# **Chapter I**

# INTRODUCTION

#### PART I – BACKGROUND AND PURPOSE

Aquatic invasive species (AIS) are non-native species that threaten the diversity or abundance of native species and the ecological stability, human health and safety, commercial, agricultural, aquaculture, or recreational activities dependent on the natural lakes and waterways. The lakes and rivers of Washington County are important natural resources enjoyed by the public for recreation and natural beauty. Waterbodies within Washington County also have a significant impact on the local economy and should be afforded protection from infestation of aquatic invasive species.



The lakes and rivers of Washington County are important natural resources enjoyed by the public for recreation and natural beauty.

In August 2010, Washington County received an Aquatic Invasive Species Control Grant through the Wisconsin Department of Natural Resources (WDNR). As a requirement, Washington County developed the *Washington County Aquatic Invasive Strategic Plan*. This strategic plan includes an overview of Washington County waterbodies, describes how AIS can be detrimental to aquatic ecosystems, and pin points where AIS have been identified in the County. This plan also recommends goals and strategies for combating AIS and engaging in AIS education and outreach as well as identifying entities responsible for plan implementation. Through the grant's funding, Washington County also employs an AIS Coordinator which is further described in Part III of this chapter.

Aquatic invasive species are addressed in various plans already adopted by the Washington County Board of Supervisors. Invasive species education, identification and management objectives are outlined in the *Washington County Land & Water Resource Management Plan (LWRMP)*. The following are specific high priority objectives recommended in the LWRMP.

- 1) Preserve and restore stream corridor, lake shoreland, wetland and floodplain areas.
- 2) Protect and maintain woodlands, environmental corridors, exceptional water resources, unique geological areas resulting in the protection of threatened and endangered species.
- 3) Increase the use of conservation-minded development practices.
- 4) Promote uniform adoption of wetland regulations.
- 5) Reduce overland water flow and increase infiltration from developed land.
- 6) Promote identification, control and management of invasive plant and animal species.

<sup>&</sup>lt;sup>1</sup> Grant funding was awarded through the NR198 grant program and is further described later in this chapter.

Controlling and reducing the spread of invasive species is an objective of the County, as documented in *A Multi-jurisdictional Comprehensive Plan for Washington County: 2035* (Washington County Planning & Parks Department and SEWRPC 2008). The plan promotes development and implementation of programs that provide for invasive species education and outreach through partnerships with nonprofit organizations and government agencies. Activities to preserve natural areas and critical species habitat sites are recommended in the *Park and Open Space Plan for Washington County* (3<sup>rd</sup> Edition) (SEWRPC 2004).

# PART II – DESCRIPTION OF AQUATIC INVASIVE SPECIES (AIS)

In general, an invasive species is a non-native species whose introduction has or is likely to cause economic, recreational, or environmental harm to human, animal, or plant health. Invasive species threaten the diversity, abundance, and stability of native plants and animals in a particular ecosystem. In their native environments, there are typically predators, parasites, pathogens, and competitors that keep these invasive species in check and create a balance. However, when they are transported to a new environment, the natural checks are usually left behind. This gives invasive plants and animals an advantage to out-compete and displace the native species and their dominance reduces species diversity forever changing the ecosystem.

Section 23.22(1)(c) of the *Wisconsin State Statutes* defines *invasive species* as "nonindigenous species whose introduction causes or is likely to cause economic or environmental harm or harm to humans". *Aquatic invasive species*, as defined in Section 40.02(3m) of the *State Statutes*, means "any invasive species that dwells in water or wetlands".

AIS are an on-going concern throughout Wisconsin. They have been increasing at a steady rate throughout the past two decades. Aquatic Invasive Species are described by the WDNR as:

Plants, animals and pathogens that are "out of place." A species is regarded as invasive if it has been introduced by human action to a location, area, or region where it did not previously occur naturally (i.e., is not native), becomes capable of establishing a breeding population in the new location without further intervention by humans, and spreads widely throughout the new location.

Non-native plants and animals are typically introduced through carelessness or lack of knowledge. To date, most aquatic and animal-type vertebrate AIS have entered through the Great Lakes shipping canals via ballast water and have then spread to inland waters primarily through boating activity. The other main source of introduction is through dumping of live bait and aquarium species. The non-natives that can adapt and survive usually flourish and become invasive by stressing the host ecosystem causing ecological, economic, and recreational harm.

Well-coordinated training, education and outreach to the residents and visitors of Washington County's water resources are vital to controlling the spread of AIS throughout the County as well as Wisconsin. Many AIS common to the region (Eurasian Water Milfoil, Curly Leaf Pondweed, Purple Loosestrife, and Zebra Mussels) are already present in Washington County lakes. The challenge is keeping non-infested lakes clean of AIS and preventing new AIS from entering lakes and streams in Washington County.

Addressing present and future AIS concerns on a local and county level is very important, as well as

staying informed on issues at the state and federal level. Due to the influx of AIS and the variety of ways AIS can be spread, County residents need to be aware of these species and potential vectors and how they can be managed. This plan will focus on how AIS can be controlled at a County level and at local government levels along with efforts from lake protection and rehabilitation districts as well as related non-profit conservation organizations. AIS are more specifically described in Chapter II of this plan.

# **Summary of Wisconsin State Statutes Regarding AIS**

# NR40 - Invasive Species Identification, Classification and Control

In an effort to continue to minimize the spread of invasive species into or around the State, the WDNR created Wisconsin Invasive Species Identification, Classification and Control Rule, Chapter NR40, of the Wisconsin Administrative Code which went into effect on September 1, 2009. The purpose of Chapter NR 40 is to identify, classify and control invasive species in Wisconsin. Using specific criteria, the WDNR, stakeholder groups and the Wisconsin Council on Invasive Species considered many different (but not all) invasive species and classified them into two categories; prohibited species or restricted species.

Non-native species that are not currently found in Wisconsin, or found in very limited populations, but are likely to survive and were determined to have the potential to cause significant damage if they were allowed to become established, were placed in the prohibited category. Except under one of the specific exceptions, it is illegal to transport, import, possess, transfer, sell, and introduce any species that are in the prohibited category.

The second category is restricted. These non-native species are also very detrimental but were found to be too widespread in Wisconsin to realistically expect to eradicate or contain them. The goal for these species is to slow their spread. Like the prohibited category, it is illegal for people to transport, import, transfer, sell and introduce species on the restricted category. With the exception of fish and crayfish, it is not illegal to possess restricted species but landowners are encouraged to try to control the species.

In order to prevent boaters from moving aquatic invasive species from one waterbody to another, NR 40 also includes preventive measures that complement existing state statutes. For example, when any vehicle, boat, boat trailer, boating or fishing equipment or any equipment or gear of any type is removed from any inland or outlying water, all attached aquatic plants and animals must be removed immediately, before leaving the launch or parking site. In addition, all water must be immediately drained from any vehicle, equipment or gear, including water in any motor, tank or other container before leaving any boat launch area or associated parking area. NR 40.07(4) states that it is illegal to launch or place a vehicle, boat, boat trailer, equipment or gear of any type or land a sea plane in any water of the state, or take off a seaplane or transport on a public highway a vehicle, boat, boat trailer, equipment or gear of any type if there is an aquatic plant or animal attached.

For more information about the species on both the prohibited and restricted list, see the WDNR website at <a href="http://dnr.wi.gov/topic/Invasives/classification.html">http://dnr.wi.gov/topic/Invasives/classification.html</a>.

### NR198 – Aquatic Invasive Species Prevention and Control Grants

NR 198 Aquatic Invasive Species (AIS) Control Grants were designed to implement *Wisconsin State Statutes* Chapter 23.22 Invasive Species, sub (2)(c) which directs the WDNR to establish procedures to award cost-sharing grants to public and private entities for up to 75 percent of the costs of projects to

control invasive species. The budget for this grant program is about \$4 million per year. These funds are available to control aquatic invasive species. The grant projects are broken down into three major categories:

- 1) Education, Prevention and Planning
- 2) Early Detection and Response
- 3) Controlling Established Infestations

AIS grants can assist local efforts in providing the following:

- Information and education on the types of existing and potential aquatic invasive species in Wisconsin
- Information on the threats they pose for the State's aquatic resources
- Information on the techniques available for their control
- Planning and conducting projects that will prevent the introduction of aquatic invasive species into waters where they currently are not present
- Controlling and reducing the risk of spread from waters where they are present
- Restoring native aquatic communities

# PART III – AQUATIC INVASIVE SPECIES STRATEGIC PLANNING PROCESS

## **AIS Advisory Committee**

As part of the AIS Strategic Plan process, an Advisory Committee (AC) was established to guide the preparation of the AIS Strategic Plan. The AC reviewed the plan chapters and identified recommendations for plan goals, objectives, and actions. Development of the plan included six AC meetings which started in May 2012. On December 3, 2012, the AC recommended the plan to the Washington County



An Advisory Committee was established to guide the preparation of the AIS Strategic Plan.

Land Conservation Committee (LCC) for consideration. The AC is comprised of members from lake protection and rehabilitation districts and lakeowners associations throughout Washington County. A list of AC members is provided on Page ii of this plan.

#### **Report Format**

This planning report consists of five chapters. Following this introductory chapter, Chapter II presents inventory data on Washington County Lakes and where AIS have been identified as present or as a potential threat. Chapter III provides an overview of public outreach efforts intended to enhance the awareness and education of AIS in Washington County as well as gather comments and concerns to guide the recommendations of this plan. Chapter IV recommends goals, objectives, policies and specific actions to combat AIS and provide education and outreach about AIS. Chapter V explains how this plan will be implemented and describes various AIS management measures and techniques.

#### **AIS Coordinator**

As part of the AIS Control Grant, the Washington County Planning and Parks Department hired a three quarter-time County AIS Coordinator. The purpose of the position is to increase citizen awareness and to keep the WDNR abreast of AIS specific to Washington County. The AIS Coordinator organizes and

implements AIS activities throughout the County. This involves working with lake associations to coordinate efforts to control AIS and provide a rapid response plan against invasive species. The position also serves as the coordinator for Clean Boats, Clean Water (CBCW) watercraft inspection activities. This involves planning and executing training workshops, properly equipping boat landings with educational information and a means of AIS disposal, and keeping a presence at the landings through volunteer efforts. The AIS Coordinator maps lakes and wetlands where AIS exists, provides controlling and treatment strategies, and serves as an educator and primary contact concerning AIS throughout the County.

The AIS Coordinator oversees a three-year project that includes:

- 1) Holding a minimum of 15 workshops and/or trainings (5 to 10 each year) to provide educational programming to lake groups regarding aquatic plant management plans and exotic species;
- 2) Coordinating and training local volunteers using clean boats/clean waters watercraft inspection program protocol;
- 3) Conducting a minimum of 600 hours of watercraft inspection (200 hours/year);
- 4) Developing countywide known location maps (GIS based) for various invasive species;
- 5) Providing outreach material and contacts to industry groups such as the bait and garden nursery industries (a minimum of 10 per year);



The AIS Coordinator is responsible for conducting educational workshops and training sessions to inform the public about AIS management.

- 6) Conducting a minimum of three (one per year) point intercept plant surveys on lakes that lack previous plant survey data and producing aquatic plant management plans for Green Lake and Druid Lake;
- 7) Serving as a coordinator for purple loosestrife biocontrol (beetles) and recruit volunteers;
- 8) Working with the Planning and Parks Department Planning Division in the development of this countywide AIS strategic plan;
- 9) Answering citizen inquiries regarding invasive species; and
- 10) Responding to reports of new AIS occurrences and partner with the WDNR to develop a containment or eradication strategy where appropriate.

#### Accomplishments

During the first year of the AIS Control Grant, the Aquatic Invasive Species Coordinator accomplished a significant amount of AIS outreach and education including:

- Conducting 20 educational workshops and presentations
- Establishing 23 industry contacts to discuss the selling of invasive species
- Distributing AIS educational packets to all new riparian landowners within ½ mile of lakes
- Distributing AIS materials to various fisheries and at outdoor youth events and sport shows
- Organizing biocontrol efforts that included working with high school students and lake groups to
  release 14,000 beetles that feed on the leaves of purple loosestrife and lay their eggs. Once the
  eggs have hatched, the larvae feed on the leaves and stems, thus reducing the impact of purple

loosestrife on native wetland plants.

- Committing 200 hours to education and watercraft inspection at boat landings throughout the County as part of the Clean Boats, Clean Waters program. This effort resulted in 547 boat owners being educated on AIS prevention.
- Updating and installing AIS educational materials at various lake boat launches and access points
- Conducting early detection monitoring on Pike, Green and Friess Lakes
- Developing an Early Detection and Rapid Response Plan for Washington County<sup>2</sup>

### PART IV – CURRENT DEMOGRAPHICS AND FUTURE PROJECTIONS

Since the 1950's, Washington County has experienced a large increase in population and number of households. During this period, the County's urban areas began to grow outward and also the County's lakeshores experienced a large amount of residential development. Residential establishments around the County's waterbodies transitioned from weekend retreats to permanent residents. The following section provides detailed information describing this period of change.

### **Population**

The area that is now the Southeastern Wisconsin Region<sup>3</sup> was first included in the Federal census in 1850. In that year, the Region had a resident population of about 113,400 persons, or about 37 percent of the total population of the State. By 2010, the year of the most recent decennial census, the Region population was 2,019,970 persons, comprising about 36 percent of the total population of the State. Historic population levels within Washington County, the Region, and the State are provided in Table 1.

HISTORIC RESIDENT POPULATION LEVELS IN WASHINGTON COUNTY, SOUTHEASTERN WISCONSIN, AND THE STATE OF WISCONSIN: 1850-2010

	Washington County			Southeastern Wisconsin			Wisconsin		
			ge from ig Census	Change from Preceding Census			Change from Preceding Census		
Year	Population	Absolute	Percent	Population	Absolute	Percent	Population	Absolute	Percent
1850	19,485			113,389			305,391		
1860	23,622	4,137	21.2	190,409	77,020	67.9	775,881	470,490	154.1
1870	23,919	297	1.3	223,546	33,137	17.4	1,054,670	278,789	35.9
1880	23,442	-477	-2.0	277,119	53,573	24.0	1,315,497	260,827	24.7
1890	22,751	-691	-2.9	386,774	109,655	39.6	1,693,330	377,833	28.7
1900	23,589	838	3.7	501,808	115,034	29.7	2,069,042	375,712	22.2
1910	23,784	195	0.8	631,161	129,353	25.8	2,333,860	264,818	12.8
1920	25,713	1,929	8.1	783,681	152,520	24.2	2,632,067	298,207	12.8
1930	26,551	838	3.3	1,006,118	222,437	28.4	2,939,006	306,939	11.7
1940	28,430	1,879	7.1	1,067,699	61,581	6.1	3,137,587	198,581	6.8
1950	33,902	5,472	19.2	1,240,618	172,919	16.2	3,434,575	296,988	9.5
1960	46,119	12,217	36.0	1,573,614	332,996	26.8	3,951,777	517,202	15.1
1970	63,839	17,720	38.4	1,756,083	182,469	11.6	4,417,821	466,044	11.8
1980	84,848	21,009	32.9	1,764,796	8,713	0.5	4,705,642	287,821	6.5
1990	95,328	10,480	12.4	1,810,364	45,568	2.6	4,891,769	186,127	4.0
2000	117,496	22,168	23.3	1,931,165	120,801	6.7	5,363,675	471,906	9.6
2010	131,887	14,394	12.3	2,019,970	88,805	4.6	5,686,986	323,311	6.0

NOTE: Portions of Washington County were detached to form Ozaukee County in 1853. The 1850 population of that land area identified as Washington County in all subsequent Census years was 11,204 persons. Source: U.S. Bureau of the Census and Washington County.

<sup>2</sup> Early Detection and Rapid Response Plan is in Appendix A of this plan.

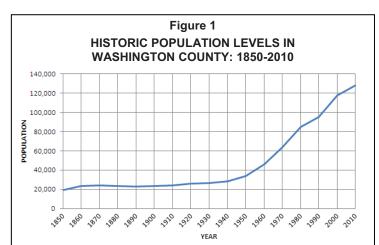
<sup>&</sup>lt;sup>3</sup> The Southeastern Wisconsin Region consists of Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington and Waukesha Counties.

Population growth in Washington County from 1850 to 2010 is graphically summarized by Figure 1. In 1850, Washington County had a resident population of about 19,500.4 The County's population remained relatively stable from 1860 through 1910 and began to increase slowly until 1940. In the 1940's, the County's population increased by about 5,000 persons, and after 1950 the population increased by 10,000 persons or more in each decade. The largest absolute increase in population in the County occurred between 1990 and 2000, when the population increased by about 22,000 persons, or about 23 percent. During this same period, the Region population grew by 7 percent, and the State population grew by 10 percent. The population of the County was 117,493 persons in 2000 and increased by 12 percent to 131,887 in 2010.5

As shown in Table 2, the City of West Bend was the most populous community in the County in 2010, with 31,078 residents, or about 24 percent of the County's population. The next most populous communities in 2010 were the Village of Germantown, the City of Hartford, and the Village of Richfield which counted for about 15 percent, 11 percent, and 9 percent of the County's population respectively.<sup>6</sup>

#### Households

In addition to total population, the number of households, or occupied housing units, is of importance in land use and public facility planning because it greatly influences the demand for residential development. The number of households within each local government in Washington County and the average number of residents per household for 2010 are included in Table 2.



NOTE: Portions of Washington County were detached to form Ozaukee County in 1853. The 1850 population of that land area identified as Washington County in all subsequent census years was 11,204 persons.

Source: U.S. Bureau of the Census and Washington County.

Table 2

POPULATION AND HOUSEHOLDS AND
AVERAGE RESIDENTS PER HOUSEHOLD FOR
WASHINGTON COUNTY COMMUNITIES: 2010

Community	Number of Residents	Number of Households	Average Residents per Household	
Town of Addison	3,495	1,311	2.7	
Town of Barton	2,637	1,033	2.6	
Town of Erin	3,747	1,405	2.7	
Town of Farmington	4,014	1,462	2.7	
Village of Germantown	19,749	7,766	2.5	
Town of Germantown	254	91	2.8	
City of Hartford	14,223	5,685	2.5	
Town of Hartford	3,609	1,383	2.6	
Village of Jackson	6,753	2,870	2.4	
Town of Jackson	4,134 1,478		2.8	
Village of Kewaskum	4,004	1,581	2.5	
Town of Kewaskum	1,053 401		2.6	
Village of Newburg	1,157	435	2.7	
Town of Polk	3,937	1,457	2.7	
Village of Richfield	11,300	4,170	2.7	
Village of Slinger	5,068	2,029	2.5	
Town of Trenton	4,732	1,721	2.7	
Town of Wayne	2,169	768	2.8	
City of West Bend	31,078	12,769	2.4	
Town of West Bend	4,774	1,790	2.7	
Washington County	131,887	51,605	2.6	

Source: U.S. Bureau of the Census and Washington County.

<sup>&</sup>lt;sup>4</sup> Washington County in 1850 included all of present-day Washington County and all of present-day Ozaukee County. Ozaukee County was formed in 1853 from portions of Washington County. The 1850 population of that portion of Washington County that was not detached to form Ozaukee County was 11,204 persons.

<sup>&</sup>lt;sup>5</sup> The 2010 U.S. Census lists a population of 131,887 for Washington County, 2,019,970 for Southeastern Wisconsin, and 5,686,986 for the State of Wisconsin.

<sup>&</sup>lt;sup>6</sup> The Town of Richfield officially incorporated into a Village on February 13, 2008.

Trends in the number of households in the County and the Region are shown on Table 3. Both the County and Region experienced significant gains in the number of new households between 1970 and 2010. Between 1970 and 2010, the rate of increase in the number of households was 197 percent in the County and 49 percent in the Region, compared to a population increase of 107 percent in the County and 15 percent in the Region. The rate of increase in the number of households has exceeded the rate of population increase in both cases. With the number of households increasing at a faster rate than the population, the number of persons per household has decreased.

Table 3

NUMBER OF HOUSEHOLDS IN WASHINGTON COUNTY AND THE SOUTHEASTERN WISCONSIN REGION: CENSUS YEARS 1970-2010

		Washington Coun	ity	Southeastern Wisconsin		
	Number of	Change from P	revious Census	Number of	Change from Previous Census	
Year	Households	Number	Percent	Households	Number	Percent
1970	17,385			536,486		
1980	26,716	9,331	53.7	627,955	91,469	17
1990	32,977	6,261	23.4	676,107	48,152	7.7
2000	43,843	10,866	33.0	749,055	72,948	10.8
2010	51,605	7,762	17.7	800,087	51,048	6.8

Source: U.S. Bureau of the Census and Washington County.

# Population and Household Projections<sup>7</sup>

## Projections Under the Regional Land Use Plan

Population and household projections for the year 2035 were prepared by the Southeastern Wisconsin Regional Planning Commission (SEWRPC) in 2004-2005. Under the Regional Land Use Plan, the projected population for Washington County in 2035 is 157,265 persons (see Table 19 in *A Multi-jurisdictional Comprehensive Plan for Washington County: 2035*). This is a projected increase of 39,769 persons, or about 34 percent, over the 2000 population level of 117,496.

Changes in the number and size of households will accompany changes in the size of the resident population. Taking the assumptions from the regional land use plan into consideration with the projected average household size of 2.45 persons per household, the projected number of households for Washington County in 2035 is 62,849. This is a projected increase of 19,006 households, or about 43 percent, over the 43,843 households in 2000.

### Projections Selected by Local Governments

Local governments in Washington County developed population and household projections for 2035 to use in local comprehensive plans that refine the systems level projections developed by SEWRPC for the Region and County. These projections form the basis used to plan for land use, housing, transportation, utilities, and other community facilities for each local comprehensive plan through the planning design year of 2035. The resultant population projection was 184,512 persons for Washington County<sup>8</sup> in 2035. This is a projected increase of 67,016 persons, or about 57 percent, over the 2000 population level of 117,496.

<sup>7</sup> See Chapter II of Washington County's comprehensive plan for details on how projections were determined.

<sup>&</sup>lt;sup>8</sup> Includes the portions of the City of Hartford and Village of Newburg that extend outside of Washington County.

Using the projected average household size (as determined by local governments) of 2.54 persons per household, the projected population projection selected by local governments would result in 74,587 households in Washington County in 2035. This is a projected increase of 30,744 households, or about 70 percent, over the 43,843 households in 2000. The final population and household projections chosen by each local government for use in preparing local comprehensive plans is set forth in Table 25 of *A Multi-jurisdictional Comprehensive Plan for Washington County: 2035*.

## Urban Growth Ring Analysis and Historical Urban Growth

SEWRPC utilizes an urban growth ring analysis and a land use inventory to inventory and monitor urban growth and development in the Region. The urban growth ring analysis delineates the outer limits of concentrations of urban development and depicts the urbanization of the Region over the past 150 years. The SEWRPC land use inventory is a more detailed inventory that places all land and water areas in the Region into one of 66 land use categories, providing a basis for analyzing specific urban and nonurban land uses. Both the urban growth ring analysis and the land use inventory for the Region have been updated to the year 2000 under the continuing regional planning program.

The urban growth ring analysis shows the historical pattern of urban settlement, growth, and development of the County since 1850 for selected points in time. Areas identified as urban under this time series analysis include portions of the County where residential structures or other buildings were constructed in relatively compact areas, thereby indicating a concentration of residential, commercial, industrial, governmental, institutional, or other urban uses. These areas must be at least five acres in size. In the case of residential uses, such areas must include at least ten homes over a maximum distance of one-half mile along a linear feature such as a street or lakeshore, or at least ten homes located in a relatively compact group within a residential subdivision. Uses such as cemeteries, airports, public parks and golf courses do not meet the criteria for urban land uses because they lack the required concentration of buildings or structures. However, these land uses are identified as urban uses if they are surrounded on at least three sides by urban land uses that do meet the above criteria.

Historical urban growth in the County between 1850 and 2000 is shown on Map 36 in *A Multi-jurisdictional Comprehensive Plan for Washington County: 2035* and Table 4. Urban growth for the years prior to 1940 was identified using a variety of sources, including the records of local historical societies, subdivision plat records, farm plat maps, U.S. Geological Survey maps, and Wisconsin Geological and Natural History Survey records. Urban growth for the years 1950, 1963, 1975, 1985, 1995, and 2000 was identified using aerial photographs.



From 1963 to 2000, a significant amount of urban growth occurred in scattered locations throughout the County.

Table 4
HISTORICAL URBAN GROWTH
IN WASHINGTON COUNTY: 1850-2000

		Urban Area <sup>a</sup>
Year	Square Miles	Average Annual Change from Previous Year (square miles)
1850	0.1	
1900	0.4	0.0
1950	5.5	0.1
1970	14.1	0.4
1990	41.1	1.4
1995	47.5	1.3
2000	52.0	0.9

<sup>&</sup>lt;sup>a</sup>Based upon the Regional Planning Commission urban growth ring analysis.

Source: SEWRPC.

Small portions of the Cities of West Bend and Hartford, and the Villages of Slinger and Newburg were developed prior to 1850. In 1900, urban development was still largely confined to the Cities of Hartford and West Bend and Villages of Newburg and Slinger with additional development in the Villages of Germantown, Jackson, and Kewaskum. The period from 1900 to 1950 saw expansion of mainly the Cities of Hartford and West Bend. The period between 1950 and 1985 saw significant growth outward from existing urban areas and the development of lakeshores around Big Cedar Lake, Little Cedar Lake, and Pike Lake. The period from 1963 to 2000 saw significant urban growth in scattered locations throughout the County, particularly in the southern portion of the County in the Village of Germantown, and the Towns of Erin and (then Town of) Richfield. Moderate development in and around the City of West Bend and the other established urban centers in the northern portion of the County also occurred during this period.