



MassGIS Data: Land Use (1951-1999)



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MassGIS Data: Land Use (1951-1999)

January 2002

This MassGIS Land Use datalayer contains polygons with 37 land use classifications interpreted from 1:25,000 aerial photography. Coverage is complete statewide for 1971, 1985, and 1999. Additionally, more than half the state was interpreted from aerial photography flown during 1990, 1991, 1992, 1995 or 1997. The 15 towns on Cape Cod also contain land use data for 1951.

View Land Use in online map (<https://tinyurl.com/landusemap71-85-99>)

Download Statewide Polygons

(http://download.massgis.digital.mass.gov/shapefiles/state/landuse_poly.zip) (108 MB)
Shapefile and ArcGIS layer files for 21- and 37-class symbology

Download Statewide Historical Landuse Table

(http://download.massgis.digital.mass.gov/shapefiles/state/LANDUSE_POLY_HISTORY.zip)
(self-extracting .zip containing the file LANDUSE_POLY_HISTORY.dbf, which stores the historical landuse codes for 1951, 1990, 1991 and 1997, where available; the resulting .dbf is 10 MB)

Download Statewide Land Use Status Layer

(<http://download.massgis.digital.mass.gov/shapefiles/state/lustats.zip>)
(polygon shapefile that stores the years of most recent photography used for land use interpretation)

Please see the **Land Use Status Map** (<http://www.mass.gov/anf/docs/itd/services/massgis/st-lus.pdf>), which displays the years for which land use data were interpreted for each town. In ArcSDE the layer is named **LANDUSE_POLY**.

The year of most recent photography used for land use data interpretation is stored in a single statewide polygon layer called **LUSTAT_POLY**. This layer was necessitated because some towns contain partial coverage for a certain year, which eliminated the one-to-one link between town-ID and year.

MassGIS has produced **Land Use Summary Statistics** (<http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/landusestats.html>), by municipality, for all three years for which land use is available statewide. These tables summarize acreage for each land use type by year, as well as land use change from 1971 to 1985 and 1985 to 1999.

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OPEN DATA

Other Access

The information on this page (the dataset metadata) is also available in these formats.

JSON

RDF

via the **DKAN API**

(<https://docs.getdkan.com/en/latest/apis/index.html>)

Production

(<http://www.mass.gov/anf/images/itd/massgis/datalayers/lus.jpg>)

Photointerpretation and automation were done by the Resource Mapping Project at the

University of Massachusetts, Amherst (<http://eco.umass.edu/degree->

[programs/undergraduate-programs/natural-resources-conservation/](http://eco.umass.edu/degree-programs/undergraduate-programs/natural-resources-conservation/)). The RMP staff

aggregated the 104 classes of their original 1971 interpretation into 21 categories and digitized

the data into individual community digital coverages using a PC version of Arc/INFO software. The RMP staff then visually compared the 1971 photography and 1985 photography and produced a digital map of only 1971-85 change for each community. Interpretation was made from 1:40,000 9"x 9" color infrared photos flown in Summer 1985.

Southeastern Mass was flown in September 1984. The flight and photography were funded by the Massachusetts Dept. of Environmental Management for another project. Several additional categories of land use were added for

parts of Massachusetts. Ten communities in the **Southeastern Regional Planning & Economic Development District**

(<http://www.srpedd.org/>) (SRPEDD) west of Buzzards Bay plus Bourne and Falmouth have a total of 28 land use

classes. The 28 classes include the original 21 categories plus 23,24,25,26,27,28 and 29 (see **Code Definitions** below).

In 1990, the **Cape Cod Commission** (<http://www.capecodcommission.org/>) funded an update of Cape Cod. These data are categorized into 26 land use classifications, expanding the original codes to include 23,26,29 and 30. These

additional codes, along with the original 21, are listed in LU37_CODE. The **Massachusetts Water Resources Authority**

(<http://www.mwra.state.ma.us/>) (MWRA) funded land use interpretation in 1991 for 14 towns. The 33 code scheme

for this update includes codes 23,24,29,30,31,32,33,34,35,36 and 37 in addition to the original 21 codes. The

Executive Office of Transportation and Construction (EOTC, now part of **MassDOT Highway Division**

(<http://www.massdot.state.ma.us/highway/Main.aspx>) also funded a 1991 update for 113 towns using the same set

of codes as the MWRA except for code 37. The UMass RMP staff updated some other towns not included in the

1990-1991 update based on digital orthophotography flown during 1992, 1995, and 1997. The towns that have been

updated between 1985 and 1999 are listed **below**. The minimum mapping unit used was one acre.

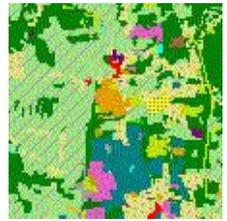
Each land use coverage was plotted at a scale of 1:25,000 by the RMP before delivery to MassGIS. MassGIS used a workstation version of Arc/INFO to combine data from different years. Each coverage, therefore, may have contained many small polygons that may have been one land use type in, say, 1971. Over the years the land may have been split up for different uses, and the linework in the current layer reflects the land use boundaries for all these uses during the many years of interpretation. The process of combining the data from different years created some 'sliver polygons'. These result when a theoretically coterminous line in each coverage is actually offset due to it having been digitized twice, e.g. the shore of a lake. Many of these slivers were eliminated by screening for an area/perimeter ratio beyond normal limits.

NOTE: This project was funded by the Massachusetts Executive Office of Environmental Affairs (EOEA), the Executive Office of Transportation and Construction, Massachusetts Water Resources Authority and several regional planning agencies. Photointerpretation and digitizing were completed by the UMASS-Amherst Department of Forestry Resource Mapping Project (RMP).

In 1999, EOEA funded the acquisition of statewide 1:25,000 aerial color infrared photography for use in the latest

round of land use interpretation. Again, photointerpretation and digitizing were completed by the UMASS

Department of Forestry Resource Mapping Project. As part of the 1999 update RMP staff also removed slivers



generated in earlier updates, fine-tuned edgematching between towns, and reinterpreted some historical land use codes.

The photography used for the land use interpretation were in hardcopy form only. They are currently housed at the UMass Amherst library as part of its aerial photo collection. Visit

<http://www.library.umass.edu/collections/maps/aerial-photo-collection/> for details.

The polygon data stores land use codes for 1971, 1985 and 1999. A "history table" stores codes only for years other than 1971, 1985 and 1999 (see the section **Additional Land Use Interpretation**).

Attributes

The layer's polygon attribute table contains the following items:

TILE_NAME	Town-ID (1-351, from Towns (http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/towns.html) Layer)
LU_ID	Unique polygon ID for the town
LU21_1971	21-category landuse code for 1971
LU21_1985	21-category landuse code for 1985
LU37_1985	37-category landuse code for 1985
LU21_1999	21-category landuse code for 1999
LU37_1999	37-category landuse code for 1999
RELATEID	Item combining the TILE_NAME and LU_ID items, zero-filled so that the LU_ID portion of this item spans five digits. This item uniquely identifies each polygon within the state.
AREA_ACRES	Area of polygon in acres

For older land use codes (1951-1997, where interpreted), see the section **Additional Land Use Interpretation**.

Land Use Code Definitions

The land use code items (LU21_* and LU37_*) in the polygon attribute and history tables represent two classifications of land use. The 21-category classification aggregates the categories in the 37-category classification as follows:

<u>CODE</u>	<u>ABBREV</u>	<u>CATEGORY</u>	<u>DEFINITION</u>
1	AC	Cropland	Intensive agriculture
2	AP	Pasture	Extensive agriculture
3	F	Forest	Forest
4	FW	Wetland	Nonforested freshwater wetland
5	M	Mining	Sand; gravel & rock
6	O	Open Land	Abandoned agriculture; power lines; areas of no vegetation
7	RP	Participation Recreation	Golf; tennis; Playgrounds; skiing
8	RS	Spectator Recreation	Stadiums; racetracks; Fairgrounds; drive-ins

9	RW	Water Based Recreation	Beaches; marinas; Swimming pools
10	R0	Residential	Multi-family
11	R1	Residential	Smaller than 1/4 acre lots
12	R2	Residential	1/4 - 1/2 acre lots
13	R3	Residential	Larger than 1/2 acre lots
14	SW	Salt Wetland	Salt marsh
15	UC	Commercial	General urban; shopping center
16	UI	Industrial	Light & heavy industry
17	UO	Urban Open	Parks; cemeteries; public & institutional greenspace; also vacant undeveloped land
18	UT	Transportation	Airports; docks; divided highway; freight; storage; railroads
19	UW	Waste Disposal	Landfills; sewage lagoons
20	W	Water	Fresh water; coastal embayment
21	WP	Woody Perennial	Orchard; nursery; cranberry bog
22	-	No Change	Code used by MassGIS only during quality checking

The additional categories in the LU37_* fields are:

<u>CODE</u>	<u>ABBREV</u>	<u>CATEGORY</u>
23	CB	Cranberry bog (part of #21)
24	PL	Powerlines (part of #6)
25	RSB	Salwater sandy beach (part of #9; no longer used)
26	RG	Golf (part of #7)
27	TSM	Tidal salt marshes (part of #14; no longer used)
28	ISM	Irregularly flooded salt marshes (part of #14; no longer used)
29	RM	Marina (part of #9)
30	-	New ocean (areas of accretion; part of #20)
31	UP	Urban public (part of #17)
32	TF	Transportation facilities (part of #18)
33	H	Heath (part of #17)
34	CM	Cemeteries (part of #17)
35	OR	Orchard (part of #21)
36	N	Nursery (part of #21)
37	-	Forested wetland (part of #3; no longer used)

All land use categories were aggregated from 104 categories originally defined in 1971. Further information on them can be obtained from Professor William MacConnell at the Dept. of Forestry, University of Massachusetts, Amherst.

Additional Land Use Interpretation

In addition to the statewide land use codes for 1971, 1985, and 1999, some towns have had land use interpreted for other years (1951, 1990, 1991, 1992 and 1997). To store these additional codes, a related "Polygon History table" (**LANDUSE_POLY_HISTORY**) was created. The RELATEID field joins this table to the polygons. (The history table does not contain data for 1992. To obtain this data please **contact MassGIS (mailto:michael.trust@state.ma.us? Subject=1992%20Land%20Use%20Data)**).

Important note when joining to the historical land use tables: Users may need to define a query (e.g. a "definition query" in ArcMap) or select the history table records for a particular year and export the selected records to a new table, and then join the polygons to the subset of the table, for a one-to-one relationship between the tables for a single year.

The **LANDUSE_POLY_HISTORY** table contains the following items:

TILE_NAME	Town-ID
LU_ID	Unique polygon ID for the town
LU21_CODE	21-category landuse code (for YEAR)
LU37_CODE	37-category landuse code (for YEAR); Code will be same as LU21_CODE for pre-1990 data (except 10 SRPEDD towns for 1985, as noted above).
YEAR	Date of historical data (Year of photography used in land use compilation - 1951, 1990, 1991, 1997)
RELATEID	Item combining the TILE_NAME and LU_ID items, zero-filled so that the LU_ID portion of this item spans five digits. This item uniquely identifies each polygon within the state.

Download the history table from the **Land Use Download page (<http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/ftplus.html>)**. The following towns have been updated by UMass-Amherst using orthophotography flown during the years listed in parentheses:

4 ADAMS(1997)	98 FLORIDA(1997)	190 MONROE (1997)	268 SHELburnE (1995, 1997)
8 AMHERST (1997)	103 GARDNER (1997)	192 MONTAGUE (1997)	279 SOUTHWICK (1997)
11 ASHBURNHAM (1997)	106 GILL (1997)	204 NEW SALEM (1992)	289 SUNDERLAND (1997)
12 ASHBY (1997)	108 GOSHEN (1997)	209 NORTH ADAMS (1997)	294 TEMPLETON (1992, 1997)
13 ASHFIELD (1997)	111 GRANBY (1997)	214 NORTHAMPTON (1997)	312 WARWICK (1997)
15 ATHOL (1997)	114 GREENFIELD (1997)	217 NORTHFIELD (1997)	319 WENDELL (1992, 1997)
29 BERNARDSTON (1997)	117 HADLEY (1997)	223 ORANGE (1997)	331 WESTHAMPTON (1997)
47 BUCKLAND (1995)	127 HATFIELD (1997)	234 PETERSHAM (1992)	332 WESTMINSTER (1992, 1997)
53 CHARLEMONT (1997)	129 HAWLEY (1997)	235 PHILLIPSTON (1992, 1997)	337 WHATELY (1997)
66 COLRAIN (1997)	130 HEATH (1997)	237 PLAINFIELD (1997)	340 WILLIAMSBURG (1997)
68 CONWAY (1997)	140 HUBBARDSTON (1992, 1997)	253 ROWE (1997)	341 WILLIAMSTOWN (1997)
74 DEERFIELD (1997)	154 LEVERETT (1997)	255 ROYALSTON (1997)	343 WINCHENDON (1997)
91 ERVING (1997)	156 LEYDEN(1997)	263 SAVOY (1997)	

UMass-Amherst also interpreted land use for 1951 for the 15 communities on Cape Cod:

20 BARNSTABLE	86 EASTHAM	242 PROVINCETOWN
36 BOURNE	96 FALMOUTH	261 SANDWICH
41 BREWSTER	126 HARWICH	300 TRURO
55 CHATHAM	172 MASHPEE	318 WELLFLEET
75 DENNIS	224 ORLEANS	351 YARMOUTH

The following is a list of town IDs and names for which 1990/1991 land use is available. The organization that completed the updates is listed in parentheses.

1 ABINGTON (EOTC)	83 EAST BRIDGEWATER (EOTC)	174 MAYNARD (EOTC)	258 SALEM (EOTC)
2 ACTON (EOTC)	86 EASTHAM (CAPE)	175 MEDFIELD (EOTC)	259 SALISBURY (EOTC)
7 AMESBURY (EOTC)	88 EASTON (EOTC)	176 MEDFORD (MWRA)	261 SANDWICH (CAPE)
9 ANDOVER (EOTC)	92 ESSEX (EOTC)	177 MEDWAY (EOTC)	262 SAUGUS (EOTC)
10 ARLINGTON (MWRA)	93 EVERETT (MWRA)	178 MELROSE (EOTC)	264 SCITUATE (EOTC)
14 ASHLAND (EOTC)	96 FALMOUTH (CAPE)	179 MENDON (EOTC)	266 SHARON (EOTC)
16 ATTLEBORO (EOTC)	99 FOXBOROUGH (EOTC)	180 MERRIMAC (EOTC)	269 SHERBORN (EOTC)
18 AVON (EOTC)	100 FRAMINGHAM (EOTC)	181 METHUEN (EOTC)	270 SHIRLEY (EOTC)
19 AYER (EOTC)	101 FRANKLIN (EOTC)	182 MIDDLEBOROUGH (EOTC)	274 SOMERVILLE (MWRA)
20 BARNSTABLE (CAPE)	105 GEORGETOWN (EOTC)	184 MIDDLETON (EOTC)	277 SOUTHBOROUGH (EOTC)
23 BEDFORD (EOTC)	107 GLOUCESTER (EOTC)	185 MILFORD (EOTC)	284 STONEHAM (MWRA)
25 BELLINGHAM (EOTC)	115 GROTON (EOTC)	187 MILLIS (EOTC)	285 STOUGHTON (EOTC)
26 BELMONT (MWRA)	116 GROVELAND (EOTC)	188 MILLVILLE (EOTC)	286 STOW (EOTC)
28 BERLIN (EOTC)	118 HALIFAX (EOTC)	189 MILTON (EOTC)	288 SUDBURY (EOTC)
30 BEVERLY (EOTC)	119 HAMILTON (EOTC)	196 NAHANT (EOTC)	291 SWAMPSCOTT (EOTC)
31 BILLERICA (EOTC)	122 HANOVER (EOTC)	198 NATICK (EOTC)	293 TAUNTON (EOTC)
32 BLACKSTONE (EOTC)	123 HANSON (EOTC)	199 NEEDHAM (EOTC)	295 TEWKSBURY (EOTC)
34 BOLTON (EOTC)	125 HARVARD (EOTC)	205 NEWBURY (EOTC)	298 TOPSFIELD (EOTC)
35 BOSTON (MWRA)	126 HARWICH (CAPE)	206 NEWBURYPORT (EOTC)	300 TRURO (CAPE)
36 BOURNE (CAPE)	128 HAVERHILL (EOTC)	207 NEWTON (EOTC)	301 TYNGSBOROUGH (EOTC)
37 BOXBOROUGH (EOTC)	131 HINGHAM (EOTC)	208 NORFOLK (EOTC)	303 UPTON (EOTC)
38 BOXFORD (EOTC)	133 HOLBROOK (EOTC)	210 NORTH ANDOVER (EOTC)	304 UXBRIDGE (EOTC)
40 BRAINTREE (EOTC)	136 HOLLISTON (EOTC)	211 NORTH ATTLEBOROUGH (EOTC)	305 WAKEFIELD (MWRA)
41 BREWSTER (CAPE)	138 HOPEDALE (EOTC)	213 NORTH READING (EOTC)	307 WALPOLE (EOTC)
42 BRIDGEWATER (EOTC)	139 HOPKINTON (EOTC)	215 NORTHBOROUGH (EOTC)	308 WALTHAM (MWRA)
44 BROCKTON (EOTC)	141 HUDSON (EOTC)	216 NORTHBRIDGE (EOTC)	314 WATERTOWN (EOTC)
46 BROOKLINE (MWRA)	142 HULL (EOTC)	218 NORTON (EOTC)	315 WAYLAND (EOTC)
	144 IPSWICH (EOTC)	219 NORWELL (EOTC)	317 WELLESLEY (EOTC)
	145 KINGSTON (EOTC)	220 NORWOOD (EOTC)	318 WELLFLEET (CAPE)
	146 LAKEVILLE (EOTC)	224 ORLEANS (CAPE)	320 WENHAM (EOTC)
	147 LANCASTER (EOTC)	229 PEABODY (EOTC)	322 WEST BRIDGEWATER (EOTC)
	149 LAWRENCE (EOTC)	231 PEMBROKE (EOTC)	324 WEST NEWBURY (EOTC)
	155 LEXINGTON (EOTC)	232 PEPPERELL (EOTC)	328 WESTBOROUGH (EOTC)
	157 LINCOLN (EOTC)	233 PLAINVILLE (EOTC)	330 WESTFORD (EOTC)
	158 LITTLETON (EOTC)	238 PLAINVILLE (EOTC)	333 WESTON (EOTC)
	160 LOWELL (EOTC)	239 PLYMOUTH (EOTC)	335 WESTWOOD (EOTC)
	163 LYNN (EOTC)	240 PLYMPTON (EOTC)	336 WEYMOUTH (EOTC)
	164 LYNNFIELD (EOTC)	242 PROVINCETOWN (CAPE)	338 WHITMAN (EOTC)
	165 MALDEN (EOTC)	243 QUINCY (EOTC)	342 WILMINGTON (EOTC)
	166 MANCHESTER (EOTC)	244 RANDOLPH (EOTC)	344 WINCHESTER (MWRA)
	167 MANSFIELD (EOTC)	245 RAYNHAM (EOTC)	346 WINTHROP (EOTC)
	168 MARBLEHEAD (EOTC)	246 READING (EOTC)	
		248 REVERE (EOTC)	

48 BURLINGTON (EOTC)	170 MARLBOROUGH (EOTC)	251 ROCKLAND (EOTC)	347 WOBURN (MWRA)
49 CAMBRIDGE (MWRA)	171 MARSHFIELD (EOTC)	252 ROCKPORT (EOTC)	350 WRENTHAM (EOTC)
50 CANTON (EOTC)	172 MASHPEE (CAPE)	254 ROWLEY (EOTC)	351 YARMOUTH (CAPE)
51 CARLISLE (EOTC)			
52 CARVER (EOTC)			
55 CHATHAM (CAPE)			
56 CHELMSFORD (EOTC)			
57 CHELSEA (MWRA)			
64 CLINTON (EOTC)			
65 COHASSET (EOTC)			
67 CONCORD (EOTC)			
71 DANVERS (EOTC)			
73 DEDHAM (EOTC)			
75 DENNIS (CAPE)			
78 DOVER (EOTC)			
79 DRACUT (EOTC)			
81 DUNSTABLE (EOTC)			
82 DUXBURY (EOTC)			

Land Use Status

The polygon attribute table for the **LUSTAT_POLY** coverage contains the following items:

TOWN-ID	Town-ID (1 - 351, from Towns (http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/towns.html) Layer)
TOWN	Town name
ISLAND	1 = Island polygon (a coastal water area sealed off from the ocean)
SRC_CODE	Code of organization that funded a pre-1999 data update (EOTC, MWRA, Cape Cod Commission)
LUYEAR	Date of most recent data (all currently are 1999)
LU_YR_PREV	Date of most recent previous data

The **Land Use Status Map** (<http://www.mass.gov/anf/docs/itd/services/massgis/st-lus.pdf>) 

(<http://www.mass.gov/anf/docs/itd/services/massgis/st-lus.pdf>) displays the years for which land use data were interpreted.

Maintenance

MassGIS is maintaining this layer. Data available from MassGIS prior to March 31, 2005, used the old Land Use data model, in which only the most recent year was stored in the attribute table of the polygons, with older years' data in the history table. The current model stores the three years for which land use data are available statewide with the polygons, with the history table storing codes for years where interpretation was done only regionally.

MassGIS has produced **Land Use Summary Statistics** (<http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/landusestats.html>), by municipality, for all three years for which land use is available statewide. These tables summarize acreages for each land use type by year, as well as land use change from 1971 to 1985 and 1985 to 1999.

For newer land use data, see **Land Use (2005)** (<http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/lus2005.html>).

Last Updated 6/9/2014

Items

massgis

land use

Record Info

Contributor	MassGIS (Bureau of Geographic Information) (/massgis)
Modified Date	2018-02-13
Release Date	2017-11-16
Identifier	c911c7f5-3b15-47c4-9d21-dfa20a35b9cf
Spatial / Geographical Coverage Location	Massachusetts
License	Creative Commons Attribution (http://opendefinition.org/licenses/cc-by/)
Author	MassGIS
Contact Name	MassGIS
Contact Email	massgismail@mass.gov (mailto:massgismail@mass.gov)
Public Access Level	Public
Data Quality	False
Content Type	Data (/content-type/data)
Language	English (United States)

