

## **Chapter 4: LAND USE/LAND COVER**

### **Introduction**

The following discussion addresses changes in land use and land cover in Edwards Township. A *land use* is the type of human activity that takes place on a developed parcel such as: residential, multiple family, commercial, agricultural, industrial, or other. *Land cover* refers mostly to the type of vegetation as documented from interpretation of aerial photographs. Some land cover categories include: agriculture (active), upland forest, upland field (i.e., inactive agricultural land), open water, wetland, barren, and urban (i.e., typically residential, but also consisting of the lack of other land cover categories).

Generally speaking, *land use* characterizes human activities, while *land cover* provides a general picture of the effect of human activities on the land, along with resources and vegetation. It is recognized that sometimes there is overlap between the two when examining changes over time. When planning for the future, each land use and/or natural resource requires unique public services and special considerations. As an example: removal of trees and vegetation for a golf course or housing development will require storm water protection techniques. The cumulative effect of land use/land cover changes can be tracked and analyzed to project future needs.

### **Changes in Land Cover Between 1978 and 1999**

A breakdown of land cover by category and acreage within the Township is identified in Table 21. 1978 land cover information is from the Michigan Department of Environmental Quality's Michigan Resource Inventory System (MiRIS), and 1999 information is from a land cover study performed by Center for Remote Sensing at Michigan State University specifically for this plan. Both land cover studies relied upon the interpretation of aerial photographs. The 1978 Land Cover Map for Edwards Township on Page 4-1a, and Edwards Township, Land Cover, 1999 Map on Page 4-1b illustrate these data.

**TABLE 21  
EDWARDS TOWNSHIP  
MiRIS Land Cover**

Land Cover Type	1978		1999		Percent Change (Net Acres) 1978-1999
	Number Acres	Percent Acres	Number Acres	Percent Acres	
Urban	373.3	1.6%	805.3	3.5%	+115.7% (+432.0)
Agriculture	9,248.9	40.4%	7,734.5	33.8%	-16.4% (-1,514.4)
Forestland	9,420.1	41.3%	10,221.8	44.7%	+8.5% (+801.7)
Grass and Shrub Land	2,589.6	11.3	3,016.6	13.2%	+16.5% (+427.0)
Wetland	898.2	3.9%	672.6	2.9%	-25.1% (-225.6)
Open Water	345.8	1.5%	424.7	1.9%	+22.8% (78.9)
TOTAL	22,875.9	100%	22,875.5	100%	-1.7% (-0.4)

\*“Urban” land cover as defined by the MiRIS database includes residential development from previous land cover including upland forest, upland field, agriculture, or barren lands.

Table 21 provides interesting information for discussion as it appears that the largest increase in both the number and percent of acres over the twenty-one year time period from 1978 to 1999 is in the “Urban” category, reflecting primarily increased residential development. The Urban land cover category, however, also includes commercial services, industry, transportation, and communication infrastructure. For more information regarding Urban land use trends within the Township, refer to Table 22 below. Conversely, over 1,500 acres of farmland were converted to other uses during this period, representing a 16.4 percentage loss. Refer to Edwards Township Land Cover Change, 1978–1999 Map on page 4-2a.

<b>TABLE 22 EDWARDS TOWNSHIP Urban Classification Detail</b>				
<b>Urban Class</b>	<b>1978</b>	<b>1999</b>	<b>Change 1978-1999</b>	<b>%</b>
	No.	No.	No.	Percent
Residential	310.7	722.9	412.2	+132.7
Industrial	32.3	51.3	19.0	+58.8
Extractive	20.0	2.7	-17.3	-86.5
Commercial, Services, Institutional	0.0	5.4	5.4	+100.0
Open Land and Other	10.2	23.2	13.0	127.5
Total	373.2	805.5	432.3	115.8

Table 22 provides interesting information for discussion as it appears that the highest increase in both the number and percentage of Urban acres over the twenty-year time period from 1978 to 1999 is in the Residential subcategory. The Urban land cover category also includes a near doubling of commercial land use, and the loss of mineral extraction operations such as sand and gravel pits.

<b>TABLE 23 EDWARDS TOWNSHIP Agriculture Classification Detail</b>				
<b>Agriculture Class</b>	<b>1978</b>	<b>1999</b>	<b>Change 1978-1999</b>	<b>%</b>
	No.	No.	No.	Percent
Cropland	7,793.0	6,779.5	-1,013.5	-13.0
Orchards and Grape Vineyards	5.4	0.0	-5.4	-100.0
Pasture	1,229.7	745.8	-483.9	-39.4
Other*	220.7	209.3	-11.4	-5.2
Total	9,248.8	7,734.6	-1,514.2	-16.4

\* "Other" refers to farmsteads with and without an active residence, greenhouses and mushroom houses, and racetracks.

Table 23 represents detail regarding the overall decline in active agriculture land within Edwards Township during this period. Cropland and permanent pasture declined significantly, and the little fruit production existing in 1978 was lost by 1999.

<b>TABLE 24 EDWARDS TOWNSHIP Forestland Classification Detail</b>				
<b>Forestland Class</b>	<b>1978</b>	<b>1999</b>	<b>Change 1978-1999</b>	<b>%</b>
	No.	No.	No.	Percent
Broadleaved (Deciduous)	8,917.9	9,311.1	393.2	4.4
Conifer	502.1	792.5	290.4	57.8
Clear-cut	0.0	118.3	118.3	100.0
Total	9,420.0	10,221.9	801.9	8.5

Table 24 provides detail in the increase of each forest type, and clear-cuts during this twenty year period within Edwards Township. Evergreen or “coniferous” tree plantings more than doubled from 1978 to 1999. These increases in forested acreage are interpreted to result from the abandonment and/or planting of former agricultural or pasture land.

<b>TABLE 25 EDWARDS TOWNSHIP Grass and Shrub Land Classification Detail</b>				
<b>Grass and Shrub Land Class</b>	<b>1978</b>	<b>1999</b>	<b>Change 1978-1999</b>	<b>%</b>
	No.	No.	No.	Percent
Grasses and Forbs	1,648.6	2,095.5	446.9	27.1
Shrubs	940.9	921.1	-19.8	-2.1
Pine/Oak Opening	0.0	0.0	0.0	0.0
Total	2,589.5	3,016.6	427.1	16.5

Table 25 provides detail in an overall increase in grass lands and slight decrease in shrub lands. The increase in grass lands and slight decrease in shrub lands may be due in part to an increase animal grazing, or other open space creation. This increase may more

likely also be due to increased large-lot residential development within Edwards Township.

<b>TABLE 26 EDWARDS TOWNSHIP Open Water Classification Detail</b>				
<b>Open Water Class</b>	<b>1978</b>	<b>1999</b>	<b>Change 1978-1999</b>	<b>%</b>
	No.	No.	No.	Percent
Lakes, Streams and Waterways	345.8	424.7	78.9	22.8
Reservoirs	0.0	0.0	0.0	0.0
Total	345.8	424.7	78.9	22.8

Table 26 provides detail representing a slight increase in open water cover within the Township during this period, likely due to increased land flooding from dam or pond construction.

<b>TABLE 27 EDWARDS TOWNSHIP Wetland Classification Detail</b>				
<b>Wetland Class</b>	<b>1978</b>	<b>1999</b>	<b>Change 1978-1999</b>	<b>%</b>
	No.	No.	No.	Percent
Forested Wetlands	770.4	363.5	-406.9	-52.8
Non-forested Wetlands	127.9	36.1	-91.8	-71.8
Total	898.3	399.6	-498.7	-55.5

Table 27 provides interesting information suggesting an overall decrease in wetlands, especially forested wetlands. These losses may be due to the conversion of wetlands to open water or other land uses/covers or the 1978 over estimate of wetlands within the Township. For discussion purposes, Township planners believe that significant wetland loss has not occurred in the Township during this period.

## **Change in Land Use Between 1978 and 1999**

The following discussion refers to two maps: Edwards Township Land Use 1978 and Edwards Township Land Use 1999 provided on Pages 4-1a and 4-1b. Sources for this information are the Michigan Department of Natural Resources' MiRIS and the Center for Remote Sensing at Michigan State University. Land cover data more recent than 1978 were not available for Ogemaw County or Edwards Township from the State of Michigan, universities, regional planning entities, or the federal government. Consequently, researchers at MSU created the 1999 land use/land cover update from 1999 aerial photographs at MSU's Center for Remote Sensing. The information for 1999 was checked with aerial photographs and verified by township officials. Information for both years was then digitized for computer mapping and analysis within a geographic information system. Particular attention was given to uses that occur as a result of human impact on the landscape. The categories used for comparison purposes were residential and commercial. Refer to Edwards Township Land Cover Change, 1978–1999 Map on page 4-2a.

It is interesting to note the changes that have occurred within the twenty-one year period of 1978 to 1999. As one might expect, there were fewer residential and commercial structures in 1978. Newer structures of all kinds seemed to be clustered in three areas: 1) along most lake shores; 2) along M-30 Highway, Rau Road, Stillwagon Road, and between Wickes and Greenwood Roads; and 3) at the northwest corner of Diebold Ranch and Stillwagon Roads. Homes along lakeshores within the Township originally tended to be seasonal, but many have recently been converted to full-time residences. While the conversion of seasonal shoreline homes to permanent residences often has included the upgrading of heating systems, insulation, etc., many of these lakeside homes have not upgraded septic disposal systems since original construction.

Low-density residential uses were observed along many county roads in Edwards Township in 1999. Nearly all structures were located close to the road both east and west of M-30 Highway on Rau, Lehman, and Diebold Ranch Roads. There are scattered seasonal cottages among lakeshore homes, with most permanent lakeshore homes on and around Tee Lake, Little and Frost Lakes, Lake George, Chatman Lake, Morris Lake, Channel Lake, and the north side of Elk Lake.

Three commercial areas are documented on the 1999 map clustered north and east of the intersection of Lehman Road and M-30 Highway, northeast of Rau Road and M-30 Highway, and northeast of Rau and Green Roads. Previously existing commercial development at the intersection of Lehman Road and M-30 Highway was not documented within the 1978 land use/land cover map.

## **Summary of Findings**

In comparing the land use map from 1978 with 1999, a few patterns emerge. The tendency for increased lakeshore development is apparent, representing an increase of both seasonal and residential structures.

Low-density residential structures appear to be spreading out along many county roads in Edwards Township, with the highest residential development increases in the northern portions of the Township and along M-30 Highway. As the Township's population grows, it is expected there will be a greater demand for land for residential development along county and private roads. This trend will in turn result in additional conversion of farm, forest, and lakeshore areas.

Commercial uses, as well as single family residences, are located along M-30 Highway at the intersections of Rau and Lehman Roads, and northeast of Green and Rau Roads.

## **LAND VALUATION/PARCEL ANALYSIS**

### **Introduction**

This section looks at building permit activity, state equalized value, parcel counts, and parcel sizes in Edwards Township, as compared with neighboring townships and Ogemaw County.

### **State Equalized Value**

State Equalized Value or "SEV" is a measure of the dollar value of land. The SEV figure represents one-half fair market value at a given time. It can be used to compare the degree to which communities are developing, and for tracking land values and taxation rates as properties are improved, bought, and sold.

**TABLE 28  
EDWARDS AND SELECT OGEMAW COUNTY COMMUNITIES  
SEV TREND ANALYSIS**

	<i>State Equalized Value By Year</i>			
Entity	1990	2000	2004	
	Total SEV	Total SEV	Total SEV	1990-2004 % Change
Edwards Twp	13,863,052	39,112,060	56,813,449	+309.8%
Ogemaw Twp	12,284,234	38,906,083	51,476,471	+319.0%
West Branch Twp	49,128,500	83,871,267	128,670,963	+161.9%
Horton Twp	11,571,320	29,014,189	41,798,680	+261.2%
Ogemaw County	300,433,932	681,866,525	993,789,119	+230.8%

Source: Edwards Township Tax Assessor and Ogemaw County Equalization Department

Note: pre-2000 SEVs do not include tax exempt parcels.

Table 28 indicates that from 1990 to 2004, SEV increases for Edwards Township, as well as Ogemaw Township, exceeded 300%. Total SEVs in West Branch Township increased a dramatic 161.9% during this period, primarily due to new commercial development. SEVs for Ogemaw County as a whole grew just more 230%. Specifically, from the years 1990 to 2004, Edwards Township’s total SEV also grew by nearly 310%. It is documented that during the years 1990 to 2004, significant increase in residential, agricultural, and commercial property values occurred, as well as increased investment occurred within Edwards Township and Ogemaw County as a whole.

These trends in SEV mirror somewhat the previously described population increase, with the greatest percentage in Edwards Township being along lakeshores.

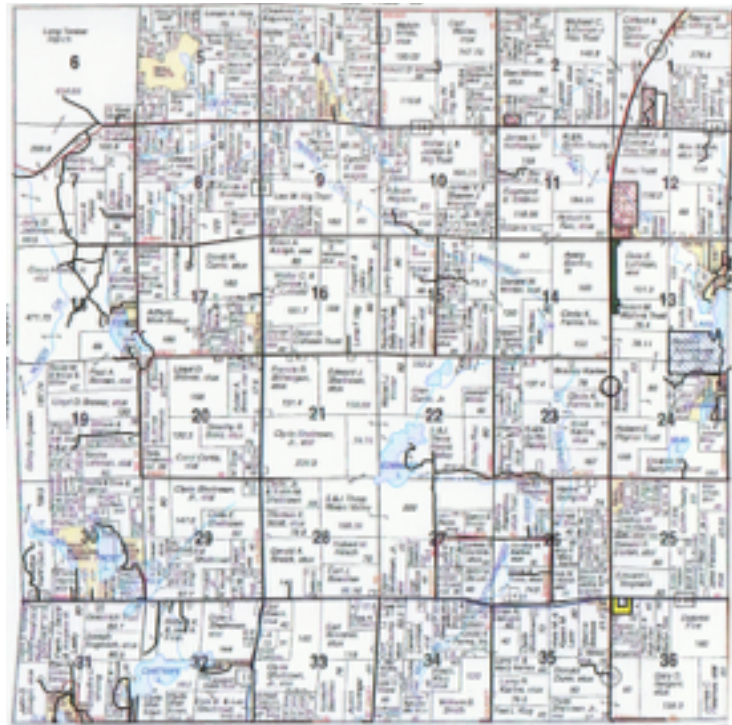
### **Parcel Counts**

“Parcelization” is a process by which large land parcels are gradually divided and/or developed into smaller parcels by lawful decisions made by landowners pursuant to land division, platting, planned unit development, or site condominium development. The comparison of existing parcels over time within townships can be dramatic and instructive regarding the trend of breaking up commonly-held parcels into small land areas and the eventual residential development of former farm and forestlands.





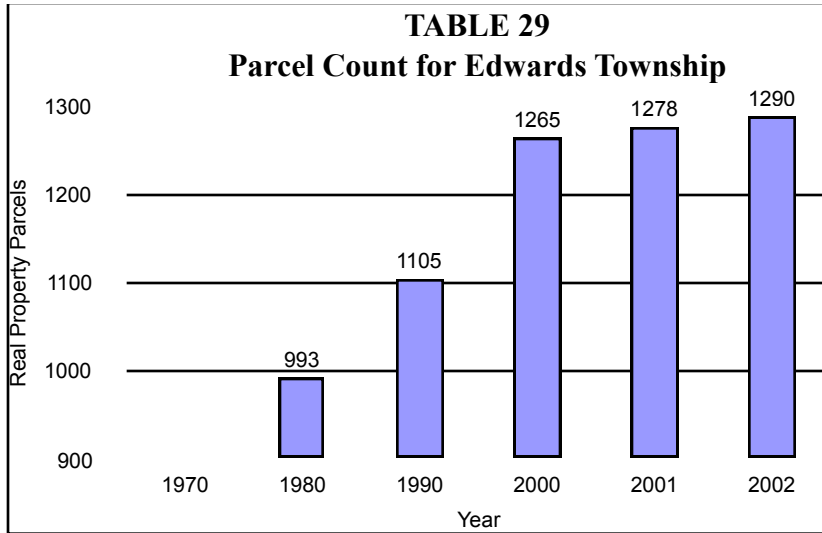
**Parcel plat map of Edwards Township, circa 1930.**



**Parcel plat map of Edwards Township, 2002.**

Table 29 indicates the change in total number of real properties, and addresses the change in the number of parcels from 1980 to 2002. The number of parcels in Edwards Township has experienced a steady increase in the number of parcels, with 993 properties in 1980,

increasing to a total of 1,280 parcels in 2002. The largest single increase in number of real parcels was 160, occurring from 1990 to 2000.



Source: Edwards Township Tax Assessor.  
Note: Personal property and exempt public property are not included above.

### Building Permit Activity

Table 30 shows the number of building permits issued between the years 1998 and 2003. Building permits are required for new construction, additions, alterations, and foundations. According to the information within Table 30, the number of building permits issued annually in the Township decreased since 1998, and have stayed relatively constant since that time. The years 2002 and 2003 both had fewer building permits issued than in 2001.

**TABLE 30**  
**EDWARDS TOWNSHIP AND OGEMAW COUNTY**  
**Building Permits Issued**

Year	Number of Permits	
	Edwards Township	Ogemaw County
1998	46	873
1999	37	900
2000	30	817
2001	37	824
2002	32	697
2003	34	799

Source: Ogemaw County Building Department.

## **Summary of Findings**

From the above analysis, it is concluded that residential development pressure is beginning to be felt within Edwards Township. Building permits, as a measure of growth, indicate that permits issued annually for new home construction, additions, or home alterations within Edwards Township have decreased slightly since 2001 and more significantly since 1998, with an average of 36 permits annually from 1998 to 2003. SEVs also indicate a significant recent rise in land values within Edwards Township and nearby townships. This trend is interpreted to be primarily due to increased residential and seasonal to permanent home development along the lake shore properties. Parcel counts and parcel sizes also support these findings by showing an increase in the creation of small parcels within the Township from the splitting and development of larger parent parcels.