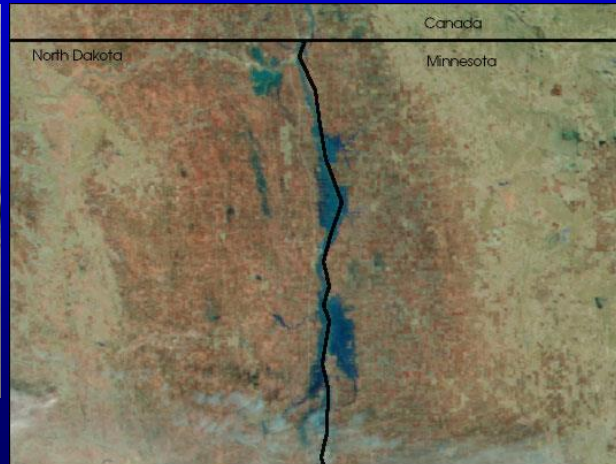


**Beyond My Local
Resources, What
Geospatial Support Is
Available During a
Disaster?**

Like During Spring Flooding...



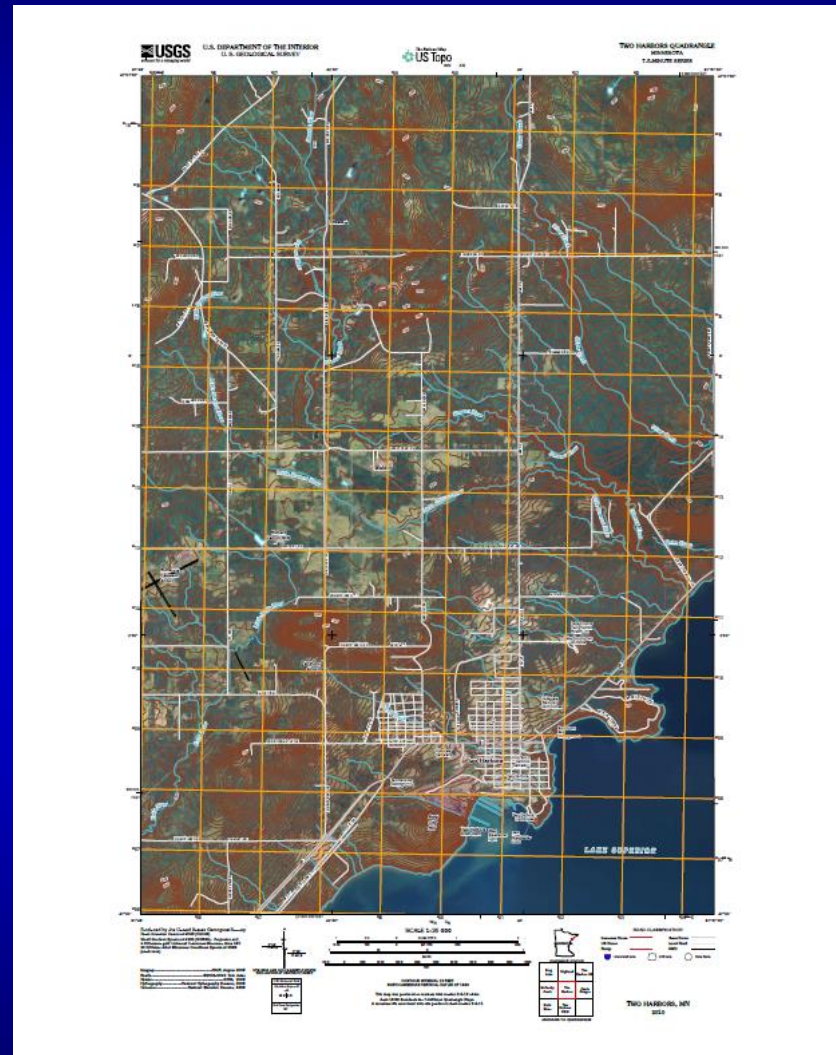
Five Core Things

- 1. Basic Planning and Response Maps**
- 2. Geospatial Information Hubs**
- 3. Remote Sensing Support**
- 4. Event Mapping Support**
- 5. How to Obtain Assistance**

Basic Planning and Response Maps

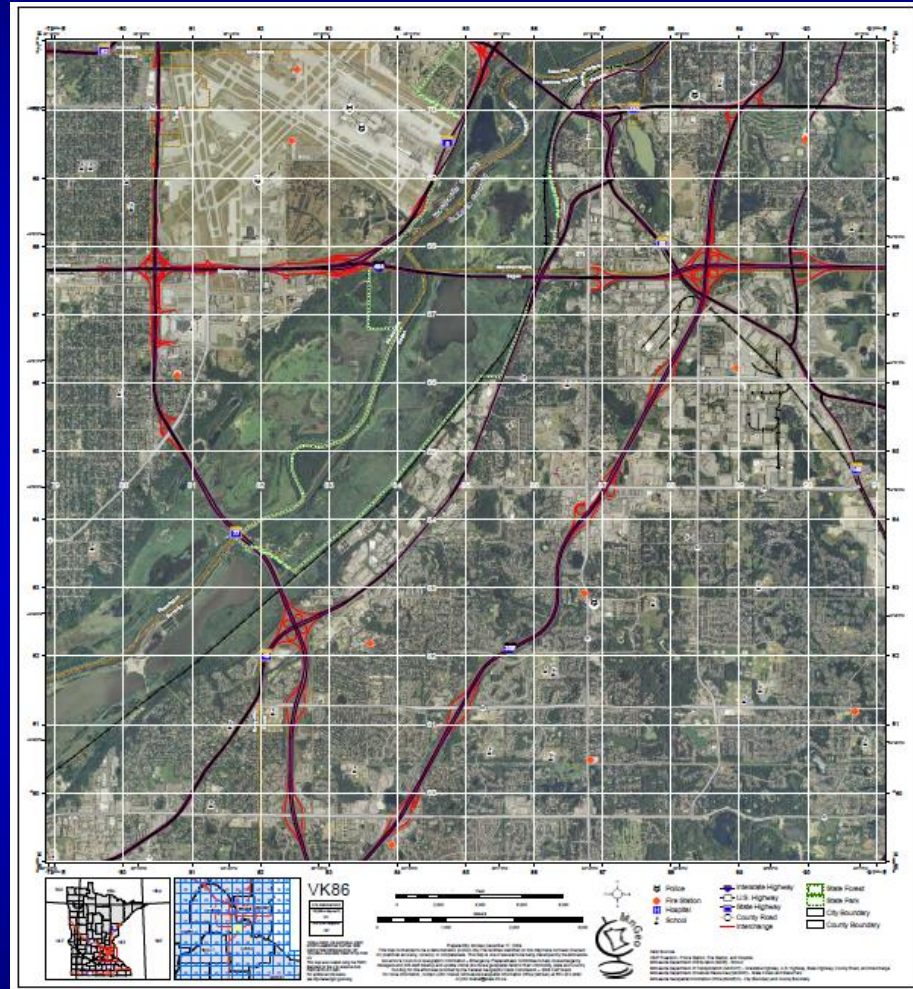
USGS Topo Series Maps

- Style: GeoPDF
- Scale: 1:24,000
- Available for **free** 24/7
- USNG compliant
- Covers all of Minnesota except some Northern parts of the state
- Electronic format allows dynamic use with a computer
- Available at the USGS online store - **Google: "USGS Map Store"**



MnGeo USNG 10KM Maps

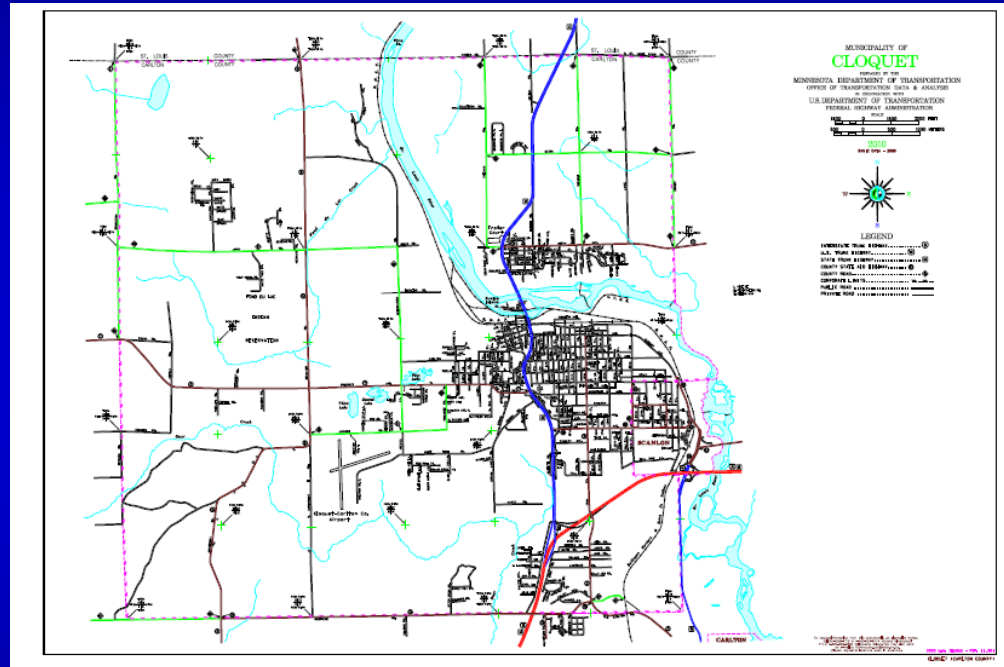
- Style: PDF
- Scale: 1:24,000
- Available for **free** 24/7
- USNG compliant
- Covers all of Minnesota
- Primarily a hard copy map that includes select responder infrastructure



- Available at: <https://mgacepc.org/usng/>

MnDOT City and County Maps

- Style: PDF
- Scale: Varies
- Available for **free** 24/7
- **Not** USNG compliant
- Cover all of Minnesota
- Primarily a hard copy maps that include some elements of infrastructure

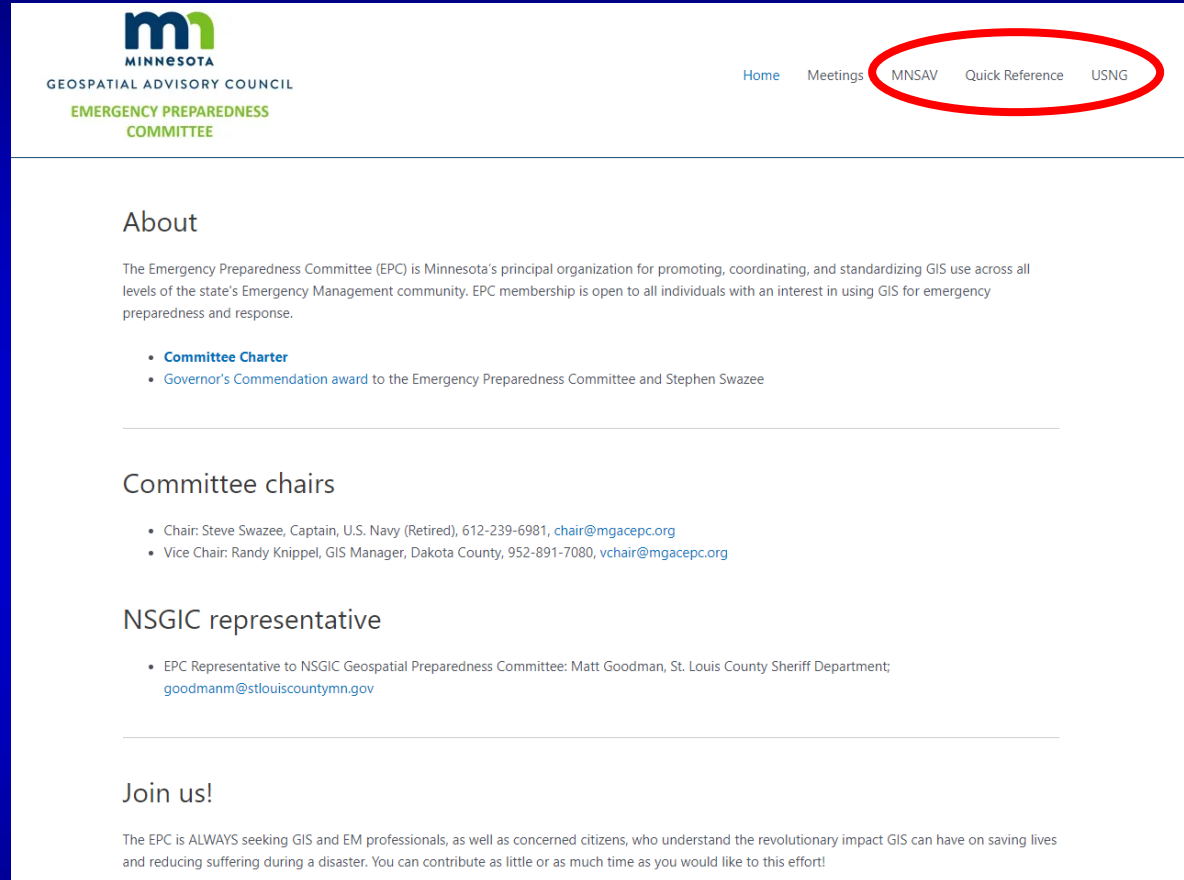


- Available at: https://mgacepc.org/quick_reference/

Geospatial Information Hubs

Public: GIS for Disasters

- State and national resources
- Data, viewers, contacts, links and maps
- Available 24/7
- Information added as needed
- “MN Hub” for the GIS/responders looking for GIS disaster resources



The screenshot shows the website for the Minnesota Geospatial Advisory Council (MGACEPC). The header includes the logo and name, and a navigation menu with links for Home, Meetings, MNSAV, Quick Reference, and USNG. The MNSAV, Quick Reference, and USNG links are circled in red. The main content area is titled "About" and describes the EPC's role. It lists the Committee Charter and Governor's Commendation award. Below this, it lists the Committee chairs and the NSGIC representative.

MINNESOTA
GEOSPATIAL ADVISORY COUNCIL
EMERGENCY PREPAREDNESS COMMITTEE

Home Meetings **MNSAV Quick Reference USNG**

About

The Emergency Preparedness Committee (EPC) is Minnesota's principal organization for promoting, coordinating, and standardizing GIS use across all levels of the state's Emergency Management community. EPC membership is open to all individuals with an interest in using GIS for emergency preparedness and response.

- [Committee Charter](#)
- [Governor's Commendation award to the Emergency Preparedness Committee and Stephen Swazee](#)

Committee chairs

- Chair: Steve Swazee, Captain, U.S. Navy (Retired), 612-239-6981, chair@mgacepc.org
- Vice Chair: Randy Knippel, GIS Manager, Dakota County, 952-891-7080, vchair@mgacepc.org

NSGIC representative

- EPC Representative to NSGIC Geospatial Preparedness Committee: Matt Goodman, St. Louis County Sheriff Department; goodmanm@stlouiscountymn.gov

Join us!

The EPC is ALWAYS seeking GIS and EM professionals, as well as concerned citizens, who understand the revolutionary impact GIS can have on saving lives and reducing suffering during a disaster. You can contribute as little or as much time as you would like to this effort!

Available at: <https://mgacepc.org/>
(MNSAV, Quick References and USNG)

Restricted: HSIN/Current MN System

- Event focused
- Data, viewer, contacts, links and maps
- Available 24/7
- Information added as events take place
- “Coordination Node” for responders and decision makers looking for event specific information
- Available through: **HSEM Web Administrator**

The screenshot displays the HSIN Minnesota web application interface. At the top, the navigation bar includes links for Home, HSEM, Law Enforcement, Fire, MHAAC, EMS, CDP/Situational Awareness, and Weather. The main content area is divided into several sections:

- Announcements:** A table with columns for Title, Modified, and a link to view the announcement. The first entry is "IF OPERATIONAL - visit the MN SEOC GIS Workgroup COI" modified on 2/15/2011 10:58 AM.
- Minnesota Document Library:** A table listing various documents such as "Health COI Directory", "HSEM Daily Operations Briefs", and "Food Safety and Agriculture", along with their respective authors.
- Calendar:** A section indicating that there are no items to show in the current view.
- RSS Feeds:** A section providing links to "Current Watches, Warnings and Advisories for Minnesota Issued by the National Weather Service" and "SPC Forecast Products".

On the right side of the interface, there is a search bar, a "Real Time Collaboration" section with links to "HSIN Connect VTC" and "Jabber Instant Messenger", and a "Links" section listing various resources like "HSEM Web Site" and "DisasterLAN Login Page". At the bottom right, there is a "My Communities" section listing "Federal", "State", and "Minnesota" with a "More..." link.

Remote Sensing Support

State Owned Assets

- **Location: Local**
- **Missions: Some imagery collection, oblique still photo, airborne SAR**
- **Available 24/7 depending on mission**
- **Cost: Low to moderate (some cost share during disasters)**
- **Product turnaround: Usually under 12 hours**
- **Available through: SEOC Air Operations Desk**



Civil Air Patrol

- **Location: Local**
- **Missions: Hyper spectral collection/imagery, oblique still photo, airborne SAR**
- **Available 24/7 depending on mission**
- **Cost: Very low - usually funded by FEMA at 100%**
- **Product turnaround: Usually under 12 hours**
- **Available through: SEOC Air Operations Desk**



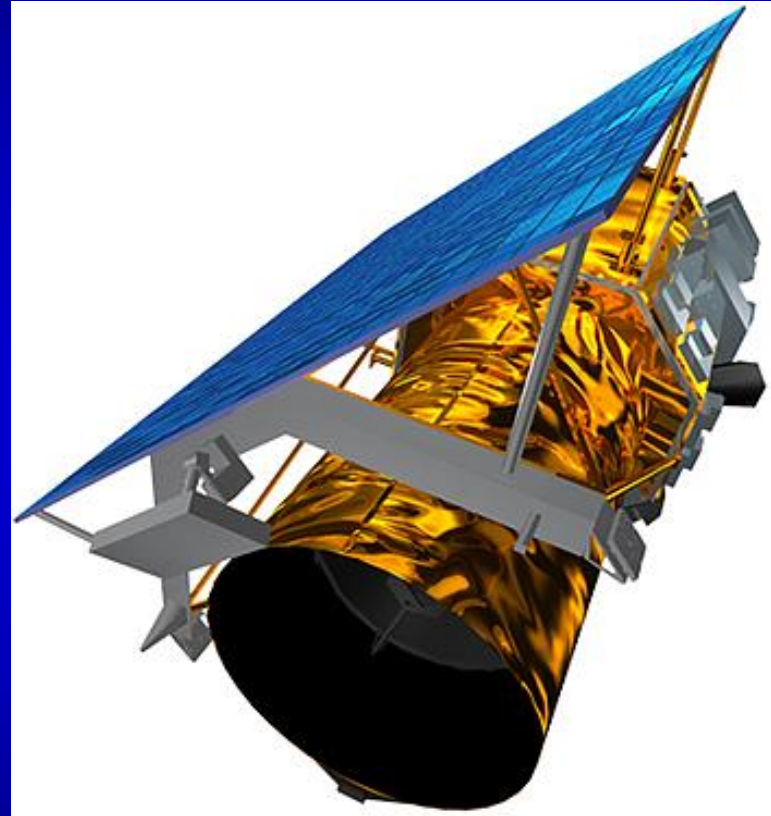
Commercial Platforms

- **Location: Varies**
- **Mission: Traditional photo collection**
- **Available 24/7**
- **Cost: Moderately expensive (some cost share during disasters)**
- **Product turnaround: Usually under 12 hours**
- **Available through: SEOC Air Operations Desk**



Satellites

- **Location: On station**
- **Mission: Wide area imagery collection**
- **Available 24/7**
- **Cost: Exceptionally expensive (however, circumstances may drive FEMA to pay all costs)**
- **Product turnaround: Usually more than 72 hours**
- **Available through: SEOC Air Operations Desk**





Example Imagery: Oblique Still Photo

Fargo Ice Dam, March 2009

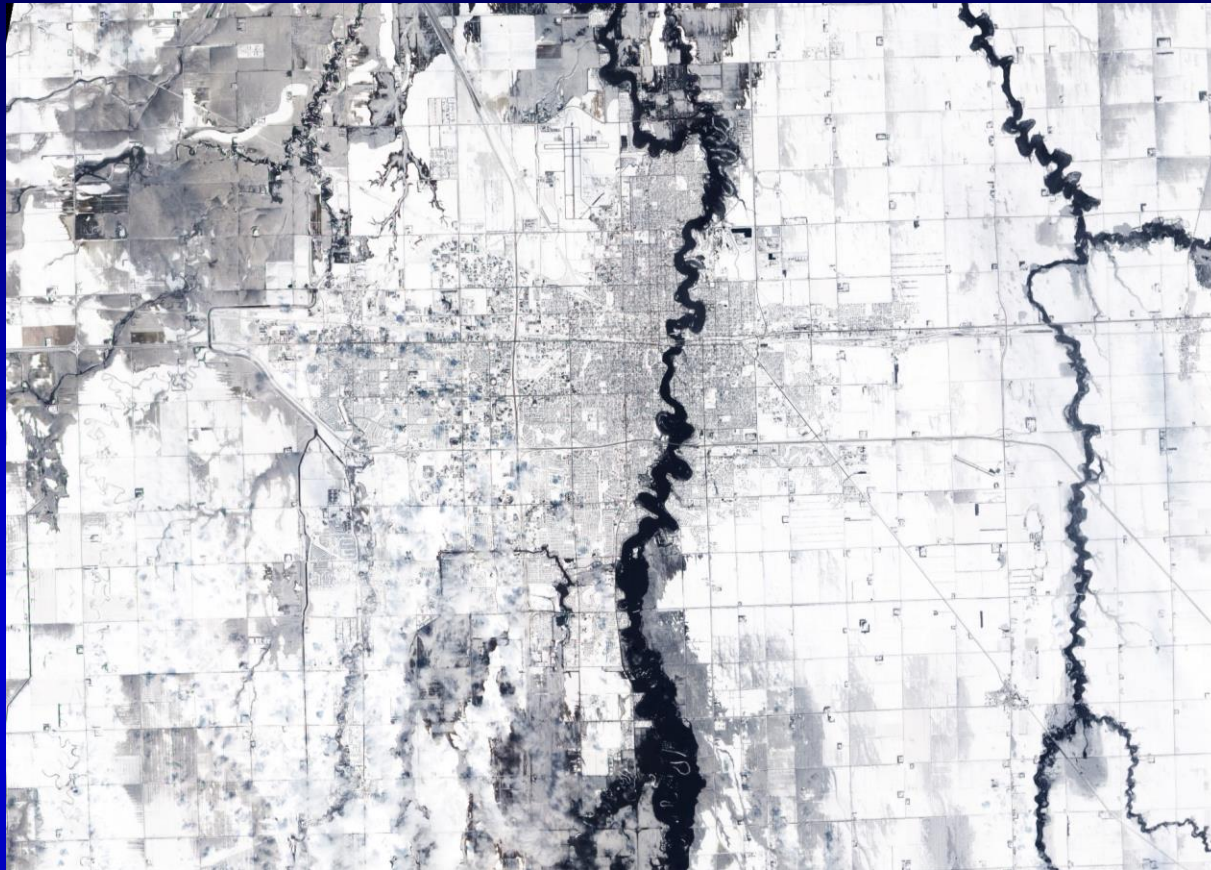
- **Platform provider: State assets, CAP**
- **Typical view: Spot events**
- **Distribution method: State – HSIN; CAP - HSIN, USGS HSSE or ARGUS**



Example Imagery: Processed Aerial Photo Run

Downtown St. Paul, August 2008

- **Platform providers: CAP, Commercial**
- **Typical view: City/County; resolutions down to 6"**
- **Distribution method: CAP – HSIN, WMS/WFS, and USGS HSSE; Commercial - HSIN**



Example Imagery: Satellite

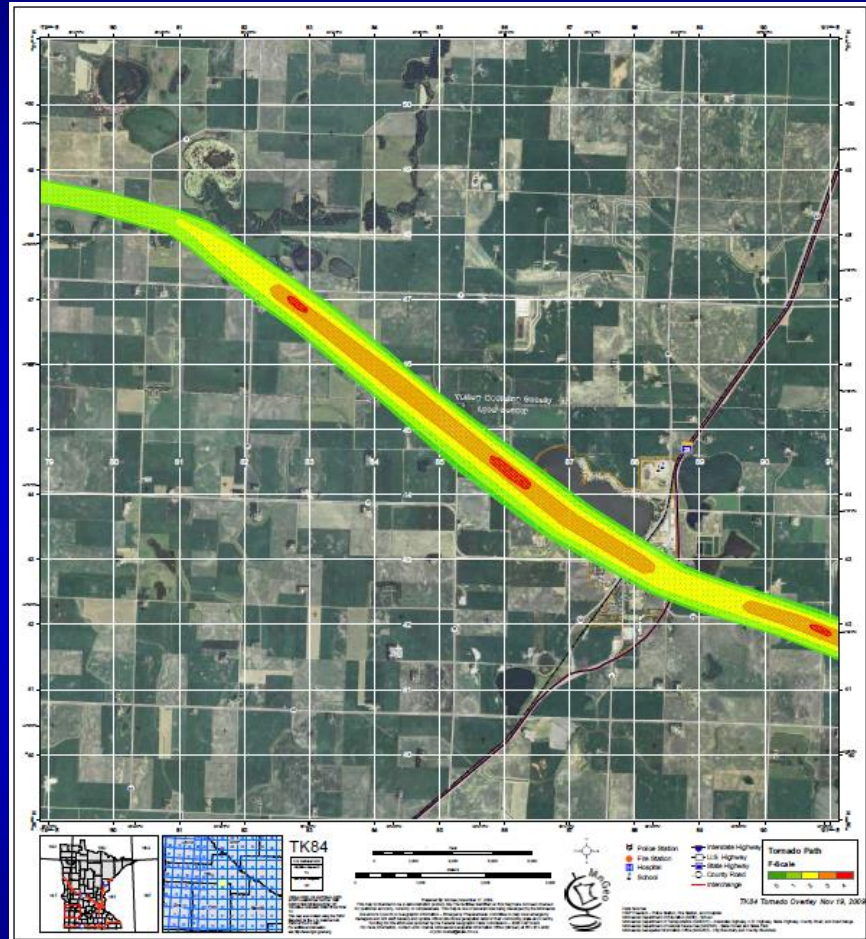
Red River Flooding, March 2009

- **Platform provider: NGA, Commercial, International Charter**
- **Typical view: Regional**
- **Distribution method: Varies widely depending on data format and restrictions**

Event Mapping Support

Situational Overlays

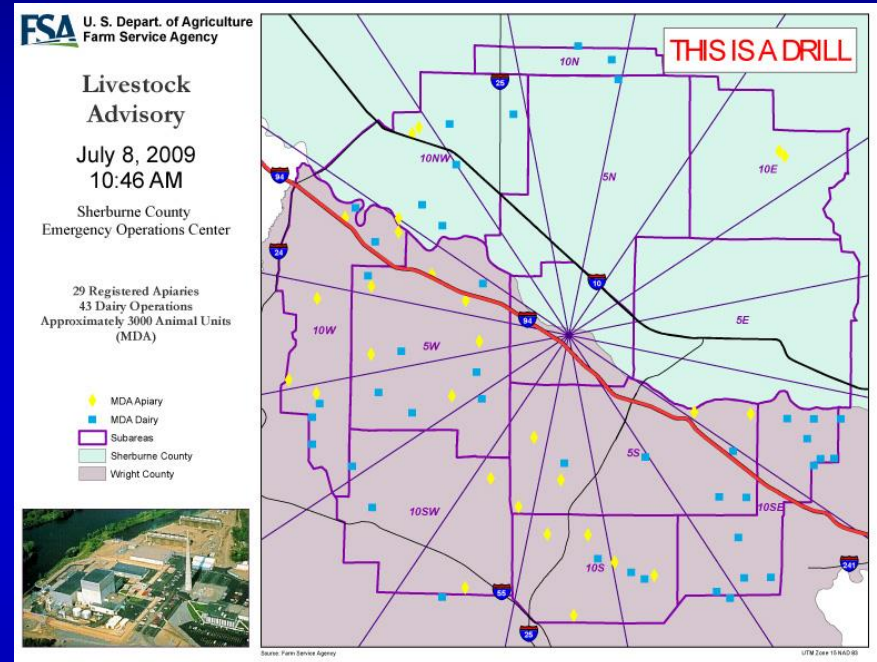
- **Style: MnGeo PDF series overlaid with event information**
- **Scale: 1:24,000; 1:6,000**
- **USNG compliant**
- **Specifically focused on a disaster area – maps updated as warranted**



- Requested through: **Locally prepared**

Other Entities


- **Style: Varies widely**
- **Scale: Varies**
- **Potentially available on request**
- **Other entities with response authorities may produce event specific maps or data that they may be willing to share. These organizations include:**
 - **USDA - Farm Service Agency**
 - **Mn/DOT**
 - **Minnesota DNR**
 - **Minnesota Pollution Control**
 - **and others**



How To Obtain Assistance

How to Request

MINNESOTA DEPARTMENT OF PUBLIC SAFETY



Alcohol and Gambling Enforcement
Bureau of Criminal Apprehension
Driver and Vehicle Services
Emergency Communication Networks
Homeland Security and Emergency Management
Minnesota State Patrol
Office of Communications
Office of Justice Programs
Office of Traffic Safety
State Fire Marshal and Pipeline Safety

Homeland Security and Emergency Management

444 Cedar Street • Suite 223 • Saint Paul, Minnesota 55101-6223
Phone: 651.201.7400 • Fax: 651.296.0459 • TTY: 651.282.6555
www.dps.state.mn.us

GIS Map Request Form

Please return this form to the fax Number 651-215-6883 or 651-215-6884, hand carry to Logistics in State EOC or email to gis.staff.logistic@state.mn.us when EOC is activated. (HSEM - Route to Logistics then Operations for submission to GIS Desk)
Requests will be filled as soon as possible.

Requested By (Agency/Organization): _____

Agency/Organization Phone: _____

Name: _____ Date: _____

Title: _____

Address: _____ City: _____

State: _____ Zip: _____ E-mail: _____

Phone _____ Office ____ or Cell ____ Signature: _____

Description of Map Requested (MUST BE DETAILED):

Special Instructions:

Media Format (Circle One) E-mail or Size (Circle One): 8.5 x 11, or 34 x 44
How do you want to receive Map: _____

Departmental Use Only (OPS Approval and Tracking)

Operations Approved (Yes or No): _____ Request ID# _____

Date Request Received: _____ Priority (high, medium, low) _____

Received By: _____ Approved (Date): _____

File Location/Name: _____

Assigned To: _____ Date: _____ Project Time: _____

Request Completed: _____ By Who: _____

Request Sent by (Check one): ___ Email ___ Pick up ___ Hand Delivered ___ Web Site

Was contact made upon completion of project and to who: _____

Revision 03/21/2009

EQUAL OPPORTUNITY EMPLOYER

Mapping Support Request Form

| ACTION REQUEST FORM – REMOTE SENSING IMAGERY | |
|--|-----------------------|
| I. Who is Requesting Assistance? | |
| Requestor Name (Title/State): | Requestor Tracking #: |
| Permanent Phone: | Temporary Phone/FAX#: |
| Requestor Organization: | Permanent FAX#: |
| | Email: |
| II. Requested Assistance | |
| What is the purpose or application of this imagery: | |
| Use One of the Options Below to Define the Area That Needs to be Imaged | |
| Point – State number of miles radius from major landmark or latitude/longitude: | |
| Area – State area as defined by USNG or latitude/longitude coordinates, Township/Range/Section, or at least three major landmarks that set a perimeter for the area of interest: | |
| Route – State number of miles on each side of route as defined by at least two major landmarks or latitude/longitude coordinates that set route of interest: | |
| Type of Imagery Requested: | |
| <input type="checkbox"/> Overhead (map-like) <input type="checkbox"/> Oblique (Side view) <input type="checkbox"/> Streaming Video <input type="checkbox"/> Recorded Video <input type="checkbox"/> Still Pictures | |
| Preferred Sensor: | |
| <input type="checkbox"/> Optical <input type="checkbox"/> RADAR <input type="checkbox"/> LIDAR <input type="checkbox"/> Thermal | |
| Requested Resolution: | |
| <input type="checkbox"/> 6 inch (dense urban) <input type="checkbox"/> 1 foot (light urban) <input type="checkbox"/> 2 foot (rural/urban mix) <input type="checkbox"/> 1 meter (rural) | |
| Data Delivery: | |
| Format type requested? <input type="checkbox"/> BSQ <input type="checkbox"/> HDF <input type="checkbox"/> GeoTiff <input type="checkbox"/> JPEG2000 <input type="checkbox"/> NITF <input type="checkbox"/> Other _____ | |
| Product delivery means: <input type="checkbox"/> WMS (primary) <input type="checkbox"/> FTP <input type="checkbox"/> Paper maps | |
| Upload site/Delivery Point: _____ | |
| Site Access Point of Contact/24 hour phone: _____ | |
| Required by what date, time, and/or need to repeat? _____ | |
| Mission Priority: | |
| <input type="checkbox"/> Life Saving <input type="checkbox"/> Life Sustaining <input type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Normal | |
| Anticipated Funding: | |
| <input type="checkbox"/> Disaster Declaration (Fed) <input type="checkbox"/> Letter of Intent (NSSE – Fed) <input type="checkbox"/> MOU (State) | |
| III. State Approval | |
| State Approving Signature | Date/Time: |
| Notes: | |

Attach to email sent to FEMA-NRCC-Remotesensing@dhs.gov with info copy to respective FEMA regional GIS coordinator

Remote Sensing Request Form

What's It Going to Cost?

| State Costs Associated With Remote Sensing Imagery Requests | | | | | |
|--|--|--|--|--|---|
| FEMA REMOTE SENSING WEBSITE: https://gis-fema.hub.arcgis.com/pages/remote-sensing-resources#NICB | | | | | |
| What | How Provided | Cost If State Orders | Cost to State if FEMA Orders | Mission Assignment | How Developed |
| National Technical Means (NTM) (classified systems used for domestic purposes) | Under review. NGA approves sharing of down-sampled, literal Imagery Derived Products at the unclassified level, not original images. | Always Free but NTM is a last resort only when commercial imagery is not available and the incident merits national assets, in competition with global requirements. | Always Free. | FEMA does not write a Mission Assignment or contract for these assessments yet provides a formal request to NGA. | The Region and JFO geospatial leads work with the State to develop the AOIs and priorities. |
| Commercial Optical Satellite Imagery: EOCL | For example, <ul style="list-style-type: none"> MAXAR Planet BlackSky | Free. If acquired under a NRO EOCL license. It cannot be used for legal applications unless it is purchased via a license upgrade. | Free. If acquired under a NRO ECOL license. | Formal request from FEMA/ Lead Federal Agency through DHS DRO, NGA, to NRO. | The Region and JFO work with the State to develop the AOIs and priorities. |
| Commercial Radar Satellite Imagery: (Strategic Commercial Enhancements Broad Agency Announcement (BAA) Framework.) | For example, <ul style="list-style-type: none"> Airbus, U.S. Capella Space ICEYE, U.S. PredaSAR Umbr Radarsat 2 Radarsat Constellation (not avail to USG) | Maybe a 25% cost share – this depends on variables. Request still must be acceptable by the FEMA Ops Chief and FCO. The difference between MAs depends on who is requesting, who it's supporting and what it's designed for. | Free - Federal Operating Support is basically support to FEMA and there is no cost share for the state; however, FEMA always shares the imagery with the state. | Formal request from FEMA/ Lead Federal Agency through DHS DRO, NGA, to NRO. | The Region and JFO work with the State to develop the AOIs and priorities. |
| Aircraft | For example, <ul style="list-style-type: none"> DHS / CBP Civil Air Patrol National Guard Commercial aerial imagery | Maybe a 25% cost share – this depends on variables. Request still must be acceptable by the FEMA Ops Chief and FCO. The difference between MAs depends on who is requesting, who it's supporting and what it's designed for. | Free - Federal Operating Support is basically support to FEMA and there is no cost share for the state; however, FEMA always shares the imagery with the state. | FEMA Region or HQ submits MA. States can request CAP via corporate missions, without FEMA approval. | The Region and JFO work with the State to develop the AOIs and priorities. |
| State Owned Assets | <ul style="list-style-type: none"> DNR State Patrol | | | | |

Notes:

- Very early in the disaster, the cost share may be waived – making all requests free.
- Typical TOTAL costs:
 - Clay County request for 1' ortho-rectified aerial imagery (typically from a private vendor) = \$88,000.
 - RadarSAT image x 3 images for the Red River Basin = \$23,600
 - CAP mission from Twin Cities, flight to Fargo-Moorhead, image Red River, return to Twin Cities, deliver imagery = \$2,614
- If a state's Areas of Interest (AOI) falls within a request for imagery originating from the FEMA Regional headquarters or JFO, there is no charge to the state for that same imagery.
- If a state AOI doesn't have specific value to the total response effort and is submitted using an Action Request Form (ARF), FEMA will make sure the state knows the state part cost and allow mission refusal before ordering the imagery.

(Mar 2023)

You need an expert! A complex, situational dependent issue!

Costs, products, delivery methods and appropriateness of approach are complex issues driven by the circumstances of a disaster and who is involved. If you think you need geospatial support from outside your jurisdiction, please carefully review your circumstances with the State EOC.

Thank You!