DeKalb County, Illinois

Environmental Assessment Report

July 2010

1788 Sycamore Road
DeKalb, IL 60115
815.787.3111
Fax 815.787.7240
info@baxterwoodman.com

DeKalb County, Illinois

Environmental Assessment Report

TABLE OF CONTENTS

LIST OF TABLES

Table

LIST OF APPENDICES

Appendix

LIST OF EXHIBITS

Exhibit	
1.0.1	Proposal Fiber Optic Routes
2.1.1	City of Sycamore
2.1.2	City of Genoa
2.1.3	Village of Kingston
2.1.4	Village of Kirkland
2.1.5	Town of Cortland
2.1.6	Village of Hinckley
2.1.7	Village of Big Rock
2.1.8	Village of Waterman
2.1.9	Village of Shabbona
2.1.10	City of Sandwich
2.1.11	Village of Somonauk
2.1.12	City of Earlville
2.1.13	City of DeKalb
2.1.14	Village of Malta
3.3.1-7	Hydric Soils
3.5.1	Environmental Concerns
3.4.1-7	Floodplain/NWI Map
3.8.1	DeKalb County Unified Future Land Use Plan
3.8.2	2030 Land Use (Kane County)
3.8.3	LaSalle County, Illinois Proposed Land Use

EXECUTIVE SUMMARY

DeKalb County, Illinois, in cooperation with the DeKalb Advancement of Technology Authority (DATA) was awarded a grant by the NTIA to provide broadband infrastructure to communities throughout DeKalb County and portions of LaSalle and Kane counties. Under the National Environmental Policy Act of 1969, the NTIA must conduct an Environmental Assessment of the proposed action and evaluate environmental consequences of the proposed action against alternative actions that meet the purpose and need of the project.

The proposed project consists of construction of approximately 140 miles of fiber optic cable along various existing right-of-ways and utility easements throughout the project area. The fiber will be installed using vibratory plow and directional drilling technologies. Directional drilling will be used in locations where surface disturbances must be minimized; such as central business districts within communities and under sensitive environmental locations such as wetland or stream crossings.

This Environmental Assessment reviews the impacts of the Preferred Route, an Alternate Route and a No Action alternative to various aspects of the environment. Areas considered include: Noise, Air Quality, Geology and Soils, Water Resources, Biological Resources, Historic and Cultural Resources, Aesthetic and Visual Resources, Land Use, Infrastructure, Socioeconomic Resources and Health and Human Safety.

The analysis of the project, constructed using the methods described, showed no significant adverse impacts during construction or operation for the Preferred Route to any of the resource areas described above. Due to the apparent suitability of the Preferred Route, a field investigation of the Alternative Route was deemed unnecessary and the evaluation was based on readily available maps and published data. As there are no significant impacts along the Preferred Route, the Preferred Route is recommended due to the reduced total length of construction.

INTRODUCTION

Under the American Recovery and Reinvestment Act of 2009, the National Telecommunications and Information Administration (NTIA) solicited proposals for the Broadband Technology Opportunities Program (BTOP) to expand broadband infrastructure to underserved populations. DeKalb County, Illinois, in cooperation with the DeKalb Advancement of Technology Authority (DATA) submitted a proposal to provide broadband infrastructure to communities throughout DeKalb County and portions of LaSalle and Kane counties.

In February of 2010, the NTIA awarded a grant to DeKalb County for implementation of the proposed project. Under the National Environmental Policy Act of 1969, the NTIA must conduct an Environmental Assessment of the proposed action and evaluate environmental consequences of the proposed action against alternatives actions that meet the purpose and need of the project. This Report has been prepared to meet these requirements.

1 PURPOSE AND NEED

DeKalb County is located in the north central portion of Illinois. In 2009, the US Census Bureau estimated the population of DeKalb County at 107,333. The County is largely agricultural, with one larger, centrally-located metropolitan area comprised of the City of DeKalb and the City of Sycamore. The City of DeKalb is also home to Northern Illinois University with an estimated enrollment of over 25,000 students.

Given the largely rural nature of the County, commercial providers of broadband services have not found it economically advantageous to extend services to the less densely populated areas of the County. Business, healthcare, and education are creating more capacity demands than ever, and existing networks are unable to accommodate the levels of service desired. Several of the local institutions supporting this grant are limited to data transfer speeds of less than 2Mbs or to T-1 speeds, hindering the development of education, healthcare and business models which require broadband in much greater and flexible capacities.

Current broadband options within the County vary by location, but in general are difficult and costly for many businesses to access. The project area is over 75 percent underserved with three population areas that are un-served based on the guidelines defined in the NOFA and BTOP application. The area also covers a large rural farming area where currently only dial-up services are available.

DATA, a public/private consortium organized by DeKalb County, has developed a broadband plan for the region to promote low-cost, high-speed broadband solutions for not-for-profits while creating an environment that will allow for-profit entities to take advantage of low-cost broadband services and fiber optic cable. The proposed project is providing dark fiber, lambda, 100Mb/100Gb opportunities for its members and private business that are not currently available in this area. Under the DATA plan, agriculture facilities along the path will also have access to the network providing the same opportunities for farmers.

Construction of the project will connect 42 K-12 schools, 12 municipalities, 20 County sites including E-911 services, 2 hospitals, 5 clinics, 68 library locations, several farms, Northern Illinois University and Kishwaukee Community College. The DATA plan also provides high speed service alternatives to a potential 3,600 businesses and more than 92,000 residents through its support of local internet service providers. A map of DeKalb County and the communities proposed for extension of broadband services is included as Exhibit 1.0.1 of this report.

2 PROPOSED ACTION

2.1 Project Description

The DATA organization consists of several networks that run over a shared fiber optic network that will be installed for all members. Each network system is designed to meet the specific needs of the community of users whether it is dark fiber, transport services or ISP services. The DATA network system consists of five networks overlaid on the fiber optic system. These networks are designed to be shared between organizations creating a public network, public/private network, and a private network. The five networks that are designed include an education and library network, healthcare network, agriculture network, local government and emergency services network, and a private business/economic development network. Services to the end user of the network are Ethernet-based providing a minimum of 100Mb and maximum of 10Gigabit services with possibilities to upgrade to 100Gigabit service if required.

The infrastructure necessary to support the network systems described above consists of approximately 140 miles of dark fiber as well as the necessary switching and routing equipment which will be housed in existing structures. Fiber optic cable is proposed to be installed in a micro-fiber duct package comprised of seven individual ducts. The proposed cable will be installed so as to extend and build upon the existing network located in the DeKalb/Sycamore area.

Proposed expansion of the system to the north will generally be along the IL Route 23 corridor from the City of Sycamore to the City of Genoa, then west along the IL Route 72 corridor to service the villages of Kingston and Kirkland. The specific routes and end users within each community are shown on Exhibits 2.1.1 through 2.1.4.

The network services area is also planned for expansion to the south to serve the communities of Cortland, Hinckley, Big Rock, Waterman, Shabbona, Sandwich, Somonauk, Leland, and Earlville. The proposed route joins the existing system at the south side of Cortland, and then proceeds south along Somonauk Road to Hinckley. From Hinckley, the route follows US Route 30 east to Big Rock and west to the communities of Waterman and Shabbona. The proposed route continues south from Hinckley along Somonauk Road to service Sandwich and Somonauk. In order to reach the communities of Leland and Earlville, the proposed system will extend west from Somonauk along County Line Road, Leland Road, 44th Road, 1675th Road, and US Route 34 to Earlville. Details of the routes and points of service for each community are provided in Exhibits 2.1.5 through 2.1.12.

In addition to the major service extensions described above, several short extensions are proposed to strengthen the existing network and provide services to new end users in the DeKalb, Sycamore and Malta communities. The proposed connections and extensions are shown on Exhibits 2.1.13 and 2.1.14.

2.2 Alternatives

Several alternatives were evaluated to address the purpose and need of the project and assess its overall impact. These alternatives include a no action alternative, evaluation of alternate technology, the preferred route as identified in Section 2.2.4 of this Report, and alternate routes for extension of service between each of the community centers identified as part of this project.

A discussion of each of these alternatives is included below.

2.2.1 No Action

This alternative evaluates the impacts of not completing the project. The No Action alternative fails to address the project's purpose and need, but is included within this comparison to illustrate the potential impacts of the Preferred Alternative.

2.2.2 Alternate Technology

This alternative evaluates the use of non-fiber based technologies to address the purpose and need of the project. Various wireless internet technologies were evaluated as an alternative to the fiber optic network proposed. Wireless technologies are currently used by several of the educational facilities to be served by this project to facilitate internet access. The internet connection speeds which can be provided utilizing existing wireless technologies is insufficient to meet the existing data demands of these institutions. Although construction of wireless facilities may result in a larger initial area served than the project

proposed, the level of service which these systems are capable of accommodating is insufficient to address the purpose and needs of this project and therefore does not represent a viable alternative for further consideration.

2.2.3 Alternate Method for Fiber Installation

This alternate looked at installation of aerial fiber or partially constructing the system using aerial installation to provided connectivity between the targeted system end points. System reliability is a key to providing the emergency 911 services which is identified as part of the purpose and need for this project. Aerial cable is susceptible to outages during storm events due to falling tree limbs and branches, excessive ice buildup or high speed wind gusts. In addition the existing poles which would support the fiber optic aerial facilities are under the control of other utility companies and would require agreements which restrict the rights of the fiber owner. For these reasons, installation of aerial fiber optic cable was not considered feasible to meet the purpose and need of this project.

2.2.4 Preferred Route Alternative

This alternative evaluates the impacts of constructing the project as proposed, along the project route identified in Section 2.1 and shown in Exhibit 1.0.1. Detailed views of the route are also included within Exhibits 2.1.1 through 2.1.14. The proposed methods of cable installation include directional drilling and the use of a vibratory plow.

The vibratory plow creates a slit trench and inserts the fiber duct at a depth of

approximately three feet, without the excavation of soil materials. Typical installation crews consist of a truck and trailer to transport equipment and supplies, a vibratory plow machine, a reel containing the duct to be installed, and a pick-up truck for transporting crews and general use. At this time, the intention is for crews to work four, ten hour days, rather than the standard eight hours a day for five days a week. A vibratory plow crew is capable of installing approximately 1,800 feet of duct in one, ten hour day.

Directional drilling creates a bore hole, fills the hole with a bentonite slurry to prevent cave in of the hole, then pulls the duct through the opening. Because directional drilling is typically used at locations where there is an obstacle that must be avoided, the depth of installation will vary to provide adequate separation from the impediment. Directional drilling techniques will be used for installation at stream crossings, in urban areas to minimize disturbance of surface features such as roadways and sidewalks, at utility crossings and at locations where sensitive wetland features have been identified. A typical directional drilling unit consists of a truck and trailer for transportation of equipment, a directional drilling machine, a reel for containment of the fiber duct and a pick-up truck for transportation of crews and general use. A typical directional drilling crew can install approximately 500 feet of conduit in a ten hour day.

It is anticipated that the installation will be completed by two directional drilling crews and one vibratory plow crew. In addition, a specialty crew will be available where

needed. The specialty crew consists of a dump truck and trailer for equipment transport, a skid steer and backhoe for excavation, an air compressor and a pick-up truck for transportation of crews and general use. This crew will be charged with installation of hand holes, repair of any field tiles inadvertently damaged during operations, potholing known utilities as required and any other miscellaneous tasks. Hand holes will be installed as dictated by the system design, but in all cases at a distance of no farther than 5,000 feet in rural areas and 1,000 feet in urban areas. The four crews will average approximately 2,800 feet of conduit installation per ten hour working day. Based on this production rate, the anticipated construction schedule requires 47 weeks of active work and a total project time of 63 weeks. The 16 week difference is in anticipation of winter shut down and other weather related delays.

Installation will occur along existing roadway right of ways and utility easements. Because of this, it is anticipated that utility conflicts and crossings will occur. It is unknown at this time what level of detail plans will be required for each agency having jurisdiction over a given right-of-way. At a minimum, Illinois law requires that utility companies be notified and that the utilities mark the locations of their facilities prior to the start of sub-surface construction. Once the utilities have been field located, a safe route for fiber duct construction can be determined. Where utility crossings are unavoidable, the existing utilities will be hand excavated to determine the depth of crossing. Adjustments to the

proposed fiber cable depth will be made as required to avoid conflicts.

A second issue of concern when working along existing roadway right-of-ways is the safety of motorists and workers. In order to protect both workers and motorists, the installation contractor will be required to follow standard Illinois Department of Transportation (IDOT) methods for construction work zone traffic control within right of ways. While the majority of the work will be off the roadway, adequate signage and barricades are necessary for the safe operation of equipment within the right of way. IDOT standards do not require a lane closure when work is more than 2 feet off the pavement. Therefore, it is anticipated interruptions to traffic will be minimal and only required when construction equipment is entering or leaving the work zone. In addition to the IDOT standards, OSHA standards for worker protection must be followed. These protections include adequate, high visibility safety vests for construction zone workers.

2.2.5 Alternate Routes

This alternative consists of the same scope of improvements as the Preferred Route alternative, but utilizes different roadway right-of-way routes for the installation of the fiber optic lines for connection of users along the north and south alignments. The alternative route was identified as an option to be considered in the event that significant impediments were encountered along the preferred route. The alternate route was chosen because of the connectivity between the existing system and the target service areas along an existing

corridor with dedicated right of way. Both the north and south segments of the alternate route provide a centrally located, relatively direct connection between the east-west project corridors at the north and south ends of the County. The Alternative Route would require more fiber to be installed than the Preferred Route due to fewer end users being located along the alignment, and would require installing the infrastructure within a narrower right of way. However, the Alternative Route requires fewer stream crossings than the Preferred Route. Other routing options available primarily consisted of county roads with prescriptive right of way which would necessitate easements or full right of way dedications. Pursuing these options would have required considerable additional legal expense and would delay the planned construction schedule.

The proposed Alternate Route to the north utilizes the Annie Glidden Road right-of-way to extend service from the existing fiber optic network in DeKalb to IL Route 72. The right of way width varies from 70 to 100 feet. From IL Route 72, service is extended east to Kingston and Genoa and west to Kirkland along the same alignment as the Preferred Route.

The Alternate Route to the south extends service from the existing system via IL Route 23 to Waterman with east and west branches along US Route 30 to serve Hinckley, Big Rock and Shabbona. The Alternate Route would then continue south along IL Route 23 from Waterman to the intersection with County Line Road where it would then branch east and west to serve the communities of Somonauk, Sandwich, Leland, and Earlville. This

route is also shown within the previously referenced exhibits.

The techniques used for installation of the fiber duct (directional drilling and vibratory plow installation) will be the same as described in the Preferred Alternate section of this report.

3 EXISTING ENVIRONMENT

3.1 Noise

The level of existing ambient noise throughout the project area varies by location and land use. Most of the project will be located along the right-of-way of existing roadways through agricultural areas. In these areas, ambient noise is primarily attributable to wind, passing cars, farm machinery, and the operation of wind turbines. In the urban portions of the project, ambient noise includes industrial operations, traffic, ventilation equipment, lawn mowers, railroad operations, and other varying sources.

Sensitive receptors for noise are located throughout the project area. Sensitive receptors are land use types that have increased sensitivity to sound. Sensitive receptors within the project area include residential properties, schools, hospitals, churches and libraries.

3.2 Air Quality

Air quality data available within the project area is fairly limited. The most current available Illinois Annual Air Quality Report (2008) was reviewed (Reference 1). The Illinois Environmental Protection Agency (IEPA) does not monitor air quality at any locations within DeKalb County, so data from the adjoining counties of Kane and LaSalle was analyzed to identify potential concerns.

In general, air quality within the project region is consistently good. The area was

found to be in compliance with the primary 8-hour standard of 0.075 ppm for ozone. One of the three sampling locations located in Kane and LaSalle counties showed one sample where the testing for Fine Particulate Matter ($P.M._{2.5}$) exceeded the standard of 35 $\mu g/m^3$. However, none of the sampling locations exceeded the annual arithmetic mean value 15 $\mu g/m^3$. Particulate matter ($P.M._{10}$) was only sampled at the LaSalle County location. This location recorded no samples over the 150 $\mu g/m^3$ standard for this pollutant. Sulfur Dioxide is monitored at the LaSalle County site and the highest 3-hour average logged was 0.341 ppm compared to the primary standard of 0.5 ppm.

The only air quality concern identified within the project area is an 8-hour ozone non-attainment area which includes Kane County. Ozone is formed when industrial or vehicle emissions react with oxygen in the presence of sunlight. Ozone is the primary pollutant associated with smog. Adverse health effects associated with Ozone pollution include decrease in lung function, aggravation of asthma, throat irritation and cough, chest pain and shortness of breath, inflammation of lung tissue, and higher susceptibility to respiratory infection.

3.3 Geology and Soils

The DeKalb County area consists of moraines, till plains, outwash plains, stream terraces, flood plains, and bogs. The County lies in the Great Lakes Section of the Central Lowland Province. The geology of the area is primarily characterized by several moraines

which run through the County (Reference 2).

Soil types within the project area vary widely due to the geographical extents of the project. Soil map units composing greater than 2 percent of the County are indicated in Table 3.3.1 (Reference 2).

Of the dominant soil types present, only Drummer silty clay loam, 0 to 2 percent slopes, Ottor silt loam, 0 to 2 percent slopes, and Elpaso silty clay loam, 0 to 2 percent slopes, are considered hydric soils. Exhibits illustrating the full extent of hydric soils within the project area are included as Exhibits 3.3.1 through 3.3.7. All of the above-referenced soils except Ottor silt loam have depths greater than 60 inches to a restrictive feature and are considered prime farmland.

3.4 Water Resources

3.4.1 Streams and Rivers

Twelve streams and rivers, as identified on the U.S. Geological Survey (USGS) 7.5 minute topographic maps, flow through the project corridor for the Preferred Route. The Alternate Route has ten streams and rivers crossing the project corridor. Perennial rivers in the project area include the East and West Branches of Big Rock Creek, Little Rock Creek, the South Branch of the Kishwaukee River, Little Indian Creek and Somonauk Creek. Of the named intermittent streams shown on the USGS topographic maps, Union Ditch No. 1 at Fairfield Road appears to be enclosed in a drain tile. A list of streams and rivers observed

within the project corridor is presented in Table 3.4.1.

The Illinois Department of Natural Resources (IDNR) has employed stream survey methodology to rank the biological significance of streams and rivers. Within or near the project corridor, Battle Creek, Little Indian Creek, South Branch Kishwaukee River, and Rock Creek are listed as Biologically Significant Streams (Reference 3).

3.4.2 Wetlands

Existing Data

Numerous hydric soils are mapped within the project corridor (Exhibits 3.4.1 through 3.4.7). Hydric soils within DeKalb County include Harpster silty clay loam (No. 67A); Sable silty clay loam (No. 68A); Houghton muck (No. 103A); Drummer silty clay loam (No. 152A); Thorp silt loam (No. 206A); Peotone silty clay loam (No. 330A); Elpaso silty clay loam (No. 356A); Hooppole loam (No. 488A); Spaulding silty clay loam (No. 712A); Otter silt loam (No. 3076A); and Comfrey loam (No. 3776A). Hydric soils are generally formed in ponded or flooded conditions and can be an indicator of potential wetland areas.

The National Wetland Inventory (NWI) map shows 18 wetland areas in the project area (Exhibits 3.4.1 through 3.4.9). These wetlands are primarily associated with streams or rivers. There are a few wetland areas associated with ponds or depressional areas. The NWI map is a means of establishing the possible presence of wetlands on a given parcel. It is intended as a planning tool which can serve to identify the likely presence of wetlands in a

given area.

Site Observations

A field survey for potential wetland areas along the Preferred Route was conducted by Baxter & Woodman, Inc. during April 2010. Ninety-three wetland areas were identified along the Preferred Route. Approximate limits of the wetlands were identified and limits demarcated on aerial photographs. Most wetland areas along the proposed route are associated with drainage ways, streams, or rivers.

Most wetland areas through agricultural land typically contain reed canary grass and other herbaceous plants. In riparian corridors with large vegetated buffers, the wetlands are typically dominated by deciduous trees. The dominant vegetation associated with each observed wetland is listed in Table 3.4.1. There are four forested wetlands within or near the project corridor.

According to the IEPA/IDNR/ISGS Resource Management Mapping Service, there are no critical resource waters within the project corridor. The Somonauk Creek watershed is listed as a high value subwatershed to the lower Fox River.

A field investigation of wetlands along the alternate route was not completed, but rather the evaluation of potential impacts was based on readily available mapping and data. Because the Preferred Route showed no significant impacts to wetlands, a review of available maps and data for the Alternate Route, rather than a full field investigation was deemed

appropriate for route comparison purposes.

3.4.3 Floodplains

The Preferred Route passes through ten floodplain areas as mapped by the Federal Emergency Management Agency (FEMA), Exhibits 3.4.1 through 3.4.7. These special hazard areas (1 percent chance of recurrence) are associated with the larger rivers along the project route: South Branch Kishwaukee River, Somonauk Creek, East Fork Big Rock Creek, and West Fork Big Rock Creek.

Review of the Alternate Route shows that it would cross one less floodplain than the Preferred Route. Because of the proposed methods of construction, neither route will have an impact on the floodplain.

3.4.4 Groundwater

Groundwater is a critical natural resource within the project area. All of the area communities and rural residences utilize groundwater supplies of varying depths. Groundwater depth varies across the County and is influenced by topography and soil types. Many of the areas of shallow groundwater depth correspond to recharge areas for the regional aquifers below. Preservation of functional wetlands is critical in assuring that adequate, safe groundwater supplies remain available for future use.

3.5 Biological Resources

A review of the US Fish and Wildlife technical assistance website for federally-listed

threatened and endangered species identified several species of potential concern. According to the website, five vulnerable species may be present in the counties where the project will take place. These include the Indiana Bat, Sheepnose Mussel, Eastern Prairie Fringed Orchid, Decurrent False Aster and Leafy-Prairie Clover.

In addition to these federally-listed species, the IDNR identified six occurrences of five state-listed threatened and endangered species near the project corridor (See Exhibit 3.5.1). The five species are red-berried elder, slippershell, Blanding's turtle, wooly milkweed, and black sandshell.

The action area for the proposed project is comprised of established roadway right-of-ways which are seasonally mowed for maintenance where practical. Low-lying areas where standing water or a high groundwater table occurs are not maintained through mowing.

An assessment of each of the threatened or endangered species follows:

- **Indiana Bat –** This species was listed as Endangered in DeKalb, Kane and LaSalle counties. In LaSalle County, the Blackball Mine is listed as Critical Habitat. This critical habitat is outside the limits of the project. In the summer months, Indiana Bats roost beneath the exfoliated bark of dead trees and are generally found in the area of stream and waterway crossings. This type of habitat is present within the proposed action area; therefore, the species or its critical habitat may be present.

- **Sheepnose Mussel** – This species was listed as a Candidate species in Kane and LaSalle counties. The Sheepnose Mussel's habitat is in the shoals and faster moving waters of relatively large streams and their tributaries. This type of

habitat is present within the proposed action area; therefore, the species or its critical habitat may be present.

- **Eastern Prairie Fringed Orchid -** This species was listed as Threatened in DeKalb, Kane and LaSalle counties. The species habitat is listed as mesic prairie to wetlands such as sedge meadows, marsh edges and bogs. This type of habitat is present within the proposed action area; therefore, the species or its critical habitat may be present. As this project is contained within the limits of existing roadway right-of-ways which are maintained by mowing where possible, the suitable habitat for this species is limited to wetland areas which cannot be mowed.

- **Decurrent False Aster -** This species is found in the floodplains and wetlands along the Illinois River which is outside the limits of the project.

- **Leafy Prairie-Clover -** This species is found in prairie remnants along the Des Plaines River which is outside the limits of the project.

- **Red Berried Elder** - An occurrence for red-berried elder (*Sambucus racemosa spp. pubens*) was recorded near Kingston. Red-berried elder is a shrub that occurs in mesic-to-swampy woods, including riparian areas (Refs. 1, 2). It prefers forest openings and can inhabit disturbed areas (Reference 3).

- **Slippershell/Black Sandshell** - Two occurrences of the slippershell (*Alasmidonta viridis*) have been recorded near Sycamore and Hinckley. One occurrence of the black sandshell (*Ligumia recta*) has been recorded Kirkland. These mussels may be found in local streams and rivers.

- **Blanding's Turtle** - The Blanding's turtle (*Emydoidea blandingii*) has been recorded near DeKalb, but not near the project corridor.

- **Wooly Milkweed** - This species is found in dry, sandy or gravelly dry prairies, hillside prairies, savannas, and upland oak openings. This type of habitat is present within the proposed action area; therefore, the species or its critical habitat may be present.

3.6 Historic and Cultural Resources

There are no known historic or cultural resources within the proposed project area. (See Correspondence in Appendix A.)

3.7 Aesthetic and Visual Resources

The project will involve construction within a number of different surroundings including rural right-of-ways adjacent to agricultural fields and natural areas, suburban streetscapes, and rear yards within subdivisions.

3.8 Land Use

Several types of land use are present along the routes of the options considered. Such land uses include residential, commercial, agricultural, medical, and educational. An exhibit from the DeKalb County Future Land Use Plan is included as Exhibit 3.8.1, and exhibits of Kane County and LaSalle County land use are included as Exhibits 3.8.2 and 3.8.3, respectively.

3.9 Infrastructure

Various levels of infrastructure service are in place throughout the project area. Generally, the County is served by an extensive network of local roadways, telephone lines and electric lines. Natural gas is also readily available within the County, but the existing network is not as comprehensive as the other basic utilities. The availability of high-speed data networks is more limited than that of natural gas. In general, high speed services are available within the major population centers, but are either unavailable or limited within the more rural communities and throughout the agricultural areas of the County. This project will provide ready access to high-speed data networks throughout the County at costs similar to those currently paid for service levels that do not meet the projected demand.

3.10 Socioeconomic Resources

The US Census estimates the 2009 population of DeKalb County to be 107,333. This represents a trend of continued growth since the 2000 census population of 88,969, and the 1990 population of 77,932. A further breakdown of various socioeconomic parameters for DeKalb County is included in Table 3.10.1. DeKalb County figures are used as they represent the majority of the project area. The socioeconomic information available for LaSalle and Kane counties are skewed by large municipalities outside the project limits and are not representative of the project area (Reference 4).

Review of the 2000 census data shows 9,203 individuals in DeKalb County live

below the poverty level. Analysis of the communities within DeKalb County which will be served by the proposed project shows that 8,155 or 89% of the individuals below the poverty level live within communities that will be served by the proposed project.

The 2000 census also shows that minority (non-white) races make up 10,265 of the 88,969 County residents. The proposed project will serve communities where 9,602 or 94% of the minority population lives.

3.11 Human Health and Safety

A review of the Environmental Protection Agency's (EPA) National Priorities List indicated that there are no superfund sites near the project area. A review of the EPA's Corrective Action Baseline Database for Region 5 also indicated no environmental sites of concern in the project area.

A review of the Illinois Environmental Protection Agency's Leaking Underground Storage Tank (LUST) and Site Remediation Program (SRP) databases indicated there were 47 LUST sites and 3 SRP sites near the project corridor. Of these sites, 43 LUST sites have been determined to be outside the project corridor or outside the limits of influence for the proposed project. The remaining listed sites do not have readily available public information and proper precautionary measures will need to be taken by the installation contractor in accordance with applicable state and local requirements.

4 ENVIRONMENTAL CONSEQUENCES

4.1 Noise

Neither the Preferred nor Alternate routes considered would add to ambient noise levels during their operation. Construction of the improvements will necessitate the use of construction machinery such as vibratory plows, directional drilling equipment, and small excavators but the associated noise will be limited to the construction phase of the project. Given the anticipated installation rates (1,800 feet per day for vibratory plow installation and 500 feet per day for directional drilling) it is unlikely that construction equipment would be located adjacent to a sensitive noise receptor for more than one to two days. Some impact is unavoidable near sensitive receptors for both the Preferred and Alternate routes since many of the entities to be served are themselves sensitive receptors. These impacts due to construction noise will be mitigated through the use of restricted work hours.

The No Action alternative would have no adverse noise impacts.

4.2 Air Quality

The improvements will have no direct effect on air quality during normal operations for either route considered. Indirect effects may result from operating the proposed improvements since they will require electricity, potentially contributing to additional emissions due to the methods of power generation which are currently prevalent. Construction of the proposed improvements will require equipment such as vibratory plows,

directional drilling equipment, and small excavators which will produce emissions during this period such as ozone, particulate matter, and greenhouse gases. Additionally, dust may be generated during construction operations depending upon ambient moisture levels. The installation methods proposed, directional drilling and vibratory plow, have minimal soil disturbance which will limit the potential for dust generation.

There are no emissions implications for the No Action alternative.

Although the Preferred and Alternate route options may create construction phase and secondary emissions, it is anticipated that the increased connection rates accommodated by the project will result in significant emissions savings over their useful life via vehicle trip reductions due to increases in e-commuting, distance learning, and other forms of online collaboration facilitated by increased bandwidth. This potential benefit would not be realized under the No Action alternative.

4.3 Geology and Soils

Construction of either of the route alternatives considered would not be expected to adversely affect the geology or soils of the project area. The improvements will generally follow the topography of the land with few grading revisions needed. The primary installation technique for the project will utilize a vibratory plow. This machine offers several advantages over other installation methods such as minimizing ground disturbance while maintaining the in situ soil profile. The secondary installation method of horizontal

directional drilling will be employed where features such as wetlands, roadways, or utility locations are in conflict with the proposed alignment. Horizontal directional drilling requires no surface disruption of these sensitive areas. In areas requiring hand holes or vaults for fiber optic splices or transmitting equipment, small excavators will be used to minimize disturbance as much as possible. Erosion control procedures will be utilized at all locations where significant ground disturbance will occur such as vault and hand hole installations and drilling and receiving pits for the horizontal directional drilling locations. In addition, both of the route alternatives identified will be located within existing road right of ways or existing utility easements. These areas have all been previously disturbed, and no impacts to pristine environments are anticipated.

The proposed action may cross buried field tiles that are not apparent from surface features or markings. Because the proposed installation methods do not require open excavation, they are not conducive to identifying when a field tile is damaged during the construction process. The only way to avoid unmarked field tiles is through communication with individuals knowledgeable about the existing field tile network prior to constructing the improvements. The fiber optic cable installer will notify township authorities prior to construction so that they are able to mark the locations of known field tiles. Also included in this communication will be a contact number if an unknown field tile is broken during construction. If an unmarked tile is broken the fiber optic cable contractor will repair the

damage to reinstate drainage.

The No Action alternative would have no adverse effects on the geology or soils within the area, but the purpose and need of the project would not be met.

4.4 Water Resources

4.4.1 Streams and Rivers

Both the Preferred and Alternate routes contain several crossings of streams and rivers. Impacts to these resources will be avoided with the use of horizontal directional drilling equipment for installation of the conduits. The proposed plan requires directional drilling to start and end at a distance of 30 feet outside the limits of the wetland or riparian environment. The US Army Corp of Engineers (USACOE) regulates construction activities near these resources. An assessment of water resources and discussion of the construction activities proposed was submitted to the USACOE on May 14, 2010. A copy of the applicable cover letter is included in Appendix A. Because there are no proposed permanent impacts to jurisdictional wetlands, the project falls under Nationwide Permit 12 – Utility Line Activities. DeKalb County is currently waiting for the Army Corps to review the permit application, concur with the conclusion that the project meets the terms of Nationwide Permit 12, and issue a permit. Typical short term impacts are expected to include, presence of equipment on the vicinity of the stream resulting in some minor turf disturbance, soil disturbed due to trenching operations upstream of the stream banks, minor soil compaction due to equipment, and exploratory trenching to confirm the presence of existing utilities and other

infrastructure. Provided that the mitigation measures are implemented appropriately and in accordance with permit requirements, installation of fiber optic cable under streams and rivers via directional drilling would have negligible adverse environmental impacts.

The No Action alternative would have no impact to streams and rivers in the area.

4.4.2 Wetlands

Both the Preferred and Alternate routes contain several crossings of wetlands of varying quality. The construction methods to be employed vary depending on the quality and current conditions of the applicable wetland. For wetlands which are intermittently dry, a vibratory plow will be used for installation of the conduit to avoid splices and their associated surface disturbance. Any impacts to wetlands will be temporary and not of a permanent nature. For wetlands which are normally wet or which are more susceptible to damage, horizontal directional drilling will be used to cross beneath the wetlands without impacting them adversely. A permit application for wetland crossings along the preferred alternative route has been submitted to the US Army Corps of Engineers and is currently under review. As with the streams and rivers discussed in Section 4.4.1, it is anticipated that Nationwide Permit 12 concurrence will be issued for wetland crossings. Provided that the mitigation measures described above are implemented appropriately and in accordance with permit requirements (described in section 4.4.3), installation of fiber optic cable under wetlands via directional drilling would have negligible adverse environmental impacts.

The No Action alternative would have no impact to wetlands in the area.

4.4.3 Floodplains

The Preferred and Alternate routes both contain crossings of floodplains. The facilities proposed will be installed beneath grade and will result in no substantial fills or other grading revisions. These crossings will be made in accordance with the requirements of Illinois Department of Natural Resources Statewide Permit No. 8 "underground pipeline and utility crossings" for work outside of Kane County and Regional Permit No. 3 within Kane County. The concurrence of the Army Corp of Engineers is also being sought that the crossings will be made in accordance with the Corp's Nationwide Permit 12. The applicable general requirements of these permit programs to this project include:

1. Construction must not result in any increase in ground elevations;
2. Above ground structures cannot be placed in the floodway;
3. The top of the conduit must be three feet below the stream bed; and
4. Disturbance of streamside vegetation shall be kept to a minimum and all disturbed areas will be restored to their original contours and re-vegetated;

Construction along both the Preferred and Alternate Routes will be constructed in accordance with the above mentioned requirements. Therefore, both the Preferred and Alternate routes will have no adverse impact to floodplains.

The No Action alternative would also not adversely impact floodplains in any way.

4.4.4 Groundwater

Construction of the Proposed or Alternate route will have negligible impact to groundwater supplies due to the construction methods to be employed. Vibratory plows will be used as the primary installation method. This method preserves the in situ soil profile and will not adversely affect groundwater flows. Horizontal directional drilling will be utilized in areas where vibratory plows would cause excessive disturbance. During horizontal directional drilling, the bore hole is stabilized by a bentonite slurry grout pumped under pressure. Although the grout is inert and would not act as a pollutant, it can affect groundwater flows by filling voids adjacent to the borehole and reducing the overall permeability. The magnitude of this potentially adverse affect is negligible due to the depth of installation to be utilized (approximately 3 feet). Significant groundwater sources (aquifers) are not present at such limited depths and will not be impeded by the installation of the improvements. Therefore, the proposed method of installation will have negligible adverse environmental impact.

The No Action alternative would not adversely impact groundwater resources.

4.5 Biological Resources

An assessment of the potential impact to each of the threatened or endangered species follows:

- **Indiana Bat –** To avoid direct or indirect impacts to the Indiana Bat, no trees will be removed as part of this project. Subsurface directional drilling will be

completed where conflicts with wooded areas cannot be avoided. Because there will be no tree removals, it is concluded that the referenced project will have "no effect" on the Indiana Bat, or its habitat.

- **Sheepnose Mussel** – To avoid direct or indirect impacts to the Sheepnose Mussel, crossings of water bodies will be directionally drilled, placing the cable below the habitat of the species. Therefore, it is concluded that the referenced project will have no effect on the Sheepnose Mussel.

- **Eastern Prairie Fringed Orchid -** To avoid direct or indirect impacts on the potential Orchid wetland habitat, conduit beneath the wetland areas will be directionally drilled to avoid impacts to wetland species. Therefore, it is concluded that the referenced project will have no effect on the Eastern Prairie Fringed Orchid.

- **Decurrent False Aster -** This species is found in the floodplains and wetlands along the Illinois River which is outside the limits of the project. Therefore, the project will have no effect on the Decurrent False Aster.

- **Leafy Prairie-Clover -** This species is found in prairie remnants along the Des Plaines River which is outside the limits of the project. Also, no dolomitic prairies occur within the project limits. Therefore, the project will have no effect on the Leafy Prairie-Clover.

- **Red Berried Elder** - The northern portion of the fiber optic cable route (Kirkland to Genoa) was surveyed for the red-berried elderberry on May 5, 2010. Potential habitat exists, but red-berried elder was not observed. Common elderberry (*Sambucus canadensis*), which has a white pith, was observed along the route.

Removal of trees is not planned as part of the proposed construction. This method of construction, along with no observations of the red-berried elder along the proposed route, means that the project will have no effect the red-berried elder.

- **Slippershell/Black Sandshell** - Since the fiber optic cable will be installed with directional-boring methods under all streams and rivers, where mussels live, a survey was not conducted. The proposed project will have no effect on the Slippershell/Black Sandshell.

- **Blanding's Turtle** - The Blanding's turtle (*Emydoidea blandingii*) has been recorded near DeKalb, but not near the project corridor. Therefore, the project will have no effect on the Blanding's turtle.

- **Wooly Milkweed** – The project site near the local sighting location consists primarily of cool-season turf grasses that are regularly mowed. There are occasional stream crossings. Adjoining habitat includes agricultural row crops; cool-season pasture; narrow riparian corridors with primarily reed canary grass; homesteads with turf grass and old field conditions; and cool-season grass near the Camelot Christmas Tree Farm lake. The project right-of-way is not likely to contain wooly milkweed.

  The best opportunity to find wooly milkweed is at Merritt Prairie or the privately-owned hillside prairies immediately south of Merritt Prairie. Merritt Prairie is located approximately one mile east of Somonauk Road along Keslinger Road. Therefore, the project will have no effect on Wooly Milkweed.

For the reasons listed above, the reference project will have no effect on Federal or State listed threatened or endangered species for either of the construction alternatives

considered. This "no effect" position was submitted to the US Fish and Wildlife Service for concurrence with the potential impacts to federally listed endangered and threatened species and they offered no objection to the project as proposed. (See Appendix A)

4.6 Historic and Cultural Resources

The Illinois Historic Preservation Agency has reviewed the proposed project and determined no historic properties are affected in a letter issued to the NTIA on April 17, 2010. (See Appendix A) Therefore, no adverse historical or cultural impacts are anticipated for the Preferred or Alternate routes.

The No Action alternative would also have no impact to historic or cultural resources.

4.7 Aesthetic and Visual Resources

The project will involve construction within a number of different surroundings including rural roadways adjacent to agricultural fields, suburban streetscapes, and rear yards within subdivisions. In general, area aesthetic disruptions for most areas will be limited to the duration of construction and primarily in the form of the short-term presence of construction equipment. Trenching operations are expected to install approximately 1,800 feet per day, limiting the time the presence of equipment will adversely affect the aesthetics of a particular location along the route. Directional drilling operations are also expected to move rather quickly, installing approximately 500 feet per day. Permanent aesthetic impacts will be limited since the conduits to be installed will be located underground and optical

splice enclosures will be located below-grade in vaults and hand holes. The location of the facilities will be coordinated with local officials.

The No Action alternative would have no impact to aesthetic and visual resources.

4.8 Land Use

Several types of land use are present along the routes of the options considered. Such land uses include residential, business, agricultural, medical, and educational. The infrastructure necessary to complete this project will be located within existing roadway right-of-ways and existing utility easements. These improvements are consistent with normal uses of right-of-ways and easements, therefore no adverse impacts based on land use are expected.

Both the Preferred and Alternate routes will provide benefits to many of the land use types proposed. All improved land uses will derive benefits from higher speed data access at lower costs than are currently available. This improved level of service is anticipated to aid in attracting advanced industry and technical operations to the service area.

The No Action alternative would also have no negative impact on land use. However, if the improvements are not constructed, the increased value to adjacent lands will not be realized.

4.9 Infrastructure

Neither of the route alternatives considered are expected to adversely affect existing

infrastructure. The Alternate Route has a ten foot narrower right of way, reducing the area outside of the pavement available for installation of the fiber optic duct and limiting options for avoidance of sensitive natural areas. This may necessitate a greater number of drilling and receiving pits (and consequently increase the area of soil disturbance) to drill under obstacles, as opposed to being able to work around the obstacle. Under both the Preferred and Alternate routes, construction equipment may impede traffic flows from time to time as they enter and leave the roadway. Illinois Department of Transportation standards require traffic control signage, but do not require lane closures when work is off the pavement. Delays to motorists are expected to be minimal as the construction will be off of the roadway surface. The delays would only be temporary and only occur during working hours.

Being that the proposed improvements are along existing right of ways, there is potential for future improvement to the roadway system or other utilities located within the public right of ways to overlap with the proposed construction of the fiber optic facilities. The current state plan shows only minimal potential conflicts between their multi-year roadway improvement plan and the proposed fiber optic plan. The overlap occurs along US Highway 30 from Hinckley to Big Rock. The proposed improvements are for roadway resurfacing only. As such, coordination will be required to be sure that work schedules do not coincide. Any potential conflicts can be resolved at the time a right of way construction permit is issued.

The City of DeKalb has also identified a potential conflict with proposed construction. The City will be widening and reconstructing the Bethany Road bridge over the Kishwaukee River. Construction is slated for the spring of 2012. Installation of fiber optic will need to be coordinated with the City to avoid interference with bridge reconstruction work and avoidance of any areas where future construction is planned. These issues will be addressed at the time a permit for construction in the City right of way is issued.

The No Action alternative would have no impact to existing infrastructure.

4.10 Socioeconomic Resources

No negative impacts on the socioeconomic conditions within the County are expected from construction of either of the route alternatives proposed or the No Action alternative. Both the Preferred and Alternate routes will provide benefits associated with high-speed internet access to underserved populations, particularly within rural areas of the project. These benefits include enhanced employment opportunities due to the potential for e-commuting and online collaboration, and educational opportunities via online education and connected classrooms.

The proposed project will provide broadband access to communities within DeKalb County where 89% of the low income individuals and 94% of the minority individuals live. In DeKalb County, 72,339 of the 88,969 residents or 81% of the general population live

within the communities to be served by the proposed project. Based on this analysis, low income and minority populations will receive the benefits of the proposed project at a higher rate than the population at large.

The No Action alternative would have no impact to socioeconomic resources, but would not provide the benefits identified above.

4.11 Human Health and Safety

A review of the IEPA's LUST and SRP databases indicated there were 47 LUST sites and 3 SRP sites near the project corridor.

It is anticipated that any areas of soil contamination identified in conflict with the Preferred or Alternate routes can be addressed with the construction methods proposed. The primary installation method of vibratory plowing preserves the existing soil profile in situ and would not result in contaminated soils being exposed. The secondary installation method of directional drilling also minimizes soil disturbance and would not be expected to significantly redistribute contaminated soils. Installation of hand holes for splices within areas of soil contamination may require appropriate offsite disposal if contaminated soils are encountered. The LUST and SRP sites will be identified on the project plans to alert workers of known areas of potential contamination. Soils will be identified as potentially contaminated if they appear visually different than surrounding soil, or if the smell of petroleum products is detected. Upon identification of potentially contaminated soils, work

will cease in the area of concern and a soils contamination consultant will conduct an investigation to determine the presence and extent of soil contamination. Workers will then be equipped with appropriate personal protective equipment in accordance with OSHA standards and follow the required regulatory procedures for mitigating the soil contamination in the manner identified by the consultant.

Because much of the proposed work will take place adjacent to high speed traffic, worker and motorist safety is paramount. The Illinois Department of Transportation traffic control standards will be used to establish and maintain a safe work zone. Workers are required to meet OSHA standards for worker visibility and equipment driven on roadways must meet proper signage and licensing requirements. In accordance with IDOT standards, work within urban areas shall maintain safe pedestrian routes. Work in and around school zones will be coordinated with school district officials to ensure that safe, functional routes are available for pedestrian and bus traffic.

By adopting the safety and coordination efforts described above, it is anticipated that either the Preferred or Alternate routes could be constructed with no adverse impacts to human health and safety or the environment.

The No Action alternative would also not result in any direct impacts to human health and safety. However, by not constructing the project, the medical facilities within the project area forego the opportunity to provide richer, more diverse services to the communities,

resulting in an adverse impact to human health.

4.12 Summary of Individual and Cumulative Impacts

The alternatives evaluated in this Environmental Assessment include a No Action Alternate, an Alternate Route and a Preferred Route. The No Action Alternate would have no adverse affects for the environmental criteria examined, but fails to meet the purpose and need of the proposed project. Both the Alternate Route and Preferred Route will have affects on the environmental parameters considered, but these affects will be limited to the construction phase of the project and measures will be implemented to mitigate any adverse impacts. Based on the analysis neither the Preferred Route nor Alternate Route have any significant adverse impacts to any individual component of the environment, nor do they have a cumulative impact to the environment as a whole.

When comparing the alternatives which meet the project purpose and need (the Alternate and Preferred routes), the Preferred Route minimizes the footage of fiber optic cable to be installed. Using the minimum footage will result in less total noise and emissions generated during the construction process. The Alternate Route is also expected to have a greater number of utility conflicts, requiring more open cuts to be made to navigate the conduits around the obstructions.

A field review of water resources along the Alternate Route was not performed since it was determined that no significant adverse impacts would occur during construction and

operation of the Preferred Route and further evaluation of the Alternate Route would be unnecessary. Based on the number of water features identified on USGS maps for the area, the Preferred Route appears to have several more areas of water resources than the Alternate Route, but the fiber in these locations will be directionally drilled beneath the sensitive features to avoid impacts. Since all significant adverse impacts will be avoided, the presence of water resources need not be a determining factor when selecting alignments. Therefore, it is recommended that the Preferred Route be constructed to minimize the total impact of the project while addressing its purpose and need.

5 ENVIRONMENTAL PERMITS AND REGULATORY REQUIREMENTS

The proposed project will require a permit from the Army Corps of Engineers for wetland related issues. The project is to be constructed under Nationwide Permit 12 – Utility Line Activities. DeKalb County has submitted an application to the Army Corps and is currently waiting for a response verifying their concurrence with the proposed plan and a Nationwide Permit Verification Form.

The Illinois Department of Natural Resources, Office of Water Resources issues permits for work in the floodplain and floodway. Work within the floodplain and floodway will be completed under Statewide Permit No. 8 – Underground Pipeline and Utility Crossings. Work in the floodway in Kane County will be completed under Regional Permit No. 3 – Authorizing Construction of Minor Projects in Northeastern Illinois Regulated Floodways. Neither of these permits require submittals to the regulatory agency, provided the terms of the permit are met. Using the proposed construction techniques of directional drilling, the terms of the Statewide and Regional permits will be met.

Other permits that will be required include permits for construction in the State, County or local municipality right of way. These permits will be pursued when detailed plans are completed.

6 LIST OF PREPARERS

James E. Sparber, P.E.	Baxter & Woodman, Inc. 1788 Sycamore Road DeKalb, Illinois 60115 815.787.3111 815.787.7240 (Fax) jsparber@baxterwoodman.com
Kenneth A. Koch, P.E.	Baxter & Woodman, Inc. 1788 Sycamore Road DeKalb, Illinois 60115 815.787.3111 815.787.7240 (Fax) kkoch@baxterwoodman.com
Thomas E. Ganfield, M.E.M.	Baxter & Woodman, Inc. 256 South Pine Street Burlington, Illinois 53105 262.763.7834 262.763.2509 tganfield@baxterwoodman.com
Richard J. Nowack, PLA	Quigg Engineering, Inc. 495 North Westgate Avenue Jacksonville, Illinois 62650 217.245.5375 217.245.5398 (Fax) rnowack@quiggengineering.com

7 REFERENCES

1. *Illinois Annual Air Quality Report*, State of Illinois, Illinois Environmental Protection Agency, 2008.

2. *Soil Survey of DeKalb County Illinois*, United States Department of Agriculture and Natural Resources

3. http://www.dnr.state.il.us/orc/BioStrmRatings/

4. http://www.census.gov/

5. http://www.epa.state.il.us/land/database.html

DeKalb County, Illinois
Environmental Assessment Report

TABLE 3.3.1

Soil Types

Map Symbol	Soil Name	Percent	Prime Farmland	Hydric Soil
152A	Drummer silty clay loam, 0 to 2 percent slopes	10.5	Y	Y
154A	Flanagan silt loam, 0 to 2 percent slopes	14.0	Y	N
171B	Catlin silt loam, 2 to 5 percent slopes	8.8	Y	N
193B	Mayville silt loam, 2 to 5 percent slopes	2.2	Y	N
198A	Elburn silt loam, 0 to 2 percent slopes	2.3	Y	N
221C2	Parr silt loam, 5 to 10 percent slopes, eroded	2.0	Y	N
348B	Wingate silt loam, 2 to 5 percent slopes	3.0	Y	N
356A	Elpaso silty clay loam, 0 to 2 percent slopes	16.0	Y	Y
512B	Danabrook silt loam, 2 to 5 percent slopes	13.8	Y	N
3076A	Ottor silt loam, 0 to 2 percent slopes	2.9	N	Y

DeKalb County, Illinois
DeKalb Advancement of Technology Authority Broadband Project
DeKalb, Kane and LaSalle Counties, Illinois
TABLE 3.4.1
Wetland / Stream Summary

Map ID (Exhibit 3.4.1-7)	Type	Dominant Vegetation	USGS Map Symbol	NWI Map	Proposed Action
1	Stream/Wetland	Brome, Reed Canary Grass	Intermittent Stream	PEMC	Directional Drill
2	River (Bull Run)	N/A – rock/gravel	Perennial	Perennial	Directional Drill
3	Stream/Wetland Complex	Reed Canary Grass, Box Elder	Intermittent Stream/ Wetland Symbols	PEMA	Directional Drill for stream area; plow-in for seasonal wetland if dry.
4	Stream/Fringe Wetland	Reed Canary Grass	Intermittent Stream	Intermittent Stream	Directional Drill/Plow-In option if dry
5	Stream/Fringe Wetland	Reed Canary Grass	Intermittent Stream	---	Directional Drill/Plow-In option if dry
6	Stream	N/A – concrete-lined	Intermittent Stream	Intermittent Stream	Directional Drill
7	Stream/Fringe Wetland	Reed Canary Grass	Intermittent Stream	Intermittent Stream	Directional Drill/Plow-In if dry
8	River/Wetland	Reed Canary Grass	Perennial	PFO1C	Directional Drill
9	Stream/Fringe Wetland	Reed Canary Grass	Intermittent Stream	---	Directional Drill (Urban area)
10	Stream/Wetland	Willow, Box Elder, Reed Canary Grass	Intermittent Stream	Intermittent Stream	Plow-In over culvert if enough cover; otherwise Directional Drill
11	Stream		Intermittent Stream	Intermittent Stream	Directional Drill
12	Stream/Wetland	Box Elder	Intermittent Stream	Intermittent Stream	Directional Drill
13	River (South Branch Kishwaukee River)/ Floodplain Forest	Box Elder, Silver Maple	Perennial	PFO1C/PSS1A	Directional Drill
14	Wet Meadow/Floodplain Forest	Cattails, Reed Canary Grass	---	PSS1A	N/A
15	Wet Meadow/Floodplain Forest	Cattails, Reed Canary Grass	---	PSS1A	N/A
16	Stream/Fringe Wetland	Reed Canary Grass	---	---	Plow-In
17	Stream		Intermittent Stream	Intermittent Stream	Directional Drill
18	Wet Swale	Turf grass	---	---	Directional Drill (Urban); Plow-In option
19	Stream/Fringe Wetland	Box Elder, Reed Canary Grass	Intermittent Stream	Intermittent Stream	Directional Drill (Urban); Plow-In option
20	Stream/Fringe Wetland	Box Elder, Reed Canary Grass	---	---	Directional Drill (Urban); Plow-In option
21	Wet Swale	Reed Canary Grass	---	---	Plow-In
22	Stream/Fringe Wetland/Floodplain Forest	Reed Canary Grass	Intermittent Stream	PFO1C	N/A
23	Wet Meadow/Shrub Wetland	Cattail, Reed Canary Grass, Willows	---	---	Avoid; Plow-In if cannot avoid
24	River(South Branch Kishwaukee River)/Floodplain Forest	Box Elder	Perennial	Perennial	Directional Drill
25	Wet Swale	Turf grass	---	---	Plow-In
26	Wet Swale	Reed Canary Grass	---	---	Plow-In
27	Wet Swale	Turf grass	Intermittent Stream	---	Plow-In
28	Wet Swale	Turf grass	Intermittent Stream	---	Plow-In
29	Pond/Wetland (Prairie Creek)	Wet-mesic prairie seed mix	Intermittent Stream	Intermittent Stream	Directional Drill
30	Wet Swale	Reed Canary Grass	---	PEMC	Avoid; Plow-In if cannot avoid
31	Wet Swale	Turf grass	---	---	Avoid; Plow-In if cannot avoid
32	Stream/Fringe Wetland (Union Ditch No. 1)	Reed Canary Grass	Intermittent Stream	Intermittent Stream	Directional Drill (also next to road crossing)
33	Wet Swale	Turf grass	---	---	Plow-In if dry
34	Wet Swale	Turf grass	---	---	Plow-In
35	Stream		Intermittent Stream	Intermittent Stream	Directional Drill
36	Wet Swale	Turf grass	---	---	Plow-In
37	Wet Swale	Turf grass	---	---	Plow-In
38	Stream	N/A – concrete-lined	---	---	Directional Drill
39	Stream/Fringe Wetland (West Branch Big Rock Creek)	Reed Canary Grass	Intermittent Stream	Intermittent Stream	Directional Drill
40	River/Wetland (Little Rock Creek)	Reed Canary Grass, Box Elder	Perennial	Perennial	Directional Drill
41	River/Wetland	Reed Canary Grass	Perennial	Perennial	Directional Drill

DeKalb County, Illinois
DeKalb Advancement of Technology Authority Broadband Project
DeKalb, Kane and LaSalle Counties, Illinois
TABLE 3.4.1
Wetland / Stream Summary

Map ID (Exhibit 3.4.1-7)	Type	Dominant Vegetation	USGS Map Symbol	NWI Map	Proposed Action
42	River/Wetland (Somonauk Creek)	Box Elder	Perennial	Perennial	Directional Drill
43	Stream/Wetland	Box Elder; Sedges; Phragmites	Intermittent Stream	Intermittent Stream	Directional Drill
44	Stream/Fringe Wetland	Reed Canary Grass	Intermittent Stream	Intermittent Stream	Directional Drill
45	Stream/Wetland (Buck Creek)	Box Elder	Intermittent Stream	Intermittent Stream	Directional Drill
46	Wet Swale	Turf grass	Intermittent Stream	Intermittent Stream	Plow-In
47	River/Floodplain Forest (Somonauk Creek)	Mix of deciduous trees	Perennial	PFO1C	Directional Drill
48	Lake Holiday/Stream/Wet Meadow	Phragmites	Lake	L1UBHH/PEMCh	Directional Drill
49	Wet Swale	Turf grass	---	---	Plow-In
50	Marsh	Cattails	---	---	Directional Drill (also next to RR tracks)
51	Wet Swale	Reed Canary Grass	---	---	Directional Drill (also next to RR tracks)
52	Wet Meadow	Cattails	---	---	Avoid; Directional Drill (urban area)
53	Stream (Union Ditch No. 1) - tiled		Intermittent Stream	Intermittent Stream	Directional Drill (tile crossing)
54	Wet Swale	Turf grass	Intermittent Stream	Intermittent Stream	Plow-In
55	Ditch		---	---	Directional Drill (also next to road crossing)
56	River/Wetland (West Branch Big Rock Creek)	Reed Canary Grass	Perennial	Perennial	Directional Drill
57	River/Wetland (East Branch Big Rock Creek)	Reed Canary Grass	Perennial	Perennial	Directional Drill
58	Wet Swale		---	---	Avoid; Directional Drill if cannot avoid
59	Wet Meadow	RC Grass; Cattails	---	---	Avoid; Directional Drill if cannot avoid (urban area)
60	Stream/Fringe Wetland	Reed Canary Grass	Intermittent Stream	Intermittent Stream	Directional Drill
61	Wet Swale	Reed Canary Grass	Intermittent Stream	Intermittent Stream	Plow-In
62	Stream/Wet Swale	Reed Canary Grass	Intermittent Stream	Intermittent Stream	Directional Drill (also next to road crossing)
63	Wet Swale	Turf grass	Intermittent Stream	Intermittent Stream	Plow-In
64	Ditch (connecting drain tiles)		---	---	Directional Drill (also next to road crossing)
65	Wet Swale	Turf grass	Intermittent Stream	---	Plow-In
66	Wet Swale	Turf grass	Intermittent Stream	Intermittent Stream	Plow-In
67	Stream/Fringe Wetland	Reed Canary Grass	Intermittent Stream	Intermittent Stream	Directional Drill/Plow-In option if dry
68	River/Fringe Wetland (Little Indian Creek)	Reed Canary Grass	Perennial	Perennial	N/A
69	River/Wet Meadow (Little Indian Creek)	Reed Canary Grass, Box Elder	Perennial	Perennial	Directional Drill
70	Stream/Wetland	Reed Canary Grass	Intermittent Stream	Intermittent Stream	Directional Drill
71	Stream/Wetland	Reed Canary Grass	Intermittent Stream	Intermittent Stream	Directional Drill
72	Wet Swale	Turf grass	---	---	Directional Drill (urban); Plow-In option
73	River/Wet Meadow (Indian Creek)	Box elder; Silver maple	Perennial	Perennial	Directional Drill
74	Ditch		---	---	Directional Drill (also next to road crossing)
75	Stream/Wetland (Little Indian Creek)	Reed Canary Grass	Intermittent Stream	Intermittent Stream	Directional Drill
76	Stream/Fringe Wetland	Willows; Box Elder	Intermittent Stream	Intermittent Stream	Directional Drill
77	Stream/Wetland (Somonauk Creek)	Reed Canary Grass	Intermittent Stream	Intermittent Stream	Directional Drill
78	Stream/Wetland	Reed Canary Grass	Intermittent Stream	Intermittent Stream	Directional Drill
79	Stream/Wetland (Somonauk Creek)	Reed Canary Grass	Intermittent Stream	Intermittent Stream	Directional Drill
80	Wet Swale	Turf grass	Intermittent Stream	---	Plow-In
81	Stream/Wetland	Reed Canary Grass	Intermittent Stream	Intermittent Stream	Directional Drill
82	Stream/Wetland	Turf grass	Intermittent Stream	PEMCd	Directional Drill
83	Stream/Wetland	Phragmites	---	---	Directional Drill/Plow-In option if dry
84	Stream/Wetland	Reed Canary Grass	Intermittent Stream	Intermittent Stream	Directional Drill/Plow-In option if dry
85	River/Wetland (South Branch Kishwaukee River)	Reed Canary Grass	Perennial	Perennial	Directional Drill
86	Stream/Fringe Wetland	Reed Canary Grass	---	---	Directional Drill/Plow-In option if dry

DeKalb County, Illinois
DeKalb Advancement of Technology Authority Broadband Project
DeKalb, Kane and LaSalle Counties, Illinois
TABLE 3.4.1
Wetland / Stream Summary

Map ID (Exhibit 3.4.1-7)	Type	Dominant Vegetation	USGS Map Symbol	NWI Map	Proposed Action
87	Wet Swale	Reed Canary Grass	Intermittent Stream	Intermittent Stream	Plow-In
88	Stream/Fringe Wetland	Reed Canary Grass	Intermittent Stream	Intermittent Stream	Directional Drill/Plow-In option if dry
89	Wet Swale	Reed Canary Grass	Intermittent Stream	Intermittent Stream	Plow-In
90	Wet Swale	Reed Canary Grass	Intermittent Stream	Intermittent Stream	Plow-In
91	Stream/Fringe Wetland	Reed Canary Grass	Intermittent Stream	Intermittent Stream	Directional Drill/Plow-In option if dry
92	Wet Swale	Reed Canary Grass	Intermittent Stream	Intermittent Stream	Plow-In
93	Wet Meadow	Reed Canary Grass	---	PEMA	Avoid; Plow-In if cannot avoid

DeKalb County, Illinois
Environmental Assessment Report

TABLE 3.10.1

Socioeconomic Data

Racial Composition of Study Area			
Governmental Unit	Caucasian	Black	Other Minority
DeKalb County	85.8%	5.8%	8.4%
State of Illinois	71.4%	14.6%	14.0%

Age Composition of Study Area			
Governmental Unit	Median Age	1st Largest Age Group	2nd Largest Age Group
DeKalb County	28.0	20-24 (15.3%)	25-34 (15.0%)
State of Illinois	35.9	45-54 (14.5%)	35-44 (14.3%)

Economic Composition of Study Area	
Governmental Unit	Median Family Income
DeKalb County	$71,654
State of Illinois	$68,296

Educational Composition of Study Area		
Governmental Unit	Percent High School Graduate or Higher	Percent Bachelor's Degree or Higher
DeKalb County	90.4%	27.7%
State of Illinois	85.6%	29.5%

Employment Composition of Study Area		
Governmental Unit	Total Labor Force	Armed Forces
DeKalb County	71.9%	0.0%
State of Illinois	67.0%	0.2%

Poverty Within Study Area	
Governmental Unit	Percent People Below Poverty
DeKalb County	11.9%
State of Illinois	12.1%

RECEIVED 5/5/10

Illinois Historic Preservation Agency

FAX (217) 782-8161

1 Old State Capitol Plaza • Springfield, Illinois 62701-1512 • www.illinois-history.gov

DeKalb County
DeKalb County
Installation of Fiber Optic Network Infrastructure
County Wide
IHPA Log #016041510

April 27, 2010

Frank Monteferrante
United States Department of Commerce
National Telecommunications and Information Administration
1401 Constitution Ave., N.W.
Washington, DC 20230

Dear Mr. Monteferrante:

We have reviewed the documentation submitted for the referenced project(s) in accordance with 36 CFR Part 800.4. Based upon the information provided, no historic properties are affected. We, therefore, have no objection to the undertaking proceeding as planned.

Please retain this letter in your files as evidence of compliance with section 106 of the National Historic Preservation Act of 1966, as amended. This clearance remains in effect for two years from date of issuance. It does not pertain to any discovery during construction, nor is it a clearance for purposes of the Illinois Human Skeletal Remains Protection Act (20 ILCS 3440).

If you have any further questions, please contact me at 217/785-5027.

Sincerely,

Anne E. Haaker

Anne E. Haaker
Deputy State Historic
Preservation Officer

James E. Sparber

From: Jody_Millar@fws.gov
Sent: Thursday, May 06, 2010 7:57 AM
To: James E. Sparber
Subject: Fw: DeKalb County EA - Section 7 Consultation

We have no objection to the subject project.

Jody G. Millar
Assistant Field Supervisor
1511-47th Avenue
Moline, Illinois 61265
309-757-5800 x 202

----- Forwarded by Jody G Millar/R3/FWS/DOI on 05/06/2010 07:56 AM -----

Cathie Pitman/R3/FWS/DOI
05/05/2010 03:56 PM

To: Jody G Millar/R3/FWS/DOI@FWS
cc:
Subject: Fw: DeKalb County EA - Section 7 Consultation

----- Forwarded by Cathie Pitman/R3/FWS/DOI on 05/05/2010 03:55 PM -----

"James E. Sparber" <jsparber@baxterwoodman.com>
05/05/2010 03:43 PM

To: <RockIsland@fws.gov>, <Chicago@fws.gov>
cc: "Daniel W. Halverson" <danh@dekalbfiberoptic.com>, "Hanson, Gary" <GHanson@dekalbcounty.org>, "Frank Monteferrante" <FMonteferrante@ntia.doc.gov>, <Chicago@fws.gov>
Subject: DeKalb County EA - Section 7 Consultation

To Whom It May Concern:

Baxter & Woodman has been retained by DeKalb County to assist in preparation of an Environmental Assessment and compliance with Section 7 of the Endangered Species Act for their grant from the National Telecommunications and Information Administration. Our conclusion, as provided in the attached memo, is that the proposed project will have "no effect" on Federally listed Threatened and Endangered Species.

On behalf of DeKalb County, we are requesting your concurrence with this conclusion.

Should you have any questions regarding the attached, please do not hesitate to contact me at the numbers listed below.

Sincerely;

Jim Sparber
Baxter & Woodman Consulting Engineers
1788 Sycamore Road
DeKalb, Illinois 60115
Ph 815-787-3111
Cell 815-529-0776
Fax 815-787-7240
jsparber@baxterwoodman.com[attachment "SKMBT_C35110050513300.pdf" deleted by Jody G Millar/R3/FWS/DOI] [attachment "DeKalb-Kane Routes.pdf" deleted by Jody G Millar/R3/FWS/DOI] [attachment "LaSalle County Routes.pdf"
deleted by Jody G Millar/R3/FWS/DOI]

VILLAGE OF BIG ROCK

KANE COUNTY, ILLINOIS

May 7, 2010

James E. Sparber, P.E.
Regional Manager
Baxter & Woodman, Inc.
1788 Sycamore Road
DeKalb, IL 60115

Re: Comment on Environmental Assessment for the proposed DeKalb Advancement of Technology Authority Broadband Project

Dear Mr. Sparber,

On behalf of the Village of Big Rock Board of Trustees, I am writing to express our consideration of the impacts of the proposed Project on the environmental resources within our jurisdiction.

Aesthetic or Visual Resources

Although the request letter indicates that "facilities will be located at or below grade," the Village would like to be kept informed of any details regarding adequate landscaping screening of any utility boxes to be installed in conjunction with the project if any structures are to be installed that rise above grade level.

Land Use

Most of the proposed route along U.S. Highway 30 is designated a commercial corridor in the Village's Comprehensive Land Use Plan and the properties adjacent to the route are within a commercial zoning district. The installation of fiber optic lines along this corridor complements the existing and planned uses. Further, the line appears to extend to the Hinckley-Big Rock Middle School which would seem to enhance that institution's connectivity; or at least provide the opportunity for enhanced connectivity.

Infrastructure

Although the Village is designing and permitting a wastewater pressure sewer collection system in the vicinity of the proposed route, no engineering on the placement of the collector lines, laterals, and service lines has been finalized. The pressure sewer collection system is proposed to be operational at the end of 2011 and

will avoid earth moving through directional boring. The Village would work to coordinate our infrastructure needs with the requirements of this Project and would request to be kept informed and consulted on any design placement decisions as would the Village consult the Project leaders before finalizing the design placement for our infrastructure.

Socio-economic Resources

Improved connectivity is usually associated with economic development by providing the new "access" system business's require beyond roads and traditional infrastructure. If the Project impacts these resources, the impact will likely be favorable.

Human Health and Safety

Again, advancements in connectivity, technology, and communication seem to coincidentally improve human health, safety, and quality of life. However, the Village would inform the Project's leaders that U.S. Highway 30 experiences vehicular and pedestrian congestion during certain periods correlative to school dismissal, commuter traffic, and BNSF blockages of the Rhodes Road grade crossing. The Village would advise and urge the Project's leaders to consider adequate safety measures to protect school children and pedestrians while performing work in the area.

Thank you for this opportunity to comment on such an important project. We would be pleased to continue this discussion and coordination in the coming months.

Sincerely,

Dean Hummell, President

DeKalb County Farm Bureau

Serving farm, family and community

May 10, 2010

Mr. James E. Sparber, P.E., Regional Manager
Baxter and Woodman, Inc.
Consulting Engineers
1788 Sycamore Road
DeKalb, IL 60115

Dear Mr. Sparber:

We appreciate the opportunity to address environmental issues as a result of the proposed project. Our concerns relate both to water resources and infrastructure in the proposed location of subsurface fiber being installed throughout the county.

Agriculture in DeKalb County relies heavily on subsurface tile to drain our soils and provide for needed conditions to raise crops. Any disturbance in this system can cause short and long term impacts to thousand of acres of agricultural land. Although you are following road right-of-way, existing tile may be compromised through this process. Some that may not be determined until the next farming season.

To remedy this concern we ask that consideration be given to contacting drainage districts in the county or landowners in those cases where no district exists and determine drain tile locations prior to the plowing in of cable. We also seek the development of a compensation relief plan should tile be cut and negatively affect the farmers crop and land. This should include costs of repair and damage to crops.

All precautionary measures should be fully explored to alleviate long term impacts of tile being cut and water flow being interrupted. Identifying tile in advance of plowing will reduce hardships after completion of the project.

We thank you for your consideration of these concerns. We welcome you to visit with our leadership with questions as they relate to the impacts this project will have on agriculture in DeKalb County.

Sincerely,

Paul D. Rasmussen Jr.

Paul Rasmussen, Jr.
President

Center for Agriculture
1350 W. Prairie Dr., Sycamore, IL 60178 • ph. 815/756-6361 • fax 815/756-3961 • www.dekalbfarmbureau.org

SYCAMORE TOWNSHIP OFFICE
545 Brickville Road
Sycamore, Illinois 60178

Township
(815) 895-3766

Assessor
(815) 899-5313

Road District
(815) 895-6766

May 19, 2010

Attn: James E. Sparber
Baxter Woodman
1788 Sycamore Road
Dekalb, IL 60115

Dear Mr. Sparber,

Concerning your letter of April 26, 2010 and our subsequent telephone conversations about the Broadband Project and the right-of-ways, set backs and depth of the buried cables located in Sycamore Township, I would like to be very clear about the numbers. For this project, the placement of the cables need to be 33 ft. back from the center of the road and buried six feet deep. This is to prevent any damage to the cables. If you fail to follow these guidelines, Sycamore Township will not be held liable for any damages that may occur to the cables in the future.

If you have any questions, please feel free to call me. Thank you.

Sincerely,

Thomas Reynolds
Sycamore Township Road Com.

COPY

BAXTER WOODMAN
Consulting Engineers

U.S. Army Corps of Engineers, Rock Island
Attn: Ms. Donna Jones, Regulatory Branch
Clock Tower Building
P.O. Box 2004
Rock Island, Illinois 61204-2004

May 14, 2010

Subject: DeKalb Advancement of Technology Authority Broadband Project
DeKalb, Kane & LaSalle Counties, Illinois
Clean Water Act Section 404 Permit Application

Dear Ms. Jones:

On behalf of DeKalb County and the DeKalb Advancement of Technology Authority, we are submitting two copies of this Clean Water Act Section 404 Permit Application to install approximately 140 miles of fiber optic cables within DeKalb, Kane and LaSalle Counties. As instructed by your office, we are submitting this permit application to the Rock Island District because more than 95 percent (95%) of the Project is within DeKalb and LaSalle Counties. Please coordinate with the Chicago District as necessary for the proposed fiber optic cable installation within Kane County.

Most wetland/stream crossings will be directionally bored. The Project will not place any fill within wetlands or watercourses; however, there may be some disturbance of soils in some seasonal wetlands/wet swales due to the direct plow-in method. We feel this Project qualifies for Nationwide Permit 12 – Utility Line Activities. A project description, joint permit application form, vicinity map, identification of wetlands and Waters of the United States, agency correspondence, and a soil erosion/sediment control plan are attached for your review.

Please contact me if you should have any questions or concerns.

Very truly yours,

BAXTER & WOODMAN, INC.
CONSULTING ENGINEERS

James E. Sparber, P.E.
JES:py/th

Encl.

C: G. Hanson, DeKalb County
K. Anderson, Kane County Department of Environment
Kane-DuPage Soil & Water Conservation
D. Halverson, DeKalb Fiber Optic

1788 Sycamore Road
DeKalb, IL 60115
815.787.3111
Fax 815.787.7240
info@baxterwoodman.com

Proposed Fiber Optic Routes

Exhibit 1.0.1

NO SCALE

Kirkland
STATE RTE 72
Kingston
Genoa
Hampshire
GLIDDEN RD
STATE RTE 23
Burlington
Sycamore
DRESSER RD
Malta
Dekalb
Cortland
Maple Park
FAIRVIEW DR
Virgil
KESLINGER RD
SOMONAUK RD
STATE RTE 23
Kaneville
Lee
DUFFY RD
Shabbona
Waterman
Hinckley
U.S. HWY 30
Big Rock
SOMONAUK RD
LELAND RD
STATE RTE 23
Sandwich
Somonauk
SOUTH COUNTY LINE RD
Leland
Earlville
U.S. HWY 34
STATE RTE 23

Legend

Preferred Fiber Optic Route

Alternate Fiber Optic Route

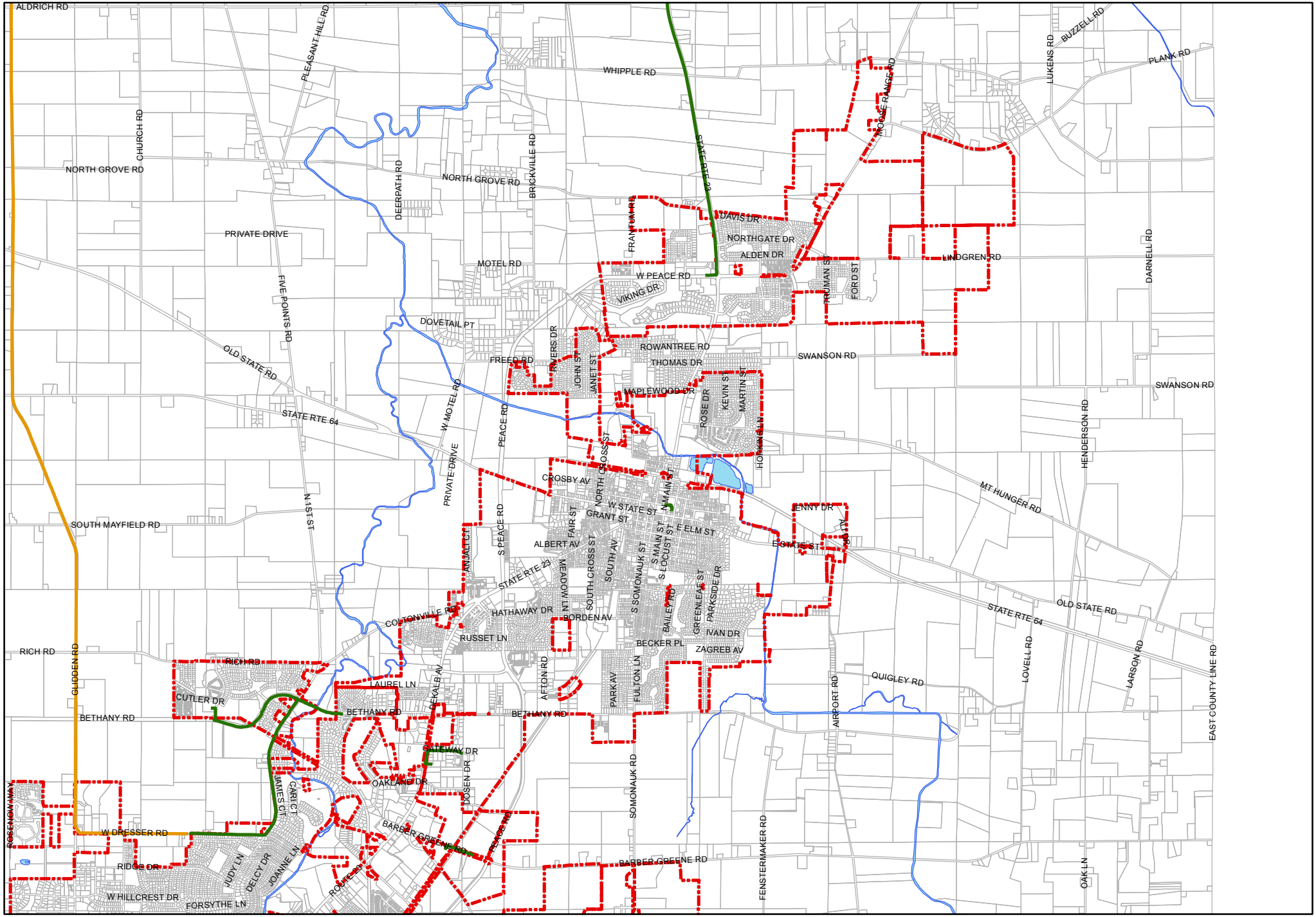
Baxter & Woodman
Consulting Engineers

Crystal Lake, Illinois
Mokena, Illinois
Burlington, Wisconsin
DeKalb, Illinois
Grayslake, Illinois
Plainfield, Illinois
Itasca, Illinois
Madison, Wisconsin
Chicago, Illinois

I:\DEKALB\DKCITY\091198 FO DEPLOYMENT\CADD-SURVEY\DRAWINGS\DWGS\091263 - XBT EA - MISC.DWG RTES
Plotted: 6/15/2010 12:12 PM By: 409HEB

City of Sycamore

Exhibit 2.1.1



Preferred Fiber Optic Route

Alternate Fiber Optic Route

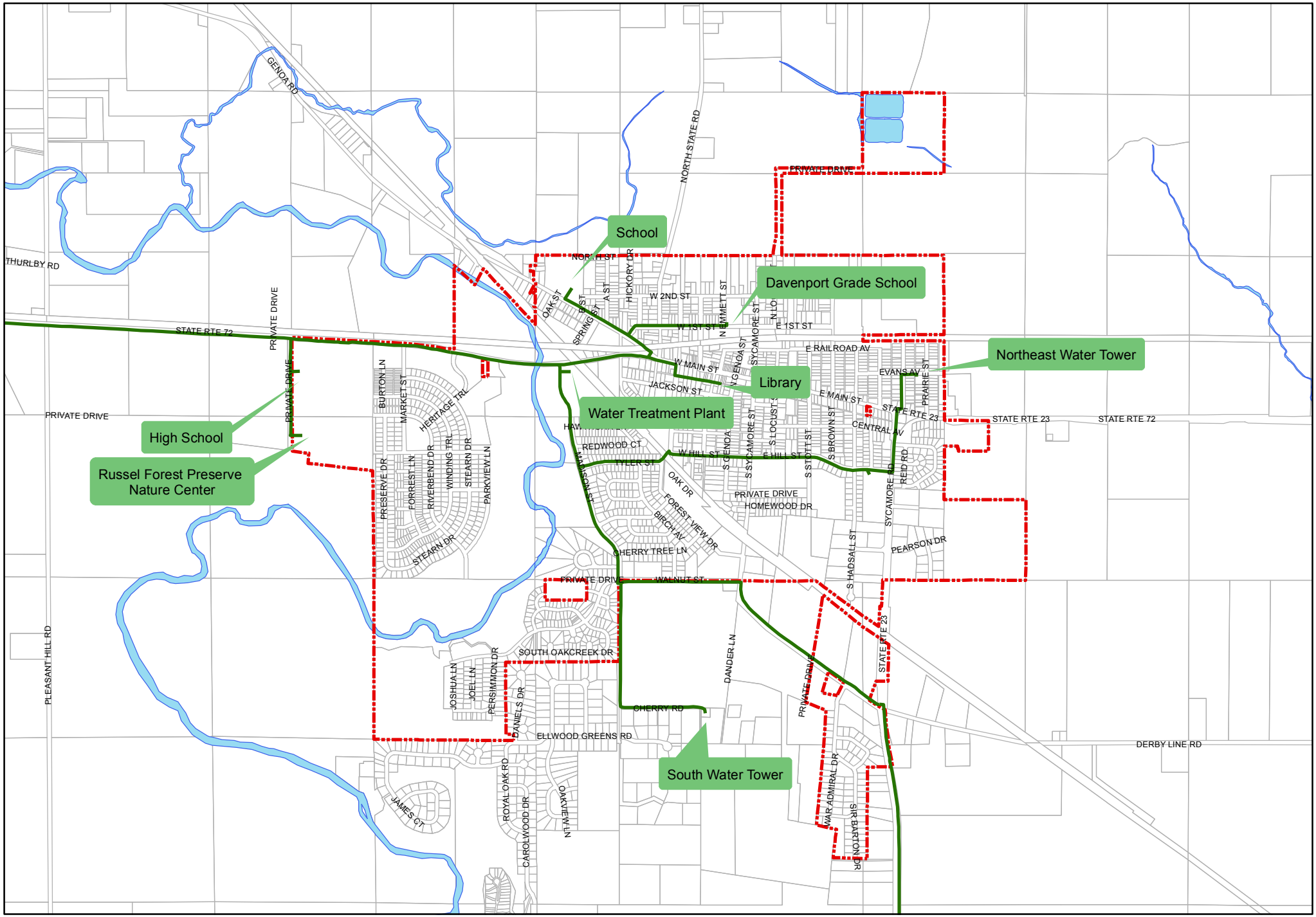
0 1,400 2,800 5,600 Feet

1 inch = 5,063 feet

N

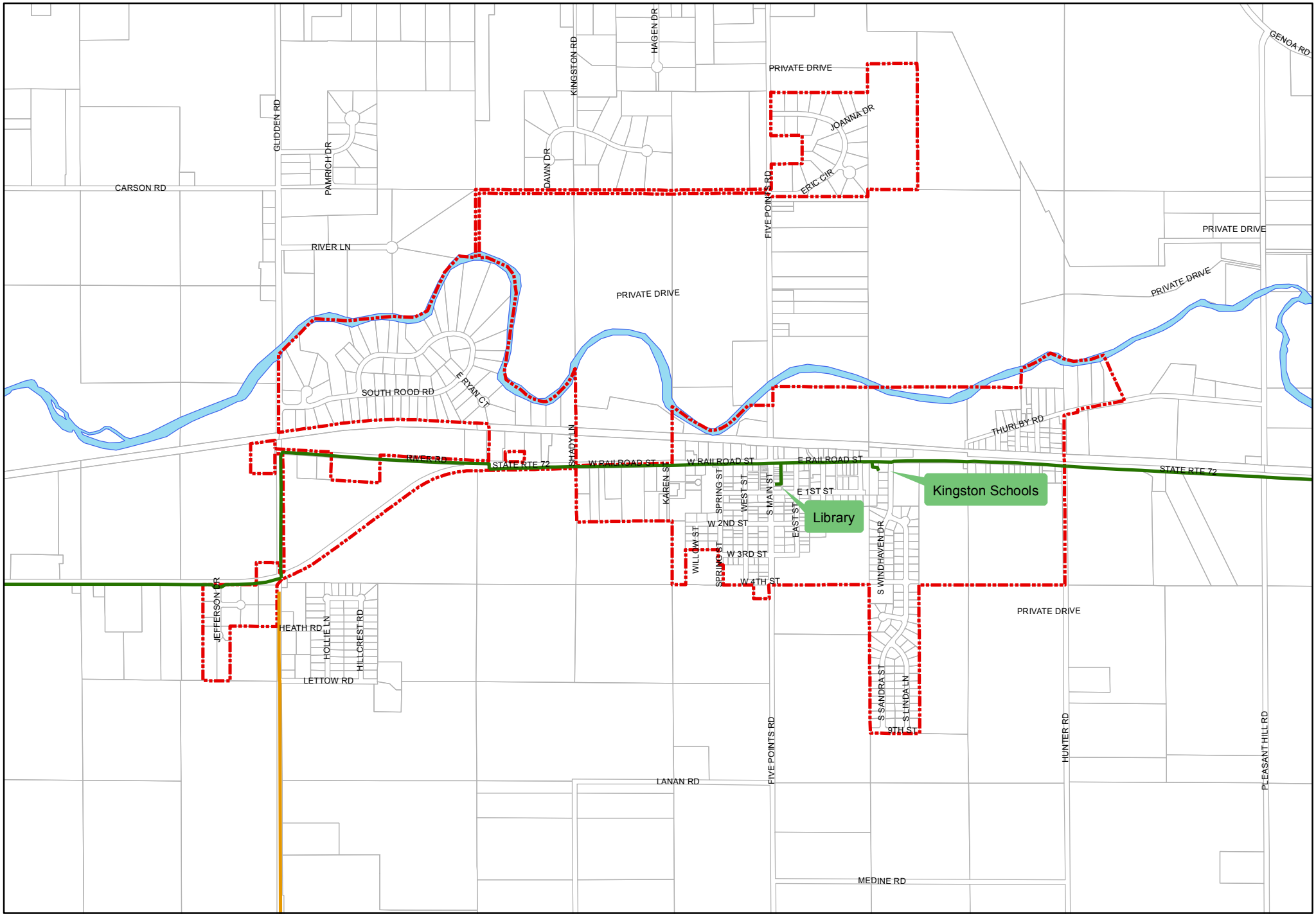
City of Genoa

Exhibit 2.1.2



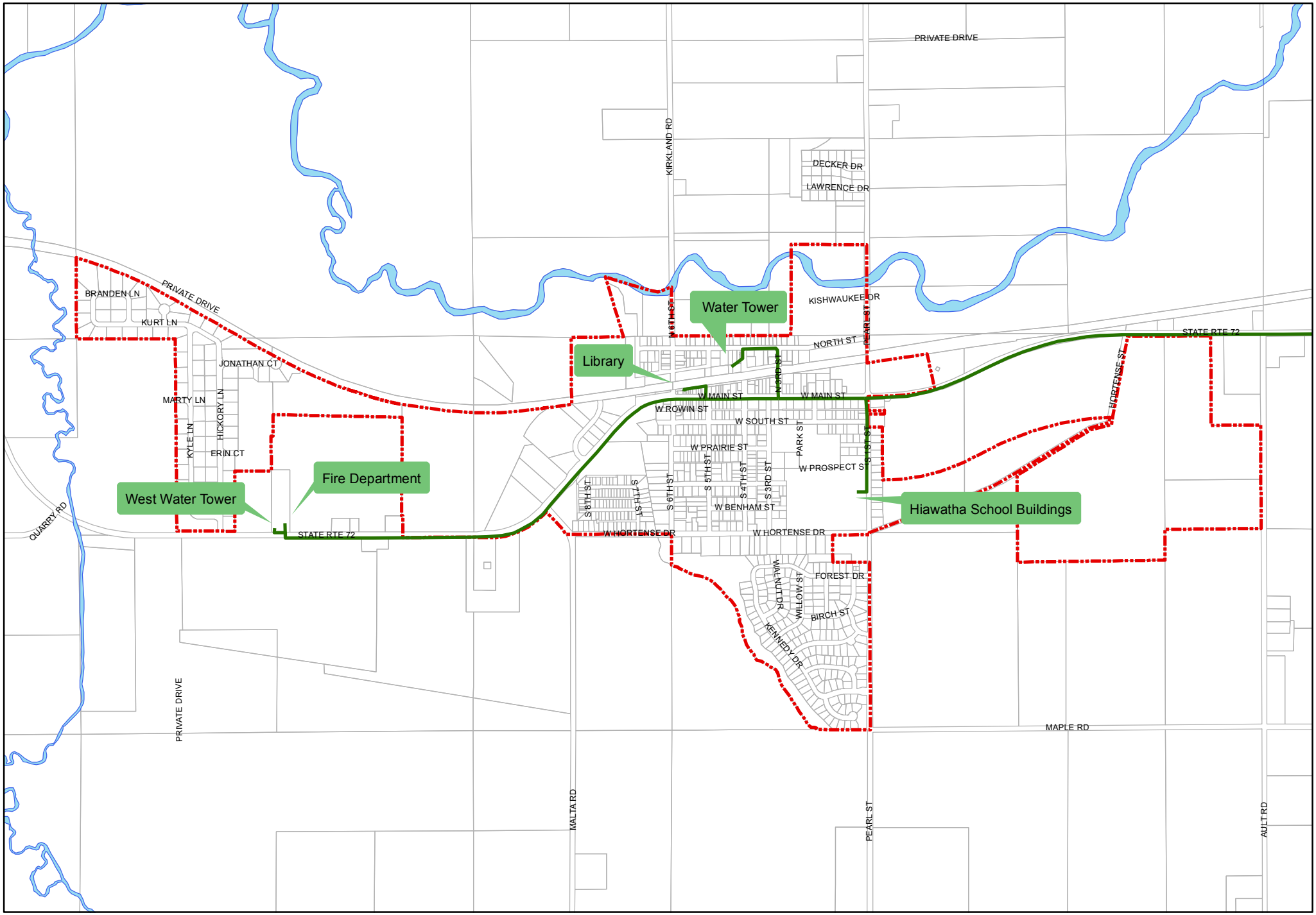
Village of Kingston

Exhibit 2.1.3



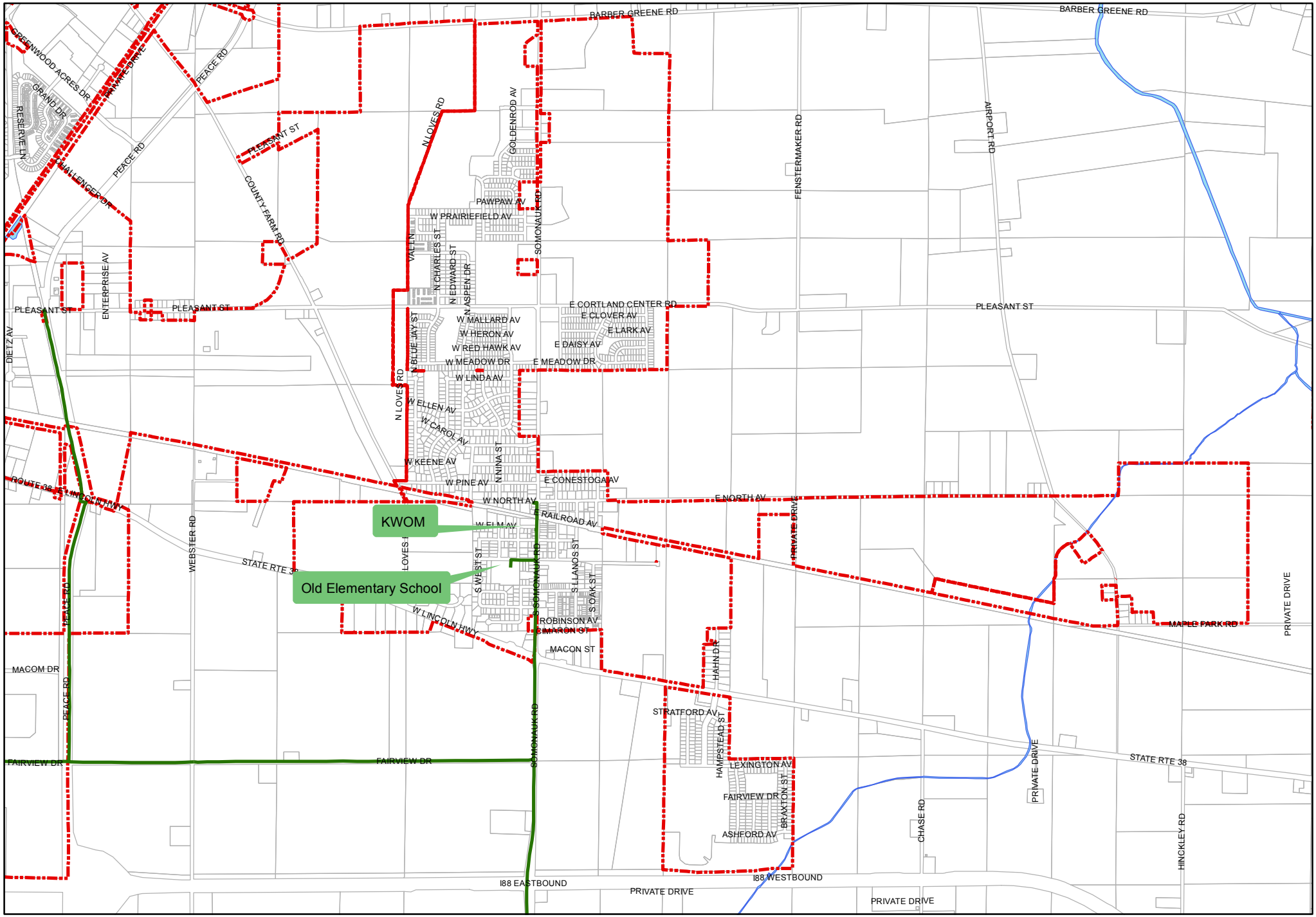
Village of Kirkland

Exhibit 2.1.4



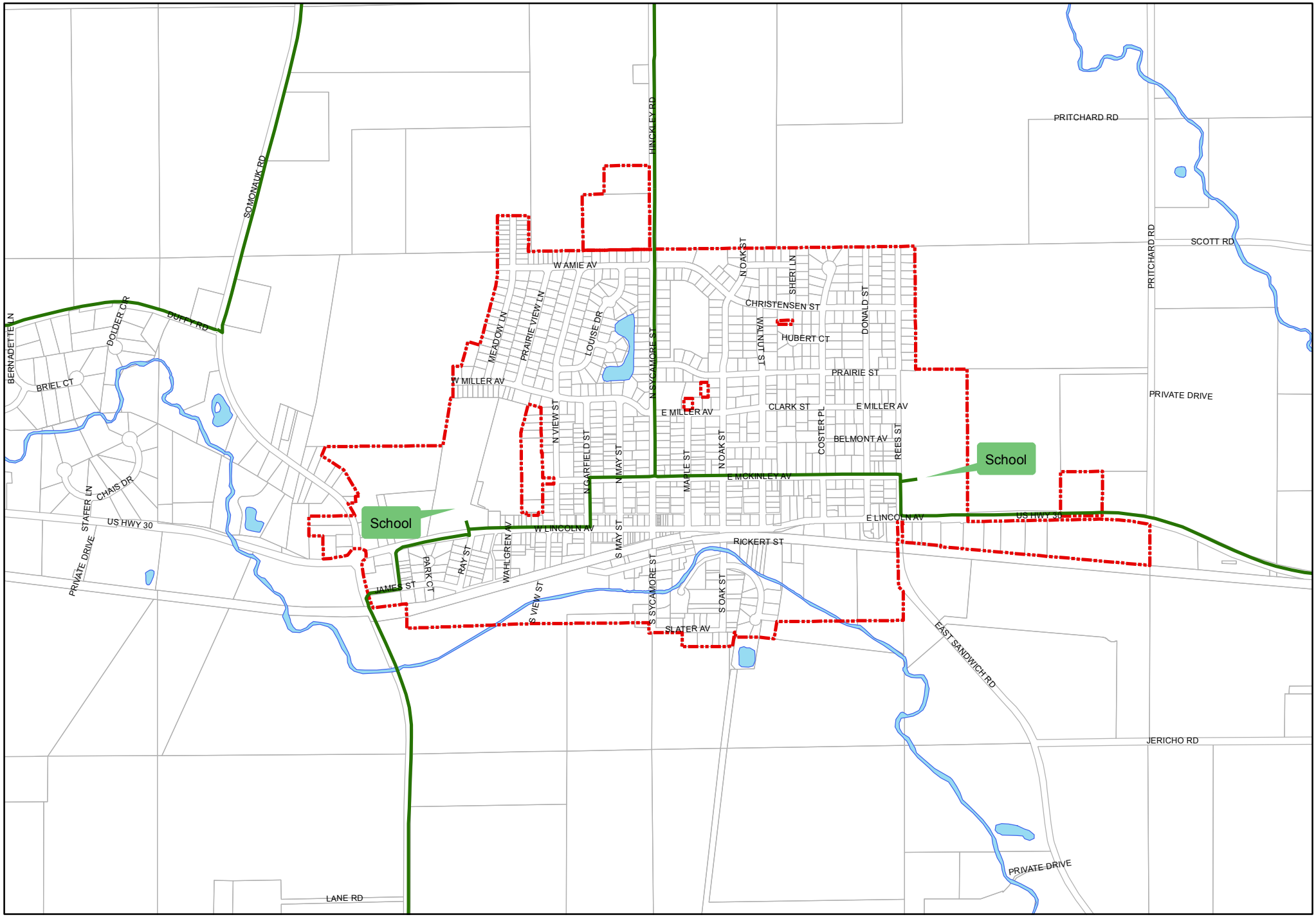
Town of Cortland

Exhibit 2.1.5



Village of Hinckley

Exhibit 2.1.6



Preferred Fiber Optic Route

Alternate Fiber Optic Route

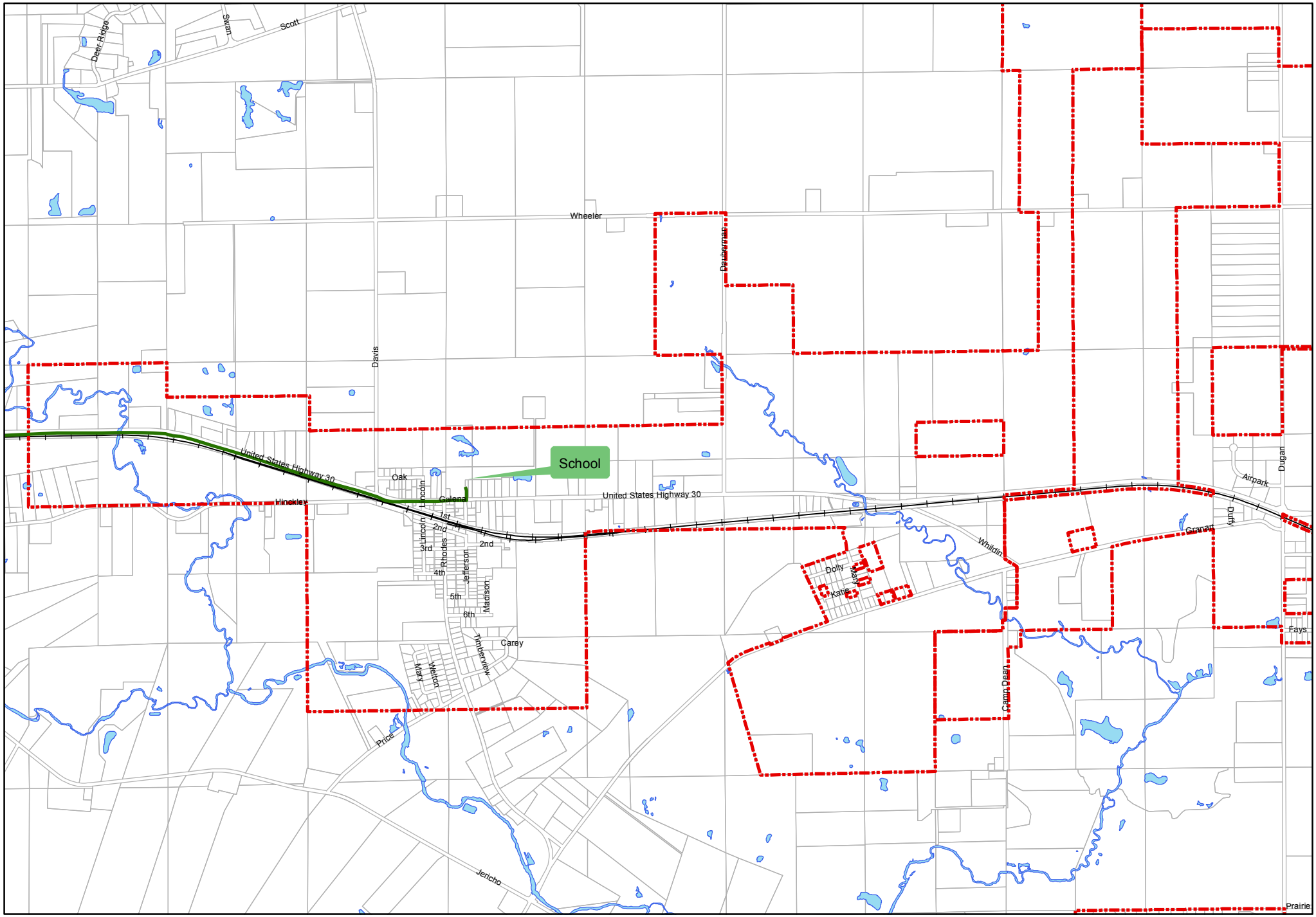
0 355 710 1,420 Feet

1 inch = 1,307 feet

N

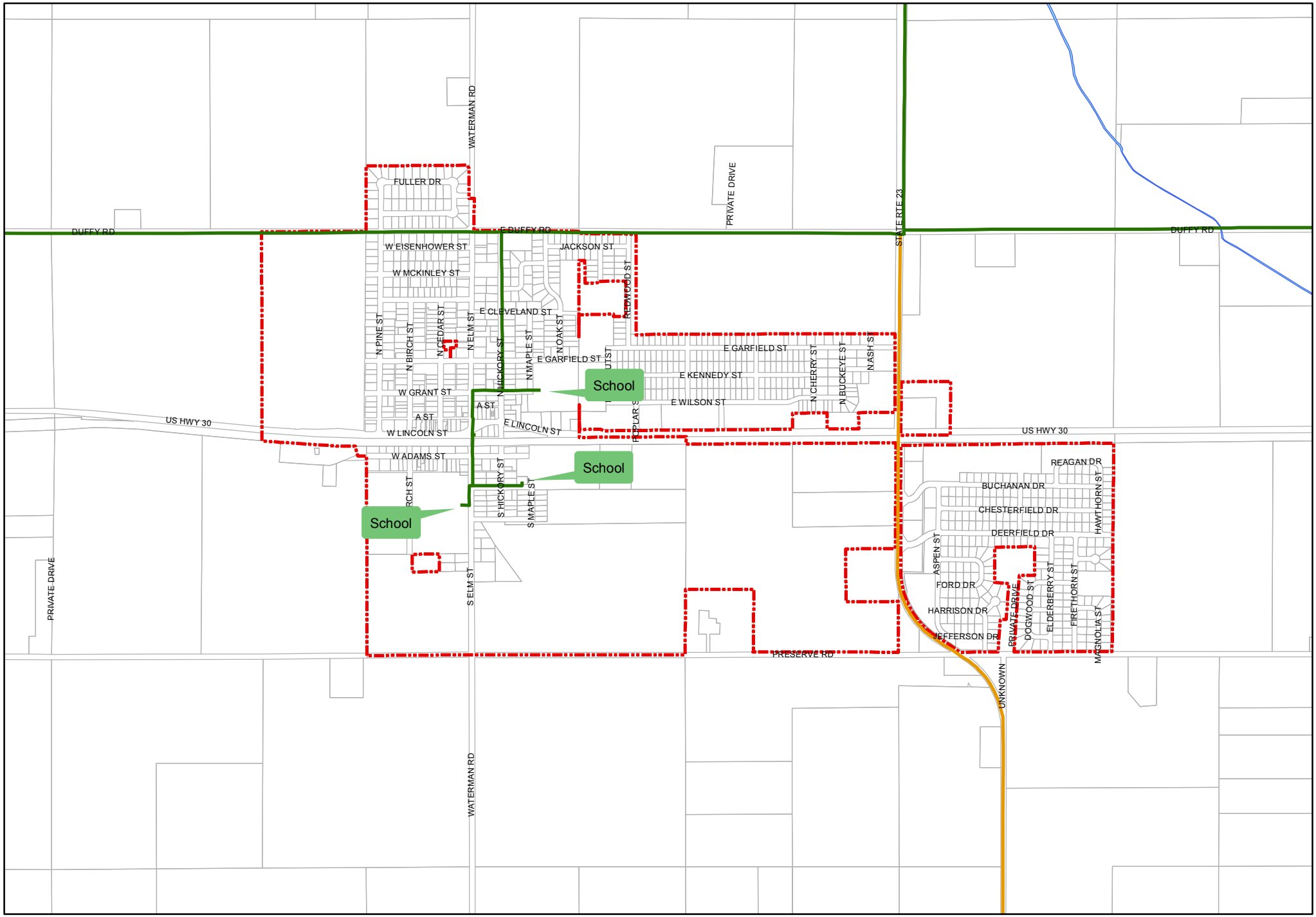
Village of Big Rock

Exhibit 2.1.7



Village of Waterman

Exhibit 2.1.8



Preferred Fiber Optic Route

Alternate Fiber Optic Route

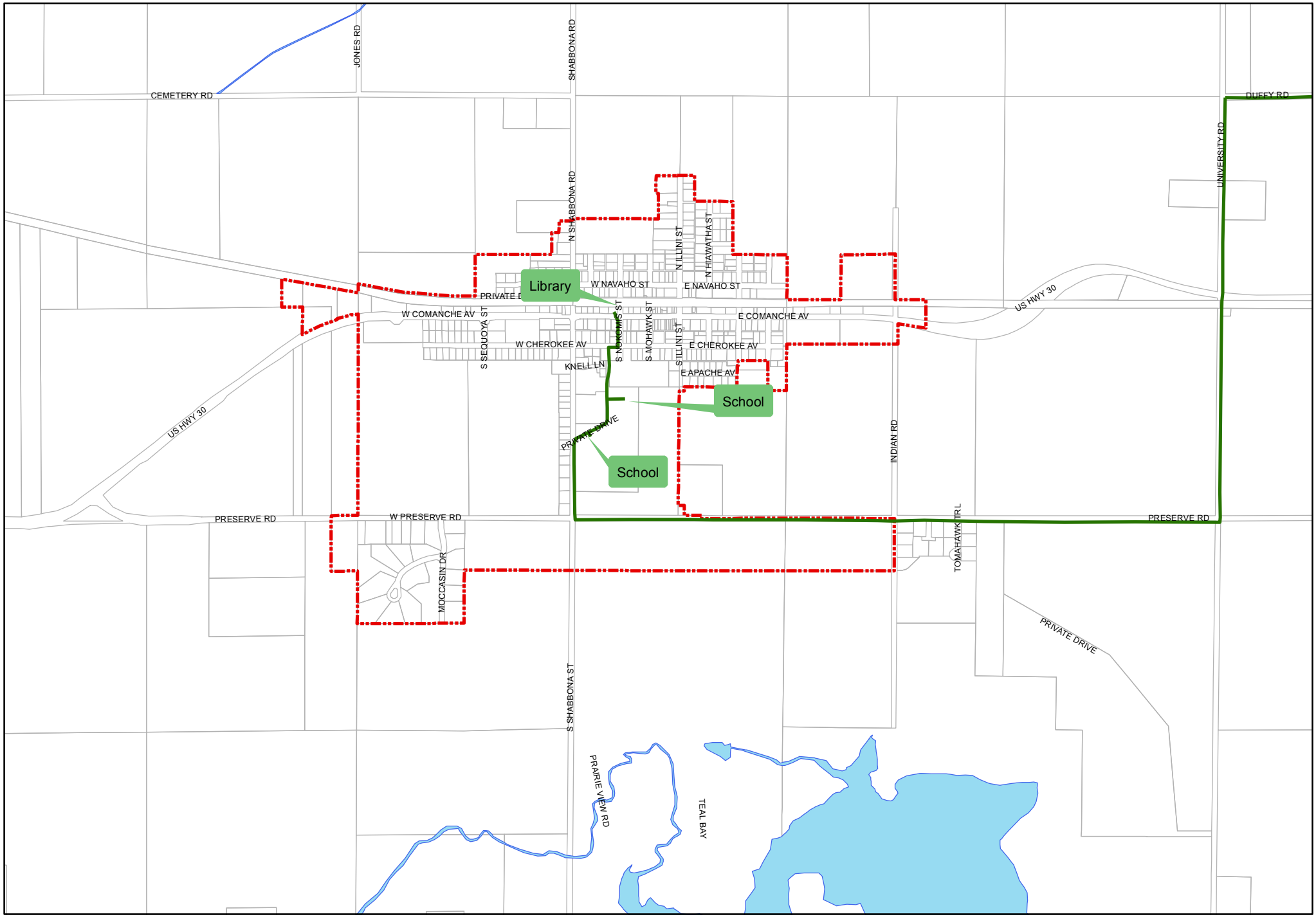
0 415 830 1,660 Feet

1 inch = 1,539 feet

N

Village of Shabbona

Exhibit 2.1.9



Preferred Fiber Optic Route

Alternate Fiber Optic Route

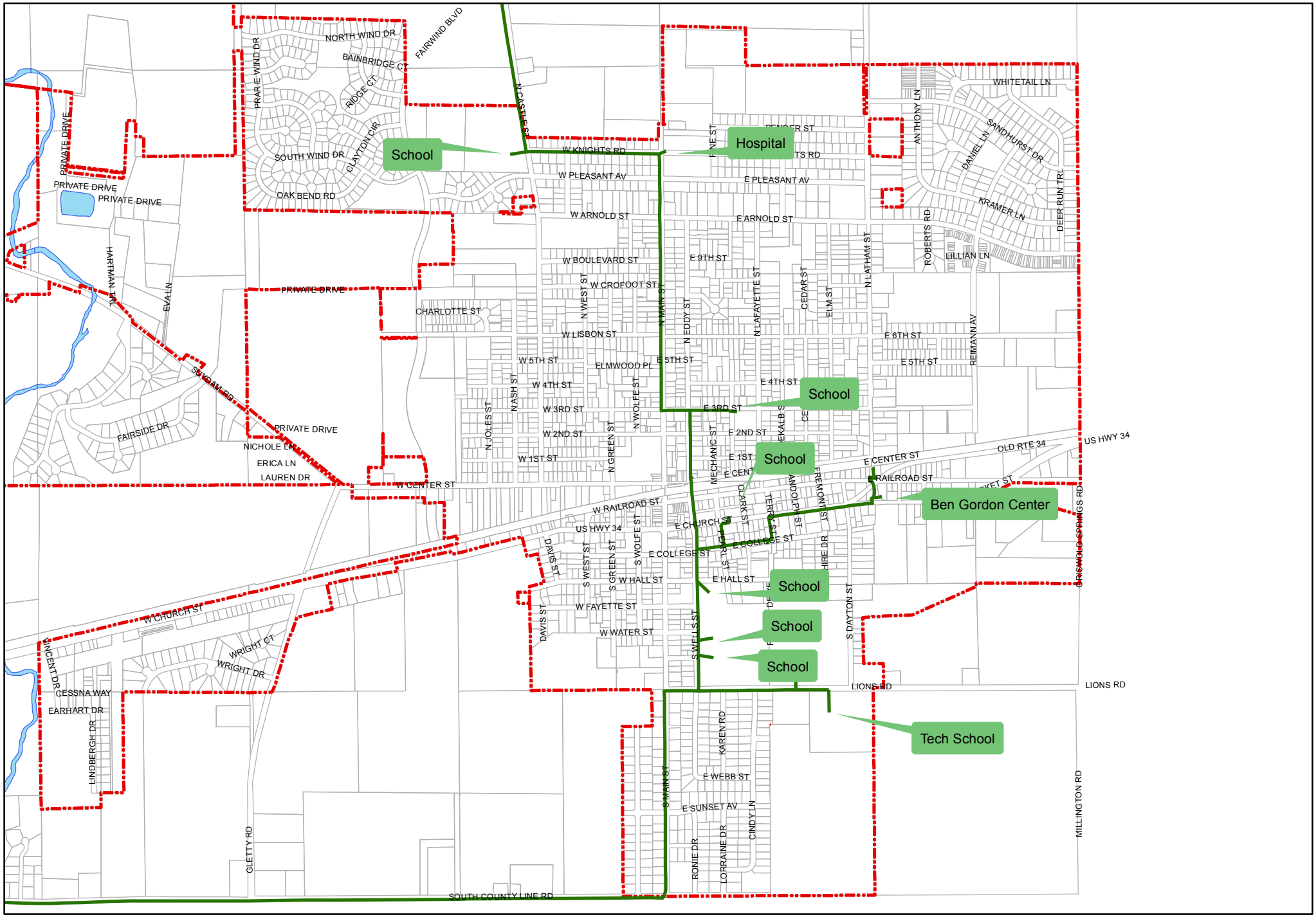
0 425 850 1,700 Feet

1 inch = 1,539 feet

N

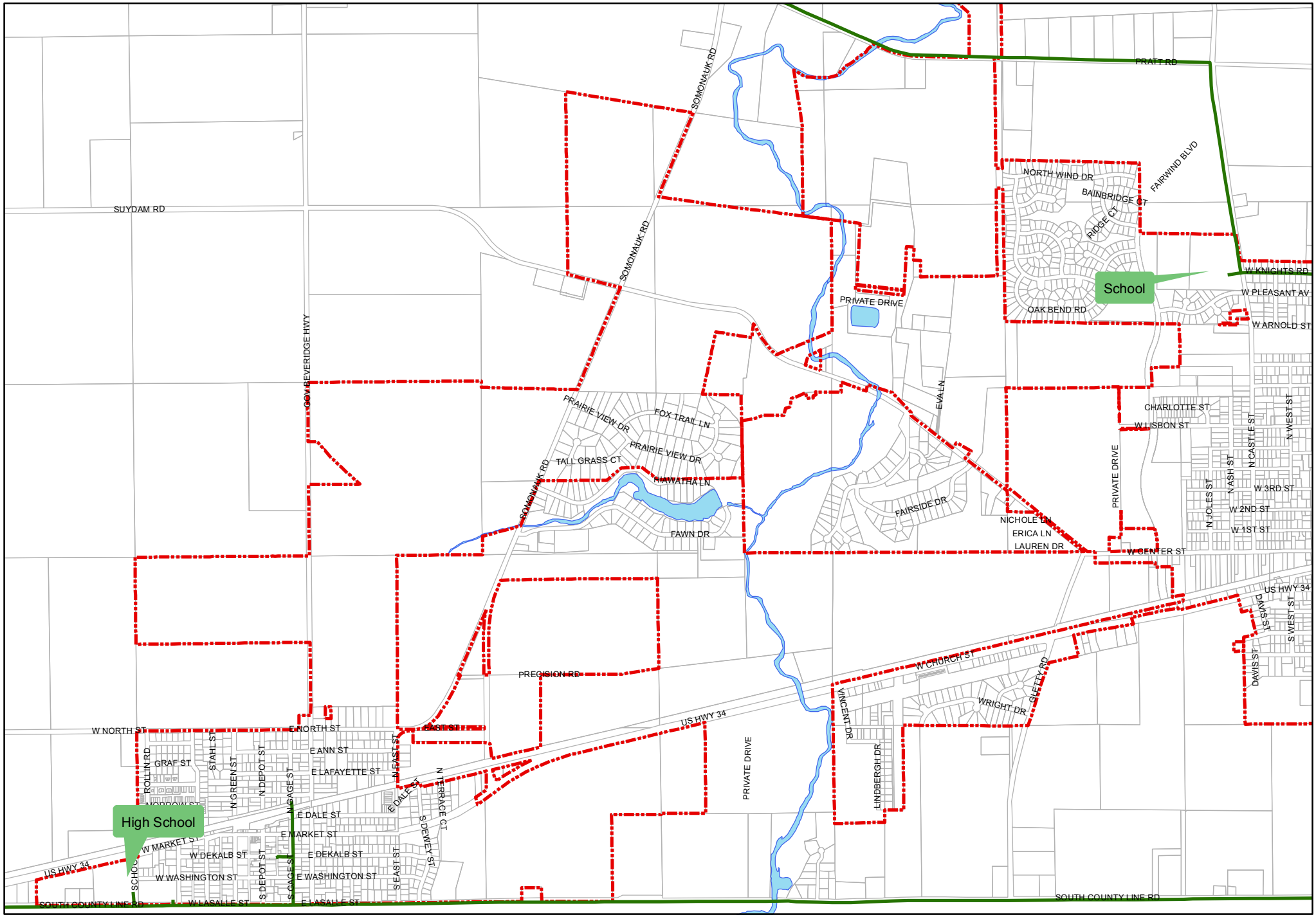
City of Sandwich

Exhibit 2.1.10



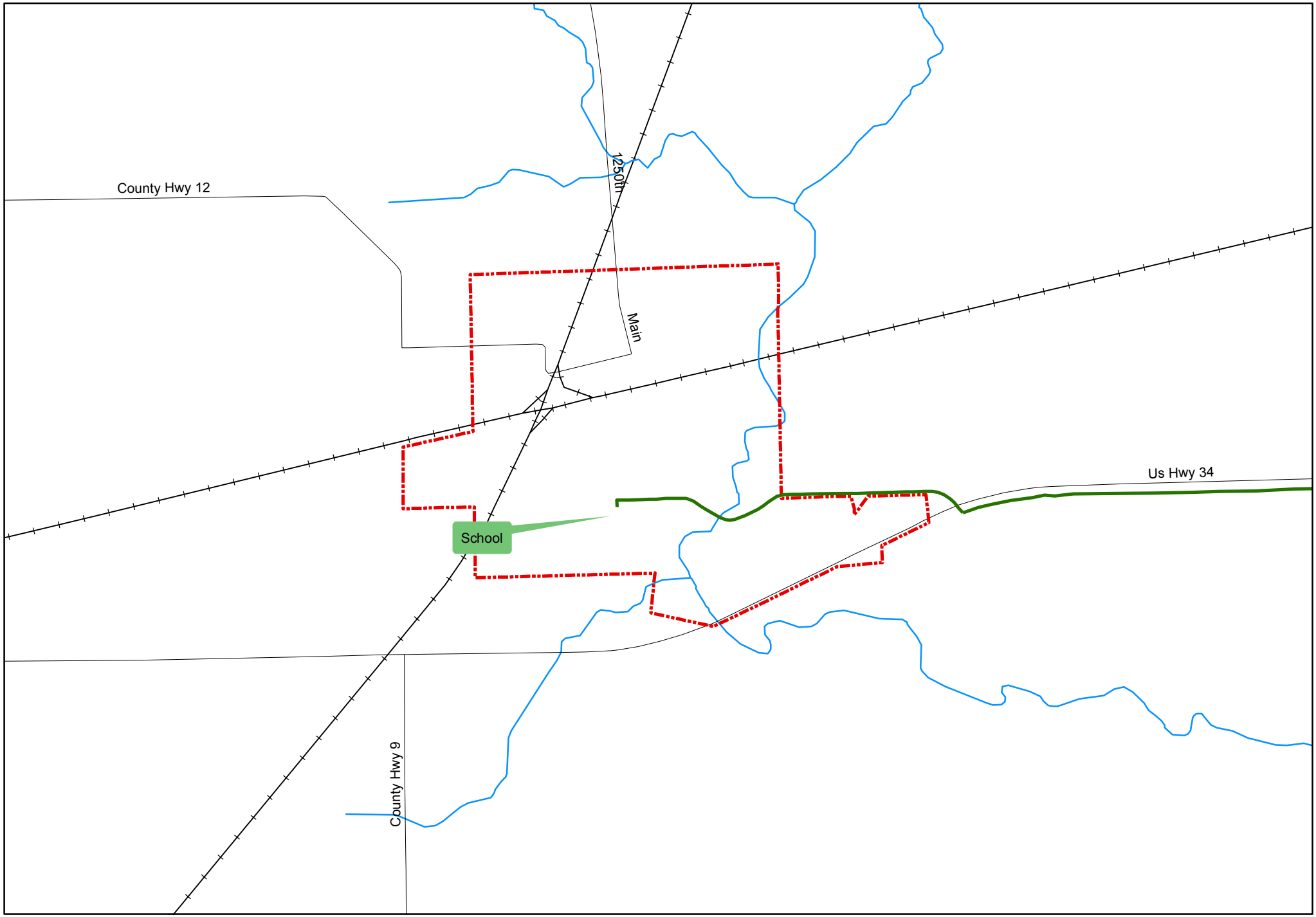
Village of Somonauk

Exhibit 2.1.11



City of Earlville

Exhibit 2.1.12



Preferred Fiber Optic Route

Alternate Fiber Optic Route

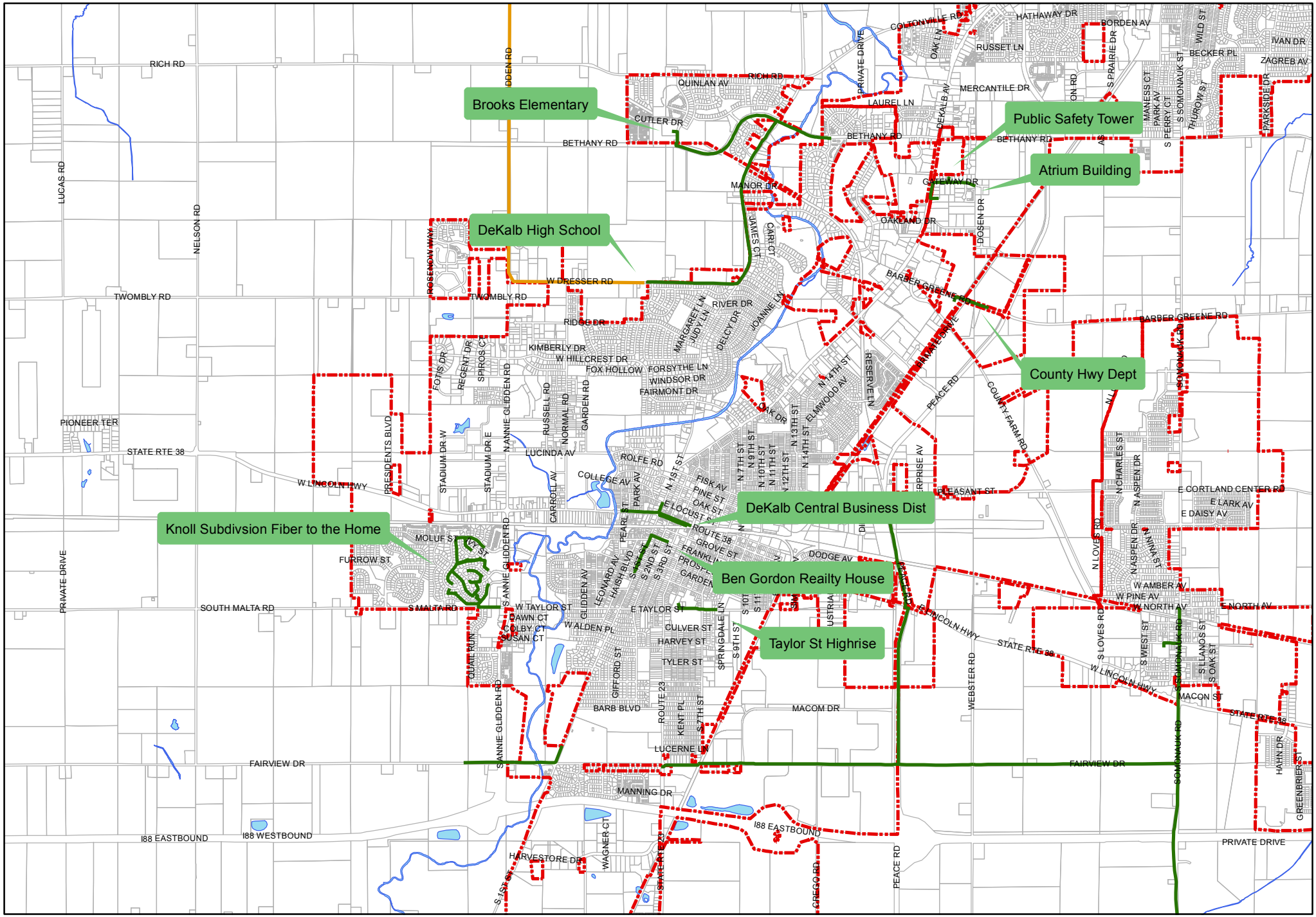
0 550 1,100 2,200 Feet

1 inch = 2,121 feet

N

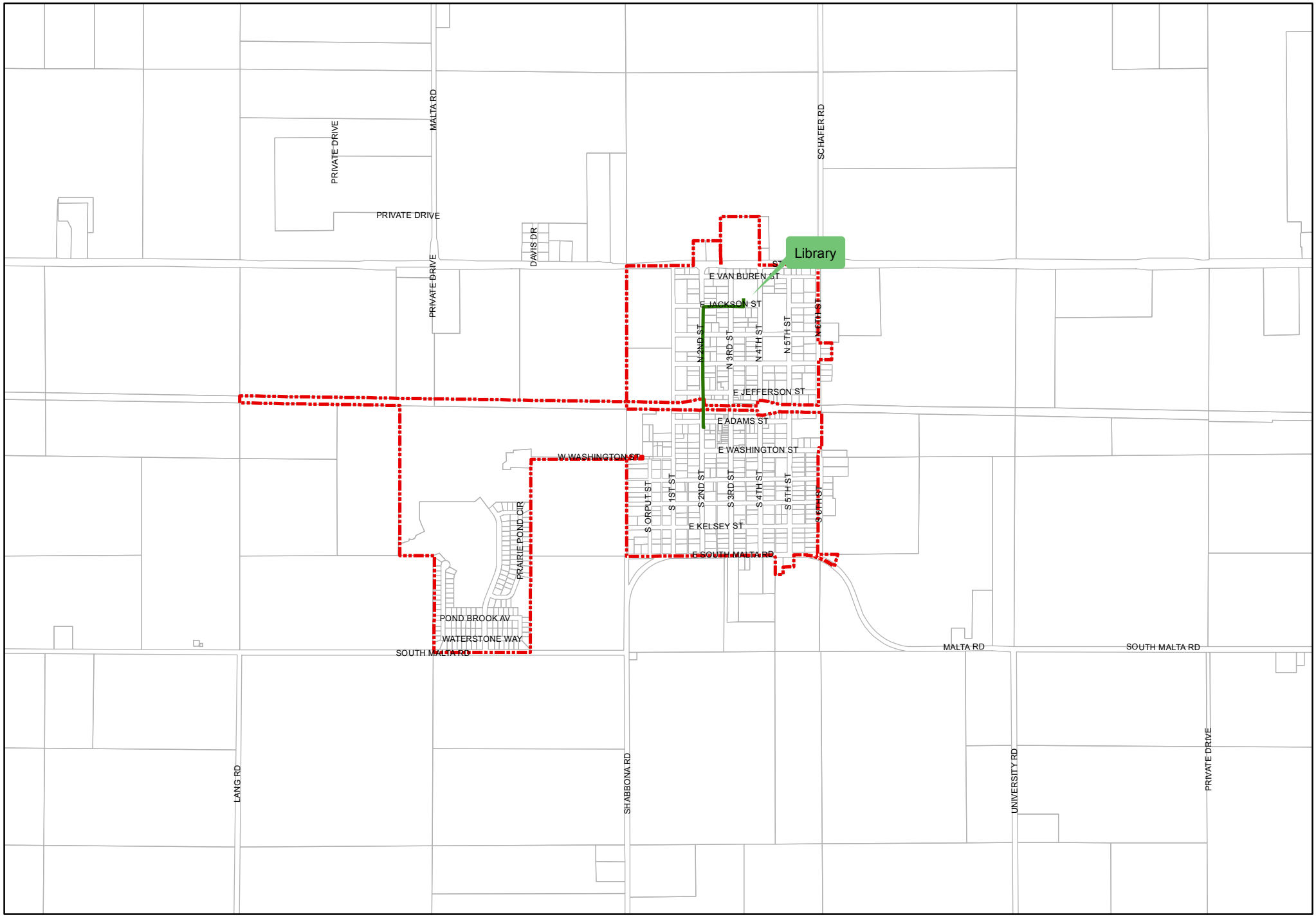
City of DeKalb

Exhibit 2.1.13



Village of Malta

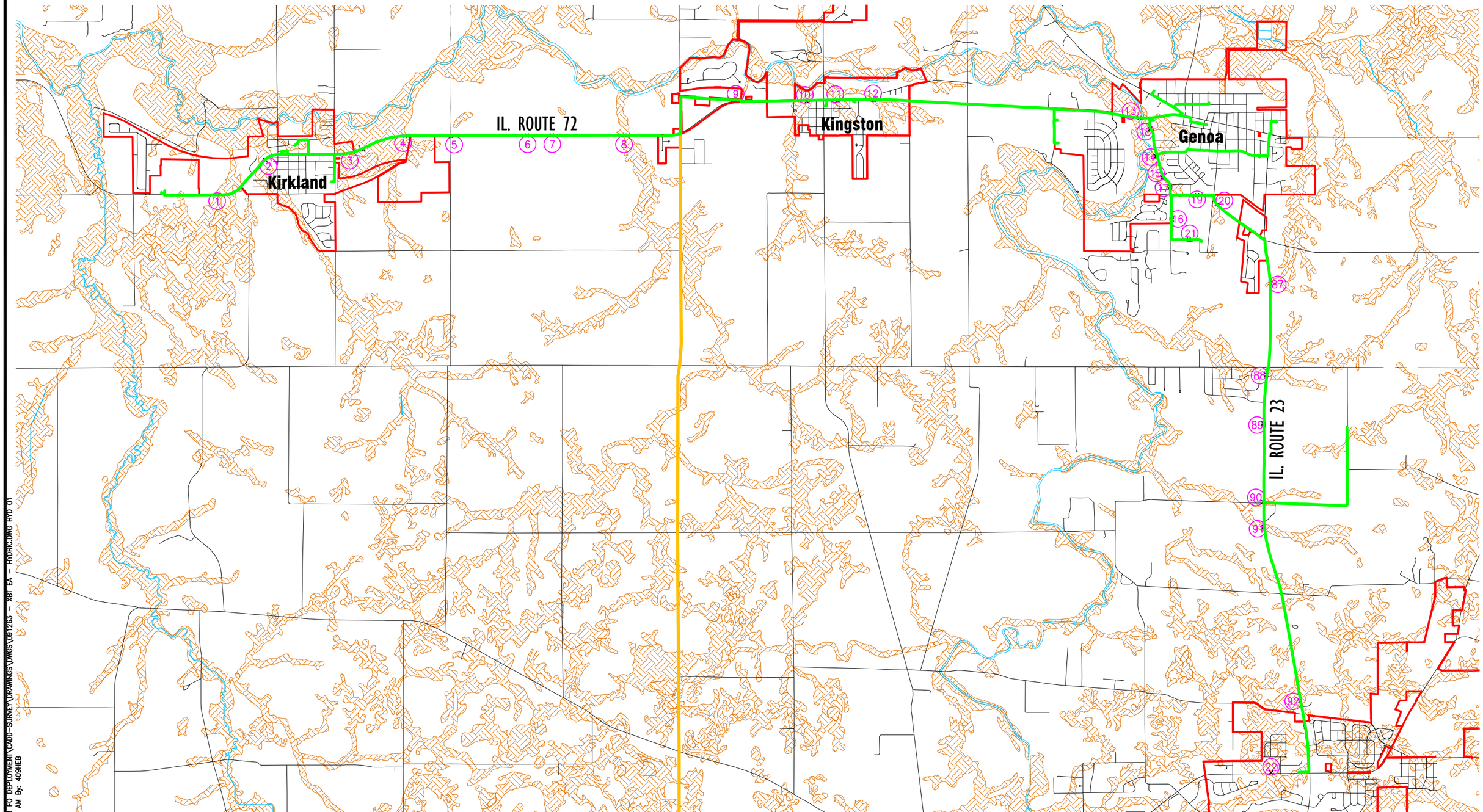
Exhibit 2.1.14



Hydric Soils

Exhibit 3.3.1

NO SCALE



FOR CONTINUATION SEE SHEET HYD 2

Legend

- Preferred Fiber Optic Route
- Alternate Fiber Optic Route
- Wetland I.D. Number (85)
- Hydric Soils

BAXTER WOODMAN Consulting Engineers

Baxter & Woodman
Crystal Lake, Illinois
Mokena, Illinois
Burlington, Wisconsin
DeKalb, Illinois
Grayslake, Illinois
Plainfield, Illinois
Itasca, Illinois
Madison, Wisconsin
Chicago, Illinois

I:\DEKALB\DKCHY\091198 FO DEPLOYMENT\CADD-SURVEY\DRAWINGS\DWGS\091263 - XBT EA - HYDRIC.DWG HYD 01
Plotted: 6/4/2010 11:01 AM By: 409HEB

Hydric Soils

FOR CONTINUATION SEE SHEET HYD 1

Exhibit 3.3.2

NO SCALE

Sycamore

BETHANY ROAD

1st STREET

IL ROUTE 23

PEACE ROAD

BARBER GREENE ROAD

Cortland

DeKalb

Malta

MALTA ROAD

FAIRVIEW DRIVE

24 25 26 27 28 29 30 31 49 50 51 52 53 54

Legend

- Preferred Fiber Optic Route
- Alternate Fiber Optic Route
- (85) Wetland I.D. Number
- Hydric Soils

FOR CONTINUATION SEE SHEET HYD 3

Baxter & Woodman

Crystal Lake, Illinois
Mokena, Illinois
Burlington, Wisconsin
DeKalb, Illinois
Crayslake, Illinois
Plainfield, Illinois
Itasca, Illinois
Madison, Wisconsin
Chicago, Illinois

BAXTER & WOODMAN Consulting Engineers

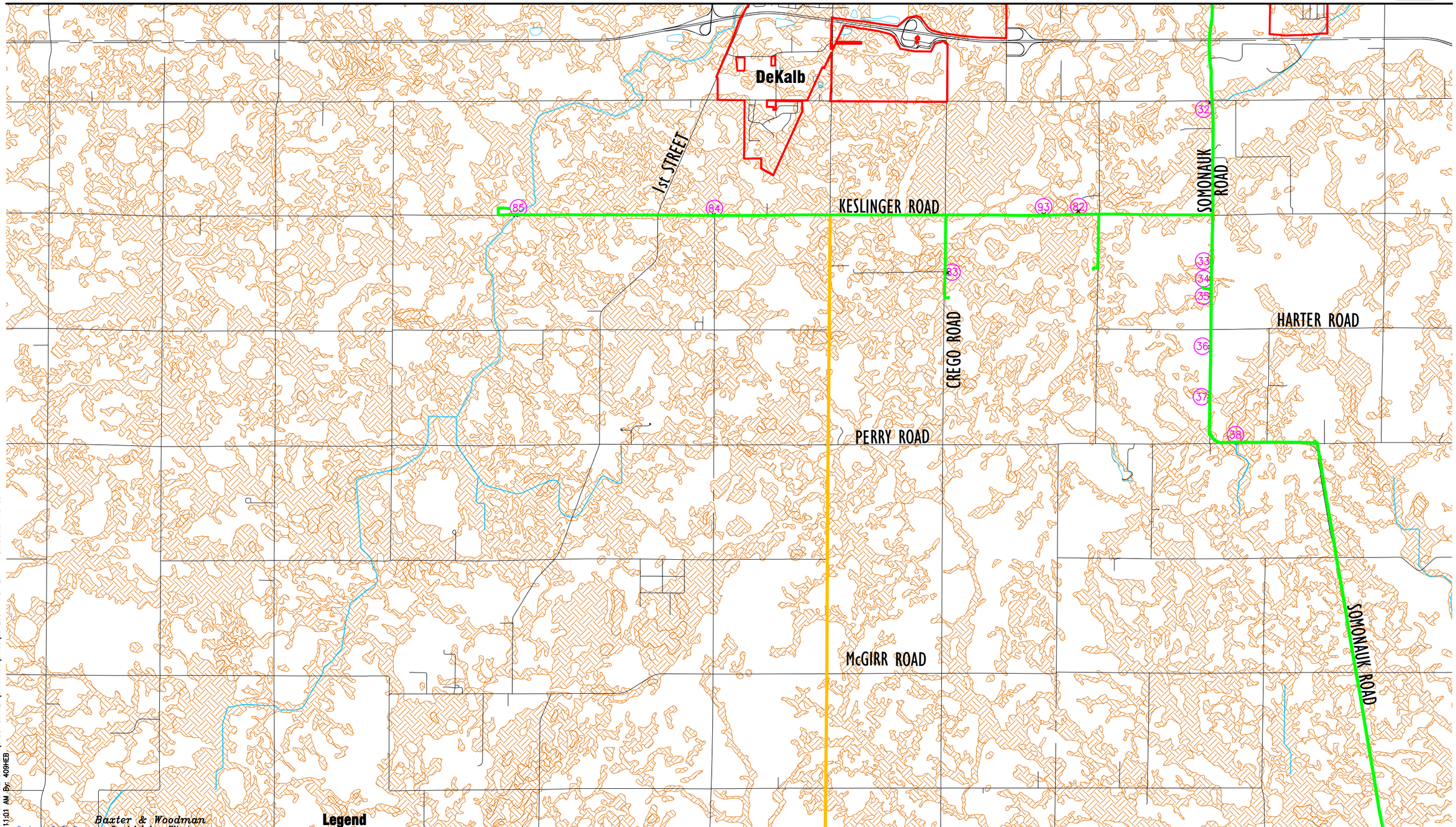
I:\DEKALB\DKCITY\091198 FO DEPLOYMENT\CADD-SURVEY\DRAWINGS\DWGS\091263 - XBT EA - HYDRIC.DWG HYD 02
Plotted: 6/4/2010 11:01 AM By: 409HED

Hydric Soils

FOR CONTINUATION SEE SHEET HYD 2

Exhibit 3.3.3

NO SCALE



FOR CONTINUATION SEE SHEET HYD 4

Legend

- Preferred Fiber Optic Route
- Alternate Fiber Optic Route
- Wetland I.D. Number (85)
- Hydric Soils

Baxter & Woodman
Crystal Lake, Illinois
Mokena, Illinois
Burlington, Wisconsin
DeKalb, Illinois
Grayslake, Illinois
Plainfield, Illinois
Itasca, Illinois
Madison, Wisconsin
Chicago, Illinois
BAXTER WOODMAN Consulting Engineers

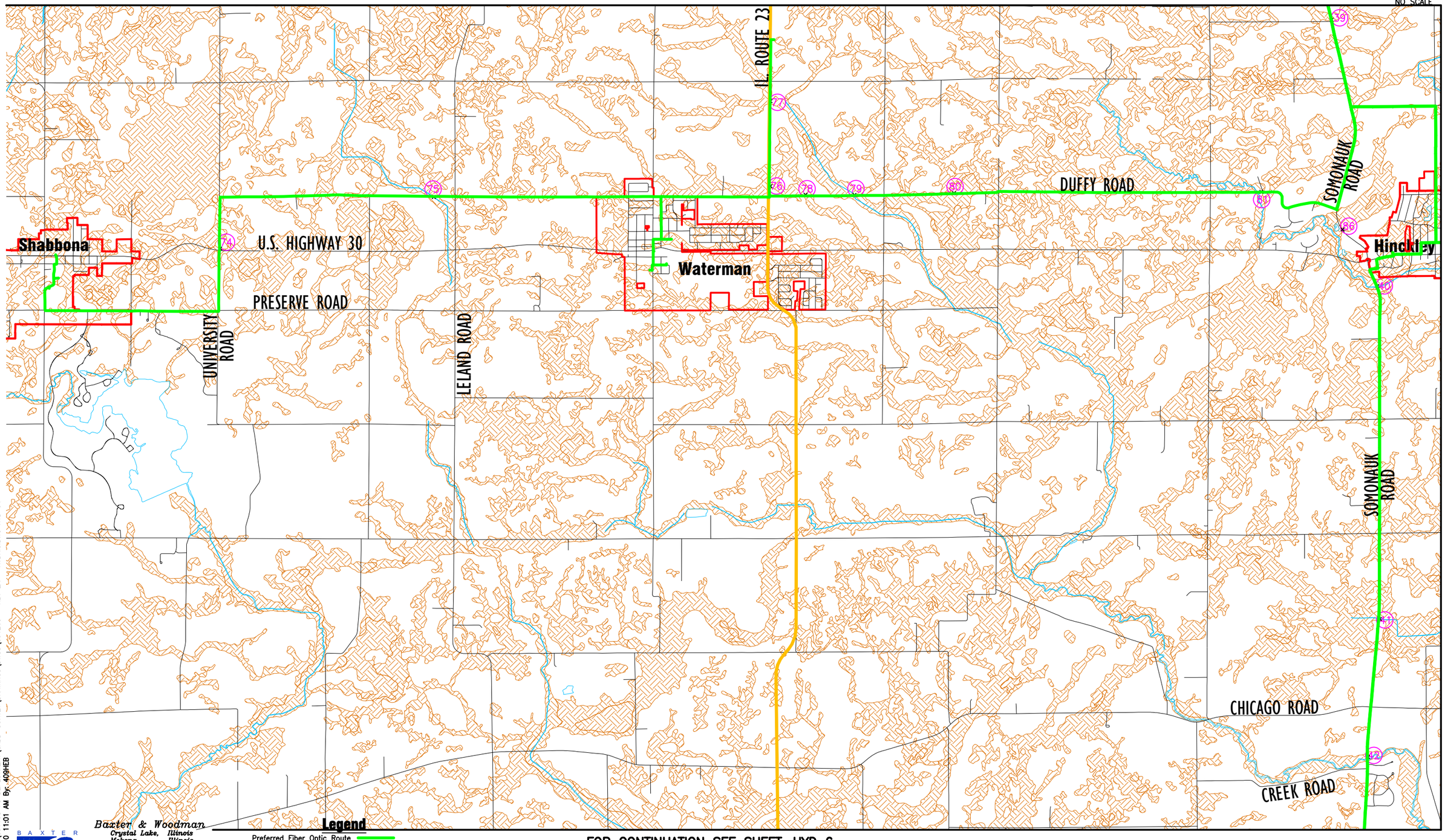
E:\DEKALB\DKCMY\091198 FO DEPLOYMENT\CADD-SURVEY\DRAWINGS\DWGS\091263 - XBT EA - HYDRIC.DWG HYD 03
Plotted: 6/4/2010 11:01 AM By: 409HEB

Hydric Soils

FOR CONTINUATION SEE SHEET HYD 3

Exhibit 3.3.4

NO SCALE



FOR CONTINUATION SEE SHEET HYD 5

FOR CONTINUATION SEE SHEET HYD 6

Legend

- Preferred Fiber Optic Route
- Alternate Fiber Optic Route
- Wetland I.D. Number (85)
- Hydric Soils

Baxter & Woodman
Crystal Lake, Illinois
Mokena, Illinois
Burlington, Wisconsin
DeKalb, Illinois
Crayslake, Illinois
Plainfield, Illinois
Itasca, Illinois
Madison, Wisconsin
Chicago, Illinois

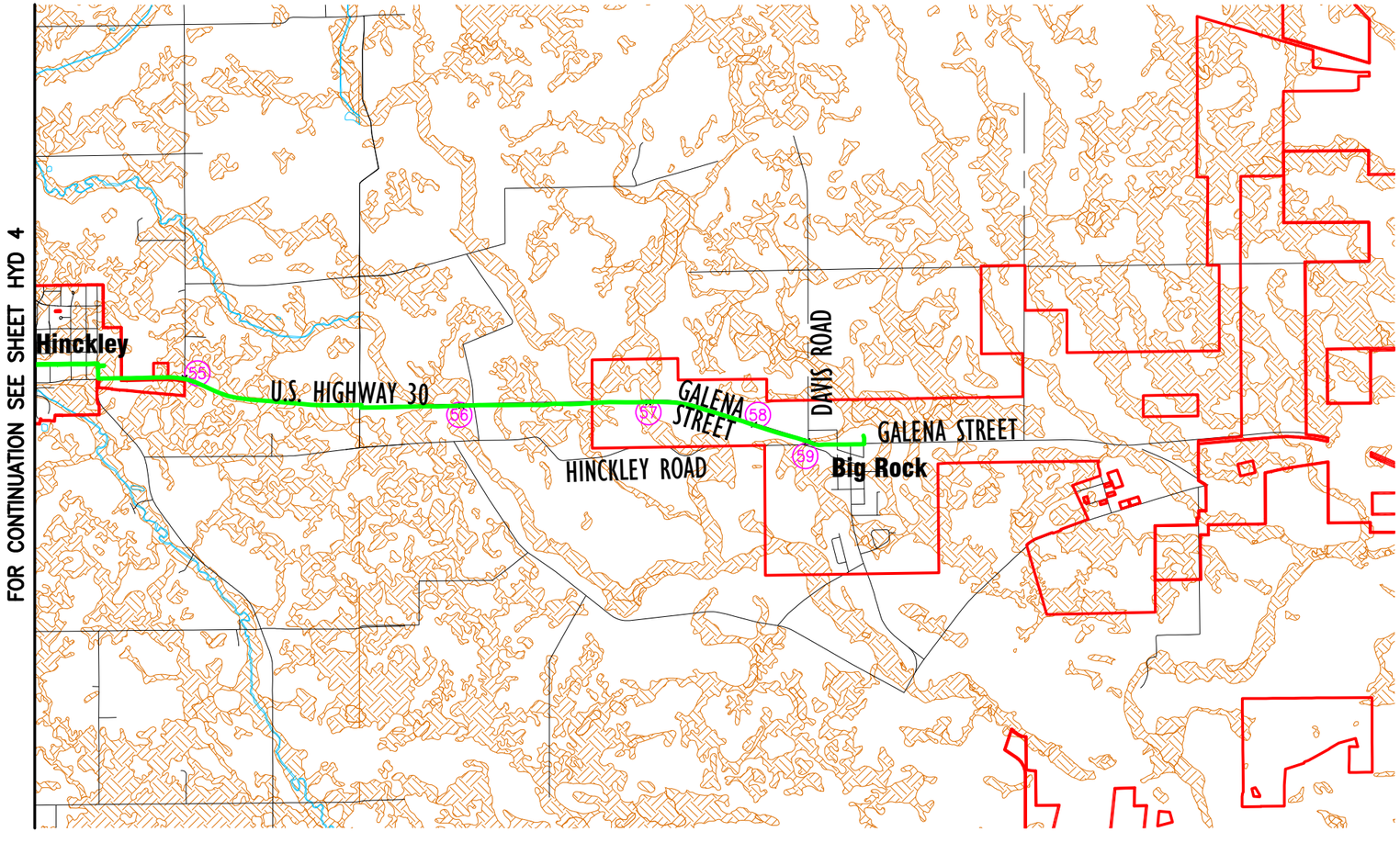
BAXTER WOODMAN Consulting Engineers

I:\DEKALB\DKOTY\091198 FO DEPLOYMENT\CADD-SURVEY\DRAWINGS\DWGS\091263 - XBF EA - HYDRICDWG HYD 04
Plotted: 6/4/2010 11:01 AM By: 409HEB

Hydric Soils

Exhibit 3.3.5

NO SCALE



Legend

- Preferred Fiber Optic Route
- Alternate Fiber Optic Route
- Wetland I.D. Number (85)
- Hydric Soils

Baxter & Woodman
Crystal Lake, Illinois
Mokena, Illinois
Burlington, Wisconsin
DeKalb, Illinois
Crayslake, Illinois
Plainfield, Illinois
Itasca, Illinois
Madison, Wisconsin
Chicago, Illinois

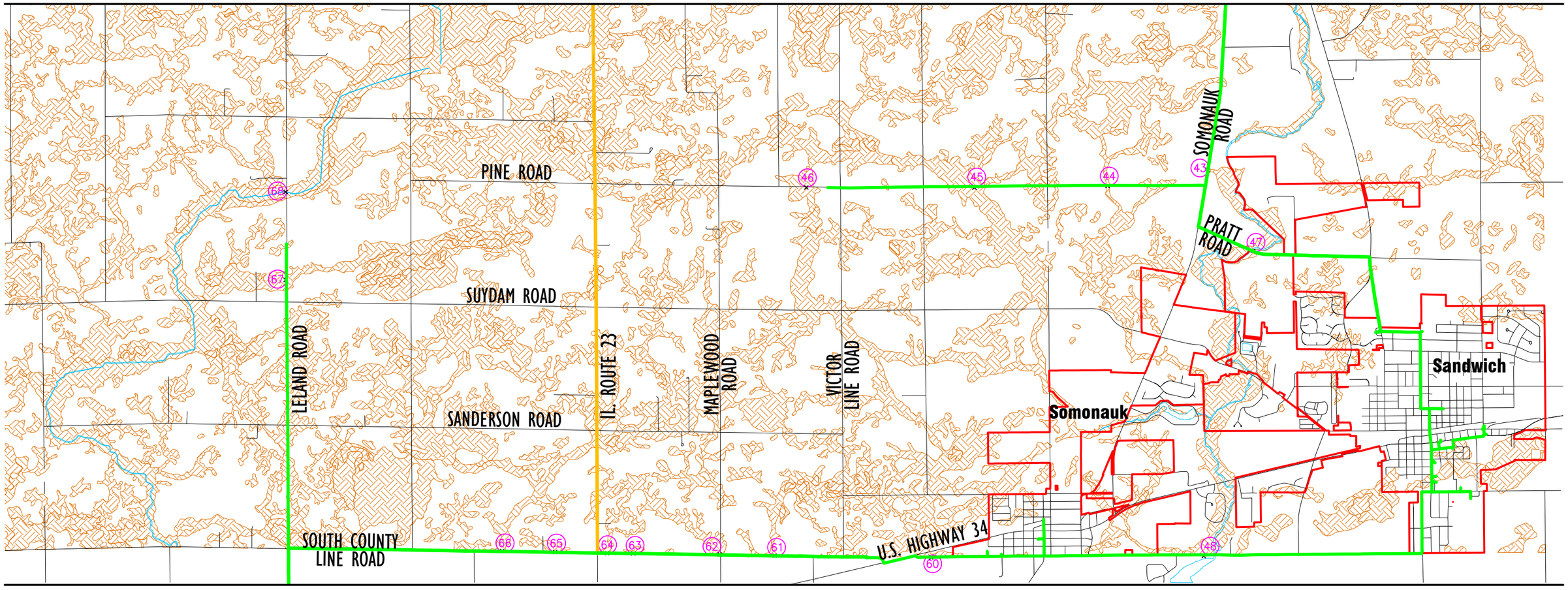
I:\DEKALB\DKCITY\091198 FO DEPLOYMENT\CADD-SURVEY\DRAWINGS\DWGS\091263 - XBT EA - HYDRIC.DWG HYD 05
Plotted: 6/4/2010 11:01 AM By: 409HEB

Hydric Soils

Exhibit 3.3.6

NO SCALE

FOR CONTINUATION SEE SHEET HYD 4



FOR CONTINUATION SEE SHEET HYD 7

Legend

- Preferred Fiber Optic Route
- Alternate Fiber Optic Route
- Wetland I.D. Number (85)
- Hydric Soils

BAXTER WOODMAN Consulting Engineers

Baxter & Woodman
Crystal Lake, Illinois
Mokena, Illinois
Burlington, Wisconsin
DeKalb, Illinois
Crayslake, Illinois
Plainfield, Illinois
Itasca, Illinois
Madison, Wisconsin
Chicago, Illinois

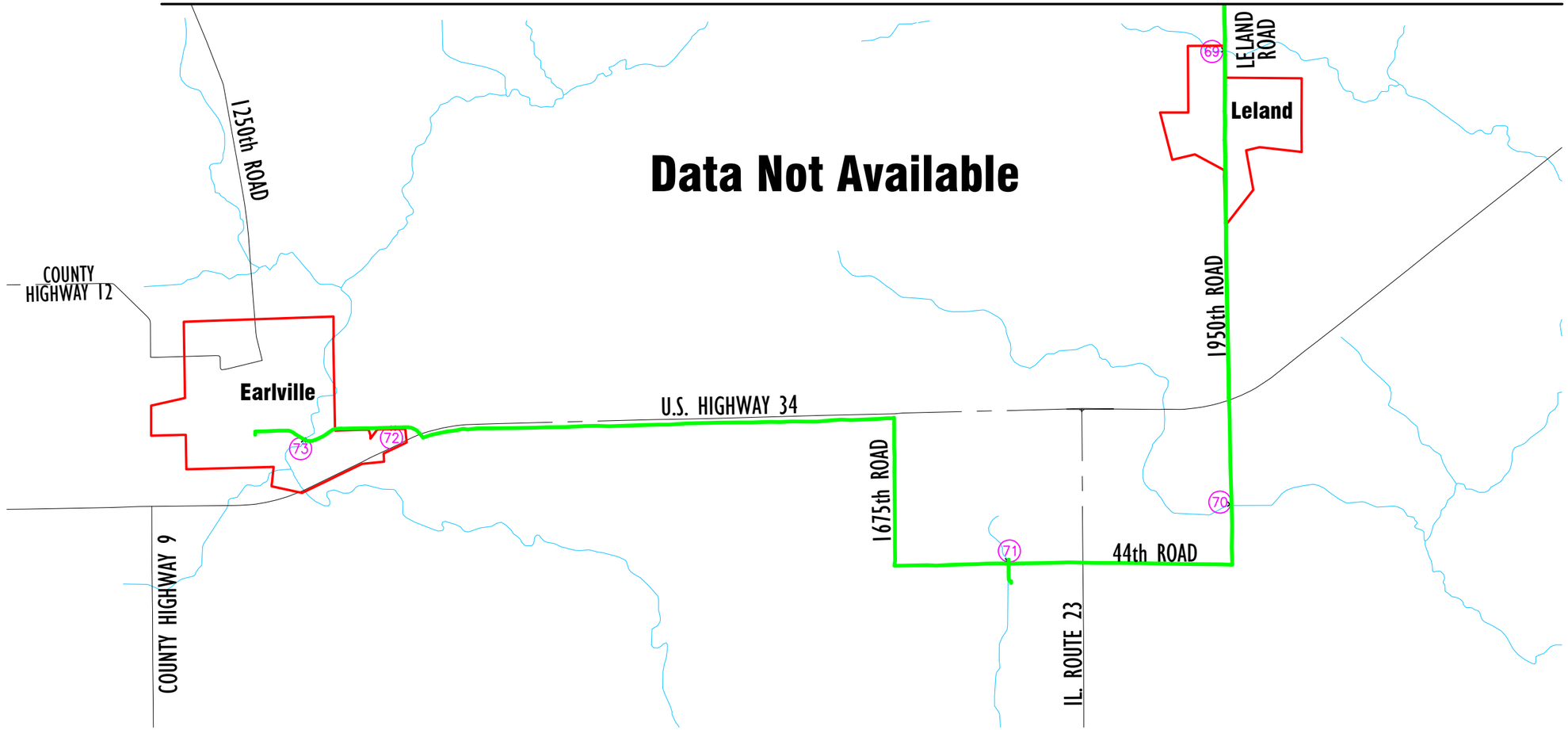
I:\DEKALB\DKCITY\091198 FO DEPLOYMENT\CADD-SURVEY\DRAWINGS\DWGS\091263 - XBT EA - HYDRIC.DWG HYD 06
Plotted: 6/4/2010 11:01 AM By: 409HEB

Hydric Soils

Exhibit 3.3.7

NO SCALE

FOR CONTINUATION SEE SHEET HYD 6



Baxter & Woodman
Crystal Lake, Illinois
Mokena, Illinois
Burlington, Wisconsin
DeKalb, Illinois
Grayslake, Illinois
Plainfield, Illinois
Itasca, Illinois
Madison, Wisconsin
Chicago, Illinois
BAXTER & WOODMAN Consulting Engineers

Legend

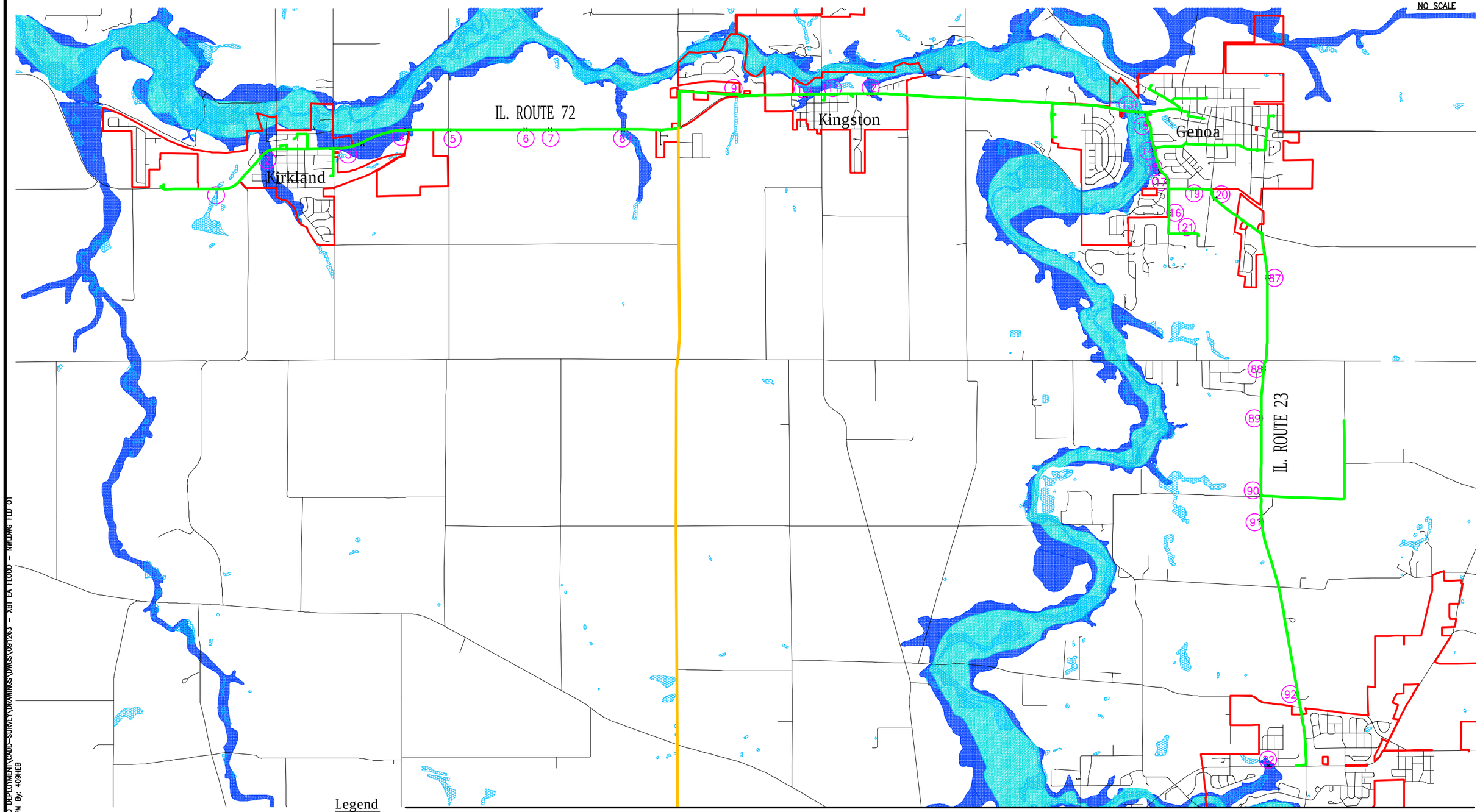
- Preferred Fiber Optic Route
- Alternate Fiber Optic Route
- Wetland I.D. Number (85)
- Hydric Soils

I:\DEKALB\DKCNTY\091198 FO DEPLOYMENT\CADD-SURVEY\DRAWINGS\DWGS\091263 - XBT EA - HYDRIC.DWG HYD 07
Plotted: 6/4/2010 11:14 AM By: 409HEB

Floodplain / NWI Map

Exhibit 3.4.1

NO SCALE



Legend

- Preferred Fiber Optic Route
- Alternate Fiber Optic Route
- Wetland I.D. Number (85)
- Floodplain
- Floodway
- NWI Wetland

FOR CONTINUATION SEE SHEET FLD 2

BAXTER WOODMAN Consulting Engineers

Baxter & Woodman
Crystal Lake, Illinois
Mokena, Illinois
Burlington, Wisconsin
DeKalb, Illinois
Grayslake, Illinois
Plainfield, Illinois
Itasca, Illinois
Madison, Wisconsin
Chicago, Illinois

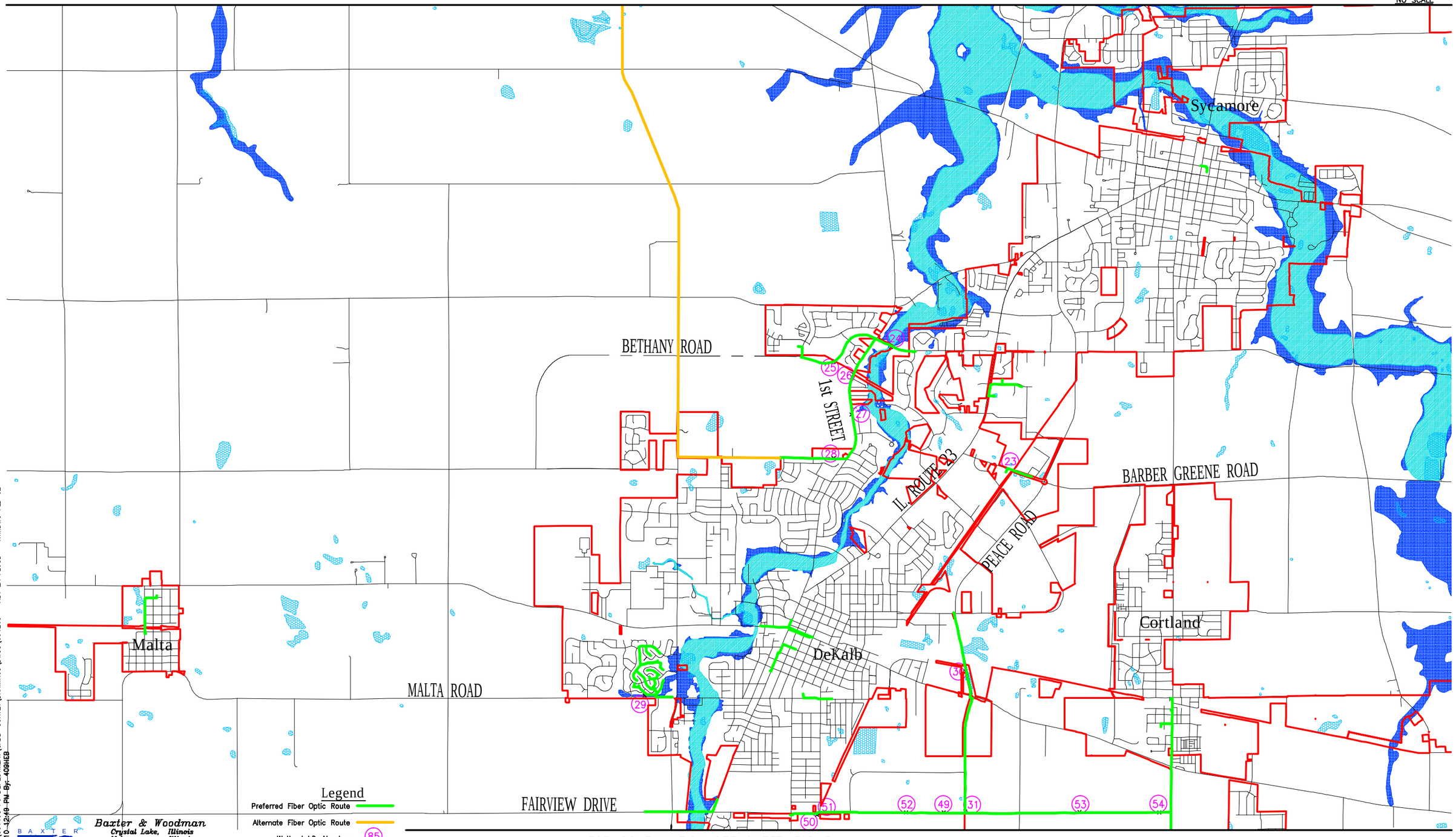
E:\DEKALB\DKCITY\091198 FO DEPLOYMENT\CADD-SURVEY\DRAWINGS\DWGS\091263 - XBT EA FLOOD - NM.DWG FLD 01
Plotted: 7/14/2010 12:49 PM By: 409HEB

Floodplain / NWI Map

FOR CONTINUATION SEE SHEET FLD 1

Exhibit 3.4.2

NO SCALE



FOR CONTINUATION SEE SHEET FLD 3

Baxter & Woodman
Consulting Engineers

Crystal Lake, Illinois
Mokena, Illinois
Burlington, Wisconsin
DeKalb, Illinois
Grayslake, Illinois
Plainfield, Illinois
Itasca, Illinois
Madison, Wisconsin
Chicago, Illinois

I:\DEKALB\DKCITY\091196 FO DEPLOYMENT\CADD-SURVEY\DRAWINGS\DWGS\091283 - XBT EA FLOOD - NWI.DWG FLD 02
Plotted: 7/14/2010 12:49 PM By: 409HEB

Floodplain / NWI Map

Exhibit 3.4.3

NO SCALE

FOR CONTINUATION SEE SHEET FLD 2

DeKalb

1st STREET

KESLINGER ROAD

SOMONAUK ROAD

CREGO ROAD

HARTER ROAD

PERRY ROAD

McGIRR ROAD

SOMONAUK ROAD

FOR CONTINUATION SEE SHEET FLD 4

Legend

- Preferred Fiber Optic Route
- Alternate Fiber Optic Route
- Wetland I.D. Number (85)
- Floodplain
- Floodway
- NWI Wetland

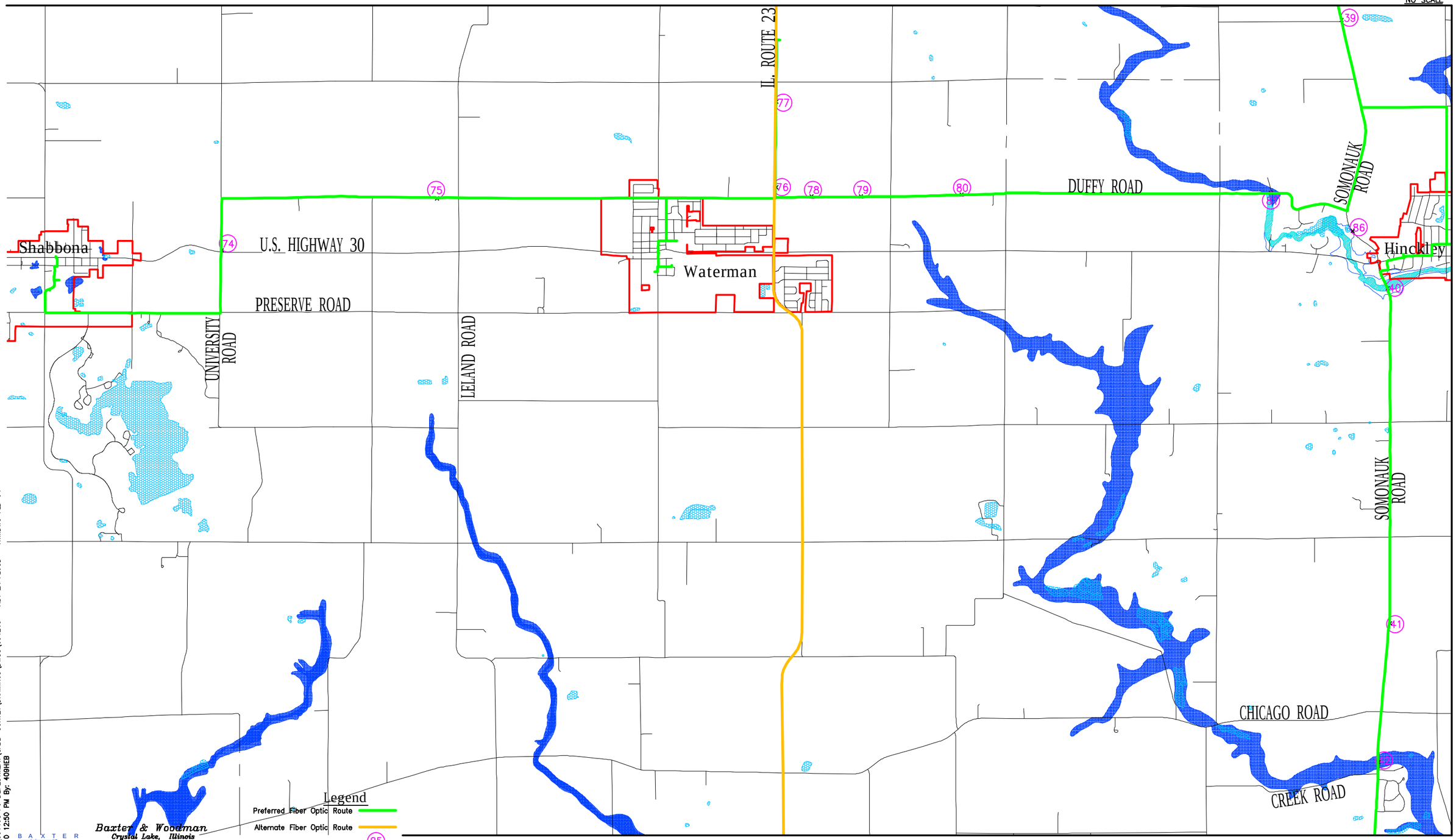
Baxter & Woodman
Crystal Lake, Illinois
Mokena, Illinois
Burlington, Wisconsin
DeKalb, Illinois
Grayslake, Illinois
Plainfield, Illinois
Itasca, Illinois
Madison, Wisconsin
Chicago, Illinois
BAXTER WOODMAN Consulting Engineers

Floodplain / NWI Map

Exhibit 3.4.4

FOR CONTINUATION SEE SHEET FLD 3

NO SCALE



FOR CONTINUATION SEE SHEET FLD 5

FOR CONTINUATION SEE SHEET FLD 6

Legend

- Preferred Fiber Optic Route
- Alternate Fiber Optic Route
- Wetland I.D. Number (85)
- Floodplain
- Floodway
- NWI Wetland

Baxter & Woodman Consulting Engineers

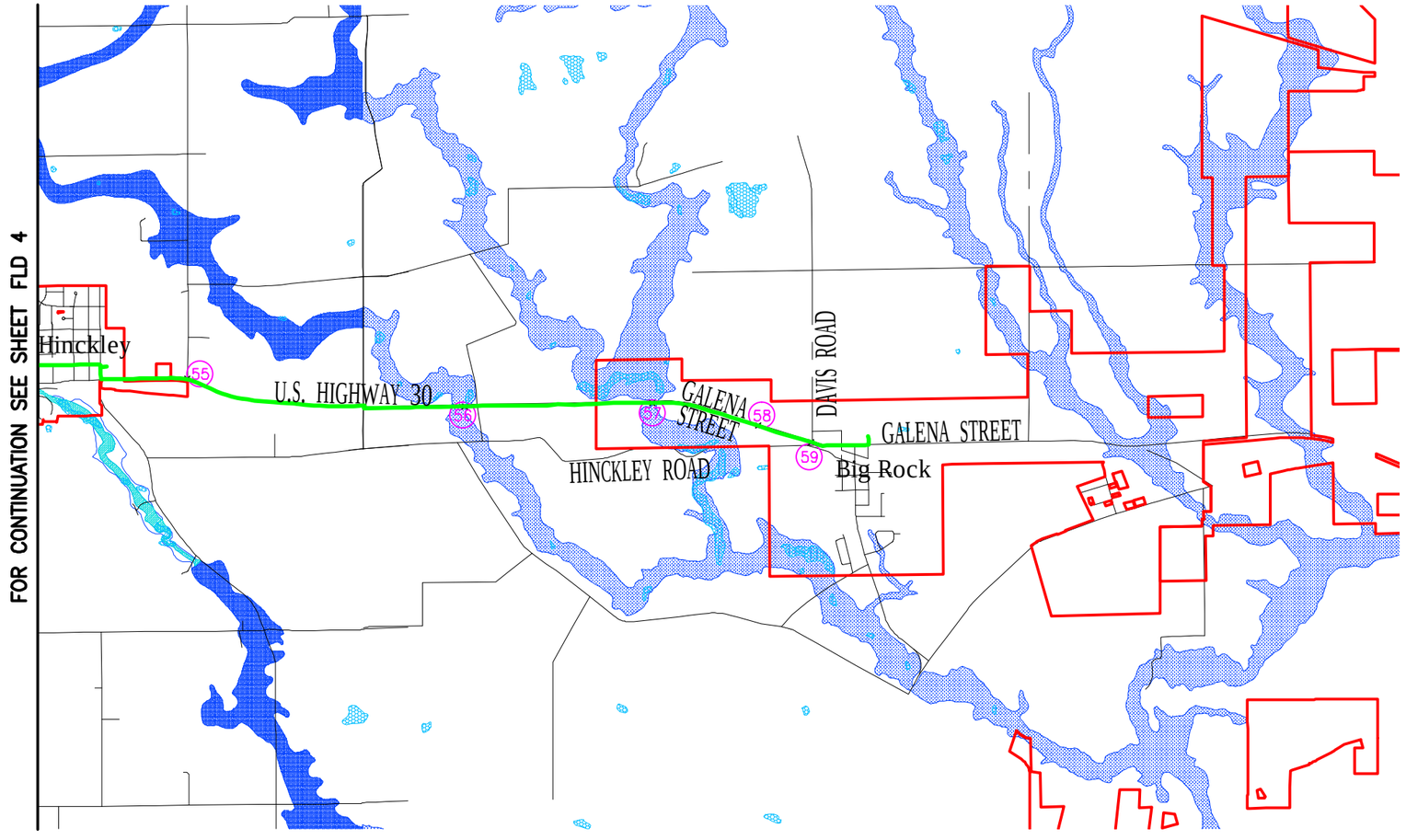
Crystal Lake, Illinois
Mokena, Illinois
Burlington, Wisconsin
DeKalb, Illinois
Crayslake, Illinois
Plainfield, Illinois
Itasca, Illinois
Madison, Wisconsin
Chicago, Illinois

F:\DEKALB\DKCITY\091198 FO DEPLOYMENT\CADD-SURVEY\DRAWINGS\DWGS\091263 - XBT EA FLOOD - NWI.DWG FLD 04
Plotted: 7/14/2010 12:50 PM By: 409HEB

Floodplain / NWI Map

Exhibit 3.4.5

NO SCALE



Legend

- Preferred Fiber Optic Route
- Alternate Fiber Optic Route
- Wetland I.D. Number (85)
- Floodplain
- Floodway
- NWI Wetland

BAXTER WOODMAN Consulting Engineers

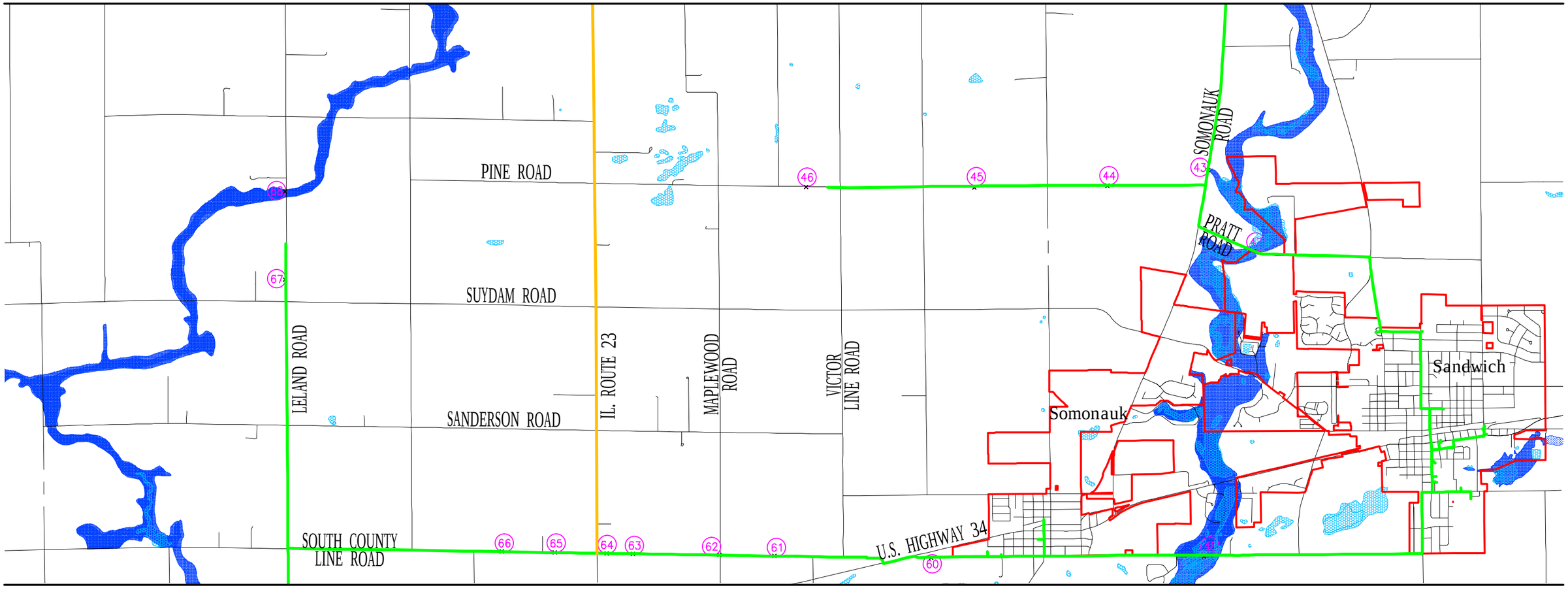
Baxter & Woodman
Crystal Lake, Illinois
Mokena, Illinois
Burlington, Wisconsin
DeKalb, Illinois
Grayslake, Illinois
Plainfield, Illinois
Itasca, Illinois
Madison, Wisconsin
Chicago, Illinois

Floodplain / NWI Map

Exhibit 3.4.6

NO SCALE

FOR CONTINUATION SEE SHEET FLD 4



FOR CONTINUATION SEE SHEET FLD 7

Legend

- Preferred Fiber Optic Route
- Alternate Fiber Optic Route
- Wetland I.D. Number (85)
- Floodplain
- Floodway
- NWI Wetland

BAXTER WOODMAN Consulting Engineers

Baxter & Woodman
Crystal Lake, Illinois
Mokena, Illinois
Burlington, Wisconsin
DeKalb, Illinois
Grayslake, Illinois
Plainfield, Illinois
Itasca, Illinois
Madison, Wisconsin
Chicago, Illinois

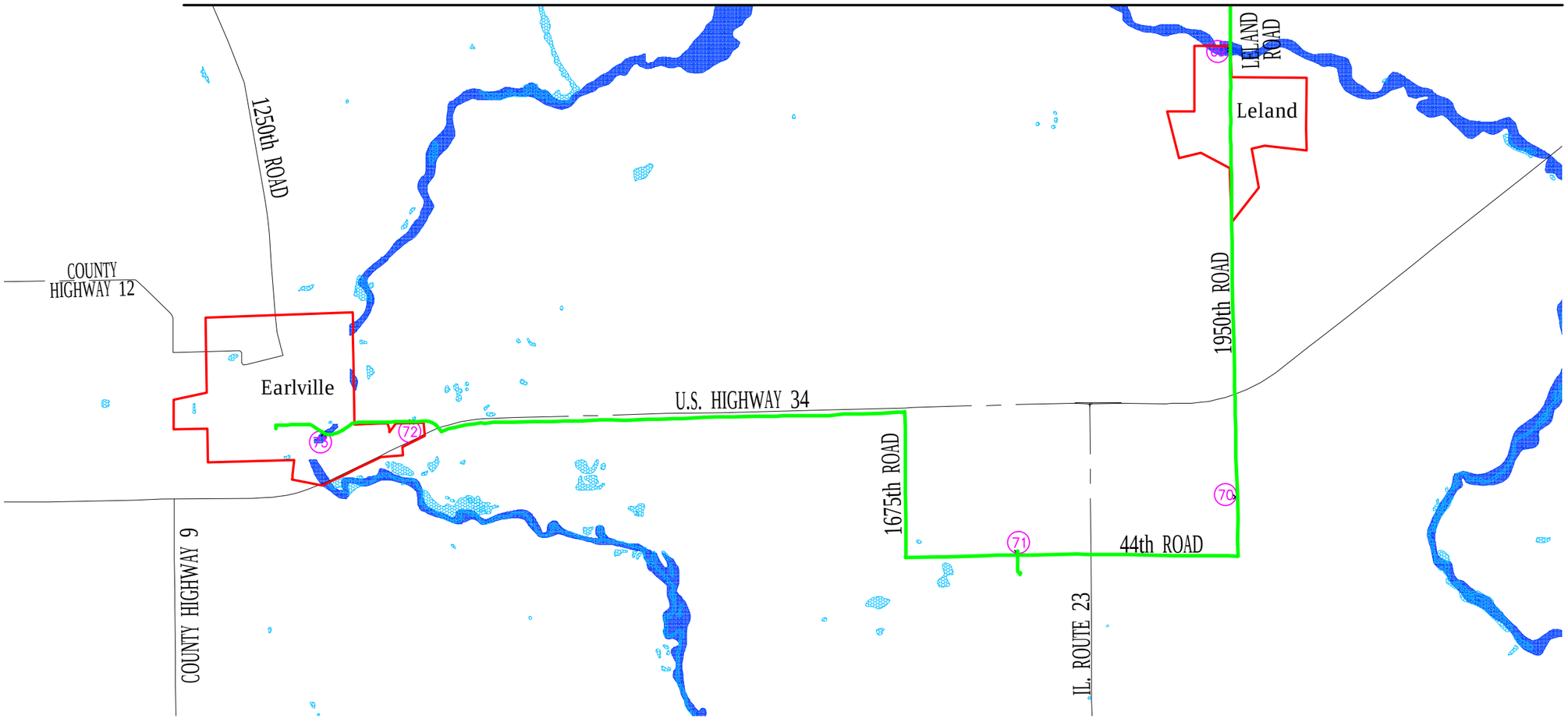
E:\DEKALB\DKCITY\091198 FO DEPLOYMENT\OADD-SURVEY\DRAWINGS\DWGS\091263 - XBT EA FLOOD - NWI.DWG FLD 06
Plotted: 7/14/2010 12:50 PM By: 409HEB

Floodplain / NWI Map

Exhibit 3.4.7

NO SCALE

FOR CONTINUATION SEE SHEET FLD 6



Legend

- Preferred Fiber Optic Route
- Alternate Fiber Optic Route
- Wetland I.D. Number (85)
- Floodplain
- Floodway
- NWI Wetland

Baxter & Woodman
Crystal Lake, Illinois
Mokena, Illinois
Burlington, Wisconsin
DeKalb, Illinois
Grayslake, Illinois
Plainfield, Illinois
Itasca, Illinois
Madison, Wisconsin
Chicago, Illinois
BAXTER WOODMAN Consulting Engineers

I:\DEKALB\DKCIV\091196 FO DEPLOYMENT\CADD-SURVEY\DRAWINGS\DWGS\091283 - XBT EA FLOOD - NWI.DWG FLD 07
Plotted: 7/14/2010 12:50 PM By: 409HEB

Environmental Concerns

Exhibit 3.5.1

Black Sandshell

Red-berried Elder

Slippershell

Blanding's Turtle

Wooly Milkweed

Slippershell

STATE RTE 72

STATE RTE 38

US HWY 30

US HWY 34

I88 EASTBOUND

I88 WESTBOUND

ROUTE 38

W LINCOLN HWY

BETHANY RD

PEACE RD

SOMONAUK RD

FAIRVIEW DR

KESLINGER RD

PERRY RD

DUFFY RD

PHILLIPS RD

SOUTH COUNTY LINE RD

Preferred Fiber Optic Route

Alternate Fiber Optic Route

Environmental Concerns

0 3,050 6,100 12,200 Feet

1 inch = 13,404 feet

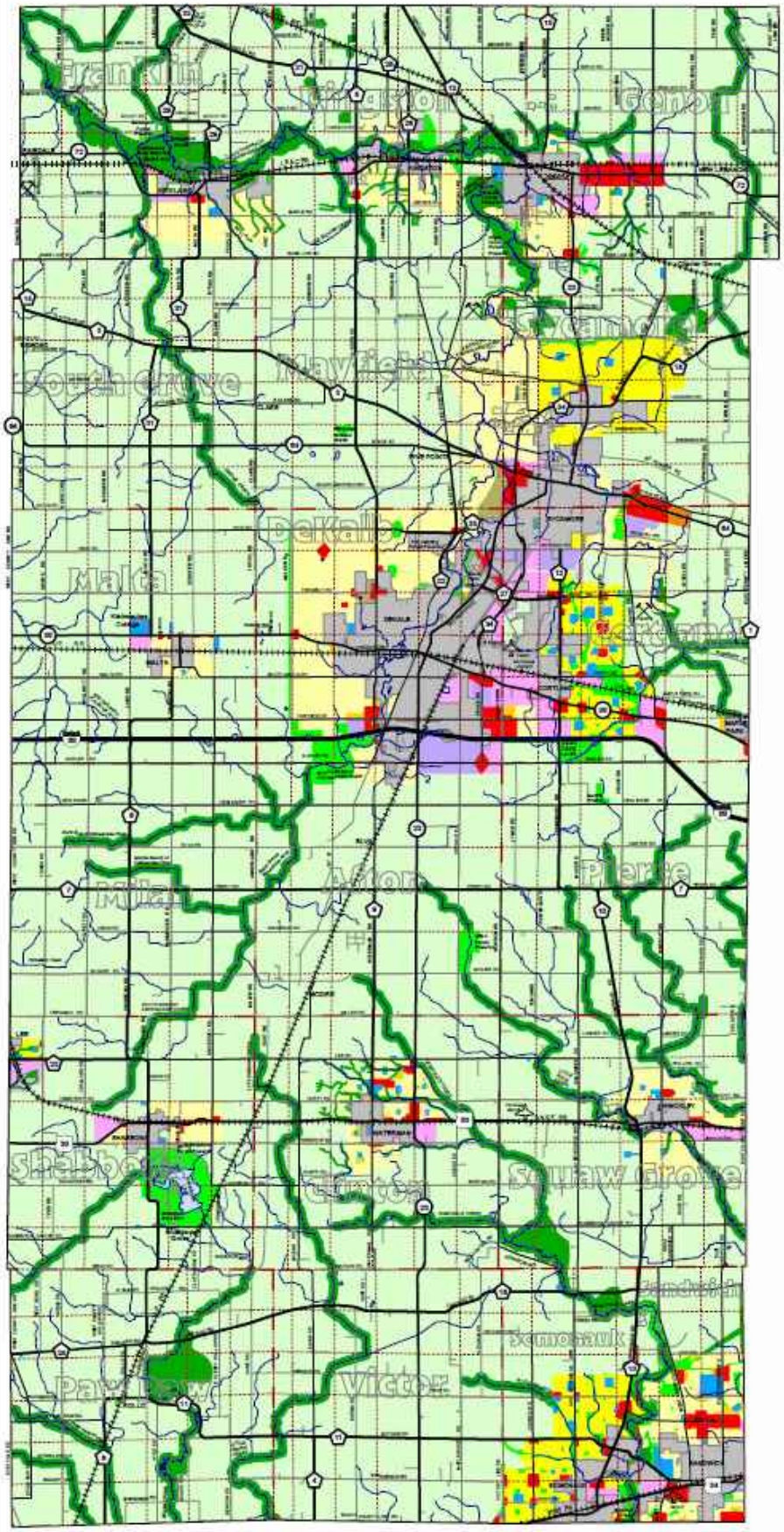
N

BAXTER & WOODMAN Consulting Engineers

Chicago, Illinois (312) 578-0030
Crystal Lake, Illinois (815) 459-1260
DeKalb, Illinois (815) 787-3111
Grayslake, Illinois (847) 223-3088
Itasca, Illinois (630) 733-1870
Mokena, Illinois (708) 478-2090
Plainfield, Illinois (815) 609-7425
Rockford, Illinois (815) 489-1551
Burlington, Wisconsin (262) 763-7834
Madison, Wisconsin (608) 241-3481

Exhibit 3.8.1

DeKalb County Unified Future Land Use Plan



DeKalb County Government
Information Management Office
110 E. Sycamore St.
Sycamore, IL 60178
815.895.1643
view at www.dekalbcounty.org

Legend

Future Land Uses

- **Agricultural** — Land used or zoned for the production of such crops.
- **Conservation** — Land used or zoned for the protection of natural resources, floodplains, and woodlands.
- **Open Space** — Land used or zoned for public and private open spaces, including parks, golf courses, and storm water management facilities.
- **Low Density Residential** — Land used or zoned for single family developments having a maximum density between 1 and 3 dwelling units per acre.
- **Medium Density Residential** — Land used or zoned for residential developments having a maximum density between 3 and 6 dwelling units per acre.
- **High Density Residential** — Land used or zoned for residential developments having a maximum density between 6 and 10 dwelling units per acre.
- **Mixed Residential** — Land used or zoned for residential developments in a manner that emulates the established neighborhoods in the municipalities and having a maximum density between 3 and 6 dwelling units per acre.
- **Civic / Institutional** — Lands used or zoned for schools, cemeteries, or governmental administration and services, and institutional uses such as religious facilities and private schools.
- **Industrial** — Land used or zoned for industrial land use includes non-agricultural manufacturing, warehousing, wholesale operations, distribution, and logistics facilities.
- **Office and Research** — Land used or zoned for office and research and limited manufacturing uses in a campus like environment.
- **Commercial** — Land used or zoned for retail and service uses, and office uses.
- **Mixed Use** — Land used or zoned for the development of commercial and residential neighborhoods that promote an auto dependancy of uses and promote orderly economic development.

Other Items

- Railroads
- Township Boundaries
- Section Lines
- Hydrographic Features
- Corporate Boundaries

0 1 2 3 4 mi

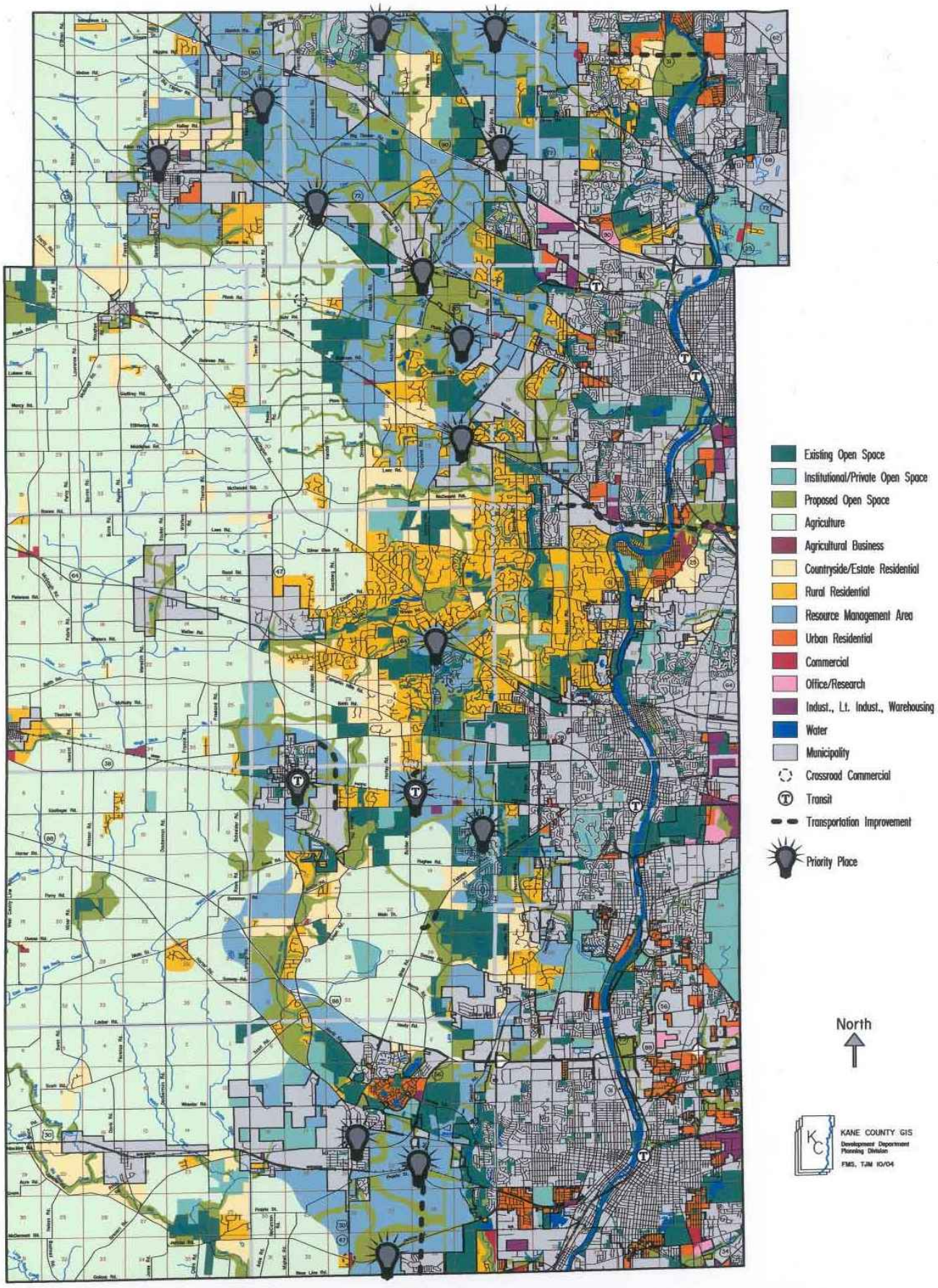
Created: September 11, 2003 V7
Updated: December 3, 2003
Printed: January 16, 2003

Adopted: December 17, 2003
DeKalb County Ordinance 2004-05

I:\DEKALB\DKCNTY\091198 FO DEPLOYMENT\CADD-SURVEY\DRAWINGS\DWGS\091263 - XBT EA - MISC.DWG DK
Plotted: 7/14/2010 12:50 PM By: 409HEB

Exhibit 3.8.2

2030 LAND USE

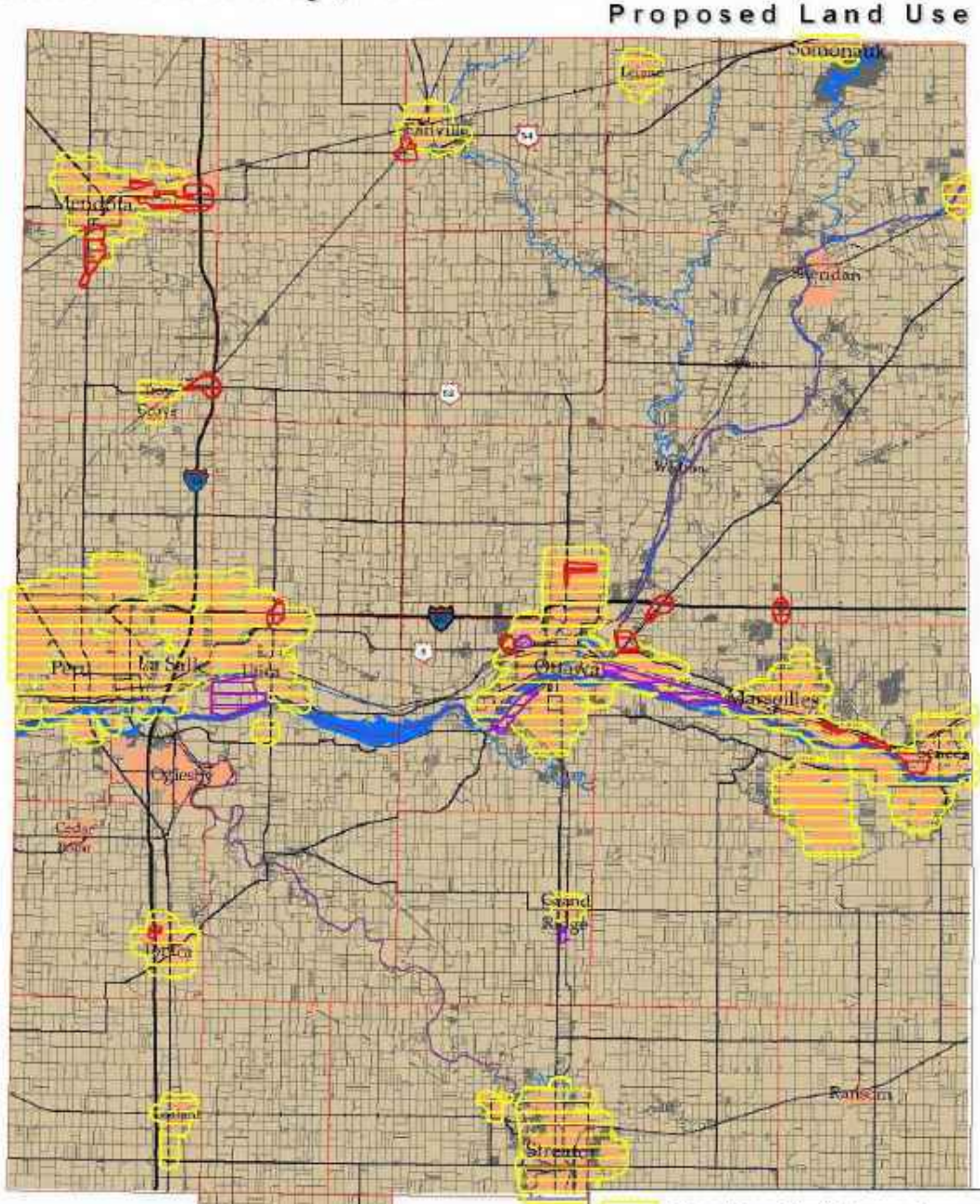


I:\DEKALB\DKCNTY\091198 FO DEPLOYMENT\CADD-SURVEY\DRAWINGS\DWGS\091263 - XBT EA - MISC.DWG KANE
Plotted: 7/14/2010 12:50 PM By: 409HEB

Exhibit 3.8.3

LaSalle County, IL

Proposed Land Use



dpam group
Envisioning the Future through Spatial Dynamics

I:\DEKALB\DKCNTY\091198 FO DEPLOYMENT\CADD-SURVEY\DRAWINGS\DWGS\091263 - XBT EA - MISC.DWG LAS
Plotted: 7/14/2010 12:50 PM By: 409HEB