CRAFT 2050: Tempe's First Climate Action Plan

Extreme Heat

1. Hire an Emergency Manager that works on the city's resilience to extreme heat.
2. Further invest in Urban Forestry Master Plan to provide more shade in parks and along streets.
3. Adopt Green Building Code with support for increasing shade and use of cool materials.
4. Adopt Green Infrastructure and low-impact development standards.

Energy and Energy Efficiency

1. Create a revolving fund to support energy upgrades to businesses and schools in Tempe.
2. Pilot solar electric vehicle charging to capture and store energy during peak sunlight hours.
3. Create a centralized sustainability platform to help businesses implement energy upgrades.
4. Create resilient energy hubs with renewable energy and energy storage.

Transportation

1. Invest in electric vehicle charging infrastructure and adopt building code changes that support electric vehicles.
2. Prioritize safe and low-stress connections by walking, biking or riding transit in all transportation projects.
3. Create an urban core Transportation Demand Management program and a Transportation Management Association.
4. Develop an automated mobility readiness guide and policy framework

1

Hire an Emergency Manager that works on the city's resilience to extreme heat.

DESCRIPTION

Tempe does not currently have a full-time emergency management professional on staff. Tempe has an opportunity to hire an Emergency Manager that could be responsible for ensuring that the city is prepared for a wide range of potential threats. A prevention plan for extreme heat could ensure that first responders and residents are prepared for extreme heat days through having water, wearing appropriate clothing, and staying in air-conditioning when possible. Arrangements can be made to increase the number of cooling centers. The Emergency Manager could also work on making sure future buildings and city infrastructure are resilient to extreme heat.

KEY FEATURES

- Full-time permanent position to ensure that the city is prepared for emergencies and threats
- Can coordinate with city staff, residents, schools, non-profits and the business community to ensure preparedness
- Can work to apply for additional funding for projects and research that ensures that the city is lowering the risks presented by extreme heat
- Supports city in creating resilience hubs where residents can go during emergencies

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Tempe's First Climate Action Plan

Tempe needs to prepare for extreme heat and big storms.

Safe & Secure Communities

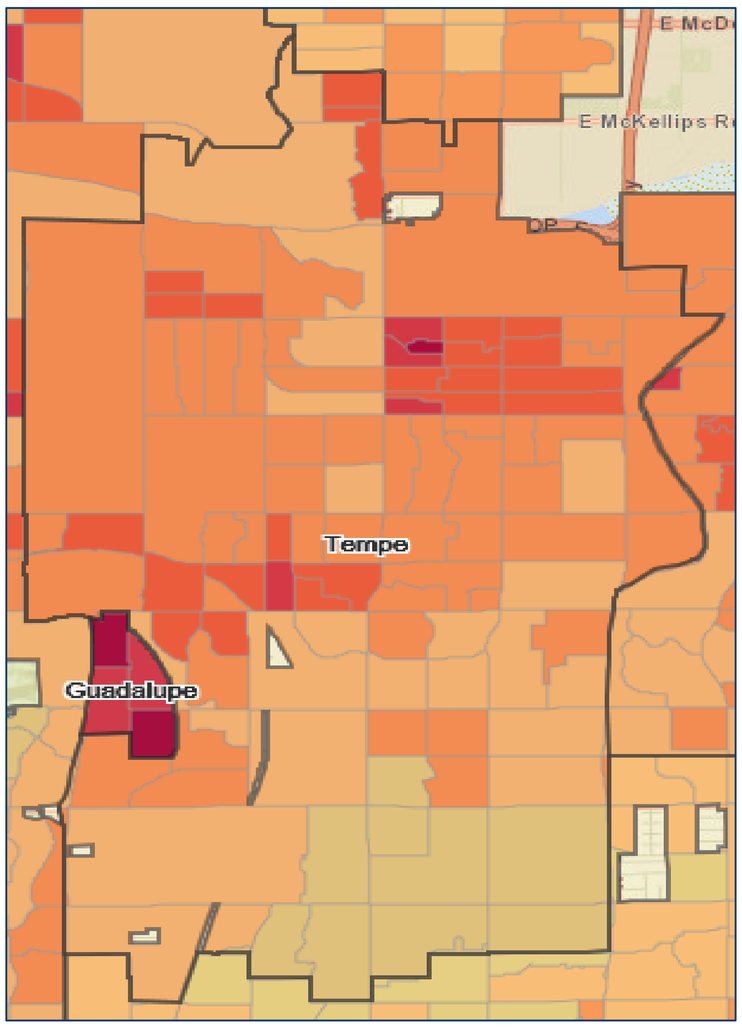
An emergency manager could ensure that public safety is not compromised on extreme heat days.

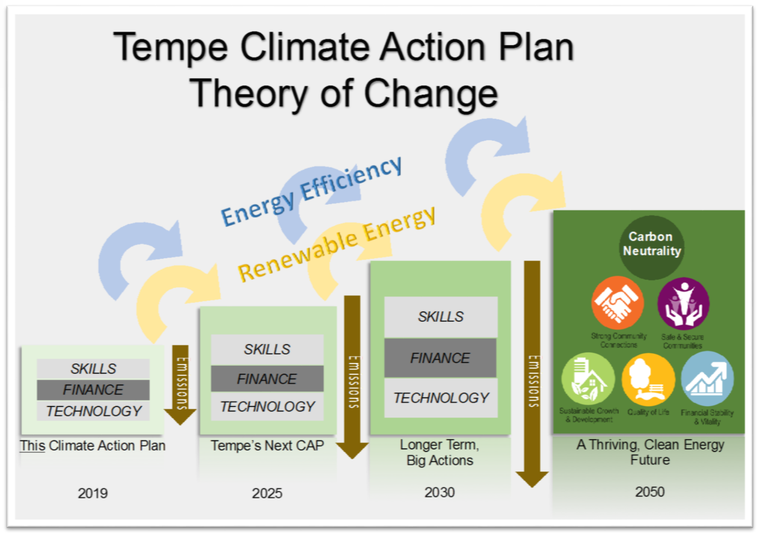
Sustainable Growth & Development

Increasing our capacity to work with city staff on resilience, will ensure that Tempe is better prepared for disasters including extreme heat.

Financial Stability & Vitality

Preparedness and prevention planning can reduce the costs of response and recovery to extreme weather events.





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2

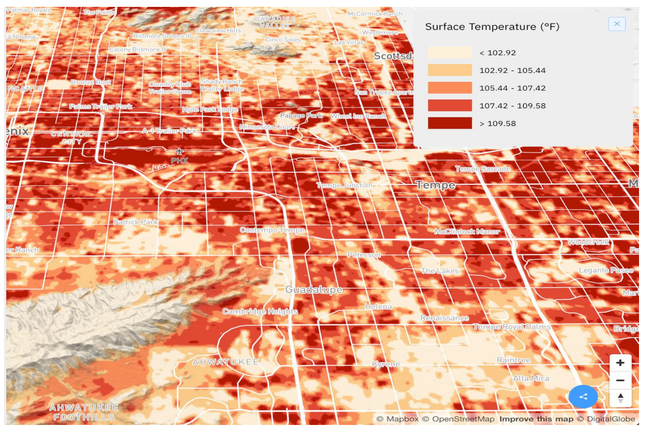
Further invest in Urban Forestry Master Plan to provide more shade in parks and along streets.

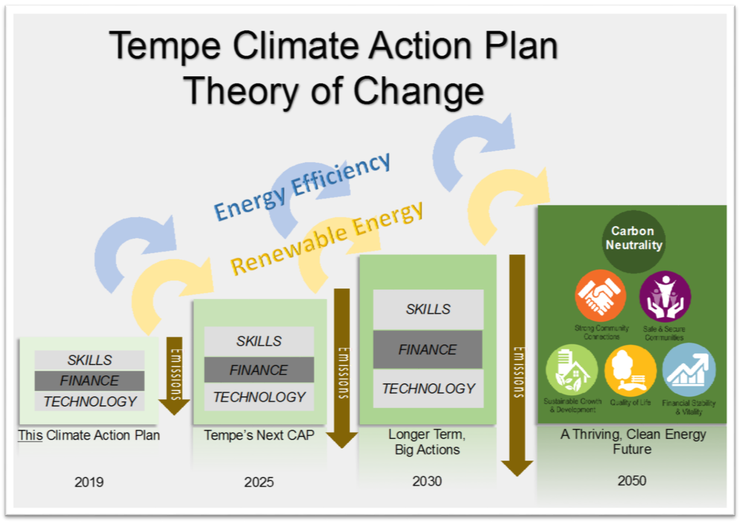
DESCRIPTION

Tempe adopted an Urban Forestry Master Plan (UFMP) in 2017. The City will soon have an urban forester to support increasing the city's tree canopy. The UFMP promotes the planting and maintenance of trees in city parks, streets and in urban hubs. The plan supports efforts to create more urban forestry volunteer efforts, pilot projects, and increases tree planting on city property. The City can continue to increase these programs by increasing staff, funding for trees, and by finding resources to improve irrigation through efficient irrigation technology, green infrastructure improvements, and greywater systems. Every budget year presents an opportunity to ensure that the city is fully investing in our urban forestry program in order to provide shade and help cool our city.

KEY FEATURES

- Supports planting and maintenance
- Ensures adequate staffing to support the expansion of Tempe's tree canopy
- Organizes volunteers and community efforts to plant, maintain and water our trees
- Can target streets and parks in hottest areas of the city
- Support targeting efforts to combat extreme heat as experienced by low-income residents.
- Further invests in pilot projects that model best practices to conserve water





For Tempe to thrive in the future it must be resilient to extreme heat.

Sustainable Growth & Development

Investing in the urban forestry will help ensure that Tempe is reaching its tree canopy goal while addressing extreme heat.

Quality of Life

By promoting shade and cooling, City of Tempe is helping ensure that it is a livable city in the future.

Financial Stability & Vitality

Trees planted near buildings can reduce heat gain on buildings and reduce building energy costs.

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3

Adopt Green Building Code with support for increasing shade and use of cool materials.

DESCRIPTION

The International Green Construction Code is a green model code for cities to adopt to ensure new construction is more sustainable than buildings constructed under traditional codes. Tempe is considering adopting this code for the first time. Scottsdale has successfully used this code to support new construction for over a decade. There is an opportunity to use the adoption of this new code to work with local architects and developers to incorporate additional elements that increase shade requirements and support the use of cool materials.

KEY FEATURES

- New optional building code that support developers in making more sustainable and resilient choices
- Code can encourage more structural shade, require more tree canopy coverage and spread the use of green infrastructure
- City can highlight and support developers that are willing to invest in shade and cooling
- City can require green construction code be used for all future city buildings and infrastructure projects

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Tempe buildings should keep occupants and pedestrians cool.

Financial Stability & Vitality

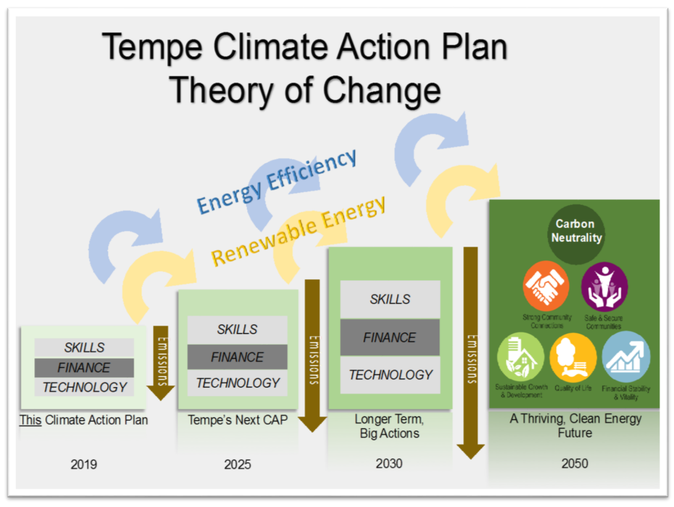
Green building practices that include shade and cool materials can reduce energy costs.

Sustainable Growth & Development

Increasing shade In Tempe can ensure that our residents and visitors are less exposed to extreme heat and ultraviolet radiation.

Quality of Life

By making our city more walkable and comfortable, City of Tempe is helping ensure that it is a livable city in the future.



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4

Adopt Green Infrastructure and Low Impact Development Design Standards.

DESCRIPTION

The cities of Scottsdale and Phoenix have led an effort with ASU's Sustainable Cities Network to develop design standards for stormwater management. These practices ensure cities and developers create more sustainable and resilient landscapes that can fully use stormwater and reduce the need for potable water to support cool landscapes and urban shade.

Fully adoption of these design standards would ensure that all city infrastructure projects and private development take advantage of stormwater.

KEY FEATURES

- Design standards that support urban cooling and shade
- Support reduction of potable water use
- Celebrates and ensures citywide use of green infrastructure
- Ensures Tempe works with neighboring cities and the region to reduce urban heat island while efficiently using water
- City can require green infrastructure design standards be used for all future city buildings and infrastructure projects

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How does this action support City of Tempe's Strategic Priorities?

Financial Stability & Vitality

Green infrastructure practices that include stormwater use, shade and cool materials can reduce energy costs.

Sustainable Growth & Development

Increasing shade In Tempe can ensure that our residents and visitors are less exposed to extreme heat and ultraviolet radiation.

Quality of Life

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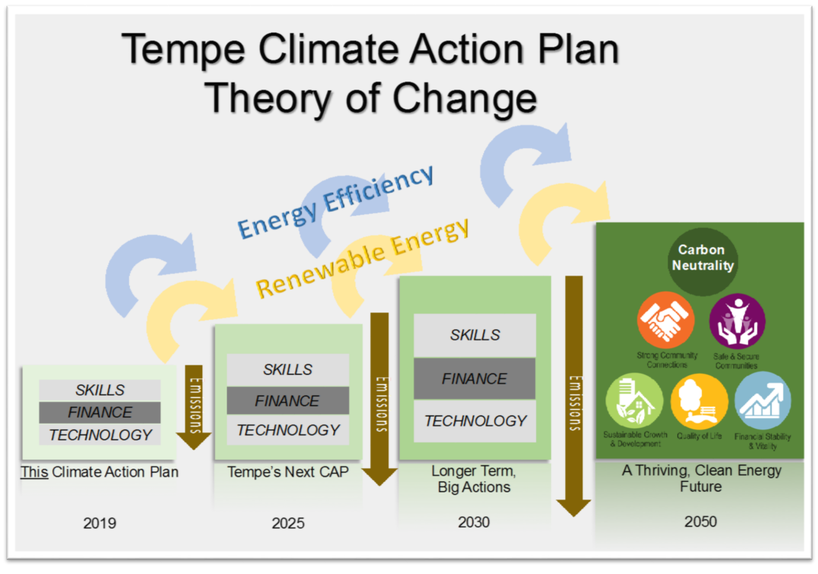

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1

Create a revolving fund to support energy upgrades to businesses and schools in Tempe.

DESCRIPTION

An energy upgrades revolving fund begins with an initial pot of money which is used to give out loans for energy efficiency upgrades. Tempe could found a 501c3 and use it to support businesses and schools in upgrading their infrastructure. The city may be able to take advantage of the Community Reinvestment Act to create the fund. The could initially be made available to early adopters, including mom & pop stores and schools interested in saving money by reducing their energy use. If the revolving fund runs successfully, fund applications can be extended to residential customers

KEY FEATURES

- Funding mechanism (fee, business partners, donations, banks, grants)
- Funds adoption of energy efficient technologies like LED lights, and more efficient freezers, and HVACs.
- Reduces carbon emissions from building operations.
- Outreach via faith-based institutions, news channels, radio etc.
- Makes energy efficiency upgrades affordable to small businesses and schools.
- Once established the fund is self-sustaining.

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Financing is needed to implement many energy efficiency upgrades.

Sustainable Growth & Development

This fund could support schools, businesses and residents in adopting energy efficiency upgrades so Tempe can grow while being resource conscious.

Financial Stability & Vitality

Supporting businesses and residents in upgrading their infrastructure will save them money which can go back into Tempe's economy.

Safe & Secure Communities

Having access to affordable energy is an important part of security. This fund could help schools and residents by reducing energy costs.

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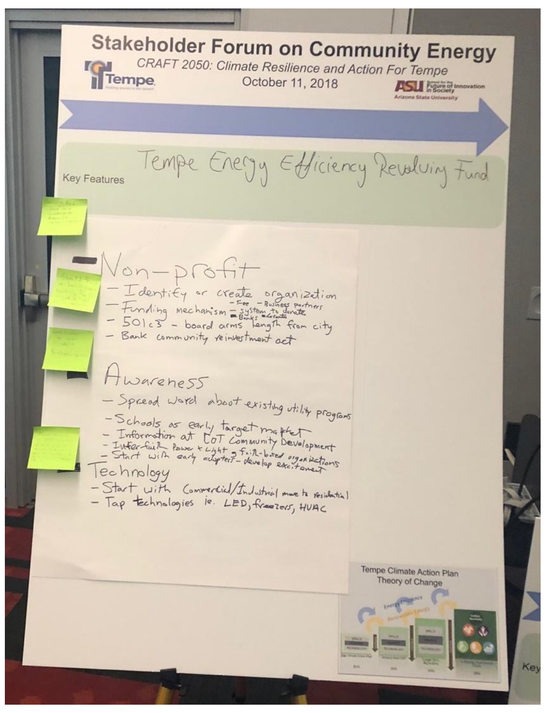

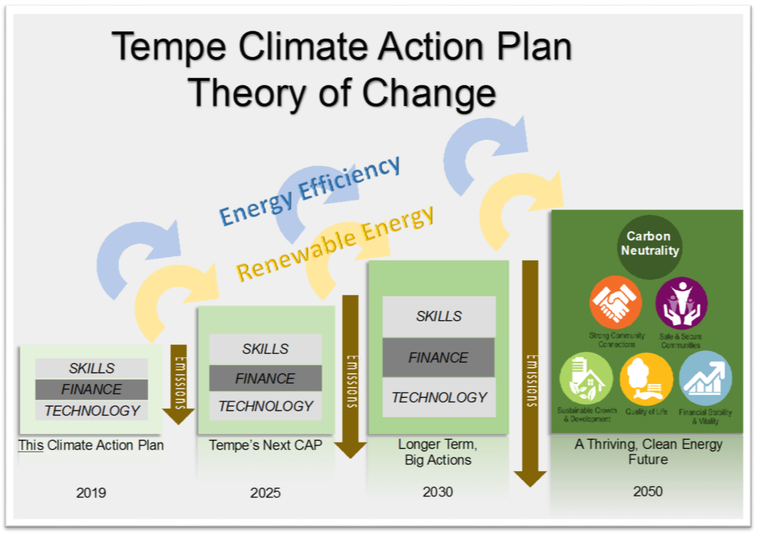

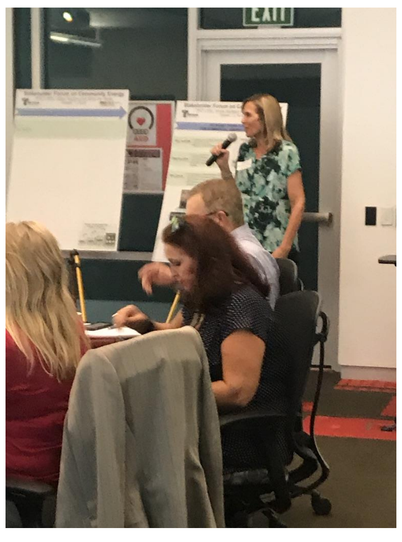

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2

Pilot solar electric vehicle charging to store electricity during peak sunlight for use in homes.

DESCRIPTION

A major barrier to putting more solar energy on the grid is that most electricity from solar is generated during the day but most electricity is consumed in the late afternoon and evening. If solar power could charge electric vehicles (EVs) during the day, and EVs could charge homes at night, this would help address the mismatch between electricity generation and use. Tempe could be part of this solution. As part of its first climate action plan, Tempe could launch a flagship project for electric vehicle (EV) charging in the form of a public-private partnership (PPP) between the city, businesses and the utilities. EV chargers powered by solar energy could be available in prominent parking lots etc., for example at city facilities or local office complexes. The PPP could create a working group to explore how the solar EV charging could be used to power homes and to create a strategy to scale the pilot across the city.

KEY FEATURES

- Enable EV charging in Tempe to attract more EVs.
- Test impact of scaled EV charging on mid-day electricity demand
- Working group to explore power homes with EV batteries
- Shifting emissions out of city center
- City and partners as global frontrunners in linking EVs and solar power generation.
- City could provide support programs for low-income residents.
- EV charging could be put in the city code.

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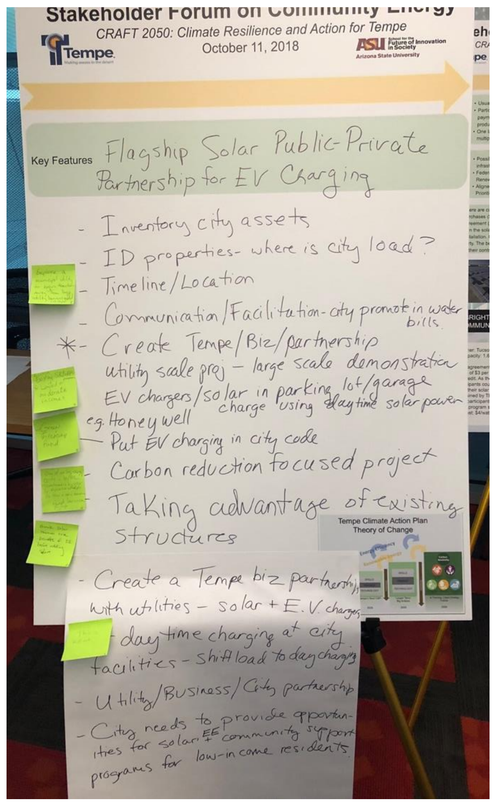

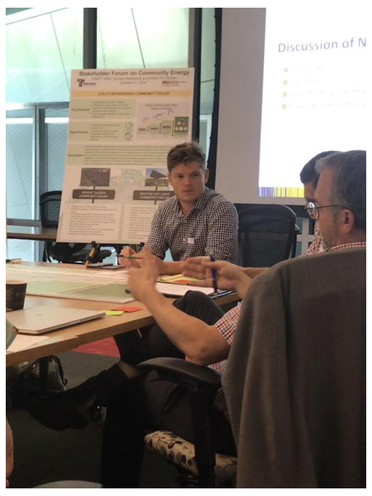

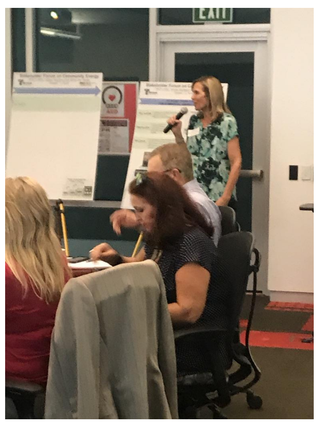

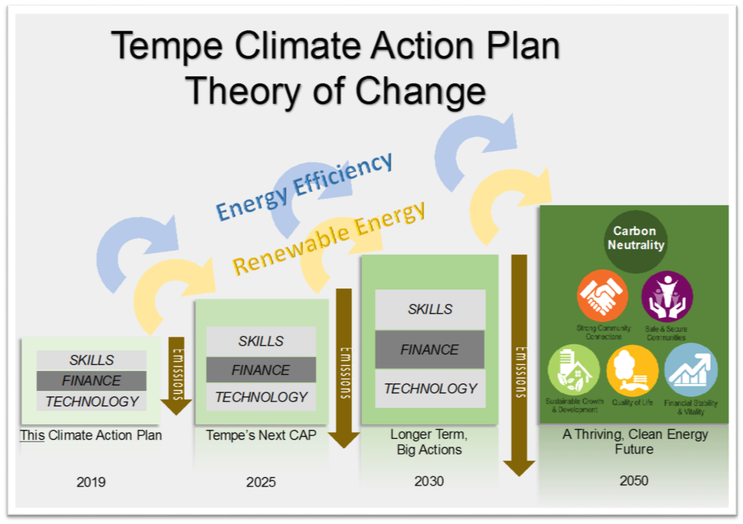

Innovative solutions are needed to increase solar energy use.

Sustainable Growth & Development

Sustainable growth should improve air quality. This means fewer cars and fewer internal combustion engines to move more people.

Quality of Life

By helping businesses use less energy and water, and promote electric vehicle adoption, City of Tempe is helping ensure that it is a livable city in the future.

Safe & Secure Communities

A stable electric grid is essential to having a safe and secure community. Solutions like this that are looking to help ensure grid stability are critical.

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3

Create a centralized sustainability platform to help businesses implement energy upgrades.

DESCRIPTION

The city, the Tempe Chamber of Commerce (CoC), Local First (LF), Downtown Tempe Authority (DTA), the utilities (SRP & APS) and other interested parties could create a website providing information to businesses on energy efficiency programs. These could also include the Sustainability Pledge (CoC), the GreenBiz Certification (LF), a tool to calculate which programs a business qualifies for and the amount of expected savings, helping businesses understand their energy bill and success stories. This website could be co-hosted by the city and the CoC. To kick-off the website SRP and APS can host an energy efficiency challenge.

KEY FEATURES

- Website with energy efficiency programs and more
  - SRP: helping people understand their energy bill
  - CoC: Sustainability pledge
  - LF: GreenBiz Certification
  - “Savings-Calculator”
  - Share success stories
- SRP and APS to host energy efficiency challenge for kick-off
- Reduce emissions from commercial buildings
- Alignment with Tempe’s strategic priorities

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Businesses need support in implementing energy upgrades.

Financial Stability & Vitality

Sustainable business practices are sound business practices. By implementing energy upgrades and reducing resource use businesses can save money.

Sustainable Growth & Development

Sustainable growth for Tempe requires businesses to be sustainable. This platform would guide businesses in adopting sustainable practices.

Quality of Life

By helping businesses use less energy and water, and promote electric vehicle adoption, City of Tempe is helping ensure that it is a livable city in the future.

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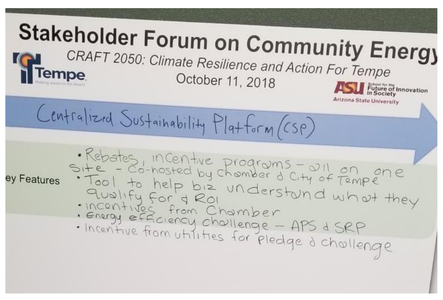

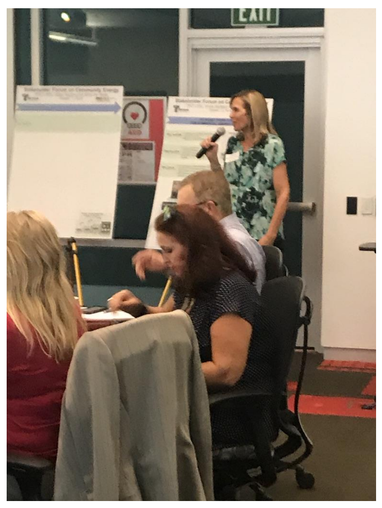

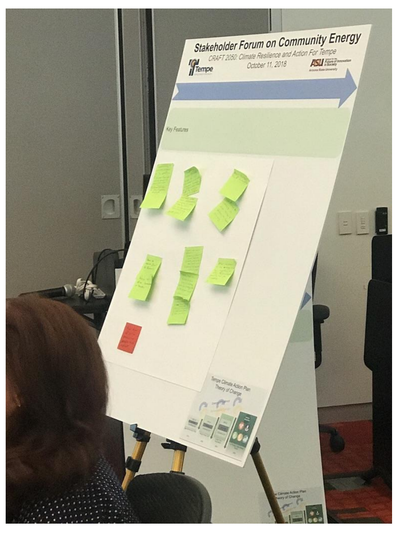

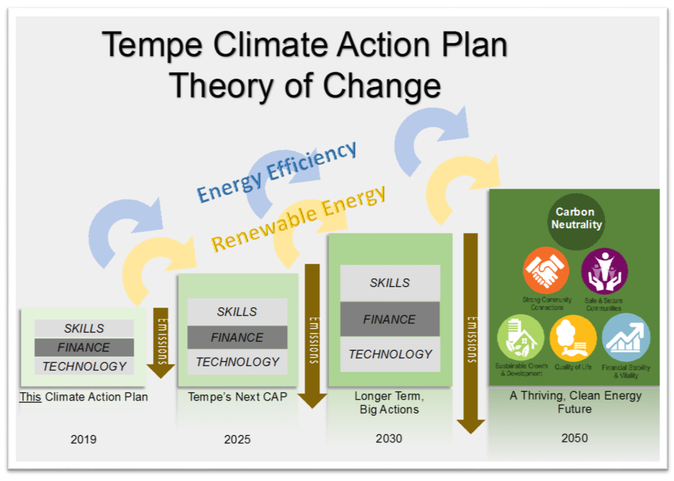

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4

Create resilient energy hubs with renewable energy and energy storage.

DESCRIPTION

What if all critical infrastructure in Tempe in the case of emergency had clean and reliable energy? One potential strategy to adding more solar energy to city buildings is to add solar panels and battery storage to buildings that are areas of first refuge or house first responders. A major barrier to adding these systems to fire stations, community centers, schools, and churches are the way rates and policies are currently designed. There is an opportunity to advocate to the Arizona Corporation Commission and the SRP Board to create a special rate and necessary exemption for critical infrastructure. If these barriers were reduced Tempe and other cities would be able to finance and build clean energy capacity where it matters most.

KEY FEATURES

- Partner with utilities to reduce barriers to adding solar and battery storage to fire stations, community centers, schools, and churches.
- Ensures that first responders and emergency evacuees have resilient energy sources if an event that occurs that comprises the electrical grid.
- Supports investment in new solar and battery technology.
- Aligns with Council adopted goal of becoming carbon neutral in municipal operations by 2050.

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Stored solar energy is a resilient power source in emergencies.

Sustainable Growth & Development

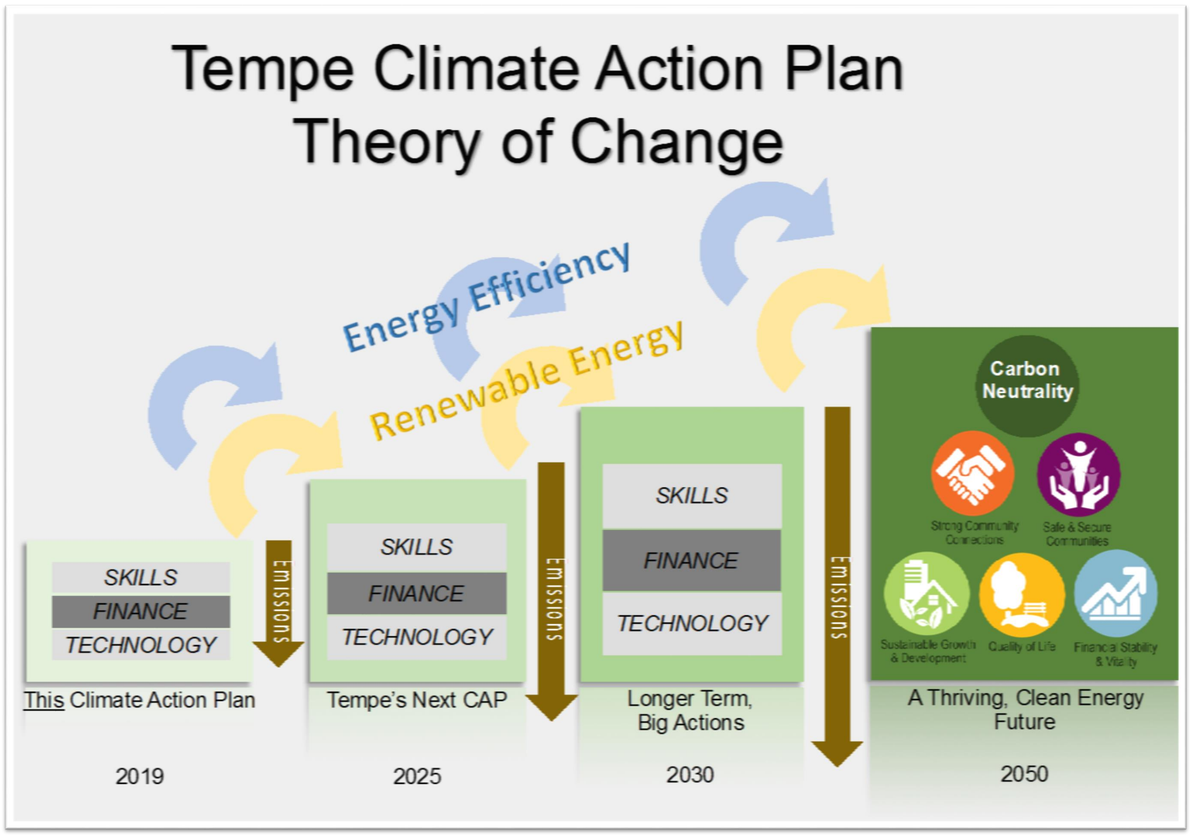
Investing in solar and battery storage in city buildings supports our 100% renewable energy strategy.

Safe & Secure Communities

A stable electric grid is essential to having a safe and secure community. Solutions like this that are looking to help ensure grid stability are critical.

Quality of Life

Resilient energy for fire stations and areas of first refuge ensures Tempe residents can keep cool and receive services during emergency events.



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1

Invest in electric vehicle charging infrastructure and adopt building code changes that support electric vehicles.

DESCRIPTION

Increasing the use of electric vehicles will reduce Greenhouse Gas Emissions in the City of Tempe.

Tempe has the opportunity to triple the number of public charging stations available to residents by 2022. Through expanding charging infrastructure, Tempe can lower the barriers of owning an electric vehicle and reduce range anxiety.

Tempe can also amend building codes to require making new buildings charging station-ready which will lower the costs of retrofitting buildings to host charging stations.

KEY FEATURES

- Increase the number of public charging stations
- Increase public visibility of electric vehicles
- Support residents and business owners in hosting charging stations
- Educate residents on the benefits of electric vehicles
- Work with utilities and partners to increase access to charging stations

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Increasing access to charging stations and improving codes to incentivize electric vehicle use supports the creation of a low-carbon transportation system in Tempe.

Financial Stability & Vitality

Provides public access to charging stations so that EV owners are less dependent on home charging

Sustainable Growth & Development

Supports adoption of electric vehicles and improves local air quality in Tempe neighborhoods.

Safe & Secure Communities

Ensures safe and efficient installation of charging infrastructure throughout the City.

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2

Create a Transportation Demand Management program for Tempe's Urban Core, including creation of a Transportation Management Association.

DESCRIPTION

The city will create a Transportation Demand Management (TDM) program for Tempe's Urban Core. TDM programs may include application of strategies or policies to reduce the travel demand or to redistribute that demand in space or in time. TDM is a cost-effective alternative to increasing transportation system capacity, while also improving environmental, public health, and community conditions.

The city, in partnership with regional/local agencies and area employers will create a Transportation Management Association (TMA). TMAs are public-private partnerships that allow businesses and government agencies to pool their resources to support alternative commuter transportation strategies.

KEY FEATURES

- Provides a congestion mitigation alternative to roadway expansion
- Typically formed as a public-private partnership
- May be region-wide or specific to a central business district and/or large employers

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Employers and multi-family developments can be partners in promoting transportation choices and reducing single-occupancy vehicle trips.

Financial Stability & Vitality

Provides a congestion mitigation alternative to expensive roadway expansion projects.

Sustainable Growth & Development

Supports the business community in the attraction and retention of employees, improving work-life balance, achieving corporate sustainability goals, and reducing transportation costs and maximizing tax savings.

Quality of Life

The combination of transportation choices, reduced congestion and improved travel time at peak hours, provides for less stress, less lost time in traffic, and improved air quality.

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3

Prioritize safe and low-stress connections by walking, biking or riding transit in all transportation projects.

DESCRIPTION

Increases in trips taken by walking, biking or riding transit will improve the per person carrying capacity of our transportation system and reduce our carbon footprint.

In coordination with the City's Vision Zero and 20 Minute City initiatives, new connections and safe street and intersection designs that prioritize pedestrians, bicyclists, and transit riders should be considered in transportation infrastructure projects. This could require reallocation of street and intersection space to better serve the full range of users. A broad array of redesign measures can be considered and should be sensitive to project context and the vision of the community.

KEY FEATURES

- Improving transit service, improving pedestrian environment, adding bike facilities, providing transit stop amenities, reconfiguring parking, converting/narrowing travel lanes, adding medians
- Increasing safety, comfort, convenience, and access for all users (reducing fatalities and serious injuries)
- Encouraging walking, biking, and transit use, supporting businesses and the local economy, and creating healthy places that foster community livability
- Reducing speeding and reducing per person delay

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Prioritizing walking, biking and transit trips will improve the per person carrying capacity of the transportation system while also reducing our carbon footprint.

Financial Stability & Vitality

Provides a congestion mitigation alternative to expensive roadway expansion projects.

Safe & Secure Communities

Provides for safe intersections and corridors, resulting in reductions in fatal and serious injury crashes for these vulnerable users.

Quality of Life

Provides for safe and low-stress connections for residents and workers, resulting in reduced trips by car.

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4

Develop an automated mobility readiness guide and policy framework

DESCRIPTION

Automated vehicles (AVs) present Tempe with many opportunities for improving transportation, but also a number of risks. Tempe and ASU researchers, will develop a new mobility readiness guide, which will provide the necessary groundwork for developing policies that ensure that the adoption and use of AVs results in a more sustainable transportation system and that they help Tempe achieve relevant strategic goals. The readiness guide will provide a comprehensive review of Tempe policies and codes that may help or hinder the adoption of AVs in a way that improves mobility and safety, and reduces the carbon footprint of the transportation system.

KEY FEATURES

- Comprehensive review of opportunities and risks associated with AVs
- Review zoning and development codes and identify possible changes
- Review roadway design and use and provide possible future roadway configurations
- Model and analyze possible traffic impacts under different scenarios
- Review data sharing processes, protocols and use
- Determine possible revenue impacts and explore alternative revenue sources
- Begin to develop a policy framework for operation of AVs in Tempe

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AVs can make Tempe's transportation system safer, less carbon intense, and more equitable.

Sustainable Growth & Development

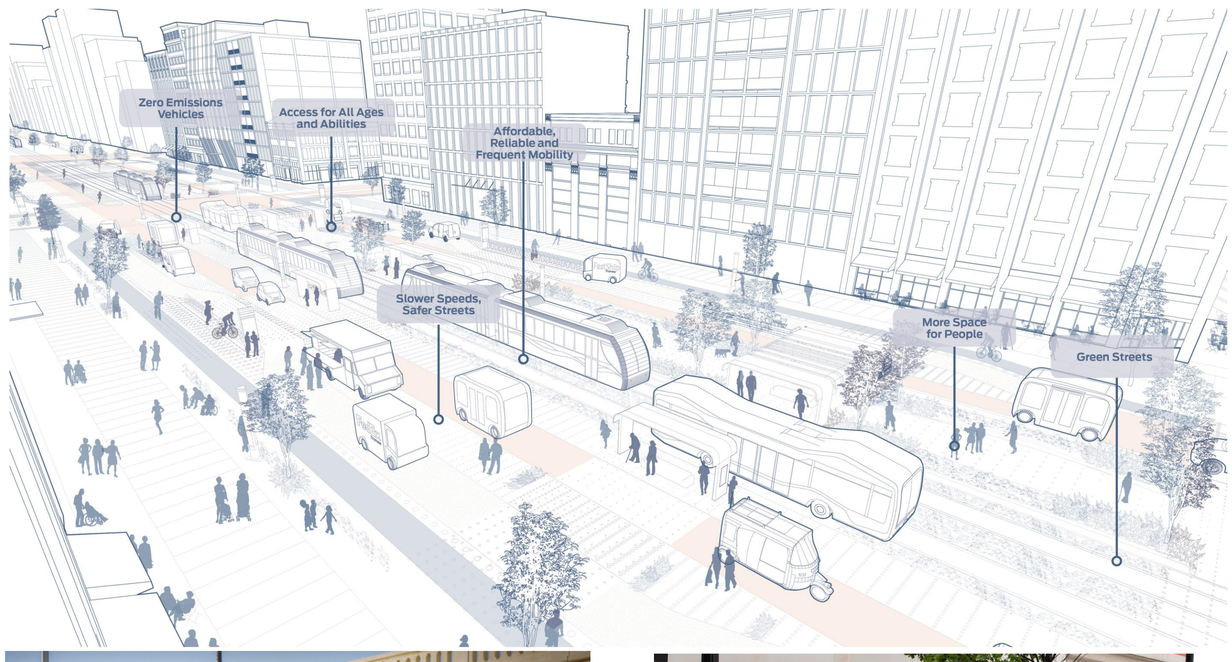
AVs can lower congestion, use roadways more efficiently, reduce the number of SOV trips, and can help improve access to transit. They will also reduce parking requirements.

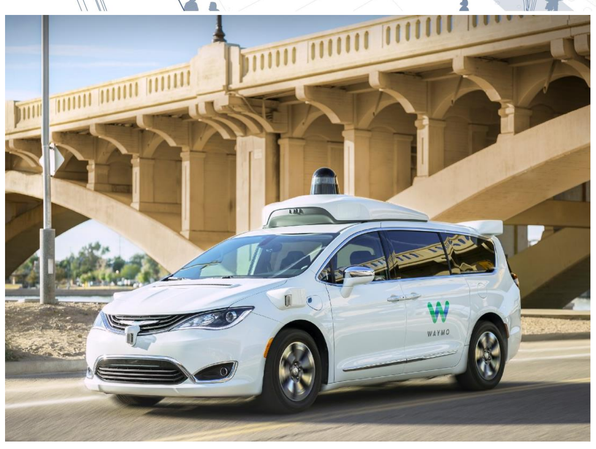
Safe & Secure Communities

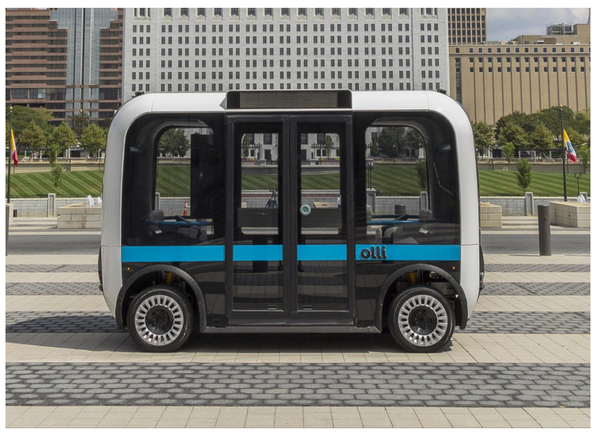
AVs will make our roads safer by removing human error as a factor in 90 percent of roadway crashes.

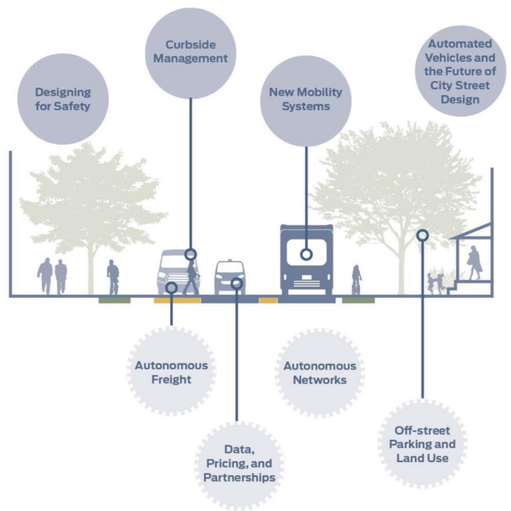
Quality of Life

AVs can help increase mobility for mobility limited demographics, and Tempe will ensure that all residents have access to this technology.









Tempe. Making waves in the desert

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Research and expert and public engagement for the Tempe Climate Action Plan was supported by funds from the Global Consortium for Sustainability Outcomes.

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