

# 2007/08 Household Travel Survey

## Initial Review

Presented to the Travel Forecasting Subcommittee on  
November 20, 2009

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National Capital Region Transportation Planning Board (TPB)



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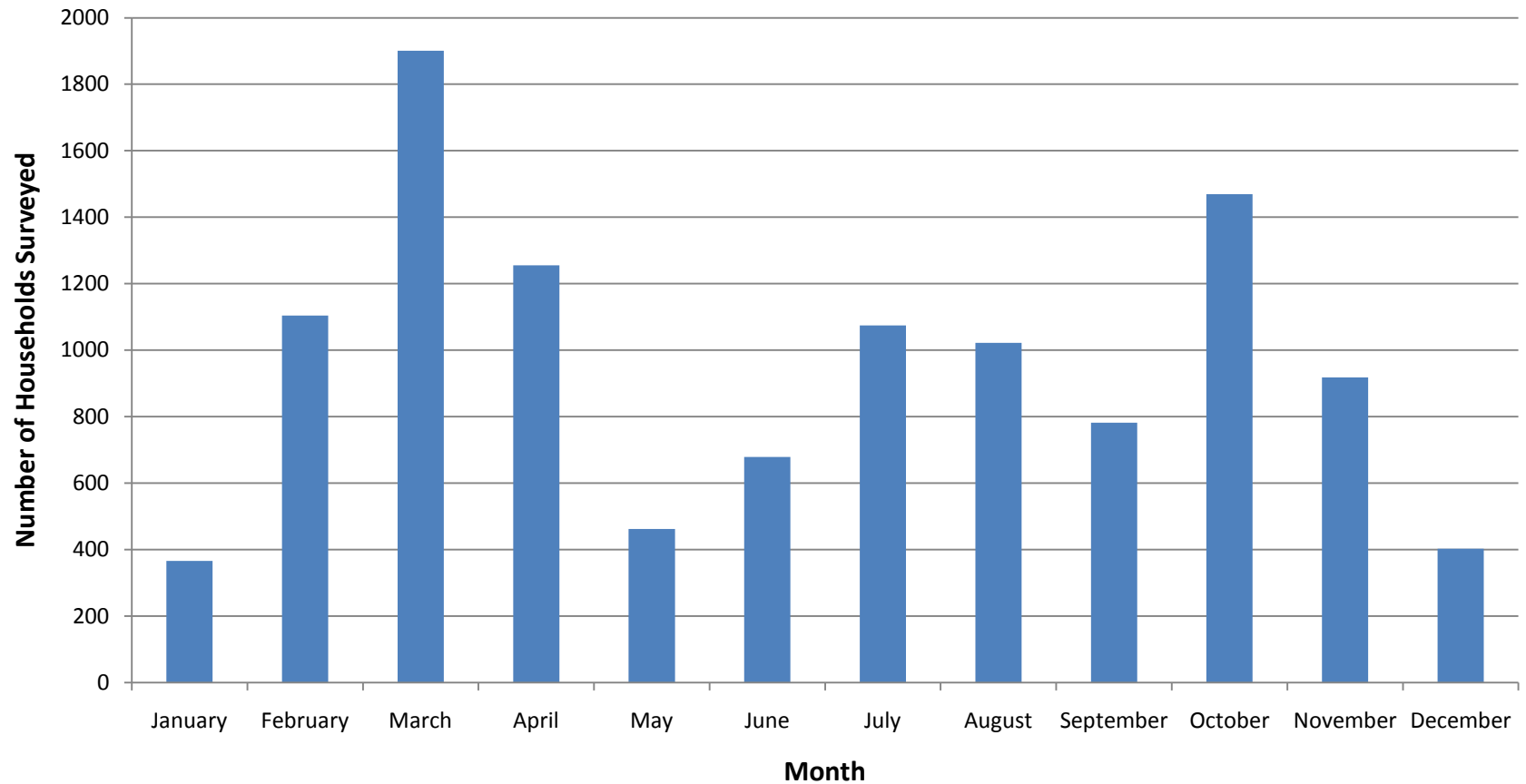
# 2007/08 Household Travel Survey Background

- One-day activity and travel survey of households
- Collection period: Feb. 2007 through May 2008
- Weekday data collected
- Address list-based sample frame
- Activity centers & clusters oversampled to ensure complete modal representation
- Entire TPB modeled area surveyed

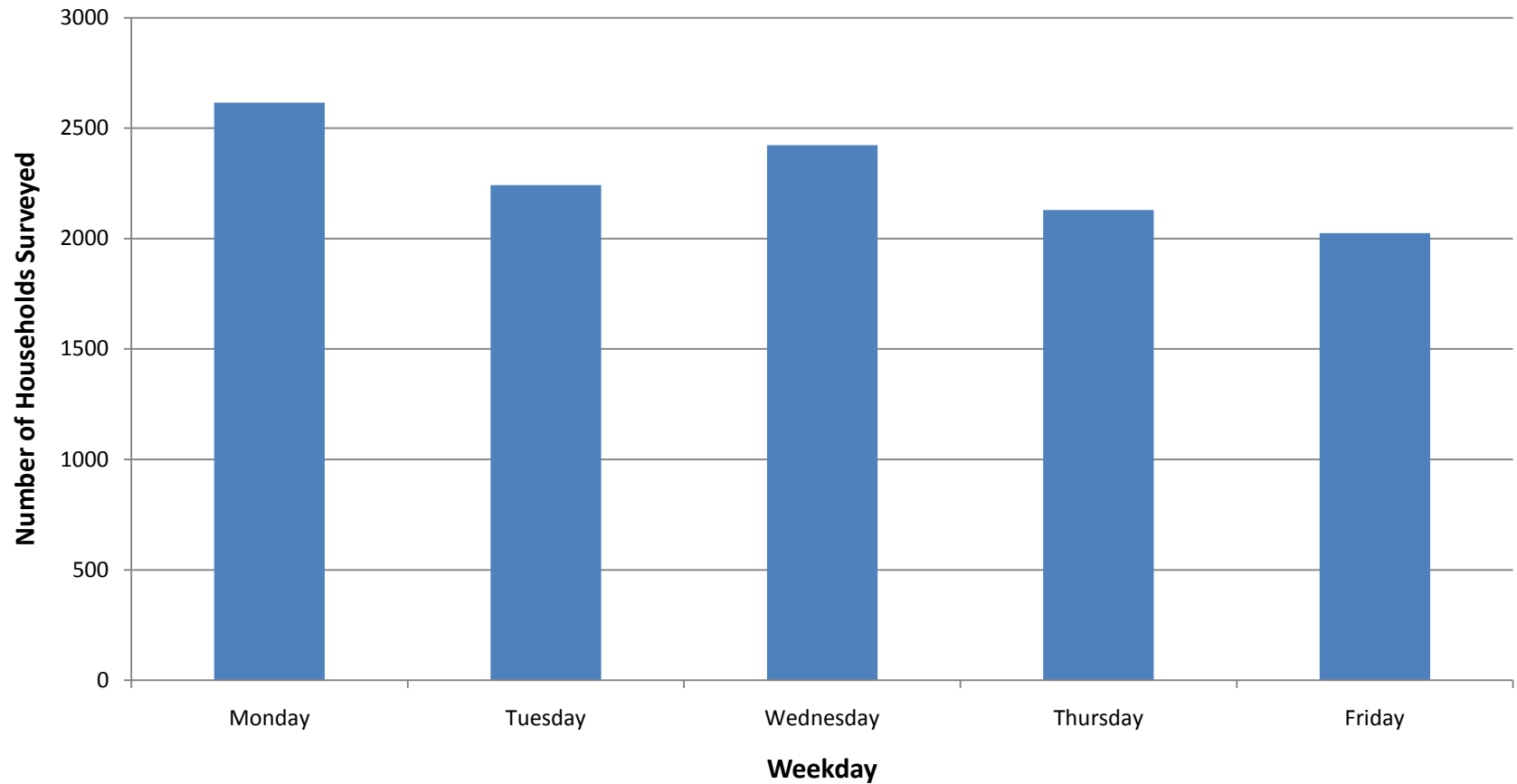
*(22 jurisdictions in 2007/08 vs. 13 in 1994)*



# Household Surveys by Month

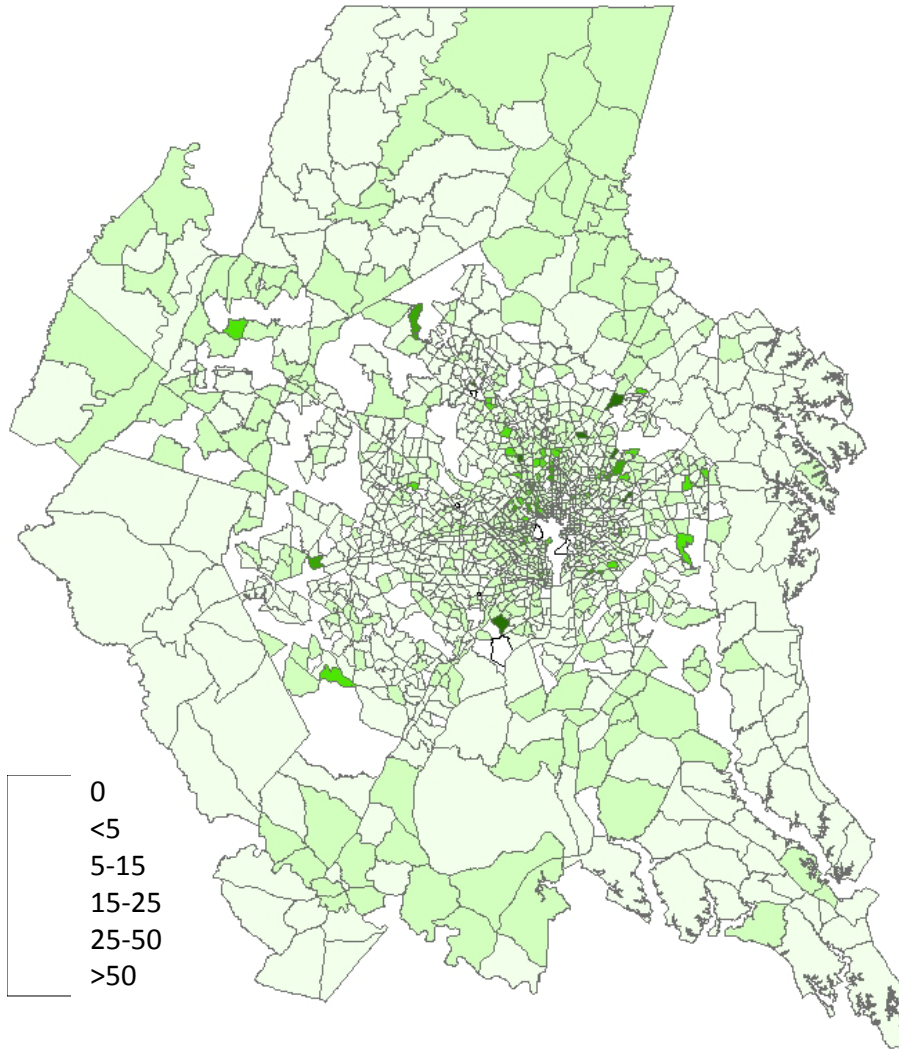


# Surveys by Day of Week



# Survey Density by Residence TAZ

## HH Samples/1000 HHs



- Surveys are available from all jurisdictions in the modeled area

# 2007/08 HTS File Summary

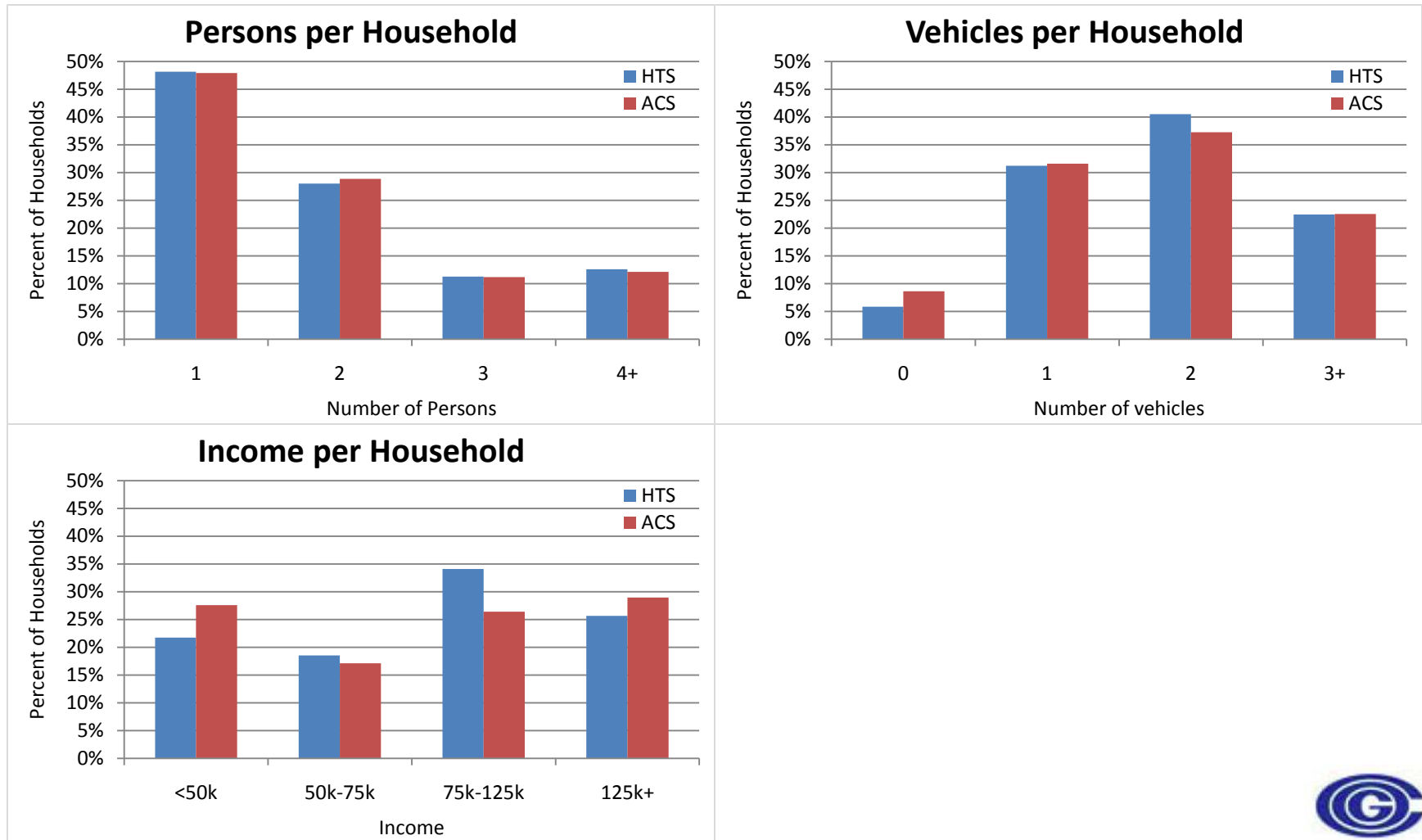
(Washington, D.C. Region File)

Survey File Type	File Records	Weighted Total
Household	11,436	2,348,230
Person	25,179	5,888,485
Vehicle	20,169	4,435,077
Trip	87,476	20,284,206

# Demographic & Travel Rates

	<b>2007/08 HTS</b>	<b>Expected Value/Range</b>
Persons/HH	2.51	2.54 (2007 ACS) 2.62 (2000 CTPP)
Vehicles/HH	1.89	1.73 (2000 CTPP)
Vehicles/Person	0.75	0.66 (2000 CTPP)
Trips/HH	8.64	6.7 to 9.3
Trips/Person	3.44	3.0 to 4.0

# Comparison of Demographic Distribution: 2007/08 HTS vs. 2007 ACS





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# Logic Checks

- ✓ Students in household < Persons in household
- ✓ Licensed drivers in household < Persons in household
- ✓ Reasonable number of vehicles per household based on household occupancy
- ✓ Reasonable work status for different age groups
  - No children under 16 are employed
  - Most retired persons are ages 55+
  - Most students are less than 35 years old

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# File Consistency

- ✓ Consistency of HH IDs in HH and Person files
- ✓ Consistency of HH IDs in HH and Trip files
- ✓ Consistency of Person IDs in Person and Trip files
- \* Note: Trip file does not include non-traveling persons

# Sampling Distribution of Internal and External Trips (Unweighted)

Origin	Destination		
	Within Study Area	Outside Study Area	Total
Within Study Area	84,768	1,233	86,001
Outside Study Area	1,139	336	1,475
Total	85,907	1,569	87,476

Note: Current file includes TAZ geocoding to existing 2,191 TAZ system only



# 2007/08 HTS Weighted Trips by Mode

(Trips internal to the 2,191 TAZ study area)

Primary Mode	Detailed Mode	Total	Pct.
Transit	Metrorail-Metrorail Related	717,902	3.64%
	Local Bus Only	275,407	1.40%
	Commuter Rail Only	36,936	0.19%
	Commuter Bus Only	18,808	0.10%
Transit Subtotal:		1,049,053	5.32%
Walk	Walk/	1,519,543	7.71%
Bicycle	Bike	91,301	0.46%
Non-motorized Subtotal:		1,610,844	8.17%
Auto Driver	Auto Driver	11,672,047	59.21%
Auto Passenger	Auto Passenger	4,496,070	22.81%
Auto Person Subtotal:		16,168,117	82.01%
Other		885,855	4.49%
<b>Grand Total:</b>		<b>19,713,869</b>	<b>100%</b>



# Relationship of Modeled Trip Purposes to Survey O/D Codes on Trip Record

FROM PURPOSE	TO PURPOSE																																																																					
	Home	Work	Shop, Gas station	Daycare	School	Other	Drop Off/Pick Up Someone	Parking Point	Inter-city Rail Terminal	Inter-city Bus Terminal	Airport																																																											
Home		HBW	HBS	HBO																																																																		
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# 2007/08 HTS Weighted Trips by Purpose (Trips internal to the 2,191 TAZ study area)

<b>Trip Purpose</b>	<b>Sampled Trips</b>	<b>Weighted Trips</b>	<b>Pct.</b>
HBW	16,279	3,654,789	18.54%
HBS	13,726	3,116,014	15.81%
HBO	31,296	7,705,898	39.09%
NHB Work-Related	9,316	2,021,102	10.25%
<u>NHB NonWork-Related</u>	<u>14,151</u>	<u>3,216,067</u>	<u>16.31%</u>
Total	84,768	19,713,870	100.00%

# Comparison of Observed Trips By Mode: 1994 HTS vs. 2007/08 HTS

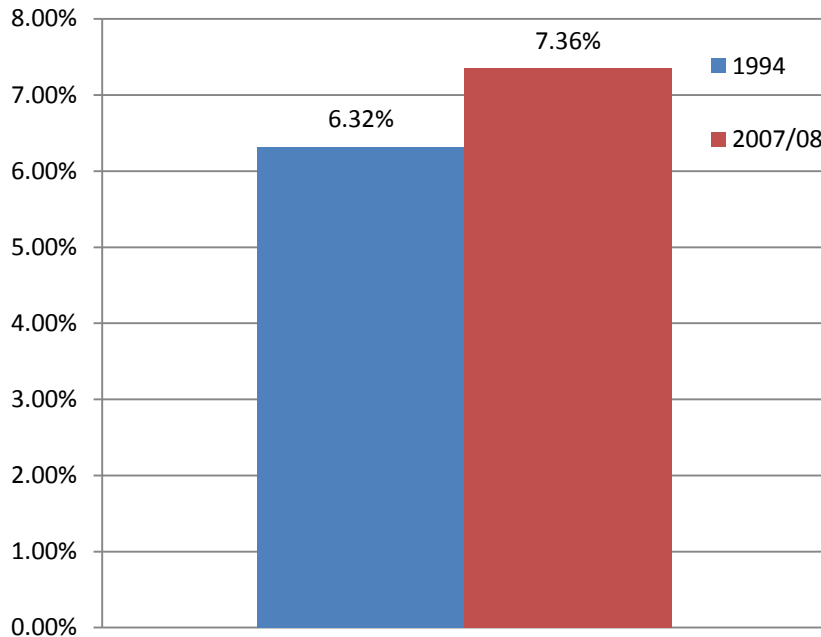
Travel Mode	1994 HTS	2007/08 HTS	Chg (07-94)	Ratio (07/94)
<b>Auto Driver</b>	8,740,668	8,980,688	240,020	1.03
<b>Auto Passenger</b>	2,459,865	3,456,645	996,780	1.41
<b>Auto Person Subtotal:</b>	11,200,533	12,437,333	1,236,800	1.11
<b>Transit</b>	756,092	987,748	231,656	1.31
<b>Motorized Person Subtotal:</b>	11,956,625	13,425,081	1,468,456	1.12
<b>Walk</b>	1,072,655	1,411,808	339,153	1.32
<b>Bike</b>	72,072	87,715	15,643	1.22
<b>Nonmotorized Subtotal:</b>	1,144,727	1,499,523	354,796	1.31
<b>Other Subtotal:</b>	673,398	687,182	13,784	1.02
<b>Total Person Travel:</b>	13,774,750	15,611,786	1,837,036	1.13

*Geographic area: 13-jurisdictions surveyed in the 1994 HTS*



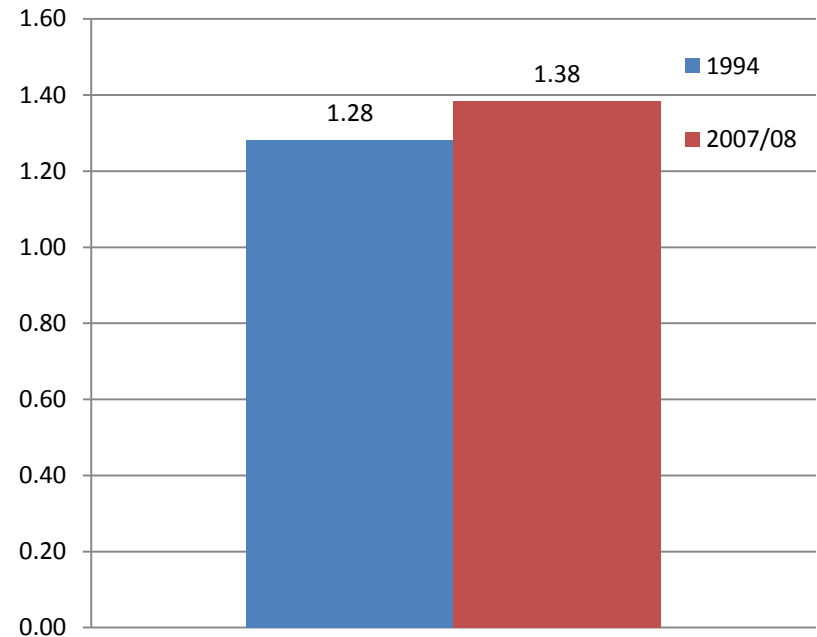
# Comparison of Auto Occupancy and Transit Share: 1994 HTS vs. 2007/08 HTS

### Transit Share



$$\frac{2007 / 08 \text{ Transit Share}}{1994 \text{ Transit Share}} = 1.16$$

### Auto Occupancy



$$\frac{2007 / 08 \text{ Auto Occ.}}{1994 \text{ Auto Occ.}} = 1.08$$

*Geographic area: 13-jurisdictions surveyed in the 1994 HTS*



# Comparison of Trips and Trip Rates by Mode: 1994 HTS vs. 2007/08 HTS

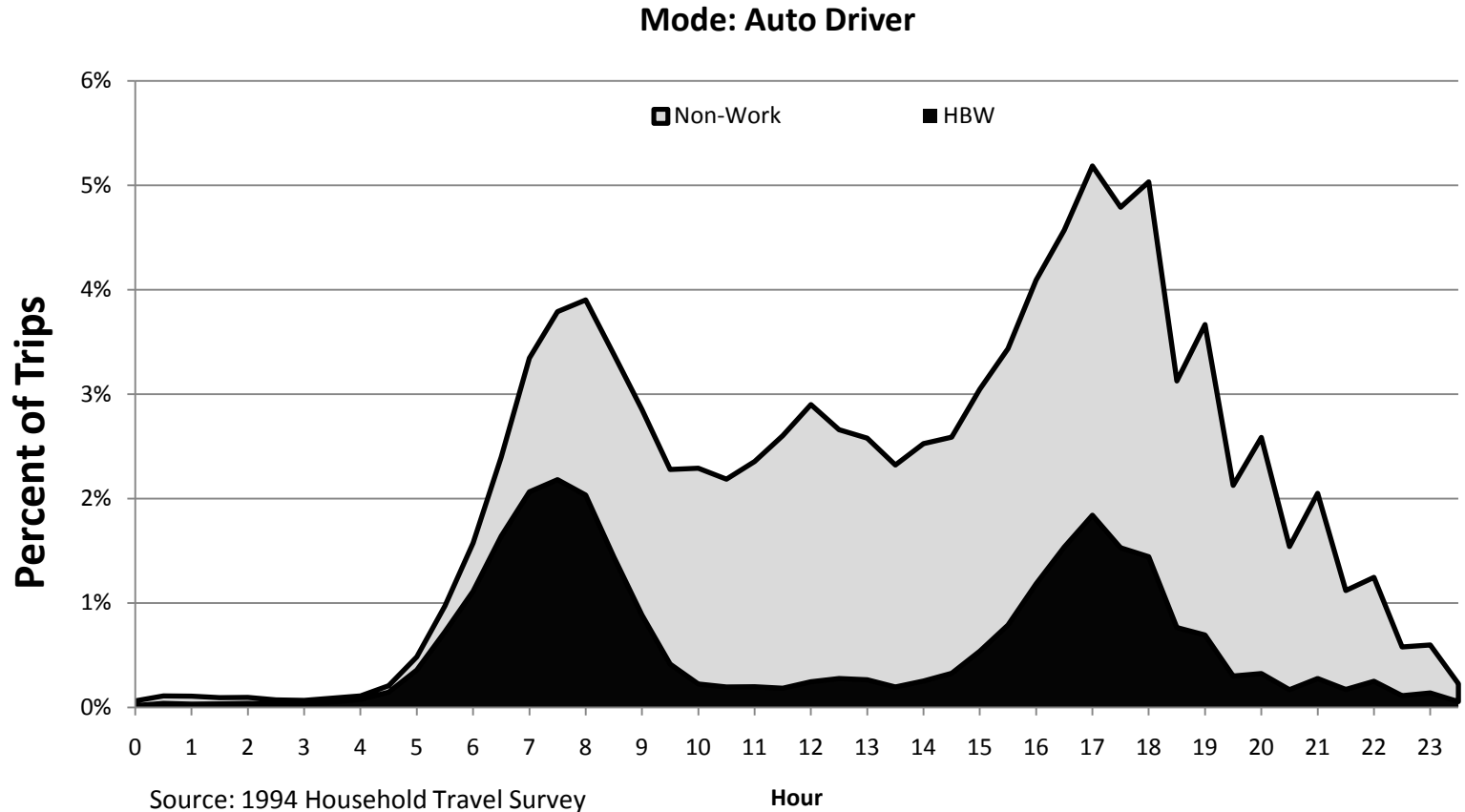
	1994 HTS	2007 HTS	Chg (07-94)	Ratio (07/94)
<b>Households</b>	1,562,070	1,878,488	316,418	1.20
<b>Motorized Person Trips</b>	11,956,625	13,425,081	1,468,456	1.12
<b><i>Motorized Trip Rate</i></b>	<i>7.65</i>	<i>7.15</i>	-0.51	0.93
<b>Nonmotorized Trips</b>	1,144,727	1,499,523	354,796	1.31
<b><i>Nonmotorized Trip Rate</i></b>	<i>0.73</i>	<i>0.80</i>	0.07	1.09
<b>Other Trips</b>	673,398	687,182	13,784	1.02
<b><i>Other Trip Rate</i></b>	<i>0.43</i>	<i>0.37</i>	-0.07	0.85
<b>Total Person Trips</b>	13,774,750	15,611,786	1,837,036	1.13
<b><i>Total Daily Trip Rate</i></b>	<i>8.82</i>	<i>8.31</i>	-0.51	0.94

*Geographic area: 13-jurisdictions surveyed in the 1994 HTS*



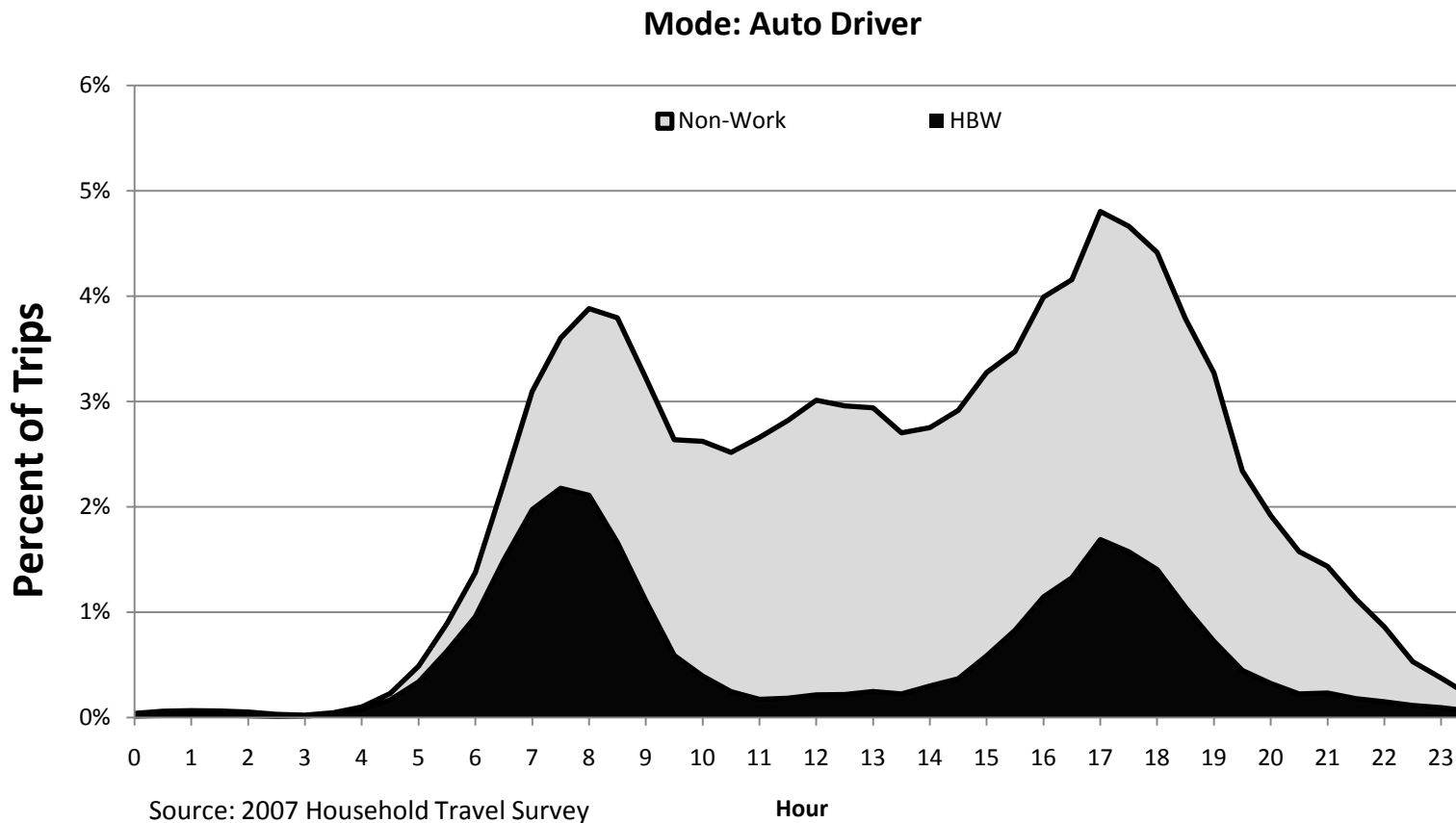
# 1994 Travel Composition by Time-of-Day

(Unweighted trips in motion)



# 2007 Travel Composition by Time-of-Day

(Unweighted trips in motion)



# Temporal Distribution by Period and Purpose

Unweighted Auto Driver Trips (in-motion)

HBW as % of Total Daily Trips		Non HBW as % of Total Daily Trips	
1994		1994	
AM Peak (6-9 AM)	37.7%	AM Peak (6-9 AM)	11.0%
PM Peak (4-7 PM)	29.8%	PM Peak (4-7 PM)	25.6%
Off Peak	32.5%	Off Peak	63.4%
2007/2008		2007/2008	
AM Peak (6-9 AM)	37.1%	AM Peak (6-9 AM)	10.6%
PM Peak (4-7 PM)	29.3%	PM Peak (4-7 PM)	24.5%
Off Peak	34.1%	Off Peak	64.9%
Difference		Difference	
AM Peak (6-9 AM)	-0.8%	AM Peak (6-9 AM)	-0.4%
PM Peak (4-7 PM)	-0.7%	PM Peak (4-7 PM)	-1.1%
Off Peak	1.5%	Off Peak	1.5%



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# Initial Observations on the 2007/08 HTS

- Persons /HH are lower than the 2000 Census due to differences in population estimation
- Vehicles/HH are higher than the 2000 Census due, in part, to definitional differences
- Differences between the 1994 HTS and 2007/08 HTS (controlling for geography):
  - Global HH trip rates have declined from 8.8 to 8.3
  - The share of HBW trips continues to decline, from 21% to 18.5%
  - The global transit share has increased from about 6.3% to 7.3%
  - Auto occupancies have increased 1.28 to 1.38
  - Time-of-Day distributions indicate slightly less travel in the peak periods and slightly more midday travel