

NORTH STONER PRAIRIE NEIGHBORHOOD PLAN



City of Fitchburg, Wisconsin

November 2013

Amended August 22, 2017

SAA Design Group, Inc.

Teska, Associates, Inc.

Montgomery Associates Resource Solutions

Environmental Corridor Update: The Fitchburg Common Council authorized a minor adjustment, approved by the Capital Area Regional Planning Commission (CARPC), to reduce the environmental corridor for the closed depression west of the Badger State Trail. Se City Resolution R-101-16 for details on this adjustment.

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I. EXECUTIVE SUMMARY

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The North Stoner Prairie Neighborhood (NSPN) Plan is an important policy document to guide public and private sector development of land use, transportation, infrastructure, programs, and services that further the long-term vision and principles of the City of Fitchburg as presented in the city's 2009 Comprehensive Plan. The NSPN Plan was prepared through a participatory process throughout 2013, and serves as a document to articulate the issues, opportunities, and expectations for future growth and investment as understood and presented by a diverse range of stakeholders including landowners, public officials, a project steering committee, neighboring residents, and a team of planning consultants. As an appendix to the city's Comprehensive Plan, the NSPN plan should be considered a long-range planning document that sets the framework for conscientious, orderly growth over several years and in concert with the other plans and policies adopted by the city.

To a greater degree than was reasonable for the 2009 citywide Comprehensive Plan, the NSPN Plan provides a depth of analysis and detail of factors which will shape future growth for the mostly undeveloped area lying north of Lacy Road and both east and west of Seminole Highway. In whole, the Plan presents recommended strategies and actions that will accommodate employment, housing, and recreational development that meets the exceptional standard Fitchburg has established in adjoining neighborhoods and throughout the community. These strategies and actions are grounded in a comprehensive understanding of NSPN's context, existing conditions, stakeholders' goals and priorities, and the community's long-term vision and policy framework, and the Plan presents this information in the neighborhood plan document as follows:

Chapter 2: Introduction

Chapter 2 provides the reader with orientation to NSPN's geographic setting and the planning process that guided this Plan's development. Largely undeveloped and currently used primarily for natural resource-based industries (agricultural cultivation and non-metallic mineral extraction), NSPN's inclusion as a "Future Neighborhood" in the City of Fitchburg

Comprehensive Plan directs the city to prepare a more detailed neighborhood plan for this roughly 365 acre area in the city's northwest corner.

Chapter 3: Neighborhood Context and Character

Chapter 3 provides an examination of current land use and property ownership characteristics within NSPN, as well as an overview of the neighborhood's surroundings with respect to land use, landscape, population dynamics, and basic economic characteristics.

Although situated immediately adjacent to urban/suburban development to its north and east, and within ½ mile of urban development to its west, NSPN itself is presently typified by rural uses such as quarrying and agriculture. Although relatively flat and featureless, NSPN's most defining natural characteristics are multiple closed depressions – the largest of these lying west of the Badger State Trail – which are local “low spots” with poorly-defined (or no) drainage channels to evenly disperse stormwater safely to the regional drainage systems.

These areas serve as natural settling points for stormwater that falls in the neighborhood, and have soil and vegetation characteristics that indicate the possible presence of wetlands.

NSPN's setting at the edge of an urban area influences its demographic qualities, with a population of over 4,000 within one mile of the neighborhood and over 61,000 within three miles. A closer look shows that this population is somewhat diverse, reasonably well-educated, and within an income strata that is comparable, to slightly higher, than the city of Fitchburg as a whole. From an employment standpoint, the area surrounding NSPN is a stronghold for manufacturing (7 out of every 10 manufacturing jobs in Fitchburg are within one mile of NSPN) and wholesale (just over 50% of all wholesale jobs are within one mile of NSPN) operations, providing a base of employment to build upon, potentially within NSPN.

Chapter 4: Neighborhood Issues & Opportunities

Chapter 4 offers a summary of the most significant issues and opportunities to consider in planning for the future of the NSPN with respect to employment, housing, and retail markets, land use, schools, transportation networks, utilities and infrastructure, open space and trails, and stormwater management. The issues and opportunities introduced in Chapter 4 serve as a summary of facts found through stakeholder interviews, review of background data, and visits to the site. In addition, the issues and opportunities revealed in Chapter 4 should serve as a foundation for the rest of the NSPN Plan.

Chapter 5: Plan Principles, Goals, & Policies

Vision Statement: North Stoner Prairie will be a vibrant, stable, and economically, environmentally, and socially sustainable neighborhood that is home to a diverse range of uses, from an employment center to housing to neighborhood schools. Through protecting natural resources, bikeways and open spaces, North Stoner Prairie will set an example for respecting water resources and the environment while promoting jobs and economic development. The North Stoner Prairie Neighborhood offers a transition between the urbanized area of the City of Fitchburg and agricultural resources to the south. It will offer a connection to nature, community gardens and agriculture, while creating a safe, walkable neighborhood to enjoy access to schools, parks, neighborhood services and employment.

The above vision statement along with the principles, goals, and policies introduced in Chapter 5 attempt to strike a balance between integrating the area's strong agricultural identity and exploring opportunities to establish within Fitchburg a greater capacity for employment, housing, and recreation. The goals and policies are intended to serve as extensions of the goals and policies found in the city's Comprehensive Plan, and are directed at the above vision statement developed by the NSPN Plan Steering Committee .

Chapter 5 also introduces several principles of neighborhood design that complement the goals and policies and were used to guide the planning team as the neighborhood plan was prepared and refined. These principles should continue to guide the city, landowners, and developers as they work in the future to implement the NSPN Plan.

- | | |
|---|--|
| <ul style="list-style-type: none"> ▪ Employ an Integrated and Holistic Planning Process ▪ Know and Work With Site Capacity and Context ▪ Respect and Preserve Open Space, Cultural, Historic and Natural Resources ▪ Provide a Diversity of Land Uses ▪ Support the Development of Jobs ▪ Accommodate Housing of Varying Types and Price Ranges | <ul style="list-style-type: none"> ▪ Create an Integrated, Multi-Modal Transportation Network Including Bikeways, Complete Streets, Support for Walkability and Access to Transit ▪ Conserve Energy and Water Resources ▪ Build on Unique Neighborhood Attributes to Create Authentic, Dynamic Character that Provides a Transition Between Uses and Preserves Neighborhood Amenities |
|---|--|

Chapter 6: Analysis of Integral Systems

Chapter 6 reviews NSPN’s existing natural resource, park and open space, transportation, utility, school, and cultural resource systems as they influence (and will be impacted by) the realization of the vision for the North Stoner Prairie Neighborhood.

Natural Resource Systems

The most substantial natural resource systems in existence in the NSPN include several closed topographic depressions, three of which potentially contain regulatory wetlands and prime agricultural soils. NSPN has historically been an agricultural landscape, with no streams or associated floodplains, limited topographic relief, very little contiguous tree cover and mostly deep, well-drained soil. As such, the natural resource systems highlighted in Chapter 6 are somewhat narrow in scope, even though they may prove to be complex to address.

Potential Wetlands

Through reconnaissance-level site analysis and soil survey review, several potential wetlands were observed in the neighborhood. Each of these appears to be a small area and a closed depression. The largest potential wetland occurs in the closed depression west of the Badger State Trail and north of Lacy Road, and has frequently been wet enough to interfere with cropping. Seasonal ponding is likely to occur at all potential wetland locations, which was considered in developing the neighborhood plan's land use and stormwater recommendations. That being said, a full wetland determination and delineation will be necessary at all potential wetlands before site development occurs.

Woodlands

The most extensive woodland in the NSPN is located in the far southwestern corner of the neighborhood on Lacy Road. This is a dry-mesic woodland with large bur, white, and black oaks, plus mature shag bark and bitternut hickory trees. A majority of this woodland is planned for removal by future mining, with the southern portion along Lacy Road remaining.

Surface Water Drainage

The landscape in and around the NSPN includes numerous glacial kettle holes, which are closed topographic depressions, and a lack of defined drainage ways or streams. This presents a challenge to developing a stormwater management system that avoids unintended impacts on properties within and adjacent to the NSPN. Most of the NSPN – specifically west of Seminole Highway, drains to the large closed depression west of the Badger State Trail. East of the Badger State Trail neighborhood runoff drains south to culverts under Lacy Road. An exception to this is the north and northeastern portions of the neighborhood, east of Seminole Highway, where closed depressions have historically overflowed to the north and east in very heavy rain and/or snowmelt events and thus impact the Lacy Heights and Seminole Forest neighborhoods.

Soils

Virtually all of the soils in the NSPN, with the exception of the western 10%-15% of the neighborhood, are considered “Prime Soil” for purposes of agricultural productivity based upon soil quality, growing season, and moisture supply needed to produce sustained high yields of crops. NSPN is essentially the northern extent of a large swath of Prime Soil found in the city, and the 284 acres of Prime Soil in the neighborhood represent about 2% of such soils citywide.

Groundwater

Groundwater conditions in the NSPN were evaluated by drilling 12 soil borings and 1 monitoring well, reviewing regional groundwater studies and compiling data from groundwater investigation sites in the vicinity of the neighborhood. Shallow groundwater occurs below the closed depression west of the Badger State Trail. The monitoring well installed there recorded water table depths up to 14 feet below ground surface after the 2012 drought, but as shallow as 1 foot below ground during wet conditions in the summer of 2013. Groundwater is deeper in the western part of the NSPN, where bedrock hills rise approximately 100 feet above the closed depression. Groundwater is also deeper east of Seminole Highway, because the land surface is 10 to 20 feet higher, and because the regional water table slopes downward to the northeast as groundwater flows toward the Yahara River. Problems with wet basements in some homes in the Lacy Heights Neighborhood suggest that shallower perched groundwater could be present in the eastern part of the NSPN, and that possibility should be further evaluated in the future. An increase in water table elevation of several feet is possible in response to implementing stormwater infiltration practices to control runoff volume. The risk of flooding related to a rise in the water table could be reduced by supplementing stormwater infiltration practices with alternative approaches that reduce volume through evapotranspiration, such as green roofs and harvesting and irrigation.

Parks and Open Space

The NSPN is situated amongst a number of exceptional parks and open spaces, and provides an opportunity to strengthen the connections between these resources. A defining feature of the neighborhood is the existing Badger State Trail, which traverses the neighborhood north to south and links the Madison area to Illinois, ultimately. In addition to the state trail, city parks are located just east (Stoner Prairie Park) and just west (Quarry Ridge Recreation Area) of the NSPN. An existing north-south paved pedestrian and bicycle path forms NSPN's eastern edge and links existing neighborhoods to the elementary and middle school facilities along Lacy Road just east of NSPN.

Transportation

The North Stoner Prairie Neighborhood is connected with several major roadway corridors including Verona Road (USH 151), McKee Road (CTH PD) and Seminole Highway. In addition, the most unique and opportunistic transportation asset of the area is its connection to an extensive off road bike system via the Badger State Trail and Military Ridge State Trail, both of which connect the neighborhood to the City of Madison bike system. Public Transit service, although limited, is also proximate to the neighborhood, and provides opportunities for expansion.

Utilities

With fully developed urban land uses immediately north and east, NSPN is likewise immediately adjacent to sanitary sewer, public water, and private utility infrastructure, for the most part with capacity to accommodate extension to service the new neighborhood. The city of Fitchburg previously identified a new future well location in the southeastern portion of the neighborhood, and the NSPN Plan acknowledges this opportunity. Possibly the most defining utility infrastructure in place in the neighborhood presently is a 138 kV power line running north-south through the portion of NSPN east of Seminole Highway. Although costly, relocation of these lines is considered by the Steering Committee to be worthy of further consideration when development occurs in the neighborhood.

Schools

Two Verona Area School District (VASD) facilities are located immediately east of NSPN on Lacy Road – Stoner Prairie Elementary School and Savanna Oaks Middle School. It is understood that both of these schools have some capacity for enrollment growth, and VASD would like to see growth from within nearby areas.

Cultural Resources

There are two properties in the NSPN that are cited in Wisconsin's architecture history inventory: the Dunn farm on the east side of Seminole Highway, and an old farmstead north of Lacy Road, 0.6 miles west of Seminole Highway, on the Payne and Dolan property. The Dunn property includes a unique stone barn, believed to have been constructed in the 1860s . The site on the Payne and Dolan property includes the ruins of a stone house and stone barn. At the time of the original historical survey in 1977, much of the walls were still standing. Today the walls are collapsed, but the original stones remain on site. While their inclusion in AHI conveys no formal designation, limitations, rights or benefits for owners of these properties, these properties through their preservation, or adoptive reuse present an opportunity to integrate the history of the Irish settlement of Fitchburg into the new neighborhood.

Chapter 7: Plan Recommendations

Chapter 7 provides the proposed plan for land use, transportation, utilities infrastructure, stormwater management, and parks and open space for the North Stoner Prairie Neighborhood Plan. The recommendations brought forward by the plan are aimed at addressing the issues and opportunities revealed throughout the planning process in such a way as to meet the plan vision and goals.

Land Use

From a land use perspective, the North Stoner Prairie Neighborhood will be divided into three rather distinct areas by the neighborhood's two major north-south corridors (Seminole Highway and the Badger State Trail). Residential uses will predominate east of Seminole, while specialty business, service, and office uses will characterize the central "triangle" between Seminole and Badger and an expanded business park for large-footprint, clean industrial uses will make up the balance of the neighborhood west of Badger State Trail. The land use plan introduces two alternative stormwater options, with calculations of development yield considered for each. Both options protect the three predominant closed depression areas and include Best Management Practices (BMPs). Stormwater Option 1 is based on conventional BMPs such as bioswales, rain gardens, and other techniques that become design features for the neighborhood and provide a system of stormwater features throughout the area. Stormwater Option 2 calls for additional Low Impact Development (LID) which will lessen impervious surfaces, through techniques such as pervious pavers in parking lots, patios, and driveways. This allows a slightly larger developable area, but would require lower impervious surface ratios.

Residential

The plan proposes a mixture of low-density residential development (at a maximum density of 3 dwelling units per acre) east of the existing ATC utility easement and low density or medium density residential development (at a maximum density of 6 dwelling units per acre), along with approximately 6 acres of high density residential, between Seminole Highway and the ATC utility easement. Altogether, the plan anticipates approximately 52 acres (up to 112 units) of low-density residential and approximately 25 acres of medium density residential. The number of dwelling units in the HDR area is to be determined during the Zoning Approvals at a minimum of 9 dwelling units per acre.

Industrial

The plan proposes two types of industrial development for the area west of Seminole Highway. The larger of these two, measuring at 179 acres and proposed for the majority of the lands west of the Badger State Trail, is characterized as Industrial-General development, envisioned for "clean" industrial uses that require relatively large-footprint sites and provide

the potential for substantial employment-generating uses. In basic terms, this area serves as a southward extension of uses similar to the Sub-Zero/Wolf Appliance facility.

In addition, the plan proposes approximately 49 acres of Industrial-Commercial Development in three locations surrounding the Industrial-General area. These areas serve as a land use transition from the more intensive Industrial-General uses to surrounding residential and agricultural uses, and are envisioned as aesthetically pleasing office, research, biotechnology, banks and financial institutions, and accessory uses. These uses should be quite similar to and appear as a natural extension of the form, quality, and scale of development found along Seminole Highway between McKee Road and the east-west power lines crossing south Seminole Highway at the north edge of the NSPN.

Business

A 13 acre site at the northwest corner of Seminole Highway and Lacy Road is intended for business development that will serve as a “gateway” to the neighborhood and the community at this key intersection. This location is not intended as a traditional “retail” establishment but rather as a unique business that speaks to the unique qualities of NSPN, such as a bicycle shop, food/agricultural co-op, or other use that serves as a neighborhood gathering spot and icon.

Parks

Roughly 19 acres of dedicated parks and open space are envisioned for the NSPN. This total meets the required dedication for the amount of residential development proposed, and offers a dynamic range of recreational and open space amenities throughout the neighborhood.

Transportation

The Plan recommends the southward extension of Commerce Park Drive and Bud’s Drive to Lacy Road to accommodate business park development, and recommends one new east-west road to intersect Seminole Highway and provide access to both the industrial and business uses west of Seminole and residential uses east of Seminole. In addition, a north-south road intersecting Lacy Road east of Seminole is recommended to relieve strain on Devoro and

Osmundsen Roads, particularly during peak school hours, and provide access and circulation improvements for proposed residential uses. Finally, the NSPN Plan Steering Committee worked closely with adjoining neighborhoods, city staff, and the consultant team to come to consensus on the best way to provide connectivity between proposed and existing neighborhoods without sacrificing the safety and integrity of pedestrians and motorists on the existing school path and neighborhood roadways (particularly Scarlet Drive and Persimmon Drive), with a conceptual approach **found in Section VII** of this report.

In addition to roadway improvements, the Plan recommends enhancing the strong off-road bicycling infrastructure in place within and surrounding NSPN by establishing an east-west trail linking existing recreational assets such as Quarry Ridge Recreation Area/Military Ridge State Trail, the Badger State Trail, and Stoner Prairie Park. Finally, the plan recommends consideration of weekday bus service to proposed and existing employment areas.

Parks and Open Space

The NSPN Plan recommends expanding the footprint and level of service at Stoner Prairie Park to “Area Park” classification, and also proposes new open space and parklands west of Seminole Highway in three locations. The first of these encompasses the large closed depression west of Badger State Trail, and would largely be a conservation area with low-impact open space amenities such as walking paths, wildlife observation areas, and habitat restoration. Adjacent to the Badger State Trail and the proposed conservation area, the Plan proposes a small “trailhead” park to serve users of both the Badger State Trail and the new east-west trail with trail information and maps, seating areas, parking, and similar amenities. The Plan also proposes preserving the portion of the woodlot at the southwest corner of the neighborhood as a small neighborhood park, providing small picnic areas, woodland trails, woodland restoration, and scenic overlooks. In addition to these dedicated park spaces, the plan recommends integration of remaining historic farmsteads into the fabric of the neighborhood, potentially as features within parks.

Chapter 8: Impacts of the NSPN Plan on its Surroundings

Chapter 8 reiterates the attention given during the NSPN Planning process to integrating the neighborhood into its context responsibly. Chapter 8 summarizes the impacts that development of the NSPN may have on surrounding land uses, transportation networks, and public facilities and stresses the importance of coordinated phasing of development with other planned city growth and infrastructure investment.

Chapter 9: Implementation of the North Stoner Prairie Neighborhood Plan

Chapter 9 provides a phasing and action plan that the city should follow in carrying forward the NSPN Plan. The phasing of improvements and investments recommended by the NSPN Plan must be consistent with the Comprehensive Plan, relative to other city plans and urban service area development at the time of its implementation.

Phase I: (Year 0 through Year 10 after adoption) begins with extension of municipal water service and sanitary sewer service from existing infrastructure to the north and east, setting the stage for new industrial development and residential development.

Phase II: (Year 11 through Year 20 after adoption) sees the southwest and southeast corners of the NSPN develop.

II. INTRODUCTION

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Plan Purpose

The North Stoner Prairie Neighborhood (NSPN) Plan is a detailed land use plan illustrating how over 365 acres of land, enveloped by urban development on three sides and with multiple property owners, should develop in a manner consistent with the long term community vision as established by the City of Fitchburg Comprehensive Plan. The NSPN Plan provides goals, policies, and recommendations that will be used as official decision-making guidelines to enable city staff, public boards and commissions, private land owners, and land developers to make informed decisions about land use, changes to transportation systems, and investments in utilities and other infrastructure in such a way as to preserve and protect the best interest of the community as a whole.

The North Stoner Prairie Neighborhood Plan is a continuation of the proactive, citizen-led planning work undertaken by the City of Fitchburg, and generally follows the format and outline of the 2009 Comprehensive Plan. As a part of the 2009 Comprehensive Plan, the city included a Future Urban Development Area (FUDA) Boundary¹ to establish the long-term (50+ year) geographic limits to Fitchburg's urban growth. These future neighborhoods (see **Figure 1-1, Section X**) are identified as having reasonable development potential due to proximity to urban services and adjacency to existing urban development in Fitchburg. The Comprehensive Plan requires the city to undertake a plan for these neighborhoods – North Stoner Prairie being one of them – prior to any adjustment to the city's Urban Service Area (USA), thus facilitating orderly and responsible extension of the city's utility and transportation infrastructure in the future while preserving farmland and natural resources. Finally, the Capital Area Regional Planning Commission (CARPC), along with the Wisconsin Department of Natural Resources (DNR), has approval authority over USA amendments within the region.

¹ Adopted in 2007 by Resolution R-30-07 and R-89-07

As a component of CARPC's review process for these amendments, a community must demonstrate its consideration of the factors and impacts addressed in this neighborhood plan, such as land use, agricultural and natural resources, housing, and economic development. To this end, the NSPN Plan serves as a comprehensive and thoughtful guide for the expansion of the USA into this future growth area, and for future city growth.

Planning Area

Located in the northwestern portion of the City of Fitchburg (see **Figure 1-2, Section X**), the North Stoner Prairie Neighborhood (NSPN) is an approximately 365 acre tract of (mostly) privately-owned, unimproved lands lying north of Lacy Road both east and west of Seminole Highway. Largely undeveloped and currently used primarily for natural resource-based industries (agricultural cultivation and non-metallic mineral extraction), NSPN's inclusion as a "Future Neighborhood" in the City of Fitchburg Comprehensive Plan directs the city to prepare a more detailed neighborhood plan for the area. The neighborhood plan is intended to address issues and opportunities such as future land use, transportation systems, parks and open space, utility extensions, and stormwater management so that a responsible, consensus-based plan for future growth is in place prior to market-initiated growth occurring in the area.

The NSPN study area is accessed primarily by Lacy Road and South Seminole Highway and is located east of the Quarry Ridge Recreation Area and Verona Road. The study area is surrounded by distinct land uses including active and productive agricultural lands immediately south of the study area across Lacy Road, an active quarry immediately west of the study area, major local commercial and industrial corridors and districts north of the study area, and two residential neighborhoods: Lacy Heights just east of the study area, and Seminole Forest, located to the northeast. In addition to the industrial and quarry activities, a commercial area is located northwest of the study area on McKee

Road/CTH PD. In effect, NSPN today serves as the northern edge of “Rural” Fitchburg; it is a transition zone between the employment, industry, housing and shopping core of the community and the City’s vast agricultural areas south of Lacy Road.

Planning Process

The City of Fitchburg entered into a contract with Madison-based SAA Design Group, Inc. to complete the North Stoner Prairie Neighborhood Plan in November of 2012.

SAA managed a team of in-house professionals as well as a specialized team of subconsultants, including Montgomery Associates: Resource Solutions (who led environmental and stormwater analysis and planning) and Teska Associates (who led market, fiscal, and TIF analysis and collaborated on neighborhood land use planning). Beginning in late 2012 and running through 2013, the SAA team fostered a process in which private land owners, adjacent neighborhoods, and the development community all were integrally involved in providing input and feedback on the neighborhood plan.

Through an inclusive and participatory process, city staff, the consultant team, and a project steering committee engaged in public open house meetings, planning workshops, project websites, and listening sessions to develop an understanding of community issues and preferences and build support for the plan. This approach is vital in building broad community support for a consensus-based plan and plan policies, and for assuring that the plan is ultimately feasible for implementation.

Public comments received throughout the process – via both web-based and “traditional” paper means – are a part of the public record and are included, along with meeting notes and minutes, in Appendix A of this plan.

Project Meetings

The consultant team facilitated several meetings throughout the planning process, offering opportunities for information sharing, updates on plan progress, and to gather stakeholder input at every stage of the plan’s development. The North Stoner Prairie Neighborhood Steering Committee, appointed by the Fitchburg City Council, played a

crucial role in the plan's development. This committee was comprised of local business people, neighborhood representatives, elected officials, real estate professionals, school district representatives, and other stakeholders. Working diligently and collaboratively over the course of 9 meetings in 9 months, the committee ushered the plan from initial vision setting to draft plan development in a way that best reflected community values, vision, and expectations for the neighborhood. In addition, the committee worked with the consultant team and city staff to prepare materials for other meetings, as necessary, throughout the planning process. A summary of key milestones in the North Stoner Prairie Neighborhood Planning process is provided (**see Table 1-1**).

Stakeholder Interviews

In January 2013, the consultant team held one-on-one discussions with residents from adjacent neighborhoods, business and property owners, financial and real estate professionals, and public officials to gain a better understanding of the development visions and constraints of the North Stoner Prairie neighborhood. Fifteen interviews in all were conducted, and although the details of these discussions are held in confidence, the input received helped to inform the consultant team's understanding of the issues and opportunities impacting the North Stoner Prairie neighborhood.

Project Website

The consulting team developed a website that allowed for stakeholders to view project information, exhibits, presentation, meeting results, and other project-related items. The website also provided opportunities for stakeholders to provide feedback and ask questions in real time. The project site was accessible through the City of Fitchburg and SAA Design Group, Inc. websites.

Table 1-1: Summary of Plan Development Process

Who	When	Content	Outcomes
Staff	December 11, 2012	Discussion of project intentions and schedule, neighborhood design principles, and key neighborhood issues and opportunities.	Staff informed consultant with respect to planning context and background.
Steering Committee	December 11, 2012	Discussion of project intentions and schedule, steering committee expectations, neighborhood design principles, and key neighborhood issues and opportunities.	The Steering Committee accepted the proposed Neighborhood Design Principles.
City Plan Commission, Agricultural & Rural Affairs Committee, Resource Conservation Committee, Parks Commission, Public Works Committee, Transportation & Transit Committee	January 22, 2013	Consultant-led discussion on perceived issues, concerns, and opportunities facing North Stoner Prairie from CEDA's perspective.	Committee input integrated into plan issues & opportunities memorandum and plan goals and objectives.
Community and Economic Development Authority (CEDA)	January 24, 2013	Consultant-led large group discussion on perceived issues, concerns, and opportunities facing North Stoner Prairie from each committee's perspective.	CEDA input integrated into plan issues & opportunities memorandum and plan goals and objectives.
Staff	January 29, 2013	Consultant-led discussion of preliminary investigation findings related to natural resources, transportation and infrastructure, land use, and market.	Staff confirmed Neighborhood Design Principles.
Steering Committee	January 29, 2013	Consultant-led discussion of preliminary investigation findings related to natural resources, transportation and infrastructure, land use, and market. Consultant-led visioning exercise.	One-word activity informs plan goals and policies for the neighborhood.

Table 1-1: Summary of Plan Development Process

Who	When	Content	Outcomes
Public Information Meeting	January 29, 2013	Introduction to the planning process and planning area, followed by break-out discussion of plan issues and opportunities as related to natural resources, transportation and utilities, land use, and market.	City and consultant team obtained public comments regarding goals for future neighborhood development.
Staff	February 28, 2013	Discussion of draft vision statement and refined neighborhood design principles. Introduction and discussion of four alternative preliminary growth models.	Staff offered feedback and recommendations for each growth model.
Steering Committee	February 28, 2013	Discussion of draft vision statement, refined neighborhood design principles, and planning process. Introduction and discussion of four alternative preliminary growth models.	Steering Committee offered feedback and recommendations for each growth model.
Neighborhood Listening Session	April 2, 2013	Question and answer session with adjacent neighborhoods focusing on key issues such as neighborhood connectivity, residential density, and stormwater management.	Public input integrated into neighborhood vision, design principles, and revised growth models.
Staff	April 9, 2013	Discussion of stormwater management alternatives and two refined growth models.	Staff feedback integrated into preferred stormwater management approach and growth model.
Steering Committee	April 9, 2013	Confirmation of plan vision statement and principles. Discussion of input received at neighborhood listening session and alternative stormwater management approaches. "Maps and Magnets" growth model activity to document steering committee input on general land use preferences.	Steering committee direction integrated into revised growth models.

Table 1-1: Summary of Plan Development Process

Who	When	Content	Outcomes
Steering Committee	April 23, 2013	Discussion and selection of preferred growth model, and discussion on roadway connectivity.	Steering committee moved a preferred growth model forward.
Steering Committee	May 14, 2013	Work session with city staff to discuss roadway connectivity.	Steering committee moved a preferred connectivity option forward.
Staff	July 9, 2013	Work session to discuss key recommendations related to land use, parks and open space, transportation, utilities and infrastructure, and stormwater management.	Staff input integrated into revised recommendations.
Steering Committee	July 9, 2013	Work session to discuss key recommendations related to land use, parks and open space, transportation, utilities and infrastructure, and stormwater management.	Steering committee input integrated into revised recommendations.
Steering Committee	July 23, 2013	Work session to discuss key recommendations related to land use, parks and open space, transportation, utilities and infrastructure, and stormwater management.	Steering committee approved recommendations to be incorporated into neighborhood plan.
Public Information Meeting	August 15, 2013	Presentation of plan recommendations to solicit public comments.	Public input integrated into neighborhood plan.
Staff	September 18, 2013	Worksession to review first draft of plan document.	Staff input integrated into second draft of plan.
Steering Committee	September 18, 2013	Worksession to review first draft of plan document.	Steering committee input integrated into second draft of plan.

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III. NEIGHBORHOOD CONTEXT AND CHARACTER

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History of Stoner Prairie

In 1837, a man named John Stoner became the first person of European descent to establish a farm in Fitchburg, raising crops southeast of today’s Lacy Road and Seminole Highway intersection. Located just past the edge of the Milton Moraine, the “Stoner Prairie” settlement quickly emerged as a place to plant roots for Irish immigrant families beginning in the 1840s due to fertile, tillable soils and access to markets via the Seminole Highway, at this time the most important north-south road in Fitchburg and the southern door to Madison. Throughout the late 19th and early 20th Centuries, families such as the Dunn’s, O’Brien’s, McKenna’s, Whalen’s and Lacy’s claimed lands along Lacy Road, Seminole Highway, and Mutchler Road and established a strong agricultural legacy that remains to this day. At the far northern extent of this original settlement, the North Stoner Prairie Neighborhood planning area is an opportunity to celebrate this legacy while responsibly facilitating Fitchburg’s economic and community growth and development in the 21st Century and beyond.

Existing Land Use and Property Ownership

The study area is characterized by existing land uses, for the most part rural in nature, (see **Table 3-1**), with a number of entities having ownership interest in NSPN properties. Predominately, NSPN lands are actively used for agricultural crop production and cultivation. **(For ownership see Table 3-2 on the next page and Figure 3-1, located in Section X.)** The far western portion of the study area includes properties currently owned by Sub-Zero Wolf, Inc.

Table 3-1 : Existing Land Uses (Excludes Road Right-of-Way)			
Land Use	Square Feet	Acres	% of Total
Agricultural	13,454,848.00	308.9	84.5%
Park and Open Space (Including Badger State	550,333.00	12.6	3.5%
Quarry	991,146.00	22.8	6.2%
Woodland	490,039.00	11.2	3.1%
Scattered Rural Residential	250,553.00	5.80	1.6%
Utilities/Parking	182,942.00	4.2	1.1%
Study Area (Total)	15,919,861.00	365.5	100.0%

and Payne & Dolan that are part of an active quarry operation. Payne & Dolan also owns a number of large undeveloped agricultural parcels in the southern portion of the study area, both adjacent to their operation and east of Seminole Highway. Sub-Zero Wolf owns and operates an industrial facility north of the study area and owns undeveloped land in the study area, southwest of their industrial facility.

Table 3-2 : Property Ownership (June 2013)				
Owner	Parcel Count	Square Feet	Acres	% of Total
Dunn, Bill	1	1,653,175.9	38	10.4%
Dunn, Don	1	1,439,837.1	33.1	9.0%
Sub-Zero Wolf, Inc.	2	3,133,491.1	71.9	19.7%
Payne & Dolan, Inc.	4	5,855,223.1	134.4	36.8%
O'Brien Family Partnership	2	2,489,835.1	57.2	15.6%
Dunn, Edward	1	21,415.0	0.5	0.1%
O'Brien, Anna	1	516,546.8	11.9	3.2%
Verona Area School District	1	102,751.2	2.4	0.6%
Wisconsin Department of Transportation	2	432,026.2	9.9	2.7%
Fitchburg, City of	2	275,559.4	6.3	1.7%
Study Area (Total)		15,919,861.0	365.5	100.0%

There are two homesteads located along Seminole Highway owned by the Dunn (to the north and east) and O'Brien (to the south and west) families – families with strong legacies in Fitchburg's agricultural community. Both families own additional parcels in the central and eastern portion of the study area, with these lands currently cultivated farmlands. Verona Area School District owns a parcel in the southeast portion of the study area that is a portion of the Savanna Oaks Middle School campus. The City of Fitchburg owns a parcel (part of Stoner Prairie Park) north of Savanna Oaks that serves as playfields for ultimate Frisbee, pick-up baseball, and other field sports, as well as another parcel at the northwest corner of NSPN that houses Municipal Water Tower E, erected in 2004.

Adjacent Land Use

The North Stoner Prairie Neighborhood is bordered by diverse land uses (see **Figure 3-2, Section X**). Immediately south of Lacy Road the city's landscape is rural, with agricultural lands, farm residences and support buildings the dominant land use type. To the west of NSPN, active sand and limestone quarries and the Quarry Ridge Recreation Area serve as a buffer between the neighborhood and the Verona Road corridor, which is populated with a mix of suburban land uses including commercial, office, and residential. Immediately north of NSPN are a mix of office, service, and light industrial land uses which make up the neighboring Fitchburg Commerce Park and Fitchburg Business Park west of Seminole Highway. East of Seminole Highway, the Seminole Forest single-family residential neighborhood is NSPN's northern neighbor. In addition, two Verona Area School District facilities are immediately east of NSPN: Savanna Oaks Middle School and Stoner Prairie Elementary School.

Landscape Character and Environmental Features

Lying in something of a "basin" between a dolomite ridge at its western edge and a terminal moraine at its east, for the most part NSPN is a relatively flat landscape that dips quite gradually from west to east. One notable exception to this lies in the westernmost $\frac{1}{4}$ of the planning area, which rises to elevations as much as 100 feet above the lowest points in the neighborhood. The area exhibits steep slopes, rocky outcroppings, and an intact, roughly 10-acre woodland consisting mostly of mature oak and hickory trees. This western edge however is also part of an active mining operation which over time will remove the rock underlying this higher ground and approximately half of the existing woodlot.

Although mostly flat, the NSPN's topographic landscape exhibits characteristics that nonetheless will continue to shape its character. Most visible among these characteristics is the largest of several "kettles" – or topographic depressions with poorly defined drainage ways or streams – located west of the Badger State Trail north of Lacy Road. To a greater degree than the smaller kettles in the neighborhood, this large kettle holds water in especially wet weather conditions and serves as a natural collection basin within the planning area.

Demographics²

The North Stoner Prairie Neighborhood lies in northwest Fitchburg, with urban development immediately adjacent to its entire east and north boundaries (in the city of

Population	1 Mile	3 Mile	Citywide
2012 Estimate	4,078	61,819	25,748
2000 Census	3,963	52,413	20,501
1990 Census	2,319	42,770	15,591
Growth 2000-2012	2.90%	17.95%	25.59%
Growth 1990-2000	70.89%	22.55%	31.49%

Fitchburg) and within ¾ miles of its western boundary (in the City of Madison). As such, it is no surprise that there are more than 4,000 residents within a one mile radius of the NSPN, and almost 62,000 within a three mile radius (see Table 3-3). While population growth within the one mile radius (71%) between the 1990 and 2000 Census years dramatically outpaced the 3-mile (23%) and citywide (31%) rate, the one-mile area has seen very little growth (3%) since then even compared to the 3-mile (18%) and citywide (26%) figures. This indicates that although there is proximate demand for new residential growth, the development community lacks either the capacity or access to land (likely both) to meet that demand.

The racial diversity of population within the one-mile radius is comparable to both the three-mile and citywide character, with 29% of the population in the one-mile area identifying with a non-white race compared to 27% at both the three-mile and citywide geography. Post-secondary educational attainment within the one-mile area mirrors the citywide figure at 48% with a Bachelor's or higher, compared to 51% within the three-mile radius and 45% for all of Dane County. The median household income within one mile is \$57,282. This measures favorably against the citywide (\$56,483) and statewide (\$52,374) figure but is slightly lower than the 3-mile (\$61,796) and Dane County (\$61,913) figure.

Households within the one-mile radius are predominately occupied by married couples (80%), and 44 percent of all households within the one-mile radius have children – roughly 1/3 of these in single-parent households. The character of housing within the vicinity of the NSPN is also diverse, as 54% of all units within one mile are owner-occupied (lower than but within 4 percentage points of the 3-mile and citywide figures). The median value of owner-

² Data sets utilized in this section include Nielsen Site Reports, Demographic Report (2012), Nielsen Site Reports, Employment and Workplaces (2012), and U.S. Census, American Community Survey (2012)

occupied housing within one mile is \$257,995, which measures higher than both the 3-mile and Dane County medians but lower than the citywide median.

The manufacturing and service industries account for more than 54 percent of the jobs within a one mile radius of the NSPN, with 19 manufacturing businesses and 128 service businesses (Personal, Business, Legal, and Health Services, Amusement and Lodging, Educational Services, etc.) located within that one-mile radius (**see Table 3-4**). Notably, 19 of Fitchburg’s 49 manufacturing businesses (38%) and 1,276 of the city’s 1,800 manufacturing jobs (71%) are located within a one mile radius of NSPN. Similarly, while only 6 of Fitchburg’s 32 wholesale trade businesses (19%) are located within a one-mile radius of NSPN, more than half (308) of the city’s 611 jobs in this industry are located within that area.

In summary, the North Stoner Prairie Neighborhood’s surrounding residents are diverse in background and family structure, well-educated, and of comfortable but moderate means. Housing ownership and rental costs are high within Fitchburg compared to Dane County, and this trend holds true within the one-mile radius of NSPN. In contrast the character of businesses and employment within close proximity to the neighborhood is strongly “blue-collar” in nature.

Table 3-4: Industry and Employment Characteristics	1 Mile Area		3 Mile Area		Citywide	
	Businesses	Employees	Businesses	Employees	Businesses	Employees
Industries (All)	296	4,572	1,905	26,115	1,050	15,260
Agriculture (All)	6	54	47	848	34	240
Construction (All)	17	470	122	1,140	89	1,558
Manufacturing (All)	19	1,276	61	3,765	49	1,800
Transportation, Public Utilities	7	37	70	943	33	529
Wholesale Trade (All)	6	308	53	701	32	611
Retail (All Retail)	64	849	314	5,171	184	3,385
Finance (All)	48	334	325	2,113	194	1,349
Service (All)	128	1,214	878	10,708	415	5,070
Public Administration (All)	1	30	35	726	20	718

Market Characteristics

The North Stoner Prairie Neighborhood is surrounded by industrial and mining to the north and west, business services along Seminole Highway to the north, and residential to the northeast and east. Various market types were investigated regarding suitability in proximity to neighboring uses and market demand.

Industrial

Current users include the Payne and Dolan's quarry and asphalt plant on the west edge of the neighborhood and the Sub Zero Freezer Company manufacturing plant plus a variety of other industrial users on the north edge of the neighborhood . There are 19 manufacturers employing over 1,200 workers within 1 mile of the site.³ In addition, there are six wholesale trade employers with over 300 employees and seven transportation related firms with 37 employees. Interviews with industrial property owners, brokers, and input from CEDA reports strong demand for industrial space, particularly citing the lack of large sites available within Fitchburg. The ability to have truck access to Verona Road, intersection improvements at McKee Road and Verona Road, and adjacent complimentary uses in the business park north of the North Stoner Prairie Neighborhood makes the western portion of the neighborhood ideal for industrial uses. The plan calls for between 1.5 and 1.9 million square feet of Industrial General building square footage on approximately 100 acres of developable land. The industrial development is expected to take place over at least 20 years, providing ample land to develop in Fitchburg, and phasing in growth along with needed infrastructure improvements.

Land prices in the Fitchburg area (**see Table 3-5**) for industrial users range from approximately \$130,000 to \$640,000 per acre, with an average price per acre of \$378,430.

³ Nielsen, 2012 Site Reports

Table 3-5: Industrial Land for Sale⁴

Land for Sale	Acres	Sq. Ft.	Asking Price	Price per acre
5381 King James Way	2.3	100,188	999,500	434,565
Nobel Drive	56.0	2,439,360	7,318,080	130,680
6220 Nesbitt Road	1.8	78,408	795,000	441,666
3912 Fish Hatchery Road	3.0	130,680	664,200	221,400
2880 Commerce Park Drive	6.5	280,962	1,194,088	185,130
2875 Fish Hatchery	1.4	60,984	900,000	642,857
6317 McKee Road	1.5	65,776	895,000	592,715
				\$ 378,430

⁴ LoopNet Commercial Listings, 2013

Land prices for industrial space are strong due to relatively high value of industrial space in the Madison metropolitan area in which industrial space is approximately \$54 per square foot, significantly higher than the \$35 to \$40 cost per square foot statewide (see Graph 3-1).

At \$90 per square foot, prices for industrial space in the Fitchburg area are higher than the metropolitan average of \$54 (see Table 3-6). The demand for industrial and office space users will fill the need for approximately 425,000 to 550,000 square feet of Industrial-Commercial space called for in the plan in approximately 25 acres of buildable land.

Graph 3-1: Industrial Space for Sale in Madison Metropolitan Area

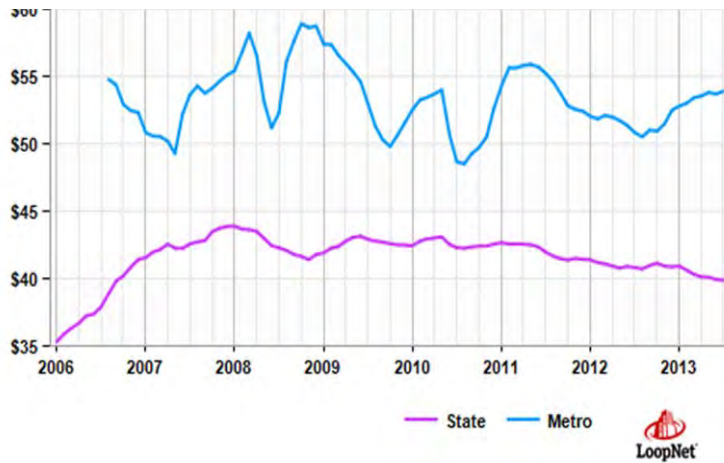
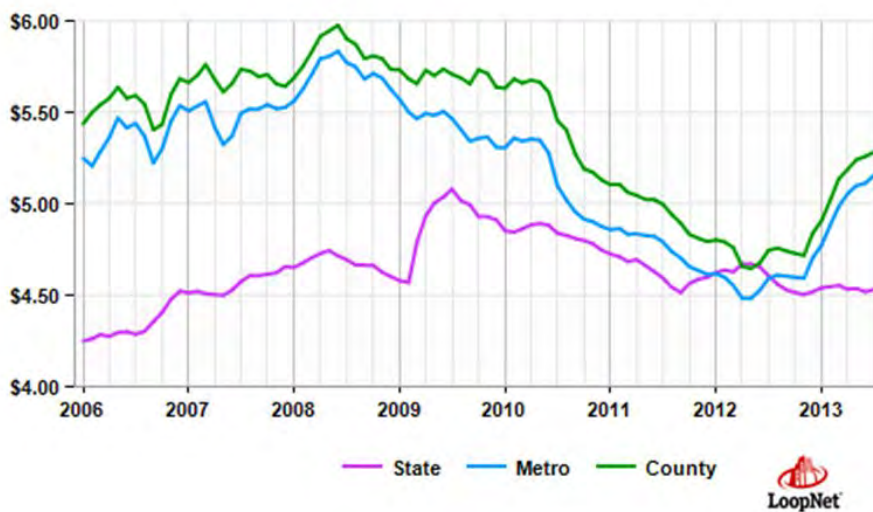


Table 3-6: Industrial and Office Buildings for Sale in Fitchburg Market⁵

Industrial/Office Buildings	Acres	Building Sq. Ft.	Price	Price per Sq. Ft. of Building
5264 Verona Road	1.21	9,542	699,000	73
2655 Research Park Drive	1.19	16,020	2,750,000	172
2976 Triverton Pike Drive	.932	11,000	704,000	64
6060-6064 McKee Road	1.76	22,530	2,550,000	113
5976 Executive Drive	1.82	24,631	1,825,000	74
2906 Commerce Park Drive	3.1	48,000	1,995,000	42
				\$90

Similarly, industrial leases are strong in the Madison and Fitchburg markets. As shown in the following diagrams (**Graph 3-2, and Table 3-7**), industrial space in Madison and Dane County have rebounded in 2013.

Graph 3-2: Industrial Space for Lease in Madison Metropolitan Area



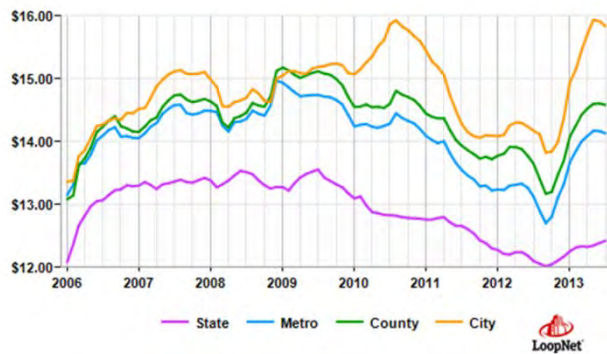
⁵ LoopNet Commercial Listings, 2013

Industrial Properties	Sq. Ft.	Rent per Sq. Ft.
5380 King James Way	3,586	7
2906 Commerce Park Drive	48,000	5.25
6140 Cottonwood Drive	6,945	6.84
		\$6.36

Table 3-7: Industrial Properties for Lease in Fitchburg Market⁶

Commercial/Business Services

The central core of the North Stoner Prairie Neighborhood is planned to be Industrial Commercial and Business uses. It is laid out as an expansion of business service uses along the west side of Seminole Highway north of the North Stoner Prairie Neighborhood. The plan calls for approximately 160,000 to 215,000 of Business uses on approximately 11 acres of developable land. As can be seen in **Graph 3-3** and **Table 3-8**, commercial space leases have increased rapidly during the second half of 2012 and are back to peak levels.



Graph 3-3: Commercial Space for Lease in Madison Metropolitan and Dane County

Commercial Properties	Sq. Ft.	Rent per Sq. Ft.
2935 S. Fish Hatchery Road	20,179	15.00
6321 McKee Road	60,000	14.50
5401 Caddis Bend	10,000	18.00
2960 Cahill Main	200,000	16.00
		\$15.88

Table 3-8: Commercial Properties for Lease in Fitchburg Market Area⁷

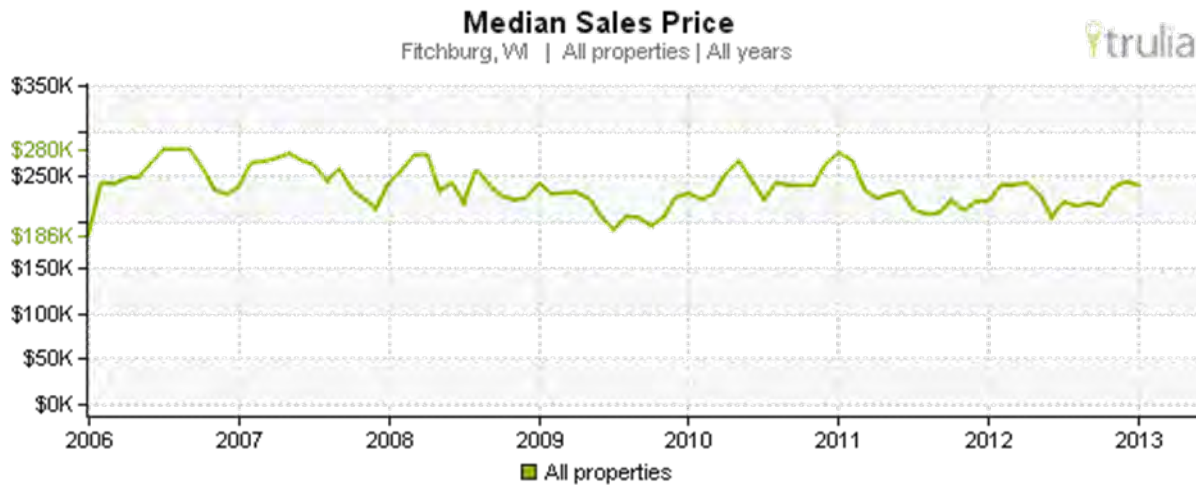
⁶ LoopNet Commercial Listings 2013

⁷ LoopNet Commercial Listings, 2013

Residential

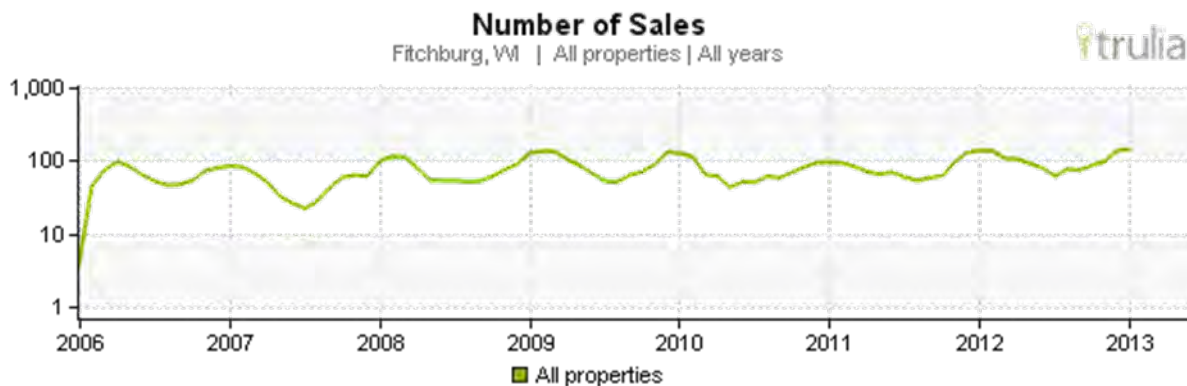
The “for-sale” housing market in the City of Fitchburg has been stable. While development slowed during the recession, resale prices of housing in Fitchburg have fluctuated, but have stabilized at approximately \$250,000 median sales price, with higher levels for newer homes and larger homes. Year on year increase in median home sales prices were 7.7% from July 2012 to July 2013.⁸ (see **Graph 3-4**)

Graph 3-4: City of Fitchburg Median Sales Price



The number of sales in Fitchburg has also been relatively stable since 2008, fluctuating seasonally, but averaging about 100 units per year (see **Graph 3-5**).

Graph 3-5: City of Fitchburg Home Sales



⁸ Trulia, September, 2013

Interviews with local real estate brokers indicated that the lack of developable lots in the Verona School District, especially for larger 3 and 4 bedroom products that could be accommodated in both Low Density Residential and Mid Density Residential.

As can be seen in **Table 3-9**, 4 bedroom products are currently listed above \$400,000 with average listing price at over \$320,000. Prices for new home construction in an area like North Stoner Prairie are likely to be at the higher end according to interviews with local brokers and comparable to properties in Seminole Forest and Lacy Heights neighborhoods.

Table 3-9: Listing Prices per Bedroom Size⁹

No. Bedrooms	Week ending Aug 28	Percent Change	Week ending Aug 21	Week ending Aug 14	Week ending Aug 7
1 bedroom	N/A	N/A	N/A	N/A	N/A
2 bedrooms	\$177,396	-1.8%	\$180,702	\$177,527	\$178,339
3 bedrooms	\$280,027	+1.3%	\$276,317	\$275,836	\$274,803
4 bedrooms	\$402,674	-0.1%	\$403,047	\$399,204	\$403,312
All properties	\$320,259	-0.1%	\$320,690	\$318,276	\$319,003

⁹ Trulia, September, 2013

IV. NEIGHBORHOOD ISSUES AND OPPORTUNITIES

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One of the great values and purposes of the North Stoner Prairie Neighborhood Plan is that it addresses issues and opportunities at a scale that is more refined than the city's previous plans and studies, and therefore more responsive to specific conditions and characteristics to influence the future of the neighborhood. This chapter offers a summary of the most significant issues and opportunities to consider in planning for the future of the NSPN with respect to employment, housing, and retail markets, land use, schools, transportation networks, utilities and infrastructure, open space and trails, and stormwater management.

Figure 4-1, Section X, illustrates many of the opportunities and issues detailed herein.

Employment Market Opportunities

- Sub-Zero Wolf, Inc. has approximately one million square foot industrial facility to the north of the study area that provides 2,500 jobs.
- There is a potential future expansion of Sub-Zero Wolf, Inc.
- There are 277 employers with 4,248 jobs within a 1 mile radius and 1,679 employers with 22,274 jobs within a 3 mile radius of the study area. However, planning for the expansion of the industrial uses to the north of the study area would help to add more blue color jobs to the available mix (currently a mix of hourly and full-time jobs).

Employment Market Issues

- Besides the property to the north of the study area, Sub-Zero Wolf, Inc. also owns the undeveloped western parcel that is currently leased to Payne & Dolan and used for quarry.
- Some commercial properties on Seminole Highway north of the study area are being used for service rather than retail use, while some of the industrial properties north of the study area are used for sports, day care and other non-industrial uses

Housing Market Opportunities

- There is demand for housing lots, particularly in the Verona School District.
- The housing demand calls for a mix of housing types, particularly for young professionals, young families, and empty-nesters.
- With an increase in residences, the need for additional institutional uses like churches may be needed

Housing Market Issues

- There is a challenge of land and development costs to provide improved lots that will sell in a competitive market compared with existing housing stock and greenfield lots in other areas of the Madison area.

Retail/Commercial Market Opportunities

- Increase in residential uses within the study area will generate the need for some retail uses as well.
- Uses complementary to the commercial uses north of the study area along Seminole Highway should also be considered.
- The opportunity and location for agri-tourism within the study area should be considered (like community gardens, local foods, urban farmer's markets, etc.)

Retail/Commercial Market Issues

- Limited traffic counts on Seminole and Lacy Road will be a challenge for many retailers.
- Higher traffic counts on McKee Road north of the study area will attract greater retail uses.

Land Use Opportunities (Adjacent)

- Quarry- The active quarry in the western portion of the study area is planned to be converted to business park use once the quarrying activities are exhausted. There are also more quarry uses to the southwest of the study area (Hammersley Stone Company).
- Industrial Uses- Future expansion of the adjacent industrial uses into the study area could be considered as it is one of the prime locations that could accommodate larger footprint uses and serve as a major employment hub.
- Expansion of adjacent business park uses should also be considered.

Land Use Issues (Adjacent)

- Quarry- The active quarry to the west of the study area poses general on-going issues related to noise, pollution and truck traffic.
- Sensitivity to the placement of uses adjacent to surrounding residential uses is needed.
- Uses along Lacy Road should be compatible with farmland uses to the south.
- Buffer areas are needed between new development and residential neighborhoods to the northeast and east of the Study Area.

Land Use Opportunities (within study area)

- Quarry- The western parcels within the study area (owned by Sub-Zero Wolf, Inc. and Payne & Dolan) are an active quarry operation that is planned to continue for the next 20 years, after which it will be converted to business park use. The existing berm which is a major portion of these parcels can potentially be used to fill the excavated portions of the quarry.

- The woodlands to the southwest corner of the study area are a potential resource for recreation and open space preservation, but about two thirds of this area is permitted to be quarried in the future.
- Two historic farmsteads in the North Stoner Prairie Neighborhood present opportunities to integrate the history of European settlement into the neighborhood plan. The western site on Lacy Road includes the ruins of a stone house and barn. The Dunn property on Seminole Highway includes an 1860s stone barn that is still standing.

Lane Use Issues (within study area)

- Some of the farmland within the study area is currently used for manure spreading purposes, and their relocation would need to be considered.

Verona District School Opportunities

- There is a need for additional housing to support the Stoner Prairie School and Savanna Oaks Middle School, both of which currently have open enrollment counts comparably higher than most schools for the 2012-2013 school year in the Verona Area School District.
- Verona Area School District owns a parcel in the southeast portion of the study area adjacent to the two existing schools.
- The City of Fitchburg has had a long-held desire to have a high school in the community. If that were to occur, locating that school in proximity to the existing schools, or reserving additional land for the expansion of the existing schools, may be an opportunity to create an educational campus style setting.
- The long term development of the city park to the north of the two schools is an opportunity to provide another drop-off option for parents bringing their children to school.

Verona District School Issues

- There is a concern over trends showing a decrease in school enrollment.
- Walkability and safe-routes to schools is a concern in this area (specifically along the eastern boundary of the study area). Gaps in sidewalks, trails and walking paths need to be fixed.
- The existing circulation patterns at the school parent drop-off/ pickup areas create congestion and safety concerns. The current circulation pattern at the Stoner Prairie School also creates congestion on the adjoining public streets.
- The Verona School District is able to meet its needs for high school on its existing campus for the foreseeable future and does not want to build a new high school.

Transportation Opportunities

- There is an opportunity to make level-of-service and safety improvements to the intersection at Lacy Road and Seminole Highway.
- An integrated internal neighborhood roadway network serving the North Stoner Prairie would relieve strain on existing neighborhood roads from cut-through traffic.
- There is an opportunity to consolidate access points and turning movements on Seminole Highway and Lacy Road within the Study Area.
- Development of the study area may present an opportunity to consider expansion of existing Metro Transit service, currently providing peak-hour bus service within ½ mile north of the North Stoner Prairie Study Area.

Transportation Issues

- In addition to automobile traffic, Seminole Highway receives substantial agricultural vehicle and bicycling traffic. Although it's current design includes 5' paved/striped shoulders, traffic volumes, speeds, and types of traffic present challenges to the safe and functional operation of the road for all modes.
- The intersection of Lacy Road and Seminole Highway are subject to peak-hour congestion and low levels of service.
- Transit access and frequency of service in the area is limited, with the nearest bus stop ½ mile north of the study area.

Infrastructure Opportunities

- There may be an opportunity to replace and relocate the high voltage line to another north-south alignment.
- There are potential sanitary sewer and water connections for the study area from both the north and west.
- Fiber Optic lines are located along Seminole Highway (west right of way) throughout the study area.

Infrastructure Issues

- There is an existing high voltage line within a 100' buffer traversing north south through the study area.
- The natural gas distribution facility to the south of the study area contributes both noise and odor to the surroundings. While these effects can be reduced, relocation of the facility is not an option.

Open Space and Trails Opportunities

- With new residential uses and the available connection to a regional trail network, a trail head within the study area should be investigated.
- An east-west connection between Badger State & Military Ridge Trails is needed.
- There is also the opportunity to expand existing parks (e.g. Stoner Prairie Park) and create additional parks for a variety of recreational amenities.
- Existing and proposed trails can be effectively used as buffers between different proposed land uses.
- New sports and playfields or other educational facilities could be added in conjunction with the existing two schools.
- The portion of the woodlot in the southwestern corner of the NSPN that will remain after mining is completed has many mature oak and hickory trees, offering the potential for restoration of the understory to create a high quality natural area.

Open Space and Trails Issues

- The Badger State Trail traverses north-south through the study area.
- The Military Ridge State Trail to the west of the study area is difficult to connect to due to the on-going quarry activity.
- An existing trail connects Seminole Park to the Stoner Prairie Elementary and Savanna Oaks Middle School. There is concern from nearby residents of any road crossings or extensions across the school trail.

Stormwater Management Opportunities

- The closed depression west of Seminole Highway (CD1) could be a central feature and amenity for the neighborhood as well as serve regional stormwater functions.
- The three wetlands have potential for restoration of native vegetation if/when farming of these areas stops. The closed depression west of the Badger State Trail offers the largest potential restoration area. In this area, stormwater management could be integrated with restoration of natural habitat, space for urban agriculture, and/or trail corridors.
- Existing drainage problems in the Seminole Forest and Lacy Heights Neighborhoods could be improved by placement of stormwater detention and infiltration basins near the northeast corner of the NSPN. These features could be integrated into a buffer between the existing residential lots and new development, creating space for natural habitat restoration and a trail corridor.
- Enhanced groundwater recharge in the NSPN would provide a regional benefit to Nine Springs Creek and associated wetlands and springs, and to the sustainability of Fitchburg's water supply.

Stormwater Management Issues

- Reconnaissance field investigation found potential wetlands in three areas of the neighborhood. The presence of regulatory wetlands and their extent, if present, have not yet been determined.
- Surface water runoff drains into several closed depressions that collect water, and there is no well-defined channel draining water away from the North Stoner Prairie Neighborhood. This creates the potential for local flooding impacts if stormwater runoff volume increases with development.
- The Dane County and City of Fitchburg stormwater ordinances require that the post-development stormwater infiltration be at least 90% of the predevelopment volume. This allows some increase in stormwater runoff volume, raising the

possibility of closed depression water level increases relative to existing conditions.

- Runoff (including soil and other surface impurities) from the agricultural uses in the northeast) flows towards the Seminole Forest subdivision to the north, requiring improved stormwater management.
- Shallow silt and clay soils throughout the neighborhood have slow infiltration rates. East of the Badger State Trail, stormwater infiltration systems could be excavated to the underlying sand at a depth of approximately 5 feet. West of the Badger State Trail, the sand is generally deeper than would be practical to excavate an infiltration system, and the sand that is present is loamy with lower infiltration rates than in the eastern part of the NSPN. This means that infiltration areas west of the Badger State Trail may need to be quite large to control runoff volume to the degree needed to prevent closed depression flooding impacts.
- Shallow groundwater in the central part of the NSPN may limit stormwater infiltration.
- Even with well-planned stormwater management throughout the North Stoner Prairie Neighborhood, it would be prudent to plan on a stormwater overflow route that avoids damage to property and natural resources. Uncontrolled runoff poses the largest risk to the Seminole Forest and Lacy Heights neighborhoods to the north and east of the North Stoner Prairie Neighborhood, and to the farms south of Lacy Road.
- Runoff volume impacts to Lake Harriett are also possible, although the risk of impacts to the lake is less than the risk for properties closer to the North Stoner Prairie Neighborhood.
- Water table mounding impacts to the NSPN and adjacent properties is a possible consequence of stormwater infiltration and enhanced groundwater recharge, and this risk will need to be evaluated in more detail as the conceptual stormwater management plan is developed.

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V. PLAN PRINCIPLES, GOALS, AND POLICIES

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Vision Statement

North Stoner Prairie will be a vibrant, stable, and economically, environmentally, and socially sustainable neighborhood that is home to a diverse range of uses, from an employment center to housing to neighborhood schools. Through protecting natural resources, bikeways and open spaces, North Stoner Prairie will set an example for respecting water resources and the environment while promoting jobs and economic development. The North Stoner Prairie Neighborhood offers a transition between the urbanized area of the City of Fitchburg and agricultural resources to the south. It will offer a connection to nature, community gardens and agriculture, while creating a safe, walkable neighborhood to enjoy access to schools, parks, neighborhood services and employment.

The North Stoner Prairie Neighborhood Plan strives to foster continued growth and development in the city of Fitchburg that furthers the community's identity and prosperity while respecting the legacy of this truly transitional location. The principles, goals, and policies introduced below lay the foundation for this effort, and attempt to strike a balance between integrating the area's strong agricultural identity and exploring opportunities to establish within Fitchburg a greater capacity for employment, housing, and recreation. The recommendations brought forward later in this document are meant to ensure that the goals and objectives outlined in this Plan, the City of Fitchburg Comprehensive Plan, and the Planning Principles addressed below are supported by future development.

Neighborhood Design Principles

The following planning principles were developed to guide the consultant team, city staff, and the steering committee during the planning process. These principles reflect the core values expressed by the NSPN steering committee and other stakeholders regarding future growth and development in the planning area. Along with the plan vision, goals, and policies, decision makers and developers should consult these principles when considering and evaluating proposed developments in the North Stoner Prairie Neighborhood.

- Employ an Integrated and Holistic Planning Process
- Know and Work with Site Capacity and Context
- Respect and Preserve Open Space, Cultural, Historic and Natural Resources
- Provide a Diversity of Land Uses
- Support the Development of Jobs
- Accommodate Housing of Varying Types and Price Ranges
- Create an Integrated, Multi-Modal Transportation Network Including Bikeways, Complete Streets, Support for Walkability and Access to Transit
- Conserve Energy and Water Resources
- Build on Unique Neighborhood Attributes to Create Authentic, Dynamic Character that Provides a Transition Between Uses and Preserves Neighborhood Amenities

Plan Goals and Policies

Plan goals and policies provide the framework and course for decision-making that is reflective of the community's vision and values with respect to future growth and development in the North Stoner Prairie Neighborhood. Through past planning efforts – most notably the 2009 City of Fitchburg Comprehensive Plan – the community has formed consensus around a number of goals, objectives, and policies to guide its growth. As an extension of the Comprehensive Plan, the NSPN Plan reaffirms those goals and policies that apply in this planning area and supplements them where appropriate, as provided below.

Land Use

Goal: Develop a compact urban neighborhood that is visually and functionally distinct from its rural and agricultural community.

Policies:

- Implement the land use plan to accommodate a range and mixture of compatible housing and employment opportunities, and to add to the feeling of “neighborhood” in the North Stoner Prairie Neighborhood.
- Review all development proposals with sensitivity to the context provided by existing environmental resources and surrounding land uses.
- Analyze the natural resources, environmental situation, transportation connections, storm water management, and utilities as related to NSPN to determine the potential as to where and what type of development should and should not occur within the boundary.
- Evaluate and examine the effects of proposed development to the site’s and the city’s natural and environmental systems, as well as social and cultural systems.
- Seek expansion of the urban service area when there is demand for serviced land for housing and businesses, when it is feasible to extend sewer and water lines to NSPN and when the action will be consistent with the phasing recommendations of this and other city plans, and an expected average annual growth rate not to exceed 75 acres per year citywide.
- Plan land use along road corridors in a manner supportive of the functional classification of the road.
- Provide for adequate connectivity of all mode choices among residential areas, employment centers and commercial areas.

- Recognize anticipated phasing of other approved neighborhoods. To bypass conflict of phasing in Neighborhoods and to manage development on an average 75 acre per year rate, the Planning Commission and Common Council need to evaluate phasing proposal applications based on the following criteria:
 1. Contiguity with existing urban development
 2. Relative location to sanitary and water lines/hookups
 3. Anticipated costs for major public infrastructure
 4. Demand for specific land use
 5. Ability to service (police, fire, EMS, etc.)
- Future development in the NSPN will follow the recommendations found in Chapter 7 of this plan and future land use map (Map 7-1). If a landowner and/or a developer choose to pursue the SmartCode District within NSPN, he or she may proceed with a Comprehensive Plan amendment and subsequent steps to achieve the SmartCode designation.

Natural, Agricultural, and Cultural Resources

Goal: Preserve, enhance, and provide public access to the natural, cultural, and agricultural resources of the city.

Policies:

- To protect wetlands, and the biological components of wetlands, provide for a 75 foot environmental corridor or buffer zone, as measured out from the wetland edge.
- Examine hydric soils and hydric inclusions for situations in order to regenerate wetlands previously destroyed by human activity.
- Where appropriate, obtain private or public funding to upgrade and improve wetland quality.
- Implement a Plan for Open Spaces and Recreation consistent with this plan which will assist policy makers with future open space decisions.
- Integrate existing, healthy trees and woodlands into the neighborhood’s design.
- Integrate elements of the North Stoner Prairie’s agricultural heritage into neighborhood open spaces and parks.

Goal: Provide an opportunity for the continued use and harvest of significant commercial natural resources, including agricultural crops and nonmetallic mineral deposits.

Policies:

- Consider proximity to existing and future natural resource-based commercial operations in land use decisions.
- Formally recognize the right-to-farm for areas adjacent to NSPN, particularly south of Lacy Road, by requiring new residents, occupants, and deed holders to record a right-to-farm statement or other such instrument that provides protection to agricultural operations and typical associated traffic, air, and noise impacts.
- Utilize vegetative buffers and landscape to soften the transition between uses of different intensities and character.
- Encourage neighborhood gardens, farmers markets, and similar amenities in transitional areas within the North Stoner Prairie Neighborhood, especially in relation to more intensive agricultural operations south of Lacy Road.

Housing

Goal: Efficiently provide land for balanced residential growth that provides a safe and healthy living environment for all neighborhood residents, regardless of age, income, or family size.

Policies:

- Encourage compact residential development patterns that support walkable residential blocks and the potential of nearby transit service in the future.
- Recognize the value and character of adjacent residential neighborhoods, and hold new housing in the North Stoner Prairie Neighborhood to a compatible standard of quality, livability, and marketability.
- Promote a mix of housing styles and sizes that offer a diversity of households the option to find a home within the North Stoner Prairie Neighborhood.

Economic Development

Goal: Provide sufficient land resources to accommodate business development projects that solidify the local tax base, provide family-supporting wages, and complement and respect the natural and cultural resource base of North Stoner Prairie.

Policies:

- Utilize the City’s zoning authority to:
 - Focus the development of high-value, production-oriented, clean industrial uses, warehouses and flex spaces within the North Stoner Prairie Neighborhood, particularly west of Badger State Trail.
 - Guard against the encroachment of service, retail, and office uses in areas intended for manufacturing within North Stoner Prairie.
 - Examine ways to accelerate the development review process while recognizing the purpose of open public review.
- Promote agricultural research, development, and technology businesses that will recognize an advantage to North Stoner Prairie’s proximity to Fitchburg’s most productive agricultural resources.
- Foster business opportunities that tie to the North Stoner Prairie Neighborhood’s recreational resources, such as the Badger State Trail and nearby Military Ridge State Trail.
- Pursue “Certified in Wisconsin” status through the Wisconsin Economic Development Corporation (WEDC) for the areas identified as Industrial-General on the North Stoner Prairie Future Land Use Plan.

Utilities and Community Facilities

Goal: Locate and maintain public and private utilities, public facilities, and services so as to support the goals of compact growth, neighborhood vitality, energy conservation, and sustainable neighborhood design.

Policies:

- Limit development to areas that can be efficiently, systematically, and cost-effectively added to the Urban Service Area (USA).
- Preserve a site in proximity to the existing schools campus for the location of new or expanded school facilities.
- Utilize the phasing approach recommended by this and other city plans to guide the extension of utilities and community facilities in a responsible and sustainable manner.
- Construct water and sewer extensions concurrently with new streets.
- Work with the development community, appropriate city departments, and American Transmission Company (ATC) to consider relocation options for existing high capacity electrical transmission lines to a location west of Seminole Highway.
- Encourage improved site and structural design at the existing Madison Gas and Electric (MG&E) “Gas Gate” just south of NSPN, across Lacy Road.

Stormwater Management

Goal: Provide stormwater drainage and infiltration systems to minimize off-site impacts and meet or exceed legally required standards.

Policies:

- Provide multiple points for treatment and infiltration of runoff as close to impervious surfaces as possible, and integrate stormwater management best practices throughout the neighborhood.
- Utilize best practices such as green roofs, rainwater harvesting, and irrigation to manage stormwater volume, especially west of the Badger State Trail where fine grained soils and shallow groundwater will present challenges to infiltration.

- Minimize impacts on downstream morphology, water bodies, and habitat.
- Conduct seasonal monitoring and measurement of water levels in closed depressions to provide early warning of potential overflow and flooding.

Open Space and Parks

Goal: Provide permanent, publicly accessible open space and recreational resources to enhance the quality of life and sense of place found in the North Stoner Prairie Neighborhood.

Policies:

- Where deemed beneficial to the city's parks and open space system, integrate unique natural resources such as woodlands and wetlands into public park spaces.
- Recognize and integrate unique cultural and historic characteristics and assets into the neighborhood's parks and open spaces.
- Expand the land area and scope of amenities and programming at Stoner Prairie Park.
- Provide for a continuous link from Quarry Ridge Recreation Area and Military Ridge Trail east to Badger State Trail and the school path linking Savanna Oaks and Stoner Prairie Schools to the neighborhoods.

Transportation

Goal: Provide a transportation system for all modes of travel to move people and goods to and through North Stoner Prairie safely, efficiently, and cost-effectively.

Policies:

- Develop a pattern of streets, sidewalks, and bicycle facilities that maximizes the connectivity within the neighborhood and to areas outside the neighborhood.
- Encourage an efficient urban style grid street network to distribute traffic throughout the system rather than placing strain on one or two particular roads.
- Design complete streets that promote access and mobility for bicycles and pedestrians as well as automobiles.

- Consider extensions of Madison Metro bus service if residential and employment density justify such extension to reduce the need for motor vehicle trips to planned employment areas west of Badger State Trail.
- Design roads, intersections, and traffic controls to minimize cut-through, particularly on residential streets.
- Work with the Verona Area School District, Stoner Prairie Elementary School and Savanna Oaks Middle School to implement access improvements to the school campuses, in order to improve emergency response options and to minimize congestion and other traffic safety issues in and around the North Stoner Prairie neighborhood.
- Promote shared parking agreements for compatible uses to make more efficient use of parking facilities.
- Assure that new businesses, employers, and multi-unit residential areas provide for bicycle parking and pedestrian connectivity in the design and construction of new developments.

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VI. ANALYSIS OF INTEGRAL SYSTEMS

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Natural Resource Systems

Wetlands

A reconnaissance level evaluation of wetlands in the NSPN was conducted by Eco-Resource Consulting, LLC (ERC). This included a site walkover to identify areas that are likely to meet regulatory wetland criteria and determine the approximate extent of the wetlands.

ERC's full report is included in **Appendix B**.

Three potential wetlands were observed in the NSPN (**see Figure 3-3, Section X**). Each appears to be in a closed depression, where seasonal ponding of surface drainage occurs. The largest potential wetland occurs in the closed depression west of the Badger State Trail and north of Lacy Road (CD1). This depression collects surface drainage from surrounding areas and has frequently been wet enough to interfere with cropping. Farmers constructed a ditch many years ago to use as a sump for pumping of water from this area south over Lacy Road. Cultivation occurs up to the spoil banks adjacent to the ditch. Vegetation in the ditch includes invasive reed canary grass, as well as smartweed and Canada goldenrod, which are typical of disturbed environments. Seven test pits were excavated in and near the ditch. Mottling, indicative of hydric soils was observed in the clay soil in the bottom of the ditch; while soil pits in the cropped field to the east and west of the ditch encountered loamy soils to a depth of at least 20 inches, with no hydric indicators. Although soil indicators of wetlands were only observed within the ditch, the Wisconsin Wetland Inventory indicates a more extensive wetland in this area consistent with the historic flooding of farm fields. The extent of regulatory wetlands is therefore uncertain at this time.

The two small potential wetlands on either side of Seminole Highway are in small closed depressions CD2 and CD3 are entirely cultivated. At the time of observation in November 2012, conditions were dry, and the fields in these areas had recently been plowed. Some hydric soil indicators were observed in these locations; however large soil clods created by the plow prevented accurate measurement of the depth of hydric soil indicators.

A full wetland determination and delineation will be necessary at all three wetlands before site development occurs. Early in the growing season is the best time for that work, because

the soil surface will be more uniform, and it will be possible to identify any wetland plants that may occur before they are disturbed by machinery and/or herbicide use.

Seasonal ponding is likely to occur at all three wetland locations, which was considered in developing the growth model. These areas present an opportunity to restore native wetland vegetation, and the western closed depression is especially suited for a large environmental corridor that combines native habitat restoration, recreational use, and stormwater management.

Woodlands and Uplands

A reconnaissance level evaluation of woodlands and other upland habitats was conducted by ERC. This included observations on the presence and type of mature trees, and the diversity and quality of tree and understory species. ERC's full report is **included in Appendix B**.

The most extensive woodland in the NSPN is located in the far southwestern corner of the area on the Payne and Dolan property. Half or more of this woodland is planned for removal by future mining, with the southern portion along Lacy Road remaining. This is a dry-mesic woodland with large bur, white, and black oaks, plus mature shag bark and bitternut hickory trees (**Figure 6-1**). Numerous bur oaks have diameters greater than 36 inches. The shrub and herbaceous layers are dominated by invasives. Restoration to remove invasives and establish native understory vegetation is a significant opportunity to enhance the NSPN.

Other woodland areas in the NSPN are smaller and are primarily along property lines (**Figure 6-2**). Numerous large bur oaks occur in these areas, however many of them are in declining health. Nonetheless, there is an opportunity to preserve and enhance small stands of mature bur oaks in the NSPN.



Figure 6-1, left, Woodlot in southwestern corner of NSPN and Figure 6-2, right, burr oaks along Sub-Zero Wolf and Dunn property line.

Surface Water Drainage

The landscape in and around the NSPN includes numerous glacial kettle holes, which are closed topographic depressions, and a lack of defined drainage ways or streams. This presents a challenge to developing a stormwater management system that avoids unintended impacts on properties within and adjacent to the NSPN. Stormwater runoff that drains into a closed depression pools remains there until it infiltrates into the soil, evaporates or is transpired by plants. In extremely wet conditions, the water level in a closed depression can rise enough to overflow at its lowest point and drain toward adjacent areas. Numerous closed depression watersheds have been developed in the Madison metropolitan area, and the increase in impervious surface area in these watersheds has typically led to rising water levels in the depressions. Many of these depressions have required the installation of storm sewer outlets or pumping schemes to handle the excess water.

Western Closed Depression

Most of the NSPN west of the Badger State Trail drains to closed depression CD1 north of Lacy Road discussed in the Wetlands section above. Approximately 8 acres of this area of approximately the Payne and Dolan property is frequently wet, and this area is visible on aerial photographs as a contrast in soil color (**Figure 6-3, Section X**). In 2008, a period of heavy rains and very high groundwater in southern Wisconsin, this depression held standing water for several months. Information from the farmers working this land suggests that water rose to an elevation between 1019 – 1020 ft, inundating approximately 20 acres, including 4 – 5 acres of the Dunn property.

If the water level in the closed depression were to rise high enough, it would overflow to the south over Lacy Road into another closed depression (CD5) on the farm immediately south of the NSPN. The 1-foot topographic contours from the City of Fitchburg indicate that water would initially drain to the east along the north side of Lacy Road, crossing the Badger State Trail at an elevation between 1022 - 1023 feet, and overflowing Lacy Road at an elevation between 1023 - 1024 feet. The overflow point on Lacy Road appears to be between the natural gas facility and Seminole Highway. This overflow elevation is 4 – 5 feet above the approximate ponding level in 2008. Stakeholders and City staff have no memory of natural overflow in this location, although farmers have pumped water from the ditch in the center of the depression over Lacy Road to the south. According to stakeholder input, pumping has not occurred in this area for about the past 15 years.

Southeastern Area

The southeastern portion of the NSPN, primarily the Payne and Dolan and O'Brien properties, drains south to culverts under Lacy Road on the east side of the intersection with Seminole Highway. There are two oval concrete pipes measuring 30 inches tall and 45 inches wide in this location (**Figure 6-4**). These culverts lead to a ditch that drains to the south along the east side of Seminole Highway for approximately 700 feet, where it drains through a culvert under Seminole Highway and into closed depression (CD5) south of Lacy Road. Stakeholder input indicates that overflow from this depression has not been observed.

The area on the east side of Seminole Highway farther to the north on the Dunn property drains to a culvert that crosses Seminole Highway to the west. This culvert is an 18-inch concrete pipe (**Figure 6-5**). Outflow from the culvert flows west to the Badger State Trail, where it apparently ponds and has no outlet.



Figure 6-4. Twin 30 inch by 45 inch culverts under Lacy Road immediately east of Seminole Highway.



Figure 6-5. 18-inch culvert under Seminole Highway approximately 1700 feet north of Lacy Road.

Northeastern Area

The northeast portion of the 40 acres owned by the O'Briens, and the northern part of the Dunn property, drain to the north or east, toward the Seminole Forest and Lacy Heights neighborhoods. Several residents in these neighborhoods have experienced persistent problems with wet basements and/or concentrated stormwater runoff flowing across their property. At least one instance of runoff carrying freshly spread manure into residential lots has occurred. Stakeholder input has indicated a strong concern about future development making these drainage problems worse.

Runoff to the north enters the existing storm sewer under Schuman Drive and eventually drains to a kettle in Seminole Glen Park. City staff has observed rapid decreases in the water level in this pond after large runoff events, indicating a high infiltration rate. Drainage from developments in the northeastern part of the NSPN could be routed to this sewer, although an easement may be needed to cross residential lots.

Runoff from less than an acre of the NSPN near the northeast corner flows to the east across the paved trail and onto a residential lot on Persimmon Drive, where a homeowner has experienced frequent wet basement problems. This runoff continues to drain farther east to a closed depression near the end of Osmundsen Court. It appears that minor earthwork could divert runoff away from this residential area.

Farther to the south, runoff drains to a small closed depression (CD4) at the end of Scarlet Drive, with overflow east into the existing storm sewer. Residents in this area report frequent water ponding on residential lots adjacent to the NSPN boundary, and this may be related to capacity limitations of the storm sewer system near the intersection of the existing north-south trail and Scarlet Drive.

Western Quarry Area

Stormwater runoff from approximately 12 acres in the far southwest corner of the NSPN, including the woodlot on the Payne and Dolan property, drains west toward Goose Lake and Badger Mill Creek. After the quarries are reclaimed, that area will also drain to the west.

Soil and Groundwater Conditions

Soils

The Natural Resources Conservation Service Web Soil Survey indicates that soils in the

Table 6-1 : Prime Agricultural Soils Summary				
	Total Acreage	Acres Classified as "Prime Soil" by NRCS	% of Total	% of City Total
NSPN	365.5	284.3	77.8%	2.1%
City of Fitchburg (Total)	22499	13449.8	59.8%	100.0%

NSPN are primarily well drained silt loams, with the Plano silt loam covering more than half of the area. Soils in the central closed depression are mapped as poorly drained Orion silt loam and somewhat poorly drained Virgil silt loam. The Orion and Virgil silt loams are listed as having water table depths of less than 50 cm. Virtually all of the soils in the NSPN, **(Table 6-1)** with the exception of the western 10%-15% of the neighborhood, are considered “Prime Soil” for purposes of agricultural productivity based upon soil quality, growing season, and moisture supply needed to produced sustained high yields of crops. NSPN is essentially the northern extent of a large swath of Prime Soil found in the city, and the 284 acres of Prime Soil in the neighborhood represent about 2% of such soils citywide. Appendix C includes Web Soil Survey maps.

The map of the Pleistocene geology of Dane County (**Figure 6-6**, Wisconsin Geological and Natural History Survey Bulletin 95, 1997) indicates that the central part of the NSPN is a glacial outwash deposit, which typically consists of sand and gravel. The outwash deposit extends south along Seminole Highway to a glacial lake deposit south of Whalen Road. The higher ground at the east and west ends of the neighborhood are mapped as loamy sand glacial till deposits. A well constructor’s report for the farmstead on Lacy Road near the western edge of the NSPN shows that bedrock is only 15 ft deep in this location. A well constructor’s report for a well on Seminole Highway in the NSPN indicates that 80 ft of sand and gravel are present above the bedrock.

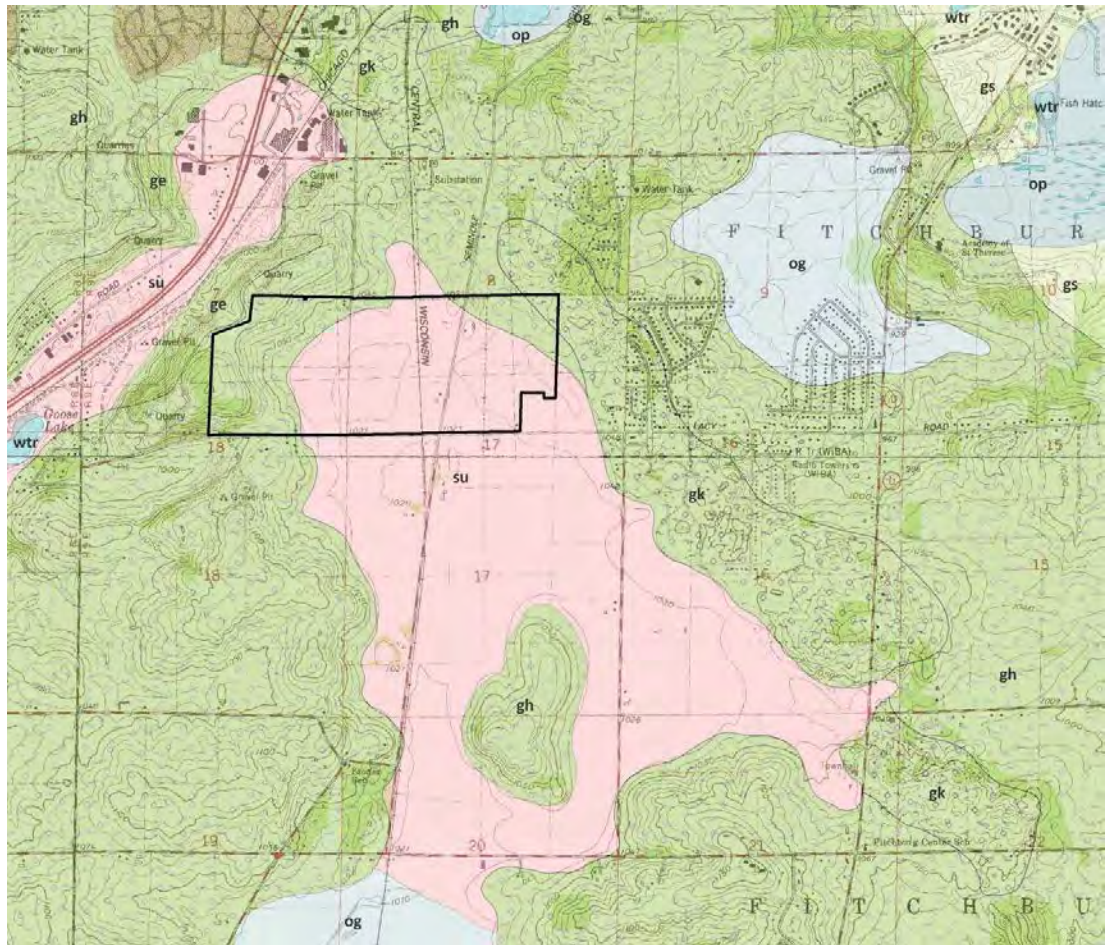


Figure 6-6. Glacial geology in the North Stoner Prairie Neighborhood area. Pink unit (su) is glacial outwash sand and gravel; green units (gh, ge, gk) are loamy sand glacial till deposits, and blue units (og, op) are glacial lake sediment. Not to scale.

Montgomery Associates: Resource Solutions (MARS) sampled soil in 12 soil borings to a depth of 20 ft and one boring to a depth of 32 ft throughout the NSPN in November 2012 (**Figure 6-7, Section X**). The borings were advanced with a direct-push GeoProbe rig operated by Soil Essentials Ltd. Soil boring logs are included in **Appendix D**. Eleven of the borings encountered 5 – 8 feet of fine grained soil (silty clay loam to clay) over sand. The two westernmost borings encountered thicker clay (12 ft and 20 ft); this clay is probably related to weathering of the dolomite bedrock that occurs in at the quarries. The sand below the clay grades from loamy sand in the western part of the NSPN to courser sand and gravel in the eastern portion of the neighborhood.

Four saturated hydraulic conductivity measurements were conducted in soil above the water

table with a Compact Constant Head Permeameter, also known as the “Amoozemeter”, in borings 4, 6 and 12 (**Table 6-2 and Figure 6-7, Section X**). Results ranged from 0.5 – 0.8 in/hr for the sandy material below the clay. One test in the clay yielded a very low hydraulic conductivity of 0.01 in/hr. For comparison, Wisconsin Department of Natural Resources Administrative Code Chapter NR151 exempts sites with infiltration rates less than 0.6 in/hr from having to comply with stormwater infiltration requirements. Details of the infiltration rate testing are included in **Appendix E**.

Table 6-2. Unsaturated hydraulic conductivity measured with a Compact Constant Head Permeameter

Boring	Depth (ft)	Soil Texture	Hydraulic Conductivity (in/hr)
B4	3 - 4	Sand	0.80
B6	2 - 3	Silty clay loam	0.01
B6	8 - 9	Loamy sand and fine Sand	0.46
B12	5 - 6	Fine sand	0.66

Groundwater

The water table map of Dane County (Wisconsin Geological and Natural History Survey Open-File Report 1999-04) shows that the regional groundwater flow direction is northeast toward Nine Springs Creek (**Figure 6-8**). The computer groundwater model constructed for the Nine Springs Creek area by Susan Swanson in 2000 also indicates this flow direction.

In the vicinity of the NSPN, the water table occurs in the sand and gravel aquifer and the upper sandstone aquifer. In much of Dane County, the upper sandstone aquifer is separated from the lower Mt. Simon Sandstone aquifer by the Eau Claire Shale, which creates a partial hydraulic barrier between the aquifers and offers some protection to the lower aquifer from contamination that originates near the land surface. The Wisconsin Geological and Natural History Survey have compiled the latest information on the Eau Claire shale for the updated regional groundwater model for Dane County, which is expected to be released to the public

soon. This information indicates that the Eau Claire Shale is present at the NSPN at a thickness of approximately 12 ft. The shale thins toward the northeast and is absent near the northeastern edge of the City of Madison and Cottage Grove. Where the Eau Claire shale is present, it is now standard procedure to construct new water supply wells so that they are open only to the lower aquifer. Many older wells are open to both aquifers, creating a potential conduit for contaminants in the shallow aquifer to flow into the deep aquifer. Newer Fitchburg wells are open only below the Eau Claire shale.

The water table elevation measured in the monitoring well installed at the NSPN (**Figure 6-7, Section X**) in November and December 2012 was approximately 1005 ft, or 14 ft below ground surface. A severe drought occurred in 2012, and it is very likely that the water is considerably lower than normal. Soil color mottling observed in the soil borings indicates that seasonally high groundwater occurs within a few feet of the ground surface in borings B1 – B5 in the closed depression west of the Badger State Trail. During the prolonged flooding of this area in 2008, it is possible that the water table reached the ground surface.

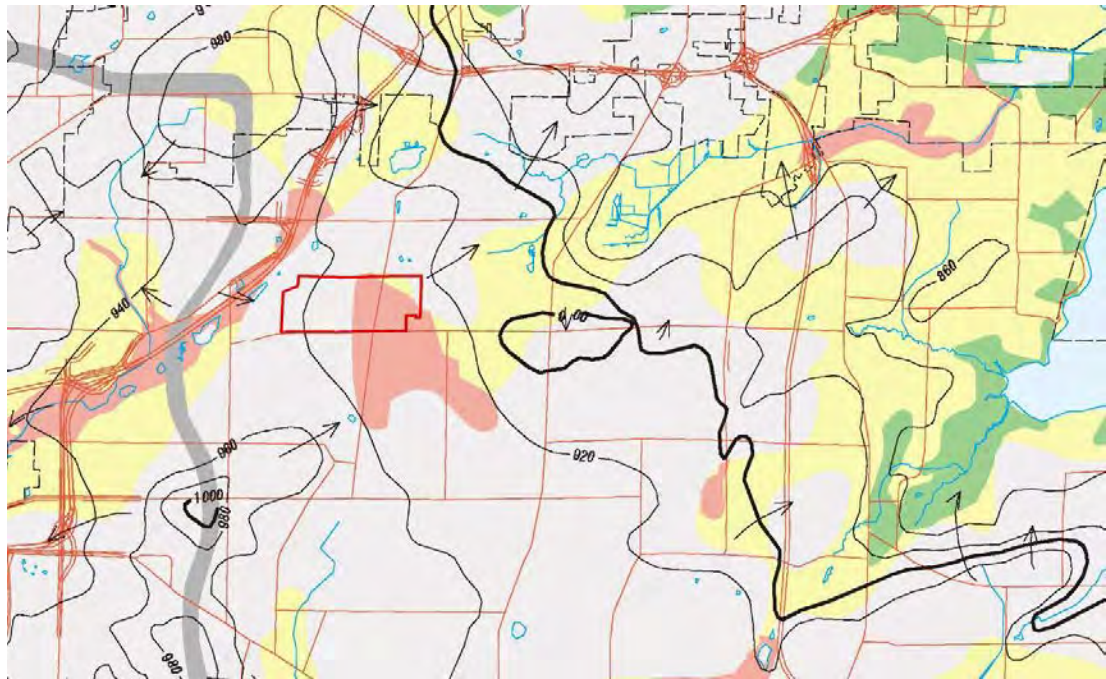


Figure 6-8. Water Table Map of Dane County (WGNHS, 1999). NSPN shown in red. Not to scale.

The water table is deeper in other parts of the NSPN. Groundwater was not encountered in borings B6 – B13, and each boring reached a depth of 20 ft. Given the regional water table slope to the northeast, groundwater is expected to be deeper to the east of Seminole Highway than it is in the western part of the NSPN. In addition, the land surface rises to the east, increasing the depth to groundwater. Parts of the Seminole Forest Neighborhood to the northeast are at lower elevations, and the Seminole Glen Park pond may be connected to the regional water table. This is an important

Figure 6-9. Surface water drainage south of the North Stoner Prairie Neighborhood.



issue to consider, because some residents in this area have experienced basement flooding. The potential impact of stormwater infiltration to enhance groundwater recharge on the neighborhood should be considered in the NSPN plan.

Data relevant to assessing the risk of groundwater mounding impacts from stormwater infiltration was collected at the monitoring well. A hydraulic “slug test” was conducted in December 2012 to determine the saturated hydraulic conductivity of the sand near the water table. This helps provide an indication of how high groundwater would rise below stormwater infiltration systems. The slug test was conducted by injecting a known volume of water into the well, causing the water level to rise, and then measuring the rate of fall of the water level. This indicates a moderate hydraulic conductivity of 1.1 in/hr. Details of the test are included in **Appendix F**.

Downstream Watershed Conditions

Groundwater and surface water flow away from the NSPN in different directions. Groundwater flows northeast toward Nine Springs Creek and the Yahara River, while surface water generally drains to the south. The groundwater system down gradient of the NSPN has been impacted by water supply pumping in Madison and Fitchburg, which has lowered the water table and reduced the discharge of groundwater to wetlands and springs. Much effort has been focused on enhancing groundwater recharge in this area to benefit long-term water supply sustainability and aquatic ecosystem health.

Surface water overflow from the NSPN drains south to closed depression CD5 southwest of the intersection of Lacy Road and Seminole Highway (**Figure 6-9**). Overflow from this closed depression would drain overland to the south parallel to Seminole Highway into a ditched wetland south of Lacy Road in the area of the glacial lake sediments described above. Outflow from this wetland follows an intermittent channel approximately 5 miles south to Lake Harriett in the Town of Oregon (**Figure 6-10**). In several locations between Whalen Road and Lake Harriett, the channel is poorly defined, and runoff in these areas is likely to spread out across farm fields en route to Lake Harriett.

Lake Harriett is a small closed depression lake with several houses located around its shore. Under normal conditions, it has no surface water outlet. The overflow route from the lake is south to Story Creek which flows into the Sugar River downstream of Belleville. The watersheds of Lake Harriett and Story Creek are dominated by agricultural land use. Story Creek supports reproducing brown and brook trout and is considered an Exceptional Resource Water by the Wisconsin Department of Natural Resources. DNR considers the primary water quality and ecosystem threats to Story Creek to be sediment and nutrients in runoff from agricultural fields. It would be possible for runoff from the NSPN in Fitchburg to increase the frequency of overflow from Lake Harriett to Story Creek, but this appears to be unlikely given the complex drainage system and numerous locations where runoff could be detained and given time to infiltrate the soil or evaporate.

Figure 6-10. Lake Harriett watershed.



Potential Water Balance Impacts

Stormwater Runoff

Potential downstream impacts of an increase in the volume of stormwater runoff from the NSPN are increased frequency and depth of inundation in closed depressions, incision of existing drainage channels where they exist, and erosion of new gullies or channels in areas with no defined channels.

In the Seminole Forest and Lacy Heights

Neighborhoods to the north and east of the NSPN, well defined drainage channels do not exist, and water flows overland through residential lots. Creation of gullies in

this area would be possible with an increase in runoff, however this is preventable through appropriate control of the volume and velocity of runoff. Runoff in this area ultimately reaches closed depressions, such as the Seminole Glen Park pond, and an increase in runoff volume could increase water levels. At Seminole Glen Park, City staff has observed the pond level rapidly falling after heavy rains in 2008, indicating high infiltration rates. It is therefore

possible (but uncertain) that increased flow to this kettle pond would increase infiltration and groundwater recharge without a substantial increase in the pond water level.

Increased runoff to the south would increase ponding in the farm fields between Lacy Road and Whalen Road, where no defined drainage channel exists. If allowed to occur, persistent overflows from the NSPN could eventually scour a new drainage channel. If the intermittent channel between Whalen Rd. and Lake Harriett experienced an increase in stormwater runoff, downcutting and bank erosion would be likely. Areas between Whalen Road and Lake Harriett where the existing channel fades into farm fields could experience scouring of a new channel. Because this drainage route is dry much of the time, the direct ecological impact is expected to be minor. However, indirect impacts of increased sediment discharge downstream could impact wetlands and Lake Harriett.

It is unlikely that inflows to Lake Harriett would be significantly increased by stormwater runoff from the NSPN, leading to an increase in the lake's stage and a likely increase in sediment discharge to the lake. As noted above, the drainage route between the NSPN and Lake Harriett is poorly defined, and it is unclear whether runoff from the NSPN would actually make it all the way to the lake. Potential changes to the inflow of Lake Harriett can also be put into perspective by comparing its watershed area of 6970 acres with the size of the NSPN, which totals approximately 365 acres. The developed portion of the NSPN will undoubtedly be less than this total area. It is therefore likely that any change in annual runoff volume to Lake Harriett due to development of the NSPN would be a few percent, even with little runoff volume control. However, because Lake Harriett is in a closed depression with no normal outlet, cumulative impacts must be considered, and this could lead to a long-term increase in lake levels. To avoid these impacts, the neighborhood plan calls for avoiding an increase in stormwater runoff to the south of the NSPN.

Groundwater

A change in groundwater recharge is possible with development of the NSPN, and widespread use of infiltration to manage stormwater would tend to increase recharge over the existing rate. Because water supply pumping has drawn down the aquifer in the Fitchburg area, an increase in recharge would provide an ecological benefit to Nine Springs Creek and associated wetlands and springs, and it would enhance water supply sustainability. However, local impacts due to a rise in the water table below infiltration systems are possible.

A preliminary assessment of groundwater mounding impact potential was conducted using a groundwater model with increased recharge rates that may occur due to future development. More detailed analysis will be conducted when the conceptual stormwater management plan is more fully developed to refine the locations and expected recharge increases related to infiltration systems. This analysis was conducted using the Nine Springs model developed and calibrated by Susan Swanson for her Ph.D. dissertation at the University of Wisconsin-Madison (2000). The following modifications were made to the original model:

- The existing recharge rate was increased from about 8 in/yr to 10 in/yr to be consistent with the groundwater recharge map for Dane County published by the Wisconsin Geological and Natural History Survey in 2012 (Bulletin 107-2012).
- Different recharge rates were input to the model within the NSPN boundary to test the sensitivity of the water table elevation to changes in recharge. The highest post-development recharge rate tested was 14 in/yr, based on calculations by MARS for the McGaw Neighborhood plan that indicated that average recharge throughout the neighborhood could increase by up to 4 inches due to the proposed high density and aggressive stormwater infiltration.
- The aquifer hydraulic conductivity within and immediately surrounding the NSPN boundary was decreased from the values of 2.85 ft/d to 7.1 ft/d in the original model to 1 ft/d based on the monitoring well slug test.

- Vertical hydraulic conductivity in the NSPN area was adjusted to test the impact of aquifer anisotropy. The original, calibrated model uses the same values for horizontal and vertical conductivity. Vertical hydraulic conductivity was reduced by a factor of 10 to simulate the impact of horizontal layers of fine grained soil that would impede the downward flow of groundwater. Such layering was observed in several of the soil borings in the western part of the NSPN.

Simulations with an increased recharge rate of 14 in/yr predicted an increase in the water table of approximately 1 ft in the NSPN for isotropic conditions (equal horizontal and vertical conductivity), and an increase of 2.5 – 3 ft with the vertical conductivity 10 times lower than the horizontal conductivity (**Figure 6-11, on the following page**). Note that these simulations assumed uniformly increased recharge throughout the neighborhood, because specific areas for infiltration systems have not yet been identified. In reality, the increases in recharge and water table elevation would be greater near stormwater infiltration systems and less in the rest of the neighborhood. The prediction of a 2.5 ft increase in water table rise at the eastern boundary of the NSPN for the anisotropic simulation may be conservatively high for several reasons.

- Anisotropy of 10:1 was assumed throughout neighborhood, but this is less likely to be the case in the eastern part of the neighborhood where soil borings encountered more sand and gravel and less fine layers.
- The hydraulic conductivity of the sand and gravel in the eastern part of the NSPN is likely to be higher than the 1 ft/d value used in the model, because soils in the east are coarser than soils at the monitoring well where this value was determined.
- The post-development increase in recharge may be less than the 4 in/yr calculated for the McGaw Neighborhood because the finer soils at the NSPN may not allow the same level of infiltration and recharge.

When details of the conceptual stormwater management plan are further developed, groundwater mounding impacts should be re-evaluated, both for the immediate vicinity of infiltration systems and for neighboring properties. Based on available information, it appears that mounding may limit infiltration in areas of shallow groundwater (primarily the central area). The risk of mounding impacts to the neighborhoods to the north and east appears low because groundwater was more than 20 feet deep near the eastern boundary of the NSPN in 2012, however potential impacts to lower lying areas, such as around Seminole Glen Park, should be evaluated further.

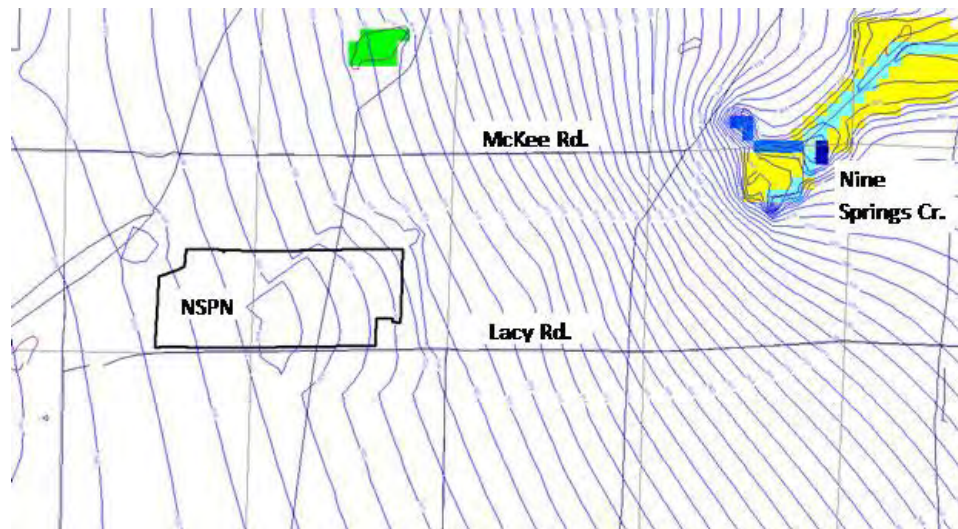


Figure 6-11. Groundwater simulation of enhanced recharge showing groundwater mound. Simulation includes a recharge rate uniformly increased throughout the North Stoner Prairie Neighborhood by 4 in/yr over the existing rate, and a horizontal to vertical hydraulic conductivity ratio of 10:1 to simulate the effect of fine grained soil layers. Water table contour interval 2 ft.

Parks and Open Space

The North Stoner Prairie Neighborhood Plan offers opportunities to expand recreation service to new neighborhoods and the established neighborhoods east and north of the neighborhood, enhance bike and pedestrian connections that improve neighborhood and community wide service and create new recreation opportunities for both future neighborhood residents and for the greater community.

Planning Subtext – Previous Plans

The 2009 Comprehensive Plan directs Community Park and open space plans to acquire and protect environmentally sensitive and culturally significant lands, improve existing parks to better meet community needs, reduce negative environmental effects and link park and open space features with environmental corridors and walking and biking paths.

The 2010 city Comprehensive Park, Open Space and Recreation Plan (CORP Plan) implements the comprehensive plan direction with goals and objectives that set a framework for environmental, cultural and historical protection, community enjoyment and health , open space connectivity and facility development. A specific need for the NSPN identified in the 2010 plan is the lack of an Area Park to service the neighborhood.

The 2008 City of Fitchburg Bike and Pedestrian Plan recommend expanded bike and pedestrian connections adjacent to Lacy Road and Seminole Highway.

In response to the Comprehensive Plan, CORP Plan, and Bike and Pedestrian Plan goals the NSPNP will provide recommendations that capture neighborhood assets, improve recreation services and build system connectivity.

Existing Park, Open Space and Cultural Assets (Figure 6-12, Section X)

Badger State Trail (BST)

The BST is a 40 mile long trail beginning at Market Place Drive at the northern edge of NSPN and extending through the center of the neighborhood, southward to the Illinois border. The segment through the neighborhood is part of the 6-mile paved asphalt section, while the southern 34 miles are crushed limestone. BST provides connection to the Southwest Trail and Capital City Trail in Madison, the future Cannonball Trail and the Sugar River State Trail near Monticello. At the Illinois border, the BST turns into the Jane Addams Trail, a roughly 13 mile section of crushed limestone path extending to the Pecatonica River just northwest of the city of Freeport.

Military Ridge State Trail (MRT)

MRT is a 40 mile long trail extending from Madison to Dodgeville. The trail passes just ¼ west of NSPN, and connects to the Capital City State Trail at CTH PD and to the future

Cannonball Trail north of the neighborhood. To the west, MRT provides access to Blue Mound State Park and Governor Dodge State Park, as well as a number of local and county parks and state natural areas.

School Walking Path

A ½ mile long walking path extends from the Stoner Prairie and Savannah Oaks schools northward to Schuman Road, forming a portion of the eastern edge of the neighborhood. This path is used by neighborhood residents in Lacy Heights and Seminole Forest, including schoolchildren, for exercise and as a “safe route” to school. Residents of the existing neighborhoods were very sensitive to the crossing of this path by road extensions.

Seminole Road Bike Path

A ¾ mile long bike path parallels Seminole Highway and connects to the Badger State Trail on the northern edge of the neighborhood, just east of the Wolf/Sub-Zero facility on Marketplace Drive.

Quarry Ridge Recreation Area

Designated as a Natural Area in Fitchburg’s 2010 Park and Open Space Plan, Quarry Ridge is a 53 acre former quarry site just outside the western edge of the neighborhood that provides access to the Military Ridge State bike trail and off-road biking and hiking trails. In addition, Quarry Ridge contains a shelter, restrooms, picnic tables, information kiosk, and a parking lot.

Seminole Glen Park

Seminole Glen is a 16 acre neighborhood park just outside the northeast corner of the neighborhood. The park provides play equipment, shelter, ball field, basketball court, and volleyball court. The park is connected to the NSPN by the school walking path described previously.

Stoner Prairie Park

This park is a roughly 7 acre neighborhood park partially located within the neighborhood study area that is composed of two separate parcels that adjoin the Stoner Prairie and Savannah Oaks schools. The park provides play equipment and a ball field that can be used for league play or soccer.

Stoner Prairie Elementary and Savannah Oaks Middle School

The schools are part of the Verona Area School District. The school sites adjoin Stoner Prairie Park and provide additional play equipment, basketball courts and playfield space.

Southwest Woodlot

Located in the far southwest corner of the site, this roughly 11 acre privately owned site is a former pastured woodlot with oak and hickory trees. The woodlot is one of the highest points in the neighborhood and the northeast corner of the woodlot will overlook the proposed business and residential land uses to the east. Approximately two thirds of the woodlot is scheduled for removal under an existing non-metallic mining permit. The remaining third of the woods closest to Lacy Road offers an opportunity for restoration and park use.

Closed Drainage Depressions and Wetlands

The plan's environmental analysis has identified several closed drainage depressions within the neighborhood. These areas have potential to be restored to wetlands and will be preserved. The largest depression area west of Bader State Bike Trail and north of Lacy Road with development stormwater needs factored in will be in excess of 40 acres and could be designed and managed to provide trails, wildlife viewing and other recreation benefits.

Lone Oak Trees

Lone oak trees are scattered in the farmed area west of the Badger State Bike Trail. Many of these trees are estimated to be over 100 years old, would be indigenous to what may have been native prairies in the area and offer a glimpse of the landscape character of the neighborhood at the time it was first being farmed. Because these trees are proximate to the large closed depression referenced above, the design of the neighborhood's future land uses and stormwater features could include some of them.

Family Farmsteads

The existing Dunn and O'Brien farmsteads within the neighborhood along Seminole Highway offer reminders of past farming that continues to this day in the neighborhood. The old stone barn on the Dunn farm is particularly unique and is likely made of stone quarried on the western edge of the neighborhood. Approximately one half mile east of the Lacy Road and Seminole Highway intersection along Lacy there are also foundation remnants of another stone barn and stone house.

Transportation

From a regional perspective, as shown in **Figure 6-13, Section X**, the North Stoner Prairie Neighborhood is connected with several major roadway corridors including Verona Road (USH 151), McKee Road (CTH PD) and Seminole Highway. Seminole Highway provides limited access to the South Beltline Highway and Lacy Road. It also has a direct connection to USH 14 with a full interchange. The NSPN is proximate to the Madison Metro Transit System with service from both the South Transit Hub on Park Street and the West Hub at the West Towne Shopping Center. The neighborhoods most unique transportation asset is its connection to an extensive off road bike system.

Street System

The existing roadway system serving the neighborhood is characterized by three local two lane rural roads. This includes Lacy Road (to the south), Fitchrona Road (about ¼ mile west of the neighborhood), and Seminole Highway (running north-south through the center of the neighborhood). This local roadway system interconnects into the county and state highway system including McKee Road (CTH PD), Fish Hatchery Road(CTH D)and Verona Road (USH 18/151). The current traffic control and speed limits on the surrounding roadway network are shown in **Figure 6-14, Section X**. Most street intersections are controlled by stop signs, although several streets that connect the neighborhood are signalized at McKee Road. These signalized intersections include Seminole/McKee, Commerce/McKee, Verona Road/ McKee, Nesbitt/ McKee, and Fitchrona/McKee Road. Current speed limits on the two primary corridors serving the neighborhood, Lacy Road and Seminole Highway, show a current limit of 50 mph.

At the time of this writing, a major upgrade of Verona Road is currently underway to provide a continuous grade separated freeway from the South Beltline Highway to Fitchburg and points south. The major impact of this improvement in the City of Fitchburg is the conversion of the McKee Road/Verona Road intersection into a grade separated diamond interchange. The most recent traffic volumes, both daily and peak hour, are shown in **Figure 6-15, Section X**. The highest traffic volumes are on McKee Road followed by Seminole, Lacy and Fitchrona.

Transit System

The City of Fitchburg contracts with Madison Metro for transit service. Transit services covers two separate areas of the community as shown in **Figure 6-16, Section X**. The east side service comes out of the South Park Street Transfer Station and serves the area along the Fish Hatchery corridor. The western part of the city is served from the West Towne Transfer Station and this serves that portion of the community along the USH 151 corridor.

Bike/Pedestrian System

The City of Fitchburg has a fairly robust on and off road trail system as shown in **Figure 6-17, Section X**. The city is served by several major regional trails including the Military Ridge Trail, Badger State Trail, Cannonball, and Capital City Trail system. In addition, a number of the streets in the area of the neighborhood have on road bike lanes including Seminole Highway and Lacy Road.

Public Utilities

The City of Fitchburg Department of Public Works operates and maintains public utilities throughout the city, including a sanitary utility, water utility, and stormwater utility.

Sanitary Sewer (Figure 6-18, Section X)

A majority of the North Stoner Prairie Neighborhood is designated by the Comprehensive Plan to be served by the Seminole Highway Sewer Interceptor. Section 2 of the Seminole Interceptor is not yet in the Urban Service Area (USA), and includes all of the North Stoner Prairie Neighborhood except for the far eastern portion of the neighborhood (approximately 50 acres) including the O'Brien Trust property currently in the USA immediately west of Lacy Heights as well as the playfields of Stoner Prairie Park. These 50 acres are designated by the comprehensive plan to be served by the McKee Interceptor, which (according to the

comprehensive plan) is “almost fully built out”¹⁰. However, due to topographic conditions, approximately only the eastern half of the O’Brien property can be serviced by gravity flow. Hence, the western half of this property will be serviced instead by the Seminole Interceptor, which has a peak capacity of 1700 gallons per minute¹¹.

Existing sanitary service is found at the eastern and northern boundaries of the NSPN. The eastern service to the McKee Interceptor is stubbed in with 8” PVC trunk lines at the current terminus of Scarlett Drive and Persimmon Drive. West of Seminole Highway, there is an 18” interceptor line stubbed in at the end of Market Place Drive, just south of an existing detention basin and east of the Badger Bike Trail.

Public Water Service

This NSPN is located in the West Zone, one of three separate water pressure zones serving the Fitchburg community. The city’s Comprehensive Plan calls for a new well in the southeastern portion of the NSPN that is interconnected with the existing tower located in the Fitchburg Commerce Park at the northwestern corner of the neighborhood. Existing water service is found both east and north of NSPN. A 12” main is extended to the Savanna Oaks campus, and is proposed to connect to future well. An existing 10” main is stubbed in at the current terminus of Scarlett Drive, with an 8” main stubbed in at the current terminus of Persimmon Drive. Finally, 10” water service currently exists at the terminus of Commerce Park Drive and Buds Drive/Marketplace Drive.

Private Utilities

In addition to the public utilities discussed above there are several private utilities that serve the community with facilities that impact the North Stoner Prairie Neighborhood and surrounding area including fiber optics, gas and electric. These utilities are discussed below, and locations are shown in **Figure 6-19, Section X**.

¹⁰ City of Fitchburg Comprehensive Plan (2009)

¹¹ City of Fitchburg Public Works Department (2006)

Natural Gas

Madison Gas and Electric (MG&E) operates a pair of 12 and 16 inch gas mains on either side of the Badger State Trail, running in an easement within DOT right-of-way. MG&E also operates the Lacy Road “South Gate”, just south of North Stoner Prairie near the southwest corner of Lacy Road and Seminole Highway. This facility receives natural gas from two major national transmission lines, one from the south, one from the east and south – and serves as the “gate” to the MG&E distribution network, reducing the pressure from “transmission” levels to “distribution” levels. Although there is technically no additional restriction or requirement for development with respect to these natural gas facilities, the Public Services Commission of Wisconsin recommends a 200’ setback from the distribution lines for new development.

Fiber Optic

AT&T has an installed fiber optic cable running along the west right of way line of Seminole Highway. This telecommunications and data line services the Fitchburg Commerce Park and other development north of NSPN.

Electrical Transmission

Most notably, there is an overhead 138 KV power line that runs south along the east side of the Badger State Trail to the north boundary of the North Stoner Prairie Neighborhood, where it turns east. Once this corridor crosses Seminole Highway, it continues approximately 400 feet eastward before turning south and runs along a 100 foot easement, essentially through the middle of the eastern portion of NSPN and continues to the south of Lacy Road.

During the North Stoner Prairie Neighborhood Planning process, the city explored the feasibility of moving the ATC 138 KV power line west of Seminole Highway. The concern with the current location through the neighborhood is that it negatively impacts potential development east of Seminole Highway with a 100 foot restricted easement passing through the middle of several developable parcels. ATC estimated that the cost to move the overhead

line would be approximately 1.7 million dollars plus land acquisition, and city staff determined that the impacts on property values and taxes were comparatively negligible to justify the expense of relocation. Nonetheless, this plan recommends further exploration of relocation in coordination with potential developers, ATC, and WIDOT.

School District

The North Stoner Prairie Neighborhood lies entirely within the Verona Area School District (VASD). Two VASD facilities, Stoner Prairie Elementary School and Savanna Oaks Middle School, are NSPN's immediate neighbors to the east along Lacy Road. Stoner Prairie Elementary School houses approximately 420 students from kindergarten through fifth grade, in addition to roughly 75 faculty and staff. Savanna Oaks has an approximate enrollment of 485 students in grades 6, 7, and 8, as well as about 65 faculty and staff. A 2008 study conducted by the Verona Area School District noted that both of these schools are currently operating below their student capacity (496 and 587, respectively). That same study also notes that these two schools were likely the only two in their grade levels within the district that have expansion potential. Conversations with VASD during the NSPN planning process revealed that both schools have higher numbers of open enrollment than other schools in the district, and the district expressed a long-term goal to see more students from surrounding neighborhoods attend each school and open enrollment to level out a bit more.

Residential growth within the NSPN should be expected to impact enrollments at both schools, although at relatively moderate numbers. Based upon a formula found in the 2008 VASD plan to calculate student growth per housing unit, this plan anticipates a total contribution of 91 new students at a 20-year full build-out of 205 housing units as proposed by the Land Use Plan. Of this total, 40 new students should be expected at Stoner Prairie Elementary and 21 new students should be expected at Savanna Oaks Middle.

Cultural Resources

As a part of the NSPN planning process, a review of the archaeological site index (ASI) and the architecture history inventory (AHI), maintained by the Wisconsin Historical Society (WHS), was conducted to determine if any archaeological or burial sites or historic properties are listed in these databases for the North Stoner Prairie Neighborhood area. The full report is included in **Appendix G**.

No archaeological or burial sites are listed in the archaeological site index for the NSPN, but there are two properties in the NSPN that are cited in Wisconsin's architecture history inventory: the Dunn farm on the east side of Seminole Highway, and an old farmstead north of Lacy Road, 0.6 miles west of Seminole Highway, on the Payne and Dolan property. The Dunn property includes a unique stone barn, believed to have been constructed in the 1860s¹². The site on the Payne and Dolan property includes the ruins of a stone house and stone barn. At the time of the original historical survey in 1977, much of the walls were still standing. Today the walls are collapsed, but the original stones remain on site.

Their inclusion in AHI conveys no special status such as National Register designation, rights or benefits for owners of these properties. The architecture and history inventory provides a record of these properties but does not convey protected status. However, these properties present an opportunity to integrate the history of the Irish settlement of Fitchburg into the new neighborhood.

¹² Kinney (1993)

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VII. PLAN RECOMMENDATIONS

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The vision for the North Stoner Prairie Neighborhood Plan intends for the creation of an integrated, dynamic neighborhood that coexists with its urban and rural surroundings in northwest Fitchburg. NSPN is planned in such a way as to provide a strong sense of community identity through unique neighborhood spaces, interconnectivity of work, play, live, and learn spaces, and a high standard of development that softens the transition from rural to urban Fitchburg. This plan defines the general organization of land uses and physical form, primary thoroughfares, public spaces and environmental amenities, and key community facilities to best meet the vision developed by key stakeholders throughout the planning process.

Plan for Land Use

The proposed land use pattern for the North Stoner Prairie Neighborhood was developed through an integrated planning process with extensive public outreach to meet the vision of the Plan, design principles, and goals of the City of Fitchburg Comprehensive Plan. The land use plan evolved from a series of four different growth models through an iterative process by working closely with the NSPN steering committee, city staff, and the public towards a consensus-based final growth model. The “preferred” model so developed is represented in the land use plan found in this section, and drives the plans for transportation, infrastructure, and open space found later in this chapter.

From a land use perspective, the North Stoner Prairie Neighborhood will be divided into three rather distinct characteristic areas by the neighborhood’s two major north-south corridors (Seminole Highway and the Badger State Trail). Residential uses will be predominate east of Seminole, while specialty business, service, and office uses will characterize the central “triangle” between Seminole Hwy and Badger State Trail and an expanded business park for large-footprint, clean industrial uses will make up the balance of the neighborhood west of Badger State Trail.

The land use plan is presented in graphical form, with lands divided into large blocks and assigned a number by land use type. The size, shape, and extent of these land use areas are driven by factors such as environmental features, existing and proposed road and trail

corridors, access to and impacts of existing and future utilities, and integration with surrounding landscapes and land uses. Similarly, the type of land use outlined for each of these areas is purposeful in that it provides the best opportunities to mitigate environmental degradation, complement surrounding land uses, and flourish given the transportation and utilities infrastructure services within and around it. That being said, the size, configuration, and/or absolute location of specific land uses illustrated in this plan may be altered in the future as a result of factors such as detailed engineering, platting, wetland and other environmental feature delineation, storm water and park land dedication requirements, or roadway alignments. In other words, the land use plan is a framework of expectations but not an absolute delineation or separation of land use types within the NSPN.

As a final note, the Land Use Plan introduces two alternative stormwater options, with calculations of development yield presented for each. Both options protect the three closed depression areas and include Best Management Practices (BMPs). Stormwater Option 1 is based on conventional BMPs such as bioswales, rain gardens, and other techniques that become design features for the neighborhood and provide a system of stormwater features throughout the area. Stormwater Option 2 calls for additional Low Impact Development (LID) which will lessen impervious surfaces, through techniques such as pervious pavers in parking lots, patios, and driveways. This allows slightly larger developable area, but would require lower impervious surface ratios.

Recommended land uses are illustrated on **Figure 7-1, Section X**.

Industrial – Commercial Land Use: Areas 4, 2 and 5

These areas, totaling just over 50 acres cumulatively and each between 15 and 20 acres in size, provide opportunities for an aesthetically attractive working environment for offices, research and development, specialized manufacturing, biotechnology businesses, banks and financial institutions, and accessory uses (such as training centers, day care, etc.) tailored to those working in the neighborhood. Areas 4, 2 and 5 function as land use “transitions” between the

more intensive activities found in Area 3 (described below) and the lower intensity residential uses found east of Seminole Highway and proposed west and south of NSPN.

Among these, 14.3 Industrial Commercial acres are planned in the southwest portion of NSPN in Area 4, including preserving a portion of the existing woodland as a small park. An open space buffer will be created along the western edge of Parcel 4, providing a transition between Industrial-Commercial and the protected areas of Quarry Ridge Recreation Area at the northern end that lies within the Urban Service Area (USA), and planned residential development at the southern end that is a part of the S. Stoner Neighborhood, which is currently outside the USA.

18 acres of Industrial-Commercial are also planned in the southeast portion of the industrial area, just to the west of Badger State Trail between Lacy Road and the closed depression. This area will provide a transition to the business uses between the Badger State Trail and Lacy Road, as well as the agricultural uses south of Lacy Road. Businesses that can take advantage of this area may include lighter intensity business uses and business park uses, such as high tech users, lab space, office/warehouse, flex space, and other market niches that have been strong in the City of Fitchburg and are expected to continue to grow in the Madison regional marketplace.

Finally, the uses in Area 5 should be quite similar to and appear as a natural extension of the form, quality, and scale of Industrial-Commercial development found along Seminole Highway between McKee Road and the east-west power lines crossing south Seminole Highway at the north edge of NSPN. Zoning in this area would likely conform to the city's B-H, I-C or B-G zoning.

Each of these three areas will be connected to the NSPN's bicycle and pedestrian network, as areas 4 and 5 include the proposed east-west off road path linking Quarry Ridge to the existing school path and area 2 fronts the proposed Lacy Road off-street path.

Industrial – General Land Use: Area 3

Totalling 179 Acres, Area 3 is envisioned primarily as a center for clean production, processing, packaging, offices, and warehouse/distribution and like uses that generate employment opportunities and economic development in Fitchburg. Zoning in this area would likely conform to the city's I-G zoning. This area serves as a complementary extension to the Fitchburg Commerce Park and Fitchburg Business Park to its north, and the site and structural design, orientation, layout and character of this area will remain sensitive to its proximity to agricultural and residential land uses.

The Industrial-General area wraps around the north and west sides of the neighborhood's central "closed depression", which at over 40 acres is proposed to function as a key stormwater management feature and environmental/open space amenity within the western half of NSPN. From the north, the expanded business park will be accessed from an extended Commerce Parkway and Buds Drive, and will have just over ¼ mile of Lacy Road frontage to the south. In addition, a proposed east-west multi-use trail traverses the area to provide dedicated bicycle and pedestrian access between this major employment destination and Quarry Ridge Recreation Area, the Military Ridge State Trail, the Badger State Trail, and residential neighborhoods to the east.

Business Land Use: Area 1

Area 1 measures about 13½ acres and occupies the southern half of the wedge-shaped property between the Badger State Trail and Seminole Highway. Area 1 is an iconic parcel that can provide a visual welcoming to the neighborhood from the west, east, and south. A business such as a food co-op, coffee shop, bike store, or other type that serves a communal function, can offer a place to mark the transition of usage from agriculture to urban, and offer a friendly location to serve local residents, whether coming by bike, foot, or car. Zoning for this area would likely conform to the city's B-G or B-P zoning. The North Stoner Prairie Neighborhood Plan Steering Committee recommends that businesses that enhance the character of the area be located at this important site, rather than conventional retail services which can be found nearby on CTH PD.

High Density Residential Land Use: Area 10

Approximately 6 acres of High Density Residential development is proposed along the east side of Seminole Highway. Zoning for the area would likely conform to R-H or PD zoning. The character of this development should recognize the setting on Seminole Highway and not be oriented toward the road. Neighborhood design should also consider the utility easement that traverses the neighborhood from north to south at the eastern edge of Area 10. As an alternative to the high density development, all or parts of the area designated high density may also be developed as medium density residential.

Medium Density Residential Land Use: Areas 6 and 11

Medium Density Residential development is proposed along the east side of Seminole Highway at a maximum density of 5-6 du per acre in single-family attached, single-family detached, two-family, and limited multi-family housing. Zoning for the area would likely conform to R-L, R-LM or R-M zoning. The character of this development should recognize the setting on Seminole Highway and not be oriented toward the road. Neighborhood design should also consider the utility easement that traverses the neighborhood from north to south at the eastern edge of Parcels 6, 10 and 11. Rear garages and parking ways, shared alleys, and other means to limit driveway access on Seminole Highway should be considered to promote the walkable, neighborhood feel envisioned for NSPN.

As an alternative to the medium density development, the North Stoner Neighborhood Plan Steering Committee recommends all or parts of the area designated medium density may also be developed as low density residential.

Low Density Residential: Areas 7 and 9

Approximately 53 acres of Low Density Residential development is planned for NSPN's easternmost segment, immediately east of the north-south electrical transmission lines and west of Lacy Heights subdivision. To maintain consistency with existing residential development to the east and north, densities for this area are to average 3 units per acre, and should follow conservation and cluster design principles that provide a unique character to the area, especially as related to the incorporation of stormwater best management practices (BMPs) and low-impact development (LID). In total, a maximum of 115 new single-family dwelling units could be accommodated in areas 7 and 9. Zoning for the area would likely conform to R-L zoning.

At the direction of the NSPN Steering Committee, the desired design of Areas 7 and 9 will include a pair of unique features to shape its identity and character. First, a buffer will be created that will provide passive stormwater management features along the northern and eastern neighborhood boundaries of Area 7 to mitigate the reoccurrence of past runoff impacts on adjacent neighborhoods. This buffer would vary in width based upon topography and other characteristics and is envisioned as a “no development” area on individual private properties that lie on the northern and eastern edges of Area 7. Secondly, the existing “school path” running north-south at the east edge of NSPN will be preserved and enhanced by a landscape buffer on the existing city right-of-way for the trail.

Both parcels will be accessed from a new north-south road intersecting with Lacy Road and an internal local street network that – while providing for connectivity – should be indirect and somewhat curvilinear to discourage high speeds and automobile cut-through. In addition, both areas 7 and 9 will include sidewalks and a dedicated pedestrian connection to Savannah Oaks Middle School and Stoner Prairie Elementary School. With its current configuration, the design of both parcels will need to relate to the 100’ wide utility easement for overhead electrical lines that traverses the site and is located at the western boundary of areas 7 and 9. The easement will provide a transition between the Low Density Residential patterns of Parcels 7 and 9 and the Medium Density Residential (see above) planned west of the easement.

Park and Conservancy Land Use: Area 4B, 8A, 8B, and 8C

These areas, totaling almost 19 acres, provide the neighborhood with open space, recreational, and environmental amenities and are located both east and west of Seminole Highway. These areas are intended to be used for conservation of specific natural resources as well as for passive and active recreation in appropriate areas. A detailed plan for parks, open space, and cultural resources is provided.

Summary of Recommendations – Land Use

The recommendations presented in this section serve as a summary of desired actions, policies, and practices to guide the city and prospective developers as they consider future development opportunities for the neighborhood. **Figure 7-1, Section X** provides a keyed plan graphic to illustrate these recommendations.

L1 Protect and buffer existing hydrologic resources and features, such as wetlands, from development, and explore opportunities for public use of these resources.

L2 Support the development of employment areas west of the Badger State Trail that complement existing industrial uses in and around the existing Fitchburg Business Park and Fitchburg Commerce Park. Stringently follow the City’s I-G (Industrial - General) zoning ordinance, which emphasizes manufacturing, warehousing, and production operations. Furthermore, allow retail and service uses only if they directly support industrial uses in the district and only on a conditional and limited basis, as directed by the ordinance.

L3 Extend the pattern of existing office and business services between Seminole Highway and the Badger State Trail and seek uses that can reinforce the transition to rural landscapes. Minimize retail uses in this area, and foster an aesthetically attractive environment for offices, showrooms, warehouses, and light industrial buildings that offer trade and/or services for businesses and individuals.

L4 Promote medium-density residential, or as an alternative low density residential uses along the east side of Seminole Highway at a density of up to 5-6 du per acre. The character of this development should recognize the setting on Seminole Highway and be oriented toward interior roads. Access to Seminole Highway will be limited.

L5 Promote low-density residential uses in eastern portion of neighborhood at an average density of 3 du per acre for a total of up to 114 dwelling units. The character of this development should follow traditional neighborhood and/or conservation design principles that provide character to the area, incorporate stormwater best management practices and low impact development.

L6 Employ a stormwater management buffer at the northeastern neighborhood boundary to mitigate runoff and flooding on adjoining properties.

L7 Expand existing Stoner Prairie Park.

Plan for Transportation
Trip Generation and Assignment

TABLE 7-1: North Stoner Prairie Neighborhood Trip Generation

Land Use (ITE Code)	Area	Density (Units/acre)	Acres	Units	Daily Trips (per unit)	Total Daily Trips	Pk Hr Trips (per unit)	Total Trips (PM Peak Hour)	West Total Trips (PM Peak Hour)	East Total Trips (PM Peak Hour)	West Total Daily Trips	East Total Daily Trips
LDR-7 (ITE-210)	7	3	24	72	10	688	1	72	0	72	0	688
LDR-9 (ITE-210)	9	3	13	40	10	386	1	40	0	40	0	386
MDR-6 (ITE-230)	6	6	7	41	6	244	0	13	0	13	0	244
HDR-10 (ITE-223)	10	30	6	180	6	1,080	.39	70	0	70	0	1,080
MDR-11 (ITE-230)	11	6	7	39	6	231	0	12	0	12	0	231
Bus-1 (ITE-770)	1		10		150	1560	17	175	175	0	1560	0
Industrial/Commercial (ITE-230)	4		12		52	619	7	86	86	0	619	0
Industrial (ITE-110)	3		90	0	52	4690	7	655	655	0	4690	0
Industrial/Commercial (ITE-110)	2		10	0	52	515	7	72	72	0	515	0
Industrial/Commercial (ITE-110)	5		11	0	52	546	7	76	76	0	546	0
					Total Daily Trips	10,559	Total Pk Hr Trips	1,271	1064	207	7930	2,629

Using the character and amount of development introduced in the NSPN land use plan, the trip generation rates for each land use were developed as shown in **Table 7-1**, based on the Institute of Transportation Engineers (ITE) Trip Generation Handbook. These trips were then assigned to the roadway network based on their proximity to the adjacent street network and the existing volume of traffic on the existing roadways. Essentially there are two separate areas of development. The east side development is bound by the existing Lacy Heights and Seminole Forest residential neighborhoods and Lacy Road and Seminole Highway. The west side development has the Fitchburg Business Park and Fitchburg Commerce Park to the north and is bound by Seminole Highway, Lacy Road, and Fitchrona Road. The trip assignments generated for the proposed development are shown in **Table 7**

Future Traffic

TABLE 7-2: North Stoner Prairie Neighborhood Trip Distribution

Street	ADT West Area	PK Hr West Area	ADT East Area	PK Hr East Area	Total Trips West Area	Total Trips East Area	Trip Base West	Trip Base East	ADT Distribution West	PK HR Distribution West	ADT Distribution East	PK HR Distribution East
CTH PD	26300	3000	0	0			66%		5319	714	0	0
Seminole	6111	720	6111	720			16%	48%	1236	166	808	69
Lacy	3000	300	6654	665			8%	52%	607	81	880	76
Fitchrona	3800	380	0	0			10%		769	103	0	0
	39211	4400	12765	1385	7931	1688	100%	100%	7931	1064	1688	145

(Note: Seminole Highway is the dividing line between easts at west traffic projections in the above table)

The traffic volumes projected for proposed NSPN land uses were assigned to the existing local roadway network based on a gravity model. This process assumes that traffic volumes generated by the development will travel to and from the area in the same proportion as the existing volume on the roadway network. In other words, more of the newly generated trips will continue to use the major roadways and less of the trips will use the minor roadways. This analysis is shown in **Table 7-2**. The actual assignment of traffic to the existing local network is shown in **Figure 7-2, Section X**. This includes both the amount of traffic assigned to each roadway, the existing roadway traffic volumes, and the future roadway volumes without the additional background traffic added.

As a part of the analysis, projected corridor and intersection volumes were also developed which include background traffic growth at 1% per year and assume full development by 2035. This exercise was included for the following roadway sections where existing daily traffic counts are available, which include Seminole Highway, McKee Road, Commerce Park, Lacy Road, and Fitchrona Road. Intersection counts were also projected for the

afternoon peak hour based on the following intersections where the hourly counts are known, which include Seminole/CTH PD, Commerce Park/ CTH PD, and Seminole/Lacy Road. The projected peak hour intersection and daily corridor volumes for these intersections and roadway sections are shown in **Figure 7-3, Section X**.

The 2011 Arrowhead Neighborhood Plan recommended placing limits on any new westbound left turn movement at McKee Road and Verona Road due to capacity constraints even with the proposed improvements to Verona Road. The plan assumed that 20% of the development south of Commerce Park in North Stoner Prairie would use the westbound left turn movement at McKee/Verona Road and therefore the trip generation from this area should be limited to 1250 p.m. peak hour trips. The projections from this area are shown in **Table 7-2** and estimate that 1064 p.m. peak hour trips from the Stoner Prairie development will be generated with full development which is below the suggested threshold by about 15%.

There was some interest with respect to identifying the amount of traffic that would impact residential neighborhoods to the east. It is important to note that the biggest traffic impact on the adjacent neighborhood streets will be school traffic as parents drive their children to both the adjacent grade school and middle school. Utilizing a formula found in a 2008 study by the Verona Area School District, this plan estimates that at full build-out there will be 91 new students (total) generated by the NSPN development that will attend the Stoner Prairie and Savanna Oaks schools. Particularly during inclement weather, this could result in 100 to 200 daily trips that would be added to the neighborhood streets, mostly concentrated at arrival and dismissal times. Besides this cursory projection, there is no reason to believe, nor evidence in this plan's projections, that through traffic and/or NSPN-generated traffic would utilize Scarlet Drive or Persimmon Drive to get to Lacy Road or any other destinations outside of NSPN.

Connectivity and Street Improvements

While the amount of traffic loaded onto NSPN's adjacent roadways was projected, the specific location of roadway connections and intersections was not finalized as a part of the neighborhood planning process. That being said, the NSPN plan proposes the extension of Commerce Park Drive and Bud's Drive west of Seminole Highway as well as Scarlet Drive and Persimmon Drive east of Seminole Highway to optimize connectivity and circulation both within NSPN and between NSPN and its surrounding neighborhoods and districts.

As illustrated in the land use plan, it is anticipated that two new intersections with Seminole Highway between Lacy Road and the northern NSPN boundary will be established to accommodate the plan. In addition, three new intersections with Lacy Road will be established, with two of these lying west of the Badger State Trail and one east of Seminole Highway.

Scarlet Drive and Persimmon Drive extensions, in particular, must be designed to be indirect and oriented in such a way as to discourage or altogether eliminate vehicular cut-through and speeding and to preserve the safety of users of the school path. A potential approach was developed by city staff with input from the steering committee to address this issue, and is presented in **Figure 7-4, Section X**.

There are a number of roadway improvements that are planned for the area's roadway and street system independent of the North Stoner Prairie Neighborhood Plan. Some of these improvements are the result of the conversion of Verona Road from McKee Road north to a grade separated freeway. As a result of an extended construction period, WisDOT is constructing these improvements as an interim improvement to handle the traffic that may be diverted to other corridors over multiple years of construction. These improvements, in addition other scheduled improvements near NSPN, are shown in **Figure 7-5, Section X**. The WisDOT improvements consist of upgrades to existing intersections including Lacy/Seminole, Seminole/McKee, as construction further restricts traffic at Nesbitt/McKee. Other improvements that are being discussed are the upgrade of McKee Road to six lanes, a

future bike/pedestrian bridge for the Cannonball/Military Ridge trail over McKee Road, and future roundabouts at Fitchrona and McKee Road.

Summary of Recommendations – Transportation

The recommendations for transportation improvements introduced in this section offer a number of targets that will shape the North Stoner Prairie Neighborhood as a vital urban neighborhood offering safe and efficient movement of people and products between businesses, workplaces, homes, schools, and recreational destinations. **Figure 7-6, Section X,** provides a keyed plan graphic to illustrate these recommendations.

T1 When warranted by level of service (LOS) deterioration to LOS E or worse, construct roundabout at the intersection of Lacy Road and Seminole Highway to transition from a rural to urban roadway section.

T2 As development occurs in the NSPN, construct the section of Seminole Highway from the Lacy Road intersection to Schumann Drive as a modified three lane urban TWLTL section with intermittent sections of boulevard and turn lane.

T3 As development occurs in the NSPN, Lacy Road should be constructed as a two lane section with paved shoulders/bike lanes for bicycle traffic. It will be an urban section on the north side with curb and a rural section on the south.

T4 Concurrent with development of NSPN and lands west currently in the Urban Service Area, consider realignment of the western section of Lacy Road northward to address grade issues and minimize sight and safety concerns.

T5 Work with Verona School District to provide an internal circulation system for both Stoner Prairie Grade School and Savanna Oaks Middle School that connects to both schools and reduces the amount of school hour traffic that now uses the local street system.

T6 Where feasible, establish a grid street pattern within the neighborhood, to accommodate residential block lengths between 400 to 600 feet in length which promote walkability, connectivity, and accessibility.

T7 When warranted by level of service (LOS) deterioration to LOS E or worse, construct up to two northbound left turn lanes to the Commerce Parkway/McKee Road intersection to accommodate the projected traffic from the Stoner Prairie development.

T8 Consider putting sharrow bike lanes on Nesbit Road.

T9 Concurrent with future business park development, extend Commerce Park Drive from current terminus to Lacy Road in logical phases as a minor collector.

T10 Concurrent with future business park development, extend Buds Drive from current terminus to Lacy Road.

T11 As lands in NSPN develop, provide NSPN with one Lacy Road access point east of Seminole.

T12 Provide for highly indirect connection of Persimmon Drive and Scarlett Drive to Seminole Highway and Lacy Road, and incorporate best practices to calm traffic, regulate speed, and enhance safety at and near path crossings.

T13 When ridership warrants, consider expansion of Madison Metro Route 59 to a weekday service, and explore realignment of route to accommodate existing and new business development.

T14 Upon establishment of Bus Rapid Transit (BRT) service on Fish Hatchery Road, consider weekday “feeder route” transit service on McKee Road linking NSPN to future Fish Hatchery Road BRT line.

T15 Concurrent and in logical, coordinated phases with future business park development, develop east-west connector path from existing school path east of NSPN to Quarry Ridge Park west of NSPN.

T16 As development advances southward along Seminole Highway, extend existing Seminole Highway Path to intersect proposed E-W path (see T15).

T17 Concurrent with future improvements to Lacy Road cross-section, develop east-west side path on north side of Lacy Road to provide off-road connection from NSPN and the future South Stoner Prairie Neighborhood residential areas to Savannah Oaks/Stoner Prairie campus.

Plan for Infrastructure and Service

Plan for Sanitary Sewer

Utilizing a study in 2001 which measured the actual sanitary discharge of various land uses in the City of Fitchburg, the sanitary sewer demand for the proposed land use plan was developed in **Table 7-3**. The North Stoner Prairie Neighborhood will have an estimated peak demand of 320 gallons per minute (gpm) or 18% of the total peak capacity of the Seminole Interceptor.

Table 7-3: Sanitary Sewer Demand

<u>Land Use</u>	<u>Acreage</u>	<u>Density</u>	<u>GPD</u> <u>(Avg.)</u> <u>Flow Rate</u>	<u>GPM</u> <u>(Peak) Flow</u> <u>Rate</u>	<u>Consumption</u> <u>Average</u>	<u>Consumption</u> <u>Peak</u>
Residential	56 acres	220 DU	216 GPD/DU	.37 GPM/DU	48,000 GPD	82 GPM
Commercial/ Industrial	133 acres	2.4 million sf	.057 GPD/S.F.	.000099 GPM/S.F.	324,000 GPD	238 GPM
<u>Totals:</u>					<u>372,000 GPD</u>	<u>320 GPM</u>

In order to service the development within the NSPN, new gravity sanitary sewer collection mains and trunk sewers must be extended from their existing “stub-ins” at the north and east edges of the neighborhood. The current interceptor is an 18” line stubbed out at the end of Market Place Drive just south of an existing detention basin and east of Badger State Trail. The plan proposes extending this interceptor south to Lacy Road and extends a trunk line east and west in Lacy Road right of way to service the neighborhood, south to north.

Plan for Water Service

Based upon data provided by the City of Fitchburg that measures actual water usage in the city by land use type, the estimated water demand for the full development of the neighborhood is shown in **Table 7-4**. The total estimated usage is 186,300 gallons per day (GPD). The construction of a municipal well to service the neighborhood and interconnect with the existing water tower in the neighborhood will accommodate this demand.

Table 7-4: Water Usage Demand (Change table and total above)

<u>Land Use</u>	<u>Acreage</u>	<u>Density</u>	<u>Usage Rate</u>	<u>Consumption</u>
Residential	56 acres	220 DU	225 GPD	49,500 GPD
Commercial/ Industrial	133 acres	2.4 million sq ft	.057 GPD	136,800 GPD
Totals:				186,300 GPD

In addition to the municipal well, water transmission mains will be needed to distribute water throughout the neighborhood. Construction of these facilities will take place coincident with private land development in the neighborhood, and as such costs for these improvements will be borne by developers and/or customers upon attachment to the municipal water distribution system.

Plan for Private Utilities

While throughout the course of the NSPN planning process there was some debate as to the level of impact of existing electrical transmission lines on development prospects, at the very least the presence of these high-capacity lines creates a physical line of demarcation within the neighborhood east of Seminole Highway, breaking up the continuity of the residential area. The city will continue to communicate with ATC, prospective developers, and landowners about the feasibility of relocating the lines west of Seminole Highway, and may consider relocation as a component of larger-scale development if it is deemed in the best interest of the city. However, it is not the intention of the NSPN committee or this plan to propose relocation of the power lines as a taxpayer-funded initiative. The city should also engage Madison Gas and Electric about the potential of utilizing enhanced landscaping to provide additional visual screening/softening of the gas gate facility on Lacy Road.

Summary of Key Recommendations – Utility Infrastructure and Service

The recommendations for utilities improvements introduced in this section focus only on those improvements that should be initiated by the city of Fitchburg in order to fulfill the vision, goals, and principles of this plan. **Figures 7-7 and 7-8, Section X**, provide keyed plan graphics to illustrate these recommendations. In addition, many public and private utilities improvements will be initiated by the private development community as a component of individual development projects. However, this plan does not expressly direct those improvements.

W1 Establish a municipal well in the southeast corner of the neighborhood near the school.

W2 Construct 12” water main from proposed well east to existing 12” service at west edge of school district property, and west along Lacy Road to neighborhood boundary. Construct 12” water main from Municipal Tower E south to proposed 12” (Lacy Road) and east to proposed 10” at Badger State Trail.

W3 Construct 8" water main from existing 8" service at current terminus of Persimmon Drive and Scarlet Drive westward. Tee proposed 8" main with one leg running south to meet proposed 12" main (W2) and the other leg running to north neighborhood boundary then west to proposed 10" service at Marketplace Drive.

W4 Construct 10" water main from Marketplace Drive south on an alignment with or near Badger State Trail ROW to meet proposed 12" at Lacy Road and the adjacent lands serving both the industrial and businesses along Seminole Highway (see W2 above).

S1 Add western half (20 acres) of 40-acre parcel at northeast corner of neighborhood to Seminole Interceptor Service Area.

S2 Construct 18" sanitary main from existing 18" sanitary at Fitchburg Business Park south along Badger State Trail to Lacy Road.

S3 Construct 10" sanitary main as follows:

- ◇ West from proposed 18" service at Badger State Trail to approx. alignment with Buds Drive just south of Sub-Zero's parking lot.
- ◇ West along Lacy Road from proposed 18" service at Badger State Trail.

S4 Construct 8" sanitary main as follows:

- ◇ West from existing 8" service at Scarlett and Persimmon.
- ◇ East from north extent of proposed 18" main at Badger State Trail across Seminole Highway, then south to quarter-section line midpoint.
- ◇ East along Lacy Road from proposed 18" service at Badger State Trail.
- ◇ West along Lacy Road from proposed 10" service to western neighborhood limit.

Plan for Stormwater Management

A Conceptual Stormwater Management Plan was prepared by Montgomery Associates: Resource Solutions, LLC (MARS) for the North Stoner Prairie Neighborhood Plan, with its full text provided as **Appendix H**. Several key recommendations are presented in the stormwater plan, which are introduced below and found on **Figure 7-9, Section X**.

Stormwater Volume

M1 Avoid exacerbating closed depression flooding by maintaining existing runoff volumes.

This means requiring runoff volume control practices that achieve 100% of the predevelopment infiltration (stay on) volume for all development areas, including roads, based on the average annual rainfall series. This could be accomplished through regional stormwater controls and integrating stormwater controls into site landscaping. Because natural soil infiltration rates are very low, controlling runoff to 100% of the pre-development volume will require significant area. Extensive stormwater infiltration in clay-rich soils is not common practice and includes some risk. One measure that can be taken to enhance the performance of infiltration features in clay soils is to over size them to reduce hydraulic loading rates. The open space around the western closed depression offers an opportunity to spread stormwater over a large vegetated area where soil moisture storage and evapotranspiration can reduce runoff volume. Another precaution would be to supplement infiltration practices with other types of volume controls that harvest and reuse runoff, or reduce volume through evapotranspiration (e.g. green roofs).

M2 Require additional soil borings (and monitoring wells, if appropriate) during the development of detailed stormwater system designs following DNR Technical Standard 1002. This investigation should determine if shallow groundwater is present near the eastern edge of the North Stoner Prairie Neighborhood. Available data indicate that groundwater is more than 20 ft. deep in this area; it should be confirmed that stormwater infiltration practices will not pose a groundwater flooding risk to the Seminole Forest and Lacy Heights Neighborhoods.

M3 Encourage volume controls in which stormwater is evaporated or transpired (e.g. green roofs, harvest and irrigation). Relying solely on infiltration into the ground will be challenging given the fine grained soils and shallow groundwater west of the Badger State Trail. A balanced approach to volume control will also help prevent an unintended rise in the water table that could create flooding impacts.

Water Quality

M4 Avoid infiltration or detention of stormwater within 400 ft. of the proposed city water supply well, as required by NR151 and NR811. It may be possible to obtain a variance from this requirement from WDNR because water would be infiltrated to the shallow aquifer, and the new well will presumably be open only to the deep aquifer, which is protected by the Eau Claire shale. In addition, infiltration of relatively clean roof runoff is less likely to pose a drinking water risk than infiltration of street and parking lot runoff.

M5 Volume control practices are likely to also provide the water quality treatment required by ordinances (at least 80% reduction in Total Suspended Solids relative to no controls).

Peak Discharge and Drainage

M6 East of the Badger State Trail, where stormwater discharges out of the neighborhood, control peak discharge to pre-development levels for the 1-year through 100-year events to meet CARPC requirements.

M7 West of the Badger State Trail, where stormwater drains to the closed depression, control peak discharge for the 1-year and 2-year events to pre-development levels to meet WDNR requirements for discharge to wetlands. CARPC could require additional peak control, however those requirements are somewhat flexible and will depend on the proposed management of the closed depression wetland.

M8 Create drainage ways to route runoff to stormwater controls. Currently uncontrolled runoff from Parcel 7) into the Seminole Forest and Lacy Heights Neighborhoods should be routed to stormwater control practices. Grading will be needed in Parcels 1 and 5, between Seminole Highway and the Badger State Trail, to route runoff to the north and south. A new culvert under Seminole Highway north of Lacy Road will likely be needed to convey runoff from Parcel 1 east to Parcel 11, where it would drain south through the existing culverts under Lacy Road.

M9 Create a safe drainageway for runoff flowing from the North Stoner Prairie Neighborhood northward to the storm drainage system in the Seminole Forest Neighborhood. Runoff from the existing agricultural land has impacted residential properties along Schumann Drive in low lying areas lacking controlled runoff routes.

Wetlands

M10 Conduct a full wetland determination and delineation at the time of conceptual development plan submittal in all closed depressions where field investigation has observed wetland indicators.

M11 Maintain a buffer of at least 75 ft around these wetlands, as required by the city's comprehensive plan and CARPC policy for farmed wetlands.

M12 Restore native vegetation in these wetlands to improve habitat, provide recreational and educational opportunities, and maintain stormwater infiltration rate.

Flood Protection

M13 Establish a flood protection elevation of approximately 1022.6 ft for the closed depression west of the Badger State Trail, based on the predicted water surface for back-to-back 100 year runoff events. This corresponds to an inundation area of approximately 44 acres for the existing topography. This extreme weather scenario is recommended for flood protection because there is no surface outlet for this watershed.

M14 Develop an emergency pumping plan and install infrastructure needed to mitigate unanticipated flooding of the western closed depression due to climate change, stormwater system failure, or other factors. This is especially recommended due to the challenges in maintaining 100% of the pre-development runoff volume. Pumped water would be discharge to the existing storm sewer system north of the North Stoner Prairie Neighborhood, where it would eventually discharge to Dunn's Marsh. Infrastructure improvements would include an intake pipe and manhole in the closed depression, electric submersible pumps in an enclosure, and a buried HDPE pipeline to the storm sewer.

M15 Monitor water levels in the closed depressions to provide early warning of unanticipated conditions. Installation of a staff gage and monthly stage readings are recommended.

Plan for Parks, Open Space, and Cultural Resources

Stoner Prairie Park Expansion

Stoner Prairie Neighborhood Park will be expanded by approximately 5 acres and upgraded to the city's "Area Park" classification. A park master plan should be prepared for Stoner Prairie Park to identify additional and appropriate recreational facilities, support facilities such as parking, landscaping, buildings, and amenities, and programming possibilities. The city should acquire the additional acreage for Stoner Prairie Park as a component of the required parkland dedication for the residential component of NSPN development.

As part of the park master planning process, consideration should also be given to off-street parking for the park and the incorporation of a drop-off area for students adjacent to the school walking path.

New Park and Open Space Facilities

Working with the developer of the future business park west of Seminole Highway, the city of Fitchburg will facilitate the design and construction of the closed depression west of Badger State Bike Trail as a publicly accessible Conservation Area, to support a native wet prairie/grassland habitat. Potential facilities include walking paths, on-leash dog walking area, or wildlife viewing. The configuration of the large storm water basin also presents an opportunity to incorporate and protect some of the loan oaks that border the edge of the depression.

Adjacent to the this conservation area, the city will establish a 3 to 5 acre "Trailhead Park" to provide access to the Badger State Bike Trail and the amenities of the conserved topographic depression. Potential amenities could include parking, open air shelter, trail information kiosk, and a wildlife viewing area. This area would be developed concurrently with the development of the east-west connector path linking Quarry Ridge Recreation Area to NSPN and surrounding neighborhoods.

In addition, the two other closed depression drainage areas, one east of the Badger State Bike Trail and one east of Seminole Highway, will be sites of seasonal ponding and are mapped wetlands. These lands and adjoining buffers will need to be preserved and incorporated into the adjoining development as open spaces.

With the exception of the area of the parcel previously approved for expanded quarry operations, roughly seven acres of the wood lot in the southwest corner of the neighborhood that will remain to create a passive use public park site. The site provides views overlooking the neighborhood to the east and could include a picnic area, woodland trails and woodland restoration. Dedication and improvement of this site would most likely be a component of the implementation of the reclamation plan for the existing quarry operations.

The city should creatively seek opportunities to establish community gardens in various open spaces within the neighborhood, including the buffer areas of the large closed storm water depression area west of the Badger State Bike trail or as part of the recommended trailhead park to be located adjacent to the closed depression. Another opportunity to be explored could be to work with American Transmission Company to see if neighborhood/community gardens could be established within the utility right-of-way east of Seminole Highway.

Off-Road Paths

Off-road walking and bike path connections are recommended to connect NSPN and its adjacent neighborhoods with the Badger State and Military Ridge Bike Trails. This connection would be an east-west path connecting the existing school path at the east edge of NSPN, passing through the expanded Stoner Prairie Park and Trailhead Park, and ultimately reaching Quarry Ridge Park on the western edge of the neighborhood.

The plan also recommends the extension of the existing off-road shared use path along Seminole Highway south into the NSPN where it would access the proposed east-west path. The plan recommends these off-road paths be designed and constructed concurrently with future roadways and/or drainage corridors to enhance their aesthetic appearance, safety, and functionality. The locations of these paths are found in the Transportation Plan section of the neighborhood plan.

Historic and Cultural Resources

While the neighborhood has no designated archeological, burial or historic sites, two largely intact farmsteads on Seminole Highway– the Dunn and O’Brien farms – remain with homes, barns and outbuildings. The stone barn on the Dunn property is particularly unique and reflects the early history and use of stone materials thought to have been quarried in the neighborhood. Similarly, along Lacy Road west of Seminole Highway the partial stone foundations of former farm buildings reflect the early settlement of the community. As development occurs on or around these sites the city should work with developers to further assess the importance of the farmstead sites and/or buildings and incorporate some preservation or recognition of the farms and families that were the earliest residents of the community.

Summary of Recommendations – Parks, Open Space, & Cultural Resources

Introduced below, key recommendations for parks, open space, and cultural resources should be consulted when reviewing development decisions and public improvements in the North Stoner Prairie Neighborhood in the future. **Figure 7-10, Section X**, provides a keyed plan graphic to illustrate these recommendations.

P1 As development of residential lands in the northeastern portion of NSPN occurs, add ± 4.5 acres to northern boundary of Stoner Prairie Neighborhood Park and upgrade the park to an “Area Park” classification, with expanded recreational facilities.

P2 Working with the future business park, design and construct the closed depression west of Badger State Bike Trail as a publicly accessible Conservation Area.

P3 Preserve closed depression areas as undeveloped open spaces.

P4 Concurrent with east-west connector path development (P6), establish a ± 3 acre trailhead park adjacent to the Conservation Area (P2, above) to provide access to State Trail with parking, shelter, information kiosk, and linkage to trails in the Conservation Area.

P5 Excepting the area of the parcel previously approved for expanded quarry operations, preserve remaining portion of wood lot and adjoining area in southwest corner of NSPN as a 7 acre public park site, to include scenic overlooks, picnic areas, woodland trails, and restored vegetation.

P6 Develop an east-west connector path from the existing school path east of NSPN to Quarry Ridge Park west of NSPN. Extend the existing Seminole Highway Path to intersect proposed E-W path.

P7 Assess the feasibility of incorporation of historic farmsteads, farm buildings, and/or materials into proposed development to preserve and recognize legacy farms and families.

P8 Incorporate community gardens as part of proposed trailhead park. Work with ATC to determine feasibility of using areas under power lines for community gardens.

VIII. IMPACTS OF NSPN PLAN ON ITS SURROUNDINGS

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The North Stoner Prairie Neighborhood is intended to develop in phases over the course of some twenty years, gradually but noticeably transforming the landscape north of Lacy Road from rural in texture to urban. While this new identity will align well with most of its surroundings – particularly to the neighborhood’s north and east – it is inevitable that the NSPN will have external effects on its surroundings. A primary objective of this plan is to minimize the potential for negative spillover effects associated with the neighborhood’s development and to maximize the opportunities for positive integration into the neighborhood’s existing context.

Land Use

The range in type, intensity, and character of land use as presented in the North Stoner Prairie Neighborhood Plan was developed through a dynamic public involvement process. This process engaged residents and property owners of adjacent neighborhoods, the NSPN Plan Steering Committee, city staff, and the consultant team to come to a consensus land use vision that complements existing development surrounding NSPN. This consensus-based vision provides expanded areas for both employment and housing development that is of a character and quality that meets the precedent set by these highly desirable neighborhoods and employment areas, thus preserving the land use integrity of residential, industrial, institutional, and commercial properties in the vicinity of NSPN.

The North Stoner Prairie Neighborhood is poised to serve as a long-term southern “edge” of urban Fitchburg, as properties directly south across Lacy Road are designated as Exclusive Agricultural areas in the city’s zoning ordinance and its comprehensive plan and thus recognized by the city and state as agricultural preservation areas. With this in mind, the treatment of NSPN commercial and residential land uses abutting Lacy Road, in terms of architecture, orientation, set back, landscaping, scale, and access will be critical to promote a unique and positive transition between the urban and rural. An approach to this opportunity could include working with property owners on both sides of Lacy Road to create buffer a zone, berms and landscape patterns that break the hard edges of the existing right-of-way and give Lacy Road more of a parkway look.

The city should also work creatively and closely with Lacy Road agricultural operators to ensure that the range and scope of their operations can remain viable, which may include pursuing conditional use options available in the city's current Exclusive Agricultural Zoning Ordinance. Such options include "agricultural entertainment", agriculture related educational facilities, or working lands such as orchards and vineyards that could border Lacy Road. In any event, it is essential that the city make clear to developers, residents and businesses that establish themselves in NSPN that agriculture is a cornerstone element of Fitchburg's identity and economy, and it exists literally "across the street" from NSPN.

Transportation

With the introduction of roughly 200 new housing units plus almost 2.5 million square feet of business and industrial space, NSPN will inevitably impact existing transportation networks in northwest Fitchburg. As the plan confirms, vehicular trips can be expected to increase, especially on McKee Road, Seminole Highway, and to a lesser degree Fitchrona Road and Lacy Road upon full build-out of the North Stoner Prairie Neighborhood. Importantly, this plan finds that although the increase in vehicular traffic on area roadways will be measurable, it will not surpass the operational capacity of these roads. This is especially true by the city fostering development and associated transportation improvements that are phased incrementally in such a way as to follow existing city policy and the recommendations in this plan.

While the plan does not attempt to forecast how many biking and walking trips will replace car trips generated by the NSPN, there is a considered focus on providing ample opportunities for the neighborhood to be fully connected to the regional bike and pedestrian system. That said, there is considerable concern within existing residential neighborhoods to the east about the safety and sanctity of the existing north-south school path at NSPN's eastern edge. This plan views the path as a community amenity that will add to the value, sense of pride, and sense of neighborhood of NSPN as well as existing neighborhoods, and will serve as a common ground for students and families at both public schools. As such,

assuring that any new roadway connections or land uses that may impact that path are done so with user safety and enjoyment as a primary priority will remain a key component through the implementation of the NSPN plan.

One of the most deeply discussed issues throughout the NSPN planning process was that of roadway connectivity between the NSPN and the adjoining neighborhoods to the east and north. Specifically, there was considerable concern about extending Scarlet Drive and Persimmon Drive to Seminole Highway due to impacts on the aforementioned school path which would need to be crossed, additional traffic volume entering the existing neighborhoods and speeds on residential streets., In the end, the public process resulted in a consensus-based design approach for road extensions that accomplishes neighborhood connectivity but should prove successful in discouraging vehicle cut-through and inappropriate traffic movement through NSPN and the existing neighborhoods to its east. It was also concluded that the city will appoint a neighborhood committee to study the ways and means for reducing congestion during drop-off/pickup at the schools and on local streets. The committee would also explore an alternative for a second drop-off/pickup connection point as part of any new development plan for lands north and west of the existing schools.

Public Facilities

The North Stoner Prairie Neighborhood Plan is poised to have a very positive effect on public facilities in the city of Fitchburg. The residential development proposed for the neighborhood is ideally situated within walking distance to two of the Verona Area School District's facilities both with capacity for additional growth. In addition, the NSPN plan provides for several parks and open spaces that will likely be enjoyed by the entire community for a variety of recreational activities. Development of the NSPN in a phased and responsible manner will not require substantial public expenditure for sewer and/or water service and facilities, as the infrastructure for both is currently immediately adjacent to the neighborhood at two of its edges.

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IX. IMPLEMENTATION OF THE NSNP

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This plan presents a comprehensive, long-term set of interrelated recommendations aimed at creating an active and attractive mix of commercial and residential uses that strengthens surrounding residential neighborhoods, remains sensitive to Fitchburg's agricultural legacy, and provides expanded opportunities for household-supporting employment.

Beginning immediately, the plan's recommendations should serve as a guide for future decision making by the city of Fitchburg as it considers public improvements, land use decisions (both private and public), and transportation within and around the immediate planning area. As an official Appendix to the city's Comprehensive Plan, the NSPN is to be a critical component of the planning and review process, and must be considered in concert with the other neighborhood plans adopted by the city to meet the community's expectations of the pace, amount, location, and overall character of development in the city.

Generally, recommendations from this and other plans will be implemented incrementally over the course of several years or even decades. With that being said, there are a number of critical implementation steps that should be undertaken immediately following plan adoption in order to set the stage for the successful neighborhood development as envisioned in this plan. These implementation actions are summarized below.

Regulatory Framework

The city should undertake a review of its Zoning Ordinance and Land Subdivision Regulations to ensure consistency with the NSPN's recommendations and policies. If necessary, updates to either of these key regulatory tools should be undertaken well before private development is proposed for the neighborhood.

Coordination with Verona Area School District

The safety and efficiency of transportation for all modes on and around the school sites bordering NSPN were an ongoing issue and concern through the planning process. The city must continue to work with VASD to explore opportunities for improved circulation to Stoner Prairie Elementary and Savanna Oaks Middle as a high priority, not only to stay in front of development of NSPN, but also to assure that students from existing neighborhoods continue to have a safe route to school.

Tax Increment Finance District (TIF)

It's possible that in order to set the stage for new development in the NSPN, the city of Fitchburg will have to finance some of the basic public improvements needed to serve as incentives to the private sector development community. As an ongoing effort to this end, the city should:

- Explore the creation of a TIF district for the area west of Seminole Highway, possibly including some portion of existing business park development; and
- Coordinate public improvements in tandem with new private sector development

Essentially, TIF allows local governments to make needed public improvements, such as new roads or sewers, and provide incentives to attract new businesses or help existing businesses stay and expand. TIF is designed to bolster economic development without tapping into general municipal revenues or raising taxes, with local taxing bodies making a joint investment in the development or redevelopment of an area with the intent that any short term gains be reinvested and leveraged so that all the taxing bodies will receive larger financial gains in the future. The funds for this investment do not come from current revenues, but from future tax revenues that are not otherwise expected to occur. These new revenues are generated by increased public and private investment in identified underperforming areas. Wisconsin law specifies a number of requirements that must be satisfied for an area to qualify for Tax Increment Financing, beginning with identifying the TIF project area and the physical and economic deficiencies that need to be cured. What is often called the “but for test”, calls for the municipality to show that ‘but for’ the public investment provided through the TIF, effective development of the lands in the district will not occur.

Along with meeting these requirements, the law requires the city to prepare a plan laying out the actions that the municipality intends to take to improve the area, and a budget for the TIF district that includes the total TIF-eligible costs. Municipal officials and a Joint Review Board, made up of representatives from local taxing bodies, must review the plan for the development of the TIF area, allowing the various taxing bodies to provide their input and opinion on the matter to the municipal authorities. Following this, a public hearing must be held so that residents and other interested parties can express their thoughts on the subject.

Teska Associates, Inc. assessed the feasibility and impacts of a Tax Increment Finance district

to support the implementation of the NSPN plan. This report examines the fiscal impact of development at full build-out and estimates that the development yield of a potential TID west of Seminole Highway would support the city's upfront investment in infrastructure and services to support the area. The full report can be found in Appendix I.

Business Development

Adding “critical mass” to a strong legacy of employment adjacent to the planning area is a key principle of this plan, and to this end the city should work to enhance NSPN's (and the city's in general) profile as an excellent place to live, work, and learn in. Initiatives might include:

- Explore avenues for local entrepreneurial training and workforce development with local educational institutions and local banks;
- Promote assistance to help businesses with business startup and marketing plans, utilization of a small business revolving loan fund (RLF) program, and involve local lenders in the process;
- Encourage the use of available business financing mechanisms offered through state and local economic development programs; and
- As local light industrial and production businesses consider relocation and/or expansion, the city should be prepared to assist them with relocation to more suitable sites and/or into existing business parks.

Phasing Plan

A phasing plan (**Figure 9-1, Section X**) has been developed that projects the infrastructure needs and orderly development of the North Stoner Prairie Neighborhood. The phasing plan is based on the physical constraints of the site, a review of market indicators, stormwater facility needs, and transportation infrastructure investments that will be needed to support the development of the neighborhood.

Timing and phasing of the North Stoner Prairie Neighborhood will need to be consistent with the Comprehensive Plan and will be related to the phasing and development of other neighborhoods and current Urban Service Area development.

Phase 1

Development is planned to begin with the industrial development in the northwestern portion of the neighborhood with extension of municipal water service and sanitary sewer service from existing infrastructure stubbed in to the north. As an initial step in Phase 1, the large closed depression west of the Badger State Trail will need to be dedicated for stormwater purposes to allow for industrial development. Early phases will also include the industrial commercial and residential parcels in the northern portions of the development. Water and sewer will be extended to service NSPN's first residential neighborhoods in the northeast of the planning area from existing service at Scarlett and Persimmon in Lacy Heights neighborhood east of NSPN. As residential parcels are developed, land will be purchased to expand Stoner Prairie Park.

Specific elements of the first phase include:

Phase 1.1 (Years 1-4) is composed of Parcel 3A North, the northern portion of the Industrial area located west of Badger State Trail, Parcel 3B (Closed Depression), and the northern portion of Parcel 4A (Industrial Commercial) at the western portion of the site adjacent to Quarry Ridge Recreation Area. The Closed Depression will need to be dedicated for stormwater use in the early stages of industrial development and a pumping system would need to be installed during this phase. The fiscal analysis of the NSPN Plan lays out the anticipated costs for acquisition of Parcel 3B and installation of a pumping system. Also in Phase 1.1 are Parcel 3C (Trailhead Park) and Parcel 3D (a portion of the east-west trail). The fiscal analysis includes the cost of improvements to build out Trailhead Park and the east-west trail. Commerce Park Drive and Buds Drive would both be extended during Phase 1.1

Phase 1.2 includes Parcels 5A (Industrial-Commercial) between Badger State Trail and Seminole Highway at the north end of the neighborhood, Parcel 5B (Closed Depression), and Parcel 5C (a portion of the east-west Trail). The Closed Depression would be protected as part of the development of the property and land would be dedicated to the city for the segment of the East-West Trail. An east-west collector and intersection improvements would take place during this phase to enable development of Parcels 5A.

Phase 1.3 includes Parcels 6A (Mid Density Residential), Parcel 6B (Closed Depression), and Parcel 6C (east-west trail). The Closed Depression would be protected as part of the development of the property and land would be dedicated to the city for the segment of the east-west trail.

Phase 1.3 also includes Parcel 7A (Low Density Residential), Parcel 7B (east-west trail) and Parcel 8A (expansion of Stoner Prairie Park). As part of the development, buffer areas would be protected, and land would be dedicated for the east-west trail). The expansion of Parcel 8A (Stoner Prairie Park) would take place in this phase and be acquired due to open space requirements for residential development in the neighborhood.

Phase 1.4 is composed of Parcel 2 (Industrial-Commercial), located at the northeast corner of Lacy Road and Badger State Trail.

Phase 1.5 is composed of Parcel 1 (Business) located between Badger State Trail and Seminole Highway, north of Lacy Road. Intersection improvements at Lacy Road and Seminole Highway would be made during Phase 1.5.

Phase 2

In Phase 2, the southwest and southeast portions of the neighborhood are planned to be developed.

Elements of Phase 2 include:

Phase 2.1 represents the southwestern parcels of the neighborhood. The phase will include Parcel 3A (Industrial-General), Parcel 4A (Industrial-Commercial). Parcel 4B (Park and Conservancy) includes woodland and open space that would be dedicated for a park.

Phase 2.2 includes Parcels 9 (Low Density Residential), Parcel 10 (Mid Density Residential) and Parcel 11 (Mid Density Residential). These parcels will include residential development and could potentially provide a location for a new school or church.

Action Plan

A recommended action plan, **Table 9-1**, is provided to guide implementation of the North Stoner Prairie Neighborhood Plan. In addition to defining the action, the action plan identifies the key agency or agencies responsible for implementing the action, and provides a proposed time frame for implementation as follows:

- Ongoing – a continuation or refocusing of an action already in place or in progress
- Immediate – an action to be undertaken as soon as the North Stoner Prairie Neighborhood Plan is adopted.
- Phase I – an action to be undertaken within 10 years of adoption.
- Phase II – an action to be undertaken within 20 years of adoption.

Updating the NSPN Plan

This plan is intended to be a living, workable document for the city of Fitchburg and its implementation partners to use as a guide in making development, policy, and program decisions in the next 20-plus years (from 2013). This plan will be used as a baseline of expectations and targets to meet the community's vision for the NSPN, and progress should be measured periodically via a publicized report. Undertaking an update process is recommended as a component of comprehensive plan updates, or as needed in the interim, to reassess market conditions and document the progress made in implementing this plan.

Table 9-1: Implementation Action Table

Action/Project	Lead Agency/Collaborators	Timing
General/Planning Actions		
Adopt the NSPN Plan as an amendment to the City of Fitchburg Comprehensive Plan	City Planning & Zoning	On-Going
Review city zoning code and subdivision code for consistency with NSPN policies and recommendations; amend regulations as necessary	City Planning & Zoning, Plan Commission, Common Council	Immediate
Integrate NSPN recommendations and actions into City Capital Improvements Plans	City of Fitchburg	On-Going
Adopt design guidelines for NSPN with a focus on stormwater best management practices and low impact development strategies.	City Planning & Zoning	Immediate
Update the NSPN Plan	City of Fitchburg	Phase I, Phase II, as needed
Engage CARPC in discussions about NSPN phasing as related to urban service area amendment	City of Fitchburg, CARPC	Immediate
Work with development community to implement NSPN land use plan	City of Fitchburg, CEDA, Land Owners, Developers	Phase I, Phase II

Table 9-1: Implementation Action Table

Transportation Actions		
Amend the City's Bicycle and Pedestrian Plan to incorporate NSPN recommendations	City Planning, City Public Works	Immediate
As needed to accommodate NSPN Plan recommendations, reserve rights-of-way for improvements to existing and proposed roadways and intersections	City Planning , City Public Works, Dane County Highways	Phase I, Phase II
Expand and/or establish transit service to accommodate the NSPN	City Planning, City Public Works, CEDA, Madison Metro	Phase I
Develop an east-west connector path from existing school path east of NSPN to Quarry Ridge Park west of NSPN	City Public Works, City Parks and Recreation, Land Owners, City Planning	Phase I, Phase II
Utilities Actions		
Establish municipal well (Well 14) near eastern NSPN boundary (near schools and expanded parks)	City Public Works	Phase II
Extend sewer and water infrastructure to accommodate NSPN development	City Public Works	Phase I, Phase II
Explore feasibility of relocating overhead electrical transmission lines from current alignment through NSPN to an alignment west of Seminole Highway	CEDA, City Public Works, City Planning, Land Owners, Utility Providers	Immediate
Parks and Open Space Actions		
Preserve closed depression areas as undeveloped open spaces	Land Owners, City Planning	Phase I
Preserve existing wood lot at southwest corner of NSPN as passive-use neighborhood open space	City Parks and Recreation, City Planning, Land Owners	Phase II
Establish a trailhead park at junction of proposed E-W path and existing Badger State Trail	City Public Works, City Parks and Recreation, Land Owners, City Planning	Phase I

Table 9-1: Implementation Action Table

Stormwater Management Actions		
Establish water level monitoring program for NSPN's three closed depressions.	City Public Works	Immediate
Conduct a full wetland determination and delineation for the three closed depressions.	City Public Works, Developers, Land Owners	Phase I, Phase II
Develop an emergency pumping plan and install infrastructure to mitigate unanticipated flooding of western closed depression.	City Public Works	Pre-Phase I
Economic Development Actions		
Form a TID Advisory Committee to facilitate the creation of a Tax Incremental Finance District for the area west of Seminole Highway	CEDA	Immediate
Pursue "Certified in Wisconsin" designation for planned industrial area	CEDA	Phase I
Develop/refine business attraction, retention, and expansion market strategy for planned and existing industrial areas	CEDA	On-going

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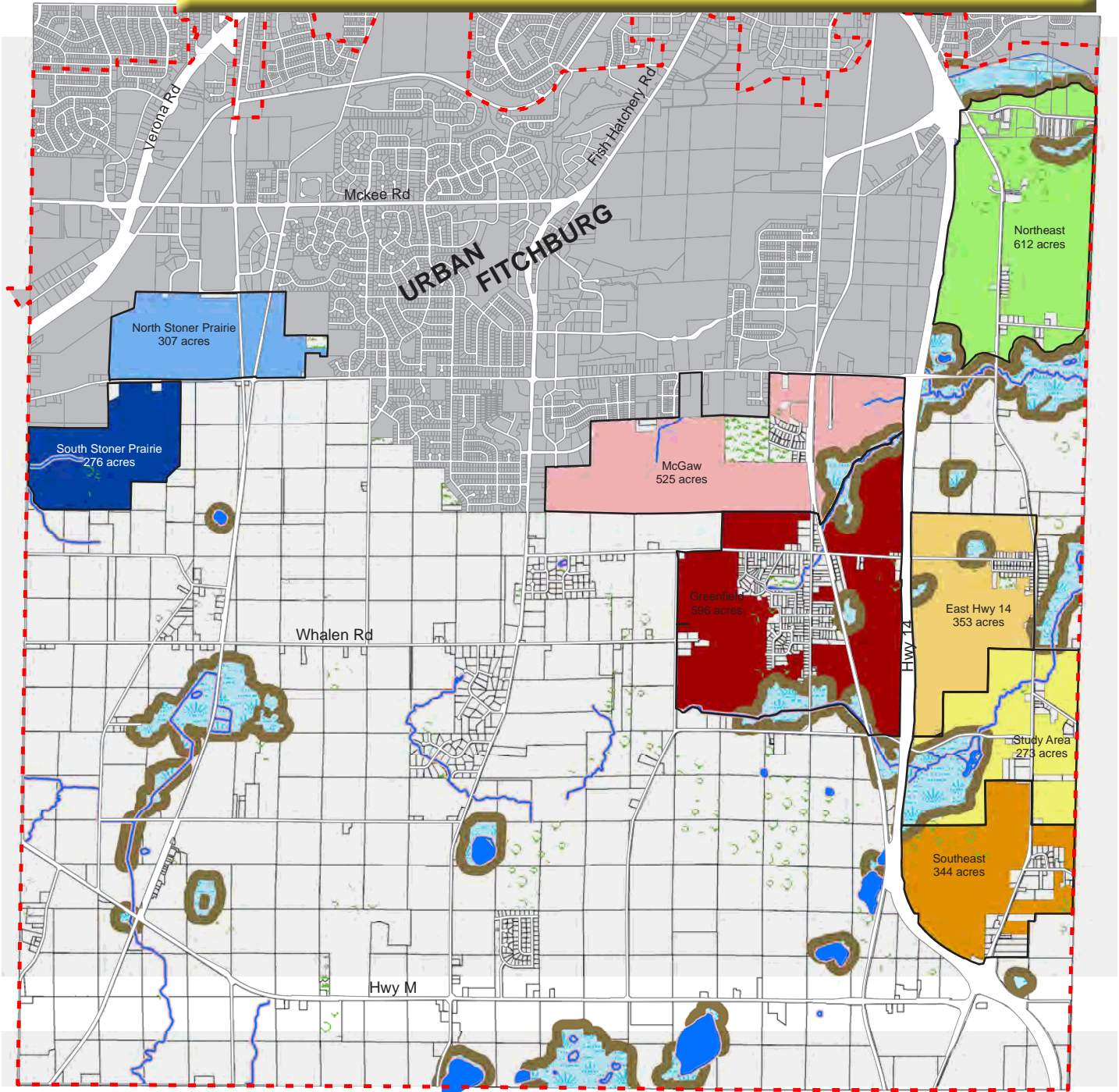
- Figure 1-1: Future Urban Growth Neighborhood
- Figure 1-2: Regional Context
- Figure 3-1: Existing Land Use & Property Ownership
- Figure 3-2: Adjacent Land Use
- Figure 3-3: Environmental Corridor
- Figure 4-1: Issues and Opportunities
- Figure 6-3: Existing Surface Drainage Conditions
- Figure 6-7: Soil Borings and Monitoring Well Locations
- Figure 6-12: Existing Parks, Open Space, and Cultural Assets
- Figure 6-13: Existing Transportation Systems
- Figure 6-14: Existing Traffic Control and Speed Limits
- Figure 6-15: Existing Traffic Counts
- Figure 6-16: Existing Transit System
- Figure 6-17: Existing Bike and Pedestrian Network
- Figure 6-18: Existing Sanitary Sewer Service
- Figure 6-19: Existing Private Utilities
- Figure 7-1: Land Use Recommendations
- Figure 7-2: Trip Distribution and Assignment
- Figure 7-3: Future Traffic Projections (2030)
- Figure 7-4: Conceptual Connectivity Sketch
- Figure 7-5: Scheduled Transportation Improvements
- Figure 7-6: Recommended Transportation Improvements
- Figure 7-7: Public Water Supply Recommendations
- Figure 7-8: Sanitary Sewer Service Recommendations
- Figure 7-9: Stormwater Management Plan
- Figure 7-10: Recommended Parks, Open Space and Cultural Resources
- Figure 9-1: Recommended Phasing

X. FIGURES









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FIGURE 1-1:

FUTURE URBAN GROWTH NEIGHBORHOODS



Note: This is a reproduction of a map from the 2009 City of Fitchburg Comprehensive Plan, for illustrative purposes only. Not to scale.

-  Wetlands
-  Streams
-  Woods
-  Wetland Buffer - 300'
-  Open Water
-  City Boundary
-  Parks
-  Water Buffer - 75'

Prepared by: Planning/Zoning
 Source: Planning/Zoning & Dane County LIO
 Revised: 2/2008



* Acreage is exclusive of mapped natural resources, buffers and parcels less than 5 acres.

FIGURE 1-2:

REGIONAL CONTEXT

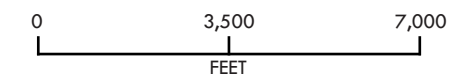
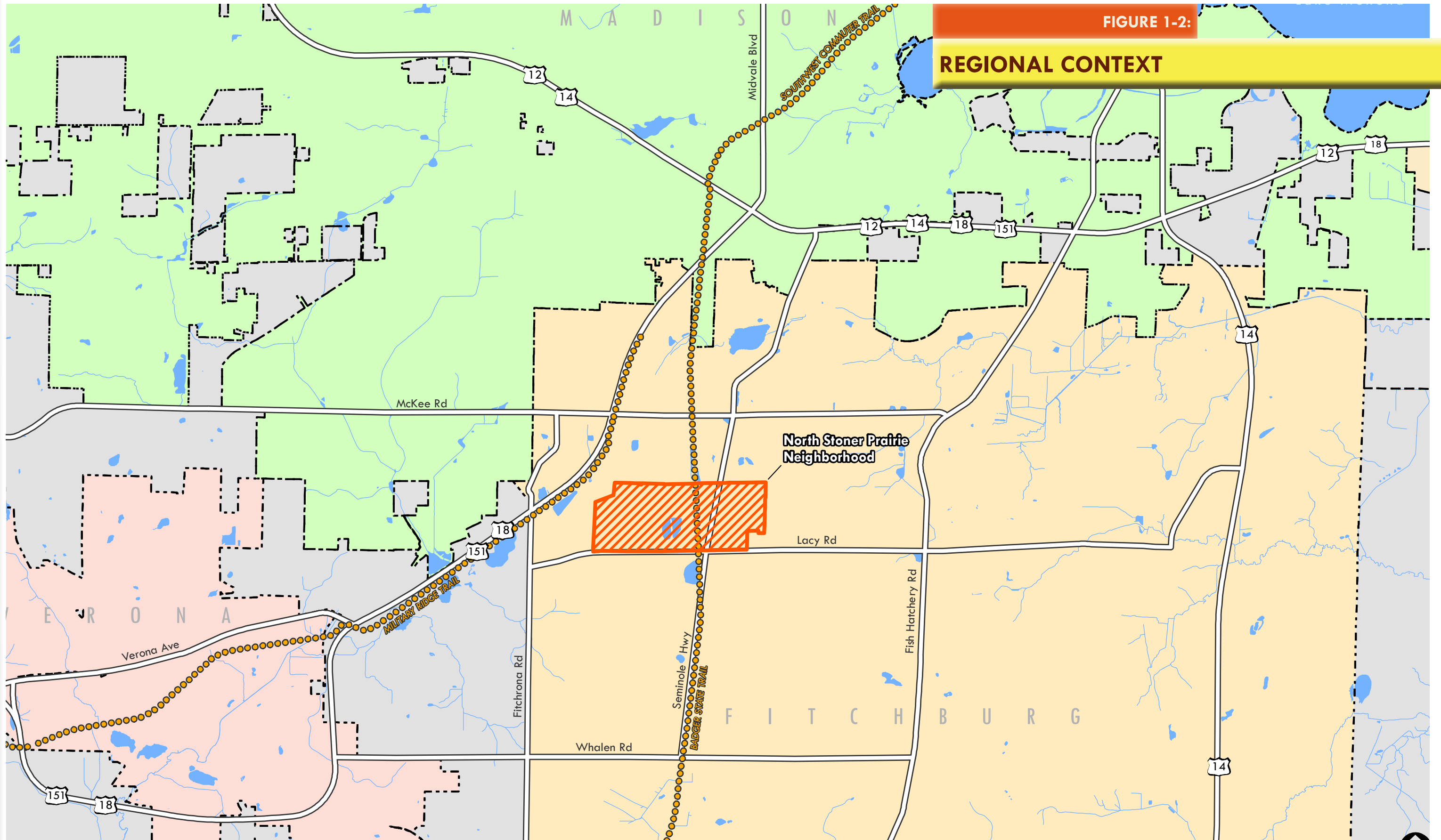
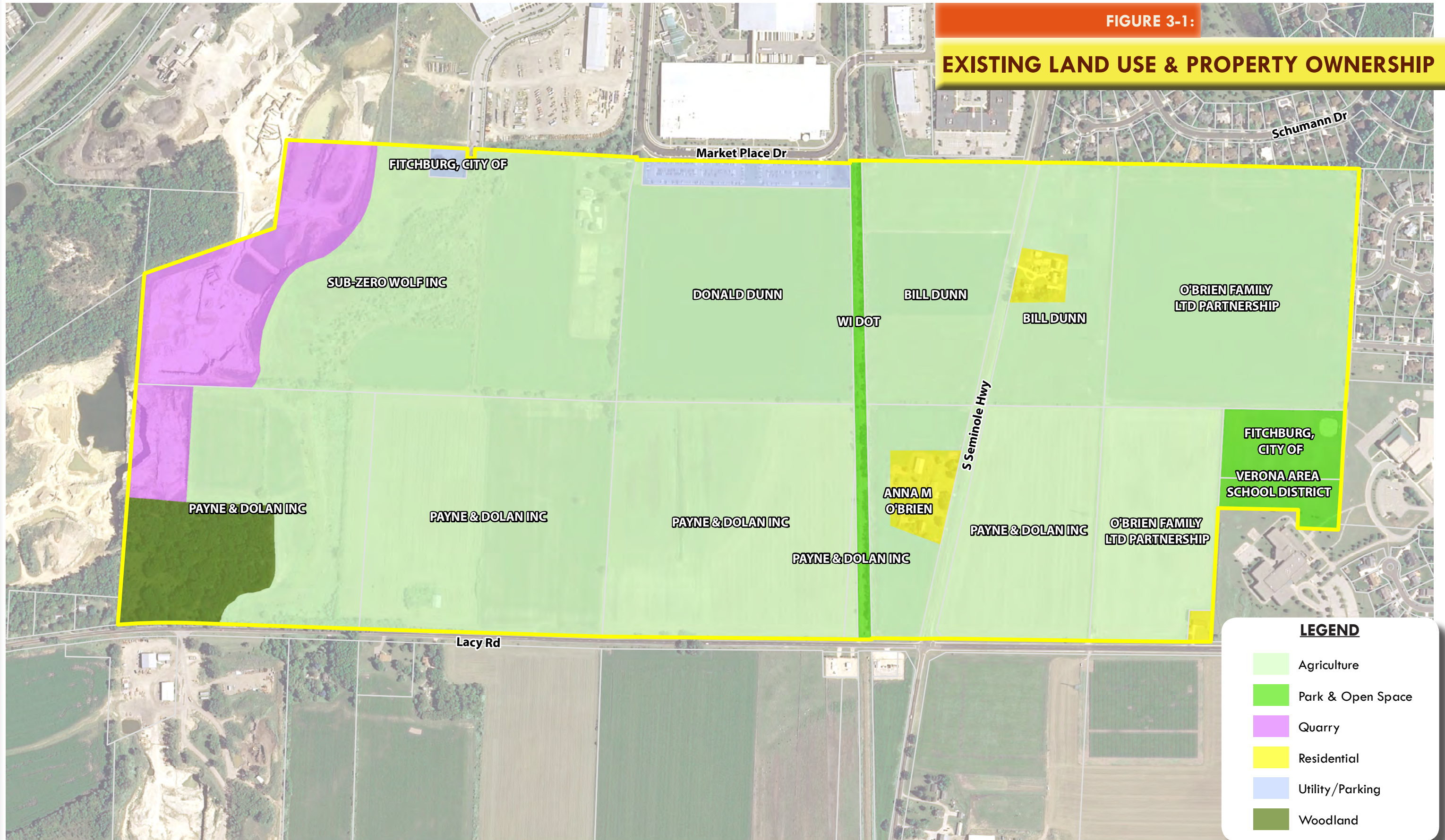


FIGURE 3-1:

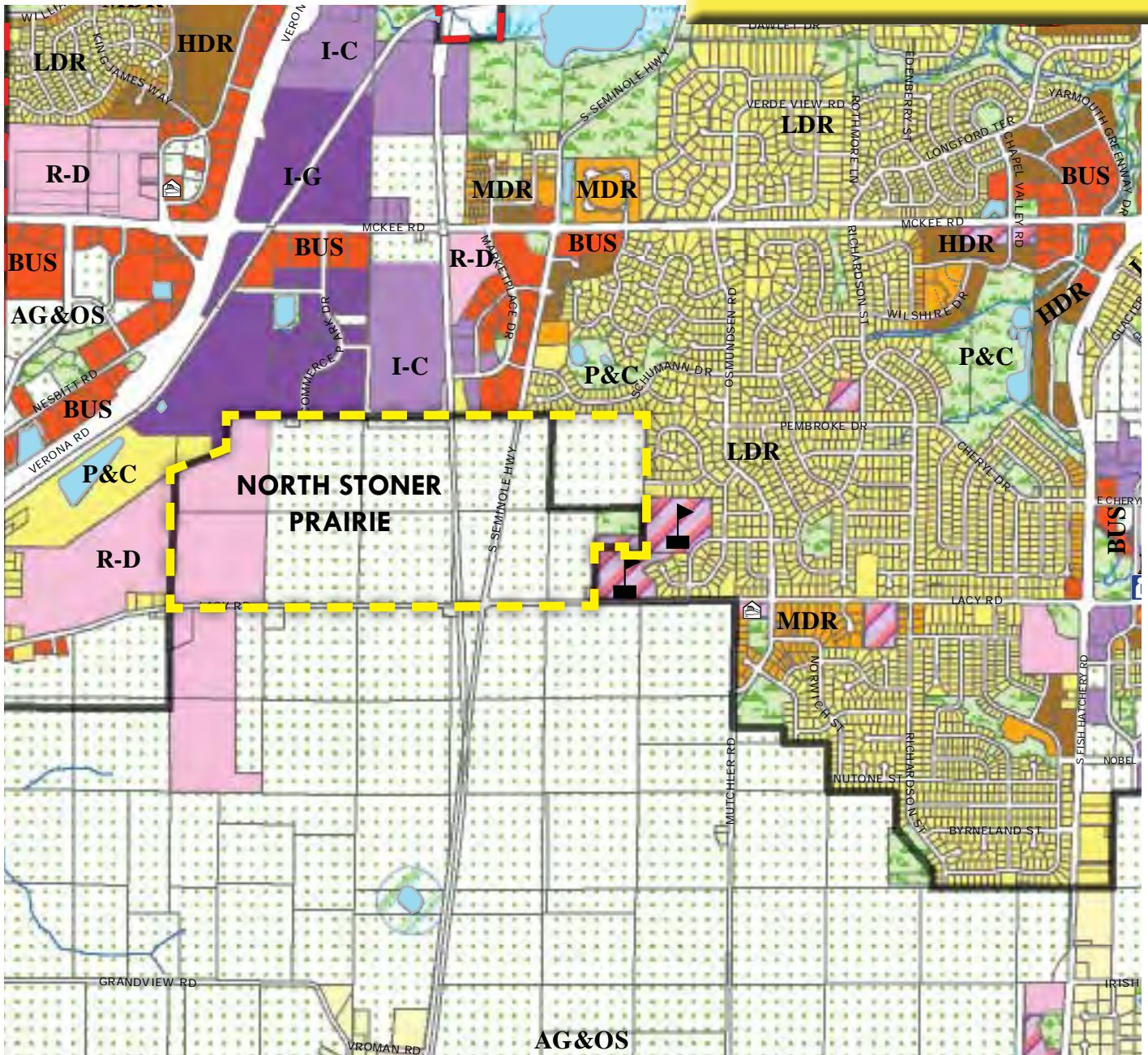
EXISTING LAND USE & PROPERTY OWNERSHIP



LEGEND

- Agriculture
- Park & Open Space
- Quarry
- Residential
- Utility/Parking
- Woodland

ADJACENT LAND USE



Note: This is a reproduction of a map from the 2009 City of Fitchburg Comprehensive Plan, for illustrative purposes only. Not to scale.

P&C - PARK & CONSERVANCY	I-G - INDUSTRIAL-GENERAL	PARCELS	FIRE STATION
R-R - RURAL RESIDENTIAL	I-C - INDUSTRIAL-COMMERCIAL	CITY LIMITS	LIBRARY
LDR - LOW DENSITY RESIDENTIAL	BUS - BUSINESS	URBAN SERVICE AREA	CEMETERY
MDR - MEDIUM DENSITY RESIDENTIAL	R-D - RURAL DEVELOPMENT	STREAMS	SCHOOL
HDR - HIGH DENSITY RESIDENTIAL	AG&OS - AGRICULTURE & OPEN SPACE		CITY HALL
M-U - MIXED-USE	OPEN WATER		
G / I - GOVERNMENT / INSTITUTIONAL	WETLANDS W/ 300 FT BUFFER		

PREPARED BY: PLANNING/ZONING
 SOURCE: PLANNING/ZONING
 REVISED: 9/2012



FIGURE 3-3:

ENVIRONMENTAL CORRIDOR

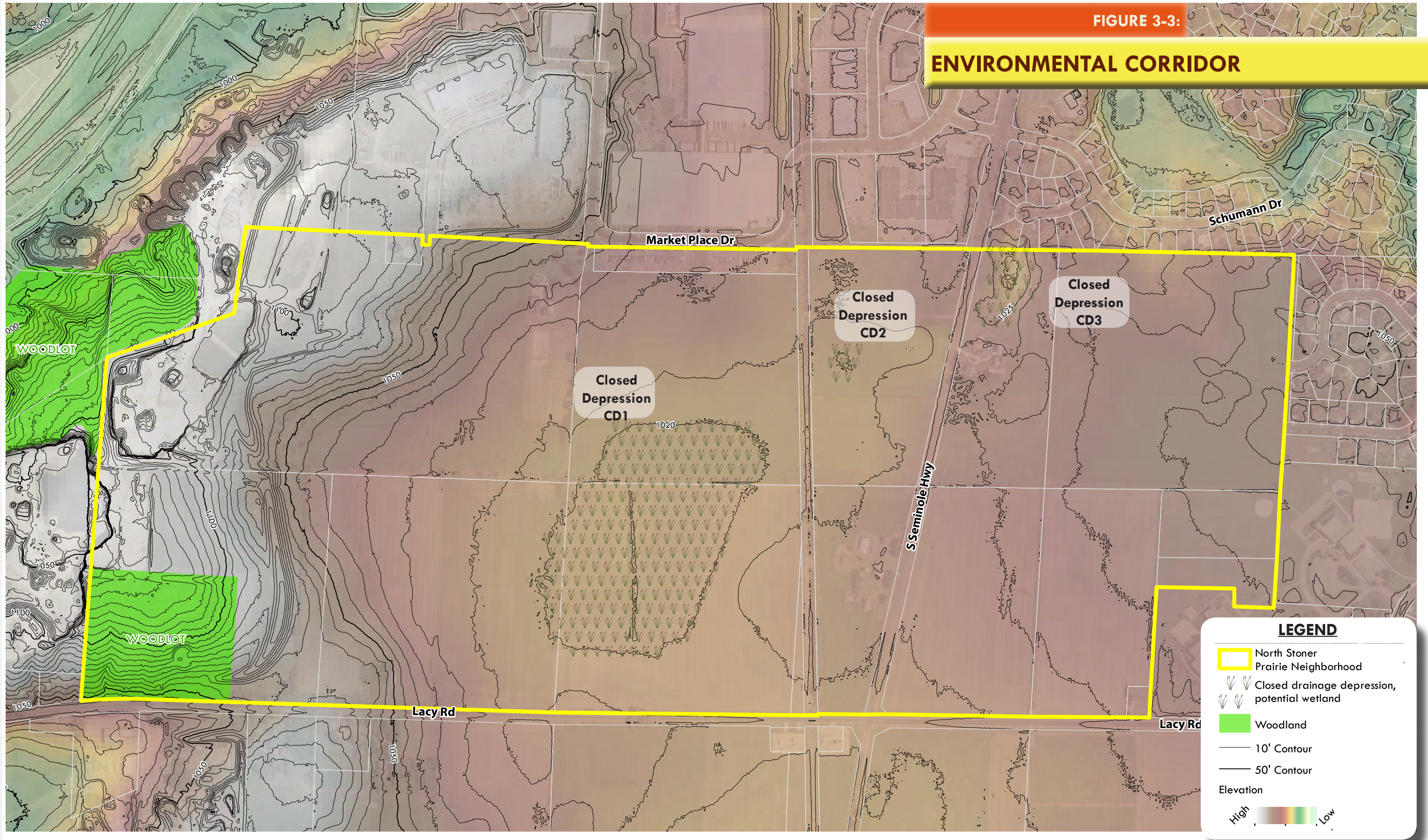
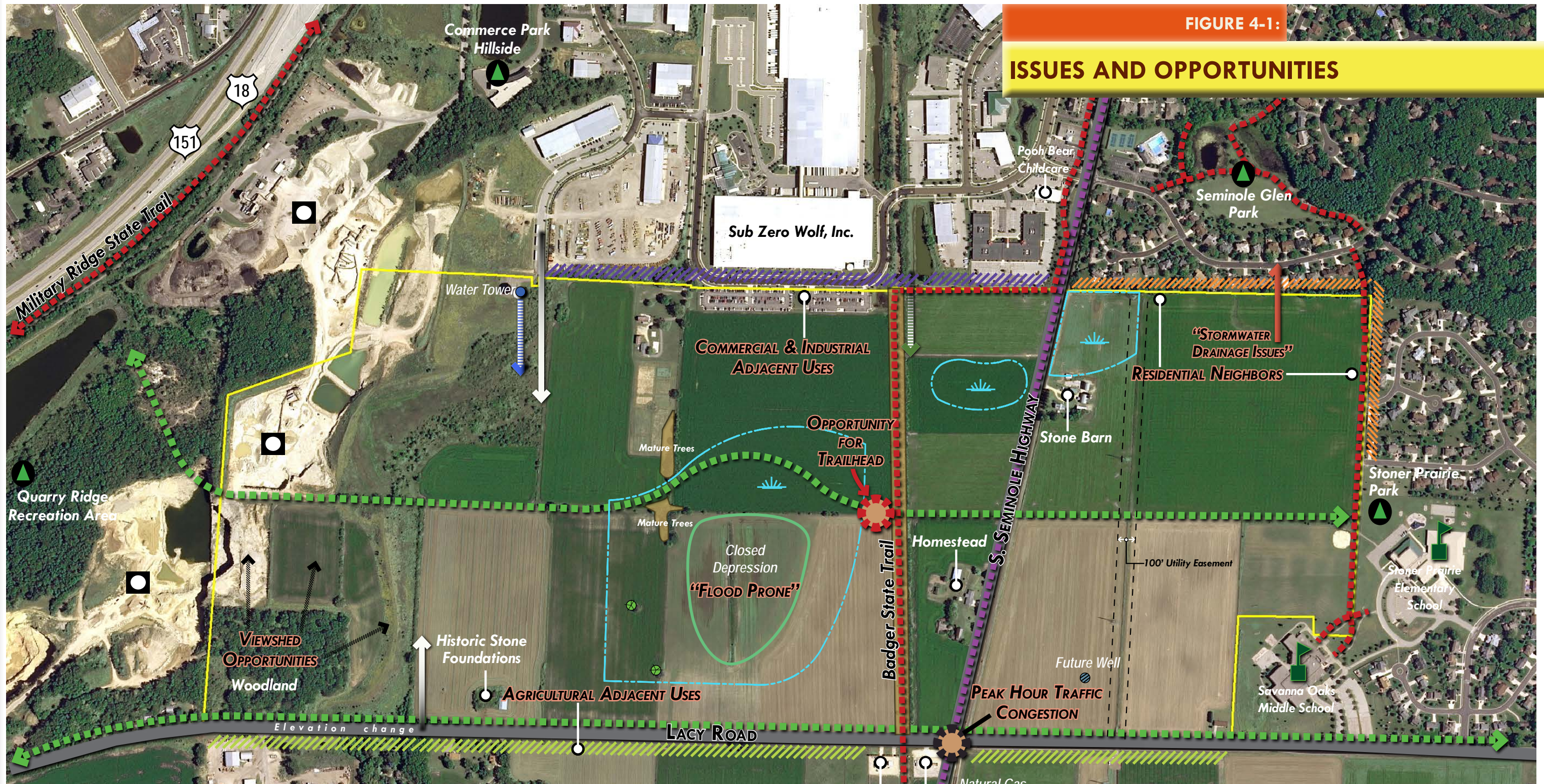


FIGURE 4-1:

ISSUES AND OPPORTUNITIES

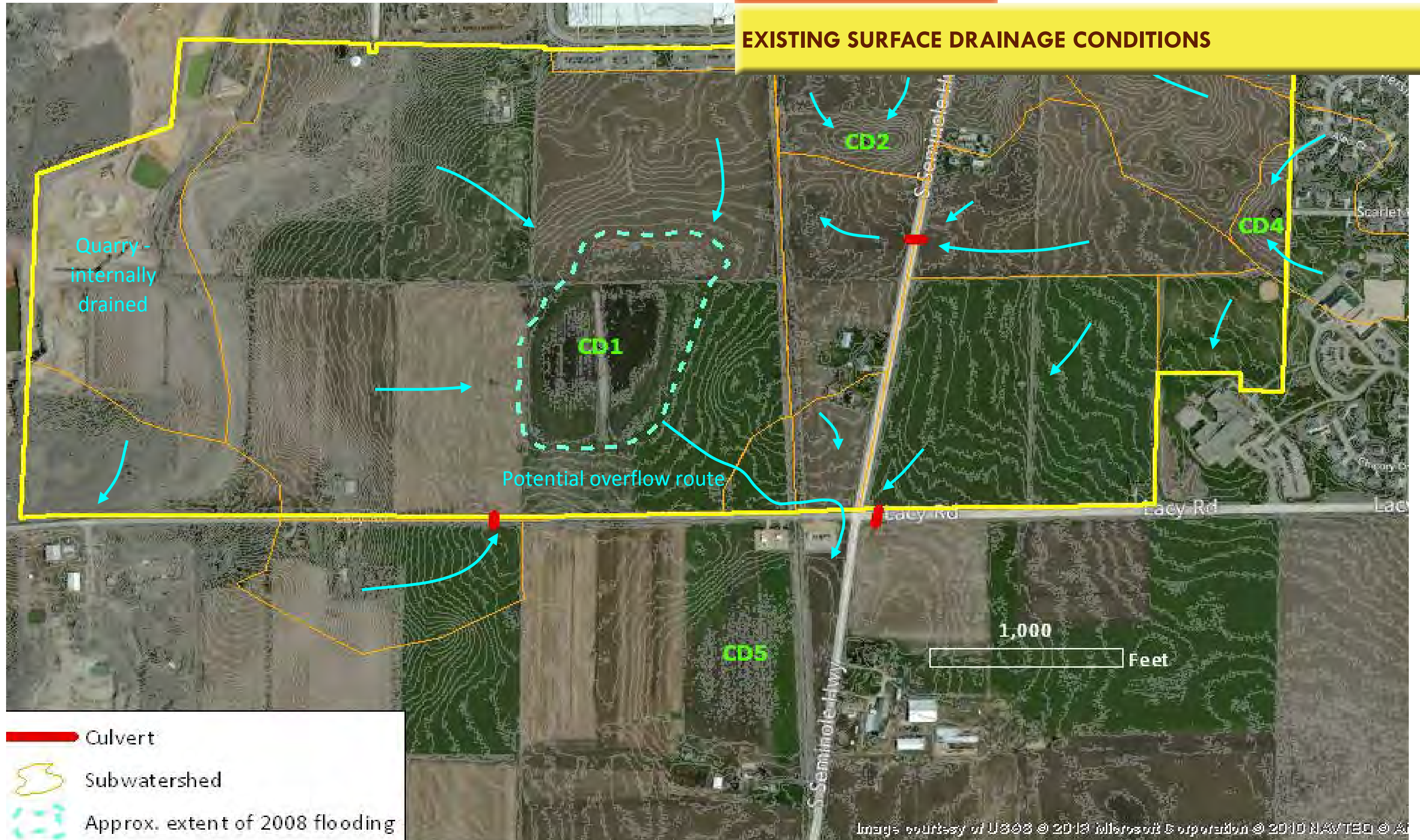


LEGEND

NSPN BOUNDARY	POSSIBLE ACCESS POINTS	EXISTING TREES	ADJACENT USES-
EXISTING OFF-ROAD PATH	SANITARY MAIN SERVICE	EXISTING SCHOOLS	RESIDENTIAL
OFF-ROAD PATH OPPORTUNITY	WATER MAIN SERVICE	CLOSED DEPRESSION, POTENTIAL WETLANDS	INDUSTRIAL & COMMERCIAL
PROPOSED BIKE ROUTE	ACTIVE QUARRY	AGRICULTURAL	



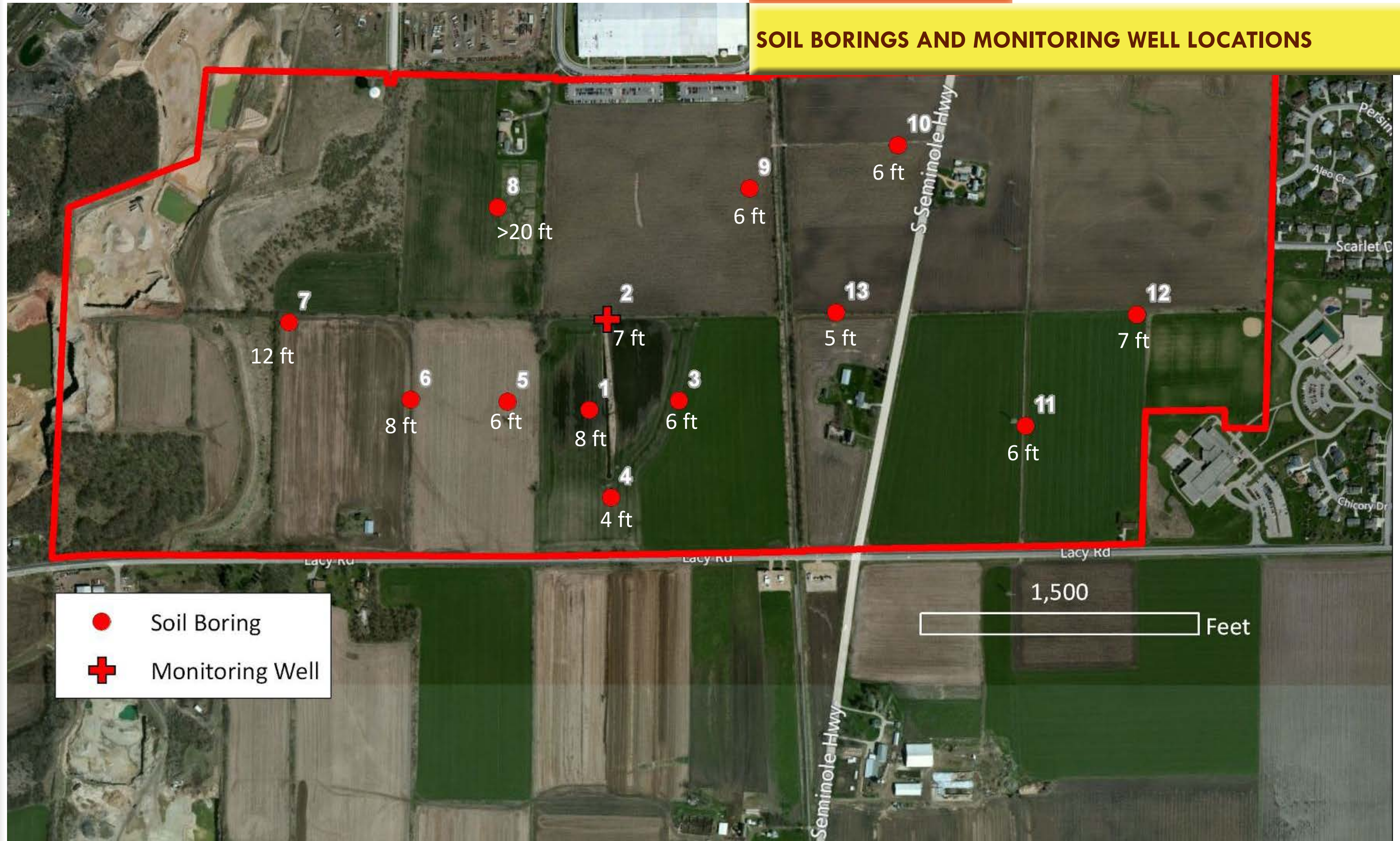
EXISTING SURFACE DRAINAGE CONDITIONS



Existing surface drainage conditions with closed depressions (CD)



SOIL BORINGS AND MONITORING WELL LOCATIONS

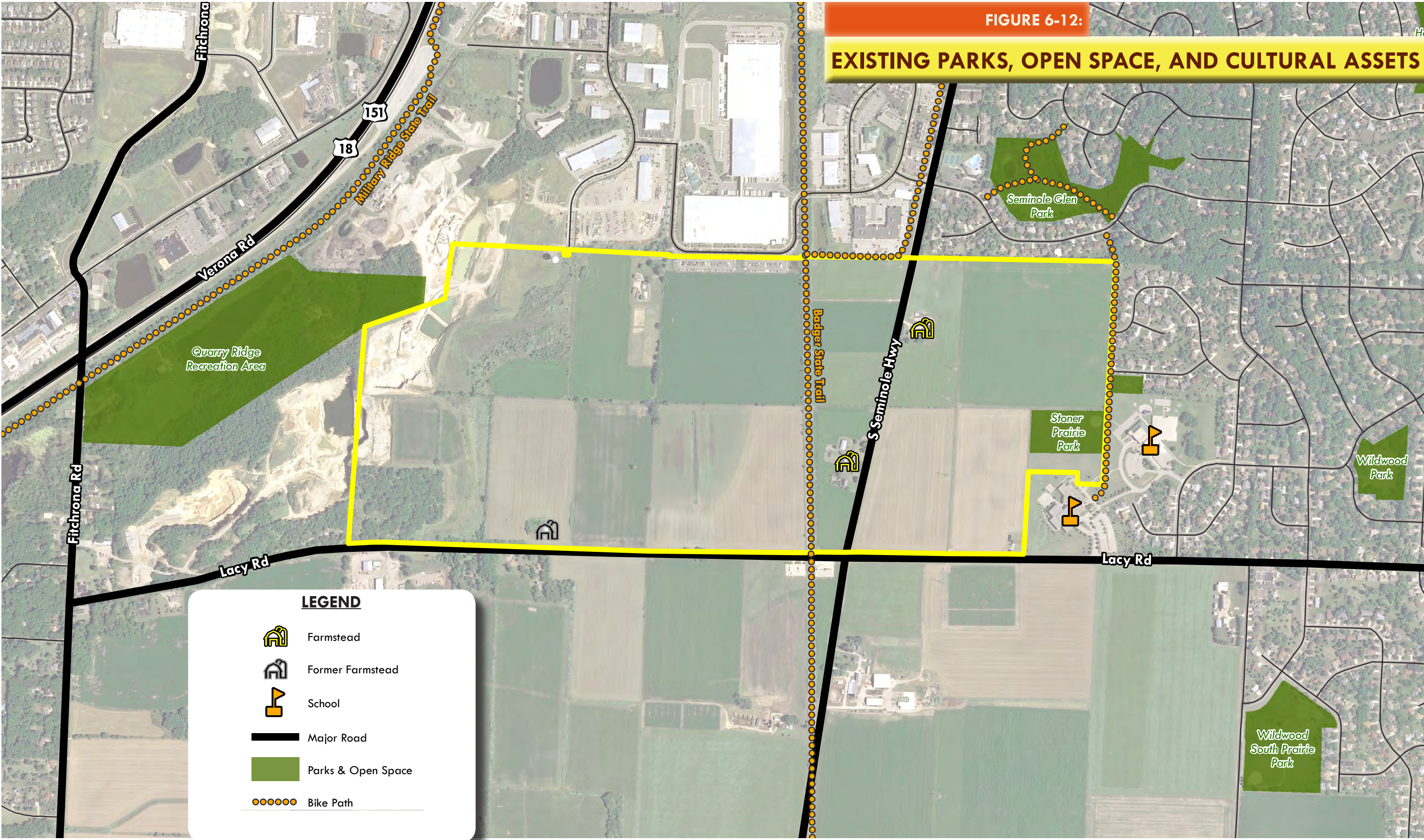


Soil borings and monitoring well locations. Depth to sand noted for each boring. Infiltration tests conducted in B4, B6, and B12.



FIGURE 6-12:

EXISTING PARKS, OPEN SPACE, AND CULTURAL ASSETS



LEGEND







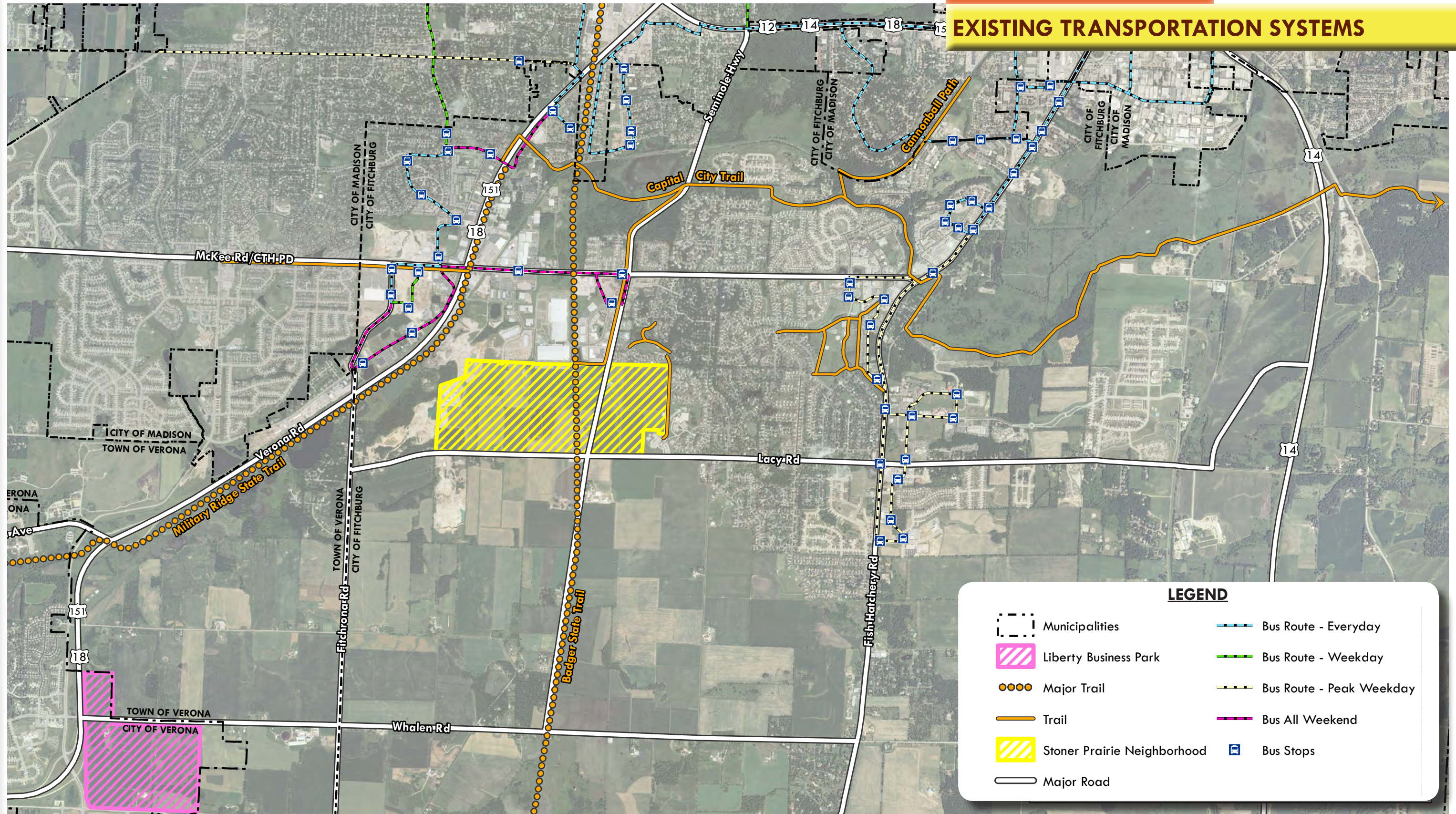
-  Farmstead
-  Former Farmstead
-  School
-  Major Road
-  Parks & Open Space
-  Bike Path

FIGURE 6-13

EXISTING TRANSPORTATION SYSTEMS



LEGEND

Municipalities	Bus Route - Everyday
Liberty Business Park	Bus Route - Weekday
Major Trail	Bus Route - Peak Weekday
Trail	Bus All Weekend
Stoner Prairie Neighborhood	Bus Stops
Major Road	

FIGURE 6-14:

EXISTING TRAFFIC CONTROL AND SPEED LIMITS

LEGEND

North Stoner Prairie Neighborhood

Speed Limit

- 20 MPH
- 25 MPH
- 30 MPH
- 35 MPH
- 40 MPH
- 50 MPH
- 65 MPH

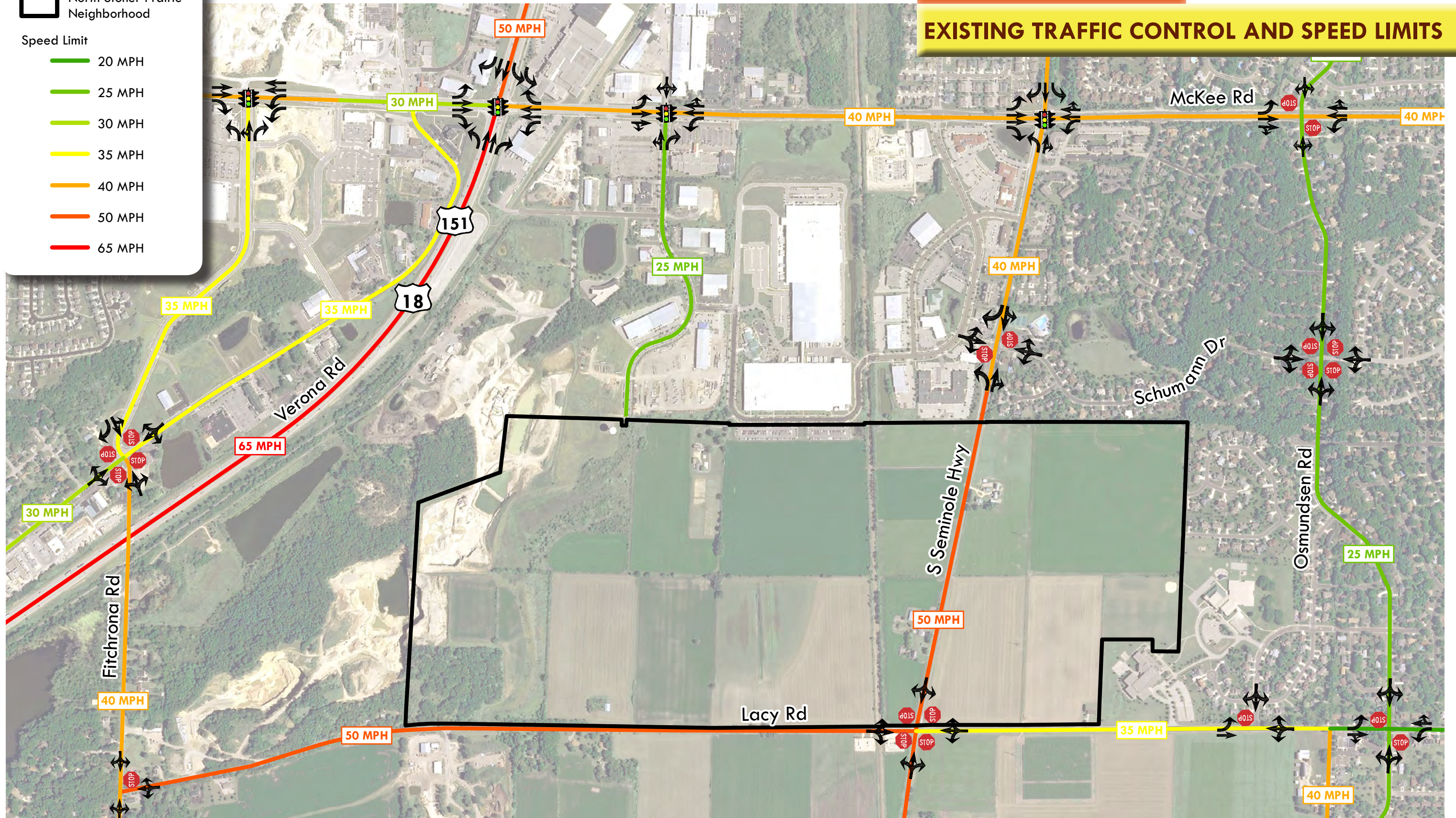


FIGURE 6-15:

EXISTING TRAFFIC COUNTS

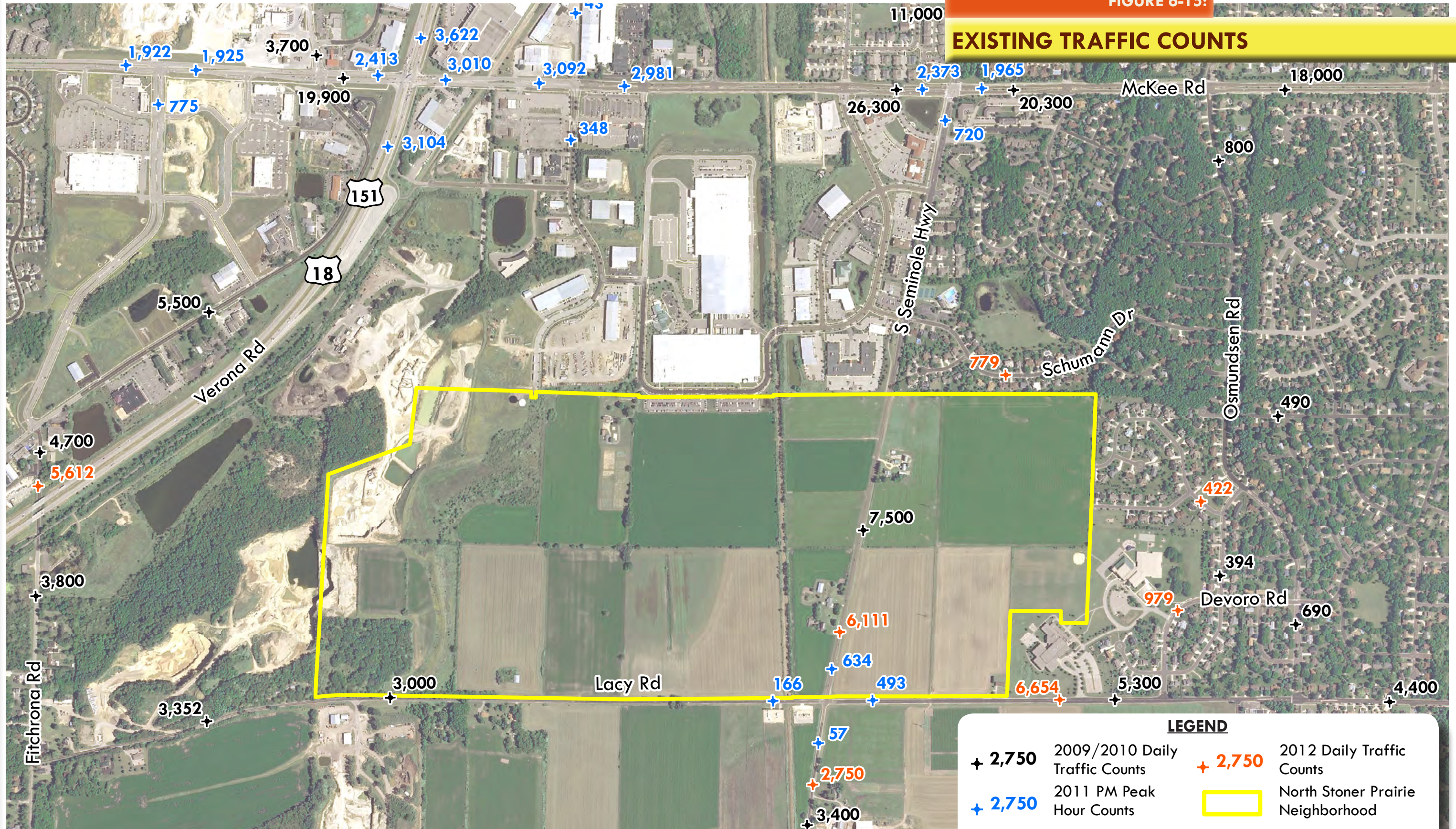


FIGURE 6-16:

EXISTING TRANSIT SYSTEM

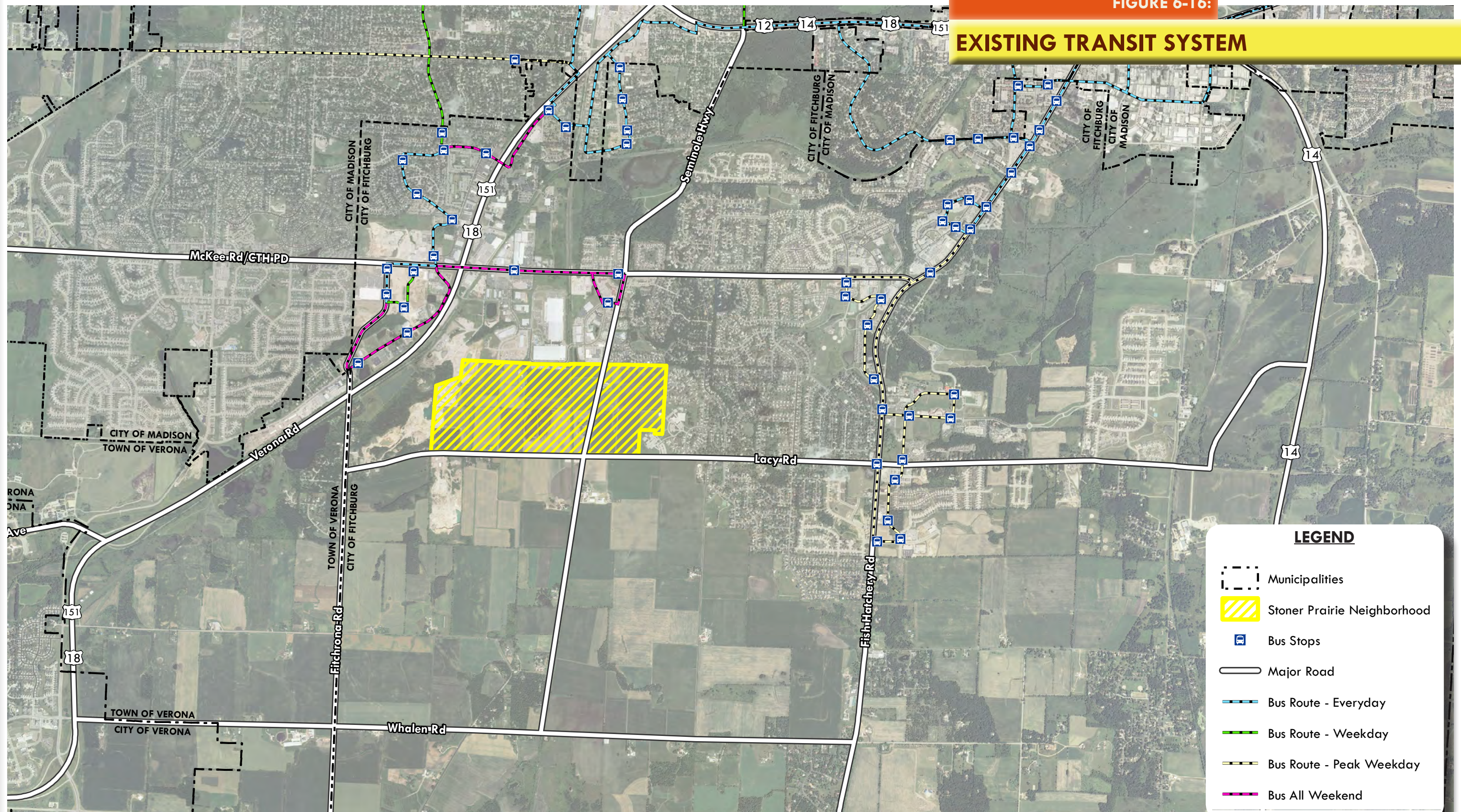


FIGURE 6-17:

EXISTING BIKE AND PEDESTRIAN NETWORK

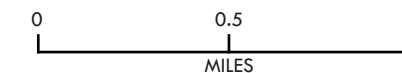
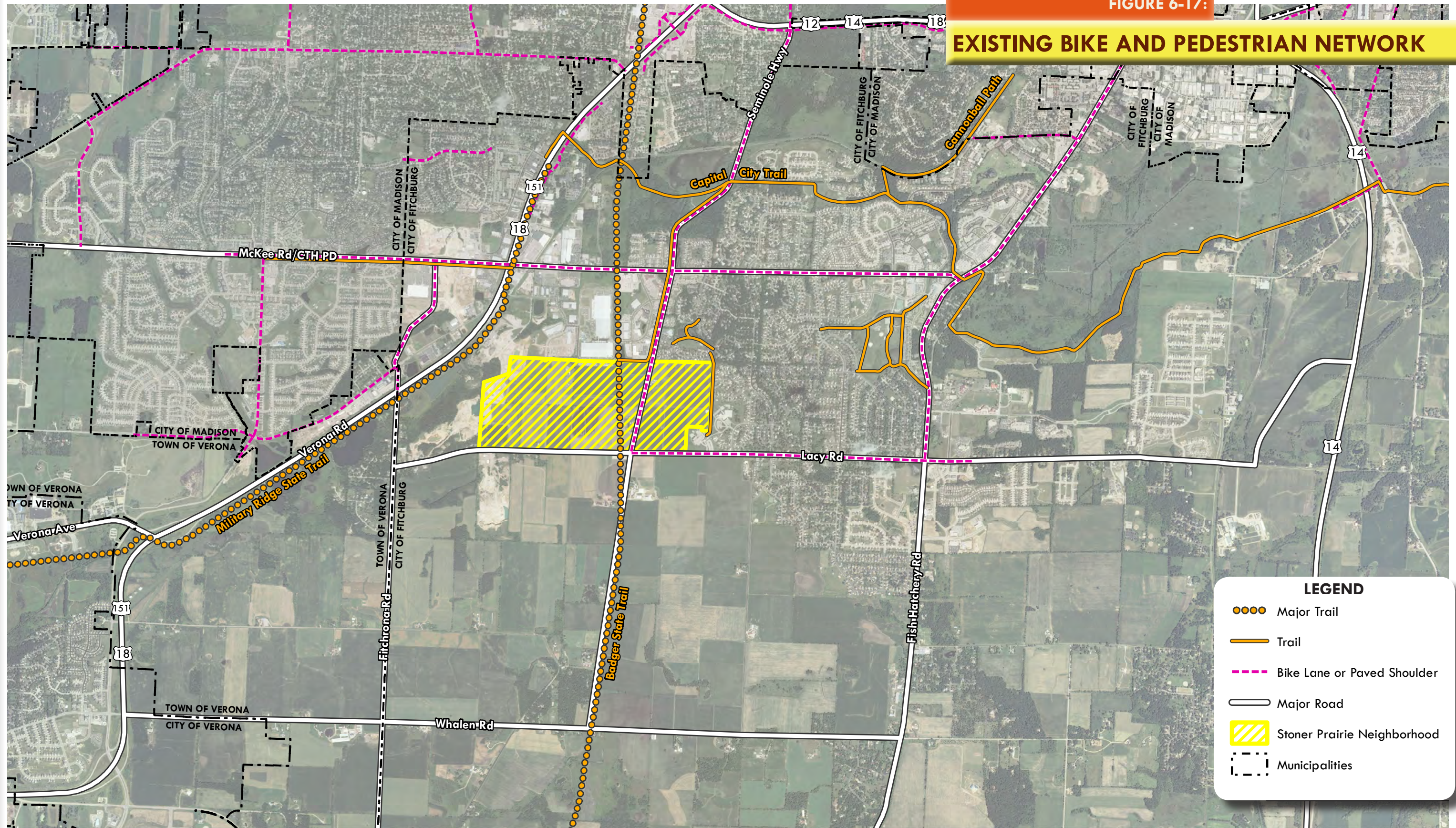
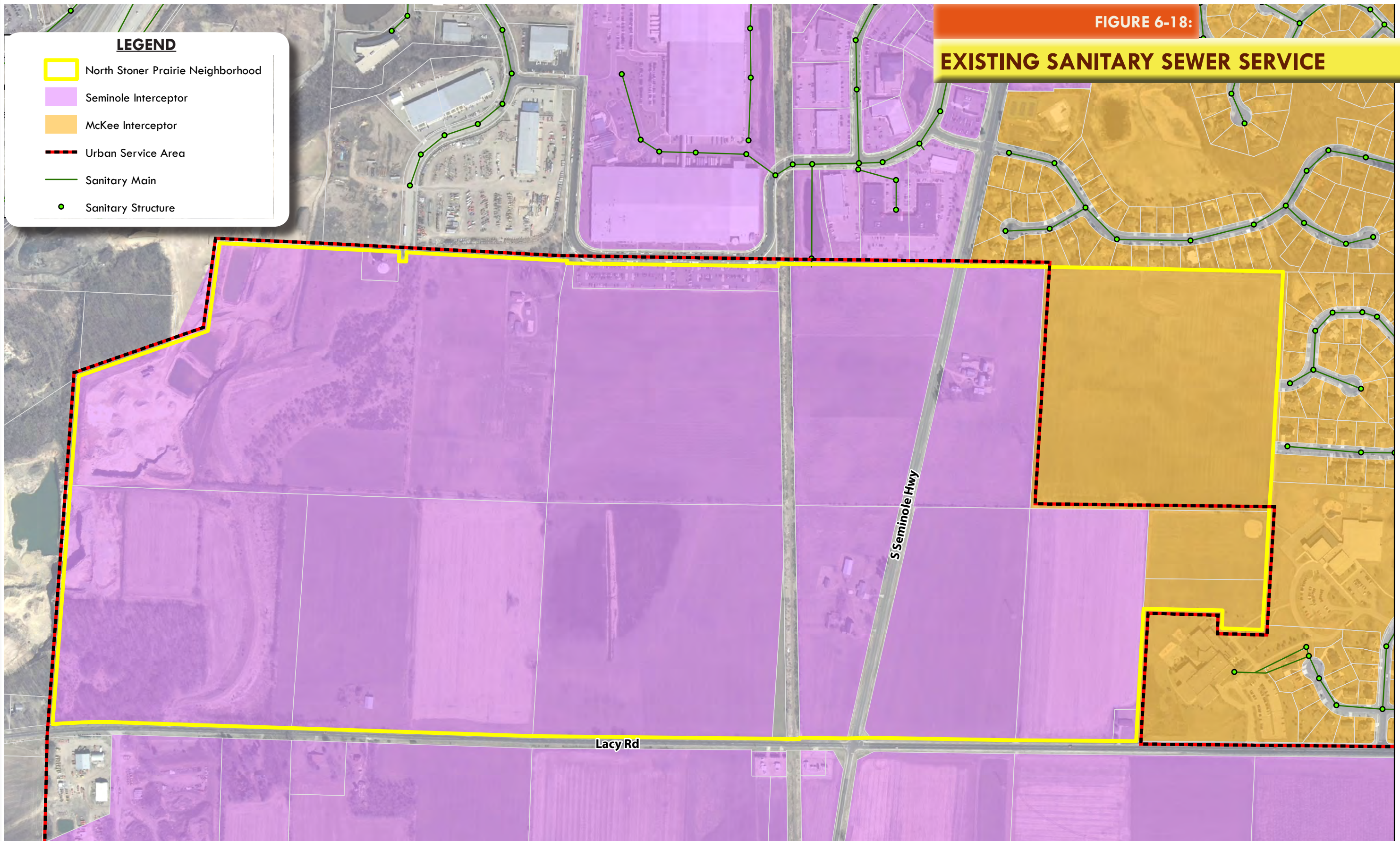


FIGURE 6-18:

EXISTING SANITARY SEWER SERVICE



LEGEND

- E - Overhead Electric
- FO- Fiber Optic
- G12- 12" Gas
- G16- 16" Gas
- North Stoner Prairie Neighborhood
- Urban Service Area

FIGURE 6-19:

EXISTING PRIVATE UTILITIES

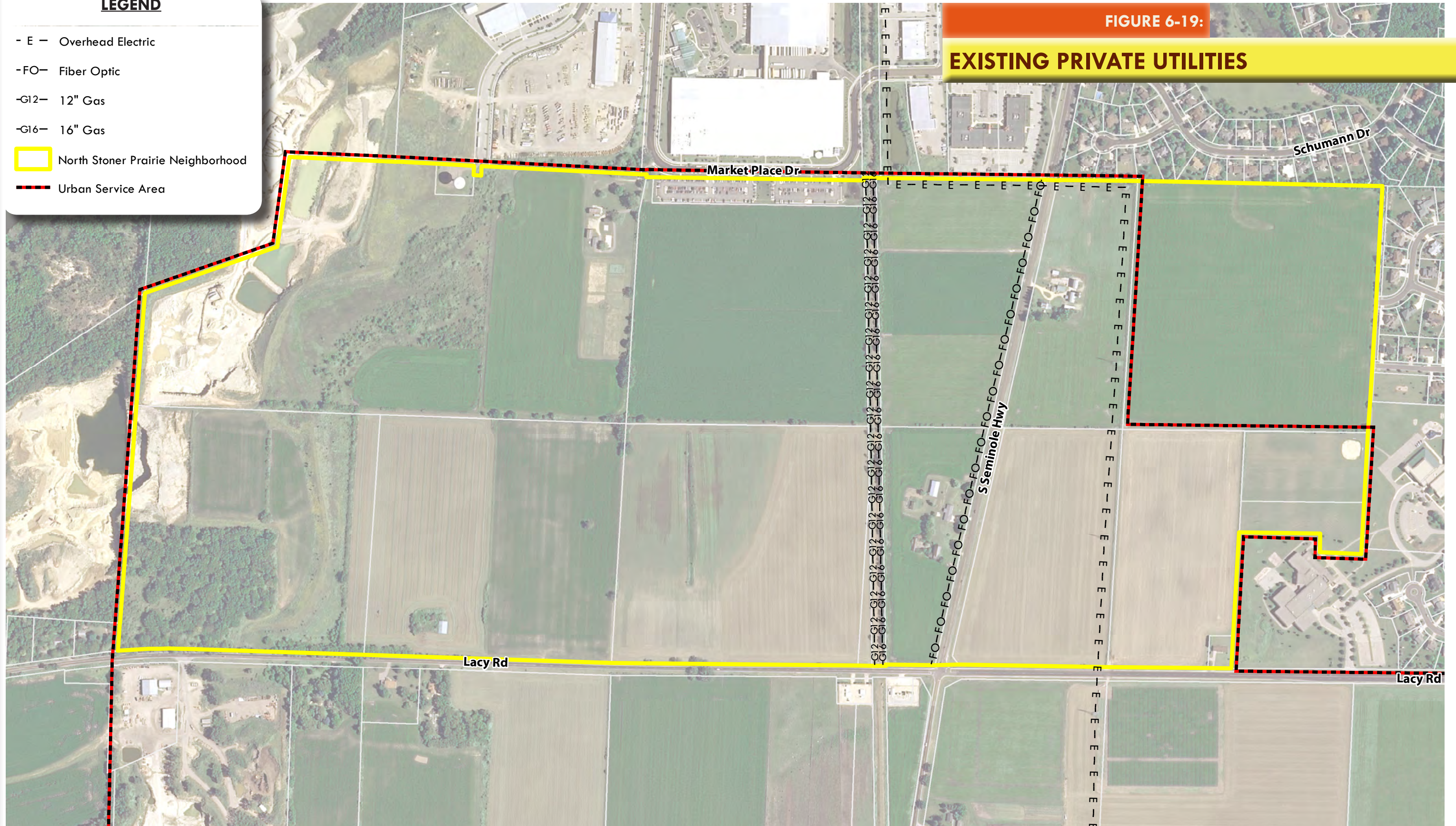
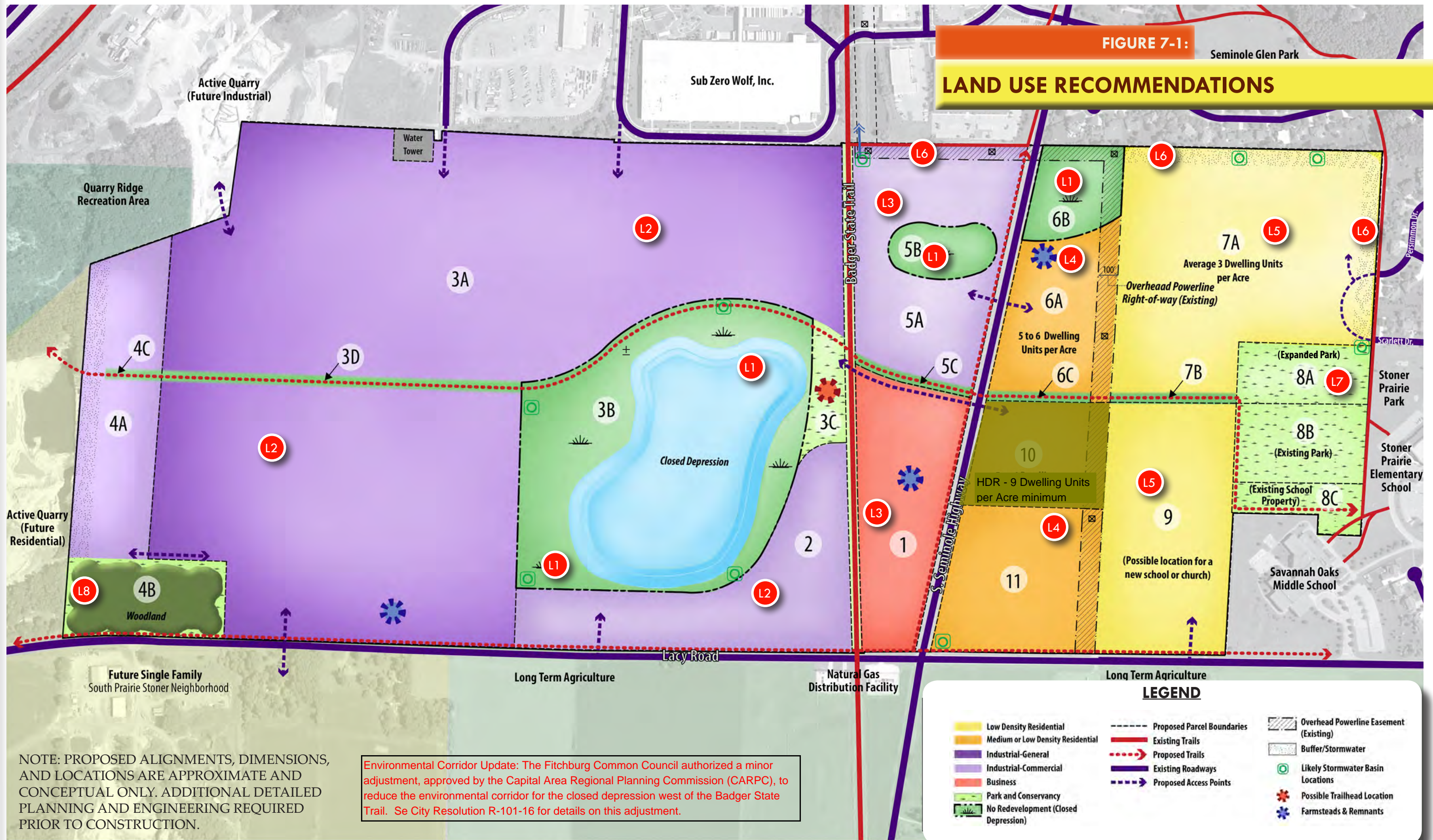


FIGURE 7-1: Seminole Glen Park

LAND USE RECOMMENDATIONS



NOTE: PROPOSED ALIGNMENTS, DIMENSIONS, AND LOCATIONS ARE APPROXIMATE AND CONCEPTUAL ONLY. ADDITIONAL DETAILED PLANNING AND ENGINEERING REQUIRED PRIOR TO CONSTRUCTION.

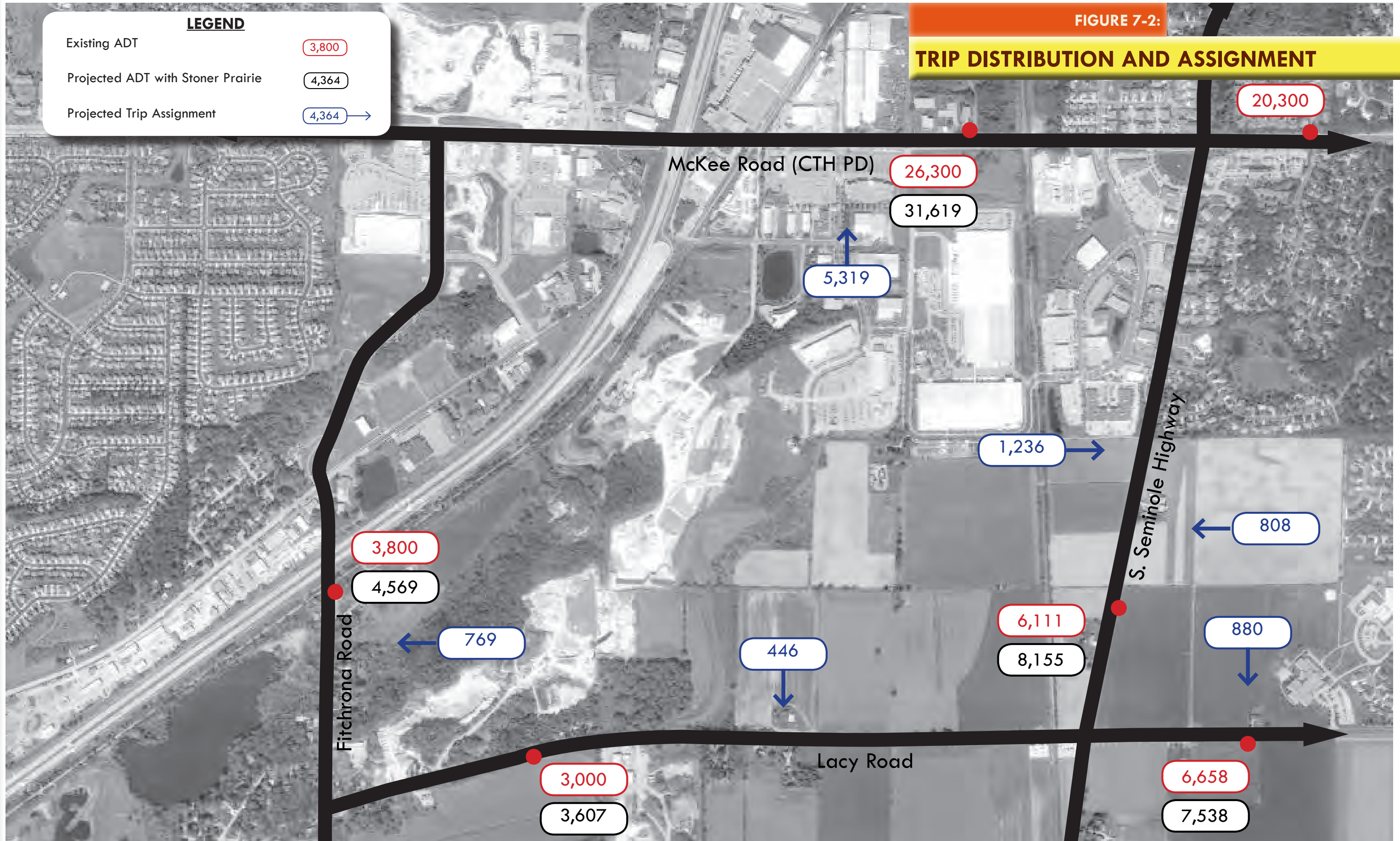
Environmental Corridor Update: The Fitchburg Common Council authorized a minor adjustment, approved by the Capital Area Regional Planning Commission (CARPC), to reduce the environmental corridor for the closed depression west of the Badger State Trail. Se City Resolution R-101-16 for details on this adjustment.



FIGURE 7-2:

TRIP DISTRIBUTION AND ASSIGNMENT

LEGEND	
Existing ADT	3,800
Projected ADT with Stoner Prairie	4,364
Projected Trip Assignment	4,364 →



This map is not to scale



FIGURE 7-3:

FUTURE TRAFFIC PROJECTIONS (2030)

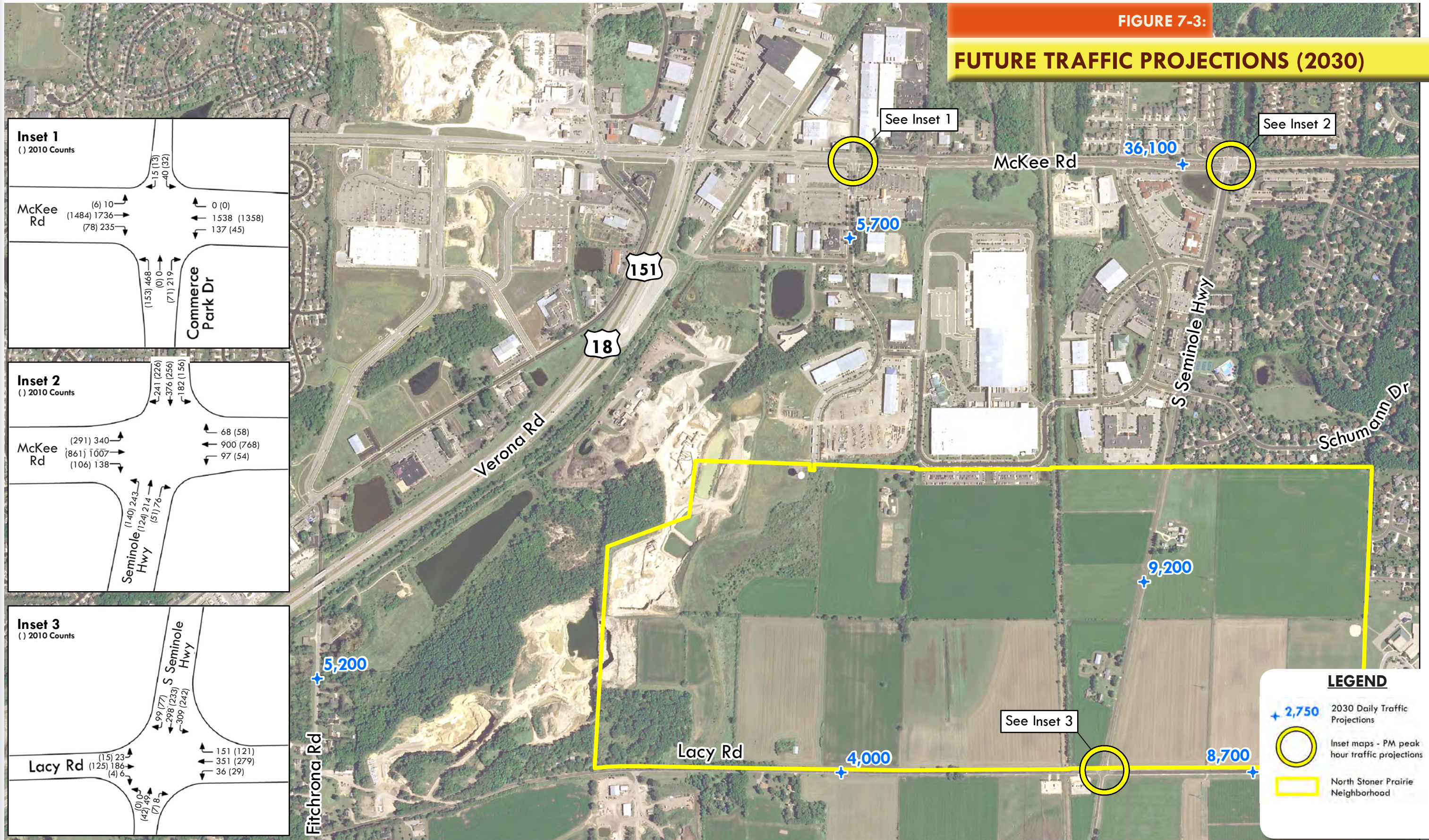
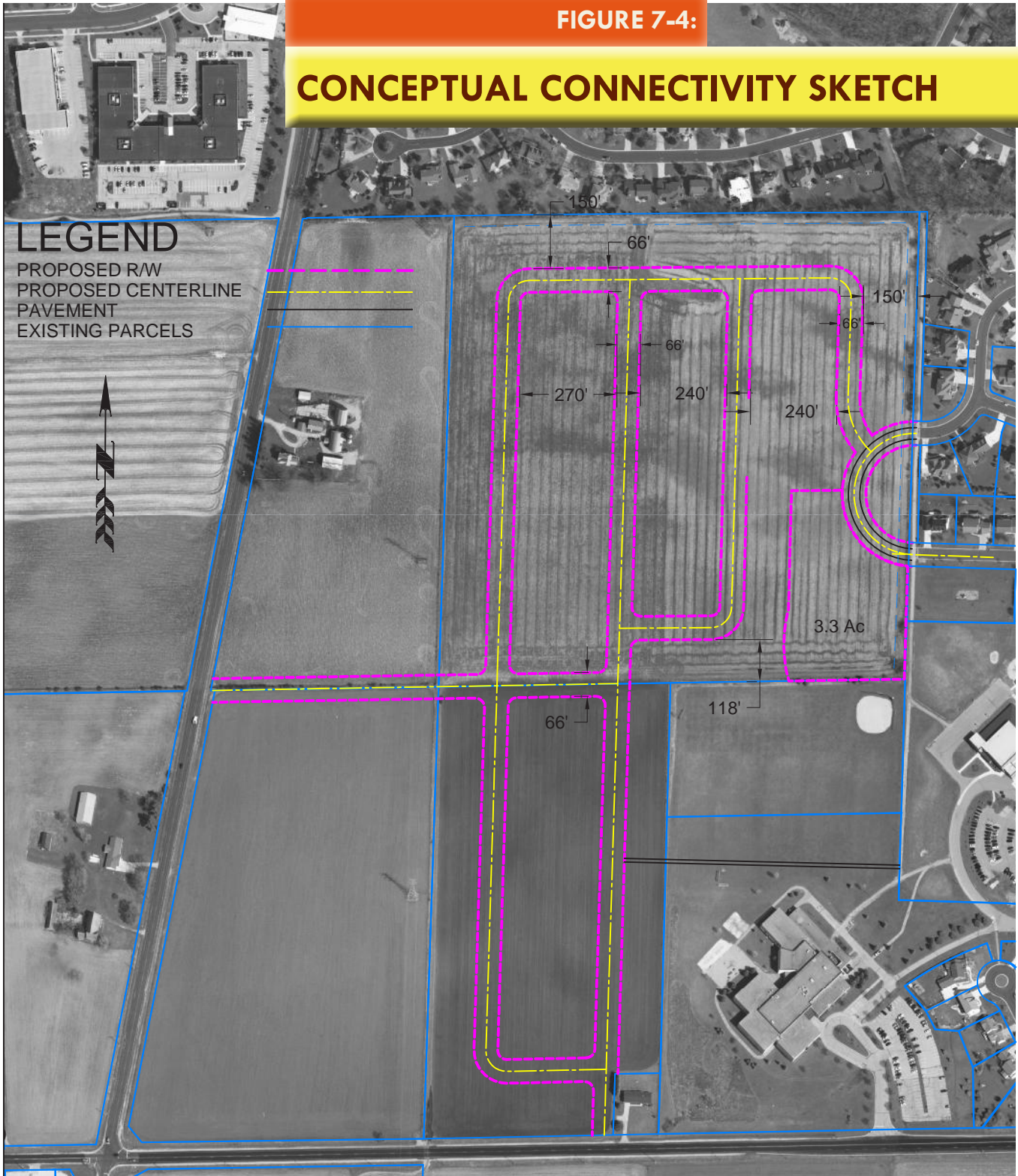


FIGURE 7-4:

CONCEPTUAL CONNECTIVITY SKETCH



PROJECT NO.:	SCALE: 1" = 400'
SHEET NO.:	DATE: 04/26/2013
C-204	REVISION:

OPTION 4
OBRIEN PROPERTY - FITCHBURG



CITY OF FITCHBURG
PUBLIC WORKS DEPARTMENT
5520 LACY ROAD
FITCHBURG, WI 53711
PHONE:(608)270-4260

Note: This sketch is conceptual only, and is intended to illustrate an example of "indirect" connectivity to existing streets. Final roadway alignments and other engineering details subject to change at platting stage. Not to scale.

FIGURE 7-5:

SCHEDULED TRANSPORTATION IMPROVEMENTS

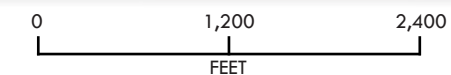
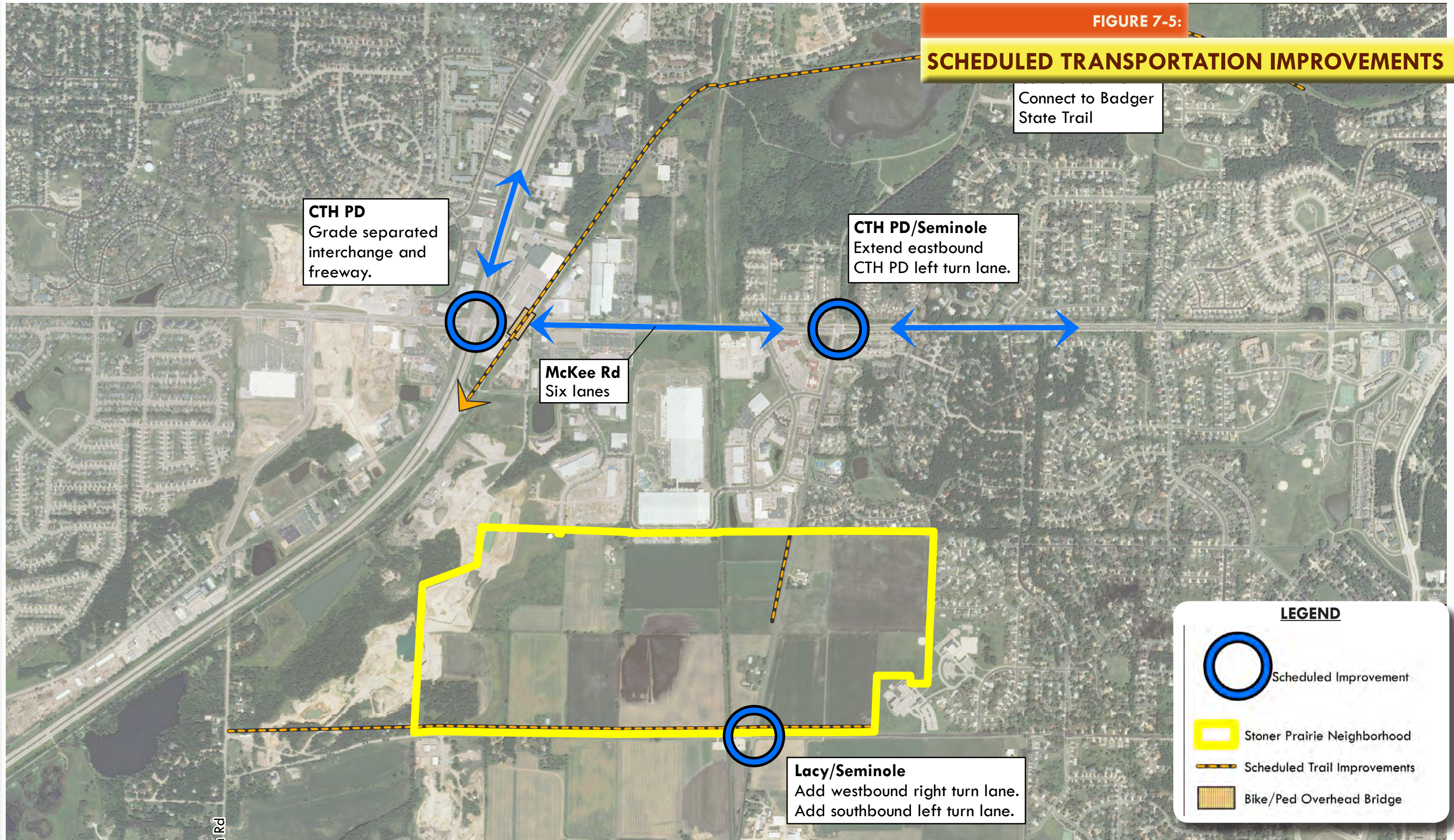


FIGURE 7-6:

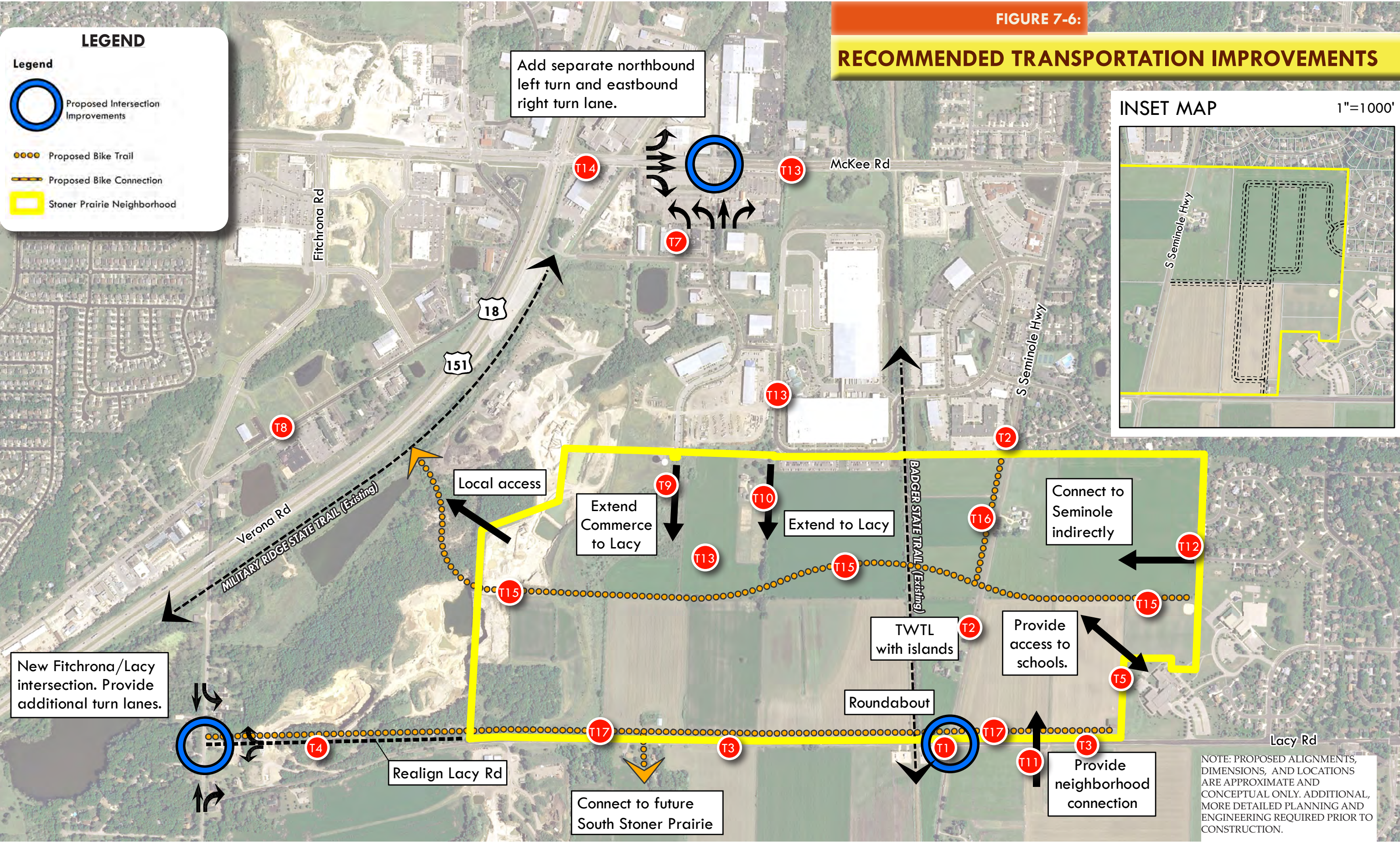
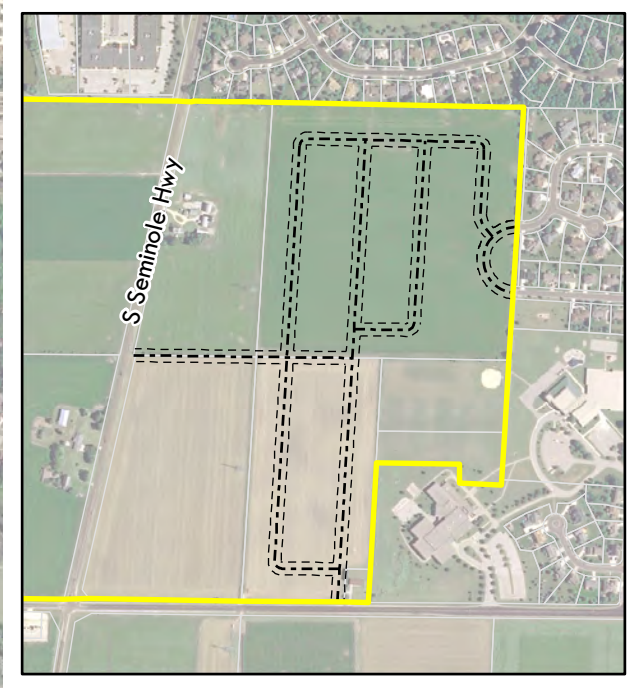
RECOMMENDED TRANSPORTATION IMPROVEMENTS

LEGEND

Legend

- Proposed Intersection Improvements
- Proposed Bike Trail
- Proposed Bike Connection
- Stoner Prairie Neighborhood

INSET MAP 1"=1000'



NOTE: PROPOSED ALIGNMENTS, DIMENSIONS, AND LOCATIONS ARE APPROXIMATE AND CONCEPTUAL ONLY. ADDITIONAL, MORE DETAILED PLANNING AND ENGINEERING REQUIRED PRIOR TO CONSTRUCTION.

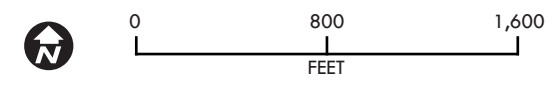
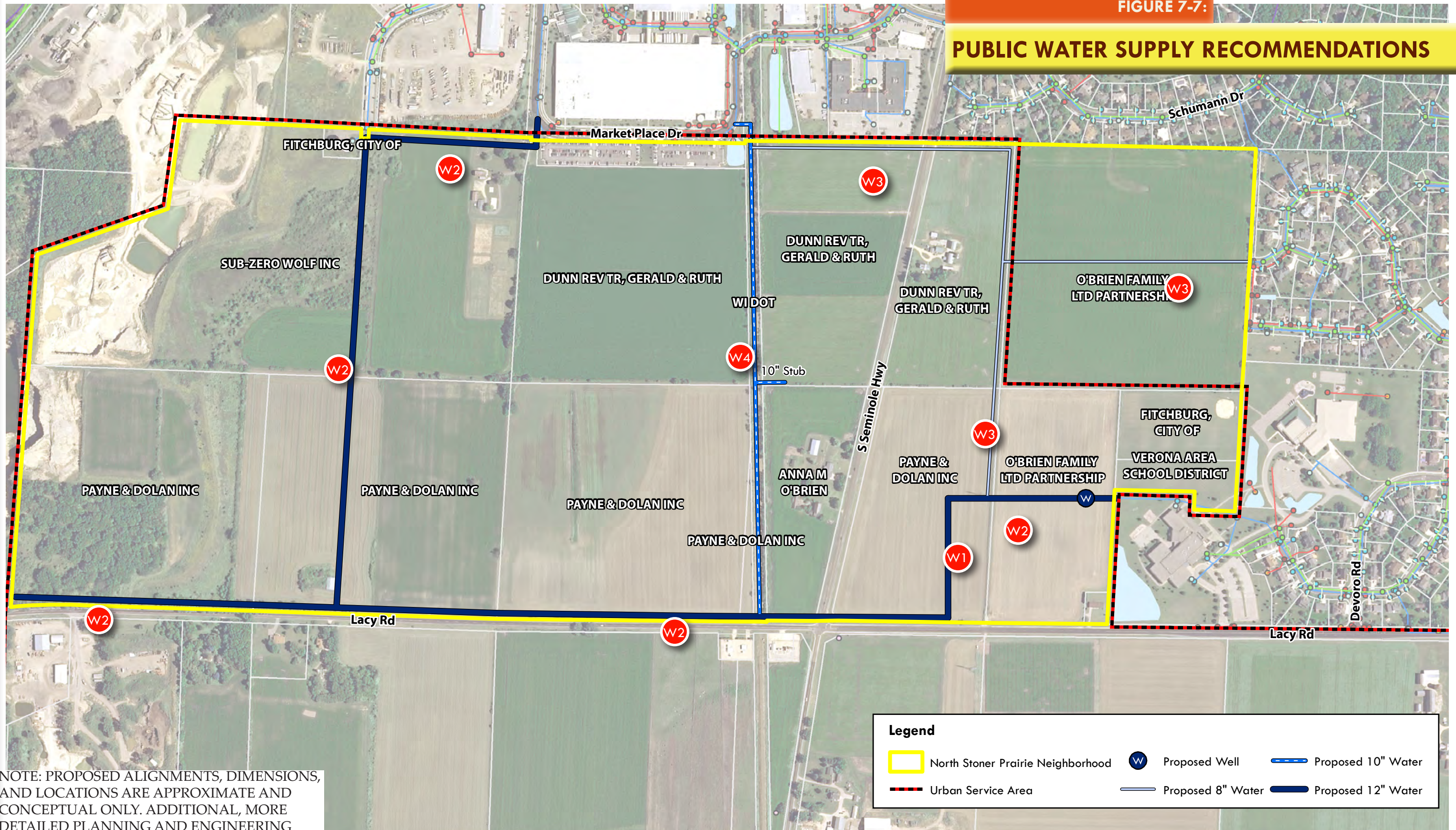


FIGURE 7-7:

PUBLIC WATER SUPPLY RECOMMENDATIONS



NOTE: PROPOSED ALIGNMENTS, DIMENSIONS, AND LOCATIONS ARE APPROXIMATE AND CONCEPTUAL ONLY. ADDITIONAL, MORE DETAILED PLANNING AND ENGINEERING REQUIRED PRIOR TO CONSTRUCTION.

Legend

North Stoner Prairie Neighborhood	Proposed Well	Proposed 10" Water
Urban Service Area	Proposed 8" Water	Proposed 12" Water

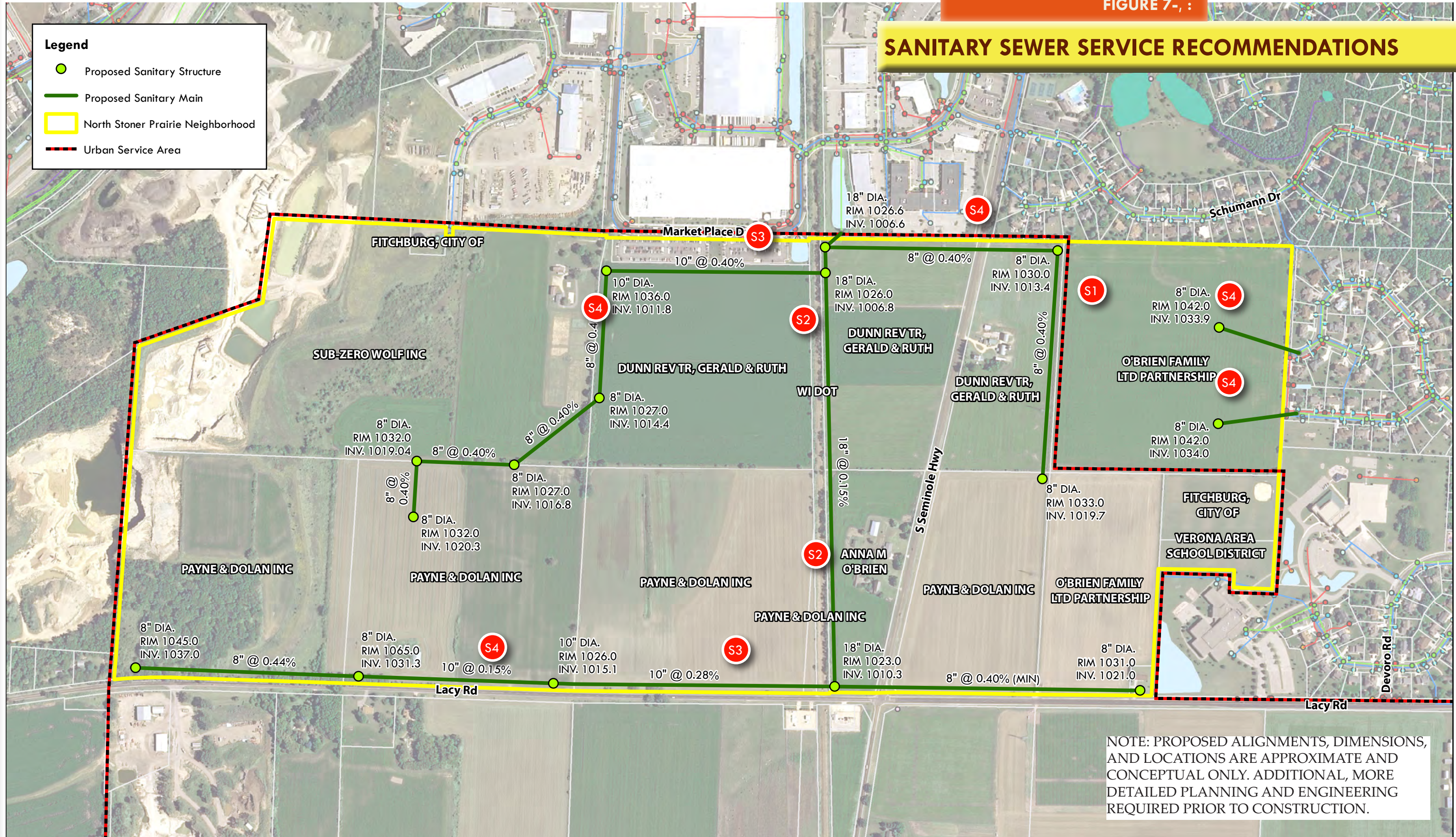


FIGURE 7- :

SANITARY SEWER SERVICE RECOMMENDATIONS

Legend

- Proposed Sanitary Structure
- Proposed Sanitary Main
- North Stoner Prairie Neighborhood
- Urban Service Area

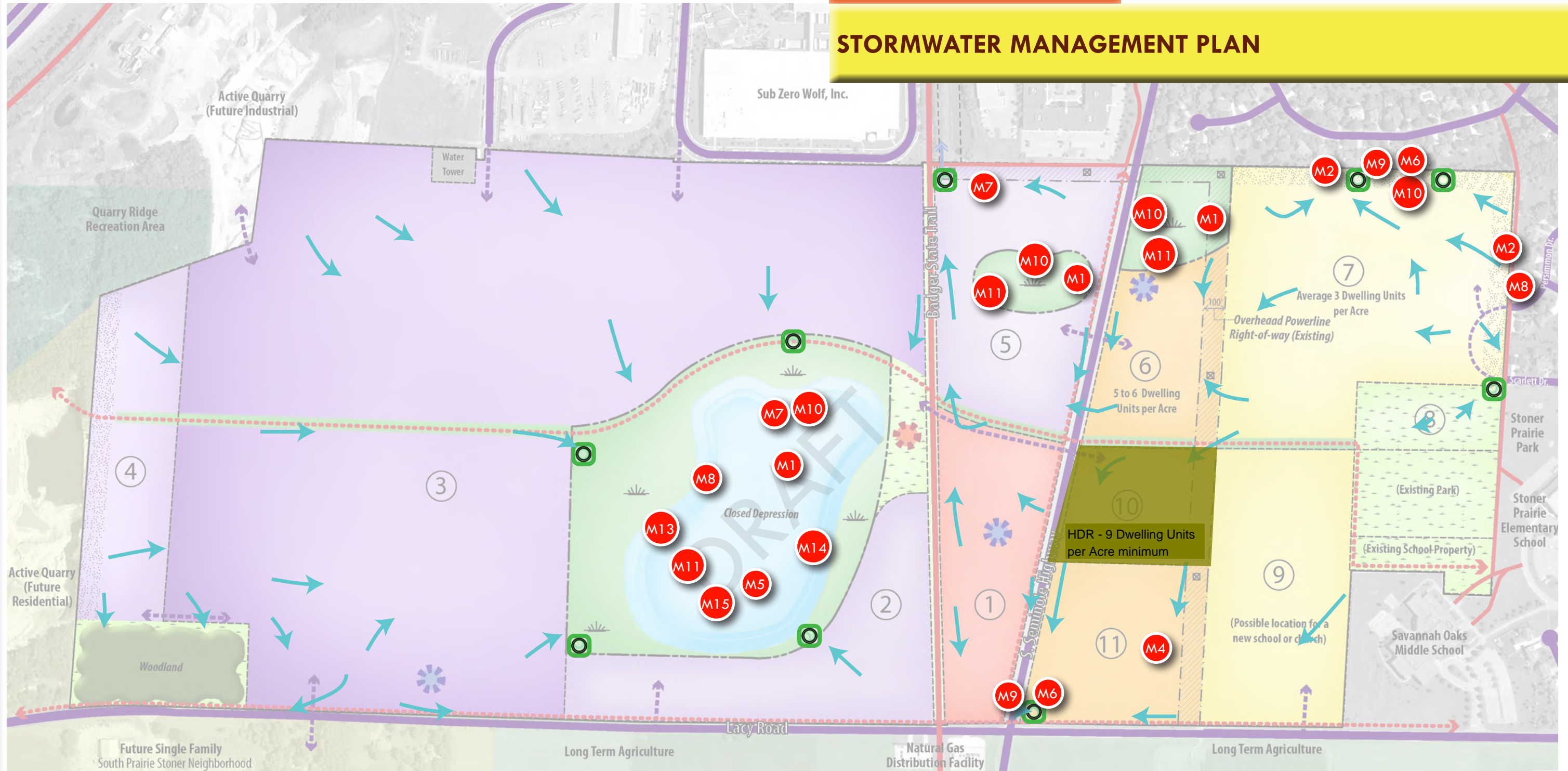


NOTE: PROPOSED ALIGNMENTS, DIMENSIONS, AND LOCATIONS ARE APPROXIMATE AND CONCEPTUAL ONLY. ADDITIONAL, MORE DETAILED PLANNING AND ENGINEERING REQUIRED PRIOR TO CONSTRUCTION.



FIGURE 7-9

STORMWATER MANAGEMENT PLAN



Environmental Corridor Update: The Fitchburg Common Council authorized a minor adjustment, approved by the Capital Area Regional Planning Commission (CARPC), to reduce the environmental corridor for the closed depression west of the Badger State Trail. See City Resolution R-101-16 for details on this adjustment.

LEGEND

Low Density Residential	Proposed Parcel Boundaries	Overhead Powerline Easement (Existing)
Medium Density Residential	Existing Trails	Buffer/Stormwater
Industrial-General	Proposed Trails	Likely Stormwater Basin Locations
Industrial-Commercial	Existing Roadways	Possible Trailhead Location
Business	Proposed Access Points	Farmsteads & Remnants
Park and Conservancy	OH Power Line	
No Redevelopment (Closed Depression)	Proposed Park	

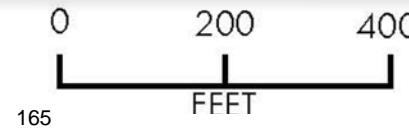
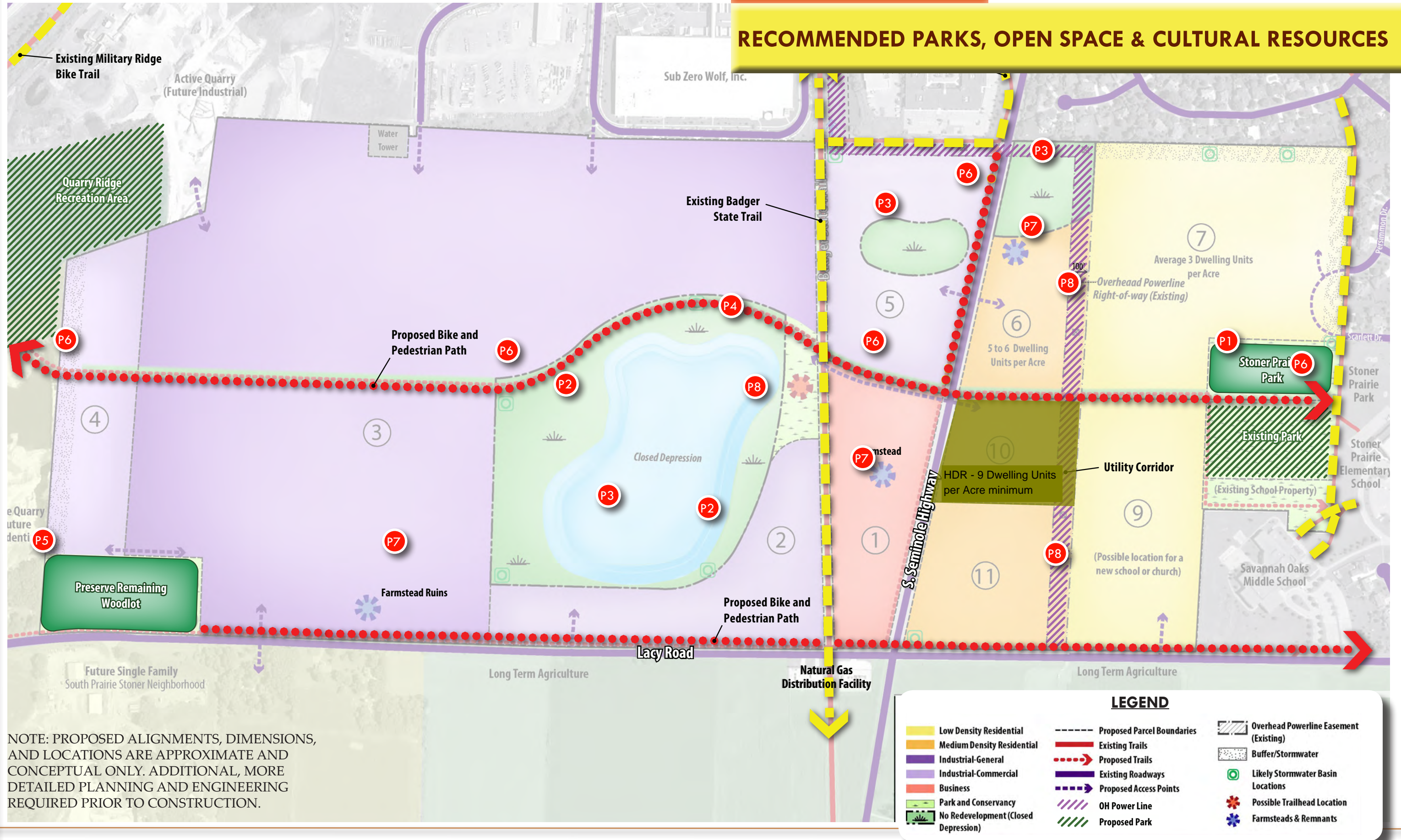


FIGURE 7-10:

RECOMMENDED PARKS, OPEN SPACE & CULTURAL RESOURCES

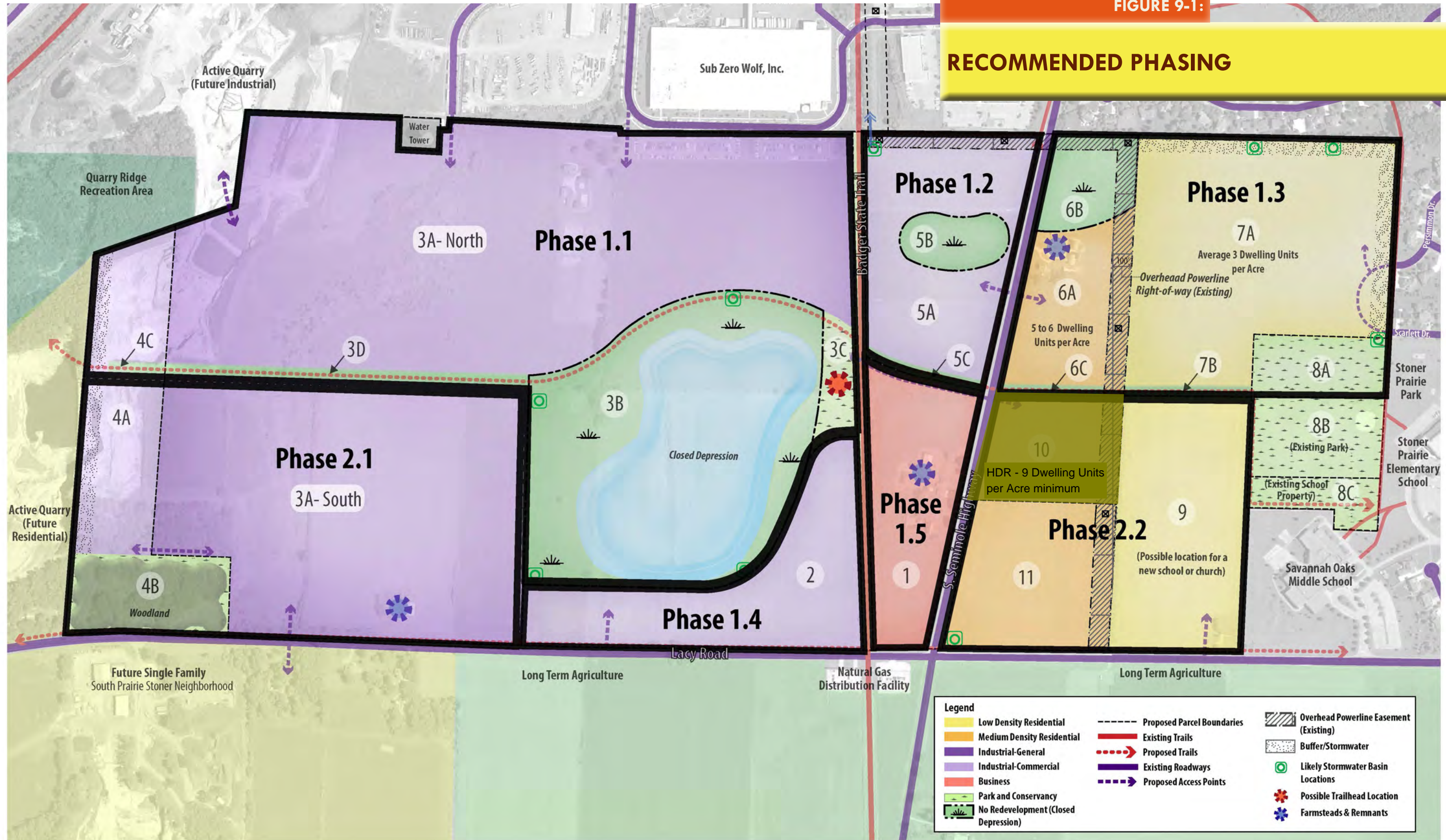


NOTE: PROPOSED ALIGNMENTS, DIMENSIONS, AND LOCATIONS ARE APPROXIMATE AND CONCEPTUAL ONLY. ADDITIONAL, MORE DETAILED PLANNING AND ENGINEERING REQUIRED PRIOR TO CONSTRUCTION.



FIGURE 9-1:

RECOMMENDED PHASING



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- A: Meeting Minutes and Public Input
- B: Eco-Resource Consulting, LLC (ERC)
Environmental Report
- C: Web Soil Survey Maps
- D: Soil Boring Logs
- E: Infiltration Rate Testing Results
- F: Hydraulic Conductivity Testing Results
- G: AHI & ASI Report
- H: Conceptual Stormwater Management Plan
- I: Economic Analysis and Tax Increment Financing
Feasibility Report

XI. APPENDIX

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APPENDIX A

Meeting Minutes and Public Input

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MINUTES

North Stoner Prairie Neighborhood Plan – Steering Committee Meeting #1
Tuesday, December 11, 2012

Members Present: Becky Baumbach, Bill Buglass, Bruce Gabrielse, Chris Murphy, Pete Lundberg, Phil Sveum, Tom Thoresen, and Kevin Unbehaun

Staff Present: Mayor Shawn Pfaff, Wade Thompson, and Mike Zimmerman

Consultant Present: David Schreiber and Ryan Garcia, SAA Design Group

1. Team introduction

Committee welcome and project introduction were provided by Mayor Shawn Pfaff. The Mayor's remarks emphasized the presence of Fitchburg's founding family farmers in the neighborhood, the need for maintaining the historic diversity of Fitchburg in the new neighborhood, and the opportunity for new tax base to the Verona School District. Mayor Pfaff also announced Fitchburg's designation as a Wisconsin Certified Site Community, one of nine in the state offering ready-to-go corporate and advanced manufacturing sites for development.

The committee, staff, and consultant introduced themselves.

2. City, Committee and Consultant roles

The consultant provided an overview of city, committee, and consultant roles, as follows:

- a. **City of Fitchburg:** plan funding; oversight of plan development process and checks for consistency with city comprehensive plan; technical review and input; approval and adoption of plan
- b. **Private Developer Group:** plan funding, active participant in plan development as members of North Stoner Prairie Neighborhood Steering Committee
- c. **North Stoner Prairie Neighborhood Steering Committee:** assist in drafting, review, and approval of North Stoner Prairie Neighborhood Plan; recommend a final plan for adoption by City of Fitchburg

- d. **Consultant Team:** confer with steering committee and other public bodies regarding site environmental and infrastructure issues, opportunities, and constraints; propose growth model alternatives; prepare final land use, transportation and stormwater plans

3. Overview of the project work plan and schedule

1. Project Administration

- a. Next meeting dates
 - i. All city committee work session on project issues and opportunities – 1/22. Wade will coordinate committee attendance and meeting time. Steering committee members will be invited to attend.
 - ii. Next staff and committee meeting – 1/29, 2:00 p.m. staff, 4:00 p.m. committee to be followed by the first public meeting on the neighborhood plan at 6:30 p.m.
- b. Steering committee agenda in the future will include a lead item for public comment. The public will also be allowed to register to speak on agenda items.
- c. If the consultant is expecting decisions on plan components, the meeting agenda will reflect the need for such action.
- d. Staff would like to have discussion exhibits available and distributed before meetings.
- e. Following Fitchburg’s desired policy of being as paperless as possible, it was agreed that future meeting agendas, meeting minutes, and plan review documents would be posted electronically by Wade and staff and the steering committee notified of their availability by email.

4. Committee member expectations of the plan

- a. Existing land uses adjoining the neighborhood boundary are integrated into the plan.
- b. Public input is received, the neighborhood desires are considered, and the process is open and transparent.
- c. Plan ideas represent the neighborhood wishes and that the process is open to new ideas.
- d. The Verona school district will be aware of the land uses that adjoin their property and what the future student enrollment will be.
- e. The plan will be flexible and allow for expansion of existing businesses.
- f. Due diligence is done on the land so that future development can proceed and be planned for.
- g. Site Context Exhibits. Exhibits from the city’s comprehensive plan were reviewed. Members urged the consultant team to back proposals with data, consider current economic trends, and the availability of existing planned land in the city for similar uses.

5. Sustainability principals and neighborhood design

Consultant proposed design principles for the plan were reviewed and accepted.

6. Identification of neighborhood issues and opportunities

The steering committee was engaged in an open conversation aimed at revealing their perceived key issues and opportunities facing the North Stoner Prairie Neighborhood. Comments received in response are summarized below:

- a. Opportunities
 - i. Build upon the foundation of employers in the existing business park
 - 1. Add blue collar jobs
 - 2. Allow for expansion of existing industries/companies
 - 3. Adds a higher level of strategic planning for the existing companies already invested in the neighborhood
 - 4. Build partnerships with neighborhood/neighboring uses (example given was improving school-work opportunities)
 - 5. Healthy growth for the city's tax base, reducing residential tax burden
 - ii. Preservation of existing assets, and balance of growth with preservation
 - 1. Agricultural resources and heritage
 - 2. Groundwater recharge/water resources
 - 3. Existing neighborhoods – enhancing property values with appropriate development
 - 4. Providing “buffer zones”
 - 5. Support and expand existing commercial properties
 - iii. Relocation of overhead power lines to foster development
 - iv. Big picture – consider how this area relates to vacant lands in county/city
- b. Issues
 - i. Traffic counts/impacts and traffic control
 - ii. School considerations
 - 1. Improve walking conditions/safety for students
 - 2. Addition of students + traffic
 - 3. High school enrollment at Verona has continued to grow – new high school needed in future?
 - iii. Impact on property values – market-aligned growth; Seminole Highway/Lacy Road. Neighborhoods – development standards should be recognized with new development
 - iv. Infrastructure costs
 - v. Adding more developable land when substantial undeveloped/unsold marketable land is still in inventory elsewhere in city (impact on lands outside of North Stoner Prairie Neighborhood)
 - vi. Impact of overhead power lines
 - vii. Property owner intentions

7. Next steps

The next meeting dates will be as noted above. The next Steering Committee meeting will include a 'future neighborhood' visioning exercise and a preliminary report on the site investigations to date.

Motion by Sveum, second by Thoresen, to adjourn at 5:35 p.m., carried unanimously.

Submitted by: Wade Thompson, Resource/Project Planner



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MINUTES

North Stoner Prairie Neighborhood Plan – Staff Meeting #1
Tuesday, December 11, 2012

Attendees: Tom Hovel, Wade Thompson, Rick Eilertson, Becky Baumbach, Steve Gaffield, Ryan Garcia, David Schreiber, Michael Zimmerman joined the meeting at approximately 3:00 pm

Discussion

1. Project Administration

a. Next meeting dates

- i. All city committee work session on project issues and opportunities – 1/22. Wade will coordinate committee attendance and meeting time.
- ii. Next staff and committee meeting – 1/29, 2:00 pm staff, 4:00 pm committee to be followed by the first public meeting at 6:30 pm.

b. Steering Committee agenda in the future will include a lead item for public comment. The public will also be allowed to register to speak on agenda items.

c. If the consultant is expecting decisions on plan components the meeting agenda should reflect that action.

d. Staff would like to have discussion exhibits available and distributed before meetings.

e. Following Fitchburg's desired policy of being as paperless as possible it was agreed that future meeting agenda, meeting minutes and plan review documents would be posted electronically by Wade and staff and the steering committee notified of their availability by email.

2. Neighborhood Design Principals. Consultant proposed design principles for the plan were reviewed and accepted. Rick Eilertson asked that consideration be given to preserving the Gerald Dunn barn along Seminole Highway.

3. Issues and Opportunities. The staff was engaged in an open conversation aimed at revealing their perceived key issues and opportunities facing the North Stoner Prairie Neighborhood. Comments received in response are synopsized below:

a. Opportunities

i. Industrial – focus on “true” industrial versus commercial; essentially “last” area of Fitchburg w/ potential for larger industrial sites

1. Work w/ Sub-Zero and Wolf directly, chance to discuss their future needs
2. Continuation of Commerce Park

ii. Sensitivity to adjoining neighborhoods

iii. Can look at big picture of stormwater management of area and adjoining neighborhoods – rapid recharge area

iv. Add SF residential to Verona School District

v. Proximity to Badger State Trail and Military Ridge State Trail

vi. Park space

1. Expand Stoner Prairie Park?
2. New space elsewhere within neighborhood (near industrial area)?
3. Anna O’Brien property?
4. Sports/playfields for this part of town?

vii. Agri-tourism – value-added opportunities (local ice cream, brewing, e.g.), complement bicycle traffic?

viii. Can create/define the new “front-door”

ix. Enhance/complement existing commercial centers “up the road” (on McKee)

x. Institutional uses (eg churches)

b. Issues

i. Ponding areas – long N/S oriented trench in middle of natural low spot w of Seminole constructed historically to drain fields from north to south of Lacy; other closed basins exist east of Seminole at edges of Lacy Heights

ii. Traffic – capacity of existing system challenged

iii. Adjoining neighborhoods

iv. High voltage line

1. Impacts to access/roadways
2. Easement considerations

v. Stormwater/drainage

1. Multiple watersheds
2. Seminole Glen kettle significant receptor of local runoff
3. Very fast recharge

vi. O’Brien homestead – constraints of odd shape

vii. Maintain value of existing development and properties

- viii. Limitations due to traffic access – how to/appropriateness of area as “front door” to community
- ix. “Info-structure” – broadband capacity and access for industrial development is key

Action Items

None

Notes Prepared by: David Schreiber, Project Manager, SAA Design Group
Please advise if there are any additions or corrections.

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MINUTES

North Stoner Prairie Neighborhood Plan – City Committees/Commissions Meeting #1
Tuesday, January 22, 2013

City Committee/Commission Members Present: Troy Klein, Richard Collins, Kim Lobdell, Phil Winkel, David Willborn, Tom O'Brien, Roger Cohee, Diane Steele, Diane Streck, David Martin, Steve Arnold, Carol Poole, Dave Herbst, and Becky Baumbach

Staff Present: Michael Zimmerman, Paul Woodard, Scott Endl, Ahna Bizjak, and Wade Thompson

Consultant Present: David Schreiber, Ryan Garcia, Scott Gaffield, and Scott Goldstein

1. Call to Order

Baumbach called the meeting to order at 4:03 p.m.

2. Public Appearances

None

3. Introductions and Objectives of Project – City of Fitchburg

Baumbach provided a general introduction to the project and identified project objectives.

4. Overview of Process – David Schreiber

David Schreiber, of SAA Design Group, provided an overview of the planning process.

5. Overview of Study Area

- a. Natural Resources – Steve Gaffield**
- b. Land Use and Market – Scott Goldstein**
- c. Transportation and Infrastructure – David Schreiber**

Scott Gaffield, Scott Goldstein, and David Schreiber provided an overview of the planning area, focusing on natural resources, land use and market, and transportation and infrastructure.

6. Questions

- a. Do you know of any capital projects planned which would affect this study area?
- b. Are there any programs or operations which would be affected by this study area?
- c. Does your committee have any special concerns regarding this study area?
- d. Are there any studies or projects that you know about that affect this study area?

The following City Committees/Commissions provided the following comments on Agenda Item 6., a. – d.

Agriculture & Rural Affairs Committee

- Runoff is a concern
 - ¼ mile south of the area as topography raises the land holds water
 - Additional development of North Stoner Prairie Neighborhood (NSPN) without adequate on-site stormwater management would impact farms to the south
 - 40 acres north of the school drains directly into surrounding neighborhoods
- There should be considerations for agriculture to remain to the south of the NSPN. The NSPN plan should recognize the expectation that farms will always be an adjacent neighbor.
- Stage development in such a way for existing agricultural lands in the neighborhood to continue to be utilized for agriculture for as long as possible.
- The NSPN Plan should identify sub-soil drainage and water tables.
- The NSPN Plan should identify soil quality, both for agriculture and for supporting building sites.

Resource Conservation Committee

- Runoff, infiltration, and urban sprawl are concerns.
- Limit or eliminate any increase in stormwater from the NSPN, rather than diverting it downstream to the south.
- Traffic – neighborhood design/development should encourage pedestrians and bikes.

- Wetlands provide infiltration and open space opportunities. The neighborhood provides an opportunity as a recharge area, using both natural and engineered infiltration.
- Wetlands in the NSPN should be preserved and opportunities to enhance them should be sought.
- Historic barn east of Seminole Highway should be preserved.
- The legacy of the area is significant. Stoner Prairie was the first area settled in Fitchburg.
- Woodlot presents an opportunity as a Fitchburg Natural Area.
- Non-invasive “heritage” trees should be preserved.
- Wooded areas should be preserved to the extent they contain non-invasive trees.
- Establish new and maintain existing environmental corridors.
- Urban gardening/neighborhood gardening opportunity.
 - Fitchburg Fields, etc.
 - Plots for residents

Parks Commission

- There are great opportunities to connect regional trails and open spaces.
- Natural resources on site, such as the existing mature woodlot at the southwest corner, should be preserved and have potential as public open spaces.
- A trailhead opportunity somewhere within the planning area should be explored.
- Conceptual City open space plan calls for Moraine Edge Park to connect NSPN to the east via a “green corridor”.
- New neighborhoods should be provided with recreational opportunities and public open spaces nearby.
- Opportunities to connect/expand existing park spaces:
 - Stoner Prairie
 - Seminole Glen
 - Quarry Ridge

Board of Public Works

- Stormwater is a concern. NSPN Plan must remain cognizant of existing drainage patterns and issues.
- “Gas gate” south of Lacy will remain where it is. New development will be impacted by noises, odors, etc.
- Manure spreading on existing agricultural areas impacts new and existing development. Agriculture was there first and will continue to operate.
- Preference for no streets crossing the Badger Trail.
- Potential roundabout at Lacy Road and Seminole Highway.
- Trees in southwest corner of plan area are not a concern, neighborhood will ultimately have more trees once developed.

Transportation & Transit Commission

- Transportation system must be integrated into NSPN Plan design.
- Pay attention to access on major roads.
- Provide options, more than one way in/out, avoid concentrating traffic.
- Safety and visibility of crossings.
- Designate potential transit routes as appropriate.
- Integrate bike and pedestrian currently on Seminole Highway and Badger State Trail, use as commuting routes as well as recreational routes.
- Consider impacts of and on adjacent intersections:
 - Lacy/Seminole
 - Lacy/Fitchrona
 - Fitchrona/Nesbitt
 - Seminole/PD
- Enhance connectivity - Three bike trails thru/adjacent to NSPN. Planned facility to north off of Seminole.
- Verona/McKee intersection is a major bottleneck.
- McKee/Seminole Highway carry most local destinations in/around planning area.

- Seminole Highway needs to be an improved 2-lane section – paved bike accommodations, pedestrian.
- McKee is the way in and out of the planning area from the region.
- Need destinations within NSPN for daily needs. Consider:
 - Traditional Neighborhood Design
 - Preponderance of residential with some commercial
- More diversity in building type and density to support alternative transportation modes.
- Plan for transit from the beginning
- Badger trail crossings will be necessary. Neighborhood needs a dense network of roadways.
- Think of the Badger Trail as a future rail line.
- Avoid pushing traffic into existing neighborhoods.
- Seminole south of Lacy Road serves agricultural uses and should continue to.
- Lacy Road – hazardous conditions in the winter.
- Schools/student traffic presents a challenge.

7. Next Steps

8. Announcements

a. Next Meeting

Schreiber stated that various upcoming meetings have been planned including a NSPN Plan Steering Committee and Public Information meeting on January 29, 2013.

9. Adjournment

Baumbach adjourned the meeting at 5:20 p.m.

Submitted by: Wade Thompson, Resource/Project Planner

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MINUTES

North Stoner Prairie Neighborhood Plan – Steering Committee Meeting #2
Tuesday, January 29, 2013

Members Present: Becky Baumbach, Bill Buglass, Dean Gorrell, Kathi Kilgore, Pete Lundberg, Phil Sveum, Tom Thoresen, and Kevin Unbehaun

Staff Present: Michael Zimmerman, Tom Hovel, and Wade Thompson

Consultant Present: David Schreiber, John Lichtenheld and Ryan Garcia, SAA Design Group; Scott Goldstein and Nick Patera, Teska Associates; Steve Gaffield, Montgomery Associates

1. Call to Order and Approval of Minutes

Chair Baumbach called the meeting to order at 4:02 p.m. Motion by Pete Lundberg, second by Bill Buglass to approve minutes of December 11, 2012, carried unanimously.

2. Public Appearances

Alder Steve Arnold spoke and noted he was interested in hearing the discussion as outlined on the agenda and may provide comments later in the meeting.

Kathy O'Brien Schneider spoke and shared her feelings about the importance of a strong bicycle and pedestrian network to the neighborhood. Schneider felt that the region's many bike and pedestrian trails were a strong amenity that the plan should emphasize this. Scheider noted that she is a landowner within the North Stoner Prairie Study Area.

3. Introductions and Objectives for Meeting

David Schreiber introduced the additional members of the consultant team. He stated the objectives of the meeting were as follows:

1. Discuss the key issues as revealed through a series of approximately 15 stakeholder interviews.
2. Present preliminary findings based upon background research of the study area.
3. Conduct a visioning exercise.

4. Preliminary Investigation Findings

a. Stakeholder Interviews

Schreiber presented key themes revealed through the course of interviews conducted with landowners, residents, business owners, the school district, and adjoining neighborhoods. Primary themes of the interviews included:

- Stormwater management and groundwater issues
- Agricultural legacy/preservation
- Utility infrastructure (power lines, gas lines)
- Desirability of housing in Verona School District
- Preservation of neighboring property values
- Traffic impacts
- Additional employment opportunities needed
- Connect to regional trail network

b. Natural Resources

Steve Gaffield presented a series of slides illustrating important cultural and natural resource characteristics of the planning area. Gaffield summarized that opportunities exist to preserve or recognize historic farmsteads and to preserve/restore woodlands. Gaffield stated the most substantial issues included poor surface drainage and shallow groundwater, which may limit developable areas.

c. Transportation and Infrastructure

John Lichtenheld presented a series of slides illustrating key transportation and utility issues and opportunities. Lichtenheld stated key transportation issues include peak hour congestion at main intersections within and around neighborhood, as well as capacity and level of service limitations with the existing design of Lacy Road and Seminole Highway.

Lichtenheld noted that the plan presents opportunities to expand local trail and transit systems, and improve pedestrian circulation and safety throughout the neighborhood. Lichtenheld also noted an opportunity to relieve strain on existing roads in surrounding neighborhoods by establishing a better “grid” system and providing more than one in/out option into neighborhoods.

Lichtenheld noted a key utility issue and opportunity is to work with ATC to relocate and/or bury high capacity overhead transmission lines. Bill Dunn, a City resident in attendance at the meeting who farms the property that the lines cross through, noted that these lines are nearing the end of their useful life and are scheduled to be replaced with single poles within five years.

d. Land Use and Market – Scott Goldstein

Scott Goldstein provided a brief summary of the land use context surrounding the neighborhood, emphasizing that there are distinctive single-use clusters at every border of the North Stoner Prairie Neighborhood, as follows:

- Agricultural to the south
- Residential/schools to the east
- Business park to the north
- Active quarries to the west

Goldstein noted that these single-uses each come with expectations of compatible neighboring land uses, including buffering, road connections, acceptance of typical operations (such as farming odors, mining noise, etc.).

Goldstein also shared key demographic and market data, illustrating that the immediate area around the neighborhood is stable and comparable to neighboring areas in terms of market potential and demographics, but has exhibited dramatically slower growth rates since 2000.

5. Visioning Exercises

Goldstein facilitated a visioning exercise, asking the following questions:

- a. What one word would you use to describe North Stoner Prairie today?
- b. How do you envision this area in 10 years?
- c. Within North Stoner Prairie, what would you like to preserve?
- d. Within North Stoner Prairie, what would you like to promote?

Responses to the visioning exercise are included on the following page as Appendix A.

6. Project Web Site

Schreiber gave an update on the project website and noted that it is now directly linked to the city of Fitchburg's homepage.

7. Next Steps

Schreiber proposed a future meeting for February 26, 2013 at which time a first draft of an issues and opportunities memo, environmental conditions memo, and initial drafts of growth models will be presented.

8. Announcements

- a. Next Meeting – February 26, 2013 at 4:00 pm.

9. Adjournment

Motion by Pete Lundberg, second by Kevin Unbehaun, to adjourn at 5:56 p.m., carried unanimously.

Appendix A: Summary of One-Word Visioning Exercise

Describe how you see/envision North Stoner Prairie:

Now

Sparse
Green
Flexible
Diverse
Potential
Transitional
Agricultural
Under-Utilized

In 10 to 20 years

Vibrant
Sustainable
Friendly – Inviting - Neighborly
Employers - Jobs
Residential
Cohesive
Responsible
Highly-Sought After

Within the North Stoner Prairie Neighborhood, what would you like to:

Preserve

Water Resources
Green Space
Current Home Values
Bike Path
Neighborhoods
Schools
Mobility – Transportation
Expandability - Scalability
Compatibility
History
Sustainable Agricultural Opportunities (nearby/within)
Groundwater Infiltration
Safety

Attract

Residents
Employers
Investment (human capital)
Walkability - Bikeability
Neighborhood Retail
High School
Connectivity
Neighborhood Identity
Diversity
Public Spaces (a beating heart)
Gardens
Practicality
Live Near Work

Memorandum

To: North Stoner Prairie Staff Workgroup

From: SAA Design Group, Inc.

Re: Summary of February 26 Staff Workshop – Growth Models

Date: 2/28/2013

Introduction and Objectives of Meeting

David Schreiber of SAA opened the meeting with a brief summary of the day's agenda, which focused on confirming the neighborhood vision and design principles, and discussion of preliminary growth models. In attendance were the following city of Fitchburg staff and committee members:

- Michael Zimmerman (City Economic Development Director)
- Tom Hovel (City Planner/Zoning Administrator)
- Wade Thompson (Resource Project Planner)
- Paul Woodard (Public Works Director/City Engineer)
- Rick Eilertson (Environmental Project Engineer)
- Scott Endl (Parks, Recreation, and Forestry Director)
- Becky Baumbach (North Stoner Prairie Neighborhood Plan Steering Committee Chairperson)
- Bill Buglass (Payne and Dolan, Steering Committee Member)
- Kevin Unbehaun (Sub-Zero, Steering Committee Member)*

**arrived near end of meeting*

Vision Statement and Design Principles

David Schreiber presented the Draft Neighborhood Vision Statement. Becky Baumbach asked where the statement came from, to which consultants replied it was compiled based upon input received at previous staff, steering committee, and public work sessions for the project. Becky noted that the use of "retail" as a component of the vision was a concern – should be more well-defined to communicate this is small, "countryside"-retail, not big-box. Also noted that as an ideal "retail" is nice, but questions market viability. Bill and Becky questioned the meaning of the word "sustainable" and its appropriateness as a component of the Vision Statement. Consultants explained in this context sustainable refers to economic, environment, and social attributes. Bill would like to see sustainable stricken from the statement as it is ambiguous. Becky wanted to clarify what "connection" implied and to be honest with neighborhood whether roads have to go through or not. Becky asked what "integrated" referred to. David advised that this reflected the City's philosophy when undertaking plans to not look at individual issues (e.g., land use) but rather to consider the range of issues (transportation, utilities, environment, economic development).

Process

Dave introduced a planning process diagram and a few examples of alternative growth models, preferred growth models/land use plan, and comprehensive development plan. This was to clarify for the steering committee and public where we were in the NSP process and the distinction with respect to level of detail and depth of analysis that is required at the neighborhood planning stage versus the development plan/subdivision plat stage.

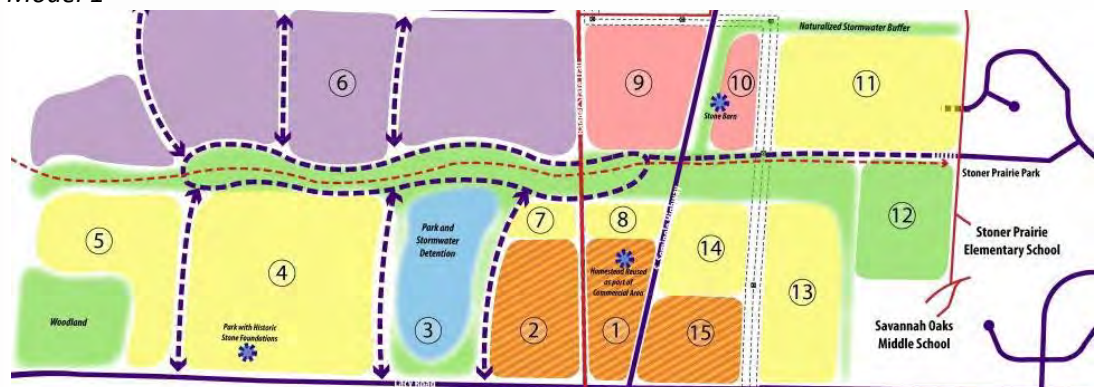
Preliminary Growth Models

Scott Goldstein introduced the general assumptions used to prepare preliminary growth models. Key comments received on the assumptions were as follows:

- Tom felt that 70% lot coverage for the business park was high, and felt a FAR of about 50% max was more appropriate.
- Rick and Tom asked whether calculations for “lot coverage” represented total impervious area (i.e., buildings, parking, roads and driveways) or just building coverage. Scott Goldstein advised at this level the calculations represented buildings.
- Tom advised that rather than “single-family” and “multi-family”, residential uses should be characterized as low-, medium-, and high-density for consistency with past planning efforts. It was agreed that utilizing density standards as introduced in the comprehensive plan for each would be appropriate.
- Becky asked how the density assumptions compared with Lacy Heights densities. Staff and consultants responded that the single-family density of 4 du/acre was consistent with Lacy Heights (about 3-4 du/acre).

Scott Goldstein then gave an overview presentation of each of four growth models individually. Key comments received on the models were as follows:

Model 1

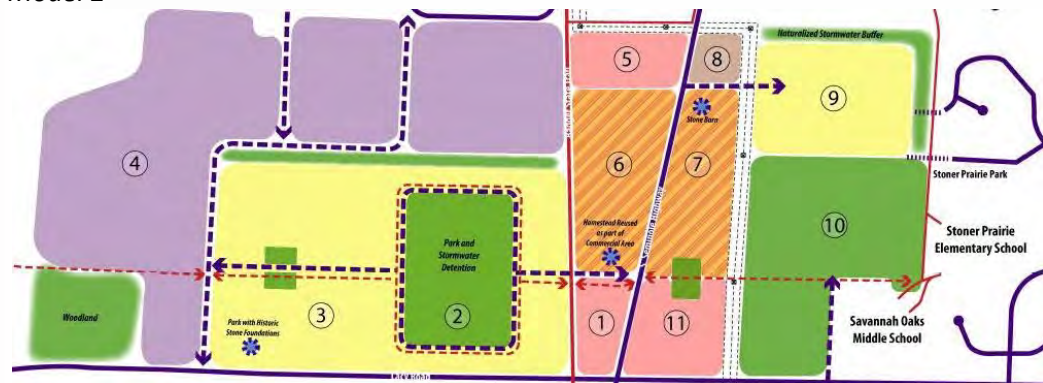


- This model doesn't show apartments (Becky)
- The E-W pathway from end to end is good
- Area #10 is inappropriate. No commercial directly south of existing neighborhood

define
enhance
sustain

- Area #9 is appropriate for business services, extension of uses north; commercial retail undesirable and inappropriate (Tom, Becky, Mike)
- All area west of Badger State Trail should be purple/heavier uses/clean mfg (Bill and Mike)
- Need better connection to Hammersley directly west (Paul)
- Commerce Park Drive should be a direct connection south (Paul)
- Area #4 is inappropriate – why residential (basements) with high groundwater (Bill)
- Overall, scale back mixed use
- Area #5 – transition between Hammersley and industrial; medium or high-density housing
- Area #15 – Medium/high density housing
- Area #14 – institutional

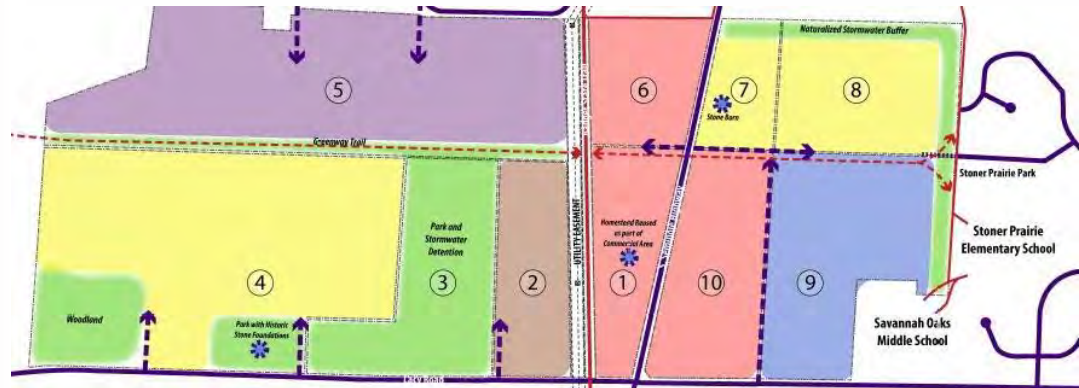
Model 2



- Area #10 – large park space could be beneficial to parks department – need space for playfields, programming (Scott Endl)
- Area #10 – institutional use could be appropriate for at least part; school expansions, church (Becky, others)
- Area #9 could/should expand south more
- Areas #1 and #11 – don't need commercial; area #5 is all the commercial we need (Becky)
- Area #8 northern edge should be green, there's the kettle there (Rick)
- Badger State Trail should be buffered w/ Green strip – green corridor N-S (rick)
- Area #3 should be more purple (Bill, Mike)
- Should look for opportunity to limit size of Area #2 (Bill)
- Smart code appropriate east of Badger State Trail (Paul, Tom)

define
enhance
sustain

Model 3



- Carry through “Naturalized Stormwater Buffer” in areas east of Seminole at northern and eastern edges; although it shouldn’t be part of park dedications as its unusable space (Paul); should be on easements
- Area #7 could be medium-density residential (Tom)
- Too much retail (Becky)
- Area #4 Not enough purple, too much residential (Mike, Bill)

Model 4



- Area #14 should be residential (Becky)
- Area #10 should be medium-density
- Area #4 should be industrial (Bill, Mike)
- Bike path connection (E-W) is missing (Paul)
- Where is the best spot to tie in to Quarry Ridge; need usable green space connection (Paul, Rick, Scott Endl)



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MINUTES

North Stoner Prairie Neighborhood Plan – Steering Committee Meeting #3
Tuesday, February 26, 2013

Members Present: Becky Baumbach, Bill Buglass, Pete Lundberg, Chris Murphy, Phil Sveum, Tom Thoresen, and Kevin Unbehaun

Staff Present: Michael Zimmerman, Tom Hovel, and Wade Thompson

Consultant Present: David Schreiber and Ryan Garcia, SAA Design Group; Scott Goldstein, Teska Associates;

1. Call to Order and Approval of Minutes

Chair Baumbach called the meeting to order at 4:08 p.m. Tom Thoresen requested the minutes of January 29, 2013 identify groundwater issues as a primary theme of stakeholder interviews, under **4. Preliminary Investigation Findings**. Motion by Baumbach, second by Bill Buglass, to approve the minutes of January 29, 2013, with the aforementioned edit so noted, carried unanimously.

2. Public Appearances

Baumbach provided an overview of the process for public appearances. Baumbach stated that the Committee would be discussing various neighborhood land use concepts but would not be taking any action at the meeting. Baumbach added that strong communication between City residents, other interested parties, the Committee, plan consultants, and City staff is essential to the planning process.

The following residents of neighborhoods adjacent to the planning area provided comment on the draft neighborhood vision, design guidelines, and growth models, summarized as follows:

Brad Mullins

East of Seminole Highway:

- Do not extend Scarlet Drive or Persimmon Drive.
- Do not allow traffic to cross existing bike paths.
- Create natural stormwater buffer.

- Maximize park and open space or institutional use adjacent to school.
- Consider low-density residential use – Single-family at 3 dwelling units per acre.
- Use power lines as buffer.
- No commercial or mixed-use.
- Minimize driveways.
- Minimize road intersections.
- Link to existing bike path.

West of Seminole Highway:

- Maintain woodland.
- Stormwater detention access/visible from Lacy Road.
- Mixed use to the north along Seminole Highway.
- Adjoin business uses to existing business park.
- Minimize roads and driveways connecting to Lacy Road and Seminole Highway.
- Create trail/path linkage.
- Interview businesses.

Bill O'Donnell

- Liked natural buffers along the bike path and the neighborhood.
- Liked the idea of park reservation and reserved space for school expansion.
- Concerned about controlling traffic and vehicle speed.
- Extension directly to Lacy Road and/or Seminole Highway is not needed or desired.
- Concerned about property values.
- 3 dwelling units per acre is desirable.

Bill Nebel

- The plan should consider architectural controls.
- Option 2 as a good starting point; establish buffers.
- The bike path should stay intact.
- There should not be any direct connections to Lacy Road or Seminole Highway.
- The density proposed in Option 2 makes sense.

Alder Steve Arnold

- The process is lacking an educational component.
- A “No Development Option” is not being considered.
- Landowners did not have a voice in past neighborhood plans.
- Issues are not being analyzed in the appropriate order.
- There is a need to identify the edges and centers of pedestrian sheds.
- None of the options recognize that the planning area has been the edge of urban development for 50 years.

Alder Arnold also submitted the aforementioned points in written form.

3. Introductions and Objectives for Meeting

Schreiber introduced the meeting objectives, including a discussion of the draft neighborhood vision statement, design principles, and growth models.

4. Discussion: Draft Statement of Neighborhood Vision and Design Principles

a. Neighborhood Vision Statement

Schreiber introduced the draft neighborhood vision statement to the Committee. Thoresen stated the word “safe” is not included in the statement. Buglass stated the word “sustainable” is too vague and should either be removed or better defined in the statement. Thoresen stated he thought the word should remain in the statement. Buglass also stated the statement was flexible enough to change with the times. Schreiber confirmed the statement can be modified over time. Pete Lundberg stated the words “attractive”, “stable”, and “desirable” should be considered for addition to the statement.

b. Design Principles

Schreiber introduced the draft neighborhood design principles. Phil Sveum asked how street connectivity would be resolved and mentioned the concerns of residents in existing neighborhoods. Schreiber stated the issue would be resolved through street, intersections, and walking/biking route design. Schreiber also mentioned that connections can be indirect as well as direct. Thoresen asked how the principles would anticipate and prevent problems. Schreiber answered the design principle regarding working within the site capacity addresses this issue. Buglass asked what was meant by an integrated and holistic planning process. Schreiber answered that it reflects the City’s standard planning process which analyzes issues and opportunities comprehensively rather than looking at them singularly and in isolation. Thoresen asked how certain terms in the principles are defined. Schreiber answered terms in the principles reflect existing definitions as stated in the City’s comprehensive plan. Baumbach asked about the definition of diversity. Schreiber clarified that diversity was intended to reflect creation of a live/work/play environment in the neighborhood. Sveum questioned the idea of live/work/play and whether those that worked in the neighborhood would be living there.

c. Process

Schreiber introduced a planning process diagram and provided examples of alternative growth models, preferred growth models/land use plans, and comprehensive development plans. Schreiber introduced the diagram to clarify for the Committee and public the planning process status and the various roles the Committee, City, and private interests will play, relating to land use, neighborhood design, and infrastructure, as the neighborhood develops. Kevin Unbehaun asked whether the proposed residential density would be consistent with the 3-dwelling units per acre mentioned in public comments. Schreiber answered that this density would be appropriate in certain areas of the neighborhood. Thoresen noted that no groundwater monitoring wells are located east of Seminole Highway and this could be problematic for the planning process. Schreiber stated said that both stormwater and groundwater issues can be addressed at the “neighborhood planning” level using soil data gathered on site, in addition to other studies done in the project area. Schreiber stated the final neighborhood plan recommendation will rely largely on models done by other groups, rather than on work undertaken by the consultant team

developing the neighborhood plan. Baumbach stated that as the neighborhood develops according to the neighborhood plan, development review and approval is still a City process that involves more specific site detail, additional neighborhood input, and City staff/elected official approval.

5. Action: Draft Statement of Neighborhood Vision and Design Principles

No action was taken on this item. The Committee directed the consultants to present a refined vision and design principles at the next Committee, based on the discussion.

6. Discussion: Preliminary Growth Models

Scott Goldstein began the discussion on draft growth models with a brief overview of the Issues and Opportunities graphic presented at the previous Committee meeting in January. Goldstein introduced general assumptions for the draft growth models, consistent with City zoning and comprehensive plan standards and requirements. Goldstein presented a summary of each of the four draft growth models. Key comments provided by the Committee on the draft growth models are summarized as follows:

Comments Applicable to All Models

- Expansion of industrial uses should be considered west of the Badger State Trail for all models.
- Green space should be maintained along the Badger State Trail.
- Open space, housing, and institutional uses preferred east of Seminole Highway.
- Higher density housing/business uses preferred west of Seminole Highway.
- Question: What is the definition of “high-density”? Response: It can range from condominium to townhomes to apartments.
- Historic Dunn family barn is an opportunity for public, institutional, or open space use.
- Solidify a plan for extension of the existing street that ends at the east edge of the neighborhood.

Comments Applicable to Specific Models

Model 1

- Areas 4 and 5 should have more industrial space.
- Areas 2, 1, and 15 are “wishful thinking”; more mixed use and retail does not make sense here as market viability is questionable.
- Consensus that retail use in Area 10 is undesirable.

Model 2

- Naturalized stormwater buffer ringing Area 9 is welcomed by neighborhood.
- Area 10 is welcomed by schools as space is needed for sport fields.

Model 3

- Too much retail, need more housing east of Badger State Trail.
- Area 4 is not ideal as residential; lack of safe walking routes to schools and students would have to be bussed in.

Model 4

- Area 3 is a concern; stormwater takes up large area, thought should be given as to how to divert stormwater to other areas, possibly minimize concentration and disperse along Badger State Trail corridor.
- Lacy Heights neighborhood concerns about extension of Scarlett Drive as illustrated between Areas 11 and 12.

7. Action: Preliminary Growth Models

No action was taken on this item. The Committee directed the consultants to present refined preliminary growth models at the next Committee meeting, based on the discussion.

8. Project Web Site

Schreiber stated the project website will be updated as a result of discussion.

9. Next Steps

Schreiber stated the vision statement, design principles, and growth models will be refined based on the discussion and will be presented and discussed at the next Committee meeting. Schreiber stated a desired vision statement, design principles, and growth model, when selected by the Committee, will then be presented to the City's Committee of the Whole, Community and Economic Development Authority, Plan Commission, and Parks Commission.

Schreiber proposed a future meeting for March 26, 2013 at which time revised drafts of the vision statement, design principles, and growth models will be presented.

10. Announcements

- a. Next Meeting – March 26, 2013 at 4:00 pm.

11. Adjournment

Motion by Lundberg, second by Thoresen, to adjourn at 6:05 p.m., carried unanimously.

Submitted by: Wade Thompson, Resource/Project Planner

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MINUTES

North Stoner Prairie Neighborhood Plan – Steering Committee Meeting #4
Tuesday, April 9, 2013

Members Present: Becky Baumbach, Bill Buglass, Dean Gorrell, Pete Lundberg, Phil Sveum, Tom Thoresen, Bruce Gabrielese, Jerry Duhn, and Kathleen Kilgore

Staff Present: Wade Thompson, Paul Woodard, Tom Hovel, and Joyce Frey

Consultant Present: Ryan Garcia, SAA Design Group; Steve Gaffield, MARS; Scott Goldstein, Teska Associates

1. Call to Order and Approval of Minutes

Chair Baumbach called the meeting to order at 4:02 p.m. Motion by Bill Buglass, second by Tom Thoresen to approve the minutes of February 26, 2013. Motion carried unanimously.

2. Public Appearances

Chair Baumbach entertained public appearances. None were made.

3. Introductions and Objectives for Meeting

Chair Baumbach introduced the purpose of the meeting as a work session. Chair Baumbach stated that since the last Committee meeting in late-February, City staff and the plan consultants have held a neighborhood meeting at which many concerns were raised. Chair Baumbach stated that since that meeting, staff and the consultants felt it was best to slow the process down and take an additional opportunity to clarify stakeholder issues and the vision for the North Stoner Prairie Neighborhood, and to have a Committee work session to provide input in which to direct the growth models.

Ryan Garcia, SAA Design Group, briefly summarized the meeting agenda. Garcia noted that this meeting was intended to offer the perspectives of diverse stakeholders, including the existing adjacent neighborhoods, the City as a policy-making body, and landowners within the planning area, and to form a holistic, consensus-based vision for the plan.

4. Discussion: Refined Draft Statement of Neighborhood Vision and Design Principles

a. Neighborhood Vision

Garcia presented the refined draft statement of the neighborhood vision. The draft statement was discussed by the Committee. Thoresen stated that the statement reflected the comments and concerns presented at the last Committee meeting and will serve as a good vision statement. Kathleen Kilgore asked what the term “socially sustainable” implied. Garcia replied that this term referred to the stability of the neighborhood as a place to raise a family and to invest in as a resident or household.

b. Design Principles

Garcia presented the refined draft design principles. Garcia commented that these principles reflected the City’s comprehensive plan as well as input received at previous Committee meetings and from the public. Garcia also stated that these principles, if acceptable to the Committee, should be considered as the growth models are developed.

Chair Baumbach asked to what degree “access to transit” was meant to be portrayed in the plan. Garcia replied that access was a relative term and in this case was used to imply that reaching current transit service by means other than the automobile will be recognized in the plan. Garcia stated this was not to imply that extension of transit service into planning area would necessarily result.

Thoresen commented that understanding site capacity was important. Thoresen asked about accommodating varying housing types and varying price ranges, as reflected in the draft design principles. Garcia replied that the principles encourage sensitivity to the context and character of existing residential development adjacent to the planning area.

5. Discussion: Stormwater Management Issues and Opportunities

Steve Gaffield, MARS, presented information related to stormwater management. Gaffield stated that there were two primary issues of concern:

- Avoiding drainage impacts on Seminole Forest and Lacy Heights neighborhoods;
- Dealing with a landscape of closed depression/kettle holes that do not have an outlet;

Gaffield presented three options for managing stormwater in the planning area west of the Badger State Trail.

- **Option 1:** Develop conventional stormwater practices and detain runoff in the closed depression in the North Stoner Prairie Neighborhood.

Gaffield stated this option would require frequent pumping off-site to avoid a long-term water level increase and would increase the area that is seasonally flooded.

- **Option 2:** Implement aggressive low impact development practices throughout the planning area to prevent development from causing an increase in runoff volume.

Gaffield stated this option would require dedication of more area of development sites for stormwater practices, but that small, distributed stormwater management features can be creatively fit into development sites to reduce impact on development area. Gaffield stated the City recently completed a study of the McGaw Park Neighborhood showing how this is feasible. Gaffield stated this option would still result in a flood-prone area in open space similar to what occurs with the existing conditions, although this area would be smaller than in Option 1. Gaffield stated an emergency pumping plan should also be developed as a back-up to the stormwater volume controls for this option.

- **Option 3:** Engineer drainage to the south, requiring coordination with landowners south of Lacy Road.

Gaffield stated this option would still require preservation of a substantial flood-prone area north of Lacy Road in open space.

Additionally, Gaffield discussed stormwater management approaches in the eastern portion of the planning area. Gaffield stated there are smaller kettles scattered near the northern and eastern boundaries. Gaffield stated that generally, the approach would likely be to maintain stormwater buffer/open space areas in these areas and control grading to assure runoff is not directed at existing residences. Gaffield stated a buffer along the northern and eastern neighborhood boundaries could be used for stormwater detention and infiltration practices, with controlled releases to the storm sewer system.

6. Discussion: Neighborhood Listening Session

Garcia reviewed key issues revealed at the neighborhood listening session. “Trust” was identified as the core issue. Garcia stated that many residents of Lacy Heights and Seminole Forest neighborhoods that attended the session felt that their concerns are not being addressed.

Garcia also summarized the three key issues that need to be resolved by the Committee in order for the rest of the planning process to be effective, identified as follows:

- Increasing traffic in and around the new neighborhood and the connectivity of Scarlett and Persimmon Drive as through streets;
- Water problems in yards and basements of existing homes;
- Density and character of residential land uses adjacent to existing neighborhoods;

Thoresen mentioned appreciation for taking a step back on the growth model development. Thoresen stated that the main concern for existing residents of the Lacy Heights and Seminole Forest neighborhoods was that their neighborhood is a truly special place and the neighborhoods

do not want the North Stoner Prairie Neighborhood Plan to compromise the unique character, safety, and value of the neighborhood.

Garcia presented a list of design attributes that will serve as a framework for preparing the growth models, with a sensitivity and acknowledgement of issues and concerns presented at the neighborhood listening session.

Phil Sveum asked if there were any “baselines” from the City that the Committee needed to use in preparing the plan, and asked specifically what the requirements for street extensions were. Garcia responded that the City’s comprehensive plan served as a base line, and that the City’s position was that the North Stoner Prairie Neighborhood would connect to existing roads to the east indirectly. Thoresen encouraged an option that showed no through connectivity as well. Lundberg asked about City ordinances regarding access points and connectivity. Tom Hovel noted that the City’s land division ordinance limited cul-de-sac/dead ends to 600 feet, so the current dead-ends at Scarlett and Persimmon Drives would need to be addressed. Paul Woodard stated he believed that only one additional access point would be introduced to both Seminole Highway and Lacy Road.

8. Next Steps

Garcia stated the growth models will be refined based on today’s comments and the updated models will be discussed at the next meeting. Garcia stated that once a growth model is selected by the Committee, it will be presented to the City’s Committee of the Whole, Community and Economic Development Authority, Plan Commission, and Parks Commission.

9. Announcements

Next Committee Meeting: 4 p.m., Tuesday, April 23, 2013, City Hall Meeting Room.

10. Adjournment

Motion by Lundberg, second by Thoresen, to adjourn at 6:05 p.m. Motion carried unanimously.

Submitted by: Wade Thompson, Resource/Project Planner



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MINUTES

North Stoner Prairie Neighborhood Plan – Steering Committee Meeting #5 Tuesday, April 23, 2013

Members Present: Becky Baumbach, Bill Buglass, Dean Gorrell, Pete Lundberg, Phil Sveum, Tom Thoresen, Bruce Gabriele, Kevin Unbehaun, and Kathleen Kilgore

Staff Present: Wade Thompson and Paul Woodard

Consultant Present: Ryan Garcia, SAA Design Group; Scott Goldstein, Teska Associates

1. Call to Order and Approval of Minutes

Chair Baumbach called the meeting to order at 4:02 p.m. Motion by Pete Lundberg, second by Tom Thoresen, to approve the minutes of April 9, 2013. Motion carried unanimously.

2. Introductions and Objectives for Meeting

Chair Baumbach introduced the purpose of the meeting as a session to take action on the preferred growth model (based on the changes made since the previous Steering Committee meeting) and street connectivity option. Thoresen commented that there was not an action item on street connectivity on the agenda. Ryan Garcia stated that the street connectivity issue is inherently a part of the growth model and that the focus should be to decide on a growth model.

3. Public Appearances

Chair Baumbach entertained public comments, as follows: Jenelle Grace stated her concerns about the public comment process and a lack of entrances from Seminole Highway. Brad Mullins stated his concerns about the new neighborhood reducing the market value of existing residences and decreased safety in existing neighborhoods, particularly regarding proposed Growth Model – Option B. Bill Nebel expressed his concerns about safety in the neighborhood, stating existing streets were not designed to handle the amount of traffic they would potentially see under the proposed growth models.

Ken Hanson expressed his concerns about pedestrian safety in the neighborhood, given the proximity to the school. Hanson also mentioned areas in which the City's Comprehensive Plan encourages safety for all modes of transportation, including pedestrian. Alder Steve Arnold

commented on the City's Transportation and Transit Commission's view on connectivity. Arnold stated that the commission generally supports well-connected streets and further detailed some of the City's existing policy on street connectivity. Bill O'Donnell expressed his concerns about continued pedestrian and bicycle safety after the development of the North Stoner Prairie Neighborhood Plan and asked that proposed Scarlett-Persimmon Connectivity Option 3 not be considered. O'Donnell also questioned whether the public's input had been taken into account in developing the growth models.

4. Discussion: Refined Preliminary Growth Models

Garcia reiterated the meeting's intent as determining which growth model is desirable for inclusion in the neighborhood plan. Garcia described the purpose and reach of the neighborhood plan (when developed) and growth model. Garcia introduced the two preliminary growth models and restated that in choosing a growth model the decision did not have to be "either-or", but rather elements could be taken from each preliminary model to develop a final preferred model. A short discussion followed by the Steering Committee on how the details of the Committee recommendations would manifest in the plan.

Garcia and Scott Goldstein provided detail on the preliminary growth models and answered questions about the two models. Specific questions by the Steering Committee centered on what specific uses are allowed in particular zones, development timing, design standards, gas pipeline issues, buffers around residential land uses, stormwater management, expected/desired types of housing, and housing density. After discussion, the general consensus of the Committee was that Growth Model – Option A was preferred with several changes to be made to the Option, including the land use along the western boundary of the planning area, addressing industrial-commercial issues adjacent to the large stormwater retention area, and additional stormwater retention capability at Seminole Highway and Lacy Road.

5. Action: Selection of Preferred Growth Model

Motion by Bruce Gabrielese, second by Bill Buglass to approve Growth Model – Option A with the following modifications 1. – 4.:

1. Parcel 4 – Changed from medium-density residential to industrial-commercial, with a buffer added to the western portion of the parcel;
2. Parcel 2 – An area for additional stormwater management to be reserved in the northeast portion of the parcel;
3. Parcels 6 and 10 – Planned for 5-6 residential units/acre (lower end of medium-density residential);
4. Parcel 7 – Planned for 3 residential units/acre;

Motion carried (Thoresen abstained, citing more information, as well as feedback from Lacy Heights residents, was needed.).

Garcia reviewed several of the City's policies regarding street connectivity and transportation. Garcia also discussed issues from handouts and memos that had been provided to the Steering Committee and the public.

Bill Buglass read a memo from Ahna Bizjak, the City's Transportation Engineer, regarding shared-use paths crossing streets and methods to mitigate potential safety concerns. Dean Gorrell provided information about school district standards for ensuring safe access to schools.

Garcia presented three options showing potential street patterns on the east side of Seminole Highway. Discussion ensued among the Steering Committee on the following topics: pedestrian safety, fire department emergency access, cul-de-sacs, sidewalks, lot alignment, and school pick-up/drop-off areas.

Chair Baumbach asked the consultants what the effects of delaying approval of the street connectivity issue would have on the planning process timeline. Garcia and Goldstein stated specific street alignments were not in the scope of the plan. Garcia restated the scope and purpose of the plan. Discussion ensued among the Steering Committee on concerns about street connectivity, safety, proposed street design, and conflicts with the City's Comprehensive Plan.

Motion by Buglass, second by Thoresen, for the Steering Committee to have a more detailed discussion of street connectivity and safety options and tools at the next Committee meeting. Motion carried unanimously.

6. Next Steps

Garcia stated City staff will lead a detailed discussion on street connectivity options and safety options and tools at the next Steering Committee meeting. Garcia stated the consultants will proceed with their analysis and present findings at the next appropriate Steering Committee meeting.

7. Announcements

Next Steering Committee Meeting – 4 p.m., Tuesday, May 14, 2013, Meeting Room, City Hall

8. Adjournment

Motion by Phil Sveum, second by Buglass, to adjourn at 6:39 p.m. Motion carried unanimously.

Submitted by: Wade Thompson, Resource/Project Planner

Approved: May 14, 2013

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MINUTES

North Stoner Prairie Neighborhood Plan – Steering Committee Meeting #6
Tuesday, May 14, 2013

Members Present: Becky Baumbach, Bill Buglass, Dean Gorrell, Pete Lundberg, Chris Murphy, Phil Sveum, Tom Thoresen, Kevin Unbehaun, and Kathleen Kilgore

Staff Present: Tom Hovel, Paul Woodard, Ahna Bizjak, and Wade Thompson

1. Call to Order and Approval of Minutes

Chair Baumbach called the meeting to order at 4:02 p.m. Motion by Bill Buglass, second by Kathleen Kilgore, to approve the minutes of April 9, 2013. Thoresen requested clarification to the minutes as to why he abstained from a Committee vote. Motion, with requested clarification, carried unanimously.

2. Public Appearances

Chair Baumbach entertained public appearances, as follows:

Colleen Chase stated that the Committee should thoroughly discuss and analyze traffic congestion and safety issues related to new development and children walking/biking to North Stoner Prairie and Savannah Oaks schools. Chase stated any new development would add traffic to the existing neighborhoods.

Bill O'Donnell thanked Phil Sveum and Alder Steve Arnold for joining him to view traffic congestion at the schools on a typical morning. O'Donnell also thanked Ahna Bizjak, the City's Transportation Engineer, for her past work. O'Donnell stated that street connectivity Option 4 was an acceptable compromise. O'Donnell stated that traffic congestion around the schools is also an issue and proposed development of a committee to address this issue.

Mary Kay Zimbrick stated her concerns about new traffic on Persimmon Drive resulting from new development. Zimbrick stated speed and volume need to be address in any planning and development of the area. Zimbrick stated she thought street connectivity Option 4 was acceptable but that traffic calming devices are needed as well at the inception of development. Zimbrick also stated that school traffic congestion issues also need to be addressed, including development

of a new alternate route for school drop-off/pick-up. Zimbrick stated moveable barriers could potentially be utilized to control traffic volume and speed.

Brad Mullins stated he has concerns that some Committee members and City staff may not fully understand the concerns of neighborhood residents. Mullins stated the neighborhood residents concerns include a lack of trust, that the planning process should be extended, and additional data should be gathered. Mullins stated street connectivity Option 4 is an acceptable compromise but the plan needs to contain strong language stipulating traffic calming devices and a new school drop off/pick-up access.

Alder Steve Arnold stated good development design can alleviate many potential issues. Arnold also stated the plan needs to identify constraints and should identify a desired development prototype or performance standards. Arnold stated that safety of those who live east of the school should also be considered when new street layouts are discussed. Arnold stated there should be an additional access point to the schools, from Lacy Road, west of the schools. Arnold offered various development design ideas, including a deflected grid/intersection.

Catherine O'Brien Schneider, a landowner in the planning area, stated the importance of well-planned sustainable development of the area in which maximum value is accrued to property owners. Schneider stated she had two major concerns, water management and traffic connectivity/safety. Schneider stated development of the area should enhance the neighborhood and make it a desirable place to live. Schneider stated traffic calming devices, including narrow streets, raised sidewalks, mid-block crossings, and curb extensions should be considered when the area is developed. Schneider stated Seminole Highway should be accessible from the planning area and not become four lane thoroughfare.

Bill Dunn, a landowner in the planning area, stated that he is concerned about stormwater management and that the current stormwater management plan as proposed for the planning area is not acceptable. Dunn stated stormwater should be managed on the property on which it falls and not be diverted onto neighboring properties. Dunn stated that he was not opposed to development of the planning area but that it should be done right.

3. Discussion: Tools for Designing Safe Bicycle and Pedestrian Crossings

Ahna Bizjak, the City's Transportation Engineer, provided a presentation to the Committee consisting of three major components:

1. Existing bicycle and pedestrian and street crossing conditions in the planning area;
2. Safety concerns/issues at bicycle and pedestrian street crossings;
3. Tools for designing safe bicycle and pedestrian street crossings;

Bizjak stated City staff had completed bike/pedestrian counts at bicycle and pedestrian path/street crossings in close proximity to the schools. Bizjak stated that biking/pedestrian safety does not have to be compromised with additional traffic volume.

Bizjak identified the following tools for designing safe bicycle and pedestrian street crossings:

1. Gateway/neighborhood introduction features, such as traffic circles;

2. Street geometry including narrow streets and curves;
3. Raised pedestrian crossings (speed tables, etc.);
4. Driver feedback signs;
5. Mid-block crossings;
6. Pavement markings, curb bump outs, and medians and islands;
7. Grid street network;

Bizjak states City staff will be involved with design of the final street network in the planning area to ensure safe bicycle and pedestrian street crossings.

4. Discussion: Street Connectivity Options

Buglass asked Bizjak if City staff had a preference on the four street connectivity options presented to the Committee. Bizjak stated Options 3 or 4 are supported by staff.

Unbehaun asked about the origins of Option 4. Baumbach stated Option 4 was presented to the Committee by Lundberg, after collaboration with residents of neighborhoods adjacent to the planning area. Lundberg stated Option 4 should be viewed as a compromise, addressing both neighborhood traffic safety concerns and City traffic connectivity policies. Baumbach stated that streets do cross the bike path in Option 4. Buglass asked if Option 4 addresses emergency vehicle needs. Bizjak stated it does.

Lundberg asked how much weight Option 4 and associated wording, as to be contained in the plan, would have when the area develops. Tom Hovel, City Planner/Zoning Administrator, stated that any development of the area would have to be consistent with the language identified in the plan. Baumbach stated support for a new school access point west of schools. Baumbach asked Dean Gorrell and Chris Murphy for thoughts on a new school access west of the schools. Gorrell stated the school district would support a new access but would not be interested in paying for construction. Additionally, Gorrell stated any new access should not unduly take up any school-owned lands. The Committee discussed various design options for the access route. Kilgore stated traffic on Devoro Road is problematic. Thoresen stated any new development should not duplicate current traffic congestion issues as seen on Devoro Road. Phil Sveum stated it was his observation that school traffic congestion is problematic and a solution needs to be identified. Sveum stated he hoped the City and school district could work together to identify a solution.

Thoresen stated all traffic problems in the area should be addressed comprehensively and that he had spoken with Mayor Shawn Pfaff about the possibility of forming a committee to study these issues. Baumbach echoed Thoresen's statement and said she had spoken with the Mayor as well about formulating a Committee and that he was agreeable to this idea. Thoresen also stated traffic calming designs should be incorporated into the plan to address neighborhood concerns. Thoresen stated he had drafted motion language for consideration by the Committee. Sveum asked property owners for their thoughts on potential street layout in the planning area. Catherine O'Brien Schneider stated that the cost and burdens of street construction to benefit the whole of the planning area should not be borne singularly by one property owner.

Thoresen handed out potential motion language and gave a brief synopsis of the language. The Committee discussed the potential motion language.

Buglass stated the motion language should not be too specific so as to ensure that all new potential future best management practices could be utilized. Buglass also stated that he supported Option 4, with an additional school access from the west, and that individual property owners should not unduly bear costs or burdens for development that benefit the entire planning area.

5. Question and Answer Session – Agenda Items 3 and 4

Alder Carol Poole asked if the school district would be agreeable to the City exploring the feasibility of a school access point to the west of the schools, crossing school property. Gorrell stated yes. A question was asked regarding who was responsible for upkeep/maintenance of traffic calming devices. Bizjak and Paul Woodard, City Public Works Director, stated that for all intents and purposes residents would be responsible for upkeep/maintenance. A question was asked if a roundabout would be considered as the neighborhood develops. Bizjak stated a roundabout would be evaluated when development is proposed and traffic number counts are analyzed. A question was asked about pedestrian/bike counts, as identified earlier in the meeting. Bizjak stated counts were only completed for elementary-age children.

Alder Arnold proposed staff come back to the next Steering Committee meeting with proposed motion language. Arnold stated the school district should be a partner in developing any new school access points. Arnold stated that landowners maintain control in the development process. Arnold also stated the text of neighborhood plan should identify general development design parameters as desired by the Steering Committee.

6. Action: Selection of preferred Street Connectivity Option

The Committee discussed wording of the motion.

Motion by Sveum, second by Thoresen, to recommend street connectivity Option 4, with the following elements;

1. Provide an indirect connection to Seminole Highway and Lacy Road;
2. Incorporate best management practices to calm traffic and regulate speed at or near the path crossing and enhance safety;
3. Provide a connection to the schools from the new neighborhoods west of the schools, to discourage traffic from accessing the schools using the Lacy Heights or Seminole Forest neighborhoods;

Motion carried unanimously.

The Committee discussed an additional motion regarding formation of a task force to study traffic safety and congestion in and adjacent to the planning area, particularly in close proximity to the schools. Murphy stated the task force should not to make any recommendations regarding funding options. The Committee discussed motion language.

Motion by Thoresen, second by Kilgore, to recommend that the City and Verona Area School District appoint a committee to comprehensively study and address traffic safety and congestion issues around Stoner Prairie and Savannah Oaks schools, and makes recommendations to help alleviate traffic and safety issues, to ensure safe walking and biking options in the planning area and existing adjacent neighborhoods.

Motion carried unanimously.

7. Next Steps

Next Steering Committee Meeting – 4 p.m., Tuesday, July 9, 2013, Meeting Room, City Hall

8. Announcements

Baumbach stated that it was her hope that residents of the neighborhoods adjacent to the planning area felt their voices have been heard throughout the plan development process. Baumbach thanked the residents and the Committee for their hard work throughout the process.

9. Adjournment

Motion by Kilgore, second by Lundberg, to adjourn at 5:44 p.m. Motion carried unanimously.

Submitted by: Wade Thompson, Resource/Project Planner

Approved: July 9, 2013

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MINUTES

North Stoner Prairie Neighborhood Plan – Steering Committee Meeting #7
Tuesday, July 9, 2013

Members Present: Becky Baumbach, Bill Buglass, Dean Gorrell, Pete Lundberg, Chris Murphy, Tom Thoresen, and Kevin Unbehaun

Staff Present: Tom Hovel, Paul Woodard, Michael Zimmerman, and Wade Thompson

Consultant Present: Dave Schreiber, Ryan Garcia, John Lichtenfeld, SAA Design Group; Scott Goldstein, Teska Associates, Steve Gaffield, MARS and Associates

1. Call to Order and Approval of Minutes

Chair Baumbach called the meeting to order at 3:03 p.m. Motion by Bill Buglass, second by Tom Thoresen, to approve the minutes of May 14, 2013, carried unanimously.

2. Public Appearances

Chair Baumbach entertained public appearances, as follows:

D. Elise Kay, 5919 Schumann Drive, stated she was interested in speaking on Agenda Item 9 – Stormwater Management Plan as it relates to stormwater runoff on her and adjacent properties.

3. Review/Summarize Input from City Commissions and Committees

Dave Schreiber provided an overview of input from City Commissions and Committees on the draft North Stoner Prairie Neighborhood Plan materials. Schreiber stated some issues brought up by City Commissions and Committees include the following, 1. – 5:

1. Impact of nuisance elements on existing and future neighborhoods (i.e. power lines, natural gas facility, agricultural odors, etc.);
2. Traffic connectivity of existing and future neighborhoods and impact of increased truck traffic in planned industrial areas;
3. Focus on industrial uses and employment in the planning area;
4. Maintaining and increasing current levels of water infiltration in the planning area;

5. Trailhead opportunity along the Badger State Trail and expansion of existing North Stoner Prairie Park;

Thoresen asked if the Committees/Commissions were generally supportive of the Scarlett/Persimmon connectivity Option 4. Schreiber stated yes. Chair Baumbach asked for clarification of the “weight” given to the issues brought up by the Committees/Commissions. Schreiber stated the Plan Commission and Common Council would have the ability to modify the draft Plan, as recommended by the Steering Committee, as the Plan comes before said Commission and Council for their formal review and approval.

4. Land Use Plan / Final Growth Model

Scott Goldstein provided an overview of the draft land use plan and final growth model and recommendations. Goldstein clarified the boundaries of stormwater management and open space areas. Pete Lundberg asked for more detail on stormwater management buffers. Goldstein explained the different stormwater management options, Option 1: BMP and Option 2: BMP+LID. Schreiber clarified that the width of stormwater management buffers on private residential properties would vary given topographic conditions. Kevin Unbehaun asked for clarification on the acreage shown for stormwater management in the land use acreage table. Goldstein provided clarification. Thoresen requested that the land use acreage table be included in the packet of materials to be provided to the Steering Committee at the next meeting.

5. Sector Plan

Tom Hovel provided a presentation on the basics of a Sector Plan and the City’s smart code zoning district. Hovel stated that the Sector Plan and associated smart code zoning would provide another option, beyond standard Euclidean zoning, for a developer/landowner to develop in a manner consistent with the City’s Comprehensive Plan. Hovel also stated any potential Sector Plan would apply only to those lands in the planning area east of the Badger State Trail.

Baumbach stated that the Committee will decide whether or not a Sector Plan will be included in the Neighborhood Plan draft that the Committee will recommend to the Plan Commission. Baumbach stated that if a Sector Plan is not included in the recommended Plan it could be included at a later date, via an amendment to the Comprehensive Plan.

The Committee discussed various aspects of a potential Sector Plan for the Neighborhood Plan, including the following, 1. – 8.:

1. Increased residential densities and mixed uses in the planning area that may be contradictory to the standard land use plan/final growth model previously approved by the Committee;
2. Review and approval processes for smart code zoning under a Sector Plan and standard zoning;
3. Allowing for options for landowner/developers;
4. Minimum area for a development under smart code zoning;
5. Accommodating the desired Scarlett/Persimmon Drive connectivity option in the Sector Plan/smart code zoning;

6. Advantages of Sector Plan/smart code zoning, including walkability and controlling development form;
7. Educating the existing adjacent neighborhoods and other interested parties on Sector Plan/smart code zoning;
8. The potential to combine the “best” aspects of standard zoning and smart code zoning;

The Committee discussed various options and timing for reviewing and taking action on inclusion/non-inclusion of a Sector Plan in the draft Neighborhood Plan. Lundberg and Thoresen stated they would be discussing the Sector Plan information with their neighborhoods.

Alder Steve Arnold stated that densities are not as important under smart code zoning, as they may be under standard zoning, as other land use controls exist in smart code zoning that perpetuate a desired and attractive urban form, ensuring maintenance and enhancement of property values.

Mary Kaye Zimbrick, a City resident, expressed her concern about the sustainability of commercial/businesses land uses in the planning area, as may be seen in smart code zoning, and the potential for vacant commercial/business properties in the planning area.

The Committee decided they would study the Sector Plan, inform interested parties of the basic tenants of a Sector Plan, and take action on inclusion/non-inclusion of a Sector Plan in the draft Neighborhood Plan at their July 23 meeting. Baumbach also stated that the Neighborhood Plan public meeting on August 15 would be a good indication of the existing neighborhoods and other interested parties thoughts on a potential Sector Plan for the planning area.

Lundberg asked about Phil Sveum’s memo regarding the potential negative impact of powerlines on planned existing residential uses in the planning area, and the feasibility of moving the existing powerline to the west. Hovel summarized research he had undertaken and a memo he had prepared outlining the effect of powerlines on other residential properties in the City. Hovel stated, per the aforementioned memo, the effect of powerlines on residential properties in the City was negligible. Lundberg requested that “relocation of the powerlines” be an agenda item at the July 23 Committee meeting.

Baumbach stated that if Committee members have any conversations with interested parties regarding the Sector Plan that they would like distributed to other Committee members, Committee members should first forward the information to Wade Thompson, and Wade will then distribute the information to the rest of the Committee.

6. Environmental, Open Space, and Parks Plan

Dave Schreiber provided an overview of the draft environmental, open space, and parks plan, and recommendations. Schreiber stated the existing North Stoner Prairie Park is being proposed for expansion, a trailhead park is being proposed along the Badger State Trail, and a woodlot open space is being proposed in the southwest portion of the planning area. Schreiber also identified the proposed trail network in the planning area, as well as stormwater management areas.

7. Utilities/Infrastructure Plan

John Lichtenfeld provided an overview of the draft utilities/infrastructure plan, including water and sewer, and recommendations. Lichtenfeld stated the main focus of the draft utilities/infrastructure plan and recommendations was to ensure enough capacity and redundancy in appropriate locations for the desired land uses in the planning area.

8. Traffic Impacts/Transportation Plan

John Lichtenfeld provided an overview of the draft traffic impacts/transportation plan and recommendations. Lichtenfeld stated the draft plan identifies aspects of major intersections outside, but in close proximity to, the planning area, with recommendations stemming from the perceived use of these major intersections. Lichtenfeld stated that a grid system would be desirable in the planning area to distribute traffic throughout the area. Lichtenfeld also stated recommendations include straightening Lacy Road and creating a visible “entry point” at Lacy Road and Seminole Highway, potentially a roundabout. Lichtenfeld also stated that other recommendations include access to the schools from the new neighborhoods west of the schools, a bike path system, all new streets accommodating bike traffic, and potential weekday transit options.

Thoresen stated that a bike trail connection from the planning area to the Military Ridge State Trail would be desirable.

9. Stormwater Management Plan

Steve Gaffield provided an overview of the draft stormwater management plan and recommendations. Gaffield stated that the stormwater management recommendations are more restrictive than existing Wisconsin Department of Natural Resources and City ordinance standards, to ensure adequate stormwater management in the planning area and areas adjacent to said area. Gaffield stated that an emergency pumping plan should be in place, on the west side of the Badger State Trail, to address any potential unforeseen stormwater management issues. Gaffield stated that stormwater management on the east side of Seminole Highway should recognize existing stormwater management issues, including basement flooding and water infiltration.

Gaffield stated further field work, including soil borings and monitoring wells, would need to be done when development is proposed in the planning area, to ensure adequate stormwater management. Gaffield also stated that safe drainage routes past residential properties, to potentially include City easement, would need to be developed.

Chair Baumbach asked about the timing of addressing existing stormwater management issues in and adjacent to the planning area. Paul Woodard stated that these issues would ideally be addressed when development is proposed in the planning area, as this would be a cost efficient manner in which to proceed. Woodard also stated these issues could be addressed prior to development in the planning area, if it was likely that said development would not occur for some time.

Thoresen asked what historical data was being utilized to evaluate stormwater management needs in the planning area. Gaffield stated the 1981 rainfall series was being utilized to evaluate these needs.

D. Elise Kay asked if it would be possible to determine if the current flooding from the fields backing residential properties on Schumann Drive could be resolved without damaging existing landscaping infrastructure on her property. Woodard stated the City would work with affected landowners to ensure adequate stormwater management and appropriate installation of any required infrastructure.

Unbehaun asked where stormwater west of the Badger State Trail would be piped in an emergency scenario. Woodard stated stormwater would be pumped north to a detention pond east of Badger State Trail and south of Marketplace Drive. Unbehaun also asked if the closed depression in the planning area was sized appropriately given the volume control standards being proposed for the planning area as a whole. Gaffield stated it was sized appropriately.

Thoresen stated it was important for developers to develop and maintain stormwater management areas appropriately. Woodard stated that the City has agreements with developers to ensure that these areas are maintained by said developers for a specified time period.

10. Next Steps

Schreiber gave an overview of the next steps in the Plan development process, including refining Plan elements for the next Steering Committee meeting (July 23 – 4 p.m.), scheduling of a public meeting #2 (August 15 – 6 p.m.), and draft Plan preparation (first draft and meetings, September, after Labor Day).

11. Announcements

a. Next Meeting

4:00 p.m., Tuesday, July 23, 2013, Meeting Room, City Hall.

12. Adjournment

Motion by Lundberg, second by Thoresen, to adjourn at 5:51 p.m., carried unanimously.

Submitted by: Wade Thompson, Resource/Project Planner

Approved: July 23, 2013

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MINUTES

North Stoner Prairie Neighborhood Plan – Steering Committee Meeting #8

Tuesday, July 23, 2013

Members Present: Becky Baumbach, Bill Buglass, Chris Murphy, Dean Gorrell, Pete Lundberg, Phil Sveum, Tom Thoresen, and Kathleen Kilgore

Staff Present: Tom Hovel, Mike Zimmerman, and Wade Thompson

Consultant Present: Ryan Garcia and David Schreiber, SAA Design Group

1. Call to Order and Approval of Minutes

Chair Becky Baumbach called the meeting to order at 4:00 p.m. Motion by Pete Lundberg, second by Bill Buglass, to approve the minutes of July 9, carried unanimously.

2. Public Appearances

Chair Baumbach entertained public appearances, as follows:

Bill O'Donnell, Persimmon Drive resident, acknowledged the work the Committee had done to date in establishing trust for the neighborhood plan. O'Donnell stated the standard land use plan addresses traffic issues, residential density, and stormwater management with the existing neighborhood's concerns in mind but the proposed Sector Plan would be contrary to the major components of the standard land use plan.

Katherine O'Brien Schneider, owner of land in the planning area west of the existing Lacy Heights Neighborhood urged the Committee to include the Sector Plan as a development option in the neighborhood plan. Schneider stated the Sector Plan would offer a desirable growth option for the neighborhood. Schneider stated mixed uses and higher residential densities, nearby shopping and commercial services areas, and walkable neighborhoods produce less traffic than typical suburban development. Schneider stated her family has been stewards of the land for many years and wish to see any future development of the land follow sustainable community planning and development principles.

Brad Mullins, a Lacy Heights resident, acknowledged the Sector Plan follows New Urbanism/Smart Growth principles. Mullins stated this approach is appropriate in certain settings but that the North Stoner Prairie Neighborhood is not an appropriate area for this type of development because land areas are too small, mixed-use/commercial would not likely be feasible, and residential density is not consistent with existing neighborhood desires.

Alder Steve Arnold stated the planning process did not offer an education component for the Committee and had not gathered all the appropriate data, which will lead to a less than optimal result. Arnold stated

he was concerned about the split and lack of integration between planned residential and industrial uses in the neighborhood, with no consideration of future agricultural land. Arnold stated the Sector Plan should be considered for the neighborhood as it could offer a desirable form of community development.

3. Discussion: Relocation of ATC High Capacity Electrical Transmission Lines

Tom Hovel provided a summary of a memorandum distributed to the Plan Commission and North Stoner Prairie Neighborhood Steering Committee on May 28, 2013, related to relocation of the power lines running north-south in the eastern portion of the neighborhood. Hovel stated City Planning and Development staff studied the effects on power lines on property values in other City neighborhoods, finding the impacts on values to be negligible, if only slightly negative.

Phil Sveum stated power lines in close proximity to residential properties will have a negative effect on property value. Sveum stated that in his experience a likely homebuyer in the neighborhood would not consider buying a home adjacent to power lines. Sveum also stated the long-term resale value of homes adjacent to power lines would be impacted negatively, having a “rippling effect” on the entire neighborhood. Sveum stated relocation of the power lines should be considered. Kathleen Kilgore asked if a Tax Increment District (TID) could be created and if powerline relocation be funded in that manner. Hovel stated he believed a TID would likely be created for the planned industrial lands but phasing and timing of TID improvements for residential development may make powerline relocation infeasible. Buglass thought the draft plan should include a recommendation of powerline relocation. The Committee proposed the following language to be included in the draft plan: “Recommend that the City of Fitchburg explore relocation of high tension power lines in coordination with the development of the North Stoner Prairie Neighborhood.”

4. Discussion: Draft Land Use Plan and Associated Recommendations

Schreiber provided a brief overview of the Draft Land Use Plan and recommendations. Sveum asked if recommendation L4 could be amended to state “...at a density of *up to* 5-6 du per acre...” so as to promote low-density/single-family housing if the developer and market determine that to be the best use.

The Committee questioned whether approval of the draft Land Use Plan served as a de facto defeat of the Sector Plan. Schreiber responded that was not the case and that the Land Use Plan and Sector Plan serve as two separate development “tracks.”

5. Action: Draft Land Use Plan and Associated Recommendations

Motion by Kilgore, second by Buglass, to approve the Draft Land Use Plan with the following amendment “Recommendation L4 amended to state “...at a density of *up to* 5-6 du per acre...””, carried unanimously.

6. Discussion: Draft Sector Plan

Chair Baumbach opened discussion on the draft Sector Plan stating a concern for approving a Sector Plan after all the Committee’s efforts to ensure that the land use plan was favorable to the Committee, City, and existing neighborhoods. Chair Baumbach and Hovel stated that putting qualifiers on Sector Plan was not desirable, per the City Attorney’s opinion. Dean Gorrell asked where SmartCode zoning was currently in place in the City. Hovel stated the Uptown area.

The Committee discussed whether it was desirable to provide the Sector Plan/SmartCode as a development option given its limited “control” over land use and density versus the approved land use plan. The Committee agreed that the market would ultimately determine whether a Sector

Plan/SmartCode was appropriate and desirable in the neighborhood and therefore it should be up to future developers to propose a Sector Plan for the neighborhood

Buglass stated he wished to see the Sector Plan allowed so as to provide additional development flexibility to landowners and if future development proposals under the Plan met the spirit of the land use plan. The Committee agreed to take no action on the Sector Plan and instead allow for the Neighborhood Plan to stipulate that in the future that developers/landowners can petition for a Sector Plan through a comprehensive plan amendment.

7. Action: Draft Sector Plan as a Component of Draft Neighborhood Plan

The Committee took no action on the Draft Sector Plan as a component of the Draft Neighborhood Plan. This lack of action indicated that the Committee is not proposing inclusion of a Sector Plan in the draft plan.

8. Discussion: Draft Environmental, Open Space, and Parks Plan and Associated Recommendations

Schreiber introduced the revised draft Environmental, Open Space and Parks Plan and recommendations, reflecting Committee discussions at the previous meeting. Tom Thoresen asked if there was a planned stormwater detention area near the school path and if this area would count towards required parkland dedication. Hovel responded that a stormwater detention area was not being planned near the school path. Thoresen also asked if designating parkland as an Area Park would require on-site parking. Schreiber responded that parking could be included in a detailed improvement plan for the park.

9. Action: Draft Environmental, Open Space, and Parks Plan and Associated Recommendations

Motion by Sveum, second by Buglass, to approve the Environmental, Open Space, and Parks Plan as a component of the draft neighborhood plan, carried unanimously.

10. Discussion: Draft Utilities/Infrastructure Plan and Associated Recommendations

Garcia introduced the revised draft Utilities/Infrastructure Plan and recommendations, reflecting Committee discussions at the previous meeting. Garcia clarified that location and dimensions of utilities infrastructure were conceptual, with exact location and dimension to be determined with future platting and development approvals.

Garcia confirmed that the recommendation relating to power line relocation would be added to the draft plan, as follows: "City and/or private relocation of high tension power lines west of Seminole Highway".

11. Action: Draft Utilities/Infrastructure Plan and Associated Recommendations

Motion by Sveum, second by Buglass, to approve the Utilities and Infrastructure Plan as a component of draft neighborhood plan, carried unanimously.

12. Discussion: Draft Transportation Plan and Associated Recommendations

Garcia introduced the revised Transportation Plan and recommendations, reflecting Committee discussions at the previous meeting. The Committee identified safety of the Seminole Highway/Bike Path crossing as a key point to be expanded on in the final draft plan. Thoresen reiterated the importance of working with the school to address access and safety issues related to the school campus.

13. Action: Draft Transportation Plan and Associated Recommendations

Motion by Sveum, second by Buglass, to approve the Transportation Plan as a component of the draft neighborhood plan, carried unanimously.

14. Discussion: Draft Stormwater Management Plan and Associated Recommendations

Garcia introduced the revised Stormwater Management Plan and recommendations, reflecting Committee discussions at the previous meeting. Thoresen encouraged a recommendation that the City add an additional monitoring well and conduct further study on stormwater management prior to development of the neighborhood. The Committee discussed the idea proposed by Paul Woodard, City Director of Public Works, at an earlier Steering Committee meeting that additional monitoring wells and stormwater management study could be done at a future date when development occurs in the area.

15. Action: Draft Stormwater Management Plan and Associated Recommendations

Motion by Buglass, second by Kathleen Kilgore, to approve the Stormwater Management Plan as a component of draft neighborhood plan, carried unanimously.

16. Discussion: Objectives for August 15 Public Meeting

Chair Baumbach stated the public meeting would be held at 6 p.m. at the Fitchburg Library. Schreiber confirmed the format of the meeting would consist of an open house, allowing for public review of the draft plan, followed by a brief plan overview presentation, and concluding with a public question and answer period.

17. Next Steps and Announcements

Schreiber and Garcia stated the project website will be updated with recommendations and plan components as approved by the Committee. Schreiber stated the first draft of the plan will be prepared for Committee review in early September, after the August 15 public meeting.

18. Adjournment

Motion by Buglass, second by Lundberg, to adjourn at 6:07 p.m., carried unanimously.

Submitted by: Wade Thompson, Resource/Project Planner

Approved: September 18, 2013



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MINUTES

North Stoner Prairie Neighborhood Plan – Steering Committee Meeting #9
Tuesday, September 18, 2013

To Be Inserted

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SUBMIT YOUR QUESTIONS HERE

North Stoner Prairie Neighborhood Plan – Stormwater Management Recommendations and Map

Thank you for attending our open house! Public input is an important part of this process. Please take a moment to provide your comments on the draft neighborhood plan.

Do you have any questions or comments about the stormwater management displays that you'd like us to address tonight?

For (M10), our property (5919 Schumann) is one of three properties potentially involved in a possible stormwater pipeline from whatever retention basin is placed behind our homes to the sewer system under Schumann. Our property has no water issues under any current stormwater runoff circumstances (we are not concerned at all with the occasional surface water "stream" that runs down the side of our yard)

close to the property line). But our yard is highly landscaped, with mature trees and shrubs that would be disrupted by placing a pipeline along our property line. Since our property would not be improved ^{by a pipeline} at all, it would only stand to be damaged by placement of a pipeline and the property value diminished by establishment of a permanent easement. We would strongly recommend that any pipeline be placed on the other side of our neighbor's home (Steve + Gloria Smith, 5915 Schuman) - between 5915 and 5911 - as there is basically no landscaping here to disrupt.

Thanks for your consideration,

Jenny Kay
5919 Schuman

SUBMIT YOUR QUESTIONS HERE

Land Use

North Stoner Prairie Neighborhood Plan – Land Use Recommendations and Map

Thank you for attending our open house! Public input is an important part of this process. Please take a moment to provide your comments on the draft neighborhood plan.

Do you have any questions or comments about the land use displays that you'd like us to address

tonight?

This area is hard to sewer, constrained for transportation, and terrific for farming. Why was agriculture excluded as a potential land use? At what point was this important policy decision made?

SUBMIT YOUR QUESTIONS HERE

North Stoner Prairie Neighborhood Plan – Land Use Recommendations and Map

Thank you for attending our open house! Public input is an important part of this process. Please take a moment to provide your comments on the draft neighborhood plan.

Do you have any questions or comments about the land use displays that you'd like us to address

tonight?

It seems that industrial is planned west of B.S.T. and residential is planned east of Semivole Hwy. What consideration was made to accommodate and support the transition to "permanent" (50 year) agriculture south of Lee Rd.? I see no tapering of intensity or transitional uses.

8-15-13

SUBMIT YOUR QUESTIONS HERE

North Stoner Prairie Neighborhood Plan – Stormwater Management Recommendations and Map

Thank you for attending our open house! Public input is an important part of this process. Please take a moment to provide your comments on the draft neighborhood plan.

Do you have any questions or comments about the stormwater management displays that you'd like us to address tonight?

1. THE LOOP OFF OF SCARLET / PERSIMMON SEEMS OK
2. CLARIFICATION ON THE BUFFER BEHIND BIKE/SCHOOL PATH ON SOUTH END OF SEMINOLE
3. AGREE W/ 3 UNITS PER ACRE
4. NEED MORE PARKING AREA @ PARK AREAS - CONGESTED ON SCARLET
5. THANK YOU FOR HEARING OUR CONCERNS AND COMING TO A HAPPY MEDIUM FOR ALL. BILL NEBEL
SCARLET, PERSIMMON? - MOUNTAIN - LAUREL HEIGHTS REVIEW AREA.

SUBMIT YOUR QUESTIONS HERE

North Stoner Prairie Neighborhood Plan – Land Use Recommendations and Map

Thank you for attending our open house! Public input is an important part of this process. Please take a moment to provide your comments on the draft neighborhood plan.

Do you have any questions or comments about the land use displays that you'd like us to address

tonight?

What are the next steps in the planning process?

PA

SUBMIT YOUR QUESTIONS HERE

North Stoner Prairie Neighborhood Plan – Land Use Recommendations and Map

Thank you for attending our open house! Public input is an important part of this process. Please take a moment to provide your comments on the draft neighborhood plan.

Do you have any questions or comments about the land use displays that you'd like us to address tonight?

Don't agree w/ the plan!

LS neighborhood developed - WiFi to many houses rejected. Traffic nightmare even w/ round about. Want match quality of LACY

Not enough green space area w/ neighborhoods. ^{Height}

The taxes we pay are insane - Lacy heights neighborhood went up on average 39K per home when other Fitchburg residents saw taxes go down? How will this effect our taxes?

SUBMIT YOUR QUESTIONS HERE

North Stoner Prairie Neighborhood Plan – Land Use Recommendations and Map

Thank you for attending our open house! Public input is an important part of this process. Please take a moment to provide your comments on the draft neighborhood plan.

Do you have any questions or comments about the land use displays that you'd like us to address tonight?

None

Jamert Rice

PS - Thank you for being patient →

And working with us (Lacey
Hershey's)

Thanks

SUBMIT YOUR QUESTIONS HERE

North Stoner Prairie Neighborhood Plan – Stormwater Management Recommendations and Map

Thank you for attending our open house! Public input is an important part of this process. Please take a moment to provide your comments on the draft neighborhood plan.

Do you have any questions or comments about the stormwater management displays that you'd like us to address tonight?

Plans for Dunn Farm historical Barn?
~~the~~ Community-type farming Around it?

SUBMIT YOUR QUESTIONS HERE

North Stoner Prairie Neighborhood Plan – Parks, Open Space, and Cultural Resources Recommendations and Map

Thank you for attending our open house! Public input is an important part of this process. Please take a moment to provide your comments on the draft neighborhood plan.

Do you have any questions or comments about the parks, open space, and cultural resources displays that you'd like us to address tonight?

What will be done to preserve
healthy historic oaks along
Lacey Road and field grass
traks in fields?

SUBMIT YOUR QUESTIONS HERE

North Stoner Prairie Neighborhood Plan – Parks, Open Space, and Cultural Resources Recommendations and Map

Thank you for attending our open house! Public input is an important part of this process. Please take a moment to provide your comments on the draft neighborhood plan.

Do you have any questions or comments about the parks, open space, and cultural resources displays that you'd like us to address tonight?

What is the difference between a neighborhood park and an "area" park to describe the expansion of Stoner Prairie Park.

Will parking be added or is school parking used?

SUBMIT YOUR QUESTIONS HERE

North Stoner Prairie Neighborhood Plan – Parks, Open Space, and Cultural Resources Recommendations and Map

Thank you for attending our open house! Public input is an important part of this process. Please take a moment to provide your comments on the draft neighborhood plan.

Do you have any questions or comments about the parks, open space, and cultural resources displays that you'd like us to address tonight?

Q6: ~~How~~ How will the steep grade changes be managed to connect E-W trail to the Quarry Ridge "ambulance run"?

Storm
water

SUBMIT YOUR QUESTIONS HERE

North Stoner Prairie Neighborhood Plan – Stormwater Management Recommendations and Map

Thank you for attending our open house! Public input is an important part of this process. Please take a moment to provide your comments on the draft neighborhood plan.

Do you have any questions or comments about the stormwater management displays that you'd like us to address tonight?

GET MONITORING WELLS IN BEFORE
DEVELOPMENT. ~~THE~~ THE RFP CALLED
FOR SOME MORE. KNOW WATER LEVELS
IN NEXT YEARS AND FLOW.

SUBMIT YOUR QUESTIONS HERE

North Stoner Prairie Neighborhood Plan – Transportation Recommendations and Map

Thank you for attending our open house! Public input is an important part of this process. Please take a moment to provide your comments on the draft neighborhood plan.

Do you have any questions or comments about the transportation displays that you'd like us to

address tonight?

Transportation

There are limits to the number of trips that can be generated by the Arrowhead & Dickard Pt. planning areas* What are the limits for trip generation for NSP, and how will they be enforced through buildout?

*due to constraints at Verona/McKee intersection/interchange

SUBMIT YOUR QUESTIONS HERE

North Stoner Prairie Neighborhood Plan – Transportation Recommendations and Map

Thank you for attending our open house! Public input is an important part of this process. Please take a moment to provide your comments on the draft neighborhood plan.

Do you have any questions or comments about the transportation displays that you'd like us to address tonight?

What is the timeline for ~~the~~ straightening
Lacy Road?

What happens to the old section of
Lacy Road?

SUBMIT YOUR QUESTIONS HERE

North Stoner Prairie Neighborhood Plan – Transportation Recommendations and Map

Thank you for attending our open house! Public input is an important part of this process. Please take a moment to provide your comments on the draft neighborhood plan.

Do you have any questions or comments about the transportation displays that you'd like us to address tonight?

Roundabout @ Seniors & Lacy
difficult for farmers & farm
machinery. Take too much land from
properly owners.

SUBMIT YOUR QUESTIONS HERE

North Stoner Prairie Neighborhood Plan – Transportation Recommendations and Map

Thank you for attending our open house! Public input is an important part of this process. Please take a moment to provide your comments on the draft neighborhood plan.

Do you have any questions or comments about the transportation displays that you'd like us to address tonight?

NEED TO MAKE SURE TRAFFIC
IS "HIGHLY INDIRECT" ON SCARLET &
PER SIMON AND SLOWED DOWN TO
PROTECT SAFETY OF PEDESTRIANS.

SUBMIT YOUR QUESTIONS HERE

North Stoner Prairie Neighborhood Plan – Transportation Recommendations and Map

Thank you for attending our open house! Public input is an important part of this process. Please take a moment to provide your comments on the draft neighborhood plan.

Do you have any questions or comments about the transportation displays that you'd like us to address tonight?

MAKE SURE SCHOOL TRAFFIC
+ SAFETY IS ADDRESSED AS
WELL AS NO SPEEDING TRAFFIC
IN NEW OR OLD NEIGHBORHOODS

Whitaker

SUBMIT YOUR QUESTIONS HERE

North Stoner Prairie Neighborhood Plan – Sanitary Sewer and Water Service Recommendations and Map

Thank you for attending our open house! Public input is an important part of this process. Please take a moment to provide your comments on the draft neighborhood plan.

Do you have any questions or comments about the sanitary sewer and water service displays that you'd like us to address tonight?

"Proposed Sanitary Structure" - what is this (what does it look like & is it above ground?) Visually what will this look like?

271-3579

STONER PRAIRIE PLANS

Move ATC lines underground and to the bike path right of way. This is what should have been done when they were originally put in! Would be good if any utilities planned for this area could be in the bike path right of way or on the roads.

Roundabout at Seminole and Lacy. The natural gas substation is an obstacle to placing a roundabout at this corner. If the roundabout is moved east or west of the intersection it will destroy some of the best farmland in the county and make the fields difficult or impossible to farm. A roundabout will need to be bigger and take up more land to accommodate the buses and semis and farm machinery and difficult for the many school buses that use Lacy and Seminole to transport the children and I know they are difficult for the snow plows. With the semis delivering supplies to the schools, buses and plows and farm machinery; don't you think stop lights would work much easier for those types of vehicles to navigate.. Let's not get on the roundabout band wagon and look at what makes sense.

Moving Lacy Road north at the intersection with Fitchrona Road. Probably OK to smooth it out some as the land north of the road in that area contains gravel that will be mined out eventually. Probably not even that good for building. But leave the woodlots for nature preservation if possible. They contain hickory and black walnut trees along with the beautiful oaks..

Conservation to make use of the natural low spot north of Lacy Road. It is a natural place for the runoff to settle so maybe would be a cheaper fix to a problem with development. A nice area to make into a conservation area as it already attracts geese and other wildlife throughout the year.

Taking farmland away in areas north of Lacy Road. This is very fertile land and should be preserved for growing crops that the county will need for agriculture in the future. Taking away Tom and Pat O'Brien's way of life. Not cool!!! You suggested "soft farming" with a educational dairy center, orchard, etc. Farming is not a 9 to five job that you work at to make as much money as you can. Why not work with them to preserve a way of life (not a way of making lots of money) Would be good for all to preserve one of the last active dairy farms in Fitchburg as long as possible. An education in itself to the history of Fitchburg and the people who homesteaded here.

Is it fair to demand a family who has made probably the best use of this land, to change their way of life in the name of progress. I think not. This is a generational farm and should be preserved to show the public what got Fitchburg going, and profitable for people to move to this area. Generations ago a gentleman immigrated from Ireland and moved to Wisconsin. He took the train to Janesville which was as far as it went. Walked to Brooklyn and homesteaded. As his family grew, he helped each one set up a farm and get started. Thus all the O'Brien's on Seminole Highway and the 100 year old homesteads, most of which have the fourth or fifth generation working the land.

You talked about preserving some of the old barns and buildings...what about the land itself? Is it so necessary to have houses and stores on every inch of Fitchburg? Maybe preserve some of the "old timers" too!

There was also discussion about saving the old oak trees on Lacy Road and in the fields. Don't you think there should be discussion about preservation of the people who have already been keeping this land by farming the land and have taken care of it for years and are a big part of what Fitchburg is. today.

COMMUNITY COMMENT LOG – ONLINE COMMENTS RECEIVED

Greg Matzke – 2/24/2013

i have attended the 1/29 meeting as well as our lacy heights meeting with tom thorsen as our representative. i share similar concerns as bill odonnell listed below and will itemize some concerns moving forward with any of these plans.

at the 1/29 public meeting, the constituents were fairly unanimous in many of the details of planning, sharing many common interests, so as to not have many different viewpoints. specifically:

1. the number of houses or number of homes per acre are not clearly spelled out, as this would affect traffic, storm water drainage, and possible flooding of lacy heights and those on schumann street.
2. the bike path was unanimously voted to protect this resource. children use it for school access, park access, the pool and tennis club, and many fitchburg park and rec sports rely on children using this for access to games/practices. many adults also enjoy this bike path for exercise, dog walking, etc. all 1/29 members at city hall expressed the need to keep this path protected, and to not have persimmon and scarlett drive be used as access points for the urban development. unfortunately these are still included in the plans as possible.
3. the green space behind the bike path should be increased to help with shielding the bike path, prevent flooding, and be part of the park development.
4. access should be from seminole hwy and/or lacy road.
5. all commercial developement should remain west of seminole highway.

if i can be of further assistance please contact me directly:

greg matzke, MD
5882 persimmon drive
lacy heights
843-0680

Bill O'Donnell – 2/24/2013

I have reviewed the 4 models being proposed for the development between sub zero and the Lacy Heights Neighborhood. What is being proposed we feel will be very bad for Lacy Neighborhood (LHNA). The three major concerns is that all 4 models plans are: (1) The potential would cause significant traffic flow in our neighborhood (2) Safety concerns of the existing bike path that may impact our children. (3) There no clarity on the sizes of homes and lots that will be built next to our neighborhood leaving uncertainty of the property value impact of this plan...

There is some components with in these proposal that are good, but there is no one plan that seems to be good for LNHA.

I work 2 years with the City of Fitchburg on traffic and safety concerns in our area with the school that resulted in adding speed bumps here the school and more interesting, we added a dead end sign at Persimmon and Scarlet which believe it or not cut down on traffic and speeding in our neighborhood because people were trying to find a roadway to lacy or seminole. So I have a lot of experience on traffic conditions and we need to make sure what we learned is feed into your plans...

My comments on each of the models as it directly impacts LHNA are...

Model/plan 1 in the link above, we noticed the following...

- (1) There is a proposed roadway (which appears to be a major thorough fare way) that extends from subzero crossing Seminole HWY connecting with Scarlet crossing our bike trail.
- (2) Persimmon is consider "possible" connection (unclear if it a roadway or a trail).
- (3) There is no naturalized storm water buffer between bike trail adjacent to LHNA. Given the land is higher thanLHNA, we are concerned about water issues.
- (4) It unclear of the size homes and lots that will be built next to LHNA.
- (5) We like the idea there is park and open space proposed south of Scarlet and west of the school.

Model/Plan 2 in the link above, we noticed the following..

- (1) Their is a proposed Roadway from Seminole Hwy to the new neighborhood and Scarlet and Persimmon is mark as "possible" Connection.
- (2) There is a naturalized storm water buffer between bike trail adjacent to LHNA which we feel is good.
- (3) We like the idea there is park and open space proposed south of Scarlet and west of the schools.
- (4) It unclear of the size homes and lots that will be built next to LHNA.
- (5) Model/Plan 2 is probably the closest plan that may work as long as Scarlet and Persimmon streets are not allowed to extend into the new development.

Model/Plan 3 in the link above, we noticed the following..

- (1) There is a proposed roadway from Seminole and Lacy road to the new neighborhood and Scarlet is mark as "possible" connection.
- (2) There is a proposed space reserved for the schools south of Scarlet and west of the schools which we feel is good.
- (3) There is a naturalized storm water buffer between bike trail adjacent to LHNA which we feel is good.
- (4) It unclear of the size homes and lots that will be built next to LHNA.

Model/Plan 4 in the link above, we noticed the following...

- (1) There is a proposed roadway extending Scarlet such that it can connect to Seminole and Lacy road.
- (2) There is a proposed park and open space south of Scarlet and west of the schools which we feel is good.
- (3) There is a naturalized storm water buffer between bike trail adjacent to LHNA which we feel is good.
- (4) It unclear of the size homes and lots that will be built next to LHNA.

In summary, our feeling is that we recognized that there will be a new neighborhood built. We prefer that Scarlet and Persimmon roadway did not connect to this new neighborhood because of concerns of traffic and safety of our children riding bikes and walking on the bike trail. We also think it is a must have to have the naturalize water buffer along side the bike trail as the farm land is higher than the LHNA and it will cause water challenges without it.

If you like to discuss this with me, my name is Bill ODonnell @ 608-239-9000.

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APPENDIX B

ERC Environmental Report

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***Preliminary Natural Resource Assessment for the Proposed Site of the
North Stoner Prairie Development***

***Prepared by
Eco-Resource Consulting, LLC
409 Concord Drive
Oregon, WI 53575***

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ECO-RESOURCE CONSULTING, LLC

November, 2012

Preliminary Natural Resource Assessment for the Proposed Site of the North Stoner Prairie Development

The proposed North Stoner Prairie Neighborhood site consists of approximately 370 acres of land along the north side of Lacy Road within the City of Fitchburg, Wisconsin. Approximately 251 acres (68%) of this future development site is currently being utilized for agricultural production. The remaining areas (approximately 119 acres) are comprised of woodlands, wooded field edges, idle grasslands, mowed turf areas, farmsteads/residential land, and a portion of a quarry complex in the northwest corner.

ERC ecologists conducted meander surveys of the future project area on November 1st and 13th, 2012. The purpose of these surveys was to assess the natural resources of the property, and evaluate the ecological and restoration value of various resource types on the property. ERC staff made preliminary observations at the locations, and quality of woodlands, trees/shrubs, native grass and forbs, and wetlands. Field data collected included the presence of important mature trees, and the diversity and quality of the tree and understory species within the woodland areas. ERC ecologists also evaluated potential wetlands that may meet regulatory wetland criteria or support restoration or enhancement potential.

Major vegetation types were recorded along the meander survey paths within each Area, noting important or unusual plant species. In some cases, isolated large trees were measured and an evaluation of their health provided. The site was divided into seven distinct “Areas”. These Areas are illustrated on Figure 1 – “Natural Resource Features Within the North Stoner Prairie Development Site” on the final page of this report. Each Area is described as follows:

Area 1

Located on the southwest corner of the site, this 12.5 acre woodland is the most ecologically diverse natural area on the property. The overstory of trees is indicative of pre-settlement southern Wisconsin dry-mesic oak-hickory woodland. This area likely burned periodically in pre-settlement and early settlement times, and was likely utilized for grazing in more recent

times. Tree density is too high to be considered a savannah but too low to be considered a forest. The area would be classified as a woodland.

The dominant trees species include oaks (bur, white, and black), and shag bark and bitternut hickory. Bur oak is clearly the dominant tree species. Numerous mature bur oaks with diameters at breast height (dbh) exceeding 36 inches were observed. Basal areas in two plots are between 70 and 150 ft.²/ acre, resulting in a low density but relatively high basal area. Very limited oak or hickory regeneration was noted and the few young and early successional tree species observed consisted of black cherry, hackberry, and box elder.

The shrub and herbaceous layers consist mainly of undesirable, weedy, and invasive species. Dense thickets of Asian honeysuckle, multiflora rose, raspberry, and grape dominate the shrub layer (Photo 1). The herbaceous layer consists of large patches of garlic mustard, burdock, white avens, Queen Anne's-lace, several goldenrod species, stinging nettle, motherwort, catnip, gooseberry, wild mint, foxtail and brome grasses. This woodland may contain more desirable herbaceous species such as spring ephemeral wildflowers but these were not observed during this fall survey due to the timing of the survey.

Because of the overstory of trees, this area could be restored to a desirable natural setting with native understory plant species. Unhealthy and undesirable tree species could be removed. The understory could be burned, treated with herbicides, and forestry-mowed to remove most herb and shrub species. More open areas could be planted with native prairie plants and denser areas restored to native understory woodland species. Oak and hickory saplings could be planted to maintain the oak-hickory woodland as older trees die. Trails would make the area more accessible and easier to maintain.

A small (approximately 1.3 acres) wooded area lies just southeast of Area 1 within a low lying area at the base of a berm and near the ditch on the north side of Lacy Road.. This area is dominated by black locust, a highly invasive and very low value non-native tree, but also contains some mature black walnut (Photo 2). The black locust trees could be cut and treated with herbicides to prevent re-sprouting. The black walnut trees could be retained for visual interest and wildlife habitat value.

Wildlife habitat value of this area in its current state is nominal. A good abundance of snags (dead trees suitable for wildlife species) exists to support cavity nesting birds, denning mammals, and attracting insects which support forage value for avian species. Mast producing oaks also add to the forage value for several species of wildlife. Although vegetative quality and diversity is lacking in the shrub and herbaceous layer, this woodlot is heavily utilized by whitetail deer, wild turkeys, and a wide array of small mammals and bird species.

Eco-Resource Consulting, LLC 409 Concord Drive Oregon, WI 53575 www.eco-resource.net



Photo 1

Mature, native hardwoods (oaks and hickories) dominate the overstory while non-native and low quality native vegetation dominates the shrub layer and herbaceous understory of Area 1.



Photo 2

These wooded field corners lie just southeast of Area 1 and contain a clonal growth of black locust trees and some mature black walnut.

Area 2

Area 2 is a 20 acre southeast facing hillside near the northwest corner of the proposed development area. The southeastern half (approximately 10 acres) of this area is dominated by Asian honeysuckle and common buckthorn. Other species in the shrub layer include smooth sumac, raspberry, red osier dogwood, gray dogwood, black locust, and viburnum. The herbaceous layer is composed of several low-value species including brome grass, Queen Anne's-lace, wild parsnip, Canada goldenrod, blue grass, and reed canary grass.

The northwestern half of this area (approximately 10 acres) is comprised of a rolling hillside dominated by smooth brome grass. Photo 3 depicts Area 2 with the foreground containing the rolling hillside and background containing the shrub thicket.

Most trees are young and early successional species including hawthorn, black cherry, box elder, quaking aspen, cottonwood and mulberry. All trees are less than 10 inches dbh except for one 24-inch black cherry along the south fence and a large mulberry in the fence corner. Most of the trees in the field edges and fence lines are black cherry.

Agricultural fields to the immediate east and south and were planted to corn in 2012. Restoration potential does exist within a small grove of red oaks near the southwest corner (Photo 4). This grove is comprised of 6 healthy, young red-oaks. These oaks range from 4 to 8 inches (dbh) and could be retained and used as a base to plant more native trees and shrubs. The density of these oaks is also ideal for creation of a small oak-savanna area.

If Area 2 is to be maintained as a natural area, most of it should be cleared, and re-planted with more desirable native vegetation. The southeast aspect of the main portion of this area could support a combination of native prairie plantings and pockets of native trees and shrubs. This vegetation type would also support a much wider array of wildlife species and would create more visual interest for this corner of the development.

The current vegetation dominating this area supports little wildlife habitat value. Deer and some small mammals utilize this area occasionally for bedding habitat due to the dense wooded understory and the south facing hillside (which retains heat longer from great sun exposure).



Photo 3

Area 2 is dominated by open hillsides of smooth brome grass leading downhill to mature, dense thickets of Asian honeysuckle and common buckthorn.



Photo 4

This small grove of red oaks lies near the southern end of Area 2 and could be retained as a base to plant additional native trees and shrubs.

Area 3

Area 3 is a farmstead on the north-central border of the property, just southwest of the Sub-Zero facility. This area contains mowed turf grass and a few large trees including Norway spruce, silver maple, bur oak and elm. This well-shaded and easily accessible area could be retained and managed for a common recreational area and might also be an ideal place for a picnic shelter and park.



Photo 5

Area 3 is a farmstead that features mowed turf grass and numerous mature shade trees spaced appropriately to establish a common picnic and recreational area within the development.

Area 4

Area 4 lies a few hundred feet south of Area 3 along a fenceline. This 0.5 acre grove of trees is a very similar in size and species composition to Area 5. This area lies within a fence row and division between two adjacent agricultural fields so it is more linear in shape and is dominated by mature bur oak trees. The largest of the bur oaks is approximately 50 inches dbh. Several of the bur oaks are hollow and in declining health. If structures or roads are to be placed near these trees, it is recommended that these hollow trees be removed.

Other tree species observed in this area include hackberry, hawthorn, box-elder, black cherry, and mulberry. All these trees are younger age class trees, with the largest being about 8 inch dbh.

The shrub and herbaceous layer contains common buckthorn, gooseberry, raspberry, Asian honeysuckle, garlic mustard, giant ragweed, burdock, pigweed, brome grass, motherwort, Queen Anne's lace, and bittersweet nightshade.

This small wooded area could be retained for visual interest or as a centerpiece and base for additional landscaping.



Photo 6

Area 4 is a 0.5 acre fence row/field edge dominated by mature bur oak trees.

Area 5

Near the center of the proposed development site is a small wooded area at the central junction of four agricultural field corners. This grove of trees is about 0.5 acre in total area and lies just a few hundred feet south of Area 4. This area contains numerous mature bur oak trees.

This small wooded area could be retained for visual interest or as a centerpiece and base for additional landscaping. Area 5 could also be connected to Area 4 with additional native tree and shrub planting.



Photo 7

Area 5 contains numerous mature bur oak trees, some of which are hollow and in declining health.

Area 6

Area 6 contains one of the potential natural wetland features observed on this site (Photo 8). WDNR wetland inventory data described hydric soils within a radius around the north-south running ditch/drainage swale that is approximately 800 feet in total length and averages approximately 30 feet in width. Although aerial images depict wetland signatures, this ditch is not listed on the WDNR 24K hydro-surface water viewer. Surface water drainage does not appear to have inputs to the ditch from either end, however lower elevation areas near the center of the ditch are likely prone to periodic flooding and extended periods of inundation.

Reed canary grass is the dominant vegetation with some smartweeds, common milkweed, and Canada goldenrod. Adjacent to the ditch, on the east and west sides, the soils are silt loam with no obvious indication of hydric conditions. Within the lowest elevation areas of the ditch, soil mottling features were observed at 5 to 6 inches below the soil surface. Test pits advanced in crop stubble adjacent to the reed canary grass yielded no indicators of hydric soil within 20 inches.

The ditch is in a closed depression and may have been placed there because it is a low point in the topography to detain stormwater before infiltration. It could be widened and deepened to form a wetland-pond which could be vegetated with native emergent plants on the shoreline.



Photo 8

Area 6 is a narrow ditch near the south-central area of this potential development site. Surrounded by agricultural fields on all sides, no surface water drainage inputs were observed from either side.

Two other closed depressions are located on either side of Seminole Highway in the north-central portion of the project site. These closed depressions were recently plowed thereby disrupting surface soils conditions making it difficult to determine if wetland conditions exist. Further jurisdictional wetland determination/delineation during the growing season will be required in all three of the closed depressions before project development can occur.

Area 7

Area 7 lies along either side of the north-south portion of the Badger State Trail that traverses approximately ½ mile of the project area. This section of the recreational trail was built on a former railroad grade. A variety of herbaceous species exist on both sides of the trail including: brome grass, sweet clover, mullein, bee balm, cow parsnip, blackberry, frost aster, Canada wild-rye, brown-eyed susan, big bluestem grass, Canada goldenrod, spotted knapweed, catnip, pigweed, foxtail, curly dock, dandelion, mare's-tail, wild grape, ox-eye sunflower, yarrow, common milkweed, rosinweed, burdock, heath aster, Canada thistle, bull thistle, bittersweet nightshade, evening primrose, alfalfa, Queen Anne's-lace, yellow coneflower, white cockle, motherwort, and reed canary grass. Many of these plants are common "weeds" but there are a number of native prairies species present also.

Trees and shrubs along the east and west edge of the path were primarily black cherry, Asian honeysuckle, red osier dogwood, grape, and mulberry (Photo 9).

It is important to note that the Wisconsin Department of Transportation (WDOT) is the owner of most of the previously-described vegetation along the bike path corridor. Dane County's GIS parcel mapping describes the width of the WDOT ownership at approximately 75 feet. Agricultural fields lie immediately adjacent to both sides of the Badger State Trail.



Photo 9

Area 7 is a ½ mile long corridor of vegetation along either side of the Badger State Trail. This section of trail was built on a railroad grade and is owned by WDOT. Black cherry is the most common tree and the shrub layer consists mainly of Asian honeysuckle.

Additional Features of Interest

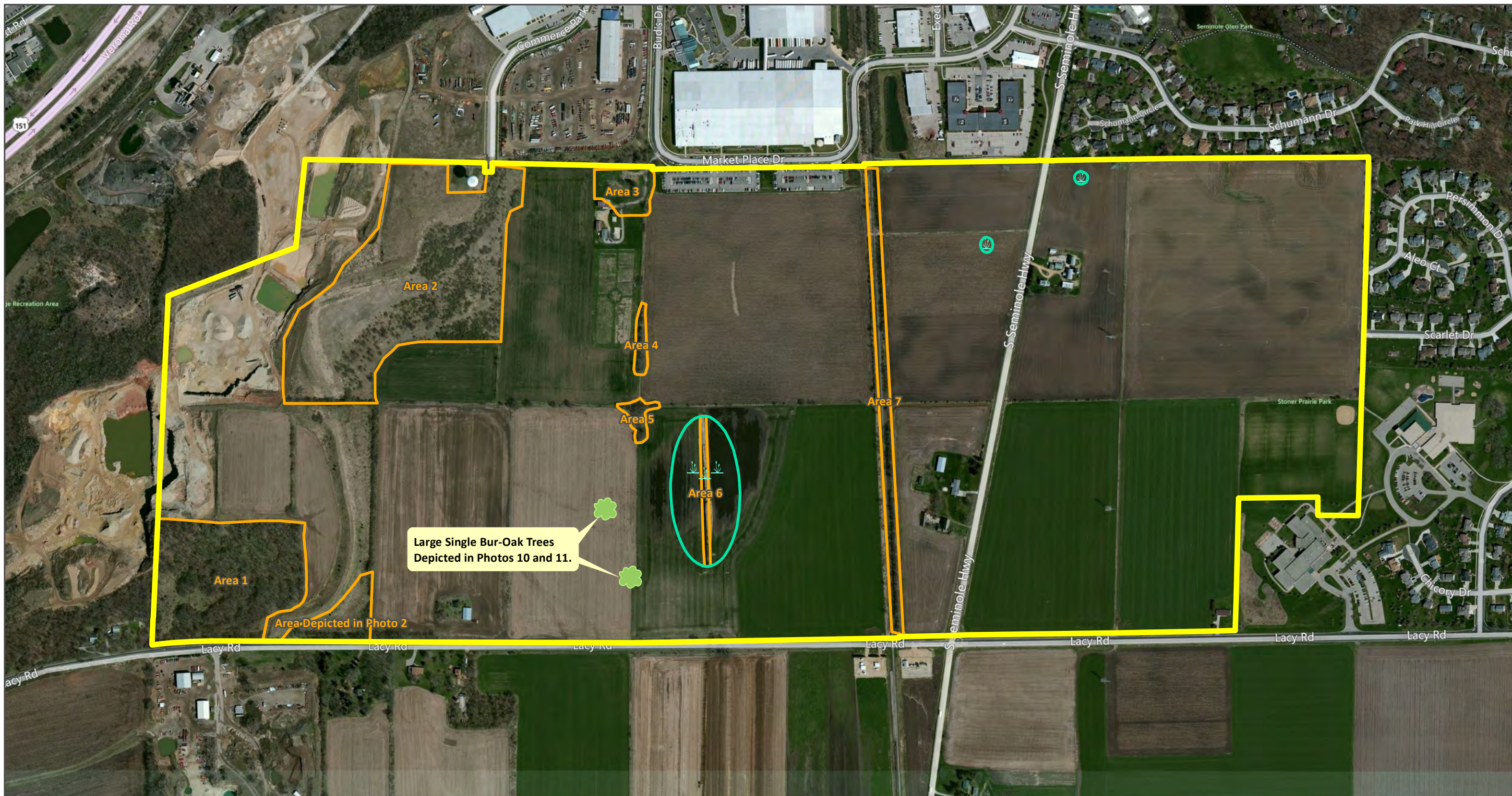


Photo 10



Photo 11

In the agricultural field south of Area 5, there are two large bur oak trees exceeding 40 inches dbh. These trees are both hollow and in declining health.

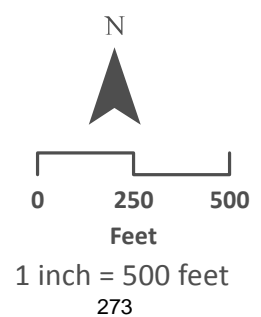


Large Single Bur-Oak Trees
 Depicted in Photos 10 and 11.



**Figure 1: Natural Resource Features
 Within the North Stoner Prairie Development Site
 City of Fitchburg | Dane County, WI**

 **Closed Depressions**  **Wetlands**



ERC
 ECO-RESOURCE CONSULTING, LLC

409 Concord Drive | Oregon, WI 53575 | <http://www.eco-resource.net>

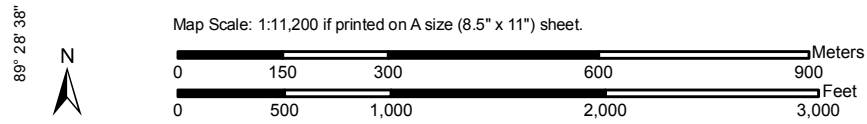
North Stoner Prairie Neighborhood Plan - November 2013

APPENDIX C

Web Soil Survey Maps

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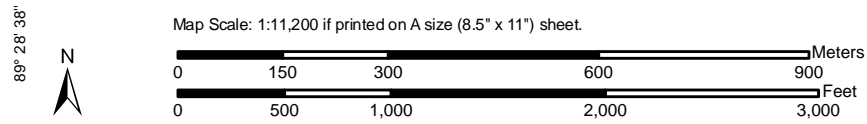
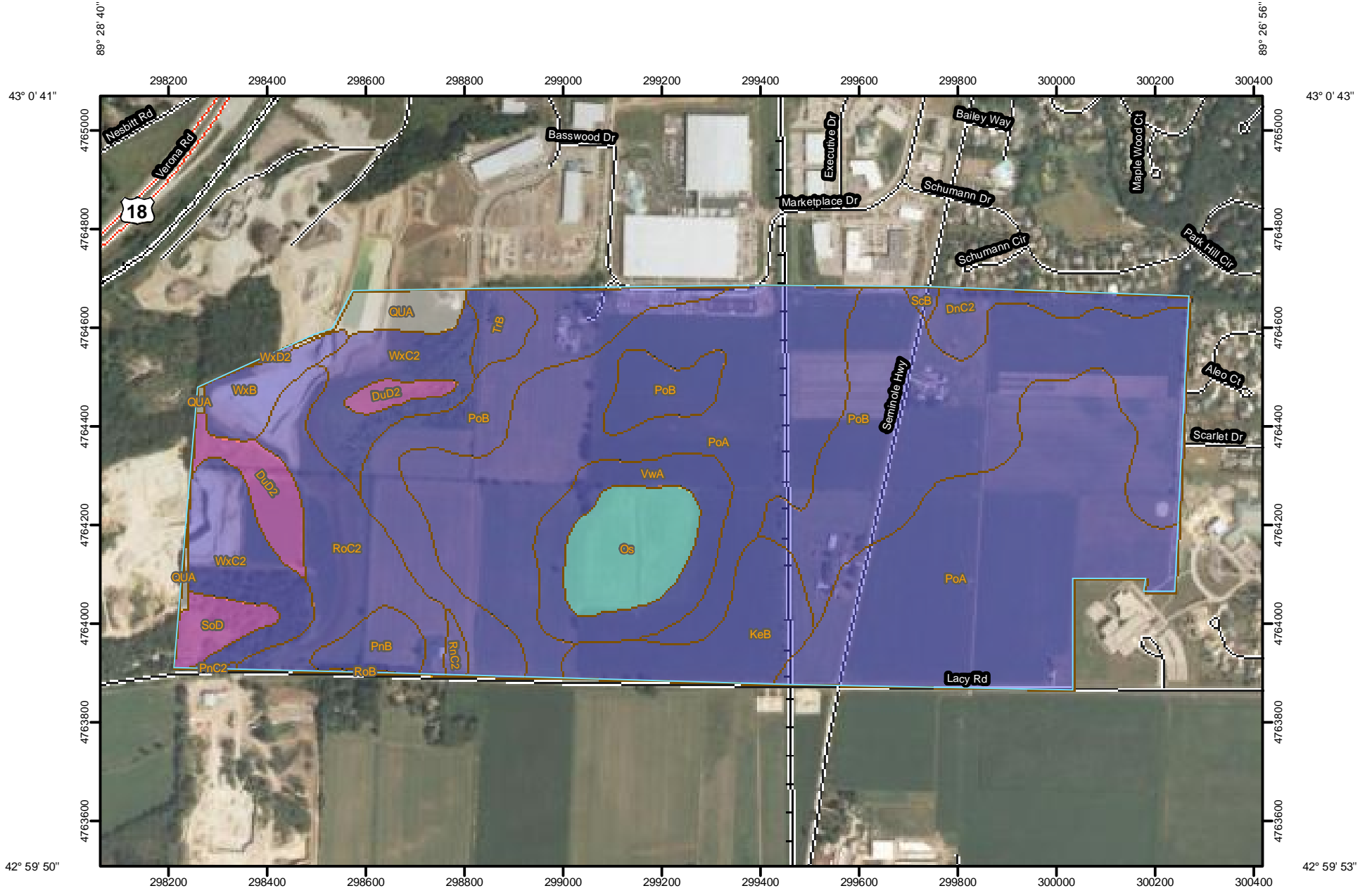
Soil Map—Dane County, Wisconsin
(North Stoner Prairie Neighborhood)



Map Unit Legend

Dane County, Wisconsin (WI025)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
DnC2	Dodge silt loam, 6 to 12 percent slopes, eroded	7.1	1.9%
DuD2	Dunbarton silt loam, 12 to 20 percent slopes, eroded	9.0	2.4%
KeB	Kegonsa silt loam, 2 to 6 percent slopes	16.5	4.4%
Os	Orion silt loam, wet	14.0	3.7%
PnB	Plano silt loam, 2 to 6 percent slopes	5.2	1.4%
PnC2	Plano silt loam, 6 to 12 percent slopes, eroded	0.3	0.1%
PoA	Plano silt loam, gravelly substratum, 0 to 2 percent slopes	139.9	37.4%
PoB	Plano silt loam, gravelly substratum, 2 to 6 percent slopes	93.1	24.9%
QUA	Quarry	5.7	1.5%
RnC2	Ringwood silt loam, 6 to 12 percent slopes, eroded	1.1	0.3%
RoB	Rockton silt loam, 2 to 6 percent slopes	0.2	0.1%
RoC2	Rockton silt loam, 6 to 12 percent slopes, eroded	21.9	5.8%
ScB	St. Charles silt loam, 2 to 6 percent slopes	0.7	0.2%
SoD	Sogn silt loam, 2 to 20 percent slopes	4.6	1.2%
TrB	Troxel silt loam, 1 to 3 percent slopes	4.0	1.1%
VwA	Virgil silt loam, gravelly substratum, 0 to 3 percent slopes	16.1	4.3%
WxB	Whalan silt loam, 2 to 6 percent slopes	6.5	1.7%
WxC2	Whalan silt loam, 6 to 12 percent slopes, eroded	27.9	7.5%
WxD2	Whalan silt loam, 12 to 20 percent slopes, eroded	0.2	0.1%
Totals for Area of Interest		374.0	100.0%


Hydrologic Soil Group—Dane County, Wisconsin
(North Stoner Prairie Neighborhood)



Hydrologic Soil Group—Dane County, Wisconsin
(North Stoner Prairie Neighborhood)

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Units

Soil Ratings

 A

 A/D


 B

 B/D

 C

 C/D


 D

 Not rated or not available

Political Features

 Cities

Water Features


 Streams and Canals


Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

MAP INFORMATION

Map Scale: 1:11,200 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:15,840.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: UTM Zone 16N NAD83

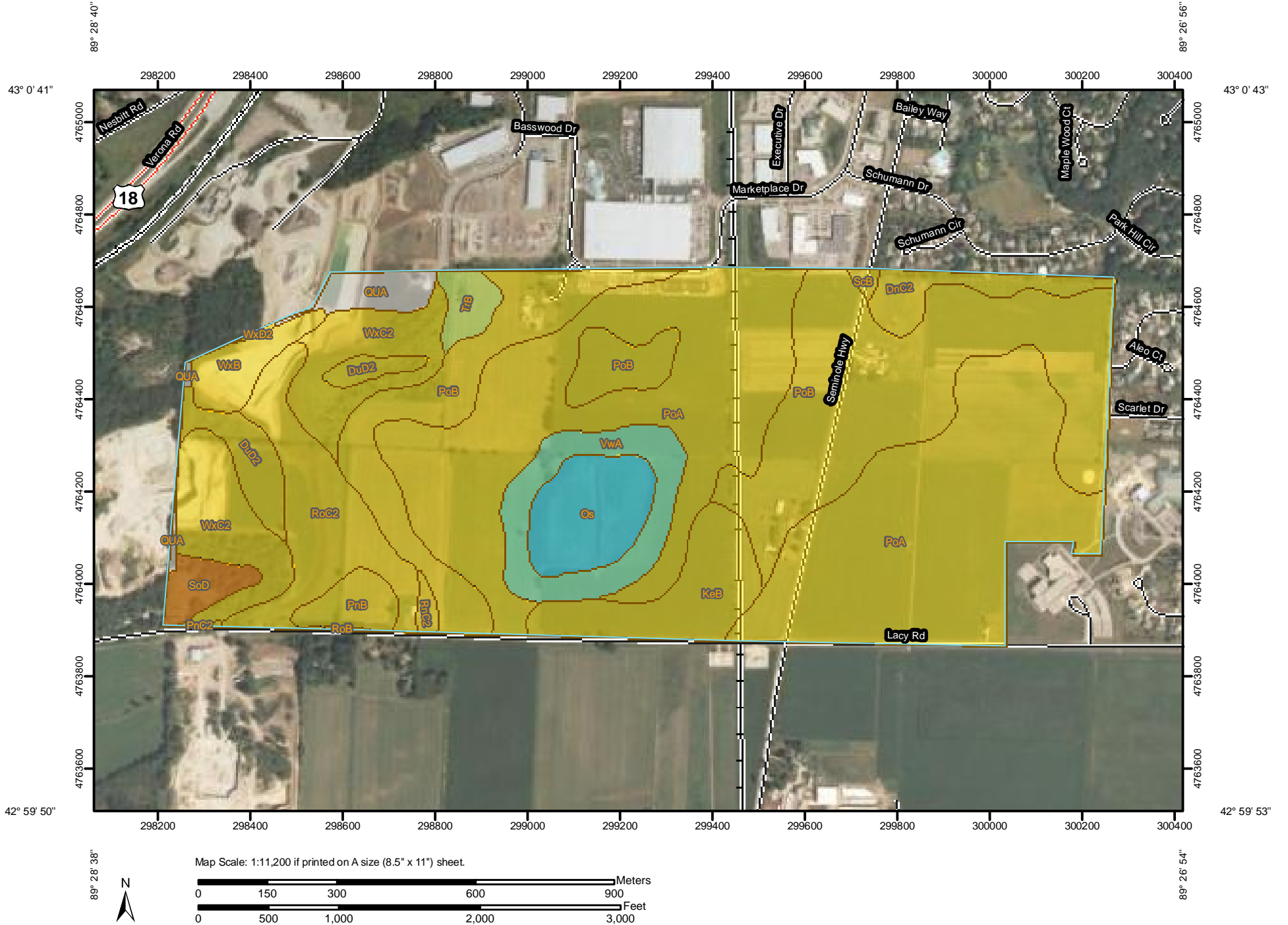
This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Dane County, Wisconsin
Survey Area Data: Version 10, Jun 26, 2012

Date(s) aerial images were photographed: 7/8/2005


The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Drainage Class—Dane County, Wisconsin
(North Stoner Prairie Neighborhood)



MAP LEGEND









Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Units

Soil Ratings

-  Excessively drained
-  Somewhat excessively drained
-  Well drained
-  Moderately well drained
-  Somewhat poorly drained
-  Poorly drained
-  Very poorly drained
-  Subaqueous
-  Not rated or not available






Political Features

 Cities

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

MAP INFORMATION

Map Scale: 1:11,200 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:15,840.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: UTM Zone 16N NAD83

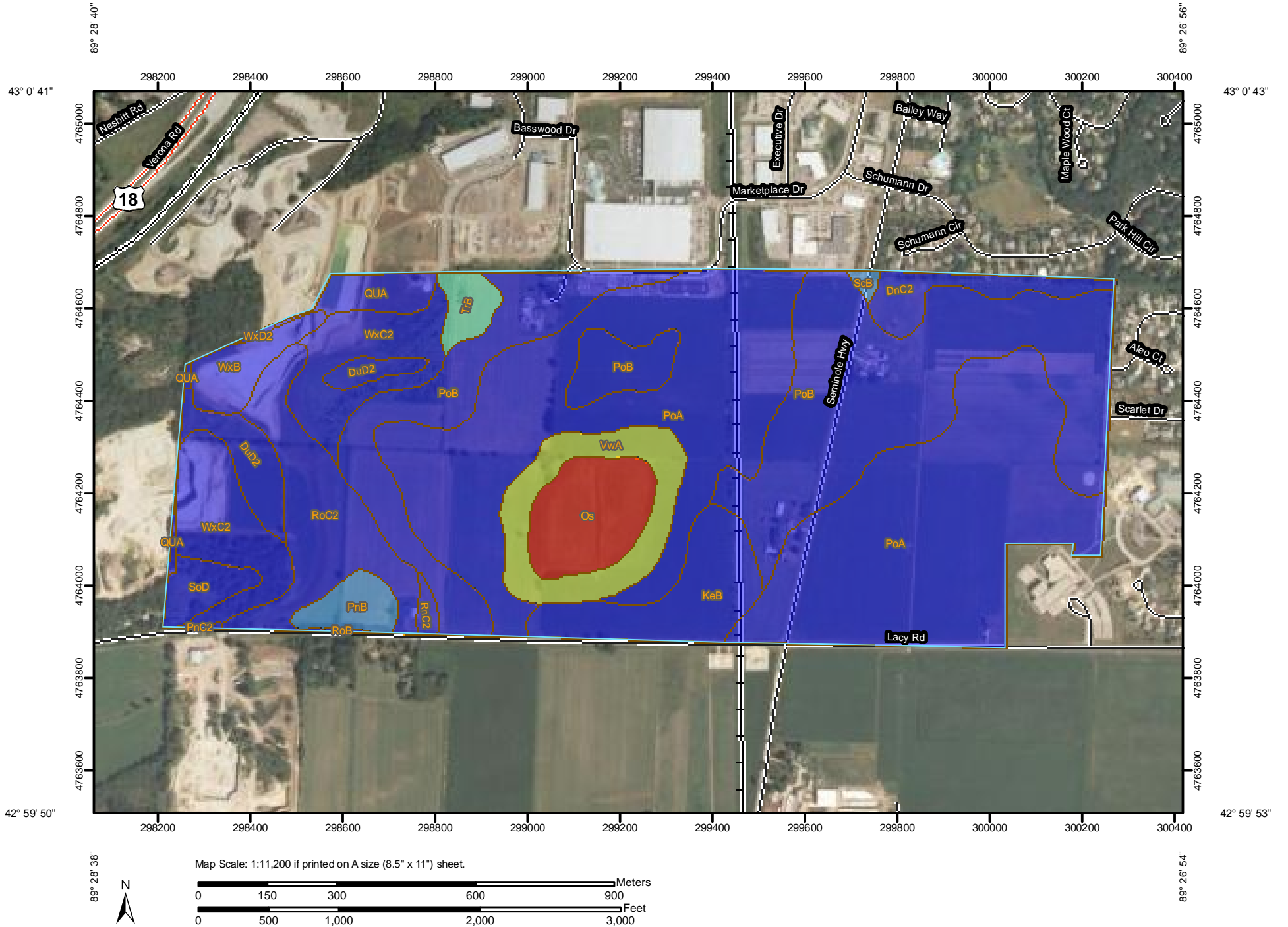
This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Dane County, Wisconsin
Survey Area Data: Version 10, Jun 26, 2012

Date(s) aerial images were photographed: 7/8/2005

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.


Depth to Water Table—Dane County, Wisconsin
(North Stoner Prairie Neighborhood)



Depth to Water Table—Dane County, Wisconsin
(North Stoner Prairie Neighborhood)

MAP LEGEND

Area of Interest (AOI)


 Area of Interest (AOI)


Soils


 Soil Map Units


Soil Ratings

 0 - 25

 25 - 50

 50 - 100

 100 - 150


 150 - 200

 > 200

Political Features

 Cities

Water Features

 Streams and Canals


Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

MAP INFORMATION

Map Scale: 1:11,200 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:15,840.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: UTM Zone 16N NAD83

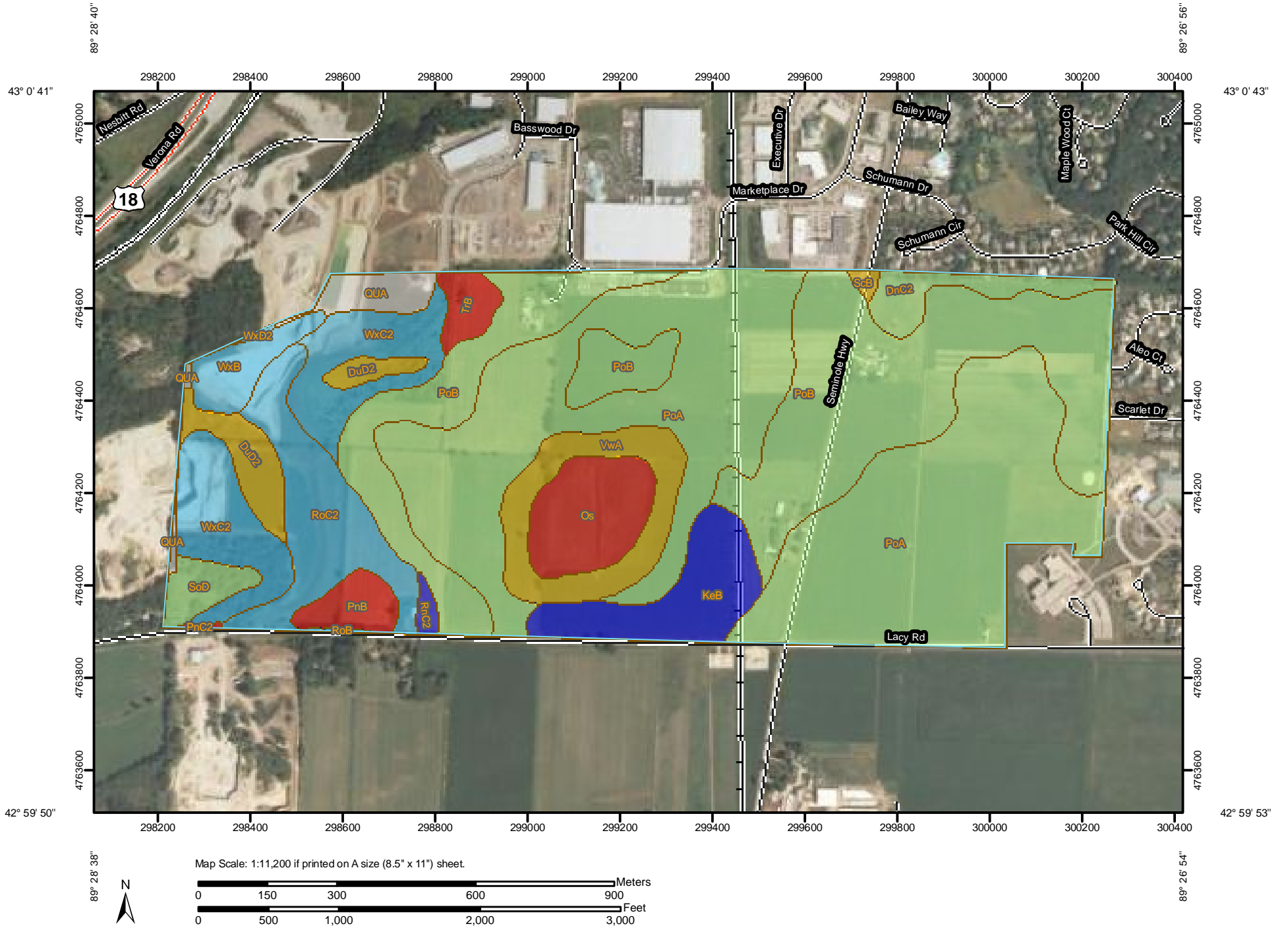
This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Dane County, Wisconsin
Survey Area Data: Version 10, Jun 26, 2012

Date(s) aerial images were photographed: 7/8/2005

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.


Percent Sand—Dane County, Wisconsin
(North Stoner Prairie Neighborhood)



Percent Sand—Dane County, Wisconsin
(North Stoner Prairie Neighborhood)

MAP LEGEND







Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Units


Soil Ratings

-  <= 14.3
-  > 14.3 AND <= 19.4
-  > 19.4 AND <= 26.1
-  > 26.1 AND <= 31.9
-  > 31.9 AND <= 50.2
-  Not rated or not available






Political Features

 Cities

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

MAP INFORMATION

Map Scale: 1:11,200 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:15,840.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: UTM Zone 16N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Dane County, Wisconsin
Survey Area Data: Version 10, Jun 26, 2012

Date(s) aerial images were photographed: 7/8/2005

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

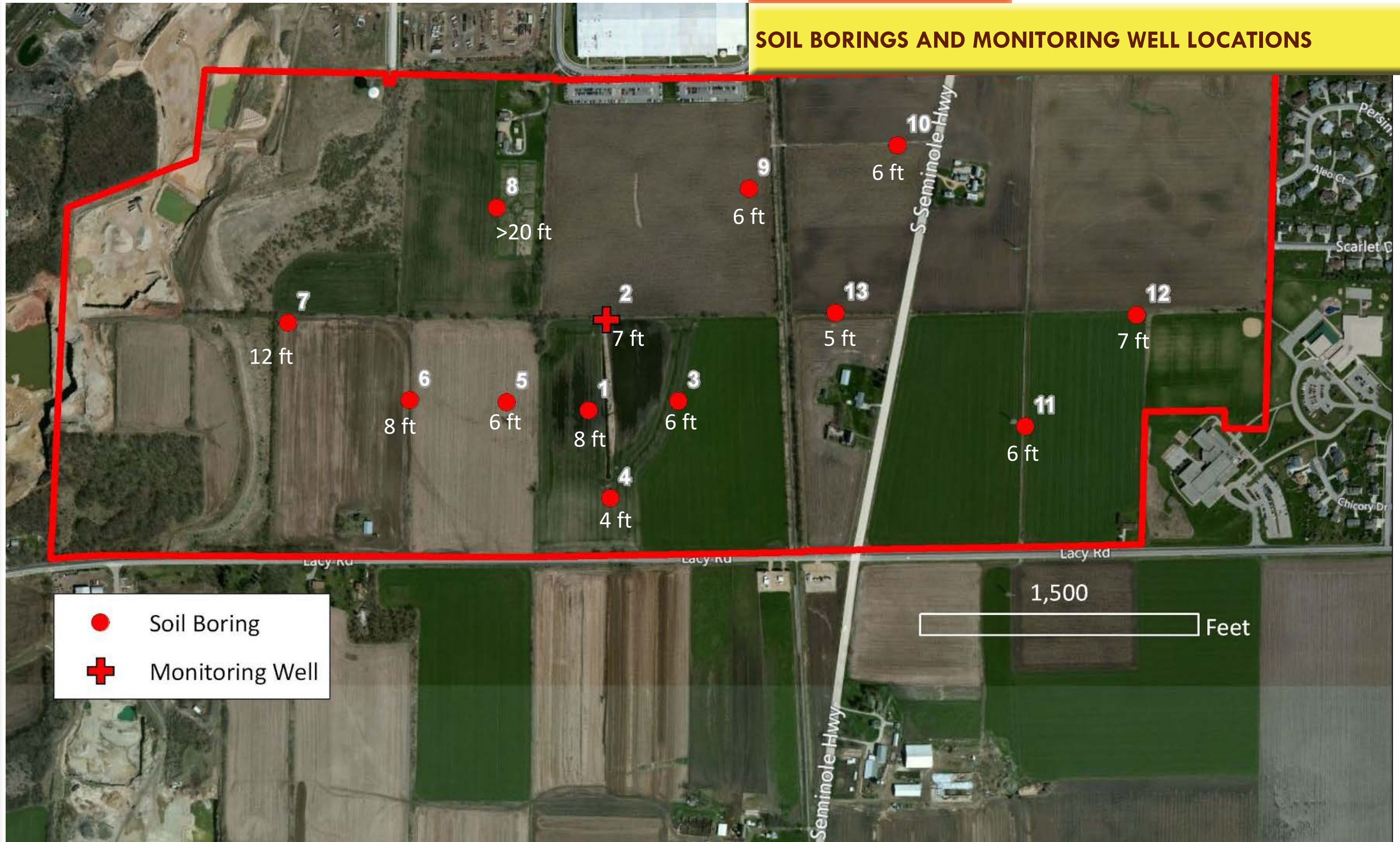


APPENDIX D

Soil Boring Logs

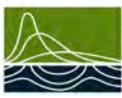
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SOIL BORINGS AND MONITORING WELL LOCATIONS



Soil borings and monitoring well locations. Depth to sand noted for each boring. Infiltration tests conducted in B4, B6, and B12.





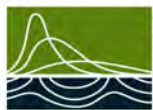
Project: North Stoner Prairie
Project No.: 1571
Location: Fitchburg, WI
See map for detailed location.

Drill Date: November 28, 2012
Drilled by: Soil Essentials (Cory)
Logged by: ACF & SJG
Sampling Method: Geoprobe 1" cores

Depth Below Surface (ft)	VISUAL SOIL CLASSIFICATION Ground Surface Elevation: 1018.0	Sample No.	Feet Driven	Inches Recovered	Sample Top	Sample Bottom	Remarks
1	1017.0 8" Topsoil over SILTY CLAY LOAM, brown 7.5 YR 5/3, moist	1	4	20	0	4	
2	1016.0						
3	1015.0						
4	1014.0						
5	1013.0 CLAY LOAM, brown 7.5 YR 4/2 with few 7.5 YR 4/6 strong brown mottles moderately stiff, moist sand seam last 1"	2	4	27	4	8	
6	1012.0						
7	1011.0						
8	1010.0 LOAMY SAND, light to reddish brown, layered, moist to wet	3	4		8	12	
9	1009.0						
10	1008.0						
11	1007.0						
12	1006.0 FINE SAND, brown 7.5 YR 4/4, layered, with 1" silt at 13" saturated	4	4	29	12	16	
13	1005.0						
14	1004.0						
15	1003.0						
16	1002.0 LOAMY SAND, brown 7.5 YR 5/4, with two 1" silt layers saturated	5	4	36	16	20	
17	1001.0						
18	1000.0						
19	999.0						
20	998.0 26" LOAMY SAND, same as above, over SILTY CLAY, light brown 7.5 YR 6/4, with layers of yellowish red 5 YR 4/6 moist (water likely squeezed out of sample)	6	4	48	20	24	
21	997.0						
22	996.0						
23	995.0						
24	994.0						
25	993.0 8" SILT LOAM, saturated, grades into FINE-MEDIUM SAND, brown 7.5 YR 5/4 moist (driller noted heave)	7	4	38	24	28	
26	992.0						
27	991.0						
28	990.0 LOAMY SAND, grading coarse to fine, yellowish brown 10 YR 5/8, saturated	8	4	36	28	32	
29	989.0						
30	988.0						
31	987.0						
32	986.0						
End of Boring: 32'							

Notes: Located in harvested cornfield	
Water Level / Caving Observations: Water Level <small>During Drilling</small> : 12 ± ft (El. 1006±) v Water Level <small>Upon Completion</small> : 10.7 ± ft (El. 1007.3±) v Caved at <small>Upon Completion</small> : ± ft (El. 1018±) Delay Time: hr(s) Water Level <small>delayed</small> : ± ft (El. 1018±) after hr(s) v Caved at <small>delayed</small> : ± ft (El. 1018±) after hr(s)	Additional Comments: Boring Location Offset: Reason for Offset:

*Lines of demarcation represent **approximate** boundaries between soil types. Variations may occur between sampling intervals and between boring locations, and the transition may be gradual.*



Project: North Stoner Prairie
 Project No.: 1571
 Location: Fitchburg, WI
 Surface Elev: See map for detailed location.

Drill Date: November 28, 2012
 Drilled by: Soil Essentials (Cory)
 Logged by: ACF & SJG
 Sampling Method: Geoprobe 1" cores

Depth Below Surface (ft)	VISUAL SOIL CLASSIFICATION Ground Surface Elevation: 1019.0	Sample No.	Feet Driven	Inches Recovered	Sample Top	Sample Bottom	Remarks
1 1018.0	7" Topsoil over	1	4	18	0	4	
2 1017.0	SILTY CLAY LOAM, brown, 7.5 YR 4/2, with fine common mottles, yellowish red 5 YR 4/6						
3 1016.0							
4 1015.0							
5 1014.0	14" SILTY CLAY, gray 5 YR 6/1, with mottling, yellowish red 5 YR 5/8, stiff, crumbly, over	2	4	18	4	8	
6 1013.0	SAND, one 1/4" silt seam, brown 7.5 YR 5/4, moist						
7 1012.0							
8 1011.0							
9 1010.0	FINE-MEDIUM SAND, layered, pink to strong brown 7.5 YR 7/4 to 5/8, moist to wet	3	4	16	8	12	
10 1009.0							
11 1008.0							
12 1007.0							
13 1006.0	FINE-COARSE SAND, strong brown 7.5 YR 5/6, layered, with two 1" silt loam seams, saturated	4	4	28	12	16	
14 1005.0							
15 1004.0							
16 1003.0							
17 1002.0	SAND, strong brown 7.5 YR 5/6, saturated, over last 10" LOAMY SAND and SANDY LOAM layers	5	4	28	16	20	
18 1001.0							
19 1000.0							
20 999.0							

End of Boring: 20'

Notes:

Located at edge of harvested cornfield by fenceline.
 Driller noted extremely soft first few feet
 Well installed with 1" PVC, screened 4-19' depth

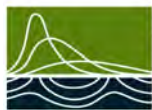
Water Level / Caving Observations:

Water Level During Drilling: 12 ± ft (El. 1007±) V
 Water Level Upon Completion: ± ft (El. 1019±) V
 Caved at Upon Completion: ± ft (El. 1019±)
 Delay Time: 24 hr(s)
 Water Level delayed: 13.2 ± ft (El. 1005.8±) after 24 hr(s) V
 Caved at delayed: ± ft (El. 1019±) after 24 hr(s)

Additional Comments:

Boring Location Offset:
 Reason for Offset:

Lines of demarcation represent **approximate** boundaries between soil types. Variations may occur between sampling intervals and between boring locations, and the transition may be gradual.



Project: North Stoner Prairie
 Project No.: 1571
 Location: Fitchburg, WI
 Surface Elev: See map for detailed location.

Drill Date: November 28, 2012
 Drilled by: Soil Essentials (Cory)
 Logged by: ACF
 Sampling Method: Geoprobe 1" cores

Depth Below Surface (ft)	VISUAL SOIL CLASSIFICATION		Sample No.	Feet Driven	Inches Recovered	Sample Top	Sample Bottom	Remarks
	Ground Surface Elevation: 1019.0							
1	1018.0	5" Topsoil over	1	4	19	0	4	
2	1017.0	SILTY CLAY, gray 5 YR 6/1, with mottles, yellowish red 5 YR 5/8, moist						
3	1016.0							
4	1015.0							
5	1014.0	2" SILTY CLAY, same as above, over 6" SAND, strong brown 7.5 YR 5/6, one gravel fragment 1" diameter, moist	2	4	8	4	8	
6	1013.0	Driller estimated 5.5-6' start of sand						
7	1012.0							
8	1011.0							
9	1010.0	SAND, layered medium to fine, layered with SILTY SAND to CLAY LOAM seams (~1/4") moist	3	4	20	8	12	
10	1009.0							
11	1008.0							
12	1007.0							
13	1006.0	SAND, strong brown 7.5 YR 5/6, layered fine to medium, with SILTY SAND layers wet to saturated	4	4	17	12	16	
14	1005.0							
15	1004.0							
16	1003.0	SAND, reddish yellow 7.5 YR 6/6, layered with SILTY SAND, bottom 2" CLAY LOAM	5	4	26	16	20	
17	1002.0							
18	1001.0							
19	1000.0							
20	999.0							

End of Boring: 20'

Notes:

Located in harvested cornfield.

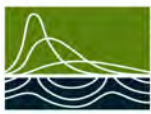
Water Level / Caving Observations:

Water Level During Drilling: 14 ± ft (El. 1005±) V
 Water Level Upon Completion: ± ft (El. 1019±) V
 Caved at Upon Completion: ± ft (El. 1019±)
 Delay Time: hr(s)
 Water Level delayed: ± ft (El. 1019±) after hr(s) V
 Caved at delayed: ± ft (El. 1019±) after hr(s)

Additional Comments:

Boring Location Offset:
 Reason for Offset:

Lines of demarcation represent **approximate** boundaries between soil types. Variations may occur between sampling intervals and between boring locations, and the transition may be gradual.



Project: North Stoner Prairie
 Project No.: 1571
 Location: Fitchburg, WI
 Surface Elev: See map for detailed location.

Drill Date: November 28, 2012
 Drilled by: Soil Essentials (Cory)
 Logged by: ACF
 Sampling Method: Geoprobe 1" cores

Depth Below Surface (ft)	VISUAL SOIL CLASSIFICATION Ground Surface Elevation: 1020.0	Sample No.	Feet Driven	Inches Recovered	Sample Top	Sample Bottom	Remarks
1 1019.0	10" Topsoil over	1	4	24	0	4	
2 1018.0	9" SILTY CLAY, gray 5 YR 6/1, with mottles, yellowish red 5 YR 5/8, grading to SAND, brown 7.5 YR 4/2, moist						
3 1017.0							
4 1016.0							
5 1015.0	2" SAND, same as above, grades to FINE SAND, pinkish gray 7.5 YR 7/2 with few gravel pieces <1", some rust-colored grains, moist	2	4	22	4	8	
6 1014.0	7" SAND, same as above, may be some mottling?, over FINE SAND, layered with LOAMY SAND, reddish yellow 7.5 YR 6/6, moist						
7 1013.0							
8 1012.0							
9 1011.0	FINE TO MEDIUM SAND, layered with LOAMY SAND, light brown 7.5 YR 6/4, wet to saturated						
10 1010.0							
11 1009.0							
12 1008.0	8" same as above, saturated, grades to CLAY, layered						
13 1007.0							
14 1006.0							
15 1005.0							
16 1004.0							
17 1003.0							
18 1002.0							
19 1001.0							
20 1000.0							

End of Boring: 20'

Notes:

Located in harvested cornfield.

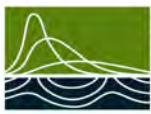
Water Level / Caving Observations:

Water Level During Drilling: 14 ± ft (El. 1006±) V
 Water Level Upon Completion: ± ft (El. 1020±) V
 Caved at Upon Completion: ± ft (El. 1020±)
 Delay Time: hr(s)
 Water Level delayed: ± ft (El. 1020±) after hr(s) V
 Caved at delayed: ± ft (El. 1020±) after hr(s)

Additional Comments:

Boring Location Offset:
 Reason for Offset:

Lines of demarcation represent **approximate** boundaries between soil types. Variations may occur between sampling intervals and between boring locations, and the transition may be gradual.



Project: North Stoner Prairie
 Project No.: 1571
 Location: Fitchburg, WI
 Surface Elev: See map for detailed location.

Drill Date: November 28, 2012
 Drilled by: Soil Essentials (Cory)
 Logged by: ACF
 Sampling Method: Geoprobe 1" cores

Depth Below Surface (ft)	VISUAL SOIL CLASSIFICATION Ground Surface Elevation: 1020.0	Sample No.	Feet Driven	Inches Recovered	Sample Top	Sample Bottom	Remarks
1 1019.0	10" Topsoil over	1	4	22	0	4	
2 1018.0	SILTY CLAY, gray 5 YR 6/1, stiff, with mottling, yellowish red 5 YR 5/8, moist						
3 1017.0							
4 1016.0							
5 1015.0	9" SILTY CLAY, same as above, with few mottles with few mottles, black 7.5 YR 2.5/1, over FINE to MEDIUM SAND, reddish yellow 7.5 YR 6/6, layered, moist	2	4	20	4	8	
6 1014.0							
7 1013.0							
8 1012.0							
9 1011.0	FINE to MEDIUM SAND, layered with LOAMY SAND, strong brown 7.5 YR 5/6, wet to saturated	3	4	25	8	12	
10 1010.0							
11 1009.0							
12 1008.0							
13 1007.0	Same as above, 7.5 YR 6/6, saturated	4	4	30	12	16	
14 1006.0							
15 1005.0							
16 1004.0							
17 1003.0	2' LOAMY FINE SAND, over layers of LOAMY FINE SAND to CLAY, over bottom 3" CLAY, saturated	5	4	48	16	20	
18 1002.0							
19 1001.0							
20 1000.0							

End of Boring: 20'

Notes:

Located in harvested cornfield.

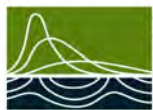
Water Level / Caving Observations:

Water Level During Drilling: 10 ± ft (El. 1010±) V
 Water Level Upon Completion: ± ft (El. 1020±) V
 Caved at Upon Completion: ± ft (El. 1020±)
 Delay Time: hr(s)
 Water Level delayed: ± ft (El. 1020±) after hr(s) V
 Caved at delayed: ± ft (El. 1020±) after hr(s)

Additional Comments:

Boring Location Offset:
 Reason for Offset:

Lines of demarcation represent **approximate** boundaries between soil types. Variations may occur between sampling intervals and between boring locations, and the transition may be gradual.



Project: North Stoner Prairie
 Project No.: 1571
 Location: Fitchburg, WI
 Surface Elev: See map for detailed location.

Drill Date: November 28, 2012
 Drilled by: Soil Essentials (Cory)
 Logged by: ACF
 Sampling Method: Geoprobe 1" cores

Depth Below Surface (ft)	VISUAL SOIL CLASSIFICATION		Sample No.	Feet Driven	Inches Recovered	Sample Top	Sample Bottom	Remarks
	Ground Surface Elevation: 1027.0							
1	1026.0	5" Topsoil over	1	4	8	0	4	
2	1025.0	CLAY LOAM, strong brown 7.5 YR 5/8, stiff, moist						
3	1024.0							
4	1023.0							
5	1022.0	LOAMY SAND to CLAY layers, gray and yellowish red, 5 YR 5/1 and 5/6, moist, bottom 1" SAND	2	4	26	4	8	
6	1021.0							
7	1020.0							
8	1019.0							
9	1018.0	14" FINE SAND, reddish yellow 7.5 YR 6/6, over LOAMY FINE SAND layered with SILT lenses, moist	3	4	24	8	12	
10	1017.0							
11	1016.0							
12	1015.0							
13	1014.0	20" LOAMY FINE SAND, same as above, over CLAY to SILT LOAM, reddish yellow, with SAND lenses, yellowish red to v. dark brown, moist	4	4	35	12	16	
14	1013.0							
15	1012.0							
16	1011.0	11" LOAMY FINE SAND layers with CLAY lenses, over SAND with GRAVEL, with layers of red sand, possible weathered bedrock, moist	5	4	24	16	20	
17	1010.0							
18	1009.0	Driller estimates 5' more to bedrock.						
19	1008.0							
20	1007.0							

End of Boring: 20'

Notes:

Located in harvested cornfield.
 No water noted.

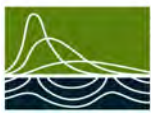
Water Level / Caving Observations:

Water Level During Drilling: ± ft (El. 1027±) V
 Water Level Upon Completion: ± ft (El. 1027±) V
 Caved at Upon Completion: ± ft (El. 1027±)
 Delay Time: hr(s)
 Water Level delayed: ± ft (El. 1027±) after hr(s) V
 Caved at delayed: ± ft (El. 1027±) after hr(s)

Additional Comments:

Boring Location Offset:
 Reason for Offset:

Lines of demarcation represent **approximate** boundaries between soil types. Variations may occur between sampling intervals and between boring locations, and the transition may be gradual.



Project: North Stoner Prairie
 Project No.: 1571
 Location: Fitchburg, WI
 Surface Elev: See map for detailed location.

Drill Date: November 28, 2012
 Drilled by: Soil Essentials (Cory)
 Logged by: ACF
 Sampling Method: Geoprobe 1" cores

Depth Below Surface (ft)		VISUAL SOIL CLASSIFICATION Ground Surface Elevation: 1040.0	Sample No.	Feet Driven	Inches Recovered	Sample Top	Sample Bottom	Remarks
1	1039.0	4" Topsoil over	1	4	29	0	4	
2	1038.0	SILTY CLAY, gray 5 YR 6/1, with mottles, yellowish red and black, 5 YR 5/8 and 7.5 YR 2.5/1, firm, moist						
3	1037.0							
4	1036.0							
5	1035.0	SILTY CLAY, same as above, grading to CLAY, strong brown 7.5 YR 5/8, moist	2	4	35	4	8	
6	1034.0							
7	1033.0							
8	1032.0							
9	1031.0	16" same as above, over CLAY, gray 5 YR 6/1, with few mottles, yellowish red 5 YR 5/8, and layers of yellowish red weathered bedrock (?)	3	4	28	8	12	
10	1030.0							
11	1029.0							
12	1028.0							
13	1027.0	15" LOAMY MEDIUM SAND, with layers of eroded bedrock (?), varies in color, gray to yellowish red to black, over FINE-MEDIUM SAND, pink 7.5 YR 7/4, moist	4	4	30	12	16	
14	1026.0							
15	1025.0							
16	1024.0	FINE-MEDIUM SAND, same as above, with few gravel fragments, moist	5	4		16	20	
17	1023.0							
18	1022.0							
19	1021.0							
20	1020.0							

End of Boring: 20'

Notes:

Located at edge of harvested cornfield.
 No water noted.

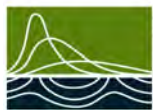
Water Level / Caving Observations:

Water Level During Drilling: ± ft (El. 1040±) V
 Water Level Upon Completion: ± ft (El. 1040±) V
 Caved at Upon Completion: ± ft (El. 1040±)
 Delay Time: hr(s)
 Water Level delayed: ± ft (El. 1040±) after hr(s) V
 Caved at delayed: ± ft (El. 1040±) after hr(s)

Additional Comments:

Boring Location Offset:
 Reason for Offset:

Lines of demarcation represent **approximate** boundaries between soil types. Variations may occur between sampling intervals and between boring locations, and the transition may be gradual.



Project: North Stoner Prairie
 Project No.: 1571
 Location: Fitchburg, WI
 Surface Elev: See map for detailed location.

Drill Date: November 28, 2012
 Drilled by: Soil Essentials (Cory)
 Logged by: ACF
 Sampling Method: Geoprobe 1" cores

Depth Below Surface (ft)		VISUAL SOIL CLASSIFICATION Ground Surface Elevation: 1027.0	Sample No.	Feet Driven	Inches Recovered	Sample Top	Sample Bottom	Remarks
1	1026.0	5" Topsoil over SILTY CLAY LOAM, black 7.5 YR 2.5/1, moist, friable	1	4	17	0	4	
2	1025.0							
3	1024.0							
4	1023.0	SILTY CLAY LOAM, same as above	2	4	42	4	8	
5	1022.0							
6	1021.0							
7	1020.0							
8	1019.0	9" SILTY CLAY LOAM, brown 7.5 YR 4/3, over CLAY, few mottles becoming common in bottom 6", yellowish red and black, 5 YR 5/8 and 7.5 YR 2.5/1, moderately stiff, moist	3	4	48	8	12	
9	1018.0							
10	1017.0							
11	1016.0							
12	1015.0	CLAY, same as above	4	4	48	12	16	
13	1014.0							
14	1013.0							
15	1012.0							
16	1011.0	CLAY, same as above	5	4	36	16	20	
17	1010.0							
18	1009.0							
19	1008.0							
20	1007.0							

End of Boring: 20'

Notes:

Located mowed grass at edge of harvested cornfield.
 No water noted, although hard to tell with clay.

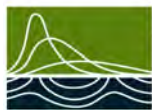
Water Level / Caving Observations:

Water Level During Drilling: ± ft (El. 1027±) V
 Water Level Upon Completion: ± ft (El. 1027±) V
 Caved at Upon Completion: ± ft (El. 1027±)
 Delay Time: hr(s)
 Water Level delayed: ± ft (El. 1027±) after hr(s) V
 Caved at delayed: ± ft (El. 1027±) after hr(s)

Additional Comments:

Boring Location Offset:
 Reason for Offset:

Lines of demarcation represent **approximate** boundaries between soil types. Variations may occur between sampling intervals and between boring locations, and the transition may be gradual.



Project: North Stoner Prairie
 Project No.: 1571
 Location: Fitchburg, WI
 Surface Elev: See map for detailed location.

Drill Date: November 28, 2012
 Drilled by: Soil Essentials (Cory)
 Logged by: ACF
 Sampling Method: Geoprobe 1" cores

Depth Below Surface (ft)		VISUAL SOIL CLASSIFICATION Ground Surface Elevation: 1025.0	Sample No.	Feet Driven	Inches Recovered	Sample Top	Sample Bottom	Remarks
1	1024.0	6" Topsoil over	1	4	18	0	4	
2	1023.0	SILTY CLAY LOAM, strong brown 7.5 YR 4/6, with few mottles, black 7.5 YR 2.5/1, stiff, friable, moist						
3	1022.0							
4	1021.0							
5	1020.0	10" SILTY CLAY LOAM, same as above, over FINE-MEDIUM SAND, reddish yellow 7.5 YR 6/6, some gravel lenses, moist	2	4	23	4	8	
6	1019.0							
7	1018.0							
8	1017.0							
9	1016.0	FINE-MEDIUM SAND, same as above	3	4	30	8	12	
10	1015.0							
11	1014.0							
12	1013.0							
13	1012.0	14" FINE-MEDIUM SAND, same as above, grades to layered with loamy sand, reddish yellow 7.5 YR 6/8, moist	4	4	33	12	16	
14	1011.0							
15	1010.0							
16	1009.0							
17	1008.0	FINE-MEDIUM SAND, few gravel fragments, reddish yellow, moist	5	4	26	16	20	
18	1007.0							
19	1006.0							
20	1005.0							

End of Boring: 20'

Notes:

Located in harvested cornfield.
 No water noted.

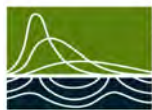
Water Level / Caving Observations:

Water Level During Drilling: ± ft (El. 1025±) V
 Water Level Upon Completion: ± ft (El. 1025±) V
 Caved at Upon Completion: ± ft (El. 1025±)
 Delay Time: hr(s)
 Water Level delayed: ± ft (El. 1025±) after hr(s) V
 Caved at delayed: ± ft (El. 1025±) after hr(s)

Additional Comments:

Boring Location Offset:
 Reason for Offset:

Lines of demarcation represent **approximate** boundaries between soil types. Variations may occur between sampling intervals and between boring locations, and the transition may be gradual.



Project: North Stoner Prairie
 Project No.: 1571
 Location: Fitchburg, WI
 Surface Elev: See map for detailed location.

Drill Date: November 29, 2012
 Drilled by: Soil Essentials (Cory)
 Logged by: ACF
 Sampling Method: Geoprobe 1" cores

Depth Below Surface (ft)	Visual Soil Classification	Sample No.	Feet Driven	Inches Recovered	Sample Top	Sample Bottom	Remarks
	Ground Surface Elevation: 1027.0						
1	4" Topsoil over SILTY CLAY, strong brown 7.5 YR 5/8, moist	1	4	18	0	4	
2							
3							
4							
5	1022.0 12" SILTY CLAY, same as above, sandier with depth, over 5" LOAMY SAND, strong brown 7.5 YR 5/6, over FINE-MEDIUM SAND, reddish yellow 7.5 YR 6/8, with gravel layers, moist	2	4	23	4	8	
6							
7							
8							
9							
10	1017.0 FINE-MEDIUM SAND, same as above	3	4	30	8	12	
11							
12							
13							
14							
15	1012.0 FINE-MEDIUM SAND, strong brown 7.5 YR 5/6, moist	4	4	33	12	16	
16							
17							
18							
19							
20	1007.0 FINE-MEDIUM SAND, strong brown 7.5 YR 5/6, with gravel layers, 1" sandstone fragment in tip, moist	5	4	26	16	20	

End of Boring: 20'

Notes:

Located in grass between access road and cornfield.
 No water noted.

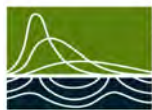
Water Level / Caving Observations:

Water Level During Drilling: ± ft (El. 1027±) V
 Water Level Upon Completion: ± ft (El. 1027±) V
 Caved at Upon Completion: ± ft (El. 1027±)
 Delay Time: hr(s)
 Water Level delayed: ± ft (El. 1027±) after hr(s) V
 Caved at delayed: ± ft (El. 1027±) after hr(s)

Additional Comments:

Boring Location Offset:
 Reason for Offset:

Lines of demarcation represent **approximate** boundaries between soil types. Variations may occur between sampling intervals and between boring locations, and the transition may be gradual.



Project: North Stoner Prairie
Project No.: 1571
Location: Fitchburg, WI
Surface Elev: See map for detailed location.

Drill Date: November 29, 2012
Drilled by: Soil Essentials (Cory)
Logged by: ACF
Sampling Method: Geoprobe 1" cores

Depth Below Surface (ft)		VISUAL SOIL CLASSIFICATION Ground Surface Elevation: 1032.0	Sample No.	Feet Driven	Inches Recovered	Sample Top	Sample Bottom	Remarks
1	1031.0	3" Topsoil, grading to	1	4	23	0	4	
2	1030.0	8" SILTY CLAY LOAM, very dark brown 7.5 YR 2.5/2, grades to strong brown 7.5 YR 5/6, few mottles, black and yellowish red, 5YR 2.5/1 and 5/8, friable, moist						
3	1029.0							
4	1028.0	11" SILTY CLAY LOAM, grading to 2" SANDY LOAM, strong brown 7.5 YR 5/6, over FINE SAND, pink 7.5 YR 7/4 with common gravel lenses, moist	2	4	30	4	8	
5	1027.0							
6	1026.0							
7	1025.0							
8	1024.0	FINE-MEDIUM SAND with GRAVEL, pink 7.5 YR 7/4 moist	3	4	tip only	8	12	
9	1023.0							
10	1022.0	Sampled only from tip						
11	1021.0							
12	1020.0	FINE-MEDIUM SAND with GRAVEL, same as above	4	4	30	12	16	
13	1019.0	Driller notes dense sand with cobbles, difficult to drill						
14	1018.0							
15	1017.0							
16	1016.0	FINE-MEDIUM SAND with GRAVEL, same as above	5	4	28	16	20	
17	1015.0							
18	1014.0							
19	1013.0							
20	1012.0							

End of Boring: 20'

Notes:

Located in grass next to access road to cornfield.
 No water noted.

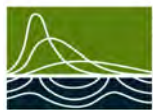
Water Level / Caving Observations:

Water Level During Drilling: ± ft (El. 1032±) V
 Water Level Upon Completion: ± ft (El. 1032±) V
 Caved at Upon Completion: ± ft (El. 1032±)
 Delay Time: hr(s)
 Water Level delayed: ± ft (El. 1032±) after hr(s) V
 Caved at delayed: ± ft (El. 1032±) after hr(s)

Additional Comments:

Boring Location Offset:
 Reason for Offset:

Lines of demarcation represent approximate boundaries between soil types. Variations may occur between sampling intervals and between boring locations, and the transition may be gradual.



Project: North Stoner Prairie
 Project No.: 1571
 Location: Fitchburg, WI
 Surface Elev: See map for detailed location.

Drill Date: November 29, 2012
 Drilled by: Soil Essentials (Cory)
 Logged by: ACF
 Sampling Method: Geoprobe 1" cores

Depth Below Surface (ft)	VISUAL SOIL CLASSIFICATION		Sample No.	Feet Driven	Inches Recovered	Sample Top	Sample Bottom	Remarks
	Ground Surface Elevation: 1038.0							
1	1037.0	8" Topsoil, grading to	1	4	21	0	4	
2	1036.0	SILTY CLAY LOAM, strong brown 7.5 YR 4/6, grading to						
3	1035.0	5" SILTY CLAY, stiff, crumbly, moist						
4	1034.0							
5	1033.0	15" SILTY CLAY, strong brown 7.5 YR 5/6, over	2	4	31	4	8	
6	1032.0	8" SANDY CLAY LOAM, strong brown 7.5 YR 5/6						
7	1031.0	grades to FINE-MEDIUM SAND with GRAVEL,						
8	1030.0	pink with yellowish red to very dark grayish green,						
9	1029.0	7.5 YR 8/4 with 5 YR 4/6 to GLEY1 3/5G, moist						
10	1028.0	FINE-MEDIUM SAND with GRAVEL, same as above	3	4	31	8	12	
11	1027.0							
12	1026.0	FINE-MEDIUM SAND with GRAVEL, same as above	4	4	23	12	16	
13	1025.0							
14	1024.0							
15	1023.0	FINE-MEDIUM SAND with GRAVEL, same as above	5	4	25	16	20	
16	1022.0							
17	1021.0							
18	1020.0							
19	1019.0							
20	1018.0							

End of Boring: 20'

Notes:

Located in grass at edge of cornfield.
 No water noted.

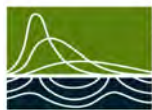
Water Level / Caving Observations:

Water Level During Drilling: ± ft (El. 1038±) V
 Water Level Upon Completion: ± ft (El. 1038±) V
 Caved at Upon Completion: ± ft (El. 1038±)
 Delay Time: hr(s)
 Water Level delayed: ± ft (El. 1038±) after hr(s) V
 Caved at delayed: ± ft (El. 1038±) after hr(s)

Additional Comments:

Boring Location Offset:
 Reason for Offset:

Lines of demarcation represent **approximate** boundaries between soil types. Variations may occur between sampling intervals and between boring locations, and the transition may be gradual.



Project: North Stoner Prairie
 Project No.: 1571
 Location: Fitchburg, WI
 Surface Elev: See map for detailed location.

Drill Date: November 29, 2012
 Drilled by: Soil Essentials (Cory)
 Logged by: ACF
 Sampling Method: Geoprobe 1" cores

Depth Below Surface (ft)		VISUAL SOIL CLASSIFICATION Ground Surface Elevation: 1024.0	Sample No.	Feet Driven	Inches Recovered	Sample Top	Sample Bottom	Remarks
1	1023.0	7" Topsoil, over	1	4	25	0	4	
2	1022.0	SILTY CLAY, brown 7.5 YR 5/4, few mottles, black and yellowish red, 5YR 2.5/1 and 5/8, stiff, moist						
3	1021.0							
4	1020.0							
5	1019.0	7" SILTY CLAY, same as above, over 7" SAND with GRAVEL, yellowish red 5 YR 4/6, over FINE-MEDIUM SAND, reddish yellow 7.5 YR 6/6, with GRAVEL lenses, moist	2	4	28	4	8	
6	1018.0							
7	1017.0							
8	1016.0							
9	1015.0	FINE-MEDIUM SAND with GRAVEL, same as above	3	4	11	8	12	
10	1014.0							
11	1013.0							
12	1012.0							
13	1011.0	FINE-MEDIUM SAND with GRAVEL, same as above, with LOAMY SAND lenses	4	4	29	12	16	
14	1010.0							
15	1009.0							
16	1008.0							
17	1007.0	FINE-MEDIUM SAND with GRAVEL, reddish yellow 7.5 YR 6/6, moist	5	4	29	16	20	
18	1006.0							
19	1005.0							
20	1004.0							

End of Boring: 20'

Notes:

Located at edge of recently tilled field.
 No water noted.

Water Level / Caving Observations:

Water Level During Drilling: ± ft (El. 1024±) V
 Water Level Upon Completion: ± ft (El. 1024±) V
 Caved at Upon Completion: ± ft (El. 1024±)
 Delay Time: hr(s)
 Water Level delayed: ± ft (El. 1024±) after hr(s) V
 Caved at delayed: ± ft (El. 1024±) after hr(s)

Additional Comments:

Boring Location Offset:
 Reason for Offset:

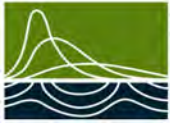
Lines of demarcation represent **approximate** boundaries between soil types. Variations may occur between sampling intervals and between boring locations, and the transition may be gradual.

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APPENDIX E

Infiltration Rate Testing Results

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Montgomery Associates

Resource Solutions, LLC

Project	North Stoner Prairie
Project #	1571
Date	12/4/2012
Measurement #	1
Location	About 4' north of B-6, see boring map
Weather	Sunny, windy, 40's
Conducted by	ACF

Hole depth	70.5 cm	Measured depth to water	
Distance between reference level and soil surface		Initial	52.43 cm
Distance from hole bottom to reference level (D)	70.5 cm	Final	51.82 cm
Desired water depth in hole		Actual water depth (H)	18.38 cm
Constant head tube setting (d)	70.5 cm	Hole radius (r)	3 cm

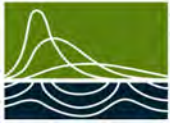
Reservoirs used for measurement of steady-state flow

X	Flow measuring reservoir only	Conversion Factor (cm ²)	20
	Both reservoirs	Conversion Factor (cm ²)	105

Clock Time	Time (min)	Reservoir Reading (cm)	Δt (min)	ΔWater Level (cm)	Flow Volume (cm ³)	Q (cm ³ /min)	Q (cm ³ /hr)	K _{sat} (cm/hr)	Depth to water (ft)
	28	43.9							1.71
	38	43.5	10	0.4	8	0.80	48	0.04	1.70
	48	43	10	0.5	10	1.00	60	0.05	1.70
	58	42.5	10	0.5	10	1.00	60	0.05	1.70
	68	42.1	10	0.4	8	0.80	48	0.04	
	78	41.7	10	0.4	8	0.80	48	0.04	1.70
	88	41.3	10	0.4	8	0.80	48	0.04	

Average of last three measurements: K_{sat} = 0.04 cm/hr
 0.01 in/hr

Comments: In silty clay loam, see sample.



Montgomery Associates

Resource Solutions, LLC

Project	North Stoner Prairie
Project #	1571
Date	12/4/2012
Measurement #	2
Location	About 4' north of B-6, see pdf map.
Weather	Sunny, windy, 50's
Conducted by	ACF

Hole depth	252.5 cm	Measured depth to water	
Distance between reference level and soil surface		<i>Initial</i>	232.87 cm
Distance from hole bottom to reference level (D)	252.5 cm	<i>Final</i>	233.48 cm
Desired water depth in hole		Actual water depth (H)	19.33 cm
Constant head tube setting (d)	252.5 cm	Hole radius (r)	3 cm

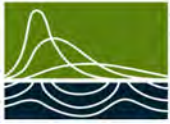
Reservoirs used for measurement of steady-state flow

	Flow measuring reservoir only	Conversion Factor (cm ²)	20
X	Both reservoirs	Conversion Factor (cm ²)	105

Clock Time	Time (min)	Reservoir Reading (cm)	Δt (min)	ΔWater Level (cm)	Flow Volume (cm ³)	Q (cm ³ /min)	Q (cm ³ /hr)	K _{sat} (cm/hr)	Depth to water (ft)
	22	31.1							
	26	29.9	4	1.2	126	31.50	1890	1.37	
	30	28.8	4	1.1	116	28.87	1733	1.26	
	34	27.8	4	1	105	26.25	1575	1.14	
	38	26.5	4	1.3	137	34.13	2048	1.49	
	42	25.4	4	1.1	116	28.88	1733	1.26	
	46	24.5	4	0.9	94	23.63	1418	1.03	
	50	23.5	4	1	105	26.25	1575	1.14	
	54	22.4	4	1.1	116	28.88	1733	1.26	

Average of last three measurements: K_{sat} = 1.17 cm/hr
 0.46 in/hr

Comments: In loamy sand to fine sand.



Montgomery Associates

Resource Solutions, LLC

Project	North Stoner Prairie
Project #	1571
Date	12/4/2012
Measurement #	3
Location	About 4' north of B-11, see pdf map.
Weather	Sunny, windy, 50's
Conducted by	ACF

Hole depth	165.5 cm	Measured depth to water	
Distance between reference level and soil surface		<i>Initial</i>	
Distance from hole bottom to reference level (D)	165.5 cm	<i>Final</i>	147.22 cm
Desired water depth in hole		Actual water depth (H)	18.28 cm
Constant head tube setting (d)	165.5 cm	Hole radius (r)	3 cm

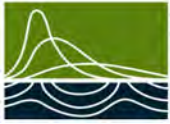
Reservoirs used for measurement of steady-state flow

X	Flow measuring reservoir only	Conversion Factor (cm ²)	20
	Both reservoirs	Conversion Factor (cm ²)	105

Clock Time	Time (min)	Reservoir Reading (cm)	Δt (min)	ΔWater Level (cm)	Flow Volume (cm ³)	Q (cm ³ /min)	Q (cm ³ /hr)	K _{sat} (cm/hr)	Depth to water (ft)
	20	16.5							
	21	14.6	1	1.9	38	38.00	2280	1.80	
	22	12.9	1	1.7	34	34.00	2040	1.61	
	23	11	1	1.9	38	38.00	2280	1.80	
	24	9.1	1	1.9	38	38.00	2280	1.80	
	25	7.3	1	1.8	36	36.00	2160	1.71	
	26	5.6	1	1.7	34	34.00	2040	1.61	
	27	3.9	1	1.7	34	34.00	2040	1.61	
	28	2.1	1	1.8	36	36.00	2160	1.71	
	29	0.2	1	1.9	38	38.00	2280	1.80	

Average of last three measurements: K_{sat} = 1.69 cm/hr
 0.66 in/hr

Comments: In fine sand.



Montgomery Associates

Resource Solutions, LLC

Project	North Stoner Prairie
Project #	1571
Date	12/4/2012
Measurement #	4
Location	About 4' north of B-11, see pdf map.
Weather	Sunny, windy, 40's
Conducted by	ACF

Hole depth	111.5 cm	Measured depth to water	
Distance between reference level and soil surface		Initial	
Distance from hole bottom to reference level (D)	111.5 cm	Final	92.96 cm
Desired water depth in hole		Actual water depth (H)	18.54 cm
Constant head tube setting (d)	111.5 cm	Hole radius (r)	3 cm

Reservoirs used for measurement of steady-state flow

	Flow measuring reservoir only	Conversion Factor (cm ²)	20
X	Both reservoirs	Conversion Factor (cm ²)	105

Clock Time	Time (min)	Reservoir Reading (cm)	Δt (min)	ΔWater Level (cm)	Flow Volume (cm ³)	Q (cm ³ /min)	Q (cm ³ /hr)	K _{sat} (cm/hr)	Depth to water (ft)
	15	30.1							
	18	28.8	3	1.3	137	45.50	2730	2.11	
	21	27.4	3	1.4	147	49.00	2940	2.27	
	24	26	3	1.4	147	49.00	2940	2.27	
	27	25	3	1	105	35.00	2100	1.62	
	30	23.5	3	1.5	158	52.50	3150	2.44	
	33	22.3	3	1.2	126	42.00	2520	1.95	
	36	21	3	1.3	137	45.50	2730	2.11	

Average of last three measurements: K_{sat} = 2.03 cm/hr
 0.80 in/hr

Comments: In sandy material below clay layer.

APPENDIX F

Hydraulic Conductivity Testing Results

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Slug Test Report

Well Data

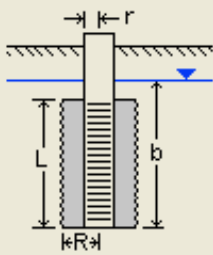
Well Details

L (ft)

r (ft)

R (ft)

Fully Penetrating Well



The diagram shows a cross-section of a well. The well casing has a length L. The radius of the casing is r. The radius of the well screen is R. The depth of the well is b. The well is shown as a vertical cylinder with a screen at the bottom. The ground surface is indicated by a horizontal line with a downward arrow. The water table is indicated by a blue line with a downward arrow.

Slug Test Data

Slug Test Sat. Aquifer Thickness ft

Performed by Time:

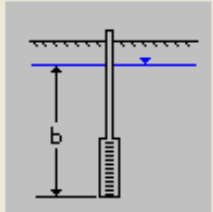
Date

Test Well

Depth to Static WL ft

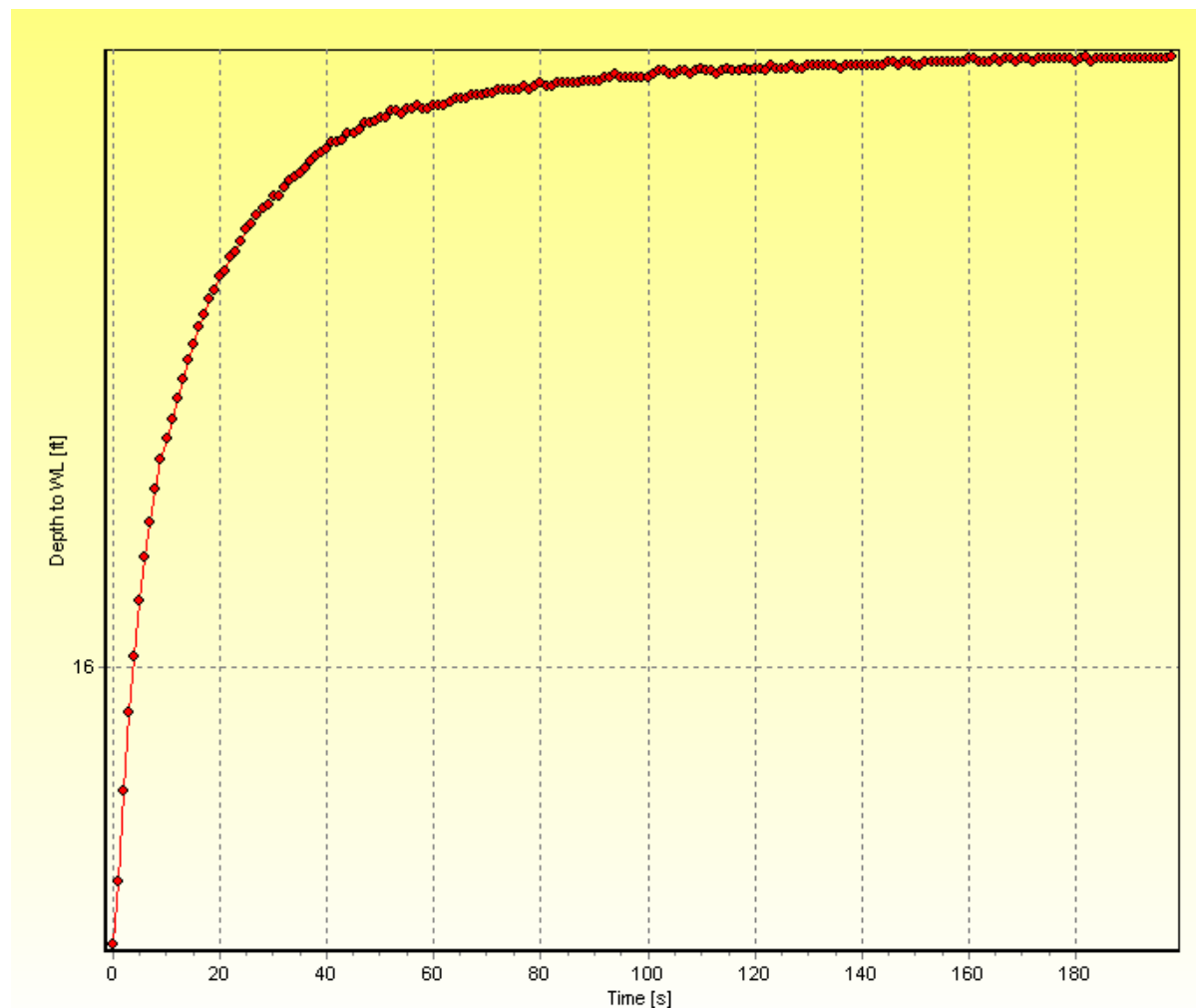
Water Level at t=0 ft

b ft



The diagram shows a cross-section of a well. The well casing has a length b. The well is shown as a vertical cylinder with a screen at the bottom. The ground surface is indicated by a horizontal line with a downward arrow. The water table is indicated by a blue line with a downward arrow.

Slug Test Graph (Depth to water level vs. time)



Slug Test Results

Conductivity		Test
2.61E+00	ft/day	Hvorslev
1.76E+00	ft/day	Bouwer & Rice

APPENDIX G

AHI & ASI Report

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Steve Gaffield, PE, PhD
Hydrologist
Montgomery Associates Resource Solutions, LLC
119 South Main Street
Cottage Grove, WI 53527

November 13, 2012

RE: Archival and Literature Search, North Stoner Prairie Neighborhood, City of Fitchburg, Dane County, Wisconsin

Dear Mr. Gaffield,

In November 2012, Great Lakes Archaeological Research Center, Inc. conducted an archival and literature search for the North Stoner Prairie Neighborhood project area in the City of Fitchburg, Dane County, Wisconsin.

The archaeological site index (ASI) and the architecture history inventory (AHI), maintained by the Wisconsin Historical Society (WHS), was accessed to determine if any archaeological or burial sites or historic property are listed in the database. No archaeological sites or burial sites are located within or adjacent to the project area.

Two properties, AHI #4633 and AHI #4634, are located within the project area (Figure 1). Property 4633, is located north of Lacy Road and 0.6 miles west of Seminole Hwy. The property contains farm buildings. At the time of the original survey, much of the buildings were in ruins. Aerial mapping shows that there are still buildings in this location. It is unknown what the condition or eligibility for the National Register of Historic Places (NRHP) the buildings are in, they are not currently considered eligible. Property 4634, is located on the east side of Seminole Highway and 0.6 miles south of the CTH PD. The property is a farm. Aerial mapping shows that the farm is still extant. It is unknown what the condition or eligibility for the National Register of Historic Places (NRHP) the buildings are in, they are not currently considered eligible. Early plat maps show that there were residences at these sites as far back as 1890. Even early General Land Office maps from 1833-1835 do not show roads or house in this project area.

In summary, no historic properties listed in the NRHP are located within the project area, however, two historic properties are listed in the AHI. No previously reported archaeological or burial sites are located in the project area.

P.O. Box 511549. MILWAUKEE, WI. 53203. 414.481.2093. 414.273.1410 FAX

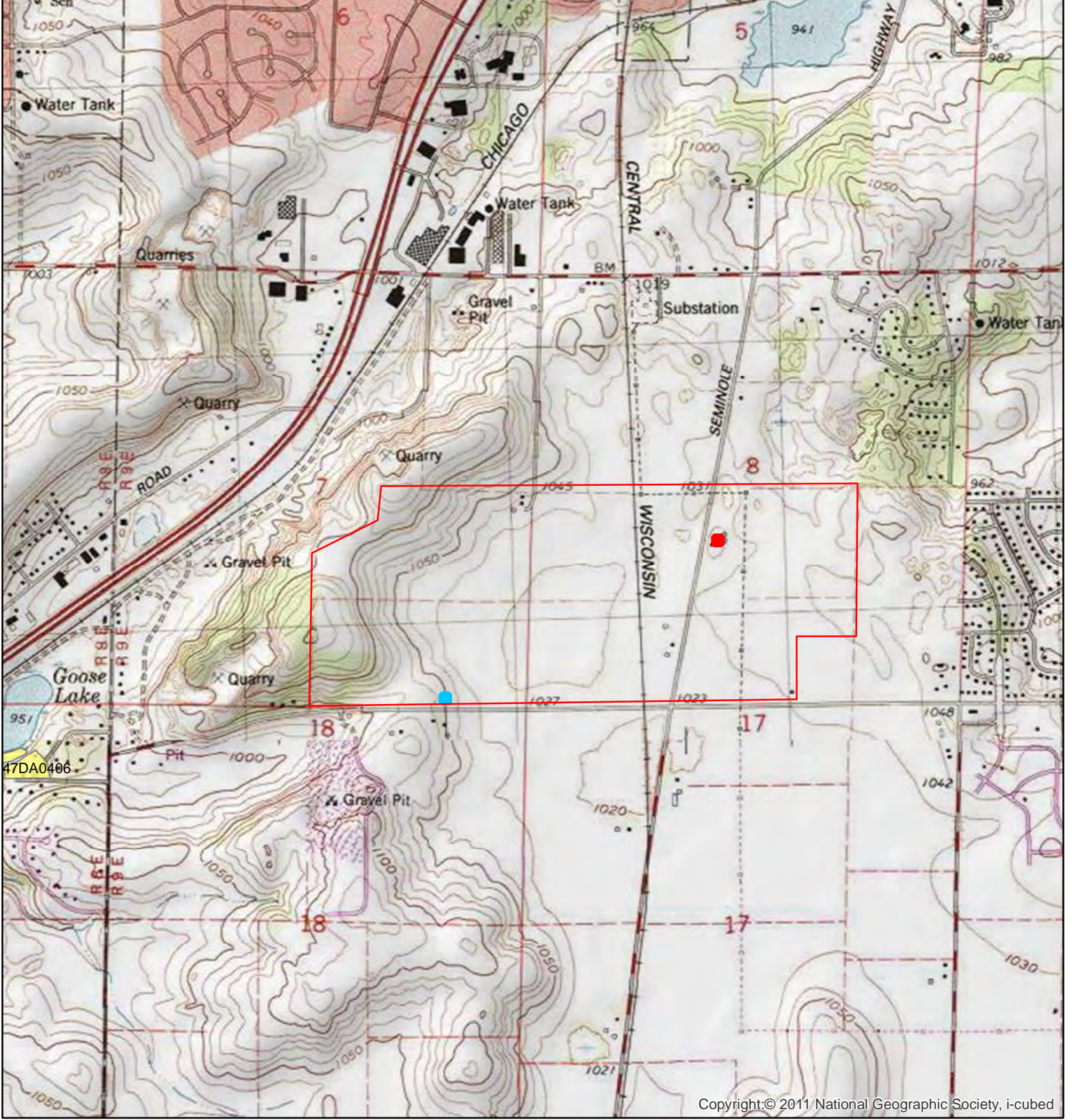


If you have any comments or questions regarding the results of the archival search please feel free to contact me at 414-481-2093 and kshillinglaw@glarc.com

Sincerely,

A handwritten signature in blue ink, appearing to be "Katherine Shillinglaw", written over a light blue circular watermark.

Katherine Shillinglaw, MS, RPA
Great Lakes Archaeological Research Center, Inc.



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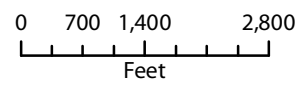
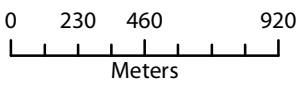
**Archival and Literature Search
North Stoner Prairie Neighborhood
City of Fitchburg
Dane County, Wisconsin**

Great Lakes Archaeological
Research Center, Inc.
GLARC Project 12-016

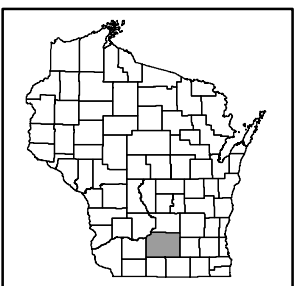
Mapped: 13 November 2012
North Stoner Prairie Neighborhood Plan - November 2013

Legend

- 4633
- 4634
- Archaeological/Burial Site



1:26,000



Dane County

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APPENDIX H Conceptual Stormwater Management Report

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**Conceptual Stormwater Management Plan:
North Stoner Prairie Neighborhood,
Fitchburg, WI**

September 2013

Prepared For:
City of Fitchburg, Wisconsin

Project #: 1571

Montgomery Associates
Resource Solutions, LLC • ma-rs.org



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1 Introduction

1.1 Purpose

This conceptual stormwater plan was developed by Montgomery Associates: Resource Solutions, LLC (MARS) for the North Stoner Prairie Neighborhood (NSPN) Plan. It describes key water resource issues and a planning-level approach to managing stormwater when the neighborhood is developed in the future. It is intended to be used as a guide for site-specific stormwater management system design, to be augmented by site-specific topographic survey data, soils data, and design details.

1.2 Background

The February 2013 “Environmental Conditions Report for the North Stoner Prairie Neighborhood”, prepared by Montgomery Associates: Resource Solutions, LLC (MARS), with subcontractor support from Eco-Resource Consulting, LLC (ERC) and the Great Lakes Archaeological Research Center, Inc., provides a detailed assessment of existing natural resource conditions and issues for the planning area. Key issues related to stormwater management identified in that report and through the public input process include the following:

- Surface water runoff drains into several closed depressions, or low areas with no surface outlet where runoff pools in wet conditions (Figure 1). An increase in the volume of stormwater runoff into these depressions would cause increased flooding in these locations. This has occurred with development of numerous closed depressions in the Madison metropolitan area.
- Runoff west of the Badger State Trail flows into the large closed depression (CD1) within the NSPN. No current or historic surface outflow from this depression has been reported, however if water levels rose high enough, water would discharge south across Lacy Road to a second closed depression (Figure 1).
- Between the Badger State Trail and Seminole Highway, surface runoff currently pools in closed depression CD2 with no indication that runoff discharges from these parcels.
- Water drains from the part of the neighborhood to the east of Seminole Highway in three directions: (1) west in a culvert under Seminole Highway, (2) north and east to closed depressions in the Seminole Forest and Lacy Heights Neighborhoods, and (3) south through a culvert under Lacy Road that drains to the closed depression (CD5) on the south side of Lacy Road.
- Regulatory wetlands are likely present in three of these closed depressions. Reconnaissance fieldwork in the fall of 2012 detected soil conditions indicative of wetlands in these locations; however a full wetland determination and delineation will be needed to define the extent of wetlands.
- Shallow groundwater in the western part of the NSPN may limit stormwater infiltration. One groundwater monitoring well was installed in the large closed depression (CD1) west of the Badger State Trail in November 2012 (Figure 2). The depth of the water table below the ground surface rose from approximately 13.5 ft in December 2012 (after a prolonged drought) to 1.3 ft in June of 2013

after a wet spring and early summer. In the extremely wet summer of 2008, historical observations suggest that the water table was at or above the land surface in this location.

- Shallow silt and clay soils may limit stormwater infiltration rates. In the central and eastern portions of the neighborhood, these fine grained soils are underlain by sand at depths of 6 feet or less. In those areas, infiltration systems could be excavated to the sand and backfilled to provide higher infiltration rates.
- Several residences in the Seminole Forest and Lacy Heights Neighborhoods to the east and north of the North Stoner Prairie Neighborhood have experienced basement flooding and surface water runoff impacts. Stormwater drainage routes and infiltration systems will need to be located and designed in a manner that does not make these problems worse.

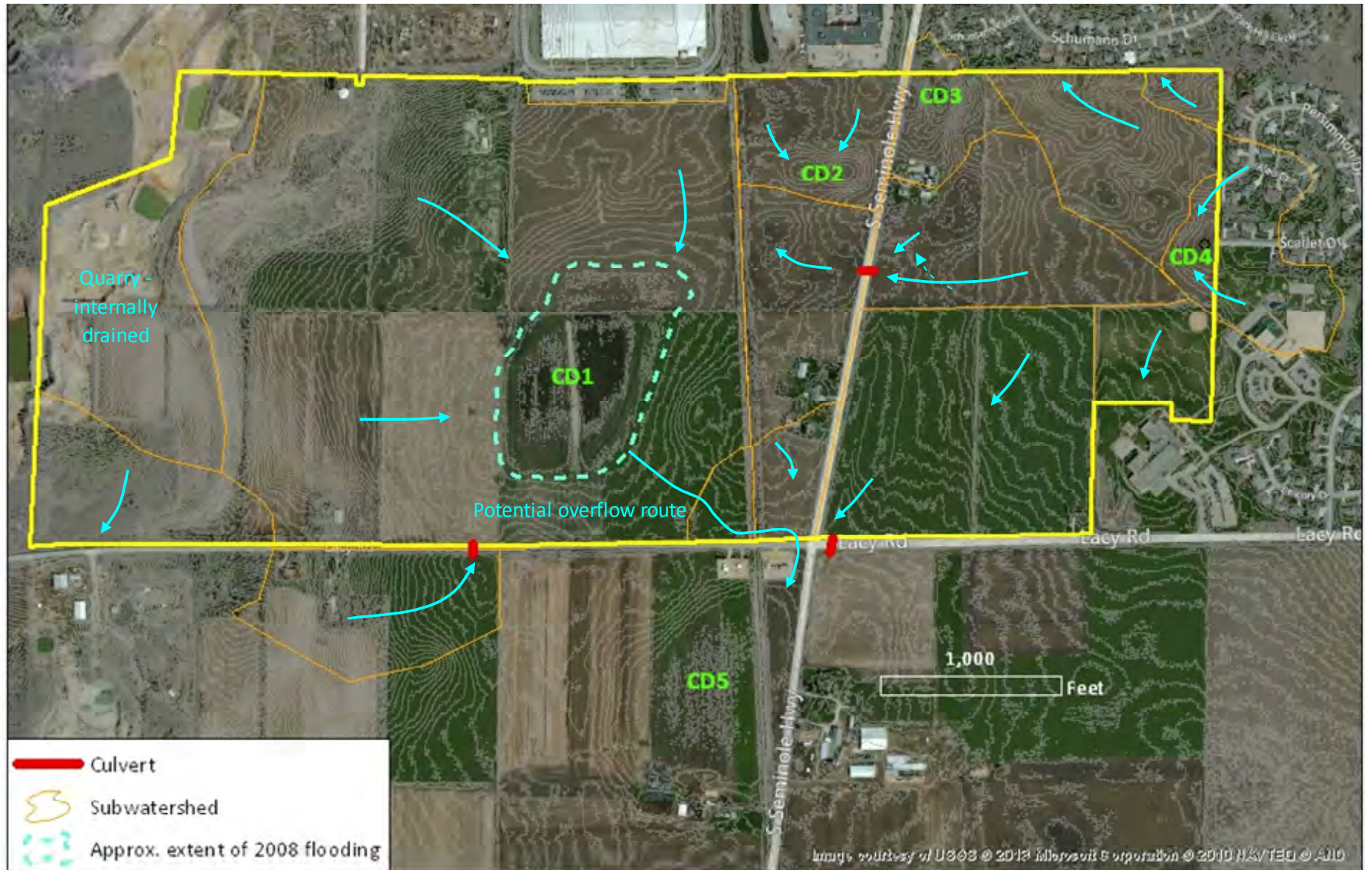


Figure 1. Existing drainage patterns including closed depressions (CD).



Figure 2. Monitoring well in closed depression west of Badger State Trail on June 26, 2013 after 2-inch rains on June 25 and June 26.

1.3 Strategy for Managing Closed Depression Drainage

How stormwater will be managed in closed depression watersheds in the neighborhood was the subject of considerable discussion with the project team and steering committee during the planning process. Because closed depressions have no surface drainage outlet, runoff that flows into them ponds there for an extended period until it infiltrates into the soil and is lost to the air through evaporation and transpiration (Figure 3). This creates two major challenges: (1) development of closed depression watersheds has typically caused an increase in runoff frequency and volume, leading to extended ponding of water, loss of soil infiltration capacity, and a long-term trend of increasing water levels; and (2) large runoff events can cause prolonged flooding over an extensive area because the only routes for water to leave the closed depression are infiltration into the soil and evapotranspiration.

Based on discussions with City staff, the worst case scenario for which management options were evaluated was back-to-back 100-yr runoff events. This is similar to the weather pattern that hit the Lake Delton, Wisconsin area during the extreme floods of June 2008. Alternatives were also evaluated based on engineering feasibility, environmental impacts, impacts on other properties, qualitative cost, and permitting issues. Options considered include:

1. Following the ordinance requirements for stormwater volume control, recognizing that the volume of runoff to the closed depressions would increase substantially, and implementing a flood control pumping system that would be used routinely to drain them. Back-to-back 100-year events would flood approximately 50 acres, and pumping would take weeks or months to achieve a normal water level. The most likely option for discharging pumped water is the existing storm sewer north of the NSPN. Use of some water for landscape irrigation is possible, but more green space would have to be irrigated than will exist in the NSPN, and there could be months between when the closed depression floods and when the water is needed for irrigation. This option would be unlikely to gain approval of the Capitol Area Regional Planning Commission, which typically requires no runoff increase for areas subject to urban service area amendment requests.
2. Constructing gravity drainage channel to the south, which would greatly reduce flood elevations. The waterway would have a length of approximately 9 miles and would route water through Lake Harriett in the Town of Oregon and east to the Badfish Creek watershed. The very flat grades south of the North Stoner Prairie Neighborhood would pose a significant challenge to creating an effective drainageway. Potential water level and water quality impacts to Lake Harriett raised concerns. Construction of such a long channel would require the cooperation of many private landowners and would be very expensive.
3. Requiring low impact development techniques that would result in no increase in runoff volume after development. This would require significantly more creativity and land area to accomplish, however it would avoid an increase in water levels in the closed depression and would provide an opportunity for restoration of wetlands in the closed depressions. In addition, the extent of flooding during back-to-back 100-yr events would be approximately 40 acres – about 10 acres less than for the conventional development option. An emergency pumping plan is recommended as a contingency for unanticipated conditions.

City staff and the steering committee decided to pursue the third option (no runoff increase) for development throughout the North Stoner Prairie Neighborhood, because runoff from all areas of the neighborhood drains to closed depressions within or outside of the neighborhood.



Figure 3. Flooding of closed depression west of Badger State Trail on June 26, 2013 after 2-inch rains on June 25 and June 26.

1.4 Stormwater Performance Standards

Applicable standards for development of this conceptual stormwater management plan are summarized below.

Volume Control and Flood Protection

- Maintain 100% of the pre-development infiltration (stay on) volume, with no caps on the area required and no exemptions for roads or soil type, based on the 1981 annual rainfall series (*neighborhood-specific criterion*).
- Establish a flood protection elevation in the closed depression west of the Badger State Trail equivalent to the standing water level that would result from back-to-back 100-year runoff events (*neighborhood-specific criterion*).

Water Quality Control

- Retain 80% of Total Suspended Solids post-development compared to no controls (*Section 30 of the City ordinances and NR151*).

Peak Discharge Control

- Control post-development peak discharge to pre-development rates for the 1-yr and 2-yr events (*Wisconsin Administrative Code, Chapter NR151*).
- Control post-development peak discharge to pre-development rates for the 1-yr, 2-yr and 10-yr events, and safely pass the 100-yr event (*Dane County Ordinances, Title 2a, Chapter 14*).
- Control post-development peak discharge to pre-development rates for the 2-yr, 10-yr and 100-yr events, and safely pass events larger than the 100-yr event (*Chapter 30, Article II of the City ordinances*).
- Because most of the North Stoner Prairie Neighborhood is not currently in the urban service area, an amendment request must be submitted to the Capitol Area Regional Planning Commission (CARPC) before development can occur in those areas. As conditions of approval, CARPC typically requires peak discharge control up to and including the 100-year event.

1.5 Proposed Land Use

This conceptual stormwater management plan applies to the growth model developed during the neighborhood planning process (Figure 4). Proposed land use is industrial and business west of Seminole Highway, and low and medium density residential east of Seminole Highway.



Figure 4. North Stoner Prairie Neighborhood growth model.

Industrial land use shown in purple, commercial shown in red, medium density residential in orange, low density residential in yellow, and open space in green.

2 Methods

The performance of the conceptual stormwater management plan was analyzed with a series of models: RECARGA (infiltration and recharge), WinSLAMM (water quality) and XP-SWMM (runoff volume and peak discharge).

2.1 Stormwater Volume Control

Conventional Infiltration Practices

Stormwater volume control using conventional infiltration areas, such as raingardens and regional infiltration basins, was evaluated using the computer model RECARGA. This model was developed at the University of Wisconsin-Madison from 2002 through 2005, and updated by MARS in 2008. This program evaluates the hydrologic budget of focused infiltration areas, considering surface infiltration, soil moisture storage, evapotranspiration, and recharge to groundwater. RECARGA is distributed on the Wisconsin Department of Natural Resources website for design of stormwater infiltration systems. The model runs continuously, performing mass balance calculations for the facility. Hourly rainfall data from Madison, Wisconsin was run between March 12, 1981 and December 2, 1981, as specified in NR 151, representing an annual rainfall of 28.81 inches (excluding frozen ground conditions).

Soil infiltration rates used in the RECARGA model were based on soil borings conducted in 2012 and described in the environmental conditions report (Montgomery Associates, 2013). West of the large closed depression, clay-rich soil is present in the upper 8 to 20 ft; this is thick enough that stormwater infiltration would have to occur in the clay. Design infiltration rates for clay-rich textures encountered in the soil borings range from 0.03 in/hr for clay loam to 0.07 in/hr for silty clay and clay (per DNR Technical Standard 1002). To be conservative, the infiltration analysis used a rate of 0.03 in/hr in these areas. East of the closed depression, the clay is underlain by fine sand at depths shallow enough (6 ft or less) that infiltration systems could be excavated through the clay to reach the sand. The design infiltration rate for fine sand from Technical Standard 1002 is 0.5 in/hr.

The size of infiltration practices required to meet the runoff volume control goal also depends on the impervious surface ratio of the developed areas. An iterative modeling process was used to determine what impervious surface ratio is feasible in different parts of the neighborhood, given the goal of maintaining 100% of the pre-development runoff volume. Initial estimates of impervious surface ratios were based on typical values in Fitchburg: 85% for industrial and business, 65% for medium density residential, and 50% for low density residential. If the modeling results indicated that available pervious areas were too small to accommodate the required stormwater controls, the impervious surface ratio was reduced and the process was repeated. It was assumed that up to half of the pervious areas could function as stormwater control areas.

Alternative Low Impact Development Practices

Infiltration basins and other land-surface infiltration practices are the most commonly used and least expensive volume control practices; however they will require a large land area to meet the goal of maintaining 100% of the pre-development runoff volume. Conventional infiltration could be supplemented by other practices, such as pervious pavement, tree planter boxes, and rainwater harvesting and reuse, to control runoff volume to 100% of the pre-development level. These alternative low impact development practices typically have higher unit costs but have the advantage of saving space and serving dual functions of stormwater control and developed area (e.g. parking).

For planning purposes, the space-saving benefit of permeable pavement was estimated using the RECARGA results. It was assumed that pervious pavement would provide infiltration into the soil at the same rate as a raingarden constructed in the near-surface soils. Volume control in both types of systems is dominated by infiltration into the soil, with some evapotranspiration for raingardens and some evaporation for pervious pavement. For planning purposes, the volume control performance was therefore assumed to be equivalent for infiltration basins and pervious pavement. However, pervious pavement accomplishes this while also serving as usable developed area.

It was assumed that $\frac{1}{4}$ to $\frac{1}{2}$ of the parking areas in industrial land uses could be constructed with pervious pavement. It was also assumed that runoff from roofs and some impervious parking areas could be routed to pervious pavement for infiltration. Although current practice discourages routing runoff onto pervious pavement to prevent clogging the pavement surface with sediment, recent work indicates that this may be feasible and accepted practice in the future. This approach was taken to provide a high-end estimate of the benefit of pervious pavement.

Rainwater harvesting and reuse could also be used to reduce stormwater area requirements. Note, however, that pervious areas comprise a small fraction of the land area in industrial land uses, limiting opportunities for landscape irrigation. However, reuse of stormwater in buildings for graywater uses is possible. This alternative was not analyzed in this study, however the recent City of Fitchburg Catalytic project evaluated rainwater harvesting and other low impact development techniques in detail.

2.2 Water Quality

Post-development Performance Analysis with WinSLAMM

Water quality performance of stormwater control practices was evaluated using the WinSLAMM model version 10. The model estimates pollutant loads using a database of monitoring results and performs runoff and hydraulic routing calculations for treatment practices. The model was run continuously using Madison rainfall for the period of March 12, 1981 through December 2, 1981, as specified in NR 151, which had a total rainfall depth of 28.81 inches. The National Urban Runoff Program 50th percentile particle file was used for pollutant analysis.

The WinSLAMM standard commercial, low- and medium-density residential land use files were modified to match the impervious surface ratios for the North Stoner Prairie Neighborhood. The total impervious area was scaled up or down to match the target, keeping the same proportion of different types of impervious surfaces (e.g. roads, roofs and parking lots). Standard parameter files specified by WDNR and obtained from the USGS website were used for other model inputs.

Comparison with Current Agricultural Loads

The City of Fitchburg requested information on how water quality may change as the North Stoner Prairie Neighborhood develops. Direct comparison of pre- and post-develop water quality is difficult due to lack of detailed information about existing agricultural practices, lack of information about specific land uses that will occupy the NSPN in the future, and the lack of any single model that accurately simulates agricultural and urban water quality. For example, WinSLAMM does not evaluate water quality for the agricultural conditions.

Insight into changes in phosphorus loads can be gleaned by comparing post-development WinSLAMM predictions with a typical range of phosphorus loads for similar areas in Dane County estimated in the recent Yahara CLEAN study. That project estimated phosphorus loads to the Yahara lakes using the Soil and Water Assessment Tool (SWAT) model. Much of the Lake Mendota watershed has a similar landscape and dairy farm land use as the NSPN, with row crops, dairy herds and spreading of manure on fields. The results of the Yahara CLEAN study were compared with the WinSLAMM results to provide a semi-quantitative appraisal of how phosphorus loads are likely to change with development.

2.3 Peak Discharge and Flood Stage

XP-SWMM Model Description

XP-SWMM is a computationally and graphically enhanced version of the U.S. Environmental Protection Agency's Stormwater Management Model. Rainfall-runoff was analyzed using Natural Resource Conservation Service procedures including runoff curve numbers (CN) and times of concentration (Tc), and peak runoff discharge was computed using the hydrodynamic routing procedures in XP-SWMM.

For the purpose of peak discharge ordinance compliance, the pre-development condition was considered to be before excavation of the quarry at the west end of the neighborhood. This decision was based on discussions with City of Fitchburg and Dane County staff. The neighborhood was divided into pre-development subwatersheds based on existing land surface topography throughout most of the neighborhood, and on the 1983 USGS topographic quadrangle map in the quarry area (Figure 5). Subwatersheds A and B drain to the closed depression CD1 west of the Badger Trail. A small closed depression in subwatershed B on the south side of Lacy Road creates approximately 0.5 acre-feet of storage upstream of a culvert under Lacy Road; this storage was ignored in this analysis because it is very small compared to the runoff volume of large storms. Three small subwatersheds (C1, C2 and C3) drained west before the quarry was excavated. The natural drainage in subwatersheds D and E was to closed depression CD5 south of Lacy Road. The Badger State Trail and Lacy Road currently block drainage from these subwatersheds. Subwatershed F drains southwest to the intersection of Lacy Road and Seminole Highway, where culverts under Lacy Road allow water to drain to closed depression CD5. Subwatersheds G and H, between the Badger Trail and Seminole Highway, are currently internally drained due to a natural closed depression (CD2) and the presence of the Badger State Trail. The area east of Seminole Highway in Subwatershed I overflows through a culvert under Seminole Highway to subwatershed H. Subwatershed J drains to closed depression CD3 just east of Seminole Highway; it receives runoff from the NSPN and from several residential lots in the Seminole Forrest Neighborhood. Subwatersheds K and L, in the northeastern corner of the neighborhood, drain north and northeast into the Seminole Forest neighborhood. A small closed depression at the west end of Scarlet Drive (CD4) receives runoff from a small portion in the NSPN, part of the adjacent Lacy Heights Neighborhood, and the school on the south side of Scarlet Drive (Subwatersheds M1, M2 and M3). Subwatershed N includes the existing park adjacent to the school and drains to the south.

Rainfall depths were taken from Soil Conservation Service Technical Paper 40 (Table 1), and the rainfall distribution used in the analysis was 24-hour, Type II. Times of concentration were computed using TR-55 methods in a spreadsheet (Table 2 and Table 3).

Pre-development runoff curve numbers were assigned based on pre-development land use, Hydrologic Soil Group, and the maximum allowable pre-development curve numbers allowed in Dane County Ordinances, Title 2a, Chapter 14 and City of Fitchburg Ordinances Chapter 30, Article II (Table 4). For the quarry area, the extent of woodland was estimated from the 1983 topographic quadrangle map, and the remaining open area was assumed to be cultivated. These parameters were input to XP-SWMM for runoff volume and peak discharge calculation.

Post-development subwatersheds and curve numbers are based on the growth model developed during the NSPN planning process (Figure 6, Table 5). The growth model includes some differences in watershed boundaries and stormwater outfalls compared to pre-development conditions. The quarry will be reclaimed before development according to the plan approved by with Wisconsin Department of Natural Resources. This plan calls for the entire mined area to be graded to the east, reducing the area of Subwatershed C1 and eliminating Subwatersheds C2 and C3. This will increase the size of Subwatershed A (draining to closed depression CD1) by 13.8 acres compared to pre-development conditions. Between the Badger State Trail and Seminole Highway, Subwatersheds G and H are currently internally drained. Subwatershed G drains to closed depression CD2. The natural flow path from Subwatershed H appears to have been westward to closed depression CD1, based on the 1-ft contours, however the Badger State Trail currently blocks that drainage route. During the planning process, it was determined that a new drainage route would be graded from these subwatersheds to the north to connect to the existing stormsewer. Closed depression CD2 will include a buffer, and runoff from developed areas will be directed away from the closed depression to protect the potential wetland in CD2. Rerouting runoff from Subwatersheds G and H to the north would add 31.8 ac of drainage area to the storm sewer system draining to the north.

Post-development simulations used separate curve numbers for pervious and impervious areas. Pervious surfaces in areas of new development were assumed to be turf grass in good condition (curve number 61), and impervious surfaces were assigned a curve number of 98). For areas with no planned changes (e.g. existing roads, woodlands), the pre-development curve number was used. The area of new impervious surfaces was computed based on subwatershed area, anticipated impervious surface ratio, open space requirements for residential areas (subwatersheds F, I and J) and stormwater management area requirements.

Table 1. Rainfall depth and duration.

Recurrence Interval	Rainfall Depth (inches)	Storm Duration (hours)
1 year	2.5	24
2 year	2.9	24
10 year	4.2	24
100 year	6.0	24

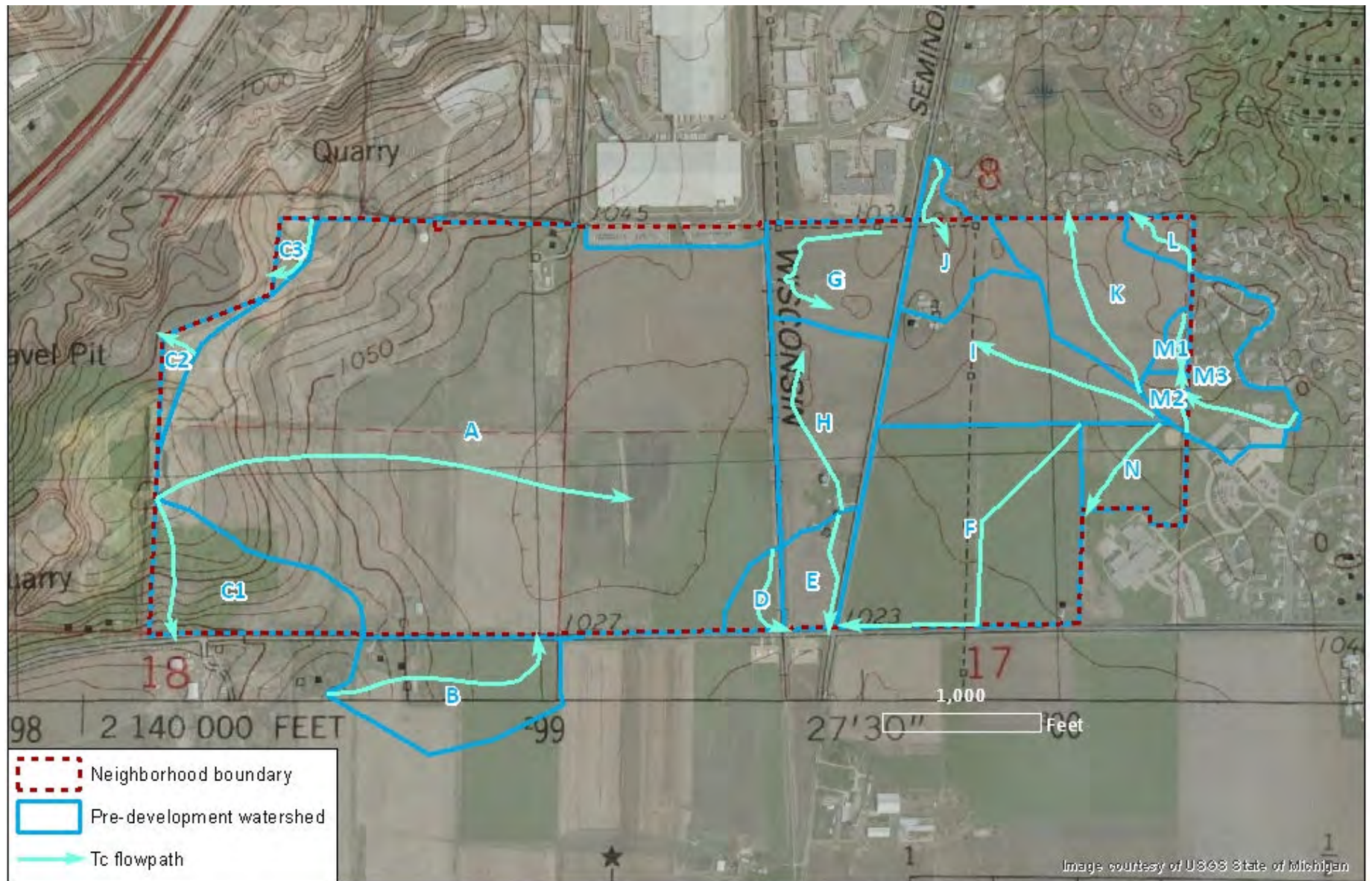


Figure 5. Pre-development subwatersheds and time of concentration flow paths.



Figure 6. Post-development subwatersheds and time of concentration flow paths.

Table 2. Pre-development time of concentration.

Subwatershed	Sheet flow					Shallow Concentrated Flow				Channel Flow						Time of Concentration	
	L ft	n	P ₂ in	s ft/ft	T _t hr	L ft	s ft/ft	V ft/s	T _t hr	L ft	s ft/ft	n	r ft	V ft/s	T _t hr	Hr	Min
A	300	0.17	2.9	0.044	0.333	2751	0.044	3.4	0.227							0.56	34
B	300	0.17	2.9	0.027	0.407	1230	0.042	3.3	0.103							0.51	31
C1	300	0.8	2.9	0.067	0.974	589	0.144	6.1	0.027							1.00	60
C2	241	0.17	2.9	0.033	0.312											0.31	19
C3	300	0.17	2.9	0.067	0.282	179	0.044	3.4	0.015							0.30	18
D	300	0.17	2.9	0.013	0.537	320	0.009	1.6	0.057							0.59	36
E	300	0.17	2.9	0.014	0.525	510	0.007	1.3	0.106							0.63	38
F	300	0.17	2.9	0.010	0.602	1200	0.008	1.4	0.239	850	0.005	0.04	1	2.7	0.087	0.93	56
G	300	0.17	2.9	0.017	0.491	849	0.006	1.3	0.182							0.67	40
H	300	0.17	2.9	0.017	0.493	680	0.006	1.2	0.153							0.65	39
I	300	0.17	2.9	0.012	0.566	939	0.013	1.8	0.143							0.71	43
J	300	0.24	2.9	0.020	0.602	356	0.014	1.9	0.052							0.65	39
K	300	0.17	2.9	0.018	0.476	922	0.014	1.9	0.135							0.61	37
L	300	0.17	2.9	0.028	0.397	248	0.030	2.8	0.025							0.42	25
M1	300	0.17	2.9	0.023	0.429	58	0.005	1.1	0.014							0.44	27
M2	300	0.17	2.9	0.022	0.442	90	0.011	1.7	0.015							0.46	27
M3	300	0.24	2.9	0.015	0.675	487	0.010	1.6	0.083							0.76	45
N	300	0.17	2.9	0.015	0.512	409	0.011	1.7	0.067							0.58	35

Table 3. Post-development time of concentration.

Subwatershed	Sheet Flow					Shallow Concentrated Flow				Channel Flow						Time of Concentration	
	L ft	n	P ₂ in	s ft/ft	T _t hr	L ft	s ft/ft	V ft/s	T _t hr	L ft	s ft/ft	n	r	V ft/s	T _t hr	Hr	Min
A	300	0.011	2.9	0.010	0.067	200	0.010	2.0	0.027	2551	0.015	0.04	1	4.5	0.156	0.25	15
B	300	0.17	2.9	0.02667	0.407	1230	0.042	3.3	0.103							0.51	31
C1	300	0.011	2.9	0.043	0.037	270	0.022	3.0	0.025							0.06	4
D	300	0.011	2.9	0.013	0.060	200	0.013	2.3	0.024	120	0.009	0.04	1	3.6	0.009	0.09	6
E	300	0.011	2.9	0.014	0.059	200	0.010	2.0	0.027	270	0.007	0.04	1	3.1	0.024	0.11	7
F	300	0.011	2.9	0.010	0.067	200	0.010	2.0	0.027	1850	0.006	0.04	1	3.0	0.171	0.27	16
G	300	0.011	2.9	0.008	0.074	200	0.008	1.8	0.031	351	0.014	0.04	1	4.4	0.022	0.13	8
H	300	0.011	2.9	0.012	0.063	200	0.012	2.2	0.025	832	0.005	0.04	1	2.6	0.089	0.18	11
I	300	0.011	2.9	0.012	0.063	200	0.005	1.4	0.039	1373	0.009	0.04	1	3.6	0.107	0.21	13
J	300	0.24	2.9	0.020	0.602	356	0.014	1.9	0.052							0.65	39
K	300	0.011	2.9	0.018	0.053	200	0.014	2.397	0.023	722	0.010	0.04	1	3.8	0.053	0.13	8
L	300	0.011	2.9	0.028	0.044	200	0.028	3.422	0.016	48	0.030	0.04	1	6.5	0.002	0.06	4
M1	300	0.011	2.9	0.023	0.048	58	0.005	1.1	0.014							0.06	4
M2	300	0.24	2.9	0.022	0.583	90	0.011	1.7	0.015							0.60	36
M3	300	0.24	2.9	0.015	0.675	487	0.010	1.6	0.083							0.76	45
N	300	0.17	2.9	0.015	0.512	409	0.011	1.7	0.067							0.58	35

Table 4. Pre-development runoff curve numbers.

Subwatershed	Area (ac)	Curve Number	Incremental Area (ac)	Pre-development Landcover
A	195.2	55	3.1	Woods along Badger Trail
		68	178.5	Cultivated
		74	4.8	Farmsteads
		83	8.2	Cultivated HSG D
		98	0.7	Badger Trail & Lacy Rd.
B	18.6	55	1.3	Woods
		68	15.6	Cultivated
		74	1.4	Farmstead / residential
		98	0.4	Lacy Rd.
C1	16.4	55	7.2	Woods
		68	4.9	Cultivated
		77	4.4	Woods HSG D
C2	2.9	68	2.3	Cultivated
		83	0.6	Cultivated HSG D
C3	1.8	68	1.8	Cultivated
D	3.2	55	0.4	Woods along Badger Trail
		68	2.8	Cultivated
E	6.1	55	0.4	Woods along Badger Trail
		68	4.6	Cultivated
		74	0.8	Farmstead
		98	0.3	Badger Trail
F	41.1	68	40.0	Cultivated
		70	0.5	Residential
		98	0.6	Seminole Hwy
G	13.6	55	0.3	Woods along Badger Trail
		68	12.9	Cultivated
		98	0.4	Badger Trail
H	18.2	55	0.9	Woods along Badger Trail
		68	14.6	Cultivated
		74	2.1	Farmstead
		98	0.6	Badger Trail & Seminole Hwy.
I	24.8	68	23.7	Cultivated
		74	0.8	Farmstead
		98	0.3	Seminole Hwy
J	8.9	68	6.4	Cultivated
		70	1.4	Residential - Seminole Forest
		74	0.7	Farmstead
		98	0.4	Seminole Hwy
K	17.6	68	17.6	Cultivated
L	2.5	68	2.5	Cultivated
M1	1.6	68	1.6	Cultivated
M2	1.82	68	1.78	Cultivated
		61	0.04	Grass

Subwatershed	Area (ac)	Curve Number	Incremental Area (ac)	Pre-development Landcover
M3	11.9	61	4.3	Grass schoolyard
		70	5.9	Residential
		98	1.7	Scarlett Dr & paved paths
N	8.7	61	8.7	Grass park

Table 5. Post-development runoff curve numbers.

Watershed	Area (ac)	Curve Number	Incremental Area (ac)	Post-development Landcover
A	209.0	55	3.1	Woods along Badger Trail
		61	50.7	Grass
		80	0.6	Grass on HSG D
		98	154.6	Impervious
B	18.6	55	1.3	Woods
		68	15.6	Cultivated
		74	1.4	Farmstead / residential
		98	0.4	Lacy Rd.
C1	7.3	55	3.0	Woods
		77	1.0	Woods HSG D
		61	0.8	Grass
		98	2.5	Impervious
D	3.2	55	0.4	Woods along Badger Trail
		98	2.4	Impervious
		61	0.8	Grass
E	6.1	55	0.4	Woods along Badger Trail
		61	1.4	Grass
		98	4.4	Impervious
F	41.1	61	16.9	Grass
		98	24.1	Impervious
G	13.6	55	0.3	Woods along Badger Trail
		58	3.1	Meadow / natural area
		61	2.4	Grass
		98	7.7	Impervious
H	18.2	55	0.9	Woods along Badger Trail
		61	4.2	Grass
		98	13.1	Impervious
I	26.1	61	12.7	Grass
		98	13.4	Impervious
J	6.5	58	4.7	Meadow
		70	1.4	Residential - Seminole Forest
		98	0.4	Seminole Hwy
K	18.6	61	9.5	Grass
		98	9.2	Impervious
L	2.5	61	1.2	Grass
		98	1.2	Impervious

Watershed	Area (ac)	Curve Number	Incremental Area (ac)	Post-development Landcover
M1	1.6	61	0.8	Grass
		98	0.8	Impervious
M2	1.8	61	1.8	Grass
M3	11.9	61	4.3	Grass schoolyard
		70	5.9	Residential
		98	1.7	Impervious
N	8.7	61	8.7	Grass

Event Peak Discharge

The peak discharge requirements described in Section 1.4 require comparison of post-development conditions with “pre-development” conditions, including maximum allowable runoff curve numbers for agricultural land. This results in a conservatively low estimate of runoff volume and peak discharge for pre-development conditions for the purpose of sizing detention basins.

For this conceptual stormwater analysis, detention was modeled as a single regional basin in each subwatershed. Basins were simulated with a 3-ft active storage depth between the invert of a low flow outlet pipe and an overflow weir, and sidewalls with a 3:1 slope.

Extreme Event Flooding

As described in Section 1.3, closed depression CD1 west of the Badger State Trail is particularly flood prone because it has no surface outlet, and a flood protection elevation will be established based on back-to-back 100-year events. The XP-SWMM model was used to compute the 100-year event runoff volume for CD1 for proposed development conditions described above. For comparison, an additional simulation was conducted to illustrate the extent of flooding that would occur if stormwater management only followed the minimum requirements of the State, County and City ordinances. It assumes that infiltration areas would meet the cap on infiltration area equal to 2% of the development site.

The elevation of the water surface in the closed depression caused by extreme rainfall events was estimated with a stage-storage relationship developed from the 1-ft topographic contours provided by the City of Fitchburg and based on a LiDAR survey (

Table 6). Earthwork during development could change the configuration of the closed depression and alter this stage-storage relationship; however, the presence of regulatory wetlands and shallow groundwater will likely limit the degree to which the stage-storage relationship could be modified.

Table 6. Stage-storage relationship for closed depression west of Badger Trail

Elevation (ft above mean sea level)	Ponded Area (ac)	Storage Volume (ac-ft)
1017	0.00	0
1018	7.6	3.8
1019	17.0	16.0
1020	25.2	37.1
1021	32.8	66.1
1022	39.7	102.4
1022.5	42.9	123.0
1023	47.0	145.5
1024	58.0	198.0

Note: Overflow to the south at occurs at approximately 1023.5 ft

2.4 Groundwater Mounding

Groundwater mounding impact potential was evaluated using a previously developed groundwater model of the Nine Springs watershed and surrounding area (Swanson, 2001) which includes the NSPN. This model uses the MODFLOW finite-difference groundwater modeling program and was extracted from the Dane County Regional Groundwater model (Krohelski and others, 2000) by the telescopic mesh refinement process.

For modeling pre-development conditions at the NSPN, the recharge rate was increased from 8 in/yr in the original Nine Springs model to 10 in/yr based on the more recent groundwater recharge map for Dane County (Hart and others, 2012). All other model parameters remained unchanged.

The change in land use after development of the NSPN was represented by changing the recharge rates in the model to reflect the locations of different land uses in the growth model and the recharge rates predicted by RECARGA (Figure 7). The post-development recharge rate could approximately double in some parts of the neighborhood. In addition, the hydraulic conductivity of the shallow aquifer below the NSPN was adjusted to test the sensitivity of groundwater mound height to aquifer properties. The existing Nine Springs model includes hydraulic conductivity values of 2.85 ft/d to 7.1 ft/d within in NSPN. Model runs were also conducted with hydraulic conductivity reduced throughout the neighborhood to 2 ft/d, based on the slug test in the monitoring well installed west of the Badger State Trail during this project (Montgomery Associates, 2013). To simulate the impact of soil layering on groundwater mounding, the vertical hydraulic

conductivity was reduced by a factor of 10 to 0.2 ft/d. This reduced hydraulic conductivity scenario may be conservatively low because less soil layering was observed in the sandy soil east of Seminole Highway, and because the sand and gravel east of Seminole Highway is likely to have a higher hydraulic conductivity than the silty sand in the monitoring well location.

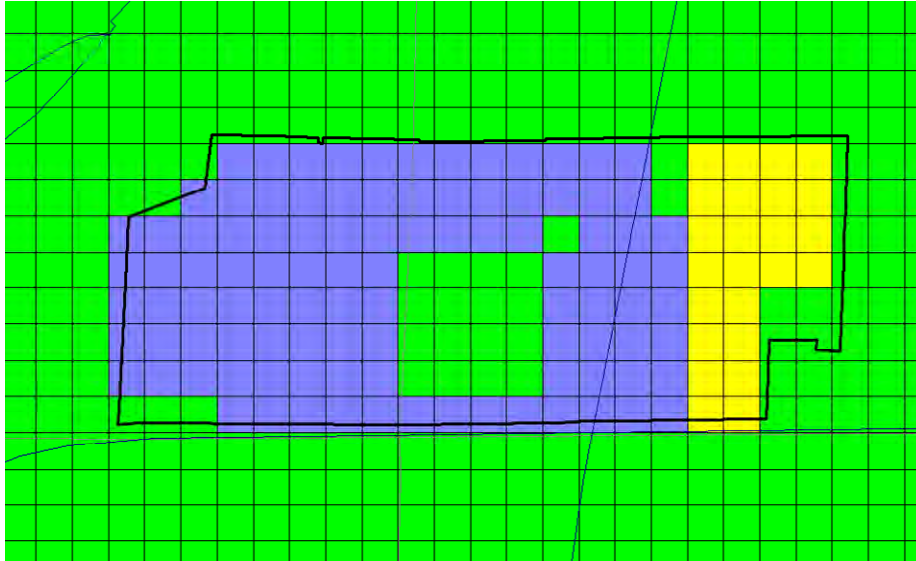


Figure 7. Post-development recharge rates used in groundwater model.

Green = 10 in/yr, purple = 18 in/yr, and yellow = 14 in/yr.

3 Results

3.1 Runoff Volume Control

The RECARGA simulations of stormwater infiltration practices demonstrates that large areas will be required to meet the 100% pre-development infiltration volume standard, especially in areas of clay-rich soil (Table 7). Because the area required for stormwater management is so substantial, 75% impervious surface cover is the highest density that is feasible if volume control is accomplished only by infiltration into the soil. Design of infiltration areas should consider the impacts of ponding duration on vegetation survival given the low infiltration rates in clay-rich soil. A design with an underdrain is recommended, with storage below the underdrain to capture water long enough for significant infiltration to occur.

The impervious surface cover could probably be increased to 80 - 85% with use of alternative volume controls, such as pervious pavement. RECARGA model runs indicate that this could be accomplished if approximately ¼ to ½ of parking areas were constructed with pervious pavement, and roof runoff and runoff from portions of impervious parking areas was routed to the pervious pavement. Although routing runoff from other surfaces to pervious pavement is not currently standard practice, current research suggests that this may be an effective and accepted practice in the future. Street trees infiltration boxes, underground infiltration, harvesting and reuse, and other low impact development practices could be used to supplement pervious pavement.

Table 7. RECARGA model results for 100% pre-development infiltration.

Soil Type	Infiltration Rate (in/hr)	% Impervious Surface Cover	Infiltration Design	% of Development Site Required for infiltration	Recharge Rate (in/yr)
Clay loam	0.03	75%	12 in engineered soil, no storage layer	16%	18
Clay loam	0.03	75%	12 in engineered soil, 3 ft storage layer below underdrain	13%	17.8
Fine sand	0.5	50%	12 in engineered soil, no storage layer	5%	14.4
Fine sand	0.5	65%	12 in engineered soil, no storage layer	7%	16.8
Fine sand	0.5	75%	12 in engineered soil, no storage layer	8%	18.1

3.2 Water Quality

The WinSLAMM simulations of post-development conditions indicate that the stormwater volume control practices (e.g. infiltration) will also provide the required 80% Total Suspended Solids control without additional water quality BMPs (Table 8). This is not surprising given the aggressive volume control standard for the NSPN and the resulting large size of volume control BMPs.

Table 8. Post-development water quality performance predicted by WinSLAMM

Land Use	Impervious Surface Cover	TSS reduction vs. no controls
Commercial / Industrial	75%	93%
Medium density residential	65%	86%
Low density residential	50%	80%

WinSLAMM predicts annual phosphorus loads of 0.096, 0.19 and 0.23 lbs/ac for the industrial, medium density and low density areas of the NSPN, respectively. For comparison, the Yahara CLEAN SWAT model analysis predicted that total phosphorus loads in dairy farm areas of the Lake Mendota watershed were typically 0.20 – 0.60 lbs/acre/year. These numbers reflect the load delivered to the downstream lake, and the actual loading rate from the fields is likely to be even higher. Thus, it is likely that phosphorus loads will be reduced after development. Note that the results of these two different models should be compared with caution, recognizing that they use different calculation routines and assumptions.

Nitrogen export rates are unavailable, but nitrate loading to groundwater is a widespread issue in agricultural areas of Dane County, where the drinking water standard for nitrate is commonly exceeded. The primary nitrogen sources in those areas are fertilizer and manure. After development, fertilizer may continue to be a source of nitrogen, depending on how vegetation is managed. An additional post-development source of nitrogen is likely to be atmospheric deposition from motor vehicles. Considering typical water quality issues in agricultural and urban areas, it is likely that total nitrogen loads will be lower after development.

Chloride is a pollutant that is likely to increase with development. In the existing agricultural land use, it is unlikely that there is any significant source of chloride. In urban areas of Dane County, winter road salting and water softeners have created a persistent trend of increasing chloride concentrations in local lakes. Considerable local research effort is going into reducing these chloride sources, but it is nonetheless likely that chloride concentrations in groundwater and downstream surface water bodies will increase with development.

It is unlikely that thermal controls will be needed for stormwater runoff, because no perennial stream receives direct runoff discharge from the NSPN, and the waters that would receive discharge from emergency pumping (Dunn’s Marsh and/or Nine Springs Creek) are not shown as thermally sensitive on Dane County’s Thermally Sensitive Areas Map.

3.3 Runoff Peak Discharge

The XP-SWMM model was run to simulate post-development peak runoff control, including the storage provided by infiltration basins. The size of detention basins was adjusted to match pre-development rate up to the 100-year event. The area of simulated detention basins required to meet the peak discharge requirements is summarized in Table 9, and a comparison of pre- and post-development peak discharges for each watershed is included in Table 10.

Table 9. Detention basin size requirements.

Watershed	Bottom area (ac)	Area at 3-ft stage (ac)	% of development site
A	6.0	6.4	3.1%
B	N/A - no development		
C1	0.10	0.16	4.9%
D	0.10	0.16	5.7%
E	0.27	0.37	6.7%
F	1.85	2.09	5.2%
G	0.55	0.69	7.0%
H	0.90	1.07	6.4%
I	1.05	1.23	5.4%
J	N/A - no development		
K	0.73	0.88	4.8%
L	0.055	0.103	4.2%
M1	0.015	0.044	2.8%
N	N/A - no development		

Table 10. Comparison of pre- and post-development subwatershed peak runoff rates (cfs).

Condition	Storm	A	B	C1	C2	C3	D	E	F	G	H	I	J	K	L	M1	M2	M3	N
Pre-development	1-yr	41.7	4.2	2.1	1.1	0.5	0.5	1.5	6.2	2.7	3.9	4.4	1.1	3.1	0.6	0.34	0.38	3.4	0.5
	2-yr	67.6	6.7	3.2	1.7	0.8	0.9	2.2	10.4	4.3	6.2	7.2	1.7	5.3	0.9	0.57	0.64	4.8	1.1
	10-yr	176.0	17.4	8.6	3.9	2.1	2.4	5.4	26.8	11.2	15.5	19.5	4.3	14.4	2.5	1.5	1.7	10.4	4.5
	100-yr	360.6	35.5	18.5	7.4	4.2	5.2	10.9	56.0	22.8	31.5	40.0	8.7	30.3	5.2	3.2	3.6	20.0	11.2
Post-development	1-yr	10.8	4.2	1.9	0	0	0.5	1.5	4.6	2.3	2.7	2.6	0.9	2.4	0.6	0.32	0.10	3.4	0.5
	2-yr	14.6	6.7	3.0	0	0	0.6	1.8	7.0	3.0	3.4	3.3	1.4	3.1	0.7	0.36	0.22	4.8	1.1
	10-yr	61.3	17.4	6.0	0	0	0.8	2.5	14.0	4.7	5.1	5.1	3.8	4.9	0.9	0.5	0.91	10.4	4.5
	100-yr	353.4	35.5	17.3	0	0	5.2	10.4	52.4	20.4	29.2	38.0	8.7	30.1	4.8	2.8	2.3	20.0	11.2

3.4 Closed Depression Flooding

The XP-SWMM model indicates that back-to-back 100-year events would result in flooding of approximately 45 acres and a flooded stage of approximately 1022.8 ft for the proposed growth model (Table 11). For comparison, conventional development following the minimum ordinance requirements for volume control would result in a flood elevation a half foot higher, with an additional 5 acres flooded (Figure 8). That flood stage would be high enough that it could cause overflow from the NSPN to the south across Lacy Road. Note that the simulations assumed that the closed depression was dry before the storms, and any standing water before the rainfall events would reduce the effective storage and increase the likelihood of overflows. An additional concern with volume control based on the minimum ordinance requirements is that the frequency of ponding in the closed depression would significantly increase, leading to sedimentation and loss of soil infiltration capacity and persistent ponded conditions in the closed depression. That would lead to higher flooded stages after extreme events and an increased likelihood of unplanned overflows.

Table 11. Volume of runoff to western closed depression for back-to-back 100 year events

Scenario	Runoff volume (ac-ft)	Flood stage (ft)	Area flooded (ac)
Proposed post-development	135	1022.8	45
Conventional development	160.6	1023.3 ¹	50

¹ Overflow to east across Badger Trail and to south across Lacy Road occurs between 1023 ft and 1024 ft.

3.5 Groundwater Response

The groundwater model shows an increase in water table elevation after development, due to an increase in recharge rate from stormwater infiltration practices. The height of the groundwater rise depends on the actual hydraulic properties of the shallow aquifer below the NSPN and on how much infiltration is relied upon to control stormwater volume. As discussed above, alternative stormwater controls such as harvesting and reuse and green roofs would lead to more evaporative loss and less infiltration and recharge.

The post-development models predict a water table rise of about 1 – 3.5 feet in the central closed depression and in the northeast corner of the neighborhood (Table 12). This is a potential concern especially in the closed depression, where groundwater has been only a few feet deep for part of 2013. This could lead to more prolonged ponding of the depression, and it could preclude effective use of that area for stormwater infiltration. This underscores the value of supplementing infiltration BMPs with practices that increase evaporation or consumptive use of stormwater to reduce the groundwater mounding height.

In the northeastern portion of the neighborhood, the predicted rise in the regional water table is less of a concern, because available information indicates that the water table is over 20 feet deep there. However, the potential for shallow, perched groundwater exists, and this possibility should be evaluated with

additional field investigation before site development due to the problems with basement flooding that have persisted in the adjacent neighborhood.

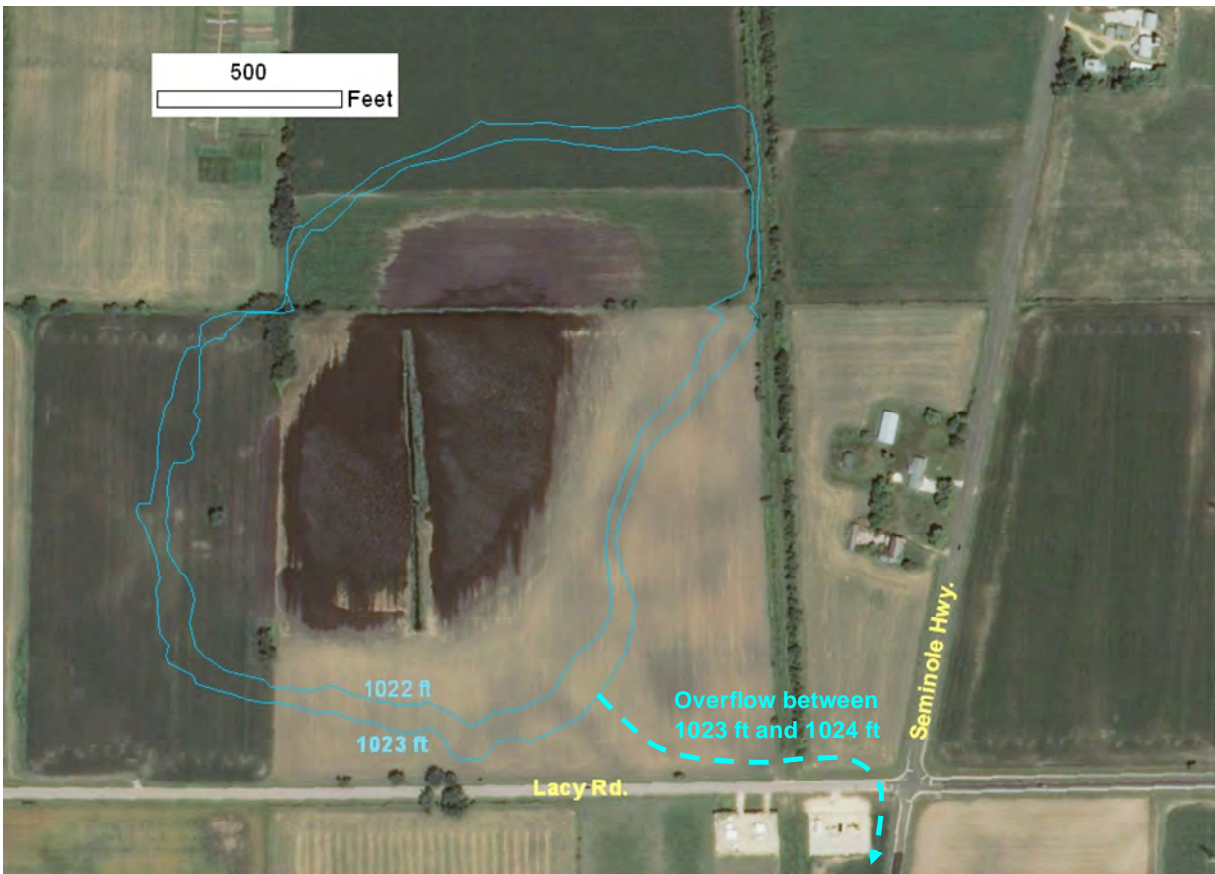


Figure 8. Approximate flooding extent in western closed depression.

Flood elevations predicted for back-to-back 100-year events are 1022.2 ft for existing conditions, 1022.6 ft for development proposed in this neighborhood plan, and 1023.2 ft for conventional development.

Table 12. Simulated groundwater mound height

Location	row	col	Pre-development	Scenario 1 ¹	Scenario 2 ²
SW corner of NSPN	74	60	942.8	943.7	943.6
Closed depression	71	69	937.2	940.7	938.1
NE corner of NSPN	67	79	928.3	931.7	928.9

1. Post-development recharge rate with hydraulic conductivity of 5 ft/d.
2. Post-development recharge rate with horizontal hydraulic conductivity of 2 ft/d and vertical hydraulic conductivity of 0.2 ft/d

3.6 Summary of Stormwater Management Space Requirements

Table 13 summarizes feasible impervious surface cover and space requirements for stormwater controls to meet the performance standards for the NSPN for the different parcels in the growth model (Figure 4), based on the stormwater analyses described above. Two scenarios were analyzed: stormwater volume control only using infiltration areas that require dedicated green space (e.g. a rain garden), and use of other low impact development practices, such as pervious pavement, that can be placed in usable developed areas. Use of alternative stormwater practices would allow a modest increase in density.

Table 13. Stormwater area requirements by growth model parcel.

Land Use	Growth Model Area	Infiltration Only ¹		Infiltration & other practices ²	
		Impervious Surface Ratio	Dedicated Stormwater Area ³	Impervious Surface Ratio	Dedicated Stormwater Area
Business / Industrial - Commercial	1 & 5	75%	16%	80%	8%
Industrial - Commercial	2	75%	10%	85%	4%
Industrial - General / Commercial	3 & 4	75%	12%	85%	8%
Medium Density Residential	6, 10, 11	65%	12%	65%	6%
Low Density Residential	7, 9	50%	8%	50%	4%

¹Stormwater volume practices such as raingardens, swales and infiltration basins at the land surface that require a dedicated area.

²For example, permeable pavement covering 5 - 10% of total site area for business/commercial, and 5% or less of residential areas. Green roofs, rainwater harvesting and reuse, or other methods could also be used to supplement conventional practices.

³Stormwater practices would be located in the pervious fraction of the site (e.g. the 25% pervious area for industrial land use).

4 Conclusions and Recommendations

Development in this area of closed depression drainage poses water management challenges. To minimize the impact of closed depression flooding in the NSPN, the City has established the goal of maintaining pre-development runoff volumes. In spite of this, a large area west of the Badger State Trail (CD1) will be subject to extreme event flooding and is proposed to remain as open space. Between the Badger State Trail and Seminole Highway, areas that are currently internally drained are proposed to be drained north to the existing storm sewer system. This will greatly reduce the area flooded during extreme events and allow the high density development that the growth model proposes in this area. Even with the requirement of maintaining 100% of the pre-development runoff volume, this diversion of runoff to the storm sewer would increase the volume of water draining to Dunn's Marsh. Dunn's Marsh has experienced an increase in runoff volume due to development in the past, and this has led to an increase in the water level of the Marsh and related changes in its ecosystem. This plan for the NSPN attempts to balance impacts to Dunn's Marsh and other natural resources with the high density development envisioned by the City for this area.

Stormwater Volume

1. Avoid exacerbating closed depression flooding by maintaining existing runoff volumes. This means requiring runoff volume control practices that achieve 100% of the pre-development infiltration (stay on) volume for all development areas, including roads, based on the average annual rainfall series. This could be accomplished through regional stormwater controls and integrating stormwater controls into site landscaping. Because natural soil infiltration rates are very low, controlling runoff to 100% of the pre-development volume will require significant area. Extensive stormwater infiltration in clay-rich soils is not common practice and includes some risk. One measure that can be taken to enhance the performance of infiltration features in clay soils is to over size them to reduce hydraulic loading rates. The open space around the western closed depression offers an opportunity to spread stormwater over a large vegetated area where soil moisture storage and evapotranspiration can reduce runoff volume. Another precaution would be to supplement infiltration practices with other types of volume controls that harvest and reuse runoff, or reduce volume through evapotranspiration (e.g. green roofs).
2. Require additional soil borings (and monitoring wells, if appropriate) during the development of detailed stormwater system designs following DNR Technical Standard 1002. This investigation should determine if shallow groundwater is present near the eastern edge of the North Stoner Prairie Neighborhood. Available data indicate that groundwater is more than 20 ft deep in this area; it should be confirmed that stormwater infiltration practices will not pose a groundwater flooding risk to the Seminole Forest and Lacy Heights Neighborhoods.
3. Encourage volume controls in which stormwater is evaporated or transpired (e.g. green roofs, harvest and irrigation). Relying solely on infiltration into the ground will be challenging given the fine grained soils and shallow groundwater west of the Badger State Trail. A balanced approach to volume control will also help prevent an unintended rise in the water table that could create flooding impacts.

Water Quality

4. Avoid infiltration or detention of stormwater within 400 ft of the proposed City water supply well, as required by NR151 and NR811. It may be possible to obtain a variance from this requirement from WDNR because water would be infiltrated to the shallow aquifer, and the new well will presumably be open only to the deep aquifer, which is protected by the Eau Claire shale. In addition, infiltration of relatively clean roof runoff is less likely to pose a drinking water risk than infiltration of street and parking lot runoff.
5. Volume control practices are likely to also provide the water quality treatment required by ordinances (at least 80% reduction in Total Suspended Solids relative to no controls).

Peak Discharge and Drainage

6. Control peak discharge to pre-development levels for the 1-year through 100-year events to meet City, County and State requirements.
7. Route runoff Parcel 7 (Figure 4) to stormwater volume, peak discharge and quality controls before it discharges north into the Seminole Forest Neighborhood.
8. Create a safe drainageway for runoff flowing from these stormwater controls to the storm drainage system in the Seminole Forest Neighborhood. Runoff from the existing agricultural land has impacted residential properties along Schumann Drive in low lying areas lacking controlled runoff routes.
9. Grade the northern part of Parcel 1 and Parcel 5, between Seminole Highway and the Badger State Trail, to route runoff to the north along the Badger State Trail to the existing storm sewer system north of the NSPN.
10. Install a new culvert under Seminole Highway north of Lacy Road to convey runoff from the southern part of Parcel 1 east to Parcel 11, where it would drain south through the existing culverts under Lacy Road.

Wetlands

11. Conduct a full wetland determination and delineation at the time of comprehensive development plan submittal, or prior to preliminary plat or land division approval, in the three closed depressions where field investigation has observed wetland indicators (CD1, CD2 and CD3).
12. Maintain a buffer of at least 75 ft around these wetlands, as required by the City's comprehensive plan and CARPC policy for farmed wetlands.
13. Restore native vegetation in these wetlands to improve habitat, provide recreational and educational opportunities, and maintain stormwater infiltration rate.

Flood Protection

14. Establish a flood protection elevation of approximately 1022.6 ft for the closed depression west of the Badger State Trail, based on the predicted water surface for back-to-back 100 year runoff events. This corresponds to an inundation area of approximately 44 acres for the existing topography. This extreme weather scenario is recommended for flood protection because there is no surface outlet for this watershed.
15. Develop an emergency pumping plan and install infrastructure needed to mitigate unanticipated flooding of the western closed depression due to climate change, stormwater system failure, or other factors. This is especially recommended due to the challenges in maintaining 100% of the pre-development runoff volume. Pumped water would be discharge to the existing storm sewer system north of the North Stoner Prairie Neighborhood, where it would eventually discharge to Dunn's Marsh. Infrastructure improvements would include an intake pipe and manhole in the closed depression, electric submersible pumps in an enclosure, and a buried HDPE pipeline to the storm sewer.
16. Monitor water levels in the closed depressions to provide early warning of unanticipated conditions. Installation of a staff gage and monthly stage readings are recommended.

5 References

Hart, DJ, PR Schoephoester, and KR Bradbury, 2012. Groundwater recharge in Dane County, Wisconsin: estimating recharge using a GIS-based water-balance model. Wisconsin Geological and Natural History Survey Bulletin 107-2012.

Krohelski, JT, Bradbury, KR, Hunt RJ, and Swanson, SK, 2000. Numerical simulation of groundwater flow in Dane County, Wisconsin: Wisconsin Geological and Natural History Survey Bulletin 98, 31 p.

Montgomery Associates: Resource Solutions, LLC, 2013. Environmental conditions report for the North Stoner Prairie Neighborhood Plan.

Swanson, 2001. Hydrogeologic controls on spring flow near Madison, Wisconsin: University of Wisconsin-Madison, PhD dissertation, 436 p.

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APPENDIX I *Fiscal Analysis & Tax
Increment Financing Feasibility Report*

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SUMMARY OF FISCAL AND TID ANALYSIS

Site Plan

The proposed development includes parcels north of Lacy Road, both east and west of Seminole Highway. The current assessed value of the parcels included within the subject property is \$2,109,800. The following parcels are included:

60907481902	60908385302	60908396007
60907490004	60908385602	60908463907
60907495009	60908390003	60908485009
60908380005	60908395017	60908490708
60908385012	60908395704	60908493009

The proposed site plan includes industrial, industrial/commercial, business, low-density residential, medium-density residential, and associated open space/utility uses, and contains approximately 360-acres, more or less.

USE	AREA (SQ.FT.)
LDR	2,269,364
MDR	1,364,593
BUS	589,396
IND/COM	2,136,250
IND	5,787,915
OS	2,845,548
ROAD	193,626
UTILITY	318,219

Estimated Property Valuation

An estimated property valuation at full build-out was calculated for the proposed development. Comparable residential, commercial and industrial properties in the immediately surrounding area were evaluated in order to determine an estimated \$/sq.ft. value for land and for

improvements. Multiple comparable properties of each land use category were evaluated. The following table illustrates comparable property values:

	LAND AREA	LAND VALUE	\$/sq.ft.
INDUSTRIAL	3,324,761	\$7,265,200	\$2.19
COMMERCIAL	1,014,251	\$3,955,000	\$3.90
MF RESIDENTIAL	1,705,030	\$110,000	\$0.06
SF RESIDENTIAL	73,804	\$380,000	\$5.15
	BUILDING AREA	BUILDING VALUE	\$/sq.ft.
INDUSTRIAL	555,542	\$10,655,300	\$19.18
COMMERCIAL	240,850	\$15,180,000	\$63.03
MF RESIDENTIAL	295,930	\$598,500	\$2.02
SF RESIDENTIAL	26,100	\$1,495,600	\$57.30

Estimated land and building values were then applied to the “Growth Model Scenario 1” as provided by the developer in order to generate an estimated property valuation at full build-out. As exact square footages of specific uses are not established, a “high” and “low” estimate was generated.

	LOW	HIGH
Land Value	\$45,790,824	\$45,790,824
Building Value	\$84,651,440	\$105,479,163
Total	\$130,442,264	\$151,269,987

Estimated Property Tax Revenue

Based on the estimated property valuation at full build-out, and the current City property tax rate of .5111%, the estimated annual property tax generated to the City of Fitchburg was determined.

	LOW	TAX	HIGH	TAX
Land Value	\$45,790,824	\$234,037	\$45,790,824	\$234,037
Building Value	\$84,651,440	\$432,654	\$105,479,163	\$539,104
Total	\$130,442,264	\$666,690	\$151,269,987	\$773,141

Estimated Population

Population estimates for residential portions of the proposed development were calculated based on the formulas provided in Rutgers University, Center for Urban Policy Research, Residential Demographic Multipliers, 2006. The analysis assumes 4-bedroom units in the single as well as multi-family units.

	UNITS	MULTIPLIER	POPULATION
LDR	108	3.82	413
MDR	102	3.42	349
Total Projected Population			761

City Service Costs

Annual costs to provide City services to the development were calculated through analysis of the current city budget and demographic data. The total city budget, minus library and debt services, is \$16,604,766. Using the current city population of 25,260 it is estimated that the cost to provide service per resident is approximately \$657 per year.

Based on the estimated total population generated by the proposed development, and the estimated cost to provide service by the City per resident, the City can expect to incur an additional annual cost of approximately \$500,509 to service the increased residential population.

To calculate service costs to the business/industrial portion of the proposed development, the percent area of commercial and industrial property was compared the City budget to determine a cost per acre to service the new commercial and industrial areas of the proposed development.

The total annual cost to the City to provide service to the residential, commercial and industrial portions of the proposed development include:

Annual Residential Cost:	\$500,509
Annual Com/Ind Cost:	\$74,187
TOTAL:	\$574,697

	CITY ACRES	% AREA	BUDGET	\$/ACRE	NEW ACRES	COST	
Industrial	526.6	2.36%	\$392,199	\$744.78	76	\$56,846	cost/ind acre
Commercial	485.9	2.18%	\$361,886	\$744.78	23	\$17,341	cost/com acre
TOTAL AREA	22,295				100	\$74,187	

Annual Fiscal Impact

Based on the proposed site plan and methodology outlined above, the City can anticipate an additional \$600,000 - \$700,000 in property tax generated by the proposed development at full build-out. The City can expect to incur an additional \$575,000 in annual expense to service the proposed development at full build-out.

The total estimated annual fiscal impact on the City will be approximately \$91,994 (LOW) to \$198,444 (HIGH).

Industrial TID Analysis

The potential creation of a TID to include the industrial portions of the proposed development was also evaluated. Based on the current value of the proposed industrial portions of the subject property, the proposed phasing of the development, current city tax rates, and estimated infrastructure costs, the following tables demonstrate the estimated TID increment over the 20-year life of the TID, for both the “high” and “low” estimated industrial building square footage.

New industrial development and known infrastructure costs are phased in according to the phasing plan provided by the developer. A 1% annual inflation of property value is also assumed.

As shown on the following tables, a TID including the industrial portions of the proposed development is estimated to generate approximately \$5 mil to \$6 mil over the 20-year life of a TID. This amount would easily cover known infrastructure costs associated with the proposed development.

TID ANALYSIS (LOW)

YEAR	BASE VALUE	NEW DEVT	INFRAS. COST	NEW VALUE	INCREMENT	CITY TAX RATE	PROPERTY TAX	TOTAL TAX
1 2014	\$1,615,900	\$0		\$1,632,059	\$16,159	0.5111%	\$83	\$83
2 2015	\$1,632,059	\$0	\$47,500	\$1,600,880	-\$15,020	0.5111%	-\$77	\$6
3 2016	\$1,600,880	\$0	\$468,900	\$1,147,988	-\$467,912	0.5111%	-\$2,391	-\$2,386
4 2017	\$1,147,988	\$31,502,345	\$2,030,750	\$30,631,063	\$29,015,163	0.5111%	\$148,296	\$145,911
5 2018	\$30,631,063	\$0		\$30,937,373	\$29,321,473	0.5111%	\$149,862	\$295,773
6 2019	\$30,937,373	\$0		\$31,246,747	\$29,630,847	0.5111%	\$151,443	\$447,216
7 2020	\$31,246,747	\$15,170,453		\$46,729,668	\$45,113,768	0.5111%	\$230,576	\$677,793
8 2021	\$46,729,668	\$0		\$47,196,964	\$45,581,064	0.5111%	\$232,965	\$910,757
9 2022	\$47,196,964	\$0		\$47,668,934	\$46,053,034	0.5111%	\$235,377	\$1,146,134
10 2023	\$47,668,934	\$0		\$48,145,623	\$46,529,723	0.5111%	\$237,813	\$1,383,948
11 2024	\$48,145,623	\$0		\$48,627,079	\$47,011,179	0.5111%	\$240,274	\$1,624,222
12 2025	\$48,627,079	\$19,937,840		\$69,051,190	\$67,435,290	0.5111%	\$344,662	\$1,968,884
13 2026	\$69,051,190	\$0		\$69,741,702	\$68,125,802	0.5111%	\$348,191	\$2,317,075
14 2027	\$69,741,702	\$0		\$70,439,119	\$68,823,219	0.5111%	\$351,755	\$2,668,830
15 2028	\$70,439,119	\$0		\$71,143,510	\$69,527,610	0.5111%	\$355,356	\$3,024,186
16 2029	\$71,143,510	\$0		\$71,854,945	\$70,239,045	0.5111%	\$358,992	\$3,383,178
17 2030	\$71,854,945	\$0		\$72,573,495	\$70,957,595	0.5111%	\$362,664	\$3,745,842
18 2031	\$72,573,495	\$29,259,325		\$102,558,554	\$100,942,654	0.5111%	\$515,918	\$4,261,760
19 2032	\$102,558,554	\$0		\$103,584,140	\$101,968,240	0.5111%	\$521,160	\$4,782,919
20 2033	\$103,584,140	\$0		\$104,619,981	\$103,004,081	0.5111%	\$526,454	\$5,309,373
						Estimated Increment (LOW)	\$5,309,373	
						Net Present Value	\$5,004,613	

TID ANALYSIS (HIGH)

YEAR	BASE VALUE	NEW DEVELOPMENT	INFRASTRUCTURE COSTS	NEW VALUE	INCREMENT	CITY TAX RATE	PROPERTY TAX	TOTAL TAX
1 2014	\$1,615,900	\$0		\$1,632,059	\$16,159	0.5111%	\$83	\$83
2 2015	\$1,632,059	\$0	\$47,500	\$1,600,880	-\$15,020	0.5111%	-\$77	\$6
3 2016	\$1,600,880	\$0	\$468,900	\$1,147,988	-\$467,912	0.5111%	-\$2,391	-\$2,386
4 2017	\$1,147,988	\$35,119,938	\$2,030,750	\$34,248,656	\$32,632,756	0.5111%	\$166,786	\$164,400
5 2018	\$34,248,656	\$0		\$34,591,143	\$32,975,243	0.5111%	\$168,536	\$332,937
6 2019	\$34,591,143	\$0		\$34,937,054	\$33,321,154	0.5111%	\$170,304	\$503,241
7 2020	\$34,937,054	\$18,767,203		\$54,053,628	\$52,437,728	0.5111%	\$268,009	\$771,250
8 2021	\$54,053,628	\$0		\$54,594,164	\$52,978,264	0.5111%	\$270,772	\$1,042,022
9 2022	\$54,594,164	\$0		\$55,140,105	\$53,524,205	0.5111%	\$273,562	\$1,315,585
10 2023	\$55,140,105	\$0		\$55,691,507	\$54,075,607	0.5111%	\$276,380	\$1,591,965
11 2024	\$55,691,507	\$0		\$56,248,422	\$54,632,522	0.5111%	\$279,227	\$1,871,192
12 2025	\$56,248,422	\$24,388,781		\$81,199,686	\$79,583,786	0.5111%	\$406,753	\$2,277,945
13 2026	\$81,199,686	\$0		\$82,011,683	\$80,395,783	0.5111%	\$410,903	\$2,688,847
14 2027	\$82,011,683	\$0		\$82,831,800	\$81,215,900	0.5111%	\$415,094	\$3,103,942
15 2028	\$82,831,800	\$0		\$83,660,118	\$82,044,218	0.5111%	\$419,328	\$3,523,270
16 2029	\$83,660,118	\$0		\$84,496,719	\$82,880,819	0.5111%	\$423,604	\$3,946,874
17 2030	\$84,496,719	\$0		\$85,341,686	\$83,725,786	0.5111%	\$427,922	\$4,374,796
18 2031	\$85,341,686	\$32,783,794		\$118,978,897	\$117,362,997	0.5111%	\$599,842	\$4,974,638
19 2032	\$118,978,897	\$0		\$120,168,686	\$118,552,786	0.5111%	\$605,923	\$5,580,562
20 2033	\$120,168,686	\$0		\$121,370,373	\$119,754,473	0.5111%	\$612,065	\$6,192,627
Estimated Increment (HIGH)								\$6,192,627
Net Present Value								\$5,837,164