



# MADISON TOWNSHIP

## Lightning Protection Policy

Adopted: 5/14/2025

Review Date: 5/1/2026

Responsible Department: Building Official

Approved By: Ryan G Rank, Township Supervisor

### 1. Policy Statement

Madison Charter Township is committed to minimizing property damage caused by lightning and ensuring the safety of municipal structures. This policy establishes a systematic approach to lightning protection based on recommendations from NFPA 780.

### 2. Purpose

The purpose of this policy is to:

- Evaluate municipal structures for lightning protection needs.
- Install lightning protection systems where necessary.
- Ensure regular inspection and maintenance of lightning protection systems.
- Comply with NFPA 780 standards.

### 3. Scope

This policy applies to all municipal structures within Madison Charter Township.

### 4. Definitions

- Lightning Protection System: A system designed to protect structures from lightning damage, consisting of air terminals, conductors, and grounding.
- Risk Index: A numerical value assigned based on the potential impact of lightning on a structure.

### 5. Risk Assessment

#### 5.1 Assessment Criteria

- Evaluate all municipal structures using the NFPA 780 Risk Assessment Guide.
- Install lightning protection systems for structures with a risk index of four or greater.

#### 5.2 Documentation

- Maintain detailed records of risk assessments and corresponding risk indices.

### 6. Lightning Protection System Components

- Air Terminals: Devices installed at the highest points of a structure to intercept lightning strikes.
- Conductors: Paths that direct the lightning current safely to the ground.
- Grounding: Systems that dissipate the lightning current into the earth.

## 7. Inspection Schedule

- After Installation: Comprehensive inspection to ensure proper setup.
- Annually: Visual inspection, including points and grounding connections.
- Every Five Years: Thorough inspection to assess system integrity.
- After Structural Alterations: Inspection following any changes to the structure.
- After Lightning Discharge: Inspection after a known lightning strike to the system.

## 8. Implementation

Madison Charter Township will ensure compliance with this policy by:

- Consulting NFPA 780 guidelines for risk assessment and system design. **APPENDIX A**
- Hiring qualified contractors for system installation and maintenance.
- Maintaining detailed inspection records for all municipal structures.

## **Appendix A: NFPA 780 Risk Assessment Guide**

### **Purpose:**

To provide a detailed framework for evaluating the lightning protection needs of municipal structures in Madison Charter Township.

### **Risk Assessment Criteria:**

#### **Structure Height and Dimensions:**

Height (m)

Width (m)

Length (m)

#### **Lightning Ground Flash Density:**

Flashes per km<sup>2</sup> per year

Flash density map

#### **Surroundings:**

Structures/trees of greater height within collection area

Structures/trees of equal or lesser height within collection area

No other structures or trees within collection area

On hilltop with no other structures or trees within collection area

#### **Structure Material Type:**

Metallic

Nonmetallic

Combustible

#### **Roof Material Type:**

Metallic

Nonmetallic

Combustible

#### **Structure Contents:**

Low value and noncombustible

Standard value and noncombustible

High value, moderate combustibility

Exceptional value, flammable liquids, computer or electronics

Exceptional value, irreplaceable cultural items

#### **Structure Occupancy:**

Unoccupied

Normally occupied

Difficult to evacuate or risk of panic

**Lightning Consequence:**

Continuity of facility services not required, no environmental impact

Continuity of facility services required, no environmental impact

Consequences to the environment

**Risk Index Calculation:**

Each criterion will be assigned a risk value based on its potential impact. The total risk index will be calculated by summing the individual risk values. Structures with a risk index of four or greater will require lightning protection systems.

**Implementation:**

- Assessment: Conduct a thorough risk assessment for each municipal structure using the criteria outlined above.
- Documentation: Maintain detailed records of the risk assessment results and the corresponding risk index for each structure.
- Action: Install lightning protection systems for structures with a risk index of four or greater.

**Review and Update:**

This appendix will be reviewed annually and updated as necessary to ensure continued compliance with NFPA 780 standards.