CAMBRIDGE SYSTEMATICS

UPDATING NHTS WITH ACS DATA

TO PROVIDE ANNUAL TRAVEL BEHAVIOR DATA FOR TRANSPORTATION DECISION-MAKING

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Motivation

Understanding of travel behavior shifts and trends is limited by the available data!

Capturing recent demographic, behavioral, and technological trends would require more frequent data than NHTS cycles!

Interpolate NHTS data for those time periods where only ACS data are available.

Approach

Literature Review

Data Sources

Determine Travel Behavior Indicators for Interpolation

Model Development

Compile 2009 NHTS and 2009 ACS Data

Segment Population

Estimate Models

Validation

Backcast to 2001

Use 2000 Census PUMS

Predict Travel Behavior Indicators

Recommendations

Short Term

Long Term

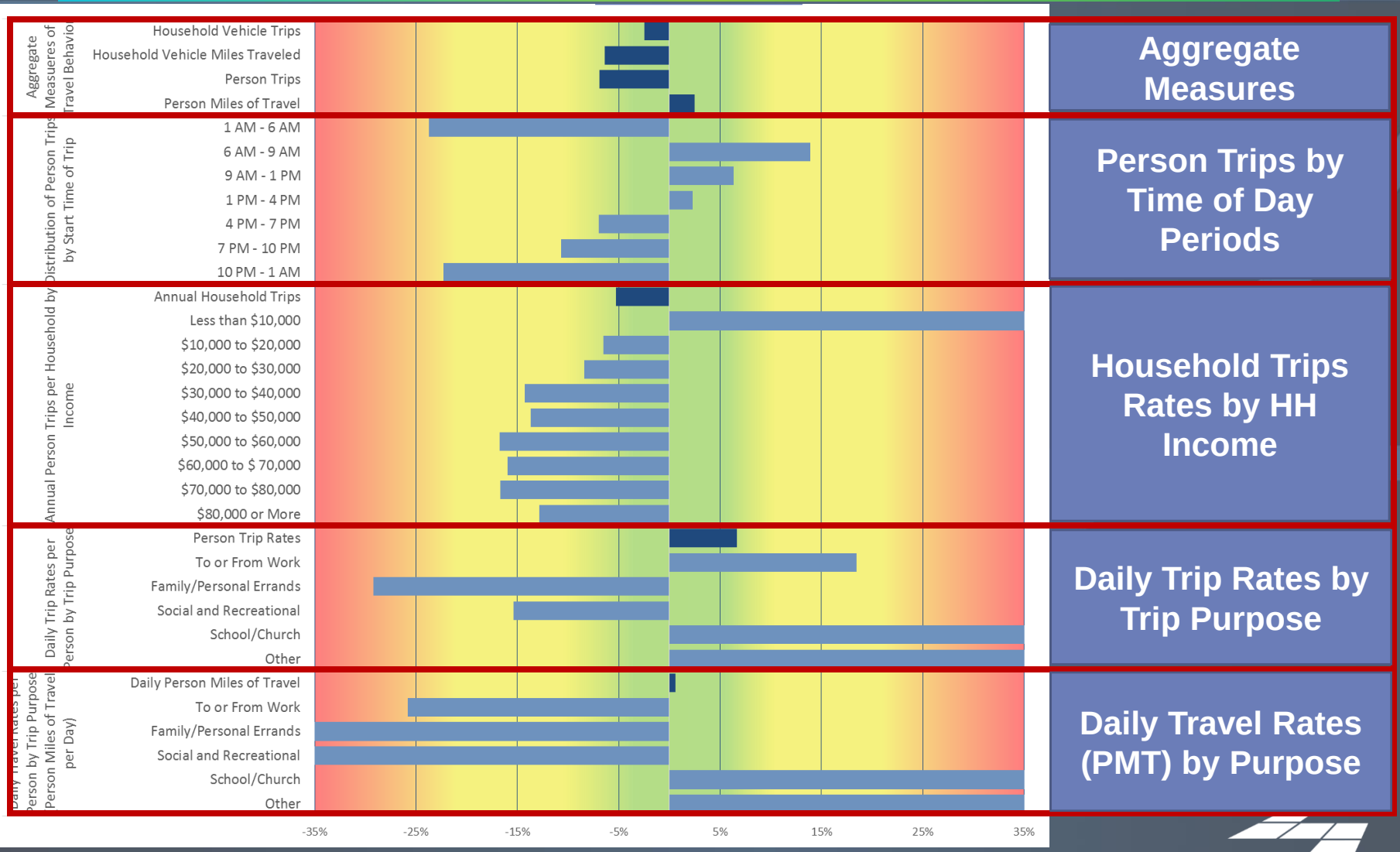
Model Development

- To predict number of household and person trips, and amount of person and vehicle travel, linear regression models were developed.
- To predict travel behavior for different portions of the population, the models for the entire population were fully segmented.
- To predict departure times, multinomial logit models were estimated.
- Independent variables with significant explanatory power included the following:
  - HH size
  - Vehicles in the HH
  - Workers in the HH
  - Household income
  - Gender
  - Age (65+)
  - Education
  - Employment status
  - Retired HH member
  - Licensed driver
  - Population density
  - Urban/rural
  - Availability of heavy rail

Validation

Input	**Prepare Demographic Profiles using 2000 PUMS data**
Model	**Apply Models to Backcast Travel Behavior Measures to 2001**
Predict	**Compare Predictions to 2001 NHTS Estimates**

Results



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Recommendations

Short Term

- **Removing outliers in the comparison NHTS dataset.**
- **Test models by inputting comparison NHTS demographics.**
- **Test the revised models with the 2016 NHTS data**

Long Term

- **Synthesize population for more accurate joint distributions.**
- **Segment the analysis to explore and incorporate causal relationships between life cycle, life style and travel.**