CHAPTER #7

AGRICULTURAL, NATURAL AND CULTURAL RESOURCES

CHAPTER 7: AGRICULTURAL, NATURAL AND CULTURAL RESOURCES

TABLE OF CONTENTS

Introduction 7-1
Agricultural, Natural and Cultural Resources Vision 7-1
Agricultural Resources 7-2
- Farmland Soils 7-2
- Farm and Farmland Losses 7-3
- Wisconsin Ledge American Viticultural Area 7-3
- Long Term Sustainability of Farming in Buchanan 7-4
- Farmland and Open Space Preservation Tools 7-5
  - Conservation–Based Development 7-5
  - Land Trusts and Conservation Easements 7-5
  - Specialty Farming 7-6
  - Agriculture Protection Zoning (Exclusive Agriculture Zoning) 7-6
  - Incentive Zoning (Density Bonus Incentives) 7-7
  - Overlay District 7-8
  - “Options Review” for Developers 7-8

Natural Resources 7-9
- Glaciation, Topography, and Geology 7-9
- Soils 7-10
- Watersheds and Drainage 7-10
- Lakes 7-11
- Groundwater and Aquifers 7-11
- Wetlands and Floodplains 7-13
- Woodlands 7-14
- Wildlife Habitat 7-14
- Environmental Corridors 7-14
- Threatened and Endangered Species 7-15
- Exotic and Invasive Species 7-16
- Metallic and Non-Metallic Mining Resources 7-16
- Solid and Hazardous Waste Sites 7-17
- Air Quality 7-18
- Building and Sanitary Suitability Maps 7-18

Cultural Resources 7-19
- State and National Register of Historic Places 7-20
- Architectural and Historic Inventory (AHI) 7-20
- Archaeological Sites Inventory 7-21
- Locally Significant Historic Places 7-21
- Preservation Tax Incentives 7-21

Comparison to Surrounding Plans 7-22
- City of Kaukauna 7-22
- Village of Harrison 7-22

Agricultural, Natural and Cultural Resources Issues and Concerns 7-23
- Sustaining Farmlands and Natural Areas in a Growing Community 7-23
- Preservation of Surface Water Quality 7-25
- Protection of Groundwater 7-26

ATCP 51 - Livestock Siting Law 7-26
Coordination with Other Comprehensive Plan Elements 7-27
Economic Development 7-27
Land Use 7-27
Housing 7-28
Transportation 7-28
Utilities and Community Facilities 7-28
Intergovernmental Cooperation 7-29
Agricultural, Natural, and Cultural Resources Goals, Objectives and Policies 7-29

TABLES

Table 7-1: Farmland Classifications 7-3
Table 7-2: Outagamie County Farm Land, 2007 to 2012 7-3
Table 7-3: Steep Slopes, High Bedrock, High Groundwater 7-10
Table 7-4: Groundwater Contamination Susceptibility 7-12
Table 7-5: Wetlands & Floodplains 7-14
Table 7-6: Town of Buchanan Threatened/Endangered Species 7-16
Table 7-7: Soil Potential for Building Site Development 7-19
Table 7-8: Soil Limitations for Septic Tank Absorption Fields 7-19

MAPS

Map 7-1: Farmland Classification 7-31
Map 7-2: Environmental - Soils 7-33
Map 7-3: Soil Classifications 7-35
Map 7-4: Environmental – Water & Conservation 7-37
Map 7-5: Groundwater Susceptibility 7-39
Map 7-6: Soil Limitations for Building Development with Basements 7-41
Map 7-7: Soil Limitations for Septic Tank Absorption Fields 7-43

CHAPTER 7: AGRICULTURAL, NATURAL AND CULTURAL RESOURCES

INTRODUCTION

This chapter provides an inventory of existing agricultural, natural, and cultural resources in the Town of Buchanan. Issues associated with these resources are discussed and a vision, with supporting goals and objectives, is presented.

Landl Farms, CTH GG

Wisconsin's Comprehensive Planning Law includes 14 goals for local comprehensive planning. The goals listed below specifically relate to planning for agricultural and natural resources:

- Protection of natural areas, including wetlands, wildlife habitats, lakes, woodlands, open spaces and environmental corridors.
- Protection of economically productive agricultural areas.
- Protection of agricultural lands for agricultural purposes.

AGRICULTURAL, NATURAL AND CULTURAL RESOURCES VISION

AGRICULTURAL, NATURAL AND CULTURAL RESOURCES VISION

In 2040, throughout Buchanan, natural areas, farmland, and open spaces enhance quality of life for residents and provide habitat for wildlife. Woodlands, wetlands, prime agricultural lands, and the Fox River remain the landscape features in the eastern part of Buchanan. In the western part of the Town, residential and commercial areas have been developed with protected open spaces and abundant landscaping. Residents and visitors enjoy access to the natural environment via a network of local and county trails connecting neighborhoods to the CE Trail, the Fox River, High Cliff State Park and surrounding communities.

Community-based organizations continue to provide leadership in developing educational and cultural activities for the residents of Buchanan.

AGRICULTURAL RESOURCES

Agriculture is the primary land use in Buchanan - accounting for about fifty-three percent of the Town's land base (2015). However, it is also among the most threatened use because in Buchanan, residential and commercial growth typically has occurred on land that was once farmed. Accordingly, development pressures decrease available agricultural acreage and threaten the viability of farming.

Farmland Soils

Productive farm soils are located throughout the Town (Map 7-1, Table 7-1). Existing agricultural lands are most concentrated in the eastern part of the community. A classification system rating the suitability of a specific area based on soil type and condition was developed by the U.S. Department of Agriculture.[1] Prime farmland are generally defined as "land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and that is available for these uses. It has the combination of soil properties, growing season, and moisture supply needed to produce sustained high yields of crops in an economic manner if it is treated and managed according to acceptable farming methods".[2] This includes the following classifications (1) All areas are prime farmland; (2) Prime farmland, if drained; (3) Prime farmland if protected from flooding or not frequently flooded during the growing season, and (4) Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season.[3] Farmlands of Statewide Importance, is land, in addition to prime and unique farmlands, that is of statewide importance for the production of food, feed, fiber, forage, and oil seed crops. Farmlands of Statewide Importance are not prime farmland. Soil data from the NRCS-USDA Web Soil Survey (WSS), accessed in 2015, was used to determine prime farmland.

Overall about 89% (8,836 acres, 88.8%) of the land within the Town is considered prime farmland with the majority classified as "All Areas Prime Farmland" (Map 7-1, Table 7-1).

[1] USDA 1993. USDA Handbook 18: Soil Survey Manual.
[2] United States Department of Agriculture, Natural Resource Conservation Service. NSSH Part 622 I NRCS. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/?cid=nrcs142p2_054226.
[3] Prime farmland also includes areas that are irrigated. However, within Town of Buchanan this classification does not exist and was therefore omitted from the text.

Table 7-1: Farmland Classifications

Soil Classification	Acres	Percent
All Areas Prime Farmland	6,860	69.0%
Prime Farmland, if Drained	1,576	15.8%
Prime Farmland if Protected from Flooding/Not Frequently Flooded	400	4.0%
Farmland of Statewide Importance	170	1.7%
Not Prime Farmland or Statewide Importance	942	9.5%
Total	9,948	100.0%

Source: NRCS - USDA 2015

Farm and Farmland Losses

According to the 2012 Census of Agriculture, Outagamie County lost 192 farms between 2007 and 2012 (Table 7-2). However, while the number of farms decreased, the average size of a farm and the farm acreage increased during this time period. Within the Town of Buchanan, about 612[4] acres of farmland was lost in the Town of Buchanan between 2000 and 2015.

Table 7-2: Outagamie County Farm Land, 2007 to 2012

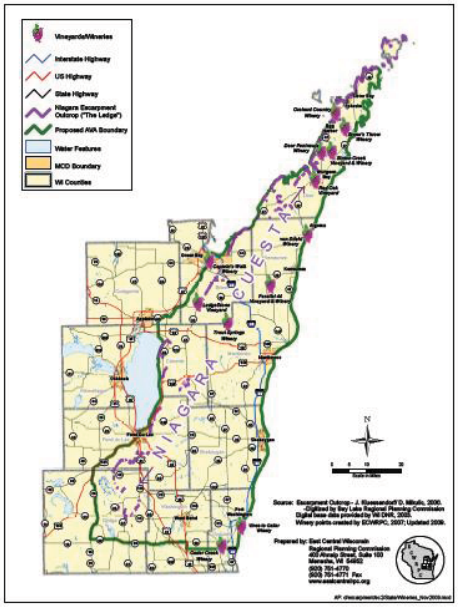
	2007	2012	Change 2007-2012	% Change
Number of Farms	1,362	1,170	-192	-14.1%
Farm Acreage	247,482	250,748	3,266	1.3%
Average Farm Size	182	214	32	17.6%

Source: 2012 Census of Agriculture, USDA, National Agricultural Services

Wisconsin Ledge American Viticultural Area (AVA)

American Viticultural Areas (AVA) are federally recognized growing areas. An AVA recognizes unique qualities of a landscape for its ability to grow grapes. The Wisconsin Ledge AVA, once finalized, will recognize the Niagara Cuesta for its unique ability to grow grapes.

The eastern part of the Town is included in the Wisconsin Ledge AVA.



Source: Niagara Escarpment Resource Network

[4] ECWRPC land use, 2000 and 2015.

A variety of factors threaten the long- term viability of farming in Buchanan. They include:

- a projected population of 10,180 by the year 2040;
- potential future annexation of land by the City of Kaukauna and the Village of Kimberly;
- the desire for large-lot residential development that takes farmland out of production;
- the increasing median age of farm operators combined with fewer young people interested in farming; and
- the high demand for residential housing in Buchanan and the Fox Valley.

To ensure that farming remains an important ongoing land use in Buchanan, this comprehensive plan seeks to identify prime agricultural areas to be protected from residential and commercial development. The location of these farming areas was selected based upon their long-term suitability for agricultural uses and the willingness of landowners to continue farming.

A variety of tools are available to local governments and farmers to preserve prime agricultural lands. These include Wisconsin's Farmland Preservation Program, various Natural Resource Conservation Service programs, and the purchase or transfer of development rights, among others. These programs are most effective in communities where farming will remain a primary land use over time. Successful farmland preservation efforts are dependent upon the support of local farmers and their ability to pursue new markets to sustain operations over time.

Long Term Sustainability of Farming in Buchanan

This section provides options available to the Town and local farmers to preserve locally owned agricultural operations. Strategies to protect farmland include:

- conservation-based subdivision designs;
- land trusts and conservation easements;
- specialty farming;
- Agriculture Protection Zones;
- Incentive Zoning; and
- Overlay Districts.

The Economic Development Element of this plan also discusses more options for protecting viable farm operations including: permitting value-added operations such as cheese making and on- and off-farm direct retailing (roadside farm stands) and transitioning from conventional to organic farming techniques.

Farmland and Open Space Preservation Tools[5]

Conservation–Based Development

Conservation-based development techniques may involve the establishment of a conservation easement. In a conservation subdivision, homes are "clustered" together so that a greater proportion of the land is protected from development.

- A typical conservation subdivision will require that 40% of a site be set aside and preserved as undevelopable open space.
- Protection and maintenance of the conserved area can be accomplished through a conservation easement held by a land trust, homeowners association, government body, or through deed covenants.
- The areas to be conserved must be protected indefinitely.
- The land designated for protection will be preserved as natural habitat, open space, or farmland. If it is farmland, special consideration should be given to where residential development is located (e.g. prevailing winds, buffers, etc.) to allow farm uses to coexist harmoniously with residential uses.
- In conservation subdivisions, the development of walking and bicycle trails is encouraged, particularly to provide limited access to protected natural areas.

In some situations, it is not feasible to reduce the lot size to develop a conservation subdivision. In these situations, lot lines can be extended so that there is no commonly owned open space, but rather private open space. Areas beyond the home sites can then be deed-restricted against further development, keeping the property open without creating a "common" open space. If viewed from above there is no difference in the resulting development. In Buchanan, the Rueden Ridge development is a great example of this situation. Private easements were used to create open space within the confines of a traditional ordinance. This approach is more cumbersome to approve, but the preservation result is the same.

Land Trusts and Conservation Easements

Land trusts provide another option to landowners seeking to protect natural areas and farmland. Land trusts provide landowners with advice on protection strategies that best meet the landowner's conservation and financial needs. Lands trusts accept lands donated by landowners for conservation purposes. Land trusts can also work with landowners to establish conservation easements.

[5] *Washington County, Farmland & Open Space Preservation Tools, June 22, 2005.*

What is a Conservation Easement?

A conservation easement is a **voluntary legal agreement** between a landowner and a land trust or government agency that limits present and future development of a parcel.

Under a conservation easement, the **landowner retains ownership** of the land (within the terms of the easement – e.g. only for farmland or natural space, not for development) and the land trust takes the responsibility for protecting the land's conservation values.

Donated conservation easements that meet federal tax code requirements can provide significant **tax advantages** to landowners because their land will be taxed as undevelopable land, which is a much lower rate than developable land. Qualified easements may also generate charitable contribution dedications for income and transfer tax purposes.

Specialty Farming

Specialty or niche farming provides an alternative to conventional agricultural production, particularly for smaller farms attempting to compete with large agricultural operations. Buchanan's location and ready highway access provides an opportunity to market directly to the larger population centers of Northeastern Wisconsin and the Fox River Valley. Marketable agricultural products may include:

- Organic milk and cheese from local dairy operations.
- Organic vegetables and produce (sold locally at a collective farmers' market in Buchanan or in nearby cities).
- Aquaculture products.
- Pumpkin patches, berry farms, and orchards that allow visitors to pick their own produce.
- Walnuts, maple syrup, and pine trees (for landscaping or holidays) from local tree farms.
- Horse farms (offering boarding and potential future trail access).

Organic food is a fast-growing industry in the United States. Products that once occupied a boutique marketplace niche are becoming mainstream, as consumers seek healthier alternatives to conventional farm produce. Organic and specialty farming counter the notion that farms must become very big or be lost to development. They provide a profitable choice for small, local farmers. In addition, the Future Land Use Chapter identifies agricultural districts to target farm preservation.

Agriculture Protection Zoning (Exclusive Agriculture Zoning)

Agriculture protection zoning is intended to preserve agriculture as a permanent land use. The most important characteristic of an agriculture protection zoning ordinance is the extent to which it limits the intrusion of new, nonagricultural uses (usually non-farm dwellings). Implementation

of an agricultural protection zoning ordinance depends on farmers and other rural residents to be open, agreeable, and supportive of a regulation that limits the amount of non-farming development that is permitted in the agricultural areas of the community. This tool helps maintain a sense of "rural character" by restricting non-farm-related development and requiring relatively large minimum parcel sizes (35 acres or more). In addition, agricultural zoning benefits farmers by providing them protection from large-scale urban development whose residents might find their farming practices a nuisance. The Town of Buchanan has an Exclusive Agricultural District.

However, there is no Exclusive Agricultural Zoning in Buchanan at this time. In the past, there has been no interest among landowners to establish such a district. This type of zoning does exist in Calumet County and in other areas of Outagamie County.

Agricultural Protection Zoning

Benefit	Limitation
• Helps prevent agricultural land from becoming fragmented by residential development • Clearly identifies agriculture as primary land use • Easily implemented by municipalities • Able to protect large areas of agricultural land	• Does not permanently preserve agricultural land • Does not protect agricultural land from annexation

Incentive Zoning (Density Bonus Incentives)

Local units of government may use density bonuses as part of their development review and/or subdivision approval process. This approach assumes that if specified criteria are met, then a proposed development would be approved with more use of a site (such as more dwelling units per acre) than would otherwise be permitted by the community. That is, greater development density would be allowed if certain conditions are met. These "density bonuses" are a form of incentive that a community can offer to a developer who does the kind of development that a community seeks.

Density bonuses may be used to achieve a wide array of community objectives, such as preservation of agriculture land, open space, and conservation of wetlands, water bodies, forests, meadows and other natural features that the community values. A list of density bonus criteria would need to be incorporated into Buchanan's subdivision, zoning, or other development review regulations.

Incentive Zoning (Density Bonus Incentives)

Benefits	Limitations
• Allows for the protection of environmentally sensitive areas while providing development to occur on the property. • Does not impose any direct costs on the landowners and developers.	• Neighbors may oppose due to concerns of increased density of development. • May not be mandatory tool; thus there is little assurance that desired project designs will be implemented by developers. • Can be difficult for local officials to enforce unless bonus criteria are clearly spelled out in an ordinance or policy document.

Overlay District

An overlay district is used to establish alternative land development requirements within a specific area of a community that requires special attention, such as an environmentally sensitive area or rapidly developing highway corridor. The overlay is superimposed over conventional zoning districts. It consists of a physical area with mapped boundaries and an ordinance detailing requirements that are either added to, or in place of, those of the regulations. Overlay districts specify requirements that take precedence over those of the underlying districts they cover.

Overlay Districts

Benefits	Limitations
• Help protect natural resources in desired areas in the community • Easily implemented • Recognizes land dedicated to agriculture or other specific use • Help protect large blocks of land	• Additional zoning requirements • Not a permanent solution to protect land from development pressures • Sanctions for withdrawing from district may not be strong enough to discourage conversion out a specific land use

"Options Review" for Developers

This tool requires developers to consult with public agencies and local non-profit organizations working on farmland/open space preservation prior to coming forward with subdivision or site plan applications. This creates the opportunity to explore ways to protect portions of the site for preservation for the purpose of farmland use and/or natural resource conservation. One major limitation to this type of tool is that a community utilizing this tool may find that developers may choose not to implement any of the preservation options proposed since they are not mandatory.

"Options Review" for Developers	
Benefits	**Limitations**
• Opportunity for developers to consult with public agencies and local organizations to explore farmland and open space preservation areas of developments.	• Staff resources needed to implement program • Not mandatory, therefore developers may choose not to participate

NATURAL RESOURCES[6]

A correlation often exists between the presence and prevalence of open space and the positive feelings people have about their community. In this way, maintaining the natural environment is a key factor in enhancing positive "quality of life" attitudes among local residents.

In many respects, the natural landscape determines where development can and can't happen. Diverse topography limits the type and density of development that can occur. Certain soils types have limitations that preclude development upon them. Preservation of natural resources (wetlands, surface and groundwater, woodlands, shorelines) is an important priority in Buchanan. Local residents value the benefits provided by a healthy and diverse natural environment. Many of Buchanan's natural assets are shown on the natural resources maps in this chapter.

This portion of the chapter seeks to provide the natural resources found in Buchanan. The topics addressed here correspond to those topics required under the Wisconsin Comprehensive Planning Law. Additional sources providing more information, including regulatory requirements, are highlighted, where possible

Glaciation, Topography, and Geology

Buchanan, like most of Wisconsin, owes its unique landscape to the cumulative effects of past ice ages. More than 95% of Wisconsin's natural lakes and many of its major rivers (including the Fox and Wisconsin Rivers) were formed during the last glacial recession. The Wisconsin Glacial stage began approximately 65,000 years ago and lasted about 54,000 years. The ice that covered most of the state was up to one mile thick in places and extended in five lobes: the Superior, Chippewa, Wisconsin Valley, Green Bay, and Lake Michigan lobes. The Green Bay lobe extended along the eastern part of the state carving out Green Bay, the Fox River, and Lake Winnebago and reaching as far south as the City of Madison. As these lobes receded, they left glacial lakes in their path. The last glacier in Wisconsin began receding about 11,000 years ago.

[6] Portions excerpted from the Town of Buchanan Comprehensive Plan, January 1998.

The Town of Buchanan is part of the Eastern Ridges and Lowlands geographic province of Wisconsin[7]. Topography in the Town is characterized by flat to gently rolling, interrupted only by the ravines cut out by Garners Creek, Kankapot Creek and other streams and tributaries. Elevation in the Town varies from 600 to 800 feet above sea level. The lowest elevation in the Town as well as Outagamie County is about 600 feet where the Fox River enters Brown County in the northeast corner of the Town. The highest elevation in the Town is about 800 feet and is found in the southeastern corner of the Town. Approximately 482 acres of steep slopes exist within the Town, occurring along Garners Creek, Kankapot Creek and the Fox River corridors (Map 7-2, Table 7-3).

Table 7-3: Steep Slopes, High Bedrock, High Groundwater

Soil Classification	Acres	Percent
Slope Greater than 12%	482	4.8%
Bedrock Less than 5 Feet	41	0.4%
Groundwater Less than 2 Feet	1,735	17.4%
Total	9,948	100.0%

Source: NRCS-USDA Web Soil Survey (WSS), Accessed 2015

Soils

Soils provide the physical base for agriculture and development within the Town. Knowledge of the limitations and potentials of the soil types is important in evaluating crop production capabilities or when considering the construction of buildings, the installation of utilities, or other uses of the land. Some soils exhibit characteristics such as slumping, compaction, erosion, and/or high water tables which place limits on development. Severe soil limitations do not necessarily indicate areas that cannot be developed, but rather indicate that more extensive construction measures may need to be taken to prevent environmental and/or property damage. Such construction techniques generally increase the cost of development and the utilities needed to service the development.

All of the soils within the Town of Buchanan belong to the Winneconne-Manawa Association (Map 7-3). The Winneconne-Manawa Association is well drained to somewhat poorly drained, nearly level to sloping, medium textured and moderately fine textured, slowly permeable or very slowly permeable soils that are underlain by silty clay glacial till or clay lacustrine sediments.

Watersheds and Drainage

The surface water drainage system for the Town of Buchanan is located in the Lower Fox River drainage basin. The area is covered by the Plum and Kankapot Creeks (LF03) sub-watershed and is a WDNR Priority Watershed for nonpoint pollution (Map 7-4). In recent years the Fox-Wolf Watershed Alliance[8] has been coordinating with various partners to establish watershed recovery efforts throughout Plum and Kankapot Creeks watershed. The stream and tributaries

[7] http://www.wisconline.com/wisconsin/geoprovinces/easternridges.html.
[8] Fox-Wolf Watershed Alliance; http://fwwa.org/our-work/watershed-recovery/lower-fox-river-recovery.

in the Town are generally oriented toward the north and east, toward the Fox River. Several streams and tributaries, that are part of the Garners Creek drainage basin, drain the western portion of the Town, west of STH 55. Garners Creek discharges into the Fox River in Combined Locks. The area immediately east of the Garners Creek drainage basin drains into Kankapot Creek, a perennial stream which empties into the Fox River in Kaukauna. Except for the area adjacent to the Fox River, as previously described, the eastern part of the Town is located in the Plum Creek drainage basin. Plum Creek empties into the Fox River just west of Wrightstown.

Lakes

The Town of Buchanan does not have any named lakes. The nearest lake to the Town of Buchanan is Lake Winnebago.

Groundwater and Aquifers

Groundwater is the primary source of potable water for the residents in the eastern part of Buchanan. (More information about drinking water in Buchanan is provided in the Utilities and Community Facilities Element.) The ground beneath Buchanan is comprised of glacial outwash and till. These deposits rest upon a layer of dolomite limestone, which itself sits upon a layer of granite. It is from the aquifer formed by these glacial deposits that the majority of Buchanan's eastern residents draw their potable water.

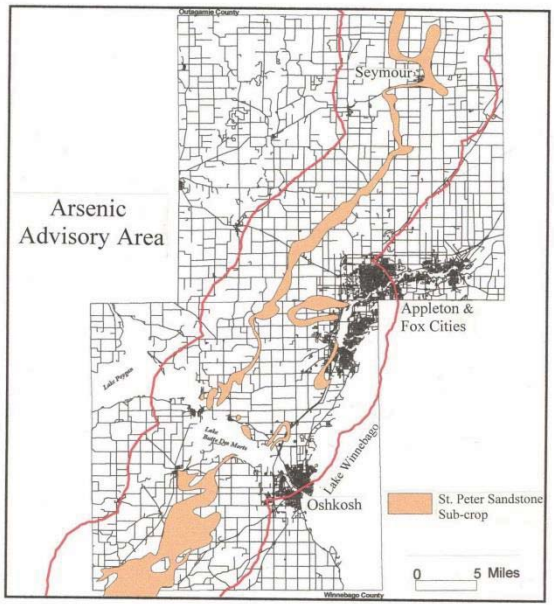
Aquifers are stratums, or layers, of gravel, sand, or porous, fractured, or cavernous rock capable of holding and/or conducting water. When fully charged, an aquifer is saturated with water. Water collects in the recharge area and flows, or percolates, to the lowest point of the aquifer. Recharge areas serve a function similar to that of headwaters for a river. They are the entry point for rainwater and snow melt into the aquifer. As the entry point, recharge areas are one of the most likely venues for contamination of groundwater.

What is an Aquifer?

An aquifer is a layer of gravel, sand, or porous, fractured, rock capable of holding or conducting water. When fully charged, an aquifer is saturated with water. Most, if not all, private wells in Buchanan draw water from an aquifer made up of glacial outwash very near the surface.

In communities without municipal water supplies, people get their water from private wells. In most cases these wells draw water from aquifers with recharge areas located outside of the community. In many instances, the recharge area may be located in another county altogether. How fast the water percolates depends upon the type of aquifer. Those comprised of sand and gravel are highly permeable. Limestone aquifers are less so. In slowly percolating aquifers the water from a faucet may have fallen as rain hundreds, or thousands, of years ago.

The distance and rate that water percolates through, and the depth from the surface of, an aquifer play key roles in the determining the purity of water drawn from it. The farther the distance and slower the percolation rate, the greater the level of purification that occurs. Aquifers located deep underground, particularly those covered by an impervious layer of deep clays or shale, are less susceptible to ground water contamination. Land uses related to residential, commercial, industrial, and agricultural development all pose a risk to groundwater resources. Failing septic systems, unregulated landfills, leaking underground storage tanks, the uncontrolled application of fertilizers and pesticides, and road salt are all sources of contamination. Water quantity is another area of potential concern. As the population of the community continues to grow, more strain will be placed upon the aquifer. The long-term viability of the sand and gravel aquifer as a potable water source is not yet known.



Source: Wisconsin Department of Natural Resources

Map 7-5 and Table 7-4 highlight areas with a higher susceptibility of groundwater contamination. Approximately 59% of the Town has a low susceptibility to groundwater contamination. These areas correlate with areas of high bedrock (within 5 feet) where overlying soils are thin and areas of high groundwater (within 2 feet) (Map 7-2 and Table 7-3).

Table 7-4: Groundwater Contamination Susceptibility

Classification	Acres	Percent
Lowest	5,851	58.8%
Moderate	3,827	38.5%
Highest	269	2.7%
Total	9,948	100.0%

Source: UW-Extension 2014

The WDNR has identified portions of the central part of the region in Winnebago, Outagamie, and Shawano counties as an “Arsenic Advisory Area”. This area coincides with the sub-crop of the St. Peter Sandstone and has one of the primary sulfide mineral bearing zones lying just below the glacial sediments. These sulfides breakdown when exposed to oxygen to create arsenic.

Wetlands and Floodplains

Wetlands act as a natural filtering system for sediment and nutrients such as phosphorus and nitrates. They also serve as a natural buffer, protecting shorelines and stream banks from erosion. Protection of wetlands in the Town is important since they serve vital environmental functions including flood control, water quality improvement, groundwater recharge and wildlife habitat.

A complex set of regulations by various local, state, and federal agencies places numerous limitations on the development and use of wetlands and shorelands. The Shoreland-Floodplain-Wetland Ordinance adopted by Outagamie County regulates shoreland use and development within 300 feet of the ordinary high watermark of navigable rivers or streams or to the "landward side of the floodplain, whichever distance is greater" and shoreland use and development within 1,000 feet of the ordinary high watermark if navigable lakes, ponds or flowages. The Department of Natural Resources regulates the placement of structures and other alterations below the ordinary high watermark of navigable streams and lakes. The United States Army Corps of Engineers has authority over the placement of fill in many wetlands. Wetland preservation criteria are incorporated by the U.S. Department of Agriculture into its crop price support program. Prior to placing fill or altering wetland resources, the appropriate agencies should be contacted to receive authorization.

Wetland areas in Buchanan are limited due to the rolling topography and the well-established drainage ways that are found in the Town (Map 7-4). Within the Town, wetlands exhibit a diversity of hydrologic and vegetative characteristics. Some of the wetlands have areas with wet soils which are forested with broad leaved deciduous trees, some have areas with either wet soil or standing water which support broad leaved deciduous scrub-shrub, others have areas with either persistent or narrow-leaved persistent emergent/wet meadow vegetation types, and still others are either grazed or farmed in dry years. There are approximately 58 acres of wetland in the Town (Table 7-5) and about 17 acres of wetlands that are found in a floodplain.

Floodplains serve many important functions related to flood and erosion control, water quality, groundwater recharge and fish and wildlife habitats. Areas susceptible to flooding are considered unsuitable for development because of risks to lives and property (Map 7-4 and Table 7-5). Approximately 8.6% of the Town is found within a wetland, while another 0.2% of the Town is floodplain and wetland combined. Regulations place limitations on the development and use of wetlands and floodplains. A municipality has the authority to accord greater protection to wetlands, shoreland and floodplain areas under the state statutes.

Areas susceptible to flooding are considered unsuitable for development because of risks to lives and property. The FIRM Flood Insurance Rate Map identifies some areas along the Fox River in the northern part of the Town as areas subject to flooding. In addition, one small area along the ravine of an unnamed tributary to Garners Creek adjacent to the Village of Combined Locks within the Town is also subject to flooding. The golf course located on Weiler Road helps

provide flood protection to surrounding farmland areas through a series of drainage ways and ponds that provide surface water storage capacity.

Outagamie County has adopted Chapter 44, Shoreland Protection Ordinance, regulating development in designated flood hazard areas. Within the adopted zone, residents of the Town are eligible to participate in the federal Flood Insurance Administration's insurance program. The flood insurance program requires all structures constructed or purchased in designated flood hazard areas, with loans from federally insured banks, be coved by a flood insurance policy.

Table 7-5: Wetlands and Floodplains

Type	Acres	Percent
Wetlands Larger than 5 Acres	58	0.6%
Floodplains	857	8.6%
Floodplains & Wetlands	17	0.2%
Total	9,948	100.0%

Source: WDNR, 2015

Woodlands

The first record of vegetation in Wisconsin occurred in the 1800's, when the U.S. General Land Office completed a land survey of the entire state. In the Town of Buchanan, the native vegetation was composed primarily of deciduous forest (sugar maple, basswood, elm, yellow birch). During the last half of the nineteenth century much pre-settlement forestland was cut and cleared for agriculture.

Presently, woodland areas in the Town of Buchanan are scattered throughout the community (Map 9-1). Some of the most densely wooded areas are found along established drainage ways in the Town such as Garners Creek, Kankapot Creek and the Fox River. Areas along the Fox River are heavily wooded due to steep banks which limit development. It is encouraged that these banks remain wooded to prevent erosion and protect water quality.

Wildlife Habitat

The primary threats to wildlife in Buchanan, as elsewhere, are habitat loss and habitat fragmentation. Habitat loss typically occurs through the destruction of natural and agricultural lands during the commercial or residential development process. Fragmentation occurs when large contiguous areas of wildlife habitat are broken apart during commercial and residential development and new road construction. When fragmentation occurs, the remaining wildlife areas are known as habitat islands. Reconnecting fragmented habitat islands is the most effective way of increasing wildlife diversity. Preservation of continuous areas of open space, environmental corridor protection (see below), trail network development, and the use of conservation-based subdivision designs will protect wildlife habitat.

Environmental Corridors

Environmental corridors are components of the landscape connecting natural areas, open space, and wildlife habitat. They provide physical linkages between fragmented habitat areas and provide animals and insects a means of travel to and from feeding and breeding places. Fish and wildlife populations, native plant distribution, and even clean water all depend upon movement through corridors. Most native species decline when habitat areas are fragmented due to agricultural operations or residential and commercial development. Wildlife populations isolated in one location, like a stand of trees or a secluded wetland, can overpopulate or die out without adequate corridors that allow free and unimpeded movement.

The functional effectiveness of a corridor depends on the type of species that use it, its size and shape, and its edge effects. Larger corridors offer greater habitat diversity. Linear corridors tend to be less diverse but offer important migration routes. Edge effects include the penetration of wind, light, and sound, as well as visibility beyond and into surrounding areas. They are crucial in determining the type of habitat a corridor will provide.

One way to think of environmental corridors is to compare them to hallways. A building contains hallways, which are places of concentrated movement back and forth; and rooms, which are destination points where people eat, work, play, and sleep. The hallways serve to link places of activity. Just as hallways enhance the operation of a building, environmental corridors increase the value of natural resource areas. Areas of concentrated natural resource activity ("rooms"), such as wetlands, woodlands, prairies, lakes, and other features, become more functional when linked by environmental corridors ("hallways").[9]

In suburban environments, corridors often lie along stream and riverbanks. More than seventy-percent of all terrestrial wildlife species use riparian corridors. In farming areas, fencerows provide important habitat links for songbirds and other wildlife. In Wisconsin, fencerows were used to mark-off ownership of farm fields. Stones and stumps cleared from cultivated areas were laid along property lines or to separate "forties," the common forty-acre field. During the 1920's the federal government advocated tree-lined fencerows as a means of reducing topsoil loss. Nation-wide, farmers began planting trees along fence lines to reduce wind erosion. Over time, these fence lines became more complex, providing habitat for a variety of plant and animal species. As more of Wisconsin's farms are converted to subdivisions, these important areas wildlife habitat are lost.

Threatened and Endangered Species

WDNR defines an endangered species as any species whose continued existence as a viable component of this state's wild animals or wild plants is determined by the Department to be in jeopardy on the basis of scientific evidence. Threatened species are defined as any species which appears likely, within the foreseeable future, on the basis of scientific evidence to become

[9] Source: Environmental Corridors: "*Lifelines for Living*"; University of Illinois Extension; Fact Sheet Series, 2001-013.

endangered. The United States Fish and Wildlife Service (USFWS), maintains a listing of all threatened and endangered species in the nation. A search of this data base found two species listed for Outagamie County. The Snuffbox mussel (Epioblasma triquetra) is listed as endangered and the Northern Long-Eared Bat (Myotis septentrionalis) is listed as threatened.[10] WDNR maintains a similar listing of all endangered and threatened species for the State of Wisconsin. It is against the policy of the USFWS to identify specific areas where species may exist. However, WDNR does provide list of rare plant and animal species on a Township basis. Table 7-6 provides the WDNR NHI Township listings. Generalized versions of the databases are included on Map 7-4.

Table 7-6: Town of Buchanan Threatened/Endangered Species

Scientific Name	Common Name	WI Status	Federal Status	Group
Falco peregrinus	Peregrine Falcon	END		Bird
Migratory Bird Concentration Site	Migratory Bird Concentration Site	SC		Other~
Northern mesic forest	Northern Mesic Forest	NA		Community
Ruellia humilis	Hairy Wild Petunia	END		Plant
Southern dry-mesic forest	Southern Dry-mesic Forest	NA		Community

Source: WDNR NHI Township Search Tool, http://dnr.wi.gov/topic/NHI/Data.asp?tool=township&mode=detail
Note: WI Status, END = endangered; THR = threatened; SC = special concern

Exotic and Invasive Species

Non-native aquatic and terrestrial plants and animals, commonly referred to as exotic species, have been recognized in recent years as a major threat to the integrity of native habitats and the species that utilize those habitats. Some of these exotic species include purple loosestrife, buckthorn, garlic mustard, multi-colored Asian lady beetles, Eurasian water milfoil, and gypsy moths. They displace native species, disrupt ecosystems, and affect citizens' livelihoods and quality of life. The invasive species rule (Wis. Adm. Code Ch. NR40) makes it illegal to possess, transport, transfer, or introduce certain invasive species in Wisconsin without a permit.

Metallic and Non-Metallic Mining Resources

As part of NR 135, Wisconsin Administrative Code, adopted in December 2000, any community in Wisconsin may adopt an ordinance to establish requirements for reclamation of non-metallic mines, such as gravel pits and rock quarries. If a town decides not to develop its own ordinance, a county may develop an ordinance for the area in its stead. Likewise, regional planning agencies may develop ordinances for counties within their region. The ordinances must establish reclamation requirements to prevent owners and operators of quarries and gravel pits from abandoning their operations without proper reclamation of the mine or quarry.

[10] US Fish and Wildlife Service, Environmental Conservation Online System; https://ecos.fws.gov/ecp0/reports/species-by-current-range-county?fips=55087.

The process of siting a mine continues to be a local matter governed under existing zoning procedures by local authorities. The new reclamation requirements through NR 135 add to the status quo, but do not replace or remove any other current means of regulation. The requirements neither regulate active mining processes nor have any effect upon local zoning decisions like those related to the approval of new mine sites.

Under the law, any landowner of a demonstrated "marketable non-metallic deposit" may register the site for mining. The local zoning authority may object to the application if the zone does not permit non-metallic mining as a use. Registration expires after a 10-year period and may be extended for a single 10-year period if it is demonstrated that commercially feasible quantities continue to exist at the property. Towns rezoning property in a manner consistent with a comprehensive plan are not required to permit non-metallic mining operations that are inconsistent with the plan.

There are no non-metallic mining (quarries) in the Town of Buchanan at this time. No applications for new non-metallic mining areas are pending.

Solid and Hazardous Waste Sites

The Solid and Hazardous Waste Information Management System (SHWIMS) provides access to information on sites, and facilities operating at sites, that are regulated by the Wisconsin Department of Natural Resources' (WDNR) Waste Management program. Activities that occur at facilities include landfill operation, waste transportation, hazardous waste generation, wood burning, waste processing, sharps collection and many more. A search of the database for solid waste landfills/disposal facilities indicates that there are five landfills/disposal facilities within the Town of Buchanan (Map 7-2):

- CE Land LLC LF (FKA Kaukauna Land Inc.), N9302 STH 55, NE 1/4 of the SW 1/4 of Section 25, T21N, R18E (Status: Closed)
- City of Kaukauna Landfill, CTH Z, NW 1/4 of the NW 1/4 of Section 30, T21N, R19E (Status: Closed)
- Kenneth Schmalz Property, Adjacent to CTH KK and Main Street, SW 1/4 of the SW 1/4 of Section 33, T21N, R18E (Status: Unknown)
- Ehrer Sanitary Service - Midwest Disposal, 600 Block CTH CE (south), NE 1/4 of the NW 1/4 of Sec 36, T21N, R18E (Status: Unknown)
- Vandaalwyk Landfill, North of CTH KK, SE 1/4 of the SE 1/4 of Section 36, T21N, R18E (Status: Unknown)

In addition, there is one landfill facility in the City of Kaukauna that is adjacent to the Town:

- Red Hills Landfill - Phases 5 and 6, 1701 CTH Z, SW 1/4 of the NW 1/4 of Section 30, T21N, R19E (Status: Active)

Air Quality

A few common air pollutants are found throughout the United States. These pollutants can impair human health, harm the environment and cause property damage. The United States Environmental Protection Agency (USEPA) calls these criteria air pollutants because the agency has regulated them by first developing health-based criteria (science-based guidelines) as the basis for setting permissible levels. One set of limits (primary standard) protects health; another set of limits (secondary standard) is intended to prevent environmental and property damage. A geographic area that meets or exceeds the primary standard is called an attainment area; areas that don't meet the primary standard are called non-attainment areas.

Since alternative modes of transportation are, at present day, less viable or unavailable in some instances, people rely more on the automobile to get around. Changing lifestyles are also a major factor. Two income families are causing people to find housing that splits the difference between the two employment locations. Since vehicle travel generates air pollutant emissions, greenhouse gas emissions, and noise, local decisions about what types, where and how new development occurs can have an impact on air quality.

The closest ozone air quality monitoring site is located at the Thrivent facility at 4432 Meade Street in Appleton (Outagamie County). The primary and secondary National Ambient Air Quality standard for ozone is 0.075 ppm.[11] Monitored values of ozone represent ground level ozone, which is not directly emitted into the air. Ozone concentrations typically reach higher levels on hot sunny days in urban environments; it can be transported long distances by wind. The 8-hour design values (ppb) were not exceeded at the Outagamie County site between 1997 and 2012.[12] Particulate matter (PM) is a mixture of solid particles and liquid droplets. It includes acids, organic chemicals, metals, soil or dust, and allergens. According to the Wisconsin Air Quality Trends, 2014, Outagamie County did not exceed the primary and secondary National Ambient Air Quality Standard for particulate matter between 2001 and 2012.

Building and Sanitary Suitability Maps

Maps 7-6 and 7-7 illustrate the suitability for development in the Town of Buchanan based on local soil types found in Buchanan. Knowledge of soil limitations and potential difficulties is important in evaluating crop production capabilities and other land use alternatives, such as residential development. Soil problems that limit development potential include: slumping, compaction, erosion and high water tables. Severe soil limitations do not always mean a site cannot be developed, but rather that more extensive construction measures may have to be taken to prevent damage to the land or structures.

Map 7-6 and Table 7-7 reveals that some of the better lands for building suitability (with basements) are located on the easternmost end of the township. About 40.3% of the Town has soils that area considered somewhat limited for building site development (with basements).

[11] Primary standard limits are set to protect public health, while secondary standards are set to protect public welfare.
[12] Wisconsin Department of Natural Resources, *Wisconsin Air Quality Trends*, April 2014.

Table 7-7: Soil Potential for Building Site Development

Rating	Acres	Percent
Very Limited	5,871	59.0%
Somewhat Limited	4,011	40.3%
Not Rated	63	0.6%
Total	9,946	100.0%

Source: NRCS-USDA Web Soil Survey (WSS), Accessed 2015

However, these lands are not particularly suited for traditional on-site sewage disposal systems (Map 7-7 and Table 7-8), are beyond the Darboy Sanitary District, and are some of the most productive agricultural lands in the Town.

Table 7-8: Soil Limitations for Septic Tank Absorption Fields

Rating	Acres	Percent
Very Limited	9,882	99.4%
Not Rated	63	0.6%
Total	9,946	100.0%

Source: NRCS-USDA Web Soil Survey (WSS), Accessed 2015

Development in this portion of the Town should either be served by the sanitary district or utilize innovative sewage treatment technologies permissible under SPS 383. Soil limitations for septic tank absorption fields exist throughout the Town. This map is not intended to serve as a substitute for on-site soil investigations, but rather as an indicator or reasonable expectations for soils underlying a site.

CULTURAL RESOURCES[13]

Historical and cultural resources, like natural resources, are valuable community assets warranting preservation. Town governments, like other governments in Wisconsin, have the authority to preserve their historical heritage (Wisconsin Statutes §60.64). One of the most effective ways to do so is through a local historic preservation ordinance. The historic preservation ordinance can establish procedures to designate historically and culturally sensitive properties and places and to review projects that have the potential to negatively affect these important places.

[13] Much of the text included in the following paragraphs was excerpted from Town Governments and Historic Preservation, Wisconsin Historical Society, 2004.

State and National Register of Historic Places

The Wisconsin Historical Society's Division of Historic Preservation (DHP) is a clearing house for information related to the state's cultural resources including buildings and archaeological sites. A primary responsibility of the DHP is to administer the State and National Register of Historic Places programs. The National Register is the official national list of historic properties in the United States that are worthy of preservation. The program is maintained by the National Park Service in the U.S. Department of Interior. The State Register is Wisconsin's official listing of state properties determined to be significant to Wisconsin's heritage. The inventory is maintained by the DHP. Both listings include sites, buildings, structures, objects, and districts that are significant in national, state or local history. Sites are based on the architectural, archaeological, cultural or engineering significance. In Wisconsin, if a property is listed on one then it is typically listed on the other.

Presently there is one property listed on the National Register:

- Rapide Croche Lock and Dam Historic District.

The National Register is not a static inventory. Properties are constantly being added, and less frequently, removed. It is therefore important to access the most recent updated version of the National Register properties.

Architectural and Historic Inventory (AHI)

The Wisconsin Historical Society has created the Architecture and History Inventory (AHI), an internet-based search engine that provides architectural and historical information on approximately 140,000 properties in Wisconsin. The AHI contains information on historic buildings, structures and objects throughout Wisconsin. Each property has a digital record providing basic information about the property and most include exterior images The Wisconsin Historical Society lists 17[14] historical listings in Buchanan on its AHI[15]:

15 Buildings:

- House - County Highway K, 1/2 mile east of County Highway HH, Reference Number: 68220
- House - Railroad St, W Side, 200' south of College Ave, Reference Number: 68222
- Nytes Barn - County Highway ZZ, Reference Number: 68228
- Nytes Residence - County Highway ZZ, Reference Number: 68229
- House - 4026 County Highway ZZ, Reference Number: 73817
- House - North of Debruin Rd, 1/2 mile west of HH, Reference Number: 73365

[14] http://www.wisconsinhistory.org/Content.aspx?dsNav=Ny:True,Ro:20,Nrc:id-4-dynrank-disabled%7cid-4294961467-dynrank-disabled,N:4294961440-4294963741&dsNavOnly=Ntk:All%7cBuchanan%7c3%7c,Ny:True,Ro:0.

[15] The Rapid Croche Lock and Historic District includes the locks and buildings that are located on the north side of the river and not in the Town of Buchanan.

- Dave Feldkamp Garage - 5781 County Highway ZZ, Reference Number: 73819
- Lamers - 6455 County Highway ZZ, Reference Number: 73821
- House - 5378 County Highway ZZ, Reference Number: 73816
- Dercks House- 3731 County Highway ZZ, Reference Number: 73818
- Holy Angel Church, County Highway KK, north side, 1/4 mile west of County Highway N, Reference Number: 68226
- Feldknap House - County Highway ZZ, Reference Number: 47161
- House – North side of KK, 1/4 mile west of N, Reference Number: 73366
- Bill Feldknap Barn - 6186 County Highway ZZ, Reference Number: 73820
- House - Weiler Rd, north side, 50' west of Haen Rd, Reference Number: 68231

2 Structures:

- Rapide Croche Dam - Rapide Croche Lock and Dam, Reference Number: 27752
- Allison Dr Stone Arch Bridge, Reference Number: 101904 (Note: less than 20 such bridges remain in Wisconsin)

Archaeological Sites Inventory

An inventory similar to the AHI exists for known archaeological sites across the state: the Archaeological Sites Inventory (ASI). Due to the sensitive nature of archaeological sites, information as to their whereabouts is not currently made available online. This information is distributed only on a need-to-know basis. Archaeological sites are added to ASI as they are discovered; discovery is a continual process. For technical assistance and up-to-date information on sites within the Town of Buchanan, contact the State Historic Preservation Officer at the Wisconsin State Historical Society.

Locally Significant Historic Places

Locally significant historic places are historic structures, historic sites, or historic districts which have a distinctive historic, architectural or cultural significance to a community. According to the Town of Buchanan the Allison Drive Stone Arch Bridge is considered to be locally significant.

Preservation Tax Incentives

The Federal government encourages the preservation of historic buildings through various means. One of these is the program of Federal tax incentives to support the rehabilitation of historic and older buildings. The Federal Historic Preservation Tax Incentives program is one of the Federal governments most successful and cost-effective community revitalization programs. The Preservation Tax Incentives reward private investment in rehabilitating historic properties such as offices, rental housing, and retail stores. Current tax incentives for preservation, established by the Tax Reform Act of 1986 (PL 99-514: Internal Revenue Code section 47 [formerly Section 48(g)]) include:

- A 20% tax credit for the certified rehabilitation of certified historic structures; and,
- A 10% tax credit for the rehabilitation of non-historic, non-residential buildings constructed before 1936.

If an owner qualifies for a 20% federal tax credit and receives approval before beginning a project, the owner will automatically receive a 5% Wisconsin tax credit. More information on this and other programs to protect and restore historic structures is available from the Wisconsin State Historical Preservation Officer. These programs may be particularly useful in preserving the historic stone arch bridge in Buchanan.

COMPARISON TO SURROUNDING PLANS

To ensure consistency with surrounding communities, existing plans from adjacent municipalities were reviewed. Through intergovernmental cooperation, Buchanan will work with surrounding communities to realize the visions of Buchanan and the other municipality. Outagamie County, Calumet County and East Central Wisconsin Regional Planning Commissions plans are consistent with the desire to retain productive farmland, preserve natural resources, and protect important historical resources. What follows is some more specific information as it relates to the completed Kaukauna and Harrison plans.

City of Kaukauna

The *City of Kaukauna Comprehensive Plan*[16] Environmental Chapter discusses natural features shared by Buchanan and Kaukauna. The *City of Kaukauna Comprehensive Plan* states: "the City of Kaukauna should into consideration future land use plans of surrounding towns and villages and any other comprehensive planning efforts in relation to agriculture in order to promote sustainable development practices on best suited lands to avoid conflicting land uses." The Konkapot Creek and the Fox River are identified as a water resource that should be protected through the establishment of vegetative buffers or other best management practices. Buchanan is encouraged to work with Kaukauna to protect these valuable natural resource corridors.

Village of Harrison

The *Village of Harrison Comprehensive Plan Update*[17] does not address specific natural/cultural resources directly associated with Buchanan. A goal of the plan is to "protect the productive agricultural lands in the Village for long-term farm use and maintain agriculture as a major economic activity and way of life outside the sewer service area; to conserve, protect, and enhance the natural resources and environmentally sensitive areas that exist in the Village"; and to balance responsible growth with protection of natural resources in the village based on

[16] City of Kaukauna Comprehensive Plan, Adopted January, 2013.
[17] Village of Harrison Comprehensive Plan Update, Draft, February, 2017.

community needs. Buchanan should continue to work with the Village of Harrison to protect and preserve natural and agriculture areas along common boundaries as desired by local landowners.

The Town of Harrison plan also states "the Village should not support the creation of any new landfill or quarry/gravel pit operations within the Village boundaries". This objective has the potential to impact the Town of Buchanan. If Harrison refuses to accept the creation of new landfills or non-metallic mining operations, the Town of Buchanan could potentially see an increase in the requests. Buchanan is encouraged to work with the Village of Harrison and surrounding communities to ensure the proper placement of landfills and non-metallic operations to ensure the land is being used to the greatest extent practicable.

AGRICULTURAL, NATURAL AND CULTURAL RESOURCES ISSUES AND CONCERNS

This section describes the major concerns expressed during the development of the Town's 2007 comprehensive planning process that are still relevant, those revealed as part of this planning process and those revealed in the inventory portion of this chapter. Strategies to address these concerns are included in the Goals, Objectives, and Policies section at the end of this chapter.

Sustaining Farmlands and Natural Areas in a Growing Community

Given the projected growth rate in the Town and surrounding area, there is a real concern about the impact development will have on natural areas and farmland. Preservation of natural resources and farmland is important to preserving the rural character of the area, maintaining wildlife habitat, and the providing green infrastructure (e.g. wetlands and floodplains for storm water management, scenic areas, etc.) needed to sustain Buchanan's high quality of living.

In addition to the conservation subdivisions discussed earlier in this chapter, another means of preserving important landscapes, both natural and agricultural, is to establish a purchase and/or transfer of development rights (PDR/TDR) program. A PDR or TDR program would allow Buchanan to "send" development from farmland and natural resource areas to designated "receiving" areas. Advantages of these approaches include:

- Compensation for landowners;
- Permanent protection of farmland and natural resources; and
- Voluntary use of the program (landowners are not forced to participate).

In a PDR program, a land trust, local government, or some other agency (usually linked to local government), makes an offer to a landowner to buy the development rights on the parcel. The landowner is free to turn down the offer, or to try to negotiate a higher price. When the development rights to a farm are sold, the farmer receives payment equal to the difference between the fair market value of the land a developer would pay if it could be developed and the price the land would command for agricultural use. In return for this payment, a conservation

easement is recorded on the deed to the property. The easement stays with the land in perpetuity. The private landowner still retains the right to occupy and make economic use of the land for agricultural purposes. The landowner gives up the right to develop the property for some other use in the future. Farmers are not compelled to sell their development rights. The main disadvantage of PDR is cost. Development rights can be expensive to purchase, so funding for PDR needs to be selectively targeted to preserve and protect agricultural land that is most worthy of preservation. As a result, not every farmer who wants to sell his or her development rights will be able to do so.

Purchase of Development Rights

Benefits	Limitations
• Permanently protects land from development • Landowner is paid to protect their land • Local governments can target locations effectively • Land remains in private ownership and on the tax rolls • Program is voluntary	• Can be costly for local unit of government, therefore land is protected at a slower rate • Land remains in private ownership – typically no public access • Since program is voluntary, it can be challenging to preserve large tracts of contiguous land

Transfer of Development Rights

Benefits	Limitations
• Permanently protects land from development • Landowner is paid to protect their land • Local governments can target locations effectively • Low cost to local unit of government • Utilizes free market mechanisms • Land remains in private ownership and on tax roll	• Can be complex to manage • Receiving area must be willing to accept higher densities • Difficult program to establish • Program will not work in rural areas where there is little to no development pressure on the area to be preserved • Limited to Cities/Villages/Towns, no statutory authorization in Wisconsin for countywide program • May require cooperative agreements among several local governments to establish sending and receiving zones

TDR involves transferring development rights from one piece of property to another. In this approach, a landowner is compensated for selling his/her development rights. However, rather than simply eliminating these rights, they are transferred to another property in the Town that is planned for development. That landowner has the right to develop his/her property and also use the transferred rights they purchased from the other landowner to develop at a greater density or intensity (e.g. smaller lot sizes to locate more homes in a single area). This approach results in the preservation of farmland and natural areas in designated “sending” zones,” and more intensive development in the designated “receiving” zones.

Preservation of Surface Water Quality

Development in a watershed has direct and predictable effects on the lakes, streams, and wetlands within the watershed. Historically, water quality was degraded by point sources, or direct discharges to lakes and rivers from industry, municipal sewerage districts, and the like. Since the passage of the Federal Water Pollution Control Act of 1972 (the Clean Water Act), the United States has taken dramatic steps to improve the quality of our water resources.

Today, the greatest threat, from a cumulative standpoint, to streams and lakes comes through nonpoint source water pollution. Nonpoint source water pollution, or runoff, cannot easily be traced to a single point of origin. It occurs when rainwater or snowmelt flows across the land and picks up soil particles, organic wastes, fertilizers, and other contaminants that become pollution when carried to surface and/or groundwater. Nonpoint pollution, in the form of nitrogen, phosphorus, and total suspended solids (soil particles), contaminate streams and lakes, increase the growth of algae and harmful aquatic weeds, cover spawning beds and feeding areas, and turn blue rivers into conveyances of stormwater. The sources of nonpoint pollution include[18]:

- ***Urban.*** Impervious surfaces such as roads, building roofs, driveways and parking lots runoff instead of soaking into the ground. This causes water and anything else such as gasoline, road salt, leaves, grass clipping, sediment and fertilizers to runoff into local storm drains, streams, rivers, lakes and wetlands. This runoff has a negative effect on surface waters. As the percentage of impervious surfaces increases in a watershed, lakes and streams experience greater degradation from stormwater runoff. According to the Center for Watershed Protection (CWP) in Ellicott City, Maryland, “More than 30 different scientific studies have documented that stream, lake, and wetland quality declines sharply when impervious cover in upstream watersheds exceeds 10%.” Buchanan residents can lessen the impact of urban nonpoint runoff by reducing the toxicity and quantity of fertilizers, herbicides and pesticides they use; protect and enhance wetlands on their property, plant a rain garden, use rain barrels, etc.

- ***Agriculture.*** Nonpoint source pollution (or "runoff pollution") includes runoff from agricultural operations and croplands. Plowed fields, row crops, winter manure spreading, lack of riparian buffers, wetland conversion, and the over use of commercial pesticides and fertilizers all intensify nonpoint source pollution loading to surface waters. By utilizing techniques such as conservation tillage, nutrient management planning, wetland restoration, grazing management, cover crops, manure confinement, and agricultural buffers, farmers can dramatically reduce nonpoint source pollution as well as the cost of farming.

[18] http://dnr.wi.gov/topic/nonpoint/.

Protection of Groundwater

With all of Buchanan's supply of potable water coming from groundwater sources, susceptibility to contamination remains a concern. As discussed in Chapter 6: Utilities and Community Facilities, sources of groundwater contamination include leaking fuel tanks, surface discharges, and natural substances present in the subsurface geology. A common naturally occurring contaminant of groundwater in the Fox basin is arsenic. Although no private wells in Buchanan have yet tested positive for arsenic, it is important to note that arsenic has been detected in amounts greater than 10 parts/billion in Outagamie, Brown, Shawano, Manitowoc, and Winnebago Counties. To protect residents for potential arsenic exposure, all wells in the Town of Buchanan are required to be cased by order of the WDNR. This requirement has increased the cost of drilling wells in the Town of Buchanan.

Homeowners can protect groundwater quality by properly sealing abandoned wells and using "best management practices" on lawns and farm fields. Best management practices include improving roadway and property drainage, minimizing pesticide and fertilizer use, and following application guidelines when pesticides or fertilizers are necessary to decrease the risk of contaminating potable water supplies. Recycling programs that reduce the solid waste stream and proper disposal of hazardous household wastes also reduces the risks of contamination to nearby residential wells.

ATCP 51 - Livestock Siting Law

On September 16, 2005, the Wisconsin Department of Agriculture's Board gave final approval of ATCP 51 to establish standards for the siting of livestock operations. In its approval, the Board added an amendment to have the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) annually review ATCP 51 to see if any modifications are needed.

ATCP 51, implements Wisconsin's Livestock Facility Siting Law (s. 93.90, Stats.). The law does not require local approval of new and expanding livestock operations, but if local approval is required by a community, the local government must grant or deny approval according to this rule. A local government may not consider other siting criteria, or apply standards that differ from this rule, except as specifically authorized in the law. This rule applies to new or expanded facilities that keep cattle, swine, poultry, sheep or goats. Under the law, a local government may not deny or prohibit the siting or expansion of a livesto1ck facility of any size unless one of the following applies:

- The site is located in a non-agricultural zoning district.
- The site is located in an agricultural zoning district where the livestock facility is prohibited. The zoning prohibition, if any, must be clearly justified on the basis of public health or safety. The law limits exclusionary local zoning based solely on livestock facility size.

- The proposed livestock facility violates a valid local ordinance adopted under certain state laws related to shoreland zoning, floodplain zoning, and construction site erosion control or stormwater management.
- The proposed livestock facility violates a state building, electrical or plumbing code for that type of facility.
- The proposed livestock facility will have 500 or more "animal units" (or will exceed a lower threshold incorporated in a local zoning ordinance prior to July 19, 2003), and the proposed livestock facility violates either 1) the standards in the rule or, 2) a stricter local standard by ordinance. Those standards must be based on scientifically defensible findings of fact that clearly show the standards are necessary to protect public health or safety.

COORDINATION WITH OTHER COMPREHENSIVE PLAN ELEMENTS

The development of the Agricultural, Natural and Cultural Resources Element requires coordination with all of the required plan elements. For example, when considering economic development strategies, the limitations presented by natural resources (e.g. wetlands, floodplains) was important to consider as were the benefits natural areas provide to the local quality of life. Below is a description of the critical issues addressed with respect to the Land Use and Housing Elements. These elements are profiled because their coordination with the Agricultural, Natural and Cultural Resources Element is critical to the success of the plan.

Economic Development

Agriculture, natural and cultural resources should be considered with developing an economic development plan. Farming is still viable in the eastern portion of the Town. There may be specific economic development recommendations that could improve the well-being of local farmers; as long as financial conditions remain difficult, farmers will continue to find alternative uses for their land. Natural resources can provide a positive economic benefit to the Town, through recreational and overall aesthetics. However, protection and impact to the area's natural resources should be considered whenever a new business or development occurs.

Cultural and natural elements provide opportunities for enhance quality of life for current residents and can be a valuable tool to bring new workers and employers to the area. Historic preservation can be used to enhance unique qualities.

Land Use

Land use is an integral component of all the elements of the plan. Residents value the preservation of natural resources. There is a need to protect the rural atmosphere while allowing for controlled orderly growth. Opportunities for historical preservation should be considered in all future planning, zoning and development decisions. In addition, the goals, objectives, and

policies in this chapter include provisions to protect floodplains, wetlands, streams, lakes, and other natural resources.

Housing

Housing if not carefully located and planned for, can result in negative effects upon farming and the natural environment. Housing development can fragment farming operations and wildlife habitat areas. The additional traffic, people, and services associated with residential development can quickly impact rural character. Scattered housing patterns have resulted in high costs in terms of lost farmland, increased demand for public services, and conflicts between homeowners, farmers, environmentalists and recreationists.

Transportation

Transportation is critical to the agricultural community because it provides access to suppliers, processors, haulers, and other support industries. The transportation network allows goods to be brought to local, regional, national and international markets. When planning for transportation, it is important to consider how rural residential developments and expanding agricultural operations will affect the transportation infrastructure. It is equally important to consider how transportation improvements may impact the natural resources, wetland areas and agricultural land.

When expanding transportation corridors, care should be taken to minimize the effects on historical and cultural resources. Sensitivity should be shown for historic buildings and markers as well as archeological sites and objects. The integrity and identity of a community is dependent on the preservation of its historic character and distinctive natural features.

Utilities and Community Facilities

Planned development leads to an efficient use of public infrastructure and reduces the amount of sprawl, which leads to the consumption of the rural landscape and other natural resources. Educating local officials and citizens about how local land use decisions impact the agricultural industry is important if the ability to grow and raise food is to be preserved. Similar to farmland our natural resources are limited and are being consumed at an alarming rate. Fossil fuel emissions lead to persistent health and environmental problems, regional haze, acidification of surface waters and forests, mercury in fish and other wildlife, acidic damage and erosion to buildings and other materials, ozone damage to forests, and eutrophication of water bodies.

To maintain quality of life, it is essential that not only is growth accommodated but that it be done while protecting our natural environment. The quality of surface and groundwater resources is linked to the proper siting, installation maintenance of individual on-site wastewater systems. The impact of increased development and associated impervious areas can adversely affect groundwater quality and quantity.

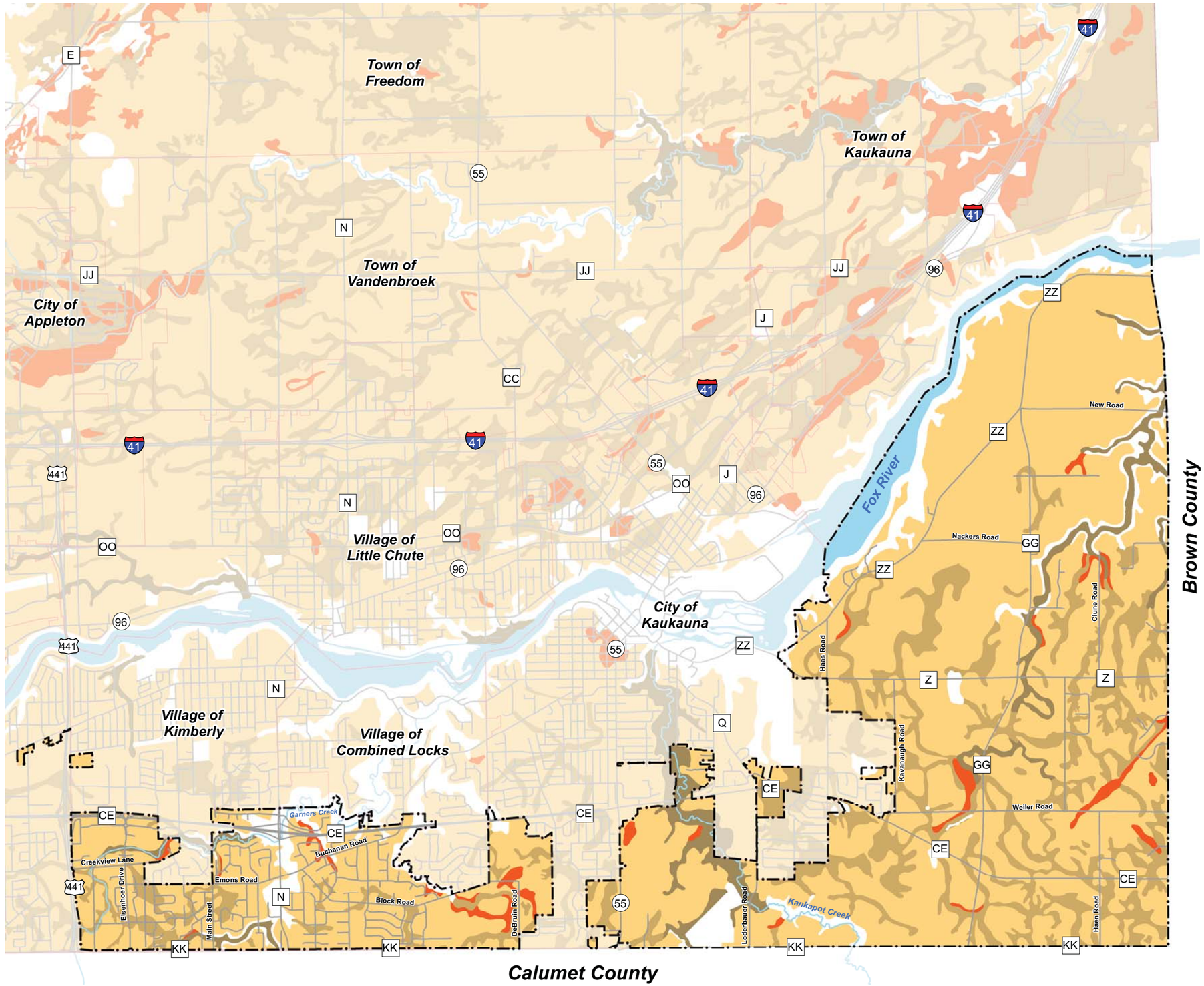
Intergovernmental Cooperation

Many agricultural and natural resources go beyond local boundaries. Watersheds and other ecosystems, economic conditions, transportation patterns, and housing can impact regions as a whole. Air and water pass over the landscape so that one jurisdiction's activities can affect the other jurisdiction located downwind or downstream. Regional development patterns and neighboring municipal land use policies affect land price, availability of land, and the economic performance of local farms in adjoining communities.

AGRICULTURAL, NATURAL, AND CULTURAL RESOURCES GOALS, OBJECTIVES, AND POLICIES

The goals, objectives, and policies for the Agricultural, Natural, and Cultural resources chapter can be found in Chapter 12: Implementation.

Map 7-1
Town of Buchanan
Comprehensive Plan Update
Farmland Classification



All Areas are Prime Farmland

Prime Farmland if Protected from Flooding or not Frequently Flooded During the Growing Season

Prime Farmland if Drained

Farmland of Statewide Importance

Not Prime Farmland

Source:
Base data: Outagamie County, 2016.
Farmland data: NRCS - USDA, 2015

N
W E
S

0 0.25 0.5 1
Scale in Miles

PREPARED JUNE 2018 BY:

East Central Wisconsin Regional Planning Commission
ECWRPC

KM: O:\2412_BuchananCompPlan\Maps\Environmental\DRAFT_MXDs\7_1_Farmland.mxd

Map 7-2
Town of Buchanan
Comprehensive Plan Update
Environmental - Soils

- Active Landfill
- Abandoned Landfills
- Slope Greater than 12%
- Bedrock Less than 5 Feet
- Groundwater Less than 2 Feet

Source:
Base data: Outagamie County, 2016
Soil data: NRCS - USDA, 2015
Landfill data: WDNR SHWIMS, 2017

N
W E
S

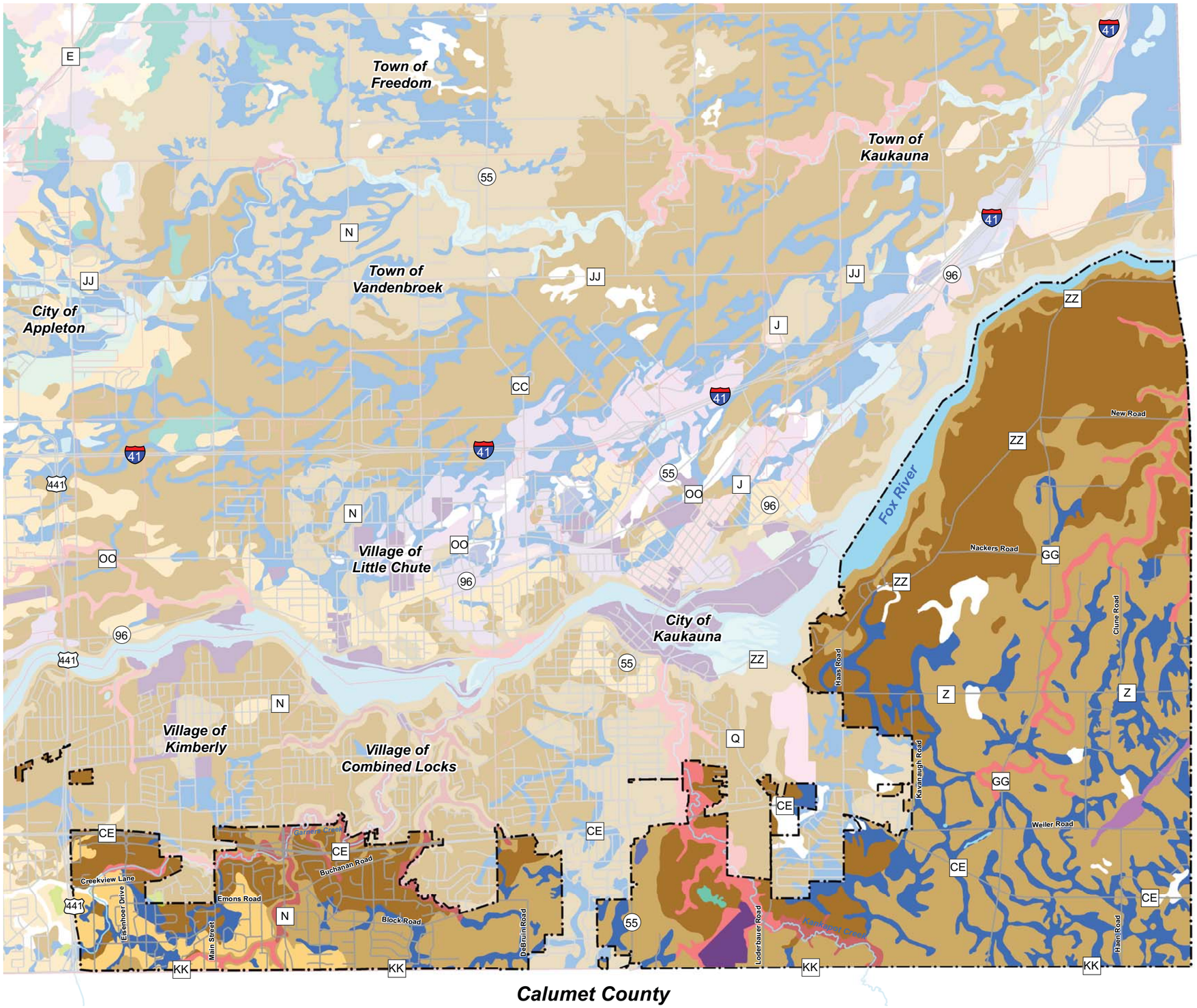
0 0.25 0.5 1
Scale in Miles

PREPARED JUNE 2018 BY:

East Central Wisconsin Regional Planning Commission
ECWRPC

KM: O:\2412_BuchananCompPlan\Maps\Environmental\DRAFT_MXDs\7_2_Soils.mxd

Map 7-3
Town of Buchanan
Comprehensive Plan Update
Soil Classifications



- Bellevue Silt Loam
- Briggsville Silt Loam
- Carbondale Muck
- Hebron Loam
- Hortonville Silt Loam
- Kewaunee Loam
- Kolberg Silt Loam
- Landfill
- Manawa Silt Loam
- Oshkosh Silt Loam
- Poygan Silty Clay Loam
- Suamico Muck
- Udifluvents
- Udorthents
- Winneconne Silty Clay Loam
- Water

Source:
Base data: Outagamie County, 2016
Soil Classification data: NRCS - USDA, 2015

N
W E
S

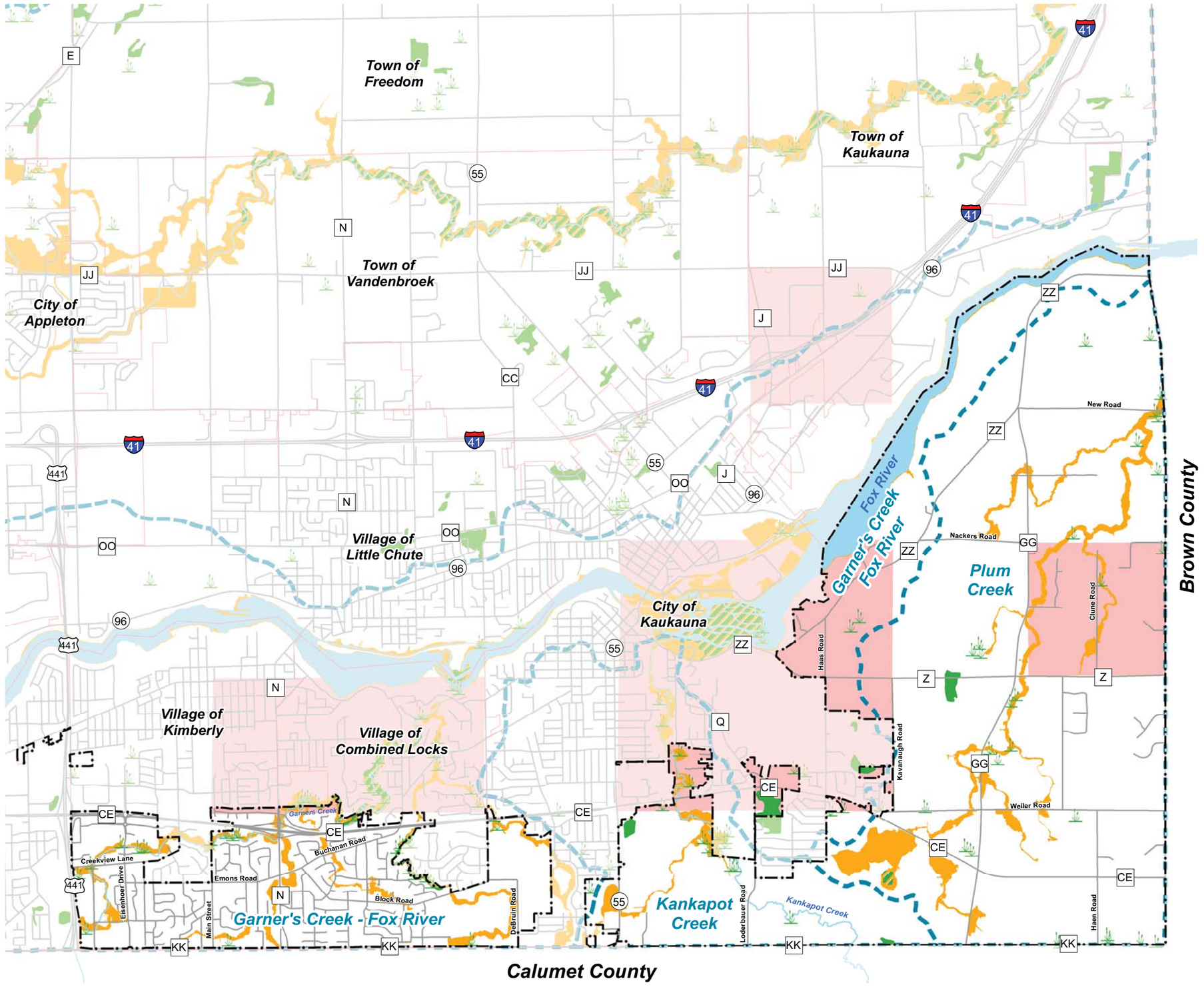
0 0.25 0.5 1
Scale in Miles

PREPARED JUNE 2018 BY:

East Central Wisconsin Regional Planning Commission
ECWRPC

KM: O:\2412_BuchananCompPlan\Maps\Environmental\DRAFT_MXDs\7_3_Soil_Classification.mxd

Map 7-4
Town of Buchanan
Comprehensive Plan Update
Environmental - Water & Conservation



Legend

- Wetlands Smaller than 5 Acres
- Sub-Watersheds
- Wetlands & Floodplains
- Wetland
- 100 Year Floodplains
- NHI Endangered Species Section

Source:
Base data: Outagamie County, 2016
Floodplain & Wetland data: WIS DNR, 2015
Endangered Species data: WIS DNR, 2014
Sub-Watershed data: WIS DNR, 2015

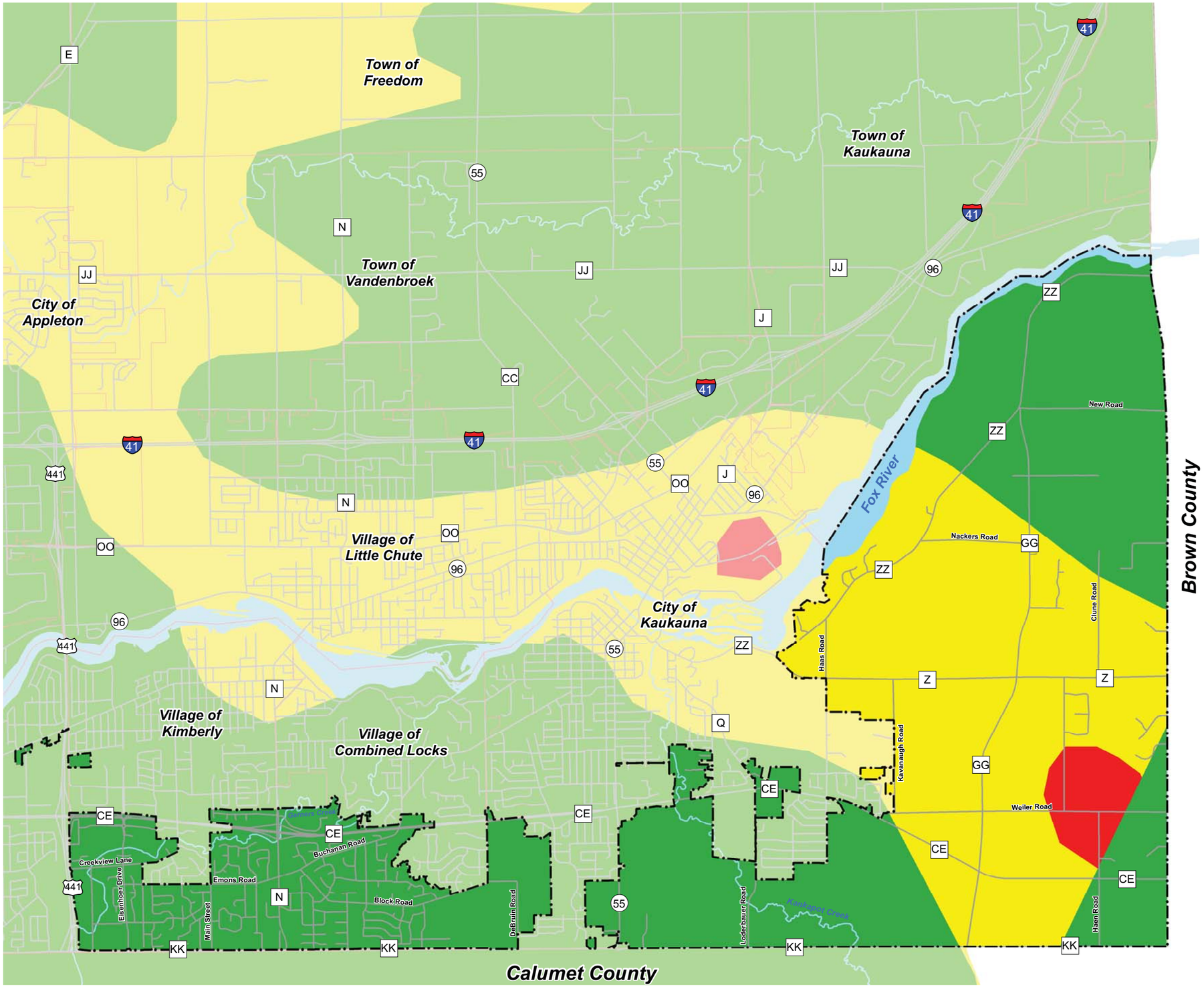
N
W E
S

0 0.25 0.5 1
Scale in Miles

PREPARED JUNE 2018 BY:

East Central Wisconsin Regional Planning Commission
ECWRPC

KM: O:\2412_BuchananCompPlan\Maps\Environmental\DRAFT_MXDs\7_4_Water_Conservation.mxd



Map 7-5
Town of Buchanan
Comprehensive Plan Update
Groundwater Susceptibility

More Susceptible to Groundwater Contamination

Less Susceptible to Groundwater Contamination

Source:
Base data: Outagamie County, 2016
Groundwater Susceptibility data: UW-EXT., 2014

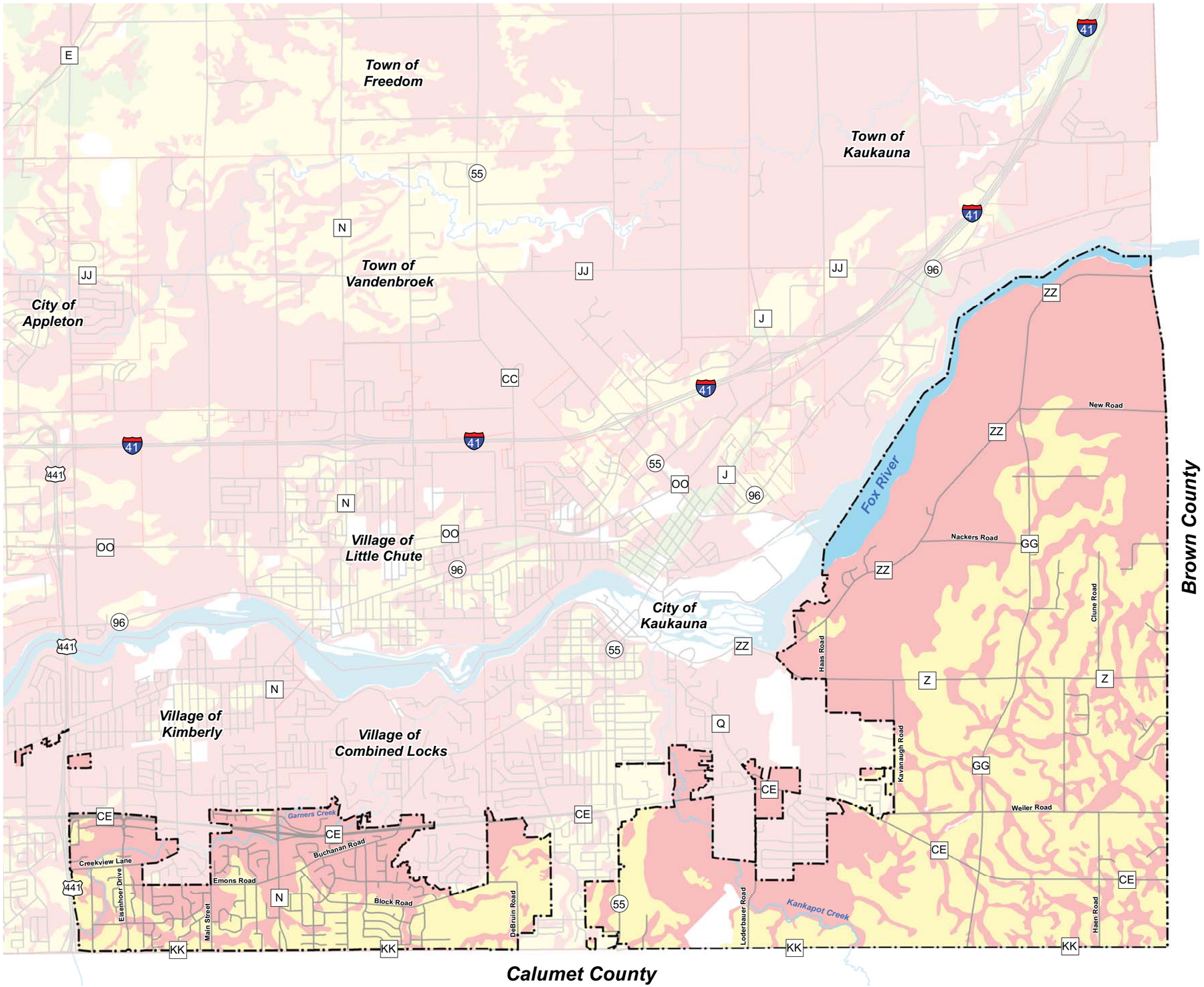
N
W E
S

0 0.25 0.5 1
Scale in Miles

PREPARED JUNE 2018 BY:

East Central Wisconsin Regional Planning Commission
ECWRPC

KM: O:\2412_BuchananCompPlan\Maps\Environmental\DRAFT_MXDs\7_5_WaterContamination.mxd



Map 7-6
Town of Buchanan
Comprehensive Plan Update
Soil Limitations for Building Development with Basements

- Very limited
- Somewhat limited
- Not limited
- Not rated

Source:
Base data: Outagamie County, 2016
Soils data: NRCS - USDA, 2015

N
W E
S

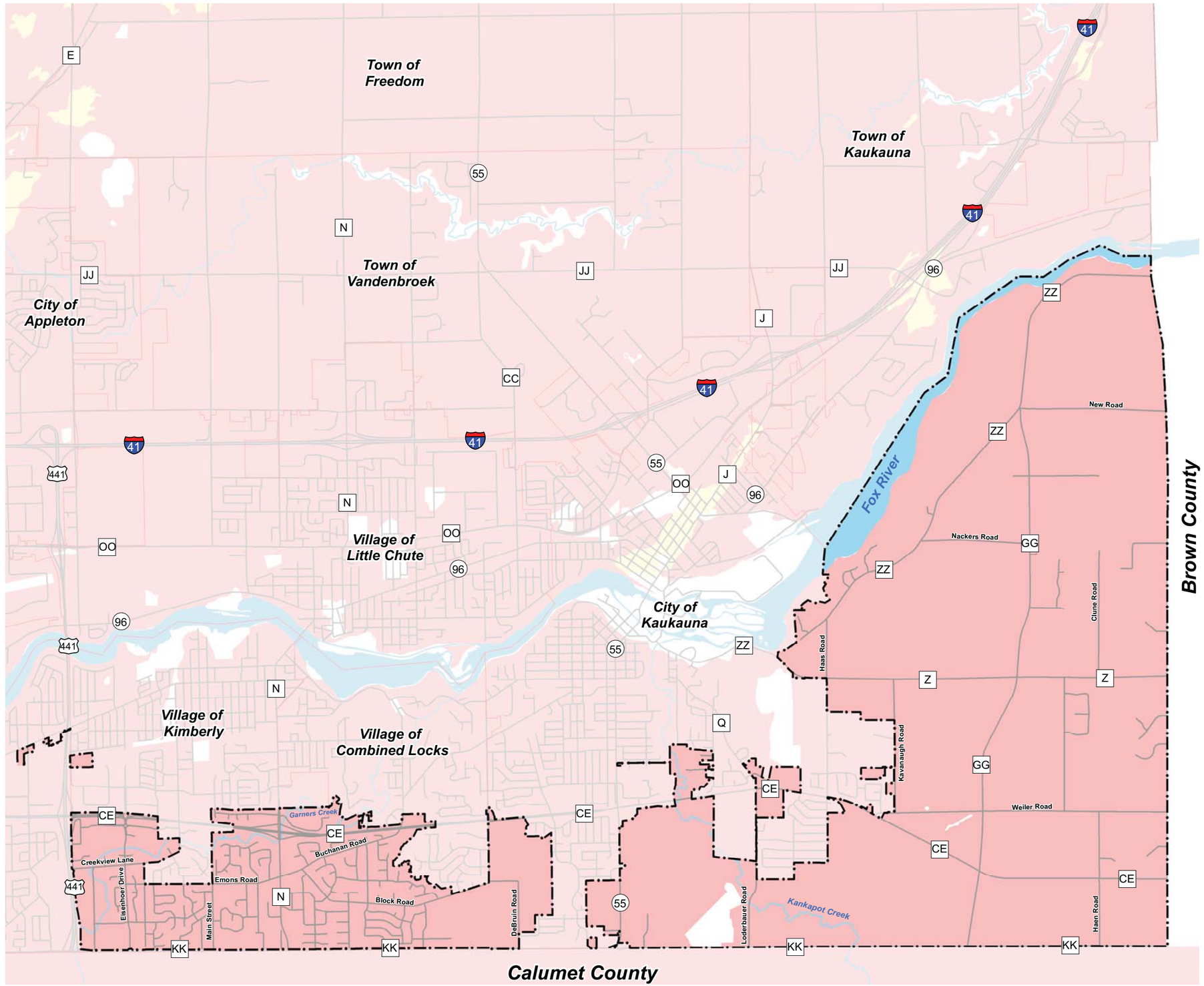
0 0.25 0.5 1
Scale in Miles

This data was created for use by the East Central Wisconsin Regional Planning Commission Geographic Information System. Any other use/application of this information is the responsibility of the user and such use/application is at their own risk. East Central Wisconsin Regional Planning Commission disclaims all liability regarding fitness of the information for any use other than for East Central Wisconsin Regional Planning Commission business.

PREPARED JUNE 2018 BY:

East Central Wisconsin Regional Planning Commission
ECWRPC

KM: O:\2412_BuchananCompPlan\Maps\Environmental\DRAFT_MXDs\7_6_Building.mxd



Map 7-7
Town of Buchanan
Comprehensive Plan Update
Soil Limitations for Septic Tank Absorption Fields

- Very limited
- Somewhat limited
- Not rated

Source:
Base data: Outagamie County, 2016
Soil Limitations for Septic Tank Absorption Fields data: NRCS - USDA, 2015

N
W E
S

0 0.25 0.5 1
Scale in Miles

PREPARED JUNE 2018 BY:

East Central Wisconsin Regional Planning Commission
ECWRPC

KM: O:\2412_BuchananCompPlan\Maps\Environmental\DRAFT_MXDs\7_7_Septic.mxd