

# City of Tempe Climate Action Plan

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# Renewable Energy and Energy Efficiency

Tempe goal: 20% renewable municipal energy sources by 2025

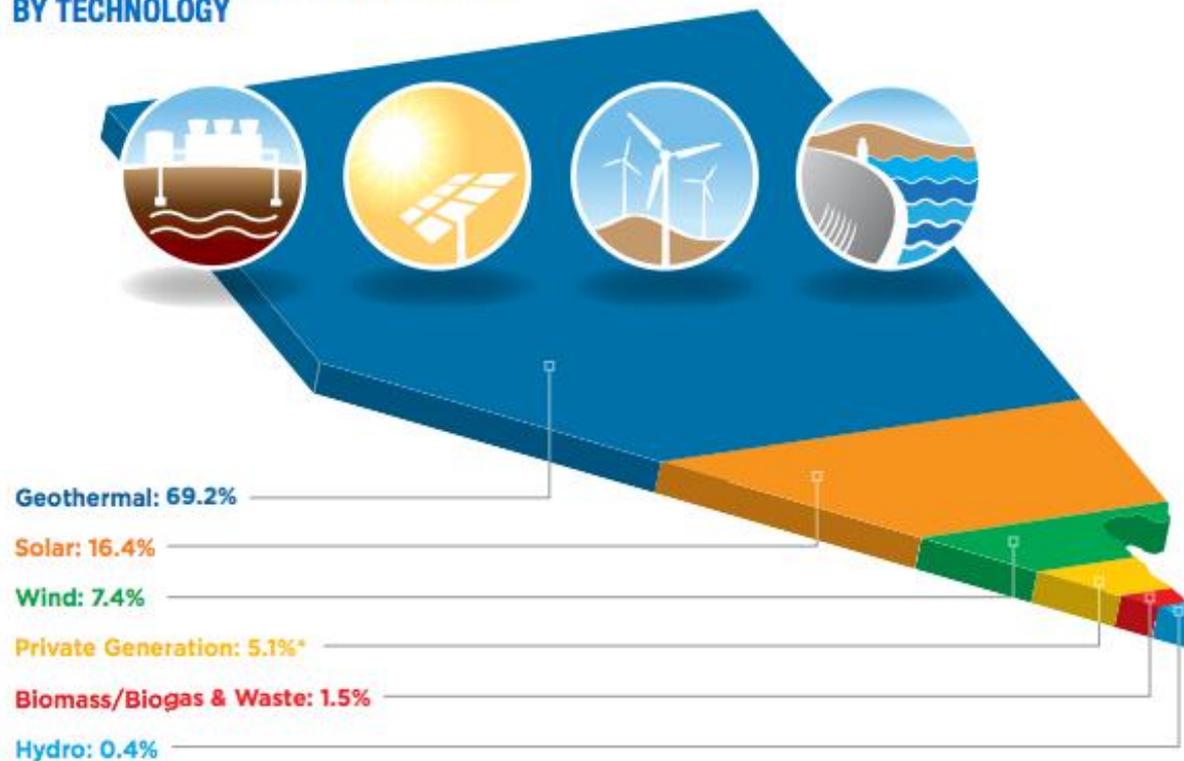
- Las Vegas 100% renewable by end of 2017
- Similar arid/hot environment, tourism heavy



All City of Las Vegas buildings & facilities are under Renewable Energy Agreement

- 3-megawatt solar plant
- net-metered solar-covered parking at 40 different buildings, facilities, fire stations, parks, community centers, and at its wastewater treatment plant

## 2015 RENEWABLE PORTFOLIO CREDITS BY TECHNOLOGY



\*Private Generation includes solar, wind, and hydro systems installed at a customer locations.

# Short-Term Solutions

## The Nest thermostat

- 1st thermostat in America with an Energy Star from the EPA
- Independent studies show Nest has saved customers an average of 10-12% on heating bills, 15% on cooling bills
- Pays for itself within 2 years
- Some energy companies offer automatic \$249 rebate or
- Tempe doesn't offer rebates, 30% of homes



# Solid Waste & Recycling

On-site composting for large businesses and institutions

- Statute from the Arizona Department of Environmental Quality makes independent composting difficult for restaurants
  - Classifies all commercial waste as municipal solid waste
  - Detrimental to a restaurant's ability to compost as all municipal solid waste must be handled in a fully-lined facility
  - Targeting not food waste, but the waste stream
- Work towards making on-site composting easier to achieve for smaller-scale business



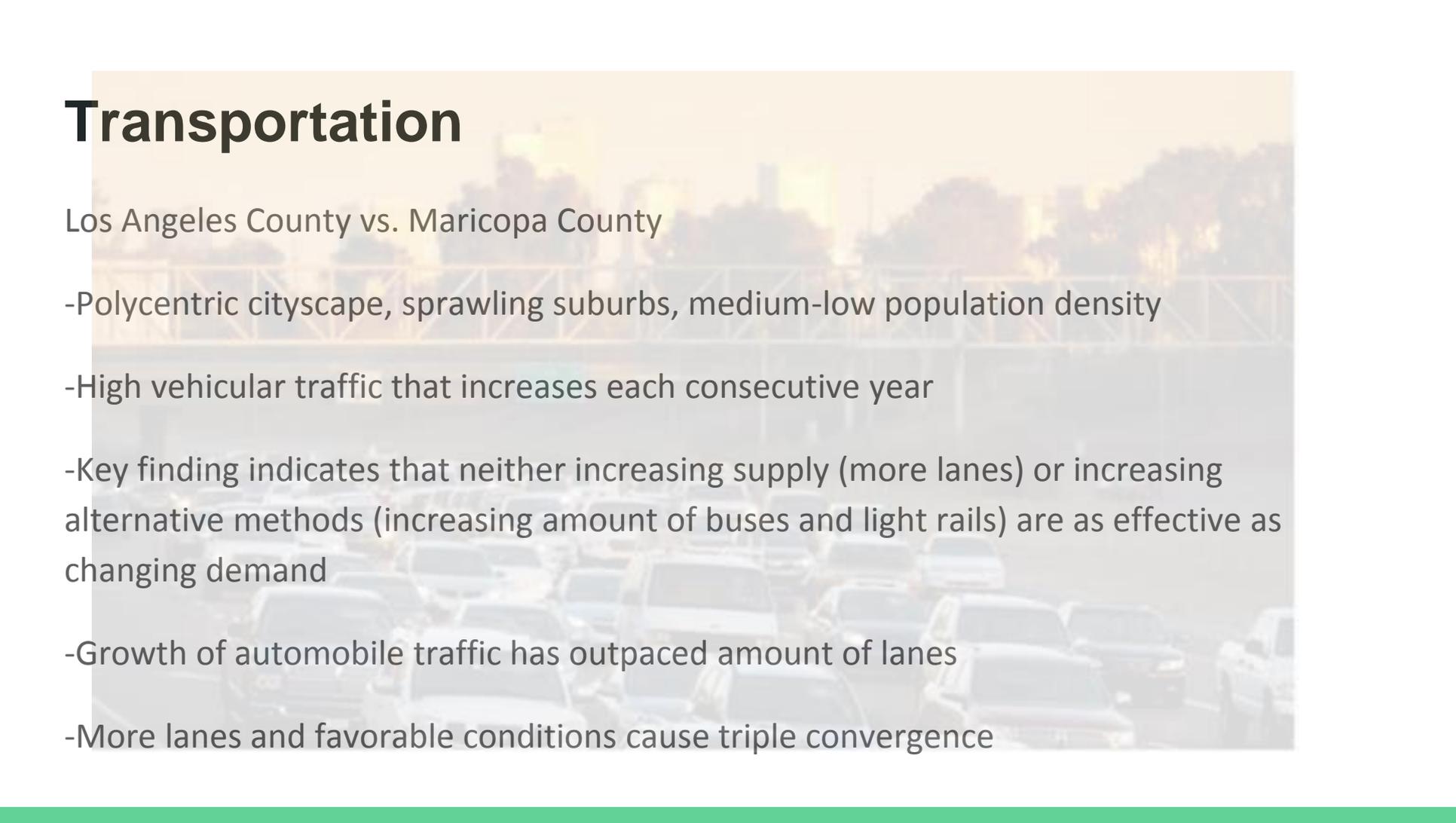
# Solid Waste & Recycling

2015 - Phoenix city council approved contract with Recycled City LLC to utilize food waste services

- Charges individuals and businesses to collect food waste, turns waste into compost, uses it to fertilize locally grown vegetables and sells the vegetables back to individuals
- Beneficial because of expensive and difficult overhead cost of setting up on site composting
- 3 year contract, net Recycled City \$12,000 per year to divert food waste from the Phoenix City Hall, the Calvin C. Goode Building, and Phoenix Fire Station No. 1
- Yard/food waste made up 45 percent of Phoenix's solid waste stream
- For 10-\$25 a month Recycled City picks up the food waste from residents
- Tempe location of the Original ChopShop Co. has used Recycled City's composting service



# Transportation

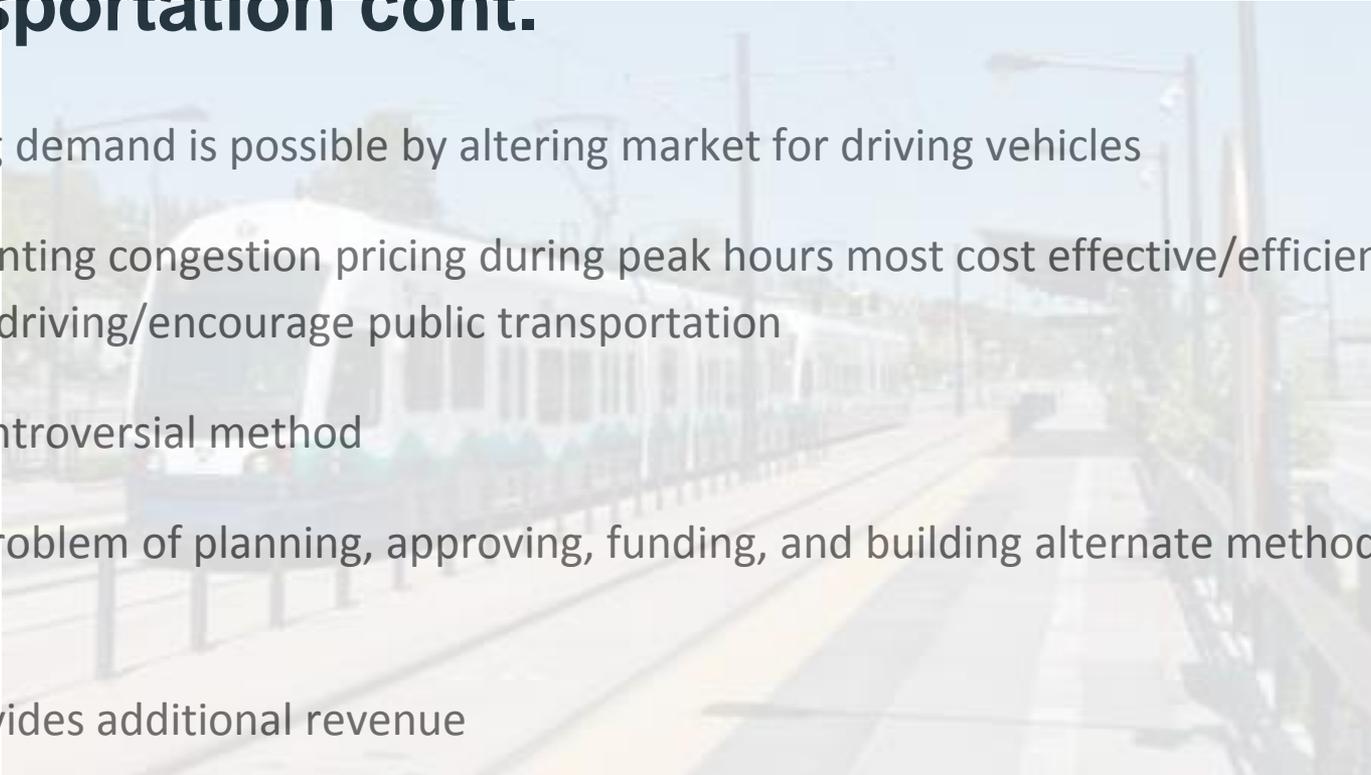


Los Angeles County vs. Maricopa County

- Polycentric cityscape, sprawling suburbs, medium-low population density
- High vehicular traffic that increases each consecutive year
- Key finding indicates that neither increasing supply (more lanes) or increasing alternative methods (increasing amount of buses and light rails) are as effective as changing demand
- Growth of automobile traffic has outpaced amount of lanes
- More lanes and favorable conditions cause triple convergence

# Transportation cont.

- Changing demand is possible by altering market for driving vehicles
- Implementing congestion pricing during peak hours most cost effective/efficient method to curtail driving/encourage public transportation
- More controversial method
- Avoids problem of planning, approving, funding, and building alternate methods of travel
- Also provides additional revenue



# Transportation cont.

No free employee parking

-Individual driving reduces 20%

More expensive parking

-50% more expensive see a reduction in commuting by 10-30%

“Cash-Out” programs

-Provides drivers monetary incentives such as \$50 a month for not using parking

-Reduce commuting by 20%

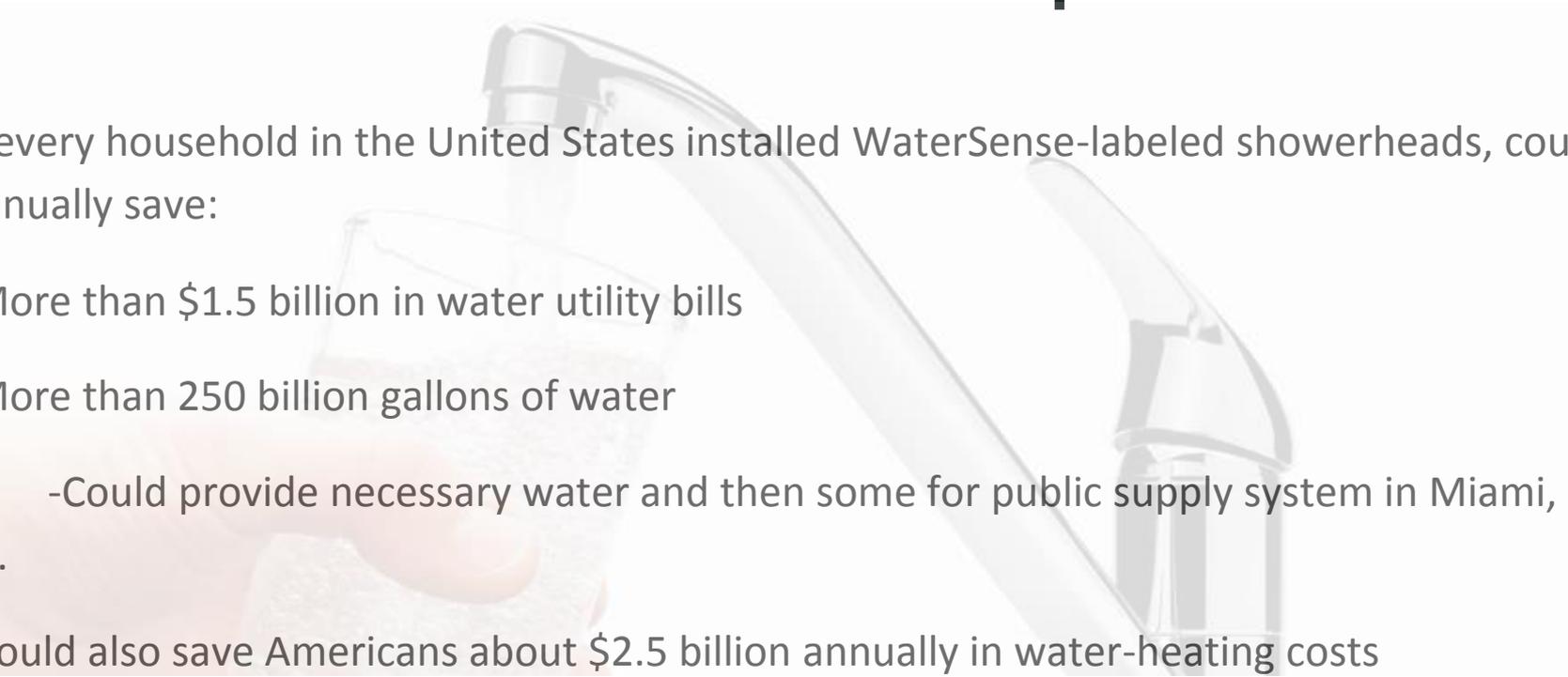


# Residential Water Consumption



- WaterSense estimates approximately 220 million showerheads installed in US homes
- Showering is one of the leading water uses in the home
  - Accounts for nearly 17% of residential indoor water consumption ( $\approx 12$  gpd per person)
- More than 1.2 trillion gal of water used for showering in the United States annually,
  - Approximately the amount of water delivered for the states of New York and New Jersey for 1 year

# Residential Water Consumption cont.

A background image showing a hand holding a clear glass under a chrome faucet. Water is being poured from the faucet into the glass. The image is semi-transparent and serves as a background for the text.

If every household in the United States installed WaterSense-labeled showerheads, could annually save:

- More than \$1.5 billion in water utility bills

- More than 250 billion gallons of water

- Could provide necessary water and then some for public supply system in Miami, FL.

- Could also save Americans about \$2.5 billion annually in water-heating costs



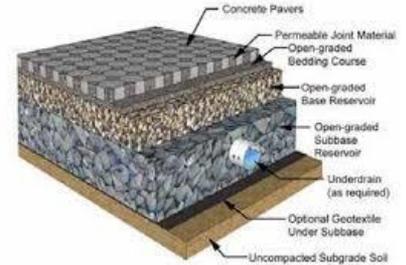
## Rebates and Incentives

- Showerheads offer water utilities a unique opportunity to offer rebates and giveaway programs
- Less expensive than toilets, but with greater impact than bathroom sink faucets, showerheads save more water and energy
- On average, the Tampa Water Department utility hands out 1,500 to 2,000 showerheads per year
- Each home using WaterSense-labeled showerheads will be able to save as much as \$50 in utility bills and more than 2,300 gal of water per year

# GHG Emissions

- Water efficiency savings translate into capital and operating savings
- According to the EPA, it takes a large amount of energy to deliver and treat the water we use everyday
- American public water supply and treatment facilities consume about 56 billion kilowatt-hours (kWh) per year
- If one out of every 100 American homes retrofitted with water-efficient fixtures, we could save about 100 million kWh of electricity per year, avoiding 80,000 tons of greenhouse gas emission
- If 1 percent of American homes replaced their older toilets with WaterSense labeled models, the country would save more than 38 million kWh of electricity

# Land Use and the Built Environment



Prioritize Warm-Mix Asphalt for road construction

Uses 25% less energy to build and maintain - is 90% recyclable as well

Fully implemented across U.S. - save 150 million gallons per year - equivalent to 210,000 cars off the road

Federal Highway Administration supports use of warm-mix asphalt

By 2020 more than \$3.5 billion will be saved by reducing fuel needed for producing asphalt