

2007/08 Household Travel Survey Preliminary Trip Generation Analysis for the Region and at Activity Centers

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Acknowledgements

- Survey processing and analysis work
 - Hamid Humeida
 - Mary Martchouk

Background

- Review of 2007/08 HTS continues
- HTS will serve as the “backbone” of the Version 2.3 development work
- December 17, 2009 HTS files (HH/Person/Trip) examined
- TPB has only scratched the surface of the survey; more summary work to do
- Focus of today’s presentation: Trip rates
 - Regional rates by socio-economic dimensions
 - Trip rates at activity center level trip rates
- What are we looking for?
 - Reasonability of trip rate magnitudes
 - Logical relationships between trip rates and socio-economic dimensions, location, or other travel metrics



Version 2.3 Background

- Trip purposes: HBW, HBS, HBO, NHB-Work-Related, and NHB-Nonwork-Related
- Trip generation rates for all purposes will reflect both motorized and non-motorized travel markets, but non-motorized travel component will be subsequently removed prior to distribution
- Two items are working in our favor:
 - A more detailed zone system
 - The sampling of households in “activity centers”, areas of concentrated development (either current or future)
- Research question: How do trip rates behave in the activity centers?



Regional Daily Trip Rates by Household Size and Purpose

HHSIZE	HBW	HBS	HBO	NHW	NHNW	Total
1	0.90	0.73	1.05	0.65	0.78	4.11
2	1.54	1.28	2.06	0.89	1.33	7.10
3	2.02	1.57	3.61	1.07	1.62	9.88
4+	2.17	2.03	6.49	1.05	2.08	13.83
Total	1.52	1.28	2.73	0.87	1.33	7.73

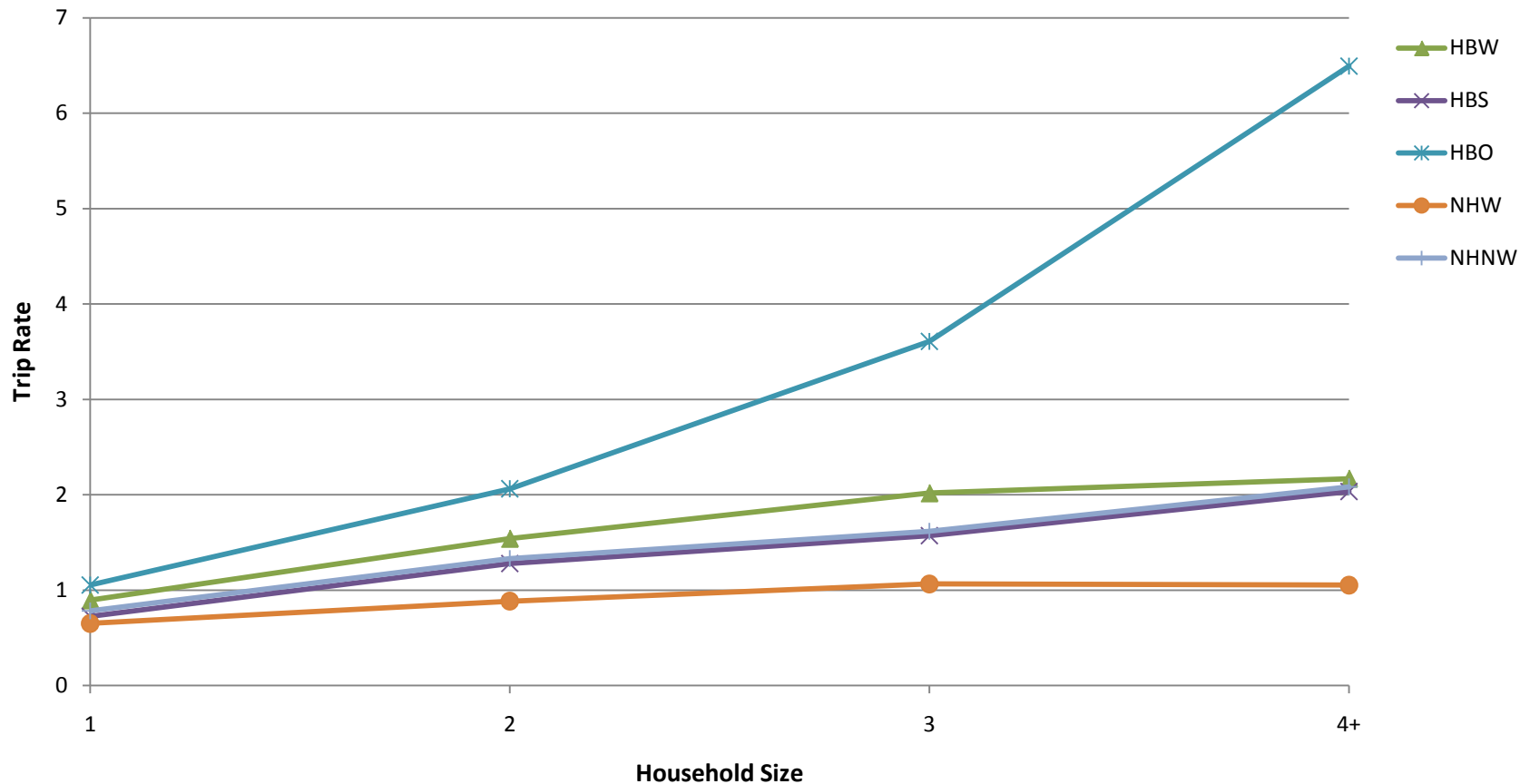
-Source: 2007/08 HTS

-Rates are based on unweighted, internal (I-I) trips

-Total trip rates include both motorized and non-motorized travel



Regional Daily Trip Rates by Household Size and Purpose



-Source: 2007/08 HTS

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-Total trip rates include both motorized and non-motorized travel



Regional Daily Trip Rates by Vehicles Owned and Purpose

HHVEH	HBW	HBS	HBO	NHW	NHNW	Total
0	0.87	0.86	1.27	0.60	0.71	4.31
1	1.12	0.97	1.81	0.76	1.05	5.71
2	1.68	1.46	3.39	0.91	1.51	8.96
3+	2.13	1.61	3.55	1.05	1.67	10.01
Total	1.52	1.28	2.73	0.87	1.33	7.73

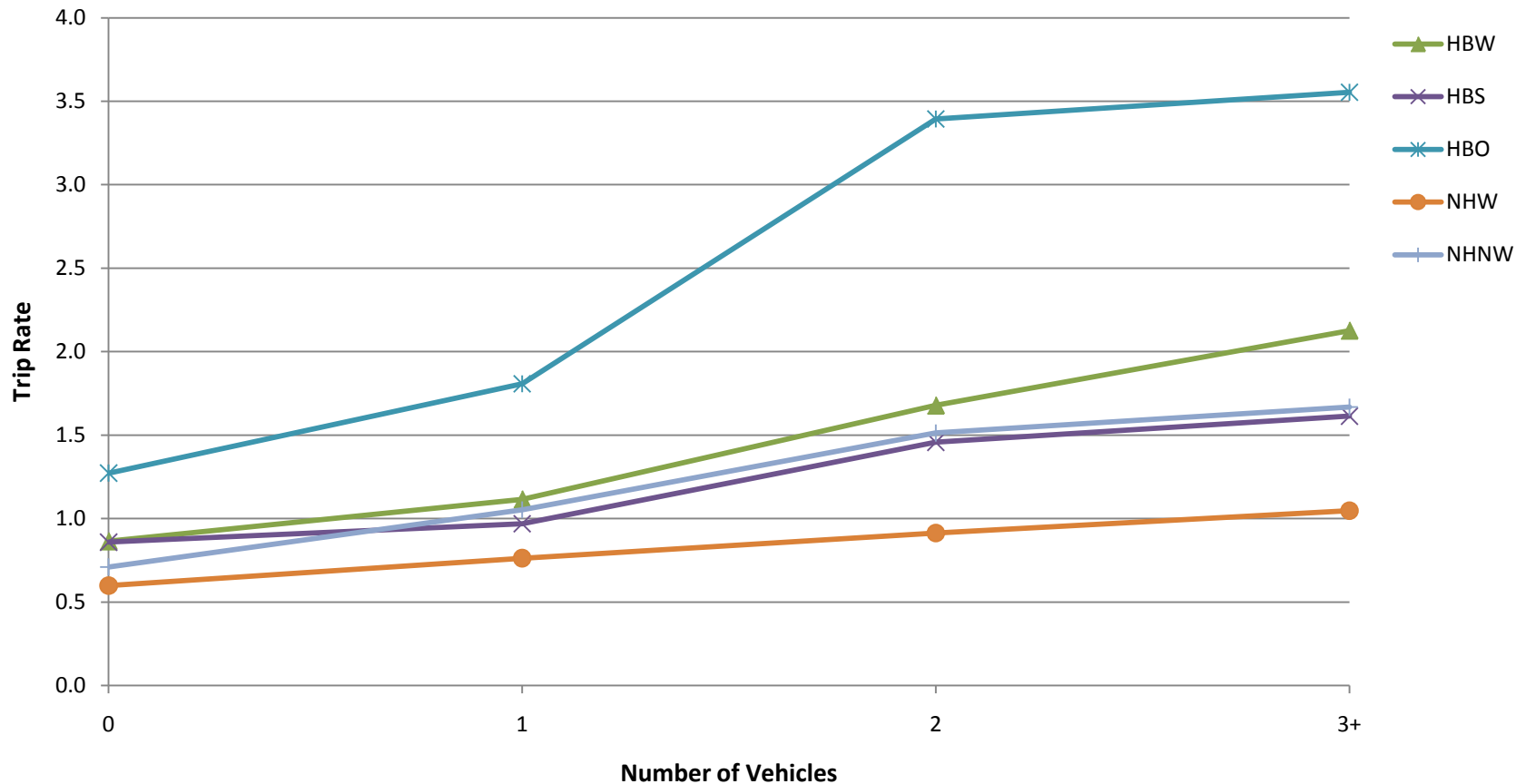
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Total Daily Trip Rates by Vehicles Owned and Purpose



-Source: 2007/08 HTS

-Rates are based on unweighted, internal (I-I) trips

-Total trip rates include both motorized and non-motorized travel

Total Daily Trip Rates by Household Income & Purpose

INCOME	HBW	HBS	HBO	NHW	NHNW	Total
Less than \$10,000	0.54	1.05	1.95	0.21	0.92	4.68
\$10,000 - \$14,999	0.43	0.99	1.92	0.15	1.10	4.59
\$15,000 - \$29,999	0.84	1.03	1.93	0.36	1.21	5.37
\$30,000 - \$39,999	1.07	1.11	1.88	0.44	1.13	5.63
\$40,000 - \$49,999	1.14	0.98	1.95	0.61	1.15	5.84
\$50,000 - \$59,999	1.28	1.17	2.17	0.71	1.32	6.65
\$60,000 - \$74,999	1.31	1.28	2.48	0.79	1.37	7.23
\$75,000 - \$99,999	1.57	1.30	2.87	0.87	1.33	7.94
\$100,000 - \$124,999	1.72	1.46	3.15	1.02	1.47	8.82
\$125,000 - \$149,999	1.89	1.43	3.33	1.17	1.46	9.28
\$150,000 - \$199,999	2.08	1.29	3.13	1.17	1.37	9.04
\$200,000 or more	1.98	1.41	3.56	1.27	1.29	9.50
Total	1.52	1.28	2.73	0.87	1.33	7.73

-Source: 2007/08 HTS

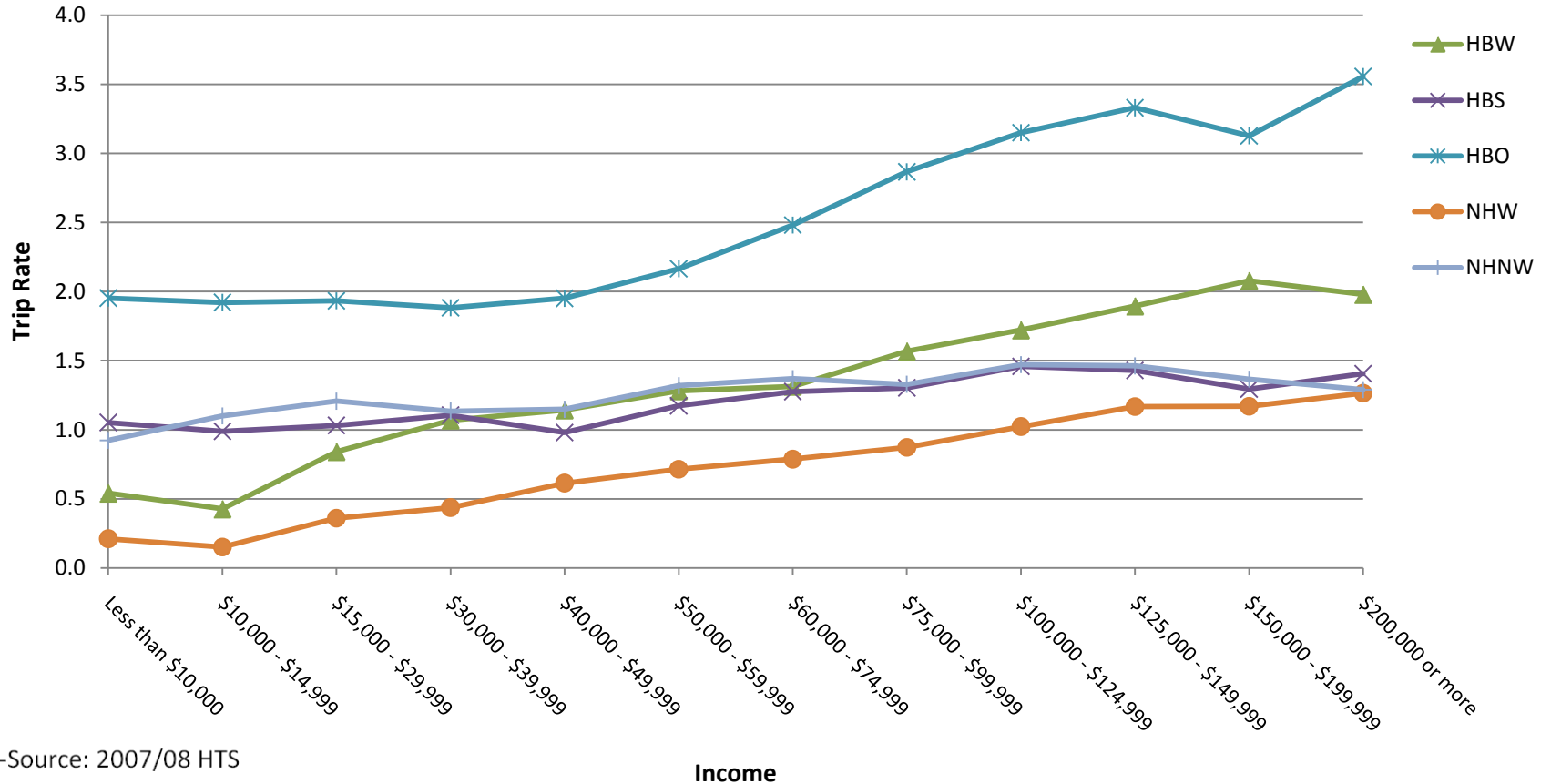
-Rates are based on unweighted, internal (I-I) trips

-Total trip rates include both motorized and non-motorized travel

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Total Daily Trip Rates by Household Income



-Source: 2007/08 HTS

-Rates are based on unweighted, internal (I-I) trips

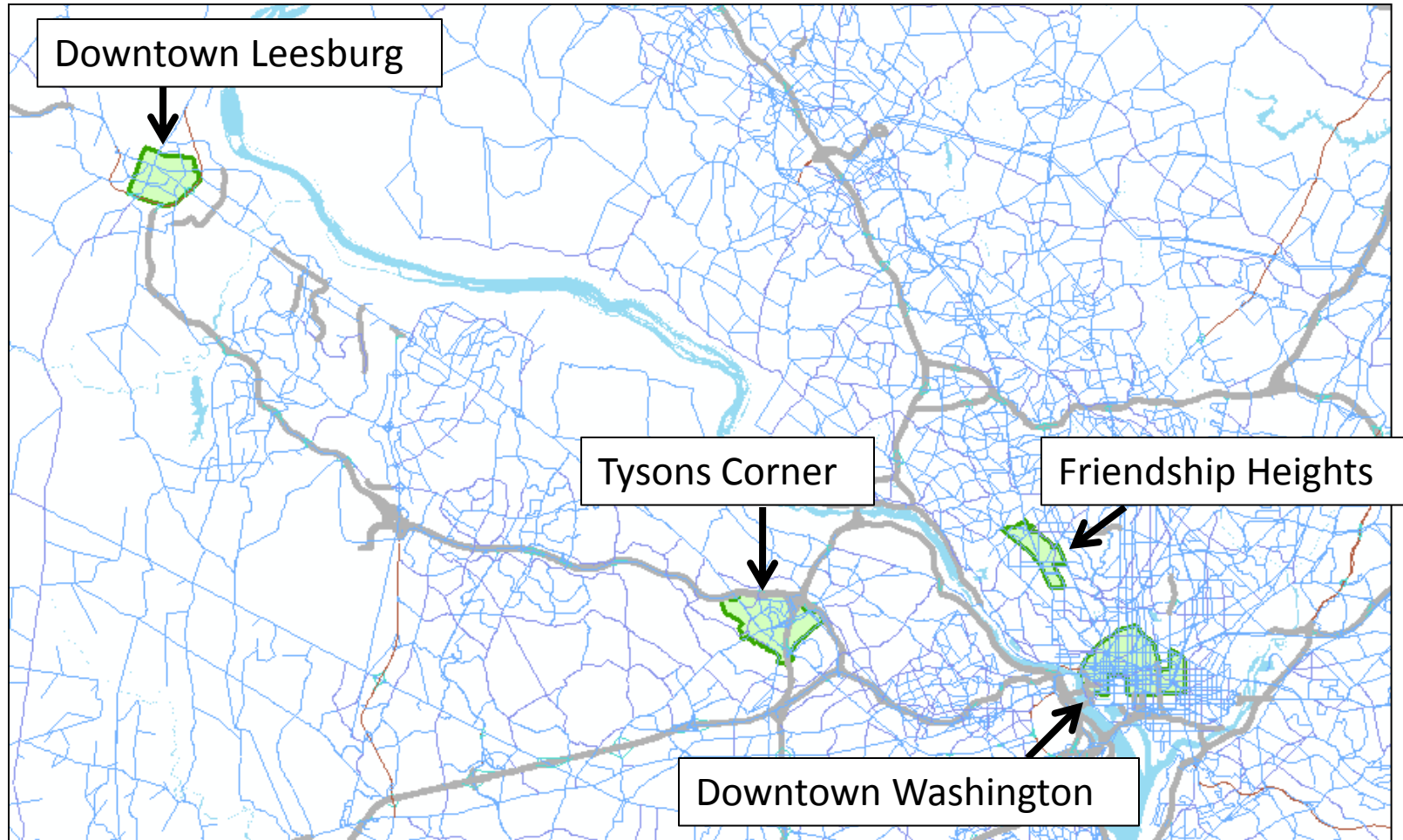


Activity Centers in TPB Modeled Area

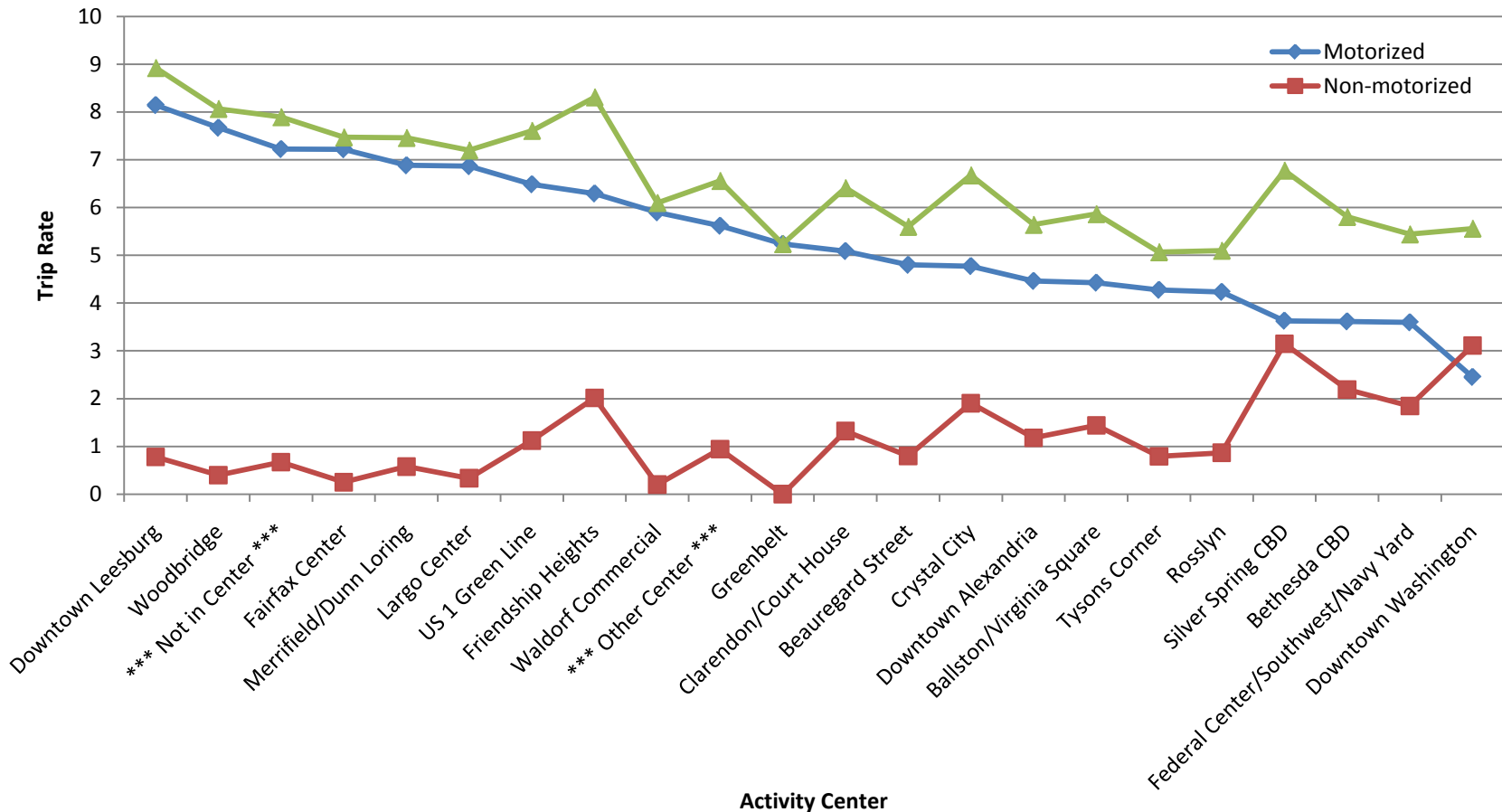
Activity Center	HHs Surveyed	Activity Center	HHs Surveyed	Activity Center	HHs Surveyed
Downtown Washington	226	Herndon	7	North Frederick Avenue	18
Federal Center/Southwest	52	Merrifield/Dunn Loring	26	Rockville Town Center	13
Georgetown	7	Reston West	10	Shady Grove/King Farm	14
Monumental Core	5	Tysons Corner	29	White Oak	9
New York Avenue	9	National Institutes of Health	2	US 1 Green Line	41
Eisenhower Avenue	13	Beauregard Street	50	Greenbelt	25
Downtown Alexandria	67	Waldorf Commercial	20	New Carrollton	1
Ballston/Virginia Square	75	Beltway South	1	US 1	1
Clarendon/Court House	56	Dulles Corner	8	Konterra	2
Crystal City	31	Dulles East	2	Potomac Mills	1
Pentagon City	19	Dulles West	3	Airport/Monocacy Blvd.	4
Rosslyn	30	Fairfax Center	36	Route 28 North	7
Friendship Heights	61	Springfield	3	Largo Center	30
Bailey's Crossroads/Skyline	15	City of Fairfax-GMU	3	National Harbor	1
Bethesda CBD	26	Md. 85/355 Evergreen Pt.	4	Bull Run - Sudley Area	16
Silver Spring CBD	27	Downtown Leesburg	27	Gainesville	3
White Flint	2	Corporate Dulles	4	Woodbridge	58
Twinbrook	2	Germantown	1	Not in Center	9416



Selected Activity Center Examples



Motorized & Non-Motorized Trip Production Rates at Selected Activity Centers*

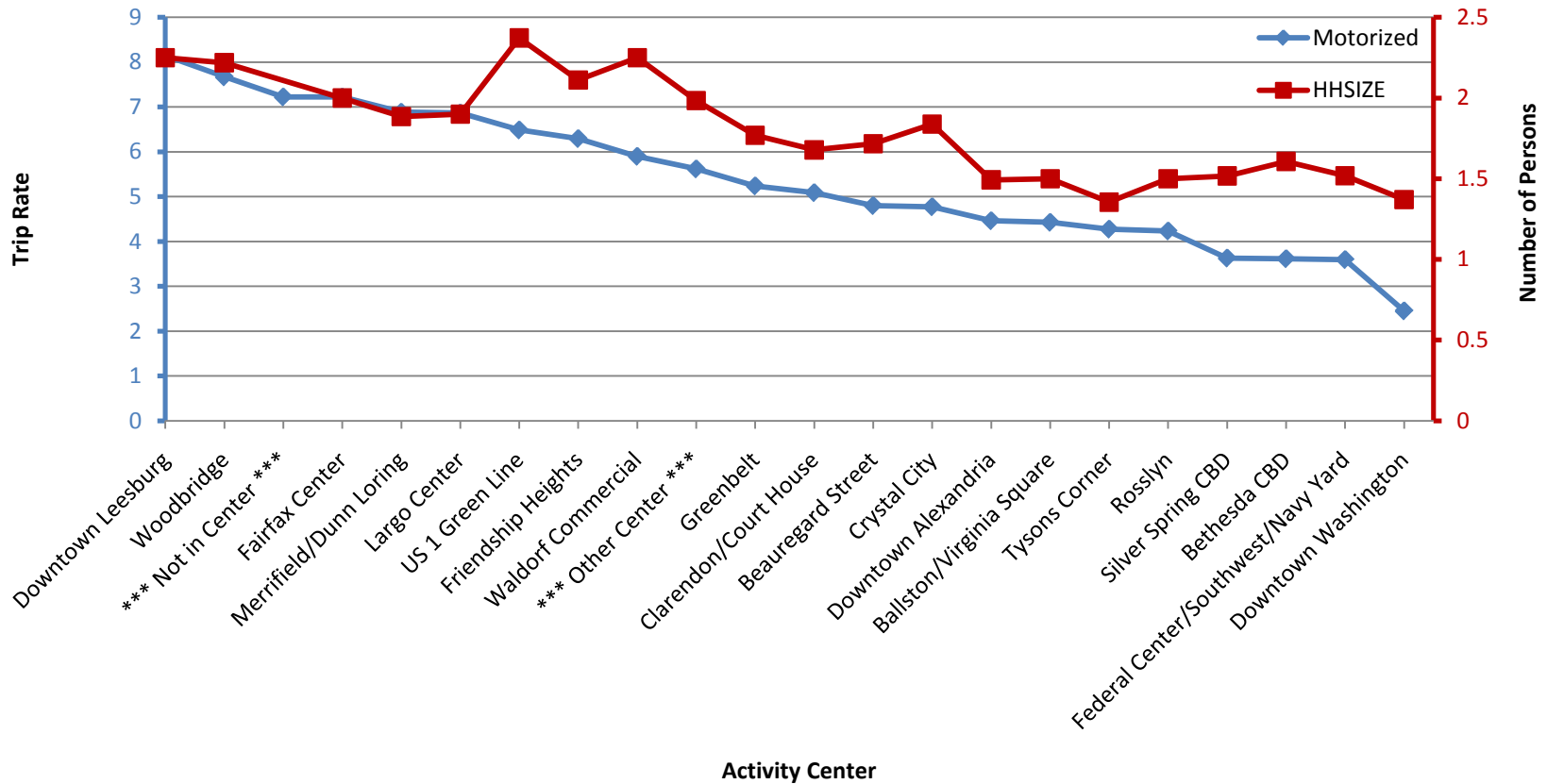


*activity centers with substantial HH samples (> 20) were selected for the analysis

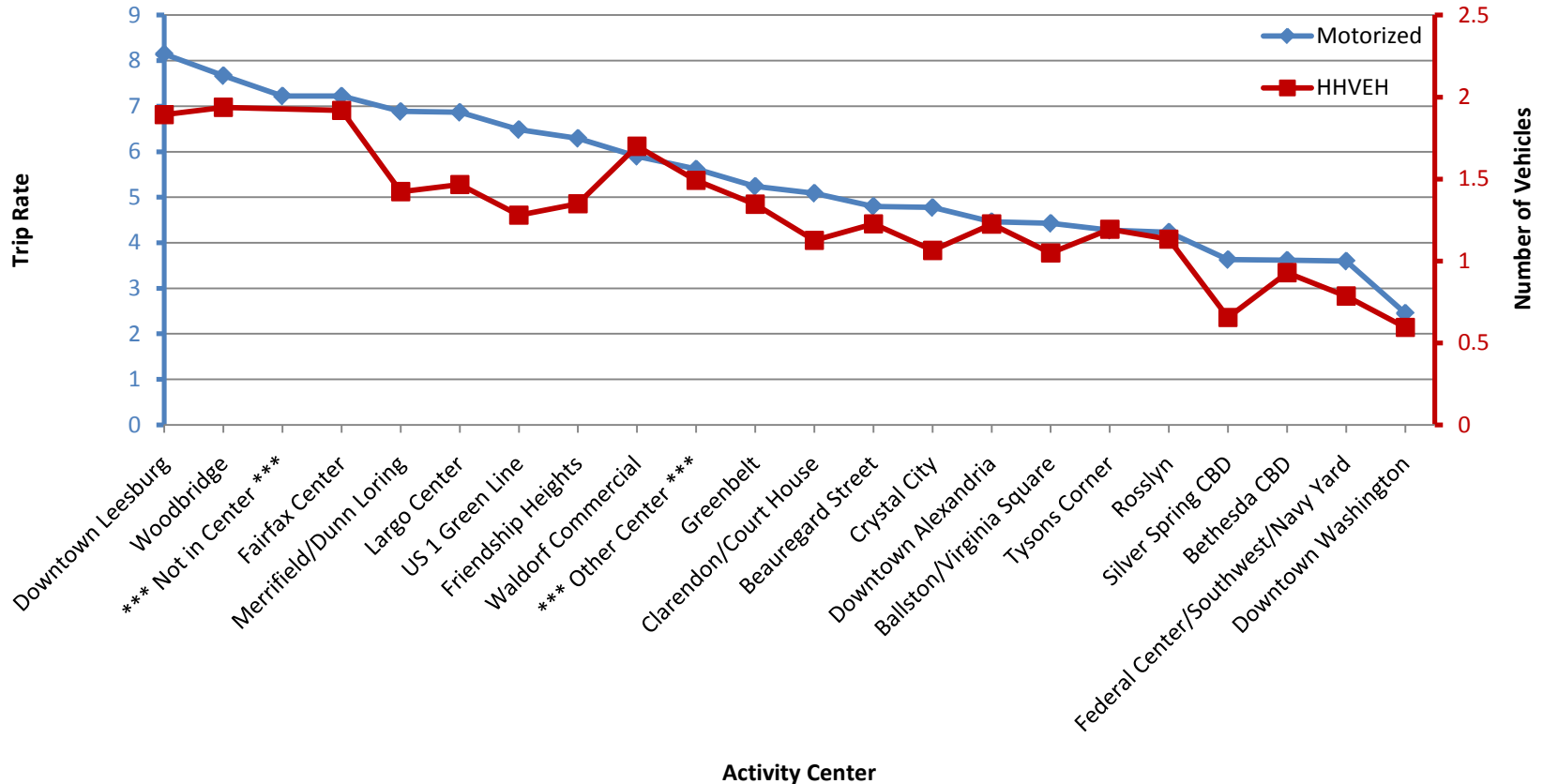
Note: "Not in Center" = not in activity center; "Other Center" = combination of activity centers that had fewer than 20 HH samples per center.



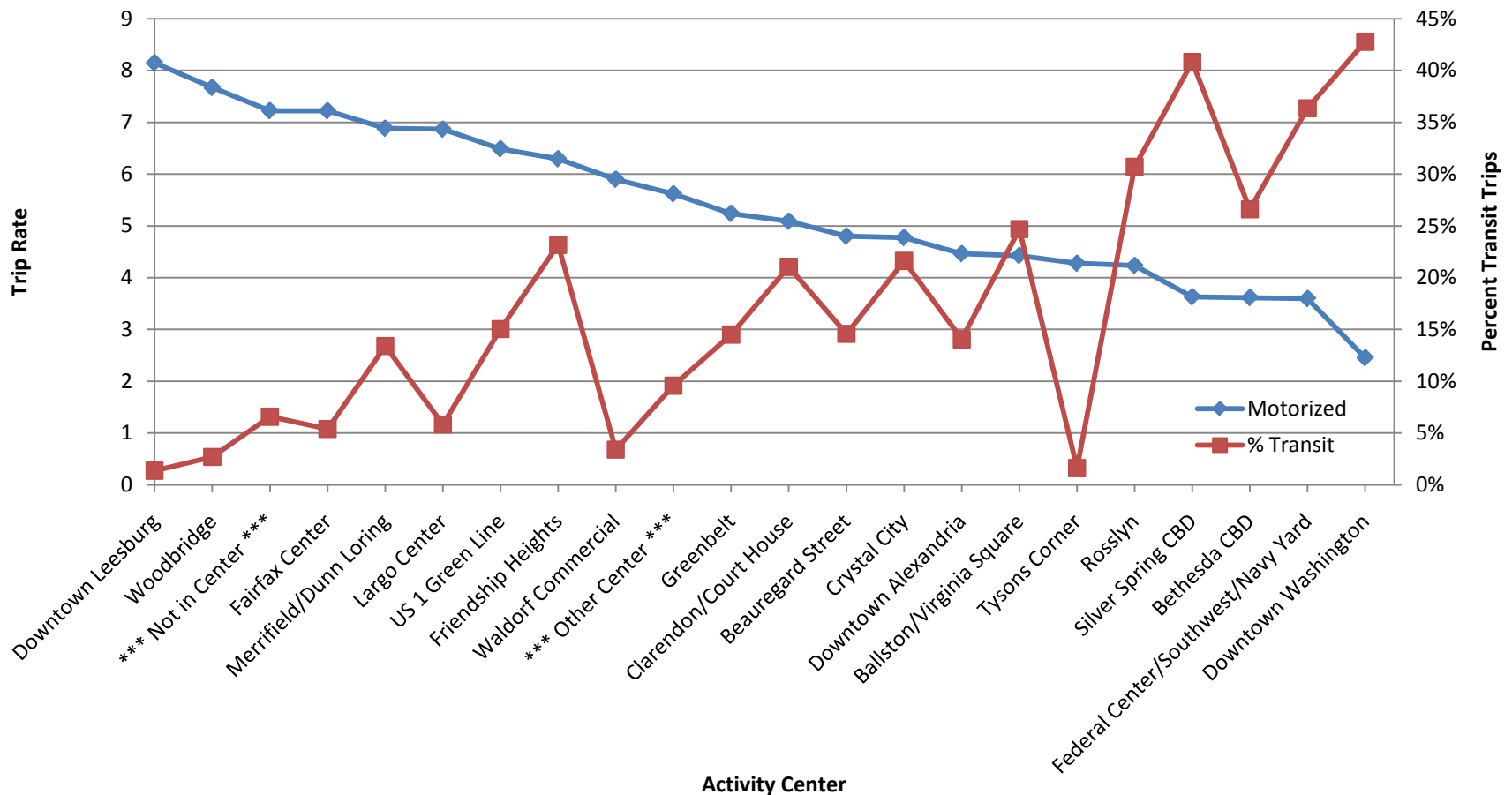
Motorized Trip Production Rates & Household Size at Selected Activity Centers



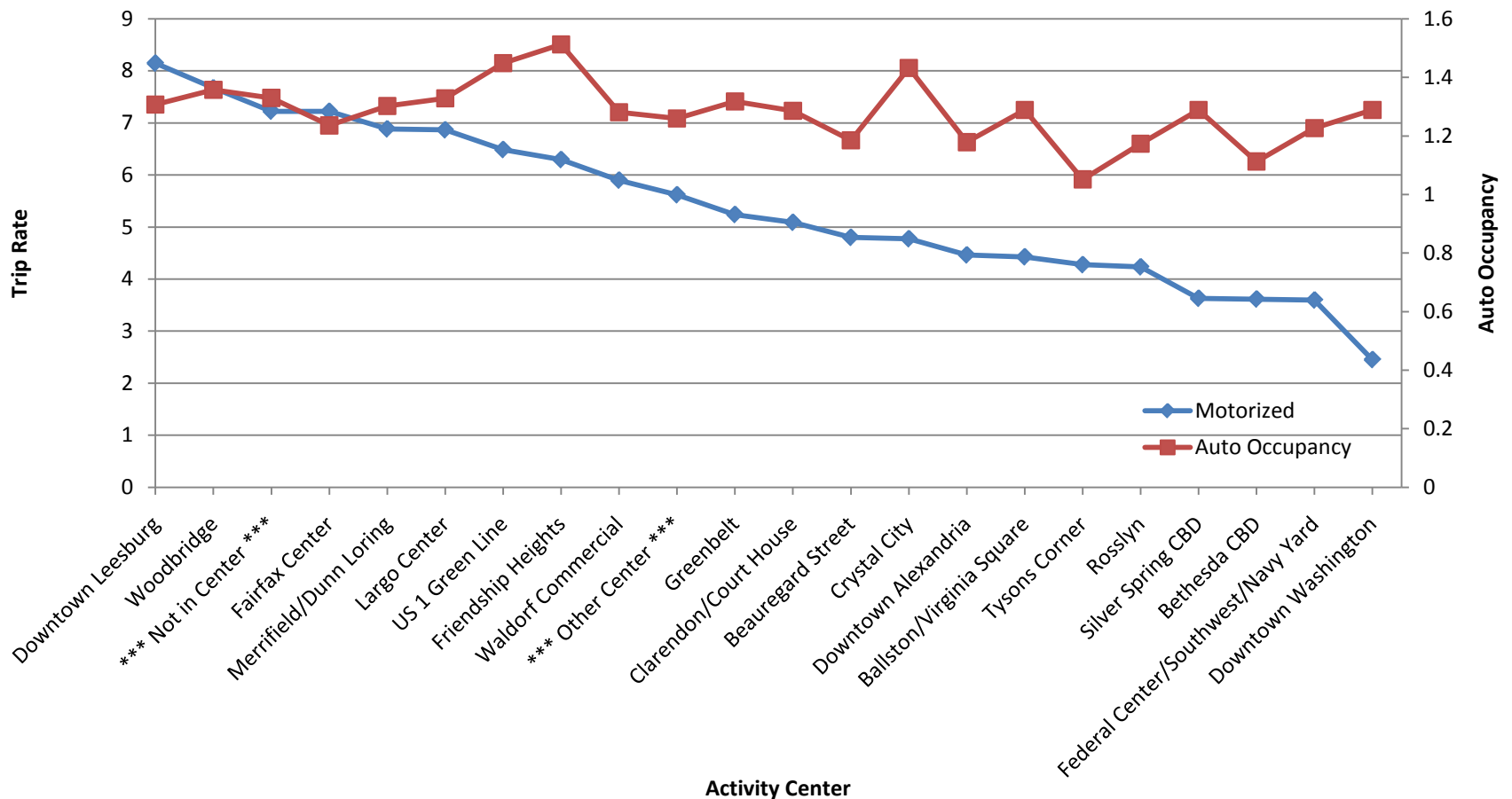
Motorized Trip Production Rates and Vehicles Owned at Selected Activity Centers



Motorized Trip Production Rates and Transit Percentage at Selected Activity Centers



Motorized Trip Production Rate and Auto Occupancy at Selected Activity Centers



Conclusions

- Regional trip rates by size, income, and vehicles owned are generally logical and reasonable
- Trip production rates at activity centers meet expectations and are reasonable
- Trip generation model will rely heavily on accurate estimate of HHs in socio economic groups
- HTS should provide a good basis for developing a motorized-non-motorized “split” model using density and transit accessibility measures at minimum