

APPROVED

ORDINANCE 2014-32

Amended by Ord 2020-21

***COMPREHENSIVE PLAN
for the
Village of Bannockburn***

All Content Current as of December 8, 2014 unless otherwise noted

Amended September 14, 2020 by Ordinance 2020-21

FINAL

**VILLAGE OF BANNOCKBURN
COMPREHENSIVE PLAN**

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CHAPTER 1

Introduction to the Village of Bannockburn

LOCATION AND DESCRIPTION

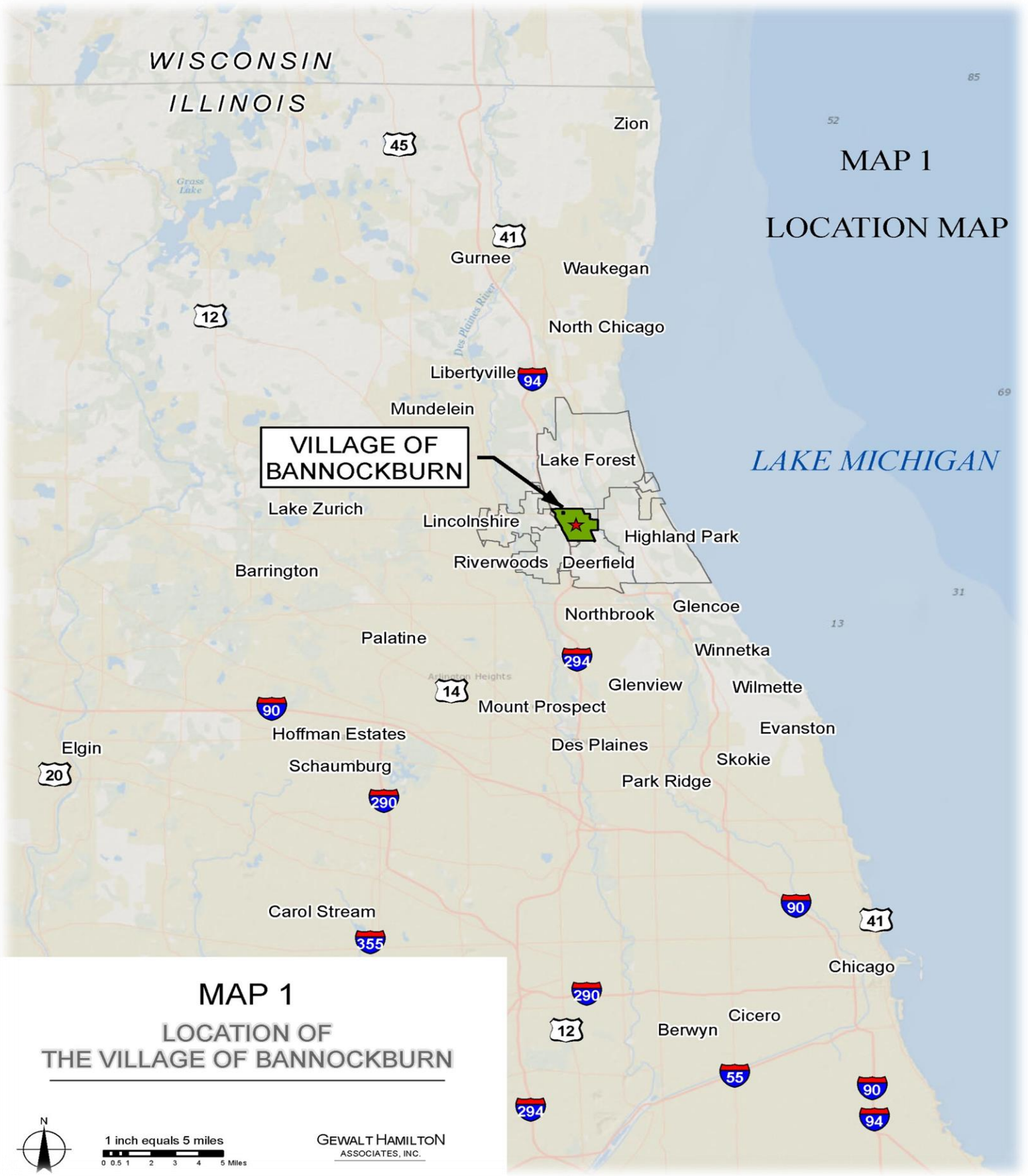
Combining the best features of country and urban living, the Village of Bannockburn is one of the most beautiful and safest communities within the greater Chicago metropolitan area. It is a hidden gem conveniently located only 26 miles from downtown Chicago and nestled next to the well-known North Shore communities of Lake Forest and Highland Park.¹

The Village is a refreshing community of “country estates,” natural landscapes and open spaces. Bannockburn has just over 250 homes, most of which sit on generous multi-acre lots, many of which are suitable for stabling horses. The Village has been able to maintain its special identity and character only through a tenacious adherence to sound land-planning principles throughout the many years that have passed since its founder, William Aitken, formulated a master plan for the community. Aitken, an architect/builder and a native of Bannockburn, Scotland, set out nearly a century ago to create a village of “country estates.” While other communities have undergone major changes in character, Bannockburn has maintained much of the unique character envisioned by its founder.

Although the ex-urban or “estate” character of the Village has been preserved, current residents enjoy top-ranked public schools, easy access to highways and rail transportation, the cultural benefits of a hometown university, and upscale shopping and dining in Bannockburn’s commercial areas. These areas are clustered away from the Village’s homes, maintaining the peaceful, quiet nature of this community that residents cherish—one in which children can walk to school and neighbors gladly pick up their neighbor’s mail while they are on vacation. At the same time, its large home sites afford the privacy and “elbow room” that is so hard to find in such a convenient close-in location. Just minutes away are larger shopping districts and highly rated eateries in Deerfield, Northbrook, Riverwoods, Lincolnshire, and Highwood, as well as Lake Forest and Highland Park.

The result of the Village’s vigorous commitment to maintaining its “country estate” character has been a community that benefits not only its own residents but also the residents of the entire region, as Bannockburn, along with a handful of other communities, supplies a rural atmosphere of natural landscapes and open space that provides a much needed contrast to the surrounding metropolitan area. The people of Bannockburn wish to maintain throughout the twenty-first century the character of their Village that their predecessors have actively preserved since the days of William Aitken. To this end, they have developed and adopted this Plan.

¹ Map 1 illustrates the location of the Village within the northeastern region of Illinois.



MAP 1
LOCATION OF
THE VILLAGE OF BANNOCKBURN

Financial Stability. Bannockburn is a financially stable community. The Village has a Standard and Poor's bond rating of AAA. The Village's financial strength is due, in part, to the following: 1) the Village controls its cost by contracting out for a majority of its services; 2) the Village has maintained a long standing policy of a one year minimum reserve; and 3) the Village upgraded many of its sanitary and storm sewers, watermains and roads during and shortly after the great recession of 2008 while construction costs were lower than usual.

Environment. Bannockburn is committed to being a pioneer in environmentally friendly practices and has found success by combining community efforts with the use of best management practices.

Since the Village received the Lake County Storm Water Management's 2009 "Community of the Year" Award, Bannockburn residents, schools, and businesses have continued to make a collective effort to improve our environment.

On May 1, 2010, the Village began a Rain Garden Public Participation Program that encourages residents to install and maintain rain gardens on their own private residential properties. Rain gardens may be eligible for a Village cash grant. For an example of an existing rain garden constructed by the Village, please see Photo 1 below.



Photo 1. Rain Garden Installed along Valley Road.

Bannockburn's Trinity International University has allowed the Village to build three rain gardens on university property. The rain gardens will reduce flooding in the surrounding area. They will also serve to filter runoff pollution, improve water quality, and create a habitat for birds and butterflies.

During July of 2010, Bannockburn School installed a closed-loop geothermal system. This technology relies primarily on the Earth's natural thermal energy to heat and cool the building without allowing carbon dioxide emissions to enter our atmosphere.

Open Space. Bannockburn's natural landscapes and open spaces are preserved due to the foresight and commitment of the residents of the Village of Bannockburn, past and present. During the period 2000-2002, the Village applied for and was granted an Open Space Lands Acquisition and Development Grant from the Illinois Department of Natural Resources to develop approximately 7 acres of property in the Village, which was dedicated as "Open Space". The Open Space includes a playground and shelter for use by Bannockburn residents. (See Photo 2).



Photo 2. Playground area in the Open Space

Pathways. Many of the Village’s upscale estate neighborhoods have equestrian trails and a pedestrian-friendly path system for walking, jogging or biking. Photo 3 below provides an example of a pedestrian-friendly path that meanders through the Village. Bannockburn features many acres of open space, park shelters and offers easy access to the Des Plaines River Bike Trail and to the nearby Green Bay Bike Trail which extends a total of 18 miles from Wilmette to Lake Bluff. Five minutes away by car are the Prairie Wolf Slough walking trail, the Lake County Forest Preserve District’s 552-acre Ryerson Conservation Area, Captain Daniel Wright Woods, and a nearby dog park.

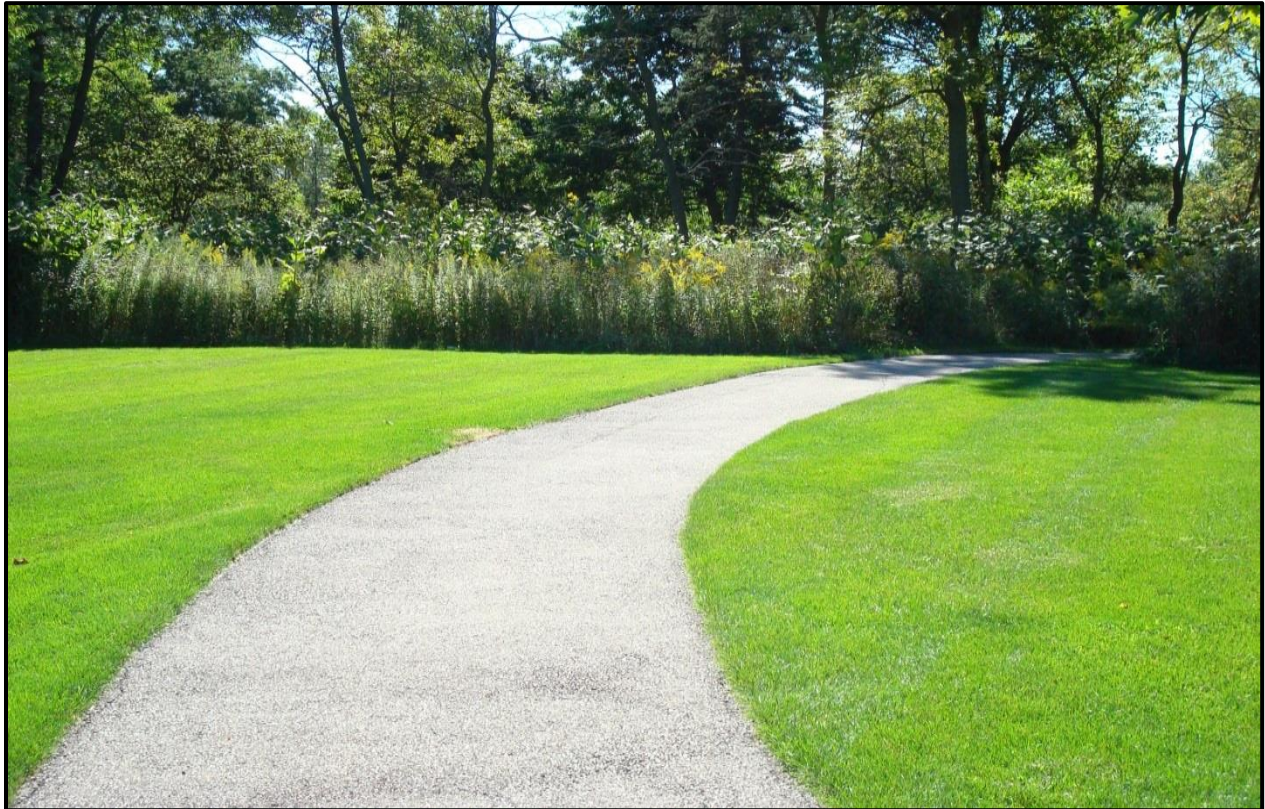


Photo 3. The Village has many meandering pathways.

Tree Preservation. The Village of Bannockburn has been recognized as a Tree City USA member by the National Arbor Day Foundation for **over twenty** years and plans to continue its tree planting ways (See Photo 4). The trees in the Village provide many social and economic benefits, often overlooked. According to the USDA Forest Service², some benefits of our trees include helping cool temperatures in the summer, improve real estate values, reduce storm water runoff, improve air quality, attract wildlife to area, attract shoppers to commercial areas, and contribute to a sense of community pride. These social and economic benefits are the reasons the Village of Bannockburn is a desirable place to live and why it has been committed to the care and maintenance of its trees.

² USDA Forest Service, Press Release No. 1029, “USDA Forest Service research helps quantify the value of trees in communities across the nation”, published 11/29/2010, accessed document on 8/27/2013 at <http://fs.fed.us/news/2010/releases/11/trees.shtml>.

To maintain the character of the Village, the Village approved revisions to its zoning ordinances to increase bufferyard regulations within the Village in 2005 and strictly adheres to these regulations, resulting in the enhanced preservation and planting of canopy trees, understory trees and shrubbery that surround and screen the edges of each property.

The Village prides itself in being dedicated to sustaining the natural beauty that trees provide us. The Village assists in the maintenance and preservation of trees on Village property. For example, to protect the Village from a potential loss of trees due to the infestation of Gypsy Moths, Emerald Ash Borer, and Dutch Elm Disease, the Village annually conducts, if needed, Gypsy Moth, Emerald Ash Borer, and Dutch Elm Disease surveys. In fact, the Village has taken further proactive steps to protect its trees by approving an Emerald Ash Borer Management Plan in order to formalize a policy to manage the impact of the infestation of Emerald Ash Borer in the Village using best management / good forestry practices.

Every year, the Village removes hazardous and diseased trees and is committed to replacing trees. The Village has inventoried the trees situated on public property and right of ways to develop a comprehensive diverse tree reforestation planting plan.



Photo 4. The Village is committed to be a Tree City USA.

Lifestyle and Commercial Areas. Conveniently located adjacent to Tri-State 294 Tollway, near I-94 Edens Expressway, and only 45 minutes from downtown Chicago, Bannockburn is a great

place to work and live. The Village is home to a variety of corporations, retailers, restaurants, health and fitness facilities, and clubs and organizations.

The commercial areas of the community are quiet and conducive to providing employees with less stressful work environments. The Village offers businesses both large and small an excellent environment in which to start and/or grow. Village staff are available to guide business owners through the process of joining this vibrant community, including obtaining a business license, occupancy permit, sign permit or any zoning approvals that may be needed. In addition, Bannockburn's tax rates are very competitive with those of the surrounding communities.

Infrastructure. The Village residents enjoy many new infrastructure systems. Approximately 70% of the lineal feet of roadway in the Village has been resurfaced or rebuilt over the last 5 years. 2 storm sewer systems, 7 water main systems and 1 new sanitary sewer system have also been improved in the Village since 2008. In 2010, the Village installed a new water meter reading system. Many of the new systems were funded partly through grants or other governmental funding vehicles.

The new infrastructure systems have improved the Village residents' quality of life and facilitated economic development.

Schools. There are two educational institutions in the Village of Bannockburn – Bannockburn School and Trinity International University. Deerfield High School is conveniently located adjacent to the Village (the school is situated on land previously in the Village's jurisdiction). These schools prepare Bannockburn children for a successful, bright future.

*Bannockburn School.*³ The Village's elementary and middle school, the Bannockburn School, is a very special top rated kindergarten through 8th grade school where the student-to-teacher ratio is 10:1. 100% of the Bannockburn School teachers have a minimum of a master's degree, some of whom have National Board Certification. There are less than 200 students at the Bannockburn School (See Photo 5).

Bannockburn School has been recognized as having top state-wide academic test scores. In fact, Bannockburn School has received the *Academic Excellence Award* from the Illinois State Board of Education for eight consecutive years of outstanding student achievement. This award goes to only the consistently (minimum 3 years) top performing schools in Illinois.

Bannockburn School has received the School Search *Bright A+ Award*, which goes to the top 5% of Illinois schools based on academic performance (Bannockburn School has received this award for several years).

Bannockburn School has also received the School Search *Bright Red Apple Award* (also for several years). This award goes to less than 10% of Illinois schools based on five "family-favored" categories including Academic Performance, Pupil/Teacher Ratio, Expenditure Per Pupil, Educational Level of Teachers and Average Teacher Salary.

³ Information provided by the Bannockburn School, May 2013.

Financially, the Bannockburn School is fiscally sound. In 2011 and 2012, the Bannockburn School Board approved a 0% increase tax levy. In fact, Bannockburn School has a Standard and Poors AAA rating and has been awarded by the Illinois State Board of Education a *Certificate of Financial Recognition*, the highest category available for "excellence in finance".



Photo 5. Bannockburn School.

*Deerfield High School.*⁴ For high school, Bannockburn children attend Deerfield High School (See Photo 6). Deerfield High School is part of Township High School District 113, which also includes Highland Park High School.

Deerfield High School is a top rated high school and is ranked 5th in the State of Illinois.⁵ It currently has more than 1600 students enrolled and approximately 240 staff members. The facility houses about 60 clubs and nearly 30 sports teams.

In 2000, Deerfield High School and its sister school Highland Park High School underwent a \$75 million renovation and expansion project. Deerfield received new science and art wings. In April, 2013, District 113 voters approved an \$89 million referendum to help finance significant facility improvements at Deerfield and Highland Park High Schools. The approval of the referendum ensures that District 113 will be able to move forward with renovations to address

⁴ Information obtained from the www.dhs/dist113.org, accessed May 2013.

⁵ www.usnews/education/best-high-schools/illinois/districts/twp-hsd-113/deerfield, accessed May 2013.

infrastructure and programmatic challenges faced by the high schools. Renovations will include everything from the upgrade of outdated mechanical systems to the expansion of Deerfield High School's library.



Photo 6. Deerfield High School.

*Trinity International University.*⁶ Trinity International University is a family of four Christian-centered schools, three of which are located within the Bannockburn boundaries. The schools include Trinity Evangelical Divinity School, Trinity College and Trinity Graduate School (See Photo 7). Trinity currently offers 31 majors and 23 prescribed minors in programs ranging from athletic training and chemistry to music and social science.

Trinity International University has 1,300 undergraduate students, 1,800 graduate and seminary students (includes 600 doctoral), 1,600 students are full-time and 1,500 students are part-time from throughout the United States and the world. The student/faculty ratio is 14:1, and the gender representation is 51% women, 49% men.

⁶ Information provided by Trinity International University and their website, <http://www.tiu.edu/about/>, accessed August 2013.

Trinity International University and Bannockburn residents enjoy a very good partnership. Trinity International University provides free Courtesy Patron library cards to Bannockburn residents to check out books, DVD's, CD Music and Video Movies.



Photo 7. Trinity International University.

ORIGINS AND CONCEPT

The first settlers to the area where Bannockburn stands today arrived in 1835 from County Meath, Ireland. Michael Meehan built a log cabin near what is now the northwest corner of Hilltop Lane and Telegraph Road and gradually acquired a total of 283 acres.

William Aitken is credited with bringing modern real estate development to the Village. He created a master plan covering 110 acres where he intended to build “country estates” for people who wanted that genteel style of living. The first Aitken homes were built in 1924 and by 1929, when application was made to incorporate the area, there were 30 families in the community – on Meadow Lane, Robin Road, Aitken Drive, Telegraph Road, Stirling Road, and Valley Road and in the Wilmot Road/Sunset Lane area. Early residents were very active in developing and shaping the community that they loved, serving as trustees on the Village Board, organizing the Bannockburn School, creating zoning ordinances that formed the basis of our current zoning codes, and organizing a garden club and numerous charitable activities.

POPULATION

Throughout most of its history, Bannockburn's population growth has been relatively slow and stable. The exception was the period from 1950 to 1970 when Bannockburn along with Highland Park and Deerfield experienced rapid development. In addition, the establishment of Trinity College (now Trinity International University) in the early 1960s added a substantial new component to the Village's population. The table below depicts Village population from 1930 through 2010.

Population in Village of Bannockburn: 1930-2010		
Year	Population	Percent Change
1930	186	--
1940	179	-3.8%
1950	249	39.1%
1960	466	87.1%
1970	1359	191.6%
1980	1316	-3.2%
1990	1388	5.5%
2000	1423	2.5%
2010	1583	11.1%
Source: U.S. Census		

The figures for 1970 and after include in the Village's population students living on campus at Trinity International University. The 2010 census indicates that the population of the Village was 1583 persons, with approximately 600 students living on campus.

An estimate of future population growth is essential to the development of a Comprehensive Plan. Future population growth is a critical factor in planning for community needs from schools and parks to streets and highways. The growth potential of a planning area should be influenced by the natural characteristics of the area as well as the capacity of the Village to supply necessary public services.

Future population growth in Bannockburn will be limited. The Village is nearly surrounded by other municipalities, and little land remains available for annexation. Less than 10% of the Village is undeveloped, and most of that area is within the Forest Preserve or falls within the floodplain of the Middlefork of the North Branch of the Chicago River. Most of the

population growth that occurs in Bannockburn will be due to the development of privately owned vacant land already within the Village or increased enrollment at Trinity International University. In the planning area, approximately 18 single-family residential dwellings could be added consistent with the established development pattern and current zoning controls, resulting in an increase of approximately 45 residents. In addition, certain portions of the Trinity International University campus property, and particularly the northeastern portion thereof, are not currently utilized for educational facilities and may offer opportunities for development of a complementary institutional use such as a senior assisted living facility, which could result in an increase of the Village's population. Even if all of this development takes place and Trinity International University reaches its projected maximum residential enrollment, the ultimate total population of the Village should still be approximately 2000 persons.

ZONING, DEVELOPMENT, AND LAND USE PLANNING

Because Bannockburn is located in the middle of a largely urbanized area, the development of the remaining vacant land within the Village appears probable during the next ten years. While the development of vacant land for residential uses consistent with the Village's existing zoning patterns and development regulations should not alter the character of the Village, there are continual threats to that zoning. The Village must be vigilant to ensure that residential development in the Village is limited to single-family development with Estate or Countryside character in the Village's residential core. Any rezoning for higher density residential development would clearly alter the character of Bannockburn. Insensitive non-residential development could also significantly alter the Village's character. If such alterations were allowed to occur, the open space character of the fields and woods of residential areas could be destroyed. Bannockburn would no longer present a rural appearance to the passerby or provide the necessary visual contrast to the surrounding suburban development. (Refer to Map 2, the Existing Zoning Map, which depicts current zoning lot designations within the Village).

For several decades, the Village has hosted institutional uses on the Trinity International University campus in Subarea Three, and those institutional uses have included ancillary student and university housing facilities. Continued and complementary institutional uses (such as senior assisted living facilities) in Subarea Three that are developed in accordance with the standards set forth in this Comprehensive Plan should ensure the Suburban character of Subarea Three and enhance the overall Estate character of the Village, even if such institutional uses include related housing facilities. In particular, any new institutional uses in Subarea Three should (a) be contiguous with and complementary to the existing institutional uses of Trinity International University (b) be incorporated into a thoughtful plan that is consistent with the existing character

⁷ The Village has preserved an approximately 17-acre site east of the Tollway and north of Duffy Road as permanent open space and floodplain. It has also worked with the Lake County Forest Preserve District on the Flood Control Site #27 project. Under an intergovernmental agreement, the Forest Preserve District retains title to the approximately 77+ acre parcel east of the Tollway and south of Duffy Road, which area is to be preserved as open space and refuge for wildlife.

character of Subarea Three, and (c) be buffered from the residential core, including by providing significant setbacks, landscaping, and green space and utilizing existing arterial transportation amenities, such as Illinois Route 22.

The Village has taken steps to avoid this result by preserving public and private open space within the Village.⁷ In 1996, the Village purchased the property located at 2255 Telegraph Road and adjacent to the Village Hall and in 1999, purchased the property located at 2245 Telegraph Road, also adjacent to the Village Hall. During the period 2000-2002, the Village applied for and was granted an Open Space Lands Acquisition and Development (“OSLAD”) Grant from the Illinois Department of Natural Resources to develop an open space recreational facility on these two parcels, to be known as the Village Center. Construction of the facility was completed in 2003.

In addition to the development of the Village Open Space, in 2001 the Village began a comprehensive program to improve the equestrian and pedestrian pathway and trail system throughout the Village. In the residential district, pathways are designed to be natural and meandering, consistent with the rural character of Bannockburn. In the commercial district, pathways are also designed to be natural and meandering except along Waukegan Road. The Waukegan Road pathway is made of concrete due to projected increased heavy foot and bike traffic.

Additional opportunities to establish public open spaces are necessarily limited, however. The Village has therefore responded to development pressures and the need for open space through its commitment to maintaining the character of Bannockburn in the context of ongoing development in the larger urban community. This commitment has been demonstrated primarily through the enforcement of its zoning regulations that implement a sound comprehensive plan.

The current residential zoning patterns in the Village are inextricably linked to the history of the Village itself. From its beginning, in 1929, the Village of Bannockburn has acted to assure sound planning, zoning, and land development within the community. Within months after its incorporation, Bannockburn's Village Board created a zoning commission to develop zoning regulations for the Village, and such regulations were adopted in 1930. That zoning ordinance was first amended in 1946, at which time the Village prohibited construction on any lot that did not meet the minimum lot size of 160,000 or 80,000 square feet (requirements for the "A" and "B" zoning districts, respectively), unless such lot had been previously recorded. This was further amended in 1960 to generally prohibit building on lots less than the minimum size regardless of when the lot was recorded. Since that time, there have been no instances of nonconforming residential lots being created in Bannockburn, or of any rezoning of lots from the Bannockburn's "A" Residence District to its "B" Residence District. In fact, the only platted subdivisions in the Village containing lots that do not meet the longstanding minimum lot requirements were both platted before the Village's zoning regulations took effect (Bannockburn Woods in 1925 and Bannockburn Park in 1927).

Today, the Village relies on its Plan Commission/Zoning Board of Appeals to administer the Village's zoning and planning regulations and its Architectural Review Commission to review and approve the architectural design and materials of proposed buildings and structures.

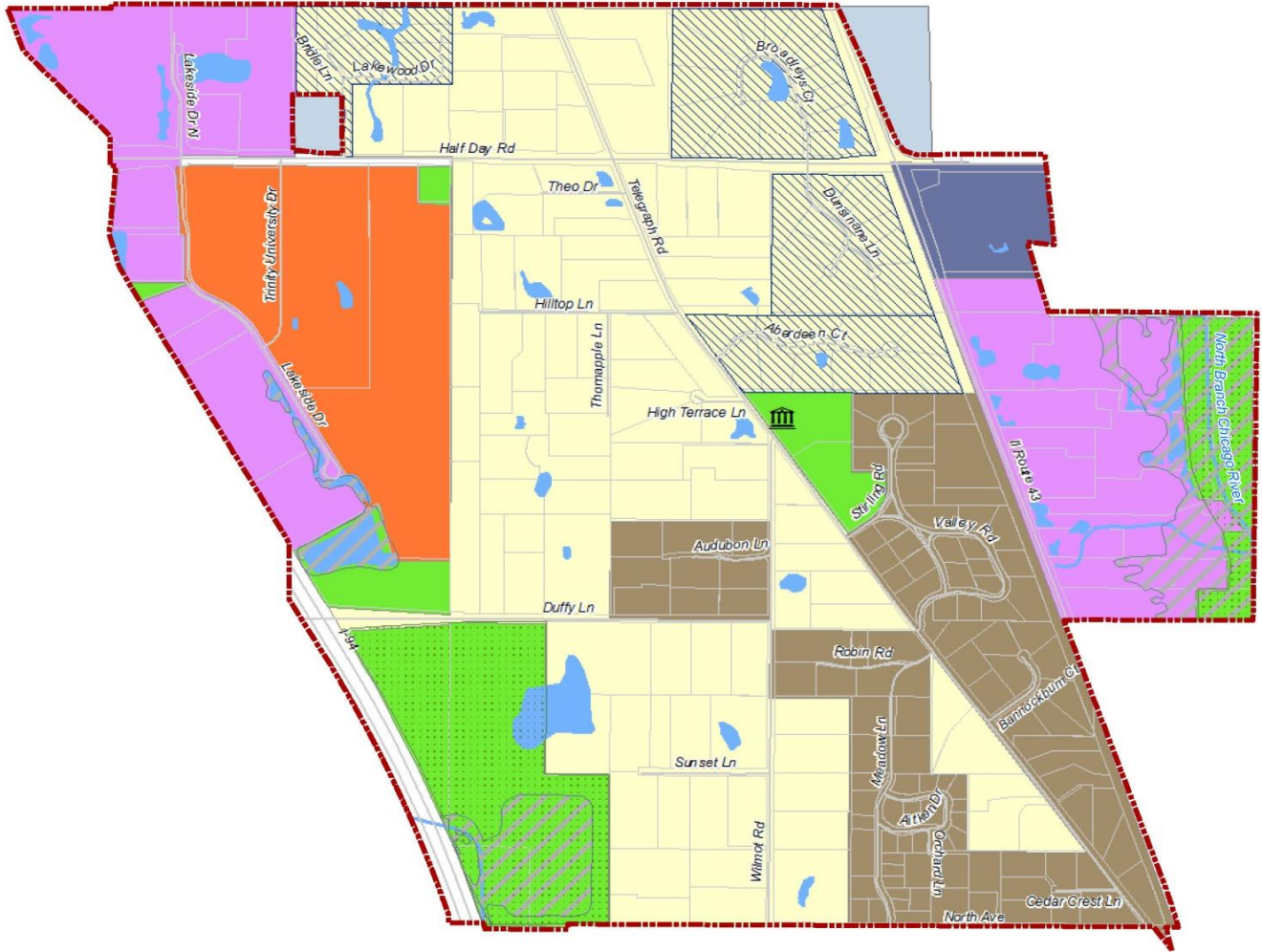
In tandem with the consistent administration and enforcement of its zoning policies, the Village has developed and rigorously followed its Comprehensive Plans to assure that Bannockburn is and continues to be the community its residents desire and expect. The Village's first official Comprehensive Plan was adopted in 1958, and was followed by the 1975 Comprehensive Plan, which was a refinement and extension of the original plan. In identifying the Village's vision of itself, the 1975 Comprehensive Plan declared that the primary goal of the Village was the "preservation of the essentially rural or exurban character of the Village." That goal was not changed and was preserved in both the 1993 and 2005 Comprehensive Plan. Following the adoption of the 1993 Comprehensive Plan, the Village adopted the 1996 Bannockburn Zoning Code, to implement the policies and goals of the Comprehensive Plans. The primary goal of the Village is the "preservation of the essentially exurban or "estate" character of the Village." That goal continues and will be preserved in this 2014 updated Comprehensive Plan.

Since the adoption of the 2005 Comprehensive Plan, there has been moderate development in and around Bannockburn, all of which has been in accordance with the 2005 Comprehensive Plan. Even land outside the Village's planning area has been developed with uses compatible with those shown in the adjoining areas of the Village. In achieving strict adherence to that Plan, the Village utilized not only its zoning regulations but also sewer service agreements, regulations of the use of its streets, and its extraterritorial jurisdiction over subdivisions. The years ahead, however, present new opportunities and new challenges to the Village.

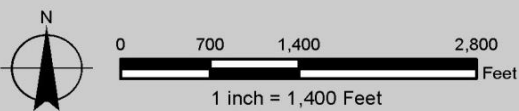
Based on the groundwork of the 2005 Comprehensive Plan, the Village has developed this updated 2014 Comprehensive Plan. Like its predecessors, this 2014 Comprehensive Plan will guide future Village efforts to continue its tradition of sound and appropriate planning, zoning, and development for decades to come. In addition, this 2014 Comprehensive Plan re-emphasizes the Village's traditional planning goals to ensure that they are understood by its residents, by landowners and developers, by Lake County, which still exercises zoning control over land adjoining the Village, and by those who must interpret and implement the Village's ordinances and plans.

Legend

- Residential District A
- Residential District B
- Retail District
- Public Land and Building
- College District
- Office Research District
- Unincorporated
- Flood Hazard Overlay
- Planned Unit Development
- Forest Preserves
- Water Bodies
- Village Limit
- Village Hall



Sources: Lake County GIS



Map 2 - Existing Zoning Map
 Bannockburn Comprehensive Plan
 Bannockburn, IL

Map Center: -87.87022 42.19388

Date: 1/15/2014 Project: 8101.000

File: G:\1188\ArcExhibits\Maping\Bann Comp Plan\8.5 X 11\8101 Comp Plan Map 2 Zoning.mxd
 Drawn By: grenton

CHAPTER 2

The Village of Bannockburn and Its Community Character

INTRODUCTION

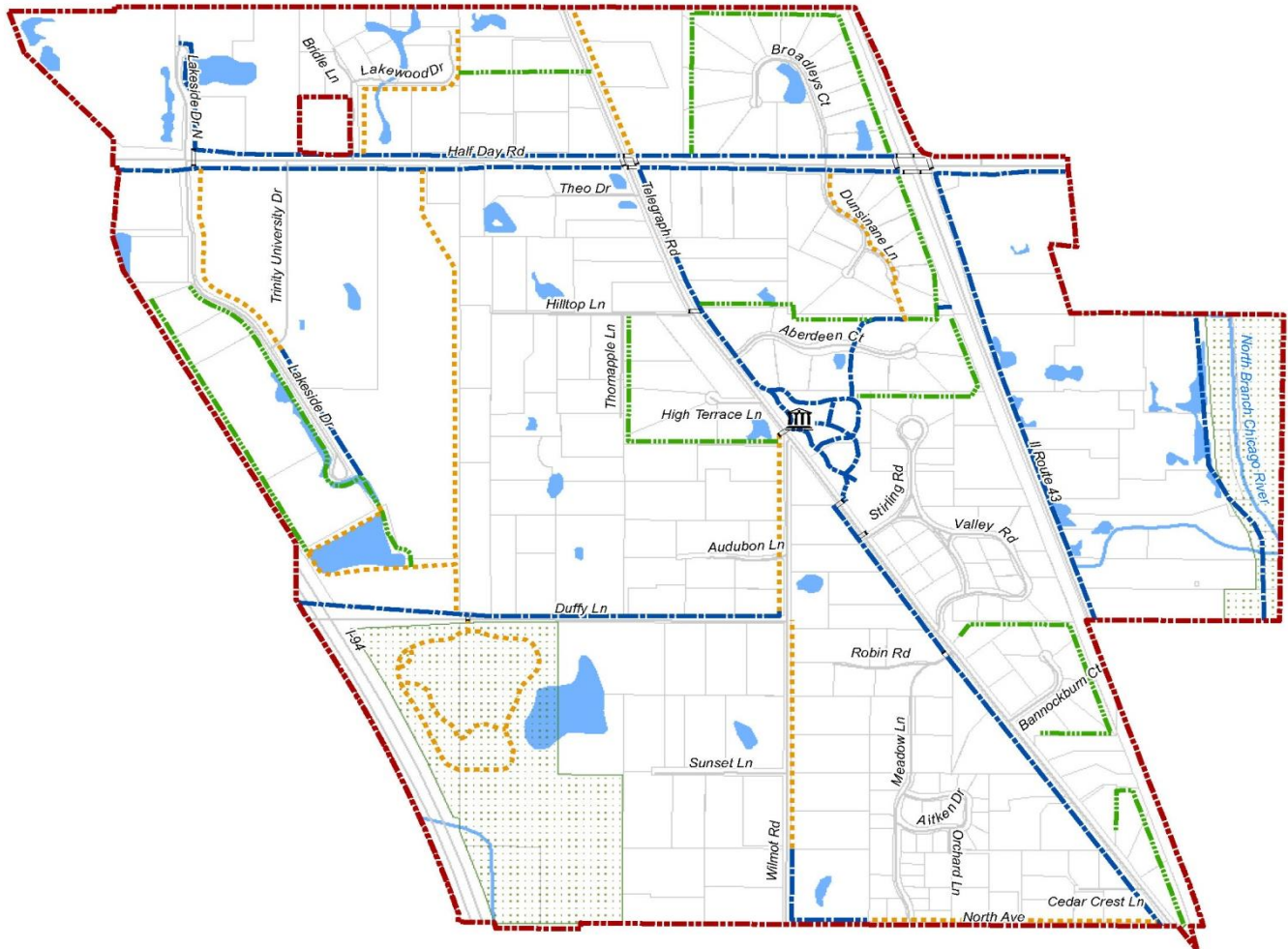
Bannockburn has historically formulated Comprehensive Plans and enforced land use regulations with the ultimate and overriding goal of preserving its unique community character. To this end, the Village wishes to preserve its residential core as an "environmentally sensitive community" of country estates and residences within the urbanizing area of southeastern Lake County. This represents the continuation of a regional policy that continues to evolve in finding ways to create a more livable metropolitan area. In the early 1970s, the Northeastern Illinois Planning Commission (NIPC) promoted a regional plan that called for open space corridors to separate suburban development areas. This "fingers and corridors plan" envisioned communities separated by open areas. While this distinct development pattern did not materialize, a pattern of "green communities" that separate the more intensely developed communities did evolve. This is recognized in the Lake County Framework Plan, where Bannockburn as well as Riverwoods, Long Grove, and Mettawa are recognized as estate areas separating suburban communities in southeastern Lake County.

The residential core of the Village is such an "environmentally sensitive community" that must be preserved. In addition, new development east of Waukegan Road demonstrates that commercial uses can be designed and developed to promote the "green community" image. Along the east side of Waukegan Road and at the Illinois Toll Road and Half Day Road interchange, the Village intends to continue to require that landscaping, design, and scale of development enhance the rural image of Bannockburn. Likewise, the Village must continue to work with Trinity International University and any future institutional uses within Subarea Three, such as senior assisted living facilities, to assure that such developments include grounds that are developed and landscaped in a rational and coordinated fashion that complements both residential and non-residential neighbors.

Although it is primarily a residential community, Bannockburn differs from its suburban neighbors because of its large lots and sizable areas of open space that contribute to the Village's rural atmosphere and are an integral part of the everyday living environment. The woods, fields, and ponds in the Village provide habitat for various forms of wildlife. In addition, over the years, a system of trail easements, as illustrated in Map 3, has been assembled to allow residents to enjoy the rural atmosphere while riding a horse or walking. Improvements are still required to make the entire trail system fully usable, but the meandering equestrian and pedestrian pathway system improvements started in 2002 are partially complete. Consistent with the rural character of the Village, Bannockburn encourages a "dark at night" quality with minimal street lighting. These features must be preserved in order to respond to an important need as the region becomes increasingly urbanized.

Legend

-  Existing Pathways
-  Pathways/Equestrian Easements
-  Crossings
-  Planned Pathways/Easements
-  Forest Preserves
-  Village Limit
-  Village Hall

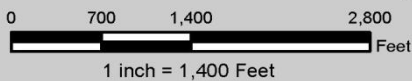


Sources: Lake County GIS



Map 3 - Pathway and Equestrian Trail System

Bannockburn Comprehensive Plan
Bannockburn, IL



Map Center: -87.87069 42.19338

Date: 1/15/2014 Project: 8101.000

File: G:\11981\ArcExhibits\Maping\Bann Comp Plan\05.X.1119101 CompPlan Map 3 Pathways.mxd
Drawn By: gnewton

Effective planning, zoning, and development regulations have permitted the development of compatible non-residential uses, such as office parks and retail centers, along the eastern and western edges of the Village. Unlike other modern office and retail developments, these non-residential developments in Bannockburn have remained sensitive to and have even enhanced the primarily exurban and estate image that typifies the Village. Additionally, these developments, due to their location and design, have minimal impact on the residential core of the Village. In fact, they contribute to the Village's tax base without imposing an unaffordable burden on Village residents. The landscaping and alternative stormwater management sustainable features of these developments serve as a model for future non-residential development and redevelopment as well as a guide for the enhancement of older uses.

Trinity International University, which accounts for more than 100 acres of Bannockburn's total area, is another important component of the Village's character. Healthy Village/University relations and cooperation have been critical to the development of a campus that is harmonious with its immediate neighbors and the Village as a whole. Landscaping, alternative stormwater management sustainable features and open space on the campus are essential to the achievement of this harmony, and also are important factors in defining the character of the Village.

COMMUNITY CHARACTER CATEGORIES

To establish a proper context, community character will be divided into three basic classes: Urban, Sub-Urban, and Rural.

Urban Character Class

Urban Type: The Urban community character type most closely resembles the classic urban environment where buildings define and enclose spaces. The spaces are architectural and often function beautifully with little or no vegetation. The ground is likely to be paved. The urban environment is designed to bring people into close contact and to maximize personal interaction. Privacy is typically obtained in the private interior spaces formed by small walled courtyards or fenced yards. The skyline is architectural and is defined by the rooflines of the surrounding buildings.

In an urban environment, congestion is desirable in commercial areas, in that it provides the needed interactions for successful commerce. The availability of large numbers of options for social interaction or cultural experiences close at hand means that even residential areas are densely populated and close to congested business areas. To capitalize on the benefits of congestion, commercial and residential buildings alike are ordinarily located in close proximity to public ways with little or no building setbacks.

The downtowns of Glencoe (Photo 8) and Highland Park (Photo 9) are excellent examples of commercial areas with Urban type community characters.



Photo 8. The streetscape in Glencoe shows buildings built to the sidewalk and on-street parking that typify urban areas.



Photo 9. Downtown Highland Park illustrates the attention to details of the pedestrian environment, brick pavers, benches, and other street furniture.

Urban Core: For most of Bannockburn's history there was only a single urban core, downtown Chicago. In the last 20 years additional urban cores have arisen in Chicago's suburbs. An urban core has similar uses to a central business district, and is a major regional employment center. Its buildings are of a much greater scale than in Urban areas. Mid and high rise buildings are common for offices. The old urban cores evolved over a period of 100 years. The City of Chicago was built on a grid street system served by railroads and other forms of transit. The new urban cores have evolved near interchanges of expressways and include portions of Oak Brook, Schaumburg, and the Lake-Cook Corridor. Although similar in intensity and function to the older central business districts, urban cores have grown rapidly in outlying areas and rely on auto access. The photos of Schaumburg and Lake-Cook Corridor office developments (Photos 10 & 11) illustrate the type of buildings that occur in urban cores that are not served by extensive mass transit systems.



Photo 10. The view of Schaumburg provides an overall view of the type of development that typifies an urban core in suburban areas.



Photo 11. The Riverwalk development at Milwaukee and Lake-Cook Roads in Wheeling illustrates the scale of the building and the requirement for structure parking to achieve needed densities.

Auto-urban Type: Auto-urban areas develop where urban uses are designed for access by automobile. They are urban in function, and the land uses are often identical to those found in Urban areas. The difference is that they are located for primary access by automobile, and parking lots are their dominant feature.

The impact of accommodating the automobile determines the character of an Auto-urban environment. With very few exceptions, Auto-urban areas have been designed so that the amount of land consumed by parking and driveways is greater than the land covered by buildings. This diminishes the importance of architecture and encourages the elimination of natural features. Missing are the well-defined enclosures, pedestrian access, and human scale of classical Urban design. Buildings are widely spaced, which tends to obscure any sense of place. The area, consumed by parking, limits the degree of enclosure so that the focus and direction of human activities cannot be achieved to the same extent as in Urban areas. The degree of enclosure interacting with parking lots destroys the feelings of spaciousness, lack of congestion, and privacy more typical of Suburban areas. Rather, the degree of enclosure found in Auto-urban areas is defined by parking lots and driveways that create barriers to pedestrian movement between buildings. Designers and architects are now exploring how to do a better job designing in Auto-urban areas.

Retail, office, and industrial uses all function in the Auto-urban environment. Although the development intensity is usually less than that found in Urban type environments, this is frequently a function of land economics rather than a result of governmental regulation. Auto-urban uses need space for the high levels of interaction that are dependent upon the automobile. As a result, buildings frequently are constructed some distance from the public way, but parking lots and driveways occupy much of the setback area. The Northbrook

Court development on Lake-Cook Road (Photo 12) is a classic example of an Auto-urban shopping center. An Auto-urban office development in Lake Forest (Photo 13) exhibits a similar character.



Photo 12. Northbrook Court illustrates the typical shopping center that sets the character of many Auto-urban areas. Note the dominance of parking.



Photo 13. An Auto-urban office building in Lake Forest shows more interest in landscaping but the automobile is still dominant.

Examples of Auto-urban residential and industrial uses are found in Northbrook, along Lake-Cook Road, and in Gurnee (Photos 14 & 15).



Photo 14. These town houses in Deerfield are Auto-urban residential as they likely require an automobile for a majority of their day to day services.



Photo 15. As the building in Gurnee illustrates, industrial uses are generally Auto-urban in character.

Sub-Urban Character Class

Suburban Type: This character type is very different from the Urban character types. Suburban areas have sufficient open space between or within developments to provide effective contrast and balance to the buildings. Unlike urban space, suburban space is landscaped and trees become an important element in the composition. While some open space has been designed into various suburbs, all too often open spaces, which provide these suburbs with their character, are simply vacant lands that have not yet been developed. This quality can be referred to as "borrowed space" where natural open space or views are borrowed from adjoining land. Consequently, as suburbs develop, they can move from the Sub-urban character class to the Urban character class because these open spaces are replaced by development.

In Suburban areas, human interaction is generally lowered from the intense Urban level to a more casual social level. Residents turn to family-oriented activities rather than more formal place-oriented social activities. Individual privacy is greatly enhanced. While total privacy does not occur on the Suburban lot, a substantial sense of privacy is maintained. In general, there is a balance between the man-made and open space elements of the community (Photos 16 & 17) and setbacks among and between buildings and public ways become more pronounced.



Photo 16. This view down a suburban street in Bannockburn and illustrates the importance of trees. Looking down the street, the trees dominate.



Photo 17. When looking straight at a house, the vegetation is still very important and balances the buildings.

These changes on lifestyle and interaction levels have profound impacts on land uses. Large non-residential uses often have a scale and appearance that are incongruous and unfamiliar to Suburban residents. For the most part, commercial uses demand high levels of concentration. The true Suburban community is dominated by residential uses where the qualities of privacy, security, and visual access to open space are available.

Non-residential uses need not be totally excluded from suburban areas. To remain Suburban in character, however, non-residential uses must either be spread out and built on lower intensities on each site, or the uses must be clustered to either surround or be surrounded by open space. Gurnee, Illinois provides an example of the change in character that occurs between an auto-urban shopping center and a suburban one (Photo 18). Photo 19 reflects the Village's efforts and success to both protect and enhance the community character and preserve trees. The Hewitt Associates building in Lincolnshire represents a large office building with a suburban character (Photo 20). The use of small buildings of a residential scale in Long Grove represents another way to create a suburban commercial area (Photo 21).



Photo 18. The traditional Auto-urban commercial shopping center stands in sharp contrast to a suburban one.



Photo 19. The requirement to preserve trees and meet community character standards makes it possible to build a commercial development that is suburban in character.



Photo 20. Hewitt Associates in Lincolnshire, Illinois represents an office building with a true suburban character.



Photo 21. In Long Grove, Illinois, controlling the scale of the buildings as well as landscaping and architecture achieves a suburban character.

Bannockburn also exhibits non-residential developments with a Suburban character. The Bannockburn Green Retail Center (Photo 22) is one of the few modern shopping centers that exhibits a Suburban character, because it has preserved woodland and open space and planted new trees in a manner that ensures the desired character. The Bannockburn Lake

Office Plaza campus (Photo 23) is also Suburban in character due to the extensive landscaping and significant open space in and around all of its buildings.



Photo 22. The Bannockburn Green Retail Center used tree preservation and design to provide a suburban character.



Photo 23. Extensive landscaping and tree preservation provide a suburban character in the Bannockburn Lake Office Plaza campus.

Estate Type: Estate development represents the lower intensity end of the Sub-Urban character class. Estate character development is clearly residential, but it requires low density development on large or heavily landscaped properties that produces an open feeling. In general, open spaces dominate; architectural and man-made elements are apparent but secondary. To achieve an Estate character, the design of subdivisions and landscaping should seek to imitate rural areas. Rural fence types, hedge rows, natural landscaping along property boundaries, and generous building setbacks from the street will, separately or in combination, visually complement this character. In the wooded areas of Lake County, an Estate character is best assured by being very careful to preserve trees. A similarly sized lot on open land requires extensive landscaping to provide a similar character.

While substantial homes are not uncommon in Estate type development, in recent years the average size of large homes has been increasing. When homes are built on open land or where trees have been cut indiscriminately, an area can quickly shift from an Estate to a Suburban character type because of the increased emphasis on man-made elements. Landscaping efforts involving a few scattered trees on lawns but concentrating on foundation plantings often are not adequate to reverse this shift, and such developments at times must rely on surrounding open space to provide an Estate character. Attempts have been made to achieve an Estate character by having denser developments "borrow" open space from neighboring areas. However, if that "borrowed" space is later developed, the character will shift from Estate to Suburban.

In order to prevent such potential changes in character, developments should not be allowed to depend upon the borrowing of unprotected open space. Large lot requirements of two acres or more complemented by strict density controls should be adopted and enforced. Effective landscaping controls and requirements can also be used to enhance and ensure a stable Estate character. The Planned Unit Development process can be used to preserve the Estate character of an area by clustering homes so as to ensure that open space and important natural features that define the area character are preserved.

Examples of development with Estate character can be found in Bannockburn (Photos 24 & 25) which exhibit the character of mature estate areas. More rural examples of Estate character can be found in Bannockburn (Photos 26 & 27). Although the sizes of houses and lots and the density of vegetation vary among these examples, in each the setting rather than the structures predominate.



Photo 24. The picture shows a very formal property with fence and gate; the house is invisible from other angles.



Photo 25. This house has a less formal setting.



Photo 26. The large setback and mature trees provide the desired country estate character with the house being nearly invisible.



Photo 27. With a very large setback and lot, it is possible to achieve the same estate character with a mowed lawn. Without the mature trees throughout the yard, a great deal of privacy would be lost.

Because many Estate residents view their lifestyle as that of living in the country, there are important steps that can be taken to have an Estate-sized lot approach a Countryside character. Among these steps is maintaining rural aspects of the landscape, such as woodland areas. More important is the way in which lots are landscaped. In older communities, the edges of the lots were heavily landscaped to provide privacy, but many modern landscape plans cluster the plants close to the house where they do not screen or provide privacy. The difference in character that is created from these different approaches can be a whole character type (See Photos 28 and 29).



Photo 28. The owner of this house in Lake Forest follows the practice of plantings near the house and a wide open grass lawn.



Photo 29. A landowner preserved trees and other landscaping near the street and created a totally different character.

Rural Character Class

Countryside Type: As with the move from the Urban to the Sub-Urban character classes, there is a recognizable spatial change that occurs from Sub-Urban to Rural character classes. Natural features are the hallmark of the Rural character class types. In the Countryside character type, the environment is a landscaped setting (Photo 30). Natural and scenic resources are preserved, and man-made elements are incidental.



Photo 30. This view down Hunt Club Road near Old Mill Creek is classic countryside. It is a landscape in which buildings are not important.

Countryside is the only Rural character type that contains residential development to any degree. Accommodating any significant amount of development without destroying the landscape qualities of the Countryside area is a difficult balancing task. In open land, the buildings are very visible, and very low intensities are needed to preserve a Countryside character. In wooded areas, a higher intensity can achieve the same quality if the homes are screened from view. The presence of rural uses like horses and rural fences can contribute to the rural image of the countryside. The Fields of Long Grove uses a large expanse of native prairie (Photo 31) to achieve the image, while other areas of Long Grove rely on rural roads and forest cover to provide the desired character.



Photo 31. The Fields of Long Grove uses a natural tree line, fence, hedgerow, and a prairie restoration to achieve a Countryside character.

In areas with lots of four or more acres, a Countryside character can be achieved and maintained with a combination of density restrictions and landscaping. As the density of structures increases, as in planned developments, more extensive landscaping is required to preserve the Countryside character.

Because we view communities from the road on a daily basis, design of the roadway is crucial to maintaining the character of an area. The clearing of land along roads is destructive of the Countryside character, while preservation and landscaping of roadways to make them enclosing and narrow enhances a Countryside area. Photos 32 and 33 exhibit a rural road design and a suburban one. The impact can be seen in the change in character that occurs with different street treatments but similar lot sizes. Robin Road is a case in point. Most of the road has a Countryside character, because the vegetation encroaches right up to the edge of the pavement and makes the road appear narrow and country-like. However, where individual landowners have lawns abutting the street and the view of buildings intrudes upon the vista, an Estate character begins to evolve.



Photo 32. This narrow rural road in Bannockburn with trees and shrubs growing right up to the pavement is far more rural looking than the suburban setting noted in Photo 33 and achieves the Countryside Character type.



Photo 33. In many areas with one-acre or larger lots, roads are of standard urban width with lawns extended to the edge of pavement.

COMMUNITY CHARACTER AND LAND USE PLANNING

The major reason for using the community character system in land use planning is to create distinctively different areas with unique characters and avoid areas that run together and become so confused that they wind up having no character at all. Thus, in planning a community, the types of character should be kept sharply distinctive. The community character categories can be used when evaluating a community to determine whether the community has a uniform character or is composed of discrete areas with different types of character. When a community has distinct areas of differing characters, each area should be viewed separately when evaluating development impacts on the character of that area, in addition to determining potential impacts on the overall character of a community.





Bannockburn's Community Character

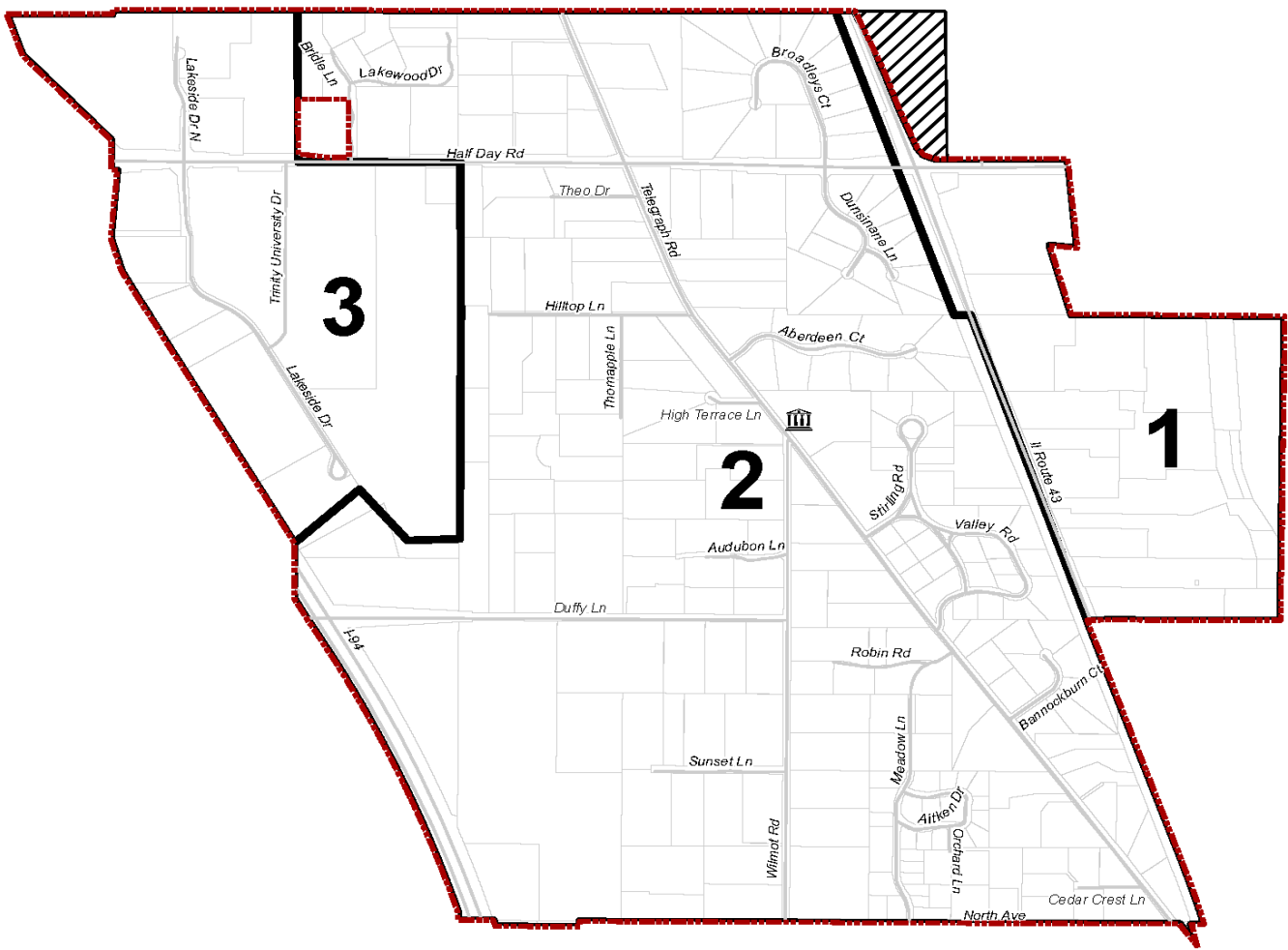
The community character of the Village of Bannockburn can be viewed both in the aggregate and in terms of community subareas. There are three such subareas within the Village, as delineated on Map 4. Subarea One is generally located east of the west right-of-way line of the Metra Railroad. It includes both incorporated and unincorporated lands, and contains mainly office and retail uses. Subarea Two is the residential central core of the Village and is the largest area. Subarea Three lies west of the residential core and contains office and institutional uses, including Trinity International University.

The community character types for the Village and its planning subareas were determined pursuant to a thorough survey and based upon the definitions and descriptions set forth in this chapter. Various factors that modify the impact of development, such as extensive landscaping, narrow roads, and street edge landscaping, were also taken into consideration.

Subarea One is Suburban in character. This area contains non-residential developments built at low to average intensities and having extensive landscaping. Several parcels also contain significant areas of preserved open land which contribute to and enhance the overall character. The Bannockburn Green Retail Center (Photo 34) is one of the few shopping centers in the region that has a Suburban character. This character has been achieved through extensive landscaping. The use of a two-story structure means the overall intensity of use is similar to more conventional centers. Bannockburn Lake Office Plaza and TWG (Photo 35) utilize a similar approach to achieve the same result. Other buildings in the office district have extensive lawns, but the buildings are well below average in their floor area ratio and the additional landscaped area ensures the Suburban character. Whenever redevelopment is planned for this area, substantial landscaping shall be required.

Legend

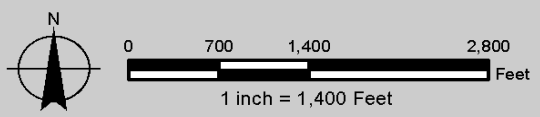
-  Planning Subarea Boundary
-  Comprehensive Plan Area
-  Village Limit
-  Village Hall



Sources: Lake County GIS



File: G:\1881\Ave\Exhibits\Maping\Bann_Comp Plan\9.5.X-11\9101_CompPlan Map 4_Planning Suba.mxd
Drawn By: gneidon



Map 4 - Planning Subareas

Bannockburn Comprehensive Plan Bannockburn, IL



Photo 34. Bannockburn Green Retail Center preserved vegetation and planted new trees to enhance its Suburban character.



Photo 35. Terlato Wine Group preserved trees and used ivy on the walls to soften the building's impact.

The residential core of the Village in Subarea Two has a Countryside character. The Countryside character results from the Village's large residential lot sizes, low intensity development, lush and abundant vegetation, and limited access. The residential streets include narrow two-lane and one-lane roads (Photos 36 & 37). The rural appearance of these roads is a major factor in the Countryside character of the area. Even residential collectors such as Telegraph Road, that distribute traffic to local residential streets, have a rural appearance. Widening the roads beyond 22 feet and clearing the rights-of-way to conform to standard engineering practice would alter the Countryside character. Similarly, the older residential subdivisions in Bannockburn platted prior to the Village's incorporation, if viewed independently from the rest of the residential area, provide examples of the Estate character. These follow very much in the model of mature estate areas with landscape dominating over buildings and intense privacy on the lots. (Photos 38 & 39) The original Aitken "Country Estates" now have a Countryside character because of the intensive vegetation. Comparing the early photograph (Photo 40) of the Meadow Lane - Robin Road area with one taken in 2013 (Photo 41) illustrates the impact of intensive landscaping and the passing of more than 90 years. The two-acre lots in this area now have many attributes of Countryside character. The choice in landscaping made over 90 years ago is fortuitous. Such matters cannot be left to chance and time. Therefore, the Village enacted landscaping and bufferyard standards to promote this desired character in 1996.



Photo 36. The trees arching over Meadow Lane.



Photo 37. A very narrow roadway illustrates how road design contributes to a Countryside character.



Photo 38. This house on Aitken Drive uses a trimmed hedge and large trees near the street to provide a Countryside Estate Character and a sense of privacy on a smaller lot.



Photo 39. Another house on Aitken uses a less formal, more natural approach to achieve a Countryside Estate Character.

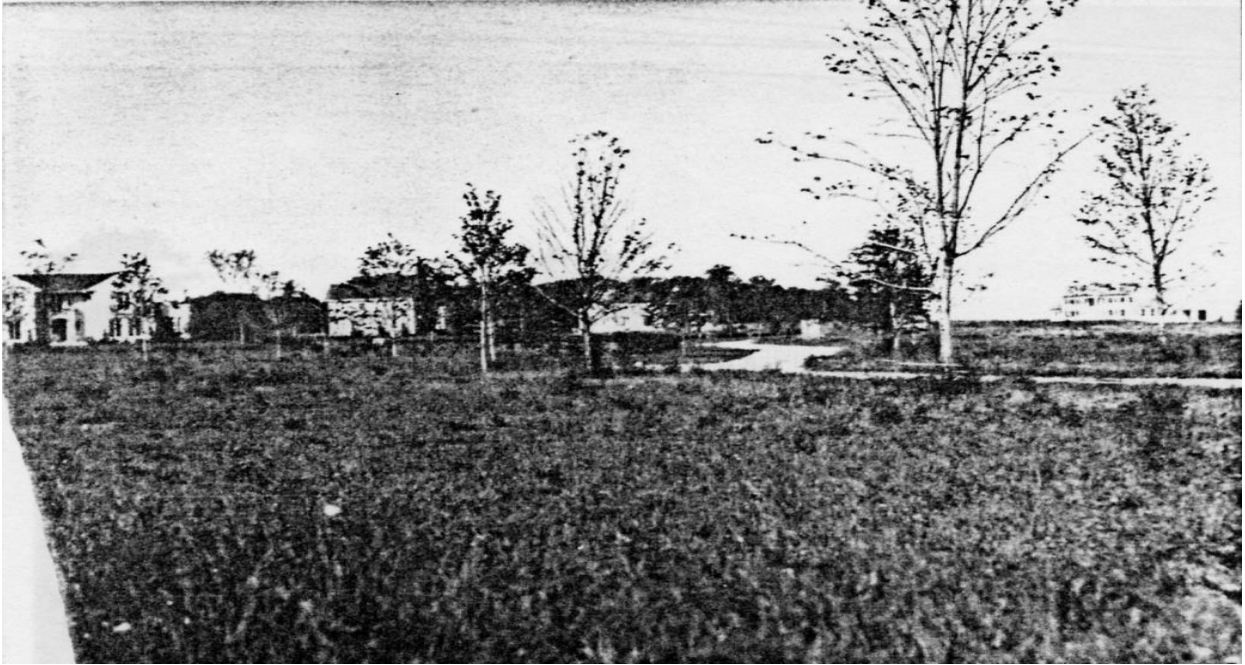


Photo 40. A photo of Meadow Lane and Robin Road in the 1920s.



Photo 41. A photo of Meadow Lane and Robin Road in 2014.

Not unlike Subarea One, Subarea Three has also been developed with a Suburban character. It has a low intensity and contains large areas of open space on both the Trinity International University campus and office sites, and vacant land. Subarea Three also includes student and university housing facilities on the Trinity International University campus and could provide opportunities for development of senior assisted living as a complementary institutional use with ancillary housing elements. Any such development would be appropriate only if located within Subarea Three adjacent to existing institutional uses (e.g. the Trinity International University campus and government service facilities) and on sites with direct access to a major arterial roadway, such as Illinois Route 22, to avoid undue impacts on local residential streets. Any senior assisted living uses should also be limited in number and appropriately spaced to avoid altering either the Suburban character of Subarea Three or the nearby Countryside and Estate residential character of Subarea Two. Significant open space and landscaping, thoughtful site design, and high-quality architecture and amenities should be incorporated into any such new development, consistent with low-intensity Suburban character. While the earlier buildings in Subarea Three do not have the same intensity of landscaping found in Subarea One, landscaping standards for future development and redevelopment with Subarea Three should cause the final build-out of Subarea Three to be Suburban in nature.

Maturation of existing landscaping, as well as the installation of additional vegetation both before and in connection with future development, will further enhance the Suburban character of this Subarea. In some areas, natural landscaping is growing in (Photo 42). New developments should be enhanced with landscaping to achieve a natural look. In other areas, more attentive landscaping has enhanced developments, because existing trees have matured and new trees have been installed. (Photos 43 and 44).



Photo 42. Natural regrowth of trees provides an excellent buffer.



Photo 43. The landscape near Half Day Road before it was enhanced.



Photo 44. The landscape near Half Day Road in the same area after the landscaping on Route 22 road was enhanced.

The characters of Bannockburn's three community subareas are quite distinct, with the two primarily non-residential subareas exhibiting a more intensive Suburban character than the Countryside character in the rural residential core of the Village. When a community has distinctively different areas rather than a uniform character type, it is essential for planning purposes to maintain the character of each subarea when planning for and evaluating the community as a whole. Bannockburn has historically paid particular attention to preserving these distinct areas and, specifically, to protecting the Countryside character of its residential core. The residential core is the heart of the Village where its residents (other than those residing on the Trinity International University campus) live. In large part, Bannockburn's unique qualities are drawn from its residential core, and that Subarea of the Village must be viewed as a separate area that has been carefully protected from the character of surrounding villages and even from the Suburban character of the office, University, and commercial developments in Bannockburn's other two Subareas.

The boundaries between these areas need particular care. The Village must resist attempts to change the boundaries and permit intrusions into the heart of the Village of higher intensity uses. Fortunately, the eastern boundary between Subarea One and Subarea Two, Waukegan Road and the Metra Railroad, is a very definite boundary that is unlikely to change. Currently, there is vacant land at the northeastern corner of the Trinity International University campus at the border of Subareas Two and Three. This area could provide an opportunity for thoughtful development of a transitional institutional use, such as senior assisted living, that would contribute to the Suburban character of Subarea Three, provide alternative opportunities for senior housing and health care in the Village, and incorporate significant setbacks, landscaping, and buffering to protect the border of Subarea Two. Another threat lays in the northern part of the Village where there are still unincorporated and underutilized lands along Half Day Road, including some grandfathered non-conforming uses in Subarea Two that should be developed further only in conformance with existing Subarea 2 zoning. Not only should zoning changes be denied, but the Village must continue to encourage enhanced buffer landscaping on all new development and encourage the same on existing properties.

CHAPTER 3

Land Use in the Village of Bannockburn

GENERAL DESCRIPTION AND DISCUSSION

Current zoning lot designations in the Village of Bannockburn's planning area is depicted on Map 2 in Chapter 1. For the most part, development in Bannockburn has been exceptionally spacious, reflecting the predominance of large land holdings. The open appearance of the community is emphasized by the Countryside character of its residential core and is punctuated by generous areas of open space and lush vegetation.

Residential

Residential development accounts for the largest percentage of land use and is almost entirely contained within the central core (Subarea Two) of the Village. Outside of Subarea Two there currently are student and university housing uses at Trinity International University within Subarea Three. Subarea Three also could provide limited opportunities for future development of senior assisted living facilities with appropriate characteristics as discussed in this Plan. Except for such limited institutional uses with residential elements in Subarea Three, residential development should be confined to Subarea Two and be consistent with the longstanding character of the single-family residential core. As with most older communities, there remains little undeveloped land (approximately 2%). It is instructive to observe that in many Chicago suburbs the character has been changed in the last stages of development. Two things explain the change in character: loss of borrowed open space and increased intensity of use. It would be tragic if, after following its official and unofficial plans for almost 80 years, a zoning change were permitted that would destroy the carefully preserved community character of Bannockburn.

A portion of the Village's residential area, generally in the southeastern part of the Village between the western boundary of the Bannockburn Park Subdivision and the Metra Railroad (formerly Chicago-Milwaukee-St. Paul Railroad), and coterminous with the Village's "B" Zoning District, has developed with somewhat smaller lot sizes than the majority of homes in the Village. Most of this area was platted prior to the Village's incorporation. This area could be said to have an Estate character due to heavy landscaping.

The remainder and larger portion of the residential area is located within the Village's "A" Zoning District. The development in this area is even more spacious, with most lots meeting or exceeding the 160,000 square foot minimum lot size required by the current Zoning Code. Most of the houses in this area are supported by large areas of open land as well as significant vegetation and limited access. This area could be said to have a Countryside character.

Public and Semi-Public

Public and semi-public uses occupy approximately 1/5 of the land in Bannockburn. The Trinity International University campus, which includes substantial acreage devoted to athletic fields and open space, accounts for about half of this area. Ground coverage on the campus is quite modest, both by regulation and design (Photos 45, 46 and 47). The Village has worked with Trinity to develop a master plan for the University. Other such uses include the Bannockburn School, the Bannockburn Village Hall and Open Space, the Deerfield-Bannockburn Fire District Facility, the Unitarian Church, and several parcels currently held by the Village and the Lake County Forest Preserve District for public purposes and open space.



Photo 45. Waybright Center at Trinity International University



Photo 46. View of Trinity International University from the south property line.



Photo 47. View of Trinity International University Chapel.

Non-residential

Non-residential uses are for the most part located on the Village's east and west borders (Subareas One and Three – Shown on Map 4). The developments on the east are separated from the residential center of the Village by Waukegan Road and the Metra Railroad right-of-way. These uses include the Bannockburn Green Retail Center and the Bannockburn Lake Office Plaza developments, both of which are heavily wooded, extensively landscaped, and contain significant areas of preserved open land. Most of the other uses in this area consist of businesses with corporate offices and related facilities. The Shell gasoline service station is located at the southeast corner of the Half Day Road/Waukegan Road intersection. Over time, this use should be upgraded to better fit into the Village character. The unincorporated property located on the northeast corner of the Half Day Road/Waukegan Road intersection should ultimately be annexed.

The Illinois Toll Road/Half Day Road interchange area located on the west side of the Village is occupied by several different office developments, a hotel, and the College Park Athletic Club. The LTD Commodities corporate headquarters and distribution facility is located in the far northwestern corner of the Village. The average density of these developments is higher than those along Waukegan Road, but is similar to other areas along the Illinois Toll Road. Significant areas of open space have been provided for in this area. Landscaping should be improved as development occurs.

PLAN AND POLICIES FOR THE FUTURE

The Village's Existing Zoning Map represents an extension of the existing pattern of development in Bannockburn. Major land use areas are already well established and are the result of sound planning and zoning decisions through the years. Any future development should simply complete these areas and enhance their existing character to the greatest extent possible.

Residential Uses

Development in the residential core area of the Village should be maintained and protected from intrusions by incompatible uses. The Village should continue to follow the established zoning and development pattern, that is, with the smaller lot sizes (80,000-square foot minimum) being confined to the southeastern area of the Village within the current boundaries of the "B" Residential Zoning District. Any new development in the remainder of the residential core should take place only on lots with a minimum area of 160,000-square feet, unless such lots are developed in concert with the Village's strict regulations for Planned Unit Developments. No other uses, other than public lands and buildings, should be developed in the residential core, as they would detract from the Countryside character of the area. The landscaping that was done in the early years sets an important precedent. All new developments should be required to conform to landscaping and streetscape standards that enhance the Countryside character of the Village, and enhance the landscaped bufferyards and screening between properties. Furthermore, the architectural design of all new developments within the Residential Zoning Districts should be appropriate to the site and to the overall character of the Village. Appropriate design and build considerations are particularly important as "teardowns" become more prevalent throughout the Village.

Residential development of large (20 or more acres) vacant properties should be accomplished as Planned Unit Developments to encourage imaginative design and provision of desirable amenities (such as open space, private recreational facilities, or the preservation of sensitive natural resources). If the project is served by wells and drain fields, then the density must be limited to one house per 160,000 square feet. Where the development is served by public water and sanitary sewer systems and abuts Half Day Road or the Metra right-of-way, then the residential density may be increased, with future Planned Unit Developments providing a density of no greater than one house per 120,000 square feet. This density increase is also dependent upon the plan demonstrating that it can provide increased landscaping, the buffering of Half Day Road or the railroad, the provision of trails, the preservation of natural resources, the limitation of building volumes, and can preserve and enhance the Countryside community character.

Outside of Subarea Two there currently are student and university housing uses at Trinity International University within Subarea Three. Subarea Three also could provide limited opportunities for future development of senior assisted living facilities with appropriate characteristics as discussed in this Plan as a complement to the existing institutional uses on the Trinity campus. Although such institutional uses may include ancillary housing at a greater density than found in traditional single-family development in the Village's residential core, such housing is distinct from other types of residential development because it is incorporated into institutional facilities. Any new development of such institutional facilities must be consistent with the low-intensity Suburban character of Subarea Three; incorporate appropriate design, amenities, and spacing; and provide significant landscaping, open space, and buffering from the Village's residential core.

Public and Semi-public Uses

The preservation and enhancement of public and semi-public uses indicated in the Village's Comprehensive Plan will assist in maintaining the overall open and natural character of Bannockburn. In the short term, the 17+ acres of open space and pond north of Duffy Lane that were obtained from Trinity International University in connection with the Village's Tax Increment Financing (TIF) District should be landscaped to provide a noise barrier of forest. Trails for pedestrian and equestrian use should be provided on this site. In the long term, this 17 + acre site should be considered for development as open space with passive recreation opportunities for the residents of Bannockburn.

The Reservoir #27 area south of Duffy Lane should become forested. The Village should seek the assistance of the Lake County Forest Preserve District in this regard as it remains largely an open field. As originally designed, this 77+ acre site is largely underutilized. The entire area is fenced off prohibiting access and use. This barrier could be relocated so that it would only prohibit access to the deep reservoir and its appurtenances and, therefore, could allow for the development of the remaining ~50 acres of land for open space and/or passive recreation. Significant landscaping, in conjunction with the development of the site, would improve the overall appearance of the area as well as provide noise attenuation from the Tollway.

In addition, the Village Hall and Open Space site at Wilmot and Telegraph Roads has been fully landscaped with an emphasis on natural plant materials to add to the rural atmosphere of the Village, which should be maintained. Increased streetscape bufferyards in particular will enhance the Countryside character of the Open Space area along Telegraph Road. The Village should also encourage the Lake County Forest Preserve District to keep its land along the North Branch of the Chicago River in its natural character.

Any and all further development on the Trinity International University campus should be coordinated with the Village and be governed by an approved Campus Development Plan that assures low density and adequate landscaping. In January of 2003, the Village approved a Master Campus Plan for Trinity International University in furtherance of this planning objective, which is periodically reviewed at least every 18 months. For example, the Village approved the following updates to Trinity International University Master Campus Plan:

- In March of 2004, the Village approved a Landscape Master Plan for the University;
- In March of 2006, the Village approved a planned Student Life Center, Fine Arts Center, and Sports Complex addition;
- In August of 2007, the Village approved parking lot calculation updates, new dormitory name, future Student Life Center, future tennis courts, and future Parking Lot T identified to serve both the Student Life Center and the Fine Arts building;
- In April of 2008, the Village approved a curb cut along Lakeside Drive for egress emergency purposes only, an increase of five parking spaces to a total of 100 parking spaces for the new parking lot at the Student Life Center, and pathway lights at the Student Life Center;

- In March of 2010, the Village approved a recently completed (January 2010) Waybright Student Life Center, and future projects that included the renovation and extension of the LEW Academic Center and the Meyers Sports Complex, a new Fine Arts Center, and a new Science building;
- In May of 2011, the Village approved an updated outdoor signage proposal; and
- In May 2014, the Village approved an updated Trinity International University Campus Development Plan, which included the following changes to the Frazier Athletic Field: (i) a running track around the football field, (ii) an 840 square foot concessions building, (iii) a sidewalk leading from parking lot Q to the concessions building, and (iv) a 9 hole Frisbee golf course.

Only a moderate amount of additional development is anticipated for the Trinity International University campus, so that the open feeling of that facility and its contribution to the character of the entire Village should remain intact with little or no pressure for adverse changes. Further, the significant amount of open acreage at the south end of the campus currently used for various athletic fields adds substantial green space to enhance this character.

Non-residential Uses

Development of non-residential uses should be accomplished, to the greatest extent possible, under zoning regulations that provide high standards in design and amenities. Specifically, such uses should be characterized by low ground coverage, ample setbacks, effective utilization of existing topography, extensive landscaping, and preservation of existing plant material and other natural features. The architectural design should be appropriate to the site and the overall character of the Village. Non-residential uses shall provide adequate storm drainage, sewerage and water facilities, and adequate traffic controls as necessary.

The properties at the Half Day Road/Tollway interchange are highly visible and accessible. As the 1993 Comprehensive Plan proposed, these areas developed predominately with office and research uses, with the office park established pursuant to the Village's TIF District being the full expanse of such uses lying south of Half Day Road. Commercial uses have been included as accessory or special uses in the area, but they should only be allowed to support the principal office or research function. Only those uses that can be developed at a low intensity with adequate setbacks from major roads and adjacent uses should be permitted, and then only with appropriate landscaping and open space. This area serves as a major entrance to the Village, and it should reflect and enhance the spacious character of Bannockburn. Because some of the buildings in this area are among the Village's oldest commercial buildings, there is a need for them to upgrade and enhance their landscaping. Also, to avoid intrusion of this area into the residential core of the Village, the buffers provided by Trinity International University and the Unitarian Church property should be maintained.

The Bannockburn Green retail development at Waukegan and Half Day Roads is at an ideal location for a shopping center to serve Bannockburn and adjacent communities. As a large producer of sales tax receipts and the Village's single retail center, the Village should work closely with the Bannockburn Green Retail Center's ownership and management to maintain and improve the Center's viability and allure.

The gas station on that same corner has limited plantings and a few trees. It should be upgraded to a standard commensurate with the character of the Village. Landscaping, other forms of screening, sign control, and access control are needed.

The unincorporated area on Waukegan Road north of Half Day Road should be annexed to the Village. That property should be developed and generously landscaped to complement the retail development on Waukegan south of Half Day Road. The site plan should provide for an adequate buffer to protect the Del Mar Woods subdivision to the east in unincorporated Lake County.

CHAPTER 4

Roadways in the Village of Bannockburn

GENERAL DESCRIPTION AND DISCUSSION

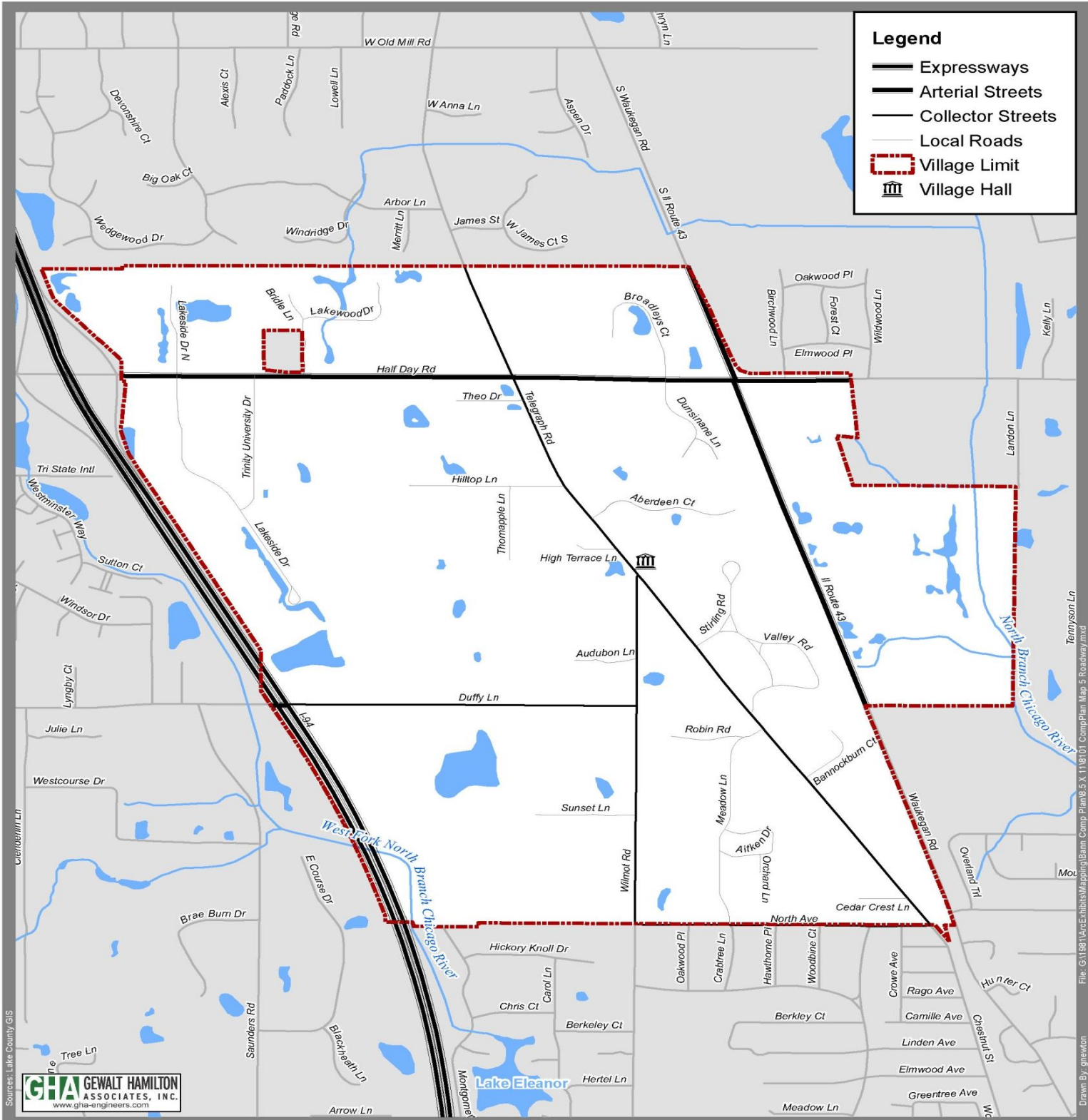
The roadways within and adjacent to the Village of Bannockburn are depicted on Map 5. These roadways are categorized as follows.

Expressways. Expressways are limited access facilities designed to accommodate heavy traffic volumes through such features as the control of access, grade separation, interchanges, and high standards of horizontal and vertical alignment. They primarily serve traffic requiring relatively high operating speeds and having fairly long travel distances. There is only one such facility in the Bannockburn planning area. The Northern Illinois Toll Road, which is under the jurisdiction of the Illinois State Toll Highway Authority, carries the highest volume of traffic in the planning area, most of which is inter-city and traffic destined for more distant locations outside of the metropolitan area and state.

Arterial Streets. These streets are strategically located to provide a through connection for extended distances between communities and across the metropolitan area. Waukegan Road (Route 43) and Half Day Road (Route 22) are the only arterial streets in Bannockburn. The State of Illinois controls and maintains Waukegan and Half Day Roads. These State roadways are major connectors between communities in Lake County and northern Cook County and thus carry sizable volumes of traffic. Half Day Road also serves as a feeder to the Toll Road due to a four-way interchange at the intersection.

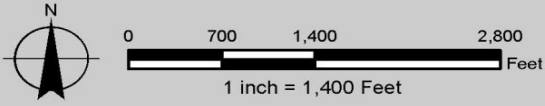
Collector Streets. The typical collector street system is designed primarily to distribute traffic between local streets and arterial streets. Collector streets can be divided into two classes based on land use: major collectors and residential collectors. Major collectors distribute traffic from all types of land uses to arterials and serve as an overflow for congested arterials. There are no major collectors in Bannockburn. Land uses adjoining major collectors may be residential or commercial. These roads should not permit direct access to individual residential dwellings because individual drives represent a traffic hazard. In addition, direct access between major collectors and residences is undesirable because traffic volumes associated with major collectors have a depressing effect on residential property value.

Residential collectors serve only residential areas. They should not encourage or permit distribution of commercial traffic. In general, houses should be encouraged to take access from local streets. Lower traffic volumes and slower speeds make access much safer than it would be on a major collector. Telegraph Road, Wilmot Road, Duffy Lane, and North Avenue all function as residential collector streets in Bannockburn, but they do not have the geometric features commonly associated with such collector streets in most suburbs. More specifically, these streets are narrow and of modest construction (without curb and gutter or lighting) to enhance the countryside character of the Village. They are designed to accommodate the limited number of local streets and residences in the Village.



Map 5 - Existing Roadways Map

Bannockburn Comprehensive Plan
Bannockburn, IL



Local Streets. These streets, also known as minor streets, have the primary function of providing land access. Various public and private streets serve this function in Bannockburn. As with collectors, there are two classes of local streets: residential streets and non-residential streets. Bannockburn has both types. Lakeside Drive serves a variety of non-residential uses (including Trinity International University) and handles thousands of cars per day, even though it is a local street. Local streets serving non-residential uses must be designed to serve the traffic generated by the commercial uses. The residential street serves to provide direct access to a relatively small number of houses. These range from narrow subdivision streets such as Meadow Lane to small private lanes such as Audubon Lane, Cedarcrest Lane, Hilltop Lane, Thornapple Lane, and Theo Drive. The narrower the residential street and the more closely trees encroach on it, the better it slows traffic.

ROADS

Today, the Village enjoys relatively new infrastructure systems and road improvements. Approximately 70% of the lineal feet of roadway in the Village has been resurfaced or rebuilt over the last 5 years. Such improvements have reduced traffic incidents and congestion and improved safety to the Village's residents, children and pets. The improved roads also enhance the Village's estate image.

Arterial Streets. During 2012, both Half Day Road and Waukegan Road were significantly improved and widened. The State of Illinois upgraded Half Day Road to a four-lane major arterial street for travel across Lake County. Intersection improvements to Waukegan Road and Half Day Road were also made by the State of Illinois to relieve traffic congestion. In addition, a center turn lane was extended along Waukegan Road from the current signal at the northern entrance of the Bannockburn Lake Office Plaza development to just north of Deerfield High School. The substantial improvements to Half Day Road and Waukegan Road have had the effect of reducing accidents and congestion in the Village. To promote the character of Bannockburn and to enhance the screening for those residents along Half Day Road, extensive landscaping was planted on Half Day Road and landscape medians were installed along Half Day Road and Waukegan Road.

Collector Streets (Residential). Since 2008, many of the Village's residential collector streets have been substantially improved with modern pavement bases. However, to maintain the countryside character, the width of the residential collector streets in Bannockburn have not been increased to the standards commonly associated with suburban collector streets.

Local Streets. Bannockburn's local streets, like its residential collector streets, contribute greatly to the Village's community character. They have relatively narrow corridors intended to serve only abutting properties. This makes them much more in keeping with the rural character of the development they serve.

PLAN AND POLICIES FOR THE FUTURE

To protect the residential character of the Village, to maintain safety, and to preserve the useful life of the pavement, the Village adopted (and amended in February of 2003 and April 2006) traffic regulations to ease the overburdening of Telegraph Road by through traffic. Because the comprehensive traffic studies can provide reliable information in regards to the concern that regional commuters continue to use these roads as bypasses to avoid congested arterials, the Village should periodically perform comprehensive traffic studies to ensure that traffic regulations, and possibly traffic devices, are appropriate to the ever-changing external conditions and address Village concerns.

Traffic movements within an area can best be accommodated by developing a system of streets providing varying levels of service. Relatively few streets need to be developed with wide pavement and good alignment to serve as major arterials. With only a few arterials carrying heavy traffic volumes and providing a high proportion of the total traffic service, the remaining streets serving low-density land uses can be improved with a narrower, less expensive pavement and right-of-way as a part of the residential street system (collector and local) serving residential property. By developing a system of arterial and residential streets, greater safety is provided, traffic movements are expedited, public resources are more effectively invested, and neighborhood and community returns on value are protected. Since the existing street pattern in the Village provides reasonably convenient access to arterials and the Tollway for Village residents, no new changes are proposed.

In addition to being one of the generators of past Village traffic problems, the Tollway has also created other problems such as excessive noise and a negative visual impact throughout the community. In 1998, the Tollway was expanded from 3 to 5 lanes, allowing for additional vehicles on the Tollway. At the same time, the Deerfield Road tollbooth was eliminated which resulted in increased vehicle speeds past Bannockburn. Further compounding the toll way noise, the Illinois State Toll Highway Authority erected a sound wall on the west side of the Tollway from Deerfield Road north to Half Day Road in 2000. This sound wall has a reflective surface which amplifies the noise from the toll way. To the extent that changes are made to the Tollway, and as other opportunities arise, the Village should encourage the design of natural and physical buffers on the east of the Tollway separating the Village from the audio and visual impacts of the expressway. The Village must continue to work with other Villages, the County, and the Illinois State Toll Highway Authority to achieve a more visually and aurally tranquil environment.

The continued predominance of low-density residential development in Bannockburn and surrounding areas will not create a need for the widening of existing residential collector streets to major collector street standards. The residential collectors such as Telegraph Road and Wilmot Road are intended to remain residential streets not only to evoke the rural character that has provided Bannockburn its identity in the past but also to coordinate the Village's capital facilities programs with its financial capabilities and the actual needs of the Bannockburn community. To that end, the Village should continue to take all steps necessary to protect the residential areas and roads from being used by regional traffic. This can be accomplished by the placement of traffic control devices, if necessary, and new signage in the residential heart of the Village. Such measures will tend to confine through

traffic to Half Day Road and Waukegan Road, reduce traffic speeds and volumes in the residential areas, and protect against premature deterioration and costly repairs of roadways.

Local streets to serve new development should be discontinuous and should avoid connections between Half Day Road and collector streets. Generally, these roads should be designed to be compatible with the character of the area in which they are located. They should also be designed to reduce the speed and volume of traffic. Moreover, the Village should continue its practice of providing access to non-residential uses via roadways that do not require traffic to travel through the residential heart of the Village.

The character of the residential streets in Bannockburn is an important element of the character of the entire Village. Even on Telegraph Road, the largest residential collector street, the visual image that has been created is that of country living. Landscaping along all Village roadways should be preserved and continue to be enhanced.

CHAPTER 5

Utilities in the Village of Bannockburn

GENERAL DESCRIPTION AND DISCUSSION

Water

Over the last 20 years, the Village of Bannockburn has extended its water system to serve additional residential areas west of Wilmot Road and to add to the current water system serving residential areas east of Wilmot Road, as well as many of the non-residential areas along Waukegan Road, Half Day Road, and at the Tollway interchange. In 2005, a major change occurred to the Village's water distribution system. With the construction of a water storage facility on a site located just east of the Tollway and south of Half Day Road. An interconnection with a Village of Lincolnshire water transmission main, which passes near the site, allows the storage facility to be filled from the existing City of Highland Park supply. Timing of the improvement was linked to the development of property in the Village's TIF District. The water storage facility provides improved water pressure and help limits any existing or future restrictions on water usage. In 2012, the Village added a watermain interconnection to supply water to the Del Mar Woods residents. In 2013, the Village further improved its water system by adding fire hydrants along Cedarcrest Lane and looping the watermain on Telegraph Road to Orchard Lane (see Map 6). Primarily, the water supply is obtained from the City of Highland Park. A secondary and emergency water source is available from the City of Lake Forest, which is located on north Telegraph Road. A few houses along North Avenue and Cedarcrest Lane receive water service from the Village of Deerfield. All other areas of the Village are served by the Village of Bannockburn's water system.

Sanitary Sewer

Most of the houses located in Bannockburn's "B" Residence zoning district and all of its non-residential areas are now served by sanitary sewers (see Map 7). The Village has extended sanitary sewer service along much of Telegraph Road for public health reasons, because septic systems in these areas have ceased to be effective. In 2011, the Village further extended sanitary sewer service along a northern portion of Telegraph Road. In 2003, the Village extended sanitary sewer service to residential areas located along Thornapple Lane, Hilltop Lane and Wilmot Road. The extension of water and sewer to these areas of the Village has typically been at the expense of the residents served.

Storm Drainage

Storm drainage in the residential areas east of Wilmot Road is conveyed through a combination of roadside ditches and piped storm sewers that discharge through the Metra Railroad embankment into the Middle Fork of the North Branch of the Chicago River (see Map 8). Overland flow routes consisting of swales and other natural drainage channels also exist. During the last five years, the Village has installed rain gardens at the corner of Valley Road and Telegraph Road, at the Stirling triangle, by the Bannockburn School and adjacent to Village Hall. In addition, in 2013, rain gardens and bioswales were part of the storm drainage improvements added when Duffy Lane was resurfaced and when Half Day Road was widened to 4 lanes. Prior to the storm drainage improvements being implemented during the last five years and during higher intensity storms, some areas in the Village experienced overtopping of

pavement for brief periods. In addition, standing pockets of water formed in some residential areas, which provided depressional storage during major rainfall events (see Map 9 in Chapter 7). Those areas in the Village that presently experience depressional storage could be enhanced with the installation of rain gardens or other environmentally sensitive water management systems.

Telephone, Cable Television and Electric

Three utilities (telephone, cable television and electric) have traditionally served the Village through overhead lines. This results in continued maintenance requirements for the providers and unsightly tree trimming and pruning. New and existing utility lines should be installed underground with any new construction or redevelopment.

PLAN AND POLICIES FOR THE FUTURE

Certain basic services, such as the availability of potable water and the collection and treatment of sewage, are essential for the health and safety of a community. The need for public water and sewer facilities is dependent on the capabilities of the natural environment as well as the characteristics of the man-made environment. The soils in Bannockburn are generally ill suited for septic, and new septic systems may not be permitted for public health reasons. Urbanization and changing technology produce additional demand for these facilities that should be provided in the most efficient and economical manner, while minimizing adverse environmental effects. The policy of this 2014 Comprehensive Plan is to provide such utilities as economically as possible and only as needed to protect and promote Village public health and safety and not to foster additional growth.

Towards these ends, water and sewer service should be extended by the Village. However, such utilities should be extended only to properties in approved special service areas, which properties should be subject to development and zoning restrictions and controls similar to those in place where water or sanitary sewer service currently exists. In addition, water service and fire protection will be furthered improved by continuing to loop the water system to eliminate dead end lines wherever possible and by continuing to review the need for additional fire hydrants. For sewer services, this will include not only existing development, where septic systems cease to be effective, but also any new developments

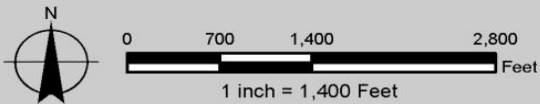
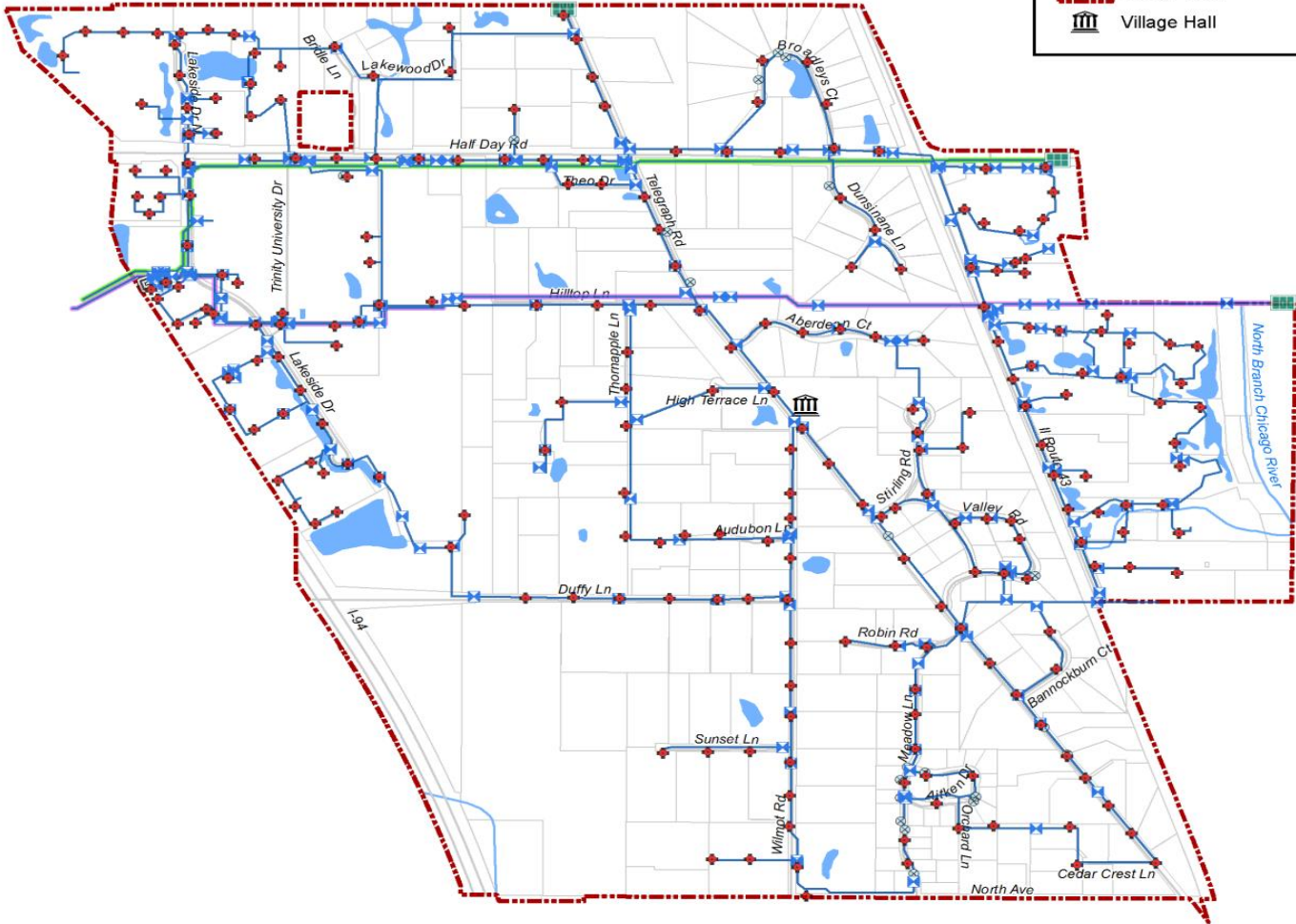
With the continuation of low density development, a more extensive storm water drainage system may not be necessary in Bannockburn except in non-residential areas, where factors such as large paved areas will require storm sewer systems in conjunction with retention and detention basins and similar facilities. If the pattern of low-density development were to be changed, however, more extensive and expensive storm water drainage facilities would be required that are beyond the Village's current fiscal means. To improve the efficiency of the current system, it is necessary that the Village properly maintain and improve the storm water management system.

It is the Village's desire to eliminate existing overhead cable television, electric and telephone lines and to require all new lines to be installed underground. When complete, this will enhance the rural atmosphere. The work must be done in a manner that respects the existing vegetation.

Where removal of vegetation is absolutely necessary, dense plantings to restore the character of the rural roads should be installed.

The extensive use of more recent technological advancements has necessitated the installation of wireless service communication facilities within the Village. The Village should encourage the co-location and extensive landscape buffering of these facilities in appropriate areas of the Village in an effort to minimize the visual impact and to be consistent with the countryside and estate character of the Village.

- Legend**
- ⊕ Fire Hydrant
 - ⊗ Buffalo Box
 - Master Meter
 - ⊕ Water Valve
 - Watermain
 - Lincolshire Main
 - Transmission Main
 - ▭ Reservoir/Pumping Station
 - ▭ Village Limit
 - ⌚ Village Hall














Map 6 - Water System

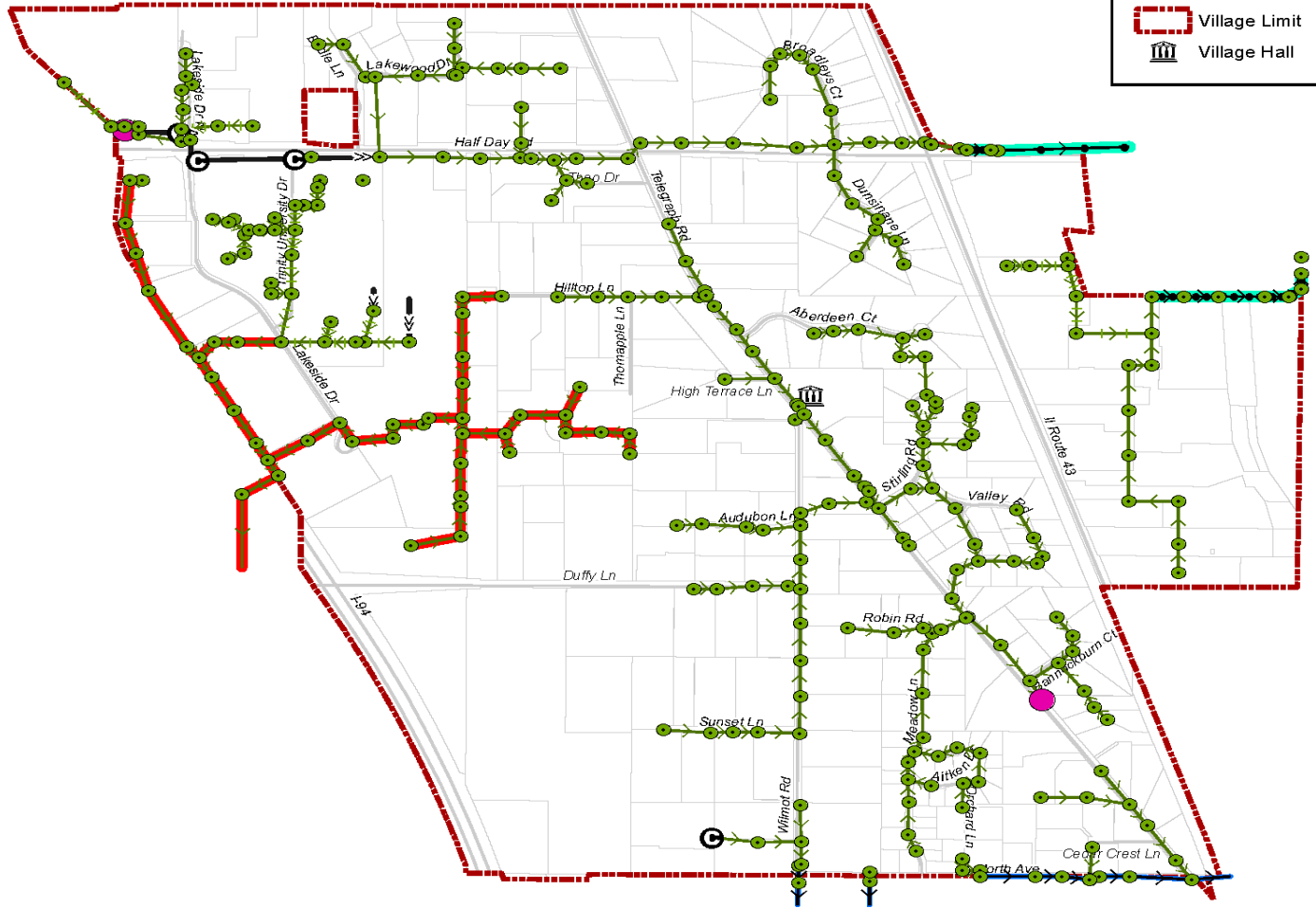
Bannockburn Comprehensive Plan
Bannockburn, IL

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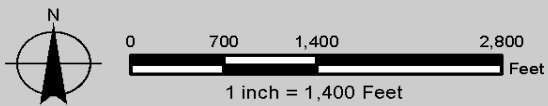
Date: 11/27/2013 Project: 8101.000

Legend

-  Sanitary Manholes
-  Cleanouts
-  Lift Stations
-  Force mains
-  Bannockburn
-  Private
-  Deerfield
-  LCPW
-  NSSD
-  Village Limit
-  Village Hall



Sources: Lake County GIS

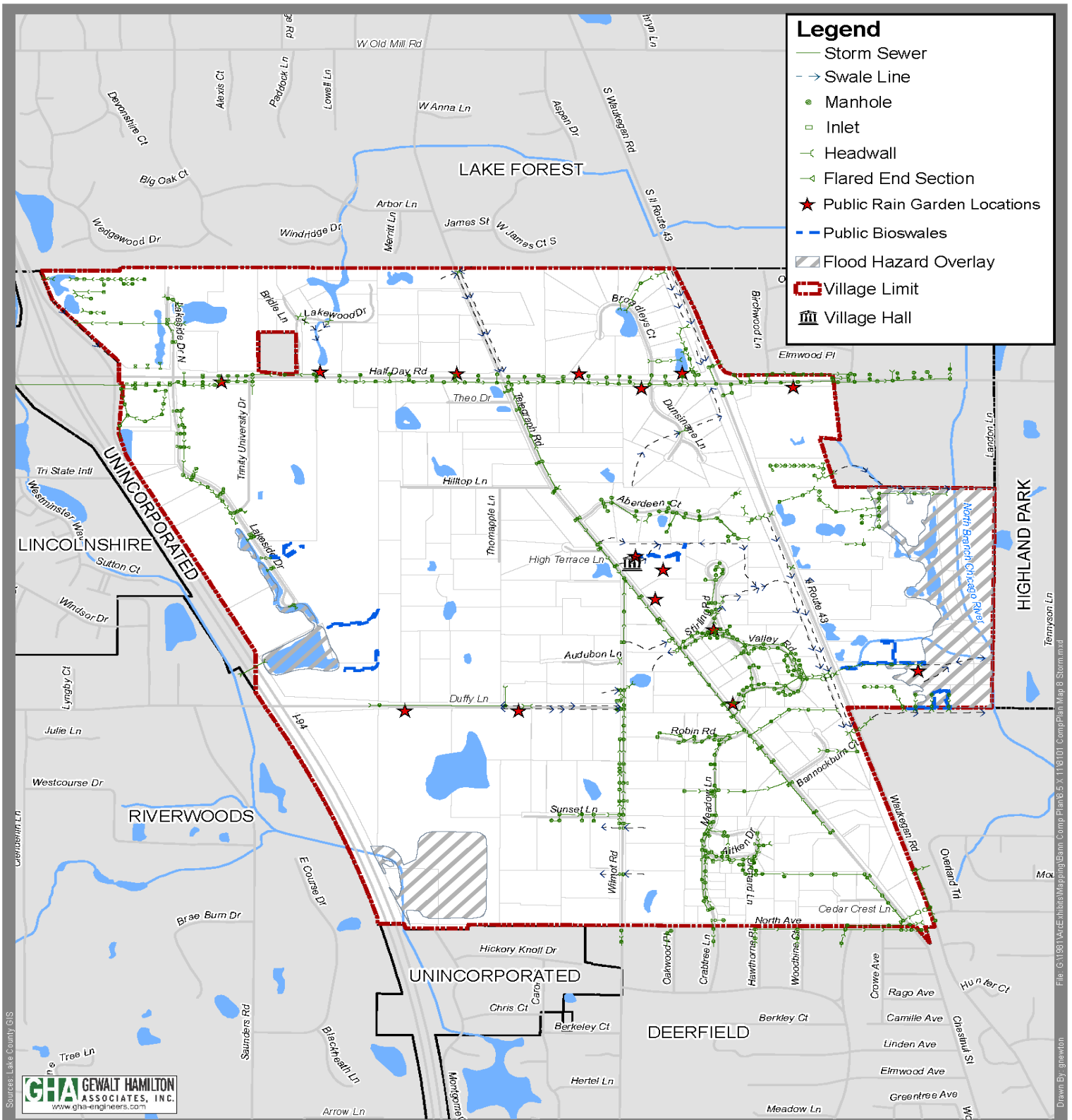


Map 7 - Sanitary System
 Bannockburn Comprehensive Plan
 Bannockburn, IL

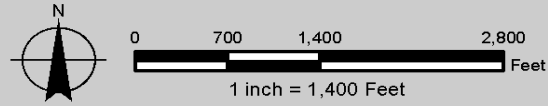
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 Drawn By: gswerton



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Map 8 - Storm System
Bannockburn Comprehensive Plan
Bannockburn, IL

Map Center: -87.87022 42.19388

Date: 12/12/2013 Project: 8101.000

CHAPTER 6

Services in the Village of Bannockburn

GENERAL DESCRIPTION AND DISCUSSION

Bannockburn is a financially stable community. The Village has a Standard and Poor's bond rating of AAA. The Village's financial strength is due partly by (i) the Village controlling its costs by contracting out for a majority of its services, (ii) the Village minimizing the need for full time staff personnel, (iii) some services being provided through intergovernmental cooperation, and (iv) invaluable services being provided by public stewards (Bannockburn residents).

Facilities. In 1992, the Bannockburn Village Hall was opened at the intersection of Telegraph and Wilmot Roads. This modest but comfortable facility provides space for the police department as well as filing, storage, and workspace for the administrative staff. In 1998, the Fire Protection District built a new fire station in the Village along Half Day Road. In 2003, the Village of Bannockburn completed the Open Space Project that provides a park shelter and recreational area for the benefit of its residents.

With the opening of its Village Hall in 1992, the Village established the foundation for the services its residents will require in the foreseeable future. This foundation includes the employment of a full-time manager and full-time staff members. This is not intended to eliminate the need for outside consultants, but to reduce the Village's reliance on such consultants for routine Village business. Outside consultants still offer the Village valuable expertise, and they are able to increase or decrease personnel assigned to Village matters as special needs dictate.

Police. The Village provides around-the-clock police protection with six full-time and ten part-time police officers, under the direction of a full-time police chief.

Fire. Fire protection is provided by the Deerfield-Bannockburn Fire Protection District.

Administration. Village administrative services are provided by a full-time manager, finance director and assistant to the village manager. Outside consultants in the legal, engineering, planning, technical and forestry fields are retained and utilized from time to time as needs arise. In addition, following a competitive bidding process, the Village entered into contracts with certain private companies to provide electric supply and waste hauling services to the Village residents.

Public Works. Outside contractors do road, open space, and other maintenance type work.

Library. Trinity International University provides free Courtesy Patron library cards to the Bannockburn residents to check out books, DVD's, CD Music and Video Movies.

Intergovernmental Cooperation. Some of the Village's services are provided through intergovernmental cooperation. Examples include police dispatch service through the Village of Deerfield, building inspection and planning review services through the City of

Lake Forest Community Development Department, and water billing services through the Village of Lincolnshire.

Volunteers. The Village also benefits from the generous service of countless volunteers, from its Board of Trustees, Plan Commission/Zoning Board of Appeals, other commissions and ad hoc committees, to the members of the Bannockburn Garden Club who oversee the planting of roadsides and public areas as well as the installation and maintenance of various seasonal decorations.

PLAN AND POLICIES FOR THE FUTURE

The use of outside consultants, private corporate entities, volunteers, and other governmental entities for certain services has enabled the Village to maintain its Standard & Poor's AAA Bond rating and has proven to be a cost-effective method of providing services in Bannockburn and should continue to be so, given the outlook for limited growth and development in the Village. Nevertheless, the Village should continue to review staff size on a yearly basis to maximize the productivity in providing services to Village residents.

The most cost effective means of providing fire protection will continue to be through the Deerfield-Bannockburn Fire Protection District.

Police protection services should continue to be provided by the Village rather than other governments to meet community service expectations. Increases in police personnel will need to be examined when new services are required or desired.

Professional maintenance of local infrastructure and inspection of construction activities are most cost effectively provided by outside contractors and other governments who have the staff resources and expertise that can be called upon in times of need. This approach will not create a burden on the taxpayer at those times when the services are not needed.

CHAPTER 7

Natural Resources in the Village of Bannockburn

INTRODUCTION

From Bannockburn's beginning, its residents have exhibited an unusual sensitivity to the natural environment. The original landscaping in the earliest subdivisions has matured into almost woodland settings (see Photos 40 and 41 in Chapter 2). In areas where there were mature forests, those trees were largely preserved. Drainageways and wetlands have been retained much as they were. All of this today would be regarded as sound environmental design. However, most of this activity preceded the environmental movement of the 1960s. Over time, the Village has adopted laws that have formally addressed two of the most critical environmental concerns: the protection of floodplains and forests. Other regulations restricted development on soils unsuited for on-site sewage disposal. Today, the Village has in place basic regulations that will protect and preserve the natural resources of the Village.

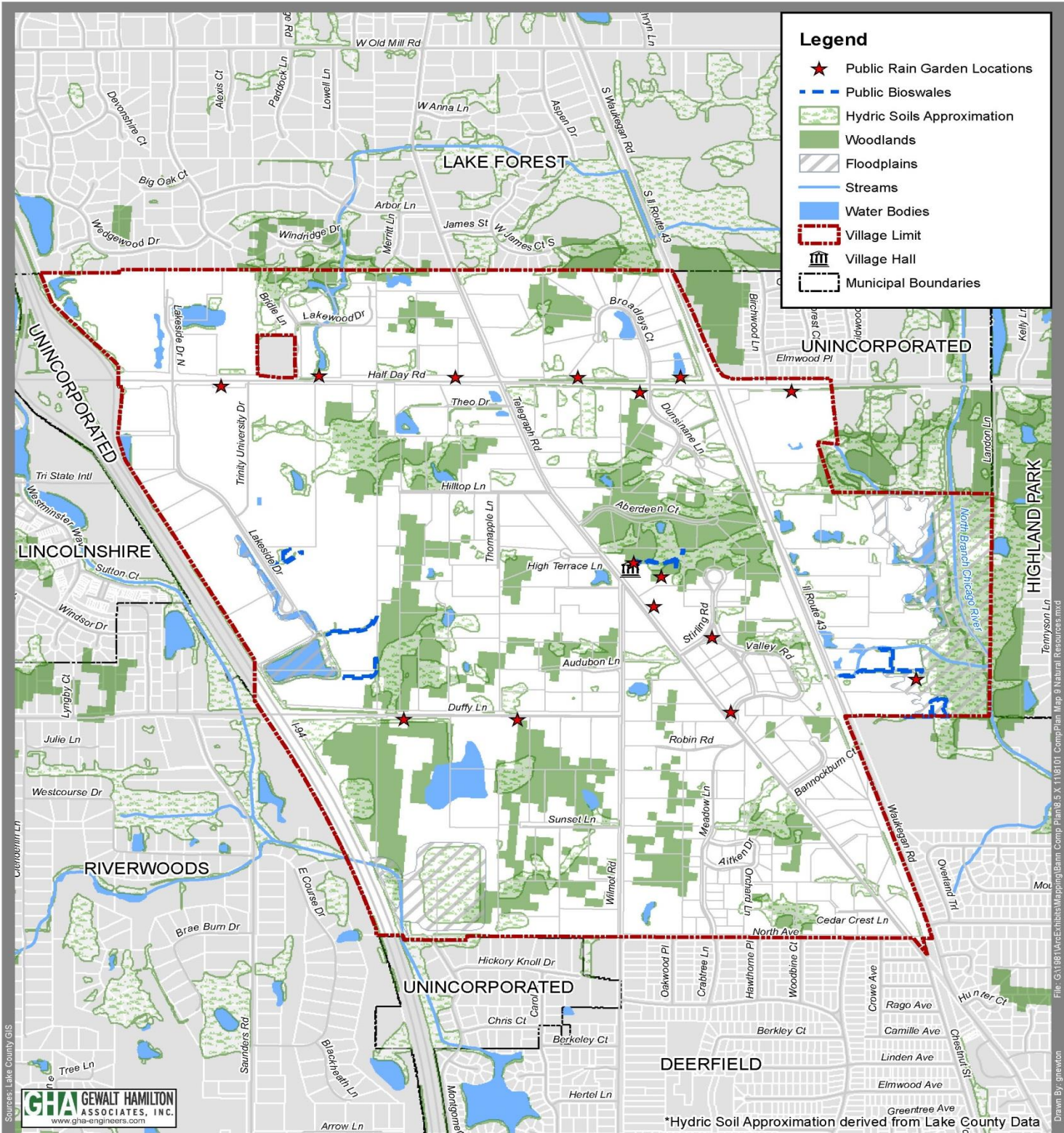
Due to Lake County flow of water concerns, the Village has installed several rain gardens and bioswales in the Village's public areas to facilitate storm water management and enhance natural vegetation. The natural resources existing in 2013 are illustrated on Map 9.

Natural resources, however, do not respect property or political boundaries. Water flows via gravity, and only through engineering devices can these directions be changed or altered. In studying Bannockburn's natural resources, it is necessary to take a larger perspective that recognizes natural system boundaries such as watersheds. The protection of natural resources is not just a nice goal; it is one that is important to the health and safety of the public. Further, effective protective measures reduce the public's liability for emergency aid to those who live on unsafe land.

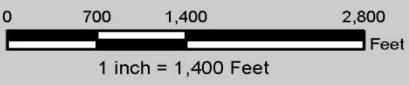
GENERAL DESCRIPTION AND DISCUSSION

The protection of natural resources is very important to Bannockburn. Bannockburn, along with the neighboring communities of Lake Forest, Highland Park, Deerfield and much of Lake and Cook Counties, lies in the watershed of the North Branch of the Chicago River. In its natural state, this river flowed through a variety of channels and marshes. Many years ago, the stream was channelized to allow the land to be used for agriculture. The result of this was that there was an apparent drying of the land. The drying provided false security for owners of property near the Chicago River in Lake and Cook Counties. Homes were built on drainageway soils because they appeared dry 95% of the time. However, these homes remain subject to wet basements and flooding. The soils have a high "shrink swell" which contributes to the cracking of foundations, and the high water tables require heavy pumping to keep the basements dry.

Lake and Cook Counties have attempted to solve the flooding by building massive stormwater detention facilities, one of which is in the southwestern corner of the Village. This primarily serves properties south of Bannockburn. Providing protection for houses built in areas prone to flooding has been accomplished at great public expense.



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Map 9 - Natural Resources Map

Bannockburn Comprehensive Plan
Bannockburn, IL

Date: 1/15/2014 Project: 8101.000

Flooding problems in Lake County and Cook County have been vastly compounded by development. The increase in impervious surfaces associated with development has reduced the surface available to absorb water. Development is the cause of greater quantities of stormwater flow and usually increases the rate of run-off. Increased stormwater and more rapid run-off result in higher flood levels and can push flood waters onto properties that did not previously flood. While a great deal of progress has been made in managing stormwater since development began in the watershed, the fact is that development increases stormwater flows, which ultimately will create more flooding.

Fortunately, due to many stormwater detention projects that incorporated best management practices being implemented in Bannockburn during the last several years, the Village does not experience excessive flooding after heavy rains. It is Bannockburn's intention to prohibit development in hazardous locations. The public and landowners should be protected from the unsafe and hazardous results of poor land use decisions. This also protects the general public from the costs of providing relief to those who live in areas subject to problems.

Along with flooding, water quality is another major environmental problem in Lake and Cook Counties. Urbanization has greatly reduced the quality of water in the streams. Silt blocks streams, reducing their capacity. The run-off from streets and other paved areas can contain numerous components that are toxic or hazardous. The very flat gradient of the North Branch stream system permits these materials to settle into the mud where they can concentrate to high levels. Pollutants can destroy the oxygen in streams creating anaerobic conditions that can be a nuisance as well as a health hazard.

In 2010, to reduce the amount of pollutants entering the waterways and to help with stormwater detention in Bannockburn, the Village implemented a rain garden program to encourage residents to install a rain garden when adding impervious surface to their property. In addition, following the receipt of grant funding in 2013, the Village completed two water quality projects (removal of an acre parking lot and invasive species, the addition of rain gardens and bioswales, and the installation of native plantings) to minimize the amount of pollutants entering the North Branch stream system. One project is located along the business corridor on Waukegan Road. The other is on Lakeside Drive partly situated on the Village's 12 acre site, Trinity International University and 1000 Lakeside Drive.

Managing water to maintain its quality and minimize flooding is important to the health and safety of both Bannockburn and down-stream residents. One of the first steps in this endeavor is to continue managing land use to minimize both stormwater flows and to continue to protect the ground and surface waters.

WOODLANDS

Natural vegetation provides filtering that reduces pollution. Woodlands and forests are the most effective natural filters of surface water pollution, followed by native grasslands. In fact, forest cover serves as an active filter and water purification device by absorbing water and reducing run-off. Maintaining these natural covers along streams is therefore a very important land use strategy for preserving water quality by buffering the streams. During the last five years, the Village has

been eliminating buckthorn in its wooded areas to allow natural vegetation to grow and absorb water and to reduce run-off.

Moreover, the forests that are so much a part of Bannockburn's community character also generate the least amount of non-point source water pollutants of any land use. Maximizing the area in forest cover is therefore an important land use strategy for preserving and enhancing the rural character of Bannockburn and for reducing water pollution. With the large residential lots and increasing emphasis on landscaping nonresidential developments in Bannockburn, this strategy can be implemented without substantially affecting a landowner's ability to use his or her property in a manner consistent with existing development in the Village. Moreover, as has been discussed in Chapter 2 (Community Character), preserving or planting trees actually helps to maintain and enhance property values throughout the Village.

FLOODPLAINS

Floodplains are places where stormwater accumulates. There is a clear hazard to locating development in floodplains. The 100-year storm event is what is used to define the floodplain. A 100-year storm is a storm of an intensity expected only once in every 100 years. Development should be prohibited on land that would be inundated during a 100-year storm.

Ideally, floodplains should be left in forest or natural vegetation. These types of vegetation serve to slow the movement of water and moderate the flood peaks. More importantly, during most storms this land serves as a buffer that enhances the cleansing of pollutants in both the surface and ground water. Some very limited uses can be permitted as special uses in the flood fringe areas. Site development plans should minimize parking and seek to maximize the amount of land available for detention and natural landscaping.

WETLANDS

Wetlands are areas that are inundated with water or where the water table is sufficiently close to the surface that vegetation adapts to those conditions. Wetlands occur in depressional areas and along drainageways in Lake and Cook Counties... Wetlands are generally connected to the area's stream system. Based on their location topographically, most wetlands are also floodplains. Small depressional areas of flooding are rarely mapped due to their small size. In northern Illinois, wetlands along with drainageways hold considerable volumes of stormwater and spring melt run-off. Consequently, most wetlands should be treated as floodplains from a stormwater management point of view.

Wetlands tend to be long-term storage areas where water is stored and very slowly released into the stream system. Because of the length of time water is held in wetlands, they function as a storage reservoir releasing water to the streams during low flow conditions. Shallow ground water flows drain water from wetlands to provide base (low) stream flows. Even depressional wetlands that seem unconnected to a stream system often serve this function. These flows are critical to water quality in the hot summer months when oxygen demand is at its greatest. Reductions of water levels in low flows deplete the available oxygen capacity of a stream, thereby destabilizing water quality at the worst possible time.

Wetlands also function as a water filter. Silts and pollutants are settled out and held in the wetlands. The wetland vegetation is an active component of the filter. The stalks of the vegetation slow water movements aiding in the deposition. Also wetland plants actively absorb and utilize nutrients that are pollutants in streams.

Filling of wetlands does serious harm to the flood retention capacity of nature's storm drainage system. Detention ponds rarely have the vegetation needed to provide the level of pollutant removal that a wetland does. Since the detention facilities must drain down so as to be ready for the next storm, they cannot provide the low flow augmentation of wetlands. These impacts seriously affect down-stream landowners. Bannockburn's policy is to protect wetlands.

DRAINAGEWAYS

Drainageways are basic drainage systems or depressional areas with a very high seasonal water table where water flows during major storm events. During springtime melt run-off, these areas may flood to depths of a foot or more. Because these areas are at the top of the watershed, they are never mapped as floodplains even if they flood every year. They hold substantial quantities of stormwater in depressional pockets or flowing situations. When left in a natural condition, they filter out silt and other pollutants and serve as a filter for water before it reaches streams with defined channels. Displacement of this storage capacity results in increased flooding down-stream due to lost storage potential. If a development needs detention facilities or drainage facilities, they should primarily be installed as surface drainage in the drainageways which is the natural place for water to collect.

IMPERVIOUS SURFACES

Impervious surface is the main culprit in stormwater management. From the perspective of managing stormwater, forests followed by natural grasslands are the best land uses. The other extreme is impervious cover. The difference between the two is easily observed. For example, following a slight shower, a walk in natural grassland will result in wet pants, from the water on the grass stems. During the same light rain, one could have stood under a tree and stayed dry. In contrast, a parking lot or roof will create run-off from the same shower. Even in major storm events, wooded areas and grasslands absorb much more of the rainfall and greatly slow its run-off. Preserving forests or planting new trees is therefore a positive stormwater management strategy. To gain maximum benefit from new tree plantings, they should be natural plantings that are young forests as opposed to lawns with trees.

Impervious surfaces, particularly paved roads and parking areas, are among the worst sources of pollutants as well as being generators of run-off. A land use program that encourages narrow roads, encourages shared parking opportunities, encourages the installation of a rain garden for any addition or development, and restricts the size of parking areas is a positive strategy for reducing the sources of pollution. The narrow public and private roads and fewer, smaller parking areas in Bannockburn provide a double benefit: they reduce total impervious surfaces and they increase the area in forest, both of which are positive benefits in terms of both stormwater management and water quality.

PLAN AND POLICIES FOR THE FUTURE

In addition to its current restrictions limiting development in the floodplains, the Village should continue its existing land use patterns of low intensity development on large lots, as well as its existing policies of encouraging tree preservation and reforestation, the installation of rain gardens, eliminating buckthorn and minimizing impervious surfaces. All of these practices will support the regional goals to minimize flooding, reduce pollution, protect natural resources, and wisely manage stormwater.

To the greatest extent possible, floodplains and flood table land should be left in forest or natural vegetation. Wetlands and woodlands must be protected. Detention and drainage facilities required by permissible development should be intelligently designed and placed in drainageways.

Finally, impervious areas, particularly the areas of paved roads and parking lots, must be kept to a minimum by regulating development and by continuing to embrace the system of narrow public and private roads in Bannockburn. The Village should also coordinate its activities with regional, state, and federal agencies to the extent necessary to best ensure that natural resources in the Village are effectively preserved and enhanced.

CHAPTER 8

Plan Implementation

INTRODUCTION

In addition to following the policies enumerated in the previous chapters of this Comprehensive Plan, there are certain affirmative steps that can be taken by the Village to insure and expedite implementation of the Comprehensive Plan. The following discussion addresses those steps, some of which can be taken right away and others of which should simply be kept in mind for implementation when the opportunity arises. The Village's financial condition and legal position from time to time will also have a bearing on whether and when to take any of these implementation steps.

ANNEXATION

Annexation has been a beneficial tool in creating an organized land use arrangement and in maintaining an efficiently functioning community in Bannockburn. The primary objective that the Village should seek to achieve through annexation is to control and coordinate development in the unincorporated area at the northeast corner of Waukegan and Half Day Roads to promote high quality and well landscaped development in keeping with the Village's Comprehensive Plan.

The ultimate boundaries of Bannockburn should generally be the Northern Illinois Toll Road on the west, the City of Lake Forest on the north, the City of Highland Park on the east, and the Village of Deerfield on the southeast, south and southwest. Two exceptions exist, however. The first exception would be the unincorporated area to the southwest of the Village which is located in the Deerfield School District and has roadway access only through Deerfield, and is therefore primarily oriented toward that community. The second exception is the Del Mar Woods subdivision located northeast of the Village and north of Half Day Road. The land use pattern in that subdivision is well established and poses no serious problems to the Village's community character. That subdivision, moreover, was developed in 1926 and has many infrastructure problems. The Village cannot afford an annexation that would require a major commitment of its limited resources to correct these problems.

Within the general boundary described above, there are two parcels that are potential candidates for annexation. Those parcels are highlighted on Map 10 and are discussed below:

1. Northeast Corner of Half Day Road and Waukegan Road: The property located at the northeast corner of Half Day Road and Waukegan Road should be zoned for either office development of the same high quality as the office developments to the south along Waukegan Road, or possibly zoned for retail development of the same high quality as the existing Bannockburn Green Retail Center if permitted under the applicable boundary agreement. The property itself is triangular in shape and quite narrow. The combination of site size, limited access to Half Day Road, adjoining residential use, and need indicate that the most suitable use is most likely for commercial purposes.

2. Unitarian Church Property: This is an existing land use on the north side of Half Day Road just west of Lakewood Drive. Ideally this property would be annexed with zoning to permit the continuation of the institutional use. It is a good transition between the office development to the west and the residential core of the Village. The property should be zoned for "A" Residential or a special district for such institutional uses.

ZONING




The type and intensity of land use called for in this Comprehensive Plan can be legally enforced only through zoning. Bannockburn has, over the last four decades, carefully implemented the goals enunciated in its Comprehensive Plan with its zoning, which is one of the major reasons the character of Bannockburn has been preserved. Bannockburn's Zoning Code, as amended, should continue this tradition.

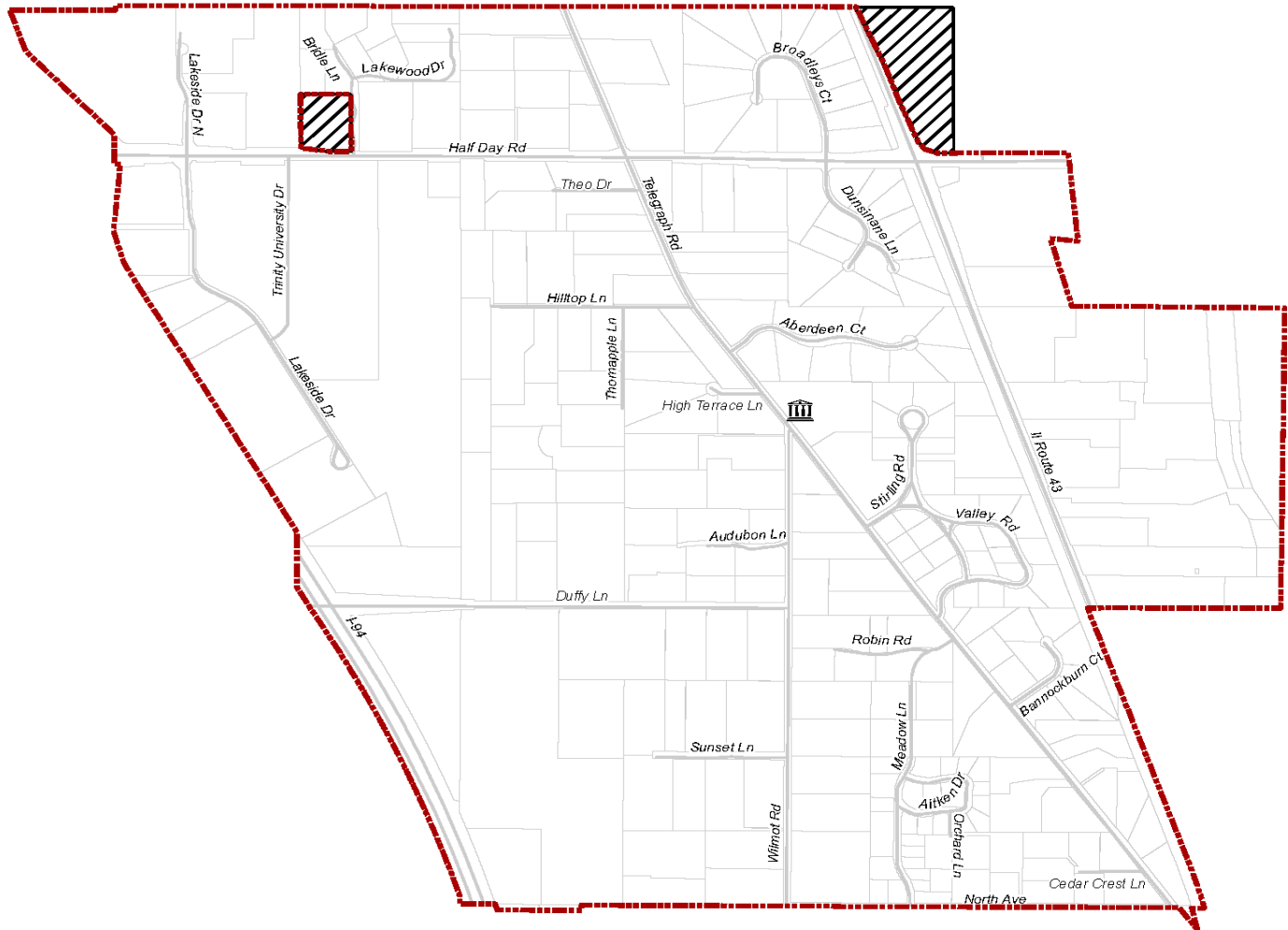
The first objective of the Village's Zoning Code should be to ensure that all development in Bannockburn is in accordance with the Comprehensive Plan. The use of land is dependent upon the arrangement of such physical facilities as streets, utilities, public places, and existing uses. The Comprehensive Plan, which addresses the appropriate location of different land uses, also addresses all of the public facilities and indicates where they should be in the Village. Under the provisions of a good zoning code, growth will arrange itself according to a pattern of land use that conforms to the Comprehensive Plan. Bannockburn's zoning regulations have done this in the past and should continue to do so in the future.

Zoning regulations should be based on the interests of all people in the community rather than upon the value or use of one or two individual parcels of land. Zoning is more than just a set of rules to keep one person from unduly damaging the value of his neighbor's property; it is a directive force to encourage the development of the land for its highest and best uses when viewed from the standpoint of the community as a whole. Zoning is not intended to encourage uses that would bring the highest price in the speculative land market. By following its Comprehensive Plan and promoting its special character over speculative gain, Bannockburn has attracted the very highest quality development and made itself a more desirable place to live and work. It has also created generous land values in both its residential and non-residential areas.

Bannockburn Zoning Code's second objective should be to preserve and enhance Bannockburn's community character. Preserving the character of Bannockburn has been central to planning in Bannockburn from the first Aitken land plans through all of the Village's comprehensive plans. The unique community character of Bannockburn is what has made it an attractive place to live for the last 90 years. Preserving that character is essential to the community's future. In conjunction with the Planned Unit Development provisions of the Village's Zoning Code, the Village's residential districts protect the residential character of the Village. The required setbacks, height and floor area regulations, architectural review, and site plan review of landscaping promote the desired community character for non-residential development as well.

Legend

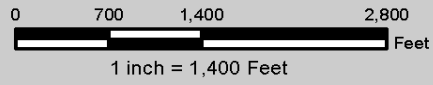
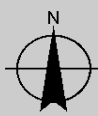
-  Potential Candidates for Annexation
-  Village Limit
-  Village Hall



Sources: Lake County GIS



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Drawn By: gnewton



Map 10 - Potential Candidates for Annexation

Bannockburn Comprehensive Plan
Bannockburn, IL

Map Center: -87.87022 42.19388

Date: 12/12/2013 Project: 8101.000

A third objective of the Bannockburn Zoning Code should be to encourage the design of new developments or redevelopments in a manner that preserves natural landscape features and uses landscaping to reduce the visual impact of development. Designs should also be sensitive with regard to the placement of buildings in relation to their neighbors. There should be regulations in the Bannockburn Zoning Code that address each of these issues and sets minimum standards of performance. The tree preservation, wetland, and drainageway provisions enacted by the Village preserve essential natural areas so that these features are preserved during the development process. Other standards control building height, setbacks, and landscaping to protect the interests of neighboring property owners.

No major changes to the existing basic zoning pattern within the present Village limits are necessary to conform to this Comprehensive Plan. Indeed, a staunch adherence to that pattern is probably the most important factor in implementing this Comprehensive Plan. Generally, the existing pattern should be continued. However, regulations were added in 1996 to require the eventual replacement of light industrial uses along Waukegan Road to promote redevelopment of that corridor with high quality office uses in keeping with the more recent office development in the area.

DESIGN AND LANDSCAPING

Bannockburn derives its character initially from its spacious lot sizes, but its character is certainly secured and enhanced by the abundant vegetation and wooded areas it has managed to preserve or plant as it has developed. The policy of protecting trees and wooded areas should be continued, as it is far better to preserve mature trees and forest than to plant small trees. As was illustrated previously, some of the areas that appear today to have been cut out of a forest were in fact open fields in the 1920s (Please see photos 40 and 41).

In 2005, the Village's current landscape bufferyard requirements were modified and strengthened in order to preserve and enhance the character of the Village, provide protection and privacy to property owners, and to mitigate adverse impacts from development and land use intensities. The adoption of the more stringent landscaping and landscaped bufferyard requirements, particularly on the road frontages of open sites, is a formalization of past practices. Those landscaping requirements ensure that Bannockburn retains its unique character as the remainder of its development potential is realized.

The character of the roadways in Bannockburn should be consistent with the overall character of the Village. This is important not just for the Village's residential streets, but also for the major roads that pass through the Village and provide visitors with their initial impressions of the Village. Half Day Road is a case in point. Landscaping along this roadway and medians was substantially improved with trees, plantings, shrubs and rain gardens when the road was widened to four lanes in 2013. The expansion of Half Day Road to a four-lane facility impacts all Village residents. Figure 1 illustrates three types of landscape treatments that could be used to maintain the qualities Bannockburn wishes to preserve. Enclosed drainage should be used so that curbs can assist in keeping vehicles contained within the paved areas to protect those plantings. Although this will not provide a total barrier, it will create a much more rural environment than could be achieved using typical State design standards.

The Illinois State Toll Highway Authority may consider improvements to the Tollway in the future. To the extent changes are made to the Tollway, the Village should demand a design that would buffer the Village from the audio and visual impacts of this expressway.

Berms are often installed along roadways in order to cut down on noise and preserve views. Berms should be placed behind any existing tree rows so as not to damage any existing trees during construction of the berm. The berms that are typically built in northern Illinois communities are too steep (See Figure 2). Their slopes are such that they rapidly shed any rainfall, and deprive vegetation of needed moisture. Berms that are too steep also look very artificial. The maximum slope for most berms should be three to one (See Figure 3). Berms that are steeper should only be permitted where there is substantial existing tree cover between the berm and the road. Ideally, berms should be curved, not continually straight, and have a slope of four to one or less and a flattened top to reduce stormwater runoff (See Figure 4). These berms should be planted with a mix of wildflowers and grasses as well as trees and rapidly spreading shrubs. No mowing or burning should be permitted so that these areas can return to a wooded or partially wooded character as soon as possible following construction.

More effective placement of landscaping needs to be done in and around all development. In the earliest Chicago suburbs, the style of landscaping enhanced the rural qualities of the suburbs. In residential areas, the homeowner typically planted trees around the borders of the property in order to provide extra privacy (See Figure 5). Since World War II, however, this type of landscape design has disappeared from the scene. Landscape materials are typically concentrated near the foundations of homes (See Figure 6). Developers and property owners are required to plant not only street trees, but to landscape the frontages and side yards of their properties as well. The right-of-way and all yard areas of such lots should be planted in as natural a form as possible. This includes plantings that mimic a forest, hedgerows, hedges, and plantings that mix trees with selected wildflowers. Low rail or stone fences that mimic rural fence styles can also be part of the front yard design of such lots.

There is also a need for more sensitive landscaping patterns for non-residential development, including Trinity International University. The Village has worked with Trinity International University to develop a master plan and landscape plan for the University, which is reviewed every 18 months.

The typical landscape pattern in commercial development creates scattered trees, laid out so their canopies will be separate for twenty years or more. Shrubs and ornamental trees are often massed in separate planting areas, resulting in a very formal and unnatural planting arrangement. Furthermore, each of these planting areas is mowed around, resulting in increased maintenance costs and fuel waste. New developments and redevelopments in Bannockburn are required to follow a more natural landscaping scheme that contributes more effectively to the Countryside character.

Larger trees should be planted at irregular spacing with a mix of other plantings in order to create a mass that does not require mowing. The larger canopy trees that provide the initial impact should be intermixed with smaller trees and seedlings of the same species, as well as with understory or ornamental trees and shrubs. Hedgerows can be created that may have

view gaps to permit a glimpse of the building (See Figure 7). The hedgerow can consist of a mix of canopy trees, understory trees and shrubs, or a mix of ornamental trees and shrubs.

Wildflowers, perennial flowers, and prairie plantings can be planted in a manner that ranges from very garden-like to very natural in character, and can be mixed to provide a large area of plantings that flower from early spring into the fall. Natural pond edges that have wetland plants and are backed by wildflower, perennial, and prairie plantings or woodlands can also be created. Detention basins can serve as landscape features of non-residential developments. By using natural vegetation around these facilities, nutrients and pollution are kept from reaching the water and a more rural image is created than is the case with ponds that are lined with gravel and mowed grass.

Rain gardens can be planted in most areas to absorb storm water runoff, especially in sunny area. Native plantings should be used to absorb the rain garden water (see Figure 8).

PEDESTRIAN PATHS AND HORSE TRAILS

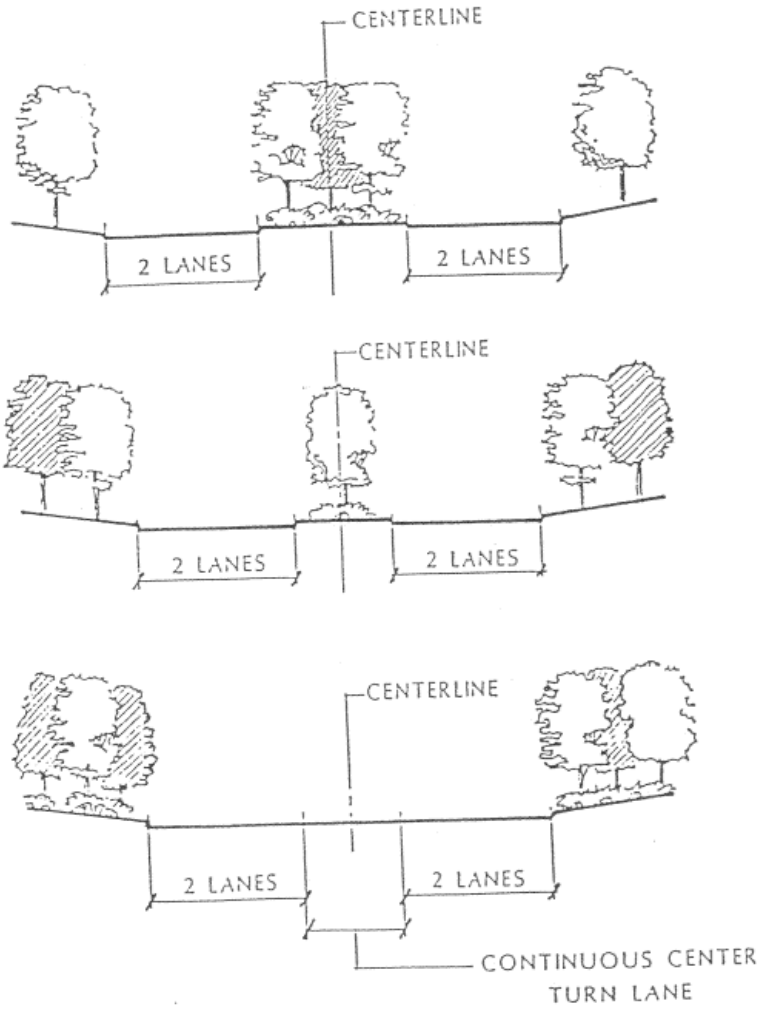
The character of the Village is intimately linked to a rural atmosphere that should be nurtured and amplified by improving and acquiring additional equestrian and pedestrian pathways along Dunsinane Lane and Wilmot Road to fully utilize Bannockburn's existing equestrian and pathway trail system. Additionally, future residential development should be required to provide additional pathways and equestrian trailways.

LIGHTING

Just as with landscape elements, the design and use of lighting should not detract from the rural qualities of the Village. New developments and redevelopments in Bannockburn are required to follow established exterior lighting regulations that preserve and enhance the "dark at night" character of the Village.

In 2005, the Village adopted more stringent exterior lighting regulations to provide regulations that preserve and enhance the "dark at night" character of the Village. Any permitted accessory lighting fixtures is required to be designed, arranged, and operated so as to prevent glare and direct rays of light from being cast onto any adjacent public or private property or street and so as not to produce excessive sky-reflected glare. It is the Village's intent to continue standards for appropriate lighting practices and systems that will (i) enable individuals to view essential detail to permit them to undertake their activities at night; (ii) facilitate safety and security of persons and property; and (iii) curtail the degradation of the nighttime visual environment. The exterior lighting regulations apply to residential, college district and commercial developments to better protect the Village from unnecessary light pollution and glare.

FIGURE 1: THREE TYPES OF LANDSCAPE TREATMENTS



FIGURES 2, 3 AND 4: TYPICAL BERM IN NORTHERN ILLINOIS; MAXIMUM SLOPE OF MOST BERMS; BERM WITH FLATTENED TOP.

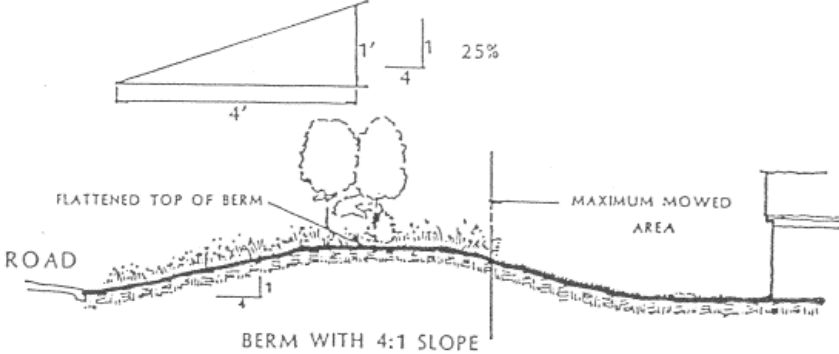
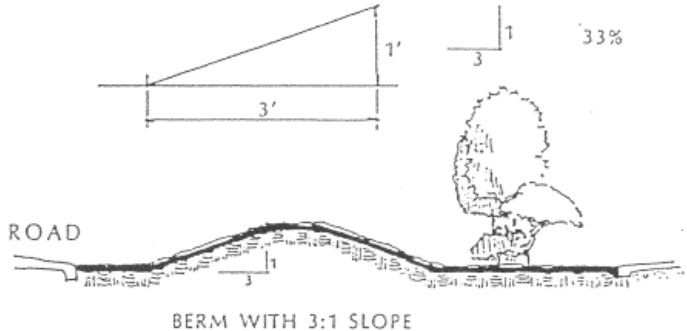
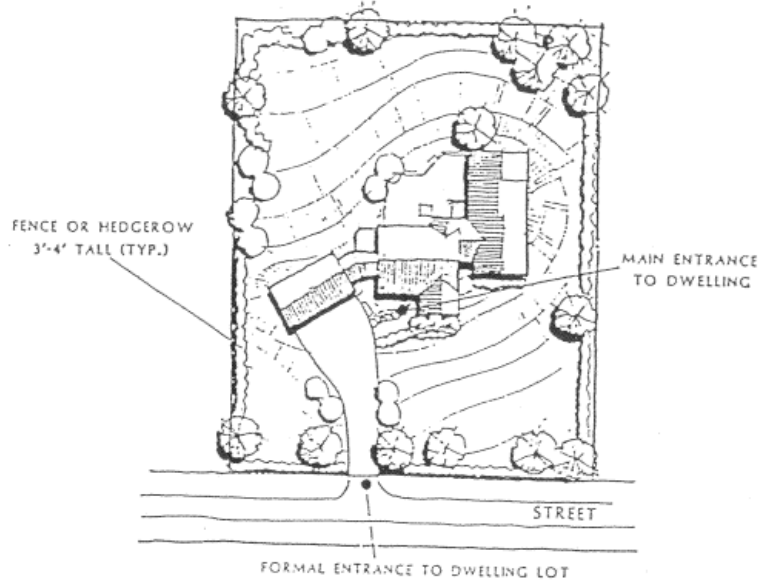


FIGURE 5 AND 6: TYPICAL LANDSCAPING OF A RESIDENTIAL LOT CIRCA 1920 AND CIRCA 1980

TYPICAL LANDSCAPING OF A RESIDENTIAL LOT CIRCA 1920



TYPICAL LANDSCAPING OF A RESIDENTIAL LOT CIRCA 1980

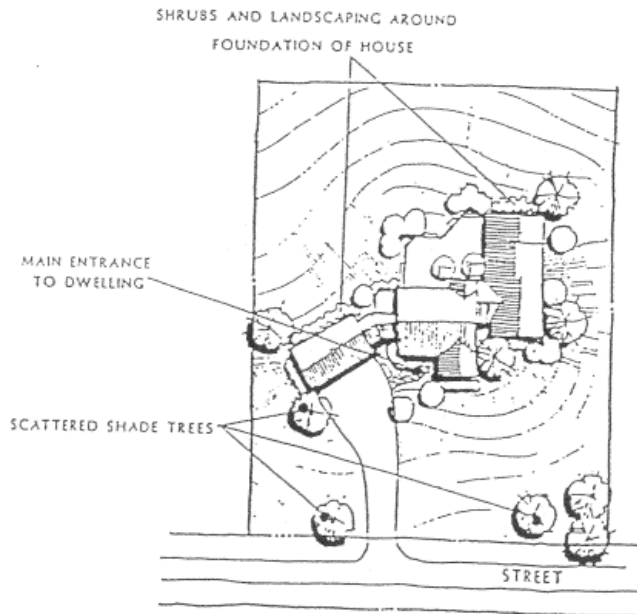


FIGURE 7: HEDGEROWS

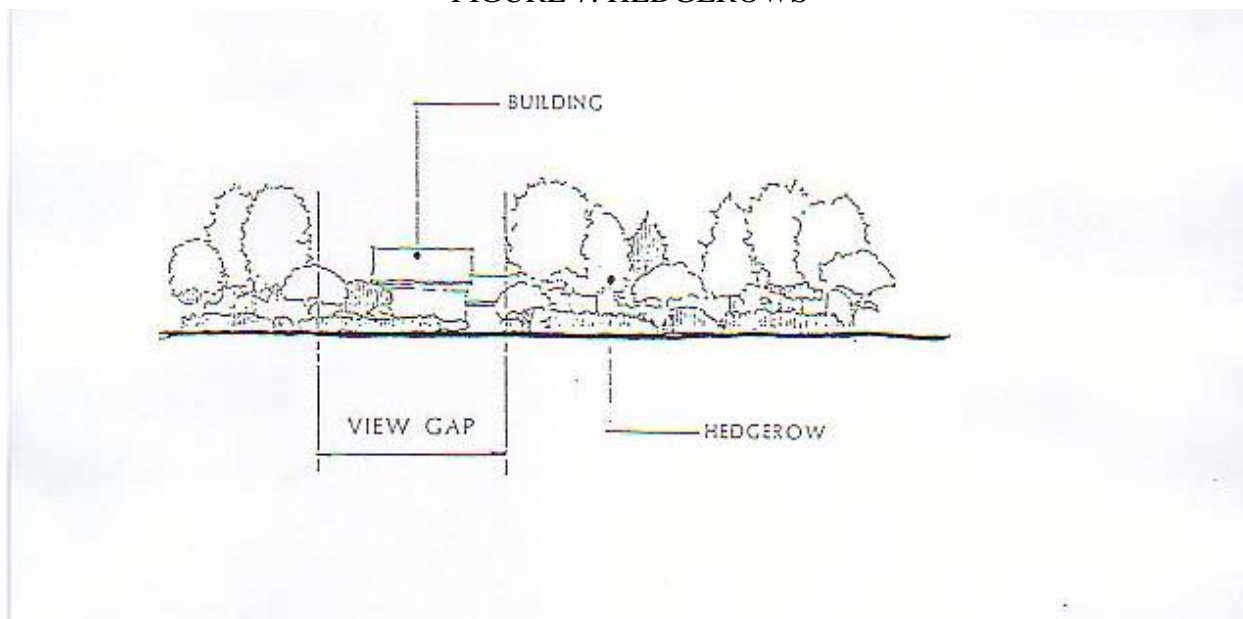


FIGURE 8: RAIN GARDEN CROSS SECTION

