



# Analysis of the 2011 Travel Survey for Active Transportation Modes

SCAG Modeling Task Force

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Hsi-Hwa Hu

**SOUTHERN CALIFORNIA ASSOCIATION of GOVERNMENTS**

# Structure

- **2011 Household Travel Survey**
- **Analysis on Walk Trips**
- **Analysis on Bike Trips**
- **Analysis from Add-on Survey**

# 2011 California Household Travel Survey (CHTS)

- **CHTS - A state-wide travel survey**
  - ... Organized by Caltrans
- **Survey was conducted by NUSTAT**
- **Data available to download online**
- **15,716 household samples**
  - ... SCAG Region
- **Files include:**
  - Household, Person, Activity, Place, Vehicle, Long Distance

# 2011 SCAG Household Travel Survey

- **Includes both CHTS plus additional surveys conducted by SCAG (Abt-SRBI)**
  - SCAG's survey questions are the same as CHTS
  - 20,088 total household samples
  - Consultant created household expansion factors and files for model estimation
- **Used for model estimation of SCAG's travel demand models and analysis**

# Share of Active Transportation Modes

- Active Transportation (AT) modes include walking and biking
- CHTS AT Mode Share for SCAG Region:

## % AT Mode Share

	Walk	Bike
<b>IMP</b>	<b>7.8</b>	<b>1.43</b>
<b>LA</b>	<b>21.65</b>	<b>1.24</b>
<b>OR</b>	<b>10.93</b>	<b>1.21</b>
<b>RIV</b>	<b>9.43</b>	<b>0.72</b>
<b>SBD</b>	<b>9.68</b>	<b>0.72</b>
<b>VN</b>	<b>10.86</b>	<b>0.97</b>
<b>SCAG</b>	<b>16.75</b>	<b>1.12</b>

- Weighted
- Unlinked trips

# AT Share by Linked/Unlinked Trips

- Trips in travel survey are “unlinked”. Mode choice models consider “linked” trips, where a transit trip including transfers by walking/biking counts as only one trip.

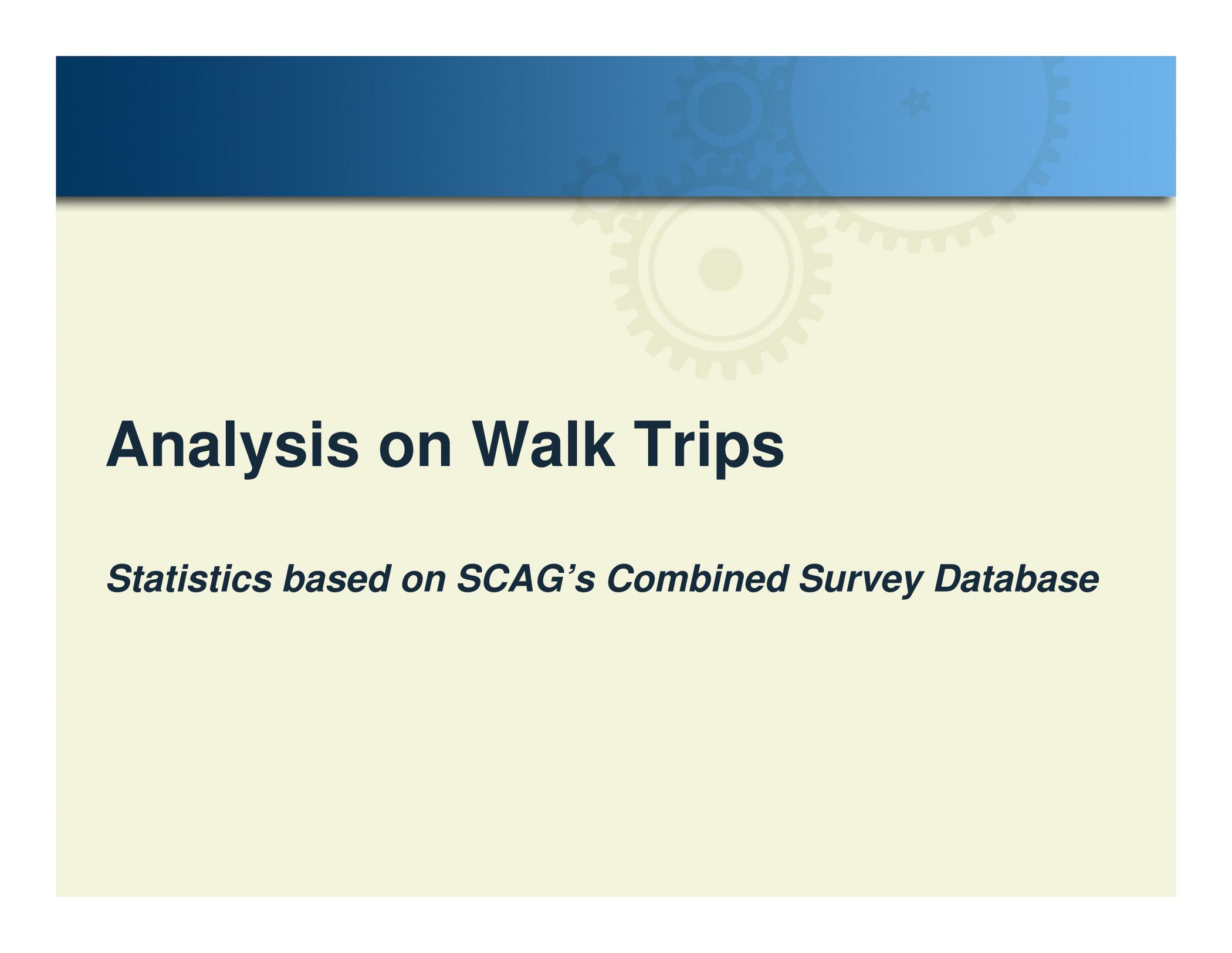
## AT Share for SCAG Region:

- CHTS (Unlinked): Walk (16.8%); Bike (1.1%)
- SCAG Survey Unlinked Trips: Walk (14.7%); Bike (1.3%)
  - Consistent with CHTS
- SCAG Linked Trips: Walk (9.8%); Bike (1.5%)
  - Total % AT = 11.3%
  - % AT of Year 2008 Model Validation = 9.66%

# Share for AT Modes by SCAG County

Mode Share of Active Transportation Modes						
	Walk			Bike		
	CHTS	SCAG Unlinked*	SCAG Linked*	CHTS	SCAG Unlinked*	SCAG Linked*
IMP	7.8	7.5	6.5	1.4	0.8	1.3
LA	21.7	19.6	12.6	1.2	1.4	1.7
OR	10.9	10.2	7.5	1.2	1.5	1.8
RIV	9.4	7.2	5.4	0.7	0.7	1.0
SBD	9.7	8.4	7.1	0.7	0.7	1.0
VN	10.9	7.0	5.9	1.0	1.1	1.2
SCAG	16.8	14.7	9.8	1.1	1.3	1.5

\* Weighted by household expansion factor

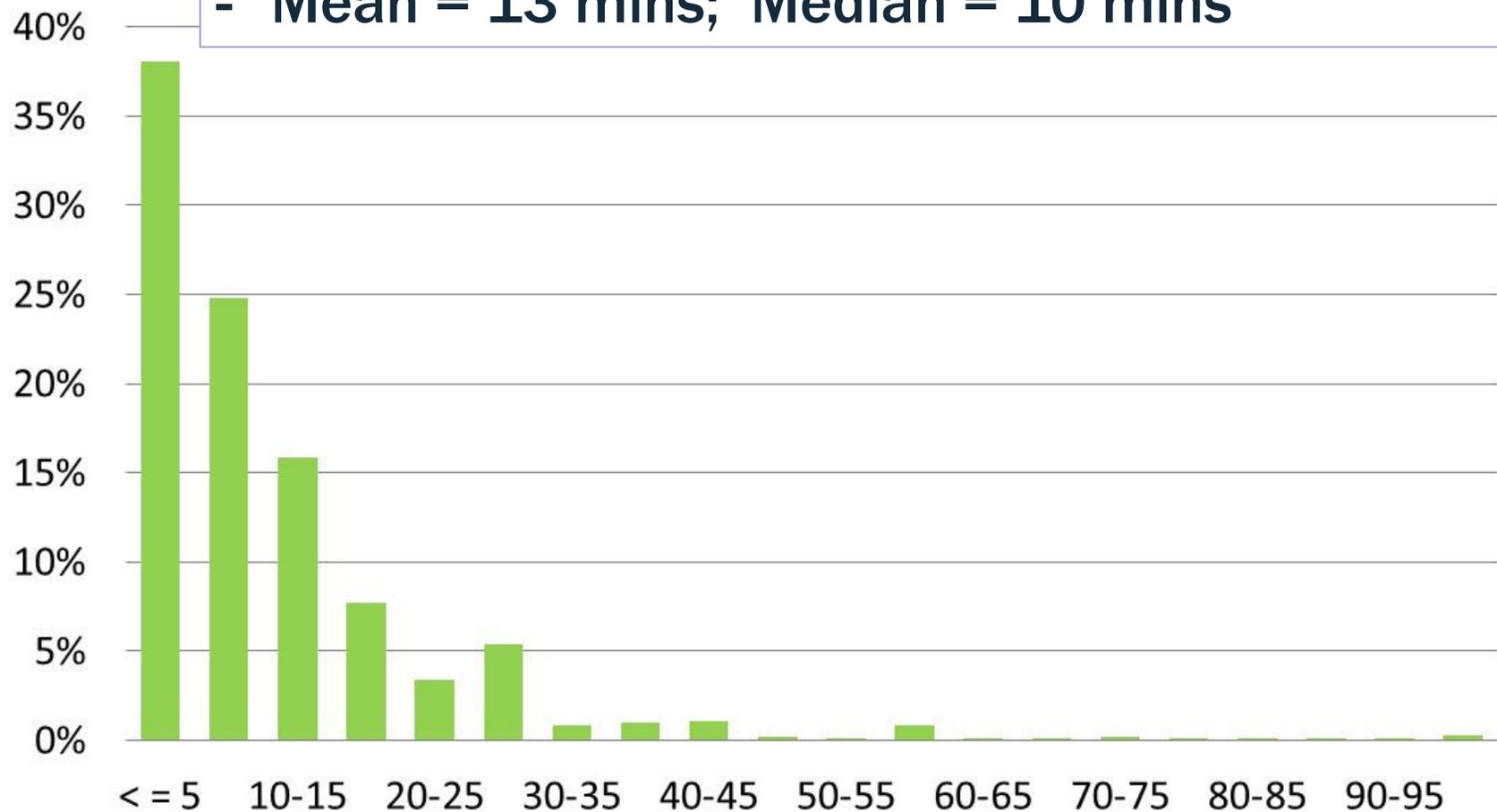


# **Analysis on Walk Trips**

***Statistics based on SCAG's Combined Survey Database***

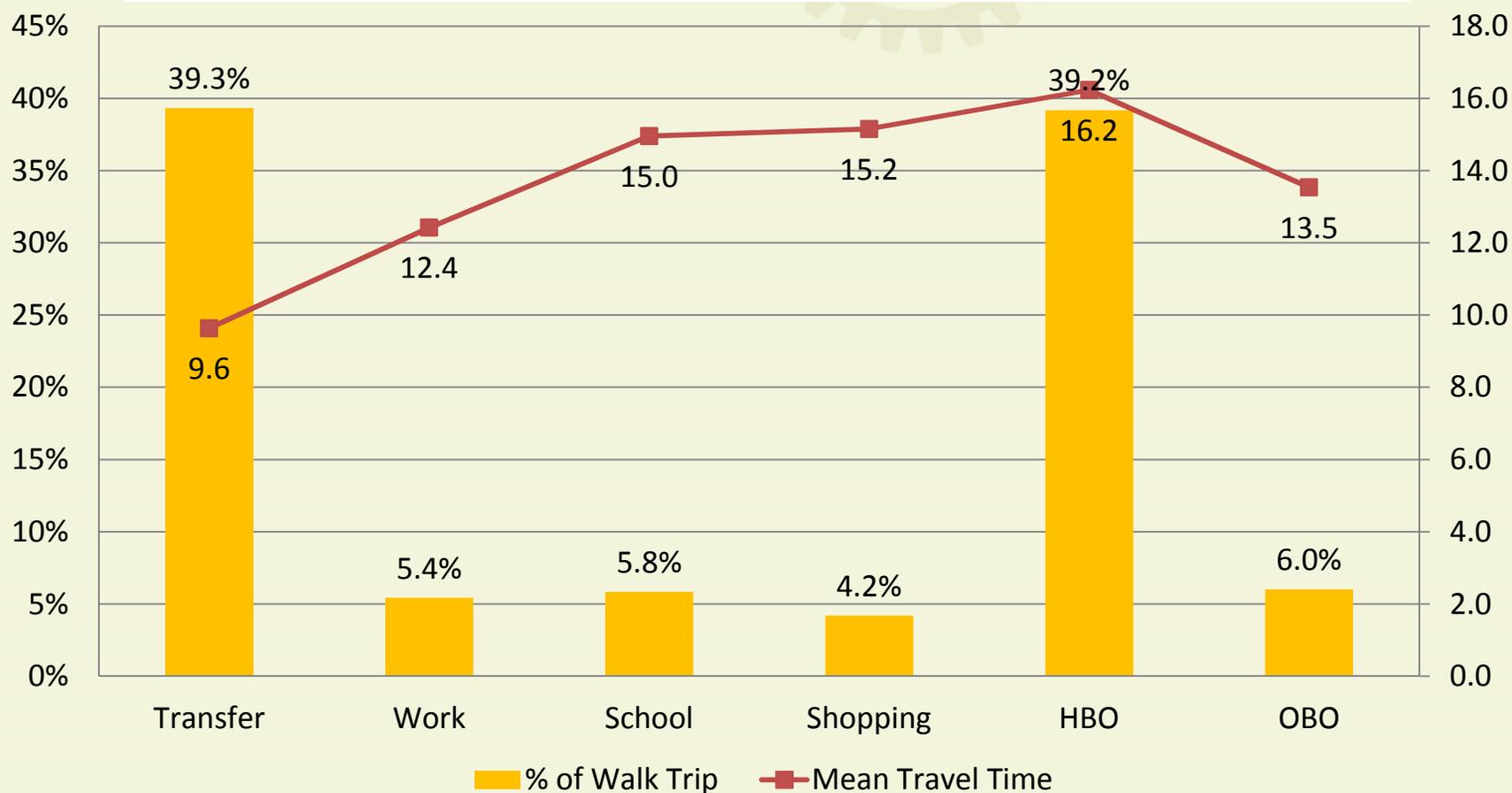
# Walk Trip Travel Time Distribution

- About 40% of walk trips are less than 5 minutes
- Mean = 13 mins; Median = 10 mins



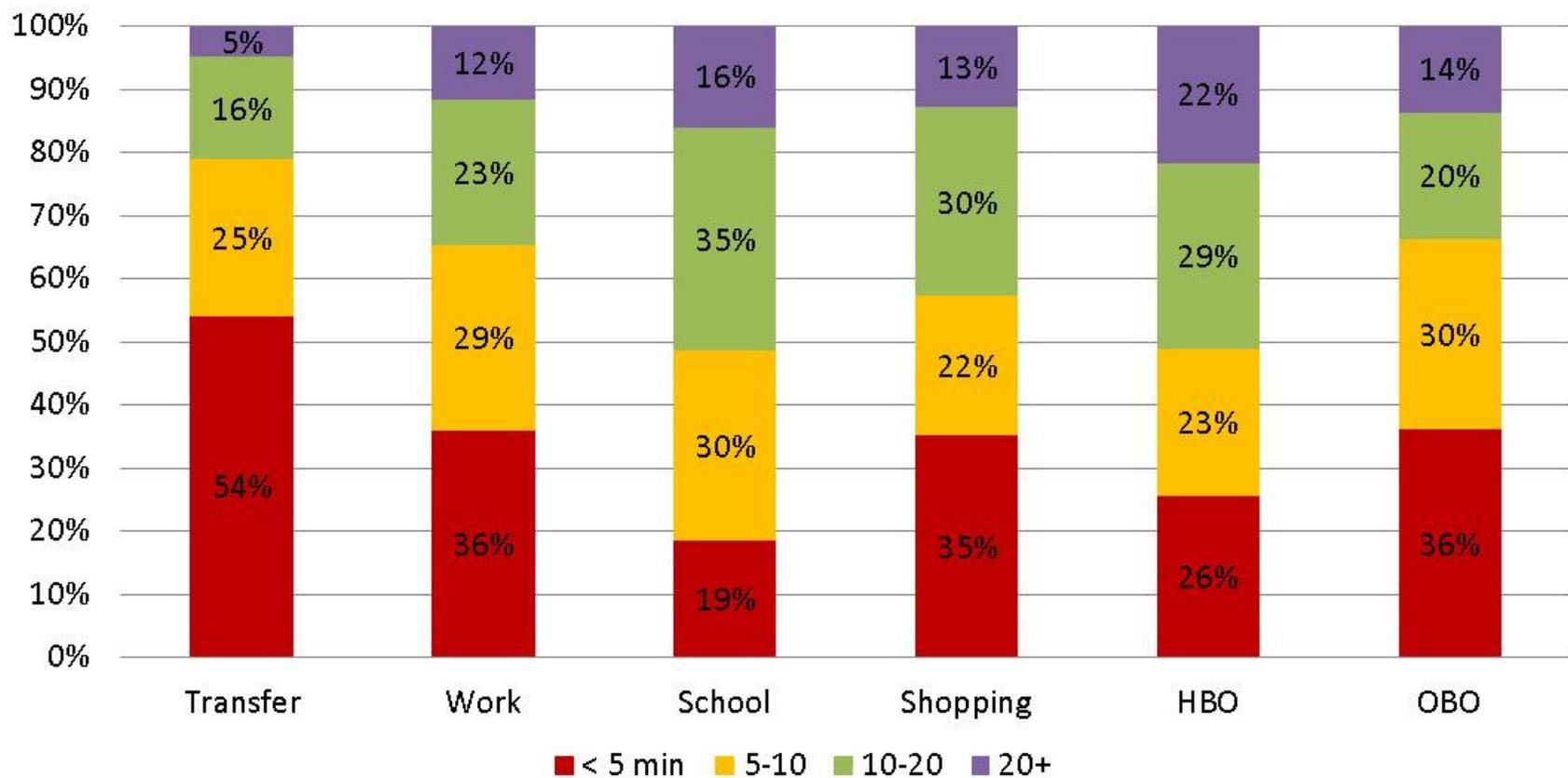
# Walk Trip Type and Mean Travel Time

- Nearly 80% of walk trips are Transfer Trips or Home-Based Other Trips (~40% each)



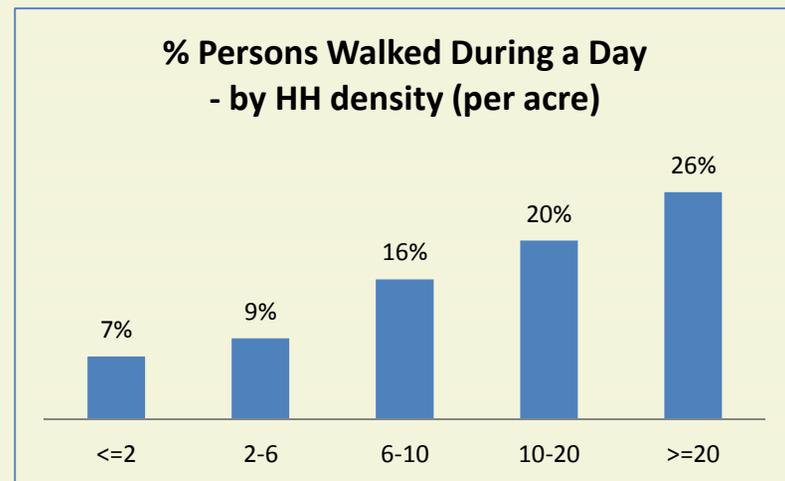
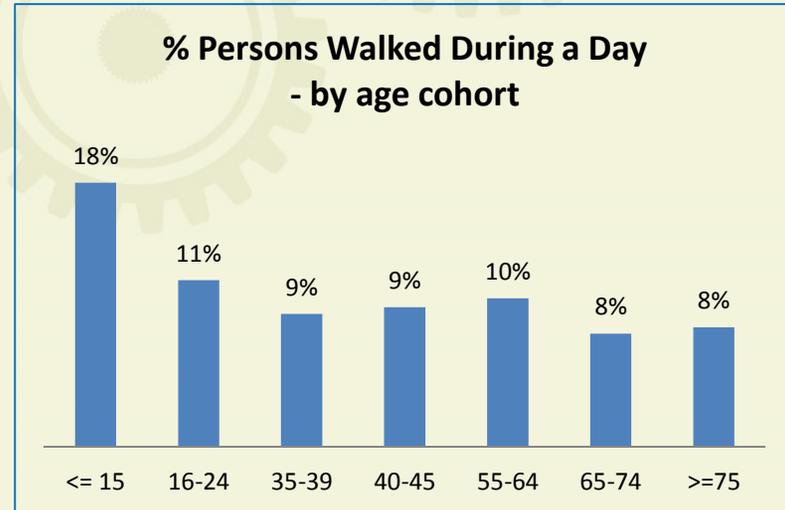
# Walk Time by Purpose

- For walk transfer trips; 54% are within 5 minutes; about 80% are within 10 minutes



# Walk by Person

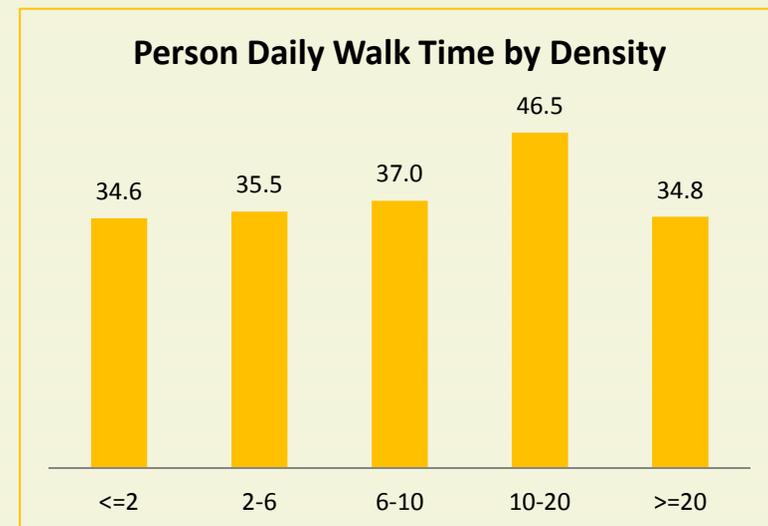
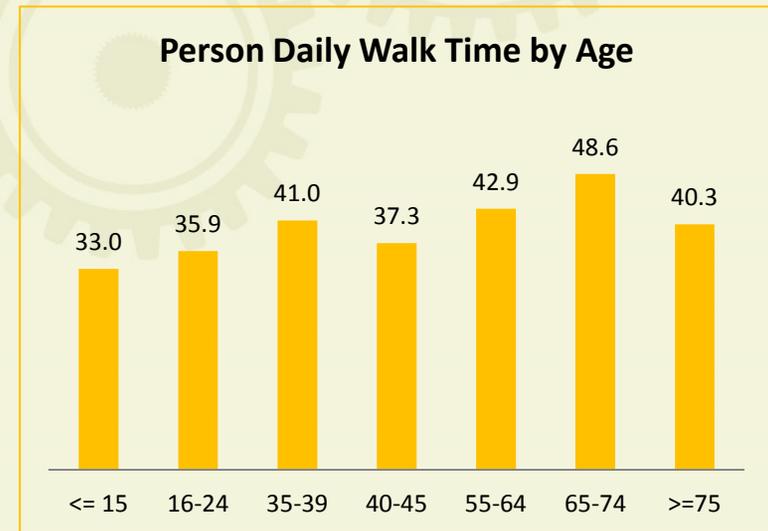
- About **11%** of total persons make at least one walk trip during a day.
- Those younger than **16** tend to walk more than the older.
- People living in higher density neighborhoods tend to walk more.



# Daily Walk Time per Person

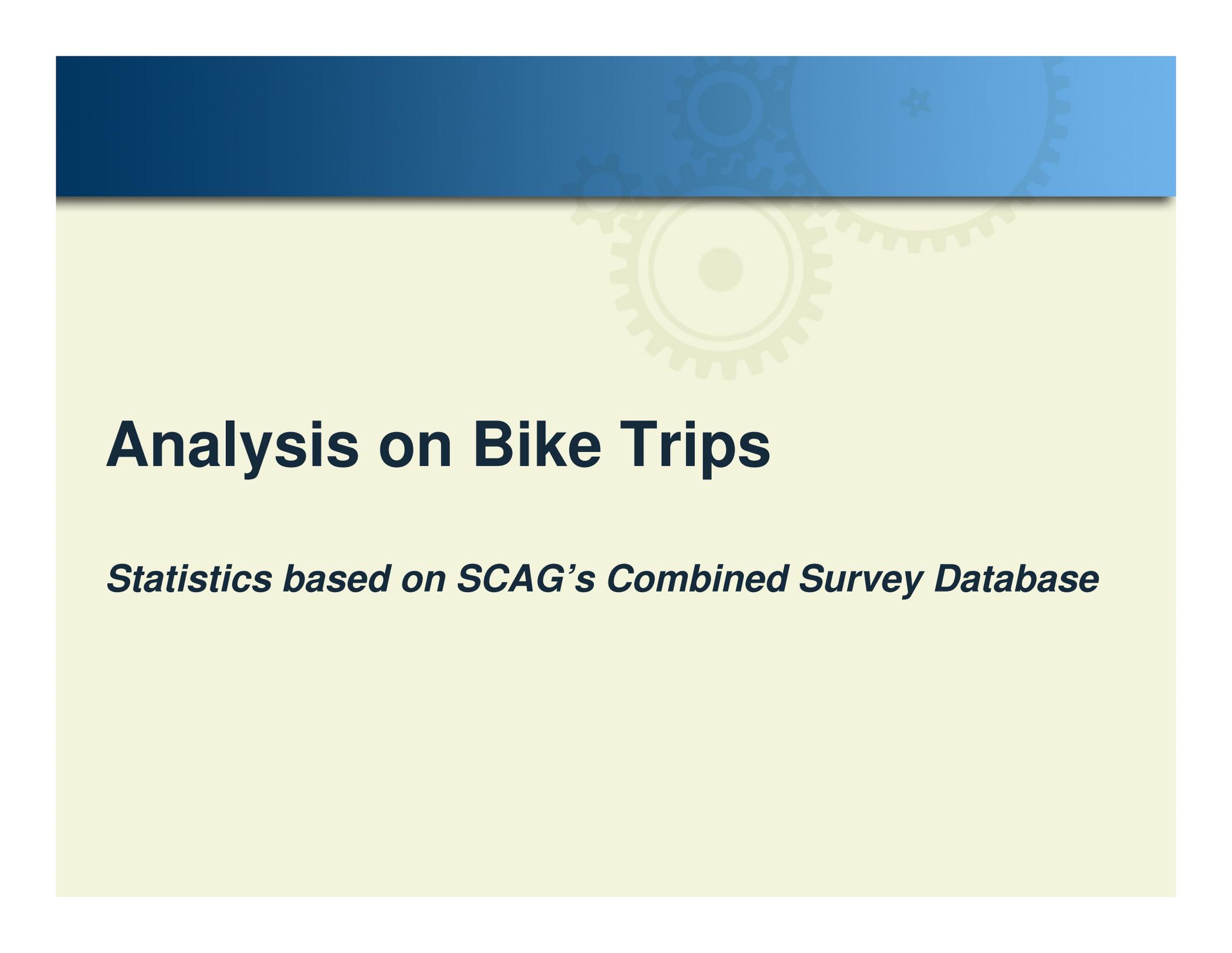
**For those who made at least one walk trip during a day:**

- Average daily walk time is 37.5 minutes per person.
- Age 65-74 walk near 50 minutes per day.
- Persons in higher density neighborhoods tend to walk for longer time.
- Walk time is shorter for highest density, probably due to better accessibility.



# Summary of Walk Trip Analysis

- **11% of people walk during a weekday.**
- **Residents of higher-density neighborhoods tend to walk more than those of low-density**
- **40% of walk trips are for mode transfer**
- **May need to estimate walk access/egress time in transportation model as input for health impact analysis**
- **For mode choice analysis, is walk access/egress time considered as positive effect on utility?**
  - **People may prefer to walk to transit due to positive effect on health**

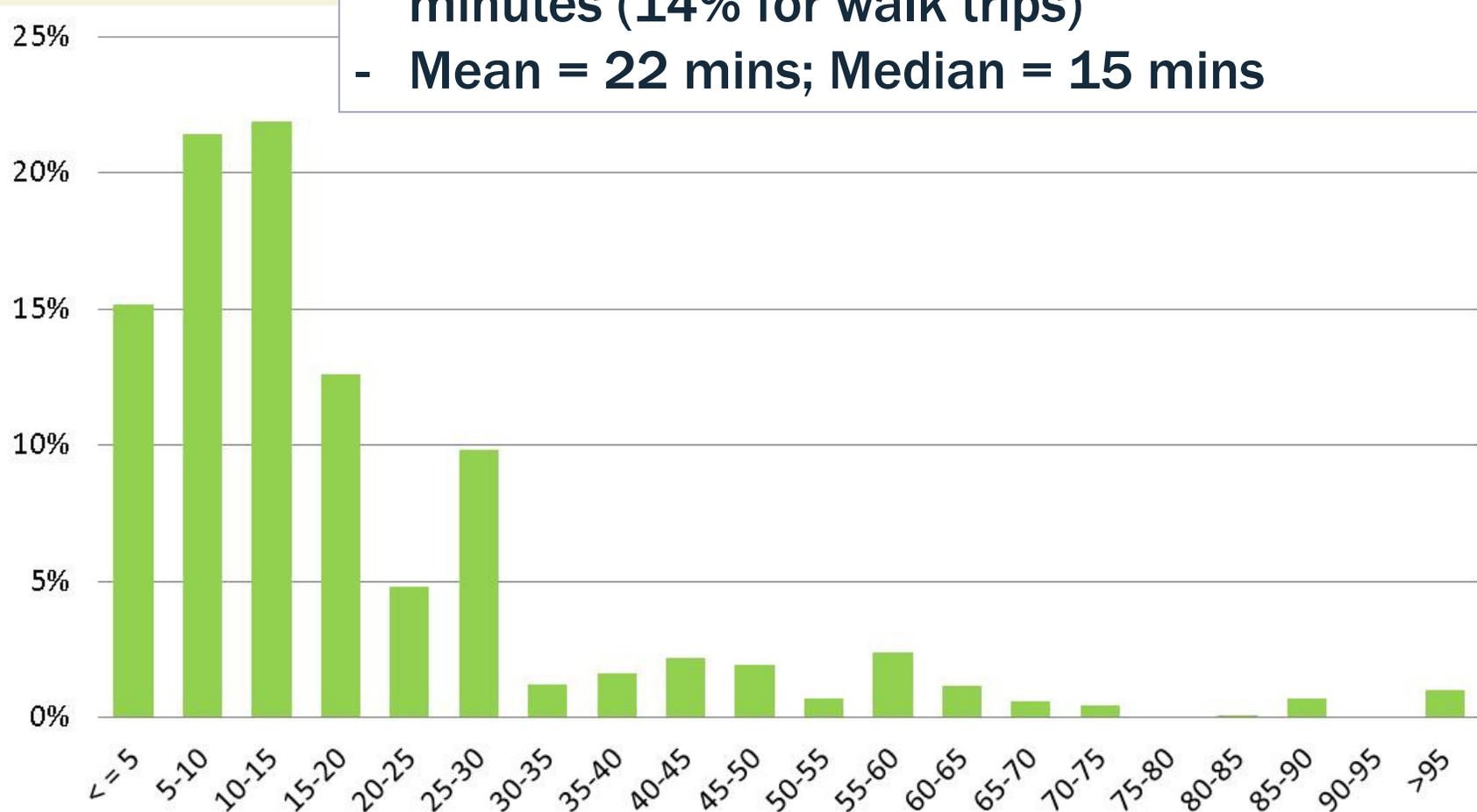


# **Analysis on Bike Trips**

*Statistics based on SCAG's Combined Survey Database*

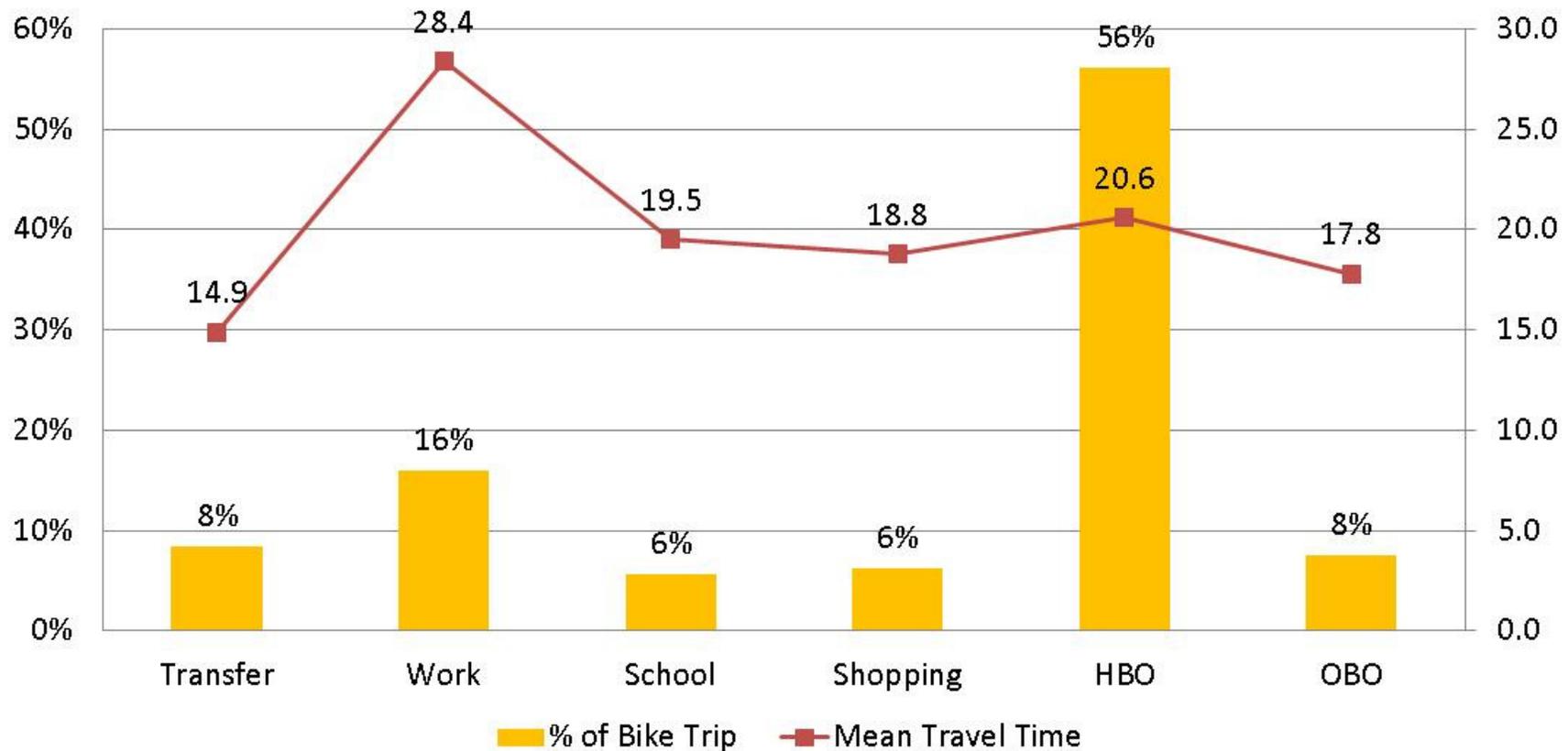
# Bike Trip Travel Time Distribution

- Nearly 30% of bike trips are longer than 20 minutes (14% for walk trips)
- Mean = 22 mins; Median = 15 mins



# Trip Type and Mean Travel Time

- 56% of bike trips are home-based other trips, 16% for commuting purpose & 8% for mode transfer
- Average bike time for work is about 29 minutes



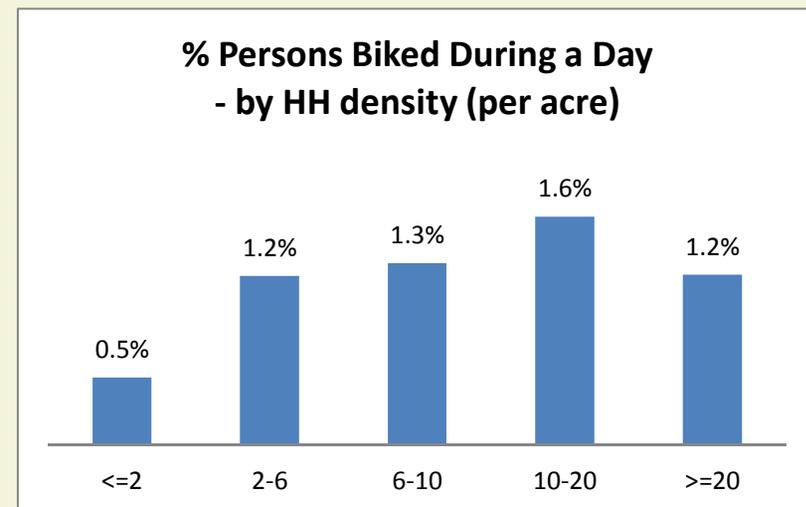
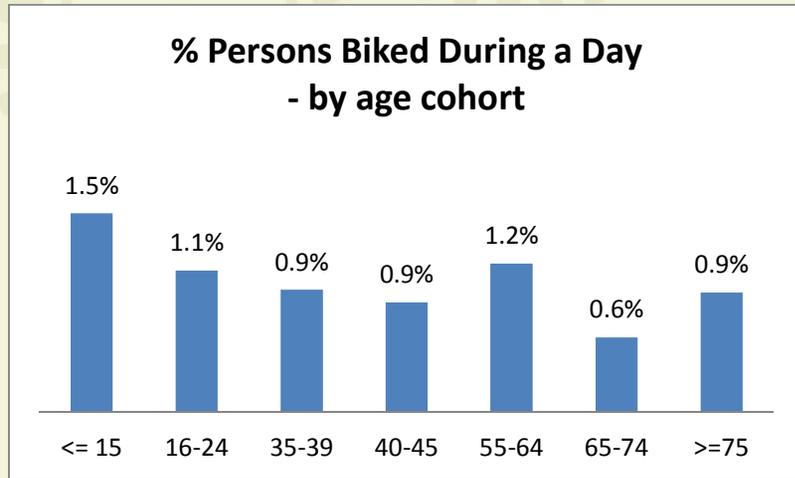
# Bike Time by Purpose

- For trips to work location, 48% are longer than 20 minutes.



# Bike by Person

- About **1.1%** of total persons make at least one bike trip during a day.
- Those younger than **16** tend to bike more than the older, but the difference is not very large.
- People living in higher density neighborhoods tend to bike more.

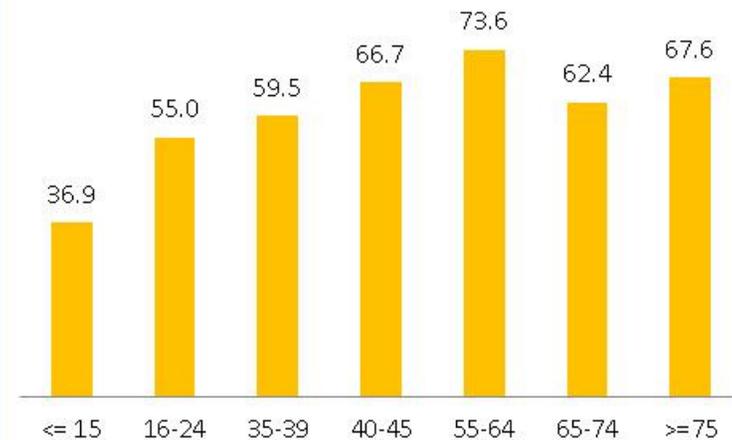


# Daily Bike Time per Person

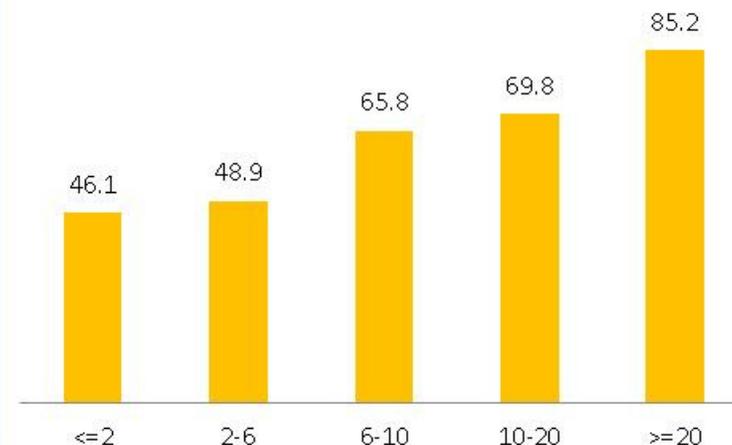
**For those who made at least one bike trip during a day:**

- Average daily bike time is 56 minutes per person.
- Age 55-64 bike nearly 75 minutes per day.
- People living in higher density neighborhoods tend to bike for longer time.

Person Daily Bike Time by Age Cohort



Person Daily Bike Time by Density



# Summary of Bike Trip Data

- **1.1% of people bike during a weekday.**  
**Not much difference among age groups**
- **55% of bike trips are for home-based other (social, recreation, visiting, eat out, ...)**
- **Average bike time = 22 minutes. Bike for work travel time was the highest ... 28.4 mins**
- **Bikers tend to spend more time biking if living in high-density or better bike access areas**



# **Analysis from Add-on Survey**

# Primary Mode to School

- **Based on add-on survey, of 1,370 student samples:**
  - **13% are walking to school**
  - **3.3% are biking to school**

# Primary Mode to Work

- **Based on add-on survey, of 2,645 workers:**
  - **2.16% are walking to work**
  - **2.08% are biking to work**

# Bike or Walk Incentives at Primary Job

- For employers offering incentive on bike or walk, **11%** of workers take AT modes, which is higher than no incentive (**3%**).

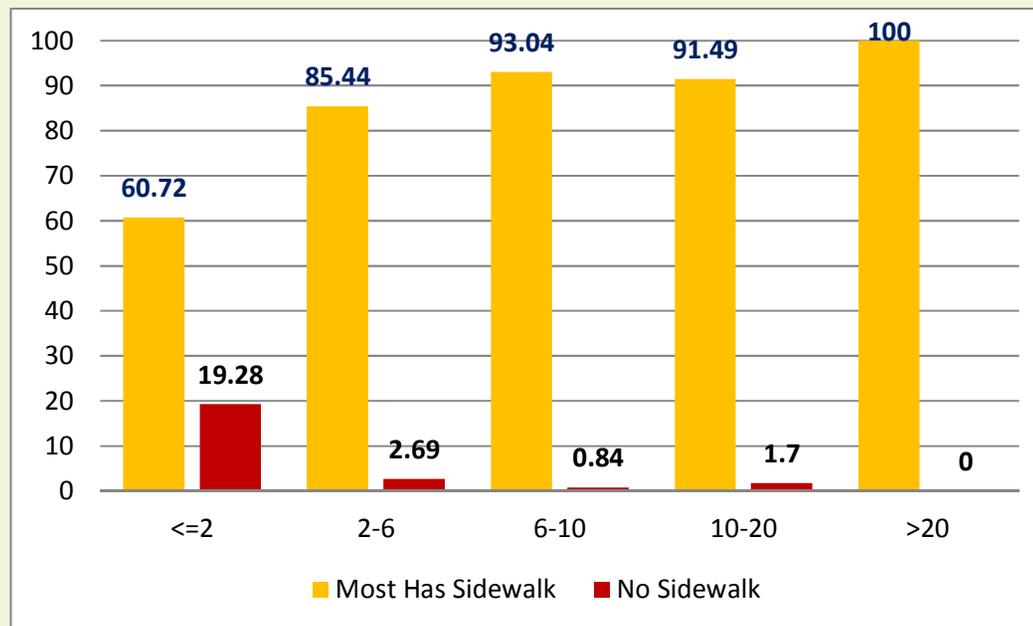
	Walk	Bike	AT
Yes	3.2	7.83	11.03
No	1.85	1.38	3.23

- For total bike commuters
  - **77.27%** use bike/walk incentive program
  - **81.82%** use bicycle storage facility

\* 22 samples

# Neighborhood Density & Sidewalks Availability

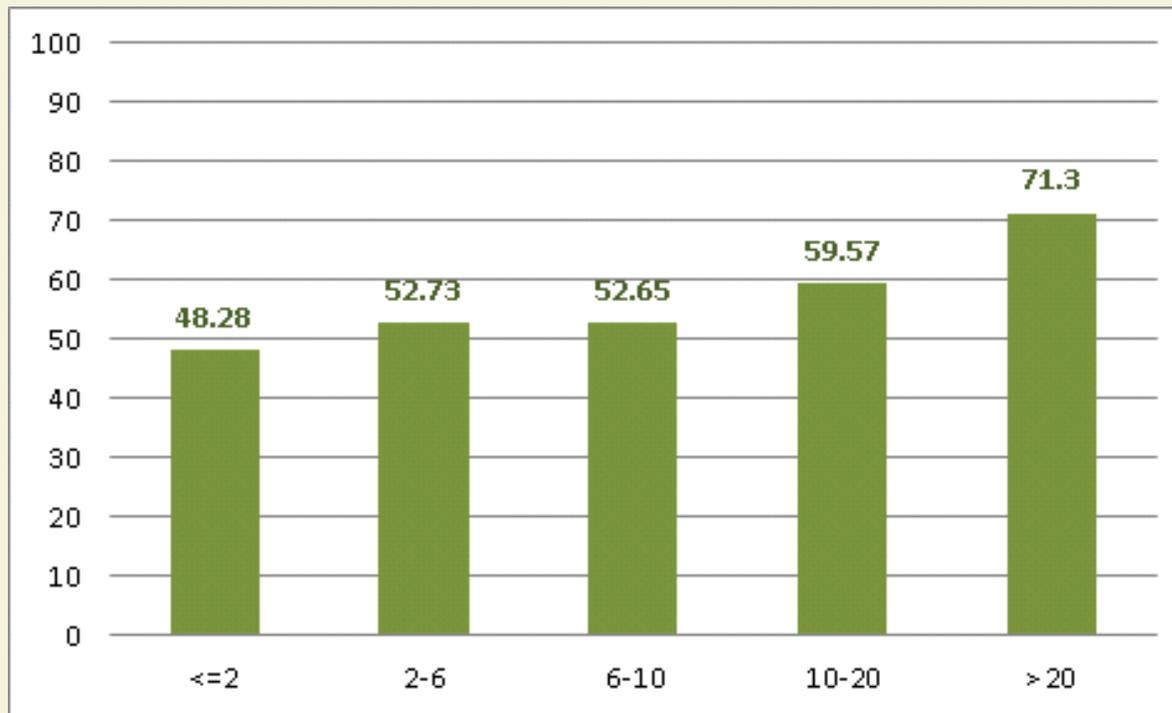
- For a question on sidewalk availability, sidewalk is available in “most of places” or “everywhere” for high-density neighborhood.
- 20% of lowest-density neighborhoods (< 2 HH per acre) have no sidewalk.



**2,486 households**

# Members of my household regularly bike and walk in our neighborhood

- Residents in higher-density areas tend to regularly bike and walk in neighborhoods



*2,486 households*

# Conclusions

- **Walk Trips:**
  - Shorter distance; many are for mode transfers
  - Complements transit service
- **Bike Trips:**
  - Highest demand is for non-work modes
- **Travel Demand Model – Follow-up:**
  - Skim for bike mode
  - Link AT mode demand to Land Use & Built Environment (LUBE) variables
  - Connect to health impact model



# Thank you

Hsi-Hwa Hu

[hu@scag.ca.gov](mailto:hu@scag.ca.gov)