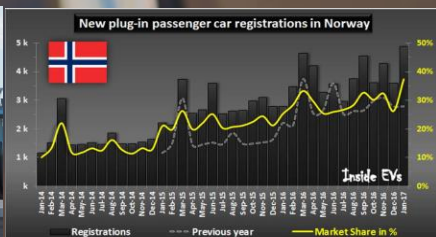
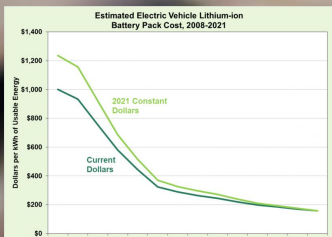


# CITY OF PHOENIX Ad Hoc Committee on Electric Vehicles

## Education, Outreach & Equity Sub-Committee

October 8, 2021



# In the News



Estimated Electric Vehicle Lithium-ion Battery Pack Cost, 2008-2021



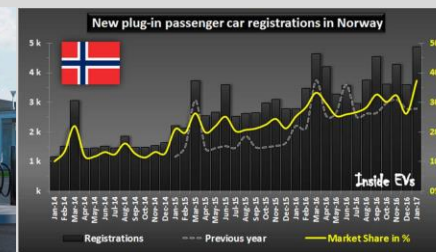
**DOE Estimates That Electric Vehicle Battery Pack Costs in 2021 Are 87% Lower Than in 2008**



Volkswagen



HONDA





# In the News



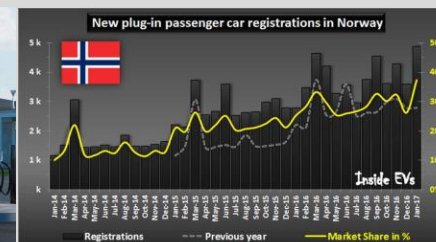
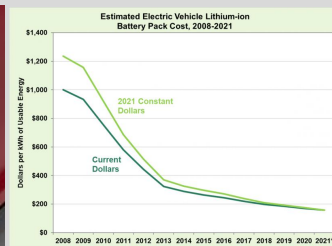
Volkswagen



HONDA

The auto industry (as a whole) will pump more than \$500 billion into EV investment by 2030

- Ford: \$30 billion
- Volkswagen: \$60 billion
- Honda: \$46 billion

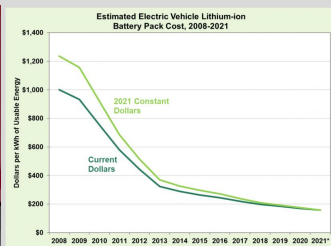


# In the News



**ABB launches world's fastest charger to plug into the surging EV market**

- Zero to full in 15 minutes
- Charges 4 cars at once



Volkswagen



HONDA

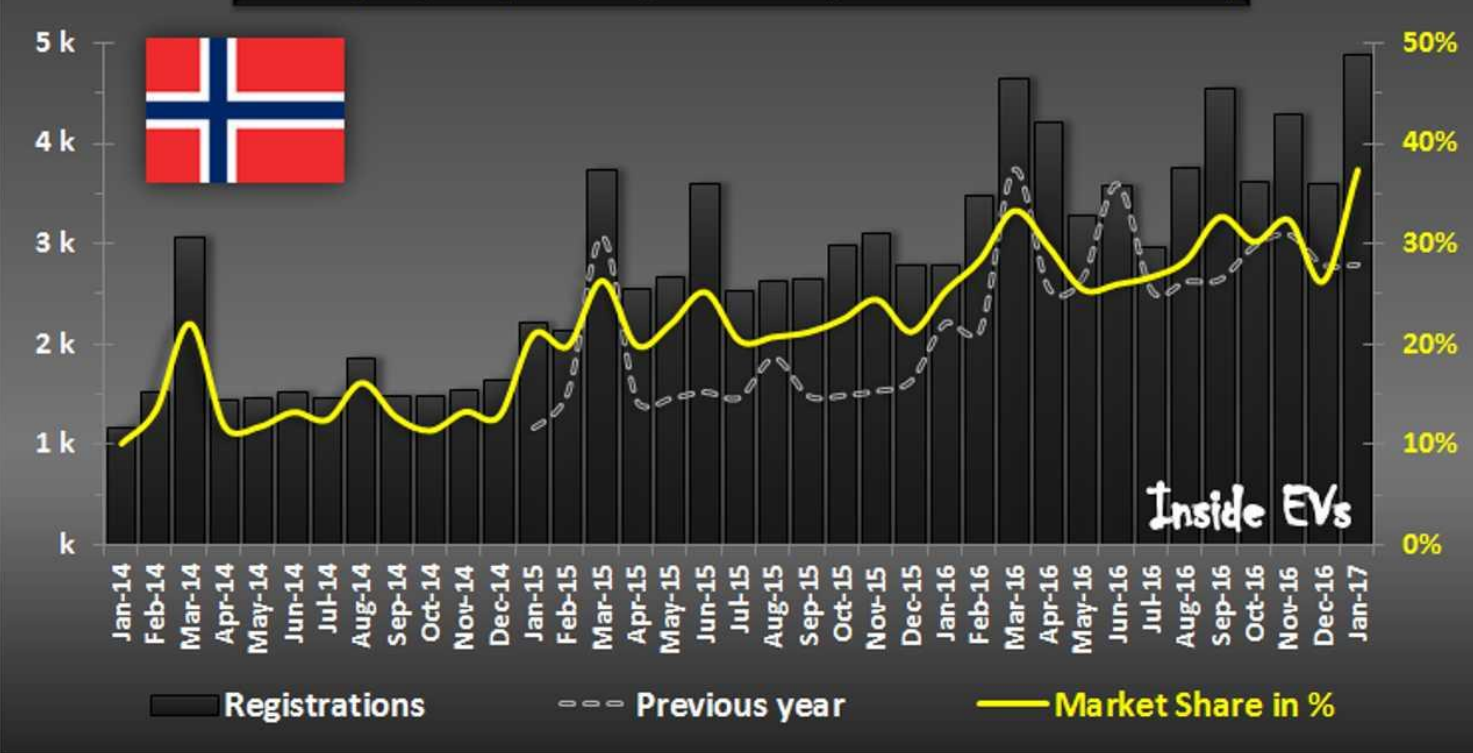




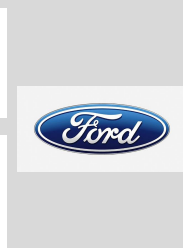
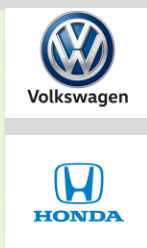
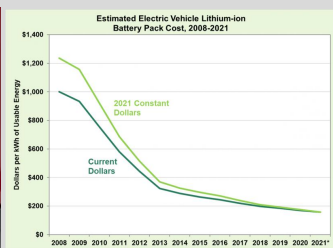
# In the News



## New plug-in passenger car registrations in Norway



Norway could phase out gasoline-powered cars ahead of 2025 schedule

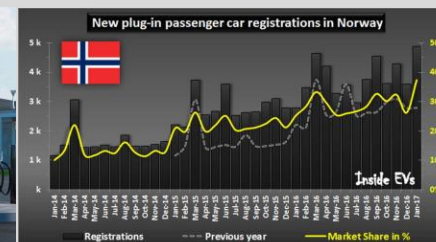
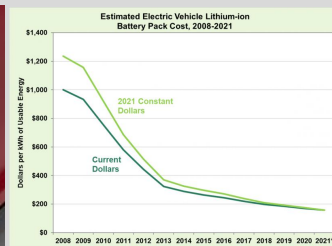


# In the News



**Nine percent of new cars sold globally this year will be EVs or plug-in hybrids**

**Triple the rate from 2 years prior**





# City ROADMAPS: Education/Outreach & Equity



# City Roadmaps - Sharepoint



## Cities

Boston, MA	2020
Denver, CO	2020
Fort Collins, CO	2018
Houston, TX	2019
Los Angeles, CA	2018; 2019
Pittsburg, PA	2019
Sacramento, CA	2019

## Cities

Salt Lake City, UT	2018
Seattle, WA	2017
Tucson, AZ	2021





## Cities Highlighted

Boston, MA	2020
Denver, CO	2020
Houston, TX	2019
Los Angeles, CA	2018; 2019
Seattle, WA	2017
Tucson, AZ	2021

## Common Themes...

- **Leveraged other City Roadmaps**
- **Equity included** in Mission and Vision Statements, Strategies, Policies, etc.
- **Robust Partnerships** (depts, EJ, Non profits)
- **Equity lens** for EV Charging and access
- **Equity manifested** in Education & Outreach actions



## Cities Highlighted

Boston, MA	2020
Denver, CO	2020
Houston, TX	2019
Los Angeles, CA	2018; 2019
Seattle, WA	2017
Tucson, AZ	2021

## Common Themes...

- **Targeted** key audiences (local businesses, low-income, multi-family housing tenant/landlords)
- **Diverse actions:** websites, ride & drives, tours, workshops, conferences, lunch and learns
- **Considered Lessons learned** from other cities
- **Qualitative** – focus groups, listening sessions
- **Quantitative** data gathering – surveys (Seattle)





## Cities Highlighted

Boston, MA	2020
Denver, CO	2020
Houston, TX	2019
Los Angeles, CA	2018; 2019
Seattle, WA	2017
Tucson, AZ	2021

## Common Themes...

- **Incentives** for EV purchases, charging stations, and community input sessions
- **Targeted Communities**
- **Translated** Education Materials



# BEST PRACTICES

## EQUITY

- **EQUITY has to be a practice...not just a promise**
- **Embed** in Visions, Missions and Values; Build into the Process  
(Boston's Equitable Procurement Initiative/Disparity in city contracting)
- Use Neighborhood Equity Indexes, Mobility Equity Analyses  
identify neighborhoods facing highest hurdles (Denver, Tucson)
- **Offer targeted Incentives** (e.g. low-and-moderate income rebate programs, fee reductions, etc.)





# BEST PRACTICES

## EQUITY

Add an equity lens to conversations around EV Outcomes

- **Affordability** – decrease the cost of EV ownership for underserved residents? Prioritize financing; reduce # of families cost burdened by housing or transportation.
- **Access** – increase access to charging infrastructure for marginalized communities? Expand access to healthy or clean transport systems, etc.?
- **Economic Empowerment** – increase opportunities for living wage jobs?
- **Inclusions and Accountability** – recognize burdens to marginalized groups? Target benefits in progressive ways to reduce historical or current disparities

# BEST PRACTICES



## EQUITY Enablers

- Resources & funding for programs
- Dedicated Program Manager and staff with equity focus
- Leverage own assets: work closely with Office of Diversity Equity & Inclusion, Employee Resource Groups, Depts (NSD)
- Use Community Decision Making
  - Engage Environmental Justice Communities
- Launch pilot programs that provide more mobility options for Low-Income residents (e.g. Blue LA, Boston's Curbside Launch Charging, Car Share, Test rides, etc.)

Use EV engagement as an opportunity to build bridges; trust





# BEST PRACTICES

## EDUCATION, OUTREACH

- **Consistent messaging**, targeted outreach campaigns
- **Diverse partnerships** and stakeholders
- **Qualitative and quantitative** data gathering (Seattle)
- **Pilot programs** to increase availability of EV charging
  - focused on public stations and residential charging
- **Educate using influencers:** EVs in schools, workshops, conferences, lunch and learns, voice of the customer studies (Houston)
- **Translate EV 101** material to additional languages (Seattle = 7)

# Demographic and Survey Data:





# 2019 Origin and Destination Study

## EXECUTIVE SUMMARY



Prepared for: Valley Metro and Maricopa Association of Governments (MAG)  
Developed by: ETC Institute

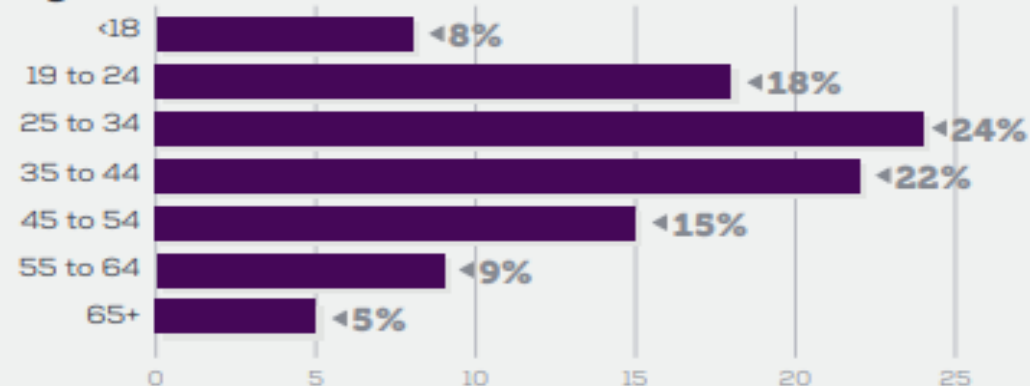
DECEMBER 2019



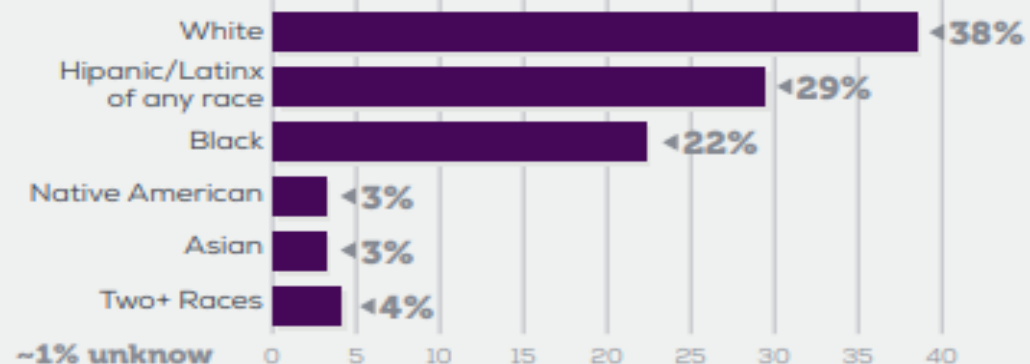
# Rider Demographics

## Bus-only

### Age



### Race/Ethnicity

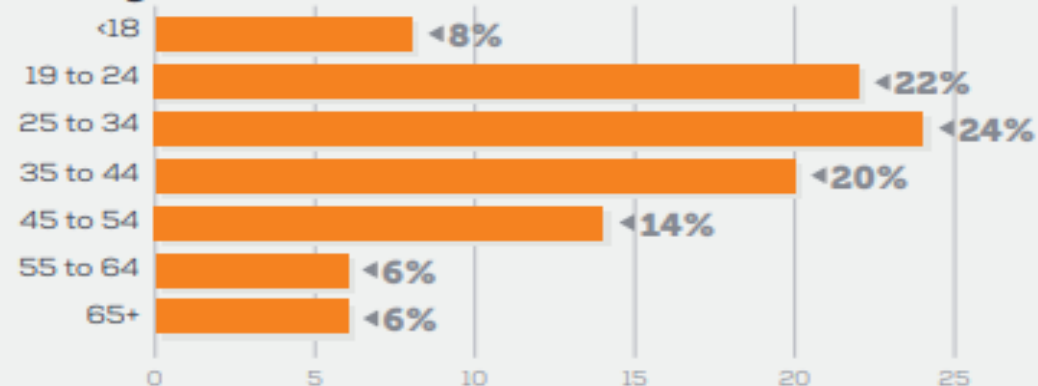


### Gender

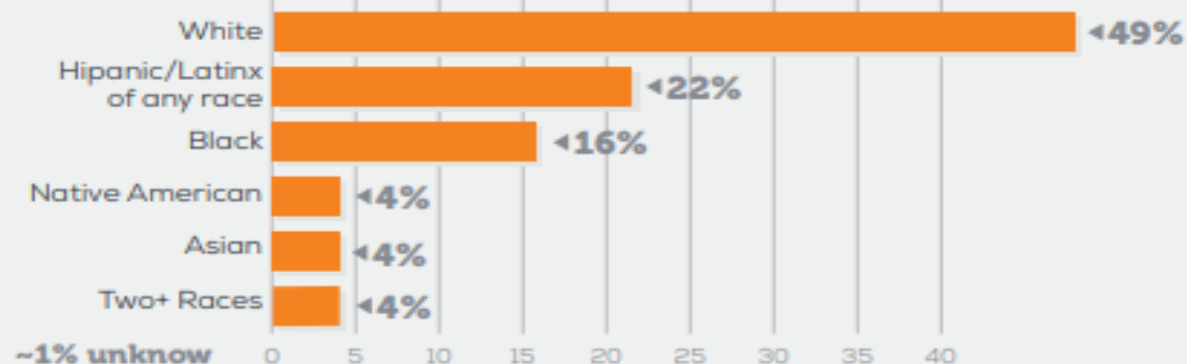


## Rail-only

### Age



### Race/Ethnicity

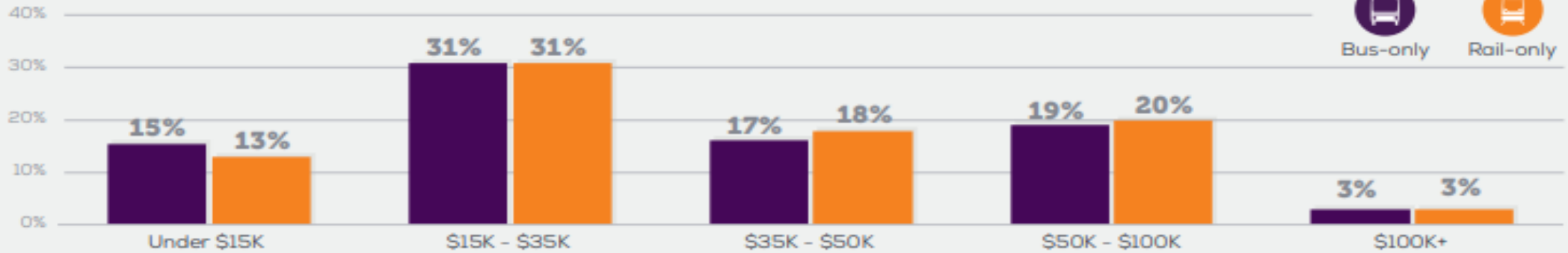


### Gender



# Rider Demographics

## Household income



\*15% of transit riders declined to answer

## Employment status



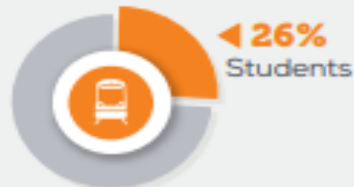
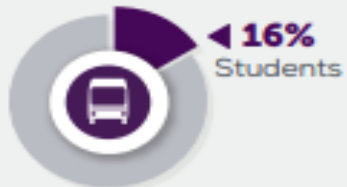
■ 64% Employed Full-time   
 ■ 13% Employed Part-time  
■ 17% Not Employed   
 ■ 6% Retired

## Employment status



■ 59% Employed Full-time   
 ■ 15% Employed Part-time  
■ 19% Not Employed   
 ■ 7% Retired

## Student status (K-12 to College)



## Smartphone ownership



## Persons with disability



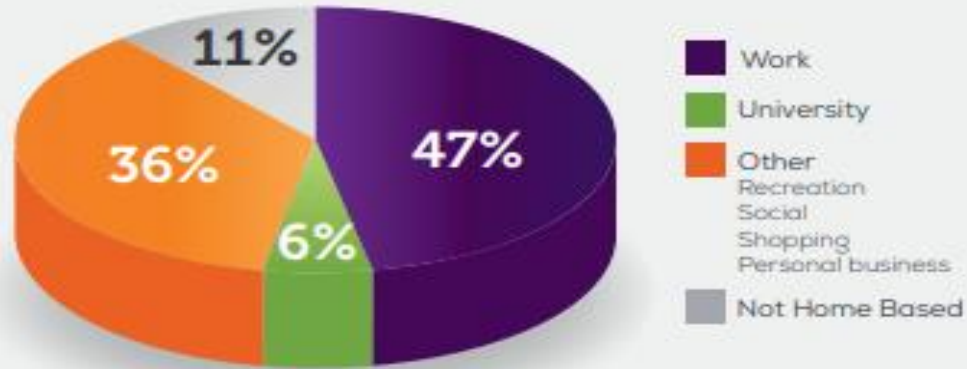
## Number of cars at home



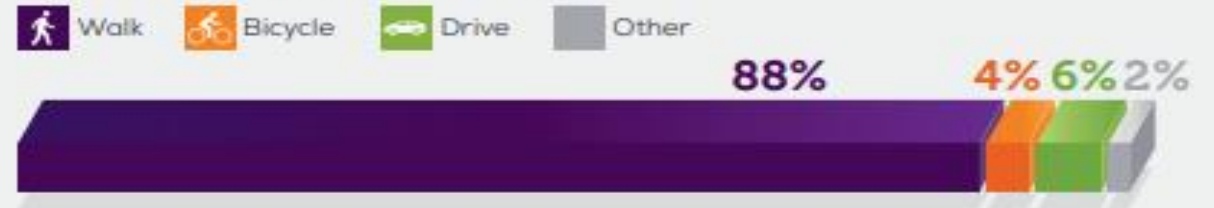




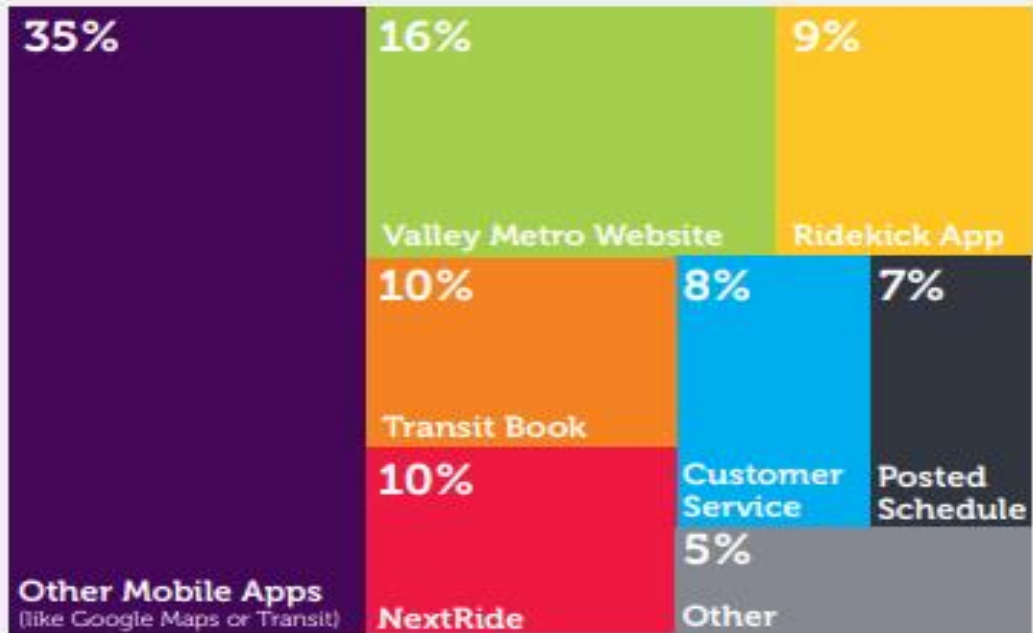
## Top destinations for trips beginning at home



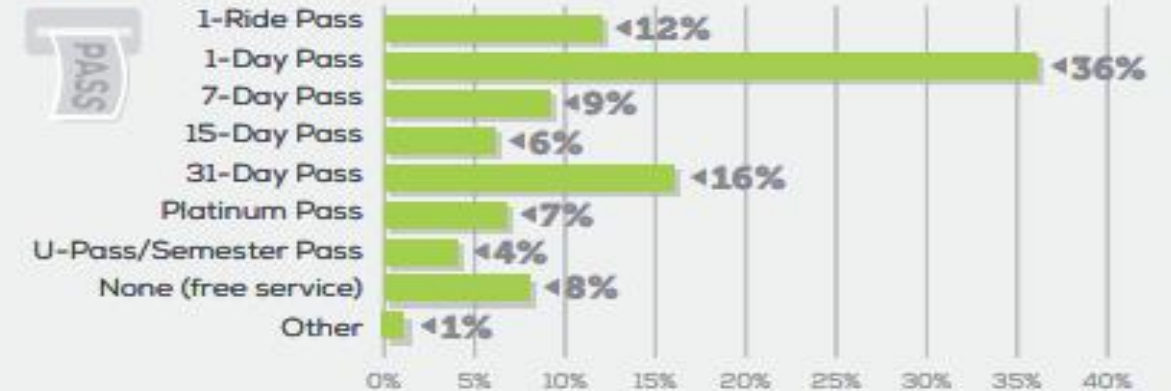
## How riders get to bus stops



## How riders get schedule information



## Type of fare used

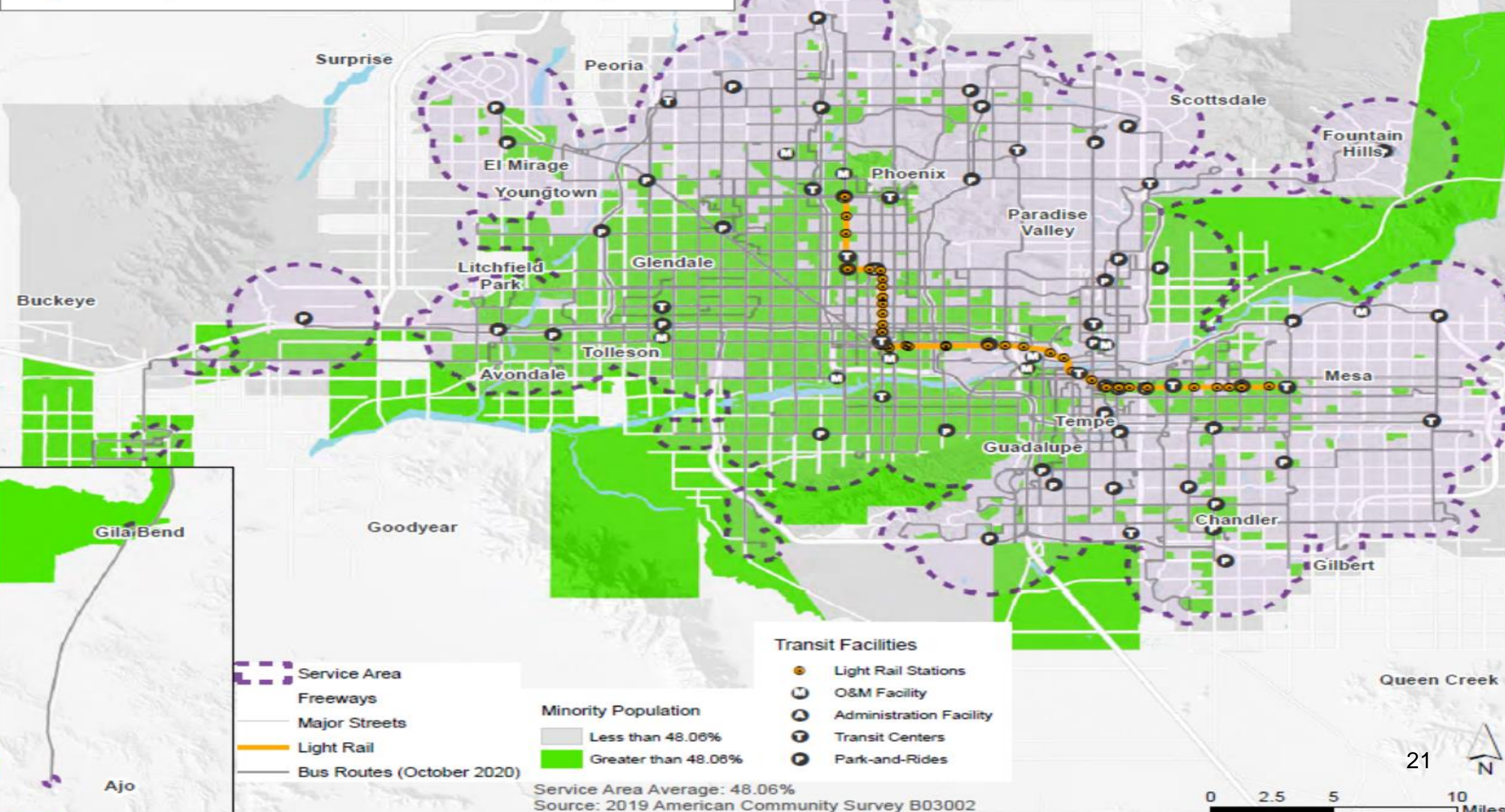


## Trips by time of day





# Map 4 Valley Metro Service with Minority Populations





AZ Congressional District 7

Census Block Group 40131125121

51

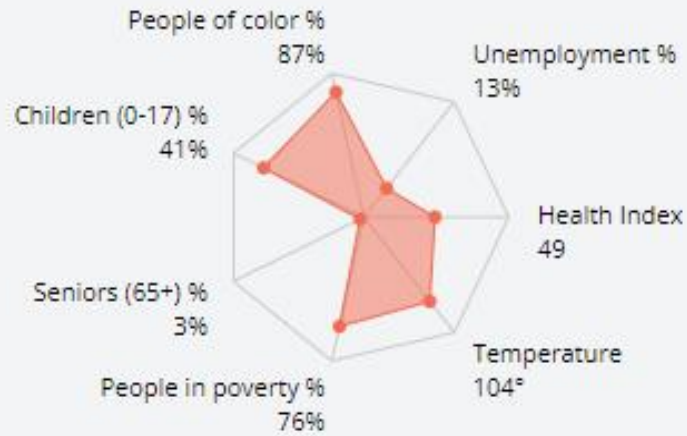
Tree Equity Score

RANK

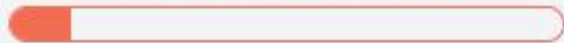
1,030th of 1,050  
blockgroups in Phoenix

Score indicators

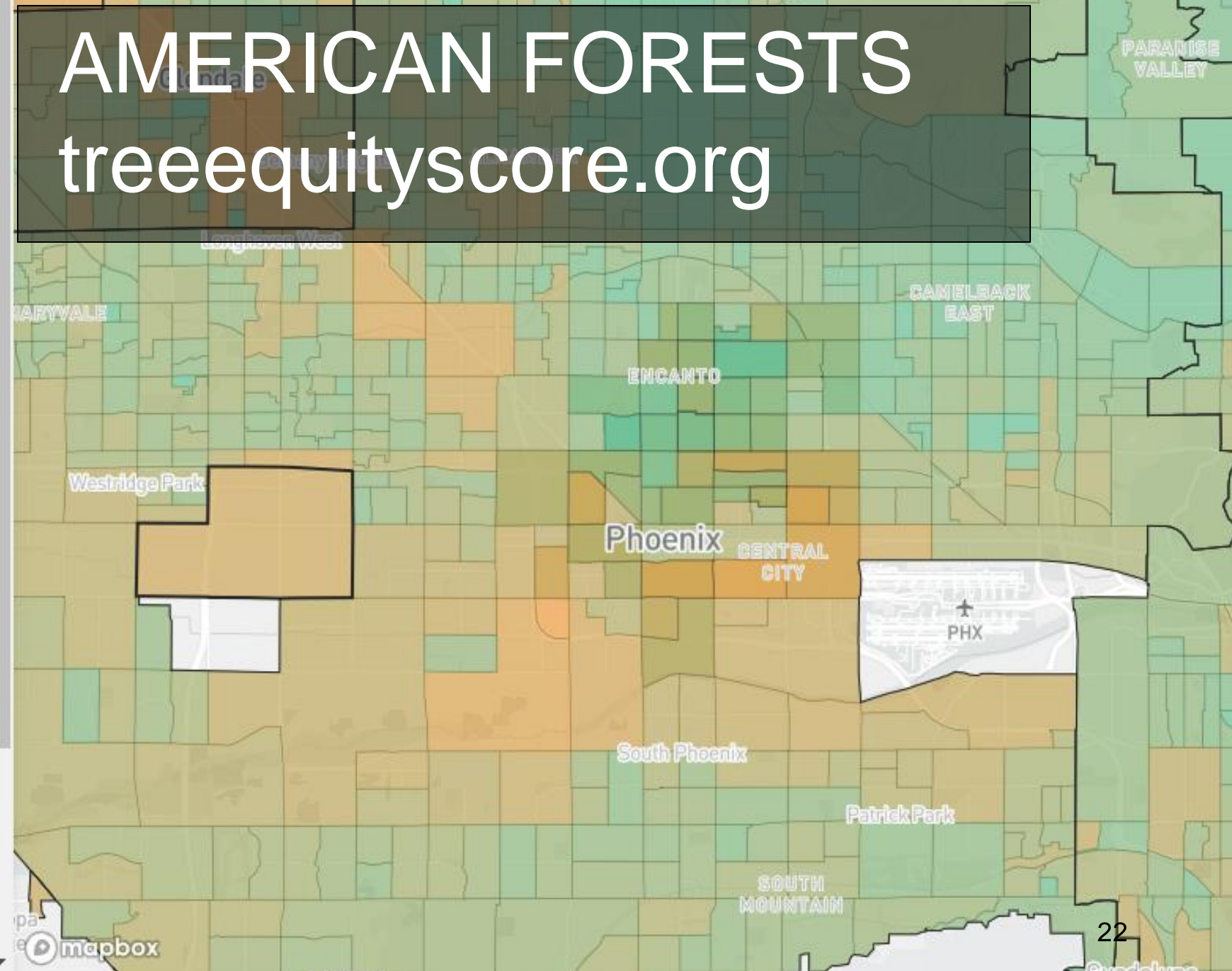
Priority index



Canopy cover goal: 18%



# AMERICAN FORESTS treeequityscore.org



# Cooler Phoenix Public Survey (2017)



Q2 From the list below, please choose at least 5 action areas you would like to comment on:

Answered: 724 Skipped: 79

ANSWER CHOICES	RESPONSES	
Electric Cars	42.27%	306
Upgrading canals to encourage walking and biking	66.16%	479
New Home Construction (Green Buildings)	38.40%	278
Energy Upgrades to Existing Homes	66.99%	485
More Trees	85.77%	621
More Shade	73.62%	533
Community Gardens & Farmer's Markets	65.88%	477
Option to buy Clean Energy	46.69%	338
Total Respondents: 724		



# Cooler Phoenix Public Survey (2017)



Q3 From the ideas and actions below, please select the ones you agree with or support:

ANSWER CHOICES	RESPONSES	
I may consider buying an electric vehicle in the next 5 years	77.05%	225
I would join an "Electric Vehicle Buying Group" to get bulk (discount) pricing on electric vehicles	55.48%	162
I support the City using taxpayer dollars to install Public Electric Vehicle Charging stations at key locations in the City	80.82%	236
I would be willing to pay up to \$300 more when purchasing a new home if it comes pre-wired with electric vehicle charging	70.55%	206
I think all builders should be required to install some electric vehicle charging outlets in all NEW CONSTRUCTION.	62.67%	183
Any other ideas or comments for electric vehicles?	32.19%	94
Total Respondents: 292		

# City of Phoenix

Custom Report selected from "Block Group" Scale Geography in GIS

Subject	Total	
	Number	Percent
<b>POPULATION (April 1, 2010)</b>		
Total Population	1,445,632	100.0%
<b>AGE</b>		
- 18 Years & Over (Voting Age - Adult)	1,037,291	71.8%
- Less than 18 Years (Child & Teen)	408,341	28.2%
Median Age	32.2	
- Under 5 Years	119,911	8.3%
- 5 to 9 Years	113,260	7.8%
- 10 to 19 Years	219,084	15.2%
- 20 to 29 Years	221,512	15.3%
- 30 to 39 Years	214,263	14.8%
- 40 to 49 Years	203,033	14.0%
- 50 to 59 Years	170,250	11.8%
- 60 to 69 Years	104,370	7.2%
- 70 to 79 Years	49,663	3.4%
- 80 Years and Over	30,286	2.1%
<b>RACE</b>		
Persons of One Race	1,393,298	96.4%
- White	951,958	65.9%
- Black or African American	93,608	6.5%
- American Indian and Alaska Native	32,366	2.2%
- Asian	45,597	3.2%
- Native Hawaiian & Other Pacific Islander	2,555	0.2%
- Some Other Race	267,214	18.5%
Persons of Two or More Races	52,334	3.6%
<b>ETHNICITY</b>		
Hispanic or Latino (of any race)	589,877	40.8%
Not Hispanic or Latino (of any race)	855,755	59.2%
- Not Hispanic or Latino (White Race)	672,573	46.5%
<b>HOUSING UNITS</b>		
Total Housing Units	590,149	100.0%
<b>OCCUPANCY STATUS</b>		
Occupied Housing Units	514,806	87.2%
Vacant Housing Units	75,343	12.8%

# Census Data (2010)



## City of Phoenix

Custom Report selected from "Block Group" Scale Geography in GIS

Subject	Total	
	Number	Percent
<b>POPULATION (April 1, 2010)</b>		
Total Population - Summary File 1 (SF1)	1,445,632	100.00%
<b>HOUSEHOLD INCOME</b>		
Households	520,288	100.00%
Median Household Income	\$54,745	
- < Less than \$25,000	125,637	24.15%
- \$25,000 to \$50,000	139,235	26.76%
- \$50,000 to \$100,000	155,512	29.89%
- > Greater than \$100,000	99,904	19.20%
<b>POVERTY</b>		
Total Families	333,810	100.00%
- Families Living in Poverty Status	48,694	14.59%
<b>EDUCATION</b>		
Population 25 Years & Older	893,686	100.00%
- < Less than 9th Grade	89,745	10.04%
- 9th to 12th Grade	89,769	10.04%
- High School Graduate	219,797	24.59%
- Some College	201,337	22.53%
- Associates Degree	64,799	7.25%
- Bachelors Degree	147,045	16.45%
- Graduate Level or Doctoral Degree	81,194	9.09%
<b>TENURE/OCCUPANCY</b>		
Total Occupied Housing Units - (SF1)	519,521	100.00%
- Owner Occupied Housing Units	300,801	57.90%
- Renter Occupied Housing Units	218,720	42.10%
<b>HOUSING</b>		
Median Housing Unit Value	\$222,942	25
Median Rent	\$903	