

# UMass Donahue Institute Population Estimates Program

*Resources and Techniques to  
Support a Successful Local  
Update of Census Addresses for  
the 2020 Census: **LUCA 2020***

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## The 2020 Census is about.....

Sets base  
for next  
10 years

**DATA**

\$2,372 per  
person  
per year

**MONEY**

MA lost 1  
seat in  
2010

**POWER**



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\*- George Washington University report: Counting for Dollars 2020: The Role of the Decennial Census in the Geographic Distribution of Federal Funds (<https://gwipp.gwu.edu/counting-dollars-role-decennial-census-geographic-distribution-federal-funds>)

## **LUCA: A little work could pay big dividends**

1 mill conversion with 283 units and 1 to 2 residents per unit = ~ \$10 million in federal funds to state and local governments between 2020 and 2030

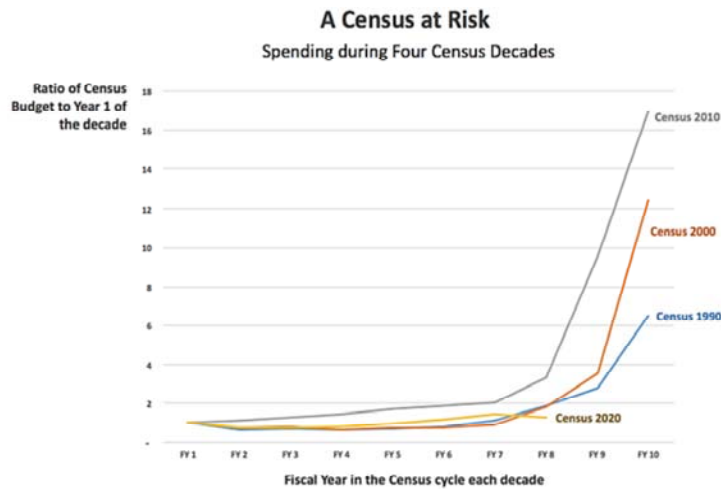


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Here's an example. This is the Massachusetts Mills in Lowell, MA, a conversion that could be easily missed in Census canvassing efforts. (Read slide)

## “A Census at Risk”



Sources:  
Congressional Research Service, Courtesy Congresswoman Carolyn B. Maloney, (D-NY)  
\*2018 figure from Office of Management & Budget (OMB), as reported by the Washington Post

The Census Project



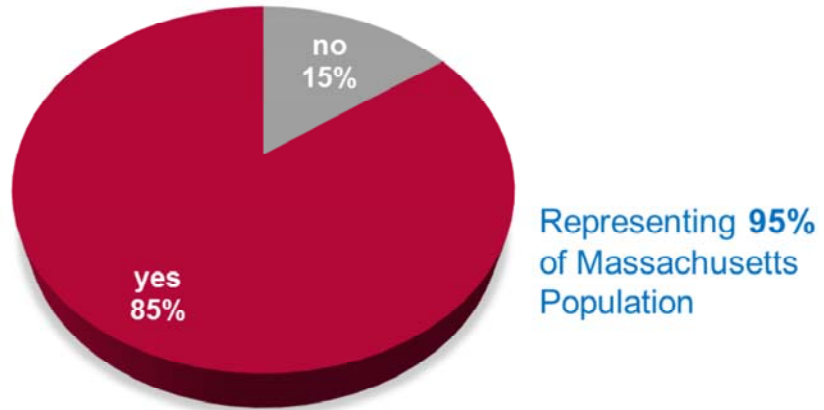
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It's also worth noting that Census spending for this cycle is lagging behind other decades to a concerning degree. While in previous decades funding has already started to ramp up by the 8<sup>th</sup> year in the decade, so far the Census operational budget has been virtually flat-lining. This puts Census planning and testing behind schedule, and it means that local and state participation is more critical than ever to support a successful Census count in Massachusetts.

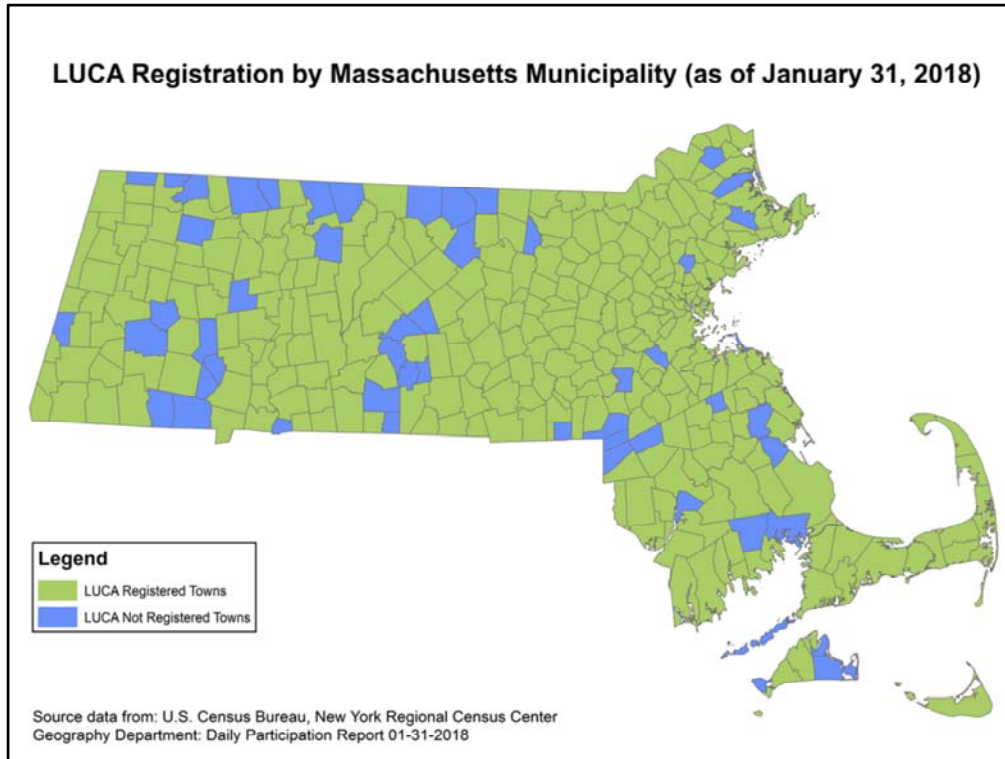
## LUCA 2020 Registration in Massachusetts

298 out of 351 Massachusetts Municipalities



LUCA Participation Map





Overall Massachusetts has seen a remarkably strong response in LUCA registration, with towns representing more than 95% of the Commonwealth's population participating

## UMDI Census 2020 Preparation

- UMDI created a statewide residential address list to compare against Census Master Address File
- Leveraged and consolidated existing statewide resources into LUCA-ready resources for towns

MassGIS  
Master  
Address  
Database

Level 3  
Assessor  
Parcel  
Data

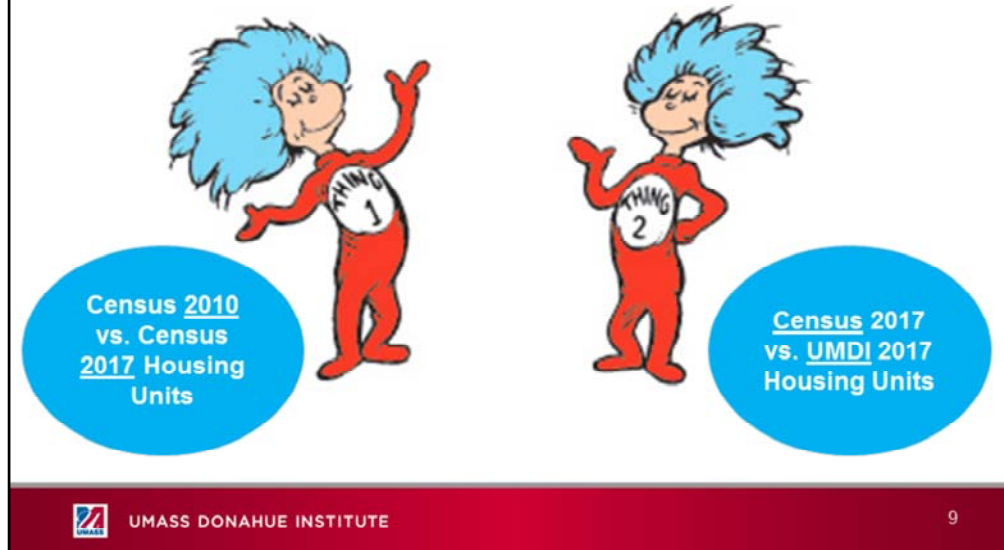
Voter  
Address  
Lists



^ The Donahue Institute has been working to develop a statewide list of residential addresses using **three primary address databases.....**



## UMDI LUCA Resources: Two Products



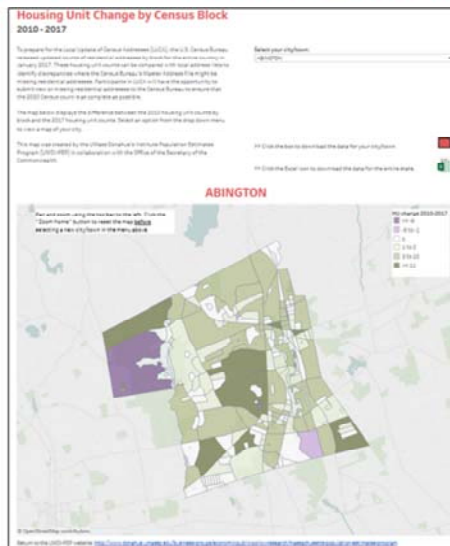
The two products look similar, but are made up of different data sources to be used in different ways.

^ Thing 1 shows you housing unit counts from 2010 compared to housing unit counts in the current Census Master Address File - by Census block

^ Thing 2 shows you the Census Master Address File counts for 2017 compared the addresses that we have for each block in the statewide address list that we have been developing

^ Use thing 1 to see where the Census Bureau has or has not captured residential growth since 2010 in your town and if you find trouble spots, start to assemble address lists for those areas

## UMDI LUCA Resource #1 “Thing One”

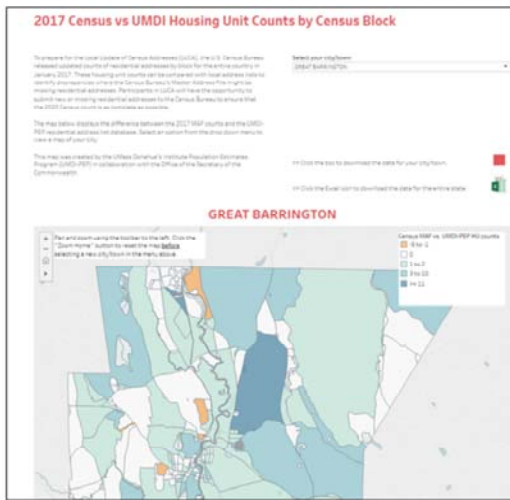


- Online interactive with Excel download option
- Census 2010 housing units vs. 2017 housing units
- Lets towns see where Census has *or has not* captured recent growth at the town and census block level.



When you look at these comparisons, ask whether Census seems to have captured growth since 2010 where you expected them too. If not, these are your focus areas. Start compiling address lists for these neighborhoods using whatever resources you have available to you.

## UMDI LUCA Resource #2 “Thing 2”



- Census 2017 housing units vs. UMDI (state-sourced) 2017 housing units
- Allows towns to identify priorities: Blocks where Census missing the most
- **Request corresponding Excel address files from UMDI** (geodatabase format available upon request)



A second resource allows for current comparisons of our housing unit counts versus what the Census counts in their Master Address File.^

## **Goals:**

- **Identify Where Census has missed addresses**
- **Prepare Review-Ready Files**



## What is a Review-Ready File and Why?

Compare:

Census Address List

### Census Addresses

Title 13 Protected

Will be distributed  
when LUCA Review  
officially starts

Vs.

“Local” Address List

### “Local” Addresses

Can use UMDI-  
provided list

OR Town’s own list

**Or BOTH**

Add to Census  
Master Address File  
so that these can be  
counted!



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## What is a Review-Ready File and *Why*?

### "Local" Address List

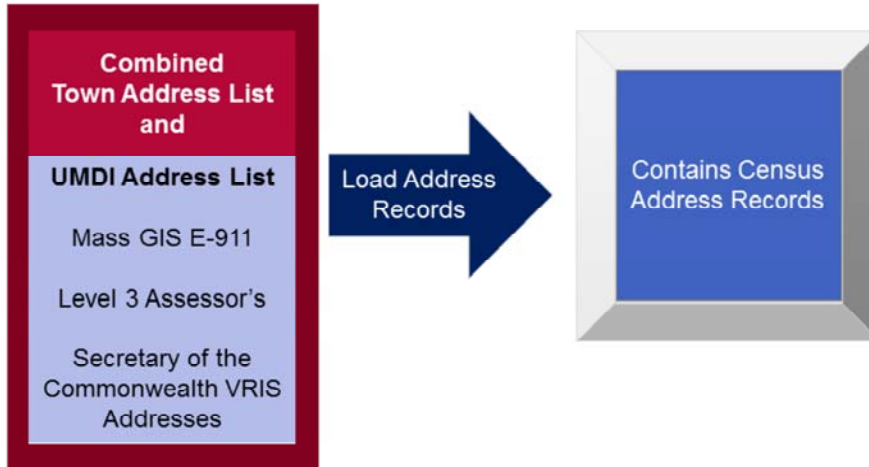
ADDR_NUM	STREET
19	ARROWHEAD CIR
17	ARROWHEAD CIR
21	ARROWHEAD CIR
7	ARROWHEAD CIR
20	CINDY LN
34	CINDY LN
28	CINDY LN
84	DANIELS RD
90	DANIELS RD
11	DEXTER DR
21	DEXTER DR
22	DEXTER DR
57	EMILY LN
708	HAVERHILL ST

Load Address  
Records



## What is a Review-Ready File and *Why?*

### "Local" Address List



## What is a Review-Ready File and *Why?*

### "Local" Address List

*At Minimum:*

1. Address Number
2. Street Name
3. Unit Identifier
4. Residential Identifier
5. Lat/Long
6. In CSV format

Load Address  
Records

Contains Census  
Address Records





# GUPS TOOL

The screenshot displays the GUPS TOOL interface. At the top, the title bar reads "GUPS TOOL - LOCAL - GUPS". Below the title bar is a menu bar and a toolbar. The main area is divided into several sections:

- Map:** A map showing a street grid with blue markers. A red box highlights a specific area on the map.
- Address List:** A table with columns for "Address", "House #", and "Street Name". It lists addresses such as "A00000810" and "A00000809".
- Census Address List:** A table with columns for "BLOCK", "HOUSE #", "Only #", "Cum #", and "Local #". It lists census data for various blocks and houses.
- Local Address List and Census Address Lists both loaded:** A red arrow points to the "Local Address List" and "Census Address List" buttons, with a red text box containing this message.

At the bottom of the interface, there is a status bar with the text "Coordinates: -77.1470, 38.4765" and "Scale: 1:1,000".



# GUPS TOOL

The screenshot displays the GUPS TOOL interface. At the top, the title 'GUPS TOOL' is shown in red. Below it is a menu bar and a toolbar. The main area is split into a map on the left and a data table on the right. A red box highlights a specific area on the map and the corresponding rows in the table. A red arrow points from the text 'displayed in table and on map' to this highlighted area.

House #	Street Name
18	Wingate Way
16	Wingate Way
14	Wingate Way
12	Wingate Way
10	Wingate Way
8	Wingate Way

displayed in  
table and on  
map



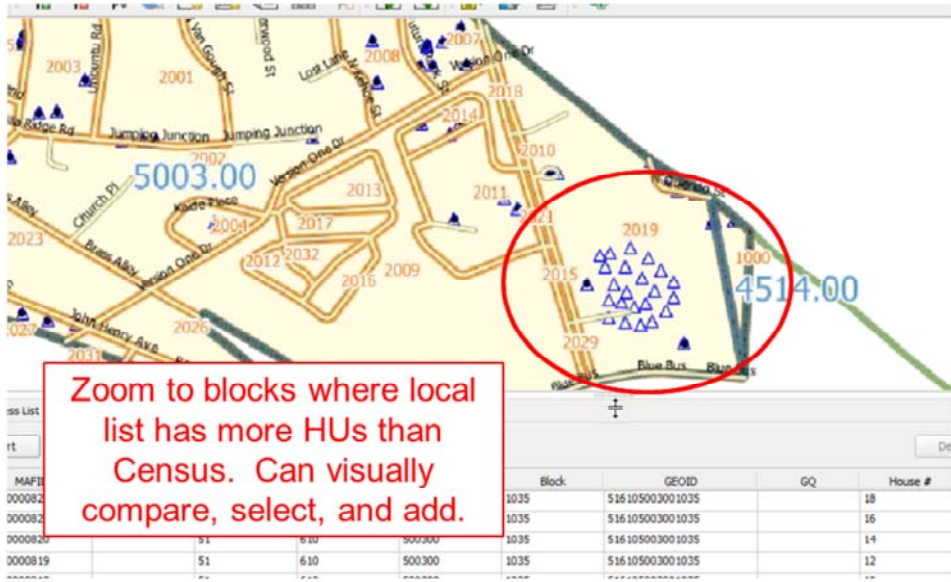
# GUPS TOOL

Can easily compare Local HU counts vs. Census HU counts by block

	BLOCK	GEOID	Orig# HU's	Curr# HU's	Local# HU's
47	2025	516105003002025	9	9	9
17	1000	516105001001000	3	3	3
34	1001	516105001001001	6	6	6
129	1002	516105001001002	3	3	3
106	1003	516105001001003	3	3	3
106	1005	516105001001005	3	3	3

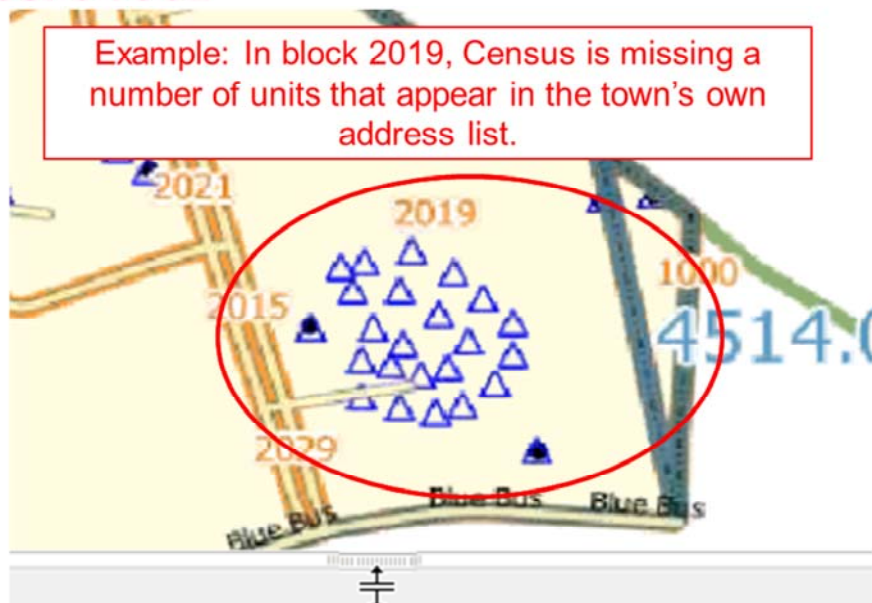


# GUPS TOOL



## GUPS TOOL

Example: In block 2019, Census is missing a number of units that appear in the town's own address list.



## Goals:

### Identify Where Census has missed addresses

- Use “Thing1” resource and other resources to check status of new growth areas

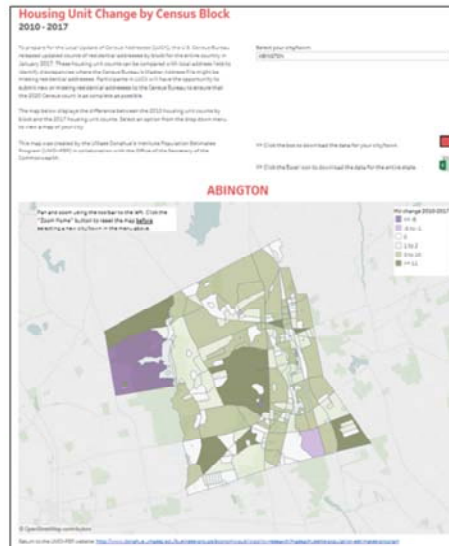
### Prepare Review-Ready Files

- Add any missing addresses/new growth to “Thing 2” UMDI address lists
- Check that address list is de-duplicated and ready to load up



# Check New Growth Using “Thing 1”

- Navigate to your town
- Compare to your **new growth** areas
- Compare visually via map compare or through address lists
- Download 2010-2017 growth by block file
- To compare address lists you may need to geocode your addresses first!



## Preparing Review-Ready Files: New Growth

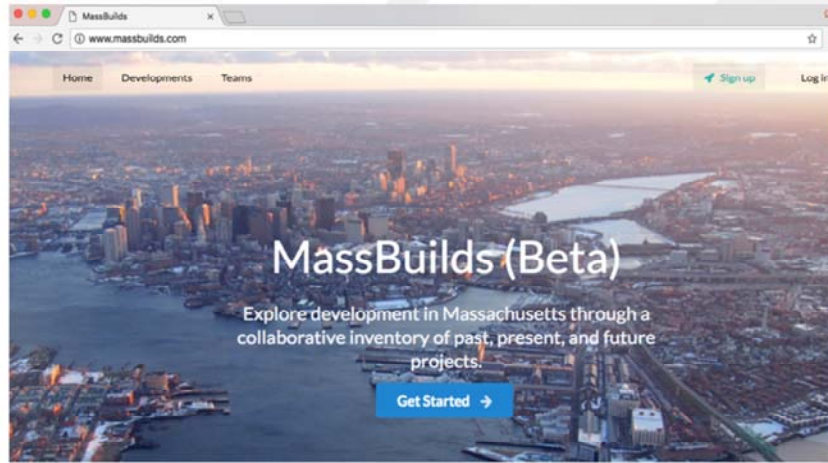
### Possible Town Sources of New Growth:

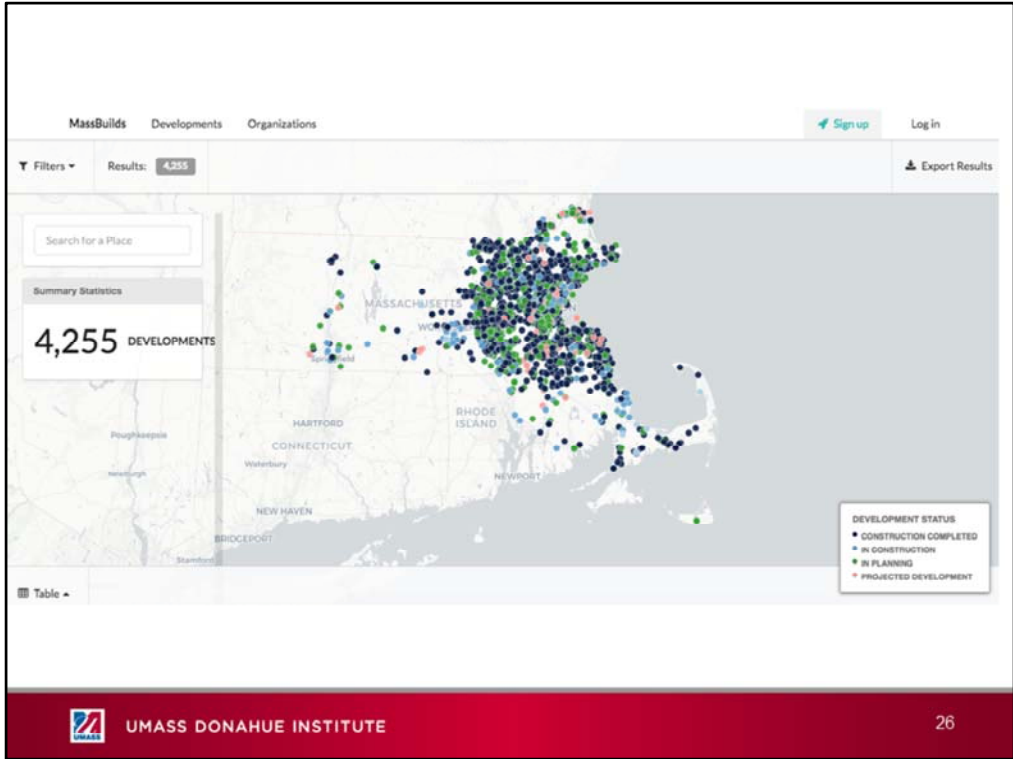
- **Development Lists or websites**
- Internet research
- Assessor's Data
- Building Permit records by address





# MassBuilds Database





## Search developments by city/town

raynham

- Raynham**  
Type: locations
- Raynham**  
Type: places
- Raynham Park Casino**  
Type: developments
- Bassett Knoll Estates**  
Type: developments
- Middleborough**  
Type: developments

**DEVELOPMENT STATUS**

- CONSTRUCTION COMPLETED
- IN CONSTRUCTION
- IN PLANNING
- PROJECTED DEVELOPMENT

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# Choose development

Filters Results: 3 Filtered View Clear Filters Export Results

raynham

- Raynham Type: locations
- Raynham Type: places
- Raynham Park Casino Type: developments
- Bassett Knoll Estate

Table

DEVELOPMENT STATUS

- CONSTRUCTION COMPLETED
- IN CONSTRUCTION
- IN PLANNING
- PROJECTED DEVELOPMENT

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### All American Assisted Living

1084 Broadway, Raynham MA 02767

Completed (2015) Total Cost: unknown

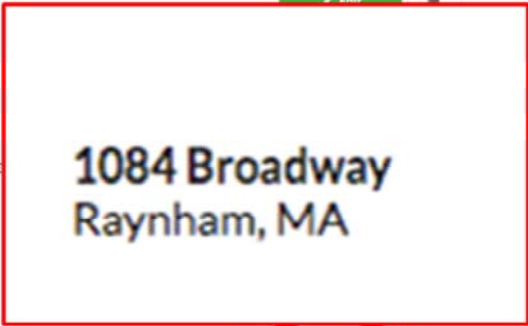
Incentive Programs

BUILDING & SITE

96 TOTAL HOUSING UNITS 0 COMMERCIAL SQUARE FEET

on-site parking spaces

RESIDENTIAL



#### Housing

Units by use type

Housing Type	Number of Units
Single family homes	0
Small multifamily	0

1084 Broadway Raynham, MA

Development Team

There's no development team listed yet.

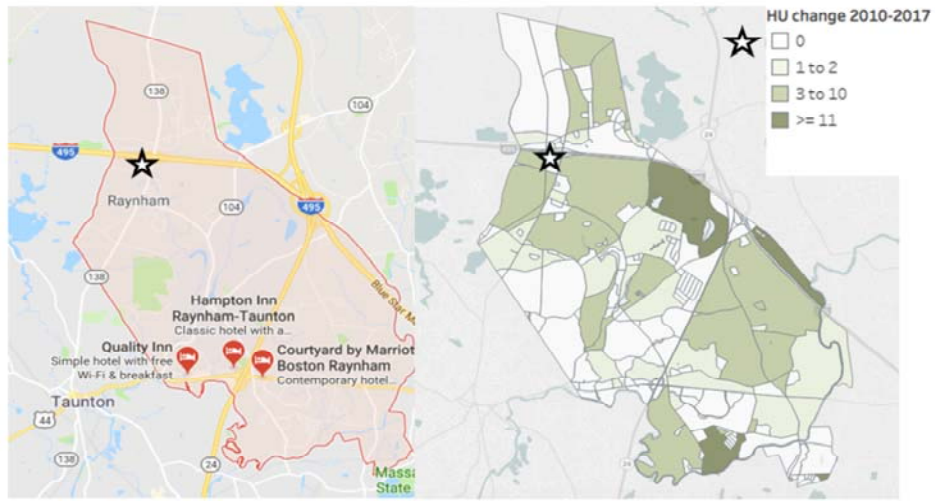


## Cross-check location on Google

The screenshot shows a Google search interface. The search bar contains the text "1084 Broadway, Raynham MA 02767", which is circled in red. Below the search bar are navigation tabs for "All", "Maps", "Shopping", "News", "Images", "More", "Settings", and "Tools". The search results indicate "About 1,990 results (0.58 seconds)". A map is displayed, showing the location of 1084 Broadway in Raynham, MA, with a red pin. The map includes labels for "Blue Star Memorial Hwy", "VERC Gulf Raynham", and "McDonald's". Below the map, the address "1084 Broadway, Raynham, MA 02767" is listed, along with a "Get directions" link. Underneath, it says "At this address" and lists "All American Assisted Living at Raynham" with a 5.0 star rating and "2 reviews".



## Check Against Thing 1 Map (Census Growth)



## Preparing Review-Ready Files: New Growth

### Possible Town Sources of New Growth:

- Development Lists or websites
- **Internet research**
- Assessor's Data
- Building Permit records by address





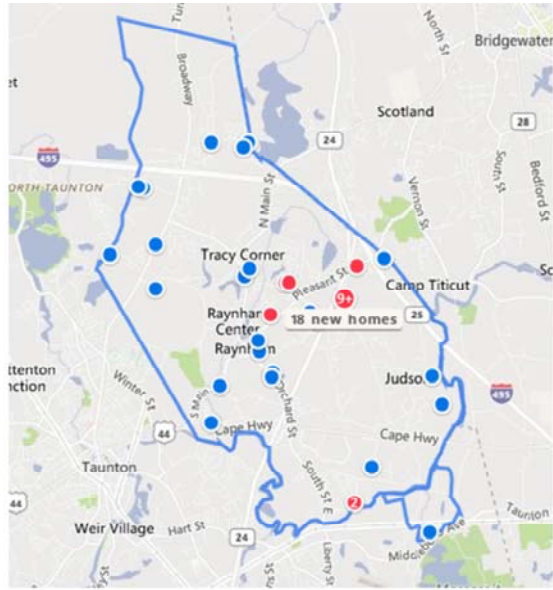
# New Construction Home Listings

For Sale Any Price 0+

- FOR SALE (24)
  - By Agent (30)
  - By Owner (0)
- New Construction (24)
  - Foreclosures (0)
  - Coming Soon (2)
- POTENTIAL LISTINGS
  - Foreclosed (6)
  - Pre-Foreclosure (18)
  - Make Me Move (0)
- FOR RENT (5)
- RECENTLY SOLD (511)
  - Open Houses only
  - Include Pending listings

The screenshot shows the Zillow website interface for Raynham, MA. At the top, there are navigation tabs: Buy, Rent, Sell, Mortgages, Agent finder, Home design, and More. A search bar contains 'raynham ma'. Below the search bar, there are filters for Listing Type, Any Price, 0+ Beds, Home Type, and More. A 'Save Search' button is also visible. The main content area features a map of Raynham, MA, with a blue outline indicating the search area. To the right of the map, there is a section titled 'Raynham MA New Construction' with the text '48 homes for sale'. Below this, there are two property listings with images and prices: one for \$469,900 and another for \$499,900. The \$499,900 listing is marked as 'NEW CONSTRUCTION'.





## Preparing Review-Ready Files: **New Growth**

### Possible Town Sources of New Growth:

- Development Lists or websites
- Internet research
- **Assessor's Data**
- Building Permit records by address



## Comparing Assessor's Housing Growth with Census

The screenshot shows a web browser window displaying the City of Methuen, Massachusetts Property Assessment Data website. The page has a blue header with a navigation menu and a search form. The main content area features the City of Methuen seal and the following text:

**The City of Methuen, Massachusetts**  
**Property Assessment Data**  
City of Methuen  
Board of Assessors  
41 Pleasant Street, Suite 103L  
Methuen, MA 01844  
Phone: 978-963-8530 - Fax: 978-963-8962  
Hours: Monday - Thursday 8:00a.m. to 4:30p.m.  
Friday 8:00a.m. to 12:00p.m.  
Welcome to the City of Methuen Massachusetts property assessment data.  
The information provided on this site is reflective of the current Fiscal Year 2018 committed data. This would reflect any structural changes made to properties as of June 30, 2017. The values are based upon calendar year 2016 sales data. Assessments reflect the market value as of January 1, 2017.  
The tax rates for Fiscal Year 2016 are:  
Residential: \$14.27/\$1,000 and CIP: \$28.11/\$1,000  
Some property information may have been changed after this listing was released. Changes resulting from database corrections, abatements.



In order to make sure that new developments have been captured in US Census data, let's go to our municipal assessor's data and pull up all new developments since the last census.

Here we see a fairly typical PatriotProperties assessor database for the City of Methuen.

## Comparing Assessor's Housing Growth with Census

HOME	SEARCH	SUMMARY	INTERIOR	EXTERIOR	SALES	ABOUT
Parcel	<input type="text"/>	Building type	<input type="text"/>	Lot size	<input type="text"/>	thru <input type="text"/>
Owner	<input type="text"/>	Year built	2010	thru	2017	Fin size <input type="text"/>
Street name	<input type="text"/>	Beds	<input type="text"/>	thru	<input type="text"/>	NHood <input type="text"/>
Street num	<input type="text"/>	Baths	<input type="text"/>	thru	<input type="text"/>	LUC <input type="text"/>

To view new developments, under the Year Built fields, we'll enter **2010** thru **2017** and press Enter to return the results



## Comparing Assessor's Housing Growth with Census

Street num Baths thru LUC desc Book P

[Print page 1 of 13](#)

Click on the Column Headings to sort accordingly.  
Click on the Parcel ID to view the parcel detail.

<a href="#">Parcel ID</a>	<a href="#">Location</a>	<a href="#">Owner</a>	<a href="#">Built</a>	<a href="#">Total Value</a>	<a href="#">Beds</a> <a href="#">Baths</a>
<a href="#">006-78E-77U101</a>	17 PINE TREE DR	ROKOS PAUL E ROKOS MAGARIET D	2017 Condo TnHs	\$673,900	3 3
<a href="#">006-78E-77U102</a>	15 PINE TREE DR	KHADANGA DAVE ANAND KHADANGA ROSIE SUCHANA	2017 Condo TnHs	\$627,000	4 3
<a href="#">006-78E-77U105</a>	1 SEQUOIA DR	BEGIN RAYMOND R BEGIN PAMELA A	2017 Condo Garden	\$514,800	2 2
<a href="#">006-78E-77U135</a>	60 PINE TREE DR	KLEIN ROBERT DFSRROSIFRS, JUII IF M	2017 Condo TnHs	\$675,600	3 3

To sort our results by the most recent, simply click the header "Built" above its corresponding column, this will organize our results by most to least recent within the date range we queried.



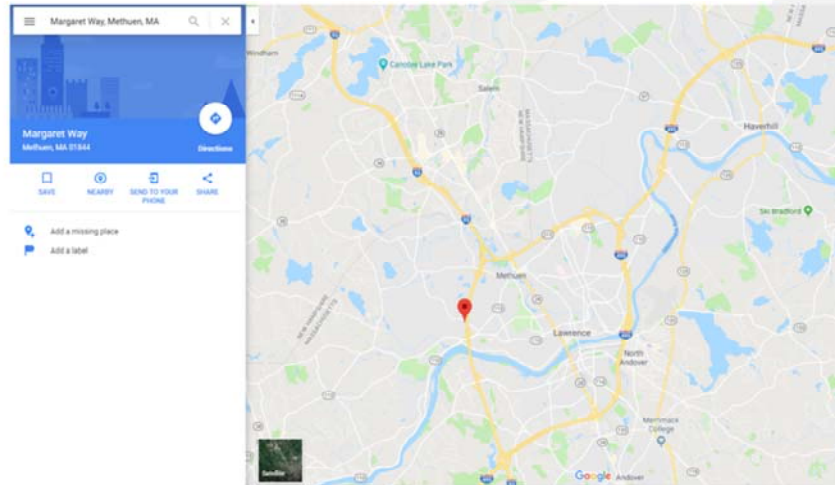
## Comparing Assessor's Housing Growth with Census

216-129B-7BU50	1 ASHLEY LN	NEWELL CHARLENE	2017 Condo Ga
416-154-6B	1 MARGARETS WAY	PAPPALARDO STEVEN A SHAMBERGER KRISTIN	2017 Colonial
416-154-6C	3 MARGARETS WAY	HASHEM ABDO HASHEM SAMARIA	2017 Colonial
416-154-6D	5 MARGARETS WAY	AHMED RUKHSANA	2017 Colonial
416-154-6E	7 MARGARETS WAY	PLOUFFE JESSE J PLOUFFE JENNIFER M	2017 Colonial
416-154-6F	9 MARGARETS WAY	OBRIEN KEVIN T JR	2017 Colonial
416-154-6G	11 MARGARETS WAY	GILMORE KEVIN P GILMORE TERESITA A	2017 Colonial
416-154-6H	6 MARGARETS WAY	HARRINGTON ELISA S HARRINGTON DAVID P	2017 Colonial
416-154-6J	4 MARGARETS WAY	RACIOPPA PHILIP J PAIS LUCIA MARIA	2017 Colonial
416-154-6K	2 MARGARETS WAY	PATEL SHETAL PATEL ILABEN	2017 Colonial
418-164-6A	33 MARJORIE ST EXT	OMARI ERIC OMARI NANCY	2017 Colonial

Within these listings, you will usually find new developments with relative ease from multiple addresses on the same street



## Comparing Assessor's Housing Growth with Census

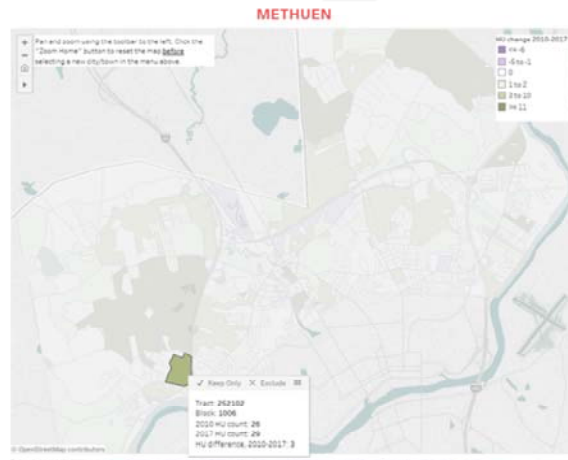


To compare these with Thing 1, our dashboard showing Housing Unit Changes, we'll go to Google Maps and locate this street of new development properties.





## Comparing Assessor's Housing Growth with Census



As you can see, the Housing Unit count for that census block has seen growth, however it shows 3 new housing units, rather than the 9 that returned in the assessor's database.



In the dashboard, select the town in question in the dropdown menu, and then after finding the location of your development, hover your mouse over that census block or click on it to display the data associated with that area-

## Preparing Review-Ready Files: New Growth

### Possible Town Sources of New Growth:

- Development Lists or websites
- Internet research
- **Assessor's Data - Excel File Format**

*Can also use this to supplement UMDI address lists if more current!*



## Open Assessor's Data File

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	PROP_ID	LOC_ID	BLDG_VA	LAND_VA	OTHER_V	TOTAL_V	FY	LOT_SIZE	LS_DATE	LS_PRICE	USE_COD	SITE_ADD	ADDR_NUM	FULL_STR	LOCATION
2	1-26A	F_773800	101500	271900	1600	375000	2012	608981.0	20030915	300000	101	1979 BRO	1979	BROADW.	
3	1-29	F_773750	83900	136400	13700	234000	2012	98022.0	19760105	27800	101	54 ROBIN	54	ROBINSON	
4	1-30	F_773825	78300	131100	600	210000	2012	61867.0	20090625	1	101	68 ROBIN	68	ROBINSON	
5	1-31	F_773894	144000	130300	0	274300	2012	56204.0	20050725	0	101	78 ROBIN	78	ROBINSON	
6	1-32	F_774817	489700	942900	7400	1440000	2012	2352676.0	19931013	151000	960	110 ROBIN	110	ROBINSON	
7	1-33	F_774123	81800	119900	600	202300	2012	13068.0	20050930	310000	101	78 WILBUR	78	WILBUR S	
8	1-34	F_774229	76900	122700	300	199900	2012	19166.0	20050311	0	101	88 WILBUR	88	WILBUR S	
9	1-35	F_774324	94600	123200	20400	238200	2012	20000.0	19860829	0	101	98 WILBUR	98	WILBUR S	
10	1-36	F_774469	101500	127900	18500	247900	2012	40000.0	20040729	290000	101	106 WILBUR	106	WILBUR S	
11	1-36A	F_774626	298600	127900	28700	455200	2012	40000.0	20040429	150000	101	128 WILBUR	128	WILBUR S	

Most assessors' data will include more fields than we need



## Choosing Fields

Good fields to keep...

- Any ID fields (PROP\_ID, LOC\_ID...)
- Building value field
- Any site address fields (ADDR\_NUM, FULL\_STR, SITE\_ADDR...)
- Fields with use information, or building style information
- Fields with unit information, either as a subaddress (e.g. "Apt 1") or unit counts
- Year built



## Choosing Fields

	A	B	C	D	E	F	J	K	L	M	N	O
1	PROP_ID	LOC_ID	BLDG_VA	LAND_VA	OTHER_V	TOTAL_V	LS_PRICE	USE_CODE	SITE_ADDR	ADDR_NUM	FULL_STR	LOCATI
2	1-26A	F_773800	101500	271900	1600	375000	300000	101	1979 BROADWAY	1979	BROADWAY	
3	1-29	F_773750	83900	136400	13700	234000	27800	101	54 ROBINSON ST	54	ROBINSON ST	
4	1-30	F_773825	78300	131100	600	210000	1	101	68 ROBINSON ST	68	ROBINSON ST	
5	1-31	F_773894	144000	130300	0	274300	0	101	78 ROBINSON ST	78	ROBINSON ST	
6	1-32	F_774817	489700	942900	7400	1440000	151000	960	110 ROBINSON ST	110	ROBINSON ST	
7	1-33	F_774123	81800	119900	600	202300	310000	101	78 WILBUR ST	78	WILBUR ST	
8	1-34	F_774229	76900	122700	900	199900	0	101	88 WILBUR ST	88	WILBUR ST	
9	1-35	F_774324	94600	123200	20400	238200	0	101	98 WILBUR ST	98	WILBUR ST	
10	1-36	F_774469	101500	127900	18500	247900	290000	101	106 WILBUR ST	106	WILBUR ST	

Z	AA	AB	AC	AD	AE	AF	AG	AH
REG_ID	ZONING	YEAR_BUI	BLD_AREJ	UNITS	RES_AREJ	STYLE	STORIES	NUM_RC
		1950	1766	0	0	CAPE	1.5	7
		1953	1062	0	0	RANCH	1.0	5
		1956	1145	0	0	RANCH	1.0	5
		1953	2256	0	0	RANCH	1.0	6
		1994	6127	0	0		1.0	0
		1951	1000	0	0	RANCH	1.0	7
		1956	780	0	0	RANCH	1.0	4
		1930	1248	0	0	CONVENT	1.0	4
		1950	1440	0	0	CAPE	1.5	6



## Concatenating Addresses

Create a new field at the end of your data

F	G	H	I	J	K	L	M	N
ADDR_NUM	FULL_STR	ZONING	YEAR_BUILT	BLD_AREA	UNITS	STYLE	FULL_ADDRESS	
1979	BROADWAY		1950	1766	0	CAPE		
54	ROBINSON ST		1953	1062	0	RANCH		

Concatenate the address together

F	G	H	I	J	K	L	M	N	O	P
ADDR_NUM	FULL_STR	ZONING	YEAR_BUILT	BLD_AREA	UNITS	STYLE	FULL_ADDRESS			
1979	BROADWAY		1950	1766	0	CAPE	=CONCATENATE(F2," ",G2)			
54	ROBINSON ST		1953	1062	0	RANCH	CONCATENATE(text1, [text2], [text3], [text4], ...)			
68	ROBINSON ST		1956	1145	0	RANCH				
78	ROBINSON ST		1953	2256	0	RANCH				
110	ROBINSON ST		1994	6127	0	RANCH				
78	WILBUR ST		1951	1000	0	RANCH				

Drag and drop formula to the end of your data

F	G	H	I	J	K	L	M	N
ADDR_NUM	FULL_STR	ZONING	YEAR_BUILT	BLD_AREA	UNITS	STYLE	FULL_ADDRESS	
1979	BROADWAY		1950	1766	0	CAPE	1979 BROADWAY	
54	ROBINSON ST		1953	1062	0	RANCH	54 ROBINSON ST	
68	ROBINSON ST		1956	1145	0	RANCH	68 ROBINSON ST	
78	ROBINSON ST		1953	2256	0	RANCH	78 ROBINSON ST	
110	ROBINSON ST		1994	6127	0	RANCH	110 ROBINSON ST	
78	WILBUR ST		1951	1000	0	RANCH	78 WILBUR ST	



## Concatenating Addresses

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	PROP_ID	LOC_ID	BLDG_VA	USE_CODE	SITE_ADDR	ADDR_NUM	FULL_STR	ZONING	YEAR_BUILT	BLD_AREA	UNITS	STYLE	FULL_ADDRESS	
2	1-26A	F_773800	101500	101	1979 BROADWAY	1979	BROADWAY		1950	1766	0	CAPE	1979 BROADWAY	
3	1-29	F_773750	83900	101	54 ROBINSON ST	54	ROBINSON ST		1953	1062	0	RANCH	54 ROBINSON ST	
4	1-30	F_773825	78300	101	68 ROBINSON ST	68	ROBINSON ST		1956	1145	0	RANCH	68 ROBINSON ST	
5	1-31	F_773894	144000	101	78 ROBINSON ST	78	ROBINSON ST		1953	2256	0	RANCH	78 ROBINSON ST	
6	1-32	F_774817	489700	960	110 ROBINSON ST	110	ROBINSON ST		1994	6127	0		110 ROBINSON ST	
7	1-33	F_774123	81800	101	78 WILBUR ST	78	WILBUR ST		1951	1000	0	RANCH	78 WILBUR ST	
8	1-34	F_774229	76900	101	88 WILBUR ST	88	WILBUR ST		1956	780	0	RANCH	88 WILBUR ST	
9	1-35	F_774324	94600	101	98 WILBUR ST	98	WILBUR ST		1930	1248	0	CONVEN	98 WILBUR ST	
10	1-36	F_774469	101500	101	106 WILBUR ST	106	WILBUR ST		1950	1440	0	CAPE	106 WILBUR ST	
11	1-36A	F_774626	298600	101	128 WILBUR ST	128	WILBUR ST		2004	2858	0	COLONIA	128 WILBUR ST	
12	1-38-7	F_774925	225600	101	176 WILBUR ST	176	WILBUR ST		1978	1964	0	RAISED R	176 WILBUR ST	
13	1-38-6	F_775077	140600	101	186 WILBUR ST	186	WILBUR ST		1978	1404	0	FRONT/B	186 WILBUR ST	
14	1-38A	F_775246	85800	101	200 WILBUR ST	200	WILBUR ST		1975	1082	0	RANCH	200 WILBUR ST	
15	1-85	F_774960	0	130	0 WILBUR ST	0	WILBUR ST		0	0	0		0 WILBUR ST	
16	1-83	F_774782	115700	101	141 WILBUR ST	141	WILBUR ST		1965	1080	0	RAISED R	141 WILBUR ST	
17	1-82	F_774685	127900	101	131 WILBUR ST	131	WILBUR ST		1973	1296	0	RAISED R	131 WILBUR ST	
18	1-79	F_774555	181100	101	103 WILBUR ST	103	WILBUR ST		1975	530	0	MOBILE	103 WILBUR ST	
19	1-77	F_774200	127500	101	81 WILBUR ST	81	WILBUR ST		1955	1599	0	RANCH	81 WILBUR ST	
20	1-88	F_774304	99200	101	170 ROBINSON ST	170	ROBINSON ST		1960	1344	0			



## Finding Residential Addresses

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	PROP_ID	LOC_ID	BLDG_VA	USE_CODE	SITE_ADDR	ADDR_NUM	FULL_STR	ZONING	YEAR_BUILT	BLD_AREA	UNITS	STYLE	FULL_ADDRESS	
2	1-26A	F_773800	101500	101	979 BROADWAY	1979	BROADWAY		1950	1766	0	CAPE	1979 BROADWAY	
3	1-29	F_773750	83900	101	4 ROBINSON ST	54	ROBINSON ST		1953	1062	0	RANCH	54 ROBINSON ST	
4	1-30	F_773825	78300	101	68 ROBINSON ST	68	ROBINSON ST		1956	1145	0	RANCH	68 ROBINSON ST	
5	1-31	F_773894	144000	101	78 ROBINSON ST	78	ROBINSON ST		1953	2256	0	RANCH	78 ROBINSON ST	
6	1-32	F_774817	489700	960	10 ROBINSON ST	110	ROBINSON ST		1994	6127	0		110 ROBINSON ST	
7	1-33	F_774123	81800	101	8 WILBUR ST	78	WILBUR ST		1951	1000	0	RANCH	78 WILBUR ST	
8	1-34	F_774229	76900	101	8 WILBUR ST	88	WILBUR ST		1956	780	0	RANCH	88 WILBUR ST	
9	1-35	F_774324	94600	101	8 WILBUR ST	98	WILBUR ST		1930	1248	0	CONVENT	98 WILBUR ST	
10	1-36	F_774469	101500	101	06 WILBUR ST	106	WILBUR ST		1950	1440	0	CAPE	106 WILBUR ST	
11	1-36A	F_774626	298600	101	28 WILBUR ST	128	WILBUR ST		2004	2858	0	COLONIAL	128 WILBUR ST	
12	1-38-7	F_774925	225600	101	76 WILBUR ST	176	WILBUR ST		1978	1964	0	RAISED R/J	176 WILBUR ST	
13	1-38-6	F_775077	140600	101	86 WILBUR ST	186	WILBUR ST		1978	1404	0	FRONT/B	186 WILBUR ST	
14	1-38A	F_775246	85800	101	200 WILBUR ST	200	WILBUR ST		1975	1082	0	RANCH	200 WILBUR ST	
15	1-85	F_774960	0	130	0 WILBUR ST	0	WILBUR ST		0	0	0		0 WILBUR ST	
16	1-83	F_774782	115700	101	41 WILBUR ST	141	WILBUR ST		1965	1080	0	RAISED R/J	141 WILBUR ST	
17	1-82	F_774685	127900	101	11 WILBUR ST	111	WILBUR ST		1971	1296	0	RAISED R/J	111 WILBUR ST	
18	1-79	F_774555	18100	101	03 WILBUR ST	103	WILBUR ST		1975	530	0	MOBILE H	103 WILBUR ST	
19	1-77	F_774200	127500	101	1 WILBUR ST	81	WILBUR ST		1955	1599	0	RANCH	81 WILBUR ST	
20	1-88	F_774304	99200	101	70 ROBINSON ST	170	ROBINSON ST		1960	1344	0	CAPE	170 ROBINSON ST	

Filter for residential codes





## Finding Residential Addresses

PROP_ID	LOC_ID	BLDG	USE_CODE	SITE_ADDR	ADDR_NUM	FULL_STR	ZONING	YEAR_BUILT	BLD_ARE	UNITS	STYLE	FULL_ADDR	PRESS
				1979 BROADWAY	1979	BROADWAY		1950	1766	0	CAPE	1979 BROADWAY	
				54 ROBINSON ST	54	ROBINSON ST		1953	1062	0	RANCH	54 ROBINSON ST	
				68 ROBINSON ST	68	ROBINSON ST		1956	1145	0	RANCH	68 ROBINSON ST	
				78 ROBINSON ST	78	ROBINSON ST		1953	2256	0	RANCH	78 ROBINSON ST	
				110 ROBINSON ST	110	ROBINSON ST		1994	6127	0		110 ROBINSON ST	
				78 WILBUR ST	78	WILBUR ST		1951	1000	0	RANCH	78 WILBUR ST	
				88 WILBUR ST	88	WILBUR ST		1956	780	0	RANCH	88 WILBUR ST	
				98 WILBUR ST	98	WILBUR ST		1930	1248	0	CONVENT	98 WILBUR ST	
				106 WILBUR ST	106	WILBUR ST		1950	1440	0	CAPE	106 WILBUR ST	
				128 WILBUR ST	128	WILBUR ST		2004	2858	0	COLONIAL	128 WILBUR ST	
				176 WILBUR ST	176	WILBUR ST		1978	1964	0	RAISED R/	176 WILBUR ST	
				186 WILBUR ST	186	WILBUR ST		1978	1404	0	FRONT/B/	186 WILBUR ST	
				200 WILBUR ST	200	WILBUR ST		1975	1082	0	RANCH	200 WILBUR ST	
				0 WILBUR ST	0	WILBUR ST		0	0	0		0 WILBUR ST	
				141 WILBUR ST	141	WILBUR ST		1965	1080	0	RAISED R/	141 WILBUR ST	
				131 WILBUR ST	131	WILBUR ST		1973	1296	0	RAISED R/	131 WILBUR ST	
				103 WILBUR ST	103	WILBUR ST		1975	530	0	MOBILE H	103 WILBUR ST	
				81 WILBUR ST	81	WILBUR ST		1955	1599	0	RANCH	81 WILBUR ST	
				170 ROBINSON ST	170	ROBINSON ST		1960	1344	0	CAPE	170 ROBINSON ST	
				182 ROBINSON ST	182	ROBINSON ST		1959	1448	0	CAPE	182 ROBINSON ST	

Filter for residential codes, usually three digits, starting with 1, but check your own assessors codes



## Finding Residential Addresses

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	PROP_ID	LOC_ID	BLDG_VA	USE_CODE	SITE_ADDR	ADDR_NUM	FULL_STR	ZONING	YEAR_BUILT	BLD_AREA	UNITS	STYLE	FULL_ADDRESS	
2	1-26A	F_773800	101500	101	1979 BROADWAY	1979	BROADWAY		1950	1700	0	CAPE	1979 BROADWAY	
3	1-29	F_773750	83900	101	54 ROBINSON ST	54	ROBINSON ST		1953	1062	0	RANCH	54 ROBINSON ST	
4	1-30	F_773825	78300	101	68 ROBINSON ST	68	ROBINSON ST		1956	1145	0	RANCH	68 ROBINSON ST	
5	1-31	F_773804	144000	101	78 ROBINSON ST	78	ROBINSON ST		1953	2256	0	RANCH	78 ROBINSON ST	
6	1-32	F_774817	489700	960	110 ROBINSON ST	110	ROBINSON ST		1994	6127	0		110 ROBINSON ST	
7	1-33	F_774123	81800	101	78 WILBUR ST	78	WILBUR ST		1951	1000	0	RANCH	78 WILBUR ST	
8	1-34	F_774229	76900	101	88 WILBUR ST	88	WILBUR ST		1956	780	0	RANCH	88 WILBUR ST	
9	1-35	F_774324	94600	101	98 WILBUR ST	98	WILBUR ST		1930	1248	0	CONVENT	98 WILBUR ST	
10	1-36	F_774469	101500	101	106 WILBUR ST	106	WILBUR ST		1950	1440	0	CAPE	106 WILBUR ST	
11	1-36A	F_774626	298600	101	128 WILBUR ST	128	WILBUR ST		2004	2858	0	COLONIAL	128 WILBUR ST	
12	1-38-7	F_774925	225600	101	176 WILBUR ST	176	WILBUR ST		1978	1964	0	RAISED R/	176 WILBUR ST	
13	1-38-6	F_775077	140600	101	186 WILBUR ST	186	WILBUR ST		1978	1404	0	FRONT/B/	186 WILBUR ST	
14	1-38A	F_775240	80800	101	200 WILBUR ST	200	WILBUR ST		1975	1082	0	RANCH	200 WILBUR ST	
15	1-85	F_774960	0	130	0 WILBUR ST	0	WILBUR ST		0	0	0		0 WILBUR ST	
16	1-82	F_774783	118700	101	143 WILBUR ST	143	WILBUR ST		1988	1080	0	RAISED R/	143 WILBUR ST	
17	1-82	F_774685	127900	101	131 WILBUR ST	131	WILBUR ST		1973	1296	0	RAISED R/	131 WILBUR ST	
18	1-79	F_774455	18100	101	103 WILBUR ST	103	WILBUR ST		1975	530	0	MOBILE H	103 WILBUR ST	
19	1-77	F_774200	127500	101	81 WILBUR ST	81	WILBUR ST		1955	1599	0	RANCH	81 WILBUR ST	
20	1-88	F_774304	99200	101	170 ROBINSON ST	170	ROBINSON ST		1960	1344	0	CAPE	170 ROBINSON ST	

Check building areas and values for zeros...



## Finding Residential Addresses

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	PROP_ID	LOC_ID	BLDG_VA	USE_CODE	SITE_ADDR	ADDR_NUM	FULL_STR	ZONING	YEAR_BUILT	BLD_AREA	UNITS	STYLE	FULL_ADDRESS	
2	1-26A	F_773800	101500	101	1979 BROADWAY	1979	BROADWAY		1990	1780	0	CAPE	1979 BROADWAY	
3	1-29	F_773750	93900	101	54 ROBINSON ST	54	ROBINSON ST		1953	1062	0	RANCH	54 ROBINSON ST	
4	1-30	F_773825	78300	101	68 ROBINSON ST	68	ROBINSON ST		1956	1145	0	RANCH	68 ROBINSON ST	
5	1-31	F_773894	144000	101	78 ROBINSON ST	78	ROBINSON ST		1953	2256	0	RANCH	78 ROBINSON ST	
6	1-32	F_774817	489700	960	110 ROBINSON ST	110	ROBINSON ST		1994	6127	0	RANCH	110 ROBINSON ST	
7	1-33	F_774123	81800	101	78 WILBUR ST	78	WILBUR ST		1951	1000	0	RANCH	78 WILBUR ST	
8	1-34	F_774229	76900	101	88 WILBUR ST	88	WILBUR ST		1956	780	0	RANCH	88 WILBUR ST	
9	1-35	F_774324	94600	101	98 WILBUR ST	98	WILBUR ST		1930	1248	0	CONVEN	98 WILBUR ST	
10	1-36	F_774469	101500	101	106 WILBUR ST	106	WILBUR ST		1950	1440	0	CAPE	106 WILBUR ST	
11	1-36A	F_774626	298600	101	128 WILBUR ST	128	WILBUR ST		2004	2858	0	COLONIA	128 WILBUR ST	
12	1-38-7	F_774925	225600	101	176 WILBUR ST	176	WILBUR ST		1978	1964	0	RAISED R	176 WILBUR ST	
13	1-38-6	F_775077	140600	101	186 WILBUR ST	186	WILBUR ST		1978	1404	0	FRONT/B	186 WILBUR ST	
14	1-38A	F_775246	85800	101	200 WILBUR ST	200	WILBUR ST		1975	1082	0	RANCH	200 WILBUR ST	
15	1-85	F_774960	0	130	0 WILBUR ST	0	WILBUR ST		0	0	0		0 WILBUR ST	
16	1-83	F_774782	115700	101	141 WILBUR ST	141	WILBUR ST		1965	1080	0	RAISED R	141 WILBUR ST	
17	1-82	F_774685	127900	101	131 WILBUR ST	131	WILBUR ST		1973	1296	0	RAISED R	131 WILBUR ST	
18	1-79	F_774455	18100	101	103 WILBUR ST	103	WILBUR ST		1975	530	0	MOBILE	103 WILBUR ST	
19	1-77	F_774200	127500	101	81 WILBUR ST	81	WILBUR ST		1955	1599	0	RANCH	81 WILBUR ST	
20	1-88	F_774304	99200	101	170 ROBINSON ST	170	ROBINSON ST		1960	1344	0	CAPE	170 ROBINSON ST	

The "STYLE" column can also help determine if it is a residence



## Finding Residential Addresses



PROF	LOC_ID	BLDG	USE_COI	SITE_ADDR	ADDR_NUM	FULL_STR	ZONIA	YEAR_BUI	BLD_ARE_A	UNITS	STYLE	FULL
1-26A	F_773800	101500	101	1979 BROADWAY	1979	BROADWAY	1950	1766	0	0	CAPE	1979
1-29	F_773750	82900	101	54 ROBINSON ST	54	ROBINSON ST	1953	1062	0	0	RANCH	54 RO
1-30	F_773825	78300	101	68 ROBINSON ST	68	ROBINSON ST	1956	1145	0	0	RANCH	68 RO
1-31	F_773894	144000	101	78 ROBINSON ST	78	ROBINSON ST	1953	2256	0	0	RANCH	78 RO
1-33	F_774123	81800	101	78 WILBUR ST	78	WILBUR ST	1951	1000	0	0	RANCH	78 W
1-34	F_774229	76900	101	88 WILBUR ST	88	WILBUR ST	1956	780	0	0	RANCH	88 WILBUR ST
1-35	F_774324	94000	101	98 WILBUR ST	98	WILBUR ST	1930	1248	0	0	CONVENT	98 WILBUR ST
1-36	F_774469	101500	101	106 WILBUR ST	106	WILBUR ST	1950	1440	0	0	CAPE	106 WILBUR ST
1-36A	F_774626	298600	101	128 WILBUR ST	128	WILBUR ST	2004	2858	0	0	COLONIA	128 WILBUR ST
1-38-7	F_774925	225600	101	176 WILBUR ST	176	WILBUR ST	1978	1964	0	0	RAISED R	176 WILBUR ST
1-38-6	F_775077	140600	101	186 WILBUR ST	186	WILBUR ST	1978	1404	0	0	FRONT/B	186 WILBUR ST
1-38A	F_775246	65800	101	200 WILBUR ST	200	WILBUR ST	1975	1082	0	0	RANCH	200 WILBUR ST
1-83	F_774782	115700	101	141 WILBUR ST	141	WILBUR ST	1965	1080	0	0	RAISED R	141 WILBUR ST
1-82	F_774685	127900	101	131 WILBUR ST	131	WILBUR ST	1973	1296	0	0	RAISED R	131 WILBUR ST
1-79	F_774455	18100	101	103 WILBUR ST	103	WILBUR ST	1975	530	0	0	MOBILE H	103 WILBUR ST
1-77	F_774200	127500	101	81 WILBUR ST	81	WILBUR ST	1955	1599	0	0	RANCH	81 WILBUR ST

Copy your residences onto a new sheet when you are done



## New Construction

	A	B	C	D	E	F	G	H	I	J
1	PROP	LOC_ID	BLDG	USE_COI	SITE_ADDR	ADDR_NU	FULL_STR	ZONIN	YEAR_BUI	B
2	1-26A	F_773800	101500	101	1979 BROADWAY	1979	BR			1
3	1-29	F_773750	83900	101	54 ROBINSON ST	54	RC			1
4	1-30	F_773825	78300	101	68 ROBINSON ST	68	RC			1
5	1-31	F_773894	144000	101	78 ROBINSON ST	78	RC			2
6	1-32	F_774817	489700	960	110 ROBINSON ST	110	RC			6
7	1-33	F_774123	81800	101	78 WILBUR ST	78	WI			1
8	1-34	F_774229	76900	101	88 WILBUR ST	88	WI			7
9	1-35	F_774324	94600	101	98 WILBUR ST	98	WI			1
10	1-36	F_774469	101500	101	106 WILBUR ST	106	WI			1
11	1-36A	F_774626	298600	101	128 WILBUR ST	128	WI			2
12	1-38-7	F_774925	225600	101	176 WILBUR ST	176	WI			1
13	1-38-6	F_775077	140600	101	186 WILBUR ST	186	WI			1
14	1-38A	F_775246	85800	101	200 WILBUR ST	200	WI			1
15	1-85	F_774960	0	130	0 WILBUR ST	0	WI			0
16	1-83	F_774782	115700	101	141 WILBUR ST	141	WI			1
17	1-82	F_774685	127900	101	131 WILBUR ST	131	WI			1
18	1-79	F_774455	18100	101	103 WILBUR ST	103	WI			1
19	1-77	F_774200	127500	101	81 WILBUR ST	81	WI			1
20	1-88	F_774304	99200	101	170 ROBINSON ST	170	RC			1
21	1-89	F_774356	100900	101	182 ROBINSON ST	182	RC			1

Check for development from 2010 onward and filter.



## New Construction

1	A	B	C	D	E	F	G	H	I	B
1	PROP	LOC_ID	BLDG	USE_COI	SITE_ADDR	ADDR_NU	FULL_STR	ZONIN	YEAR_BUI	
2	1-26A	F_773800	101500	101	1979 BROADWAY	1979	BR			1
3	1-29	F_773750	83900	101	54 ROBINSON ST	54	RC			1
4	1-30	F_773825	78300	101	68 ROBINSON ST	68	RC			1
5	1-31	F_773894	144000	101	78 ROBINSON ST	78	RC			2
6	1-32	F_774817	489700	960	110 ROBINSON ST	110	RC			6
7	1-33	F_774123	81800	101	78 WILBUR ST	78	WI			1
8	1-34	F_774229	76900	101	88 WILBUR ST	88	WI			7
9	1-35	F_774324	94600	101	98 WILBUR ST	98	WI			1
10	1-36	F_774469	101500	101	106 WILBUR ST	106	WI			1
11	1-36A	F_774626	298600	101	128 WILBUR ST	128	WI			2
12	1-38-7	F_774925	225600	101	176 WILBUR ST	176				1
13	1-38-6	F_775077	140600	101	186 WILBUR ST	186				1
14	1-38A	F_775246	85800	101	200 WILBUR ST	200				1
15	1-85	F_774960	0	130	0 WILBUR ST	0				0
16	1-83	F_774782	115700	101	141 WILBUR ST	141				1
17	1-82	F_774685	127900	101	131 WILBUR ST	131				1
18	1-79	F_774455	18100	101	103 WILBUR ST	103				1
19	1-77	F_774200	127500	101	81 WILBUR ST	81				1
20	1-88	F_774304	99200	101	170 ROBINSON ST	170	RC			1
21	1-89	F_774356	100900	101	182 ROBINSON ST	182	RC			1

Filter menu for 'YEAR\_BUI' column:

- Sort A to Z
- Sort Z to A
- Sort by Color
- Clear Filter From "YEAR\_BUI"
- Filter by Color
- Text Filters
- Search
- 2002
- 2006
- 2007
- 2008
- 2009
- 2010

Buttons: OK, Cancel



## UMDI LUCA Resources: Using Thing 2

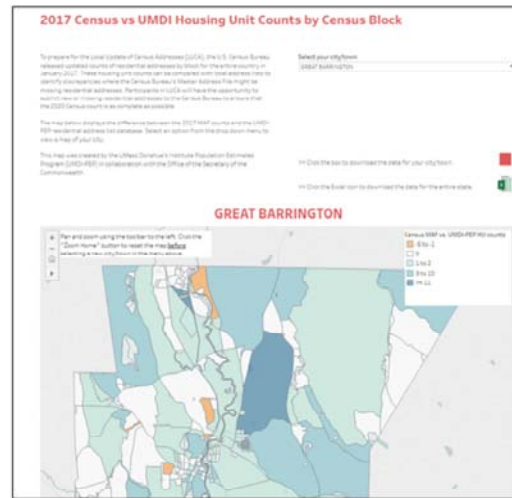


2017 counts  
from MAF vs.  
2017 counts  
from UMDI



## Using “Thing 2

- Navigate to your town
- Download 2017 UMDI versus Census MAF counts by block
- Request UMDI Address Lists
- Focus on areas where UMDI has more HUs than Census
- Investigate discrepancies
- Add your own addresses!





## Identify Priority Blocks (Thing 2 download)

BLOCK_GEOID_2010	County	County_ID	Town	Town_ID	UM vs. Census	Census 2017	UMDI 2017
25_023_520202_3015	PLYMOUTH	23	ABINGTON	1	99	69	168
25_023_520202_2011	PLYMOUTH	23	ABINGTON	1	59	43	102
25_023_520202_3011	PLYMOUTH	23	ABINGTON	1	41	407	448
25_023_520100_3000	PLYMOUTH	23	ABINGTON	1	26	95	121
25_023_520202_1007	PLYMOUTH	23	ABINGTON	1	26	205	231
25_023_520100_3016	PLYMOUTH	23	ABINGTON	1	12	30	42
25_023_520201_1017	PLYMOUTH	23	ABINGTON	1	12	35	47
25_023_520100_4002	PLYMOUTH	23	ABINGTON	1	11	81	92
25_023_520201_2009	PLYMOUTH	23	ABINGTON	1	11	44	55
25_023_520201_2014	PLYMOUTH	23	ABINGTON	1	11	21	32
25_023_520100_1018	PLYMOUTH	23	ABINGTON	1	10	18	28



Look for largest discrepancies. Focus on these blocks.

## Request UMDI address list OR use your own address list

I need a copy of my address list!

We can send you the **UMDI** address list compiled from state sources to get you started.

...make sure your address list includes unit designators and assign blocks if you want to make comparisons!

Census will send your official LUCA review list in February!

Source: One Fish Two Fish Red Fish Blue Fish, by Dr. Seuss



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You can request a list of addresses for that block (or your entire town) or you can use your own list. Just make sure that your list also includes Census block names. Just remember, the address list we will send you is the UMDI list that we have been assembling using state data sources. It is NOT the Title 13-protected LUCA address list that Census will send to you in February. Census will send that to you directly once the review period officially begins.

## Filter Address List by Blocks of Interest

25\_013\_813601\_1024  
25\_013\_813601\_1032

Sort Filter Clear Reapply Advanced

Sort & Filter

UM_ID	ADD_NO	STREET	SUBADDRESS	ZIP	CITY	BLOCK_GEOID_2010	LAT	LONG	TYPE	USE_CODE
1278498	1	SCHOOL STREET	1	02474	ARLINGTON	25_013_813601_1024	42.427114	-71.186566	Residential	102
1278503	1	SCHOOL STREET	3	02474	ARLINGTON	25_013_813601_1024	42.427114	-71.186566	Residential	102
1278504	1	SCHOOL STREET	4	02474	ARLINGTON	25_013_813601_1024	42.427114	-71.186566	Residential	102
1278505	1	SCHOOL STREET	5	02474	ARLINGTON	25_013_813601_1024	42.427114	-71.186566	Residential	102
1278506	1	SCHOOL STREET	6	02474	ARLINGTON	25_013_813601_1024	42.427114	-71.186566	Residential	102
1278510	1	GLENBROOK LANE	19	02474	ARLINGTON	25_013_813601_1032	42.427118	-71.172766	Residential	101
1278511	1	GLENBROOK LANE	BASEMENT	02474	ARLINGTON	25_013_813601_1032	42.427118	-71.172766	Residential	101
1278512	1	HARVARD STREET	1	02476	ARLINGTON	25_013_813601_1032	42.422803	-71.178416	Residential	104
1278513	1	LAUREL STREET	1	02476	ARLINGTON	25_013_813601_1032	42.421194	-71.169577	Residential	105
1278514	1	LAUREL STREET	2	02476	ARLINGTON	25_013_813601_1032	42.421194	-71.169577	Residential	105
1278515	1	LAUREL STREET	3	02476	ARLINGTON	25_013_813601_1032	42.421194	-71.169577	Residential	105
1278517	1	OLD COLONY LANE	10	02476	ARLINGTON	25_013_813601_4009	42.421819	-71.171100	Residential	102
1278518	1	OLD COLONY LANE	11	02476	ARLINGTON	25_013_813601_4009	42.421819	-71.171100	Residential	102
1278519	1	OLD COLONY LANE	12	02476	ARLINGTON	25_013_813601_4009	42.421819	-71.171100	Residential	102



Now, take your detailed address list and use the blocks you identified as priority blocks, and filter your address by the priority blocks.

## Review and Prepare Addresses

- 1) Remove duplicates
- 2) Check unit designations
- 3) Check residential status
- 4) Supplement with missing data

UM_ID	ADD_NO	STREET	SUBADDRESS	ZIP	CITY	BLOCK_GEOID_2010	LAT	LONG	TYPE	USE_CODE
1278498	1	SCHOOL STREET	1	02474	ARLINGTON	25_013_813601_1024	42.427114	-71.186566	Residential	102
1278503	1	SCHOOL STREET	3	02474	ARLINGTON	25_013_813601_1024	42.427114	-71.186566	Residential	102
1278504	1	SCHOOL STREET	4	02474	ARLINGTON	25_013_813601_1024	42.427114	-71.186566	Residential	102
1278505	1	SCHOOL STREET	5	02474	ARLINGTON	25_013_813601_1024	42.427114	-71.186566	Residential	102
1278506	1	SCHOOL STREET	6	02474	ARLINGTON	25_013_813601_1024	42.427114	-71.186566	Residential	102



Once you are looking at just your priority block,

- 1) Remove duplicates
- 2) Check unit designations
- 3) Check residential status
- 4) Supplement with missing data
- 5) Format to Census specifications

Demonstration of  
**Comparing and Supplementing  
Address Lists**

February 8, 2018

Ken Lefebvre, M.P.P.A.  
Research Analyst, Population Estimates Program  
UMass Donahue Institute



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INSTITUTE

## 2: Comparing Address Lists

To add updated data to LUCA for 2020, you'll want to convert your L3 data to an acceptable format for the US Census.



For the purpose of making our dashboards and other tools online, UMDI data uses a format which is compatible for LUCA purposes.

## 2: Comparing Address Lists

In this section we'll cover—

- Converting files from Excel ↔ .CSV
- Concatenating/de-concatenating
- Standardizing data fields
- Finding duplicate records



In this part of the presentation I will be showing you some of the ways you can use Excel as a multi-tool for ensuring data is correct, in the proper format and usable by the **Local Update of Census Addresses** Operation, better known as LUCA 2020.

## Converting Excel files to CSV and back

```
BLOCKID co,County,Town,Town Id,2010 HU Count,2017 HU Count,HU Change 2010-2017
25_013_810601_1000,013,CHICOPEE,61,0,0,0
25_013_810601_1001,013,CHICOPEE,61,0,0,0
25_013_810601_1002,013,CHICOPEE,61,0,0,0
25_013_810601_1003,013,CHICOPEE,61,2,2,0
25_013_810601_1004,013,CHICOPEE,61,43,44,1
25_013_810601_1005,013,CHICOPEE,61,0,0,0
25_013_810601_1006,013,CHICOPEE,61,0,0,0
25_013_810601_1007,013,CHICOPEE,61,0,0,0
25_013_810601_1008,013,CHICOPEE,61,8,10,2
25_013_810601_1009,013,CHICOPEE,61,0,0,0
25_013_810601_1010,013,CHICOPEE,61,16,16,0
25_013_810601_1011,013,CHICOPEE,61,9,12,3
25_013_810601_1012,013,CHICOPEE,61,2,2,0
25_013_810601_1013,013,CHICOPEE,61,34,34,0
25_013_810601_1014,013,CHICOPEE,61,85,85,0
25_013_810601_1015,013,CHICOPEE,61,52,52,0
25_013_810601_1016,013,CHICOPEE,61,9,9,0
25_013_810601_1017,013,CHICOPEE,61,48,48,0
25_013_810601_1018,013,CHICOPEE,61,27,28,1
25_013_810601_1019,013,CHICOPEE,61,34,34,0
25_013_810601_1020,013,CHICOPEE,61,7,7,0
25_013_810601_1021,013,CHICOPEE,61,23,22,-1
25_013_810601_1022,013,CHICOPEE,61,24,24,0
25_013_810601_1023,013,CHICOPEE,61,0,0,0
25_013_810601_1024,013,CHICOPEE,61,0,0,0
25_013_810601_1025,013,CHICOPEE,61,0,0,0
25_013_810601_1026,013,CHICOPEE,61,0,0,0
```

*“Comma separated values”*

Frequently-used delimiters include

↔ ; , | \_ -



CSVs, known in full as “comma separated values” files, are especially useful for storing large sets of information in a small text-based format. Tables are stored as plain text, with cells separated or “delimited” by a single non-alphanumeric character, usually commas, but alternately delimiters can be tabs, semicolons, commas, vertical lines, or a number of other symbols



## Converting Excel files to CSV and back

### Housing Unit Change by Census Block 2010 - 2017

To prepare for the Local Update of Census Addresses (LUCA), the U.S. Census Bureau released updated counts of residential addresses by block for the entire country in October 2017. These housing unit counts can be compared with local address lists to identify discrepancies where the Census Bureau's Master Address File might be missing residential addresses. Participants in LUCA will have the opportunity to submit new or missing residential addresses to the Census Bureau to ensure that the 2020 Census count is as complete as possible.

The map below displays the difference between the 2010 housing unit counts by block and the 2017 housing unit counts. Select an option from the drop-down menu to view a map of your city.

This map was created by the UMass Donahue Institute Population Estimates Program (DIP-PEP) in collaboration with the Office of the Secretary of the Commonwealth. If you have questions about this dashboard, please contact Meghan Flanagan (MFlanagan@donahue.umass.edu) or Matt Schliker (MSchliker@donahue.umass.edu).

Select your city/town:

CHICOPEE

Click the icon to download the data for your city/town.

Click the Excel icon to download the data for the entire state.

### CHICOPEE



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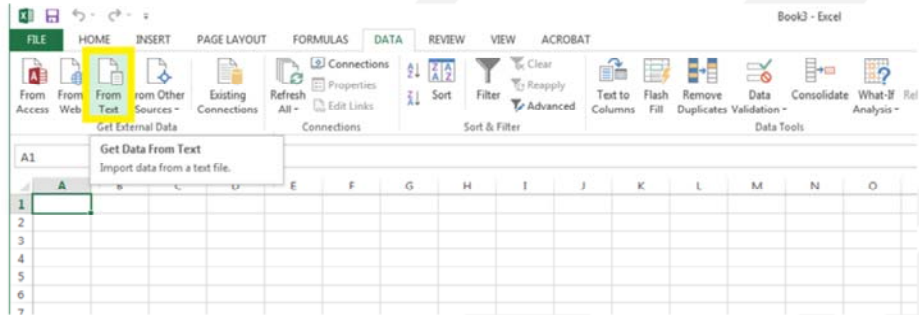
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CSV files are also the format that our dashboard data is stored, again if you would like to download this data, you can do so by clicking the red button in or

## Converting Excel files to CSV and back



### Importing CSV files



To do this, we'll open a blank workbook, go to the Data tab and click the "From Text" button in the "Get External Data" menu. Navigate to the folder containing your CSV file



## Converting Excel files to CSV and back



### Importing CSV files

Text Import Wizard - Step 1 of 3

The Text Wizard has determined that your data is Delimited.  
If this is correct, choose Next, or choose the data type that best describes your data.

Original data type

Choose the file type that best describes your data:

- Delimited - Characters such as commas or tabs separate each field.
- Fixed width - Fields are aligned in columns with spaces between each field.

Start import at row: 1 File origin: 437 : OEM United States

My data has headers.

Preview of file C:\Users\kiefebvre\Downloads\MA\_HU\_Change\_2010\_2017.csv

```
1 BLOCKID co, County, Town, Town Id, 2010 HU Count, 2017 HU Count, HU Change 2010
2 25_013_810601_1000, 013, CHICOPEE, 61, 0, 0, 0
3 25_013_810601_1001, 013, CHICOPEE, 61, 0, 0, 0
4 25_013_810601_1002, 013, CHICOPEE, 61, 0, 0, 0
5 25_013_810601_1003, 013, CHICOPEE, 61, 2, 2, 0
```

Cancel < Back Next > Finish



you'll be met with the "Text Import Wizard". Leave the "Original data type" as the default "Delimited" and, in general, you'll want to start at import row "1" with the default file origin.

## Converting Excel files to CSV and back



### Importing CSV files

Text Import Wizard - Step 2 of 3

This screen lets you set the delimiters your data contains. You can see how your text is affected in the preview below.

**Delimiters**

Tab

Semicolon

Comma

Space

Other:

Treat consecutive delimiters as one

Text qualifier: -

**Data preview**

```
BLOCKID co, County, Town, Town Id, 2010 HU Count, 2017 HU Count, HU Change 2010-2017
25_013_810601_1000, 013, CHICOPEE, 61, 0, 0, 0
25_013_810601_1001, 013, CHICOPEE, 61, 0, 0, 0
25_013_810601_1002, 013, CHICOPEE, 61, 0, 0, 0
25_013_810601_1003, 013, CHICOPEE, 61, 2, 2, 0
```

Cancel < Back Next > Finish



Click Next> and then select your delimiter if it's listed, or otherwise enter it in the "Other" input box. If you do this, make sure any other delimiters are not checked by accident. [SLIDE]

## Converting Excel files to CSV and back



### Importing CSV files

Text Import Wizard - Step 2 of 3

This screen lets you set the delimiters your data contains. You can see how your text is affected in the preview below.

**Delimiters**

Tab  
 Semicolon  
 Comma  
 Space  
 Other:

Treat consecutive delimiters as one

Text qualifier: "

**Data preview**

BLOCKID	co	County	Town	Town Id	2010 HU Count	2017 HU Count	HU C
25_013_810601_1000	D13	CHICOPEE	61	0	0	0	0
25_013_810601_1001	D13	CHICOPEE	61	0	0	0	0
25_013_810601_1002	D13	CHICOPEE	61	0	0	0	0
25_013_810601_1003	D13	CHICOPEE	61	0	0	0	0

Cancel < Back Next > Finish

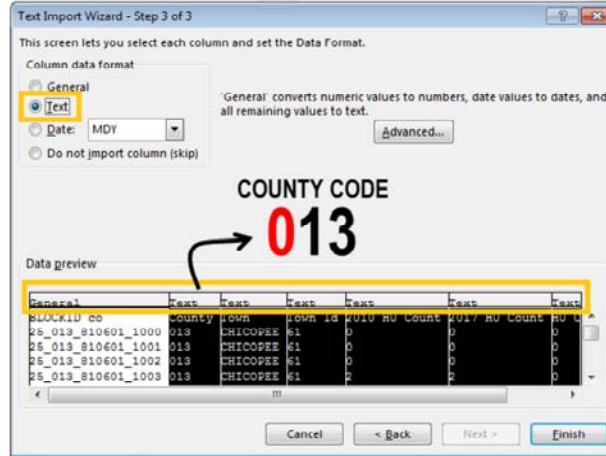


You'll be able to see if your import will be a success in the data preview.

## Converting Excel files to CSV and back



### Importing CSV files



[Animation, fade in ZIP]

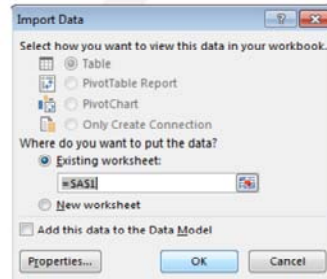
When importing CSV files for Census or other property data, it is generally a good idea to convert your fields to text, particularly any numeric fields, as leading zeros such as those in a ZIP code (or in this case the county code) will be removed if you import your data as in a “General” format.

Making these values into text means any formulas we enter into these cells will be treated as text rather than formulas, so while we may need to convert some other columns to the “General” format later, this is generally a good practice to ensure that no data is lost.

## Converting Excel files to CSV and back



### Importing CSV files



After clicking Finish, the Import Data window will prompt whether you want to add this to an existing worksheet or create a new one. In this case we'll use the default value for the existing worksheet, as our workbook is blank.

## Converting Excel files to CSV and back



### Importing CSV files

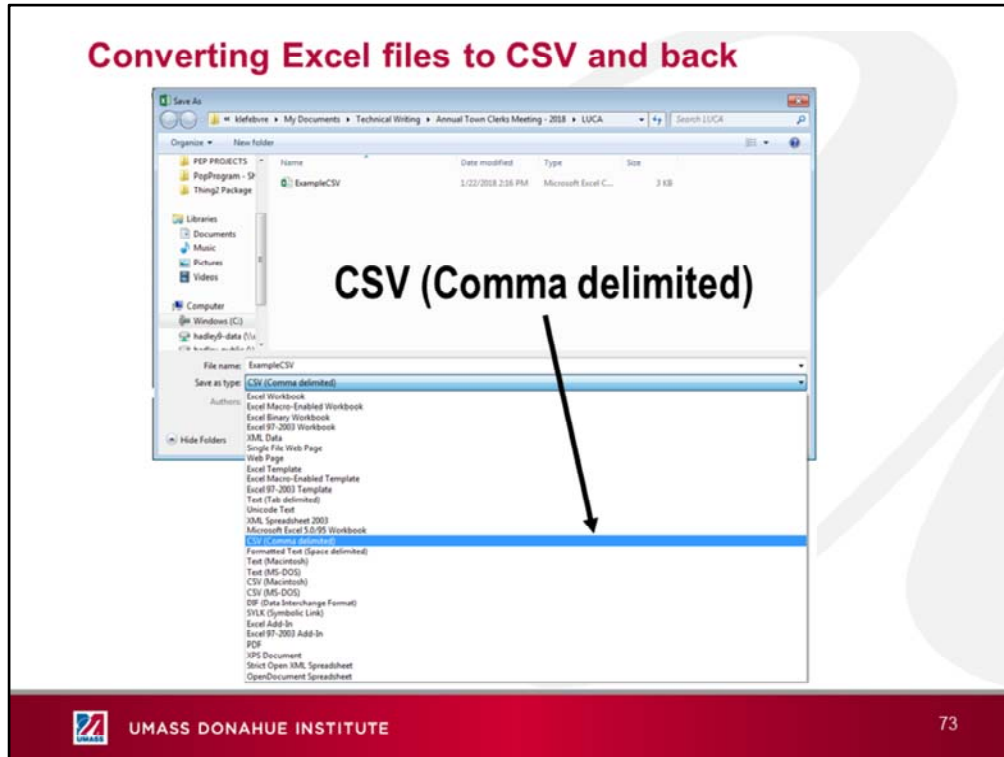
	A	B	C	D	E	F	G	H	I	J
	BLOCKID	co	County	Town	Town Id	2010 HU Count	2017 HU Count	HU Change 2010-2017		
2	25_013_810601_1000	013	CHICOPEE	61	0	0	0			
3	25_013_810601_1001	013	CHICOPEE	61	0	0	0			
4	25_013_810601_1002	013	CHICOPEE	61	0	0	0			
5	25_013_810601_1003	013	CHICOPEE	61	2	2	0			
6	25_013_810601_1004	013	CHICOPEE	61	43	44	1			
7	25_013_810601_1005	013	CHICOPEE	61	0	0	0			
8	25_013_810601_1006	013	CHICOPEE	61	0	0	0			
9	25_013_810601_1007	013	CHICOPEE	61	0	0	0			
10	25_013_810601_1008	013	CHICOPEE	61	8	10	2			
11	25_013_810601_1009	013	CHICOPEE	61	0	0	0			
12	25_013_810601_1010	013	CHICOPEE	61	16	16	0			
13	25_013_810601_1011	013	CHICOPEE	61	9	12	3			
14	25_013_810601_1012	013	CHICOPEE	61	2	2	0			
15	25_013_810601_1013	013	CHICOPEE	61	34	34	0			
16	25_013_810601_1014	013	CHICOPEE	61	85	85	0			
17	25_013_810601_1015	013	CHICOPEE	61	52	52	0			
18	25_013_810601_1016	013	CHICOPEE	61	9	9	0			
19	25_013_810601_1017	013	CHICOPEE	61	48	48	0			
20	25_013_810601_1018	013	CHICOPEE	61	27	28	1			
21	25_013_810601_1019	013	CHICOPEE	61	34	34	0			
22	25_013_810601_1020	013	CHICOPEE	61	7	7	0			
23	25_013_810601_1021	013	CHICOPEE	61	23	22	-1			
24	25_013_810601_1022	013	CHICOPEE	61	24	24	0			
25	25_013_810601_1023	013	CHICOPEE	61	0	0	0			
26	25_013_810601_1024	013	CHICOPEE	61	0	0	0			



Now that our CSV is imported, we can save it with any formatting changes like highlighting, font, etc.; features that would otherwise be lost as a CSV file.



## Converting Excel files to CSV and back



Saving CSV files from Excel is very simple; all you have to do is go to File>Save as, and in the file format dropdown, select CSV (Comma delimited). You'll need to convert your Excel files back into CSVs in order to work with GUPS (Geog. Update Partnership Software)



## Concatenating and De-concatenating

*Concatenating Fields*

*De-concatenating Fields*



In this next section we'll cover concatenating and deconcatenating fields; concatenation is especially useful for addresses, as it allows numbers, streets, and zip codes to be reorganized as one field or to be placed in separate fields

## Concatenating and De-concatenating

=CONCATENATE ([CELL] , [CELL] , )

=CONCATENATE ([CELL] , "TEXT STRING" , [CELL] )

The screenshot shows an Excel spreadsheet with a formula bar at the top containing the formula `=CONCATENATE(A2,"",B2,"",C2)`. Below the formula bar, there are two views of the spreadsheet. The top view shows the formula being entered into cell D2, which currently contains the text `2,"",C2)`. The bottom view shows the result of the formula, where cell D2 now contains the concatenated text `99 WATER ST`.

	A	B	C	D	E	F
1	Number	Route Name	Route Type	Address		
2	99	WATER	ST	2,"",C2)		
3	99	MIDDLE WATER	ST			

	A	B	C	D	E
1	Number	Route Name	Route Type	Address	
2	99	WATER	ST	99 WATER ST	
3	99	MIDDLE WATER	ST		



Even if you have no prior experience, concatenating addresses is very easy in Excel. To do this, all you need to do is select a blank column for your formula, and then type in =CONCATENATE( This initiates the concatenate formula, once you've typed in the end parenthesis, hold CTRL and click on any number of cells to put them together. To add a space between cells you will have to enter it in manually between their names, with two quotation marks. So for example if I wanted to concatenate a street name with a municipality with a space in between them, I would enter =CONCATENATE(N2, "", P2).

## Concatenating and De-concatenating

### ? Troubleshooting

The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E
1	Number	Route Name	Route Type		Route Type
2	99	WATER	ST	#VALUE!	ST
3	99	MIDDLE WATER	ST		

The formula bar shows the formula for cell D2: `=CONCATENATE(A2`. A red circle highlights the opening quotation mark. The context menu is open, and 'Format Cells...' is selected.

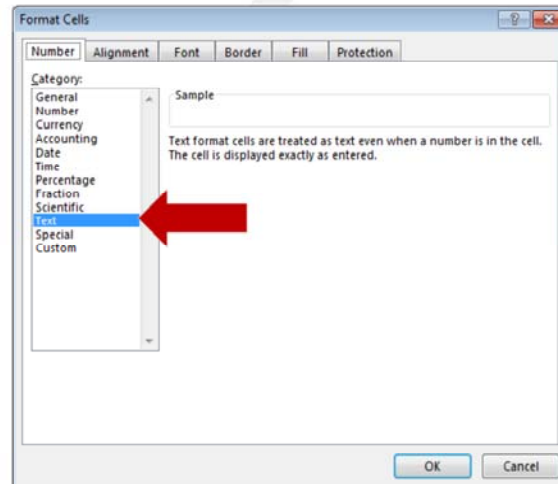
If the `=CONCATENATE()` function doesn't work, double check that you've used commas between cells rather than pluses (+) or any other operative symbols. Additionally, make sure you have "quotations" on both sides of your spaces or other text that you'd like to add.



## Concatenating and De-concatenating



### Troubleshooting



Some common problems, if your function is displaying on its own rather than returning the correct value, this could be because the cells it is entered in are formatted as text. To change this simply right click on the column, row, or cells in question and select Format Cells. There you will be able to change the format from text to “General”, after doing this, double click on the cells in question and press enter to reactivate the formula, which should allow the function to return a value.

# Concatenating and De-concatenating

## The Challenges of De-concatenating

Text to Columns: useful but with limitations-

Text to Columns

Split a single column of text into multiple columns.

For example, you can separate a column of full names into separate first and last name columns.

You can choose how to split it up: fixed width or split at each comma, period, or other character.

[Tell me more](#)

	A	B	C	D	E	F	G	H
1	Address	NewField1	NewField2	NewField3	NewField4			
2	99 WATER ST		99 WATER	ST				
3	99 MIDDLE WATER ST		99 MIDDLE	WATER	ST			
4								
5								
6								
7								
8								



Now we'll move on to de-concatenation, to separate spaced information like addresses, we could use Text to Columns, however one limitation of this tool is that it will cause problems where streets have multiple words in their names

## Concatenating and De-concatenating

=LEFT() and =RIGHT() can be used for numbers and street types but may cause confusion with irregular addresses

	A	B	C
1	Address	NewField1	NewField2
2	99 WATER ST	99	ST
3	99 MIDDLE WATER ST	99	ST
4	SHERI LANE ESTATES	SH	ES
5			



One alternative for this is the LEFT() and RIGHT() functions to place the first and last number of characters into another cell. Again this has limitations as irregular addresses beginning and ending with words may become unrecognizable with this tool. E.g. whereas 99 WATER STREET yields 99 and ST, SHERI LANE ESTATES gives us SH and ES.

## Concatenating and De-concatenating

An alternative-- "nested formulas", provided with this lecture-

### First word/numbers of address-

```
=TRIM(LEFT(SUBSTITUTE(A2," ",REPT(" ",100)),100))
```

### Middle words (e.g. 99 Middle Water Street)

```
=MID(A2,FIND(" ",A2)+1,FIND(CHAR(1),SUBSTITUTE(A2," ",CHAR(1),LEN(A2)-LEN(SUBSTITUTE(A2," ",""))))-(FIND(" ",A2)+1))
```

### Last word/street type-

```
=TRIM(RIGHT(SUBSTITUTE(A2," ",REPT(" ",100)),100))
```



Using the combination of TRIM SUBSTITUTE formulas provided above will allow you to extract the entire first, middle, and last words, including any irregular street names or suffixes. Note the text in green represents the cells that you would change out depending on the location of your address information. We will provide a template Excel file with these formulas already entered in an example to make things easier for everyone.



## Concatenating and De-concatenating

Irregular addresses remain, but become more easily identified with filtering-

The screenshot shows the Microsoft Excel interface with the 'DATA' tab selected. The ribbon includes options for 'Filter', 'Sort', 'Text to Columns', 'Flash Fill', 'Remove Duplicates', and 'Data Validation'. A data table is displayed with the following content:

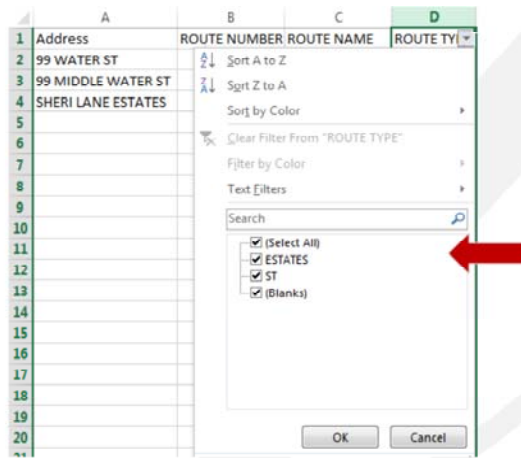
	A	B	C	D	E
1	Address	ROUTE NUMBER	ROUTE NAME	ROUTE TYPE	
2	99 WATER ST		99 WATER	ST	
3	99 MIDDLE WATER ST		99 MIDDLE WATER	ST	
4	SHERI LANE ESTATES		SHERI LANE	ESTATES	
5					
6					
7					

The 'Filter (Ctrl+Shift+L)' dialog box is open, showing the 'Turn on filtering for the selected cells' option. Below this, it says 'Then, click the arrow in the column header to narrow down the data.' There is also a 'Tell me more' link.

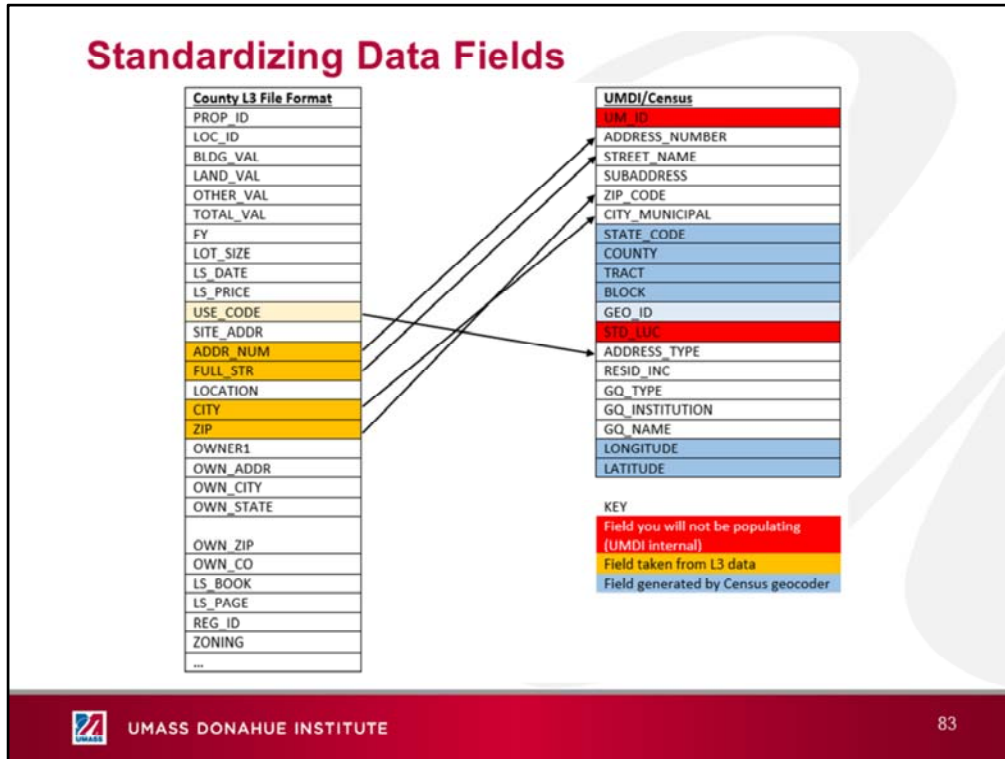


After processing data with these operations, we can filter for unusual addresses by selecting our column, going to the data tab and clicking the filter button.

## Concatenating and De-concatenating



A column with a filter is indicated by an arrow button on the right side of the first cell in the column in question. As you can see, any suffixes like street, road, or any irregularities will be listed.



If your municipality is working with GUPS, the Census Bureau’s Geographic Update Partnership Software (GUPS), you’ll want to standardize your L3 assessors data into a format which mimics that of the Census’s. In creating Dashboard 2, which shows counts of group quarters (GQ) and individual housing units, UMDI has attempted to make formatting that is compatible with this.

# Standardizing Data Fields

 [geocoding.geo.census.gov/geocoder/](https://geocoding.geo.census.gov/geocoder/)



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**FIND LOCATIONS USING...**

- One Line
- Address
- Address Batch

**FIND GEOGRAPHIES USING...**

- One Line
- Address
- Address Batch
- Geographic Coordinates

**ABOUT DATA...**

- Benchmarks
- Vintages

Welcome to Geocoder

**Welcome to Geocoder**

Census geocoder provides interactive & programmatic (REST) access to users interested in matching addresses to geographic locations and entities containing those addresses. Please see the Services API link below for more information.  
[Geocoding Services API PDF | HTML](#)



## Standardizing Data Fields

### Census Geocoder Input Format

	[Entry No.]	[Number and Address]	[Town/City]	[State]	[ZIP]
	A	B	C	D	E
1	1	24 MYRON ST	WEST SPRINGFIELD	MA	01089

→ Save as a CSV file

→ Do not include headers



# Standardizing Data Fields

## Census Geocoder Input Format

The screenshot displays the United States Census Bureau Geocoder interface. At the top left is the United States Census Bureau logo. A navigation bar contains four categories: Topics (Population, Economy), Geography (Maps, Products), Library (Infographics, Publications), and Data (Tools, Developers). The main content area is divided into three sections: 'FIND LOCATIONS USING...', 'FIND GEOGRAPHIES USING...', and 'ABOUT DATA...'. The 'FIND LOCATIONS USING...' section is active, showing a list of options: 'One Line', 'Address', and 'Address Batch'. To the right of this list are input fields: 'Select Address File' with a 'Choose File' button and the filename 'Addresses (1).csv'; 'Benchmark' with a dropdown menu set to 'Public\_AR\_Current'; and 'Vintage' with a dropdown menu set to 'Current\_Current'. Below these fields, a note states 'Batch files may not exceed 10000 records.' and there is a 'Get Results' button. A link 'Download a sample CSV file here' is also present.



## Geocoder – standardizing your address list

- **The first step in the batch geocoding process is to standardize your municipal address list to Census specifications.**

Note: Your data must be standardized to Census guidelines or the geocoding tool will not work properly.

- **For detailed instructions on how to set up your address list columns for processing, see this link:**

<https://www.census.gov/geo/maps-data/data/geocoder.html>



# Standardization – Batch Geocoding Process

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## Geography

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The **Census Geocoder** is an address look-up tool that converts your address to an approximate coordinate (latitude/longitude) and returns information about the address range that includes the address and the census geography the address is within. The geocoder is available as a web interface and as an API (Representational State Transfer - REST - web-based service).

The tool allows you to look-up a single address or batch submit up to 10,000 addresses at a time. In addition, you can find the location of an address, the latitude and longitude, using the "Find Locations Using..." option. You can also find the census geographic entries for an address using the "Find Geographies Using..." option. The "Find Geographies Using..." option returns the state, county, census tract, and block for each address. Additional geographies are available using the instructions under Documentation below.

When geocoding your address, you need to select a benchmark (time period) and select a vintage of geography. The benchmark is the time period when we created a snapshot of our data (generally done twice a year). For example, Public\_AR\_Census2010 is the snapshot we took of the database in 2010. Public\_AR\_Current is the most recent snapshot we took of our dataset. The vintage of geography is the census or survey that the data relates to. For example, Census2010\_Census2010 are the address ranges from the 2010 Census at the time of the 2010 Census. You can also obtain the 2010 Census address ranges as of our most recent benchmark. The vintages you see available depends on the benchmark you selected.

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# Formatting your list

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+ Data in the Census Geocoder

- Batch Geocoding Process

+ How to Format your Address List

+ Results

+ Record Layouts for Output

+ Single Address Look-up

+ Documentation

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## List particulars

- **Addresses should be in a single line, with individual sections separated by commas.**
- **Addresses should contain the following information:**
  - Unique ID,
  - House Number and Street Name,
  - City,
  - State,
  - Zip Code

**Example – 1, 24 Beacon Street, Boston, MA, 02133**



## Standardizing Data Fields

### Census Geocoder Input Format

[ID]	[ Full Address ]	[Match]	[ Full Address ]	[Lat/Long]	[US Census Codes]
1	24 MYRON ST, WEST SPRINGFIELD, MA, 01089	Match	Exact	24 MYRON ST, WEST SPRINGFIELD, MA, 01089 -72.62686,42.132774	4021900 R 25 013 812202 1030

	G	H	I	J	K
1	[STATE_CODE]	[COUNTY]	[TRACT]	[BLOCK]	[GEO_ID]
2	25	013	812902	2015	250138129022015

The GEO\_ID in K2 would be generated by entering the following formula-

=CONCATENATE (G2 , H2 , I2 , J2 , K2 )



## Standardizing Data Fields

County L3 File Format
PROP_ID
LOC_ID
BLDG_VAL
LAND_VAL
OTHER_VAL
TOTAL_VAL
FY
LOT_SIZE
LS_DATE
LS_PRICE
USE_CODE
SITE_ADDR
ADDR_NUM
FULL_STR
LOCATION
CITY
ZIP
OWNER1
OWN_ADDR
OWN_CITY
OWN_STATE
OWN_ZIP
OWN_CO
LS_BOOK
LS_PAGE
REG_ID
ZONING
...

UMDI/Census
UM_ID
ADDRESS_NUMBER
STREET_NAME
SUBADDRESS
ZIP_CODE
CITY_MUNICIPAL
STATE_CODE
COUNTY
TRACT
BLOCK
GEO_ID
STD_LUC
ADDRESS_TYPE
RESID_INC
GO_TYPE
GO_INSTITUTION
GO_NAME
LONGITUDE
LATITUDE

### KEY

Field you will not be populating  
(UMDI internal)

Field taken from L3 data

Field generated by Census geocoder



## Standardizing Data Fields Census Geocoder Input Format

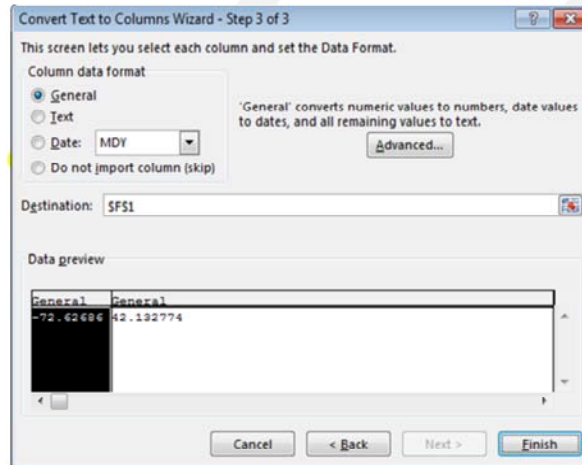
[ID] [ Full Address ] [Match] [ Full Address ] [Long, Lat] [US Census Codes]

	A	B	C	D	E	F	G	H	I	J	K	L
1		24 MYRON ST, WEST SPRINGFIELD, MA, 01089	Match Exact		24 MYRON ST, WEST SPRINGFIELD, MA, 01089	-72.62686,42.132774	4021900 R			25 013		812202 1030
2												
3												
4												
5												



Before we separate our Longitude and Latitude, right click on the column to the right, column G in this screenshot, and Insert a column. This prevents the data involved from being overwritten

## Standardizing Data Fields Census Geocoder Input Format



## Standardizing Data Fields

County L3 File Format
PROP_ID
LOC_ID
BLDG_VAL
LAND_VAL
OTHER_VAL
TOTAL_VAL
FY
LOT_SIZE
LS_DATE
LS_PRICE
USE_CODE
SITE_ADDR
ADDR_NUM
FULL_STR
LOCATION
CITY
ZIP
OWNER1
OWN_ADDR
OWN_CITY
OWN_STATE
OWN_ZIP
OWN_CO
LS_BOOK
LS_PAGE
REG_ID
ZONING
...

UMDI/Census
UM_ID
ADDRESS_NUMBER
STREET_NAME
SUBADDRESS
ZIP_CODE
CITY_MUNICIPAL
STATE_CODE
COUNTY
TRACT
BLOCK
GEO_ID
STD_LUC
ADDRESS_TYPE
RESID_INC
GO_TYPE
GO_INSTITUTION
GO_NAME
LONGITUDE
LATITUDE

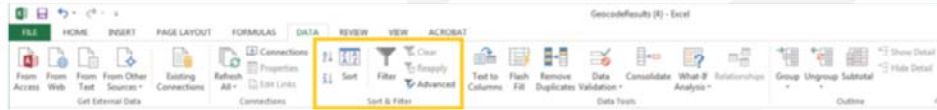
KEY

- Field you will not be populating (UMDI internal)
- Field taken from L3 data
- Field generated by Census geocoder



## Finding Duplicate Records

The simplest, but not the most effective way to handle large datasets-



Instead, we'll use the concatenation function we covered earlier in this presentation.



If you have the time and patience, sorting and filtering can be useful tools for looking through data for duplicate entries. However if you want to find all duplicate addresses quickly, you can do this with a combination of concatenations and pivot tables.



## Finding Duplicate Records

We'll create a "duplicate variable" which will be populated by a concatenation of-

- Address Number
- Street Name
- Subaddress
- Municipality

The screenshot shows an Excel spreadsheet with the following data:

1	UM_ID	ADDRESS	STREET_NAME	SUBADDRESS	ZIP_CODE	CITY_MUNICIPAL	LATITUDE	DUPLICATE_VARIABLE
2	970323	50	BATES ROAD		01085	WESTFIELD	42.135527939626407	=CONCATENATE(B2,C2,D2,F2)
3	971593	20	QUEEN STREET		01085	WESTFIELD	42.138345124876857	
4	971605	202	MONTGOMERY ROAD		01085	WESTFIELD	42.147480911628691	

No spaces need to be used, as this is a "dummy variable"



First we'll make a new "dummy field" in which we'll concatenate our address data so we have the street number, name, subaddress (units, etc.), and town in one column. No spaces between fields will be necessary.

## Finding Duplicate Records

013\_Hampden\_Address\_List\_xl

FILE HOME INSERT PAGE LAYOUT FORMULAS DATA REVIEW VIEW ACROBAT

PivotTable Recommended PivotTables Tables

PivotTable  
Easily arrange and summarize complex data in a PivotTable.  
FYI: You can double-click a value to see which detailed values make up the summarized total.  
Tell me more

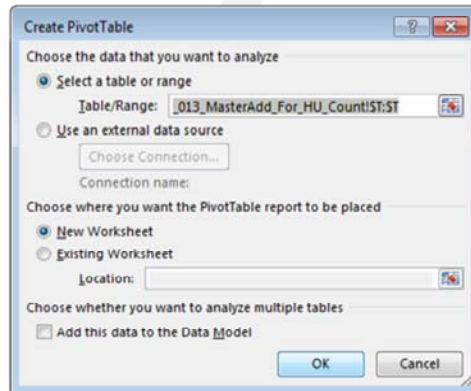
fx DUPLICATE\_VARIABLE

	C	D	E	F	S	T	U
		SUBADDRESS	ZIP_CODE	CITY_MUNICIPAL	LATITUDE	DUPLICATE_VARIABLE	
7	971779	11 PAPER STREET	01085	WESTFIELD	42.135527939626407	90BATES ROADWESTFIELD	
8	975535	336 RUSSELLVILLE ROAD	01085	WESTFIELD	42.138345124876857	20QUEEN STREETWESTFIELD	
9	975541	8 ELLIS STREET	01085	WESTFIELD	42.147480911628691	202MONTGOMERY ROADWESTFIELD	
10	975677	44 SACKETT ROAD	01085	WESTFIELD	42.118982581460486	130EASTWOOD DRIVWESTFIELD	
11	972504	42 WHISPERING WIND ROAD	01085	WESTFIELD	42.126753358894860	11DELANCEY STREETWESTFIELD	
12	972599	59 CRANE AVENUE	01085	WESTFIELD	42.112773235558635	11PAPER STREETWESTFIELD	
13	979815	24 LOCUST STREET	01085	WESTFIELD	42.108259152136895	336RUSSELLVILLE ROADWESTFIELD	
14	979819	24 NORTHRIDGE ROAD	01085	WESTFIELD	42.128685707571456	BELLIS STREETWESTFIELD	
15	979999	10 KANE BROTHERS CIRCLE	01085	WESTFIELD	42.108259152136895	44SACKETT ROADWESTFIELD	
16	970345	51 OAKCREST DRIVE	01085	WESTFIELD	42.096024736809483	42WHISPERING WIND ROADWESTFIELD	
17	967643	57 YANKEE CIRCLE	01085	WESTFIELD	42.113225764429593	39CRANE AVENUEWESTFIELD	
					42.098881111992497	24LOCUST STREETWESTFIELD	
					42.093218515418002	24NORTHRIDGE ROADWESTFIELD	
					42.137939227967436	10KANE BROTHERS CIRCLEWESTFIELD	
					42.105241733343092	51OAKCREST DRIVWESTFIELD	
					42.114909737733775	57YANKEE CIRCLEWESTFIELD	

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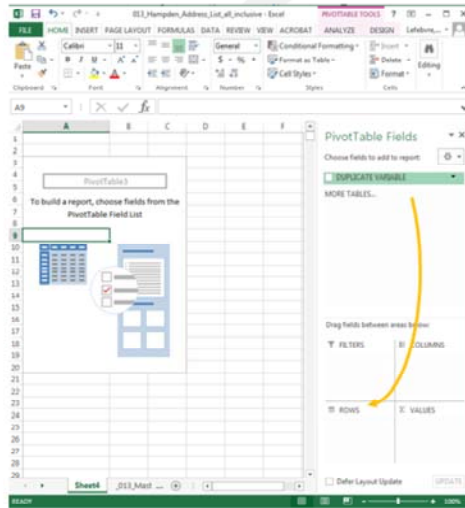
After generating this field, select the entire column and in the Insert menu, select PivotTable.

## Finding Duplicate Records



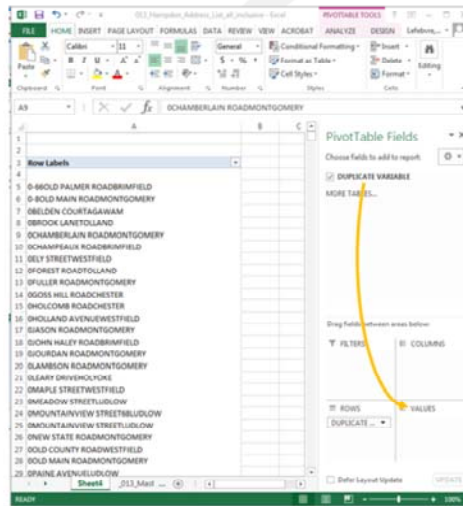
Leave the table/range as default, and choose the PivotTable to be placed on a New Worksheet

## Finding Duplicate Records



In the PivotTable Fields menu, if it's not already populated, click and drag set the one field you generated to the Rows and Values sections, leaving the latter as the default "Count of [FieldName]"

## Finding Duplicate Records



## Finding Duplicate Records

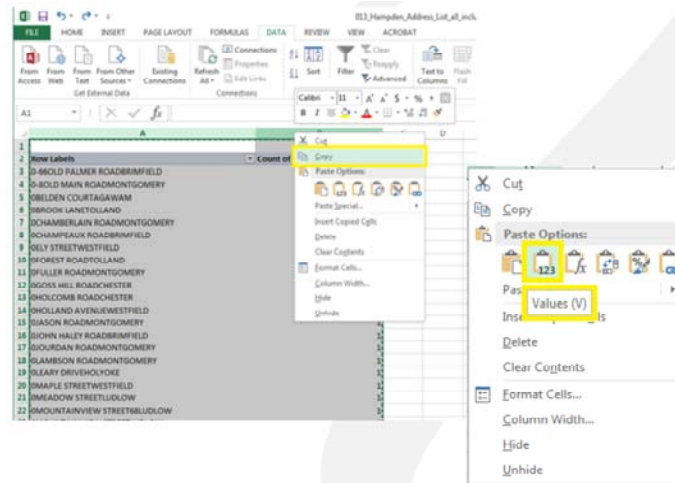
The screenshot shows an Excel spreadsheet with a PivotTable. The PivotTable has 'Row Labels' and a single data field 'Count of DUPLICATE VARIABLE'. The data is as follows:

Row Labels	Count of DUPLICATE VARIABLE
0-460 OLD PALMER ROADBRIMFIELD	1
0-BOLD MAIN ROADMONTGOMERY	1
0-BOLD MAIN ROADMONTGOMERY	1
0-BOLD MAIN ROADMONTGOMERY	1
0-BROOK LANE TOLLAND	1
0-CHAMBERLAIN ROADMONTGOMERY	1
0-CHAMPPLAIN ROADBRIMFIELD	1
0-ELLY STREET WESTFIELD	1
0-FOREST ROAD TOLLAND	1
0-FULLER ROAD MONTGOMERY	1
0-GOODS HILL ROAD CHESTER	1
0-HUDCOCK ROAD CHESTER	1
0-HOLLAND AVENUE WESTFIELD	1
0-IRISON ROAD MONTGOMERY	1
0-ROHN HALEY ROAD BRIMFIELD	1
0-SOURDAN ROAD MONTGOMERY	1
0-LAMBSON ROAD MONTGOMERY	1
0-LEARY DRIVE HOLYOKE	1
0-MAPLE STREET WESTFIELD	1
0-MEADOW STREET LUDLOW	1
0-MOUNTAIN VIEW STREET LUDLOW	1
0-MOUNTAIN VIEW STREET LUDLOW	1
0-NEW STATE ROAD MONTGOMERY	1
0-OLD COUNTY ROAD WESTFIELD	1
0-OLD MAIN ROAD MONTGOMERY	1
0-SRAINE AVENUE LUDLOW	1

The PivotTable Fields task pane on the right shows 'DUPLICATE VARIABLE' selected for the report. The 'VALUES' area contains 'COUNT OF DUPLICATE VARIABLE'.



## Finding Duplicate Records



After the PivotTable has generated, select both its columns and copy them. Make another worksheet and then right-click to Paste Options>Values (Ctrl-V will not do this).

## Finding Duplicate Records

The screenshot shows the Microsoft Excel interface. The 'DATA' tab is active, and the 'Sort & Filter' group is highlighted. A 'Sort Warning' dialog box is open, displaying the following text:

Sort Warning

Microsoft Excel found data next to your selection. Since you have not selected this data, it will not be sorted.

What do you want to do?

- Expand the selection
- Continue with the current selection

Buttons: Sort, Cancel

The background spreadsheet shows a table with the following data:

Row Label	Count of DUPLICATE_VARIABLE
D-BOLD P	1
D-BOLD M	1
D-BELDEN	1
D-BROOK L	1
D-CHAMBER	1
D-CHAMPE	1
D-ELY STRE	1
D-FOREST	1
D-FULLER R	1
D-GOSS H	1
D-HOLCOM	1
D-HOLLAND	1
D-HOLLAND	1
D-HOLLAND	1
D-HOLLAND	1
D-HOLLAND	1
D-HOLLAND	1
D-HOLLAND	1



If prompted to expand your selection, keep the default option and click Sort.



## Finding Duplicate Records

The screenshot shows an Excel PivotTable with the following data:

Row Label	Count of DUPLICATE_VARIABLE
101 670AK STREETSPrINGFIELD	2
102 69QUARTUS STREETCHICOPEE	2
103 71CHESTNUT STREETSPrINGFIELD	2
104 71WALNUT STREETSPrINGFIELD	2
105 734LONGMEADOW STREETLONGMEADOW	2
106 730AK STREETSPrINGFIELD	2
107 75SHERMAN STREETSPrINGFIELD	2
108 78HITCHCOCK STREETHOLYOKE	2
109 780AK STREETSPrINGFIELD	2
110 790AK STREETSPrINGFIELD	2
111 79SHERMAN STREETSPrINGFIELD	2
112 7BENNETT STREETPALMER	2
113 800PROSPECT STREETCHICOPEE	2
114 82COLLEGE STREETSPrINGFIELD	2
115 830AK STREETSPrINGFIELD	2
116 840AK STREETSPrINGFIELD	2
117 87CHESTNUT STREETSPrINGFIELD	2
118 870AK STREETSPrINGFIELD	2
119 9-11VALENTINE STREETSPrINGFIELD	2
120 970AK STREETSPrINGFIELD	2
121 980AK STREETSPrINGFIELD	2
122 9HAIGHT ROADBLANDFORD	2
123 9VALENTINE STREETSPrINGFIELD	2
124 Larch LnSPRINGFIELD	2
125 Lower Loop RdSPRINGFIELD	2
209002 (blank)	2
209003	2



You can filter out those addresses which have a count of 1, and scroll to the top of the pasted PivotTable values and you'll find addresses which have multiple entries.

# Census Geocoder

- The US Census geocoder can be found here – <https://geocoding.geo.census.gov/geocoder/>

The screenshot displays the US Census Geocoder website. At the top left is the 'United States Census Bureau' logo. The top navigation bar includes links for 'Topics', 'Geography', 'Library', 'Data', 'Surveys/Programs', 'Newsroom', and 'About Us'. A search bar is located in the top right corner. The main content area is divided into two columns. The left column contains three sections: 'FIND LOCATIONS USING...' with options for 'One Line', 'Address', and 'Address Batch'; 'FIND GEOGRAPHIES USING...' with options for 'One Line', 'Address', 'Address Batch', and 'Geographic Coordinates'; and 'ABOUT DATA...' with options for 'Benchmarks' and 'Vintage'. The right column features a 'Welcome to Geocoder' section with a sub-header and a paragraph of text: 'Census geocoder provides interactive & programmatic (REST) access to users interested in matching addresses to geographic locations and entities containing those addresses. Please see the Services API link below for more information. Geocoding Services API PDF | HTML'. At the bottom left of the page, there are links for 'Home | Intro | Contact Us'. The footer of the page is a dark red bar containing the 'UMASS' logo, the text 'UMASS DONAHUE INSTITUTE', and the page number '106'.

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  - House Number and Street Name,
  - City,
  - State,
  - Zip Code

**Example – 1, 24 Beacon Street, Boston, MA, 02133**



## Geocoder - navigating the home page

In order to geocode a sizable number of addresses at once (there is a 1,000 record max.) you will want to utilize the "Address Batch" tool under "Find Geographies Using..."

United States Census Bureau

Topics: Population, Economy | Geography: Maps, Products | Library: Infographics, Publications | Data: Tools, Developers | Surveys/Programs: Respond, Survey Data | Newsroom: News, Blogs | About Us: Our Research

**FIND LOCATIONS USING...**

- One Line
- Address
- Address Batch
- FIND GEOGRAPHIES USING...**
- One Line
- Address
- Address Batch**
- Geographic Coordinates

**ABOUT DATA...**

- Benchmarks
- Vintages

Select Address File :  No file chosen

Benchmark :

Batch files may not exceed 10000 records.

[Get Results](#)

[Download a sample CSV file here](#)

[Home](#) | [Intro](#) | [Contact Us](#)

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## Important Links!

- **Census Geocoder instructions –**  
<https://www.census.gov/geo/maps-data/data/geocoder.html>
- **Census Geocoder upload page –**  
<https://www.census.gov/geo/maps-data/data/geocoder.html>
- **Census TIGER Web –**  
[https://tigerweb.geo.census.gov/tigerwebmain/TIGERweb\\_main.html](https://tigerweb.geo.census.gov/tigerwebmain/TIGERweb_main.html)





## Tools and Techniques Learned Today

- Finding new addresses using internet or filtered assessor's data
- Geocoding addresses using Census online tool
- Concatenating and de-concatenating addresses
- Converting files from Excel ⇔ .CSV for GUPS load-up
- Standardizing data fields
- Finding duplicate records
- Prioritizing work using Thing 1 and Thing 2 comparison tools



## Next Steps

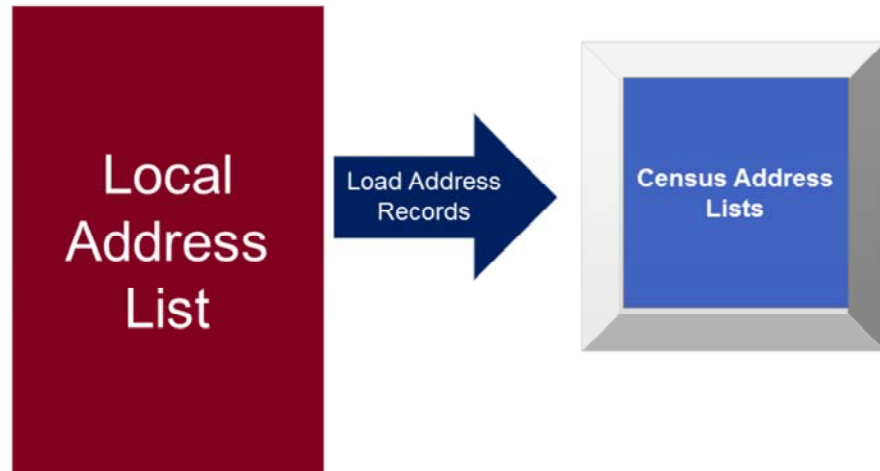
Prepare a  
Review-  
Ready list for  
Census  
comparison

Locate new  
construction  
In your town

Identify  
priority blocks  
using Thing 2



## Results



## Results



**All local addresses included in Census Count**



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