

# Introduction to the ACS



*TRANSPORTATION RESEARCH BOARD*

85<sup>th</sup> Annual Meeting

January 22, 2006

Washington Hilton, Washington, D.C.

Presenter: Dunbar Brooks

# Early Design Proposals



- Concept of “rolling sample design”
- Mid-decade census
- Proposed “Decade Census Program”
- Continuous measurement alternatives to the Census 2000 long form (ACS Design)

# Consultations



- Congressional briefings
- Technical workshops
- User meetings (COMSIS '94)
- Advisory committee and oversight group meetings
- Information meetings with federal government agencies (DOT first agency)

# Consultations



- Resulted in additional changes to basic design
- Cost and accuracy tradeoffs debated (Benefit of current data versus slightly higher variances)

# ACS Basics



- ACS is designed to replace the decennial census “long form.” **That means NO LONG FORM in 2010!**
- There will still be a SHORT FORM in 2010.

# ACS Basics



## Census Bureau characterizes the ACS as:

**A large, continuous demographic survey:**

- ▶ **Conducted monthly**
- ▶ **Implemented as a Continuous Survey Methodology that:**
  - ✓ **Produces annual and multi-year estimates of the characteristics of the population and housing**
  - ✓ **Produces *characteristics, not a population count***
  - ✓ **Produces information for small areas including tracts, block groups and population subgroups - updated every year**
  - ✓ **Key component of reengineered 2010 census**

# ACS Basics



**Continuous Measurement was a ‘brave new world’  
but it achieved the Census Bureau’s goals to:**

- 1. Eliminate the Census Long Form for 2010 and thereafter**
- 2. Eliminate the peak in Congressional funding**
- 3. Eliminate the peak in hiring and training census takers**
- 4. Improve timeliness of data, especially for large areas, such as states and large counties.**

# ACS Basics



## Main differences between Census Long Form and ACS

<b>Decennial Census</b>	<b>ACS</b>
<b>Sample: 1 in 6 Households (17% Sample)</b>	<b>Sample: 1 in approx 40 households each year (2.5%/yr 12.5% @ 5 yrs)</b>
<b>Time reference: April 1, 2000 or April 1, 2010</b>	<b>Time reference: Continuous including all 12 months</b>
<b>Data is outdated quickly</b>	<b>Requires accumulation over multiple years for small area reporting</b>

# ACS Basics



## Current Design

- Sample design
- Data collection and capture
- Data processing
- Weighting and estimation
- Data products

# ACS Basics



## Sample Design

- Initial sampling rate
  - about 2.5% each year
  - about 12.5% over 5-year period
- Results in an initial sample of about
  - 250,000 addresses each month
  - 3 million addresses each year
  - 15 million addresses over 5-year period

# ACS Basics



## Sample Design

- Survey designed to include
  - U.S. Stateside and Puerto Rico
  - Population in both housing units and group quarters (group quarters delayed until 2006)
- Survey designed to produce annually updated single-year and multi-year estimates

# ACS Basics



## Data Collection and Capture

- Data are collected as of the date of interview using a current residence rule
- Data are collected throughout the entire year
- Survey participation is ***Mandatory***

# ACS Basics



## Data Collection and Capture

- Methodology based on best practices from decennial census and demographic surveys
- Monthly samples using overlapping multi-mode data collection methods
  - Mail
  - Telephone
  - Personal Visit

# ACS Basics



## Three Methods of Data Collection

- 1. Mail** *Self-administered mail-out/mail-back*
- 2. Telephone** *Computer Assisted Telephone Interviewing (CATI)*
- 3. Personal Visits** *Computer Assisted Personal Interviewing (CAPI) 1:3*

# ACS Basics



## Data Collection

Monthly

Sample Panel	Calendar Month				
	Jan 2005	Feb 2005	Mar 2005	Apr 2005	May 2005
Nov 2004	Personal Visit				
Dec 2004	Phone	Personal Visit			
Jan 2005	Mail	Phone	Personal Visit		
Feb 2005		Mail	Phone	Personal Visit	
Mar 2005			Mail	Phone	Personal Visit

# ACS Basics



ACS research has been positive!!

- **Using trained field interviewers** has resulted in higher quality data
- **Non-response follow-up** occurs even for mail-back forms in ACS
- **Few differences** from decennial, and cannot find spatial or demographic differences to account for the difference.

# ACS Basics

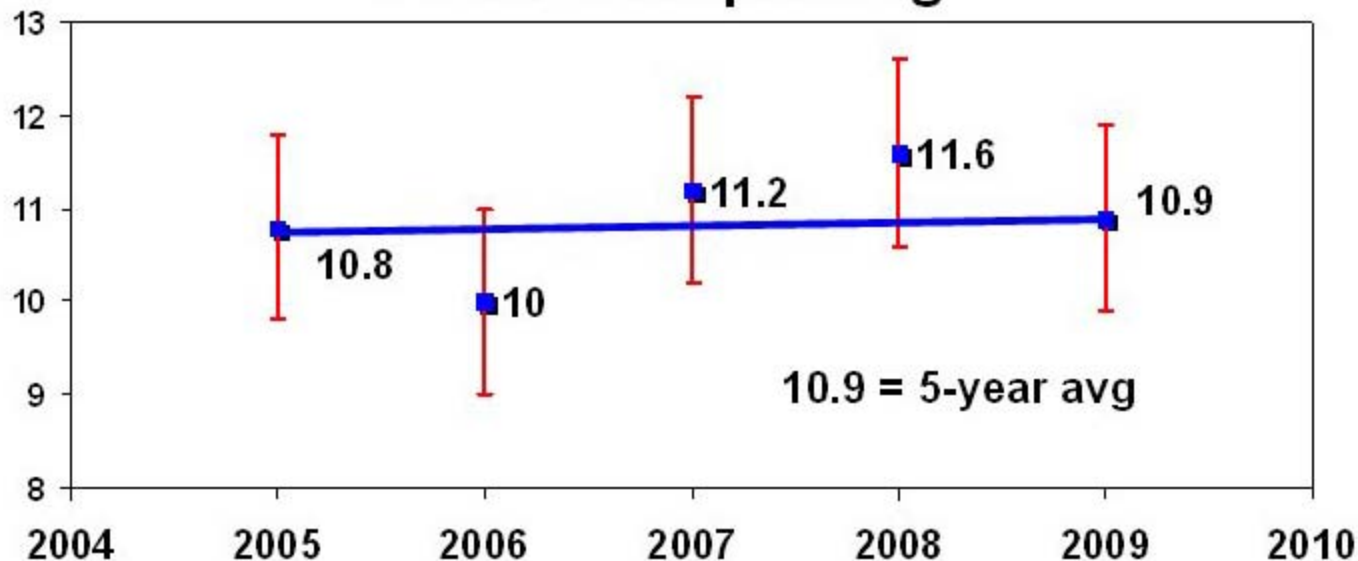


## *Understanding Sample Error*

***Sample Error*** is larger because the number of census forms collected each year are smaller.

Changes of plus or minus 2% may be due to ***Sample Error*** and do not reflect measurable change.

Percent Carpooling

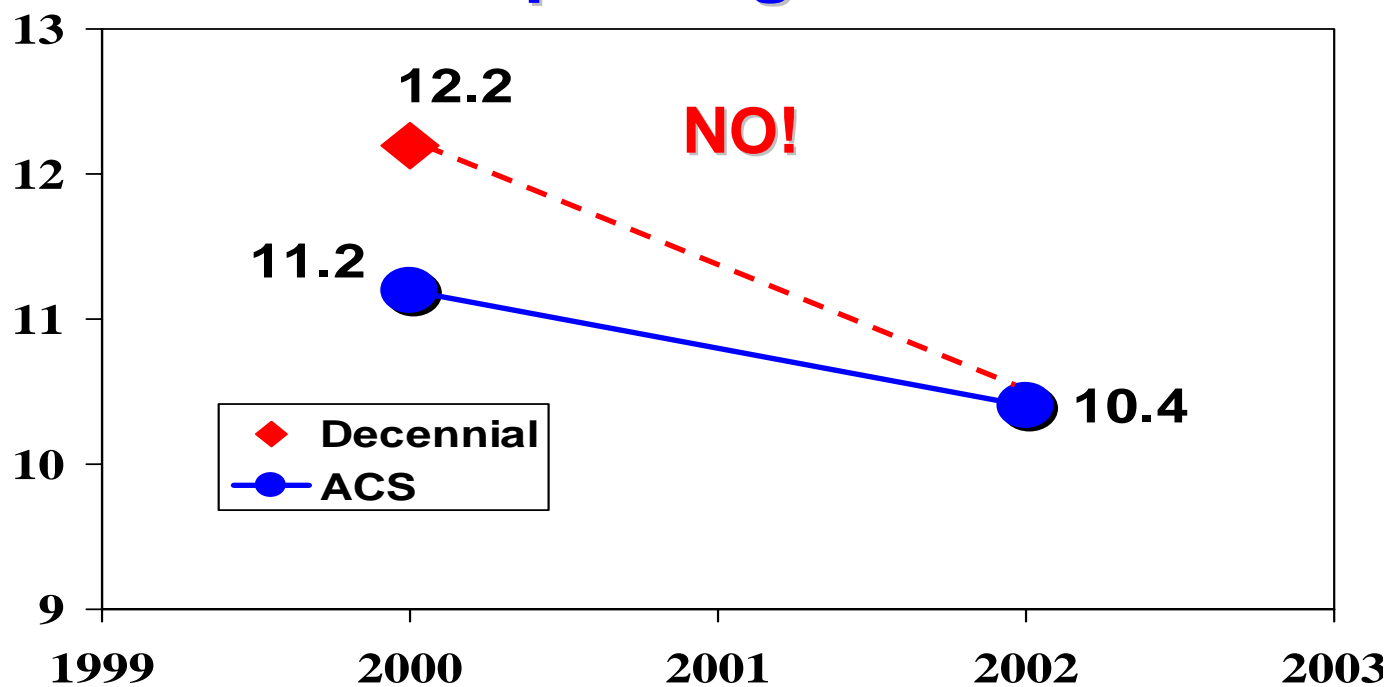


# ACS Basics

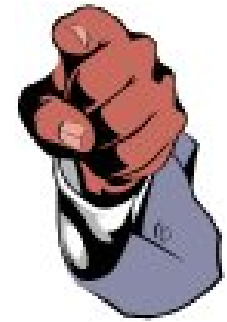


**Cannot compare ACS directly to Decennial data?**

## Carpooling Share



# ACS Basics



## Why can't I compare ACS directly to Decennial data?

**Seasonality** (12 months instead of "April 1") (different jobs and workers, especially in summer)

**Group Quarters** currently not in ACS (plan to add GQ in the future)

**Representation** ACS has only 1/3 of the nation's counties (ALL counties starting in 2005)

**Non-response** follow-up differences

**Data collection period** (ACS is very long, compared to very short in decennial)

# ACS Basics



## Data Release Timetable

Type of Data	Population Size of Area	Data for the Previous Year Released In the Summer of:						
		2006	2007	2008	2009	2010	2011	2012+
Annual Estimates	65,000+							
3-year averages	20,000+							
5-year averages	Down to Census Tract and Block Group							

**ACS Basics**



**Having seen that the  
train left had the station!**

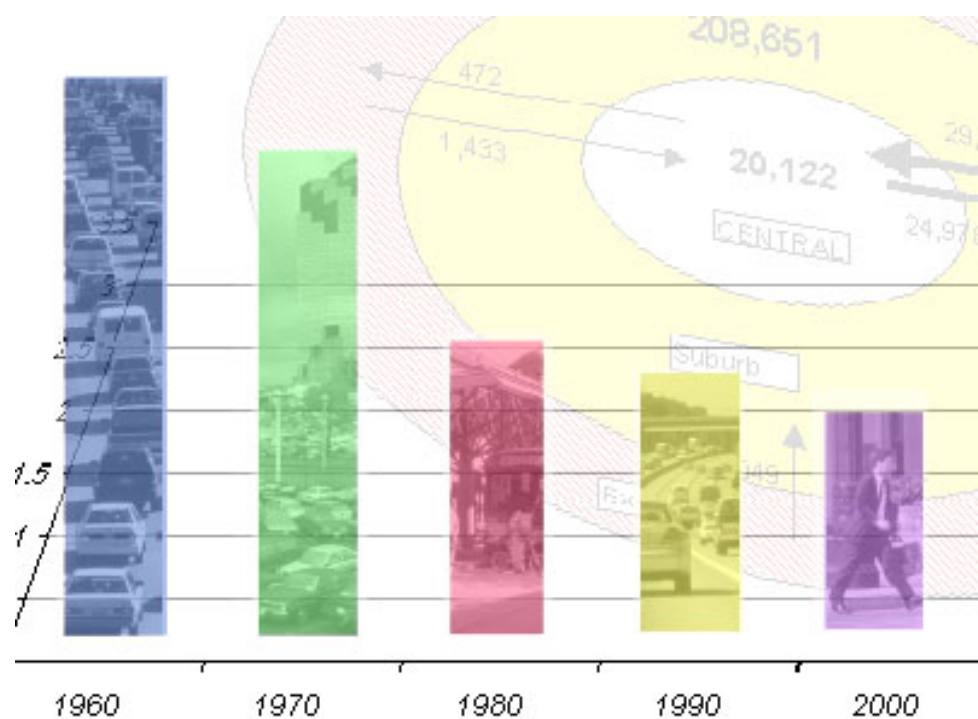
**The Transportation  
Planning Community  
had a conference!**

# Census Data for Transportation Planning

## Preparing for the Future

### Irvine, California

#### May 11-13, 2005



<http://www.trb.org/conferences/censusdata>

# Why have a conference?



**The TRB and the national transportation planning community wanted to:**

- **Assess the uses of the 2000 census data**
- **Review current plans for the American Community Survey and assess its usefulness for transportation programs**
- **Review the transportation ACS-related research**
- **Review and assess future transportation data needs and recommend improvements of census methodology and products**
- **Recommend agency actions to improve transportation use of current census products**

# Data User Concerns Expressed by Transportation Community



- Size of ACS sample much smaller than decennial 12.5% versus 17%
- ACS multi-year moving averages and sample size is vulnerable to funding that could cripple results and usability
- ACS sampling rate will generate a standard error 1/3 higher than the 2000 census
- Results along with variances will be hard to explain to public and training in communication is needed at all levels (U.S. DOT, State DOTs, MPOs)
- Data thresholds, suppression, and rounding rendered worker flow data in the 2000 CTPP nearly useless and same techniques (or worse) will be used on the ACS commutation data

# Data User Concerns Expressed by Transportation Community



- No group quarters data collected until 2006
- National transportation community concerns about “work” question and reword that will create data discontinuity
- Policy makers need to understand the cost of data creation
- Census Bureau is “starting over” and can’t do it alone
- MPOs and others need to do basic research on emerging needs for census
- Substantial training needs for small MPOs, small states, and small operators on the use and benefit of new ACS data

# ACS Basics



## Good things to report!

- Congress continued sufficient funds for the continuation of the current design of the ACS program
- MPOs and researchers are continually analyzing ACS products for individual years and multi-year profiles
- Planners and others are comparing changes in annual ACS data to administrative record data and documenting difference
- Census Bureau and transportation community is close to releasing guidebooks on the use of ACS data

# ACS Basics



## Good things to report!

- Private vendors and academic staff are now offering training on the use of the ACS
- Census Bureau has released ACS data by workplace geography
- Census Bureau will announce development of CTPP-like data tables for ACS
- Census Bureau has released Public Use Microdata (PUMS) files for annual ACS data
- All U.S. counties are now a part of the ACS sample frame

# ACS Basics



## Things You Can Do!

- Investigate the ACS website:  
<http://www.census.gov/acs/www/>
- Subscribe to the CTPP Listserve to receive news on ACS products
- Evaluate your 2000 Census Summary files and CTPP data
- Research ACS training opportunities
- Begin to assess additional and/or alternative data sources that may be needed to supplement and/or validate ACS data

# ACS Basics



## Future Threats and Uncertainties

- **Will the sample continue to be sufficient** for small geographic area reporting? Will tract and BG and TAZ reporting occur after 60 months of data collection?
- **Will Congress continue to fund** the survey continuously, especially if CB asks for increasing budgets to meet the sample size requirements? (or will CB decrease the sample size, resulting in loss of small area tabulation?)

# ACS Basics



## Future Threats and Uncertainties

- **Will there be flow data?** Flows are in serious jeopardy due to thresholds and disclosure proofing?
- **Will there be a CTPP like package?** Who will organize it, negotiate with the CB and contract with the CB. Timing of release? Cost?
- **Will there be TAZs?** How might they change, what tables will be available, for what geographies?

# ACS Basics



## Future Threats and Uncertainties

- **How will you use annual data?**
- **How will you integrate ACS data with other data sources? Would you want to?**
- **Will there be a need for “super” geographic levels?**
- **Will we be able to overcome the impact of disclosure rules and if so, will the resulting data be meaningful**

**THANK YOU!!!**

**THE END**