



# Tompkins County Resiliency and Recovery Plan

*Planning now to accelerate recovery in the future*

July 2022

*Prepared by:*



**TETRA TECH**

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**Department  
of State**

*This Resiliency and Recovery Plan was prepared with funding provided by the New York State Department of State under Title 3 of the Environmental Protection Fund.*

## Introduction

To reduce the risks associated with hazards and the changing climate, as well as to better prepare for long-term recovery from disaster events, the Tompkins County Department of Planning and Sustainability received funding under two different grant programs (FEMA Hazard Mitigation Grant Program and NYS Department of State Resiliency Planning Grant) to develop the Tompkins County Resiliency and Recovery Plan (RRP).

The RRP provides a foundation for collaborative action with each of the municipalities in Tompkins County and with a broad group of stakeholders in an effort to reach these goals. It was developed in close coordination with local and regional partners, including the County Departments of Emergency Response, Facilities, Health, Highway, and Recycling and Materials Management.

## Components of the RRP

Many of the components of the RRP were identified in the 2013 Hazard Mitigation Plan as important actions to better prepare the community for future disasters. Woven together, these components position the County to more quickly and effectively rebound after a disaster, as well as attract new funds to implement steps on public water supply drought resiliency, debris management post-disaster, and make our critical facilities less vulnerable to flood events.

The RRP addresses four main areas: Flooding, Drought, Debris Management and Economic Recovery. These are deemed to be critical areas of focus at this time, with full recognition that the topic of resiliency and recovery is a broad one and that it provides a foundation for ongoing work to prepare for more aspects of resiliency and recovery.

**Resiliency and Recovery Plan Interactive StoryMap.** This online interface provides links to all Resiliency and Recovery Plan documents, summarizes all actions in one location, and includes an interactive map with an inventory and assessment of critical facilities within each municipality.

**Hazard Mitigation Plan: 2021 Update.** The foundation of the RRP was the update of the Hazard Mitigation Plan. All municipalities in Tompkins County worked together to finalize the Tompkins County Hazard Mitigation Plan: 2021 Update, which was adopted by the County Legislature on October 5, 2021 (Res. No. 2021-208) and approved by FEMA in 2021.

## Drought Resources

**Water Supply Drought Resilience Technical Memorandum.** This document identifies how to improve drought resiliency in the county. It identifies gaps for interconnection for the three largest water purveyors in the county, clarifies the importance of interagency agreements, identifies best practices to improve governance, makes recommendations to build drought resiliency in rural areas and to address water resiliency on a more shared regional basis.

## Debris Management Resources

**Debris Management Plan.** This document provides a framework to enable the County and its communities to better respond to emergency debris removal situations. The plan will help the County coordinate and effectively manage a debris removal effort following a major debris-generating event such as a major windstorm or flood.

## Flood Resources

**Recommended Floodplain Practices for Tompkins County Communities.** This document provides guidance on best practices for community floodplain management to reduce the risk of damages due to flood events. The guidance includes recommendations to establish sound floodplain management procedures to be integrated into the daily operations of communities.

**Town of Lansing Community Rating System Assessment.** The Town of Lansing participated in a review of its capabilities as related to the Federal Emergency Management Agency's Community Rating System (CRS) program requirements to provide a basis for justification of participation. This report provides a baseline assessment of the capabilities of the Town regarding its floodplain management program. It provides information on the Town's potential to participate in the CRS, including an assessment of creditable activities under the program and an estimate of potential economic benefits of participation.

**Critical Facility Resources in the Floodplain.** This section includes an interactive map to support owners and operators of critical facilities in the floodplain by providing mitigation resources to guide improvements and reduce the risk of flood damages and cascading impacts such as loss of service or accessibility during and after a flood event. This map provides facility specific information as well as FEMA resources and fact sheets to assist in the implementation of activities and projects to support resilience. These Critical Facility Mitigation Fact Sheets describe nine examples of potential upgrades facility owners may consider to mitigate the effects of flooding on critical facilities.

## Economic Recovery Resources

**Economic Recovery Planning Framework.** This document provides guidance to the County and local governments on recommended pre-disaster economic recovery activities to help mitigate the economic impacts of future disasters. The Framework addresses how the County's recovery effort should be organized, including providing guidance on the identification and development of an Economic Recovery Team and any associated recovery office, as well as instruction on how to identify recovery actions ahead of time in preparation for impending hazards. The Framework will function as a roadmap to guide the County through the necessary steps and actions to develop a fully functioning Economic Recovery Plan.

**Model Ordinances.** Included in the Framework is an appendix with recommended next steps for municipalities, as well as a Model Disaster Recovery Ordinance and a Model Disaster Reconstruction Ordinance that municipalities may wish to adopt.

**Continuity of Operations Planning Tools.** These include training videos, slide decks, and Continuity of Operations Plan templates specifically geared to help local governments and businesses. These tools are meant to provide a meaningful way to prepare municipalities and businesses for resilient recovery and to foster dialogue around the topic of recovery.

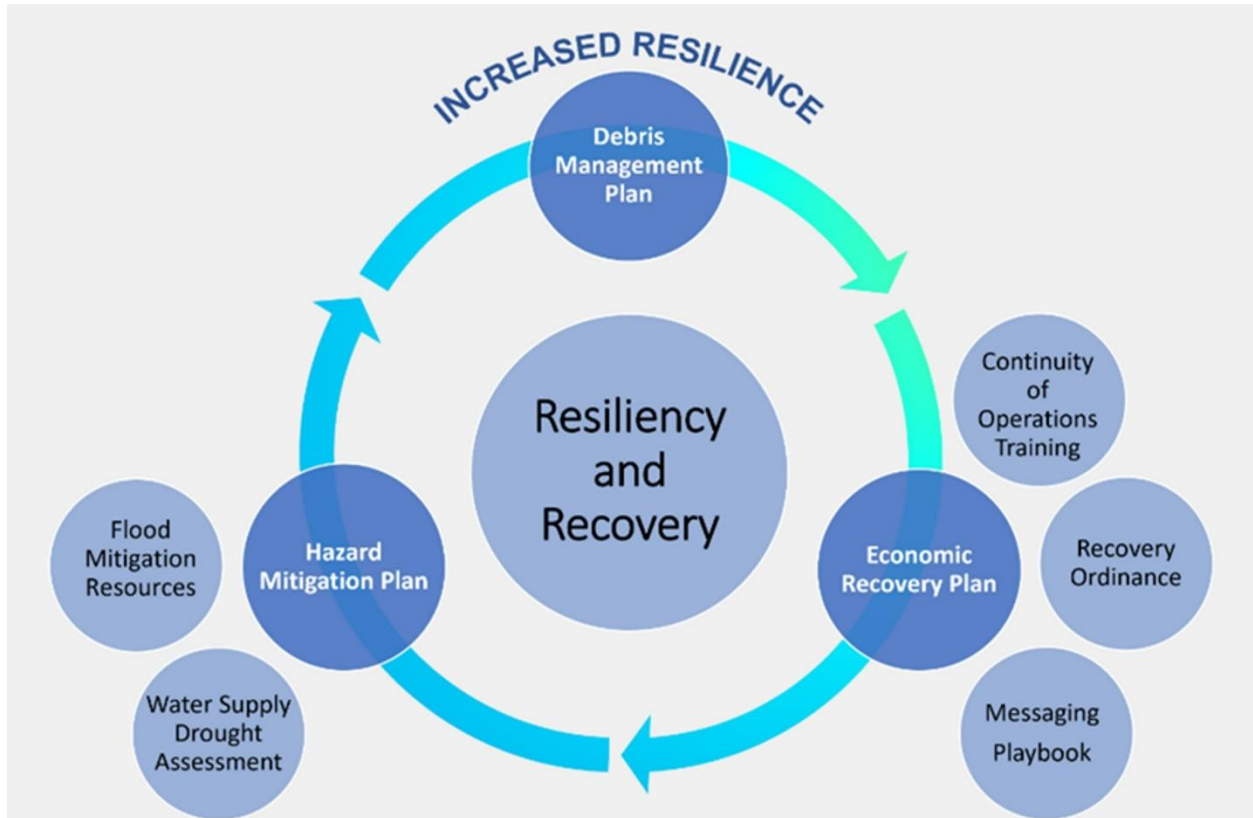
**Resilience Messaging Playbook.** The goal of this resource is to provide strategically sound messaging and outreach tactics that the County and others can use before and after a disaster event to cultivate a sustained awareness, understanding, engagement and buy-in of preparedness activities in Tompkins County.

## Compilation of Recommended Actions

# **Interactive StoryMap**

*Tompkins County Resiliency and Recovery Plan*

# Resiliency and Recovery Plan Interactive StoryMap



This [online interface](#) provides links to all Resiliency and Recovery Plan Documents .



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# **Hazard Mitigation Plan: 2021 Update**

*Tompkins County Resiliency and Recovery Plan*

## **Hazard Mitigation Plan: 2021 Update**

The foundation of the Resiliency and Recovery Plan (RRP) is the update of the Hazard Mitigation Plan. All municipalities in Tompkins County worked together to finalize the Tompkins County Hazard Mitigation Plan: 2021 Update, which was adopted by the County Legislature on October 5, 2021 and approved by FEMA in 2021.

The Tompkins County Hazard Mitigation Plan was developed to provide a roadmap to resilience by identifying hazards affecting the county and its communities. The two-volume detailed plan provides enhanced narrative to provide a more complete context of hazard vulnerabilities.

Volume 1 can be accessed [here](#). It provides county-wide information.

Volume 2 can be accessed [here](#). It provides a chapter or annex for each participating municipality.

While the Hazard Mitigation Plan: 2021 Update is a very large document, the introduction section is included on the next page, to provide context for this foundational document for the RRP.

# **Drought Resources**

*Tompkins County Resiliency and Recovery Plan*

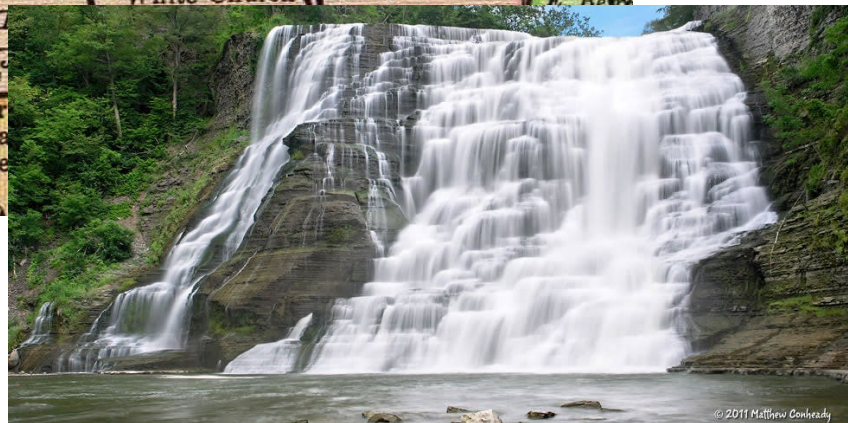
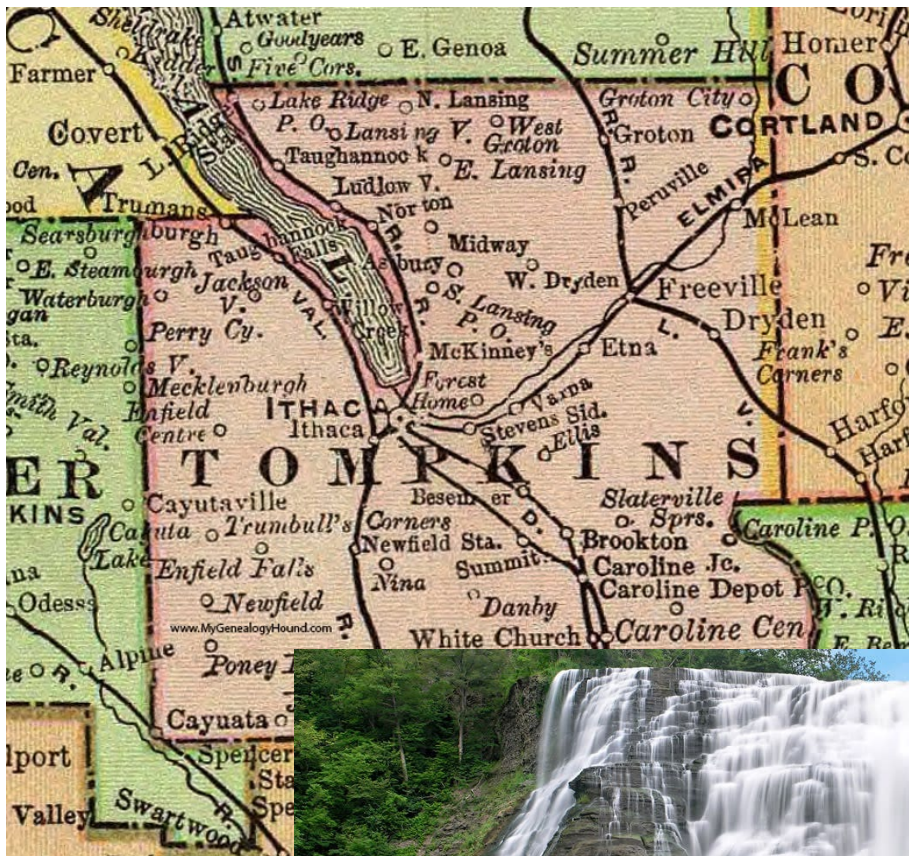




Tompkins County

## Resiliency and Recovery Plan

### Water Supply Drought Resilience Technical Memorandum



# Water Supply Drought Resilience Technical Memorandum

February 2022

## PREPARED FOR

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*This Water Supply Drought Resilience Technical Memorandum was prepared with funding provided by the New York State Department of State under Title 3 of the Environmental Protection Fund.*

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## OVERVIEW

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### 1.1 BACKGROUND

The *Tompkins County Hazard Mitigation Plan: 2013 Update* identified water supply as a vulnerable sector in need of further analysis. There are 16 municipalities in Tompkins County, ranging from rural towns and villages to the City of Ithaca. In general, the region is one of the less drought-prone areas in the state, but the frequency of abnormally dry to moderate droughts has increased since drought conditions began to be more closely monitored in 2000 and *ClimAID: The Integrated Assessment for Effective Climate Change Adaptation Strategies in New York State* highlights the expected increase in drought events due to climate change. In 2016, Tompkins County experienced an extreme drought, bringing to light concerns with each of the county's three largest water purveyors—the City of Ithaca, Cornell University, and Southern Cayuga Lake Intermunicipal Water Commission (SCLIWC)—as well as with private groundwater wells. The 2016 extreme drought exposed potential vulnerabilities in countywide water resiliency.

The 2016 drought resulted in low stream flow to the City of Ithaca's reservoir between June and September. Reductions in available flow also occurred in Fall Creek, the water supply for Cornell University, and temporary water tanks were supplied to certain university customers for irrigation purposes, with water trucked from Cayuga Lake. Streams and shallow wells throughout the rural areas of the county dried-up over this period. SCLIWC, which draws its water from Cayuga Lake through its Bolton Point Water Treatment Plant, augmented water supplies to the City of Ithaca and Cornell during that period. While emergency distribution helped the City of Ithaca and standby distribution allowed Cornell University to respond to the crisis, each purveyor acknowledged that the drought exposed a variety of governance and infrastructure issues that need to be addressed in a coordinated planning effort.

The 2016 drought showed that governance and infrastructure improvements need to be addressed by the three large purveyors to reliably provide water in the areas that they serve. Additionally, any of the towns and villages in the rural areas relying on shallow wells are at risk due to droughts and the absence of a diversified source-of-supply.

### 1.2 OBJECTIVE

The objective of this technical memorandum is to analyze the redundancy of the countywide water systems and identify broad alternatives for creating a more resilient countywide drinking water supply. It provides the following:

- A preliminary identification of gaps regarding interconnection of the existing purveyors and clarification of the importance of interagency agreements.

- Identification of best practices to improve governance and to include recommendations to build drought resiliency in rural areas.
- Recommendations to address water resiliency on a more shared regional basis.

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## 2. STUDY AREA AND REGIONAL AGENCY PROFILES

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The majority of the population of Tompkins County is served by one of three water purveyors: City of Ithaca, Cornell University, or SCLIWC. These purveyors' interconnectivity is essential to the region's drinking water resiliency that relies on surface water. Creating greater connectivity between the purveyors can further increase available supply. The following sections describe the major purveyors and rural centers that represent the study area.

### 2.1 CITY OF ITHACA

The City of Ithaca is located in the center of Tompkins County at the south end of Cayuga Lake. The City of Ithaca Water Treatment Plant (rebuilt in 2016) draws water from Six Mile Creek at the 60' Dam Reservoir. Future demand is not currently tracked by the City, nor is it projected. The City Water Treatment Plant has a capacity of 55 million gallons per day (mgd) and a current average day production of 2.5 mgd. It currently serves 30,000 customers, including residents of the City of Ithaca and Town of Ithaca customers along Taughannock Boulevard including lakeshore properties along East Shore Drive and Taughannock Boulevard. The City also provides water to the Renwick Heights neighborhood.

Water availability has not historically been an issue in the City. However, there are potential issues that may affect the city's water reliability. Dredging and other maintenance tasks for the 60-foot dam at the reservoir are required for safety and to maintain or add capacity to the reservoir. Actions related to this are included in the City of Ithaca's Annex to the *Tompkins County Hazard Mitigation Plan: 2021 Update* and remain a significant cost concern to the City. During the drought in 2016, water was not released by the dam. Past monitoring data from the City shows that the reservoir is adequate to maintain supply for roughly 30 days beyond the point where water is no longer flowing over the dam.

The City of Ithaca water treatment plant recently underwent renovations as a part of its rebuild in 2016 to improve settling and filtration processes, providing more consistent water quality, and the distribution system was upgraded to increase distribution capacity to the Town of Ithaca.

### 2.2 SOUTHERN CAYUGA LAKE INTERMUNICIPAL WATER COMMISSION (SCLIWC)

The SCLIWC is a partnership of five municipalities receiving water through the Bolton Point Water Treatment Plant, drawing from Cayuga Lake. The Bolton Point Water Treatment Plant was built in 1976 and has a capacity of 6 mgd, a current average day demand of 2.6 mgd, and a maximum-day demand of 4.2 mgd. Water availability is typically not an issue. Supply is only constrained by the infrastructure and staffing available and any potential new agreements with existing and new members.

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The water intake is approximately 3 miles north of Stewart Park, on the eastern side of Cayuga Lake, at a depth of 65 feet. During 2016, the Bolton Point system did not experience any restriction on its water supply. Short-term emergency interties<sup>1</sup> do exist between SCLIWC and the City of Ithaca and Cornell University during emergencies and planned maintenance periods. These interties were used to wheel water during the 2016 drought. The wheeling of water refers to the movement of water from one system to another through an intermediary system requiring interagency agreements.

## 2.3 CORNELL UNIVERSITY

Cornell University, located in northwest Ithaca, maintains the Cornell Water Filtration Plant. The filtration plant was built in 1928 and draws surface water from Fall Creek. The Fall Creek watershed has typically provided an abundant surface supply to a variety of users. The Cornell Water Filtration Plan utilizes just surface water. However, in 2016, flow in Fall Creek fell to below 10 cubic feet per second (cfs) (In the 96 years that the USGS has been monitoring flows in Fall Creek and the average low of 20cfs typically occurs in August; the average high (430 cfs) typically occurs in April; In some years the high reaches 4000 cfs) which severely constrained the Cornell Filtration Plant capacity and resulted in the need for temporary tanks on campus for water supply, among other measures.

The filtration plant has a capacity of 3.6 mgd and a current average day demand of 1.2 mgd. It serves a population of 33,000 on campus and in neighboring Cornell Heights area in the City of Ithaca and the Forest Home portion of the Town of Ithaca on the south side of Fall Creek. Because of the constrained service area, the majority of demand attributed to the campus, and conservation measures, demand has remained essentially flat despite campus population growth over the years.

## 2.4 RURAL TOMPKINS COUNTY

Water supply in rural Tompkins County is a mixture of private wells, local water districts, and, in part, the SCLIWC water district system. While water demand is currently met in normal years, the 2016 drought showed that water supply resiliency can be a concern during times of water stress due to reliance on single sources of supply and the isolated nature of the water districts. Supply to rural areas is limited by pumping and distribution infrastructure as some rural areas use a mix of private wells associated with small water districts and municipal wells. Figure 1 shows the water suppliers of Tompkins County.

Water demand for the urban and rural areas is shown in Table 1 which outlines the region's water supply infrastructure and frame it in the context of the region's layout and topography. Each of the main purveyors and outlying municipalities are compared, with rural areas separated into a separate subcategory. The distance from the terminal end of the SCLIWC system to the center of the respective rural center is listed to indicate how much effort would be needed to bring a transmission line to the area. In other words, the table indicates the quantity of water needed, the distance to the user, the elevation needed to pump, and the current demand, to provide an estimate of the distance required for water to the rural communities. Should connection to any of these areas be explored, Elevation from proposed receiving areas to the SCLIWC facility also puts into context what kind of pumping infrastructure would necessary.

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<sup>1</sup> Physical connections between adjacent systems that can be used to share water in one or both directions depending on the agreed-upon operational parameters.



**Table 1. Main Regional Water Purveyors, Demand, and Capacity**

| Purveyor Facility             | Distance from SCLIWC system or existing intertie <sup>2</sup> | Elevation @ terminal end of transmission line (ft) <sup>3</sup> | Water demand (MGD) <sup>4</sup> | Treatment or Supply Capacity MGD | Water Source <sup>5</sup>                                     |
|-------------------------------|---|---|---------------------------------|----------------------------------|---|
| SCLIWC (Bolton Point)         |   |   | 4.23                            | 6                                | Surface water (Cayuga Lake)                                   |
| Ithaca (Town of)              | --  | 368   | --                              | --                               | Surface (Bolton Point), Individual & Public Well Water System |
| Cayuga Heights                | --  | 300   | --                              | --                               | Surface water   |
| Lansing                       | --  | 1090  | --                              | --                               | Surface Individual & Public Well Water System                 |
| Lansing                       | --  | 328   | --                              | --                               | Surface water   |
| Dryden                        | --  | 700   | --                              | --                               | Surface water, Individual & Public Well Water System          |
| City of Ithaca                | Intertie with SCLIWC  | -196  | 4.47                            | 6                                | Surface Water (Six-Mile Creek)                                |
| Cornell University            | Intertie with SCLIWC  | 240240  | 1.55                            | 3.6                              | Cornell WFP (Fall Creek)                                      |
| <b>Sub-Total</b>              |   |   | <b>10.5</b>                     | <b>15.6</b>                      |   |
| Town of Danby                 | 4.4   | 932   | 0.03                            | 0.14                             | Individual Private Wells & Public Well Water System           |
| Village of Groton             | 5.13  | 1300  | 0.73                            | 0.7                              | Individual Private Wells & Public Well Water System           |
| Town of Newfield              | 4.75  | 1000  | 0.26                            | 0.3                              | Individual Private Wells & Public Well Water System           |
| Village of Trumansburg        | 1.2   | 365   | 0.40                            | 0.72                             | Public Well Water System                                      |
| Village of Dryden             | 6.5   | 489   | 0.32                            | 0.6                              | Individual Private Wells & Public Well Water System           |
| Village of Freeville          | 4.68  | 443   | 0.04                            | 0.125                            | Individual Private Wells                                      |
| Town of Caroline <sup>6</sup> | 4.5   | 1044  | 0.33                            | --                               | Individual Private Wells                                      |
| Town of Enfield <sup>4</sup>  | 3   | 512   | 0.34                            | --                               | Individual Private Wells                                      |
| Town of Groton <sup>4</sup>   | 5.5   | 1090  | 0.58                            | 0.7                              | Individual Private Wells                                      |
| Town of Ulysses               | Intertie with SCLIWC  | 381   | 0.49                            | 0.2                              | Surface Water, Individual & Public Well Water System          |
| <b>Sub-Total</b>              |   |   | <b>3.58</b>                     | <b>3.48</b>                      |   |
| <b>Total</b>                  |   |   | <b>14.1</b>                     | <b>15.6</b>                      |   |

<sup>2</sup> Distance from existing system or intertie to the center of the community

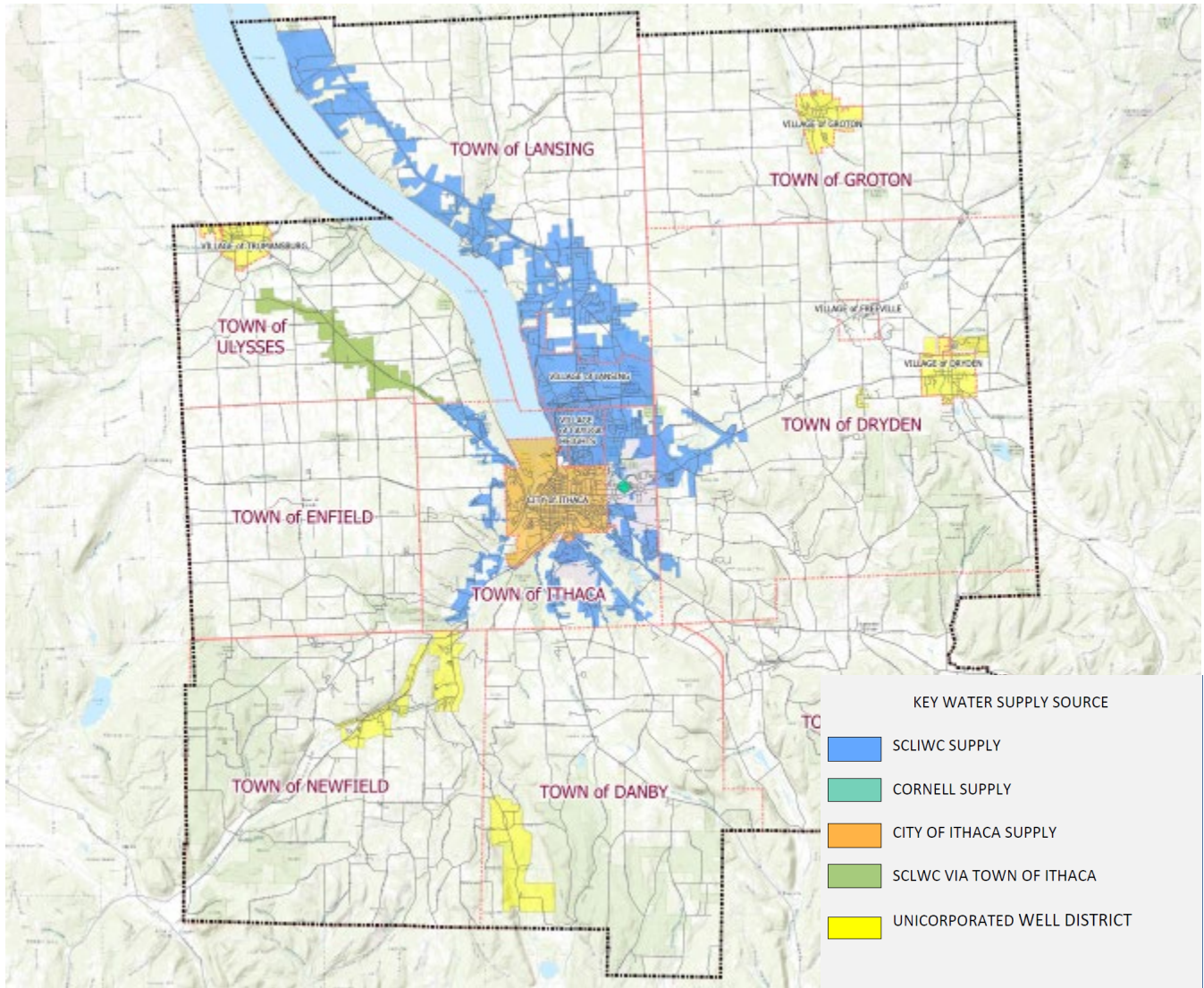
<sup>3</sup> Elevation of the system transmission point to the center of town to indicate the magnitude of pumping needed

<sup>4</sup> Designated estimated demand based on 100 gallons/capita/day average use

<sup>5</sup> The supply capacity sources, in some cases private wells only or a combination of known public and private well capacity

<sup>6</sup> Estimated demand based on 100 gallons/capita/day average use

Water demand and capacity reflecting local needs are shown along with the existing respective facility water source. Many rural areas rely on private wells, with the resulting demand difficult to fully capture. For some rural areas, demand was estimated based on local population. A total of available water demand of Tompkins County and available capacity from the three primary purveyors' capabilities is shown on the Total line in Table 1. This reflects the entire region's water demand and compares it with the capacity of the three major purveyors, reflecting a current county-wide surplus of 1.5 mgd.



**Figure 1. Tompkins County Municipal Water Suppliers**

Source: T.G. Miller, David Herrick, IAED Water and Sewer Evaluation Update, December 2021

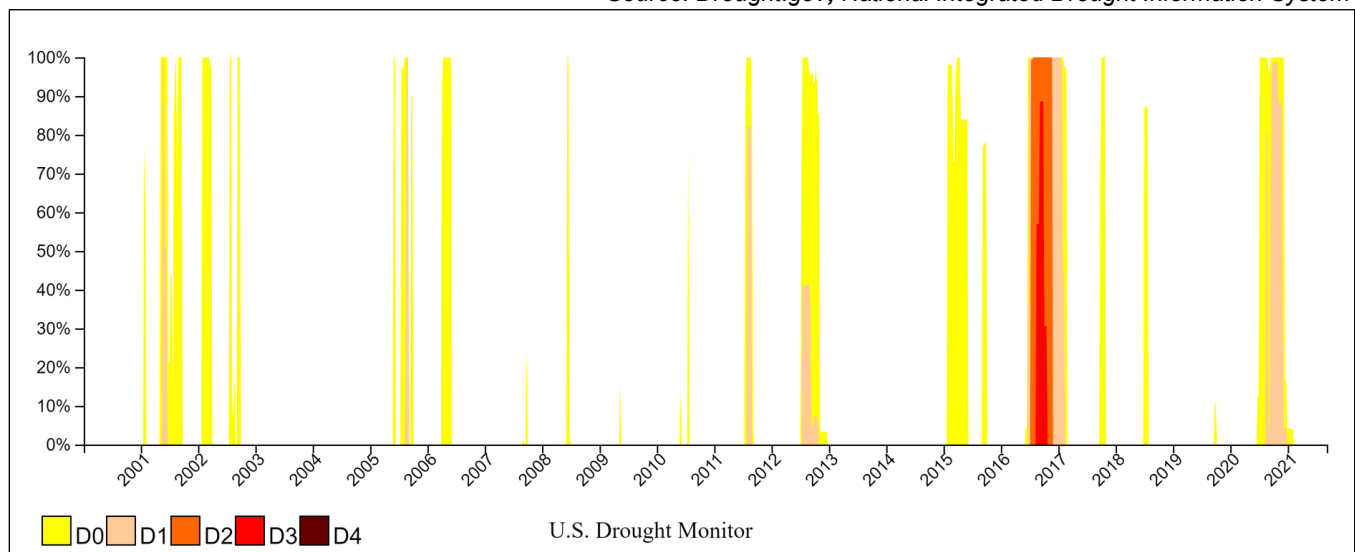
# DROUGHT CONDITIONS

Droughts in Tompkins County historically occur with greatest effect between May and October. Abnormally dry periods are often observed, but severe or extreme droughts have not been typical. In general, New York State represents one of the historically more drought-resistant regions in the United States, however potential longer dry periods and drought concerns are suggested in the *ClimAID: The Integrated Assessment for Effective Climate Change Adaptation Strategies in New York State* report. Tompkins County, similarly, is in a drought resistant region of New York positioned on the edge of Finger Lakes. Long sustained droughts are less prevalent, and groundwater levels are more stable, with quicker rates of recharge in Tompkins County than in other counties around New York State, due in part to the proximity of the Great Lakes. However, water quality issues should be considered in the event future drought conditions may create a reliance on Cayuga Lake, which may be increasingly affected by hazardous algal blooms due to climate issues.

## 3.1 HISTORICAL DROUGHT EVENTS

The U.S. Drought Monitor is a national map service that has tracked drought data since 2000. The Drought Monitor synthesizes drought data from local and national services (the Palmer Drought Severity Index (PDSI) and the State Drought Index, for example) to track and project drought periods. While the drought condition record is not long (going back only to 2000), what is available indicates a recent history of dry periods, as shown in Figure 2..

Source: Drought.gov; National Integrated Drought Information System



D0, D1, D2, D3, and D4 represent abnormally dry, moderate, severe, extreme, and exceptional droughts, respectively.

**Figure 2.** Historical Drought Severity—Percent of Tompkins County Experiencing Drought Level

The period of 2010 to 2021 reflects an increase in abnormally dry to severe and even extreme droughts. Figure 2 highlights the 2016 summertime drought as the most severe drought since the U.S. Drought metric began tracking

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data in 2000. Indications are that water purveyors can expect to encounter more frequent future moderate to extreme droughts associated with climate change.

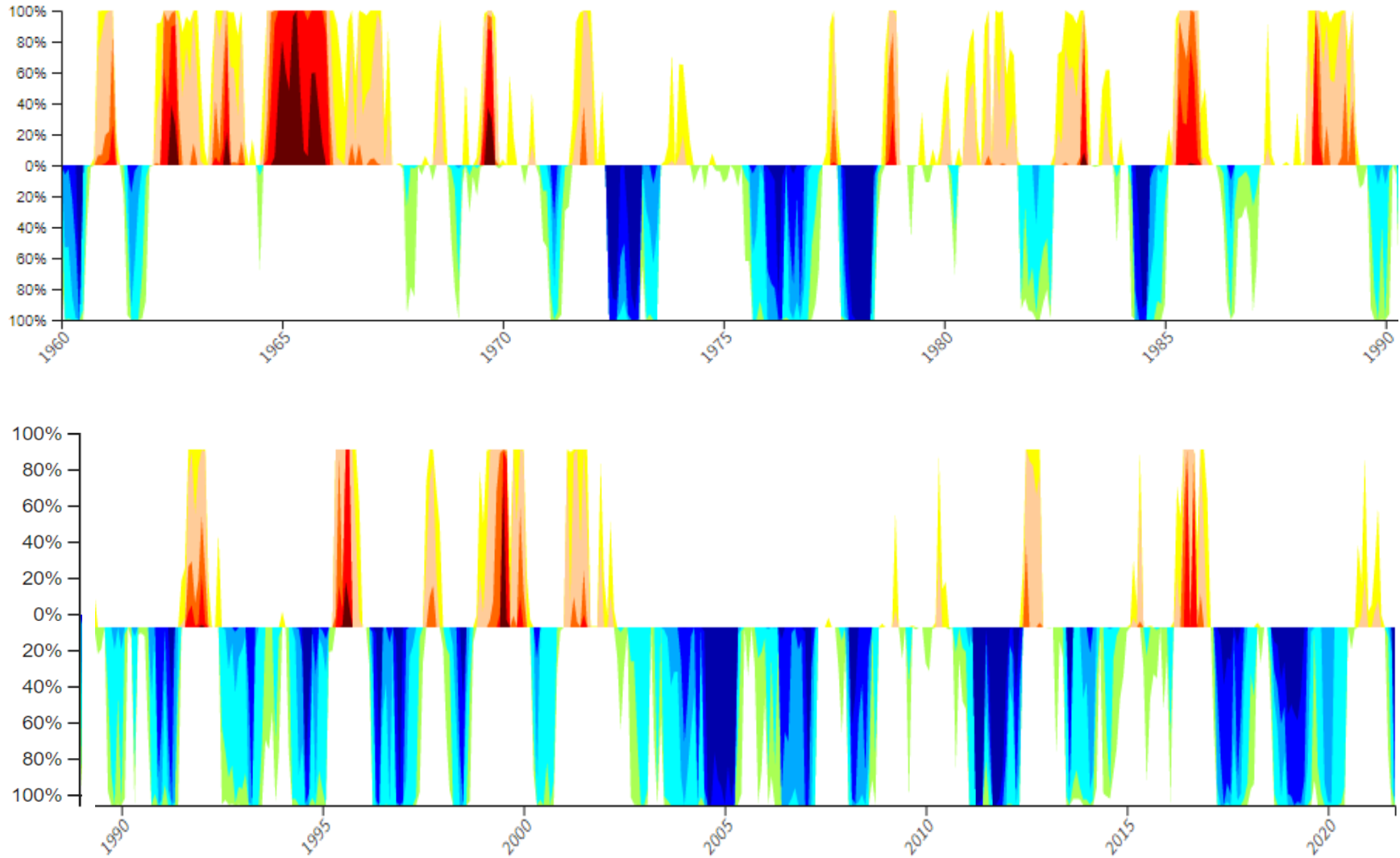
The U.S. Drought Monitor data can be put into greater context when one reviews the longer-term Palmer Drought Severity Index (PDSI). The PDSI has decades worth of data that estimates the moisture of a soil and related agricultural impacts. As shown in Figure 3, this data, shown as dry periods (yellow-red) and wet periods (green-blue), reflects that for the most of the past 50 years, wet periods have dominated. However, droughts are still a common occurrence, and should a sustained severe drought occur similar to the mid-1960s (the deep red portion shown in Figure 3), the water resiliency concerns in Tompkins County would be exposed. The 1960s period of drought was longer and of higher intensity than that experienced in 2016.

### **3.2 PREDICTED ENVIRONMENTAL AND WATER SUPPLY CONDITIONS**

According to the National Oceanic and Atmospheric Administration (NOAA), Tompkins County falls in moderately to extremely wet climate categories, depending on location. NOAA classifies the local region as W1 to W3 for long term drought forecasts, as shown in Figure 4. This forecast synthesizes 6-month, 1-year, and 5-year precipitation data sets as a predictive tool to estimate future regional rainfall totals. The model has time limitations and only predicts gross yearly rainfall based on past history; it does not take into account wet and dry seasons in a localized climate.

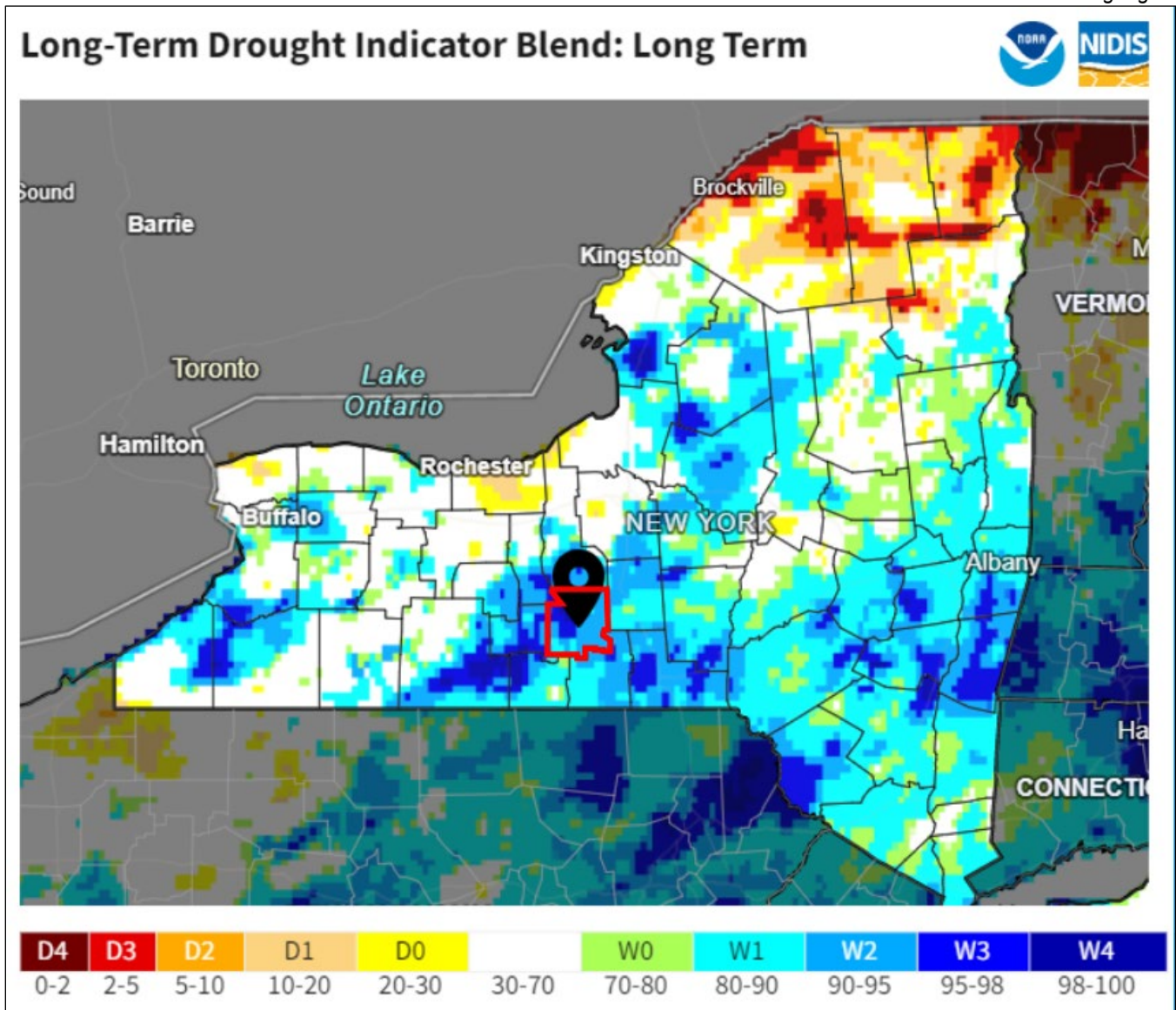
Surface water in the next 1- to 5-year range is predicted to be abundant; however, rainfall is predicted to occur in fewer events with greater intensity. While winters are projected to be wetter, summer and fall are projected to see rainfall amounts decrease by 5 to 10 percent by 2050 (NYSERDA, 2014). The reduction in frequency and increase in intensity of rainfall may impact groundwater recharge in rural Tompkins County. The monitoring of groundwater levels will be important in the future to determine how changing rainfall patterns will impact aquifers. Even though precipitation is projected to remain high, the PDSI provides an indication of long-term drought. PDSI trends are projected to reflect the overall status of soil moisture to become drier, as shown in Figure 5. Both historic and projected data are shown with the historic PDSI data going back to 1950 shown for context (up to +6 very wet and down to -6 very dry), and a projected 5-year PDSI map of New York as prepared by the Cornell Cooperative Extension.

Source: Drought.gov; U.S. Drought Monitor



**Figure 3.** Past Precipitation—Percent of Tompkins County Experiencing Dry or Wet Period, 1950 – Present

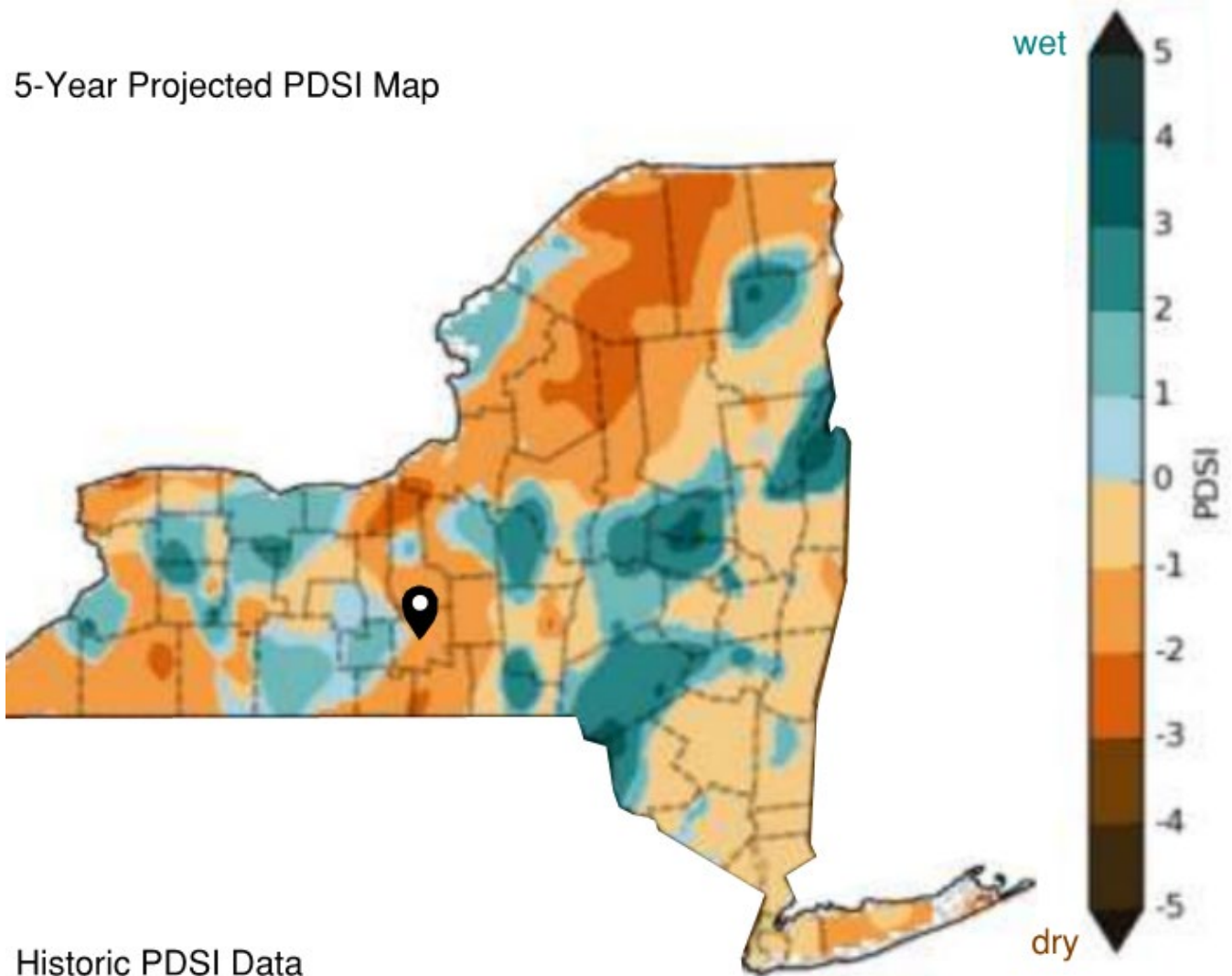
(Blue/Green represents periods of time of high precipitation; red/yellow represents periods lacking precipitation)



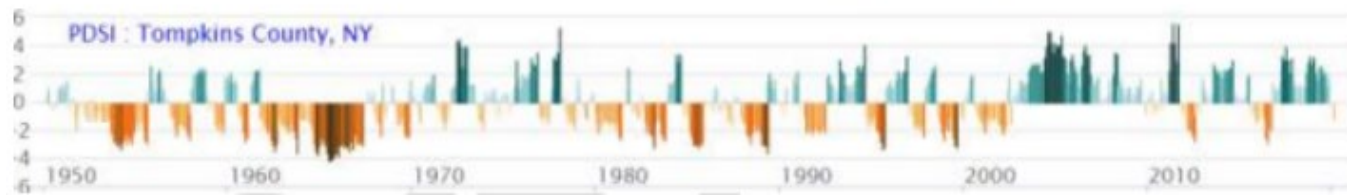
*Tompkins County Outlined in Red*

**Figure 4.** Long-Term Precipitation 5-Year Forecast by NOAA Based on Total Rainfall

### 5-Year Projected PDSI Map



### Historic PDSI Data



**Figure 5.** PDSI Data 5-Year Projection and Historical PDSI Data Since 1950

(PDSI Data 5-year Projection on Map; Historical PDSI Data Since 1950 on chart)

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## 4. REGIONAL WATER SUPPLY INFRASTRUCTURE

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Customers in Tompkins County receive their potable water by a combination of groundwater and surface water in both private and public municipal systems, depending on location. Some rural areas depend on direct pumping of groundwater from wells for water and are not incorporated into municipal service areas. These are often low population areas of the County, making districts and connections to existing water infrastructure difficult.

The county's three major water purveyors have some excess production capacity but are not physically connected via any distribution network to rural towns and villages for additional supply water.

### 4.1 GENERAL WATER QUALITY ISSUES

The wheeling of water depends on the availability of physical infrastructure to distribute, pump, and store the water. Compatibility of the water chemistry of different sources in terms of source water and treated water must also be considered. SCLIWC, the City of Ithaca, and Cornell University all use surface water sources that typically have compatible characteristics.

Beyond the raw water characteristics are seasonal changes to water chemistry that may occur. Water quality at Bolton Point and the City of Ithaca can be impacted by the occurrence of cyanobacteria harmful algal blooms (HABs). The source waters experience naturally occurring blooms significant enough to require treatment modifications. Per NYDEC, between 6/29/2021 and 10/7/2021, there have been 117 reports of HABs in Cayuga Lake in portions of Seneca, Seneca, and Tompkins counties. The issue of HABs occurrence has been proactively addressed within the plant to provide the necessary treatment as needed and the City of Ithaca will have a response tool in place in 2022. While the water is treated to be a safe potable water source, the acceptability of the water by the Cornell University and City of Ithaca systems should be confirmed before any investment in infrastructure.

One of the issues that arises in considering the wheeling of water by purveyors from the urban area to rural areas is that the rural areas predominantly use groundwater, which can have different chemical characteristics and can lead to a variety of issues when mixed with the purveyor non-groundwater sources. A thorough evaluation of mixing potential between the county's surface water sources and rural groundwater sources should also be analyzed. Incompatible water may dictate moving to a solely surface water source for some communities.

### 4.2 BOLTON POINT WATER TREATMENT PLANT AT VILLAGE OF LANSING

The Bolton Point Treatment Plant is the largest treatment plant in the county. Water capacity is limited only by what the plant can produce which is largely limited by staffing. Historically, there has not been a need for withdraws from Cayuga Lake beyond the permitted 6 mgd, nor have there been any limits placed on withdrawals.



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The plant typically operates 18 hours per day on weekdays and 12 hours per day on weekends but is capable of 24/7 operation.

In addition to interties, pumping improvements would be needed in the City of Ithaca system, and likely Cornell University, to move water from the SCLIWC system to those systems. From there, water could be moved to other parts of the county. An engineered system study of options outlined in the *Ithaca Area Economic Development (IAED) Water and Sewer Evaluation Update, December 2021* would be helpful in getting a sense of precise improvement needs.

### **4.3 CITY OF ITHACA WATER TREATMENT PLANT**

The City of Ithaca Water Treatment Plant draws water from Six Mile Creek. The City does not actively track or project water demand; however, current observed average day demand is 2.5 mgd. The treatment plant has a production capacity of 4 mgd. The plant was recently updated and rebuilt in 2016 to provide room for expansion of treatment up to 6 mgd and to include granular activated carbon. The City of Ithaca's raw water is high in manganese and sodium. While there are no regulatory issues, the high manganese has led to past customer complaints. In 2016 the system did receive brown water complaints largely tied to high manganese issues.

Available supply is not currently an issue; however, dredging projects for the dam and reservoir are an ongoing concern to maintain the storage capacity. While formal monitoring is not yet in place, staff report that water overtops the dam structure in typical years. However, it was noted that water did not overtop during the 2016 drought.

Currently, there is not an intertie from the City of Ithaca to the SCLIWC systems. An intertie is defined as a physical connection, typically paired with a use agreement, to allow for water to be supplied from one system to another to meet daily demand or specified for emergency use.

Currently, there is an existing one-way intertie from Cornell University system to the City of Ithaca. Cornell's system can provide water to the City during emergencies, maintenance evolutions, or projects, but that intertie cannot provide water to in the other direction due to hydraulic constraints that prevent adequate service pressure and fire flow.

Potentially, the City could help supply SCLIWC and Cornell with redundancy and some infrastructure improvements. An engineered system study of options referenced in the *IAED Water and Sewer Evaluation Update, December 2021* would be helpful in getting a sense of precise improvement needs.

### **4.4 CORNELL WATER FILTRATION PLANT**

The Cornell Water Filtration Plant serves the campus of Cornell University as well as small parts of the City and Town of Ithaca. The Cornell Water Treatment Plant draws water from Fall Creek and historically has had reliable water supply. During the 2016 drought, temporary water tanks filled by water trucked from Cayuga Lake were supplied to certain customers on campus requiring irrigation, highlighting the lack of redundancy and existing infrastructure.

The Cornell University system has limited intertie capabilities with the SCLIWC system. These capabilities were added following the 2016 drought.

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Cornell's system provides some redundancy to the City of Ithaca's system, as well as SCLIWC. An engineered system study of options outlined in the *IAED Water and Sewer Evaluation Update, December 2021* would be helpful in getting a sense of precise improvement needs.

## 4.5 RURAL AREAS

Rural areas that lie outside of the 3 large water purveyor service areas make up the majority of Tompkins County. Figure 6 outlines the infrastructure from Bolton Point to the outlying districts and indicates locations of regional storage tanks. The rural areas of the county rely primarily on groundwater for the source-of-supply. Current New York State standards require redundant source-of supply to meet demand and for that capacity be calculated assuming that the best producing well out of service or unavailable. A sample of available well data concerning location are shown in Figure 7 and quantified in Figure 8. Figure 9 is a summary of drilled well depths, with each point representing a well depth range of 10 feet. Please note: these figures represents only limited data from the New York State Department of Environmental Conservation's Well Water Program which collects well data from 2000-2021 and should be considered illustrative rather than an exhaustive well inventory.

While some of these noted wells are very deep, the median well depth is somewhere between 140 and 150 feet. The shallowest quartile of well depths is roughly 82 feet, with the shallowest at 23 feet deep.

To provide redundant water supply to wells the most reliable way to do that is to supply water to key rural locations from one of the major water purveyors. While the SCLIWC is best equipped in terms of capacity, source availability, and proximity, substantial capital investment would be required to provide a redundant water supply from SCLIWC to key rural locations. This would provide true redundancy by providing water from a unique secondary source. However, creating a regional redundant water supply requires addressing a number of potential issues. Questions that need to be addressed on a regional level include:

- How much water is available to meet demand?
- Are there surface and groundwater compatibility issues?
- Will local and state ordinances allow for regionalization of the water system outside of the current boundaries?
- Are there other unintended development impacts to an added build out of water systems?
- How does demand breakdown between domestic and agricultural uses? That breakdown will inform an approach to conservation.
- Are enough rural communities interested to make a regional redundant system financially feasible?
- Is the cost of capital investment justified by stakeholders to address only a periodic event?
- Operationally, switching to a regional surface water source as the primary supply and groundwater as a secondary source is preferred. Is that acceptable to all stakeholders?
- Are rate increases that would be required for regionalization of the water supply be acceptable?
- Does the climate change forecast alone justify the investment?
- Since Cayuga Lake use is not restricted by water right limitations does aquifer recharge make sense and does the geology make it an option?
- With the apparent infrequency of severe drought events and capacity in the Bolton WTP, is trucking potable water to rural users a suitable alternative to an acute crisis over capital investment? What needs to be in place to allow for a smooth roll-out of such a system in a crisis?

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Table 1, found on page 5, shows categories to consider in order to understand the region's water supply infrastructure and frame it in the context of the region's layout and topography. Each of the main purveyors and outlying municipalities are compared, with rural centers separated into a separate subcategory. The distance from the terminal end of the SCLIWC system to the center of the respective facility is listed to indicate how much effort would be needed to bring a transmission line to the area. Should connection to any of these areas be explored, Elevation from the SCLIWC facility to the facility center also puts into context what kind of pumping infrastructure would necessary.

Water demand and capacity reflecting local needs are shown along with the existing respective facility water source. Many rural areas rely on private wells, with the resulting demand difficult to fully capture. For some rural areas, demand was estimated based on local population. A total of available water demand of Tompkins County and available capacity from the three primary purveyors' capabilities is shown on the Grand Total line in Table 1. This reflects the entire region's water demand and compares it with the capacity of the three major purveyors, reflecting a current county-wide surplus of 1.5 mgd.

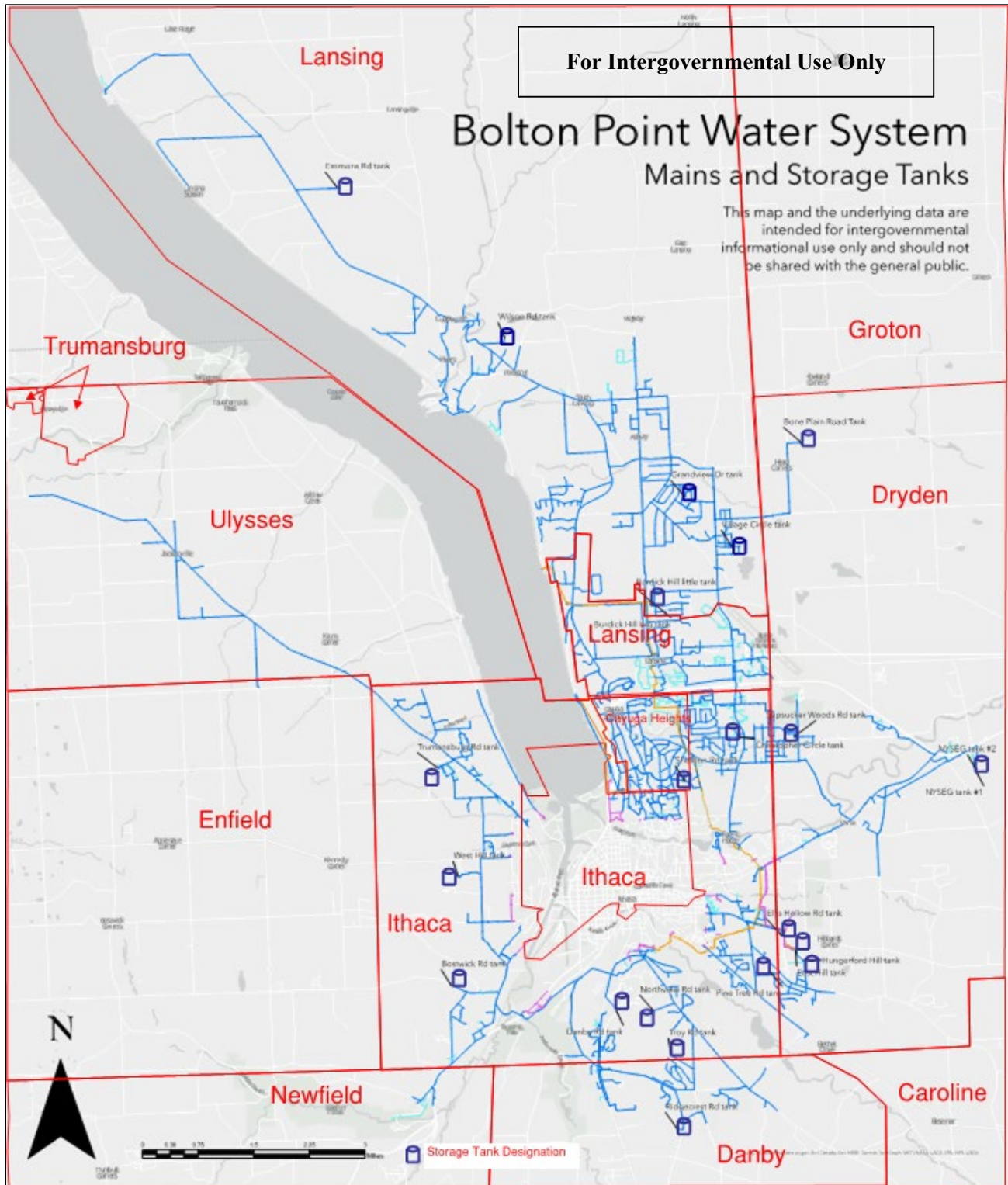
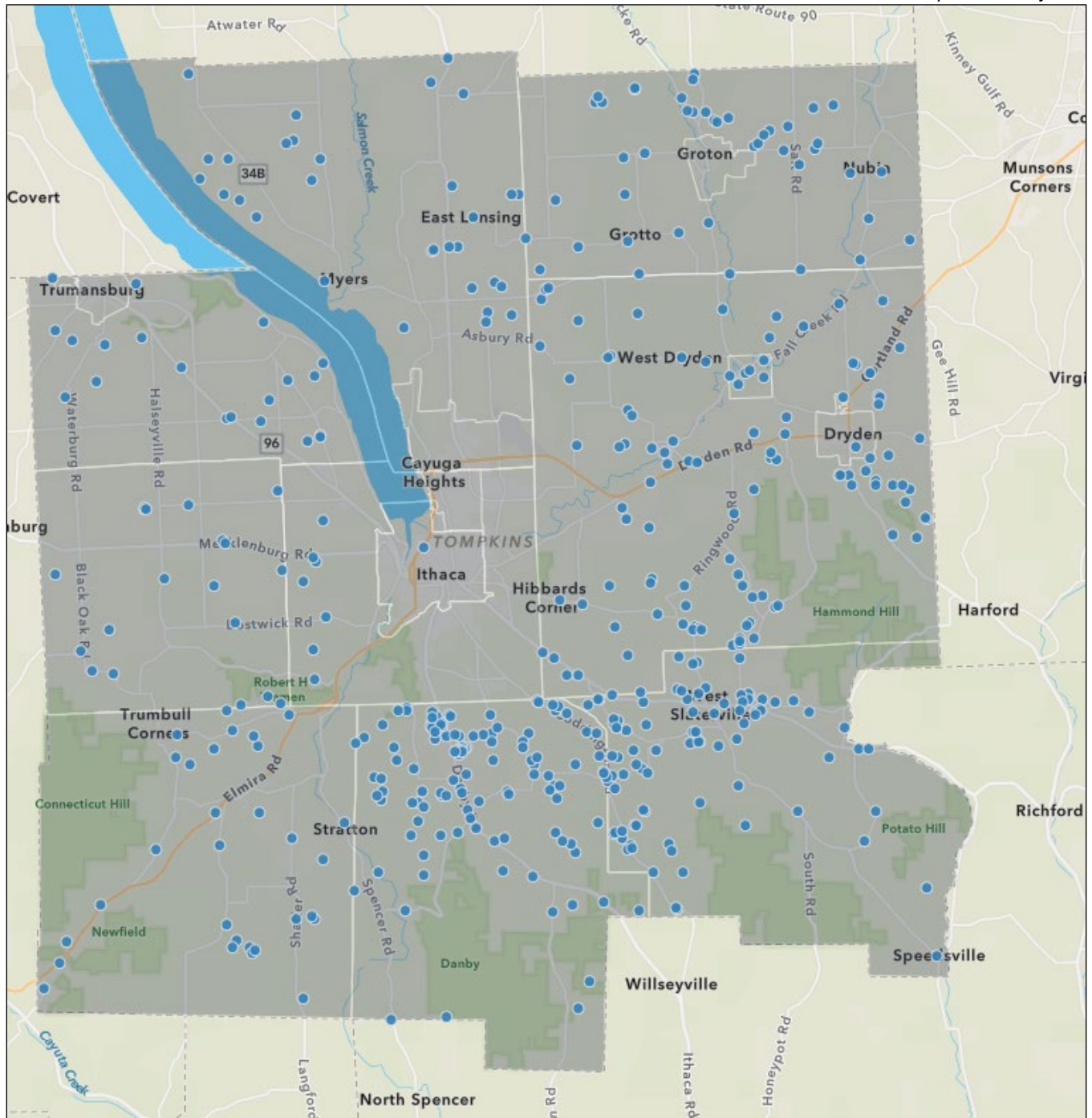
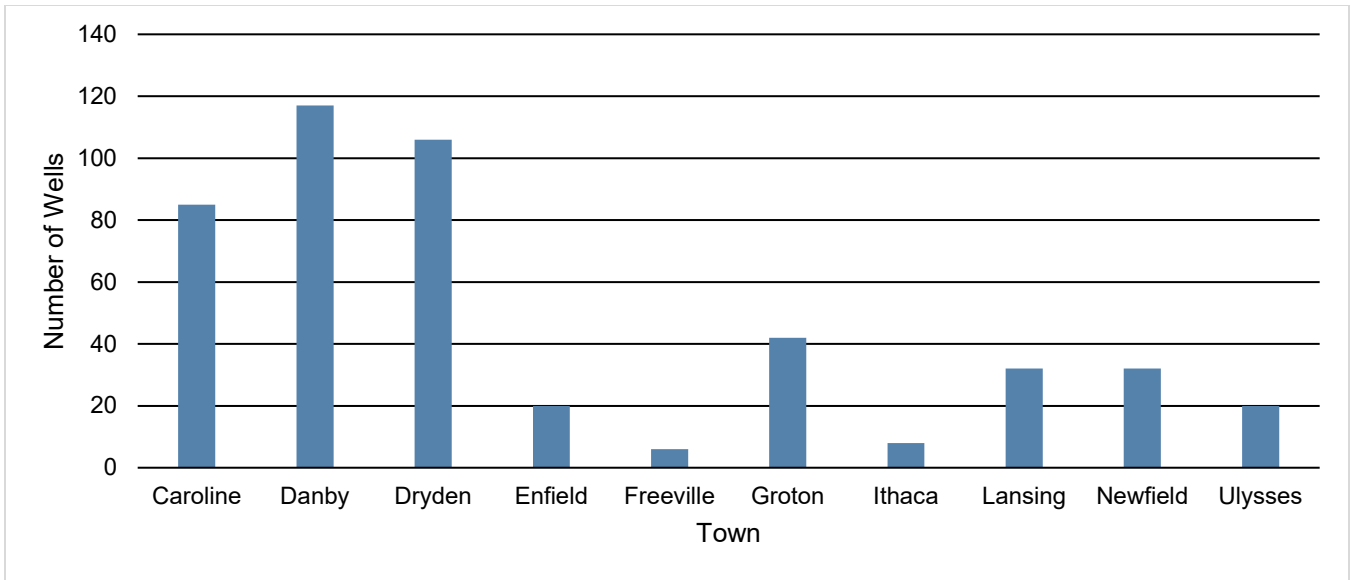


Figure 6. Bolton Point Transmission Line and Location of Storage Tanks

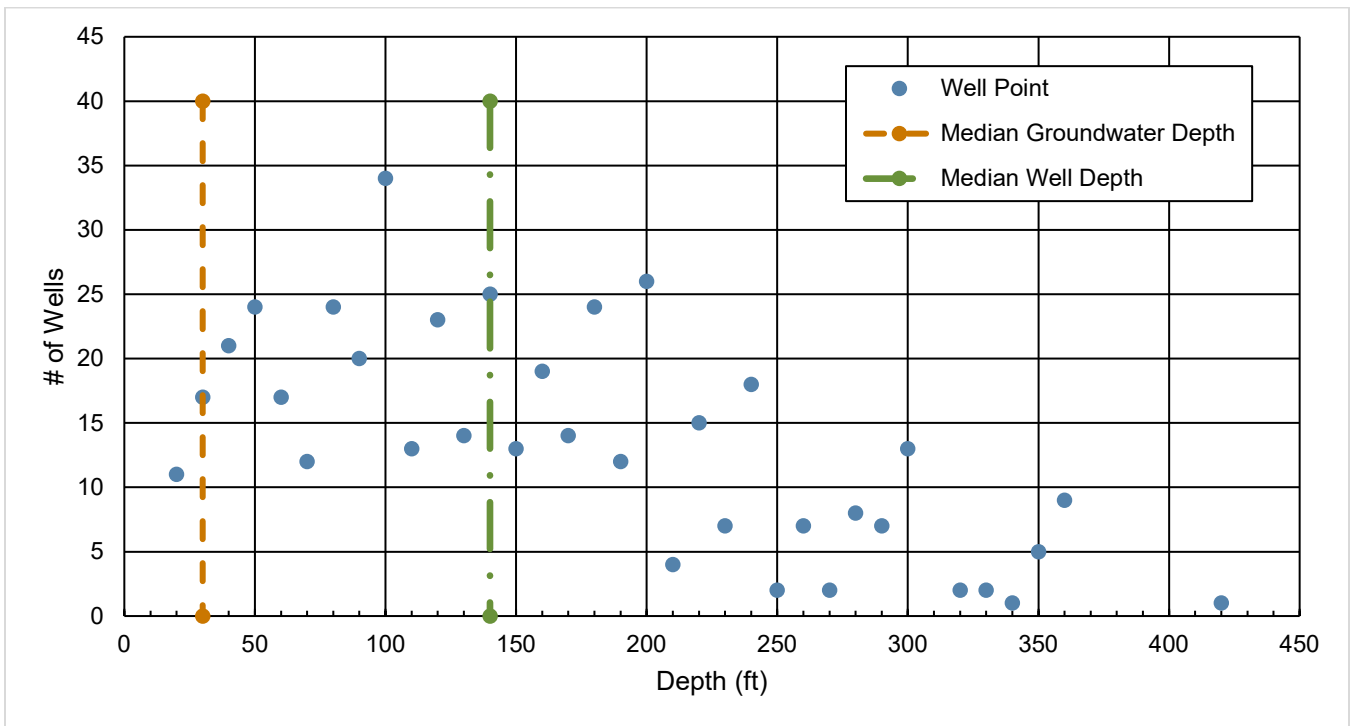


**Figure 7. Water Well Program Data (NYSDEC) for Representative Private Well Locations in Tompkins County\***

*\*Note: Not Exhaustive List of Private Data in Tompkins County, wells shown are those documented by NYSDEC from 2000-2021*



**Figure 8. Representative** Number of Private Wells per Town in Tompkins County Based on NYSDEC Water Well Program Data\*\*



**Figure 9. Representative** Groundwater and Drilled Well Depths in Tompkins County Based on NYSDEC Water Well Program Data\*\*

*\*\*Note: Not Exhaustive List of Private Well Data in Tompkins County, (2000-2021)*

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## 5. EXISTING INTERAGENCY WATER SHARING AGREEMENTS

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Currently, 9 of 12 municipalities that receive municipal water participate in inter-municipality service agreements. These agreements allow for redundancy in systems and increase water supply reliability and security. Currently 90 percent of water supplied from municipal systems is distributed between municipalities that operate under intermunicipal agreements, highlighting their prevalence and importance in the region.

As the largest water provider in the region, SCLIWC maintains interagency water sharing agreements that address the management of water use and with five municipalities, Cornell University, and the City of Ithaca. This agreement was finalized in 1986 and does not reflect current water quality and quantity concerns. Other agreements exist between the Towns of Ithaca and Ulysses; and the Town of Ulysses and Village of Trumansburg.

Intertie agreements are local and agency specific. Based on the findings of this technical memorandum it would be anticipated that as agencies negotiate the updating of existing agreements, and development of new agreements they could address issues of:

- Water quality
- Supply during HAB events
- Nature of the intertie (i.e., unidirectional, bi-directional, emergency use only, demand dependent)
- Intertie ownership and operation and maintenance responsibilities
- Duration of service
- Metering
- Pricing of supplied water
- Addressing the wheeling of water rather than operation for consumption

### 5.1 TOWNS OF ITHACA AND ULYSSES AGREEMENT

The SCLIWC has an existing transmission main stretching along the west side of Cayuga Lake which ends at the Pearsall Place Control Valve Building as shown in Figure 6. This enables the Town of Ulysses to receive water from the Town of Ithaca with the source from Bolton Point. The Town of Ulysses is not a member of the SCLIWC but has an agreement with the Town of Ithaca to provide water. This water supply serves Water District No. 3 in Ulysses and charges the 12-inch water main from the Woolf Pump Station in the Town of Ithaca. The agreement is for 159,000 gallons per day. A similar agreement also allows Water District No. 4 in Ulysses to draw 3,000 gallons per day to fill a 500,000-gallon Town of Ithaca Trumansburg Road tank.

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## 5.2 TOWN OF ULYSSES AND VILLAGE OF TRUMANSBURG AGREEMENT

Water sharing agreements between the Town of Ulysses and Village of Trumansburg go both ways. The Village supplies two small Ulysses water districts with well water from the village's two existing wells. The Town of Ulysses has an agreement to receive Trumansburg well water to supply Ulysses Water District No. 2 via a 500,000-gallon tank. None of the current supply to Trumansburg comes from Bolton Point and all of it is well water, either from Ulysses or from the village's two main wells.

## 5.3 CORNELL UNIVERSITY, CITY OF ITHACA AND SCLIWC AGREEMENT

Sharing agreements exist between the trio of main purveyors for emergency allocations and all three purveyors have expressed interest in expanding those agreements. Since the 2016 drought, these agreements have been reviewed and ways to strengthen them were considered in the *Water Disruption 2016 After-Action Report* from Cornell University. While all three purveyors have indicated that expanded, updated agreements would be worth pursuing, none of the agreements have been modified at this time .

Existing agreements primarily address short-duration needs where water would be supplied from the Bolton Point Water Treatment Plant. These would include water deliveries to the City of Ithaca and Cornell University.

The longest disruption of service for which an agreement has been utilized was the recent rebuild of the City of Ithaca Water Treatment Plant, which lasted 354 days.

There are also agreements between Cornell University and the City of Ithaca. These agreements are quite limited in extent and cover limited areas in each other's jurisdiction.

There are currently no existing agreements between the SCLIWC, Cornell University, and Ithaca to send surplus water via pump station or other means to the Bolton Plant from either the City or Cornell systems for further distribution around the County. For example, distribution from Bolton Point to Ulysses and Trumansburg through aforementioned agreements or to supply any SCLIWC members during times of drought. This primary weakness in existing agreements is also reflected in the inability of water to be wheeled between either City of Ithaca or Cornell University Purveyors and the SCLIWC distribution network. Updated agreements between purveyors could increase daily production rates and boost regional supply capabilities.

In addition to written agreements, infrastructure connectivity has been considered. The SCLIWC Bolton Point transmission line has mains from the Bolton Point Water Treatment Plant to the Cornell Water Treatment Plant and into parts of the City of Ithaca. Additional infrastructure connectivity would likely still be needed for water wheeling purposes.



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## 6. OPPORTUNITIES AND NEEDS TO ADDRESS REGIONAL DROUGHT RESILIENCY

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Opportunities exist to strengthen regional resiliency to droughts. These can be achieved through more robust water conservation measures, construction of infrastructure to facilitate the wheeling of water, and updating/negotiating interagency emergency water sharing agreements. These actions will extend the resources that are available and provide agreement on the decision making, manner, quantity, and conditions under which water assistance can be requested and provided. The inter-agency agreements are of particular importance, as all three major water purveyors indicated supply and availability of water is not the primary concern, but rather supply redundancy. If additional resources are needed in the rural areas and the extension of infrastructure is not possible another consideration is the drilling of deeper, potentially more resilient wells.

### 6.1 LEGAL AGREEMENT NEEDS

The City of Ithaca and Cornell University would benefit from new water sharing agreements since their supplies depend on surface water from streams (Six-Mile Creek and Fall Creek), which can experience low flows during dry periods.

Interagency agreements between SCLIWC and the City of Ithaca and SCLIWC and Cornell University may also help the Bolton Point and City of Ithaca Water Treatment Plants hedge against any disruptions in its system from the emerging HABs containments on Cayuga Lake. While the likelihood of drought impacting a water system is much higher than HABs, agreements and associated improvements that increase redundancy would still provide benefits to all county water users.

Being able to wheel water around the east, west, and south portions of the lake would increase resiliency for all parties. Sharing agreements between the appropriate agencies can help establish fair rate structures by which water providing entities are compensated for water provided to other agencies in the agreement.

Interagency agreements between rural municipalities and SCLIWC should also be explored. The possibility of providing additional water to those outlying communities that would require additional infrastructure to tie to the urban water systems. As SCLIWC owns tanks throughout the region, agreements with other municipalities could provide additional storage, redundancy, and resiliency to the rural area groundwater systems.

### 6.2 INFRASTRUCTURE EXPANSION

Infrastructure needs mostly involve physical connection between systems, including transmission, storage, and booster pumping. Another area of important infrastructure is expanding treatment capacity to allow for the enhanced regionalization to be processed at the receiving plant. Infrastructure improvements would go a long way

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to improve redundancy but is also the most expensive. However, it also provides the opportunity for cost sharing for shared facilities. A more complete understanding of the opportunities and needs will require a more detailed analysis.

### **6.3 DEEPENING OF WELLS**

It was reported that during the 2016 drought, rural groundwater wells began to drop or run dry. Groundwater sources are typically resilient against acute drought events. When they are not, it is an indication that the wells are shallow, which would not be unexpected in a typically water rich location as Tompkins County. Evaluation of well depth and geotechnical conditions is beyond the scope of this review; however, an evaluation of deeper aquifer availability – in part utilizing existing aquifer studies where available - is recommended to determine if more resilient groundwater supplies are available in the region. Drilling deeper wells is not inexpensive, but the availability of that deeper groundwater resource is important to know, and exploration could, again, be a shared cost when multiple communities could benefit. Investment in deeper wells is much more sound investment than other marketed improvements such as the unhelpful “injection” of wells which is a commonly marketed private solution.

### **6.4 CONSERVATION PROGRAMS**

The first step in water resiliency is implementing conservation practices to best manage the existing resource. An emphasis on water savings is a clear option to help mitigate water demand across the County even outside of drought conditions. The Cornell University *After-Action Report on the 2016 Drought* points to conservation efforts reducing water demand upwards of 20 percent. It is unclear if this reduction was calculated as the result of water conservation or water restrictions. Conservation and education efforts have proven track records of working and can be inexpensive compared to infrastructure investment. Formal conservation programs and incentives in individual systems can have a benefit; however, regionally coordinated (countywide) initiatives can increase program success and spread the program cost. Best practices, including rate structures, are often highly localized. General planning steps are highlighted in water conservation program materials from the American Water Works Association (AWWA) planning manual (M52 and [awwa.org/Resources-Tools/Resource-Topics/Water-Conservation](http://awwa.org/Resources-Tools/Resource-Topics/Water-Conservation)) including guidance on:

- Water conservation rates
- Water use efficiency measures
- Community involvement
- Financing and pricing
- Conservation performance measurement, tracking, and reporting

### **6.5 DATA COLLECTION AND TRACKING OF WATER DISTRICT WELLS**

Increased monitoring of groundwater in relation to active supply wells is another area that can provide information to users and water districts. Since so many towns rely on groundwater, having a record of which wells are expected to run dry first would be important step for developing emergency plans for when to pull from other sources. While this information exists for some areas thanks to regional USGS aquifer studies, increased aquifer level monitoring in towns and villages heavily dependent on wells will help inform future decisions on investments in infrastructure and agreements.

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## 7. RECOMMENDATIONS

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Based on the available data, infrastructure, existing agreements, and water resources, Tompkins County has a shared need to address the water resiliency, but there is not a regional structure in place to coordinate the entire county. To begin to address the issue, this technical memorandum recommends the following:

A) Establish a formal regional water providers' consortium (drought planning team) representing the key stakeholders committed to addressing the water supply issues on a regional (or even just Countywide) basis. Convene the consortium regularly to continue to progress the issues, needs and solutions. Suggested members of such a consortium would include:

- Tompkins County Environmental Health Department
- Tompkins County Department of Planning & Sustainability
- SCLIWC
- City of Ithaca
- Cornell University
- Rural center water providers
- State agencies including the Department of Environmental Conservation as appropriate

This consortium could initially address:

- Develop a regional profile of current and future demand and availability
- Determine if there are there surface and groundwater compatibility issues
- Support creation of updated interagency agreements between SCLIWC, the City of Ithaca, and Cornell University
- Address existing ordinances that currently prevent regionalization of the water system.
- Research the legal ability to provide backup water to key locations outside of current service area boundaries. If legal, identify any unintended consequences of such provision, including potential negative impacts to development, land use and the environment to creating a more regionalized water system
- Determine if rural community stakeholders are interested in a regional redundant system and if there is interest outline necessary infrastructure needed to support this
- Come to consensus as to whether the climate change forecast alone justifies the capital investment to address a periodic event
- Determine the cost sharing structure for capital investment, water rates, ownership, and operation and maintenance, etc.

- 
- Determine if alternative, acute-drought solutions, such as trucking potable water to rural users, are adequate given the infrequency of severe drought events
  - Evaluate well depth and geotechnical conditions or an evaluation of deeper aquifer availability to determine if more resilient groundwater supplies are available in the region.
  - Increase monitoring of groundwater in active supply wells to provide drought information to users and water districts.
  - Identify funding mechanisms to conduct an engineered system study for an interconnected regional system specifying specific infrastructure improvement needs
  - Develop and prioritize a list of regional water infrastructure capital needs to provide water for participating stakeholders based on the *IAED Water and Sewer Evaluation Update, December 2021*
  - Implement a regional water conservation program

B)) To maximize current supplies and reduce demands, and in turn potentially reduce the capital investment for regionalization, the consortium could begin to address coordinated regional conservation through the following:

- Define demand in terms of domestic, industrial, and agricultural uses. That breakdown will inform an approach to conservation.
- Develop and implement a regional conservation program.
- Draft and ratify an updated Intermunicipal Agreement in 2022 or 2023 to help support the coordinated transmission and compensation for longer term disruptions including drought that in particular allows for the potential of wheeling water through the SCLIWC, City of Ithaca, and Cornell University systems.
- Explore key funding opportunities for infrastructure improvements to allow water to be supplied from the City of Ithaca to SCLIWC
- Develop a regional water resource portfolio and the availability of additional resources such as available capacity from Cayuga Lake, the region's most reliable source-of-supply
- Analyze existing aquifer studies to determine more reliable groundwater resources, and as appropriate conduct further studies.
- Recommend that all water providers develop a water restriction protocol to implement during acute events when conservation is inadequate.
- Recommend that all water providers meter and calculate production, demand, water loss, and projection of future needs.
- Recommend that all water providers review existing interagency agreements, identify system-specific gaps and unaddressed needs, and update or create new agreements.

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# **Debris Management Resources**

*Tompkins County Resiliency and Recovery Plan*



Tompkins County

Resilience and Recovery Plan

## Debris Management Plan



TETRA TECH

April 2022

# Debris Management Plan

April 2022

## Prepared for

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# Department of State

*This Debris Management Plan is a Component of the Tompkins County Resiliency and Recovery Plan and was prepared with funding provided by the New York State Department of State under Title 3 of the Environmental Protection Fund.*





## Debris Management Plan Overview

To help support community recovery from long term hazard events, Tompkins County obtained funding from the New York State Department of State to develop the *Tompkins County Resiliency and Recovery Plan*. One of the components of this effort is a Debris Management Plan to help Tompkins County be better prepared to address disaster event debris management. In order to effectively manage this type of debris, it is important that communities organize themselves to coordinate an effective debris clearing and management operation and do so in a way that they may be eligible to receive federal reimbursement for that work.

This debris management plan provides a framework, including an Action Strategy for:

- the recommended steps Tompkins County will need to take well in advance of a disaster, and during “normal” times, to help further strengthen an effective debris management program;
- the estimation for the amount and type of debris that would be generated from a disaster event, which would warrant the activation of the debris management plan; and
- the recommended debris management practices that the County and municipalities will implement immediately prior to a large-scale debris management event as well as through the various post-disaster response and recovery stages, as shown on the timeline below.



### Description of Disaster Event That May Require Formal Activation of Debris Management Plan (Section 1.5)

The most likely type of disaster event that could result in the need to activate a Debris Management Plan would be a 1% annual chance flood event. In hazard mitigation terms for Tompkins County, this would be a *Low Probability – High Consequence* debris-generating incident that may significantly impact the County and multiple municipalities. In this case, resources would likely be severely strained throughout the entire region. A Presidential Disaster Declaration would also be imminent due to significant damage to roads and bridges, debris estimates exceeding 55,000 cubic yards.



### Action Strategy for Debris Management Event Response and Recovery

To help guide the active disaster debris management process a series of pre-incident preparations (Section 3.2), post-incident response actions (Section 3.3) and post-incident recovery actions (Section 3.4) are recommended based on best management practices (BMPs) and Federal Emergency Management Agency (FEMA) guidance.

To further assist with this each stage of debris management planning a series of resources have been included in this guide's appendices (See Appendices A - O).

Below is a summary of recommended actions to take now and each year when there is no imminent threat of a disaster.

### Action Strategy for Recommended Immediate Debris Management Planning Steps

- **Formalize Debris Management Roles** – Set the roles and responsibilities of each department and other involved outside agencies as outlined in Section 2 to ensure that all impacted departments, municipalities, and external agencies maintain the capacity to manage debris in a timely and effective manner should a disaster strike the County or its municipalities.
- **Review Debris Management Contracts** - Establish and review pre-positioned contracts with monitoring firms and debris removal contractors
- **Establish Reserve Fund** - Establish fund to help facilitate costs that would need to be incurred by the County at the start of an active debris generating event.
- **Assess Debris Management Sites** – Assess, organize and map ideal debris management sites including locations outside of the Special Flood Hazard Area.
- **Analyze Debris Management Sites Equipment and Infrastructure**– Identify DMS locations, then identify any equipment that should be acquired, or infrastructure improvements to be made, and assist with larger scale debris management.
- **Perform Annual Review of Debris Management Plan** - Help prepare for potential debris-generating events through recommendations from the County review and update to its debris management plan prior to severe weather season (generally prior to Fall). To further assist with this, it is recommended that the County coordinate a pre-season kickoff meeting between the County, municipalities, and their pre-positioned monitoring and debris removal staff/contractors, if possible. Such a meeting could be done in concert with the annual hazard mitigation plan implementation and update meetings, or as a part of an emergency operations planning meeting.



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## Promulgation Statement

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Promulgated herewith is the Tompkins County Debris Management Plan (DMP), a component of the Tompkins County Resiliency and Recovery Plan. Authority for this plan is provided by Article 2-B of the New York State Executive Law. It provides a framework within which Tompkins County can plan and perform necessary debris management operations during and following an emergency, disaster, or planned event.

This Tompkins County Resiliency and Recovery Plan was reviewed and accepted by the Tompkins County Legislature on [Date]. It will be revised and updated as required. All recipients are requested to advise the Tompkins County Department of Emergency Response of any changes that might result in its improvement or increase its usefulness. Plan changes will be transmitted to all addressees on the distribution list.

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**(Chief Elected Official)**

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**(County Administrator)**

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**(Director, Department of Emergency Response)**





# Section 1 Introduction

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## 1.1 Overview

### 1.1.1 Purpose

Tompkins County (the County) approved the preparation of this Debris Management Plan (DMP) to better respond to various emergency debris removal situations throughout the County. The purpose of this plan is to outline the components critical to the success of a debris removal operation. This plan provides key information that will help the County with two aspects related to debris management.

1. **Preparing for Debris Management-** Central to the success of debris removal operations is clarifying the following elements prior to a debris-generating incident:
  - Identifying the parties involved, including municipal officials and private companies, and their roles and responsibilities for debris management.
  - Understanding the rules, regulations, and guidelines enacted by the Federal Emergency Management Agency (FEMA) and other agencies governing debris removal.
  - Outlining the debris collection process by hazard event type.
  - Clarifying the debris disposal process, including extreme situations, where debris may need to be staged outside existing infrastructure in temporary debris management for reduction and hauled for final disposal.

The specific Debris Management Planning Recommendations are outlined in Section 3.2.

2. **Pre-Event and Active Event Debris Management** – The bulk of this DMP organizes the recommendations that the County will follow to coordinate and effectively manage debris removal effort following an event that affects the County, or its communities, as a major debris-generating incident. Those specific active debris management roles are outlined in Section 2 and recommended actions framed in Sections 3.2-3.8.

### 1.1.2 Plan Development

Developed as a part of the *Tompkins County Resiliency and Recovery Plan*, this DMP provides a coordinated response blueprint for the County, other organizations, and contracted debris hauling and monitoring firms with a role in disaster debris operations. Departments within the County and its municipalities, as well as regional and private planning partners, were instrumental in the development of this plan and in clarifying roles and responsibilities in the event of a debris-generating incident. Tompkins County formed a *Debris Management Working Group* to lead the development of this plan, whose membership included representatives from the following organizations:

- Tompkins County Department of Emergency Response
- Tompkins County Department of Planning and Sustainability



- Tompkins County Department of Recycling and Materials Management
- Tompkins County Facilities Department
- Tompkins County Health Department
- Tompkins County Highway Department
- City of Ithaca Department of Public Works
- Town of Lansing Highway Department
- Casella Waste Systems
- Finger Lakes ReUse

In addition, the planning process included outreach to and input from the County's municipalities, institutions of higher education (including Cornell University, Ithaca College, and Tompkins-Cortland Community College), and other stakeholders.

### 1.1.3 Scalability

Debris management operations are scalable, depending on the needs of the situation. For small events that generate low quantities of debris, debris management may be performed with the organizations identified in this DMP having little to no variation from day-to-day operations. In contrast, a major disaster (e.g., the 1 percent annual chance flood or severe storms that affect large areas of the County) may generate far more debris than the County and municipalities can manage with day-to-day operations and will result in the activation of the full set of provisions of the DMP. Following the DMP during these large-scale operations is critical for ensuring that the County and municipalities meet FEMA's requirements for debris management operations under the Public Assistance (PA) program, so that the County and municipalities can maximize their reimbursement for debris management operations after an event that results in a Presidentially-declared disaster under the Stafford Act.

## 1.2 Authority

This DMP is developed, promulgated, and maintained under the following federal, state, county, and local statutes and regulations:

### 1.2.1 Municipal

- Chapter 196 of the City of Ithaca Code<sup>1</sup>

### 1.2.2 County

- Chapter 140 of the Tompkins County Code<sup>2</sup>

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<sup>1</sup> [City of Ithaca, NY Garbage and Refuse \(ecode360.com\)](http://www.cityofithaca.org/garbage-and-refuse)

<sup>2</sup> [Tompkins County, NY Solid Waste \(ecode360.com\)](http://www.tompkinscounty.org/solid-waste)



### 1.2.3 State

- 1 New York Codes, Rules and Regulations (NYCRR) 139: Control of the Asian Long Horned Beetle<sup>3</sup>
- 6 NYCRR 360: Solid Waste Management Facilities General Requirements<sup>4</sup>
- 6 NYCRR 361: Material Recovery Facilities<sup>5</sup>
- 6 NYCRR 361-3: Composting and Other Organics Recycling Facilities<sup>6</sup>
- 6 NYCRR 361-4: Mulch Processing Facilities<sup>7</sup>
- 6 NYCRR 361-5: Construction and Demolition Debris Handling and Recovery Facilities<sup>8</sup>
- 6 NYCRR 361-7: Metal Processing and Vehicle Dismantling Facilities<sup>9</sup>
- 6 NYCRR 362: Combustion, Thermal Treatment, Transfer, and Collection Facilities<sup>10</sup>
- 6 NYCRR 362-4: Household Hazardous Waste Collection Facilities and Events<sup>11</sup>
- 6 NYCRR 364: Waste Transporters<sup>12</sup>

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<sup>3</sup> Thomson Reuters Westlaw. Part 139 Control of the Asian Long Horned Beetle. Accessible at [https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=I561766d0ab3a11ddb79a18800159157&originationContext=documenttoc&transitionType=Default&contextData=\(sc.Default\)](https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=I561766d0ab3a11ddb79a18800159157&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default))

<sup>4</sup> Ibid. Part 360 Solid Waste Management Facilities General Requirements. Accessible at [https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=Ic884bcc0b5a011dda0a4e17826ebc834&originationContext=documenttoc&transitionType=Default&contextData=\(sc.Default\)](https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=Ic884bcc0b5a011dda0a4e17826ebc834&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default))

<sup>5</sup> Ibid. Part 361 Material Recovery Facilities. Accessible at [https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=Icfe7d780b5a011dda0a4e17826ebc834&originationContext=documenttoc&transitionType=Default&contextData=\(sc.Default\)](https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=Icfe7d780b5a011dda0a4e17826ebc834&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default))

<sup>6</sup> Ibid. Part 361-3 Composting and Other Organics Recycling Facilities. Accessible at [https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=I1674a0b0d90711e7b1b4dba4afbaec92&originationContext=documenttoc&transitionType=Default&contextData=\(sc.Default\)](https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=I1674a0b0d90711e7b1b4dba4afbaec92&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default))

<sup>7</sup> Ibid. Part 361-4 Mulch Processing Facilities. Accessible at [https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=I16a77080d90711e7b1b4dba4afbaec92&originationContext=documenttoc&transitionType=Default&contextData=\(sc.Default\)](https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=I16a77080d90711e7b1b4dba4afbaec92&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default))

<sup>8</sup> Ibid. Part 361-5 Construction and Demolition Debris Handling and Recovery Facilities. Accessible at [https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=I16b5a150d90711e7b1b4dba4afbaec92&originationContext=documenttoc&transitionType=Default&contextData=\(sc.Default\)](https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=I16b5a150d90711e7b1b4dba4afbaec92&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default))

<sup>9</sup> Ibid. Part 361-7 Metal Processing and Vehicle Dismantling Facilities. Accessible at [https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=I16cb4c30d90711e7b1b4dba4afbaec92&originationContext=documenttoc&transitionType=Default&contextData=\(sc.Default\)](https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=I16cb4c30d90711e7b1b4dba4afbaec92&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default))

<sup>10</sup> Ibid. Part 362 Combustion, Thermal Treatment, Transfer, and Collection Facilities. Accessible at [https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=Icf56a5e0b5a011dda0a4e17826ebc834&originationContext=documenttoc&transitionType=Default&contextData=\(sc.Default\)](https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=Icf56a5e0b5a011dda0a4e17826ebc834&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default))

<sup>11</sup> Ibid. Part 362-4 Household Hazardous Waste Collection Facilities and Events. Accessible at [https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=Id8619b30d45a11e78486f898b5edec9f&originationContext=documenttoc&transitionType=Default&contextData=\(sc.Default\)](https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=Id8619b30d45a11e78486f898b5edec9f&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default))

<sup>12</sup> Ibid. Part 364 Waste Transporters. Accessible at [https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=Icf87c800b5a011dda0a4e17826ebc834&originationContext=documenttoc&transitionType=Default&contextData=\(sc.Default\)](https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=Icf87c800b5a011dda0a4e17826ebc834&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default))



- 6 NYCRR 371: Identification and Listing of Hazardous Wastes<sup>13</sup>
- 6 NYCRR 374-3: Standards for Universal Wastes<sup>14</sup>
- 6 NYCRR 376: Land Disposal Restrictions<sup>15</sup>
- Consolidated Laws of New York, Agriculture and Markets, Article 26, Section 377: Disposal of Dead Animals<sup>16</sup>
- Consolidated Laws of New York, Environmental Conservation, Article 27, Title 3, Section 27-0305: Permits for waste transporters<sup>17</sup>
- Consolidated Laws of New York, Environmental Conservation, Article 27, Title 26: Electronic Equipment Recycling and Reuse<sup>18</sup>
- Consolidated Laws of New York, Environmental Conservation, Article 33: Pesticides<sup>19</sup>
- Consolidated Laws of New York, Environmental Conservation, Article 37, Title 1, Section 37-0109: Chromated copper arsenate pressure treated lumber; public facilities<sup>20</sup>
- Consolidated Laws of New York, Executive, Article 2-B: State and Local Natural and Man-made Disaster Preparedness<sup>21</sup>

## 1.2.4 Federal

- Sandy Recovery Improvement Act included as Division B of the Disaster Relief Appropriations Act, PL 113-2, signed into law January 29, 2013
- Robert T. Stafford Disaster Relief and Emergency Assistance Act, PL 100-707, signed into law November 23, 1988; amended the Disaster Relief Act of 1974, PL 93-288
- U.S. Code, Title 23 Highways, Part 125 Emergency Relief Section 1107 Public Law 112-141 Moving Ahead for Progress in the 21st Century Act, July 2012
- Title 2 Code of Federal Regulations, Part 200 Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (2 Code of Federal Regulations (CFR) 200)

<sup>13</sup> Ibid. Part 371 Identification and Listing of Hazardous Waste. Accessible at [https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=Id10d5690b5a011dda0a4e17826ebc834&originationContext=documenttoc&transitionType=Default&contextData=\(sc.Default\)](https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=Id10d5690b5a011dda0a4e17826ebc834&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default))

<sup>14</sup> Ibid. Part 374-3 Standards of Universal Wastes. Accessible at [https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=Idceeb850b5a011dda0a4e17826ebc834&originationContext=documenttoc&transitionType=Default&contextData=\(sc.Default\)](https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=Idceeb850b5a011dda0a4e17826ebc834&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default))

<sup>15</sup> Ibid. Part 376 Land Disposal Restrictions. Accessible at [https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=Idf53d170b5a011dda0a4e17826ebc834&originationContext=documenttoc&transitionType=Default&contextData=\(sc.Default\)](https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=Idf53d170b5a011dda0a4e17826ebc834&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default))

<sup>16</sup> [Legislation | NY State Senate \(nysenate.gov\)](https://www.nysenate.gov/legislation)

<sup>17</sup> [Consolidated Laws of New York | Title 3 - WASTE TRANSPORTER PERMITS | Casetext](#)

<sup>18</sup> [Electronic Equipment Recycling and Reuse Act \(ny.gov\)](#)

<sup>19</sup> [Consolidated Laws of New York | Article 33 - PESTICIDES | Casetext](#)

<sup>20</sup> [Legislation | NY State Senate \(nysenate.gov\)](https://www.nysenate.gov/legislation)

<sup>21</sup> <https://law.justia.com/codes/new-york/2015/exc/article-2-b/>



- US Code, Title 42, Chapter 103, Comprehensive Environmental Response, Compensation, and Liability and Title III of Superfund Amendments and Reauthorization Act of 1986
- Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. §9601 et seq
- Resource Conservation and Recovery Act, 42 U.S.C. §69012 et seq
- Federal Clean Water Act, 33 U.S.C. §1251 et seq
- Toxic Substances Control Act, 15 U.S.C. §1601 et seq
- Occupational Safety and Health Act, 29 U.S.C. §651 et seq
- Hazardous Materials Transportation Act, 49 U.S.C. §1802 et seq

## 1.3 References

The following references were used in the development of the plan:

### 1.3.1 County

- Tompkins County “Comprehensive Emergency Management Plan (CEMP),” 2018
- Tompkins County “Tompkins County Hazard Mitigation Plan: 2021 Update,” 2021<sup>22</sup>

### 1.3.2 State

- New York State Department of Environmental Conservation “Disaster Debris Management Planning Tool Kit for New York State Municipalities,” 2015<sup>23</sup>
- New York State Disaster Preparedness Commission “New York State Comprehensive Emergency Management Plan Emergency Support Function Annex ESF #3 Public Works and Engineering,” 2020<sup>24</sup>

### 1.3.3 Federal

- FEMA Comprehensive Preparedness Guide 101 Version 2<sup>25</sup>
- FEMA Publication FP 104-009-2 – Public Assistance Program and Policy Guide, 2020<sup>26</sup>
- FEMA Public Assistance Debris Monitoring Guide, March 2021<sup>27</sup>
- FEMA 329 Debris Estimating Field Guide, September 2010<sup>28</sup>

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<sup>22</sup> [Planning - Climate Adaptation | Tompkins County NY](#)

<sup>23</sup> [Disaster Debris Management Planning \(ny.gov\)](#)

<sup>24</sup> [NYS ESF 3 Annex](#)

<sup>25</sup> [Developing and Maintaining Emergency Operations Plans \(fema.gov\)](#)

<sup>26</sup> [Public Assistance Program and Policy Guide Version 4 \(fema.gov\)](#)

<sup>27</sup> [FEMA Debris Monitoring Guide \(March 2021\)](#)

<sup>28</sup> FEMA Debris Estimating Field Guide. Accessible at [fema 329 debris-estimating field-guide 9-1-2010.pdf](#)



- FEMA Public Assistance Alternative Procedures EMMIE Cost Codes for Debris Removal<sup>29</sup>
- National Response Framework, Department of Homeland Security, Fourth Edition, October 2019<sup>30</sup>
- FEMA Publication FD 008-03 – Pre-Disaster Recovery Planning Guide for Local Governments, February 2017<sup>31</sup>
- National Disaster Recovery Framework, Second Edition, Department of Homeland Security, June 2016<sup>32</sup>
- U.S. Census 2010<sup>33</sup>

## 1.4 Incidents and Assumptions

### 1.4.1 Population and Demographics

According to the U.S. Census Bureau’s 2018 5-year population estimates, the population of the County was 101,564. A language other than English is spoken at home in 12.9 percent of the population.<sup>34</sup> The majority of people who speak non-English languages at home speak Asian and Pacific Island languages, followed by Other Indo-European languages and Spanish. Due to the diversity of languages spoken, the County and its municipalities will need to ensure that debris management public information is available in multiple languages and in various accessible formats. In addition, 13.2 percent of the population is over the age of 65, and approximately 17 percent of the population lives in poverty.<sup>35</sup> During disasters such groups and other populations who typically face socio-economic barriers often have less access to resources and support. This situation should be considered when identifying support these groups may need in regard to debris management.

### 1.4.2 Physical Characteristics

Tompkins County includes one city, nine towns, six villages, and 31 hamlets, with a total land area of 474.6 square miles and a total water area of 16.9 square miles<sup>36</sup>. At 94.2 square miles, the Town of Dryden is the largest geographic jurisdiction, equating to almost 20 percent of the total area of the County. The Town of Ithaca is the smallest town in Tompkins County, totaling 30.3 square miles, which represents only 6 percent of the total land area.

Tompkins County has a diverse terrain that is relatively gentle in the north. Terrain is more varied and higher in elevation and topographic relief in the south. Elevations range from approximately

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<sup>29</sup> [Public Assistance Alternative Procedures Pilot Program - Debris Removal \(cdrmaguire.com\)](#)

<sup>30</sup> [National Response Framework \(fema.gov\)](#)

<sup>31</sup> [Pre-Disaster Recovery Planning Guide for Local Governments \(fema.gov\)](#)

<sup>32</sup> [National Disaster Recovery Framework, Second Edition \(fema.gov\)](#)

<sup>33</sup> [Explore Census Data](#)

<sup>34</sup> Tompkins County Hazard Mitigation Plan

<sup>35</sup> Ibid

<sup>36</sup> 2010 Census Gazetteer files, 2012



400 feet to greater than 2,000 feet above sea level<sup>37</sup>. The highest topographic point in the County, Connecticut Hill, is located in the Town of Newfield, and reaches an elevation of 2,200 feet above sea level<sup>37</sup>. The lowest elevation, recorded to be 382 feet above sea level, is the surface water level of Cayuga Lake<sup>37</sup>.

Tompkins County’s topography is shaped by glacial features and uplifting geographic events that carved deep gorges now known as the Finger Lakes. Approximately 200 million years ago, drainage flowed south to the Susquehanna River instead of north to Lake Ontario<sup>38</sup>. The new lakes changed the region’s drainage and provided the lifeblood for the area’s development<sup>38</sup>. The geographic location of the County makes it susceptible to several types of incidents that could result in widespread disaster debris. Those events most likely to generate debris include floods, high winds, tornadoes, and other severe storm events.

### 1.4.3 Incident Description

This multi-hazard DMP is designed to address numerous debris-generating incident scenarios, as illustrated in Table 1-1.

**Table 1-1. Debris-Generating Incidents<sup>39</sup>**

| <b>Hazard Type</b>  | <b>Characteristics</b>  | <b>Types of Debris</b>   |
|---------------------|---|--|
| Earthquake          | Ground motion for up to weeks at a time                               | Primarily structural debris from collapsed buildings   |
| Flood – Flash Flood | High-velocity flows in drainage areas, not limited to floodplains     | Mixed vegetative and structural debris   |
| Flood - Riverine    | Relatively low rise and fall of water from creeks and rivers          | Mixed vegetative and structural debris, large amounts of sediment may be deposited   |
| Hurricane           | High velocity winds and large amounts of rain                         | Vegetation and structural debris from impacted buildings   |
| Ice Storm           | Accumulation of snow and ice on structures, utilities, and vegetation | Downed transmission lines; some structural debris from buildings that collapse (at least partially) from the weight of ice accumulation; widespread vegetation |
| Landslide           | Sliding of earth and vegetation down a slope                          | Vegetation, structural debris from impacted homes and businesses   |
| Terrorism           | Varies widely depending on the nature of the attack                   | Structural debris from impacted buildings. This debris may include criminal evidence.  |
| Tornado             | Very high velocity winds  | Vegetation and structural debris from impacted buildings   |

<sup>37</sup> Tompkins County Hazard Mitigation Plan 2014

<sup>38</sup> Tompkins County Comprehensive Plan 2015

<sup>39</sup> [Lesson 2: Debris Management Plan Overview \(fema.gov\)](#)



| Hazard Type | Characteristics                    | Types of Debris   |
|-------------|------------------------------------|---|
| Wildfire    | Extensive burns in vegetated areas | Primarily vegetative in Tompkins County; may include structural debris if buildings are impacted in the burn area |

For the purposes of the DMP, the following two most likely scenarios have been developed based on maximum impact, ability to respond, and frequency of incident:

- **Scenario 1: 1 Percent Annual Chance Flood Event**

- This scenario is considered a *Low Probability – High Consequence* incident and focuses on catastrophic debris-generating incidents from serious flood events that may significantly impact the County and multiple municipalities. In this case, resources are severely strained throughout the entire region, and a Presidential Disaster Declaration for Category A Public Assistance (Debris Removal) is immediate or imminent due to the following:
  - Long-term impacts to roads and bridges are expected.
  - Various composition of debris, includes vegetative and construction and demolition (C&D) debris.
  - Post-incident debris estimates have the potential to exceed 55,000 cubic yards.

This event is similar to or larger than the flooding experienced in 2011 from the remnants of Tropical Storm Lee. The period for clean-up can last from a few days to one month. Depending on the severity of the incident, formal Debris Management Sites (DMS), as described in this plan, would likely need to be established.

- **Scenario 2: Severe Storm**

- This scenario is considered *High Probability – Medium Consequence* incident and is best described as a severe thunderstorm with high winds (65–110 miles per hour). The period for clean-up can last from a few days to one month. Depending on the severity of the incident, DMS locations may or may not be operational. In this case, the County and municipalities might choose to rely on local contractors or local government staff time without fully activating the DMP.
- This scenario focuses on those higher frequency debris-generating incidents that may impact municipalities throughout the County. These incidents may be characterized as those that **do not** immediately receive a Presidential Disaster Declaration for Category A, including the following:
  - Short-term impacts to structures, roads, bridges, and rail lines are expected
  - Composition of debris is primarily vegetative with limited C&D and white goods (White goods include refrigerators, freezers, air conditioners, heat pumps, ovens, ranges, washing machines, clothes dryers, etc.).
  - Post-incident debris estimates do not approach or exceed jurisdictions’ capabilities to manage the debris.





## 1.5 Debris Volume Estimate

The debris volume generated by an incident will depend on the type of incident. For planning purposes, this DMP will be based on debris volumes generated by the **1 percent annual chance flood (Scenario 1)** utilizing the existing (as of January 2022) mapped Special Flood Hazard Areas. However, the guidance that follows in this plan will help to respond to the range of debris-generating incidents that could affect the County.

Tompkins County used the finish, structure, and foundation debris estimates provided by FEMA's Hazus-MH software during development of the *Tompkins County Hazard Mitigation Plan: 2021 Update*<sup>40</sup> to help clarify the volume of building debris that would be anticipated in a 1 percent annual chance flood. They are defined<sup>41</sup> as follows:

- Finish – dry wall, flooring, insulation, etc.
- Structure – framing, walls, exterior cladding
- Foundation – concrete slab, concrete block, or other foundation

Because Hazus-MH does not provide vegetative debris quantities, the County supplemented this analysis by using the vegetative debris multiplier from FEMA's debris estimation formula for destroyed households to calculate vegetative debris. A vegetative cover multiplier of 1.1 was used for the County's villages and city, while a multiplier of 1.3 was used for the County's towns.

Using this methodology, Table 1-2 shows the estimated debris in each municipality that would be generated by the 1 percent annual chance flood<sup>42</sup>.

**Table 1-2. Debris Estimates in Tons for the 1 Percent Annual Chance Flood**

| Municipality       | Finish (tons) | Structure (tons) | Foundation (tons) | Vegetative (tons) | Total (tons)   |
|--------------------|---------------|------------------|-------------------|-------------------|----------------|
| Caroline (T)       | 119.7         | 91.1             | 72.9              | 52.6              | <b>336.3</b>   |
| Cayuga Heights (V) | -             | -                | -                 | 126.1             | <b>126.1</b>   |
| Danby (T)          | 9.1           | 6.4              | 4.7               | 3.8               | <b>24.0</b>    |
| Dryden (T)         | 183.7         | 146.6            | 144.4             | 85.9              | <b>560.6</b>   |
| Dryden (V)         | 127.9         | 0.1              | 0.1               | 11.1              | <b>139.2</b>   |
| Enfield (T)        | 95.6          | 181.2            | 204.9             | 25.1              | <b>506.8</b>   |
| Freeville (V)      | 49.0          | 9.9              | 8.3               | 5.1               | <b>72.3</b>    |
| Groton (T)         | 311.2         | 319.4            | 289.8             | 160.6             | <b>1,081.0</b> |

<sup>40</sup> [Planning - Climate Adaptation | Tompkins County NY](#)

<sup>41</sup> [Hazus Flood Model User Guidance \(fema.gov\)](#)

<sup>42</sup> Estimates for the Village of Cayuga Heights are limited due to the current mapped floodplains in the village. The Town of Enfield does not participate in the National Flood Insurance Program, so there are no mapped floodplains in the town. The estimates for the Village of Cayuga Heights were developed using FEMA's Debris Estimating Guide for a community with homes averaging 2,900 square feet. The estimates for the Town of Enfield were developed based on the number of structures within 100 feet of a waterway or waterbody in the Town of Newfield, applying the ratio of the tons of debris in the Town of Newfield divided by the number of structures in the Town of Newfield to the number of structures in the Town of Enfield.



| Municipality    | Finish (tons)  | Structure (tons) | Foundation (tons) | Vegetative (tons) | Total (tons)    |
|-----------------|----------------|------------------|-------------------|-------------------|-----------------|
| Groton (V)      | 222.4          | 14.7             | 10.9              | 20.5              | 268.5           |
| Ithaca (C)      | 6,349.1        | 1,710.2          | 1,544.4           | 693.6             | 10,297.3        |
| Ithaca (T)      | 372.1          | 451.6            | 364.6             | 203.5             | 1,391.8         |
| Lansing (T)     | 237.2          | 255.3            | 205.7             | 122.0             | 820.2           |
| Lansing (V)     | -              | -                | -                 | 95.7              | 95.7            |
| Newfield (T)    | 140.0          | 265.4            | 300.1             | 110.3             | 815.8           |
| Trumansburg (V) | 133.9          | 45.7             | 34.9              | 15.1              | 229.6           |
| Ulysses (T)     | 75.3           | 55.1             | 45.4              | 32.8              | 208.6           |
| <b>Total</b>    | <b>8,426.2</b> | <b>3,552.7</b>   | <b>3,231.1</b>    | <b>1,763.8</b>    | <b>16,973.8</b> |

To determine the volume of the debris shown in Table 1-2, the following conversion factors were used:

- Construction and demolition debris (structure and foundation): 1 ton = 2 cubic yards
- Mixed debris (finish): 1 ton = 4 cubic yards
- Vegetative Debris:
  - Hardwoods: 1 ton = 4 cubic yards
  - Softwoods: 1 ton = 6 cubic yards
  - 70 percent of the forest in Tompkins County is hardwood, and 30 percent is softwood, so a blended conversion rate of 1 ton = 4.6 cubic yards was used.

Debris estimates by volume are shown in Table 1-3.

**Table 1-3. Debris Estimates in Cubic Yards (CY) for the 1 Percent Annual Chance Flood**

| Municipality       | Finish (CY) | Structure (CY) | Foundation (CY) | Vegetative (CY) | Total (CY) | Percent of Total Debris (%) |
|--------------------|-------------|----------------|-----------------|-----------------|------------|-----------------------------|
| Caroline (T)       | 478.8       | 182.2          | 145.8           | 242.04          | 1,048.8    | 1.9                         |
| Cayuga Heights (V) | -           | -              | -               | 580.00          | 580.0      | 1.0                         |
| Danby (T)          | 36.4        | 12.8           | 9.4             | 17.58           | 76.2       | 0.1                         |
| Dryden (T)         | 734.8       | 293.2          | 288.8           | 395.04          | 1,711.8    | 3.1                         |
| Dryden (V)         | 511.6       | 0.2            | 0.2             | 51.20           | 563.2      | 1.0                         |
| Enfield (T)        | 382.4       | 362.4          | 409.8           | 115.5           | 1,270.1    | 2.2                         |
| Freeville (V)      | 196         | 19.8           | 16.6            | 23.24           | 255.6      | 0.5                         |
| Groton (T)         | 1,244.8     | 638.8          | 579.6           | 738.96          | 3,202.2    | 5.8                         |
| Groton (V)         | 889.6       | 29.4           | 21.8            | 94.08           | 1,034.9    | 1.9                         |
| Ithaca (C)         | 25,396.4    | 3,420.4        | 3,088.8         | 3,190.56        | 35,096.2   | 63.4                        |
| Ithaca (T)         | 1,488.4     | 903.2          | 729.2           | 936.24          | 4,057.0    | 7.3                         |
| Lansing (T)        | 948.8       | 510.6          | 411.4           | 561.24          | 2,432.0    | 4.4                         |
| Lansing (V)        | -           | -              | -               | 440.0           | 440.0      | 0.8                         |
| Newfield (T)       | 560         | 530.8          | 600.2           | 507.30          | 2,198.3    | 4.0                         |



| Municipality                       | Finish (CY)     | Structure (CY) | Foundation (CY) | Vegetative (CY) | Total (CY)      | Percent of Total Debris (%) |
|------------------------------------|-----------------|----------------|-----------------|-----------------|-----------------|-----------------------------|
| Trumansburg (V)                    | 535.6           | 91.4           | 69.8            | 69.68           | 766.5           | 1.4                         |
| Ulysses (T)                        | 301.2           | 110.2          | 90.8            | 150.66          | 652.9           | 1.2                         |
| <b>Total</b>                       | <b>33,704.8</b> | <b>7,105.4</b> | <b>6,462.2</b>  | <b>8,113.3</b>  | <b>55,385.7</b> | <b>100</b>                  |
| <b>Percent of Total Debris (%)</b> | <b>60.9</b>     | <b>12.8</b>    | <b>11.7</b>     | <b>14.6</b>     | <b>100</b>      | <b>--</b>                   |

## 1.6 Local Resource Needs Assessment

Local resources, also known as force account resources, are County- or municipality-owned assets, including equipment and labor, that can be used to respond to a debris-generating incident. For relatively minor incidents, the County and municipalities can rely on their own resources to respond. For larger-scale incidents and disasters, including Scenario 1: The 1 Percent Annual Chance Flood, the demand for supplies and materials could quickly overwhelm the County’s assets and capabilities. In that case, jurisdictions may look to mutual aid resources, or rely upon contracted services to provide staffing, equipment, and expertise to help manage the debris. In the event of a large-scale disaster, the County and municipalities must assess the local labor pool and determine the need for additional response and recovery workers and other resources.

Table 1-4 provides resource requirements based on the debris estimates supplied above.

Assumptions regarding an event like Scenario 1, which requires the formalizing of a DMS, assumes the following

- Average on-road dump truck volume capacity is 5.7 cubic yards<sup>43</sup>.
- Average on-road dump truck weight capacity is 11.8 tons<sup>44</sup>.
- Average number of trips per day for each collection truck is six.
- One monitor in place for each loading unit. Note that a Disposal Monitor (see Disposal Monitoring, below) will also be needed at the disposal site and DMS, if activated.
- Volume of debris that can be staged per acre is based on a 15-foot stack height: 24,200 cubic yard/acre.
- Minimum area for a DMS is 5 acres.
- The number of operational days will vary depending on the scope of the operation.
- Number of trucks will fluctuate throughout the operation.

<sup>43</sup> The average volume and weight capacities for each municipality’s on-road dump trucks were determined for each municipality that reported their resources. However, few municipalities provided information on the resources they had available. As such, the City of Ithaca’s resources were used for the calculations for municipalities that did not report their resources.

<sup>44</sup> Ibid.



Total cubic yards of debris was calculated for each municipality. This calculation was then used to estimate the number of debris collection trips that would be required to haul that debris. Using the assumptions above, the number of operational days based on the trucks available (identified by each municipality) and the number of DMS acres for each municipality were calculated. Table 1-4 lists the debris resource requirements over the entire County and its municipalities.

**Table 1-4. Debris Resource Requirements for Scenario 1: 1 Percent Annual Chance Flood Event**

| Municipality       | Total Debris (Cubic Yards) | Debris Collection Trips* | On-Road Dump Trucks Available* | Operational Days | DMS Acres Needed       | Collection Monitors Needed |
|--------------------|----------------------------|--------------------------|--------------------------------|------------------|------------------------|----------------------------|
| Caroline (T)       | 1,048.8                    | 184                      | NP                             | NP               | 5                      | -                          |
| Cayuga Heights (V) | 580.0                      | 102                      | -                              | -                | 5                      | -                          |
| Danby (T)          | 76.2                       | 14                       | NP                             | NP               | 5                      | -                          |
| Dryden (T)         | 1,711.8                    | 301                      | NP                             | NP               | 5                      | -                          |
| Dryden (V)         | 563.2                      | 99                       | NP                             | NP               | 5                      | -                          |
| Enfield (T)        | 1,270.1                    | 223                      | -                              | -                | 5                      | -                          |
| Freeville (V)      | 255.6                      | 45                       | NP                             | NP               | 5                      | -                          |
| Groton (T)         | 3,202.2                    | 562                      | NP                             | NP               | 5                      | -                          |
| Groton (V)         | 1,034.9                    | 182                      | NP                             | NP               | 5                      | -                          |
| Ithaca (C)         | 35,096.2                   | 6,158                    | 24                             | 43               | 5                      | 24                         |
| Ithaca (T)         | 4,057.0                    | 712                      | 1                              | 119              | 5                      | 1                          |
| Lansing (T)        | 2,432.0                    | 427                      | NP                             | NP               | 5                      | -                          |
| Lansing (V)        | 440.0                      | 78                       | 2                              | 7                | 5                      | 2                          |
| Newfield (T)       | 2,198.3                    | 386                      | 7                              | 10               | 5                      | 7                          |
| Trumansburg (V)    | 766.5                      | 135                      | NP                             | NP               | 5                      | -                          |
| Ulysses (T)        | 652.9                      | 115                      | NP                             | NP               | 5                      | -                          |
| <b>Total</b>       | <b>55,385.7</b>            | <b>9,723</b>             | <b>34</b>                      | <b>N/A</b>       | <b>N/A<sup>+</sup></b> | <b>N/A</b>                 |

\* The number of trips and operational days were calculated based on the resources that each municipality reported as having available. A full list of available equipment, including that owned and/or operated by Tompkins County, is provided in Appendix A.

NP: Resource information was not provided, so the number of trucks, operational days, and monitors needed could not be calculated.

+The acreage required is based on the quantity of debris, with a 5-acre minimum. If any municipality operated its own DMS, 5 acres would be required. Based on the total amount of debris in the table above, only one 5-acre DMS would be required, so it would not be appropriate to sum the number of acres.



## Section 2 Roles and Responsibilities

### 2.1 Debris Management Organization

To prevent duplication of efforts following a disaster incident, roles and responsibilities of key staff and County/municipal departments, as related to debris removal and management, must be clearly defined prior to a disaster. One of the key Pre-Event Debris Management Planning actions will be to identify who in the County would fulfil each of these roles. Based on severity of the incident, the County may establish a Debris Management Operations Center (DMOC) with its own organizational structure to coordinate debris management operations across the County. An organizational structure for local management of debris-generating incidents, based on FEMA’s Incident Command System (ICS), is depicted in Figure 2-1. The purpose of the organizational chart is to facilitate communication flow among local partners during the recovery phase of a disaster.

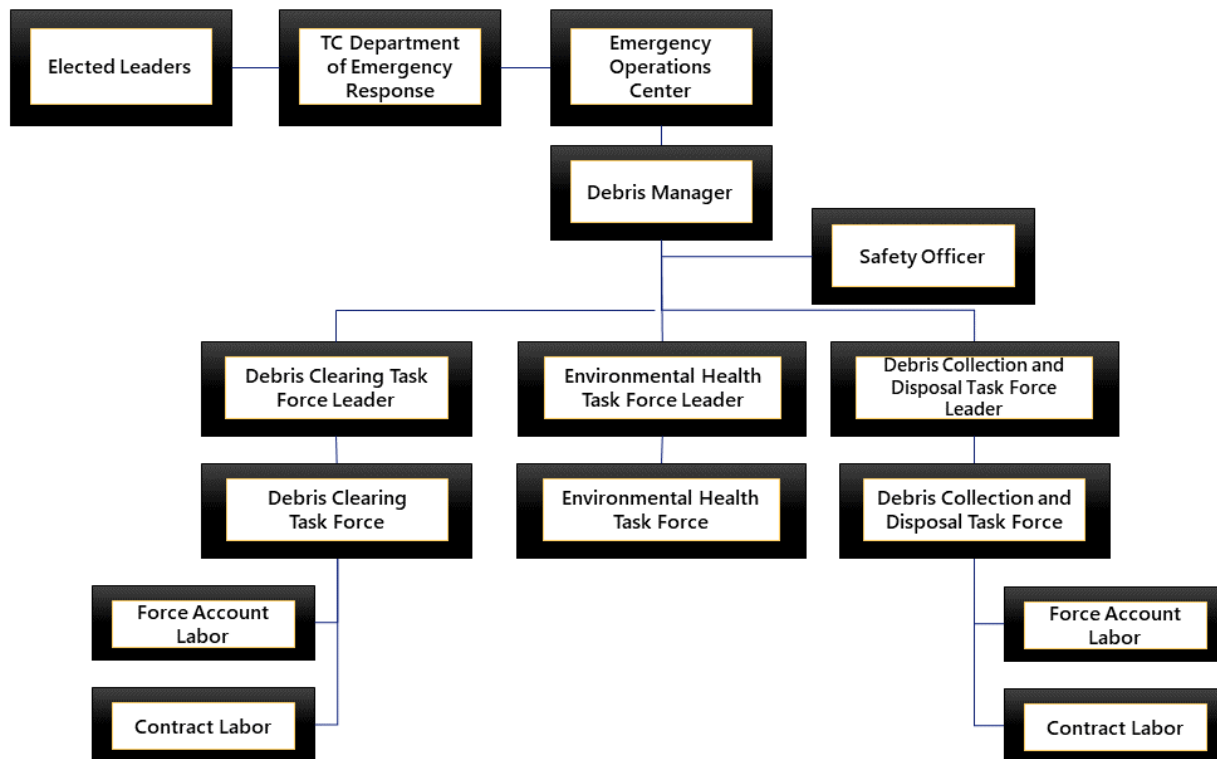


Figure 2-1: Debris Management Organizational Chart



## 2.2 Key Positions in Debris Management

Positions that could be needed for debris management operations – including clearing, collecting, and disposal – are described below. The level of staffing for response to a debris-generating incident will depend on the magnitude of the incident. Job action sheets for key debris management positions are provided in **Appendix B**.

### 2.2.1 Debris Manager

This staff member has overall responsibility for coordinating the debris management effort throughout the affected areas.

- Frequently, this position is held by the Director of Recycling and Materials Management or designee.
- Establish a DMOC, if it is deemed necessary.
- Activate staff for debris clearing and debris monitoring services.
- Establish the ICS for debris management operations.
- Coordinate with the Tompkins County Finance Department and municipal purchasing officials to activate staff and contractors for debris clearing and debris monitoring services.
- Establish priorities for debris management operations.
- Collaborate with federal, state, municipal, and other agency representatives.
- Provide updates to the Tompkins County Department of Emergency Response and the Emergency Operations Center regarding debris management operations.
- Review and approve public information messages regarding debris operations.
- Coordinate with the Tompkins County Finance Department and municipal finance staff in the tracking of debris management costs.
- Coordinate the demobilization of debris management operations.

### 2.2.2 Safety Officer

This staff member is responsible for ensuring that debris management operations are carried out safely. If this position is not specifically staffed, the responsibilities are held by the Debris Manager.

- Frequently this position is held by the County’s Health and Safety Officer, or designee.
- Create a safety plan in accordance with ICS requirements
- Ensure safety messages are developed and briefings are conducted.
- Exercise emergency authority to stop and prevent unsafe acts during debris operations.
- Revise Incident Action Plans for safety considerations.
- Investigate accidents and near misses.



- Participate in planning meetings.
- Review and approve the medical plan.

### 2.2.3 Debris Clearing Task Force Leader

This staff member is in charge of clearing debris from roads.

- Frequently this position is held by the County's Highway Director or designee.
- Oversee the Debris Clearing Task Force.
- Stage and prepare resources immediately prior to an expected incident to ensure these will be ready to activate in the event they are needed to clear debris off streets.
- Oversee clearing of County roads immediately following a debris-generating incident.
- Coordinate local and contract resources to clear streets of debris in accordance with established objectives and priorities.
- Coordinate with state officials to clear debris from state roads.
- Track progress of debris clearing operations.
- Provide regular updates to the Debris Manager regarding the status of operations.
- Coordinate with the Safety Officer to ensure debris clearing operations are conducted in a safe manner.
- Ensure all hours, expenses, and equipment use are accurately documented.

### 2.2.4 Debris Clearing Task Force

Staff on the Debris Clearing Task Force physically move debris from roads.

- Typically, this task force includes local public works crews, utility company staff, and contract workers.
- Coordinate through the Debris Clearing Task Force Leader to divide into teams and clear streets of debris in accordance with established objectives and priorities.
- Report any hazardous conditions such as downed power lines, hazardous materials (HAZMAT) spills, and natural gas leaks to the proper authorities, as well as the Debris Clearing Task Force Leader.
- Track progress of the task force in debris clearing operations.
- Provide updates as required to the Debris Clearing Task Force Leader regarding status and progress of the task force.
- Obey health, safety, and environmental policies and follow health and safety guidance in conducting debris clearing operations.
- Ensure all hours, expenses, and equipment use are accurately documented.



## 2.2.5 Debris Collection and Disposal Task Force Leader

This staff member is in charge of collecting debris and transporting it to a DMS or other location for processing and final disposal.

- Frequently this position is held by the Deputy Director of Recycling and Materials Management or designee.
- Oversee the Debris Collection and Disposal Task Force
- Coordinate with County, local, and contract resources to stage and ready resources immediately prior to an expected incident to ensure these will be ready to activate in the event they are needed to collect debris.
- Coordinate with the Debris Monitoring staff to conduct truck certifications.
- Coordinate local and contract resources to conduct debris collection operations in accordance with established objectives and priorities.
- Coordinate with the Debris Monitoring staff to conduct collection, DMS, and disposal site monitoring.
- Activate added DMS locations, as needed, in coordination with relevant departments and agencies.
- Coordinate with Environmental Health Task Force Leader to conduct soil sampling at DMS locations prior to and after closure of DMS locations.
- Coordinate with local labor and contractors to ensure debris is recycled or disposed of in accordance with regulatory guidelines.
- Coordinate local and contract resources to conduct special debris operations, including removals of dangerous trees, privately owned vehicles and vessels, as well as waterway, parks, and private property debris, in accordance with FEMA authorization and guidelines.
- Track progress of debris collection, recycling, and disposal in coordination with the Debris Monitoring staff.
- Provide regular updates to the Debris Manager regarding status of operations.
- Coordinate with the Safety Officer to ensure debris collection and disposal operations are conducted in a safe manner.
- Ensure all hours, expenses, and equipment use are accurately documented.

## 2.2.6 Debris Collection and Disposal Task Force

Members of this task force physically collect and transport debris.

- Frequently this task force includes local public works crews, utility company staff, and contract workers.
- Coordinate through the Debris Collection and Disposal Task Force Leader to divide into teams consisting of debris removal and debris monitors to collect debris and deliver it to the appropriate location for reduction, recycling, or disposal.





- Report any hazardous conditions, such as downed power lines, HAZMAT spills, and natural gas leaks, to the proper authorities as well as the Debris Collection and Disposal Task Force Leader.
- Track progress of the task force in debris removal, reduction, recycling, and disposal operations.
- Provide updates as required to the Debris Collection and Disposal Task Force Leader regarding status and progress of the task force.
- Obey health, safety, and environmental policies and follow health and safety guidance in conducting debris clearing operations.
- Ensure all hours, expenses, and equipment use are accurately documented.

### 2.2.7 Environmental Health Task Force Leader

This staff member is responsible for ensuring that debris management operations follow environmental laws, regulations, and guidance, to protect the environment from impacts from debris management activities.

- Frequently this position is held by the County's Environmental Health Director or designee.
- Liaise with County, regional, state, and federal environmental agencies and staff to monitor environmental impacts of debris management operations, including ground/surface water, air, soil, and asbestos monitoring.
- Coordinate with the Debris Collection and Disposal Task Force Leader, or designee, to conduct soil sampling at DMS locations prior to and after closure of DMS locations.
- Conduct any applicable permitting of DMS locations.
- Track progress of environmental monitoring and testing operations and document results.
- Provide regular updates to the Debris Manager regarding status of environmental monitoring operations.
- Coordinate with the Safety Officer to ensure environmental monitoring operations are conducted in a safe manner.
- Ensure all hours, expenses, and equipment use are accurately documented.

## 2.3 Primary Organizations

The unique roles of County and municipal offices and departments associated with managing the debris clean-up process are summarized below. Additional roles and responsibilities for these and other organizations are described in the County's Comprehensive Emergency Management Plan (CEMP).



### 2.3.1 Tompkins County Department of Emergency Response

- Activate the Emergency Operations Center (EOC) and manage the EOC throughout response and recovery.
- Serve as the lead County department for coordinating debris management operations.
- Assign an individual to serve as the Debris Manager.
- Request needed resources through mutual aid agreements or from New York State Division of Homeland Security and Emergency Services.
- Review and update the DMP.
- Coordinate mitigation and preparedness activities.
- Coordinate training and exercises.
- Conduct after action briefings and develop after action reports and improvement plans following exercises and real incidents.

### 2.3.2 Tompkins County Department of Recycling and Materials Management

- Coordinate the disposal of electronic waste.
- Coordinate the disposal of hazardous waste, including household hazardous waste (HHW)
- Coordinate the waste recycling programs in the County, including managing the appropriate disposal of electronic and hazardous waste. In a large-scale event, this may take place away from the County Transfer Station.
- Operate the County Transfer Station to collect and process applicable types of debris/waste under the NYS DEC permit conditions.

### 2.3.3 Tompkins County Highway Department

- Assign a staff member to represent Public Works in the County EOC.
- Coordinate with the County Department of Emergency Response to activate the DMP.
- Prioritize County roads for clearing debris.
- Implement debris clearing activities, coordinate department personnel, and coordinate with personnel from supporting departments and agencies with a role in debris operations.
- Coordinate with municipalities in the activation of Memoranda of Understanding (MOUs) for additional Public Works resources as needed.

### 2.3.4 Municipal Public Works/Highway Departments

- Serve as the lead municipal department for local debris management operations.
- Coordinate debris management with the County Department of Emergency Response.



- Prioritize roads for clearing debris.
- Implement debris clearing activities, coordinate department personnel, and coordinate with personnel from supporting agencies with a role in debris operations.
- Coordinate with other municipalities in the activation of MOUs for additional Public Works resources as needed.

### 2.3.5 Tompkins County Environmental Health Division

- Liaise with County, regional, state, and federal environmental agencies and staff to monitor environmental impacts of debris management operations, including ground/surface water, air, soil, and asbestos monitoring.
- Coordinate with the Debris Collection and Disposal Task Force Leader, or designee, to conduct soil sampling at DMS locations prior to and after closure of DMS locations.
- Conduct any applicable permitting of DMS locations.

### 2.3.6 Municipal Parks and Recreation Departments

- Assist in emergency roadway clearing activities as needed.
- Assist in debris removal operations as needed.
- Maintain right-of-way (ROW) mowing contracts.
- Oversee the clearance of debris from parks.
- Identify areas that can be used to store or manage debris.

## 2.4 Support Organizations

The unique roles of organizations that play a support role in managing debris in the County are summarized below. Additional roles and responsibilities for these and other organizations are described in the Tompkins County CEMP.

### 2.4.1 Tompkins County Department of Planning and Sustainability

- Assist in the assessment of environmental impacts from debris management operations.

### 2.4.2 Tompkins County Geographic Information System (GIS) Division

- Provide GIS mapping services to support debris management operations.

### 2.4.3 Tompkins County Health Department

- Conduct environmental assessments at DMS locations before and after using the location as a DMS.



- Identify and address public health concerns (e.g., lead-based paint, aquifer contamination).

#### **2.4.4 Tompkins County Communications/Public Information Office**

- Develop public information messages related to debris operations.
- Update websites with current information regarding debris management operations.
- Update and monitor social media (e.g., Facebook, Twitter, and Instagram) posts regarding debris operations.

#### **2.4.5 County Finance Department**

- Establish an account code for tracking debris management expenses.
- Coordinate with staff to ensure hours, expenses, and equipment use are tracked accurately.
- Coordinate with FEMA, Highway/Public Works, and emergency management staff regarding Project Worksheet development.

#### **2.4.6 County and Municipal Law Enforcement Agencies**

- Provide preliminary damage and blocked roads information to dispatch and the EOC.
- Report downed power lines and other hazards to dispatch and the EOC for coordination with utilities.

#### **2.4.7 Fire Departments**

- Provide preliminary damage and blocked roads information to dispatch and the EOC.
- Report downed power lines and other hazards to dispatch and the EOC for coordination with utilities.
- Work to secure the areas and contain HAZMAT spills. Request resources through the EOC.

#### **2.4.8 Municipal Governments**

- Work with County Finance to coordinate purchasing.
- Work with County Information to coordinate public messaging.
- Develop public information messages related to debris operations.
- Update websites with current information regarding debris management operations.
- Update and monitor social media (e.g., Facebook, Twitter, and Instagram) posts regarding debris operations.



## 2.4.9 Institutions of Higher Education – Cornell University, Ithaca College, and Tompkins Cortland Community College

- Coordinate with County and municipal personnel to implement debris collection and disposal, and to share resources as applicable.

## 2.5 Private Enterprise

### 2.5.1 Debris Hauling Firms

- Clear and remove debris from jurisdiction roadways and waterways to make them passable immediately following a declared disaster.
- Conduct debris removal from the ROW.
- Decommission, demolish, and dispose of eligible non-regulated asbestos-containing material structures on private property.
- Manage and operate DMS locations.
- Conduct debris reduction.
- Haul-out reduced materials to recycling/end-use facilities.
- Remove hazardous leaning trees and hanging limbs (see Section 3.7.2).
- Removal of hazardous stumps (see Appendix O).
- Remove white goods debris from the ROW (see Section 3.5.4.2).
- Coordinate the removal of HHW from the ROW (see Section 3.5.4.1).
- Coordinate derelict and abandoned vehicle removal (such as those likely processed outside of existing County Transfer Station).
- Remove animal carcasses from areas designated by the jurisdiction.
- Communicate status of operations and supply chains as well as challenges and timelines to local officials.

### 2.5.2 Contracted and Private Waste Haulers

- Coordinate with County and municipal personnel to implement trash collection, recycling and disposal, and to share resources as applicable. This is different than an established Debris Hauling Firm.

### 2.5.3 Debris Monitor Firm

- Perform truck certifications.
- Conduct DMS monitoring.



- Conduct ROW collection monitoring.
- Conduct disposal site monitoring.
- Support monitoring and documentation of hazardous tree removal and specialized debris removal programs such as those involving waterway and private property.

## 2.6 Community Organizations

- Assist residents unable to bring debris to the ROW.
- Assist the County and municipalities in communicating instructions to populations with communication barriers.
- Work with the County and municipalities to repurpose waste/debris collected.

## 2.7 State Agencies

The unique roles of state agencies that support debris management in the County are summarized below. Additional roles and responsibilities for these and other organizations are described in the County and NYS CEMPs.

### 2.7.1 New York State Department of Environmental Conservation (NYS DEC)

- Oversee and approve DMS selection and closure.
- Assess stormwater management controls to be implemented at DMS locations.
- Provide guidance in managing and disposing of debris from a disaster.
- Provide regulatory assistance to local governmental and other entities in debris management operations, relating to compliance with environmental laws, to enable them to be eligible for FEMA reimbursement.

### 2.7.2 New York State Department of Transportation (NYS DOT)

- Conduct emergency road clearing activities immediately after a debris-generating event and the first pass of debris removal on all state and federal roads.

### 2.7.3 New York State Parks, Recreation and Historic Preservation (NYS Parks)

- Assist in emergency roadway clearing activities.
- Assist in debris removal operations as needed.
- Maintain right-of-way mowing contracts.



- Oversee the clearance of debris from parks.
- Identify areas that can be used to store or manage debris.

## 2.8 Federal Agencies

### 2.8.1 Federal Emergency Management Agency (FEMA)

- Provide guidance to the County and municipalities regarding debris eligibility and the FEMA reimbursement process.
- Develop Public Assistance Project Worksheets for the County's and municipalities' debris clean-up operations.
- Oversee any private property clean-up, should there be a declaration.

### 2.8.2 Federal Highway Administration

- Fund debris clearance and removal on federal aid highways through the Federal Highway Administration Emergency Relief Program. This can be done for an incident that is not declared a major disaster or emergency by the President under the Robert T. Stafford Disaster Relief and Emergency Assistance Act, or an incident declared a major disaster or emergency by the President under that act if the debris removal is not eligible for assistance under Section 403, 407, or 502 of that Act.

### 2.8.3 U.S. Department of Agriculture

- Provide assistance through the Farm Service Agency's Emergency Conservation Program for removing debris from farmland.
- Provide assistance through the Farm Service Agency's Emergency Forest Restoration Program for removing debris from forest land to establish a new stand for natural regeneration.
- Provide assistance through the Natural Resources Conservation Service's Emergency Watershed Protection Program. This is done in debris clean-up for runoff retardation or soil erosion prevention that causes impairment in a watershed and is an imminent threat to life or property.

### 2.8.4 Office of Inspector General

- Conduct an aggressive and ongoing audit effort designed to ensure that disaster relief funds are spent appropriately while identifying fraud, waste, and abuse as early as possible.

### 2.8.5 U.S. Army Corps of Engineers

- Assist local jurisdictions in debris removal operations following catastrophic incidents, as well as provide assistance in assessing and restoring critical infrastructure.



### **2.8.6 U.S. Fish and Wildlife Service**

- Administer programs for the planning, development, maintenance, and coordination of wildlife resource conservation and rehabilitation.
- Provide guidance regarding rare, threatened or endangered (RTE) species that could be affected by debris operations.





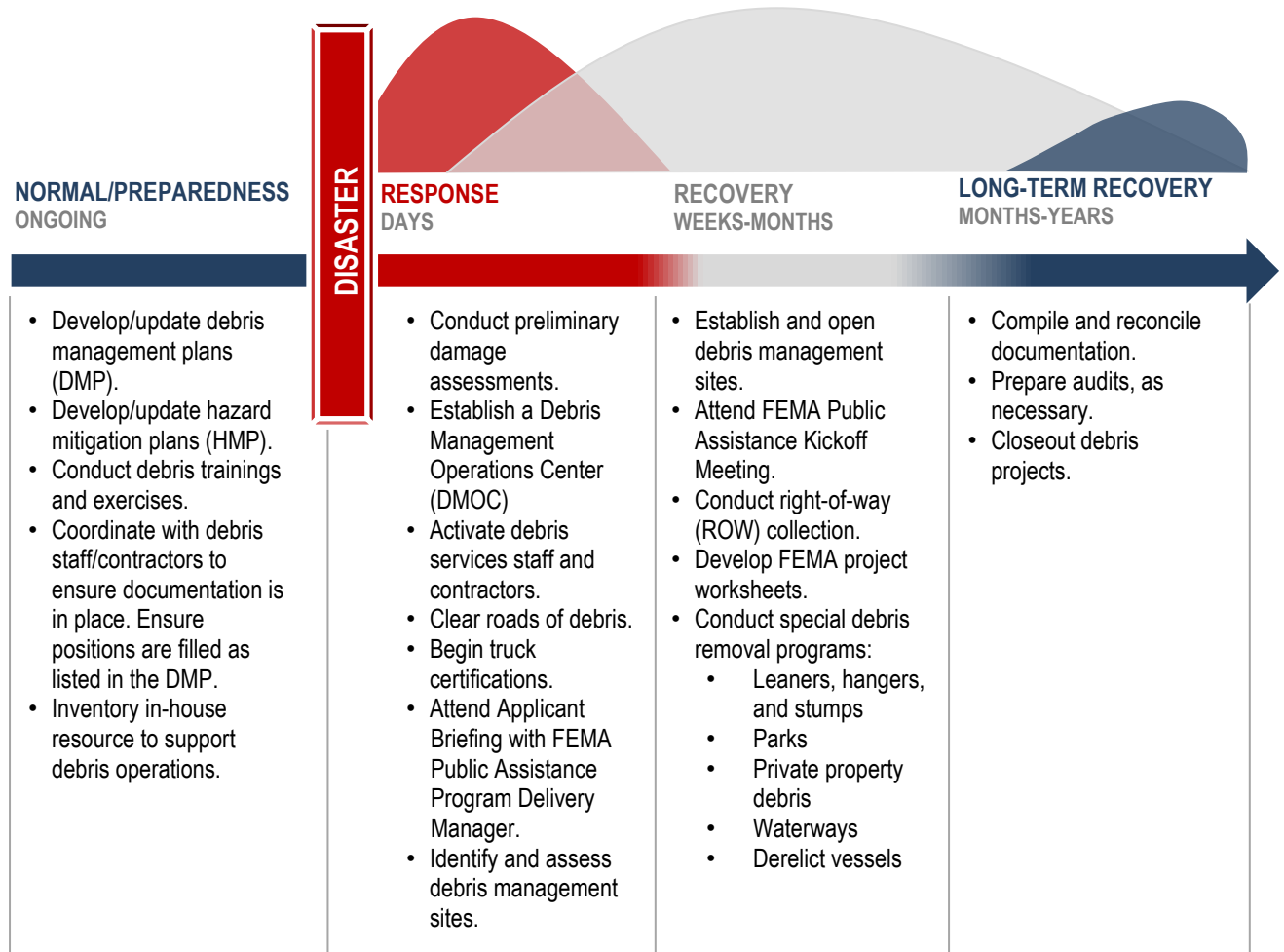
## Section 3 Debris Collection and Removal Plan

This section provides guidance required for all phases of a debris-generating incident. For the purposes of this plan, four phases are discussed:

- Normal Operations
- Pre-Incident Preparation
- Post-Incident Response, and
- Post-Incident Recovery.

Checklists for disaster debris management operations can be found in **Appendix C**. Figure 3-1 summarizes the phases of disaster debris management operations. The phases are described in detail in this section.

**Figure 3-1: Disaster Recovery Timeline**



## 3.1 Normal Operations

Normal Operations is the period of time when the County, municipalities, and stakeholders are not in any serious threat of a disaster incident.

The Normal Operations phase is the ideal time for the County and municipalities to advance the Action Strategy for debris management planning including:

- **Action #1: Formalize Debris Management Roles** – Set the roles and responsibilities of each department and other involved outside agencies as outlined in Section 2. This is done to ensure that all impacted departments, municipalities, and external agencies maintain the capacity to manage debris in a timely and effective manner should a disaster strike the County or its municipalities.
- **Action #2: Review Debris Management Contracts** - Establish and review pre-positioned contracts with monitoring firms and debris removal contractors<sup>45, 46</sup>.
- **Action #3: Establish Reserve Fund** - Establish fund to help facilitate costs that would need to be incurred by the County at the start of an active debris generating event.
- **Action #4: Assess Debris Managements Sites** – Assess, organize and map ideal debris management sites including locations outside of the Special Flood Hazard Area.
- **Action #5: Analyze Debris Management Sites Equipment and Infrastructure** – After identifying DMS locations, identify any equipment that should be acquired, or infrastructure improvements that should be made, to assist with larger scale debris management.

To help prepare for potential debris generating events it is recommended that the County review and update its debris management plan prior to severe weather season (generally prior to Fall). To further assist with this, it is recommended that the County coordinate a pre-season kickoff meeting between the County, municipalities, and their pre-positioned monitoring and debris removal staff/contractors, if possible. Such a meeting could be done in concert with the annual hazard mitigation plan implementation and update meetings, or as a part of an emergency operations planning meeting.

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<sup>45</sup> During times of normalcy, the County and its municipalities will establish and maintain pre-positioned contracts for debris monitoring and debris removal services. The procurement of such services will be compliant with the County's and municipalities' procurement practices and the procurement competition requirements specified in the Code of Federal Regulations – Title 44 Emergency Management and Assistance (44 CFR) Part 13.36. County and municipal representatives should be familiar with 2 CFR Super Circular as part of the federal contracting requirements to receive federal awards .

<sup>46</sup> Appendix D provides additional guidelines regarding contracting. Appendix E consists of a sample scope of work to aid in the evaluation and selection of debris removal contractors. Appendix F identifies contractors that have been pre-positioned by the County and/or its municipalities.



## 3.2 Pre-Incident Preparation

The County and municipalities will begin pre-incident preparations when a potential debris-generating hazard is moving toward the region. However, because of the short notice nature of most incidents that could affect the County and municipalities, the opportunity to make pre-incident preparations is often limited.

If it is feasible to employ pre-incident preparations, key County and municipal personnel and outside agencies should be put on alert and maintain awareness that they may be required to work extended hours in adverse conditions.

The Pre-Incident Checklist is provided in **Appendix C**.

### 3.2.1 Preparing Debris Management Site Locations

The availability of pre-selected/pre-approved DMS locations will be evaluated in greater depth by the Department of Recycling and Materials Management, Assessment Department, and the Department of Emergency Response. Initial research indicates the County's former Caswell Landfill site in the Town of Dryden, among other sites, could serve favorably as a DMS. A list of other potential DMS locations can be found in **Appendix G**. Alternate locations will be considered by prioritizing potential alternate sites if one or more pre-approved sites are not available. A sample MOU for use in establishing agreements with private landowners for use of their property for DMS, if needed, can be found in **Appendix H**. It is recommended that these agreements be prepared, but not ratified, until a location for DMS is needed.

### 3.2.2 Public Information Pre-Incident

The managers of debris operations and the Public Information Officer through the EOC will disseminate a message preparing residents for the potential debris removal operation. This messaging would need to be structured in multiple languages and formats to inform all County residents as noted in Section 1.4.1. The message should assure the public that the County and municipalities are prepared and have a plan in place to immediately respond to an incident. The message should include information on County and municipal office closure times/dates, including information regarding garbage collection and County/municipal facilities. In addition, the County and municipalities will need to provide information on proper set-out procedures and estimates on when the clean-up process will begin through a variety of communications formats and media. A draft message for this scenario is included in **Appendix I**.

## 3.3 Post-Incident Response

Immediately following the incident, roadways must be cleared of scattered debris, leaning trees, and other obstructions in roadways for emergency response vehicles. Road debris will be managed by functional class (i.e., urban arterial-freeways, urban/rural arterials, urban/rural collectors, urban streets and rural local roads). It is critical that all types of equipment and the amount of time the equipment is used are documented with detail and accuracy in order to



increase the chances that incurred costs are reimbursable. The reimbursement criteria and duration for time and materials work are subject to change following a disaster.

### 3.3.1 Conduct Damage Assessment

Damage assessments are necessary to determine the extent and the location of the debris. Windshield surveys of areas affected throughout the County will be taken and used to communicate critically damaged areas to the EOC. If possible, additional surveys would be conducted by helicopter, or drone, to obtain an aerial view of damaged areas within the County. Often, aerial surveys are available through debris removal contractors independently surveying affected areas to determine asset levels and configuration.

### 3.3.2 Establish a Debris Management Operations Center (DMOC)

To effectively manage debris operations, a DMOC may need to be established. From the DMOC, key strategies and functions of debris management operations will be coordinated in collaboration with County and municipal departments with a role in debris management as well as the debris monitor and debris hauler. The DMOC will be the hub for information regarding the status of debris management operations with information flowing in from field operations staff, processed in the DMOC, and then used to provide situational awareness regarding debris management operations to the EOC. As the department that would staff the Debris Manager, the Department of Recycling and Materials Management will provide the necessary staffing and/or contractor support to operate the DMOC. A County staff member will be selected to serve as the Debris Manager to lead County and municipal debris operations and direct DMOC activities. The responsibilities of the Debris Manager are listed in Section 2.2.1 of this plan.

### 3.3.3 Activate Monitoring and Debris Removal Staff/Contractors

The Debris Manager, working in coordination with Department of Emergency Response and County and municipal leadership, will use the damage assessments to determine whether or not to activate debris monitoring and removal staff or contractors. When the monitoring and debris removal staff/contractors are activated, each staff would need to review an updated street list found in **Appendix J**, debris collection zone maps found in **Appendix K**, and the Health and Safety Strategy found in **Appendix L**. The monitoring and debris removal staff will begin logistical coordination and equipment ramp-up immediately upon being activated.

#### Monitoring Function

Upon activation, the monitoring staff supports truck certification, collection, and disposal monitoring functions. The County will orient employees with operational procedures and refresh staff with the field training program on current debris removal eligibility, FEMA requirements, County and municipal debris removal contract requirements, and safety procedures. Collection monitors must carefully document debris collection information to demonstrate eligibility and ensure proper debris removal contractor payments and FEMA reimbursement. The documentation would need to include:

- Applicant name



- Location of debris, including full address and zone
- Time and date of collection
- Name of contractor
- Name and unique employee monitor number
- Truck certification number
- Truck capacity (disposal site monitor will fill out load call [percentage] information)
- Debris classification
- Disaster declaration number

### Debris Removal Function

Upon activation, the Debris Manager mobilizes a contracted service provider to coordinate staff and equipment to the incident location. Equipment will be certified as required by the monitoring staff. DMS locations, site preparation, including logistical setup and tower construction, will begin. The County will orient staff and contractors with operational procedures and refresh staff with current debris removal eligibility, FEMA requirements, County and municipal debris removal contract requirements, and safety procedures.

### 3.3.4 Begin Emergency Roadway Debris Clearance

The County and municipalities will commence with road clearance or “cut and toss” activities. These operations would first focus on major arterials leading to storm shelters, hospitals, fire stations, police stations, supply points, and other critical facilities throughout the County. A list of priority roads for the County and municipalities, based on the presence of critical facilities, can be found in **Appendix J**. Roads are also prioritized by functional road classification. A list of force account equipment that can be used for road clearing and debris collections can be found in **Appendix A**.

### 3.3.5 Begin Truck Certification

Truck certification is the most important function in initiating a debris removal operation for both safety and reimbursement potential. Accuracy and documentation of all measurements is critical. All trucks hauling debris under volumetric contracts with the County or municipalities must have their capacity and dimensions measured, photographed, and documented on a truck certification form. The debris monitoring staff can conduct truck certification services. **Appendix M** provides truck certification and other documents that might be used in debris operations. Each debris removal truck will be assigned a unique number for debris tracking and invoice reconciliation purposes. Truck certifications will contain:

- Unique truck number
- Driver name
- Driver phone number
- License number, state issued, and expiration



- Tag number, state issued, and expiration
- Vehicle measurements
- Pictures of the vehicle
- Date of completion of certificate

### 3.3.6 Prepare Debris Management Sites Based on Concentration of Debris

The Debris Manager, the monitoring staff, and debris removal staff will meet to discuss the opening and operation of pre-identified DMS locations. Before DMS preparation begins, the County and/or municipalities will obtain DMS approval from NYS DEC. The following items will need to be considered when opening and operating DMS:

#### Qualification Criteria

- Current availability
- Duration of availability
- Ingress/egress
- Concentration of debris relative to each site
- Geographic location within the County – Depending on the type of event, DMS locations may need to be activated in each affected municipality.
- Season

Some pre-identified potential DMS locations are listed in **Appendix G** of this plan.

#### Reduction Method

- **Chipping and Grinding** – Using this method, vegetative debris is chipped or ground and typically results in a reduction ratio of 4:1. The leftover mulch is either hauled to a final disposal facility or recycled. Chipping and grinding are the first choice for vegetative debris reduction.
- **Incineration** – The open burning of vegetative debris requires approval from local Fire Departments and the NYS DEC due to air quality concerns. The burning of vegetative debris typically results in a reduction ratio of 20:1. The leftover ash could be hauled to a final disposal facility or be incorporated in a land application. This method should generally be avoided in Tompkins County.
- **Crushing** – The crushing of vegetative debris is the least effective reduction method and results in a reduction ratio of 2:1. Crushing is an appropriate reduction method for C&D debris that cannot be recycled.

#### Recycling of Debris

Common recyclable materials that are a result of a debris-generating incident include wood waste, metals, and concrete. The following are potential uses for each of the materials:



- **Wood Waste** – Vegetative debris that is reduced through chipping or grinding results in leftover mulch. The remaining mulch can be used for agricultural purposes or fuel for industrial heating. For the mulch to be viable in agricultural purposes, the end user typically has a size requirement and requests that the mulch be as clean as possible of plastics and dirt.
- **Metals** – Metal debris, including white goods (such as ovens and washing machines), as well as aluminum screened porches, can be recycled. Certain metals, such as aluminum and copper, are highly valuable to scrap metal dealers.
- **Concrete** – Concrete, asphalt, and other masonry products can be crushed and potentially used for road construction projects, or as trench backfill.

Appendix F contains a list of possible end users for recyclable debris.

### DMS Preparation

After a review of the availability and suitability of DMS, the debris removal staff can begin site preparation. As part of the preparation, baseline data will need to be gathered from the site to document the state of the land before debris is deposited. The following action items are recommended to compile baseline information:

- **Photograph the Site** – Digital, dated photos will be taken to capture the state of the site before debris reduction activities begin. Photos should be updated periodically throughout the project to document the progression of the site.
- **Record Physical Features** – Records will be kept detailing the physical layout and features of the site. Items such as existing structures, fences, and landscaping should be documented in detail.
- **Historic Evaluation** – The past use of the site area will be researched and documented. Issues relating to historic or archeological significance of the site will need to be cleared with the state historic preservation agency.
- **Sample Soil and Water** – If possible, and deemed necessary, soil and groundwater samples will be taken before debris reduction activities commence. Samples will help ensure the site is returned to its original state. Typically, soil and groundwater samples would be analyzed for total Resource Conservation and Recovery Act metals, volatile organic compounds, and semi-volatile organic compounds using approved U.S. Environmental Protection Agency (EPA) methods.

The Debris Manager and monitoring staff will oversee the debris removal staff's activities to ensure that they follow their obligations, meet environmental standards, and act in the best interest of the County, municipalities, and residents. NYS DEC will be contacted to provide final approval under an emergency declaration for the DMS locations.

If a single DMS is used to process debris from more than one municipality, each municipality must have its own separate space for processing debris. **Commingling debris from multiple municipalities may result in the inability to accurately track debris management operations undertaken by each municipality, which will then affect the possible reimbursement of the County and municipalities for debris management activities under FEMA's Public**



**Assistance program following a federally declared disaster.** Municipalities would need to plan for specialized waste tracking accordingly.

### **Disposal Monitoring**

The primary function of the monitoring staff regarding disposal monitoring is to document the disposal of disaster debris at approved DMS and final disposal locations. Disposal Monitors perform quality assurance/quality control checks on all load tickets and haul-out tickets to ensure that information captured by collection monitors is complete. This process includes the following steps:

- Inspection of truck placards for authenticity and signs of tampering.
- Verification that placard information is documented properly.
- Verification that all required fields on the load ticket have been completed.

The Disposal Monitor will document the amount of debris collected by making a judgment call on vehicle fullness (typically on a percentage basis). The percentage documented for each debris removal vehicle is later applied to the calculated cubic yard capacity of the vehicle to determine the amount of debris collected. The Disposal Monitor is tasked with the following responsibilities:

- Completing and physically controlling load tickets.
- Ensuring debris removal trucks are accurately credited for their loads.
- Ensuring trucks are not artificially loaded.
- Ensuring hazardous waste is not mixed in with loads.
- Ensuring all debris is removed from the debris removal trucks before exiting the DMS or final disposal site.
- Ensuring only debris specified within the County's or municipality's scope of work is collected.

In addition to the responsibilities listed above, final disposal site monitors are tasked with both of the following:

- Ensuring all debris is disposed at a properly permitted landfill.
- Matching landfill receipts and/or scale house records to haul-out tickets.

### **3.3.7 Conduct Meetings/Briefings with Key Personnel**

Regular coordination meetings and briefings with key personnel should be conducted to update the status of the road clearance efforts, DMS openings, asset ramp-up, and pertinent public information for press releases.

Daily meetings should be held each morning at a location determined by the County/municipalities and include key personnel from the County/municipalities, monitoring staff, and debris removal staff. The purpose of daily meetings is to focus on daily objectives and include a discussion of operational progress, safety, and best practices moving forward. During the meeting, the County





and municipalities will review real time statistics and completion maps that reflect operations through the end of the previous day.

### 3.3.8 Review Debris Volume and Collection Cost Assessment

The County's/municipality's Debris Manager, monitoring staff, and debris removal staff will meet to review the debris volume and collection cost assessment. The topics of discussion in this meeting may include the following:

- Amount of debris generated (total cubic yards)
- Type of debris generated (vegetative, C&D, or miscellaneous)
- Number and estimated date of arrival for assets (trucks, loaders, monitoring personnel)
- Estimated number of DMS locations necessary
- Preliminary scope of debris removal efforts
- Estimated cost of the debris removal efforts

Following this meeting, the County/municipality and/or monitoring staff will collect required documentation for the development of FEMA Project Worksheets.

### 3.3.9 Request Contact Information and Meeting with FEMA Public Assistance Program Delivery Manager

The County Department of Emergency Response will **immediately** request, through the NYS Division of Homeland Security and Emergency Services, a meeting with the designated FEMA Public Assistance Program Delivery Manager for the disaster. During this meeting, the County will provide the following actions:

- Summarize the debris removal operations in the County to date.
- Review debris and cost estimates for the County/municipalities.
- Review any Disaster-Specific Guidance (DSG) documents issued by FEMA.
- Examine the County's debris removal plan.
- Provide contact information for all monitoring and debris removal staff and key personnel.
- Determine additional information the Public Assistance Program Delivery Manager will need to generate Project Worksheets for the County or municipalities. To generate a Category A, debris removal, and debris monitoring Project Worksheet, FEMA will require the following information:
  - Copy of any debris removal contractor's contract(s).
  - Copy of any debris monitoring firm's contract(s).
  - Information about the procurement process of the debris removal and monitoring contracts.



- Address (if available) and global positioning system (GPS) coordinates for all DMS.
- Debris volume and costs estimates (using U.S. Army Corps of Engineers model and damage assessment reports).
- Monitoring cost estimate (based on budgeted labor hours).
- Brief debris removal plan overview.

### 3.3.10 Public Information Post-Incident

A press release and public information campaign through various formats will be issued to various media sources. This release should be posted to the County and municipal websites as well as the County and municipal social media sites within the first three days following the debris-generating incident. Care should be taken to adapt diverse communication methods to best reach residents in both the urban and rural parts of the County. The content of the press release will be to reassure and comfort the public that the County and municipalities are responding to the incident and have activated the monitoring and debris removal staff/contractor to begin debris removal activities. Sample press releases are located in **Appendix I**.

## 3.4 Post-Incident Recovery

For the purpose of debris management, the post-incident recovery phase is marked by the debris removal staff collecting and reducing debris from the public ROW and associated infrastructure, such as bridges and culverts.

Concurrent to the commencement of ROW debris removal operations, the County and municipalities will evaluate the need for contract debris removal on private property and parks. As noted in the Disaster Recovery Timeline (Figure 3-1), these specialized debris removal operations typically do not begin until roughly 30–60 days following a debris-generating incident. Specialized debris removal operations are often governed by DSG and require some level of FEMA pre-validation. However, if the County or municipalities determine that there is an immediate and imminent threat to public health and safety, these programs can be expedited.

The following Recovery Checklists are critical in expediting and ensuring proper steps are taken during the debris removal process. The Post-Incident Recovery Checklists are included in **Appendix C**. The Post-Incident Recovery Checklists are subdivided into the following time periods:

- 2 Days – 2 Weeks
- 2 Weeks – 1 Month
- 1 Month – 3 Months
- 3 Months – Project Completion



## 3.5 Post-Incident Recovery Checklist: 2 Days – 2 Weeks

- Open DMS.
- Prioritize roads/areas.
- Issue press release regarding segregation of debris.
- Begin ROW debris removal.
- Perform parks damage assessment.
- Begin environmental monitoring program of DMS.
- Coordinate with external agencies.
- Initiate discussions with FEMA.
- Obtain FEMA guidance for gated community and private property debris removal.

### 3.5.1 Open Debris Management Sites

DMS will be opened, beginning with sites closest to the most heavily impacted areas of the County. Monitoring towers will be located at the ingress and egress of the DMS and be high enough so that tower monitors can verify the contents of the debris removal trucks.

### 3.5.2 Prioritize Roads/Areas

After reviewing damage assessments and the concentration of debris within the County, areas that sustained more extensive damage may need to be prioritized, subdivided into smaller work zones, and recorded in the County's GIS data.

### 3.5.3 Issue Press Release Regarding Segregation of Debris

Issue second press release regarding segregation of vegetative, C&D, white goods, electronics, HHW, and household garbage. Communication will provide reminders of inappropriate and illegal methods of disposal, including the burning of trash. Additional information can be found in **Appendix I**.

### 3.5.4 Begin ROW Debris Removal

The County and municipalities will direct the debris removal staff/contractors to proceed with curbside collection. Curbside collection entails residents piling their disaster-related debris along the ROW. Residents should segregate their debris in categories (e.g., vegetative, C&D, HHW, electronics, and white goods) to prevent the contamination of debris loads and expedite the clean-up process. To assist the County and municipalities in an "all-hazards approach" to debris removal efforts, the critical processes for HHW, white goods debris, vegetative debris, and electronic waste removal are outlined below.



### 3.5.4.1 HHW Debris Removal

HHW includes gasoline cans, aerosol spray cans, paint, lawn chemicals, batteries, fire extinguishers, fluorescent lamps, household electronics, etc. In a large-scale event, the management of HHW may very well occur away from the County Transfer Station.

HHW removal is eligible for FEMA reimbursement if the HHW is a result of the debris-generating incident and removed from publicly maintained property and roadways whose maintenance is the responsibility of the County or municipalities. Existing County contracts with HHW processing firms (currently Clean Harbors) may be able to assist with the process of safe HHW management. HHW may be collected separately and disposed of or recycled at a properly permitted facility. Collection of HHW can be conducted internally or contracted out on a unit rate basis. The County and municipalities will take the following steps regarding HHW removal:

- Communicate to residents the eligibility of HHW following an incident. It is important that residents separate HHW from other debris, such as vegetative, C&D, etc., to ensure that HHW does not enter the debris stream at DMS locations.
- Decide whether to establish HHW drop-off sites to augment or replace HHW curbside collection. This helps ensure that HHW is properly disposed. Measures should still be taken jointly by the debris removal staff and the monitoring staff to identify, segregate, and dispose of intermingled HHW at DMS locations.
- Interface with the NYS DEC. Describe the HHW collection program and permitted facilities to be used for disposal or recycling.

### 3.5.4.2 White Goods Debris Removal

White goods include refrigerators, freezers, air conditioners, heat pumps, ovens, ranges, washing machines, clothes dryers, etc.

White goods debris removal is eligible for FEMA reimbursement if the debris is a result of the debris-generating incident. It further needs to be removed from publicly maintained property and roadways whose maintenance is the responsibility of the County or municipalities. White goods debris that contains ozone-depleting refrigerants, mercury, or compressor oils need to have such materials removed by a certified technician before recycling. All state and federal laws will need to be carefully followed regarding the final disposal of removed refrigerants, mercury, or compressor oils. Collection of white goods can be conducted internally or contracted out on a unit rate basis. The County and municipalities will take the following steps regarding white goods removal:

- Communicate the eligibility of white goods to residents following an incident. It is important that residents separate white goods from other debris to ensure that white goods are not mixed with C&D or vegetative debris during collection.
- Interface with NYS DEC. Describe the white goods collection program and permitted facilities to be used for disposal of recovered refrigerants, mercury, or compressor oils.



### 3.5.4.3 Vegetative Debris

Vegetative debris consists of whole trees, stumps, trunks, branches, and other leafy material. Depending on the size of the debris, collection may require the use of flatbed trucks, dump trucks, and grapple loaders.

Most vegetative debris consist of large piles of tree limbs and branches that are piled on the public ROW by residents. The County and municipalities will determine the number of times debris is collected before normal collection activities are resumed. The County will consult with FEMA on behalf of the municipalities regarding the number of passes that may be required to complete disaster debris removal.

Vegetative debris is bulky and consumes a significant volume of landfill space if buried. To minimize the use of landfill space, it is prudent to reduce the volume of vegetative debris before burying. Vegetative debris may be reduced by as much as 75 percent of its volume by mulching or grinding and as much as 90 percent of its volume through burning.

A hazardous tree or stump may be collected individually, while downed or fallen debris can be collected from ROWs or at a designated collection center. Tree and stump collection prices are typically based on the size of the tree or stump and charged by unit. Other fallen or downed material is usually billed by weight (tons) or volume (cubic yards).

### 3.5.4.4 Electronic Waste

Electronic waste (e-waste) includes televisions, desktop and laptop computers, computer attachments, stereo equipment, tablets, cell phones, and other electronic devices.<sup>47</sup> This material is banned from landfills in New York State.

E-waste debris removal is also eligible for FEMA reimbursement if the debris is a result of the debris-generating incident and removed from publicly maintained property and roadways whose maintenance is the responsibility of the County or municipalities.

Older television and computer monitors using a cathode ray tube can contain an average of four pounds of lead. Newer flat-screen televisions and monitors may have backlighting that contains mercury. These and other electronic devices may also contain lithium-ion batteries, chromium, cadmium, beryllium, nickel, zinc, and brominated flame retardants that must be handled properly and cannot be disposed of in landfills.<sup>48</sup> There are organizations that can accept e-waste for recycling. Resources for e-waste can be found in **Appendix F** of this plan and at the Tompkins County Department of Recycling and Materials Management website<sup>49</sup>.

### 3.5.4.5 Load Tickets

For the debris categories outlined above, pre-printed load tickets will be used as reimbursement documentation for the County and municipalities. An example of a load ticket is in **Appendix M**. The top portion of the ticket will be filled out by the Collection Monitor at a DMS at the beginning

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<sup>47</sup> Planning for Natural Disaster Debris, EPA, April 2019

<sup>48</sup> Ibid

<sup>49</sup> Tompkins County Recycling and Materials Management Disposal Resource. Accessible at <https://recycletompkins.org/whatdoidowith/>



of each load. The address field will be completed when the debris removal staff has completed work. The Collection Monitor will ensure the debris removal staff is working within the scope of their assignments from the County/municipality. The load ticket will then be given to the debris removal vehicle driver to turn in to the Disposal Monitor upon arrival at the DMS or final disposal site. The Disposal Monitor will complete the remaining portion of the load ticket. Load tickets may also be processed through electronic automated systems. The Disposal Monitor documents the amount of debris collected by making a judgment call reflecting the vehicle's fullness (typically on a percentage basis). The percentage documented for each debris removal vehicle is later applied to the calculated cubic yard capacity of the vehicle to determine the total amount of debris collected.

### 3.5.5 Perform Parks Damage Assessment

The municipal parks and recreation departments and monitoring staff must identify vegetative hazards that require removal within parks. Current eligibility criteria include:

- Leaning trees 2 feet in diameter or greater.
- Hanging limbs 2 inches in diameter or greater.
- Uprooted stumps 2 feet in diameter or greater.

Management of debris in State Parks is carried out by the NYS Parks, Recreation, and Historic Preservation Department (NYS Parks). Park Managers for each of the area State Parks serve as the leads for debris management in each Park.

From a FEMA reimbursement perspective, eligibility criteria for cut work are extremely sensitive to the size and scale of the disaster. When surveying damages, it is extremely important for the County, municipalities, and their monitoring and debris removal staff/contractors to be fully cognizant of all DSG.

### 3.5.6 Begin Environmental Monitoring Program of DMS

Throughout the duration of the project, data should be collected for use in the remediation and close-out of the DMS. Collected data can be compared to previous data to establish any remediation actions necessary to return the site to its original state. The following items will need to be included in an environmental monitoring program:

- **Sketches of Site Operations** – During the course of the project, operations at the DMS may expand, condense, or shift. Changes to the site should be documented along with the locations of debris reduction activity. The sketches and documentation will assist in determining areas of concern that may need additional sampling and testing during site closure.
- **Documentation of Issues at the Site** – Meticulous records should be kept documenting issues such as petroleum spills, hydraulic spills, or the discovery of HHW within debris at the site. This documentation will assist in the remediation of the site.



### 3.5.7 Coordinate with External Agencies

The County/municipalities will coordinate with each other, NYS DOT, NYS DEC and other relevant agencies to ensure all County and municipal road segments are moving forward with debris removal operations. NYS DOT is responsible for emergency road clearing activities and first pass debris removal on all state and federal roads within the County. NYS DEC would likely be involved with debris removal on waterways though is dependent on location, ownership and if permits are needed for removal of debris. Coordination would need to occur with FEMA Region 7 post-hazard event.

### 3.5.8 Initiate Discussions with FEMA

Debris Managers and monitoring staff must clearly communicate debris removal plans and operations with FEMA. Clear communication fosters a coordinated effort that enhances the transparency of the operation for auditors and ensures maximum FEMA reimbursement.

### 3.5.9 Obtain FEMA Guidance for Gated Community and Private Property Debris Removal

Eligibility of gated community (e.g., Cardamone Townhomes - the only one in Tompkins County as of the time of this plan) and private property debris removal will be determined by FEMA on a case-by-case basis following an incident. Typically, the debris and devastation must be so widespread that debris removal from private property is a “public interest.” Under current Public Assistance Program guidelines, the County and municipalities must show that the private property debris constitutes an immediate threat to life, public health, or safety, or to the economic recovery of the community at large.

For private property debris removal to be eligible for reimbursement, the County or municipalities, as applicable, must submit a written request to the FEMA Federal Coordinating Officer before removal operations begin. The request will include the following information:

- **Immediate Threat Determination** – The County/municipality must provide documentation from the NYS Department of Health and County Health Department that debris on private property is a threat to public health and safety.
- **Documentation of Legal Responsibility** – The County/municipality must demonstrate that it has the legal authority to enter private property and gated communities, and it accepts the responsibility to abate all hazards, regardless of whether or not a federal disaster declaration is made.
- **Indemnification** – The County/municipality applying for federal reimbursement must indemnify the federal government and its employees, agents, and contractors from any claims arising from the removal of debris from private property.

If private property debris removal is authorized and considered for the County/municipality, the following documentation will be required by FEMA:

- **Right-of-Entry and Hold Harmless Agreements** – The County/municipality will execute signed right-of-entry and hold harmless agreement documents with private property



owners holding the federal government harmless from any damages caused to private property. A sample right-of-entry/hold harmless agreement is included in **Appendix N**. The County/municipality may execute right-of-entry and hold harmless agreement forms prior to a disaster under the condition that these documents do not reference a particular incident or disaster number. The sample right-of-entry/hold harmless agreement provides a stipulation that the property owner will report to the County/municipality any insurance settlements paid to the property owner for debris removal on the property that has been performed at government expense. This will aid the County/municipality in recouping the costs of debris removal from private property.

- **Photos** – It is in the interest of the County/municipality to photograph conditions of private property before and after debris removal is completed. The photos will assist in the verification of address and scope of work on the property.
- **Private Property Debris Removal Assessment** – The assessment will be a property-specific form to establish the scope of eligible work on the property. The assessment can be in the form of a map or work order if the scope of work can be clearly identified.
- **Documentation of Environmental and Historic Review** – Debris removal efforts on private property must comply with all review requirements under 44 CFR (specifically parts 9, Floodplain Management and Protection of Wetlands, and 10, Environmental Considerations).

## 3.6 Post-Incident Recovery Checklist: 2 Weeks – 1 Month

- Maintain and evaluate ROW clean-up.
- Begin ROW stump removal, as necessary.
- Open additional DMS, as necessary.
- Continue regular meetings with FEMA.
- Begin debris removal from private property and gated communities.
- Communicate project close-out to residents through various formats.

### 3.6.1 Maintain and Evaluate ROW Clean-up

Information on debris collection (vegetative, C&D, white goods, HHW, etc.) and completion progress will be documented by the monitoring staff and provided to the County/municipality on a daily basis. To ensure proper record keeping and reimbursement from all appropriate agencies, it is important for the County and municipalities to announce the completion of the first pass of debris collection through the same channels that collections were announced.

### 3.6.2 Begin ROW Stump Removal as Necessary

Following initial ROW debris removal efforts, the County/municipality and monitoring staff may determine a significant threat remains to the public in the form of hazardous stumps along the ROW. Before ROW stump removal operations commence, all applicable DSG criteria or FEMA





Publication 104-009-2 for eligibility should be reviewed. FEMA's Recovery Policy for Hazardous Stump Extraction and Removal Eligibility is included in **Appendix O**. As of the publication of this plan, FEMA Publication 104-009-2 defines a stump as hazardous if all of the following criteria are met:

- The stump has 50 percent or more of the root-ball exposed.
- The stump is greater than 2 feet or larger in diameter when measured 2 feet from the ground.
- Extraction is required as part of the removal.

### **3.6.3 Open Additional Debris Management Sites as Necessary**

If the initial DMS are approaching maximum capacity, additional DMS may need to be prepared. The same procedures taken to open and monitor the initial DMS will need to be applied to any additional DMS.

### **3.6.4 Continue Regular Meetings with FEMA**

It is critical that the County and municipalities maintain strong communication with their assigned FEMA representatives. Regular meetings help to ensure maximum coordination and to expedite resolving any operational problems that may occur.

### **3.6.5 Begin Debris Removal from Private Property and Gated Communities**

If approved, debris removal from private property and gated communities will begin upon approval.

### **3.6.6 Public Information Post-Incident Recovery**

The project close-out press release and outreach campaign should focus on clarifying any ineligible debris confusion and communicating a debris set-out deadline to minimize illegal dumping. Protocol for leaners and hangers and private property/gated community debris removal programs, if applicable, should be communicated at this time. Depending on the severity of the debris-generating incident, project close-out may be further away.

## **3.7 Post-Incident Recovery Checklist: 1 Month – 3 Months**

- Maintain and evaluate ROW clean-up – vegetative and C&D.
- Begin ROW leaners and hangers program.
- Initiate haul-out.
- Progress to weekly meetings with the FEMA.



### 3.7.1 Maintain and Evaluate ROW Clean-up – Vegetative and C&D

Information on debris collection and completion progress will be documented by the monitoring staff and provided to the County and municipalities on a daily basis. During this period, the County and municipalities will need to announce the completion of the second pass through the same channels and establish a deadline for residents to set out debris on the ROW, as well as a deadline for the County's and municipalities' debris removal staff/contractors to complete the third pass. In a smaller debris-generating incident, the second pass could be announced earlier.

### 3.7.2 Begin ROW Removal of Hazardous Limbs and Trees

A hazardous limbs and trees program should be initiated if it is determined that a significant threat remains to the public in the form of leaning trees and hanging limbs along the ROW. To ensure maximum reimbursement, all threats must be identified and verified against DSG criteria for eligibility prior to the commencement of cut work. It is important to note the County's and municipalities' debris removal staff/contractors may require lead time to transport specialty vehicles, equipment, and labor force to commence leaner/hanger work. Currently, FEMA Publication 104-009-2, version 4, provides the following guidance on eligibility requirements for hazardous limbs, trees, and stumps.

**Tree Removal** – A damaged tree is considered hazardous and eligible if the tree has a diameter of 6 inches or greater measured 4.5 feet above ground level, and the tree exhibits one of the following:

- Has a split trunk.
- Has a broken canopy.
- Is leaning at an angle greater than 30 degrees.

**Broken Limb or Branch Removal** – Broken limbs and branches are eligible for removal if they are 2 inches or larger in diameter (measured at the point of break) and pose an immediate threat. An example is a broken limb or branch hanging over improved property or public-use areas, such as sidewalks, playgrounds, or trails. It is important to note that only the minimum cut necessary to remove the hazard is eligible for reimbursement. In addition, FEMA will not fund the removal of broken limbs or branches on private property unless all of the following criteria are met:

- The limbs or branches extend over the public ROW.
- The limbs or branches pose an immediate threat.
- The County/municipality applying for reimbursement removes the hazard from the public ROW (without entering private property).

#### **Unit Rate Tickets**

Unit rate tickets will be used as reimbursement documentation for the leaners/hangers program. An example of a unit rate ticket is located in **Appendix M**. To ensure maximum reimbursement, debris monitors will use GPS devices to document the GPS coordinates of tree or hanger removals and take digital photos of the work done.



### 3.7.3 Initiate Haul-Out

At this point in the post-incident recovery process, reduced debris from DMS will be hauled to a final disposal site or recycled through one of the markets listed in **Appendix F**. Generally, for final disposal purposes, the most environmentally responsible and cost-effective method is for the County and municipalities to recycle reduced debris. Any remaining reduced debris that cannot be recycled would need to be disposed of at permitted landfills with consideration to the cost structure of associated tipping fees.

It is important that the County, municipalities, and monitoring staff ensure the debris removal staff/contractor attains proper disposal tipping fee information. **Appendix M** contains a sample haul-out ticket that will be used by the monitoring staff as reimbursement documentation for the County and municipalities.

### 3.7.4 Progress to Weekly Meetings with the FEMA

Although strong communication with assigned FEMA representatives is still important, at this point in the debris removal operation, meetings can move to a weekly timeframe. The weekly meetings will still be critical in ensuring maximum coordination.

## 3.8 Recovery Checklist: 3 Months – Project Completion

- Complete all debris recovery activities.
- Identify ineligible debris on ROW.
- Complete the disposal of reduced debris.
- Close-out and remediate DMS.
- Conduct project close-out meetings with FEMA and external agencies.

### 3.8.1 Complete all Debris Recovery Activities

The debris removal staff/contractors will identify and remove all remaining eligible debris piles.

### 3.8.2 Identify Ineligible Debris on ROW

Once ineligible debris on the ROW is identified, the County and municipalities will proceed in one of two ways:

- Holding individual private property owners responsible for the disposal of ineligible debris.
- Using internal equipment for disposal of the ineligible debris.
- Tasking the debris removal staff/contractor with the removal of ineligible debris and incur the associated cost. This debris should be hauled directly to a final disposal landfill or transfer station to reduce associated handling costs.



### 3.8.3 Complete the Disposal of Reduced Debris

Before project closure, remaining reduced debris at a DMS will need to be recycled or hauled to a landfill for final disposal, and, as appropriate, work with NYS DEC to post a closure plan. **Appendix F** provides locations of landfills.

### 3.8.4 Close-Out and Remediate Debris Management Sites

NYS DEC must be contacted *before* final closure of the DMS to ensure all required actions are taken. Generally, DMS locations must be returned to their original environmental state. Restoration of the DMS includes removing all remnants of operations and remediating any contamination that may have occurred during operations. A final sample of environmental data will need to be collected to ensure the site is returned to its original state. Final closure of the DMS will require written notice to NYS DEC. The results of any required environmental samples will be included with the written notice.

### 3.8.5 Conduct Project Close-Out Meetings with FEMA and External Agencies

Prior to the project close-out meeting, the County and municipalities will receive detailed data from the monitoring staff regarding their debris removal operations. The County/municipalities, in conjunction with the monitoring staff, will compile all labor records, contractor invoices, contracts, and other documentation supporting debris removal operations in preparation for the project close-out meeting.



## Section 4 Environmental Considerations and Other Regulatory Requirements

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The information described in this section identifies the regulatory requirements and guidance for local governments engaging in debris clean-up operations. The County and municipalities should review the regulatory information on an annual basis, not only to familiarize themselves with the governing statutes, but also to identify changes to the regulations and guidelines. The County and municipalities will coordinate with each other, state, and federal officials to ensure compliance with environmental and other regulatory standards.

### 4.1 New York State Regulatory and Technical Assistance

#### 4.1.1 NYS DEC

NYS DEC issues emergency permits for debris incineration and advice and assistance for debris disposal. Assistance is also provided to local jurisdictions on the potential environmental impacts of debris removal and disposal operations. NYS DEC is also responsible for the New York State Materials Management Program to carry out the requirements of NYCRR Part 360, which is administered on a regional basis. NYS DEC has developed guidance<sup>50</sup> available on their Storm Debris Management Guidelines website.

#### 4.1.2 New York State Department of Labor Asbestos Control Bureau

The Asbestos Control Bureau within the New York State Department of Labor is tasked with enforcing asbestos regulations in the State of New York.

#### 4.1.3 NYS DOT

NYS DOT is responsible for the design, construction, and maintenance of the state highway system. NYS DOT acts as the lead agency for emergency roadway debris clearance, removal, and disposal efforts along state and federal highways.

### 4.2 Federal Regulations and Guidance

#### 4.2.1 Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act)

The Stafford Act provides the authorization for the Public Assistance Program. The fundamental provisions of this act are as follows:

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<sup>50</sup> New York State DEC – Storm Debris Management Guidelines. Accessible at <https://www.dec.ny.gov/regulations/8751.html>



- Assigns FEMA the authority to administer federal disaster assistance.
- Defines the extent of coverage and eligibility criteria of the major disaster assistance programs.
- Authorizes grants to the states.
- Defines the minimum federal cost-sharing levels.

## 4.2.2 CFR Title 44 – Emergency Management and Assistance

Procedural requirements for the Public Assistance Program operations are provided by 44 CFR. These regulations are designed to implement a statute based upon FEMA’s interpretation of the Stafford Act. They govern the program and outline procedures, eligibility, and funding.

## 4.2.3 FEMA Publication FP 104-009-2 – Public Assistance Program and Policy Guide 2020

The Public Assistance Program and Policy Guide<sup>51</sup> overviews the protocols for accessing FEMA’s Public Assistance Program immediately following a disaster. This guidance document describes which entities are eligible for reimbursement under the federal/local cost-sharing program, the documentation necessary to ensure reimbursement, and special considerations about which local governments should be aware to maximize eligible activities.

## 4.2.4 Disaster-Specific Guidance (DSG)

DSG is a policy statement issued in response to a specific post-event situation or need in a state or region. Each DSG is issued a number and is generally referred to along with its numerical identification.

These guidance documents typically relate to authorization of private property clean-up, clean-up of stumps and payment for that, or notification of large projects. Staff should be aware of any new DSG issued by FEMA following an event.

## 4.2.5 Sandy Recovery Improvement Act of 2013

The law authorizes changes to the way FEMA may deliver federal disaster assistance to survivors. Key provisions of the act are as follows:

- Provides substantially greater flexibility in use of federal funds and less administrative burden if applicants accept grants based on fixed capped estimates, which may be provided by applicants’ licensed engineer and validated by independent expert panel.
- Offers a package of cost share adjustments, reimbursement for force account, and retention of program from recycling to speed debris removal and encourage pre-disaster debris planning.

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<sup>51</sup> FEMA Public Assistance Program and Policy Guide. Accessible at [https://www.fema.gov/sites/default/files/documents/fema\\_pappg-v4-updated-links\\_policy\\_6-1-2020.pdf](https://www.fema.gov/sites/default/files/documents/fema_pappg-v4-updated-links_policy_6-1-2020.pdf)



- Allows Public Assistance applicants for all disasters declared on or after October 30, 2012, an option to request binding arbitration for certain projects with an amount in dispute of over \$1 million after first appeal, instead of pursuing a second appeal under FEMA’s Public Assistance Program.

## 4.2.6 CFR Title 2 CFR Part 200 – Administrative Requirements

Title 2 CFR Part 200 establishes regulations regarding administrative requirements, cost principles, and audit requirements.

## 4.2.7 The Disaster Recovery Reform Act of 2018

The Disaster Recovery Reform Act was signed into law in October 2018. The reforms made by this law acknowledge that the responsibility for disaster response and recovery is shared among many governments and non-governmental stakeholders, aim to reduce the complexity of FEMA, and build the nation’s capacity for the next catastrophic event.

The law amends the Robert T. Stafford Disaster Relief and Emergency Assistance Act through 56 distinct provisions that direct changes to FEMA policies and regulations. Key provisions of the Disaster Recovery Reform Act related to debris management functions include the following:

### **Section 1215 – Management Costs**

Expands the definition of management costs to include both direct and indirect administrative expenses by the state, local, tribal, or territorial government. It also requires FEMA to reimburse Public Assistance management costs by up to 12 percent (7 percent for the recipient and 5 percent for the subrecipient) of the total award amount.

### **Section 1232 – Disaster Relief Hazards (Local Impact and Multiple Recent Disasters)**

Directs FEMA to give greater consideration to local impacts when the agency provides its recommendation to the President on whether to issue a Major Disaster Declaration. Public Assistance regulatory factors include estimated cost of assistance, localized impacts, insurance coverage in force, hazard mitigation, recent multiple disasters, and other federal assistance programs.

### **Section 1239 – Public Assistance Declaration Factors (Cost of Assistance Estimates)**

Directs FEMA to reconsider all factors used to evaluate a request for a Major Disaster Declaration for Public Assistance, specifically the estimated cost of assistance (i.e., the per capita indicator).

### **Section 1235 – Additional Mitigation Activities (a – b)**

- a. **Public Assistance Codes and Standards** – Authorizes FEMA to provide Public Assistance funding to replace and restore disaster-damaged facilities to the latest published editions of relevant consensus-based codes and standards to ensure the work is undertaken in a manner that allows them to be resilient.



- Interim Policy<sup>52</sup> was published in December 2019.
- Frequently Asked Questions (FAQ)<sup>53</sup> was published in February 2020.

### **Section 1241 – Post-Disaster Building Safety Assessment**

Directs FEMA to develop guidance for building experts to use when they evaluate structures for safety and habitability after a disaster.

In November 2019, FEMA published the [Post-disaster Building Safety Evaluation Guidance](#)<sup>54</sup>.

### **Section 1225 – Audit of Contracts**

Prohibits FEMA from providing reimbursement to any state, local, tribal, or territorial government or private nonprofit for activities made pursuant to a contract that purports to prohibit audits or internal reviews by the FEMA Administrator or the Comptroller General.

The Procurement Disaster Assistance Field Manual<sup>55</sup> was last updated in October 2019.

### **Section 1216 Section (c) – Statute of Limitations**

Changes the beginning of the statute of limitations for recoupment of Public Assistance from state or local governments to run from the close-out of individual projects.

## **4.2.8 National Environmental Policy Act**

National Environmental Policy Act regulations can be found in 40 CFR Parts 1500 – 1508. The act requires that FEMA consider the environmental impacts of proposed actions and reasonable alternatives to those actions. The U.S. Department of Homeland Security publishes National Environmental Policy Act requirements and provides a decision-making process that FEMA must follow to fund a project.

## **4.2.9 Resource Conservation and Recovery Act**

The Resource Conservation and Recovery Act<sup>56</sup> governs the disposal of solid waste and hazardous waste. The act provides planners with greater awareness of environmental considerations and regulations for dealing with disaster debris.

## **4.2.10 National Historic Preservation Act**

In conducting debris operations, the County and municipalities must consider how such operations will affect historic properties. Historic properties include buildings or groups of buildings, structures, objects, landscapes, archeological sites, as well as properties listed in or eligible for

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<sup>52</sup> Disaster Recovery Act – Section 1235(b) Consensus-Based Codes and Standards. Accessible at <https://www.fema.gov/assistance/public/policy-guidance-fact-sheets/section-1235b-consensus-based-codes-and-standards>

<sup>53</sup> Disaster Recovery Act – Section 1235(b) Consensus-Based Codes and Standards FAQs. Accessible at [https://www.fema.gov/sites/default/files/2020-07/fema\\_DRRRA-1235b-public-assistance-codes-standards-faqs.pdf](https://www.fema.gov/sites/default/files/2020-07/fema_DRRRA-1235b-public-assistance-codes-standards-faqs.pdf)

<sup>54</sup> FEMA Post-disaster Building Safety Evaluation Guidance. Accessible at [https://www.fema.gov/sites/default/files/2020-07/fema\\_p-2055\\_post-disaster\\_buildingsafety\\_evaluation\\_2019.pdf](https://www.fema.gov/sites/default/files/2020-07/fema_p-2055_post-disaster_buildingsafety_evaluation_2019.pdf)

<sup>55</sup> FEMA Procurement Disaster Assistance Field Manual. Accessible at [https://www.fema.gov/sites/default/files/2020-07/fema\\_procurement-disaster-assistance-PDAT\\_field-manual.pdf](https://www.fema.gov/sites/default/files/2020-07/fema_procurement-disaster-assistance-PDAT_field-manual.pdf)

<sup>56</sup> Resource Conservation and Recovery Act (RCRA) Laws and Regulations. Accessible at <http://www.epa.gov/rcra>





inclusion in the National Register of Historic Places. Section 106 of the National Historic Preservation Act requires FEMA to consider how a project might affect such properties.

#### **4.2.11 Endangered Species Act**

Projects must be examined to ensure they will not jeopardize the continued existence of any threatened or endangered species (listed species), critical habitats, and other rare species. FEMA must consult with the U.S. Fish and Wildlife Service and the National Oceanic and Atmospheric Administration Fisheries to ensure the conservation of listed species.

#### **4.2.12 Clean Water Act**

The Clean Water Act provides regulations for the discharges of pollutants in the waters of the United States. According to the act, it is unlawful to discharge any pollutant from a specific source into navigable waters without the appropriate Clean Water Act permits from the U.S. Army Corps of Engineers or NYS DEC.

#### **4.2.13 Clean Air Act**

The Clean Air Act seeks to protect air quality through the reduction of smog and atmospheric pollution. Air compliance measures in debris management operations may include air monitoring and dust abatement.

#### **4.2.14 National Emission Standard for Hazardous Air Pollutants**

The National Emission Standard for Hazardous Air Pollutants regulates the demolition of structures containing asbestos as well as the disposal and reporting of asbestos. The Asbestos Control Bureau within the New York State Department of Labor is tasked with enforcing asbestos regulations in the State of New York.

#### **4.2.15 Executive Order 11990, Protection of Wetlands**

Executive Order 11990, Protection of Wetlands, requires federal agencies to minimize or avoid activity that adversely affects wetlands and encourage the preservation and enhancement of the beneficial functions of wetlands.

#### **4.2.16 Executive Order 12898, Environmental Justice**

Executive Order 12898 requires federal agencies to identify and address any disproportionately high and adverse human health or environmental effects on minority and low-income populations as a result of their actions.

#### **4.2.17 EPA Publication EPA 530-F-19-003, Planning for Natural Disaster Debris 2019**

The Planning for Natural Disaster Debris publication discusses management of debris from natural disasters such as hurricanes, earthquakes, tornadoes, floods, wildfires, and winter storms. Designed to assist planners in the beginning stages of the planning process or in revising an existing DMP, it promotes greater awareness of environmental protection when dealing with disaster debris.



Under the current federal system, FEMA coordinates response and recovery efforts for all presidential declared disasters and provides guidance documents for local governments regarding disaster planning and response.



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## Section 5 Administration and Logistics

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Staff from the County and municipalities, as well as other agencies and organizations involved in debris management activities, will document the personnel, equipment, and material resources used to comply with this plan. Documentation will then be used to support reimbursement from any state or federal assistance that may be requested or required.



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## Section 6 Plan Maintenance

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To maintain viability, the DMP would be updated annually, and personnel will be trained on the content prior to a disaster. FEMA updates debris operations program guidance throughout the year based on lessons learned from recent disasters; therefore, the County and municipalities must review the most recent guidance and incorporate those changes into the plan. This section explains the actions the County will take to ensure the plan is current and relevant. The maintenance of the DMP should be done in concert with updates to the CEMP and will coordinate with other County departments and municipalities to conduct maintenance activities.

### 6.1 Plan Review and Approval

The Department of Emergency Response will conduct an annual review of the DMP. The review will consider such items as:

- Changes in mission.
- Changes in concept of operations.
- Changes in organization.
- Changes in responsibility.
- Changes in desired contracts.
- Changes in pre-positioned contracts.
- Changes in priorities.

The plan will be updated based on organizational changes, new policies and guidance, and lessons learned from actual debris incidents. Changes made to the plan will be noted on a plan changes log as needed.

### 6.2 Training for Personnel

The County will institute the following training for personnel with responsibilities in debris management.

#### 6.2.1 General

Personnel must be trained to ensure they are prepared to fulfill their role in a debris-generating emergency, including the following requirements:

- Personnel will be trained in their specific roles and responsibilities.
- Personnel will be trained in the Incident Command System to the appropriate level for their position.



- All personnel with debris management responsibilities will participate in a briefing on safety policies and procedures.
- Personnel with responsibility for preparing documentation for reimbursement will receive training on the FEMA Public Assistance Program.
- Personnel will be trained to operate any equipment they are responsible for competently and safely.

## 6.2.2 Debris Managers

Debris Managers would be trained in the regulatory requirements for debris operations, including:

- Health and safety
- Environmental and historical preservation
- Procurement
- Federal disaster grant programs
- Considerations for individuals with disabilities and access and functional needs
- Damage assessment for debris

## 6.2.3 Finance and Administration

County and municipal finance and administration staff, including those filling that role in the EOC and/or DMOC, would need to be trained in regulatory requirements for debris operations, including:

- Procurement
- Federal disaster grant program
- Documentation needed for reimbursement of expenses.

## 6.3 Exercises

Exercises are essential to maintaining readiness and determining the effectiveness of plans, personnel, and resources in responding to a debris-generating incident. Workshops and exercises will be conducted periodically to test the ability of the County and municipalities to coordinate resources for debris operations.

Following exercises, an after-action report will be developed to document strengths and areas needing improvement. An improvement plan will be developed to list corrective actions, identify individuals or agencies responsible for completing the corrective actions, and establish a timeline for completion.



## Acronyms and Definitions

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### Acronyms

|                     |   |
|---------------------|---|
| <b>C&amp;D</b>      | Construction and Demolition                                     |
| <b>CEMP</b>         | Comprehensive Emergency Management Plan                         |
| <b>CFR</b>          | Code of Federal Regulations                                     |
| <b>DEC</b>          | Department of Environmental Conservation                        |
| <b>DMOC</b>         | Debris Management Operations Center                             |
| <b>DMP</b>          | Debris Management Plan  |
| <b>DMS</b>          | Debris Management Site  |
| <b>DOT</b>          | Department of Transportation                                    |
| <b>DSG</b>          | Disaster-Specific Guidance                                      |
| <b>EOC</b>          | Emergency Operations Center                                     |
| <b>EPA</b>          | Environmental Protection Agency                                 |
| <b>E-Waste</b>      | Electronic Waste  |
| <b>FEMA</b>         | Federal Emergency Management Agency                             |
| <b>GIS</b>          | Geographic Information Systems                                  |
| <b>GPS</b>          | Global Positioning System                                       |
| <b>HAZMAT</b>       | Hazardous Materials   |
| <b>Hazus-MH</b>     | Hazards U.S. – Multi-hazard software system                     |
| <b>HHW</b>          | Household Hazardous Waste                                       |
| <b>MOUs</b>         | Memoranda of Understanding                                      |
| <b>NYCRR</b>        | New York Codes, Rules and Regulations                           |
| <b>NYS</b>          | New York State  |
| <b>ROW</b>          | Right-of-Way  |
| <b>Stafford Act</b> | Robert T. Stafford Disaster Relief and Emergency Assistance Act |
| <b>State</b>        | The State of New York   |

### Definitions

**Applicant** – State agency, local government, or eligible private nonprofit organization that intends on applying for FEMA Public Assistance grants.

**Construction and Demolition (C&D) Debris** – FEMA Publication 104-009-2 defines C&D debris as damaged components of buildings and structures, such as lumber and wood, gypsum



wallboard, glass, metal, roofing material, tile, carpeting, and floor coverings, window coverings, plastic pipe, concrete, fully cured asphalt, heating, ventilation, and air conditioning systems and their components, light fixtures, small consumer appliances, equipment, furnishings, and fixtures. The eligibility requirements for C&D debris include the following:

- Debris must be located within a designated disaster area and be removed from an eligible Applicant's improved property or ROW;
- Debris removal must be the legal responsibility of the Applicant; and
- Debris must be a result of the major disaster incident.

**Disaster-Specific Guidance (DSG)** – DSG is a policy statement issued in response to a specific post-incident situation or need in a state or region. Each DSG is issued a number and is generally referred to along with its numerical identification.

**Force Account Labor** – The use of the County's or municipalities' own personnel and equipment. Below force account labor information from Chapter 6, Section II of FEMA's Public Assistance Program and Policy Guide.

- For Permanent Work, both straight-time and overtime labor costs are eligible for both budgeted and unbudgeted employee hours. For Emergency Work, only overtime labor is eligible for budgeted employee hours. For unbudgeted employees performing Emergency Work, both straight-time and overtime labor are eligible. Overtime is time worked beyond an employee's scheduled working hours as defined by the Applicant's pre-disaster pay policy.
- Under the Alternative Procedures authorized by Section 428 of the Stafford Act, straight-time labor costs are eligible for budgeted employees conducting eligible debris removal (Category A) activities.
- The Applicant may assign an employee to perform work that is not part of the employee's normal job. For example, a police officer may clear debris. FEMA provides Public Assistance funding based on the reassigned employee's normal pay rate, not the pay level appropriate to the work, because the Applicant's incurred cost is the employee's normal pay rate.
- Straight-time of a permanent employee funded from an external source (such as a grant from a federal agency or statutorily dedicated funds) is eligible if the employee is reassigned to perform eligible Emergency Work that the external source does not fund. FEMA must confirm that no duplication of funding exists prior to approval.
- The Applicant may need to temporarily replace an employee who is responding to the incident. Overtime costs for the backfill employee are eligible, even if that individual is not performing eligible work as long as the employee being replaced is performing eligible Emergency Work.
- Straight-time of essential employees called back to work from a budget-related furlough due to the declared incident is eligible if the costs are not budgeted.
- Second-level supervisors and above (e.g., commissioners, mayors, department directors, police and fire chiefs) are usually exempt employees. Therefore, overtime costs related to these types of employees are ineligible, unless the Applicant:



- Demonstrates that the employee was directly involved with a specific project;
  - Normally charges that individual's time to specific projects regardless of federal funding; and
  - Incurs overtime costs for the employee in accordance with a labor policy that meets the criteria in Chapter 6:II.A. Labor Policies.
- Extraordinary costs (such as call-back pay, night-time and weekend differential pay, and hazardous duty pay) for essential employees who are called back to duty during administrative leave to perform eligible Emergency Work are eligible if costs are paid in accordance with a labor policy that meets the criteria above.
  - Administrative leave or similar labor costs incurred for employees sent home or told not to report due to emergency conditions are ineligible.

**Hazardous Limb** – A limb is hazardous if it poses a significant threat to the public. The eligibility requirements for hazardous limbs according to FEMA Publication FP 104-009-2 are as follows:

- The limb is greater than two inches in diameter.
- The limb is still hanging in a tree and threatening a public-use area.
- The limb is located on improved public property.

**Hazardous Stump** – A stump is defined as hazardous and eligible for reimbursement if all of the following criteria are met:

- The stump has 50 percent or more of the root-ball exposed.
- The stump is greater than 2 feet in diameter when measured 2 feet from the ground.
- The stump is located on a public ROW.
- The stump poses an immediate threat to public health and safety.

**Hazardous Tree** – A tree is considered hazardous when the tree's present state is caused by a disaster, the tree poses a significant threat to the public, and the tree is six inches in diameter or greater, measured 4.5 feet from the ground. The eligibility requirements for leaning trees according to FEMA Publication 104-009-2 are as follows:

- The tree has a broken canopy.
- The tree has a split trunk.
- The tree is leaning at an angle greater than 30 degrees.

**Household Hazardous Waste (HHW)** – The Resource Conservation and Recovery Act defines hazardous waste as materials that are ignitable, reactive, toxic, or corrosive. Examples of HHW include items such as paints, cleaners, pesticides, etc. Certified technicians must be used to handle, capture, recycle, reuse, and dispose of hazardous waste. The eligibility requirements for HHW are as follows:

- HHW must be located within a designated disaster area and be removed from an eligible Applicant's improved property or ROW.
- HHW removal must be the legal responsibility of the Applicant.





- HHW must be a result of the major disaster incident.

**Vegetative Debris** – As outlined in FEMA Publication 104-009-2, vegetative debris consists of whole trees, stumps, trunks, branches, and other leafy material. Vegetative debris will largely consist of mounds of tree limbs and branches piled along the public ROW by residents and volunteers. The eligibility requirements for vegetative debris are as follows:

- Debris must be located within a designated disaster area and be removed from an eligible Applicant's improved property or ROW.
- Debris removal must be the legal responsibility of the Applicant.
- Debris must be a result of a presidentially declared major disaster incident.

**White Goods** – As outlined in FEMA Publication 104-009-2, white goods are defined as discarded household appliances such as refrigerators, freezers, air conditioners, heat pumps, ovens, ranges, washing machines, clothes dryers, and water heaters. White goods can contain ozone-depleting refrigerants, mercury, or compressor oils that the federal Clean Air Act prohibits from being released into the atmosphere. The Clean Air Act specifies that only certified technicians can extract refrigerants from white goods before they can be recycled. The eligibility requirements for removal of white goods are as follows:

- White goods must be located within a designated disaster area and be removed from an eligible Applicant's improved property or ROW.
- White goods removal must be the legal responsibility of the County/municipality applying for reimbursement.
- White goods must be a result of the major disaster incident.



# Appendix A

## EQUIPMENT LIST

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# Inventory of Equipment List

## Tompkins County

| Plow Trucks |              |       |           |                      |        |
|-------------|--------------|-------|-----------|----------------------|--------|
| Designator  | Manufacturer | Model | Axle Type | Gross Vehicle Weight | Blade* |
| -           | -            | -     | -         | -                    | -      |

\*Blade: dimensions, flat versus v-shaped, etc.

| On-Road Dump Trucks |               |       |                           |                       |
|---------------------|---------------|-------|---------------------------|-----------------------|
| Designator          | Manufacturer  | Model | Volume Capacity (cu. ft.) | Weight Capacity (lb.) |
| 25                  | International | 4400  | -                         | n/a                   |
| 55                  | GMC           | C7500 | -                         | 28,000                |

| Off-Road Dump Trucks |              |       |                           |                 |
|----------------------|--------------|-------|---------------------------|-----------------|
| Designator           | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| -                    | -            | -     | -                         | -               |

| Flatbed Trucks |               |            |      |            |           |                       |
|----------------|---------------|------------|------|------------|-----------|-----------------------|
| Designator     | Manufacturer  | Model      | Year | Bed Length | Bed Width | Weight Capacity (lb.) |
| 28             | International | Terra Star | 2013 | -          | -         | 19,500                |
| 31             | International | Terra Star | 2015 | -          | -         | 19,500                |
| 26             | Freightliner  | M2106      | 2019 | -          | -         | 27,000                |
| 30             | Freightliner  | M2106      | 2020 | -          | -         | 33,000                |
| 33             | Western Star  | 4700SF     | 2020 | -          | -         | 69,000                |
| 33H            | International | 7600       | 2006 | -          | -         | 66,000                |
| 34             | Kenworth      | T805H      | 2016 | -          | -         | 66,000                |
| 36             | International | 7600       | 2006 | -          | -         | 66,000                |
| 37H            | International | 5900i      | 2013 | -          | -         | n/a                   |
| 38             | Kenworth      | T800       | 2016 | -          | -         | 66,000                |

| Flatbed Trucks |               |        |      |            |           |                       |
|----------------|---------------|--------|------|------------|-----------|-----------------------|
| Designator     | Manufacturer  | Model  | Year | Bed Length | Bed Width | Weight Capacity (lb.) |
| 39             | International | 7600   | 2009 | -          | -         | 66,000                |
| 40             | Kenworth      | T805H  | 2017 | -          | -         | 66,000                |
| 44             | International | IH2674 | 1999 | -          | -         | 63,750                |
| 45             | International | 7600   | 2013 | -          | -         | 66,000                |
| 47             | International | 5600i  | 2011 | -          | -         | 66,000                |
| 48             | Kenworth      | T805H  | 2017 | -          | -         | 66,000                |
| 49             | Kenworth      | T800   | 2016 | -          | -         | 66,000                |
| 50             | International | 7600   | 2007 | -          | -         | 66,000                |
| 52             | Western Star  | 4700SF | 2020 | -          | -         | 69,000                |
| 59             | Isuzu         | FVR    | 2008 | -          | -         | 33,000                |
| 68             | International | 4400   | 2010 | -          | -         | 27,000                |

| Other Trucks |              |        |      |                           |                       |
|--------------|--------------|--------|------|---------------------------|-----------------------|
| Designator   | Manufacturer | Model  | Year | Volume Capacity (cu. ft.) | Weight Capacity (lb.) |
| 10           | Ford         | F350   | 2020 | -                         | 6498                  |
| 11HD         | Ford         | F250   | 2017 | -                         | 10,000                |
| 14           | Ford         | F150   | 2015 | -                         | Not provided          |
| 15           | Ford         | F450   | 2020 | -                         | Not provided          |
| 16           | Ford         | F150   | 2014 | -                         | Not provided          |
| 17           | Ford         | F150   | 2013 | -                         | Not provided          |
| 18           | Ford         | F350   | 2019 | -                         | Not provided          |
| 19           | Ford         | F350   | 2020 | -                         | Not provided          |
| 19HD         | Ford         | F250   | 2017 | -                         | 10,000                |
| 20           | Ford         | F350   | 2019 | -                         | 14,000                |
| 20H          | Ford         | F250   | 2008 | -                         | 9,400                 |
| 21           | Ford         | F350   | 2020 | -                         | 6,498                 |
| 21H          | Ford         | F250   | 2017 | -                         | 10,000                |
| 22           | Toyota       | Tacoma | 2013 | -                         | n/a                   |
| 23           | Ford         | F350   | 2019 | -                         | n/a                   |
| 24           | Ford         | F450   | 2003 | -                         | 15,000                |
| 32           | Ford         | F450   | 2019 | -                         | 16,500                |
| 32H          | Ford         | F450   | 2013 | -                         | n/a                   |

| Chippers   |              |        |                           |                 |
|------------|--------------|--------|---------------------------|-----------------|
| Designator | Manufacturer | Model  | Volume Capacity (cu. ft.) | Weight Capacity |
| 115        | Bandit       | 12XP   | -                         | -               |
| 116        | Bandit       | 19XP   | -                         | -               |
| 117        | Red River    | LB 334 | -                         | -               |
| 118        | Barber Green | BG 240 | -                         | -               |
| 7101       | Promac       | 48C    | -                         | -               |

| Grinders   |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| -          | -            | -     | -                         | -               |

| Backhoes   |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| -          | -            | -     | -                         | -               |

| Excavators |              |        |                           |                        |
|------------|--------------|--------|---------------------------|------------------------|
| Designator | Manufacturer | Model  | Volume Capacity (cu. ft.) | Weight Capacity (lbs.) |
| 58         | Case-IH      | CX210  | -                         | -                      |
| 60         | Gradall      | XL3100 | -                         | 41,250                 |
| 62         | Gradall      | XL4300 | -                         | 44,800                 |
| 64         | Case-IH      | CX145D | -                         | -                      |
| 69         | Kobelco      | SK35SR | -                         | 7600                   |
| 70         | Gradall      | XL4100 | -                         | 46,640                 |
| 71         | Gradall      | XL4100 | -                         | 59,200                 |
| 7100       | Gradall      | XL4100 | -                         | -                      |

# Town of Caroline

Information on the equipment maintained by the Town of Caroline was not available.

| Plow Trucks |              |       |           |                      |        |
|-------------|--------------|-------|-----------|----------------------|--------|
| Designator  | Manufacturer | Model | Axle Type | Gross Vehicle Weight | Blade* |
|             |              |       |           |                      |        |

\*Blade: dimensions, flat versus v-shaped, etc.

| On-Road Dump Trucks |              |       |                           |                 |
|---------------------|--------------|-------|---------------------------|-----------------|
| Designator          | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|                     |              |       |                           |                 |

| Off-Road Dump Trucks |              |       |                           |                 |
|----------------------|--------------|-------|---------------------------|-----------------|
| Designator           | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|                      |              |       |                           |                 |

| Flatbed Trucks |              |       |            |           |                 |
|----------------|--------------|-------|------------|-----------|-----------------|
| Designator     | Manufacturer | Model | Bed Length | Bed Width | Weight Capacity |
|                |              |       |            |           |                 |

| Other Trucks |              |       |                           |                 |
|--------------|--------------|-------|---------------------------|-----------------|
| Designator   | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|              |              |       |                           |                 |

| Chippers   |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|            |              |       |                           |                 |

| Grinders   |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|            |              |       |                           |                 |

| Backhoes   |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|            |              |       |                           |                 |

| Excavators |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|            |              |       |                           |                 |

# Village of Cayuga Heights

| Plow Trucks |              |       |             |                            |        |
|-------------|--------------|-------|-------------|----------------------------|--------|
| Designator  | Manufacturer | Model | Axle Type   | Gross Vehicle Weight (lb.) | Blade* |
| Truck 3     | N/A          | GU532 | Single axle | 44,000                     | Flat   |
| Truck 5     | Freightliner | M2    | Single axle | 26,000                     | Flat   |

\*Blade: dimensions, flat versus v-shaped, etc.

| On-Road Dump Trucks |              |       |                           |                 |
|---------------------|--------------|-------|---------------------------|-----------------|
| Designator          | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| -                   | -            | -     | -                         | -               |

| Off-Road Dump Trucks |              |       |                           |                 |
|----------------------|--------------|-------|---------------------------|-----------------|
| Designator           | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| -                    | -            | -     | -                         | -               |

| Flatbed Trucks |              |       |            |           |                 |
|----------------|--------------|-------|------------|-----------|-----------------|
| Designator     | Manufacturer | Model | Bed Length | Bed Width | Weight Capacity |
| -              | -            | -     | -          | -         | -               |

| Other Trucks |              |       |                           |                 |
|--------------|--------------|-------|---------------------------|-----------------|
| Designator   | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| -            | -            | -     | -                         | -               |



| Chippers   |              |             |                           |                 |
|------------|--------------|-------------|---------------------------|-----------------|
| Designator | Manufacturer | Model       | Volume Capacity (cu. ft.) | Weight Capacity |
| Chipper    | Morbark      | Beever M18R | -                         | -               |

| Grinders   |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| -          | -            | -     | -                         | -               |

| Backhoes   |              |        |                           |                 |
|------------|--------------|--------|---------------------------|-----------------|
| Designator | Manufacturer | Model  | Volume Capacity (cu. ft.) | Weight Capacity |
| Backhoe    | John Deere   | 310 HL | 9                         | unknown         |

| Excavators     |              |       |                           |                 |
|----------------|--------------|-------|---------------------------|-----------------|
| Designator     | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| Mini excavator | Volvo        | EC60E | 9                         | unknown         |

# Town of Danby

Information on the equipment maintained by the Town of Danby was not available.

| Plow Trucks |              |       |           |                      |        |
|-------------|--------------|-------|-----------|----------------------|--------|
| Designator  | Manufacturer | Model | Axle Type | Gross Vehicle Weight | Blade* |
|             |              |       |           |                      |        |

\*Blade: dimensions, flat versus v-shaped, etc.

| On-Road Dump Trucks |              |       |                           |                 |
|---------------------|--------------|-------|---------------------------|-----------------|
| Designator          | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|                     |              |       |                           |                 |

| Off-Road Dump Trucks |              |       |                           |                 |
|----------------------|--------------|-------|---------------------------|-----------------|
| Designator           | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|                      |              |       |                           |                 |

| Flatbed Trucks |              |       |            |           |                 |
|----------------|--------------|-------|------------|-----------|-----------------|
| Designator     | Manufacturer | Model | Bed Length | Bed Width | Weight Capacity |
|                |              |       |            |           |                 |

| Other Trucks |              |       |                           |                 |
|--------------|--------------|-------|---------------------------|-----------------|
| Designator   | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|              |              |       |                           |                 |

| Chippers   |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|            |              |       |                           |                 |

| Grinders   |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|            |              |       |                           |                 |

| Backhoes   |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|            |              |       |                           |                 |

| Excavators |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|            |              |       |                           |                 |

# Town of Dryden

Information on the equipment maintained by the Town of Dryden was not available.

| Plow Trucks |              |       |           |                      |        |
|-------------|--------------|-------|-----------|----------------------|--------|
| Designator  | Manufacturer | Model | Axle Type | Gross Vehicle Weight | Blade* |
|             |              |       |           |                      |        |

\*Blade: dimensions, flat versus v-shaped, etc.

| On-Road Dump Trucks |              |       |                           |                 |
|---------------------|--------------|-------|---------------------------|-----------------|
| Designator          | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|                     |              |       |                           |                 |

| Off-Road Dump Trucks |              |       |                           |                 |
|----------------------|--------------|-------|---------------------------|-----------------|
| Designator           | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|                      |              |       |                           |                 |

| Flatbed Trucks |              |       |            |           |                 |
|----------------|--------------|-------|------------|-----------|-----------------|
| Designator     | Manufacturer | Model | Bed Length | Bed Width | Weight Capacity |
|                |              |       |            |           |                 |

| Other Trucks |              |       |                           |                 |
|--------------|--------------|-------|---------------------------|-----------------|
| Designator   | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|              |              |       |                           |                 |

| Chippers   |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|            |              |       |                           |                 |

| Grinders   |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|            |              |       |                           |                 |

| Backhoes   |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|            |              |       |                           |                 |

| Excavators |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|            |              |       |                           |                 |

# Village of Dryden

Information on the equipment maintained by the Village of Dryden was not available.

| Plow Trucks |              |       |           |                      |        |
|-------------|--------------|-------|-----------|----------------------|--------|
| Designator  | Manufacturer | Model | Axle Type | Gross Vehicle Weight | Blade* |
|             |              |       |           |                      |        |

\*Blade: dimensions, flat versus v-shaped, etc.

| On-Road Dump Trucks |              |       |                           |                 |
|---------------------|--------------|-------|---------------------------|-----------------|
| Designator          | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|                     |              |       |                           |                 |

| Off-Road Dump Trucks |              |       |                           |                 |
|----------------------|--------------|-------|---------------------------|-----------------|
| Designator           | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|                      |              |       |                           |                 |

| Flatbed Trucks |              |       |            |           |                 |
|----------------|--------------|-------|------------|-----------|-----------------|
| Designator     | Manufacturer | Model | Bed Length | Bed Width | Weight Capacity |
|                |              |       |            |           |                 |

| Other Trucks |              |       |                           |                 |
|--------------|--------------|-------|---------------------------|-----------------|
| Designator   | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|              |              |       |                           |                 |

| Chippers   |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|            |              |       |                           |                 |

| Grinders   |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|            |              |       |                           |                 |

| Backhoes   |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|            |              |       |                           |                 |

| Excavators |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|            |              |       |                           |                 |

# Town of Enfield

| Plow Trucks |              |       |           |                      |        |
|-------------|--------------|-------|-----------|----------------------|--------|
| Designator  | Manufacturer | Model | Axle Type | Gross Vehicle Weight | Blade* |
|             |              |       |           |                      |        |

\*Blade: dimensions, flat versus v-shaped, etc.

| On-Road Dump Trucks |              |       |                           |                 |
|---------------------|--------------|-------|---------------------------|-----------------|
| Designator          | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| 10-wheeler 1        |              |       |                           |                 |
| 10-wheeler 2        |              |       |                           |                 |
| 10-wheeler 3        |              |       |                           |                 |
| 10-wheeler 4        |              |       |                           |                 |
| 10-wheeler 5        |              |       |                           |                 |

| Off-Road Dump Trucks |              |       |                           |                 |
|----------------------|--------------|-------|---------------------------|-----------------|
| Designator           | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|                      |              |       |                           |                 |

| Flatbed Trucks |              |       |            |           |                 |
|----------------|--------------|-------|------------|-----------|-----------------|
| Designator     | Manufacturer | Model | Bed Length | Bed Width | Weight Capacity |
|                |              |       |            |           |                 |

| Other Trucks |              |       |                           |                 |
|--------------|--------------|-------|---------------------------|-----------------|
| Designator   | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|              |              |       |                           |                 |



| Chippers        |              |       |                           |                 |
|-----------------|--------------|-------|---------------------------|-----------------|
| Designator      | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| "Basic Chipper" |              |       |                           |                 |

| Grinders   |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|            |              |       |                           |                 |

| Backhoes   |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|            |              |       |                           |                 |

| Excavators                         |              |       |                           |                 |
|------------------------------------|--------------|-------|---------------------------|-----------------|
| Designator                         | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| "Rubber Tire Excavator with Thumb" |              |       |                           |                 |

# Village of Freeville

Information on the equipment maintained by the Village of Freeville was not available.

| Plow Trucks |              |       |           |                      |        |
|-------------|--------------|-------|-----------|----------------------|--------|
| Designator  | Manufacturer | Model | Axle Type | Gross Vehicle Weight | Blade* |
|             |              |       |           |                      |        |

\*Blade: dimensions, flat versus v-shaped, etc.

| On-Road Dump Trucks |              |       |                           |                 |
|---------------------|--------------|-------|---------------------------|-----------------|
| Designator          | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|                     |              |       |                           |                 |

| Off-Road Dump Trucks |              |       |                           |                 |
|----------------------|--------------|-------|---------------------------|-----------------|
| Designator           | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|                      |              |       |                           |                 |

| Flatbed Trucks |              |       |            |           |                 |
|----------------|--------------|-------|------------|-----------|-----------------|
| Designator     | Manufacturer | Model | Bed Length | Bed Width | Weight Capacity |
|                |              |       |            |           |                 |

| Other Trucks |              |       |                           |                 |
|--------------|--------------|-------|---------------------------|-----------------|
| Designator   | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|              |              |       |                           |                 |

| Chippers   |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|            |              |       |                           |                 |

| Grinders   |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|            |              |       |                           |                 |

| Backhoes   |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|            |              |       |                           |                 |

| Excavators |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|            |              |       |                           |                 |

# Town of Groton

| Plow Trucks |              |       |           |                      |        |
|-------------|--------------|-------|-----------|----------------------|--------|
| Designator  | Manufacturer | Model | Axle Type | Gross Vehicle Weight | Blade* |
|             |              |       |           |                      |        |

\*Blade: dimensions, flat versus v-shaped, etc.

| On-Road Dump Trucks |              |       |                           |                 |
|---------------------|--------------|-------|---------------------------|-----------------|
| Designator          | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| Dump Truck 1        |              |       |                           |                 |
| Dump Truck 2        |              |       |                           |                 |
| Dump Truck 3        |              |       |                           |                 |
| Dump Truck 4        |              |       |                           |                 |
| Dump Truck 5        |              |       |                           |                 |
| Dump Truck 6        |              |       |                           |                 |
| Dump Truck 7        |              |       |                           |                 |

| Off-Road Dump Trucks |              |       |                           |                 |
|----------------------|--------------|-------|---------------------------|-----------------|
| Designator           | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|                      |              |       |                           |                 |

| Flatbed Trucks |              |       |            |           |                 |
|----------------|--------------|-------|------------|-----------|-----------------|
| Designator     | Manufacturer | Model | Bed Length | Bed Width | Weight Capacity |
|                |              |       |            |           |                 |

| Other Trucks |              |       |                           |                 |
|--------------|--------------|-------|---------------------------|-----------------|
| Designator   | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|              |              |       |                           |                 |

| <b>Chippers</b>   |                     |              |                                  |                        |
|-------------------|---------------------|--------------|----------------------------------|------------------------|
| <b>Designator</b> | <b>Manufacturer</b> | <b>Model</b> | <b>Volume Capacity (cu. ft.)</b> | <b>Weight Capacity</b> |
|                   |                     |              |                                  |                        |

| <b>Grinders</b>   |                     |              |                                  |                        |
|-------------------|---------------------|--------------|----------------------------------|------------------------|
| <b>Designator</b> | <b>Manufacturer</b> | <b>Model</b> | <b>Volume Capacity (cu. ft.)</b> | <b>Weight Capacity</b> |
|                   |                     |              |                                  |                        |

| <b>Backhoes</b>   |                     |              |                                  |                        |
|-------------------|---------------------|--------------|----------------------------------|------------------------|
| <b>Designator</b> | <b>Manufacturer</b> | <b>Model</b> | <b>Volume Capacity (cu. ft.)</b> | <b>Weight Capacity</b> |
|                   |                     |              |                                  |                        |

| <b>Excavators</b> |                     |              |                                  |                        |
|-------------------|---------------------|--------------|----------------------------------|------------------------|
| <b>Designator</b> | <b>Manufacturer</b> | <b>Model</b> | <b>Volume Capacity (cu. ft.)</b> | <b>Weight Capacity</b> |
|                   |                     |              |                                  |                        |

# Village of Groton

| Plow Trucks |              |       |           |                      |        |
|-------------|--------------|-------|-----------|----------------------|--------|
| Designator  | Manufacturer | Model | Axle Type | Gross Vehicle Weight | Blade* |
|             |              |       |           |                      |        |

\*Blade: dimensions, flat versus v-shaped, etc.

| On-Road Dump Trucks |              |       |                           |                 |
|---------------------|--------------|-------|---------------------------|-----------------|
| Designator          | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| Multiple            |              |       |                           |                 |

| Off-Road Dump Trucks |              |       |                           |                 |
|----------------------|--------------|-------|---------------------------|-----------------|
| Designator           | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|                      |              |       |                           |                 |

| Flatbed Trucks |              |       |            |           |                 |
|----------------|--------------|-------|------------|-----------|-----------------|
| Designator     | Manufacturer | Model | Bed Length | Bed Width | Weight Capacity |
|                |              |       |            |           |                 |

| Other Trucks |              |       |                           |                 |
|--------------|--------------|-------|---------------------------|-----------------|
| Designator   | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|              |              |       |                           |                 |

| Chippers      |              |       |                           |                 |
|---------------|--------------|-------|---------------------------|-----------------|
| Designator    | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| Small Chipper |              |       |                           |                 |

| Grinders   |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|            |              |       |                           |                 |

| Backhoes   |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| Multiple   |              |       |                           |                 |

| Excavators |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|            |              |       |                           |                 |

# City of Ithaca

| Plow Trucks |               |       |             |                       |              |
|-------------|---------------|-------|-------------|-----------------------|--------------|
| Designator  | Manufacturer  | Model | Axle Type   | Weight Capacity (lb.) | Blade*       |
| #13         | Ford          | F550  | DRW pickup  | 18,000                | 9' flat      |
| #26         | International | 2574  | Single axle | 45,000                | 11' flat     |
| #31         | Ford          | F550  | DRW pickup  | 18,000                | 9' flat      |
| #32         | International | 7500  | Single axle | 45,000                | 11' flat     |
| #35         | Ford          | F350  | pickup      | 10,600                | 8.5' flat    |
| #68         | Ram           | 5500  | DRW pickup  | 19,500                | 9' flat      |
| #69         | Ram           | 5500  | DRW pickup  | 19,500                | 9' flat      |
| #110        | Ford          | F350  | DRW pickup  | 14,000                | 8.5' flat    |
| #150        | Ford          | F350  | DRW pickup  | 13,000                | 8.5' flat    |
| #156        | Ram           | 3500  | DRW pickup  | 14,000                | 9' flat      |
| #169        | Ram           | 3500  | Pickup      | 13,000                | 8.5' V blade |
| #173        | Ford          | F250  | Pickup      | 10,000                | 8.5' flat    |
| #190        | Ford          | F250  | Pickup      | 10,000                | 8.5' flat    |
| #221        | International | 7500  | Single axle | 42,540                | 11' flat     |
| #225        | International | HV507 | Single axle | 45,000                | 11' flat     |
| #270        | International | 7500  | Single axle | 45,120                | 11' flat     |
| #322        | Ford          | F250  | Pickup      | 10,000                | 8' flat      |
| #364        | International | 7500  | Single axle | 45,760                | 11' flat     |

\*Blade: dimensions, flat versus v-shaped, etc.

| On-Road Dump Trucks |               |        |                 |                       |
|---------------------|---------------|--------|-----------------|-----------------------|
| Designator          | Manufacturer  | Model  | Volume Capacity | Weight Capacity (lb.) |
| #16                 | International | MV607  | 3 yards         | 20,000                |
| #19                 | International | 4300   | 3 yards         | 20,000                |
| #21                 | International | 7600   | 10 yards        | 40,000                |
| #26                 | International | 2574   | 3 yards         | 20,000                |
| #27                 | International | 7600   | 10 yards        | 40,000                |
| #32                 | International | 7500   | 5 yards         | 20,000                |
| #71                 | Ford          | F550   | 3 yards         | 8,000                 |
| #72                 | Ford          | F550   | 3 yards         | 8,000                 |
| #90                 | Mack          | GR64F  | 12 yards        | 50,000                |
| #96                 | Mack          | GR64F  | 12 yards        | 50,000                |
| #97                 | Volvo         | VHD84F | 12 yards        | 50,000                |
| #98                 | International | 7600   | 10 yards        | 40,000                |
| #143                | International | 2574   | 3 yards         | 20,000                |
| #156                | Ram           | 3500   | 3 yards         | 6,000                 |
| #164                | International | 7600   | 10 yards        | 40,000                |



| <b>On-Road Dump Trucks</b> |                     |              |                        |                              |
|----------------------------|---------------------|--------------|------------------------|------------------------------|
| <b>Designator</b>          | <b>Manufacturer</b> | <b>Model</b> | <b>Volume Capacity</b> | <b>Weight Capacity (lb.)</b> |
| #187                       | Ford                | F350         | 3 yards                | 5,000                        |
| #221                       | International       | 7500         | 5 yards                | 20,000                       |
| #225                       | International       | HV507        | 5 yards                | 20,000                       |
| #246                       | International       | 2674         | 5 yards                | 20,000                       |
| #283                       | Ford                | F350         | 3 yards                | 5,000                        |
| #286                       | International       | 4300         | 3 yards                | 20,000                       |
| #330                       | International       | 4300         | 3 yards                | 10,000                       |
| #364                       | International       | 7500         | 5 yards                | 20,000                       |
| #701                       | International       | MV607        | 3 yards                | 15,000                       |

| <b>Off-Road Dump Trucks</b> |                     |              |                                  |                        |
|-----------------------------|---------------------|--------------|----------------------------------|------------------------|
| <b>Designator</b>           | <b>Manufacturer</b> | <b>Model</b> | <b>Volume Capacity (cu. ft.)</b> | <b>Weight Capacity</b> |
| -                           | -                   | -            | -                                | -                      |

| <b>Flatbed Trucks</b> |                     |              |                   |                  |                              |
|-----------------------|---------------------|--------------|-------------------|------------------|------------------------------|
| <b>Designator</b>     | <b>Manufacturer</b> | <b>Model</b> | <b>Bed Length</b> | <b>Bed Width</b> | <b>Weight Capacity (lb.)</b> |
| #13                   | Ford                | F550         | 10'               | 8'               | 8,000                        |
| #68                   | Ram                 | 5500         | 10'               | 8'               | 8,000                        |
| #69                   | Ram                 | 5500         | 10'               | 8'               | 8,000                        |
| #137                  | Ram                 | 3500         | 9'                | 8'               | 6,000                        |
| #653                  | International       | 7500         | 16'               | 8'               | 15,000                       |

| <b>Other Trucks</b> |                     |              |                                  |                        |
|---------------------|---------------------|--------------|----------------------------------|------------------------|
| <b>Designator</b>   | <b>Manufacturer</b> | <b>Model</b> | <b>Volume Capacity (cu. ft.)</b> | <b>Weight Capacity</b> |
| -                   | -                   | -            | -                                | -                      |

| Chippers   |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| #420       | Morbank      | 1621  | -                         | -               |

| Grinders   |              |       |            |                 |
|------------|--------------|-------|------------|-----------------|
| Designator | Manufacturer | Model | Type       | Weight Capacity |
| #176       | Carlton      | 7500  | Grind wood | n/a             |

| Backhoes   |              |          |                           |                       |
|------------|--------------|----------|---------------------------|-----------------------|
| Designator | Manufacturer | Model    | Volume Capacity (cu. ft.) | Weight Capacity (lb.) |
| #451       | Caterpillar  | 420-07XE | 30                        | 6,500                 |
| #464       | Caterpillar  | 416C     | 30                        | 6,000                 |
| #704       | Case         | 580 M    | 30                        | 6,000                 |
| #705       | Case         | 580SN    | 30                        | 6,500                 |

| Excavators |              |           |                           |                       |
|------------|--------------|-----------|---------------------------|-----------------------|
| Designator | Manufacturer | Model     | Volume Capacity (cu. ft.) | Weight Capacity (lb.) |
| #138       | Komatsu      | P138USLC  | 27                        | 6,000                 |
| #234       | Case         | CX55B     | 12                        | 1,200                 |
| #298       | Caterpillar  | 305.5E2CR | 12                        | 1,200                 |
| #299       | Caterpillar  | 305.5E2   | 12                        | 1,200                 |
| #354       | JCB          | JZ140     | 27                        | 6,000                 |
| #545       | Kobelco      | SK160LC   | 25                        | 6,000                 |
| #654       | Komatsu      | PC200LC-8 | 30                        | 8,000                 |

| Wheel Loaders |              |       |               |                              |
|---------------|--------------|-------|---------------|------------------------------|
| Designator    | Manufacturer | Model | Bucket Volume | Bucket Weight Capacity (lb.) |
| #91           | Case         | 21D   | 1.5 yards     | 6,000                        |
| #118          | Case         | 621C  | 2.5 yards     | 15,000                       |
| #127          | John Deere   | 544K  | 2.5 yards     | 15,000                       |
| #357          | Case         | 621F  | 2.5 yards     | 15,000                       |
| #448          | John Deere   | 544G  | 2.5 yards     | 15,000                       |

# Town of Ithaca

| Plow Trucks |              |           |           |                            |   |
|-------------|--------------|-----------|-----------|----------------------------|---|
| Designator  | Manufacturer | Model     | Axle Type | Gross Vehicle Weight (lb.) | Blade*                                      |
| Truck 9     | Volvo        | VHD64F300 | Tandem    | 66,000                     | One Directional Plow w/ straight blade wing |

\*Blade: dimensions, flat versus v-shaped, etc.

| On-Road Dump Trucks |                        |       |                           |                       |
|---------------------|------------------------|-------|---------------------------|-----------------------|
| Designator          | Manufacturer           | Model | Volume Capacity (cu. ft.) | Weight Capacity (lb.) |
| Truck 5/Trailer 5   | International/Flow Boy | 760   | 600                       | 100,000               |

| Off-Road Dump Trucks |              |       |                           |                 |
|----------------------|--------------|-------|---------------------------|-----------------|
| Designator           | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| -                    | -            | -     | -                         | -               |

| Flatbed Trucks |              |       |            |           |                 |
|----------------|--------------|-------|------------|-----------|-----------------|
| Designator     | Manufacturer | Model | Bed Length | Bed Width | Weight Capacity |
| Truck 5/T10    | Low Boy      | Globe | 24'        | 8'6"      | 86,000          |

| Other Trucks |                            |       |                           |                       |
|--------------|----------------------------|-------|---------------------------|-----------------------|
| Designator   | Manufacturer               | Model | Volume Capacity (cu. ft.) | Weight Capacity (lb.) |
| Truck 62     | Freightliner Refuse Packer | 16 M  | 10                        | 10,000 lb.            |

| Chippers    |              |       |                           |                 |
|-------------|--------------|-------|---------------------------|-----------------|
| Designator  | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| Chipper #82 | Morbark      | M18R  | -                         | -               |

| Grinders   |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| -          | -            | -     | -                         | -               |

| Backhoes   |              |        |                           |                       |
|------------|--------------|--------|---------------------------|-----------------------|
| Designator | Manufacturer | Model  | Volume Capacity (cu. ft.) | Weight Capacity (lb.) |
| #42        | New Holland  | B95bmg | 27                        | 3 tons                |

| Excavators  |              |       |                           |                       |
|-------------|--------------|-------|---------------------------|-----------------------|
| Designator  | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity (lb.) |
| Backhoe #68 | Caterpillar  | 308   | 9                         | n/a                   |

# Town of Lansing

| Plow Trucks |               |       |           |                            |        |
|-------------|---------------|-------|-----------|----------------------------|--------|
| Designator  | Manufacturer  | Model | Axle Type | Gross Vehicle Weight (lb.) | Blade* |
| Truck 2     | International | HX    | Tandem    | 66,000                     | 11"    |
| Truck 1     | International | 7600  | Tandem    | 66,000                     | 11"    |

\*Blade: dimensions, flat versus v-shaped, etc.

| On-Road Dump Trucks |              |       |                           |                 |
|---------------------|--------------|-------|---------------------------|-----------------|
| Designator          | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| -                   | -            | -     | -                         | -               |

| Off-Road Dump Trucks |              |       |                           |                 |
|----------------------|--------------|-------|---------------------------|-----------------|
| Designator           | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| -                    | -            | -     | -                         | -               |

| Flatbed Trucks |              |       |            |           |                 |
|----------------|--------------|-------|------------|-----------|-----------------|
| Designator     | Manufacturer | Model | Bed Length | Bed Width | Weight Capacity |
| -              | -            | -     | -          | -         | -               |

| Other Trucks |              |       |                           |                 |
|--------------|--------------|-------|---------------------------|-----------------|
| Designator   | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| -            | -            | -     | -                         | -               |

| <b>Chippers</b>   |                     |              |                                  |                        |
|-------------------|---------------------|--------------|----------------------------------|------------------------|
| <b>Designator</b> | <b>Manufacturer</b> | <b>Model</b> | <b>Volume Capacity (cu. ft.)</b> | <b>Weight Capacity</b> |
| -                 | -                   | -            | -                                | -                      |

| <b>Grinders</b>   |                     |              |                                  |                        |
|-------------------|---------------------|--------------|----------------------------------|------------------------|
| <b>Designator</b> | <b>Manufacturer</b> | <b>Model</b> | <b>Volume Capacity (cu. ft.)</b> | <b>Weight Capacity</b> |
| -                 | -                   | -            | -                                | -                      |

| <b>Backhoes</b>   |                     |              |                                  |                        |
|-------------------|---------------------|--------------|----------------------------------|------------------------|
| <b>Designator</b> | <b>Manufacturer</b> | <b>Model</b> | <b>Volume Capacity (cu. ft.)</b> | <b>Weight Capacity</b> |
| -                 | -                   | -            | -                                | -                      |

| <b>Excavators</b> |                     |              |                                  |                        |
|-------------------|---------------------|--------------|----------------------------------|------------------------|
| <b>Designator</b> | <b>Manufacturer</b> | <b>Model</b> | <b>Volume Capacity (cu. ft.)</b> | <b>Weight Capacity</b> |
| -                 | -                   | -            | -                                | -                      |

# Village of Lansing

| Plow Trucks |              |       |           |                      |        |
|-------------|--------------|-------|-----------|----------------------|--------|
| Designator  | Manufacturer | Model | Axle Type | Gross Vehicle Weight | Blade* |
| -           | -            | -     | -         | -                    | -      |

\*Blade: dimensions, flat versus v-shaped, etc.

| On-Road Dump Trucks |               |       |                           |                 |
|---------------------|---------------|-------|---------------------------|-----------------|
| Designator          | Manufacturer  | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| Truck 1             | International | 7600  | 450                       | 66,000          |
| Truck 2             | International | HX    | 450                       | 66,000          |

| Off-Road Dump Trucks |              |       |                           |                 |
|----------------------|--------------|-------|---------------------------|-----------------|
| Designator           | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| -                    | -            | -     | -                         | -               |

| Flatbed Trucks |              |       |            |           |                 |
|----------------|--------------|-------|------------|-----------|-----------------|
| Designator     | Manufacturer | Model | Bed Length | Bed Width | Weight Capacity |
| -              | -            | -     | -          | -         | -               |

| Other Trucks |              |       |                           |                 |
|--------------|--------------|-------|---------------------------|-----------------|
| Designator   | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| -            | -            | -     | -                         | -               |



| Chippers   |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| -          | -            | -     | -                         | -               |

| Grinders   |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| -          | -            | -     | -                         | -               |

| Backhoes   |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| -          | -            | -     | -                         | -               |

| Excavators |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| E1         | Bobcat       | E55   | 6 cubic feet              | 13,000          |

# Town of Newfield

| Plow Trucks |              |        |              |                            |                               |
|-------------|--------------|--------|--------------|----------------------------|-------------------------------|
| Designator  | Manufacturer | Model  | Axle Type    | Gross Vehicle Weight (lb.) | Blade*                        |
| Truck 7     | Mack         | GU713  | Tandem       | 66,000                     | 11' one-way plow and 11' wing |
| Truck 1     | Ford         | F-550  | Single axle  | 19,500                     | 9' angle blade                |
| Truck 18    | Ford         | F-350  | Pickup Truck | 10,500                     | 9' angle blade                |
| Truck 4     | Freightliner | FLD120 | Tandem       | 66,000                     | 11' one-way plow and 11' wing |
| Truck 8     | Freightliner | M2     | Single axle  | 33,000                     | 10' angle blade               |
| Truck 5     | Freightliner | FLD120 | Tandem       | 66,000                     | 11' one-way plow and 11' wing |
| Truck 10    | Ford         | F-350  | Pickup Truck | 10,5000                    | 9' angle blade                |
| Truck 3     | Mack         | GU713  | Tandem       | 66,000                     | 11' one-way plow and 11' wing |
| Truck 9     | Mack         | GU     | Tandem       | 66,000                     | 11' one-way plow and 11' wing |

\*Blade: dimensions, flat versus v-shaped, etc.

| On-Road Dump Trucks |              |        |                           |                 |
|---------------------|--------------|--------|---------------------------|-----------------|
| Designator          | Manufacturer | Model  | Volume Capacity (cu. ft.) | Weight Capacity |
| Truck 2             | Volvo        | VHD    | 378                       | 17 tons         |
| Truck 3             | Mack         | GU713  | 378                       | 17 tons         |
| Truck 4             | Freightliner | FLD120 | 378                       | 17 tons         |
| Truck 5             | Freightliner | FLD120 | 378                       | 17 tons         |
| Truck 7             | Mack         | GU713  | 378                       | 17 tons         |
| Truck 9             | Mack         | GU713  | 378                       | 17 tons         |
| Truck 8             | Freightliner | M2     | 240                       | 8 tons          |

| Off-Road Dump Trucks |              |       |                           |                 |
|----------------------|--------------|-------|---------------------------|-----------------|
| Designator           | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| -                    | -            | -     | -                         | -               |

| Flatbed Trucks |              |       |            |           |                 |
|----------------|--------------|-------|------------|-----------|-----------------|
| Designator     | Manufacturer | Model | Bed Length | Bed Width | Weight Capacity |
| -              | -            | -     | -          | -         | -               |

| Other Trucks |              |       |                           |                 |
|--------------|--------------|-------|---------------------------|-----------------|
| Designator   | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| -            | -            | -     | -                         | -               |

| Chippers   |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| Chipper    | Brush Bandit | 280xp | -                         | -               |

| Grinders   |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
| -          | -            | -     | -                         | -               |

| Backhoes       |              |         |                              |                 |
|----------------|--------------|---------|------------------------------|-----------------|
| Designator     | Manufacturer | Model   | Volume Capacity (cu. ft.)    | Weight Capacity |
| <b>Backhoe</b> | Caterpillar  | 420 FIT | Front bucket 35.1 cubic feet | 10,242 lb.      |

| Excavators            |              |        |                           |  |
|-----------------------|--------------|--------|---------------------------|--|
| Designator            | Manufacturer | Model  | Volume Capacity (cu. ft.) | Weight Capacity (lb.)                                  |
| <b>Mini Excavator</b> | Caterpillar  | 306 CR | 6.75 cubic feet           | 15,821 lb. total weight and 7,839 lb. lifting capacity |

# Village of Trumansburg

Information on the equipment maintained by the Village of Trumansburg was not available.

| Plow Trucks |              |       |           |                      |        |
|-------------|--------------|-------|-----------|----------------------|--------|
| Designator  | Manufacturer | Model | Axle Type | Gross Vehicle Weight | Blade* |
|             |              |       |           |                      |        |

\*Blade: dimensions, flat versus v-shaped, etc.

| On-Road Dump Trucks |              |       |                           |                 |
|---------------------|--------------|-------|---------------------------|-----------------|
| Designator          | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|                     |              |       |                           |                 |

| Off-Road Dump Trucks |              |       |                           |                 |
|----------------------|--------------|-------|---------------------------|-----------------|
| Designator           | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|                      |              |       |                           |                 |

| Flatbed Trucks |              |       |            |           |                 |
|----------------|--------------|-------|------------|-----------|-----------------|
| Designator     | Manufacturer | Model | Bed Length | Bed Width | Weight Capacity |
|                |              |       |            |           |                 |

| Other Trucks |              |       |                           |                 |
|--------------|--------------|-------|---------------------------|-----------------|
| Designator   | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|              |              |       |                           |                 |

| Chippers   |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|            |              |       |                           |                 |

| Grinders   |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|            |              |       |                           |                 |

| Backhoes   |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|            |              |       |                           |                 |

| Excavators |              |       |                           |                 |
|------------|--------------|-------|---------------------------|-----------------|
| Designator | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|            |              |       |                           |                 |

# Town of Ulysses

Information on the equipment maintained by the Town of Ulysses was not available.

| Plow Trucks |              |       |           |                      |        |
|-------------|--------------|-------|-----------|----------------------|--------|
| Designator  | Manufacturer | Model | Axle Type | Gross Vehicle Weight | Blade* |
|             |              |       |           |                      |        |

\*Blade: dimensions, flat versus v-shaped, etc.

| On-Road Dump Trucks |              |       |                           |                 |
|---------------------|--------------|-------|---------------------------|-----------------|
| Designator          | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|                     |              |       |                           |                 |

| Off-Road Dump Trucks |              |       |                           |                 |
|----------------------|--------------|-------|---------------------------|-----------------|
| Designator           | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|                      |              |       |                           |                 |

| Flatbed Trucks |              |       |            |           |                 |
|----------------|--------------|-------|------------|-----------|-----------------|
| Designator     | Manufacturer | Model | Bed Length | Bed Width | Weight Capacity |
|                |              |       |            |           |                 |

| Other Trucks |              |       |                           |                 |
|--------------|--------------|-------|---------------------------|-----------------|
| Designator   | Manufacturer | Model | Volume Capacity (cu. ft.) | Weight Capacity |
|              |              |       |                           |                 |

| <b>Chippers</b>   |                     |              |                                  |                        |
|-------------------|---------------------|--------------|----------------------------------|------------------------|
| <b>Designator</b> | <b>Manufacturer</b> | <b>Model</b> | <b>Volume Capacity (cu. ft.)</b> | <b>Weight Capacity</b> |
|                   |                     |              |                                  |                        |

| <b>Grinders</b>   |                     |              |                                  |                        |
|-------------------|---------------------|--------------|----------------------------------|------------------------|
| <b>Designator</b> | <b>Manufacturer</b> | <b>Model</b> | <b>Volume Capacity (cu. ft.)</b> | <b>Weight Capacity</b> |
|                   |                     |              |                                  |                        |

| <b>Backhoes</b>   |                     |              |                                  |                        |
|-------------------|---------------------|--------------|----------------------------------|------------------------|
| <b>Designator</b> | <b>Manufacturer</b> | <b>Model</b> | <b>Volume Capacity (cu. ft.)</b> | <b>Weight Capacity</b> |
|                   |                     |              |                                  |                        |

| <b>Excavators</b> |                     |              |                                  |                        |
|-------------------|---------------------|--------------|----------------------------------|------------------------|
| <b>Designator</b> | <b>Manufacturer</b> | <b>Model</b> | <b>Volume Capacity (cu. ft.)</b> | <b>Weight Capacity</b> |
|                   |                     |              |                                  |                        |

# Casella

On any given day, Casella Waste Management of N.Y., Inc. (Casella) may have the following resources available for assisting Tompkins County and its municipality with debris management operations:

## **At the Horseheads Hauling Disposal Site, Horseheads, NY**

- 1-3 skid steers
- 1 roll-off truck
- 1 to 2 rear load packers
- Several roll-off containers of 10 cubic yards (cy), 20 cy, or 30 cy capacities. Inventory changes daily.

## **At the Bath Transfer Station, Bath, NY**

- 1 backhoe
- 1 roll-off truck
- Several roll-off containers of 10 cubic yards (cy), 20 cy, or 30 cy capacities. Inventory changes daily.

## **At the Chemung Transfer Station, Chemung, NY**

- 1-3 skid steers
- Several roll-off containers of 10 cubic yards (cy), 20 cy, or 30 cy capacities. Inventory changes daily.

## **At the Newfield Hauling location, Newfield, NY**

- 1 skid steer
- 1 backhoe
- 1 excavator
- 1-3 roll-off trucks
- 1 to 2 rear-load packers
- Several roll-off containers of 10 cubic yards (cy), 20 cy, or 30 cy capacities. Inventory changes daily.



## **Additional Resources**

While resources were discussed by the County's institutions of higher education a formal inventory was not collected. This may be an area further detailed in subsequent updates of the plan.

**Appendix B**  
**DEBRIS MANAGEMENT JOB AID CHECKLISTS**

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## Debris Manager

|                       |   |
|-----------------------|---|
| Position Description: | The Debris Manager oversees disaster debris management operations in accordance with the Debris Management Plan as well as local, regional, state, and federal regulations  |
| Reports To:           | Emergency Operations Center   |
| Responsibilities:     | <ul style="list-style-type: none"><li><input type="checkbox"/> Establish a Debris Management Operations Center (DMOC).</li><li><input type="checkbox"/> Activate staff for debris clearing and debris monitoring services.</li><li><input type="checkbox"/> Establish the Incident Command System (ICS) for debris management operations.</li><li><input type="checkbox"/> Coordinate with Tompkins County Purchasing Division and municipal purchasing officials to activate staff and contractors for debris clearing and debris monitoring services.</li><li><input type="checkbox"/> Establish priorities for debris management operations.</li><li><input type="checkbox"/> Collaborate with federal, state, and other agency representatives.</li><li><input type="checkbox"/> Provide updates to the Tompkins County Department of Emergency Response regarding debris management operations.</li><li><input type="checkbox"/> Review and approve public information messages regarding debris operations.</li><li><input type="checkbox"/> Coordinate with Tompkins County Finance Department and municipal finance staff in the tracking of debris management costs.</li><li><input type="checkbox"/> Coordinate the demobilization of debris management operations.</li></ul> |

### Safety Officer

|                       |   |
|-----------------------|---|
| Position Description: | The Safety Officer ensures debris management operations are conducted in a safe manner in accordance with Tompkins County's safety program.   |
| Reports To:           | Debris Manager  |
| Responsibilities:     | <ul style="list-style-type: none"><li><input type="checkbox"/> Create a safety plan.</li><li><input type="checkbox"/> Ensure safety messages are developed and briefings are conducted.</li><li><input type="checkbox"/> Exercise emergency authority to stop and prevent unsafe acts during debris operations.</li><li><input type="checkbox"/> Revise Incident Action Plans for safety considerations.</li><li><input type="checkbox"/> Investigate accidents and near misses.</li><li><input type="checkbox"/> Participate in planning meetings.</li><li><input type="checkbox"/> Review and approve the medical plan.</li></ul> |

### Debris Clearing Task Force Leader

|                       |   |
|-----------------------|---|
| Position Description: | The Debris Clearing Task Force Leader oversees street clearing operations immediately following a disaster to ensure emergency vehicles and utility restoration crews can access and traverse roads in conducting emergency response operations.  |
| Reports To:           | Debris Manager  |
| Responsibilities:     | <ul style="list-style-type: none"><li><input type="checkbox"/> Stage and prepare resources immediately prior to an expected incident to ensure these will be fueled and ready to activate in the event they would be needed to clear debris off streets.</li><li><input type="checkbox"/> Oversee street clearing immediately following a debris generating incident.</li><li><input type="checkbox"/> Coordinate with local and contract resources to clear streets of debris in accordance with established objectives and priorities.</li><li><input type="checkbox"/> Track progress of debris clearing operations.</li><li><input type="checkbox"/> Provide regular updates to the Debris Manager regarding the status of operations.</li><li><input type="checkbox"/> Coordinate with the Safety Officer to ensure street clearing operations are conducted in a safe manner.</li><li><input type="checkbox"/> Ensure all hours, expenses, and equipment use are accurately documented.</li></ul> |

### Debris Clearing Task Force

|                       |  |
|-----------------------|--|
| Position Description: | The Debris Clearing Task Force conduct street clearing immediately following a disaster to ensure emergency vehicles and utility restoration crews can access and traverse roads in conducting emergency response operations.  |
| Reports To:           | Debris Clearing Task Force Leader  |
| Responsibilities:     | <ul style="list-style-type: none"><li><input type="checkbox"/> Coordinate through the Debris Clearing Task Force Leader to divide into teams and clear streets of debris in accordance with established objectives and priorities.</li><li><input type="checkbox"/> Report any hazardous conditions such as downed power lines, hazardous materials spills, natural gas leaks to the proper authorities as well as the Debris Clearing Task Force Leader.</li><li><input type="checkbox"/> Track progress of the Task Force in debris clearing operations.</li><li><input type="checkbox"/> Provide updates as required to the Debris Clearing Task Force Leader regarding status and progress of the Task Force.</li><li><input type="checkbox"/> Obey health and safety policy and follow health and safety guidance in conducting street clearing operations.</li><li><input type="checkbox"/> Ensure all hours, expenses, and equipment use are accurately documented.</li></ul> |

## Debris Collection and Disposal Task Force Leader

|                       |  |
|-----------------------|--|
| Position Description: | The Debris Collection and Disposal Task Force Leader oversees debris collection and disposal operations.   |
| Reports To:           | Debris Manager   |
| Responsibilities:     | <ul style="list-style-type: none"><li><input type="checkbox"/> Coordinate with County, local, and contract resources to stage and ready resources immediately prior to an expected incident to ensure these will be fueled and ready to activate in the event they are needed to collect debris.</li><li><input type="checkbox"/> Coordinate with the Debris Monitoring staff to conduct truck certifications.</li><li><input type="checkbox"/> Coordinate local and contract resources to conduct debris collection operations in accordance with established objectives and priorities.</li><li><input type="checkbox"/> Coordinate with the Debris Monitoring Staff to conduct collection, DMS, and disposal site monitoring.</li><li><input type="checkbox"/> Activate DMS locations as needed in coordination with relevant departments and agencies.</li><li><input type="checkbox"/> Coordinate with Environmental Health Task Force Leader to conduct soil sampling at DMS locations prior to and after closure of DMS.</li><li><input type="checkbox"/> Coordinate with local labor and contractors to ensure debris is recycled or disposed of in accordance with regulatory guidelines.</li><li><input type="checkbox"/> Coordinate local and contract resources to conduct special debris operations including removal of dangerous trees, privately owned vehicles and vessels, waterway debris, parks debris, and private property debris, in accordance with FEMA authorization and guidelines.</li><li><input type="checkbox"/> Track progress of debris collection, recycling and disposal in coordination with the Debris Monitoring Staff.</li><li><input type="checkbox"/> Provide regular updates to the Debris Manager regarding the status of operations.</li><li><input type="checkbox"/> Coordinate with the Safety Officer to ensure debris collection and disposal operations are conducted in a safe manner.</li><li><input type="checkbox"/> Ensure all hours, expenses, and equipment use are accurately documented.</li></ul> |

### Debris Collection and Disposal Task Force

|                       |  |
|-----------------------|--|
| Position Description: | The Debris Collection and Disposal Task Force conducts debris collection and disposal operations.  |
| Reports To:           | Debris Collection and Disposal Task Force Leader   |
| Responsibilities:     | <ul style="list-style-type: none"><li><input type="checkbox"/> Coordinate through the Debris Collection and Disposal Task Force Leader and the monitoring staff to collect debris and deliver it to the appropriate location for reduction, recycling, or disposal in coordination with the debris monitoring staff.</li><li><input type="checkbox"/> Report any hazardous conditions such as downed power lines, hazardous materials spills, natural gas leaks to the proper authorities as well as the Debris Collection and Disposal Task Force Leader.</li><li><input type="checkbox"/> Provide updates as required to the Debris Collection and Disposal Task Force Leader regarding the status and progress of the Task Force.</li><li><input type="checkbox"/> Obey the health and safety policy and follow health and safety guidance in conducting debris removal, reduction, and disposal operations.</li><li><input type="checkbox"/> Ensure all hours, expenses and equipment use are accurately documented.</li></ul> |



### Environmental Health Task Force Leader

|                       |   |
|-----------------------|---|
| Position Description: | The Environmental Health Task Force Leader monitors the impacts of debris operations and liaises with regional, State, and Federal environmental agency representatives.  |
| Reports To:           | Debris Manager  |
| Responsibilities:     | <ul style="list-style-type: none"><li><input type="checkbox"/> Liaise with regional, state, and federal environmental agencies and contractors to monitor the environmental impacts of debris management operations including air, soil, and asbestos monitoring.</li><li><input type="checkbox"/> Coordinate with the Debris Collection and Disposal Task Force Leader, or designee, to conduct soil sampling at DMS locations prior to and after closure of DMS.</li><li><input type="checkbox"/> Track the progress of environmental monitoring and testing operations and document results.</li><li><input type="checkbox"/> Provide regular updates to the Debris Manager regarding the status of environmental monitoring operations.</li><li><input type="checkbox"/> Coordinate with the Safety Officer to ensure environmental monitoring operations are conducted in a safe manner.</li><li><input type="checkbox"/> Ensure all hours, expenses, and equipment use are accurately documented.</li></ul> |

### Environmental Health Task Force

|                       |  |
|-----------------------|--|
| Position Description: | The Environmental Health Task Force monitors the impacts of debris operations.   |
| Reports To:           | Environmental Health Task Force Leader   |
| Responsibilities:     | <ul style="list-style-type: none"><li><input type="checkbox"/> Coordinate with the Environmental Health Task Force Leader, or designee, to conduct soil sampling at DMS locations prior to and after closure of DMS.</li><li><input type="checkbox"/> Track the progress of environmental monitoring and testing operations and document results.</li><li><input type="checkbox"/> Provide regular updates to the Environmental Health Task Force Leader regarding the status of environmental monitoring operations.</li><li><input type="checkbox"/> Obey the health and safety policy and follow health and safety guidance in conducting debris removal, reduction, and disposal operations.</li><li><input type="checkbox"/> Ensure all hours, expenses, and equipment use are accurately documented.</li></ul> |

**Appendix C**  
**DEBRIS MANAGEMENT CHECKLISTS**

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**DEBRIS MANAGEMENT CHECKLISTS**

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| <b>Normal Operations Checklist</b>                          |                      |                    |                       |
|---|----------------------|--------------------|-----------------------|
| <b>Task Description</b>                                     | <b>Date Assigned</b> | <b>Assigned To</b> | <b>Date Completed</b> |
| Update contact and equipment lists.                         |                      |                    |                       |
| Evaluate pre-identified and potential DMS locations.        |                      |                    |                       |
| Request pre-approval of new DMS locations from the NYS DEC. |                      |                    |                       |
| Review road lists and road maps.                            |                      |                    |                       |
| Establish and maintain pre-positioned contracts.            |                      |                    |                       |
| Review State and FEMA guidance.                             |                      |                    |                       |

## DEBRIS MANAGEMENT CHECKLISTS

| <b>Pre-Incident Checklist</b>  |                      |                    |                       |
|--|----------------------|--------------------|-----------------------|
| <b>Task Description</b>  | <b>Date Assigned</b> | <b>Assigned To</b> | <b>Date Completed</b> |
| Download most recent road list, maps, and other relevant documents to a portable storage device.   |                      |                    |                       |
| Alert key personnel and place monitoring firm and debris removal contractors on stand-by.<br><br>Discuss with the monitoring firm and debris removal contractors should address the following key issues: <ul style="list-style-type: none"> <li>• Availability and amount of assets that will be dedicated to debris removal operations.</li> <li>• Estimated time of mobilization.</li> <li>• Exchange of mobile contact information.</li> <li>• Identification of staging area(s) for truck certification.</li> </ul> |                      |                    |                       |
| Review DMP with key personnel.   |                      |                    |                       |
| Review and modify (as appropriate) the Health and Safety Strategy.   |                      |                    |                       |
| Issue pre-event media press releases.  |                      |                    |                       |

## DEBRIS MANAGEMENT CHECKLISTS

| <b>Response Checklist</b>   |                      |                    |                       |
|---|----------------------|--------------------|-----------------------|
| <b>Task Description</b>   | <b>Date Assigned</b> | <b>Assigned To</b> | <b>Date Completed</b> |
| Conduct damage assessments.   |                      |                    |                       |
| Establish a Debris Management Operations Center (DMOC).   |                      |                    |                       |
| Activate monitoring and debris removal staff/contractors.   |                      |                    |                       |
| Begin emergency roadway debris clearance.   |                      |                    |                       |
| Begin truck certification.  |                      |                    |                       |
| Prepare DMS based on concentration of debris.   |                      |                    |                       |
| Conduct meetings/briefings with key personnel.  |                      |                    |                       |
| Review debris volume and collection cost assessment.  |                      |                    |                       |
| Request contact information and meeting with FEMA Public Assistance Program Delivery Manager (PA PDMG). |                      |                    |                       |
| Issue media press release.  |                      |                    |                       |

**DEBRIS MANAGEMENT CHECKLISTS**

| <b>Recovery Checklist: 2 Days – 2 Weeks</b>                                   |                      |                    |                       |
|---|----------------------|--------------------|-----------------------|
| <b>Task Description</b>   | <b>Date Assigned</b> | <b>Assigned To</b> | <b>Date Completed</b> |
| Open DMSs.  |                      |                    |                       |
| Prioritize roads/areas.   |                      |                    |                       |
| Issue press release regarding segregation of debris.                          |                      |                    |                       |
| Begin ROW debris removal.   |                      |                    |                       |
| Perform parks damage assessment.  |                      |                    |                       |
| Begin program of environmental monitoring of DMSs.                            |                      |                    |                       |
| Coordinate with external agencies.  |                      |                    |                       |
| Initiate discussions with FEMA.   |                      |                    |                       |
| Obtain FEMA guidance for gated community and private property debris removal. |                      |                    |                       |

**DEBRIS MANAGEMENT CHECKLISTS**

| <b>Recovery Checklist: 2 Weeks – 1 Month</b>                      |                      |                    |                       |
|---|----------------------|--------------------|-----------------------|
| <b>Task Description</b>   | <b>Date Assigned</b> | <b>Assigned To</b> | <b>Date Completed</b> |
| Maintain and evaluate ROW cleanup.                                |                      |                    |                       |
| Begin ROW stump removal as necessary.                             |                      |                    |                       |
| Open additional DMSs as necessary.                                |                      |                    |                       |
| Continue daily meetings with FEMA.                                |                      |                    |                       |
| Begin debris removal from private property and gated communities. |                      |                    |                       |
| Communicate project close-out to residents via press release.     |                      |                    |                       |



**DEBRIS MANAGEMENT CHECKLISTS**

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| <b>Recovery Checklist: 1 Month – 3 Months</b>                                      |                      |                    |                       |
|--|----------------------|--------------------|-----------------------|
| <b>Task Description</b>  | <b>Date Assigned</b> | <b>Assigned To</b> | <b>Date Completed</b> |
| Maintain and evaluate ROW cleanup – vegetative and C&D.                            |                      |                    |                       |
| Begin ROW leaners (dangerous leaning trees) and hangers (dangerous limbs) program. |                      |                    |                       |
| Initiate haul-out.   |                      |                    |                       |
| Progress to weekly meetings with FEMA.   |                      |                    |                       |

**DEBRIS MANAGEMENT CHECKLISTS**

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| <b>Recovery Checklist: 3 Months – Project Completion</b>            |                      |                    |                       |
|---|----------------------|--------------------|-----------------------|
| <b>Task Description</b>   | <b>Date Assigned</b> | <b>Assigned To</b> | <b>Date Completed</b> |
| Complete all debris recovery activities.                            |                      |                    |                       |
| Identify ineligible debris on ROW.                                  |                      |                    |                       |
| Complete the disposal of reduced debris.                            |                      |                    |                       |
| Close out and remediate DMSs.                                       |                      |                    |                       |
| Conduct project close-out meetings with FEMA and external agencies. |                      |                    |                       |

**Appendix D**

**DEBRIS CONTRACTOR CHECKLIST AND GUIDELINES**

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The Disaster Debris Contract Checklist was designed to guide Tompkins County and its municipalities in contracting disaster debris services. The checklist provides a step-by-step process to procuring disaster debris services that complies with current federal standards and best practices. The checklist includes the steps to solicit bids, review proposals, and select an appropriate contractor. The checklist was developed using guidance set forth by the Federal Emergency Management Agency (FEMA) and the provisions of Title 2 Code of Federal Regulations (CFR) Part 200 General Procurement Standards.

Tabs A and B, attached to this document, provide additional details on procurement policies:

- Tab A: 2 CFR Parts 200.317 – 200.326
- Tab B: Checklist for Reviewing Procurements Under Grants by Non-Federal Entities (States, local and tribal governments, Institutions of Higher Education, Hospitals, and Private Non-Profit Organizations)

### Disaster Debris Contract Checklist

| Task  | Responsibility | Completion Date |
|---|----------------|-----------------|
| <b>Pre-Disaster Tasks</b>   |                |                 |
| Solicit a request for proposals for disaster debris services (see Debris Hauler Sample Request for Proposals [Appendix E] for specific contract provisions).  |                |                 |
| The solicitation for prequalified contractors should include: <ul style="list-style-type: none"> <li><input type="checkbox"/> Adequately defined scope of work</li> <li><input type="checkbox"/> All potential debris types</li> <li><input type="checkbox"/> Anticipated haul distances</li> <li><input type="checkbox"/> Potential size of debris events</li> <li><input type="checkbox"/> Hourly labor, equipment and material price schedule</li> <li><input type="checkbox"/> Performance bond requirements</li> </ul>   |                |                 |
| Qualify bidders by requesting documentation of the following: <ul style="list-style-type: none"> <li><input type="checkbox"/> Licenses</li> <li><input type="checkbox"/> Financial stability</li> <li><input type="checkbox"/> Proof of insurance</li> <li><input type="checkbox"/> Bonding capability</li> <li><input type="checkbox"/> Description of related experience and capabilities including total verified cubic yards removed and processed</li> <li><input type="checkbox"/> References including jurisdiction name, point of contact, email address and phone number</li> <li><input type="checkbox"/> Description of health and safety plan, including operation plan at debris management site(s)</li> </ul> |                |                 |
|   |                |                 |
| Contractors that have been declared <b>debarred</b> by the Office of Federal Contract Compliance Programs <b>should not be considered</b> . A complete list of federally disbarred contractors can be found in the System for Award Management (SAM) dataset at <a href="http://www.sam.gov">www.sam.gov</a> .  |                |                 |

| Task   | Responsibility | Completion Date |
|--|----------------|-----------------|
| <p>Check the status of prequalified contractors in the SAM database <b><u>at the time of the disaster.</u></b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Go to the SAM Database at <a href="https://www.sam.gov/portal/public/SAM/">https://www.sam.gov/portal/public/SAM/</a>.</li> <li><input type="checkbox"/> Under the Search Records tab, enter a DUNS number, CAGE code or Business Name to search for the contractor you are interested in pre-qualifying.</li> <li><input type="checkbox"/> Note any exclusions listed for the contractor that may prohibit federal assistance for debris services.</li> <li><input type="checkbox"/> Print the screen with the results and file in records.</li> </ul> |                |                 |
| Ensure compliance with the jurisdiction's procurement procedures.  |                |                 |
| Ensure compliance with applicable state and local procurement laws and regulations.  |                |                 |
| Ensure compliance with federal procurement laws and standards identified in 2 CFR 200 (see Tab A).   |                |                 |
| Ensure competition (see the provisions in Section 200.319 Competition in Tab A for specific requirements regarding competition).   |                |                 |
| Provide a clear and definitive scope of work.  |                |                 |
| Develop a cost analysis to demonstrate cost reasonableness <b><u>for any contract or contract modification where price competition is lacking.</u></b>   |                |                 |
| Ensure opportunities for minority and women-owned businesses and firms whenever possible. Require prime contractors to utilize minority and women-owned businesses as scope allows per the provisions laid out in 2 CFR 200.   |                |                 |
| Document the process and rationale the jurisdiction followed in making procurement decisions.  |                |                 |
| Conduct a review by the jurisdiction's legal counsel of the procurement process and any potential contracts to be awarded to ensure compliance with all federal, state, and local requirements.  |                |                 |
| Establish procedures to address protests and disputes related to contract awards.  |                |                 |
| Compile all documentation related to the procurement and file in a secure location that can be accessed for future review.   |                |                 |

## TAB A: 2 CFR 200 PROCUREMENT STANDARDS

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### PROCUREMENT STANDARDS

#### §200.317 Procurements by states.

When procuring property and services under a Federal award, a state must follow the same policies and procedures it uses for procurements from its non-Federal funds. The state will comply with §200.322 Procurement of recovered *materials* and ensure that every purchase order or other contract includes any clauses required by section §200.326 Contract provisions. All other non-Federal entities, including subrecipients of a state, will follow §§200.318 General procurement standards through 200.326 Contract provisions.

#### §200.318 General procurement standards.

(a) The non-Federal entity must use its own documented procurement procedures which reflect applicable State, local, and tribal laws and regulations, provided that the procurements conform to applicable Federal law and the standards identified in this part.

(b) Non-Federal entities must maintain oversight to ensure that contractors perform in accordance with the terms, conditions, and specifications of their contracts or purchase orders.

(c)(1) The non-Federal entity must maintain written standards of conduct covering conflicts of interest and governing the actions of its employees engaged in the selection, award and administration of contracts. No employee, officer, or agent may participate in the selection, award, or administration of a contract supported by a Federal award if he or she has a real or apparent conflict of interest. Such a conflict of interest would arise when the employee, officer, or agent, any member of his or her immediate family, his or her partner, or an organization which employs or is about to employ any of the parties indicated herein, has a financial or other interest in or a tangible personal benefit from a firm considered for a contract. The officers, employees, and agents of the non-Federal entity may neither solicit nor accept gratuities, favors, or anything of monetary value from contractors or parties to subcontracts. However, non-Federal entities may set standards for situations in which the financial interest is not substantial or the gift is an unsolicited item of nominal value. The standards of conduct must provide for disciplinary actions to be applied for violations of such standards by officers, employees, or agents of the non-Federal entity.

(2) If the non-Federal entity has a parent, affiliate, or subsidiary organization that is not a state, local government, or Indian tribe, the non-Federal entity must also maintain written standards of conduct covering organizational conflicts of interest. Organizational conflicts of interest means that because of relationships with a parent company, affiliate, or subsidiary organization, the non-Federal entity is unable or appears to be unable to be impartial in conducting a procurement action involving a related organization.

(d) The non-Federal entity's procedures must avoid acquisition of unnecessary or duplicative items. Consideration should be given to consolidating or breaking out procurements to obtain a more economical purchase. Where appropriate, an analysis will be made of lease versus purchase alternatives, and any other appropriate analysis to determine the most economical approach.

(e) To foster greater economy and efficiency, and in accordance with efforts to promote cost-effective use of shared services across the Federal Government, the non-Federal entity is encouraged to enter into state and local intergovernmental agreements or inter-entity agreements where appropriate for procurement or use of common or shared goods and services.

(f) The non-Federal entity is encouraged to use Federal excess and surplus property in lieu of purchasing new equipment and property whenever such use is feasible and reduces project costs.

(g) The non-Federal entity is encouraged to use value engineering clauses in contracts for construction projects of sufficient size to offer reasonable opportunities for cost reductions. Value engineering is a systematic and creative analysis of each contract item or task to ensure that its essential function is provided at the overall lower cost.

(h) The non-Federal entity must award contracts only to responsible contractors possessing the ability to perform successfully under the terms and conditions of a proposed procurement. Consideration will be given to such matters as contractor integrity, compliance with public policy, record of past performance, and financial and technical resources. See also §200.213 Suspension and debarment.

(i) The non-Federal entity must maintain records sufficient to detail the history of procurement. These records will include, but are not necessarily limited to the following: rationale for the method of procurement, selection of contract type, contractor selection or rejection, and the basis for the contract price.

(j)(1) The non-Federal entity may use a time and materials type contract only after a determination that no other contract is suitable and if the contract includes a ceiling price that the contractor exceeds at its own risk. Time and materials type contract means a contract whose cost to a non-Federal entity is the sum of:

(i) The actual cost of materials; and

(ii) Direct labor hours charged at fixed hourly rates that reflect wages, general and administrative expenses, and profit.

(2) Since this formula generates an open-ended contract price, a time-and-materials contract provides no positive profit incentive to the contractor for cost control or labor efficiency. Therefore, each contract must set a ceiling price that the contractor exceeds at its own risk. Further, the non-Federal entity awarding such a contract must assert a high degree of oversight in order to obtain reasonable assurance that the contractor is using efficient methods and effective cost controls.

(k) The non-Federal entity alone must be responsible, in accordance with good administrative practice and sound business judgment, for the settlement of all contractual and administrative issues arising out of procurements. These issues include, but are not limited to, source evaluation, protests, disputes, and claims. These standards do not relieve the non-Federal entity of any contractual responsibilities under its contracts. The Federal awarding agency will not substitute its judgment for that of the non-Federal entity unless the matter is primarily a Federal concern. Violations of law will be referred to the local, state, or Federal authority having proper jurisdiction.

[78 FR 78608, Dec. 26, 2013, as amended at 79 FR 75885, Dec. 19, 2014; 80 FR 43309, July 22, 2015]

### **§200.319 Competition.**

(a) All procurement transactions must be conducted in a manner providing full and open competition consistent with the standards of this section. In order to ensure objective contractor performance and eliminate unfair competitive advantage, contractors that develop or draft specifications, requirements, statements of work, or invitations for bids or requests for proposals must be excluded from competing for such procurements. Some of the situations considered to be restrictive of competition include but are not limited to:

- (1) Placing unreasonable requirements on firms in order for them to qualify to do business;
- (2) Requiring unnecessary experience and excessive bonding;
- (3) Noncompetitive pricing practices between firms or between affiliated companies;
- (4) Noncompetitive contracts to consultants that are on retainer contracts;
- (5) Organizational conflicts of interest;
- (6) Specifying only a “brand name” product instead of allowing “an equal” product to be offered and describing the performance or other relevant requirements of the procurement; and
- (7) Any arbitrary action in the procurement process.

(b) The non-Federal entity must conduct procurements in a manner that prohibits the use of statutorily or administratively imposed state, local, or tribal geographical preferences in the evaluation of bids or proposals, except in those cases where applicable Federal statutes expressly mandate or encourage geographic preference. Nothing in this section preempts state licensing laws. When contracting for architectural and engineering (A/E) services, geographic location may be a selection criterion provided its application leaves an appropriate number of qualified firms, given the nature and size of the project, to compete for the contract.

(c) The non-Federal entity must have written procedures for procurement transactions. These procedures must ensure that all solicitations:

(1) Incorporate a clear and accurate description of the technical requirements for the material, product, or service to be procured. Such description must not, in competitive procurements, contain features which unduly restrict competition. The description may include a statement of the qualitative nature of the material, product or service to be procured and, when necessary, must set forth those minimum essential characteristics and standards to which it must conform if it is to satisfy its intended use. Detailed product specifications should be avoided if at all possible. When it is impractical or uneconomical to make a clear and accurate description of the technical requirements, a “brand name or equivalent” description may be used as a means to define the performance or other salient requirements of procurement. The specific features of the named brand which must be met by offers must be clearly stated; and

(2) Identify all requirements which the offerors must fulfill and all other factors to be used in evaluating bids or proposals.

(d) The non-Federal entity must ensure that all prequalified lists of persons, firms, or products which are used in acquiring goods and services are current and include enough qualified sources to ensure maximum open and free competition. Also, the non-Federal entity must not preclude potential bidders from qualifying during the solicitation period.

[78 FR 78608, Dec. 26, 2013, as amended at 79 FR 75885, Dec. 19, 2014]



**§200.320 Methods of procurement to be followed.**

The non-Federal entity must use one of the following methods of procurement.

(a) Procurement by micro-purchases. Procurement by micro-purchase is the acquisition of supplies or services, the aggregate dollar amount of which does not exceed the micro-purchase threshold (§200.67 Micro-purchase). To the extent practicable, the non-Federal entity must distribute micro-purchases equitably among qualified suppliers. Micro-purchases may be awarded without soliciting competitive quotations if the non-Federal entity considers the price to be reasonable.

(b) Procurement by small purchase procedures. Small purchase procedures are those relatively simple and informal procurement methods for securing services, supplies, or other property that do not cost more than the Simplified Acquisition Threshold. If small purchase procedures are used, price or rate quotations must be obtained from an adequate number of qualified sources.

(c) Procurement by sealed bids (formal advertising). Bids are publicly solicited and a firm fixed price contract (lump sum or unit price) is awarded to the responsible bidder whose bid, conforming with all the material terms and conditions of the invitation for bids, is the lowest in price. The sealed bid method is the preferred method for procuring construction, if the conditions in paragraph (c)(1) of this section apply.

(1) In order for sealed bidding to be feasible, the following conditions should be present:

- (i) A complete, adequate, and realistic specification or purchase description is available;
- (ii) Two or more responsible bidders are willing and able to compete effectively for the business; and
- (iii) The procurement lends itself to a firm fixed price contract and the selection of the successful bidder can be made principally on the basis of price.

(2) If sealed bids are used, the following requirements apply:

(i) Bids must be solicited from an adequate number of known suppliers, providing them sufficient response time prior to the date set for opening the bids, for local, and tribal governments, the invitation for bids must be publicly advertised;

(ii) The invitation for bids, which will include any specifications and pertinent attachments, must define the items or services in order for the bidder to properly respond;

(iii) All bids will be opened at the time and place prescribed in the invitation for bids, and for local and tribal governments, the bids must be opened publicly;

(iv) A firm fixed price contract award will be made in writing to the lowest responsive and responsible bidder. Where specified in bidding documents, factors such as discounts, transportation cost, and life cycle costs must be considered in determining which bid is lowest. Payment discounts will only be used to determine the low bid when prior experience indicates that such discounts are usually taken advantage of; and

(v) Any or all bids may be rejected if there is a sound documented reason.

(d) Procurement by competitive proposals. The technique of competitive proposals is normally conducted with more than one source submitting an offer, and either a fixed price or cost-reimbursement type contract is awarded. It is generally used when conditions are not appropriate for the use of sealed bids. If this method is used, the following requirements apply:

(1) Requests for proposals must be publicized and identify all evaluation factors and their relative importance. Any response to publicized requests for proposals must be considered to the maximum extent practical;

(2) Proposals must be solicited from an adequate number of qualified sources;

(3) The non-Federal entity must have a written method for conducting technical evaluations of the proposals received and for selecting recipients;

(4) Contracts must be awarded to the responsible firm whose proposal is most advantageous to the program, with price and other factors considered; and

(5) The non-Federal entity may use competitive proposal procedures for qualifications-based procurement of architectural/engineering (A/E) professional services whereby competitors' qualifications are evaluated and the most qualified competitor is selected, subject to negotiation of fair and reasonable compensation. The method, where price is not used as a selection factor, can only be used in procurement of A/E professional services. It cannot be used to purchase other types of services though A/E firms are a potential source to perform the proposed effort.

(e) [Reserved]

(f) Procurement by noncompetitive proposals. Procurement by noncompetitive proposals is procurement through solicitation of a proposal from only one source and may be used only when one or more of the following circumstances apply:

(1) The item is available only from a single source;

(2) The public exigency or emergency for the requirement will not permit a delay resulting from competitive solicitation;

(3) The Federal awarding agency or pass-through entity expressly authorizes noncompetitive proposals in response to a written request from the non-Federal entity; or

(4) After solicitation of a number of sources, competition is determined inadequate.

[78 FR 78608, Dec. 26, 2013, as amended at 79 FR 75885, Dec. 19, 2014; 80 FR 54409, Sept. 10, 2015]

**§200.321 Contracting with small and minority businesses, women's business enterprises, and labor surplus area firms.**

(a) The non-Federal entity must take all necessary affirmative steps to assure that minority businesses, women's business enterprises, and labor surplus area firms are used when possible.

(b) Affirmative steps must include:

(1) Placing qualified small and minority businesses and women's business enterprises on solicitation lists;

(2) Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;

(3) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises;

(4) Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises;

(5) Using the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce; and

(6) Requiring the prime contractor, if subcontracts are to be let, to take the affirmative steps listed in paragraphs (1) through (5) of this section.

#### **§200.322 Procurement of recovered materials.**

A non-Federal entity that is a state agency or agency of a political subdivision of a state and its contractors must comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds \$10,000 or the value of the quantity acquired during the preceding fiscal year exceeded \$10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

[78 FR 78608, Dec. 26, 2013, as amended at 79 FR 75885, Dec. 19, 2014]

#### **§200.323 Contract cost and price.**

(a) The non-Federal entity must perform a cost or price analysis in connection with every procurement action in excess of the Simplified Acquisition Threshold including contract modifications. The method and degree of analysis is dependent on the facts surrounding the particular procurement situation, but as a starting point, the non-Federal entity must make independent estimates before receiving bids or proposals.

(b) The non-Federal entity must negotiate profit as a separate element of the price for each contract in which there is no price competition and in all cases where cost analysis is performed. To establish a fair and reasonable profit, consideration must be given to the complexity of the work to be performed, the risk borne by the contractor, the contractor's investment, the amount of subcontracting, the quality of its record of past performance, and industry profit rates in the surrounding geographical area for similar work.

(c) Costs or prices based on estimated costs for contracts under the Federal award are allowable only to the extent that costs incurred or cost estimates included in negotiated prices would be allowable for the non-Federal entity under Subpart E—Cost Principles of this part. The non-Federal entity may reference its own cost principles that comply with the Federal cost principles.

(d) The cost plus a percentage of cost and percentage of construction cost methods of contracting must not be used.

#### **§200.324 Federal awarding agency or pass-through entity review.**

(a) The non-Federal entity must make available, upon request of the Federal awarding agency or pass-through entity, technical specifications on proposed procurements where the Federal awarding

agency or pass-through entity believes such review is needed to ensure that the item or service specified is the one being proposed for acquisition. This review generally will take place prior to the time the specification is incorporated into a solicitation document. However, if the non-Federal entity desires to have the review accomplished after a solicitation has been developed, the Federal awarding agency or pass-through entity may still review the specifications, with such review usually limited to the technical aspects of the proposed purchase.

(b) The non-Federal entity must make available upon request, for the Federal awarding agency or pass-through entity pre-procurement review, procurement documents, such as requests for proposals or invitations for bids, or independent cost estimates, when:

(1) The non-Federal entity's procurement procedures or operation fails to comply with the procurement standards in this part;

(2) The procurement is expected to exceed the Simplified Acquisition Threshold and is to be awarded without competition or only one bid or offer is received in response to a solicitation;

(3) The procurement, which is expected to exceed the Simplified Acquisition Threshold, specifies a "brand name" product;

(4) The proposed contract is more than the Simplified Acquisition Threshold and is to be awarded to other than the apparent low bidder under a sealed bid procurement; or

(5) A proposed contract modification changes the scope of a contract or increases the contract amount by more than the Simplified Acquisition Threshold.

(c) The non-Federal entity is exempt from the pre-procurement review in paragraph (b) of this section if the Federal awarding agency or pass-through entity determines that its procurement systems comply with the standards of this part.

(1) The non-Federal entity may request that its procurement system be reviewed by the Federal awarding agency or pass-through entity to determine whether its system meets these standards in order for its system to be certified. Generally, these reviews must occur where there is continuous high-dollar funding, and third party contracts are awarded on a regular basis;

(2) The non-Federal entity may self-certify its procurement system. Such self-certification must not limit the Federal awarding agency's right to survey the system. Under a self-certification procedure, the Federal awarding agency may rely on written assurances from the non-Federal entity that it is complying with these standards. The non-Federal entity must cite specific policies, procedures, regulations, or standards as being in compliance with these requirements and have its system available for review.

#### **§200.325 Bonding requirements.**

For construction or facility improvement contracts or subcontracts exceeding the Simplified Acquisition Threshold, the Federal awarding agency or pass-through entity may accept the bonding policy and requirements of the non-Federal entity provided that the Federal awarding agency or pass-through entity has made a determination that the Federal interest is adequately protected. If such a determination has not been made, the minimum requirements must be as follows:

(a) A bid guarantee from each bidder equivalent to five percent of the bid price. The "bid guarantee" must consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the bidder will, upon acceptance of the bid, execute such contractual documents as may be required within the time specified.

(b) A performance bond on the part of the contractor for 100 percent of the contract price. A “performance bond” is one executed in connection with a contract to secure fulfillment of all the contractor's obligations under such contract.

(c) A payment bond on the part of the contractor for 100 percent of the contract price. A “payment bond” is one executed in connection with a contract to assure payment as required by law of all persons supplying labor and material in the execution of the work provided for in the contract.

**§200.326 Contract provisions.**

The non-Federal entity's contracts must contain the applicable provisions described in Appendix II to Part 200—Contract Provisions for non-Federal Entity Contracts Under Federal Awards.

## **TAB B: Checklist for Reviewing Procurements Under Grants by Non-Federal Entities (States, local and tribal governments, Institutions of Higher Education, Hospitals, and private non-profit organizations) – 2 CFR pt. 200**

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This checklist was created to assist FEMA recipients and subrecipients in complying with the federal requirements that procurements must meet in order for FEMA to reimburse eligible expenses. Importantly, this checklist is intended to provide general guidance only and does not provide a detailed explanation of the Federal procurement requirements – it is not intended to serve as legal advice and FEMA makes no guarantee that adherence to this checklist will result in full reimbursement of eligible expenses. To understand the requirements fully, the user should review the provisions of [2 C.F.R. § 200.317 – 326](#), which is the source of these requirements. FEMA’s in – depth guidance on these provisions can be found in its *Supplement to the Public Assistance Field Manual*. In addition, the user may review FEMA’s Field Manual, [Public Assistance Grantee and Subgrantee Procurement Requirements](#), which is available on the internet by searching for “FEMA Procurement Field Manual.” While the Field Manual was drafted to specifically address the Federal procurement standards that were in effect prior to 26 December 2014 ([44 C.F.R. § 13.36\(a\)-\(i\) – States, Local and Tribal Governments](#); and [2 C.F.R. § 215.40-48 – Institutions of Higher Education, Hospitals, and other Non-Profit Organizations](#)), many of the concepts are similar or identical in substance, and thus remains an excellent tool for navigating the current Federal procurement standards. If any questions arise, please contact your servicing attorney or legal counsel for assistance.

2 C.F.R. § 200.317 – 326 became effective on December 26, 2014. For disasters (and their associated projects) declared prior to that date, the relevant procurement standards can continue to be found in 44 C.F.R. § 13.36(a)-(i) (States, local and tribal governments) and 2 C.F.R. § 215.40-48 (Institutions of Higher Education, Hospitals, and Private Non-Profits)<sup>1</sup>. As indicated above, while many of the concepts are similar or identical, there are some substantive differences between the old and the new standards. Accordingly, this checklist should not be used for procurements associated with declarations issued prior to 26 December 2014. Instead, see procurement standards Checklists 13.36 and 215<sup>2</sup>.

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<sup>1</sup> This includes projects associated with declarations issued prior to 26 December 2014, regardless of project start date. For example, if a disaster was declared on 1 November 2014, but contracting for a project under that declaration did not begin until 1 April 2015, then a State (or state agency/instrumentality) would still utilize the old procurement standards found at 44 C.F.R. § 13.36(a); local and tribal governments would follow § 13.36(b)-(i); and Institutions of Higher Education, Hospitals, and Private Non-Profits would use 2 C.F.R. §§ 215.40-48.

<sup>2</sup> 2 C.F.R. §200.110 provides prospective applicants with the option of exercising a “grace period,” which allows the prospective applicant to continue to use the old procurement standards at 13.36 or 215 for an additional two (2) fiscal years beginning on the first fiscal year after 26 December 2014. The fiscal year is based upon the prospective applicant’s own fiscal year. In order to utilize this exception, the prospective applicant is required to affirmatively elect its use through the documentation of this decision in its contract records.

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**Instructions:** Each standard below is followed by a block for “Yes”, “No”, or in some cases, “Not applicable”. **Red font** is used to indicate the response which, if checked, indicates that the contract does not comply with federal requirements.

The term “non-Federal entity” (NFE) below refers to the entity that is conducting the procurement action (i.e., the state, local, or tribal government or private-non-profit entity).

1. Does the procurement comply with the State’s own procurement laws, rules, and procedures?  
§200.317  **Yes**  **No**
2. Does the procurement comply with the requirement to make maximum use of recovered/recycled materials? § 200.317, § 200.322.  **Yes**  **No**  **N/A – work does not involve the use of materials (e.g., debris removal or other services)**
3. **Does the contract include the following clauses?**
  - a. If the contract amount exceeds \$150,000<sup>4</sup>, does it address **administrative, contractual, or legal remedies** in instances where contractors violate or breach contract terms, and provide for sanctions and penalties?  **Yes**  **No**  **N/A**
  - b. If the contract amount exceeds \$10,000, does it address **termination for cause and for convenience, including the manner by which it will be effected and the basis for settlement?**  **Yes**  **No**  **N/A**
  - c. If the contract is for construction, does it include the required **Equal Employment Opportunity clause**<sup>5</sup>?  **Yes**  **No**  **N/A**
  - d. For construction contracts exceeding \$2,000 awarded under a Federal grant, does the contract include a **Davis-Bacon Act clause** and **Copeland “Anti-Kickback” Act clause**<sup>6</sup> addressing prevailing wage rates? [Note that Public Assistance and Hazard Mitigation Grant Program contracts do NOT require these clauses.]  **Yes**  **No**  **N/A**
  - e. If the contract amount exceeds \$100,000 and involves the employment of mechanics or laborers, does the contract include a **Contract Work Hours and Safety Standards clause**<sup>7</sup>?  **Yes**  **No**  **N/A**
  - f. Rights to Inventions Made Under a Contract or Agreement<sup>8</sup>.  **N/A**

<sup>3</sup> See [Appendix II of 2 CFR part 200](#). See also, PDAT Field Manual, section IV.H for a detailed discussion of these clauses. Sample clauses and templates can be found in the [Required Contract Clauses 2 CFR 200.326 and 2 CFR Part 200 Appendix II](#).

<sup>4</sup> \$150,000 is the current dollar threshold for the simplified acquisition threshold, as authorized by 41 U.S.C. § 1908.

<sup>5</sup> The EEO clause can be found at [41 C.F.R. § 60-1.4\(b\)](#).

<sup>6</sup> The clause may read as follows: Compliance with the Copeland “Anti-Kickback” Act

<sup>7</sup> Must include a provision for compliance with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. 3702 of the Act, each contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation.

<sup>8</sup> As FEMA does not award grants or subgrants associated with research and development projects, this contract clause is inapplicable

- g. If the contract or subgrant amount exceeds \$150,000, does the contract include clauses addressing the **Clean Air Act and the Federal Water Pollution Control Act**<sup>9</sup>?  Yes  No  
 N/A
- h. Does the contract include mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (42 U.S.C. § 6201)?  Yes  No
- i. Contractor. The contractor shall comply with 18 U.S.C. § 874, 40 U.S.C. § 3145, and the requirements of 29 C.F.R. pt. 3 as may be applicable, which are incorporated by reference into this contract.
- ii. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clause above and such other clauses as the FEMA may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all of these contract clauses.
- iii. Breach. A breach of the contract clauses above may be grounds for termination of the contract, and for debarment as a contractor and subcontractor as provided in 29 C.F.R. § 5.12.
- i. Does the contract include a **Suspension and Debarment clause**<sup>10</sup>?  Yes  No<sup>11</sup>
- j. Does the contract include an **Anti-Lobbying clause**<sup>12</sup>?  Yes  No
- i. For contracts exceeding \$100,000, have bidders submitted an Anti-Lobbying Certification?  
 Yes  No  N/A
- k. *Does the contract include a clause requiring the contractor to maximize use of recovered/recycled materials?*  Yes  No  N/A – work does not involve the use of materials (e.g., debris removal or other services)

If a State agency is awarding the contract, stop here. If the contract is being awarded by a local or tribal government, or private nonprofit entity, continue with the checklist.



<sup>9</sup> The clause may read as follows: Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251-1387), and will report violations to FEMA and the Regional Office of the Environmental Protection Agency (EPA).

<sup>10</sup> See, PDAT Manual, pps. 99-100 for sample text.

<sup>11</sup> A prospective contractor that is listed on the government-wide Excluded Parties List System in the System for Award Management ([www.SAM.gov](http://www.SAM.gov)) as suspended or debarred, **CANNOT** be awarded a contract funded with Federal assistance.

<sup>12</sup> See PDAT Manual, pgs. 127-129. The clause may read substantially as follows:

Byrd Anti-Lobbying Amendment, 31 U.S.C. § 1352 (as amended). Contractors who apply or bid for an award of \$100,000 or more shall file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. § 1352. Each tier shall also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the recipient.



4. **General requirements**<sup>13</sup>

- a. Does the procurement comply with the NFE's<sup>14</sup> own procurement laws, rules, and procedures? §200.318(a)  Yes  No
- b. Does the NFE maintain contract oversight to ensure that contractors perform in accordance with the terms, conditions, and specifications of their contracts or purchase orders? §200.318(b)  Yes  No
- c. Does the NFE have - §200.318(c)(1):
- i. Written standards of conduct covering conflicts of interest and governing the actions of its employees engaged in the selection, award and administration of contracts?  
 Yes  No
  - ii. Any employee, officer, or agent participating in the selection, award, or administration of a contract supported by a Federal award that has an actual or apparent conflict of interest<sup>15</sup>?  Yes  No
  - iii. Any employee, officer, or agent that has solicited and/or accepted gratuities, favors, or anything of monetary value from contractors or parties to subcontracts<sup>16</sup>?  Yes  No
  - iv. Written standards of conduct that provide for disciplinary actions to be applied for violations of such standards by officers, employees, or agents of the non-Federal entity.  
 Yes  No
- d. If the non-Federal entity has a parent, affiliate, or subsidiary organization that is not a state, local government, or Indian tribe, does the non-Federal entity have written standards of conduct covering organizational conflicts of interest? § 200.318(c)(2)<sup>17</sup>  Yes  No  N/A
- e. The NFE must avoid acquisition of unnecessary or duplicative items. Has the NFE considered consolidating or breaking out procurements to obtain a more economical purchase? Where appropriate, has the NFE considered lease versus purchase alternatives?  
§ 200.318(d)  Yes  No
- f. Is the contract being awarded to a responsible contractor possessing the ability to perform successfully under the terms and conditions of the proposed procurement, giving consideration to such matters as contractor integrity, compliance with public policy, record of past performance, and financial and technical resources? § 200.318(h)  Yes  No

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<sup>13</sup> [See, 2 C.F.R. § 200.318](#)

<sup>14</sup> Non-Federal Entity (NFE)

<sup>15</sup> Such a conflict of interest would arise when the employee, officer, or agent, any member of his or her immediate family, his or her partner, or an organization which employs or is about to employ any of the parties indicated herein, has a financial or other interest in or a tangible personal benefit from a firm considered for a contract.

<sup>16</sup> However, NFEs may set standards for situations in which the financial interest is not substantial or the gift is an unsolicited item of nominal value.

<sup>17</sup> Organizational conflicts of interest means that because of relationships with a parent company, affiliate, or subsidiary organization, the NFE is unable or appears to be unable to be impartial in conducting a procurement action involving a related organization.

- g. Is the NFE keeping records sufficient to detail the history of the procurement, including, but not limited to, records documenting the rationale for the method of procurement, selection of contract type, contractor selection or rejection, and the basis for the contract price?  
 § 200.318(i)  Yes  No
- h. Is the contract a time-and-materials contract<sup>18</sup>? § 200.318(j)  Yes  No
- i. If so, has the NFE documented why no other contract is suitable?  Yes  No
- ii. Does the contract include a ceiling price that the contractor exceeds at its own risk?  
 Yes  No
- i. Is the NFE alone responsible, in accordance with good administrative practice and sound business judgment, for the settlement of all contractual and administrative issues arising out of procurements? §200.318(k)  Yes  No
- j. Encouraged, but not required standards at § 200.318(e), (f), and (g).<sup>19</sup>

**5. Competition:**

- a. All procurement transactions must be conducted in a manner providing full and open competition consistent with the standards of this section. Does the procurement involve any of the following<sup>20</sup> § 200.319(a):
- i. Placing unreasonable requirements on firms in order for them to qualify to do business?  
 Yes  No
- ii. Requiring unnecessary experience and excessive bonding?  Yes  No
- iii. Noncompetitive pricing practices between firms or between affiliated companies<sup>21</sup>?  
 Yes  No
- iv. Noncompetitive contracts to consultants that are on retainer contracts<sup>22</sup>?  Yes  No
- v. Organizational conflicts of interest<sup>23</sup>?  Yes  No
- vi. Specifying only a “brand name” product instead of allowing “an equal” product to be offered and describing the performance or other relevant requirements of the procurement?  Yes  No

<sup>18</sup> Time and materials type contract means a contract whose cost to a non-Federal entity is the sum of: (i) The actual cost of materials; and (ii) Direct labor hours charged at fixed hourly rates that reflect wages, general and administrative expenses, and profit. Because this formula generates an open-ended contract price, a time-and-materials contract provides no positive profit incentive to the contractor for cost control or labor efficiency. Therefore, a time-and-materials contract must set a ceiling price that the contractor exceeds at its own risk. Further, the non-Federal entity awarding such a contract must assert a high degree of oversight in order to obtain reasonable assurance that the contractor is using efficient methods and effective cost controls. [Note that FEMA previously reimbursed costs under a time-and-materials contract for only the first 70 hours of work performed. See, FEMA PA Guide (2007 ed.), pg. 53. However, FEMA’s new Public Assistance Guide, published on 1 January 2016, has eliminated this requirement and replaced it with a reasonable period of time standard. Please engage your FEMA Public Assistance POC for additional information]

<sup>19</sup> §200.318(e) – to foster greater economy and efficiency, the NFE is encouraged to enter into state and local intergovernmental agreements or inter-entity agreements where appropriate for procurement or use of common or shared goods and services (this section provides the authority for state schedule and mutual aid agreements, for example); §200.318(f) – NFEs are encouraged to use Federal excess and surplus property in lieu of purchasing new equipment and property whenever such use is feasible and reduces project costs; and §200.318(g) – NFEs are encouraged to use value engineering clauses in contracts for construction projects (value engineering is a systematic and creative analysis of each contract item or task to encourage the contractor to develop more cost effective means to produce or procure requirements.).

<sup>20</sup> This list is non-exclusive and only serves as an example of some of the types of situations that are considered to be restrictive of competition.

<sup>21</sup> For example, bid suppression or bid rigging

<sup>22</sup> For example, out-of-scope disaster work added to the consultant’s work on retainer

<sup>23</sup> See, fn 18.

- vii. Any arbitrary action in the procurement process?  **Yes**  **No**
- b. Was the contractor that is bidding on the contract also involved with developing or drafting the specifications, requirements, statement of work, invitation for bids or request for proposals? (If so, that contractor must be excluded from competing for such procurements) § 200.319(a)  **Yes**  **No**  N/A
- c. *Does the contract include a state or local geographic preference for local contractors?*<sup>24</sup> § 200.319(b)  **Yes**  **No**
- d. Do the NFE's written procurement procedures ensure that all solicitations comply with the following: § 200.319(c)
  - i. Incorporate a clear and accurate description of the technical requirements for the material, product, or service to be procured? § 200.319(c)(1)  **Yes**  **No**
  - ii. Identify all requirements which the offerors must fulfill and all other factors to be used in evaluating bids or proposals? § 200.319(c)(2)  **Yes**  **No**
- e. If the NFE is using a prequalified list of persons, firms, or products which are used in acquiring goods and services: § 200.319(d) E N/A
  - i. Is the list current?  **Yes**  **No**
  - ii. Does the list include enough qualified sources to ensure maximum open and free competition?  **Yes**  **No**
  - iii. Were any potential bidders precluded from qualifying during the solicitation period?<sup>25</sup>  **Yes**  **No**

## 6. **Method of Procurement**

- a. Is the NFE using one of the following acceptable methods of procurement? § 200.320
  - i. **Micro-purchase** (i.e., purchases below \$3,500, see, §200.67 Micro-purchases). § 200.320(a)  **Yes**  **No**
    - 1. [Note: Micro-purchases may be awarded without soliciting competitive quotations if the non-Federal entity considers the price to be reasonable.]
    - 2. To the extent practicable, is the NFE distributing micro-purchases equitably among qualified suppliers?  **Yes**  **No**  **N/A – not practicable**
  - ii. **Small purchase procedures** § 200.320(b)  **Yes**  **No**
    - 1. [Note: Small purchase procedures are those relatively simple and informal procurement methods for securing services, supplies, or other property that do not

<sup>24</sup> Geographic preferences are generally not allowed under FEMA grants. The only exception is that when contracting for architectural and engineering (A/E) services, geographic location may be a selection criterion provided its application leaves an appropriate number of qualified firms, given the nature and size of the project, to compete for the contract.

<sup>25</sup> Pre-qualified lists are NOT contracts. Accordingly, once the decision to solicit and award a contract is made, the NFE may issue the solicitation directly to the contractors on the pre-qualified list, but must also allow any interested contractor (not on the pre-qualified list) to submit its qualifications, and if deemed qualified, allow that contractor to submit a bid or proposal in response to the solicitation. Contract award will then be made to one of the contractors submitting a bid or proposal, IAW the evaluation/award criteria identified in the solicitation.

cost more than the **lesser** of either (1) the federal small purchase threshold (i.e., \$150,000), or (2) whatever amount State or local procurement rules set as the small purchase threshold – *if more restrictive than the federal threshold.*]

2. Did the NFE obtain price or rate quotations from an adequate number of qualified sources?<sup>26</sup>  **Yes**  **No**

iii. **Sealed bids** § 200.320(c)<sup>27</sup>  **Yes**  **No**

1. [Note: Bids are publicly solicited, and a firm fixed price contract (lump sum or unit price) is awarded to the responsible bidder whose bid, conforming with all the material terms and conditions of the invitation for bids, is the lowest in price. Sealed bidding is the preferred method for procuring construction]
2. Are *all* of the following conditions to use sealed bidding present? § 200.320(c)(1)  
 **Yes**  **No**
- a) A complete, adequate, and realistic specification or purchase description is available  **Yes**  **No**
- b) Two or more responsible bidders are willing and able to compete effectively for the business  **Yes**  **No**
- c) The procurement lends itself to a firm fixed price contract and the selection of the successful bidder can be made principally on the basis of price  **Yes**  **No**
- d) *If sealed bids are used*, the following requirements apply: § 200.320(c)(2)
- 1) Did the NFE solicit bids from an adequate number<sup>28</sup> of known suppliers, providing them sufficient response time prior to the date set for opening the bids?  **Yes**  **No**
- 2) If the NFE is a local or tribal government, was the invitation for bids publicly advertised?  **Yes**  **No**  **N/A**
- 3) Did the invitation for bids include any specifications and pertinent attachments, and define the items or services in order for the bidder to properly respond?  **Yes**  **No**
- 4) Did the NFE open all bids at the time and place prescribed in the invitation for bids?  **Yes**  **No**
- 5) For local and tribal governments, were the bids opened publicly?  
 **Yes**  **No**  **N/A**
- 6) Did the NFE award a firm fixed price contract award in writing to the lowest responsive and responsible bidder?  **Yes**  **No**
- 7) If any bids were rejected, was there a sound documented reason supporting the rejection?  **Yes**  **No**  **N/A**

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<sup>26</sup> FEMA has determined that for simplified purchase procedures, an adequate number of qualified sources is considered to be three (3). See, [FEMA Recovery Fact Sheet 9580.212 – Public Assistance Grant Contracting Frequently Asked Questions \(FAQ\)](#), FAC No. 3 and the PDAT Field Manual.

<sup>27</sup> Sealed bidding is generally used where price is the most important evaluation factor for the NFE. Accordingly, contract award under the sealed bidding method of procurement is made to the bidder submitting *the lowest priced, responsive and responsible bid*. “Responsive” refers to whether the bidder meets all the material requirements of the Invitation for Bid (IFB), while “Responsibility” is described at § 200.318(h).

<sup>28</sup> Unlike, for simplified purchase procedures, FEMA has not defined an “adequate number” of known sources under the sealed bidding method. While left undefined, a NFE is likely to meet this requirement through the application of “full and open competition.” (See fn. 27)

iv. **Procurement by competitive proposals**<sup>29</sup> § 200.320(d)  **Yes**  **No**

1. [Note: The technique of competitive proposals is normally conducted with more than one source submitting an offer, and either a fixed price or cost-reimbursement type contract is awarded. It is generally used when conditions are not appropriate for the use of sealed bids.]
2. Did the NFE publicize the Requests for Proposals (RFPs) and identify all evaluation factors and their relative importance?  **Yes**  **No**
3. Did the NFE solicit proposals from an adequate number of qualified sources?<sup>30</sup>  
 **Yes**  **No**
4. Did the NFE have a written method for conducting technical evaluations of the proposals received and for selecting recipients?  **Yes**  **No**
5. Did the NFE award the contract to the responsible firm whose proposal is most advantageous to the program, with price and other factors considered?  **Yes**  **No**
6. [Note regarding architectural/engineering (A/E) professional services: The NFE may use competitive proposal procedures for qualifications-based procurement of A/E professional services whereby competitors' qualifications are evaluated and the most qualified competitor is selected, subject to negotiation of fair and reasonable compensation. **The method, where price is not used as a selection factor, can only be used in procurement of A/E professional services. It cannot be used to purchase other types of services through A/E firms that are a potential source to perform the proposed effort.**]

v. **Noncompetitive proposals** § 200.320(f)<sup>31</sup>  **Yes**  **No**

1. [Note: Procurement by noncompetitive proposals is procurement through solicitation of a proposal from only one (or an improperly limited number of) source(s)]
2. Do one or more of the following circumstances apply?  **Yes**  **No**
  - a) The item is available only from a single source  **Yes**  **No**
  - b) The public exigency or emergency<sup>32</sup> for the requirement will not permit a delay resulting from competitive solicitation  **Yes**  **No**
  - c) The Federal awarding agency or pass-through entity expressly authorizes noncompetitive proposals in response to a written request from the non-Federal entity  **Yes**  **No**

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<sup>29</sup> Whereas contract awards under sealed bidding are focused on selecting the lowest responsive responsible bid, NFEs under the competitive procurement method may prioritize non-price factors, such as technical capability or past performance, over price and therefore award a contract to a contractor whose proposal is more expensive but reflects a better overall value to the NFE (e.g. “best value” contracting).

<sup>30</sup> Unlike, for simplified purchase procedures, FEMA has not defined an “adequate number” of qualified sources under the competitive procurement method. While left undefined, a NFE is likely to meet this requirement through the application of “full and open competition.”

<sup>31</sup> § 200.320(e) is reserved.

<sup>32</sup> For an explanation of what “emergency” and exigency” mean, see PDAT Field Manual, pg. 68.

- d) After solicitation of a number of sources, competition is determined inadequate.<sup>33</sup>  
 Yes  No

7. **Contracting with Small and Minority Businesses, Women's Business Enterprises, and Labor Surplus Area Firms**

- a. Has the NFE taken the following affirmative steps<sup>34</sup> to assure that minority businesses, women's business enterprises, and labor surplus area firms are used when possible?<sup>35</sup>  
§ 200.321  Yes  No  N/A (document)
- i. Placing qualified small and minority businesses and women's business enterprises on solicitation lists?  Yes  No  N/A (document)
- ii. Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources?  
 Yes  No  N/A – no potential sources (document)
- iii. Dividing total requirements, *when economically feasible*, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises?<sup>36</sup>  Yes  No  N/A – not economically feasible (document)
- iv. Establishing delivery schedules, *where the requirement permits*, which encourage participation by small and minority businesses, and women's business enterprises?  Yes  No  N/A – the requirement does not permit (document)
- vi. Using the services and assistance, *as appropriate*, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce  Yes  No  N/A – not appropriate (document)
- vii. Requiring the prime contractor, if subcontracts are to be let, to take the affirmative steps listed above?  Yes  No  N/A – no subcontracts will be let (document)

8. **Contract cost and price**<sup>37</sup>

- a. *If the contract amount (including contract modifications) exceeds \$150,000*, did the NFE perform a cost or price analysis? § 200.323(a)  Yes  No  N/A

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<sup>33</sup> Before utilizing this exception, Applicants should review their solicitation and the publicizing of their solicitation to ensure that it was not inadvertently drafted in a manner to reduce or eliminate competition, which resulted in the receipt of one or no proposals. If this is found to be the case, the Applicant should revise the solicitation and re-publicize the solicitation in order to resolve the competitive concerns.

<sup>34</sup> The following affirmative steps are non-exclusive; while these steps must be taken, additional steps, as determined by the NFE, local, state, or tribal government regulations or procedures, may also be taken.

<sup>35</sup> Collectively referred to as “socioeconomic contractors” or “socioeconomic contracting,” this requirement does not impose an obligation to set aside either the solicitation or award of a contract to these types of firms; this requirement only imposes an obligation to carry out and document the six identified affirmative steps. Failure to do so has been frequently identified as a justification to de-obligate funding by the Department of Homeland Security (DHS), Office of Inspector General (OIG).

<sup>36</sup> This is not the same as breaking a single project down into smaller components in order to circumvent the micro-purchase or small purchase thresholds to utilize their streamlined acquisition procedures (e.g. “project splitting.”)

<sup>37</sup> See, [Pricing Guide for Recipients and Subrecipients Under the Uniform Rules](#) for guidance on cost or price analysis.

- b. Did the NFE negotiate profit as a separate element of the price for each contract in *which there is no price competition and in all cases where cost analysis is performed?* § 200.323(b)  
 Yes  No  N/A
- c. Is the contract a “cost plus a percentage of cost” or “percentage of construction cost” contract?<sup>38</sup> [Note: This form of contract is prohibited under the Federal procurement standards and is ineligible for FEMA reimbursement]  Yes  No

9. **Bonding requirements for construction or facility improvement contracts exceeding \$150,000**

- a. [Note: For construction or facility improvement contracts or subcontracts exceeding the Simplified Acquisition Threshold (i.e., \$150,000), the Federal awarding agency or pass-through entity may accept the bonding policy and requirements of the non-Federal entity provided that the Federal awarding agency or pass-through entity has made a determination that the Federal interest is adequately protected.]
- b. If such a determination (see above) has not been made, does the procurement include the following?  Yes  No  N/A
- i. A bid guarantee from each bidder equivalent to five percent of the bid price?  
 Yes  No  N/A
1. The “bid guarantee” must consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the bidder will, upon acceptance of the bid, execute such contractual documents as may be required within the time specified.
- ii. A performance bond on the part of the contractor for 100 percent of the contract price?  
 Yes  No  N/A
1. A “performance bond” is one executed in connection with a contract to secure fulfillment of all the contractor’s obligations under such contract.
- iii. A payment bond on the part of the contractor for 100 percent of the contract price.  
 Yes  No  N/A
1. A “payment bond” is one executed in connection with a contract to assure payment as required by law of all persons supplying labor and material in the execution of the work provided for in the contract.

**END OF CHECKLIST**

<sup>38</sup> This type of contract is separate and distinct from cost plus fixed fee, cost plus incentive fee, and cost plus award fee type contracts, which are permissible and used to incentivize contractors to perform to a higher standard of quality, lower cost, or faster performance. Cost plus percentage of cost contracts on the other hand provide none of these incentives; instead, there is a reverse incentive for the contractor to increase its costs as the higher its costs go, the more profit it earns, as its potential earnings are uncapped. The following characteristics are suggestive of a prohibited cost plus percentage of cost contract: (1) payment is on a predetermined percentage rate; (2) the predetermined percentage rate is applied to actual performance costs; (3) the contractor’s entitlement is uncertain at the time of contracting; and (4) the contractor’s entitlement increases commensurately with increased performance costs.

**Appendix E**

**SAMPLE REQUEST FOR PROPOSAL FOR DISASTER  
DEBRIS CLEARANCE AND REMOVAL SERVICES**

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**Request for Proposals  
Disaster Debris Clearance and Removal Services**

***RFP NUMBER: XXXXXX***

***Proposal Deadline:***

Date

Time

**Request for Proposals**  
**for**  
**Disaster Debris Clearance and Removal Services**

**Introduction**

FEMA encourages municipalities to identify disaster debris clearance and removal service providers prior to an emergency. With this in mind, the [Municipality] wishes to contract with one or more firms to provide services related to collection, reduction, recycling, hazardous waste management, demolition, processing, hauling, and final disposition of disaster-related debris. If the [Municipality] activates more than one firm after a disaster, firms will be assigned clear territories (via dividing the [Municipality] into grids) for their work to be performed and firms will need to contain their work to their assigned areas.

## **SECTION 1: PROPOSAL OUTLINE AND CONTENT**

To simplify the review process and to obtain the maximum degree of comparability, the proposal must follow the outline set forth below and, at a minimum, contain the information requested. Proposers are encouraged to include additional relevant information. At Proposers discretion, brochures may accompany required proposal materials; however, brochures will not be considered as substitution for other written requirements.

### **1.1 Proposal Format**

The proposal must be typewritten and the original clearly marked and signed in blue ink. Legibility, clarity, and completeness are important and essential. Proposals must include labels that identify the sections of the proposal.

### **1.2 Letter of Transmittal**

The letter of transmittal should be limited to two (2) pages and should include:

- 1.2.1 A brief statement of the Proposer's understanding of the work to be done.
- 1.2.2 The names, titles, addresses, and telephone numbers of the individuals who are authorized to make representations on behalf of the Proposer.
- 1.2.3 A statement that (1) the person signing the transmittal letter is authorized to legally bind the Proposer, (2) the proposal shall remain firm for a period of 180 days from the date of receipt of best and final offers, and (3) the proposal will comply with the requirements of this Request for Proposal (RFP).
- 1.2.4 A statement indicating which vendor, if multiple vendors are proposing jointly, intends to act as prime point of contact for proposal evaluation questions and the delivery and maintenance of the vendor's proposed offerings.

### **1.3 Title Page**

The title page should include the RFP subject and RFP number, the name and address of the Proposer, and the date of the proposal submission.

### **1.4 Table of Contents**

The contents should be identified by section, description, and page number.

### **1.5 Certificate of Registration**

The Proposer must furnish a *Certificate of Registration* that identifies that the Proposer is authorized to conduct business in the State of New York prior to the awarding of the contract.

### **1.6 Capabilities and Related Experience**

Please provide a description of your organization's related experience and capabilities including a list of all projects completed within the last 2 years to include client references for each. Each Proposer must also provide a list of **all** debris removal, reduction, and disposal operations in excess of [#####] cubic yards within the last 10 years where the Proposer was the prime contractor and provide references for the communities where these

operations took place. Each reference must include jurisdiction name, contact name, e-mail address, phone number, and description of project. Proposers that do not meet these minimum qualifications will not be considered.

## **1.7 Qualifications of Key Personnel**

Proposers must provide a listing of key personnel who would be assigned to the project, including their training (including FEMA courses/training completed), certifications, and years of experience. Proposers should also indicate which personnel will be primary contacts, which will be dedicated staff, and what role each staff member will play in execution of the contracted services.

## **1.8 Description of Work**

Detailed requirements for describing the work to be performed, scope of services, and proposed costs are provided throughout this RFP.

## **1.9 Technical Proposal**

Proposers should, at a minimum, provide the following information in the order listed below:

- 1.9.1 Proposer background, with specific detail regarding work on similar projects performed in excess of [#####] cubic yards
- 1.9.2 Proposer technical experience regarding large-scale debris removal operations associated with hurricanes/tropical storms, tornadoes, flooding, or other natural or manmade disasters
- 1.9.3 Organizational chart including proposed points of contact and a full-time project manager required to report to the [Municipality]
- 1.9.4 Public information plan, including proposal of a Public Information Representative provided by the Proposer to interface with the [Municipality's] Public Information Officer
- 1.9.5 Training (including FEMA courses/training) and professional experience (include all professional certifications) of proposed staff
- 1.9.6 List of existing contracts, particularly those within the State of New York
- 1.9.7 References from existing contracts and/or past clients (must include references from the successful completion of debris removal projects in excess of [#####] cubic yards) within the past 10 years
- 1.9.8 List of Sub-Contractors, including primary operating location(s)
- 1.9.9 One to two-page company profile with a brief description of the firm, capabilities, experience, contact information, website, and additional resources
- 1.9.10 Detailed listing of Proposer's equipment and resources highlighting equipment directly owned by the proposer
- 1.9.11 Mobilization and Operations Plan
- 1.9.12 Construction drawings for Occupational Health and Safety Administration (OSHA)-compliant temporary inspection towers
- 1.9.13 Anti-collusion statement

- 1.9.14 Proposer's equipment and resource list with on-site and off-site equipment that will be available at the collection site or facility, including all fire prevention, safety, personal protective equipment (PPE), and other equipment that the Proposer determines suitable or necessary for the project.
- 1.9.15 Spill and Fire Prevention Plans tailored to on-site activities at the debris management site (DMS) or facility.
- 1.9.16 Contingency Plan, including a format for a contingency plan, a description of notification procedures to the participants of on-site emergencies, and evacuation plan for the participants in case of an emergency on site.
- 1.9.17 Employee Training Plan and detailed training outline for each position involved in debris removal and DMS(s) operations. Proposers should include copies of any training manuals.
- 1.9.18 Health and Safety Plan
- 1.9.19 Description of Proposer's Safety Record, including a listing of all warning notifications, violations, and/or citations received from pertinent federal and/or state agencies in the past three (3) years by the Proposer.
- 1.9.20 Third-Party Certification, including a listing of all third-party certifications such as ISO 9000 Series, ISO 14000 Series.

## **1.10 Safety**

Proposer shall be solely responsible for maintaining safety at all work sites. Proposer shall take all reasonable steps to ensure safety for both workers and visitors to the site(s) to include traffic control. Proposer will be solely responsible to ensure that all OSHA requirements are met and a safety officer is assigned to the project for the duration of this contract.

## **1.11 Indemnification**

In order to protect [Municipality] from liabilities associated with on-site activities, transportation, and inherent Comprehensive Environmental Response Compensation and Liability Act (CERCLA) liabilities involving disposal, the Proposer should supply its own labor and transportation, and dispose of waste at only U.S. Environmental Protection Agency (EPA)-permitted disposal facilities. The Proposer must agree to assume generator status and be responsible for preparing and signing all manifests related to the [Municipality's] household hazardous collection and/or disposal facility.

Proposer agrees to and shall defend, indemnify, and hold [Municipality], their employees, officers, and legal representatives (collectively, [Municipality]) harmless for all claims, causes of action, liabilities, fines, and expenses (including, without limitation, attorney's fees, court costs, and all other defense costs and interest), for injury, death, damage, or loss to persons or property sustained in connection with or incidental to performance under this Agreement, including, without limitation, those caused by:

1. Proposer's and/or its agents', employees', officers', directors', or Proposers Sub-Contractors' actual or alleged negligence or intentional acts or omissions;
2. [Municipality's] and Proposer's actual or alleged concurrent negligence, whether Proposer is immune from liability or not; and

3. [Municipality's] and Proposer's actual or alleged strict products liability or strict statutory liability, whether Proposer is immune from liability or not.

Proposer shall defend, indemnify, and hold [Municipality] harmless during the term of this Agreement and for four (4) years after this Agreement terminates. Proposer shall not indemnify [Municipality] for [Municipality's] sole negligence.

## **1.12 Release**

Proposer, its predecessors, successors, and assigns hereby release, relinquish, and discharge [Municipality], its agents, employees, officers, and legal representatives from any liability arising out of [Municipality's] sole and/or concurrent negligence and/or [Municipality's] strict products liability or strict statutory liability for any injury, including death or damage to persons or property, where such damage is sustained in connection with or arising out of performance under this contract.

## **1.13 Insurance Requirements**

Proposer shall obtain and maintain insurance coverage in effect during the term of this Agreement as set forth below and shall furnish certificates of insurance showing [Municipality] as an Additional Insured, in duplicate form, prior to the beginning of the Agreement. Each policy, except those for Worker's Compensation and Employer's Liability, must (1) name [Municipality] as Additional Insured parties on the original policy and all renewals or replacements, and (2) contain an endorsement that the policy is primary to any other insurance available to the Additional Insured with respect to claims arising under the Agreement. Proposer's failure to maintain the required insurance coverage at any time during the contract period may be grounds for [Municipality] to suspend the contract and to withhold payment until insurance coverage is satisfactory. The issuer of any policy shall have a certificate of authority to transact insurance business in the State of New York or have a Best's rating of at least A and a Best's Financial Size Category of Class VII or better, according to the most current edition of the Best's Key Rating Guide, Property-Casualty United States.

Standard insurance policies and minimum amounts required are as follows:

1. Commercial General Liability insurance for bodily and personal injury (including death) and property damage
  - a. Each occurrence not less than \$1,000,000
  - b. General aggregate not less than \$2,000,000
  - c. The coverage shall include (but not be limited to) personal injury liability, premises/operations, and products/completed operations
2. Worker's Compensation and Employer's Liability Insurance
  - a. Employers' Liability insurance of \$1,000,000 per occurrence
  - b. Worker's Compensation as required by statute

3. Automobile Liability (for vehicles Proposer uses in performing under the Agreement, including Employer's Owned, Non-Ownership, and Hired Auto Coverage) with broad pollution liability endorsement and MCS-90 endorsement
  - a. Combined Single Limit of \$1,000,000 per occurrence
4. Environmental Impairment Liability and/or Pollution Liability
  - a. \$3,000,000 per occurrence or claim and \$3,000,000 aggregate
5. Excess Liability
  - a. \$3,000,000 per occurrence and \$3,000,000 aggregate
6. Other Insurance
  - a. If requested by [Municipality], Proposer shall furnish adequate evidence of Social Security and Unemployment Compensation Insurance, to the extent applicable to Proposer's operations under the Agreement.

Defense costs are excluded from the face amount of the policy. Aggregate limits are per 12-month policy period unless otherwise indicated.

All of the insurance required to be carried by the Proposer hereunder shall be by policies that require on their face, or by endorsement, that the insurance carrier waive any rights of subrogation to recover against [Municipality] and shall give thirty (30) days written notice to [Municipality] before they may be cancelled or materially changed. Within such thirty (30)-day period, Proposer covenants that it will provide other suitable policies in lieu of those about to be cancelled or materially modified, or non-renewed, so as to maintain in effect the coverage required under the provisions hereof. Failure or refusal of the Proposer to obtain and keep in force the above-required insurance coverage shall authorize [Municipality], at its option, to terminate the Agreement at once. Proposer shall give written notice to [Municipality] within five (5) days of the date on which total claims by any party against Proposer reduce the aggregated amount of coverage below the amounts required by the Agreement.

Proposer shall pay all insurance premiums, and [Municipality] shall not be obligated to pay any premiums. Proposer shall be responsible for and bear any claims or losses to the extent of any deductible amounts and waives any claim it may have for the same against [Municipality].

If any part of the work is sublet, similar insurance shall be provided by or in behalf of the Sub-Contractor to cover their operations, and evidence such as insurance, satisfactory to [Municipality] shall be furnished by the Proposer. In the event a Sub-Contractor is unable to furnish insurance in the limits required under the Agreement, the Proposer shall endorse the Sub-Contractor as an Additional Insured on his policies excluding Worker's Compensation and Employer's Liability.

**Only unaltered original insurance certificates endorsed by the underwriter are acceptable. Photocopies are unacceptable.**

#### **1.14 Financial Assurance**

Proposer must submit the most current, unqualified, audited financial statement or SEC

Form 10K for the proposing organization. Proposals submitted without the most current certified financial statement or U.S. Securities and Exchange Commission (“SEC”) Form 10K shall be considered non-compliant with the RFP.

### **1.15 Performance Bonds**

To ensure faithful performance, the Contractor shall provide to the [Municipality] and maintain a Proposal Bond in the sum of \$500,000 for the duration of the Agreement. The Contractor's Proposal Bond shall be due upon signing of the Contract by the Contractor.

- (a) In the event the Contractor is notified by the [Municipality] to commence disaster services in the form of a Notice to Proceed and Purchase Order (“PO”), the Contractor shall provide a Performance and Payment Bond to the [Municipality] within seven days. If the Performance and Payment Bond is not received within seven-days, the Contractor shall forfeit their Proposal Bond.
- (b) The Performance and Payment Bond shall be in an amount at least equal to the estimated price of the work in the PO as determined by the [Municipality] and in such form and with such securities are acceptable to the [Municipality]. The [Municipality] may require the Contractor to furnish other bonds, in such form and with such sureties as it may require. If the PO is increased by a change order, the Contractor shall be responsible to ensure that the Performance and Payment Bond has been amended accordingly and of copy of the amendment shall be provided to the [Municipality's] Debris Manager. The maximum amount of any Bond shall not exceed 10 million dollars.
- (c) A Performance and Payment Bond shall be issued for each PO. Performance and Payment Bonds must be maintained until the PO has been completed and approved by the [Municipality]. Upon the successful completion of PO work, the Performance and Payment Bonds shall be released by the [Municipality].
- (d) If the Surety on any bond furnished by the Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in the State of New York or it ceases to meet the requirements imposed by the [Municipality], the Contractor shall within five (5) calendar days substitute another Bond and Surety, both of which shall be acceptable to the [Municipality].
- (e) If the Contractor cannot obtain another bond and surety within (5) calendar days, the [Municipality] shall accept, and the Contractor shall provide an irrevocable letter of credit drawn on a New York bank until the bond and surety can be obtained.

### **1.16 Liquidated Damages**

Should the Contractor fail to complete requirements set forth in this scope of work, the [Municipality] shall suffer damage. The amount of damage suffered by the [Municipality] is difficult, if not impossible to determine at this time, therefore the Contractor shall pay the [Municipality], as liquidated damages, the following:

- (a) The Contractor shall pay the [Municipality], as liquidated damages, \$5,000.00 per calendar day of delay to mobilize in the [Municipality] with the resources requested by the [Municipality], within seventy-two (72) hours of being issued a PO.
- (b) The Contractor shall pay the [Municipality], as liquidated damages, \$1,000.00 per load of disaster debris collected in the [Municipality] that is not disposed of at a [Municipality]



approved DMS or [Municipality] Designated Final Disposal Site. Application of liquidated damages does not release the Contractor of all liability associated with hauling and depositing material to an unauthorized location.

- (c) The Contractor shall pay the [Municipality], as liquidated damages, \$100.00 per incident where the Contractor fails to sufficiently clean collection site(s) so that no loose leaves and small debris in excess of one-bushel basket remain, no debris is left on the road surface and no single piece of debris larger than six (6) inches remains on site. Application of liquidated damages does not release the Contractor from the responsibility of sufficiently cleaning collection site(s).
- (d) The Contractor shall pay the [Municipality], as liquidated damages, \$500.00 per incident where the Contractor fails to repair damages that are caused by the Contractor. Application of liquidated damages does not release the Contractor from the responsibility of resolving, repairing or paying for damages.
- (e) If Contractor personnel, including their subcontractors, are documented collecting debris from areas that are not listed in a PO (e.g., private property, vacant lots, land clearing debris), then liquidated damages shall be assessed at \$1,000.00 per incident. An incident shall entail each individual property as identified by a property identification number.
- (f) If Contractor personnel, including its subcontractors, leave their assigned area prior to completion of the work specified in the PO, "cherry pick" debris within their assigned area or collect debris from outside of their assigned area, then liquidated damages shall be assessed at \$1,000.00 per occurrence. In the event of leaving an assigned area prior to completion of work specified in the PO, the liquidated damage shall be assessed at \$5,000.00 per day until work has resumed in the assigned area.
- (g) At each vegetative debris management site, if grinding is selected as a volume reduction alternative, the Contractor shall be required to grind a minimum of 200-300 cubic yards per hour per grinder during operating hours. The Contractor and [Municipality] may agree to a different rate if needed. The new established rate shall then be the performance standard for a specific PO. The minimum rate shall be achieved no later than the third calendar day after receipt of the mobilization PO. Liquidated damages shall be assessed at \$10,000.00 per calendar day for any day in which the minimum processing rate is not met, unless non-compliance is due to insufficient debris amounts being delivered to the site.
- (h) All work, including site restoration of debris management sites, prior to close-out shall be completed within 30 calendar days after receiving notice from the [Municipality] that the last load of debris has been delivered, unless the [Municipality] initiates additions or deletions to the agreement by written POs. Subsequent changes in completion times shall be equitably negotiated by both parties pursuant to applicable state and federal laws. Liquidated damages shall be assessed at \$2,000.00 per calendar day for any time over the maximum allowable time established.
- (i) All work for the collection of debris from public roads, rights-of-way and other areas as directed by the [Municipality] in POs shall be completed on or before the recorded completion date. Liquidated damages shall be assessed at \$5,000.00 per calendar day for any day in which the recorded completion date has not been achieved to the satisfaction of the [Municipality].

- (j) Failure of the Contractor to meet the required specifications listed in a PO or meet any deadline specified herein or listed in a PO shall result in liquidated damages as specified in each PO.

The amounts specified above are mutually agreed upon as reasonable and proper amount of damage the [Municipality] should suffer by failure of the Contractor to complete requirements set forth in the scope of work.

### **1.17 Contract term**

The initial contract term will be for five (5) years with an optional three (3) year and two (2) year extension allowing for a ten (10) year total contract term. Prices will be reviewed at each optional renewal and increased if necessary based on review of the consumer price index.

### **1.18 Invoice Schedule**

The Proposer will invoice the [Municipality] for work completed no more frequently than every two weeks.

### **1.19 Retainage**

The [Municipality] will hold a 10% retainage on all Proposer invoices until satisfactory completion of the project and resolution of all damages.

## **SECTION 2: TERMS AND DEFINITIONS**

Definitions of key terms used in this RFP are provided below.

### **2.1 Approved Final Disposal Site**

- 2.1.1 A final disposal site approved in writing by the [Municipality].

### **2.2 Authorized Representative**

- 2.2.1 [Municipality] employees and/or contracted individuals designated by the [Municipality] or [Municipality] debris manager.

### **2.3 Cleanup Crew**

- 2.3.1 A group of individuals or an individual employed by Proposer to collect disaster debris.

### **2.4 Construction and Demolition (C&D) Debris**

- 2.4.1 Federal Emergency Management Agency (FEMA) Publication 104-009-2, Public Assistance Program and Policy Guide, defines eligible C&D debris as damaged components of buildings and structures, such as lumber and wood, gypsum wallboard, glass, metal, roofing material, tile, carpeting and other floor coverings, window coverings, pipe, concrete, asphalt, equipment, furnishings, and fixtures. (Note: This definition of C&D debris is for disaster recovery purposes and is not the same definition commonly used in other solid waste documents.) Current eligibility criteria include the following:

- a. Debris must be located within a designated area and be removed from an eligible applicant's improved property or right-of-way (ROW).
- b. Debris removal must be the legal responsibility of the applicant.

- c. Debris must be a result of a major disaster.

## **2.5 Debris**

- 2.5.1 Items and materials broken, destroyed, or displaced by a natural or human-caused federally declared disaster. Examples of debris include but are not limited to trees, C&D debris, and personal property.

## **2.6 Debris Management Site (DMS)**

- 2.6.1 A location to temporarily store, reduce, segregate, and/or process debris before it is hauled to a final disposal site. May also be referred to as a temporary debris management site (TDMS) or temporary debris storage and reduction site (TDSRS) or temporary debris staging and processing facility (TDSPPF).

## **2.7 Debris Manager**

- 2.7.1 The [Municipality] will designate a debris manager, who will provide oversight for all phases of debris removal operations.

## **2.8 Debris Removal**

- 2.8.1 Picking up debris and taking it to a DMS, composting facility, recycling facility, permitted landfill, or other reuse or end-use facility.

## **2.9 Demolition**

- 2.9.1 The act or process of reducing a structure, as defined by the State of New York or local code, to a collapsed state. It contrasts with deconstruction, which is the taking down of a building while carefully preserving valuable elements for reuse.

## **2.10 Description of Designated Area**

- 2.10.1 The designated area for debris removal is bounded by [Municipality] limits and includes all public ROWs, easements, parks, and debris staging areas within the areas of the [Municipality]. The Proposer will remove debris from municipal roadways at the direction of the [Municipality]. The [Municipality] may also authorize the Proposer to remove debris from Non-[Municipality] roadways or other areas as directed in writing by the [Municipality].
- 2.10.2 All debris identified by [Municipality] shall be removed. Proposer shall make up to two complete passes through the [Municipality's] limits, removing all debris along each ROW. The [Municipality] may or may not require the Proposer to perform a third pass. Partial removal of debris piles is strictly prohibited. The Proposer shall not move from one designated area to another designated area without prior approval from the [Municipality] or its representative. Any eligible debris (such as fallen trees) that extends onto the ROW from private property shall be cut at the point where it enters the ROW, and the part of the debris that lies within the ROW shall be removed. The Proposer shall not enter onto private property during the performance of this contract unless specifically authorized in writing by the [Municipality].
- 2.10.3 Proposer shall deliver debris to DMS and final disposal sites that have been permitted to receive disaster debris and will adhere to all local, state, and federal regulations.

- 2.10.4 Debris shall be reasonably compacted into the hauling vehicle. No limbs or branches shall be allowed to protrude more than six (6) inches beyond the sides of the truck bed. Any debris extending above the top of the truck bed shall be secured in place to prevent it from falling off. Measures must be taken to prevent debris from blowing out of the hauling vehicle during transport to the disposal site.
- 2.10.5 All debris will be mechanically loaded. Hauling vehicles that are hand-loaded or that require mechanical assistance for dumping will not be permitted to dump at DMS(s), unless approved in advance by [Municipality].
- 2.10.6 Loose leaves and small debris in excess of one (1) bushel basket shall be removed within the designated area. No debris shall be left on the road surface. No single piece of debris larger than six (6) inches in any dimension shall be left on site. Hand crews and rakes will be required.
- 2.10.7 The Proposer will provide an on-site project manager to the [Municipality]. The project manager shall provide the [Municipality] with a telephone number at which the project manager can be reached throughout the project. The project manager will be expected to have daily meetings with [Municipality] representatives. Daily meeting topics will include (but will not be limited to) volume of debris collected, completion progress, local coordination, and damage repairs. [Municipality] may adjust the frequency of meetings. Proposer project manager must be available 24 hours-a-day, or as required by the [Municipality].
- 2.10.8 [Municipality] does not warrant or guarantee the availability or use of any final disposal sites. Proposer must coordinate directly with owners of all final disposal sites. All final disposal sites must be approved in writing by [Municipality].
- 2.10.9 Proposer will remain legally responsible for the handling, reduction, and final haul-out and disposal of all reduced and unreduced debris from DMS sites. Payment for disposal costs (such as tipping fees) incurred by the Proposer at permitted disposal facilities, or other [Municipality]-approved sites that meet local, state, and federal regulations for disposal, will be made at the cost incurred by the Proposer. The Proposer must furnish a copy of the invoice received by the disposal facility, all scale or load tickets issued by the disposal facility, and proof of Proposer payment to the disposal facility.
- 2.10.10 Proposer shall conduct the work so as not to interfere with the disaster response and recovery activities of federal, state, and local governments or agencies, or of any public utilities.
- 2.10.11 Proposer shall be capable of assembling, directing, and managing a workforce that can be fully operational in debris management operations in a maximum of seventy-two (72) hours or sooner, depending on the extent of the disaster. Operations must begin within seventy-two (72) hours of notification by the [Municipality]. Depending on the category of the event, the [Municipality] may request immediate mobilization.
- 2.10.12 Debris management activities reimbursed through federal disaster programs may occur in areas protected by the Endangered Species Act. For any project that requires a federal permit or receives federal funding is subject to Section 7 (see Section 2.13 Endangered Species Act). Proposer and [Municipality] will comply with the findings of the Section 7 Endangered Species Act consultation, if applicable.

## **2.11 Disaster-Specific Guidance (DSG)**

2.11.1 A policy statement issued in response to a specific post-event situation or need in a state or region. Each DSG is issued a number and is generally referred to by its numerical identification.

## **2.12 Eligible**

2.12.1 Qualifying for and meeting the most current stipulated requirements (at the time the written Notice to Proceed is issued and executed by the [Municipality] to the Proposer) of the FEMA Public Assistance Grant Program, FEMA Publication 104-009-2 (additional information below), and all current FEMA fact sheets, guidance documents, and DSGs. Eligible also includes meeting any changes in definition, rules, or requirements regarding debris removal reimbursement as stipulated by FEMA during the course of a debris removal project.

## **2.13 Endangered Species Act**

2.13.1 Section 7 of the Endangered Species Act, *16 U.S.C. § 1536(a)(2)*, requires all federal agencies to consult with the National Marine Fisheries Service for marine and anadromous species, or the U.S. Fish and Wildlife Service for fresh-water and wildlife, if they are proposing an action that may affect listed species or their designated habitat. *Action* is defined broadly to include funding, permitting, and other regulatory actions. (See *50 CFR 402.02*.)

2.13.2 Each federal agency is to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of a designated critical habitat. This is done through consultation. If such species may be present, the local government must conduct a biological assessment (BA) to analyze the potential effects of the project on listed species and critical habitat to establish and justify an effect determination (assistance and coordination may be available from the State of New York, especially with transportation projects). The federal agency reviews the BA, and if it concludes that the project may adversely affect a listed species or its habitat, it prepares a biological opinion. The biological opinion may recommend reasonable and prudent alternatives to the proposed action to avoid jeopardizing or adversely modifying the habitat.

## **2.14 FEMA Publication 104-009-2 Public Assistance Program and Policy Guide**

2.14.1 This publication is specifically dedicated to the rules, regulations, and policies associated with public assistance programs and the debris removal process. Familiarity with this publication and any revisions can help a local government limit the amount of non-reimbursable expenses. The Public Assistance Program and Policy Guide provides the framework for the debris removal process authorized by the Stafford Act, including the following:

- a. Eliminating immediate threats to lives, public health, and safety.
- b. Eliminating immediate threats of significant damage to improved public or private property.

- c. Ensuring the economic recovery of the affected community to the benefit of the community at large.

## **2.15 Grinding**

2.15.1 Reduction of disaster-related vegetative debris through mechanical means into small pieces to be used as mulch or fuel. Grinding may also be referred to as chipping or mulching.

## **2.16 Hazardous Hanging Limbs**

2.16.1 A limb that poses significant threat to the public. The current eligibility requirements for hazardous hangers according to FEMA Publication 104-009-2 are:

- a. The limbs or branches extend over the public ROW;
- b. The broken limbs or branches measure two inches or larger in diameter at the point of breakage; and
- c. The limbs or branches are still hanging in a tree and threatening a public use area, e.g. trails, sidewalks, golf cart path.

## **2.17 Hazardous Leaning Tree**

2.17.1 A tree is considered hazardous if its condition was caused by the disaster; it is an immediate threat to lives, public health and safety, or improved property; it has a diameter of six (6) inches or greater measured 4.5 feet above ground level; and one or more of the following criteria are met (according to FEMA Publication 104-009-2):

- a. The tree has a split trunk.
- b. The tree has a broken canopy.
- c. The tree is leaning at an angle greater than thirty (30) degrees.

## **2.18 Hazardous Stump**

2.18.1 A stump is defined as hazardous and eligible for reimbursement if all of the following criteria are met. The current eligibility requirements for hazardous hangers according to FEMA Publication 104-009-2 are:

- a. The stump has fifty (50) percent or more of the root ball exposed.
- b. The stump is 2 feet or larger in diameter when measured 2 feet from the ground.
- c. The stump is located on a public ROW.
- d. The stump poses an immediate threat to public health and safety.

Loose stumps (not attached to the ground) and stumps under two feet in diameter measured 2 feet from the ground and meeting the criteria 2.18.1 (a) (c) and (d) above will be removed as ROW Vegetative Debris as outlined in Section 3.2.

## **2.19 Historic Preservation**

2.19.1 In certain instances, debris operations may occur in designated areas (for example, DMS locations or private property) that are subject to historical preservation rules and regulations.

## **2.20 Household Hazardous Waste (HHW)**

2.20.1 The Resource Conservation and Recovery Act defines hazardous waste as materials that are ignitable, reactive, toxic, corrosive, or meet other listed criteria. Examples of eligible HHW include items such as paints, cleaners, pesticides. The eligibility criteria for HHW are as follows:

- a. HHW must be located within a designated area and be removed from an eligible applicant's improved property or ROW.
- b. HHW removal must be the legal responsibility of the applicant.
- c. HHW must be a result of a major disaster.

2.20.2 The collection of commercial disaster-related hazardous waste is generally not eligible for reimbursement. Commercial hazardous waste will only be collected by Proposer with written authorization by [Municipality]. Hazardous waste must be disposed of in accordance with all rules and regulations of local, state, and federal regulatory agencies.

## **2.21 Monitor**

2.21.1 Person that observes day-to-day operations of debris removal crews and provides documentation of contract line items as well as QA/QC of documentation completed in the field. FEMA sets forth guidelines for eligibility. Eligibility determinations are not complete until they are reviewed by QA/QC staff prior to the approval of invoices. Monitor and Proposer must work together to ensure eligible work is being performed meeting the [Municipality's] expectations and contractual requirements and complying with all applicable federal, state, and local regulations. May also be referred to as a field inspector.

## **2.22 Personal Protective Equipment (PPE)**

2.22.1 Equipment worn to minimize exposure to a variety of hazards.

## **2.23 Recycling**

2.23.1 The recovery or use of wastes as a raw material for making products of the same or different nature as the original product.

## **2.24 Refrigerant**

2.24.1 Ozone-depleting compound that must be removed from white goods or other refrigerant-containing items prior to recycling or disposal.

## **2.25 Right-of-Entry (ROE)**

2.25.1 As used by FEMA, the document by which a property owner confers to the [Municipality] or its Proposer or the U.S. Army Corps of Engineers the right to enter onto private property for a specific purpose without committing trespass.

## **2.26 Right-of-Way (ROW)**

2.26.1 The portions of land over which facilities such as highways, railroads, or power lines are built. It includes land on both sides of the facility up to the private property line.

## **2.27 Scale/Weigh Station**

2.27.1 A scale used to weigh trucks as they enter and leave a landfill. The difference in weight determines the tonnage dumped and a tipping fee is charged accordingly. It also may be used to determine the quantity of debris picked up and hauled.

## **2.28 Tipping Fee**

2.28.1 A fee charged by landfills or other waste management facilities based on the weight or volume of debris dumped. May also be referred to as a disposal fee.

## **2.29 Used Electronics**

2.29.1 End-of-life electronics (typically televisions, computers, and related components) that have been damaged by the disaster. May also be referred to as e-waste.

## **2.30 Vegetative Debris**

2.30.1 Damaged and disturbed trees, tree limbs, bushes, shrubs, brush, untreated lumber, and wood products.

2.30.2 Remains of standing trees that are clearly damaged beyond salvage.

## **2.31 White Goods**

2.31.1 As outlined in FEMA Publication 104-009-2, eligible white goods are defined as discarded household appliances such as refrigerators, freezers, air conditioners, heat pumps, ovens, ranges, washing machines, dryers, and water heaters. White goods can contain ozone-depleting refrigerants, mercury, or compressor oils that the federal Clean Air Act prohibits from being released into the atmosphere. The Clean Air Act specifies that only qualified technicians can extract refrigerants from white goods before they can be recycled. The eligibility criteria for white goods are as follows:

- a. White goods must be located within a designated area and be removed from an eligible applicant's improved property or ROW.
- b. White goods removal must be the legal responsibility of the applicant.
- c. White goods must be a result of a major disaster.



## SECTION 3: SCOPE OF WORK AND RATE SCHEDULE ITEMS

Proposer shall have the capacity to manage a major workforce with multiple Sub-Contractors and to cover the expenses of a major recovery prior to being paid by [Municipality]. Established management teams must be in place. Proposer shall have the resources to provide the equipment and personnel necessary to cover a disaster. Upon activation by the [Municipality], the Proposer must have the capability to have equipment and operators on site within 72 hours to respond to the incident. Proposer shall have experience in [##] debris removal, reduction, and disposal operations in excess of [####] cubic yards within the past ten (10) years where the Proposer was the prime Proposer.

It shall be Proposer's responsibility to load, transport, reduce, and properly dispose of all disaster-generated debris once [Municipality] issues a Notice to Proceed to Proposer, unless otherwise directed in writing by [Municipality]. The [Municipality] reserves the right to utilize one or more Proposer's to remove debris efficiently. The [Municipality] also reserves the right to utilize different contractors for various elements including, but not limited to, emergency road clearance, right of way debris removal, and DMS management.

It shall be Proposer's responsibility to load and transport debris according to the production rate schedule below.

- a. Up to [###] cubic yards 10 calendar days from Notice to Proceed (NTP).
- b. Up to [###] cubic yards 15 calendar days from NTP.
- c. Up to [###] cubic yards 30 calendar days from NTP.
- d. Up to [###] cubic yards 60 calendar days from NTP.
- e. Greater than [####] cubic yards after 60 calendar days, [###] cubic yards every 15 calendar days thereafter.
- f. The ability to be fully operational for the reduction and disposal of debris within 72-hours of initial NTP.

Payment for disposal costs (such as tipping fees) incurred by Proposer at a [Municipality]-approved final disposal site that meets local, state, and federal regulations for disposal will be reimbursed by [Municipality] as a pass-through cost. Prior to reimbursement by the [Municipality], Proposer must furnish an invoice in hard copy and electronic formats, all scale or load tickets issued by the disposal facility, and proof of Proposer payment to the disposal facility.

The scope of work under this contract includes the following elements:

### **3.1 Emergency Road Clearance**

Under this contract, work shall consist of all labor, equipment, fuel, and miscellaneous costs necessary to clear and remove debris from [Municipality] roadways and waterways to make them passable immediately following a declared disaster. All roadways designated by the [Municipality] shall be clear and passable within a reasonable amount of time as overseen by the [Municipality]. What constitutes a reasonable period for emergency push operations will be defined by the [Municipality] at the time of a notice to proceed. This may include roadways in municipalities within the [Municipality]. Roadways will be cleared as directed by the [Municipality]. The Proposer shall assist the [Municipality] and its representatives in ensuring proper documentation of emergency road clearance activities by documenting the type of equipment and/or labor utilized (that

is, certification), starting and ending times, and zones/areas cleared. Services performed under this contract element will be compensated using a mutually agreed upon Hourly Labor and Equipment Price Schedule (Schedule 1).

### **3.2 ROW Vegetative Debris Removal**

Under this contract, work shall consist of all labor, equipment, fuel, traffic control costs, toll costs, and other associated costs necessary to pick up and transport eligible disaster-related vegetative debris from the [Municipality] ROW to a [Municipality]-approved DMS or approved final disposal site in accordance with all federal, state, and local regulations.

- 3.2.1 Vegetative debris in the [Municipality] ROW is defined as debris resulting from a hurricane or other natural or human-caused disaster, which has been or will be placed along public ROWs, easements, [Municipality] parks, alleys, [Municipality] debris staging areas, and other areas as designated by the [Municipality].
- 3.2.2 For the purposes of this contract, eligible vegetative debris that is piled in immediate proximity to the actual legal street ROW and that is accessible from the ROW line with loading equipment (that is, not behind a fence or other physical obstacle) will be deemed to be on the ROW, and is to be removed.
- 3.2.3 Proposer will remove vegetative debris as directed by the [Municipality].
- 3.2.4 All Eligible debris will be removed from each location before proceeding to the next location, unless otherwise directed by [Municipality] or its authorized representative.
- 3.2.5 Proposer must provide traffic control as conditions require or as directed by the [Municipality].
- 3.2.6 Entry onto private property for the removal of Eligible vegetative debris will only be permitted when directed by the [Municipality] or its authorized representative. [Municipality] will provide specific ROE legal and operational procedures.

### **3.3 ROW C&D Debris Removal**

Under this contract, work shall consist of all labor, equipment, fuel, traffic control costs, toll costs, and other associated costs necessary to pick up and transport eligible C&D debris from the [Municipality] ROW to a [Municipality]-approved DMS or final disposal site in accordance with all federal, state, and local regulations.

- 3.3.1 C&D debris in the [Municipality] ROW is defined as disaster-generated debris that has been or will be placed along public ROW, easements, [Municipality] parks, alleys, and [Municipality] debris staging areas.
- 3.3.2 For the purposes of this contract, Eligible C&D debris that is piled in immediate proximity to the ROW and that is accessible from the ROW line with loading equipment (that is, not behind a fence or other physical obstacle) will be deemed to be on the ROW, and is to be removed.
- 3.3.3 Proposer will remove C&D debris from the ROW as directed by the [Municipality].
- 3.3.4 Once the debris removal vehicle has been issued a load ticket from the [Municipality's] authorized representative, the debris removal vehicle will proceed immediately to a

[Municipality]-approved DMS or final disposal site as specified by the [Municipality]. The debris removal vehicle will not collect additional debris once a load ticket has been issued.

- 3.3.5 All Eligible debris will be removed from each location before proceeding to the next location, unless otherwise directed by the [Municipality] or its authorized representative.
- 3.3.6 Proposer must provide traffic control as conditions require or as directed by the [Municipality].
- 3.3.7 Entry onto private property for the removal of Eligible C&D debris will only be permitted when directed by the [Municipality] or its authorized representative. [Municipality] will provide specific ROE legal and operational procedures.
- 3.3.8 C&D debris must be monitored for the collection, complete haul, and delivery at the approved DMS or final disposal sites. [Municipality] or authorized representative will obtain the original copy of the disposal or scale ticket showing the inbound and outbound collection vehicle weights.

### **3.4 Demolition, Removal, Transport, and Disposal of Non-RACM Structures**

Under this contract, work shall consist of all labor, equipment, fuel, traffic control costs, toll costs, and other associated costs necessary to decommission, demolish, and dispose of eligible non-regulated asbestos-containing material (non-RACM) structures on private property within the jurisdictional limits of the [Municipality]. Under this service, work will include asbestos-containing material (ACM) testing, decommissioning, structural demolition, debris removal, and site remediation. Further, eligible debris generated from the demolition of non-RACM structures, as well as scattered C&D debris on private property, will be transported to a [Municipality]-approved final disposal site in accordance with all federal, state, and local regulations.

- 3.4.1 Removal and transportation of demolished structures and scattered C&D debris on private property will be performed as identified by the [Municipality].
- 3.4.2 Entry onto private property will only be permitted when directed by the [Municipality]. [Municipality] will provide specific ROE legal and operational procedures.
- 3.4.3 Proposer is required to strictly adhere to all local, state, and federal regulations (such as obtaining demolition permits) for the demolition, handling, and transportation of non-RACM structures.
- 3.4.4 Decommissioning consists of the removal and disposal of all HHW, used electronics, white goods, and scrap tires from a non-RACM structure at a properly sanctioned facility in accordance with all applicable federal, state, and local regulations.
- 3.4.5 Any structurally unsound and unsafe structures will be identified and presented to the [Municipality] for direction regarding decommissioning.
- 3.4.6 Removal and transportation of eligible non-RACM demolished structures and eligible scattered C&D debris on private property will be performed as directed in writing by the [Municipality's] authorized representative.
- 3.4.7 Once the debris removal vehicle has been issued a load ticket from the [Municipality's] authorized representative, the debris removal vehicle will proceed immediately to a

[Municipality]-approved final disposal site. The debris removal vehicle will not collect additional debris once a load ticket has been issued.

- 3.4.8 Entry onto private property for the removal of eligible C&D debris will only be permitted when directed in writing by the [Municipality] or its authorized representative. [Municipality] will provide specific ROE legal and operational procedures for private property debris removal programs if requested.

### **3.5 Demolition, Removal, Transport, and Disposal of RACM Structures**

Under this contract, work shall consist of all labor, equipment, fuel, traffic control costs, toll costs, and other associated costs necessary to decommission, demolish, and dispose of eligible RACM structures on private property within the jurisdictional limits of the [Municipality]. Under this service, work will include ACM testing, decommissioning, structural demolition, debris removal, and site remediation. Further, eligible debris generated from the demolition of structures, as well as eligible scattered C&D debris on private property, will be transported to a [Municipality]-approved final disposal site in accordance with all federal, state, and local regulations.

- 3.5.1 Proposer is required to strictly adhere to all local, state, and federal regulatory requirements (such as obtaining demolition permits, burrito wrapping of debris, etc.) for the demolition, handling, and transportation of RACM structures.
- 3.5.2 Decommissioning consists of the removal and disposal of all HHW, e-waste, white goods, and scrap tires from an RACM structure at a properly sanctioned facility in accordance with all applicable local, state, and federal regulations.
- 3.5.3 Any structurally unsound and unsafe structures will be identified and presented to the [Municipality] for direction regarding decommissioning.
- 3.5.4 Removal and transportation of eligible RACM demolished structures and eligible scattered C&D debris on private property will be performed as directed in writing by the [Municipality's] authorized representative.
- 3.5.5 Once the debris removal vehicle has been issued a load ticket from the [Municipality's] authorized representative, the debris removal vehicle will proceed immediately to a [Municipality]-approved final disposal site that accepts RACM debris. The debris removal vehicle will not collect additional debris once a load ticket has been issued.
- 3.5.6 Entry onto private property for the removal of eligible C&D debris will only be permitted when directed in writing by the [Municipality] or its authorized representative. [Municipality] will provide specific ROE legal and operational procedures for private property debris removal programs if requested.

### **3.6 DMS Management and Operations**

Under this contract, work shall consist of all labor, equipment, fuel, traffic control costs, toll costs, and other associated costs necessary to manage and operate DMS(s) for the acceptance, management, segregation, staging, and reduction of disaster debris. Reduction methods must be approved by the [Municipality] prior to commencement of reduction activities. DMS layouts and ingress and egress plans must be approved by the [Municipality]. [Municipality] may provide Proposer with potential DMS(s). Proposer will

be responsible for documenting the condition of the sites prior to their use as DMS(s), and for returning the DMS(s) to their original condition, abiding by all state and federal environmental regulatory requirements, and the following:

- a. If [Municipality] DMS locations are identified, the Proposer will be provided with the address, Global Positioning System (GPS) coordinates, and estimated acreage of each DMS.
- b. Based on the severity of the disaster, [Municipality] may require Proposer to locate additional sites to be used as DMS(s). If private sites are identified to be leased, the Proposer may be tasked with executing the lease and could bill these costs to the [Municipality] as a pass-through cost.
- c. The Proposer will be responsible for conducting pre-condition baseline underground water and soil sampling and testing of DMS as well as comparable closeout sampling and testing.
- d. DMS(s) operations and remediation must comply with all local, state, and federal safety and environmental standards. Proposer reduction, handling, disposal, and remediation operations must be approved in writing by the [Municipality].

[Municipality] reserves the right to inspect the DMS(s), verify quantities, and review operations at any time.

- 3.6.1 Managing DMS location includes helping to obtain necessary local, state, and federal permits or approval and operating in accordance with all rules and regulations of local, state, and federal regulatory agencies, which may include but are not limited to the EPA, New York State Department of Environmental Conservation (NYS DEC), New York State Historic Preservation Office, or other State and County agencies. Proposer shall also be responsible for all costs associated with third-party groundwater and soil testing.
- 3.6.2 Debris at the DMS(s) will be clearly segregated and managed independently by debris type (C&D, vegetative, white goods, and other scope of service items), program (ROW collection, private property debris removal, etc.), as outlined in Section 2.10 Description of Designated Area.
- 3.6.3 Proposer is responsible for maintaining the DMS(s) approach and interior road(s) for all weather conditions for the entire period of debris hauling, including provision of crushed concrete for any roads that require stabilization for ingress and egress.
- 3.6.4 Proposer is responsible for all associated costs necessary to provide DMS(s) traffic control (for example, traffic cones and staff with traffic flags).
- 3.6.5 Proposer is responsible for all associated costs necessary to provide DMS(s) dust control and erosion control (for example, an operational water truck, silt fencing, and other best management practices).
- 3.6.6 Proposer is responsible for providing twenty-four (24)-hour security at DMS(s).
- 3.6.7 Proposer will only permit Proposer vehicles and others specifically authorized by the [Municipality] or its authorized representative on DMS locations.
- 3.6.8 Proposer is responsible for all associated costs necessary to provide DMS(s) utilities (for example, water, lighting, and portable toilets).

- 3.6.9 Proposer is responsible for all associated costs necessary to provide DMS(s) fire protection (for example, an operational water truck [sufficient and equipped for fire protection], fire breaks, and a site foreman).
- 3.6.10 Proposer is responsible for all associated costs necessary to provide qualified personnel, as well as lined containers or containment areas, for the segregation of visible HHW/contaminants that may be mixed with disaster debris. The cost associated with qualified personnel and lined containers/containment areas for HHW/contaminant segregation is reflected in this scope of work. The [Municipality] will be responsible for disposing of HHW/contaminant material segregated and stored in lined containers at the DMS(s)
- 3.6.11 Proposer shall provide tower(s) from which the [Municipality] or its authorized representative can make volumetric load calls. The tower provided by the Proposer will meet required minimum specifications, detailed in Section 3.20 Debris Site Tower Specifications.
- 3.6.12 Proposer is responsible for operating the DMS(s) in accordance with OSHA, EPA, and NYS DEC guidelines.
- 3.6.13 Upon completion of haul-out activities, the Proposer shall restore the site to its original condition prior to site use at their own expense, abide by all local, state, and federal environmental regulatory requirements, and obtain a written release from the [Municipality] or its authorized representative. Site remediation will include (but is not limited to) ensuring all debris, mulch, and other residual material is adequately removed, returning the original site grade and other physical features including sodding if necessary. Site remediation will also include returning all utilized sites to their original condition as verified through soil and groundwater samples. Site remediation will abide by all state and federal environmental regulatory requirements and is subject to final approval by the [Municipality] and NYS DEC. Site remediation does not include restoring fencing, concession stands, lighting, and other permanent structures that may have been demolished at the [Municipality's] direction for DMS(s) operations.

### **3.7 DMS Management and Reduction by Grinding**

Under this contract, work shall consist of all labor, equipment, fuel, and miscellaneous costs necessary to reduce disaster debris by grinding. Reduction methods are at the discretion of the [Municipality]. Grinding must be approved by the [Municipality] prior to commencement of reduction activities.

- 3.7.1 All unreduced disaster debris must be staged separately from reduced debris at the DMS(s).
- 3.7.2 Grinding activities must begin within seven days of the opening of the DMS with adequate equipment available to process the type of debris entering the site and prevent stockpiling of excess debris at the DMS.
- 3.7.3 Proposer must obtain [Municipality's] approval to reduce C&D debris. If approved for reduction by the [Municipality], C&D debris must be reduced via grinding in order for the [Municipality] to compensate the Proposer for reduction. Incineration, mauling or driving over of C&D are not acceptable methods of C&D reduction.

### **3.8 DMS Management and Reduction by Incineration**

Under this contract, work shall consist of all labor, equipment, fuel, and miscellaneous costs necessary to reduce disaster debris by incineration. Reduction methods (controlled open-air incineration and air curtain burning) are at the discretion of the [Municipality]. Incineration must be approved by the [Municipality] prior to commencement of reduction activities.

- 3.8.1 All unreduced disaster debris must be staged separately from reduced debris at the DMS(s).

### **3.9 Haul-Out of Reduced Debris from DMS to Final Disposal Site**

Under this contract, work shall consist of all labor, equipment, fuel, traffic control costs, and associated costs necessary to load and transport reduced eligible material (such as ash, compacted C&D, or mulch) from a [Municipality]-approved DMS(s) to a [Municipality]-approved final disposal site in accordance with all local, state, and federal regulations.

- 3.9.1 All unreduced disaster debris must be transported to a final disposal site separately from reduced debris.
- 3.9.2 Proposer shall provide the name and address of each disposal site to be used along with the name and the telephone number of a responsible party for each site, prior to commencing the work.
- 3.9.3 Proposer shall not use any disposal site without the written consent of the [Municipality]. All costs and fees associated with the disposal of debris shall be reviewed for reasonableness by the [Municipality] prior to issuing any such authorization.
- 3.9.4 Proposer shall initiate and manage the execution of a written three-party agreement between the disposal site owner/operator, Proposer, and [Municipality] for permission to post a [Municipality] inspector at the site for verification of each load disposed.
- 3.9.5 Proposer shall provide a sufficient number of debris site towers and/or certified scales meeting [Municipality] specifications to provide for the efficient delivery of waste streams without excessive wait times. The [Municipality] shall decide what constitutes an excessive wait time. To the extent that the [Municipality] determines that additional towers and/or scales are required, additional towers must be operational within forty-eight (48) hours of the [Municipality's] request and certified scales must be operational within five (5) business days of the [Municipality's] request.
- 3.9.6 At the completion of disposal operations, each disposal site will issue a written summary of the quantity, type, and origin of waste delivered.
- 3.9.7 Proposer shall not receive any payment from the [Municipality] for haul-out or load tickets related to reduced or unreduced debris transported and disposed of at a final disposal site that was not approved by [Municipality].

### **3.10 Removal of Hazardous Leaning Trees and Hanging Limbs**

Under this contract, work shall consist of all labor, equipment, fuel, traffic control costs, toll costs, and other associated costs necessary to remove all eligible hazardous leaning trees six (6) inches or greater in diameter, measured four and a half (4.5) feet from the base of the tree, and eligible hazardous hanging limbs two (2) inches or greater in diameter at

the point of the break and in the [Municipality] ROW. Further, debris generated from the removal of eligible hazardous leaning trees and eligible hazardous hanging limbs two (2) inches or greater in diameter at the point of the break and in the [Municipality] ROW will be placed in the safest possible location on the [Municipality] ROW and subsequently removed in accordance with Section 3.2 of this RFP. Eligible hazardous leaning trees less than six (6) inches in diameter, measured four and a half (4.5) feet from the base of the tree, will be flush cut, loaded, and removed in accordance with Section 3.2 of this RFP. The [Municipality] will not compensate the Proposer for cutting leaning trees less than six (6) inches in diameter on a unit rate basis. The collection of all eligible hazardous leaning trees and eligible hazardous hanging limbs must be performed on the same day as the cut work. If there is insufficient room for safe placement along the [Municipality] ROW, then the Proposer must load the resulting debris as eligible hazardous leaning trees or eligible hazardous hanging limbs as they are removed.

3.10.1 Eligible hazardous leaning trees will be identified by the [Municipality] or its authorized representative for removal. Removal and transportation of hazardous leaning trees six (6) inches or greater in diameter on the [Municipality] ROW or private property will be performed as identified by the [Municipality] or authorized representative. All disaster-specific eligibility guidelines regarding size and diameter of hazardous leaning trees will be communicated to the Proposer in writing by the [Municipality] or authorized representative. For hazardous leaning trees to be removed and eligible for reimbursement, the tree must satisfy a minimum of one (1) of the following requirements:

- a. The tree has a broken canopy.
- b. The tree has a split trunk.
- c. The tree has fallen or been uprooted within a public use area.
- d. The tree is leaning at an angle greater than thirty (30) degrees.

3.10.2 Eligible hazardous hanging limbs will be identified by the [Municipality] or its authorized representative for removal. Removal and placement of eligible hazardous hanging limbs two (2) inches or greater in diameter at the point of the break and on the [Municipality] ROW or private property will be performed as identified by the [Municipality's] authorized representative. All disaster-specific eligibility guidelines regarding size and diameter of limbs will be communicated to the Proposer in writing by the [Municipality's] authorized representative. For hazardous hanging limbs to be removed and eligible for payment, the limb must satisfy all of the following requirements:

- a. The limb is two (2) inches or greater in diameter at the point of the break.
- b. The limb is still hanging in a tree and threatening a public use area.
- c. The limb is located on improved public property.

### **3.11 Removal of Hazardous Stumps**

3.11.1 Under this contract, work shall consist of all labor, equipment, fuel, traffic control costs, toll costs, and other associated costs necessary to remove all hazardous uprooted stumps two (2) feet or greater in diameter, measured 2 feet from the base of the tree, in the [Municipality] ROW. Any voids not backfilled immediately following hazardous stump removal must have measures taken in order to protect public health and safety. Further,



debris generated from the removal of eligible hazardous uprooted stumps in the [Municipality] ROW will be placed in the safest possible location on the ROW and subsequently removed in accordance with Section 3.2 of this RFP. Stumps measured two (2) feet from the base of the tree and less than two (2) feet in diameter will be considered normal vegetative debris and will be removed in accordance with Section 3.2 of this RFP. [Municipality] will not compensate Proposer for removing hazardous stumps less than two (2) feet in diameter on a unit rate basis and instead will be considered normal vegetative debris. The diameter of stumps less than two (2) feet will be converted into a cubic yardage volume based on the published FEMA Stump Conversion Table (see Attachment 1, FEMA Stump Conversion Table) and will be removed under the terms and conditions of Section 3.2 of this RFP.

3.11.2 Eligible hazardous stumps will be identified by the [Municipality] for removal. Removal and transportation of hazardous uprooted stumps in the [Municipality] ROW and private property will be performed as identified by the [Municipality]. All disaster-specific eligibility guidelines regarding size and diameter of hazardous stumps will be communicated to Proposer in writing by the [Municipality]. For hazardous stumps to be removed and eligible for reimbursement, the stump must satisfy the following requirements:

- a. Over fifty (50) percent of the tree crown is damaged or broken and heartwood is exposed.
- b. Fifty (50) percent or more of the root ball is exposed.
- c. The stump is on [Municipality] ROW and poses an immediate threat to public health, safety, or welfare.

3.11.3 Stumps that are not attached to the ground will be considered normal vegetative debris and will be subject to removal under the terms and conditions of Section 3.2. Stumps with less than fifty (50) percent of the root ball exposed shall be flush cut to the ground. The stump portion of the tree will not be removed but the residual debris (that is, tree trunk) will be removed under the terms and conditions of Section 3.2. The cubic yard volume of the unattached stump will be based on the diameter conversion using the published FEMA Stump Conversion Table (see Attachment 1, FEMA Stump Conversion Table).

3.11.4 The [Municipality] or its representative will measure and certify all stumps before removal.

3.11.5 Stumps shall only be collected after the [Municipality] and the Proposer document and perform the following:

- a. Location – Determine that the uprooted stump is located on improved public property or a public ROW. Record and document the location using photography, map depiction, and specific descriptive notations.
- b. Size – Measure and record the diameter of the stump to be removed at the appropriate location.
- c. Marking – Eligible stumps will be marked and uniquely numbered with green paint. Ineligible stumps will be marked with red paint.
- d. Stump Worksheet – Hazardous Stump Worksheet provided by the monitoring firm(s) will be completed in full for each stump to capture the

following information: (1) names and signatures of parties present; (2) physical location (street address, road cross streets, etc.); (3) stump number; (4) size of the stump; and (5) date of stump removal.

- 3.11.6 The unit stump price shall include (but not be limited to) stump extraction, stump cavity filling with compacted soils and installation of seed and/or sod, stump hauling, and stump reduction.

### **3.12 ROW White Goods Debris Removal**

Under this contract, work shall consist of all labor, equipment, fuel, traffic control costs, toll costs, and other associated costs necessary for the collection of white goods from the ROW, removal of refrigerants, transportation to a [Municipality]-approved DMS, decontamination, and transportation to the [Municipality's] approved final disposal site.

- 3.12.1 White goods containing refrigerants must first have such refrigerants removed by the Proposer's qualified technicians prior to mechanical loading. White goods can be collected without first having refrigerants removed if the white goods are manually placed into a hauling vehicle with lifting equipment so that the elements containing refrigerants are not damaged.
- 3.12.2 The removal, transportation, and disposal of white goods includes obtaining all necessary local, state, and federal handling permits, and operating in accordance with all local, state, and federal regulatory agencies.
- 3.12.3 There are no disposal fees for residential white goods.

### **3.13 Used Electronics**

Under this contract, work shall consist of all labor, equipment, fuel, traffic control costs, toll costs, and other associated costs necessary for the removal, transportation, and proper disposal of eligible used electronics from the ROW to the [Municipality]-approved final disposal site. Eligible used electronics includes (but is not limited to) disaster-damaged televisions, computers, computer monitors, and microwaves in areas identified and approved by the [Municipality]. Proposer shall recycle or dispose of all eligible used electronics in accordance with all local, state, and federal regulations.

### **3.14 Household Hazardous Waste Removal, Transport, and Disposal**

Under this contract, work shall consist of all labor, equipment, fuel, traffic control costs, toll costs, and other associated costs necessary for the removal, transportation, and disposal of HHW.

- 3.14.1 The removal, transportation, and disposal of HHW includes obtaining all necessary local, state, and federal handling permits and operating in accordance with all local, state, and federal regulations.
- 3.14.2 The collection methods shall include collection vehicles supplied by the Proposer, which shall be capable of transporting HHW materials from the curb to the approved final disposal sites. All hazardous waste collection personnel shall wear Level D PPE and carry a means of communication (for example, cell phone or radio) for safety and operational purpose. Proposer personnel shall observe all applicable safety requirements for the handling of HHW in accordance with applicable regulations. All HHW shall be examined

prior to collection to ensure it is free of other more serious contaminants, including polychlorinated biphenyls. Such serious and non-qualifying non-HHW waste shall be noted and scheduled for separate recovery by the [Municipality] or Proposer as directed by the [Municipality]. Debris identified as HHW shall be collected and placed in poly bags for temporary storage during transport to the approved final disposal site.

3.14.3 Removal of HHW from DMS to approved final disposal site.

### **3.15 Abandoned Vessel and Vehicle Removal**

Under this contract, work shall consist of all labor, equipment, fuel, traffic control costs, toll costs, and other associated costs necessary for the removal and haul-out of eligible vessels and vehicles in areas identified and approved by the [Municipality]. The removed eligible vehicles will be hauled to a [Municipality]-approved staging area and subsequently disposed of by the appropriate regulatory agency.

3.15.1 The removal, transportation, and disposal required for abandoned vessel and vehicle removal includes obtaining all necessary local, state, and federal handling permits and operating in accordance with all local, state, and federal regulations.

### **3.16 Animal Carcass Removal and Disposal**

Under this contract, work shall consist of all labor, equipment, fuel, traffic control costs, toll costs, and other associated costs necessary for the removal, transportation, and lawful disposal of dead animal carcasses in areas identified and approved by the [Municipality] to an approved final disposal site. The carcasses will be hauled to a [Municipality]-approved staging area and subsequently disposed of by the appropriate regulatory agency.

3.16.1 The Proposer will coordinate activities with the appropriate local animal control agency.

3.16.2 The removal, transportation, and disposal of animal carcasses includes obtaining all necessary local, state, and federal handling permits and operating in accordance with all local, state, and federal regulations.

### **3.17 Other Debris Removal Work**

Neither the Proposer nor any Sub-Contractor shall solicit work from private citizens or others to be performed in the designated work areas during the term of this Agreement. [Municipality] reserves the right to require Proposer to dismiss or remove from the project any workers as the [Municipality] sees necessary. Any debris removal vehicles dismissed from the project must have their issued placard removed and destroyed (additional information in Section 3.26 Documentation and Measurement).

### **3.18 Use of Local Resources**

Proposer will be able to use their own Sub-Contractor resources to meet the obligations of the contract. FEMA encourages using local resources. The [Municipality] will establish the extent to which Proposer must use local resources. It is expected that the awarded Proposer will encourage at least thirty (30) percent of Sub-Contractors are resources located within the disaster area, including but not limited to procuring supplies and equipment, awarding subcontracts, and employing workmen at the [Municipality's] discretion. Proposer will provide a list of Sub-Contractors with proposal submission.

### **3.19 Working Hours**

Working hours of this contract shall only be during daylight hours, Monday through Sunday, or as otherwise directed by the [Municipality]. No work outside these hours shall be allowed unless approved in advance by the [Municipality].

- 3.19.1 Proposer shall conduct debris removal operations that generate noise levels above that normally associated with routine traffic flow during daylight hours only. Work may be performed seven (7) days per week. Adjustments to work hours, as local conditions may dictate, shall be coordinated between the [Municipality] and the Proposer. Unless otherwise directed, the Proposer must be capable of conducting volumetric reduction operations at DMS locations on a twenty-four-(24)-hour, seven-(7)-day-a-week basis.

### **3.20 Debris Site Tower Specifications**

Proposer shall provide as many towers as designated by the [Municipality] at each disposal site for the use of [Municipality] representatives during their inspection of dumping operations.

- 3.20.1 If ingress and egress of the DMS(s) is of significant distance that the [Municipality] or its authorized representative are unable to verify the entering and exiting trucks, Proposer may be required to provide a second tower.
- 3.20.2 The inspection platform of the tower shall be constructed at a minimum height of ten (10) feet from surrounding grade to finish floor level, have a minimum eight (8) feet by eight (8) feet of usable floor area, be covered by a roof with two (2) feet overhangs on all sides, and be provided with appropriate railings and a stairway. The platform shall be enclosed, starting from platform floor level and extending up four (4) feet on all four (4) sides. The expense incurred by the Proposer for the construction of towers is an overhead expense considered part of the Proposer's compensation under the terms and conditions of Section 5 Proposer Compensation.
- 3.20.3 Proposer shall provide a minimum of one (1) portable toilet at each dump site for the use of [Municipality] authorized representatives during their inspection of dumping operations. The toilet shall be provided prior to start of any dumping operations and will be kept in a sanitary condition by the Proposer throughout dumping operations. The expense incurred by the Proposer for the operation of portable toilets is an overhead expense considered part of the Proposer's compensation under the terms and conditions of Section 5 Proposer Compensation.
- 3.20.4 Care shall be taken to place tower at a sufficient distance away from any reduction/dumping operations. If necessary, dumping operations may be temporarily suspended by the [Municipality] due to unsuitable conditions at the tower.

### **3.21 Equipment**

- 3.21.1 All trucks and other equipment must comply with all applicable local, state, and federal regulations. Any truck used to haul debris must be capable of rapidly unloading without the assistance of other equipment, and must be equipped with a tailgate that will effectively contain the debris during transport and permit the truck to be filled to capacity.

- 3.21.2 Sideboards or other extensions to the bed are allowable provided they meet all applicable regulations, cover the front and both sides, and are constructed to withstand severe operating conditions. The sideboards are to be constructed of two (2)-inch by six (6)-inch boards or greater and not to extend more than two (2) feet above the metal bedsides. Trucks or equipment certified with sideboards must maintain such sideboards and keep them in good repair. To ensure compliance, equipment will be inspected by the [Municipality] or authorized representative prior to its use by Proposer.
- 3.21.3 Trucks or equipment designated for use under this contract shall not be used for any other work during the working hours of this contract. Proposer shall not solicit work from private citizens or others to be performed in the designated area during the period of this contract. Under no circumstances will Proposer mix debris hauled for others with debris hauled under this contract.
- 3.21.4 Debris shall be reasonably compacted into the hauling vehicle. Any debris extending above the top of the bed shall be secured in place to prevent it from falling off. Measures must be taken to prevent debris from blowing out of the hauling vehicle during transport to an approved DMS or an approved final disposal site.
- 3.21.5 Equipment used under this contract shall be rubber tired and sized properly to fit loading conditions. Excessively large equipment (100 cubic yards and up) and non-rubber tired equipment must be approved for use on the road by the [Municipality].
- 3.21.6 Hand-loaded vehicles are prohibited unless pre-authorized in writing by the [Municipality] following the event. All hand-loaded vehicles will receive an automatic fifty (50) percent deduction for lack of compaction.
- 3.21.7 Proposer shall supply a list of all equipment owned by the proposer with their proposal submittal.

### **3.22 Traffic Control**

- 3.22.1 Proposer shall mitigate the effects of their operations on local traffic to the fullest extent practical. The Proposer is responsible for establishing and maintaining appropriate traffic controls in all work areas, including DMS(s) and debris collection sites.
- 3.22.2 Proposer shall provide, erect, and maintain all necessary barricades, suitable and sufficient lights, danger signals, signs, and other traffic control devices at all Proposer work areas to ensure the safety of vehicular and pedestrian traffic.
- 3.22.3 Proposer shall provide qualified flag personnel where necessary to direct the traffic and shall take all necessary precautions to protect the designated area and the safety of the public.
- 3.22.4 All work shall comply with all applicable local, state, and federal regulations governing personnel, equipment, and workplace safety. Any notification of a deficiency in traffic control or other safety items shall be immediately corrected by Proposer. No further work shall take place until the deficiency is corrected. Neither the [Municipality] nor the [Municipality's] authorized representative shall sign any additional load or unit rate tickets until the safety item is corrected.
- 3.22.5 Highways, streets, or parts of the designated area closed to through traffic shall be protected by effective barricades, and obstructions shall be illuminated during the hours from sunset

to sunrise. Suitable warning signs shall be provided by the Proposer to properly control and direct traffic.

- 3.22.6 All barricades, warning signs, lights, temporary signals, other protective devices, flag persons, and signaling devices shall meet the minimum requirements established in the Manual on Uniform Traffic Control Devices for Streets and Highways, Part VI, prepared by the National Joint Committee on Uniform Traffic Control Devices and current at the time bids are received. Traffic control will conform to the State's most current roadway and traffic design standards and the Federal Highway Administration's Manual on Uniform Traffic Control Devices for Streets and Highways. The foregoing requirements are to be considered as minimum and the Proposer's compliance shall in no way relieve the Proposer of final responsibility for providing adequate traffic control devices for the protection of the public and Proposer's employees throughout the designated area.

### **3.23 Damage to Public or Private Property**

- 3.23.1 All items damaged as a result of Proposer or Sub-Contractor operations (for example, sidewalks, seating, curbs, pipes, drains, water mains, pavement, mail boxes, and turf) shall be repaired or replaced by the Proposer, at their expense, in a manner prescribed by and at the sole satisfaction of the [Municipality]. Proposer will be responsible for any invoices submitted to the [Municipality] (such as by utility companies or landowners) that are determined to be the result of damage done by the Proposer. The [Municipality] reserves the right to pay any such invoices and deduct the cost from the Proposer's invoice. Repairs or receipt of repairs shall be completed and submitted to the [Municipality] prior to submission of the Proposer's invoice for work accomplished. If the Proposer fails to repair any damaged property, the [Municipality] may have the work performed and charge the Proposer.
- 3.23.2 The Proposer shall restore all disturbed areas to their original condition, including re-grading, use of rye grass and permanent grass, and any other means necessary.
- 3.23.3 Proposer's failure to restore damage to public or private property to the satisfaction of the [Municipality] will result in the [Municipality] withholding retainage money in an amount sufficient to make necessary repairs.

### **3.24 Existing Utilities**

- 3.24.1 Some trees and debris that are to be removed under this Agreement may be blocked or entangled with overhead power, telephone, and television cables. In this case, it shall be Proposer's responsibility to coordinate directly with the utility owners to arrange for the removal of the debris without damage to the overhead and underground utility lines. The Proposer shall pay all such costs to the utility company for any adjustments.
- 3.24.2 The Proposer shall make the necessary repairs or pay all costs incurred to repair damaged utilities, as determined by the affected utility company. Repairs to all municipal and privately owned water and sewer facilities shall be made by the Proposer.

### **3.25 Environmental Protection**

- 3.25.1 All chemicals of whatever nature used during project construction or furnished for project operations must be state and federally certified. Their use and disposal of all residues shall strictly comply with instructions.

- 3.25.2 Proposer shall, at their own expense, ensure that noise and dust pollution is minimized to comply with all local, state, and federal regulations and the approval of the [Municipality]. Proposer shall comply in a timely manner with all directions of the [Municipality] regarding the use of a water truck or other approved dust abatement measures.
- 3.25.3 Proposer shall comply with all laws, rules, regulations, and ordinances regarding environmental protection.

### **3.26 Documentation and Measurement**

- 3.26.1 Prior to beginning any work, the [Municipality] or its authorized representative shall clearly number each truck or piece of equipment hauling or loading debris with a placard. All vehicles must be certified by the [Municipality] or its authorized representative prior to debris collection. If a vehicle is working under multiple contracts or for multiple communities, it must be re-certified by a [Municipality] authorized representative each time it returns to work from other contracts or communities.
- 3.26.2 Proposer is responsible for ensuring that all Sub-Contractors maintain valid driver's licenses and equipment legally fit for travel on the road.
- 3.26.3 Proposer shall designate one project manager. The project manager shall provide the [Municipality] with a telephone number at which the project manager can be reached throughout the project.
- 3.26.4 It is the [Municipality's] preference to use an electronic system for load tickets. An Automated Debris Management System (ADMS) or paper load tickets will be provided by the [Municipality] or its authorized representative for recording volumes of debris removal. If an ADMS is used a copy of the electronic ticket will be printed for the vehicle operator at the dump site. If paper tickets are to be used each load ticket shall consist of one (1) original and four (4) carbon-copy duplicates and will be distributed as follows:
- a. Load tickets will be issued by a [Municipality]-authorized representative at the loading site. [Municipality] will keep one (1) copy of the ticket, and give four (4) copies to the vehicle operator. Upon arrival at the dump site, the vehicle operator will give the four (4) copies to the [Municipality]-authorized representative at the dump site. Trucks with less than full capacities will be adjusted down by visual inspection; the [Municipality]-authorized representative present at the dump site will make this determination. The [Municipality]-authorized representative will validate, enter the estimated debris quantity, and sign the load tickets. [Municipality] will keep the original copy and the three (3) remaining duplicate copies will be returned to the vehicle operator for the Proposer's records.
- 3.26.5 Proposer shall give written notice of the location for work scheduled twenty-four (24) hours in advance to the [Municipality].

### **3.27 Ownership of Debris**

All debris residing in the [Municipality] ROW and [Municipality]-provided DMS(s) as a result of the disaster shall be the property of the [Municipality] until final disposal at a properly permitted disposal site. Proposer shall be responsible removing debris up to the point where debris can only be described as light litter and additional collection can be

facilitated only by sweeping and raking. In addition to debris stored on the ROW as the result of road clearing, [Municipality] will direct residents to place debris in segregated piles along the ROW, separated according to the waste category. There may be a need to perform some curbside separation of the different waste materials. Different waste materials will be collected in separate vehicles and may require disposal at different locations, which will be approved by the [Municipality]. Any items requiring disposal at special sites shall be required to be monitored for the collection, complete haul, and delivery at the approved special site with the monitor obtaining an original copy of the disposal ticket showing inbound and outbound collection vehicle weights.

- 3.27.1 All bagged and bundled waste and debris smaller than two (2) inches in diameter and shorter than two (2) feet in length are outside the scope of this contract unless specifically directed by the [Municipality]. Collection of municipal solid waste (MSW) is outside the scope of this contract. All debris outside the scope of the contract handled by the Proposer shall become the property of the Proposer upon collection.
- 3.27.2 It is recognized that C&D debris might contain small amounts of asbestos, lead-based paints, treated wood, or similar materials. NYS DEC may issue orders for the classification and disposition of all disaster debris. Based on the mandates of NYS DEC and other applicable state and federal reimbursement agencies, the character and disposal of waste streams will be determined. The Proposer and [Municipality] will establish a final disposal plan based on these mandates.

### **3.28 [Municipality] Responsibilities**

[Municipality] responsibilities will vary depending on [Municipality] needs and resources. The [Municipality], at a minimum, will be responsible for the following:

- a. Coordinating collection activities with the Proposer
- b. Completing the [Municipality] service request form
- c. Identifying suitable DMS activities
- d. Promoting debris management activities
- e. Providing educational materials
- f. Submitting post-collection DMS(s) data reports to NYS DEC
- g. Recruiting and coordinating volunteers
- h. Coordinating with local police, fire, emergency medical services, and other appropriate agencies
- i. Providing emergency contact information
- j. Executing the contract with selected Proposer(s)
- k. Issuing a written Notice to Proceed at the appropriate time



## SECTION 4: EVALUATION AND SELECTION PROCESS

1. [Municipality] will evaluate proposals using the following criteria:
  - a. **Proposal Requirements and Completeness of Proposal** **5 points**
  - b. **References, Experience, Reputation, and Compliance** **30 points**
    - Experience and reputation in managing debris removal and disposal projects within state and federal regulations and guidelines
    - Personnel experience and training
    - Financial stability
  - c. **Debris Management Services** **25 points**
    - Degree of [Municipality] liability in proposed debris management methods
    - Breadth of service and number of contracts the Proposer can handle
    - Debris management methods and commitment to [Municipality] debris management preferences
    - Availability of preferred disposal methods (for example, types of materials planned for reuse and recycling)
    - Ability to ensure debris is collected, sorted, transported safely, and reduced appropriately
    - Ability to serve a wide range of project types (for example, permanent facility, one-day event, and mobile collection unit) and community types (for example, rural, urban, and suburban)
  - d. **Responsiveness of Proposal** **20 points**
    - Demonstrated understanding of [Municipality] and [Municipality] needs
    - Demonstrated understanding of requirements of the RFP and contract
    - Quality of proposal and impressions of response as it relates to project
    - Additional services, ideas, or products that will benefit [Municipality]
  - e. **Price** **20 points**
    - Reasonableness of Cost
2. An evaluation team will review all proposals received to determine the extent to which they comply with the requirements herein. The evaluation team may include representatives from local governments, [Municipality], or others with relevant expertise.
3. If a proposal fails to meet a material RFP requirement, the proposal may be rejected. A deviation is material to the extent that the proposal is not in substantial accord with the solicitation. Material deviations cannot be waived. Immaterial deviations may cause a bid to be rejected.
4. Proposals containing false or misleading statements may be rejected if the [Municipality] regards the information as intentionally misleading regarding a requirement of the RFP.
5. During the evaluation process, [Municipality] may require a Proposer representative to answer questions regarding the proposal. Proposer's failure to demonstrate that the claims made in the proposal are true may be sufficient cause for deeming a proposal non-responsive.

**SECTION 5: CONTRACTOR COMPENSATION**

**Schedule 1**

**Hourly Labor, Equipment, and Material Price Schedule**

(Scope of Service Item 1)

| <b>Equipment Type With Operator</b>  | <b>Estimated Hours</b> | <b>Hourly Labor Rate</b> | <b>Total</b> |
|--|------------------------|--------------------------|--------------|
| Air Curtain Burner, Self-Contained System  |                        |                          |              |
| 50' Bucket Truck   |                        |                          |              |
| Crash Truck w/Impact Attenuator  |                        |                          |              |
| Dozer, Tracked, D3 or Equivalent   |                        |                          |              |
| Dozer, Tracked, D4 or Equivalent   |                        |                          |              |
| Dozer, Tracked, D5 or Equivalent   |                        |                          |              |
| Dozer, Tracked, D8 or Equivalent   |                        |                          |              |
| Dump Truck, 16 +/- CY  |                        |                          |              |
| Dump Truck, 20 +/- CY  |                        |                          |              |
| Dump Truck, 38 +/- CY  |                        |                          |              |
| Generator, 5.5 kW, List kW Capacity  |                        |                          |              |
| Generator, 200 kW, List kW Capacity  |                        |                          |              |
| Generator, 2,500 kW, List kW Capacity  |                        |                          |              |
| Light Plant with Fuel and Support  |                        |                          |              |
| Grader w/12' Blade (Min. 30,000 LB)  |                        |                          |              |
| Hydraulic Excavator, 1.5 CY  |                        |                          |              |
| Hydraulic Excavator, 2.5 CY  |                        |                          |              |
| Knuckleboom Loader   |                        |                          |              |
| Lowboy Trailer w/Tractor   |                        |                          |              |
| Mobile Crane up to 15 Ton  |                        |                          |              |
| Pump, 95 HP (Minimum 25' Intake and 200' Discharge to Include Fuel and Support Personnel)  |                        |                          |              |
| Pump, 200 HP (Minimum 25' Intake and 200' Discharge to Include Fuel and Support Personnel) |                        |                          |              |
| Pump, 650 HP (Minimum 25' Intake and 200' Discharge to Include Fuel and Support Personnel) |                        |                          |              |
| Vac Truck (Mist Capacity), List Capacity   |                        |                          |              |
| Pickup Truck, 1 Ton  |                        |                          |              |

| <b>Equipment Type With Operator</b>  | <b>Estimated Hours</b> | <b>Hourly Labor Rate</b> | <b>Total</b> |
|--|------------------------|--------------------------|--------------|
| Skid-Steer Loader, 1,500 LB Operating Capacity (w/ utility grapple)        |                        |                          |              |
| Skid-Steer Loader, 2,500 LB Operating Capacity (w/ utility grapple)        |                        |                          |              |
| Compact Track Loader, 1,500 LB Operating Capacity (w/ utility grapple)     |                        |                          |              |
| Compact Track Loader, 2,500 LB Operating Capacity (w/ utility grapple)     |                        |                          |              |
| Tub Grinder, 800 to 1,000 HP   |                        |                          |              |
| Hydraulic Excavator, 1.5 CY (w/ thumb)                                     |                        |                          |              |
| Hydraulic Excavator, 2.5 CY (w/ thumb)                                     |                        |                          |              |
| Truck, Flatbed   |                        |                          |              |
| Articulated, Telescoping Scissor Lift for Tower, 15 HP/37 FT Lift          |                        |                          |              |
| Water Truck, 2500 Gal (Non-Potable, Dust Control and Pavement Maintenance) |                        |                          |              |
| Wheel Loader, 3 CY, 152 HP   |                        |                          |              |
| Wheel Loader, 4.0 CY, 200 HP   |                        |                          |              |
| Wheel Loader-Backhoe, 1.5 CY, 95 HP  |                        |                          |              |
| Other – Please List  |                        |                          |              |
|  |                        |                          |              |
|  |                        |                          |              |

| <b>Labor Category</b>   | <b>Estimated Hours</b> | <b>Hourly Labor Rate</b> | <b>Hourly Labor Rate</b> |
|---|------------------------|--------------------------|--------------------------|
| Operations Manager w/Cell Phone and .5 Ton Pickup   |                        |                          |                          |
| Crew Foreman w/Cell Phone and 1 Ton Equipment Truck w/Small Tools and Misc. Supplies in Support of Crew |                        |                          |                          |
| Tree Climber/Chainsaw and Gear  |                        |                          |                          |
| Laborer w/Chain Saw   |                        |                          |                          |
| Laborer w/Small Tools, Traffic Control, or Flag person  |                        |                          |                          |
| Bonded and Certified Security Personnel   |                        |                          |                          |
| Other – Please List   |                        |                          |                          |
|   |                        |                          |                          |
|   |                        |                          |                          |

| <b>Crew Category</b>  | <b>Estimated Hours</b> | <b>Hourly Labor Rate</b> | <b>Total</b> |
|---|------------------------|--------------------------|--------------|
| Wheel Loader, 2.5 CY, 950 or Similar<br>w/Operator, Foreman with Support Vehicle and<br>Small Equipment, Laborer w/Chain Saw, and 2<br>Laborers w/Small Tools |                        |                          |              |
| Other – Please List   |                        |                          |              |
|   |                        |                          |              |
|   |                        |                          |              |
|   |                        |                          |              |
|   |                        |                          |              |
|   |                        |                          |              |
|   |                        |                          |              |

SAMPLE

## SCHEDULE 2 - UNIT RATE PRICE SCHEDULE

Reference to RFP Scope of Services Items 2 to 16. If a Proposer elects to "No Bid" individual service offerings, their proposal may be considered non-responsive by the [Municipality].

| 1 <b>ROW Vegetative Debris Removal</b><br>Work consists of the collection and transportation of eligible vegetative debris on the ROW or public property to [Municipality]-approved DMS or [Municipality]-approved final disposal site.              | Estimated Quantity | \$ Per Cubic Yard | Total | \$ Per Ton (Alternate) |
|--|--------------------|-------------------|-------|------------------------|
| 0 to 15.99 miles   | [###]              |                   |       |                        |
| 16 to 30.99 miles  | [###]              |                   |       |                        |
| 31 to 60.99 miles  | [###]              |                   |       |                        |
| Greater than 61 miles  | [###]              |                   |       |                        |
| 2 <b>ROW C&amp;D Debris Removal</b><br>Work consists of the collection and transportation of eligible C&D on the ROW or public property to [Municipality]-approved DMS or [Municipality]-approved final disposal site as approved by [Municipality]. | Estimated Quantity | \$ Per Cubic Yard | Total | \$ Per Ton (Alternate) |
| 0 to 15.99 miles   | [###]              |                   |       |                        |
| 16 to 30.99 miles  | [###]              |                   |       |                        |
| 31 to 60.99 miles  | [###]              |                   |       |                        |
| Greater than 61 miles  | [###]              |                   |       |                        |

| <b>3 Demolition, Removal, Transport and Disposal of Non-RACM Structures</b><br>Work consists of the decommissioning, demolition, and disposal of eligible Non-RACM structures on public or private property and hauling the resulting debris to [Municipality]-approved final disposal site. | <b>Estimated Quantity</b> | <b>\$ Per Cubic Yard</b> | <b>Total</b> | <b>\$ Per Ton (Alternate)</b> |
|--|---------------------------|--------------------------|--------------|-------------------------------|
| 0 to 15.99 miles   | [###]                     |                          |              |                               |
| 16 to 30.99 miles  | [###]                     |                          |              |                               |
| 31 to 60.99 miles  | [###]                     |                          |              |                               |
| Greater than 61 miles  | [###]                     |                          |              |                               |
| <b>4 Demolition, Removal, Transport and Disposal of RACM Structures</b><br>Work consists of the decommissioning, demolition, and disposal of eligible RACM structures on public or private property and hauling the resulting debris to a [Municipality]-approved final disposal site.       | <b>Estimated Quantity</b> | <b>\$ Per Cubic Yard</b> | <b>Total</b> | <b>\$ Per Ton (Alternate)</b> |
| 0 to 15.99 miles   | [###]                     |                          |              |                               |
| 16 to 30.99 miles  | [###]                     |                          |              |                               |
| 31 to 60.99 miles  | [###]                     |                          |              |                               |
| Greater than 61 miles  | [###]                     |                          |              |                               |

|  |                                  |                                 |                     |                                      |
|--|----------------------------------|---------------------------------|---------------------|--------------------------------------|
| <p><b>5 DMS Management and Operations</b><br/>Work consists of managing and operating DMS for acceptance of eligible vegetative disaster-related debris. The costs associated with acquiring, preparing, leasing, renting, operating, and remediating land used as DMS is reflected in this bid.</p>   | <p><b>Estimated Quantity</b></p> | <p><b>\$ Per Cubic Yard</b></p> | <p><b>Total</b></p> | <p><b>\$ Per Ton (Alternate)</b></p> |
|  | <p>###</p>                       |                                 |                     |                                      |
| <p><b>6 DMS Management and Reduction by Grinding</b><br/>Work consists of managing and operating DMS for acceptance and reduction of eligible vegetative disaster-related debris through grinding. The costs associated with acquiring, preparing, leasing, renting, operating, and remediating land used as DMS is reflected in this bid.</p>                                 | <p><b>Estimated Quantity</b></p> | <p><b>\$ Per Cubic Yard</b></p> | <p><b>Total</b></p> | <p><b>\$ Per Ton (Alternate)</b></p> |
|  | <p>###</p>                       |                                 |                     |                                      |
| <p><b>7 DMS Management and Reduction by Air Curtain Incineration</b><br/>Work consists of managing and operating DMS for acceptance and reduction of eligible vegetative disaster-related debris through air curtain incinerators. The costs associated with acquiring, preparing, leasing, renting, operating, and remediating land used as DMS is reflected in this bid.</p> | <p><b>Estimated Quantity</b></p> | <p><b>\$ Per Cubic Yard</b></p> | <p><b>Total</b></p> | <p><b>\$ Per Ton (Alternate)</b></p> |
|  | <p>###</p>                       |                                 |                     |                                      |
| <p><b>8 Haul-Out of Reduced Debris to [Municipality]-Approved Final Disposal Site</b><br/>Work consists of loading and transporting reduced eligible disaster-related debris at [Municipality]-approved DMS to [Municipality]-designated final disposal site.</p>  | <p><b>Estimated Quantity</b></p> | <p><b>\$ Per Cubic Yard</b></p> | <p><b>Total</b></p> | <p><b>\$ Per Ton (Alternate)</b></p> |
| <p>0 to 15.99 miles</p>  | <p>###</p>                       |                                 |                     |                                      |
| <p>16 to 30.99 miles</p>   | <p>###</p>                       |                                 |                     |                                      |
| <p>31 to 60.99 miles</p>   | <p>###</p>                       |                                 |                     |                                      |
| <p>Greater than 61 miles</p>   | <p>###</p>                       |                                 |                     |                                      |

| <b>9 Removal of Hazardous Trees and Limbs</b><br>Work consists of removing eligible hazardous trees or limbs and placing them on the safest possible location on the [Municipality] ROW for collection under the terms and conditions of Scope of Services Item 2, Vegetative Debris Removal. | <b>Estimated Quantity</b> | <b>\$ Per Tree</b> | <b>Total</b> |  |  |  |  |  |  |
|---|---------------------------|--------------------|--------------|--|--|--|--|--|--|
| 6-inch to 12.99-inch diameter   | [###]                     |                    |              |  |  |  |  |  |  |
| 13-inch to 24.99-inch diameter  | [###]                     |                    |              |  |  |  |  |  |  |
| 25-inch to 36.99-inch diameter  | [###]                     |                    |              |  |  |  |  |  |  |
| 37-inch to 48.99-inch diameter  | [###]                     |                    |              |  |  |  |  |  |  |
| 49-inch and larger diameter   | [###]                     |                    |              |  |  |  |  |  |  |
| Hanger Removal (per Tree)   | [###]                     |                    |              |  |  |  |  |  |  |



**SCHEDULE 2 - UNIT RATE PRICE SCHEDULE CONTINUED**

| <b>10 Removal of Hazardous Stumps</b><br>Work consists of removing eligible hazardous stumps and transporting resulting debris from the ROW to a [Municipality]-approved DMS. Rate includes removal, backfill of stump hole, reduction, and final disposal. Stumps under 24inches in diameter shall be paid at the Proposer's contracted rate for vegetative debris removal using the FEMA stump conversion table.  | <b>Estimated Quantity</b> | <b>\$ Per Stump</b> | <b>Total</b> |
|---|---------------------------|---------------------|--------------|
| 24.0-inch to 36.99-inch diameter  | [###]                     |                     |              |
| 37-inch to 48.99-inch diameter  | [###]                     |                     |              |
| 49-inch and larger diameter   | [###]                     |                     |              |
| <b>11 ROW White Goods Debris Removal</b><br>Work consists of the removal of eligible white goods from the ROW to [Municipality]-approved DMS site or [Municipality]-approved facility for recycling. Proposer shall be responsible for recovering/disposing refrigerants as required by law, as well as unit decontamination in a contained area. Proposer shall also be responsible for the transportation of eligible white goods from the [Municipality]-approved DMS to [Municipality]-approved facility for recycling. | <b>Estimated Quantity</b> | <b>\$ Per Unit</b>  | <b>Total</b> |
| Refrigerators and freezers requiring refrigerant recovery and decontamination   | [###]                     |                     |              |
| Washers, dryers, stoves, ovens, AC units, and hot water heaters   | [###]                     |                     |              |
| <b>12 Used Electronics Removal</b><br>Work consists of the recovery and disposal of disaster-damaged televisions, computers, computer monitors, and microwaves unless otherwise specified in writing by the [Municipality].   | <b>Estimated Quantity</b> | <b>\$ Per Unit</b>  | <b>Total</b> |
|   | [###]                     |                     |              |

|  |                           |                     |              |  |
|--|---------------------------|---------------------|--------------|--|
| <b>13 Household Hazardous Waste Removal, Transport, and Disposal</b><br>Work consists of the collection, transportation, and disposal of HHW from the ROW to an [Municipality]-approved permitted hazardous waste facility or MSW Type I landfill. | <b>Estimated Quantity</b> | <b>\$ Per Pound</b> | <b>Total</b> |  |
|  | [###]                     |                     |              |  |
| <b>14 Abandoned Vehicle Removal</b><br>Work consists of the removal and transport of eligible abandoned vehicles.  | <b>Estimated Quantity</b> | <b>\$ Per Unit</b>  | <b>Total</b> |  |
| Passenger Car  | [###]                     |                     |              |  |
| Single Axle  | [###]                     |                     |              |  |
| Double Axle  | [###]                     |                     |              |  |
| <b>15 Abandoned Vessel Removal</b><br>Work consists of the removal and transport of eligible abandoned vessels.  | <b>Estimated Quantity</b> | <b>\$ Per Unit</b>  | <b>Total</b> |  |
| Vessels less than 20 linear feet   | [###]                     |                     |              |  |
| Vessels 21 linear feet and greater   | [###]                     |                     |              |  |
| <b>16 Dead Animal Carcasses</b><br>Work consists of the recovery and disposal of dead animal carcasses.  | <b>Estimated Quantity</b> | <b>\$ Per Pound</b> | <b>Total</b> |  |
|  | [###]                     |                     |              |  |
| <b>Total</b>   | \$ _____                  |                     |              |  |

**Appendix F**

**CONTRACTOR, DISPOSAL, AND RECYCLING CONTACTS**

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## CONTRACTS, DISPOSAL AND RECYCLING RESOURCES

As plan is updated, list of contracts developed will be listed as appropriate and feasible.

**Table 1  
Debris Hauling Firms**

| Company Name | Company Contact | Phone | Email | Address |
|--------------|-----------------|-------|-------|---------|
| TBD          | TBD             | TBD   | TBD   | TBD     |
|              |                 |       |       |         |

\*Firms in Table 1 were listed on the County’s website, but not formally vetted as debris hauling firms.

**Table 2  
Franchise Waste Haulers**

| Company Name                | Company Contact | Phone        | Email | Address                                  |
|-----------------------------|-----------------|--------------|-------|--|
| Casella Waste Systems, Inc. | TBD             | 607-277-5361 | TBD   | PO Box 349<br>Newfield, NY 14867         |
| Doug’s Trash Removal        | TBD             | 607-898-3220 | TBD   | 105 W. South St.<br>Groton, NY 13073     |
| Hilliard Trash Service      | TBD             | 315-497-3279 | TBD   | 1341 Tollgate Rd<br>Locke, NY 13092      |
| Mansaz                      | TBD             | 607-216-8742 | TBD   | 409 Manor Lane<br>Newfield, NY 14867     |
| Red Line Disposal           | TBD             | 607-594-5000 | TBD   | 109 State Route 228<br>Odessa, NY 14869  |
| S&S Disposal                | TBD             | 607-539-6535 | TBD   | 398 Buffalo Rd<br>Brooktondale, NY 14817 |
| TPK Disposal Services       | TBD             | 607-351-6573 | TBD   | 1988 Danby Rd.<br>Ithaca, NY 14850       |
| City of Ithaca              | TBD             | 607-272-1718 | TBD   | 108 East Green St.<br>Ithaca, NY 14850   |
| Village of Cayuga Heights   | TBD             | 607-257-1238 | TBD   | 836 Hanshaw Rd.<br>Ithaca, NY 14850      |
| Natural Upcycling           | TBD             | 585-584-3122 | TBD   | 1818 Linwood Rd<br>Linwood, NY 14486     |
|                             |                 |              |       |  |

**Table 3  
Debris Monitors**

| Company Name | Company Contact | Phone | Email | Address |
|--------------|-----------------|-------|-------|---------|
| TBD          | TBD             | TBD   | TBD   | TBD     |

## CONTRACTS, DISPOSAL AND RECYCLING RESOURCES

| Company Name | Company Contact | Phone | Email | Address |
|--------------|-----------------|-------|-------|---------|
|              |                 |       |       |         |

**Table 4  
Potential Final Disposal Locations**

| Permit | Site Name  | Debris Type   | Market | Operator                       | Location/Phone                                       |
|--------|--|---|--------|--------------------------------|--|
| TBD    | Town of Enfield<br>Town Barn                               | Vegetative  | TBD    | Town of<br>Enfield             | TBD  |
| TBD    | Tompkins County<br>Recycling and<br>Solid Waste<br>Station | Electronics; Food<br>Scraps; Household<br>Hazardous Waste;<br>Scrap Metal; Tires;<br>Vegetative | TBD    | Tompkins<br>County;<br>Casella | 160 Commercial<br>Avenue, Ithaca, NY<br>607-273-6632 |
| TBD    | Cayuga Compost   | Vegetative, Food<br>Waste   | TBD    | P&S<br>Excavating              | 3225 Agard Rd,<br>Trumansburg, NY<br>607-387-6826    |
| TBD    | Clean Harbors  | Household<br>Hazardous Waste  | TBD    | Clean<br>Harbors               | 6741 VIP Parkway<br>Syracuse, NY<br>315-741-3270     |
| TBD    | Casella Facility   | White Goods   | TBD    | Casella                        | TBD  |
|        |  |   |        |                                |  |

**Table 5  
Recycling Resources**

| Site Name  | Market | Location/Phone                                    |
|--|--------|---|
| Tompkins County Recycling<br>and Solid Waste Station | TBD    | 160 Commercial Avenue, Ithaca, NY<br>607-273-6632 |
|  |        |   |

# Appendix G

## POTENTIAL DEBRIS MANAGEMENT SITE LOCATIONS

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The County and municipalities have identified initial sites that could potentially be used for Debris Management Sites (DMS). These locations are listed and mapped on the following pages. Locations will be updated appropriately and as needed.



# Tompkins County Potential DMS Locations

| Site  | Location   |
|---|--|
| Tompkins County Recycling Materials Management Transfer Station | 160 Commercial Ave., Ithaca (42.424577, -76.517950)      |
| Caswell Road Former County Landfill                             | Caswell Road (42.53436, -76.37156)                       |
| Perkins Road Gravel Pit   | Perkins Road, Brooktondale, NY (42.377942, -76.402308)   |
| County Public Works   | 114 Seven Mile Drive, Ithaca (42.4099325, -76.544424269) |
| Tompkins Cortland Community College                             | 170 North Street, Dryden (42.503321, -76.287024)         |
| Cornell University Parking Lot A                                | Pleasant Grove Road, Ithaca (42.458363, -76.476561)      |
| Cornell University Parking Lot B                                | Dryden Road, Ithaca (42.446376, -76.463242)              |
| Fields Near East Hill Plaza                                     | Ellis Hollow Road, Ithaca (42.438669, -76.451503)        |
|   |  |



# Tompkins County Recycling Materials Management Transfer Station



## Recycling and Solid Waste Center

- County Owned Parcels
- Tax Parcels 2020
- UNA 2018
- NYSDEC Freshwater Wetlands
- Water Resources Council Wetlands
- 1% (100-Year) Annual Chance Floodway
- 0.2% (500-Year) Annual Chance Floodway
- Open Space
- Natural Features Focus Areas
- Intermittent Streams
- Perennial Streams

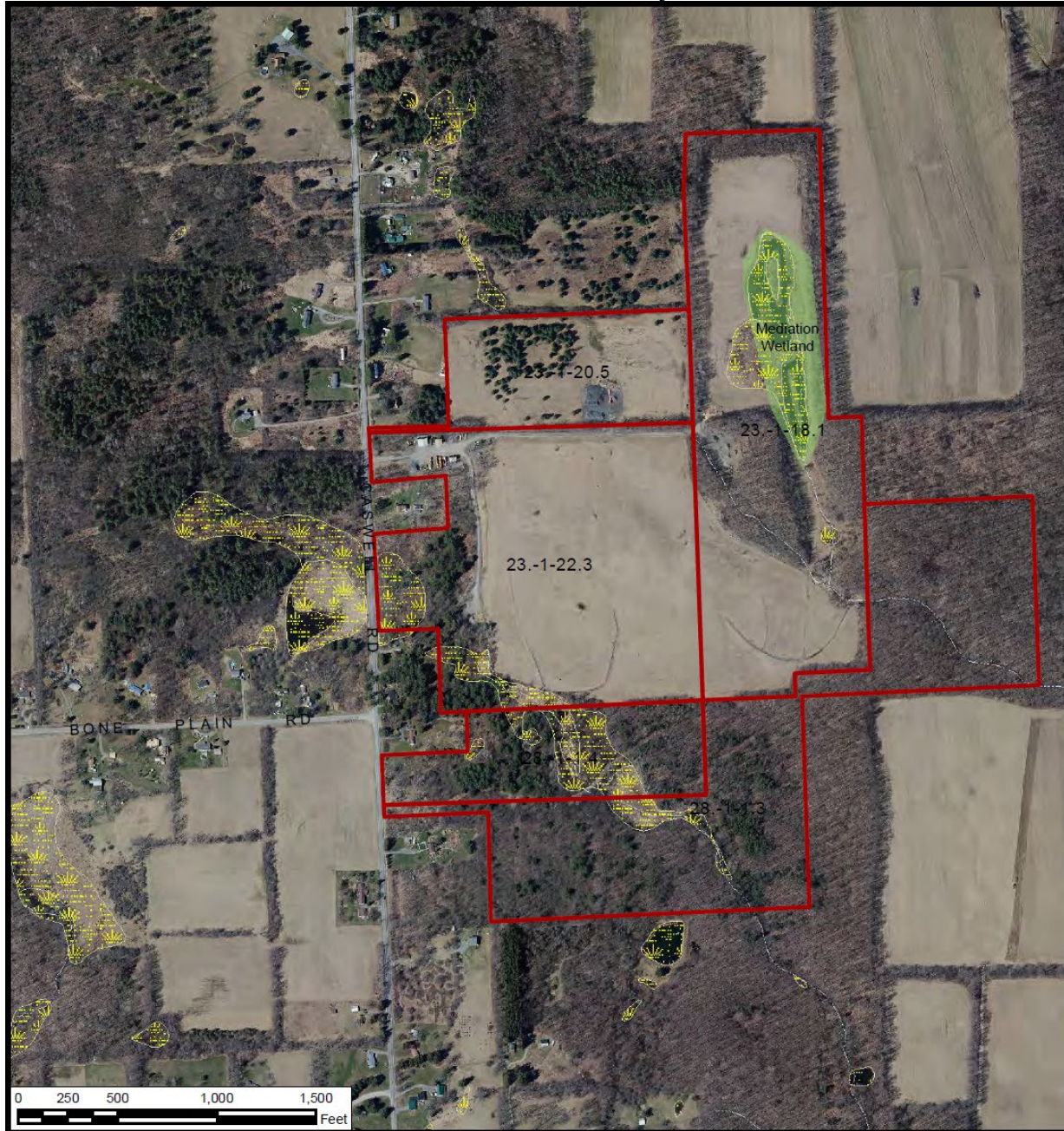


Tompkins County Department of Planning and Sustainability  
September 2020



Ithaca

# Caswell Road Former County Landfill



**Caswell Landfill**  
502489-23.-1-22.3

County Owned Parcels

Water Resources Council Wetlands

Open Space

Intermittent Streams

Perennial Streams

2018 Ortho Image

502489-23.-1-18.1

502489-23.-1-20.5

502489-23.-1-22.3

502489-28.-1-1.3

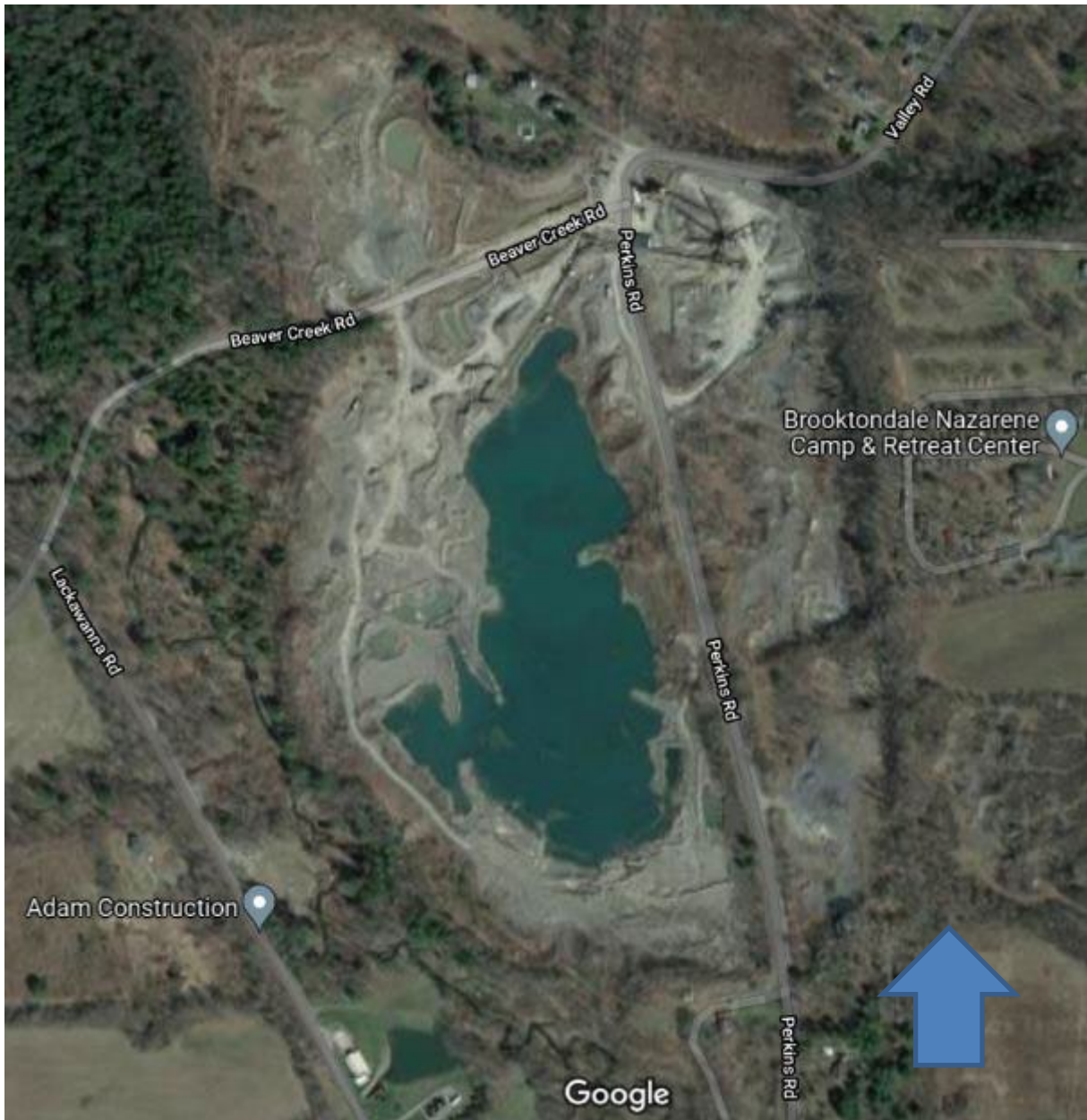
502489-28.-1-1.4



Tompkins County Department of Planning and Sustainability  
September 2020

  
 Dryden

### Perkins Road Gravel Pit



Note: This and every subsequent map is a Google image (2021) taken to show the representative area identified by the municipal partner as a potential debris management site. Generally all are oriented with North being the top of the page.

County Public Works



**Tompkins Cortland Community College**



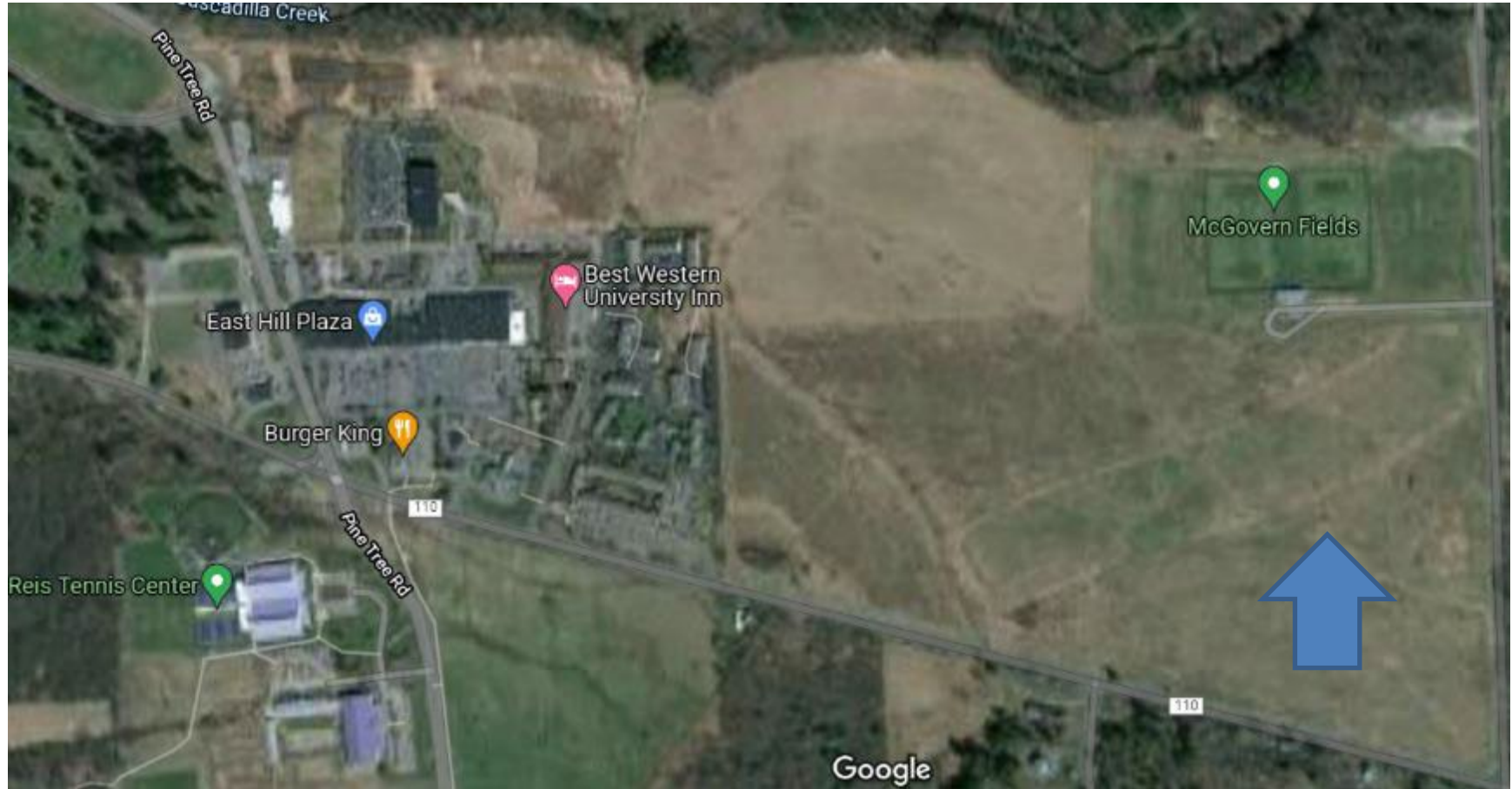
### Cornell University Parking Lot A



### Cornell University Parking Lot B



### Fields Near East Hill Plaza





# Town of Caroline Potential DMS Locations

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| Site      | Location                      |
|-----------|-------------------------------|
| Town Barn | Valley Road, Brooktondale, NY |
|           |                               |

**Town Barn**

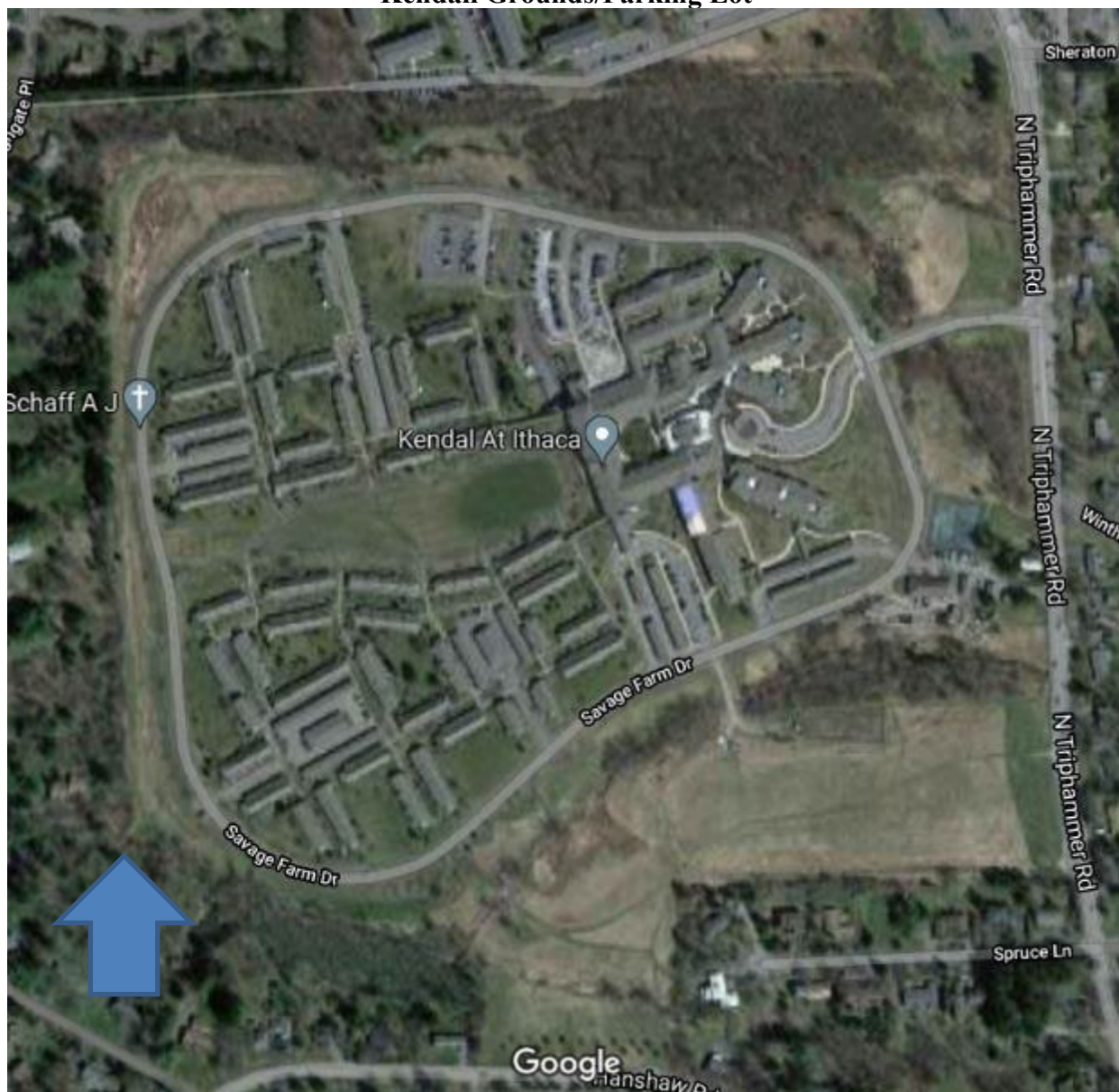


# Village of Cayuga Heights Potential DMS Locations

---

| Site                        | Location   |
|-----------------------------|--|
| Kendall Grounds/Parking Lot | 2230 N Triphammer Rd (42.4750572, -76.490172316) |
|                             |  |

### Kendall Grounds/Parking Lot



# Town of Danby Potential DMS Locations

---

| Site                            | Location                                      |
|---------------------------------|---|
| Old Danby School                | 54 Gunderman Road (42.3589895, -76.493288417) |
| Old Danby Highway Barn Property | 15 Bald Hill Road (42.351531, -76.4850885538) |
| Dotson Community Park           | Ithaca Road (42.351974, -76.481161717)        |
|                                 |   |

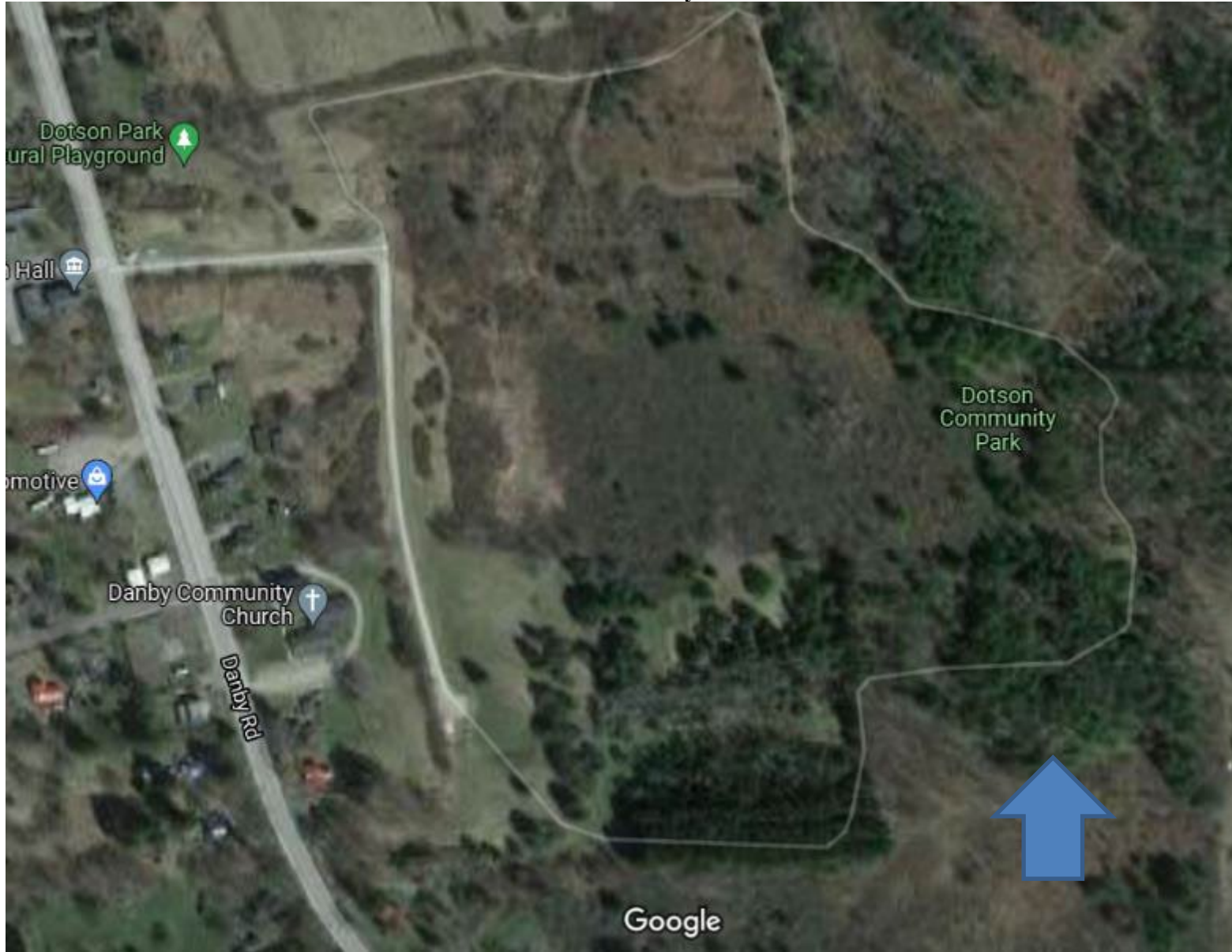
**Old Danby School**



Old Danby Highway Barn Property



**Dotson Community Park**



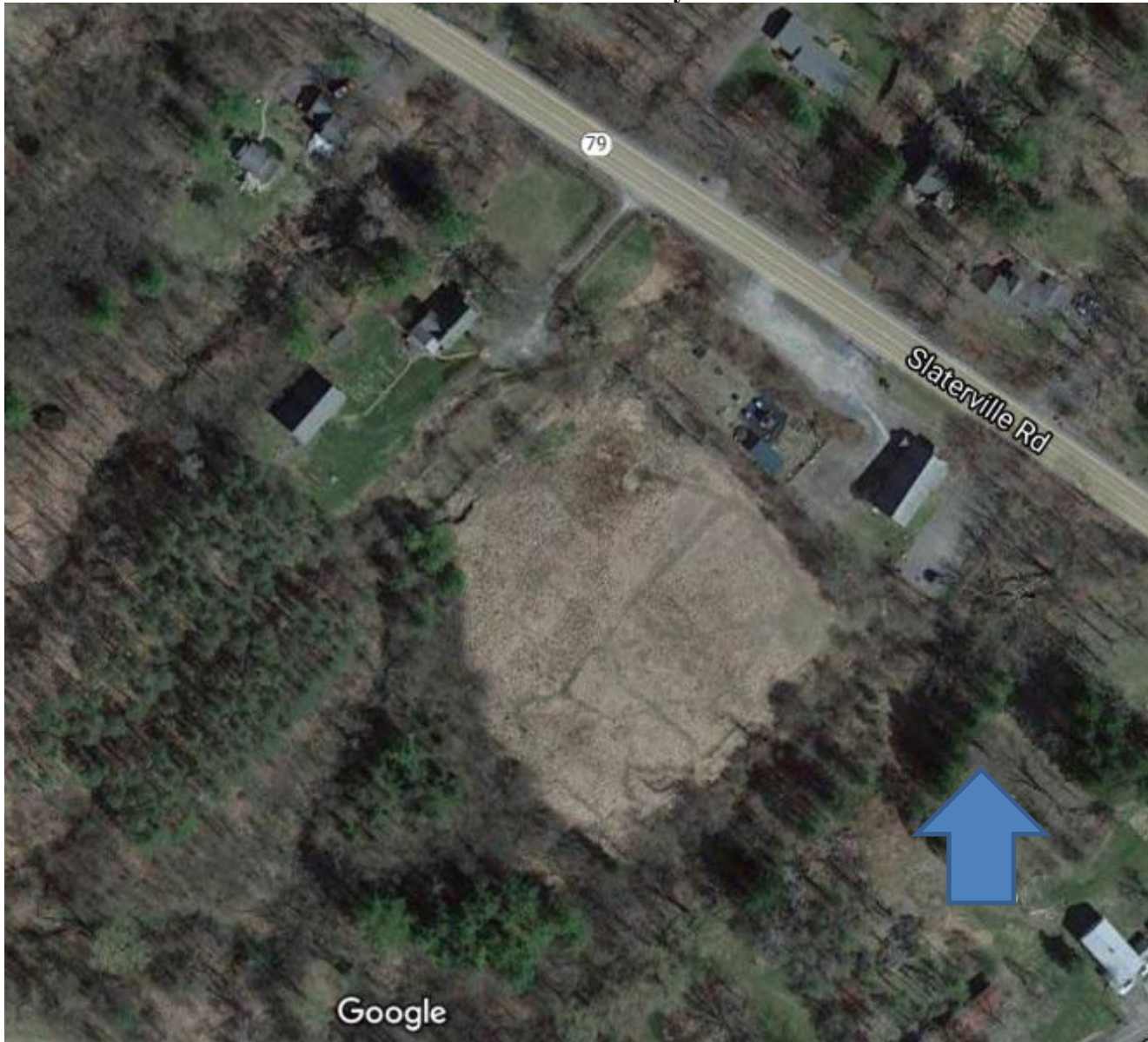


# Town of Dryden Potential DMS Locations

---

| Site                          | Location   |
|-------------------------------|--|
| Bethel Grove Community Center | 1825 Slaterville Rd (42.4057755, -76.4327809226) |
| Dryden Veterans Memorial Home | 2272 Dryden Rd (42.4902089, -76.3223942268)      |
| Ellis Hollow Community Center | 111 Genung Rd (42.4302071, -76.414109380)        |
|                               |  |

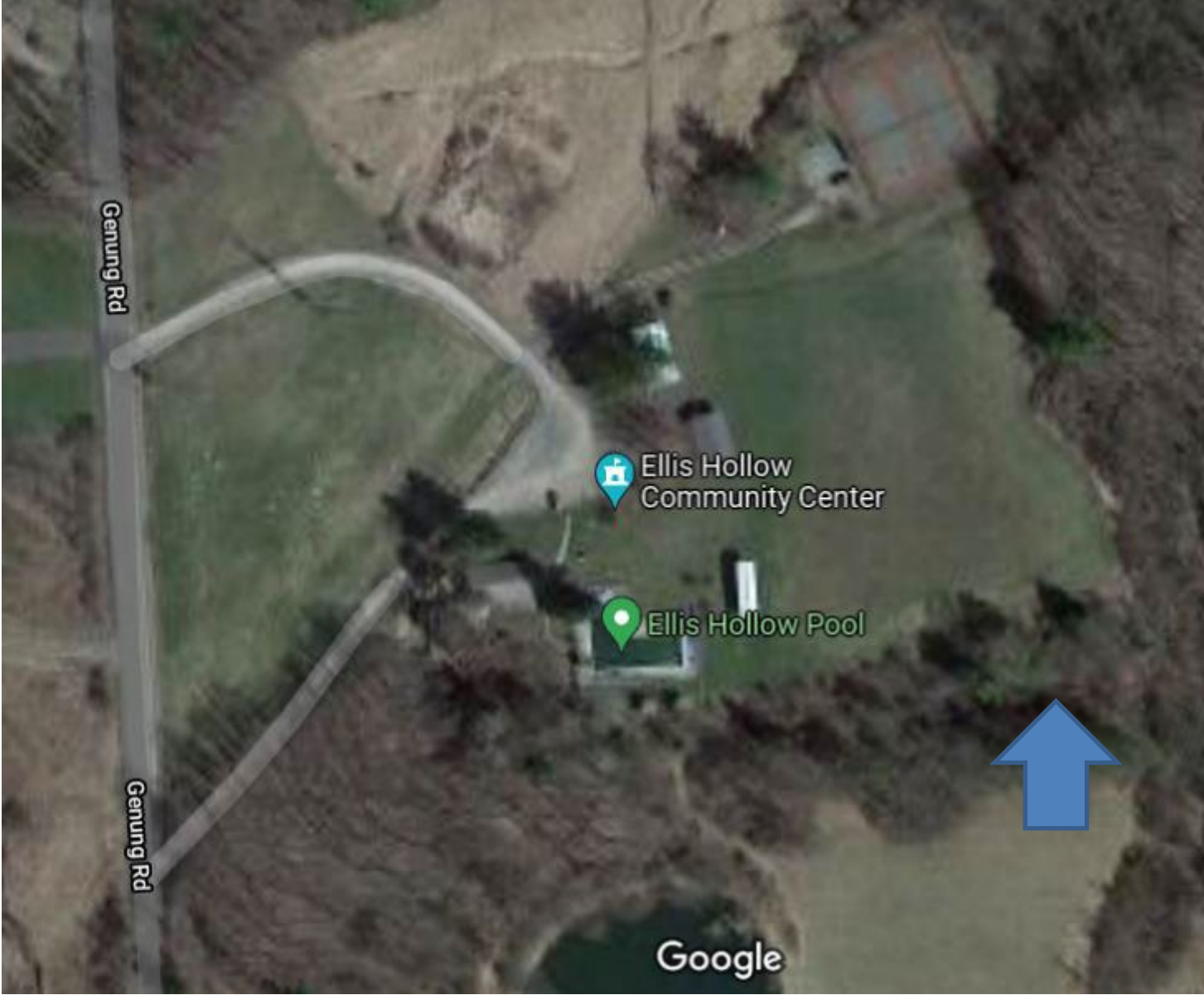
**Bethel Grove Community Center**



**Dryden Veterans Memorial Home**



**Ellis Hollow Community Center**



# Village of Dryden Potential DMS Locations

---

| Site                            | Location                              |
|---------------------------------|---------------------------------------|
| Dryden Public Works and Highway | 61 E Main St (42.4918618, -76.292412) |
|                                 |                                       |

Dryden Public Works and Highway



# Town of Enfield Potential DMS Locations

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| Site      | Location  |
|-----------|---|
| Town Barn | Enfield Main Road, Ithaca (42.417198, -76.626489) |
|           |   |

**Town Barn**





# Village of Freeville Potential DMS Locations

---

| Site | Location |
|------|----------|
| TBD  | TBD      |
|      |          |

Site

[Insert Map]

# Town of Groton Potential DMS Locations

---

| Site | Location |
|------|----------|
| TBD  | TBD      |
|      |          |

Site

[Insert Map]

# City of Ithaca Potential DMS Locations

---

| Site                  | Location   |
|-----------------------|--|
| Public Works Facility | 245 Pier Road (42.45350490593525, -76.5033158697948) |
| Southwest Park        | Southwest Park Road (42.4255, -76.5148)              |

Public Works Facility



Southwest Park



# Town of Ithaca Potential DMS Locations

---

| Site                        | Location   |
|-----------------------------|--|
| Town of Ithaca Public Works | 114 Seven Mile Drive (42.4099325, -76.544424269) |
|                             |  |



Town of Ithaca Public Works



# Town of Lansing Potential DMS Locations

---

| Site | Location |
|------|----------|
| TBD  | TBD      |
|      |          |

Site

[Insert Map]

# Village of Lansing Potential DMS Locations

---

| Site | Location |
|------|----------|
| TBD  | TBD      |
|      |          |

Site

[Insert Map]

# Town of Newfield Potential DMS Locations

---

| Site                     | Location                                 |
|--------------------------|--|
| Smith Road Property      | Town Property (42.35917, 76.56305)       |
| Casella Transfer Station | 1180 Elmira Road (42.392104, -76.562686) |

**Smith Road Property**



Casella Transfer Station





# Village of Trumansburg Potential DMS Locations

---

| Site        | Location   |
|-------------|--|
| Fairgrounds | 2150 Trumansburg Road (42.5353773, -76.6479423225) |
|             |  |

# Fairgrounds



# Town of Ulysses Potential DMS Locations

---

| Site              | Location                                    |
|-------------------|---|
| Town Highway Barn | 3888 Colegrove Road (42.506078, -76.607051) |
|                   |   |

Town Highway Barn



**Appendix H**  
**SAMPLE DMS MEMORANDUM OF AGREEMENT**

---

## **SAMPLE DMS MEMORANDUM OF AGREEMENT**

This Memorandum of Agreement made and entered into this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_, by and between (hereinafter "OWNER"), and the [Municipality], New York (hereinafter "[MUNICIPALITY]") (collectively referred to hereinafter as "the Parties").

WHEREAS, the [MUNICIPALITY] has a debris management plan for the removal, reduction, and disposal of large volumes of debris from public property following large scale disasters; and

WHEREAS, pursuant to the [MUNICIPALITY] debris management plan, the [MUNICIPALITY] may or may not enter into an agreement with one or more contractor(s) to manage and operate the removal, reduction, and disposal of disaster generated debris depending on the severity of the incident; and

WHEREAS, OWNER is the owner of a tract of land in **JURISDICTION OF TRACT OF LAND** (hereinafter "the Property"), more particularly described in **Exhibit A** attached hereto; and

WHEREAS, the [MUNICIPALITY] has identified the Property owned by OWNER as a suitable location for a Debris Management Site ("DMS"), to be used by the [MUNICIPALITY] in the event of a disaster necessitating debris removal, reduction, and disposal; and

WHEREAS, the [MUNICIPALITY] and the OWNER have agreed to cooperate toward establishment of a DMS to be used by the [MUNICIPALITY], or its designees, in the event of emergency assistance efforts requiring debris removal, reduction, and disposal in the [Municipality].

Now therefore, the Parties agree as follows:

### I. PROPERTY

The Property, as shown and identified as DMS on **Exhibit A**, constitutes approximately \_\_\_\_\_ acres available for DMS operations. The physical location of the site is: \_\_\_\_\_ and is a portion of property owned by OWNER identified as: \_\_\_\_\_ Real Estate ID#: \_\_\_\_\_.

### II. TERM

Subject to early termination as permitted by Section V herein below, this Agreement shall be for a term of \_\_\_\_\_ from the date of the Agreement without regard to the Commencement Date (as hereinafter defined).

### III. AGREEMENT

OWNER, subject to the terms and conditions set forth herein, hereby agrees to the use of the Property by the [MUNICIPALITY] for purposes of staging, storing, reducing, and properly disposing of disaster generated debris following a natural or man-made event.

### IV. [MUNICIPALITY] OBLIGATIONS

- a. Obtain, or cause to be obtained, all required local, state, and federal permits for the operation of a DMS.
- b. Install, or cause to be installed, if necessary, a temporary access road (of gravel, graded dirt, or other temporary material) for access of debris hauling vehicles to the Property.

## **SAMPLE DMS MEMORANDUM OF AGREEMENT**

---

- c. Manage, or cause to be managed, the DMS during the entire period of [MUNICIPALITY] use.
- d. Remove, or cause to be removed, all debris, vehicles, equipment, and temporary structures located on the property which were placed thereon by the [MUNICIPALITY], its employees, agents, contractors, subcontractors, and representatives.
- e. Restore, or cause to be restored, the property to the property's pre-use condition prior to the return of use of property to the OWNER.
- f. Perform, or cause to be performed, soil testing and abatement of any hazards created on the property as a direct result of [MUNICIPALITY] use as required under local, state, and federal law prior to the closing of the debris site and return of use of the property to the OWNER.
- g. Repair, or cause to be repaired, any damage to the property, including buildings and structures located on the property, caused as a direct result of [MUNICIPALITY] use of the property; in lieu of making or causing to make repair, the [MUNICIPALITY] may compensate OWNER for the cost of said repair upon agreement of both parties.

### **V. OWNER OBLIGATIONS**

- a. Take no action that renders the Property unusable as a temporary disaster debris disposal site as determined by the [MUNICIPALITY].
- b. Upon notification (either verbal or in writing) by the [MUNICIPALITY] of the [MUNICIPALITY'S] intent to make use of some or all of the Property as a DMS under the terms and conditions of this Agreement, to make as much of the Property as deemed necessary by the [MUNICIPALITY] immediately available to the [MUNICIPALITY], and to immediately remove all personal property (including, but not limited to vehicles and equipment) from those portions of the Property identified by the [MUNICIPALITY] for use.
- c. Not interfere in any manner with [MUNICIPALITY]-controlled debris management operations during the period of the [MUNICIPALITY's] use of the Property under the terms and conditions of this Agreement.

### **VI. COMMENCEMENT DATE**

The [MUNICIPALITY] will initiate DMS operations immediately preceding an event anticipated to generate debris within the [MUNICIPALITY], or immediately following an event that generated debris within the [MUNICIPALITY]. The [MUNICIPALITY] will activate this Agreement through verbal notification to the OWNER, followed by written notification transmitted by United States mail as certified or registered mail, return receipt requested, postage paid, and addressed to OWNER.

The "Commencement Date" shall be the date upon which notification is verbally provided by the [MUNICIPALITY] to OWNER.

## SAMPLE DMS MEMORANDUM OF AGREEMENT

---

### VII. ASSIGNMENT

OWNER shall not sell or in any way assign, transfer, or encumber his control of the Property without prior written notification to the [MUNICIPALITY].

### VIII. COMPENSATION

The parties agree that no compensation will be rendered for the use of the Property by the [MUNICIPALITY]. The [MUNICIPALITY], or its designee(s), shall be responsible for restoring the Property to its original state.

### IX. DMS OPERATIONS

The [MUNICIPALITY], or its designee(s), will establish, operate, and monitor DMS operations from the time of activation of this agreement through site restoration.

### X. WORKING HOURS

Working hours for the DMS are only during daylight hours, seven days a week. Working hours may need to be adjusted to accommodate 24-hour operations depending on the severity of the incident.

### XI. DEBRIS DISPOSAL

The [MUNICIPALITY], or its designee(s), will properly, promptly, and lawfully dispose of all waste, ash, and debris brought to or generated on the DMS.

### XII. DEBRIS SOURCES

The debris stream entering the DMS may include debris generated in the unincorporated areas of \_\_\_\_\_ the [MUNICIPALITY], areas within neighboring municipalities, and from road rights-of-way maintained by the New York State Department of Transportation (NYS DOT). The [MUNICIPALITY] will coordinate with the NYS DOT, and neighboring municipalities with regard to debris disposal at the [MUNICIPALITY]-operated DMS.

The intention of this Agreement is to create an arrangement where NYS DOT, and municipalities can deliver their debris to the DMS upon approval by the [MUNICIPALITY] and does not necessitate individual agreements between the OWNER and each entity.

### XIII. NOTICES

Any notice or demand which by any provision of this agreement is required or allowed to be given by either party to the other shall be deemed to have been sufficiently given for all purposes when made in writing and sent in the United States mail as certified or registered mail, return receipt requested, postage paid, and addressed to the following respective addresses: \_\_\_\_\_

### XIV. INDEMNIFICATION

The [MUNICIPALITY] agrees to indemnify and hold harmless OWNER from any claims, causes of action, administrative proceedings, and any and all other legal claims directly arising out of or relating to any damage, injury, loss, or other actions or omissions taken by [MUNICIPALITY], its employees, agents, contractors,



**SAMPLE DMS MEMORANDUM OF AGREEMENT**

---

subcontractors, and representatives as a direct result of the [MUNICIPALITY's] use of the Property under the terms and conditions of the Agreement. The [MUNICIPALITY] shall not be liable for any damage, injury, loss, or other actions or omissions not taken by [MUNICIPALITY], its employees, agents, contractors, subcontractors and representatives, including acts of third parties not operating at the direction of or under the control of [MUNICIPALITY]. Further, [MUNICIPALITY] shall not be liable for any injury, damage, or loss sustained by OWNER as a result of OWNER'S breach of the terms and conditions of this Agreement.

**XV. TERMINATION**

This Agreement shall be in effect from the last date written below until \_\_\_\_\_. This Agreement may be terminated by either party upon submission of a thirty-day advance written notice of termination. It is the intention of the Parties to discuss the renewal of this Agreement on an annual basis. Such renewals, if mutually agreed upon, shall be evidenced by an executed Supplemental Memorandum of Agreement. The Parties may choose to negotiate new or changed terms at the time of renewal.

OWNER:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**[MUNICIPALITY]:**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**XVI. ENTIRE AGREEMENT**

The OWNER and the [MUNICIPALITY] agree that this document constitutes the entire agreement between the two parties and may only be modified by a written mutual agreement signed by the parties. Modifications may be evidenced by electronic signatures. Unless and until further modified, this agreement shall consist of this document and the following attachments or addenda: **Exhibit A**

**XVII. GOVERNING LAW**

Both parties agree that this Agreement shall be governed by the laws of the State of New York.

**SAMPLE DMS MEMORANDUM OF AGREEMENT**

This Agreement shall be effective on the date of the last signature below. [MUNICIPALITY] in witness whereof, the Parties have each executed this Agreement, this the \_\_\_ day of \_\_\_\_\_, 20\_\_.

**OWNER**

BY: \_\_\_\_\_  
(Signature)  
\_\_\_\_\_  
(Print Name)  
\_\_\_\_\_  
(Title)

DATE: \_\_\_\_\_

**[MUNICIPALITY]**

BY: \_\_\_\_\_  
(Signature)  
\_\_\_\_\_  
(Print Name)  
\_\_\_\_\_  
(Title)

DATE: \_\_\_\_\_

**WITNESS**

BY: \_\_\_\_\_  
(Signature)  
\_\_\_\_\_  
(Print Name)  
\_\_\_\_\_  
(Title)

DATE: \_\_\_\_\_

**Appendix I**  
**SAMPLE PUBLIC INFORMATION MESSAGES**

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## **For Immediate Release (Approximately 48-72 Hours Prior to Incident)**

**Tompkins County, New York** – The potential for dangerous conditions is eminent for Tompkins County and its residents. The County is prepared and has a plan in place to immediately respond following the incident. After dangerous conditions subside and roads have been cleared of obstructions, residents should bring any debris to the public right-of-way for removal.

The public right-of-way is the area of residential property that extends from the street to the sidewalk, ditch, utility pole, or easement. Residents should separate clean, vegetative debris (woody debris such as limbs and shrubbery) from construction and demolition debris. Do not mix hazardous materials, such as paint cans, aerosol sprays, batteries, or appliances, with construction and demolition debris. Household garbage, tires or roof shingles cannot be combined with any **INSERT INCIDENT** related debris.

Do not place debris near water meter vaults, fire hydrants, or any other above-ground utility. Only debris placed on the public right-of-way will be eligible for collection until further notice.

If all debris is not picked up during the initial pass, residents should continue to push remaining debris to the public right-of-way for collection on subsequent passes. Residential debris drop-off locations may be available within the County. Check the County's web site at **INSERT WEB SITE, INSERT SOCIAL MEDIA SITE(S)** for the location of these sites and the hours of operation or call **INSERT NUMBER**. The County website will provide County office closure times/dates. All reconstruction debris (debris resulting from rebuilding) is the responsibility of the homeowner. Those items must be dropped off at the **INSERT LOCATION**.

Tompkins County residents are encouraged to stay indoors until the danger has passed. Please tune into local news channels for updated weather information.

#####

## **For Immediate Release (Approximately 0-72 Hours Following Incident)**

**Tompkins County, New York** – The County is beginning its recovery process in the wake of **INSERT INCIDENT**. County residents are asked to place any **INSERT INCIDENT** related debris on the public right-of-way.

The public right-of-way is the area of residential property that extends from the street to the sidewalk, ditch, utility pole or easement. Keep vegetative debris (woody debris such as limbs and shrubbery) separated from construction and demolition debris, as they will be collected separately. Bagged debris should not be placed on the public right-of-way, only loose debris will be collected. Any household hazardous waste, roof shingles, or tires resulting from **INSERT INCIDENT** may be eligible for removal and should be separated at the curb.

Do not place near water meter vault, fire hydrant, or any other above-ground utility. Only debris placed on the public right-of-way will be eligible for collection until further notice.

If all debris is not picked up during the initial pass, please continue to push remaining debris to the right-of-way for collection on subsequent passes. Household garbage collection will resume to its normal schedule on **INSERT DATE AND TIME**. Please check the County's web site **INSERT WEB SITE, INSERT SOCIAL MEDIA SITE(S)** for additional information and updates on the debris removal process.

For more information, please call the County's debris hotline at **INSERT NUMBER**.

####

### **For Immediate Release (72 Hours Prior to Final Pass of Debris Removal)**

**Tompkins County, New York.** – Final preparations are being made for the **third** and potentially final pass for debris removal in the wake of **INSERT INCIDENT.**

County residents should have all **INSERT INCIDENT** related debris in front of their homes on the public right-of-way (the area of residential property that extends from the street to the sidewalk, ditch, utility pole or easement) no later than **INSERT DATE** to be eligible for pick-up.

The County will not be able to guarantee that debris placed on the public right-of-way after the specified deadline will be removed.

Residents should continue to separate vegetative debris (woody debris such as limbs and shrubbery) and construction and demolition debris. Do not place debris near water meter vault, fire hydrant or any other above-ground utility. Hazardous household chemicals such as paint cans and batteries may be deposited at the **INSERT LOCATION.**

You can follow the debris removal efforts in your neighborhood and the rest of the County by going to the County's Web site at **INSERT WEB SITE, INSERT SOCIAL MEDIA SITE(S),** or by calling **INSERT NUMBER.**

####



# SPEED UP YOUR CLEANUP

Guide for New York Residents to expedite storm debris cleanup and recovery.



For more information contact:

## Storm Debris Cleanup Instructions

1. Put piles in the right of way (the area between the sidewalk and street).
2. Separate piles as shown below.
3. Don't pile materials near fire hydrants, mailboxes, utility poles, meters or storm drains.
4. Keep piles off the sidewalks and out of the streets.
5. Separate normal household trash for regular collections.
6. Share piles with neighbors.
7. For more information, contact your town or go to: [www.dec.ny.gov](http://www.dec.ny.gov)



|  |  |  |  |  |  |   |
|--|--|--|--|--|--|---|
|  |  |  |  |  |  |   |
| <p><b>Recyclables</b></p> <p>Recycle all the materials that are in your program.</p> | <p><b>Trash, Food Waste and Contaminated Paper</b></p> <ul style="list-style-type: none"> <li>• Spoiled Food</li> <li>• Wet/Moldy Paper and Cardboard</li> </ul> | <p><b>Vegetative Waste</b></p> <ul style="list-style-type: none"> <li>• Trees</li> <li>• Branches</li> <li>• Stumps</li> </ul> | <p><b>Demotion Debris and Bulky Items</b></p> <ul style="list-style-type: none"> <li>• Carpet</li> <li>• Lumber</li> <li>• Building Materials</li> <li>• Furniture</li> <li>• Drywall</li> <li>• Barbecue Grills (without the tank)</li> <li>• Lawn Care Tools</li> <li>• Motors (drained of gas &amp; oil)</li> </ul> | <p><b>Appliances (White Goods)</b></p> <ul style="list-style-type: none"> <li>• Refrigerators and Freezers (with all food removed and doors removed or secured)</li> <li>• Washers/Dryers</li> <li>• Air Conditioners</li> <li>• Stoves</li> </ul> | <p><b>Electronics (e-Waste)</b></p> <ul style="list-style-type: none"> <li>• TVs</li> <li>• Computers</li> <li>• Monitors</li> </ul> | <p><b>Household Hazardous Waste</b></p> <ul style="list-style-type: none"> <li>• Oil Based Paints</li> <li>• Lawn Chemicals</li> <li>• Pesticides</li> <li>• Batteries</li> <li>• Propane Tanks</li> <li>• Unbroken Fluorescent Lights</li> </ul> |

New York State Department of Environmental Conservation

Thanks to NJDEP for use of this poster.

## **Appendix J PRIORITY ROADS LIST**

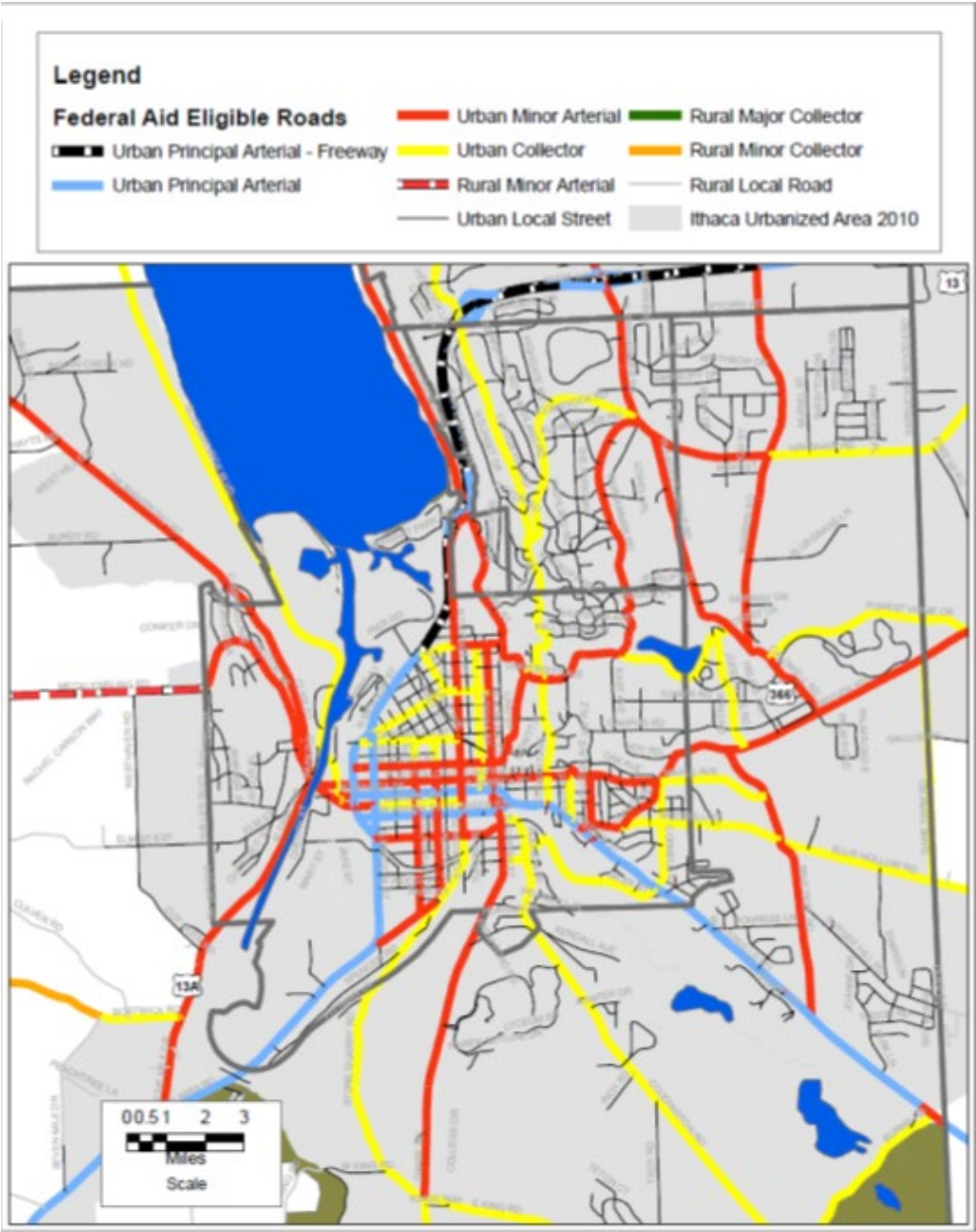
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The County and municipalities have prioritized roadways based on functional class for debris clearance purposes. A map showing the functional class of roadways in the County is provided on the next page. The sections that follow list the roads that have been prioritized for clearance due to the presence of critical facilities.

# Tompkins County Road Network by Functional Class







# Tompkins County Roads

| Road/Road Section                       | Reason for Priority   |
|---|---|
| Brooktondale Road, Town of Caroline     | U.S. Post Office  |
| Mill Road, Town of Caroline             | Speedsville Fire Station  |
| Valley Road, Town of Caroline           | Brooktondale Fire Station; Town Highway Department Garage; Old Brooktondale Fire Department |
| Coddington Rd, Town of Ithaca           | Utility Facility  |
| Sheldon Road, Village of Cayuga Heights | Cayuga Heights Village Barn; Water Tank   |
| Bald Hill Road, Town of Danby           | Town Highway Garage   |
| Comfort Road, Town of Danby             | Utility Facility  |
| Hornbrook Road, Town of Danby           | Highway Department  |
| Nelson Road, Town of Danby              | Ithaca Waldorf School   |
| Troy Road, Town of Danby                | Communications Facility   |
| Ellis Hollow Creek Road, Town of Dryden | Utility Facilities  |
| Hanshaw Road, Town of Dryden            | Tompkins County Soil & Water; National Guard; Cornell University                            |
| Turkey Hill Road, Town of Dryden        | Varna Fire Station  |
| Church Street, Town of Groton           | Utility Facility  |
| School Street, Town of Groton           | Cassavant Elementary School; U.S. Post Office   |
| Spring Street Extension, Town of Groton | Highway Garage  |
| Stevens Road, Town of Groton            | McLean Fire Department  |
| Taughannock Boulevard, City of Ithaca   | Military Facility   |
| Bostwick Road, Town of Ithaca           | School District Facility  |
|   |   |

| Road/Road Section                         | Reason for Priority   |
|---|---|
| Pine Tree Road, Town of Ithaca            | Wastewater Pump   |
| Brown Road, Village of Lansing            | U.S. Geological Survey Office; County Health Department; Airport; County Fire and Rescue; County Department of Emergency Response |
| North Triphammer Road, Village of Lansing | Village of Lansing Offices, Highway Garage  |
| Newfield Depot Road, Town of Newfield     | Railroad Depot  |
| Iradell Road, Town of Ulysses             | Water Tank  |
|   |   |

# Town of Caroline Roads

---

| Road/Road Section                      | Reason for Priority  |
|--|--|
| 2600 – 2800 Blocks of Slaterville Road | Slaterville Fire Station; Sweet Pea Cottage Preschool; Caroline Elementary School; Caroline Town Hall; Communications Facility; U.S. Post Office |
| Mill Road                              | Speedsville Fire Station   |
| Valley Road                            | Brooktondale Fire Station; Town Highway Department Garage; Old Brooktondale Fire Department  |
| Brooktondale Road                      | U.S. Post Office   |
| Speedsville Commons                    | Speedsville School   |
| Taft Road                              | Communications Facility  |
|  |  |
|  |  |

# Village of Cayuga Heights Roads

---

| Road/Road Section                | Reason for Priority  |
|----------------------------------|--|
| Jessup Road                      | Tobin Field House  |
| East Upland Road                 | Cayuga Heights Elementary School   |
| Country Club Road                | Hurlburt House   |
| 100 block of Pleasant Grove Road | Cayuga Heights Fire Department; Communications Facility                  |
| Sheldon Road                     | Cayuga Heights Village Barn; Water Tank                                  |
| Hanshaw Road                     | Cayuga Heights Village Office and Police Department; USDA Service Center |
| Triphammer Road                  | Kendal at Ithaca   |
|                                  |  |

# Town of Danby Roads

---

| Road/Road Section | Reason for Priority     |
|-------------------|-------------------------|
| Bald Hill Road    | Town Highway Garage     |
| Comfort Road      | Utility Facility        |
| Curtis Road       | Communications Facility |
| Danby Road        | Town Hall               |
| East Miller Road  | Communications Facility |
| Hornbrook Road    | Highway Department      |
| Nelson Road       | Ithaca Waldorf School   |
| Sylvan Lane       | West Danby Fire Station |
| Troy Road         | Communications Facility |
|                   |                         |

# Town of Dryden Roads

| Road/Road Section       | Reason for Priority   |
|-------------------------|---|
| Abbott Road             | Office of Mental Health   |
| Dryden Road             | NYSEG; Covenant Love Community School; NYSP                                 |
| Ellis Hollow Creek Road | Utility Facilities  |
| Farview Drive           | Communications Facility; Water Tank   |
| Freeville Road          | Dryden District Office, High School, Middle School; Communications Facility |
| Genung Road             | Utility Facility  |
| Hanshaw Road            | Tompkins County Soil & Water; National Guard; Cornell University            |
| Hart Road               | Water Tower   |
| Lower Creek Road        | Town Hall; Etna Volunteer Fire Department facility                          |
| McDonald Road           | George Jr. Martineau School Buildings                                       |
| Mt. Pleasant Road       | Communications Facility   |
| Mt. Pleasant Road       | Utility Facility  |
| North Street            | Tompkins County Community College   |
| Pinckney Road           | Utility Substation  |
| Simms Hill Road         | Communications Facility   |
| Thresher Place          | Dryden Montessori School  |
| Turkey Hill Road        | Varna Fire Station  |
| Walker Road             | Utility Facility  |
| Wood Road               | Etna Fire Department  |
| Yellow Barn Road        | Water Facility  |
|                         |   |

# Village of Dryden Roads

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| Road/Road Section | Reason for Priority  |
|-------------------|--|
| East Main Street  | Public Works and Highway Facility; Town Hall; Town Clerk and Court Offices; Elementary School Bus Garage |
| West Main Street  | Southworth Library; Dryden Historical Society; U.S. Post Office  |
| Evergreen Street  | Franziska Racker Center  |
| Montgomery Street | Dryden Elementary School Maintenance Garage  |
| North Street      | Dryden Fire Station and Ambulance  |
| South Street      | Village Hall; Village DPW; Police Department   |
| Union Street      | Dryden Elementary School   |
| Wall Street       | Wastewater Plant   |
|                   |  |



# Town of Enfield Roads

---

| Road/Road Section | Reason for Priority  |
|-------------------|--|
| Enfield Main Road | Enfield Fire Station; Enfield Elementary School; Enfield Town Hall |
| Tucker Road       | Communications Facility  |
|                   |  |

# Village of Freeville Roads

---

| Road/Road Section | Reason for Priority                           |
|-------------------|---|
| Main Street       | Freeville Elementary School; U.S. Post Office |
| Factory Street    | Freeville Clerk's Office                      |
| Union Street      | Freeville Fire Station                        |
| Freeville Road    | Wastewater Pump House                         |
|                   |   |

# Town of Groton Roads

---

| Road/Road Section       | Reason for Priority                           |
|-------------------------|---|
| Stevens Road            | McLean Fire Department                        |
| School Street           | Cassavant Elementary School; U.S. Post Office |
| Spring Street Extension | Highway Garage                                |
| Church Street           | Utility Facility                              |
| Sovocool Hill Road      | Utility Facility                              |
| Sincerbeaux Road        | Communications Facility                       |
|                         |   |

# Village of Groton Roads

---

| Road/Road Section    | Reason for Priority   |
|----------------------|---|
| Conger Blvd          | Town Hall; Municipal Light and Power Plant                            |
| East Cortland Street | Groton Fire Station and Ambulance; Village Offices; Police Department |
| Elm Street           | Groton Elementary School  |
| Peru Road            | Groton Central School District; High School; Middle School            |
| Sykes Street         | Groton Community Health Care  |
| West South Street    | Communications Facility   |
|                      |   |

# City of Ithaca Roads

| Road/Road Section   | Reason for Priority                       |
|---------------------|---|
| Cherry Street       | Sewage Pump Station                       |
| Cliff Street        | Water Pump Station                        |
| Coddington Rd       | Water Tank                                |
| College Ave         | Ithaca Fire Department                    |
| Commercial Avenue   | Tompkins County Recycling and Solid Waste |
| Cornell Street      | Water Tank                                |
| East Buffalo Street | County Facilities, Sewage Pump Station    |
| East Clinton Street | Ithaca City Court, Police Department      |
| East Court Street   | Governor Daniel D. Tompkins Building      |
| East Green Street   | City Hall; Tompkins County Library        |
| Elmira Road         | NYS Facility                              |
| Fall Creek Drive    | Utility Facility                          |
| First Street        | City Water and Sewer Division             |
| Forest Home Drive   | Water Facility                            |
| Fourth Street       | NYSEG Utility Facility                    |
| Franklin Street     | Water and Sewer Facility                  |
| Fulton Street       | Ithaca Healthcare Center                  |
| Giles Street        | Water Treatment Facilities                |
| Cliff Park Road     | Water Tank                                |
| Hector Street       | NYSEG Utility Facility                    |

| Road/Road Section     | Reason for Priority   |
|-----------------------|---|
| James L Gibbs Drive   | Youth Bureau  |
| North Tioga Street    | Ithaca Town Hall; Tompkins County Courthouse; Communications Facility |
| North Titus Ave       | NYSEG Utility Facility  |
| Oakwood Lane          | Water Tank  |
| Pier Road             | Public Works Facility; Fire Department Training Center                |
| South Cayuga Street   | NYSEG Facilities  |
| South Meadow Street   | Sewage Pump Station   |
| Spencer Road          | Municipal Facility  |
| Statler Drive         | Police Facility   |
| Sunrise Road          | Military Facility (Not sure if this is still active)                  |
| Taughannock Boulevard | Military Facility, Sewage Pump Station                                |
| Third Street          | County Facility; Wastewater Treatment Plant; Utility Facility         |
| Water Street          | Water Treatment Plant   |
| West Buffalo Street   | Police Facility   |
| West Green Street     | Fire Department   |
| West Village Place    | Water Tank  |

# Town of Ithaca Roads

| Road/Road Section    | Reason for Priority                     |
|----------------------|---|
| Bostwick Road        | School District Facility                |
| Coddington Rd        | Utility Facility                        |
| Danby Road           | Fire Department                         |
| Dates Drive          | Medical Center                          |
| Dryden Road          | Utility Facilities                      |
| East King Road       | NYSEG Substation                        |
| East Shore Drive     | Sewage Plant; Utility Facilities        |
| Energy Drive         | Utility Facilities; Electric Substation |
| Farm Pond Road       | Utility Facilities; College Facilities  |
| Felis Drive          | Water Facilities                        |
| Flora Brown Drive    | Utility Facility                        |
| Forest Home Drive    | Water Facility                          |
| Giles Street         | Dam Facility                            |
| Harris B Dates Road  | Government Facilities                   |
| Hungerford Hill Road | Utility Facility                        |
| Maple Ave            | NYSEG Substation; Water Tank            |
| Mitchell Street      | NYSEG Facility                          |
| Pearsall Place       | Utility Facility                        |
| Pidgeon Place        | Water Tanks                             |
| Pine Tree Road       | Wastewater Pump                         |

| Road/Road Section    | Reason for Priority  |
|----------------------|--|
| Ridgecrest Road      | Water Tank   |
| Sapsucker Woods Road | Water Tank   |
| Seven Mile Drive     | Public Works Facility  |
| Slaterville Road     | Dam Facility   |
| Teton Court          | Water Tank   |
| Trumansburg Road     | Government Facilities; Fire Station; Electric Substation; Water Tank |
|                      |  |



# Town of Lansing Roads

---

| Road/Road Section | Reason for Priority   |
|-------------------|---|
| Auburn Road       | Lansing Fire Station 4; Town Hall; Town Garage  |
| Dublin Road       | Communications Facility   |
| Ludlowville Road  | Lansing Middle School; Communications Facility  |
| Ridge Road        | Lansing Fire Central Station; Lansing Fire Station 3; RC Buckley Elementary School; Lansing High School |
|                   |   |

# Village of Lansing Roads

---

| Road/Road Section     | Reason for Priority   |
|-----------------------|---|
| Ascot Place           | Ithaca Montessori School  |
| Brown Road            | U.S. Geological Survey Office; County Health Department; Airport; County Fire and Rescue; County Department of Emergency Response |
| Kline Boulevard       | Airport   |
| North Triphammer Road | Village of Lansing Offices; Highway Garage  |
| Oakcrest Road         | Lansing Fire Station 5  |
|                       |   |

# Town of Newfield Roads

| Road/Road Section   | Reason for Priority  |
|---------------------|--|
| Benjamin Hill Road  | Utility Facility   |
| Elmira Road         | Utility Facility   |
| Irish Hill Road     | Utility Facility   |
| Main Street         | Newfield High School; Newfield Middle School; Newfield Elementary School; Newfield Fire Department; Newfield Town Hall; Highway Department; U.S. Post Office |
| Newfield Depot Road | Railroad Depot   |
| Pine Circle         | Utility Facility   |
| Prott's Hill Road   | Utility Facility   |
| Shelter Valley Road | Water Tank   |
| Test Road           | NYSP   |
| Tower Road          | Utility Facilities   |
|                     |  |

# Village of Trumansburg Roads

---

| Road/Road Section | Reason for Priority   |
|-------------------|---|
| Corey Street      | Trumansburg Water Treatment Pump House                        |
| East Main Street  | Village Offices; Library                                      |
| Elm Street        | Town of Ulysses Hall, Police Department                       |
| Halsey Street     | Water Tank  |
| Lake Street       | Sewage Facility   |
| Union Street      | Communications Facility                                       |
| West Main Street  | Trumansburg Fire Department; Nursery School; U.S. Post Office |
| Whig Street       | Trumansburg Central School District and School Buildings      |
|                   |   |

# Town of Ulysses Roads

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| Road/Road Section | Reason for Priority       |
|-------------------|---------------------------|
| Colegrove Road    | Ulysses Town Highway Barn |
| Indian Fort Road  | Utility Facility          |
| Iradell Road      | Water Tank                |
|                   |                           |

# Appendix K DEBRIS ZONE MAPS

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The County and municipalities are divided into debris management zones as shown on the following pages.

# Tompkins County

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[INSERT MAP]

# Town of Caroline

---

[INSERT MAP]



# Village of Cayuga Heights

---

[INSERT MAP]

# Town of Danby

---

[INSERT MAP]

# Town of Dryden

---

[INSERT MAP]

# Village of Dryden

---

[INSERT MAP]

# Town of Enfield

---

[INSERT MAP]

# Village of Freeville

---

[INSERT MAP]

# Town of Groton

---

[INSERT MAP]

# Village of Groton

---

[INSERT MAP]



# City of Ithaca

---

[INSERT MAP]

# Town of Ithaca

---

[INSERT MAP]

# Town of Lansing

---

[INSERT MAP]

# Village of Lansing

---

[INSERT MAP]

# Town of Newfield

---

[INSERT MAP]

# Village of Trumansburg

---

[INSERT MAP]

# Town of Ulysses

---

[INSERT MAP]

**Appendix L**  
**HEALTH AND SAFETY STRATEGY**

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## Health and Safety Strategy

### Purpose

The purpose of this health and safety strategy is to provide guidance regards to debris removal activities for Tompkins County, New York (County) and its municipalities. These are recommended baseline safety provisions that are designed to function in accordance with the County's and municipalities' safety programs. Ultimately, health and safety are the responsibility of all staff and contracted parties involved in debris removal activities. This document will outline some of the general steps necessary to provide a safe work environment for monitoring staff and debris removal staff. In addition, this document will identify some representative work hazards and the appropriate measures to reduce risk of injury.

### 1.0 Dissemination of Information

County staff with responsibilities in debris management, monitoring staff, and debris removal staff will be provided with this document. Supervisors from County and municipal departments and contracted staff and will be expected to disseminate the information and guidelines to their respective personnel. A copy of the document should be available for consultation. In addition, elements of the document will be reviewed periodically during operations to increase worker awareness.

### 2.0 Compliance

The monitoring staff and debris removal staff and contractors supervisors are responsible for health and safety compliance of their respective personnel and contractors. Any crews or individuals that are not compliant shall be suspended from debris removal activities until the situation is remedied. Frequent offenders of safety policies and procedures will be dismissed from the debris management operation entirely.

### 3.0 Job Hazard Assessment

Though debris removal activities are fairly similar among events, assessing the particular hazards of each disaster is an important part of maintaining health and safety for the debris removal workers. At a minimum, the following areas of focus should be considered as part of job hazard assessment:

- **Disaster Debris** – Disasters that result in property damage typically generate large quantities of debris that must be collected and transported for disposal. The type of debris varies depending on the characteristics of the region (e.g., terrain, climate, dwelling and building types, population) and the debris-generating event (e.g., type, event strength, duration). In addition, the disaster debris produces a host of uneven surfaces, which must be negotiated.
- **Debris Removal** – Often the removal of disaster debris involves working with splintered, sharp edges of vegetative or construction material debris. Many disasters involve heavy

rains or flooding. Consequently, disaster debris is damp and heavier than usual. As weights increase, so does the risk of injury.

- **Removal Equipment** – In most disasters, debris must be removed from the public right-of-way (ROW) to provide access for emergency vehicles and subsequent recovery efforts. Debris collection and removal requires the use of heavy equipment and power tools to trim, separate and clear disaster debris.
- **Traffic Safety** – The ROW is located primarily on publicly-maintained roads. As a result, much of the debris removal process takes place in traffic of varying levels of congestion. In addition, disasters often damage road signs, challenging safety on the road.
- **Wildlife Awareness** – Disasters are traumatic events for people as well as wildlife. Displaced animals, reptiles and insects pose a hazard to debris removal workers.
- **Debris Disposal** – After disaster debris is collected it is often transported to a Debris Management Site (DMS). Upon entry to a DMS, the monitoring staff will assess the volume of disaster debris being transported. The collection vehicle will then dispose of the disaster debris and the debris will be reduced either through a grinding operation, mulching, recycling, or other method of disposal. The DMS is a common area for injury. Response and recovery workers in this environment are more likely to be exposed to falling debris, heavy construction traffic, noise levels, and dust and airborne particles from the reduction process.
- **Climate** – Debris-generating disasters often occur in areas or seasons with extreme weather conditions. The effects of temperature and humidity on physical labor must be monitored, and proper work-rest intervals must be assessed.

#### 4.0 Administrative and Engineering Controls

The use of administrative and engineering controls can greatly reduce the threats to public health and safety in debris removal activities. Some common administrative and engineering controls used in the debris removal process are:

##### Collection Operations

- Conduct debris removal operations during daylight hours only.
- Limit cleanup operations to one side of the road at a time.
- Limit collection work under overhead lines.
- Inspect piles before heavy equipment use to remove if found as hazardous obstructions.
- Assure all collection vehicles have properly functioning lights, horns, and backup alarms.
- Load collection vehicles properly (not overloaded or unbalanced).
- Cover and secure loads, if necessary.
- When monitoring the collection process, stay alert in traffic and use safe driving techniques.

### **Power Tools**

- Inspect all power tools before use.
- Do not use damaged or defective equipment.
- Use power tools for their intended purpose.
- Avoid using power tools in wet areas.

### **Debris Reducing Machinery (Grinders/Wood Chippers)**

- Do not wear loose-fitting clothing.
- Follow the manufacturer's guidelines and safety instructions.
- Guard the feed and discharge ports.
- Do not open access doors while equipment is running.
- Always chock the trailer wheels to restrict rolling.
- Maintain safe distances.
- Never reach into operating equipment.
- Use lock-out/tag-out protocol when maintaining equipment.

### **DMS/Disposal Operations**

- Use jersey barriers and cones to properly mark traffic patterns.
- Use proper flagging techniques for directing traffic.
- Monitor towers must not exit into traffic and should have hand and guard rails to reduce trips and falls.
- Monitor towers must have properly constructed access stairways with proper treads and risers and proper ascent angle (4:1 height/width ratio).
- Monitor towers must be surrounded by jersey barriers which protect the tower and monitors from being struck by inbound or outbound collection vehicles.
- Monitor towers should be located upwind from dust and particulate generating activities.
- Use a water truck to spray the site daily to control airborne dust and debris.

## **5.0 Personal Protective Equipment**

Personal Protective Equipment (PPE) is the last resort to providing a safe working environment for workers. PPE does not eliminate or even reduce hazards as administrative and engineering controls do. PPE works to reduce the risk of injury by creating a protective barrier between the individuals and workplace hazards.

Proper use of PPE includes using PPE for its intended purpose. For example, using the wrong type of respirator might expose the worker to carcinogenic particulates. Properly fitting the equipment to the user may require examination by a medical professional. PPE that does not fit well will not provide maximum protection and will decrease the likelihood of the individual continuing to use the equipment. In addition, improper use may result in serious injury or death. The proper use of the equipment is outlined in detail in the manufacturer's instructions.

The following PPE may be applicable in standard ROW, Right-of-Entry, and vegetative and construction & demolition (C&D) debris removal activities:

- **Head Protection** – Equipment designed to provide protection for an individual’s head against hazards such as falling objects or the possibility of striking one’s head against low hanging objects. PPE used to protect the head must comply with ANSI Z89.1-2014, “American National Standard for Personnel Protection – Protective Headwear for Industrial Workers – Requirements.”
- **Foot Protection** – Equipment designed to provide protection for an individual’s feet and toes against hazards such as falling or rolling objects, objects that may pierce the sole or upper section of the foot, etc. PPE used to protect the feet and toes must comply with F 2413, Specification for Performance Requirements for Protective Footwear.”
- **Hand Protection** – Equipment designed to provide protection for an individual’s hands against hazards such as sharp or abrasive surfaces. The proper hand protection necessary is dependent upon the situation and characteristics of the gloves. For instance, specific gloves would be used for protection against electrical hazards while the same gloves may not be appropriate in dealing with sharp or abrasive surfaces.
- **Vision/Face Protection** – Equipment designed to provide protection for an individual’s eyes or face against hazards such as flying objects. PPE used to protect eyes and face must comply with ANSI/ISEA Z87.1-2010, “Occupational and Educational Personal Eye and Face Protection Devices.” Again, the proper eye/face protection necessary is dependent upon the situation and characteristics of the equipment. For instance, eye and face protection used by individuals who are welding may not be appropriate for individuals operating a woodchipper.
- **Hearing Protection** – Equipment designed to provide protection for an individual’s hearing against prolonged exposure to high noise levels. According to OSHA, the permissible level of sound is an average of 90 decibels over the course of an eight (8) hour workday. Above the sound exposure level, hearing protection is required. PPE used to protect hearing must comply with ANSI S3.19-1974, “American National Standard Practice for Personal Protection – Hearing Protection.”
- **Respiratory Protection** – Equipment designed to provide protection for an individual’s respiratory system against breathing air contaminated with hazardous gases, vapors, airborne particles, etc. PPE used to protect the respiratory system must comply with ANSI Z88.2-1992. In addition, the use of respiratory protection requires a qualitative fit test and in some cases a pulmonary fit test by a licensed medical professional.

### 6.0 PPE Debris Removal Activity

PPE requirements are made based upon the results of the job hazards assessment. The following list of PPE is organized by debris removal activity and is meant to be a representative list. Specific PPE requirements vary from location to location. In general, individuals involved in the debris

removal process should personally monitor water consumption to avoid dehydration and use appropriate skin protection (breathable clothes, light colors, sunscreen, etc.). Ultimately, the selection of PPE is the responsibility of the monitoring and debris removal staff and contractors' supervisors.

### **Debris Collection Monitoring**

The hazards of disaster debris collection monitoring include the following: struck by vehicles, falls or trips on uneven surfaces, cuts, abrasions or punctures from vegetative or C&D sharps. PPE requirements include:

- Reflective vest.
- Foot protection (rugged shoes or boots, steel toe and shank if required).
- Long pants.

### **Debris Disposal Monitoring**

The hazards of disaster debris disposal monitoring include the following: struck by or caught in/between vehicles, falls or trips on stairs or uneven surfaces, cuts, abrasions or punctures from vegetative or C&D sharps and struck by falling disaster debris. Monitor towers must be equipped with a first aid kit. PPE requirements include:

- Reflective vest.
- Foot protection (rugged shoes or boots, steel toe if required).
- Long pants.
- Hard hat.

### **Debris Removal**

The hazards of disaster debris removal include the following: struck by vehicles, falls or trips on uneven surfaces, cuts, abrasions or punctures from vegetative or C&D sharps and airborne debris. In addition, PPE requirements include:

- Reflective vest.
- Vision and hearing protection.
- Foot protection (rugged shoes or boots, steel toe and shank if required).
- Long pants.

### **Debris Disposal and Reduction**

The hazards of disaster debris disposal and reduction include the following: struck by or caught in/between vehicles, falls or trips on uneven surfaces, cuts, abrasions or punctures from vegetative or C&D sharps, struck by falling disaster debris and airborne particles. PPE requirements include:

- Reflective vest.
- Foot protection (rugged shoes or boots, steel toe if required).

- Vision and hearing protection.
- Long pants.
- Hard hat.

### **Debris Cutting and Trim Work**

The hazards of disaster debris cutting and trimming work include, but are not limited to, struck by or caught in/between vehicles, falls or trips on uneven surfaces, cuts, abrasions or punctures from power tools, vegetative or C&D sharps, struck by falling disaster debris and airborne particles. PPE requirements include:

- Reflective vest.
- Hand and foot protection (rugged shoes or boots, steel toe if required).
- Vision and hearing protection.
- Long pants.
- Gloves.
- Hard hat.

### **7.0 In the Event of Injury**

In an emergency injury situation call 911 immediately or transport the injured worker to the emergency room. If the injury is not an emergency, provide first aid to the level of your training and ability and seek medical care as needed.

County employees should report the injury to their supervisor, the project safety officer, and follow instructions from them regarding the reporting of the injury.

Contractors should report any injuries to their supervisor, as well as the project Safety Officer.

For additional information regarding health and safety requirements, please contact your supervisor or the Safety Officer.

# Appendix M

## FIELD DOCUMENTS

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Force Account Labor Summary Record<sup>1</sup>  
Force Account Equipment Summary Record<sup>2</sup>  
Load Ticket  
Debris Haul Out Ticket  
Unit Rate Ticket  
Disposal Monitoring Log  
Truck Certification Form and Instructions

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<sup>1</sup> Force Account Labor Summary Record – FF90-123 can be found at [https://www.fema.gov/sites/default/files/2020-06/fema-public-assistance-force-account-labor-summary\\_Form009-0-123\\_06-2020.pdf](https://www.fema.gov/sites/default/files/2020-06/fema-public-assistance-force-account-labor-summary_Form009-0-123_06-2020.pdf)

<sup>2</sup> Force Account Equipment Summary Record can be found at [https://www.fema.gov/sites/default/files/2020-06/fema-public-assistance-force-account-equipment-summary-record\\_form09-0-127\\_06-2020.pdf](https://www.fema.gov/sites/default/files/2020-06/fema-public-assistance-force-account-equipment-summary-record_form09-0-127_06-2020.pdf)

|   |           |   |   |
|---|-----------|---|---|
| DEPARTMENT OF HOMELAND SECURITY<br>FEDERAL EMERGENCY MANAGEMENT AGENCY<br><b>FORCE ACCOUNT LABOR SUMMARY RECORD</b> |           | PAGE <input type="text"/> OF <input type="text"/> | O.M.B. No. 1660-0017<br>Expires December 31, 2011 |
| APPLICANT   | PA ID NO. | PROJECT NO.                                       | DISASTER  |
| LOCATION/SITE   |           | CATEGORY  | PERIOD COVERING                                   |
| DESCRIPTION OF WORK PERFORMED   |           |   |   |

| NAME   | DATES AND HOURS WORKED EACH WEEK |  |  |  |  |  |  | COSTS       |             |                 |                   |             |
|--|----------------------------------|--|--|--|--|--|--|-------------|-------------|-----------------|-------------------|-------------|
|  | DATE                             |  |  |  |  |  |  | TOTAL HOURS | HOURLY RATE | BENEFIT RATE/HR | TOTAL HOURLY RATE | TOTAL COSTS |
| NAME   | REG.                             |  |  |  |  |  |  |             |             |                 |                   |             |
| JOB TITLE  | O.T.                             |  |  |  |  |  |  |             |             |                 |                   |             |
| NAME   | REG.                             |  |  |  |  |  |  |             |             |                 |                   |             |
| JOB TITLE  | O.T.                             |  |  |  |  |  |  |             |             |                 |                   |             |
| NAME   | REG.                             |  |  |  |  |  |  |             |             |                 |                   |             |
| JOB TITLE  | O.T.                             |  |  |  |  |  |  |             |             |                 |                   |             |
| NAME   | REG.                             |  |  |  |  |  |  |             |             |                 |                   |             |
| JOB TITLE  | O.T.                             |  |  |  |  |  |  |             |             |                 |                   |             |
| NAME   | REG.                             |  |  |  |  |  |  |             |             |                 |                   |             |
| JOB TITLE  | O.T.                             |  |  |  |  |  |  |             |             |                 |                   |             |
| TOTAL COSTS FOR FORCE ACCOUNT LABOR REGULAR TIME |                                  |  |  |  |  |  |  |             |             |                 |                   | \$          |
| TOTAL COST FOR FORCE ACCOUNT LABOR OVERTIME      |                                  |  |  |  |  |  |  |             |             |                 |                   | \$          |

I CERTIFY THAT THE INFORMATION ABOVE WAS OBTAINED FROM PAYROLL RECORDS, INVOICES, OR OTHER DOCUMENTS THAT ARE AVAILABLE FOR AUDIT.

|           |      |
|-----------|------|
| CERTIFIED | DATE |
|           |      |




| DEPARTMENT OF HOMELAND SECURITY<br>FEDERAL EMERGENCY MANAGEMENT AGENCY<br><b>FORCE ACCOUNT EQUIPMENT SUMMARY RECORD</b>           |                             | PAGE ____ OF ____  | O.M.B. No. 1660-0017<br>Expires October 31, 2008 |       |       |       |       |       |       |       |                |                   |
|---|-----------------------------|--------------------|--|-------|-------|-------|-------|-------|-------|-------|----------------|-------------------|
| APPLICANT   | PROJECT NO.                 | DISASTER           |  |       |       |       |       |       |       |       |                |                   |
| LOCATION/SITE   | CATEGORY                    | PERIOD COVERING    |  |       |       |       |       |       |       |       |                |                   |
| DESCRIPTION OF WORK PERFORMED   |                             |                    |  |       |       |       |       |       |       |       |                |                   |
| TYPE OF EQUIPMENT<br><small>INDICATE SIZE, CAPACITY, HORSEPOWER,<br/>MAKE AND MODEL AS APPROPRIATE</small>                        | EQUIPMENT<br>CODE<br>NUMBER | OPERATOR'S<br>NAME | DATES AND HOURS USED EACH DAY                    |       |       |       |       |       |       | COSTS |                |                   |
|   |                             |                    | DATE   | HOURS | HOURS | HOURS | HOURS | HOURS | HOURS | HOURS | TOTAL<br>HOURS | EQUIPMENT<br>RATE |
|   |                             |                    |  |       |       |       |       |       |       |       |                |                   |
|   |                             |                    |  |       |       |       |       |       |       |       |                |                   |
|   |                             |                    |  |       |       |       |       |       |       |       |                |                   |
|   |                             |                    |  |       |       |       |       |       |       |       |                |                   |
|   |                             |                    |  |       |       |       |       |       |       |       |                |                   |
|   |                             |                    |  |       |       |       |       |       |       |       |                |                   |
|   |                             |                    |  |       |       |       |       |       |       |       |                |                   |
|   |                             |                    |  |       |       |       |       |       |       |       |                |                   |
| <b>GRAND TOTAL</b>  |                             |                    |  |       |       |       |       |       |       |       |                |                   |
| I CERTIFY THAT THE ABOVE INFORMATION WAS OBTAINED FROM PAYROL RECORDS, INVOICES, OR OTHER DOCUMENTS THAT ARE AVAILABLE FOR AUDIT. |                             |                    |  |       |       |       |       |       |       |       |                |                   |
| CERTIFIED   |                             |                    |  |       |       |       |       |       |       |       | DATE           |                   |

Print Form

|  |      |  |                   |
|--|------|--|-------------------|
| <b>Load Ticket</b>   |      | Ticket No. <b>0012345</b>  |                   |
| Municipality (Applicant)   |      | Prime Contractor   |                   |
|  |      | Sub-Contractor   |                   |
| <b>Truck Information</b>   |      |  |                   |
| Truck No   |      | Capacity   |                   |
| Truck Driver (print legibly)   |      |  |                   |
| <b>Loading Information</b>   |      |  |                   |
| <b>Loading</b>   | Time | Date   | Inspector/Monitor |
|  |      |  |                   |
| Location (Address or Cross Streets)  |      |  |                   |
| When Using GPS Coordinates use Decimal Degrees (N xx.xxxxx)  |      |  |                   |
| <b>N</b>   |      | <b>W</b>   |                   |
| <b>Unloading Information</b>   |      |  |                   |
| Debris Classification  |      | Estimated %, CYs, or Actual Weight   |                   |
| <input type="checkbox"/> Vegetation<br><input type="checkbox"/> C&D<br><input type="checkbox"/> White Goods<br><input type="checkbox"/> HHW<br><input type="checkbox"/> Other* See Below |      |  |                   |
| <b>Unloading</b>   | Time | Date   | Inspector/Monitor |
|  |      |  |                   |
| DMS Name and Location  |      |  |                   |
| *Other Debris Explanation  |      | Original:      Applicant<br>Copy 1:        _____<br>Copy 2:        _____<br>Copy 3:        _____ |                   |

|   |  |                           |
|---|--|---------------------------|
| <b>DEBRIS HAULOUT TICKET</b>  |  | <b>TICKET NUMBER</b><br># |
| Applicant:  |  | Disaster #                |
| Program:  |  | Contractor:               |
| Truck # :   |  | Truck Capacity:           |
| Driver's Name:  |  |                           |
| TDSR Site:  |  |                           |
| <b>Haulout Debris Classification:</b><br><input type="checkbox"/> Vegetative Mulch <input type="checkbox"/> White Goods<br><input type="checkbox"/> Ash <input type="checkbox"/> Hazardous Materials / Toxic<br><input type="checkbox"/> C & D Mulch <input type="checkbox"/> Household Hazardous Waste<br><input type="checkbox"/> C & D Compacted <input type="checkbox"/> Other: _____ |  |                           |
| Loading Time:   |  | Loading Date:             |
| Monitor Signature:  |  | I.D. #                    |
| Disposal Site Location:   |  | Scale Ticket #            |
| Load Call (%):  |  | Weight (tons / lbs.)      |
| Disposal Time:  |  | Disposal Date:            |
| Monitor Name (print):   |  | I.D. #                    |
| Contractor Name (print):  |  | I.D. #                    |
| Notes:  |  |                           |
| <i>White - Applicant      Green and Yellow - Contractor      Pink - Driver      Gold - Site Copy</i>  |  |                           |

|  |              |                                    |        |
|--|--------------|------------------------------------|--------|
|  <b>TETRA TECH</b>  |              | <b>UNIT RATE TICKET</b><br>#       |        |
| Applicant:   |              | Disaster #                         |        |
| <b>Programs</b><br><input type="checkbox"/> Parks <input type="checkbox"/> Right-of-Entry <input type="checkbox"/> Time & Materials<br><input type="checkbox"/> ROW Lean/Hanger <input type="checkbox"/> Stumps <input type="checkbox"/> _____ |              |                                    |        |
| Contractor:  |              | Crew #:                            |        |
| Survey Item #:   |              | GPS:<br>N:                      W: |        |
| House #:   | Street Name: | Zone #:                            |        |
| Parcel #:  |              | ROE #:                             |        |
| <b>Contract Rate Code</b><br>1                      3                      5                      7                      9<br>2                      4                      6                      8                      Other: _____         |              |                                    |        |
| <b>Contract Rate Sub-Code</b><br>A                      C                      E                      G                      I<br>B                      D                      F                      H                      Other: _____     |              |                                    |        |
| Unit Count:  |              | Measurement:                       |        |
| Start Time:  | A<br>P       | End Time:                          | A<br>P |
| Date:  |              |                                    |        |
| Monitor Name (print):  |              | I.D. #                             |        |
| Contractor Name (print):   |              | I.D. #                             |        |
| Notes:   |              |                                    |        |
| White - Applicant      Green and Yellow - Contractor      Pink - Crew Chief      Gold - Site Copy  |              |                                    |        |
| ©2015 Tetra Tech, Inc All Rights Reserved  |              |                                    |        |

# DISPOSAL MONITOR LOG

**Legend**  
 ✓ = All Good  
 Initials = Fixed  
 X = Problem

| Project |          |              | Site              |         | Date |   | QC Monitor |  | # |  | Project (App./Dis./Prog.) | Truck Number | House Number | Street / Origin | Correct Zone | Debris Class | Correct Dates & Times | Disposal Site | Load Call / Weight | CONFORM CODE |  | ERROR NOTE |  |  |
|---------|----------|--------------|-------------------|---------|------|---|------------|--|---|--|---------------------------|--------------|--------------|-----------------|--------------|--------------|-----------------------|---------------|--------------------|--------------|--|------------|--|--|
| ARRIVAL | TICKET # | COLLECTION # | MONITOR Last Name | TRUCK # | CAP  | % |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |
| A       |          |              |                   |         |      |   |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |
| P       |          |              |                   |         |      |   |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |
| A       |          |              |                   |         |      |   |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |
| P       |          |              |                   |         |      |   |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |
| A       |          |              |                   |         |      |   |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |
| P       |          |              |                   |         |      |   |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |
| A       |          |              |                   |         |      |   |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |
| P       |          |              |                   |         |      |   |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |
| A       |          |              |                   |         |      |   |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |
| P       |          |              |                   |         |      |   |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |
| A       |          |              |                   |         |      |   |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |
| P       |          |              |                   |         |      |   |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |
| A       |          |              |                   |         |      |   |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |
| P       |          |              |                   |         |      |   |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |
| A       |          |              |                   |         |      |   |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |
| P       |          |              |                   |         |      |   |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |
| A       |          |              |                   |         |      |   |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |
| P       |          |              |                   |         |      |   |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |
| A       |          |              |                   |         |      |   |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |
| P       |          |              |                   |         |      |   |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |
| A       |          |              |                   |         |      |   |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |
| P       |          |              |                   |         |      |   |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |
| A       |          |              |                   |         |      |   |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |
| P       |          |              |                   |         |      |   |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |
| A       |          |              |                   |         |      |   |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |
| P       |          |              |                   |         |      |   |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |
| A       |          |              |                   |         |      |   |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |
| P       |          |              |                   |         |      |   |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |
| A       |          |              |                   |         |      |   |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |
| P       |          |              |                   |         |      |   |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |
| A       |          |              |                   |         |      |   |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |
| P       |          |              |                   |         |      |   |            |  |   |  |                           |              |              |                 |              |              |                       |               |                    |              |  |            |  |  |

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Page \_\_\_\_\_ of \_\_\_\_\_

Disposal Monitor \_\_\_\_\_ # \_\_\_\_\_ Check-out Supervisor Signature \_\_\_\_\_ # \_\_\_\_\_

**Truck Information**

**Make**

**Year**

**Color**

**License**

|  |  |  |  |
|--|--|--|--|
|  |  |  |  |
|--|--|--|--|

**Truck Measurements**

Performed By: \_\_\_\_\_

Date: \_\_\_\_\_

Volume Calculated By: \_\_\_\_\_

Date: \_\_\_\_\_

Both Checked By: \_\_\_\_\_

Date: \_\_\_\_\_

**Driver Information**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Phone Number: \_\_\_\_\_

**Owner Information**

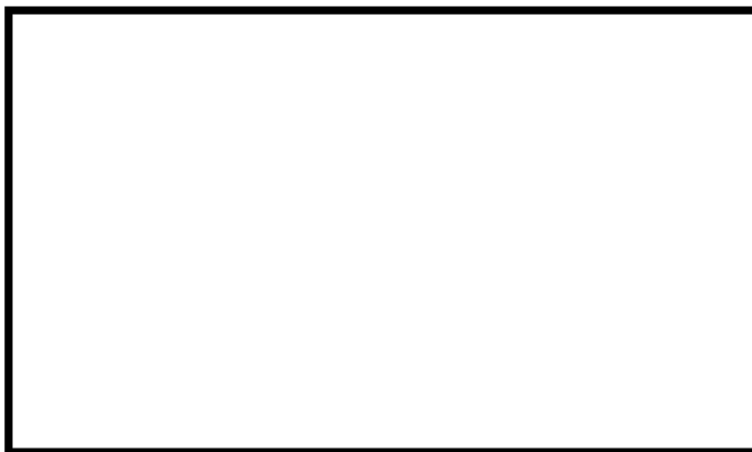
Name: \_\_\_\_\_

Address: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Truck Identification: \_\_\_\_\_

Truck Capacity: \_\_\_\_\_



Photo

**Truck Certification Form Calculation Instructions**

*Instructions to take the necessary dimensions of corner wedge (refer to Figure B-6):*

“a”: Along the side of the bed, measure the distance from the point where the rounded part of the bed starts, to the front corner of the bed.

“b”: Equal to “a.”

“c” and “d”: Along the side of the bed, mark the point where the rounded part of the bed starts, and along the front of the bed, also mark the point where the rounded part of the bed ends. Run a string between the two points and measure the distance between them; half of that distance is “c” and half of the distance is “d” (“c” and “d” are equal).

“e”: Measure the distance from the mid-point of the string that was stretched from the side to the front of the bed in the previous step to the rounded part of the bed.

Extra trailer: The volume calculations for the extra trailer would be simply length x width x height if the extra trailer has a rectangular bed. However, if the extra trailer also has round corners at the front, the volume calculation would be the same as explained above.

*Instructions to take the necessary dimensions of round bottom truck (refer to Figure B-6):*

“a”: The width of the bed.

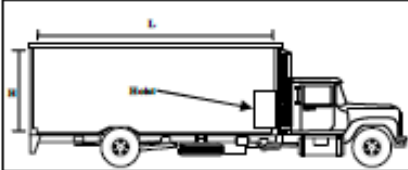
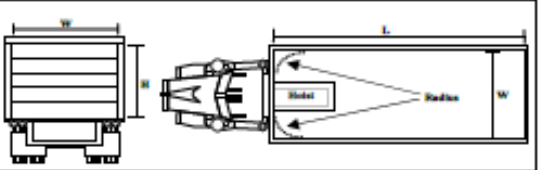
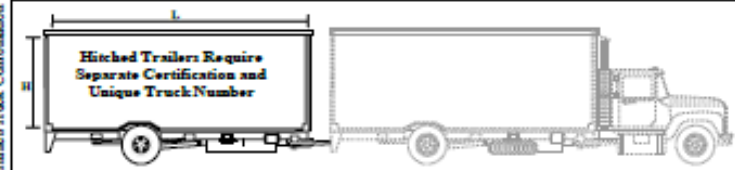
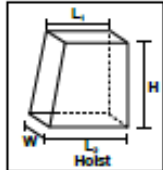
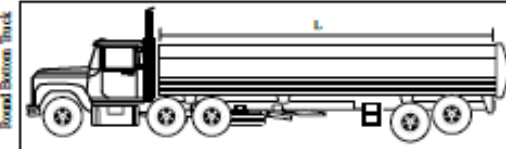
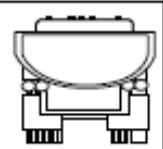
“b”: The depth of the vertical portion (the side) of the bed.

“c” and “d”: Both are equal to half the width of the bed.

“e”: Run a string between the lower ends of the vertical portions of the bed (the sides), and measure the distance from the mid-point of the string to the bottom of the bed.

*NOTE: All dimensions used in the above formulas must be in feet, with inches converted to fractions of feet, using the following conversions (for example, 8 feet, 5 inches should be written as 8.42 feet):*

|                     |                      |
|---------------------|----------------------|
| 1 inch = .08 foot   | 7 inches = .58 foot  |
| 2 inches = .17 foot | 8 inches = .67 foot  |
| 3 inches = .25 foot | 9 inches = .75 foot  |
| 4 inches = .33 foot | 10 inches = .83 foot |
| 5 inches = .42 foot | 11 inches = .92 foot |
| 6 inches = .50 foot |                      |

| <b>DUMP TRUCK</b>          |  |   |  |
|----------------------------|--|---|--|
| <b>Measurements</b>        |  |   |  |
| Truck Measurements         | Length (L) = <input style="width: 80px;" type="text"/>   | Width (W) ft = <input style="width: 80px;" type="text"/>                            | Height (H) ft = <input style="width: 80px;" type="text"/>                            |
| Hoist Measurement          | Length <sub>1</sub> (L <sub>1</sub> ) ft = <input style="width: 80px;" type="text"/>             | Width <sub>H</sub> (W <sub>H</sub> ) ft = <input style="width: 80px;" type="text"/> | Height <sub>H</sub> (H <sub>H</sub> ) ft = <input style="width: 80px;" type="text"/> |
|                            | Length <sub>2</sub> (L <sub>2</sub> ) ft = <input style="width: 80px;" type="text"/>             |   |  |
| Radius                     | Radius ft = <input style="width: 80px;" type="text"/>  | Height (H) = <input style="width: 80px;" type="text"/>                              |  |
| <b>Calculations</b>        |  |   |  |
| Bed Volume (Basic)         | $(L \times W \times H) / 27 =$ <input style="width: 80px;" type="text"/>                         | + <input style="width: 80px;" type="text"/>   | Cubic Yards  |
| Hoist Volume               | $((L_1 + L_2) / 2 \times W_H \times H_H) / 27 =$ <input style="width: 80px;" type="text"/>       | -   |  |
| Radius Volume              | $(3.14 \times R^2 \times H) / 27 =$ <input style="width: 80px;" type="text"/>                    | -   |  |
| Total =                    | <input style="width: 160px;" type="text"/>   |   |  |
| Truck Measurements         |                 |   |    |
| <b>EXTRA TRAILER</b>       |  |   |  |
| <b>Measurements</b>        |  |   |  |
| Truck Measurements (Basic) | Length (L) = <input style="width: 80px;" type="text"/>   | Width (W) ft = <input style="width: 80px;" type="text"/>                            | Height (H) ft = <input style="width: 80px;" type="text"/>                            |
| Hoist Measurement          | Length <sub>1</sub> (L <sub>1</sub> ) ft = <input style="width: 80px;" type="text"/>             | Width <sub>H</sub> (W <sub>H</sub> ) ft = <input style="width: 80px;" type="text"/> | Height <sub>H</sub> (H <sub>H</sub> ) ft = <input style="width: 80px;" type="text"/> |
|                            | Length <sub>2</sub> (L <sub>2</sub> ) ft = <input style="width: 80px;" type="text"/>             |   |  |
| Radius                     | Radius ft = <input style="width: 80px;" type="text"/>  | Height (H) = <input style="width: 80px;" type="text"/>                              |  |
| <b>Calculations</b>        |  |   |  |
| Bed Volume (Basic)         | $(L \times W \times H) / 27 =$ <input style="width: 80px;" type="text"/>                         | + <input style="width: 80px;" type="text"/>   | Cubic Yards  |
| Hoist Volume               | $((L_1 + L_2) / 2 \times W_H \times H_H) / 27 =$ <input style="width: 80px;" type="text"/>       | -   |  |
| Radius Volume              | $(3.14 \times R^2 \times H) / 27 =$ <input style="width: 80px;" type="text"/>                    | -   |  |
| Total =                    | <input style="width: 160px;" type="text"/>   |   |  |
| Trailer/Truck Combination  |               |   |  |
| <b>ROUND BOTTOM TRUCK</b>  |  |   |  |
| <b>Measurements</b>        |  |   |  |
| Truck Measurements         | Length (L) ft = <input style="width: 80px;" type="text"/>  | Diameter (D) ft = <input style="width: 80px;" type="text"/>                         |  |
| <b>Calculations</b>        |  |   |  |
|                            | Approx. Volume $(3.14 \times (D/2)^2 \times L) / 27 =$ <input style="width: 80px;" type="text"/> |   | cyd (round bottom portion only)  |
| Round Bottom Truck         |               |   |   |



**Appendix N**  
**SAMPLE RIGHT-OF-ENTRY AGREEMENT**

---

## SAMPLE RIGHT-OF-ENTRY AGREEMENT

ROE Number:

### RIGHT OF ENTRY (ROE) AGREEMENT [Municipality]

I/We \_\_\_\_\_, the owner(s) of the property commonly \_\_\_\_\_ identified as \_\_\_\_\_ **(insert property address)** \_\_\_\_\_, do hereby request aid in removing debris to prevent further damage to my/our property and therefore grant and give freely and without coercion, the right of access and entry to said property to the [Municipality], Tompkins County, New York State, or the United States Government, its employees, agents, contractors, and subcontractors thereof, pursuant to all applicable laws for the purpose of removing and clearing any or all \_\_\_\_\_-generated debris of whatever nature from the above described property.

It is fully understood that this permit is not an obligation to perform debris clearance. The undersigned agrees and warrants to hold harmless, the [Municipality], Tompkins County, New York State, or the United States Government, their agencies, contractors, and subcontractors, for damage of any type, whatsoever, either to the above-described property or persons situated thereon and hereby release, discharge, and waive any action, either legal or equitable that might arise out of any activities on the above-described property. The property owner(s) will mark any \_\_\_\_\_-damaged sewer lines, water lines, and other utility lines located on the described property.

I/We (have \_\_\_\_, have not \_\_\_\_), (will \_\_\_\_, will not \_\_\_\_) receive(d) any compensation for debris removal from any other source including SBA, NRCS, private insurance, individual and family grant program, or any other public assistance program. I will report any insurance settlements made to me or my family for debris removal on this property that has been performed at government expense. I am fully aware that an individual who fraudulently or willfully misstates any fact in connections with this agreement shall be subject to a fine of not more than \$10,000 or imprisoned for not more than one year or both.

#### **STRUCTURAL DEMOLITION/REMOVAL**

I/We (do \_\_\_\_\_, do not \_\_\_\_\_) request demolition and/or removal of unsafe structures on the described property, and upon request, certify that I/we have dwelling, and/or appurtenant structures located on the property that are \_\_\_\_\_-damaged to the extent to be unsafe, uninhabitable and beyond reasonable repair. If the [Municipality] debris removal program allows structural demolition and/or removal of unsafe structures by this request, I/we extend right of entry for such purpose. By this authorization I/we state all personal effects of value to me/us have been removed from the property. I/We understand that the [Municipality] is not obligated to demolish or remove structures as part of the debris removal program, and that any structures that may be removed under the program are recognized to be unsafe.

**SAMPLE RIGHT-OF-ENTRY AGREEMENT**

---

For the considerations and purposes set forth herein, I hereby set my hand this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

Owner Signature: \_\_\_\_\_ Owner Signature: \_\_\_\_\_

Printed Name: \_\_\_\_\_ Printed Name: \_\_\_\_\_

\_\_\_\_\_  
Address Telephone

Witness (Signature/Printed Name): \_\_\_\_\_

Address: \_\_\_\_\_

**Appendix O**  
**HAZARDOUS STUMP EXTRACTION AND REMOVAL**  
**ELIGIBILITY**

---



# HAZARDOUS STUMP EXTRACTION AND REMOVAL ELIGIBILITY

---

## FEMA Public Assistance Program and Policy Guide FP 104-009-2 Chapter 7. Section I.B.3 Stump Removal

### 3. Stump Removal

For stumps that have 50 percent or more of the root-ball exposed, removal of the stump and filling the root-ball hole are eligible. If grinding a stump in-place is less costly than extraction, grinding the stump in-place is eligible.

Stump removal in areas with known or high potential for archeological resources usually requires that FEMA further evaluate and consult with the State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Officer (THPO). If the Applicant discovers any potential archeological resources during stump removal, the Applicant must immediately cease work and notify FEMA.

#### Contracted Stump Removal

FEMA only reimburses contracted costs charged on a per-stump basis if:

- The stump is 2 feet or larger in diameter measured 2 feet above the ground; and
- Extraction is required as part of the removal.

The Applicant needs to ensure the price for stump removal includes extraction, transport, disposal, and filling the root-ball hole.

For stumps that have less than 50 percent of the root-ball exposed, FEMA only provides PA funding to flush cut the item at ground level and dispose of the cut portion based on volume or weight. Grinding any residual stump is not eligible.

For stumps smaller than 2 feet in diameter, or for stumps of any size that do not require extraction, FEMA only provides PA funding based on volume or weight as removal of these stumps does not require special equipment. If the Applicant claims reimbursement of these stumps on a per stump basis, FEMA limits PA funding based on a unit price for volume or tons, calculated using the Stump Conversion Table (Located on the following pages of this Attachment).

If the Applicant incurs additional costs in picking up stumps 2 feet or larger in diameter that the contractor did not extract, it should complete the Hazardous Stump Worksheet (located on the following pages of this appendix) and present documentation to substantiate the costs as reasonable based on the equipment required to perform the work.

### 4. Documentation Requirements

The Applicant must retain, and provide when requested, all of the following documentation to support the eligibility of contracted work to remove tree limbs, branches, stumps, or trees that are still in place:

- Specifics of the immediate threat with the location (geographic coordinates in latitude, longitude) and photograph or video documentation that establishes the item is on public property;

## HAZARDOUS STUMP EXTRACTION AND REMOVAL ELIGIBILITY

---

- Quantity removed (Note: If a contractor charged an individual price for each limb, tree, or stump removed, FEMA requires the diameter of each item removed. For stumps, the measurement must be 2 feet up the trunk from the ground. For trees, it must be 4.5 feet up from the ground);
- Quantity, location, and source of material to fill root-ball holes; and
- Equipment used to perform the work.

### STUMP CONVERSION TABLE

#### **Diameter to Volume Capacity**

FEMA quantifies the amount of cubic yards of debris for each size of stump based on the following formula:

$$\frac{[(\text{Stump Diameter}^2 \times 0.7854) \times \text{Stump Length}] + [(\text{Root-Ball Diameter}^2 \times 0.7854) \times \text{Root-Ball Height}]}{46,656}$$

- 0.7854 is one-fourth Pi and is a constant.
- 46,656 is used to convert cubic inches to cubic yards and is a constant.

The formula used to calculate the cubic yardage used the following factors, based upon findings in the field:

- Stump diameter measured 2 feet up from the ground
- Stump diameter to root-ball diameter ratio of 1:3.6
- Root-ball height of 31 inches

See the conversion chart on the following page.

## HAZARDOUS STUMP EXTRACTION AND REMOVAL ELIGIBILITY

| Stump Diameter(Inches) | Debris Volume (Cubic Yards) | Stump Diameter(Inches) | Debris Volume (Cubic Yards) |
|------------------------|-----------------------------|------------------------|-----------------------------|
| 6                      | 0.3                         | 46                     | 15.2                        |
| 7                      | 0.4                         | 47                     | 15.8                        |
| 8                      | 0.5                         | 48                     | 16.5                        |
| 9                      | 0.6                         | 49                     | 17.2                        |
| 10                     | 0.7                         | 50                     | 17.9                        |
| 11                     | 0.9                         | 51                     | 18.6                        |
| 12                     | 1                           | 52                     | 19.4                        |
| 13                     | 1.2                         | 53                     | 20.1                        |
| 14                     | 1.4                         | 54                     | 20.9                        |
| 15                     | 1.6                         | 55                     | 21.7                        |
| 16                     | 1.8                         | 56                     | 22.5                        |
| 17                     | 2.1                         | 57                     | 23.3                        |
| 18                     | 2.3                         | 58                     | 24.1                        |
| 19                     | 2.6                         | 59                     | 24.9                        |
| 20                     | 2.9                         | 60                     | 25.8                        |
| 21                     | 3.2                         | 61                     | 26.7                        |
| 22                     | 3.5                         | 62                     | 27.6                        |
| 23                     | 3.8                         | 63                     | 28.4                        |
| 24                     | 4.1                         | 64                     | 29.4                        |
| 25                     | 4.5                         | 65                     | 30.3                        |
| 26                     | 4.8                         | 66                     | 31.2                        |
| 27                     | 5.2                         | 67                     | 32.2                        |
| 28                     | 5.6                         | 68                     | 33.1                        |
| 29                     | 6                           | 69                     | 34.1                        |
| 30                     | 6.5                         | 70                     | 35.1                        |
| 31                     | 6.9                         | 71                     | 36.1                        |
| 32                     | 7.3                         | 72                     | 37.2                        |
| 33                     | 7.8                         | 73                     | 38.2                        |
| 34                     | 8.3                         | 74                     | 39.2                        |
| 35                     | 8.8                         | 75                     | 40.3                        |
| 36                     | 9.3                         | 76                     | 41.4                        |
| 37                     | 9.8                         | 77                     | 42.5                        |
| 38                     | 10.3                        | 78                     | 43.6                        |
| 39                     | 10.9                        | 79                     | 44.7                        |
| 40                     | 11.5                        | 80                     | 45.9                        |
| 41                     | 12                          | 81                     | 47                          |
| 42                     | 12.6                        | 82                     | 48.2                        |
| 43                     | 13.3                        | 83                     | 49.4                        |
| 44                     | 13.9                        | 84                     | 50.6                        |
| 45                     | 14.5                        |                        |                             |



## HAZARDOUS STUMP EXTRACTION AND REMOVAL ELIGIBILITY

**Figure O-1: Hazardous Stump Worksheet**

Applicant: \_\_\_\_\_

Date: \_\_\_\_\_

Applicant Representative: \_\_\_\_\_

Signature: \_\_\_\_\_

FEMA Representative (if available) \_\_\_\_\_

Signature: \_\_\_\_\_

|    | Physical Location<br>(i.e., Street address, road,<br>cross streets, etc.) | Description of<br>Facility (ROW,<br>Park, City<br>Hall, etc.) | Hazard<br>Yes/No | Global<br>Positioning<br>System (GPS)<br>Location | Tree Size<br>(Diameter) | Eligible<br>Yes/No | Fill for<br>Debris<br>Stumps<br>In CY | Comments<br>(See attached<br>sketch, photo,<br>etc.) |
|----|---|---|------------------|---|-------------------------|--------------------|---------------------------------------|--|
| 1  |   |   |                  |   |                         |                    |                                       |  |
| 2  |   |   |                  |   |                         |                    |                                       |  |
| 3  |   |   |                  |   |                         |                    |                                       |  |
| 4  |   |   |                  |   |                         |                    |                                       |  |
| 5  |   |   |                  |   |                         |                    |                                       |  |
| 6  |   |   |                  |   |                         |                    |                                       |  |
| 7  |   |   |                  |   |                         |                    |                                       |  |
| 8  |   |   |                  |   |                         |                    |                                       |  |
| 9  |   |   |                  |   |                         |                    |                                       |  |
| 10 |   |   |                  |   |                         |                    |                                       |  |

# **Flood Resources**

*Tompkins County Resiliency and Recovery Plan*

# **Recommended Floodplain Practices for Tompkins County Communities**

**April 2022**



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# Recommended Floodplain Practices for Tompkins County Communities

APRIL 2022

*Prepared for:*  
Tompkins County, New York

*Prepared by:*



**TETRA TECH**

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*The Recommended Floodplain Practices for Tompkins County Communities Report  
prepared with funding provided by the New York State Department of State under Title 3 of the Environmental  
Protection Fund as a Part of the Tompkins County Resiliency and Recovery Plan*

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## SECTION 1. INTRODUCTION

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The intent of this document is to provide a primer to Tompkins County communities that are interested in reducing the risk of flood and associated physical and economic impacts of flooding. This *Recommended Floodplain Practices for Tompkins County Communities* report has been prepared by Tetra Tech, Inc. (Tetra Tech) as part of the Tompkins County Resiliency and Recovery Plan. The New York State Department of State funded this project through a resiliency and recovery grant.

Flood events comprise 90% of the damages to declared disasters in the United States (Insurance Information Institute, n.d.). Due to differing floodplain extents within their boundaries, municipalities in Tompkins County have varying degrees of vulnerability to flood events. Strong floodplain management can reduce or eliminate the impacts of flooding, which causes health, safety and economic impacts to residents, businesses, and visitors in Tompkins County. The *Tompkins County Resiliency and Recovery Plan* is a multi-faceted process to identify areas that can provide improved resilience to preparing for and recovering from natural hazard events. As part of that process, the County developed the [Tompkins County Hazard Mitigation Plan: 2021 Update](#), which provides information on county-wide and community-specific flood vulnerabilities.

To further support communities in reducing flood risk, the County is providing information and resources through the *Tompkins County Resiliency and Recovery Plan* by developing this stand-alone *Recommended Floodplain Practices for Tompkins County Communities* document. This document is intended to provide guidance on best practices to reduce flooding risks and damages for communities in the floodplains. The guidance will include recommendations for establishing sound floodplain management procedures that can be integrated into daily operations at a community and local level. In addition, by implementing the guidance, a community will align its floodplain management documented activities to those required for participation in the Federal Emergency Management Agency (FEMA) National Flood Insurance Program (NFIP) Community Rating System (CRS) program<sup>1</sup>. Participation in the CRS program yields benefits to communities by lowering flood risk and further provides economic benefits to NFIP insured property owners.

However, CRS participation may not be appropriate for all communities in the County, so each locality must evaluate the cost of staff time for administration versus the benefits of joining the program. Participation in the CRS program is based on documented and programmatic activities. Therefore, the program would require significant staff support to join and sustain required administration and activities. Participating communities must complete a full verification every five years thereafter. If a community cannot demonstrate that it continues to implement credited program activities and mandatory requirements, then it will no longer be eligible for NFIP premium discounts. It is estimated in an informal review of communities across the country involved in CRS that implementation requires approximately five hours a week to operate a community NFIP CRS program based on review of participating communities across the country and depending on the level of participation/class of a community. This level of effort is inclusive of responding to resident inquiries, outreach, maintenance of records and data, and annual and cycle reporting. Given this heavy administrative burden, CRS may not be a worthwhile effort for many communities in Tompkins County.

This document summarizes some of the most helpful aspects that would benefit all communities in reducing flood risk.

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<sup>1</sup> Common floodplain management terms are highlighted throughout this document and are provided as a resource in Appendix A. Acronyms and Definitions.

This document includes recommended, [programmatic](#) floodplain management practices in four main areas, which include: Flood Risk, Regulations, Planning, and Administration. Detailed information provided in Section 3:

This document is structured to provide an introduction to the basics of floodplain management, outline the various aspects of the FEMA’s NFIP CRS as a basis for developing a program, and then summarizes considerations and recommendations for determining how to improve floodplain administration and management. This information as well as the toolkit of resources provided in the appendices are intended to enable a community to make an informed decision as to the amount of personnel resources to dedicate to improving its floodplain management program.

## Basics of Good Floodplain Management

Community-based efforts to prevent or reduce the risks and impacts of flooding result in a community with more resilience. The practice of floodplain management within a jurisdiction saves lives, increases public safety, promotes natural and beneficial functions of floodplains, and enables community residents to be more resilient. A comprehensive program built on daily practices and regulatory standards is essential, and this is important as communities have historically developed in and around floodplains.

## Top Recommendations

There are a few basic and common-sense concepts to provide a foundation for establishing an effective floodplain management program. A quick reference list of the recommended “Top Ten” practices to establish and maintain a sound floodplain management program for Tompkins County communities includes the following actions in Table 1. (More specific recommendations identified as a result of the *Town of Lansing, NY Community Rating System (CRS) Baseline Assessment and Potential Impact Report* are provided in Section 3 of this document.)

**Table 1: Top Ten Practices to Establish and Maintain a Sound Floodplain Management Program for Tompkins County Communities**

| Recommendation   | Why?   |
|--|--|
| <b>Work to be aware of, and address, any development that could increase flood risk.</b>   | <i>While specific recommendations are important, an awareness of any actions that may increase community flood risk will support the implementation of a strong floodplain management program.</i>   |
| <b>Adopt, enforce, and re-evaluate ordinances for floodplain management that include higher regulatory standards.</b>  | <i>Implementing higher standards to address future flood conditions will provide the potential reduction in future damages.</i>  |
| <b>Avoid floodplain development. If allowed, require and file permits for all types of development in the special flood hazard area (SFHA), or 1% annual chance flood area, and conduct regular field inspections to ensure compliance with regulations.</b> | <i>Permitting provides a method to effectively reduce and manage floodplain development to ensure that any new - or modified - structures are built to standards that minimize future flood damages both to themselves and adjacent parcels.</i> |

| Recommendation   | Why?   |
|--|--|
| <p><b>Require “as-built” elevations to be captured to document compliance with the community’s flood damage prevention ordinance (Elevation Certificates or Floodproofing Certificates).</b></p>   | <p><i>Ordinances are only as good as their enforcement, so thorough review of “as-built” elevations will confirm proper construction in accordance with regulations.</i></p>                   |
| <p><b>Require new or renovated homes to be elevated to above the Base Flood Elevation (BFE) or additional freeboard for structures.</b></p>  | <p><i>Requiring elevation above BFE proportionately reduces future flood damages.</i></p>  |
| <p><b>Require floodproofing for all non-residential buildings in the SFHA.</b></p>   | <p><i>Floodproofing is a FEMA-approved mitigation measure for non-residential buildings that provides a number of options in the floodplain to reduce the potential for flood damages.</i></p> |
| <p><b>Carefully consider all variance requests to ensure compliance with regulatory flood standards.</b></p>   | <p><i>Approval of variances that do not comply with the flood damage prevention ordinance will increase the risk of damages due to flooding.</i></p>   |
| <p><b>Maintain accuracy of flood maps and notify FEMA of any physical changes that could affect map accuracy.</b></p>  | <p><i>Accurate maps that indicate flood risk helps to support strong management of development in floodprone areas to minimize or avoid future flood impacts or damages.</i></p>               |
| <p><b>Maintain a system of back-ups for all floodplain records, including permits, certificates, and plans.</b></p>  | <p><i>It is important that documentation to administer the local floodplain management program be protected from damage due to flooding or other events that might destroy records.</i></p>    |
| <p><b>Utilize digital (websites and social media) and physical (flyers, mailouts, etc.) outreach opportunities to regularly inform the public of floodplain risks and activities to promote both public safety and continuity in the community’s floodplain management program</b></p> | <p><i>A wide range of media platforms will enhance the outreach to property owners and community members to build an informed community to support active management of flood risk.</i></p>    |

## What is Floodplain Management?

Floodplain management (FPM) is the operation of a community program for preventative and corrective measures to reduce flood damage and preserve and improve natural floodplain areas, where appropriate. Adopting and enforcing local floodplain management ordinances provide flood loss reduction and building standards for new and existing development. The enactment and enforcement of these ordinances allows all citizens within the jurisdiction to obtain flood insurance through the National Flood Insurance Program (NFIP).

Common Types of Local Floodplain Management Practices:

- Nonstructural – create enhanced FPM regulations and mitigation measures



- Structural – install hardened and bioengineered dams, levees, floodwalls, channel alterations, and on-site detention
- Educational – promote information on preparedness and flood insurance
- Natural Systems – advance strategies to *preserve* resources and functions as close to natural as possible, and to *restore* them to re-establish natural functions

## What is the NFIP and Why is it Important?

With the passage of the National Flood Insurance Act of 1968 (NFIA) on August 1, 1968, the United States Congress established the National Flood Insurance Program. The two main goals of the NFIA are to

- Reduce future flood damage, and
- Protect property owners. In 1973, the NFIP was amended to require the purchase of flood insurance for some homeowners in high-risk flood zones.

In 1979, the NFIP was officially made a part of the Federal Emergency Management Agency (FEMA, 2020).

NFIP participation is voluntary, but communities are highly incentivized to participate in that communities must participate in the NFIP to be eligible for federal flood insurance and post-disaster financial assistance. Since the 1970s, several changes have been made to the NFIP. The Flood Insurance Reform Act of 2004 eliminated rebuilding incentives for repetitive loss properties, while increasing claims transparency and establishing a training requirement for insurance professionals (FEMA, 2020). The 2014 Homeowner Flood Insurance Affordability Act additionally placed a limit on flood insurance rate increases (FEMA, 2020).

The basis for floodplain management are core to the underlying concepts of the NFIP. These concepts include:

- Reduced emphasis on structural flood control measures; increased emphasis on nonstructural FPM measures
- Reduced federal disaster costs: shift burden from general taxpayers to floodplain occupants
- Provision of insurance coverage not generally available on the private market
- Requirement of new floodplain development to meet construction standards that protect buildings against future flood damage
- Promotion of sound floodplain management practices
- Provision of better assistance to flood victims

## NFIP Participation Requirements

In order to participate in the NFIP, communities are required to adopt and enforce a floodplain management ordinance that meets **or exceeds** requirements specified under 44 CFR § 59.2 & 60.3 (Code of Federal regulations). Continued eligibility is based on maintaining compliance through enforcement of the provisions of the floodplain management ordinance and compliance is monitored by FEMA via an in person audit process called a [Community Assistance Visit \(CAV\)](#).

## NFIP Non-Participation Ramifications

The ramifications of not participating in the NFIP, include ineligibility for property owners within the community to procure federally backed flood insurance. In addition, other ramifications are possible ineligibility of the community for post-disaster federal assistance.

## What is Floodplain Development?

Development in the floodplain increases flood risk and potential damages due to flood events. In order to manage the impacts of flooding, it is important to understand the concept of development in the floodplain and its

associated implications. Per the NFIP, development is any human-caused change to improve or unimprove real estate including, but not limited to, buildings or other structures, mining, dredging, filling, grading, paving, excavation, or drilling operations.

Development in a floodplain is regulated by the local municipal government, which is responsible for approving or denying development permits in flood-prone areas. The code enforcement official or building inspector for development in floodplains is often the designated floodplain administrator, though municipalities can establish another official. Some Tompkins County communities have selected the Director of Planning as the designated floodplain administrator.

## The Community Rating System (CRS)

As summarized above, the CRS is a formal program that provides a strong framework to develop a robust and implementable floodplain management program for communities, while also likely garnering reductions in flood insurance premiums for property owners in the community. The program can, however, take a considerable amount of staff time for annual reporting and administration. Tetra tech has estimated based on an analysis of its clients enrolled in CRS, that administering the program can, on average, take 13% of a full-time employee's time.

However, even if a community is not a good candidate for formal participation in the program, incorporating key activities into community operations can result in a reduction of flood risk, and, hence, flood damages and the related economic impacts.

The CRS is administered by the Insurance Services Office (ISO)/Verisk, under the NFIP on behalf of FEMA. Per [the CRS Fact sheet dated June 30, 2021](#), the CRS was implemented in 1990 as a voluntary program for recognizing and encouraging community floodplain management activities that exceed minimum NFIP standards. Any community fully compliant with NFIP floodplain management requirements may apply to join the CRS. As of October 2021, according to FEMA, over 1,500 communities participate in the CRS by implementing local mitigation, floodplain management, and outreach activities that exceed the minimum NFIP requirements. These CRS communities include over 3.6 million policyholders, accounting for more than 70% of all NFIP flood insurance policies. Despite the benefits, few Upstate New York communities are enrolled in CRS. Under the CRS, flood insurance premium rates are discounted to reward community actions that support the three goals of the program:

- Reduce flood damage to insurable property
- Strengthen and support the insurance aspects of the NFIP
- Encourage a comprehensive approach to floodplain management

## CRS Class Ratings

The CRS uses a Class Rating System that is similar to fire insurance rating to determine flood insurance premium reductions for residents. As noted in the CRS Coordinator's Manual, CRS Classes are rated from 9 to 1. Most jurisdictions enter the program with a rating of a CRS Class 9, 8, or 7. These levels entitle residents in Special Flood Hazard Areas (SFHAs) to a 5% discount on their flood insurance premiums for each class achieved (or a Class 9 a 5% discount, a 10% discount, for Class 8, and a 15% discount for a Class 7). As a community engages in additional mitigation activities, its residents become eligible for increased NFIP policy premium discounts (See [FEMA](#)). CRS Class changes traditionally occur on April 1 and October 1 of each year. A fact sheet providing additional information is provided in Appendix A. For more information on these prerequisites, please refer to the [National Flood Insurance Program Community Rating System Coordinator's Manual \(FIA-15/2017; OMB No. 1660-0022\)](#) and [2021 CRS Addendum](#) document.

## CRS Prerequisites

A community wishing to participate in the CRS program must demonstrate that it meets and complies with six prerequisites. Additional prerequisites are required for communities that wish to achieve CRS Class 8, 6, 4 or 1 ratings.

The prerequisites for CRS participation are as follows:

1. The community must have been in the regular phase of the NFIP for at least one year.
2. The community must be in full compliance with the minimum requirements of the NFIP and must have received acknowledgement of this correspondence from the regional office of the FEMA within six months prior to community's CRS application visit.
3. The community must maintain FEMA Elevation Certificates on all new buildings and buildings undergoing substantial repairs or improvements constructed in the SFHA after the community applies for CRS credit with a 90% accuracy rate. In addition, the community must develop a Construction Certificate Management Plan (CCMP).
4. If there are one or more repetitive loss properties in the community, the community must take certain actions. A repetitive loss property is any insurable building for which two or more claims of more than \$1,000 were paid by the NFIP within any rolling ten-year period since 1978. These include reviewing and updating the list of repetitive loss properties, mapping repetitive loss area(s), describing the causes of the losses in each area(s), and reaching out annually to those property owners (in the prescribed areas) to discuss flood mitigation opportunities. A community with 50 or more repetitive loss properties must also prepare a plan for addressing its repetitive flood problem.
5. The locality must maintain all flood insurance policies that it has been required to carry on properties owned by the community.
6. If a coastal community receives a draft Flood Insurance Rate Map (FIRM) that delineates the Limit of Moderate Wave Action (LiMWA), the community must agree to show the LiMWA on its final published FIRM. Although showing a LiMWA on a FIRM is voluntary for non-CRS communities, it is a prerequisite for CRS participation. (This is not applicable for Tompkins County communities).
7. As a prerequisite for achieving CRS Class 8, communities must adopt and enforce at least one foot of freeboard for residential buildings in all numbered zones of the SFHA.

## SECTION 2. CONSIDERATIONS IN DETERMINING IF CRS IS RIGHT FOR YOUR COMMUNITY

The cost of joining the CRS and maintaining participation can often be an unknown factor to communities, leaving municipalities in the dark when weighing the decision to get involved in program.

The CRS is a voluntary program that rewards communities for their floodplain activities. While communities will likely find floodplain management improvements valuable, CRS membership can be a complicated program to maintain, and requires dedicated staff members and effective coordination to maximize the benefits of the program. Having a local CRS coordinator is important to maintaining necessary reporting. This person is typically a local floodplain manager or engineer who is versed in the knowledge necessary to maintain or improve CRS status. Keeping abreast of regulatory changes is also important for CRS management, as well as attending training sessions made available through FEMA.

FEMA Region 2 provided aggregate data on NFIP policies, past claims, and repetitive loss properties (RL) in Tompkins County. According to FEMA, a RL property is a NFIP-insured structure that has had at least two paid flood losses of more than \$1,000 in any 10-year period since 1978 (FEMA 2020).

Table 2 summarizes the current NFIP policies, claims, and repetitive loss statistics for Tompkins County.

**Table 2. Repetitive Loss Properties and NFIP Data for Tompkins County**

| Jurisdiction                   | Number of Repetitive Loss Properties | Number of Policies | Number of Claims | Total Losses Claimed |
|--------------------------------|--------------------------------------|--------------------|------------------|----------------------|
| Caroline (T)                   | 4                                    | 14                 | 21               | \$72,531             |
| Cayuga Heights (V)             | 2                                    | 2                  | 4                | \$15,791             |
| Danby (T)                      | 0                                    | 4                  | 0                | \$0                  |
| Dryden (T)                     | 2                                    | 23                 | 9                | \$93,330             |
| Dryden (V)                     | 2                                    | 27                 | 20               | \$114,915            |
| Enfield (T)                    | 0                                    | 0                  | 0                | \$0                  |
| Freeville (V)                  | 1                                    | 7                  | 4                | \$17,760             |
| Groton (T)                     | 0                                    | 10                 | 7                | \$23,919             |
| Groton (V)                     | 0                                    | 6                  | 14               | \$620,881            |
| Ithaca (C)                     | 7                                    | 148                | 103              | \$249,490            |
| Ithaca (T)                     | 0                                    | 37                 | 20               | \$36,215             |
| Lansing (T)                    | 22                                   | 35                 | 56               | \$466,075            |
| Lansing (V)                    | 0                                    | 7                  | 5                | \$6,589              |
| Newfield (T)                   | 2                                    | 9                  | 6                | \$52,254             |
| Trumansburg (V)                | 0                                    | 3                  | 3                | \$902                |
| Ulysses (T)                    | 0                                    | 19                 | 3                | \$5,798              |
| <b>Tompkins County (Total)</b> | <b>42</b>                            | <b>351</b>         | <b>275</b>       | <b>\$1,776,450</b>   |

Source: FEMA Region 2, 2020

Note: NFIP = National Flood Insurance Program, V = Village, T = Town, C = City

## Credit Points and Classification

A community receives a CRS classification based upon the total credit for its activities. There are 10 CRS classes. Class 1 requires the most credit points and gives the greatest premium reduction or discount. A community that does not apply for the CRS, or does not obtain the minimum number of credit points, is a Class 10 community and receives no discount on premiums. The qualifying community total points, CRS classes, and flood insurance premium discounts are shown in Table 2. These rates align with the prevailing rating prior to premium adjustments due to FEMA's NFIP Risk Rating 2.0 rate structure and provide a general estimate of discounts available prior to 4/1/22.

FEMA is currently in the process of introducing the biggest change to the way the NFIP calculates flood insurance premiums, known as [Risk Rating 2.0](#), since the inception of the NFIP in 1968. The new premium rates went into effect on October 1, 2021, for new NFIP policies only. The new rates for existing NFIP policyholders have taken effect on April 1, 2022. Risk Rating 2.0 will continue the overall policy of phasing out NFIP subsidies, which began with the Biggert-Waters Flood Insurance Reform Act of 2012 and continued with the Homeowner

Flood Insurance Affordability Act of 2014. Under the change, premiums for individual properties will be tied to their actual flood risk. Because the limitations on annual premium increases are set in statute, Risk Rating 2.0 will not be able to increase rates faster than the existing limit for primary residences of 5%-18% increase per year. (National Flood Insurance Program: Current Rating Structure and Risk Rating 2.0 (Congressional Research Service) <https://sgp.fas.org/crs/homesec/R45999.pdf>).

**Table 1. CRS classes, credit points, and premium discounts**

| CRS Class | Credit Points | Premium Reduction |              |
|-----------|---------------|-------------------|--------------|
|           |               | In SFHA           | Outside SFHA |
| 1         | 4,500+        | 45%               | 10%          |
| 2         | 4,000–4,499   | 40%               | 10%          |
| 3         | 3,500–3,999   | 35%               | 10%          |
| 4         | 3,000–3,499   | 30%               | 10%          |
| 5         | 2,500–2,999   | 25%               | 10%          |
| 6         | 2,000–2,499   | 20%               | 10%          |
| 7         | 1,500–1,999   | 15%               | 5%           |
| 8         | 1,000–1,499   | 10%               | 5%           |
| 9         | 500–999       | 5%                | 5%           |
| 10        | 0–499         | 0                 | 0            |

Municipalities that apply to the CRS and obtain a CRS classification for which the municipality receives a benefit (CRS Class 1-9) will be required to recertify annually. Each year, the municipality official must recertify that the community is continuing to implement the activities for which CRS credit has been provided. Recertification forms are sent to each participating community annually by their ISO/CRS specialist. Communities must complete the updated recertification forms annually. The documentation requested supports performance of activities that are implemented regularly, such as outreach projects or maintenance procedures.

Should a municipality garner 500 to 999 points, it would enter the CRS at the base level (Level 9), which results in a discount of 5% to flood insurance policy holders. Before applying to the CRS, the municipality should review its capability for addressing CRS eligible activities. Again, these rates align with the prevailing rating prior to premium adjustments due to FEMA’s NFIP Risk Rating 2.0 rate structure and provide a general estimate of discounts available prior to 4/1/22.

However, should a community determine that it does not have the resources or desire to participate formally in the CRS, certain best practices may be institutionalized to provide the benefits of reduction of flood risk without formal participation in the program.

The following recommendations include activities that the communities in Tompkins County may undertake to reduce community flood risk and to enhance current floodplain management programs outside of CRS participation.

## SECTION 3. RECOMMENDATIONS FOR IMPROVEMENT OF OVERALL FLOODPLAIN MANAGEMENT PROGRAMS

While the base level of floodplain management is defined by the minimum standards of NFIP participation, it is recommended that communities wishing to better manage flood risk are implementing the Top Ten activities noted in Section 1 of this document.

For those communities wishing to further reduce flood risk and damages due to flood events, additional activities to enhance their floodplain management program should be considered. These recommendations are based on an assessment of the floodplain management of the *Town of Lansing, New York Community Rating System (CRS) Baseline Assessment and Potential Impact Report* and assume that the floodplain management capabilities reflected in the Town assessment largely apply to most communities in Tompkins County.

***First and foremost, communities must work to be aware of and address any development that could increase flood risk.*** This summarizes the foundation of a strong floodplain management program as noted in the *Top Ten Practices to Establish and Maintain a Sound Floodplain Management Program for Tompkins County Communities* provided in Section 1 of this document.

These suggestions are organized around the four areas of floodplain management concern – Flood Risk, Regulations, Planning, and Administration. Recommendations are then organized around the areas deemed to be “programmatic” or the basis of a sustainable program and institutionalized in a manner to provide an ongoing structure for new or additional personnel.

For reference, the “Top Ten” recommendations are highlighted in **bold text** below.

### Recommendations for Improvement of Overall Floodplain Management Programs

#### Flood Risk

##### Mapping

- **Maintain accuracy of maps and notify FEMA of changes.**
  - *Accurate maps that indicates flood risk helps to support strong management of development in floodprone areas to minimize or avoid future flood impacts or damages.*
- Map and update the list of community’s repetitive loss properties annually and conduct regular outreach to those property owners regarding potential risk reduction actions.
  - *Mapping provides an efficient method to identify areas of vulnerable structures.*

##### Acquisition and Relocation

- Acquire floodprone properties and return them to naturally functioning open space.

- *Eliminating floodprone structures reduces the potential for flood damages while transforming the property to open space increases the natural functions of the property to absorb flood waters to decrease local flood risk.*

### **Data Collection**

- Create formal protocol for capturing perishable data, such as high-water marks or detailed damage assessments from an event.
  - *Documentation of the magnitude and extent of flooding can inform updates to flood maps to identify flood risk more adequately. In addition, documentation of this ephemeral data via photos or GIS data supports post-disaster reimbursement of recovery costs as well as justification of avoided costs when applying for mitigation grant funding.*

## **Regulations**

### **Codes and Ordinances/Higher Regulatory Standards**

- **Adopt, enforce, and re-evaluate ordinances for floodplain management that include higher regulatory standards.**
  - *Implementing higher standards to address future flood conditions will provide reduce future damages.*
- **Require new or replacement homes to be elevated to above the Base Flood Elevation (BFE).**
- *Requiring elevation above BFE – or additional freeboard for structures - proportionately reduces future flood damages. **Require floodproofing for all non-residential buildings in the SFHA.***
  - *Floodproofing is a FEMA- approved mitigation measure for non-residential buildings in the floodplain that provides a number of options to reduce the potential for flood damages.*
- **Carefully consider all variance requests to ensure compliance with regulatory flood standards.**
  - *Approval of variances that do not comply with the flood damage prevention ordinance will increase the risk of damages due to flooding.*
- In order to regulate and implement standards for existing structures, track the cost of improvements to structures in the floodplain to trigger compliance with the flood damage preventions ordinance once the cumulative improvement value is greater than or equal to the pre-determined threshold of 50 percent or greater of the market value of the structure.
  - *By enforcing cumulative improvement regulations, the structures located in the floodplain will be brought into compliance with regulations.*
- Update Flood Damage Prevention Ordinance to require a freeboard for manufactured homes and mechanical equipment in numbered zones.
  - *Freeboard regulations support reduced flood damages and are required to participate in the CRS.*
- Elect to use a threshold lower than 50 percent for [substantial improvements](#) and establish cumulative substantial improvements.

- *Lowered thresholds incentivize the compliance of pre-existing structures with regulatory requirements in the floodplain. Tracking the total or cumulative value of improvements accelerates meeting the ‘trigger threshold’ as these are tracked over time. Compliance with regulations for grandfathered structures that do not meet the requirements of the flood damage prevention ordinance.*

### **Industry Rating**

- Examine enhancements to the building code enforcement program (including staff training) and track those enhancements through the [BCEGS®](#) rating.
  - *Improved code enforcement translates into improved floodplain management and reduced risk of future damages.*
- Become a [StormReady](#) community.
  - *Benefits of participating in the StormReady program provides a grassroots approach to help communities develop plans to handle all types of extreme weather.*

### **Open Space Preservation**

- Establish deed restrictions or conservation easements on municipally-owned open space parcels.
  - *Conservation easements can ensure the ecosystem benefits of open space for the reduction of flood effects will occur in perpetuity. If the property is acquired using FEMA pre-disaster mitigation funds, these formal protection mechanisms are mandatory.*

### **Stormwater Management**

- Institute more stringent requirements for stormwater management, such as regulating development or designing stormwater management to withstand more intense storms.
  - *Increased stormwater management regulations reduces future localized flooding.*
- Develop a watershed management plan.
  - *A watershed management plan provides a roadmap to reduce flood risk on a regional basis.*

## **Planning**

### **Plan Integration**

- Update the municipal comprehensive plan and land use ordinances to ensure land use to avoid development of floodprone areas and incorporate actions recommended as part of the community’s Annex in the *Tompkins County Hazard Mitigation Plan: 2021 Update*. Ensure appropriate floodplain management staff, including the floodplain administrator and building code officials, are involved in the development and implementation of the municipal comprehensive plan and land use ordinances.
  - *Alignment and integration of planning efforts increases the effectiveness of plans and improves the probability of implementing flood mitigation activities.*
- Adopt a National Incident Management System that is compliant with Emergency Operations Plan/Community Emergency Management Plan.



- *This activity will bolster the municipality’s response and preparedness for flooding and other hazards. The proposed post-disaster action plan should address standardizing damage assessments and address reconstruction in the wake of a flood event.*
- Develop a flood warning and response plan.
  - *This will integrate municipal emergency operations with flood mitigation planning to address flooding and gain additional credit through the CRS.*
- Develop a substantial damage response plan to provide a procedure for capturing post-event perishable or temporary data, such as high-water marks, and to guide efficient post-disaster efforts to address regulatory requirements.
  - *As required by the CRS, this will support resilient recovery after a flood event.*
- Develop policies and procedures for determining substantial damage and improvements when permit applications are received. Ensure that only the structure’s value is part of the determination or percent of damage.
  - *By carefully documenting cumulative improvements, the structures located in the floodplain will be brought to compliance with regulations.*

## Administration

### Record Keeping

- ***Avoid floodplain development. If allowed, require permits for all types of development in the special flood hazard area (SFHA), or 1% annual chance flood area, and conduct field inspections to ensure compliance with regulations.***
- *Permitting provides a method to effectively reduce and manage floodplain development to ensure that any new - or modified structures - are built to standards that minimize future flood damages both to themselves and adjacent parcels.*
- ***Require “as-built” elevations in order to document compliance with the community’s flood damage prevention ordinance (Elevation Certificates or Floodproofing Certificates).***
- *Ordinances are only as good as their enforcement, so thorough review of “as-built” elevations will confirm proper construction in accordance with regulations. **Maintain a system of back-ups for all floodplain records including permits, certificates, and plans.***
  - *It is important that local floodplain management program documents be protected from potential hazard event damages.*
- Store records in an offsite location (outside the SFHA), ensuring that records are transferred or copied once a year.
  - *Preservation of records is important to administer the floodplain program and is required to participate in the CRS.s.*
- Maintain information on flood problems not shown on the FIRM. Provide information above and beyond the requirements for basic FIRM information, such as local drainage problems and mapping, that shows the importance of natural floodplain functions.
  - *FIRMs provide information regarding regulatory floodplains but are not developed to capture localized flood conditions, such as urban or stormwater flooding. By mapping and*

*providing information on these additional flood hazard areas, a community can reduce potential flood risk.*

- Provide information necessary to rate a flood insurance policy and ensure requests are documented using a standard operating procedure.
  - *Information, such as the NFIP Community Number, FIRM date, flood zone, BFE, and location with respect to the floodway, provides property owners the data to understand the implications of flood risk on the costs of maintain a property in a floodprone area. This information can inform the decision to relocate a structure or improve it to reduce the risk of future damages.*

### **Education**

- Train floodplain administrator and additional staff (such as building code officials) to become certified floodplain managers or complete [FEMA's Emergency Management Institute \(EMI\) courses](#).
  - *An educated staff will need to support the goals of the floodplain management program.*

### **Outreach Projects**

- ***Utilize digital (websites and social media) and physical (flyers, mailouts, etc.) outreach opportunities to regularly inform the public of floodplain risks and activities to promote both public safety and build continuity in the community's floodplain management program.***
  - *A wide range of media platforms will enhance the outreach to property owners and community members to build an informed community to support active management of flood risk.*
- Organize and undertake outreach specific to residents and property owners in SFHAs. Outreach efforts should cover preparation for disasters, provide information about mitigation and warnings about flooding events, and increase the amount of flood information available to residents.
  - *Education of property owners supports the effectiveness of implementation of a strong program to reduce future damages due to flood events. In addition, this is a requirement to participate in the CRS and a good practice to educate property owners to incentivize proactive efforts to reduce flood risk.*
- Increase the use of pre-existing social media accounts and municipal outreach platforms to conduct annual outreach.
  - *Utilizing existing platforms for outreach can increase the effectiveness of outreach and education.*

### **Hazard Disclosure**

- Ask or mandate real estate agents to notify those interested in purchasing properties located in the SFHA about flood hazards and flood insurance purchase requirements and to provide brochures or handouts that advise potential buyers to investigate the flood hazard for a property.
  - *Ensuring that information regarding flood risk is communicated to potential property owners is essential in managing risk.*

### **Flood Protection Information**

- Provide access to the nine publications listed in the [CRS Coordinator's Manual](#) at the municipal library and on public websites.
  - *Availability of information provides structure owners access to educational materials. This is required for participation in the CRS.*
- Create a municipal flood mitigation webpage to provide flood protection information. Information can include documents that cover flood hazards, flood protection, and natural floodplain functions available at municipal libraries. Additional information can include aquatic and riparian habitat guides, information on floodplain management, and guides to flood mitigation.
  - *Availability of information provides structure owners access to educational materials.*

### **Flood Protection Assistance**

- Provide assistance to locate and apply for funding for mitigation, flood insurance, SBA grants, etc.
  - *Community support can enable structure owners to fund mitigation projects that otherwise may not be affordable.*

### **Flood Insurance Promotion**

- Include flood insurance brochures with building permits or other distribution directly to property owners.
  - *Providing educational materials supports the effectiveness of the floodplain management program enforcement.*
- Hold an annual community town hall meeting or open house to promote and discuss flood insurance.
  - *Annual or more frequent outreach events can incentivize mitigation of structures due to the desire to reduce flood insurance premiums and awareness of flood risks.*

### **Open Space Preservation**

- Establish deed restrictions on open space parcels.
  - *Deed restrictions ensures that open space will be preserved for posterity and that all development will be prevented on these parcels. This will provide natural and beneficial functions to reduce the effects for flooding.*

### **Drainage System Maintenance**

- Develop and update an inventory and map of natural and manmade water conveyance systems; and develop procedures for performing and documenting annual inspection and maintenance.
  - *Comprehensive inspection and maintenance of water conveyance systems is a preventative measure to avoid localized flooding. Documentation supports administration.*
- Establish a capital improvement program to correct drainage problems.
  - *Available funding to address drainage problems will support the reduction of flood risk.*

### **Record-keeping and Flood Data Maintenance**

- Organize and formalize the process for record-keeping of development changes in the SFHAs.
  - *Detailed records provide a history of development to understand and report on the changing risk in the floodplain.*
- Include building elevations as digitized information in available mapping.
  - *This supports the effective enforcement of the flood damage prevention ordinance and can be used as data to develop a substantial damage response plan.*

## Appendix A. ACRONYMS AND DEFINITIONS

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Terms and definitions often used to discuss floodplains and floodplain management are provided in Appendix A and include the following common terms:

**1-Percent Chance Flood Event:** A flood event having a one percent chance of occurring in any given year. Also referred to as a 100-year flood event. There is a one in four chance of flooding during a 30-year mortgage in these higher risk areas.

**0.2 Percent Flood Event:** A flood event having a 0.2 percent chance of occurring in any given year. Also referred to as a 500-year flood event.

**100-Year Flood Event:** A flood event having a one percent chance of occurring in any given year. Also referred to as 'base flood'.

**500-year Flood Event:** A flood event having a 0.2 percent chance of occurring in any given year.

**Base flood:** The flood having a 1% chance of being equaled or exceeded in any given year, also known as the "100-year" or "1% chance" flood. The base flood is a statistical concept used to ensure that all properties subject to the National Flood Insurance Program are protected to the same degree against flooding.

**Basement:** Any area of the building having its flood subgrade (below ground level) on all sides. The NFIP recommends purchasing both building and contents coverage for the broadest level of flood protection. The Standard Flood Insurance Policy (SFIP) does not pay for removal of non-covered building or personal property items.

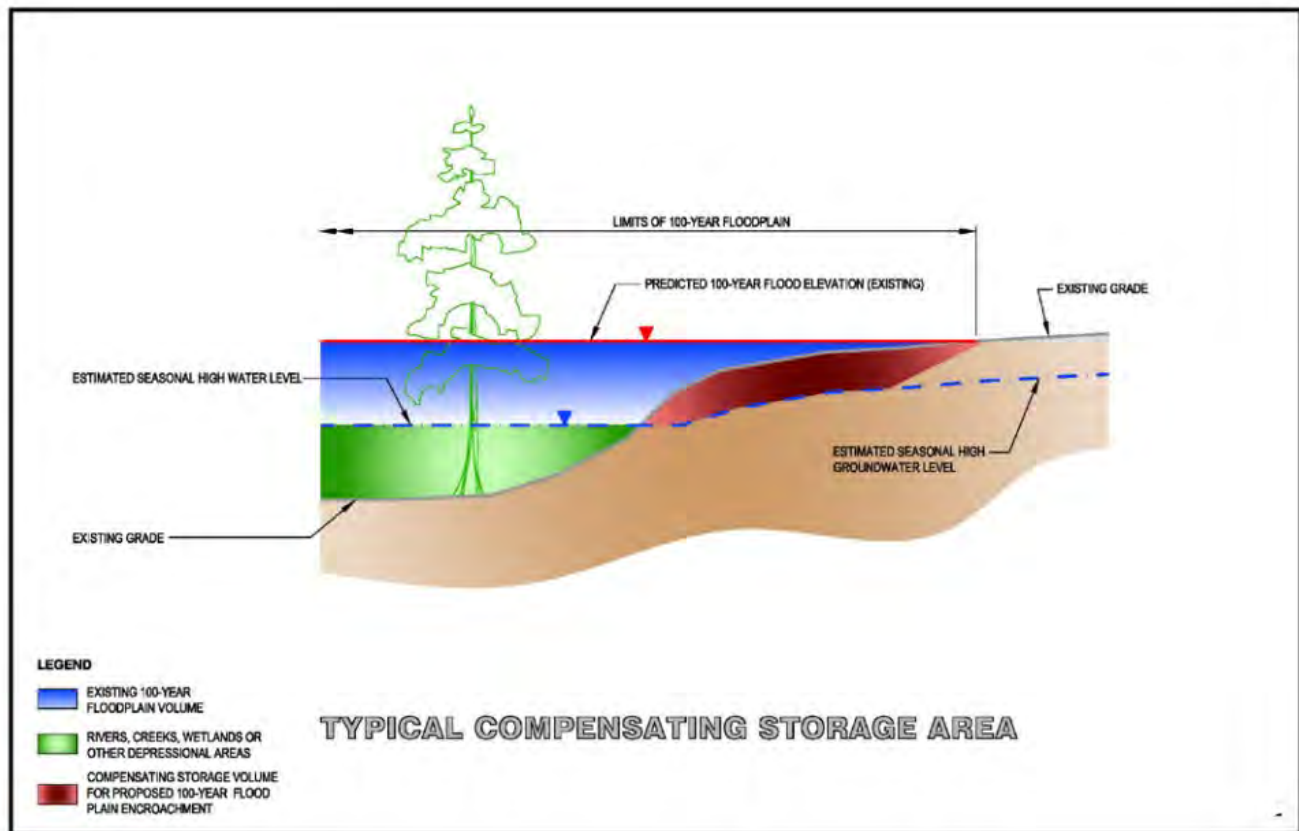
**BCEGS®:** Building Code Effectiveness Grading Schedule. When communities submit a modification or undergo a cycle verification, they must meet the BCEGS prerequisite in order to achieve or remain a CRS Class 6 or better.

**BFE:** Base Flood Elevation. The elevation of the crest of the base or 1% annual chance flood (also known as the 100-year flood).

**Category B Community:** A community with at least one, but fewer than 50, repetitive loss properties that have not been mitigated.

**Compensatory Storage:** The NFIP floodway standard in 44CFR 60.3 (d) restricts new development from obstructing the flow of water and increasing flood heights. However, this provision does not address the need to maintain flood storage. Especially in flat areas, the floodplain provides a valuable function by storing floodwaters. When fill or buildings are placed in the flood fringe, the flood storage areas are lost and flood heights will go up because there is less room for the floodwaters. This is particularly important in smaller watersheds which respond sooner to changes in the topography. One approach that may be used to address this issue is to require compensatory storage to offset any loss of flood storage capacity. Some communities adopt more restrictive standards that regulate the amount of fill or buildings that can displace floodwater in the flood fringe. Community

Rating System credits are available for communities that adopt compensatory storage requirements (<https://www.fema.gov/glossary/compensatory-storage> )



Source: [https://www.envisionalachua.com/files/managed/Document/865/5f-i\\_Stormwater\\_Management.pdf](https://www.envisionalachua.com/files/managed/Document/865/5f-i_Stormwater_Management.pdf). Technical memorandum, stormwater Management, Envision Alachua Sector Plan, May 1, 2015, revised June 4, 2015. Accessed 2/28/22.

**Figure 1. Compensatory Storage Offsets Reduction of Water Storage Due to Fill in the SFHA**

**CRS:** Community Rating System.

**Design Flood Elevation (DFE):** The elevation of the highest flood (generally the BFE including freeboard) that a retrofitting method is designed to protect against. Also referred to as Flood Protection Elevation.

**DFIRM:** Digital Flood Insurance Rate Map.

**Development:** Any human-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, or storage of equipment and materials. Any form of development within the floodplain can affect the flood risk to and vulnerability of adjacent structures. (Federal Emergency Management Agency, n.d.)

**FEMA:** Federal Emergency Management Agency. Most of the National Flood Insurance Program field work and community coordination is done by the 10 FEMA Regional Offices, which are listed at <https://www.fema.gov/fema-regional-contacts>.

**FIRM:** Flood Insurance Rate Map. An official map of a community, on which FEMA has delineated both the Special Flood Hazard Areas and the risk premium zones applicable to the community. Most FIRMs include detailed floodplain mapping for some or all of a community's floodplains. In most cases, the date of the first FIRM issued to a community is the date the community entered the Regular Program of the National Flood Insurance Program.

**Floodplain:** Any land area susceptible to being inundated by flood waters from any source. A Flood Insurance Rate Map identifies most, but not necessarily all, of a community's floodplain as the Special Flood Hazard Area.

**Flood Damage Prevention Ordinance:**— A regulation that requires that a local government regulate development in local floodplains that accommodate current and future-land use conditions. This can greatly reduce future flooding impacts, preserve greenspace and habitat, and protect local water quality. (North Georgia Water, 2013))

**Freeboard** – A margin of safety added to the base flood elevation to account for waves, debris, miscalculations, or lack of data. Following major floods and severe storms, several communities have increased their freeboard on new and existing structures to limit future damages. (Federal Emergency Management Agency, n.d.)

**IBC:** International Building Code

**IRC:** International Residential Code

**ISO:** The Insurance Services Office, Inc., a corporation that conducts verification of community CRS credit and program improvement tasks for FEMA.

**Lowest Floor** – The lowest floor of the lowest enclosed area (including basement) of a building. Floods damage areas of buildings that are not elevated above the flood level. If the lowest floor of a property clears the Base Flood Elevation level, the property owner may qualify for lower insurance rates.

**Natural Floodplains Function Plan:** A plan that protects one or more natural functions within the community's Special Flood Hazard Area.

**NFIP:** National Flood Insurance Program.

**No Adverse Impact (NAI)** - A floodplain management approach that ensures the action of any community or property owner, public or private, that does not adversely impact the property and rights of others. NAI floodplain management practices extend to managing development in local watersheds and mitigate adverse impacts (increase in flood velocity, flows, erosion, degraded water quality, etc.) Using a local watershed or community plan may be beneficial in establishing the NAI approach. (ASFPM, 2003)

**Programmatic:** The approach to institutionalizing roles, responsibilities, and documentation of activities and procedures to support a sustainable program to ensure continuity despite potential change in elected officials, management personnel, and staff changes.

**PPI:** A Program for Public Information can help design an entire public information program, not just outreach projects. A Program for Public Information that covers other types of public information endeavors, such as a website and technical assistance, can result in increased credit under other activities. Up to 80 points added to Outreach Project credits and up to 20 points added to Flood Response Preparations credits, for projects that are designed and implemented as part of an overall public information program.

**Regulatory Floodplain:** For purposes of the Community Rating System, the regulatory floodplain is the flood-prone land area that is subject to a community's floodplain development or floodplain management regulations. The regulatory floodplain includes, at a minimum, the Special Flood Hazard Area (SFHA) (see definition) but

may also incorporate other areas outside the SFHA that are also subject to a community's floodplain development or floodplain management regulations.

**Risk Rating 2.0:** FEMA is updating the [National Flood Insurance Program](#)'s (NFIP) risk rating methodology through the implementation of a new pricing methodology called **Risk Rating 2.0**. The methodology leverages industry best practices and cutting-edge technology to enable FEMA to deliver rates that are actuarially sound, equitable, easier to understand and better reflect a property's flood risk.

**Repetitive Loss Property:** A property for which two or more National Flood Insurance Program losses of at least \$1,000 each have been paid within any 10-year rolling period since 1978.

**SFHA: Special Flood Hazard Area:** The base floodplain delineated on a Flood Insurance Rate Map that a community must regulate under the requirements of the National Flood Insurance Program. The SFHA is included in a community's regulatory floodplain.

**Substantial Damage:** Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50% of the market value of the structure before the damage occurred. (Federal Emergency Management Agency, n.d.)

**StormReady:** The program encourages communities to take a new, proactive approach to improving local hazardous weather operations by providing emergency managers with clear-cut guidelines on how to improve their hazardous weather operations.

**Substantial Improvement:** Any reconstruction, rehabilitation, addition or other improvement to a structure, the total cost of which equals or exceeds 50% of the market value of the structure before the start of construction of the improvement. This definition includes buildings that have incurred "substantial damage" regardless of the actual repair work performed. (Federal Emergency Management Agency, n.d.)

## Appendix B. CRS FACT SHEET

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The June 2017 Community Rating System Fact Sheet is provided in this Appendix.





FEMA

## Fact Sheet

Federal Insurance and Mitigation Administration

## Community Rating System

June 2017

*The National Flood Insurance Program (NFIP) Community Rating System (CRS) was implemented in 1990 as a voluntary program for recognizing and encouraging community floodplain management activities exceeding the minimum NFIP standards. Any community in full compliance with the minimum NFIP floodplain management requirements may apply to join the CRS.*

### 1,444 Communities Participate in the CRS

Nearly 3.6 million policyholders in 1,444 communities participate in the CRS by implementing local mitigation, floodplain management, and outreach activities that exceed the minimum NFIP requirements.

Under the CRS, flood insurance premium rates are discounted to reward community actions that meet the three goals of the CRS, which are: (1) reduce flood damage to insurable property; (2) strengthen and support the insurance aspects of the NFIP; and (3) encourage a comprehensive approach to floodplain management.

Although CRS communities represent only 5 percent of the over 22,000 communities participating in the NFIP, more than 69 percent of all flood insurance policies are written in CRS communities.

### CRS Classes

The CRS uses a Class rating system that is similar to fire insurance rating to determine flood insurance premium reductions for residents. CRS Classes\* are rated from 9 to 1. Today, most communities enter the program at a CRS Class 9 or Class 8 rating, which entitles residents in Special Flood Hazard Areas (SFHAs) to a 5 percent discount on their flood insurance premiums for a Class 9 or a 10 percent discount for Class 8. As a community engages in additional mitigation activities, its residents become eligible for increased NFIP policy premium discounts. Each CRS Class improvement produces a 5 percent greater discount on flood insurance premiums for properties in the SFHA.

\* CRS Class changes occur on May 1 and October 1 of each year. The data contained in this fact sheet were current through May 2017.

### Best of the Best

Seven communities occupy the highest levels of the CRS. Each built a floodplain management program tailored to its own particular hazards, character, and goals. Under these programs, each community carries out numerous and varied activities, many of which are credited by the CRS. The average discount in policyholder premiums varies according to a community's CRS Class and the average amount of insurance coverage in place.

- **Roseville, California** was the first to reach the highest CRS rating (Class 1). Floods in 1995 spurred Roseville to strengthen its floodplain management program. Today the City earns points for almost all CRS-creditable activities. The average premium discount for policies in the Special Flood Hazard Area (SFHA) is \$963.
- Comprehensive planning has been a key to **Tulsa, Oklahoma** in reducing flood damage from the dozens of creeks within its jurisdiction. The City (Class 2) has cleared more than 900 buildings from its floodplains. The average SFHA premium discount is \$709.
- **King County, Washington** (Class 2) has preserved more than 100,000 acres of floodplain open space and receives additional CRS credit for maintaining it in a natural state. The average premium discount in the SFHA is \$722.
- **Pierce County, Washington** (Class 2) maintains over 80 miles of river levees. The County mails informational brochures to all floodplain residents each year. The average premium discount in the SFHA is \$846.
- **Fort Collins, Colorado** (Class 2) uses diverse approaches to keep its large student population informed. Identifying and protecting critical facilities and continually improving its GIS system help the city maintain its exemplary program. The average premium discount in the SFHA is \$703.
- **Sacramento County, California**, has steadily improved its rating since joining the CRS in 1992. Now a Class 2, the County's more significant activities are diligent public outreach on protecting waterways, purchasing flood insurance, and preparing for floods. The average premium discount in the SFHA is \$395.
- **Thurston County, Washington**, has a history of planning for hazard mitigation, watershed protection, and open space. Combining that with strict development standards and stormwater management has helped the County achieve Class 2. The average premium discount in the SFHA is \$577.

FEMA's mission is to support our citizens and first responders to ensure that as a nation we work together to build, sustain, and improve our capability to prepare for, protect against, respond to, recover from, and mitigate all hazards.

## Federal Insurance and Mitigation Administration

## Community Rating System

**CRS Credit**

A community accrues points to improve its CRS Class rating and receive increasingly higher discounts. Points are awarded for engaging in any of 19 creditable activities, organized under four categories:

- Public information
- Mapping and regulations
- Flood damage reduction
- Warning and response.

Formulas and adjustment factors are used to calculate credit points for each activity.

The communities listed below are among those that have qualified for the greatest premium discounts:

Class 1: Roseville, California

Class 2: Sacramento County, California  
Fort Collins, Colorado  
Tulsa, Oklahoma  
King County, Washington  
Pierce County, Washington  
Thurston County, Washington

Class 3: Louisville–Jefferson County, Kentucky  
Ocala, Florida

Class 4: Charlotte, North Carolina  
Palm Coast, Florida  
Charleston County, South Carolina  
Maricopa County, Arizona

**Benefits of the CRS**

Lower cost flood insurance rates are only one of the rewards a community receives from participating in the CRS. Other benefits include:

- Citizens and property owners in CRS communities have increased opportunities to learn about risk, evaluate their individual vulnerabilities, and take action to protect themselves, as well as their homes and businesses.
- CRS floodplain management activities provide enhanced public safety, reduced damage to property and public infrastructure, and avoidance of economic disruption and loss.
- Communities can evaluate the effectiveness of their flood programs against a nationally recognized benchmark.

- Technical assistance in designing and implementing some activities is available to community officials at no charge.
- CRS communities have incentives to maintain and improve their flood programs over time.

**How to Apply**

To apply for CRS participation, a community must initially inform the Federal Emergency Management Agency (FEMA) Regional Office of its interest in applying to the CRS and will eventually submit a CRS application, along with documentation that shows it is implementing the activities for which credit is requested. The application is submitted to the Insurance Services Office, Inc. (ISO)/CRS Specialist. ISO works on behalf of FEMA and insurance companies to review CRS applications, verify communities' credit points, and perform program improvement tasks.

A community's activities and performance are reviewed during a verification visit. FEMA establishes the credit to be granted and notifies the community, the State, insurance companies, and other appropriate parties.

Each year, the community must verify that it is continuing to perform the activities that are being credited by the CRS by submitting an annual recertification. In addition, a community can continue to improve its Class rating by undertaking new mitigation and floodplain management activities that earn even more points.

**CRS Training**

CRS Specialists are available to assist community officials in applying to the program and in designing, implementing, and documenting the activities that earn even greater premium discounts. A week-long CRS course for local officials is offered free at FEMA's Emergency Management Institute (EMI) on the National Emergency Training Center campus in Emmitsburg, Maryland, and can be field deployed in interested states. A series of webinars is offered throughout the year.

**For More Information**

A list of resources is available at the CRS website: [www.fema.gov/national-flood-insurance-program-community-rating-system](http://www.fema.gov/national-flood-insurance-program-community-rating-system). For more information about the CRS or to obtain the CRS application, contact the Insurance Services Office by phone at (317) 848-2898 or by e-mail at [nfipors@iso.com](mailto:nfipors@iso.com).

FEMA's mission is to support our citizens and first responders to ensure that as a nation we work together to build, sustain, and improve our capability to prepare for, protect against, respond to, recover from, and mitigate all hazards.

## Appendix C. SCORING POTENTIAL OF PARTICIPATION IN THE CRS PROGRAM

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CRS participation can have an array of potential impacts for local communities, such as A) a stronger floodplain management program and B) reduced flood insurance premiums for residents insuring structures in SFHAs.

If a municipality wants to improve a specific aspect of its existing floodplain management efforts, the CRS has 19 credited activities to guide those efforts and allocate credits for application and maintenance of CRS status. The following subsection on CRS activities provide an overview of likely sources of credit for the Town to meet the prerequisites and participate in the CRS program.

In addition to improving floodplain management, there can be savings to community members in flood insurance premiums. The following subsection on the flood insurance impact assessments for the Town at various CRS class ratings will help inform that potential impact.

### Improving Floodplain Management: Overview of CRS Activities

The following overview of CRS activities is based on the [2017 CRS Coordinator's Manual](#) (OMB No. 1660-0022) and the [2021 CRS Addendum](#), which is the current effective manual as of the preparation of this report. This section will describe the objective of each of the 19 activities.

#### **Activity 310—Elevation Certificates:**

*The objective of this activity is to maintain correct FEMA Elevation Certificates and other needed certifications for new and substantially improved buildings in the SFHA.*

Credit is provided if the community maintains FEMA Elevation Certificates for new and substantially improved construction. A CCMP is required for the full 38 points. To participate in the CRS program, a community must maintain completed FEMA Elevation Certificates on all buildings constructed, substantially improved, or constructed in the SFHA after its initial date of application to the CRS program with 90% accuracy. The community must agree to use the certificate and make copies available to any inquirer. All discussions about FEMA Elevation Certificates also apply to FEMA's flood-proofing certificate and the residential basement flood-proofing certificate.

**Maximum Points: 116**

**Performance Expectations:** FEMA Elevation Certificates are required for all new construction and/or substantial improvements within the floodplain from the date of application forward. FEMA Elevation Certificates must be reviewed for completeness and accuracy. Ninety percent of the obtained FEMA Elevation Certificates must be error-free for the Town to remain eligible for participation in the CRS program.

**Activity 320—Map Information Service:**

*The objective of this activity is to provide inquirers with information about local flood hazards and flood-prone areas.*

Credit is given for providing inquirers with information from the community's FIRM, including whether a property is in an SFHA, which zone, and the base flood elevation. Credit depends on publicizing this service and advising inquirers about the mandatory flood insurance purchase requirement.

**Maximum Points: 90**

**Performance Expectations:** The map information service must be advertised annually, and the municipality must keep a log and record of the service provided.

**Activity 330—Outreach Projects:**

*The objective of this activity is to provide the public with information needed to increase flood-hazard awareness and to motivate actions to reduce flood damage, encourage purchase of flood insurance, and protect the natural functions of floodplains.*

This activity credits public information projects that reach directly out to people, rather than a service to respond to inquiries. To receive credit under this activity, a community may participate in one or more of the following types of projects:

1. Design and carry out public outreach projects.
2. Create a pre-flood plan for public information activities to be ready for the next flood. A pre-flood plan is a collection of outreach projects prepared in advance, but not delivered, until a flood occurs.
3. Implement an ongoing public information effort to design and transmit the messages that the community determines are most important to its flood safety and the protection of its floodplains' natural functions. This plan is reviewed and updated annually.
4. Create outreach projects that are conducted or endorsed by stakeholder organizations.

**Maximum Points: 350**

**Performance Expectations:** Credited outreach projects must be disseminated at least annually to retain credit.

**Activity 340—Hazard Disclosure:**

*The objective of this activity is to disclose a property's potential flood hazard to prospective buyers before the lender notifies them of the need for flood insurance.*

Credit is provided if both potential sellers and real estate agents advise prospective property purchasers of the flood hazard. Other disclosure methods may also be credited.

**Maximum Points: 80**

**Performance Expectations:** The community has no annual performance requirements.

**Activity 350—Flood Protection Information:**

*The objective of this activity is to provide the public with information about flood protection that is more detailed than that provided through outreach projects.*

Credit is provided if the local library maintains documents about flood insurance, flood protection, floodplain management, and the natural and beneficial functions of floodplains. Additional credit is provided if similar information is available on the community's website.

**Maximum Points:** 125

**Performance Expectations:** Web links must be tested at least annually to verify that they are still active and contain the credited information.

### **Activity 360—Flood Protection Assistance:**

*The objective of this activity is to provide one-on-one, property-specific help to people who are interested in protecting their properties from flooding.*

Credit is granted if a community provides technical advice to interested property owners and publicizes the services available. This activity credits telling individuals what they can do to protect their own properties from flood damage.

**Maximum Points:** 110

**Performance Expectations:** The service must be advertised annually, and the municipality must keep a log and record of the assistance provided.

### **Activity 370—Flood Insurance Promotion:**

*The objective of this activity is to improve flood insurance coverage in the community.*

This activity provides credit for a three-step process that allows communities to assess their needs and receive credit for improving their coverage. The process consists of the following three steps:

**Step 1: Flood insurance coverage assessment (FIA).** This credit is provided for assessing the community's current level of coverage and identifying shortcomings.

**Step 2: Coverage improvement plan (CP).** The plan is prepared by a committee that has representation from local insurance agents.

**Step 3: Implementation of the coverage improvement plan (CPI).** The plan's projects are implemented.

**Maximum Points:** 220

**Performance Expectations:** The municipality must implement the recommendations of the insurance coverage improvement plan.

### **Activity 410—Flood Hazard Mapping:**

*The objective of this activity is to improve the quality of mapping used to identify and regulate floodplain development.*

This activity provides credit for developing regulatory maps and flood data for floodplain management purposes in areas where FEMA does not provide such data, or for mapping to a higher standard than that required by FEMA, as well as credit for regulating areas based on flood data not provided with the community's FIRM or for a flood study conducted to a higher standard than FEMA's Flood Insurance Study (FIS) criteria, such as sea level rise.

**Maximum Points: 802**

**Performance Expectations:** The community has no annual performance requirements.

### **Activity 420—Open Space Preservation:**

*The objectives of this activity are to:*

1. Prevent flood damage by keeping flood-prone lands free of development.
2. Protect and enhance the natural functions of floodplains.

Credit is given for areas in a regulated floodplain that are permanently preserved as open space. Additional credit is given for parcels of open space that are protected by deed restrictions or that have been preserved in or restored to their natural state. Credit is also given for measures that require or encourage less development in floodplains.

**Maximum Points: 2,870**

**Performance Expectations:** The community has no annual performance requirements unless there is a change to the regulations or zoning ordinances.

### **Activity 430—Higher Regulatory Standards:**

*The objective of this activity is to credit regulations to protect existing and future development and natural floodplain functions that exceed the minimum criteria of the NFIP.*

Under this activity, numerous higher regulatory approaches are credited that provide more protection to new development, redevelopment, and existing development. These include freeboard, foundation protection, more stringent building-improvement rules, protection of critical facilities, preservation of floodplain storage, protecting the natural and beneficial functions of floodplains, limiting building enclosures below the flood level, and mapping and regulating areas subject to special flood hazards. Additional measures proposed by a community will be evaluated and scored accordingly.

**Maximum Points: 2,042**

**Performance Expectations:** The municipality must maintain documentation of enforcement of credited standards to be provided with annual recertification.

### **Activity 440—Flood Data Maintenance:**

*The objective of this activity is to make community floodplain data more accessible, current, useful, and accurate so that the information contributes to the improvement of local regulations, insurance ratings, planning, disclosure, and property appraisals.*

Under this activity, credit is provided for putting FIRM flood boundary and floodway delineations on a digitized mapping system or implementing another method that allows for quick revision and reprinting of a floodplain map. Flood hazard data could also be maintained on computerized parcel records. This activity also includes credit for adding and/or maintaining elevation reference marks and overlaying the community's floodplain mapping (including the FIRM) on the zoning map, the assessor's map, or other maps used regularly by community staff.

**Maximum Points: 222**

**Performance Expectations:** The municipality must make sure that credited data are still available and being used.

**Activity 450—Stormwater Management:**

*The objective of this activity is to prevent future development from increasing flood hazards to existing development and to maintain and improve water quality.*

This activity credits the following approaches to regulating new development in the watershed:

- Regulating developments on a case-by-case basis to ensure that the peak flow of stormwater runoff from each site will be no greater than the runoff from the site before it was developed.
- Regulating developments according to a stormwater management master plan that analyzes the combined effects of existing and expected development on drainage through and out of the watershed.
- Regulating activities throughout the watershed to minimize erosion that results in sedimentation.
- Regulating the quality of stormwater runoff.

**Maximum Points:** 755

**Performance Expectations:** The municipality must maintain documentation of enforcement of credited standards.

**Activity 510—Floodplain Management Planning:**

*The objective of this activity is to credit the production of an overall strategy of programs, projects, and measures that will reduce the adverse impacts of the hazard on the community and help meet other community needs.*

This activity provides credit for preparing, adopting, implementing, evaluating, and updating a comprehensive floodplain management plan. FEMA also requires a multi-hazard mitigation plan as a prerequisite for mitigation funding. The CRS program and FEMA do not specify what activities a plan must recommend, but they only recognize plans that have been prepared according to the standard planning process explained in FEMA regulations and Section 511 of the CRS Coordinator’s Manual. Additional credit can be earned for development of a substantial damage response plan that provides the community a procedure for inspections of possible substantially damaged structures and permitting to remain NFIP compliant.

**Maximum Points:** 762

**Performance Expectations:** Annual progress reports for credited floodplain management plans and repetitive loss area analyses must be prepared and submitted with annual recertification.

**Activity 520—Acquisition and Relocation:**

*The objective of this activity is to encourage communities to acquire, relocate, or otherwise clear existing buildings out of the SFHA*

This activity credits either acquisition or relocation of an insurable building from the path of flooding, as long as the community can document that the property will stay vacant. The credit is based on the number of buildings cleared as a portion of the total number of buildings in the community’s SFHA. The credit is provided only if the site qualifies for credit under Activity 420 (Open Space Preservation).

**Maximum Points:** 2,250

**Performance Expectations:** The community has no annual performance requirements.

**Activity 530—Flood Protection:**

*The objective of this activity is to protect buildings from flood damage by:*

1. *Retrofitting the buildings so that they suffer no or minimal damage when flooded.*
2. *Constructing small flood control projects that reduce the risk of floodwaters reaching the buildings.*

This credit is based on the number of insurable buildings in the regulatory floodplain that have been retrofitted since the date of the community's original FIRM. For the purposes of this activity, accessory structures such as garages or sheds are not counted as insurable buildings. Extra credit is given for protecting buildings on FEMA's repetitive loss list (see Section 501 of the CRS Coordinator's Manual) and critical facilities.

**Maximum Points:** 1,600

**Performance Expectations:** The community has no annual performance requirements.

#### **Activity 540—Drainage System Maintenance:**

*The objective of this activity is to ensure that the community keeps its natural streams, channels and storage basins clear of debris so that their flood-carrying and storage capacity are maintained.*

Credit is provided for keeping the channels and storage basins (detention or retention) of a community's drainage system clear of debris to maintain their carrying and storage capacity during flood events, and to protect water quality. A community can receive credit for the following drainage system maintenance activities:

- Inspecting and maintaining channels
- Monitoring problem sites
- Having a capital improvement program that benefits the drainage system
- Implementing and publicizing "no dumping" regulations
- Inspecting and maintaining storage basins
- Maintaining coastal (shoreline) erosion protection measures, if applicable

**Maximum Points:** 570

**Performance Expectations:**

The municipality must maintain documentation of enforcement of credited standards.

Annual logs and records must be maintained to document the performance of the credited activity.

#### **Activity 610—Flood Warning and Response:**

*The objective of this activity is to encourage communities to ensure timely identification of impending flood threats, disseminate warnings to appropriate floodplain occupants, and coordinate flood response activities to reduce the threat to life and property.*

Credit is provided for a community that, at a minimum, has adopted a flood warning and response program that includes:

- A flood threat recognition system that identifies an impending flood
- Methods to warn the public of the impending flood
- A plan for flood response operations
- Coordination with critical facility operators

**Maximum Points:** 395

**Performance Expectations:** The municipality must perform an annual flood exercise of the credited emergency plan.



**Activity 620—Levees:**

*The objective of this activity is to encourage communities to properly inspect and maintain levees and to identify impending levee failures in a timely manner, disseminate warnings to appropriate floodplain occupants, and coordinate emergency response activities to reduce the threat to life and property.*

This activity provides credit to communities protected by levees that are properly maintained and operated but are not high enough to meet the criteria for base flood levees. A community may also receive credit for a levee that protects to the base flood elevation or above if the levee is not reflected on the community's FIRM. No credit is offered under this activity if the area protected by the levee is designated as an AO, A99, AR, B, C, or X zone; or an AE or A-numbered zone with the base flood elevation lower than the level on the water side of the levee.

**Maximum Points:** 235

**Performance Expectations:** The municipality must perform an annual flood exercise of the credited emergency plan.

**Activity 630—Dams:**

*The objectives of this activity are to:*

- 1. Encourage states to provide dam safety information to communities.*
- 2. Encourage communities, in turn, to provide timely identification of an impending dam failure, disseminate warnings to those who may be affected, and coordinate emergency response activities to reduce the threat to life and property.*

Credit is provided for a community program that mitigates the threat to its floodplain properties from a failure of an upstream dam through emergency preparedness.

**Maximum Points:** 160

**Performance Expectations:** The municipality must perform an annual flood exercise of the credited emergency plan.

## Appendix D. RESOURCES

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**ASFPM No Adverse Impact Toolkit**

**FEMA Best Practices**

**FEMA 480 Floodplain Management Study Guide for Local Officials**

**CFM Guidance**

# Appendix E. TOOLKIT

This section provides Tools, Guidance, and Resources to inform the activities noted within this document to establish a sound community floodplain management program.

|  |                                     |
|--|-------------------------------------|
| <a href="#">Model Ordinances</a> .....                     | <b>Error! Bookmark not defined.</b> |
| <a href="#">Sample Administrative Procedure</a> .....      | <b>Error! Bookmark not defined.</b> |
| <a href="#">Elevation Certificate Checklist</a> .....      | <b>Error! Bookmark not defined.</b> |
| <a href="#">CRS Higher Regulatory Standards</a> .....      | <b>Error! Bookmark not defined.</b> |
| <a href="#">Sample Floodplain Development Permit</a> ..... | <b>Error! Bookmark not defined.</b> |
| <a href="#">BCEGS Guidance</a> .....                       | <b>Error! Bookmark not defined.</b> |
| <a href="#">CRS Outreach Guide</a> .....                   | <b>Error! Bookmark not defined.</b> |
| <a href="#">CRS Activity 610 Guide</a> .....               | <b>Error! Bookmark not defined.</b> |
| <a href="#">Record Keeping Guidance</a> .....              | <b>Error! Bookmark not defined.</b> |
| <a href="#">Additional Resources</a> .....                 | <b>Error! Bookmark not defined.</b> |
| <a href="#">Key Contacts:</a> .....                        | <b>Error! Bookmark not defined.</b> |
| <a href="#">Available Resources:</a> .....                 | <b>Error! Bookmark not defined.</b> |
| <a href="#">Training Programs:</a> .....                   | <b>Error! Bookmark not defined.</b> |
| <a href="#">Guidance, Best Practices, Toolkit</a> .....    | <b>Error! Bookmark not defined.</b> |

## Model Ordinances

To request the Model Flood Damage Prevention Law appropriate for your community, please email the [DEC Floodplain Management Section](#) or call 518-402-8185.

**Sample Administrative Procedure**

|   |   |                                     |  |
|---|---|-------------------------------------|--|
| <b><u>SAMPLE</u></b>                                |   | <b>ADMINISTRATIVE<br/>PROCEDURE</b> |  |
| <b>TITLE:</b> Development Review Within Floodplains |   | <b>SUBJECT:</b> Floodplains         |  |
| <b>LAST UPDATE:</b>                                 | <b>PAGES:</b>   | <b>PREPARER:</b>                    |  |
| Purpose   | <p>To establish an administrative procedure for reviewing development proposals and issuing permits for activities that are proposed within floodplains. This procedure will accomplish the following:</p> <ul style="list-style-type: none"> <li>• Link the City’s electronic permit tracking system to the City’s Geographic Information System that includes floodplain maps.</li> <li>• Ensure that permit applications received for projects within floodplains are immediately flagged and routed to appropriate personnel for review.</li> <li>• Establish a mechanism for ensuring that appropriate conditions can be attached to issued permits.</li> <li>• Establish a mechanism for tracking development activity within floodplains.</li> </ul>   |                                     |  |
| Linking Permit Tracking Software with GIS           | <ul style="list-style-type: none"> <li>• The City’s Information Services Department is responsible for maintaining the City’s GIS. Mapped GIS layers have been developed for all parcels and delineated floodplains. The parcel layer is a polygon GIS layer that contains parcel information such as address, tax parcel numbers, size, and ownership.</li> <li>• The City’s permit tracking software is a tabular based database that utilizes tax parcel numbers as the unique identifier for each property.</li> <li>• The City’s Information Services Department has run a GIS spatial query that identifies all parcels that are fully or partially located within a floodplain. All parcels that were identified through this query were then flagged with a “development restriction note” in the City’s permit tracking system.</li> </ul> |                                     |  |

|   |  |
|---|--|
| <p>Submittal of Permit Applications</p> | <ol style="list-style-type: none"> <li>1. The City’s permit tracking system defines two types of development activities – permits and projects. Examples of permits include building permits, grading permits, and utility permits. Generally speaking, permits authorize construction and/or land disturbing activities. Examples of projects include subdivisions, extensions of public infrastructure, conditional use permits, and site plan review. Projects do not authorize construction but they do enable a landowner to seek permit approval to develop their land.</li> <li>2. The first step in the application review process for all permits and projects is to submit the application to the City’s Permit Center. The Permit Technician who receipts the application will perform the following functions:             <ol style="list-style-type: none"> <li>a. Query the City’s permit tracking database for the applicable County Tax Assessor Parcel Number.</li> <li>b. For parcels that are located within a floodplain, the permit tracking software displays a “development restriction note” that notifies the Permit Technician that the subject property is located within a floodplain.</li> <li>c. The Permit Technician assigns a development review assignment to the City’s Floodplain Administrator.</li> </ol> </li> </ol> <p>APRIL 4, 2012 NOTE: IN JUNE 2012 THE CITY’S PERMIT TRACKING SOFTWARE WILL BE UPGRADED TO A NEWER VERSION. THE NEWER VERSION WILL AUTOMATE THE ABOVE ROUTINE BY AUTOMATICALLY ASSIGNING REVIEW ASSIGNMENTS TO THE FLOODPLAIN ADMINSTRATOR. THIS ACTION WILL ELIMINATE THE POTENTIAL FOR HUMAN ERROR WHERE A PERMIT TECHNICIAN FAILS TO MANUALLY ASSIGN THE DEVELOPMENT REVIEW ASSIGNMENTS.</p>  |
| <p>Development</p>                      | <ol style="list-style-type: none"> <li>1. It is at this stage that the City’s Floodplain Administrator applies the City’s Floodplain Development</li> </ol>  |
| <p>Review</p>                           | <p>Regulations.</p> <ol style="list-style-type: none"> <li>2. After review of the proposal is complete, the Floodplain Administrator will document their review by entering their findings, conclusions and conditions in the City’s Permit Tracking System.</li> <li>3. When a plan reviewer has comments or conditions, the Permit Technician provides them as part of permit issuance. This includes all standards specified under AMC, Chapter 15.68 as currently adopted by the City of Auburn. It is at this point that the applicant will be notified if the development proposal requires preparation and submittal of an elevation certificate (EC).</li> <li>4. Upon receipt of an EC the Permit Technician will route it to the Floodplain Administrator and Building Official for review. The Floodplain Administrator and Building Official may utilize the City’s on staff Registered Land Surveyor as a resource to assist in the review of the EC. Upon final determination that the EC is acceptable the Permit Center will be notified that the permit or project is approved and ready for issuance. For this step, acceptable is defined as completion is sufficient to document full building compliance with AMC, chapter 15.68 as well as Community Rating System established criteria for EC maintenance.</li> <li>5. When the permit is issued the applicant is provided with a “job site copy” of all plans and conditions. The job site copy will include a copy of the EC. The job site copy must remain on site throughout the duration of the project so that building and construction inspectors may consult them while in the field. Additionally, the City maintains a “city copy” of the plans which is a duplicate of the job site copy. Inspectors will consult the city copy and the job site copy in order to ensure that all plans and conditions are followed in accordance with permit approvals.</li> </ol> |
| <p>Construction</p>                     | <ol style="list-style-type: none"> <li>1. The City’s Building Inspector is responsible for ensuring that structures under construction</li> </ol>  |



|                                  |  |
|----------------------------------|--|
| Monitoring                       | <p>are built in compliance with the conditions of the permit and EC requirements for a permit or project. For commercial construction projects that require grading, the City's Construction Inspector will be responsible for ensuring that grading activities comply with conditions of the permit and the EC requirements.</p> <p>2. When the City receives a requests for footing and/or foundation inspections, the City will inform the developer that they will need to submit a certification from a Registered Surveyor that the floor elevation meets the requirements of AMC, section 15.68.170. The City will not final the building or provide a Certificate of Occupancy until this certification has been provided to the City and reviewed and approved by the Floodplain Administrator.</p>   |
| Tracking of Development Activity | <p>All permits and projects are logged into the City's permit tracking software system. Because all permits and projects are linked to the unique tax identification parcel number it is easy to perform periodic query's to help detail and/or summarize all development activity that has occurred within mapped floodplains.</p>  |
| Training                         | <p>The City will ensure that adequate training is provided to the Floodplain Administrator, the Building Official, Building Plan Reviewers, and Building and Constructing inspections. The Floodplain Administrator, Building Official and Building Plan Reviewers will be trained in the review and interpretation of Elevation Certificates. The Building and Construction Inspectors will receive internal training to ensure that they know which permits and projects are subject to EC requirements and floodplain permit/project conditions, that they know the construction milestones in which they need to inform the developer to provide certification that development is occurring in conformance with the EC, and to know that a permit or project cannot be filed or a Certificate of Occupancy issued until the Floodplain Administrator has determined that construction complies with the EC and floodplain conditions.</p> |

# Elevation Certificate Checklist

U.S. DEPARTMENT OF HOMELAND SECURITY  
Federal Emergency Management Agency  
National Flood Insurance Program

## CRS EC Checklist

OMB No. 1660-0008  
Expiration Date: November 30, 2022

### ELEVATION CERTIFICATE

Important: Follow the instructions on pages 1-9.

Copy all pages of this Elevation Certificate and all attachments for (1) community official, (2) insurance agent/company, and (3) building owner.

| SECTION A – PROPERTY INFORMATION   |            |                     |  | FOR INSURANCE COMPANY USE |   |
|--|------------|---------------------|--|---------------------------|---|
| A1. Building Owner's Name  |            |                     |  | Policy Number:            |   |
| A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. <b>Either A2 or A3 must be completed, with City, State and Zip</b>   |            |                     |  | Company NAIC Number:      |   |
| City   |            | State               |  | ZIP Code                  |   |
| A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.)<br><b>Either A2 or A3 must be completed, with City, State and Zip</b>   |            |                     |  |                           |   |
| A4. Building Use (e.g., Residential, Non-Residential, Addition, Accessory, etc.) <b>Mandatory field on forms signed 2-21-2020 and after</b>  |            |                     |  |                           |   |
| A5. Latitude/Longitude: Lat. _____ Long. _____ Horizontal Datum: <input type="checkbox"/> NAD 1927 <input type="checkbox"/> NAD 1983   |            |                     |  |                           |   |
| A6. Attach at least 2 photographs of the building if the Certificate is being used to obtain flood insurance.  |            |                     |  |                           |   |
| A7. Building Diagram Number <b>Must be: 1A, 1B, 2A, 2B, 3, 4, 5, 6, 7, 8, 9</b>  |            |                     |  |                           |   |
| A8. For a building with a crawlspace or enclosure(s): Enter "NA" in fields that are not applicable. Blank fields are assumed to be "NA".   |            |                     |  |                           |   |
| a) Square footage of crawlspace or enclosure(s) _____ sq ft  |            |                     |  |                           |   |
| b) Number of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade _____   |            |                     |  |                           |   |
| c) Total net area of flood openings in A8.b _____ sq in actual opening size here, engineered size in D, Comments   |            |                     |  |                           |   |
| d) Engineered flood openings? <input type="checkbox"/> Yes <input type="checkbox"/> No <b>If marked "Yes", must attach certification from engineer or ICC-ES</b>   |            |                     |  |                           |   |
| A9. For a building with an attached garage: Enter "NA" in fields that are not applicable. Blank fields are assumed to be "NA".   |            |                     |  |                           |   |
| a) Square footage of attached garage _____ sq ft   |            |                     |  |                           |   |
| b) Number of permanent flood openings in the attached garage within 1.0 foot above adjacent grade _____  |            |                     |  |                           |   |
| c) Total net area of flood openings in A9.b _____ sq in actual opening size here, engineered size in D, Comments   |            |                     |  |                           |   |
| d) Engineered flood openings? <input type="checkbox"/> Yes <input type="checkbox"/> No <b>If marked "Yes", must attach certification from engineer or ICC-ES</b>   |            |                     |  |                           |   |
| SECTION B – FLOOD INSURANCE RATE MAP (FIRM) INFORMATION  |            |                     |  |                           |   |
| B1. NFIP Community Name & Community Number<br><b>Correct # or Correct Name &amp; Correct #</b>   |            |                     | B2. County Name                        |                           | B3. State   |
| B4. Map/Panel Number   | B5. Suffix | B6. FIRM Index Date | B7. FIRM Panel Effective/ Revised Date | B8. Flood Zone(s)         | B9. Base Flood Elevation(s) (Zone AO, use Base Flood Depth) |
| B10. Indicate the source of the Base Flood Elevation (BFE) data or base flood depth entered in Item B9:<br><input type="checkbox"/> FIS Profile <input type="checkbox"/> FIRM <input type="checkbox"/> Community Determined <input type="checkbox"/> Other/Source: _____ |            |                     |  |                           |   |
| B11. Indicate elevation datum used for BFE in Item B9: <input type="checkbox"/> NGVD 1929 <input type="checkbox"/> NAVD 1988 <input type="checkbox"/> Other/Source: _____  |            |                     |  |                           |   |
| B12. Is the building located in a Coastal Barrier Resources System (CBRS) area or Otherwise Protected Area (OPA)? <input type="checkbox"/> Yes <input type="checkbox"/> No<br>Designation Date: _____ <input type="checkbox"/> CBRS <input type="checkbox"/> OPA         |            |                     |  |                           |   |





**ELEVATION CERTIFICATE**

OMB No. 1650-0008  
Expiration Date: November 30, 2022

|   |   |       |                                  |                     |
|---|---|-------|----------------------------------|---------------------|
| <b>IMPORTANT: In these spaces, copy the corresponding information from Section A.</b>             |   |       | <b>FOR INSURANCE COMPANY USE</b> |                     |
| Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. |   |       | Policy Number                    |                     |
| City  | (Must match page 1 and all other pages) | State | ZIP Code                         | Company NAIC Number |

**SECTION C – BUILDING ELEVATION INFORMATION (SURVEY REQUIRED)**

**C1. Building elevations are based on:**  Construction Drawings\*  Building Under Construction\*  Finished Construction  
 \*A new Elevation Certificate will be required when construction of the building is complete. **Only submit Fr. Const. ECs**

**C2. Elevations – Zones A1–A30, AE, AH, A (with BFE), VE, V1–V30, V (with BFE), AR, AR/A, AR/AE, AR/A1–AR/A30, AR/AH, AR/AU.**  
 Complete items C2.a–h below according to the building diagram specified in item A7. In Puerto Rico only, enter meters.  
 Benchmark Utilized: \_\_\_\_\_ Vertical Datum: \_\_\_\_\_  
 Indicate elevation datum used for the elevations in items a) through h) below.  
 NGVD 1929  NAVD 1988  Other Source: \_\_\_\_\_  
 Datum used for building elevations must be the same as that used for the BFE.  
 Items a), f) and g) must always have a value. If items b) – e) are not applicable, enter "N/A". Check the measurement used.

|  |       |   |
|--|-------|---|
| a) Top of bottom floor (including basement, crawlspace, or enclosure floor)  | _____ | <input type="checkbox"/> feet <input type="checkbox"/> meters |
| b) Top of the next higher floor  | _____ | <input type="checkbox"/> feet <input type="checkbox"/> meters |
| c) Bottom of the lowest horizontal structural member (V Zones only) <b>May be filled out for other zones</b>               | _____ | <input type="checkbox"/> feet <input type="checkbox"/> meters |
| d) Attached garage (top of slab)   | _____ | <input type="checkbox"/> feet <input type="checkbox"/> meters |
| e) Lowest elevation of machinery or equipment servicing the building (Describe type of equipment and location in Comments) | _____ | <input type="checkbox"/> feet <input type="checkbox"/> meters |
| f) Lowest adjacent (finished) grade next to building (LAG)   | _____ | <input type="checkbox"/> feet <input type="checkbox"/> meters |
| g) Highest adjacent (finished) grade next to building (HAG)  | _____ | <input type="checkbox"/> feet <input type="checkbox"/> meters |
| h) Lowest adjacent grade at lowest elevation of deck or stairs, including structural support                               | _____ | <input type="checkbox"/> feet <input type="checkbox"/> meters |

**SECTION D – SURVEYOR, ENGINEER, OR ARCHITECT CERTIFICATION**

This certification is to be signed and sealed by a land surveyor, engineer, or architect authorized by law to certify elevation information. I certify that the information on this Certificate represents my best efforts to interpret the data available. I understand that any false statement may be punishable by fine or imprisonment under 18 U.S. Code, Section 1001.  
 Were latitude and longitude in Section A provided by a licensed land surveyor?  Yes  No  Check here if attachments.

|                  |   |                 |
|------------------|---|-----------------|
| Certifier's Name | License Number                                  | Place Seal Here |
| Title            |   |                 |
| Company Name     | All 4 highlighted items must be in this Section |                 |
| Address          |   |                 |
| City             | State ZIP Code                                  |                 |
| Signature        | Date  | Telephone Ext.  |

Copy all pages of this Elevation Certificate and all attachments for (1) community official, (2) insurance agent/company, and (3) building owner.

Comments (Including type of equipment and location, per C2(e), if applicable)  
 Use this space to describe type of equipment in C2e and location, engineered flood openings if present, datum conversions if needed, and other relevant information not specified elsewhere on the certificate.



|  |       |           |   |
|--|-------|-----------|---|
| <b>ELEVATION CERTIFICATE</b>   |       |           | OMB No. 1660-0008<br>Expiration Date: November 30, 2022   |
| IMPORTANT: In these spaces, copy the corresponding information from Section A.   |       |           | FOR INSURANCE COMPANY USE   |
| Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No.  |       |           | Policy Number.  |
| City   | State | ZIP Code  | Company NAIC Number   |
| <b>SECTION E – BUILDING ELEVATION INFORMATION (SURVEY NOT REQUIRED)<br/>FOR ZONE AO AND ZONE A (WITHOUT BFE)</b>   |       |           |   |
| For Zones AO and A (without BFE), complete items E1–E5. If the Certificate is intended to support a LOMA or LOMR-F request, complete Sections A, B and C. For items E1–E4, use natural grade, if available. Check the measurement used. In Puerto Rico only, enter meters.   |       |           |   |
| E1. Provide elevation information for the following and check the appropriate boxes to show whether the elevation is above or below the highest adjacent grade (HAG) and the lowest adjacent grade (LAG).  |       |           |   |
| a) Top of bottom floor (including basement, crawlspace, or enclosure) is   |       | _____     | <input type="checkbox"/> feet <input type="checkbox"/> meters <input type="checkbox"/> above or <input type="checkbox"/> below the HAG. |
| b) Top of bottom floor (including basement, crawlspace, or enclosure) is   |       | _____     | <input type="checkbox"/> feet <input type="checkbox"/> meters <input type="checkbox"/> above or <input type="checkbox"/> below the LAG. |
| E2. For Building Diagrams 5–9 with permanent flood openings provided in Section A, items 5 and/or 9 (see pages 1–2 of instructions), the next higher floor (elevation G2.b in the diagrams) of the building is   |       |           |   |
|  |       | _____     | <input type="checkbox"/> feet <input type="checkbox"/> meters <input type="checkbox"/> above or <input type="checkbox"/> below the HAG. |
| E3. Attached garage (top of slab) is   |       |           |   |
|  |       | _____     | <input type="checkbox"/> feet <input type="checkbox"/> meters <input type="checkbox"/> above or <input type="checkbox"/> below the HAG. |
| E4. Top of platform of machinery and/or equipment servicing the building is  |       |           |   |
|  |       | _____     | <input type="checkbox"/> feet <input type="checkbox"/> meters <input type="checkbox"/> above or <input type="checkbox"/> below the HAG. |
| E5. Zone AO only: If no flood depth number is available, is the top of the bottom floor elevated in accordance with the community's floodplain management ordinance? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown. The local official must certify this information in Section G. |       |           |   |
| <b>SECTION F – PROPERTY OWNER (OR OWNER'S REPRESENTATIVE) CERTIFICATION</b>  |       |           |   |
| The property owner or owner's authorized representative who completes Sections A, B, and E for Zone A (without a FEMA-issued or community-issued BFE) or Zone AO must sign here. The statements in Sections A, B, and E are correct to the best of my knowledge.   |       |           |   |
| Property Owner or Owner's Authorized Representative's Name <span style="color: red;">Complete Section F if there is no BFE and Section E is used</span>  |       |           |   |
| Address  | City  | State     | ZIP Code  |
| Signature  | Date  | Telephone |   |
| Comments   |       |           |   |
| <input type="checkbox"/> Check here if attachments.  |       |           |   |




| ELEVATION CERTIFICATE   |                        | OMB No. 1660-0008<br>Expiration Date: November 30, 2022 |
|---|------------------------|---|
| <b>IMPORTANT:</b> In these spaces, copy the corresponding information from Section A.   |                        | <b>FOR INSURANCE COMPANY USE</b>                        |
| Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No.   |                        | Policy Number:  |
| City  | State                  | ZIP Code  |
| <span style="border: 1px solid red; padding: 2px;">Must match page 1 and all other pages</span>   |                        | Company NAIC Number                                     |
| SECTION G – COMMUNITY INFORMATION (OPTIONAL)  |                        |   |
| <p>The local official who is authorized by law or ordinance to administer the community's floodplain management ordinance can complete Sections A, B, C (or E), and G of this Elevation Certificate. Complete the applicable item(s) and sign below. Check the measurement used in items G8–G10. In Puerto Rico only, enter meters.</p> |                        |   |
| <p>G1. <input type="checkbox"/> The information in Section C was taken from other documentation that has been signed and sealed by a licensed surveyor, engineer, or architect who is authorized by law to certify elevation information. (Indicate the source and date of the elevation data in the Comments area below.)</p>          |                        |   |
| <p>G2. <input type="checkbox"/> A community official completed Section E for a building located in Zone A (without a FEMA-issued or community-issued BFE) or Zone AO.</p>   |                        |   |
| <p>G3. <input type="checkbox"/> The following information (items G4–G10) is provided for community floodplain management purposes.</p>  |                        |   |
| G4. Permit Number   | G5. Date Permit issued | G6. Date Certificate of Compliance/Occupancy issued     |
| <p>G7. This permit has been issued for:    <input type="checkbox"/> New Construction    <input type="checkbox"/> Substantial Improvement</p>  |                        |   |
| <p>G8. Elevation of as-built lowest floor (including basement) of the building: _____ <input type="checkbox"/> feet <input type="checkbox"/> meters Datum _____</p>   |                        |   |
| <p>G9. BFE or (in Zone AO) depth of flooding at the building site: _____ <input type="checkbox"/> feet <input type="checkbox"/> meters Datum _____</p>  |                        |   |
| <p>G10. Community's design flood elevation: _____ <input type="checkbox"/> feet <input type="checkbox"/> meters Datum _____</p>   |                        |   |
| Local Official's Name   |                        | Title   |
| Complete and sign if G1, G2, G8 or G9 are checked   |                        |   |
| Community Name  |                        | Telephone   |
| Signature   |                        | Date  |
| <p>Comments (including type of equipment and location, per C2(e), if applicable)</p> <p style="text-align: center; color: red;">The local floodplain manager can use this section to add any additional notes or to make corrections to the form.</p>   |                        |   |
| <input type="checkbox"/> Check here if attachments.   |                        |   |



## CRS Higher Regulatory Standards

Access this document here: <https://crsguide.withforerunner.com/430-higher-regulatory-standards>

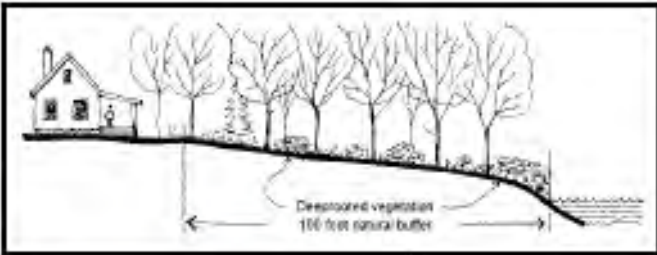


# FEMA



September 2002

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## CRS CREDIT FOR HIGHER REGULATORY STANDARDS



Destroyed vegetation  
100-foot natural buffer



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**National Flood Insurance Program  
Community Rating System**

### Sample Floodplain Development Permit

|   |   |                                     |  |
|---|---|-------------------------------------|--|
| <b><u>Sample</u></b>                                |   | <b>ADMINISTRATIVE<br/>PROCEDURE</b> |  |
| <b>TITLE:</b> Development Review Within Floodplains |   | <b>SUBJECT:</b> Floodplains         |  |
| <b>LAST UPDATE:</b>                                 | <b>PAGES:</b>   | <b>PREPARER:</b>                    |  |
| Purpose   | <p>To establish an administrative procedure for reviewing development proposals and issuing permits for activities that are proposed within floodplains. This procedure will accomplish the following:</p> <ul style="list-style-type: none"> <li>• Link the City’s electronic permit tracking system to the City’s Geographic Information System that includes floodplain maps.</li> <li>• Ensure that permit applications received for projects within floodplains are immediately flagged and routed to appropriate personnel for review.</li> <li>• Establish a mechanism for ensuring that appropriate conditions can be attached to issued permits.</li> <li>• Establish a mechanism for tracking development activity within floodplains.</li> </ul>   |                                     |  |
| Linking Permit Tracking Software with GIS           | <ul style="list-style-type: none"> <li>• The City’s Information Services Department is responsible for maintaining the City’s GIS. Mapped GIS layers have been developed for all parcels and delineated floodplains. The parcel layer is a polygon GIS layer that contains parcel information such as address, tax parcel numbers, size, and ownership.</li> <li>• The City’s permit tracking software is a tabular based database that utilizes tax parcel numbers as the unique identifier for each property.</li> <li>• The City’s Information Services Department has run a GIS spatial query that identifies all parcels that are fully or partially located within a floodplain. All parcels that were identified through this query were then flagged with a “development restriction note” in the City’s permit tracking system.</li> </ul>   |                                     |  |
| Submittal of Permit Applications                    | <ol style="list-style-type: none"> <li>1. The City’s permit tracking system defines two types of development activities – permits and projects. Examples of permits include building permits, grading permits, and utility permits. Generally speaking, permits authorize construction and/or land disturbing activities. Examples of projects include subdivisions, extensions of public infrastructure, conditional use permits, and site plan review. Projects do not authorize construction but they do enable a landowner to seek permit approval to develop their land.</li> <li>2. The first step in the application review process for all permits and projects is to submit the application to the City’s Permit Center. The Permit Technician who receipts the application will perform the following functions:             <ol style="list-style-type: none"> <li>a. Query the City’s permit tracking database for the applicable County Tax Assessor Parcel Number.</li> </ol> </li> </ol> |                                     |  |

|                                       |  |
|---------------------------------------|--|
|                                       | <ul style="list-style-type: none"> <li>b. For parcels that are located within a floodplain, the permit tracking software displays a “development restriction note” that notifies the Permit Technician that the subject property is located within a floodplain.</li> <li>c. The Permit Technician assigns a development review assignment to the City’s Floodplain Administrator.</li> </ul> <p>APRIL 4, 2012 NOTE: IN JUNE 2012 THE CITY’S PERMIT TRACKING SOFTWARE WILL BE UPGRADED TO A NEWER VERSION. THE NEWER VERSION WILL AUTOMATE THE ABOVE ROUTINE BY AUTOMATICALLY ASSIGNING REVIEW ASSIGNMENTS TO THE FLOODPLAIN ADMINSTRATOR. THIS ACTION WILL ELIMINATE THE POTENTIAL FOR HUMAN ERROR WHERE A PERMIT TECHNICIAN FAILS TO MANUALLY ASSIGN THE DEVELOPMENT REVIEW ASSIGNMENTS.</p>   |
| <p>Development Review</p>             | <ol style="list-style-type: none"> <li>1. It is at this stage that the City’s Floodplain Administrator applies the City’s Floodplain Development Regulations.</li> <li>2. After review of the proposal is complete, the Floodplain Administrator will document their review by entering their findings, conclusions and conditions in the City’s Permit Tracking System.</li> <li>3. When a plan reviewer has comments or conditions, the Permit Technician provides them as part of permit issuance. This includes all standards specified under AMC, Chapter 15.68 as currently adopted by the City of Auburn. It is at this point that the applicant will be notified if the development proposal requires preparation and submittal of an elevation certificate (EC).</li> <li>4. Upon receipt of an EC the Permit Technician will route it to the Floodplain Administrator and Building Official for review. The Floodplain Administrator and Building Official may utilize the City’s on staff Registered Land Surveyor as a resource to assist in the review of the EC. Upon final determination that the EC is acceptable the Permit Center will be notified that the permit or project is approved and ready for issuance. For this step, acceptable is defined as completion is sufficient to document full building compliance with AMC, chapter 15.68 as well as Community Rating System established criteria for EC maintenance.</li> <li>5. When the permit is issued the applicant is provided with a “job site copy” of all plans and conditions. The job site copy will include a copy of the EC. The job site copy must remain on site throughout the duration of the project so that building and construction inspectors may consult them while in the field. Additionally, the City maintains a “city copy” of the plans which is a duplicate of the job site copy. Inspectors will consult the city copy and the job site copy in order to ensure that all plans and conditions are followed in accordance with permit approvals.</li> </ol> |
| <p><b>Construction Monitoring</b></p> | <ol style="list-style-type: none"> <li>1. The City’s Building Inspector is responsible for ensuring that structures under construction are built in compliance with the conditions of the permit and EC requirements for a permit or project. For commercial construction projects that require grading, the City’s Construction Inspector will be responsible for ensuring that grading activities comply with conditions of the permit and the EC requirements.</li> <li>2. When the City receives a requests for footing and/or foundation inspections, the City will inform the developer that they will need to submit a certification from a Registered Surveyor that the floor elevation meets the requirements of AMC, section 15.68.170. The City will not final the building or provide a Certificate of Occupancy until this certification has been provided to the City and reviewed and approved by the Floodplain Administrator.</li> </ol>  |

|   |  |
|---|--|
| <p>Tracking of Development Activity</p> | <p>All permits and projects are logged into the City’s permit tracking software system. Because all permits and projects are linked to the unique tax identification parcel number it is easy to perform periodic query’s to help detail and/or summarize all development activity that has occurred within mapped floodplains.</p>  |
| <p><b>Training</b></p>                  | <p>The City will ensure that adequate training is provided to the Floodplain Administrator, the Building Official, Building Plan Reviewers, and Building and Constructing inspections. The Floodplain Administrator, Building Official and Building Plan Reviewers will be trained in the review and interpretation of Elevation Certificates. The Building and Construction Inspectors will receive internal training to ensure that they know which permits and projects are subject to EC requirements and floodplain permit/project conditions, that they know the construction milestones in which they need to inform the developer to provide certification that development is occurring in conformance with the EC, and to know that a permit or project cannot be filed or a Certificate of Occupancy issued until the Floodplain Administrator has determined that construction complies with the EC and floodplain conditions.</p> |

## BCEGS Guidance

Information regarding the Building Code Effectiveness Grading Schedule may be found here: <https://www.isomitigation.com/bcegs/>.

### BCEGS Classifications and Survey Process

Several factors are considered in every BCEGS classification. The table below lists key areas of focus but is not all-inclusive:

| Administration of Building Codes           | Plan Review                                | Field Inspection                          |
|--|--|---|
| Adopted building code                      | Plan review staffing                       | Inspection staffing                       |
| Adopted sub-codes                          | Experience of plan review personnel        | Experience of inspection personnel        |
| State and local code amendments            | Detail of plan review                      | Management of inspection activity         |
| Method of code adoption                    | Management of plan review activity         | Inspection checklists                     |
| Natural hazards impacting the jurisdiction | Natural hazards impacting the jurisdiction | Special inspections                       |
| Staff training and education               | Staff training and education               | Inspections for natural hazard mitigation |
| Certification of staff                     | Certification of staff                     | Final inspections                         |
| Qualification of the building official     | Qualification of the building official     | Certificates of occupancy                 |
| Use of design professionals                | Use of design professionals                |   |
| Zoning and land-use provisions             |  |   |
| Contractor licensing programs              |  |   |
| Public awareness programs                  |  |   |
| Appeals process                            |  |   |
| Administrative policies and procedures     |  |   |
| Quality assurance programs                 |  |   |

The values are calculated based on the terms of our BCEGS schedule to determine a score on a 0-to-100-point scale for both commercial buildings and one- and two-family residential dwellings (as shown in the table below).

Each community’s score is converted to a 1-to-10 classification: One classification for commercial lines and a second for personal lines of coverage.



| Classification | Score Point Range |
|----------------|-------------------|
| 1              | 93.00 – 100.00    |
| 2              | 85.00 – 92.99     |
| 3              | 77.00 – 84.99     |
| 4              | 65.00 – 76.99     |
| 5              | 56.00 – 64.99     |
| 6              | 48.00 – 55.99     |
| 7              | 39.00 – 47.99     |
| 8              | 25.00 – 38.99     |
| 9              | 10.00 – 24.99     |
| 10             | 0.00 – 9.99       |

### What is the evaluation process?

We distribute questionnaires to building officials of all municipalities in a state. Upon completion of the questionnaire, we arrange for a trained field representative to meet at a mutually convenient time at the community site with each municipality's building official. At that time, our representative and building official together review the questionnaire and verify the community's capabilities. Our representative seeks clarification and obtains supporting documentation as needed.

Items reviewed during the survey include:

- Permits
- Plan reviews
- Inspections
- Responsibilities
- Training
- Certification
- Continuing education
- Budget information
- Public awareness
- Property value

How do BCEGS classifications benefit the community?

- BCEGS classifications can help identify communities that are more resilient to natural hazards and everyday perils. Resilient communities generally attract more businesses and residents.
- Policyholders in communities with effective building code programs are positioned to benefit from available premium discounts, because Verisk participating insurers can apply credits and receive information relating to building code enforcement vigor from us.
- BCEGS data and benchmarking reports offer community officials detailed information about their local code enforcement program, including regional, state, and national trends that can be used to help in their efforts to effectively manage the delivery of building safety services.
- A more favorable BCEGS classification can help a community qualify for Hazard Mitigation Grants from the Federal Emergency Management Agency (FEMA).
- BCEGS classifications are currently part of the criteria for receiving discounted flood insurance premiums from the National Flood Insurance Program (NFIP) through the Community Rating System (CRS) program.

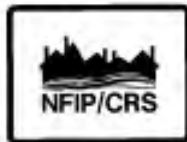
## CRS Outreach Guide

Access this document here: [CRS Outreach Guide](#)



# Outreach Projects for Credit under the Community Rating System of the National Flood Insurance Program

2017



## CRS Activity 610 Guide

Below is the CRS Activity 600 checklist for reference. Additional information may be found here: [CRS Series: Warning and Response](#)

### CRS 600 Series: Warning and Response

The 600 series of activities within the National Flood Insurance Program's (NFIP) Community Rating System (CRS) is focused on linkages between a community's emergency management mission/program and its voluntary CRS activities. These credited activities focus on the life safety aspect of a community's floodplain management program. This is particularly the case its emergency management flood warning programs and can result in additional flood insurance policy premium discounts for your citizens. For more information, the following Uniform Resource Locator/link is provided for the current Activity 610 webinar: <https://youtu.be/gbtsp4qBad8>

**Catalyst of Change.** *Even though flood preparedness and response operations primarily rest within the purview of the community's (or borough/county/parish) emergency management office, the emergency manager's role in advancing public safety, property protection, disaster resiliency and sustainability through the National Flood Insurance Program and the CRS is sometimes overlooked by the community. The community CRS Coordinator should liaise with the community emergency management staff, to properly document those activities that are eligible to receive credit under the 600 Series.* The daily emergency management mission of prevention, preparedness, response, recovery and mitigation can successfully be integrated with the CRS. Activities 610, 620 and 630 are designed to evaluate the community's emergency management program regarding flood warning, levees and dams.

**Background.** Activities under the 600 Series encourage and promote the development and use of community-based flood detection systems, warning dissemination programs, coordinated flood response activities and critical facility planning. These are the activities that help reduce the threat to life safety, health and property damage. The emergency manager is the identified catalyst of this effort.

Three activities make up the 600 Series. Activity 610 (Flood Warning and Response) forms the building block of the series, because all communities must have these basic services. Activity 620 (Levees) and Activity 630 (Dams) are for more specific threats that are not present in every community, namely levees and dams. All three activities are organized in a similar fashion, with pertinent credit criteria and require some actions for

- Advance notification of an impending flood (threat recognition);
- Warnings issued to the threatened population (warning);
- Steps taken to protect life and reduce losses (operations), and;
- Coordination with critical facilities (critical facilities planning).

All three activities have a public information prerequisite to educate residents and businesses concerning safety measures before, during and after a flood. All three activities require the annual completion of a drill, a flood exercise or documentation of an actual response to a flood related emergency. The latter also requires the submittal of an after-action report/improvement plan or lessons-learned document, including any recommendations for changes to the adopted plan. A flood, levee failure, dam failure or hurricane exercise qualifies as an exercise for all three activities.

**Focus of this checklist.** Activity 610 (Flood Warning and Response) is based on the principle that an ample warning combined with a flood response plan can prevent loss of life and property damage. It also encourages the development and documentation of more flood warning capabilities, redundancies in the

acquisition and dissemination of hydrologic warning, greater accuracy in forecasting flood arrival times and peak elevations and enhanced flood contingency planning that involves critical facilities.

The possible 395 points found within the five elements of Activity 610 are the building blocks of every community's emergency management program.

- Flood threat recognition system (**FTR**) is aimed at determining the capability level of the community's FTR system or systems. (75 points)
- Emergency warning dissemination (**EWD**) looks at the linkages between FTR and the community's dissemination of flood warnings to the public. (75 points)
- Flood response operations (**FRO**) credit is based on the extent and level of the community's specific tasks to reduce or prevent threats to health, safety and property. (115 points)
- Critical facilities planning (**CFP**) considers the coordination of flood warnings between the community and the operators of critical facilities within its environs. (75 points)
- StormReady community (**SRC**) (25 points) and TsunamiReady community (**TRC**) (30 points) credits a community's participation in the National Weather Service's StormReady and TsunamiReady programs.

The community must receive some credit in the first four elements to receive any credit under Activity 610, which emulates the standard preparedness cycle. For more details, refer to the *2017 CRS Coordinator's Manual*.

### The Corner Stones of Activity 610 (Flood Warning and Response).

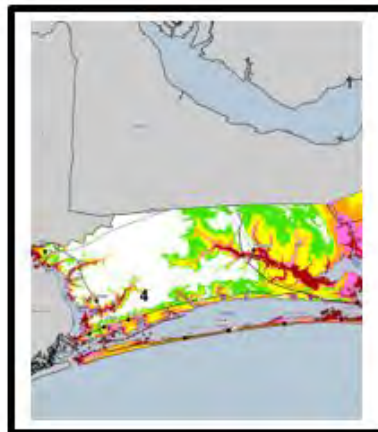
The community must have a program that correlates its flood threat recognition system, community prepared flood inundation map(s) and its adopted flood warning response plan. (This requirement is a basic component of any community emergency management program.) When preparing your documentation, provide a copy of the flood inundation map(s), flood stage forecast map(s), flash flood impact map(s) or storm surge zone map(s) (showing multiple levels of inundation) which depicts your community's flood threats. Such maps are used for multiple planning purposes by emergency management and must be addressed in the adopted flood warning response plan, CEMP, EOP, etc. (This map or maps are not the FEMA provided FIRMs but can include them as additional levels of inundation.) They must be logically tied into whatever flood threat recognition system provides early notice of a flood to your community, such as river gages, ALERT systems, tidal gages, SLOSH modeling, etc. Therefore, a flood threat recognition system, properly correlated with a flood inundation/flood stage forecast map and an adopted plan provides the required basis for minimum Activity 610 credit.



Riverine flood threats (three levels of inundation) and coastal storm surge zones (at least two levels of inundation) are based upon different mapping formats and processes, but both indicate the flood threat areas. In communities only inundated by flash flooding, impact area maps based on cubic feet per second alert levels, rainstorm thresholds or flow depths are acceptable. Examples of these are depicted below.



Riverine flood inundation map



SLOSH generated evacuation map



Flash flood impact area map

The adopted flood warning response plan (by whatever name) must discuss the actions taken by the community at each identified flood level of inundation. In large counties, there may not be any detailed mapping and/or any flood warning planning provided for these areas. In such cases, some counties designate the entire 1% chance flood level as the initial area to be notified by EAS and other flood alerts and have detailed multilayered flood levels only in the populated areas as is shown in the riverine flood inundation map above. If the flood threat recognition system and flood response plan utilize such a scenario, it can be considered as a creditable flood warning and response system.

Additionally, for any Activity 610 credit, the community must have one or more outreach projects on the warning and safety precautions and there must be an annual exercise of the adopted flood warning response plan that is documented with an after-action report combined with an improvement plan/lessons-learned report. These activity credit criteria are discussed in Section 611.b. of the CRS Coordinator's Manual.

If you have any questions concerning the following checklist, please contact Al Goodman at [awgconsult@outlook.com](mailto:awgconsult@outlook.com) or by phone at 601-829-6075.

#### **EXAMPLE SCENARIO: The community reports with its documentation checklist:**

- The community is affected by overbank flooding on two streams and surge from tropical storms. An evacuation map (SLOSH product) is used in all the coastal areas, but there are no gages or an associated warning and response program for one of the streams. There are 400 structures in the coastal high hazard area and 50 structures within the riverine floodplain. The program covers all 400 coastal structures, but only covers 25 of the riverine structures. The bSF is 450. There are 425 structures which are covered by the flood threat recognition system, 425 structures which are covered by flood emergency warnings and 450 which are covered by flood response operations.
- The number of buildings that benefit from the level of flood threat recognition system is 425. **FTR = 75, bFTR = 425.**
- The number of buildings that benefit from flood emergency warnings is 425.
- **EWD = 70, bEWD = 425.**
- The number of buildings in the area covered by the flood response operations is 450.
- **FRO = 75, bFRO = 450.**
- There are four critical facilities in the community, all of which are located in their warning and response program areas. **CFP 1 = 25.**

- The community is a StormReady Community. **SRC = 25.**

The Activity 610 technical reviewer finds that the community has a flood warning and response program that covers 425 of 450 buildings in the SFHA. An automated flood warning system (Level 3) is used by the community. The EOC uses pre-scripted messages and staff guidance and they have an outdoor fixed siren system that covers the entire community/ Further, the outreach plan identifies various departments responsible for portions of the planned response like a telephonic warning and notification system is used, a cable TV notification system and a GIS based emergency notification system available to alert citizen subscribers. The flood response operations plan should have assigned staff tasks, response actions keyed to specific flood levels shown on its flood inundation map, the estimated equipment and supplies needed as well as a well thought out response and recovery plan that includes substantial damage assessment teams. There are critical facilities identified that can be affected by flooding, with the contact information of the POCs provided. The NWS has awarded its StormReady Community designation to the community and/or listed the community on its StormReady website. The scoring sheet would reflect these computations:

$$\text{FTR} = 75 \quad \text{rFTR} = \frac{\text{bFTR}}{\text{bSF}} = \frac{425}{450} = 0.94$$

$$\text{EWD} = 70 \quad \text{rEWD} = \frac{\text{bEWD}}{\text{bSF}} = \frac{425}{450} = 0.94$$

$$\text{FRO} = 75 \quad \text{rFRO} = \frac{\text{bFRO}}{\text{bSF}} = \frac{450}{450} = 1.00$$

$$\text{CFP 1} = 25 \quad \text{CFP 2} = 0$$

$$\text{SRC} = 25 \quad \text{TRC} = 0$$

$$c610 = (\text{FTR} \times \text{rFTR}) + (\text{EWD} \times \text{rEWD}) + (\text{FRO} \times \text{rFRO}) + \text{CFP} + \text{SRC} + \text{TRC}$$

$$c610 = (75 \times 0.94) + (70 \times 0.94) + (75 \times 1.0) + 25 + 25 + 0 = 261.3 = \mathbf{261} \text{ (rounded)}$$

### Activity 610 (Flood Warning & Response) Documentation Checklist

Provide this checklist and the following for each item checked:

- (1) A CD with the documents. Note the file name and the appropriate pages and section numbers, or
- (2) The URL/link to on-line documents with the appropriate pages and section numbers noted here, or
- (3) A paper copy of the documents with the appropriate acronym marked in the margin.
- (4) A copy or URL/link to the Comprehensive Emergency Management Plan, Emergency Management Plan, or similar plan through which the community is applying for Activity 610 credit.
- (5) If the community is included in another jurisdiction's plan (which implements a multi-jurisdictional flood warning program), then:
  - (a) A copy of a resolution or memorandum of agreement that specifies the community's responsibilities must be included, or

- (b) A statement from the applicant community’s Emergency Manager or a similar community program designee must be submitted which lists those flood warning and response activity elements that are undertaken by the applicant community and those activities that are undertaken by the other jurisdiction on behalf of the applicant community.

|         | <b>Emergency Manager</b> | <b>CRS Coordinator</b> |
|---------|--------------------------|------------------------|
| Name    |                          |                        |
| Title   |                          |                        |
| Address |                          |                        |
|         |                          |                        |
|         |                          |                        |
| Phone   |                          |                        |
| E-mail  |                          |                        |

Completed By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_





Please provide the four totals requested below, failure to do so will result in an automatic zero-credit assignment in Activity 610. The credit points for FTR, EWD and FRO are adjusted based on the number of buildings affected by the element. Determining these adjustments usually will require identifying the area affected and then counting the buildings within that area.

- (1) Number of buildings in the community's Special Flood Hazard Area. The Community CRS Coordinator has this number in the Program Data Table. \_\_\_\_\_
- (2) Number of buildings that are covered by the flood threat recognition system. \_\_\_\_\_
- (3) Number of buildings that are covered by community flood emergency warnings. \_\_\_\_\_
- (4) Number of buildings that are covered by community flood response operations. \_\_\_\_\_

## Activity Credit Criteria and Documentation

Credit criteria for this activity are described in more detail in Section 611.b of the *CRS Coordinator's Manual*.

- (1) The community must obtain some credit in the first four flood warning and response sub-elements in flood threat recognition system (FTR), emergency warning dissemination (EWD), flood response operations (FRO) and critical facilities planning (CFP) to receive any credit under this activity. SRC/TRC credit is not assigned without credit in these four sub-elements.
- (2) The community must have a description of its flood hazard. This can be some pages taken from the community's adopted floodplain management or hazard mitigation plan. The description needs to include information about
  - The nature of the community's flood hazard, such as flood depths, velocities, warning times, historical flood problems and special flood-related hazards.  
[See Attachment \_\_\_\_\_ Pages \_\_\_\_\_.]
  - The development exposed to flooding, such as the number and types of buildings; land use (residential, agricultural, open space, etc.), critical facilities and historic flood problem areas.  
[See Attachment \_\_\_\_\_ Pages \_\_\_\_\_.]

- An inventory of critical facilities and the expected impacts of flooding on health and safety, community functions, such as police and utility services and the potential for secondary hazards.  
[See Attachment \_\_\_\_\_ Pages \_\_\_\_\_.]

(3) The community must have a flood inundation map(s), also known as a flood stage forecast map.

- The inundation map must show areas that are inundated by at least three different flood levels for each riverine area, two different flood or storm surge levels in coastal zones and/or a series of impact area maps for flash flooding.  
[See Attachment \_\_\_\_\_ Pages \_\_\_\_\_.]

(4) The community must have a flood warning and response plan or flood annex to a CEMP that has been adopted by the community's governing body. The plan must:

(For the community's own "stand alone" plan):

- Describe the methods and warning devices used to disseminate emergency warnings to the public that are credited under EWD.  
[See Attachment \_\_\_\_\_ Pages \_\_\_\_\_.]
- Include specific flood response actions that are taken at the different flood levels that are credited under FRO. The FTR system must be correlated to the flood inundation map.  
[See Attachment \_\_\_\_\_ Pages \_\_\_\_\_.]
- For full credit for flood response operations, the plan needs to
- (a) Describe the actions to be taken, [Pages \_\_\_\_\_.]
  - (b) Identify the office or official responsible for the action, [Pages \_\_\_\_\_.]
  - (c) Define the time needed to carry out the activity, and [Pages \_\_\_\_\_.]
- Contain other critical information that designated agencies and organizations will need to perform their assigned responsibilities. [Pages \_\_\_\_\_.]
- Be adopted by the community's governing body or by an office that has been delegated approval authority by the community's governing body. If the plan is prepared at the county/borough/parish level, it must be adopted by the individual community seeking credit.  
[See Attachment \_\_\_\_\_ Pages \_\_\_\_\_.]

**OR**

(If the community is included in another jurisdiction's plan, which implements a multi-jurisdictional flood warning program, then):

- A copy of a resolution or memorandum of agreement that specifies the community's responsibilities must be included, or

[See Attachment \_\_\_\_\_ Pages \_\_\_\_\_.]

- A statement from the applicant community's Emergency Manager or a similar community program designee must be submitted which lists those flood warning and response activity elements that are undertaken by the applicant community and those activities that are undertaken by the jurisdiction on behalf of the applicant community.

[See Attachment \_\_\_\_\_ Pages \_\_\_\_\_.]

(5) The community must implement one or more outreach projects that tells its residents and businesses how they will be warned and the safety measures they should take during a flood. This can be done by using **one or more** of the following approaches (check or highlight approach used):

- Sending an outreach project (e.g., a brochure, letter, or newsletter) each year to all residents and businesses in the community.
- Sending an outreach project each year to all residents and businesses in the floodplain where the warning program is in effect.
- Developing an appropriate approach as part of a Program for Public Information (PPI).
- If the community has at least three days of advance flood notification, such as coastal areas subject only to tropical storms and hurricanes or communities on large rivers, it may document that it provides repeated watch, warning, and safety information to all residents and businesses, beginning at least 72 hours in advance of the predicated flooding.
- A community with more than one source of flooding (e.g., coastal and riverine) may need to use different types of projects to reach different audiences.

- A copy of the outreach material used to tell people how they will be warned and the safety measures they should take.

[See Attachment \_\_\_\_\_ Pages \_\_\_\_\_.]

If the outreach material is also credited under Activity 330 (Outreach Projects), a separate submittal is not needed, if the other document (including a PPI, if used) is annotated to show where the Activity 610 outreach topics are covered.

- (5) There must be at least one exercise and evaluation of the flood warning and response plan each year that is compliant with the National Incident Management System (NIMS). This process is described in the Homeland Security Exercise Evaluation Program (HSEEP). The exercise can be for a flood, levee failure, dam failure or hurricane. This criterion can be met if the plan is implemented in response to an actual flood-related event or threat of a levee or dam failure. In either case, there must be an evaluation of the performance of the plan and recommendations for any needed changes, as is usually documented in an After-Action Report/Improvement Plan. This criterion is part of the national emergency preparedness cycle.

[See Attachment \_\_\_\_\_ Pages \_\_\_\_\_.]

**NOTE:** If the community experienced a flood during the past year, it must submit an evaluation report on the flood warning program's performance.

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### Flood Threat Recognition System (FTR) Credit Criteria and Additional Documentation

*The maximum credit for this element is 75 points.*

- (1) The activity credit criteria must be met.
- (2) The community must have a manual system, or an automated flood alarm system or an automated flood warning system that provides early notice of a flood for at least one location within the community. The system must be able to receive or provide flood warnings 24-hours a day, seven days a week. A community may have different levels of service for different sources of flooding and in different locations in the community.
- a. Provide a description of your community's flood threat recognition system (please check the system used). Is the system:
- A manual system** (Level 1) which relies on a person to interpret the data received from river and/or tide gages, often using paper tables and graphs. In many cases, the gage data are collected and reported manually, usually by volunteers, or
- An automated flood alarm system** (Level 2) which issues a signal when a flood threatens. When water reaches a certain height on a river or tide gage, an alarm is sent to the monitoring location. Unlike automated flood warning systems, this system does not predict flood heights or provide any other data than the current water level, or
- An automated flood warning system** (Level 3) which provides information such as the timing and potential crest of an oncoming flood. Typically, these systems are operated by the NWS or USGS in riverine situations. In coastal areas, SLOSH models are used.

The description must identify the rivers, streams, and coastal floodplains where flood stage forecasts are prepared and each forecast point.

If the community has its own gage system, such as an ALERT system, the description must include the locations of the stream and precipitation gages.

Include documentation of early notice of a flood at one or more locations within the community. If appropriate, describe show how the community provides flood forecasts for areas other than the above forecast points.

[See Attachment \_\_\_\_\_ Pages \_\_\_\_\_.]

Provide documentation that demonstrates that the community is prepared to receive flood warnings on a 24-hour basis from what federal, state, or other agencies.

[See Attachment \_\_\_\_\_ Pages \_\_\_\_\_.]

If the community or another local agency uses rainfall and/or runoff data on a real-time basis and produces flood forecasts from these data, provide a description of the system. [*Explain whether the collection system is based on precipitation and/or river gage data that are manually or automatically read and reported, the location gage network density, etc.*] [See Attachment \_\_\_\_\_ Pages \_\_\_\_\_.]

For a Level 3 system, provide documentation showing the method used to predict downstream arrival time and peak flow or elevations.

[See Attachment \_\_\_\_\_ Pages \_\_\_\_\_.]

If flood warnings are received from another agency, include

- A description of how the notice is received.

[See Attachment \_\_\_\_\_ Pages \_\_\_\_\_.]

- Identify local agency procedures for monitoring the system. [*Include the written instructions available to the person monitoring the warning system.*]

[See Attachment \_\_\_\_\_ Pages \_\_\_\_\_.]

Provide examples of one or more flood forecast notices issued for the community.

[See Attachment \_\_\_\_\_ Pages \_\_\_\_\_.]

- If the community has its own gage system, such as an ALERT system, a copy of the maintenance procedures for the system and records showing that the system is being maintained. This also applies to any other interoperable flood sensors that the community owns and operates, such as those purchased through the DHS Flood Apex Program.
- Provide documentation of the annual maintenance and testing of the data collection, communications and data analysis components of the flood threat recognition system.  
[See Attachment \_\_\_\_\_ Pages \_\_\_\_\_.]

### Emergency Warning Dissemination (EWD) Credit Criteria and Additional Documentation

*The maximum credit for this element is 75 points.*

- (1) The activity credit criteria must be met.
- (2) The warning must reach people in a timely manner. For example, television or radio announcements are not credited in areas subject to flash flooding during the night.
- (3) For those warning systems requiring specialized equipment, such as fixed voice/sirens, the equipment and procedures must be tested at least annually. Equipment that is used routinely throughout the year, such as television notices and message boards, do not need testing records for CRS credit.
- Copies of any written warning materials, such as handouts or the flood inundation map credited under EWD 10. [See Attachment \_\_\_\_\_.]
- [For EWD1, 2, 5, 6, 7, or 8] A copy of the pre-scripted messages. [See Attachment \_\_\_\_\_.]
- [For EWD3] A map, showing the fixed voice/siren locations and their effective coverage areas. [See Attachment \_\_\_\_\_.]
- [For EWD6] A copy of the description of a publicly owned call warning system or a copy of the contract with a private provider. [See Attachment \_\_\_\_\_.]
- [For EWD7] Documentation of the community owned cable channel or a copy of the cable TV agreement and override procedures. [See Attachment \_\_\_\_\_.]
- [For EWD8] A description of the capability and use of any other forms of public emergency notification. [See Attachment \_\_\_\_\_.]

- Describe the community's program for testing warning dissemination equipment and procedures. [Include the frequency of the tests.] [See Attachment \_\_\_\_\_.]
- (4) EWD1 (10 points): Provide documentation that the flood warning and response plan includes pre-scripted messages or message templates and guidance for staff to quickly issue appropriate flood warnings. [See Attachment \_\_\_\_\_ Pages \_\_\_\_\_.]
- (5) EWD2 (10 points): Provide documentation that public messages include information and instruction on the expected elevation of the flood waters, or storm surge, or the impact of flash flooding and instructions on when to evacuate. [See Attachment \_\_\_\_\_ pages \_\_\_\_.]
- (6) EWD3 (10 points): If a fixed outdoor voice-sound system or fixed-siren system is used that covers the community's jurisdiction. [See Attachment \_\_\_\_\_ pages \_\_\_\_.]
- (7) EWD4 (either 5 or 15 points): \_\_\_\_\_ Five points if the plan identifies the primary and support agencies responsible for door-to-door or mobile public address warning **or** \_\_\_\_\_ 15 points if the plan identifies the routes, procedures, responsible staff and equipment necessary for door-to-door or mobile address warning. [See Attachment \_\_\_\_\_ pages \_\_\_\_\_.]
- (8) EWD5 (10 points): If the federally approved community initiation of the Emergency Alert System through all channels/stations with pre-scripted draft messages is used. [See Attachment \_\_\_\_\_ Pages \_\_\_\_\_.]
- (9) EWD6 (15 points): If a telephonic warning or enhanced electronic notification system is used. [See Attachment \_\_\_\_\_ Pages \_\_\_\_\_.]
- (10) EWD7 (10 points): If television broadcast or message scroll notifications are implemented by the community. [See Attachment \_\_\_\_\_ Pages \_\_\_\_\_.]
- (7) EWD8 (15 points): If the community uses other forms of public notification for emergency warnings, such as geocoded alert notification products, social media coordination of emergency-related topics, portable electronic warning signs, local radio stations, etc. [See Attachment \_\_\_\_\_ Pages \_\_\_\_\_.]
- (8) EWD9 (10 points): If tone alert radios or NOAA Weather Radios either provide a system of notification to or are physically located within the schools, hospitals, nursing homes, prisons and similar facilities that need flood warning. [See Attachment \_\_\_\_\_ pages \_\_\_\_\_.]
- (11) EWD10 (10 points): If the flood inundation map or evacuation map or series of maps used to meet the credit criteria in Section 611.a are posted online. URL/link \_\_\_\_\_



## Flood Response Operations (FRO) Credit Criteria and Additional Documentation

*The maximum credit for this element is 115 points.*

- (1) The activity credit criteria must be met.
  
- (2) For full credit for flood response operations, the plan needs to:
  - (a) \_\_\_\_\_ Describe specific flood response actions that are taken at different flood levels;
  - (b) \_\_\_\_\_ Identify the office or official responsible for the action;
  - (c) \_\_\_\_\_ Define the time needed to carry out the activity, and;
  - (d) \_\_\_\_\_ Contain other critical information that designated agencies and organizations will need to perform their assigned responsibilities. General statements or an assignment of responsibilities with no specifics about what is to be done are not credited.
  
- (3) Bonus credit is provided under FRO2 if there is a list of the personnel, equipment, facilities, supplies and other resources needed to complete each task. For full credit, the list must identify what is available within the community and what is needed from private suppliers or other jurisdictions.  
*[See Attachment \_\_\_\_\_ pages \_\_\_\_\_.]*
  
- (4) FRO5 also provides bonus credit for preparing for mitigation opportunities that may arise in the aftermath of a disaster—a time when hazard awareness is high, funds are more likely to be available, and disruption of the status quo makes it possible to rethink the design and location of facilities and infrastructure. This should be coordinated with the public information activities credited under flood response preparations (FRP) under Activity 330 (Outreach Projects), which encourages owners to take mitigation measures during repairs.  
*[See Attachment \_\_\_\_\_ pages \_\_\_\_\_.]*
  
- (5) FRO6 provides bonus credit for identifying response and recovery measures to take that support property protection, such as providing a high-ground site for relocated vehicles, helping move building contents and distributing sandbags. *[See Attachment \_\_\_\_\_ pages \_\_\_\_\_.]*
  
- (6) FRO1 (15 points): If the community has developed scenarios that review how flood incidents might develop at the different levels shown on the flood inundation map. *[See Attachment \_\_\_\_\_ pages \_\_\_\_\_.]*
  
- (7) FRO2 (Up to 35 points): If the adopted plan identifies flood response tasks and responsible community staff utilized within the basic plan and also those in an identified disaster response team and other public and private organizations with responsibilities related to the flood tasks in the plan,

the estimated equipment, supplies and time required for each response task and the sources of necessary resources.

[See Attachment \_\_\_\_\_ pages \_\_\_\_\_.]

(a) (5 points): For identified basic flood response tasks and responsible staff.

[See Attachment \_\_\_\_\_ pages \_\_\_\_\_.]

(b) (5 points): For an estimate of the number of personnel needed for each task.

[See Attachment \_\_\_\_\_ pages \_\_\_\_\_.]

(c) (5 points): For an estimate of the time required for each identified response task.

[See Attachment \_\_\_\_\_ pages \_\_\_\_\_.]

(d) (10 points): For damage assessment tasks that are tied into a cumulative damage/substantial improvement tracking system.

[See Attachment \_\_\_\_\_ pages \_\_\_\_\_.]

(e) (5 points): For the identification of a floodplain management disaster response team.

[See Attachment \_\_\_\_\_ pages \_\_\_\_\_.]

(f) (5 points): For a list of equipment and supplies expected to be needed and how they will be obtained.

[See Attachment \_\_\_\_\_ pages \_\_\_\_\_.]

(8) FRO3 (25 points): Specific actions must be keyed to the different flood levels shown on the flood inundation map or maps used for credit under Section 611.b (3) in order to receive any Activity 610 credit. [See Attachment \_\_\_\_\_ pages \_\_\_\_\_.]

(9) FRO4 (10 points): For maintaining a data base of people with special needs who require evacuation assistance when a flood warning is issued and for having a plan to provide transportation to secure locations. (If credit was provided for FRO4 in a county's "parent" plan, the community must provide verification of its knowledge of the special-needs population within its own jurisdiction for creditable purposes.)

[See Attachment \_\_\_\_\_ pages \_\_\_\_\_.]

(10) FRO5 (Up to 15 points): If instructions for the return of evacuees to affected areas are also in the plan, including prescribed credential instructions and any needed area security assignments. Substantial damage assessments are prescribed/conducted in the SFHA prior to any repair permits being issued.

(a) (5 points): If the plan includes instructions for an evacuation procedure that addresses critical facilities, homes, and businesses, with instructions for when and how returning evacuees can reoccupy structures in compliance with the community's SFHA permitting policies.

[See Attachment \_\_\_\_\_ pages \_\_\_\_\_.]

- (b) (5 points): If the plan includes instructions for substantial damage assessment procedures within the SFHA that are made before issuance of a permit during the recovery phase.  
[See Attachment \_\_\_\_\_ pages \_\_\_\_\_.]
- (c) (5 points): If the plan includes instructions for implementing the community hazard mitigation plan's identified flood loss mitigation measures on community and private property.  
[See Attachment \_\_\_\_\_ pages \_\_\_\_\_.]
- (11) FRO6 (Up to 20 points): If the plan identifies actions that support property protection measures that are carried out in both the response and recovery phases. [See Attachment \_\_\_\_\_ pages \_\_\_\_\_.]

### Critical Facilities Planning (CFP) Credit Criteria and Documentation

*The maximum credit for this element is 75 points.*

- (1) The activity credit criteria must be met. CFP1 is a prerequisite for any CFP credit.
- (2) If your community does not have any critical facilities that can be affected by flooding, the community must provide documentation stating this on community letterhead and provide a copy of the community's adopted definition of critical facilities. Credit will be limited to a total of 5 points in CFP.
- (3) For CFP1, the community's flood warning and response plan must list the facilities considered critical in a flood, not necessarily just those located in the SFHA. This inventory can be in a separate document or SOP. In general, facilities not subject to flooding do not need to be addressed, although in some cases loss of access can cause a critical situation. There may also be facilities in flood-free sites that are needed to support the flood response effort (e.g., sandbag suppliers and shelters for evacuees). The community's list must be updated at least annually. The community must also contact the facilities to determine if they require any special warning arrangements. The community does not need to provide a special warning to all critical facilities, only those that need one.
- (4) CFP1 (Up to 25 points): The plan includes the contact information, including the names and phone numbers of the operators of all public and private critical facilities affected by flooding. [See Attachment \_\_\_\_\_ pages \_\_\_\_\_.] and,
- (6) Arrangements for special warnings or early notifications directly to those critical facilities that need advanced warning.  
[See Attachment \_\_\_\_\_ pages \_\_\_\_\_.]

- (6) CFP2 (up to 50 points): Provide an inventory of critical facilities listed under CFP1 that have their own flood warning and response plans which have been developed, reviewed or accepted by the community. This credit will be prorated based on the percentage of affected critical facilities that have creditable plans as indicated by the community.

[See Attachment \_\_\_\_\_ pages \_\_\_\_\_.]

At each verification visit, a list of all public and private critical facilities that are affected by flooding or are needed to be operational during a flood, with the contact information and agreed-upon warning needs must be provided. [For CFP2] The list of critical facilities marked to identify those that have developed their own flood warning and response plans that have been reviewed and accepted by the community. The ISO/CRS Specialist will ask for samples of the plans for review.

At annual recertification, a page from the latest list of the critical facilities provided for CFP1 credit must be provided to the ISO/CRS Specialist, which is updated at least annually.

### **StormReady Community (SRC):**

*The maximum credit for this element is 25 points.*

- (1) The activity credit criteria must be met.
- (2) For SRC credit, the community is not required to provide documentation. SRC is documented by its inclusion on the NWS maintained list of designated “StormReady Community” members posted on its website. The community must be listed individually (by name) on the website or be included in an NWS SRC award letter to the borough/county/parish, also listed individually by name. This is an NWS requirement.

### **TsunamiReady Community (TRC):**

*The maximum credit for this element is 30 points.*

- (1) The activity credit criteria must be met.
- (2) The community must be designated as a TsunamiReady community by the NWS.
- (3) The community must meet the CRS tsunami hazards mapping requirements of element MTS (Mapping tsunami hazards), in Section 412.f (2) of the Coordinator’s Manual.

(4) The community must have adopted a tsunami hazards operation plan that describes the actions the community is to take upon receiving a tsunami warning.



**ANY ADDITIONAL INFORMATION YOU WISH TO SUBMIT:**

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## Maps as Cornerstones of Flood Warning and Response

— A Handout for the National Flood Insurance Program Community Rating System —

The 600 series of activities within the Community Rating System (CRS) relies on linkages between a community’s emergency management mission and its floodplain management program. These credited activities focus on life safety, particularly flood warning programs, and can result in additional CRS discounts for your citizens. Activity 610 (Flood Warning and Response) forms the building block of the 600 series because, to receive CRS credit, a community must have these basic emergency management services.

### The Cornerstones of Activity 610

The community **MUST** have a flood warning and response program that correlates its flood threat recognition system, flood inundation map(s), and its adopted flood warning response plan. This CRS requirement is a basic component of any local emergency management program. Documentation of your program for CRS credit must include a copy of the flood inundation map, flood stage forecast map, or storm surge map (showing multiple levels of inundation) that depicts your community’s flood threat. Such maps are used for multiple planning purposes by emergency management and must be addressed in the adopted flood warning response plan, comprehensive emergency management plan, or emergency operations plan. These documents are logically tied into whatever flood threat recognition system your community uses to provide early notice of a flood, such as river gages, ALERT (automated local evaluation in real time) systems, tidal gages, SLOSH (sea, lake, and overland surges from hurricanes) modeling, and others.

Maps of riverine flood threats and coastal storm surge zones are based upon different formats and processes, but both show the areas threatened by flooding. Examples of both are depicted below.

The adopted flood response plan (by whatever name) must discuss the actions taken by the community at each level of inundation shown on the map referenced in the plan. In large counties, there may not be detailed mapping and flood warning planning for the entire Special Flood Hazard Area. In such cases, some counties designate the entire area subject to the 1% chance flood as the initial area to be notified by the emergency alert system or other flood alerts, and have detailed multilayered flood levels only in the populated areas (as shown in the riverine flood inundation map below). A flood threat recognition system and flood response plan designed and implemented under such a scenario can be considered a CRS-creditable flood warning and response system.



A flood inundation map for a riverine area



A SLOSH-generated evacuation map

## Record Keeping Guidance

Access this document here: [NFIP CRS Record-Keeping Guidance](#)



National Flood Insurance Program  
Community Rating System

# CRS Record-Keeping Guidance

2007



## Additional Resources

### Key Contacts:

NY State NFIP coordinator: NYSDEC, Division of Water, Bureau of Flood Protection and Dam Safety  
625 Broadway, Albany, NY 12233-3504, 518-402-8185 [Send us an email](#)

CRS ISO Representative: [CRS Specialists by State](#)

FEMA Representative: [FEMA Regional Coordinator](#)

### Available Resources:

List of available resources to inform/educate the public on flood resilience through regional coordination and collaboration to leverage to aid floodplain administration including:

NYSFSMA <https://nyfloods.org/>

NYS CRS Users group [CRS Users Groups](#)

## Training Programs

FEMA Training L-273, L-278 [National Preparedness Course Catalog](#)

Association of State Floodplain Managers (ASFPM) online training [ASFPM Online Training](#)

Certified Floodplain Manager (CFM) online learning, testing and certification [ASFPM Certified Floodplain Manager Program](#)

## Guidance, Best Practices, Toolkit

FEMA 480 [Floodplain Management Study Guide for Local Officials](#)

FEMA Best Practices [Mitigation Best Practices](#)

CRS Coordinators Manual <https://crsresources.org/manual/>

ASFPM No Adverse Impact Toolkit [Common Sense Floodplain Management](#)



**Town of Lansing, New York (360852)**  
**Community Rating System (CRS)**  
**Baseline Assessment and Potential Impact Report**  
**March 2022**



**TETRA TECH**

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# Town of Lansing, New York (360852)

## Community Rating System Baseline Assessment and Impact Analysis Report

MARCH 2022

*Prepared for:*  
Town of Lansing, New York

*Prepared by:*



**TETRA TECH**

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*This Community Rating System (CRS) Program Baseline Assessment and Potential Impact Report was prepared with funding provided by the New York State Department of State under Title 3 of the Environmental Protection Fund as a Part of the Tompkins County Resiliency and Recovery Plan*

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## SECTION 1. INTRODUCTION

This Community Rating System (CRS) baseline assessment and impact analysis report has been prepared for the Town of Lansing (the Town) by Tetra Tech, Inc. (Tetra Tech) as part of Tompkins County's Resiliency and Recovery Plan supported with grant funding from New York State's Department of State.

### 1.1. CRS OVERVIEW

The CRS is a program administered by the Insurance Services Office (ISO), Verisk, under the National Flood Insurance Program (NFIP) on behalf of FEMA. Per the CRS Fact sheet dated June 30, 2021, the CRS was implemented in 1990 as a voluntary program for recognizing and encouraging community floodplain management activities that exceed minimum NFIP standards. Any community fully compliant with NFIP floodplain management requirements may apply to join the CRS. As of April 2021, over 1,500 Communities participate in the CRS. The CRS has 1,520 communities throughout the United States that participate in the program by implementing local mitigation, floodplain management, and outreach activities that exceed the minimum NFIP requirements. These CRS communities have over 3.6 million policyholders, accounting for more than 70% of all NFIP flood insurance policies.

Under the CRS, flood insurance premium rates are discounted to reward community actions that meet the three goals of the CRS: 1. Reduce flood damage to insurable property 2. Strengthen and support the insurance aspects of the NFIP 3. Encourage a comprehensive approach to floodplain management CRS Class Ratings.

The CRS uses a Class rating system that is similar to fire insurance rating to determine flood insurance premium reductions for residents. CRS Classes are rated from 9 to 1. Today, most communities enter the program at a CRS Class 9 or Class 8 rating, which entitles residents in Special Flood Hazard Areas (SFHAs) to a 5% discount on their flood insurance premiums for a Class 9 or a 10% discount for Class 8.

As a community engages in additional mitigation activities, its residents become eligible for increased NFIP policy premium discounts. Each CRS Class improvement produces a 5% greater discount on flood insurance premiums for properties in the SFHA. CRS Class changes occur on April 1 and October 1 of each year. A fact sheet providing additional information is provided as a reference at the end of this report.

### 1.2. BASELINE ASSESSMENT AND POTENTIAL IMPACT ASSESSMENT

The purpose of this report is to provide a baseline assessment of and recommendations for the Town's current floodplain management program as well as information on the Town's potential to participate in the CRS, including an assessment of creditable activities and a flood insurance impact analysis.

The report is divided into two major sections, the **baseline assessment**, and the **potential impact assessment**. These sections include the following information:

- Baseline Assessment
  - Floodplain Management Resource Analysis
  - Baseline Assessment Findings and Recommendations

- CRS Prerequisites
- Potential Impact Assessment
  - Overview of CRS Activities
  - Initial Estimation of CRS Credit
  - Summary Overview of CRS Credit
  - Flood Insurance CRS Impact Analysis

The Baseline Assessment is intended to provide an initial estimation of the Town's floodplain management capabilities. The consultant, Tetra Tech, interviewed key municipal officials to obtain feedback to determine the effectiveness of flood risk, regulations (and enforcement), planning, and administration as related to floodplain management. The Baseline Assessment provides a summary of the findings.

Detailed recommendations to improve floodplain management and to specifically align with CRS creditable activities are provided in the Section 3. CRS Potential Impact Assessment.

### 1.3. BASIC METHODOLOGY

This report was developed using information provided during interviews with local staff, review of local codes and ordinances, and industry best management practices.

### 1.4. CURRENT CRS STATUS

The Town of Lansing does not currently participate in the CRS and is classified as a CRS Class 10 community which means that flood insurance policyholders within the Town currently do not receive flood insurance premium savings. However, should the Town begin participation, all flood insurance policyholders will be eligible for a class discount of the Town regardless of being located inside the 1% chance of annual flood area, also known as the special flood hazard area (SFHA), or outside.

### 1.5. POTENTIAL TOWN OF LANSING CRS PARTICIPATION CLASSIFICATION

Based on the available information, the initial finding is that the Town of Lansing may participate in the CRS as a Class 9 community if it meets and follows the program prerequisites and requirements before applying to participate in the CRS.

Attaining Class 9 status would result in an estimated per policy discount of \$64 per year and a town-wide benefit of approximately \$1,600 in NFIP premium savings for current owners of NFIP insured properties. If the Town was able to achieve a Class 8 designation, that would provide an estimated per policy discount of \$94 per year and a town-wide benefit of approximately \$3,285 NFIP premium savings for owners of NFIP insured properties.

Based on review of communities participating across the country and depending on the level of participation/class of a community, operating a CRS program is estimated to require up to 13% of a full-time employee. This level of effort is inclusive of responding to resident inquiries, outreach, maintenance of records and data, and annual and cycle reporting.

The Town is urged to consider the costs and benefits of CRS participation in its decision as to whether it will pursue an application to the program. Should the Town opt not to participate in CRS, incorporating the

recommendations provided in this report will, nevertheless, improve the Town's floodplain management and support reduction in future flood impacts and increase of the health, safety, and welfare of its residents, businesses, and visitors.

An additional consideration in the decision to participate in the CRS is the fact that imminent county-wide preliminary updated digital flood insurance maps (DFIRMs) are expected to indicate increased flood risk across Tompkins County, though have very minimal impact to the number of properties in the floodplain. The benefits of premium discounts for participation are only slightly magnified.

Changes and improvements to fulfill prerequisites and enhance the Town's floodplain management program are provided in Specific CRS Program Recommendations found in Section 3.3.1.

**Conclusion:** Based on the activities and elements reviewed in this report, the Town would be able to obtain an estimated **907 points** for the activities it is already pursuing as detailed in Table 2. The Town would enter the CRS at the base level (Level 9) which results in a discount of 5% to flood insurance policy holders. Before applying to the CRS, the Town should review the recommendations for enhancing its CRS eligible activities.

## 1.6. CRS PREREQUISITES

A community wishing to participate in the CRS must demonstrate that it meets and complies with six prerequisites. Additional prerequisites are required for communities that wish to achieve CRS Class 8, 6, Class 4, and Class 1 ratings.

The prerequisites for CRS participation relevant to the Town of Lansing are as follows:

1. The community must have been in the regular phase of the National Flood Insurance Program (NFIP) for at least one year.
2. The community must be in full compliance with the minimum requirements of the NFIP and must have received acknowledgement of this correspondence from the regional office of the Federal Emergency Management Agency (FEMA) within six months of the community's initial CRS verification visit.
3. The community must maintain FEMA Elevation Certificates on all new buildings and buildings undergoing substantial repairs or improvements constructed in the SFHA after the community applies for CRS credit with a 90% accuracy rate. In addition, the community must develop a Construction Certificate Management Plan (CCMP).
4. If there are one or more repetitive loss properties in the community, the community must take certain actions. A repetitive loss property is any insurable building for which two or more claims of more than \$1,000 were paid by the NFIP within any rolling ten-year period since 1978. These include reviewing and updating the list of repetitive loss properties, mapping repetitive loss areas, describing the causes of the losses, and reaching out to those property owners each year to discuss flood mitigation opportunities. A community with 50 or more repetitive loss properties must also prepare a plan for addressing its repetitive flood problem.
5. The community must maintain all flood insurance policies that it has been required to carry on properties owned by the community.
6. As a prerequisite for achieving CRS Class 8, communities must adopt and enforce at least one foot of freeboard for residential buildings in all numbered zones of the Special Flood Hazard Area (SFHA).

For more information on these prerequisites, please refer to the [National Flood Insurance Program Community Rating System Coordinator's Manual](#) (FIA-15/2017; OMB No. 1660-0022) and [2021 CRS Addendum](#) document.

## SECTION 2. BASELINE ASSESSMENT

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### 2.1 OVERVIEW

The CRS is a voluntary program that recognizes and incentivizes local mitigation and floodplain management practices that exceed the minimum standards of the NFIP. To maintain CRS classification, a community must continue to implement the activities for which credit is provided. Because of this, it is important to assess the programmatic aspects of the Town of Lansing's floodplain management program to determine whether the Town is likely to maintain a CRS class once it is awarded. The following sections discuss the Town's current floodplain management program and offer recommendations for improvement.

### 2.2. FLOODPLAIN MANAGEMENT RESOURCE ANALYSIS

Tetra Tech conducted an interview with Town of Lansing staff on September 1, 2021, to perform a baseline assessment of the Town's floodplain management program using Tetra Tech's Baseline Assessment Tool (BATool<sup>SM</sup>) Program-Mitigation Module. This module enables the evaluation of a community's ability to sustainably participate in the CRS. Actions recommended as a result of this review may be included in the BATool<sup>SM</sup> Mitigation Module as part of the mitigation actions to be addressed by the community. Attending staff members included:

- Edward LaVigne - Town Supervisor
- C.J. Randall - Director of Planning; Town Local Floodplain Administrator
- Scott Russell – Town Zoning/Code/Fire Enforcement Officer
- John Zepko – Town Planner, Stormwater Management Officer
- Mikey Moseley - Superintendent of Highways
- Scott Doyle – Tompkins County Department of Planning & Sustainability

The BATool<sup>SM</sup> Program consists of a series of weighted questions in four categories designed to assess and rate the programmatic nature of a community's floodplain management plan against industry best practices. The categories and examples of elements assessed under each category are as follows:

- Flood Risk:
  - Number of NFIP policies in the SFHA and claims on those policies
  - Number of repetitive loss properties
  - Programs for perishable data capture, such as a program to document high water marks after a flood event
- Programmatic Regulations:
  - Aspects of the flood damage prevention ordinance
  - Regulation to higher standards
  - Regulation beyond the FEMA mapped flood hazard areas
- Programmatic Planning:
  - Existence and integration with hazard mitigation and comprehensive plans
  - Established procedures for post-disaster substantial damage assessment procedures
  - Targeted flood mitigation projects
- Programmatic Administration:



- Number of staff available and their level of training
- Use of a standalone floodplain development permit
- Capability to administer a public outreach campaign

After the assessment, a community is scored in one of three categories indicating their potential to succeed in and remain in the CRS:

- **Green:** The community floodplain management program appears to be programmatic and community should be able to achieve and maintain CRS classification. In other words, floodplain management follows set procedures that can be replicated by others in the event of staff turnover.
- **Yellow:** The community has pieces of a complete floodplain management program, but there are enhancements that should be considered before applying to the CRS.
- **Red:** The community floodplain management program is not ready for the rigors of the CRS.

Encompassing 60.7 square miles, Lansing is the second-largest town in Tompkins County. The northern part of the Town is largely farmland, generating one third of the total farm product sales in Tompkins County, making it a vital agricultural community. The western border of Lansing is shaped by Cayuga Lake, and is bordered on the east by the Towns of Groton and Dryden, and on the south by the Town of Ithaca and City of Ithaca.

The Town of Lansing is located along Cayuga Lake at the confluence with Salmon Creek. Approximately two percent of the Town's land area is in the SFHA. Flood issues are localized mainly in the portion of Town near the lake, in particular Ladoga Park Road, and in the vicinity of Ludlowville Road near Brickyard and Lansingville Roads. In addition to riverine flooding, officials indicate that flash flooding occurs within the Town.

Lansing's Flood Damage Prevention Ordinance was adopted on July 7, 2017. Prior to its adoption on September 15, 2010, the Town underwent a Community Assistance Visit administered by the New York State Department of Environmental Conservation (NYSDEC), the report for which indicated two administrative issues and one potential violation as follows:

- The use of the standardized Floodplain Development Permit had been discontinued in recent years. A recommendation was made to re-institute one based on the NYSDEC model permit application.
- Elevation data was obtained for development in the SFHA; however, it was not always provided on a FEMA Elevation Certificate.

Lansing's Flood Damage Prevention Ordinance requires two feet of freeboard. The ordinance does not include standards for compensatory storage (a volume not previously used for flood storage and which shall be incrementally equal to the theoretical volume of flood water at each elevation, up to and including the base flood elevation, which would be displaced by the proposed project). The Town also does not have procedures for tracking cumulative substantial improvement or damage due to issues associated with structure valuations. Elevation Certificates are required for the as-built elevation of the lowest floor or flood-proofed elevation of a property constructed in the regulatory floodplain. Officials indicated that the ordinance is based on a NYSDEC model with modifications to reference the Seneca Watershed Map, which has created confusion over which map (NFIP or Seneca Watershed) is considered the regulatory map. It was noted that previously some development has been regulated based on the Seneca maps and that resulted in a legal challenge in 2018. According to the Floodplain Damage Prevention Ordinance, the 2014 Seneca Discovery Map is to be used for regulatory purposes. That map should be used in the interim before the updated NFIP maps are adopted.

A total of 34 flood insurance policies were in force in the Town as of July 2020. Total annual premiums for these policies totaled \$37,323 as of September 2021. Fifty-five flood insurance claims have been filed since 1978, and approximately \$466,000 in losses have been paid from insurance through July 2020. Town officials indicated that they are not aware of the current specific number of policies in force, number of claims, or total paid losses related to properties in the Town.

FEMA data identified eight repetitive loss properties in Lansing. As a result, the Town is considered a Category B community and must perform the following activities to comply with CRS requirements:

- Prepare a map of areas at risk of repetitive flooding (repetitive loss areas)
- Review and describe these areas' flood problems
- Prepare a list of all properties with insurable structures in the repetitive loss areas
- Conduct annual outreach to all the affected property owners, describing the flood risk and informing them of insurance and mitigation options for property protection

C.J. Randall, the Town's Director of Planning, was reported to be the floodplain administrator and has held those duties since June 2019. Per the Town's flood damage prevention ordinance the floodplain administrator is identified as *the person (or persons) appointed by the town to administer and implement this local law, including through the granting or denying of development permits in accordance with these provisions. In the town this person is the Director of Planning as noted in 2022 Resolution 22-57.* Ms. Randall has worked in a range of planning issues, including flood mitigation, in communities throughout New York State. In terms of managing and reviewing floodplain actions, the Town further benefits from the experience of Town Planner, John Zepko, who is a Certified Floodplain Manager. For engineering reviews, the Town retains an outside engineering firm (T.G. Miller, P.C.).

Follow up discussions with Town staff indicated that they had been involved in assessments of CRS in other communities they had worked in. As a part of their experience in other communities they found that the estimated cost for staff time to enroll and manage the program annually far exceeded the cost savings that flood insurance carriers would save so the community decided not to enroll. They expressed concerns in these other communities of far too much micromanagement from FEMA was required to enroll in the program and they didn't see how everyone in the community would benefit from that effort. Staff went on to say that while that was the case in other communities, they would support what needs to be done in Lansing should it decide to enroll in CRS.

All applications for development (including Elevation Certificates) in the SFHA are referred to the Town Engineering consultant, T.G. Miller for review and approval. Since 2019, the Town has kept records including floodplain development permits in a database called *Municipity*. It is unclear if these records can be queried by permit number. Regarding documentation of repetitive loss properties, the Town does not currently have a formal program in place.

It was determined that the Town does not participate in the Insurance Services Office (ISO) Building Code Effectiveness Grading Schedule (BCEGS ®), which assesses community building codes and their enforcement, with special emphasis on loss mitigation from natural hazards. Municipalities with well-enforced, up-to-date codes should demonstrate better loss experience that can be reflected in lower insurance rates. The prospect of lessening catastrophe-related damage and ultimately lowering insurance costs provides an incentive for communities to enforce their building codes rigorously.

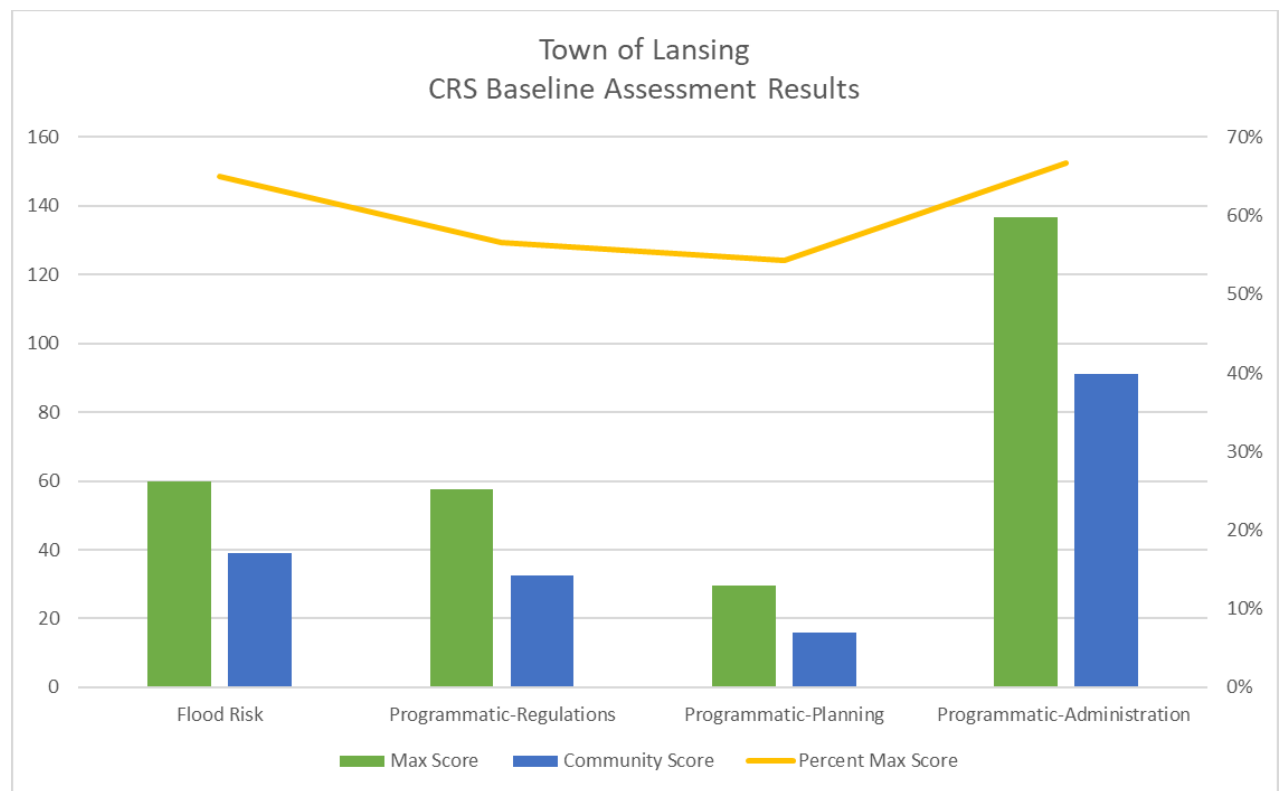
Tompkins County has a [webpage](#) dedicated to climate adaptation where among other items the [Tompkins County Hazard Mitigation Plan: 2021 Update](#) is posted. As part of the 2021 update to that plan, the County conducted public outreach on natural hazards, including flooding. While the Town supports the County's

public information efforts, it has not undertaken its own separate outreach activities on flood risk and prevention focused on floodplain residents.

Town staff members have a strong working knowledge of flooding issues in Lansing though opportunities for integrated floodplain management in most Town operations still exists. While many aspects of the Town’s overall program are adequate, the BATool<sup>SM</sup> Program results a yellow rating, indicating that the Town should make some enhancements to its floodplain management program before applying to enter the CRS Program. Table 1 below shows the Town’s score for each BATool<sup>SM</sup> Program category.

**Table 1. BATool™ Rating for Each Programmatic Category**

|                 | Flood Risk | Programmatic-Regulations | Programmatic-Planning | Programmatic-Administration | Overall |
|-----------------|------------|--------------------------|-----------------------|-----------------------------|---------|
| Town of Lansing | Yellow     | Yellow                   | Yellow                | Yellow                      | Yellow  |



**Figure 1. Town of Lansing Comparative CRS Baseline Results**

### 2.3. BASELINE ASSESSMENT FINDINGS AND RECOMMENDATIONS

The following sections describe the major findings and issues from the baseline assessment and provide recommendations to improve and enhance the Town’s current floodplain management program to prepare for the CRS or simply to enhance risk reduction efforts.

### 2.3.1. Summary of Findings and Issues

The following is a summary of the major findings and issues noted during the baseline assessment interview. These findings and issues inform the recommendations found in Section 2.3.2 of actions that should be taken prior to applying to participate in the CRS. Attempting to apply before adjusting municipal policies and procedures may result in a formal directive to address any deficiencies within one year of the determination to be eligible to continue the application for participation. It is recommended that the Town address these issues at a minimum to ensure their sustainable participation in the CRS, if they choose to apply.

#### **Flood Risk**

- The Town of Lansing currently has three percent of its structures located in the regulatory floodplain. A limited number of NFIP claims have been filed since 1978, with a total of eight repetitive loss properties in the municipality, and it is estimated that fewer than 10 flood events occurred in the last 25 years that have caused damages.
- The Town is most vulnerable to flooding in and around Cayuga Lake, in particular in the vicinity of Ladoga Park. In addition, a history of flooding has been documented at Morris Park, Salmon Creek, Crooked Hill Road, Salmon Creek Road, and Ludlowville Road near Brickyard Road; however, there is no record of structural damages to residential or commercial buildings. Road damage from flooding occurs about every six years on Brickyard Road, Lansingville Road, including Town road infrastructure. Ludlowville Road experienced flood-related damage in multiple flood events about 10 years ago for which the County received State and federal mitigation funding to study the issue, design and build an upstream stormwater detention facility upstream of the Hamlet of Ludlowville and Salmon Creek.
- During the last flood event, the Town informally documented damages by taking photos during and after the event, but there is no formal protocol in place for capturing perishable data such as high-water marks or detailed damage assessments from an event.
- In addition to riverine flooding, officials indicate that flash flooding also occurs within the Town.
- It is noted that the Town is not adequately documenting the review of repetitive losses and is not conducting annual outreach to residents located in SFHAs. Review and documentation of repetitive loss properties as well as annual outreach are required CRS program activities.

#### **Programmatic Regulations**

- Lansing's flood damage prevention ordinance requires two feet of freeboard. The ordinance does not include standards for compensatory storage or procedures for tracking cumulative substantial improvement or damage due to issues associated with structure valuations. A consistent policy and procedure for tracking and addressing substantial improvements and damages is a CRS requirement. Going forward, addressing previous issues with floodplain administration and assessments of damaged structures will be considered by FEMA administration as part of the Town's application to the CRS.

- The BCEGS provides an indication of the level of the Town's building codes in effect and how the community enforces its building codes. It was determined that the Town does not participate in the ISO's BCEGS. Participating in the BCEGS will enable points in CRS activity 430, Higher Regulatory Standards. Furthermore, a community must have received and continue to maintain a BCEGS classification of 5/5 or better (residential/ personal and commercial). A BCEGS classification is a prerequisite for attaining a Class 6 or better.

### **Programmatic Planning**

- The Town's in-house and contracted engineering staff are aware of the potential flooding hazards the community faces but do not have the capacity to integrate floodplain management and administration into other areas of municipal administration. Setting a formal policy limiting future development in floodplain areas would support a stronger floodplain management program.

### **Programmatic Administration**

- The Town's overall floodplain management administration provides a good basis for comprehensive floodplain management but could use additional procedures to accommodate sustainable participation in the CRS. Participation in the program would in turn further strengthen and organize the Town's floodplain management efforts as well as benefit flood insurance policyholders.

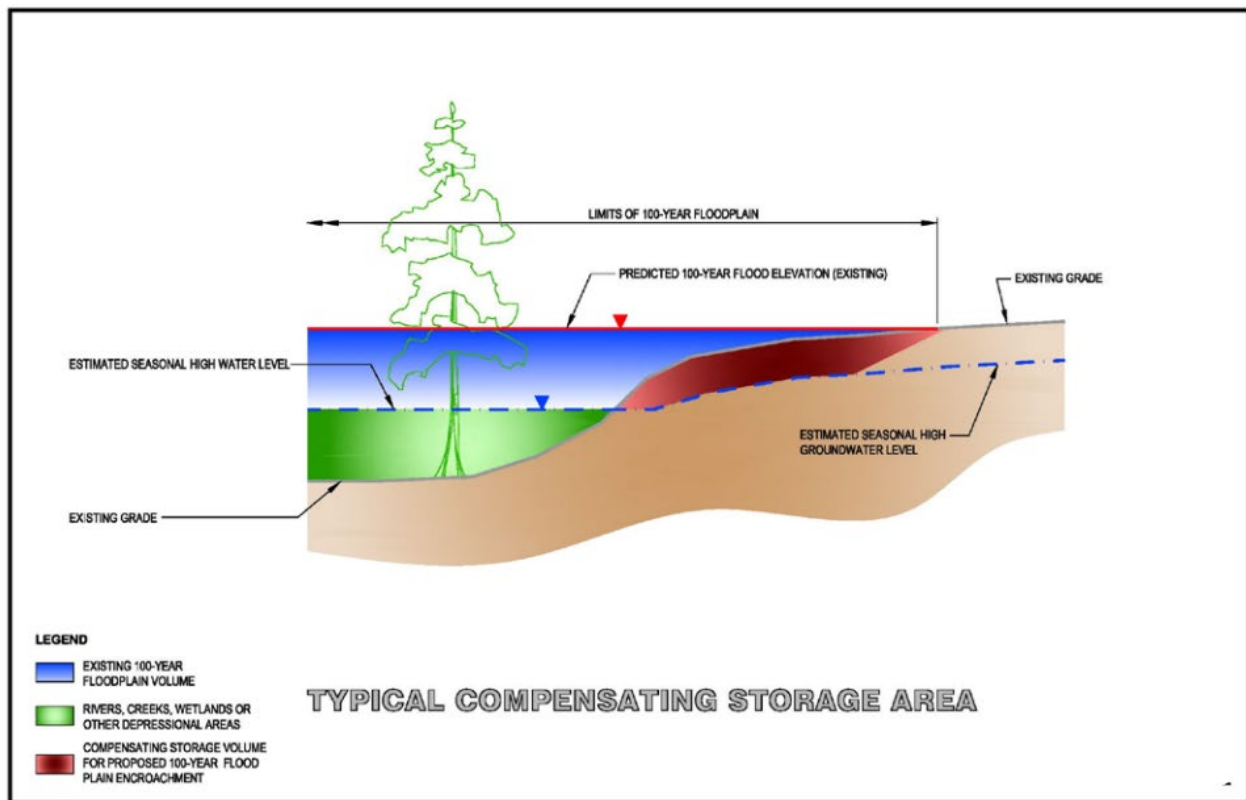
## **2.3.2. Recommendations for Improvement of Overall Floodplain Management Program**

Based on the findings and issues noted above, the following changes and improvements should be made to a) fulfill prerequisites for the CRS and, more importantly, b) enhance the Town's floodplain management program. Separate CRS Program Specific Recommendations are listed at the end of the document in Table 5.

### **Flood Risk**

- Map and update the list of repetitive loss properties annually and conduct regular outreach to those property owners regarding potential risk reduction actions. (*Mandatory Prerequisite*)
- Create formal protocol for capturing perishable data such as high-water marks or detailed damage assessments from an event. (*Optional/CRS Credit*)

Figure 2. Compensatory Storage Offsets Reduction of Water Storage Due to Fill in the SHFA



Source: [https://www.envisionalachua.com/files/managed/Document/865/5f-i\\_Stormwater\\_Management.pdf](https://www.envisionalachua.com/files/managed/Document/865/5f-i_Stormwater_Management.pdf). Technical memorandum, stormwater Management, Envision Alachua Sector Plan, May 1, 2015, revised June 4, 2015. Accessed 2/28/22.

### Programmatic Regulations

- Consider enacting compensatory storage requirements, particularly for projects located in riverine flood zones. Compensatory storage preserves areas of the floodplain that can store flood water and minimizes increases in flood heights due to development. *(Optional/CRS Credit)*
- Develop a consistent policy for assessing damaged structures and making substantial damage assessments<sup>1</sup> *(NFIP requirement)* as well as undertake substantial damage training. *(Optional/CRS Credit)*
- Consider tracking cumulative improvements and/or repairs to structures and use the cumulative value of improvements and/or repairs to determine substantial improvements (any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the start of construction of the improvement) or damages. *(Optional/CRS Credit)*
- Update the Town of Lansing Flood Damage Prevention Ordinance to ensure that substantial damage and substantial improvement determinations are cumulative in nature. *(Optional/CRS Credit)*

- Consider lowering the threshold of substantial damage and/or substantial improvement in the Town’s flood damage prevention ordinance to below 50 percent of the market value of the structure. *(Optional/CRS Credit)*
- Examine enhancements to building code enforcement such as code administration, plan reviews, and field inspection, and track those enhancements through the BCEGS® rating. *(Optional/CRS Credit)*
- Explore opportunities to enhance regulations for the 500-year flood zone and known hazardous areas located outside the SFHAs, such as requiring additional freeboard for structures and utilities in these areas. *(Optional/CRS Credit)*
- Update the Flood Damage Prevention Ordinance to identify the floodplain administrator. *(Optional/CRS Credit)*

### **Programmatic Planning**

- Update the Town’s comprehensive plan to ensure land use supports good floodplain management to avoid development of Floodprone areas and incorporate actions recommended as part of the Town’s Annex in the *Tompkins County Hazard Mitigation Plan: 2021 Update*. *(Optional/CRS Credit)*
- Adopt a National Incident Management System–compliant Emergency Operations Plan/Community Emergency Management Plan. This activity will bolster the Town’s response and preparedness for flooding and other hazards. The proposed post-disaster action plan should address standardizing damage assessments and address reconstruction in the wake of a flood event. *(Optional/CRS Credit)*
- Ensure appropriate floodplain management staff, including the floodplain administrator and building code officials, are involved in the development and implementation of the Town Comprehensive Plan, the *Tompkins County Hazard Mitigation Plan: 2021 Update*, and the Emergency Operations Plan. *(Optional/CRS Credit)*
- Develop a flood warning and response plan that integrates municipal emergency operations to address flooding and gain additional credit through the CRS. *(Optional/CRS Credit)*

### **Programmatic Administration**

- Develop policies and procedures for determining substantial damage and improvements when permit applications are received. Ensure that only the structure’s value is part of the determination. *(Mandatory Prerequisite)*
- Organize and formalize the process for record-keeping of development in the SFHAs.
- Organize and undertake outreach specific to residents and property owners in SFHAs. Outreach efforts should cover preparation for disasters, information about mitigation, and warnings about flooding events. *(Mandatory Prerequisite)*
- Develop a substantial damage response plan to provide a procedure for capturing post-event perishable data and to guide efficient post-disaster efforts to address regulatory requirements. *(Optional/CRS Credit)*

## SECTION 3: POTENTIAL IMPACT ASSESSMENT

CRS participation can have an array of potential impacts for local communities, such as A) a stronger floodplain management program and B) reduced flood insurance premiums for residents insuring structures in SFHAs.

If a municipality wants to improve a specific aspect of its existing floodplain management efforts, the CRS has 19 credited activities to guide those efforts and allocate credits for application and maintenance of CRS status. The following subsection on CRS activities provide an overview of likely sources of credit for the Town to meet the prerequisites and participate in the CRS program.

In addition to improving floodplain management, there can be savings to community members in flood insurance premiums. The following subsection on the flood insurance impact assessments for the Town at various CRS class ratings will help inform that potential impact.

### 3.1. IMPROVING FLOODPLAIN MANAGEMENT: OVERVIEW OF CRS ACTIVITIES

The following overview of CRS activities is based on the [2017 CRS Coordinator's Manual](#) (OMB No. 1660-0022) and the [2021 CRS Addendum](#), which is the current effective manual as of the preparation of this report. This section will describe the objective of each of the 19 activities.

#### **Activity 310—Elevation Certificates:**

*The objective of this activity is to maintain correct FEMA Elevation Certificates and other needed certifications for new and substantially improved buildings in the SFHA.*

Credit is provided if the community maintains FEMA Elevation Certificates for new and substantially improved construction. A CCMP is required for the full 38 points. To participate in the CRS program, a community must maintain completed FEMA Elevation Certificates on all buildings constructed, substantially improved, or constructed in the SFHA after its initial date of application to the CRS program with 90% accuracy. The community must agree to use the certificate and make copies available to any inquirer. All discussions about FEMA Elevation Certificates also apply to FEMA's flood-proofing certificate and the residential basement flood-proofing certificate.

**Maximum Points:** 116

**Performance Expectations:** FEMA Elevation Certificates are required for all new construction and/or substantial improvements within the floodplain from the date of application forward. FEMA Elevation Certificates must be reviewed for completeness and accuracy. Ninety percent of the obtained FEMA Elevation Certificates must be error-free for the Town to remain eligible for participation in the CRS program.

#### **Activity 320—Map Information Service:**

*The objective of this activity is to provide inquirers with information about local flood hazards and flood-prone areas.*



Credit is given for providing inquirers with information from the community's FIRM, including whether a property is in an SFHA, which zone, and the base flood elevation. Credit depends on publicizing this service and advising inquirers about the mandatory flood insurance purchase requirement.

**Maximum Points:** 90

**Performance Expectations:** The map information service must be advertised annually, and the municipality must keep a log and record of the service provided.

### **Activity 330—Outreach Projects:**

*The objective of this activity is to provide the public with information needed to increase flood-hazard awareness and to motivate actions to reduce flood damage, encourage purchase of flood insurance, and protect the natural functions of floodplains.*

This activity credits public information projects that reach directly out to people, rather than a service to respond to inquiries. To receive credit under this activity, a community may participate in one or more of the following types of projects:

1. Design and carry out public outreach projects.
2. Create a pre-flood plan for public information activities to be ready for the next flood. A pre-flood plan is a collection of outreach projects prepared in advance, but not delivered, until a flood occurs.
3. Implement an ongoing public information effort to design and transmit the messages that the community determines are most important to its flood safety and the protection of its floodplains' natural functions. This plan is reviewed and updated annually.
4. Create outreach projects that are conducted or endorsed by stakeholder organizations.

**Maximum Points:** 350

**Performance Expectations:** Credited outreach projects must be disseminated at least annually to retain credit.

### **Activity 340—Hazard Disclosure:**

*The objective of this activity is to disclose a property's potential flood hazard to prospective buyers before the lender notifies them of the need for flood insurance.*

Credit is provided if both potential sellers and real estate agents advise prospective property purchasers of the flood hazard. Other disclosure methods may also be credited.

**Maximum Points:** 80

**Performance Expectations:** The community has no annual performance requirements.

### **Activity 350—Flood Protection Information:**

*The objective of this activity is to provide the public with information about flood protection that is more detailed than that provided through outreach projects.*

Credit is provided if the local library maintains documents about flood insurance, flood protection, floodplain management, and the natural and beneficial functions of floodplains. Additional credit is provided if similar information is available on the community's website.

**Maximum Points:** 125

**Performance Expectations:** Web links must be tested at least annually to verify that they are still active and contain the credited information.

### **Activity 360—Flood Protection Assistance:**

*The objective of this activity is to provide one-on-one, property-specific help to people who are interested in protecting their properties from flooding.*

Credit is granted if a community provides technical advice to interested property owners and publicizes the services available. This activity credits telling individuals what they can do to protect their own properties from flood damage.

**Maximum Points:** 110

**Performance Expectations:** The service must be advertised annually, and the municipality must keep a log and record of the assistance provided.

### **Activity 370—Flood Insurance Promotion:**

*The objective of this activity is to improve flood insurance coverage in the community.*

This activity provides credit for a three-step process that allows communities to assess their needs and receive credit for improving their coverage. The process consists of the following three steps:

**Step 1: Flood insurance coverage assessment (FIA).** This credit is provided for assessing the community's current level of coverage and identifying shortcomings.

**Step 2: Coverage improvement plan (CP).** The plan is prepared by a committee that has representation from local insurance agents.

**Step 3: Implementation of the coverage improvement plan (CPI).** The plan's projects are implemented.

**Maximum Points:** 220

**Performance Expectations:** The municipality must implement the recommendations of the insurance coverage improvement plan.

### **Activity 410—Flood Hazard Mapping:**

*The objective of this activity is to improve the quality of mapping used to identify and regulate floodplain development.*

This activity provides credit for developing regulatory maps and flood data for floodplain management purposes in areas where FEMA does not provide such data, or for mapping to a higher standard than that

required by FEMA, as well as credit for regulating areas based on flood data not provided with the community's FIRM or for a flood study conducted to a higher standard than FEMA's Flood Insurance Study (FIS) criteria, such as sea level rise.

**Maximum Points:** 802

**Performance Expectations:** The community has no annual performance requirements.

### **Activity 420—Open Space Preservation:**

*The objectives of this activity are to:*

1. Prevent flood damage by keeping flood-prone lands free of development.
2. Protect and enhance the natural functions of floodplains.

Credit is given for areas in a regulated floodplain that are permanently preserved as open space. Additional credit is given for parcels of open space that are protected by deed restrictions or that have been preserved in or restored to their natural state. Credit is also given for measures that require or encourage less development in floodplains.

**Maximum Points:** 2,870

**Performance Expectations:** The community has no annual performance requirements unless there is a change to the regulations or zoning ordinances.

### **Activity 430—Higher Regulatory Standards:**

*The objective of this activity is to credit regulations to protect existing and future development and natural floodplain functions that exceed the minimum criteria of the NFIP.*

Under this activity, numerous higher regulatory approaches are credited that provide more protection to new development, redevelopment, and existing development. These include freeboard, foundation protection, more stringent building-improvement rules, protection of critical facilities, preservation of floodplain storage, protecting the natural and beneficial functions of floodplains, limiting building enclosures below the flood level, and mapping and regulating areas subject to special flood hazards. Additional measures proposed by a community will be evaluated and scored accordingly.

**Maximum Points:** 2,042

**Performance Expectations:** The municipality must maintain documentation of enforcement of credited standards to be provided with annual recertification.

### **Activity 440—Flood Data Maintenance:**

*The objective of this activity is to make community floodplain data more accessible, current, useful, and accurate so that the information contributes to the improvement of local regulations, insurance ratings, planning, disclosure, and property appraisals.*

Under this activity, credit is provided for putting FIRM flood boundary and floodway delineations on a digitized mapping system or implementing another method that allows for quick revision and reprinting of a floodplain map. Flood hazard data could also be maintained on computerized parcel records. This activity

also includes credit for adding and/or maintaining elevation reference marks and overlaying the community's floodplain mapping (including the FIRM) on the zoning map, the assessor's map, or other maps used regularly by community staff.

**Maximum Points:** 222

**Performance Expectations:** The municipality must make sure that credited data are still available and being used.

### **Activity 450—Stormwater Management:**

*The objective of this activity is to prevent future development from increasing flood hazards to existing development and to maintain and improve water quality.*

This activity credits the following approaches to regulating new development in the watershed:

- Regulating developments on a case-by-case basis to ensure that the peak flow of stormwater runoff from each site will be no greater than the runoff from the site before it was developed.
- Regulating developments according to a stormwater management master plan that analyzes the combined effects of existing and expected development on drainage through and out of the watershed.
- Regulating activities throughout the watershed to minimize erosion that results in sedimentation.
- Regulating the quality of stormwater runoff.

**Maximum Points:** 755

**Performance Expectations:** The municipality must maintain documentation of enforcement of credited standards.

### **Activity 510—Floodplain Management Planning:**

*The objective of this activity is to credit the production of an overall strategy of programs, projects, and measures that will reduce the adverse impacts of the hazard on the community and help meet other community needs.*

This activity provides credit for preparing, adopting, implementing, evaluating, and updating a comprehensive floodplain management plan. FEMA also requires a multi-hazard mitigation plan as a prerequisite for mitigation funding. The CRS program and FEMA do not specify what activities a plan must recommend, but they only recognize plans that have been prepared according to the standard planning process explained in FEMA regulations and Section 511 of the CRS Coordinator's Manual. Additional credit can be earned for development of a substantial damage response plan that provides the community a procedure for inspections of possible substantially damaged structures and permitting to remain NFIP compliant.

**Maximum Points:** 762

**Performance Expectations:** Annual progress reports for credited floodplain management plans and repetitive loss area analyses must be prepared and submitted with annual recertification.

**Activity 520—Acquisition and Relocation:**

*The objective of this activity is to encourage communities to acquire, relocate, or otherwise clear existing buildings out of the SFHA*

This activity credits either acquisition or relocation of an insurable building from the path of flooding, as long as the community can document that the property will stay vacant. The credit is based on the number of buildings cleared as a portion of the total number of buildings in the community's SFHA. The credit is provided only if the site qualifies for credit under Activity 420 (Open Space Preservation).

**Maximum Points: 2,250**

**Performance Expectations:** The community has no annual performance requirements.

**Activity 530—Flood Protection:**

*The objective of this activity is to protect buildings from flood damage by:*

1. Retrofitting the buildings so that they suffer no or minimal damage when flooded.
2. Constructing small flood control projects that reduce the risk of floodwaters reaching the buildings.

This credit is based on the number of insurable buildings in the regulatory floodplain that have been retrofitted since the date of the community's original FIRM. For the purposes of this activity, accessory structures such as garages or sheds are not counted as insurable buildings. Extra credit is given for protecting buildings on FEMA's repetitive loss list (see Section 501 of the CRS Coordinator's Manual) and critical facilities.

**Maximum Points: 1,600**

**Performance Expectations:** The community has no annual performance requirements.

**Activity 540—Drainage System Maintenance:**

*The objective of this activity is to ensure that the community keeps its natural streams, channels and storage basins clear of debris so that their flood-carrying and storage capacity are maintained.*

Credit is provided for keeping the channels and storage basins (detention or retention) of a community's drainage system clear of debris to maintain their carrying and storage capacity during flood events, and to protect water quality. A community can receive credit for the following drainage system maintenance activities:

- Inspecting and maintaining channels
- Monitoring problem sites
- Having a capital improvement program that benefits the drainage system
- Implementing and publicizing "no dumping" regulations
- Inspecting and maintaining storage basins
- Maintaining coastal (shoreline) erosion protection measures, if applicable

**Maximum Points: 570**

**Performance Expectations:**

The municipality must maintain documentation of enforcement of credited standards.

Annual logs and records must be maintained to document the performance of the credited activity.

### **Activity 610—Flood Warning and Response:**

*The objective of this activity is to encourage communities to ensure timely identification of impending flood threats, disseminate warnings to appropriate floodplain occupants, and coordinate flood response activities to reduce the threat to life and property.*

Credit is provided for a community that, at a minimum, has adopted a flood warning and response program that includes:

- A flood threat recognition system that identifies an impending flood
- Methods to warn the public of the impending flood
- A plan for flood response operations
- Coordination with critical facility operators

**Maximum Points: 395**

**Performance Expectations:** The municipality must perform an annual flood exercise of the credited emergency plan or document via after action report of a real flooding incident.

### **Activity 620—Levees:**

*The objective of this activity is to encourage communities to properly inspect and maintain levees and to identify impending levee failures in a timely manner, disseminate warnings to appropriate floodplain occupants, and coordinate emergency response activities to reduce the threat to life and property.*

This activity provides credit to communities protected by levees that are properly maintained and operated but are not high enough to meet the criteria for base flood levees. A community may also receive credit for a levee that protects to the base flood elevation or above if the levee is not reflected on the community's FIRM. No credit is offered under this activity if the area protected by the levee is designated as an AO, A99, AR, B, C, or X zone; or an AE or A-numbered zone with the base flood elevation lower than the level on the water side of the levee.

**Maximum Points: 235**

**Performance Expectations:** The municipality must perform an annual flood exercise of the credited emergency plan.

### **Activity 630—Dams:**

*The objectives of this activity are to:*

1. Encourage states to provide dam safety information to communities.
2. Encourage communities, in turn, to provide timely identification of an impending dam failure, disseminate warnings to those who may be affected, and coordinate emergency response activities to reduce the threat to life and property.

Credit is provided for a community program that mitigates the threat to its floodplain properties from a failure of an upstream dam through emergency preparedness.

**Maximum Points:** 160

**Performance Expectations:** The municipality must perform an annual flood exercise of the credited emergency plan.

### 3.2. INITIAL ESTIMATION OF CRS CREDIT

The following sections provide information on likely sources of CRS credit for the Town of Lansing. To participate in the CRS, communities must earn at least **500 points** to qualify as a Class 9 community. The Town is currently a Class 10 community and by qualifying as a Class 9 community, residents of the Town who carry flood insurance would benefit from 5% reduction in their insurance premium.

The activities and associated Town-specific points outlined below do not represent all possible creditable activities and elements for CRS participating communities but are likely sources of credit for a community just entering the program. The activities and associated points were chosen for review based on the New York State Based Credit Report<sup>2</sup> and activities discussed during the baseline assessment. Many of these credits are granted on the assumption that the Town is complying with minimum state and federal requirements for floodplain management-related activities. All credit indicated below is subject to verification from ISO or CRS specialists. Many of these activities could be enhanced by the Town to maximize credit.

#### Activity 310—Elevation Certificates

**38 - 86 points out of 116**

##### ***Element 312.a.—Maintaining Elevation Certificates***

**38 points**

This activity is a CRS participation prerequisite. If a community is not already doing so, it must begin maintaining FEMA Elevation Certificates as a condition of participation. Based on the information provided during the baseline assessment, the Town requires that the elevation of the lowest floor of a building be certified and reviews the FEMA Elevation Certificates for completeness or accuracy.

All communities receive at least 38 points for meeting the prerequisite. Credit for this activity necessitates verification of a CCMP that outlines procedures to ensure that FEMA Elevation Certificates are required and filled out properly to document building compliance with regulatory provisions of the Town's floodplain management ordinance. Failure to annually verify that at least 90 percent of the Town's FEMA Elevation Certificates on file are complete and accurate through an audit procedure may result in the community's removal from the CRS program. Since this activity is a prerequisite for CRS participation, credit is mandatory for program eligibility.

##### ***Element 312.b.—Maintaining Elevation Certificates for post-FIRM buildings up to 48 points***

Because the Town has not joined the CRS but is already maintaining Elevation Certificates, credit can be earned based upon the number of post-FIRM buildings with Elevation Certificates it has on file. The Town

<sup>2</sup> <https://crsresources.org/files/200/sbc/new-york-sbc-2017.pdf>

can also receive credit for the number of buildings that have been built or substantially improved in the SFHA between the initial FIRM effective date and the date the Town will apply to the CRS.

### Activity 320—Map Information Service

0 points out of 90

#### **Element 322.a.—Basic FIRM information**

**0 points**

The Town does not currently meet the requirements for this credit; however, 30 points could be awarded with development of standard operating procedures (i.e., developing a procedure to ensure that all the information required to rate a flood insurance policy, including the NFIP Community Number, FIRM date, flood zone, Base Flood Elevation (BFE), and other information, is provided to the requesting party). The Town’s ability to provide this information must be publicized annually, and it must document requests for this information.

#### **Element 322.b.—Additional FIRM information**

**0 points**

Additional credit can be awarded if the Town agrees to provide information that goes above and beyond the basic FIRM requirements, such as including design flood elevation data. This information is not used for insurance rating purposes but is included on the Town’s FIRM. Information on the Town’s FIRM that would need to be provided includes the location of the floodway. The Town is not currently eligible for credit under this element but would be eligible for up to 20 points if the procedures identified in ‘Basic FIRM information’ were developed.

#### **Element 322.c.—Other flood problems not shown on the FIRM**

**0 points**

The Town of Lansing currently does not document or provide information on areas of localized or stormwater flooding or floodprone roadways. This sort of information on other flood problems could also be maintained and provided and supplemented with local drainage problems to earn additional credit.

### Activity 330—Outreach Projects

0 points out of 350

#### **Element 332.a.—Outreach projects**

**0 points**

The Town has supported the County’s public information efforts surrounding flood prevention and mitigation, but it does not independently create or disseminate its own outreach information to educate or engage its residents. The amount of credit given depends on the number of CRS topics covered and the type of outreach (e.g., informational, general, targeted) conducted.

The Town has the potential to employ a flood specific webpage and municipal staff can produce and distribute educational brochures, articles, pamphlets, and other printed and digital materials, as well as host webinars, social media campaigns or in-person events to educate the public. These capabilities could be leveraged to earn up to 200 points for outreach projects.

A Program for Public Information (PPI) can help design an entire public information program, not just outreach projects. A Program for Public Information that covers other types of public information endeavors, such as a website and technical assistance, can result in increased credit under other activities. Up to 80 points added to Outreach Project credits and up to 20 points added to Flood Response Preparations credits, for projects that are designed and implemented as part of an overall public information program.

For details regarding additional elements that provide credit opportunities under this activity, refer to the CRS Coordinator’s Manual [here](#).



Note: Although the total of all elements in this activity exceeds 350 points, the maximum credit is 350 points.

### Activity 340—Hazard Disclosure

10 points out of 80

#### **Element 342.b.—Other disclosure requirements**

10 points

A total of 10 points is awarded based on New York State Based Credit in this activity. The credit is awarded in accordance with New York State Real Property Law, Section 462, containing requirements for property condition disclosure statements. Under penalty of law, every seller of residential real property prior to a purchase contract must complete and sign a property condition disclosure statement. The statement includes the following questions:

- Is any or all of the property located in a SFHA?
- Are there any flooding, drainage, or grading problems that resulted in standing water on any portion of the property?
- Is any or all of the property located in a designated wetland?

Any seller submitting a knowingly false or incomplete property condition disclosure statement is subject to a \$500 fine

### Activity 350—Flood Protection Information

0 points out of 125

#### **Element 352.a.—Flood protection library**

0 points

Ten points can be earned for having each of the nine publications listed in the CRS Coordinator’s Manual available at the Lansing Community Library. The publications can be ordered through FEMA and added to the library’s collection with minimal effort.

#### **Element 352.b.—Locally pertinent documents**

0 points

Once 352.a is met, an additional 10 points can be earned for having documents available at Lansing Community Library that cover flood hazards, flood protection, and natural floodplain functions. Many of these documents can be the same as those that the Town maintains, such as the Tompkins County Hazard Mitigation Plan, the FIRM, the FIS, and floodplain management ordinance. Additional materials can include aquatic and riparian habitat guides, information on floodplain management, and guides to flood mitigation.

#### **Element 352.c.—Flood protection website**

0 points

The Town of Lansing hosts a website, but it does not include a page dedicated to flood information.

To become eligible in 352.c, the Town should host a page with flood information, links to additional flood resources, including a link to Floodsmart or FEMA’s flood insurance page, as well as a directory of flood protection information. Staff must check that the links are working monthly.

Including this information on the Town’s website can earn up to 77 points.

**Activity 360—Flood Protection Assistance****0 points out of 110****Element 362.a.—Property protection advice****0 points**

The Town’s floodplain administrator must be available to provide one-on-one advice to individuals who request it. In addition, the Town’s ability to provide this advice must be publicized annually, and the Town must keep a log recording when individuals request advice. Once this process is implemented, the Town would be eligible for up to 25 points.

**Element 362.b.—Protection advice provided after a site visit****0 points**

The Town’s floodplain administrator could also be made available to visit individual properties and provide site-specific advice for protecting those properties. To receive credit for this activity, the Town must earn credit under Element 362.a. The Town’s ability to provide this advice must be publicized annually, and the Town would need to keep a log of site visits conducted. The Town could earn up to 30 points for this activity.

**Element 362.c.—Financial assistance advice****0 points**

The Town’s staff could also earn up to 10 points by providing advice on flood mitigation financial assistance programs that may be available to Town residents.

**Element 362.d.—Advisor training****0 points**

Staff could take and graduate from training courses provided by FEMA’s Emergency Management Institute (EMI), making the Town eligible for an additional 10 points.

**Activity 370—Flood Insurance Promotion****0 points out of 220**

Town staff have not undertaken any activities that would result in scoring points for flood insurance promotion. To obtain credit under this activity, the Town could consider the following.

*Element 372.a – Flood Insurance Coverage Assessment*

The Town can assess the community’s current level of coverage and identify shortcomings (up to 220 points).

*Element 372.b – Coverage Improvement Plan*

The Town can prepare a plan by a committee with representation from local insurance agents to promote flood insurance (up to 30 points).

*Element 372.c – Coverage Improvement Plan Implementation*

The Town can implement a coverage improvement plan (up to 60 points).

*Element 372.d.—Technical Assistance*

The Town can offer assistance to the public that would encourage people to purchase flood insurance or improve their existing flood insurance (35 points).

*Element 372.e.—Flood Insurance Brochures*

The Town can distribute flood insurance brochures to residents and property owners (25 points).

*Element 372.f.—Flood Insurance Meeting*

The Town can support a town hall or open house to promote, educate, and assist with flood insurance (40 points).

*Element 372.g.—State Required Continuing Education*

The Town can earn points if New York State mandates continuing education credits for insurance agents, the Town (up to 15 points).

|  |                            |
|--|----------------------------|
| <b>Activity 410—Flood Hazard Mapping</b> | <b>0 points out of 802</b> |
|--|----------------------------|

The Town has not conducted additional flood studies (other than the FIRM and FIS) to develop base flood elevations or floodways.

|   |                               |
|---|-------------------------------|
| <b>Activity 420—Open Space Preservation</b> | <b>215 points out of 2870</b> |
|---|-------------------------------|

The Town does not have formal open space conservation in its code; however, there are several conservation easements, many of which the Town co-holds, which protects farmland, natural areas, and active flood plains. Note: Open space preservation credit receives an impact adjustment for the area for the percentage of preserved land in the SFHA. The impact adjustment estimated for open space preservation is the proportion of the SFHA that is preserved (sans developable land for which higher regulatory standards are credited in Activity 430).

***Element 420(a)—Open space preservation***

***estimated 215 points***

The Town currently is involved with formal open space preservation, which, in part, protects floodplain areas. The maximum credit for this activity is 1,450 points. The Town must identify a set of parcels that it considers preserved open space. Credit for this element is calculated by multiplying the ratio of preserved open space in the SFHA to the total area of the SFHA by 1,450. Based on an initial analysis of easements held by Tompkins County, the Town of Lansing and the Finger Lakes Land Trust and land protected by New York State 107 acres of the SFHA are currently formally protected of the nearly 800 acres of SFHA in Lansing (13% of SFHA).  $13\% \times 1,450 = 194$ . The Town must provide formal documentation of open space protection upon verification.

***Element 422.b.—Deed restrictions***

***0 points***

To receive credit under this activity, the Town must have deed restrictions on parcels to preserve open space. Parcels for which the Town has deed restrictions to preserve open space are eligible for up to 50 points. If the parcel is roughly 40 percent of the SFHA, the parcel could earn 20 points.

***Element 422.c.—Natural functions open space***

***0 points***

The Town does not currently have their own open space, critical habitat inventory. For the Town to earn points under this activity, areas preserved in their undeveloped natural state or designated as critical habitat must be inventoried and documented.

**Element 422.d – Special flood-related hazards open space** **0 points**

The Town does not have special flood-related hazard or flood-related low-density zoning regulations.

**Element 422.e – Coastal erosion open space** **0 points**

The lakefront is not experiencing rates of erosion exceeding 1.5 feet per year; therefore, the Town would not be eligible for points in this element.

**Element 422.f – Open space incentives** **0 points**

The Town does not have open space incentives.

**Element 422.g – Low-density zoning** **0 points**

Open space subdivision design, cluster development, transfers of development rights, and planned unit developments are regulatory approaches that can require or encourage developers to set aside floodplains and other areas as dedicated open space. Unless the regulations specifically identify certain undeveloped floodplains and mandate that they be set aside, there is no open space preservation credit for these regulations because there is no assurance that the developer will set aside specific areas. However, such regulations are credited under Section 421.e, open space incentives. Once the parcel is set aside and preserved as open space, it may qualify for credit as publicly owned land. The Town has a low-density zoning district referred to in Article II Land Use Control Areas, Section 270-4, but this cannot be credited under this activity unless a detailed description of the number of units allowed per acre is provided.

**Element 422.h – Natural shoreline protection** **0 points**

Credit for this element will include an impact adjustment based upon the percentage of protected shoreline in the Town.

**Activity 430—Higher Regulatory Standards** **78 Points out of 2,042**

Note: Higher regulatory standards credit receives an impact adjustment for the area affected by the regulations. An impact adjustment will be part of the calculations for higher regulatory standards based on the proportion of the floodplain that is developable (sans preserved open space credited in Activity 420).

**Element 432.a – Development limitations** **0 points**

The Town does not prohibit fill, buildings, or storage of materials in the SFHA.

**Element 432.b.—Freeboard** **0 points**

There are standards for freeboard in the Lansing Local Law as well as in the Uniform Code of New York State. Lansing requires a minimum of two feet of freeboard as follows:

- Town of Lansing Code, Chapter 142 Flood Damage Prevention adopts two feet of freeboard in any A zone that has a Base Flood Elevation (BFE). If there is no base flood elevation, the minimum elevation standard is the highest adjacent grade plus three feet. However, there are currently no A zones without base flood elevations within the Town limits.
- Town of Lansing Code, Chapter 142, requires that any non-residential structure floodproofing be two feet above BFE.

The flood damage prevention ordinance does not include restrictions on fill or require compensatory storage. Credit of up to 280 points for this element will be based on documentation of enforcement. FEMA

Elevation Certificates for new development in the floodplain must be reviewed to confirm compliance with the freeboard requirement.

**Element 432.c.—Foundation protection**

**Up to 35 points**

All new buildings must be constructed on foundations that are designed and sealed by a registered design professional as complying with International Building Code (IBC), International Residential Code (IRC) or ASCE24. In accordance with New York State regulations, the Town of Lansing must enforce the Uniform Code of New York State. Per the Building Code of New York State, “The design and construction of buildings and structures located in flood hazard areas, including coastal high hazard areas and coastal A zones, shall be in accordance with Chapter 5 of ASCE 7 and ASCE 24.” The Residential Code of New York State (Section 1612.2) allows construction in accordance with ASCE 24 but does not require it, and ASCE 7 is not mentioned. Partial points may be obtained because the requirement only pertains to structures other than one- or two-family residential buildings. The Town is eligible for up to 35 points, but this number will be impact adjusted to remove the areas in the SFHA that are preserved as open space.

**Element 432.d – Cumulative substantial improvements**

**0 points**

The Town does not have cumulative substantial improvements.

**Element 432.e – Lower substantial improvements**

**0 points**

The Town does not have substantial improvement thresholds lower than 50 percent.

**Element 432.f – Protection of critical facilities**

**0 points**

The Town does not have requirements for the protection of critical facilities.

**Element 432.g – Enclosure limits**

**0 points**

The Town does not limit enclosures below the base flood elevation.

**Element 432.h.—Building Code**

**48 points**

Up to 100 points may be obtained for adopting and enforcing the International Code Series. New York State requires all municipalities to enforce the Uniform Code of New York State. The Uniform Code has adopted the 2018 International Building Code series with amendments. With one exception, the amendments render the code more restrictive than the International Building Code. The one exception is for Class 4 buildings as identified in ASCE 24-14 Table 1-1. Class 4 buildings and structures contain essential facilities and services. ASCE 24-14 requires Class 4 buildings to be constructed to the higher elevation of BFE plus two feet or the 2% Chance Annual Flood Area flood elevation. The Uniform Code of New York State only requires construction to the BFE or Design Flood Elevation( DFE) (whichever is higher) plus two feet.

As a result, the Town should be awarded the following points :

- 20 points for the adoption and enforcement of the IBC
- 20 points for the IRC
- 3 points for the International Plumbing Code
- 3 points for the Mechanical Code
- 2 points for the International Fuel Gas Code

The Town will not earn points as it does not have a BCEGS® rating.

**Element 432.i.—Local Drainage Protection****0 points**

The Town of Lansing building code does not require building permit applicants to provide positive drainage away from the building site.

**Element 432.j.—Manufactured Home Parks****0 points**

Fifteen points are available for removing the elevation exemption for manufactured homes in existing parks. The Residential Code of New York State, as well as Chapter 142 of the Lansing Code, do not include that exemption.

**Element 432.k.—Coastal A Zones****0 points**

Up to 500 points for enforcing V-zone rules inland from the V zone boundary. While the effective FIRM does not contain any V zones or Coastal A zones (areas landward of the Limit of Moderate Wave Action), the Advisory Flood Map for Rockland County, which was adopted by the Town of Lansing in its local law, does contain Coastal A zone areas. The following standards apply:

- Section 112-14(A)(2) of the Town code prohibits fill for structural support of buildings within V zones and areas of moderate wave action.
- Section 112-15(4) requires free of obstruction or breakaway walls below the lowest floor in an area of moderate wave action, and restricts use of the space to parking, building access, or storage. It also prohibits the use of this space for human habitation.
- Section 112-17 of the code requires residential structures in an area of moderate wave action to meet V zone standards.
- Section 112-19 requires nonresidential structures in coastal high hazard areas to meet V zone construction standards and prohibits floodproofing. While the section does not explicitly mention Areas of Moderate Wave Action, the definitions section includes an area within a Zone AE that is bounded by a line labeled “Limit of Moderate Wave Action.”

The Uniform Code of New York State contains all the Coastal A zone requirements contained in the Uniform Code 2018 series. This requires V zone construction requirements in a Coastal A zone with a single exception: for residential structures, a stem wall foundation supporting a floor system above and backfilled with soil or gravel to the underside of the floor system is permitted.

The eligible points will be adjusted based upon the size of the Coastal A zone. Because the effective FIRM does not contain Coastal A zones, the Town will not be able to earn credit at this time.

**Element 432.o.—Other Higher Standards****Up to 100 points**

Up to 100 points are available for other regulations not specifically addressed in the CRS manual. While the examples provided do not apply to Lansing, the Town is encouraged to produce evidence of higher standards over and above those required by the NFIP.

Points in this element will be adjusted based on the area of the SFHA to which these standards apply.

**Element 432.p – Regulations Administration****30 points**

The Town Planner and Town engineer are both Certified Floodplain Managers. The Town engineer reviews and approves proposed development projects in the floodplain on behalf of the floodplain administrator. However, if the Town documents that any new development is reviewed by a Certified Floodplain Manager, added credit is granted.

**Activity 440—Flood Data Maintenance****130 points out of 222****Element 442.a.—Additional Map Data****88 points**

The Town does not yet have digital mapping creditable through this activity but can qualify for credit through demonstrated use of existing mapping assets provided by Tompkins County or by creating a Lansing-specific interface. However, digital maps anticipated in Spring 2022 will provide credit for this activity.

Credit may be awarded for this element based on the data sets maintained by the Tompkins County Geographic Information Systems (GIS) Division. The Town should demonstrate familiarity with and use of the County's GIS resources and consider adding Lansing-specific information to a mapping platform that can be used by Town residents and staff. The County GIS data includes the following:

- FEMA flood maps, including SFHA, base flood elevations, flood zones, and the 500-year floodplain (available at <https://tcddata-tompkinscounty.opendata.arcgis.com/datasets/flood-zones/explore?location=42.443581%2C-76.467871%2C10.37> ) **22 points**
- Corporate limits, streets, and parcels (available as a basemap at <https://tcddata-tompkinscounty.opendata.arcgis.com/content/tcparceldwg/about> ) **20 points**
- FIRM zone attributes (available as a basemap at <https://tcddata-tompkinscounty.opendata.arcgis.com/datasets/flood-zones/explore?location=42.443581%2C-76.467871%2C10.37> ) **10 points**
- Topographic maps at 20-foot interval contours (available as a basemap at <https://tcddata-tompkinscounty.opendata.arcgis.com/datasets/topography-20-contours/explore?location=42.443165%2C-76.467871%2C10.00> ) **10 points**
- Building footprints (available as baselayer map at <https://apps.geocortex.com/webviewer/?app=615b6d34dd374aa9bf75626b78fb0ed0> and <https://tompkinscounty.maps.arcgis.com/home/item.html?id=f2585e751d014a99a455bb599636998> ) **26 points**

**Element 442.b.—FIRM Maintenance****15 points**

Credit can be earned for having all FIRMs, flood insurance studies, and flood boundary and floodway maps issued for the Town available for review by the public at Town Hall. Additional credit can be granted for having all flood hazard boundary maps similarly available. As historic FIRMs are available from FEMA, the Town could earn 15 points relatively easily.

**Element 442.c.—Benchmark Maintenance****27 points**

The Town does not have a program to maintain benchmarks for surveyors. However, benchmarks in the region are available through the U.S. Geological Survey that meet the standards of this element provided the Town keeps this data on file in the future. ISO is likely to provide this credit to the Town.

**Element 442.d.—Erosion Data Maintenance****0 points**

The Town does not maintain coastal erosion data.

**Activity 450—Stormwater Management****126 points out of 755****Element 452.a.—Stormwater Management Regulations****96 points**

As a Municipal Separate Storm Sewer System (MS4) community, the Town of Lansing is required to develop and enforce requirements in accordance with New York State’s MS4 guidelines. Chapter 225 of the Lansing Code covers stormwater control. The code applies to any construction activity resulting in land disturbance of greater than one acre, less than one acre, if part of a larger common plan of development or sale, or less than one acre, but part of a prior project.

Section 225-28(1) requires Stormwater Pollution Prevention Plans for covered land development activities that include a construction phasing plan consistent with New York State Standards and Specifications for Erosion and Sediment Control for any land development of over one-half acre.

The developer must include post-construction water quantity and quality controls (Section 225-28B (3) if disturbing five acres or more or one to five acres exclusive of single-family residences or agricultural properties.

The controls must be in accordance with NYS Stormwater Management Design Manual (NYSDEC) and New York State Standards and Specifications for Erosion and Sediment Control, or the equivalent.

The Town earns an estimated 96 points for stormwater management and low-impact development using the state uniform minimum credit. Credit for this activity is dependent on the Town’s documentation and the enforcement of stormwater management regulations.

**Element 452.b.—Watershed Master Plan****0 points**

The Town does not have a watershed master plan.

**Element 452.c.—Erosion and Sedimentation Control Regulations****10 points**

Up to 40 points are available. The New York State Standards and Specifications for Erosion and Sediment Control contains detailed standards for controlling runoff during construction. Only 10 points should be available as Lansing’s requirements pertain to land disturbance of over one acre. The full 40 points requires controls of land disturbed due to construction of over 1,000 square feet.

**Element 452.d.—Water Quality Regulations****20 points**

State uniform minimum credit has been approved for water quality standards based on a technical review of state regulations.

**Activity 510—Floodplain Management Planning****50 to 250 Points out of 762****Element 510.a.—Floodplain Management Planning****Points TBD**

The Tompkins County Hazard Mitigation Plan, adopted by the Town, has not been submitted to ISO for credit reviewed as a floodplain management plan. The planning process to develop the County plan followed the NYS Division of Homeland Security and Emergency Services guidance and the requirements of the Disaster Mitigation Act of 2000 (DMA 2000); points for the Hazard Mitigation Plan will be determined by ISO review.

**Element 510.b.—Repetitive Loss Area Analysis****0 Points**

The Town has not developed a repetitive loss area analysis.





**Element 510.c.—Natural Floodplain Functions Plan****0 Points**

The Town has not adopted a plan to protect natural functions within the SFHA.

**Element 510.d.—Substantial Damage Management Plan****X Points?**

The Town can develop a substantial damage management plan that would promote inspections, permitting, and managing an inventory of structures that have been or are subject to flooding, including repetitive loss properties or minus-rated structures.

**Activity 520—Acquisition and Relocation****0 points out of 2,250**

The Town has not implemented any property acquisition or relocation. Therefore, the Town is ineligible for points in Activity 520.

**Activity 530—Flood Protection****0 points out of 1,600**

The Town can gain points for any buildings that have been elevated above the base flood elevation. To apply for points, the Town will need to determine the number of buildings that have been elevated and their elevation in relation to the base flood elevation.

**Activity 540—Drainage System Maintenance****0 points out of 570****Element 542(a)—Channel Debris Removal****0 points**

Only natural conveyance areas are eligible for this credit.

To earn credit, the Town would need to develop an inventory and mapping of the natural conveyance system and show that inspections take place at least annually.

**Element 542(b)—Problem Site Maintenance****0 points**

If the Town identifies known problem areas, staff would need to develop written procedures and provide proof of inspections and maintenance.

**Element 542(c)—Capital Improvement Program****0 points**

The Town does not have a formal capital improvement program to correct drainage problems.

**Element 542(d)—Stream Dumping Regulations****0 points**

The Town does not have stream dumping regulations.

**Element 542(e)—Storage Basin Maintenance****0 points**

The Town would need to formalize storage basin maintenance procedures and ensure that inspections and maintenance take place annually to earn points in this element.

**Activity 610—Flood Warning and Response****0 points out of 395**

While the Town has flood warning and response procedures, it is ineligible for points in this activity due to a lack of an adopted flood warning and response plan.

**Activity 620—Levees****0 points out of 235**

As the Town does not have any levee systems, it is not eligible for points in this activity.

**Activity 630—Dams****0 points out of 160**

As the Town does not have any high hazard dams with the potential of inundating the Town, it is not eligible for points in this activity.

**Activity 710—Community Growth Rate Adjustment Factor****1.11**

The community growth rate adjustment factor for Town of Lansing is determined by the official County Growth Adjustment, which is calculated by ISO and provided to each community and available at <https://crsresources.org/700-2/>. The 2021 Community Growth Rate Adjustment Factor for Tompkins County is 1.11.

## Summary Overview of Potential CRS Credit

Table 2 summarizes potential CRS credits for the Town of Lansing by activity and source and should be reviewed in context of the narrative discussion above. All credits indicated are subject to verification by an ISO/CRS specialist.

If the Town of Lansing applies to the CRS and obtains a CRS classification for which the Town receives a benefit (CRS Class 1-9), it will be required to recertify annually. Each year, the Town Supervisor must recertify that the community is continuing to implement the activities for which CRS credit has been provided. Recertification forms are sent to each participating community annually by their ISO/CRS specialist. Communities must complete the recertification forms, attach requested documentation, and submit the completed forms by February 1 of each calendar year following classification. The documentation requested supports performance of activities that are implemented regularly, such as outreach projects or maintenance procedures.

Based on the activities and elements reviewed in this report, the Town would be able to obtain an estimated **907 points** for the activities it is already pursuing as detailed in Table 2. The Town would enter the CRS at the base level (Level 9) which results in a discount of 5% to flood insurance policy holders. Before applying to the CRS, the Town should review the recommendations for enhancing its CRS eligible activities.

Table 2. Initial CRS Potential for Town of Lansing

| CRS Activity                                      | Credit Points Available | New York State Based Credit | Credit from Town Programs | Total            | % of Maximum Credit |
|---|-------------------------|-----------------------------|---------------------------|------------------|---------------------|
| 310-Elevation Certificates                        | 116                     | —                           | 38-86                     | 38-86            | 33-76%              |
| 320-Map Information Services                      | 90                      | —                           | —                         | —                | —                   |
| 330-Outreach Projects                             | 350                     | —                           | —                         | —                | —                   |
| 340-Hazard Disclosure                             | 80                      | 10                          | —                         | 10               | 13%                 |
| 350-Flood Protection Information                  | 125                     | —                           | —                         | —                | —                   |
| 360-Flood Protection Assistance                   | 110                     | —                           | —                         | —                | —                   |
| 370-Flood Insurance Promotion                     | 220                     | —                           | —                         | —                | —                   |
| 410-Flood Hazard Mapping <sup>a</sup>             | 802                     | —                           | —                         | —                | —                   |
| 420-Open Space Preservation <sup>a</sup>          | 2,870                   | —                           | 215                       | 215              | 7.5%                |
| 430-Higher Regulatory Standards <sup>a</sup>      | 2,042                   | —                           | Up to 338                 | 338              | 17%                 |
| 440-Flood Data Maintenance <sup>a</sup>           | 222                     | —                           | 130                       | 130              | 59%                 |
| 450-Stormwater Management <sup>a</sup>            | 755                     | —                           | 126                       | 126              | 17%                 |
| 510-Floodplain Management Planning                | 762                     | —                           | 50-200                    | 50-200           |                     |
| 520-Acquisition and Relocation                    | 2,,250                  | —                           | —                         | —                | —                   |
| 530-Flood Protection                              | 1,600                   | —                           | —                         | —                | —                   |
| 540-Drainage System Maintenance                   | 570                     | —                           | —                         | —                | —                   |
| 610-Flood Warning and Response                    | 395                     | —                           | —                         | —                | —                   |
| 620-Levees  | 235                     | —                           | —                         | —                | —                   |
| 630-Dams  | 160                     | —                           | —                         | —                | —                   |
| 710-Community Growth Rate Adjustment <sup>a</sup> | 1.11                    | —                           | —                         | —                | —                   |
| <b>Total Credit</b>                               | <b>13,574</b>           | <b>10</b>                   | <b>Up to 1,105</b>        | <b>907-1,105</b> | <b>6.7-8%</b>       |
| <b>Potential CRS Classification</b>               |                         |                             |                           |                  | <b>8 or 9</b>       |
| <b>% Premium Discount</b>                         |                         |                             |                           |                  | <b>5%-10%</b>       |

a. Credit will be adjusted by ISO's most current community growth rate adjustment factor (the 2021 factor is 1.11).

### 3.3. REDUCE FLOOD INSURANCE PREMIUMS: FLOOD INSURANCE CRS IMPACT ANALYSIS

Table 3 summarizes flood insurance statistics for Town of Lansing as of September 3, 2021. Table 3 illustrates the potential flood insurance premium reductions for Town of Lansing by CRS classification. Table 4 also shows the discounts per policy as well as the aggregated premium discounts.

Table 3. Flood Insurance Statistics for Town of Lansing as of September 3, 2021

|                         | SFHA     | Non-SFHA | Total    |
|-------------------------|----------|----------|----------|
| Total Policies in Force | 25       | 10       |          |
| Premium                 | \$31,767 |          | \$37,323 |
| Average Premium         | \$1,271  |          | \$1,066  |

Table 3. Flood Insurance Premium Reduction Potential for Town of Lansing

| CRS Class Discount in SFHA                 |                   | SFHA         | Non-SFHA <sup>a</sup> | Total        |
|--|-------------------|--------------|-----------------------|--------------|
| <b>09 (5%)</b><br><b>500-999 pts</b>       | Per Policy        | \$64         | \$54                  | \$48         |
|  | Town-wide         | \$1,588      |                       | \$1,696      |
| <b>08 (10%)</b><br><b>1,000-1,499 pts.</b> | Per Policy        | \$127        |                       | \$94         |
|  | Town-wide         | \$3,177      |                       | \$3,285      |
| <b>07 (15%)</b><br><b>1,500-1,999 pts.</b> | <b>Per Policy</b> | <b>\$191</b> |                       | <b>\$139</b> |
|  | Town-wide         | \$4,765      |                       | \$4,873      |
| <b>06 (20%)</b><br><b>2,000-2,499 pts.</b> | Per Policy        | \$254        |                       | \$188        |
|  | Town-wide         | \$6,353      |                       | \$6,569      |
| <b>05 (25%)</b><br><b>2,500-2,999 pts.</b> | Per Policy        | \$318        |                       | \$233        |
|  | Town-wide         | \$7,942      |                       | \$8,158      |
| <b>04 (30%)</b><br><b>3,000-3,499 pts.</b> | Per Policy        | \$381        |                       | \$278        |
|  | Town-wide         | \$9,530      |                       | \$9,746      |
| <b>03 (35%)</b><br><b>3,500-3,999 pts.</b> | Per Policy        | \$445        |                       | \$324        |
|  | Town-wide         | \$11,118     |                       | \$11,334     |
| <b>02 (40%)</b><br><b>4,000-4,499 pts.</b> | Per Policy        | \$508        |                       | \$369        |
|  | Town-wide         | \$12,707     |                       | \$12,923     |
| <b>01 (45%)</b><br><b>4,500+ pts.</b>      | Per Policy        | \$572        |                       | \$415        |
|  | Town-wide         | \$14,295     |                       | \$14,511     |

a. Non-SFHA properties receive a 10% discount for CRS Class 1-6 and 5% for CRS Class 7-9.

The rows highlighted indicate the savings that Town policyholders will receive based on the estimation that the Town will be awarded the amount of CRS points to earn a Class 7 rating. While the Town has the potential to enter the program at a higher-class rating, it is advisable to enter at a slightly higher-class rating that is sustainable and then gradually apply for additional points as the Town's floodplain management program increases capabilities.

Source: All data provided by NFIP Bureau Statistical Agent as of September 3, 2021. Premium discounts calculated using standard insurance industry rating parameters.

In addition to the 25 SFHA policies and the two non-SFHA policies, the Town has eight preferred risk policies (low-cost flood insurance policies owners and tenants of eligible buildings located in the moderate-risk B, C, and X Zones in the NFIP). These policies are currently ineligible for CRS discounts. However, due to pending changes to the NFIP program's rate methodology through [Risk Rating 2.0](#), as of April 2022 all NFIP policies will receive the same rate of premium discounts. This change will standardize CRS premium discount rates throughout Lansing and lead to increased savings throughout the community as SFHA policies make up 71 percent and non-SFHA policies, which currently receive a lower discount rate than SFHA policies, comprise less than one percent of policies in the Town, while preferred risk policies account for 23 percent.

In addition, changes to the Town's FIRM in the future are likely to result in an expansion of the SFHA. Expansion of the SFHA will also lead to more potential NFIP policies being eligible for maximum premium discount rates, with or without any potential changes as a result of Risk Rating 2.0.

With these concepts in mind, the Town appears to be a good candidate for the CRS with future changes to the NFIP and FIRM mapping likely to result in greater financial justification for the Town's entry to the program.

### 3.3.1 CRS Program-Specific Recommendations

The following recommendations include activities that the Town must undertake to meet CRS participation requirements and relatively simple actions that the Town can implement to earn points for activities that are referred to in the sections above as not earning points based on the Town's current floodplain management program.

| Table 5. CRS Program Specific Recommendations for the Town of Lansing   |                         |                                 |                      |  |
|---|-------------------------|---------------------------------|----------------------|--|
| Potential action  | Mandated or Recommended | Able to Be Done in House?       | Level of Effort/Cost | Potential Points                           |
| <b>Activity 310—Elevation Certificates:</b>   |                         |                                 |                      |  |
| Maintain Elevation Certificates and ensure that they have been filled out completely.   | Mandated                | In house                        | Low                  | <b>38 points</b>                           |
| Continue collecting and maintaining Elevation Certificates from post-FIRM buildings prior to the date of CRS enrollment.  | Recommended             | In house                        | Low                  | <b>Up to 48 points</b>                     |
| Begin collecting and maintaining Elevation Certificates for pre-FIRM buildings.   | Recommended             | In house                        | Low                  | <b>Up to 30 points</b>                     |
| <b>Activity 320—Map Information Services:</b>   |                         |                                 |                      |  |
| Annually publish availability of Town's floodplain administrator to provide information necessary to rate a flood insurance policy. Develop a log to be filled out when individuals request information. Develop standard operating procedures (i.e., method to ensure that all the information required to rate a flood insurance policy, including the NFIP Community Number, FIRM date, flood zone, BFE, floodway, and more, is provided to the requesting party). | Recommended             | In house                        | Low                  | <b>Up to 50 points</b>                     |
| Begin to maintain information on flood problems not shown on the FIRM.  | Recommended             | In house                        | Low                  | <b>Up to 20 points</b>                     |
| Provide information above and beyond the requirements for basic FIRM information, such as local drainage problems and mapping, that shows the importance of natural floodplain functions.   | Recommended             | In house                        | Low                  | <b>Up to 20 points</b>                     |
| <b>Activity 330—Outreach Projects:</b>  |                         |                                 |                      |  |
| Develop a Program for Public Information (PPI) to organize outreach efforts, involve non-governmental officials in designing outreach, and receive credit on existing outreach efforts.   | Recommended             | Contracted                      | Medium               | <b>Up to 80 points</b>                     |
| Increase the use of pre-existing social media accounts (Facebook, Instagram) to conduct annual outreach.  | Recommended             | In house                        | Low                  | <b>Up to 200 total points for outreach</b> |
| Increase the amount of flood information available to residents and update and release annually.  | Recommended             | In house                        | Low                  |  |
| Conduct targeted outreach to specific populations.  | Recommended             | In house                        | Low                  |  |
| Organize outreach to be conducted through stakeholders.   | Recommended             | Partner with stakeholders       | Low                  |  |
| Develop a pre-flood plan of outreach actions.   | Recommended             | In house or contracted          | Medium               | <b>Up to 50 points</b>                     |
| <b>Activity 340—Hazard Disclosure:</b>  |                         |                                 |                      |  |
| Ask or mandate real estate agents to notify those interested in purchasing properties located in the SFHA about flood hazards and flood insurance purchase requirements.  | Recommended             | Partner with real estate agents | Low                  | <b>Up to 25 points</b>                     |

Table 5. CRS Program Specific Recommendations for the Town of Lansing

| Potential action  | Mandated or Recommended | Able to Be Done in House?       | Level of Effort/Cost | Potential Points |
|---|-------------------------|---------------------------------|----------------------|------------------|
| Ask or mandate real estate agents to provide brochures or handouts that advise potential buyers to investigate the flood hazard for a property.   | Recommended             | Partner with real estate agents | Low                  | Up to 8 points   |
| Ask or mandate real estate agents to disclose to prospective buyers other flood-related hazards, such as erosion, subsidence, or sea level rise, for a property.  | Recommended             | Partner with real estate agents | Low                  | Up to 8 points   |
| <b>Activity 350—Flood Protection Information:</b>   |                         |                                 |                      |                  |
| Make the nine publications listed in the CRS Coordinator's Manual available at Lansing Community Library.   | Recommended             | In house                        | Low                  | 10 points        |
| Create Town flood mitigation webpage to provide flood protection information.   | Recommended             | In house                        | Low                  | Up to 77 points  |
| Make documents that cover flood hazards, flood protection, and natural floodplain functions available at Lansing Community Library. Additional information can include aquatic and riparian habitat guides, information on floodplain management, and guides to flood mitigation. | Recommended             | In house                        | Low                  | 10 points        |
| Post Elevation Certificates online on the municipal website.  | Recommended             | In house                        | Low                  | Up to 30 points  |
| <b>Activity 360—Flood Protection Assistance:</b>  |                         |                                 |                      |                  |
| Advertise that one-on-one advice about flooding and mitigation is available to individuals who request it annually and keep a log recording when individuals requested advice, who met with them, and what was discussed.   | Recommended             | In house                        | Low                  | Up to 25 points  |
| Add additional advertisement that a service is available for a representative of the Building Department to visit the site in question and review problems with the inquirer.   | Recommended             | In house                        | Low                  | Up to 30 points  |
| Add an extra service for financial assistance for locating and applying for funding for mitigation, flood insurance, SBA grants, etc.   | Recommended             | In house                        | Low                  | 10 points        |
| Have staff in the Building Department (and any department that provides financial assistance) complete training through EMI.  | Recommended             | In house                        | Low                  | 10 points        |
| <b>Activity 370—Flood Insurance Promotion:</b>  |                         |                                 |                      |                  |
| Undergo a three-step process to assess the Town's flood insurance needs and improve flood insurance coverage. The Town would need to assess the current flood insurance coverage, develop a plan to increase flood insurance participation, and implement the plan.               | Recommended             | Contracted                      | Medium               | Up to 220 points |
| Designate a staff member to conduct one-on-one assistance to discuss flood insurance. This service would need to be publicized. Additional points would be available if the individual was also an <a href="#">Associate in National Flood Insurance</a> .                        | Recommended             | In house                        | Low                  | Up to 35 points  |
| Include flood insurance brochures with building permits or other distribution directly to property owners.  | Recommended             | In house                        | Low                  | Up to 25 points  |
| Hold an annual community town hall meeting or open house to promote flood insurance.  | Recommended             | In house                        | Low                  | Up to 40 points  |
| <b>Activity 420—Open Space Preservation:</b>  |                         |                                 |                      |                  |

| <b>Table 5. CRS Program Specific Recommendations for the Town of Lansing</b>   |                                |                                  |                             |  |
|--|--------------------------------|----------------------------------|-----------------------------|--|
| <b>Potential action</b>  | <b>Mandated or Recommended</b> | <b>Able to Be Done in House?</b> | <b>Level of Effort/Cost</b> | <b>Potential Points</b>  |
| Establish deed restrictions on open space parcels. Points would be based on the size of the area that is deed restricted.  | Recommended                    | In house and Partners            | Low                         | <b>Points based on the size of the area that is deed restricted.</b> |
| <b>Activity 430—Higher Regulatory Standards:</b>   |                                |                                  |                             |  |
| Update Flood Damage Prevention Ordinance to include the requirement for two-foot freeboard for manufactured homes and mechanical equipment in numbered zones. (For Class 9 only, may not need to reference manufactured homes to garner 150 points but will not meet Class 8 pre-requisite.) | Recommended                    | In house                         | Low                         | <b>Up to 200 points for Class 8 or lower</b>                         |
| Establish cumulative substantial improvements.   | Recommended                    | In house                         | Low                         | <b>Up to 90 points</b>   |
| Elect to use a threshold lower than 50 percent for “substantial improvements.”   | Recommended                    | In house                         | Low                         | <b>Up to 20 points</b>   |
| Require new critical facilities be protected to at least one foot above the 500-year flood level.  | Recommended                    | In house                         | Low                         | <b>40 points</b>   |
| Establish limitations on enclosures beneath elevated structures, such as restricting allowable materials or prohibiting enclosures entirely.   | Recommended                    | In house                         | Low                         | <b>Up to 390 points</b>  |
| Train floodplain administrator and additional staff to become certified floodplain managers or complete EMI courses.   | Recommended                    | In house                         | Low                         | <b>Up to 55 points</b>   |
| Store records in an offsite location (outside the SFHA), ensuring that records are transferred or copied once a year.  | Recommended                    | In house                         | Low                         | <b>5 points</b>  |
| <b>Activity 440—Flood Data Maintenance:</b>  |                                |                                  |                             |  |
| Include building elevations as digitized information in available mapping.   | Recommended                    | In house                         | Low                         | <b>Up to 14 points</b>   |
| <b>Activity 450—Stormwater Management:</b>   |                                |                                  |                             |  |
| Institute more stringent requirements for stormwater management, such as regulating all sized developments or designing stormwater management to withstand higher-level storms.  | Recommended                    | In house                         | Low                         | <b>Up to 107 points</b>  |
| Develop a watershed management plan. This would allow the Town to pursue a class ranking lower than a Class 5 in the future.   | Mandated for Class 4           | Contracted                       | Medium                      | <b>Up to 315 points</b>  |
| <b>Activity 510—Floodplain Management Planning:</b>  |                                |                                  |                             |  |
| Develop and adopt a stand-alone floodplain management plan to result in better scoring than the Tompkins County HMP.   | Recommended                    | Contracted                       | Medium                      | <b>Total points of up to 382 points</b>                              |
| Complete a repetitive loss area analysis.  | Recommended                    | Contracted                       | Medium                      | <b>140 points</b>  |
| Develop a natural floodplains function plan.   | Recommended                    | Contracted                       | Low                         | <b>100 points</b>  |
| Complete a substantial damage management plan.   | Recommended                    | Contracted                       | Medium                      | <b>Up to 140 points</b>  |
| <b>Activity 520—Acquisition and Relocation:</b>  |                                |                                  |                             |  |
| Acquire flood-prone properties and return them to naturally functioning open space. This would also earn credit under Activity 420 for Open Space.   | Recommended                    | In house                         | High                        | <b>Up to 2,250 points</b>  |

| Table 5. CRS Program Specific Recommendations for the Town of Lansing   |                         |                              |                      |                    |
|---|-------------------------|------------------------------|----------------------|--------------------|
| Potential action  | Mandated or Recommended | Able to Be Done in House?    | Level of Effort/Cost | Potential Points   |
| <b>Activity 530—Flood Protection:</b>   |                         |                              |                      |                    |
| Support and track the mitigation of structures.   |                         | Partner with homeowners      | High                 | Up to 1,600 points |
| <b>Activity 540—Drainage System Maintenance:</b>  |                         |                              |                      |                    |
| Develop an inventory and mapping of the natural conveyance system, develop procedures for annual inspection and maintenance, and record inspection and maintenance in a log.  | Recommended             | Partner with Tompkins County | Medium               | Up to 250 points   |
| Establish a capital improvement program that corrects drainage problems.  | Recommended             | In house                     | Low                  | Up to 70 points    |
| Establish and publicize stream dumping regulations.   | Recommended             | In house                     | Low                  | Up to 30 points    |
| Establish annual inspection and maintenance of public and private storage basins.   | Recommended             | In house                     | Low                  | Up to 120 points   |
| <b>Activity 610—Flood Warning and Response:</b>   |                         |                              |                      |                    |
| Establish a flood warning and response plan. This would allow the Town to pick up additional points throughout Activity 610 for emergency warning dissemination, flood response operations, and critical facilities planning. It would also help to predict flood elevations and arrival times at specific locations within the Town.   | Recommended             | Contracted                   | Medium               | Up to 340 points   |
| Become a StormReady Community.  | Recommended             | Partner with NWS             | Medium               | 25 points          |
| <b>Total points available for low- to medium-effort activities*</b><br><i>*These points are provided as a guide, but it is anticipated that the Town would choose to pursue those best aligned with their capabilities, as combining activities may present a higher level of effort than can be addressed with existing resources.</i> |                         |                              |                      | Up to 3,932 points |



### 3.3.2 Inquiries Regarding CRS Application

Prior to applying to the CRS program, the Town of Lansing will need to secure a Letter of Good Standing in regard to floodplain management from the FEMA Region II office at (212)-680-3600..

Once the Town decides to formally apply to the CRS, inquiries should be directed to:

Gina Agosta, Certified Floodplain Manager  
ISO/CRS Specialist  
ISO Community Hazard Mitigation  
gagosta@iso.com

Should the Town of Lansing be interested in applying prior to August 2022, Tetra Tech will be available to support development of a CRS and Letter of Intent for submission to FEMA Region II.

## ACRONYMS AND DEFINITIONS

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**1-Percent Chance Flood Event:** A flood event having a one percent chance of occurring in any given year. Also referred to as a 100-year flood event.

**0.2 Percent Flood Event:** A flood event having a 0.2 percent chance of occurring in any given year. Also referred to as a 500-year flood event.

**100-Year Flood Event:** A flood event having a one percent chance of occurring in any given year. Also referred to as 'base flood'.

**500-year Flood Event:** A flood event having a 0.2 percent chance of occurring in any given year.

**Base flood:** The flood having a 1% chance of being equaled or exceeded in any given year, also known as the "100-year" or "1% chance" flood. The base flood is a statistical concept used to ensure that all properties subject to the National Flood Insurance Program are protected to the same degree against flooding.

**BCEGS:** Building Code Effectiveness Grading Schedule. When communities submit a modification or undergo a cycle verification, they must meet the BCEGS prerequisite in order to achieve or remain a CRS Class 6 or better.

**BFE:** Base Flood Elevation. The elevation of the crest of the base or 1% annual chance flood (also known as the 100-year flood).

**Category B Community:** A community with at least one, but fewer than 50, repetitive loss properties that have not been mitigated.

**Compensatory Storage:** The NFIP floodway standard in 44CFR 60.3 (d) restricts new development from obstructing the flow of water and increasing flood heights. However, this provision does not address the need to maintain flood storage. Especially in flat areas, the floodplain provides a valuable function by storing floodwaters. When fill or buildings are placed in the flood fringe, the flood storage areas are lost, and flood heights will go up because there is less room for the floodwaters. This is particularly important in smaller watersheds which respond sooner to changes in the topography. One approach that may be used to address this issue is to require compensatory storage to offset any loss of flood storage capacity. Some communities adopt more restrictive standards that regulate the amount of fill or buildings that can displace floodwater in the flood fringe. Community Rating System credits are available for communities that adopt compensatory storage requirements (<https://www.fema.gov/glossary/compensatory-storage> )

**CRS:** Community Rating System.

**Design Flood Elevation (DFE):** The elevation of the highest flood (generally the BFE including freeboard) that a retrofitting method is designed to protect against. Also referred to as Flood Protection Elevation.

**DFIRM:** Digital Flood Insurance Rate Map.

**FEMA:** Federal Emergency Management Agency. Most of the National Flood Insurance Program field work and community coordination is done by the 10 FEMA Regional Offices, which are listed at <https://www.fema.gov/fema-regional-contacts>.

**FIRM:** Flood Insurance Rate Map. An official map of a community, on which FEMA has delineated both the Special Flood Hazard Areas and the risk premium zones applicable to the community. Most FIRMs include detailed floodplain mapping for some or all of a community's floodplains. In most cases, the date of the first FIRM issued to a community is the date the community entered the Regular Program of the National Flood Insurance Program.

**Floodplain:** Any land area susceptible to being inundated by flood waters from any source. A Flood Insurance Rate Map identifies most, but not necessarily all, of a community's floodplain as the Special Flood Hazard Area.

**Flood Damage Prevention Ordinance:** A local law adopted to mitigate and prevent flood damage.

**Freeboard:** A margin of safety added to the base flood elevation to account for waves, debris, miscalculations, lack of data, or changes in climate.

**IBC: International Building Code**

**IRC: International Residential Code:**

**ISO:** The Insurance Services Office, Inc., a corporation that conducts verification of community CRS credit and program improvement tasks for FEMA.

**NFIP:** National Flood Insurance Program.

**PPI:** A Program for Public Information can help design an entire public information program, not just outreach projects. A Program for Public Information that covers other types of public information endeavors, such as a website and technical assistance, can result in increased credit under other activities. Up to 80 points added to Outreach Project credits and up to 20 points added to Flood Response Preparations credits, for projects that are designed and implemented as part of an overall public information program.

**Regulatory Floodplain:** For purposes of the Community Rating System, the regulatory floodplain is the flood-prone land area that is subject to a community's floodplain development or floodplain management regulations. The regulatory floodplain includes, at a minimum, the Special Flood Hazard Area (SFHA) (see definition) but may also incorporate other areas outside the SFHA that are also subject to a community's floodplain development or floodplain management regulations.

**Risk Rating 2.0:** FEMA is updating the [National Flood Insurance Program's](#) (NFIP) risk rating methodology through the implementation of a new pricing methodology called **Risk Rating 2.0**. The methodology leverages industry best practices and cutting-edge technology to enable FEMA to deliver rates that are actuarially sound, equitable, easier to understand and better reflect a property's flood risk.

**Repetitive Loss Property:** A property for which two or more National Flood Insurance Program losses of at least \$1,000 each have been paid within any 10-year rolling period since 1978.

**SFHA: Special Flood Hazard Area:** The base floodplain delineated on a Flood Insurance Rate Map that a community must regulate under the requirements of the National Flood Insurance Program. The SFHA is included in a community's regulatory floodplain.

**Substantial damage:** Damage of any origin sustained by a structure whereby the cost of restoring the structure to its condition before it was damaged would equal or exceed 50% of the market value of the structure before the damage occurred.

**Substantial improvement:** Any. reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the. structure before the start of construction of the improvement.

# Critical Facility Resources in the Floodplain

## *Tompkins County Resiliency and Recovery Plan*

*In addition to the Critical Facility Mitigation Fact Sheets, this section includes an [interactive map](#) that is incorporated into the [StoryMap](#).*



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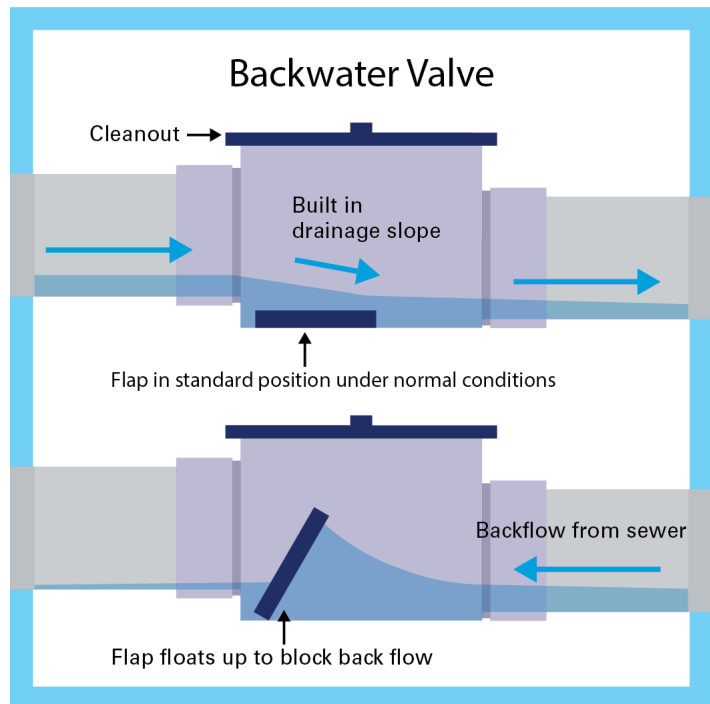
**Department  
of State**

# Tompkins County Resiliency and Recovery Plan

## Backwater Valve Fact Sheet

**Backwater Valves<sup>1</sup>** – As described in FEMA’s Risk Management Series Design Guide, a sewer backwater preventer keeps sewer water out even when the pressure in the pipes build up. Backwater valves are designed to close when you need them to, preventing any water from getting into your structure’s sewer lines, overwhelming the pipes, and flooding your building. All backwater valves work through a combination of correct installation and regular maintenance. Without proper installation and maintenance, a backwater valve will not work. Much like an exterior door, backwater valves are intended to provide protection in the form of a physical barrier ([FEMA 2007](#)).

Public sewers cannot be designed to be able to immediately divert any amount of heavy rain. In many cases the cost of building extremely large sewer would be unjustifiably high. Therefore, in such heavy rain, a short-term overload of the sewer network, and thus, a backwater in the land drainage systems must be accepted. Even if there has never been an overflow of the public sewer, risk of potential clogging remains, spilling into private systems and causing costly damages still exists ([Flood Ready n.d.](#)). Sewer backup can also result from ageing sewer networks that become blocked due to tree roots or larger foreign objects, pipe breakage, failure of a pumping stations or misuse from disposal of grease. Properties located in particularly dense neighborhoods and buildings in low lying areas may be particularly prone to sewer backup since these areas tend to be more reliant on the sewer networks operation for proper drainage ([Flood Ready n.d.](#)).



<sup>1</sup> Photo from EPCOR Utilities Inc Flood Prevention Homeowner Maintenance Resource. Accessible at <https://www.epcor.com/products-services/drainage/flooding-flood-prevention/flood-prevention-homeowner-maintenance/Pages/backwater-valve.aspx>

# Tompkins County Resiliency and Recovery Plan

## Utility Floodproofing Fact Sheet



**Utility Floodproofing (Elevation and Door Dam)<sup>2</sup>** – Elevating a utility involves elevating vulnerable components of the systems by placing them on a higher platform away from flood waters. For new construction and *Substantially Improved* buildings, the most practical method to protect service equipment from flooding is to elevate above the required flood protection level, or provide dry floodproofing that protects equipment to the required flood protection level ([FEMA 2007](#)).

Service equipment can be elevated in place or relocated to a higher level in the building. Relocation achieves greater flood protection; therefore, it is generally more effective at reducing flood risk. However, relocating service equipment to a higher floor requires space to be created for the equipment, which often requires relocating existing equipment or functions on that floor to areas with greater flood risk. In place elevation is usually easier, but the level of achievable flood protection is generally lower. When elevating in place, access to service equipment and working clearance around the equipment needs to be maintained ([FEMA 2007](#)).

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<sup>2</sup> Photo from Flood Control International Case Studies. Accessible at <https://floodcontrolinternational.com/case-studies/utility-sites/>

# Tompkins County Resiliency and Recovery Plan

## Mobilized Flood Walls Fact Sheet



**Mobilized Flood Walls<sup>3</sup>** – Temporary flood walls can be deployed to protect structures in the event of flood waters. This category of flood protection measures includes fully engineered flood protection structures that have permanent features (foundation and vertical supports) and features that require human intervention when a flood is predicted (horizontal components called planks or stop-logs). Mobilized floodwalls have been used to protect entire sites, or to tie into permanent floodwalls or high ground. Because of the manpower and time required for proper placement, these measures are better suited to conditions that allow long warning times ([FEMA 2007](#)).

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<sup>3</sup> Photo from AquaFence Integrated Flood Shield. Accessible at <https://floodcontrolinternational.com/case-studies/utility-sites/>.



# Tompkins County Resiliency and Recovery Plan

## Permanent Flood Walls Fact Sheet



**Permanent Flood Walls<sup>4</sup>** – Floodwalls are freestanding, permanent engineered structures that are designed to prevent encroachment of floodwaters. Typically, a floodwall is located some distance from a building, so that structural modification of the existing building is not required. Floodwalls may protect only the low side of a site (in which case they must “tie” into high ground) or surround a site (which may affect access because special closure structures are required and must be installed before the onset of flooding) ([FEMA 2007](#)).

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<sup>4</sup> Photo from Czech Republic. Accessible at [https://en.wikipedia.org/wiki/Flood\\_wall#/media/File:Zru%C4%8D\\_nad\\_S%C3%A1zavou,\\_Ostrovsk%C3%BD\\_poto\\_k,\\_u\\_Vla%C5%A1imsk%C3%A9\\_ulice.jpg](https://en.wikipedia.org/wiki/Flood_wall#/media/File:Zru%C4%8D_nad_S%C3%A1zavou,_Ostrovsk%C3%BD_poto_k,_u_Vla%C5%A1imsk%C3%A9_ulice.jpg)

# Tompkins County Resiliency and Recovery Plan

## Flood Gates Fact Sheet



**Flood Gates<sup>5</sup>** – A flood gate is responsible for shutting out or releasing the flow of water over spillways, related to the operation of a dam. Important safety features of many types of dams, flood gates and spillways direct excess water away from the dam and its foundation to prevent erosion that could lead to catastrophic dam failure ([Encyclopedia Britannica n.d.](#)).

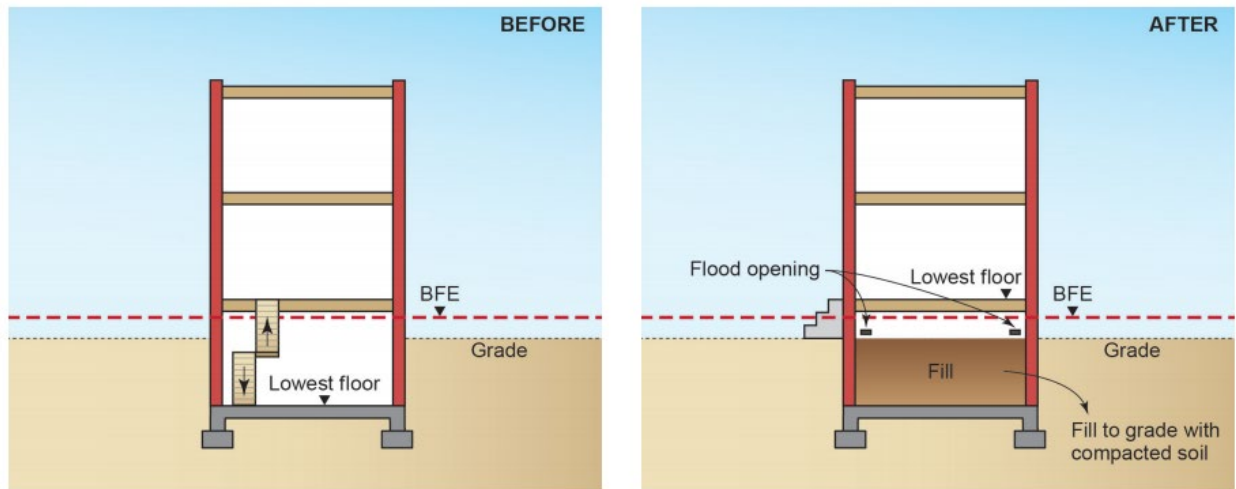
Several forms of gates have been developed. The simplest and oldest form is a vertical-lift gate that, sliding or rolling against guides, can be raised to allow water to flow underneath. Radial, or tainter, gates are similar in principle but are curved in vertical section to better resist water pressure. Tilting gates consist of flaps held by hinges along their lower edges that permit water to flow over the top when they are lowered. Vertical lift and radial gates are generally placed at the top of the spillway crest ([Encyclopedia Britannica n.d.](#)).

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<sup>5</sup> Photo of Mansfield Dam floodgates at Lake Travis (Colorado). Accessible at <https://www.golaketravis.com/news.php?id=2990>.

# Tompkins County Resiliency and Recovery Plan

## Basement Infill Fact Sheet

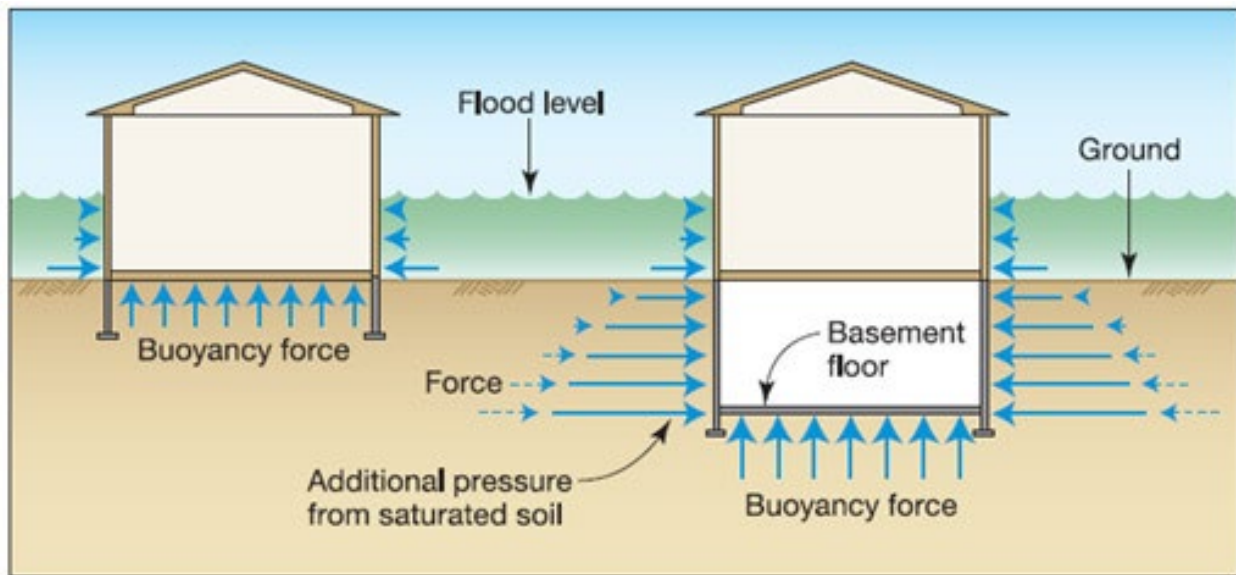


**Basement Infill**<sup>6</sup> – Basement infill measures involve filling a basement located below the Base Flood Elevation (BFE) to grade (ground level). Sections of the basement walls that remain above ground must be retrofitted with flood openings that allow automatic entry and/or exit of floodwaters (refer to the Flood Openings section for details). Any basement utility systems and associated equipment must be elevated to protect utilities from damage or loss of function from flooding. Basement infill has been proven to be effective at reducing damages to building elements and contents located below the BFE since the lowest floor can potentially be re-located above the BFE ([FEMA 2007](#)).

<sup>6</sup> Photo from FEMA 2007 Resource Document.

# Tompkins County Resiliency and Recovery Plan

## Dry Floodproofing Fact Sheet



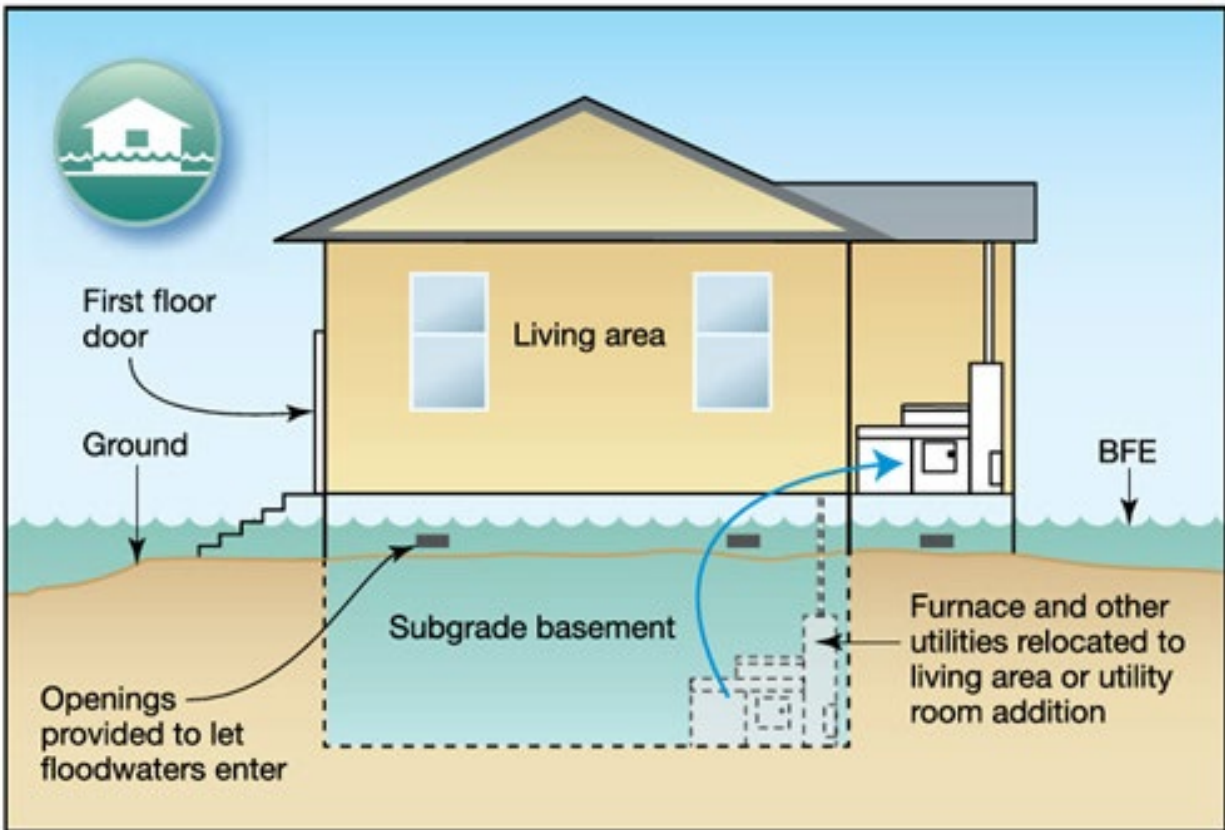
**Dry Floodproofing**<sup>7</sup> - Includes measures that make a structure watertight below the level that needs flood protection to prevent floodwaters from entering. This type of floodproofing is often used to protect non-residential structures, water supplies, and sewage systems. Dry floodproofing may not be used to bring a *Substantially Damaged* or *Substantially Improved* residential structure into compliance with the community's floodplain ordinance. However, it can meet requirements for non-residential and commercial structures ([FEMA 2007](#)).

An example of a dry floodproofing measure is to apply a waterproof veneer, such as a layer of brick backed by a waterproof membrane, directly to the outside surface of an existing structure. (Photo shows home under construction with weatherproof membrane and brick veneer used to protect the structure.) Flooding can cause sewage from sewer lines to back up through drainpipes. These backups not only cause damage that is difficult to repair, but they also create health hazards. One way to protect against this hazard is to install backflow valves, which temporarily block drainpipes if water travels up them the wrong way. If a structure's lowest level has a floor drain that empties to the exterior of the building, installing a floating floor-drain plug can also prevent flood waters from backing up the drainpipe and entering the structure ([FEMA 2007](#)).

<sup>7</sup> Photo from FEMA 2007 Resource Document.

# Tompkins County Resiliency and Recovery Plan

## Wet Floodproofing Fact Sheet



**Wet Floodproofing<sup>8</sup>** – Wet Floodproofing includes permanent or contingent measures applied to a structure, or its contents, that prevent or provide resistance to damage from flooding while allowing floodwaters to enter the structure or area. Generally, this includes properly anchoring the structure, using flood resistant materials below the Base Flood Elevation (BFE), protection of mechanical and utility equipment, and use of openings or breakaway walls. Application of wet floodproofing as a flood protection technique under the National Flood Insurance Program (NFIP) is limited to enclosures below elevated residential and non-residential structures and to accessory and agricultural structures that have been issued variances by the community ([FEMA 2007](#)).

The benefit of wet floodproofing is that if flood waters are allowed to enter the enclosed areas of the house and to quickly reach the same level as the flood waters outside, the effects of hydrostatic pressure, including buoyancy, are greatly reduced. As a result, the loads imposed on the structure during a flood, and therefore the likelihood of structural damage, may be greatly reduced ([FEMA 2007](#)).

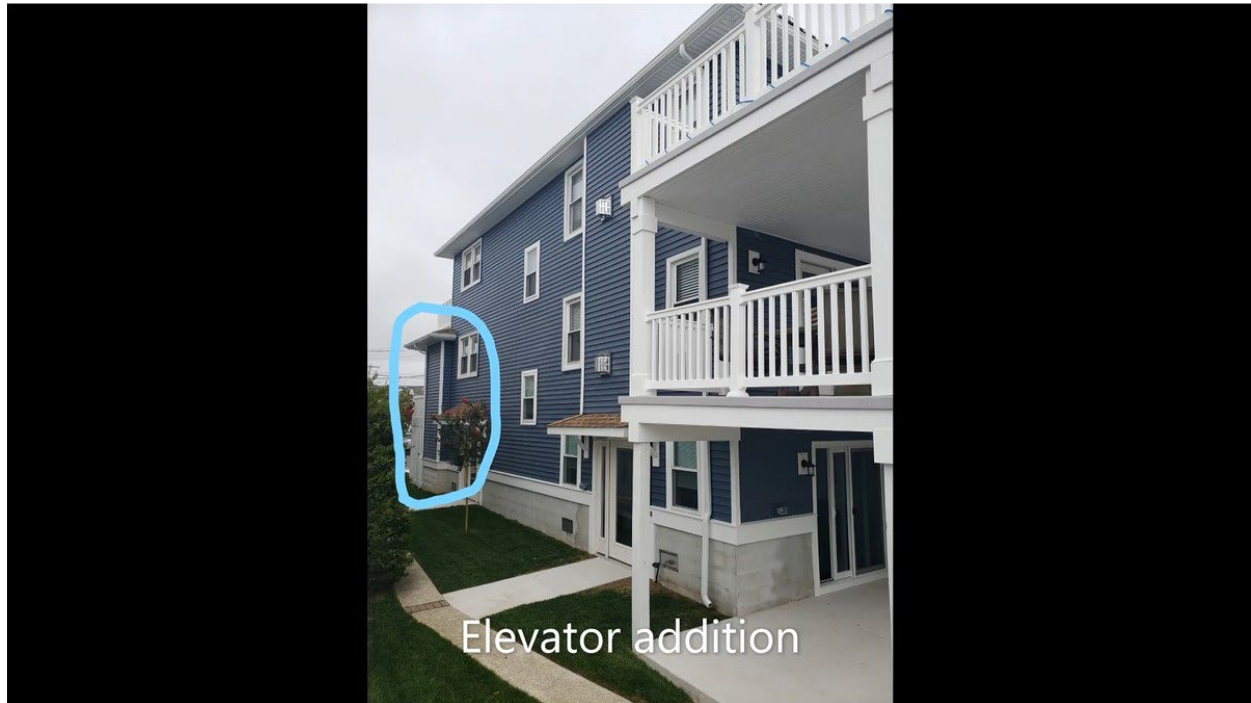
<sup>8</sup> Photo from FEMA's *Design Guide for Improving Critical Facility Safety from Flooding and High Winds* (2007).



Department  
of State

*The factsheet was prepared with funding provided by the New York State Department of State under Title 3 of the Environmental Protection Fund.*

## Tompkins County Resiliency and Recovery Plan Additions Fact Sheet



**Additions**<sup>9</sup> – To mitigate the effects of flooding, additions (i.e., ramps, stairs, elevators, etc.) can be added to a building. Building codes typically treat additions as new construction and require additions in critical facilities in flood hazard areas to be elevated or dry floodproofed to minimize flooding exposure. However, full compliance with building codes and NFIP is only required if the addition counts as *Substantially Improved* ([FEMA 2007](#)).

<sup>9</sup> Photo from Ocean City, Jonas Hazard Mitigation Grant Program Elevations Project

# **Economic Recovery Resources**

*Tompkins County Resiliency and Recovery Plan*

# Economic Recovery Planning Framework

JULY 2022

*Prepared for:*  
Tompkins County, New York



*Prepared by:*



**TETRA TECH**

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***This Economic Recovery Planning Framework was prepared with funding provided by the New York State Department of State under Title 3 of the Environmental Protection Fund.***



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## I. INTRODUCTION

According to the Federal Emergency Management Agency (FEMA), the challenges posed by climate change, such as more intense storms, frequent heavy precipitation, heat waves, drought, and extreme flooding could significantly alter the types and magnitudes of hazards faced by communities. It is vital that emergency management professionals adapt to the impacts of climate change (FEMA 2022).

Understanding that these disaster events can have profound and lasting effects on the economies of impacted communities, Tompkins County is working to proactively develop a roadmap to ensure economic recovery within the community should disaster strike. The purpose of this document is to provide a framework by which the County can establish its economic recovery organization/management, define its impact identification process, undertake economic recovery action prioritization, and implement economic recovery activities.

This document is intended to be an instrument to encourage the integration of disaster recovery preparedness concepts into related plans and policies and to identify pathways to support resilient recovery. Through the development of pre-disaster plans, communities can balance recovering quickly with recovering to a stronger and more sustainable economy based on building back equitably, safer, and smarter.

The process of defining disaster recovery operations and developing disaster recovery materials is guided by national policy under

### ECONOMIC RECOVERY IS INCLUDED AS A RECOVERY CORE CAPABILITY IN THE NATIONAL DISASTER RECOVERY FRAMEWORK

The **National Preparedness Goal** defines eight **Core Capabilities** that apply to the Recovery Mission Area. The efforts of the whole community – not any one level of government – are required to build, sustain, and deliver the Core Capabilities.

1. **Planning** – Conduct a systematic process engaging the whole community as appropriate in the development of executable strategic, operational, and/or tactical approaches to meet defined objectives.
2. **Public Information and Warning** – Deliver coordinated, prompt, reliable, and actionable information to the whole community through the use of clear, consistent, accessible, and culturally and linguistically appropriate methods to effectively relay information regarding any threat or hazard and, as appropriate, the actions being taken and the assistance being made available.
3. **Operational Coordination** – Establish and maintain a unified and coordinated operational structure and process that appropriately integrates all critical stakeholders and supports the execution of core capabilities.
4. **Economic Recovery – Return economic and business activities (including food and agriculture) to a healthy state and develop new business and employment opportunities that result in a sustainable and economically viable community.**
5. **Health and Social Services** – Restore and improve health and social services capabilities and networks to promote the resilience, independence, health (including behavioral health), and well-being of the whole community.
6. **Housing** – Implement housing solutions that effectively support the needs of the whole community and contribute to its sustainability and resilience.
7. **Infrastructure Systems** – Stabilize critical infrastructure functions, minimize health and safety threats, and efficiently restore and revitalize systems and services to support a viable, resilient community.
8. **Natural and Cultural Resources** – Protect natural and cultural resources and historic properties through appropriate planning, mitigation, response, and recovery actions to preserve, conserve, rehabilitate, and restore them consistent with post-disaster community priorities and best practices and in compliance with appropriate environmental and historic preservation laws and Executive Orders.

Figure 1. Recovery Core Capabilities

the National Disaster Recovery Framework (NDRF) (FEMA 2016). This framework provides the basis for effective pre-disaster planning and recovery. The NDRF consists of eight recovery Core Capabilities, including economic recovery, as shown in Figure 1. Similarly, economic recovery organization, policies, and activities are a subset of the overall County and local disaster recovery operations. The NDRF has established a recovery timeline recognized as the *recovery continuum* (see Figure 2). The recovery continuum is best described as a sequence of interdependent activities that advance a community toward the reestablishment or improvement of normal operations (FEMA 2016). This continuum is broken into three recovery periods as shown in **Error! Reference source not found..**

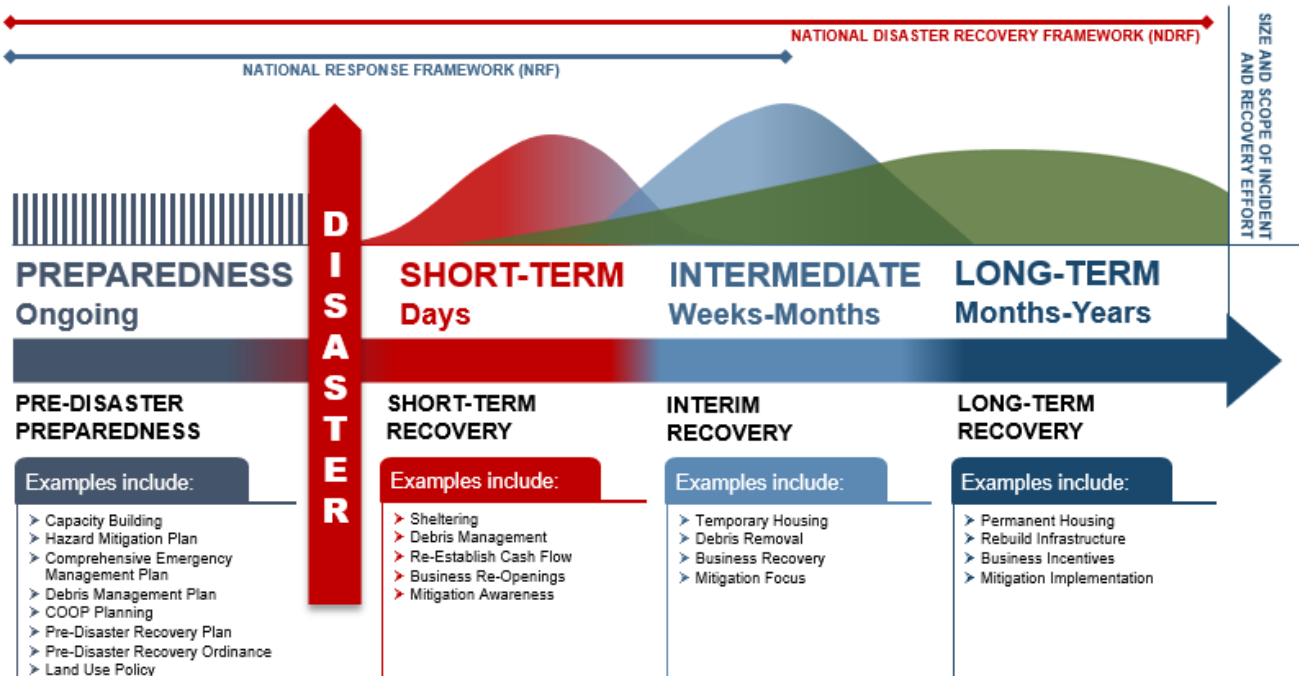


Figure 2. Recovery Continuum

The NDRF also acknowledges that successful recovery depends heavily on local planning, local leadership, and the whole community of stakeholders with an interest in recovery. The NDRF emphasizes principles of preparedness, sustainability, resilience, and mitigation as integral to successful recovery outcomes (FEMA, Pre-Disaster Recovery Planning Guide for Local Governments 2017). The relationship of recovery efforts indicates that preparedness and mitigation planning should facilitate recovery to minimize negative effects on the economy.

The content of this planning framework will provide guidance on the Economic Recovery Core Capability and pre-disaster economic recovery activities and will also include resiliency suggestions to increase future efficiencies and help mitigate economic impacts. This document includes the steps and considerations that will need to be undertaken in the development of a comprehensive post-disaster economic recovery plan for the County as well as guidance on plan development for local governments and economic development and emergency management agencies. Recommendations and actions within these economic recovery plans will

need to be limited to the actions those entities developing the plans have the authority and capability of implementing such as county and local governments. The economic recovery planning components these entities should consider developing are shown in Figure 3, below.



Figure 3. Economic Recovery Planning Components

## II. COUNTY PROFILE

A baseline of key socioeconomic, demographic, and economic is provided below to provide a better understanding of the context in which this plan was developed, and the recommendations provided. This information provides a basis for decision-makers to focus resources on the areas needed to provide effective and efficient post disaster economic recovery.

### A. Socioeconomic/Demographic Profile

The socioeconomic and demographic information in this section can provide insight into those populations that may be most substantially impacted by a hazard event. This information can assist the County in identifying potential funding sources or, in cases where reporting on socioeconomic and demographic data are required, to obtain access to recovery funding, including some Federal disaster recovery funding. A summary of key data taken from the 5-year American Community Survey estimates for Tompkins County is provided below (United States Census Bureau 2022):

**Population:**

- 2020 population – 105,740
- Population change between 2010 and 2020 – 4% (similar to the State’s overall population increase during that time)
- Number of households – 40,817

- Average household size – 2.18 people

**Age and Sex:**

- Median age - 31.3
- County’s median age is approximately 8 years younger than the State’s median age.
- Percent of County population over 18 years of age - 85.3%
- County’s percent of population over 18 years of age is approximately 6 percentage points higher than the State’s.

**Race and Hispanic Ethnicity:**

- White 72.6%
- Asian alone 9.9%
- Black or African American alone 4.0%
- Two or more races (not Hispanic or Latino) 5.9%
- Hispanic or Latino 6.7%

The Diversity Index measures “...the probability that two people chosen at random will be from different racial and ethnic groups.” The US Census notes that the concept of “diversity” refers to “...the representation and relative size of different racial and ethnic groups within a population and is maximized when all groups are represented in an area and have equal shares of the population.”

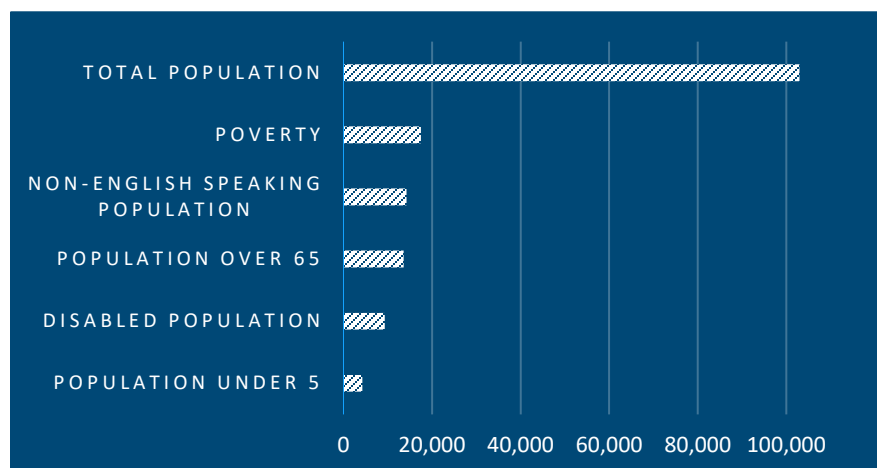
- County Diversity Index is 45.4%, ranking the County 17<sup>th</sup> out of 62 New York State Counties

**Educational attainment:**

- The educational attainment of the population over 25 years of age
  - 53.12% - bachelor’s degree or higher
  - 23.4% - bachelor’s degree
  - 13.4% - some college but no degree
  - 9.5% - associate degree,
  - 18.5% - high school degree or equivalent
- County’s percent having a bachelor’s degree or higher (53.12%) is 15 percentage points higher than the State’s.
- Nearly 1/3 of the of the County’s population (29.6%) has the highest educational attainment level – Graduate or professional degree.

**1. SOCIAL VULNERABILITY**

In considering economic impacts to the County in the wake of a disaster event, it is important to acknowledge that socially vulnerable populations can be more susceptible to hazard events. This is based on many factors, including their physical and financial ability to react or respond during a hazard and the location and construction quality of their housing (Tompkins County 2021a).



Source: Tompkins County Hazard Mitigation Plan 2021 Update  
**Figure 4. Vulnerable Population Statistics in Tompkins County, New York**

As considered in the Tompkins County Hazard Mitigation Plan 2021 Update, vulnerable populations are defined as the elderly (persons aged 65 and over), those living in low-income households, youth (populations under 5 years old), the physically or mentally disabled, and non-English speaking populations. Identifying concentrations of vulnerable populations can assist communities in advancing preparedness, response, and mitigation actions. Vulnerable populations have unique needs to be considered by public officials to help ensure the safety of demographics with a higher level of risk. Figure 4 provides Tompkins County Vulnerable Population Statistics.

Utilizing socio-economic and demographic information, the Centers for Disease Control and Prevention (CDC) creates a Social Vulnerability Index (SVI). The map in provides a snapshot of the social vulnerability of communities within Tompkins County. The SVI is developed from fifteen census-derived factors. These factors are reflected in four themes that summarize the extent to which the area is socially vulnerable to disaster. Categories assessed include economic, data, education, family characteristics, housing, language ability, ethnicity, and vehicle access.

The SVI map indicates that portions of the County fall into each of the four levels of vulnerability. The highest vulnerability area, shown in dark blue, includes the smallest area but also some of the highest population density. This area is located in the central-southwestern portion of the County and includes portions of the City of Ithaca, the Town of Ithaca, the Town of Enfield, Town of Newfield, and Town of Danby. Being aware of the County's overall ranking can help inform how vulnerable a community generally is, how the communities may need to plan to react to a natural disaster, and how to assess the potential impact and need should an emergency situation arise.

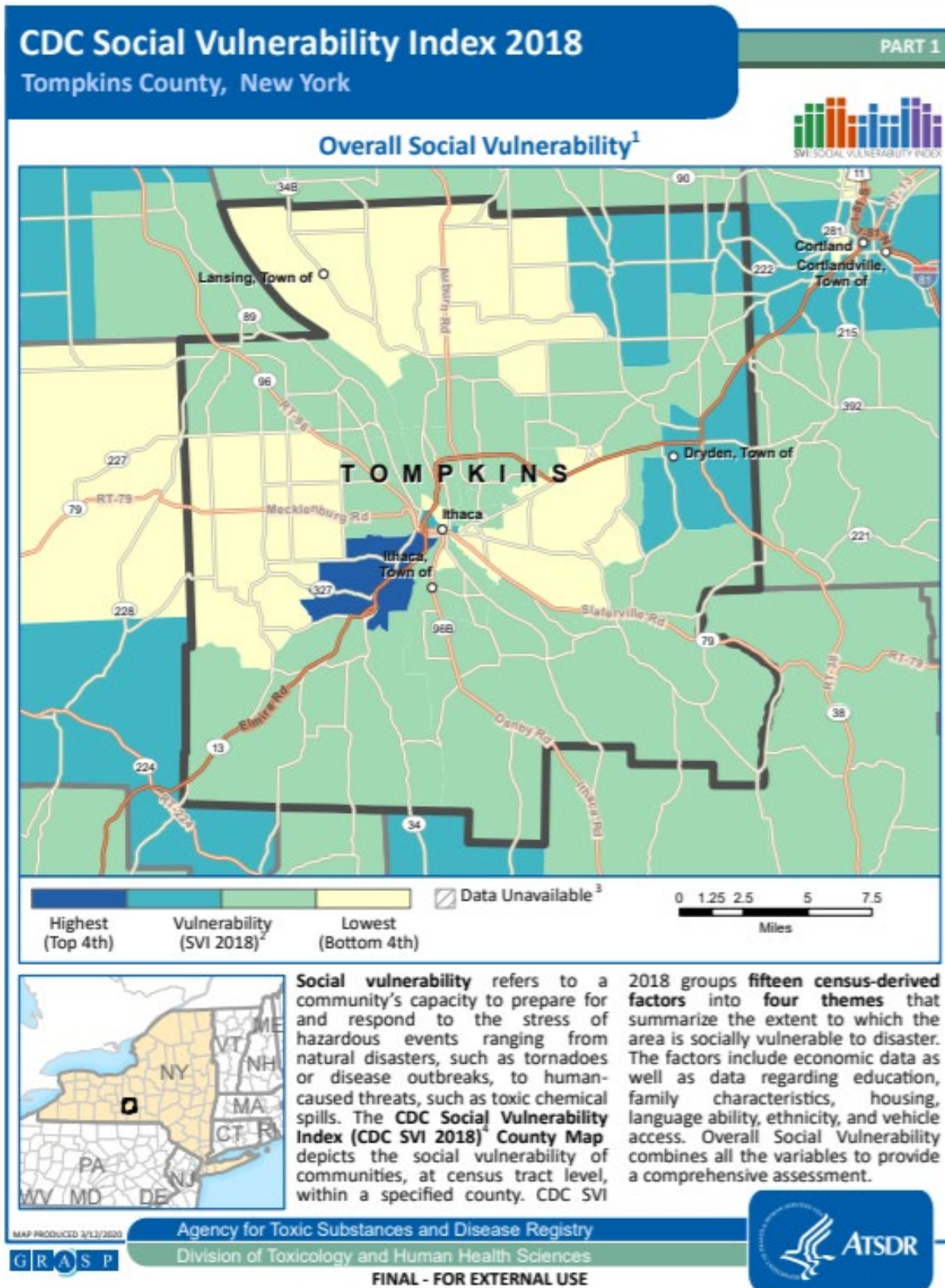


Figure 5 CDC Social Vulnerability Index 2018



## 2. ECONOMIC VULNERABILITY

Socio-economic and demographic data are important to resiliency planning. The Ithaca Area Economic Development's (2020) Tompkins County Economic Development Strategy 2.0 (2020-2024 ) includes several key statistics:

- The County was home to over 2,600 businesses and 65,000 jobs in 2019
- The number of private sector jobs has increased from 17,000 in 1960 to 65,000 in 2018
- Approximately 40% of jobs are in the education sector, 7% in high-tech sector, and 6% in manufacturing
- Job growth has been around 10% per decade but population growth has been slower
- Approximately 15,000 people commuted into the County in 2014
- Large businesses are often better able to recover from a disaster due to the larger network of resources available to the business and its thorough disaster preparation.

There has been growth from 2010 to 2020 when examining demographic numbers for the County in the 2020 US Census and 2020 ACS 5-Year Estimates. Other documents reviewed noted the same likely trend – population increases of several thousand people over the last decade and expected similar trends into the next decade. It is important to note that for the purposes of the US Census numbers, students are counted toward the population. The number of students is thus a factor in some of the statistics below, most easily seen in the average age statistic, which is much lower than New York State as a whole.

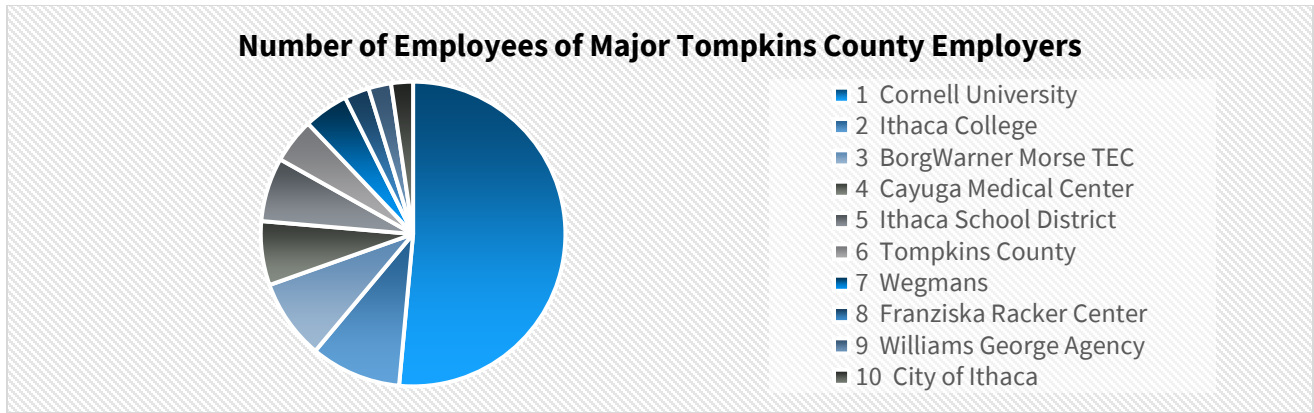
*In 2019 Tompkins County supported over 2,600 businesses and 65,000 jobs*

### **Median Household Income & Poverty:**

- Median household income - \$61,361 (Approximately 16% less than the State median household income)
- Population in poverty - 17.5% (3.9 percentage points higher than State poverty rate)

### **Major Employers & Employment:**

The Tompkins County Chamber of Commerce produced a list of the “Top 10” employers in the County, with Cornell University making up more than half of the total number of employees, Figure 5.



Source: <https://www.tompkinschamber.org/tompkins-county/business-development/>

**Figure 5. Top 10 Tompkins County Employers by Size**

As noted in the 2020-2024 Tompkins County Economic Development Strategy 2.0, by 2019 there were over 2,600 businesses in Tompkins County employing approximately 65,000 people. Service sector jobs account for 93% of these jobs with 51,700 being in the private sector and 8,600 being in the public sector, including approximately 3,400 in the public-school system. Approximately 45% of private sector jobs (40% of all jobs) are in higher education. Scientific and technology services, transportation, professional services, and other business and personal services make up about 20% of service sector jobs. Retail, food service and hospitality have steadily accounted for approximately 16% of private sector jobs.

The U.S. Census summarizes workers into five classes. According to the U.S. Census 2020 ACS 5-Year Estimates, in Tompkins County, employees of private companies make up 49.5% of the civilian employed population ages 16 and over. Private not-for-profit wage and salary workers account for 26.6% of these workers; local, state, and federal government workers account for 14.2% of this population; self-employed in their own unincorporated business and unpaid family workers account for 6.5% of workers; and those who are self-employed in their own incorporated business account for 3.2% of this population.

The Bureau of Labor Statistics also produces data on employment at the County level. Based on the March 2022 update of the Ithaca Area Economic Summary, the unemployment rate in the Ithaca Area (Tompkins County) in January 2022 was 2.8%, a decrease from 5.5% a year prior. Total non-farm employment increased 4.9% from January 2021 to January 2022, with the largest increase by far taking place in leisure and hospitality (45.8%), as would be expected as the area “opened up” like the rest of the Country from COVID-related economic changes.

Jobs are classified within certain Industries, identified utilizing National American Industry Classification System (NAICS) codes as detailed in the 2020 Census Economic Survey (ECNSVY) Business Patterns County Business Patterns survey data. Industries and associated number of employees for the County from the Economic Survey are noted in Figure 6.

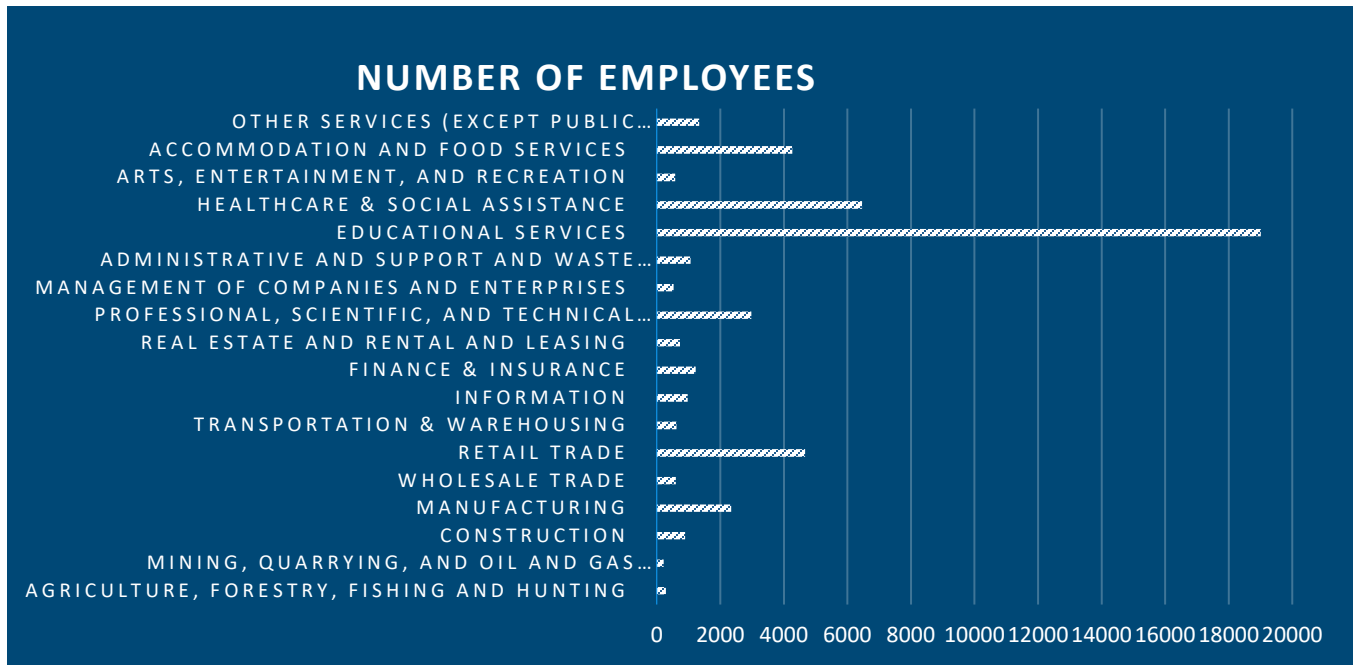


Figure 6. Tompkins County Employees by NAICS Category

**Transportation and Commuting:**

The ability of people to access their job is a vital component of a functional economic region. The U.S. Census 2020 ACS 5-Year Estimates reported the following:

- Workers 16 years and over that worked in Tompkins County - 90.8%
- Average travel time to work - 19.8 minutes (significantly less than the 33.5-minute State average)
- Means of transportation to work:
  - Drive a vehicle - 58%
  - Walk - 13%
  - Work at home - 11%
  - Carpool - 10%
  - Public transportation - 6%
  - Other means - 2%
- Nearly 8% (~3,700) of workers in Tompkins County do not have a vehicle

**Housing:**

While the population only increased by 4% (4,167 people) as noted above, the U.S. Census 2020 ACS 5-Year Estimates also determined that the number of housing units in the County increased by 12%. From 2010 to 2020, the number of housing units in the County increased from 41,674 to 46,884 – an increase of 5,210 units. This means that there were more housing units constructed during the decade than new individuals moving

into, or being born in, Tompkins County. Summary Census housing data for Tompkins County are provided below:

- Median gross rent - \$1,144 (\$171 less than State median gross rent)
- Median value of an owner-occupied housing unit - \$218,700 (\$106,300 less than median State value)
- Homeownership rate - 54.0%
- Occupied housing Units - 42,273
  - Owner occupied housing units - 22,025
  - Renter occupied - 18,792
- Housing units with a mortgage - 12,995
- Median housing costs for housing unit with a mortgage - \$1,691 per month
- Occupied rental units paying rent - 18,087

**Cost Burdening:** An issue that has been occurring for generations across the U.S. is how to address cost burdened households. Cost burdened households spend more than 30% of their income on housing costs. Information regarding cost burdening according to ACS 2020 5-Year Estimates is provided below:

- Percent of households cost burdened - 33.6%
- Percent of cost burdened homes with mortgages – 22.2%
- Percent of cost burdened homes without mortgages – 7.9%
- Percent of renter occupied units where gross rent results in cost burdening - 58.7%

**Computer and Internet Use:** Just over 95% of households had a computer according to the ACS, but a smaller percentage of households, 86.1, had a broadband internet subscription.

### III. PROCESS FOR IDENTIFICATION OF ECONOMIC IMPACTS

One of the most significant components of the economic recovery plan will be the identification of impacts based on specific disaster types.

#### ***Action #1 – Conduct an Economic Vulnerability Analysis in conformance with FEMA guidance.***

An important action to be undertaken by the County is to conduct a comprehensive review of impacts that may be suffered based on each hazard of concern or type of disaster identified in the County’s Hazard Mitigation Plan (HMP). Associated impacts from historic disasters are included in the HMP and support the identification of related economic impacts. For example, flooding caused by heavy rain may impact roads and transportation, resulting in potential lack of access to businesses for customers and employees.

Threats and hazards identified through this process could result in the need for recovery operations in Tompkins County and require the activation of a pre-disaster recovery plan in whole, or in part, through the recovery planning to minimize the duration and magnitude of economic impacts. To effectively coordinate recovery efforts, FEMA developed a structure to address key functional areas of assistance or Emergency Support Functions (ESFs) and Recovery Support Functions (RSFs) which inform emergency response and recovery. These structures were established to facilitate problem solving, improve access to resources, and

integrate sustainability across all levels of government, private stakeholders, and nonprofit partners. Timing of the transition from ESF to RSF depends on the nature of the activity and may vary considerably for each RSF. During response and in the early stages of recovery, RSFs may be established while ESFs are still operational, with the two coexisting until full demobilization of ESF operations. Typically, ESFs are expected to operate within a time span of weeks and months, whereas the RSFs may be active for months or years. Neither ESFs nor RSFs have a predetermined point at which they demobilize.

The example of the connection between National ESFs and RSFs for economic recovery is shown on the next page and lists those ESF tasks likely to transition to RSF tasks for economic recovery during the short-term and intermediate recovery phases. A task associated with an ESF may transition to one or more RSFs as a recovery task. The example lists ESF tasks that would likely, but not necessarily, be transferred to a particular RSF for economic recovery.

In development of the economic recovery plan, the County should utilize information in the Continuity of Operations Plan (COOP) to help identify what, if any, impacts may be mitigated and if so, to what extent. Any mitigation activities, which may be implemented as recommended through the COOP, should be taken into consideration when identifying potential economic impacts. Figure 7 illustrates the transition from response to recovery by indicating the alignment of ESF and RSF activities.

Priority actions are noted throughout the document and are summarized in Section IX of this document.

### The Connection Between National ESFs and RSFs for Economic Recovery

| ESF    | Function                        | Roles & Responsibilities   | Assigned Tasks for ESF   | ESF to RSF Transition | Assigned Tasks for RSF   |
|--------|---------------------------------|--|--|-----------------------|--|
| ESF 1  | Transportation                  | <ul style="list-style-type: none"> <li>Aviation/Airspace Control</li> <li>Transportation Safety</li> <li>Restoration of Trans. Infras.</li> </ul>  | <ul style="list-style-type: none"> <li>Monitoring &amp; reporting damage to the transportation system</li> <li>Identifying temporary alternative transportation solutions</li> <li>Clearing transportation routes</li> </ul>   | IS ECON               | <ul style="list-style-type: none"> <li>Coordinating the restoration of transportation systems and infrastructure</li> <li>Rebuilding severely-damaged transportation routes, airports and ports</li> </ul>                     |
| ESF 2  | Communications                  | <ul style="list-style-type: none"> <li>Infras. Repair &amp; Restoration</li> <li>Construction Management</li> <li>Emergency Contracting</li> </ul>   | <ul style="list-style-type: none"> <li>Supporting the restoration of communications infrastructure</li> <li>Coordinating communications</li> <li>Providing communications support to impacted governments</li> </ul>   | IS ECON               | <ul style="list-style-type: none"> <li>Rebuilding communications infrastructure</li> <li>Providing technical assistance to facilitate the development of integrated emergency communications infrastructure</li> </ul>         |
| ESF 3  | Public Works & Engineering      | <ul style="list-style-type: none"> <li>Infras. Repair &amp; Restoration</li> <li>Construction Management</li> <li>Emergency Contracting</li> </ul>   | <ul style="list-style-type: none"> <li>Constructing emergency access routes</li> <li>Providing temporary emergency power to critical facilities</li> <li>Conducting debris clearing, removal, and disposal</li> </ul>  | IS ECON               | <ul style="list-style-type: none"> <li>Supporting the rebuilding of public works infrastructure</li> <li>Supporting the development of infrastructure that facilitates redevelopment of the impacted economy</li> </ul>        |
| ESF 5  | Information/ Planning           | <ul style="list-style-type: none"> <li>Coord. of Response Efforts</li> <li>Issuance of Mission Assigns.</li> <li>Incident Action Planning</li> </ul>   | <ul style="list-style-type: none"> <li>Providing firefighting resources</li> <li>pressing fire</li> <li>Providing technical assistance to support capacity building</li> </ul>   | ALL RSFs              | <i>While there is no direct relationship between this ESF and the RSFs, the critical activities of this ESF facilitate the implementation of some RSF activities</i>   |
| ESF 6  | Mass Care                       | <ul style="list-style-type: none"> <li>Mass Care</li> <li>Emergency Assistance</li> <li>Distr. Housing &amp; Human Svcs.</li> </ul>  | <ul style="list-style-type: none"> <li>Providing mass care services to displaced individuals</li> <li>Providing consolidated reports on mass care, emergency assistance, housing, and human services activities</li> </ul>   | H HSS ECON            | <ul style="list-style-type: none"> <li>Providing interim and permanent housing solutions</li> <li>Ensuring the continuity of care during the intermediate and long-term stages of recovery</li> </ul>                          |
| ESF 7  | Logistics                       | <ul style="list-style-type: none"> <li>Logistics Planning &amp; Mgmt.</li> <li>Resource Support (incl. facil., supplies &amp; contracting svcs.</li> </ul>                                   | <ul style="list-style-type: none"> <li>Providing an integrated process to implement logistics capabilities</li> <li>Providing emergency relief supplies, facility space, equipment, telecommunications, transportations services, and personnel</li> </ul>                             | ALL RSFs              | <ul style="list-style-type: none"> <li>Determining facility needs for deployed resources</li> <li>Determining contract support needs</li> <li>Determining supply needs that support recovery efforts</li> </ul>                |
| ESF 8  | Public Health & Medical Svcs.   | <ul style="list-style-type: none"> <li>Public Health</li> <li>Med. &amp; Mental Health Svcs.</li> <li>Mass Fatality Mgmt.</li> </ul>   | <ul style="list-style-type: none"> <li>Provide public health and medical assistance</li> <li>Assisting &amp; supporting the delivery of needed services</li> <li>Assuring the safety &amp; security of food</li> </ul>   | HSS IS ECON           | <ul style="list-style-type: none"> <li>Reestablishing permanent health and social services</li> <li>Determining long-term community needs with respect to services and supplies</li> </ul>                                     |
| ESF 11 | Agriculture & Natural Resources | <ul style="list-style-type: none"> <li>Nutrition Assistance</li> <li>Food Safety &amp; Security</li> <li>Natural &amp; Cultural Resources</li> </ul>   | <ul style="list-style-type: none"> <li>Supporting the delivery of nutrition assistance and ensuring food safety</li> <li>Responding to plant and animal diseases</li> <li>Protecting natural and cultural resources, including historic properties</li> </ul>                          | HSS NCR ECON          | <ul style="list-style-type: none"> <li>Supporting the rehabilitation of natural resources</li> <li>Providing technical assistance for the restoration of cultural resources such as museums and historic properties</li> </ul> |
| ESF 12 | Energy                          | <ul style="list-style-type: none"> <li>Energy Infras. Restoration</li> <li>Energy Utilities Coord.</li> <li>Energy Forecast</li> </ul>   | <ul style="list-style-type: none"> <li>Collecting, evaluation, and sharing information on energy system damage</li> <li>Providing information concerning the energy restoration process</li> <li>Providing technical expertise to utility operators, conducting assessments</li> </ul> | IS ECON               | <ul style="list-style-type: none"> <li>Supporting the reestablishment or rebuilding of energy infrastructure</li> <li>Developing sustainable, cost-efficient energy solutions</li> </ul>                                       |
| ESF 14 | Long-Term Recovery              | ESF-14 no longer exists at the national level. It was replaced by the national Recovery Support Functions when the <i>National Disaster Recovery Framework</i> was adopted in September 2011 |  |                       |  |
| ESF 15 | External Affairs                | <ul style="list-style-type: none"> <li>Infras. Repair &amp; Restoration</li> <li>Construction Management</li> <li>Emergency Contracting</li> </ul>   | <ul style="list-style-type: none"> <li>Providing accurate and timely information to affected audiences</li> <li>Gathering information on the incident</li> <li>Serving as a liaison between response and the impacted area</li> </ul>  | ALL RSFs              | <ul style="list-style-type: none"> <li>Gathering and providing information about recovery</li> <li>Serving as liaison between partners and impacted states or localities</li> </ul>  |
| NA     | Education                       | <ul style="list-style-type: none"> <li>Primary, secondary, and higher education</li> </ul>   | <ul style="list-style-type: none"> <li>Close schools</li> <li>Provide facilities to support response activities</li> </ul>   | EDU ECON              | <ul style="list-style-type: none"> <li>Supporting the reestablishment or rebuilding of education infrastructure</li> <li>Provide interim schooling solutions</li> </ul>  |

Figure 7. Transition from Response to Recovery – Support Functions

## A. Identification of Economic Impacts

A number of factors contribute to the economic impacts of disaster events and are important to evaluate and consider prior to an event. Economic impacts related to hazard events include the following:

- **Direct Costs** – These costs include immediate expenses to residents, businesses, and other entities due to direct impacts from an event that reduces financial resources or ability to contribute to the local economy. Direct costs include impacts such as damages to homes and facilities requiring an investment in capital to repair or replace the facility.
- **Functional Costs** - These are costs or reductions in revenues/finances incurred because businesses are limited or prevented from functioning efficiently and/or at their greatest capacity. These types of costs may result in placing local businesses at risk of failure, job loss, and ultimately reduced local or even regional economic investment and capacity. These negative impacts most often result from businesses not being able to open or open fully but can be caused by many other factors as well. Issues that may result in functional costs being incurred, such as businesses not being able to open or function efficiently, include:
  - Lack of utility services
  - Lack of customers or workers
    - Road closures
    - Unsafe environment
    - Resident displacement
  - Facility repair or replacement time
- **Market Costs** – These are costs or reductions in revenues and financial investment that occur on a larger scale. These may appear similar to functional costs in some cases but are measured more by their regional or market-wide impact. Market costs include impacts such as the following:
  - Destruction or damage to natural features or assets, which were large tourist attractions
  - Destruction of agricultural resources
  - Bad press or perception of an area as unsafe or not generally open and functioning properly.

While the identification of economic impacts can be daunting, those with the greatest impact and the highest likelihood of occurrence should be prioritized. To estimate or project economic impacts the County should begin by collecting and reviewing the disasters and their potential impacts as described in the HMP. This work

### CONSIDERATIONS

When identifying potential economic impacts there are a variety of considerations to take into account.

Key considerations when identifying impacts should include:

- Displacement or loss of labor market
- Reductions in consumers and sales of goods and services
  - Infrastructure accessibility
  - Functional utilities
  - Supply chain disruption
- Reduction or elimination of tourism
  - Lack of accessibility for tourists
  - Reduced tourism due to health/safety concerns
  - Loss of tourist attractions or draws
- Costs to businesses
  - Physical damage to businesses
  - Clean-up and recovery
- Business being forced to close
  - Length of closure
- Agricultural loss and long-term damage

includes identification of direct impacts, such as physical damage to a business facility, as well as indirect impacts, such as local flooding of roads that may prevent access to businesses.

Next, the County would identify its economic assets. Other disaster recovery/mitigation and general planning documents, such as the HMP, would be referenced as they already identify many of the County's existing assets. Identifying these assets will allow the County to anticipate those facilities that may receive direct impacts, such as facility damage, as well as indirect impacts by identifying their location within the County and their potential threat exposure.

There is a need to conduct an Economic Vulnerability Analysis or, at the minimum, to identify economic areas that may be most vulnerable to disaster impacts. The first step in this work will be identifying the County's economic assets and evaluating their locations for disaster risk. The analysis would then seek to identify and measure the following factors for each asset contributing to vulnerability:

- Exposure – this factor involves identifying how likely it may be for an asset to suffer impacts from disaster events due to the nature of its location or physical orientation exposing it to a hazard risk.
- Sensitivity – this factor evaluates the magnitude of impact the asset may suffer from the effects of a hazard due to a variety of factors such as building construction, electric and water system redundancies, and resilience and mitigations features.
- Adaptability – this factor is a measure of the asset's ability to adapt in the face of a hazard. Assets that can continue to function while mobile or that can more easily be established in temporary facilities have greater adaptability than those that cannot.

Analyzing the exposure risk and sensitivity of the asset will help gauge the potential impact that is then compared against its adaptability to find its ultimate level of vulnerability. As these assets are measured for their vulnerability, they can be evaluated cumulatively to help identify how the economy could be impacted after a disaster. Identifying the potential types of economic vulnerabilities of the County will support the identification or prioritization of additional mitigation factors specific to those vulnerabilities. This identification will inform an estimate of the level of economic impact based on a disaster by cross-referencing the physical impacts with the economic vulnerabilities. Additionally, this will support the estimates of the level of economic impact and severity of an event based upon the vulnerability of assets relative to a specific event.

Additional economic vulnerability information may be sought regarding business dependency on specific utility services, access, and availability of support businesses, or business reliance on access to materials and goods and the maintenance of inventory. This information may best be obtained by surveying County businesses or conducting additional business analysis to estimate this information. As more global economic vulnerabilities are identified, additional steps should be taken to consider what disaster impacts may most severely affect the identified vulnerabilities and how.



The Economic Vulnerability Analysis, when conducted, would also provide a comprehensive list of economic assets to be considered when estimating and evaluating economic impacts. As not all economic assets may be recorded in planning documents, the County would make sure to capture the interest of smaller businesses, home run businesses, and other such local assets that cumulatively may play a significant role in the local economy. It will be important to engage local businesses and stakeholders to fully identify and completely understand the scale and scope of economic impacts that may be suffered by a hazardous event.

Once the County’s hazards and hazard impacts are collected from the HMP, and the County’s economic assets and those asset vulnerabilities are identified, the information can be cross-referenced to help identify potential economic impacts. This would involve estimating economic impacts based on both direct impacts to assets, as well as indirect impacts to other County assets or features, such as roadways. This cross-referencing and estimating work will allow the County to identify the economic impacts that may result from a specific hazard event, such as road closures due to flooding.

## B. Identification of Secondary or Indirect Economic Impacts

In addition to the direct and most recognizable impacts typically associated with disaster events, there are indirect, secondary, and unintended impacts that may occur from the disaster itself or result from the response and recovery activities. It will be important to identify these issues, and how they occur, to the greatest extent possible. “Secondary” impacts may have negative effects that last much longer than the direct disaster impacts themselves. These often result in the functional and market costs previously described.

Due to the number of factors that impact the local economy, there are a variety of issues and impacts from disasters that, while not directly related to impacts on businesses, still have a substantial effect on recovery. One of the most significant impacts is the loss of labor and customers due to impacts on local housing. Accessibility can also be a major issue as limited access, long travel times due to traffic or construction delays, and limited mass transit availability can hinder business recovery. One other factor that can impact the local economy is public perception. If an area is perceived as being unsafe, inaccessible, unprepared for a return to business, or still in a general state of disarray, then businesses, tourists, and residents may be delayed in returning or not return at all. It will be important to ensure that clear lines of communication over a variety of outreach methods, particularly social media, to keep the public and stakeholders aware of the exact status of recovery within the region. Below are some of the key secondary or indirect impacts that can contribute to or exacerbate negative economic impacts facing businesses and the whole community.

- Recovery activities that limit access to businesses
- Permanent impacts on geography or tourist attractions (agriculture, tourism, outdoor recreation)
- Traffic routing away from a local business

### CONSIDERATIONS

Other questions to ask when trying to identify economic vulnerabilities might include:

- What industry/businesses does the local work force rely on the most?
- How significant is the tourism to the local economy?
- What percentage of local businesses are small businesses?
- What are the primary industries in the County?
- How significant is agriculture or agritourism?
- What percentage and types of businesses are located in a flood risk area?

- Financial domino effect - impacted businesses cannot pay wages that residents spend in the local economy, thereby impacting more businesses or compounding impacts
- Recovery activities displacing the local workforce
- Temporary increases in utility costs
- Lack of housing or displaced residents no longer having access to jobs and services.

## IV. PLANNING: COUNTY LEVEL ACTIVITIES

As part of the County's efforts to update and improve hazard mitigation and recovery effectiveness, the County has developed several documents to inform its Resiliency and Recovery Plan to minimize future disruptions due to natural hazards. The Resiliency and Recovery Plan includes the following components:

- Tompkins County Hazard Mitigation Plan: 2021 Update
- Water Supply Drought Resilience Technical Memorandum
- Critical Assets Floodplain Inventory
- Debris Management Plan
- Community Rating System Baseline Assessment and Potential Impact Report (Town of Lansing)
- Recommended Floodplain Practices for Tompkins County Communities
- Local Government Continuity of Operations Plan (COOP) Training
- Business COOP Training

These documents are intended to support improved disaster mitigation and recovery effectiveness. In addition to these documents, departments and agencies in the County develop and maintain a variety of planning, land use management, and development documents. These core planning documents include the Tompkins County Comprehensive Plan, Agricultural and Farmland Protection Plan, and Economic Development Strategy. Planning documents should provide consistent and supportive messages that allow for ease of implementation of recovery efforts. Such consistency will help to mitigate impacts from disasters before those events ever occur and as a disaster event is unfolding.

Furthermore, the integration of strategies to address economic recovery into local plans, codes, and ordinances will provide improved and shortened economic recovery. This plan provides the guidance for the County and local governments to establish policies and planning processes for recovery *before* a disaster occurs. Existing general and community plans, hazard mitigation plans, and rules, codes, and ordinances will inform the process of preparing for disaster recovery. Updates or revisions to these policies, plans, and ordinances may be needed to support more resilient disaster recovery and reconstruction. After a disaster event occurs, the development of a post-disaster recovery plan will help identify new recovery policies and specific recovery projects based on damage assessments and conditions on the ground.

## A. Planning Consistency - Department of Emergency Response and Department of Planning and Sustainability

### ***Action #2 – Review current planning material to ensure consistency across documents.***

The first step in developing a recovery plan is an analysis of existing planning documents and confirmation of consistency and concurrence across documents. Among County documents, where there may be a divergence due to changing objectives over time, or fundamental changes to the economic, social, or demographic character of the County, these differences or changes in purpose or goals should be recorded in the more recent planning document. This is a way to memorialize these changes and help track and clarify these transitions for future planning endeavors.

Consistency amongst the County’s core planning documents and likewise across County government, is critical when trying to develop a recovery plan that may utilize data from these documents or that seeks to support the processes, goals, and objectives identified in these key planning documents. Without consistency across the County’s core planning documents, it may be difficult to clearly develop a recovery plan that actively supports the larger planning and development goals and objectives established for the County through these core documents.

### **CONSIDERATIONS**

Other questions to ask when trying to identify economic vulnerabilities might include:

- When reviewing and updating County documents and in developing the economic recovery plan, ensure that local government planning documents are taken into consideration to avoid inconsistencies or direct conflicts in recovery efforts.
- As documents are updated in the future ensure that relevant changes are incorporated across documents.

## B. Incorporation of Recovery Information

### ***Action #3– Review current planning material and incorporate recommendations or processes described in disaster recovery and mitigation documents.***

A critical step toward resiliency is to incorporate the information and recommendations from disaster mitigation and recovery documents into the County’s core planning documents.

## C. Integration of Response and Recovery – Department of Emergency Response

Integration of response and recovery activities provides a strong foundation for economic recovery on both the county and local levels. Tompkins County Department of Emergency Response (DoER) is planning to update the County Comprehensive Emergency Management Plan (CEMP) in the near future. Under the scope of this project, general recommendations to ensure the integration of resilient recovery to minimize economic impacts are provided below.

## D. Department of Emergency Response (DoER) Recovery Annex Recommendations

***Action #4 – Review and update the current Comprehensive Emergency Management Plan (CEMP) to recognize and include actions to increase resilience during recovery and to specifically include county- and local-level economic recovery annexes to provide a framework for economic recovery.***

As part of the Resiliency and Recovery Plan, the consultant and planning team explored the integration of recovery and resiliency by identifying critical gaps in the community recovery support between the time of disaster initiation and long term community economic recovery through a review of the Tompkins County Department of Emergency Response’s CEMP Recovery Annex (Recovery Annex).

The Recovery Annex, current at the time of the planning process, was reviewed for alignment with FEMA’s National Disaster Recovery Framework, which includes criteria for the economic recovery core capability. The core capability includes critical tasks such as sharing, aggregating, and integrating economic impact data to assess economic issues and identify potential inhibitors to fostering stabilization of affected communities.

In order to identify opportunities to better address resiliency in post-disaster activities, it is necessary to review the current emergency management plans in place that support the activation of staff to: first, provide response activities to stabilize critical facilities, functions, and services; and next, to ensure that recovery activities are informed by the most recent mitigation and resiliency recommendations. In this manner, rather than rebuilding in kind, the County will improve infrastructure and services to reduce the potential for future impacts and minimize future economic disruptions. As recovery activities are initiated and implemented by the Tompkins County Department of Emergency Response, review of the current Recovery Annex of the Tompkins County CEMP included input from the Tompkins County Department of Planning and Sustainability and the Tompkins County Department of Emergency Response. The gap analysis provides the basis for the recommendations presented herein.

The following items identify the legal authorities and references used to develop a recovery plan and were referenced in the performance of the gap analysis. They do not supersede the plans, policies, or procedures of Tompkins County, or its partner agencies and organizations.

- Presidential Policy Directive-5 Management of Domestic Incidents
- Presidential Policy Directive-8 National Disaster Recovery Framework (NDRF)
- National Disaster Recovery Framework, 2<sup>nd</sup> Edition
- Public Law 93-288, The Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended
- New York State (NYS) Executive Law Article 2-B

The NDRF includes an implementation strategy, which comprises of recovery capacity-building actions categorized as immediate and short term actions. Immediate actions are priority actions to be addressed as soon as possible and are critical in having key actions, processes, and resources in place in preparation for recovery for the next hazard event. Short term actions are those that are not as critical for recovery or should be implemented within a two-to five-year period. These provide steps to be taken in order to move forward with the development of a comprehensive post-disaster economic recovery plan. The review and comparison

identified a number of opportunities to enhance recovery leadership, and to provide plans, procedures, protocols to support an efficient transition from response to recovery operations and integrate mitigation and resilience into post-disaster activities.

General recommended activities based on gaps or omissions to the current annex are provided below. More specific recommendations are offered for consideration for the update of the Tompkins County Comprehensive Emergency Management Plan and Recovery Annex in Appendix B.

## 1. GENERAL RECOMMENDATIONS

The following general recommendations are provided as a basis for the comprehensive update of the Recovery Annex and to guide the development of a document to better define responsibilities in the crucial transition phase from response to recovery. Specific recommendations, based on a review of the current DoER Recovery Annex, are provided in Appendix B.

- Develop a Pre-Disaster Recovery Plan (PDRP) that includes Recovery Support Functions (RSFs) to assist DoER in managing recovery operations and efforts to address the economic impact on the communities in Tompkins County, as well as the County operations. The PDRP will provide high-level objectives and coordination strategies to support decision-making during post-disaster recovery operations.
- Adopt local-level pre-disaster recovery plans and ordinances. These ordinances will establish a recovery organization, authorize the PDRPs, and grant emergency powers for staff actions that can ensure timely and expeditious post-disaster recovery
- Gaps identified concerning economic recovery include:
  - Ensure that the Pre-Disaster Recovery Plan include a supplement or annex addressing the Economic Recovery Support Function (RSF-2). Within this supplement, provide for the establishment of a County Economic Recovery Team to be activated as provided by the CEMP and to provide guidance for coordinating and supporting agencies to aid in restoring economic stability to the county.
  - Establish local-level Economic Recovery Support Functions to address municipality-specific staffing and other supports needed.
  - Define economic recovery for Tompkins County to establish the criteria for the creation of an Economic Recovery Team, as well as the responsibilities of its members. This will support the identification of economic opportunities needed to engage the private sector and non-traditional partners/stakeholders to restore jobs, services, and revenue generation for the County.
  - Develop a mission and guiding principles for economic recovery. This identifies those principles Tompkins County feels are needed for economic recovery post-disaster, such as recovering, maintaining the County tax base, partnerships between the public sector, private sector, and institutions of higher education.
  - Provide linkages between Emergency Support Functions (ESFs) and RSFs for an efficient and effective transition from response to recovery, i.e., for RSF 2 Economic Recovery, what ESFs for Tompkins County would they rely on to ensure economic stability.

- Identify roles and responsibilities for coordinating and supporting agencies for economic recovery. A lot of agencies/organizations have subject matter expertise in economic recovery and can provide that support for economic recovery in the County. This would include local, regional, state, and federal partners, as well as non-profits and NGOs that are traditionally relied on in economic recovery.
- Establish economic recovery priorities, i.e., focus on reducing unemployment and assisting those that cannot recover on their own, identify and coordinate with the top employers in the community (healthcare, tourism/hospitality, manufacturing).
- Develop metrics for tracking economic recovery progress, i.e., identification of the number of businesses reopened and how quickly it occurred, funding needs and gaps closed for local businesses, etc.
- Develop economic recovery methods and templates for outreach and engagement with public, private, and nonprofit partners/stakeholders as well as members of the whole community, i.e., leverage existing small business community groups, establish Business Recovery Centers, hold a public meeting, etc.
- Identify essential elements of information for economic recovery to determine priority actions during recovery, i.e., impacts on economic drivers in the community, impacts on the local tax base, names and types of businesses closed, and the amount of time they are expected to be closed, etc.
- Identify economic resources for existing local, regional, state, and federal programs that may be leveraged for funding, SMEs, or other resources that can aid in a quick economic recovery.
- Identify anticipated challenges the County may expect during the recovery process for economic recovery, i.e., timing of federal programs and insurance claims, transportation impacts, communications network to gather information from impacted businesses, distribution of information to impacted businesses, etc.

The intent of all pre-disaster recovery activities is to improve the community's ability for more efficient, immediate, and resilient recovery. The economic recovery plan is most effective as a countywide multi-jurisdictional plan providing for coordinated short-term, intermediate, and long-term resilient recovery implementation across jurisdictional boundaries. Ensuring that each jurisdiction within Tompkins County is responsible for the implementation of their community economic recovery plan, as well as coordinating and collaborating on implementation that crosses jurisdictional boundaries, is essential to a robust community recovery.

## V. COUNTY ECONOMIC RECOVERY TEAM ROLES AND RESPONSIBILITIES

The establishment of an Economic Recovery Team (ERT) is critical to the development of any economic recovery plan. The ERT would work to fulfill the recommendations of the County Comprehensive Emergency Management Plan (CEMP) under the purview of the Tompkins County Department of Emergency Response (DoER). As the County transitions from the response to the recovery phase after a disaster, the ERT will be activated to address the assessment of needs, communication, and mobilization of resources to speed up recovery and minimize the magnitude of impact on the economy.

The CEMP indicates the manager of economic recovery responsibilities in both the response and recovery phases of emergency management to provide seamless support for economic recovery. The economic recovery plan shall describe the structure and responsibilities of the team, the limits of its power, and when it is to be “activated” and “deactivated.” The ERT may be a separately defined group of individuals consisting of county and local level representatives, as well as members of the business community. As such, it may function as an independent entity or under the umbrella of a more comprehensive disaster recovery unit or department. Figure 8 Figure 8. Relationship between County and Local Recovery Plans below indicates the relationship between the County-level and local-level recovery teams.

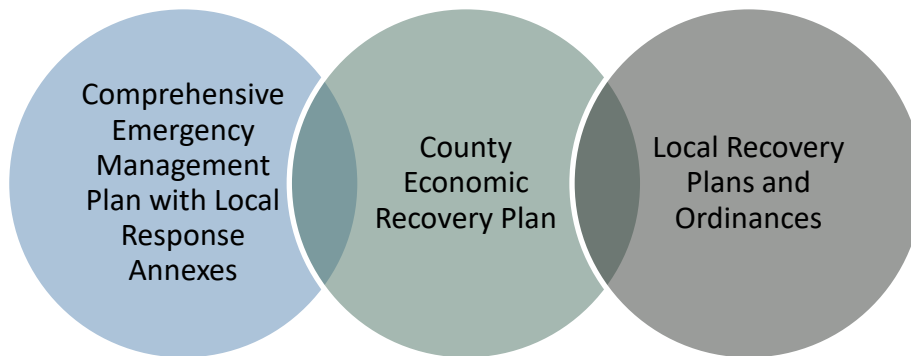


Figure 8. Relationship between County and Local Recovery Plans

### A. County and Recovery Team Roles

***Action #5 - Identify County’s general role and responsibilities in post-disaster economic recovery support and define what “economic recovery” means for the County.***

As a foundation for the plan, the County must clearly define its role in post-disaster economic recovery. Critical elements include:

- Coordinate, implement, and support the protection and recovery of County assets and facilities that are necessary for, and directly support, the regional and local economies.

- Provide active economic recovery support, assistance, and guidance to local municipalities, businesses, non-profit organizations, local stakeholders, and residents.
- Function as a coordination center and source of information for state, regional, and local government agencies. This element may include acting as a funding source or pass-through for state and federal recovery funding.

The County may decide to include more detailed or expanded definitions of its role, but it should keep the three general roles listed above as guiding principles.

To better understand its role in economic recovery and to help define the roles, responsibilities, and boundaries of the ERT, the County must define what economic recovery means for Tompkins County.

The National Disaster Recovery Framework (NDRF) defines the Economic Recovery Core Capability as the “*return of economic and business activities (including food and agriculture) to a healthy state and develops new business and employment opportunities that result in a sustainable and economically viable community.*” (FEMA, 2017). The County will need to expand upon this definition to define what a “healthy state” means and what sorts of goals the County has set as benchmarks for economic recovery.

This includes defining what the County’s responsibilities are for reestablishing economic opportunities in the wake of a disaster. It is important to define what role the County will play in engaging with traditional recovery service providers, and also its role with the private sector and non-traditional partners/stakeholders, to restore jobs, services, and revenue generation for the County.

The County must define the extent to which the ERT will take a proactive or passive stance on economic recovery. For example, will the County merely be a clearinghouse for recovery information, or will it actively engage businesses and local communities in identifying needs, supporting recovery programs, and seeking and managing disaster recovery funding? The County will also need to identify agencies and organizations with subject matter expertise in economic recovery, which can provide the necessary support for economic recovery, to the extent the County seeks to actively engage in recovery efforts. This would include identifying and securing connections with local, regional, state, and federal partners as well as non-profits and NGOs that are traditionally relied upon in support of economic recovery.

It is important roles and responsibilities are well defined before a disaster, to ensure a smooth transition from response to recovery.

### CONSIDERATIONS

When the County is defining what economic recovery means for the County in its role as an economic recovery support provider, there are a wide variety of factors it can take into account. Does economic recovery mean:

- Short term support as defined by some increment of time
- Return of a certain percentage of businesses
- Return of a local employment percentage
- Recovery limited to the full expenditure of local, state, and federal financial resources
- Return of critical businesses such as grocery stores, banks, gas stations, health providers, daycares?



## B. Identify Responsibilities

Once the County has defined its role in post-disaster economic recovery support and the meaning of post-disaster economic recovery, it is critical to identify the roles and responsibilities of its disaster recovery team and its staff. Identifying roles and positions clearly prior to a disaster event is important so that these individuals can be “activated” quickly, as an event occurs or immediately after the event. Team members should already be aware and up-to-date/ prepped as to their roles and responsibilities well before experiencing a disaster event. Additionally, in advance of an event, the extent and authority of powers, and emergency powers for the Economic Recovery Team should be determined. This is critical in ensuring timely and expeditious post-disaster recovery for the County. The extent of the Economic Recovery Team’s power may vary depending on the hierarchy of the recovery team in the County recovery organization.

***Action #6 – Define the extent of powers for the Economic Recovery Team and whether those powers include “emergency” powers. The exact limits of power may take time to agree upon and formal adoption of these powers for the Economic Recovery Team by the County may be required.***

### 1. IDENTIFICATION OF LEAD AGENCY OR DEPARTMENT

In creating a stand-alone Economic Recovery Team, several key components need to be established pre-disaster to allow for the most effective and unencumbered transition from response to recovery. These components include identifying which lead agency or department the Economic Recovery Team would be established under, the recovery responsibilities of that team, and its rules of empowerment.

***Action #7 – Identify the agency or department under which the Economic Recovery Team will be established.***

#### Lead Agency/Department

The first step in forming a formal Economic Recovery Team would be to establish under which agency or department the recovery team would be consolidated. Agencies or departments for consideration might include the Tompkins County Department of Emergency Response, County Administration, the Department of Planning and Sustainability, Ithaca Area Economic Development (IAED), and others.

#### Responsibilities

Another detail that will need to be addressed in the establishment of a recovery team will be identifying the specific responsibilities of the team regarding recovery activities. Some of these considerations include:

- Whether they engage in and conduct outreach
- Which, if any, local, state, and federal recovery programs they may be responsible for managing
- Delineating which entities may fall under their purview such as colleges. (Colleges certainly contribute to the economy, but they may not be best served by the ERT and its assets)
- Deciding what length of time the ERT may be responsible for identifying and developing recovery projects. Depending on the severity and type of disaster some recovery projects may end up being very large in scale

or require long periods to fully fund and complete. Because of these considerations, there should be some guidance provided regarding which projects the ERT may be responsible for and , if the ERT is responsible for identifying longer-term projects, what agency or department will the project be transferred to as the ERT is deactivated over time. The lengths of time listed below are roughly based on the availability of federal funding, which is often the largest source of recovery funding.

- Short Term/Critical Term (1-2 years) – This timeframe for projects is usually the time in which FEMA disaster recovery funds are available for recovery.
- Medium Term (2-5 years) – This timeframe for projects is usually the time period in which longer-term recovery funding programs such as CDBG-DR are active.
- Extended Term (5-10 years) – These projects usually require long-term financial investment, may involve substantial public or stakeholder input and support, and involve fundamental land-use changes or infrastructure investment.
- Legacy (10+ years) – These projects are similar to “Long Term” projects but may require even greater levels of investment, support, and construction. These projects are typically transformative projects within a community or the County.

***Action #8 – Establish recovery team responsibilities, limits of power, and timelines for responsibilities for recovery activities.***

***Action #9– Establish when and how responsibilities transition from response teams to recovery teams. Establish how responsibilities will transition and to whom when the Economic Recovery Team is deactivated.***

### **Rules of Empowerment**

It will be key to clearly identify and describe what powers the Economic Recovery Team may have and the limits of that power. This may require a particular level of formality in the creation and adoption of such a recovery entity including the possible formal adoption of a county resolution establishing and/or empowering the entity.

### ***Limits of Decision-Making Power***

The County will need to designate what powers the recovery team, and specific individuals, have to identify and select projects, commit funding, direct and manage staff, and take on other necessary activities.

### ***Transfer/Termination of Power/Responsibilities***

There are two major transition periods that need to be accounted for regarding the ERT. The first is the transition from response to recovery. It is important to clearly define how any economic response activities transition over to the Economic Recovery Team. The second major transition will be after recovery has been in place, and the ERT is now being deactivated. As recovery progresses, duties may change. There may be ongoing economic support activities that are needed, or projects that need to be completed, however there may no longer be the need to keep the ERT as a stand-alone entity active. In these cases, there should be a transition of responsibility from the ERT to some other agency or department to continue or finalize the remaining activities and projects.

## 2. POSITION IN RECOVERY COMMAND STRUCTURE

### ***Action #10 – Define the Economic Recovery Team’s position and responsibilities within the County’s overall organizational structure.***

Part of the process of defining the responsibilities and powers of the ERT will also include identifying its location in the overall organizational layout within the County.

Identifying how the team will be managed and who will manage it will only be the first part of laying out the overall structure of the team. The County will need to define who the Economic Recovery Team reports to and what the command structure may be as the team conducts recovery efforts. Will the team function as an extension of an existing department, or will it have some level of increased autonomy reporting more directly to the County Legislature? Additionally, the teams' internal structure will also need to be defined based on the roles and responsibilities the team is expected to undertake.

### **Organizational System**

### ***Action #11– Define the functional areas of responsibility within the Economic Recovery Team.***

The organizational layout or hierarchy for the recovery team should begin with areas of general responsibility. This will need to take into account those responsibilities the County intends the Economic Recovery Team to have. The functional areas of responsibility might include the following:

- Administration – responsible for general oversight and management responsibilities
- Communication – responsible for items such as public and stakeholder outreach and cross-agency communication
- Recovery funding – responsible for identifying and securing recovery funding. This area may also be responsible for ensuring compliance with rules and regulations associated with specific funding sources
- Recovery activities – responsible for direct program management including project identification and development, programmatic compliance, case management oversight, and project implementation.

Some of these areas may be combined or responsibilities may be shared across these functional areas. The formality of this structure can be decided and defined by the County as it sees fit based on organizational structure and staffing options.

## 3. IDENTIFICATION OF KEY RECOVERY STAFFING POSITIONS

Once the functional areas of responsibility are defined within the ERT, the necessary core staff positions will be further defined. Included in this task is to describe how the positions will be identified and adopted within the County’s organizational system. These core positions represent the essential staff that may be needed to manage economic recovery depending on the structure of the ERT developed by the County. It should be noted that specific positions may overlap with other Recovery Support Function staffing assignments and if so, responsibilities should be clearly defined to avoid potential conflict of interest issues or inefficiencies in recovery management due to lack of clarity on roles and responsibilities. Defining roles and responsibilities of economic recovery staff positions that overlap with other Recovery Support Function staffing assignments will

be critical in situations where federal or state funding may be involved. Defining these roles is critical to ensure clarity regarding who is responsible for compliance requirement oversight and management.

### Positions for consideration

There are a variety of forms the ERT can take along with the positions needed to manage economic recovery and implement recovery projects and activities. General positions for consideration include:

- **Economic Recovery Lead**
  - Define their role along with what their responsibilities may be. Identify staff for which they are responsible to oversee
- **Communications Officer**
  - Define role. Could have multiple communication staff or one POC. Conversely, responsibility for communications based on the targeted audience may be distributed amongst staff. Groups to consider when conducting and managing ongoing communication include:
    - Business/Non-profits
    - Residents
    - Disaster response/recovery personnel
    - Other government agencies/department
- **Recovery Funding Coordinator**
  - Define their role along with what their responsibilities may be. Even in those cases where other County staff, such as those working in the Financial Department, may be responsible for identifying and securing recovery funding, it should still be noted in the Economic Recovery Plan.
- **Other necessary staff**
  - Other positions may need to be identified to assist in recovery, but these positions should be identified pre-disaster, to the greatest extent possible. In some cases, due to the unique nature, impacts, or characteristics of a disaster, economic recovery staffing positions may need to be identified during or immediately after the disaster, but should be done as quickly as possible.

### Identify Staff Members

***Action #12. Identify internal staff to fill recovery team positions and identify if supplemental staff is necessary.***

Once the key positions on the Economic Recovery Team are identified, the County will then need to work with existing County staff or other outside agencies, if necessary, to identify the specific County staff members or other personnel who will fill these positions. This assignment of County staff will be indicated by the individual County staff personnel's title.

## C. Economic Recovery Office

***Action #13 – Identify Economic Recovery Office's physical location. This action may take longer since the identification of office needs and security of the space may take time and face several obstacles. Temporary locations can be defined in the short term.***

Once the purpose, roles and responsibilities, and structure of the ERT are established, it is time to identify the physical location of an economic recovery office. This office's location should be cited to allow for activities to be coordinated and recovery projects and programs implemented and managed. Ideally, it would also provide space for applicants and disaster-impacted businesses and other individuals, or groups, to seek disaster recovery resources and assistance. This office can be temporary but should be able to be activated and made available, if necessary, based on the type, nature, and severity of the disaster. Clear definitions will be in place defining when and how the economic recovery office will be formally activated and closed.

### 1. LOCATION AND OFFICE REQUIREMENTS

While the physical location of the office may not be much more than a cubicle within an existing County department, it has to be generally accessible and available to the public. In some cases, there may need to be consideration of a shorter-term economic recovery office along with a longer-term economic recovery office. This should be at least considered in the County's economic recovery plan, though a longer-term recovery office may need to be identified on a case-by-case basis depending on the disaster event.

There are several key items that should be taken into consideration when seeking to identify a recovery office which include:

- Accessibility – The site must be easily accessible by vehicle, ADA compliant, and ideally located on available local mass transit routes. In some cases, temporary pop-up sites at business locations might need to be utilized to ensure small and neighborhood businesses are accounted for or in cases where local transportation or communication is limited due to the disaster.
- Utilities (electric, water, internet) – The site must have access to electricity, potable water, and broadband service.
- Intake area – The office needs to either have or have access to, an area where applicant intake, interviewing, and processing can take place. Ideally, the applicant intake area would provide a certain level of privacy to protect the confidentiality and personally identifiable information which may be shared as part of the intake.
- Supplies – Space for, or access to, an area to keep files and supplies, as well as access to items such as a copy machine, computer terminals, and related office equipment, is critical. In some cases, the office may need access to a generator (if access to electricity is inconsistent or unreliable) and temporary heating/cooling systems depending on the nature of disaster impacts, time of year, and local weather.

Managing communications into and out of the office is also an important consideration when deciding on location. Identifying whether the site has available and functional telephone land lines or if cell phones will need to be relied upon. Another consideration is whether dedicated email addresses or phone numbers need to be established to separate applicant lines of communication from those lines of communication with local

governments or disaster responders. These sorts of efficiency details are important to consider pre-disaster so that recovery can proceed as expeditiously as possible.

One additional item for consideration is the possible need to identify a backup or temporary office location depending on the impacts of the disaster. While this may not necessarily have to be decided as part of the economic recovery plan since the impacts of future events are unknown, having some sites in mind or a process established for identifying alternate sites should be considered.

***Action #14 – Incorporate recommendations from Resilience Messaging Playbook into Economic Recovery Plan.***

## **2.COMMUNICATION**

During the post-disaster recovery period, communication will be critical. To ensure recovery progresses as effectively and efficiently as possible there are several key items to take into consideration described below.

### **Utilize Resilience Messaging Playbook**

The Resilience Messaging Playbook is a toolkit that should be utilized to the greatest extent possible to provide guidance regarding communication in the economic recovery plan. This toolkit provides guidance on messaging and communication strategies before and during recovery.

### **Establish and Define Connections**

The County should identify critical recovery contacts and their preferred lines of communication, especially during post-disaster recovery, ahead of disaster events.

## **VI. RECOMMENDATIONS TO IDENTIFY AND PRIORITIZE RECOVERY ACTIVITIES**

When identifying, considering, and developing recovery activities, it is critical that the issues that need to be addressed, and the priority in addressing them, are clearly defined. There needs to be consistency and cooperation amongst recovery services to ensure that there is cross-functioning support so that all aspects of recovery are working in the same direction and addressing issues on the same prioritization scale. One of the most difficult aspects to manage in recovery is the fact that priorities may be influenced by the availability of resources to address impacts. The County should, to the greatest extent possible, try to estimate and anticipate recovery resources and the timeframes at which they become available. Taking actions such as working with local businesses and insurance providers to understand how quickly insurance may be made available to businesses would be a substantial proactive step as part of the development of the economic recovery plan. Additionally, understanding the order, methodology, and funding resources that may be available from state and federal agencies will greatly assist in the identification and prioritization of recovery projects based on the amount and purpose of each recovery funding source.

Applying the lens of the recovery continuum is vital in identifying and prioritizing recovery activities. Prioritization of activities begins by identifying the most prevalent or urgent needs within each of the timelines associated with the continuum and identifying and prioritizing recovery activities accordingly. Undergoing with process helps reinforce a recovery structure for the economic recovery that aligns with the other recovery support functions.

## A. Impact Data Collection Process

One of the most important aspects of disaster recovery regarding identifying and prioritizing recovery activities is developing a reliable, accurate, and effective impact identification, recordation, and verification process. The damage identification process is critical to properly designing effective recovery programs, obtaining the necessary amounts of recovery funding, and properly managing and implementing recovery efforts effectively and efficiently. Some of the key questions that need to be answered when it comes to the impact identification process include:

- Who collects impact damage?
- How is impact data collected and recorded?
- How is it managed and used?

### 1.WHO

***Action #15– Identify who will be responsible for collecting and consolidating hazard impact data as well as where the information will be maintained.***

Disaster impact information will not only need to be actively sought out and gathered from across impacted portions of the County, but the information will also be available from resources collecting their own impact data. It will be critical for the County to identify who will be responsible for gathering this information. Collecting impact information may technically involve a variety of individuals but the County should set up a system to consolidate this information to have a single collection point for reference. Several items to take into consideration regarding collecting these data include:

- Recognizing and identifying the level of coordination that may be needed with other agencies and local resources to secure timely and accurate impact information. Identifying these resources should be conducted pre-disaster.
- Information management: Where and how will impact data be stored and managed over the long term. Much of this information may be crucial for state or federal funding eligibility and these funds may not become available until a year or more after a disaster event.

### Photographic evidence

The County should make a conscious effort to secure photographic evidence of disaster impacts to the greatest extent possible. Assigning responsibility for recording impact data to specific response or recovery personnel during or immediately after a disaster event is critical.

## 2.How

***Action #16 – Identify how impact data will be collected and maintained post-disaster. Identify the types on information being sought and develop a secure process for storing information.***

Activities under this action include identifying impact data resources and setting up a process for systematically collecting impact information during and after a hazard event. This action will save significant amounts of time on data collection and help prevent impacts going unrecorded or documented during and immediately after a disaster event when capturing impact data is most critical.

### Identify process

It will be important to establish a process for recording data. The County may want to consider creating a formal process for digitizing any non-digital information (photos, newspaper ads, insurance documents, field reports) immediately upon collection and storing it on a secure system. Defining a clear process will allow for easy reference and utilization.

### Digital, paper, combination

Establishing a clear process for information collection and storage will significantly help expedite recovery activities as impact data can be analyzed, verified, and prioritized more easily with impact evidence and recordation. The County should decide how it will collect data, the type of data and how it will store the information, particularly when it comes to hard copies of information. Hard copies run the risk of being lost or misplaced, as well as damaged or destroyed during a disaster or in the confusion and chaos post-disaster.

## B. Recovery Continuum Prioritization

The following information provides recovery activity considerations for the economic recovery plan based upon time periods established in the recovery continuum. The short term and early intermediate activities are usually the most critical as businesses need to reopen and reestablish their clientele quickly since many businesses, especially small businesses, don't have the capital to withstand longer term shutdowns. While these timeframes, shown previously in Figure 1, have similar terminology to the county action plan, they are described in greater detail below.

### 1.SHORT TERM RECOVERY PHASE

Short term recovery are those actions and activities that take place within several days to up to two weeks post-disaster. The actions and activities are those needed to get businesses back up and running as quickly as possible. Communication with the business community will help the County know what specific issues businesses are facing. This phase is the time to implement plans to provide temporary assistance as needed for businesses until more permanent solutions become available. One consideration during this time is that federal funding from agencies such as SBA, FEMA and HUD may not yet be fully available as damages are being assessed by these agencies.



Short term recovery activities often involve recovery of the fundamental elements and resources needed to get businesses running. Activities include the bare essentials and the necessary environment needed for a business to function and often include the following items:

- Access to electricity
- Access to potable water
- Access to food
- Safety (includes safety from both natural and manmade threats, such as rioting and looting)
- Physical access to business locations
  - Customers and employees need access to business
- Access to broadband/internet/cell phone
  - Many businesses can function partially, or even entirely, if they have adequate telecommunications services.

## **2. INTERMEDIATE RECOVERY PHASE**

Intermediate recovery begins after the short term recovery phase ends, several days to up to two weeks post-disaster, and extends out to approximately twelve months after the disaster event. Many of the activities developed to address short term recovery needs continue to apply as the County transitions into the intermediate recovery phase. Since few disaster impacts can be fully addressed within several days of the disaster event, most of the short term recovery activities continue into the intermediate recovery phase. The focus of activities in this phase remain on getting the bare essentials functioning for businesses to provide some level of service. Similar to the short term phase, strategies should be developed to provide temporary assistance as needed for businesses until more permanent solutions become available.

## **3. LONG TERM RECOVERY PHASE**

Long term recovery activities are those which take place over the course of months and years. Recovery activities for businesses usually don't extend out to the long term because if issues aren't addressed in a more immediate fashion the business runs the risk of failing. However, if a disaster results in severe impacts that permanently prevent recovery, such as landslides burying a region under dozens of feet of rock and soil, or make recovery so cost prohibitive that it is unreasonable for projects to be undertaken, then long-term economic recovery projects may extend into the long term.

## **C. Economic Recovery Activity Categories**

Economic recovery activities can be broken up into a few larger categories for which specific projects can be developed. These general categories involve related services or business objectives and include factors such as: utilities; accessibility and mobility; labor; customers; facility improvements; financial recovery; and migration focus. Prioritization of projects can take place within each of these categories or more generally based on needs.

## 1. UTILITIES (POWER, WATER, TELECOMMUNICATIONS)

The first priority is identifying activities to get utility services up and running and available to as many people and businesses as possible. This may necessitate only providing utility service for limited periods of time or in specific geographic areas. The economic recovery plan should identify and prioritize these activities among the highest. Modern-day business reliance on broadband/internet access has made the reestablishment of these services almost as important as core utility services, such as water and power.

## 2. ACCESSIBILITY AND MOBILITY

Having physical access to businesses by both customers and employees will be critical in the days immediately following a disaster. Customers, employees, response and recovery personnel and service providers must be able to access and effectively move through a community in order for much of the local economy to begin recovery. Roads, bridges, levies, flood control facilities, airports, ports, and other general infrastructure, must be prioritized in order to get necessary physical and transportation connections reestablished as soon as possible. Communication may be non-functional or/and delivery services may be unable to access areas within the County. Local business access is critical and allows for businesses to begin earning revenue and paying wages as soon as possible. Additionally, establishing local access to businesses also allows businesses to potentially serve response and recovery personnel assisting with the disaster. In some cases, these emergency response personnel may become a substantial temporary, but much needed, customer base.

## 3. LABOR

Getting employees back to work, especially in cases where many of the employees are local residents, will greatly increase local economic stability and community resiliency. Recovery activities may vary greatly due to the variety of reasons the labor force may not be available after a disaster event. In development of the plan, some common factors influence the availability of labor force and should be considered when attempting to identify and prioritize recovery activities, including:

- Accessibility
  - Regional or local road closures
  - Regional transportation issues and barriers
- Displacement of residents (local labor force base)
- Availability of family care providers to enable work force continuity
- Availability of critical services, such as those industries providing food, fuel, etc.

### CONSIDERATIONS

When looking to prioritize projects the County should consider the following issues:

- Which projects provide multiple benefits or assist the most diverse (i.e., residents, businesses, and local government) or greatest number of beneficiaries
- Which projects contribute to increasing or supporting health and safety efforts
- Which projects can be implemented quickly and/or easily
- Which projects help shorten business reopening timelines
- Which projects have funding currently available.

- Lack of information (customers don't know the business is open)

Evaluating the possible need for services is important when identifying and considering recovery activities, such as temporary transit systems (e.g., busing) to provide options for getting employees and customers to business centers. This may be able to be done in coordination with local ventures.

## 4. CUSTOMERS

The specific reasons why customers may not be patronizing local establishment may vary based on impacts from a disaster in addition to several other factors. Therefore, specific projects or programs may be difficult to plan for ahead of time and may need to be developed as recovery begins. However, some of the most common factors impacting customers include:

- Accessibility (see Labor above)
- Displacement of residents (local customer base)
- Lack of information (customers don't know that the business is open)
- Impacts to local attractions impacting tourism
- Fear of leaving homes for safety reasons

The County will also consider communication strategies to keep local customers informed in addition to addressing the immediate factors directly negatively impacting customers, such as access to businesses. Providing fundamental information like which stores or business areas are accessible and available to the public is crucial in reconnecting customers with local organizations. There is often a lot of confusion, disinformation, rumor or a substantial gap or lag in information immediately following a disaster, which should be anticipated and accounted for as part of recovery planning. By providing accurate and proper information, this can effectively lead to a more effective and comprehensive recovery process.

## 5. FACILITY IMPROVEMENTS

Direct physical impacts to businesses from disaster events must be addressed as part of the recovery process.

### Business repairs and recovery

Consideration will need to be given to the recovery activities that provide direct assistance for repairs or replacement of damaged facilities. The County may want to consider prioritizing smaller businesses since they may not have the same financial and support resources the larger businesses may have. Coordination and communication with and among owners will be essential in obtaining a complete understanding of the needs and supplies deemed critical by the impacted entities for enabling them to get up and running once more.

### Resupply stock/inventory

Many businesses may have lost stock due to the disaster event and the supply chain. Evaluating recovery activities that help business regain necessary stock to help get them up and running for a more extended period of time is crucial. Activities focused on quickly reestablishing all phases and stages of supplies and other stock are critical to recovery and rebuilding the local economy.

### Temporary structures or sites

In some post-disaster situations, it may be best or most advantageous for the County to set up an area where businesses can locate temporarily or assist in providing temporary structures from which businesses can provide goods and services. This hub concept of centralizing potential services, food, materials, and other goods into one site will need to account for safety, accessibility of the community, and access to utilities in determining the exact temporary location.

### Services from home

The County may also want to consider programs that support organizations being run from people's homes as a short term solution to get businesses running. Options to provide this support would have to be closely examined and properly designed if they are to be funded with state or federal funds. Regulations sometimes make these types of support projects a little bit more difficult to fund since it is more difficult to qualify and implement support tools.

## 6. FINANCIAL RECOVERY

As recovery occurs there may be many businesses that begin to suffer substantial debt either paying for recovery costs or using lines of credit to help pay for operating costs since patronage and the resulting revenues may have been decreased in the wake of the disaster. Identifying activities that could help businesses offset these debts and deferred costs to avoid having owners slide into financial ruin is important.

## 7. MITIGATION FOCUS

As time extends beyond the disaster event and the dire urgency of immediate recovery begins to subside, recovery efforts shift focus to be more through the lens of mitigation. This mitigation focus is simply a way of designing recovery programs and projects that have resilience features incorporated into them and helps reduce future impacts from disasters. Resources to inform improved resilience are the Hazard Mitigation Plan Mitigation Strategies (Tompkins County 2021b), as well as Appendix A - Resilience Land Use Mechanisms of the document.

Regarding land use, Appendix A details efforts that local governments can undertake to enhance their resiliency by reviewing their existing codes and ordinances and assessing whether those rules support the best practices outlined in this report. Additionally, all municipalities within Tompkins County are also encouraged to consider adopting the model Disaster Recovery Ordinance and Disaster Reconstruction Ordinance provided in this report, so that they are in place in the event of a future disaster. Additional resources and examples of ordinances to support these actions are included in Appendix A:

- Recommended next steps for Tompkins County municipalities
- Best practices for land use codes and building codes are discussed including moratoria and temporary restrictions, and expedited repair and reconstruction permitting
- A case study review of selected municipalities in Tompkins County undertaken to look at what types of regulations and plans are currently in place.

- Model Disaster Recovery Ordinance that local municipalities can adopt
- Model Disaster Reconstruction Ordinance that local municipalities can adopt
- Additional available resources for municipalities to review for further information when undertaking implementation actions to update land use regulations that will result in more resilient development practices.

## VII. RECOVERY ACTIVITIES

Economic recovery efforts are conducted in coordination with other recovery activities defined in the Disaster Recovery Plan.

### A. Communication

Communication may be the single most important component for local businesses during recovery. There must be adequate outreach in a variety of methods to ensure information, support, and guidance is getting to the business community.

### B. Restoration of Utility Services

Restoration of utility services would include any activities to assist in the expeditious return of utility services. Activities include repair to water pumping stations, restoration of drinking water lines, repair/replacement of downed power/cable lines and, repair/replacement of cell phone towers.

#### 1. TEMPORARY SERVICES

Identify types and sources of temporary services for the following necessities:

- Power – Establish a business recovery area. Electricity may only be able to be provided to limited geographic areas in the short term. Designate areas where businesses can temporarily relocate to have access to electricity and conduct business.
- Potable water
- Broadband
- Cellphone towers

### C. Debris Removal/Clean-Up

Clean-up and debris removal after a disaster helps restore access to communities allowing supplies, patrons, delivery services, workers and response and recovery specialists to make their way to local businesses.

### D. Utilization of Local Business

Identification of local businesses to assist with or benefit from debris management and clean-up supports timely recovery. It is important to work hand-in-hand with local businesses to identify needs and available support services.

## E. Business Support

Work with local businesses, non-profits, stakeholders, and community groups to provide entities with support services and guidance on recovery. These services could include everything from funding for bricks and mortar facility improvements to legal services to assist in recovery.

### 1. FINANCIAL ASSISTANCE

Direct financial assistance may be provided in a variety of methods. These sources should be identified pre-disaster and recovery activities considered for including in the economic recovery plan based on the regulations and limitations imposed on each of those funding sources.

#### Sources of Recovery Funding

##### *Public*

Local, state, and federal funding sources. Some of these may include

- Governor's Office of Storm Recovery
- Chambers of Commerce
- FEMA
- SBA
- HUD

##### *Private*

- Insurance
- Loans

##### *Non-Profit*

- Red Cross
- Salvation Army
- Habitat for Humanity
- Churches and community groups (donated goods and supplies)
  - Donated goods and supplies
  - Donated construction materials and labor
  - Temporary shelter, food, water, and clothing.

## F. Housing Recovery

Though it may not seem like an economic recovery activity at first glance, housing recovery projects are critical in restoring the local economy. By repairing and replacing housing, the County would assist in securing local customers who will then buy local goods and services. At the same time, the housing recovery activities would serve to ensure that local workers are available as they can live locally rather than being displaced, having

limited access to local employment. The third benefit is that the recovery activities themselves, such as housing rehabilitation and construction, can feed into the local economy by employing local contractors in the housing recovery activities.

## VIII. LOCAL GOVERNMENT ROLES AND RESPONSIBILITIES

Similar to the activities undertaken by the County ERT, the local governments (villages, towns, and city) should plan for disaster recovery to allow for a more swift and efficient recovery. Planning also helps inform and support the County’s economic recovery plan organization and development process. While event-specific plans are needed after a disaster, the establishment of a pre-disaster plan and ordinance facilitates efficient recovery and can set the stage for resilient reconstruction and expeditious economic recovery. The State of New York requires local governments to develop their own post-disaster recovery and redevelopment plan under 2013 New York Consolidated Laws EXC – Executive Article 2-B - (20 - 29-J) STATE AND LOCAL NATURAL AND MAN-MADE DISASTER PREPAREDNESS; 28-A - Post disaster recovery planning. Universal Citation: NY Exec L § 28-A (2012). However, it is more efficient to develop a pre-disaster recovery plan when the stresses and strains of active disaster recovery are not burdening staff, and the time needed to properly develop a comprehensive and detailed recovery plan is available. Additionally, the development of a pre-disaster plan can function as the framework for the post-disaster plan allowing the post-disaster plan to be developed much more quickly and efficiently.

The suggested workflow/relationship for local economic recovery planning is indicated in **Error! Reference source not found.** below.

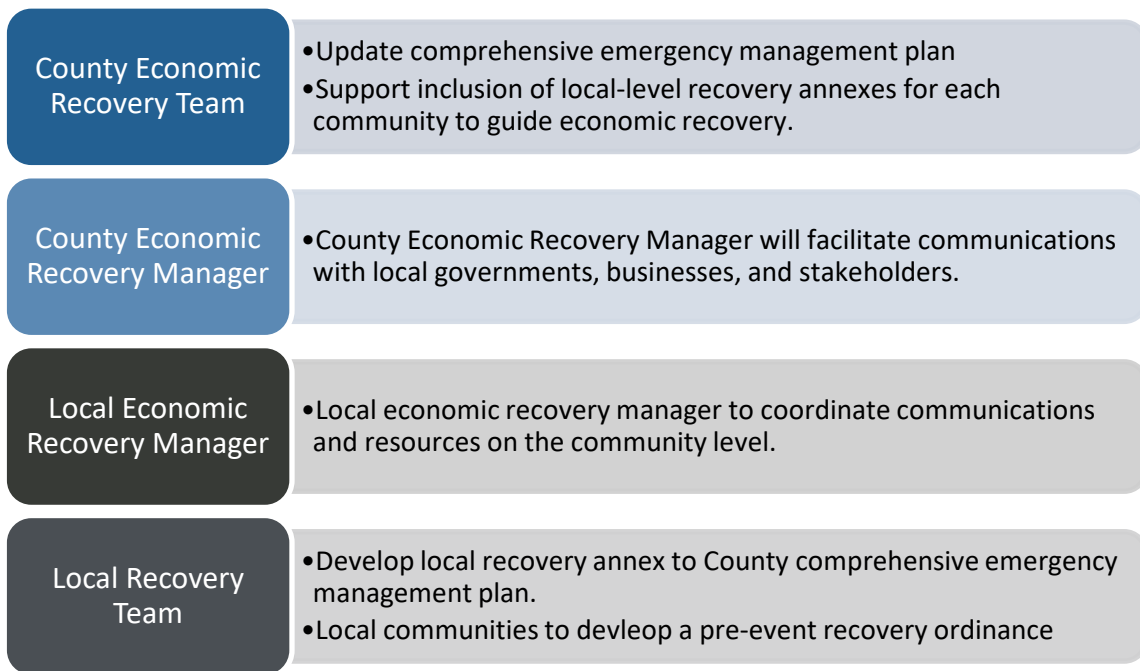


Figure 9. Local Government Recovery Relationship

In addition to ERT responsibilities, the intersection of local government planning and ordinances requires the integration of recovery principles into local land use policy and planning. For example, comprehensive planning should incorporate or reference delineated hazard areas to support the establishment of codes and ordinances designed to minimize damages or development in these areas. Other proactive activities include the establishment of a post-disaster recovery ordinance *prior to a disaster* to efficiently manage short and long term recovery. The purpose of such an ordinance is to establish local procedures and administrative activities to address specific post-disaster recovery actions.

Tompkins County villages, towns, and the City of Ithaca will be encouraged to first review existing codes and ordinances to assess whether resilient best practices fit their needs, and if so, which such best practices should be considered for adoption. All municipalities within Tompkins County are encouraged to add additional resiliency measures to their codes including adopting the Disaster Recovery Ordinance and Disaster Reconstruction Ordinance described in Appendix A so that those laws are in place in the event of a future disaster. Additional resources and examples of ordinances are also found in Appendix A.

***Action #17 – Perform a land use analysis to support pre-disaster resilience and mitigation activities.***

***Action #18 – Consider development and adoption of pre-disaster recovery ordinance to facilitate efficient economic recovery.***

Local government are encouraged to utilize the same processes outlined in this document for the County in the development of their own Economic Recovery Plan, which includes the following:

- **Pre-Plan Development Activities**
  - Update local other municipal planning documents for consistency
- **Economic Recovery Plan Development**
  - Introduction
    - Describe purpose of the document
    - Provide socioeconomic, demographic, and business summary data for jurisdiction
      - Best Practice: Ensure that Economic Recovery Plan aligns with other municipal planning documents.
  - Economic Development Team
    - Define purpose and authority
      - Identify how it will function
    - Define roles and responsibilities
    - Define recovery office details
  - Identification of Economic Impacts
    - Define economic impacts
    - Review local HMP for identification of impacts by hazard
    - Conduct Economic Vulnerability Analysis



- Identify economic impacts by hazard type (cross reference Economic Vulnerability Analysis with HMP impact data)
- Define process for Identification and Prioritization of Recovery Activities
  - Define process for identifying economic impacts post-disaster
  - Identify Recovery Activity Categories (this is recommended to help ease prioritization process)
  - Identify activity prioritization process
- Define Recovery Activities
  - Define process for identifying recovery activities post-disaster
  - Develop a series of general recovery activities to address the most common or substantial impacts from disasters by disaster type
- Perform a land use analysis to support pre-disaster resilience and mitigation activities
- Develop and adopt a pre-disaster recovery ordinance to facilitate efficient economic recovery.

## IX. PRIORITIZED ACTIONS TO SUPPORT ECONOMIC RECOVERY

Table 1, below, summarizes the actions that appear throughout this document. They are provided as building blocks for the development of a county-wide recovery plan and associated local recovery plans. Actions to support economic recovery, taken by both county and local governments, improve recovery and enhance resiliency. Development and implementation of local recovery plans are the responsibility of local governments. Timeframes for these actions are considered to be either immediate term (to be implemented in less than two years) or short term (to be implemented in less than five years). Long term actions are more appropriately identified in the overarching pre-disaster recovery plan.

**Table 1. Prioritized Actions to Support Economic Recovery**

| Implementation Entity               | Action #      | Action Name  | Action Description   | Timeline  |
|-------------------------------------|---------------|--|--|-----------|
| <b>County and Local Governments</b> | ERP Action #1 | Economic Vulnerability Analysis                    | Conduct an Economic Vulnerability Analysis in conformance with FEMA guidance.  | Short     |
| <b>County and Local Governments</b> | ERP Action #2 | Planning Consistency                               | Review current planning material to ensure consistency across documents.   | Short     |
| <b>County and Local Governments</b> | ERP Action #3 | Mitigation and Resilience Integration-Planning     | Review current planning material and incorporate recommendations or processes described in disaster recovery and mitigation documents.   | Immediate |
| <b>County and Local Governments</b> | ERP Action #4 | Mitigation and Resilience Integration-Preparedness | Review and update the current Comprehensive Emergency Management Plan (CEMP) to recognize and include actions to increase resilience during recovery and to specifically include county- and local-level economic recovery annexes to provide a framework for economic recovery. | Immediate |
| <b>County and Local Governments</b> | ERP Action #5 | Economic Recovery Definition                       | Identify County’s general role and responsibilities in post-disaster economic recovery support and define what “economic recovery” means for the County.   | Immediate |

|                                     |                |   |  |           |
|-------------------------------------|----------------|---|--|-----------|
| <b>County and Local Governments</b> | ERP Action #6  | Economic Recovery Team - Extent of Powers                         | Define the extent of powers for the Economic Recovery Team and whether this includes “emergency” powers. The exact limits of power may take time to agree upon and formal adoption of these powers for the Economic Recovery Team by the County may be required. | Immediate |
| <b>County and Local Governments</b> | ERP Action #7  | Economic Recovery Team - Organization                             | Identify the agency or department under which the Economic Recovery Team will be established.  | Immediate |
| <b>County and Local Governments</b> | ERP Action #8  | Economic Recovery Team - Responsibilities                         | Establish recovery team responsibilities, limits of power, and timelines for responsibilities for recovery activities.   | Immediate |
| <b>County and Local Governments</b> | ERP Action #9  | Response to Recovery Transition Planning                          | Establish when and how responsibilities transition from response teams to recovery teams. Establish how responsibilities will transition and to whom when the Economic Recovery Team is deactivated.   | Immediate |
| <b>County and Local Governments</b> | ERP Action #10 | Economic Recovery Team - Position within County Command Structure | Define the Economic Recovery Team’s position and responsibilities within the County’s overall organizational structure.  | Immediate |
| <b>County and Local Governments</b> | ERP Action #11 | Economic Recovery Team - Member Roles and Responsibilities        | Define the functional areas of responsibility within the Economic Recovery Team.   | Immediate |
| <b>County and Local Governments</b> | ERP Action #12 | Economic Recovery Team - County Staff Member Assignments to ERT   | Identify internal staff to fill recovery team positions and identify if supplemental staff is necessary.   | Immediate |

|                                     |                |  |  |           |
|-------------------------------------|----------------|--|--|-----------|
| <b>County and Local Governments</b> | ERP Action #13 | Recovery Office Location               | Identify Economic Recovery Office's physical location. This may take longer since the identification of office needs and security of the space may take time and face several obstacles. Temporary locations can be defined in the short term. | Immediate |
| <b>County and Local Governments</b> | ERP Action #14 | Outreach Implementations               | Incorporate recommendations from Resilience Messaging Playbook into Economic Recovery Plan.  | Immediate |
| <b>County and Local Governments</b> | ERP Action #15 | Impact Data Collection - Documentation | Identify who will be responsible for collecting and consolidating hazard impact data as well as where the information will be maintained.  | Immediate |
| <b>County and Local Governments</b> | ERP Action #16 | Impact Data Collection - Process       | Identify how impact data will be collected and maintained post-disaster. Identify the types of information being sought and develop a secure process for storing information.  | Immediate |
| <b>Local Governments*</b>           | ERP Action #17 | Land use analysis                      | Perform a land use analysis to support pre-disaster resilience and mitigation activities.  | Short     |
| <b>Local Governments*</b>           | ERP Action #18 | Pre-Disaster Recovery Ordinance        | Consider development and adoption of pre-disaster recovery ordinance to facilitate efficient economic recovery.  | Short     |

\* These actions are unique to local governments as local governments are empowered to manage and regulate land use within their jurisdictions.

## APPENDIX A. RESILIENT LAND USE MECHANISMS

### A. Introduction

Municipalities have several options to ensure their land use regulations and permit processes are ready for a future disaster. This report includes:

- Recommended next steps for Tompkins County municipalities
- Best practices for land use codes and building codes are discussed including moratoria and temporary restrictions, and expedited repair and reconstruction permitting
- A case study review of selected municipalities in Tompkins County undertaken to look at what types of regulations and plans are currently in place.
- Model Disaster Recovery Ordinance that local municipalities can adopt
- Model Disaster Reconstruction Ordinance that local municipalities can adopt
- Additional available resources for municipalities to review for further information when undertaking implementation actions to update land use regulations that will result in more resilient development practices.

### B. Recommended Next Steps for Tompkins County Municipalities

Upon completion of this resiliency and recovery planning effort, it is recommended that local governments review their existing codes and ordinances to assess whether those rules support the best practices outlined in this report. If there are aspects that are not currently included, municipalities should consider incorporating and adopting those practices into their land use codes. All municipalities within Tompkins County are also encouraged to consider adopting the model Disaster Recovery Ordinance and Disaster Reconstruction Ordinance provided in this report, so that they are in place in the event of a future disaster. Additional resources and examples of ordinances to support these actions are included in this report, as well.

#### 1. BEST PRACTICES FOR LAND USE ORDINANCES AND BUILDING CODES

Municipalities have several options to ensure their land use regulations and permit processes are prepared for managing future disasters. For this report, the focus is on flooding, however these best practices support many of the critical hazards facing Tompkins County. This section also discusses best practices for land use codes and building codes, moratoria, and temporary restrictions, expedited repair and reconstruction permitting. Later in the report, two model best practice ordinances for disaster recovery and disaster reconstruction are included for consideration by municipalities.

#### Zoning Regulations

Zoning regulations can help protect the safety of a municipality from disasters by addressing flooding. Techniques for enhancing local codes can include adopting waterfront zones and waterbody setbacks, height, bulk, and area regulations, building elevations, transfer of development rights, natural features protections, and provisions in the nonconforming uses section. The intention of such provisions is to protect important environmental assets and increase community resiliency from the time of inception of a development proposal.

## Height, Bulk, and Area Regulations

Height, bulk, and area regulations control the size, location, and placement of structures. These techniques can be used to control development and also make it more resilient related to flooding when certain provisions are added to zoning regulations. Higher minimum lot sizes and maximum lot coverage can provide more area for stormwater management and reduce flood risk. A lower maximum lot coverage reduces the amounts of impervious surfaces thereby reducing stormwater runoff. Related to building elevations (discussed below), maximum building height can be adjusted to permit an increase in building elevations in floodprone areas.

## Building Elevations

Municipalities can include provisions in their ordinances to allow, or require, buildings to be elevated to provide protection for structures in floodprone areas. Zoning laws often have a maximum building height requirement, which is often measured from the ground. When homes are elevated, particularly if the surrounding land is not also raised, such action can create a circumstance where the building's maximum permitted height is exceeded. Even when the land is raised, it can create a situation where the raised structure is well above the height of surrounding structures and thus, appears to be out of place amongst neighboring properties. There are two ways to generally address this situation: 1) allow for taller building heights in floodprone areas, or 2) provide an exception to building height for areas within Special Flood Hazard Areas (SFHAs) such that a structure has to be a minimum height above the Base Flood Elevation (BFE) and total building height is measured from the BFE, not the ground.

## Waterfront Zones

Zoning for waterfront areas could include waterfront or streamside zoning districts, waterfront overlay districts, and waterfront bluff overlay districts. Municipalities with New York State Local Waterfront Revitalization Programs (LWRPs) typically adopt such waterfront zoning, but an LWRP is not required for waterfront zoning to be adopted by the municipality. Municipalities need to be eligible for LWRPs. The LWRP process begins with a planning process that centers on developing a vision for the future of the waterfront and moves to a multi-level approval process. Once an LWRP is approved and in place, municipalities are eligible for implementation funds through the Local Waterfront Revitalization Program to begin to implement identified and prioritized projects.

## Waterbody Setbacks (Riparian Buffers)

Municipalities often adopt setbacks from waterbodies (lakes, streams, and wetlands) to ensure that there is adequate protection from flooding and/or to reduce the potential for pollutants to enter the waterbody. Often the provisions of the riparian buffer require the preservation or planting of native trees and shrubs. The riparian buffers slow runoff, protect water quality, and in concert with plantings, stabilize soil and control erosion. In addition, a larger setback distance from a waterbody can help protect development from flooding, depending on topography. For more information on model ordinances, easements, protection agreements and stream buffer planting guides visit <https://www.tompkinscountyny.gov/planning/water-resources-stream-buffers>.

## Natural Resource Protections

Natural Resource Protection Areas are regulated areas included in zoning regulations related to the protection of important areas such as along streams, forested land, floodplains, wetlands, steep slopes, areas where there are threatened or engaged species, etc. The development of these regulations requires a more detailed analysis of areas to be protected and may exclude these areas from development (such as steep slopes over 25% or more, SFHAs, etc.) or require minimum setbacks from these areas. The Tompkins County Unique Natural Areas Inventory could be used as a starting point for identifying areas for protection.

## Nonconforming Uses or Lots

Nonconforming uses and nonconforming lots are regulated within a municipality's zoning law, which typically limits expansion or enlargement of the nonconforming use and prohibits substantial improvements on a nonconforming lot. Changes to the zoning language would prevent nonconforming uses or lots from expanding or substantially improving the nonconforming uses or structures within a floodplain. These types of regulations on nonconforming uses can help mitigate existing, and possibly longstanding, issues with uses or lots that are frequently flooded and that should not be expanded or substantially improved due to the likelihood of a future flood event resulting in direct adverse impacts.

## Subdivision Regulations

Subdivision regulations can be adapted to include provisions that will help minimize flood damage. For example, there could be provisions to exclude the SFHAs and 0.2% Annual Chance Flood Areas, and possibly buffer these areas from the minimum buildable areas. Subdivision regulations can also encourage minimal land disturbance, avoid wetlands and flood-prone areas altogether, limit impervious surfaces, and minimize stormwater runoff. One technique is to remove land unsuitable for development to protect important natural features. Conservation subdivision or cluster development is another technique that requires more compact development to avoid the important natural resources.

## Moratoria and Temporary Restrictions

Moratoria and temporary restrictions are enacted to allow time post-disaster to assess structural vulnerabilities, clean-up and stabilize any hazardous buildings, repair damaged infrastructure, and look at options for mitigation measures. It also allows time to bring in outside experts to assist, if needed, and secure funding for repairs and improvements following a disaster. The intent of the moratoria is to allow for a pause in building during the damage assessment and post-disaster recovery planning time period. Often municipal operations including building departments are closed following a major disaster event as it is or would have reduced hours.

## Expedited Repair and Reconstruction Permitting

Emergency ordinances related to expedited repair and reconstruction permitting could also be adopted in lieu of the model ordinance described in Section 5. This type of ordinance would allow for reconstruction to proceed more quickly. An example emergency ordinance issued in 2018 is described in the [Hawai'i Disaster Recovery Preparedness Guidance](#). (Tertra Tech, Inc. 2019) The emergency ordinance included standards where the owner

declares that repairs will follow the code, there is written consent for entry of County and State officials to inspect work progress, and there is an agreement that all permits will be applied for within 30 days of submittal for a property owner who has been approved for expedited permitting.

### C. Case Studies of Existing Plans & Codes within Tompkins County

In order to assess municipal resiliency regulations, a cross section of different sized municipalities in Tompkins County were examined. The Town of Caroline, Village of Cayuga Heights, City of Ithaca, and Town of Lansing were selected based on the size of the community and availability of documents, to examine their codes, plans, and studies for municipal resiliency regulations. Generally, the municipalities have some plans, studies, and codes that support resiliency; however, the analysis identifies further opportunities to introduce additional resilient best practices described below. The review focuses on documents that include specific resiliency elements focused on flooding.

While all the case study municipalities have resilient elements in some of their codes additional resilient land use practices could be added to the land use codes. Table 1 summarizes where resilient code or regulation language exists within case study communities. This table is intended as an overview to show that additional best practices inclusion in codes could be useful for the case study municipalities in Tompkins County.

**Table 1. Resiliency Elements in Land Use Ordinances of Case Study Communities**

|                                       | Town of Caroline | Village of Cayuga Heights | City of Ithaca | Town of Lansing |
|---------------------------------------|------------------|---------------------------|----------------|-----------------|
| Waterfront Zones                      |                  | NA                        | ✓              | ✓               |
| Waterbody Setbacks (Riparian Buffers) | ✓                | ✓                         | ✓              |                 |
| Height, Bulk & Area Regulations       |                  |                           | ✓              |                 |
| Building Elevations                   | ✓                |                           |                |                 |
| Nonconforming Uses or Lots            |                  |                           | ✓              |                 |
| Natural Resources Protection          |                  | ✓                         | ✓              |                 |
| Subdivision Regulations               | ✓                | ✓                         | ✓              |                 |
| Moratoria & Temporary Restrictions    |                  |                           |                |                 |

Please note that because the Town of Caroline is currently considering a zoning regulation their resilient elements described in the Draft Zoning Law above description are not included - only final, adopted regulations are included in the table.

### D. Model Disaster Recovery Ordinance

In order to provide a template for local governments to prepare for faster and more efficient recovery, the American Planning Association developed a model Disaster Recovery Ordinance. Planning before a disaster and memorializing a pre-disaster recovery ordinance allows communities to focus on expedient recovery to minimize disruptions to the community and its economy. In the absence of a pre-disaster recovery plan, the purpose of such an ordinance is to provide a foundation for initiation of post-disaster recovery activities such as damage assessment, permitting, inspections, temporary repairs, temporary business sites, redevelopment



management. The following model ordinance is adapted from the [American Planning Association Model Disaster Recovery Ordinance](#) to align to the form of government in the County

One substantial action a municipality can take to move toward better management of disaster mitigation, preparedness, response, and recovery is adopting an ordinance prior to a damaging event. Such an ordinance will help to efficiently manage short and long term recovery efforts and will reflect forethought related to the agencies, staff, policies, procedures, and communications needed to avoid delays in recovery and to minimize economic impacts. Although less ideal, a recovery ordinance could be adopted post-event as well.

The Model Recovery Ordinance provided in this section focuses on actions necessary to better facilitate recovery, provides a structured format for capturing essential recovery requirements, and offers prototypical language adaptable to unique local circumstances. Importantly the ordinance should establish a Recovery Management Organization having authority to exercise powers and procedures, including temporary regulations following a declaration of local emergency and while such declaration is in force.

**The recovery ordinance should:**

1. Be adopted by local governing body action, if possible, before a disaster happens, as well as periodically updated and amended, as needed.
2. Authorize establishment and maintenance of a local recovery management organization, coordinated closely with the local emergency management organization.
3. Direct the preparation of a pre-event short and long term recovery plan in concert with the local emergency management organization and community stakeholder organizations.
4. Establish emergency powers by which the local government staff can take extraordinary action to protect public health, safety, and welfare during post-disaster recovery.
5. Identify methods for local government to take cooperative action with other entities to assure full access to all external financing resources as well as to facilitate recovery.
6. Specify the means for consulting with and assisting citizens, businesses, and community stakeholder organizations during recovery planning and implementation.

The Model Recovery Ordinance is written to reflect a council manager form of government used by many cities and counties. In this form, executive as well as policy-making authority resides with an elected governing body, such as a county legislature, and administrative powers are delegated to staff through a town supervisor, mayor, or county administrative officer. Also in use is the mayor-council form of local government, characterized by a separately elected executive, such as a mayor or town supervisor. In this form, policy-making authority is shared by the elected executive and other governing body members in highly differentiated ways, depending upon location, with administrative powers delegated to staff through the executive. Although reflecting the mayor-council form, the Model Recovery Ordinance can be tailored to other forms of government.

The Model Recovery Ordinance emphasizes a recovery management process operated in conjunction with administrative powers of local government under the policy-making and/or executive powers of the governing body. It acknowledges the distinction between the bulk of more routine administrative actions reflected in short term recovery provisions and the policy process more common to long term recovery, directed through formal action by the governing body, and often marked by public hearings and controversy.

# Model Recovery Ordinance

An ordinance establishing a recovery organization, authorizing the preparation of a recovery plan, and granting emergency powers for staff actions that can ensure timely and expeditious post-disaster recovery for the (insert City or equivalent) and amending Section(s) \_\_\_ of the Municipal Code (or equivalent).

## Chapter \_\_. Disaster Recovery

[Insert here: listing of all section and subsection titles]

WHEREAS, the Town [or equivalent] is vulnerable to various natural hazards such as earthquakes, flooding, landslides, wildfires, and severe storms causing substantial loss of life and property resulting in declared local, state, or federal level disasters;

WHEREAS, the Town [or equivalent] is authorized under state law to declare a state of local emergency and take actions necessary to ensure the public safety and well-being of its residents, visitors, the business community, and property during and after such disasters;

WHEREAS, it is essential to the well-being of the Town [or equivalent] after disasters to expedite recovery, mitigate hazardous conditions threatening public safety, and improve the community;

WHEREAS, disaster recovery can be facilitated by the establishment of an ongoing Recovery Management Organization within the town government to plan, coordinate, and expedite recovery activities;

WHEREAS, preparation of a pre-event Recovery Plan can help the city organize to expedite recovery in advance of a declared disaster and mitigate hazardous conditions before and after such a disaster;

WHEREAS, post-disaster recovery can be facilitated by the adoption of a pre-event ordinance authorizing certain extraordinary staff actions to be taken to expedite the implementation of recovery;

WHEREAS, it is mutually beneficial to identify in advance of a declared disaster the necessity to establish and maintain cooperative relationships with other local, regional, state, and federal government agencies to facilitate post-disaster recovery;

WHEREAS, it is informative, productive, and necessary to consult with representatives of business, industry, citizens, and community stakeholder organizations regarding the most suitable and helpful means to facilitate post-disaster recovery;

The Town Board [or equivalent] does hereby ordain:

### Section

1. **Authority.** This ordinance is adopted by the Town Board [or equivalent] acting under the authority of the [authorizing legislation], [State Emergency Management Act or equivalent], and all applicable federal laws and regulations.
2. **Purposes.** It is the intent of the Town Board [or equivalent] under this chapter to:

- a. Authorize, in advance of a disaster, the establishment and maintenance of an ongoing Recovery Management Organization within the Town [or equivalent] to plan, prepare for, direct, and coordinate orderly and expeditious post-disaster recovery;
  - b. Direct, in advance of a declared disaster, the preparation of a pre-event Recovery Plan for short-term and long-term post-disaster recovery, to be adopted by the Town Board [or equivalent] and amended periodically, as necessary;
  - c. Establish, in advance of a disaster, powers to be implemented upon declaration of a local emergency by which staff of building, planning, public works, and other departments can take extraordinary action to reasonably assure safe and healthy post-disaster recovery;
  - d. Identify methods by which the Town [or equivalent] may take cooperative action with other governmental entities to facilitate recovery;
  - e. Specify means by which the Town [or equivalent] may consult with and assist citizens, businesses, and community organizations during the planning and implementation of recovery procedures.
3. **Definitions.** As used in this ordinance, the following definitions shall apply:
- 3.1 Development Moratorium** shall mean a temporary hold, for a defined period of time, on the issuance of building permits, approval of land-use applications, or other permits and entitlements related to the use, development, and occupancy of private property in the interests of protection of life and property.
- 3.2 Director** shall mean the Director of the Recovery Management Organization or an authorized representative. [This organization should preferably be established in advance of an event and memorialized in a pre-disaster recovery plan.]
- 3.3 Disaster** shall mean a locally declared emergency also proclaimed as a state of emergency by the Governor of New York and declared a disaster by the President of the United States.
- 3.4 Emergency** shall mean a local emergency, as defined by the Municipal Code, which has been declared by the City Council for a specific disaster and has not been terminated.
- 3.5 Flood Insurance Rate Map (FIRM)** shall mean an official map of a community on which the Federal Insurance Administrator has delineated both the special hazard areas and the risk premium zones applicable to the community. A FIRM that has been made available digitally is called a Digital Flood Insurance Rate Map (DFIRM).
- 3.6 Hazard Mitigation Grant Program.** A program for assistance to federal, state, and local agencies whereby a grant is provided by FEMA as an incentive for implementing mutually desired mitigation programs, as authorized by the Stafford Act and related federal regulations, plans, and policies.
- 3.7 Historic Building or Structure** shall mean any building or structure included on the national, state, or municipal register of historic places, and structures having historic significance within a recognized historic district.

**3.8 Individual Assistance Program.** A program for providing small grants to individuals and households affected by a disaster to offset the loss of equipment, damage to homes, or the cost of relocation to another home, as authorized under the Stafford Act and related federal regulations.

**3.9 In-Kind** shall mean the same as the prior building or structure in size, height and shape, type of construction, number of units, general location, and appearance.

**3.10 Interim Recovery Strategy** shall mean a post-disaster strategic program identifying major recovery initiatives and critical action priorities either in the Recovery Plan or necessitated by specific post-disaster conditions.

**3.11 Local [and/or County] Hazard Mitigation Plan.** A plan prepared for governing board adoption and FEMA approval, which, among other things, assesses the type, location, and extent of natural hazards affecting the Town [or County]; describes the vulnerability of people, structures, and infrastructure facilities to such hazards and estimates potential losses, and includes a mitigation strategy that provides the Town's [or County] blueprint for reducing potential losses identified.

**3.12 Multi-Agency Hazard Mitigation Team.** A team of representatives from FEMA, other federal agencies, state emergency management agencies, and related state and local agencies, formed to identify, evaluate, and report on post-disaster mitigation needs.

**3.13 Natural Hazards/ Safety Element [or equivalent]** shall mean an element of the comprehensive plan that addresses the protection of the community from unreasonable risks associated with earthquakes, landslides, flooding, wildland fires, wind, and coastal erosion, and other natural, technological, and human-caused hazards.

**3.14 Public Assistance Program.** A program for providing reimbursement to federal, state, and local agencies and non-profit organizations for repair and replacement of facilities lost or damaged in a disaster, as authorized under the Stafford Act, and related federal regulations, plans, and policies.

**3.15 Redevelopment** shall mean the rebuilding or replacement of permanent residential, commercial, or industrial facilities damaged or destroyed in a major disaster, as well as the construction of large-scale public or private infrastructure, the addition of community improvements, and/or restoration of a healthy economy.

**3.16 Recovery** shall mean the restoration of housing, transportation, public services, and/or economic activity to levels equal to or better than their pre-disaster states through a series of short-term, intermediate, and long-term strategies and actions.

**3.17 Recovery Management Organization** shall mean an interdepartmental organization that coordinates city staff actions in planning and implementing disaster recovery and reconstruction functions.

**3.18 Recovery Plan** shall mean a pre- or post-disaster plan for recovery, comprising policies, plans, implementation actions, and designated responsibilities related to expeditious and orderly post-disaster recovery and redevelopment, as well as long-term

mitigation.

**3.19 "Stafford Act"** shall mean the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288, as amended).

*Commentary. The preceding definitions are based on terms frequently used in this Model Recovery Ordinance. As other language is added or substituted within specific sections of a local ordinance customized along the lines of this model ordinance, other definitions will need to be added. For example, the term "disaster" is defined to reflect the Stafford Act interpretation in which a local emergency leads to a state-proclaimed emergency and a federally declared disaster. However, in a customized local ordinance, the term might be applied to any level, including local or state-proclaimed emergency. In such cases, the application of the term in a local ordinance would need to be modified, as necessary, to reflect the differing meaning. Additionally, definitions are for the most part written in general terms to allow flexibility of local adaptation and interpretation. More specific definitions, however, can be found in a variety of existing sources. To avoid confusion, in this Model Recovery Ordinance the definition of Flood Insurance Rate Map reflects the specific definition found in 44 CFR 59.1. However, under Model Recovery Ordinance Section 3.7 the term Historic Building or Structure is defined in general language, although a more specific definition can be found in the previously mentioned federal code reference.*

4. **Recovery Management Organization.** There is hereby created the Recovery Management Organization [or equivalent] for the purpose of planning, organizing, coordinating, and implementing pre-event and post-disaster disaster recovery actions.
- a. *Commentary. This ordinance is written with a council-manager form of city government for a small to the medium-sized community in mind. The overall concept here is for the City Manager to run the recovery management organization on behalf of the City Council, reserving the presence of a Mayor for critical junctures following a disaster or for times when policy matters come up needing City Council involvement. In actuality, the City Manager inevitably becomes the pivotal party for informing and advising the City Council on recovery matters, interpreting Council policy, and coordinating staff functions.*
- b. *In a big-city environment, the presence and availability of the Mayor or a Deputy Mayor may be important from a leadership standpoint, even though the recovery in many instances is largely a staff-driven process with the City Manager as the primary coordinator. Either way, the intent of the following language is to assure an ongoing communications connection between staff and the City Council.*

**4.1 Powers and Duties.** The Recovery Management Organization shall have such powers as needed to carry out the purposes, provisions, and procedures of this chapter.

**4.2 Officers and Members.** The Recovery Management Organization shall be comprised of the following officers and members:

- a. The Town Supervisor [or equivalent] who shall be Director;
- b. The Deputy Supervisor [or equivalent] who shall be Deputy Director in the absence of the Town Supervisor;

- c. The Town Attorney [or equivalent] who shall be Legal Adviser;
- d. Other members include [list titles or functions, such as chief building official, town engineer, director of community development or planning, fire chief, emergency management or disaster preparedness coordinator, general services director, historic preservation director, police chief, director of public works, director of utilities, floodplain manager, hazard mitigation specialist], and representatives from such other departments as deemed necessary by the Director for effective operations;

*Commentary. The formal structure of a recovery organization will vary from community to community. Department manager and officer titles used locally vary widely. The important thing is the inclusion of the widest array of functions having a direct or indirect role in recovery.*

**4.3 Relation to Emergency Management Organization.** The Recovery Management Organization shall include all members of the Emergency Management Organization [or equivalent] as follows: [list titles, such as emergency management coordinator, fire chief, police chief, etc.]

*Commentary. A Recovery Management Organization should encompass all members of the Emergency Management Organization because of inherent interrelationships between hazard mitigation, emergency preparedness, response, and recovery functions.*

*A close formal relationship should be maintained before, during, and after the state of emergency. When the emergency formally ends, recovery management should continue under the umbrella of the Recovery Management Organization to coordinate short-term recovery operations. At this juncture, the Recovery Management Organization should continue as an important source of coordination of staff inputs on complex long-term recovery planning and redevelopment issues, community workshops that may involve controversy, and City Council hearings to determine preferred policy outcomes.*

**4.4 Operations and Meetings.** The Director shall be responsible for overseeing Recovery Management Organization operations and for calling meetings, as needed. After a declaration of an emergency, and for the duration of the emergency period, the Recovery Management Organization shall meet daily, or as frequently as determined by the Director.

**4.5 Succession.** In the absence of the Director, the Deputy Director shall serve as Acting Director and shall be empowered to carry out the duties and responsibilities of the Director. The Director shall name a succession of department managers to carry on the duties of the Director and Deputy Director, and to serve as Acting Director in the event of the unavailability of the Director and Deputy Director.

**4.6 Organization.** The Recovery Management Organization may create such standing or ad hoc committees as determined necessary by the Director.

**5. Recovery Plan.** The Recovery Management Organization shall prepare a Recovery Plan addressing pre-event and post-disaster recovery policies, strategies, and actions; if possible, the Recovery Plan shall be adopted by the Town Board [or equivalent] before a disaster, and amended after a disaster, as needed.

**5.1 Plan Content.** The Pre-Disaster Recovery Plan shall be composed of pre- and post-event policies, strategies, and actions needed to facilitate post-disaster recovery. The Recovery Plan will designate lead and backup departmental action responsibilities to facilitate expeditious post-disaster recovery as well as hazard mitigation actions. The Recovery Plan shall address short-term and long-term recovery subjects, including but not limited to: business resumption, damage assessment, demolitions, debris removal, expedited repair permitting, hazards evaluation and mitigation, historical buildings, moratorium procedures, nonconforming buildings and uses, rebuilding plans, restoration of infrastructure, temporary and replacement housing, and such other subjects as may be appropriate to expeditious and wise recovery. To the extent possible, the Pre-Disaster Recovery Plan should reflect a holistic approach (where everyone in the Recovery Management Organization team is working toward common objectives, and roles are defined within a consensus regarding those roles); include language about constructing a mutually agreed-upon vision of community resilience; and also include language regarding local perspectives on sustainability and climate adaptation.

**5.2 Coordination with Other Organizations.** The Recovery Plan shall identify relationships of planned recovery actions with those of local, regional, state, federal, mutual aid, and nonprofit organizations involved with disaster recovery, including but not limited to: the Federal Emergency Management Agency (FEMA), the American Red Cross, the Department of Housing and Urban Development (HUD), the Small Business Administration (SBA), the Environmental Protection Agency (EPA), the Department of Transportation (DOT), the State Emergency Management Agency [or equivalent] and other organizations that may provide disaster assistance. Prior to adoption or amendment of the Recovery Plan by the Town Board [or equivalent], such organizations shall be notified of its proposed content, and comments shall be solicited in a timely manner.

*Commentary. In contrast to most local emergency management organizations, FEMA has substantial recovery and reconstruction responsibilities. To provide direction for the handling of emergency response, relief, and recovery in relation to major disasters, Congress enacted in 1988 the Robert T. Stafford Disaster Relief and Emergency Assistance Act (a.k.a. the Stafford Act), Public Law 93-288, as amended. For most communities, this is an important source of external funding to compensate for certain disaster losses. Since FEMA is an important source of post-disaster infrastructure and other funding, it is important to solicit advice from that agency before the disaster on the Recovery Plan.*

**5.3 Consultation with Citizens.** During the initial and intermediate stages of Recovery Plan formulation as well as prior to its adoption or amendment by the Town Board [or equivalent], the Recovery Management Organization shall conduct outreach to community stakeholder groups, organize and distribute public announcements, schedule and conduct community workshops, and meetings, and/or convene advisory committees composed of representatives of the homeowner, business, and community organizations, or implement other means to provide information and consult with members of the public regarding

preparation, adoption, or amendment of the Recovery Plan. Public comments shall be solicited in a timely manner during the Recovery Plan formulation, adoption, and amendment processes.

*Commentary. Direct outreach to the community should be established in advance of a major disaster with the assistance of neighborhood safety or similar programs, such as local Community Emergency Response Team (CERT) organizations. Such outreach should ideally be conducted in conjunction with the preparation of the Recovery Plan. Following a major disaster, proactive outreach is critical to establishing a two-way flow of information, without which controversy inherent in post-disaster settings can become severe. A critically important mechanism in establishing a successful post-disaster relationship between local government, victims, and other community stakeholders has been conduct of weekly meetings between city staff and disaster victims in disaster impacted areas. As an example of such outreach, regular meetings were sponsored by the City of Oakland following the 1991 Oakland Hills Firestorm with beneficial results.*

**5.4 Adoption.** Following preparation, update, or revision, the Recovery Plan shall be transmitted to the City Council [or equivalent] for review and approval. The Town Board shall hold at least one legally noticed public hearing to receive comments from the public on the Recovery Plan. Following a public hearing(s), the Town Board may adopt or amend the Recovery Plan by resolution or transmit the plan back to the Recovery Management Organization for further modification prior to final action.

*Commentary. Town Board adoption of this ordinance in conjunction with a pre-event recovery plan is extremely important for successful post-disaster recovery. The Council needs to become comfortable with the concept of a pre-event plan and ordinance adoption in order to feel confident in staff during post-disaster recovery operations. If Council adoption is not possible immediately because of the press of other business, then timely opportunities should be sought for bringing the recovery plan and ordinance forward, such as when a catastrophic disaster has struck in another jurisdiction.*

**5.5 Amendments.** The Recovery Management Organization shall address key issues, strategies, and information bearing on the orderly maintenance and periodic amendment of the plan. In preparing amendments, the Recovery Management Organization shall consult in a timely manner with the City Council [or equivalent], City departments, businesses, community organizations, and other government entities to obtain information pertinent to possible Recovery Plan amendments.

**5.6 Implementation.** Under policy direction from the [Mayor and/or] City Council [or equivalent], the Recovery Management Organization shall be responsible for Recovery Plan implementation. Before a declaration of emergency, the Director shall prepare and submit reports at least annually to fully advise the City Council [or equivalent] on the progress of preparation, update, or implementation of the Recovery Plan. After a declaration of emergency, the Director shall report to the City Council [or equivalent] as often as necessary on actions taken to implement the plan in the post-disaster setting, identify policy issues needing City Council [or equivalent] direction, and receive authorization to proceed with interim plan modifications necessitated by specific circumstances.

**5.7 Training and Exercises.** The Recovery Management Organization shall organize and conduct periodic training and exercises annually, or more often as necessary, in order to develop, communicate, and update



the contents of the Recovery Plan. Such training and exercises will be conducted in coordination with similar training and exercises related to the Emergency Operations Plan.

*Commentary. Recovery training and exercises should happen on a joint, ongoing basis between the Recovery Management Organization and the Emergency Management Organization, as well as with community stakeholder groups such as Community Emergency Response Team (CERT) organizations. For the greatest value, recovery training and exercises should include careful attention to critical relationships between early post-disaster emergency response and recovery actions that condition long-term reconstruction, such as street closings and re-openings, demolitions, debris removal, and damage assessment, and hazards evaluation.*

**5.8 Coordination with Related Plans.** The Recovery Plan shall be coordinated with the Comprehensive Plan, the Emergency Operations Plan, the Local Hazard Mitigation Plan, and such other related plans as may be pertinent, to avoid inconsistencies between plans. Such related plans shall be periodically amended by the Town Board to be consistent with key provisions of the Recovery Plan, and vice versa.

**6. Interim Recovery Strategy.** At the earliest possible time following a declaration of local emergency, the Recovery Management Organization shall prepare an Interim Recovery Strategy.

**6.1 Content.** The Interim Recovery Strategy shall identify and describe recovery initiatives and action priorities anticipated or underway that are necessitated by specific post-disaster circumstances.

**6.2 Critical Action Priorities.** The Interim Recovery Strategy shall identify critical action priorities, including but not limited to those actions identified under Section 9.0 Temporary Regulations of this chapter, describing for each action its objective, urgency, affected individuals and organizations, funding sources, the department responsible, and likely duration. The Interim Recovery Strategy shall separately identify those recovery initiatives and action priorities that are not covered or insufficiently covered by the adopted Recovery Plan, but which in the judgment of the Director are essential to expeditious fulfillment of victims' needs, hazard mitigation imperatives, critical infrastructure restoration, and rebuilding needs, and without which public health, safety, and welfare might otherwise be impeded.

**6.3 Short-Term Hazard Mitigation Program.** The Interim Recovery Strategy shall include a short-term hazard mitigation program comprised of high-priority actions. Such measures may include urgency ordinances dealing with mitigation and abatement priorities identified under Section 9. Temporary Regulations or requiring special land-use and development restrictions or structural measures in areas affected by flooding, urban/wildland fire, wind, seismic, or other natural hazards, or remediation of known human-induced or technological hazards such as toxic contamination.

**6.4 Review and Consultation.** The Interim Recovery Strategy shall be forwarded to the Town Board [or equivalent] for review and approval following consultation with FEMA, other governmental agencies, businesses, infrastructure operators, and other citizen and stakeholder representatives. The Director shall periodically report to the Town Board regarding Interim Recovery Strategy implementation and any adjustments that may be required by changing circumstances.

**6.5 Coordination with Pre-Disaster Recovery Plan and Other Plans.** The Interim Recovery Strategy shall form the basis for periodic amendments to the Recovery Plan, and such other related plans as may be pertinent. It shall identify needed post-disaster amendments to the Pre-Disaster Recovery, Comprehensive Plan, Emergency Operations Plan, or other plans, codes, or ordinances.

*Commentary. The purpose of the Interim Recovery Strategy is to structure the flow of local post-disaster short- and long-term recovery actions around a unifying concept that:*

*1) acknowledges real damage and loss conditions experienced, 2) modifies scenarios underlying the Pre-Disaster Recovery Plan, and 3) translates the new reality into short-term actions pending revision of the Recovery Plan. This may be essential because damage conditions are often likely to be different from those anticipated in the Pre-Disaster Recovery Plan. Preparation of such an interim strategy in the early days of recovery has the benefit of incorporating a positive, proactive emphasis to counter what can be an overwhelmingly reactive and negative context. The Interim Recovery Strategy can be updated as recovery experience is gained, and new issues emerge. It also provides a source from which the Pre-Disaster Recovery Plan and related plans can be updated.*

**7. Hazard Mitigation Program.** Prior to a major disaster, the Recovery Management Organization, with Town Board concurrence, shall establish a hazard mitigation program by which natural hazards, risks, and vulnerability are addressed for prioritized short-term and long-term mitigation actions leading to reduced disaster losses. The hazard mitigation program shall include preparation and adoption of the Local Hazard Mitigation Plan, amendment of the Comprehensive Plan to include a Natural Hazard/Safety Element [or equivalent], together with emergency actions dealing with immediate hazards abatement, including hazardous materials management.

**7.1 Local Hazard Mitigation Plan.** The Recovery Management Organization shall prepare for Town Board adoption and FEMA approval of a Local Hazard Mitigation Plan qualifying the City for receipt of the federal Hazard Mitigation Grant Program (HMGP), Flood Mitigation Assistance (FMA), Building Resilient Infrastructure and Communities (BRIC), and Severe Repetitive Loss (SRL) grants, under the provisions of the Stafford Act, National Flood Insurance Act, and Disaster Mitigation Act of 2000, as amended. The Local Hazard Mitigation Plan shall include, among other items specified in federal regulations (44 CFR 201.6): a risk assessment describing the type, location, and extent of all-natural hazards that can affect the Town, vulnerability to such hazards, the types and numbers of existing and future buildings, infrastructure, and critical facilities located in identified hazard areas, and an estimate of the potential dollar losses to vulnerable structures; and a mitigation strategy that provides the Town's blueprint for reducing the potential losses identified in the risk assessment. The Local Hazard Mitigation Plan, or its mitigation strategy and other contents, shall be adopted as part of the Natural Hazard/Safety Element [or equivalent] of the Comprehensive Plan.

**7.2 Natural Hazard/Safety Element [or equivalent].** The Recovery Management Organization shall prepare for the Town Board's adoption of an amendment to the Comprehensive Plan known as the Natural Hazards/Safety Element [or equivalent] including proposed long- and short-term hazard mitigation goals, policies, and actions enhancing long-term safety against future disasters. The Natural Hazard/Safety

Element [or equivalent] shall determine and assess the community's vulnerability to known hazards, including climate change impacts, such as severe flooding; wildland fires; seismic hazards, such as ground shaking and deformation, fault rupture, liquefaction, and tsunamis; dam failure; slope instability, mudslides, landslides, and subsidence; sea-level rise, coastal surge and erosion; hurricanes, tornadoes, and other high winds; and human-induced or technological hazards, such as oil spills, natural gas leakage, and fires, hazardous and toxic materials contamination, and nuclear power plant and radiological accidents.

*Commentary. About a dozen states require the inclusion of natural hazards as a mandated subject within their comprehensive plans. For example, a Natural Hazards Element is a required or suggested part of comprehensive plans in Colorado, Idaho, Illinois, and Iowa, and a Safety Element is a required part of comprehensive plans in Arizona, California, and Nevada. Such requirements may have encouraged disaster loss reduction. For example, per capita flood losses were found in one study to be lower for those states which required natural hazards as a subject of the comprehensive plan than for those without such a requirement. Moreover, such comprehensive plan elements provide a context into which communities can fit their Local Hazard Mitigation Plan (LHMP) required under the Disaster Mitigation Act of 2000 as a precondition for eligibility for federal hazard mitigation grants. California provides financial incentives to local jurisdictions that adopt their LHMP as part of the safety element. To the extent that hazard mitigation reduces disaster losses and facilitates recovery, communities stand to benefit from integrating such plans with the Pre-Disaster Recovery Plan.*

**7.3 New Information.** As new information is obtained regarding the presence, location, extent, location, and severity of natural and human-induced or technological hazards, or regarding new mitigation techniques, such information shall be made available to the public and shall be incorporated as soon as possible as amendments to the Local Hazard Mitigation Plan and the Comprehensive Plan through Town Board action.

**8. General Provisions.** The following general provisions shall be applicable to the implementation of this chapter:

**8.1 Emergency Powers and Procedures.** Following a declaration of local emergency and while such declaration is in force, the Recovery Management Organization shall have authority to exercise powers and procedures authorized by this chapter, including temporary regulations identified below, subject to extension, modification, or replacement of all or portions of these provisions by separate ordinances adopted by the City Council [or equivalent].

**8.2 Post-Disaster Operations.** The Recovery Management Organization shall coordinate post-disaster recovery operations, including but not limited to: business resumption, damage assessment, demolitions, debris removal, expedited repair permitting, hazards evaluation and mitigation, historical buildings, moratorium procedures, nonconforming buildings and uses, rebuilding plans, restoration of infrastructure, temporary and replacement housing, and such other subjects as may be appropriate, as further specified below.

**8.3 Coordination with FEMA and Other Agencies.** The Recovery Management Organization shall coordinate recovery actions identified under this and the following sections with those of state, federal, local, or other mutual organizations involved in disaster recovery, including but not limited to the Federal

Emergency Management Agency (FEMA), the American Red Cross, the Department of Housing and Urban Development (HUD), the Small Business Administration (SBA), the New York State Department of Homeland Security and Emergency Services (DHSES), the Tompkins County Department of Emergency Response and other organizations that provide disaster assistance. Intergovernmental coordination tasks include but are not limited to the following: local compliance with all applicable federal and state laws and regulations; provision of information and logistical support; participation in the Multi-Agency Hazard Mitigation Team; cooperation in the joint establishment of one-stop service centers for victim support and assistance; and such other coordination tasks as may be required under the specific circumstances of the disaster.

*Commentary. A substantial portion of the Stafford Act is devoted to how federal funds are distributed to persons, businesses, local governments, and state governments for disaster relief and recovery. For most communities, this is an important external source from which certain disaster losses can be compensated. Although insurance may be instrumental in personal, household, or business recovery, it has little value for compensating losses incurred from disasters for which insurance is too costly or difficult to obtain, such as earthquake insurance. In addition, some federal assistance is in the form of grants and loans, involving other federal agencies such as HUD and SBA.*

*The federal government has become increasingly interested in coordinating post-disaster victim services and mitigating hazards affecting land use and building construction. Consequently, federal assistance to localities in many instances is contingent upon the adjustment of local recovery and hazard mitigation policies and practices to conform to federal standards, such as elevation of rebuilt structures in floodplain areas.*

**9.0 Temporary Regulations.** The Recovery Management Organization shall have the authority to administer the provisions of this section temporarily modifying provisions of the Municipal Code [or equivalent] dealing with building permits, demolition permits, and restrictions on the use, development, or occupancy of private property, provided that such action, in the opinion of the Director, is reasonably justifiable for protection of life and property, mitigation of hazardous conditions, avoidance of undue displacement of households or businesses, or prompt restoration of public infrastructure.

*Commentary. The following temporary regulations are at the heart of the recovery process. Although state law or city ordinances may authorize some of these functions, it is preferable to have a source of locally adopted regulation that provides direct authority for staff actions taken on behalf of the City Council in line with the Recovery Plan and provides a rationale for intervention in matters dealing with private property.*

*Among these temporary regulations are provisions dealing with their duration, environmental clearances, debris clearance, and hazard abatement, damage assessment and placarding, development moratoria, temporary use permits, temporary repair permits, deferral of fees for repair and rebuilding permits, nonconforming buildings and uses, one-stop service centers, and demolition of damaged historic buildings. Each of these topics needs careful adaptation to local conditions. It is not possible to fully anticipate in advance the magnitude and distribution of disaster damages, but these preadopted temporary regulations provide a basis for more efficient action substantially less subject to uncertainties found in cities that have not prepared in this manner. Also, it is important to remember that although temporary regulatory modifications outlined here are associated with the municipal code, disaster assistance from federal agencies will be contingent upon compliance with requirements of federal*

laws and programs, such as the National Flood Insurance Program (NFIP); the National Environmental Policy Act (NEPA), National Historic Preservation Act (NHPA), Endangered Species Act (ESA), and others as applicable. Changes in local ordinance/municipal code, though temporary, will not change these federal requirements.

**9.1 Duration.** The provisions of this section shall be in effect subject to review by the Town Board for a period of 90 days from the date of a local emergency declaration leading to a state-proclaimed emergency and federally declared disaster, or until the local emergency is extended, modified, replaced, or terminated in whole or in part by the action of the Town Board through a separate ordinance.

*Commentary.* This provision allows for flexibility in the duration of application of the temporary regulations so that any portion can be terminated, modified, or extended depending upon local circumstances. It also reflects a recognition that "temporary" regulations may be in effect for an extended period of time beyond either termination of the local state of emergency or the 90-day period. Depending upon the severity of disaster damage, it may be necessary for temporary provisions to remain in effect for several years after the disaster.

**9.2 Environmental Clearances.** The provisions of this section enable actions that in the judgment of the Director are justifiable for the protection of public health and safety and, therefore, can be reasonably declared to qualify under statutory exemptions of environmental regulations contained in other chapters of the Municipal Code, and within state and federal law. The Director shall provide ongoing monitoring reports to the Town Board on environmental issues arising in relation to the Interim Recovery Strategy, the Recovery Plan, and the statutory exemptions.

**9.3 Debris Clearance and Hazard Abatement.** The Director shall have the emergency authority to undertake the following actions:

- a. Debris Removal**—Remove from public rights-of-way and/or private property adjoining such rights-of-way any debris, rubble, trees, damaged or destroyed cars, trailers, equipment, or other items of private property, posing a threat to public health or safety;
- b. Hazardous Materials**—Remove and/or abate hazardous and toxic substances threatening public health and safety;
- c. Setbacks of Temporary Buildings**—Create and maintain such additional setbacks for temporary buildings as to assure emergency and through the movement of vehicles and pedestrians essential for recovery management;
- d. Prohibition of Access**—Prohibit public access to areas damaged and/or hazardous to public health;
- e. Other**—Take such other actions, which, in the judgment of the Director, are reasonably justified for the protection of public health and safety, provision of emergency ingress and egress, assurance of firefighting or ambulance access, restoration of infrastructure, and mitigation of hazardous conditions.

*Commentary.* Although clearance of privately owned debris is routinely considered a function of local government, it can become very controversial where owners take the position that such property is salvageable and has value (e.g., used brick after an earthquake). Pre-event adoption of such a provision reinforces the expectation that debris clearance functions will be carried out decisively, thus minimizing a problem otherwise compounded by hesitation or ambiguity of intention on the part of the town.

**9.4 Damage Assessment and Placarding.** The Director shall direct damage assessment teams having authority to conduct field surveys of damaged structures and post placards designating the condition and permitted occupancy of such structures as follows:

*Commentary. Damage assessment and the placement of placards identifying whether buildings are safe or unsafe to occupy are two functions having perhaps more profound effects on life, property, and recovery than any other within the post-disaster decision sequence towards which provisions of these temporary regulations are directed.*

*Damage assessment is undertaken by various entities following a major disaster, usually the city and FEMA. There is at least a twofold purpose for these inspections. One purpose is to determine the degree of structural damage to each building and notify the public about the relative safety of entry and occupancy. This has been a long-standing duty under local government health and safety responsibilities with which building departments are familiar. The other purpose is to quickly estimate the approximate replacement costs of damaged buildings and other property in order to inform the state and federal governments of the dollar amounts needed for emergency legislative authorizations. The latter purpose is fraught with difficulty to the extent that hurriedly conducted damage assessments can miss substantial elements of damage and corresponding costs. Moreover, local expertise tends to be limited in the area of deploying common standards and procedures for determining structural damage to assess damage in a truly comparable manner.*

*The most important element of all these concerns is the establishment of standard identification of structural damage both in gross general terms reflected in the red, yellow, and green tag placard systems. The placard language below is adapted from **Model Ordinances for Post-Disaster Recovery and Reconstruction** initially published by the California Governor's Office of Emergency Services. The procedures used to make these basic safety distinctions in the California model ordinance are based on detailed post-disaster inspection methods described by the Applied Technology Council in **ATC-20, Procedures for Post-earthquake Safety Evaluation of Buildings** and **ATC-20-2 Addendum**:*

**a. Inspected—Lawful Occupancy Permitted** is to be posted on any building in which no apparent structural hazard has been found. This does not mean other forms of damage that may not temporarily affect occupancy.

*Commentary. This is commonly known as the "green tag" placard.*

**b. Restricted Use** is to be posted on any building in which damage has resulted in some form of restriction to continued occupancy. The individual posting this placard shall note in general terms the type of damage encountered and shall clearly and concisely note the restrictions on continued occupancy.

*Commentary. This is commonly known as the "yellow tag" placard.*

**c. Unsafe—Do Not Enter or Occupy** is to be posted on any building that has been damaged to the extent that continued occupancy poses a threat to life safety. Buildings posted with this placard shall not be entered under any circumstances except as authorized in writing by the department that posted the building or by authorized members of damage assessment teams. The individual posting this

placard shall note in general terms the type of damage encountered. This placard is not to be considered a demolition order. This chapter and section number, the name of the department, its address, and phone number shall be permanently affixed to each placard. Once a placard has been attached to a building, it shall not be removed, altered, or covered until done so by an authorized representative of the department or upon written notification from the department. Failure to comply with this prohibition will be considered a misdemeanor punishable by a \$500 fine.

*Commentary. This is commonly known as the "red tag" placard.*

ATC-20 (atcouncil.org)

**9.5 Development Moratorium.** The Director shall have the authority to establish a moratorium on the issuance of building permits, approval of land use applications, or other permits and entitlements related to the use, development, and occupancy of private property authorized under other chapters and sections of the Municipal Code and related ordinances, provided that, in the opinion of the Director, such action is reasonably justifiable for protection of life and property and subject to the following:

**a. Posting**—Notice of the moratorium shall be posted in a public place and on the Internet, and shall clearly identify the boundaries of the area(s) in which moratorium provisions are in effect, and shall specify the exact nature of the development permits or entitlements that are temporarily held in abeyance;

**b. Duration**—The moratorium shall be in effect subject to review by the Town Board at the earliest possible time, but no later than 90 days, at which time the Board shall take action to extend, modify, replace, or terminate such moratorium through a separate ordinance.

*Commentary. After disasters, a prevailing sentiment may often be to act quickly to replicate pre-disaster building patterns in an effort to “restore normalcy.” In many instances, this sentiment prevails as public policy despite the presence of a severe natural hazard condition, thereby reinforcing the chances of repetitive losses. Many examples exist of communities that have allowed rebuilding in a manner that ignored known hazardous conditions, whereas intervention was needed to create greater safety.*

*To prevent or reduce repetitive losses, a town may choose to interrupt and forestall rebuilding long enough to assess options for avoiding placing buildings and people back in harm’s way. This can be done by establishing an emergency moratorium on the issuance of repair and rebuilding permits or on land-use approvals in areas where severely hazardous conditions are identified. The hazard may be newly detected, as in a post-earthquake circumstance where the pattern of structural damage, recent flooding, fresh landslides, or ground subsidence may indicate the need for engineering studies to clearly identify hazards and determine proper solutions.*

*A moratorium on development may be important for a town to undertake from the standpoint of informed public policy. However, such actions tend to be controversial and unpopular, so it is important to lay the groundwork with the community in advance, if possible. This subsection provides prior authorization through the adoption of this ordinance before a major disaster, enabling city staff to act expeditiously in*

*a post-disaster setting to forestall premature issuance of permits in areas shown to be hazardous. Such action is necessarily subject to Council review, ratification, modification, or termination.*

**9.6 Temporary Use Permits.** The Director shall have the authority to issue permits in any zone for the temporary use of property that will aid in the immediate restoration of an area adversely impacted by a major disaster, subject to the following provisions:

**a. Critical Facilities**--Any police, fire, emergency medical, or emergency communications facility that will aid in the immediate restoration of the area may be permitted in any zone for the duration of the declared emergency.

**b. Other Temporary Uses**--Temporary use permits may be issued in any zone, with conditions, as necessary, provided written findings are made establishing a factual basis that the proposed temporary use: 1) will not be detrimental to the immediate neighborhood; 2) will not adversely affect the Comprehensive General Plan or any applicable specific plan; and 3) will contribute in a positive fashion to the reconstruction and recovery of areas adversely impacted by the disaster. Temporary use permits may be issued for a period of one year following the declaration of local emergency and may be extended for an additional year, to a maximum of two years from the declaration of emergency, provided such findings are determined to be still applicable by the end of the first year. If during the first or the second year, substantial evidence contradicting one or more of the required findings comes to the attention of the Director, then the temporary use permit shall be revoked.

*Commentary. Most zoning ordinances have no provisions for temporary use of property following a disaster. A few allow temporary placement of mobile homes on residentially zoned sites pending reconstruction of a residence. Time limits vary but are usually for a two-year period. After a disaster, special latitude may be needed, however, to support various recovery needs. Care must be taken not to set precedents that will erode or destroy a pre-existing pattern of zoning that the city may wish to protect. The language within this section is modeled after provisions of the Los Angeles recovery ordinance adopted after the Northridge earthquake, titled **Temporary Regulations Relating to Land Use Approvals for Properties Damaged in a Local Emergency**. That ordinance was geared toward the needs of a large and diverse city. Smaller communities may wish to restrict temporary uses to those already allowed by existing zoning, limiting the provision to temporary structures such as tents, domes, or mobile units.*

**9.7 Temporary Waiver of Repair Permit Requirements for Emergency Repairs.** Following a disaster, temporary emergency repairs to secure structures and property damaged in the disaster against further damage or to protect adjoining structures or property may be made without fee or permit where such repairs are not already exempt under other chapters of the Municipal Code. The building official must be notified of such repairs within 10 working days, and regular permits with fees may then be required.

*Commentary. This provision is specifically written for repairs that may not be exempt under standard building code permit exemptions, but which are justifiable from a public health and safety standpoint to avoid further damage to property after a disaster. It is modeled after a provision of a post-disaster rebuilding ordinance adopted in 1992 by the County of San Bernardino shortly after the Landers-Big Bear earthquake. Written*



before the earthquake, the ordinance was based on a pre-event study titled **Post-Disaster Rebuilding Ordinance and Procedures**, which included a survey of top managers and elected officials regarding various post-disaster rebuilding provisions, such as for nonconforming buildings and uses. Because of the pre-event involvement of top managers and elected officials, it was adopted after the earthquake with no controversy.

**9.8 Deferral of Fees for Repair and Rebuilding Permits.** Except for temporary repairs issued under provisions of this chapter, all other repairs, restoration, and reconstruction of buildings damaged or destroyed in the disaster shall be approved through permit under the provisions of other chapters of this Code. Fees for such repair and reconstruction permits may be deferred until the issuance of certificates of occupancy.

*Commentary. Pressure to waive processing fees frequently arises after a disaster when victims are unsure of their sources of financing for rebuilding. It may be inadvisable to succumb to pressures to waive fees due to the ongoing need for cost recovery for disaster-related services at a time revenue flows are uncertain. As an alternative, local governments can buy time by deferring fees to determine the degree to which funds will be found at a later time to help offset victims' fee costs. For example, sometimes the cost of processing fees may be covered by insurance or by federal funds. Deferral of fees until occupancy permit issuance buys time during which to ascertain possible alternate sources without injuring necessary revenue flows to the city treasury. This provision is modeled after similar language in the Los Angeles temporary regulations.*

**9.9 Nonconforming Buildings and Uses.** Buildings damaged or destroyed in the disaster that are legally nonconforming as to use, yards, height, the number of stories, lot area, floor area, residential density, parking, or other provisions of the Municipal Code specified herein may be repaired and reconstructed in-kind, provided that:

- a. The building is damaged in such a manner that the structural strength or stability of the building is appreciably lessened by the disaster and is less than the minimum requirements of the Municipal Code for a new building;
- b. The cost of repair is greater than 50 percent of the replacement cost of the building;
- c. All structural, plumbing, electrical, and related requirements of the Municipal Code, as well as any rebuilding requirements imposed by a higher level of government, such as building elevation or basement removal if required under NFIP, are met at current standards;
- d. All-natural hazard mitigation requirements of the Municipal Code are met;
- e. Reestablishment of the use or building is in conformance with the National Flood Insurance Program requirements and procedures, or higher community standards;
- f. The building is reconstructed to the same configuration, floor area, height, and occupancy as the original building or structure;
- g. No portion of the building or structure encroaches into an area planned for widening or extension of existing or future streets as determined by the comprehensive general plan or applicable specific plan;

- h.** Repair or reconstruction shall commence within two years of the date of the declaration of local emergency in a major disaster and shall be completed within two years of the date on which permits are issued; damaged structures must be secured in accordance with the community's provisions for abandoned structures in order to ensure the health and safety of the public;
- i.** Nothing herein shall be interpreted as authorizing the continuation of a nonconforming use beyond the time limits set forth under other sections of the Municipal Code that were applicable to the site prior to the disaster.

*Commentary. No recovery issue can be more vexing to planners than whether or not to encourage the reestablishment of nonconforming uses and buildings after a disaster. Planners have sought for decades to write strict provisions in zoning ordinances designed to gradually eliminate nonconforming uses or buildings as they were abandoned, changed owners, or were damaged by fire, wind, or water. Such provisions normally prohibit the reestablishment of nonconforming uses and buildings where damage exceeds a certain percentage of replacement cost, most often 50 percent. This approach is logical, orderly, and normally equitable when weighing community interests balanced with those of the property owner. However, the thinking behind such provisions has been geared to incremental adjustments or termination of such uses over time, not to sudden circumstances forcing the disposition of such uses as a class at a single point in time. In theory, disasters are seen as an opportunity to eliminate uses that conflict with the prevailing pattern in a neighborhood but that remain because of legal nonconforming status--for example, scattered industrial uses in a residentially zoned neighborhood. In reality, local governments are beset after a disaster by pressures from property owners and other interests to reestablish the previous development pattern, including nonconforming buildings and uses. Such pressures extend beyond the demand to reestablish nonconforming buildings or uses to include waiver of the current building, plumbing, and electrical code provisions to the standards in place at the time of construction.*

*From risk management, liability exposure, or public safety standpoint, acquiescence to the reduction of such basic health and safety standards in the face of a known hazard can be seen as unacceptable. However, zoning provisions hindering the reestablishment of nonconforming buildings or uses tend to be more arguable and are more likely to be modified by city councils under pressures of the moment to restore the status quo. In recognition of such pressures, this model ordinance language offers a straightforward tradeoff approach allowing the reestablishment of a nonconforming use or building in return for strict adherence to current structural, plumbing, and electrical code and hazard mitigation requirements. The language assumes the existence of a provision commonly found in the Municipal Code authorizing repair or reestablishment of a nonconforming use or building where damage is less than 50% of the replacement cost. It also assumes the building was substantially weakened by the disaster and is below code requirements.*

*This compromise approach recognizes that its application may require the unwelcome decision to accept the continuation of disorderly land-use patterns unless a solution can be found through redevelopment or rezoning. Instead, it places a high value on life safety.*

*It is important to note, however, that the language of these provisions includes the following important limitations on the economic incentive to reestablish the nonconforming use or building.*

- 1) It does not extend any previously stipulated life of the nonconforming use—this is an important disincentive if the costs of replacement cannot be offset by insurance, FEMA assistance, SBA loans, or other sources of financial support.*
- 2) It does not allow the extent of nonconformance to be increased over that which existed prior to the disaster, thwarting another common pressure.*
- 3) It requires strict adherence to current structural, plumbing, electrical, and other requirements of the Municipal Code, any street setbacks stipulated within the comprehensive plan circulation element and related ordinances, as well as any rebuilding requirements imposed by a higher level of government, such as building elevations or basement removals where required by FEMA under the National Flood Insurance Program (NFIP). Note: within NFIP there is no grandfathering for substantially damaged structures (i.e., those damaged in excess of 50% of their pre-event value). Such local, state, or federal requirements, though potentially costly, are necessary from a public safety standpoint.*
- 4) It recognizes that compliance with more stringent hazard mitigation requirements may be needed, for example, moving a structure to a less hazardous area on the lot, especially in cases involving increased on-site hazards because of fault rupture, landslide, coastal erosion, or severe flooding where upgrading to current structural, plumbing, and electrical code requirements may not assure safe occupancy. Compliance with such provisions may reduce or eliminate the possibility of rebuilding or be sufficiently costly to discourage reestablishment of the use or other nonconforming feature.*

*The relative importance of post-disaster reestablishment of nonconforming uses and buildings may vary from one jurisdiction to another. Therefore, the most useful time to assess this aspect of post-disaster recovery is before a major disaster, in the course of pre-event planning. Education of the city council in advance can help lessen post-disaster tendencies to compromise critical hazard mitigation and public safety requirements, notwithstanding the outcome of nonconforming use and building requirements.*

**10.0 One-Stop Service Center for Permit, Economic, and Housing Assistance.** The Recovery Management Organization shall coordinate the establishment of a one-stop center, staffed by representatives of pertinent Town departments, and staff of cooperating organizations, for the purpose of providing coordinated services and assistance to disaster victims for purposes, including but not limited to: permit processing to expedite the repair of buildings, provision of housing assistance, and encouragement of business resumption and industrial recovery. The Director shall establish such centers and procedures in coordination with other governmental entities that may provide services and support, such as FEMA, SBA, HUD, or the State Emergency Management Agency (or equivalent).

*Commentary. One-stop service centers have become more common with recent disasters, often combining the presence of multiple agencies to provide better coordination of information needed by disaster victims to obtain essential public and insurance services and to rebuild. A prime example was the Community Restoration and*

*Development Center established by the City of Oakland shortly after the 1991 Oakland Hills Firestorm and operated until mid-1994 with financial support from FEMA. Benefits to be gained from establishing a special one-stop center include accelerated information, integration of services, and expedited permitting. Setting up a specialist team working exclusively on repair and rebuilding permit issues has the added advantage of insulating normal development review from disruption by the recovery process and vice versa.*

**11.0 Emergency Contractor and Volunteer Certification.** The Recovery Management Organization shall have the authority to establish a standard certification process for all contractors and volunteers seeking to provide clean-up, repair, or construction services within areas that have experienced disaster damage. In order to be eligible, contractors and volunteers must obtain the proper certification using the following process.

**1. Application for Contractor Certification.** Contractors must apply for Contractor Certification at a one-stop center with the location and hours identified by the City. An application processing fee of \$25.00 is required for each contractor firm and may be paid in cash or by check made payable to the City.

**2. Application Requirements.** Contractors seeking certification must meet the following minimum insurance and background check requirements.

r. Staff will verify that contractors are properly registered and/or licensed with the state contractors' licensing agency of the state within which their business is headquartered.

s. The Police Department will conduct a criminal background check on each worker that will be performing services for the contractor's firm.

t. Contractors must be licensed for their respective trades through the state contractors' licensing agency within which their business is headquartered and meet minimum insurance required by that state. All other contractor firms seeking to perform projects with a scope of work that exceeds a cost of \$2,000 must provide proof of a general liability insurance policy for an amount not less than \$1,000,000.

**3. Certification Enforcement.** Contractors are subject to the following certification enforcement requirements.

u. Proof of certification will be a City-issued photo identification badge for each worker performing clean-up, repair, or construction services within disaster-damaged areas. This must be displayed by each worker at all times within the designated area. Replacement badges will be issued at a cost of \$10.00.

v. Individuals without an identification badge will not be permitted to perform clean-up, repair, or construction services.

w. Contractors failing to register will be subject to a fine of \$100.00 per day or be subject to imprisonment for not more than 30 days. Each day a violation occurs will constitute a separate offense.

x. The City retains the right to suspend or revoke the Contractor Certification.

**4. Volunteer Certification.** Persons volunteering their efforts without compensation for disaster clean-up repair, or construction services must also apply for emergency certification as a volunteer at a one-

stop center and receive a photo identification badge. No application processing fee is required for a Volunteer Certification. However, volunteers certified to assist with clean-up, repair, or construction services must be affiliated with a charitable, non-profit organization meeting all preceding Contractor Certification insurance and enforcement requirements.

*Commentary. The phenomenon of unscrupulous actions by contractors or persons posing as contractors after a disaster by which advantage is taken of helpless disaster victims is a widely recognized and repetitive problem for which there is little guidance in the professional recovery management literature. The preceding emergency contractor certification provisions have been adapted from a program established by the City of Cedar Rapids, Iowa, following a severe flood in 2008. Through implementation of this program, the City of Cedar Rapids turned down over 200 applications for emergency contractor certifications, and made over 30 arrests for program violations. Through notification of over 10,000 contractors, the program also had a substantial preventive effect, discouraging otherwise unscrupulous persons from attempting to take advantage of the post-flood recovery situation.*

*Although volunteers were certified and issued badges without charge by the City of Cedar Rapids, their program did not explicitly address volunteer certification. Therefore, language is included that addresses this need. Since many cities do not wish to discourage volunteer assistance by the imposition of a seemingly unnecessary requirement, it is a sensitive provision and should be thought through carefully as to how it might work without posing needless barriers to volunteer efforts before inclusion in a local ordinance.*

**12.0 Temporary and Permanent Housing.** The Director shall assign staff to work with FEMA, SBA, HUD, the State Emergency Management Agency (or equivalent), and other appropriate governmental and private entities to identify special programs by which provisions can be made for temporary or permanent replacement housing which will help avoid undue displacement of people and businesses. Such programs may include deployment of mobile homes and mobile home parks under the temporary use permit procedures provided in Section 9.6 of this chapter, use of SBA loans and available Section 8 and Community Development Block Grant funds to offset repair and replacement housing costs, and other initiatives appropriate to the conditions found after a major disaster.

*Commentary. The issue of post-disaster temporary and permanent replacement housing has grown to one of critical dimensions since Hurricane Katrina. After that event, thousands of households were temporarily housed in trailers for periods far longer than anticipated, under unhealthy conditions due to faulty mobile home design. Relatively little progress has been made since then in finding effective ways by which to handle this issue on a broad scale. This section is essentially a placeholder for language that preferably should be made more specific on the basis of a pre-event plan that anticipates the local levels of housing vulnerability and identifies potential solutions. A great deal more research is needed to find satisfactory solutions for prompt, efficient provision of both interim and replacement housing. With possible downsizing of federal budgets in future years, this issue will become more critical. Also needed is research on feasible incentives for retrofitting a substantial portion of the existing housing stock to reduce vulnerability and risk. This is true in western states susceptible to heightened earthquake risk and for Midwestern and southeastern states under continuing threats of hurricane, tornado, and severe storm damage.*

**13.0 Demolition of Damaged Historic Buildings.** The Director shall have authority to order the condemnation and demolition of buildings and structures damaged in the disaster under the standard provisions of the Municipal Code, except as otherwise indicated below:

**13.1 Condemnation and Demolition.** Within XX days after the disaster, the building official [or equivalent] shall notify the State Historic Preservation Officer that one of the following actions will be taken with respect to any building or structure determined by the building official to represent an imminent hazard to public health and safety, or to pose an imminent threat to the public right of way:

y. Where possible, within reasonable limits as determined by the building official, the building or structure shall be braced or shored in such a manner as to mitigate the hazard to public health and safety or the hazard to the public right-of-way;

z. Whenever bracing or shoring is determined not to be reasonable, the building official shall cause the building or structure to be condemned and immediately demolished. Such condemnation and demolition shall be performed in the interest of public health and safety without a condemnation hearing as otherwise required by the Municipal Code. Prior to commencing demolition, the building official shall photographically record the entire building or structure.

**13.2 Notice of Condemnation.** If, after the specified time frame noted in Subsection 8.1 of this chapter and less than 30 days after the disaster, a historic building or structure is determined by the building official to represent a hazard to the health and safety of the public or to pose a threat to the public right of way, the building official shall duly notify the building owner of the intent to proceed with a condemnation hearing within business days of the notice in accordance with Municipal Code Section; the building official shall also notify FEMA, in accordance with the National Historic Preservation Act of 1966, as amended, of the intent to hold a condemnation hearing.

**13.3 Request to FEMA to Demolish.** Within 30 days after the disaster, for any historic building or structure that the building official and the owner have agreed to demolish, the building official shall submit to FEMA, in accordance with the National Historic Preservation Act of 1966, as amended, a request to demolish. Such request shall include all substantiating data.

**13.4 Historic Building Demolition Review.** If after 30 days from the event, the building official and the owner of a historic building or structure agree that the building or structure should be demolished, such action will be subject to the review process established by the National Historic Preservation Act of 1966, as amended.

*Commentary. A difficult aspect of recovery in older communities is dealing with damaged historic structures. Since these can be very old, measures needed to make them structurally sound may be more difficult and costly than normal. Because of the controversy frequently associated with this issue, vocal opposition may emerge when a*

*badly damaged historical structure is considered for demolition. Therefore, it is wise to have language already in place to guide planning and building officials who may be involved. The National Historic Preservation Act of 1966, as amended, identifies steps that must be taken by a jurisdiction or owner to mitigate public health and safety hazards resulting from disaster-caused damage. The intent is to establish predictable rules by which proposed demolitions, except in extreme cases of danger to the public, can be reviewed by state and federal officials in order to provide time to identify preservation options. The review process is intended to discourage hasty demolition action by local officials when such action may not be justified.*

*The preceding language is adapted from provisions of the Uniform Code for the Abatement of Dangerous Buildings. It provides specific time frames and actions for abatement of hazards created by damage to historic buildings. The important element of judgment here is the establishment of a specific time frame for declaring a structure an imminent hazard to public health and safety justifying immediate demolition without a condemnation hearing. Such time frames are generally from three to five days, though sometimes stretched to ten. After the established time frame, the threat may no longer be justified as imminent and, therefore, the remaining procedures kick in.*

**14.0 Severability.** If any provision of this chapter is found to be unconstitutional or otherwise invalid by any court of competent jurisdiction, such invalidity shall not affect the remaining provisions, which can be implemented without the invalid provision, and, to this end, the provisions of this ordinance are declared to be severable.

## E. Model Disaster Reconstruction Ordinance

In addition, and in conjunction with the pre-disaster recovery plan, local governments should adopt a disaster reconstruction ordinance. The ordinance will serve to guide the processes and procedures for the reconstruction of structures and other development damaged due to significant disaster event impacts. Adoption of a disaster reconstruction ordinance is subject to the authority for granting emergency powers for municipal staff actions, to ensure timely, expeditious, and resilient disaster reconstruction.



## 1. MODEL DISASTER RECONSTRUCTION ORDINANCE LANGUAGE

### Chapter X. After the Disaster Reconstruction Procedures for Private Property Owners

[Insert listing of all section and subsection titles]

WHEREAS, the [Municipality] is vulnerable to various natural hazards such as flooding, severe storms, coastal erosion, landslides, earthquakes, and wildfires, causing substantial loss of life and property resulting in declared local, state, or federal level disasters;

WHEREAS, the [Municipality] is authorized under state law to declare a local emergency and take actions necessary to ensure the public safety and well-being of its residents, visitors, business community, and property during and after such disasters;

WHEREAS, after a disaster [insert name of building department(s)] will face enormous burdens related to permitting for reconstruction activities with necessary considerations for insurance obligations and liability concerns as well as the future vulnerability of reconstructed structures;

WHEREAS, it is essential to the well-being of the [Municipality] to balance expedited reconstruction with other considerations such as, mitigation of hazardous conditions threatening public safety, the appropriate deliberation of impacts to environmental conditions and ecosystems services from the disaster event and proposed reconstruction activities, and changing conditions resulting from global climate change to improve the community's level of hazard resilience;

WHEREAS, planning for the appropriate balance of these considerations is best conducted to the extent practical in advance of a disaster event;

WHEREAS, the [insert name of Department] within the [Municipality] government has been authorized to plan, coordinate, and expedite reconstruction activities, including expedited permitting procedures by [Municipality] permitting departments, for private development, repair, and reconstruction;

WHEREAS, reconstruction can be facilitated by adoption of a pre-disaster ordinance authorizing certain extraordinary staff actions and procedures to be taken to expedite implementation of reconstruction from damages to private property owners, which includes single family residences, hotels, condominiums, commercial businesses, and other private development, and to incorporate strategies to reduce risk and increase resilience wherever practical and feasible;

WHEREAS, coordination is needed between [Municipality] departments and State of New York agencies to ensure that proper deliberation is given to environmental considerations, such as changes in shoreline

conditions affecting more than one property, to best meet the needs and obligations of the people of the [Municipality];

WHEREAS, in the event of catastrophic damage appropriate deliberation is needed to ensure that reconstruction activities do not perpetuate or increase risk to public health and safety by rebuilding in a manner that does not consider the best available information regarding future conditions, such as sea level rise or other new information.

The [Municipal Governing Body] does hereby ordain:

1) **Authority.** This ordinance is adopted by the [Municipality Governing Body acting under authority of the [authorizing legislation], [State Emergency Management Act or equivalent]], and all applicable federal laws and regulations.

2) **Purposes.** It is the intent of the [Municipal Governing Body] under this chapter to:

a) Establish, in advance of a disaster, a standard protocol for damage assessments of private property to be conducted after a hazard event to determine the extent and location of damages and the reconstruction permit requirements;

b) Establish, in advance of a disaster, powers to be implemented by the [Municipality], upon official declaration of a local, county, state and/or federal declared disaster, by which staff of the [Municipality], [insert department charged with implementation], and other [Municipal] departments can take extraordinary action to reasonably assure safe and healthy post-disaster recovery, including expedited permitting;

c) Specify, in advance of a disaster, permitting procedures for post-disaster reconstruction of private property, including privately owned infrastructure and other development, that will assure a balanced approach to expedited and resilient reconstruction;

d) Establish, in advance of a disaster, a procedure by which pre-disaster development patterns and conditions can be reconsidered to reduce or alleviate future risk before reconstruction activities commence.

3) **Initiation of Procedures.** The following procedures shall go into effect upon initiation by the [Chief Elected Official of the Municipality], of XXXX via emergency declaration or supplementary declaration.

4) **Duration.** The procedures shall be in effect for the duration of the emergency period and will be extended by the [Chief Elected Official of the Municipality], upon the advice and recommendation of the [insert name of Department], until sufficient reconstruction and recovery, as determined by the Director of the [insert name of

Department], has occurred as to enable the return to standard permitting procedures. The procedures shall be in place for no more than [insert timeframe] from the date of their initiation and shall only be extended beyond [insert timeframe] in the event of subsequent disasters that occur while the procedures are in effect.

5) **Area of Impact.** Upon initiation, the procedures will be assumed to apply countywide. If the completion of initial damage assessments indicate that the area of impact should be reduced to a sub-area of the [Municipality], notice shall be given of the revised area of impact pursuant to the procedures outlined below section 7(b) and the procedures will no longer be in effect community wide.

6) **Definitions.**

a) **Accessory Structure.** [Insert municipal-specific definition].

b) **After the Disaster Permitting Procedures.** Post-disaster permitting procedures (the procedures) established by this ordinance and activated via local emergency declaration.

c) **After-the-Fact Permit.** Permits obtained retroactively after work or development has occurred.

d) **Area of Impact.** An area within the [Municipality], having designated boundaries within which the disaster occurred, and the procedures outlined in this ordinance shall apply.

e) **Catastrophic Level of Damage.** [Insert municipal-specific definition].

f) **Certified Shoreline.** The upper reaches of the wash of the waves, other than storm or seismic waves, at high tide during the season of the year in which the highest wash of the waves occur, usually evidenced by the edge of vegetation growth, or the upper limit of debris left by the wash of the waves.

g) **Damage Assessment Team.** Non-emergency management office staff, other personnel or volunteers who do not have responsibilities immediately following a disaster. These teams are trained to gather information and conduct rapid evaluation structural assessments using the rapid evaluation structural assessment placarding system described in 7(c).45

h) **Development.** Any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials.

i) **Director.** The Director of the [insert name of Department] or an authorized representative.

j) **Disaster.** Any emergency, or imminent threat thereof, which results or may likely result in loss of life or property and requires, or may require, assistance from other counties or states or from the federal government.

- k) **Emergency Period.** The dates covered by a declaration issued by the [Chief Elected Official of the Municipality], declaring a local state of emergency.
- l) **Emergency.** Any occurrence, or imminent threat thereof, which results or may likely result in substantial injury or harm to the population or substantial damage to or loss of public or property.
- m) **In-kind.** The same as the prior (pre-damaged) building or structure in size, height and shape, type of construction, number of units, general location, appearance, and use.
- n) **Local State of Emergency.** The occurrence in any part of a county that requires efforts by the county government to save lives, and to protect property, public health, welfare, or safety in the event of an emergency or disaster, or to reduce the threat of an emergency or disaster. A Local State of Emergency is so declared by the [Chief Elected Official of the Municipality].
- o) **Moratorium.** A temporary hold, for a defined period of time, on the issuance of building permits, approval of land-use applications or other permits and entitlements related to the use, development, redevelopment, and occupancy of private property in the interests of protection of life and property.
- p) **Preliminary Damage Assessment.** Assessment of damages and impacts conducted immediately following an event by the [Municipality], in coordination with FEMA that aids in the decision-making process for a major disaster declaration.
- q) **Rapid Evaluation Structural Assessments.** Building evaluation and placarding protocol system to quickly determine which buildings are safe to enter and those that are unfit for occupancy.
- r) **Reconfiguration.** Removing portions of a building that are in erosion or flood prone areas as defined in [insert reference to where this standard is defined] and reconstructing them inland.
- s) **Disaster Recovery Framework.** A document prepared pre-disaster by the [Municipality], to help guide recovery, comprising policies, plans implementation actions, and designated responsibilities related to expeditious and orderly post-disaster recovery and redevelopment, as well as long-term mitigation.
- t) **Repair.** The reconstruction, replacement, or renewal of any part of an existing building for the purpose of its maintenance or to correct damage.
- u) **Fair Market Value.** The price that the seller is willing to accept, and the buyer is to pay on the open market and in an arm's length transaction.

v) **Special Flood Hazard Area.** The land area covered by the floodwaters of the base flood is the Special Flood Hazard Area on NFIP maps. The area where the NFIP's floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies.

w) **Structural Repair.** Repairs that involve replacing structural elements of a damaged building.

x) **Substantial Damage Assessments.** Post-event assessment by the [Municipality], of structures in the special flood hazard area that determines whether they have been substantially or non-substantially damaged.

y) **Substantial Damage.** [Insert municipal-specific definition]

z) **Substantial Improvement.** [Insert municipal-specific definition]

7) **Damage Assessments.** After a disaster event, the Director shall direct damage assessment teams having authority to conduct field surveys of damaged structures and other private development to conduct damage assessments.

a) **Damage Assessment Teams.** Damage assessment team members, procedures and protocols will be developed by the Director and made available to the public. These procedures shall require damage assessment team members to carry identification and an explanation of the assessment process in languages commonly spoken in the [Municipality] and shall outline required qualifications for consideration of a damage assessment team member.

b) **Designation of Area of Impact.** The area of impact will initially be assumed to be countywide. If, based on the results of the preliminary damage assessments conducted immediately following an event, the Director determines that the area of impact is less than the full extent of the [Municipality], the Director shall clearly delineate identifiable boundaries using commonly known and understood features, such as landmarks, street names, planning districts, etc., to delineate the area of impact. Upon determination of the area of impact, this information will be conveyed to the public via the [insert name of Department] website, social media, and other methods deemed appropriate by the Director.

c) **Rapid Evaluation Structural Assessments.** Rapid evaluation structural assessments of the area of impact will be conducted and damage assessment teams will post placards designating the condition and permitted occupancy of structures as follows:

i) **Inspected**—Lawful Occupancy Permitted is to be posted on any building in which no apparent structural hazard has been found. This does not mean that other forms of damage (non-structural) that may temporarily affect occupancy are absent. Such buildings will be designated using a green placard.

ii) **Restricted Use**—Restricted use is to be posted on any building in which damage has resulted in some form of restriction to continued occupancy. The individual posting this placard shall note in general

terms the type of damage encountered and shall clearly and concisely note the restrictions on continued occupancy. Such building will be designated with a yellow placard.

iii) **Unsafe**—Do Not Enter or Occupy is to be posted on any building that has been damaged to the extent that continued occupancy poses a threat to life safety. Buildings posted with this placard shall not be entered under any circumstances except as authorized in writing by the [insert name of Department] that posted the building or by authorized members of damage assessment teams. The individual posting of this placard shall note in general terms the type of damage encountered. This placard is not to be considered a demolition order. This chapter and section number, the name of the department, its address, and phone number shall be permanently affixed to each placard. Once a placard has been attached to a building, it shall not be removed, altered, or covered until done so by an authorized representative of the department or upon written notification from the department. Failure to comply with this prohibition will be considered a misdemeanor punishable by a \$X00 fine. Such building will be designated using a red placard.

iv) All placards or information affixed to placards (green, yellow, and red) will contain a simple explanation of the placarding system, resources for property owners to contact regarding questions, and a basic description of the After the Storm permitting system that will be deployed.

v) If rapid evaluation structural assessments are conducted under the direction of the Director, damage assessment teams shall capture perishable data, such as high-water marks and/or the location of emergency flood protection measures, during the rapid evaluation structural assessment process.

d) **Special Flood Hazard Area Substantial Damage Assessments.** Substantial damage assessments, conducted by the damage assessment teams, FEMA, and/or others contracted or otherwise arranged by the [Municipality], will commence immediately following the rapid evaluation structural assessment inspections, upon initiation by the Director.

i) Substantial damage assessments shall be conducted within all special flood hazard areas within the area of impact as defined by the Director. Any modification from the entirety of the special flood hazard area located within the area of impact shall be at the discretion of the Director, be widely publicized to the property owners through communication means described above and shall ensure that there is consistent application of the substantial damage assessment procedure.

ii) Substantial damage assessments and determinations shall be conducted using the assumptions and protocols outlined in the [Municipal] floodplain damage prevention ordinance and shall meet FEMA NFIP requirements for substantial damage.

iii) The [Municipality] shall make a reasonable effort to notify property owners of the results of the substantial damage determination within a reasonable time. Notifications will be sent via certified mail and/or hand delivered; further, a hotline or other means for communication will be established for property owners and renters to inquire on the status and implications of their assessment and will be widely publicized. All notifications of substantial damage or non-substantial damage determination shall outline the defined protocol for appeal.

8) **Designation of Areas of Catastrophic Levels of Damage.** After the rapid evaluation structural assessments, special flood hazard area substantial damage assessments, and shoreline damage assessments have been conducted, the Director shall make a recommendation to the [Municipal Governing Body], on areas that should be designated as having sustained catastrophic levels of damage. The [Municipal Governing Body] shall review and approve these designations and planning for comprehensive redevelopment, relocation or restoration options shall commence and a Recovery Plan shall be developed for these areas. The location of the areas of catastrophic levels of damage shall be widely publicized.

9) **After the Disaster Permitting Procedures.**

a) **Purposes.** After the disaster permitting procedures have been designed and shall be implemented to serve the following purposes:

- i) Expedite the permitting of minor repairs;
- ii) Allow sufficient time for substantial damage assessment for buildings located in the special flood hazard area;
- iii) Enact a moratorium on new development and subdivisions until there are sufficient resources on island to support rebuilding;
- iv) Prioritize housing repairs, so that residents can safely return to their homes; and
- v) Capture opportunities to rebuild resiliently, such as through rebuilding to current flood damage prevention ordinance, building codes, and shoreline setbacks; utilizing regulatory base flood elevations that reflect future conditions; rethinking development patterns in vulnerable areas, such as sea level rise exposure areas; and considering nature-based solutions for risk reduction.

b) **One-Stop Service Center.** Representatives of pertinent [Municipal] departments charged with permit processing shall be available in person at the one-stop service center(s) established by the [insert name of Department].

c) **Moratoria.** The Director shall have the authority to establish a moratorium on the issuance of building permits, approval of land use applications or other permits and entitlements related to the use, development, and occupancy of private property authorized under other chapters and sections of the [Municipal] Code and related ordinances, provided that, in the opinion of the Director, such action is reasonably justifiable for protection of life and property.

i) **Initial Moratorium.** A development moratorium shall be in effect for the entire area of impact for the time in which damage assessments are being conducted. This moratorium shall be subject to the following:

- (1) Duration—The initial moratoria shall last no longer than XX days unless an extension is reviewed and approved by the [Municipal Governing Body].
- (2) Posting—Notice of the moratorium shall be posted in a public place and on the Internet and shall clearly identify the boundaries of the area(s) in which moratorium provisions are in effect and shall specify the exact nature of the development permits or abeyance. Reference to the moratorium

shall also be explicit in the [Municipal Chief Elected Official]’s local emergency proclamation or supplementary proclamation.

ii) **Continued Moratoria.** Upon rescission or expiration of the initial moratorium, continued moratoria will be in effect for the following:

(1) Accessory structures; swimming pools and amenities; new sea walls; new construction (plans submitted or in process); new construction (plans approved; requires inspection); subdivision of land; and post disaster repair and reconstruction permits.

(a) Insert duration.

(2) Areas determined by the [insert name of Department] to have sustained catastrophic levels of damage to development or the shoreline whereby comprehensive redevelopment, relocation or restoration options should be considered to allow for time to develop such plans. (a) Insert duration

(3) Development in special flood hazard areas until substantial damage determinations have been completed.

*Commentary: Please note that this is a generalized list of types of reconstruction that would be under a continued moratorium. Different communities may have different needs/desires that can be reflected in the ordinance.*

iii) **Rescission of Moratoria.** The initial moratorium and/or continued moratoria can be rescinded by the natural expiration of the duration of the moratorium without extension or by an official action of the [Municipal Governing Body].

d) **After the Disaster Permit Requirements.** Permitting for repair and reconstruction will proceed in a manner that protects the health, safety, and welfare of the [Municipality], its residents, and natural environment with varying levels of review requirements based on location, level of damage, likelihood of future vulnerability, and other factors deemed relevant by the Director. The permit requirements outlined herein apply only to municipal-issued permits. Proper procedure and protocol must be followed for any state or federal issued permits. Municipal departments and agencies shall coordinate, to the extent practical, with other permitting agencies to ensure consistent messaging and procedures.

i) **Exceptions from Permit Requirements.** The [insert Municipality] building code contains exceptions from permit requirements for certain activities [insert municipal-specific exceptions or refer to listing in exiting code]. The After the Disaster permitting procedures expand these exceptions to include the following:

(1) Insert expanded exceptions

(2) These expanded exceptions do not apply to reconstruction activities in the municipal’s special flood hazard areas and areas of continued moratoria.

ii) **Special Flood Hazard Area Blanket Permit.** After substantial damage assessments have been completed, reconstruction activities consistent with exceptions to building permits outlined in Section 9.d.i may be completed for structures found to be non-substantially damaged. All such activities are required to be reported within XX days of completion via the online reporting system or via the One Stop Shop Permit Center. Failure to report could result in fines and penalties including [insert county-



specific penalties]. The [Municipality] will issue a blanket floodplain development permit for all reported reconstruction activities in special flood hazard areas conforming with these requirements.

iii) **Demolition.** The Director shall have authority to order the condemnation and demolition of buildings and structures damaged in the disaster under the standard provisions of the [Municipal] Code, except as otherwise indicated below:

(1) **Demolition of Damaged Historical Buildings.** The Director shall have authority to order the condemnation and demolition of buildings and structures damaged in the disaster under the standard provisions of the [Municipal] Code [insert citation], except as otherwise indicated below:

(i) Condemnation and Demolition. Within XX days after the disaster, the building official [or equivalent] shall notify the State Historic Preservation Office that one of the following actions will be taken with respect to any building or structure determined by the building official to represent an imminent hazard to public health and safety, or to pose an imminent threat to the public right of way:

1. Where possible, within reasonable limits as determined by the building official, the building or structure shall be braced or shored in such a manner as to mitigate the hazard to public health and safety or the hazard to the public right-of-way;
2. Whenever bracing or shoring is determined not to be reasonable, the building official shall cause the building or structure to be condemned and immediately demolished. Such condemnation and demolition shall be performed in the interest of public health and safety without a condemnation hearing as otherwise required by the [Municipal] Code. Prior to commencing demolition, the building official shall photographically record the entire building or structure.

(ii) Notice of Condemnation. If, after the specified time frame noted in Subsection 11.c.i(3a) of this chapter and less than 30 days after the disaster, a historic building or structure is determined by the building official to represent a hazard to the health and safety of the public or to pose a threat to the public right of way, the building official shall duly notify the building owner of the intent to proceed with a condemnation hearing within business days of the notice in accordance with [Municipal] Code Section [insert section] ; the building official shall also notify FEMA, in accordance with the National Historic Preservation Act of 1966, as amended, of the intent to hold a condemnation hearing.

(iii) Request to FEMA to Demolish. Within 30 days after the disaster, for any historic building or structure that the building official and the owner have agreed to demolish, the building official shall submit to FEMA, in accordance with the National Historic Preservation Act of 1966, as amended, a request to demolish. Such request shall include all substantiating data.

(iv) Historic Building Demolition Review. If after 30 days from the event, the building official and the owner of a historic building or structure agree that the building or structure should be demolished, such action will be subject to the review process established by the National Historic Preservation Act of 1966, as amended.

iv) **Temporary Waiver of Permit for Emergency Repair.** Following a disaster, temporary emergency repairs to secure structures and property damaged in the disaster against further damage or to protect

adjoining structures or property may be made without fee or permit where such repairs are not already exempt under other chapters of the [Municipal] Code. The building official must be notified of such repairs within XX working days, and regular permits or the disaster permits with fees may then be required.

v) **Deferral of Fees for Repair and Reconstruction Permits.** Except for temporary repairs issued under provisions of this chapter, all other repairs, restoration, and reconstruction of buildings damaged or destroyed in the disaster shall be approved through permit under the provisions of this ordinance or other chapters of State and [Municipal] code. Fees for such repair and reconstruction permits may be deferred until issuance of certificates of occupancy.

vi) **Nonconforming Buildings and Uses.** [Insert municipal-specific information]

vii) **Penalties for Noncompliance.** [The Municipality should insert explicit penalties for noncompliance with procedure. These are most likely to be the typical penalties associated with permit violations.]

10) **Severability.** If any provision of this chapter is found to be unconstitutional or otherwise invalid by any court of competent jurisdiction, such invalidity shall not affect the remaining provisions, which can be implemented without the invalid provision, and, to this end, the provisions of this ordinance are declared to be severable.

## APPENDIX B. ADDRESSING RECOVERY THROUGH EMERGENCY MANAGEMENT: GAP ANALYSIS

As part of the Resiliency and Recovery Plan, the consultant and planning team explored the integration of recovery and resiliency by identifying critical gaps in community recovery support between the time of disaster initiation and long-term community economic recovery through a review the Tompkins County Department of Emergency Response’s Comprehensive Emergency Management Plan Recovery Annex. The review of the annex, current at the time of the planning process, identified a number of opportunities to identify recovery leadership, and to provide plans, procedures, protocols to support an efficient transition from response to recovery operations and to integrate mitigation and resilience into post-disaster activities.

The following items identify the legal authorities and references used to develop a recovery plan and as reference in the performance of the gap analysis. They do not supersede the plans, policies, or procedures of Tompkins County, or its partner agencies and organizations.

- Presidential Policy Directive-5 Management of Domestic Incidents
- Presidential Policy Directive-8 National Disaster Recovery Framework
- National Disaster Recovery Framework, 2<sup>nd</sup> Edition
- Public Law 93-288, The Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended
- New York State (NYS) Executive Law Article 2-B

Specific recommendations are provided by topic below for consideration during the update of the Tompkins County Department of Emergency Response’s Comprehensive Emergency Management Plan and development of a Pre-Disaster Recovery Plan.

| Recovery Annex Gap Analysis |   |
|-----------------------------|---|
| <b>Definition</b>           | <b>Topic: Definition of Recovery Stage</b>  |
|                             | Gap: It is important to define Pre-Disaster Recovery, Short-Term Recovery, Intermediate Recovery, and Long-Term Recovery for Tompkins County.   |
|                             | Recommendation: Use the Recovery Continuum as identified by FEMA in the NDRF and customize the phases and activities by phase for Tompkins County. There may be 4 or even 5 levels in short and mid-term recovery and planning take place. At a minimum it should be short and long-term recovery and planning. It is important to confirm the definition of short- and long-term recovery as the plan notes Immediate (0-2 weeks), Interim (2-52 weeks) and Permanent (52+ weeks) but the county RFP does not align as it refers to “long-term” to be defined be it 6 months post-disaster, or 3 years post-disaster |
| <b>Definition</b>           | <b>Topic: Response and Recovery Phase Definitions of Emergency Response</b>   |
|                             | Gap: The recovery annex is unclear on the timeline and transitions of short versus long-term recovery.  |

| Recovery Annex Gap Analysis |  |
|-----------------------------|--|
|                             | Recommendation: Clearly define response and recovery phases to indicate both short and long-term recovery to delineate ending the response phase as a separate activity from short term recovery. Define terminology.  |
| <b>Roles</b>                | <b>Topic: Recovery Point of Contact (POC)</b>  |
|                             | Gap: Primary POC for recovery is not indicated.  |
|                             | Recommendation: Identify the recovery organization and note the primary POC.   |
| <b>Roles</b>                | <b>Topic: Recovery Roles and Responsibilities</b>  |
|                             | Gap: Recovery organization including staff positions and roles/responsibilities are not indicated.   |
|                             | Recommendation: DoER to be listed with roles and responsibilities indicated.   |
| <b>Roles</b>                | <b>Topic: Private Sector Roles</b>   |
|                             | Gap: Private sector roles and resources are not included in the recovery plan. Identify what support of major businesses needed for effective recovery?  |
|                             | Recommendation: Include a section on private-sector roles in post-disaster recovery as they are a key to economic stability and rebounding post-disaster to get the community on the path to normalcy and to help the local economy recover.   |
| <b>Roles</b>                | <b>Topic: Delineation of Roles and Responsibilities</b>  |
|                             | Gap: The responsible party for disseminating the Recovery Annex to the public must be identified.  |
|                             | Recommendation: Note who is responsible for informing public of the recovery annex document?   |
| <b>Transition</b>           | <b>Topic: Transition from Emergency Support Functions (ESF) to Recovery Support Functions (RSF)</b> <b>Annex Reference</b>   |
|                             | Gap: There is no connection to Recovery Support Functions, how does this transition take place?  |
|                             | Recommendation: Provide a transition of Emergency Support Functions (ESFs) to Recovery Support Functions (RSFs) as they transition from response to recovery. Provide annex to the document that identifies Response to Recovery Transition considerations to ensure transition from response to short-term and long-term activities to identify considerations for both situations and timing of transitions. |
| <b>Transition</b>           | <b>Topic: Transition of Emergency Response to Recovery</b>   |
|                             | Gap: Note the trigger to end the emergency response phase.   |
|                             | Recommendation: Describe the trigger to end the emergency response phase and describe what this involves. This could include the return of water and electric service, and the re-opening of roads and critical businesses such as grocery stores, gas stations, and banks.  |
| <b>Organization</b>         | <b>Topic: Identify Emergency Management and Recovery Organizational Structures</b>   |
|                             | Gap: An outline of an organizational structure and coordination process for recovery operations is not provided.   |
|                             | Recommendation: Provide an outline of an organizational structure and coordination process for recovery operations is needed.  |
| <b>Communication</b>        | <b>Topic: Communication Activation (mode and types)</b>  |

| Recovery Annex Gap Analysis |   |
|-----------------------------|---|
|                             | Gap: Communication Activation (mode and types) are not included.  |
|                             | Recommendation: Add reference to Tompkins SIREN for alerts to community or staff to activate the EOC: need for all phases of an incident  |
| <b>Communication</b>        | <b>Topic: County-wide Mass Notification System</b>  |
|                             | Gap: Communication needed to advise residents of key information.   |
|                             | Recommendation: County to use Tompkins SIREN for not only alerts but for recovery info – where to secure food water etc.  |
| <b>Communication</b>        | <b>Topic: Public Communication</b>  |
|                             | Gap: No protocol for informing public of alternate communication methods.   |
|                             | Recommendation: Inform public of how to access alternative communication platforms.   |
| <b>Communication</b>        | <b>Topic: Public Communication</b>  |
|                             | Gap: There is no guidance on methods and content of pre- and post-disaster communications with the public.  |
|                             | Recommendation: Provide recommendations on how and when municipalities should communicate with the public and what information they should be providing based on the nature of the disaster.  |
| <b>Communication</b>        | <b>Topic: Mass Notification</b>   |
|                             | Gap: Mass notification platform is not identified.  |
|                             | Recommendation: Tompkins SIREN is excellent to use to alert county staff that needs to activate to the EOC.   |
| <b>Communication</b>        | <b>Topic: Shelter in Place Process</b>  |
|                             | Gap: There is no guidance on how and when to implement a shelter in place order.  |
|                             | Recommendation: Include a description of the role, responsible party, and process to evaluate and decide whether to shelter in place or evacuate depending on the nature and intensity of anticipated disaster.   |
| <b>Vulnerabilities</b>      | <b>Topic: Economic Profile</b>  |
|                             | Gap: Vulnerable Economic Areas are not Identified.  |
|                             | Recommendation: Based upon their economic profile, the County must identify their Economic Vulnerabilities, or how their economy could be impacted following a disaster. Key information includes the percentage of small businesses; primary business sectors; percentage of large businesses. |
| <b>SoVi/DEI</b>             | <b>Topic: Vulnerable Populations</b>  |
|                             | Gap: Types and location of vulnerable populations are not identified.   |
|                             | Recommendation: List specific populations that communities may want to consider.  |
| <b>DEI</b>                  | <b>Topic: Diversity, Equity, and Inclusion</b>  |
|                             | Gap: Diversity, Equity, and Inclusion are not addressed.  |
|                             | Recommendation: The document should address equity and diversity.   |
| <b>Resources</b>            | <b>Topic: Recovery Resources</b>  |
|                             | Gap: Procedure to request staff augmentation and resources.   |

|                     |   |
|---------------------|---|
|                     | <b>Recovery Annex Gap Analysis</b>  |
|                     | Recommendation: It is important to include the procedure and means to request resources. Indicate both the method of request and the responsible person/position to request state resources.  |
| <b>Resources</b>    | <b>Topic: Source of Recovery Resources<sup>^</sup></b>  |
|                     | Gap: Annex does not provide information as to where municipalities can find information on resources and services   |
|                     | Recommendation: Add guidance on where municipalities can find information on resources and services   |
| <b>Resources</b>    | <b>Topic: Recovery Support and Services</b>   |
|                     | Gap: Recovery support and services must be prioritized for efficient and timely use of resources.   |
|                     | Recommendation: Need prioritization of actions and needs to obtain and utilize recovery services and assets.  |
| <b>Resources</b>    | <b>Topic: Requests for Supplementary Resources</b>  |
|                     | Gap: There is a lack of guidance to support community requests for timely and additional resources to support recovery.   |
|                     | Recommendation: Include Identification of resources and assets to respond to and address impacts from disaster event. Need trigger for municipalities to request assistance: Communities should seek to obtain additional asset/resources BEFORE they are exhausted especially if there are difficulties, complexities, or delays in the availability of recovery funds or provision of assets/resources. Need to have defined method to request resources. |
| <b>Resources</b>    | <b>Topic: Private Sector Collaborative Support Not Addressed</b>  |
|                     | Gap: The method, type, and outreach to private sector entities to provide collaborative recovery support is not addressed.  |
|                     | Recommendation: Add a section on private-sector roles in post-disaster recovery as they are one of the keys to economic stability and getting the community back up and running post-disaster. This puts the community on the path of normalcy and helping the local economy recovery.  |
| <b>Needs</b>        | <b>Topic: Personal Emergency Kit</b>  |
|                     | Gap: There is no guidance to provide residents regarding preparation of emergency kits.   |
|                     | Recommendation: Provide description of contents of emergency kit.   |
| <b>Needs</b>        | <b>Topic: Recovery Needs Identification</b>   |
|                     | Gap: A detailed process for disaster impact analysis is not provided.   |
|                     | Recommendation: The recovery annex should include a section describing a step-by-step process for disaster impact analysis, recovery need identification, recovery need prioritization, acquisition of funding (if necessary), etc. Additional information will still be fairly high level but should be somewhat more detailed and organized than the lists provided.  |
| <b>Needs/Issues</b> | <b>Topic: Local Issue Identification</b>  |
|                     | Gap: Localized issues need to be documented to address specific concerns.   |

|                        |   |
|------------------------|---|
|                        | <b>Recovery Annex Gap Analysis</b>  |
|                        | Recommendation: Obtain feedback from residents to identify specific issues or concerns that only local residents may know.  |
| <b>Impacts/Needs</b>   | <b>Topic: Disaster Impact Analysis</b>  |
|                        | Gap: Guidance for disaster impact analysis including scope and location of damages and needs is not addressed.  |
|                        | Recommendation: Include an entire section describing a step-by-step process for disaster impact analysis, recovery need identification, recovery need prioritization, funding acquisition (if necessary), etc. Additional information will still be fairly high level but should be somewhat more detailed and organized than the lists provided. |
| <b>Impacts/Needs</b>   | <b>Topic: Secondary Impacts Identification</b>  |
|                        | Gap: Secondary impacts such as what do you do during a disaster and often this is not considered , such as the Courts. If arrests are made there is a right to appear (within 24 hours) that must be made available.  |
|                        | Recommendation: Identify secondary impacts and how procedures must be modified after a disaster.  |
| <b>Shared Services</b> | <b>Topic: Municipal Shared Services</b>   |
|                        | Gap: Municipal shared services should be identified and documented by MOUs.   |
|                        | Recommendation: Local governments should conduct a self-analysis to know which MOUs may be needed (i.e., increased fire response services) and with whom (which communities have resources available to share).   |
| <b>Prioritization</b>  | <b>Topic: Recovery Action Prioritization</b>  |
|                        | Gap: Methodology for prioritization of recovery of critical services is not addressed.  |
|                        | Recommendation: This plan should instruct municipalities on identifying what the priority items may be for recovery of specific services such as: hospitals, schools, local business  |
| <b>Documentation</b>   | <b>Topic: Cost Documentation</b>  |
|                        | Gap: Procedures for cost documentation are not provide.   |
|                        | Recommendation: Develop County and local government procedures for tracking impact and costs related to disaster events to leverage recovery funds and resources for resilience or mitigation.  |
| <b>Documentation</b>   | <b>Topic: Documentation of Information Transmittal</b>  |
|                        | Gap: The method of transmission and documentation of information provided to municipalities is not addressed.   |
|                        | Recommendation: Note the method of communication with the ability to track each request and response (such as WebEOC).  |
| <b>Documentation</b>   | <b>Topic: Disaster Event Documentation</b>  |
|                        | Gap: No guidance on how to document disaster or hazard event impacts or losses.   |
|                        | Recommendation: Documenting event should be included for county, municipal and individual levels.   |
| <b>Inspections</b>     | <b>Topic: Resilient Rebuilding</b>  |

|                    |   |
|--------------------|---|
|                    | <b>Recovery Annex Gap Analysis</b>  |
|                    | Gap: Structure inspections to indicate if properties are substantially damaged (>50%) are not included.   |
|                    | Recommendation: Note the need for substantial damage inspections and a substantial damage response plan.  |
| <b>Integration</b> | <b>Topic: Align Recovery Annex with Existing Plans</b>  |
|                    | Gap: The recovery annex does not reference the EOP or CEMP to avoid redundancy.   |
|                    | Recommendation: When possible, they should refer the reader to the EOP/CEMP so as to avoid redundancy in more than one plan and then when it comes time to update the document, it only has to be updated in one plan and not multiple locations. |
| <b>Integration</b> | <b>Topic: Debris Plan and Logistics</b>   |
|                    | Gap: Debris plan and on-call Services are not Integrated into recovery plan   |
|                    | Recommendation: Note debris plan and on-call contracts.   |
| <b>Integration</b> | <b>Topic: Municipal Plan Updates</b>  |
|                    | Gap: Periodic or post-incident updates for municipal plans such as hazard mitigation, comprehensive, and response plans are not identified.   |
|                    | Recommendation: Municipal plans: Update after an incident, annually, or no less than every 5 years.   |
| <b>Integration</b> | <b>Topic: Municipal Plan Reviews</b>  |
|                    | Gap: DoER must review local plans for content and consistency with county plan.   |
|                    | Recommendation: Add formal process for submittal of plans and contact information to DoER and DoER reviews.   |



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# RESILIENT TOMPKINS COUNTY


## Tompkins County Resiliency and Recovery Plan RESILIENCE MESSAGING PLAYBOOK



The goal of this resource is to provide strategically sound messaging and outreach tactics that will cultivate a sustained awareness, understanding, engagement and buy-in of preparedness activities in Tompkins County. The information builds on previous outreach and feedback from the Tompkins County Hazard Mitigation Plan 2021 Update; and it makes the resources identified in the Tompkins County Resiliency and Recovery Plan (RRP) available to a broad range of agencies and individuals, including those representing groups who may be vulnerable in and after disasters. It is important to engage the public and partner agencies (e.g., local governments, non-governmental organizations/NGOs, businesses) on the Resiliency and Recovery Plan implementation, and ensure stakeholders are aware of the planning process and content. It is recommended that the fact sheets listed on page 3 be developed to support ongoing education and outreach. All materials will be offered in other languages as specified by the Tompkins County Language Assistance Plan. All social media content will originate from Tompkins County social media platforms.


### Pre-Event


| AUDIENCE   | MESSAGING GOAL  | OUTREACH STRATEGY   | TYPE OF COMMUNICATION   |
|--|---|---|---|
| <br><b>Local Businesses</b> | Increase awareness of existing resources including NY Alert and SIREN, important emergency contacts list, and fact sheets such as: <ul style="list-style-type: none"> <li>• Are you in a designated floodplain?</li> <li>• Are you prepared for a local hazard event?</li> <li>• How to report damages</li> </ul> | Use community-based social marketing strategies such as social media and partnership promotion that includes information requested from stakeholder survey.<br><br>Use GovDelivery newsletter system. | <ul style="list-style-type: none"> <li>• Series of fact sheets and social media posts to promote available financial and preparedness resources</li> <li>• Fact sheets: 2, 4, 7, 10, 12*</li> <li>• Easy how-to guide for best practices to alert and communicate with employees and customers in a disaster event</li> </ul> |

| AUDIENCE   | MESSAGING GOAL  | OUTREACH STRATEGY  | TYPE OF COMMUNICATION  |
|--|---|--|--|
| <br><b>Local Businesses</b> | Enable businesses to educate employees and customers about action items for preparation and response to an event or disaster. Increase awareness of how to record damages; create an emergency plan that includes business continuity provisions. | Use self-organizing community engagement approach; provide businesses with actionable information that helps them prepare for an event and access resources.<br><br>Use GovDelivery newsletter system. | <ul style="list-style-type: none"> <li>• Preparedness plan fact sheet with reference to tools for business continuity planning</li> <li>• Fact sheets: 2, 4, 7, 10, 12*</li> <li>• Website page on Tompkins County site that provides community-specific preparedness information</li> <li>• Social media posts: For example, posts that ask businesses to develop or update their continuity plans</li> </ul> |

\*See list of fact sheets on page 3




## Pre-Event (continued)

| AUDIENCE   | MESSAGING GOAL   | OUTREACH STRATEGY  | TYPE OF COMMUNICATION  |
|--|--|--|--|
|  <p><b>General Public</b></p> | <p>Increase awareness of existing resources including NY Alert and SIREN, important emergency contacts list, and fact sheets such as:</p> <ul style="list-style-type: none"> <li>• Are you in a designated floodplain?</li> <li>• Are you prepared for a local hazard event?</li> <li>• How to report damages</li> </ul> | <p>Use teachable moments and testimonials approach. Inject messages immediately following a non-local disaster event to drive home core and key messages to target audiences. Leverage less severe real-world incidents that require preparedness, such as power outages, and note the importance of having, for example, a flashlight and fresh batteries. Incorporate testimonials and case studies about preparedness for residents and businesses. Case studies can cover lessons learned and what/how to prepare.</p> <p>Use GovDelivery newsletter system.</p> | <ul style="list-style-type: none"> <li>• Monthly social media posts that illuminate existing resources and share testimonials and case studies</li> <li>• Fact sheets that provide existing resources for residents: 1, 3, 4, 11*</li> <li>• Utility bill inserts that provide preparedness resources</li> <li>• Existing resources fact sheet for distribution via senior centers, libraries, community centers, adult day care programs, shelters, transitional housing programs, local welfare agencies, food banks and soup kitchens; coordinate and distribute to Meals on Wheels programs; Family and Children Services; Latino Civic Association; Loaves and Fishes; Second Wind; Veterans Affairs; Family and Children's Services; Senior Farmers' Market Nutrition Program (SFMNP); NY State Housing and Weatherization programs; Health Insurance Information Counseling and Assistance Program (HIICAP) and more</li> </ul> |

| AUDIENCE   | MESSAGING GOAL   | OUTREACH STRATEGY   | TYPE OF COMMUNICATION  |
|--|--|---|--|
|  <p><b>General Public</b></p> | <p>Equip partner organizations and trusted community leaders with the resources they need to educate their audiences. Increase awareness of topics such as how to prepare to shelter in place or evacuate.</p> | <p>Use influential messengers outreach approach; partner with community organizations and trusted community leaders to share resources.</p> <p>Use GovDelivery newsletter system.</p> | <ul style="list-style-type: none"> <li>• Social media posts to promote preparedness</li> <li>• Fact sheets that provide resources for community leaders: 3, 11*</li> <li>• Website page on Tompkins County site that provides community-specific preparedness information</li> <li>• Public meetings</li> <li>• Radio: pre-write and record common public service announcements in multiple languages on questions that frequently arise during crises</li> <li>• Direct-mail letter from Tompkins County Administrator</li> <li>• Community Leader Toolkit fact sheet for distribution to senior centers, libraries, community centers, adult day care programs, shelters, transitional housing programs, local welfare agencies, food banks, and soup kitchens; coordinate and distribute to Meals on Wheels programs; Family and Children Services; Latino Civic Association; Loaves and Fishes; Second Wind; Veterans Affairs; Family and Children's Services; Senior Farmers' Market Nutrition Program (SFMNP); NY State Housing and Weatherization programs; Health Insurance Information Counseling and Assistance Program (HIICAP) and more</li> </ul> |

\*See list of fact sheets on page 3


## Pre-Event (continued)

| AUDIENCE   | MESSAGING GOAL  | OUTREACH STRATEGY   | TYPE OF COMMUNICATION  |
|--|---|---|--|
|  <p><b>Local Businesses and Stakeholders</b></p>    | <p>Equip local businesses and community stakeholders with the resources needed to educate their audiences. Increase awareness of best practices for preparedness. Provide access to the list of recovery resource contact information at the state, county and local level. Include information on Tompkins County's Economic Recovery team/office.</p> | <p>Use partnership outreach approach; provide information that local business and community organizations can share and use in advance of an event. Make the information clear, relevant, engaging and practical.</p> <p>Use GovDelivery newsletter system.</p> | <ul style="list-style-type: none"> <li>Recovery resource fact sheet</li> <li>Fact sheets: 2, 4, 7, 8, 10, 12*</li> <li>Website page on Tompkins County site that provides resources and preparedness information for the community</li> <li>Outreach toolkit that provides social media posts, newsletter content and fact sheet for partners to share with their audiences</li> </ul> |
|  <p><b>Schools and Universities</b></p>             | <p>Equip K–12 teachers and university/college professors with information to share with students on how to be prepared and resilient for an emergency or disaster event.</p>  | <p>Use educationally focused outreach approach; provide information that can be shared with students and incorporated into teacher lesson plans.</p> <p>Use GovDelivery newsletter system.</p>  | <ul style="list-style-type: none"> <li>Student preparedness fact sheet</li> <li>Fact sheets: 1, 3, 4, 5, 6*</li> <li>Website page on Tompkins County site that provides community-specific preparedness information</li> </ul>   |
|  <p><b>Critical Facility Owners/Operators</b></p> | <p>Provide critical facility owners and operators with the information they need to prepare and respond to an event. Increase awareness of mitigation for facilities, for example from flooding. Clarify the process for developing a Memorandum of Understanding for shared services when a disaster event occurs.</p>                                 | <p>Use partnership/ownership outreach approach by providing critical facility owners and operators the information and actionable steps to take before and after a disaster event occurs.</p> <p>Use GovDelivery newsletter system.</p>                         | <ul style="list-style-type: none"> <li>Direct-mail letter or email to provide key contacts and steps for preparedness</li> <li>Fact sheets: 1, 9*</li> <li>Easy how-to guide for best practices in how to alert and communicate with employees</li> </ul>  |

### \*Fact Sheets

1. Are you in a designated floodplain?
2. Are you prepared for a local hazard event? (for businesses)
3. Are you prepared for a local hazard event? (for the public)
4. How to report damages after a disaster
5. Student Preparedness Fact Sheet
6. K-12 Preparedness Teaching Toolkit
7. Preparedness Planning for Businesses
8. Community Leader Toolkit
9. Flood Mitigation Toolkit for Critical Facilities
10. Recovery Resources (for businesses)
11. Recovery Resources (for the public)
12. Business-Employee Communication During and After a Disaster


## Post-Event

| AUDIENCE   | MESSAGING GOAL   | OUTREACH STRATEGY   | TYPE OF COMMUNICATION   |
|--|--|---|---|
|  <p><b>News Media</b></p> | <p>Increase awareness of short-term recovery information including where and how to access water and food, and charging and heating/cooling station; also, what areas are accessible and open to public, utility recovery status, road closure updates and more.</p> | <p>Use news media outreach strategy to establish direct ties to the print, online, TV and radio outlets for communicating important post-event information.</p> | <ul style="list-style-type: none"> <li>• Draft talking points and Q&amp;As for Tompkins County staff to respond to media inquiries. Determine Tompkins County spokesperson for the particular event</li> <li>• Radio: provide public service announcements of short-term recovery information for DJ hosts to read</li> <li>• Media releases</li> <li>• Media briefing</li> </ul> |

DEVELOP

IMPLEMENT

Post-Event Week 1


| AUDIENCE   | MESSAGING GOAL  | OUTREACH STRATEGY   | TYPE OF COMMUNICATION  |
|--|---|---|--|
|  <p><b>Local Businesses</b></p> | <p>Increase awareness of short-term recovery information. Share resources for immediate services to get businesses up and running including what areas are accessible and open to the public, utility recovery status and road closure updates.</p> | <p>Use direct, focused outreach from Tompkins County public information outlets. Be transparent and communicate the facts about response. Keep information exchange simple, digestible and mutually beneficial.</p> | <ul style="list-style-type: none"> <li>• Short-term recovery resources fact sheet</li> <li>• Social media posts</li> <li>• Website page on Tompkins County site that provides community-specific preparedness information</li> <li>• Partner with County, New York State Department of Transportation and transit agencies to include messaging on electronic billboards and programmable road signs</li> <li>• Wallet cards that include phone number, website and contact information; add QR code for easy link to website</li> </ul> |

DEVELOP

IMPLEMENT

Winter 2023

Post-Event Week 1

| AUDIENCE   | MESSAGING GOAL  | OUTREACH STRATEGY   | TYPE OF COMMUNICATION   |
|--|---|---|---|
|  <p><b>General Public</b></p> | <p>Increase awareness for where and how to access water, food, charging stations and heating/cooling stations. Support community morale and cohesion to work toward recovery.</p> | <p>Use partnership/ownership outreach approach; find ways to help impacted communities get the information they need and overall get a sense for how they are partners in recovery efforts.</p> | <ul style="list-style-type: none"> <li>• Immediate needs availability fact sheet</li> <li>• Social media</li> <li>• Public meetings</li> <li>• Door-hangers</li> <li>• Mobile public address system</li> <li>• Partner with County, New York State Department of Transportation and transit agencies to include messaging on electronic billboards and programmable road signs</li> <li>• Fact sheet for distribution via senior centers, libraries, community centers, adult day care programs, shelters, transitional housing programs, local welfare agencies, food banks and soup kitchens; coordinate and distribute to Meals on Wheels programs; Family and Children Services; Latino Civic Association; Loaves and Fishes; Second Wind; Veterans Affairs; Family and Children's Services; Senior Farmers' Market Nutrition Program (SFMNP); NY State Housing and Weatherization programs; Health Insurance Information Counseling and Assistance Program (HIICAP) and more.</li> </ul> |


DEVELOP

IMPLEMENT

Winter 2023

Post-Event Week 2

## Post-Event (continued)


| AUDIENCE  | MESSAGING GOAL  | OUTREACH STRATEGY  | TYPE OF COMMUNICATION   |
|---|---|--|---|
|  <p><b>Local Businesses and Stakeholders</b></p> | Increase awareness of long-term recovery information such as notification of recovery projects and funding resources. | Use direct, focused outreach from Tompkins County public information outlets. Be transparent and communicate the facts about response. Keep information exchange simple, digestible and mutually beneficial. | <ul style="list-style-type: none"> <li>• Long-term recovery fact sheet</li> <li>• Public meeting</li> <li>• Information phone line</li> <li>• Social media</li> </ul> |

DEVELOP

Winter 2023

IMPLEMENT

Post-Event Week 3+

| AUDIENCE   | MESSAGING GOAL  | OUTREACH STRATEGY  | TYPE OF COMMUNICATION   |
|--|---|--|---|
|  <p><b>General Public</b></p> | Support community hope and resilience overall by sharing community success stories; increase awareness of information such as damage assessment permit requirements for repairs and rebuilding. | Use story-telling outreach approach; seek and share stories that reflect the community's success during recovery, stories that illustrate how far the county has come. | <ul style="list-style-type: none"> <li>• Social media posts; ask for positive community stories and share stories of success</li> <li>• Recovery information fact sheet</li> <li>• Public meetings</li> </ul> |

DEVELOP

Winter 2023

IMPLEMENT

Post-Event Week 4

**Tompkins County Resiliency and Recovery Plan: Compilation of Recommended Actions** (note: acronyms are defined in referenced documents)

| Implementation Entity       | Action #      | Action Name                                      | Action Description  | Timeline |
|-----------------------------|---------------|--|---|----------|
| <b>County</b>               | DMP-Action #1 | Formalize debris management roles                | Formalize debris management roles. The County should work with all County Departments, municipal officials, and external agencies identified in the DMP to confirm their agreement with the responsibilities and actions for their organization. The DMP was developed by a working group led by the Tompkins County Department of Planning and Sustainability; debris management operations will be coordinated by the Department of Emergency Response through the Emergency Operations Center (EOC); and the Department of Recycling and Materials Management plays the largest role in implementing the DMP. Officials from these departments should work together to formalize who will lead the overall debris management program (i.e., the Debris Management Program Lead), conduct further planning, increase debris management capacity and capabilities, procure debris management contractors, train personnel, and evaluate the DMP on an ongoing basis. | Short    |
| <b>County and Municipal</b> | DMP-Action #2 | Collect additional debris management information | During the development of the DMP, the working group collected information about municipalities' resources and capabilities available to support debris management. The Town of Caroline, Town of Danby, Town of Dryden, Village of Dryden, Village of Freeville, Village of Trumansburg, and the Town of Ulysses did not provide information on resources. The Debris Management Program Lead should work with these municipalities, municipalities that provided incomplete information, and external stakeholders to gather additional information.  | Short    |
| <b>County</b>               | DMP-Action #3 | Assess potential Debris Management Sites (DMS)   | The DMP identifies a set of locations that could potentially serve as a DMS. To effectively and efficiently operate a DMS, the County and/or municipalities should conduct site-specific planning, including developing a site map showing the flow of debris at the specific site, for each potential DMS. Carrying out this site-specific planning will help the County determine the actual suitability of using each potential site as a DMS.   | Short    |



|                             |               |  |   |                    |
|-----------------------------|---------------|--|---|--------------------|
| <b>County</b>               | DMP-Action #4 | Determine debris management resource and infrastructure requirements | After gathering additional debris management information and assessing the potential DMS locations, the Debris Management Working Group should determine what additional resources are required to effectively manage debris. These resources would ideally close any gaps between the actions identified in the DMP and the County's and municipalities' capabilities to carry them out. Likewise, this analysis would help the working group members determine if any infrastructure improvements (such as upgrading roads and bridges to be able to handle a surge in truck traffic) would be required.  | Short              |
| <b>County and Municipal</b> | DMP-Action #5 | Establish debris management contracts                                | Several of the activities identified in the DMP are beyond the County's and municipalities' current capabilities (e.g., collecting and hauling large quantities of debris from across the County in a timely manner) and/or expertise (e.g., debris monitoring). As such, the County and municipalities will need to contract for outside resources to support debris management operations. The County and municipalities should follow federal purchasing requirements to establish a set of on-call debris haulers, and personnel with expertise in debris collection and monitoring, and FEMA's requirements for debris management operations.  | Short              |
| <b>County</b>               | DMP-Action #6 | Establish a debris management reserve fund                           | FEMA's PA program reimburses jurisdictions for costs related to Presidentially-declared disasters. Governments must first spend their funds on response activities. Response efforts can be very expensive, particularly if they require activation of on-call contracts. Additionally, it is not guaranteed that a debris-generating disaster will rise to the level of receiving a Presidential disaster declaration, or that reimbursement for debris management costs would be part of any such declaration. It is important that governments have funding available to support debris management operations. The debris management reserve fund could be part of a larger disaster reserve fund as well. | Medium (1-5 years) |
| <b>County and Municipal</b> | DMP-Action #7 | Purchase debris management equipment                                 | The County and municipalities should evaluate and purchase equipment determined through DMP-Action #4.  | Medium (1-5 years) |
| <b>County and Municipal</b> | DMP-Action #8 | Make infrastructure improvements                                     | The County and municipalities should evaluate and implement the required infrastructure improvements determined through DMP-Action #4. Infrastructure improvements often take several years to gain approval, secure funding, and carry out. This work should begin as soon as infrastructure improvements are identified.  | Long (>5 years)    |

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| County               | DMP-Action #9     | Review and update the DMP  | The Debris Management Program Lead should lead a review of the DMP on an annual basis. The review should occur in early spring of each year, so that the plan can be updated, and personnel trained on any updated roles, prior to the beginning of the severe weather season.  | Short-Ongoing/Annual |
| County and Municipal | DMP-Action #10    | Review and update debris management contracts                      | The Debris Management Program Lead should work with each entity that holds contracts with pre-identified debris haulers, debris monitors, etc. to ensure that the contracts are reviewed on a regular basis (such as annually or every two years).  | Short-Ongoing/Annual |
| County and Municipal | DMP-Action #11    | Conduct training for personnel with a role in debris management    | The County should ensure that County, municipal, and external stakeholders with roles to play in carrying out the DMP are trained regularly on these roles and responsibilities. Training should be conducted annually, between the plan review and the beginning of the severe weather season. This training could be conducted as part of an annual meeting to gather all debris management stakeholders prior to the start of the severe weather season.   | Short-Ongoing/Annual |
| <b>Drought</b>       |                   |  |   |                      |
| County, Purveyors    | Drought-Action #1 | Data Collection and Tracking of Water District Wells               | Increased monitoring of groundwater in relation to active supply wells is another area that can provide information to users and water districts. Since so many towns rely on groundwater—especially during drought times—having a record of which wells are expected to run dry first would be important for coming up with emergency plans for other sources. While this information exists for some areas from the USGS and other sources, increased aquifer level monitoring in well dependent towns and villages will help inform future decisions on investments in infrastructure and agreements.  | Short                |
| County               | Drought-Action #2 | Establish a formal regional water providers' drought planning team | Establish a formal regional water providers' consortium (drought planning team) representing the key stakeholders committed to addressing the water supply issues on a regional (or even just Countywide) basis. Convene the consortium regularly to continue to progress the issues, needs and solutions. Suggested members of such a consortium would include: <ul style="list-style-type: none"> <li>• Tompkins County Environmental Health Department</li> <li>• Tompkins County Department of Planning &amp; Sustainability</li> <li>• SCLIWC</li> <li>• City of Ithaca</li> <li>• Cornell University</li> <li>• Rural center water providers</li> </ul> | Short                |

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| County         | Drought-Action #3  | Develop a demand and availability profile  | Develop a regional profile of current and future demand and availability.   | Short |
| County         | Drought-Action #4  | Surface and groundwater compatibility issues   | Determine if there are there surface and groundwater compatibility issues.  | Short |
| County         | Drought-Action #5  | Update interagency agreements  | Support creation of updated interagency agreements between SCLIWC, the City of Ithaca, and Cornell University.  | Short |
| Municipalities | Drought-Action #6  | Update ordinances  | Address existing ordinances that currently prevent regionalization of the water system.   | Short |
| County         | Drought-Action #7  | Research ability to provide backup water to key locations  | Research the legal ability to provide backup water to key locations outside of current service area boundaries. If legal, identify any unintended consequences of such provision, including potential negative impacts to development, land use and the environment to creating a more regionalized water system. | Short |
| County         | Drought-Action #8  | Stakeholder engagement regarding a regional redundant water supply system  | Determine if rural community stakeholders are interested in a regional redundant system and if there is interest, outline necessary infrastructure needed to support this.  | Short |
| County         | Drought-Action #9  | Evaluate potential capital investment to address future drought events   | Come to consensus as to whether the climate change forecast alone justifies the capital investment to address a periodic event  | Short |
| County         | Drought-Action #10 | Determine the cost sharing structure for capital investment, water rates, ownership, and operation and maintenance, etc. | Determine the cost sharing structure for capital investment, water rates, ownership, and operation and maintenance, etc.  | Short |
| County         | Drought-Action #11 | Determine if alternative, acute-drought solutions, are adequate  | Determine if alternative, acute-drought solutions, such as trucking potable water to rural users, are adequate given the infrequency of severe drought events.  | Short |
| County         | Drought-Action #12 | Determine availability of resilient groundwater supplies   | Evaluate well depth and geotechnical conditions or an evaluation of deeper aquifer availability to determine if more resilient groundwater supplies are available in the region.  | Short |

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| County | Drought-Action #13 | Increase monitoring of groundwater in active supply wells to provide drought information to users and water districts.   | Increase monitoring of groundwater in active supply wells to provide drought information to users and water districts.   | Short |
| County | Drought-Action #14 | Identify funding mechanisms to conduct an engineered system study for an interconnected regional system specifying specific infrastructure improvement needs   | Identify funding mechanisms to conduct an engineered system study for an interconnected regional system specifying specific infrastructure improvement needs.  | Short |
| County | Drought-Action #15 | Develop and prioritize a list of regional water infrastructure capital needs to provide water for participating stakeholders based on the <i>IAED Water and Sewer Evaluation Update, December 2021</i>                     | Develop and prioritize a list of regional water infrastructure capital needs to provide water for participating stakeholders based on the <i>IAED Water and Sewer Evaluation Update, December 2021</i> . | Short |
| County | Drought-Action #16 | Implement a regional water conservation program  | Implement a regional water conservation program.   | Short |
| County |                    | To maximize current supplies and reduce demands, and in turn potentially reduce the capital investment for regionalization, the consortium could begin to address coordinated regional conservation through the following: |  | Short |

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| <b>County</b>          | Drought-Action #17 | Define water demand  | Define demand in terms of domestic, industrial, and agricultural uses. That breakdown will inform an approach to conservation.   | Short |
| <b>County</b>          | Drought-Action #18 | Develop and implement a regional conservation program.   | Develop and implement a regional conservation program.   | Short |
| <b>County</b>          | Drought-Action #19 | Draft and ratify an updated Intermunicipal Agreement   | Draft and ratify an updated Intermunicipal Agreement to help support the coordinated transmission and compensation for longer term disruptions including drought that in particular allows for the potential of wheeling water through the SCLIWC, City of Ithaca, and Cornell University systems. | Short |
| <b>County</b>          | Drought-Action #20 | Explore key funding opportunities for infrastructure improvements  | Explore key funding opportunities for infrastructure improvements to allow water to be supplied from the City of Ithaca to SCLIWC  | Short |
| <b>County</b>          | Drought-Action #21 | Develop a regional water resource portfolio  | Develop a regional water resource portfolio and the availability of additional resources such as available capacity from Cayuga Lake, the region's most reliable source-of-supply.   | Short |
| <b>County</b>          | Drought-Action #22 | Analyze and conduct aquifer studies  | Analyze existing aquifer studies to determine more reliable groundwater resources, and as appropriate conduct further studies.   | Short |
| <b>Water Providers</b> | Drought-Action #23 | Develop water restriction protocols  | Recommend that all water providers develop a water restriction protocol to implement during acute events when conservation is inadequate.  | Short |
| <b>Water Providers</b> | Drought-Action #24 | Recommend that all water providers meter and calculate production, demand, water loss, and projection of future needs. | Recommend that all water providers meter and calculate production, demand, water loss, and projection of future needs.   | Short |
| <b>Water Providers</b> | Drought-Action #25 | Review existing interagency agreements   | Recommend that all water providers review existing interagency agreements, identify system-specific gaps and unaddressed needs, and update or create new agreements.   | Short |

| Flood                |                              |  |  |       |
|----------------------|------------------------------|--|--|-------|
| County and Municipal | Flood Management -Action #1  | Mapping  | Maintain accuracy of maps and notify FEMA of changes.  | Short |
| County and Municipal | Flood Management -Action #2  | Mapping  | Map and update the list of community's repetitive loss properties annually and conduct regular outreach to those property owners regarding potential risk reduction actions.   | Short |
| County and Municipal | Flood Management -Action #3  | Acquisition and Relocation                                   | Acquire flood prone properties and return them to naturally functioning open space.  | Short |
| County and Municipal | Flood Management -Action #4  | Data Collection  | Create formal protocol for capturing perishable data such as high-water marks or detailed damage assessments from an event.  | Short |
| Municipal            | Flood Management -Action #5  | Regulations-Codes and Ordinances/Higher Regulatory Standards | Adopt, enforce, and re-evaluate ordinances for floodplain management that include higher regulatory standards.   | Short |
| Municipal            | Flood Management -Action #6  | Regulations-Codes and Ordinances/Higher Regulatory Standards | Require new or replacement homes to be elevated to above the Base Flood Elevation (BFE).   | Short |
| Municipal            | Flood Management -Action #7  | Regulations-Codes and Ordinances/Higher Regulatory Standards | Carefully consider all variance requests to ensure compliance with regulatory flood standards.   | Short |
| Municipal            | Flood Management -Action #8  | Regulations-Codes and Ordinances/Higher Regulatory Standards | In order to regulate and implement standards for existing structures, track the cost of improvements to structures in the floodplain to trigger compliance with the flood damage preventions ordinance once the cumulative improvement value is greater than or equal to the pre-determined threshold of 50 percent or greater of the market value of the structure. | Short |
| Municipal            | Flood Management -Action #9  | Regulations-Codes and Ordinances/Higher Regulatory Standards | Update Flood Damage Prevention Ordinance to require a freeboard for manufactured homes and mechanical equipment in numbered zones.   | Short |
| Municipal            | Flood Management -Action #10 | Regulations-Codes and Ordinances/Higher Regulatory Standards | Elect to use a threshold lower than 50 percent for substantial improvements and establish cumulative substantial improvements.   | Short |

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| Municipal            | Flood Management<br>-Action #11 | Industry Rating           | Examine enhancements to the building code enforcement program (including staff training) and track those enhancements through the BCEGS® rating.  | Short |
| Municipal            | Flood Management<br>-Action #12 | Industry Rating           | Become a StormReady community.  | Short |
| Municipal            | Flood Management<br>-Action #13 | Open Space Preservation   | Establish deed restrictions or conservation easements on municipally-owned open space parcels.  | Short |
| Municipal            | Flood Management<br>-Action #14 | Storm water Management    | Institute more stringent requirements for storm water management, such as regulating development or designing stormwater management to withstand more intense storms.   | Short |
| County               | Flood Management<br>-Action #15 | Stormwater Management     | Develop a watershed management plan.  | Short |
| Municipal            | Flood Management<br>-Action #16 | Planning-Plan Integration | Update the municipal comprehensive plan and land use ordinances to ensure land use to avoid development of flood prone areas and incorporate actions recommended as part of the community's Annex in the <i>Tompkins County Hazard Mitigation Plan: 2021 Update</i> . Ensure appropriate floodplain management staff, including the floodplain administrator and building code officials, are involved in the development and implementation of the municipal Comprehensive Plan and land use ordinances. | Short |
| Municipal            | Flood Management<br>-Action #17 | Planning-Plan Integration | Adopt a National Incident Management System–compliant Emergency Operations Plan/Community Emergency Management Plan.  | Short |
| County and Municipal | Flood Management<br>-Action #18 | Planning-Plan Integration | Develop a flood warning and response plan.  | Short |
| Municipal            | Flood Management<br>-Action #19 | Planning-Plan Integration | Develop a substantial damage response plan to provide a procedure for capturing post-event perishable or temporary data such as high water marks, and to guide efficient post-disaster efforts to address regulatory requirements.  | Short |

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| Municipal            | Flood Management -Action #20 | Planning-Plan Integration     | Develop policies and procedures for determining substantial damage and improvements when permit applications are received. Ensure that only the structure's value is part of the determination or percent of damage).   | Short |
| Municipal            | Flood Management -Action #21 | Administration-Record Keeping | Avoid floodplain development. If allowed, require permits for all types of development in the special flood hazard area (SFHA or 1% annual chance flood area) and conduct field inspections to ensure compliance with regulations.  | Short |
| Municipal            | Flood Management -Action #22 | Administration-Record Keeping | Require "as-built" elevations in order to document compliance with the community's flood damage prevention ordinance (Elevation Certificates or Floodproofing Certificates).  | Short |
| Municipal            | Flood Management -Action #23 | Administration-Record Keeping | Store records in an offsite location (outside the SFHA), ensuring that records are transferred or copied once a year.   | Short |
| County and Municipal | Flood Management -Action #24 | Administration-Record Keeping | Maintain information on flood problems not shown on the FIRM. Provide information above and beyond the requirements for basic FIRM information, such as local drainage problems and mapping, that shows the importance of natural floodplain functions.                               | Short |
| Municipal            | Flood Management -Action #25 | Administration-Record Keeping | Provide information necessary to rate a flood insurance policy and ensure requests are documented using a standard operating procedure.   | Short |
| Municipal            | Flood Management -Action #26 | Education                     | Train floodplain administrator and additional staff (such as building code officials) to become certified floodplain managers or complete FEMA's Emergency Management Institute (EMI) courses.  | Short |
| County and Municipal | Flood Management -Action #27 | Outreach Projects             | Utilize digital (websites and social media) and physical (flyers, mailouts, etc.) outreach opportunities to regularly inform the public of floodplain risks and activities to promote both public safety and build continuity in the community's floodplain management program.       | Short |
| County and Municipal | Flood Management -Action #28 | Outreach Projects             | Organize and undertake outreach specific to residents and property owners in SFHAs. Outreach efforts should cover preparation for disasters, information about mitigation, and warnings about flooding events and to increase the amount of flood information available to residents. | Short |
| County and Municipal | Flood Management -Action #29 | Outreach Projects             | Increase the use of pre-existing social media accounts and municipal outreach platforms to conduct annual outreach.   | Short |



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| County and Municipal | Flood Management<br>-Action #30 | Hazard Disclosure                         | Ask or mandate real estate agents to notify those interested in purchasing properties located in the SFHA about flood hazards and flood insurance purchase requirements and to provide brochures or handouts that advise potential buyers to investigate the flood hazard for a property.   | Short |
| County and Municipal | Flood Management<br>-Action #31 | Flood Protection Information              | Provide access to the nine publications listed in the CRS Coordinator's Manual at the municipal library and on public websites.   | Short |
| County and Municipal | Flood Management<br>-Action #32 | Flood Protection Information              | Create a municipal flood mitigation webpage to provide flood protection information. Information can include documents that cover flood hazards, flood protection, and natural floodplain functions available at municipal library. Additional information can include aquatic and riparian habitat guides, information on floodplain management, and guides to flood mitigation. | Short |
| County and Municipal | Flood Management<br>-Action #33 | Flood Protection Assistance               | Provide assistance to locate and apply for funding for mitigation, flood insurance, SBA grants, etc.  | Short |
| Municipal            | Flood Management<br>-Action #34 | Flood Insurance Promotion                 | Include flood insurance brochures with building permits or other distribution directly to property owners.  | Short |
| County and Municipal | Flood Management<br>-Action #35 | Flood Insurance Promotion                 | Hold an annual community town hall meeting or open house to promote and discuss flood insurance.  | Short |
| Municipal            | Flood Management<br>-Action #36 | Open Space Preservation                   | Establish deed restrictions on open space parcels.  | Short |
| Municipal            | Flood Management<br>-Action #37 | Drainage System Maintenance               | Develop and update an inventory and map of natural and manmade water conveyance systems; and develop procedures for performing and documenting annual inspection and maintenance.   | Short |
| Municipal            | Flood Management<br>-Action #38 | Drainage System Maintenance               | Establish a capital improvement program to correct drainage problems.   | Short |
| County and Municipal | Flood Management<br>-Action #39 | Record-keeping and Flood Data Maintenance | Organize and formalize the process for record-keeping of development changes in the SFHAs.  | Short |
| County and Municipal | Flood Management<br>-Action #40 | Record-keeping and Flood Data Maintenance | Include building elevations as digitized information in available mapping.  | Short |

| Economic                     |               |   |  |           |
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| County and Local Governments | ERP Action #1 | Economic Vulnerability Analysis                     | Conduct an Economic Vulnerability Analysis in conformance with FEMA guidance.  | Short     |
| County and Local Governments | ERP Action #2 | Planning Consistency                                | Review current planning material to ensure consistency across documents.   | Short     |
| County and Local Governments | ERP Action #3 | Mitigation and Resilience Integration- Planning     | Review current planning material and incorporate recommendations or processes described in disaster recovery and mitigation documents.   | Immediate |
| County and Local Governments | ERP Action #4 | Mitigation and Resilience Integration- Preparedness | Review and update the current Comprehensive Emergency Management Plan (CEMP) to recognize and include actions to increase resilience during recovery and to specifically include county- and local-level economic recovery annexes to provide a framework for economic recovery. | Immediate |
| County and Local Governments | ERP Action #5 | Economic Recovery Definition                        | Identify County's general role and responsibilities in post-disaster economic recovery support and define what "economic recovery" means for the County.   | Immediate |
| County and Local Governments | ERP Action #6 | Economic Recovery Team - Extent of Powers           | Define the extent of powers for the Economic Recovery Team and whether this includes "emergency" powers. The exact limits of power may take time to agree upon and formal adoption of these powers for the Economic Recovery Team by the County may be required.                 | Immediate |
| County and Local Governments | ERP Action #7 | Economic Recovery Team - Organization               | Identify the agency or department the Economic Recovery Team under which will be established.  | Immediate |
| County and Local Governments | ERP Action #8 | Economic Recovery Team - Responsibilities           | Establish recovery team responsibilities, limits of power, and timelines for which they may be responsible for recovery activities.  | Immediate |
| County and Local Governments | ERP Action #9 | Response to Recovery Transition Planning            | Establish when and how responsibilities transition from response teams to recovery teams. Establish how responsibilities will transition and to whom when the Economic Recovery Team is deactivated.   | Immediate |

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| County and Local Governments       | ERP Action #10 | Economic Recovery Team - Position within County Command Structure | Define the Economic Recovery Team's position and responsibilities within the County's overall organizational structure.   | Immediate |
| County and Local Governments       | ERP Action #11 | Economic Recovery Team - Member Roles and Responsibilities        | Define the functional areas of responsibility within the Economic Recovery Team.  | Immediate |
| County and Local Governments       | ERP Action #12 | Economic Recovery Team - County Staff Member Assignments to ERT   | Identify internal staff to fill recovery team positions and identify if supplemental staff is necessary.  | Immediate |
| County and Local Governments       | ERP Action #13 | Recovery Office Location  | Identify Economic Recovery Office's physical location. This may take longer since the identification of office needs and security of the space may take time and face several obstacles. Temporary locations can be defined in the short term.                      | Immediate |
| County and Local Governments       | ERP Action #14 | Outreach Implementations  | Incorporate recommendations from Messaging Playbook into Economic Recovery Plan.  | Immediate |
| County and Local Governments       | ERP Action #15 | Impact Data Collection - Documentation                            | Identify who will be responsible for collecting and consolidating hazard impact data as well as where the information will be maintained.   | Immediate |
| County and Local Governments       | ERP Action #16 | Impact Data Collection - Process                                  | Identify how impact data will be collected and maintained post-disaster. Identify the types of information being sought and developing a secure process for storing information.  | Immediate |
| Local Governments                  | ERP Action #17 | Land use analysis   | Perform a land use analysis to support pre-disaster resilience and mitigation activities.   | Short     |
| Local Governments                  | ERP Action #18 | Pre-Disaster Recovery Ordinance                                   | Consider development and adoption of pre-disaster recovery ordinance to facilitate efficient economic recovery.   | Short     |
| County, Municipalities, Businesses | COOP-Action #1 | Establish continuity programs                                     | Organizations should formalize who will lead the overall continuity program (i.e., the Continuity Manager), conduct further planning, increase capacity and capabilities, procure resources, train personnel, and evaluate the continuity plan on an ongoing basis. | Short     |

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| County, Municipalities, Businesses | COOP-Action #2 | Develop continuity plans   | After identifying who will serve as the organization’s Continuity Manager, an organization should conduct the business process analysis or business impact analysis, and develop a formal continuity plan (whether it is a COOP/COG Plan or a BCP). Templates and tools were provided to the County by its consultant, and both the New York State Division of Homeland Security and Emergency Services (NYS DHSES) and FEMA provide continuity planning resources. Lists of these resources were provided to the County by its consultant.  | Short              |
| County, Municipalities, Businesses | COOP-Action #3 | Train personnel on continuity principles and the continuity plan | Organizations should ensure that staff with roles to play in carrying out the continuity plans are trained regularly on these roles and responsibilities. Training should be conducted annually. Free training on continuity principles is available through FEMA’s Independent Study Program ( <a href="https://training.fema.gov/is/crslist.aspx">https://training.fema.gov/is/crslist.aspx</a> ), and organizations’ Continuity Managers should provide organization-specific training to their staff.  | Short              |
| County, Municipalities, Businesses | COOP-Action #4 | Develop “Go Kits”  | As described in the continuity plan templates, “Go Kits” are caches of supplies and equipment that an organization should compile to bring with them when relocating to an alternate location. Each organization should establish and maintain its Go Kit to ensure that the organization’s staff will have what they need at the alternate location.  | Short              |
| County, Municipalities, Businesses | COOP-Action #5 | Identify infrastructure upgrades                                 | During the continuity planning process, organizations may determine that information technology, communications, or other infrastructure needs to be upgraded to mitigate the effects of data loss due to an emergency incident. These upgrades may be as simple as better virus-scanning software on the organizations’ computers to as complicated as needing to replace an entire computer network or power or telecommunications lines in a building. Organizations should identify the required upgrades and their costs, and begin capital planning for making the upgrades. | Short              |
| County, Municipalities, Businesses | COOP-Action #6 | Implement infrastructure upgrades                                | Organizations should implement any infrastructure upgrades identified in COOP-Action #5.   | Medium (1-5 years) |

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| County, Municipalities, Businesses | COOP-Action #7 | Develop agreements for alternate locations      | For any potential alternate locations (whether hot, warm, or cold sites) identified in COOP-Action #2, organizations should work with the management of those alternate locations to develop a formal agreement for use of the alternate location. These agreements may include reciprocity clauses (e.g., an agreement between two towns could stipulate that each agrees to serve as an alternate location for the other if necessary).   | Medium (1-5 years) |
| County, Municipalities, Businesses | COOP-Action #8 | Review and update the continuity plan           | The Continuity Managers should lead a review of the continuity plans on an annual basis. Reviews should evaluate essential functions and include updates to the business process analysis or business impact analysis performed to develop the continuity plans.  | Ongoing/Annual     |
| County, Municipalities, Businesses | COOP-Action #9 | Review and update agreements                    | The Continuity Managers should review any contracts or MOUs/MOAs that it holds with other agencies to support their continuity programs. These may include agreements to share office or storage space, devolve operations to another organization, etc. Continuity Managers should ensure that the contracts/agreements are reviewed on a regular basis (such as annually or every two years).   | Ongoing/Annual     |
| Hazard Mitigation                  |                |   |   |                    |
| Tompkins County                    | HMP-Action # 1 | Tompkins County Cover Crop Leadership Program   | Implement a staffed program with adequate equipment and materials to increase the amount of farmland currently utilizing cover crops. Work with Cornell University and Cooperative Extension Services to discuss the development of this program.   | Short-Immediate    |
| Tompkins County                    | HMP-Action # 2 | Tompkins County Green Ditch Improvement Program | Tompkins County Green Ditch Improvement Program - Develop an improvement program that identifies different options to repair road ditches on county roads. This includes the procurement for the necessary materials, staffing, and an inventory of ditches that need to be improved. The program will improve the quality of the ditches and water quality and support the “greening” of county road ditches. First phase of project should include the prioritizing and scoping of important locations for improvement – and conducting pilot projects. | Short-Immediate    |
| Tompkins County                    | HMP-Action # 3 | Flood Insurance and Mitigation Outreach         | To increase the flood awareness program as well as flood mitigation measures the County should develop and implement an outreach and education program to inform residents on SFHAs, the benefits of flood insurance and how they can obtain it, and how to prepare for and mitigate from future flood damages. This program will should creatively reach all county residents with attention given to those more vulnerable.   | Short-Immediate    |

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| <b>Tompkins County</b> | HMP-Action # 4  | Groundwater Vulnerability Evaluation        | Conduct a study to clarify which parts of the county are most vulnerable to groundwater shortages and identify potential options to address shortages. Develop a range of solutions to pursue in times of shortage, as well as proactive solutions that could be undertaken to prevent shortages from occurring. Consider building off of work local communities such as Enfield has done on this front with the New York Rural Water Association and explore the use of sentinel wells from aquifer studies to help monitor groundwater issues. | Short-Immediate |
| <b>Tompkins County</b> | HMP-Action # 5  | Expanded and Improved Broadband Coverage    | The County is actively working with the Southern Tier Network and Fujitsu to understand options for supporting expansion of broadband in the county. Once this work is complete the County and municipal partners will work to implement the actions identified in the study to improve broadband coverage and access in underserved areas.  | Short-Immediate |
| <b>Tompkins County</b> | HMP-Action # 6  | County Facility Flood Mitigation Assessment | Further assess these County buildings to mitigate flood impacts and determine steps necessary for retrofitting and also for any necessary education or evacuation plans for use in times of flood. If any larger scale retrofits are determined to be necessary, apply for FMA funding to implement facility improvements.   | Short-Immediate |
| <b>Tompkins County</b> | HMP-Action # 7  | Non-Emergency Protective Resilience Hubs    | Conduct feasibility study for the development of publicly accessible protective resilient spaces that could be formed and supported by local service providers. Feasibility study should outline when such a facility would be used, key components that such a space should include and the types of groups that should be reached to inform them of the facility services.   | Short-Immediate |
| <b>Tompkins County</b> | HMP-Action # 8  | Model Tree Management Plan                  | Work with “Joint Forestry Team” to Identify guidance document and key components to a local tree management plan. The plan should include funding options to help develop tree inventories, management plans, native planting and implementation of recommendations.   | Short-Immediate |
| <b>Tompkins County</b> | HMP-Action # 9  | Low Income Heating/Cooling Investment       | Coordinate, publicize and implement the programs that advance retrofits for energy efficient heating and cooling for low-income affordable housing. Should further examine barriers (social/physical) for improving access to these resources and integrate hazard mitigation funding actions along with energy improvements.  | Short-Immediate |
| <b>Tompkins County</b> | HMP-Action # 10 | Resilient Business Investment               | Summarize mitigation recommendations and funding resources available to local businesses and push information out through a variety of formats. Initial focus will be on flood mitigation efforts given broad interest and concern on this hazard.   | Short-Immediate |

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| Tompkins County | HMP-Action # 11 | Snow Removal Logistics Support Program  | Continue supporting the installation of telematic systems on plows and other Highway vehicles to provide real-time location information – including through use of the Internet of Things - but also investigate additional technological options that can connect systems in order to increase the efficiency and safety of snow removal operations. Share findings of this technology with other highway departments in the region. | Short-Immediate |
| Tompkins County | HMP-Action # 12 | Virgil Creek Dam Restoration  | Make necessary dam improvements and provide education to the community on the dam’s function and associated warning system.   | Short-Immediate |
| Tompkins County | HMP-Action # 13 | Aquatic Invasive Species Management Plan  | Develop a long-term funding strategy for the management of hydrilla and other emerging aquatic invasive species.  | Short-Immediate |
| Tompkins County | HMP-Action # 14 | Redundant Facility and Fleet Power Systems  | Assess County buildings to determine back up power needs such as permanent electric generators, or electric retrofits to accommodate generator use; and to explore options for independent, clean energy sources such as solar based electric vehicle charging stations.  | Short-Immediate |
| Tompkins County | HMP-Action # 15 | Staff Support and Development for Resiliency Action Implementation                          | Develop a program that provides builds and sustains local municipal capability for mitigation and resiliency action implementation, including dam safety. This may include a program that focuses on matching young professionals and graduate level students directly with municipalities.   | Short-Immediate |
| Tompkins County | HMP-Action # 16 | Support Coordinated Public Health-Community Response Planning During a Communicable Disease | Review COVID-19 “after action reports” and identify improvements that could be put in place prior to next disease outbreak. This should include identifying which collaborations that emerged during the COVID-19 pandemic should be maintained and supported by the County, even after the COVID-19 crisis wanes.  | Short-Immediate |
| Tompkins County | HMP-Action # 17 | Local Government Hazard Event Impact Tracking   | Establish and implement an electronic system for all entities in Tompkins County to easily collect, input and access detailed information about structural damages, costs, injuries and other details relevant to tracking impacts of hazard events of all sizes. Program should strive to integrate with other existing archival systems and be usable and accessible to all partners.   | Short-Immediate |
| Tompkins County | HMP-Action # 18 | Joint Medical Supply Storage Facility Feasibility Study and Implementation                  | Develop a feasibility study to reach out to other regional health agencies and organizations that may require preparedness storage needs. Such as study should clarify the size and requirements of a storage facility and identify potential locations that could be utilized or perhaps built.  | Short-Immediate |

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| Tompkins County  | HMP-Action # 19 | Dam Safety Program                       | In accordance with NYSDEC Dam Safety guidelines, the County will support annual inspection and update of the dams' Emergency Action Plans (EAPs) by engineers, and supported NYSDEC as necessary. If increased significant risk to the downstream areas is found, the County will work with the owner, engineers, and NYSDEC Dam Safety to develop a plan to update and improve the conditions of the dam. Also, the County will conduct outreach to all residents living within the vicinity of the dam, providing relevant response measures that could be used by private residents if the dam were to ever fail. This can include fact sheets, meetings, social media advertisement, and other types of outreach. | Short-Immediate |
| Tompkins County  | HMP-Action # 20 | Lake Beebe Dam Clarification             | The County will contact the NYSDEC and Army Corps of Engineers to confirm the hazard classification of the Lake Beebe Dam to resolve the conflict in categorization between the two data sets. In addition the County will request a copy of the EAP for record.  | Short-Immediate |
| Town of Caroline | HMP-Action # 1  | Ground Water Study                       | Conduct a separate study to better understand the cause of the ground failure related water depletion issue. Once completed, provide vulnerable and affected residents with potential solutions to have adequate access to water supply.  | Short-Immediate |
| Town of Caroline | HMP-Action # 2  | Adopt Zoning Ordinance                   | The establishment of a zoning ordinance will ensure that future developments are up-to-standard and have minimal risks during hazard events and will allow for regulations that development permits are not given in hazard areas or in the floodplain.   | Short-Immediate |
| Town of Caroline | HMP-Action # 3  | Flood Mitigation Along White Church Road | Initiate an engineering feasibility study to determine best alternatives to mitigation streambank erosion, including alternatives such as reinforcement of existing streambank or installation of permeable riparian buffers that can mitigate flooding/ stream overflow  | Short-Immediate |
| Town of Caroline | HMP-Action # 4  | Canaan Road Outreach                     | Conduct outreach to community/ property owners located along Canaan Road and assess the property owners' current needs and damaged experienced due to ground water flooding. Once priority properties have been determined, consider relocation and or structural reinforcements to divert ground water from property.  | Short-Immediate |
| Town of Caroline | HMP-Action # 5  | Living Snow Fence                        | Install permanent vegetative barriers to decrease the wind strength and protect roads from potential snow drifts and whiteouts.   | Short           |
| Town of Caroline | HMP-Action # 6  | Backup Water Supply Development          | Designate emergency water supply hub that can be used in case of water contamination and or reduced well capacity.  | Short           |



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| Town of Caroline          | HMP-Action # 7  | Power Utility Assessment          | The town of Caroline should conduct assessment of specific properties that are prone to power outages and the power lines that are located within the region. If no definite solution is determined based on assessment, conduct outreach to community members to discuss potential backup power installation that can be used during extreme weather event.   | Short-Immediate |
| Town of Caroline          | HMP-Action # 8  | Repetitive Loss Property Outreach | Conduct outreach to flood-prone property owners and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating residential homes in the areas that experience frequent flooding.  | Short-Immediate |
| Town of Caroline          | HMP-Action # 9  | Town DPW Flood Mitigation         | Conduct assessment of existing facility and consider retrofitting/ elevating existing structures that are prone to flooding. Alternatively consider applying for FEMA funding for acquisition and relocation/ reconstruction of facility in a non-flood zone.  | Short-Immediate |
| Town of Caroline          | HMP-Action # 10 | South Road Culvert Upgrading      | Based on these assumptions stated above the 60" culvert appears to be undersized when considering additional flows from the south. Until further investigation can be performed, culvert may be exceeded for events greater than the 50-year, 24- hour storm. Based on the information obtained and the existing conditions observed we recommend the culvert be upsized and possibly realigned to address entry and exit conditions. There is significant grade change between the inlet and outlet end of the culvert that would also need to be addressed during replacement. From the road to creek invert at the outlet end there is approximately 21' change in elevation which makes maintaining the culvert difficult by Town Highway staff. To mitigate the 8' fall at the outlet end, a grade control structure, such as a concrete retaining wall or stepped extra-heavy stone wall will be required. | Short-Immediate |
| Village of Cayuga Heights | HMP-Action # 1  | Winter Road Hazard Reduction      | Reducing vegetative cover on steep slope roads and work with the Cornell Local Roads Program to explore potential options to reduce overall snow accumulation on steep slope.  | Short           |

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| Village of Cayuga Heights | HMP-Action # 2 | Emergency Shelter Designation           | The first step would be to identify facilities that could potentially be designated as temporary housing locations. These facilities need to have open space and or a parking lot that has access to backup power if needed. If backup power or essential utilities are lacking, the village would need to develop site to be equipped with necessary equipment and utilities. While the Kendall Senior Facility was previously identified as it has one of the largest open space footprints in the village, further discussion and assessment would need to be conducted, and a negotiation would need to be had between the senior facility and the village. | Long  |
| Village of Cayuga Heights | HMP-Action # 3 | NFIP repetitive flood property outreach | Conduct outreach to flood-prone property owners and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating residential homes in the areas that experience frequent flooding.   | Short |
| Village of Cayuga Heights | HMP-Action # 4 | HABs partnership program action plan    | While the Village of Cayuga Heights has minimal exposure to the lake, many of its residents move between municipalities and use Cayuga Lake as a recreational facility. Collaborate with neighboring municipalities also along Cayuga Lake such as through the intermunicipal organization to create a Tompkins County-specific response plan to address increasing levels of Harmful Algal Bloom.  | Long  |
| Village of Cayuga Heights | HMP-Action # 5 | Climate Smart Communities Certification | The Village will work with the Cornell Cooperative Extension, Tompkins County office to work on becoming a bronze climate smart community. This is the first certification in which a community needs at least 120 points based on previous mitigation, climate adaptation, and GHG reduction action completed by the community.  | Short |
| Town of Danby             | HMP-Action # 1 | Tree Maintenance Program                | Introducing a maintenance program to monitor decaying at-risk trees and scheduled removal and cutting of branches will reduce tree debris during storms.  | Short |
| Town of Danby             | HMP-Action # 2 | Flash Flood Study                       | Conduct a study to determine the cause of flash flood events and identify problem areas. Once study is complete, the municipality will review the findings, determine the best solution(s), and implement projects.   | Long  |
| Town of Danby             | HMP-Action # 3 | Cell Service Study                      | Conduct an assessment of the regions poorly covered by cell service and internet connection and provide the necessary service/ procedures especially for those who are considered vulnerable populations.   | Long  |
| Town of Danby             | HMP-Action # 4 | Mutual Aid Development                  | As the town of Danby is primarily reliant on the regional Bangs Ambulance Services and has a volunteer fire department, the town can work with the county to develop a potential hub for county/state emergency response, similar to the Town of Newfield that has a state police hub within the municipality.  | Short |

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| Town of Danby  | HMP-Action # 5 | Culvert Replacement   | Work with SWCD to identify each site and determine best solution to retrofit or redevelop infrastructure. Use inventory to identify future projects.   | Long            |
| Town of Danby  | HMP-Action # 6 | Emergency Route Intersection Clearance  | Funding for a study to look in to cutting back the earth banks which may require re-location of the municipal water lines. Funding needed to do the work.  | Long            |
| Town of Danby  | HMP-Action # 7 | Emergency Route Development   | Funding for a study of corrective measures such as under drains and cross drainage, road-bed stabilization, surface treatments, road ditch and bank stabilization and funding to take corrective actions that may come out of any studies.   | Long            |
| Town of Danby  | HMP-Action # 8 | Town Hall Generator Installation  | Install a 3-phase generator at Town Hall to provide adequate backup power for town facility and associated service operation.  | Short-Immediate |
| Town of Danby  | HMP-Action # 9 | Jennings Pond Dam   | The Town of Danby will conduct outreach to the dam owner and operator about the condition of the dam and potential risks posed by a dam failure and support an inspection plan of the dam by an engineer in accordance with the existing EAP and NYSDEC Dam Safety guidelines. The Town will aid in the development of an updated EAP as needed. If updates have been completed on the dam, the Town will request an inspection by NYSDEC to reclassify the dam. | Short-Immediate |
| Town of Dryden | HMP-Action # 1 | Implement Best Practices for Roadside Ditch Protection for Steeply Sloped Roads | Phase One - Work with Cornell Local Roads to design and implement best practices for roadside ditches of highest priority concern. This may include installing soft or rock check dams where slope is 2.5-10%, rock line and install hard check dams for slopes 10-15%. Phase one focus should include on Mt. Pleasant Rd. where some check dams have been installed without proper design as well as, Baker Hill Road.  | Short           |
| Town of Dryden | HMP-Action # 2 | Fred X Flood Elevation, Flood Proofing  | Ensure that the camp is sufficiently elevated by completing a survey , flood proof or elevate as necessary and issue an elevation certificate.   | Short-Immediate |
| Town of Dryden | HMP-Action # 3 | Riparian Buffer   | Enact and enforce a Riparian Buffer Law that prohibits, limits, or discourages development along stream corridors and natural floodplains.   | Short-Immediate |
| Town of Dryden | HMP-Action # 4 | Stormwater Plan   | Conduct a review of the existing stormwater plan and overlay it with new data compiled from the County. Given the town is within an MS4 zone, the SWCD can provide additional data for the town to update its stormwater inventory and update its plan.  | Short-Immediate |
| Town of Dryden | HMP-Action # 5 | Etna Fire Dept. Mitigation  | The town engineer shall work with the facility maintenance crew to determine actions that need to be taken to retrofit and or relocate the facility.   | Short-Immediate |

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| <b>Town of Dryden</b>    | HMP-Action # 6 | Virgil Creek Dam  | The Town of Dryden will conduct outreach to the dam owner and operator about the condition of the dam and potential risks posed by a dam failure and support an inspection plan of the dam by an engineer in accordance with the existing EAP and NYSDEC Dam Safety guidelines. The Town will aid in the development of an updated EAP as needed. If updates have been completed on the dam, the Town will request an inspection by NYSDEC to reclassify the dam.   | Short-Immediate |
| <b>Village of Dryden</b> | HMP-Action # 1 | Egypt Creek Flood Mitigation Project  | Conduct a hydraulic and hydrologic analysis of the North and South branches of Egypt Creek to develop solutions for attenuating the flow of upstream stormwater and develop an implementation plan.   | Short-Immediate |
| <b>Village of Dryden</b> | HMP-Action # 2 | Village Waste Water Treatment Plant @ Virgil Creek Flood Mitigation Project | The proposal is to conduct an analysis to protect the plant which anticipates extending the existing levee 300 feet. This would provide flood protection 60 feet past the WWTP (Waste Water Treatment Plant) building.  | Short-Immediate |
| <b>Village of Dryden</b> | HMP-Action # 3 | Critical Facilities Flood Prevention  | Conduct assessment of existing municipal facilities and consider retrofitting/ elevating existing structures that are prone to flooding. Alternatively consider applying for FEMA funding for acquisition and relocation/ reconstruction of facility in a non-flood zone.   | Short-Immediate |
| <b>Town of Enfield</b>   | HMP-Action # 1 | Develop Emergency Shelter   | Establish a preexisting facility or develop a facility that could provide shelter during extreme weather events and that has backup power. Also establish agreements with landowners and or acquire a property for temporary housing.   | Short           |
| <b>Town of Enfield</b>   | HMP-Action # 2 | Severe Snow Gust Reduction  | Conduct a study to assess roads that are most heavily impacted by snow gusts and drifts and develop an action plan to address these issues through actions such as planting permanent vegetative barriers along main arterials such as route 79.  | Short           |
| <b>Town of Enfield</b>   | HMP-Action # 3 | Emergency Service Mutual Aid Establishment                                  | While the town could establish its own emergency services, increasing collaborative efforts with regional EMT services such as Bangs Ambulance to increase overall capacity could be an adequate action.<br>Some immediate goals related to Enfield EMS would include: Tactical Vests for EMS Crews to increase responder safety and confidence on calls, Ongoing replacement of AED units, a small Bunk Room to decrease response times, efforts to increase Recruitment and Retention of EMS providers, and a set of CPR Mannequins to do in house CPR training as well as offer training to the Community. | Long            |
| <b>Town of Enfield</b>   | HMP-Action # 4 | Culvert Replacement   | The Town will conduct a feasibility study to determine the cause of the culvert erosion and if increased capacity will mitigate the erosion issues. Once the best alternative is determined, the Town will create an action plan to upgrade culverts along Harvey Hill, Bostwick, and Enfield Main Road.  | Short-Immediate |

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| Town of Enfield      | HMP-Action # 5  | Power Supply Retrofitting  | Feeding power to this neighborhood via a more modern, more easily accessible line, fed from a different access point, would improve electrical reliability and better protect lives and property during emergencies.  | Short           |
| Town of Enfield      | HMP-Action # 6  | Backup power installation at DPW   | Installation of a 75-100 kW diesel generator.   | Short-Immediate |
| Town of Enfield      | HMP-Action # 7  | Join NFIP  | Join the NFIP-review and accept current maps, adopt a flood damage prevention ordinance, and assign a floodplain administrator for the town.  | Short-Immediate |
| Town of Enfield      | HMP-Action # 8  | Enfield Creek at Bostwick Road Stream Restoration and Infrastructure Improvement | Implement stream restoration and associated infrastructure improvements to improve stream function and reduce the number of times the stream breaches the road.   | Short-Immediate |
| Town of Enfield      | HMP-Action # 9  | Back-up Generator and commercial kitchen for Enfield Community Council Building  | Installation of 10kw generator and certified commercial kitchen to increase resiliency.   | Short-Immediate |
| Town of Enfield      | HMP-Action # 10 | Back-up Generator for Enfield Valley Grange and making space handicap accessible | Installation of 10kw generator and certified commercial kitchen to increase resiliency.   | Short-Immediate |
| Village of Freeville | HMP-Action # 1  | Backup Power for Sewer Facilities  | New generator hookup for sewer plant and 4 generators at the ready for the four main pump stations.   | Short-Immediate |
| Village of Freeville | HMP-Action # 2  | Living Snow Fence on Fall Creek Road   | Plant trees to block wind and help with blowing snow.   | Short-Immediate |
| Village of Freeville | HMP-Action # 3  | Material Management Plan for Flood Prevention                                    | The Village will conduct a field survey to document problem areas, source of problems, and solutions to mitigate frequent and damaging water back up and ice dams to identify the needs and key resources to develop a programmatic stream management program maintenance to reduce flood risk. This could include procurement or lease of specialized equipment. | Short-Immediate |
| Village of Freeville | HMP-Action # 4  | Village Fall Creek Floodplain Protection Policy                                  | Develop a Village policy to acquire vacant parcels in the regulatory floodplain to eliminate further development in flood prone areas and to create opportunities for natural flood attenuation and open space. In addition the Village will explore a streamside buffer law for added protection.  | Short-Immediate |
| Town of Groton       | HMP-Action # 1  | Replace Large Capacity Culvert- Clerk St   | Update and rightsized culvert pipe.   | Short-Immediate |

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| Town of Groton    | HMP-Action # 2 | Emergency Shelter Development            | Partner with Groton School District, Groton fire dept., McLean Fire District, Tompkins County EMSS, Red Cross and Local houses of worship to ensure that necessary utilities and backup power are provided for community's critical facilities and that as appropriate those critical facilities that serve as shelters are adequately organized.                  | Short-Immediate |
| Town of Groton    | HMP-Action # 3 | Village of Groton Public Safety Building | Upgrade municipal services and public safety building and ensure that it is located and designed in a way so as to reduce risk to hazards, in particular regional flood risk.  | Short-Immediate |
| Town of Groton    | HMP-Action # 4 | Salt Storage Improvements                | Protection of road salt supply by constructing a building capable of supporting indoor large equipment and contain run off. Protected storage would also potentially stretch the supply over longer periods adding a buffer to fluctuating prices.   | Short-Immediate |
| Town of Groton    | HMP-Action # 5 | Flood Prevention Outreach                | Conduct outreach to each of these facilities to determine best way to reduce vulnerability to flooding. If retrofitting is the best option, provide potential solutions to reduce damage from flooding. If acquisition and relocation is necessary, work with individual entity to acquire and relocate out of the flood zone.                                     | Short-Immediate |
| Village of Groton | HMP-Action # 1 | Flood Assessment                         | Conduct an assessment to better understand the threats to the existing properties along the creek and apply for pre-disaster mitigation funding to acquire and relocate repetitive flooding facilities/ properties identified in the assessment. The Town of Groton has agreed to assist with equipment and manpower in the final project.                         | Short-Immediate |
| Village of Groton | HMP-Action # 2 | Clay tile replacement                    | Analyze existing stormwater drainage system and identify actions recommended for reducing flood damage potential.  | Short-Immediate |
| Village of Groton | HMP-Action # 3 | William Street Debris Management         | Develop a retention basin for flood control measures and debris screen which will need to be installed to prevent future erosion and corrosion. For specifics, the town would need preliminary funding for engineering and design, prior to receiving funding for the actual project.  | Short-Immediate |
| Village of Groton | HMP-Action # 4 | New Municipal Safety Building            | Design and construct a new municipal safety building on Main St. that has increased resilience to flooding and severe storms and has adequate backup power to act as an emergency operations center for the community. The cost and efficiency for the fire/ems services will also support the Town of Groton – which contracts with the Fire and EMS departments. | Short-Immediate |
| Village of Groton | HMP-Action # 5 | Critical Facility Outreach               | Because these facilities are not municipally owned, the village will need to conduct outreach to the municipality and provide potential options for acquisition and relocation, and or retrofitting options.   | Short-Immediate |

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| City of Ithaca | HMP-Action # 1 | Flood Walls and Backflow Preventers on Six Mile Creek and Cascadilla Creek | The channel capacity along several segments of Six Mile and Cascadilla Creeks needs to be increased. Increasing the effective height of the creek banks can contain flows from severe streamflow events. Floodwalls are one possibility for increasing channel capacity. If floodwalls were used, all storm sewer outfalls into these creeks would require check valves to prevent flooding due to backflow through the storm sewer system.                       | Short-Immediate |
| City of Ithaca | HMP-Action # 2 | Fall Creek Levee Repair  | At a minimum, the levee should be armored with large rip-rap or shotcrete after eroded areas are repaired. Ideally, the levees on both the north and south sides should be engineered and rebuilt to standards that meet current FEMA certification requirements.   | Short-Immediate |
| City of Ithaca | HMP-Action # 3 | Nuisance Flooding Analysis   | An intermunicipal engineering study is needed to determine causes of the nuisance flooding and identify mitigation measures. Because two or more municipalities (and municipal budgets) are involved, there has been insufficient coordinated drainage design and construction projects.  | Short           |
| City of Ithaca | HMP-Action # 4 | Cayuga Inlet Flood Control Channel   | Dredge in and around the Cayuga Inlet Flood Control Channel to reduce threat of flood inundation and maintain levee function as required by ACOE.   | Short-Immediate |
| City of Ithaca | HMP-Action # 5 | Dam Maintenance  | Outline steps required for structural reinforcement for 60' and 30' dams including the dredging of those facilities and develop a funding strategy for implementing this work.  | Short-Immediate |
| City of Ithaca | HMP-Action # 6 | Hydroelectric Plant Resiliency Assessment                                  | Because these facilities are not municipally owned, the City will conduct outreach to Cornell to investigate any retrofitting options to improve flood mitigation. If measures are recommended apply for FEMA funding to advance improvements.  | Short-Immediate |
| City of Ithaca | HMP-Action # 7 | Repetitive Loss Property Outreach  | Conduct outreach to flood-prone property owners and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating residential homes in the areas that experience frequent flooding.   | Short-Immediate |
| City of Ithaca | HMP-Action # 8 | 30 and 60-Foot Dam   | The City of Ithaca will conduct outreach to the dam owner and operator about the condition of the dam and potential risks posed by a dam failure and support an inspection plan of the dam by an engineer in accordance with the existing EAP and NYSDEC Dam Safety guidelines. The City will aid in the development of an updated EAP as needed. If updates have been completed on the dam, the City will request an inspection by NYSDEC to reclassify the dam. | Short-Immediate |
| Town of Ithaca | HMP-Action # 1 | NYS RT 13A/Glenside Road Drainage Modifications                            | Install regional stormwater management device upstream to mitigate runoff. Review drainage along roadway for possible upgrades.   | Short-Immediate |

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| Town of Ithaca | HMP-Action # 2  | Code Enforcement Cloud Permit Program | Purchase a cloud-based software to enhance electronic permitting, code enforcement activities, record retention system, plan review, and provide for online access to model code to the Public. The cloud-based software system will allow for a faster response time and allow for all files to be accessed during an emergency event   | Short-Immediate |
| Town of Ithaca | HMP-Action # 3  | Water Supply Redundancy               | The city of Ithaca can conduct a study to examine potential new sources for backup water supply during the summer, or potential collaboration with neighboring municipalities to expand overall capacity during the summer drought months.   | Short-Immediate |
| Town of Ithaca | HMP-Action # 4  | HABs Response Planning                | Collaborate with neighboring municipalities also along Cayuga Lake such as through the intermunicipal organization to create a Tompkins County-specific response plan to address increasing levels of Harmful Algal Bloom.   | Short-Immediate |
| Town of Ithaca | HMP-Action # 5  | Disease Management                    | While it is unrealistic to confine students to specific areas of the city, in cases where disease outbreak is spread through physical contact, the city and town of Ithaca might consider developing an emergency action plan in preparation for such an event and having procedures in place to reduce physical contact and thus transmission, especially to local communities. | Short-Immediate |
| Town of Ithaca | HMP-Action # 6  | Tree Management Program               | The Town could develop tree maintenance programs to assess and monitor at-risk trees and develop a schedule to remove these trees. The Town could also consider grounding utility lines or tree pruning and monitoring near utility lines.   | Short-Immediate |
| Town of Ithaca | HMP-Action # 7  | Flash Flood Study                     | Conduct a study to determine the cause of flash flood events and identify problem areas. Once study is complete, the municipality will review the findings, determine the best solution(s), and implement projects.  | Short-Immediate |
| Town of Ithaca | HMP-Action # 8  | Fish Hatchery Analysis                | Outreach to determine if facility is designed to withstand a 500-year flood and if not, provide information about the flood risk and alternatives to relocation.   | Short-Immediate |
| Town of Ithaca | HMP-Action # 9  | Aquaculture Analysis                  | Outreach to determine if facility is designed to withstand a 500-year flood and if not, provide information about the flood risk and alternatives to relocation.   | Short-Immediate |
| Town of Ithaca | HMP-Action # 10 | Resource Ecology Lab Analysis         | Outreach to determine if facility is designed to withstand a 500-year flood and if not, provide information about the flood risk and alternatives to relocation.   | Short-Immediate |
| Town of Ithaca | HMP-Action # 11 | Ithaca Police Range Analysis          | Outreach to determine if facility is designed to withstand a 500-year flood and if not, provide information about the flood risk and alternatives to relocation.   | Short-Immediate |
| Town of Ithaca | HMP-Action # 12 | Tributary Analysis                    | Coordinate with City to study certain areas in the Town that may impact the City due to potential flooding of specific areas of the City.  | Short-Immediate |
| Town of Ithaca | HMP-Action # 13 | Sandbank Road Retrofit                | Elevate the road where the road system is impacted by the 1% annual chance of flooding area  | Short-Immediate |



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| Town of Ithaca  | HMP-Action # 14 | Drainage Swales Retrofit                | Conduct a study to determine the cause of flash flood in this area. Once study is complete, the municipality will review the findings, determine the best solution(s), and implement project(s).   | Short-Immediate |
| Town of Ithaca  | HMP-Action # 15 | East Shore Drive Analysis               | Conduct a study to determine the cause of flash flood in this area. Once study is complete, the municipality will review the findings, determine the best solution(s), and implement project(s).   | Short-Immediate |
| Town of Ithaca  | HMP-Action # 16 | 13A Roadside Ditch Analysis             | Conduct a study to determine the cause of flash flood in this area. Once study is complete, the municipality will review the findings, determine the best solution(s), and implement project(s).   | Short-Immediate |
| Town of Ithaca  | HMP-Action # 17 | Repetitive Loss Property Outreach       | Conduct outreach to flood-prone property owners and provide information on mitigation alternatives and flood risk. After preferred mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating residential homes in the areas that experience frequent flooding. | Short-Immediate |
| Town of Ithaca  | HMP-Action # 18 | Critical Facility Resiliency Assessment | Because these facilities are not municipally owned, the Town will conduct outreach to Cornell and the City of Ithaca to investigate any retrofitting options to improve flood mitigation. If measures are recommended apply for FEMA funding to advance improvements.  | Short-Immediate |
| Town of Lansing | HMP-Action # 1  | Salmon Creek stream realignment         | The Town of Lansing, in cooperation with Tompkins County Soil & Water Conservation District, proposes a long-term stabilization strategy include realignment of approximately 1,650 feet of Salmon Creek, a major tributary of Cayuga Lake, extending 110 feet upstream and 550 feet downstream of the current impacted roadbed area.  | Short-Immediate |
| Town of Lansing | HMP-Action # 2  | HABs Outreach                           | Increase community understanding through continued outreach around HABs. Because Lansing is a contributing factor with the high amount of agricultural land within the township, the municipality might also consider conducting a study to reduce overall runoff and implement practices to reduce overall waterbody.   | Short-Immediate |
| Town of Lansing | HMP-Action # 3  | Living Snow Fence                       | Install permanent vegetative barriers to decrease the wind strength and protect roads from potential snow drifts and whiteouts.  | Short-Immediate |
| Town of Lansing | HMP-Action # 4  | Farm Drought Planning                   | Increase water supply by exploring alternate water sources within the township that can provide reliable sources of drinking water without extending water mains/lateral extensions to farmland. Alternatively, expand municipal water supply to collaborate with neighboring municipality water infrastructure.   | Short-Immediate |

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| <b>Town of Lansing</b>    | HMP-Action # 5 | Tree Maintenance                      | The municipality will develop a vegetation management program that will include routine inspections in municipal rights-of-way, identify trees that are in need of trimming or removal, and conduct the trimming and removal. This will help reduce or eliminate infrastructure damage, road closures, and power outages during severe storm or severe winter storm events. Additionally, the municipality will work with the utility companies to clear and/or maintain trees along the utility lines.   | Short-Immediate |
| <b>Town of Lansing</b>    | HMP-Action # 6 | Repetitive Loss Property Outreach     | Conduct pointed outreach to those remaining lakeside repetitive loss properties that have not been retrofitted to identify added ways to reduce risk.   | Short-Immediate |
| <b>Town of Lansing</b>    | HMP-Action # 7 | Salmon Creek at Resilience District   | To help protect the local residents as well as ecological resources located at the mouth of Salmon Creek, the Town will conduct a feasibility study that will analyze the existing condition of the site, assess magnitude of problems, and provide detailed resiliency measures to mitigate the chronic issues posed by Flooding, HABs, and Severe Storms. See more information on action worksheet.   | Short-Immediate |
| <b>Village of Lansing</b> | HMP-Action # 1 | Flash Flood Mitigation                | The Village will contract for and conduct an engineering study to determine the cause of flash flood risks and damages and identify problem areas within the Village's stormwater infrastructure.   | Short-Immediate |
| <b>Village of Lansing</b> | HMP-Action # 2 | Tree Threat Reduction Program         | The Village DPW staff will survey and identify Village trees that pose a threat to the power and communication infrastructure. The municipality will develop a tree maintenance program that will include routine inspections of trees located in the municipal right-of-way. During the inspection, the municipality will identify trees that are in need of trimming or removal. Once identified, a schedule of maintenance and/or removal will be developed and the municipality will begin work. This will help reduce tree damage, road closures, utility outages, and reduce/eliminate damage to structures and infrastructure. | Short-Immediate |
| <b>Village of Lansing</b> | HMP-Action # 3 | Emergency Lifelines and Mobility Plan | The Village government would compile a committee of local residents and staff to identify the local, county, state, and federal requirements for emergency routes, shelters, food, water, clothing and emergency care. A Village response plan would be created, vetted, and authorized for implementation and communication to the Village businesses and residents.   | Short-Immediate |

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| Town of Newfield       | HMP-Action # 1 | Develop Resilient Communications System               | Work with Spectrum and other entities to install high speed broadband (100 mbps or better) throughout the town.   | Short           |
| Town of Newfield       | HMP-Action # 2 | Buttermilk Creek Clearing and Widening                | Conduct stream assessment to determine best first steps to reduce flooding and erosion. Proposed steps include widening of stream at bridge junctures, developing solid riparian buffers, along the stream, and creating flood control structures that can help redirect the flow of water. Flood mitigation options for structures in floodplains and stream corridor areas should also be explored including retrofits and potentially buyouts.   | Long            |
| Town of Newfield       | HMP-Action # 3 | Shelter Valley Residents                              | Streambank stabilization of the West Branch of the Cayuga Lake Inlet will be needed. Work with the Soil and Water Conservation District to develop engineering plan to stabilize banks and mitigate overflow of creek/ flooding of properties. In addition, conduct outreach to neighborhood residents and provide potential mitigation and retrofitting solutions to mitigate future flood damage.   | Long            |
| Town of Newfield       | HMP-Action # 4 | VanBuskirk Gulf Residents Flood Mitigation Initiative | Replace culvert and conduct rightsizing to mitigate future washout. In addition, Work with the town DPW and the SWCD to conduct additional assessment on additional structural reinforcement measures and flood control barriers to reduce washout in the future and prevent overflow. The culvert installation would be phase 1 of the entire project.   | Short           |
| Town of Newfield       | HMP-Action # 5 | Sewer Study   | Conduct a study of water inflow and out flow, leak testing and increase of the leech reduce backup and overflow. This will require a hiring of an engineering firm as well as the collaboration with the Town public works. The second phase would be to implement to solutions developed by the firm. This will be a preliminary study from which technical proposals will be developed. Affiliated municipal officials that rely on this system would need to be stakeholders for this project. | Short           |
| Village of Trumansburg | HMP-Action # 1 | Shelter Development                                   | Designate existing or construct new facility as village shelter. Consider designating the existing fairgrounds as a space for temporary housing.  | Short           |
| Village of Trumansburg | HMP-Action # 2 | Generator for Village Hall                            | Install a 48-kilowatt generator on site that can provide adequate power to municipal building. This would need to be installed in a setting that is safe from flooding and severe wind.   | Short-Immediate |
| Village of Trumansburg | HMP-Action # 3 | Wastewater Treatment Plant Retrofitting               | Storm water drainage study has been complete. The next steps are to conduct storm water/smoke testing to outline and identify ways to upgrade facility.   | Short           |
| Village of Trumansburg | HMP-Action # 4 | Tree Inventory  | Need to develop an inventory of Village Street Trees, removing hazards as needed in conjunction with other local utility vendors.   | Long            |

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| Village of Trumansburg | HMP-Action # 5 | Power Grid Resilience                        | Work with entities like NYSEG to upgrade existing grid system that distributes energy to the village by improving vegetation maintenance schedule, replacing appropriate facilities and undergrounding utilities when appropriate. The village will also coordinate with land owners to improve communications and risk reduction measures.   | Short-Immediate |
| Village of Trumansburg | HMP-Action # 6 | Bridge Retrofitting                          | The village DPW along with the SWCD will need to conduct an assessment to determine best methods to keep the flow of Trumansburg creek under control. The bridge which carries route 96 needs to be retrofitted to handle the increasing water flow through the creek and mitigate any surficial flooding on main street. The Village as well as the SWCD shall jointly apply for mitigation funding to develop an engineering study and implement improvement project. | Short-Immediate |
| Town of Ulysses        | HMP-Action # 1 | Update and develop Emergency Management Plan | Develop a local Comprehensive Emergency Management Plan (CEMP) identifying elderly or disabled individuals who may need meals or shelter. Identify management responsibilities, potential hazards & responses, response organization, and ensure that necessary procedures resources are in place.  | Short           |
| Town of Ulysses        | HMP-Action # 2 | Formalize Mutual Aid                         | Formalize/standardize mutual aid agreements with neighboring municipalities to cover staff or equipment shortages.  | Short-Immediate |
| Town of Ulysses        | HMP-Action # 3 | Water Study                                  | Commission USGS to study ground water supply and develop BMPs to protect and manage ground water.   | Short           |
| Town of Ulysses        | HMP-Action # 4 | Culvert Replacement                          | The Town will perform a feasibility study to determine improvements to increase the capacity of the drainage system/culverts to reduce or minimize flash flooding. In coordination with neighboring communities (such as Trumansburg) to identify the best design alternative and implement an improved system.   | Short           |
| Town of Ulysses        | HMP-Action # 5 | Living Snow Fence                            | Work with land owners and the county to develop hedges along roadsides to reduce wind along road. Where needed, develop a living snow fence that would be a permanent structure that reduces overall snowdrifts.  | Long            |