Transit-Oriented Development and Commute Mode in Portland

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What's Transit Oriented Development?

- High density
- Land use mix
- Pedestrian friendliness
- Closeness to transit

TODs in Portland

- Orenco Station
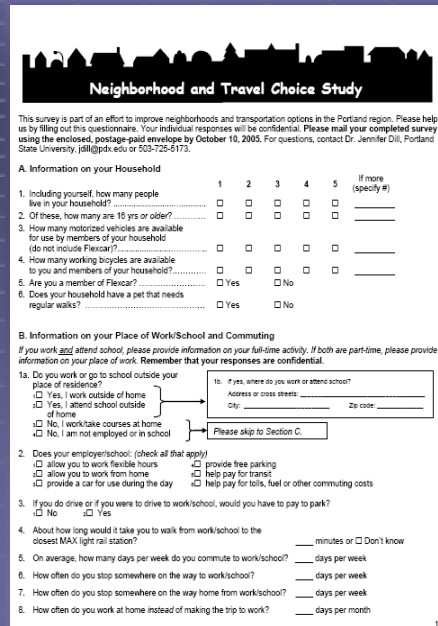- Beaverton Round
- Elmonica/SW 170th Ave

Research Questions

- Do residents of TOD commute to work by MAX?
- Do they over or underestimate the walking distance to the nearest MAX station?
- If so, does that influence their commute mode?
- What are other factors that influence their commute mode choice?

Survey

- Neighborhood and Travel Choice Study
- Conducted on Mar & Oct 2005
- Reponses rate = 28%

Neighborhood and Travel Choice Study

This survey is part of an effort to improve neighborhoods and transportation options in the Portland region. Please help us by filling out this questionnaire. Your individual responses will be confidential. **Please mail your completed survey using the enclosed, postage-paid envelope by October 10, 2005.** For questions, contact Dr. Jennifer Dill, Portland State University, jdill@pdx.edu or 503-725-5173.

A. Information on your Household

Survey Results

Respondents who answered…
- Worksite address
- Estimated walking time from work/school to the closest MAX station

Sample size: 106

3 components of the analysis

1. Calculated the network distance to the closest station from worksite

2. Calculated difference between
    - Estimated walking time
    - Calculated walking time using GIS

3. Regression analysis to identify factors

Methodology

Step 1   Geocoding work addresses
1. Valid work addresses (70%)
2. Intersections (30%)
    a. Nearest taxlots
    b. Intersections

Step 2   Taxlots vs. Intersections
- Intersection – Digitized
- Taxlots – NEAR function
- Calculated the network distance to nearest station
- Calculated the difference

Step 2   Result

- Sample size   36
- Average length difference   212 ft
- Median length difference   134 ft
- Difference > 1,000 ft   4

Taxlots vs. Intersection

Added 1106 ft

Added: 1087 ft

Added 1227 ft

Reduced 521 ft

0   500 1,000   2,000 Feet

Work Locations

- Beaverton Central MAX Station
- Elmonica/SW 170th Ave MAX Station
- Orenco/NW 231st Ave MAX Station
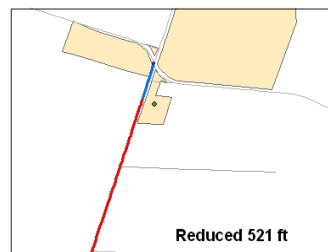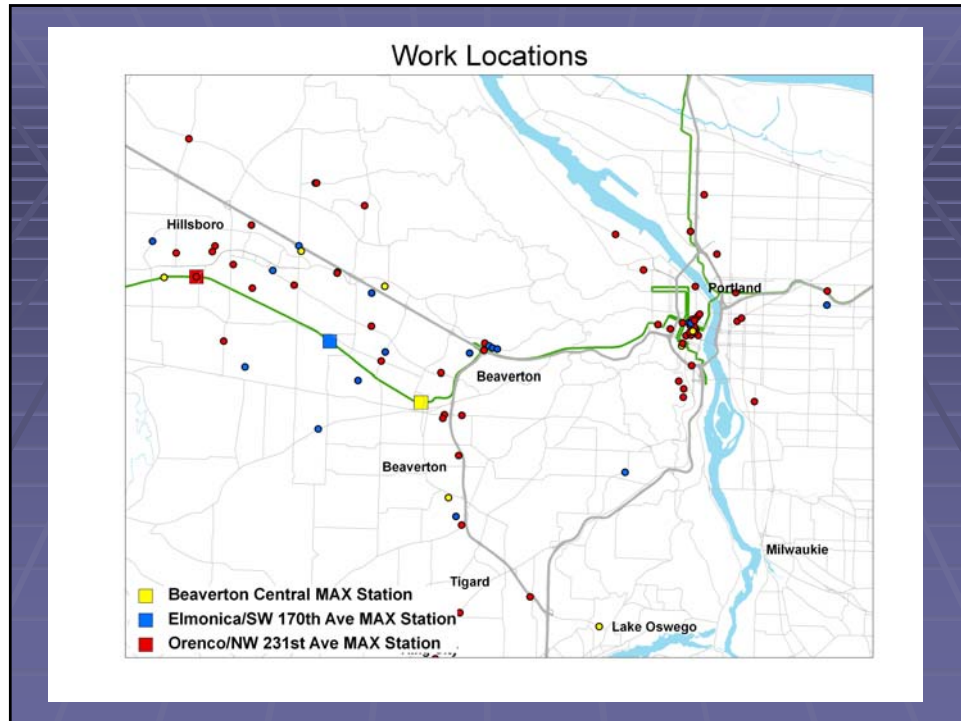
Step 3   Network Distance
- From worksite to the closest MAX station

Step 4   Convert length into time
- Walking speed = 3.16 ft/sec

Step 5   Calculate difference in estimated and calculated walking times

Walking time differences

Time difference	N
30+ min overestimated	0
15 – 30 min overestimated	16
5 – 15 min overestimated	18
Same	37
5 – 15 min underestimated	6
15 – 30 min underestimated	1
30+ min underestimated	19

Calculated walking time - Estimated walking time

Difference in walking time
- 30 min. or more
- 16 - 30 min underestimated
- 6 - 15 min underestimated
- +- 5 min.
- 6 - 15 overestimated
- 16 - 30 overestimated
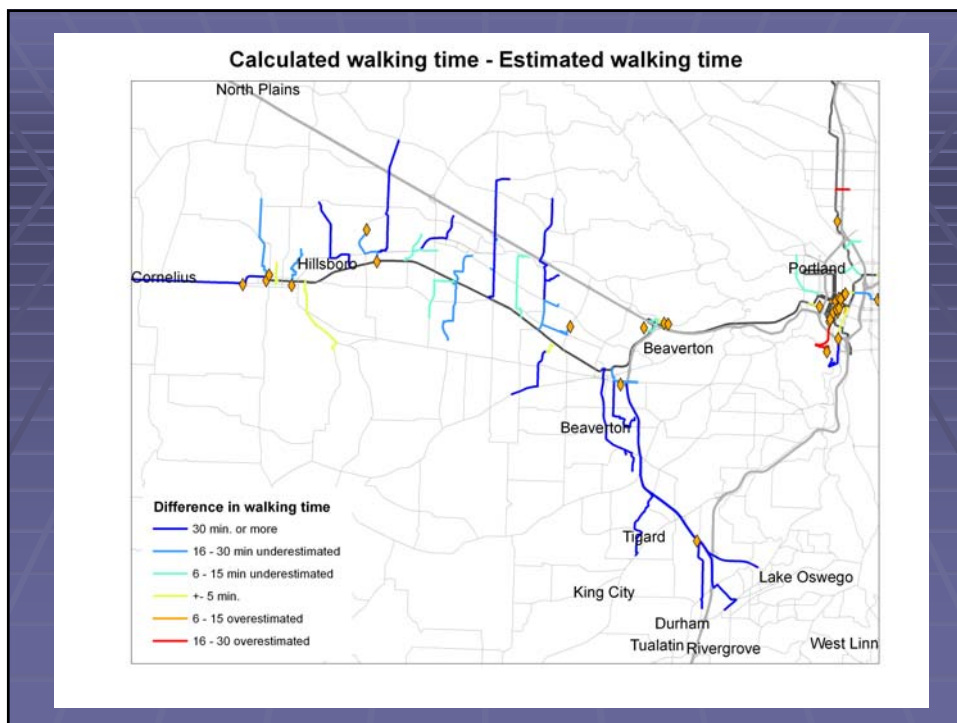
Calculated walking time - Estimated walking time
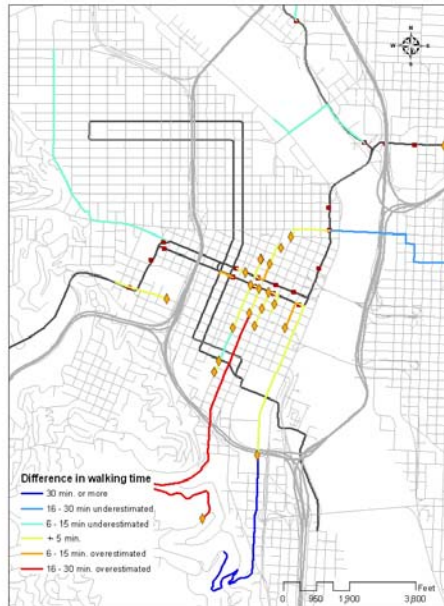
3. Commute Mode Choice

What factors influence people's commute mode choice?

Commute mode --- 2 days or more

Drive alone	60	57%
MAX	46	43%
Bus	4	4%
Walk	4	4%
Bike	1	1%

Binary Logistic Regression Model

Factors
- Difference in walking time
- Pay to park at worksite
- Employer help pay for transit
- Number of days they make stops on the way from work
- # of vehicles

Results

The probability of commuting by MAX increases…

Walking time difference	B	Probability
+ - 5min*	5.2	186
5 -15 min.*	3.8	36
15 – 30min	3.5	32
Over 30min	2.9	18

- * Statistically significant

Results

The probability of commuting by MAX decreases…

Factors	B	Probability
Employers pay for transit	-2.4	0.94
Pay to park	-2.8	.058
# of days to stop on the way	-1.1	.321
# of vehicle	-1.9	.144

They are all statistically significant

Limitation/Conclusion

- Small sample size
- Taxlots vs. Intersections
- Accurate walking time estimation because they actually walk
- No explanations for huge differences in walking time