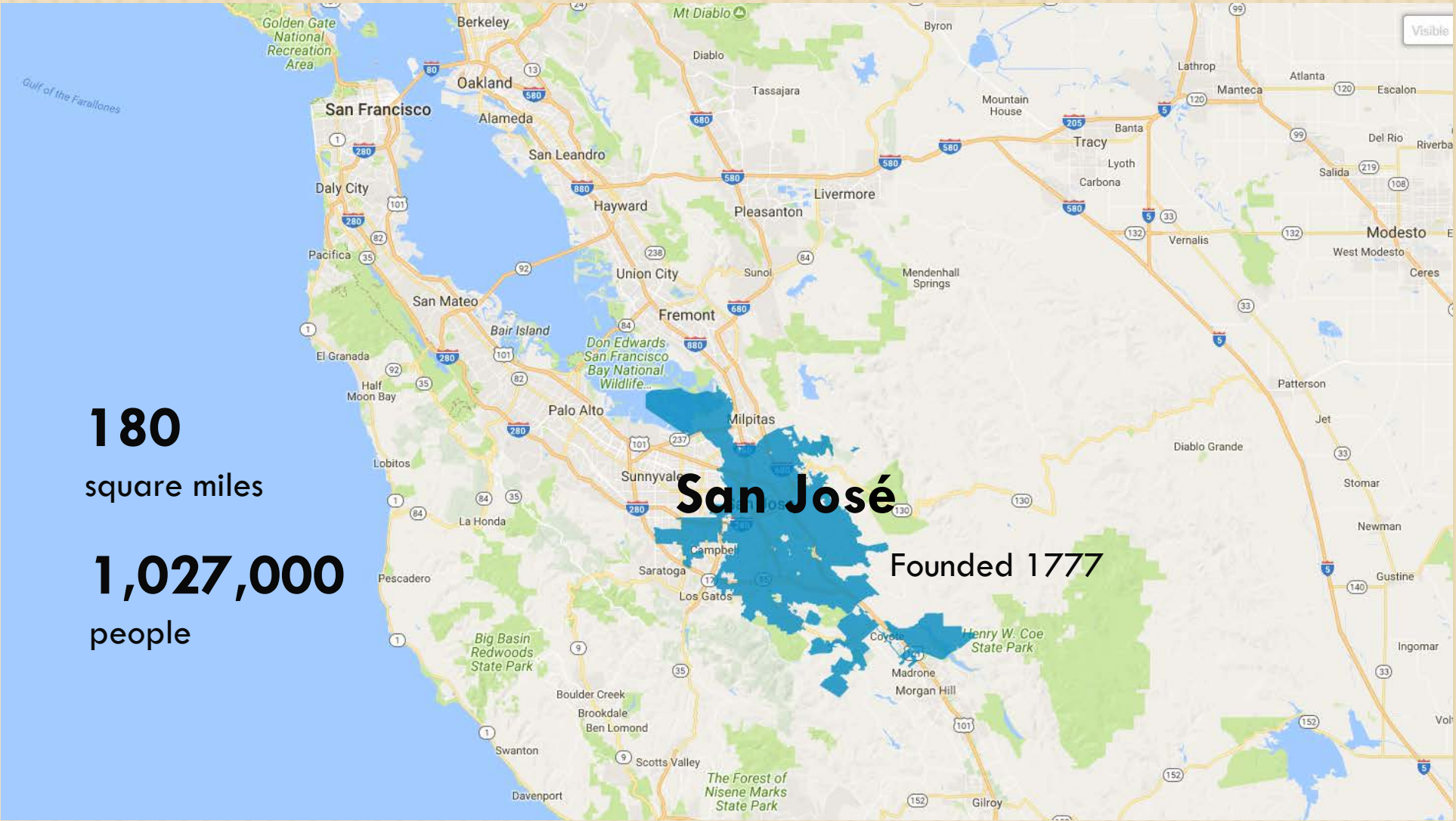
Julie Edmonds-Mares

Deputy City Manager

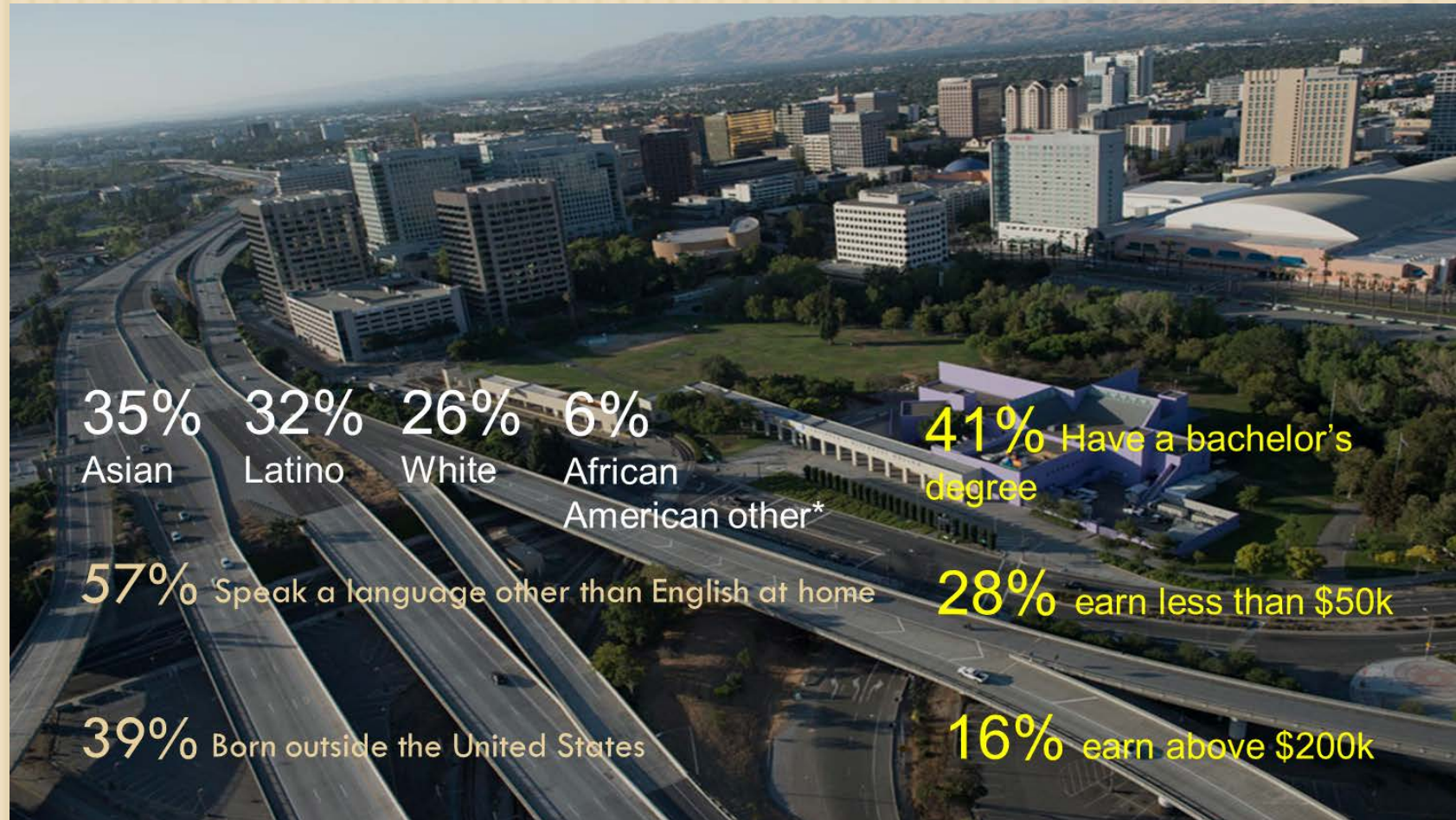
Julie.Edmonds-mares@sanjoseca.gov



San José



San José



San José Government



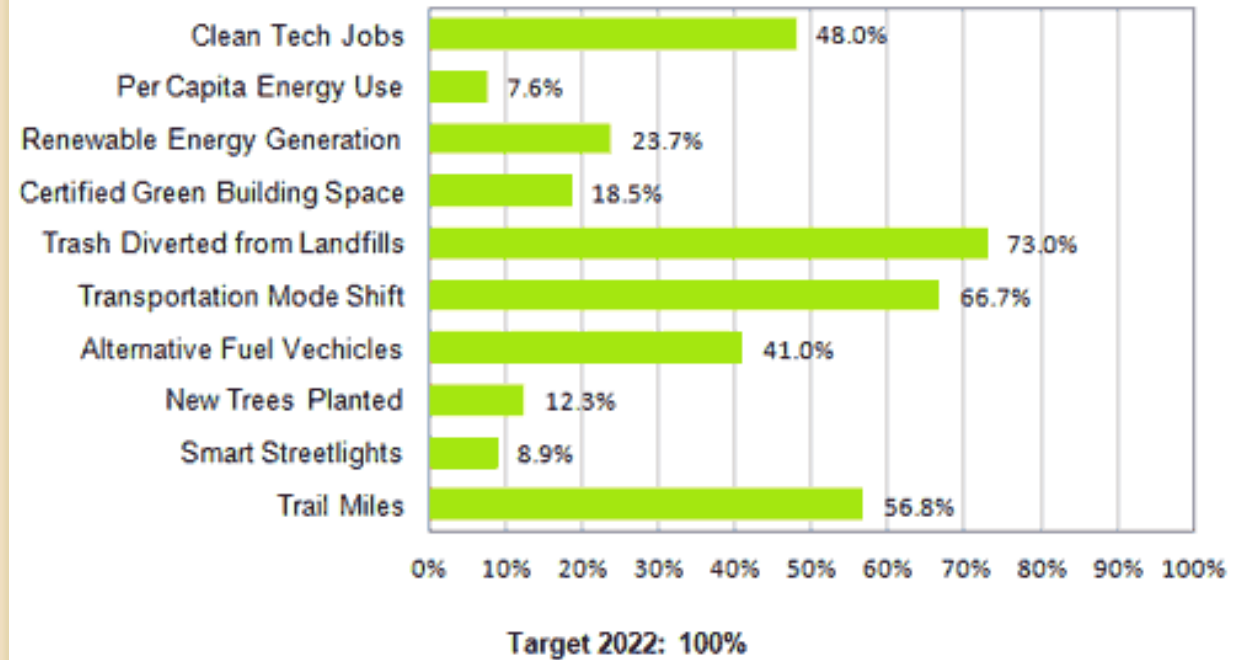
History of Environmental Sustainability in San José

□ 2007 Green Vision

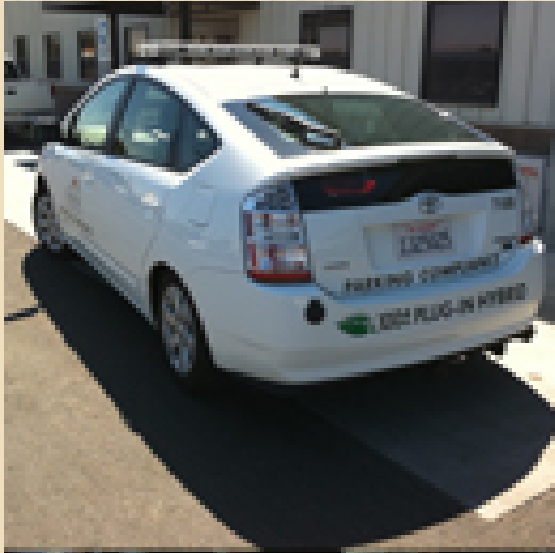
- 15 year plan for economic growth, environmental sustainability, and an enhanced quality of life for San Jose community

■ <http://www.sanjoseca.gov/index.aspx?NID=2737>

Overall Green Vision Progress, 2014

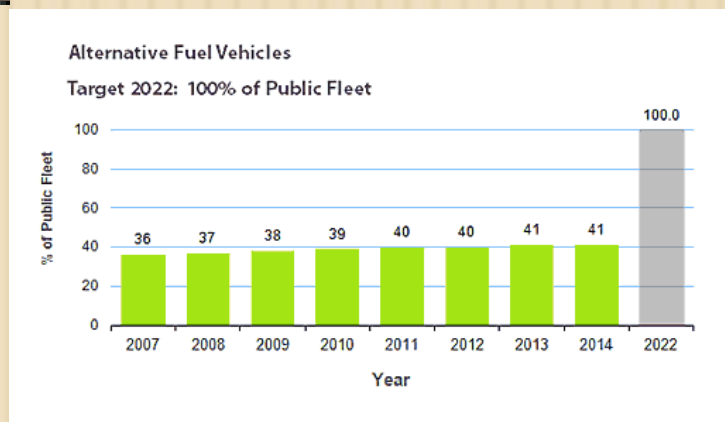


History of Environmental Sustainability in San José



2015 Green Focus

- Creating a sustainable water supply (4th year of a drought) and reducing green house gas emissions
 - Measures related to potable reuse of recycled water and per capita reduction of water use city wide
 - Focus on energy conservation, renewables, and transportation to impact GHG



2017 Environmental Sustainability Plan (ESP)

- Local government plays a critical role in accelerating transition to a low-carbon economy

- http://sanjose.granicus.com/MetaViewer.php?view_id=51&event_id=2791&meta_id=650531



Environmental Sustainability Plan (ESP) is a pathway to our goals...and builds on work already underway

Sustainable San José

Environmental Sustainability Plan

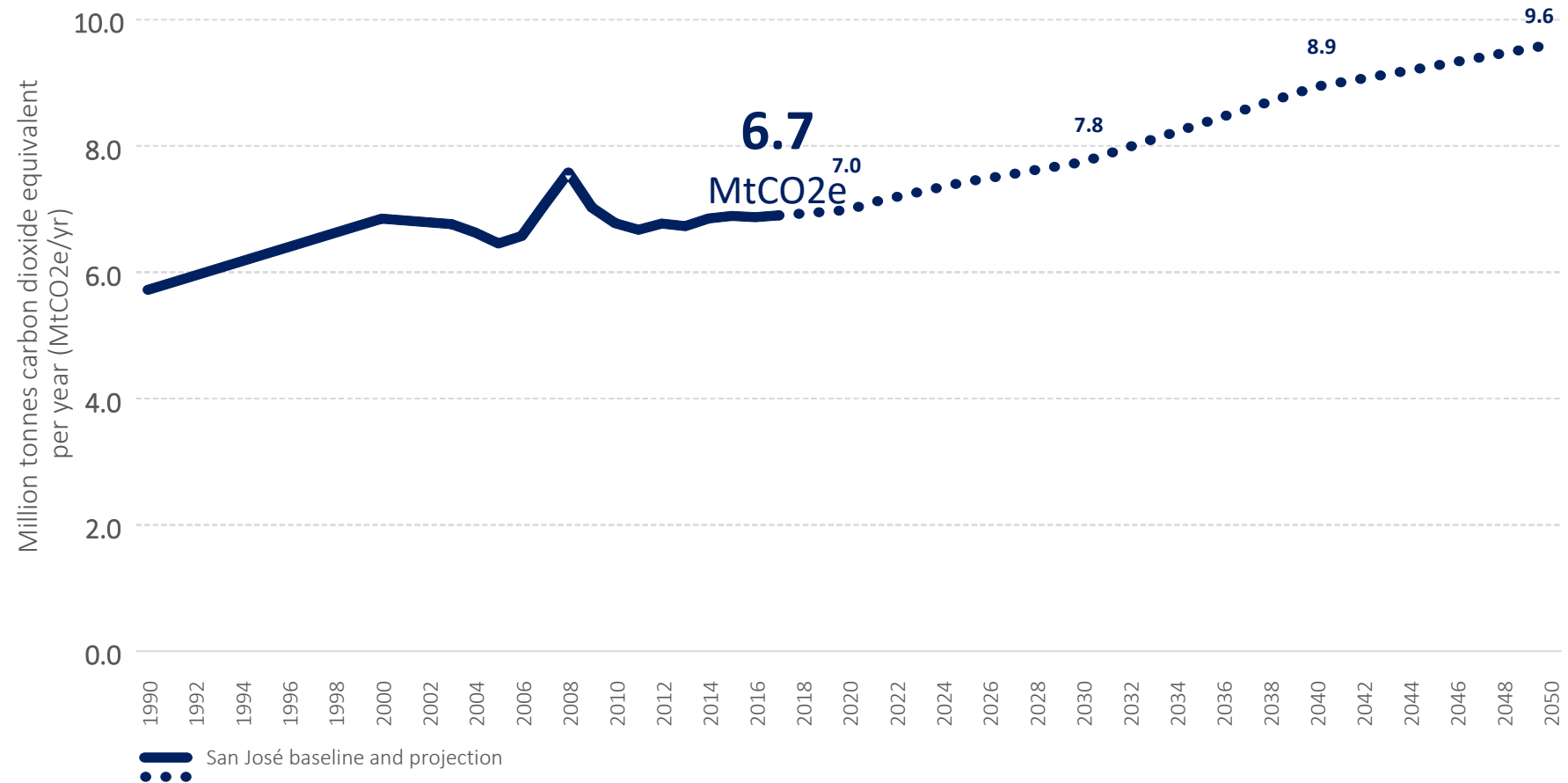


San José Economic Strategy



Envision 2040 San José General Plan

SAN JOSÉ'S CLIMATE PROFILE



A LOT HAS ALREADY HAPPENED THIS YEAR: US CITIES 'SIGNING UP' TO THE PARIS AGREEMENT

Over 1,400 U.S. Cities, States and Businesses Vow to Meet Paris Climate Commitments

Climate Cities: Can Urban America Save Paris Agreement?

By Michael Dhar, Live Science Contributor | July 11, 2017 02:22pm ET

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Sam Liccardo

8 August at 18:49 · 🌐

While President Trump rejects the #ParisAgreement, San Jose voted unanimously to stand by it. The City Council also voted to doing its part to fight climate change by formally establishing San Jose Clean Energy, which will bring more energy from renewable sources to San Jose homes in 2018. #climatemayors



👍 Like 💬 Comment ➦ Share

A California-led alliance of cities and states vows to keep the Paris climate accord intact

CHAPTERS GOALS

THE ESP REQUIRES
ACTIVATION OF **73%** OF THE
GENERAL PLAN'S GOALS

THRIVING COMMUNITY	Diverse and Innovative Economy	IE-1 Land Use and Employment	IE-2 Business Growth and Retention	IE-3 Regional, State, and 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			

KEY

- The ESP drives progress on this goal
- The ESP enables progress on this goal
- The ESP aligns with this goal
- The ESP does not actively consider this goal

THIS HELPED US COMPILE A LONG LIST OF SUSTAINABILITY MEASURES

80+

Documents we've reviewed

88

City benchmarks

119

Expert survey responses





100

Town hall attendees

710

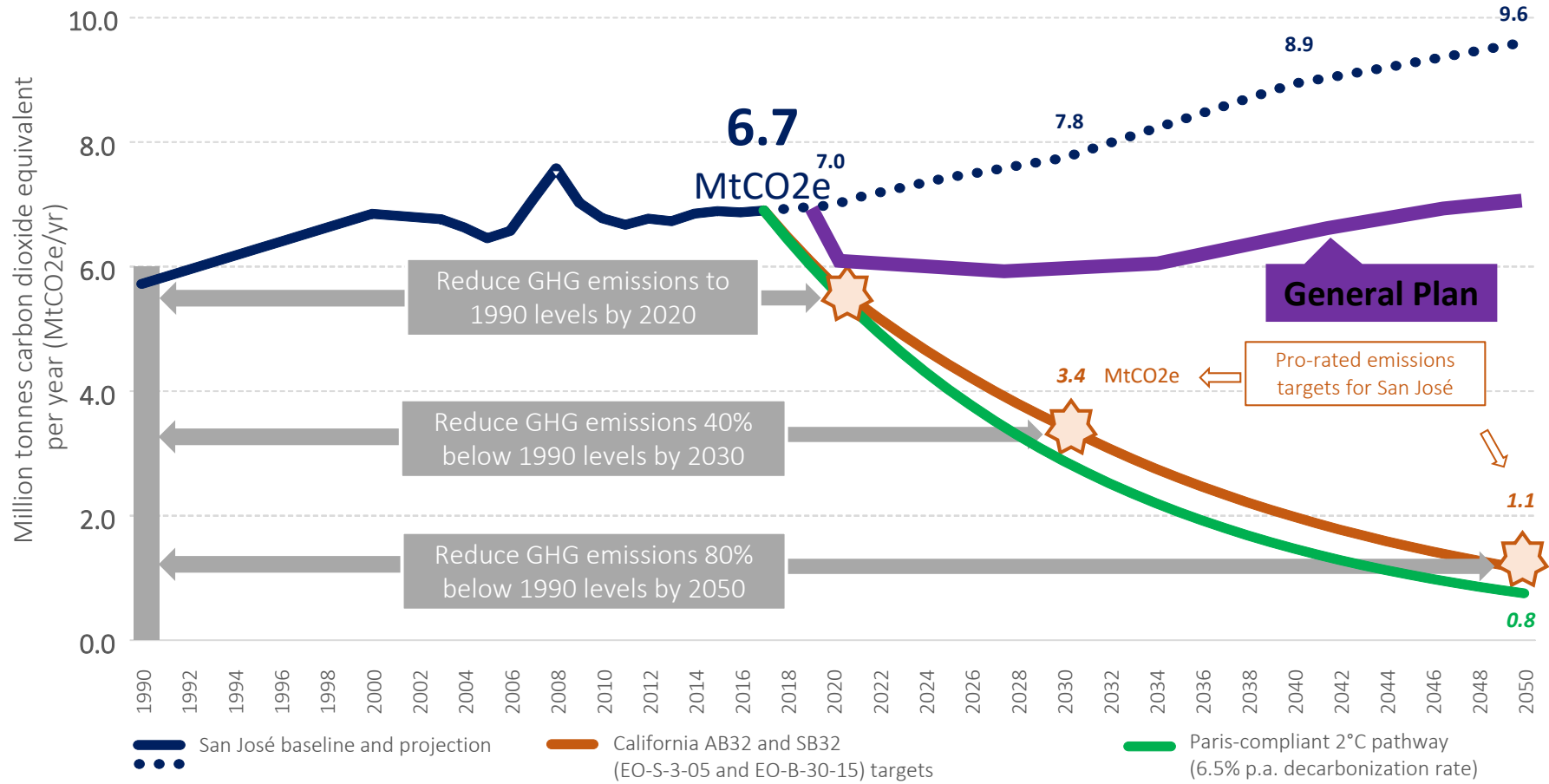
Ideas for sustainability measures

...WHICH WAS NARROWED DOWN TO A SHORTER LIST OF 53 CLIMATE AND WATER MEASURES

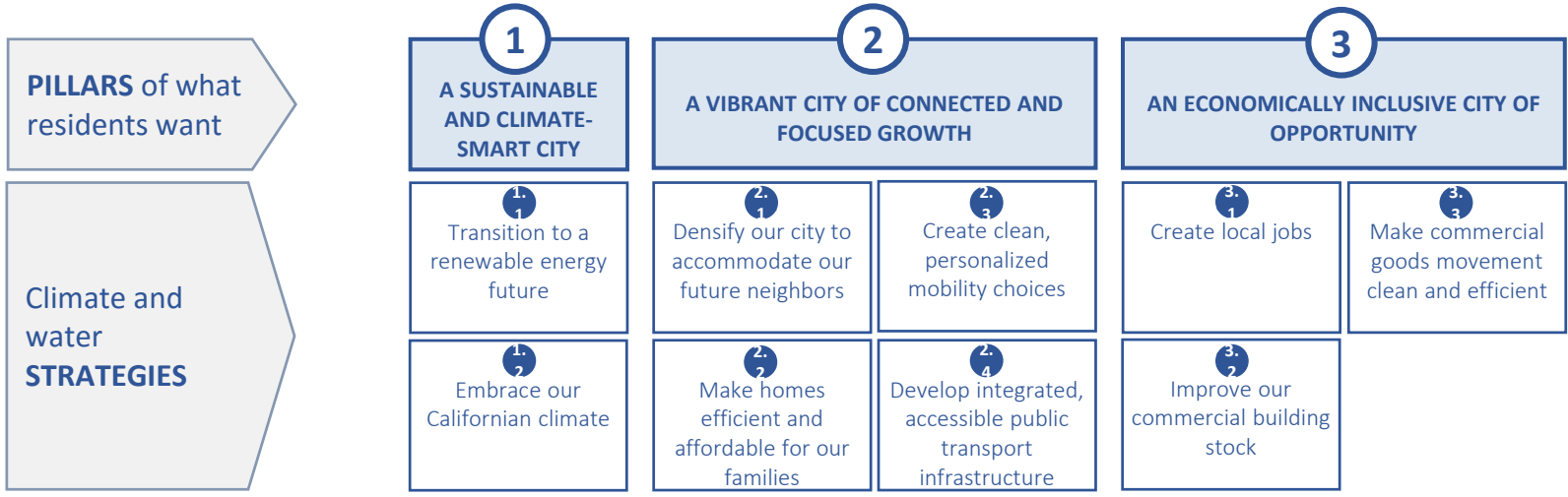
 San José Clean Energy  Distributed solar generation	 Commercial building energy efficient HVAC new-build	 Large pick-up EVs	 Creating local jobs	 Aerated faucets commercial buildings
 Energy efficient lighting retrofit SJCE	 Commercial building HVAC recommissioning	 Local delivery EVs	 Densification / focused growth	 Low flush toilets (commercial)
 Energy efficient electronics	 Commercial building LED lighting	 Hybrid heavy goods vehicle (HGVs)	<p>Walkable neighborhoods incl. Streets for People</p>  Drip irrigation in landscaping  Rainwater storage  Toilets (residential)	 Commercial greywater reuse
 Energy efficient refrigerators	 Commercial building data center energy efficiency	 Electric heavy goods vehicle (HGVs)		 Commercial greywater reuse
 Gas to electric stove replacement	 Residential dishwasher efficiency Electric vehicles	 CNG heavy goods vehicle (HGVs)	<p>Public transport</p>  Efficient heavy goods vehicle (HGV)	 Toilets (residential)
 Gas to electric water heater replacement	 Passenger car EV	 Efficient heavy goods vehicle (HGV)		 Low flow showers
 Gas to electric ground source heat pumps	 SUV EV	 Caltrain electrification	 Showers instead of baths	 Aerated faucets in homes
 Smart thermostats	 Passenger car autonomous EV	 BART extension	 Fixing leaks in homes	<p>KEY</p> <div style="border: 1px solid black; background-color: #ffff00; padding: 2px;">ENERGY</div> <div style="border: 1px solid black; background-color: #ffcc00; padding: 2px;">TRANSPORT</div> <div style="border: 1px solid black; background-color: #ccffcc; padding: 2px;">LAND USE</div> <div style="border: 1px solid black; background-color: #ccffff; padding: 2px;">WATER</div>
 Residential building thermal envelope retrofit	 SUV autonomous EV Autonomous vehicles	 California High Speed Rail	 Residential greywater	
 Residential building thermal envelope new-build	 Ride-sharing shuttles	 VTA Bus Rapid Transit and Light Rail		
 Commercial building thermal envelope retrofit	 Ride-sharing autonomous cars	 VTA Next Network and future bus expansion		
 Commercial building thermal envelope new-build	 Ride-sharing autonomous shuttles	 City Bike Plan		

INCORPORATING PLANNED POLICIES TO UNDERSTAND THE GAP THAT NEEDS TO BE BRIDGED

The General Plan (specifically those related clean energy, densification, city vehicles and building retrofit) takes us part of the way there, but not far enough



WE STRUCTURED THIS INTO 3 PILLARS AND 9 STRATEGIES THAT WOULD TAILOR THE 'GOOD LIFE' FOR SAN JOSÉ



PILLAR 1: A SUSTAINABLE AND CLIMATE-SMART CITY

San José has all the ingredients to be a sustainable and climate-smart city; it has abundant renewable resources, a skilled workforce and a willingness to innovate. San José will become the model for what a truly Californian approach to being a sustainable and climate-smart city looks like.



STRATEGY 1.1

TRANSITION TO A RENEWABLE ENERGY FUTURE

WHY THIS IS IMPORTANT

Whether it's electricity to power our buildings, natural gas to warm and cook in our homes, and gasoline to fuel our cars, San José depends on the use of energy derived from fossil fuel source. Using these sources accounts for the majority of our carbon footprint.

While efforts on the demand side are important from a cost management point of view, transitioning our energy sources to renewables is the single most important move that we can make to reduce our emissions.



STRATEGY 1.2

EMBRACE OUR CALIFORNIAN CLIMATE

WHY THIS IS IMPORTANT

We're often told that climate change brings with it contradictory extremes. San José has - in just the last three years - seen first hand what this actually means. With a biting three-year drought and a flood that followed in 2017, the city has dealt first-hand with climatic events.

These events exposed our dependence on - and vulnerability to - water. Achieving climate-resilience doesn't mean punishing water use; it's an opportunity for us to embrace and make the most of our Californian climate.



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

PILLAR 2: A CONNECTED CITY OF VIBRANT AND FOCUSED GROWTH

San José is the capital of Silicon Valley. We can use the best products, services and know how from our own back yard to enhance our city to be compact, smart and connected, which will combine intelligent planning with seamless mobility, solving the problems of last-mile journeys and making moving around our city clean, efficient and convenient.



STRATEGY 2.1

DENSIFY OUR CITY TO ACCOMMODATE OUR FUTURE NEIGHBORS



STRATEGY 2.2

MAKE HOMES EFFICIENT AND AFFORDABLE FOR OUR FAMILIES



STRATEGY 2.3

CREATE CLEAN, PERSONALIZED MOBILITY CHOICES



STRATEGY 2.4

DEVELOP INTEGRATED, ACCESSIBLE PUBLIC TRANSPORT INFRASTRUCTURE

PILLAR 3: AN ECONOMICALLY INCLUSIVE CITY OF OPPORTUNITY

Economic development and sustainability are mutually reinforcing in San José; local job creation can lead to reduce carbon emissions, and high-performing logistics and real estate can be attractive to companies looking to do business in the city. Designing-in economic development and the requirements of business will make attaining a sustainable city all the more feasible.



STRATEGY 3.1

CREATE LOCAL JOBS



STRATEGY 3.2

IMPROVE OUR COMMERCIAL BUILDING STOCK



STRATEGY 3.3

MAKE COMMERCIAL GOODS MOVEMENT CLEAN AND EFFICIENT

WHY THIS IS IMPORTANT

Creating local jobs is not just a driver of economic development, it also brings sustainability benefits in allowing workers to live close to where they work and reduce time, money and carbon emissions spent commuting.

WHY THIS IS IMPORTANT

San José can offer productive, high-performance commercial real estate to businesses that reduce their energy costs and, in doing so, contribute to reduced energy demand.

WHY THIS IS IMPORTANT

Commercial vehicle movements in the city, including logistics and freight, contribute to the city's overall carbon footprint. Working with the commercial sector, San José can benefit from clean and efficient goods and logistics movement, contributing to sustainability.

CITY HALL'S ROLE WILL BE TO ENABLE OTHERS: TAILORED PLAYBOOKS FOR KEY AUDIENCES

- Families
- Real estate developers
- Business community
- Regional stakeholders

DEVELOPER PLAYBOOK FOR ZNE RESIDENTIAL

Zero Net Energy means the total annual energy use of a building equals the amount of renewable energy created onsite. California has set goals an ambitious goal that all new residential buildings will be Zero Net Energy by 2020. In San Jose this new generation of buildings will be predominately multifamily built in the city's 72 urban villages.

Tight building envelope

C C C C C C \$ \$ \$ \$ \$ \$

Thoughtful integration of a building's site orientation, insulation, high performance windows and heat recovery ventilators can deliver excellent thermal comfort, indoor air quality, sound mitigation, and natural day-light to create a tranquil and beautiful home.

Solar panels

C C C C C C \$ \$ \$ \$ \$ \$

For building occupants solar panels are often a source of pride in being less reliant on the grid for their power.



All-electric

C C C C C C \$ \$ \$ \$ \$ \$

Some developers are successfully going to all electric appliances, hot water, and heating systems, foregoing natural gas altogether. This includes inductive stove tops.

Key tgcO2 saved per household

C	<50
C C	50-99
C C C	100-499
C C C C	500-999
C C C C C	>1,000

Estimated upfront costs

\$	<\$1,000
\$ \$	\$1,000-2,999
\$ \$ \$	\$3,000-9,999
\$ \$ \$ \$	>\$10,000

Charging stations & bike storage

C C C C C C \$ \$ \$ \$ \$ \$

Providing EV chargers and areas for bike storage for residents help future-proof the building.

FAMILY PLAYBOOK ON ENERGY

What will have the biggest impact in making your home more comfortable and reduce carbon? Replace your gas appliances for electric. Surprised? That's because San Jose's electricity is becoming cleaner each year. Natural gas, not so much. The six actions below are the best home improvements to make your home more comfortable, save you money and reduce carbon emissions.

Use smart thermostats

C C C C C C \$ \$ \$ \$ \$ \$

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



Consider installing solar on your roof

C C C C C C \$ - \$ \$ \$ \$

Solar panels are becoming more efficient, beautiful and less expensive. Many companies are offering "panels" that are embedded in the roofing material itself, complementing the architecture of your home.



Switch-out your gas range with an electric one

C C C C C C \$ \$ \$ \$ \$ \$

Inductive cooktops are revolutionizing the way people cook. Compared to gas they heat twice as fast, provide more temperature control, and have better air quality. Celebrity chefs are becoming converts and with inexpensive portable units they are easy to try.



Insulate your home

C C C C C C \$ - \$ \$ \$ \$

A well insulated home fosters well-being by making the temperature more consistent, eliminating drafts, and muffling outside noise to make it easier to focus, connect with your family, and get a good night's sleep.



On-demand electric water heaters

C C C C C C \$ \$ \$ \$ \$ \$

On demand water heaters provide a continuous and endless supply of hot water and are much smaller than gas-fired boilers.



Install heat pumps for heating and cooling needs

C C C C C C \$ \$ \$ \$ \$ \$

Heat pump systems operate as both a heater and an air conditioner and are generally more reliable and require less maintenance than conventional gas-fired furnaces.



Key tgcO2 saved per household

C	<50
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\$ \$ \$ \$	>\$10,000

FAMILY 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.

Live close to where you work

C C C C C C

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

C C C C C C

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



Use public transit

C C C C C C \$ \$ \$ \$ \$ \$

Major upgrades* in San Jose's transit system is making getting around more convenient and enjoyable. It allows you to work and be productive on your commute, or just enjoy watching your favorite television shows.



Use an electric vehicle

C C C C C C \$ \$ \$ \$ \$ \$

EVs are quick, fun to drive and, with an HOV sticker, allow you to breeze past traffic jams. Their low fuel and maintenance costs and government incentives make them very affordable and even less expensive than the operating cost of your current car.



Get a good broadband package

C C C C C C \$ \$ \$ \$ \$ \$

If you work in a job that allows you to do so, living in a location with reliable broadband can allow you to work from home for some days of the week.



Share your ride!

C C C C C C \$ \$ \$ \$ \$ \$

Carpooling using rideshare apps is a great way to share the journey, meet new friends, save time in the carpool lane, reduce stress, and save money.



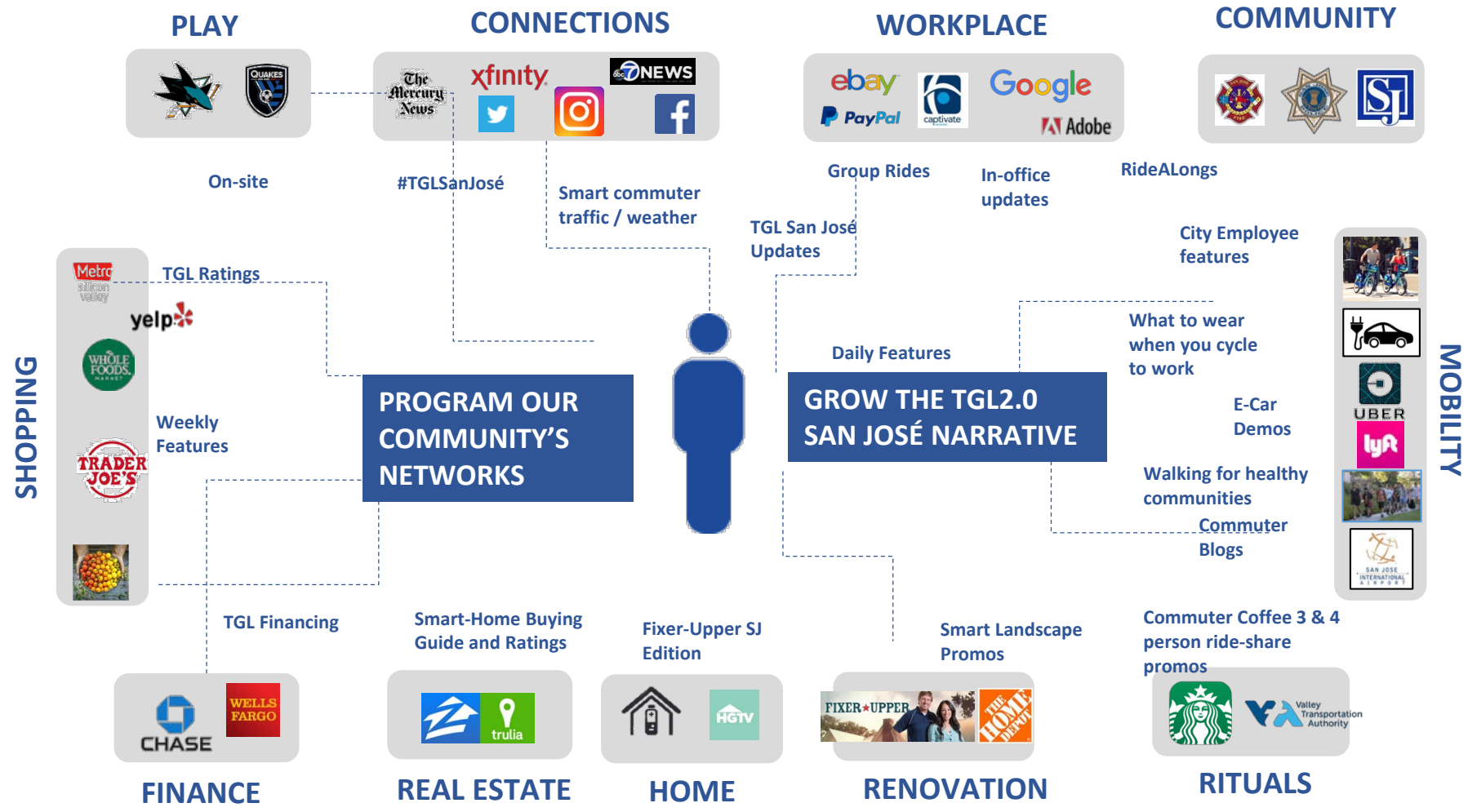
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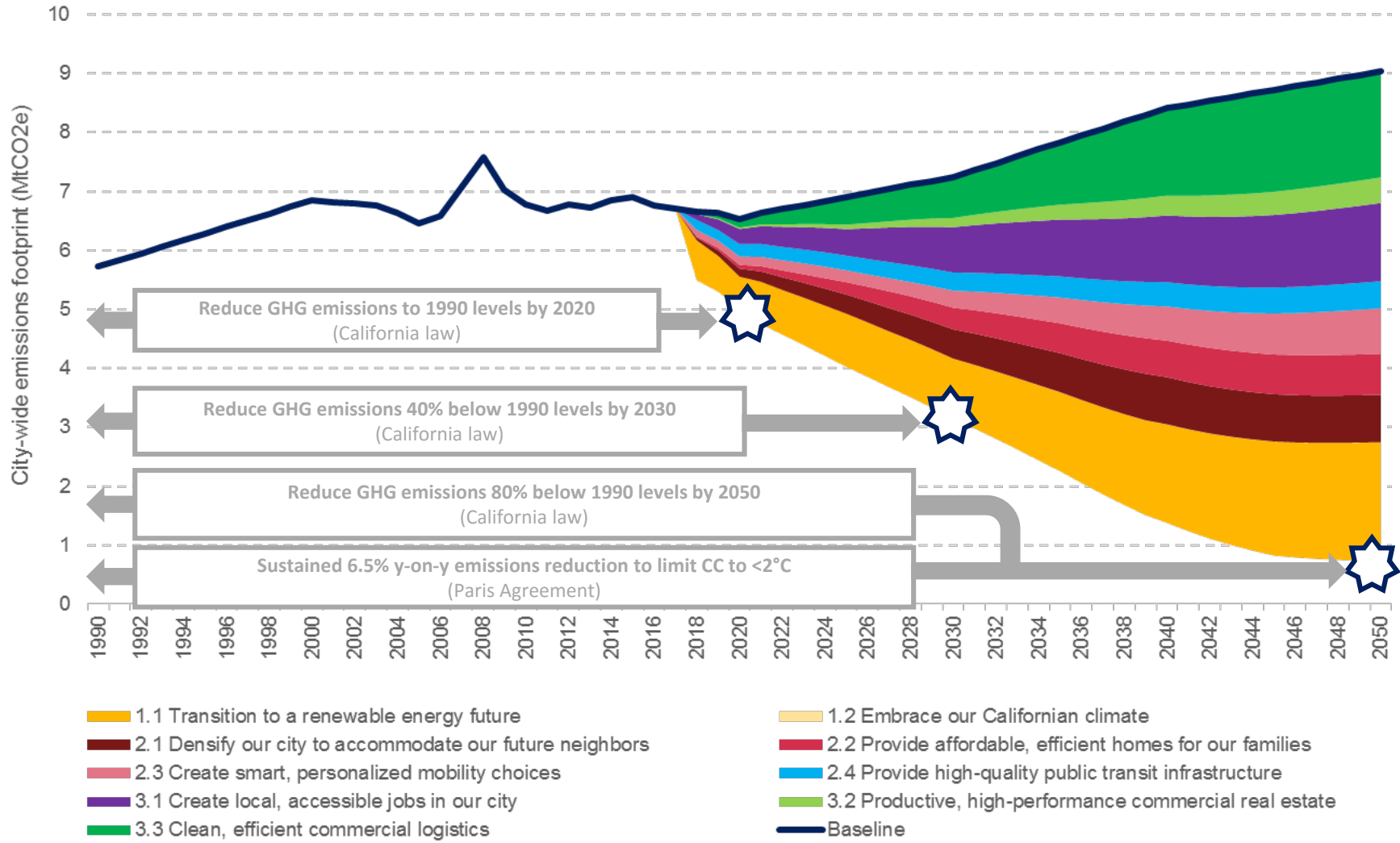
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CITY HALL'S ROLE WILL BE TO ENABLE OTHERS: PROGRAMMING COMMUNITY NETWORKS



PATHWAY TO A NEAR-ZERO CARBON FUTURE: ACHIEVING CALIFORNIA AND PARIS CLIMATE TARGETS

San José's emissions reduction profile through the ESP



How to get started...

- 1 DATA:** Understand what is important from a carbon and water point of view, and how far your General Plan takes you
- 2 OUTREACH:** Solicit ideas from the community, technical experts, and the data to identify sustainability measures
- 3 IDEAS:** Filter ideas into a short-list of sustainability measures
- 4 ANALYSIS:** Model the costs and carbon benefits of each measure
- 5 PATHWAY:** Integrate and sequence measures to identify Paris-compliant pathway for emissions reduction

RESOURCES: <http://www.sanjoseca.gov/index.aspx?NID=5488>