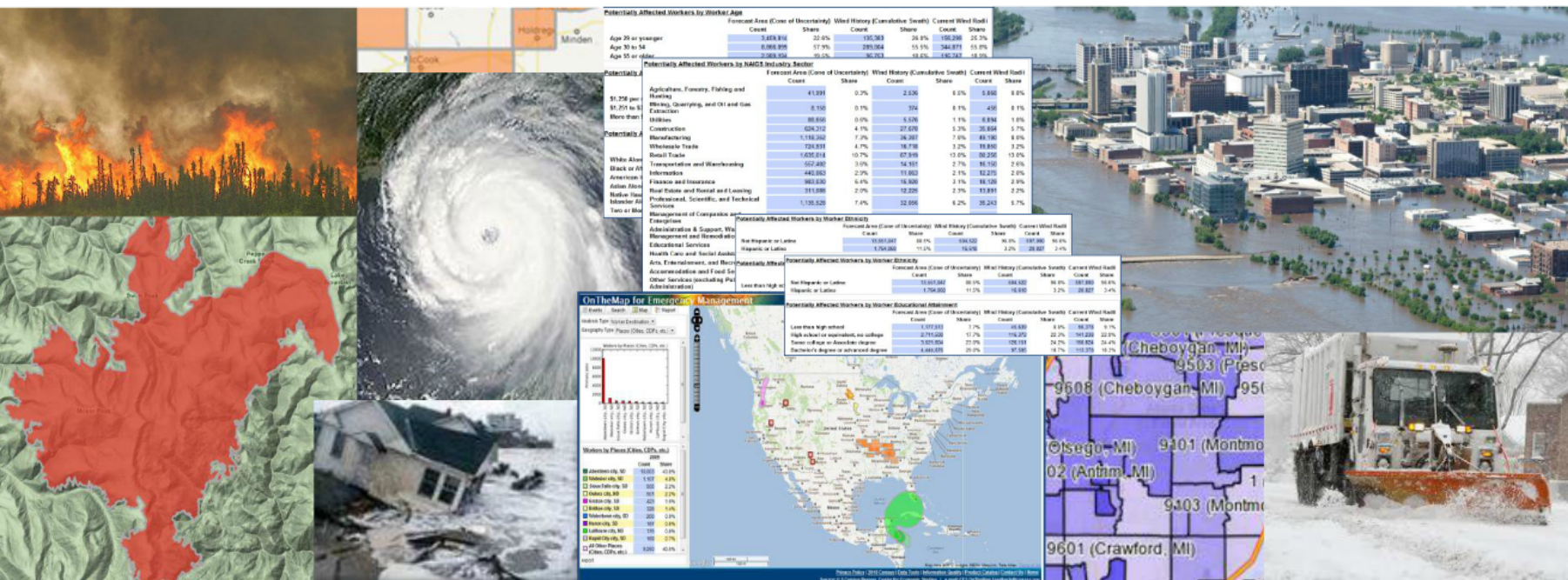




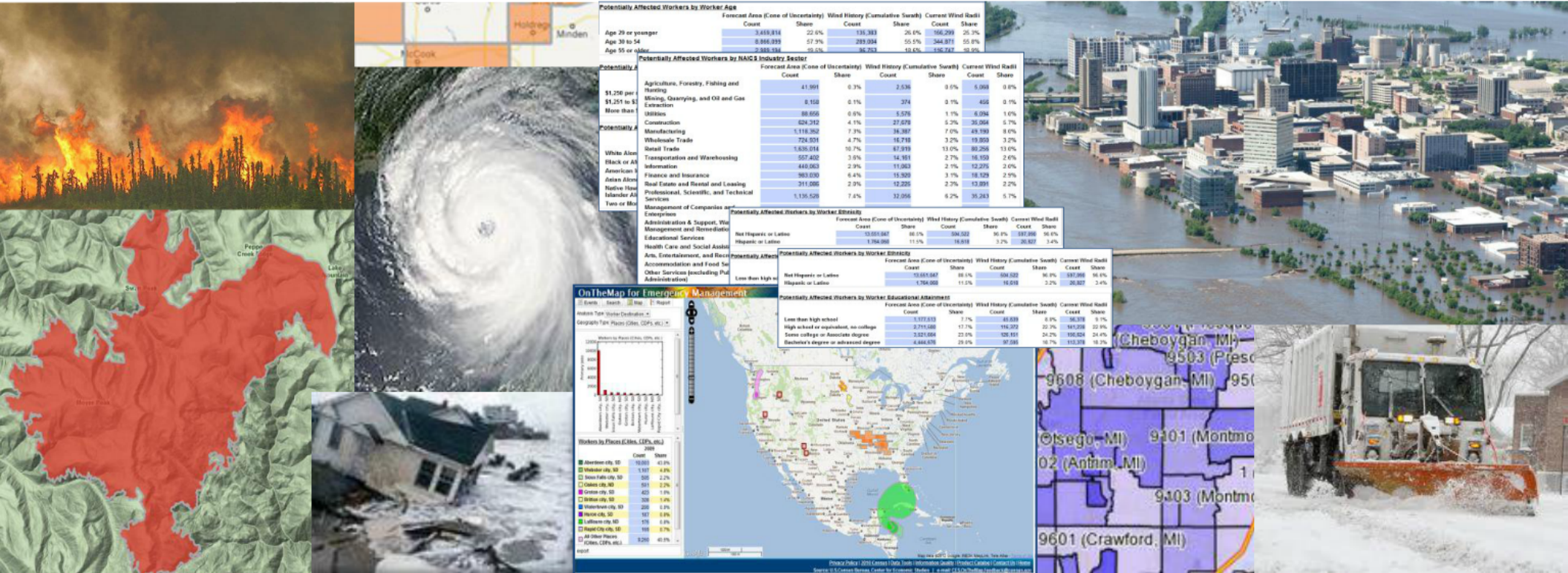
# OnTheMap for Emergency Management



Robert Pitts  
 Technical Project Manager  
 OnTheMap for Emergency Management  
 Center for Economic Studies- LEHD  
 U.S. Census Bureau



# OnTheMap for Emergency Management



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# Background

## Emergencies Matter

- **High number and variety of events across U.S.**
- **Increased Impact**
  - **General population increase**
  - **Pop increase in vulnerable areas**
  - **Increase in wealth / assets**

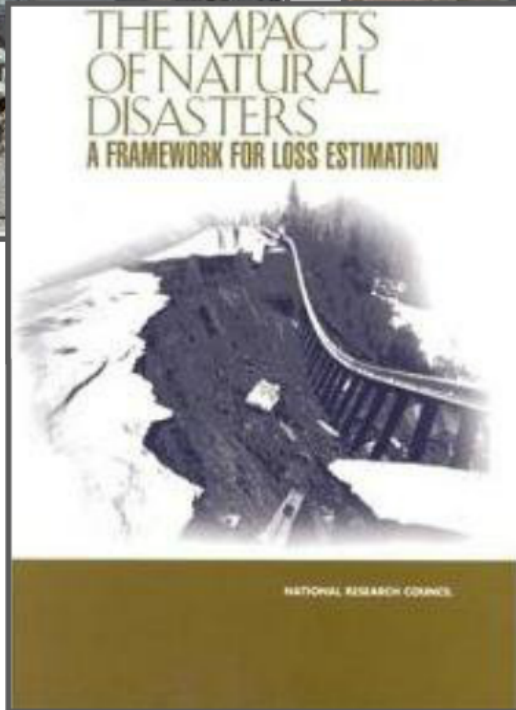
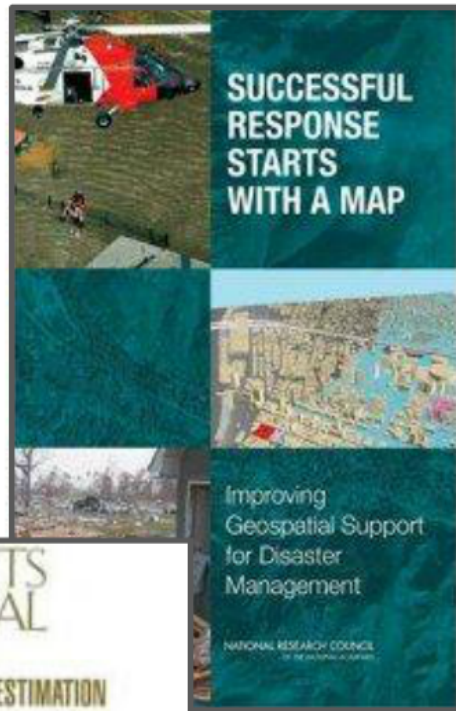
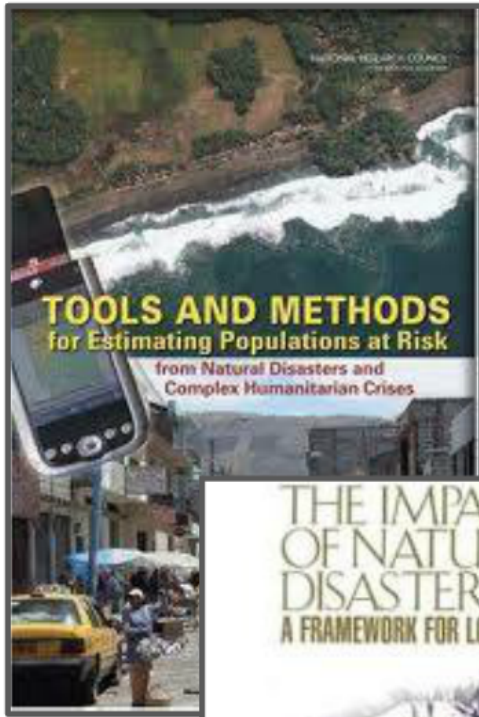
## Interest in Economic Impacts

- **Direct vs Indirect**
- **Losses to Business** (inability to operate, revenue)
- **Losses due to Infrastructure, Transportation**
- **Losses to Govt's** (assets, revenue)

## Limitations of Current Tools/ Approaches

- **No National Reporting System** (multiple orgs, inconsistent coverage and focus)
- **Inadequate Geographic Scale** (need for sub-county level)
- **Lack of Real-time Data**

# Emergency Management & Social Data



## Federal Interagency Geospatial Concept of Operations (GeoCONOPS)

Coordinating geospatial support for the Homeland Security Mission

April, 2011



Geospatial capabilities are increasingly becoming a critical resources in homeland security operations. The Department of Homeland Security (DHS) established the Federal Interagency Geospatial Concept of Operations (GeoCONOPS) to document the use of geospatial capabilities for homeland security support, lay the groundwork for improved sharing of resources and information, and serve as a guide for agencies, organizations and people who are involved in the federal homeland security mission and want to understand geospatial's role and impact.



### About GeoCONOPS

#### Overview

The GeoCONOPS describes geospatial resources and activities supporting Federal government homeland security operations including Emergency Management obligations under the National Response Framework. The GeoCONOPS includes:

Community Analysis and Model <i>(Interim in progress)</i>	Federal Operation Centers <i>(Interim in book)</i>
Current resources and capabilities such as personnel, assets and analytical models	A detailed scenario of response activities for a catastrophic natural event
Best Practices <i>(Interim in book)</i>	Authoritative Data <i>(Interim in book)</i>
Requirements and activities for disaster response mission areas	Requirements and activities for mitigation and preparedness areas

Currently the GeoCONOPS is published in limited hard-copy format annually and available as a digital document to the stakeholder community through HSIN (see "Get Connected" section below). Future plans include



# Version History

2010

## Version 1

- Hurricanes
- Google Maps
- Real Time Updates
- Data Download
- Storm Histories



2011

## Version 2

- Floods & Fires
- Event- Map Animation
- Expanded Reports
- New Interface & Tools
- Enhanced Mapping



2012

## Version 3

- Federal Disaster Areas
- Decennial SF1 Integration
- Event Area Export Tool
- Complete Storm Histories
- Interface Enhancements

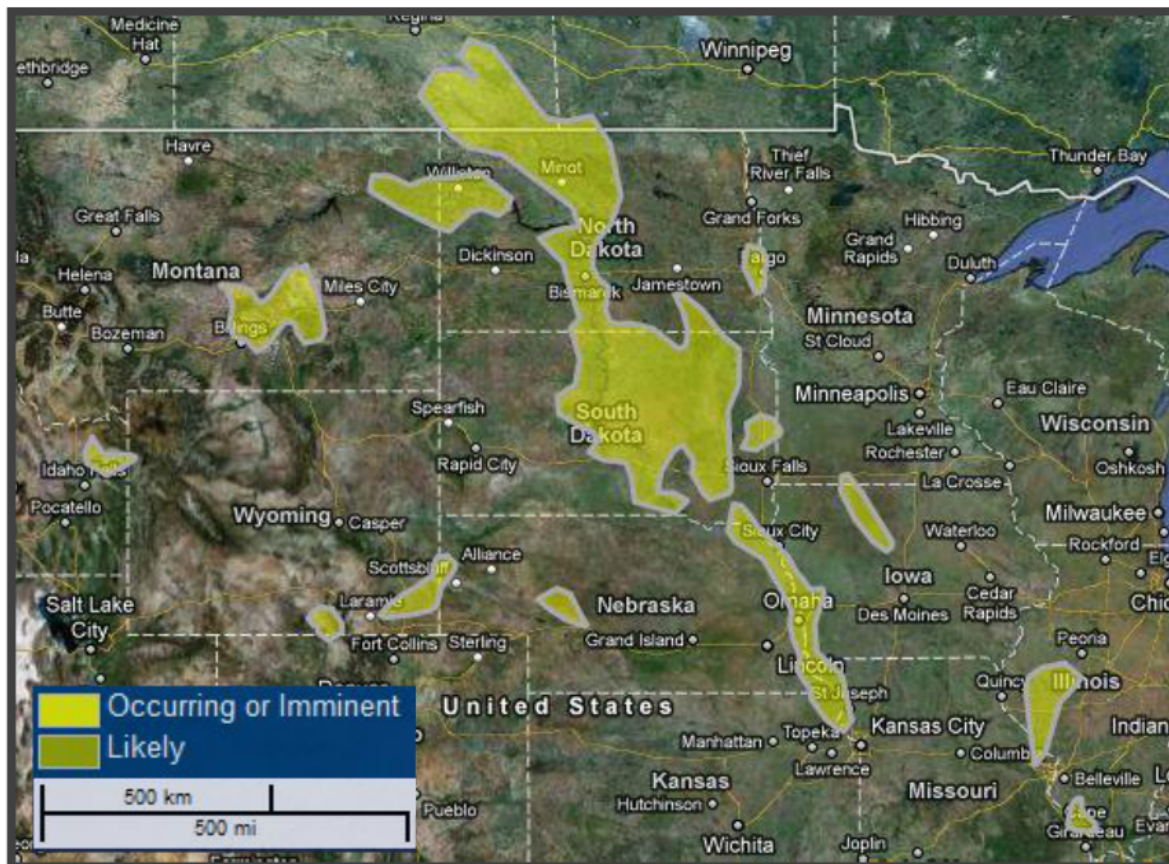


Version 2





# 2011 Review – Upper Midwest Flooding



## Selected Flood Outlook Area

06/26/2011 21:00:01 (UTC) - 06/26/2011 23:59:00 (UTC)

### Potentially Affected Workers by States (Top 20)

	Occurring or Imminent	
	Count	Share
North Dakota	89,971	57.8%
South Dakota	65,670	42.2%

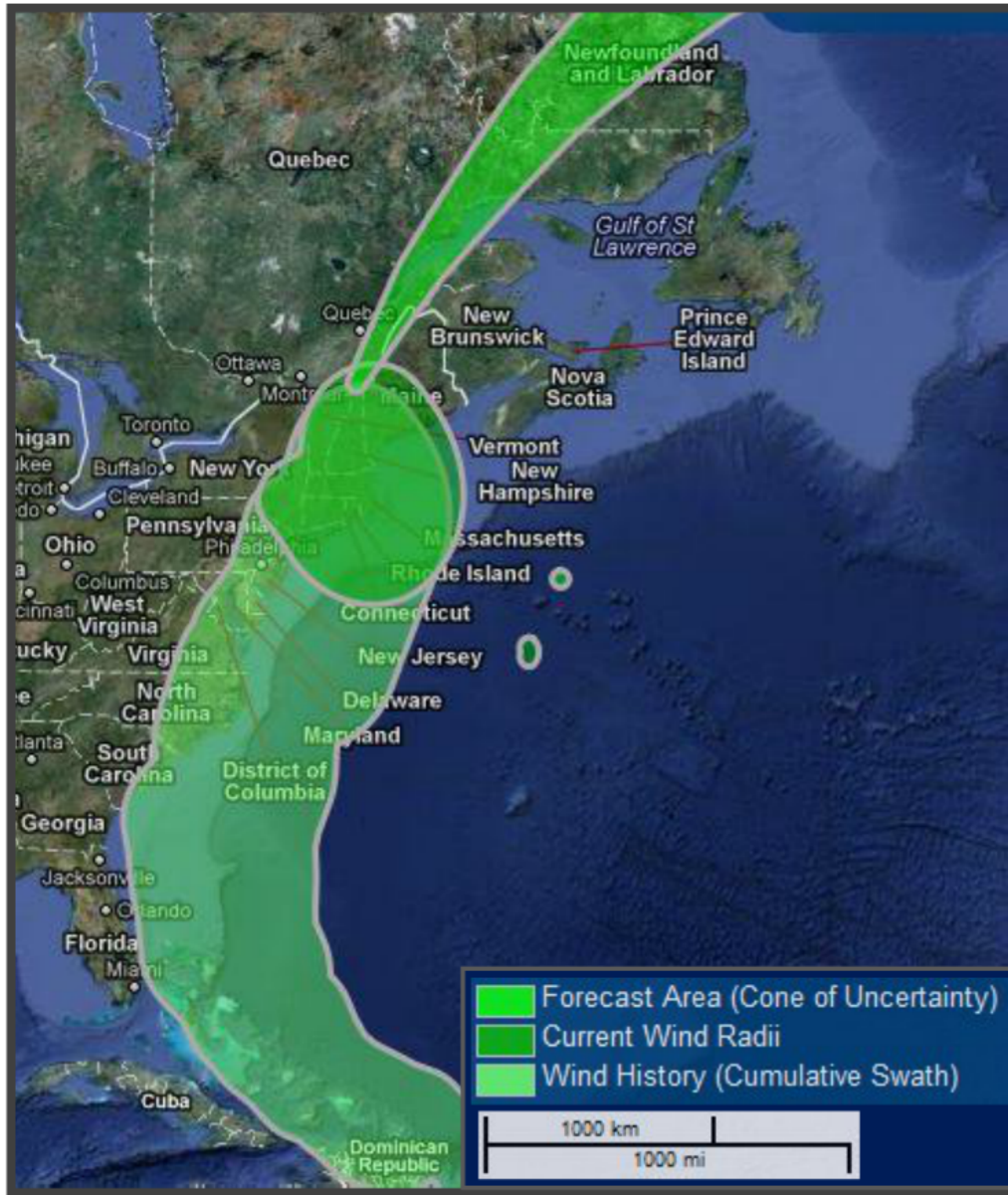
### Potentially Affected Workers by Places (Cities, CDPs, etc.) (Top 20)

	Occurring or Imminent	
	Count	Share
Bismarck city, ND	43,400	32.4%
Minot city, ND	20,665	15.4%
Aberdeen city, SD	15,685	11.7%
Mitchell city, SD	8,894	6.6%

### Potentially Affected Workers by NAICS Industry Sector

	Occurring or Imminent	
	Count	Share
Agriculture, Forestry, Fishing and Hunting	1,255	0.8%
Mining, Quarrying, and Oil and Gas Extraction	1,740	1.1%
Utilities	1,437	0.9%
Construction	8,045	5.2%
Manufacturing	12,471	8.0%
Wholesale Trade	8,698	5.6%
Retail Trade	19,368	12.4%
Transportation and Warehousing	4,080	2.6%
Information	3,383	2.2%
Finance and Insurance	9,335	6.0%
Real Estate and Rental and Leasing	1,729	1.1%
Professional, Scientific, and Technical Services	5,574	3.6%
Management of Companies and Enterprises	1,813	1.2%
Administration & Support, Waste Management and Remediation	4,801	3.1%
Educational Services	17,365	11.2%
Health Care and Social Assistance	25,366	16.3%
Arts, Entertainment, and Recreation	2,744	1.8%
Accommodation and Food Services	12,417	8.0%
Other Services (excluding Public Administration)	4,595	3.0%
Public Administration	9,425	6.1%

# 2011 Review – Hurricane Irene



## Post-Tropical Cyclone Irene

08/29/2011 02:49:20 (UTC) - 08/30/2011 02:49:20 (UTC)

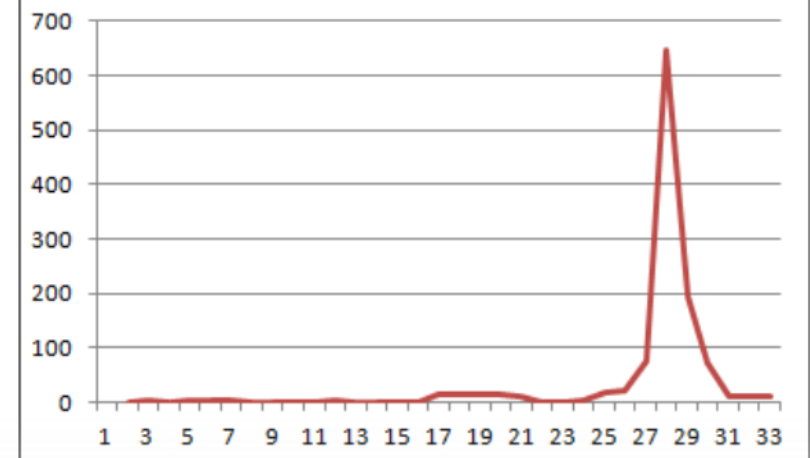
### All Potentially Affected Workers

	Forecast Area (Cone of Uncertainty)		Wind History (Cumulative Swath)		Current Wind Radii	
	Count	Share	Count	Share	Count	Share
Total	12	100.0%	19,858,588	100.0%	9,749,770	100.0%

### Potentially Affected Workers by States (Top 20)

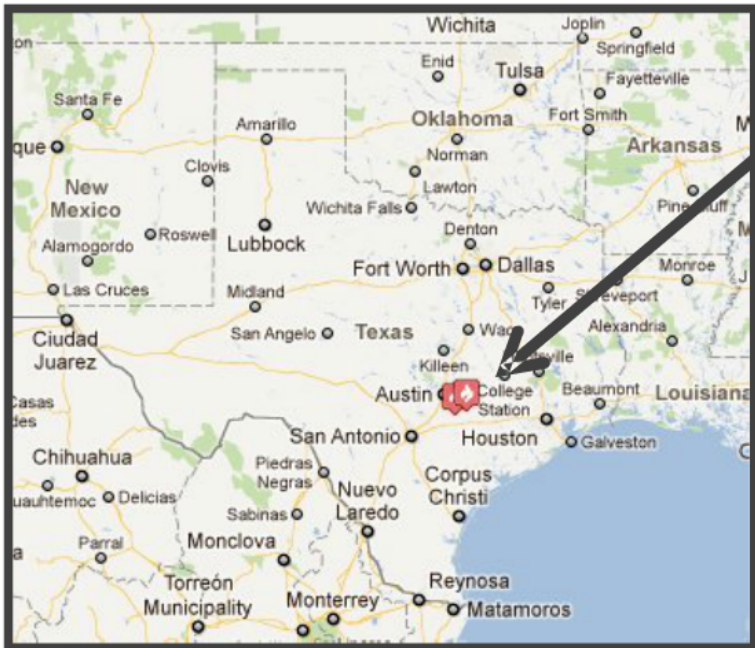
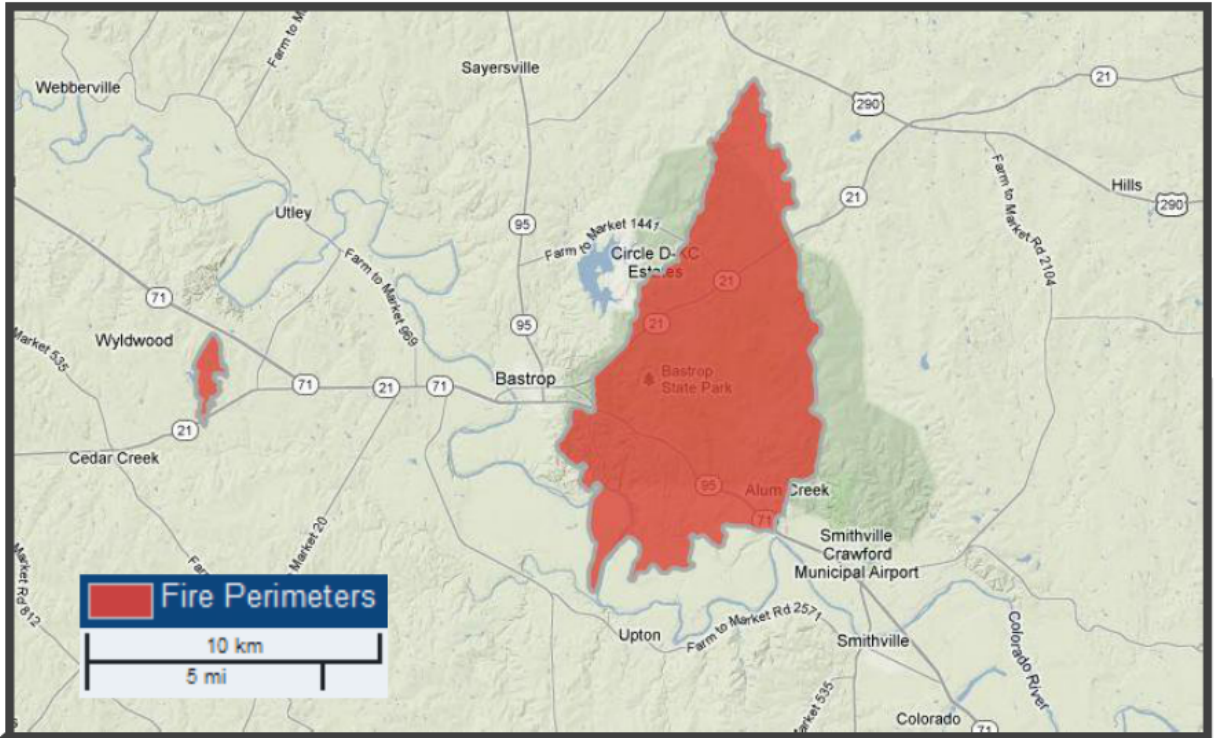
	Forecast Area (Cone of Uncertainty)		Wind History (Cumulative Swath)		Current Wind Radii	
	Count	Share	Count	Share	Count	Share
New York	-	-	5,677,324	28.6%	5,658,466	58.0%
New Jersey	-	-	3,442,610	17.3%	1,491,593	15.3%
Pennsylvania	-	-	2,346,471	11.8%	5,984	0.1%
Virginia	-	-	2,012,208	10.1%	-	-
Maryland	-	-	1,787,682	9.0%	-	-
Connecticut	-	-	1,460,932	7.4%	1,460,932	15.0%
North Carolina	-	-	1,384,565	7.0%	-	-
Maine	12	100.0%	387,364	2.0%	480,070	4.9%
Rhode Island	-	-	407,709	2.1%	407,709	4.2%
Delaware	-	-	361,031	1.8%	-	-
South Carolina	-	-	352,205	1.8%	-	-
Vermont	-	-	238,487	1.2%	245,016	2.5%

## Visits by Day August 2011





# 2011 Review – Texas Fires



## Bastrop County Complex Fire

09/16/2011 00:00:00 (UTC) - 10/01/2011 21:03:00 (UTC)

	Fire Perimeter	
	Count	Share
<b>All Potentially Affected Workers</b>		
Total	329	100.0%

	Fire Perimeter	
	Count	Share
<b>Potentially Affected Workers by Places (Cities, CDPs, etc.) (Top 2)</b>		
Bastrop city, TX	142	75.5%
Circle D-KC Estates CDP, TX	46	24.5%

	Fire Perimeter	
	Count	Share
<b>Potentially Affected Workers by Worker Age</b>		
Age 29 or younger	110	33.4%
Age 30 to 54	169	51.4%
Age 55 or older	50	15.2%

	Fire Perimeter	
	Count	Share
<b>Potentially Affected Workers by Earnings</b>		
\$1,250 per month or less	140	42.6%
\$1,251 to \$3,333 per month	121	36.8%
More than \$3,333 per month	68	20.7%

# Version 3 – Enhancements

## **New Emergency Event Data**

- FEMA - Disaster Declaration Areas
- NOAA – Snowfall Probability Forecasts

## **More Detailed Hurricane History**

- Capture & Archiving of All Daily NHC Storm Updates

## **Expanded Reports**

- Decennial SF1 Population & Housing Characteristics
- 2010 Jobs Data, Worker Sex

## **New Analyses & Visualizations**

- Charting & Thematic Map Overlays Showing Population & Worker Distributions

## **New Interoperability**

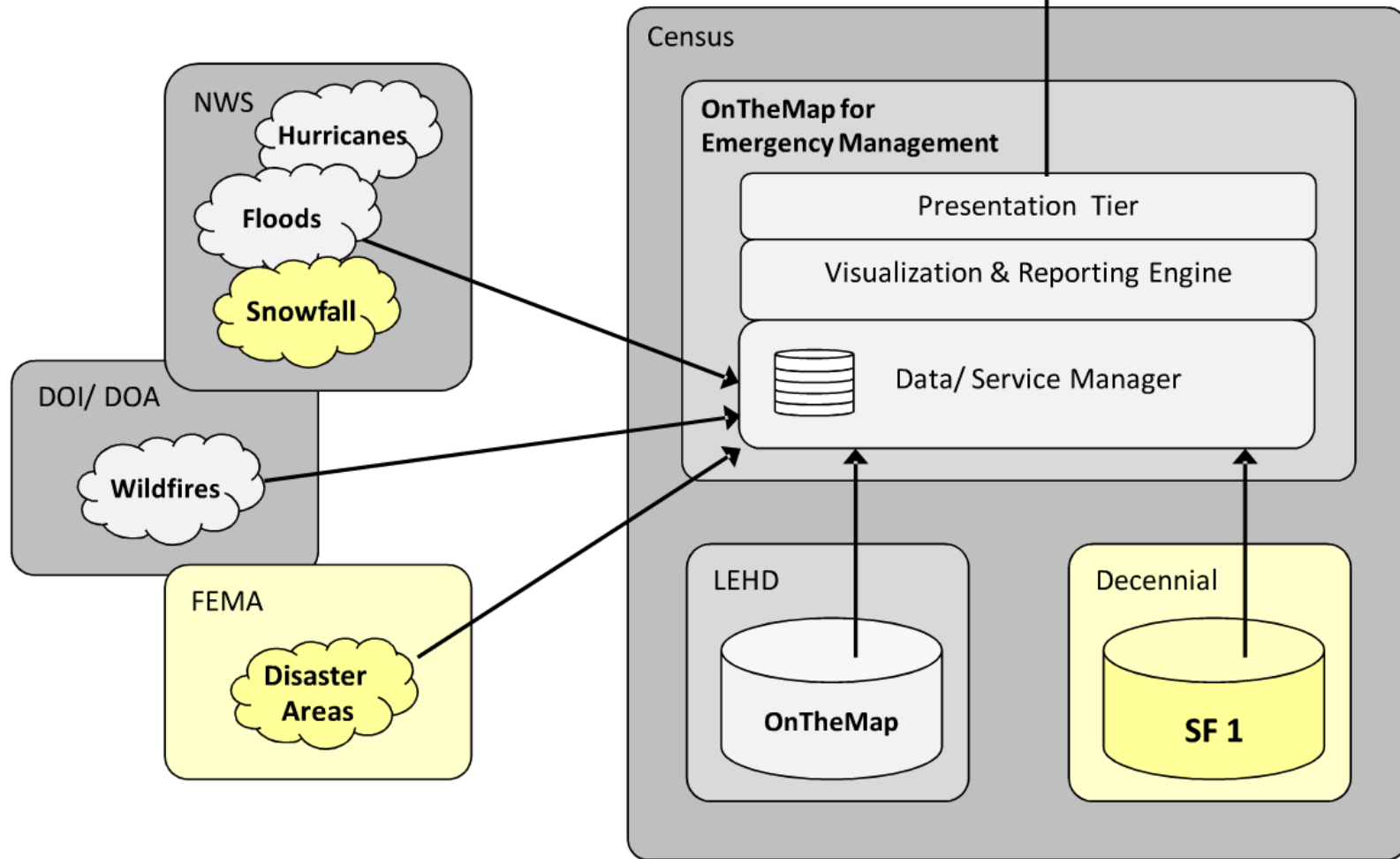
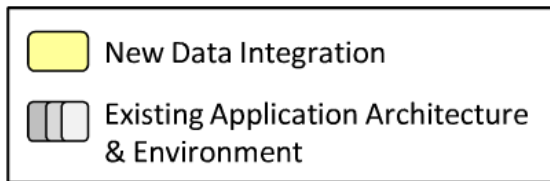
- Export Event Areas for use in OnTheMap or GIS Applications

## **Updated Interface & Help Documentation**

- OTM Style Interface
- Improved Speed and Navigability
- Improved Event Searching;
- Updated Help Documentation



# Version 3 – Application Architecture & Environment



# Version 3 Enhancements – Disaster Declaration Areas

Source:



Content:

Declaration Areas, Incident Type, Incident Period

Update

Frequency:

Post-declaration

Data Type:

Polygonal;  
shapefiles; KML

Access

Method:

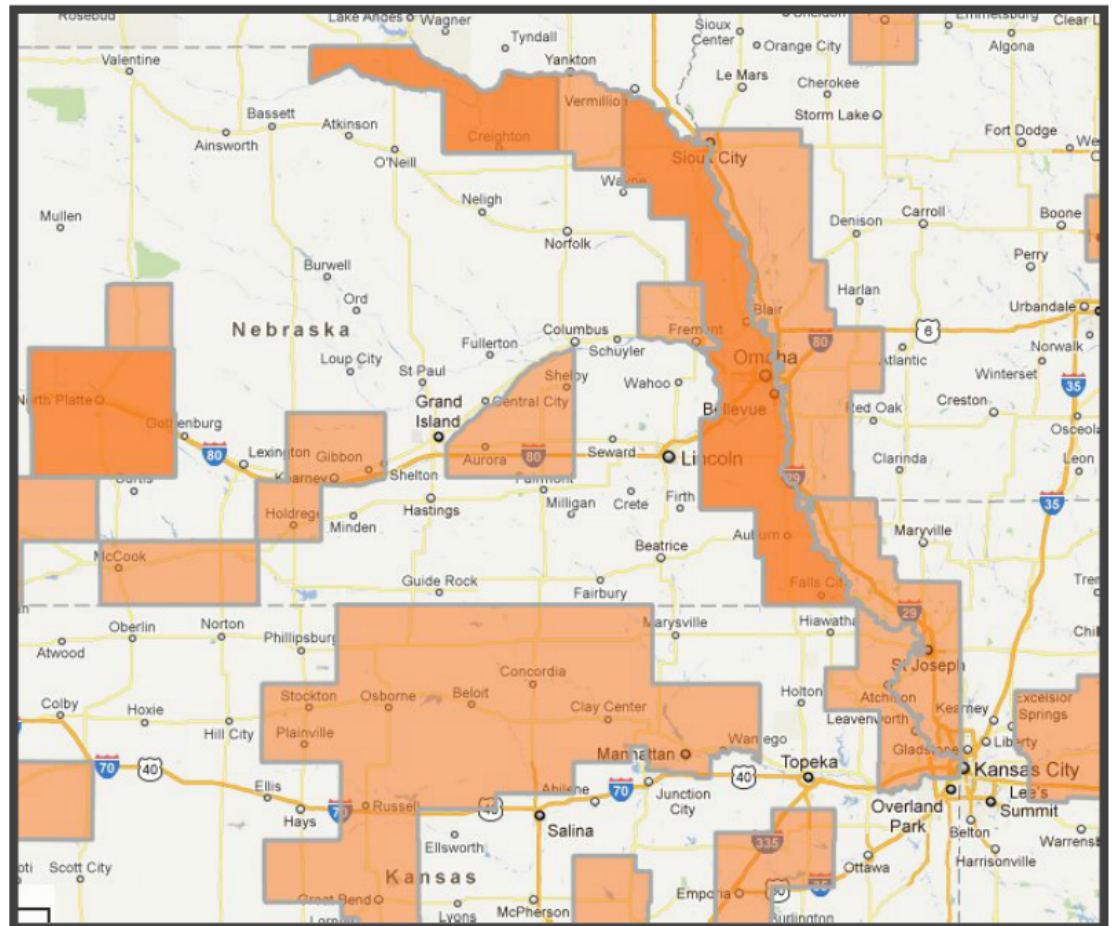
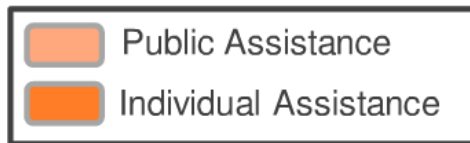
RSS

Classes:

Assistance Type

Spatial Unit:

County





# Version 3 Enhancements – Snowfall Probability Forecasts

**Source:** NOAA National Weather Service



**Content:** Snowfall probability/depth for elevations under 7500 ft

**Update**

**Frequency:** Daily (valid for 24hr)

**Data Type:** Polygonal; shapefiles; KML

**Access**

**Method:** RSS

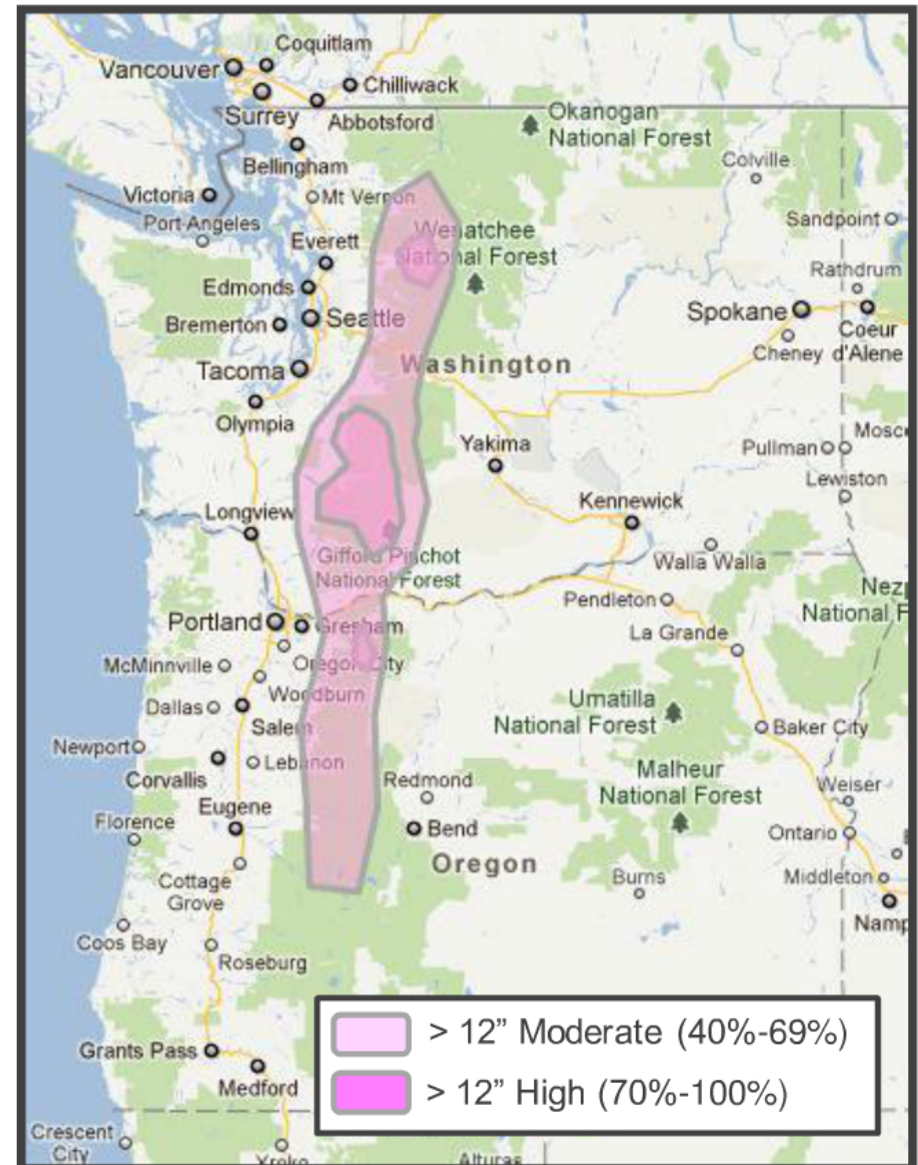
**Classes:**

**Forecast:** > 4", 8" 12"

**Likelihood:** Slight(10-39%)

Moderate(40-69%), High(70-100%)

**Spatial Unit:** Sub-county



# Version 3 Enhancements – Decennial Summary File 1



**Source:** Census  
**Content:** Population Demographic & Housing Characteristics

**Update Frequency:** Decennial

**Data Type:** CSV

**Access Method:** FTP Download

**Spatial Unit:** Block

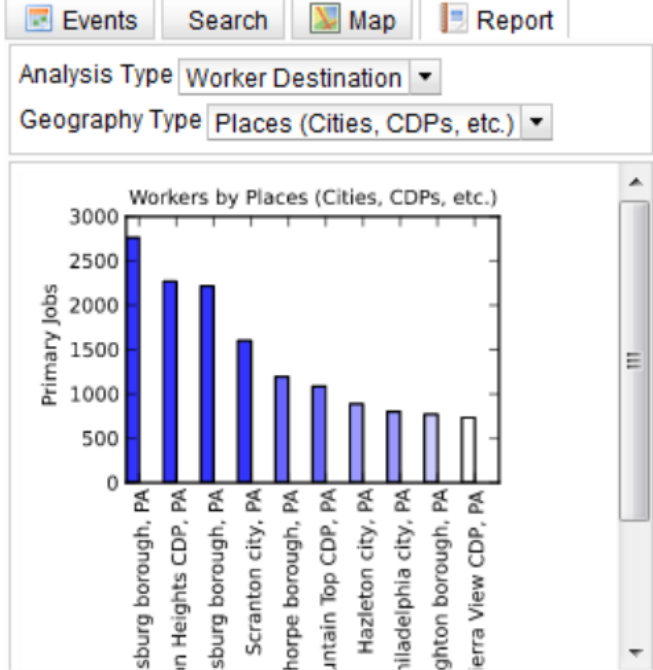
<u>Housing</u>		
	Count	Share
Total Housing	324,567	100.0%
Vacant	40,494	12.5%
Occupied	284,073	87.5%
<u>Occupied Housing</u>		
	Count	Share
Occupied	284,073	100.0%
Owner-Occupied	186,578	65.7%
Renter-Occupied	97,495	34.3%
<u>Vacant Housing</u>		
	Count	Share
Vacant	40,494	100.0%
For Rent	14,916	36.8%
For Sale	6,437	15.9%
Occasional Use	2,262	5.6%
<u>Population by Housing</u>		
	Count	Share
Owner Occupied Population	468,158	65.7%
Renter Occupied Population	227,654	31.9%

<u>Potentially Affected Population</u>		
Total	Count	Share
	712,700	100.0%
<u>Population by Age</u>		
	Count	Share
18 and over	544,659	76.4%
0 - 17	168,041	23.6%
18 and 19	19,981	2.8%
20 - 24	49,790	7.0%
25 - 34	100,104	14.0%
35 - 49	140,713	19.7%
50 - 64	139,938	19.6%
65 and above	94,133	13.2%
<u>Population by Race</u>		
	Count	Share
White	389,083	54.6%
African American	288,031	40.4%
Asian	9,318	1.3%
NHPI	304	0.0%
Some Other Race	16,228	2.3%
<u>Population by Ethnicity</u>		
	Count	Share
Hispanic or Latino	29,022	4.1%
Not Hispanic or Latino	683,678	95.9%
<u>Population by Sex</u>		
	Count	Share
Male	338,401	47.5%
Female	374,299	52.5%



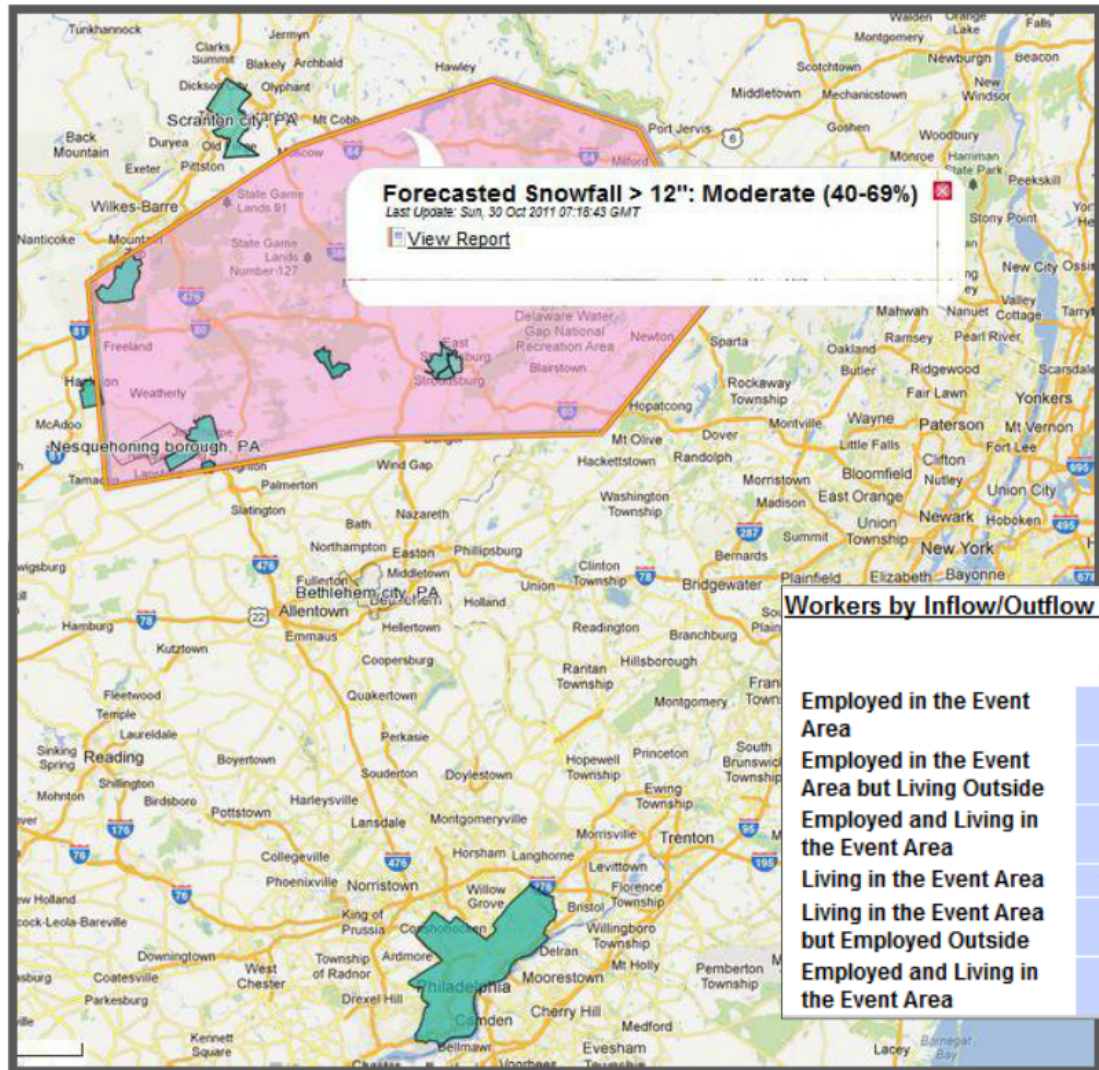
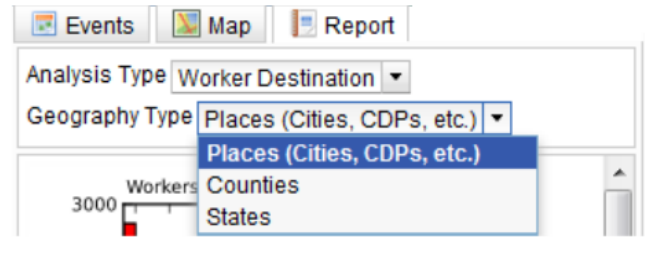
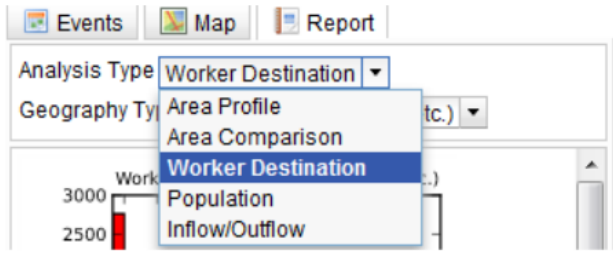
# Version 3 Enhancements – Charting & Visualizations

## OnTheMap for Emergency



Workers by Places (Cities, CDPs, etc.)

	2009	
	Count	Share
East Stroudsburg borough, PA	2,764	2.9%
Arlington Heights CDP, PA	2,267	2.4%
Stroudsburg borough, PA	2,215	2.4%
Scranton city, PA	1,601	1.7%
Jim Thorpe borough, PA	1,196	1.3%
Mountain Top CDP, PA	1,087	1.2%
Hazleton city, PA	888	0.9%
Philadelphia city, PA	802	0.9%
Lehighnton borough, PA	772	0.8%



Workers by Inflow/Outflow Job Counts

	2009	
	Count	Share
Employed in the Event Area	94,222	-
Employed in the Event Area but Living Outside	45,701	-
Employed and Living in the Event Area	48,521	-
Living in the Event Area	126,357	-
Living in the Event Area but Employed Outside	77,836	-
Employed and Living in the Event Area	48,521	-



# Version 3 Enhancements – Charting & Visualizations

**Potentially Affected Population**

2009		
	Count	Share
Total	712,700	100.0%

**Population by Ethnicity**

2009		
	Count	Share
Hispanic or Latino	29,022	4.1%
Not Hispanic or Latino	683,678	95.9%

**Housing**

2009		
	Count	Share
Total Housing	324,567	100.0%
Vacant	40,494	12.5%
Occupied	284,073	87.5%

**Population by Age**

2009		
	Count	Share
18 and over	544,659	76.4%
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50 - 64	139,938	19.6%
65 and above	94,133	13.2%

**Occupied Housing**

2009		
	Count	Share
Occupied	284,073	100.0%
Owner-Occupied	186,578	65.7%
Renter-Occupied	97,495	34.3%

**Population by Race**

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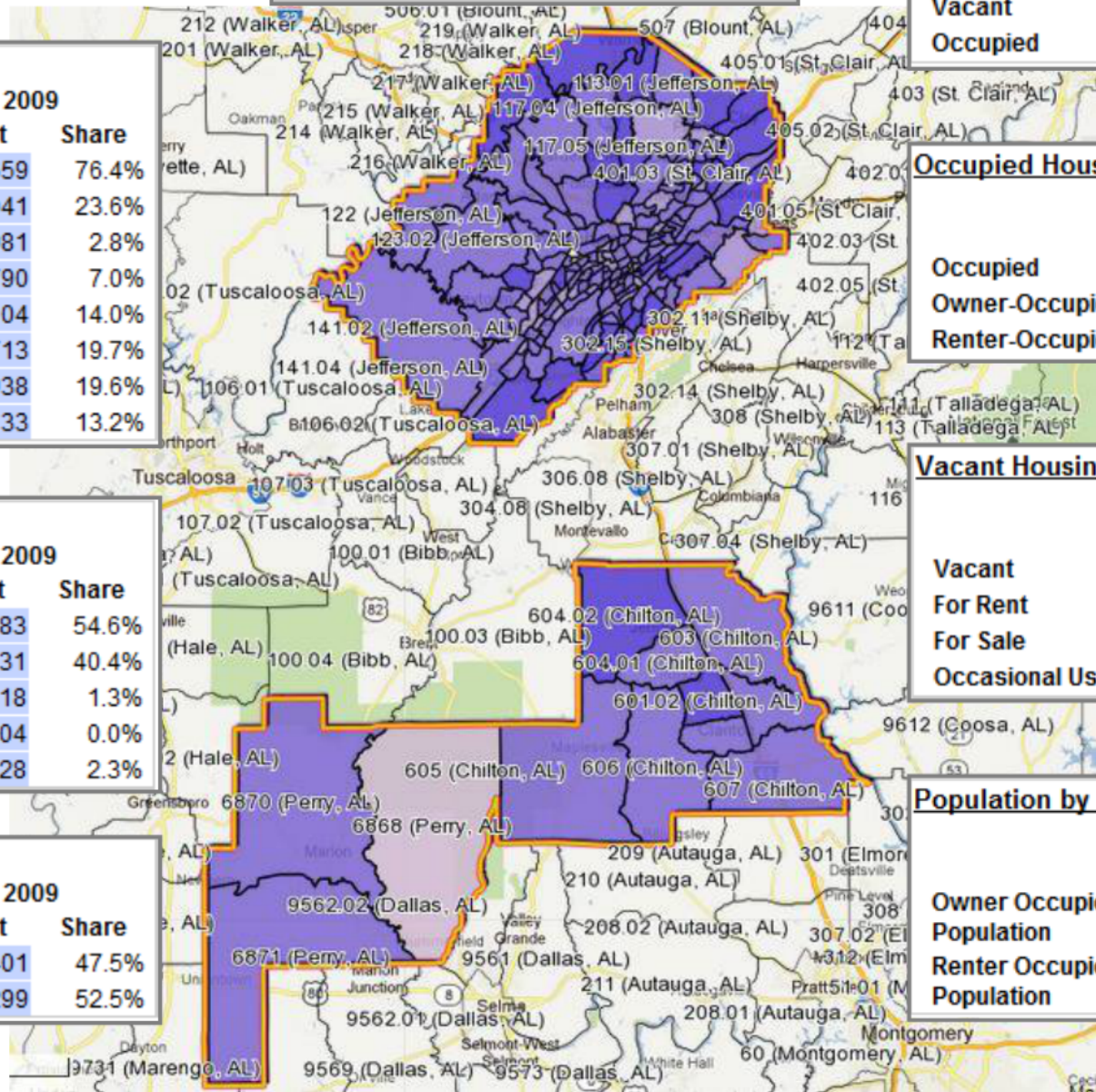
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2009		
	Count	Share
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# OnTheMap for Emergency Management – Uses

## Assessing Workforce Impacts

- How many affected workers?
- Number of affected workers by geography?
- Age, Earnings, Education, Race, Ethnicity, Sex of affected workforce?
- What are the affected Industries?
- Where do workers live who work in affected area? **New**

## Assessing Population Impacts

- How many affected Residents? **New**
- Age, Race, Ethnicity, Sex, Housing Status of affected Residents? **New**

## Emergency Preparedness & Response Planning

- Where should response efforts concentrate?
- Are there vulnerable population segments? **New**
- Uncover relationship between home-work locations for affected workforce **New**

# What's Next?

- ❖ **Version 3 Release Planned for Summer 2012**
- ❖ **If interested in getting involved, sharing experiences, or providing feedback...please contact:**

[CES.Local.Employment.Dynamics@census.gov](mailto:CES.Local.Employment.Dynamics@census.gov)