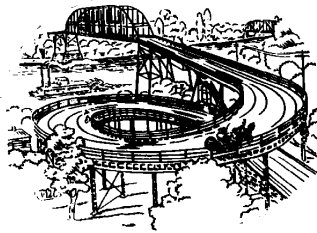


APPENDIX D

HASTINGS AREA ROADWAY SYSTEM STUDY

ENVIRONMENTAL & CULTURAL RESOURCES OVERVIEW



Hastings on the Mississippi

BMI PROJECT NO. T42.21579
AUGUST 2007



BOLTON & MENK, INC.
Consulting Engineers & Surveyors

I. Purpose

Dakota County, City of Hastings, along with Marshan Township, Nininger Township, Metropolitan Council, and the Minnesota Department of Transportation (Mn/DOT) are developing a long-term roadway system vision in the Hastings area to serve existing and future potential growth.

A portion of this planning level study will be to conduct an environmental overview of the study area to determine where known natural features and known sensitive areas may be encountered. This cursory review sets the tone for environmental streamlining and integrated planning desired by the Federal Government. As the local units of government proceed with steps to identify and develop potential corridor locations, the researcher can dedicate their time focusing on environmental resources that need further study for the final environmental review for the project, since much of the initial research has been completed.

II. Summary of Findings

The following environmental and cultural resources have been identified within the Study Focus Area. These include *Known Environmental Features* such as wetlands, prime farmlands, woodlands, and protected waters. Known Environmental Features are natural elements that are highly desired and some are protected by law. Also included are *Known Sensitive Areas* such as cemeteries, historic sites, hazardous waste sites, and archaeological sites. Known Sensitive Areas are the result of human civilization that are desired to be preserved and/or have high costs to remove. Impacts to Known Environmental Features and Known Sensitive Areas should be avoided, if possible, by planning alignment concepts. If not possible, mitigation of impacts would be required.

Known Environmental Features

The following Known Environmental Features are found in the Study Focus Area. These include floodplains and wetlands, woodlands, Mississippi River Critical Area, Mississippi National River and Recreation Area, Endangered Species, Shoreland Districts, Vermillion River Watershed, Prime Farmlands, and Soil Suitability for Roadway Construction.

Floodplains and Wetlands

The Mississippi River is located in the northern portion of the Study Focus Area, and has extensive floodplains along its course. The floodplains along the Mississippi River in this area contain the following types of wetlands, Types 1 and 3. The National Wetland Inventory indicates there are mostly Type 1, 3, and 4 wetlands found in the Study Focus Area. Floodplain and wetland locations are displayed on the Water Resources figure.

Type 1 wetlands are either seasonally flooded basins or floodplains. Vegetation varies according to the season and the amount of flooding. Type 1 wetlands include seasonal waterfowl and wildlife habitat, water quality protection and groundwater recharge and discharge. Type 3 wetlands are shallow marshes. The soil is usually water logged early in the spring and often covered with six or more inches of water. Vegetation includes grasses, bulrushes, spikerushes,

cattails, arrowheads, pickerelweed, and smartweeds. Type 3 wetlands protect water quality and shoreland, retain floodwater, provide habitat for waterfowl, amphibians and fish, and other recreation, including hunting, fishing and canoeing. Type 4 wetlands are deep marshes. The soil is usually covered with water during spring and summer with anywhere from six inches to three feet. Vegetation includes cattails, reeds, bulrushes, spikerushes, and wild rice. In open areas, pondweed, naiads, coontail, watermilfoils, waterweeds, duckweeds, waterlilies or spatterdocks may grow. These deep marshes may completely fill shallow lake basins, potholes, limestone sinks and depressions, or they may border open water. Type 4 wetlands provide water quality protection, floodwater detention, wildlife and fisheries habitat, and recreation, including hunting, fishing and canoeing. The Vermillion River and the various tributaries also have Type 1 and 3 wetlands.

Corridor alignment concepts should avoid impacts to floodplains and wetlands if possible. Impacts to floodplains would need to be mitigated, such that the 100-year flood elevation does not change and approved by the Minnesota DNR and Federal Emergency Management Agency. Impacts to wetlands would need to be mitigated at a ratio of 2:1, two acres for new wetland for each acre of wetland impacted.

Woodlands

The Study Focus Area is located in the Eastern Broadleaf Forest Province. This province is located in the ecological section known as the Minnesota and NE Iowa Morainal. Land within the Study Focus Area is further subdivided into three ecological subsections, Oak Savanna, Rochester Plateau, and Bluff lands.

The Minnesota and NE Iowa Morainal section is a long band of deciduous forest, woodland, and prairie that stretches nearly 350 miles. Floodplain and terrace forests were present historically along the valleys of the major rivers, the Mississippi, Minnesota, and St. Croix, and are still prominent today along many stretches of these rivers. Forests of silver maple occupy the active floodplains, while forests of silver maple, cottonwood, box-elder, green ash, and elm occupy terraces that flood infrequently. These valleys are also characterized by herbaceous and shrubby river shore communities along shorelines and on sand bars, and in some areas by cliff communities on steep rocky river bluffs. Closed depressions that pond water in the spring provide habitat for open wetlands such as marshes, wet meadows, shrub swamps, and wet prairies.

Burr oak savanna was the primary vegetation present prior to permanent settlement in the area, but areas of tall grass prairie and maple-basswood forest were common. Tall grass prairie was concentrated on level to gently rolling portions of the landscape, in the center of the subsection. Burr oak savanna developed on rolling moraine ridges at the western edge of the subsection and in the dissected ravines at the eastern edge. Maple-basswood forest was restricted to the portions of the landscape with the greatest fire protection, either in steep, dissected ravines or where stream orientation reduced fire frequency or severity.

The majority of the forests near the Mississippi River have been altered, and are currently non-native deciduous woodlands. As illustrated in the Woodlands Figure, a section of the Vermillion River near General Sieben Drive is considered an Aspen Woodland. Other sections of the Vermillion River are similar to the Mississippi River, in that the woodland has been altered to non-native deciduous woodlands. A tributary of the Vermillion River located on the eastern edge of the Study Focus Area, west of Dakota County Road 91, is comprised of an Oak Woodland-Brushland type of trees. This stream also contains a small pocket of Eastern Red Cedar Woodland near north of County State Aid Highway (CSAH) 46 and west of General Sieben Drive. There are also small pockets of altered non-native mixed woodlands on this stream.

The Aspen-Oak land, typically called aspen woodland or parkland, is dominated by trembling aspen, with scattered bur oak and red oak. The hardwood groves provide a wildlife habitat that is much more diverse than the coniferous forests. Aspen reproduce primarily by vegetative means, sprouting suckers from existing root systems after fires or other disturbances. Without periodic wildfires or means of fire, aspen groves become dominated by other species. The tree that dominates the aspen family in the Study Focus Area is the Quaking Aspen (*Populus tremuloides*). The tree growth can range from 40 to 70 feet. They are a slender tree, straight trunk, lacking any major side branches and round crown. This is the most widely distributed tree in Minnesota and North America. This tree has also been called the Trembling Aspen or Popple. The name refers to the leaves, which catch very gentle breezes and shake or quake in the wind.

The Eastern Red Cedar (*Juniperus virginiana*) can range in height 25-50 feet. This tree is pyramid shape, single trunk is frequently crooked or leaning and often fluted with folds and creases, may be divided, with a pointed crown. It is one of the first trees to grow back in fields or prairies after a fire. It is slow growing, producing what appear to be blue berries, which are actually cones. The red smooth reddish inner bark was called baton rouge or red stick by early French settlers who found the tree growing in Louisiana. It is also called Eastern Juniper or Red Juniper.

The oak forests are dominated by Red Oak (*Quercus rubra*), which ranges 50-70 feet in height. This tree has a single, straight trunk and a broad round crown. Wood is reddish brown, giving the tree the species name *rubra*, meaning “red,” as well as the common name Red Oak. This woodland also has woody brushlands under the canopy.

The location of Aspen Woodland, Oak Woodland-Brushland, and Eastern Red Cedar Woodland areas should be avoided, if possible, when identifying potential corridor locations.

Trails and Parks

There are trails and parks dotted across the Study Focus Area for recreational activities. Within the City of Hastings, near CSAH 46/47 lies Vermillion Falls Park. This is an important recreational facility for the citizens of Hastings and visitors alike. If an alignment is chosen that may affect the park, it could trigger a review under Section 4(f) requirements within the Department of Transportation Act of 1966 (49 USC 303, 23 USC 138). This act provides protection for publicly owned parks, recreation areas, historic sites, and wildlife and/or waterfowl refuges from conversion to a transportation use. Additional protection is provided for

outdoor recreational lands under the Section 6(f) legislation (16 USC 4602-8(f)-3) where Land and Water Conservation (LAWCON) funds were used for the planning, acquisition, or development of the property. If there are impacts to 4(f) or 6(f) properties, then a Section 4(f) analysis must take place to determine or minimize harm to the recreational property.

Mississippi River Critical Area

The Critical Areas Act was passed by the Minnesota Legislature in 1973, partly in response to concerns about preservation and enhancement of the Mississippi River. The entire length of the river within the seven-county Twin Cities Metropolitan Area was designated a critical area.

The Parks and Trails figure illustrates the Mississippi River Critical Areas. Three segments of the critical area of river corridor are located in Dakota County:

1. The segment of the Minnesota River from the I-494 bridge in Mendota Heights to the confluence of that river with the Mississippi River.
2. The segment of the Mississippi River from the City of Mendota to the northern boundary of the City of Lilydale;
3. The segment of the Mississippi River from the northern boundary of the City of South Saint Paul to the eastern boundary of Ravenna Township and Dakota County.

The Mississippi River Critical Area was established for the following purposes:

1. Protect and preserve unique and valuable resources.
2. Prevent and mitigate irreversible damage to the river resource.
3. Maintain the river's value and utility for all public purposes.
4. Prevent and mitigate danger to the life and property of the citizens.
5. Protect and preserve the river as an essential element in the transportation, sewer, water, and recreational systems.
6. Protect and preserve biological and ecological functions.
7. Preserve and enhance the aesthetic, cultural and historical values and functions of sites and structures.

Executive Order 79-19 established districts and guidelines. There are four districts; Rural Open Space, Urban Diversified, Urban Developed, and Urban Open Space. Hastings and Nininger Township are located in the Rural Open Space District. The lands and waters in this district shall be used and developed to preserve their open, scenic and natural characteristics and ecological and economic functions. Presently undeveloped islands shall be maintained in their existing natural state. The transportation function of the river shall be maintained and preserved. The purposes of the Mississippi River Critical Area should be considered to ensure potential corridor locations do not violate the area purposes.

Mississippi National River and Recreation Area

In 1988, Congress established the Mississippi National River and Recreation Area (MNRRA) as a unit of the National Park System. The MNRRA boundary coincides with the Critical Area boundary. The National Park Service has a comprehensive management plan to help local communities plan and manage the resources of the river corridor.

The goals of the MNRRA Comprehensive Management Plan are:

1. Preservation and enhancement of environmental values.
2. Enhanced opportunities for outdoor recreation.
3. Conservation and protection of scenic, historical, cultural, natural, and scientific values.
4. Commercial use consistent with the purpose of MNRRA designation.

Dakota County's authority to conduct planning and implement zoning in the Critical Area includes the shoreland and floodplain areas in Nininger and Ravena Townships. Dakota County also has authority to conduct planning and implement programs and projects for County owned land and facilities, County roads and highways, and County parks and trails. Cities and townships in the Critical Area administer their own plans and zoning ordinances for land located in the river corridor. Maintaining the goals of the Mississippi National River and Recreation Area should be considered when identifying potential corridor locations so as to not negatively impact the area.

Endangered or Threatened Species

The Department of Natural Resources Database identifies species that are endangered or threatened. Within the Study Focus Area, endangered species fall into two categories: *Vascular Plants and Vertebrate Animals*. The geographic proximity of the species is illustrated in the Endangered and Threatened Rare Natural Features figure.

Vascular Plants

- James Polanisia, [*Crislatella jamesii*], Endangered
- Narrowleafed Pinweed, [*Lechea tenuifolia*], Threatened
- Kitten tails, [*Besseyia bullii*], Threatened

Vertebrate Animals

- Loggerhead Shrike, [*Lanius ludouicanus*], Threatened
- Blandings Turtle, [*Emydoidea blandingii*], Threatened

The United States Department of the Interior, US Fish and Wildlife Service, indicates there are 2 threatened and 1 endangered federal species.

Birds

- Bald Eagle, [*Haliaeetus leucocephalus*], Threatened

Invertebrate

- Higgins eye perarlymussel, [*Lampsillis higginsii*], Endangered

Plant

- Prairie bush clover, [*Lespedeza leptostachya*], Threatened

The location, as well as indirect impacts to threatened and endangered species should be considered when identifying potential corridor locations so as to not negatively impact the resource. Indirect impacts could include, but not be limited to, causes such as gas fumes, increased traffic, more people, louder noises, lights, etc.

Shoreland Districts

Dakota County and the City of Hastings's shoreland zoning ordinance includes provisions to regulate the placement, design and height of structures, as well as other shoreland alterations, in order to preserve shoreland aesthetics. These ordinance provisions will help protect and preserve the aesthetic qualities of the river corridors in the shoreland and floodplains areas of Nininger and Ravenna Townships, and the City of Hastings.

The shoreland ordinance also addresses topographic alterations, new development, compatibility with character and use of river corridor, alterations in shorelands, protection of bluffs and steep slopes.

Vermillion River Watershed

The natural boundaries of the Vermillion River Watershed encompass about 372 square miles, which 335 of these are in Dakota County. The river itself begins in Scott County's New Market Township. Its main branch flows northeast through Dakota County for about 38 miles and then drops 90 feet at the falls in Hastings. East of Hastings, the river splits. One branch goes north to the Mississippi. The branch known as the Vermillion River Bottoms flows south through Ravenna Township before meeting up with the Mississippi River near Red Wing in Goodhue County. The Vermillion is the only river in Minnesota that flows both north and south.

The Vermillion River Watershed Handbook written by the Minnesota Department of Natural Resources, with additional funding provided by the Dakota County Soil & Water Conservation District, lays out guidelines to assist landowners in protecting the Vermillion River waters. Parts of the river are designated as a Department of Natural Resources trout stream, however these locations are upstream from the Study Focus Area. As corridors are ultimately designed and constructed, opportunities may exist to improve water quality within the watershed from current conditions.

Prime Farmlands

The majority of soils in the study area are considered "Prime Farmland." Prime Farmland, defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil quality, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an

acceptable salt and sodium content, and few or no rocks. It is not excessively redoubled or saturated with water for long periods, and it either is not frequently flooded during growing season or is protected from flooding. Slope ranges from 0 to 6 percent.

Locations of Prime Farmlands within the Study Focus Area are illustrated on the Prime and Other Important Farmland figure. Corridor alignment concepts impacting prime farmlands should be held to affecting as few prime farmland acres as possible. In all likelihood, corridor alternatives will include prime farmland impacts.

Soil Suitability for Roadway Construction

The analysis of soils suitable for roadway construction was reviewed following two methods: “AASHTO” and “Unified.” The original public roads system was subsequently modified and adopted by the American Association of State Highway Officials (now Highway and Transportation Officials) and is known as the AASHTO System. The number of physical properties of soil upon which this classification is based was reduced to three, namely, the mechanical analysis, the liquid limit, and the plasticity index.

Another engineering soil classification that is gaining use is the Unified Classification. This system is an outgrowth of the Airfield Classification developed by Dr. A. Casagrande. The Army Corp. of Engineers and the Bureau of Reclamation jointly adopted it. The Unified System incorporates the textural characteristics of the soil in an engineering classification and utilizes the grain size classification.

Prime Farmlands soils are organic to very silty, and are not conducive for road construction. Soils that have a high content of sand and gravel, with very minimal amounts of silt are the best for road construction.

Locations of suitable soils for roadway construction are illustrated on the Soil Suitability for Roadway Construction figure. Corridor alignment concepts with areas of soils not suitable for roadway construction would need to consider soil corrections, such as a two to four foot subcut of unsuitable soils backfilled with a granular (suitable) soil.

Agricultural Preserves

The Agricultural Preserve Program is designed to value and tax qualifying agricultural property located in the metropolitan area in a manner similar to out-state Minnesota. The Agricultural Preserve Program is governed by Minnesota Statute 473H.01.

The property must be zoned long-term agricultural by the local community, with a maximum residential density of one house per forty acres. The parcel must (normally) be forty acres in size; however, smaller tracts may qualify in certain circumstances. The owner signs perpetual covenant/agreement to leave the property in agricultural use, and farm using acceptable practices as approved by the County Agricultural Service.

The restrictive covenant remains in effect indefinitely, or until the landowner records an expiration notice with the county to initiate the eight-year expiration process. The restrictive covenant and its benefits remain in effect until the expiration date is reached. Other means to end the program include termination through an executive order of the Governor or acquisition of the land is acquired by eminent domain.

Properties currently within the Agricultural Preserves Program are illustrated on the Agricultural Preserves and Irrigated Lands figure. The graphic also illustrates the extent of irrigation systems in the area. The location of land enrolled in the program is one means to understand the intent of land owners' long-term interest in continuing agricultural activity. The locations of current or future enrollments could delay or inhibit the potential future corridor through development driven initiatives.

Known Sensitive Areas

Known sensitive areas have been identified to include the location of cemeteries, historic sites, archaeological sites, leaking underground storage tanks, and Hazardous Waste Sites. The locations of these sensitive areas are represented on the Historical, Archaeological, Cemetery and Leaking Underground Storage Tanks figure.

Cemeteries

There are four known cemeteries within the project location. The Lyon Family Cemetery located near Jorgen Avenue is also a historic site. Saint Luke's Episcopal Parish, Saint Elizabeth Ann Seaton Parish, and Spring Lake Cemetery are all located within the Study Focus Area. Impacts to cemeteries should be avoided if possible. If not possible, significant additional costs would be necessary to relocate gravesites and to comply with the Minnesota Cemetery Act, Chapter 307.

Historic Sites

The City of Hastings has many historical sites, but within the Study Focus Area there are numerous historical sites. They are as follows:

1. 6 houses scattered throughout the project location, mostly rural (names not found associated with them in the State Historic Preservation Office –SHPO records)
2. Farmsteads throughout the rural area (SHPO records show locations, not names)
3. Gardner Mill – US 61 & Vermillion River
4. William G. LeDuc Home, National Register Site, #70000292, 1629 Vermillion St.
5. Becker Farmstead – 17256 Lillehei Ave.
6. McAvory House – 17541 Lillehei Ave.
7. Lyon Family Cemetery – off Northfield Blvd. & 170th St.
8. Marschall Farmstead – 9356 170th St.
9. Seffen Farmhouse – 9660 190th St.
10. Wagner Farmstead – 8223 190th St.
11. Stoffel Farmstead – 18676 Goodwin Ave.
12. Rotty Farmstead – 16143 Hogan Ave.
13. Hageman House – 17905 Nicolai Ave.
14. Judge House – 17501 Nicolai Ave.

Unnamed house addresses:

1. 9429 160th St.
2. 1720 15th St. W.
3. 402 17th St. E.
4. 444 18th St. E.
5. 206 18th St. W.
6. 1905 Eddy St.
7. 1910 Eddy St.
8. 1932 Eddy St.
9. 1724 Spring St.
10. 1625 Walnut St.
11. 1511 Vermillion St.
12. 1515 Vermillion St.
13. 1517 Vermillion St.
14. 1908 Vermillion St.
15. 1516 Ramsey St.

Unnamed Farms & Farmsteads:

1. 17945 Northfield Blvd.
2. 9021 160th St.
3. 15125 Hogan Ave.
4. 8030 180th St.
5. 17590 Hogan Ave.

The National Register Site located at 1629 Vermillion Street (south of 15th Street and east of Highway 61) should be avoided. The historic sites, which depict the character and history of the area, should have a mitigation process developed if potential corridor alignments impact these sites.

Archaeological Sites

There are at least 13 known archaeological sites in the Study Focus Area. These sites range in size from a few feet to acres. The majority of the sites are near some form of water body. The sites chronology range from Archaic Tradition to Oneota. Archaic sites represent seminomadic way of life, living in small camps seasonally to utilize food resources in various localities. These people hunted large and small game for the majority of their food. These archaeological sites range in age from 6,000 BC to 500 BC. The next type of archaeological sites found in the Study Focus Area is called Woodland. Woodland Tradition is characterized by the presence of pottery vessels and burial mounds, and begins in Minnesota between 1000 and 500 BC. These groups still-hunted large and small game animals, fished, collected wild plant foods, usually invertebrates such as clams, and seasonal moving by small bands to exploit the natural foods of the region. The Woodland Tradition ends with the introduction of corn farming and distinctive village cultures into southern Minnesota about 900 AD. Appearing about 900-1,000 AD in portions of southern Minnesota are new cultures called Mississippian and Oneota. These people lived in villages in semi-permanent structures part of the year, in which they grew corn, beans and squash. These prehistoric peoples are the ancestors of the Ioway, Oto, Ponca, Missouri and possibly some of the Dakota groups.

Leaking Underground Storage Tanks

According to the Minnesota Pollution Control Agency (MPCA) there are 11 leaking underground storage tank records within the Study Focus Area. These records have not been further investigated to confirm whether contaminated soils have been removed and the records closed. The following records indicated contaminated sites:

1. Hastings Amoco, 1500 Vermillion St., ID No. 7276
2. Clark Service Station, 1501 Vermillion St., ID No. 8995
3. Hastings Radiator, 1922 Vermillion St., ID No. 4900
4. Cemstone Products Co., 300 S.21st St., ID No. 2217
5. Hastings Truck Station, 951 E.21st St., ID No. 8140
6. Local Oil (APCO), 2131 Vermillion St., ID No. 1388
7. The Hastings Flower Shop, 2211 Vermillion St., ID No. 13567
8. Ron Becker Dodge, 2980 Hwy 61 S., ID No. 14975
9. Hastings Armory, 425 E. 31st St., ID No. 6809
10. Hastings Bus Company, 425 E. 31st St., ID No. 11170
11. Dakota County Hwy.Dept, 900 County Road 47, ID No. 9949

Hazardous Waste Sites

There are no known federal or state hazardous waste sites within the Study Focus Area.

III. Methodology

The research for the environmental scan for the Hastings Area Roadway System Study utilized many sources. Source utilized for the Mississippi River and Vermillion River search were: Department of Natural Resources (DNR), United States Geological Service, and Dakota County.

The USDA, Natural Resources Conservation Service (NRCS) Web Site was utilized for soil classification, specifically; the “Engineering Properties” section was utilized to demarcate soil horizons in the Study Focus Area. The soil classification series under “Unified” and “AASHTO” were the foundation to determine, “Suitable”, “Unsuitable”, and “Possible” soils for road construction.

Floodplains were reviewed by using the national wetlands inventory (NWI) classifications and the Federal Emergency Management Agency (FEMA) website, flood insurance map section.

To determine water table and depth to bedrock, the county well index website was consulted for Dakota County.

Hazardous Sites review was conducted through the Environmental Protection Agency (EPA) website for federal superfund sites and the Minnesota Pollution Control Agency (MPCA) for state superfund site locations.

Above/Underground leaking storage tank sites were reviewed through the MPCA Leaking Underground storage sites on the web.

Prime farmland information was found on the USDA, Natural Resources Conservation Service (NRCS) website using the section on soil classification for counties (in this case Dakota County).

Archaeological and Historical Sites search was conducted with the Minnesota State Historic Preservation Office (SHPO).

To review state and federal endangered species, the request for state information was made to the DNR and Federal with the U.S. Fish & Wildlife Service.

Agricultural Preserve Land is found on the Dakota County website, assessing property.

The environmental challenges to this study will be: unsuitable soils for roadway construction, extent of prime farmland, and potentially watershed issues. If the potential corridor locations will impact neighborhoods, then an in-depth environmental justice review will be needed.

IV. ENVIRONMENTAL SCAN REFERENCES

Soils

Natural Resources Conservation Service, USDA Web Site.

http://efotg.nrcs.usda.gov/efotg_locator.aspx?maps=MN

<http://efotg.nrcs.usda/treemenufs.aspx>

Soil Engineering, Fourth Edition

Rivers

Mississippi River, <http://biology.usgs.gov/s+t/SNT/noframe/ms137.htm>

Minnesota Department of Natural Resources, Ecological Classification

<http://www.dnr.state.mn.us/ecs/222Lc/index.html>

Vermillion River Water Shed Handbook, Mn.DNR

Dakota County Mississippi River Critical Area Plan, October 1999.

Floodplains

Federal Emergency Management Agency (FEMA)

FEMA Map Center

Website: Flood Insurance Map Section

<http://msc.fema.gov/webapp/wes/stores/servlet/femawelcomeview/storeID=10001> &

catalog ID =1

Dakota County Shoreland Ordinances

Depth to Water/Bedrock

Minnesota Department of Health

County Well Index Website

<http://www.health.state.mn.us/divs/eh/cwi/>

Hazardous Sites

MPCA Website, State Superfund, <http://www.pca.state.mn.us/publications/superfund-2006plp.pdf>

EPA Website, Federal Superfund,
<http://www.epa.gov/superfund/sites/npl/mn.htm#statelist>

Above/Underground Leaking Storage Tanks

MPCA Website, “What’s in My Backyard”
<http://www.pca.state.mn.us/backyard/neighborhood.html>

Prime Farmland

Natural Resources Conservation Service, USDA Web Site
http://efotg.nrcs.usda.gov/efotg_locator.aspx?map=MN.
<http://efotg.nrcs.usda.gov/treemenusFS.aspx>

Archaeological/Historical Site Search

Minnesota State Historic Preservation Office (SHPO)

Endangered Species

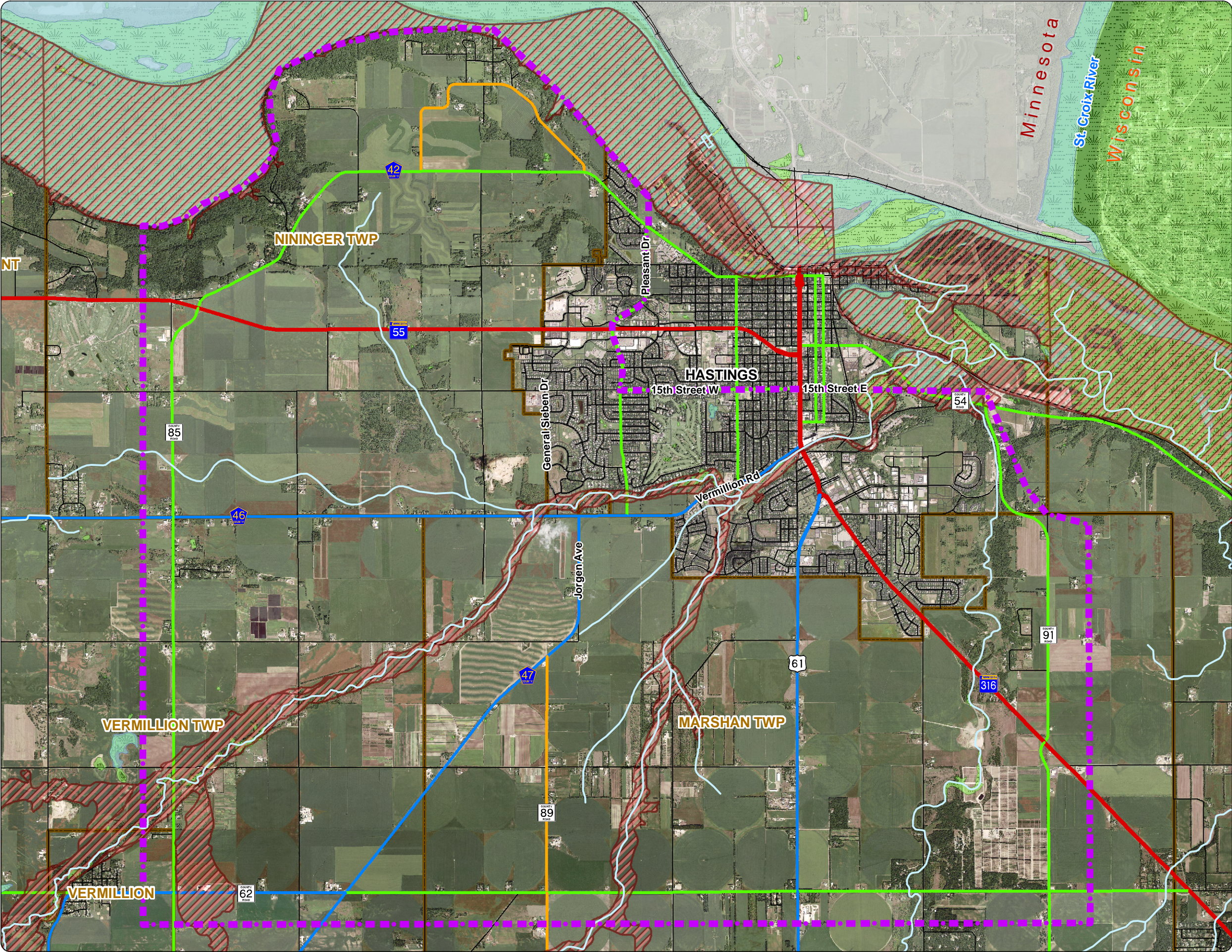
Mn/DNR Natural Heritage Database
U.S.Fish & Wildlife, Endangered Species in Minnesota
<http://www.fws.gov/midwest/endangered/lists/minnesot-spp.html>

Forests

DNR Website: Eastern Broadleaf Forest Province
Use three sections of this forest description
<http://www.dnr.state.mn.us/ecs/222Mb/index.html>
Trees of Minnesota Field Guide, Fourth Printing, 2001

Agricultural Preserve Land

Dakota County Web Site, Assessing Property
<http://www.co.dakota.mn.us/HomeProperty/AssessingProperty/Programs/Agriculturalpreserves.htm>



**HASTINGS AREA ROADWAY
SYSTEM STUDY**

WATER RESOURCES

AUGUST, 2007

Legend

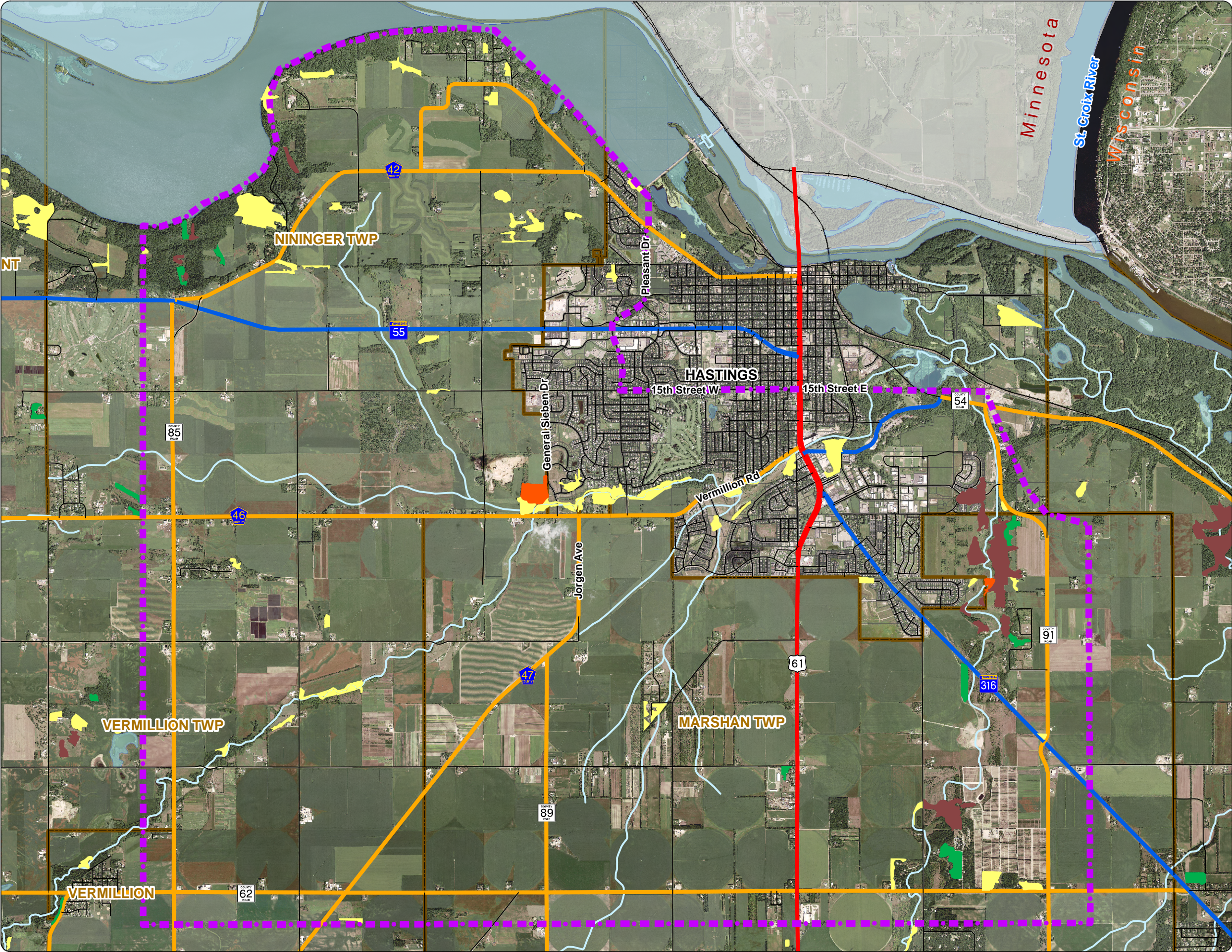
- Study Focus Area
- 100 Year Floodplain
- National Wetlands Inventory
- Protected Waters
- Rivers & Streams
- Roadway Functional Class**
- Principal Arterial
- A Minor Arterial-Connector
- Major Collector
- Minor Collector
- Local
- Railroad
- Parcels
- City/Township Boundary



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**HASTINGS AREA ROADWAY
SYSTEM STUDY**

WOODLANDS

AUGUST, 2007

Legend

- Study Focus Area
- Woodland**
- Altered/Non-Native Deciduous Woodland
 - Altered/Non-Native Mixed Woodland
 - Aspen Woodland
 - Eastern Red Cedar Woodland
 - Oak Woodland-Brushland
- Roads Jurisdiction**
- US Highway
 - State Highway
 - County Highway
 - Local Road
 - Railroad
 - City/Township Boundary
 - Protected Waters
 - Rivers & Streams

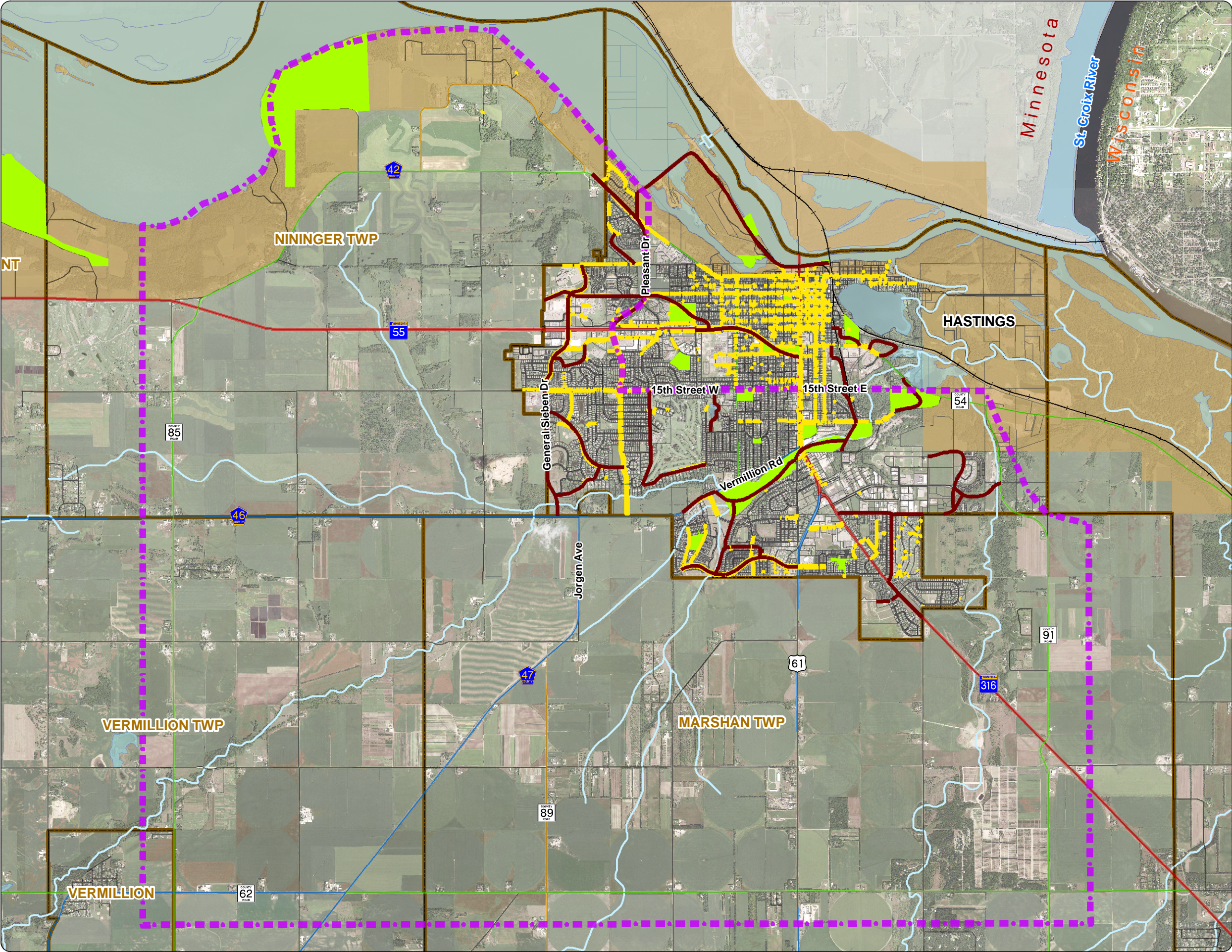
Woodland Source: Minnesota DNR MLCCS Layer



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**HASTINGS AREA ROADWAY
SYSTEM STUDY**

PARKS AND TRAILS

AUGUST, 2007

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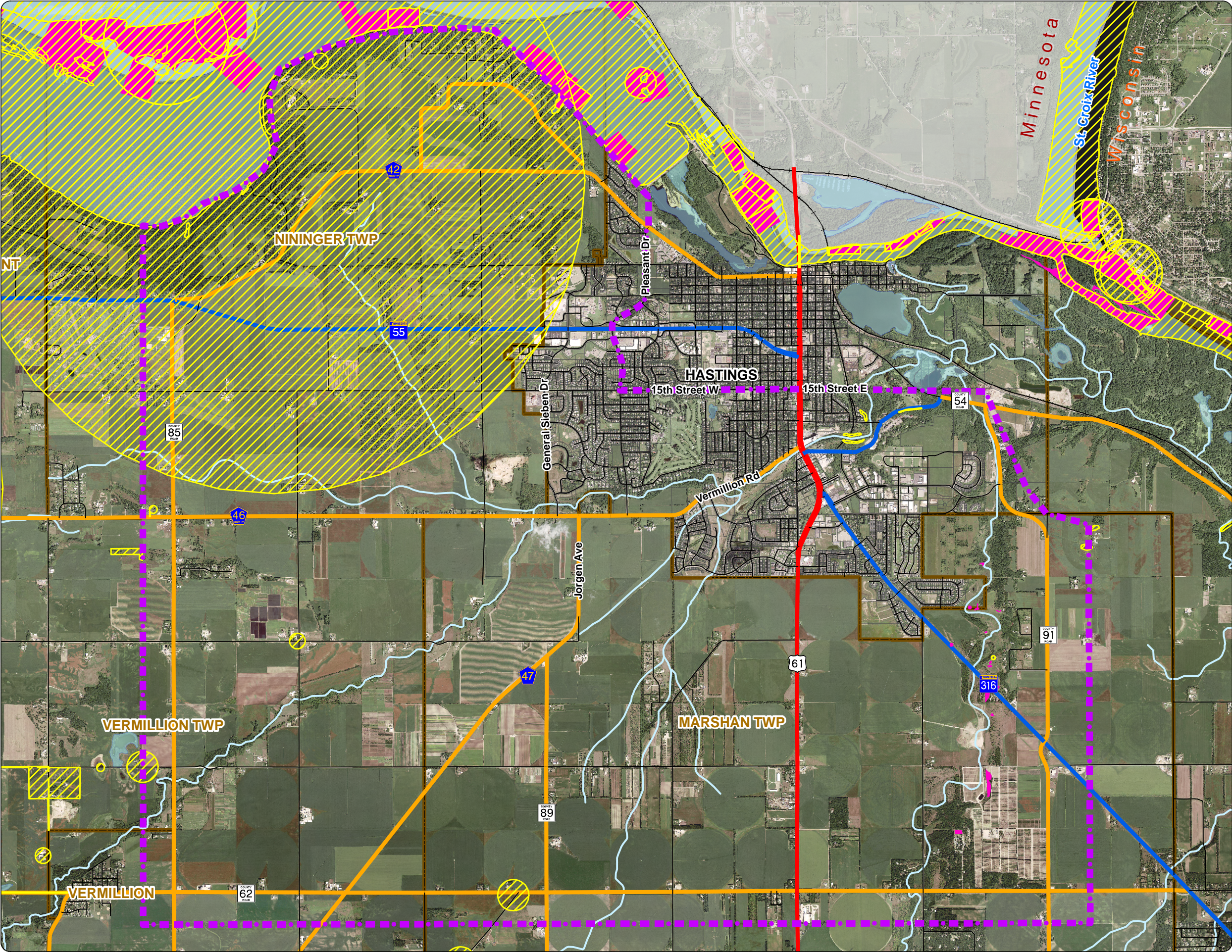
- Study Focus Area
- Trails
- Sidewalks
- Parks
- Mississippi River Critical Areas
- Roadway Functional Class**
 - Principal Arterial
 - A Minor Arterial-Connector
 - Major Collector
 - Minor Collector
 - Local
 - Railroad
 - Parcels
 - City/Township Boundary
 - Protected Waters
 - Rivers & Streams



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**HASTINGS AREA ROADWAY
SYSTEM STUDY**

**ENDANGERED AND THREATENED
RARE NATURAL FEATURES**

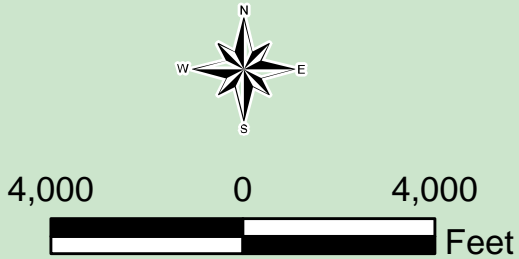
AUGUST, 2007

Legend

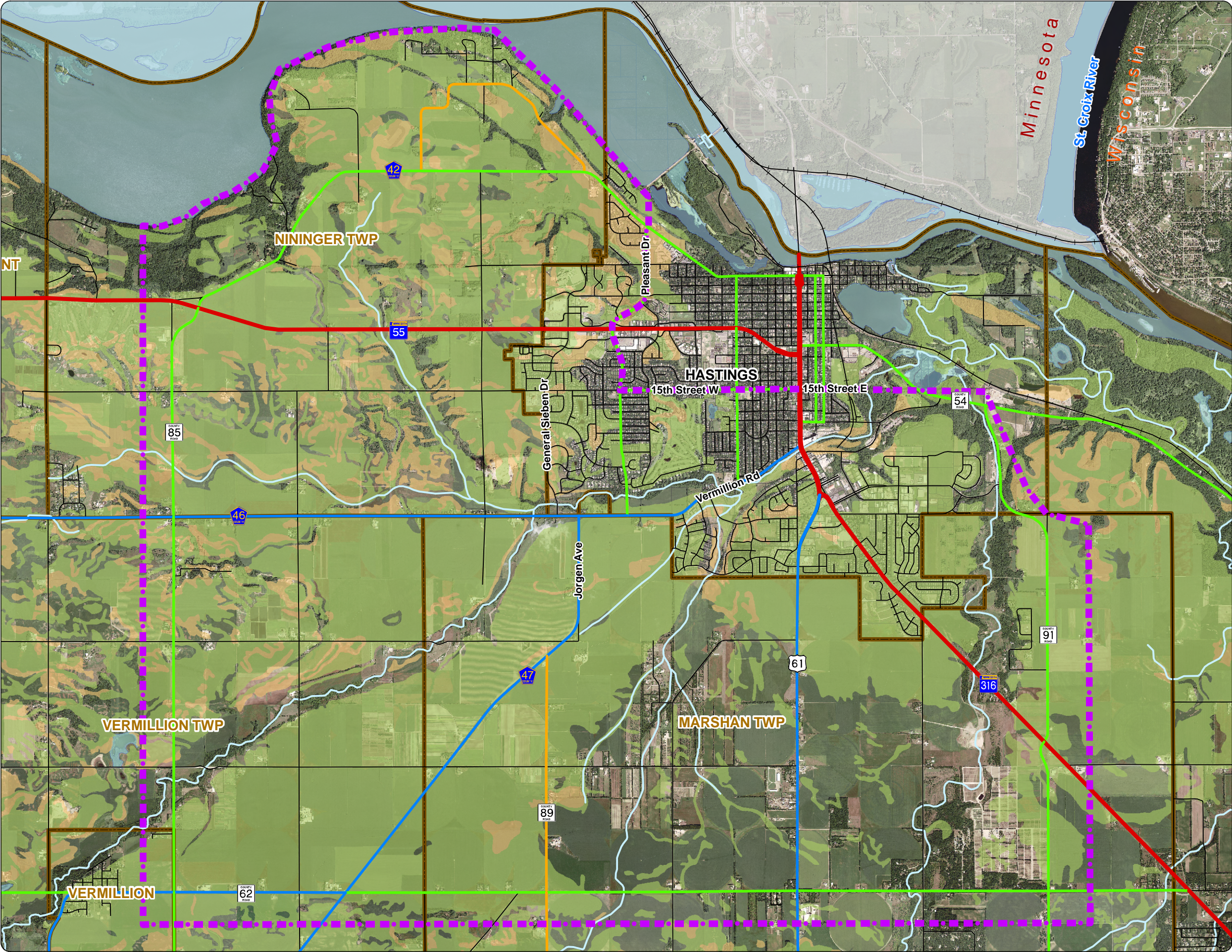
- Study Focus Area
- Rare Natural Features
 - Endangered Species
 - Threatened Species
- Roadway Jurisdiction
 - US Highway
 - State Highway
 - County Highway
 - Local Road
 - Railroad
- City/Township Boundary
- Protected Waters
- Rivers & Streams

Note:
The Rare Natural Features data displayed on this map were provided by the Natural Heritage and Nongame Research Program of the Division of Ecological Services, Minnesota Department of Natural Resources (DNR), and were current as of August 20th, 2007. These data are not based on an exhaustive inventory of the state. The lack of data for any geographic area shall not be construed to mean that no significant features are present.

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**HASTINGS AREA ROADWAY
SYSTEM STUDY**

**PRIME AND OTHER
IMPORTANT FARMLAND**

AUGUST, 2007

Legend

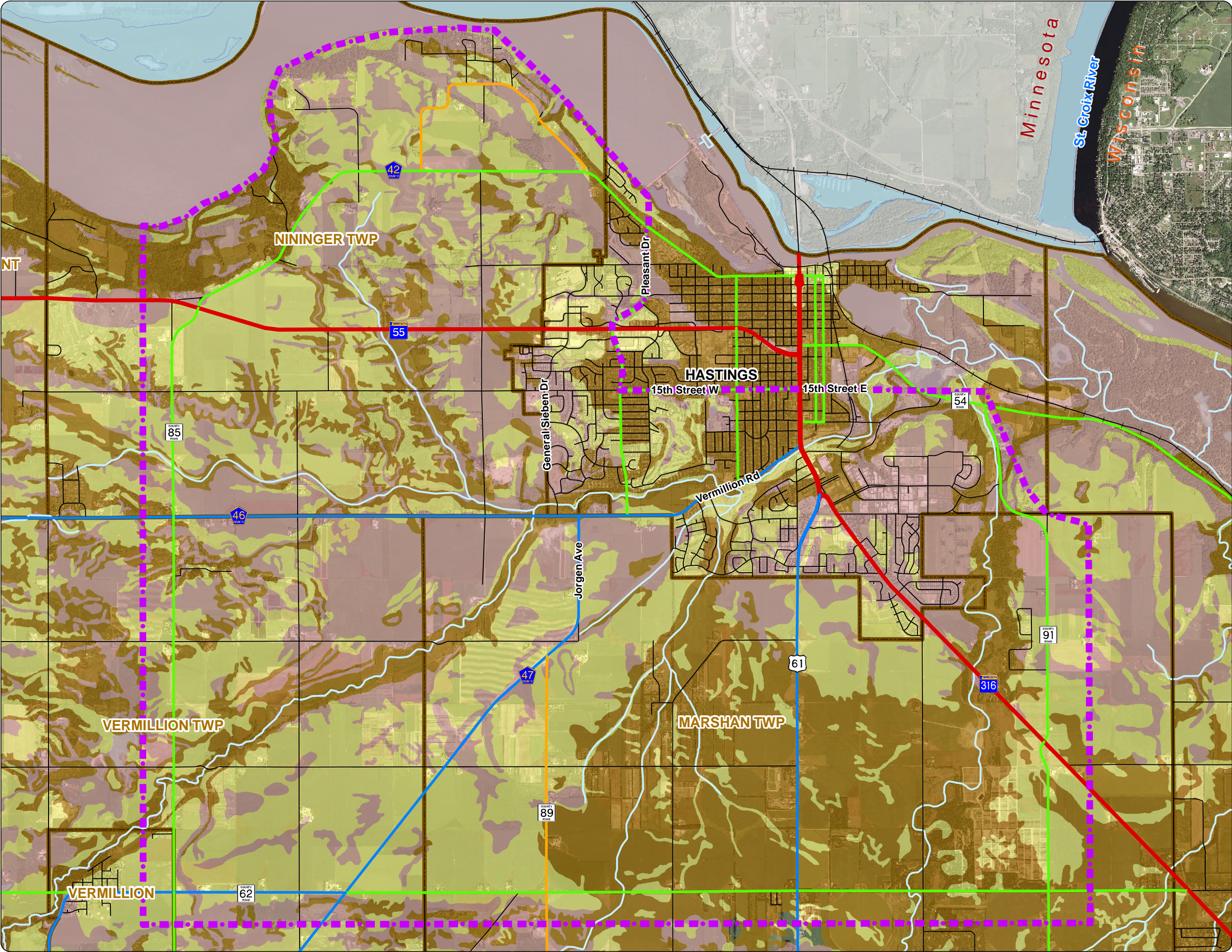
- Study Focus Area
- Prime And Other Important Farmland**
 - Prime Farmland
 - Farmland of Statewide Importance
- Roadway Functional Class**
 - Principal Arterial
 - A Minor Arterial-Connector
 - Major Collector
 - Minor Collector
 - Local
 - Railroad
 - Parcels
 - City/Township Boundary
 - Protected Waters
 - Rivers & Streams

Prime And Other Important Farmland Source: U.S. Department of Agriculture, Natural Resources Conservation Service



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Feet

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**HASTINGS AREA ROADWAY
SYSTEM STUDY**

**SOIL SUITABILITY
FOR ROADWAY CONSTRUCTION**

AUGUST, 2007

Legend

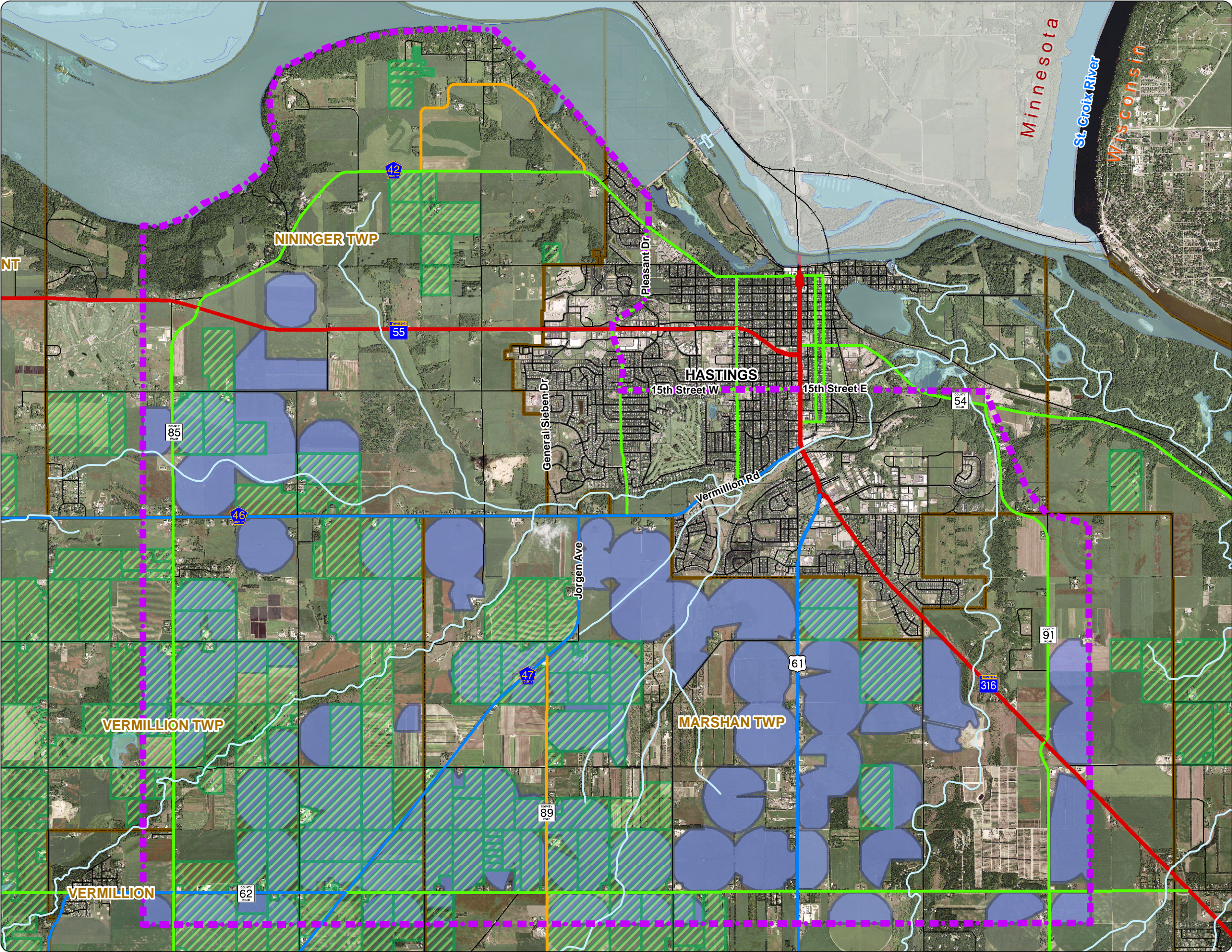
- Study Focus Area
- Suitability For Roadway Construction**
 - Suitable
 - Not Suitable
 - Possibly Suitable
- Roadway Functional Class**
 - Principal Arterial
 - A Minor Arterial-Connector
 - Major Collector
 - Minor Collector
 - Local
 - Railroad
 - Parcels
 - City/Township Boundary
 - Protected Waters
 - Rivers & Streams

Suitability For Roadway Construction Source: U.S. Department of
Agriculture, Natural
Resources Conservation
Service



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**HASTINGS AREA ROADWAY
SYSTEM STUDY**

**AGRICULTURAL PRESERVES
AND IRRIGATED LANDS**

AUGUST, 2007

Legend

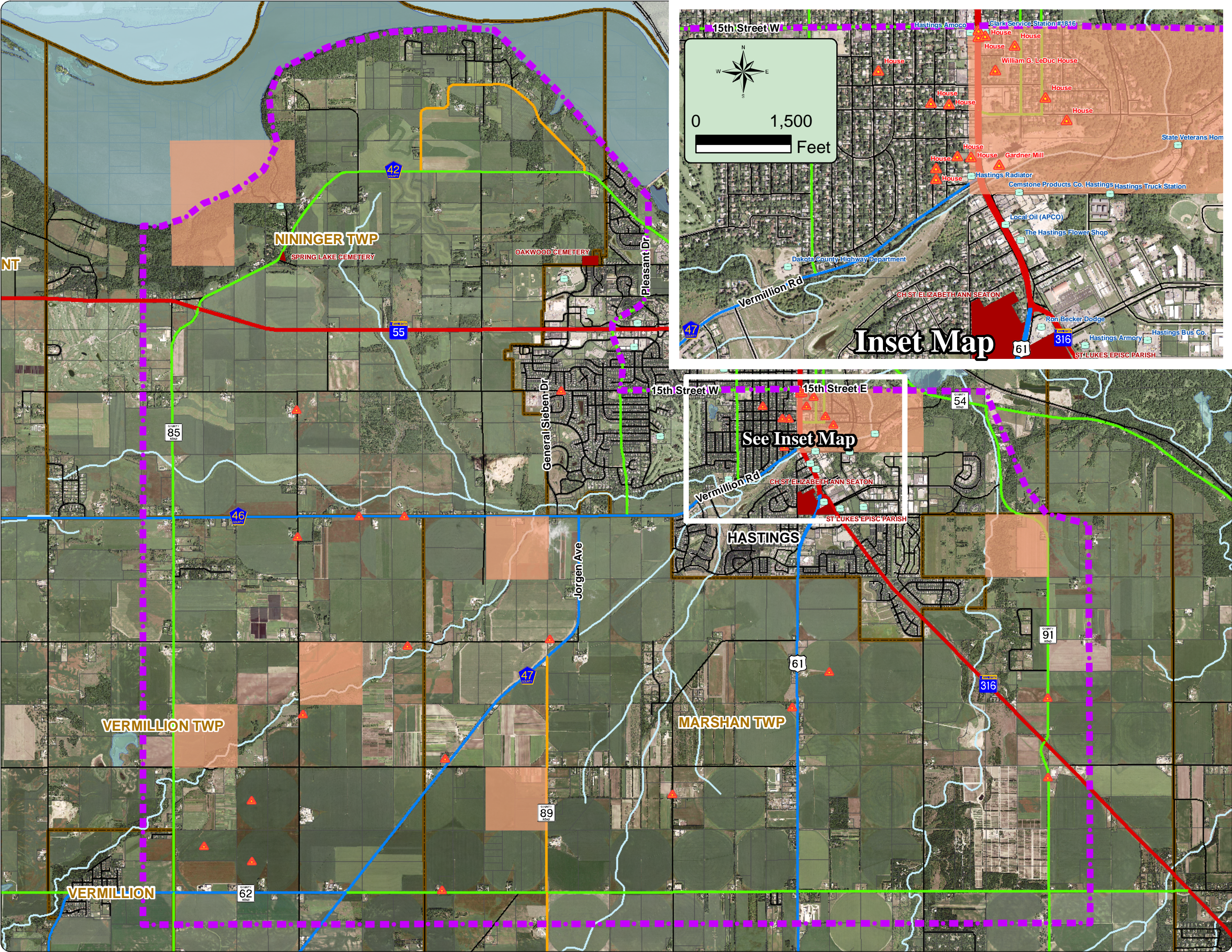
- Study Focus Area
- 2006 Agricultural Preserves
- Irrigated Lands
- Roadway Functional Class**
- Principal Arterial
- A Minor Arterial-Connector
- Major Collector
- Minor Collector
- Local
- Railroad
- Parcels
- City/Township Boundary
- Protected Waters
- Rivers & Streams



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**HASTINGS AREA ROADWAY
SYSTEM STUDY**

**HISTORICAL, ARCHAEOLOGICAL,
CEMETERY AND LEAKING
UNDERGROUND STORAGE TANKS**

AUGUST, 2007

Legend

- Study Focus Area
- Historical Sites
- Leaking Underground Storage Tanks
- Archaeological Sites
- Cemeteries

Roadway Functional Class

- Principal Arterial
- A Minor Arterial-Connector
- Major Collector
- Minor Collector
- Local
- Railroad
- Parcels
- City/Township Boundary
- Protected Waters
- Rivers & Streams

Notes:
Archaeological Sites do not Encompass Entire Shaded Area

4,000 0 4,000
Feet

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