



What Do Comparisons of 4-Step and ABTM Models Tell Us?

Examples from Sacramento

Introduction

- Region facts
 - 2.2 Million people, State Capitol
 - Valley geography: Between Sierras and SF Bay Area, lots of rivers
 - 3 % work transit mode share
- SACOG has 2 travel demand models
 - SACMET = 4-step aggregate model
 - SACSIM = Parcel-based ABTM

2 Points of Comparison

- Treatment “Non-home-based” travel
 - Note: “NHB” is a 4-step construction...
- Representation of Demographic Variables in Populations
 - Age
 - Income
 - Person Type

“Non-Home-Based” Trips

- SACMET
 - NHB = Work-Other, Other-Other
 - +/- 35% of all person trips
 - Mushy definition of purposes—includes:
 - “to work” portions of linked commute trips (WO)
 - “from work” portions of linked commute trips (WO)
 - Work-based trips between commutes
 - A mix of trips by workers, students and others with neither trip end at home
 - Fixed trip generation, gravity distribution, MNL MC
 - Person or household generating trips lost

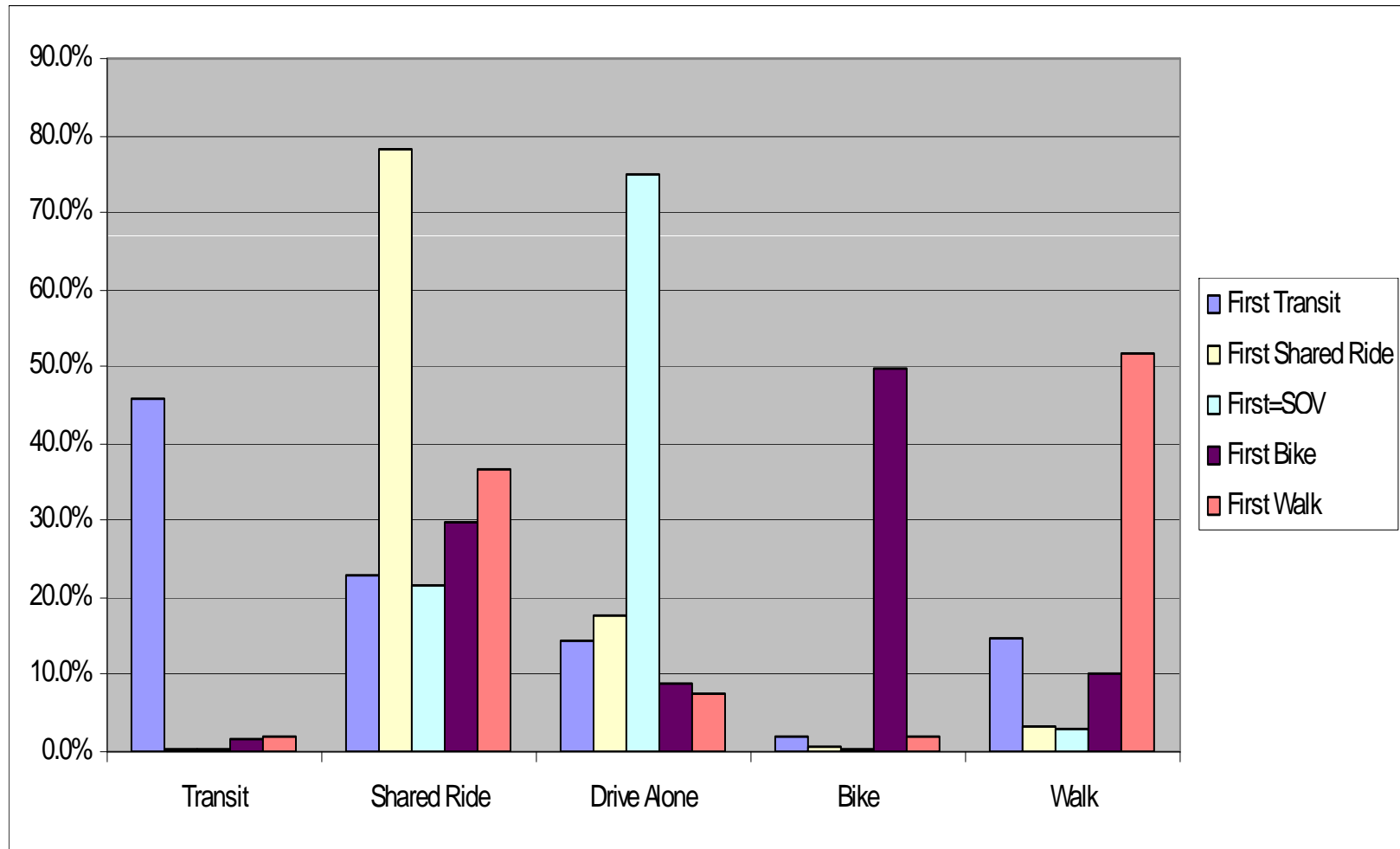
“NHB” Trips (cont’d)

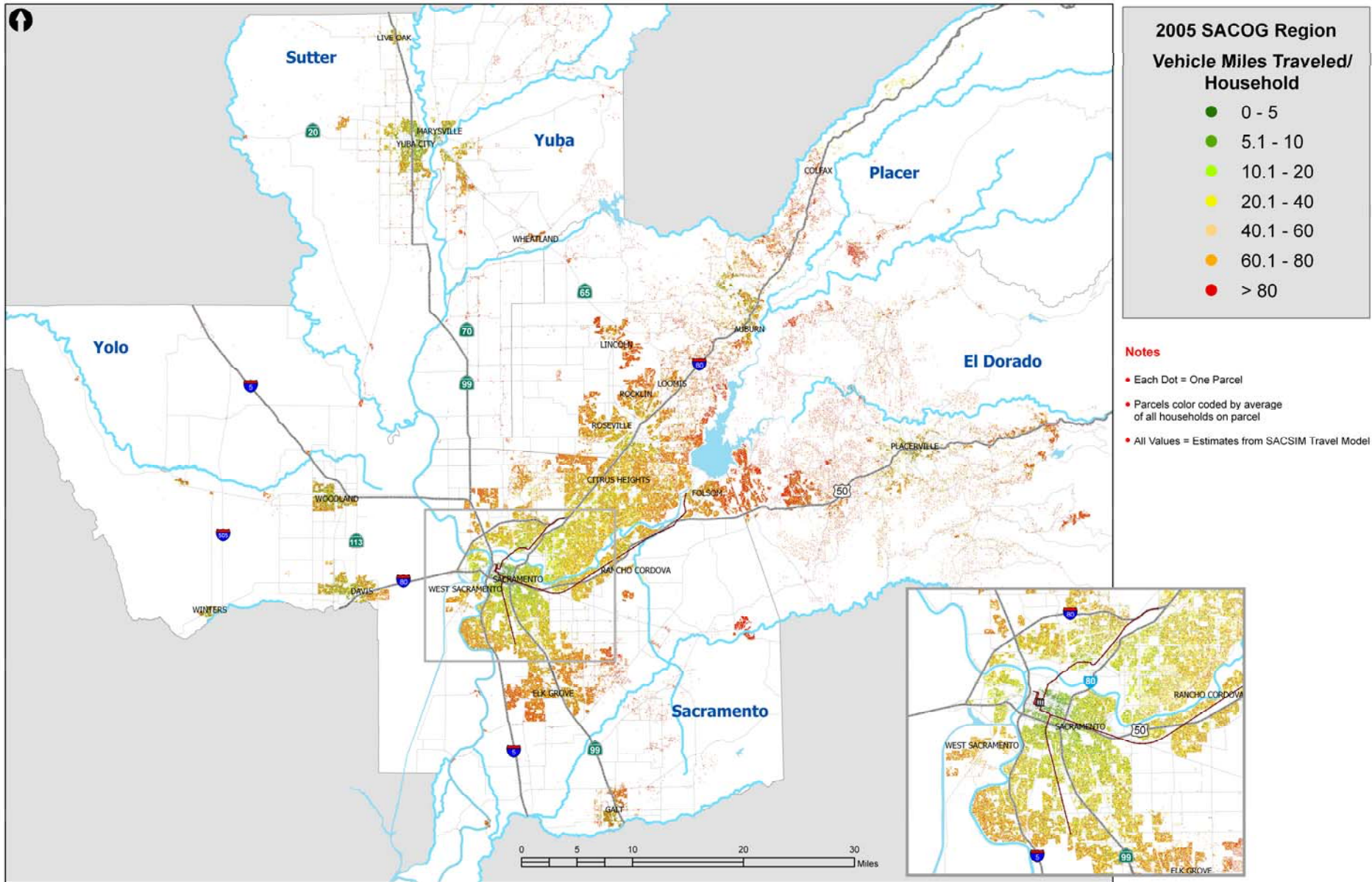
- SACSIM
 - All trips are part of tours which originate/end at home
 - “NHB” trips are artifacts of home-based tours or work-based sub-tours
 - Person and household generating trips known
 - Advantage: Can tally trips, VMT, etc. back to place of residence, place of work, etc.
 - First trip mode affects subsequent trip modes
 - e.g. if 1st=auto, auto available for subsequent
 - e.g. if 1st trip transit, subsequent trips more likely to be mixed (transit, walk, etc.)

Correspondence of “NHB” Between SACMET and SACSIM

Tour Purpose (SACSIM)	Trip Purpose (SACMET)						
	HB Work	HB School	HB Shop	HB Other	Work-Other	Other Other	Total
Work	73%	0%	2%	6%	17%	2%	100%
School	1%	73%	1%	9%	2%	14%	100%
Escort	0%	0%	1%	79%	10%	9%	100%
Pers. Business	0%	0%	3%	73%	7%	17%	100%
Shopping	0%	0%	60%	9%	10%	21%	100%
Meal	0%	0%	1%	69%	21%	8%	100%
Social/Recreational	0%	0%	2%	80%	6%	12%	100%

Mode of All “Next” Trips, Based on Mode of First Trip...





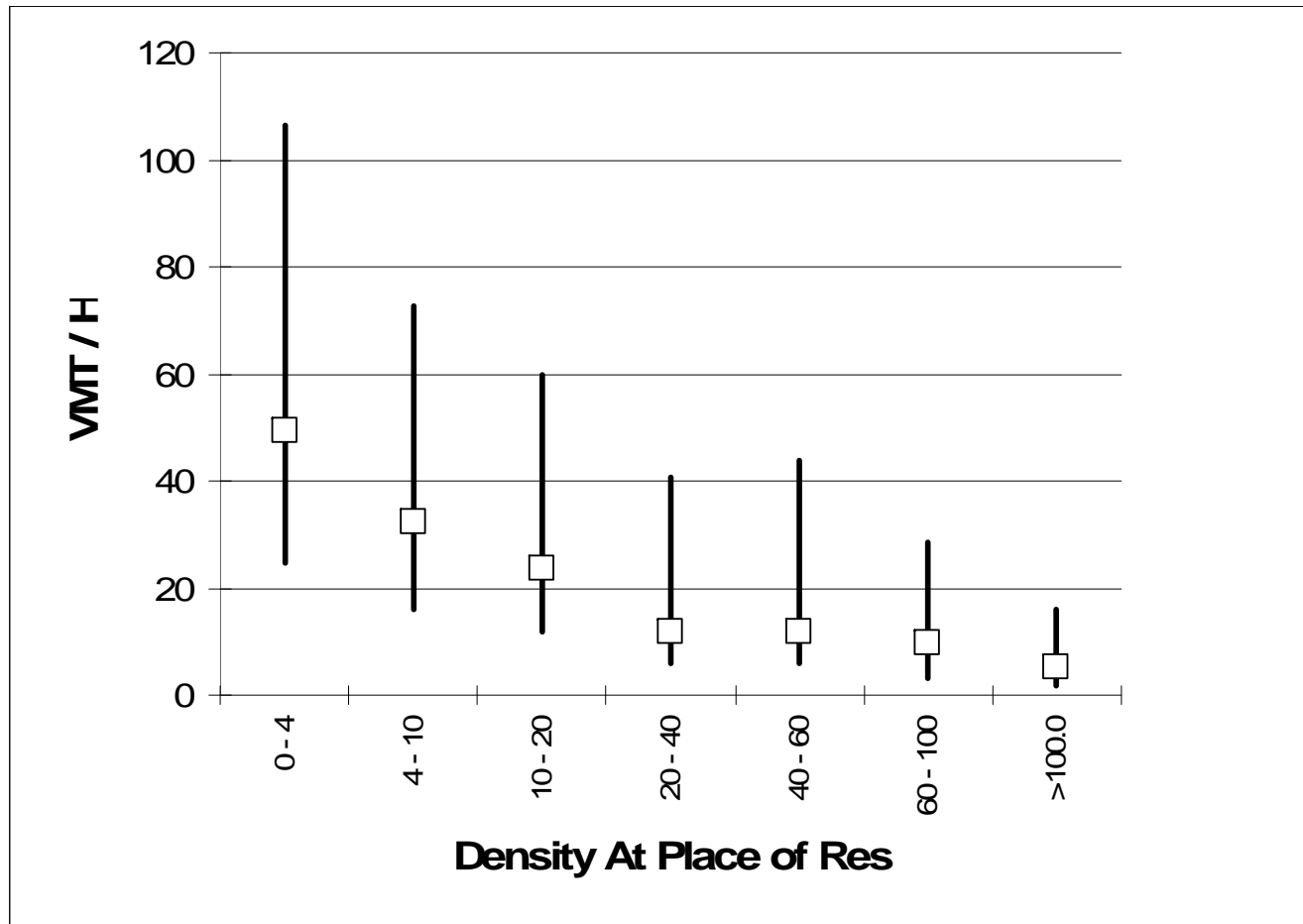
Representing Demographics

- SACMET
 - Households cross-classified: persons x workers x income class (65 cells)
 - Other key variables not directly represented
 - Age
 - Gender
 - Person type (student, non-working adult, etc.)

Demographics (cont'd)

- SACSIM
 - Synthetic Population
 - Control Variables:
 - Persons, workers, income distribution by TAZ
 - Age
 - University Students
 - Other Variables Included
 - Gender
 - Person Type (FT vs. PT worker, student status, etc)

VMT / Household by Density at Place of Residence



By Income Class

