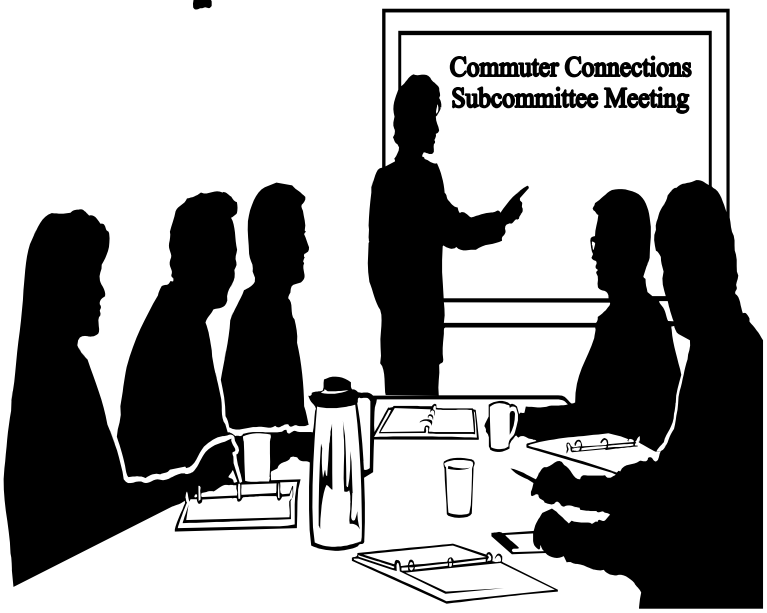
HANDOUTS

from previous meeting



May 18, 2010

ITEM #4

2010
Congestion Management Process (CMP)
Technical Report

Commuter Connections Subcommittee Meeting
May 18, 2010

Andrew Meese and Wenjing Pu
National Capital Region Transportation Planning Board (TPB)
Metropolitan Washington Council of Governments (COG)

Background

- A Congestion Management Process (CMP) is a requirement in metropolitan transportation planning
  - SAFETEA-LU and associated 2007 Federal regulations for metropolitan planning address CMP requirements
- Metropolitan long-range plans developed after July 1, 2007 must have a CMP
  - The official CMP component is wholly integrated into the CLRP to address the federal requirement
- March 2006 Federal certification of the TPB process recommended demonstrating how the Congestion Management System (CMS, now CMP) was applied at critical stages of the metropolitan planning process, in the CLRP or a stand-alone document
- A 2008 CMP Technical Report was published
- Draft 2010 CMP Technical Report now ready for review

Connections between the CMP and the Commuter Connections Subcommittee

- TPB Technical Committee has responsibility for technical oversight of the CMP Technical Report, advised by:
  - ***Commuter Connections Subcommittee (regarding demand management)***
  - Travel Management Subcommittee (strategy identification and analyses)
  - MOITS Policy Task Force and Technical Subcommittee (incident management and non-recurring congestion)
  - Travel Forecasting Subcommittee (travel monitoring)
- The CMP Report documents:
  - Strategies implemented by the CC Program
  - Strategy assessments conducted by the CC Program
- The CC Program is critical for addressing the federal CMP requirements regarding demand management
  - Implementing strategies
  - Evaluating the impact of strategies
  - Individual highway expansion projects can reference the already existing CC programs rather than having to create new programs to satisfy CMP requirements

Outline of the Draft Report

- Executive Summary

1. Introduction
2. State of Congestion
3. Consideration and Implementation of Congestion Management Strategies
4. Studies of Congestion Management Strategies
5. How Results of the CMP Are Integrated into the CLRP
6. Conclusions

The 2010 CMP Technical Report:

- *Compiles information from a wide range of metropolitan transportation planning activities, and*
- *Provides some additional CMP specific analyses, particularly travel time reliability and non-recurring congestion analyses*

Chapter 3 – Consideration and Implementation of Congestion Management Strategies

- Similar to the 2008 Report with appropriate updates
- Demand management strategies
  - ***Commuter connections programs (section 3.2.1, pages 89-94)***
  - Local jurisdictional activities (Table 5, pages 92-101)
- Operational management strategies
  - HOV Facilities
  - Variably Priced Lanes (VPLs)
  - Traffic Management (MATOC, MOITS)
  - Capacity Increases (Based upon CLRP)
- Construction-Related Congestion Management

Chapter 4 – Studies of Congestion Management Strategies

- Expanded from the 2008 Report
- Review of performance measures
- Review of congestion management strategies
- Updated information on studies
  - ***TERM evaluations (section 4.3.1, pages 137-138)***
  - Regional mobility and accessibility study (RMAS)
    - Phase I: from 2000 to 2006, five scenarios
    - Phase II: from 2007 to present, two scenarios
  - MATOC benefit-cost study
  - MOITS Strategic Plan

Key Findings: Strategies

- The ***transit system*** in the Washington region serves as a major alternative to driving alone – transit mode share is among the highest several metropolitan areas in the country
- *The **Commuter Connections Program** remains a vital means to assist and encourage people in the Washington region to use alternatives to the single-occupant automobile*
- Congestion management strategies of Management, Operations, and Intelligent Transportation Systems (***MOITS***) provide essential ways to make most of the existing transportation facilities
- ***Variably priced lanes (VPLs)*** are an effective way to provide alternatives to travelers and manage congestion on new capacity
- The Metropolitan Area Transportation Operations Coordination (***MATOC***) program enhances regional coordination for regional-significant incidents and the program is cost-effective with a conservative benefit to cost ratio of 10:1

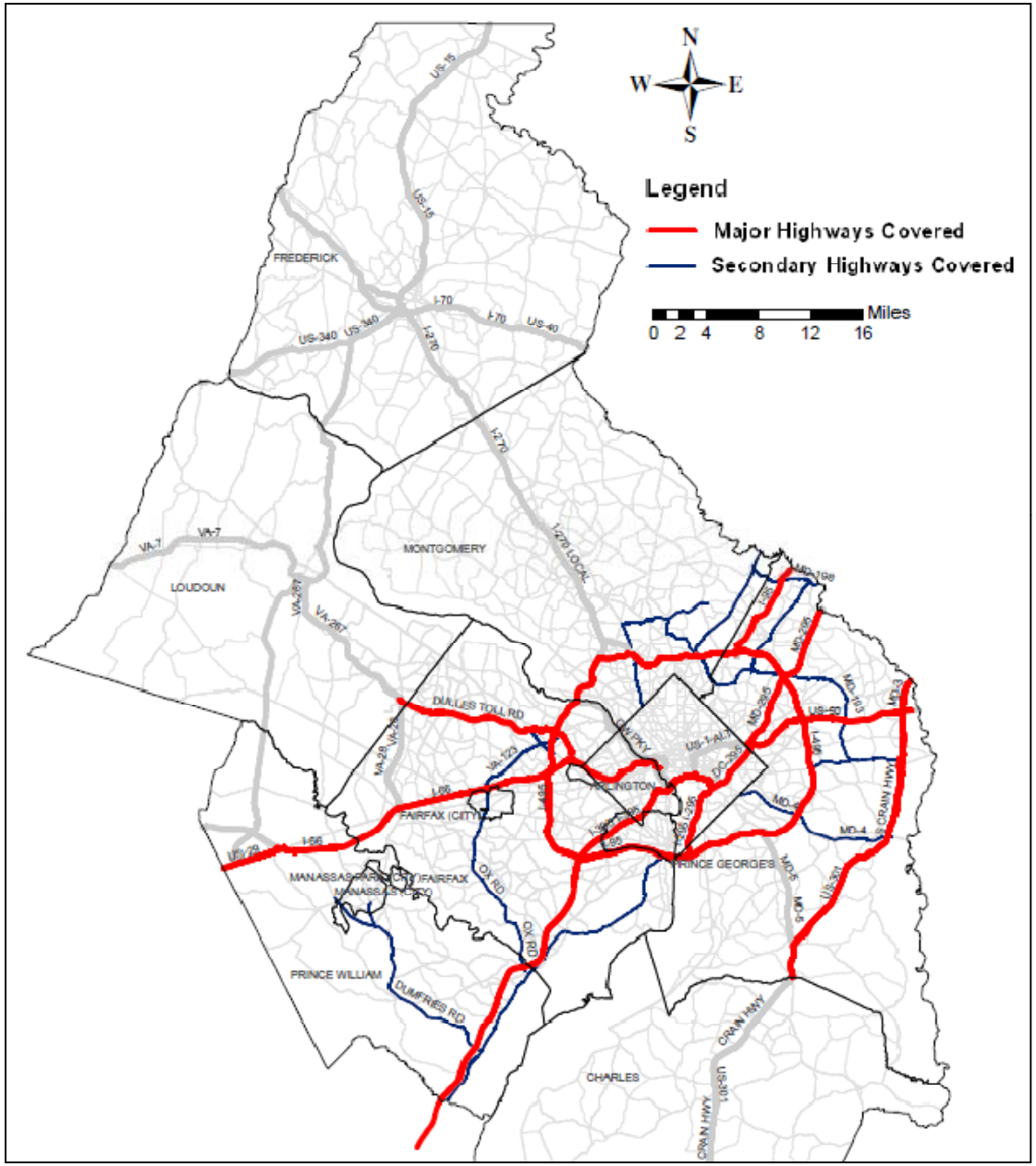
Key Findings: Skycomp and Arterial Monitoring Studies

- As reported in earlier published TPB travel monitoring reports
- 2008 (when fuel prices were at an all-time high) saw reductions in congestion compared to previous years
  - Total freeway lane miles with level of service (LOS) F congestion in the AM and PM peak periods dropped by 24 percent from 2005 to 2008, almost back to 2002 levels
- Arterial congestion
  - Worsened over the years in the PM peak period (4:00-7:00 PM)
    - Especially during the PM peak hour (5:00-6:00 PM)
  - Unchanged or relieved in the PM off-peak period (1:00-4:00 PM & 7:00-8:00 PM)

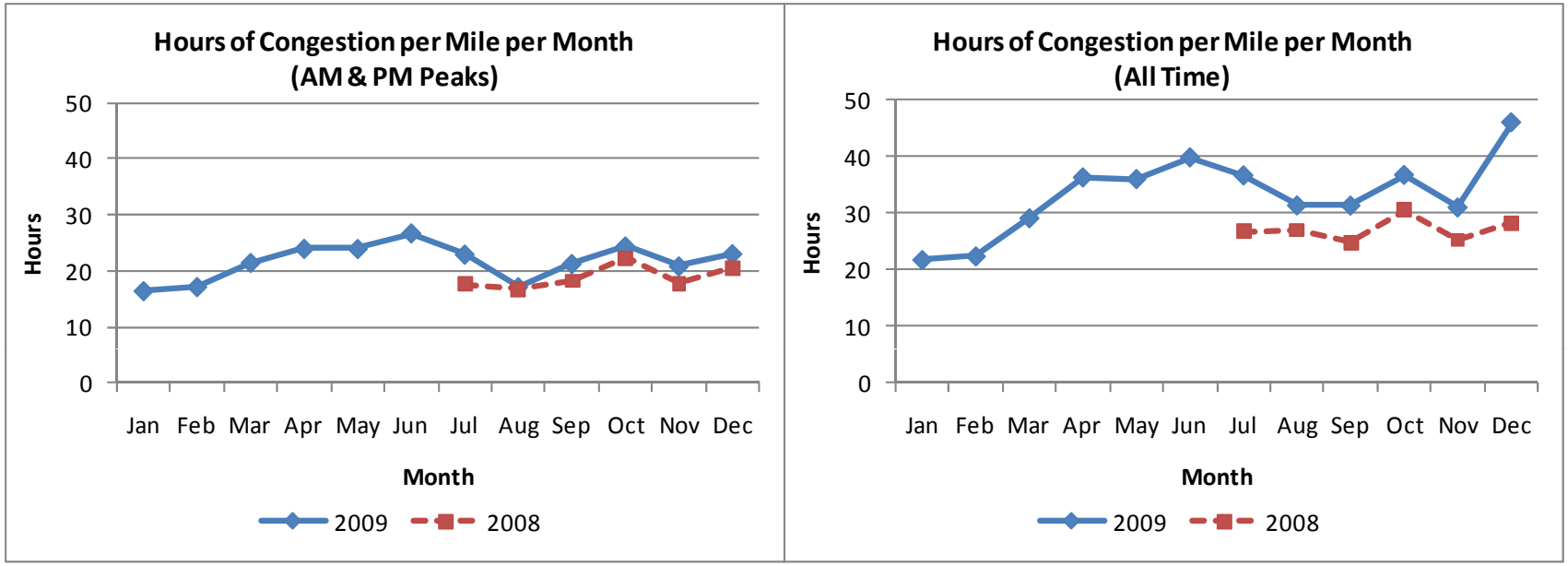
Analyses of INRIX Data (New for 2010)

- Section 2.1.3 (pages 48-65)
  - A New Data Source for Highway Performance Monitoring
  - Travel time index
  - Mile-hours of congestion
  - Planning time index
  - Buffer time index
- Limited Trial Data Sample
  - Significant but not comprehensive roadway coverage regionally (e.g., data for I-70 & I-270 are not yet available)
  - Data only since July 1, 2008

INRIX Data Coverage in the TPB Member Jurisdictions



Congestion on Freeways Covered by INRIX Data



Note: "congestion" is considered when speed <= 50% of free flow speed.

- Congestion increased from 2nd half of 2008 to 2nd half of 2009:
  - 14% increase for AM & PM peaks
  - 24% increase for all time
- Congestion in 2009:
  - From January to June, increasing
  - From July to December, fluctuating

Key Findings: INRIX (Limited Trial Data Sample)

- Congestion varies seasonally and daily in 2009 on the sampled freeways
  - Most congested and unreliable month: June
  - Least congested and most reliable month: January
  - Most congested and unreliable AM hour: Tuesday 8-9 AM
  - Most congested PM hour: Friday 4-5 PM
  - Most unreliable PM hour: Friday 5-6 PM
  - Congestion kept increasing from January to June, but fluctuated in the 2nd half of 2009
- Travel time reliability has been examined in the CMP for the first time
  - On average there was a 13% decrease of travel time reliability from the 2nd half of 2008 to the 2nd half of 2009

Recommendations

- ***Continue the Commuter Connections Program***
- Continue the MATOC program and agency/ jurisdictional transportation management activities
- Consider variable pricing and other management strategies for capacity increasing projects
- Encourage implementation of congestion management for major construction projects
- Continue and enhance the use of continuous, probe-based congestion monitoring data
- Integrate probe-based congestion monitoring data and location-fixed sensor data
- Continue travel time reliability analysis
- Explore the use of INRIX and other emerging data sources to produce online quarterly snapshots of regional congestion

Priorities for Committee Review

- Executive Summary (pages 7 – 21)
- Commuter Connections Program (pages 89 – 94)
- TERM evaluations (pages 137 – 138)
- Analyses of INRIX data (pages 48 – 65)
- Conclusions (Chapter 6, pages 145 – 147)

Review Schedule

- Committee presentations
  - Travel Management Subcommittee, April 27
  - TPB Technical Committee, May 7
  - MOITS, May 11
  - ***Commuter Connections, May 18***
  - Travel Forecasting Subcommittee, May 21
- DEADLINE for comments May 28
- Finalization at June 4 Technical Committee

ITEM #5

Household Travel Surveys in the Metropolitan Washington Region

Presentation
By

Robert E. Griffiths
Technical Services Director
National Capital Region Transportation Planning Board
Metropolitan Washington Council of Governments

Commuter Connections Meeting
May 18, 2010

Presentation Overview

- Background on Household Travel Surveys
- Uses of Survey
- Washington Region Household Travel Surveys
- Household Travel Survey Basics
- Survey Challenges
- Survey Design Elements
- Sampling Plan
- Travel Day Activity Diary
- GPS Vehicle Data Collection
- Non-Respondent Follow-Up
- Some Survey Results

Background on Survey

- **Major Data Collection Effort**
- **About Once Every Decade**
- **When, Where, How, and Why People Travel**
- **Used to Update Travel Models**
- **Trend Analysis**

Uses of Survey

- **Describe existing travel patterns**
- **Causal explanation of travel patterns**
- **Travel Trend Analysis**
  - ➔ Before & After Studies
- **Development of predictive travel demand forecasting models**

Washington Region Household Travel Surveys

- **1968 Home Interview Survey**
- **1988 Mail Out/Mail Back HTS Survey**
- **1994 Telephone HTS (CATI)**
- **2007/2008 HTS**

Household Travel Survey (HTS) Basics

- **Two-stage survey**
- **Recruitment Stage**
  - ➔ Advance Letter
  - ➔ Request Participation
  - ➔ Obtain Basic Information about HH
- **Travel Data Retrieval Stage**
  - ➔ Travel Diary for 24-hr Time Period
  - ➔ Retrieve Data on Daily Travel for each Household Member

Data Items Collected

- **Household Characteristics**
- **Characteristics of Individual Household Members**
- **Characteristics of Vehicles Used by Household Members**
- **Information on Daily Trips and Activities**
- **Geocoding of Trip Origins and Destinations**

Challenges for 2007 HTS

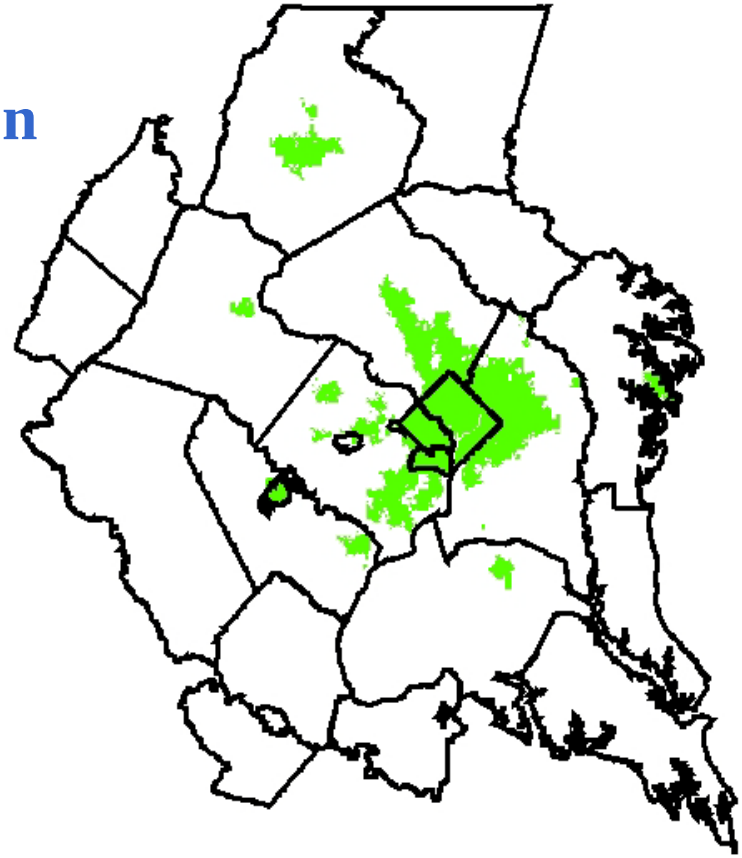
- **Declining telephone response rates**
- **“Cell phone only” households**
- **Obtaining the participation of lower income, minority, younger and no-vehicle households**
- **Identifying “travel substituting” activities (e.g. teleworking, teleshopping, etc.)**
- **Incomplete reporting of auto travel**
- **Measuring non-response**

Design Elements for 2007 HTS

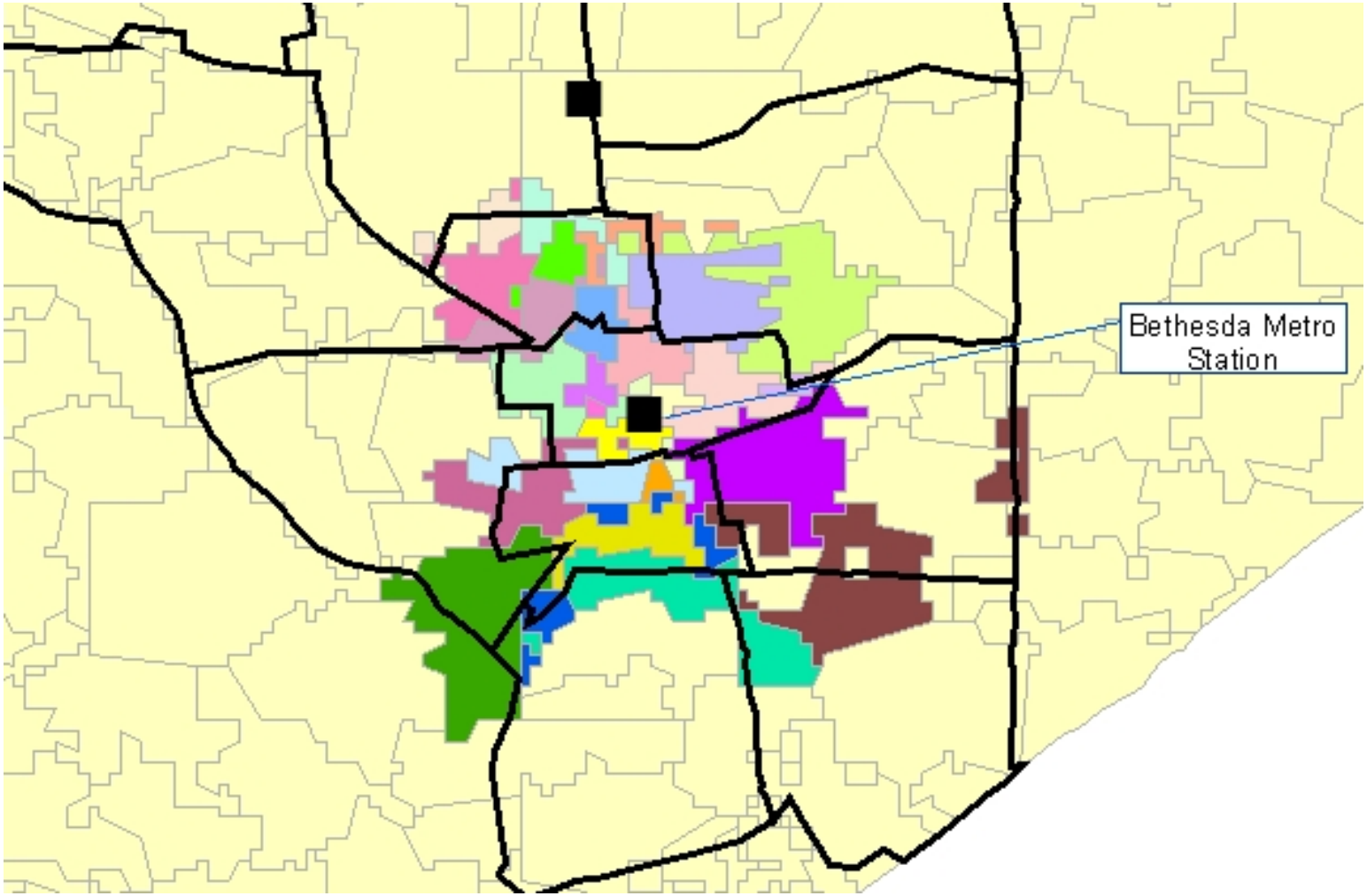
- **Address list-based sampling frame**
- **Mail-out of Short HH Questionnaire and Reminder postcards**
- **Survey Materials in English and Spanish**
- **Website for Scheduling Recruitment Interviews**
- **Special Focus Group Incentives**
- **“Activity-Based” Travel Diary**
- **GPS Vehicle Data Collection to Supplement Travel Diary Data Collection**
- **Non-Respondent Follow-up Survey**

Sampling Plan

- **10,000 Randomly Selected Households in TPB Region and adjacent areas**
- **Ensure a sufficient number of samples in higher density, mixed use urban areas**



Postal Carrier Routes



Address-Telephone Matching

- **Address Matched Against Database of Listed Telephone Numbers**
  - ➔ **Households with Listed Phone Number**
    - **Advance Letter w/Household Questionnaire**
    - **Begin Calling after 7 days**
    - **No Monetary Incentive**
  - ➔ **Households not having a Listed Phone Number**
    - **Advance Letter w/Household Questionnaire**
    - **Up to 3 Reminder Post Cards**
    - **$50 Participation Incentive**
    - **Household provides Phone Number via mail, telephone, or website**

2007/2008 HTS Travel/Activity Diary

EXAMPLE PLACE

A WHAT is this PLACE?

- ☐ My Home
- ☐ My Primary Workplace
- ☐ My School
- ☐ Bus Stop/Train Station or Car/Vanpool Meeting Place
- ☒ Another PLACE

Please provide as much of the address as possible:

Name of Place: Happy Kids Day Care
Street Address: 6929 Willow St., NW
City/County/State/Zip: Washington, DC 20012
Nearest Cross Streets: Aspen St., NW & Willow St., NW

B What TIME did you ARRIVE? *(Please be as exact as possible)* 7 : 32 (am) / pm

C HOW did you get to this PLACE? *(Write code from TRAVEL MODES LIST - on flap →)*

Mode: *(One response only)* Code: 1 | Specify if "97":

D If you got there by:

Private Motor Vehicle* Modes: 1 - 4	Public Transportation* Modes: 6 - 13
Total number of people traveling with you? (Don't include yourself): 1	How did you pay the fare? (check all that apply)
# of household members traveling with you? (Don't include yourself): 1	☐ Farecard ☐ SmarTrip ☐ SmartBenefits/ Metrocheks ☐ Pass ☐ Cash or Credit card ☐ Transfer ☐ Ticket or Token ☐ Other:

* When we call to collect your information, we will also ask which household vehicle you used, your parking cost, if you traveled in an HOV lane, or if your fare was discounted (for transit users), etc.

E What ACTIVITIES did you do? *(Write code from ACTIVITY LIST - on flap →)*

Main Activity: *(One response only)* Code: 7 | Specify if "97":

Other Activities: *(Record all that apply)* Code | Specify if "97"

F What TIME did you LEAVE? *(Please be as exact as possible)* 7 : 46 (am) / pm → **Next PLACE**

☐ Did not leave → **DONE**

ACTIVITY LIST

Use these codes to answer question **E**
Specify if you can't find a matching code.

Basic Activities:
1. Sleep/Rest
2. Eat/Prepare a meal at home
3. Eat a meal at work
4. Eat a meal outside home or work
5. Care for children *(your own or others)*

Travel-Related Activities:
6. Change Mode of Transportation *(get on or off bus/train, meet car/vanpool, transfer buses or to/from Metrorail, etc.)*
7. Pick up/Drop off someone or something
8. Loop Trip that begins and ends at the same place *(take a walk, jog, bike ride, walk dog, etc.)*

Work Activities (for pay):
9. Work *(at regular place of employment)*
10. Work at home/telecommute *(for pay)*
11. Work *(at other location)*
12. Work-related *(meeting, sales call, etc.)*

Education/Childcare:
13. Education/School-related activity
14. Study/Do Homework
15. Childcare/Preschool for child

Other Daily Activities:
16. Shop in store
17. Shop by phone/Internet/TV, etc.
18. Quick stop/Drive Thru *(get coffee, fast food, gas, ATM, etc.)*
19. Personal Business at an establishment *(bank, health care, legal, etc.)*
20. Personal Business by phone/internet
21. Visit/Socialize with friends, relatives
22. Entertainment *(Watch TV, movie, listen to music, read, browse Internet)*
23. Recreation/Exercise
24. Civic or Religious activities
25. Mail package/letter or other postal activity

Other:
26. Other household activities *(cleaning, house/yard work, etc.)*
97. Other: write code & specify

TRAVEL MODES LIST

Use these codes to answer question **C**
Specify if you can't find a matching code.

Private Motor Vehicle:
1. Auto/Pick-up/Van/SUV - Driver
2. Auto/Pick-up/Van/SUV - Passenger
3. Motorcycle
4. Heavy Truck *(1 ton or more)*

Public Transportation:
5. School bus
6. Metrorail/Subway
7. Local Public Bus *(e.g. Metrobus, etc.)*
8. Commuter Rail/MARC/VRE
9. Commuter/Express Bus
10. MetroAccess/Dial-a-Ride Bus
11. Shuttle Bus
12. Light Rail/Tram/Street Car
13. Taxi/Limo

Other Travel Modes:
14. Walk
15. Bicycle
16. Inter-city Rail *(e.g. AMTRAK)*
17. Inter-city Bus *(e.g. Greyhound)*
18. Airplane
97. Other: write code & specify

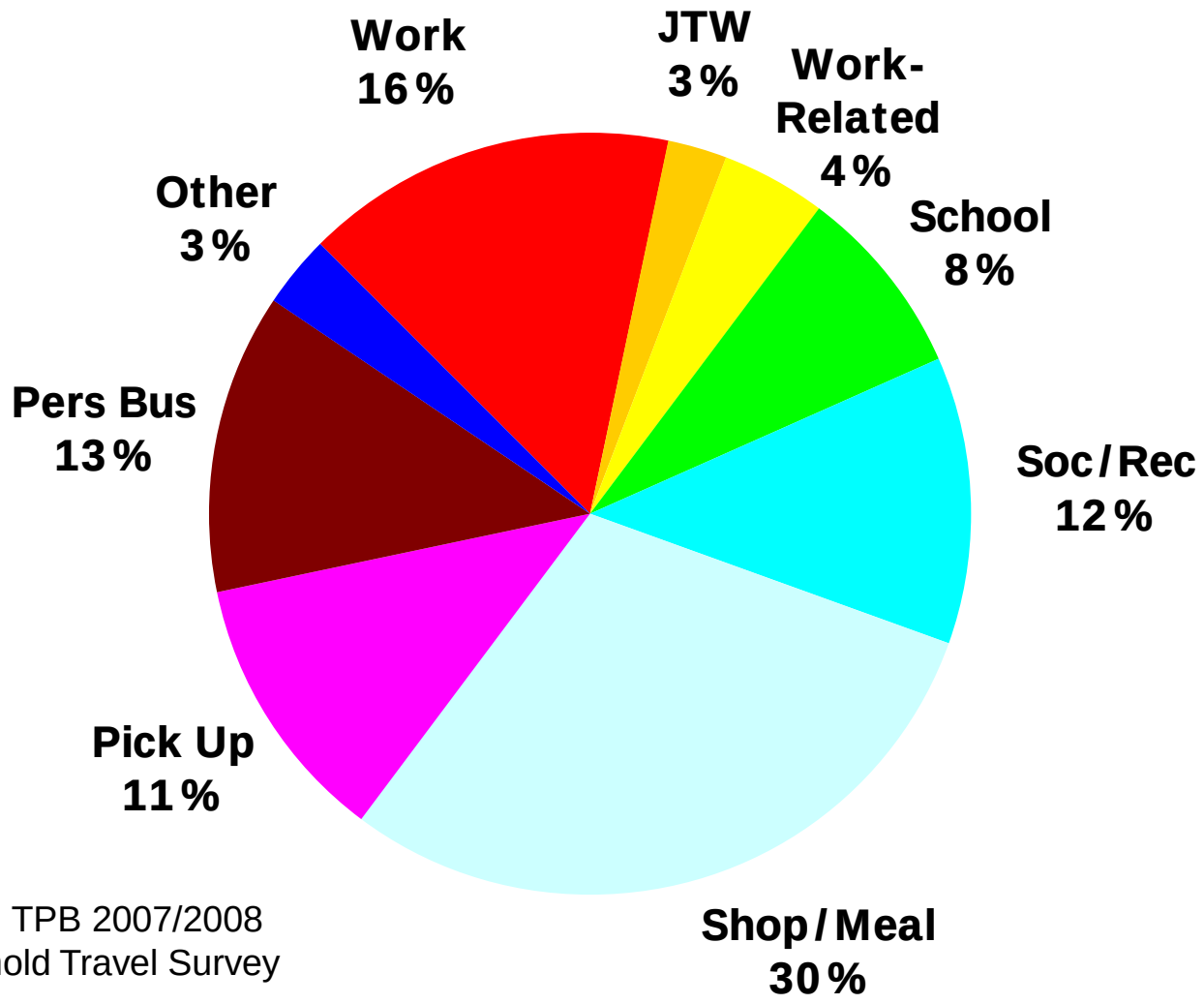
GPS Vehicle Data Collection Sub-Sample

- **Equipment plugs into cigarette lighter**
- **Antenna on dash**
- **Power splitters for other devices**
- **Obtain independent estimates of vehicle trip rates and VMT**
- **Collect route choice data**

Non-Respondent Follow-Up Survey

- **Measures size and likely impacts of non-response**
  - Refusers and Non-Contacts
  - Call Backs after a few weeks wait
  - In-Person follow-up interviews
- **Results of Non-Respondent Follow-Up Survey used to ensure survey results represent all population groups in region**

Daily Trips By Purpose



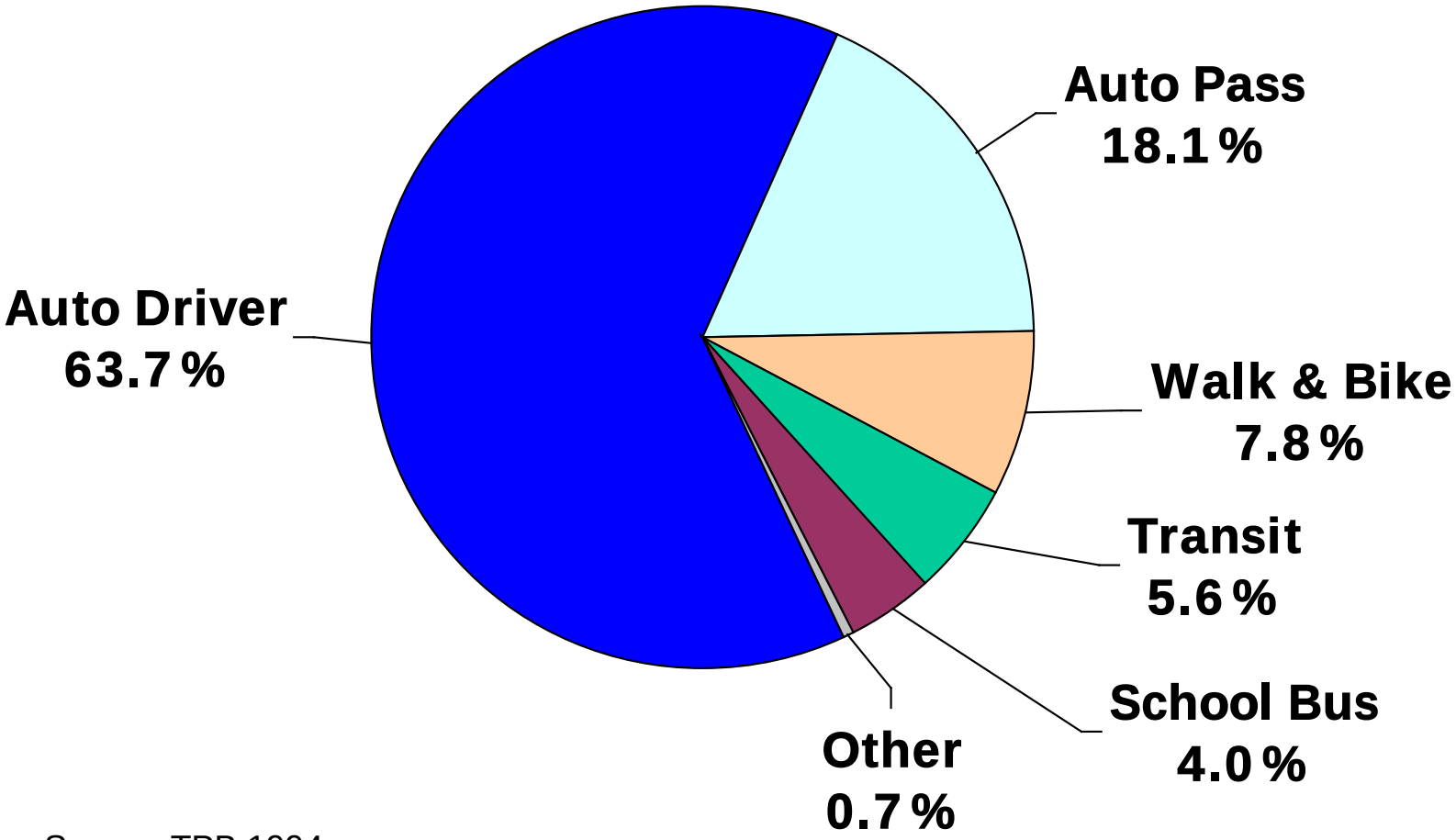
Source: TPB 2007/2008
Household Travel Survey

Trip Length Distribution by Purpose (Distance in Miles)

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

Source: 2007/2008 Household Travel Survey

Daily Trips by Mode (2004)



Source: TPB 1994
Household Travel Survey

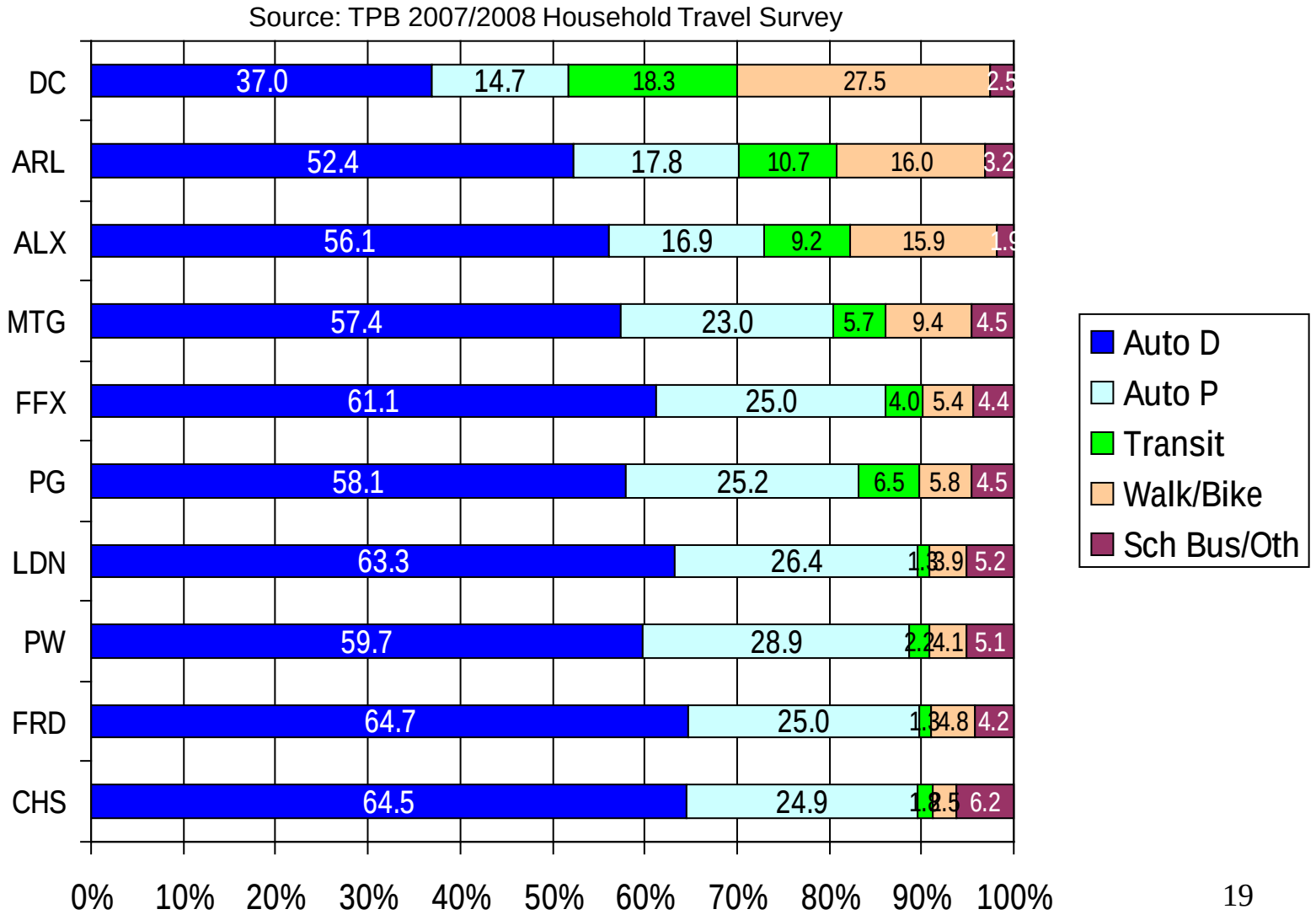
Trip Length Distribution by Mode (Distance in Miles)

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

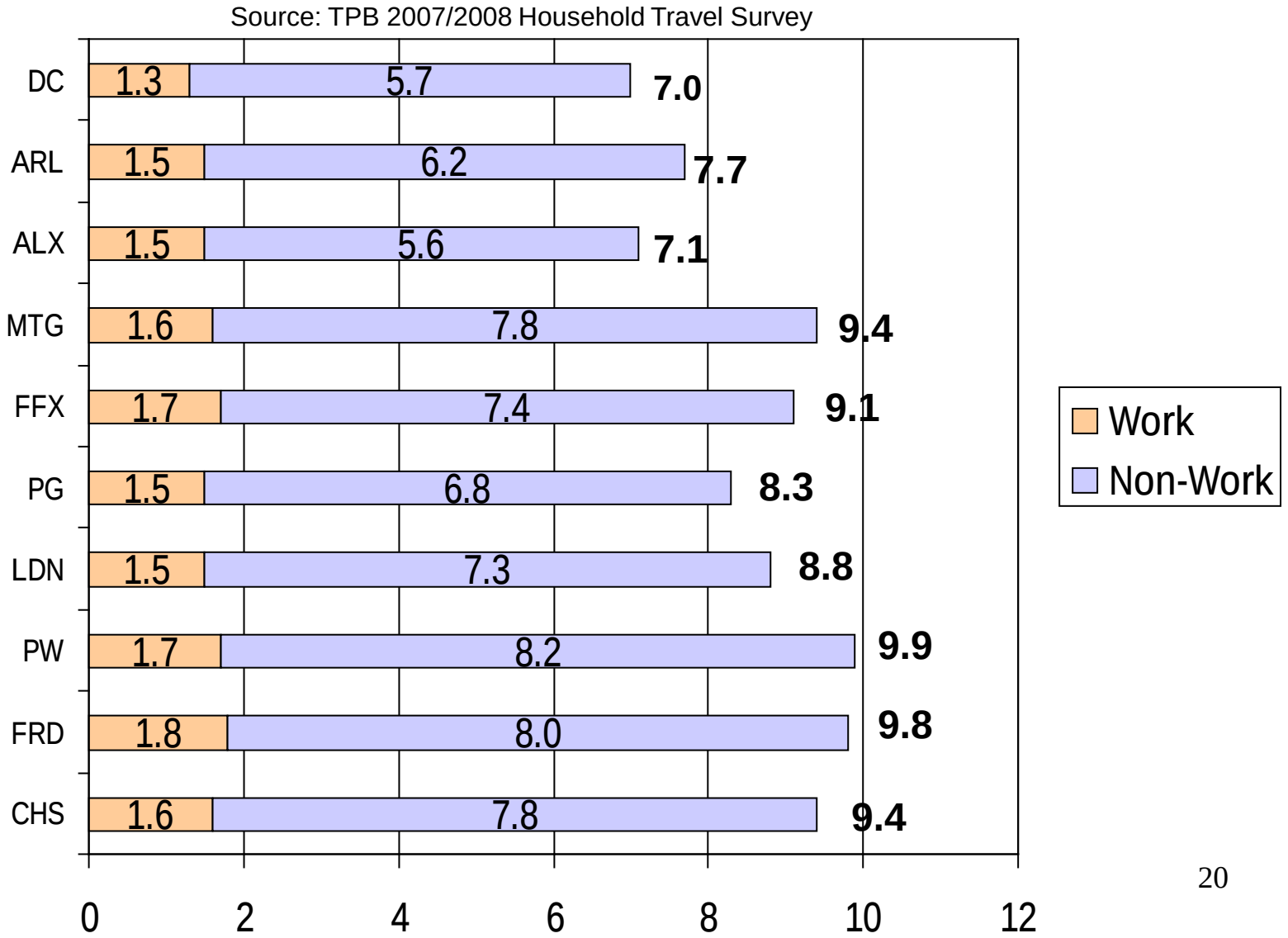
Source: TPB 2007/2008 Household Travel Survey

Travel Mode of Daily Trips by Jurisdiction

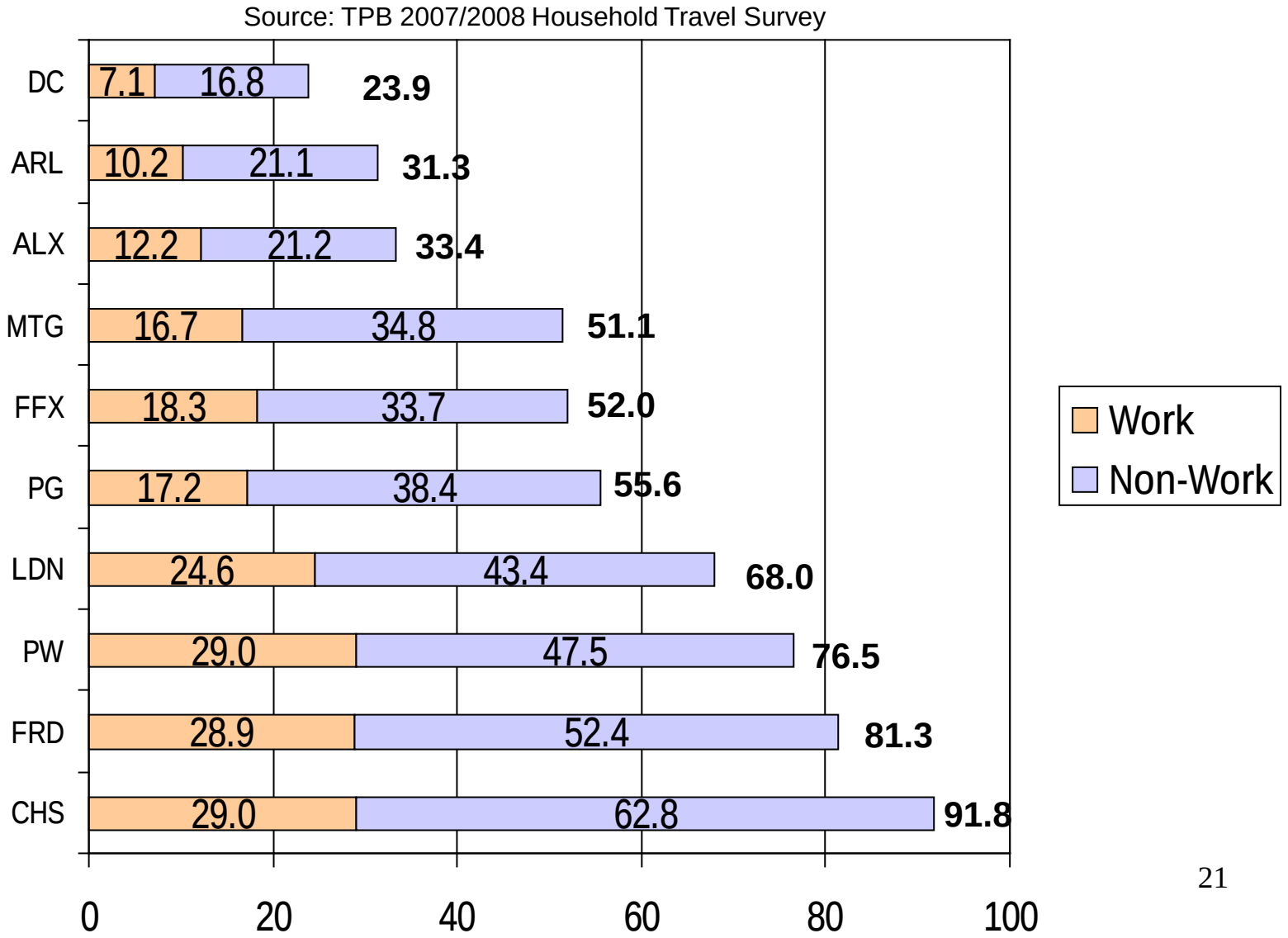
(Percent by Mode of Travel) (2007/2008)



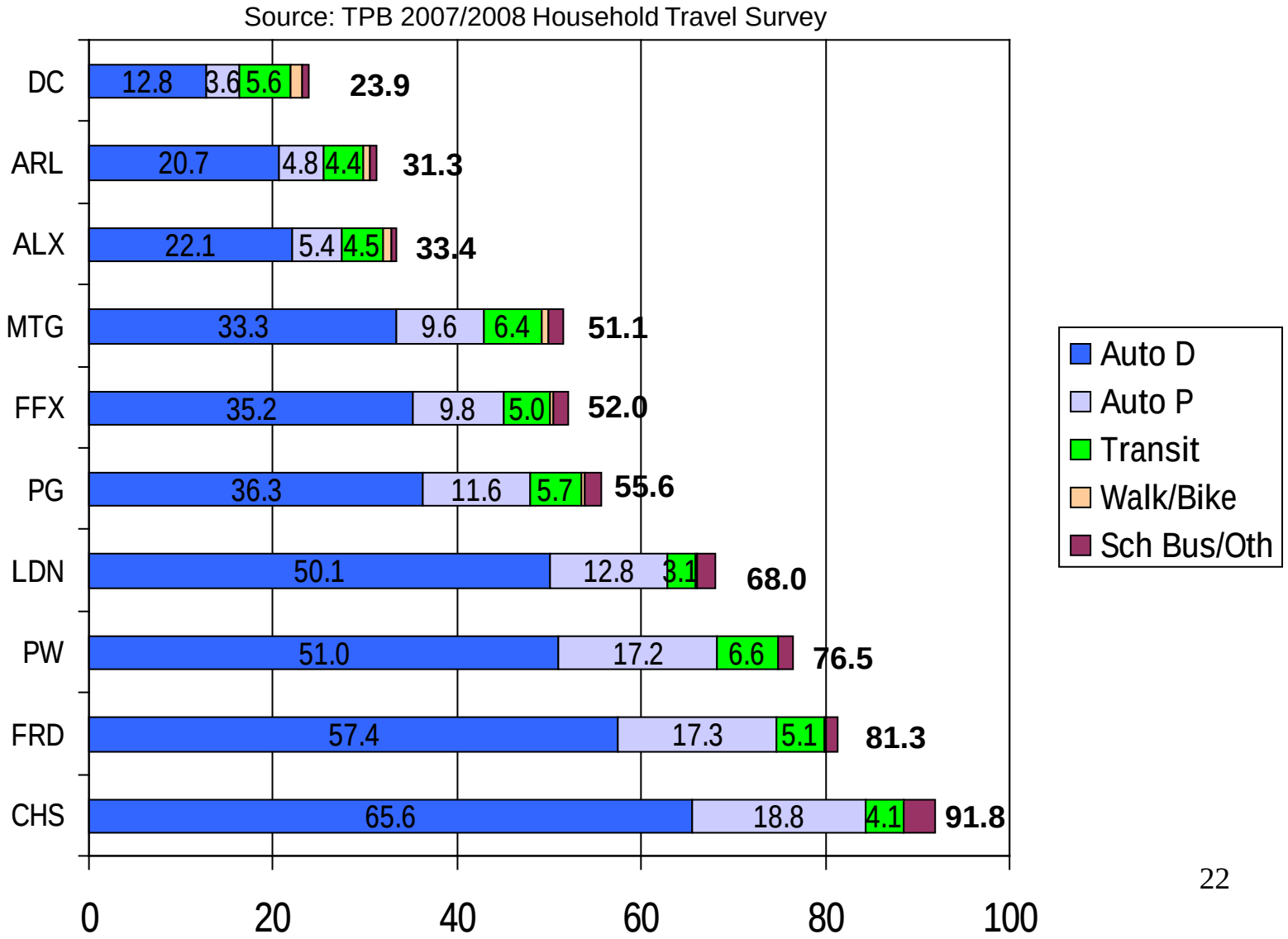
Average Daily Trips Per Household by Jurisdiction and Purpose (# of Trips)



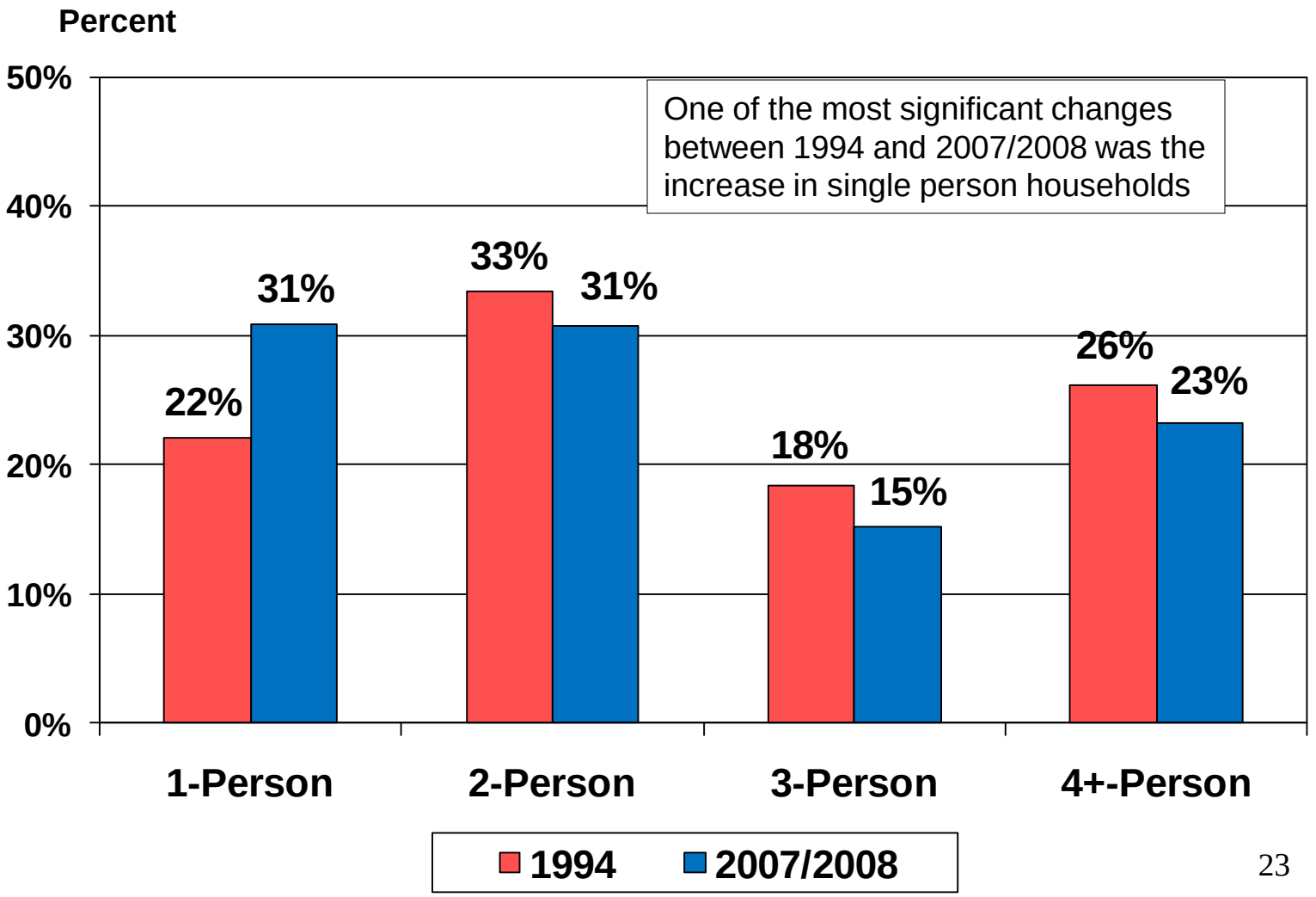
Average Daily Miles Traveled Per Household by Jurisdiction and Purpose (Total Miles)



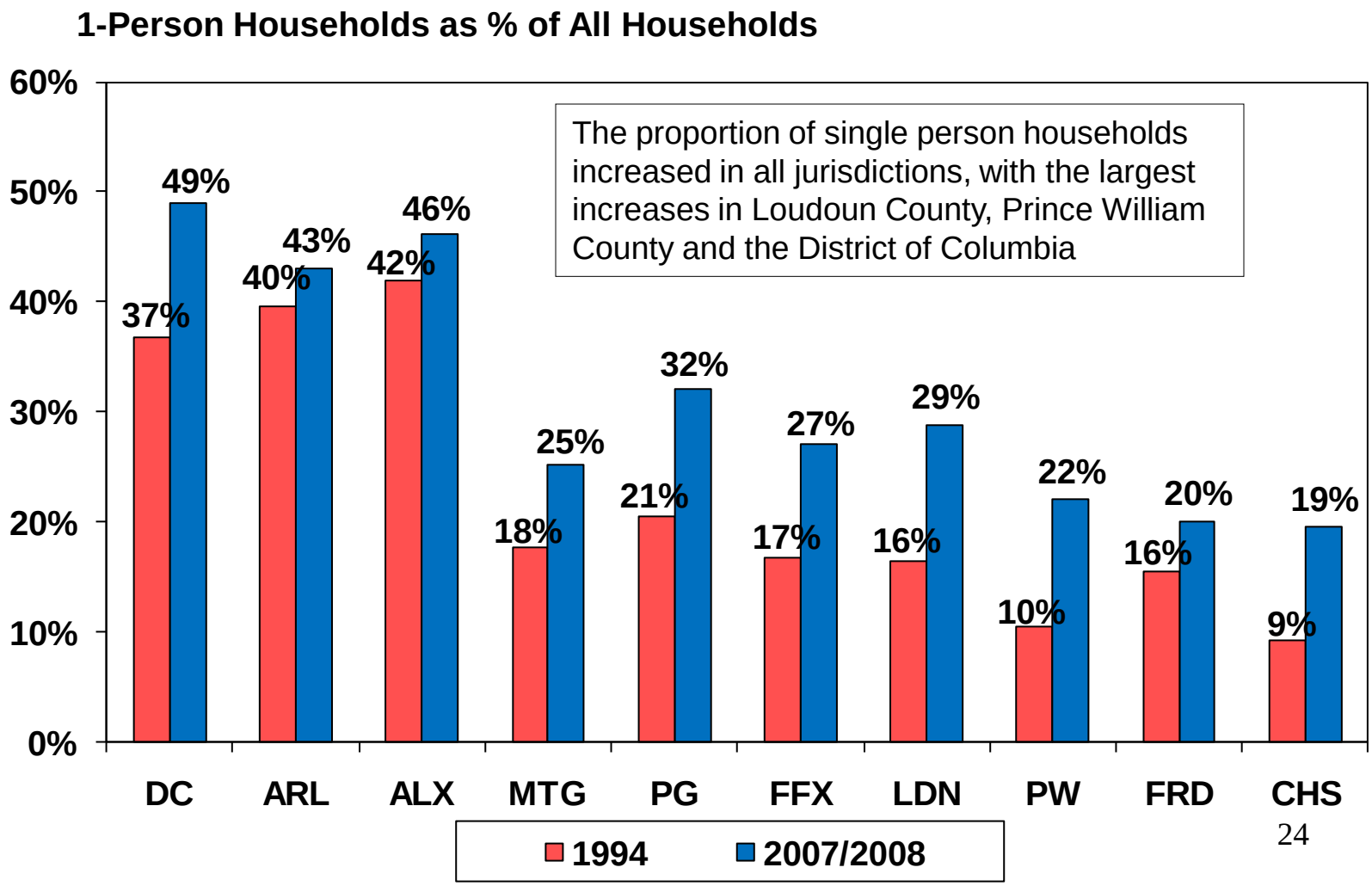
Average Daily Miles Traveled Per Household by Jurisdiction and Mode (Total Miles)



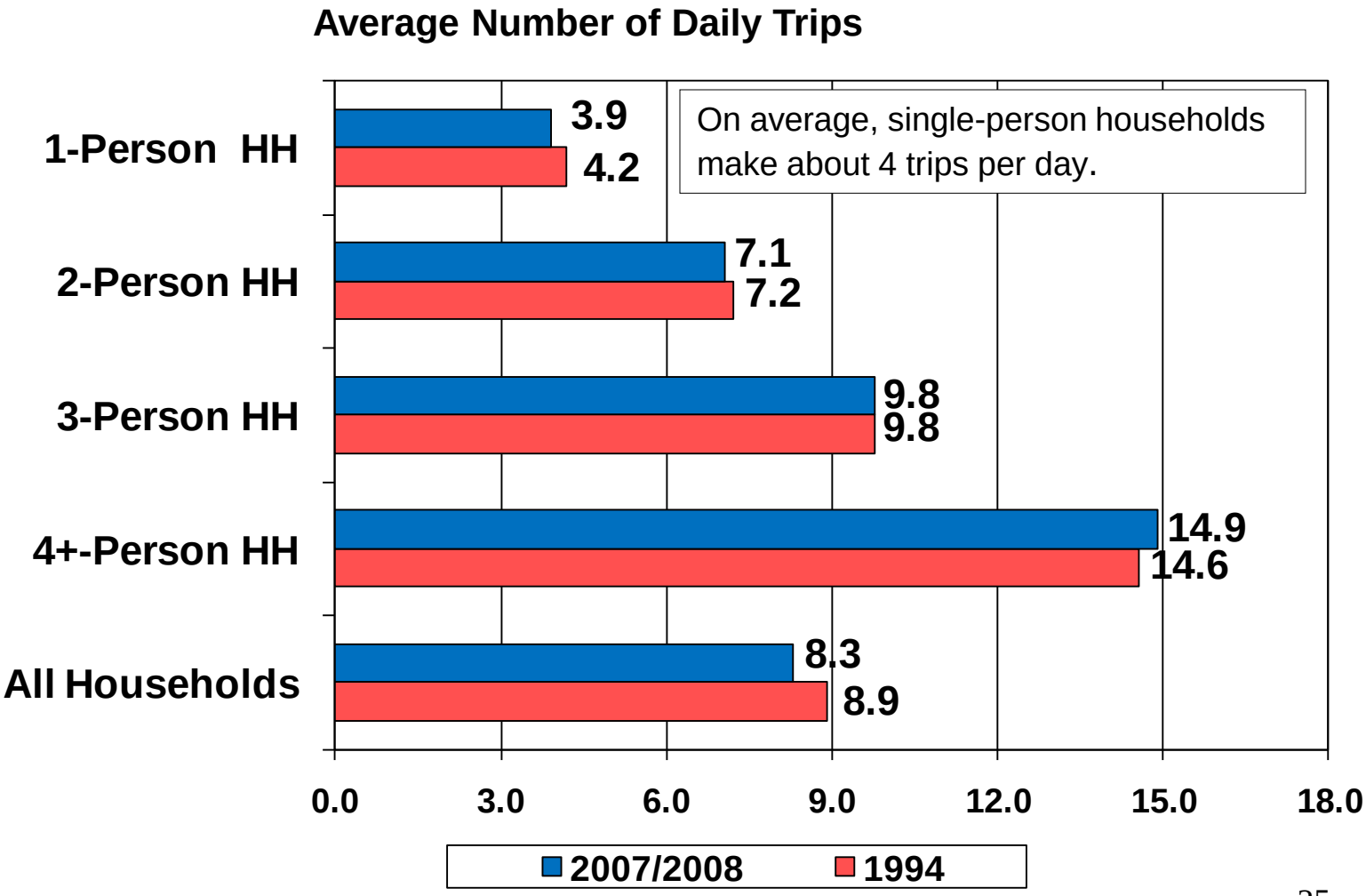
Change in Household Size (1994 – 2007/2008)



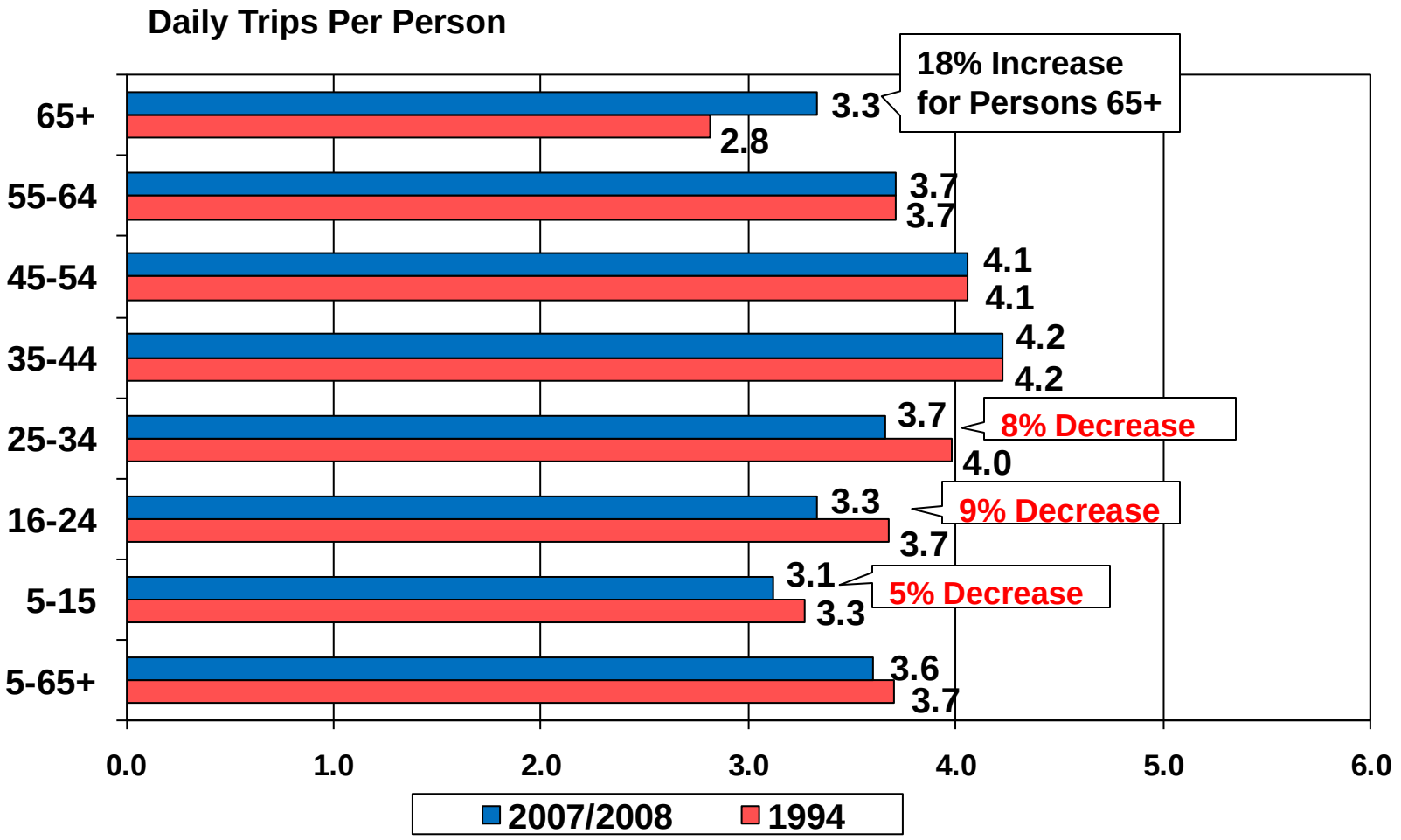
Change in Single Person Households by Jurisdiction (1994 – 2007/2008)



Change in Average Number of Daily Trips Per Household (1994 – 2007/2008)



Change in Average Number of Daily Trips Per Person by Age (1994 – 2007/2008)

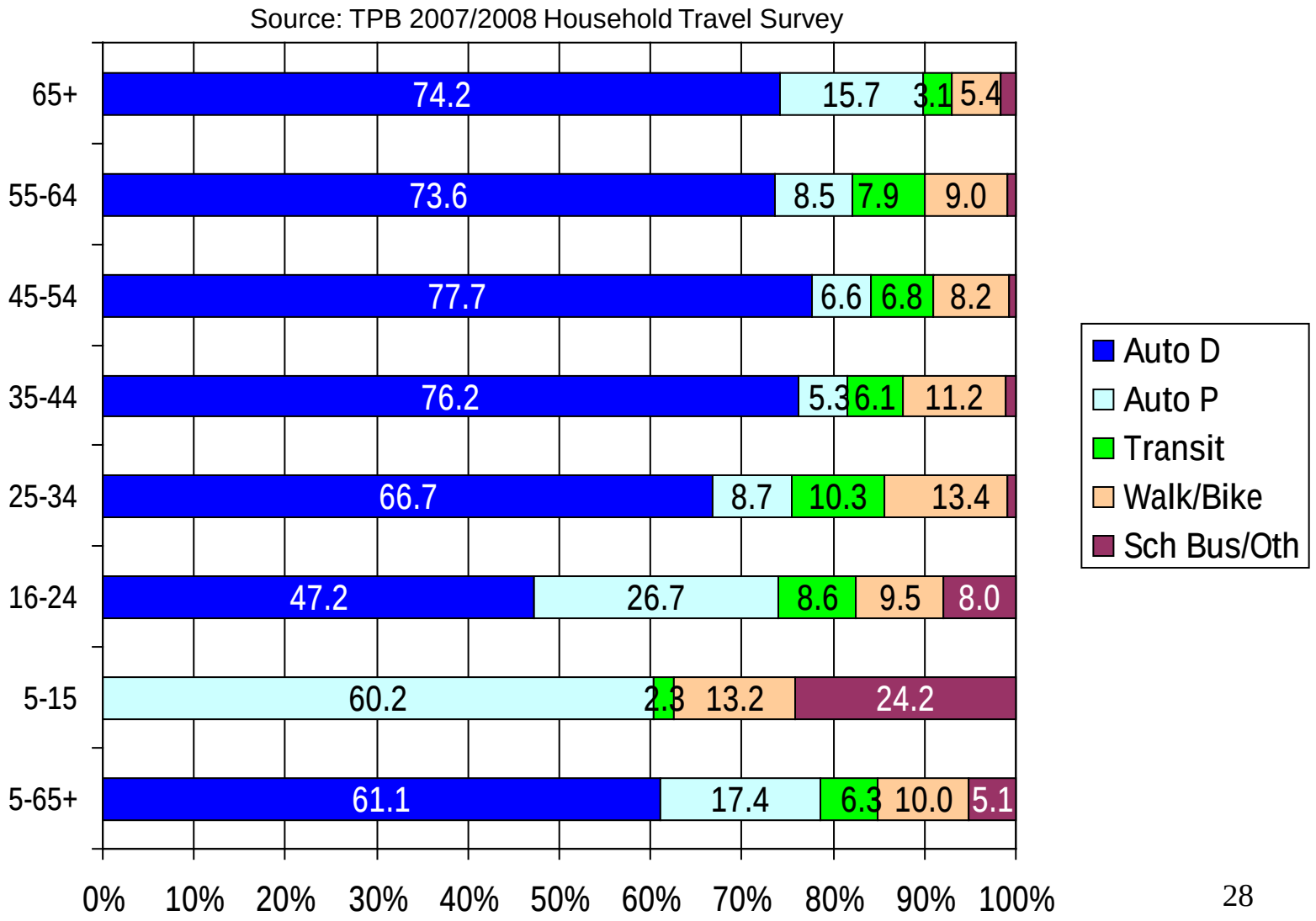


Change in Modal Share of Daily Trips 1994 to 2007/2008

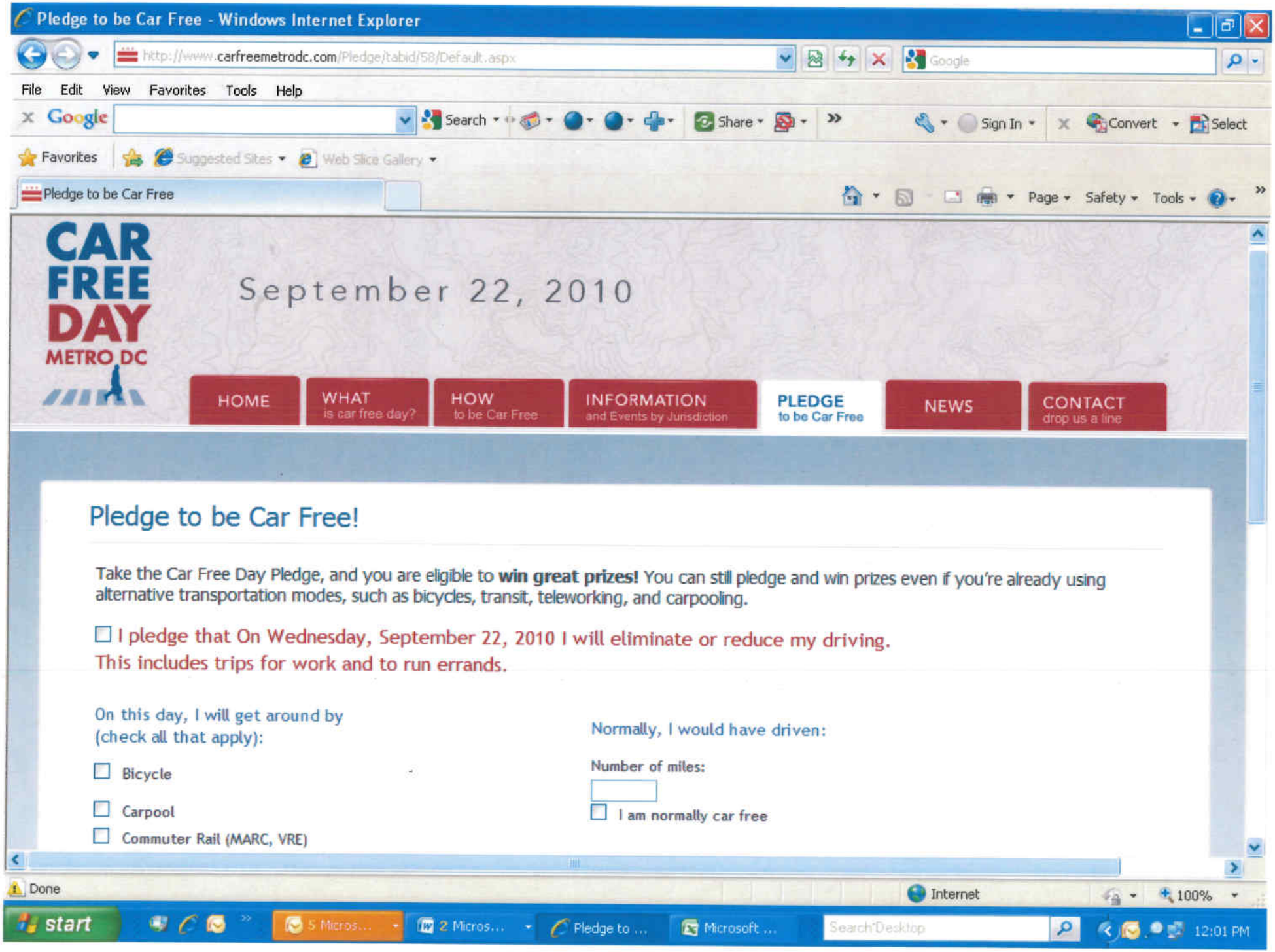
Age	Auto Driver	Auto Passenger	Transit	Walk	Bike	Other
5-15	0.0%	2.4%	1.0%	-0.2%	-0.3%	-2.8%
16-24	-6.9%	0.9%	2.3%	0.9%	-0.1%	2.9%
25-34	-6.4%	-0.7%	2.3%	4.6%	0.5%	-0.2%
35-44	0.9%	-3.9%	-0.2%	2.8%	0.4%	0.0%
45-54	2.5%	-3.8%	0.6%	0.8%	0.3%	-0.4%
55-64	-6.6%	-1.1%	3.8%	3.4%	0.6%	0.0%
65+	0.2%	0.0%	-0.5%	-0.4%	0.2%	0.5%
5-65+	-2.2%	-0.5%	0.7%	1.6%	0.2%	0.2%

Travel Mode of Daily Trips by Age

(Percent by Mode of Travel) (2007/2008)



Questions?


Pledge to be Car Free - Windows Internet Explorer
http://www.carfreemetrodc.com/Pledge/tabid/58/Default.aspx
File Edit View Favorites Tools Help
Pledge to be Car Free
CAR FREE DAY METRO DC
September 22, 2010
HOME
WHAT is car free day?
HOW to be Car Free
INFORMATION and Events by Jurisdiction
PLEDGE to be Car Free
NEWS
CONTACT drop us a line
Pledge to be Car Free!
Take the Car Free Day Pledge, and you are eligible to win great prizes! You can still pledge and win prizes even if you're already using alternative transportation modes, such as bicycles, transit, teleworking, and carpooling.
I pledge that On Wednesday, September 22, 2010 I will eliminate or reduce my driving.
This includes trips for work and to run errands.
On this day, I will get around by (check all that apply):
Bicycle
Carpool
Commuter Rail (MARC, VRE)
Normally, I would have driven:
Number of miles:
I am normally car free
Done
Internet
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start
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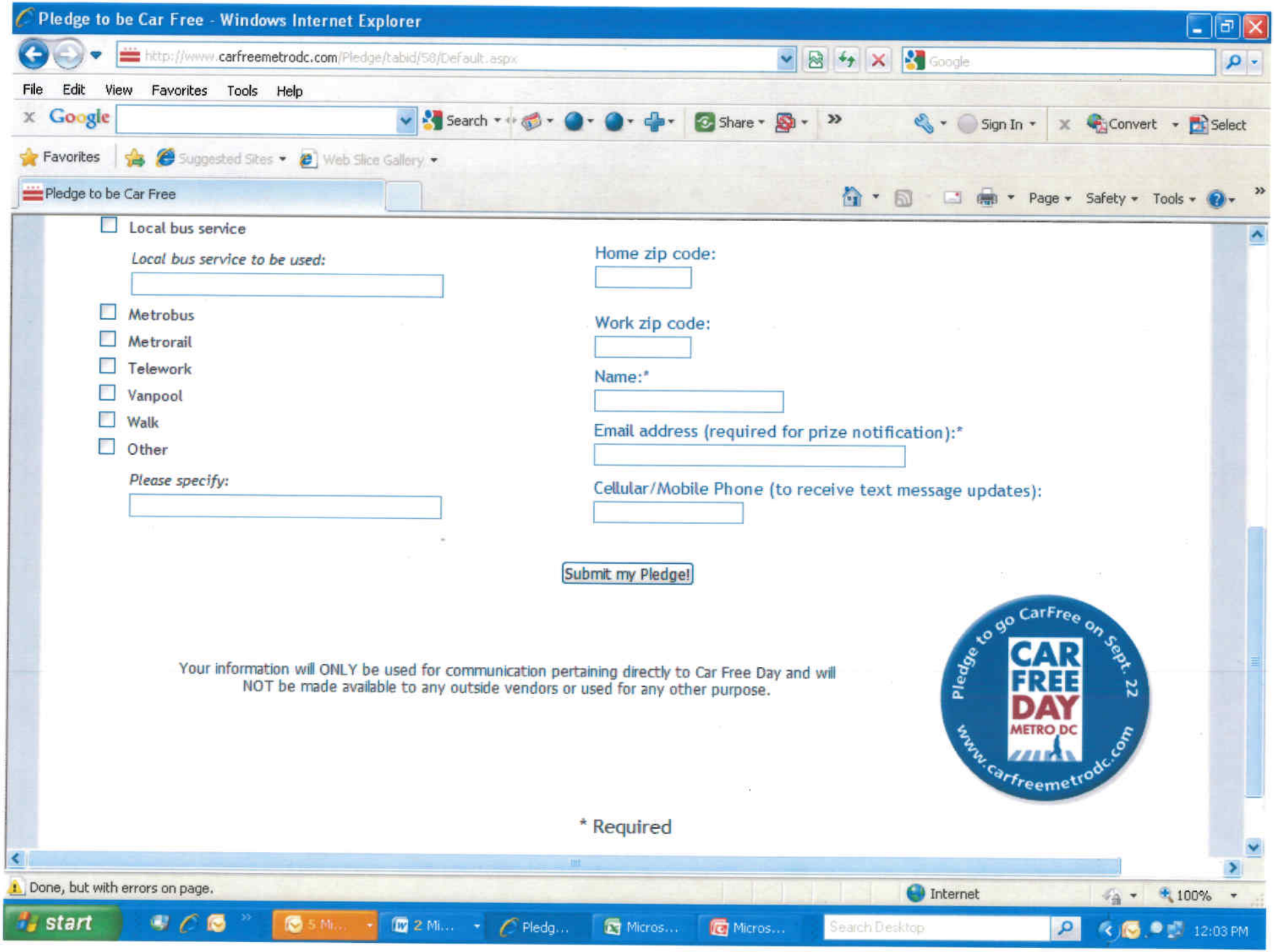
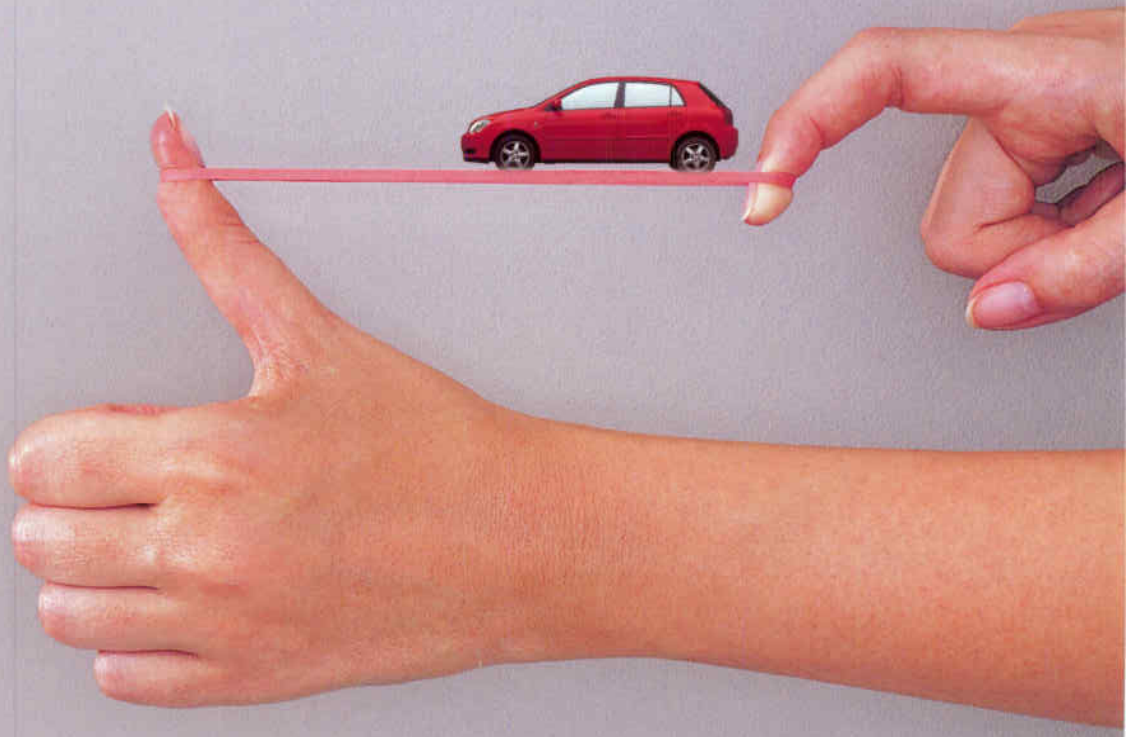

Pledge to be Car Free - Windows Internet Explorer
http://www.carfreemetrodc.com/Pledge/tabid/58/Default.aspx
File Edit View Favorites Tools Help
Favorites
Pledge to be Car Free
Local bus service
Local bus service to be used:
Metrobus
Metrorail
Telework
Vanpool
Walk
Other
Please specify:
Home zip code:
Work zip code:
Name:*
Email address (required for prize notification):*
Cellular/Mobile Phone (to receive text message updates):
Submit my Pledge!
Your information will ONLY be used for communication pertaining directly to Car Free Day and will NOT be made available to any outside vendors or used for any other purpose.
Pledge to go CarFree on Sept. 22
CAR FREE DAY METRO DC
www.carfreemetrodc.com
* Required
Done, but with errors on page.
Internet
100%
start
12:03 PM

BICYCLE BUS CARPOOL METRORAIL TELEWORK TRAIN VANPOOL WALK

Uncar for a Day

go carfree in metro dc

september 22



CAR FREE DAY METRO DC

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