

# Southern Nevada Sustainable Systems Inventory

11.1.16

CITY OF  
*Las Vegas*

Submitted to Planning Commission

Date 11/1/16 Item 41

# Leadership in Sustainability

- City of Las Vegas Accomplishments
  - 6 megawatts solar
  - Energy Efficient buildings and streetlights
  - Water conservation
  - Citywide recycling
  - Alternative transportation
  - 100% Renewable Energy
- Numerous Awards



**ICMA**

*Leaders at the Core of Better Communities*



SUSTAINABILITY  
TOOLS FOR  
ASSESSING &  
RATING COMMUNITIES



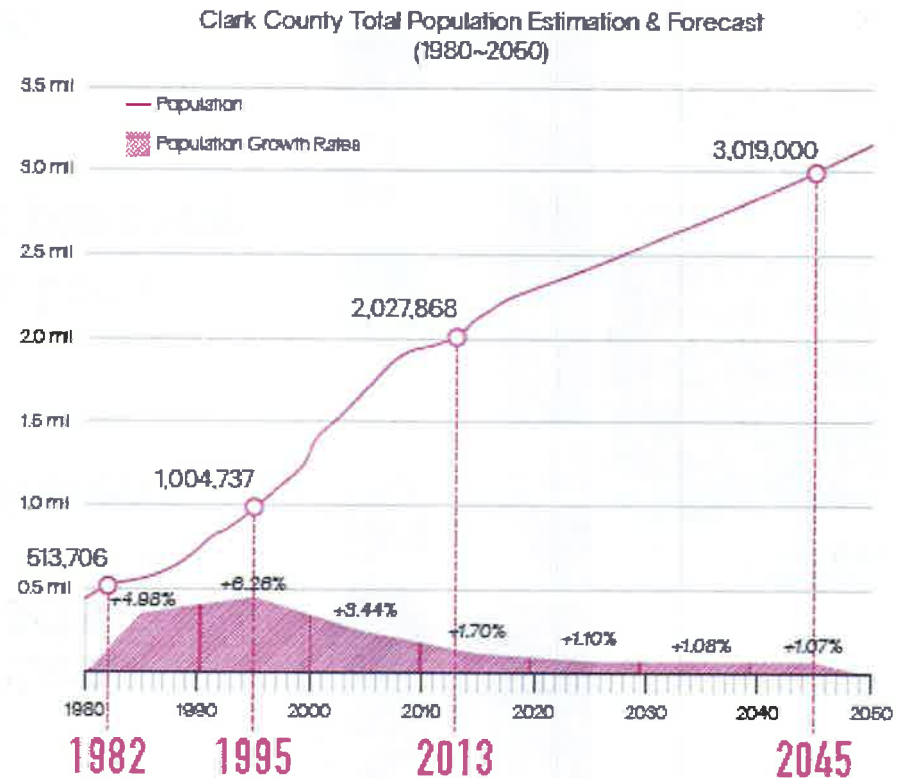
# Inventory of Sustainable Systems

- Sustainability of the environment, economy, and community
- Determination of vulnerabilities, interdependencies, and impacts between systems
- Allows for comparison at different scales:
  - Public vs Private sector
  - National, State, Regional, Local
- Evaluating systems is sound planning for:
  - Economic development
  - Environmental protection
  - Quality of Life



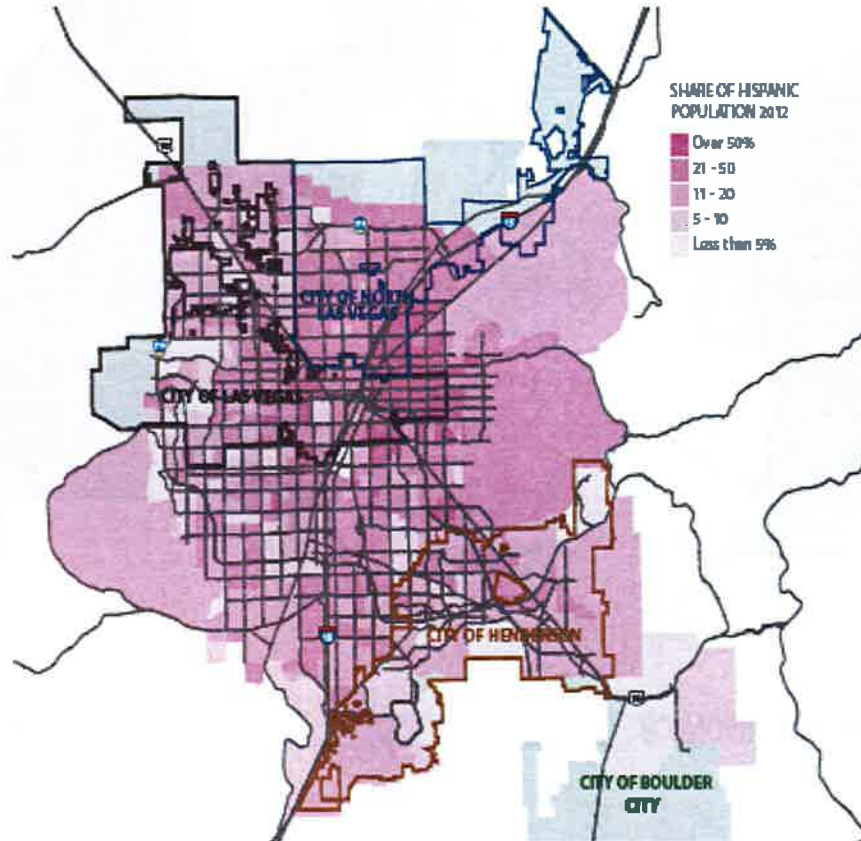
# DEMOGRAPHICS

- Increasing population
- High, concentrated densities
- Changing Demographics
  - Race, Age, and Households
- Economic patterns and trends
  - Employment
- Dynamic commuting patterns



# DEMOGRAPHICS

## RACE



### 2000 Census

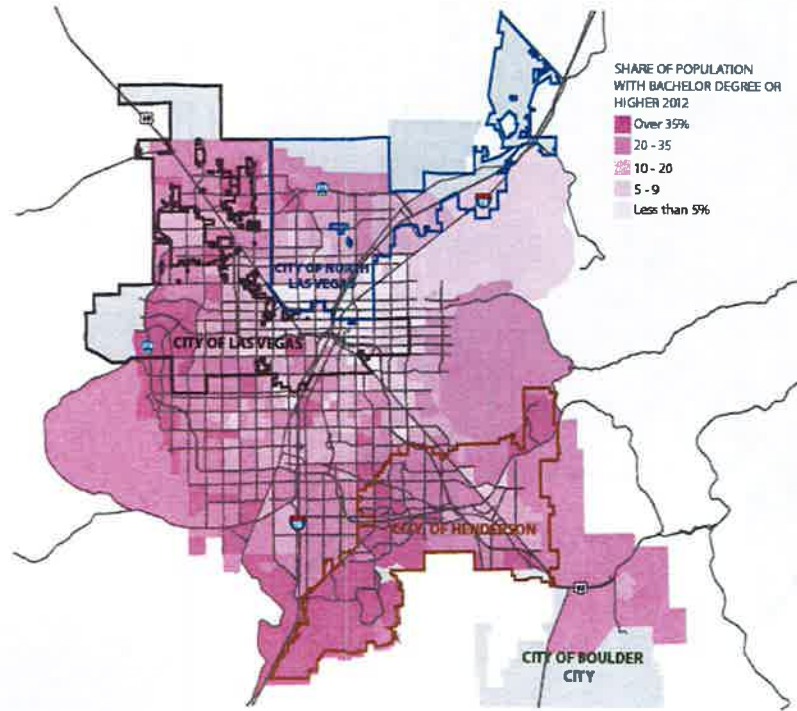
White:	71.6%
African American:	9.1%
American Indian/Alaskan:	0.8%
Asian:	5.3%
Hawaiian/Pacific Islander:	0.5%
Two or More Races:	4.2%
Hispanic or Latino:	22.0%

### 2010 Census

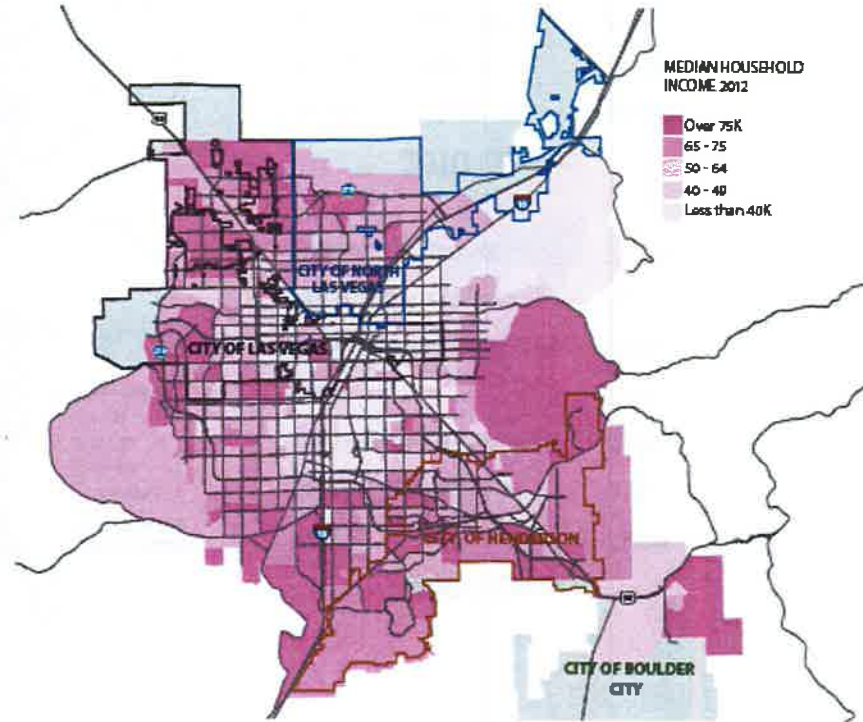
White:	60.9%
African American:	10.5%
American Indian/Alaskan:	0.7%
Asian:	8.7%
Hawaiian/Pacific Islander:	0.7%
Two or More Races:	5.1%
Hispanic or Latino:	29.1%

# DEMOGRAPHICS

## EDUCATIONAL ATTAINMENT

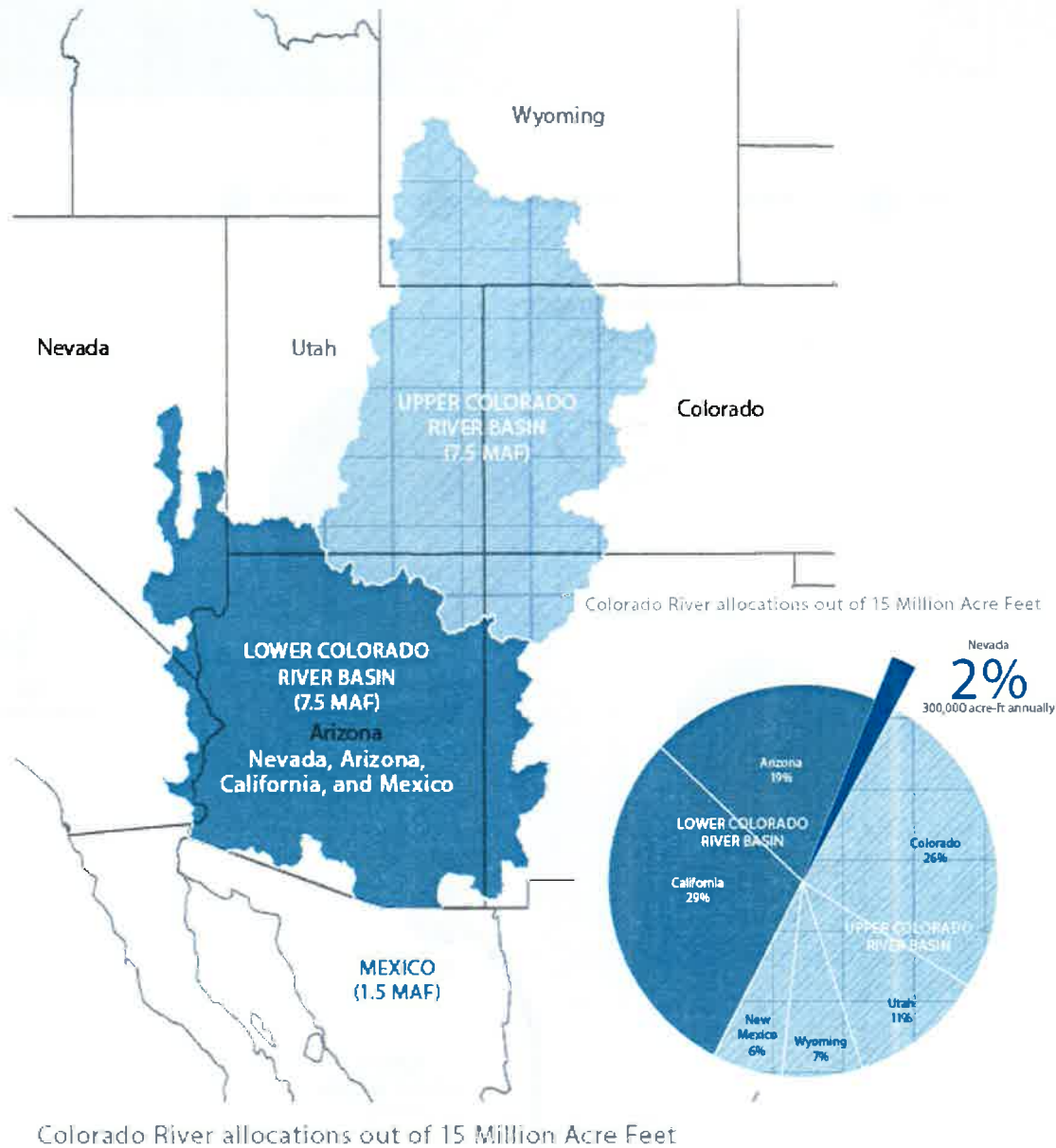


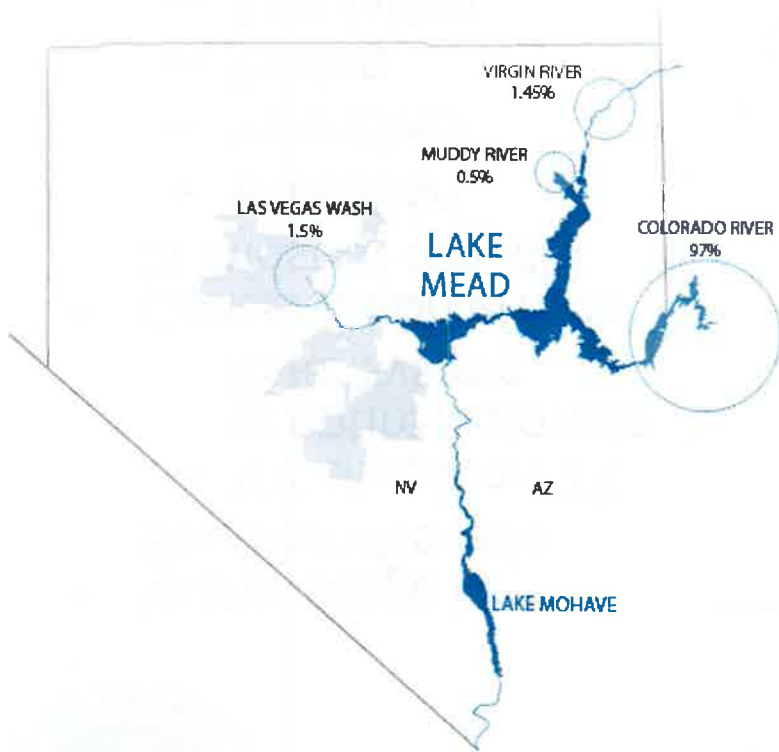
## ECONOMIC DEMOGRAPHICS





- Water usage in Southern Nevada
  - NV allocation 2% of entire Colorado River system
- Conservation efforts in midst of drought
  - Education
  - Incentives
  - Pricing
  - Regulation
- Water in the Environment
  - Water Quality
  - Flood Control





## LAKE

75 MAF  
Over 10 Years  
Must Be  
Released To  
Lake Mead

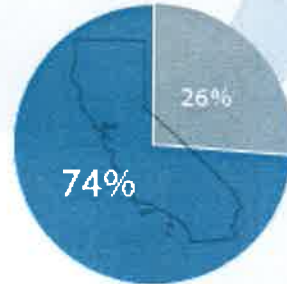
NEVADA  
300,000 acre-feet  
Annually



ARIZONA  
(Lower Basin)  
2,850,000 acre-feet  
Annually



CALIFORNIA  
4,400,000 acre-feet  
Annually



MEXICO  
1,500,000 acre-feet  
Annually





Metropolitan Area (MSA) GPCD is calculated by dividing total water "delivered" (all sources) by total

water through direct or indirect means. MSA GPCD provides a more accurate comparison to other communities.

water conservation program, Southern

5.8%



**Schools/  
Government/Parks**  
Schools, federal, state and local government, public parks and recreational facilities, public swimming pools

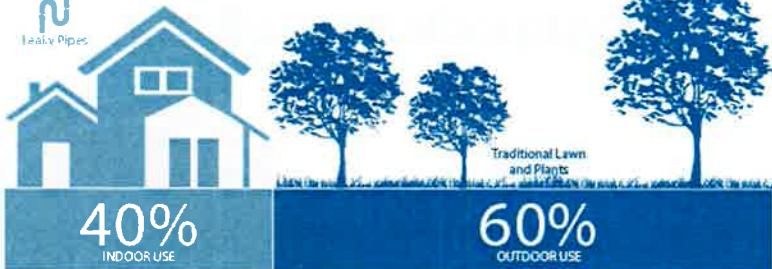
12.6%



**Commercial/Industrial**  
This category includes medical, fire services, commercial and industrial establishments, churches and religious, restaurants, hotels/motels (less than 300 rooms), utilities, power plants, and other commercial and industrial users.

44.3%

Single Family Residential



Single Family Residential Water Use

7.6%



**Resorts**  
Hotel casinos with 300 or more rooms similar to definition in Clark County Unified Development Code, Title 30.30.08

6.8%



**Golf Courses**  
Golf courses including water features associated with irrigation

15.5%



**Multi Family Residential**  
Attached dwellings with two or more units (e.g. apartments, townhouses, and condominiums)

1.8%

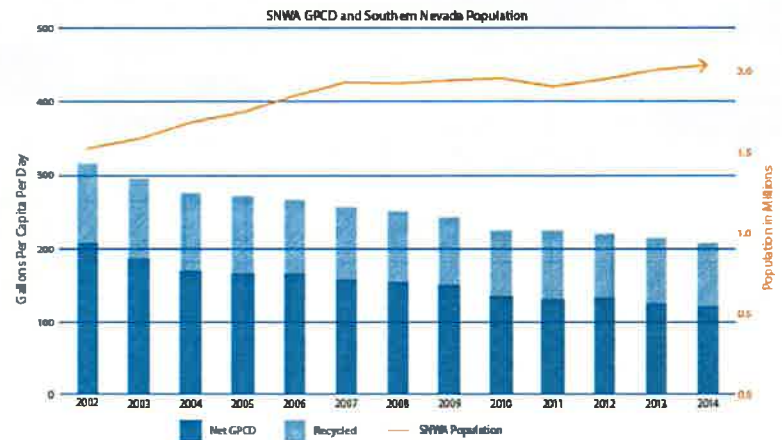


**Other**  
Construction, dust control, hydrant meters, miscellaneous, unknown or unclassified uses, other non-residential uses

5.7%

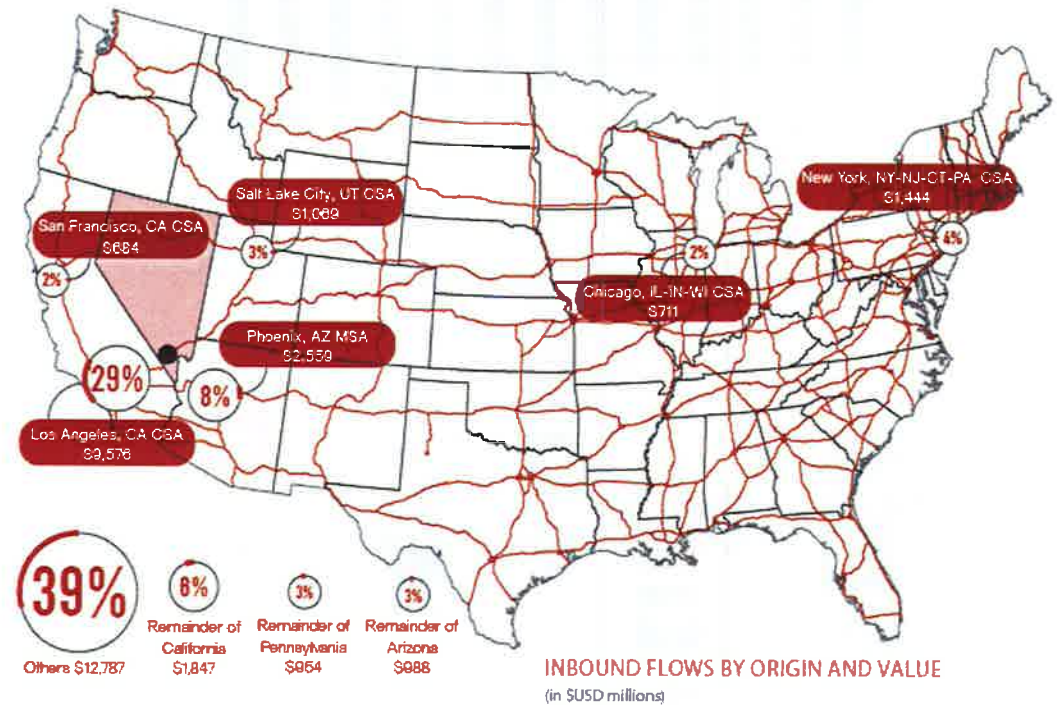


**Common Areas**  
Residential area irrigation and artificial lakes (e.g. private parks, common landscape areas, and home owner associations)



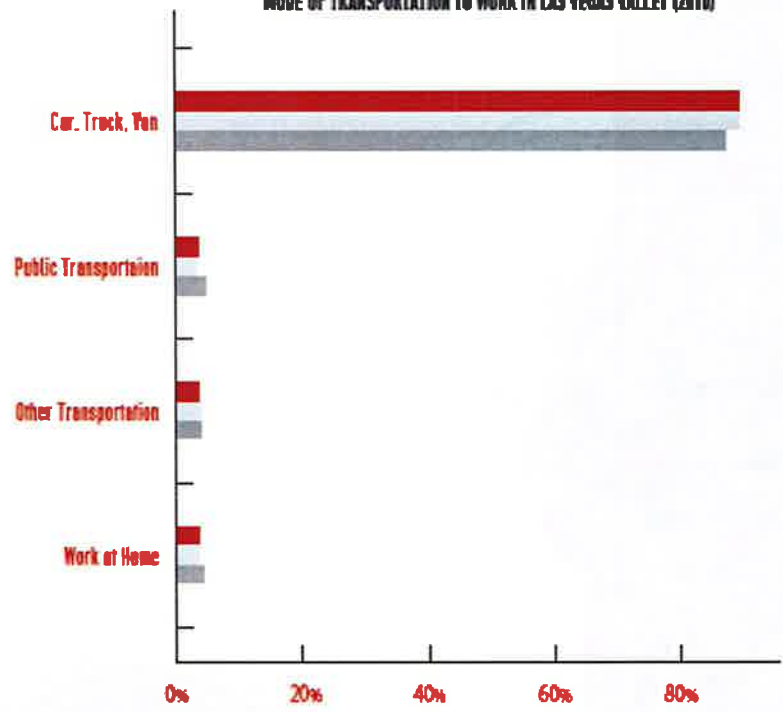
# TRANSPORTATION

- Freight Transportation
  - Moving goods to Southern Nevada by truck, rail, air, pipeline
- Passenger Transportation
  - Auto Transport
  - RTC Transit
  - Bicycling & Pedestrians
- Linking Transportation with Land Use

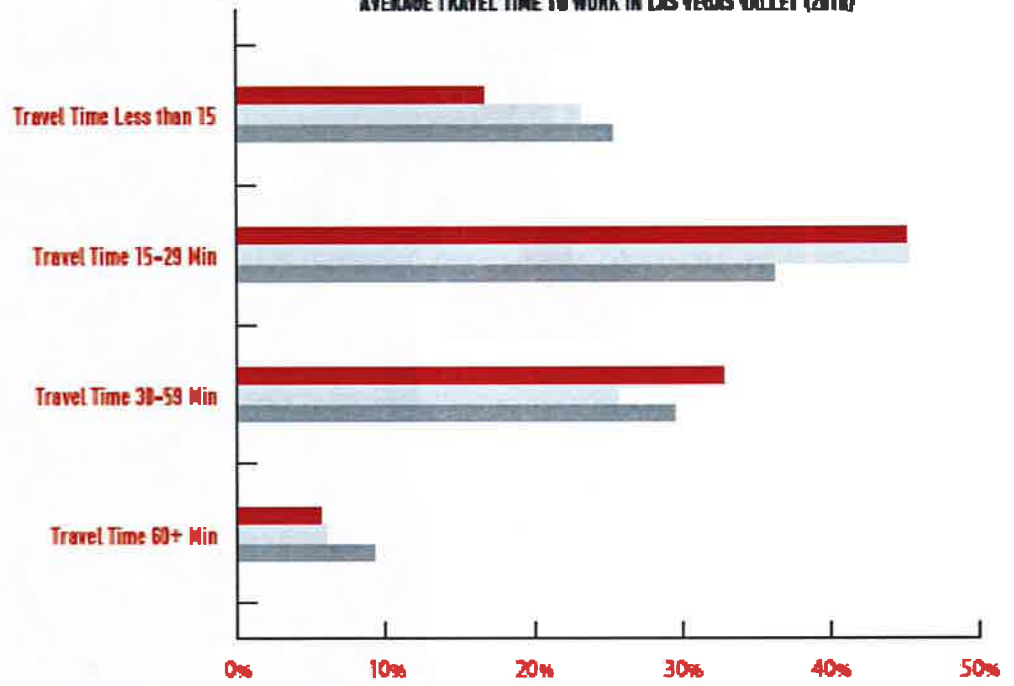


# TRANSPORTATION

MODE OF TRANSPORTATION TO WORK IN LAS VEGAS VALLEY (2010)



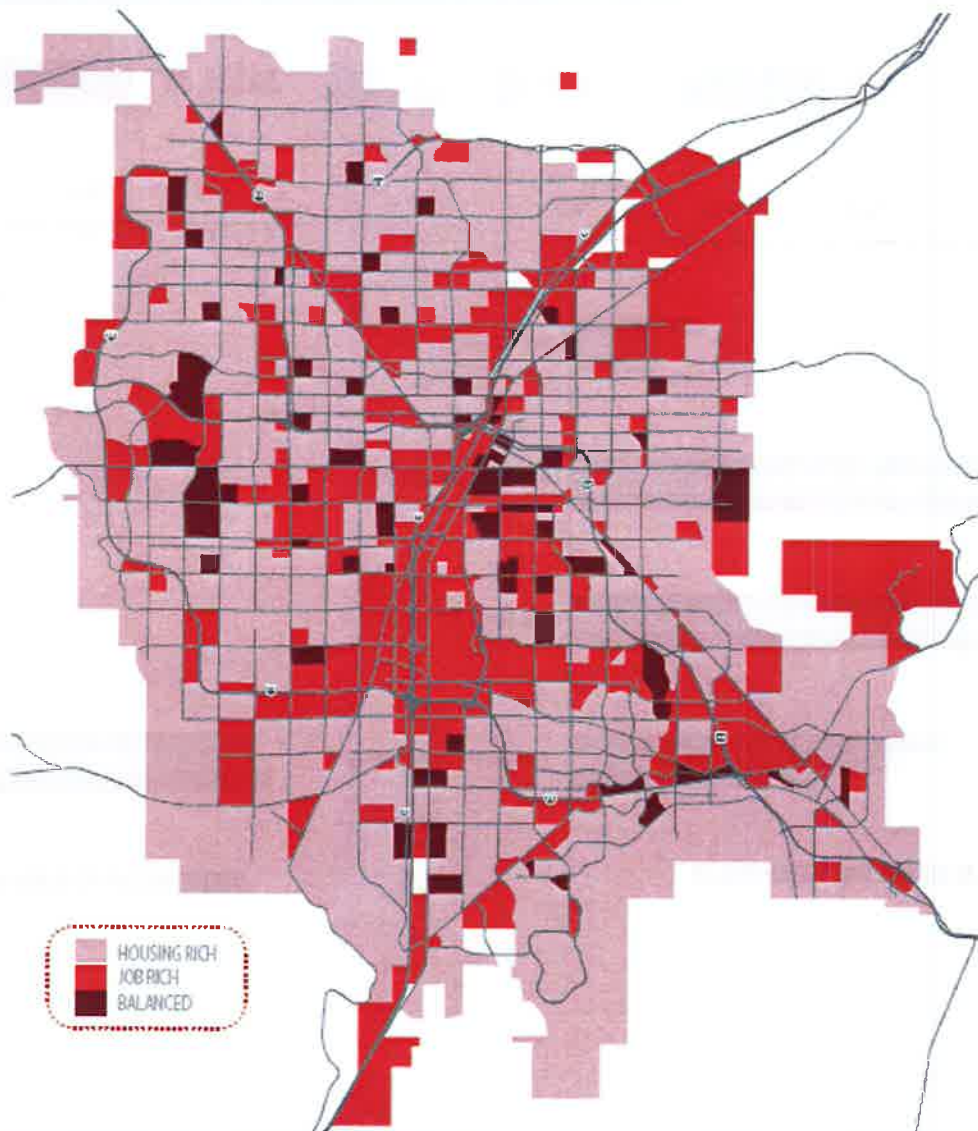
AVERAGE TRAVEL TIME TO WORK IN LAS VEGAS VALLEY (2010)



Las Vegas
  Nevada
  U.S.



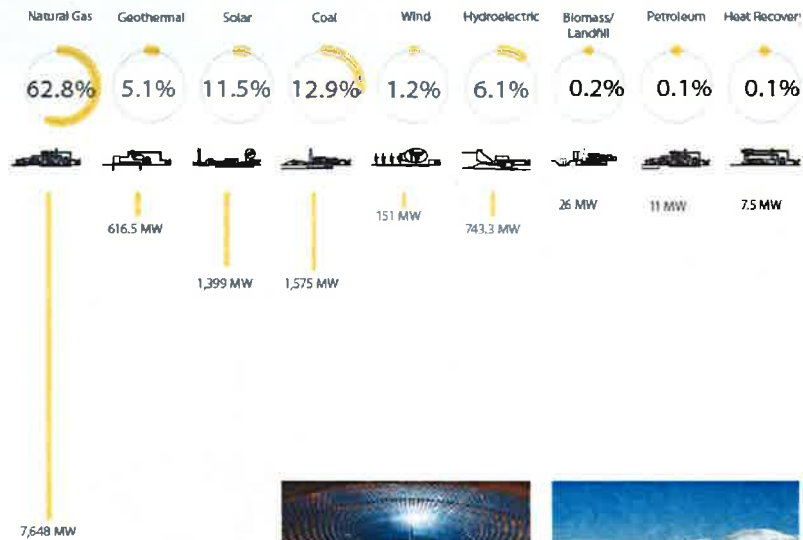
LINKING LAND USE WITH TRANSPORTATION: JOBS AND HOUSING IN SOUTHERN NEVADA





- The Electric Grid
  - Generation
  - Transmission
  - Infrastructure
- Portfolio
  - Non-Renewable
  - Renewable
- Demand
  - End-Use

100% Renewable Energy



There are more than 12 gigawatts of installed renewable and non-renewable energy sources in Nevada's portfolio. Nearly all (9,223 megawatts) comes from coal or natural gas fired power plants. Nevada's installed capacity the majority serves users in Southern Nevada.

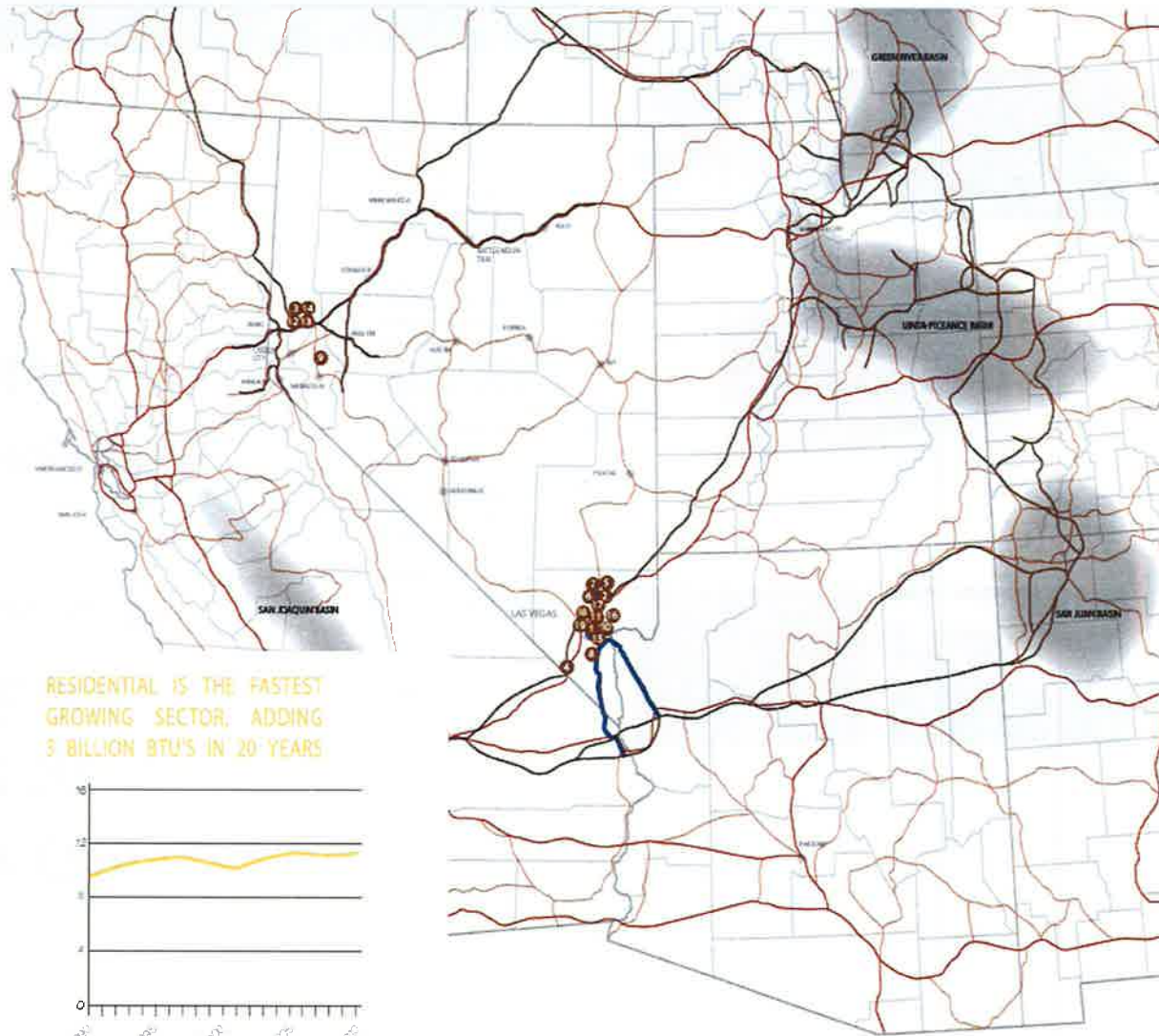
Energy moves across the grid so there is not a rigorously defined boundary as there are in other systems. As a result, energy sources can be located greater distances from urban areas. Many of Southern Nevada's non-renewable generation facilities are located outside of the metropolitan area in Apex, Moapa, or Primm.

Similarly, non-renewable energy sources can be transmitted across long distances; with certain exceptions, most must be located within close proximity to existing transmission and distribution facilities and be near the resource.

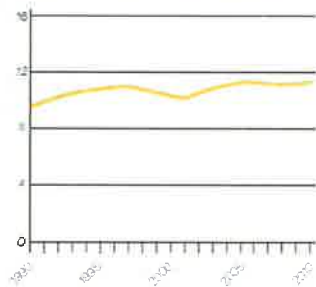




NEVADA NATURAL GAS GENERATION, TRANSMISSION, AND SUPPLY

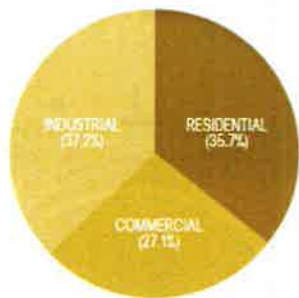


RESIDENTIAL IS THE FASTEST GROWING SECTOR, ADDING 9 BILLION BTU'S IN 20 YEARS



RESIDENTIAL ENERGY USE

Growth in billion BTU's of energy from the residential sector.



NEVADA ENERGY USE

Sector energy usage in Nevada.



### SOLAR PLANTS AND CAPACITY

- SOLAR GENERATIONS\*
- 44. COPPER MOUNTAIN SOLAR I, II, III
  - 45. NEVADA SOLAR ONE
  - 46. BOULDER SOLAR
  - 47. SILVER STATE SOLAR
  - 48. CRESCENT DUNES
  - 49. SPECTRUM NEVADA SOLAR
  - 50. STILLWATER II
  - 51. MOUNTAIN VIEW SOLAR
  - 52. APEX NEVADA SOLAR
  - 53. SEARCHLIGHT I
  - 54. NELLIS AFB SOLAR
  - 55. LAS VEGAS VALLEY WATER DISTRICT
  - 56. BARRICK SOLAR FARM
  - 57. FORT CHURCHILL SOLAR
  - 58. SWITCH STATION
  - 59. MOAPA SOLAR

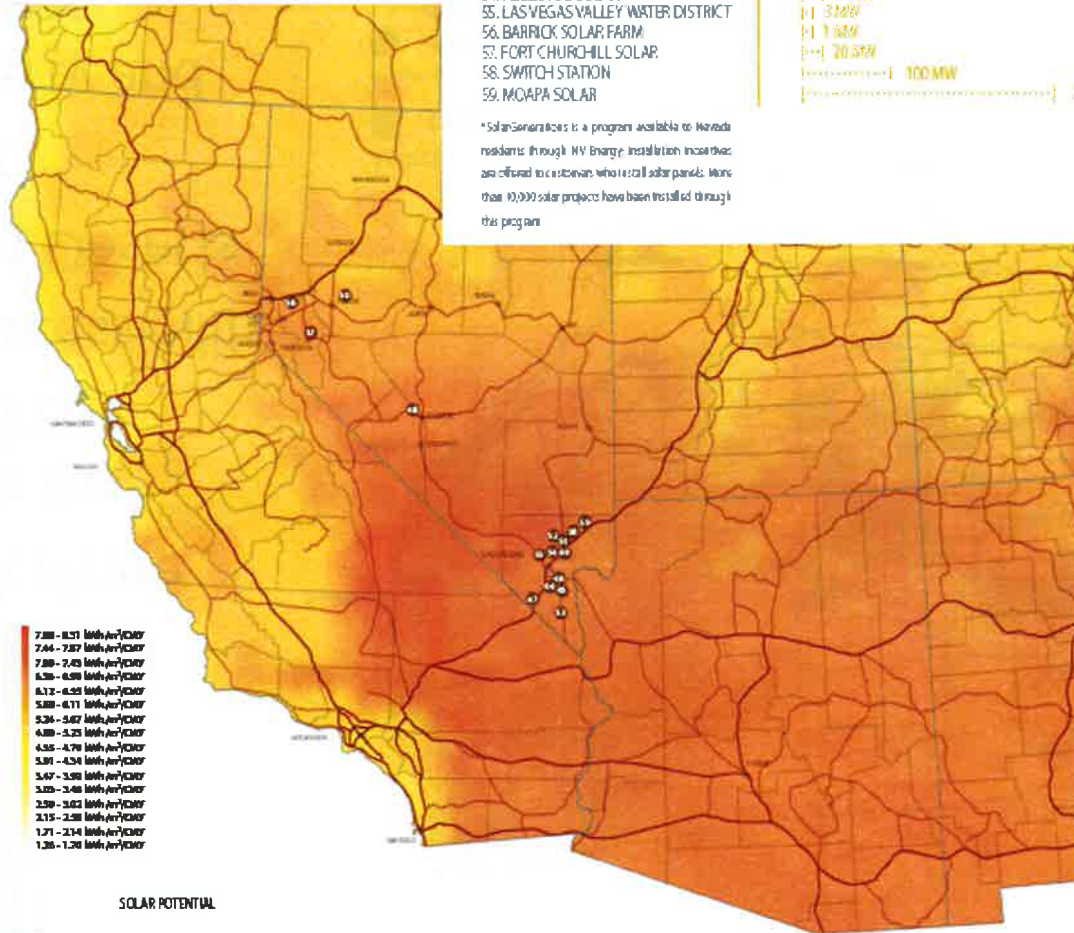
### NAMEPLATE CAPACITY

-----  150 MW	-----  450 MW
-----  75 MW	
-----  100 MW	
-----  50 MW	
-----  110 MW	
---  30 MW	
---  22 MW	
---  20 MW	
---  20 MW	
---  17.5 MW	
---  29 MW	
---  3 MW	
---  1 MW	
---  20.5 MW	
-----  100 MW	-----  250 MW

### AGE (YEARS)

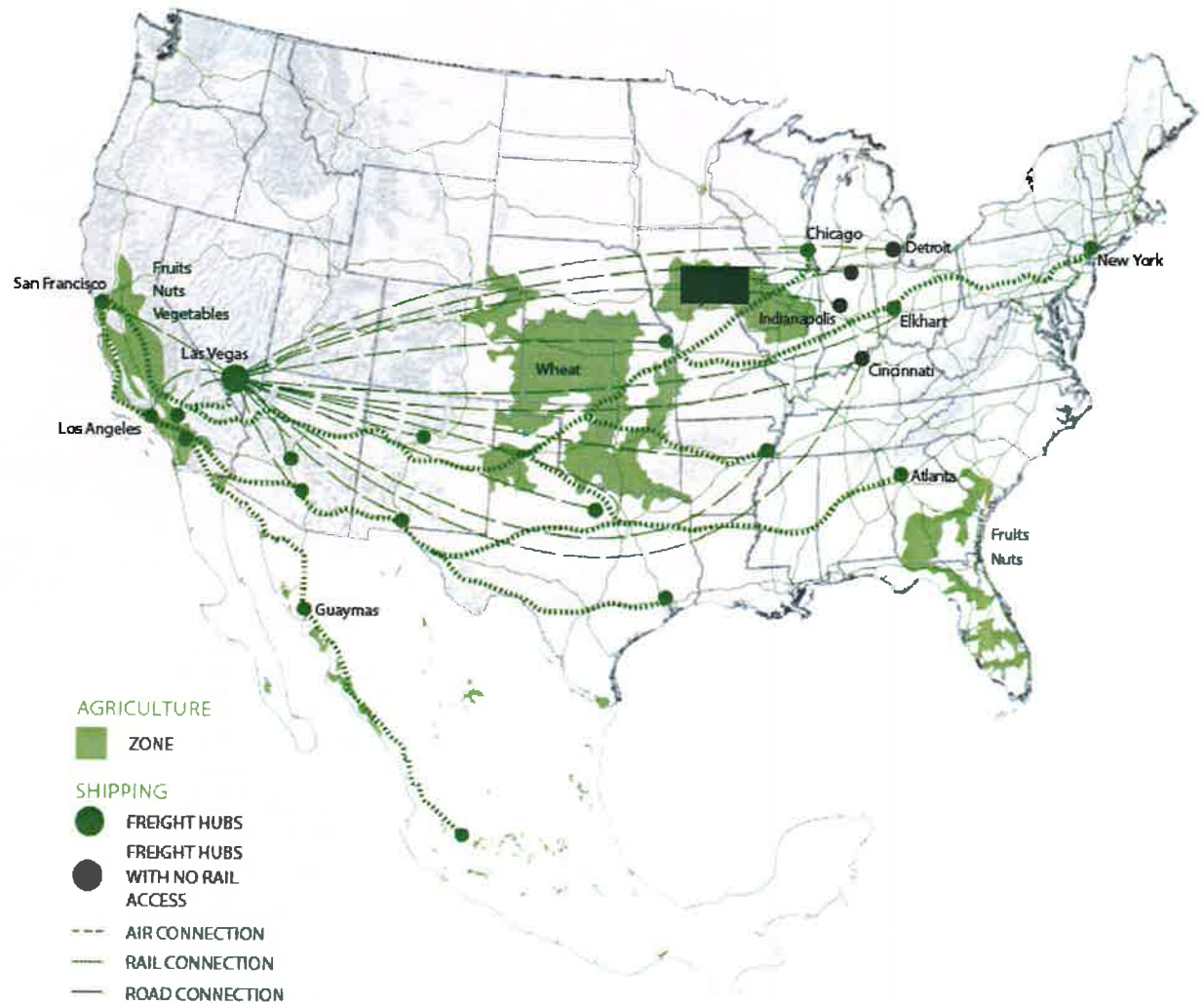
<1
5/4/1
7
IN DEVELOPMENT
2
ONGOING
1
2
<1
2
<1
7
8
8
<1
IN DEVELOPMENT
IN DEVELOPMENT

\*SolarGenerates is a program available to Nevada residents through NV Energy. Installation incentives are offered to customers who install solar panels. More than 10,000 solar projects have been installed through this program.

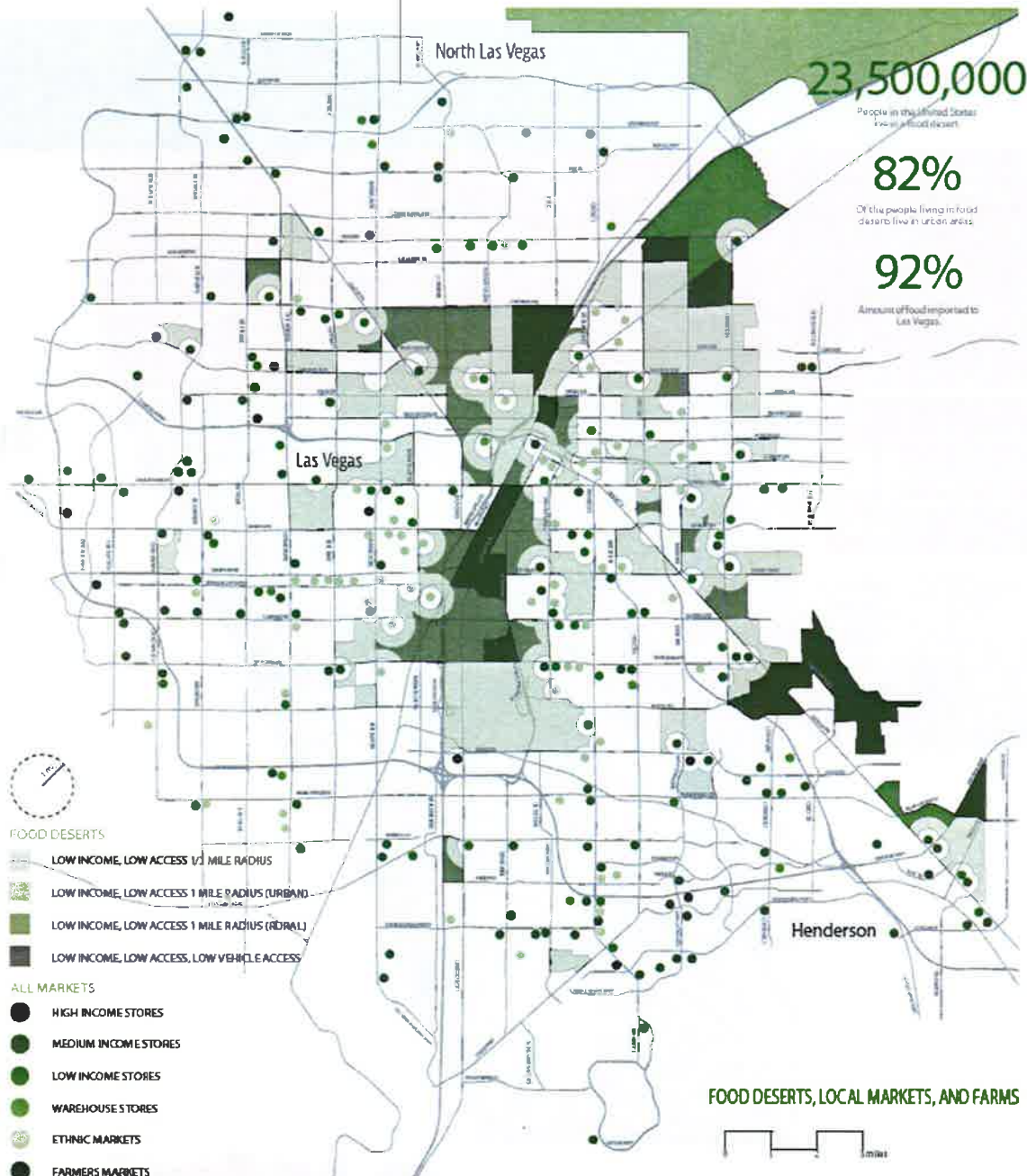


# FOOD SYSTEMS

- Food sources
  - Agriculture
  - Farm to Market
- Food Accessibility
  - Food Deserts
  - Cost
  - Poverty and Hunger
  - Nutrition

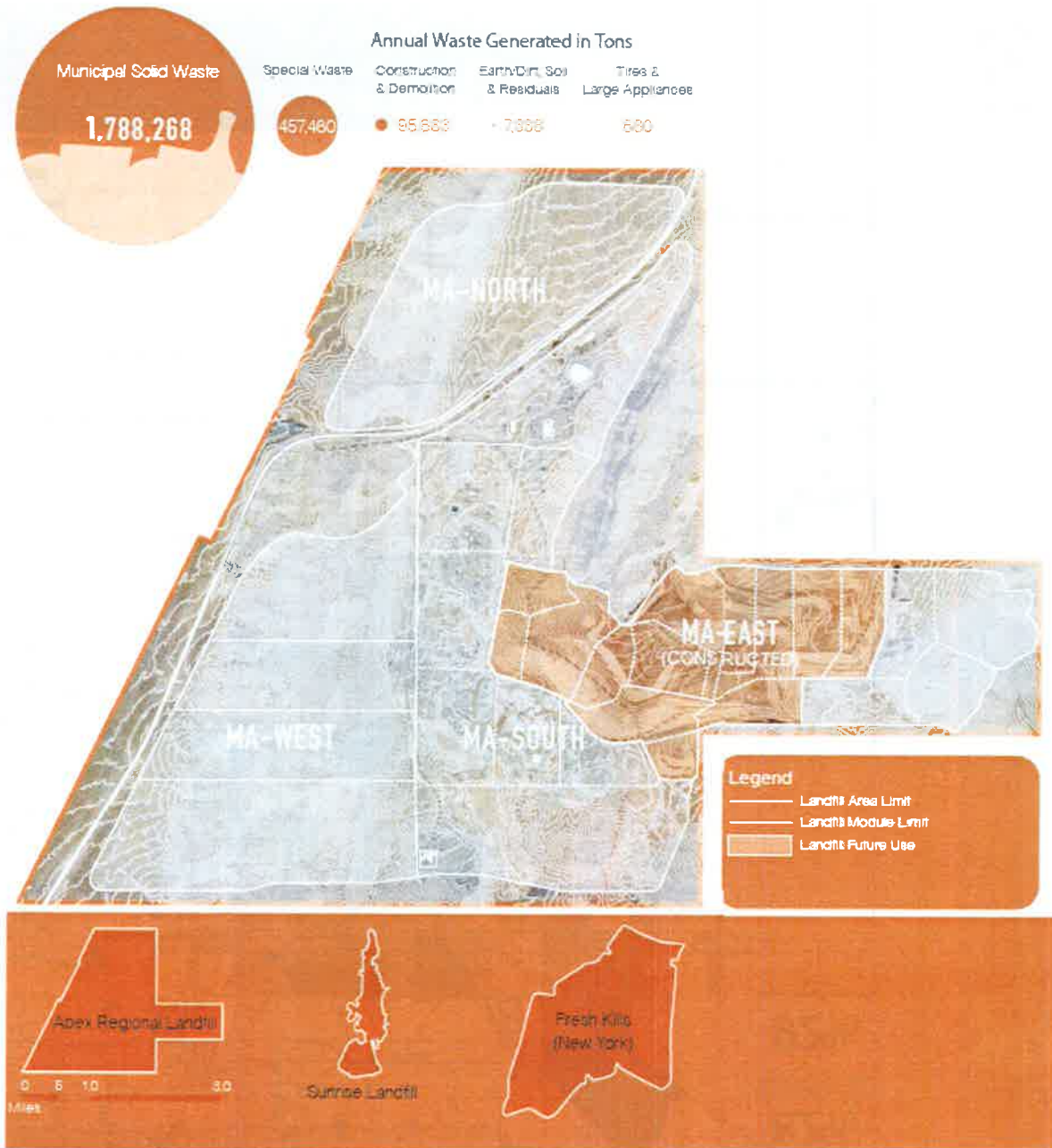


# FOOD SYSTEMS



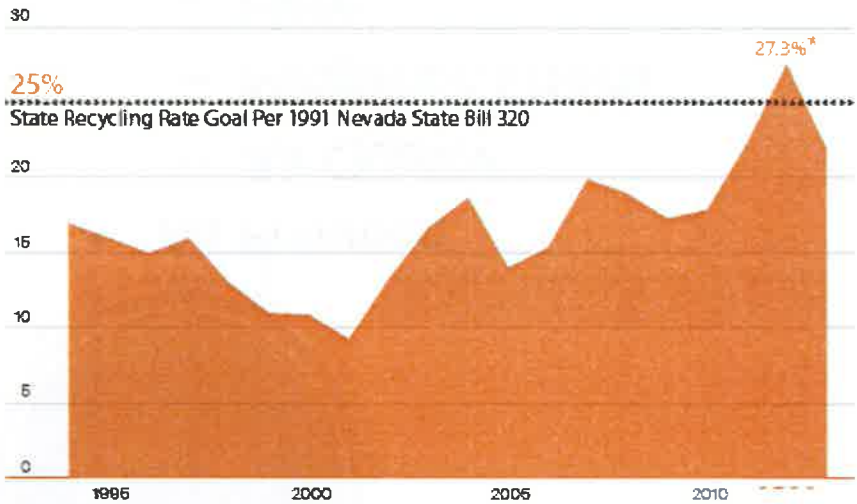


- Municipal Solid Waste and Disposal
  - Landfills
  - Recycling
  - Hazardous Waste
  - Food Waste





Per Capita / Per Household MSW Generation versus National Average



27.1%  
Residential

27.1%  
Commercial

35.1%  
Industrial

6.7%  
Recycled

43%  
MGM Resorts

35%  
Caesars Entertainment

55%  
Venetian

68%  
Convention Center



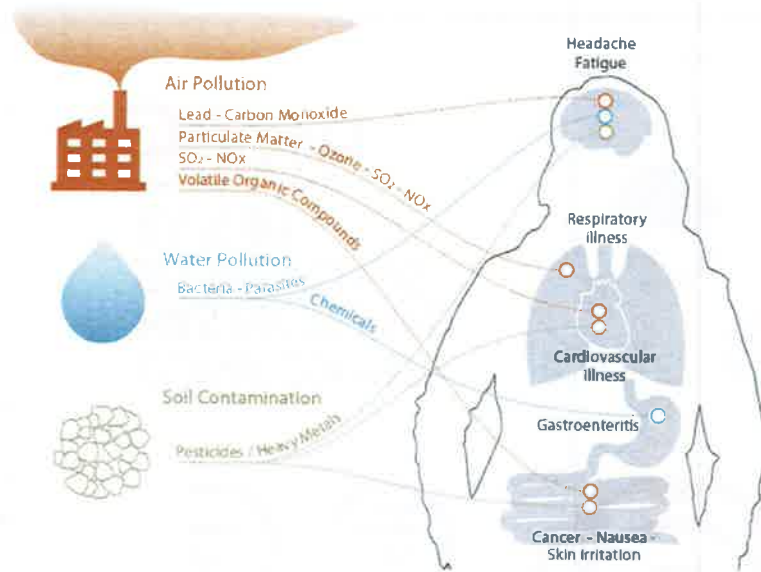
CLARK COUNTY  
HAS INCREASED  
ITS RECYCLING  
RATE BY  
**57%**

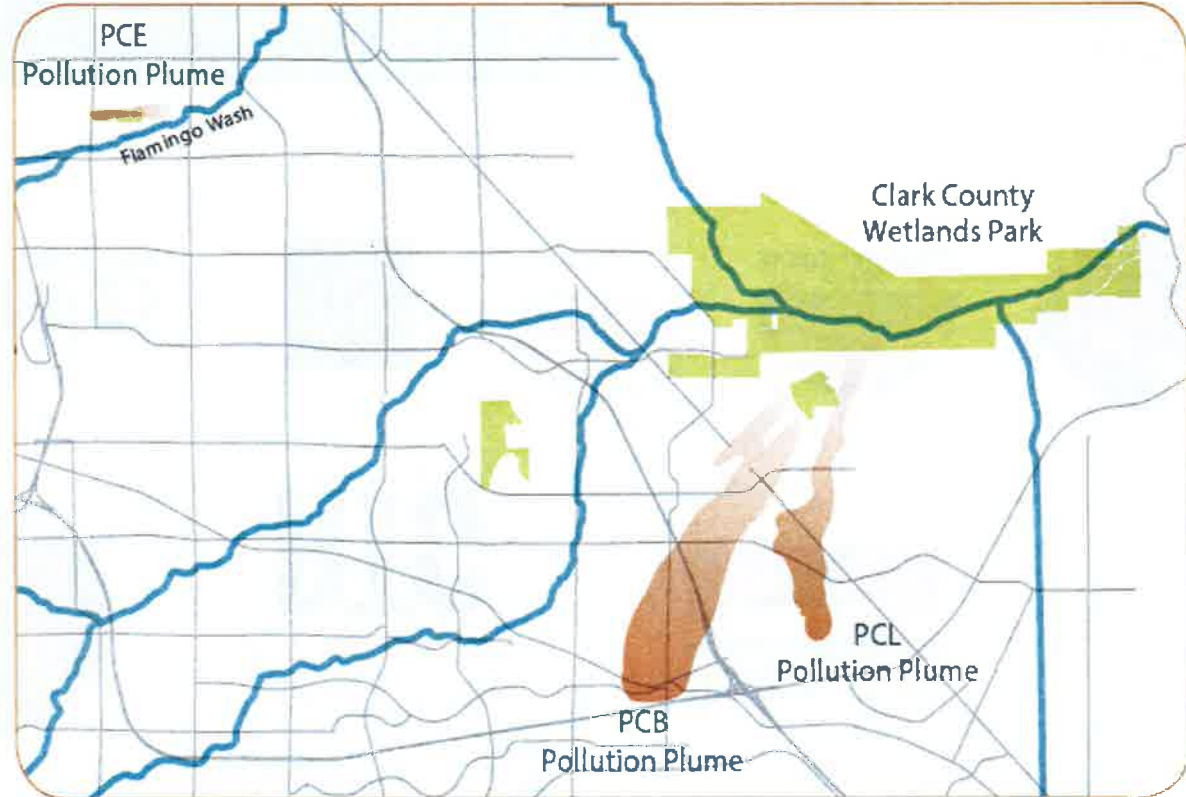


Per Capita / Per Household MSW Generation versus National Average

# POLLUTION

- Air Pollution
  - Air Quality
  - Mitigation Efforts
  - Haze
- Groundwater and Soil Pollution
  - Contaminants
  - Water Pollution Mitigation
- Commercial and Industrial Pollution
  - Remediation





# Community Stakeholders

