

Overview

Residents of the Washington region walk and bicycle at about the same rate as the nation as a whole. Tables 2-1 and 2-2 show the share of walking and bicycling trips to work for the ten largest metropolitan areas.

Nationally, 10% of all urban area trips are made on foot or by bike

~~Walking and bicycling are declining as modes of transportation both in the Washington region and nationally.~~ Nationally, 0.5% of American workers bicycled to work in 2006-2008, up slightly from the

0.38% of American workers who bicycled to work in 2000, 2.8% of American workers walked to work in 2006-2008, down from and 2.93% in 2000 walked.

~~Throughout most of the 20th Century, driving increased, while walking, bicycling, and public transportation lost mode share.~~ In 1990 0.4% of American workers bicycled to work, and 3.9% walked. The number of people driving alone rose from 73.2% in 1990 to 75.7% in 2000, while use of public transportation fell by 0.5%. ~~By comparison In 1960, 9.9% of workers walked to work.~~²

~~In the first decade of the 21st Century, growth in solo driving share appears to have stopped, and transit, walking and bicycling mode shares have stabilized.~~ 75.8% of workers drove alone in 2006-2008, which is essentially the same as in 2000, and

	Table 2-1 Pedestrian Commuting in the Ten Largest Metropolitan Areas ¹	% Walk to Work 2000 Census	% Walk to Work 2006- 2008
1	New York	5.55%	6.2%
2	Boston	4.12%	4.8%
3	San Francisco	3.25%	4.2%
4	Philadelphia	3.88%	3.7%
5	San Francisco	3.25%	
6	Washington	3.10%	3.0%
7	Chicago	3.13%	2.9%
8	Washington	3.10%	
9	Los Angeles	2.56%	2.6%
10	Detroit	1.83%	1.5%
	Houston	1.62%	1.5%
	Dallas-Fort Worth	1.48%	1.3%
	United States	2.93%	2.8%

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	Table 2-2: Bicycle Commuting in the Ten Largest Metropolitan Areas	% Bike to Work 2000	% Bike to Work 2006- 2008
1	San Francisco	1.12%	1.4%
2	Los Angeles	0.63%	0.7%
3	Boston	0.38%	0.7%
4	Philadelphia	0.33%	0.5%
5	Chicago	0.31%	0.5%
6	Washington	0.30%	0.5%
7	New York	0.30%	0.4%
8	Houston	0.30%	0.3%
9	New York	0.30%	
10	Washington	0.30%	
	Detroit	0.18%	0.2%
	Dallas--Fort Worth	0.14%	0.2%
	United States	0.38%	0.5%

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¹ 2000 US Census, 2006-2008 American Community Survey

² 1960 Census of Population, Characteristics of Population, United States Summary

~~public transportation grew from 4.7% to 4.9%. Driving has been growing, and walking and public transportation declining, for many decades. In 1960, 9.9% of workers walked to work, but only 2.93% did so in 2000.³~~

The walk and bike modes are more common, though, than the census commute mode numbers would lead one to believe. Work trips account ~~for less than~~for only 20% of all trips, ~~and~~ walking and biking are more common for other purposes. Nationally, 9.5% of all urban area trips were made on foot, and 0.9% by bicycle in 2001. In the Mid-Atlantic region, 15.8% of all trips are made on foot, and 0.8% by bicycle.⁴

Regionally, bicycling and walking are concentrated in the core neighborhoods of the Washington region, especially areas near downtown D.C. and certain Metro stations, as well as college campuses and military bases. ~~Figures on walking remain stable in those neighborhoods, while bicycling numbers are growing.~~
In the past decade walk mode shares have grown, while bike mode shares have stabilized. Walking and bicycling have grown more rapidly in the core.

Ethnicity, geography, age, and car ownership affect the decision to walk or bicycle to work. People living in the District of Columbia are far more likely to walk or bicycle to work than those living in Maryland or Virginia. People under the age of 35 or over the age of 65 are more likely to walk or bicycle to work. People living in households without cars are more likely to walk or bicycle than those that have one, and those living in households with only one car are more likely to walk or bicycle than those owning two. Middle-income groups are slightly less likely to walk or bicycle than either low-income or the high-income groups. Hispanics are most likely to walk or bike to work.

Distance is a major barrier to commuter cycling, along with absence of safe routes, and lack of end-of-trip facilities such as showers and lockers.⁵ However, most commute trips that are short enough to be bikable or walkable are still taken by car. The average trip distance to transit or carpool is very short.

~~Non~~However, average trip distances are three to four times as high in the outer suburbs as in the outer core. Most trips in the outer suburbs are farther than most people are willing to walk or bicycle

~~3 1960 Census of Population, Characteristics of Population, United States Summary~~

4 Pucher, John, "Socioeconomics of Urban Travel: Evidence from the 2001 NHTS". *Transportation Quarterly*, Vol. 57, No. 3, Summer 2003 (49-77). Page 54.

5 Metropolitan Washington Council of Governments, *2004 Bike to Work Day Survey- Summary of Results*, June, 2005. Page 6.

Transit and walking are interdependent, with 80% of bus and 60% of Metrorail access trips on foot. Mode of access varies tremendously by Metro station. Bicycling to transit is less common and varies greatly by Metro station, with the lowest rates of bicycle access found east of the Anacostia river.

Walking and bicycling are most common in activity centers with a mix of jobs, housing, services, and recreation in a walkable environment.

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The COG/TPB Household Travel Survey

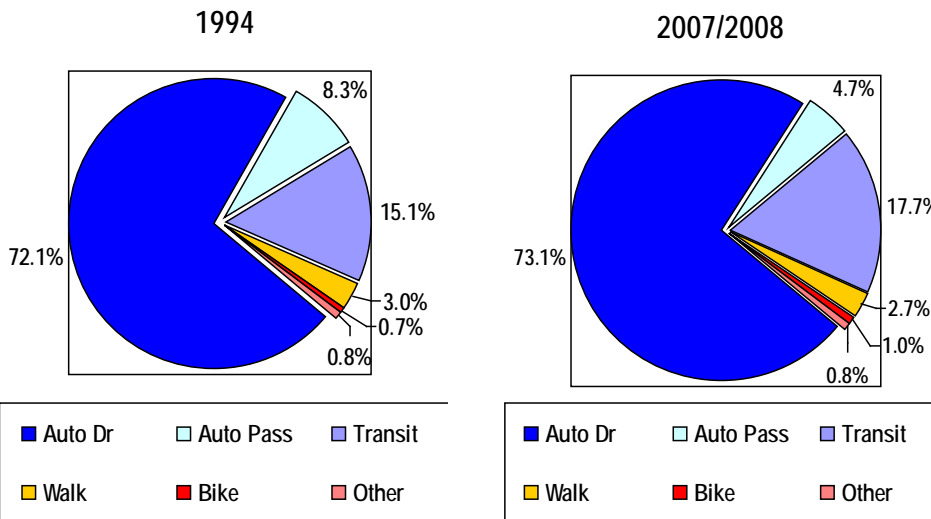
The household travel survey is a roughly once in a decade survey of households in the greater Washington region. The survey was done in 1994, and again in 2007-2008. It is the best available source of information on travel mode shares in the Washington region.

For the most recent survey, 11,000 randomly selected households in TPB Region and adjacent areas (+3,500 in the Baltimore Region) were surveyed. Higher numbers of samples were taken in higher density, mixed use urban areas and regional activity centers. The sample was address-based. Interviews were conducted between February, 2007 and March 2008.

Comparing the results of the 1994 and the 2007/2008 surveys, walk commuting has fallen from 3% to 2.7%, but bicycle commuting has increased slightly, from 0.7% to 1%. Bicycling grew by the same amount as walking declined. Auto commute trips remained stable, while auto passenger (carpooling) declined steeply, and transit use grew.

These results are generally consistent with the 2000 US Census and 2006-2008 American Community Survey results for the Washington region, which show walk commuting decreasing and bicycle commuting increasing.

Change in Commuting Mode Shares 1994-2007/2008



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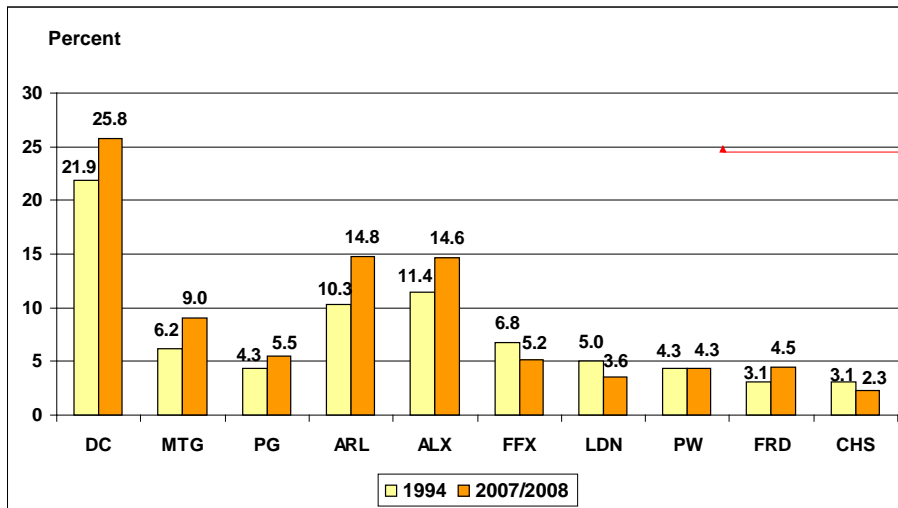
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Walk Commute Share by Jurisdiction

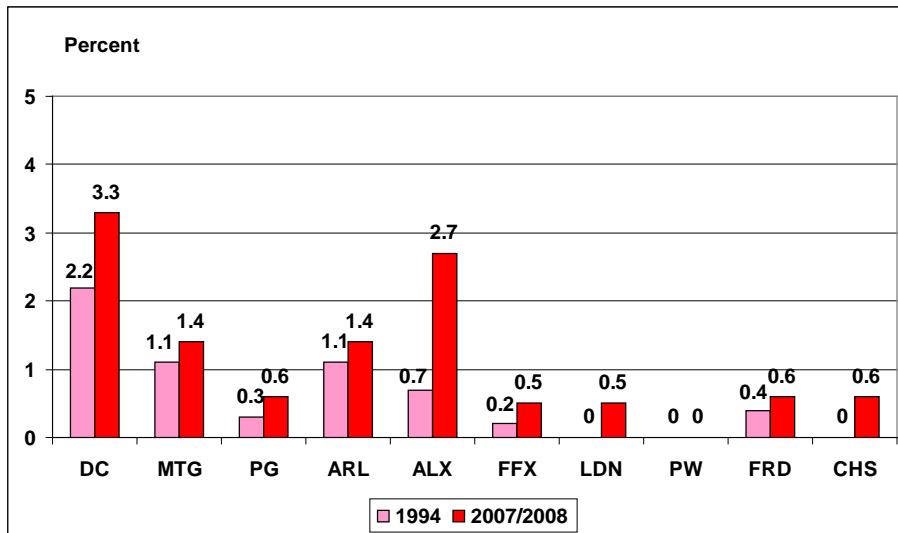


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Bike Commute Mode Share by Jurisdiction



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Walk commuting grew in urban core, and in Montgomery and Frederick Counties, but fell in other suburban areas, notably Fairfax and Loudoun Counties, which experienced considerable auto-oriented suburban growth.

Bike commuting grew in most jurisdictions from a low base, with the biggest increases in the District of Columbia and Alexandria.

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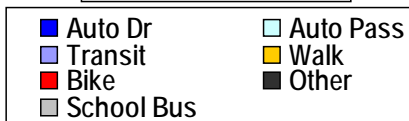
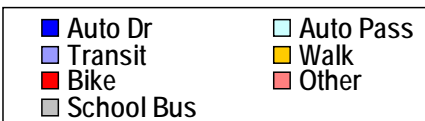
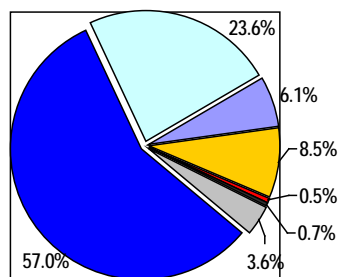
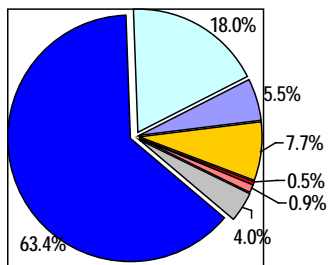
Mode Share Trends for All Trips in the Washington Region

Commuter trips, while they get a lot of attention, account for less than 20% of all trips in the Washington region. Nonwork trips have different characteristics than work trips, and overall trends in mode share are different from trends in commuter mode share.

Solo driving declined significantly in the Washington region between 1994 and 2007/8, while auto passenger, transit, and walk modes increased. Bicycling remained stable at the regional level.

1994

2007/2008



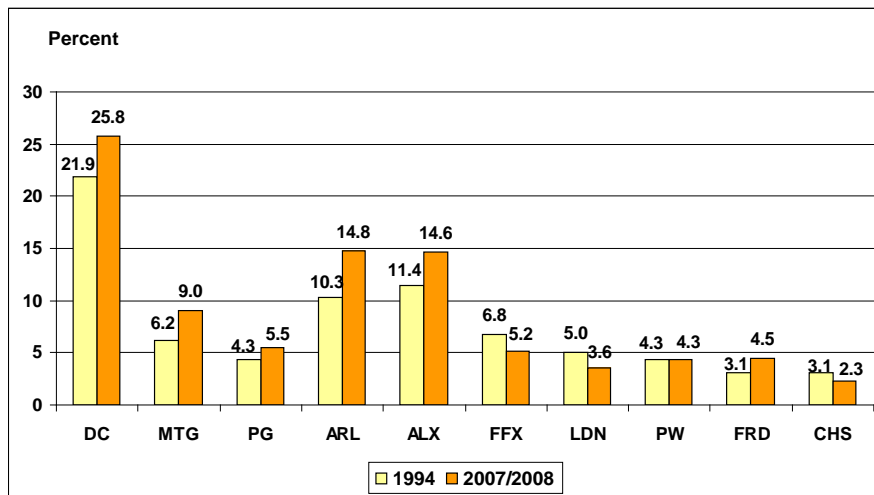
Walk and Bike Mode Share by Jurisdiction

Walking has increased most jurisdictions, with the notable exceptions of declines in Fairfax and Loudoun Counties, where most of the growth has been auto-oriented in suburban in character. The biggest increases were in the urban core and in Montgomery County.

Bike mode share grew in the urban core, but fell steeply from low starting levels in the outer suburban counties. Growth in bicycling in the core has been offset by an equal decline in the outer suburbs, adding up to zero growth at the metropolitan level. The outer counties have experienced greatly increased auto traffic, much of it on narrow country roads without bike lanes or other accommodation. Fear of traffic is a commonly cited reason in surveys for not riding.

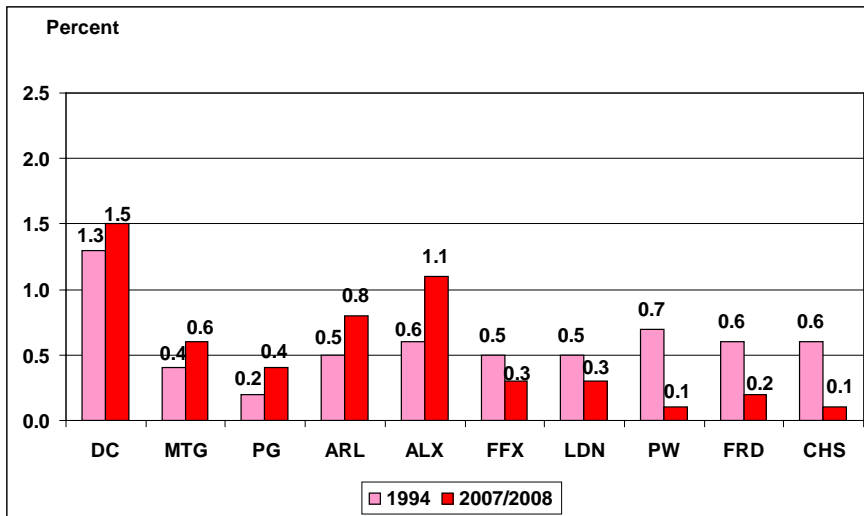
Alexandria had the largest increase at .5% followed by Arlington at .3%.

**Daily Walk Trip Share by Jurisdiction of Residence
(1994 – 2007/2008)**



Daily Bike Trip Share by Jurisdiction of Residence

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(1994 – 2007/2008)

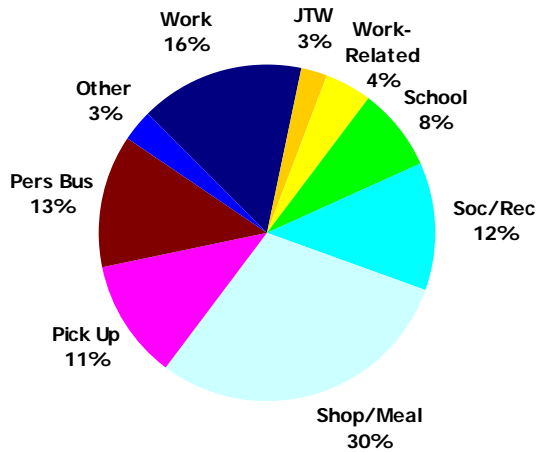
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Daily Trips by Trip Purpose in the Washington Region,

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The US Census show tracks only commute trips, and there has been a tendency to emphasize planning for commute trips. But commute trips account for less than 20% of total daily trips in the Washington region, and have average trip lengths 3 times the distance of other trips for non-work purposes. Commute trips also have the highest median trip length, at 9.3 miles.

(All)



Daily Trips by Purpose Modes,

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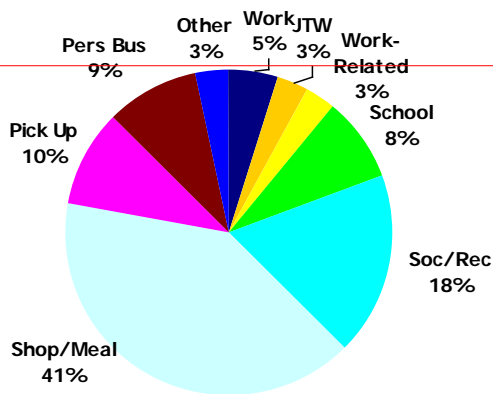
2007/2008 Household Travel Survey
Walk Trips by Purpose

The vast majority of walking trips are for Shopping, Meals, Recreation, or social visits. Compared to all trips, pedestrians are more likely to be doing a shopping, dining, or social/recreational trip, and less likely to be going to work.

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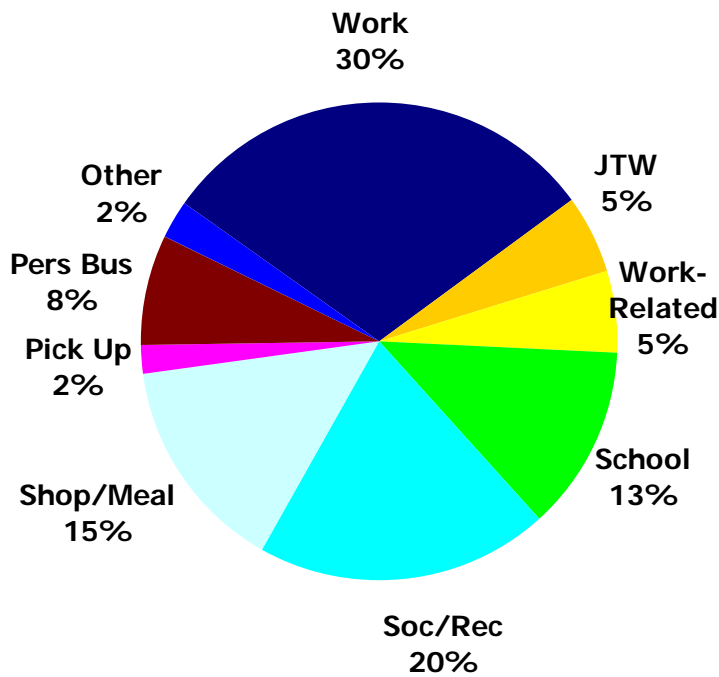
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Bike Trips by Purpose

Bicyclists are more likely to be going to work or school than either “all trips” or “walk trips”, and are less likely to be on shopping, dining, or social/recreational trips. This is the opposite of what one might expect based on median trip lengths. A possible explanation is that most bicyclists now live in walkable urban areas and have short, but not quite walkable commutes, so they will commute to work by bicycle but are more likely to walk for other purposes.



Based on trip lengths and number of trips shown below, school, shopping/meal, social/recreational, and personal business trips might be more susceptible to being shifted to walk or bike modes than commute trips.

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**Trip Length Distribution by Purpose
(Distance in Miles, 2007/2008 Household Travel Survey)**

<u>Purpose</u>	<u>25%</u>	<u>Median</u>	<u>75%</u>	<u>90%</u>
<u>Work</u>	<u>4.3</u>	<u>9.3</u>	<u>17.1</u>	<u>25.8</u>
<u>To Work after other stop (JTW)</u>	<u>1.5</u>	<u>4.8</u>	<u>12.9</u>	<u>22.1</u>
<u>Work- Related</u>	<u>1.8</u>	<u>5.6</u>	<u>13.4</u>	<u>24.8</u>
<u>School</u>	<u>0.9</u>	<u>2.1</u>	<u>4.7</u>	<u>9.3</u>
<u>Soc/Rec</u>	<u>1.0</u>	<u>2.9</u>	<u>6.7</u>	<u>13.7</u>
<u>Shop/Meal</u>	<u>0.7</u>	<u>2.1</u>	<u>5.4</u>	<u>12.0</u>
<u>Pick-Up</u>	<u>0.8</u>	<u>2.2</u>	<u>5.2</u>	<u>11.2</u>
<u>Personal Bus</u>	<u>1.4</u>	<u>3.5</u>	<u>7.5</u>	<u>14.9</u>
<u>Other</u>	<u>0.8</u>	<u>1.5</u>	<u>4.1</u>	<u>7.3</u>

Trip Length Distribution by Mode in the Washington Region

The median auto trip length in the Washington region is only four miles, and 25% of auto trips are 1.5 miles or less. The median auto passenger trip, which includes many child passengers, is only 2.2 miles, with 25% of auto passenger miles being 1.5 miles or less.

The median walk distance of 0.3 miles is consistent with most estimates of people’s willingness to walk. The median bike trip distance of 1.5 miles is brought down in the household travel survey by some short trips that are part of trip chains. Other sources show typical bike trip lengths as being five miles or less.

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Trip Length Distribution by Mode
(Distance in Miles)

<u>Mode</u>	<u>25%</u>	<u>Median</u>	<u>75%</u>	<u>90%</u>
<u>Auto D</u>	<u>1.5</u>	<u>4.0</u>	<u>9.7</u>	<u>18.7</u>
<u>Auto P</u>	<u>1.2</u>	<u>2.8</u>	<u>6.4</u>	<u>12.9</u>
<u>Transit</u>	<u>3.5</u>	<u>6.9</u>	<u>14.1</u>	<u>23.4</u>
<u>School Bus</u>	<u>1.2</u>	<u>2.3</u>	<u>4.6</u>	<u>8.2</u>
<u>Walk</u>	<u>0.1</u>	<u>0.3</u>	<u>0.5</u>	<u>0.9</u>
<u>Bike</u>	<u>0.8</u>	<u>1.5</u>	<u>4.1</u>	<u>7.3</u>

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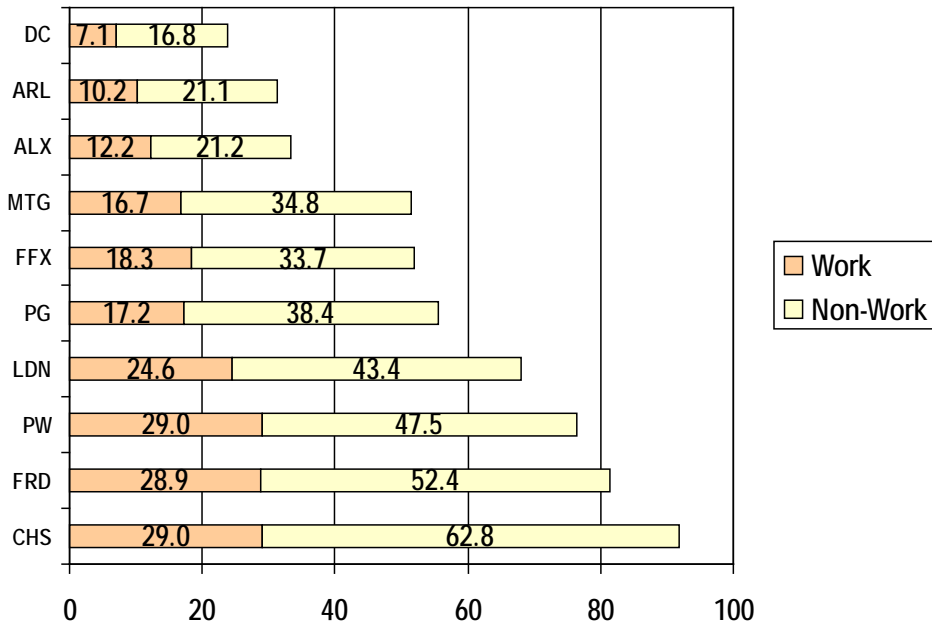
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Average Daily Miles Traveled By Jurisdiction

Households in the urban core make slightly fewer trips per day, but travel far fewer miles per day than households in the outer jurisdictions. The average Charles County household travels more than three times as many miles. Even in the District of Columbia, more than half the miles traveled are as auto drivers or passengers. The average DC household makes seven trips per day and travels 23.9 miles, while the average Charles County household makes nine trips per day, and travels 91.8 miles, or nearly four times as far.

**Average Daily Miles Traveled Per Household
by Jurisdiction and Purpose**



While it may not be surprising that urban households tend to travel shorter distances than exurban households, or that nearly all travel in the outer suburbs is by car, the magnitude of the difference is significant. Nor are all the long trips commute trips; outer suburban households travel three to four times as many nonwork miles as DC households. Low-

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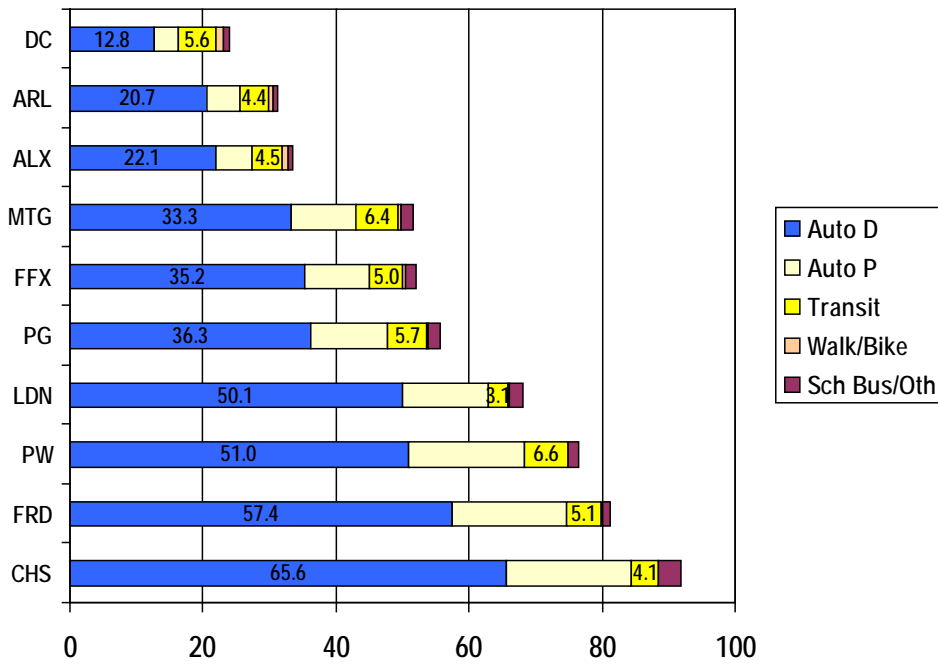
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density development patterns in the outer suburbs appear to be generating trip distances which are significantly longer than what most people are willing to walk or bicycle.

**Average Daily Miles Traveled Per Household
by Jurisdiction and Mode**



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**Total Weekday Walk and Bike Trips by Type in the Washington Region
(in Thousands)**

Type of Trip	Walk	Bike
Primary Travel Mode	1,370.0	87.5
“Loop” Trips	123.8	6.9
Metrorail Access	464.3	4.3
Metrorail Egress	469.0	4.0
Total	2,427.1	102.7

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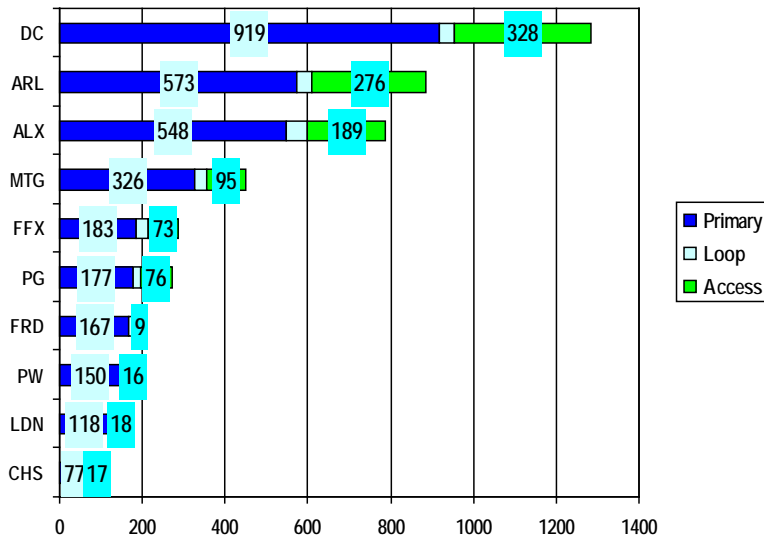
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Metrorail access accounts for a high proportion of the walk trips in the region, especially in the urban core.

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**Weekday Walk Trips by Jurisdiction of Residence and Type
Per 1,000 Population in Households**



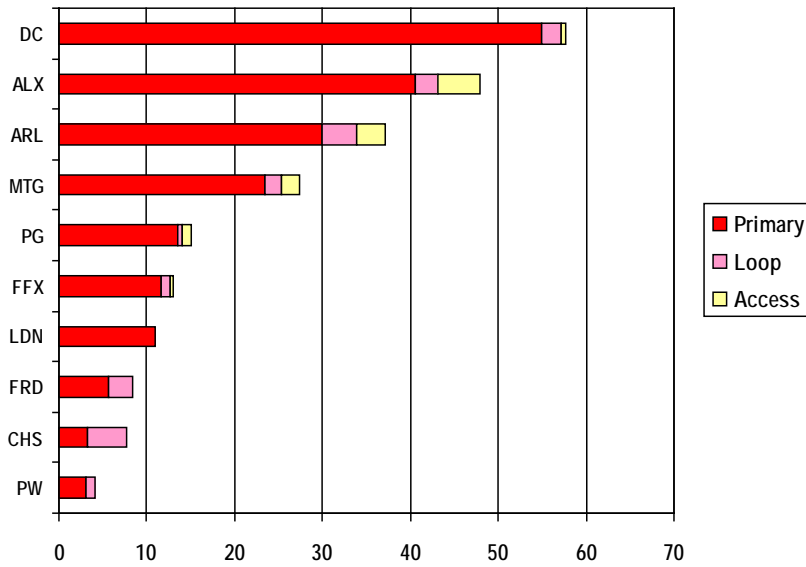
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Weekday Bike Trips by Jurisdiction of Residence and Type
Per 1,000 Population in Households



While DC residents are most likely to bicycle, Alexandria and Arlington are most likely to use bicycle to access Metrorail. Charles County has the highest rate of “loop” bicycle trips.

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Jurisdictional Trends according to the US Census

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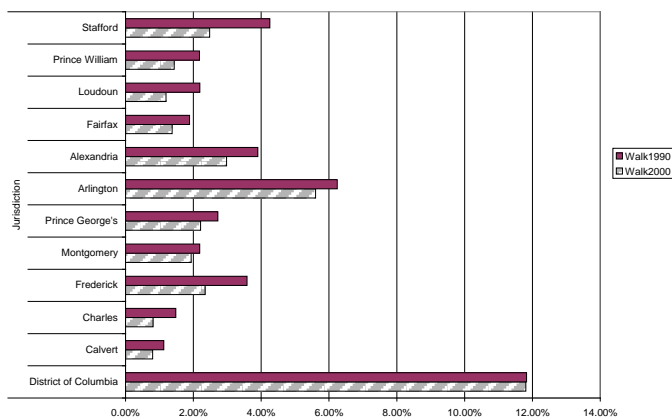
Walking and Bicycling Trends According to the US Census

The last United States census was the 2000 census. The Census contains no information on travel in general, but does gather data on journey to work, through the “long form”. The main thing the census can offer which the COG/Household Travel Survey does not is accurate information on journey work as the census tract level. Since bicycling and walking vary a lot by neighborhood, even block to block, this kind of fine-grained information can be useful. However, at this point the 2000 census information is somewhat dated.

The 2010 census form will be shortened, and the decennial census will no longer provide information on journey to work. In place of the long form, the census bureau carries out an annual survey, the American Community Survey (ACS), which contains information on journey to work. However, the ACS sample is too small to be reliable on a census tract level. Currently a three-year rolling average of data is available

The 20th Century national trend towards less walking and bicycling also holds for the Washington Metropolitan Statistical Area. In 1990, 6,633 people (0.3 %) biked to work on an average day in the Washington area and 85,292 (3.9 %) walked. In 2000, 7,532 people (0.3%) biked to work and 72,700 (3.1%) walked. It should be noted that the census numbers tend to undercount pedestrian trips, since a walk trip to transit is counted as a transit trip, not as a walk trip. Charts 2-1 and 2-2 below show the changes in walking and biking to work by jurisdiction.

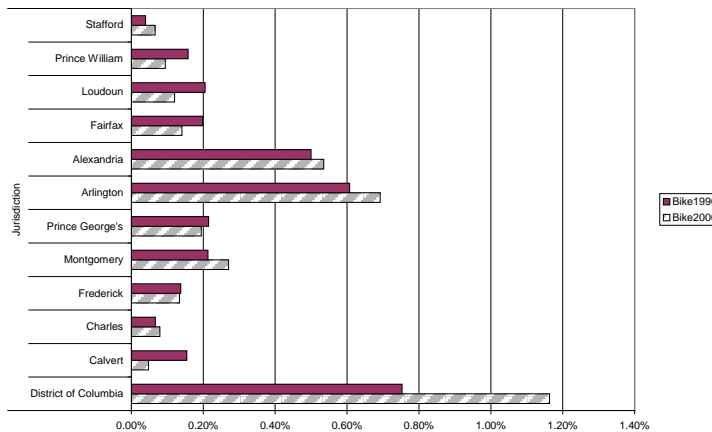
Chart 2-1: Percentage of Workers Walking to Work



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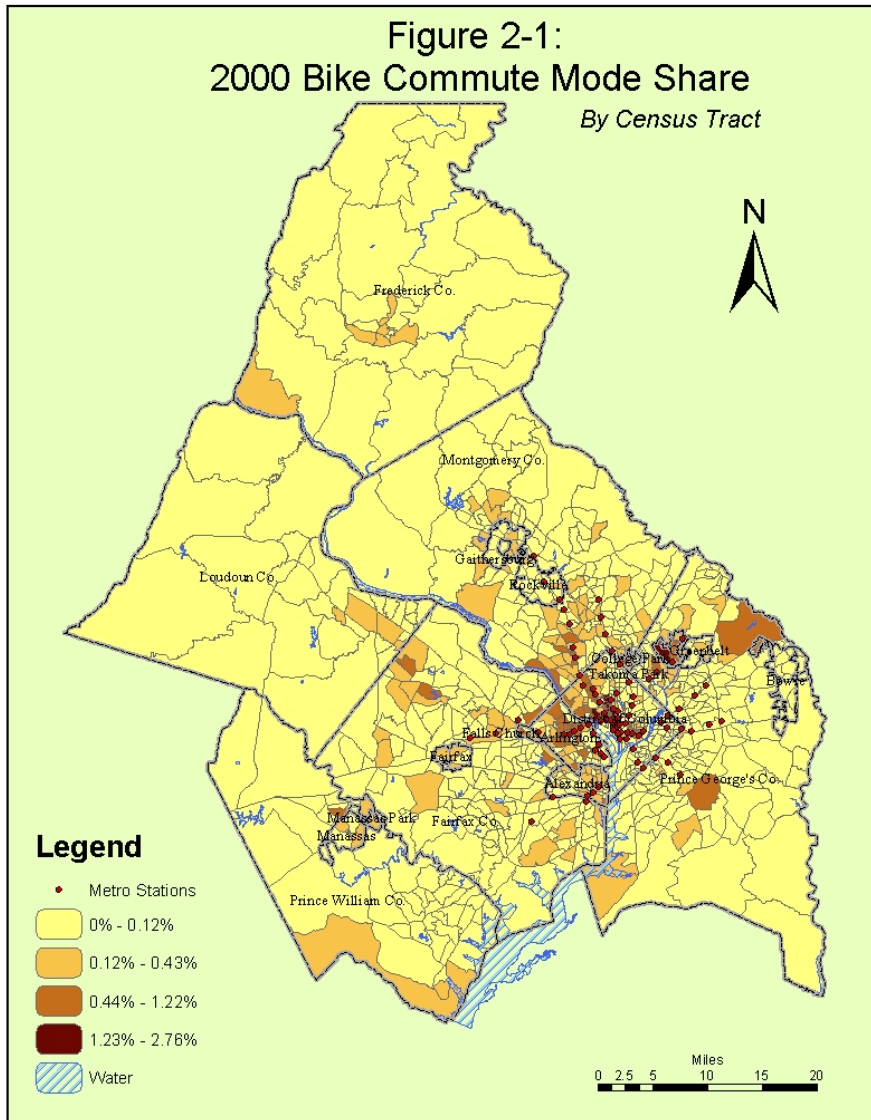
Chart 2-2: Percentage of Workers Biking to Work



Generally, the urban core of the Washington region, consisting of the District of Columbia, Arlington, and Alexandria, has experienced modest losses in pedestrian mode share and considerable gains in bicycling. The District of Columbia has maintained its pedestrian mode share for the journey to work, while increasing its bicycle mode share considerably. The outer suburban jurisdictions had relatively few people bicycling or walking to work in 1990, and that number fell further during the decade that followed.

Mode Share by Census Tract

Figure 2-1 shows the percentage of home-based work trips by bicycle for each census tract within the TPB member jurisdictions. Figure 2-3 shows the percentage of home-based work trips by foot. Figures 2-2 and 2-4 show bicycle and walk work trips respectively for the area served by Metrorail. The maps show that bicycling and walking are concentrated in the neighborhoods surrounding downtown D.C., Capitol Hill, and North Arlington. The neighborhoods closest to downtown show the highest walk mode shares, while those a little further out have the highest bike mode shares. Census tracts abutting major facilities such as the W&OD, the C&O, and the Mt. Vernon Trails tend to show higher levels of bicycling. College campuses and military bases such as University of Maryland, Ft. Meyers, Bolling Air Force Base, the National Institute of Health, Walter Reed, Howard, Georgetown and Gallaudet all have high walk or bike mode share.



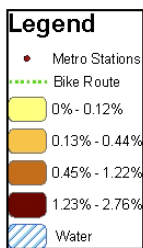
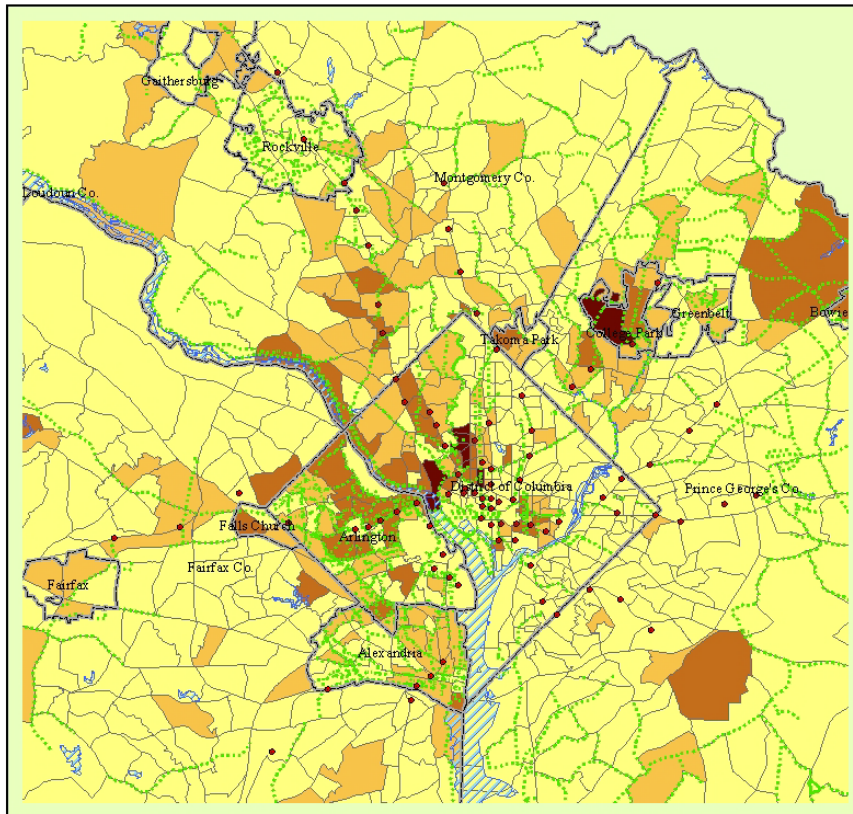
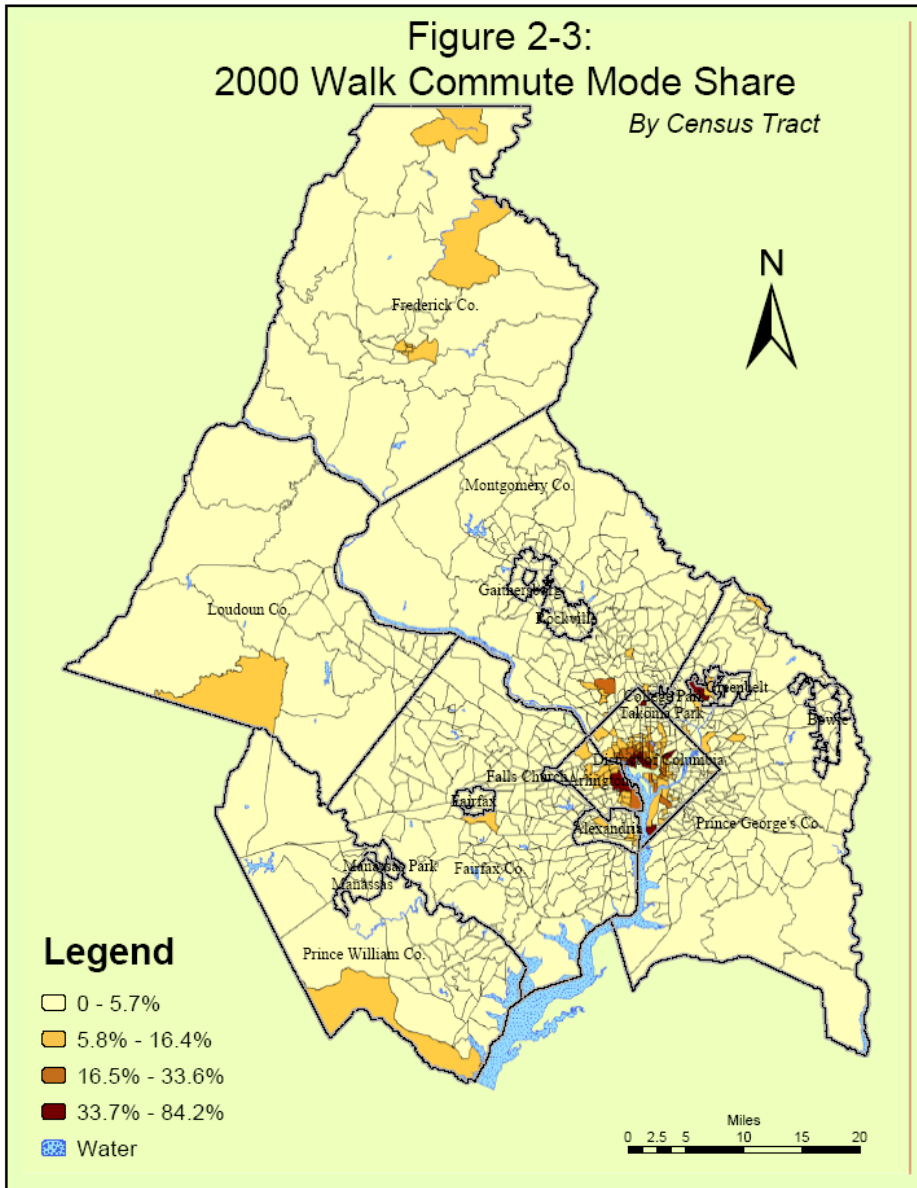


Figure 2-2:
2000 Bike Commute Mode Share
By Census Tract





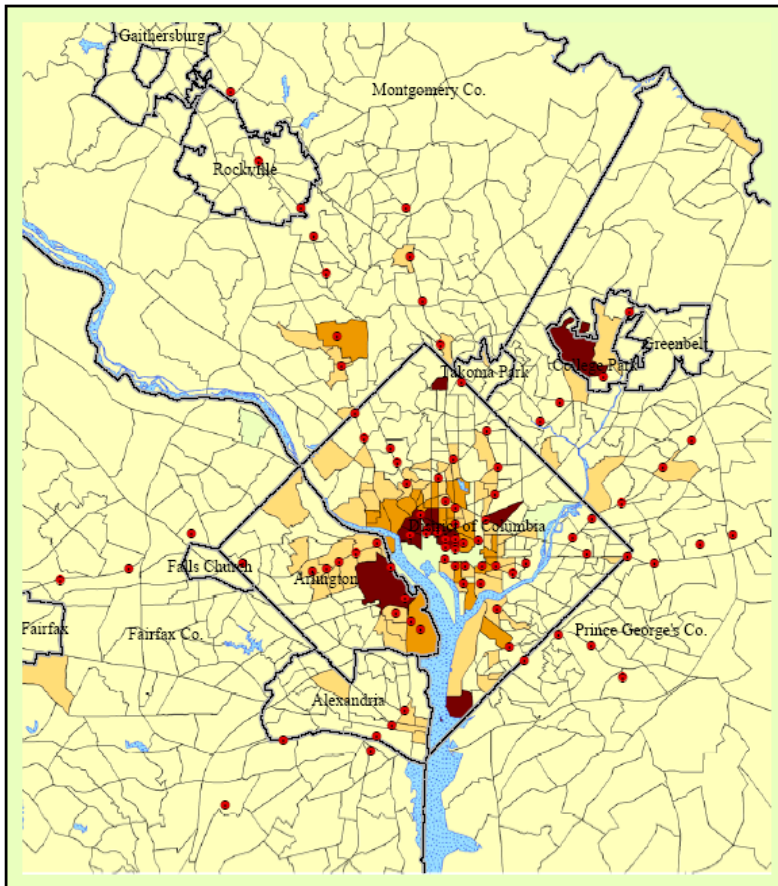
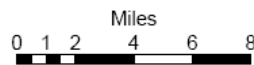


Figure 2-4:
2000 Walk Commute Mode Share
By Census Tract

Legend

- Metro Stations
- 0 - 5.7%
- 5.8% - 16.4%
- 16.5% - 33.6%
- 33.7% - 84.2%
- Water



Bicycling in the Metro Core

COG/TPB periodically takes a count of vehicular traffic, including bicycle traffic but excluding pedestrian traffic, entering downtown D.C. and Arlington, as well as traffic crossing the beltway.

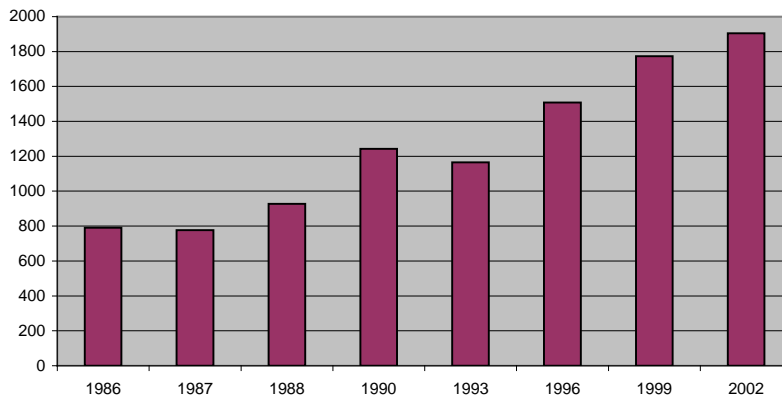
Cordon counts are not done in other parts of the region. COG/TPB's cordon counts confirm the census data indicating a concentration of bicycling in the neighborhoods close to downtown D.C. and Arlington.

*Bicycling is
Growing
Rapidly in
Downtown D.C.
and North
Arlington*

The counts show that bicycle traffic into the downtown Metro core is growing rapidly, with bicycle traffic into the D.C. section of the Metro core more than doubling from 1986 to 2002. The number of bicyclists entering the Metro core within the District of Columbia has grown steadily from 474 in 1986 to 1,379 in 2002. The number of cyclists crossing the Potomac bridges grew from 317 in 1986 to 525 in 2002. Bicycle traffic into the Arlington section of the Metro core increased from 409 to 645 bicyclists between 1999 and 2002,

while Potomac bridge traffic declined slightly over the same period, indicating that more people are bicycling to destinations, probably employment, within Arlington in the morning. Chart 2-3 shows the number of bicycles entering the D.C. section of the Metro core from 1986 to 2002.

**Chart 2-3:
Bicycles Entering D.C. Section of the Metro Core**

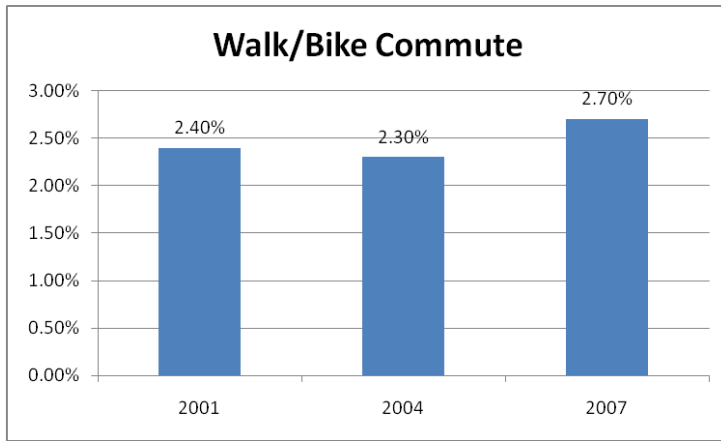


Bicycle traffic is also counted on the beltway cordon, including traffic on shared-use paths, but the a.m. volumes recorded are a fraction of the numbers entering the Metro core. Table 2-4 in Appendix F shows the bicycle volumes recorded crossing the beltway in 1995, 1998, and 2001.

Demographic Characteristics of Pedestrians and Bicyclists

Ethnicity, geography, income, age, and car ownership affect the decision to walk or bicycle to work. The best recent source of this demographic information on pedestrian and bicycle commuters in the Washington region is the 2007⁴ *Commuter Connections State of the Commute Survey*. However, the *State of the Commute Survey* and the US Census both measure work trips only, and the conclusions in terms of both the prevalence and distribution of walking and bicycling can be quite different for all trips than for work trips. Nationally, the 2001 *National Household Personal Transportation Survey* is the best source of demographic data on pedestrians and bicyclists for all types of trips.

All data in the following tables comes from the 2007⁴ *State of the Commute Survey* unless otherwise noted. Walking and bicycling were not calculated separately in the *State of the Commute Survey* for the subcategories of ethnicity, income, age, and state of residence due to sample size issues. All mode shares are for primary commute mode, 3+ days per week. Walk/bike mode share varies by household income, state of residence, number of vehicles in the household, ethnicity, and age. ~~Both the 2001 and the 2004~~ *State of the Commute Surveys* show lower mode share for walking and bicycling than does the 2000 Census, a discrepancy probably explained by differing methodologies.



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A. Household Income

Chart 2-4 shows walking and bicycling commute mode share by income. Walking and bicycling to work are somewhat more prevalent among the low-income (less than \$30,000 household income per year) than among the very high-income (more than \$140,000 per year). Bicycling and walking are slightly more common at the top and the bottom of the income

distribution than in the middle. This is roughly consistent with the national data for all trips.

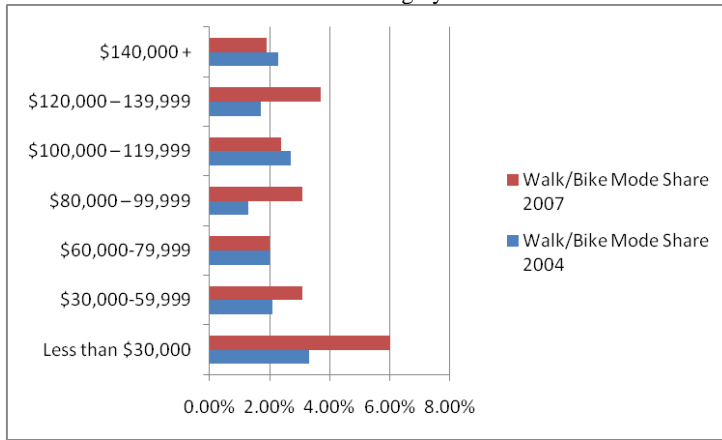
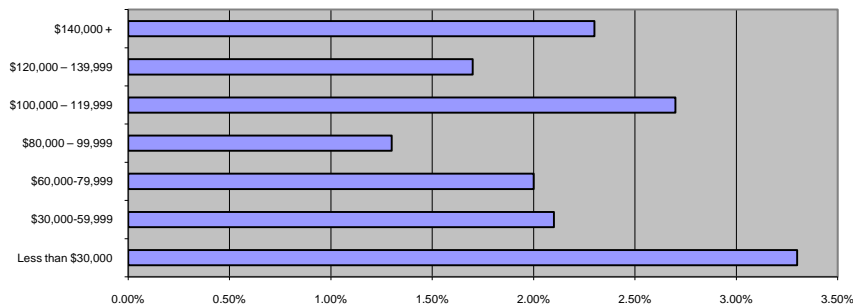
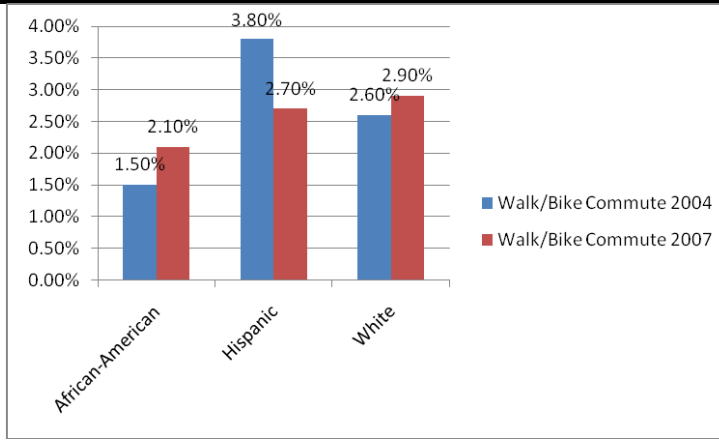


Chart 2-4: Walk/Bike Commute Mode Share by Annual Household Income



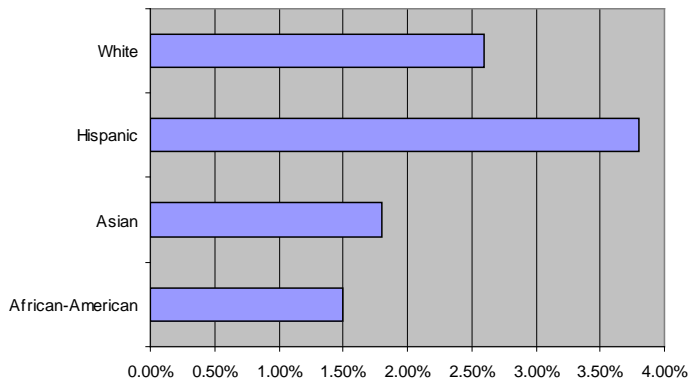
B. Ethnicity

Walk/bike commute mode share differs more by ethnicity than by income. ~~Whites~~Hispanics have the highest walk/bike mode share at 2.93.8%, African-Americans the lowest at 2.14.5%.



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Chart 2-5: Walk/Bike Commute Mode Share by Ethnicity



National data for all trips, however, show African-Americans and Hispanics both walking for about 12% of all trips, though African-Americans bicycle less. Whites walk less than any other ethnic group, but take 0.9% of their trips by bike, the same as Hispanics.⁶

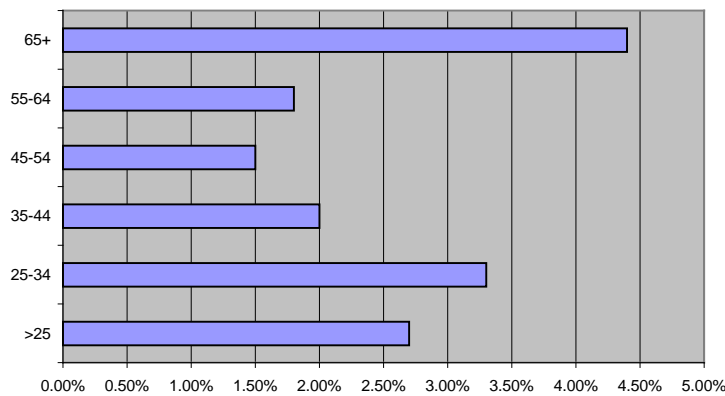
C. Age

Chart 2-6 shows walk/bike commute mode share by age. People under 35 and over 65 are more likely to walk or bike to work than the middle-aged. Nationally the elderly have

⁶ Ibid, p. 68.

a lower than average mode share for bicycling, so we can presume that most of the elderly are walking rather than bicycling.

Chart 2-6: Walk/Bike Commute Mode Share by Age



~~D. State of Residence~~

~~State of residence strongly predicts the likelihood of walking or bicycling to work, with 8.7% of District of Columbia residents walking or bicycling, versus 1.4% of Maryland residents and 1.5% of Virginia residents. District of Columbia residents are much less likely to own cars than Virginia or Maryland residents, are more likely to be low income, and tend to live closer to transit or within walking distance of work.~~

~~E.D. Motor Vehicles per Household~~

~~Vehicles per household is another strong predictor, as shown in Table 2-5. People in~~

households without any vehicles are much more likely to walk or bike to work than households that own one, while those living in households with one vehicle are more likely to walk or bicycle to work than those owning more than one vehicle. Non-work trips also shift radically away from walking in households that have at least one car.

**Table 2-5
Walk/Bike Mode Share by Number of Vehicles**

Number of Vehicles in the Household	0	1	2	3	4+
Walk/Bike Commute Mode Share <u>2004</u>	11.40%	3.70%	1.20%	1.40%	0.60%
<u>Walk/Bike Commute Mode Share 2007</u>	<u>12.40%</u>	<u>4.0%</u>	<u>1.20%</u>	<u>1.40%</u>	<u>0.60%</u>
Walk Mode Share – All Trips (NPTS) ⁷	41.1%	12.5%	7.8%	6.3% (3 or more)	
Bike Mode Share – All Trips (NPTS)	2.4%	0.7%	0.9%	0.8% (3 or more)	

Trip Distances

Distance was the third most frequently cited reason, by 31% of respondents, to COG/TPB’s Bike to Work Day survey to explain why they were *not* riding to work. Reasons One and Two were “Don’t like to ride in rain/cold/hot weather” (42%) and “No safe route” (35%). So trip distance is of great interest when gauging the potential for increasing bicycling (or walking). The 2004 SOC survey asked respondents about the length of their commutes. Commute mileage is shown in Table 2-6 below.

Table 2-6: Commute Distance

⁷ Ibid, p. 57.

Distance	Less than 5 miles	5 to 9 miles	10 to 14 miles	15 to 19 miles	20+ miles
Percentage	17%	19%	18%	13%	34%
2007	17%	20%	17%	12%	33%

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The mean commute distance in the Washington region is 16.2 miles. However, 17% of commutes in the Washington region are less than five miles and therefore potentially bikable on a daily basis. The median commute distance for Washington-area bicyclists is 9.3 five miles. Table 2-7 shows walk and bike average and median commute distances in miles for pedestrians and bicyclists, from the 2004 *State of the Commute Survey* data.

Table 2-7: Walk and Bike Commute Distance (in Miles)

COMMUTE MODE	MEAN	MEDIAN	N
Walk	1.42	1.00	144
Bike	8.17	5.00	32

Another major potential source of walk or bike trips is the trip to transit, park and ride lot, or vanpool and carpool pick-up point. As shown in Table 2-8, access trips to alternative mode meetings points tended to be short. Respondents traveled an average of 3.1 miles. The majority of respondents (59%) traveled one mile or less to the meeting point. Another 26% said they traveled between two and five miles. Only 15% of respondents traveled more than five miles. Based on the distances being traveled, many of the 29% of respondents who are currently driving to their alternative mode meeting point might be able to walk or bicycle instead.

**Table 2-8
Distance Traveled from Home to Alternative Mode Meeting Point**

(n=1,230)

Distance	Percentage	2007
1 mile or less	59%	51%
2 miles	10%	14%
3 miles	7%	8%
4 to 5 miles	9%	12%
6 to 10 miles	10%	11%
11 miles or more	5%	4%

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**Table 2-9
Means of Getting from Home to Alternative Mode Meeting/Transfer Point**

(n=1,577)

Access Mode to Alternative Mode	Percentage	2007
Walk	39%	35%
Picked up at home	15%	12%
Drive to a central location (e.g., Park & Ride)	18%	18%
Drive alone to driver's/passenger's home	11%	10%
Bus/transit	9%	12%
I am the carpool/vanpool driver	5%	10%
Dropped off/another CP/VP	1%	1%
Other*	1%	2%

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Non-Work Trips: The COG/TPB Household Travel Survey

In order to calibrate the regional travel demand model, the Council of Governments conducts periodic surveys of travel behavior, including trips for purposes other than work. The most recent surveys that include bicycle and pedestrian data were conducted in 1988, 1994 and in 1999.

These surveys use a much smaller sample of the region's residents than the Census. In 1994, 4,800 households were surveyed about their travel behavior (out of a metropolitan population of roughly 4 million). In 1999, only 2000 were sampled.

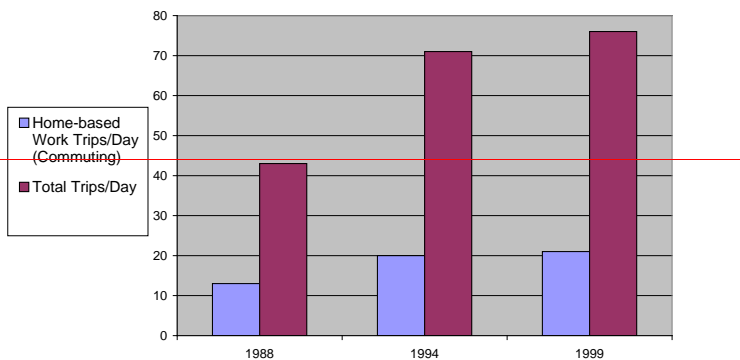
The advantage of the *Household Travel Survey* is that we learn about trips of all purposes, not just work trips. The *Census* and the *State of the Commute Survey* give us information about commute trips only. The disadvantage is that only the 1994 sample size was large enough to provide reliable information about bicycling and walking. Another household travel survey with a sample size comparable to the 1994 survey will be carried out in 2006-2007.

According to Chart 2-7 bicycle trips nearly doubled from 1988 to 1999. However, this increase coincides with an increase in population and employment in the region. In those 11 years the population increased an estimated 17% and the number of jobs increased 14%.

Another important factor in the apparent increase is the difference in survey methodology between 1988 and 1994. A greater effort was made to gather bicycle and pedestrian trips in 1994 and 1999.

From 1994 to 1999 bicycle trips as a portion of total trips for all modes remained about the same: 0.5% for all trip purposes and 0.7% for work trips.

Chart 2-7: Estimated Bicycle Trips from the
COG Household Travel Survey
(thousands of trips/day)



The number of pedestrian trips is higher than the number of bicycle trips. In the 1994 Household Travel Survey, we found that 7.8% of all trips were on foot, and that walking accounted for 3.1% of work trips. The 1988 Household Travel Survey only asked about work trips, and this data does not include walking to transit.

In 1994, three fourths of all trips in the Washington region were for purposes other than work, and those trips were relatively short trips, averaging between four and six miles in length.⁸ More than 80% of those non-work trips were auto trips, and another 4% were school bus trips.

⁸ 1994 COG/TPB Household Travel Survey: Summary of Major Findings. January, 1998. Metropolitan Washington Council of Governments, page 5.

Walking and Bicycling to Transit

Walking is the dominant mode of access to transit. The census walk to work mode share does not include walk trips to transit, since a walk trip to transit is counted as a transit trip rather than as a walk trip. In areas with high transit ridership the census walk to work numbers significantly undercount the amount of walking to or from work. According to the 2004 *State of the Commute Survey*, 83% of bus commuters walk to the bus.⁹

In 2002 WMATA surveyed passengers at all 83 of its Metrorail stations. The primary purpose of the survey was to estimate the percentage of total ridership residing in each jurisdiction. Passengers *entering* each Metro station were queried throughout the entire day, so the “mode of access” number for any given Metro station includes both people on their way to work or some other destination, and those on their way home. “Mode of Access” is the mode people use to get to the station, not to leave it.

**61% of
Metrorail
Passengers
Walk to the
Station**

Table 2-10 in Appendix G and Table 2-11 in Appendix H show the number of passengers who arrived at each station on a given day by bicycle, on foot, and by all modes put together. On average, 60.74% of all Metrorail passengers walked to the station, while only 0.31% arrived by bicycle. 15% parked and rode.¹⁰ 5% were dropped off by someone, and another 11% arrived at the Metro station by bus. “Mode of Access” by foot numbers are higher than the number of commuters who report getting to Metro on foot in the 2004 *State of the Commute Survey*, because “mode of access” to any given station includes people who are returning *from* work. Another likely reason for the difference is that the *State of the Commute Survey* includes only those using Metro for commuting, while the *Passenger Rail Survey* includes those using Metrorail for all purposes.

Mode of Access varies greatly by station, from Federal Center, with 94.2% access by foot, to Branch Avenue, with 0.9% access by foot. The top thirty stations for pedestrian access (as a percentage of total passengers accessing that station) are all located in the District of Columbia, Arlington, or Alexandria. Stations with a very high share of pedestrians tend to be located in major employment centers, with people walking from work to the station, rather than from home to the station. However, largely residential-area stations such as Woodley Park, Cleveland Park, Eastern Market, and Columbia Heights are found in the top thirty. Dense, mixed-use areas such as Bethesda, Foggy Bottom, Crystal City, Pentagon City,

⁹ 2004 *State of the Commute Survey Results*. Metropolitan Washington Council of Governments, p. 63.

¹⁰ 2002 WMATA Rail Passenger Survey, WB&A Market Research, from the table “Origin Station by Mode of Access”.

Friendship Heights, Van Ness, Dupont Circle, Shaw, and the Rosslyn-Ballston Corridor have high percentages of pedestrian access as well.

The bicycle mode of access to transit, according to the 2002 WMATA *Rail Passenger Survey*, was 0.31%, and ranged from 3% at College Park to zero at 23 stations. Stations with more bicycling tended to be located in the western portion of the region, have access to a major shared-use path, be near a major University, and/or be located in an area with a bicycle-friendly street grid. Stations with no bicycling are either in dense urban employment centers with no bicycle parking, or are located in the eastern portion of the region. Of the

fourteen stations located east of the Anacostia River in 2002, ten had no bicycle use at all. All stations in Fairfax and Montgomery Counties had some bicycle use. The WMATA *Rail Passenger Survey* confirms what the census tells us about the distribution of walking and bicycling in the region, with walking and bicycling heavily concentrated in the Metro core and at certain inner suburban stations.

Outlook

Walking and bicycling taken together are significant travel modes in the Washington region, especially for non-work trips, and for trips to transit. Walking is the larger mode, but it is shrinking, while cycling is less common and is stable at the regional level.

Commutes are getting longer across the region, and the fastest population growth is taking place in outer jurisdictions that have low and declining levels of walking and bicycling. Those areas have developed in ways that make utilitarian walking and bicycling difficult and dangerous, with long distances, lack of direct routes, heavy, fast automobile traffic, and incomplete facilities for walking or bicycling.

The story in the urban core, however, is different. In the District of Columbia, Arlington, Alexandria, and portions of Montgomery County, walking is holding its own, while bicycling is expanding rapidly. Where one finds mixed-use activity centers, one finds a lot of people walking and bicycling. Where land uses are separated and development densities are lower, walking and bicycling are less common.

*Growth in
Walking and
Bicycling will
likely occur in the
Urban Core and
Regional Activity
Centers*

It is likely that the urban core and inner suburban communities will develop over the next thirty years ways that will be conducive to walking and bicycling. Many inner suburban activity centers have already reached critical levels of traffic congestion. Land values in the inner jurisdictions have been rising rapidly, and regional projections call for rapid employment growth in these same areas. 80% of the region's employment is currently found within a series of "regional activity centers", or concentrations of employment and housing identified by the TPB. Seventy percent of regional employment growth to 2030 is planned to take place within or directly adjacent to those centers, as well as thirty-six percent of household

growth.¹¹ Under current zoning, far more workers are projected to arrive in the region than there will be homes built for them, and transport links will not be adequate for them to commute from outside the region.¹² The COG Board of Directors has concluded that some land will need to be replanned and re-zoned to accommodate sufficient housing to meet employment projections. If redevelopment occurs in ways that are consistent with the *TPB Vision*, creating activity centers that mix jobs, housing and services in a walkable environment, conditions will be favorable for growth in walking and bicycling.

¹¹ www.mwcog.org/planning

¹² Metropolitan Washington Council of Governments, *Growth Trends to 2030: Cooperative Forecasting in the Washington Region*, October, 2005. Pp. 2, 14-15.

Data Sources

Major sources of data for bicycling and walking in the Washington region include the US Census, the Commuter Connections *State of the Commute Survey*, the 1994 COG/TPB *Household Travel Survey*, COG/TPB's cordon counts, pedestrian and bicycle crash data from the Departments of Transportation, WMATA's 2002 *Rail Passenger Survey*, and the 2004 *Bike to Work Day Survey*.

A. 2000 US Census

The most fine-grained data on travel behavior comes from the Census. Every 10 years the Census Bureau asks roughly one in seven individuals (those who fill out the 'long form') how they get to work. People are polled at their home, not at their place of work. The most recent data available is from the 2000 Census. The biggest limitation of the Census data is that it only contains commute trips. Only one quarter of all trips in the Washington region are commute trips.¹³ However, commute trips occur at the most congested time of day.

B. 2002 COG/TPB Cordon Counts

COG/TPB's cordon counts are conducted by machine or in person, on specific roads or trails. In cordon counts, COG/TPB counts the volume of traffic crossing a series of points along an imaginary circle. For example, one cordon line is the Capital Beltway. At approximately 60 points along the Beltway, COG/TPB counts all vehicles crossing over or under the Beltway. Another cordon line is known as the Metro Core, circling downtown DC and part of Arlington. Counts take place on a single day, so results may vary widely depending on weather, transportation incidents, security emergencies, or other factors. Pedestrians are not counted. Bicyclists crossing the cordon line may or may not be commuters; they are counted but not stopped or asked their trip purpose. In most cases the numbers represent only one day of counting and can not be viewed as a daily average.

C. 2004 Commuter Connections State of the Commuter Survey

The *State of the Commute Survey* is a random sample survey of 7,200 employed persons in the 12 counties and four independent cities of the Washington Metropolitan designated non-attainment region. Commuter Connections commissions this survey in order to evaluate the effectiveness of its programs. The region polled is the Washington Metropolitan Statistical Area, shown in figure

¹³ National Capital Region Transportation Planning Board, *1994 COG/TPB Household Travel Survey: Summary of Major Findings*. January, 1998. Page 4.

i-1 on page i-4. The sample size of the *State of the Commute Survey* permitted the calculation of walk/bike mode shares by annual income, ethnicity, age, and state of residence.

The SOC survey does not provide any information on non-work trips. Surveys were carried out from February 7th to May 2nd, 2004, by telephone, and asked about behavior “last week”. This methodology differs somewhat from U.S. Census, which asks about behavior during the first week in April. The 2001 and 2004 SOC surveys show lower numbers for walking and bicycling than does the census.

D. 1994 COG/TPB Household Travel Survey

In 1994 consultants for the Council of Governments conducted a survey of more than 11,000 persons in 4,800 households throughout the metropolitan Washington region, about trips made on a randomly assigned weekday for their household. The survey was conducted in two waves, the first in May and June of 1994, the second in October and November of 1994. In each wave of the survey, randomly selected Washington area households were contacted by telephone and asked to participate in a one-day travel survey. Those households agreeing to participate were sent a travel survey packet containing information on the survey and a travel diary for each member of the household age 5 and older. Instructions in the survey packet asked all eligible household members, age 5 or more, to record in the enclosed travel diaries all trips made on a specific weekday that had been randomly selected for their household. Reminder cards were sent and phone calls made. Then beginning on the day after the travel day consultant staff began calling each participant household to obtain a telephone report of all trips made by each household member on the household’s travel survey day. The net response rate was 40%.

The data collected in the COG/TPB Household Travel Survey is used to develop an understanding of the basic factors that determine the amount and nature of daily travel in the Metropolitan region. They are also used to predict changes in daily travel patterns in response to current development trends and changes in regional transportation policies and programs.

E. 2002 WMATA Rail Passenger Survey

WMATA carried out a survey of rail passengers in 2002. Surveys were carried out between April 8 and May 22, 2002. Data were collected for the full day, divided into a.m. and p.m. peak and off-peak periods. Subjects were interviewed in Metro rail stations. The primary purpose of the survey was to allow WMATA to estimate the percentage of total ridership residing in jurisdiction. However, the survey also asked riders what mode of transportation

they used to access or egress the station. 57,700 responses were gathered.

F. 2004 Bike to Work Day Survey

The *Bike to Work Day Survey* is a survey of participants in the regional Bike to Work Day of May 7, 2004. It is not a random sample, but it provides a portrait of a self-selected group of cyclists. In November 2004, COG/TPB mailed surveys to all 4,200 registered participants, and got back 1,240 completed surveys, a response rate of 30%.

Participants in Bike to Work Day often rode considerable distances for the event, with 18% riding 10-15 miles, and another 12% riding more than 15 miles. However, the post-ride survey indicates that people may be willing to ride farther for a one-day event than they will on a daily basis. Several months after the event participants were asked if they still biked to work, and if not why not. Of the 354 respondents who did not continue riding to work after participating in Bike to Work Day, 42% cited weather, while another 35% cited lack of a safe route, 31% cited distance, 18% cited lack of showers or changing facilities, 10% cited lack of bike parking/storage, and 8% cited the need for a car to take care of personal business.