

# **MICHIGAN LAND COVER / USE CLASSIFICATION SYSTEM - 2000**

November 2001

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 state-wide standard, and supports its use in updating land cover/use maps.



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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 its 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.

The following specifications are suggested for use with 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 will not be shown except as acute corners of larger types.
3. If a mapped unit meets the definitions for two, or more, land cover/use classes, the higher order (lower number) classification shall be assigned.
4. Double coding is permissible provided that the dominant class is indicated first.

DRAFT

# MICHIGAN LAND COVER / USE CLASSIFICATION SYSTEM - 2000

## 1 URBAN & BUILT UP

### 11 Residential

- 111 Multi-Family, Medium- to High-Rise
  - 1111 High Density
  - 1112 Medium Density
  - 1113 Low Density
  
- 112 Multi-Family, Low-Rise
  - 1121 Apartment
    - 11211 High Density
    - 11212 Medium Density
    - 11213 Low Density
  - 1124 Townhouse
    - 11241 High Density
    - 11242 Medium Density
    - 11243 Low Density
  
- 113 Single Family / Duplex
  - 1131 Single Family
    - 11311 High Density
    - 11312 Medium Density
    - 11313 Low Density
  - 1132 Duplex
    - 11321 High Density
    - 11322 Medium Density
    - 11323 Low Density
  - [1134] Non-Farm Residence \* (see category 291 for farmsteads)
  - 1135 Manufactured Home
  - 1136 Seasonal Dwelling
  - 1139 Other
  
- 115 Manufactured Home Park
  - 1151 High Density
  - 1152 Medium Density
  - 1153 Low Density

\*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

119 Other Residential

## 12 Commercial, Services, & Institutional

121 Primary / Central Business District (CBD)

122 Shopping Center / Malls / Retail Centers

124 Secondary / Neighborhood or 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

12429 Other services

1243 Used Auto Parts Yards (Auto salvage or junk yards)

126 Institutional

1263 Health

12631 Hospitals

126311 General, Acute

126312 General, Long-Term

126313 Psychiatric

126314 Specialty

- 126315 Osteopathic
- 126316 Allopathic
- 126317 Veterans
- 126318 Rehabilitation
- 126319 Other
- 12632 Clinics
  - 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
  - 12689 Other
- 1269 Other
- 127 Indoor Cultural, Public Assembly, and Recreation
  - 1271 Indoor Cultural
    - 12711 Libraries
    - 12712 Museums
    - 12713 Art Galleries
    - 12714 Planetariums
    - 12715 Aquariums

- 12716 Historic Buildings
- 12719 Other
- 1272 Indoor Public Assembly
  - 12721 Movie Theatres
  - 12722 Legitimate Theatres
  - 12723 Auditoriums
  - 12724 Exhibition Halls
  - 12725 Arenas and Fieldhouses
  - 12726 Multiple Purpose (two or more of the above)
  - 12729 Other
- 1273 Indoor Recreation
  - 12731 Meeting, Social, Performance, Class, Craft Rooms
  - 12732 Courts (Tennis, etc.)
  - 12733 Ice Skating Rinks
  - 12734 Bowling Alleys
  - 12735 Dance Halls
  - 12736 Gymnasiums
  - 12737 Swimming Pools
  - 12738 Multiple Purpose Recreation Centers (2 or more of above)
- 128 Office / Research Center or Park

**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)
  
- 138 Industrial Park
  
- 139 Other (miscellaneous / automotive test track)

**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
  - 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

**[15] Map Industrial Parks as 138**

**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
  - 1925 Fairgrounds
  - 1926 Amusement Parks
  - 1929 Other
  
- 193 Outdoor Recreation
  - 1931 Parks
  - 1932 Play, Games, and Athletics
    - 19321 Playlots
    - 19322 Playgrounds
    - 19323 Athletic Fields
    - 19329 Other
  - 1933 Sports Areas
    - 19331 Golf Courses
    - 19332 Miniature Golf Courses
    - 19333 Golf Driving Ranges

- 19334 Offroad Recreational Vehicle Trails,  
Tracks or Areas
- 19335 Shooting Ranges
- 19339 Other
- 1934 Other Land-Activities
  - 19341 Horseback Riding
  - 19342 Picnicking
  - 19343 Camping
  - 19344 Sledding or Toboggan Hills
  - 19345 Skiing
  - 19346 Foot Trails
  - 19347 Landscape, Scenic or Natural Wonder-viewing points
  - 19349 Other
- 1935 Water-Dependent Recreation
  - 19351 Swimming Beaches
  - 19352 Swimming Pools
  - 19353 Marinas, Yacht Basins
  - 19354 Boating Sites
  - 19354 Other
- 194 Cemeteries
- 195 Vacant
- 196 Under Construction / Construction Sites

## 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
- 232 Poultry
  - 2321 Chickens

2322 Turkeys

2329 Other

239 Other

**24 Permanent Pasture**

**(28) Inactive Land (these plant communities will be mapped under grass and shrub lands (3))**

**29 Other Agricultural Land**

291 Farmsteads

2911 Farmstead With Active Residence

2912 Farmstead Without Active Residence

292 Greenhouses and Mushroom Houses

2921 Vegetables

2922 Flowers

2923 Mushrooms

2929 Other

293 Racetracks

299 Other

### **3 GRASS and SHRUB LANDS**

#### **31 Grasses and Forbs**

- 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 Grasses
  
- 312 Lowland Grasses and Forbs
  - 3121 Reed Canary Grass Predominates
  - 3122 Clover Predominates
  - 3123 Red Top Predominates
  - 3124 Sedges Predominates
  - 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

#### **33 Pine or Oak Opening (prairie)**

- 331 Hardwood
- 332 Coniferous

## 4 FOREST LAND

### 41 Broadleaved Forest

- 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 Basswood predominates
  - 4118 White Ash 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

- 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
  - 4220 Undifferentiated Upland Conifer
  - 4221 White Spruce
  - 4222 Balsam Fir
  - 4226 Hemlock
- 423 Lowland Conifers
  - 4230 Undifferentiated Lowland Conifer
  - 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
  
- 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 predominated
  - 4359 Other

### **44 Clearcut Forest**

## **5 WATER**

### **51 Streams and Waterways**

- 511 Small Streams and Rivers
- 512 Medium Streams and Rivers
- 513 Large Steams 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

- 612 Shrub Swamps
  - 6121 Alder Predominates
  - 6122 Dogwood, Viburnum and Willow Associations
  - 6123 Sweetgale-Bogbitch 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
  
- [613] Lowland Conifers
  
- [614] Lowland Hardwoods
  
- [615] Mixed Forested Wetlands

### 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**

**71 Salt Flats (Not Applicable to Michigan)**

**72 Beaches and Riverbanks**

- 721 Sand Beach
- 722 Gravel Beach
- 723 Riverbanks
- 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
- 749 Other

**8 TUNDRA (Not Applicable to Michigan)**

**9 PERMANENT SNOW AND ICE (Not Applicable to Michigan)**

## 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 non-conforming 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. 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.

11242 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.

11243 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 more than 3 dwelling units per acre, but less than 6 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 students 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.

**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. They are identified by the large common parking lot, usually larger in area than the structure group itself. These are often referred to as neighborhood, community or regional shopping centers.

**124 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.

- 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
  - 12429 Other Services
  
- 1243 Used Auto Parts Yards (Auto salvage or junk yards)
  
- 126 Institutional
  - 1263 Health
    - 12631 Hospitals
      - 126311 General, Acute
      - 126312 General, Long-Term
      - 126313 Psychiatric
      - 126314 Specialty
      - 126315 Osteopathic
      - 126316 Allopathic
      - 126317 Veterans
      - 126318 Rehabilitation
      - 126319 Other
    - 12632 Clinics
      - 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
  - 12689 Other
- 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".

**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 theatres, other theatres, auditoriums, exhibition halls, arenas, field houses, and multiple purpose civic centers.

**1273 Indoor Recreation**

Includes such facilities as meeting, social, performance, class, craft rooms, courts (tennis, etc.), ice skating rinks, bowling alleys, dance halls, gymnasiums, 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 complexes, 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.

**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
- 1338 Building Board and Building Paper
- 1339 Other Primary Wood Processing

### 134 Stone, Clay, Glass (cement, brick, etc.)

This category is concerned with the manufacture of cement (dry, not ready mix), bricks, clay tiles, glass, and other types of products. These establishments are usually located near their source of raw materials, such as an open pit extractive area, and near large uses of water and stockpiles of sand or stone. A sand and gravel operation is not included with this land use.

- 1341 Flat Glass Manufacturing
- 1342 Glass and Glassware
- 1343 Cement (hydraulic)
- 1344 Structural 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)**

These firms use primary metals and reshape them for production of a final marketable item. No forging occurs, but rolling, casting, and machining will occur. An excellent example of this industry is automobile manufacturing, where frames, bodies, etc., are made from steel. This use is characterized by single story flat roofed buildings, with no major heat production occurring – except for energy production.

- 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**

Plants which create a product using secondary processed materials (nonmetal) such as furniture production which uses lumber, not logs, or printing which uses paper, not logs, for pulp.

- 1361 Food and Kindred Products
- 1362 Textile Mill Products
- 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)

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, 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 fuel storage area, 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 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 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

**[15] Map Industrial Parks as 138**

**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
- 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.

- 19321 Playlots
- 19321 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

1934 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.

19341 Horseback Riding

19342 Picnicking

19343 Camping

Campground - property under single ownership or control in which sites are offered for use by the public or members or 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).

19344 Sledding or Toboggan Hills

19345 Skiing

19346 Foot Trails

19347 Landscape, Scenic or Natural Wonder-Viewing Points

19349 Other

1935 Water-Dependent Recreation

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

19351 Swimming Pools

19352 Swimming Beaches

19353 Marinas, Yacht Basins

19354 Boating Sites

19359 Other

194 Cemeteries

195 Vacant

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 land used 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.

223 Ornamental Horticulture and Nurseries

Land used for the production of sod, flowers, ornamental shrubbery, etc., and their seeds.

2231 Sod

Land used for the production of sod which will be transplanted.

2232 Floriculture

Land used for the production of flowers for bulbs, seeds, and cut flowers.

2233 Nurseries

Land used for the production of trees, shrubs, vines, etc., which will be transplanted.

2239 Other

Land used for other kinds of ornamental horticulture.

**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, 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
- 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, and aquaculture.

**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 herbaceous rangelands (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 Racetracks**

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 shrub rangelands (for Level III use Wetlands 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
- 332 Coniferous

## **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
- 4155 Balm-of-Gilead predominates
- 4136 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.

**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

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 conifers with maple, elm, ash, aspen and birch, 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**

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.

**522 Small Lakes**

Small lakes in this category are those lakes ranging from 5 to 9.9 acres in areal extent at the time data is collected.

**523 Small Lakes**

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

**524 Medium Lakes**

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

**525 Medium Lakes**

Medium lakes in this category are those lakes ranging from 100 to 249.9 acres in areal extent at the time data is collected.

**526 Large Lakes**

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

**527 Large Lakes**

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.

**528 Very Large Lakes**

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.

**529 Very Large Lakes**

Very large lakes in this category are those lakes ranging from 10,000 + acres in areal extent at the time data is collected.

**53 Reservoirs**

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 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

#### 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-button-bush 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-Bogbirch 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

[613] Lowland Conifers

[614] Lowland Hardwoods

[615] Mixed Forested Wetlands

**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

623 Flats

[625] Open Water (refer to Water 5)

## 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

#### 71 Salt Flats (Not Applicable to Michigan)

#### 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.

##### 731 Sand Dunes

A hill, mound or ridge of wind-blown sand in a primarily unvegetated condition.

##### 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.

### **741 Rock Knobs**

Rock formations resembling miniature mountains which are randomly exposed along the earth's surface.

### **742 Escarpments**

A steep to perpendicular rock cliff along the side of a ridge or mountain.

### **743 Shoreline Rock Outcrop**

Areas of shoreline consisting of exposed bedrock at the surface of the earth.

### **744 Riverbank**

Areas of exposed rock created by erosion along streambanks.

### **749 Other**

## **8 TUNDRA (Not Applicable to Michigan)**

## **9 PERMANENT SNOW & ICE (Not Applicable to Michigan)**