Proposed Parking Cost Model for Automobile Modes

Presented to the Travel Forecasting Subcommittee on
July 23, 2010

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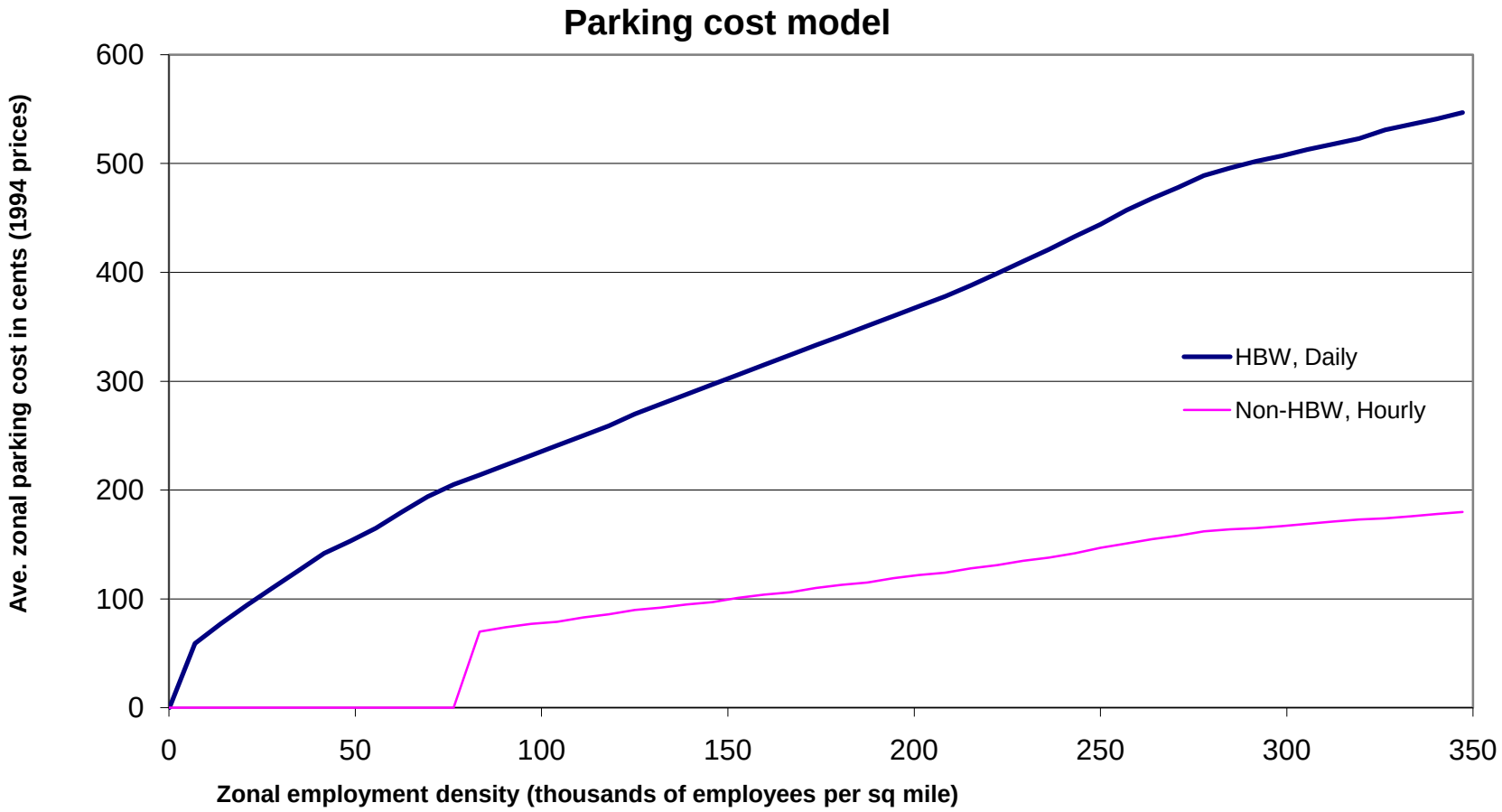
Background

- Parking cost is a part of the generalized cost used in mode choice modeling
- Parking cost is an important policy variable
- Currently used parking cost model:
  - is a function of zonal employment density
  - was developed a long time ago and is in need of an update
- This presentation will focus only on the parking cost for trips where the primary mode is auto

Current Parking Cost Model



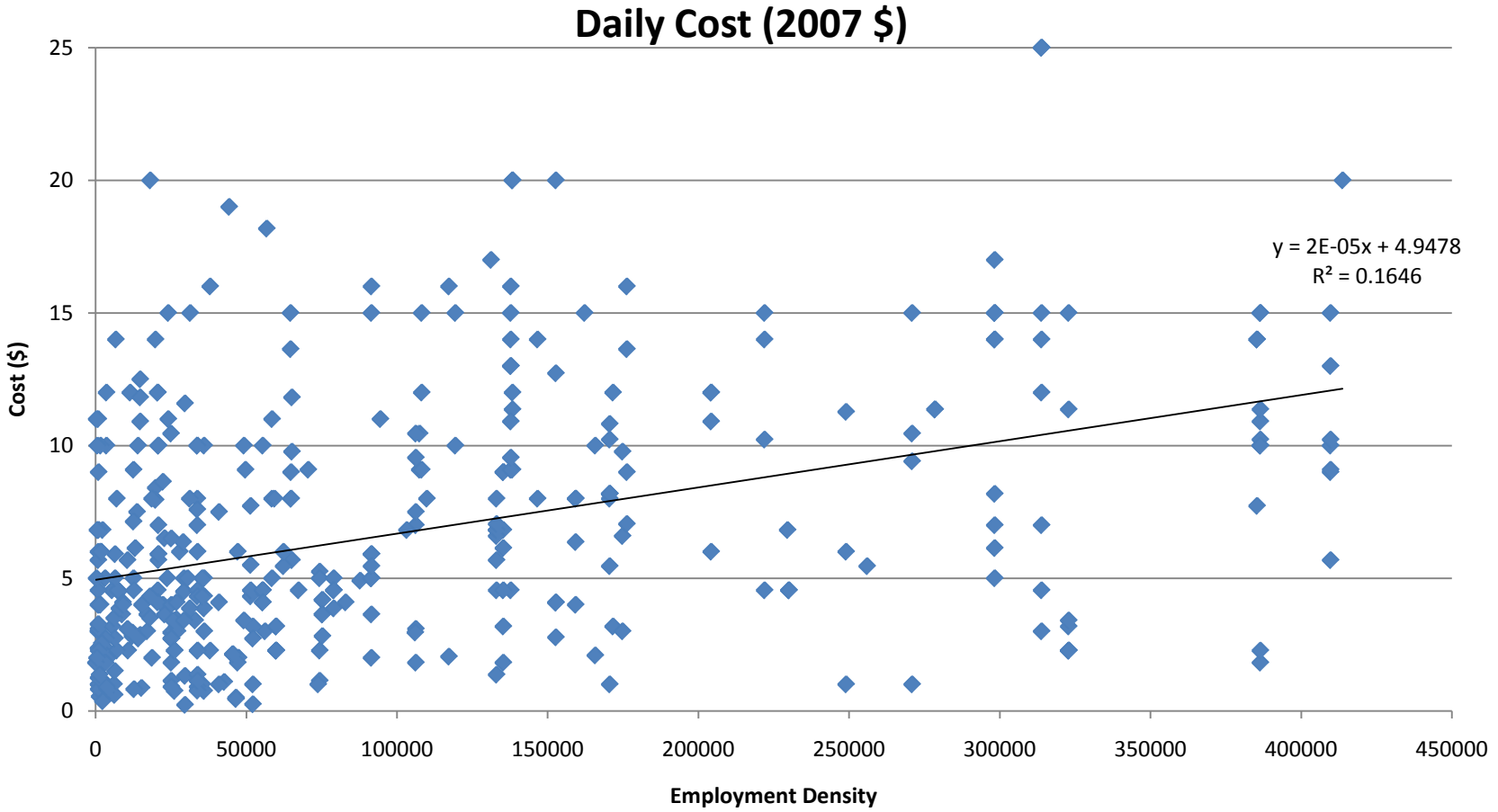
Data

- 2007 Household Travel Survey can be a viable source of data for calibrating a new parking cost model
  - Many MPOs use their HTS data to develop parking cost models
- Questions in the HTS included:
  - Was there a parking cost imposed?
  - If yes, what was the parking cost?
  - Who incurred the cost (driver, employer, etc.)?
- There were 1,200 trips where a parking cost was incurred
  - These included 1,000 trips with primary mode being auto

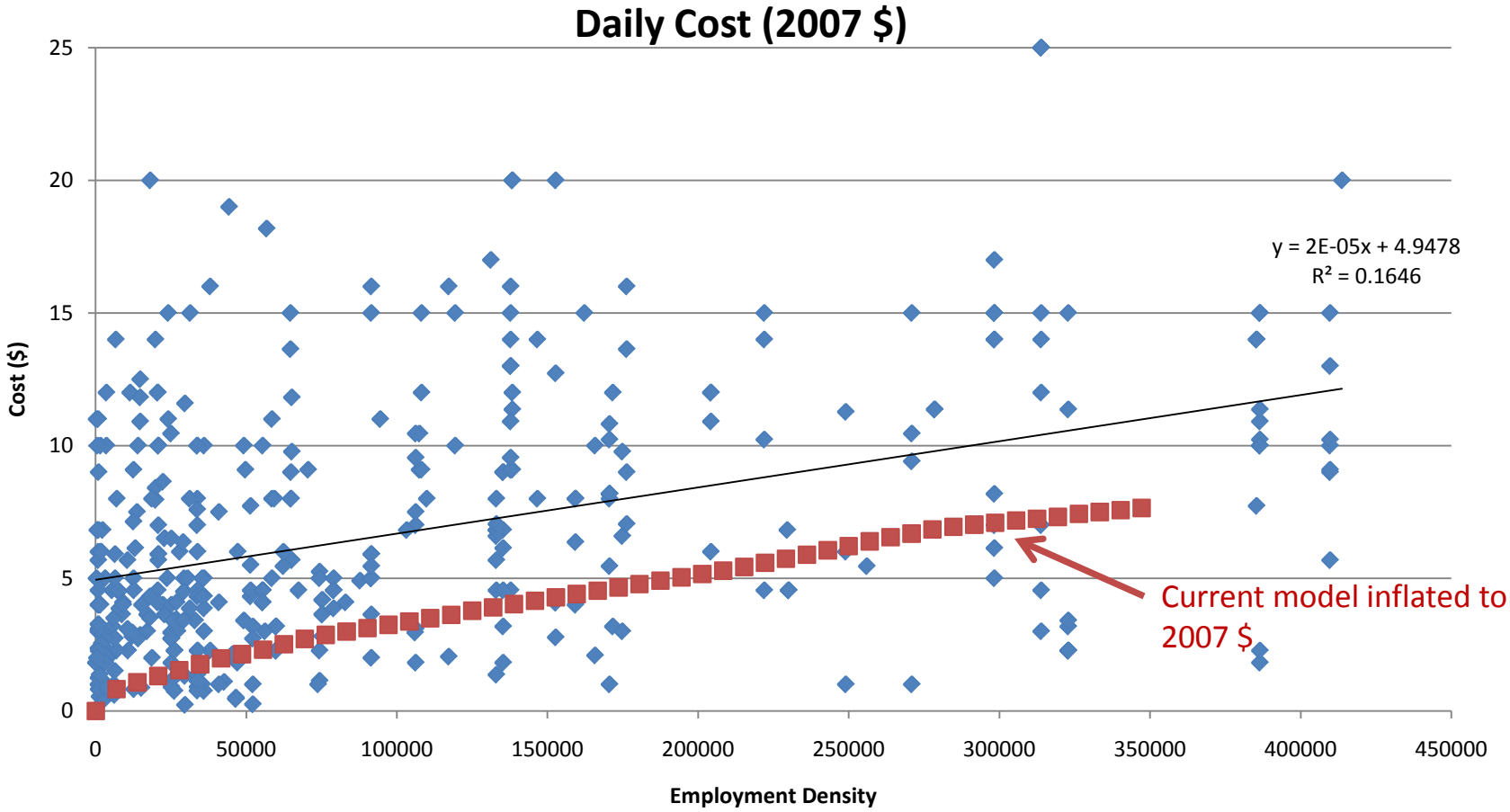
Data Cont'd

- Trips that included a parking cost, were split into work-based (HBW, NHW) and non-work-based (HBS, HBO, NHO)
- Work-based trips were used to calculate daily parking cost, while the non-work trips were used to calculate hourly cost

Observed Daily Parking Cost Data



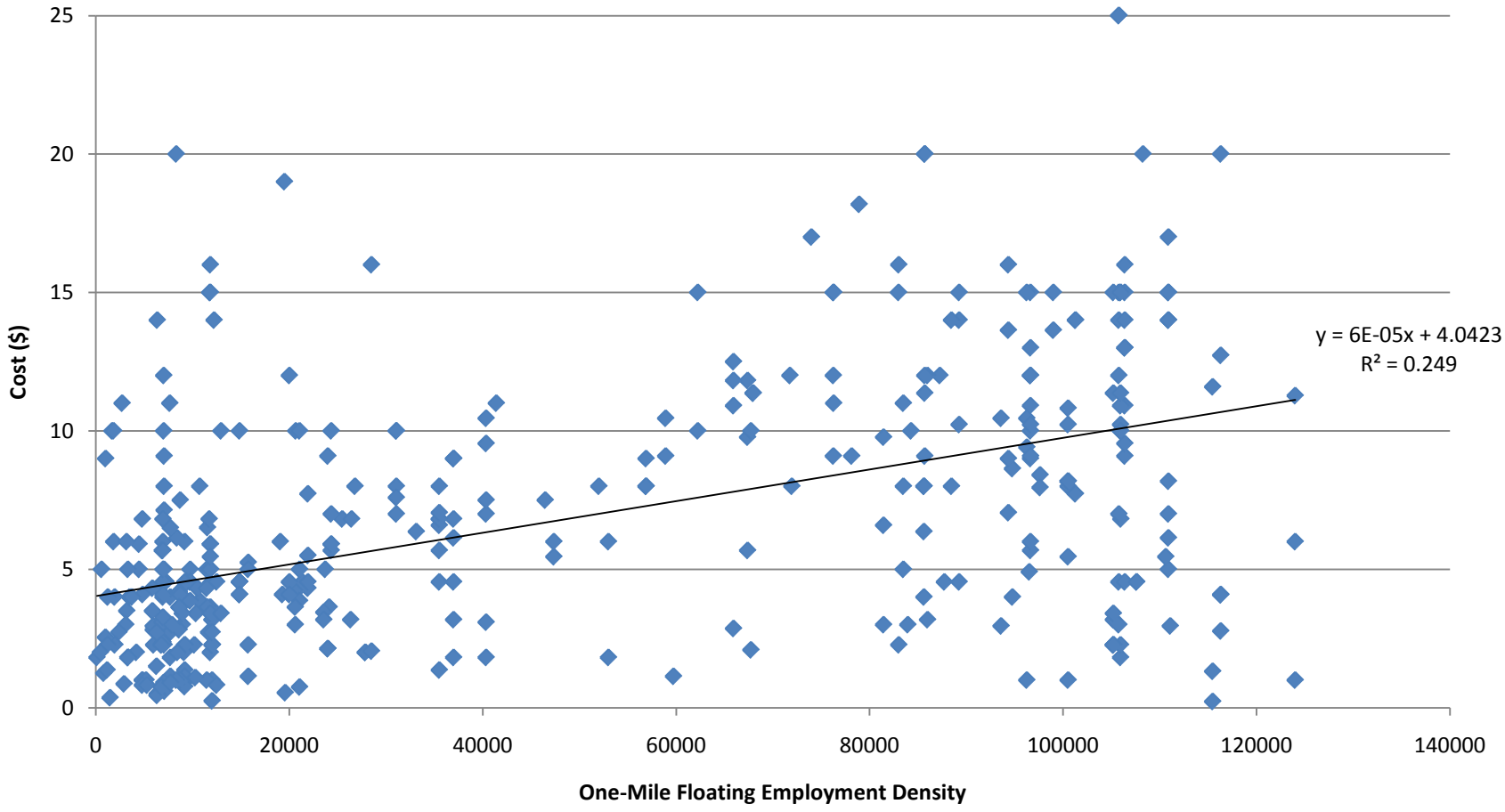
Observed Daily Parking Cost Data



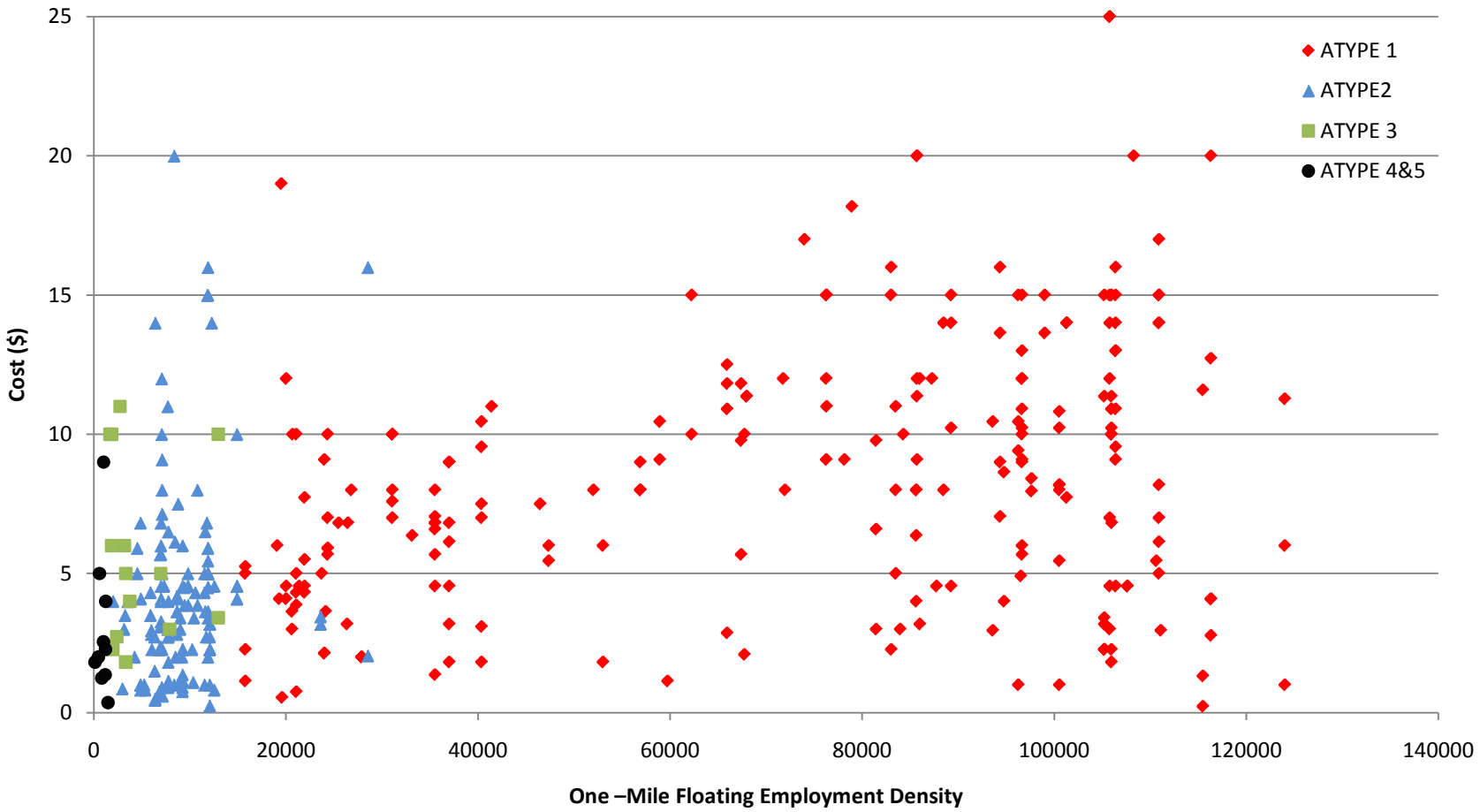
Observed Data

- Current model appears to underestimate the parking cost
  - Possible cause: property prices have risen faster than the inflation rate
  - Assumption parking cost= f(land values)
- The relationship between parking cost and zonal employment density appears to be somewhat weak
  - May want to try floating density
- Issue of not including trips that parked for free, that may be leading to biased results
  - Look at parking costs by area type

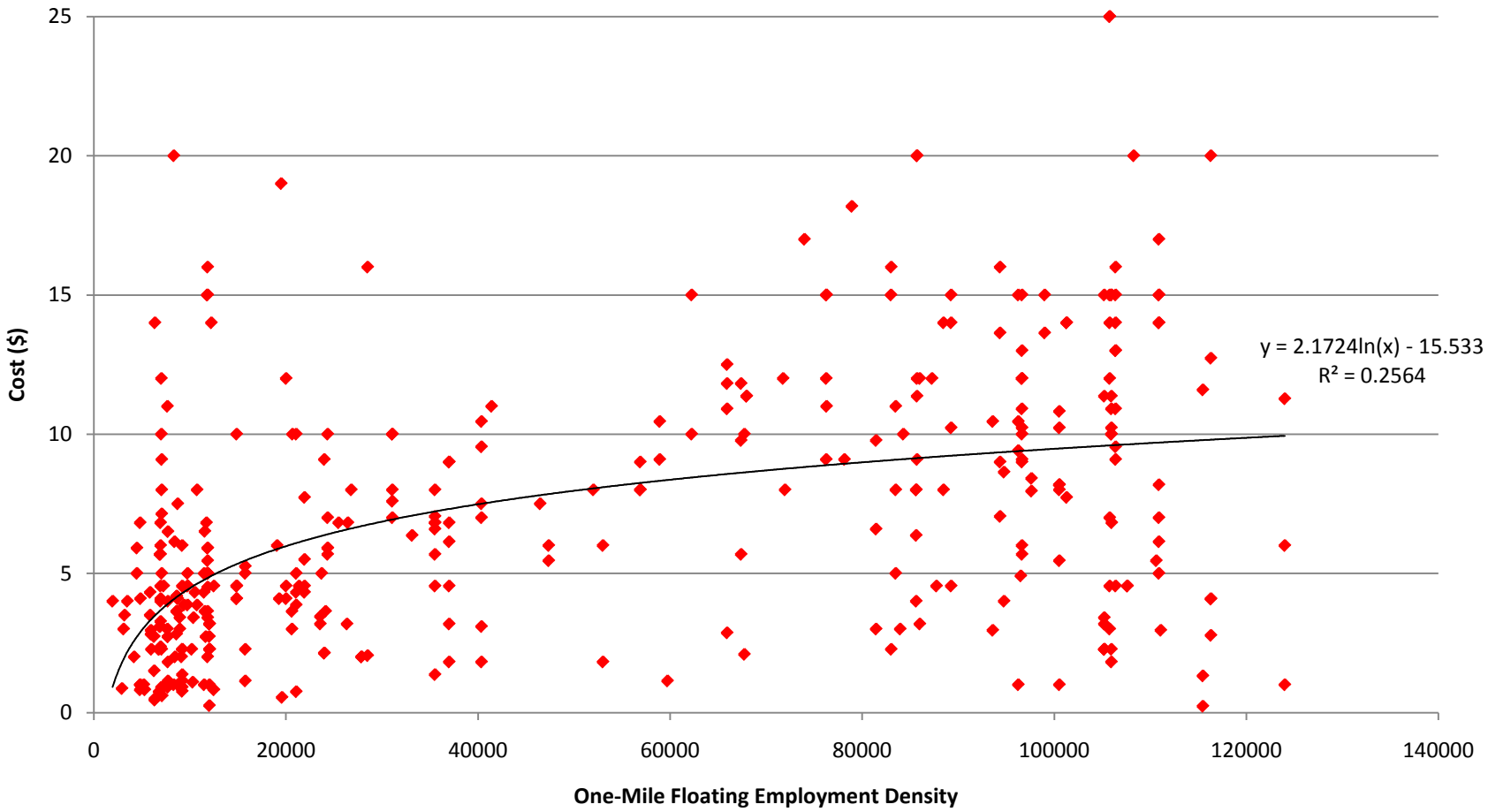
Parking Cost vs. Floating Employment Density



Parking Cost by Area Type



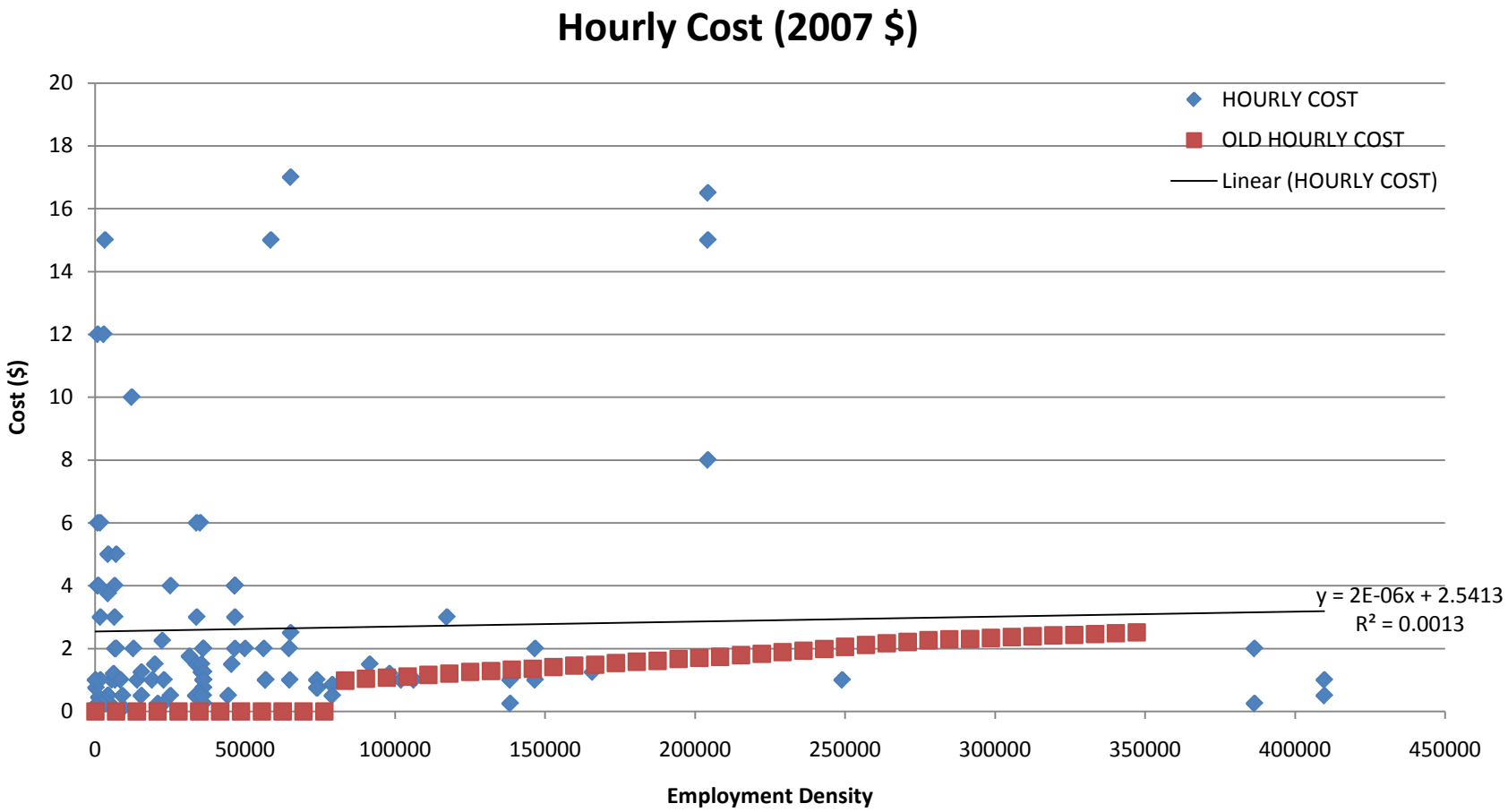
Daily Parking Cost Model



Daily Parking Cost Model

- The estimated model will be applied to calculate parking costs for area types 1, 2, and 3.
- Most locations that fall into area types 4+ do not have a parking cost imposed and thus will be assumed to be free of charge.

Hourly Parking Cost Observed Data



Hourly Parking Cost Model

- Insufficient hourly parking cost data for model estimation
- Set hourly parking cost based on prevalent parking meter rates

Area Type	Rate per Hour
1	$2.00
2	$1.00
3	$0.25
4+	$0.00

Summary

- Parking cost model used in mode choice was updated using data from the 2007/2008 HTS
- Daily parking cost model is a logarithmic function for area types 1, 2, and 3
- Parking cost for area types higher than 3 is assumed to be $0
- Hourly parking costs vary from $0-$2.00 based on area type
- Represents an improvement over existing density-based model that has not been revisited for many years