

# MnModel Topographic Wetness Index, Minnesota

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## Section 1: Overview

**Originator:** Minnesota Department of Transportation

**Title:** MnModel Topographic Wetness Index, Minnesota

**Abstract:** This dataset was developed for use in Mn/Model4 archaeological predictive model. NOTE: The compressed dataset is near 1 GB in size due to the high resolution scale and statewide extent of the data.

The Topographic Wetness Index (TWI) raster feature dataset was calculated using TauDEM (Terrain Analysis Using Digital Elevation Models) software. TauDEM is a collection of surface hydrology processing tools available from Utah State University, created by David Tarboton, version 5 of the software can be accessed here: <http://hydrology.usu.edu/taudem/taudem5/index.html>

**Purpose:** The purpose of this dataset is to provide a MnModel with a raster dataset that can be used to help assess the potential for wetlands or hydric type soils statewide and to serve as input to the MnModel Phase 4 archaeological predictive model. The information herein was used for predicting the potential for finding

unknown archaeological sites early in the transportation construction planning process, so that impacts on these sites can be avoided.

This dataset is best suited for general reference only. It is not suitable for precise land measurements or ground surveys.

For more information please visit MnModel's website: <https://www.dot.state.mn.us/mnmodel/index.html>

**Time Period of Content Date:**

**Currentness Reference:** 2011-2017

**Progress:** Complete

**Maintenance and Update Frequency:** None Planned

**Spatial Extent of Data:** Minnesota with 15 mile buffer

**Bounding Coordinates:** -97.508970  
-89.028990  
49.652543  
43.192405

**Place Keywords:** Minnesota with 15 mile buffer

**Theme Keywords:** elevation, Topographic Wetness Index, TWI, Digital Elevation Model, TauDEM, Mn/Model4, MnModel

**Theme Keyword Thesaurus:** ISO 19115 Topic Category

**Access Constraints:** None

**Use Constraints:** This dataset is best suited for general reference only. It is not suitable for precise land measurements or ground surveys.

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**Browse Graphic:** [Click to view a data sample.](#)

**Associated Data Sets:** LiDAR, Mn/Model4, MnModel, USGS NED. For more information please visit MnModel's website: <https://www.dot.state.mn.us/mnmodel/index.html>

## Section 2: Data Quality

### **Attribute Accuracy:**

**Logical Consistency:** All data were processed using as close to the same methods as possible.

**Completeness:** LiDAR source data were available for the entire state boundary extent. For the 15-mile buffer outstate, LiDAR data were used where available; if LiDAR was not available for an area, an older USGS NED 10 meter DEM data was used instead.

**Horizontal Positional Accuracy:** All of the data sources reviewed and the final dataset were within the National Map Accuracy Standards for 1:24,000-scale maps which is +/- 33 feet (11 meters). The dataset is not intended for legal land survey use, and is best suited for general reference.

**Vertical Positional Accuracy:** Surface elevation vertical accuracy estimated at +/- 2 feet

**Lineage:** TWI was created by running the Topographic Wetness Index tool in TauDEM, and used both a Specific Catchment Area grid and Flow Direction grid as inputs. Both inputs were derived from the pit-removed version of the 10 m resolution conditioned DTM (DTM10CONDPR) developed for MnModel Phase 4.

For more information please visit MnModel's website: <https://www.dot.state.mn.us/mnmodel/index.html>

### Section 3: Spatial Data Organization (not used in this metadata)

### Section 4: Coordinate System

**Horizontal Coordinate Scheme:** Universal Transverse Mercator

**UTM Zone Number:** 15

**Horizontal Datum:** NAD83

**Horizontal Units:** meters

**Vertical Datum:** not applicable

**Vertical Units:**

**Depth Datum:** not applicable

**Depth Units:**

**Cell Width:**10

**Cell Height:**10

### Section 5: Attributes

**Overview:** Topographic Wetness Index

**Detailed Citation:**

## Table Detail: Topographic Wetness Index derived from elevation data.

Field	Values	Definition
Value	2 to 28	Topographic Wetness Index Values

## Section 6: Distribution

**Publisher:** Minnesota Department of Transportation

**Publication Date:**08/28/2019

**Contact Person Information:** Andra Mathews, Research Analyst Intermediate  
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**Distributor's Data Set Identifier:** MnModel Topographic Wetness Index (TWI)

**Distribution Liability:** The folder is near 1 GB in size due to the high resolution scale and statewide extent of the data.

USE OF THIS DOCUMENT IS SUBJECT TO MNDOT'S DISCLAIMERS, LEGAL NOTICES AND POLICIES FOUND at <http://www.dot.state.mn.us/information/disclaimer.html>

**Ordering Instructions:** Please visit the download page for this dataset on the Minnesota Geospatial Commons website using the web link below (Online Linkage).

The following citation is suggested for reference: Minnesota Department of Transportation. Mn/Model4: Topographic Wetness Index. Saint Paul, MN.: Cultural Resources Unit, Office of Environmental Stewardship, 2018.

**Online Linkage:** [I AGREE](#) to the notice in "Distribution Liability" above. Clicking to agree will either begin the download process, link to a service, or provide more instructions. See "Ordering Instructions" above for details.

## Section 7: Metadata Reference

**Metadata Date:** 09/03/2019

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**Metadata Standard Name:** Minnesota Geographic Metadata Guidelines

**Metadata Standard Version:** 1.2

**Metadata Standard Online**

**Linkage:** <http://www.mngeo.state.mn.us/committee/standards/mgmg/metadata.htm>

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