Appendix A

Questionnaire Responses

CONNECTICUT GEOSPATIAL INFORMATION SYSTEMS

Storm Response and Recovery Assessment Group

GIS Staff Questionnaire

Instructions: *Please fill out and answer the questions the best you can. Please be brief and to the point. Use details to describe your answers and use bullet points as necessary. Should your answer pertain to one particular storm event (e.g. Irene or Alfred) please indicate the storm in parenthesis in your response. Return all responses to Jeff Bolton at jeffrey.bolton@ct.gov.*

Name:	Kathy Luntta
Employer:	Town of Andover
Department/Unit:	Building Department
Position:	Admin. Assistant
Phone:	860-742-4036 ext. 3
Email:	andoverbuilding@comcast.net
Primary Role in Storm Event:	N/A
List which Storm Primarily Impacted Your Area (list both if applicable):	Alfred

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.
No, we do not have GIS. We hope to have it in the future.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities: N/A

2. Barriers:

3. Other Comments:

B) DURING THE STORM

1. GIS actions or activities: N/A

2. Barriers:

3. Other Comments:

C) POST-STORM

1. GIS actions or activities: N/A

2. Barriers:

3. Other Comments:

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:
Activated the CERT Team, Fire Department and Public Works immediately.

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:
The Town could be more organized.

C) Other comments:
I have used First Selectman, Bob Burbank's response's in this survey.

Please return by email, mail, or fax to:

Jeff Bolton, Chair
Storm Response and Recovery Assessment Group
Connecticut GIS Council
165 Capital Avenue Room 275
Hartford, Connecticut 06106
Email: jeffrey.bolton@ct.gov
Fax: 860-713-7250

Please feel free to call with any questions in filling out this questionnaire at (860) 713-5706.

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Name:	Larry Baril
Employer:	Town of Avon
Department/Unit:	Engineering
Position:	Town Engineer
Phone:	860.409.4322
Email:	Lbaril@town.avon.ct.us
Primary Role in Storm Event:	Sanitary collection system operations and mapping support
List which Storm Primarily Impacted Your Area (list both if applicable):	Irene: we had flooding and a sanitary mainline wash-out that Alfred: much more impact with collection system emergency maintenance, storm power outage/restoration, debris removal

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

Yes to a limited degree – for Irene GIS was used for flood impact and identification of sensitive receptors. For Alfred, GIS was used to attempt to communicate with residents concerning power restoration (this ultimately failed since CL&P information was deemed to be unreliable) and debris removal tracking

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities: Flood area presentation (Irene)
2. Barriers:
3. Other Comments:

B) DURING THE STORM

1. GIS actions or activities: None – our EOC was operational but we were not called in during the storms

2. Barriers: During Alfred, our town hall complex lost power and internet capability showing the weakness of being able to use our ArcIMS website as a resource

3. Other Comments:

C) POST-STORM

1. GIS actions or activities: See above

2. Barriers: See above – power was out at Town Hall for 2 days. Note that our EOC had emergency power, but our town hall servers were not within the powered zone

3. Other Comments:

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:
Our practices were not defined and implemented – they were ad-hoc

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:
In our case, the resources should have been identified prior to the storm (for that matter, at any time prior to) and a plan in place to deploy under various circumstances

C) Other comments:

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Name:	Danuta Szostek
Employer:	Town of Branford
Department/Unit:	Information Technology
Position:	GIS Analyst
Phone:	(203) 315-0668
Email:	dszostek@branford-ct.gov
Primary Role in Storm Event:	Cartographer
List which Storm Primarily Impacted Your Area (list both if applicable):	Irene Storm and October 29th Snowstorm

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

Yes, the evacuation & sheltering guide brochure with the Town evacuation routes and shelters was available for residents at the Town Hall.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities:
    1) Updated the Evacuation Routes Map with correct shelter addresses for the Town Evacuation Brochure (pdf included).
    2) Created Emergency Management Map with fire hydrants and road access for the Fire Department for the upcoming Hurricane Irene (pdf included).

2. Barriers:

3. Other Comments:

B) DURING THE STORM

1. GIS actions or activities: None

2. Barriers:

3. Other Comments:

C) POST-STORM

1. GIS actions or activities: None

2. Barriers: Town Hall did not have power for one day after Hurricane Irene.

3. Other Comments: The Town of Branford did not have power for six days.

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:

Follow the recommendations included in the Town of Branford Evacuation & Sheltering Guide.

C) Other comments:

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165 Capital Avenue Room 275
Hartford, Connecticut 06106
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Name:	Katherine Daniel
Employer:	Town of Brookfield
Department/Unit:	Land Use Office
Position:	LU Office manager
Phone:	203-775-7316
Email:	kdaniel@brookfieldct.gov
Primary Role in Storm Event:	None
List which Storm Primarily Impacted Your Area (list both if applicable):	

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

No. We use GIS for land use planning, not emergency management.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities:

2. Barriers:

3. Other Comments:

B) DURING THE STORM

1. GIS actions or activities:

2. Barriers:

3. Other Comments:

C) POST-STORM

1. GIS actions or activities:

2. Barriers:

3. Other Comments:

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:

C) Other comments:

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Name:	Neil Pade
Employer:	Town of Canton
Department/Unit:	Land Use
Position:	Director of Planning and Community Development
Phone:	860-693-7891
Email:	npade@townofcantonct.org
Primary Role in Storm Event:	
List which Storm Primarily Impacted Your Area (list both if applicable):	

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

GIS system was in production during the recent storm event and was not able to be used. However staff was cognizant of how having such a system working would have made life easier for the management of post storm issues.

PART II

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A) PRE-STORM

1. GIS actions or activities:

2. Barriers:

3. Other Comments:

B) DURING THE STORM

1. GIS actions or activities:

2. Barriers:

3. Other Comments:

C) POST-STORM

1. GIS actions or activities:

2. Barriers:

3. Other Comments:

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:

C) Other comments:

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Name:	Gary A. Goeschel, II
Employer:	Town of East Lyme
Department/Unit:	Department of Planning
Position:	Director of Planning
Phone:	860-691-4105
Email:	ggoeschel@eltownhall.com
Primary Role in Storm Event:	Provide Storm Surge Mapping
List which Storm Primarily Impacted Your Area (list both if applicable):	Irene

PART I

A) **Did your Emergency Operations Center (EOC) engage GIS resources?** Explain. **–** Pre-storm mapping service. Provided general storm surge inundation mapping.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities: Provided Storm Surge Inundation Mapping
2. Barriers: lack of data, to provide more specific, mapping. Lack of staffing to provide GIS services, and limited by software applications and number licensing.
3. Other Comments:

B) DURING THE STORM

1. GIS actions or activities: To my knowledge, none.
2. Barriers: Unsure. I suspect the limited understanding by decision makers of the power, usefulness and capabilities GIS could bring to Emergency Operations Management coupled with a lack of resources (from staffing to software and computer access) to actually provide such services resulted in the non-utilization of GIS

3. Other Comments:

C) POST-STORM

1. GIS actions or activities: NONE

2. Barriers: Same as above.

3. Other Comments:

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:

Provide emergency responders, at a minimum, a map indicating areas of coastal inundation a flood zones.

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:

Could have better inundation mapping, mapping to identify critical facilities and their risks, tracking shelter operations, street closings, the location of emergency responders and public work crews, during and post storm event in addition to the storm tracks themselves. Also, damage to municipal infrastructure as it pertains to eligibility to receive FEMA dollars.

C) Other comments:

Educating decision and policy makers that the benefit of utilizing GIS, in all applications not just emergency management is the most efficient and cost effective way to manage various operations as the return on the investment of both tangible and intangible benefits is greater than the investment itself.

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Name:	Rhonda McCarty
Employer:	Town of Ellington
Department/Unit:	Assessors Office
Position:	Assessor
Phone:	860-870-3109
Email:	rmccarty@ellington-ct.gov
Primary Role in Storm Event:	
List which Storm Primarily Impacted Your Area (list both if applicable):	Alfred

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

NO - The current administration is not very technologically advanced. Post storm I suggested that it would be a very useful tool and did not receive a response.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM N/A

1. GIS actions or activities:

2. Barriers:

3. Other Comments:

B) DURING THE STORM N/A

1. GIS actions or activities:

2. Barriers:

3. Other Comments:

C) POST-STORM N/A

1. GIS actions or activities:

2. Barriers:

3. Other Comments:

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:

C) Other comments:

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Name:	Scott St. Onge
Employer:	Town of Enfield
Department/Unit:	Information Technology / EOC
Position:	Webmaster
Phone:	860-253-6314
Email:	sstonge@enfield.org
Primary Role in Storm Event:	Support for EOC
List which Storm Primarily Impacted Your Area (list both if applicable):	Alfred

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.
Yes, maps of power restoration and road hazards were created on-the-fly using ArcGIS online and ArcGIS for SharePoint.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities:
   Printed maps made available to EOC for tracking responses;
   SharePoint GIS-enabled libraries made available to dispatch staff for geo-coded incident tracking.

2. Barriers:
   Large, printed maps were out of date with no quick mechanism for updating them.
   SharePoint data only available on the Town's internal (employee) network.
   Need to upgrade infrastructure to allow for public access to Town managed GIS resources.

3. Other Comments:

B) DURING THE STORM

1. GIS actions or activities:

Real-time public maps of power restoration made available via ArcGIS online embedded in Town's website.

2. Barriers:
   Data exports and time-analysis not available. It would have been fantastic if the utility companies shared GIS datasets with the Town.

3. Other Comments:
   Online tools were used for ease-of-creation and sharing, but were not utilized in an extensible manner.

C) POST-STORM

1. GIS actions or activities:
   Plan to have better GIS resources available in place for next event (update print maps, identify and incorporate emergency locations into GIS layers, etc.)

2. Barriers:
   Distribution of existing work-load to accomplish new goals, along with GIS infrastructure upgrades to facilitate deployment of device-independent GIS data.

3. Other Comments:

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:
Rapid delivery of information such as the locations of sheltering operations or travel hazards to emergency personnel for response and the citizens for safety – GIS aids this effort by providing the very user-friendly interface of a familiar map.

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:
Tap into citizen contributed information for real-time situation updates.

Insist on the cooperation of outside agencies (i.e. utilities) to provide GIS datasets when applicable.

State exposed GIS services for inter-town communications and resource sharing. A data-sharing, state-wide technical working group may facilitate this effort.

C) Other comments:

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Name:	Francis Armentano
Employer:	Town of Granby, CT
Department/Unit:	Community Development
Position:	Director
Phone:	860-844-5319
Email:	farmentano@granby-ct.gov
Primary Role in Storm Event:	Emergency management team
List which Storm Primarily Impacted Your Area (list both if applicable):	Alfred

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

Used hard copy of map produced from GIS.
Did not use digital/computer resourses.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities:

2. Barriers:

3. Other Comments:

B) DURING THE STORM

1. GIS actions or activities:

2. Barriers:

3. Other Comments:

C) POST-STORM

1. GIS actions or activities:

2. Barriers:

3. Other Comments:

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:

C) Other comments:

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Name:	Dustin Anderson
Employer:	Town of Greenwich
Department/Unit:	Office of the First Selectman
Position:	Administrative Manager
Phone:	203 622 7710
Email:	Danderson@greenwichct.org
Primary Role in Storm Event:	Communicating information through press releases and phone calls
List which Storm Primarily Impacted Your Area (list both if applicable):	Both Irene and Albert

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

Yes. The Town of Greenwich utilized GIS to identify parcels that would potentially be impacted by a Category 3 Hurricane. We then informed the proper owners of the impending potential damage to their health and property and advised the to evacuate.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities: Identification of potentially affected areas; location of key Town and private infrastructure

2. Barriers:

3. Other Comments:

B) DURING THE STORM

1. GIS actions or activities: No use

2. Barriers: We actually used Google Maps to create a public map of road closures and congestion. To do this in GIS would be too laborious.

3. Other Comments: The public loved the fact that they could just navigate to a particular webpage to find relatively up-to-date information. Contrast this with attaching large pdfs to emails.

C) POST-STORM

1. GIS actions or activities:

2. Barriers:

3. Other Comments:

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:
The identification of parcels by owner and crafting individualized messages to neighborhoods.

Identifying where you key response infrastructure is and being able to anticipate potential threats to it.

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:

C) Other comments:

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Name:	GREG SULLIVAN
Employer:	Town of Greenwich
Department/Unit:	IT/GIS
Position:	GIS COORDINATOR
Phone:	203-622-7737
Email:	GSULLIVAN@GREENWICHCT.ORG
Primary Role in Storm Event:	MAPPING SUPPORT TO EOC PRE/DURING/POST-EVENT
List which Storm Primarily Impacted Your Area (list both if applicable):	IRENE, ALFRED

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

Yes. We provided pre-event analysis of potential flood-impacted areas/populations, prior to event; FEMA/FIRM and SLOSH maps for evac planning during event; mapped road closures and trees/wires down post-event.

All the above were paper maps, but road hazard/closure map was posted to Town of Greenwich website as a PDF, as well. This product was updated to a Google Maps link for Alfred.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities: Above.
2. Barriers: None.
3. Other Comments:

B) DURING THE STORM

1. GIS actions or activities: Above.
2. Barriers: Weather hazards mitigated information about field conditions, from public safety personnel.

3. Other Comments:

C) POST-STORM

1. GIS actions or activities: Above.

2. Barriers: Limited manpower meant delays in getting information about field conditions, hazards and cleanup.

3. Other Comments:

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:

GIS being a part of core EOC staff from the outset of an event, helps GIS staff to plan for resources and products that will be useful to responders in the field. Having a free-standing, dedicated GIS laptop with Town of Greenwich basemap data loaded locally, insures that GIS data is available to responders, even if EOC itself loses power.

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:

Google maps-style internet information is invaluable for responders and the public alike to be aware of road closures, hazards and the progress of cleanup efforts.

C) Other comments:

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Name:	Andrew Bowne
Employer:	Town of Groton, CT
Department/Unit:	Information Technology
Position:	GIS Coordinator
Phone:	860-441-6699
Email:	abowne@groton-ct.gov
Primary Role in Storm Event:	GIS Technical Support
List which Storm Primarily Impacted Your Area (list both if applicable):	Irene

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

Yes, primarily for flood maps or areas prone to excessive flooding. These maps were used for evacuation purposes. Other maps used were Street Maps and Damage Assessment Maps.

PART II

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A) PRE-STORM

1. GIS actions or activities:

2. Barriers:

3. Other Comments:
   Not many pre-storm activities were done. We already had several maps created and "canned" so it was a matter of printing them as requested.

B) DURING THE STORM

1. GIS actions or activities:
   Map Production and distribution

2. Barriers:

3. Other Comments:

C) POST-STORM

1. GIS actions or activities:
   Storm Damage Assessment

2. Barriers:

3. Other Comments:

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:

Up-To-Date Data and software &hardware played a big part. It was easy to quickly and effectively produce maps on-demand.

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:

Better coordination/contact between local's and regions. I was contacted by none of my neighboring towns to see what I was doing or what we could do together during the event.

C) Other comments:

Please return by email, mail, or fax to:

Jeff Bolton, Chair
Storm Response and Recovery Assessment Group
Connecticut GIS Council
165 Capital Avenue Room 275
Hartford, Connecticut 06106
Email: jeffrey.bolton@ct.gov
Fax: 860-713-7250

Please feel free to call with any questions in filling out this questionnaire at (860) 713-5706.

CONNECTICUT GEOSPATIAL INFORMATION SYSTEMS
Storm Response and Recovery Assessment Group

GIS Staff Questionnaire

Instructions: *Please fill out and answer the questions the best you can. Please be brief and to the point. Use details to describe your answers and use bullet points as necessary. Should your answer pertain to one particular storm event (e.g. Irene or Alfred) please indicate the storm in parenthesis in your response. Return all responses to Jeff Bolton at jeffrey.bolton@ct.gov.*

Name: LINDA KASINOFF
Employer: TOWN OF HAMDEN
Department/Unit: ENGINEERING
Position: PARTY CHIEF
Phone: 203-287-7049
Email: lKasinoff@sbcglobal.net
Primary Role in Storm Event: N/A
List which Storm Primarily Impacted Your Area (list both if applicable): BOTH

PART I

A) **Did your Emergency Operations Center (EOC) engage GIS resources?** Explain. YES
WE PRODUCED A MAP WITH OUR PARCEL SHAPEFILE AND AN OLDER SHAPEFILE THAT WE HAD (2002) WATER CO. SHAPEFILE. WE DID HAVE A PDF OF THE CUARENT WATER CO. UPDATE BUT USED THE OLD SHAPEFILE. PRIORITY FOR HOMES IN AREAS THAT WOULD HAVE THIER POWER TURNED ON SOONER THAN OTHERS. (TOILETS)

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities: RE: ABOVE
2. Barriers: vl
3. Other Comments: WOULD BE GREAT TO HAVE UTILITY UPDATED SHAPEFILES.

B) DURING THE STORM

1. GIS actions or activities:

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Name:	Rich Gallacher, GISP
Employer:	Town of Manchester, CT
Department/Unit:	Engineering/GIS
Position:	GIS Coordinator
Phone:	860-647-3062
Email:	richg@manchesterct.gov
Primary Role in Storm Event:	
List which Storm Primarily Impacted Your Area (list both if applicable):	Irene & Alfred

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.
Yes, the GIS Unit provided mapping for the Highway Division field crews and CL&P.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities: Entering report calls into a geodatabase feature class, reviewing highlighted paper street maps and creating an Access database of downed wire/tree locations

2. Barriers: Communication and coordination of incoming calls from CL&P, Highway and the general public. Incorporating the Town's on-line citizen report info into GIS maps.

3. Other Comments: We were unprepared for Alfred more than Irene which is surprising bc Irene came first.

B) DURING THE STORM

1. GIS actions or activities: Mapping incoming calls from Highway Division field crews. Relaying road closures for all field crews and emergency dispatch. Plotting road closure maps for distribution to all Town Dept's

2. Barriers: Not be allowed to create a GIS web service of closed roads and downed wires and serve the data out immediately to a private/internal web site

3. Other Comments: We had all this data that changed every 10 minutes but the managers only wanted paper maps so we ended up plotting a morning map and an afternoon map. Used a lot of plotter paper- killed the trees that weren't already dead ;)

C) POST-STORM

1. GIS actions or activities: Dozens of road closure and downed trees/wires. Data updated ervery 10 minutes.

2. Barriers: not being allowed to post the updates on the web

3. Other Comments:

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:
Using the GIS to organize and coordinate recovery efforts. We had plenty of people just not all working together until the GIS was incorporated into EOC operations

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:
Free, easy and standardized flow of GIS data from Town's with GIS capabilities to a centralized location that posts all data for everyone to access over the internet. If Manchester closes a street during a storm, every town in CT should know about it as soon as Manchester uploads the data.

C) Other comments:
Use the GEO-Lab.

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Name:	Patrick ladd
Employer:	City of Meriden
Department/Unit:	MIS
Position:	GIS Specialist
Phone:	203-630-4148
Email:	pladd@ci.meriden.ct.us
Primary Role in Storm Event:	None
List which Storm Primarily Impacted Your Area (list both if applicable):	Pre-Halloween snow storm

PART I

A) **Did your Emergency Operations Center (EOC) engage GIS resources?** Primarily through use of city-wide street maps with flood planins

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities: Printing street maps

2. Barriers: none

3. Other Comments: none

B) DURING THE STORM

1. GIS actions or activities: None
2. Barriers: None
3. Other Comments: None

C) POST-STORM

1. GIS actions or activities: CL & P asked for 3 copies of our city-wide street map
2. Barriers: None
3. Other Comments: None

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:

C) Other comments:

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Fax: 860-713-7250

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Name: Bruce C. Kolwicz
Employer: City of Milford
Department/Unit: Public Works
Position: Public Works Director
Phone: 203 783-3269
Email: BKolwicz@ci.milford.ct.us
Primary Role in Storm Event: Citywide First Responder-Opening of Roads
List which Storm Primarily Impacted Your Area (list both if applicable):

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM Not used

1. GIS actions or activities:

2. Barriers:

3. Other Comments:

B) DURING THE STORM Not Used

1. GIS actions or activities:

2. Barriers:

3. Other Comments:

C) POST-STORM Not Used

1. GIS actions or activities:

2. Barriers:

3. Other Comments:

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:

C) Other comments:

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Name:	Thad Dymkowski
Employer:	Town of Newington, CT
Department/Unit:	Department of Information Technology/GIS Services
Position:	GIS Technician
Phone:	(860) 665-8592
Email:	tdymkowski@newingtonct.gov
Primary Role in Storm Event:	Data provider/support
List which Storm Primarily Impacted Your Area (list both if applicable):	Winter Storm Alfred

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

Our EOC commander (chief of police) requested several paper maps be made for rapid access. During the storm, the generator at town hall failed, thus not allowing for access to any digital or web based data, so the paper maps were essential during critical operations during the storm. In addition, the maps were used after the storm for routing due to street closures, and in planning clean up efforts

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities: *Paper map production for planning and staging of storm resources*
2. Barriers: *None encountered*
3. Other Comments: *N/A*

B) DURING THE STORM

1. GIS actions or activities: *None due to power loss in town hall*
2. Barriers: *Loss of power*
3. Other Comments: *N/A*

C) POST-STORM

1. GIS actions or activities: *Paper map production for use by clean up crews for planning tree removal strategy and progress*

2. Barriers: *none*

3. Other Comments: *Never underestimate the power of the paper map!*

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:
Metadata! It answered the questions of "when was this last updated?"… also, having plenty of paper on hand

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:
Access to any and all emergency data held by the state agencies, including any/all utility data, locations of shelters in adjacent towns, before the storm occurs. Establishment of data sharing with adjacent towns or perhaps creation of a web portal for data where towns can go and download the data before the event.

C) Other comments:
There are so many towns in the state that do not have any GIS whatsoever… perhaps it would be possible for the state to provide them with something as simple as an ArcReader application on disk with basic data that contains freely available info such as wetlands, soils, road network, aerial, planimetric data- general essential base map data, so that they can look at it on a computer without having to go purchase GIS software… they could then print out maps for planning/cleanup, etc.

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Storm Response and Recovery Assessment Group

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Name:	Marc Tate
Employer:	Town of North Stonington
Department/Unit:	IT/GIS/ Emergency Management
Position:	Director of Emergency Management/IT/GIS Coordinator
Phone:	860-514-5663
Email:	Mtate@northstoningtonct.gov
Primary Role in Storm Event:	Director of Emergency Management
List which Storm Primarily Impacted Your Area (list both if applicable):	Irene

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

Yes. Hazard Map and Street Maps were used to track potential dangers and recovery status.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities: Print Maps needed for planning
2. Barriers: None
3. Other Comments:

B) DURING THE STORM

1. GIS actions or activities: Track issues and locate problem areas
2. Barriers: None
3. Other Comments:

C) POST-STORM

1. GIS actions or activities: Track issues and recovery. Location of problem areas and area where power was being restored.

2. Barriers: With limited power we did not have the ability to print large maps. Without internet we could not access the online GIS so all data requests came to EMD. CL&P reps did not know how the grid was laid out in town and we provided them with limited copies of our maps

3. Other Comments: We are in the process of acquiring CL&P grid layout for the town to create a new data layer.

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:
Preprinting Maps
Having Street maps and Hazard Maps updated and ready to print on demand

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:
Many towns around did not have any mapping to use and that limited them greatly. Emergency management should become better versed in the benefits of GIS.

The ability to pass along our GIS data to CL&P would have made things easier. Rather than having to report then report again the same information**.**

C) Other comments:

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Name:	Mark S. DeVoe
Employer:	Town of Plainville
Department/Unit:	Technical Services
Position:	Director of Planning and Economic Development
Phone:	860-874-8588
Email:	devoe@plainville-ct.gov
Primary Role in Storm Event:	N/A
List which Storm Primarily Impacted Your Area (list both if applicable):	Irene – major loss of property, power outages Alfred – loss of property, power outages

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

Plainville does have a functional GIS platform. Lack of funding and staff have been cited as determining factors. Plainville continually looks for grant opportunities to implement GIS.

We have not responded to the rest of the survey as it assumes active use of GIS.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities:

2. Barriers:

3. Other Comments:

B) DURING THE STORM

1. GIS actions or activities:

2. Barriers:

3. Other Comments:

C) POST-STORM

1. GIS actions or activities:

2. Barriers:

3. Other Comments:

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:

C) Other comments:

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Name:	Eric Belt
Employer:	Town of Salem
Department/Unit:	Wetlands Commission
Position:	Vice Chair IWCC and GIS Volunteer
Phone:	8608894768
Email:	ericbelt@cs.com
Primary Role in Storm Event:	None
List which Storm Primarily Impacted Your Area (list both if applicable):	Irene

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

No, none was requested to the best of my knowledge.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities:

2. Barriers:

3. Other Comments:

B) DURING THE STORM

1. GIS actions or activities:

2. Barriers:

3. Other Comments:

C) POST-STORM

1. GIS actions or activities:

2. Barriers:

3. Other Comments:

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:

C) Other comments: We had no requests for GIS assistance from our EOC. There are only two of us that are conversant with GIS in Town Hall. The Town Planner, Mary Ann Chinatti, and myself. I do the GIS heavy lifting as a volunteer.

Please return by email, mail, or fax to:

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Fax: 860-713-7250

Please feel free to call with any questions in filling out this questionnaire at (860) 713-5706.

RE: [CTGIS-L] GIS Storm Response and Recovery Assessment Group

Regis Dognin [r.dognin@cityofshelton.org]

Sent: Wednesday, November 23, 2011 12:26 PM

To: Bolton, Jeffrey

I could not type into the fields provided.
To my knowledge, GIS was never involved in any aspect of storm preparation.
I have made normal city maps that were probably useful to some.
I make a city map for fire, EMS, etc. which includes fire hydrants, pipe size , and hydrant ID.

Regards,
Regis J. Dognin - GIS Specialist
City of Shelton - Finance Dept.
54 Hill Street, Shelton, CT 06484
Tel: 203-924-1555 x398
Email: r.dognin@cityofshelton.org

-----Original Message-----
From: Unmoderated discussion list for Connecticut GIS Users [mailto:CTGIS-L@LISTSERV.UCONN.EDU] On Behalf Of Bolton, Jeffrey
Sent: Tuesday, November 22, 2011 11:51 PM
To: CTGIS-L@LISTSERV.UCONN.EDU
Subject: [CTGIS-L] GIS Storm Response and Recovery Assessment Group
Importance: High

The Connecticut GIS Council last week created a working group to assess how GIS was used during Tropical Storm Irene and Storm Alfred. The GIS Storm Response and Recovery Assessment Group's focus will be on various aspects of how GIS was used for pre-storm, storm, and post-storm response and recovery efforts at the local, regional, utility, state, and federal levels. The goals of the assessment are to: identify what GIS strategies were used (or not), barriers encountered, best practices, and recommendations.

The GIS Assessment Group is reaching out to all GIS staff across the state to collect information relating to the assessment's goals through the attached questionnaire. Please take the time to fill it out and return it as soon as possible by email, mail, or fax to:

Jeff Bolton, Chair
Storm Response and Recovery Assessment Group

Connecticut GIS Council
165 Capital Avenue Room 275
Hartford, Connecticut 06106
Email: jeffrey.bolton@ct.gov<mailto:jeffrey.bolton@ct.gov>
Fax: 860-713-7250

Based on the responses, someone from the GIS Assessment Group may be contacting you to gather more information.

Please feel free to call with any questions in filling out this questionnaire at (860) 713-5706.

Thanks in advance of your participation.

Sincerely,
Jeff Bolton, CT GIS Council
Meg McGaffin, City of Milford
Aaron Nash, Town of Vernon
Erik Snowden, Capitol Region Council of Governments

P.S. You can also download the questionnaire at the following link:
http://www.ct.gov/dpw/cwp/view.asp?a=2442&q=306642&PM=1

P.P.S. Please forward this link to whoever uses GIS in CT and is not on the list serv. If you did not participate in storm efforts for Irene or Alfred please fill out the questionnaire anyway as it's an opportunity share your GIS thoughts and recommendations relating to disaster coordination.

CONNECTICUT GEOSPATIAL INFORMATION SYSTEMS
Storm Response and Recovery Assessment Group

GIS Staff Questionnaire

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Name:	Stephen Lowrey
Employer:	Town of Tolland
Department/Unit:	Planning & Community Development
Position:	Zoning/Wetlands Agent and GIS Operator
Phone:	860) 871-3605
Email:	slowrey@tolland.org
Primary Role in Storm Event:	Create mapping showing and identifying specific road blockages and power line failures.
List which Storm Primarily Impacted Your Area (list both if applicable):	Irene-limited impact no GIS resources used October 29th snow storm

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.
4 days after the storm, after the PWD had time to access damage, mapping was generated to show roads that were still closed.
One week after the storm the PWD was able to access specific damage and the locations of power system failure and mapping was generated to identify these locations by the type of problem with summary of specific condition i.e. tree down, wires down, poles down etc.
Since we had never had such town-wide conditions, we had no pre-created databases to work with and GIS capability had to be created on the fly.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities: NONE
2. Barriers: Limited personnel who understand what GIS can do for them; lack of personnel who are trained to use advanced features of GIS, or can use GIS in any capacity; ArcGIS is only loaded on a minimal number of computers (none at the EOC), many available computers are not GIS capable.
3. Other Comments:

B) DURING THE STORM

1. GIS actions or activities: NONE

2. Barriers: I live 60 miles from Tolland, therefore was not going to Tolland unless specifically called. The only other person with any GIS literacy is the PW Director, he was busy trying to keep his crews ahead of the storm and does not have the GIS knowledge to create new or modify existing GIS layers to plot the data needed. Lack of GIS capable computers in the EOC.

3. Other Comments:

C) POST-STORM

1. GIS actions or activities: Mapping as explained in Part I, new maps and feature datasets were loaded onto the PW Dir. GIS capable laptop, so that GIS capability was available in the EOC (EOC not connected to Town computer network). The Town organized a voluntary effort to clean up the yards of the elderly & disabled for Nov. 26, residents registered for this event and some 70 addresses were plotted on maps and lists describing the properties and what needed to be done were created.

2. Barriers:

3. Other Comments:

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:
Obviously, I don't have any "Best Practices", I do have some strong recommendations – in retrospect: 1) the EOC must have GIS capability; 2) there must be at least on person on each shift capable of editing layers to track changing conditions; 3) the EOC must have access to available GIS data; 4) GIS layers tracking conditions must be succinct-don't get bogged down filling in too much data; 5) the EOC must have the printing capability to make the paper maps necessary; 6) Communicating with utilities both verbally and GIS.

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:
GIS can be used to keep track of you assets; infrastructure, shelters, transportation, etc.: your liabilities; failed infrastructure, pinch-points in our transportation, etc.: your responsibilities; elderly, infirm & disabled, etc. GIS can be used to post updated maps on the internet to inform the public where they can go – or not go. I realize that the internet is of limited usefulness during power outages, but many Smart Phone continued to operate. GIS can be used to plan recover, the most efficient routes to reach the greatest number

C) Other comments:

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Name:	Stephen Lowrey
Employer:	Town of Tolland
Department/Unit:	Planning
Position:	Zoning/Wetlands Officer & GIS Operator
Phone:	(860) 871-3605
Email:	slowrey@tolland.org
Primary Role in Storm Event:	Creating damage location maps after the storm Setting up GIS on Public Works Computer Creating mapping for post storm cleanup
List which Storm Primarily Impacted Your Area (list both if applicable):	Irene Alfred to a much greater extent.

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

There was no use of GIS for Irene, damage was relatively light and power restored quickly. During Alfred there was no use of GIS. The EOC is not connected to the Town's computer network therefore GIS data was not accessible. After the storm I created a base map and copied it and a number of relevant layers on a disc and loaded them onto the Public Works Director's laptop. After the road crew completed an assessment of damage I created a layer to display that information on the map and this was given to the CL&P repair crews.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities:
   None

2. Barriers:
   Lack of connection to GIS data. I don't believe that we have a data set of residents with medical issues that might have been encouraged to get to shelter before the storm.

3. Other Comments:
   Since Tolland has little risk of large scale flooding, damage is random, which is to say there is little geographic relationship to the location of potential damage; I don't think that GIS would help to plan.

B) DURING THE STORM

1. GIS actions or activities: None

2. Barriers: Lack of connectivity

3. Other Comments: Since both of these storms were causing their major damage after dark, it would have been difficult to keep a running tally of damage as it occurred, so I am not sure of the utility of GIS until the Town had the opportunity to open roads.

C) POST-STORM

1. GIS actions or activities: Creation of mapping to locate problems: road closures, power lines and poles down, and, specifically, what roads were accessible for emergency vehicles so that routes around town could be planned

2. Barriers: Again, the E.O.C. was not connected to the Town computer network and so after I entered data into the computer it had to be put on a CD and driven to the E.O.C.

3. Other Comments: Although Tolland's Public Works Director is very much a GIS neophyte, he is very aware of how it can help him. It helps to have personnel that want to use the technology.

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:
At this point in time I don't have any Best Practices; we just made it up as we went along.

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:
1. Data collection & entry needs to be quick and simple but provide, at least, the minimum information needed.
2. During and immediately after the disaster it is more important to know where the roads are open than the location of all the blockages.

C) Other comments:
You need to have GIS capable computers in the EOC and the EOC needs to be able to access the data.
CL&P spent the first 3 days or so accessing damage-much of this work could have been done by the various towns' personnel (with a little training)

CONNECTICUT GEOSPATIAL INFORMATION SYSTEMS

Storm Response and Recovery Assessment Group

GIS Staff Questionnaire

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Name:	David Scherf
Employer:	City of Torrington
Department/Unit:	Engineering
Position:	Manager of GIS/Technical Services
Phone:	860-489-2234
Email:	David_scherf@torringtonct.org
Primary Role in Storm Event:	Post-storm recovery efforts
List which Storm Primarily Impacted Your Area (list both if applicable):	Both

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

They used stock large format GIS-produced maps.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities: None besides several large format maps produced for EOC prior to events
2. Barriers: None
3. Other Comments:

B) DURING THE STORM

1. GIS actions or activities: None
2. Barriers: If anything, the inability to move from home to work would have been a problem. Desktop GIS software isn't too flexible for remote access.
3. Other Comments:

C) POST-STORM

1. GIS actions or activities: Produced maps showing cleanup zones and exported street lists for zones in the order that the City and contractors should follow for brush removal. Made a couple of aerial maps for Fire Dept.

2. Barriers: None

3. Other Comments:

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:

Have readily available and accurate street centerline datasets, address datasets for parcels and address points, utilities, critical infrastructure, aerials, flood data, etc… and basemaps or webpages to put these on.

B) **List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:** The CL&P web maps were great resources. If EOCs had this sort of statewide base to start from, then they may be able to show resources and apparatus at work through AVL, active shelters and #s of visitors, road closures, etc… Of course, someone has to manage and work this system. One suggestion is to examine the overwhelming response of GIS practitioners to volunteering worldwide through GISCorps (www.giscorps.org). Maybe the state EOC at the Armory could enlist volunteers from the state to create an enhanced web presence during disasters by having a list of volunteers to choose from with known skills and capabilities lend a hand.

C) Other comments: 1) Include GIS managers and users in the hazards and disasters conversation -- Pre-event, event and post-event. It would be good to let each town's GIS manager know what data that the state has compiled for critical infrastructure and what products and applications are available for these and who is using them – we know how to build them, use them and train others on them; but we are not much use if not included at the table. And we may have data that is useful for first responders and emergency managers (For example, Torrington has a Tennessee Gas Pipeline trunk line that runs through several suburbs. After the second storm I thought about it a bit and then took a hour or so to map it from various sources not knowing if the EOC, local dispatch PSAP, or FD and PD have this data in their preplans. And if it does already exist, I've never seen it on any of the CT data clearinghouses . I also started a transmission line mapping project after the storm, but never heard back from ISO New England to get some product that confirms the mapping I've already done. This stuff isn't rocket science. Anyone can see the transmission lines, towers, poles, sub-stations from Google, Bing, state aerials etc… And I can search the internet and find this type of information for other states, but not Connecticut.)
2) Also, EOC directors and other first responder staff may not know what hardware, software, data, and application capabilities already exist within towns and cities, and the rapidity with which we can produce maps, reports, KML/KMZ, ArcPad and other mobile platforms, ArcGIS Server websites, etc… The biggest hurdle for much of this is how services are shared and coordinated. My job description buries me in several layers of government, not allowing me to be this type of coordinator. A state GIS coordinator could possibly fill this gap.

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Name:	Aaron Nash
Employer:	Town of Vernon, CT
Department/Unit:	Data Processing
Position:	GIS Coordinator
Phone:	860-870-3674
Email:	anash@vernon-ct.gov
Primary Role in Storm Event:	Worked in Vernon EOC mapping storm related calls
List which Storm Primarily Impacted Your Area (list both if applicable):	Irene and Alfred both impacted Vernon

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

Yes, I was called into the EOC to map out incident locations on Sunday after Winter Storm Alfred hit, I also printed large street maps to use for emergency and priority planning. I was required to stay in the EOC all week during the storm clean up.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities:
   None

2. Barriers:

3. Other Comments:
   We did not engage in any pre-storm planning because the impact in Vernon was unknown at the time.

B) DURING THE STORM

1. GIS actions or activities: Incident mapping

2. Barriers: I was unable to remote into my office computer because the power was off in my building due to an outage. I was able to find data on an old flash drive and generate some maps during the storm from my house in Franklin.

3. Other Comments: The inability to have remote data has led me to replicate my databases onto my work laptop so I can keep an offline copy for emergency mapping

C) POST-STORM

1. GIS actions or activities: Spend all week working on mapping incident locations and printing maps. Thankfully our data center was operational (Generator) and I was able to work remotely and access our live data
2. Barriers: We asked the utility company for information as to what calls from Vernon came into their call center, we wanted to use this data to compare to the calls that came into the Vernon EOC. That way we could make sure CL&P had the most current list of incidents. It took them 3 days to generate the list. We also asked for a list of customers that were without power, they could not deliver. So we asked for a list of streets that were without power, they could not deliver. We needed this information to generate a map to post in the Vernon Shelter so residents without power could not only see the severity of the storm but so they could determine whether their street had been energized so they could return home. We also asked for a circuit map to assist in lines down mapping and to assist in deciding the priorities for repair, that was finally sent to us on Wednesday or Thursday
3. Other Comments: It would be nice if somehow CL&P could share their data with municipalities to assist in storm cleanup efforts. As a GIS community we understand the importance of having good data and keeping it protected, but sharing information will help everyone in the end.

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:
I did have a laptop with me at home so I was able to map the initial incidents during the storm, although I did not have current data

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster: ESRI has an emergency response web mapping template in their resource center. I am going to implement that web template for live use during a storm and build a mobile application that will allow emergency personnel and residents to submit information through the application. This will allow for one common database to be used town wide and with built in tools allow users to draw more information from the map.

C) Other comments:

Please return by email, mail, or fax to:

Jeff Bolton, Chair
Storm Response and Recovery Assessment Group
Connecticut GIS Council
165 Capital Avenue Room 275
Hartford, Connecticut 06106
Email: jeffrey.bolton@ct.gov
Fax: 860-713-7250

Please feel free to call with any questions in filling out this questionnaire at (860) 713-5706.

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Name:	Lawrence Niland
Employer:	Town of West Hartford
Department/Unit:	Police
Position:	I.T. Specialist
Phone:	860.523.2017
Email:	LNiland@westhartford.org
Primary Role in Storm Event:	I.T. Coordinator
List which Storm Primarily Impacted Your Area (list both if applicable):	Both

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

Yes. Our CAD has maps built from our GIS system and we use GPS data from our vehicles for location. We also used maps to identify problem areas with Town.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities: Identified areas for potential flooding prior to the hurricane.

2. Barriers:

3. Other Comments:

B) DURING THE STORM

1. GIS actions or activities: Showed locations of problems. Mapped power outages as CL&P was not providing accurate information. Able to see deployment of resources around Town.

2. Barriers: GIS system for maps is not completely interactive. Had to use other programs to produce maps for public.

3. Other Comments:

C) POST-STORM

1. GIS actions or activities: Followed deployment of power return and road closures.

2. Barriers:

3. Other Comments:

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:
No established "best practices".

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:
Interaction with CL&P to provide accurate and up-to-the-minute maps of power outage areas.

C) Other comments:

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Name:	Andrew Kingsbury
Employer:	Town of Westport
Department/Unit:	Fire Department
Position:	Fire Chief/EMD
Phone:	(203) 341-5000
Email:	akingsbury@westportct.gov
Primary Role in Storm Event:	Emergency Manager/Fire Chief
List which Storm Primarily Impacted Your Area (list both if applicable):	TS Irene & Winter Storm Alfred

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.
We use GIS for our Computer Aided Fire & Police Dispatching, GIS is utilized in our EOC for mapping, tracking incident locations, etc.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities: Used GIS along with printed surge maps provided by FEMA for planning.
2. Barriers:
3. Other Comments:

B) DURING THE STORM

1. GIS actions or activities: We attempted to track road blockages on GIS thru our Mobile Data Terminals for TS Irene with moderate success. During Storm Alfred we switched to Google Maps for recording road blockages.
2. Barriers: Not practical for an untrained emergency management staffer to utilize real time, software costly.

3. Other Comments: In the past we have used the flood map layer to determine actions at given locations, did not for these particular storms

C) POST-STORM

1. GIS actions or activities: Same

2. Barriers:

3. Other Comments:

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:

C) Other comments:

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Name: Damion Vassel

Employer: Town of Westport

Department/Unit: Engineering

Position: GIS Technician

Phone: 203-341-1133

Email: dvassel@westportct.gov

Primary Role in Storm Event: Incident Mapper / Planner

List which Storm Primarily Impacted Your Area (list both if applicable): Hurricane Irene

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Yes, GIS resources were used as a visual and planning tool to capture and report incidents as they happen.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities:
    a. A confidential emergency evacuation map was created for town residents with special needs in the event evacuation was needed.
    b. SLOSH map was acquired and reviewed to see storm surge heights and winds.
    c. Finding a way to depict incidents on a map as they occur (real-time) that can be viewed by department and personnel that aren't a part of EOC.

2. Barriers: Finding an internet base application that can be viewed by others that doesn't require a license and is free.

3. Other Comments: Mode of communication had different concepts, eventually we settled on Google Map while utilizing ARCMap and ARC IMS.

B) DURING THE STORM

1. GIS actions or activities: Mapping incidents and keeping their status up-to-date and real-time.

2. Barriers: Not all incidents were being reported back to EOC.

3. Other Comments: Progression of the storm determines the pace at which the incidents are reported.

C) POST-STORM

1. GIS actions or activities: We had a map that depicted a majority of all incidents within the town.

2. Barriers: Incidents were still being reported and were no longer getting mapped.

3. Other Comments: The overall map was very helpful in the depiction of the area/s severely hit.

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:
During an emergency that required emergency personnel, with the incidents being mapped we knew the roads that were impassible and alternate routes were created to improve response time and we were able to clear the blocked roads first after the storm.

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:
GIS is the best mode of communication between towns and its residents, with GIS anyone with access to the internet can see the status of the disaster and how it's affecting them.

C) Other comments: I would recommend a statewide internet based GIS application to map and track incidents in real-time.

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GIS Staff Questionnaire

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Name:	Stuart Cobb
Employer:	Town of Willington
Department/Unit:	
Position:	Emergency Management Director
Phone:	860-234-9777
Email:	scobb@willingtonfire.org
Primary Role in Storm Event:	Emergency Management Director
List which Storm Primarily Impacted Your Area (list both if applicable):	Both Irene & Alfred

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

No

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities:

2. Barriers: The town does not employ any knowledgeable GIS personnel although WINCOG does handle some of the GIS functions.

3. Other Comments:

B) DURING THE STORM

1. GIS actions or activities:

2. Barriers:

3. Other Comments:

C) POST-STORM

1. GIS actions or activities:

2. Barriers:

Internet connectivity town-wide was lost during much of the post-storm period. We also lack local knowledgeable GIS personnel.

Our town office building (where our building department is located) has ArcGIS and a wide-format printer but does not have an emergency generator.

3. Other Comments:

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:

Far from "Best", we used poster board/printed maps to locate trouble spots and maintained an Excel spreadsheet of trouble spot data.

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:

GIS incidents (i.e. power line trouble spots/road closures) should be merged into a regional database. It is important to know if there are situations outside our town lines that would impact us.

C) Other comments:

It would have been very helpful if CL&P had provided us with circuit maps (preferably before the storms). Even during the post-storm period, we were not given access to that information citing privacy and security concerns.

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Name:	Lauren Good
Employer:	Town of Windsor
Department/Unit:	Planning Department
Position:	Assistant Town Planner
Phone:	860.285.1982
Email:	good@townofwindsorct.com
Primary Role in Storm Event:	• tracking all non-emergency calls to EOC & PD in GIS (Irene) • tracking all tree and wire related calls to EOC in GIS (Alfred)
List which Storm Primarily Impacted Your Area (list both if applicable):	Alfred had a much heavier impact – close to 500 calls just related to tree and wire issues. There were a few downed trees and one street closure due to Irene – approx. 40 calls.

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.
(Irene)Yes. I was in the EOC taking data sheets and entering info from radio calls directly into the GIS program, which was then being sent to the Director of PW, PD, and various town officials to have one point of information collection and dissemination for non-emergency calls to the PD/EOC.

(Alfred)Yes. We had 24-7 call-takers in the EOC who would take caller information, which would be passed on to me and I would update the GIS with this information and send out an Excel spreadsheet and map to the EOC, town officials, DPW, and our CL&P rep on a regular basis. It was also used when power was returning to show which areas of town were receiving power and which were not.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities: (Irene) Created a basic GIS map/database template to house potential non-emergency phone calls into the EOC/PD. (Alfred)None.

2. Barriers: n/a

3. Other Comments: n/a

B) DURING THE STORM

1. GIS actions or activities: (Irene)Worked in the EOC as described above. (Alfred)Did not work directly in the EOC as it was heavily staffed.

2. Barriers: I'm the only GIS person on staff in Windsor so there is no backup. I was not able to be reached during the first 48 hours of Alfred, which caused a severe backlog of information to enter, taking approximately a full 8 hours to catch up on entering before useful information could be disseminated. Due to a cramped EOC, I was also not able to be present at that location, which may or may not have been a hindrance.

3. Other Comments:

C) POST-STORM

1. GIS actions or activities: Maps used to illustrate (internally) sections of town where power was being restored.

2. Barriers: GIS was not used to its full potential to help with post-storm cleanup, although debris clean-up routes were based on recycling routes created a number of years ago. Analysis may have been better using those routes coupled with severity of debris?

3. Other Comments:

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:
Our CL&P rep briefly showed us a map of the power circuits – this type of information – knowing where different areas of the town's power comes from – would be extremely beneficial. We all know that there are security implications, but I think we can all agree that everyone sitting in an EOC would have appreciated this information.

C) Other comments:

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Name:	Warren Connors
Employer:	Town of Woodbridge
Department/Unit:	Public Works
Position:	Operations Manager
Phone:	203-389-3421
Email:	wconnors@ci.woodbridge.ct.us
Primary Role in Storm Event:	Direct Public Works operation
List which Storm Primarily Impacted Your Area (list both if applicable):	Both

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

No. We do not use GIS for emergency management.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities:
2. Barriers:
3. Other Comments:

B) DURING THE STORM

1. GIS actions or activities:
2. Barriers:
3. Other Comments:

C) POST-STORM

1. GIS actions or activities:

2. Barriers:

3. Other Comments:

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:

C) Other comments:

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Name:	Delia P. Fey
Employer:	Town of Woodstock
Department/Unit:	Land Use
Position:	Town Planner / ZEO
Phone:	860-963-2128 x332
Email:	townplanner@woodstockct.gov
Primary Role in Storm Event:	No special role, just continue to do my job
List which Storm Primarily Impacted Your Area (list both if applicable):	Hurricane – power outages, flooding & roads closed, October snow storm – power outtages, roads closed

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.
Not that I know of.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities: None that I know of.
2. Barriers: None that I know of.
3. Other Comments: None that I know of.

B) DURING THE STORM

1. GIS actions or activities: None that I know of.
2. Barriers: None that I know of.
3. Other Comments: None that I know of.

C) POST-STORM

1. GIS actions or activities: None that I know of.

2. Barriers: None that I know of.

3. Other Comments: None that I know of.

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:

I was not involved in any.

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:

Train the emergency event planner – Fire Chief or whoever is coordinating the response. I would not be involved in that as the Town Planner in this job. We only have one GIS license so I don't think the Emergency Management Director has been trained on it nor does he have access to it.

C) Other comments:

Please return by email, mail, or fax to:

Jeff Bolton, Chair
Storm Response and Recovery Assessment Group
Connecticut GIS Council
165 Capital Avenue Room 275
Hartford, Connecticut 06106
Email: jeffrey.bolton@ct.gov
Fax: 860-713-7250

Please feel free to call with any questions in filling out this questionnaire at (860) 713-5706.

CONNECTICUT GEOSPATIAL INFORMATION SYSTEMS

Storm Response and Recovery Assessment Group

GIS Staff Questionnaire

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Name:	Fred North
Employer:	Dept. of Children and Families
Department/Unit:	Office for Research and Evaluation
Position:	Social Work Supervisor
Phone:	(860) 723-7219
Email:	Fred.north@ct.gov

Primary Role in Storm Event:	Prepared point-in-time (as of 8/26/11) map series and shapefiles of providers that provide placement services to DCF children showing which are in SLOSH zones by category
List which Storm Primarily Impacted Your Area (list both if applicable):	Both - though did not provide update for second storm

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

No, I offered our services to them as part of our effort to educate and engage various managers throughout the agency in our slowly developing GIS capacity.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities:

   On the afternoon of Friday, August 26, 2011, I provided a set of resources to our Disaster Planning coordinator, Office of Foster and Adoptive Services and Regional Directors that they could print out or display on any computer (in Adobe pdf format), as well as shapefiles that could be consumed in a system with GIS capability (such as at the state EOC) if needed. These resources included the following:
   - Flash Drive was given to the Disaster Coordinator containing:
     i. Adobe PDF file containing a series of 19 maps showing zoomed-in areas of the CT shoreline, with the locations of all placement providers (both family and congregate care settings) symbolized, including a specific layer of those placements located within hurricane surge zones.

ii. Excel workbook with the list of all placement providers, including a pivot table summarizing the numbers of placements located within surge zones (organized by DCF administrative areas and by storm category)
iii. ArcGIS 9.3 Map file from which the PDFs were created, as well as all underlying shapefiles, for use at the statewide EOC if needed/desired. The locations of foster homes are considered confidential information, so was not to be used unless there was a significant need to risk exposing such data to unintended release.

- Emailed the PDF and Excel files to all managers mentioned above for their reference if/when they had access to the email network.

2. Barriers:

Our Disaster Planning coordinator was new to the position (having assumed those duties on Friday, August 26, 2011), and this was the first time I attempted to provide such information before an expected event, so there was uncertainty what data would be most useful during/after such an event.

3. Other Comments:

I was informed after the fact that the GIS Lab at the state EOC could have utilized the files provided had they been made available to them, and had there been a need.

B) DURING THE STORM

1. GIS actions or activities:

None.

2. Barriers:

I was not asked to provide any further data or updated maps after the storm. Also, our disaster coordinator did not have the best equipment (ie generator and/or uninterruptible power supply for computer/phones) at her home to maintain complete situational awareness, and was unable to leave her neighborhood for an extended period due to downed power lines across the roads. This also meant she was unable to get to the statewide EOC or to our own Central Office either, so could not make use of them there until two days after the storm.

3. Other Comments:

NA

C) POST-STORM

1. GIS actions or activities:

Our disaster coordinator formed an emergency planning committee that included managers from a wide variety of functional areas within the agency. Activities have included reviewing the processes in place both before, during and after disaster events. This has included identifying what GIS information would be useful and in what format, as well as improving

communication protocols between providers and the agency, and between agency representatives and the statewide EOC.

2. Barriers:

   NA

3. Other Comments:

   NA

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:

- **Utilize the most current data layers available.**
- **Distribute necessary information before the event occurs.**
- **Present necessary information in multiple formats that best meet each need.**
- **Distribute necessary information using multiple methods so it is available from multiple sources should some not be available during/after an event.**

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:

Ideally there would be two (one public-facing, one secured with confidential critical data layers included) statewide GIS web applications that allow the public to view changing flood areas, infrastructure damage (esp. road obstructions/delays and power outages), and status/estimates for repairs in as close to real-time as possible. Agencies representatives should have access to the secured site, which could include custom views that show only the layers most relevant to their own business but have others available as needed. Also, any such applications should include whatever information can be obtained from neighboring states as well, should impacted areas include border zones and it is necessary for citizens to cross borders to obtain the nearest available shelter or other assistance.

C) Other comments:

NA

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CONNECTICUT GEOSPATIAL INFORMATION SYSTEMS

Storm Response and Recovery Assessment Group

GIS Staff Questionnaire

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Name:	Erik Madsen
Employer:	State of CT
Department/Unit:	Department of Developmental Services (DDS)
Position:	GIS Manager
Phone:	860-418-6012
Email:	Erik.madsen@CT.gov
Primary Role in Storm Event:	Provide maps and spatial data to DDS EOC, technical assistant to DDS State EOC designee, on call for State EOC GIS Lab
List which Storm Primarily Impacted Your Area (list both if applicable):	14 facilities evacuated for Irene. 120 facilities evacuated for Alfred.

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

GIS resources were not utilized by the DDS EOC for either storm.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities:

   Have and maintain a ESRI file geodatabase of the geocoded locations of all DDS facilities.
   Prepared a map for Irene of DDS facilities subject to storm surge and inland flooding.

2. Barriers:

   GIS Manager was not aware of any available GIS shapefiles or live GIS feeds for CT road closures or utility outages.

3. Other Comments:

   DDS EOC was not in full activation for either storm.

B) DURING THE STORM

1. GIS actions or activities:
Distributed GIS map during Irene to EOC email boxes.

2. Barriers:
Unaware of recipients receipt and use of the map and its data.

3. Other Comments:

C) POST-STORM

1. GIS actions or activities:
Continue to maintain GIS DDS facilities database.

2. Barriers:
No feedback from EOC managers on the utility of the GIS resources and Maps.

3. Other Comments:

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:
Established facility emergency evacuation relocation plans. Established Emergency Individual Fact Sheets and individual ID badges. Established manager on call schedule in each DDS region.

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:
State EOC GEMS GIS database should be maintained and available for municipalities and state agencies to use in disaster planning and actual events. DDS GIS Manager should contribute DDS GIS data to the GEMS database. State agencies and utilities should make their GIS data available to other state agencies and municipalities for planning and disasters.

C) Other comments:

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Name:	Pete Sandgren/Dan Czaja
Employer:	State of Connecticut
Department/Unit:	Department of Emergency Services and Public Protection
Position:	GIS Coordinator
Phone:	Pete: 960.256.0875, Dan: 860.685.8131
Email:	Peter.Sandgren@ct.gov, Daniel.czaja@ct.gov
Primary Role in Storm Event:	State EOC Geolab
List which Storm Primarily Impacted Your Area (list both if applicable):	Both Irene and Alfred

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

Yes. The State of Connecticut EOC activated the Geolab for 12 hour days, with a few 24 hour shifts during the first week, to provide mapping support during both Irene and Alfred.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities: Contacted staff from other agencies to develop a staffing roster. Preparing paper planning maps for use by agencies within the State EOC. Maps included storm inundation maps.

2. Barriers: DESPP now has 3 GIS people but all others available on volunteer basis. Still this enabled us to have a full roster for most of the days.

3. Other Comments:

B) DURING THE STORM

1. GIS actions or activities: Preparing paper activity maps for use by agencies within the State EOC. Maps included power outages by town, commodity distribution, towns with shelters and warming centers, MRA, CERT, EOC activated. Most maps were continually revised for new high-level meetings. (See map list sent previously for Halloween storm)

2. Barriers: Having to manually update outage information and shelter datasets for maps because GIS and tabular data is not integrated.

3. Other Comments:

C) POST-STORM

1. GIS actions or activities: Paper maps printed for debris teams going out into the field. Prepared maps showing what organization (state, contractor, by what agreement, etc.) was doing debris work in what towns.

2. Barriers:

3. Other Comments:

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:

At least 3 analysts per shift, dividing the workload. We had 2 plotters and were able to acquire a laser printer to print multiple copies of letter-size maps for EOC briefings.

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:

Flex viewer to show things like towns with shelters open might make it easier to keep the general EOC staff up to date.

C) Other comments:

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Name:	Al Sylvestre
Employer:	CT State Dept of Labor
Department/Unit:	Research
Position:	Geographer
Phone:	860-263-6279
Email:	Alan.Sylvestre@ct.gov
Primary Role in Storm Event:	NA
List which Storm Primarily Impacted Your Area (list both if applicable):	29 & 30 October 2011 snow storm

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

CTDOL does not have an EOC

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities: Not Applicable (NA)

2. Barriers: NA

3. Other Comments: NA

B) DURING THE STORM

1. GIS actions or activities: NA

2. Barriers: NA

3. Other Comments: NA

C) POST-STORM

1. GIS actions or activities: NA

2. Barriers: Agency central office building was closed for two days because it had no power.

3. Other Comments: NA

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts: NA

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster: NA

C) Other comments: NA

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Name:	James R. Spencer
Employer:	Connecticut Department of Transportation
Department/Unit:	Bureau of Policy and Planning
Position:	Supervising Transportation Planner
Phone:	860-594-2014
Email:	James.Spencer@ct.gov
Primary Role in Storm Event:	Ad-hoc assistance should need arise
List which Storm Primarily Impacted Your Area (list both if applicable):	Storm Alfred and Storm Irene

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

Our EOC made no contact to us during or after either storm. Our Maintenance Leads responsible for the recovery efforts and associated vendors for both storms reached out to Planning for a listing and maps of the roads eligible for Federal Reimbursement on the State and Federal Systems.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities: N/A
2. Barriers: N/A
3. Other Comments: N/A

B) DURING THE STORM

1. GIS actions or activities: N/A
2. Barriers: N/A
3. Other Comments: N/A

C) POST-STORM

1. GIS actions or activities: Our Inventory Section compiled a database listing of those roads that were on the Federal or State Systems that would be eligible for Federal Aid Reimbursement. These were then compiled by our GIS Section into mapping by Maintenance District and by Town.

2. Barriers: N/A

3. Other Comments: N/A

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts: N/A

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster: N/A

C) Other comments: N/A

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Name:	Beth Stewart-Kelly
Employer:	State Military
Department/Unit:	FMO, Planning & Programming
Position:	GIS, EA1
Phone:	8605244844
Email:	Beth.kelly2@us.army.mil
Primary Role in Storm Event:	Support EOC and JOC with GIS
List which Storm Primarily Impacted Your Area (list both if applicable):	Irene and Alfred

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

yes

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities:

2. Barriers:

3. Other Comments: No activation until storm/post storm

B) DURING THE STORM

1. GIS actions or activities:

2. Barriers:

3. Other Comments:

C) POST-STORM

1. GIS actions or activities:
    a. Tracked power outages and critical missions for national guards, road clearing missions, Red Cross Shelters supported, and Commodity Distribution centers were opened and run by the Guards.

2. Barriers:
    a. Working out of the State EOC, has only 3 work stations. More GIS workstations are needed.

3. Other Comments:
    a. ArcMap kept crashing and could not export to PDF (o any other file extension) for map printing on Geolab #1.
    b. I worked out of the EOC for 10 days after the snowstorm but was never invited to attend any outbrief meetings.

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:

a. National Guard worked together with the State EOC which prevented repetitious map making.

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:

a. Need utility companies to release data layers so the state can organize relief efforts more efficiently.

C) Other comments:

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Name:	Christopher Roy
Employer:	State of Connecticut
Department/Unit:	Department of Public Health – Drinking Water Section
Position:	Supervisor
Phone:	860-509-7333
Email:	christopher.roy@ct.gov
Primary Role in Storm Event:	Information Logistics
List which Storm Primarily Impacted Your Area (list both if applicable):	both

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

Yes. Please see explanations below.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities: During Irene, the Drinking Water Section used Hurricane Surge Inundation mapping available on CT Eco and DEEP's GIS Data download website. We overlaid our public drinking water well layer to determine which public drinking water sources were most likely to be impacted by flooding caused by the storm.

2. Barriers:

3. Other Comments: The information we were looking for was publicly available on two different websites which was convenient.

B) DURING THE STORM

1. GIS actions or activities: During Alfred, The Drinking Water section used the power outage mapping available on the CL&P website to relate these areas to the locations of public drinking water systems. Communication with many systems was difficult so it was helpful to see if the lack of power in specific areas contributed to our communication difficulties.
   Irene: None

2. Barriers:

4. Other Comments: As it turned out, flooding was not the primary concern during Irene, power outages were.

C) POST-STORM

1. GIS actions or activities: GIS was used to help conduct for post-storm public drinking water system

2. Barriers:

3. Other Comments:

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:

C) Other comments: A fully documented central repository for state-wide GIS data and related map services, available to all agencies, would be beneficial.

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Name:	Christina Walsh
Employer:	State of Connecticut
Department/Unit:	Connecticut Siting Council
Position:	Supervising Siting Analyst
Phone:	860-827-2944
Email:	Christina.walsh@ct.gov
Primary Role in Storm Event:	n/a
List which Storm Primarily Impacted Your Area (list both if applicable):	n/a

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

n/a

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities:

2. Barriers:

3. Other Comments:

B) DURING THE STORM

1. GIS actions or activities:

2. Barriers:

3. Other Comments:

C) POST-STORM

1. GIS actions or activities:

2. Barriers:

3. Other Comments:

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:
GIS could be used to identify which wireless telecommunications sites are out-of-service at a given time to help service to these sites be restored more quickly. Cellular telecommunications sites are important to maintaining emergency communications for first responders and the general public.

C) Other comments:

The Connecticut Siting Council did not participate in storm response for either storm but is interested in collecting information regarding wireless telecommunication sites and electric transmission lines that failed during or after each storm and the reason for that failure. We hope to use that information in the future to be able to map potential problem areas.

Collection of the storm data may also help the Connecticut Siting Council in siting of these facilities in such a way as to avoid the occurrence of faults in the system in the future.

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Name:	Emily Wilson
Employer:	UConn
Department/Unit:	Center for Landuse Education and Research, Dept. of Extension
Position:	Geospatial Educator
Phone:	860 345-5226
Email:	Emily.wilson@uconn.edu
Primary Role in Storm Event:	
List which Storm Primarily Impacted Your Area (list both if applicable):	Tropical Storm Irene, October Snowstorm

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

I did not work in a GIS or EOC capacity during the storms

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities:

2. Barriers:

3. Other Comments:

B) DURING THE STORM

1. GIS actions or activities:

2. Barriers:

3. Other Comments:

C) POST-STORM

1. GIS actions or activities:

2. Barriers:

3. Other Comments:

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:

C) Other comments:

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Name:	Bruce Milardo
Employer:	Connecticut Light & Power Company
Department/Unit:	Engineering
Position:	GIS Manager
Phone:	860-665-5997
Email:	milarbl@nu.com
Primary Role in Storm Event:	GIS Manager – Patrol Information
List which Storm Primarily Impacted Your Area (list both if applicable):	All Storms impact CL&P

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

Yes, CL&P utilitizes GIS to map its facilities and serves as the basis for the electric model for operating the electric system. Maps derived from GIS are used to patrol and assess damage from storm events.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities:

Maps for AWC, satellite and patrol, update electric system configuration,

2. Barriers:

Identification of critical customers for each town and the State of Connecticut, paper based systems in the field

3. Other Comments:

B) DURING THE STORM

1. GIS actions or activities:

Patrol and damage assessment functions, outage and trouble spot mapping, outage management feeds several communication tools (e.g. CL&P web site)

2. Barriers:

Improved automation of data gathering and analysis

3. Other Comments:

C) POST-STORM

1. GIS actions or activities:

Mapping of storm damage changes, post storm audits to reflect electrical configuration in GIS

2. Barriers:

Matching of electronic data to manual paper process to make repairs and report corrective measures taken

3. Other Comments:

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:

Electric system configuration is valid pre-storm, our Outage Management System reflects current conditions during the event, and post storm audit and corrective activities are tracked to completion using GIS.

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:

see attached presentation from Governor's Two Storm panel, Utilitiy participation with State of Connecticut and Towns to develop protocols for sharing information

C) Other comments:

Please return by email, mail, or fax to:

Jeff Bolton, Chair
Storm Response and Recovery Assessment Group
Connecticut GIS Council
165 Capital Avenue Room 275
Hartford, Connecticut 06106
Email: jeffrey.bolton@ct.gov
Fax: 860-713-7250

Please feel free to call with any questions in filling out this questionnaire at (860) 713-5706.

CONNECTICUT GEOSPATIAL INFORMATION SYSTEMS

Storm Response and Recovery Assessment Group

GIS Staff Questionnaire

Instructions: *Please fill out and answer the questions the best you can. Please be brief and to the point. Use details to describe your answers and use bullet points as necessary. Should your answer pertain to one particular storm event (e.g. Irene or Alfred) please indicate the storm in parenthesis in your response. Return all responses to Jeff Bolton at jeffrey.bolton@ct.gov.*

Name:	Keith Anderson
Employer:	Connecticut Natural Gas
Department/Unit:	Engineering
Position:	GIS/Cad Manager
Phone:	860 727-3030
Email:	kanderson@ctgcorp.com
Primary Role in Storm Event:	Facility management
List which Storm Primarily Impacted Your Area (list both if applicable):	For CNG Irene was of more concern

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.
Yes, in pre storm planning.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities:
   We used our GIS database to distinguish which facilities were located in areas prone to flooding and/or on structures (i.e. bridges) that could become damaged or dislodged during the storm.

B) DURING THE STORM

1. GIS actions or activities:
   Monitored areas of concern that we developed in our database and then by using Scata data (monitors gas pressure in the mains) we were able to see if there was a main leak.

C) POST-STORM

1. GIS actions or activities: none

PART III

List your "Best Practices" that helped in the storm response and/or recovery efforts:

By knowing what facilities are located in flood plains we are quickly able to figure out what areas need to be monitored for flooding and pressure loss.

Other comments:

While I can't specifically speak for other utilities in the state, as GIS Director at Connecticut Natural Gas, I feel we have a couple of road blocks to sharing our digital data with municipalities. The first is at what level of detail the data would be useful to the towns without showing critical faculties and also protecting the privacy of our customers. The next is will this shared data, once in the hands of the municipalities fall under FOIA, possibly allowing easier access to information about critical infrastructure. Natural gas is different then most utilities as it is explosive and could create a big issue if information about critical infrastructure fell into the wrong hands. We used to share all our data with municipalities located in our franchise area, with the statement for official use and viewing only. We stopped after we spotted our gas network mapping on display on a few towns internet gis mapping. Our company policy now is if you need to know the locations of the gas mains in a specific area we will print out a D-sized 40 scale map or maps of the requested area and it can be picked up at our offices, free of charge.

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Name:	Vincent F Susco, Jr
Employer:	East Hampton Colchester Joint Facilities
Department/Unit:	
Position:	Public Utilties Administrator
Phone:	860-267-2536
Email:	vsusco@sbcglobal.net
Primary Role in Storm Event:	preventing property damage and injury and protecting public health and safety. To that end the position is authorized to perform the necessary work and purchase the necessary resources to maintain the integrity of the wastewater systems
List which Storm Primarily Impacted Your Area (list both if applicable):	Irene & Alfred

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

NO

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities: NONE

2. Barriers:

3. Other Comments:

B) DURING THE STORM

1. GIS actions or activities: NONE

2. Barriers:

3. Other Comments:

C) POST-STORM

1. GIS actions or activities: NONE

2. Barriers:

3. Other Comments:

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:
Following an Emergency Plan Document

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:

C) Other comments:

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Storm Response and Recovery Assessment Group

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Name:	Jim Gagnon
Employer:	South Central Connecticut Regional Water Authority
Department/Unit:	
Position:	GIS Program Manager
Phone:	203-401-2657
Email:	jgagnon@rwater.com
Primary Role in Storm Event:	
List which Storm Primarily Impacted Your Area (list both if applicable):	

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

We were not impacted by either storm such that we were operating under a state of emergency. I do believe our organization did have an EOC of sorts gathered during the weekend the hurricane/tropical storm roared over CT, basically just to more closely monitor the situation. Our distribution area stretches from Milford to Branford north to Cheshire. While we certainly got hit, the hardest hit areas during both storms were north and east of our area. The shoreline was spared during the snowstorm and most, if not all our area, is serviced by UI and not CL&P. Power was up and running quickly for most of our area. As you can imagine our entire distribution system is designed to keep running and delivering water even during power outages and happens seamlessly. So there was no problem there.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities: Business as usual

2. Barriers: None

3. Other Comments:

B) DURING THE STORM

1. GIS actions or activities: Business as usual

2. Barriers: None

3. Other Comments:

C) POST-STORM

1. GIS actions or activities: Business as usual

2. Barriers: None

3. Other Comments:

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:

C) Other comments: It's difficult to tell you how/if GIS was employed during this time. I can tell you that no special GIS services were requested during either storm. But we have an enterprise system at RWA. GIS is available throughout our headquarters here along Long Wharf and on 48 field laptops. GIS is used by people across the organization on a daily basis as part of their duties, in-house and in the field. Everything they need is at their fingertips. I asked our Senior Mgr of Distribution and Construction and he said they did not use GIS in any special way during either of the storms, no different than they would use it on any other day. There were no barriers such that GIS services were requested in order to better analyze a particular situation that may have arisen. It was pretty much business as usual at the water company.

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Name:	Nicholas McNamara
Employer:	South Norwalk Electric & Water
Department/Unit:	Technical Services
Position:	GIS Coordinator
Phone:	203-866-4446 ext 2035
Email:	nmcnamara@snew.org
Primary Role in Storm Event:	Sourcing all system data and maps for preplanning, response and recovery efforts
List which Storm Primarily Impacted Your Area (list both if applicable):	Irene, Oct. snow storm.

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

Maps and data were provided to field crews and management before the events. Additional resources were not needed during or after the event.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) PRE-STORM

1. GIS actions or activities: Most current maps and data requests provided for planning to engineering and management for identification of potential areas of trouble.

2. Barriers: none. SNEW is working on streamlining the data sharing process, to give more employees access to GIS and up-to-date data without having to manually produce maps and prepare data on the fly in the future for more rapid preparation, although SNEW has not had problems in the past in this area.

3. Other Comments:

B) DURING THE STORM

1. GIS actions or activities: none required. GIS Coordinator remained on-call but was not needed for either event.

2. Barriers: none, although field computers with system information will be implemented in the future to facilitate up-to-date information. Lack of information from CL&P about the status of the transmission lines feeding our system likely was troubling.

3. Other Comments: Less than 1% internal distribution outage for both events. 100% outage for approximately 1 day during Irene because CL&P cut our transmission feeds. Once that was restored, we were at 99%+ up.

C) POST-STORM

1. GIS actions or activities: Updating asset and location data as necessary to reflect repair work performed as a result of the storm events.

2. Barriers: none.

3. Other Comments: SNEW is currently planning to build a new transmission distribution substation, to reduce reliance on CL&P for transmission needs and future system outages should be reduced in frequency and length if the project reaches approval and completes construction.

PART III

A) List your "Best Practices" that helped in the storm response and/or recovery efforts:
This is currently in development as we have a <1 yr old GIS system, still under construction.

B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:

C) Other comments: We have a GIS system currently in development, being less than 1 year old. Our distribution system is very robust and even major events typically cause very few outages. Our line crews are often dispatched to assist CL&P and other state utilities that have less robust systems.