

The Master Address File and The American Community Survey

The composite image illustrates the integration of geographic information and data. It features a simple line drawing of a house with the address '12345' on a blue sign. Below this is a street map with green and purple lines, and a satellite map with red and blue overlays. A circular seal of the U.S. Census Bureau is positioned over the maps. To the right is a screenshot of a data table titled 'Attributes of Seatstr.shp'.

Line	R_addr	L_addr	Pre_dir	Street nam	Street typ	Suf_dir	L_zip	R_zip
0	0	0	S	MOUNT BAKER	BV		98144	98144
0	0	0	S	MOUNT BAKER	BV		98144	98144
0	0	0	S	MOUNT BAKER	BV		98144	98144
0	0	0	S	MOUNT BAKER	BV		98144	98144
0	0	0	S	MOUNT BAKER	BV		98144	98144
0	0	0	S	MOUNT BAKER	BV		98144	98144
0	0	0	S	MOUNT BAKER	BV		98144	98144
0	0	0	S	MOUNT BAKER	BV		98144	98144
301	499			BAKER	BV		98188	98188
501	599			BAKER	BV		98188	98188
2801	2999			MOUNT BAKER	BV		98144	98144
3001	3099			MOUNT BAKER	BV		98144	98144
3101	3199			MOUNT BAKER	BV		98144	98144
3201	3299			MOUNT BAKER	BV		98144	98144
3301	3399			MOUNT BAKER	BV		98144	98144
3401	3499			MOUNT BAKER	BV		98144	98144
3501	3599			MOUNT BAKER	BV		98144	98144
3601	3699			MOUNT BAKER	BV		98144	98144
2549				MOUNT BAKER	DR	S	98144	98144
2723				MOUNT BAKER	DR	S	98144	98144
2799				MOUNT BAKER	DR	S	98144	98144
4198				BAKER	AV	NW	98107	98107
4298				BAKER	AV	NW	98107	98107
4398				BAKER	AV	NW	98107	98107
4498				BAKER	AV	NW	98107	98107
4600	4698			BAKER	AV	NW	98107	98107
5000	5198			BAKER	AV	NW	98107	98107
5200	5306			BAKER	AV	NW	98107	98107
5308	5398			BAKER	AV	NW	98107	98107
5400	5498			BAKER	AV	NW	98107	98107

Third International Meeting On New
Methods For Population Censuses
Rio de Janeiro, Brazil
May 31, 2006

Master Address File Topics

- **What Is The MAF?**
- **How The MAF Was Built**
- **Maintenance of the MAF for the American Community Survey**

What Is The Purpose Of The MAF?

- Objective is to have an accurate and up to date inventory of all known living quarters in the United States and Puerto Rico.
- Based on “Addresses” for the living quarters
- *Addresses Are Considered Confidential Information*
 - *Cannot Be Shared Except For The Local Update of Census Addresses Program*

What Is An Address?

- **Two Basic Address Types:**
 - **City Style Addresses**
 - **Consist of a House Number, Street Name, and Within-Unit Descriptors/Identifiers (if applicable)**
 - 16 Scenic View Drive*
 - Pittsburgh, PA 15241-1097*
 - **Non-City Style Addresses**
 - **Everything else**
 - RR 5 Box 1398*
 - PO Box 14*
 - Blue house with white shutters*
 - House with red truck in front*
 - 2 story brick hse with locked gate*

MAF History

- **First Built for Use in Census 2000**
 - **1990 Census Address List**
 - **US Postal Service Delivery Sequence File**

What Is In The MAF?

- **Residential and Non-residential addresses**
 - **Address attribute data:**
 - basic street address (BSA),
 - location coordinates and/or description,
 - unit status codes (valid unit, vacant unit, demolished unit, etc.),
 - history data (where and when did address appear?)
 - Geographic codes (political and statistical geography)
- **An Address For:**
 - Each Housing Unit (HU)
 - Each Group Quarters (GQ)
 - Grouped housing (such as a nursing home or university dormitory)

1990 Census Address List

- **Built in Two Ways**
 - **City-Style Area:**
 - *House-number Street Name AND US Postal Service Mail Delivery*
 - Commercial Mailing List
 - Updated with a Block Canvass
 - USPS Casing Check
 - Mailout/Mailback
 - **Balance of Nation**
 - Address Listing
 - Update/Leave/Mailback
 - List/Enumerate

US Postal Service Delivery Sequence File (DSF)

- **Mail Delivery Points**
 - **Includes Commercial and Residential Addresses**
 - **Individual Addresses to which mail is delivered**
 - **Includes Apartment Designators**
 - **May not include all housing units**

Building The Census 2000 Master Address File

- **Merged 1990 Address List with USPS DSF**
- **Local Update of Census Addresses (LUCA)**
 - **Local Governments reviewed list**
 - **In advance of Census 2000**
- **Census 2000 Operations**
 - **City Style/City Delivery Area:**
 - **USPS Updates – From the DSF**
 - **Block Canvass – Census Bureau Field Staff (1998)**
 - **New Construction Program – From Local Governments**
 - **Balance of Nation**
 - **Address Listing – Census Bureau Field Staff (1999)**
 - **Update/Leave – Census Bureau Field Staff (March/April, 2000)**

Updating The MAF

- **Update Only in “Batch” Mode**
 - **Standardized Format – MAFUF (MAF Update File)**
 - **Pre-process (edits and standardization)**
 - Road to RD, Apart. To APT, etc
 - **Geocode (Assign State, County, Census Tract, Census Block)**
 - **Match Against the MAF**
 - House Number
 - Street Name
 - Within Structure Identifier
 - ZIP Code

Matching Addresses

**Typical Problems When Matching Update Files to the
MAF:**

Missing or Multiple Street Types:

Melwood

Melwood Avenue

Melwood Circle

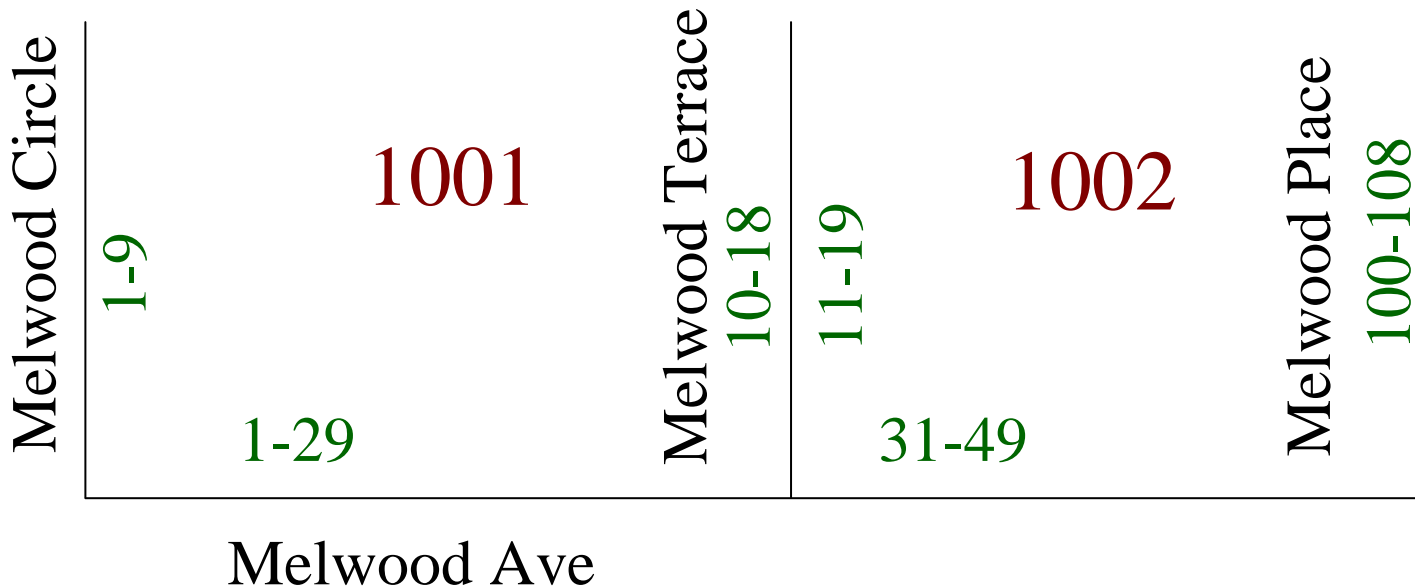
Melwood Terrace

Melwood Place

This may produce false matches.

Incoming New Address Records:

House Number	Street Name	Street Type	ZIP Code	Census Block
15	Melwood	Ave	21801	1001
17	Melwood		21801	?
108	Melwood		21801	1002



Address Conversions and Matching

Typical Problems When Matching Update Files to the MAF:

Enhanced 911 Conversion Addresses:

Typically found in rural/non-city style areas.

We cannot match E-911 addresses when the MAF does not have a standardized city style address:

<i>Outside Source:</i>	<i>101 Pine Street</i>
Census Bureau List:	2-Story House with Green Shutters

<i>Outside Source:</i>	<i>112 Melvin Avenue</i>
Census Bureau List:	RR1 Box 10

MAF Situation

- **Missing Addresses**
 - Error of Omission
- **Non-existent addresses**
 - Error of Inclusion
- **Duplicate addresses**
 - Different Representation for the same unit
- **Invalid data**
- **Non-geocoded addresses**
 - Address without a spatial location (census tract and/or block)
- **Mis-geocoded addresses**
 - Address located in the wrong geospatial location
 - Possible causes:
 - Errors in TIGER address ranges (automated geocoding)
 - Erroneous map spot (map spot geocoding)

MAF Situation

New addressing systems (such as E-911 conversions) sometimes create confusion and potential address duplication.

Old Addresses

10 Jones Ave
198 Apple Drive
239 Smith Street

New Addresses

10 Richards Ave
198 Redmond Drive
239 Riley Street

1 Mike Lane
42 Betty Street
239 Patrick Street

10 Jones Ave
198 Apple Drive
239 Smith Street



Some Typical Matching Problems

Inconsistent or Missing Unit Designators:

10 Maple Street Apt 1

10 Maple Street Suite 1

10 Maple Street # 1

10 Maple Street Unit 1

Do these address represent the same unit?

Some Typical Matching Problems

Unit Designators – What is Correct? Both?

Outside Source: *10 Main Street Apt 1*
 10 Main Street Apt 2

Census Bureau List: **10 Main Street Upper**
 10 Main Street Lower

Outside Source: *104 River Road Apt 101*
 104 River Road Apt 102

Census Bureau List: **104 River Road Apt A**
 104 River Road Apt B

Some Typical Matching Problems

Spelling variations and abbreviations:

Outside Source:
Census Bureau List:

Beech Street
Beach Street

Outside Source:
Census Bureau List:

Willowbrooke Avenue
Willow_Brook Avenue

Outside Source:
Census Bureau List:

Stationary Drive
Stationery Drive

Outside Source:
Census Bureau List:

W Jones Street
William Jones Street

Outside Source:
Census Bureau List:

MLK Avenue
Martin Luther King Avenue

Some Typical Matching Problems

Placement of Directional:

347 26th Road North

347 North 26th Road

Do these address represent the same house? Most likely NO

MAF Objectives

For The American Community Survey

- **Minimize Undercoverage and Overcoverage**
 - **Examples of Undercoverage:**
 - **Missing addresses (new construction or “hidden” units without a separate address)**
 - **Poorly represented addresses (missing unit designators, unclear descriptions)**
 - **Examples of Overcoverage:**
 - **Extra addresses (planned/under construction, demolished, commercial addresses classified as residential)**
 - **Duplicated units (inconsistent addresses/descriptions, inconsistent unit designators, address conversion)**

Keeping The MAF Current For the American Community Survey

- **Current Sources of New Addresses**
 - **US Postal Service DSF**
 - **Semi-Annual Updates**
 - **CAUS – Community Address Updating System**
 - **Primarily new development outside of USPS City Style Delivery Areas**
 - **ACS – Time of Interview Updates**
 - **Special Censuses**

Other Potential Address Sources

- **Administrative Records**
 - **Voter Registration Files**
 - **Help America Vote Act – State Files**
 - **Other Local Address Lists**
- **Commercial Lists**
- **Concerns**
 - **Duplicates?**
 - **Real Addresses?**

Questions?



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U S C E N S U S B U R E A U
