

Data Summary Matrix

This document provides an overview of local data collection efforts to support the Tompkins County Multi-Jurisdictional Hazard Mitigation Plan analysis. This appendix and the risk assessment document it supports serve as an input to the Tompkins County Multi-Jurisdictional All-Hazard Mitigation Plan and are intended to support their long-term hazard mitigation planning efforts.

The risk assessment analysis was conducted between January and February 2004. Agencies and stakeholders involved in the collection of data used for the risk assessment include Tompkins County Planning, Tompkins County Geographic Information Systems (GIS), Tompkins County Health Department, Tompkins County Department of Public Works, Tompkins County Emergency Management, Tompkins County Area Development, Natural Resource Conservation Service (NRCS), U.S. Department of Agriculture (USDA) Farm Service Agency, Cornell University Geographical Information Repository (CUGIR), Cornell University Cooperative Extension, National Weather Service (NWS), National Oceanic and Atmospheric Agency (NOAA), U.S. Geological Survey, American Red Cross, Regional Water Suppliers, and representatives from the seven towns of this multi-jurisdictional study region.

In this appendix, data has been categorized into three broad categories consistent with the development of the risk assessment analysis, as follows:

- **Base Data** – Data used to assess baseline inventories and summarize locally derived geospatial data required for conducting an advanced HAZUS-MH risk assessment. This data also contains information that can be used to support hazard modeling and loss estimation using the HAZUS-driven risk assessment methodology.
- **Hazard Data** – Data that provides critical information on the severity, frequency, and geographic extent of hazards analyzed in the risk assessment.
- **Inventory Data** – This data includes critical facilities lifeline data (transportation systems, utility/infrastructure), critical, essential and special facilities, and building inventory data.

Definitions to help users understand the information presented in this appendix are presented below:

HAZUS-MH Critical: These data are required in order to obtain credible risk assessment results using the HAZUS-MH risk assessment methodology.

HAZUS-MH Desirable: This data will improve the quality of risk assessment results using the HAZUS-MH risk assessment methodology.

Non-HAZUS-MH Desirable: Indicates data that are not analyzed by the HAZUS-MH system. However, these data may be useful for local mitigation planning efforts or for application in HAZUS-driven risk assessment methodology (non-HAZUS-MH hazards).

Received and Reviewed: This term indicates whether data were readily available and supplied in a timely matter for consideration and analysis in preparation of the risk assessment. A check mark indicates that data were received and reviewed. If data were not considered received and reviewed, it indicates that the data were not available or the data were not in a form that could be readily used in HAZUS-MH or by expert modelers.

Source: This column refers to the source from which data was collected (such as a database, website, agency, or organization) and if appropriate, identifies the individual(s) who provided the data.

Comments: This column summarizes the evaluation, status, and use of the data

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	HAZUS-MH Critical	HAZUS-MH Desirable	Non-HAZUS-MH Desirable	Received and Reviewed	Source	Comments
(1) Political Boundary						
NY County Boundaries			✓	✓	TC Planning/GIS, ESRI	
Municipal Boundaries			✓	✓	TC Planning/GIS	Study Area defined as seven town region including associated villages.
(2) Base Map (Planimetric Data)						
Building Footprints			✓	✓	TC Planning/GIS	County-wide, based on 1995 aerials.
Parcel and Lot lines			✓	✓		Includes parcel identifiers and both land and assessed value. Used for reference, development of inventory tables and may be used for refined HAZUS-MH analysis.
Landmarks			✓	✓		Includes critical facilities, utility/infrastructure and transportation features.
(3) Hydrographic						
Rivers, Creeks, Stream Centerlines	✓			✓	TC Planning/GIS	Detailed hydrology files were reviewed. Stream hydrology included stream banks and centerlines, NYDEC's water index numbers and stailer indices (stream order). Water bodies were identified as lines. Provided hydrology was also used for display purposes.
Lakes, Ponds, and Bodies of Water	✓			✓		
Drainage Basins (Watersheds)	✓			✓		
(4) Hypsographic						
Contour Lines	✓				USGS	20' contour intervals available. Standard topographic mapping used for reference and display.
Digital Elevation Model	✓			✓	USGS	Flood analysis was conducted within HAZUS-MH using the USGS DEM.
Geodetic Control			✓	✓	TC Planning/GIS	National Geodetic Survey
(5) Demographic Data						
Census Blocks	✓			✓	CUGIR	From the 2000 census.
Census Tracts	✓			✓	CUGIR	
(6) Land Use						
Land Use / Land Cover			✓	✓	TC Planning/GIS	Based on 1995 orthophotography. Land Use / Land Cover was used as an important reference source to understand the built environment, and evaluate certain hazards and exposures.
Zoning			✓	✓		Generalized - provided by jurisdiction with each one having its own zoning classification schema.
Parks and Recreation Areas			✓	✓		State Parks and other statelands provided as "Statelands" shapefile.
Soils			✓	✓		Detailed soil shapefile with soil types (per SCS naming conventions), developed for their Natural Resource Inventory.
(7) Imagery and Scanned Maps						
BW Orthophotos			✓			No source identified at this time.
Color Infrared Orthophotos			✓	✓	TC Planning/GIS	1 meter resolution color infrared in JPEG format used for reference and display purposes.
Scanned Flood Images			✓		TC Health Dept.	See Flood Hazard comments.

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Flood (Riverine)						
100- and 500-Year Flood Boundary Maps	✓			✓	TC Planning/GIS; FEMA	The FEMA Q3 flood delineations, digitized from hard-copy Flood Insurance Rate Maps (FIRMs), provided useful reference however are approximations of boundaries and not absolute delineations. Further, Tompkins County representatives have indicated that these floods studies are very out-of-date and need to be re-studied. Analysis using currently available USGS DEMs was determined to be the most appropriate for this planning project.
Floodway Map		✓		✓	Unknown	A floodway map was not readily available for inclusion in this analysis.
Historical Flood Events of the Area		✓		✓	HAZNY, NWS	Various sources of textual, tabular and database data were reviewed to develop the flood hazard profile.
Base Flood Elevation	✓			✓	FEMA FIRM	FIRM mapping obtained in unregistered TIFF image format, used for reference and display only.
Inundation Mapping	✓			✓	TC Health Dept.	The Health Department has a set of 13 USGS maps covering Tompkins County titled "Map of Flood Prone Areas", each dated 1973 or 1974, prepared by US Department of Interior, Geological Survey, in cooperation with US Department of Housing and Urban Development, Federal Insurance Administration.
Hurricane and Severe Storm (Wind)						
Baseline Wind speed Data (3 second gust) Maps (MRP = 100, 500, 1000 yrs)	✓				American Society of Civil Engineers (ASCE)/HAZUS-MH	ASCE 7-98 Design Wind Speed maps were used as the primary data input for the wind hazard model. The ASCE baseline wind speed data maps (3 second gust) take into account frequency of occurrence (550-year return period). Damage parameters were anchored to wind speed based on the ASCE design wind speed map.
Historical Windstorm Events (Hurricane, Tornado, High Winds) for the Area	✓			✓	HAZNY; NOAA: NWS	Various sources of textual, tabular and database data were reviewed to develop the severe storm (wind) hazard profile, including the NOAA NCSC Storm Events Database.
Historical Hurricane Tracks for the Area	✓			✓	NOAA	
Probability Frequency of F1-F5 Storms	✓			✓	NOAA; NWS	Estimated from NOAA NCSC Storm Events Database data
Historical Hail Events and Strike Map	✓			✓	NOAA; NWS	Tabular data from NOAA NCSC Storm Events Database.
Probability Frequency and Intensity of Hail Storms	✓			✓	NOAA; NWS	Estimated from NOAA NCSC Storm Events Database data
Urban and Woodland Wildfire						
Historical Urban and Woodland Wildfire Occurrence in the Area (date, location, area burned, \$ loss, casualties)	✓			✓	HAZNY	Textual documentation used to develop urban wildfire hazard. No woodland wildfire data identified to date.
Vegetative Cover (fuel maps)	✓			✓	TC Planning/GIS; NYDEC	Land cover data used as reference. Woodland fuel maps available from NYDEC.
Severe Winter Storm and Ice Storms						
Historical Winter Storms for the Area			✓	✓	HAZNY; NOAA; NWS	Textual, tabular and database information reviewed from various sources including NOAA NCSC Storm Events Database
Probability for Ice Accumulation			✓	✓	NOAA	Estimated from NOAA NCSC Storm Events Database data.
Drought						
History of Regional Drought Conditions (date, \$ loss, severity, duration)			✓		NWS, Local	
Historical Rainfall for the Area			✓		NWS, NOAA	
Crop Typology			✓	✓	TC Planning/GIS, Cornell Extension, USDA	LULC has agricultural areas mapped; USDA and Cornell Extension have provided tabular data on crop yields
Extreme Summer Heat						
Historical Temperature for the Area			✓		NWS	
History of Past Extreme Heat Events (date, \$loss, deaths, duration, severity)			✓	✓	Local	Textual documentation reviewed from local and regional reports.

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Major Utility Outage						
Historical Power Outage (date, duration, utility type, area affected, and cause)	✓			✓	HAZNY	Textual documentation reviewed from local and regional reports.
Peel Load (by season and time of day)	✓					Information from utility companies servicing region not available to date.
Dam Failure						
Historical Dam Overtopping with Elevation			✓		Unknown	
Dam Failure Inundation Map	✓				TC Health Dept.	See Flood Hazard comments.
Historical Water Elevations for Dam			✓		USGS	USGS gauging data can be obtained as needed for refined analysis.
Historical Discharge for the Dam			✓		USGS, Water Suppliers	USGS data can be obtained as needed for refined analysis.
Hazardous Material Release (Fixed Site)						
Catalog of historical releases of the area (date, duration, utility type, area affected, cause)	✓			✓	Federal ERNS database	Data obtained from Emergency Response Notification System (ERNS) database.
Historical Frequency of the HAZMAT Releases in the Area	✓			✓	Federal ERNS database	Estimated from ERNS database information.
Location (Lat/Long) of CBRN Facilities	✓			✓	TC EP, HAZUS-MH	HAZUS-MH default data used for analysis. TC data not provided.
Hazardous Material Release (Mobile – Transportation)						
Catalog of Historical Releases of the Area (ERNS catalog)			✓	✓	ERNS database, NY DMV	
Historical Frequency of the HAZMAT Releases in the Area			✓	✓	HAZNY	Estimated from ERNS database and NY DMV information.
HAZMAT Allowed Roadmap of the Area			✓		TC Planning/GIS, TC EP	
Major Traffic Disruption						
Catalog of Major Traffic Accidents in the Area			✓	✓	NY DMV	DMV tabular data aggregated by county only. Transportation disruption is not something that is usually classified as a hazard in mitigation, however previous studies may help address concerns of transportation problems to and from critical facilities.
Historical Frequency of Traffic Accidents			✓			
Traffic Flow Patterns for the Major Highway Systems of the Area			✓			
Terrorism						
Catalog of Historical Terrorism Events that have Occurred in the Area			✓	N/A	N/A	No terrorist events have occurred in the area.
Major Economical, Governmental, and Historical Institutions and Landmarks in the Area			✓	✓	See Comments	TC data layers of mass congregation facilities, water supply features and major utility features identified in analysis as potential targets of terrorism activity.
Epidemic						
Historical Information on Human Epidemic Outbreaks			✓		TC Health Dep't., NYSDOH, CDC	
Historical Information on Animal Epidemic Outbreaks			✓	✓	USDA, Cornell Extension	Textual and tabular documentation reviewed for development of hazard profile and potential losses.
Civil Unrest						
Historical Information on Civil Unrest			✓	✓	HAZNY, Local	Textual documentation reviewed to develop hazard profile.
Locations of Major Gatherings			✓	✓	HAZNY, Local	Locations of town halls, major events and college buildings identified.
Water Supply Contamination						
Historical Information on Water Supply Contamination			✓	✓	TC Health Dept.	Textual and tabular information on water supply interruptions, including contamination, reviewed to develop hazard profile.
Surficial Aquifers			✓	✓	TC Planning/GIS	Indicates the type of aquifer (aquifer formation).
Surface Water Supplies			✓	✓	TC Planning/GIS, TC Health Dept.	Reservoirs are indicated on Land Use / Land Cover layer.

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(1) Transportation Systems						
Highway Systems (roads, bridges, tunnels)	✓			✓	TC Planning/GIS, HAZUS-MH	Available HAZUS-MH data used for current risk assessment. Tompkins County roads network with functional class used for reference, development of inventory tables and may be used for refined HAZUS-MH analysis.
Railway Systems (facilities, tracks, bridges, tunnels)	✓			✓	TC Planning/GIS, HAZUS-MH	Available HAZUS-MH data used for current risk assessment. Tompkins County active railroad layer used for reference, development of inventory tables and may be used for refined HAZUS-MH analysis.
Airport Facilities	✓			✓	TC Planning/GIS, HAZUS-MH	Available HAZUS-MH data used for current risk assessment. Tompkins County data, including parcel data with valuations, may be used for refined HAZUS-MH analysis.
Public Transportation System Facilities	✓			✓	HAZUS-MH	Available HAZUS-MH data used for current risk assessment.
Light Rail Systems (facilities, tracks, bridges, tunnels)	✓			✓	HAZUS-MH	Available HAZUS-MH data used for current risk assessment.
(2) Utility/Infrastructure						
Wastewater Facilities and Pipelines	✓			✓	TC Planning/GIS	Available HAZUS-MH data used for current risk assessment. Tompkins County wastewater pipeline and treatment plant data used for reference, development of inventory tables and may be used for refined HAZUS-MH analysis.
Potable Water Facilities and Pipelines	✓			✓	TC Planning/GIS	Available HAZUS-MH data used for current risk assessment. Tompkins County potable well, potable water pipeline and treatment plant data used for reference, development of inventory tables and may be used for refined HAZUS-MH analysis.
Natural Gas Facilities and Pipelines	✓			✓	The Pipeline Group Report	Available HAZUS-MH data used for current risk assessment. Natural gas pipeline data used for reference, development of inventory tables and may be used for refined HAZUS-MH analysis.
Crude and Refined Oil Facilities and Pipelines	✓			✓	The Pipeline Group Report	Available HAZUS-MH data used for current risk assessment. Fuel pipeline data used for reference, development of inventory tables and may be used for refined HAZUS-MH analysis.
Electric Power Facilities and Transmission Lines	✓			✓	TC Planning/GIS, HAZUS-MH	Available HAZUS-MH data used for current risk assessment. Tompkins electrical substation data used for reference, dev. of inventory tables and may be used for refined HAZUS-MH analysis.
Communication Facilities and Lines	✓			✓	HAZUS-MH	Available HAZUS-MH data used for current risk assessment.
Steam Facilities and Lines	✓				Unknown	
Critical Facilities						
Medical Care Facilities (hospitals, clinics, and laboratories)	✓			✓	TC Planning/GIS, HAZUS-MH	Available HAZUS-MH data used for current risk assessment. TC "landmark" data of hospitals and clinics used for reference, dev. of inventory tables and may be used for refined HAZUS-MH analysis.
Nursing Homes and Assisted Living	✓			✓	TC Planning/GIS, HAZUS-MH	Available HAZUS-MH data used for current risk assessment. TC "landmark" data of nursing homes and senior living used for reference, dev. of inventory tables and may be used for refined HAZUS-MH analysis.
Schools (K-12 and Post-Secondary)	✓			✓	TC Planning/GIS, HAZUS-MH	Available HAZUS-MH data used for current risk assessment. TC "landmark" data of schools (various classifications) used for reference, dev. of inventory tables and may be used for refined HAZUS-MH analysis.
Police and Fire Stations	✓			✓	TC Planning/GIS	Available HAZUS-MH data used for current risk assessment. TC "landmark" data of police and fire stations used for reference, dev. of inventory tables and may be used for refined HAZUS-MH analysis.
Emergency Operation Centers	✓			✓	HAZUS-MH	Available HAZUS-MH data used for current risk assessment.
Dams	✓			✓	TC Planning/GIS, HAZUS-MH	Available HAZUS-MH data used for current risk assessment. Tompkins data of dams used for reference, development of inventory tables and may be used for refined HAZUS-MH analysis.
Levee Systems	✓					Few levee systems in study area - not incorporated into assessment.
Facilities Containing Hazardous Materials	✓			✓	TC EP	Available HAZUS-MH data used for current risk assessment. Tompkins data may be used for refined HAZUS-MH analysis when provided.
Building Inventory						
Parcel and Building Inventory	✓			✓	TC Planning/GIS, HAZUS-MH	Available HAZUS-MH data used for current risk assessment. TC parcel data with valuations and building data used for reference, dev. of inventory tables and may be used for refined HAZUS-MH analysis.