MICHIGAN LAND COVER / USE CLASSIFICATION SYSTEM

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A revision and update of the Michigan Land Cover/Use Classification System originally developed by the Michigan Land Use Classification and Referencing Committee and published by the Michigan Department of Natural Resources.

This revision has been adopted by the IMAGIN (Improving Michigan's Access to Geographic Information Networks) organization as a statewide standard. IMAGIN recommends using this version of the Michigan Land Cover/Use Classification System whenever land cover/use maps are updated.
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This document is a revision and update of the Michigan Land Cover/Use Classification System originally developed by the Michigan land use classification and referencing committee and published by the Michigan Department of Natural Resources. This revision has been adopted by the IMAGIN (Improving Michigan's Access to Geographic Information Networks) organization as the statewide standard, and supports its use in updating land cover/use maps.

This system presents a standardized terminology for describing land cover/use. The compound term "land cover/use" has been applied, since neither word alone suffices to express the total system. For two of the major categories, agriculture and urban and built-up lands, the terms express or imply the land use "activity" which is taking place. Cropland, for example, is a land use category that includes a variety of land covers (grass, small grains, bare soil, etc.); it is classed primarily by its use and secondarily by its cover. For the other five major categories, the terminology does not directly or implicitly describe the activity that may be taking place on the land. Forest land, for instance, may be used for any one or more of several activities -- e.g. timber production, wildlife production, hunting, grazing, wildlife sanctuary, recreation, natural area preservation, or amenity-consumptive purposes in connection with adjacent residential or other land uses; it is classed primarily by its cover and secondarily by it use. "Cover" has long been used to express what is found on the surface on non-urban land.

The Michigan Land Cover / Use Classification System is similar to the national system developed by the U.S. Geological Survey (Anderson, et. al., 1981). The Michigan system is a multi-level, hierarchical system which classifies Michigan's land cover/use into approximately 500 categories. In developing Level IV and V categories for Urban and Built-Up land, the Standard Land Use Coding Manual (replaced by the American Planning Association's Land-Based Classification Standards) and the Standard Industrial Code classification (replaced by the North American Industry Classification System) were utilized so far as possible.
General specifications for using the Michigan Land Cover / Use Classification System

1. The Minimum mapping unit should be between one and two and a half acres in size.

2. Areas less than 100 feet wide should not be mapped except as parts of larger (and subsequently wider than 100 feet) mapping units.

3. Contiguous, or near contiguous (less than 100 feet), areas may be combined into one mapping unit (polygon) to meet the minimum mapping unit size requirement.

4. If a mapped unit meets the definitions for two, or more, land cover/use classes, the higher order (lower number) classification shall be assigned.

5. Double coding is permissible provided that the dominant class is indicated first.
MSU Remote Sensing and GIS Specifications for Land Cover / Use updating

1. The minimum mapping unit is two and a half acres. Isolated (residual) polygons less than two and a half acres which are the result of surrounding land cover / use changes are permissible.

2. Areas less than 100 feet wide should not be mapped except as parts of larger (and subsequently wider than 100 feet) mapping units. An exception is to exclude all roads except limited access highways and associated interchanges.

3. Contiguous, or near contiguous (less than 100 feet), areas may be combined into one mapping unit (polygon) to meet the minimum mapping unit size requirement. For example, areas of sparse residential development will be considered as one continuous unit if the properties are within 100 feet of each other, or the distance between structures is less than 200 feet. Mapping boundaries will be drawn to include the separate parcels as one mapping unit (polygon).

4. If a mapped unit meets the definitions for two, or more, land cover/use classes, the higher order (lower number) classification should be assigned.
### MICHIGAN LAND COVER / USE CLASSIFICATION SYSTEM

#### 1 URBAN & BUILT UP

**11 Residential**

<table>
<thead>
<tr>
<th>111</th>
<th>Multi-Family, Medium- to High-Rise</th>
</tr>
</thead>
<tbody>
<tr>
<td>1111</td>
<td>High Density</td>
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<tr>
<td>1112</td>
<td>Medium Density</td>
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<table>
<thead>
<tr>
<th>112</th>
<th>Multi-Family, Low-Rise</th>
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<tbody>
<tr>
<td>1121</td>
<td>Apartment</td>
</tr>
<tr>
<td>11211</td>
<td>High Density</td>
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<tr>
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<td>11222</td>
<td>Medium Density</td>
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<table>
<thead>
<tr>
<th>113</th>
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<th>Duplex</th>
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<td>Medium Density</td>
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[1134] Non-Farm Residence * (see category 291 for farmsteads)

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<th>115</th>
<th>Manufactured Home Park</th>
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<tr>
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<th>Manufactured Home</th>
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<tr>
<td>1136</td>
<td>Seasonal Dwelling</td>
</tr>
<tr>
<td>1139</td>
<td>Other</td>
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</tbody>
</table>

*Where numbers are bracketed, the class will ordinarily be mapped by the number to which cross-reference is made. The bracketed numbers are included primarily to facilitate aggregation on the state and national levels.*
[116] Group and Transient Quarters (Current Use Inventory mapped these features as 125 Institutional or 124 Commercial / Services)
[1161] Rooming and Boarding Houses
[1162] Membership Lodging
[1163] Residence Halls and Dormitories
[1164] Retirement Homes and Orphanages
[1165] Religious Quarters
[1166] Residential Hotels
[1167] Hotels, Tourist Courts, Motels
[1168] Migrant Quarters
[1169] Other

117 Rural Estates
119 Other Residential

12 Commercial, Services, & Institutional

121 Primary / Central Business District (CBD)

122 Shopping Center / Malls / Retail Centers

124 Secondary / Neighborhood and Rural Businesses

1241 Commercial

12411 Wholesale trade
12412 Hardware-building supplies, farm equipment
12413 General merchandise
12414 Food stores, bake shops
12415 Auto, truck, marine sales, and accessories
12416 Apparel, and accessories
12417 Furniture, home furnishings, and equipment
12418 Eating and drinking
12419 Gasoline stations

1242 Services

12421 Finance, insurance, and real estate
12422 Personal services
12423 Business services
12424 Repair services
12425 Professional services
12426 Contract construction services
12427 Agricultural Services
12429 Other services (includes Parking Lots and Garages)

1243 Used Auto Parts Yards (Auto salvage or junk yards)
<table>
<thead>
<tr>
<th>126</th>
<th>Institutional</th>
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<tr>
<td>1263</td>
<td>Health</td>
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<td>12631</td>
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<tr>
<td>126311</td>
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<td>General, Long-Term</td>
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<td>Public Health</td>
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<td>12643</td>
<td>Elementary</td>
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<td>12644</td>
<td>College, University</td>
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<td>12645</td>
<td>Academy</td>
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<td>Halfway House</td>
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<td>Juvenile Home</td>
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<td>12676</td>
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<td>1268</td>
<td>Government Administration and Services</td>
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<tr>
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<td>City Hall (County, Town, etc.)</td>
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<td>12682</td>
<td>Post Office</td>
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<tr>
<td>12683</td>
<td>Police Station</td>
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<td>12684</td>
<td>Sheriff Office</td>
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<td>12685</td>
<td>State Police Station</td>
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<td>12686</td>
<td>Fire Station</td>
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<td>12687</td>
<td>Federal Offices</td>
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<tr>
<td>12688</td>
<td>State Offices</td>
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<td>12689</td>
<td>Other</td>
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<tr>
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<td>Other</td>
</tr>
<tr>
<td>127</td>
<td>Indoor Cultural, Public Assembly, and Recreation</td>
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<tr>
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<td>Indoor Cultural</td>
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<td>12711</td>
<td>Libraries</td>
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<td>Museums</td>
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<td>Art Galleries</td>
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<td>Planetariums</td>
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<tr>
<td>12715</td>
<td>Aquariums</td>
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<td>Historic Buildings</td>
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<td>1272</td>
<td>Indoor Public Assembly</td>
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<tr>
<td>12721</td>
<td>Movie Theatres</td>
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<td>Legitimate Theatres</td>
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<td>12723</td>
<td>Auditoriums</td>
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<tr>
<td>12724</td>
<td>Exhibition Halls</td>
</tr>
<tr>
<td>12725</td>
<td>Arenas and Fieldhouses</td>
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<td>12726</td>
<td>Multiple Purpose (two or more of the above)</td>
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<td>Other</td>
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<tr>
<td>1273</td>
<td>Indoor Recreation</td>
</tr>
<tr>
<td>12731</td>
<td>Meeting, Social, Performance, Class, Craft Rooms</td>
</tr>
<tr>
<td>12732</td>
<td>Courts (Tennis, etc.)</td>
</tr>
<tr>
<td>12733</td>
<td>Ice Skating Rinks</td>
</tr>
<tr>
<td>12734</td>
<td>Bowling Alleys</td>
</tr>
<tr>
<td>12735</td>
<td>Dance Halls</td>
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<tr>
<td>12736</td>
<td>Gymnasiums</td>
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<tr>
<td>12737</td>
<td>Swimming Pools</td>
</tr>
<tr>
<td>12738</td>
<td>Multiple Purpose Recreation Centers (2 or more of above)</td>
</tr>
<tr>
<td>128</td>
<td>Office / Research Center or Park</td>
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</tbody>
</table>
## 13 Industrial

### 131 Primary Metal Production (Milling, Smelting, Forging)
- 1311 Blast Furnaces and Steel Mills
- 1312 Steel Wire Products
- 1313 Cold Rolled Sheet, Strip and Bars
- 1314 Steel Pipe and Tube
- 1315 Iron and Steel Foundries
- 1316 Smelting and Refining
- 1317 Rolling, Drawing and Extruding
- 1318 Nonferrous Foundries
- 1319 Other Primary Metal Industries

### 132 Petrochemicals (storage, refining, etc.)
- 1321 Industrial Inorganic and Organic Chemicals
- 1322 Plastics and Man-Made Fibers
- 1323 Biological, Medicinal and Pharmaceutical Drugs
- 1324 Soaps and Detergents
- 1325 Perfumes, Cosmetics and Toilet Preparations
- 1326 Paints, Varnish, Enamels, Agricultural Chemicals, Explosives
- 1327 Petroleum Refining and Related Industries
- 1328 Tire and Rubber Manufacturing
- 1329 Other Petrochemical Industries

### 133 Primary Wood Processing (lumber, pulp, paper)
- 1331 Logging Camps and Logging Contractors
- 1332 Sawmills and Planing Mills
- 1333 Millwork, Plywood and Related Products
- 1334 Wooden Container Manufacturing
- 1335 Pulp Mill
- 1336 Paperboard Mill
- 1337 Paperboard Containers and Boxes
- 1338 Building Board and Building Paper
- 1339 Other Primary Wood Processing

### 134 Stone, Clay, Glass (Cement, Brick, etc.)
- 1341 Flat Glass Manufacturing
- 1342 Glass and Glassware
- 1343 Cement, Hydraulic
- 1344 Structural and Clay products, Brick
- 1345 Pottery and Related Products
- 1346 Concrete, Gypsum and Plastic Products
- 1347 Cut Stone and Stone Products
- 1348 Abrasive, Asbestos and Miscellaneous Nonmetallic Mineral Products
- 1349 Other Stone, Clay, Glass Products
135 Metal Fabrication (secondary manufacturing)
   1351 Ordnance and Accessories
   1352 Machinery (except electrical)
   1353 Electrical Machinery
   1354 Motor Vehicle Equipment
   1355 Aircraft and Parts
   1356 Ship and Boat Building
   1357 Railroad Equipment
   1358 Other Transportation Equipment
   1359 Other Metal Fabrication

136 Non-Metal Fabrication
   1361 Food and Kindred Products
   1362 Textile Mill Products
   1363 Apparel, Fabrics
   1364 Furniture and Fixtures
   1365 Newspaper, Books, Commercial Publishing and Printing
   1366 Bookbinding and Printing Trade Services
   1367 Engineering and Scientific Instruments
   1368 Optical, Surgical, and Dental Instruments
   1369 Other Non-Metal Manufacturing

137 Recyclable Material Processing
   1371 Scrap Metal Yards
   1372 Other Recyclable Material Yards
   [1373] Used Auto Parts Yards (Auto Salvage) (see category 137)

138 Industrial Park

139 Other (includes electric power generation (coal and nuclear) facilities and automotive test tracks)
14  Transportation, Communication, Utilities

141  Air Transportation
1411  Commercial Aviation
1412  General Aviation
1413  Military
1419  Other

142  Rail Transportation
1421  Active Yard
1422  Station or Terminal
1423  Abandoned Right-Of-Way
1424  Active Track
1429  Other

143  Water Transportation
1431  Port Facilities
1432  Lock and Dam
1433  Lighthouse
1439  Other

144  Road Transportation
1441  Limited and Controlled Access Expressway
1442  5 or More Lanes
1443  4 Lanes
1444  3 Lanes
1445  2 Lanes
1446  Truck Terminal
1447  Bus Terminal
1448  Highway Maintenance / Road Commission
1449  Other

145  Communications
1451  Telephone
1452  Telegraph
1453  Television
1454  Radio
1455  Cellular Phone
1459  Other

146  Utilities
1461  Electrical Substation and Transmission
1462  Gas Storage and Transmission
1463  Petroleum Storage and Transmission
1464  Solid Waste Disposal and Transfer
1465  Sewage Treatment and Transmission
1466  Water Treatment and Transmission
1469  Other


16  Mixed
17 Extractive

171 Open Pit
   1711 Metallic Mineral Quarry
   1712 Nonmetallic Mineral Quarry
   1713 Coal
   1714 Sand and Gravel
   1719 Other

172 Underground
   1721 Metallic
   1722 Nonmetallic
   1723 Coal
   1729 Other

173 Wells
   1731 Oil
   1732 Gas
   1733 Brine Production
   1734 Waste Disposal
   1739 Other

179 Other Extractive

19 Open Land and Other

191 Outdoor Cultural
   1911 Botanical Gardens and Arboretums
   1912 Zoos
   1913 Historic Site
   1919 Other

192 Outdoor Public Assembly
   1921 Amphitheaters
   1922 Drive-In Movie Theaters
   1923 Stadiums
   1924 Racetracks (automotive, horse, etc.)
   1925 Fairgrounds (including racetrack if present)
   1926 Amusement Parks / Water Parks
   1929 Other

193 Outdoor Recreation
   1931 Parks

   1932 Play, Games, and Athletics
      19321 Playlots
      19322 Playgrounds
      19323 Athletic Fields
      19329 Other
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>1933</td>
<td>Sports Areas</td>
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<tr>
<td>19331</td>
<td>Golf Courses</td>
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<td>19332</td>
<td>Miniature Golf Courses</td>
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<tr>
<td>19333</td>
<td>Golf Driving Ranges</td>
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<tr>
<td>19334</td>
<td>Offroad Recreational Vehicle Trails, Tracks or Areas</td>
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<tr>
<td>19335</td>
<td>Shooting Ranges</td>
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<td>19339</td>
<td>Other</td>
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<tr>
<td>1934</td>
<td>Other Land-Activities</td>
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<tr>
<td>19341</td>
<td>Horseback Riding</td>
</tr>
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<td>19342</td>
<td>Picnicking</td>
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<td>19343</td>
<td>Camps and Campgrounds</td>
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<td>19344</td>
<td>Sledding or Toboggan Hills</td>
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<td>19345</td>
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<td>19346</td>
<td>Foot Trails</td>
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<td>19347</td>
<td>Landscape, Scenic or Natural Wonder-viewing points</td>
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<td>1935</td>
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<td>Swimming Pools</td>
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<td>Marinas, Yacht Basins</td>
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<td>19354</td>
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<td>Other</td>
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<td>195</td>
<td>Vacant</td>
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<tr>
<td>196</td>
<td>Under Construction / Construction Sites</td>
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</table>
2 AGRICULTURAL LAND

21 Cropland

211 Row Crops
   2111 Corn
   2112 Soybeans
   2113 Sugar Beets

212 Small Grains
   2121 Winter Wheat
   2122 Oats
   2123 Rye and Barley

213 Hay

22 Orchards, Bush-Fruits, Vineyards and Ornamental Horticulture

221 Tree Fruits
   2211 Apples
   2212 Cherries
   2213 Peaches
   2214 Pears
   2215 Plums and Prunes
   2219 Other

222 Bush-Fruits and Vineyards
   2221 Strawberries
   2222 Raspberries
   2223 Blueberries
   2224 Grapes
   2229 Other

223 Ornamental Horticulture and Nurseries
   2231 Sod
   2232 Floriculture
   2233 Nurseries
   2239 Other

23 Confined Feeding Operations

231 Livestock
   2311 Beef
   2312 Dairy
   2313 Swine
   2319 Other
<table>
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<td>2329</td>
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</tr>
<tr>
<td>239</td>
<td>Other</td>
</tr>
</tbody>
</table>

24 Permanent Pasture

(28) Inactive Land (these plant communities will be mapped under grasses and forbs (31))

29 Other Agricultural Land

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>291</td>
<td>Farmsteads</td>
</tr>
<tr>
<td>2911</td>
<td>Farmstead With Active Residence</td>
</tr>
<tr>
<td>2912</td>
<td>Farmstead Without Active Residence</td>
</tr>
<tr>
<td>292</td>
<td>Greenhouses and Mushroom Houses</td>
</tr>
<tr>
<td>2921</td>
<td>Vegetables</td>
</tr>
<tr>
<td>2922</td>
<td>Flowers</td>
</tr>
<tr>
<td>2923</td>
<td>Mushrooms</td>
</tr>
<tr>
<td>2929</td>
<td>Other</td>
</tr>
<tr>
<td>293</td>
<td>Horse exercise tracks</td>
</tr>
<tr>
<td>299</td>
<td>Other</td>
</tr>
</tbody>
</table>
3 GRASS and SHRUB LANDS

31 Grasses and Forbs

311 Upland Grasses and Forbs
   3111 Bluegrasses Predominate
   3112 Quackgrass Predominate
   3113 Bluestems, Upland Sedges, Dewberry, Mosses, and Lichens
   3114 Beach Grass Predominate
   3119 Other Upland Grasses

312 Lowland Grasses and Forbs
   3121 Reed Canary Grass Predominate
   3122 Clover Predominate
   3123 Red Top Predominate
   3124 Sedges Predominate
   3125 Blue-Joint Predominates
   3129 Other Lowland Grasses

32 Shrubs

321 Upland Shrubs
   3211 Briars Predominate
   3212 Dogwood Predominates
   3213 Hazel Predominates
   3214 Juneberry Predominates
   3215 Sumac Predominates
   3216 Thornapple Predominates
   3217 Viburnum Predominates
   3218 Sweet Fern
   3219 Other Upland Shrubs

[322] Lowland Shrubs (612)

33 Pine or Oak Opening (prairie)

331 Hardwood Opening

332 Coniferous Opening
### 4 FOREST LAND

#### 41 Broadleaved Forest

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>411</td>
<td>Northern Hardwoods</td>
</tr>
<tr>
<td>4110</td>
<td>Undifferentiated Northern Hardwood</td>
</tr>
<tr>
<td>4111</td>
<td>Sugar Maple Predominates</td>
</tr>
<tr>
<td>4112</td>
<td>Red Maple Predominates</td>
</tr>
<tr>
<td>4113</td>
<td>Elm Predominates</td>
</tr>
<tr>
<td>4114</td>
<td>Beech Predominates</td>
</tr>
<tr>
<td>4115</td>
<td>Yellow Birch Predominates</td>
</tr>
<tr>
<td>4116</td>
<td>Cherry Predominates</td>
</tr>
<tr>
<td>4117</td>
<td>Basswood Predominates</td>
</tr>
<tr>
<td>4118</td>
<td>White Ash Predominates</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>412</td>
<td>Central Hardwoods / Oak</td>
</tr>
<tr>
<td>4120</td>
<td>Undifferentiated Oak / Hickory</td>
</tr>
<tr>
<td>4121</td>
<td>Red Oak Predominates</td>
</tr>
<tr>
<td>4122</td>
<td>White Oak Predominates</td>
</tr>
<tr>
<td>4123</td>
<td>Black Oak Predominates</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>413</td>
<td>Aspen-Birch</td>
</tr>
<tr>
<td>4130</td>
<td>Undifferentiated Aspen-Birch</td>
</tr>
<tr>
<td>4131</td>
<td>Trembling Aspen Predominates</td>
</tr>
<tr>
<td>4132</td>
<td>Bigtooth Aspen Predominates</td>
</tr>
<tr>
<td>4133</td>
<td>White Birch Predominates</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>414</td>
<td>Lowland Hardwoods</td>
</tr>
<tr>
<td>4140</td>
<td>Undifferentiated Lowland Hardwood</td>
</tr>
<tr>
<td>4141</td>
<td>Ash Predominates</td>
</tr>
<tr>
<td>4142</td>
<td>Elm Predominates</td>
</tr>
<tr>
<td>4143</td>
<td>Soft Maple Predominates</td>
</tr>
<tr>
<td>4144</td>
<td>Cottonwood Predominates</td>
</tr>
<tr>
<td>4145</td>
<td>Balm-of-Gilead Predominates</td>
</tr>
<tr>
<td>4146</td>
<td>Aspen Predominates</td>
</tr>
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</table>

#### 42 Coniferous Forest

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>421</td>
<td>Pine</td>
</tr>
<tr>
<td>4210</td>
<td>Undifferentiated Pine</td>
</tr>
<tr>
<td>4211</td>
<td>White Pine Predominates</td>
</tr>
<tr>
<td>4212</td>
<td>Red Pine Predominates</td>
</tr>
<tr>
<td>4213</td>
<td>Jack Pine Predominates</td>
</tr>
<tr>
<td>4214</td>
<td>Scotch Pine Predominates</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>422</td>
<td>Other Upland Conifer (Spruce-Fir)</td>
</tr>
<tr>
<td>4220</td>
<td>Undifferentiated Upland Conifer</td>
</tr>
<tr>
<td>4221</td>
<td>White Spruce</td>
</tr>
<tr>
<td>4222</td>
<td>Balsam Fir</td>
</tr>
<tr>
<td>4226</td>
<td>Hemlock</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>423</td>
<td>Lowland Conifers</td>
</tr>
<tr>
<td>4230</td>
<td>Undifferentiated Lowland Conifer</td>
</tr>
<tr>
<td>4231</td>
<td>Cedar Predominates</td>
</tr>
</tbody>
</table>
4232 Black Spruce Predominates
4233 Tamarack Predominates
4234 Balsam Fir-White Spruce Association Predominates
4235 Balsam Fir Predominates
4236 Jack Pine Predominates

429 Managed Christmas Tree Plantation

43 **Mixed Conifer-Broadleaved Forest**

431 Upland Hardwoods and Pine Associations
   4311 Sugar Maple Predominates
   4312 Red Maple Predominates
   4313 Elm Predominates
   4314 Beech Predominates
   4315 Yellow Birch Predominates
   4316 Cherry Predominates
   4317 Red Oak Predominates
   4318 White Oak Predominates
   4319 Undifferentiated Broadleaved or Deciduous Forest

432 Aspen-Birch with Conifer Associations
   4321 Trembling Aspen Predominates
   4322 Bigtooth Aspen Predominates
   4323 Balm-of-Gilead Predominates
   4324 White Birch Predominates

433 Lowland Hardwoods with Cedar, Spruce, Tamarack etc., Associations
   4331 Ash Predominates
   4332 Elm Predominates
   4333 Red Maple Predominates
   4339 Other Lowland Hardwoods

434 Upland Hardwoods with Cedar, Spruce, Tamarack, etc., Associations
   4341 White pine predominates
   4342 Red pine predominates
   4343 Jack pine predominates
   4349 Other

435 Lowland Conifers with Maple, Elm, Ash, Aspen, Birch, etc., Associations
   4351 Cedar Predominates
   4352 Black Spruce Predominates
   4353 Tamarack Predominates
   4354 Spruce - Balsam - Birch Association
   4355 Balsam Fir Predominates
   4356 White Spruce Predominates
   4359 Other

44 **Clearcut Forest**
5 WATER

51 Streams and Waterways
   511 Small Streams and Rivers
   512 Medium Streams and Rivers
   513 Large Streams and Rivers

52 Lakes
   521 Ponds
   522 Small Lakes
   523 Small Lakes +
   524 Medium Lakes
   525 Medium Lakes +
   526 Large Lakes
   527 Large Lakes +
   528 Very Large Lakes
   529 Very Large Lakes +

53 Reservoirs
   531 Ponds
   532 Small Lakes
   533 Small Lakes +
   534 Medium Lakes
   535 Medium Lakes +
   536 Large Lakes
   537 Large Lakes +
   538 Very Large Lakes
   539 Very Large Lakes +

54 Great Lakes
6 WETLANDS

61 Forested (Wooded) Wetlands

[611] Wooded Wetland
   [6111] Lowland Hardwoods (423)
   [6112] Lowland Conifers (423)
   [6113] Mixed Forested Wetlands (432, 433, or 435)

612 Shrub Swamps
   6121 Alder Predominates
   6122 Dogwood, Viburnum and Willow Associations
   6123 Sweetgale-Bogbirch Associations
   6124 Leatherleaf Predominates
   6125 Willow-Buttonbush Associations (> 50% cover: > 6 in. water)
   6126 Willow-Buttonbush Associations (< 50% cover: > 6 in. water)
   6127 Water Willow Predominates
   6128 Standing Dead Trees, Shrubs, and Stumps
   6129 Other

62 Non-Forested (Non-Wooded) Wetlands

621 Aquatic Bed Wetland
   6211 Floating Bed Wetland
      62111 Great Lakes
   6212 Submerged Aquatic Bed
      62121 Great Lakes

622 Emergent Wetland

623 Flats

[625] Open Water (refer to Water 5)

629 Other Non-Forested Wetland
7 BARREN

72 Beaches and Riverbanks
- 721 Sand Beach
- 722 Gravel Beach
- 723 Riverbanks (unconsolidated)
- 729 Other

73 Sand Dunes / Exposed Bluff
- 731 Sand Dunes
- 739 Other

74 Bare Exposed Rock
- 741 Rock Knobs
- 742 Escarpments
- 743 Shoreline Rock Outcrop
- 744 Riverbank (consolidated)
- 749 Other

75 Transitional Areas
DEFINITIONS FOR URBAN AND BUILT UP

1 URBAN & BUILT UP

Urban and built-up land comprises areas of intensive use with much of the land covered by structures. Included in this category are cities, town, villages, strip developments along highways, transportation, power, and communications facilities, and such isolated units as mills, mines, and quarries, shopping centers, and institutions. As development progresses, small blocks of land of less intensive and nonconforming use may be isolated in the midst of built-up areas and will generally be included in the (1) category. Agricultural, forest, or water areas on the fringe of urban and built-up areas will not be included except where they are a part of low-density urban development. The urban and built-up land category takes precedence over others when the criteria for more than one category are met. Thus, residential areas that have sufficient tree cover to meet the forest land criteria will be placed in the residential category. Sites for urban development stripped of cover before construction begins should be classified as urban and built-up, not barren land. Such sites should remain classified as "under construction" until construction is completed, at which time they would be classified according to their finished land use.

11 Residential

Residential land uses range from high density, represented by the multiple-unit structures of urban cores, to low density, where houses are on lots of more than an acre, on the periphery of urban expansion. Linear residential developments along transportation routes extending outward from urban areas should be included as residential appendages to urban centers. Residential development along shorelines may also be linear and sometimes extends back only one residential parcel from the shoreline to the first road.

Areas of sparse residential land use, such as large platted rural residential properties, will be included under another category if they do not meet the 2.5 acre minimum mapping size. Contiguous, or near contiguous (less than 100 feet), residences will be considered as one continuous unit if the properties are within 100 feet of each other, or the distance between structures is less than 200 feet. Mapping boundaries will be drawn to include the separate parcels as one mapping unit (polygon). Acreage determination should include the residence, garage(s), outbuildings, garden, lawn areas, and the area between the residence and the road. [Note - residences below the minimum mapping size can be included in a "point file" layer which is recommended for any land use analysis] In some places, the boundary will be clear where new housing developments abut against intensively used agricultural areas, but the boundary may be vague and difficult to discern when residential development is sporadic, or occurs in small isolated
units over an extended period of time in areas of mixed or less intensive uses. If the residential property (or properties) meets the minimum mapping size, use discernible features or distinct changes in cover to define the boundaries of the residential area. In the absence of discernible features or distinct changes use the following guidelines:

Define the boundary as 50 feet behind (and to the side of) the residence or other structure most distant from the road.

Include the area between structures that are less than 200 feet apart. If the distance between structures is more than 200 feet and there is no obvious boundary, then the maximum distance from the side of the structure is 50 feet.

Include the area between roads and the front of the residence if the frontage is unlikely to revert to rural land use; for example, long driveways (typically less than 1/8 mile), wooded lanes, and maintained lawns.

The mere construction of a road network is not sufficient to classify an area as residential, houses must be present. There are numerous examples of "planned" subdivisions, which may even include an intricate road network, which have yet (20+ years) to have residences built.

Residential sections may also be included in other use categories where they are integral parts of the other use. Housing on military bases, at colleges and universities, living quarters for laborers near a work base or lodging for employees of agricultural field operations or resorts are often difficult to identify and may be placed within the institutional, industrial, agricultural, or commercial categories.

111 Multi-Family, Medium to High-Rise

This category includes all multi-family and apartment structures of 4 or more stories. Included are apartments, condominiums, and the like, whether in complexes or as single structures. It includes lawns, parking areas, and small-area recreational facilities built on the site.

1111 High Density

A development containing an average gross density of 35 or more dwelling units per acre.
1112 Medium Density

A development containing an average gross density of more than 20 dwelling units per acre, but less than 35 dwelling units per acre.

1113 Low Density

A development containing an average gross density of 20 or less dwelling units per acre.

112 Multi-Family, Low-Rise

This is similar to 111 except that it is for structures of 3 or less stories. Duplexes are not included in this category, but townhouses, triplexes, double-duplexes, and quadraplexes are. It includes lawns, parking areas, and small recreational facilities built on the site.

1121 Apartment (House)

A building with three or more separate rooms, or suites of rooms, designed as residences and occupied by more than one household.

11211 High Density

An apartment development containing an average gross density of 18 or more dwelling units per acre.

11212 Medium Density

An apartment development containing an average gross density of more than 12 dwelling units per acre but less than 18 dwelling units per acre.

11213 Low Density

An apartment development containing an average gross density of 12 or less dwelling units per acre.

1122 Townhouse

A type of structure that has three or more separate dwelling units divided vertically, each unit has separate entrances to a front and rear yard.

11221 High Density

A townhouse development containing an average gross density of 12 or more dwelling units per acre.
11222 Medium Density

A townhouse development containing an average gross density of more than 8 dwelling units per acre, but less than 12 dwelling units per acre.

11223 Low Density

A townhouse development containing an average gross density of 8 or less dwelling units per acre.

113 Single-family / Duplex

This category includes areas having detached single and two-family structures used as a permanent dwelling. Includes traditional, single-family residential structures, and manufactured housing not in a manufactured housing park (mobile home park). Lawns, driveways, and associated structures such as garages, tool sheds, garden sheds, home swimming pools, etc. are included,

1131 Single Family

Standard single-family residential structures.

11311 High Density

A development or grouping containing an average gross density of 6 or more dwelling units per acre.

11312 Medium Density

A development or grouping containing an average gross density of more than 3 dwelling units per acre, but less than 6 dwelling units per acre.

11313 Low Density

A development or grouping containing an average gross density of 3 or less dwelling units per acre.

1132 Duplex

Generally a two-unit building that is divided vertically, each unit having a separate entrance from the outside or through a common vestibule. Two flats (building divided
horizontally) are included, but triplexes, double-duplexes, and quadraplexes are included in 112 Multi-Family, Low-Rise.

[1134] Non-farm residence (see category 291 for farmsteads)

A dwelling located in a rural or urban-rural fringe area and occupied by a non-farming family.

1135 Manufactured Home

Manufactured housing, also commonly referred to as factory-built housing, includes modular, mobile homes, and manufactured homes.

A manufactured home is a dwelling unit fabricated in an off-site manufacturing facility for installation or assembly at the building site, bearing a label certifying that it is built in compliance with the federal Manufactured Housing Construction and Safety Standard Act of 1974 (42 USC 5401, et. seq.) which became effective June 15, 1976.

A mobile home is a residential dwelling that was fabricated in an off-site facility, designed to be a permanent residence, built prior to enactment of the Federal Manufactured Home Construction and Safety Standards.

A modular home is a structure intended for residential use and is manufactured off-site, but assembled on site. Note that not all modular homes are mobile homes.

1136 Seasonal Dwelling

A dwelling occupied only during a specific season of the year.

1139 Other

Any single family or duplex structure not covered above.

115 Manufactured Home Park

Property under single ownership or control containing three or more manufactured homes used for permanent or seasonal residential dwellings. Includes the manufactured homes and related service structures and
recreational spaces. One to two manufactured homes will be classified as part of 113 Single Family / Duplex. A subdivision consisting of lots for siting manufactured homes should also be classified as 113 Single Family / Duplex. Does not include property used for the display and sale of manufactured units (12 Commercial, Services, and Institutional), nor does it include property used for seasonal recreational purposes only (193 Outdoor Recreation).

1151 High Density

A development or grouping containing an average gross density of 12 or more dwelling units per acre.

1152 Medium Density

A development or grouping containing an average gross density of more than 6 dwelling units per acre, but less than 12 dwelling units per acre.

1153 Low Density

A development or grouping containing an average gross density of 6 or less dwelling units per acre.

[116] Group and Transient Quarters

A structure which is used for housing, whether permanent or temporary, of a number of unrelated individuals. This differs from apartments in that residents tend to interact with each other for meals, care, etc. all of these quarters could also logically go under other uses (i.e., hotels – commercial, dormitory – educational), but they are classed here because all have predominantly residential characteristics in common. (Current Use Inventory mapped these features as 125 Institutional or 124 Commercial / Services)

[1161] Rooming and Boarding Houses

Generally operated on a commercial basis, renting rooms to five or more persons not related to the proprietor, with or without board.

[1162] Membership Lodging

Includes organizational private hotels, organizational lodging houses and membership residences dormitories. Does not refer to religious organizational facilities.
[1163] Residence Halls and Dormitories
Buildings containing nurses and student residential facilities, including adjacent lawn and parking.

[1164] Retirement Homes and Orphanages
Includes residential facilities for the aged, orphaned, or indigent.

[1165] Religious Quarters
Includes convents, monasteries, abbeys, rectories, parish houses and parsonages.

[1166] Residential Hotels
Non-organizational residential or apartment hotels operated as a facility wherein guests reside on a semi-permanent bases.

[1167] Hotels, Tourist Courts, Motels
Transient lodging facilities operated on a commercial basis, by day or week.

[1168] Migrant Quarters
Seasonal dwellings used for housing seasonal workers.

[1169] Other
Group and transient uses not covered above.

117 Rural Estates
Rural single-family residences on parcels 10 acres or more in size, that are not part of an operating farm, and exhibit no intensive agricultural practices. Includes all maintained areas; may include small pastures for grazing and may have structures, such as garages or barns.

119 Other Residential
All other obviously residential land uses not covered above.
12 Commercial, Services, & Institutional

Commercial areas are those used predominantly for the sale of products and services. They are often abutted by residential, agricultural, or other contrasting uses which help differentiate them. The principal components of the commercial-use category are urban central business districts; shopping centers, usually in suburban and outlying areas; commercial strip developments along major highways and access routes to cities; and resorts. The main buildings, secondary structures, and areas supporting the basic use are all included – office buildings, warehouses, driveways, sheds, parking lots, landscaped areas, and waste-disposal areas. Commercial areas may include some non-commercial uses too small to be separated out.

Education, religious, health, correctional, and military facilities are also found in this category. All buildings, grounds, and parking lots that compose the facility are included within the institutional unit, but areas not specifically related to the purpose of the institution should be placed in the appropriate category. Recreational facilities that form an integral part of an institution should be included in the institutional category (e.g. athletic facilities associated with schools). Auxiliary land use, particularly residential, and commercial and services, on a military base or college campus would be included in the institutional subcategory. Areas not specifically associated with the function of the correctional, educational, or religious institutions, such as agricultural, forest land, and certain extensive recreation areas (e.g. golf course) are placed in the appropriate agricultural, forest, recreational, or other category. Small institutional units, as, for example, many churches and some secondary and elementary schools, will not meet the minimum area requirements and will be included within another category, usually residential or commercial.

121 Primary / Central business District (CBD)

The main commercial service center in a city. Each city has only one CBD, and it can be identified as being the most densely constructed urban portion of a city. It can be further identified as being normally located at the confluence of the major transportation network. Central business districts often include some institutions, such as churches and schools. These are not separated out unless they exceed one-third the total commercial area, or are large enough to stand alone.

122 Shopping Center / Malls / Retail Centers

Usually a single structure, or a group of structures, containing a large amount of floor space and a variety of commercial and service establishments surrounded by a common parking lot, usually > 2x the area of the structure(s).
Secondary / Neighborhood and Rural Businesses

These areas consist of single, or relatively compact groups of stores, institutional structures, and/or services outside of the CBD. These uses are usually located on major streets and surrounded by non-commercial uses. Parking is either in several scattered small store lots or municipal lots.

Commercial
1241
12411 Wholesale Trade
12412 Hardware-Building Supplies, Farm Equipment
12413 General Merchandise
12414 Food Stores, Bake shops
12415 Auto, Truck, Marine Sales, and Accessories
12416 Apparel, and Accessories
12417 Furniture, Home Furnishings, and Equipment
12418 Eating and Drinking
12419 Gasoline Stations

Services
1242
12421 Finance, Insurance, and Real Estate
12422 Personal Services
12423 Business Services
12424 Repair Services
12425 Professional Services
12426 Contract Construction Services
12427 Agricultural Services
12429 Other Services (includes Parking Lots and Garages)

Used Auto Parts Yards (Auto salvage or junk yards)

Institutional

Health
1263
12631 Hospitals
126311 General, Acute
126312 General, Long-Term
126313 Psychiatric
126314 Specialty
126315 Osteopathic
126316 Allopathic
126317 Veterans
126318 Rehabilitation
126319 Other

Clinics
12632
126321 Medical
126322 Dental
126323 Psychiatry
126327 Public Health
126328 Family Planning
126329 Other
1264 Education
   12641 High School
   12642 Middle or Junior High
   12643 Elementary
   12644 College, University
   12645 Academy
   12646 Trade School
   12649 Other

1265 Religious
   12651 Church
   12652 Retreat House
   12659 Other

1266 Correctional
   12661 Maximum Security
   12662 Minimum Security
   12663 Halfway House
   12664 Detention center
   12665 Juvenile Home
   12669 Other

1267 Military
   12671 Army
   12672 Navy
   12673 Marines
   12674 Coast Guard
   12675 Air Force
   12676 National Guard
   12679 Other

1268 Government Administration and Services
   12681 City Hall (County, Town, etc.)
   12682 Post Office
   12683 Police Station
   12684 Sheriff Office
   12685 State Police Station
   12686 Fire Station
   12687 Federal Offices (e.g. Federal Office Buildings, USDA County Offices, USFS Ranger Stations)
   12688 State Offices (e.g. State Office Buildings, County FIA Offices, MDNR Field Offices)
   12689 Other (includes Fish Hatcheries, Pheasant Rearing Facilities, and similar facilities)

1269 Other

127 Indoor Cultural, Public Assembly, and Recreation

This includes indoor facilities for cultural activity, recreation, and public assembly, such as planetariums, auditoriums, and tennis courts. Outdoor cultural, public assembly, and recreational lands (and their accompanying incidental buildings) are under Category 19 “open and other”.

33 Revised March 2010
1271 Indoor Cultural
Includes facilities such as libraries, museums, art
galleries, planetariums, aquariums, and historic
buildings.

1272 Indoor Public Assembly
This category includes such facilities as movie the-
atres, other theatres, auditoriums, exhibition halls,
arenas, field houses, and multi-purpose civic centers.

1273 Indoor Recreation
Includes such facilities as meeting, social, perfor-
ance, class, craft rooms, courts (tennis, etc.), ice
skating rinks, bowling alleys, dance halls, gymnasi-
ums, swimming pools, and multiple purpose recreation
centers.

128 Office / Research Center or Park
Areas where the dominant land use consists of offices for
professional business activity, does not include individual
offices for professional services (1242). Includes office com-
plexes, office parks, research parks, and high-rise office towers
outside of a central business district. Commercial buildings
within an office park, such as motels and restaurants, are
assigned to the retail category.

Fourth and fifth digits can be used to signify the enterprise the
office serves, e.g. Finance, Insurance, and Real Estate.

13 Industrial
Industrial areas include a wide array of uses from light
manufacturing and industrial parks to heavy manufacturing
plants. Identification of light industries — those focused on
design, assembly, finishing, and packaging of products — can
often be based on the type of building, parking, and shipping
arrangements. Light industrial areas may be, but are not
necessarily, directly in contact with urban areas; many are now
found at airports or in relatively open country. Heavy industries
use raw materials such as iron ore, lumber, or coal. Included
are steel mills, pulp or lumber mills, electric power generating
stations, oil refineries and tank farms, chemical plants and
brick-making plants. Stockpiles of raw materials, large power
sources, and waste product disposal areas are usually visible,
along with transportation facilities capable of handling heavy
materials.
131 Primary Metal Production (Milling, Smelting, Forging)

This category covers the production of metals from natural mineral ores. The production excludes mining and transportation, but does include storage areas, furnaces, reduces, crushers, etc. Also included are power plants used either exclusively or primarily for metal production. These areas are usually quite large with rail or boat facilities and generally produce large amounts of heat.

1311 Blast Furnaces and Steel Mills
1312 Steel Wire Products
1313 Cold Rolled Sheet, Strip and Bars
1314 Steel Pipe and Tube
1315 Iron and Steel Foundries
1316 Smelting and Refining
1317 Rolling, Drawing and Extruding
1318 Nonferrous Foundries
1319 Other Primary Metal Industries

132 Petrochemicals (storage, refining, etc.)

This category includes refineries, plastic and rubber production, asphalt plants, and similar establishments. They are usually identified by the large number of tanks, pipelines, and associated rail or, more often, boat transportation. Small asphalt plants may be associated with sand and gravel operations.

1321 Industrial Inorganic and Organic Chemicals
1322 Plastics and Man-made Fibers
1323 Biological, Medicinal and Pharmaceutical Drugs
1324 Soap and Detergents
1325 Perfumes, Cosmetics and Toilet Preparations
1326 Paints, Varnish, Enamels, Agricultural Chemicals, Explosives, and Allied Products
1327 Petroleum Refining and Related Industries
1328 Tire and Rubber Manufacturing
1329 Other Petrochemical Industries

133 Primary wood processing (lumber, pulp, paper)

Here, only processing which starts with wood (logs) are considered, not the final product. An establishment which, in one operation, starts with logs and ends with paper is included, but one that starts with pulp will not.

1331 Logging Camps and Logging Contractors
1332 Sawmills and Planing Mills
1333 Millwork, Plywood and Related Products
1334 Wooden Container Manufacturing
1335 Pulp Mill
1336 Paperboard Mill
1337 Paperboard Containers and Boxes
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1338</td>
<td>Building Board and Building Paper</td>
</tr>
<tr>
<td>1339</td>
<td>Other Primary Wood Processing</td>
</tr>
<tr>
<td>134</td>
<td><strong>Stone, Clay, Glass (cement, brick, etc.)</strong></td>
</tr>
<tr>
<td></td>
<td>This category is concerned with the manufacture</td>
</tr>
<tr>
<td></td>
<td>of cement (dry, not ready mix), bricks, clay</td>
</tr>
<tr>
<td></td>
<td>tiles, glass, and other types of products.</td>
</tr>
<tr>
<td></td>
<td>These establishments are usually located near</td>
</tr>
<tr>
<td></td>
<td>their source of raw materials, such as an open</td>
</tr>
<tr>
<td></td>
<td>pit extractive area, and near large uses of</td>
</tr>
<tr>
<td></td>
<td>water and stockpiles of sand or stone.</td>
</tr>
<tr>
<td></td>
<td>A sand and gravel operation is not included</td>
</tr>
<tr>
<td></td>
<td>with this land use.</td>
</tr>
<tr>
<td>1341</td>
<td>Flat Glass Manufacturing</td>
</tr>
<tr>
<td>1342</td>
<td>Glass and Glassware</td>
</tr>
<tr>
<td>1343</td>
<td>Cement (hydraulic)</td>
</tr>
<tr>
<td>1344</td>
<td>Structural Clay Products, Brick</td>
</tr>
<tr>
<td>1345</td>
<td>Pottery and Related Products</td>
</tr>
<tr>
<td>1346</td>
<td>Concrete, Gypsum and Plastic Products</td>
</tr>
<tr>
<td>1347</td>
<td>Cut Stone and Stone Products</td>
</tr>
<tr>
<td>1348</td>
<td>Abrasive, Asbestos and Miscellaneous Nonmetallic</td>
</tr>
<tr>
<td></td>
<td>Mineral Products</td>
</tr>
<tr>
<td>1349</td>
<td>Other Stone, Clay, Glass Products</td>
</tr>
<tr>
<td>135</td>
<td><strong>Metal Fabrication (secondary manufacturing)</strong></td>
</tr>
<tr>
<td></td>
<td>These firms use primary metals and reshape them</td>
</tr>
<tr>
<td></td>
<td>for production of a final marketable item.</td>
</tr>
<tr>
<td></td>
<td>No forging occurs, but rolling, casting, and</td>
</tr>
<tr>
<td></td>
<td>machining will occur.</td>
</tr>
<tr>
<td></td>
<td>An excellent example of this industry is</td>
</tr>
<tr>
<td></td>
<td>automobile manufacturing, where frames, bodies,</td>
</tr>
<tr>
<td></td>
<td>etc., are made from steel.</td>
</tr>
<tr>
<td></td>
<td>This use is characterized by single story flat</td>
</tr>
<tr>
<td></td>
<td>roofed buildings, with no major heat production</td>
</tr>
<tr>
<td></td>
<td>occurring – except for energy production.</td>
</tr>
<tr>
<td>1351</td>
<td>Ordnance and Accessories</td>
</tr>
<tr>
<td>1352</td>
<td>Machinery (except electrical)</td>
</tr>
<tr>
<td>1353</td>
<td>Electrical Machinery</td>
</tr>
<tr>
<td>1354</td>
<td>Motor Vehicle Equipment</td>
</tr>
<tr>
<td>1355</td>
<td>Aircraft and Parts</td>
</tr>
<tr>
<td>1356</td>
<td>Ship and Boat Building</td>
</tr>
<tr>
<td>1357</td>
<td>Railroad Equipment</td>
</tr>
<tr>
<td>1358</td>
<td>Other Transportation Equipment</td>
</tr>
<tr>
<td>1359</td>
<td>Other Metal Fabrication</td>
</tr>
<tr>
<td>136</td>
<td><strong>Non-Metal Fabrication</strong></td>
</tr>
<tr>
<td></td>
<td>Plants which create a product using secondary</td>
</tr>
<tr>
<td></td>
<td>processed materials (nonmetal) such as</td>
</tr>
<tr>
<td></td>
<td>furniture production which uses lumber, not</td>
</tr>
<tr>
<td></td>
<td>logs, or printing which uses paper, not logs,</td>
</tr>
<tr>
<td></td>
<td>for pulp.</td>
</tr>
<tr>
<td>1361</td>
<td>Food and Kindred Products</td>
</tr>
<tr>
<td></td>
<td>Also includes agricultural packaging and</td>
</tr>
<tr>
<td></td>
<td>processing facilities, grain elevators, and</td>
</tr>
<tr>
<td></td>
<td>cold storage facilities.</td>
</tr>
<tr>
<td>1362</td>
<td>Textile Mill Products</td>
</tr>
</tbody>
</table>
1363 Apparel, Fabrics, Leather
1364 Furniture and Fixtures
1365 Newspaper, Books, Commercial Publishing and Printing
1366 Bookbinding and Printing Trade Services
1367 Engineering and Scientific Instruments
1368 Optical, Surgical, and Dental Instruments
1369 Other Non-Metal Manufacturing

137 Recyclable Material Processing

This industrial category includes establishments engaged in processing scrap metal from automotive or industrial sources, as well as other recyclable materials. Included in this category are auto wreckers primarily engaged in dismantling motor vehicles for the purpose of wholesaling scrap as well as those establishments primarily engaged in dismantling motor vehicles for the purpose of selling used parts.

1371 Scrap Metal Yards
1372 Other Recyclable Material Yards
[1373] Used Auto Parts Yards (Auto Salvage, map as 1243)

138 Industrial Park

Areas set aside within the community and specifically provided with the necessary community facilities such as roads, water and sewer lines, and power, to support industrial growth and development.

139 Other

Industrial uses not covered in the above categories. Includes electric power generation (coal and nuclear) facilities and automotive test tracks.

14 Transportation, Communication & Utilities

Major transportation routes and areas greatly influence other land uses, and many land-use boundaries are outlined by them. The types and extent of transportation facilities in a locality determine the degree of access and affect both the present and potential use of the area.

Highways and railways are characterized by areas of activity connected in linear patterns. The highways include areas used for interchanges, limited access right-of-way, and service and terminal facilities. Rail facilities include station, parking lots, roundhouses, repair and switching yards, and related areas. Spur connections from an active line are included in the appropriate industrial or extractive category.
Airports and major lake ports are isolated areas of high utilization, usually with no well-defined intervening connections, although some water ports are connected by canals. Airport facilities include the runways, intervening land, terminals, service buildings, navigation aids, fuel storage, parking lots, and a limited buffer zone. Small airports, such as those on rotatable farmland, heliports, and land associated with seaplane bases are not included. Port areas include the docks, shipyards, dry-docks, locks, and watercourse-control structures. For recreational facilities see classification number 1935.

Communications and utilities areas involved in transport of water, gas, oil, electricity, and areas used for airwave communications are also included in this category. Pumping stations, electric substations, utility maintenance facilities, and areas used for radio, radar, or television antennas are the major types. Small facilities, or those associated with an industrial, commercial, or extractive land use, are included within the larger category with which they are associated. Long-distance gas, oil, electric, telephone, water, or other transmission facilities rarely constitute the dominant use of land over which they pass. If these uses are dominant and meet the minimum width criteria, they may be identified as transportation uses.

141  Air Transportation

The airport category includes all facilities directly connected with air transport, whether it be commercial, municipal, or private. These high utilization areas include the runways, intervening land, terminals, service buildings, plane hangars, navigation aids, fuel storage areas, parking lots and a limited buffer zone.

1411  Commercial Aviation
1412  General Aviation
1413  Military
1414  Other

142  Rail Transportation

This category includes all facilities which would be connected with rail transportation; overland track, roundhouses, repair and switching yards, and related areas. Also included in this category are the accompanying and necessary rights-of-way.

1421  Active Yard
1422  Station or Terminal
1423  Abandoned Right-Of-Way
1424  Active Track
1429  Other
143 Water Transportation

This category includes those areas related to water transportation, excluding the water. The major components of this category are the port areas, docks, shipyards, dry docks, and locks.

1431 Port Facilities
1432 Lock and Dam
1433 Lighthouse
1439 Other

144 Road Transportation

This category includes all roads and road rights-of-way associated with the roads (including the median), bridges, rest areas, and weighing stations. Also included are truck and bus terminals. This does not include parking areas which are connected with a particular use (i.e. CBD, residential, factory).

1441 Limited and Controlled Access Expressway
1442 5 or More Lanes
1443 4 Lanes
1444 3 Lanes
1445 2 Lanes
1446 Truck Terminal
1447 Bus Terminal

1448 Highway Maintenance / Road Commission
Includes State highway maintenance facilities, county road commission facilities, and municipal public service garages (associated with street maintenance).

1449 Other

145 Communications

Those areas associated with radio, radar, television, telegraph, telephone, etc., are included in this category. Small facilities or those associated with an industrial, commercial, or extractive land use are included within the category which they are associated with. Long distance transmission facilities rarely constitute the dominant use of land over which they pass. If these uses are dominant they may be identified as a communication land use.

1451 Telephone
1452 Telegraph
1453 Television
1454 Radio
1455 Cellular Phone
1459 Other

146 Utilities

Those areas associated with the transport of gas, oil, water or electricity are included into this category. Pumping stations, electric substations, and utility warehouses and storage yards, will constitute the major components of this category. Small facilities and those associated with an industrial, commercial, or extractive land use are included into the appropriate category. Long distance pipelines, etc., rarely constitute the dominant use of land over or under which they pass. If these uses are dominant they may be identified as a utility use.

1461 Electric Substations, utility maintenance facilities, and Transmission
1462 Gas Storage and Transmission
1463 Petroleum Storage and Transmission
1464 Solid Waste Disposal and Transfer
1465 Sewage Treatment Facilities and Transmission
1466 Water Treatment Plants and Transmission
1469 Other


16 Mixed

A mixture of second-level urban uses where no one use predominates. In any category, as much as one-third intermixture of another use is allowed without changing the basic classification, but where the inter-mixture is greater, where several uses, though each is less than one-third, are included, or where individual second-level units may be too small to be separated, although the aggregate of such uses may be large, the mixed category is used.

This category is used to classify individual buildings and complexes which are composed of several, distinct land uses. For example, an apartment building may contain a ground floor of commercial uses.

This category also includes developments along transportation routes and those of smaller cities, towns, and built-up areas where separate land uses may not be distinguishable. Residential, commercial, industrial, institutional, and occasionally other land uses may be included. Farmsteads inter-mixed with strip or cluster settlements will be included within the built-up land, but other agricultural land uses should be excluded.
17 Extractive

Extractive land encompasses both surface and subsurface mining operations, such as sand and gravel pits, stone quarries, oil and gas wells, and metallic and nonmetallic mines. In size, these activities range from the unmistakable giant strip or pit mines covering vast areas to the often unidentifiable gas wells less than a foot square. Surface structures and equipment may range from a minimum of a loading device and trucks to extended areas with access roads, processing facilities, stockpiles, equipment sheds, and numerous vehicles. Spoil material and slag heaps are usually found within a short trucking distance of the major mine areas and may be the key indicator of underground mining operations.

Industrial complexes where the extracted material is refined, packaged, or further processed are included in the industrial category even if the plant is adjacent to the mine. Areas of future reserves are included in the appropriate present-use category, agricultural or forest land, regardless of the expected future use. Unused pits or quarries that have been flooded are placed in the water category if the water body meets the minimum mapping size. Areas of tailings, abandoned pits and quarries, and strip-mined areas may remain barren for decades unless steps are taken to hasten the establishment of vegetation. Until vegetative cover is established, such parcels remain in the extractive category.

171 Open Pit

Extractive activities which are primarily carried out upon the surface of the earth through the creation of a large pit.

1711 Metallic Mineral Quarry
1712 Nonmetallic Mineral Quarry
1713 Coal
1714 Sand and Gravel
1719 Other

172 Underground

Extractive activities primarily carried out underground; portions of this activity covered under the barren land category include disturbed land and development waste rock.

1721 Metallic
1722 Nonmetallic
1723 Coal
1729 Other

173 Wells
This category includes the areas used for the extraction of oil and natural gas and other minerals from the substrata. In the case of one individual well, the area immediately surrounding the well is all that is to be placed into this category. Care must be taken not to confuse these wells with water wells.

- 1731 Oil
- 1732 Gas
- 1733 Brine Production
- 1734 Waste Disposal
- 1739 Other

179 Other extractive

Extractive uses not covered in the above categories.

19 Open & Other

Open land consists of land used for outdoor cultural, public assembly and recreational purposes. Examples would be zoos, botanical gardens, fairgrounds, some parkland, ski areas and cemeteries. Open land may be in intensive or extensive use. It may include structures incidental to the outdoor land uses.

191 Outdoor Cultural

Outdoor cultural includes such facilities as botanical gardens, arboretums, and zoos.

- 1911 Botanical Gardens and Arboretums
- 1912 Zoos
- 1913 Historic Site
- 1919 Other

192 Outdoor Public Assembly

This category includes such facilities as movie theatres, auditoriums, exhibition halls, arenas and field houses, and multiple purpose civic centers.

- 1921 Amphitheaters
- 1922 Drive-In movie Theaters
- 1923 Stadiums
- 1924 Racetracks
- 1925 Fairgrounds
- 1926 Amusement Parks / Water Parks
- 1929 Other

193 Outdoor Recreation

All recreation facilities and areas which are basically on open land. They may, however, include incidental buildings such as shelters, toilets, beach change
areas, etc. Does not include rangeland, forest, water, wetland, and barren lands within parks or recreation areas. These would be classified in categories 3, 4, 5, 6, and 9, respectively, at level I, at the third, fourth, and fifth levels. Ownership and institutional characteristics such as park boundaries would be indicated by a separate mapping legend.

1931 Parks

This category includes land maintained as with lawn, plantings, paving, benches, ornamental objects, and walks. These occur in parks or as institutional or estate grounds, malls, etc. They provide open space relief or environmental embellishment. They may also provide casual walking, relaxing, open air and passer-by enjoyment, social encounter or assembly.

1932 Play, Games, and Athletics

These lands include the playlots, playgrounds, and athletic fields. They have been developed for active play and recreation, for different age groups. The category as a whole has a wide variety of possible installation for free or organized play, ranging from swings and sandboxes to softball and baseball diamonds. Bleachers or grandstands may be included, except for those of such scale as to justify inclusion under category 127 as places of public assembly.

1931 Playlots
1932 Playgrounds
19323 Athletic Fields
19329 Other

1933 Sports Areas

This category includes a variety of uses such as miniature and regular golf courses, golf driving ranges, off-road recreational vehicle trails, tracks and areas, shooting ranges, etc. Athletics is covered under 1932. Conceivably, some hunting and fishing land uses could be in categories 2, 3, 4, 5, 6 and 9, with institutional or functional identification at a lower level.

19331 Golf Courses
19332 Miniature Golf Courses
19333 Golf Driving Ranges
19334 Offroad Recreational Vehicle Trails, Tracks or Areas
19335 Shooting Ranges
19339 Other
### Other Land-Based Activities

All recreation facilities and areas which are basically on open land. They may, however, include incidental buildings such as shelters, toilets, beach change buildings, etc. This does not include rangeland, forest, water, wetland or barren land within parks or recreation areas. These would be classified in categories, respectively, at Level I, at the third, fourth, and fifth levels. Ownership and institutional characteristics such as park boundaries would be indicated by a separate mapping legend.

<table>
<thead>
<tr>
<th>Code</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>19341</td>
<td>Horseback Riding</td>
</tr>
<tr>
<td>19342</td>
<td>Picnicking</td>
</tr>
<tr>
<td>19343</td>
<td>Camps and Campgrounds</td>
</tr>
<tr>
<td></td>
<td>Property under single ownership or control in which sites are offered for use by the public or members of an organization, either free of charge or for a fee, for the establishment of temporary living quarters for 5 or more recreational units (tent, travel trailer, camping trailer, motor home, mobile home, or truck camper). Does not include seasonal manufactured housing parks (115).</td>
</tr>
<tr>
<td>19344</td>
<td>Sledding or Toboggan Hills</td>
</tr>
<tr>
<td>19345</td>
<td>Skiing</td>
</tr>
<tr>
<td>19346</td>
<td>Foot Trails</td>
</tr>
<tr>
<td>19347</td>
<td>Landscape, Scenic or Natural Wonder-Viewing Points</td>
</tr>
<tr>
<td>19349</td>
<td>Other</td>
</tr>
</tbody>
</table>

### Water-Dependent Recreation

This category includes such activity areas as swimming beaches and pools, marina and yacht basins and boating sites.

<table>
<thead>
<tr>
<th>Code</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>19351</td>
<td>Swimming Pools</td>
</tr>
<tr>
<td>19352</td>
<td>Swimming Beaches</td>
</tr>
<tr>
<td>19353</td>
<td>Marinas, Yacht Basins</td>
</tr>
<tr>
<td>19354</td>
<td>Boating Sites</td>
</tr>
<tr>
<td>19359</td>
<td>Other</td>
</tr>
</tbody>
</table>

### Cemeteries

<table>
<thead>
<tr>
<th>Code</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>194</td>
<td>Cemeteries</td>
</tr>
</tbody>
</table>

### Vacant

<table>
<thead>
<tr>
<th>Code</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>195</td>
<td>Vacant</td>
</tr>
</tbody>
</table>
Open parcels of land within urban and built-up areas. Includes vacant parcels in platted residential, commercial, and industrial areas, and sites that have been cleared of old buildings. Surface cover may be bare soil, paved, or grass, also may contain evidence of soil disturbance from previous use or site-clearing. In residential areas, adjacent landowners may use portions of vacant lots for gardens and extended lawn areas. Also includes residential properties along shorelines where a house has not been constructed but the site is maintained and used by the owner for waterfront access purposes. Vacant lots may be mowed on a regular basis.

196 Under Construction / Construction Sites

Includes areas of active construction, temporary construction sites (e.g. temporary highway processing plants and materials storage areas), and areas under development stripped of cover before construction begins. Such sites should be classified as 196 until construction is completed, at which time they would be mapped with their appropriate designation.

DEFINITIONS FOR AGRICULTURAL LAND

2 AGRICULTURAL LAND

Agricultural Land may be broadly defined as land used primarily for production of farm commodities.

21 Cropland

Land used to produce crops such as small grains, hay, or row crops including vegetables and crop land used temporarily for pasture.

211 Row Crops

Land which is or will be planted to row crops (crops planted in rows a distinguishable distance apart). This land is tilled annually. Cropland planted to legumes and grasses are not included.

2111 Corn
2112 Soybeans
2113 Sugar Beets
212 Small Grains

Land which has close grown crops which will be harvested for grain such as wheat, oats, barley, and rye.

2121 Winter Wheat
2122 Oats
2123 Rye and Barley

213 Hay

Land which produces grasses, which when harvested, is for animal consumption.

22 Orchards, Bush-Fruits, Vineyards & Ornamental Horticulture Areas

Orchards, vineyards, and bush-fruit areas produce the various fruit and berry crops. Horticultural areas include nurseries, floricultural areas, and seed-and-sod areas used perennially for that purpose.

221 Tree Fruits

Land used for the production of fruit on trees.

2211 Apples
2212 Cherries
2213 Peaches
2214 Pears
2215 Plums and prunes
2219 Other
  Land used for other kinds of tree fruits.

222 Bush-Fruits and Vineyards

Land used for the production of fruit on bushes and vines.

2221 Strawberries
2222 Raspberries
2223 Blueberries
2224 Grapes
2229 Other
  Land used for other kinds of bush-fruits.
<table>
<thead>
<tr>
<th>Code</th>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>223</td>
<td>Ornamental Horticulture and Nurseries</td>
<td>Land used for the production of sod, flowers, ornamental shrubbery, etc., and their seeds.</td>
</tr>
<tr>
<td>2231</td>
<td>Sod</td>
<td>Land used for the production of sod which will be transplanted.</td>
</tr>
<tr>
<td>2232</td>
<td>Floriculture</td>
<td>Land used for the production of flowers for bulbs, seeds, and cut flowers.</td>
</tr>
<tr>
<td>2233</td>
<td>Nurseries</td>
<td>Land used for the production of trees, shrubs, vines, etc., which will be transplanted.</td>
</tr>
<tr>
<td>2239</td>
<td>Other</td>
<td>Land used for other kinds of ornamental horticulture.</td>
</tr>
</tbody>
</table>

### 23 Confined Feeding Operations

Confined feeding operations, also known as animal feeding operations (AFOs) are agricultural enterprises consisting of a lot or facility where animals are stabled or confined and fed or maintained. It includes the raising of animals for food (including milk), fur, or recreation in lots, pens, ponds, sheds, or buildings. Feed is brought to the animals rather than the animals grazing or otherwise seeking feed in pastures, fields, or on rangeland.

#### 231 Livestock

Animal feeding operations for feeding four-legged animals, such as swine, cattle, and sheep.

- 2311 Beef
- 2312 Dairy
- 2313 Swine
- 2319 Other

Animal feeding operations for other kinds of livestock.

#### 232 Poultry

Animal feeding operations for two-legged animals.

- 2321 Chickens
Michigan Land Cover / Use Classification System

2322 Turkeys
2329 Other

Other kinds of animal feeding operations.

239 Other

Other kinds of animal feeding operations, including horses and equine, fur-bearing animals, apiculture (bees), and aquaculture (e.g. trout farms).

24 Permanent Pasture

This category produces grasses and certain types of legumes which are grazed by animals. The land is continuously used for pasture with tillage only to reestablish the grasses and legumes. Woodland pasture is not included in this category.

[28] Inactive Land (These plant communities will be mapped under grasses and forbs (31).

29 Other Agricultural Land

Other agricultural land not included in the preceding categories or combinations of agricultural land that cannot be clearly defined. Land with farmsteads, greenhouses, and race tracks are included in this category.

291 Farmsteads

Land used for buildings associated with active agricultural production, including barns, implement buildings, grain storage buildings, farm gardens, and the dwelling of the farm family. Excludes farmsteads which have been "sold-off" from the surrounding agricultural land base and are no longer actively involved with an operating farm.

2911 Farmstead With Active Residence

Farmsteads which have a farm family living in the dwelling.

2912 Farmstead Without Active Residence

Farmsteads which do not have a farm family living in the dwelling.
292 Greenhouses and Mushroom Houses

Land with buildings used to produce farm commodities.

2921 Vegetables
2922 Flowers
2923 Mushrooms
2929 Other

293 Horse exercise tracks

Non-commercial training areas, primarily for race horses.

299 Other

DEFINITIONS FOR GRASS AND SHRUB LANDS

3 GRASS AND SHRUB LANDS

Grass and shrub lands are defined as areas supporting early stages of plant succession consisting of plant communities characterized by grasses or shrubs. In cases where there is obvious evidence of seeding, fertilizing or other cultural practices, these areas should be mapped as pasture (24 Agricultural land).

31 Grasses and Forbs

Areas dominated by native grasses and forbs. Such areas are often subjected to continuous disturbance such as mowing, grazing or burning to maintain the herbaceous character. Typical plant species are quackgrass, Kentucky bluegrass, upland and lowland sedges, reed canary grass, clovers, etc.

311 Upland Grasses and Forbs

3111 Bluegrasses Predominate
3112 Quackgrass Predominates
3113 Bluestems, Upland sedges, Dewberry Mosses, and Lichens
3114 Beach Grass Predominates
3119 Other Upland Herbaceous Openings

312 Lowland Grasses and Forbs

3121 Reed Canary Grass Predominates
3122 Clovers Predominate
3123 Red Top Predominates
3124 Sedges Predominates
3125 Blue-Joint Predominates
3129 Other Lowland Herbaceous Openings

32 Shrubs

Shrub lands are dominated (> 25% cover) by native shrubs and low woody plants. If left undisturbed, such areas are soon dominated by young tree growth. Typical shrub species include blackberry and raspberry briars, dogwood, willow, tag alder, etc.

321 Upland Shrubs

3211 Briars Predominate
3212 Dogwood Predominates
3213 Hazel Predominates
3214 Juneberry Predominates
3215 Sumac Predominates
3216 Thornapple Predominates
3217 Viburnum Predominates
3218 Sweet Fern
3219 Other Upland Shrublands

[322] Lowland shrubs (612)

33 Pine or Oak Openings (prairie)

This category should be used to classify those openings in oak or pine forestland where grass cover is so thick that seeds cannot germinate.

331 Hardwood Opening
332 Coniferous Opeling

DEFINITIONS FOR FOREST LAND

4 FOREST LAND

Forest lands are lands that are at least 16.7 percent stocked (approximately 25% crown cover) by trees of any size, or formerly having such tree cover, and not currently developed for nonforest use.
Lands from which trees have been removed to less than 16.7 percent stocking but which have not been developed for other use are also included. Lands that meet the requirements for Forest Land and also for a higher use category should be placed in the higher category. Shrub communities will be mapped under grass and shrub lands (upland) or wetlands (lowland).

41 Broadleaved Forest

In Michigan, typical species are oak, maple, beech, birch, ash, hickory, aspen, cottonwood, and yellow poplar.

411 Northern Hardwoods

4110 Undifferentiated Northern Hardwood
4111 Sugar Maple Predominates
4112 Red Maple Predominates
4113 Elm Predominates
4114 Beech Predominates
4115 Yellow Birch Predominates
4116 Cherry Predominates
4117 Red Oak Predominates
4118 White Oak Predominates

412 Central Hardwoods / Oak

4120 Undifferentiated Oak / Hickory
4121 Red Oak Predominates
4122 White Oak Predominates
4123 Black Oak Predominates

413 Aspen-Birch

4130 Undifferentiated Aspen-Birch
4131 Trembling Aspen Predominates
4132 Bigtooth Aspen Predominates
4133 White Birch Predominates

414 Lowland hardwoods

4140 Undifferentiated Lowland Hardwood
4141 Ash Predominates
4142 Elm Predominates
4143 Soft Maple Predominates
4144 Cottonwood Predominates
4145 Balm-of-Gilead Predominates
4146 Aspen Predominates

42 Coniferous Forest

Coniferous forests include all forested areas in which the trees are predominantly those with needle foliage. In Michigan these would include species such as pine, spruce, balsam, larch, hemlock, and cedar.
### Michigan Land Cover / Use Classification System

#### 421 Pine

- **4210** Undifferentiated Pine
- **4211** White Pine Predominates
- **4212** Red Pine Predominates
- **4213** Jack Pine Predominates
- **4214** Scotch Pine Predominates

#### 422 Other Upland Conifer (Spruce-Fir)

- **4220** Undifferentiated Upland Conifer
- **4221** White Spruce
- **4222** Balsam Fir
- **4226** Hemlock

#### 423 Lowland Conifers

- **4230** Undifferentiated Lowland Conifers
- **4231** Cedar Predominates
- **4232** Black Spruce Predominates
- **4233** Tamarack Predominates
- **4234** Balsam Fir-White Spruce Association Predominates
- **4235** Balsam Fir Predominates
- **4236** Jack Pine Predominates

#### 423 Managed Christmas Tree Plantation

#### 43 Mixed Conifer-Broadleaved Forest

Mixed forests are forest lands in which broadleaved and coniferous trees occur together, with neither predominating (make up 75% or more of the stocking).

#### 431 Upland Hardwoods and Pine Associations

- **4311** Sugar Maple Predominates
- **4312** Red Maple Predominates
- **4313** Elm Predominates
- **4314** Beech Predominates
- **4315** Yellow Birch Predominates
- **4316** Cherry Predominates
- **4317** Red Oak Predominates
- **4318** White Oak Predominates
- **4319** Undifferentiated Broadleaved or Deciduous Forest

#### 432 Aspen-Birch with Conifer Associations

- **4321** Trembling Aspen Predominates
- **4322** Bigtooth Aspen Predominates
- **4323** Balm-of-Gilead Predominates
- **4324** White Birch Predominates
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>433</td>
<td>Lowland Hardwoods with Cedar, Spruce, Tamarack, etc., Associations</td>
</tr>
<tr>
<td>4331</td>
<td>Ash Predominates</td>
</tr>
<tr>
<td>4332</td>
<td>Elm Predominates</td>
</tr>
<tr>
<td>4333</td>
<td>Red Maple Predominates</td>
</tr>
<tr>
<td>4339</td>
<td>Other Lowland Hardwoods</td>
</tr>
<tr>
<td>434</td>
<td>Upland Conifers with Maple, Elm, Ash, Aspen and Birch, etc., Associations</td>
</tr>
<tr>
<td>4341</td>
<td>White Pine Predominates</td>
</tr>
<tr>
<td>4342</td>
<td>Red Pine Predominates</td>
</tr>
<tr>
<td>4343</td>
<td>Jack Pine Predominates</td>
</tr>
<tr>
<td>4349</td>
<td>Other</td>
</tr>
<tr>
<td>435</td>
<td>Lowland Conifers with Maple, Elm, Ash, Aspen, Birch, etc., Associations</td>
</tr>
<tr>
<td>4351</td>
<td>Cedar Predominates</td>
</tr>
<tr>
<td>4352</td>
<td>Black Spruce Predominates</td>
</tr>
<tr>
<td>4353</td>
<td>Tamarack Predominates</td>
</tr>
<tr>
<td>4354</td>
<td>Spruce – Balsam – Birch Association</td>
</tr>
<tr>
<td>4355</td>
<td>Balsam Fir Predominates</td>
</tr>
<tr>
<td>4356</td>
<td>White Spruce Predominates</td>
</tr>
<tr>
<td>4359</td>
<td>Other</td>
</tr>
</tbody>
</table>

44 Clearcut Forest

Clearcut forest are those areas which have been clearcut harvested. These areas from which trees have been removed to less than 16.7 percent stocking, but which have not been developed for other uses, are included in the forest land category. This classification roughly corresponds to the zero category (nonstocked) of the fifth level in those counties with a detailed forest inventory component.

DEFINITIONS FOR WATER

5 WATER

The water category includes all areas which are predominantly or persistently water covered. Water bodies that are vegetated are placed in the Wetland category [6] under forested or nonforested wetlands. Sewage treatment or water supply facilities are a basic part of the urban pattern and should be included in the Urban category [1] even where the unit is large enough to be separately identified.
### 51 Streams & Waterways

This category includes rivers, streams, creeks, canals, drains, and other linear bodies of water. Intermittent streams which flow in wet seasons but are dry during dry seasons should be classified as streams if they are water covered the majority of the time. Ephemeral streams which carry surface runoff during and immediately after periods of precipitation or snow melt should not be classified as streams. These areas generally have no permanent or well-defined channels but follow slight depressions in the natural contour of the ground surface. Where the water course is interrupted by a control structure which creates an impoundment, the impounded area should be classified as a reservoir. The boundary between streams and lakes, or reservoirs is the straight line across the mouth of the stream. The St. Mary's, St. Clair, and Detroit Rivers, are classified as Great lakes connecting waterways.

#### 511 Small Streams and Rivers

Small streams and rivers are linear waterways less than 15 feet wide.

#### 512 Medium Streams and Rivers

Medium streams and rivers are linear waterways between 15 and 50 feet wide. Occasional constrictions of streams and rivers to less than 15 feet may be included to preserve continuity.

#### 513 Large Streams and Rivers

Large streams and rivers are linear waterways 50 feet or larger in width. Occasional constrictions of waterways to less than 50 feet may be included to preserve continuity.

### 52 LAKES

Lakes are non-linear water bodies, excluding reservoirs. A water body should be classified as a lake if a structure has been installed primarily to regulate or stabilize lake levels without significantly increasing the water area. The delineation of a lake will be based on the areal extent of water at the time the data is collected. Islands within lakes which are too small to delineate will be included in the water area.

#### 521 Ponds

Ponds are lakes whose areal extent does not exceed 4.9 acres at the time the data is collected.
<table>
<thead>
<tr>
<th>522</th>
<th>Small Lakes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small lakes in this category are those lakes ranging from 5 to 9.9 acres in areal extent at the time data is collected.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>523</th>
<th>Small Lakes +</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small lakes in this category are those lakes ranging from 10 to 24.9 acres in areal extent at the time data is collected.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>524</th>
<th>Medium Lakes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium lakes in this category are those lakes ranging from 25 to 99.9 acres in areal extent at the time data is collected.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>525</th>
<th>Medium Lakes +</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium lakes in this category are those lakes ranging from 100 to 249.9 acres in areal extent at the time data is collected.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>526</th>
<th>Large Lakes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large lakes in this category are those lakes ranging from 250 to 999.9 acres in areal extent at the time data is collected.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>527</th>
<th>Large Lakes +</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large lakes in this category are those lakes ranging from 1,000 to 2,499.9 acres in areal extent at the time data is collected.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>528</th>
<th>Very Large Lakes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very large lakes in this category are those lakes ranging from 2,500 to 9,999.9 acres in areal extent at the time data is collected.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>529</th>
<th>Very Large Lakes +</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very large lakes in this category are those lakes ranging from 10,000 + acres in areal extent at the time data is collected.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>53</th>
<th>Reservoirs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoirs are artificial impoundments of water, whether for irrigation, flood control, municipal water supply, hydroelectric power, or recreation. The reservoir category should not include lakes which have had control structures built</td>
<td></td>
</tr>
</tbody>
</table>
to stabilize lake levels without significantly increasing the water area. Reservoirs can usually be identified by the presence of dams, levels, or other water control structures.

531  Ponds

Ponds are reservoirs whose areal extent does not exceed 4.9 acres at the time the data is collected.

532  Small Reservoirs

Small reservoirs are those reservoirs from 5 to 9.9 acres in areal extent at the time the data is collected.

533  Small Reservoirs +

Small reservoirs are those reservoirs ranging from 10 to 24.9 acres in areal extent at the time the data is collected.

534  Medium Reservoirs

Medium reservoirs are those reservoirs ranging from 25 to 99.9 acres in areal extent at the time the data is collected.

535  Medium Reservoirs +

Medium reservoirs are those reservoirs ranging from 100 to 249.9 acres in areal extent at the time the date is collected.

536  Large Reservoirs

Large reservoirs are those reservoirs ranging from 250 to 999.9 acres in areal extent at the time the data is collected.

537  Large Reservoirs +

Large reservoirs are those reservoirs ranging from 1,000 to 2,499.9 acres in areal extent at the time the data is collected.

538  Very Large Reservoirs

Very large reservoirs are those reservoirs ranging from 2,500 to 9,999.9 acres in areal extent at the time the data is collected.

539  Very Large Reservoirs +

Very large reservoirs are those reservoirs ranging from 10,000 + acres in areal extent at the time the data is collected.
54 Great Lakes

The Great Lakes are the waters of Lake Superior, Lake Michigan, Lake Huron, Lake St. Clair and Lake Erie. Connecting waterways are the St. Clair, St. Mary’s, and Detroit Rivers. Bays and estuaries of these lakes and waterways should be included under this heading.

DEFINITIONS FOR WETLANDS

6 WETLANDS

Wetlands are those areas where the water table is at, near, or above the land surface for a significant part of most years. The hydrologic regime is such that aquatic or hydrophytic vegetation usually is established, although alluvial and tidal flats can be nonvegetated. Wetlands are frequently associated with topographic lows. Examples of wetlands include marshes, mudflats, wooded swamps, and floating vegetation situated on the shallow margins of bays, lakes, rivers, ponds, streams, and man-made impoundments such as reservoirs. They include wet meadows or perched bogs and seasonally wet or flooded basins or potholes with no surface water outflow. Shallow water areas with submerged aquatic vegetation are classed as Water and are not included in the Wetland category.

Wetland areas drained for any purpose belong to other land use categories, whether it be Agricultural Land, Grass and Shrub Land, Forest land, or Urban and Built-up Land. When the drainage is discontinued and such use ceases, classification reverts to Wetland after characteristic vegetation is reestablished. Wetlands managed for wildlife purposes may show short term changes in vegetative type and wetness condition as different management practices are used, but are properly classified Wetland.

Two separate boundaries are important with respect to wetland discrimination: the upper wetland boundary above which practically any category of land cover may exist, and the boundary between wetland and open water beyond which the appropriate Water category should be employed.

61 Forested (Wooded) Wetlands

Forested wetland includes seasonally flooded bottomland hardwoods, shrub swamps, and wooded swamps including those around bogs. Wooded swamps and floodplains contain primarily oaks, red maple, elm, ash, alder, and willow. Bogs typically contain larch, black spruce, and heath shrubs. Shrub swamp vegetation includes alder, willow, and buttonbush.
[611] Wooded Wetland
  [6111] lowland Hardwoods (423)
  [6112] Lowland Conifers (423)
  [6113] Mixed Forested Wetlands (432, 433, or 435)

612 Shrub Swamps

This class applies to wetlands dominated by shrubs where the soil surface is seasonally or permanently flooded with as much as 12 inches of water. Characteristic emergent plants providing cover beneath the shrubs are the sedge and sensitive fern. Meadow or marsh emergents occupy open areas. Willow-buttonbush associations under 6115 are those aquatic shrub swamps with greater than 50 percent shrub cover and average water depth of less than 6 inches.

  6121 Alder Predominates
  6122 Dogwood, Viburnum and Willow Associations
  6123 Sweetgale-Bogbich Associations
  6124 Leatherleaf Predominates
  6125 Willow-Buttonbush Associations (greater than 50% cover – less than 6 inches water)
  6126 Willow-Buttonbush Associations (less than 50% cover – more than 6 inches water)
  6127 Water Willow Predominates
  6128 Standing Dead Trees, Shrubs, and Stumps
  6129 Other

62 Non-Forested (Non-Wooded) Wetlands

Nonforested wetlands are dominated by wetland herbaceous vegetation. These wetlands include inland nontidal fresh marshes, freshwater meadows, wet prairies, and open bogs. The following are examples of vegetation associated with nonforested wetland. Narrow-leaved emergents such as cordgrass and rush are dominant in coastal marshes. Both narrow-leave emergents such as cattail, bulrush, sedges, and other grasses and broad-leaved emergents such as water lily, pickerelweed, arrow arum, and arrowhead, are typical of fresh water locations. Mosses and sedges grow in wet meadows and bogs.

621 Aquatic Bed Wetland

  6211 Floating Bed Wetland
    62111 Great Lakes
  6212 Submerged Aquatic Bed
    62121 Great Lakes

622 Emergent Wetland
DEFINITIONS FOR BARREN LANDS

7 BARREN

Barren land (non-vegetated) is land of limited ability to support life and little or no vegetation. Land temporarily barren owing to man's activities is included in one of the other land use categories. Agricultural land temporarily without vegetation because of tillage practices is still classified as agricultural land. Sites for urban development stripped of cover before construction begins should be classified as urban and built-up (196 Under Construction). Areas of extractive and industrial land have waste and tailings dumps and exhausted sources of material supply are often evident.

72 Beaches & Riverbanks

Beaches are the sloping accumulations of sand and gravel along shorelines. The beach category is not used if there is vegetative cover or another land use.

721 Sand Beach

Aggregate smaller than 2 mm. In diameter along a shoreline area.

722 Gravel Beach

Aggregate larger than 2 mm. In diameter along a shoreline area, varying from fine gravel to cobbles.

723 Riverbanks

Areas of exposed sand created by erosion along streambanks.

729 Other

73 Sand Dunes / Exposed Bluff

Sand other than beaches is composed primarily of dunes and accumulations of sand of aeolian origin.
<table>
<thead>
<tr>
<th>731</th>
<th>Sand Dunes</th>
</tr>
</thead>
<tbody>
<tr>
<td>A hill, mound or ridge of wind-blown sand in a primarily unvegetated condition.</td>
<td></td>
</tr>
</tbody>
</table>

| 739 | Other |

### 74 Bare Exposed Rock

The bare exposed rock category includes areas of bedrock exposure, scarps, talus, slides, volcanic material, and other accumulations of rock without vegetative cover.

<table>
<thead>
<tr>
<th>741</th>
<th>Rock Knobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rock formations resembling miniature mountains which are randomly exposed along the earth’s surface.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>742</th>
<th>Escarpments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A steep to perpendicular rock cliff along the side of a ridge or mountain.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>743</th>
<th>Shoreline Rock Outcrop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Areas of shoreline consisting of exposed bedrock at the surface of the earth.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>744</th>
<th>Riverbank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Areas of exposed rock created by erosion along streambanks.</td>
<td></td>
</tr>
</tbody>
</table>

| 749 | Other |

### 75 Transitional Areas

Includes barren lands which are in transition from one land use activity to another (areas of construction within the urban environment should be mapped as 196 Under Construction / Construction Sites). These areas typically lack any evidence of future land use and include forest land clearing, areas altered by filling, and other areas stripped of their vegetative cover.