

# Stormwater Management Plan

## TOWN-WIDE STORMWATER QUALITY MANAGEMENT PLAN

Prepared For The  
**TOWN OF NEENAH**  
WINNEBAGO COUNTY, WISCONSIN



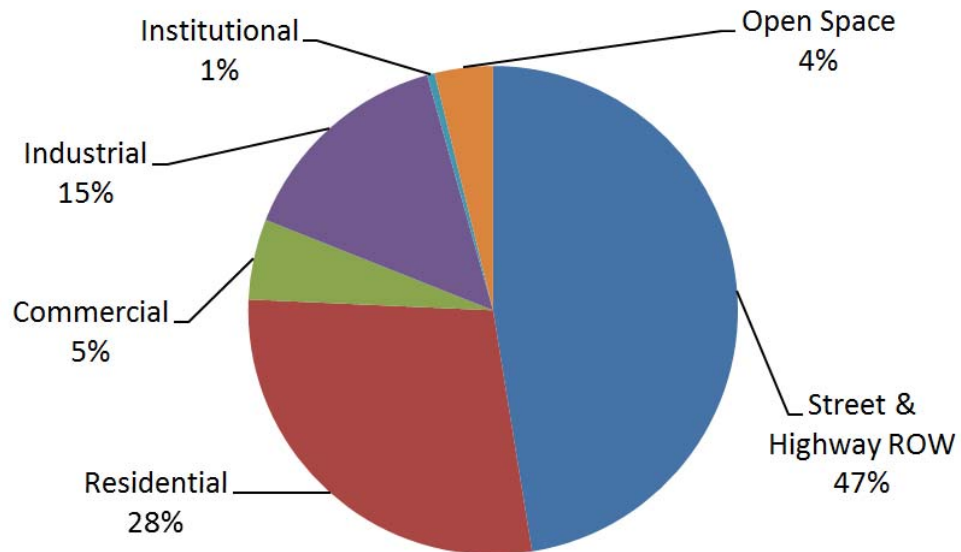
December 14, 2012  
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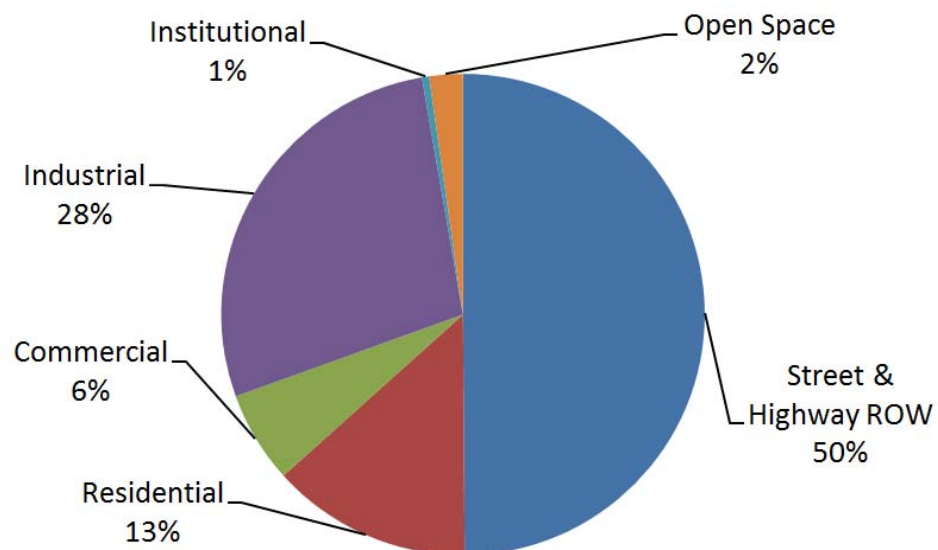
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PH. 920.751.4200 | FX. 920.751.4284  
[WWW.MCMGRP.COM](http://WWW.MCMGRP.COM)

**Exhibit 4-1: TMDL Baseline Loads by Land Use (WinSLAMM)**

## Phosphorus Source Areas

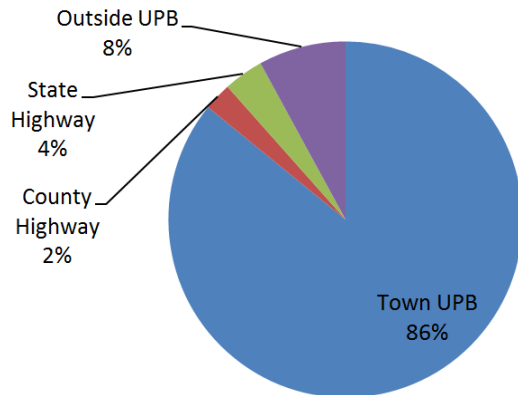


## Sediment Source Areas

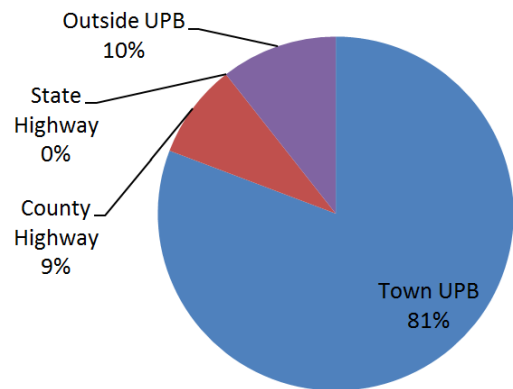


**Exhibit 4-2: TMDL Allocation Split using the Watershed Area Method**

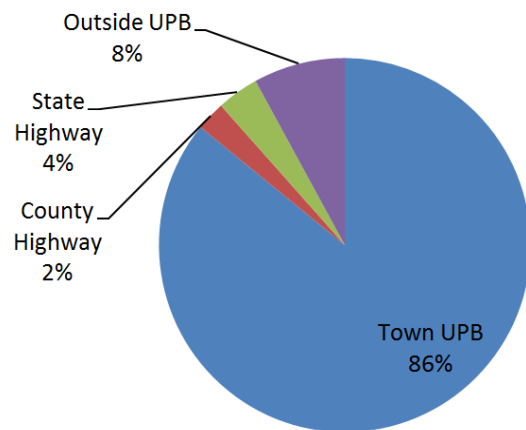
### Neenah Slough Phosphorus



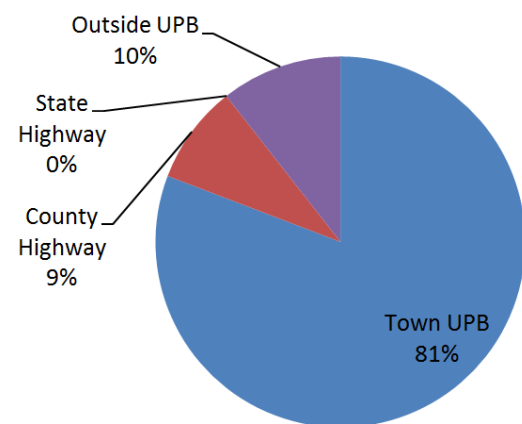
### Fox River Phosphorus



### Neenah Slough Sediment

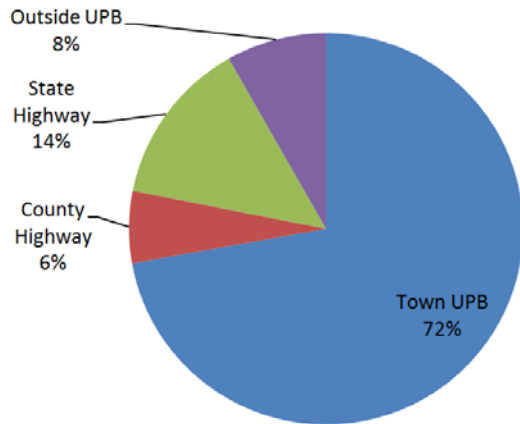


### Fox River Sediment

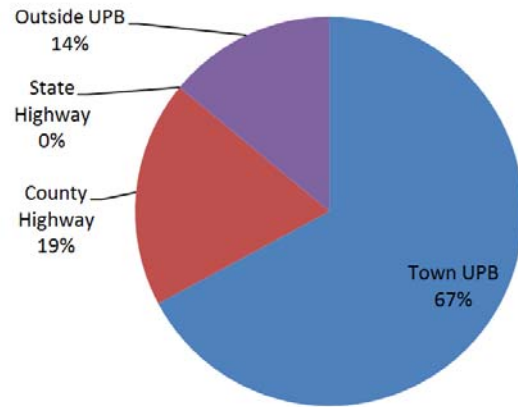


**Exhibit 4-3: TMDL Allocation Split using the Baseline Load Method**

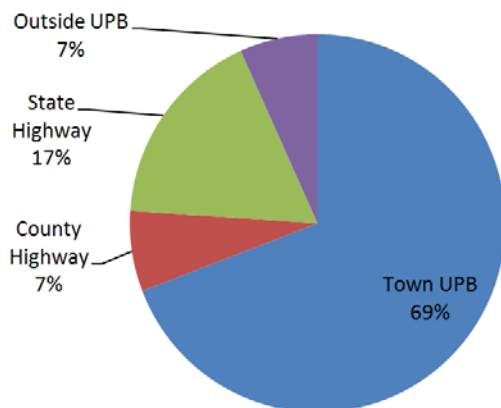
### Neenah Slough Phosphorus



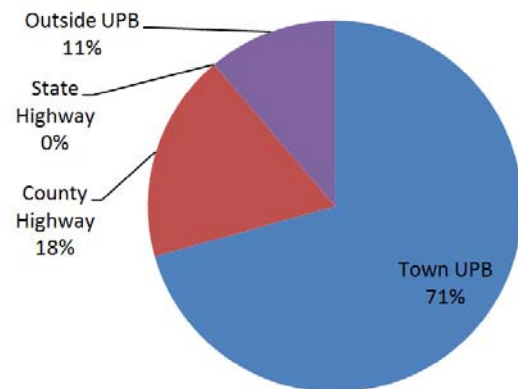
### Fox River Phosphorus



### Neenah Slough Sediment

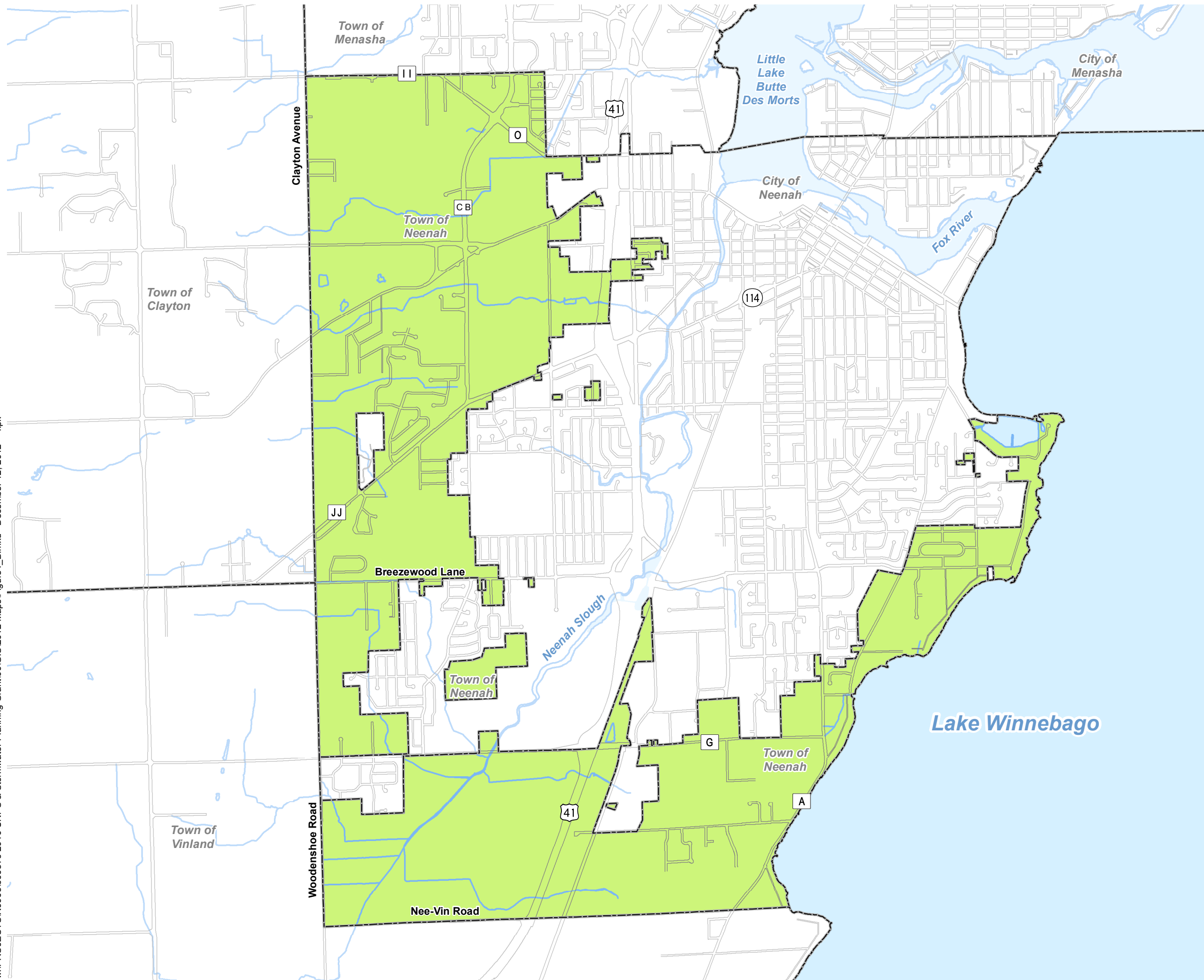


### Fox River Sediment





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- Town of Neenah
- Other Mapped Features
  - Right-of-Way
  - Municipal Boundary
  - Stream
  - Surface Water

Sources: Winnebago County, 2009-2012.

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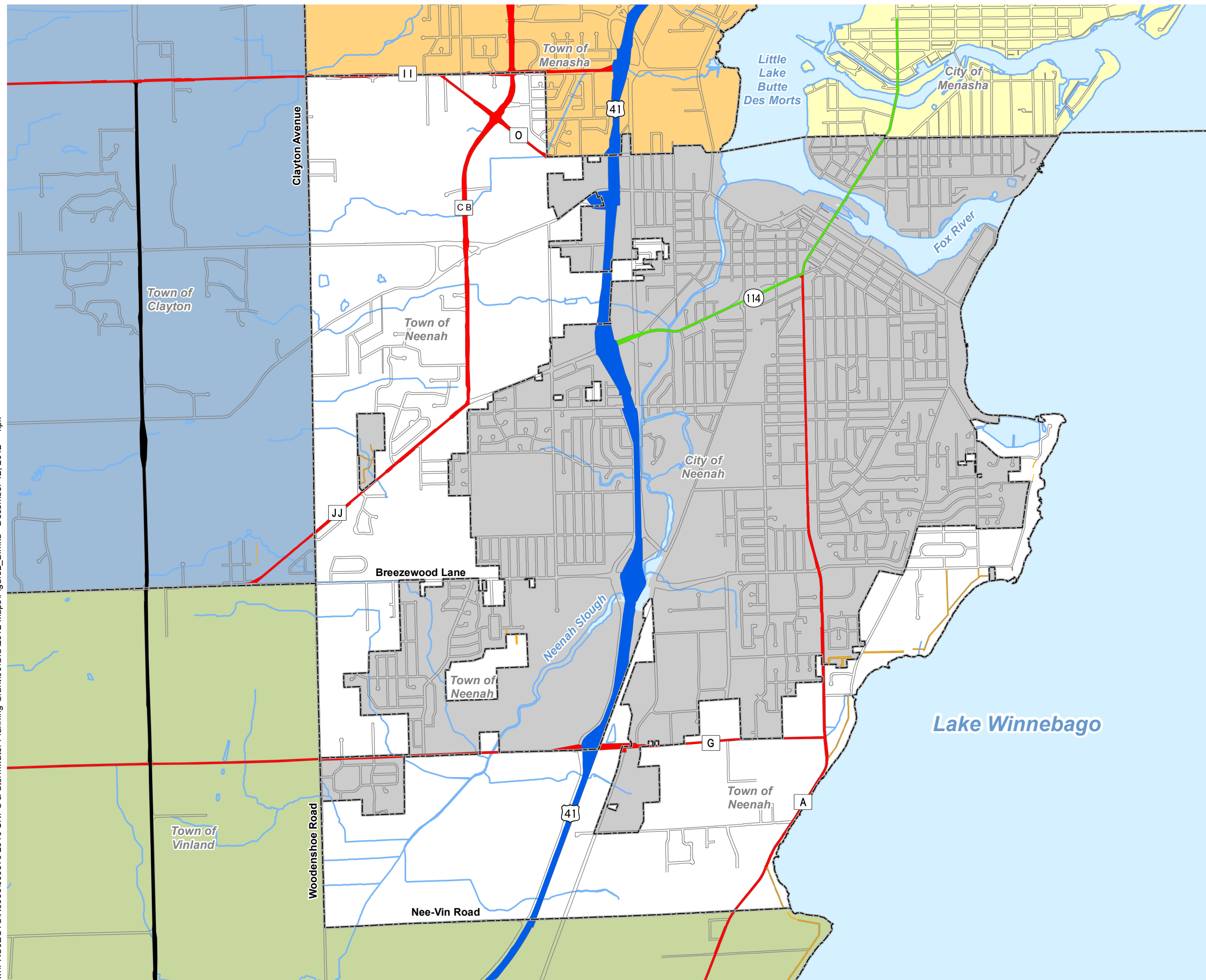


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FIGURE 1  
**STUDY AREA**  
STORMWATER MANAGEMENT PLAN  
TOWN OF NEENAH  
WINNEBAGO COUNTY, WISCONSIN

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#### Highway Jurisdiction

- County Trunk Highway
- Connecting Highway
- State Trunk Highway
- State Freeway

#### Municipal Jurisdiction

- Town of Clayton
- City of Menasha
- Town of Menasha
- City of Neenah
- Town of Neenah
- Town of Vinland

#### Other Mapped Features

- Right-of-Way
- Municipal Boundary
- Stream
- Private Road
- Surface Water

Sources: Winnebago County, 2009-2012.

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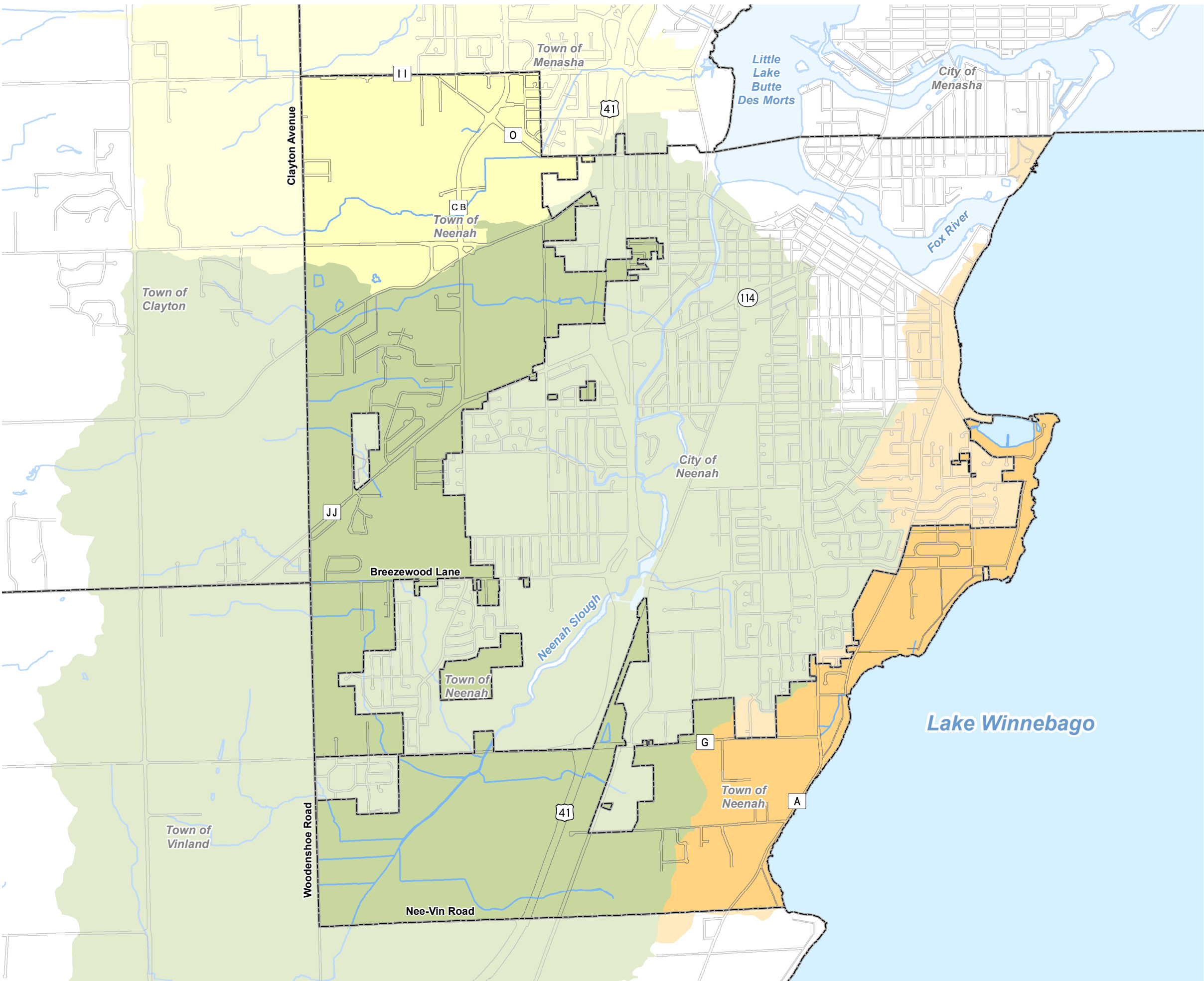


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FIGURE 2  
**MS4 JURISDICTION**  
STORMWATER MANAGEMENT PLAN  
TOWN OF NEENAH  
WINNEBAGO COUNTY, WISCONSIN





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**Sub-Watersheds**

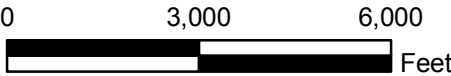
-  Fox River
-  Lake Winnebago
-  Neenah Slough

**Other Mapped Features**

-  Right-of-Way
-  Municipal Boundary
-  Stream
-  Surface Water

Sources: Winnebago County, 2009-2012.

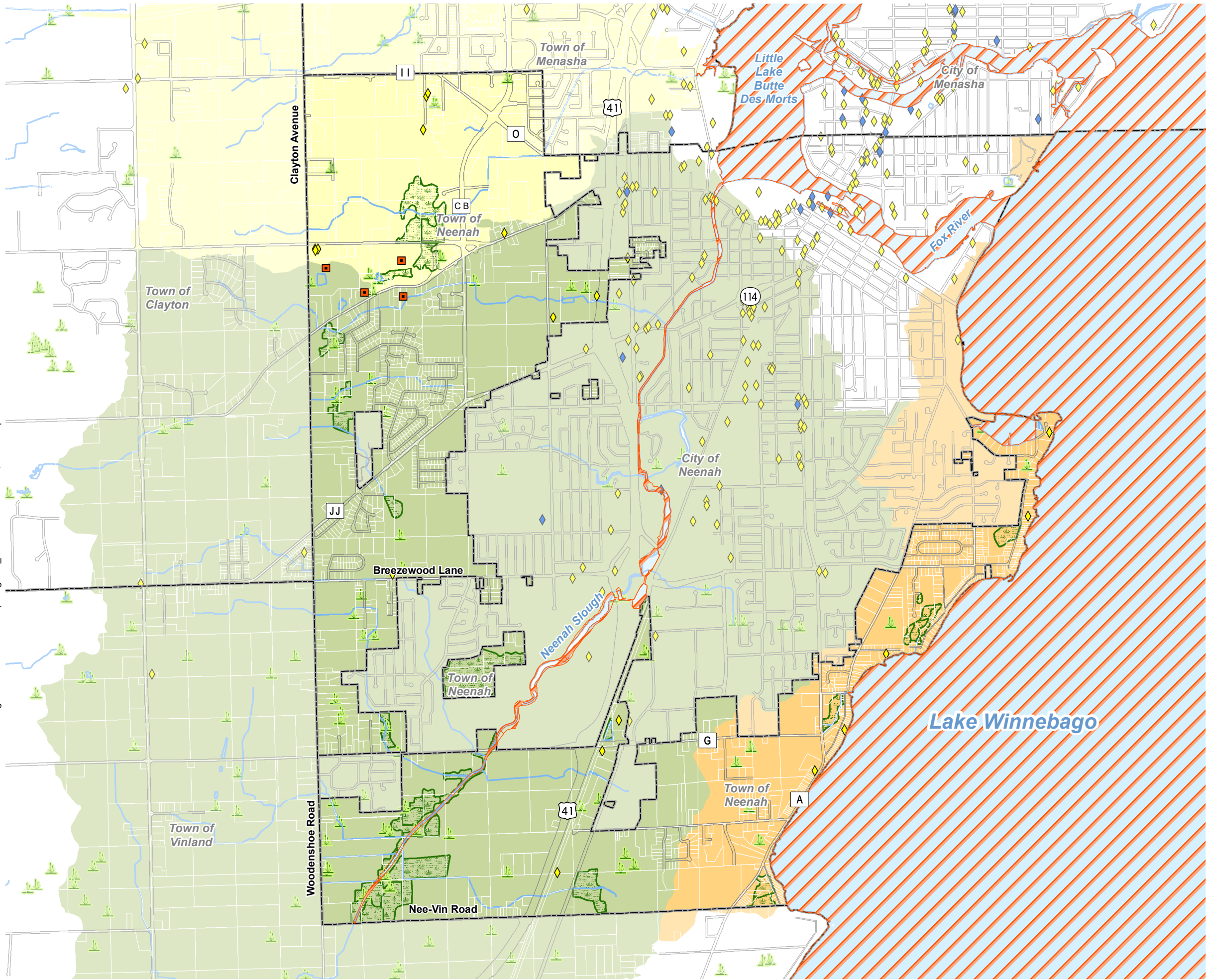
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**FIGURE 3**  
**SUB-WATERSHEDS**  
**STORMWATER MANAGEMENT PLAN**  
**TOWN OF NEENAH**  
**WINNEBAGO COUNTY, WISCONSIN**



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**Natural Resources**

- WDNR Wetland Inventory (Less Than 2 Acres)
- WDNR Wetland Inventory (2 Acres and Greater)
- 303(d) Impaired Waters
- Stream
- Surface Water

**Sub-Watersheds**

- Fox River
- Lake Winnebago
- Neenah Slough

**Other Mapped Features**

- Waste Disposal Site (not archived)
- DNR Remediation Site (Open)
- DNR Remediation Site (Closed)
- Right-of-Way
- Municipal Boundary

Sources: Winnebago County, 2009-2012; WDNR, 1986-2013.

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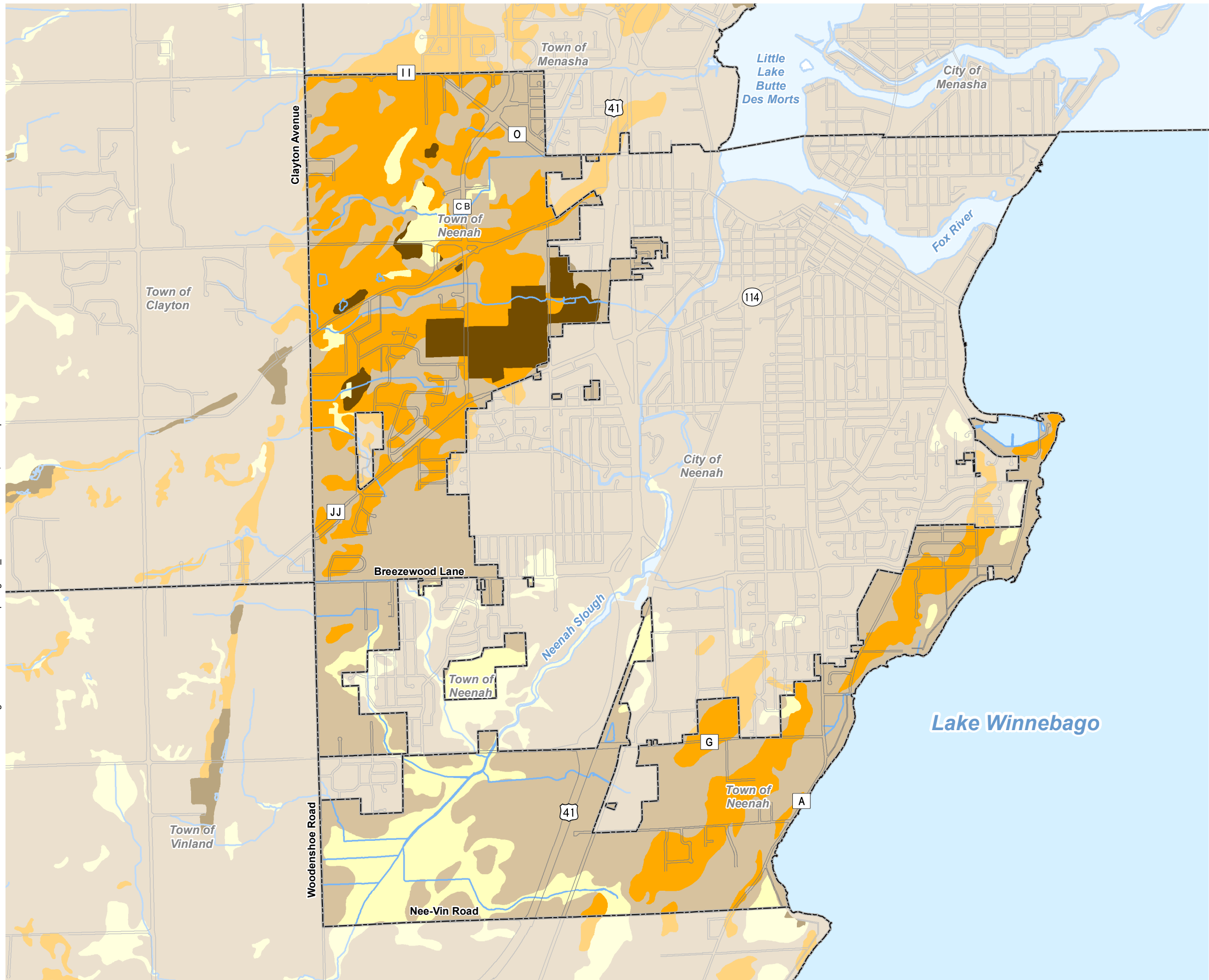


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FIGURE 4  
**NATURAL RESOURCES**  
STORMWATER MANAGEMENT PLAN  
TOWN OF NEENAH  
WINNEBAGO COUNTY, WISCONSIN

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**Hydrologic Soil Group (HSG)**

- HSG A
- HSG B
- HSG C
- HSG D

**Other Mapped Features**

- Right-of-Way
- Municipal Boundary
- Stream
- Surface Water

Sources: Winnebago County, 2009-2012.

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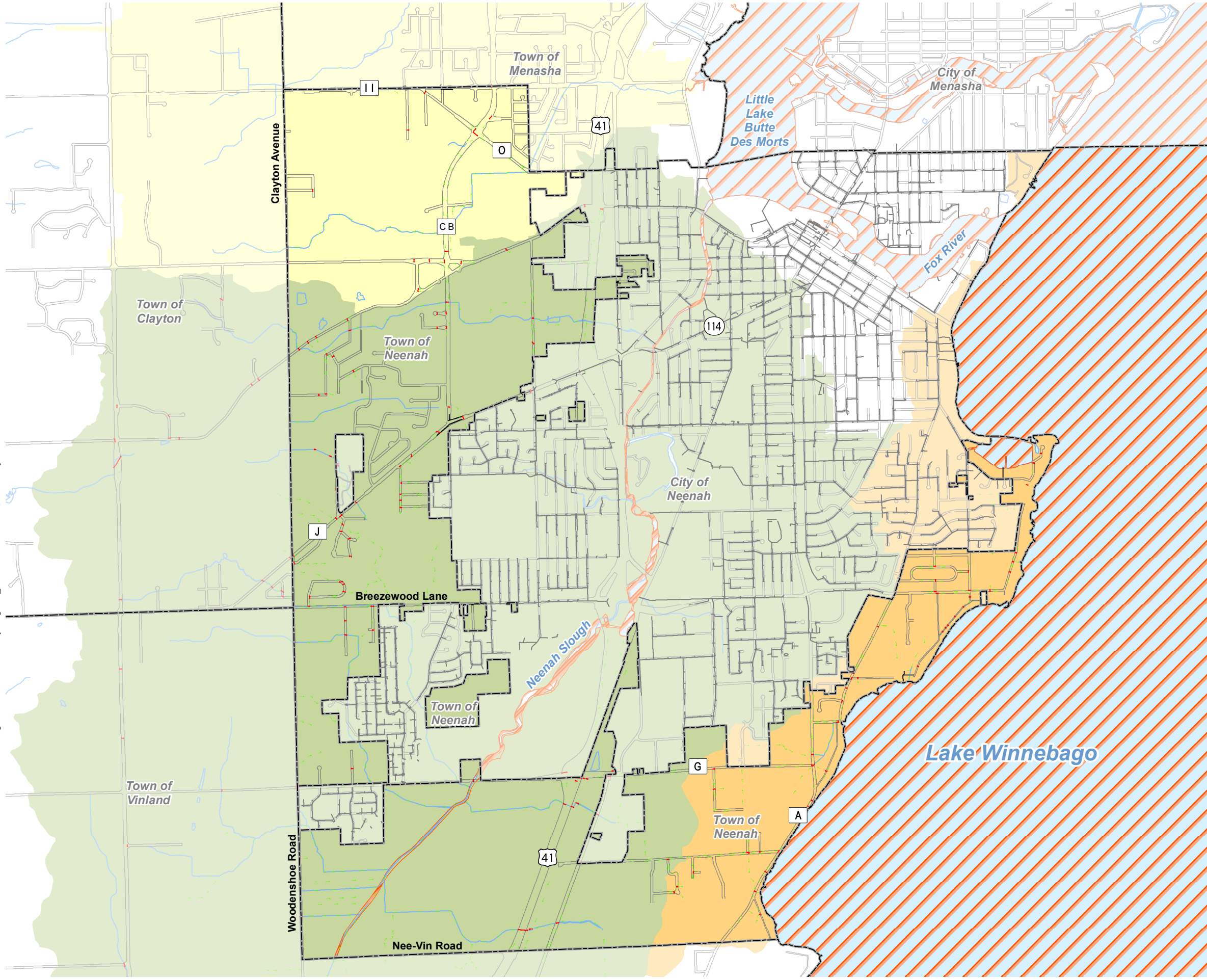
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**FIGURE 5**  
**SOILS**  
**STORMWATER MANAGEMENT PLAN**  
**TOWN OF NEENAH**  
**WINNEBAGO COUNTY, WISCONSIN**



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**MS4 Drainage System**

- Bridges and Culverts
- Flow Arrows
- Storm Sewer System

**Sub-Watersheds**

- Fox River
- Lake Winnebago
- Neenah Slough

**Other Mapped Features**

- Right of Way
- Parcel Line
- Municipal Boundary
- Navigable Streams
- Surface Water
- 303(d) Impaired Waters

Sources: Winnebago County, 2009-2012.

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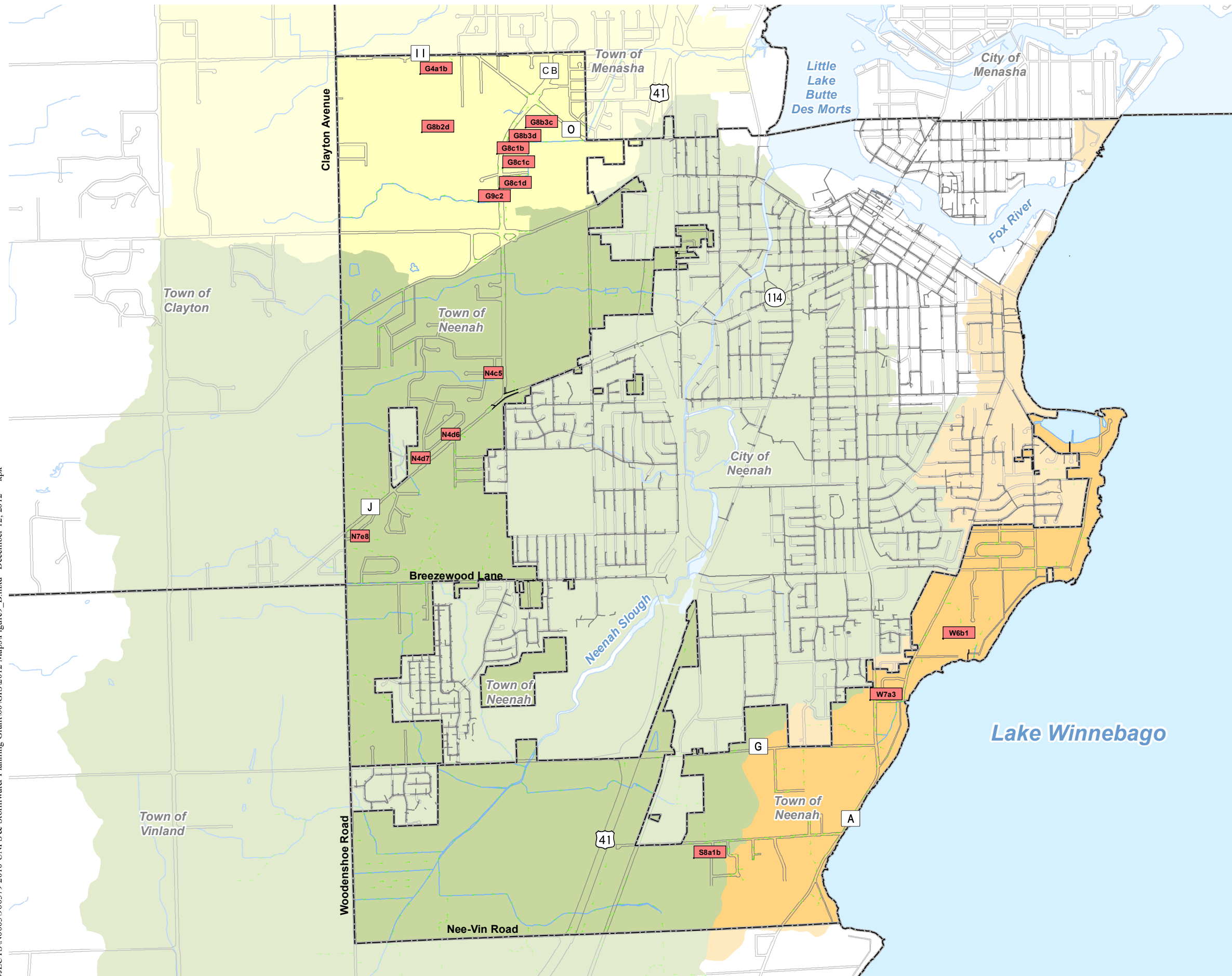


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**FIGURE 6**  
**MS4 SYSTEM**  
STORM WATER MANAGEMENT PLAN  
TOWN OF NEENAH  
WINNEBAGO COUNTY, WISCONSIN

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#### MS4 Drainage System

- Structural BMP ID
- Bridges and Culverts
- Flow Arrows
- Storm Sewer System

#### Sub-Watersheds

- Fox River
- Lake Winnebago
- Neenah Slough

#### Other Mapped Features

- Right of Way
- Parcel Line
- Municipal Boundary
- Navigable Streams
- Surface Water

Sources: Winnebago County, 2009-2012.

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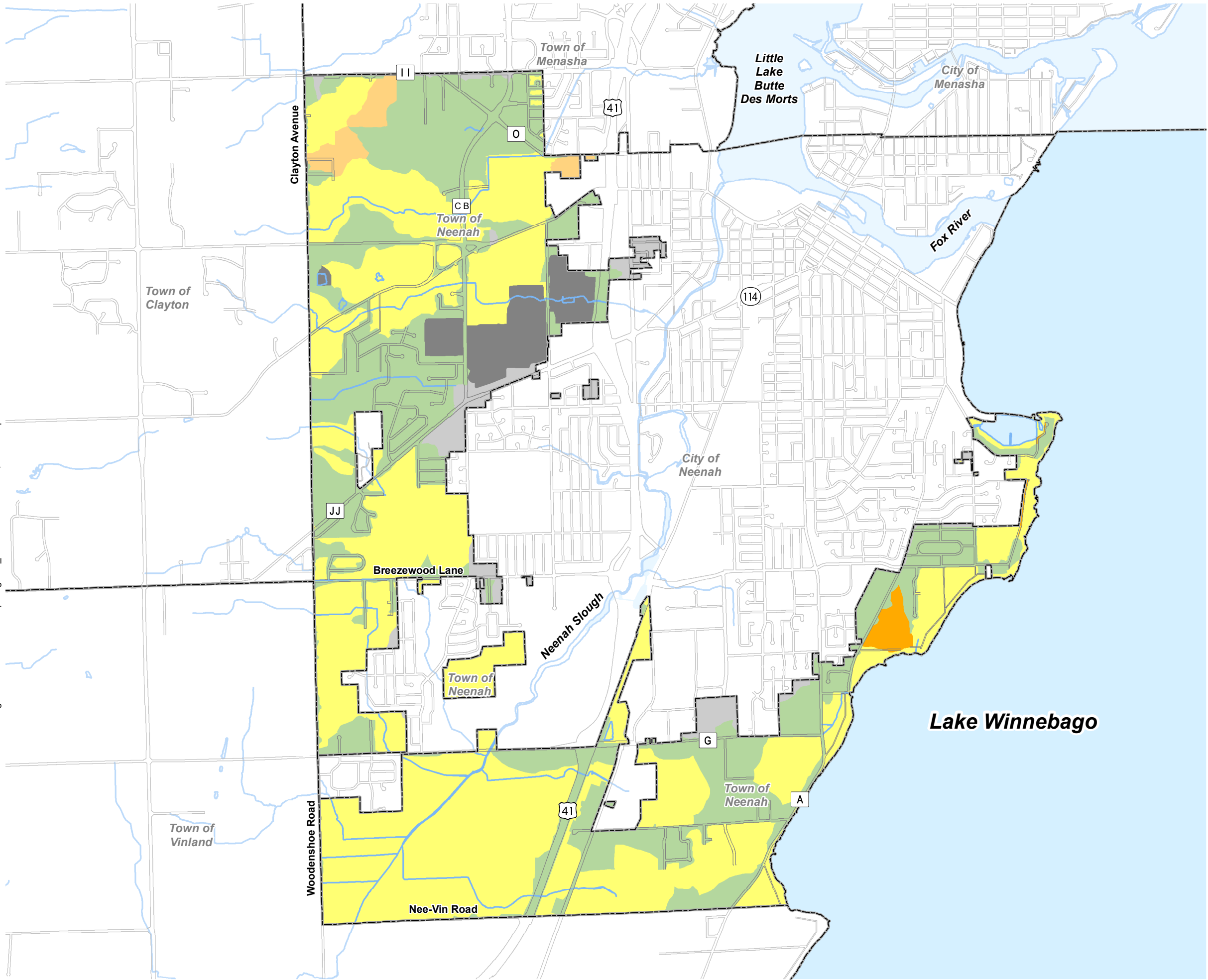
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**FIGURE 7**  
**STRUCTURAL BMPs**  
**STORM WATER MANAGEMENT PLAN**  
**TOWN OF NEENAH**  
**WINNEBAGO COUNTY, WISCONSIN**



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**Surface Drainage**

- Curb and Gutter Street
- Grass Swale
- Internally Drained Area
- Filter Strip
- No Control
- Quarry

**Other Mapped Features**

- Right-of-Way
- Municipal Boundary
- Stream
- Surface Water

Sources: Winnebago County, 2009-2012.

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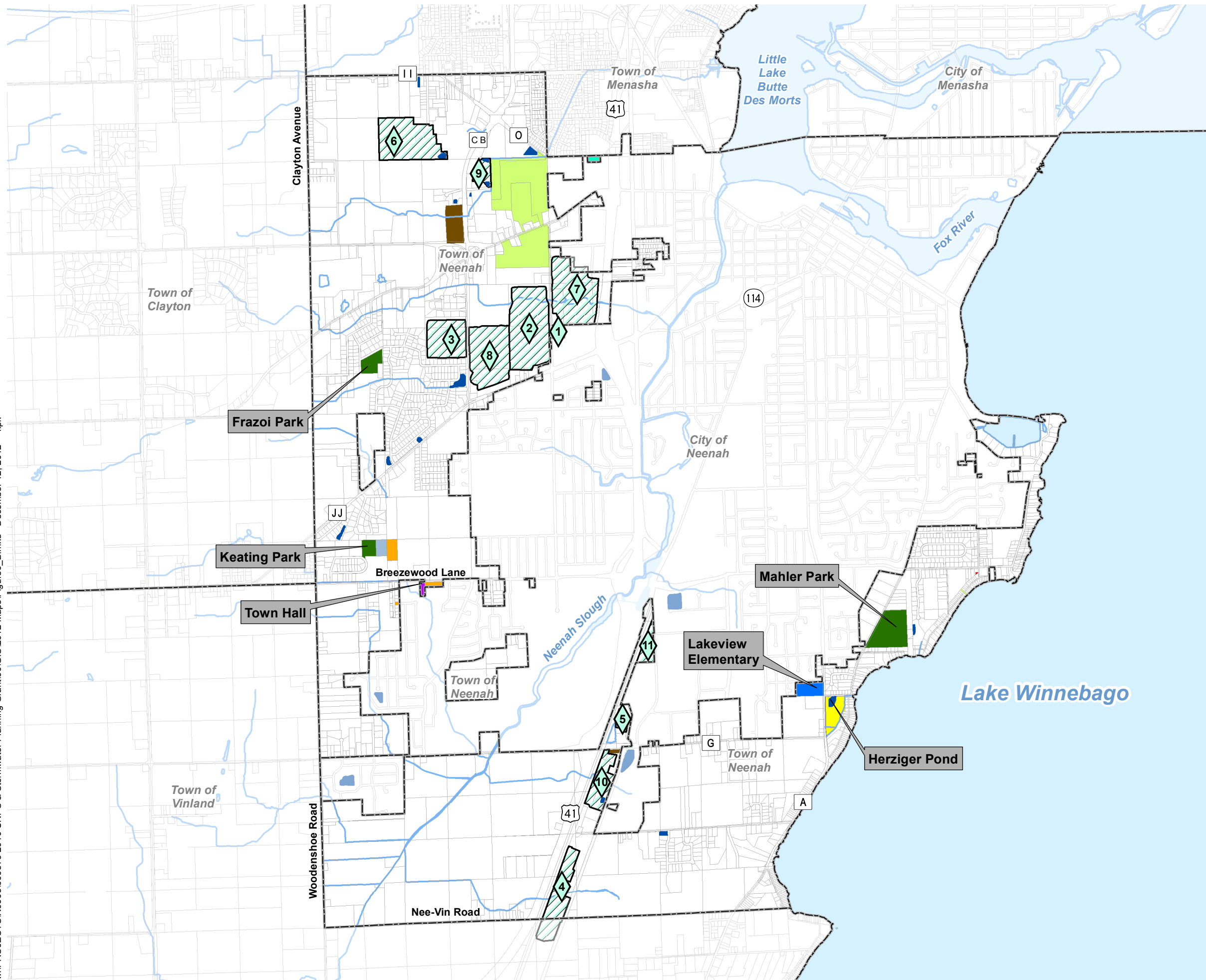
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







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**FIGURE 8**  
**SURFACE DRAINAGE**  
STORMWATER MANAGEMENT PLAN  
TOWN OF NEENAH  
WINNEBAGO COUNTY, WISCONSIN



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-  WPDES Industrial Permit and ID
- Publicly Owned Property**
-  City of Menasha Cemetery Land
  -  City of Neenah Open Land
  -  Winnebago County Open Lands
  -  Neenah Joint School District Open Land
  -  Neenah Joint School District
  -  Town of Neenah Sanitary District #2 Land
  -  Town of Neenah Municipal Facility
  -  Town of Neenah Open Land
  -  Public Park and Recreational Area
  -  Town of Neenah Stormwater Utility District
- Other Mapped Features**
-  Right-of-Way
  -  Municipal Boundary
  -  Stream
  -  Surface Water
  -  Stormwater Pond

Sources: Winnebago County, 2009-2012;  
Wisconsin Department of Natural Resources, 2012.

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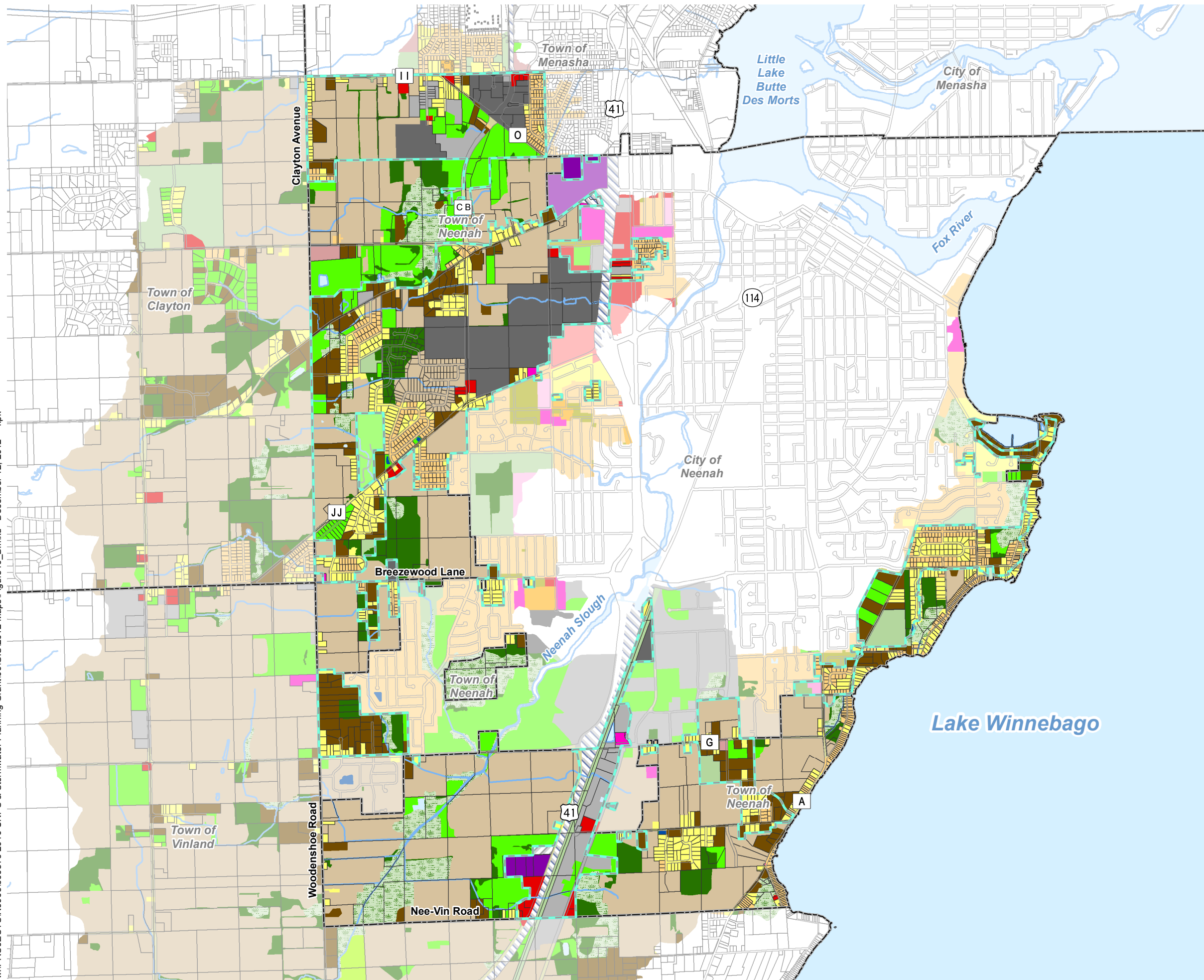


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**FIGURE 9**  
**WPDES INDUSTRIAL PERMITS**  
**STORMWATER MANAGEMENT PLAN**  
**TOWN OF NEENAH**  
**WINNEBAGO COUNTY, WISCONSIN**

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- SLAMM Standard Land Uses**
- Residential**
- LDR - Low Density Single Family Residential (0.5 acre to 1.5 acre lots)
  - MDR - Medium Density Single Family Residential (0.25 acre to 0.5 acre lots)
  - HDR - High Density Single Family Residential (0.125 acre lots or smaller)
  - MFR - Multi-Family Residential (3 or more families, 1-3 story height)
  - HRR - High Rise Residential (1.5 acre to 5 acre lots, > 3 story)
  - SUBR - Suburban Residential (1.5 acre to 5 acre lots)
  - MOBR - Mobile Home or Trailer Park Residential
- Institutional**
- SCHOOL - Public or Private School
  - UNIV - University, College, Technical School, etc.
  - HOSP - Medical Facilities including Nursing Homes, Hospitals, etc.
  - MISC - Miscellaneous Facilities (Churches, Institutional Property)
- Commercial**
- CDNTN - Downtown Commercial and Institutional Areas
  - CSTRIP - Strip Commercial Areas (Courthouses, Police Stations, etc.)
  - SHCNTR - Shopping Centers (parking lot is 2.5 times building area)
  - OFFPRK - Office Parks (non-retail, multi-story, insurance, government)
- Industrial**
- LIGHTI - Light Industrial Areas (storage and distribution of goods for retail or sale)
  - MEDI - Medium Industrial Areas (lumber, junk, or auto salvage yard, ag., co-op, oil tank farm, coal and salt storage, slaughter house)
  - AIRPRT - Airport Facilities
- Open Space**
- CEM - Cemeteries, including grounds, roads, and buildings
  - PARK - Outdoor Recreational Areas (golf course, arboretums, botanical gardens, municipal playgrounds, and natural areas)
  - AGRIC - Agriculture, including limited roads and buildings
  - GRASS - Undeveloped Land that is Vegetated with Grass
  - WOODS - Undeveloped Land that is Vegetated with Woods
  - WETLND - DNR Wetland Inventory Map
  - WATER - Waters of the State and Other Open Waters
  - SW POND - Stormwater Pond
- Freeways**
- FREE - Limited Access Highways and Interchanges, including vegetated ROW
- Other Mapped Features**
- Streams
  - Right-of-Way or Parcel Line
  - Municipal Boundary
  - Urban Planning Boundary

Sources: Winnebago County, 2009-2012.

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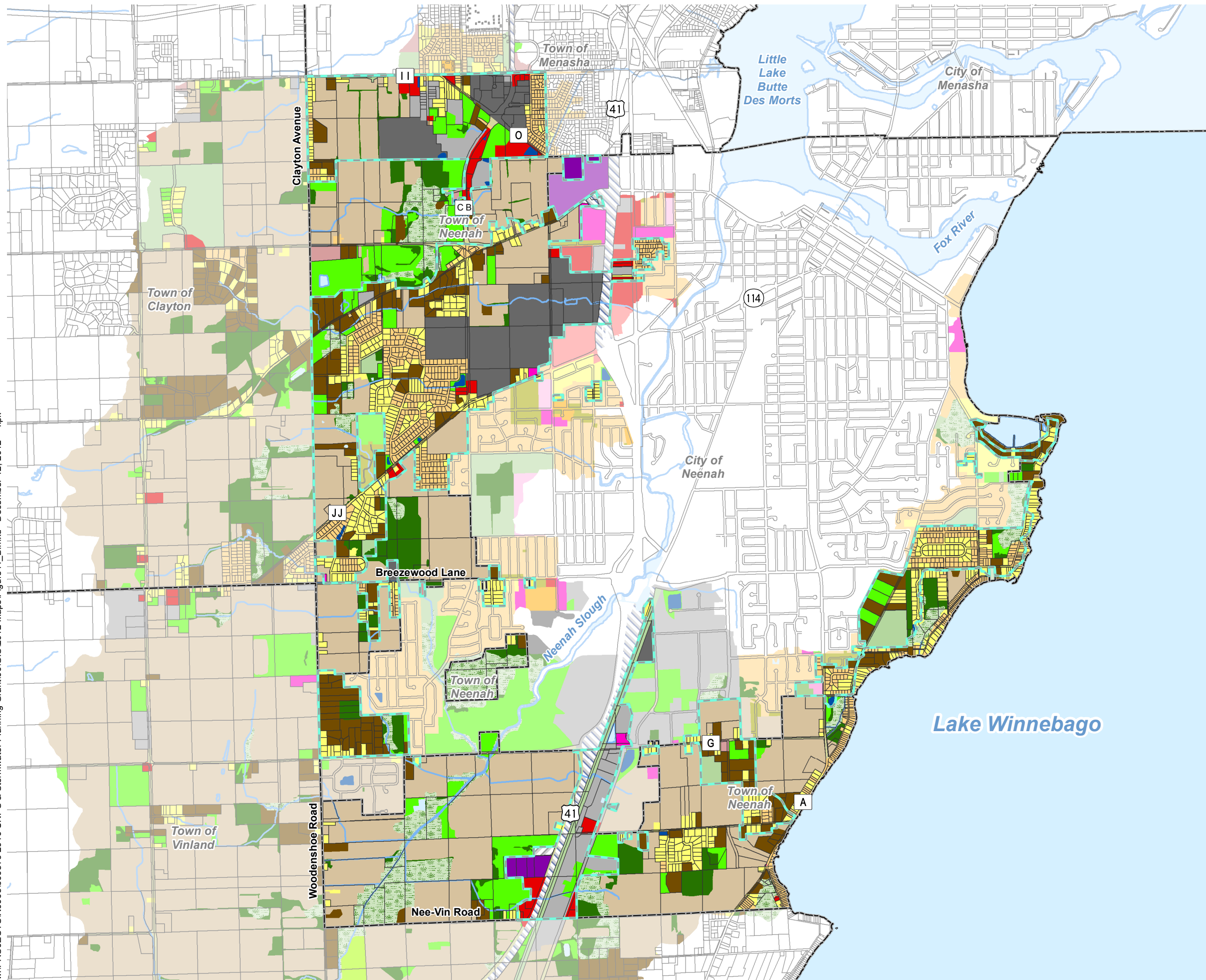
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**FIGURE 10**  
**2004 LAND USE**  
**STORMWATER MANAGEMENT PLAN**  
**TOWN OF NEENAH**  
**WINNEBAGO COUNTY, WISCONSIN**



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- Residential**
- LDR - Low Density Single Family Residential (0.5 acre to 1.5 acre lots)
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  - HRR - High Rise Residential (1.5 acre to 5 acre lots, > 3 story)
  - SUBR - Suburban Residential (1.5 acre to 5 acre lots)
  - MOBR - Mobile Home or Trailer Park Residential
- Institutional**
- SCHOOL - Public or Private School
  - UNIV - University, College, Technical School, etc.
  - HOSP - Medical Facilities including Nursing Homes, Hospitals, etc.
  - MISC - Miscellaneous Facilities (Churches, Institutional Property)
- Commercial**
- CDNTN - Downtown Commercial and Institutional Areas
  - CSTRIP - Strip Commercial Areas (Courthouses, Police Stations, etc.)
  - SHCNTR - Shopping Centers (parking lot is 2.5 times building area)
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- LIGHTI - Light Industrial Areas (storage and distribution of goods for retail or sale)
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- Streams
  - Right-of-Way or Parcel Line
  - Municipal Boundary
  - Urban Planning Boundary

Sources: Winnebago County, 2009-2012.

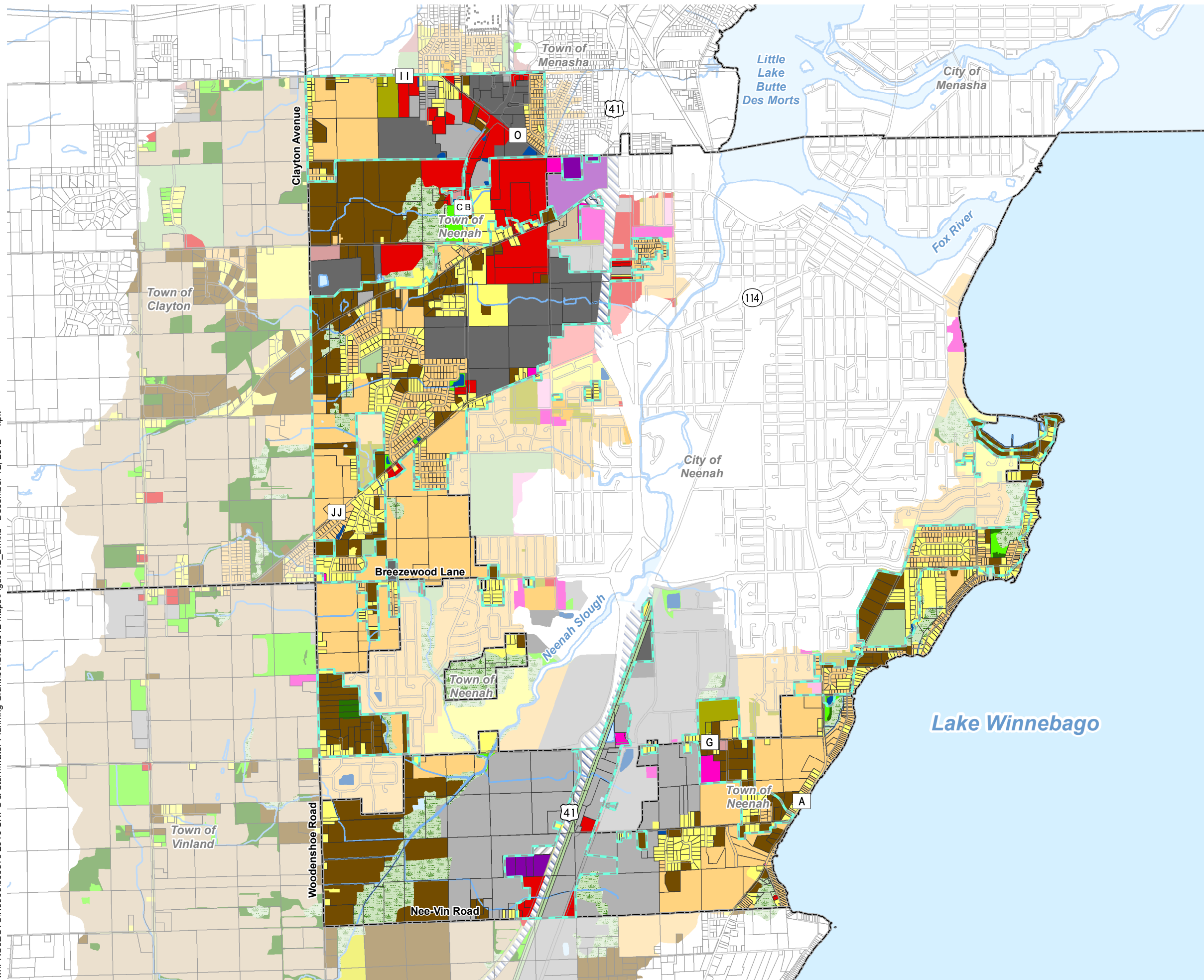
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**FIGURE 11**  
**2012 LAND USE**  
**STORMWATER MANAGEMENT PLAN**  
**TOWN OF NEENAH**  
**WINNEBAGO COUNTY, WISCONSIN**



- SLAMM Standard Land Uses**
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  - MEDI - Medium Industrial Areas (lumber, junk, or auto salvage yard, ag., co-op, oil tank farm, coal and salt storage, slaughter house)
  - AIRPRT - Airport Facilities
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- Other Mapped Features**
- Streams
  - Right-of-Way or Parcel Line
  - Municipal Boundary
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Sources: Winnebago County, 2009-2012.

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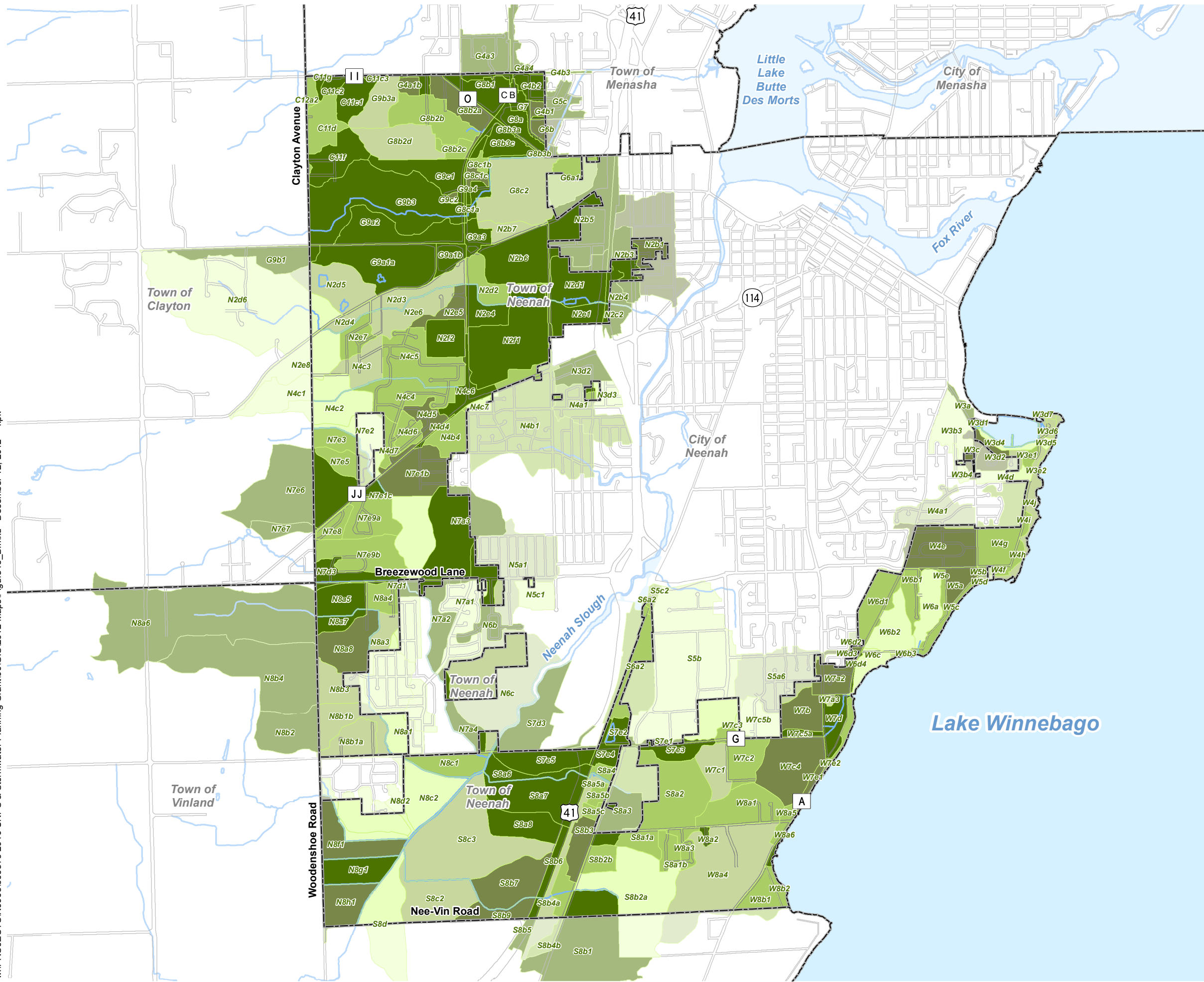


0 3,000 6,000 Feet

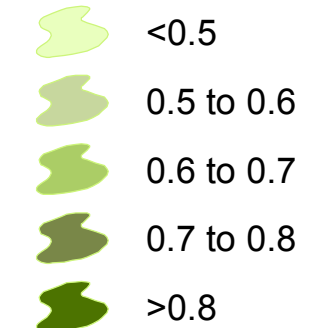
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FIGURE 12  
**FUTURE LAND USE**  
STORMWATER MANAGEMENT PLAN  
TOWN OF NEENAH  
WINNEBAGO COUNTY, WISCONSIN

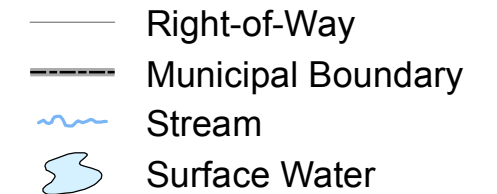




**No Controls  
TP Pollutant Yield (lbs/ac/year)**

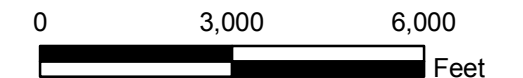


**Other Mapped Features**



Sources: Winnebago County, 2009-2012; WDNR Wetland Inventory, 1986.

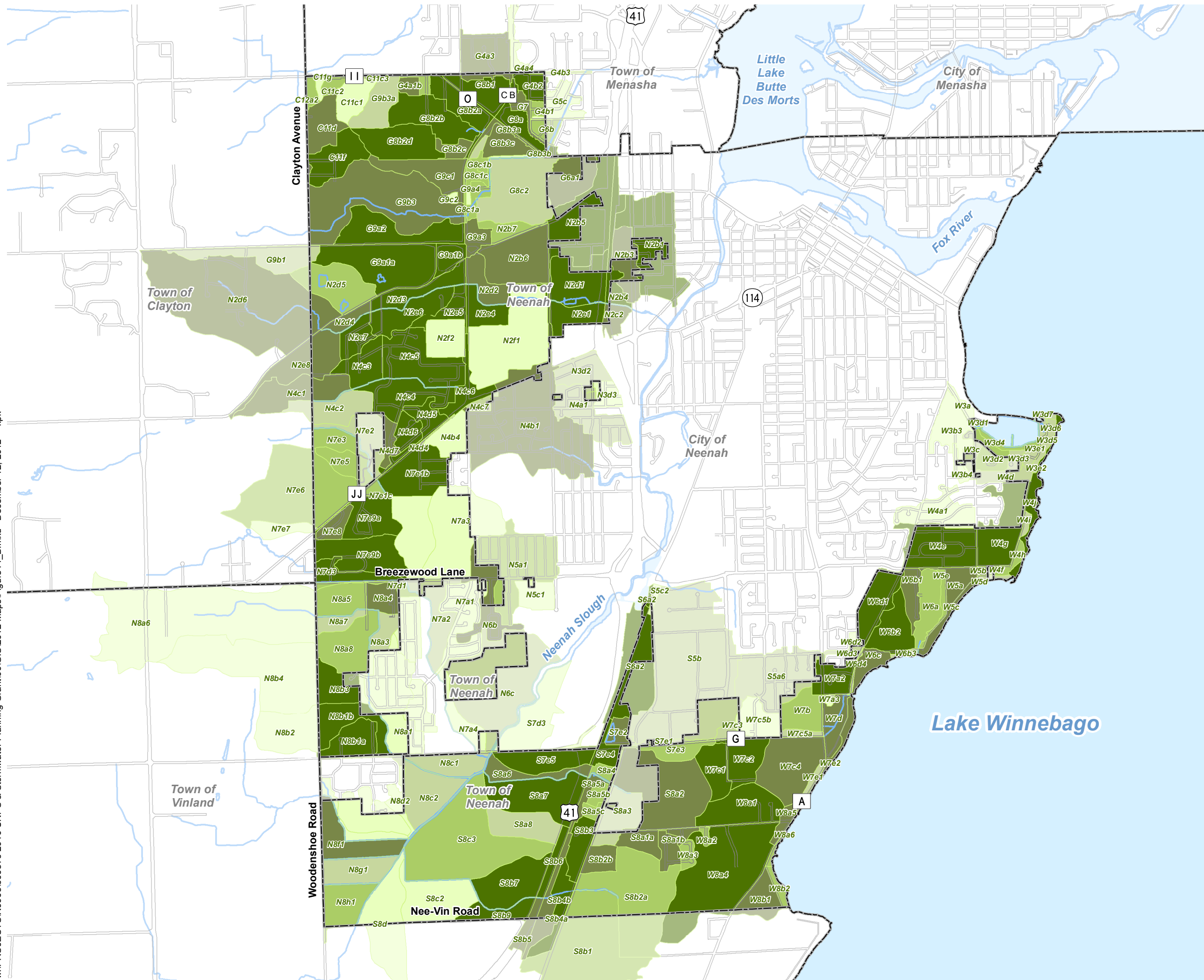
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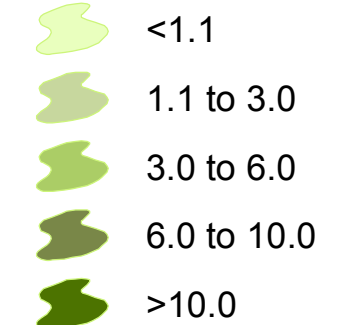
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**FIGURE 13  
TP POLLUTANT YIELD  
STORMWATER MANAGEMENT PLAN  
TOWN OF NEENAH  
WINNEBAGO COUNTY, WISCONSIN**

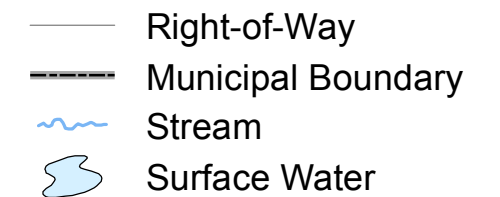
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**No Controls  
TP Pollutant Load (lbs/year)**

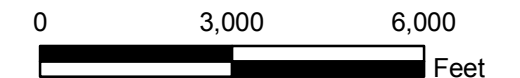


**Other Mapped Features**



Sources: Winnebago County, 2009-2012; WDNR Wetland Inventory, 1986.

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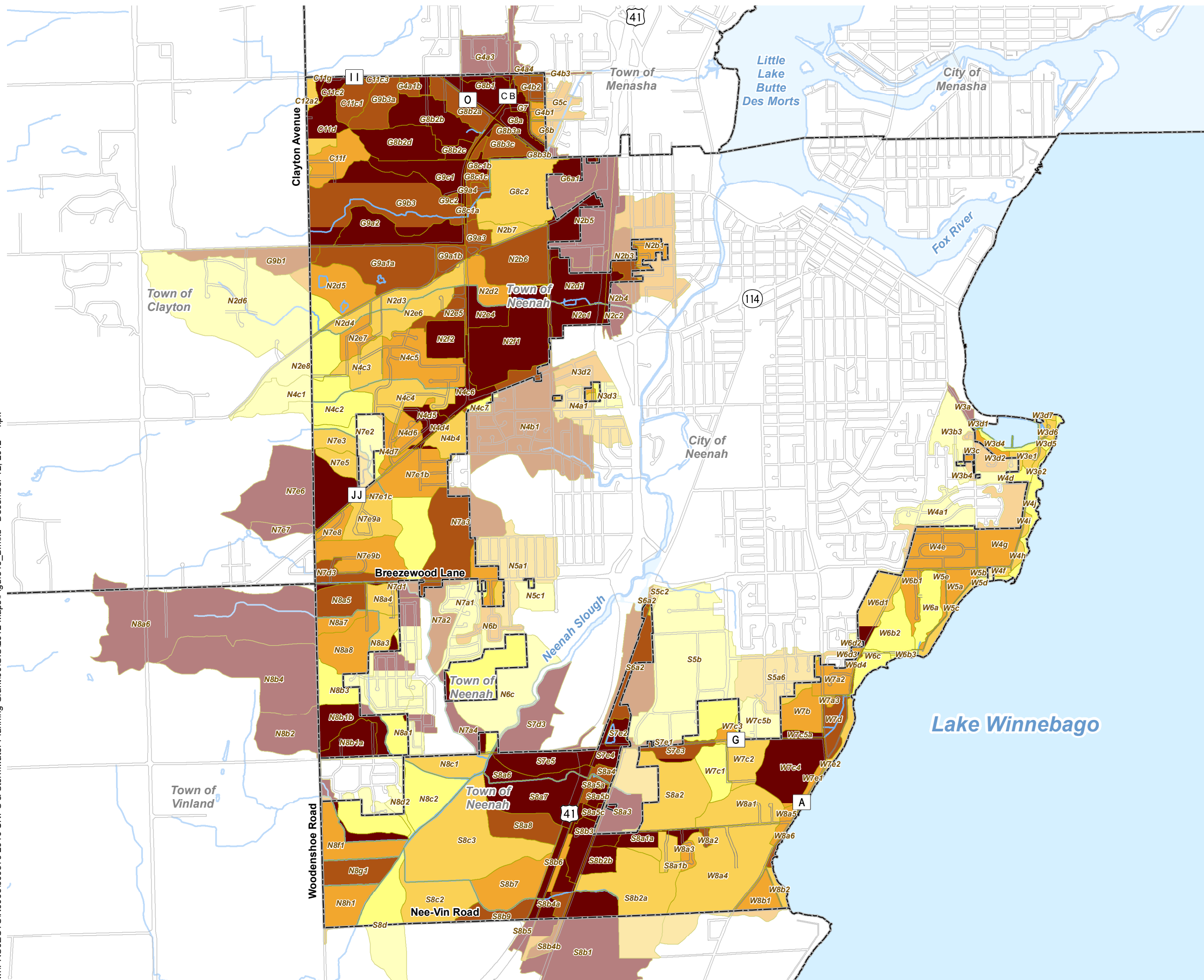


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**FIGURE 14  
TP POLLUTANT LOAD  
STORMWATER MANAGEMENT PLAN  
TOWN OF NEENAH  
WINNEBAGO COUNTY, WISCONSIN**



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**No Controls  
TSS Pollutant Yield (lbs/ac/year)**

- <110
- 110 to 164
- 164 to 245
- 245 to 390
- >390

**Other Mapped Features**

- Right-of-Way
- Municipal Boundary
- Stream
- Surface Water

Sources: Winnebago County, 2009-2012; WDNR Wetland Inventory, 1986.

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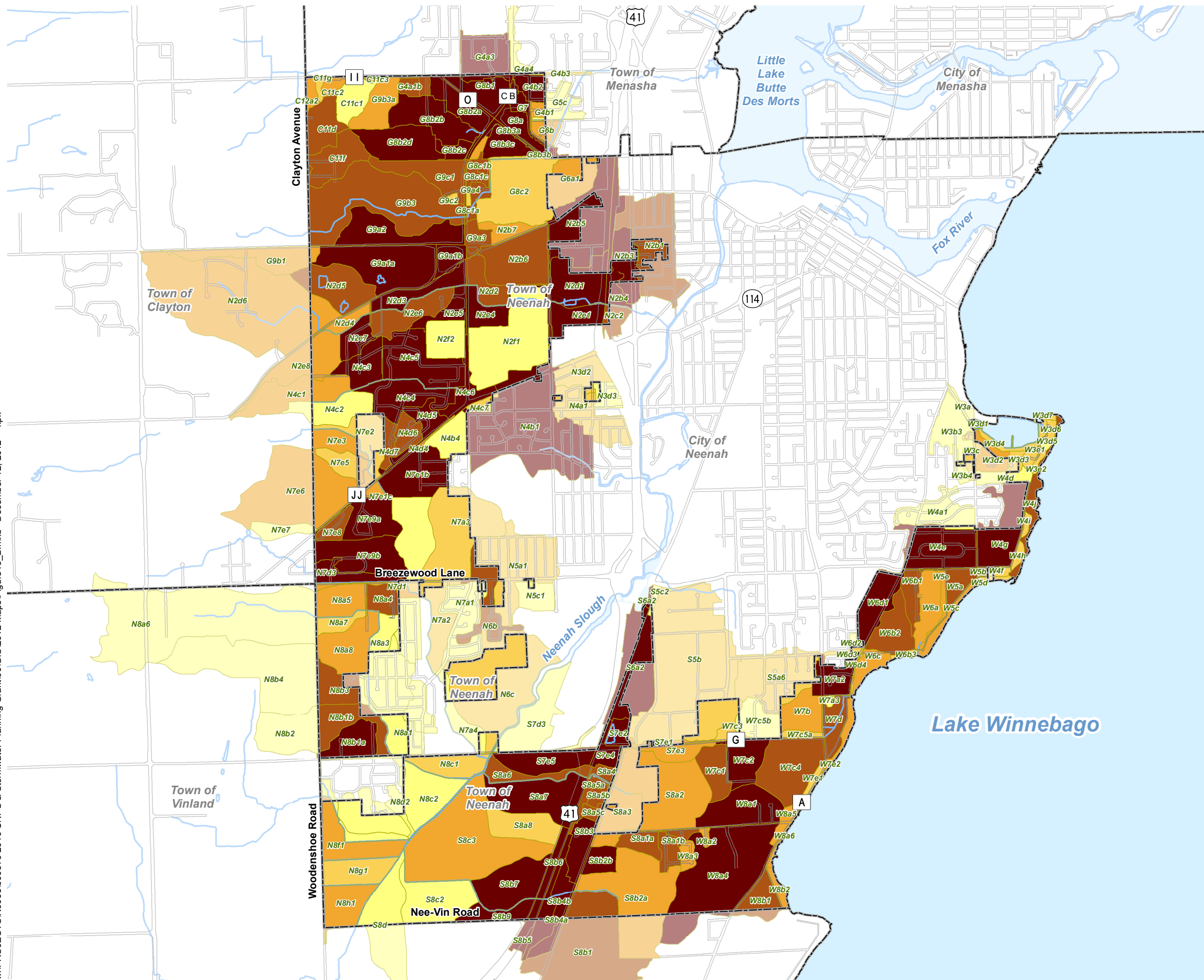


0 3,000 6,000  
Feet

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**FIGURE 15  
TSS POLLUTANT YIELD  
STORMWATER MANAGEMENT PLAN  
TOWN OF NEENAH  
WINNEBAGO COUNTY, WISCONSIN**

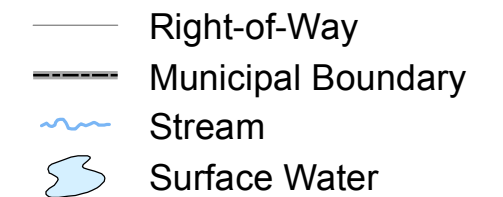
w:\PROJECTS\N0003\900379 2010 UNPS & Stormwater Planning Grant\GIS\2012 Maps\Figure 16\_B.mxd December 12, 2012 kpk



**No Controls  
TSS Pollutant Yield (lbs/year)**

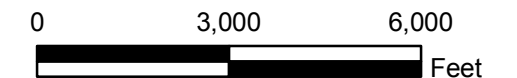


**Other Mapped Features**



Sources: Winnebago County, 2009-2012; WDNR Wetland Inventory, 1986.

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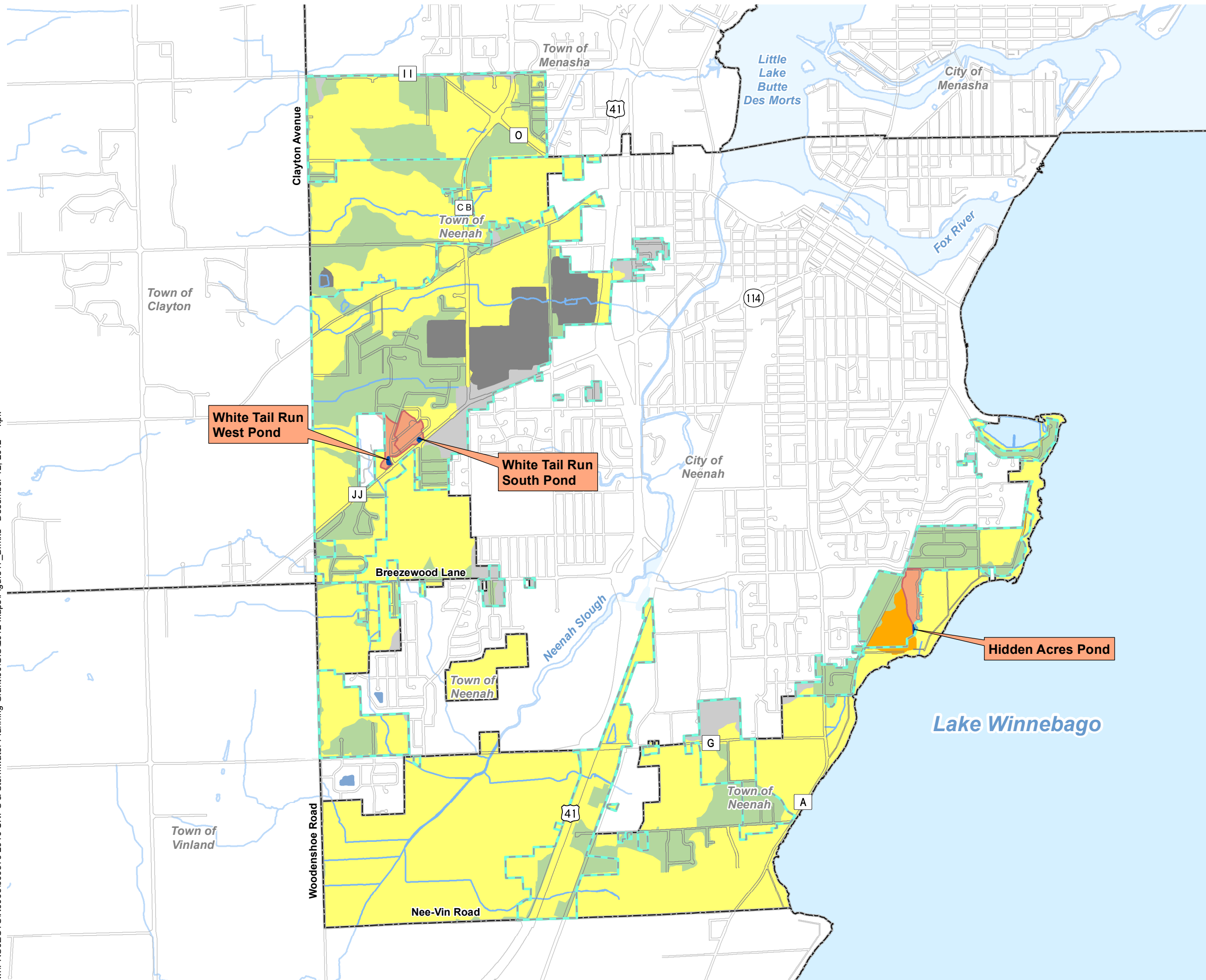


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**FIGURE 16  
TSS POLLUTANT LOAD  
STORMWATER MANAGEMENT PLAN  
TOWN OF NEENAH  
WINNEBAGO COUNTY, WISCONSIN**



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- Structural BMPs**
- Existing BMP
  - Pond Location
- Surface Drainage**
- Curb and Gutter Street
  - Grass Swale
  - Filter Strip
  - No Control
  - Quarry
- Other Mapped Features**
- Right-of-Way
  - Municipal Boundary
  - Urban Planning Boundary
  - Stream
  - Surface Water

Sources: Winnebago County, 2009-2012.

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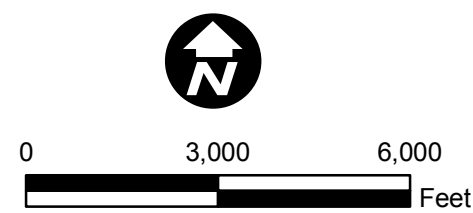
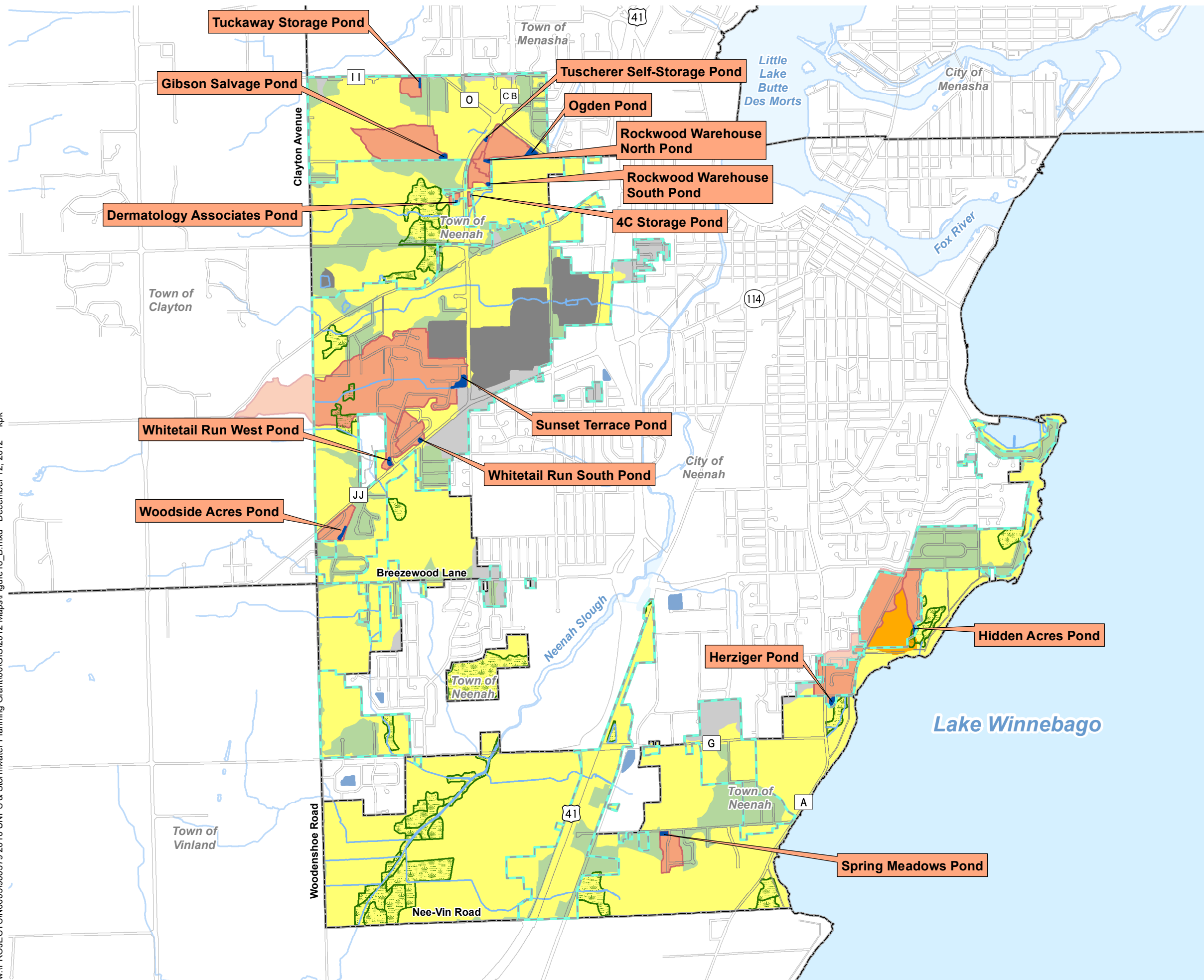


FIGURE 17  
2004 BMPs  
STORMWATER MANAGEMENT PLAN  
TOWN OF NEENAH  
WINNEBAGO COUNTY, WISCONSIN

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#### Structural BMPs

Existing BMP

Pond Location

#### Surface Drainage

Curb and Gutter Street  
(Sweeping Once per Year with  
High Efficiency Sweeper,  
No parking Controls)

Grass Swale

Filter Strip

No Control

Quarry

#### Other Mapped Features

Right-of-Way

Municipal Boundary

Urban Planning Boundary

Stream

Surface Water

WNDR Wetland Inventory

Sources: Winnebago County, 2009-2012; WNDR Wetland Inventory, 1986.

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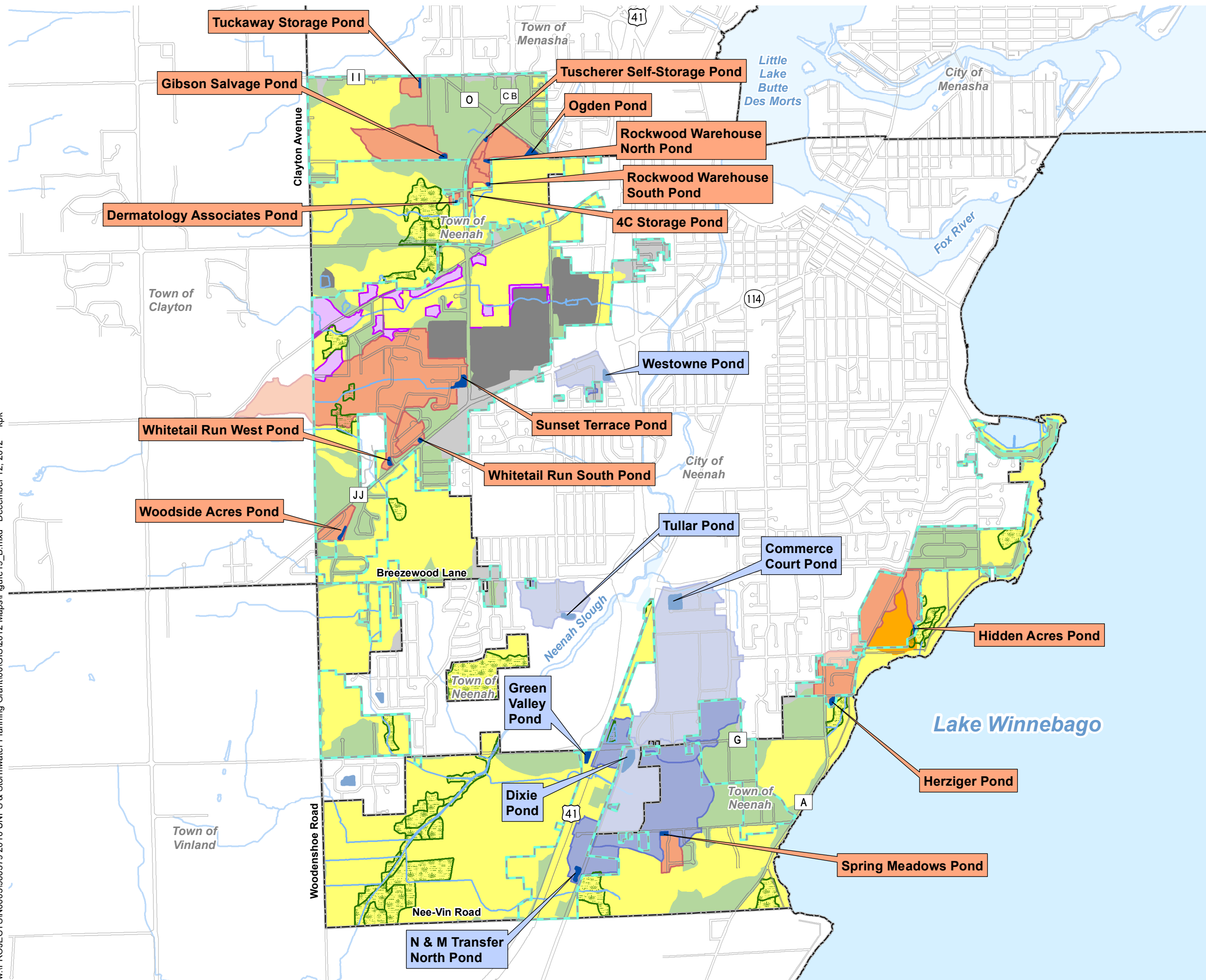
0 3,000 6,000  
Feet

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**FIGURE 18**  
**2012 BMPs**  
**STORMWATER MANAGEMENT PLAN**  
**TOWN OF NEENAH**  
**WINNEBAGO COUNTY, WISCONSIN**



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#### Structural BMPs

- Existing BMP Watershed
- Proposed BMP Watershed
- Promote Infiltration via Rain Gardens
- Pond Location

#### Surface Drainage

- Curb and Gutter Street (Sweeping Once per Year with High Efficiency Sweeper, No parking Controls)
- Grass Swale
- Filter Strip
- No Control
- Quarry

#### Other Mapped Features

- Right-of-Way
- Municipal Boundary
- Urban Planning Boundary
- Stream
- Surface Water
- WNR Wetland Inventory

Sources: Winnebago County, 2009-2012; WNR Wetland Inventory, 1986.

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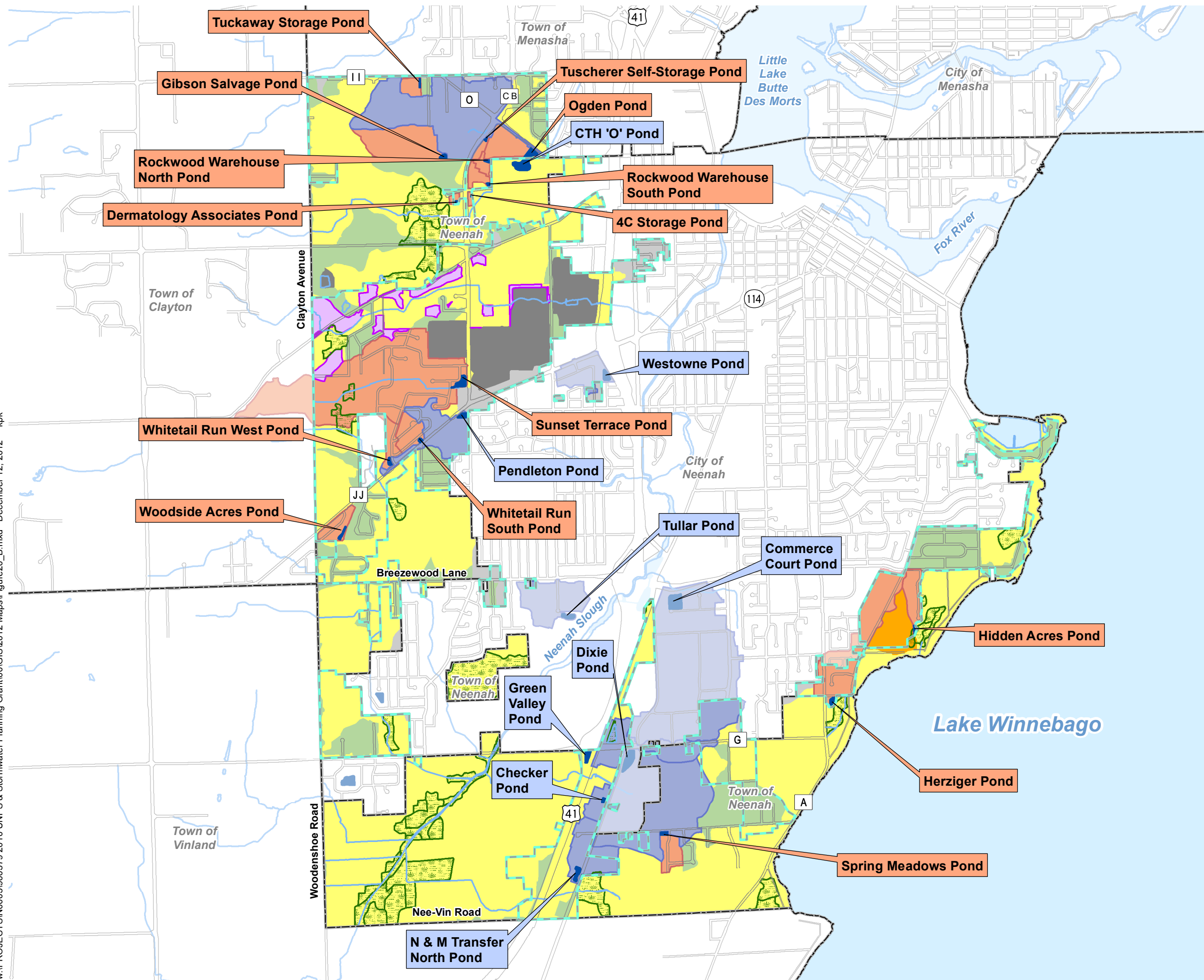


0 3,000 6,000 Feet

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FIGURE 19  
ALTERNATIVE 1  
TMDL 2012 LAND USE  
STORMWATER MANAGEMENT PLAN  
TOWN OF NEENAH  
WINNEBAGO COUNTY, WISCONSIN

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#### Structural BMPs

- Existing BMP Watershed
- Proposed BMP Watershed
- Promote Infiltration via Rain Gardens
- Pond Location

#### Surface Drainage

- Curb and Gutter Street (Sweeping Once per Year with High Efficiency Sweeper, No parking Controls)
- Grass Swale
- Filter Strip
- No Control
- Quarry

#### Other Mapped Features

- Right-of-Way
- Municipal Boundary
- Urban Planning Boundary
- Stream
- Surface Water
- WNR Wetland Inventory

Sources: Winnebago County, 2009-2012; WNR Wetland Inventory, 1986.

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0 3,000 6,000 Feet

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FIGURE 20  
ALTERNATIVE 2  
TMDL 2012 LAND USE  
STORMWATER MANAGEMENT PLAN  
TOWN OF NEENAH  
WINNEBAGO COUNTY, WISCONSIN