# Oneida Nation

## 2015-2020 Pre-Disaster Mitigation Plan

BAY-LAKE REGIONAL PLANNING COMMISSION

Brown • Door • Florence • Kewaunee • Manitowoc • Marinette • Oconto • Sheboygan

2016

# ONEIDA NATION
# 2015-2020 PRE-DISASTER MITIGATION PLAN

**ADOPTED: AUGUST 24, 2016**


**Prepared by**:
Oneida Nation
Pre-Disaster Mitigation Plan Steering Committee

**With Assistance from**:
Bay-Lake Regional Planning Commission
425 South Adams Street, Suite 201
Green Bay, WI 54301
(920) 448-2820



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# Oneida Nation Pre-Disaster Mitigation Plan
# Steering Committee

| Name | Representing |
|---|---|
| Anna Destree | Oneida Community Health Services |
| Bruce Danforth | Department of Public Works |
| Celene Elm | Geographic Land and Information Services |
| Eric Krawczyk | Oneida Community Health Services |
| Eric Skenadore | Geographic Land and Information Services |
| Jacque Boyle | Department of Public Works |
| Kaylynn Gresham | Emergency Management Director |
| Larry Cornelius | Zoning |
| Pat Pelky | Environmental Health and Safety, Director |
| Jeffrey Mears | Environmental Health and Safety |
| Rich VanBoxtel | Police Department, Chief |
| Robert Keck | Risk Management, Director |
| Troy Parr | Planning |
| Dale Wheelock | Housing |
| MaryJo Nash | Division of Land Management |

# Oneida Nation

Post Office Box 365

Phone: (920)869-2214 Oneida, WI 54155


**BC Resolution # 08-24-16-B**
**Oneida Nation 2015-2020 Pre-Disaster Mitigation Plan**

**WHEREAS,** the Oneida Nation is a federally recognized Indian government and a treaty tribe recognized by the laws of the United States of America; and

**WHEREAS,** the Oneida General Tribal Council is the governing body of the Oneida Nation; and

**WHEREAS,** the Oneida Business Committee has been delegated the authority of Article IV, Section 1, of the Oneida Tribal Constitution by the Oneida General Tribal Council; and

**WHEREAS,** Oneida Nation recognizes the threat that natural and man-made hazards pose to people and property; and

**WHEREAS,** undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

**WHEREAS,** an adopted pre-disaster mitigation plan is required as a condition of future grant funding for mitigation projects; and

**WHEREAS,** the 2015-2020 Pre-Disaster Mitigation Plan is a required update to the Oneida Nation 2010-2015 Multi-Hazard Mitigation Plan, originally adopted through BC Resolution # 05-25-10-D; and

**NOW THEREFORE BE IT RESOLVED,** that the Oneida Business Committee of the Oneida Nation, hereby adopts the Oneida Nation 2015-2020 Pre-Disaster Mitigation Plan as an official plan.

**BE IT FINALLY RESOLVED,** upon approval of the Oneida Nation 2015-2020 Pre-Disaster Mitigation Plan, the Bay-Lake Regional Planning Commission, on behalf of Oneida Emergency Management, will submit the adopted plan to the Federal Emergency Management Agency officials for final approval, as required under the Pre-Disaster Mitigation Grant Program.

**CERTIFICATION**

I, the undersigned, as Secretary of the Oneida Business Committee, hereby certify that the Oneida Business Committee is composed of 9 members of whom 5 members constitute a quorum; 7 members were present at a meeting duly called, noticed and held on the 24th day of August, 2016; that the forgoing resolution was duly adopted at such meeting by a vote of 6 members for, 0 members against, and 0 members not voting; and that said resolution has not been rescinded or amended in any way.

Lisa Summers, Tribal Secretary
Oneida Business Committee

*According to the By-Laws, Article I, Section 1, the Chair votes "only in the case of a tie."

**U.S. Department of Homeland Security**
Region V
536 S. Clark St., 6th Floor
Chicago, IL 60605-1509

FEMA

SEP 14 2016

Ms. Cristina Danforth, Tribal Chairwoman
Oneida Nation Business Committee
Oneida Nation
N7210 Seminary Rd.
Oneida, WI, 54155

Dear Chairwoman Danforth:

We are pleased to inform you that the Oneida Nation Pre-Disaster Mitigation Plan has been *approved*, meeting the requirements for a Tribal Mitigation Plan as provided for under the Disaster Mitigation Act of 2000.

The approval of this plan ensures the continued availability within the Oneida Nation of non-emergency Stafford Act funding including the Pre-Disaster Mitigation Program, Hazard Mitigation Grant Program, Fire Management Assistance Grants, and Public Assistance Categories C-G. All requests for funding, however, will be evaluated individually according to the specific eligibility and other requirements of the particular program under which the application is submitted.

We encourage the Oneida Nation to follow the plan's schedule for monitoring and updating the plan. The plan must be reviewed, revised as appropriate, and resubmitted for approval within five years.

Congratulations to the Oneida Nation on completing this significant action. If you or the community has any questions, please contact Christine Meissner at (312) 408-5220 or christine.meissner@fema.dhs.gov.

Sincerely,

Andrew Velasquez III
Regional Administrator

cc: Katie Sommers, State Hazard Mitigation Officer

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Disaster response and recovery is very costly. By undertaking hazard mitigation activities that will reduce the impact of future disasters – the Oneida Nation can reduce these costs and minimize the impact of potentially disastrous events. Hazard mitigation aims to prevent disasters and encourages the development of disaster resilience.

Oneida Emergency Management is the lead agency for the hazard mitigation program for the Oneida Nation, a key component of which is the *Oneida Nation 2015-2020 Pre-Disaster Mitigation Plan*. The purpose of this plan is to identify the tribe's major hazards, assess the risk and vulnerability of those hazards, and take steps to reduce the vulnerability using the technical and program resources of the Oneida Nation and its emergency management partners. Ultimately, the Plan strives to help protect the health, safety, property, environment, and economy of Oneida Nation from the effects of natural hazards.

Beginning in March 2015, and continuing over a 1.5-year period, Oneida Emergency Management, along with relevant Oneida departments and divisions, and representatives from relevant county, state, and federal agencies developed the *Oneida Nation 2015-2020 Pre-Disaster Mitigation Plan*, which is an update to *Oneida Tribe of Wisconsin 2010-2015 Multi-Hazard Mitigation Plan* adopted May 26, 2010.

The following Mitigation Goals were developed by the Oneida Nation Pre-Disaster Mitigation Plan Steering Committee and serves as the foundation for the Oneida Nation Mitigation Strategy:

**Oneida Nation Pre-Disaster Mitigation Goals:**

1. Minimize human, economic, and environmental disruption from natural hazards.
2. Implement policies and programs designed to reduce or eliminate the impacts of natural hazards on people and property.
3. Enhance public education, training, and outreach about disaster resiliency and expand public awareness of natural hazards and their impact.
4. Enhance intergovernmental cooperation with surrounding counties and communities in hazard mitigation efforts and response to hazards and disasters.
5. Promote and enhance the use of natural resource protection measures as a means to reduce the impacts of natural hazards on people and property.

The *Oneida Nation 2015-2020 Pre-Disaster Mitigation Plan* is organized to follow the federal planning requirements found in 44 CFR Parts 201.4 and 201.5, and the guidance provided by the FEMA *Tribal Pre-Disaster Mitigation Planning Guidance* (May 2010). To address the objectives outlined in the guidance, the plan contains four sections that provide an introduction, the risk assessment, a mitigation strategy, and a plan maintenance strategy.

Section 1, Introduction/Planning Process, provides an introduction to the plan. It provides a description of the plan and the process undertaken to develop it. The section discusses the purpose and regulatory context of the plan and provides assurances to FEMA regarding compliance by the Oneida Nation.

Section 2, Tribal Profile, provides a summary profile of the Oneida Nation's physical, social, economic, and political characteristics.

Section 3, the Risk Assessment provides:

- An overview of the type and location of natural hazards that affect the Tribe, including information on past occurrences of hazard events as well as the probability of future events;
- An overview and analysis of the Tribe's vulnerability to natural hazards;
- An overview of potential losses to vulnerable structures including Oneida owned or operated buildings, and critical facilities and infrastructure;

Section 4, the Mitigation Strategy, identifies the Tribe's strategy for reducing the losses identified in the Risk Assessment. The Section identifies mitigation goals to guide the selection of activities to mitigate and reduce losses. Included is a Capability Assessment that provides information about Oneida's policies, laws, regulations, programs, and capabilities that exist. The section ends with a discussion about hazard mitigation funding and information regarding potential funding sources for implementing mitigation measures in the Oneida Nation.

Section 5 describes the Plan Maintenance process and includes the method and schedule for monitoring, evaluating, and updating the plan. It identifies how the Tribe monitors project implementation closeouts, and a system for reviewing progress on achieving the goals of the plan as well as the activities and projects in the Mitigation Strategy, with continued stakeholder involvement.

The Appendices contain meeting sign-in sheets including all Steering Committee meetings and public meetings.

## PLAN UPDATE SUMMARY

To highlight the changes that have been made to the *Oneida Nation 2015-2020 Pre-Disaster Mitigation Plan* in this current update, Table 1 below lists the plan changes Table 2 shows the updates made to the identified mitigation strategies.

Table 1: Plan Update Summary

| Plan Section | Overview of Plan Update |
|---|---|
| Section 1: Introduction: Planning Process and Tribal Profile | Added an Executive Summary to highlight plan changes. Updated recent disasters, planning process participants, and public review information. Updates were made to the original steering committee to reflect changes in positions since the last plan was adopted. The steering committee updated the prioritized order of the hazards to be addressed. Demographic profile information was updated using the 2010 Census. Land use information was updated. |
| Section 2: Risk Assessment | All hazard profiles, occurrences, probabilities, and risk assessments were updated. Natural hazard occurrences were updated to include all from 2008 to 2015. Hazard probabilities were updated based on updated occurrences. Critical facilities were updated. An assessment for climate change impacts was added. |
| Section 3: Mitigation Strategy | Removed mitigation goal #5 as it was no longer applicable. Updated the mitigation action plan to account for completed projects, updated timetables, and new project additions. Provided a climate change assessment. |
| Section 4: Plan Maintenance | Updated plan maintenance process and plan update schedule. |

Table 2: Plan Update Summary - Mitigation Strategies

| Project | Changes |
|---|---|
| **All Hazards** | |
| Develop Oneida Emergency Management website to provide public outreach and education. | Completed. |
| Improve coordination (and definition of responsibilities and partnerships) between Oneida Nation departments, and with non-tribal entities. | Completed. |
| Investigate options to improve coverage of both in-car and portable police radio communications. | Completed. |
| Provide for coordination with support agencies (such as the American Red Cross) and resource acquisition during emergencies through the implementation of the Oneida Nation Emergency Operations Plan. | Updated to add "all departments" to the Responsible Parties. |
| Ensure registration and provide updates under the Brown and Outagamie counties 211 Information System. | Changed Priority from "High" to "Low." |
| Improve internal 800 MHz radio communications by arranging talk groups on a separate frequency. | Removed, as it is no longer relevent. |
| Develop more salt storage. | Completed. |
| Inventory the lightning protection devices such as lightning rods and grounding that is available on communications infrastructure and other critical facilities including outdoor warning sirens. | Removed, as it is not relevent. |
| Investigate the options and feasibility of boosting mobile phone service area coverage. | Completed. |
| Establish a calendar of upcoming outreach activities. | Addition. |
| **Extreme Heat** | |
| Maintain programs to check on the elders and functional needs during extreme heat days. | Changed Priority from "Medium" to "Low." |
| **Tornado** | |
| Ensure tornado shelter locations exist for all tribal services buildings and shelter locations are posted. | Completed. |
| Locate equipment in a couple different areas to reduce chances of damaging all equipment at once. | Completed. |
| **Flooding** | |
| Inventory floodfighting equipment supplies with Brown and Outagamie County (sandbags, pumps, etc.). | Changed Priority from "High" to "Low." |
| Utilize floodplain mapping to update existing flood maps and data sources to better determine areas and facilities susceptible to recurring flooding. | Updated 2013. Next update in 2023. |
| Develop an evacuation plan for people and property and coordinate it with Brown and Outagamie counties. | Completed. |
| Develop emergency response procedures such as disaster assessment, sandbagging, protection of buildings and other structures, and emergency gas and electricity cut-off, and coordinate them with Brown and Outagamie counties. | Completed. |

Table 2: Plan Update Summary - Mitigation Strategies (cont'd)

| Flooding (cont'd) | |
|---|---|
| Maintain and update Aerial photography. | Updated 2014. Next update in 2019. |
| Abide by proper land use policy framework through the Oneida Nation comprehensive plan. | Updated to add "all departments" to the Responsible Parties. |
| Establish routine physical engineering inspection and verification of Fort Howard Sludge Facility impoundment. | Addition. |
| Routinely monitor and record the conditions of dams/impoundments and their water levels to ensure impoundments are maintained and functioning properly. | Addition. |
| Ensure the residents located within a flood zone have information on emergency procedures if the dam/impoundment is compromised. | Addition. |
| **Wildland Fire** | |
| Investigate participation in the Mutual Aid Box Alarm System (MABAS). | Completed. |
| Maintain and upgrade roads to allow for adequate access by emergency vehicles and fire equipment. | Added" Brown and Outagamie counties, municipalities" to the Responsible Parties. |
| "Ensure dams/impoundments are maintained and functioning properly, Routinely monitor small dams and impoundments, and Continue to monitor dam/impoundment water levels and communicate those conditions as necessary." | Have been combined into one strategy. |
| **Combine Dam Failure Flooding with Flood** | |
| **Combined Street Flooding with Flood** | |

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# SECTION 1 - INTRODUCTION/PLANNING PROCESS

## PURPOSE OF THE PLAN

The *Oneida Nation 2015-2020 Pre-Disaster Mitigation Plan* was developed consistent with the state hazard mitigation planning requirements outlined in the Code of Federal Regulations (44 CFR Part 201.4 and 201.5). This plan evaluates the tribe's potential exposure to natural hazards and identifies appropriate mitigation strategies.

Completion of this plan will assist the Oneida Nation emergency management personnel in identifying areas of risk, assessing the magnitude of the risk, and developing strategies for reducing this risk. Through this process, Oneida can address issues related to incompatible land uses; the identification and protection of critical facilities; and the reduction of costs associated with natural disaster relief and rescue efforts. Completion and approval of this plan makes the Oneida Nation eligible to apply for future disaster relief and mitigation project funds to implement recommended mitigation strategies.

### DISASTER MITIGATION ACT OF 2000

The Disaster Mitigation Act of 2000 (DMA 2K) provided the impetus at the federal level for pre-disaster mitigation planning. DMA 2K was signed into law in October of 2000 as an attempt to stem the losses from disasters, reduce future public and private expenditures, and speed up response and recovery from disasters. The following is a summary of the parts of DMA 2K that pertain to tribal government.

- Establishes a new requirement for tribal government to prepare a pre-disaster mitigation plan in order to be eligible for Federal Emergency Management Agency (FEMA) assistance through the Hazard Mitigation Assistance Program.
- Establishes a requirement that natural hazards be addressed in the risk assessment/vulnerability analysis part of the pre-disaster mitigation plan. Addressing man-made/technological hazards is encouraged, but not required.
- Authorizes a percentage of Hazard Mitigation Assistance Program funds to a state after a federal disaster is declared to be used for development of state, local, and tribal pre-disaster mitigation plans.
- Established a deadline by which tribal governments are to prepare and adopt their respective plans in order to be eligible for the FEMA Hazard Mitigation Assistance Program.

### PLANNING VISION

This plan establishes three major visions in fulfilling the requirements established through DMA 2K:

**Reduce Hazard Risks and Impacts** – This pre-disaster mitigation plan assessed vulnerability of life and property from potential natural hazards and prioritized

corresponding mitigation strategies to reduce the risk and impact from the hazard.

**Build on Existing Efforts** – Oneida, Wisconsin, and county and local entities have engaged in mitigation and response planning efforts over the years. The intent of this plan is to maximize these efforts by inventorying, coordinating, and building on these efforts where possible, and developing new strategies to fill any gaps identified among existing efforts. This plan incorporates information and strategies from existing emergency response plans and other relevant efforts.

**Share Information and Raise Awareness** – Public engagement methods used in the preparation of this plan sought input from a diverse range of stakeholders including the public (tribal council) and various public, private, and non-profit sector representatives. Mitigation strategies identified in this plan address public information, communication, and outreach in a universal manner regardless of hazard type, and within a hazard-specific context, as applicable.

## ASSURANCES

The Oneida Nation will continue to comply with all applicable Federal statutes and regulations in effect with respect to the periods in which it receives grant funding, in compliance with 44 CFR 13.11(c). The *Oneida Nation 2015-2020 Pre-Disaster Mitigation Plan* will be amended according to the process described in the *Section 4 – Plan Maintenance* whenever necessary to reflect changes in Federal statutes as required in 44 CFR 13.11(d).

## ACKNOWLEDGEMENTS

Oneida Emergency Management would like to acknowledge and thank the members of the Oneida Nation Pre-Disaster Mitigation Plan Steering Committee ("Steering Committee) for their involvement and commitment in the development of the *Oneida Nation 2015-2020 Pre-Disaster Mitigation Plan*. The plan process was a multi-agency effort with ONEIDA EMERGENCY MANAGEMENT serving as the lead agency for the planning process and the Bay-Lake Regional Planning Commission providing facilitation, and plan development and drafting assistance. The Steering Committee is comprised of representatives from the following agencies:

- Oneida Emergency Management
- Oneida Geographic Land Information Systems
- Brown County Health
- Oneida Zoning
- Oneida Land Development
- Oneida Housing
- Oneida Land Management
- Oneida Department of Public Works
- Oneida Environmental Health and Safety
- Oneida Community Health
- Oneida Planning Department
- Oneida Risk Management
- Oneida Police Department

## PLANNING PROCESS

Development of the *Oneida Tribe of Wisconsin 2010-2015 Multi-Hazard Mitigation Plan* began in January 2008 and was approved by the Oneida Business Committee on April 28, 2010. The plan was developed following the *Tribal Pre-Disaster Mitigation Planning Guidance* released by FEMA in July 2008. The plan identified Oneida's most prevalent hazards and risks, and sets forth a mitigation strategy for reducing future losses and damages.

An update to that plan began in March 2015. The Steering Committee comprised of tribal and county officials from various departments guided the plan update process over an 18-month timeframe. Professional planning support and facilitation was provided by the Bay-Lake Regional Planning Commission. Development of the plan update was structured along a five-phase planning process:

**Phase I: Pre-planning**

**Phase II: Reassess risks**

**Phase III: Update the mitigation action plan**

**Phase IV: Reevaluate policies and procedures for plan implementation**

**Phase V: Document the planning process and plan adoption**

Phase I involved establishing a scope of work and contract from the regional planning commission, organizing the grant and financial management team, and updating the representation on the Steering Committee.

Phase II involved reviewing natural hazard occurrences and reevaluating their risk ranking, and assessing potential risks to the Oneida Nation.

Phase III involved the update of the mitigation action plan to addressed identified risks.

Phase IV involved reevaluating policies that affect plan implementation and procedures that are followed to implement the plan.

Phase V involved documenting the planning process, developing a complete draft of the plan update, and plan adoption.

### PUBLIC INVOLVEMENT

The public for the Oneida Nation is defined as the General Tribal Council (GTC). The GTC is the governing body of the Oneida Nation and consists of all enrolled Oneida tribal members who are 18 years of age or older who are present at a duly called GTC meeting. The GTC meets in January and July of each year, and may meet when the Oneida Business Committee Chairperson calls a special GTC meeting as needed or as requested through a GTC petition signed by at least 50 qualified GTC members. Since the adoption of the Oneida Constitution in 1936, the GTC has delegated much of its authority to the Oneida Business Committee.

The GTC was informed and involved with the process and adoption of the *Oneida Nation 2015-2020 Pre-Disaster Mitigation Plan* through communications and public meetings.

### Public Informational Meeting

Information about the *Oneida Nation 2015-2020 Pre-Disaster Mitigation Plan* was provided at a public meeting on May 11, 2016 at the Oneida Police Department. The plan and large displays of the critical facilities map and the mitigation action plan were on exhibit at the meeting. Appendix B provides copies of the sign-in sheets and comment forms.

### General Tribal Council Semi-Annual Meeting

Information about the *Oneida Nation 2015-2020 Pre-Disaster Mitigation Plan* was provided at the General Tribal Council semi-annual meeting on July 6, 2016 at the Radisson Hotel and Conference Center. The plan and large displays of the critical facilities map and the mitigation action plan were on exhibit at the meeting. Throughout the evening, 162 General Tribal Council members signed in at the display table and received information about the plan.

## STEERING COMMITTEE

Oneida Emergency Management established the Steering Committee to oversee the development of the plan update. Committee members were selected from relevant Oneida departments.

The Steering Committee was responsible for providing input, guiding the planning process, and reviewing and commenting on each section of the plan. Under the direction of Oneida Emergency Management, the Bay-Lake Regional Planning Commission facilitated Steering Committee meetings, collected and distributed information for the meetings, and drafted the plan.

The Steering committee met over an 18-month period beginning in April 2015. Table 3 provides a list of the meeting dates for the Steering Committee. The *Acknowledgements* section of this plan provides a list of the representation on the Steering Committee and *Appendix A* provides copies of the sign-in sheets from each Steering Committee meeting.

Table 3: Steering Committee Meetings

| Meeting Dates |
|---|
| **2015** |
| **April 21, 2015** |
| **July 2, 2015** |
| **August 12, 2015** |
| **November 20, 2015** |
| **2016** |
| **January 15, 2016** |
| **February 26, 2016** |

## REVIEW AND INCORPORATION OF EXISTING INFORMATION

Through the process of developing the *Oneida Nation 2015-2020 Pre-Disaster Mitigation Plan*, previous plans, studies, reports, and technical information were reviewed and incorporated into this plan where applicable. The following includes a list of some of the primary documents that were reviewed and incorporated into this plan.

- *Oneida Tribe of Wisconsin 2010-2015 Multi-Hazard Mitigation Plan* (2010)
- Oneida Nation Emergency Response Plan (2010)
- Oneida Nation Code of Laws
- State of Wisconsin Hazard Mitigation Plan (2011)
- Brown County, Wisconsin 2012 All Hazards Mitigation Plan

## PLAN CONTENTS

The *Oneida Nation 2015-2020 Pre-Disaster Mitigation Plan* is divided into five sections to address each of FEMA's tribal mitigation plan requirements. In addition to the five sections, the plan includes an executive summary and appendices providing supplemental information. The sections of the plan are as follows:

**SECTION 1 – INTRODUCTION/PLANNING PROCESS**

**SECTION 2 – TRIBAL PROFILE**

**SECTION 3 - RISK ASSESSMENT**

**SECTION 4 - MITIGATION STRATEGY**

**SECTION 5 - PLAN MAINTENANCE**

*Section 1 – Introduction/Planning Process* provides a description of the plan and the process undertaken to develop the plan. It provides assurances to FEMA regarding compliance by the Oneida Nation.

*Section 2 – Tribal Profile* provides a summary profile of the Oneida Nation's physical, social, economic, and political characteristics.

*Section 3 – Risk Assessment* profiles a range of potential natural hazards that could pose a threat to Oneida Nation. This section accesses Oneida's vulnerabilities to potential hazards based on a variety of considerations, identifies the tribe's assets, and attempts to quantify losses of tribal assets.

*Section 4 – Mitigation Strategy* defines Oneida's goals, current efforts, and a future action plan for mitigating the impacts of each hazard. This section also discusses the implementation plan for mitigation actions and the tribe's capabilities and potential funding for implementing mitigation projects.

*Section 5 – Plan Maintenance* describes the planning process in terms of its technical, political, and public engagement components. This section sets the course for plan monitoring, evaluating, and updating; measuring progress of mitigation actions, and continued engagement of stakeholders.

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# SECTION 2 - TRIBAL PROFILE

The tribal profile of the *Oneida Nation 2015-2020 Pre-Disaster Mitigation Plan* provides information about Oneida's history, general physical characteristics, demographics, and land cover and land use. The profile has been updated with data provided by the Oneida Nation Planning and Statistics.

## PHYSICAL CHARACTERISTICS

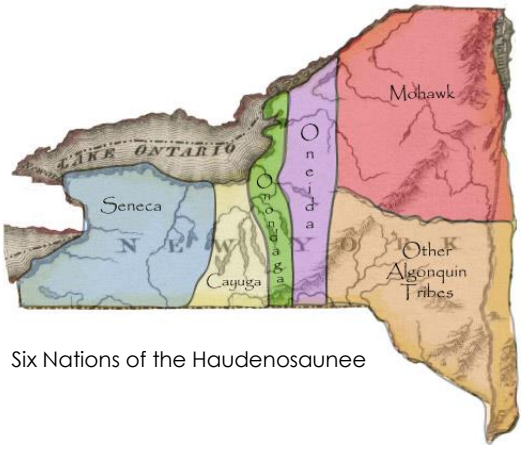
The Oneida Nation Reservation is located in northeast Wisconsin on the west side of the Green Bay metropolitan area (Map 1). It comprises portions of eastern Outagamie County and western Brown County. The shape of the reservation is an angled rectangle directed to the northeast, due to the area's layout along the Fox River, which runs in the same direction. The Oneida Reservation has a land area of 65,400 acres (Oneida Comprehensive Plan Update, 2014).

### COMMUNITIES WITHIN RESERVATION BOUNDARIES

The Town of Oneida in Outagamie County and the Village of Hobart in Brown County are entirely within the federal boundaries of the Oneida Reservation. Three other Brown County communities lie partially within the boundaries of the Oneida Reservation including the Village of Ashwaubenon, the City of Green Bay, and a small corner of the Town of Pittsfield in Brown County (Map 2).

## HISTORICAL BACKGROUND

The Oneida Nation is a sovereign Tribe with a long and proud history of self-government. With homelands in central New York State, it was one of the five original nations of the Haudenosaunee (People of the Longhouse, a.k.a. Iroquois Confederacy) in the 1500's. These nations, the Mohawk, Oneida, Seneca, Cayuga and Onondaga, were joined by the Tuscarora Tribe early in the 1700's to form the Six Nations of the Haudenosaunee (Oneida Nation Brochure, *Purple Book*, 1991).



Six Nations of the Haudenosaunee

In 1821, the Oneidas, along with a delegation of the Six Nations, met with representatives from the Menominee and Winnebago Nations to negotiate for fertile and open lands along the western Great Lakes. In an early 1822 Treaty, the Oneidas purchased joint use of five million acres of land with the Menominees and Winnebagos for a total sum of $5,000. The purchase was sanctioned by President Monroe in 1823. The area included lands along both sides of the Fox River, within a territory that would eventually become the state of Wisconsin in 1848.

Not long after Oneidas began arriving in Wisconsin, land started to be taken unfairly and unwillingly from them. Four years after President Monroe sanctioned the Oneidas' purchase of joint use of over five million acres, the Oneidas were defrauded much of this land when the United States and the Menominees signed the Treaty at Butt des Morts, without Oneida participation. Oneida lands were further reduced to an area of approximately 65,000 acres by the 1838 Treaty with the Oneidas. The boundaries designated by this treaty established what today is still recognized as the original Oneida Reservation.

At the close of the 19th century, Oneida lands once again fell prey to United States expansion. In 1887, Congress passed the Indian Allotment Act (also known as the Dawes Act) which allocated land to individuals. Through the next several years, reservation lands continued to dwindle. Since the concept of taxation was so new and not understood by the Oneida people, many Oneidas lost their lands by failing to pay their taxes. Many also lost their lands due to fraudulent methods of ruthless land companies and the invasion of non-Indians who desired their fertile lands. By 1924, all but a few hundred acres remained.

Reorganization of the government and stopping the loss of land came with the Indian Reorganization Act (IRA) of 1934. It provided the foundation for drafting and adopting the Oneida Constitution. In 1936, the Oneida Constitution transformed the tribal government to an elected system with four members serving on a tribal council known as the Executive Committee, later amendments to the Constitution expanded and renamed the Executive Committee to the Oneida Business Committee.

When Congress passed the Indian Gaming Regulatory Act in 1988, Congress provided a statutory framework for Tribe's to conduct various classes of gaming on their reservations. In 1991, the Oneida Nation became the first tribal government in Wisconsin history to enter into a gaming compact with the state. Within this Gaming Compact, and subsequent amendments, the Oneida Nation and the State of Wisconsin have attained major accomplishments for both parties, regarding economic impacts and stability, employment, and programs and services.

## DEMOGRAPHICS

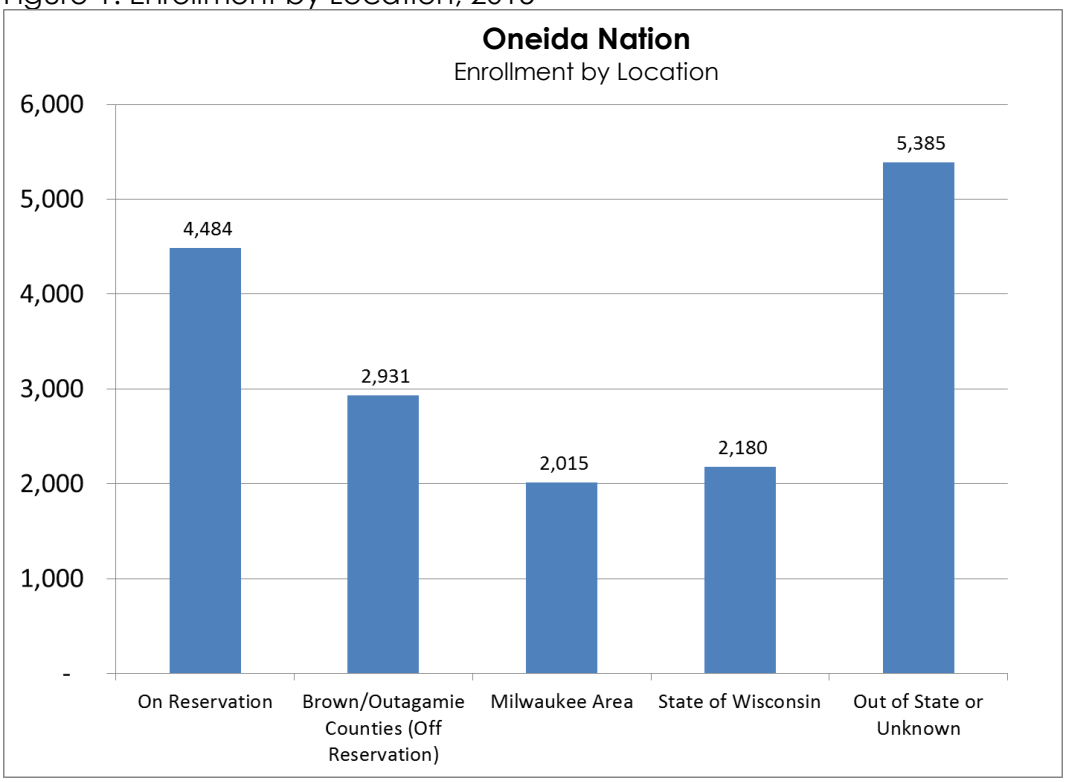
In order to plan for potential hazards, it is important to gain an understanding of the population and housing characteristics for the community. The Enrollments Office of the Oneida Nation is responsible for keeping Oneida enrollment information up to date and is the best source for demographic information related to Oneida members both within and outside the Reservation boundaries. Other demographic sources, such as U.S. Census Bureau American Community Survey provides data on the Reservation population; however, the data is not specific to Oneida members and includes nonmembers residing within the tribal boundaries.

### POPULATION/ENROLLMENT

As of December 31, 2014, there were 16,995 Oneida enrolled members. Of these enrolled members, 4,484 (26 percent) live on the Oneida Reservation in Wisconsin, and 2,931 (17 percent) live in Brown and Outagamie Counties in Wisconsin, but not within

the Oneida Reservation boundaries. The majority of Oneida enrolled members (56 percent) live elsewhere (Figure 1).

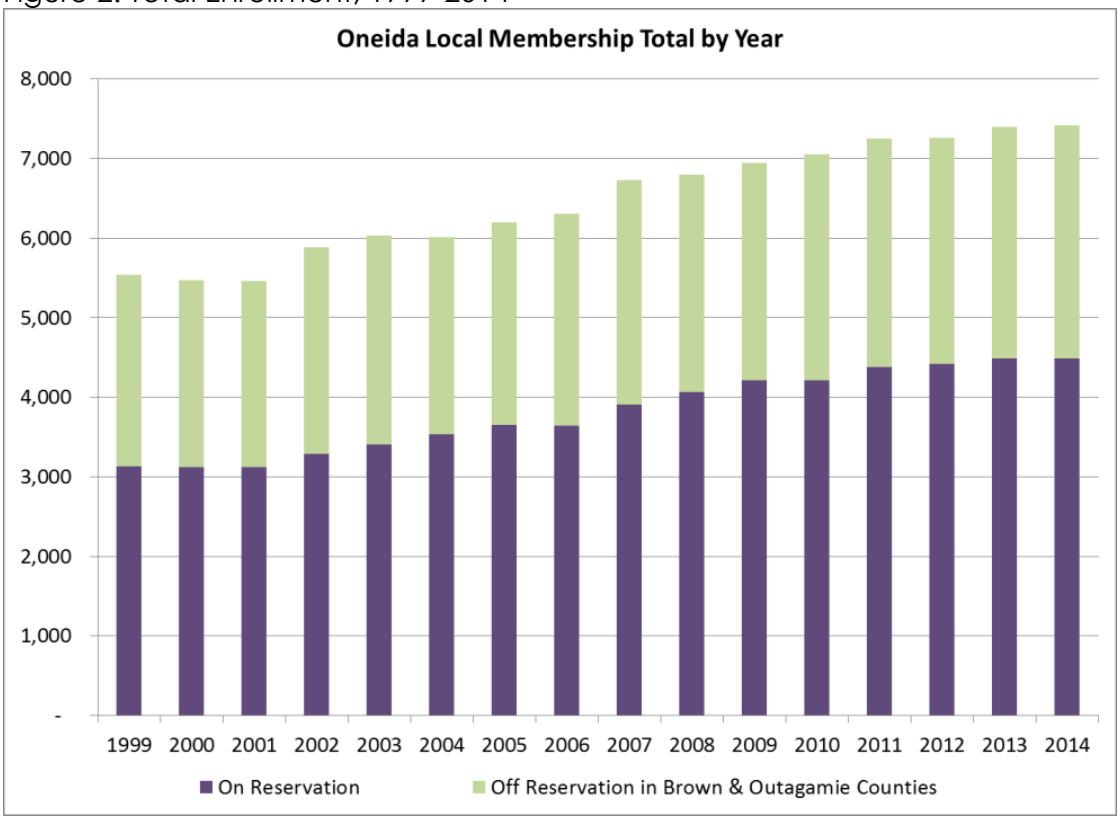
Figure 1: Enrollment by Location, 2015




Source: Oneida Nation Enrollments Office, Oneida Nation Planning Department, 12-31-2014.

Of the Oneida members who live in Brown and Outagamie Counties, 1,737 (23 percent) are under 18 years old; 4,139 (56 percent) are aged 18-54; and 1,539 (21 percent) are 55 and older. Just over half of the Oneida members who live in Brown and Outagamie Counties (51 percent) are female. Figure 2 displays the growth of Oneida membership in Brown and Outagamie Counties since 1999.

Figure 2: Total Enrollment, 1999-2014



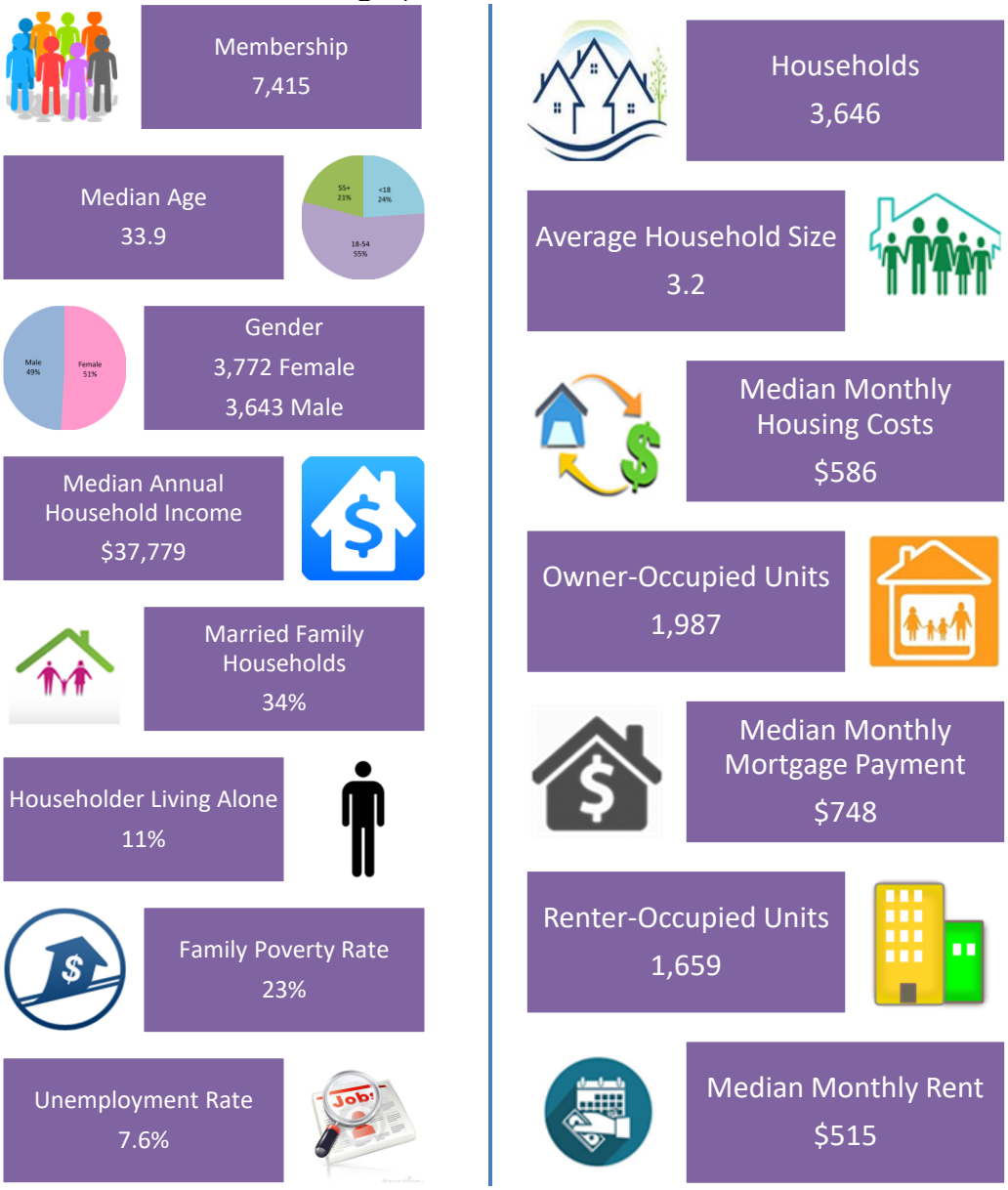

Source: Oneida Nation Enrollments Office, Oneida Nation Planning Department, 2015.

## HOUSING

According to Oneida Enrollment records as of June 27, 2014, there were 1,792 Oneida member households on the Oneida Reservation. There were an additional 1,854 households with Oneida members in Brown and Outagamie Counties, off the Oneida Reservation. Therefore, Oneida members live in a total of 3,646 households in Brown and Outagamie Counties.

Figure 3 details the demographics of Oneida members and their households (includes both on-reservation and Brown and Outagamie County off-reservation members).

Figure 3: Oneida Nation Demographics, 2014




Source: Oneida Nation Enrollments Office, Oneida Nation Planning Department, 2015.

## LAND USE

The Oneida Reservation has a land area of 65,701 acres (Table 4). Of the total acres, almost 60 percent is in the Town of Oneida; about 33 percent is in the Village of Hobart; six percent is in the City of Green Bay; and less than one percent each in the Village of Ashwaubenon and the Town of Pittsfield.

Detailed inventories of land uses were conducted by Brown and Outagamie counties in 2010. Table 4 and Map 3 (at the end of the section) present the compilation of the two county inventories, which have been generalized into compatible land use classifications.

Table 4: Land Use, 2010

| Land Use Classification | Acres | % of total |
|---|---|---|
| Agriculture | 33,031.9 | 50.3% |
| Natural Areas | 17,909.1 | 27.3% |
| Residential | 7,236.4 | 11.0% |
| Transportation | 4,346.0 | 6.6% |
| Recreation | 1,088.3 | 1.7% |
| Industrial | 743.6 | 1.1% |
| Commercial | 566.2 | 0.9% |
| Institutional/Governmental | 493.0 | 0.8% |
| Communications/Utilities | 286.2 | 0.4% |
| Total | 65,700.9 | 100.0% |

Source: Brown County Land Use Inventory, 2010; Outagamie County Land Use Inventory, 2010; Bay-Lake Regional Planning Commission 2015.

# CRITICAL FACILITIES AND INFRASTRUCTURE

Critical facilities and infrastructure are buildings, structures, or systems that are relied upon for an urgent need during a hazard event, and if destroyed would present an immediate threat to life, public health, and/or safety. The Oneida Nation determined the criticality of their facilities and infrastructure based on the relative importance of its various assets for the delivery of vital services, the protection of special populations, and other important functions. Critical facilities and infrastructure include schools, communication facilities, utilities, health facilities, police and fire stations, Oneida-owned structures, clinics, shelters, etc.

The Oneida Nation used the following designations for their critical facilities. The identification of critical facilities and designations were guided by the FEMA Hazards U.S. database (HAZUS).

- Essential Facilities. These facilities are critical to the health and welfare of the entire population are essential following hazard events, including emergency response facilities (police, fire, and emergency government), medical care facility, schools, and shelters.

- Hazardous Materials Facilities. These facilities may pose a threat if disrupted by natural hazards and include underground and aboveground storage tanks with flammable or combustible materials.
- Lifeline Utility Systems. These facilities are essential lifelines that include potable water, wastewater, electric, and communications systems.
- Transportation Systems. These facilities include highways, bridges, transit, and small dams that could impact transportation if they failed.
- Vulnerable Facilities. These facilities house a vulnerable population and require special attention before, during, and after hazard events.
- Tribal Services. These facilities provide direct services to tribal members.
- Tribal Owned. These facilities are owned by the tribe.

The Oneida Nation and the Pre-Disaster Mitigation Plan Steering Committee identified tribal-owned structures, facilities, and infrastructure as critical facilities and infrastructure. The designation also includes the Oneida Nation housing sites.

## CRITICAL FACILITIES AND INFRASTRUCTURE

The Oneida Nation and the Pre-Disaster Mitigation Plan Steering Committee identified all of the structures, significant sites, and infrastructure owned by the tribe as critical. Because the tribe provides most of its own services to the people of the Oneida Nation, it was determined that all facilities and infrastructure are vital to that mission. Identified critical facilities and infrastructure for the Oneida Nation includes:

- Child care services facilities
- Schools
- Senior service facilities
- Food production sites
- Banks
- Warehouses
- Tribal service facilities
- Cultural heritage sites/museums
- Police department
- Manufacturing facilities
- Health centers
- Community services
- Religious service facilities
- Wastewater treatment facilities
- Food processing sites
- Commercial sites
- Dams
- Water supply facilities
- Community centers
- Shelters

Table 5 lists the primary (tribal-owned) critical facilities and infrastructures within Oneida Nation boundaries, and the type of facility. Table 6 lists the secondary (non-tribal) critical facilities and infrastructure within Oneida Nation boundaries, and the type of facility. Map 4 (at the end of the section) displays the location of the tribal critical facilities and infrastructure.

Table 5: Oneida Nation Primary (Tribal-Owned) Critical Facilities/Infrastructure

| Name | Type |
|---|---|
| Airport Road Child Care Center | Vulnerable Facility |
| Airview | Tribal Services |
| Apple Orchard | Tribal Services |
| Archiquette Building (Incl. Library Expansion) | Tribal Services |
| **Assembly Area/Shelter** Civic Center - Memorial Building | Essential Facility |
| **Assembly Area/Shelter** (Recreation Bldg.) | Essential Facility |
| **Assembly Area/Shelter** (Social Services & 4 Cottages and Garage) | Essential Facility |
| **Assembly Area/Shelter** (Turtle School) | Essential Facility |
| Bay Bank | Tribal Owned |
| Bay Bank | Tribal Owned |
| Casino Warehouse | Tribal Services |
| Cell Tower | Lifeline Utility System |
| Cell Tower | Lifeline Utility System |
| Cell Tower | Lifeline Utility System |
| Centralized Accounting aka Finance Office | Tribal Services |
| Community Education Center | Tribal Services |
| Conservation | Tribal Services |
| Cultural Heritage | Tribal Services |
| Dam (Finger Lake) | Transportation Systems |
| Dam (Oneida Club) | Transportation Systems |
| Department of Public Works (DPW) and Grounds Keeping | Essential Facility |
| Division of Land Management | Tribal Services |
| Employee Health Nursing | Tribal Services |
| Food Distribution | Tribal Services |
| Gaming | Tribal Services |
| Headstart | Vulnerable Facility |
| Highway 54 One Stop | Hazardous Materials Facility |
| Irene Moore Activity Center | Tribal Owned |
| Judicial | Tribal Services |
| Language | Tribal Services |
| Law Enforcement Center | Essential Facility |
| Lee McLester Complex (Anna John Residential Health, Elder Apts, and Senior Center) | Vulnerable Facility |
| Little Bear Development/GLIS | Tribal Services |
| Main Casino/Radisson | Vulnerable Facility |
| Manufacturing Facility | Tribal Owned |
| Mini Mall | Tribal Owned |
| Natural Gas Line | Lifeline Utility System |
| Norbert Hill Center/High School/BC | Essential Facility |
| Oneida 7 GEN | Tribal Owned |

Source: Oneida Nation Pre-Disaster Mitigation Plan Steering Committee; 2016.

Table 5: Oneida Nation Primary Critical Facilities/Infrastructure (cont'd)

| Name | Type |
|---|---|
| Oneida Car Wash | Tribal Owned |
| Oneida Community Health Center | Essential Facility |
| Oneida Housing Warehouse | Tribal Services |
| Oneida Market & One-Stop | Hazardous Materials Facility |
| Oneida Nation Farm | Hazardous Materials Facility |
| Oneida Nation Museum | Tribal Owned |
| Oneida Travel Center | Hazardous Materials Facility |
| Oneida Utilities Office | Tribal Services |
| One-Stop EE | Hazardous Materials Facility |
| One-Stop Westwind | Hazardous Materials Facility |
| Packerland One Stop | Hazardous Materials Facility |
| Parish Hall (a.k.a. Episcopal Parish Hall) | Tribal Owned |
| Popkee | Tribal Owned |
| Printing/Retail | Tribal Services |
| Pump House | Lifeline Utility System |
| Pump House | Lifeline Utility System |
| Pump House | Lifeline Utility System |
| Pump House | Lifeline Utility System |
| Ridgeview Plaza/Oneida Transit | Transportation Systems |
| Skenandoah Complex - Oneida Administration Building | Tribal Services |
| Thronberry Creek at Oneida Golf Course | Hazardous Materials Facility |
| Tornado Shelter/Library/Manufactured Housing Site | Essential Facility |
| Tsyunhehkwa | Tribal Services |
| Veterans Office | Tribal Services |
| Wastewater Treatment Facility | Lifeline Utility System |
| Water Tower | Lifeline Utility System |
| Water Tower | Lifeline Utility System |
| West Mason Mall | Tribal Services |
| Wingate | Tribal Owned |

Source: Oneida Nation Pre-Disaster Mitigation Plan Steering Committee; 2016.

Table 6: Oneida Nation Secondary (Non-Tribal) Critical Facilities/Infrastructure

| **Brown County Critical Facilities/Infrastructure** |
|---|
| Brown County All-Hazard Plan Facilities |
| Brown County Emergency Warning System |
| Administrative Buildings |
| Parks |
| Cell Towers |
| **Outagamie County Critical Facilities/Infrastructure** |
| Emergency Warning System |
| Schools |
| Water Fill Sites |
| Archeological Area/Sites |
| Museums |
| Day Care Centers |
| Fire Stations |
| Nursing Homes |
| Natural Gas Transfer Stations |
| Cell Towers |
| Electric Transmission Substations |
| **Wisconsin Critical Facilities/Infrastructure** |
| Bridges |
| Dams |
| Electric Transmission Substations |
| Correctional Institutions |
| Electric Transmission Lines |

Source: Oneida Nation Pre-Disaster Mitigation Plan Steering Committee; 2016.

### Oneida Nation Housing Sites

The Oneida Nation and the Pre-Disaster Mitigation Plan Steering Committee included the housing sites owned by the tribe as critical facilities. Table 7 lists the Oneida Nation housing sites included as critical facilities along with their acreage size.

Table 7: Oneida-owned Critical Facilities/Infrastructure – Housing Sites

| Name | ACRES |
|---|---|
| Aliskwet Court | 4.8 |
| Cora House Housing | 34.4 |
| Daniel Court | 8.1 |
| Elder Village | -- |
| Flying Leaf Subdivision (Site II) | 10.2 |
| Green Earth Manufactured Housing Community | 9.9 |
| Green Valley | 21.0 |
| Hillside Housing | 16.3 |
| Joshua Heights | 4.5 |
| Legacy Lane | 3.8 |
| Manders Court | 1.6 |
| Ridgeland Housing | 39.0 |
| Rolling Hills Housing | 24.2 |
| Sand Hill Circle Housing | 35.2 |
| Site I | 6.9 |
| Standing Stone | 23.0 |
| Tall Feather Way | -- |
| Three Sisters | 10.0 |
| Turtle Where It Ends | 26.0 |
| Uskah | 9.8 |

Source: Oneida Nation Pre-Disaster Mitigation Plan Steering Committee; 2016.

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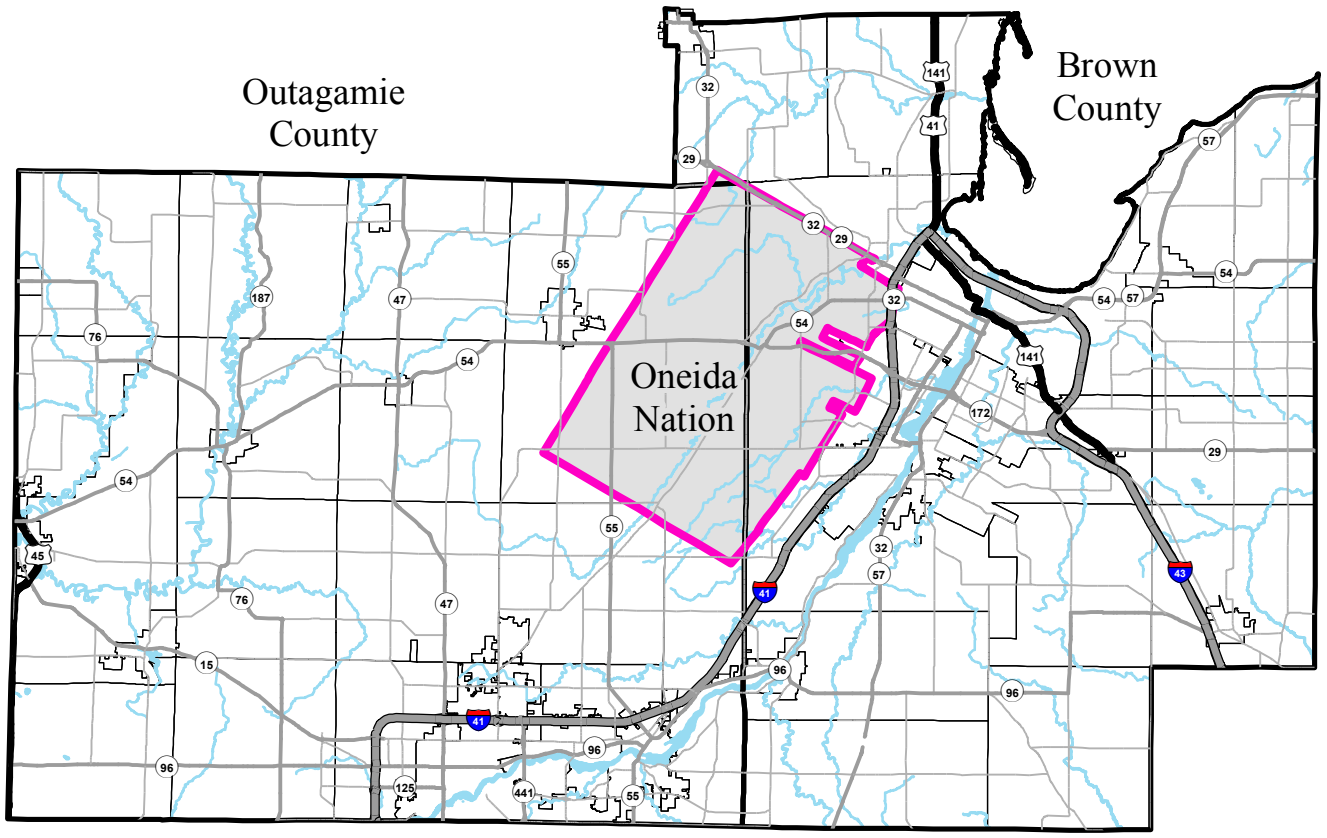
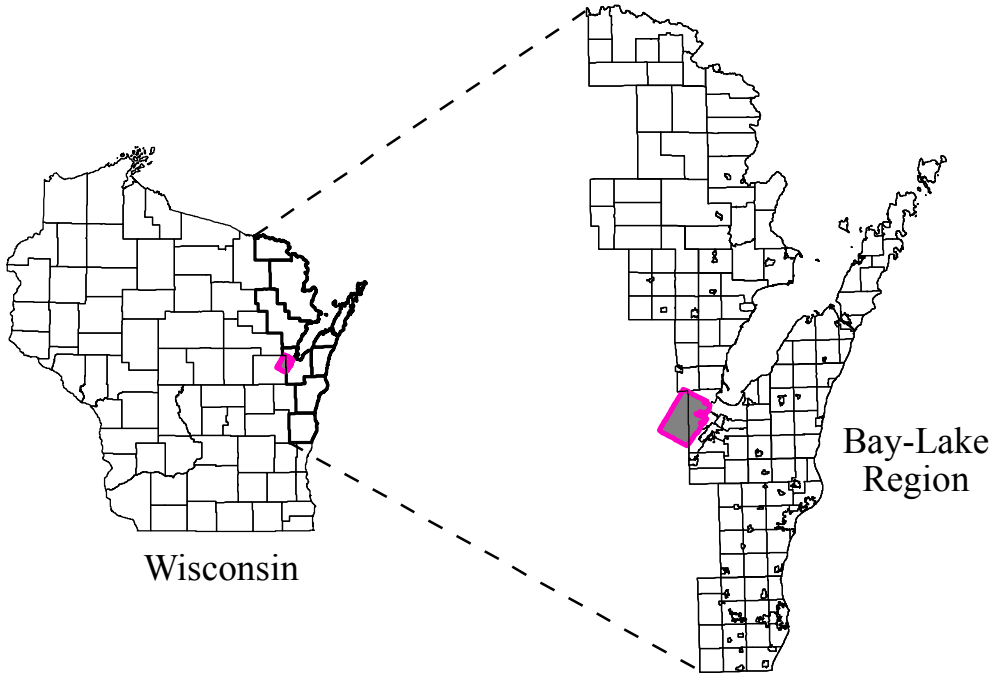
# Location Map

## Oneida Nation Pre-Disaster Mitigation Plan

Oneida Reservation, Wisconsin




BAY-LAKE REGIONAL PLANNING COMMISSION



Source: WDNR, 2009; WDOT, 2014; Brown County, 2015; Outagamie County, 2015; Oneida Nation, 2015; Bay-Lake Regional Planning Commission, 2016.

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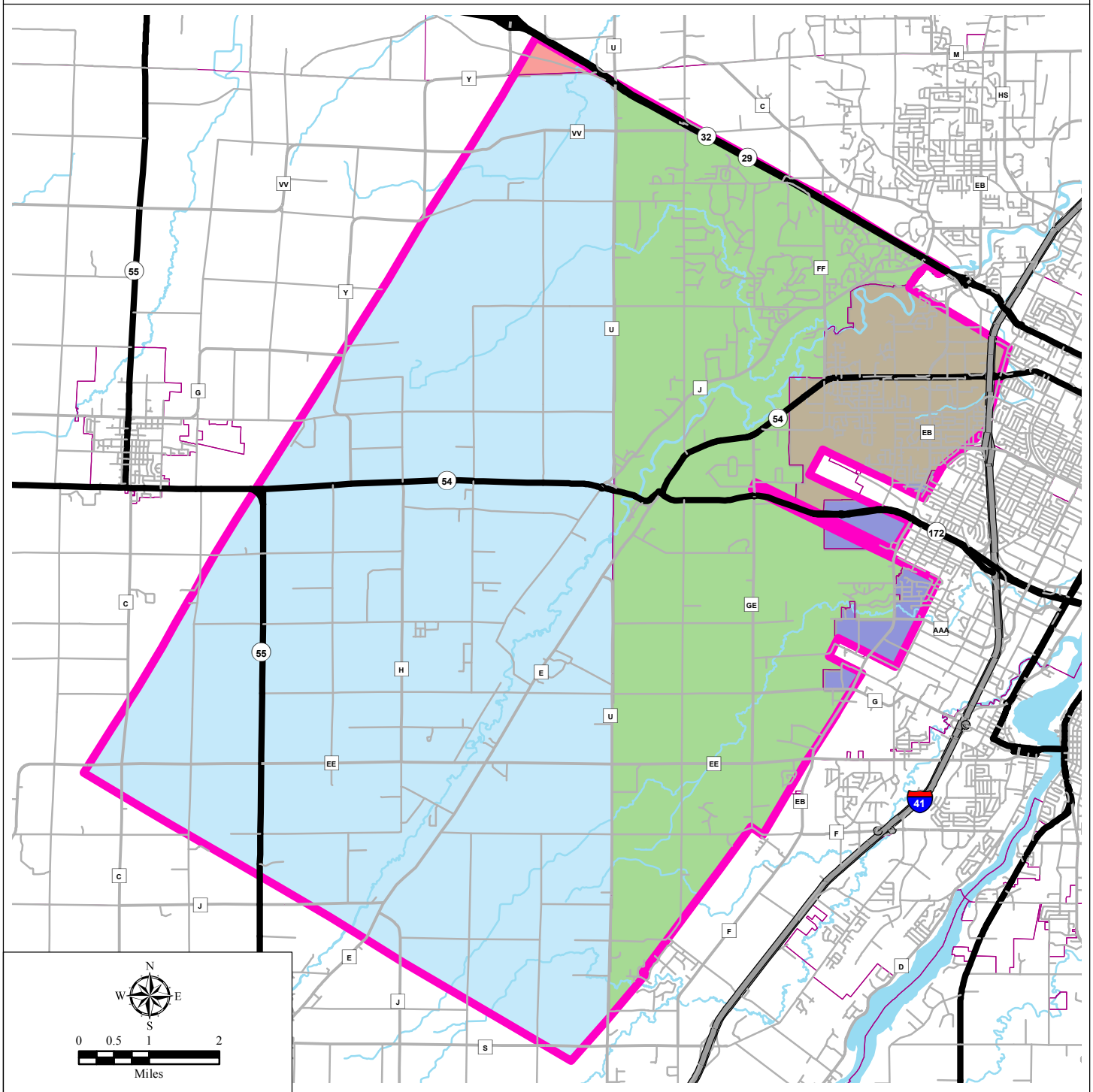
Map 2

# Oneida Nation Reservation

## Oneida Nation Pre-Disaster Mitigation Plan

Oneida Reservation, Wisconsin




Oneida Nation Boundary
City of Green Bay
Village of Ashwaubenon
Village of Hobart
Town of Pittsfield
Town of Oneida

**Base Map Features**

- Tribal Boundary
- MCD Boundary
- Interstate Highway
- State Highway
- County Highway
- Local Road
- Surface Water

BAY-LAKE REGIONAL PLANNING COMMISSION



Source: WDNR, 2009; WDOT, 2014; Brown County, 2015; Outagamie County, 2015; Oneida Nation, 2015; Bay-Lake Regional Planning Commission, 2016.

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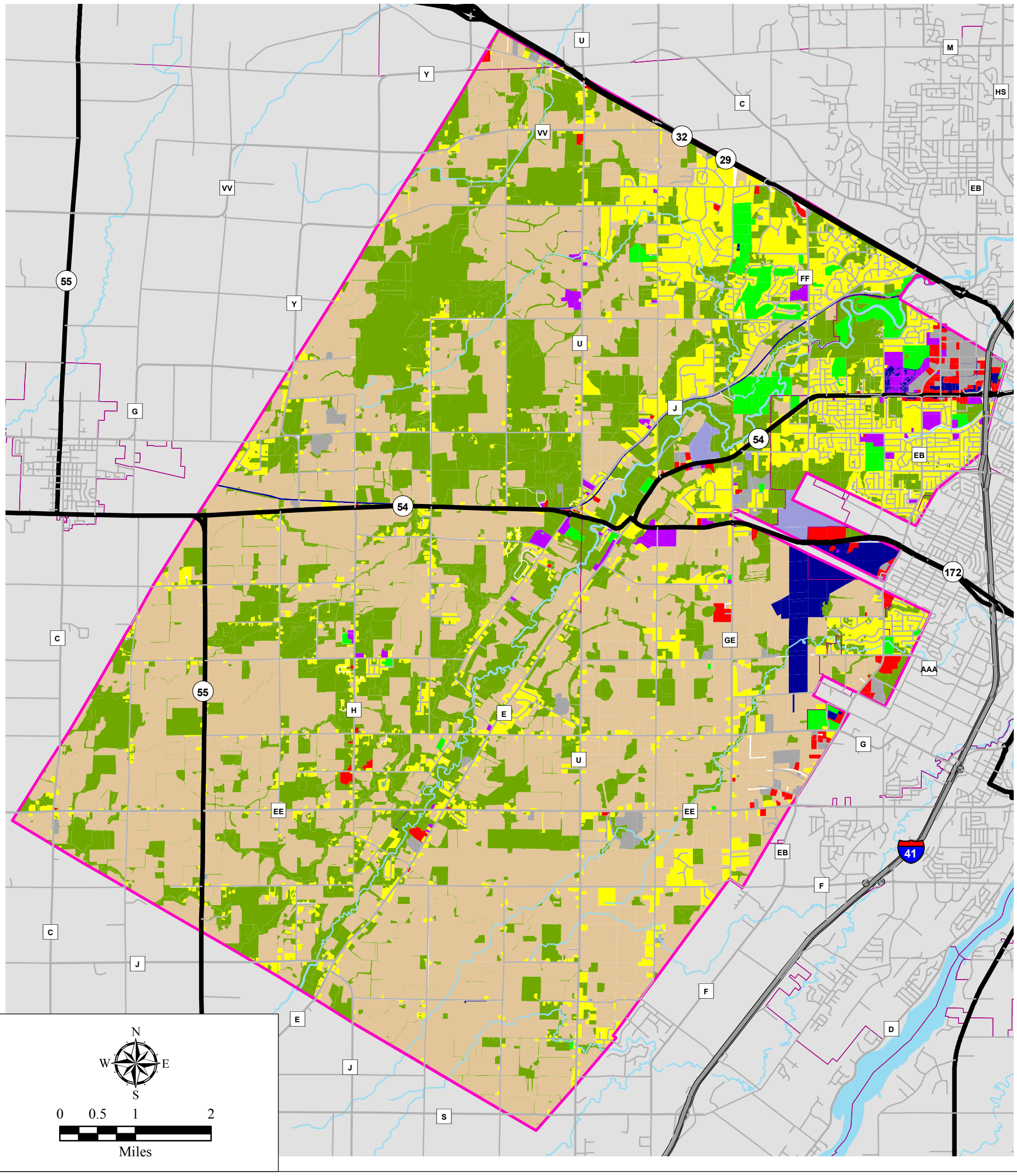
Map 3

# Land Use

## Oneida Nation Pre-Disaster Mitigation Plan

### Oneida Reservation, Wisconsin






Source: WDNR, 2009; WDOT, 2014; Brown County, 2015; Outagamie County, 2015; Oneida Nation, 2015; Bay-Lake Regional Planning Commission, 2016.

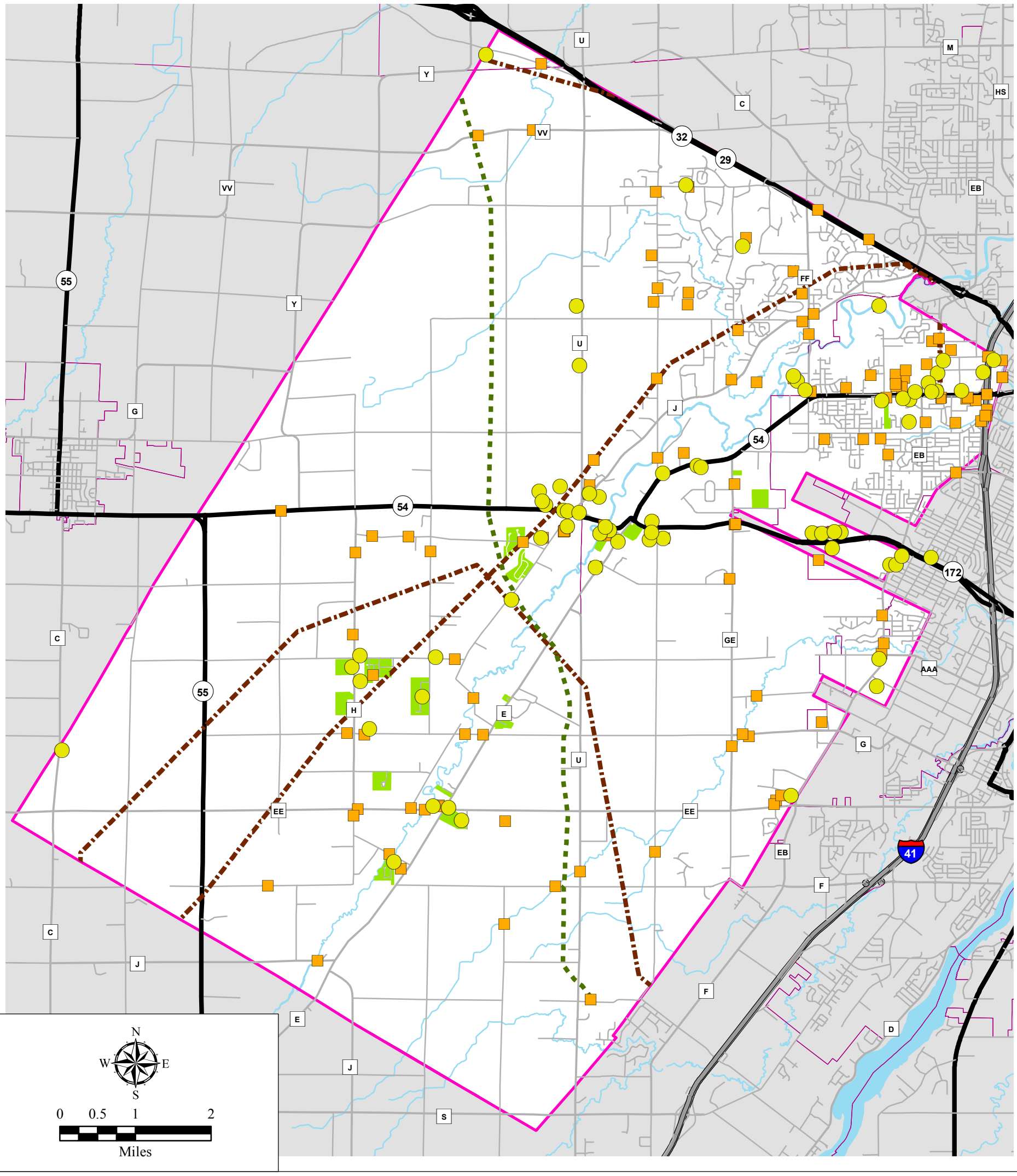
BAY-LAKE REGIONAL PLANNING COMMISSION

Map 4

# Critical Facilities/Infrastructure

## Oneida Nation Pre-Disaster Mitigation Plan

### Oneida Reservation, Wisconsin




**Base Map Features**

- Tribal Boundary
- MCD Boundary
- Interstate Highway
- State Highway
- County Highway
- Local Road
- Surface Water

- Primary Critical Facility
- Secondary Critical Facility
- Gas Pipeline
- ATC Transmission Line
- Oneida Nation Housing Site



Source: ATC, 2008; WDNR, 2009; WDOT, 2014; Brown County, 2015; Outagamie County, 2015; Oneida Nation of Wisconsin, 2015; Bay-Lake Regional Planning Commission, 2016.

BAY-LAKE REGIONAL PLANNING COMMISSION

A risk assessment has been prepared for the Oneida Nation to identify the hazards believed to pose the greatest risk to residents; to profile the extent and severity of past hazards; and to assess the Oneida Nation's vulnerability to future hazard events. Through the risk assessment process, emergency management personnel will be able to more effectively evaluate potential hazard mitigation measures and develop useful strategies to address the risks associated with the profiled hazards.

## HAZARD IDENTIFICATION

This plan addresses the hazards that were determined to pose the greatest risk to residents and facilities for the Oneida Nation. Natural hazards to be addressed in the plan were identified by the Steering Committee. The Steering Committee identified the hazards to be addressed in the plan through an evaluation process that included a consideration of past occurrences of natural hazards in the area and the hazards addressed in the FEMA-approved *State of Wisconsin Hazard Mitigation Plan* (October 2004).

### NATURAL HAZARD PAST OCCURRENCES

Historical hazard statistics assisted the Steering Committee in determining the natural hazards to be evaluated in the plan. The National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center (NCDC) publishes National Weather Service (NWS) data describing past weather events and the resulting deaths, injuries, and damages associated with each hazard event. Historical hazard events were available from January 1, 2000 through December 31, 2015.

The NCDC data indicated that 217 discernible hazard events were recorded over the last 16 years from January 1, 2000 through December 31, 2015 for the Oneida Nation.

#### Natural Hazard Frequency

For consistency, the following hazard types were combined to aggregate similar hazard events from the NCDC database.

- *Excessive heat* combines "Excessive heat" and "Heat."
- *Extreme cold* combines "Extreme cold," "Wind chill," "Cold," and "Frost/Freeze."
- *Flood* combines "Flood," "Flash flood," "Heavy rain", and Dam failure flooding."
- *Winter storm* combines "Winter weather," "Blizzard," "Heavy snow," and "Ice storm."
- *Strong wind* combines "Strong wind," "High wind" and "Thunderstorm wind."

The data from the NCDC shows that over the last 16 years, winter storms are the most frequently occurring natural hazard event, with 88 events recorded (40.6 percent of all events). This was followed by strong wind, extreme cold, flooding, hail, excessive heat, drought, dense fog, and tornado. Table 8 shows the frequency of natural hazards occurring in the Oneida Nation area since 2000.

Table 8: Natural Hazard Occurrences, Oneida Nation, 2000 to 2015

| Natural Hazard | # of Events | % of Total |
|---|---|---|
| Winter Storm | 88 | 40.6% |
| Strong Wind | 60 | 27.6% |
| Extreme Cold | 15 | 6.9% |
| Hail | 15 | 6.9% |
| Flood | 15 | 6.9% |
| Excessive Heat | 10 | 4.6% |
| Drought | 9 | 4.1% |
| Dense Fog | 4 | 1.8% |
| Tornado | 1 | 0.5% |
| Total | 217 | 100.0% |

Source: NOAA NCDC Storms Database, 2000-2015.

**Natural Hazard Events Historical Summary**

The National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center (NCDC) publishes National Weather Service (NWS) data describing past weather events and the resulting deaths, injuries, and damages associated with each of these events. Event occurrence information is available at a local, county, or regional level – depending on the area covered by the hazard event. An assessment for the Oneida Nation required the use of data for both Brown and Outagamie Counties. Historical hazard events were available from January 1, 2000 through December 31, 2015. The query for that time period resulted in 217 events recorded.

Some of the recorded hazard events may not have been specific to the Oneida Nation, but may have occurred across a larger regional area, or statewide. Additionally, some of the common hazard events, such as hail or dense fog, may only get reported to the NCDC if they are significant events that cause property damage, injury, or death.

The data from the NCDC Storm Events Database shows that over the last 16 years, the Oneida Nation experienced 88 winter storms, 60 strong wind events, 15 significant extreme cold events, 15 flooding events, 15 significant hail events, and ten significant excessive heat events. Other less frequent events since 2000 include drought (9 events), dense fog (4 events), and tornado (1 event).

Three deaths have been reported for the area from natural hazard events since 2000. Two deaths were from extreme cold events occurring on January 24, 2009 and January 20, 2013. The third death results from a winter storm on January 11, 2008. 16 injuries have been reported for the area from natural hazard events since 2000. The injuries resulted from strong wind events, excessive heat, and winter storm events. 10 of the injuries occurred during one winter storm event on December 23, 2008.

Natural hazard events in the area have resulted in over $775,000 in property damages since 2000. Some of the most costly hazard events in terms of reported property damages since 2000 has been a flood event on July 7, 2010 ($150,000), a strong wind event on October 26, 2010 ($200,000), and a winter storm on March 22, 2011 ($270,000).

Table 9: Natural Hazard Occurrences Data, Oneida Nation 2000-2015

| Natural Hazard | 2015 Ranking | # of Events[1] | Average #/Year | Risk[2] | Deaths | Injuries | Property Damage[3,4] |
|---|---|---|---|---|---|---|---|
| Winter Storm | 1 | 88 | 6 | high | 1 | 11 | $269,700 |
| Strong Wind | 2 | 60 | 4 | high | 0 | 2 | $348,000 |
| Extreme Cold | 6 | 15 | 1 | medium | 2 | 0 | $158,000 |
| Excessive Heat | 3 | 10 | 1 | medium | 0 | 3 | $0 |
| Hail | 4 | 15 | 1 | medium | 0 | 0 | $0 |
| Flood | 5 | 15 | 1 | medium | 0 | 0 | $0 |
| Tornado | 7 | 1 | 0.1[5] | low | 0 | 0 | $0 |
| Dense Fog | 8 | 4 | 0.3[6] | low | 0 | 0 | $0 |
| Drought | 9 | 9 | 1 | medium | 0 | 0 | $0 |
| Wildland Fire[7] | 10 | No data | NA | low | No data | No data | No data |
| Total Events | -- | 217 | -- | -- | 3 | 16 | $775,700 |

1. January 1, 2000 to December 31, 2015 (16 years)
2. Risk based on occurrences per year: High >3; Medium 1-3; and Low <1
3. Does not Include Crop Damages as no NCDC data was available.
4. Does not factor in private loses for most occurrences.
5. Approximately one event every 10 years.
6. Approximately three events every 10 years.
7. No data is available as the Tribe is located in a low wildfire risk area according to WDNR.

Source: NOAA NCDC Storms Database, 2000-2015.

## NATURAL HAZARDS PRIORITIZATION

To develop a hazard risk assessment ranking, a survey was conducted in 2009 and each steering committee member was asked to assign a risk rating of one point for low, two points for moderate, and three points for high to each of the following risk assessment criterion for each natural hazard:

- Frequency of past hazard occurrences
- Probability of hazard occurring in the future
- Degree of past hazard events causing injuries, sickness and/or deaths
- Degree of past hazard events causing damage to homes
- Degree of past hazard events causing damage to business and/or interruption of business trade
- Amount of local, state, and federal funds expended on past hazard recovery activities
- Amount of population still vulnerable to injury, sickness, and/or death from hazard
- Amount of homes still vulnerable to damage from hazard
- Amount of businesses still vulnerable to damage or interruption of business trade

The number of points for each criterion for each identified natural hazards was totaled and each natural hazard was ranked based on the total points.

During the plan update, the steering committee agreed by consensus at a meeting on November 13, 2015 to make some revisions to the hazard risk rankings based on historical hazard occurrence data.

Ranking the potential risks associated with each natural hazard helped the steering committee prioritize the mitigation action strategies that are addressed later in the plan. Table 10 shows the hazards addressed in the plan and the updated hazard risk assessment ranking.

Table 10: Risk Assessment Ranking for Natural Hazards

| Rank | Natural Hazard |
|---|---|
| 1 | Winter Storm |
| 2 | Strong Wind |
| 3 | Extreme Cold |
| 4 | Excessive Heat |
| 5 | Hail |
| 6 | Flood |
| 7 | Tornado |
| 8 | Dense Fog |
| 9 | Drought |
| 10 | Wildland Fire |

Source: Oneida Nation Pre-Disaster Mitigation Plan Steering Committee, 2015.

**Other Natural Hazards Determined Not to Pose a Significant Risk**

The following natural hazards were determined to have a minimal chance of occurring, to pose minimal risk to the safety of residents or property, and/or to offer very limited mitigation options. These natural hazards are excluded from the full assessment, but they are briefly discussed here to meet the comprehensive requirements for developing a hazards mitigation plan. The source of information for these hazards was acquired from the FEMA-approved *State of Wisconsin Hazard Mitigation Plan* (October 2004).

Earthquake

According to the U.S. Geological Survey (USGS) and the Wisconsin Geological and Natural History Survey, there have been 25 earthquake events in Wisconsin between 1899 and 1981. The closest of these to the Oneida Nation occurred just south of Milwaukee on May 6, 1947. Where readings were available, these events were relatively small, ranging from 1.0 to 5.1 on the Richter scale in intensity with the largest being an intensity of 5.1 (Beloit, 1909), which may be strong enough to crack some plaster or rattle windows, but typically does not cause serious damage. Some geologists question whether many of these events were true earthquakes. They may have instead been human-caused occurrences such as quarry collapses, blasts, etc.

The nearest active earthquake fault outside of Wisconsin is the New Madrid Fault, which stretches from northeast Arkansas to southern Illinois. Oneida Nation falls within the lowest earthquake hazard shaking area. This represents the levels of horizontal shaking which have a 1-in-50 chance of being exceeded in a 50-year period. Similarly, the Oneida Nation falls within a 0%g to 1%g peak ground acceleration (PGA) zone as shown on the USGS PGA values map with a 10 percent chance of being exceeded over 50 years. Therefore, the Oneida Nation is considered unlikely to be substantially affected by earthquakes in the long-term future. The earthquake threat to the Oneida Nation is considered low.

If a tremor or earthquake was to occur anywhere in the Oneida Nation, damage to structures and infrastructure could be substantial because design standards do not include earthquake construction requirements or guidelines.

Landslide

Landslides are the result of a large mass of dirt and rock sliding down an incline such as a mountain or cliff. Landslides include various ground moving events including mudflows, mudslides, debris flows, rock falls, rockslides, debris avalanches, debris slides, and earth flows. According to FEMA, landslides include any combination of rock, soil, or artificial till and they are classified by their movement and material. The types of movement are slides, flows, lateral spreads, and falls and topples.

Although gravity acting on a steep slope is the primary reason for a landslide, there can be other contributing factors such as erosion by rivers, excess weight from the accumulation of rain or snow, or fabricated structures stressing weak slopes to the point of failure. Slope material that becomes saturated with water can develop a debris flow or mudflow.

The U.S. Geological Survey *Landslide Overview Map of the Coterminous United States* identifies moderate landslide susceptibility risks for the Oneida Nation. The majority of the land within the Oneida Nation does not have significantly steep slopes and does not pose a landslide risk. While there are steeper portions of the Oneida Nation jurisdiction, the soils involved pose more of a gradual erosion risk as opposed to the sudden, large-scale movement of ground associated with landslide hazards. Areas with the steepest slopes tend to be zoned as conservancy districts by the various local jurisdictions in the planning area and are protected from unsuitable development, further minimizing any related hazard risks. Hillside erosion (minor landslides) within the Oneida Nation is very uncommon and results from man-made impacts such as the removal of vegetation when it does occur. Hillside erosion has not posed substantial risk to life or property and it has been largely mitigated through subdivision law, site plan review, and erosion control plans for construction sites.

Landslide probability is highly site-specific and is difficult to characterize on a large-scale basis. However, since there is no record of substantial damage or injury occurring from landslides within the Oneida Nation, the hazard threat is considered low.

Subsidence

Land subsidence is an event in which a portion of the land surface collapses or settles, forming a sinkhole. Karst is the term used by geologists to describe areas where the bedrock, usually limestone or dolomite, has been (or has the potential to be) easily

dissolved by surface water or groundwater. Bedrock in these landscapes, especially around sinkholes, may be weak and prone to collapse or settling.

Karst landscapes may have deep bedrock fractures, caves, disappearing streams, springs, or sinkholes. These features can be isolated or occur in clusters, and may be open, covered, buried, or partially filled with soil, fieldstones, vegetation, water, or other miscellaneous debris. Karst features can act as direct conduits for pollutants to enter groundwater, wells, springs, and streams. Karst features should be identified and given special consideration, especially for land use planning, stormwater management, and hazardous materials planning, to avoid possible damage to structures or contamination of groundwater. Even a 100-foot well can be contaminated from surface pollutants entering fine cracks or a sinkhole.

The Oneida Nation is in an area of deep karst potential because of the dolomite bedrock in the area. However, there are no records of substantial damage or injury from land subsidence within the Oneida Nation, therefore, the hazard threats is considered low.

Others

Coastal erosion and storms were not addresses. These events do not affect the Oneida Nation because they do not have any ocean or Great Lakes coastline within their jurisdiction.

Other hazards not addresses in this plan include those that do not affect this region of the United States, including avalanche, volcano, hurricane, and tsunami.

## HAZARD PROFILES

Hazard profiles are intended to describe the frequency, severity, and probability of future natural hazards that could have an impact on the Oneida Nation. Hazard profiles use historical data to describe the cause and characteristics of each natural hazard, and discuss how the hazards have affected the population, infrastructure, and environment of the area. Potential risks are evaluated to determine their likelihood of reoccurrence and to gauge the negative impacts to the existing (or planned) population and property that could occur from the hazards.

Although this assessment will attempt to focus on the risk potential to the overall planning area, critical facilities and infrastructure are of particular concern. Critical facilities and infrastructure provide essential services and/or products that are necessary to preserve health, welfare, and quality of life for residents of the Oneida Nation. In addition, critical facilities and infrastructure may fulfill important public safety, emergency response, and/or disaster recovery functions.

A profile of each natural hazard assessed in this plan is provided. The number of past hazard events listed for each hazard profile, includes the number of hazards that have occurred in the past 16 years in or near the Oneida Nation within both Brown and Outagamie Counties as the tribal boundary lies within both counties. Single hazard events that have affected both counties are only counted once.

Past hazard events are indicative of what can happen in the future and hazard studies and mitigation plans are based on the risk of future hazard occurrences. Hazard

assessments are extrapolated from historical records to determine the statistical potential that storms and floods of a certain magnitude will recur.

The natural hazards assessed below include winter storm, strong wind, excessive heat, extreme cold, hail, flood, tornado, dense fog, drought, and wildland fire.

## WINTER STORM

Winter storms in Wisconsin vary in size and strength, and include heavy snowstorms, blizzards, freezing rain, sleet, ice storms, and blowing and drifting snow conditions. Extremely cold temperatures accompanied by strong winds can result in wind chills that cause bodily injury such as frostbite, hypothermia, and death. Severe winter storms can cause unusually heavy rain or snowfall, high winds, extreme cold, and ice storms throughout the continental United States.

Winter storms can occur as a single event or in combination, making an event more severe. For example, a moderate snowfall could create severe conditions if it were followed by a freezing rain and subsequent extremely cold temperatures. The aftermath of a winter storm can affect a community or region for weeks, and even months.

A variety of weather phenomena and conditions can occur during winter storms. For purposes of classification, the following are National Weather Service approved descriptions of winter storm elements:

- Heavy Snowfall – the accumulation of six or more inches of snow in a 12-hour period, or eight or more inches in a 24-hour period.
- Winter Storm – the occurrence of heavy snowfall accompanied by significant blowing snow, low wind chills, sleet or freezing rain.
- Blizzard – the occurrence of sustained wind speeds in excess of 35 miles per hour accompanied by heavy snowfall or large amounts of blowing or drifting snow.
- Ice Storm – an occurrence where rain falls from warmer upper layers of the atmosphere to the colder ground, freezing upon contact with the ground and exposed objects near the ground.
- Freezing drizzle/freezing rain – the effect of drizzle or rain freezing upon impact on objects that have a temperature of 32 degrees Fahrenheit or below.
- Sleet – solid grains or pellets of ice formed by the freezing of raindrops or the refreezing of largely melted snowflakes. This ice does not cling to surfaces.
- Wind chill – an apparent temperature that describes the combined effect of wind and low air temperatures on exposed skin.

### Location and Extent of Hazard

Winter storms tend to be a regional phenomenon affecting much of northeastern Wisconsin including the Oneida Nation. True blizzards are rare in Wisconsin, and are

more likely to occur in northwestern Wisconsin. However, blizzard-like conditions often exist during heavy snowstorms when gusty winds cause severe blowing and drifting of snow.

Ice and sleet storms can occur anywhere in Wisconsin and at any time throughout the winter season from October into April. If a half inch of rain freezes on trees and utility wires, extensive damage can occur, especially if accompanied by high winds that compound the effects of the added weight of the ice.

Ultimately, winter storms can occur anywhere throughout the Oneida Nation and will most often affect the entire planning area during an event. Therefore, there is no specifically defined geographic hazard area for this hazard.

**Past Hazard Events**

Much of the snowfall in Wisconsin occurs in small amounts of between one and three inches per occurrence. Heavy snowfalls (producing at least eight to ten inches of accumulation) happen on the average only five times per season. In a typical winter season, there are three to five freezing rain events, and a major ice storm occurs on a frequency of about once every other year. There are also between three and five instances of glazing (less than one-quarter inch of ice) throughout Wisconsin during a normal winter.

According to National Climatic Data Center, the Oneida Nation has experienced 88 winter storm events in the last sixteen years from January 1, 2000 to December 31, 2015. These events have resulted in one death on January 11, 2008, and eleven injuries. Ten injuries occurred during one winter storm event on December 23, 2008.

**Probability of Future Hazard Events**

On average, over the past 16 years, the Oneida Nation has typically experienced about six significant winter storm events per year. Therefore, it is likely that at least six winter storm events will affect the Oneida Nation in any given year.

**STRONG WIND**

Damaging wind from thunderstorms is much more common than damage from tornadoes. Straight-line winds have been known to exceed 100 mph. The strong outrush of wind from a thunderstorm is often called a downburst. One of the primary causes is rain-cooled air, which accelerates rapidly downward, producing a potentially damaging gust of wind. Strong downbursts are often mistaken for tornadoes. They can produce extensive damage and are often accompanied by a roaring sound similar to that of a tornado. Downbursts can easily overturn manufactured homes, tear roofs off of houses, and topple trees. People who are camping are especially vulnerable, due to trees toppling on their camp sites.

Wind speeds can reach up to 100 mph (161 kph) with a damage path extending many miles. The National Weather Service defines high (or strong) winds as sustained wind speeds of 40 mph or greater lasting for 1 hour or longer, or winds of 58 mph or greater for any duration (NWS).

### Location and Extent of Hazard

The United States has been divided into four zones that geographically reflect the number and strength of extreme windstorms. FEMA Wind Zone IV, which includes most of the southern two-thirds of Wisconsin, has experienced the most and the strongest tornado activity that has affected the United States, with wind speeds of up to 250 miles per hour being recorded at some point. The Oneida Nation is at the northern extent of Wind Zone IV, but is within the zone.

Strong wind has no defined hazard area within the Oneida Nation; however, areas with greater density of homes without a basement, especially manufactured homes have a greater vulnerability to strong wind. The Oneida Nation has one manufactured housing community; the Green Earth Manufactured Housing Community, located off County Highway H. Green Earth Manufactured Housing Community has been included as a critical facilities.

### Past Hazard Events

Strong, damaging wind occurs in thunderstorms each year in Wisconsin. They may down trees and power lines, overturn manuactured homes, and cause damage to well-built structures.

According to National Climatic Data Center, the Oneida Nation has experienced 60 significant strong wind events, resulting in two injuries in the last sixteen years from January 1, 200 to December 31, 2015.

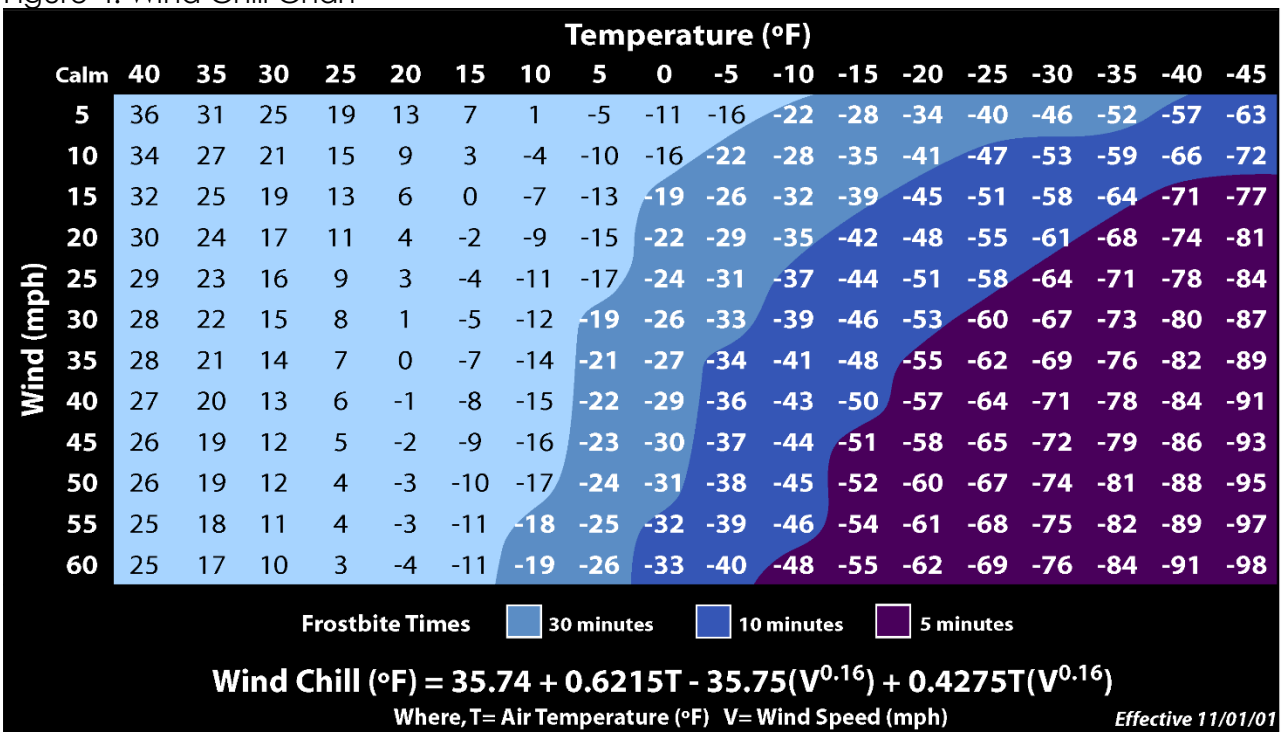
### Probability of Future Hazard Events

On average, over the past 16 years, the Oneida Nation has typically experienced four significant strong wind events each year. Therefore, it is likely that four strong wind events will affect the Oneida Nation during any given year.

## EXTREME COLD

Dangerously cold conditions can be the result of extremely cold temperatures, or the combination of cold temperatures and high winds. The combination of cold temperatures and wind creates a perceived temperature known as "wind chill." Wind chill is the apparent temperature that describes the combined effect of wind and air temperatures on exposed skin. When wind blows across the skin, it removes the insulating layer of warm air adjacent to the skin. When all factors are the same, the faster the wind blows the greater the heat loss, which results in a colder feeling. As winds increase, heat is carried away from the body at a faster rate, driving down both the skin temperature and the internal body temperature. Extreme cold events are most likely during the months of January and February. Figure 4 displays the National Weather Service Wind Chill Temperature Index chart.

Figure 4: Wind Chill Chart




Source: NOAA National Weather Service; www.nws.noaa.gov/om/winter/windchill.shtml; Retrieved January 2016.

### Location and Extent of Hazard

Extreme cold can occur anywhere throughout the planning area. Extreme cold episodes tend to be a regional phenomenon in that they affect much of the northeastern part of Wisconsin on nearly all of the occasions in which they affected the Oneida Nation.

Ultimately, extreme cold can occur anywhere throughout the Oneida Nation and will most often affect the entire planning area during an event. Therefore, there is no specifically defined geographic hazard area for this hazard.

### Past Hazard Events

According to National Climatic Data Center, the Oneida Nation has experienced 15 significant extreme cold events, resulting in two deaths (on January 24, 2009 and January 20, 2013) in the last 16 years from January 1, 2000 to December 31, 2015.

### Probability of Future Hazard Events

On average, over the past 16 years, the Oneida Nation has typically experienced one significant extreme cold event every year. Therefore, it is likely that one extreme cold event will affect the Oneida Nation in any given year.

## EXCESSIVE HEAT

Excessive heat can lead to death by taxing the human body beyond its abilities. In a normal year, about 175 Americans become overwhelmed by summer heat. In the 40-year period from 1936 through 1975, nearly 20,000 people were killed in the United

States by the direct effects of heat and solar radiation (NWS). Excessive heat, and humidity associated with heat waves, directly kills over 300 people a year in the US, making heat the number one weather killer in this country (Centers of Disease Control and Prevention).

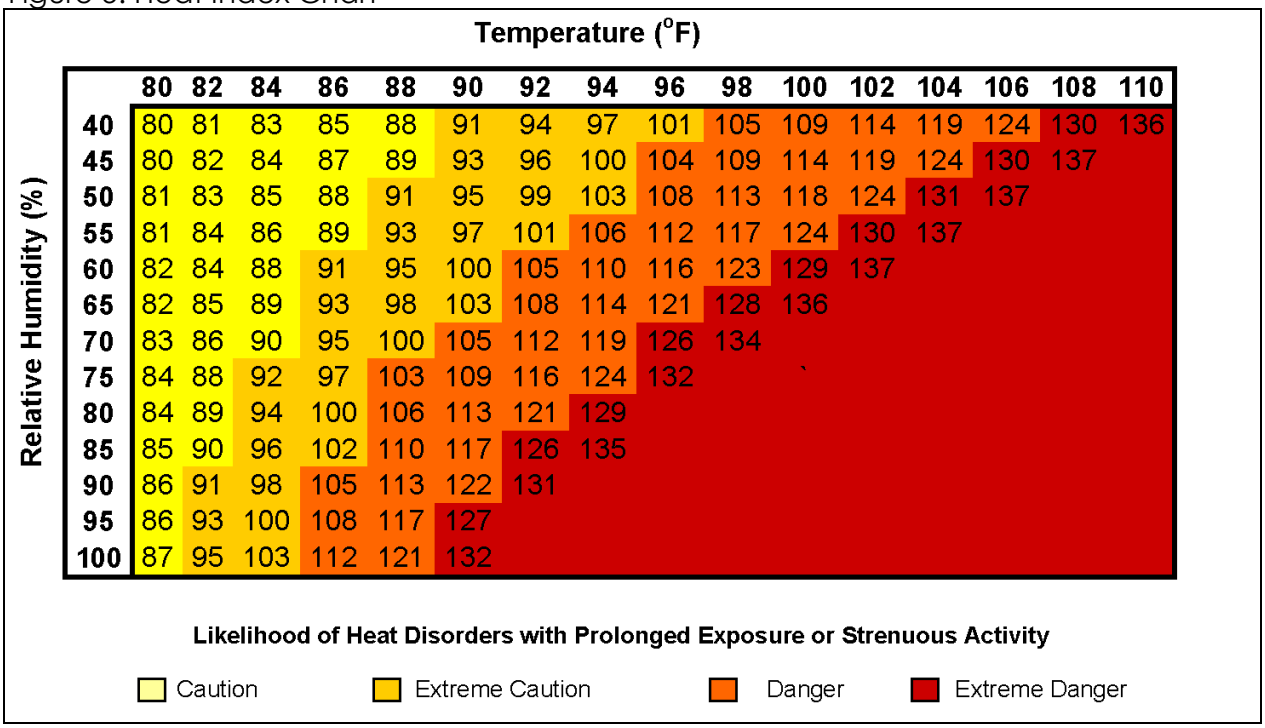
On average, at least five people die in Wisconsin each year due directly to heat (NWS). In addition, evidence suggests that a similar number of people die each year in Wisconsin from heat as an indirect or secondary cause.

Extended periods of warm, humid weather can create significant risks for people, particularly the elderly who may lack air conditioning or proper insulation or ventilation in their homes. Animals are also at risk during extended periods of heat and humidity.

The National Weather Service is responsible for alerting the public and appropriate authorities to the hazards of heat waves (prolonged excessive heat/humidity episodes). Based on the latest research findings, the NWS has devised the "Heat Index" (sometimes referred to as the "apparent temperature"). The Heat Index, given in degrees F, combines the effects of heat and humidity to reflect the risk of hot weather to people and animals (Figure 5). For example, a Heat Index of 95 occurs when the temperature is 90 degrees and the relative humidity is 50 percent.

When heat and humidity combine to reduce the amount of evaporation of sweat from the body, outdoor activity becomes dangerous even for those in good shape. The index measures the apparent temperature in the shade. People exposed to the sun would experience an even higher apparent temperature. NWS issues a Heat Advisory when the Heat Index ranges from 105 to 114 degrees during the day and remains at or above 80 degrees at night, during a 24-hour period. A Heat Index of 105 is considered dangerous and prolonged exposure can result in heat stroke, heat exhaustion, and heat cramps. People are reminded to use extreme caution when the heat index is between 91 and 103.

Figure 5: Heat Index Chart




Source: NOAA National Weather Service; www.nws.noaa.gov/om/heat/heat_index.shtml; Retrieved January 2016.

### Location and Extent of Hazard

Excessive heat can occur anywhere throughout the planning area. Excessive heat episodes tend to be a regional phenomenon in that they affect much of the northeastern part of Wisconsin on nearly all of the occasions in which they affected the Oneida Nation.

Although excessive heat has no defined hazard area within the Oneida Nation, areas with greater densities of elderly populations such as elderly housing has a greater vulnerability to the impacts of excessive heat. The location of elderly housing has been mapped as critical facilities and identified on Map 4 (at the end of the section).

### Past Hazard Events

According to National Climatic Data Center, the Oneida Nation has experienced 10 significant excessive heat events, resulting in three injuries in the last 16 years from January 1, 2000 to December 31, 2015.

### Probability of Future Hazard Events

On average, over the past 16 years, the Oneida Nation has typically experienced at least one significant excessive heat event each year. According to the State of Wisconsin Hazard Analysis (Wisconsin Emergency Management, November 2002), the Oneida Nation has had 28 "heat wave days" over the 20-year period from 1982 through 2001. Based on past observations, it is likely that one to two excessive heat episodes will affect the Oneida Nation in any given year.

## HAIL

Hail is often produced by severe thunderstorms. Hailstones are ice crystals that form within a low-pressure front due to warm air rising rapidly into the upper atmosphere and the subsequent cooling of the air mass. Frozen droplets gradually accumulate on the ice crystals until they develop sufficient weight and fall as precipitation. The size of hailstones is a direct function of the severity and size of the storm. Significant damage usually does not result until the hailstones reach 1.5 inches in diameter, which occurs in less than half of all hailstorms. Hail in Wisconsin ranges from pea-sized to golf ball-sized.

### Location and Extent of Hazard

Hail can occur anywhere throughout the planning area. Area coverage of individual hailstorms is highly variable. Therefore, there is no specifically defined geographic hazard area for this hazard.

### Past Hazard Events

According to National Climatic Data Center, the Oneida Nation has experienced 15 significant hail events in the last 16 years from January 1, 2000 to December 31, 2015.

### Probability of Future Hazard Events

On average, over the past 16 years, the Oneida Nation has typically experienced one significant hail events per year. Therefore, it is likely that one hail event will affect the Oneida Nation in any given year.

## FLOOD

Floods happen when the water draining from a watershed, whether from rainfall or melting snow, exceeds the capacity of the river or stream channel to hold it. Water overflows onto the nearby low-lying lands (floodplains). In hilly and mountainous areas flooding is likely to be rapid, deep, and dangerous. In relatively flat floodplains, land may stay covered with shallow, slow moving water for days or even weeks.

The Oneida Nation prohibits development in mapped floodplains based on its Zoning and Shoreland Protection Law (*Chapter 69, Oneida Code of Laws*) using the Oneida Nation floodplain mapping (created by the Army Corps of Engineers). The Oneida floodplain mapping is the most current mapping available that was completed specifically for the Oneida Nation, and encompasses the entire reservation consistently. Therefore, it is the tribe's official floodplain map.

For site-specific floodplain information, the applicable zoning agent should be consulted. The Oneida Nation is the zoning agent for all "tribal lands and waters held in

trust, all tribal lands and waters held in fee status, all fee status lands under the control of individual Oneida members, all heirship lands and waters and all individual trust lands and waters within the present confines of the Oneida Reservation" (*Chapter 69: Zoning and Shoreland Protection Law*, *Oneida Code of Laws*). Outagamie County is the zoning agent for non-tribal lands in the Town of Oneida; and the Village of Hobart, the City of Green Bay, the Village of Ashwaubenon, and the Town of Pittsfield are the zoning agents for the non-tribal lands in their respective jurisdictions.

Dam Failure Flooding

Flooding can also result from dam failure. A "dam" is an artificial barrier, together with its appurtenant works, constructed in or across a waterway for the primary purpose of impounding or diverting water. Dam failure can occur for a number of reasons, including overtopping caused by floods that exceed the capacity of the dam, deliberate acts of sabotage, structural failure of materials used in dam construction, movement and/or failure of the foundation supporting the dam, settlement and cracking of concrete or embankment dams, piping and internal erosion of soil in embankment dams, or inadequate maintenance and upkeep. In extreme cases, dam failure can occur with little warning and can result in the loss of life and significant property damage in areas downstream of the dam. Other failures and breaches can take much longer to occur.

As identified by the WDNR, there are two dams on the Oneida Nation; both small dams located on Bernarrs Way and at the Oneida Golf and Riding Club. These small dams have no hazard rating. A low hazard rating is given when a failure would result in only minimal property damage and loss of life is unlikely.

The areas of greatest risk from dam failure are those areas within the hydraulic shadow of dam of these small risk dams. The hydraulic shadow of the dam is the area of land downstream from a dam that would be inundated by water upon failure of the dam.

**Location and Extent of Hazard**

Flood hazards can occur anywhere in the Oneida Nation, but floodplains, shorelands, low-lying areas, or areas downstream from a dam are especially vulnerable. Even very small streams, gullies, creeks, culverts, dry streambeds, or low-lying ground that appears harmless in dry weather can flood. Map 5 (at the end of the section) displays the location of floodplains within the Oneida Nation. Floodplains include the floodway, which consists of the stream channel and adjacent areas that carry flood flows, and the flood fringe, which are areas covered by the flood, but which typically do not experience a strong current.

**Past Hazard Events**

According to National Climatic Data Center, the Oneida Nation has experienced 15 flood events in the last 16 years from January 1, 2000 to December 31, 2015.

**Probability of Future Hazard Events**

The probability of reoccurrence is expressed in percentages as the chance of a flood of a specific extent occurring in any given year. The most widely adopted design and regulatory standard for floods in the United States is the 1-percent annual chance flood, and this is the standard formally adopted by FEMA.

The 1-percent annual flood, also known as the base flood, has a 1 percent chance of occurring in any particular year. It is also often referred to as the "100-year flood" since its probability of occurrence suggests it should only reoccur once every 100 years. This expression is, however, merely a simple and general way to express the statistical likelihood of a flood with actual recurrences varying from place to place.

These terms are often misunderstood. Frequently, people interpret the 50-year flood definition to mean occurring "once every 50 years," which is incorrect. From a probability standpoint, a 50-year flood has a one in 50 (two percent) chance of occurring in any given year. In reality, a 50-year flood could occur two times in the same year, two years in a row, or four times over the course of 50 years. On the other hand, it is possible for 100 years to pass without having a 50-year flood event.

FEMA uses the "base" flood as the basis for its regulatory requirements and flood insurance rate setting. This Pre-Disaster Mitigation Plan also uses the base flood for planning purposes. The base flood is the one percent chance flood, or the 100-year flood.

On average, over the past 16 years, the Oneida Nation has typically experienced about one flooding event per year. Therefore, it is likely that at least one flooding event will affect the Oneida Nation during any given year.

Properties within floodplain have a 1 percent chance of experiencing a 100-year flood each year. Map 6 (at the end of the section) displays the properties that are potentially within the base floodplains within the Oneida Nation. The floodplains and parcels depicted in Map 6 are based on Oneida Nation GLIS mapping.

As discussed previously, it is important to be mindful of the fact that smaller floods occur more often than larger floods. Smaller floods could likely occur in many areas of the Oneida Nation. Accurate determinations of flood probability and magnitude require site-specific engineering studies.

**Repetitive Loss Properties**

Repetitive loss properties are those that have sustained flood damage on two or more separate occasions over a ten-year period and the cost of repairs from the flood damage meets or exceeds 25 percent of the market value of the property before the damage occurred.

FEMA records for Brown and Outagamie Counties indicate that there are no repetitive loss properties within the Oneida Nation (acquired from Wisconsin Emergency Management on January 8, 2015).

## TORNADO

A tornado is a rapidly rotating column of air produced by a cumulonimbus cloud. When a tornado funnel drops to the ground, it can create significant damage and loss of life. A tornado is a relatively short-lived storm composed of an intense rotating column of air, extending from a thunderstorm cloud system. It is nearly always visible as a funnel, although its lower end does not necessarily touch the ground. Average winds in a tornado, although never accurately measured, are between 100 and 200 miles per hour, but some tornadoes may have winds in excess of 300 miles per hour.

A tornado path averages four miles, but may reach up to 300 miles in length. Widths average 300 to 400 yards, but severe tornadoes have cut swaths a mile or more in width, or have formed groups of two or three funnels traveling together. On average, tornadoes move between 25 and 45 miles per hour, but speeds over land of up to 70 miles per hour have been recorded. Tornadoes rarely last more than a couple of minutes in a single location or more than 15 to 20 minutes in a ten-mile area, but their short periods of existence do not limit their devastation of an area.

The destructive power of the tornado results primarily from its high wind velocities and sudden changes in pressure. Wind and pressure differentials probably account for 90 percent of the damage caused by tornadoes. Since tornadoes are generally associated with severe storm systems, they are usually accompanied by hail, torrential rain, and intense lightning. Depending on their intensity, tornadoes can uproot trees, down power lines and destroy buildings. Flying debris can cause serious injury and death.

The Fujita scale was been recognized as the acceptable tornado magnitude measurement rating until February 1, 2007. The Fujita scale was updated to the Enhanced F Scale (EF scale) for operational use in the United States (Table 12). The Enhanced F Scale is a tornado magnitude measurement rating system that accounts for different degrees of damage that occur with different types of structures, as well as damage to things other than structures. The scale was revised to reflect better examinations of tornado damage surveys to align wind speeds more closely with associated storm damage. None of the tornadoes recorded before February 1, 2007 will be re-categorized to the EF scale.

The EF scale considers how structures are designed. The wind speeds on the original scale were deemed by meteorologists to be too great, and engineering studies have shown that slower winds can cause the same damage as that of winds of 300 mph. The new scale lists an EF-5 as a tornado with winds at or above 200 mph – which corresponds to the wind speeds of F3 or F4 in the original Fujita scale. Essentially, there is no functional difference in how tornadoes are rated. The old ratings and new ratings are cleanly connected with a linear formula. The only differences are adjusted wind speeds, measurements of which were not used in previous ratings, and refined damage descriptors.

Table 11: F Scale and EF Scale

| ORIGINAL FUJITA SCALE | | | DERIVED EF SCALE | | OPERATIONAL EF SCALE | |
|---|---|---|---|---|---|---|
| F Number | Fastest 1/4-mile (mph) | 3-Second Gust (mph) | EF Number | 3-Second Gust (mph) | EF Number | 3 Second Gust (mph) |
| 0 | 40-72 | 45-78 | 0 | 65-85 | 0 | 65-85 |
| 1 | 73-112 | 79-117 | 1 | 86-109 | 1 | 86-110 |
| 2 | 113-157 | 118-161 | 2 | 110-137 | 2 | 111-135 |
| 3 | 158-207 | 162-209 | 3 | 138-167 | 3 | 136-165 |
| 4 | 208-260 | 210-261 | 4 | 168-199 | 4 | 166-200 |
| 5 | 261-318 | 262-317 | 5 | 200-234 | 5 | Over 200 |

Source: National Weather Service. Graphic by Weather Teacher (www.wxteacher.com).

**Location and Extent of Hazard**

The United States has been divided into four zones that geographically reflect the number and strength of extreme windstorms. FEMA Wind Zone IV, which includes most of the southern two-thirds of Wisconsin, has experienced the most and the strongest tornado activity that has affected the United States, with wind speeds of up to 250 miles per hour being recorded at some point. The Oneida Nation is at the northern extent of Wind Zone IV, but is within the zone.

Wisconsin lies adjacent to the northern edge of the Oneida Nation's maximum frequency belt for tornadoes (commonly known as "tornado alley") in the southern plains of the central U.S. Generally, the southern and western portions of Wisconsin have a higher frequency of tornadoes than other parts of the state; but every county in Wisconsin has experienced tornadoes and all of the state is susceptible to future tornado damage. Tornadoes have occurred in Wisconsin in every month except February.

Tornadoes have no defined hazard area for the Oneida Nation; however, areas with greater density of homes without a basement, especially manufactured homes have a greater vulnerability to tornadoes. The Oneida Nation has one manufactured housing community; the Green Earth Manufactured Housing Community, located off County Highway H. Green Earth Manufactured Housing Community has been included as a critical facilities.

**Past Hazard Events**

According to National Climatic Data Center, the Oneida Nation has experienced one significant tornado event in the last 16 years from January 1, 2000 to December 31, 2015.

**Probability of Future Hazard Events**

Wisconsin's tornado season runs from the beginning of April through September. The most severe tornadoes statewide typically occur during the months of April, May, and June. Many tornadoes strike in late afternoon or early evening. However, tornadoes have occurred during other times of the day. Death, injury, and personal property damage have and will continue to occur due to tornado events in Wisconsin.

On average, over the past 16 years, the Oneida Nation has typically experienced about one significant tornado event every 10 years. Therefore, it is likely that one tornado event will affect the Oneida Nation during any 10-year period.

## DENSE FOG

Fog is comprised of droplets of water vapor suspended in the air near the ground. Fog forms when (1) the temperature of air drops to its dew point, which is the temperature at which air is holding as much moisture as it can; or (2) the amount of moisture in the air increases until the air reaches its dew point. Once air has reached its dew point, the water in it condenses, forming tiny water droplets that we see as fog.

Dense fog can cause very hazardous conditions – primarily related to transportation – from reduced visibility. Fog is often attributed to the cause for airport delays, automobile accidents, shipwrecks, plane crashes, and other problems. When air pollution (such as smoke) combines with fog, visibility decreases even more. Acid fog, resulting from the combination of air pollutants (such as nitrogen and sulfur oxides) with water droplets can create health problems, especially for people who have respiratory conditions.

The National Weather Service forecasts fog and issues dense fog advisories when visibility is decreased to less than one quarter of a mile. These advisories alert travelers to potentially dangerous conditions. Traveling in fog requires reduced speed and careful navigation. At night, traveling in fog is especially dangerous because darkness combines with fog to reduce visibility even more. In addition, light from automobile headlights and other navigational lights are scattered when passing through the water droplets of the fog limiting sight to only a short distance.

**Location and Extent of Hazard**

Fog can occur almost anywhere and during any season. Certain seasons are more likely to have foggy days and nights in certain locations based on several factors, including topography and the process responsible for forming the fog.

Fog is classified based on how it forms, which

is often related to where it forms. The following are the four most common types of fog:

*Advection fog* occurs when warm, moist air is blown over a cold surface, and that surface can lower the temperature of the air to its dew point. Advection fog is common in harbors and bays in the summer. In the winter, warm and humid air from the subtropical oceans can also be blown over the cooler surface of the land, causing extensive fog.

*Evaporation fog* is the result of water evaporating from water bodies. When cold air blows over warm water, the moisture that is evaporating from the surface will increase the amount of moisture in the air, possibly to the point that the air can no longer hold all of the water it contains. Steam rising from lakes is a common type of evaporation fog.

*Radiation (ground) fog* is common on clear nights with little or no wind, and forms from the rapid cooling of the ground surface in the absence of clouds. This type of fog is common in valleys where cool air tends to accumulate. Often, radiation fog is called "valley fog" when it persists thickly in valleys during the daytime hours.

*Upslope fog* can form from the cooling of rising air. If air is blown over high hills or mountains, it may cool enough to reach its dew point. This can result in extensive fog in mid-slope areas.

Dense fog events can sometimes be a regional phenomenon in that they affect much of the northeastern half of Wisconsin on many of the occasions in which they affect the Oneida Nation. However, low-lying areas and areas near water or wetlands are more vulnerable to fog events.

**Past Hazard Events**

According to National Climatic Data Center, the Oneida Nation has experienced four significant dense fog events in the last 16 years from January 1, 2000 to December 31, 2015.

**Probability of Future Hazard Events**

On average, over the past 16 years, the Oneida Nation has typically experienced about three significant fog events every 10 years. Therefore, it is likely that one significant dense fog event will affect the Oneida Nation in any 10-year period.

## DROUGHT

A drought is a period of unusually persistent dry weather that endures long enough to cause serious problems such as crop damage and/or water supply shortages. The severity of the drought depends upon the degree of moisture deficiency, the duration, and the size of the affected area. There are four classifications for defining drought, meteorological, agricultural, hydrological, and socioeconomic.

- Meteorological – the degree of dryness, expressed as a departure of actual precipitation from an expected average or normal amount based on monthly, seasonal, or annual time scales.
- Agricultural – refers to a situation where the amount of moisture in the soil no longer meets the needs of a particular crop.

- Hydrological – occurs when surface and subsurface water supplies are below normal.
- Socioeconomic – refers to the situation that occurs when physical water shortages begin to affect people.

**Location and Extent of Hazard**


The Oneida Nation is most vulnerable to agricultural drought, with croplands being the most vulnerable areas. There is approximately 33,032 acres of farmland in the Oneida Nation (based on a land use data collected by Brown and Outagamie counties in 2010). This acreage includes the Oneida Nation Farm, which is one of the largest farming operations in northeastern Wisconsin at approximately 8,000 acres with gross sales valued at over $500,000 (2000). Even brief drought periods can significantly reduce crop growth and yields, adversely affecting the agricultural economy.

**Past Hazard Events**

According to National Climatic Data Center, the Oneida Nation has experienced nine significant drought events in the last 16 years from January 1, 2000 to December 31, 2015. Fortunately, the Oneida Nation's agricultural sector has never experienced total crop failure due to drought or any other cause. However, individual shallow wells have occasionally failed from lowered water levels, which require the affected parties to re-drill to reliable aquifers. To date, no other activities, areas, or infrastructure, including public water supply, have been affected by drought in the planning area.

**Probability of Future Hazard Events**

On average, over the past 16 years, the Oneida Nation has experienced about one significant drought event every year. Therefore, it is likely that at least one significant drought events will affect the Oneida Nation during any given year.

## WILDLAND FIRE

A wildland fire is any instance of uncontrolled burning in forests/tree lots, brush, marshes, grasslands, or field lands. Typical causes of these fires are lightning, human carelessness, or arson. Wildland fires can occur at any time of the year and during any time of the day. The primary factors that generally contribute to the start of a wildland fire are land use, vegetation, amount of combustible materials present, and weather conditions such as wind, low humidity, and lack of precipitation. Generally, fires are more likely to occur when vegetation is dry from a winter with little snow or a spring and summer with

sparse rainfall. Development of homes and other structures in areas of highly flammable vegetation creates an increase in wildfire danger. This condition is known as the wildland-urban interface (WUI). If not promptly controlled, wildland fires can develop into an emergency or even a disaster. Fires threaten lives, resources, and property. In addition, fires can threaten livestock and other animals.

**Location and Extent of Hazard**

Natural areas with trees, brush, marsh, grassland, or field lands are most vulnerable to wildland fire – especially where those natural areas exist near development.

**Past Hazard Events**

Small wildland fires (i.e. brush fires) are a frequent occurrence throughout the planning area, primarily in the spring after the snow has melted and the vegetation is dry and yet to begin growing. Other times of the year can show an increase in wildland fires due to drought conditions or through human actions such as the burning of refuse or yard waste. The wildland-urban interface will continually be an area of concern as more people build homes and businesses on the urban fringe.

Over the past 16 years, there have been no major incidences of wildland fires in the Oneida Nation. Small fires have claimed some structures, but the impacted areas have primarily been natural areas and wildlife habitat.

**Probability of Future Hazard Events**

All parts of Wisconsin do not present the same kind and degree of fire problems. Therefore, the state has been divided into different levels of needed forest fire protection; intensive, extensive, and cooperative. The degree of protection has been determined by the amount of forested lands, hazards and risks present in the various parts of the state.

The Oneida Nation, which is not extensively forested and does not contain the vegetation fuel hazards and risks necessary to warrant intensive or extensive fire protection, is designated as a Cooperative Fire Protection Area. Therefore, there are no Wisconsin DNR ranger stations and suppression resources located in the Oneida Nation or the surrounding Brown and Outagamie Counties.

According to the U.S. Forest Service Wildland Fire Assessment System (USFS – WFAS), the Oneida Nation regularly falls within a low fire danger class. A low rating is indicates that "fuels do not ignite readily from small firebrands although a more intense heat source, such as lightning, may start fires in duff or punky wood. Fires in open cured grasslands may bum freely a few hours after rain, but wood fires spread slowly by creeping or smoldering, and burn in irregular fingers. There is little danger of spotting (USFS - WFAS)."

The probability and risk of a naturally occurring wildland fire is low for the Oneida Nation.

## NATURAL HAZARDS AND CLIMATE CHANGE

Hazard profiles provide information and predictions based on past hazard occurrence data. Climate change may make past trends unreliable sources for predicting future impacts, frequency, probability, and vulnerabilities. Climate change has and will continue to impact average annual temperatures causing increased frequency in heat waves; increased frequency of severe rainstorms; shorter, warmer winters; increased drought frequency, increase annual average precipitation, and other impacts. In general, Oneida Nation, along with most of Wisconsin, will grow warmer and drier during this century, especially in the summer. It is projected that over the next 30-50 years, Oneida Nation's climate will resemble that of current Toledo, Ohio according to the Wisconsin Initiative on Climate Change Impacts (WICCI) interactive mapping tool, which averages results from a number of climate models.[1]

### CLIMATE CHANGE IMPACTS FOR THE ONEIDA NATION

Climate is projected to change for the Oneida Nation over the next 30-50 years. These changes will have an impact on the severity, frequency, and probability of natural hazards. The following summarizes the WICCI data on climate change predictions for each natural hazard that can impact the tribe.

#### Winter Storm

Wisconsin's future warming is projected to be greatest during winter, with increases of 5-11° F by the mid-21st century. Overall, Wisconsin winters will be milder and shorter by an average of four weeks, with annual snowfall likely to decline by about 14 inches per year. Statewide, the amount of precipitation that falls as rain rather than snow during the winter is projected to increase significantly, and freezing rain is more likely to occur. Wintertime precipitation is projected to increase by 0.1 to 1.2 inches by the mid-21st century, with the average of the climate models showing about a 25 percent increase over most of the state.

#### Strong Wind

Climate science and WICCI are presently unable to address the climate change impacts on strong winds; however, large storm events are likely to increase in frequency during spring and fall.

#### Extreme Cold

Warming trends in Wisconsin are projected to be the largest in winter. Winters will continue to shift toward fewer extremely cold nights. Daily low temperatures below 0° F are projected to be much less common, ranging from six fewer subzero nights in southeastern Wisconsin to 22 fewer in the north. In other words, our state will experience as many as three fewer weeks each year during which temperatures fall below zero.

#### Excessive Heat

Climate models show that Wisconsin's warming is projected to increase 3-8° F by the mid-21st century. Climate models project significant changes at both ends of the state's

[1] *Wisconsin's Changing Climate: Impacts and Adaptation*. 2011. Wisconsin Initiative on Climate Change Impacts. Nelson Institute for Environmental Studies, University of Wisconsin – Madison and the Wisconsin Department of Natural Resources. Madison, Wisconsin.

temperature spectrum. By the middle of this century, the frequency of very hot days will likely more than double to about 25 times per year in the south and 12 times per year in the north. That translates to about one to four more weeks each year with daily high temperatures topping 90° F.

**Hail**

Climate science and WICCI are presently unable to specifically address climate change impacts on hail events; however, large storm events are likely to increase in frequency during spring and fall.

**Flood**

Both the frequency, magnitude, and severity of heavy rainfall events are likely to increase in Wisconsin, which increases the likelihood of flooding. By the mid-21st century, Wisconsin will likely have two or three more of these intense events per decade, about a 25 percent increase in their frequency, with these changes concentrated in spring and fall. The heaviest rainfall events will also increase slightly in magnitude, according to the models.

Early spring precipitation will be more likely to fall as rain rather than snow. The amount of precipitation that occurs as rain during the winter months of December to March, when the ground is frozen (and cannot absorb rainfall), is expected to significantly increase.

**Tornado**

Climate science and WICCI are presently unable to address the climate change impacts on tornadoes; however, large storm events are likely to increase in frequency during spring and fall.

**Dense Fog**

Climate science and WICCI are presently unable to address dense fog.

**Drought**

Wisconsin's average temperatures will rise in the coming years, with longer summers and shorter winters. Increased temperatures will lead to an increased length in the growing season and higher rates of evapotranspiration during the summer and early fall months. A change toward more heavy rainfall events but little change in total summertime rainfall implies more dry days in the summer. More dry days, coupled with higher summer temperatures and increases in evapotranspiration rates, can be associated with an increase in the likelihood of summer drought. In the future, water loss through evapotranspiration associated with warmer temperatures would exacerbate any drought effect if increases in evapotranspiration exceed increases in precipitation, as future climate scenarios suggest.

## MITIGATION STRATEGIES

Tribal priorities that mitigate greenhouse gas emissions should be advanced. Examples include implementing cost-effective clean energy policies and programs, and reducing carbon emissions. Climate change and clean energy policies and programs can reduce greenhouse gas emissions, lower energy costs, improve air quality and public

health, and help achieve economic development goals. The following are some mitigation actions that may also advance tribal priorities:

- Increase energy efficiency in public buildings, facilities, and equipment.
- Incorporate renewable energy sources such as wind, solar, geothermal, and biomass.
- Increase vehicle fuel economy.
- Invest in clean transportation choices.
- Encourage bicycle and pedestrian transportation and expand availability options such as the implementation of complete streets.

## ADAPTATION

Although the impacts of climate change are already being seen in Wisconsin, there are things Oneida Nation policymakers, business leaders, and tribal members can do to help reduce potential impacts from climate change. Ongoing comprehensive planning and improved implementation of existing plans is necessary. It is beneficial to incorporate climate adaptation planning into existing planning processes (e.g., hazard mitigation and comprehensive planning) to help the tribe adapt to the unavoidable impacts from climate change. The following are some adaptations to climate change impacts that the Oneida Nation could implement. Many of the identified adaptations were developed by the WICCI working groups.

### Water Resources

- Promote integrated water management planning using long-term projections of supply and demand, tied to land use and economic growth forecasts.
- Encourage large water users to locate in areas with sustainable water sources (e.g., near large rivers or Lake Michigan).
- Encourage water conservation (rural and urban) through incentives and regulation.
- Enhance infiltration in headwater areas, near watershed divides, and in areas with lower groundwater levels by reducing imperious surfaces in urban/riparian areas and improving land management practices.
- Protect recharge/infiltration areas and riparian buffers from overland flow of polluted runoff.
- Protect floodplains, wetlands, and other natural "green infrastructure" features that can hold flood waters and enable winter infiltration.
- Implement green infrastructure practices to help reduce flooding (e.g., extended detention wetlands; retention ponds; rooftops that store or absorb water (i.e. blue and green roofs); rain barrels and cisterns; stormwater tree trenches; use of permeable pavers for parking lots, driveways, etc.; bioswales and rain gardens).

- Restore prior-converted wetlands in upland areas to provide storage and siltation and to mitigate storm flows and nutrient loading downstream. Protect and restore wetland hydrologic regimes. Control polluted runoff to wetlands.
- Incorporate water management strategies into farm-based nutrient management plans.
- Resize manure storage facilities, wastewater facilities, stormwater drains and infrastructure to accommodate increased storm flows to protect water quality.
- Land use planning that limits sprawl, reduces emissions from driving, habitat destruction, fragmentation and reduces the amount of paving and impervious surface.

**Operations and Maintenance**

- Review evacuation routes such as revising plowing guidelines and adding emergency routes (such as in development regulations). Housing areas that have only one entry road may need add emergency secondary access roads.
- Revise weight limits for winter road use. Dirt roads used for industrial transport often have higher weight limits during the winter, when freezing makes the roads firmer. These may need to be revised.
- Establish invasive species management programs, education, and outreach.
- Increase energy efficiency in tribal owned buildings and facilities.

**Built Environment and Infrastructure**

- Use a risk/consequence approach to evaluate and modify existing infrastructure to accommodate observed and predicted changes in climate.
- Implement development setbacks based on defensible scientific data.
- Relocate structures that are threatened by flooding or erosion.
- Education for developers, bankers, and insurance agents.
- Follow guidelines established in the NFIP Community Rating System (CRS).

***Emergency response/transportation***

- Strengthen public health response and warning systems.
- Review flood hazards related to roads and install permanent, remotely activated warning signs to free up personnel to focus on higher priority actions during an emergency.
- Diversify power supply in the event of power plant failures during extreme heat, extreme cold and severe weather events.

***Stormwater Infrastructure***

- Make infrastructure adjustments related to water systems to ensure ability to function under a generally more variable climate (especially under conditions of drier summers and wetter winters).
- Add sewer backflow and downspout disconnections.

- Protect facilities and make any needed building code changes to protect against extreme weather events. This includes stormwater infrastructure upgrades such as larger culverts, stream bank stabilization through planting trees and vegetation, green and grey infrastructure implementation and relocation of structures threatened by flooding or erosion.
- Implement residential green infrastructure programs (e.g., rain barrels, rain gardens, and pervious pavement).
- Use best management practices for site design to control stormwater runoff.
- Develop and evaluate alternative tools and strategies for the design of stormwater-related infrastructure, using a collaborative process that includes climate scientists, water resource managers, design engineers, and regulators, and members of relevant business communities.

**Tourism and Recreation**

***Forests/Ecosystems***

- Conduct vulnerability and risk assessment of land and water resources. Tree and soil inventory. Assess vulnerable parcels (e.g., preserve forest land, watershed forestry, best management practices, climate scenario planning).
- Adopt adaptive plant selections for forestry, stream buffers, and urban trees through climate matching.
- Establish monitoring sites for forest ecosystems. These complex communities are most likely to see climate change impacts and will provide the means to track the rate of change, including changes in wildlife species, trees, shrubs and herbs.
- Protect and enhance migration corridors to allow species to migrate as the climate changes and rehabilitate riparian and floodplain forests to help shade and cool streams; reduce flooding by intercepting surface runoff, sediment loading, and pollution; provide recreational opportunities; create habitat for wildlife; slow food flows; stabilize stream banks and shorelines; and provide litter and woody debris for aquatic organisms.
- Establish invasive species management programs, education, and outreach.
- Study the impact of climate change on tourism economics.

***Fisheries***

- Conduct a vulnerability and risk assessment of important fish species. Use temperature and fish models to evaluate streams and their watersheds. Identify cold water resources for protection and restoration, and allow for the evaluation of potential responses to climate change scenarios so that managers can make informed decisions when allocating management resources.
- Adopt riparian and watershed land use practices that promote infiltration of precipitation and recharge of groundwater to maintain or enhance groundwater inputs into springs, ponds, and streams. Reduce existing, or limit

creation of addition, impervious surfaces in critical watersheds containing cold water streams, and utilize best runoff management practices in urban areas. Continue enforcement of laws governing groundwater use that are critical to protecting cold water streams and trout fisheries from climate change.

- Use a triage approach to protecting cold water streams from the impacts of climate change by setting realistic management expectations for success and evaluating possible climate change impacts on different cold water streams. Use stream restoration techniques that promote colder water temperatures (for example, narrowing and deepening channels), and target restoration efforts to streams most likely to realize those benefits under a changing climate.
- Manage riparian vegetation to promote stream bank and channel stability, reduce erosion, and siltation, and protect streams from damage from high-flow events. Provide shading to maintain the lower temperatures of groundwater input over longer lengths of cold water streams.
- Invasive species education and outreach for boaters, anglers, and other recreation audiences.

## ADAPTATION AND VULNERABILITY ASSESSMENT RESOURCES

The following are some additional resources that may be helpful for assessing community adaptation and vulnerability.

**CREAT** (Climate Resilience Evaluation and Awareness Tool)

Software tool to assist drinking water and wastewater utility owners and operators in understanding potential climate change threats and in assessing related risks at their individual utilities.

- http://water.epa.gov/infrastructure/watersecurity/climate/creat.cfm
- http://water.epa.gov/infrastructure/watersecurity/climate/upload/epa817f12011.pdf

### Nature Serve Vista

Spatial decision-support system that helps users integrate data and expert knowledge on conservation with land use and resource planning. Planners, resource managers, scientists, and conservationists can use NatureServe Vista to assess cumulative effects for any number of climate change scenarios.

- http://coast.noaa.gov/digitalcoast/tools/natureserve-vista

### C-CAP Land Cover Atlas

Provides access to regional land cover and land cover change information developed through NOAA's Coastal Change Analysis Program. This tool helps users to visually analyze and explore NOAA's geospatial land cover data by county and land cover changes for specific date ranges.

- http://coast.noaa.gov/digitalcoast/tools/lca

### National LID Atlas

National NEMO Network: Low impact development (LID) Atlas is an online resource providing geo-referenced examples of innovative stormwater practices across the country.

- http://lidmap.uconn.edu/

**NIACS** (Northern Institute of Applied Climate Science Climate Change Response Framework)

A collaborative approach to helping land managers understand the potential effects of climate change on forest ecosystems and integrating climate change considerations into management.

- http://www.nrs.fs.fed.us/niacs/climate/framework/
- http://www.nrs.fs.fed.us/niacs/climate/northwoods/

## VULNERABILITY ASSESSMENT

The vulnerability assessment provides an overview and analysis of the Oneida Nation's vulnerability to the profiled hazards. It describes the Oneida Nation's vulnerability in terms of the areas most threatened by the profiled hazards, most vulnerable to damage and loss associated with hazard events, Oneida Nation-owned critical or operated facilities/infrastructure, and Brown and Outagamie County-identified critical facilities/infrastructure located in the identified hazard areas.

### VULNERABLE AREAS

Vulnerable areas most threatened by the profiled hazards have been addressed under the hazard profiles provided earlier in this section. Vulnerable areas are addressed under the heading, "*Location and Extent of Hazard*" for each hazard type and have been summarized with their area size (where applicable) in Table 12 below.

Table 12: Vulnerable Areas by Hazard for the Oneida Nation

| Hazard | Vulnerable Areas | Area Size |
|---|---|---|
| Winter Storm | Entire planning area affected equally. | N/A |
| Strong Wind | Areas with a greater density of homes without a basement especially manufactured and mobile homes. | N/A |
| Excessive Heat | Entire planning area affected equally. | N/A |
| Hail | Entire planning area affected equally. | N/A |
| Flood | Parcels wholly or partially within floodplains. | 18,135 acres |
| Extreme Cold | Entire planning area affected equally. | N/A |
| Tornado | Areas with a greater density of homes without a basement especially manufactured homes are most vulnerable. | N/A |
| Dense Fog | Low lying, wet areas. | N/A |
| Drought | Agricultural areas are most vulnerable. | 33,032 acres of farmland |
| Wildland Fire | Natural areas with trees, brush, marsh, grassland, or field lands are most vulnerable | 17,909 acres of natural areas |

Flooding is the one hazard in which the hazard/vulnerable area can by mapped relatively accurately because base floodplains define the vulnerable area involved,

and floodplain mapping is available for the Oneida Nation. Map 5 (at the end of the section) illustrates the base floodplains in the Oneida Nation.

### ASSETS

Assets within the Oneida Nation are the primary critical facilities/infrastructure comprised of tribe-owned buildings, facilities, and sites, including services buildings, cultural sites, and areas of tribal significance. Secondary assets in the Oneida Nation include the non-tribal owned critical facilities and infrastructure that have been identified by the State of Wisconsin, Brown County Hazard Mitigation Plan Steering Committee, and the Outagamie County Emergency Management department within, and directly adjacent to, tribal boundaries, and that can provide support services to, or impact the Oneida Nation.

#### Critical Facilities and Infrastructure

The Oneida Nation Hazard Mitigation Plan Steering Committee determined which critical facilities and infrastructure were to be evaluated in the plan. Community representatives verified the identified critical facilities/infrastructure.

Table 5 and Table 7 list the primary critical facilities and infrastructure (Oneida-owned). Map 4 (at the end of the section) displays the primary and secondary critical facilities. Section 1 of this plan provides additional information on Oneida critical facilities and infrastructure.

### VULNERABLE ASSETS

Vulnerable assets are those primary and secondary critical facilities and infrastructure most threatened by the profiled hazards. Vulnerable assets include the critical facilities/infrastructure located within the identified hazard areas or vulnerability areas (Table 12).

Flooding is the one hazard in which the hazard/vulnerable area can by mapped relatively accurately and therefore the vulnerable assets in this hazard area can be identified as the parcels and structures lying fully or partially within the base floodplain area. Map 6 (at the end of the section) illustrates the properties that are potentially within the 100-year floodplain (or base floodplains) within the Oneida Nation.

## ASSESSMENT OF POTENTIAL LOSSES

### VALUE OF ASSETS

The Oneida Nation has identified 69 primary critical facilities within the Reservation boundaries. The Oneida Nation owns all primary critical facilities. The total structural value of the critical facility assets is $255,133,179. Therefore, the potential dollar loss to critical facilities in the Oneida Nation is over $255 million in a "worst case scenario" of total damage of all buildings in the planning area.

### ESTIMATION OF POTENTIAL LOSSES

An estimation of potential losses was derived for flooding hazard since the hazard area can be defined as the 100-year floodplains and properties within the hazard area can

be identified. All other hazards can occur anywhere within the Oneida Nation and have no defined hazard area in which to determine vulnerable properties.

**Estimation of Potential Losses from Flooding**

There are seven Oneida-owned properties potentially at risk from the 100-year flood within the Oneida Nation. Table 13 provides an estimate of potential dollar losses from Oneida Nation structures vulnerable to flooding. "Vulnerable structures" are those structures located in the 100-year flood hazard area, as identified in Map 6 (at the end of the section).

Since there is no reliable building height data for all buildings in the Oneida Nation's flood hazard areas, a "worst case scenario" of total structural damage for buildings in all of the flood zones of the planning area was assumed in estimating potential dollar losses to vulnerable structures. Building height/elevation data should be collected in the future in order to better assess the risks of damage to structures because of the flood hazard.

It is estimated that nearly $8 million in potential losses would occur with a 100-year flood in a "worst case scenario" of total structural damage for all buildings in all of the flood zones of the planning area (Table 13).

All potential loss information was obtained from the Oneida Nation Risk Management department. The parcel maps and the FEMA 100-year floodplains were merged using GIS to determine at-risk structures in the planning area.

Table 13: Estimated Potential Losses from Flooding within the Oneida Nation

| Critical Facilities* | Type | Value |
|---|---|---|
| Highway 54 One Stop | Hazardous Materials Facility | $1,309,114 |
| Little Bear Development/GLIS | Tribal Services | $2,108,960 |
| Oneida Car Wash | Tribal Owned | $534,550 |
| Wastewater Treatment Facility | Lifeline Utility System | $3,466,314 |
| Water Tower | Lifeline Utility System | $438,634 |
| **Total** | | **$7,857,572** |

** Properties potentially within the 100-year floodplains.*

Source: Oneida Nation; Bay-Lake Regional Planning Commission; 2016.

**Estimation of Potential Losses from all Other Hazards**

Some hazards (such as winter storms, tornadoes, lightning and thunderstorms, etc.) have the potential to impact the entire planning area and it can be assumed that all assets in the planning area are equally at risk. Therefore, all identified critical facilities are potentially at risk from natural hazards within the Oneida Nation.

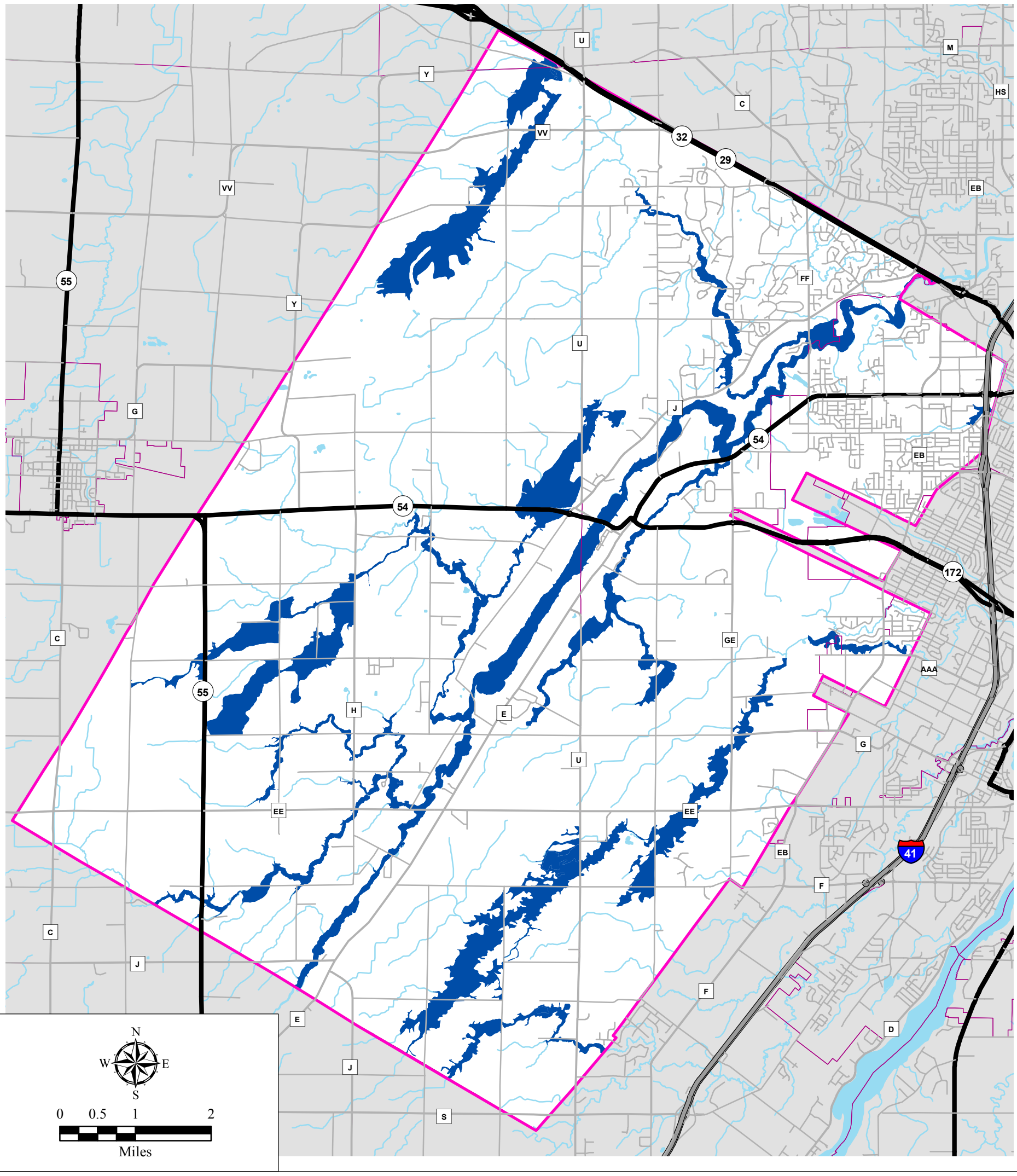
As previously stated, it is estimated that $255 million is the greatest amount of potential losses that could occur in a "worst case scenario" of total structural damage for all buildings in the tribal planning area in a natural hazard.

Map 5

# Base Floodplains

## Oneida Nation Pre-Disaster Mitigation Plan

### Oneida Reservation, Wisconsin




**Base Map Features**

- Tribal Boundary
- MCD Boundary
- Interstate Highway
- State Highway
- County Highway
- Local Road
- Surface Water

100-Year Floodplains



Source: FEMA, 2009; WDNR, 2009; WDOT, 2014; Brown County, 2015; Outagamie County, 2015; Oneida Nation of Wisconsin, 2015; Bay-Lake Regional Planning Commission, 2016.

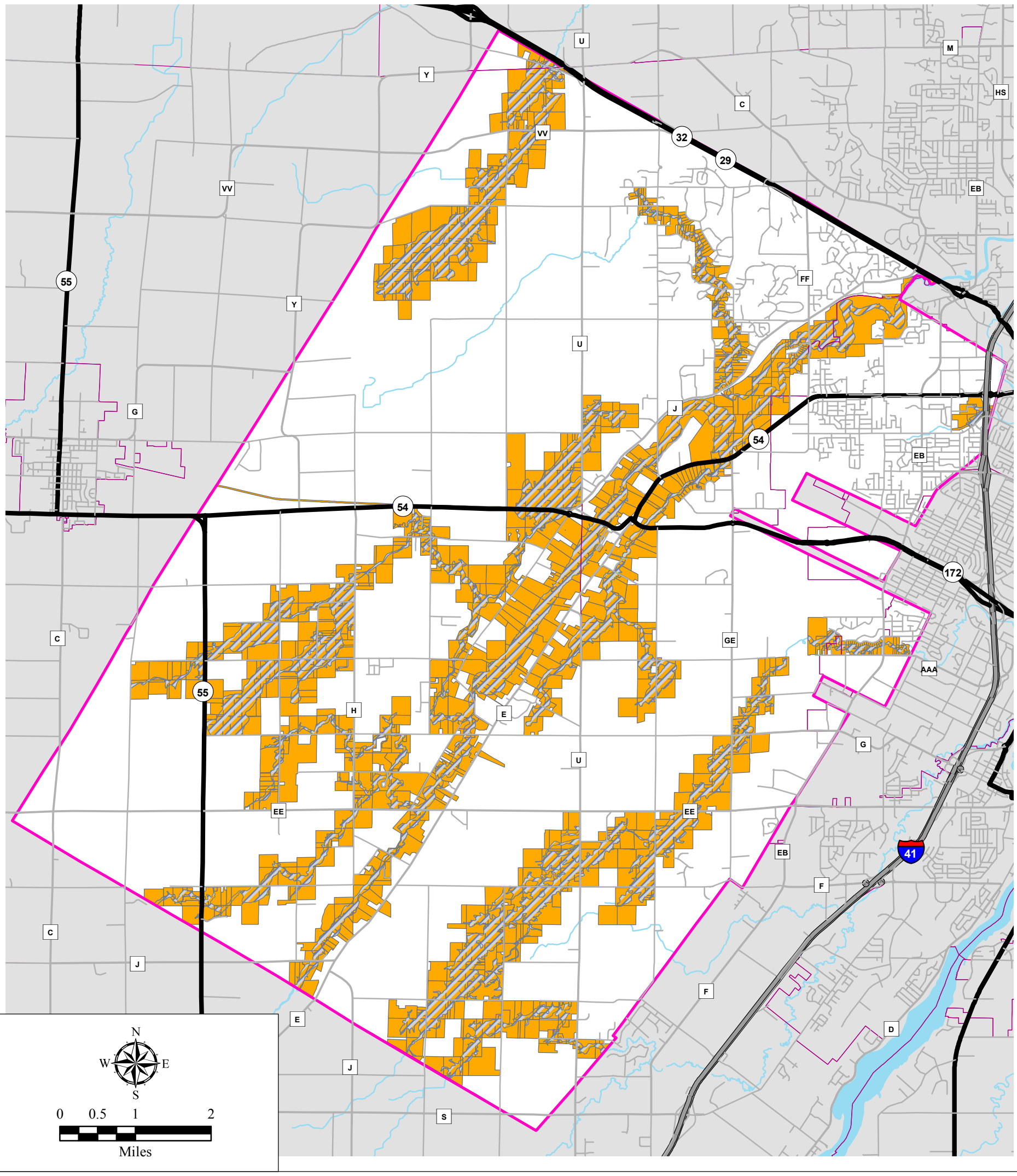
BAY-LAKE REGIONAL PLANNING COMMISSION

Map 6

# Properties Potentially in the Base Floodplains

## Oneida Nation Pre-Disaster Mitigation Plan

### Oneida Reservation, Wisconsin






Source: FEMA, 2009; WDNR, 2009; WDOT, 2014; Brown County, 2015; Outagamie County, 2015; Oneida Nation of Wisconsin, 2015; Bay-Lake Regional Planning Commission, 2016.

BAY-LAKE REGIONAL PLANNING COMMISSION

# SECTION 4 - MITIGATION STRATEGY

As defined by the Disaster Mitigation Act of 2000, *mitigation* is a "sustained action that reduces or eliminates long-term risk to people and property from natural hazards and their effects." Mitigation planning is the systematic process of learning about the hazards that can affect the planning area, setting clear goals, identifying appropriate actions and following through with an effective mitigation strategy. Mitigation encourages long-term reduction of hazard vulnerability and can reduce the enormous cost of disasters to the government and property owners. Mitigation can also protect critical community facilities and infrastructure, reduce exposure to liability, and minimize community disruption.

This section outlines the general goals to be achieved through the implementation of the *Oneida Nation 2015-2020 Pre-Disaster Mitigation Plan*. From the identified hazard mitigation goals, a mitigation strategy was developed for a 5-year horizon from 2016 to 2021 to identify specific projects and activities that could help achieve the Oneida Nation's hazard mitigation goals to make the tribe safer and better prepared for disasters.

This section includes a discussion of the mitigation efforts that are currently underway; the tribe's plan to implement the mitigation actions; an assessment of the tribe's pre- and post-disaster hazard management policies, programs, and capability to mitigate hazards; and an evaluation of the current and potential sources of federal, state, tribal, or private funding to implement mitigation activities.

## HAZARD MITIGATION GOALS

The following mitigation goals were developed, reviewed, and updated by the Steering Committee. The goals are intended to be used by Oneida Emergency Management, the Oneida Nation department officials, and emergency response personnel as general guidelines to address the needs identified during the natural hazard risk assessment process contained in Section 2. These goals were designed to be broad enough to apply to all natural hazards addressed in the plan.

Goal #1: Minimize human, economic, and environmental disruption from natural hazards.

Goal #2: Implement policies and programs designed to reduce or eliminate the impacts of natural hazards on people and property.

Goal #3: Enhance public education, training, and outreach about disaster resiliency and expand public awareness of natural hazards and their impact.

Goal #4: Enhance intergovernmental cooperation with surrounding counties and communities in hazard mitigation efforts and response to hazards and disasters.

Goal #5: Promote and enhance the use of natural resource protection measures as a means to reduce the impacts of natural hazards on people and property.

These goals are intended to guide efforts to reduce or avoid the effects of the profiled hazards addressed in the risk assessment and provide a framework for current and proposed mitigation actions.

## COMPLETED AND CURRENT MITIGATION EFFORTS

The Oneida Nation has strived to be more proactive at mitigating the impacts of natural hazards as opportunities arise and resources become available. The following list highlights some of the mitigation activities that have been undertaken in Oneida since the development of the initial pre-disaster mitigation plan in 2010.

- Updated Emergency Response Plan.
- Designated public shelters and had them certified by the American Red Cross as part of the Emergency Response Plan.
- Improved emergency management intergovernmental communication and cooperation between the Oneida Nation and non-tribal entities.
- Developed Emergency Management department Standard Operating Procedures.
- Completed Comprehensive plan update.
- Updated tribal building database in GIS with building values for each.
- Mapped elderly and special needs residences.
- Developed service agreements (MOUs, MOAs, and government and private partnerships) with ARES-RACES, SKYWARN, Outagamie County, Brown County, Green Bay, and State of Wisconsin Frequency Use Agreement.
- Established participation in the Brown County and Fox Valley United Way 2-1-1 *Get Connected. Get Answers.* Program under the category of "*Emergency/Disaster Services*." 2-1-1 is a non-emergency telephone number that connects people with community services.

## MITIGATION ACTION PLAN

For each hazard, the Steering Committee identified a list of mitigation actions and projects that could help achieve the Oneida Nation's hazard mitigation goals. The mitigation action plan was established for a 5-year horizon for each of the profiled hazards. The designation of "high," "medium," or "low" priority was determined by consensus of the Steering Committee based on:

- the level or risk from the hazard being addressed,
- the severity of the vulnerability being addressed,
- the cost to implement, the time period to implement,
- the leadership and tribal council's interest in implementing,
- whether or not the strategy is connected to another hazard,

- the level of impact if implemented,
- whether or not the activity has been initiated, and
- the level of need to expand the mitigation activity.

The following provides a listing of identified mitigation actions by profiled hazard. Table 14 (beginning on page 65) displays the mitigation action plan in tabular form by year and includes implementation priority, an estimated timetable, and identified responsible parties.

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Table 14: Oneida Nation Pre-Disaster Mitigation Actions, 2016-2021

| Oneida Nation 2016-2021 Pre-Disaster Hazard Mitigation Strategy | | | | |
|---|---|---|---|---|
| **Mitigation Measures** | **Priority** | **Timeline** | **Responsible Parties** | **Comments** |
| **All Hazards** | | | | |
| Determine which sirens do not have surge protection. | High | 2016-2021 | Emergency Management, Brown and Outagamie counties Emergency Management | Have the information from Brown and Outagamie counties Emergency Management. |
| Add a siren near the Health Center/Oneida Lake area. | High | 2016-2017 | Emergency Management, Outagamie County Emergency Management | Growth in the area around the health center has made sirens inaudible to residents while outside. |
| Promote the use of weather radios in all schools and in all homes and providing education on use. | High | Ongoing | Emergency Management, Brown and Outagamie counties Emergency Management, local TV stations | Also provide education on lack of siren coverage in home. |
| Increase Emergency Management staff (including LTE, early-to-work and interns) to assist with community outreach. | High | Ongoing | Emergency Management | |
| Provide for coordination with support agencies (such as the American Red Cross) and resource acquisition during emergencies through the implementation of the Oneida Nation Emergency Response Plan. | High | Ongoing | All departments, American Red Cross | |
| Acquire surge protection on sirens that do not have any. | Low | 2016-2021 | Emergency Management, Brown and Outagamie counties Emergency Management | Would be the responsibility of Oneida Nation. |

Source: Oneida Nation 2015-2020 Pre-Disaster Mitigation Plan Steering Committee, 2016.

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Table 15: Oneida Nation Pre-Disaster Mitigation Actions, 2015-2020, continued

| Mitigation Measures | Priority | Timeline | Responsible Parties | Comments |
|---|---|---|---|---|
| **All Hazards (cont'd)** | | | | |
| Continue public education and outreach regarding emergency preparedness. | Medium | Ongoing | Emergency Management, American Red Cross, Police Department, Oneida Community Health Services, Environmental Health and Safety, Department of Public Works, Zoning, Geographic Land Information Systems, Employee Health | |
| Investigate the options, technologies, and feasibility of adding sirens or boosters. | Low | 2016-2021 | Emergency Management, Brown and Outagamie counties | |
| Acquire battery power on sirens to prevent outage. | Low | 2016-2021 | Emergency Management, Brown and Outagamie counties Emergency Management | Expensive and would be the responsibility of Oneida Nation. |
| Provide resources for pet care during natural hazard events. | Low | 2016-2021 | Environmental Health and Safety, Humane Society | |
| Maintain adequate coverage of both in-car and portable police radio communications. | Low | Ongoing | Police Department | |
| Maintain power lines through proper maintenance and separation of power lines as well as efficient response to fallen power lines. | Low | Ongoing | WEC Energy Group | Utilities have a program to maintain powerlines based on utility-defined needs/priorities. |
| Continue to maintain and test sirens. | Low | Ongoing | Brown and Outagamie counties Highway Departments, Brown and Outagamie counties Emergency Management | |
| Ensure registration and provide updates under the Brown and Outagamie counties 211 Information System. | Low | Review Annually | Emergency Management | |

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Table 15: Oneida Nation Pre-Disaster Mitigation Actions, 2015-2020, continued

| Mitigation Measures | Priority | Timeline | Responsible Parties | Comments |
|---|---|---|---|---|
| **All Hazards (cont'd)** | | | | |
| Maintain public shelter designation in order to provide centers with proper shelter amenities and transportation availability. | Low | Review Annually | Emergency Management, Transportation, American Red Cross, Department of Public Works, Geographic Land Information Systems | Shelters are listed in Emergency Response Plan. American Red Cross is a partner with Oneida Nation on this effort. |
| Review and update the Oneida Emergency Response Plan. | Low | Review Annually | Emergency Management | |
| Maintain Memorandums of Understanding (MOU) with Amateur Radio Emergency Services (ARES)/Radio Amateur Civil Emergency Service (RACES). | Low | Ongoing | Emergency Management, ARES/RACES | Effective process already in place using area radio and television stations, but more local spotters are need in the area. |
| Establish a calendar of upcoming outreach activities. | Low | Ongoing | Emergency Management. | |
| **Winter Storm** | | | | |
| Ensure plowing and salting equipment is operational and available to handle potential emergencies. | Low | Ongoing | Department of Public Works | |
| Maintain tree trimming program. | Low | Ongoing | Environmental Health and Safety, WEC Energy Group | |
| Utilization of snow fences or "living snow fences" (rows of trees or other vegetation) to limit blowing and drifting of snow over critical roadway segments. | Low | Ongoing | Department of Public Works, Planning Dept/Transportation Planner, Environmental Health and Safety | |
| **Strong Wind** | | | | |
| Establish procedures for dealing with the collection and disposal of large volumes of after-storm solid waste debris. | High | 2016-2021 | Environmental Health and Safety, Emergency Management, Department of Public Works, Land Management | Develop Debris Management and Removal Plan. |
| Maintain a process to check for downed trees and other necessary clean-up after a storm. | Low | Ongoing | Environmental Health and Safety, Police Department | |

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Table 15: Oneida Nation Pre-Disaster Mitigation Actions, 2015-2020, continued

| Mitigation Measures | Priority | Timeline | Responsible Parties | Comments |
|---|---|---|---|---|
| **Extreme Cold** | | | | |
| Maintain a program to check on the elders and functional needs during extreme cold days. | Medium | Ongoing | Elder Services, Oneida Community Health Services, local hospital programs | |
| Maintain mapping of elders and functional needs residences and other populations vulnerable to extreme cold. | Low | Review annually | Elder Services, Geographic Land Information Systems | |
| **Excessive Heat** | | | | |
| Maintain programs to check on the elders and functional needs during extreme heat days. | Low | Ongoing | Elder Services, Oneida Community Health Services | |
| Maintain mapping of elderly and special needs residences and other populations vulnerable to extreme heat. | Low | Review annually | Elder Services, Geographic Land Information Systems | |
| **Hail** | | | | |
| Maintain a process to check for downed trees and other necessary clean-up after a storm. | Low | Ongoing | Police Department, Environmental Health and Safety | |
| **Flood** | | | | |
| Inventory floodfighting equipment supplies with Brown and Outagamie County (sandbags, pumps, etc.). | Low | Ongoing | Emergency Management, Brown and Outagamie counties, Emergency Management | Available sand pits within the Oneida Nation, and counties have equipment. |
| Utilize floodplain mapping to update existing flood maps and data sources to better determine areas and facilities susceptible to recurring flooding. | Medium | Ongoing, next update in 2023. | Geographic Land Information Systems | Updated 2013. |
| Maintain a stormwater management plan that includes such remediation techniques as surface detention basins, in-street detention units, and rain gardens. | Medium | Ongoing | Environmental Health and Safety, Geographic Land Information Systems, Zoning | |

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Table 15: Oneida Nation Pre-Disaster Mitigation Actions, 2015-2020, continued

| Mitigation Measures | Priority | Timeline | Responsible Parties | Comments |
|---|---|---|---|---|
| **Flood (cont'd)** | | | | |
| Provide community outreach about floodproofing techniques such as elevation, relocation, barrier construction, and wet floodproofing for residents and businesses. | Low | Ongoing | Emergency Management, Zoning, Environmental Health and Safety | |
| Abide by proper land use policy framework through the Oneida Nation comprehensive plan. | Low | Ongoing | All departments | The Oneida Nation comprehensive plan was updated April 17, 2014. |
| Implement rural drainage improvements and maintenance for ditches, bridges, and culverts. | Low | Ongoing | Department of Public Works, Geographic Land Information Systems, Environmental Health and Safety | Need a focus on bigger picture to address flooding, not just water quality. |
| Develop a storm drain maintenance program. | Low | 2016-2021 | Department of Public Works, Environmental Health and Safety | |
| Establish routine physical engineering inspection and verification of Fort Howard Sludge Facility impoundment. | High | 2016-2021 | Wisconsin Department of Natural Resources, DATCP, EPA | |
| Routinely monitor and record the conditions of dams/impoundments and their water levels to ensure impoundments are maintained and functioning properly. | Medium | Ongoing | Wisconsin Department of Natural Resources, Environmental Health and Safety | Need to formalize maintenance records. |
| Ensure the residents located within a flood zone have information on emergency procedures if the dam/impoundment is compromised. | Low | 2016-2021 | Emergency Management, Environmental Health and Safety | |
| **Tornado** | | | | |
| Establish procedures for dealing with the collection and disposal of large volumes of after-storm solid waste debris. | High | 2016-2021 | Environmental Health and Safety, Emergency Management, Department of Public Works, Land Management | Develop Debris Management and Removal Plan. |
| Improve access to shelter in mobile home park (increase size and provide more reliable access). | Medium | 2016-2021 | Land Management | No access available at shelter (library) after hours. |

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Table 15: Oneida Nation Pre-Disaster Mitigation Actions, 2015-2020, continued

| Mitigation Measures | Priority | Timeline | Responsible Parties | Comments |
|---|---|---|---|---|
| **Tornado (cont'd)** | | | | |
| Inventory homes that do not have basements. | Medium | 2016-2017 | Housing, Zoning, Geographic Land Information Systems | Could potentially be an outsourced project. |
| Ensure that there are comprehensive safety plans for each Oneida-owned building. | Low | Ongoing | Emergency Management, Risk Management, Facilities Management, Engineering | |
| **Dense Fog** | | | | |
| Inform the county highway department and Wisconsin DOT of areas lacking signage, damaged signs, or fading paint on roads. | Low | Ongoing | Planning Dept/Transportation Planner, Police Department | |
| Provide information to area news media in order to broadcast emergency information that addresses safety precautions, including the need to avoid certain corridors or to slow down while traveling during a fog event. | Low | Ongoing | Emergency Management, Communications Department, Police Department | |
| **Drought** | | | | |
| Maintain burn ban communications. | Low | Ongoing | Brown and Outagamie Counties, Wisconsin DNR | |
| Review code of ordinance to determine the emergency water conservation provisions in place for each water utility. | Low | 2016-2017 | Environmental Health and Safety, Emergency Management | Oneida Nation is covered by 4 water districts -- Oneida Nation, Town of Hobart Water Utility, Ashwaubenon Water and Sewer, and Green Bay Water |
| **Wildland Fire** | | | | |
| Ensure mutual aid fire protection agreements are in place and they include provisions for wildfires. | Medium | Ongoing | Environmental Health and Safety, Village of Hobart Fire Department, Town of Oneida Fire Department | Maintain MABAS. |
| Maintain and upgrade roads to allow for adequate access by emergency vehicles and fire equipment. | Low | Ongoing | Department of Public Works, Brown and Outagamie counties, municipalities | Driveway costs are the responsibility of the property owner. |

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Table 15: Oneida Nation Pre-Disaster Mitigation Actions, 2015-2020, continued

| Mitigation Measures | Priority | Timeline | Responsible Parties | Comments |
|---|---|---|---|---|
| **Wildland Fire (cont'd)** | | | | |
| Improve outreach regarding open burning and fireworks laws. | Low | Ongoing | Environmental Health and Safety, Village of Hobart Fire Department, Town of Oneida Fire Department | |
| Coordinate with the Wisconsin Department of Natural Resources to disseminate information to the public on preventing fires and providing notification on burning restrictions. | Low | Ongoing | Emergency Management, Wisconsin Department of Natural Resources, Environmental Health and Safety | |

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## MITIGATION STRATEGY IMPLEMENTATION

The mitigation action plan displayed in Table 14 provides information about implementation of each action by listing the action's priority, timeline, and responsible party.

Before implementation of identified actions are undertaken, the prioritization given each action will be considered along with a formal or informal benefit cost analysis based on the projects being considered at that time, the anticipated costs, available funding, and current economic situation. An informal benefit cost analysis would consist of an economic evaluation carried out within the applicable department to consider the anticipated benefits that would results from the mitigation actions versus the cost of the action. A formal benefit cost analysis will be performed when an accurate economic analysis of proposed program or project benefits versus costs is required. A formal benefit cost analysis will typically be undertaken when grant funding is being requested.

Implementation of the mitigation action plan will be the responsibility of several Oneida Nation departments with assistance provided by officials and emergency personnel from federal and state agencies, Brown and Outagamie Counties, and local communities and agencies/organizations.

Oneida Emergency Management will oversee the implementation, evaluation, and maintenance of the mitigation action plan, with oversight from the Oneida Business Committee, with assistance from Oneida Nation Departments, and with input from the Tribal Council.

The following lists the Oneida Nation departments that were identified as responsible parties to implement one or more of the mitigation actions:

- Emergency Management
- Police Department
- Community Health Services
- Environmental Health and Safety
- Department of Public Works
- Zoning
- Geographic Land Information Systems
- Planning Department
- Employee Health
- Land Management
- Elder Services
- Risk Management
- Facilities Management
- Engineering
- Communications Department

The following lists non-tribal agencies/departments/organizations that were identified as responsible parties to implement one or more of the mitigation actions:

- Brown County Emergency Management
- Outagamie County Emergency Management
- American Red Cross
- WEC Energy Group
- Brown County Highway Department
- Outagamie County Highway Department
- ARES/RACES
- local hospitals

- Wisconsin Department of Natural Resources
- Wisconsin Department of Agriculture, Trade, and Consumer Protection
- U.S. Environmental Protection Agency

Oneida Emergency Management will work with applicable departments, committees, and agencies to implement and maintain the hazard mitigation plan, and will communicate with the identified responsible parties regarding roles in the implementation of the plan. Assignment of roles and responsibilities will be handled under the direction of Oneida Emergency Management.

## CAPABILITY ASSESSMENT

The Oneida Nation has the financial, legal, and programmatic ability to carry out the mitigation action plan in the pre- and post-disaster setting to achieve its mitigation goals.

The Oneida Nation has an annual budget with income sources from gaming, retail, hotels, grants, interest income, loans, and other sources. Hazard mitigation projects are funded from this budget. Additional funding can be requested through the Oneida Business Committee for larger projects.

Oneida Emergency Management has knowledgeable and well-trained personnel dedicated to carrying out pre-disaster actions necessary to adequately mitigate disaster. Additionally, the Oneida Nation has over 2,500 tribal employees, performing a range of services, whose expertise will play a vital role in the implementation of the initiatives outlined in this Pre-Disaster Mitigation Plan.

*Chapter 35* of the *Oneida Nation Code of Law* defines the emergency management policies of the tribe to address planning, mitigation, response, and recovery. The purpose of this law is to:

(a) provide for the development and execution of plans for the protection of residents, property, and the environment in an emergency or disaster; and

(b) provide for the direction of emergency management, response, and recovery on the Reservation; as well as coordination with other agencies, victims, businesses, and organizations; and

(c) establish the use of the National Incident Management System (NIMS); and

(d) designate authority and responsibilities for public health preparedness.

The policy of this law is to provide:

(a) a description of the emergency management network of the Tribe; and

(b) authorization for specialized activities to mitigate hazardous conditions and for the preparation of Tribal emergency response management plans, as well as to address concerns related to isolation and/or quarantine orders, emergency care, and mutual aid; and

(c) for all expenditures made in connection with such emergency management activities to be deemed specifically for the protection and benefit of the inhabitants, property, and environment of the Reservation.

In addition to emergency management ordinances, the Oneida Nation has regulations on development activities to prevent unwise and unsafe construction or development practices through its building code and inspections (*Oneida Nation Code of Laws, Chapter 66 – Building Code*), through zoning and floodplain/shoreland/ wetland regulations (*Oneida Nation Code of Laws, Chapter 69 – Zoning and Shoreland Protection Law*), and through a Tribal Subdivsion Law (*Oneida Nation Code of Laws, Chapter 69.18 – Land Development Law*), which prohibits the subdivision of any Tribal lands held in Trust, any heirship lands, and any individual Trust land, located within the Oneida Reservation. Additionally, the Oneida Nation provides land use and planning guidance through the Oneida Nation 2014 Comprehensive Plan Update. State, tribe, and tribal standards ensure proper construction of infrastructure such as streets, roads, bridges, and utilities.

## PRE-DISASTER HAZARD MANAGEMENT

The Oneida Nation's hazard mitigation regulations, policies, and programs related to pre-disaster hazard management sufficiently support hazard mitigation in the Tribal planning area and facilitate a cooperative response to pre-disaster mitigation.

The Oneida Nation has exemplified its understanding of the FEMA HMA program through the receipt and administration of a Pre-Disaster Mitigation Planning grant in 2009 to develop the *Oneida Tribe of Wisconsin 2010-2015 Multi-Hazard Mitigation Plan*, and a Pre-Disaster Mitigation Planning grant in 2015 to develop the *Oneida Nation 2015-2020 Pre-Disaster Mitigation Plan*.

To improve its pre-disaster capabilities, Oneida recognizes the need to expand its Oneida Emergency Management staff and training, and improve the Tribe's intergovernmental cooperation in pre-disaster hazard management.

Sufficient policies and programs are in place to support successful intergovernmental cooperation on pre-disaster hazard management. Oneida Emergency Management will continue to foster the partnerships between the Oneida Nation, Brown and Outagamie counties, and the intra-boundary and surrounding communities.

Oneida Emergency Management will continue to request authorization from the Oneida Business Committee to hire additional staff, and will seek out qualified personnel to fill those positions. Additionally, personnel will be strongly encouraged to continue training from FEMA and Wisconsin Emergency Management in order to improve the Tribe's pre-disaster program.

## CAPABILITIES RELATED TO DEVELOPMENT

The Oneida Nation's current regulations, policies, and programs sufficiently deter development in hazard prone areas and support hazard mitigation in the Tribal planning area. Current zoning policies regulate development in vulnerable areas such as floodplains and steep slopes (12 percent or greater) by limiting or preventing some or all development.

Prior to establishment of the current zoning policies, structures were allowed to locate in flood hazard areas. To remedy these grandfathered structures, Oneida policies prohibit modifications or additions to any existing structures that are not in compliance with permitted floodplain standards or uses (*Oneida Nation Code of Laws, Chapter 69.31-7 – Existing Structures in the Floodplain*).

Oneida's Zoning and Shoreland Protection Law establishes effective floodplain management regulations. Development outside of a floodplain can contribute significantly to flooding by covering impervious surfaces or altering natural drainage management systems, which increase stormwater runoff. The portions of the City of Green Bay and the Village of Ashwaubenon that are within the Reservation have stormwater management regulations in place to require retention or detention basins to minimize any increase in runoff caused by new or expanded impervious surfaces, or new drainage systems. The areas of the Oneida Nation outside of Green Bay and Ashwaubenon have less development impacting stormwater runoff; however, impact still exists, therefore stormwater management throughout the Reservation will be considered as a means to manage flooding. Techniques to be considered include wet and dry basins as part of the site plan of a development, swales, infiltration trenches, vegetative filter strips, and permeable paving.

Oneida's Building Code establishes an effective policy to ensure safe and weather-tight dwellings; however, there are opportunities within this policy to expand building code standards for roof materials to set standards for roof construction to protect against wind damage from tornadoes and high winds.

Open fire regulations exist for the portions of the Reservation within the Village of Hobart. However, better enforcement of open burning restrictions throughout the Reservation is needed to prevent the spread of wildfires, especially during times of drought.

**Administration of Land Use Regulations**

The Oneida Nation is the zoning agent for all tribal lands and waters held in trust, all tribal lands and waters held in fee status, all fee status lands under the control of individual Oneida members, all heirship lands and waters and all individual trust lands and waters within the present confines of the Oneida Reservation.

The Oneida Business Committee, largely through the Zoning Department within the Development Division, has the duty and power to enforce land use provisions, ordinances, laws, and orders of the Oneida Nation.

The City of Green Bay, the Villages of Ashwaubenon and Hobart, and the Town of Pittsfield are the zoning agents for the non-tribal lands in their respective jurisdictions, and Outagamie County is the zoning agent for the non-tribal lands in the Town of Oneida.

## FUNDING CAPABILITY

The Oneida Nation has access to a number of funding sources to finance current and proposed mitigation projects and actions. Mitigation actions that fall under the responsibility of other departments would be funded through the budgets of the

applicable department. Additional funds needed for large, capital expenditures must be requested from the Oneida Business Committee.

In many cases outside financial assistance must be requested. Such external funding sources include the following:

- Bureau of Indian Affairs.
- FEMA Hazard Mitigation Assistance Program (HMA) provides assistance to reduce overall risks to the population and structures, while reducing reliance on funding from disaster declarations.
- Emergency Management Performance Grant (EMPG) provides assistance for development, maintenance, and improvement of emergency management capabilities.
- Indian Community Development Block Grant (ICDBG) program helps to improve infrastructure and housing in Native American communities primarily for low to moderate-income persons. This program can assist with the rebuilding process after disasters and ICDBG funds can be utilized as part of the match for hazard mitigation projects.
- Community Development Block Grant (CDBG) program helps to improve infrastructure and housing in low to moderate-income communities. This program can assist with the rebuilding process after disasters and ICDBG funds can be utilized as part of the match for hazard mitigation projects.
- Wisconsin Office of Justice Assistance.
- Land preservation programs such as the Wisconsin Stewardship Program conserve wetlands, floodplains, or erosion prone areas – all of which are hazardous areas for development.
- Wisconsin Department of Natural Resources grant programs.
- U.S. Environmental Protection Agency grant programs.
- U.S. Fish and Wildlife Service grant programs.
- Private donations.

The Oneida Grants Office works to maximize external resources available to the Oneida Nation in order to improve tribal opportunities, support improvement plans, and to ensure accountability in the use of grant resources.

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Hazard mitigation planning does not end with the adoption of this plan. This planning program is a continuous process of profiling new hazard events, assessing vulnerabilities as new information arises and conditions change, monitoring changing assets and affected populations, and keeping current on evolving mitigation measures.

The *Oneida Nation 2015-2020 Pre-Disaster Mitigation Plan* will be maintained to ensure that it will remain an active and relevant document. The plan maintenance process establishes a method and schedule for monitoring the plan, and reviewing, evaluating, and updating the plan on a regular basis. This section of the plan discusses how progress on mitigation activities will be monitored, how the plan will remain valid and up-to-date, and how mitigation strategies will be incorporated into existing planning mechanisms. Lastly, this section addresses the continued participation that will be maintained by the Oneida Nation and relevant stakeholders.

## MONITORING PROGRESS OF MITIGATION ACTIVITIES

On at least an annual basis, Oneida Emergency Management will meet with the Emergency Planning Committee and relevant Oneida departments to evaluate progress on each mitigation strategy. Annual and semi-annual progress reports will be compiled and presented to the General Tribal Council at regular meetings in January or July.

The monitoring process will ensure that identified mitigation actions are being implemented, it will provide a process for proposed project timelines to be reviewed and revised, and will ensure that mitigation projects are properly closed out. This collaborative implementation approach will also provide a forum for identifying additional mitigation needs.

Oneida Emergency Management will maintain progress reports on all mitigation projects and include this information in plan updates. Newly identified mitigation needs will be addressed through the development of additional goals, objectives, and strategies.

## REVIEWING, EVALUATING, AND UPDATING THE PLAN

The *Oneida Nation 2015-2020 Pre-Disaster Mitigation Plan* will be reviewed by Oneida Emergency Management, the Emergency Planning Committee, and relevant Oneida departments through an annual (or post-disaster) review of the plan to ensure that mitigation actions are being addressed based on the proposed schedules. Annual and post-disaster reviews will assess the effectiveness of programs and consider land development or program changes that may affect mitigation priorities. This process will be used to review progress on achieving goals and ensure activities and projects are being implemented as identified in the plan.

A comprehensive plan update will be completed every five years by Oneida Emergency Management and the plan Steering Committee. The plan update will involve evaluating the current plan to:

- ensure that the plan is effectively addressing Oneida's mitigation goals;
- assess whether risks have changed for the planning area;
- ensure that mitigation action outcomes are being accomplished;
- assess if resources are adequate for implementation;
- revise mitigation actions or develop additional actions to meet current needs; and
- ensure that any new FEMA requirements for mitigation plans are addressed.

Plan revisions will be made available through the Oneida Emergency Management website for general public review and comment during the plan update process. Comment on revisions and updates will be solicited through a comprehensive public outreach strategy (news releases, General Tribal Council meetings, and partnerships). Public outreach efforts for the plan updates will further use these opportunities to provide ongoing public education on hazard preparedness. The reviewed and updated plan will be submitted to the Oneida Business Committee, General Tribal Council, and FEMA for approval every five years.

## INTEGRATION WITH EXISTING PLANNING EFFORTS

Through the development of the *Oneida Nation 2015-2020 Pre-Disaster Mitigation Plan* every opportunity was taken to integrate the plan with other planning efforts where similar or complementary goals and objectives existed. Additionally, the goals and objectives of the plan will be incorporated into other planning mechanisms where opportunities are found for complementary work.

This hazard mitigation plan incorporated information, data, and goals and objectives from the following:

- Oneida Emergency Response Plan
- Oneida Nation Comprehensive Plan Update
- Oneida Nation Code of Law

This hazard mitigation plan will in turn be utilized for incorporation into a number of other plans including the following:

- Oneida Emergency Operation Plan
- Oneida Capital Improvement Projects plan
- Oneida department plans and budgets

Oneida Emergency Management will work with the Oneida Business Committee and other departments to further incorporate and assimilate the pre-disaster mitigation plan into zoning and building codes, subdivision regulations, site review, permitting, staff

training, and other appropriate planning tools. In addition, the *Oneida Nation 2015-2020 Pre-Disaster Mitigation Plan* will be considered in the evaluation and update of other tribal plans.

Many plans, reports, and technical data were referenced throughout the development of this hazard mitigation plan. The following is a list of resources and reports utilized during the development of the plan:

- U.S. Census Bureau population, housing, and employment data
- Wisconsin Department of Administration Population Estimates
- Wisconsin Department of Transportation local road information
- *State of Wisconsin Hazard Mitigation Plan*
- Hazard Analysis for the State of Wisconsin
- National Oceanic and Atmospheric Administration (NOAA) – National Climatic Data Center – severe weather event data
- U.S. Geological Survey maps on landslides, land subsidence and earthquakes
- FEMA Tribal Multi-Hazard Mitigation Planning Guidance
- FEMA *Multi-Hazard Mitigation Planning Guidance*
- FEMA: *Understanding Your Risks* guide
- FEMA: *Mitigation Planning Ideas* from Region 5
- FEMA Flood Insurance Studies
- FEMA Flood Insurance Rate Maps (FIRMs)
- Parcel data from the Oneida, Brown County, and Outagamie County
- Oneida, Brown County, Outagamie County Assessed valuation data
- Oneida, Brown County, and Outagamie County land use inventory data
- *Oneida Emergency Operation Plan*
- *Oneida Nation Comprehensive Plan Update*

## INTEGRATION WITH FEMA MITIGATION PROGRAMS AND INITIATIVES

The Oneida Nation will strive to integrate the *Oneida Nation 2015-2020 Pre-Disaster Mitigation Plan* with FEMA mitigation programs and initiatives. Integration will particularly focus on the Hazard Mitigation Assistance Program and the Disaster Mitigation Act of 2000.

The *Oneida Nation 2015-2020 Pre-Disaster Mitigation Plan* integrates fully with DMA 2000. The pre-disaster mitigation plan has been developed as required by DMA 2000 to ensure the Oneida Nation's eligibility for FEMA assistance through the Hazard Mitigation Assistance Program, and the plan addresses natural hazards in the assessment/vulnerability analysis part of the pre-disaster mitigation plan as required under DMA 2000.

To integrate the plan with the FEMA Hazard Mitigation Assistance Program, Oneida Emergency Management and the Steering Committee will make every effort to coordinate the review and update procedures for the plan to coincide with FEMA

Unified HMA grant application window. Review of the plan will be undertaken annually to determine eligible actions for FEMA pre-disaster mitigation funding. Eligible projects will be considered for submission based on the following:

1) The proposed project was identified as a need to address a natural hazard that has occurred within the last year.
2) The proposed project has been identified as a need in the *Oneida Nation 2015-2020 Pre-Disaster Mitigation Plan*.
3) The proposed project directly addresses a mitigation goals identified in the *Oneida Nation 2015-2020 Pre-Disaster Mitigation Plan*.
4) The proposed project indirectly addresses a mitigation goals identified in the *Oneida Nation 2015-2020 Pre-Disaster Mitigation Plan*.
5) A high level of support for a proposed project, either financial or political, can raise the priority of the proposed project for submission consideration.

## CONTINUED STAKEHOLDER AND PUBLIC INVOLVEMENT

All Steering Committee meetings were open to the public and notices of the meetings were posted in a public location within the Oneida Nation. Additionally, information about the *Oneida Nation 2015-2020 Pre-Disaster Mitigation Plan* was offered at the General Tribal Council annual meetings to provide information about adoption of the plan and to gain further input.

Continued stakeholder and public involvement will be achieved by inviting the members of the Steering Committee, as well as potential new members, to assist and provide input during the semi-annual review process for the plan. Additional partnerships were established throughout the development of this plan that will continue into the future. Partnership efforts are planned for future training and information sharing, and agreements are in place for cooperative disaster assistance efforts. Information about hazard mitigation will continue to be provided to the public at annual General Tribal Council meetings.

# APPENDIX A - STEERING COMMITTEE SIGN-IN SHEETS

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~~WISCONSIN EMERGENCY MANAGEMENT~~
~~TRAINING~~ ATTENDANCE ROSTER

*This training is funded by a Homeland Security Grant. Under this grant, the attendees signing below understand that the State of Wisconsin will incur costs on behalf of the local government for the costs associated with the training in the estimated amount of $_____*

COURSE: Pre-disaster Mitigation Workshop DATE: 4-21-15

LOCATION: Oneida Police Dept.

| | NAME | Agency | ADDRESS | CITY |
|---|---|---|---|---|
| 1. | Celene ELM | Oneida | | |
| 2. | Jeff Mears | Oneida EHSD | | |
| 3. | Mary Olson | Risk. Mgt. | | |
| 4. | Anna Destree | OCHS | | |
| 5. | Rich VanBoxtel | OPD | | |
| 6. | Jacque Boyle | DPW | | |
| 7. | Angela Pierce | Bay-Lake Regional Planning Commission | | |
| 8 | Kaylynn Gresham | Oneida EM | | |
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**DMA FORM 1089, OCT 2008**

* *State Privacy Provision Authorization:*
*Wisc Stats 166.03 and E.O. 9397. Disclosure: Disclosure of personal information is voluntary; however, nondisclosure may result in a delay in processing your application. The personal information you provide may NOT be used for purposes other than for which it was collected.*

Pre-Disaster Mitigation Plan 7-2-2015

| | |
|---|---|
| Kaylynn Grosham | OEM |
| Jeff Mears | Oneida EHSD |
| Anna Destree | OCHS |
| Susan Doxtator | Zoning |

Sign-in Sheet

@ 13-15

| | |
|---|---|
| Kaylynn Crosbram | EMHS |
| Jeff Meeks | EHSD |
| Angela Pierce | Bay-Lake RPC |
| Anna Destree | OCHS |
| Dale Wheelock | OHA |

**Oneida Nation of Wisconsin**
**Pre-Disaster Mitigation Plan Steering Committee**
**Attendance Sheet**
**November 20, 2015**

| Name | Organization |
|---|---|
| Eric Skenandore | Oneida GLS |
| Anna Destree | OCHC |
| Jeff Mears | Oneida Environmental |
| Eric Boulanger | OPD |
| Bob Keck | Oneida Risk Management |
| TROT FARR | ONEIDA DEVELOPMENT |
| Kaylynn Graham | Emergency Management |
| Angela Kowalzek-Adrians | Bay-Lake Regional Planning Commission |
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## WISCONSIN EMERGENCY MANAGEMENT
## TRAINING ATTENDANCE ROSTER

*This training is funded by a Homeland Security Grant. Under this grant, the attendees signing below understand that the State of Wisconsin will incur costs on behalf of the local government for the costs associated with the training in the estimated amount of $ _____*

~~COURSE~~: Pre-disaster Meeting DATE: 11/15/11

LOCATION: Oneida Police Department

| NAME | Agency | ADDRESS | CITY |
|---|---|---|---|
| 1. Jeff Mears | Oneida EHSD | | |
| 2. Anna Destree | OCHS | | |
| 3. Eric Boulanger | OPD | | |
| 4. Haylynn Gresham | Oneida - Emergency Mngt. | | |
| 5. Bill Doxtater | GHS | | |
| 6. Colleen Om | GHS | | |
| 7. Angela Kowalzek-Adrians | Bay-Lake RPC | | |
| 8 Bob Keck | Risk Management | | |
| 9. Eric Kmiecik | Health Center | | |
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**DMA FORM 1089, OCT 2008**

* *State Privacy Provision Authorization:*
*Wisc Stats 166.03 and E.O. 9397. Disclosure: Disclosure of personal information is voluntary; however, nondisclosure may result in a delay in processing your application. The personal information you provide may NOT be used for purposes other than for which it was collected.*

Oneida Tribe Hazard Plan Meeting 2/26/16

| Name | Representing |
| --- | --- |
| Angela Kowalzek-Adrians | Bay-Lake RPC |
| Jeff Mears | Oneida Environmental |
| Kaylynn Gresham | Oneida Emergency Management |
| Sean Luchs | National Weather Service |
| Eric Boulanger | Oneida Police Dept. |
| Anna Destrea | OCHS / BCHD |
| Sydney Junion de la Cruz | BCHD |

# APPENDIX B - PUBLIC MEETING SIGN-IN AND COMMENT SHEETS

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**Oneida Nation Pre-Disaster Mitigation Plan**

**Public Informational Meeting Sign-In**

**May 11, 2016**

| Name | Affiliation or Address |
|---|---|
| Rich VanBoxtel | OPD |
| Brittany Smith | OPD |
| Mary Jo Nash | DOLM |
| Eric Krawczyk | Comm. Health Services |
| L. McLester | Oneida Community member |
| Don McLester | Oneida County Member |
| Dianne McLester-Heim | Ombudsman |
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# WE NEED YOUR INPUT

Public Involvement is an important element in the development of the ***Oneida Nation Pre-Disaster Mitigation Plan.*** Oneida Nation is your community and your views are necessary.

Please take a few minutes to comment below. All comments received will be forwarded to the plan Steering Committee for their consideration.

Groups and/or individuals wishing to provide more detailed submittals may send them to the address listed at the bottom of the page.

Please continue your comments on the back of the sheet, if you run out of space.

1. **My comments on the Public Informational Meeting:**
   It nice to know that FMA is for natural Disaster Only

2. **My comments on the Oneida Nation Pre-Disaster Mitigation Plan:**

3. **My comments on other hazard mitigation/emergency management topics concerning Oneida Nation:**

---

**Thanks for your help!**

If you have additional comments, questions, or materials you would like to submit concerning the ***Oneida Nation Pre-Disaster Mitigation Plan,*** please contact:

**Angela Kowalzek-Adrians – Bay-Lake Regional Planning Commission**
**425 S. Adams St., Suite 201, Green Bay, WI 54301**
**Phone: 920-448-2820**
**Email: angelaka@baylakerpc.org**

# WE NEED YOUR INPUT

Public Involvement is an important element in the development of the ***Oneida Nation Pre-Disaster Mitigation Plan.*** Oneida Nation is your community and your views are necessary.

Please take a few minutes to comment below. All comments received will be forwarded to the plan Steering Committee for their consideration.

Groups and/or individuals wishing to provide more detailed submittals may send them to the address listed at the bottom of the page.

Please continue your comments on the back of the sheet, if you run out of space.

**1. My comments on the Public Informational Meeting:**

The Plan is needed and more people should be aware of this.

**2. My comments on the Oneida Nation Pre-Disaster Mitigation Plan:**

1. Bring to Land Commissim as FY after BC approves it
2. Have this info added for other grants - James Pettigan has the Comp Plan & Joy Parr has the Housing Plan.

**3. My comments on other hazard mitigation/emergency management topics concerning Oneida Nation:**

Excellent job Wish U could have had dedicated more time to this.

---

**Thanks for your help!**

If you have additional comments, questions, or materials you would like to submit concerning the ***Oneida Nation Pre-Disaster Mitigation Plan,*** please contact:

**Angela Kowalzek-Adrians – Bay-Lake Regional Planning Commission**
**425 S. Adams St., Suite 201, Green Bay, WI 54301**
**Phone: 920-448-2820**
**Email: angelaka@baylakerpc.org**

# WE NEED YOUR INPUT

Public Involvement is an important element in the development of the ***Oneida Nation Pre-Disaster Mitigation Plan.*** Oneida Nation is your community and your views are necessary.

Please take a few minutes to comment below. All comments received will be forwarded to the plan Steering Committee for their consideration.

Groups and/or individuals wishing to provide more detailed submittals may send them to the address listed at the bottom of the page.

Please continue your comments on the back of the sheet, if you run out of space.

1. **My comments on the Public Informational Meeting:**

   Very well planned.
   Presenter did a good job making the plan understandable and applicable.
   Kaylyna - Thank-you for organizing and for all your leadership.

2. **My comments on the Oneida Nation Pre-Disaster Mitigation Plan:**

   Very well done. Comprehensive and well organized.
   The plan summary slide was very helpful. Gave a good background of the past, present + future.

3. **My comments on other hazard mitigation/emergency management topics concerning Oneida Nation:**

   None at this time.

Thanks-you - Great job!!!

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**Thanks for your help!**

If you have additional comments, questions, or materials you would like to submit concerning the ***Oneida Nation Pre-Disaster Mitigation Plan,*** please contact:

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