



# Disaster Assessment:

## A Labor Market Perspective



# **Disaster Assessment: A Labor Market Perspective**

by

**Allan B. Ross**

[Allan.Ross@illinois.gov](mailto:Allan.Ross@illinois.gov)

and

**George W. Putnam**

[George.Putnam@illinois.gov](mailto:George.Putnam@illinois.gov)

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[http://lmi.ides.state.il.us/LED/Disaster Assessment.pdf](http://lmi.ides.state.il.us/LED/Disaster%20Assessment.pdf)

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# DISASTER ASSESSMENT: A LABOR MARKET PERSPECTIVE

## Introduction

Estimates of casualties and assessments of property damage are commonly published in the wake of disasters, but timely information on disruptions to labor markets has not been readily available. Statistical products concerned with labor markets utilize data mostly organized in terms of traditional geographies such as cities, regions, and states. But typical disasters are not confined to areas within political boundaries.

This document presents a step-by-step method for using the OnTheMap (OTM)<sup>1</sup> Web application to study labor markets in areas that suffer disasters. OTM makes it possible to map and report on labor market characteristics of areas virtually without regard to the borders of traditional geographic areas. OTM data are granular down to the level of Census Blocks, and can be aggregated from Census Blocks to encompass any shape, without regard to any other type of political division. OTM can generate maps and reports that encompass neighborhoods, cities, regions, and states, or any part of such geographies, down to the Census Block.

OTM has the unique ability among statistical products to generate useful information about jobs in areas that closely conform to the surface areas devastated by disasters. The information generated through such studies can promote understanding of how disasters may affect the labor market, and can answer such questions as:

- What industries are located in the area, and how many jobs does each industry provide?
- What is the quality of the jobs in terms of wages earned?
- What is the percentage of younger and older workers?
- From which cities, counties, and states do most workers commute?

This methodology relies on the Internet to acquire detailed real-time information about the event. Most critical is the event's geographic location, which is essential to specify criteria for OTM reports and maps. Although this document is directed toward disaster assessment, the techniques presented can be used for other types of study. This document encompasses some of the most straightforward features of OTM; users are encouraged to experiment with features that are not covered herein, such as donut and plume work area selection options and various rollup and map precision options.

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<sup>1</sup> OTM was developed through a cooperative effort between the U. S. Census Bureau and State Employment Security Agencies (SESA's). This document is based on OTM version 3.2 but improvements are occasionally released for the product and/or its underlying data; such updates are designated as version 3.1, 3.2, etc. OTM is available without cost and without a requirement to register, under *Quick Links* on the U. S. Census Bureau's *Longitudinal Employment-Household Dynamics* (LEHD) page at <http://lehd.did.census.gov/led/>. Illinois users are encouraged to access OTM through the state's *Local Employment Dynamics* Web site at <http://lmi.ides.state.il.us/led>.

The five sections in this guide are:

### Section

- 1 Gather Information. Presents suggestions for finding detailed information about the nature of a disaster and where it occurred, focusing on information needed to effectively use OnTheMap.
- 2 Define Physical Location(s) of the Disaster. Describes Internet-based tools to enhance and elaborate on the information gathered in the first section, primarily to determine the location(s) of the disaster. Typically these sources provide such locations in terms of place names, landmark names, or street addresses.
- 3 Specify Study Criteria. Outlines how to use OTM to display the desired map area, define the study area, and enter selection criteria for reports.
- 4 Using OTM Reports. Introduces the kinds of information provided by OTM reports and how to interpret it.
- 5 OTM and Disaster-Related Initial Claims. Recommends a way State Employment Security Agencies can utilize OTM to estimate disaster-related UI claims activity.



### Case Study

Within each section you will find boxes like this, which contain details about a case study that shows practical use of the techniques. The study event is an actual disaster, a tornado that touched down near a high school in Southaven, MS, on February 5, 2008, devastating an 11-mile path that ended near a shopping center in Memphis, TN. One reason this event was selected was to take advantage of OTM's unique ability to work with data involving multiple states.

It is suggested that users develop basic familiarity with OTM before using this document, even though detailed step-by-step procedures are provided. The U. S. Census Bureau offers free training documents at its LEHD Home Page <http://lehd.did.census.gov/> and the LED OnTheMap Home Page <http://lehdmap3.did.census.gov/themap3/> .

OTM currently makes data available for the second quarter of each year from 2002 to 2006; however 2006 data for Mississippi are not available, a consequence of Hurricane Katrina, which struck the Gulf Coast on August 29, 2005. For that reason, 2005 data were used to generate the reports and maps referred to in this study.

## Section 1. Gather Information

Begin your analysis by gathering detailed, real-time information about important attributes of the disaster. This section focuses on use of the Internet to gather detailed information about the event, especially geographic details. This information will be utilized in Section 3 (below), where the focus is on techniques for using OTM. Following is an overview of the kinds of information that form the basis for study:

Attribute	Explanation or Example
Type of disaster <sup>2</sup>	Tornado, flood, earthquake, hurricane, major fire, toxic gas release, civil disobedience, terrorist attack.
Date, time, and duration	The date and time of both the start and end of the event.
Physical location	The location in terms of cities and towns, drilled down to place names, landmarks, latitude and longitude, or street or highway intersections. If the event traveled, as would be typical for tornados and hurricanes, specify the starting point, path traveled, and end point.
Extent of the destruction	A concise statement of the damage caused by the event, emphasizing attributes affecting labor markets; for example, a statement that all stores and offices in a defined area were leveled.
Estimated duration of disruption caused by the event	Example: "Area will be quarantined for 3-5 weeks."

The Internet makes it possible to find this information quickly, through use of a browser such as Mozilla Firefox or Internet Explorer, and a search engine such as Google or Yahoo. Begin searching by using a Web browser to find references. Type multiple search words or phrases that describe the information you want to find into the search box; for example, "tornados arkansas feb 2008". Then click on the Enter key or the search engine's Search button.

The search engine will respond with a list of Web pages related to your search terms; those the browser deems most useful and relevant will appear first. The Web pages will have been created by a variety of government agencies, not-for-profit organizations, private businesses, news media, and individuals.

Following is a guide to some of the most useful Web pages. You may prefer to directly browse one or more of these pages without a search engine.

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<sup>2</sup> When the President declares a major disaster, federal recovery programs become available to help businesses, public entities, and victims. These programs may be matched by state programs.

### 1.1 National Weather Service

The National Weather Service (NWS), part of the National Oceanic and Atmospheric Administration (NOAA), provides data and products that form a data source and infrastructure on weather, hydrology, and climate, intended for use by other governmental agencies and the public. The agency's Web site, <http://www.nws.noaa.gov/>, is oriented towards weather forecasts and climate studies, but details about the locations of recent disasters can be found at their Web site under Text Messages. It may be easier to find relevant NWS bulletins with the Web browser.

### 1.2 Wikipedia

Wikipedia is the largest general reference work on the Internet. Its articles are written by volunteers around the world, and nearly all of its articles can be edited by anyone with access to the Internet. In addition to being an encyclopedic reference, Wikipedia is an online source of breaking news, and it is constantly updated; hence its great value as a source of real-time information about disasters. Since anyone can create or edit a Wikipedia article, it may be advisable to verify its contents against other sources of information. Finding relevant articles in Wikipedia can be tricky; in some cases it may be easier to find relevant Wikipedia articles with a Web browser than directly with Wikipedia's Web page at <http://en.wikipedia.org/>.

### 1.3 Disaster News Network

Disaster News Network (DNN) is a news service that tells the story of disaster response and suggests appropriate ways the public can help survivors. It also facilitates information sharing among disaster responders. DNN is produced by the Village Life Company, a not-for-profit organization that creates content for social justice-related Web sites. DNN's Web site is at <http://www.disasternews.net/>.

### 1.4 Media Web Pages

Major newspapers and TV stations cover local disasters intensively, and so can be outstanding sources of timely and detailed information. Many of these entities sponsor Web sites that are updated 24 x 7; there are hundreds of such sites, so no attempt is made to list them here. However your browser can find them for you. For example, performing a search on "chicago il news websites" yielded a list of links to all the Chicago newspapers, and all the local radio and TV stations that have news departments.

### 1.5 Private Industrial Web Pages

When a private entity has been hit by a disaster, that organization may publish information on its Web page concerning how it was affected. For example, a shopping center that suffered damage may publish news about store closings and the possible reopening date.

### 1.6 Blogs

Web logs, commonly referred to as blogs, are Web sites that can provide useful information about the area affected by an event, the extent of the damage, and the expected duration of interruption. A blog can be a rich source of relevant information combining text, images, and links to other blogs, Web pages, and other media related to the topic. This information may be useful both at the beginning of a study and for later follow-up. Blogs are commonly maintained by individuals, and provide whatever content their owner wishes. Blogs must be used with caution because there is generally little or no editorial review, and some blog content is spurious or even obscene. The way to discover useful blogs is to follow links generated by the

browser, because there are millions of blogs on the Web.<sup>3</sup> Some workplace firewalls block access to blogs, so you may be unable to link to them.

### 1.7 Federal Emergency Management Agency

The Federal Emergency Management Agency (FEMA), a part of the Department of Homeland Security (DHS), has a primary mission "...to reduce the loss of life and property and protect the Nation from all hazards, including natural disasters, acts of terrorism, and other man-made disasters, by leading and supporting the Nation in a risk-based, comprehensive emergency management system of preparedness, protection, response, recovery, and mitigation." FEMA's Web page for disasters, <http://www.fema.gov/hazard/index.shtm>, is a source of historical information about some federally-declared disasters and emergencies, but it has not been a leading source of real-time information, in part because of the time required for declaring disasters and in part because of the time required to develop some of its papers. If an event does not receive federal declaration as a disaster or emergency, it will not be represented at the FEMA site—and even if it does receive such declaration, the FEMA site may provide little or no labor market information.

### 1.8 State Emergency Management Agencies

Some state emergency management agencies and public safety agencies may be good sources of information about disasters within their state. It is suggested that you ascertain if your state has such an agency and, if so, what information it provides that may be useful for analysis of disasters.



#### Case Study

One of the pages listed by Google was a National Weather Service bulletin dated 02/06/2008, which contained reports on a series of tornados that occurred on 02/05/2008. Following is part of one of the reports, for Memphis, TN, at Web page <http://www.srh.noaa.gov/meg/events/20080205/lsr.php> :

...THIS TORNADO CONTINUED FROM SOUTHAVEN MISSISSIPPI AND PROCEEDED NORTHEAST TO NEAR THE MEMPHIS INTERNATIONAL AIRPORT. THE TORNADO STRUCK THE DSC WAREHOUSE CAUSING THE 3 FATALITIES...THEN CONTINUED NORTHEAST CAUSING DAMAGE AT THE HICKORY RIDGE MALL AND 6 ADDITIONAL INJURIES BEFORE LIFTING AT 545 PM CST. THE TOTAL TORNADO PATH LENGTH WAS 11 MILES AND WIDTH WAS ONE QUARTER MILE.

Note: Other Web references pinpointed the starting location as Southaven High School, and located the DSC Warehouse as just southwest of the mall.

The reference to the Hickory Ridge Mall in the NWS bulletin suggested making a Google query on the name of the mall. Google replied with, among other references, a link to the mall's Web page, <http://www.hickoryridge.com/> .

<sup>3</sup> A blog search engine named Technorati (at <http://technorati.com/>) recently reported that it tracks more than 112 million blogs.



### Case Study (cont'd)

Following is an excerpt from that page:

#### **Hickory Ridge Mall Closed Due to Tornado Damage**

Hickory Ridge Mall is closed due to damages sustained by the February 5, 2008 tornado. We are eager to reopen our doors soon to serve our community. We will continue to update this site on the status of the mall with information as it becomes available.

## **Section 2. Define Physical Location(s) of the Disaster**

OnTheMap provides several methods of positioning to a study area through use of a cursor to select an area on a map drawn on your computer's screen. Selecting areas that encompass a "selection layer" can be done with little or no preparation. OTM provides multiple types of selection layers, some of which are: Census Tracts, Cities and Towns, Congressional Districts, and Zip Code Areas.

But areas affected by disasters do not tend to fall within defined political boundaries. The area of the case study's tornado, for example, is stated as beginning at a high school and ending at a shopping center. OTM does not support use of place names, landmark names, addresses, intersections, or latitude & longitude. When working with such information, it becomes necessary to work with a third-party tool you can use to develop a map that contains the kind of information that works with OTM. The goal is to develop a map that shows street or highway intersections, which we refer to as a *preliminary map*.

### 2.1 How To Generate a Preliminary Map Using Place or Landmark Names



#### Case Study

MapQuest and Google Maps are popular Web tools that can generate maps using place and landmark names, addresses, or street intersections. We use MapQuest to generate a *preliminary map* using information from the National Weather Service bulletin shown in Section 1. Our objective is to find the places where the tornado first made contact with the ground (Southaven High School in Southaven, MS) and where it ended (Hickory Ridge Mall in Memphis, TN).

- 2.1.1 Visit MapQuest at <http://www.mapquest.com/>  
Fill in the information you know:

Enter the place name, city, and state

Then click Search

Maps - Enter as much as you know

Find a Business (optional) e.g., Hilton or Hotel

southaven high school

Look up [Category](#) or [Airport](#)

Address or Intersection

City State ZIP Code

southaven ms

Search

- 2.1.2 MapQuest may return one or more locations, as shown below. Select the correct location.

Click [Map](#) to select the correct location

Maps - Enter as much as you know

Place Name (optional) e.g., Restaurants or Schools

Southaven High School

Look up [Category](#) or [Airport](#)

Address or Intersection

City State ZIP Code

Southaven MS

Search

• [U.S. & Canada](#)  
• [Outside U.S. & Canada](#)  
• [Map by Lat/Long](#)  
• [See What's in Your Neighborhood](#)  
• [World Atlas](#)

Please select one.  
4 results for **Southaven High School** near Southaven, MS

[Refine Your Search](#)

Relevance Distance Alpha

- 1. Southaven High School**  
735 Rasco Rd W, Southaven, MS (0.96 miles away)  
662-393-9300  
[Map](#) | [Directions To](#) | [Directions From](#)  
[Places Nearby](#) | [Website](#) | [Send to Cell](#)  
Category: Schools (K-12)
- 2. Southaven Middle School**  
175 Rasco Rd E, Southaven, MS (1.53 miles away)  
662-280-0422  
[Map](#) | [Directions To](#) | [Directions From](#)  
[Places Nearby](#) | [Send to Cell](#)  
Category: Schools (K-12)
- 3. Desoto Central Middle School**  
2611 Central Pkwy, Southaven, MS (4.91 miles away)  
662-349-6660  
[Map](#) | [Directions To](#) | [Directions From](#)  
[Places Nearby](#) | [Send to Cell](#)  
Category: Schools (K-12)
- 4. Desoto Central High School**  
2911 Central Pkwy, Southaven, MS (5.35 miles away)  
662-536-3612

MAPQUEST

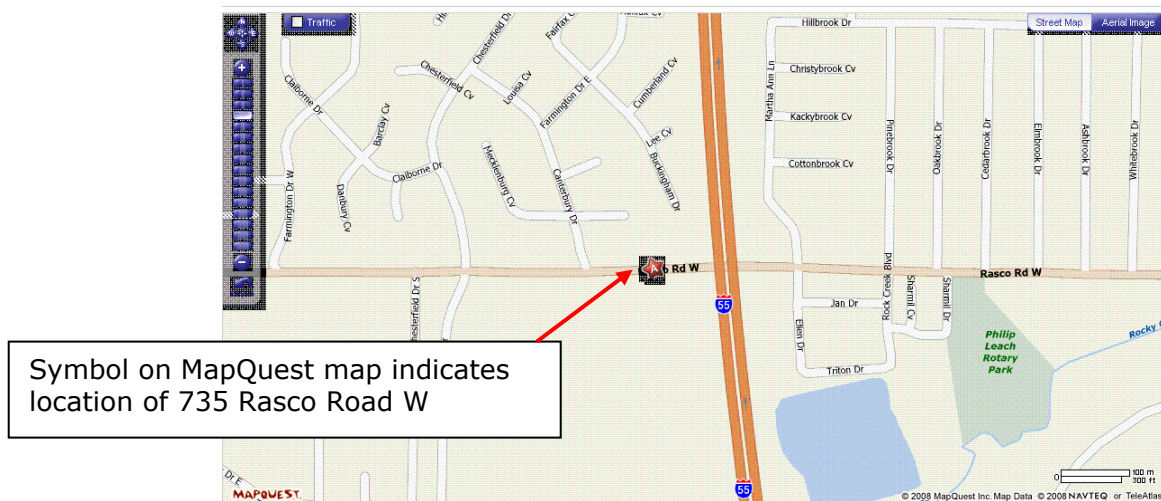
Southaven

Swineea Rd

Rocky Creek

1mi

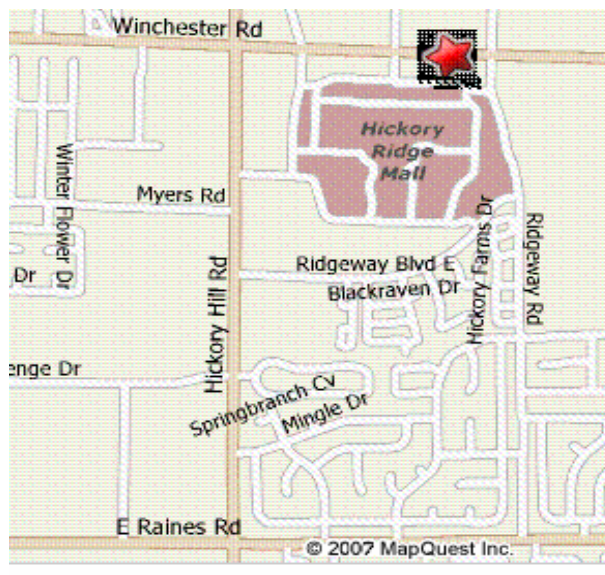
- 2.1.3 Zoom in or out to produce a map that shows the street and highway names in the area of interest.



Print this map for your later reference, when you navigate to the same location in OTM (in Paragraph 3.1.3 below).

This is a map of the other end of the tornado path, developed using the same technique. The mall is southeast of the intersection of Winchester Rd. and Hickory Hill Rd.

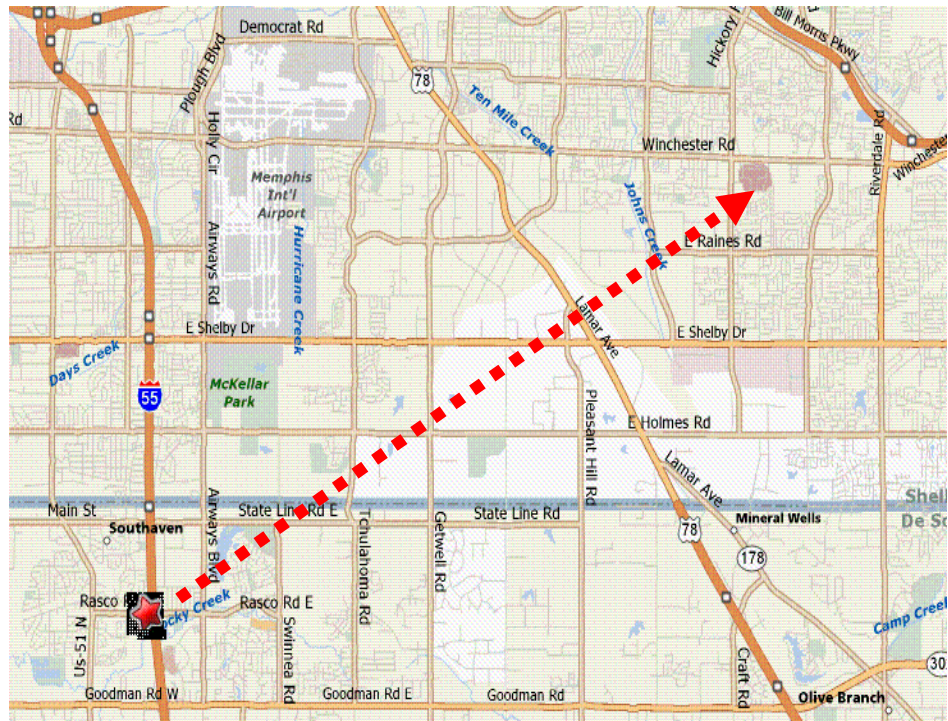
Print this map as well.



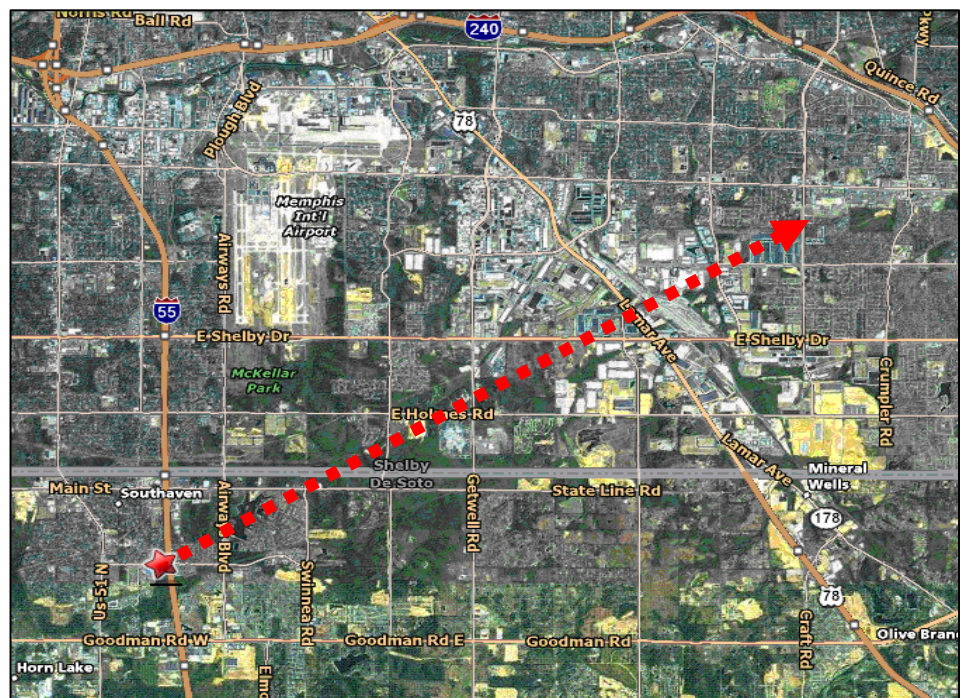


2.1.4. Your understanding of an event that moves, like a tornado, may be enhanced by seeing a map of the entire path. MapQuest and Google Maps also can provide an aerial view together with a map.

The tornado's path, drawn over a MapQuest map.



Viewing aerial photography of the disaster area can inform understanding of the data. Here the tornado's path is drawn over a MapQuest aerial view. Part of the terrain appears to be industrial, and part appears to not be developed.



2.1.5 Occasionally you may need to work with a location defined in terms of latitude and longitude. OTM cannot use latitude and longitude, but MapQuest can. To access this feature, visit <http://www.mapquest.com/maps.latlong.adp> .

You may enter the latitude  
& longitude here...

...or here

The screenshot shows the MapQuest 'Maps - By Lat/Long' interface. It has a title bar with a MapQuest logo and the text 'Maps - By Lat/Long'. Below the title bar, there are two sections for entering coordinates. The first section is titled 'Map a lat/long coordinate using degrees.' and contains input fields for 'Latitude: (e.g., 40 02 40)' with sub-fields for 'Degrees', 'Minutes', and 'Seconds', and 'Longitude: (e.g., -76 24 45)' with sub-fields for 'Degrees', 'Minutes', and 'Seconds'. A 'Get Map' button is below these fields. The second section is separated by a '-OR-' separator and is titled 'Map a lat/long coordinate using decimal values.' It contains input fields for 'Latitude: (e.g., 40.0446)' with the value '35.6331' entered, and 'Longitude: (e.g., -76.4131)' with the value '-88.8208' entered. A 'Get Map' button is also present. At the bottom, there is a list of links: 'U.S. & Canada', 'Outside U.S. & Canada', 'Map by Lat/Long', 'See What's in Your Neighborhood', and 'World Atlas'.

**Maps - By Lat/Long**

**Map a lat/long coordinate using degrees.**

**Latitude:** (e.g., 40 02 40)

**Longitude:** (e.g., -76 24 45)

-OR-

**Map a lat/long coordinate using decimal values.**

**Latitude:** (e.g., 40.0446)

**Longitude:** (e.g., -76.4131)

- [U.S. & Canada](#)
- [Outside U.S. & Canada](#)
- [Map by Lat/Long](#)
- [See What's in Your Neighborhood](#)
- [World Atlas](#)

### Section 3. Specify Study Criteria

At this point we have gathered relevant details about the disaster. We have:

- ✓ Defined the type of disaster and its date, time, and duration
- ✓ Specified its physical location including its travels (i.e., the tornado's path)
- ✓ Generated one or more preliminary maps to help us find the location on an OTM map
- ✓ Noted the extent of the destruction, as well as the estimated duration of disruption following the event

We are ready to use the OTM application, which entails:

- Navigating OnTheMap to display a map area that includes the study area
- Defining the area within the displayed map for study
- Entering selection criteria for the report(s)
- Generating and capturing the report(s) and/or maps generated by OTM

#### 3.1 Navigate OTM to display a map area that includes the study area.

- Start OTM by visiting <http://lehdm3.did.census.gov/>.<sup>4</sup> Some states also provide access to OTM; for example, the application can be invoked through Illinois' *Local Employment Dynamics* Web site at <http://lmi.ides.state.il.us/led>.
- Enter the name of a state, county, city, military base, One-Stop Career Center, Workforce Investment Area, Metropolitan/Micropolitan area, or Zip code. Accept the default "Map Mode" in the Map or Text-Only box. Click Enter.
- The *Search* screen appears, displaying the names that match the name you entered. Some names appear multiple times; for example, "Memphis" generates a list of:
  - cities in nine states
  - two military bases
  - three One-Stop Career Centers
  - one metropolitan area
  - counties in four states
  - four school districts.

Click the occurrence you want displayed. OTM will return a map that contains the place you select.

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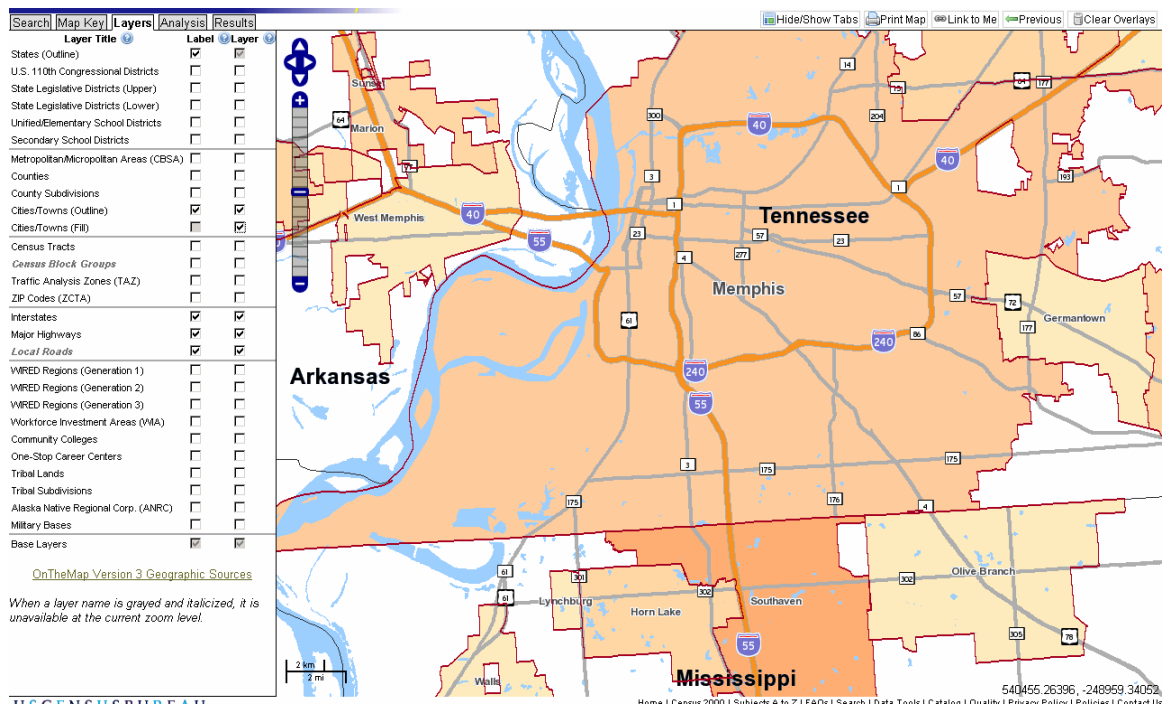
<sup>4</sup> To generate optimal map displays, set your monitor's resolution to the highest available setting (e.g., 1280 x 1024 pixels). Unfortunately this will also result in smaller text and tool displays; if the small text is difficult to read, using a lower resolution setting may be an acceptable compromise.



## Case Study

Enter *Memphis* in the Place Name box of the main OnTheMap screen, and click Enter. The Search screen appears, with multiple instances of the name Memphis; click on *Memphis, TN* under Cities/Towns. (Selecting *Memphis, TN* under either Metropolitan/Micropolitan Areas or County Subdivisions would also work.)

From Cities/Towns in the Name Search Results, select "Memphis, TN". OTM returns a Search screen that displays Memphis, TN and the surrounding cities and towns.



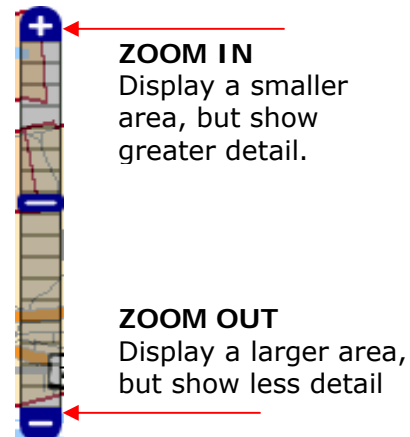
This OTM map, which centers on Memphis, Tennessee, shows portions of three states-- Arkansas, Tennessee, and Mississippi. The labor market analysis will encompass data from each of these states. The extraordinary flexibility in definition of interstate geographies is a unique feature of OTM.



### 3.2 Enter selection criteria for the report.

- Click the **Layers** button. Select the *labels* (geographic names, such as cities, counties, census tracts, etc.) and the *layers* (outlines and fills of geographic areas) you want to appear on the map. Hint: selecting too many layers can result in cluttered maps; in the interest of clarity, it is often desirable to select few layers.
- Navigate the map display to show the geographic area of interest. OTM offers the ability to customize the map display. Pictured is a tool that is available on OTM maps that enables you to zoom in or zoom out to change the scale of the map

Additionally you can change the displayed area by dragging the map up or down, left or right, with your cursor.



### 3.3 Click the **Analysis** button, then select various **Data Settings** options:

- **Live or Work.**
  - To study an area where workers are employed, select "Workplace Area."
  - To study an area where employed residents live, select "Home/Residential Area."

Note: This parameter and "Type of Analysis" (Work Area Profile Analysis or Labor Shed Analysis in Section 3.5, below) control the overall content of maps and reports. Table 1 presents the results you can expect from the various combinations of these parameters.
- **Year(s).** OTM will report the Second Quarter data for each year you select, for up to three years. If you select reporting for more than one year, the map that OTM generates will represent only the most recent year.
- **Job Type.** The available types of jobs are:
  - **All Jobs.** Jobs in both the public and private sectors. If a worker has multiple jobs, each is counted.
  - **Primary Jobs.** Workers' highest paying jobs whether in the public or private sector. Since a worker can only have one highest-paying job, this is a count of workers.
  - **All Private Jobs.** Jobs in the private sectors. If a worker has multiple private sector jobs, each is counted.
  - **Primary Private Jobs.** Workers' highest-paying private sector jobs. Since a worker can only have one highest-paying private sector job, this is a count of private sector workers.

You need to make two decisions when selecting Job Type:

#### 1. Are you studying jobs or workers?

- All Jobs and All Private Sector Jobs count each *job* as a discrete unit. As mentioned, if a worker has multiple jobs, each job is counted.



- Primary Jobs and Primary Private Jobs count only a worker's highest-paying job, the effect of which is to count each *worker* as a discrete unit. There is a one-to-one correspondence between the count of workers and the count of highest-paying jobs.
2. Are you concerned with all employment including public sector, or only private-sector employment?
- All Jobs and Primary Jobs include coverage of private and public-sector employment.
  - Private sector employment is most useful in instances where the state and local government workplaces are mapped to the location of a central headquarters instead of a physical location. For example, several public schools may be reported from a single district office. Or a state government agency may report all of its employees from a single payroll office, even though there may be local offices distributed throughout the state.

In this case study we use Primary Private Jobs as the Job Type. The focus of this disaster assessment is on the impact of the disaster on individual workers; i.e., primary jobs. In addition we have greater confidence in the geocoded private sector data and, hence, utilize private-sector jobs.

**TABLE 1**

**"TYPE OF ANALYSIS" AND "LIVE OR WORK" PARAMETERS**

Type of Analysis	Live (Residential Area)	Work (Workplace Area)
<b>Profile.</b> Report lists jobs by <ul style="list-style-type: none"> <li>• Worker Age <ul style="list-style-type: none"> <li>◦ Age 30 or younger</li> <li>◦ Age 31 to 54</li> <li>◦ Age 55 and older</li> </ul> </li> <li>♦ Earnings Per Month <ul style="list-style-type: none"> <li>◦ \$1,200 or less</li> <li>◦ \$1,201 to \$3,400</li> <li>◦ More than \$3,400</li> </ul> </li> <li>♦ Industry Type <ul style="list-style-type: none"> <li>◦ 20 industry sectors or 3 industry classes</li> </ul> </li> </ul>	Residential Area Profile <ul style="list-style-type: none"> <li>♦ Map shows where the area's employed residents live.</li> <li>♦ Report lists the characteristics of the employed residents of the area.</li> </ul>	Work Area Profile <ul style="list-style-type: none"> <li>♦ Map shows where the area's workers are employed.</li> <li>♦ Report lists the characteristics of the workers in the area.</li> </ul>
<b>Shed.</b> Report lists jobs by locations. Up to three rollups (summations) can be selected. <ul style="list-style-type: none"> <li>♦ Default rollups are top locations by <ul style="list-style-type: none"> <li>◦ Cities and Towns</li> <li>◦ Counties</li> <li>◦ States</li> </ul> </li> <li>♦ Some of the other available summations are Metropolitan/Micropolitan Areas, Workforce Investment Areas, and School Districts</li> </ul>	Commute Shed <ul style="list-style-type: none"> <li>♦ Map shows where the area's employed residents work.</li> <li>♦ Report lists the top work locations of the area's employed residents.</li> </ul>	Labor Shed <ul style="list-style-type: none"> <li>♦ Map shows where the area's workers live.</li> <li>♦ Report lists the top residence locations of the area's workers.</li> </ul>

- **Labor Market Segments.** Most often you will probably accept the default “All segments,” but occasionally you may want to select one of the following single segments:
  - **Age.**
    - ♦ 30 or younger
    - ♦ 31 to 54
    - ♦ 55 and older
  - **Earnings.**
    - ♦ \$1,200 or less
    - ♦ \$1,201 – 3,400
    - ♦ Greater than \$3,400.
  - **Industry Class.** Predefined groups of industries representing industry classes may be selected:
    - ♦ Goods Producing
    - ♦ Trade, Transportation, and Utilities
    - ♦ All other services

The industries comprising the three classes are listed on Table 2.

**TABLE 2**  
**INDUSTRY CLASSES SELECTABLE FOR AREA PROFILE REPORTS**

NAICS	Industry Sector	Industry Class		
		Goods Producing	Trade, Transportation, and Utilities	All Other Services
11	Agriculture, Forestry, Fishing and Hunting	Y		
21	Mining, Quarrying, and Oil and Gas Extraction	Y		
22	Utilities		Y	
23	Construction	Y		
31-33	Manufacturing	Y		
42	Wholesale Trade		Y	
44-45	Retail Trade		Y	
48-49	Transportation and Warehousing		Y	
51	Information			Y
52	Finance and Insurance			Y
53	Real Estate and Rental and Leasing			Y
54	Professional, Scientific, and Technical Services			Y
55	Management of Companies and Enterprises			Y
56	Admin & Support, Waste Mgmt and Remediation			Y
61	Educational Services			Y
62	Health Care and Social Assistance			Y
71	Arts, Entertainment, and Recreation			Y
72	Accommodation and Food Services			Y
81	Other Services (excluding Public Administration)			Y
92	Public Administration			Y

3.4 Click the Next button to invoke the Study Area Selection panel. Choose one of the selection tools listed as follows, and follow the instructions.

- **Layer.** Select standard geographies, such as states, counties, cities and towns. If you select this option, you will be able to select one of the following:
  - **Point(s).** After selecting this option, move the cursor over each desired geographic entity and click. You can select one or many entities (one or many cities, one or more counties, etc.), and the entities do not have to be contiguous.
  - **Line.** This is an optional method of selecting multiple entities. Position the cursor over the first entity, click and hold the right

mouse button, drag the cursor over part of each desired entity, and release the mouse button.

- **Modify Line.** After selecting the line option, you can add entities by extending the previous line. You can also change the shape of the line by double clicking on it, whereupon OTM will add points along the line which you can click on and move.
- **Freehand.** Use this tool to draw a freehand polygon enclosing the study area by dragging a mouse to define the border of the polygon.
- **Ring/Buffer.** Draws a point or a line on the map using a mouse. The distance from the point or line is selectable.
- **Donut.** Defines a selection area with a minimum and maximum distance (radius) from a selected point.
- **Plume.** Defines an area that expands in size from beginning to end.
- **Reuse Earlier Selection.** Enables creating a subsequent report based on criteria for the previous report.

3.5 Click the **Next** button twice to invoke the **Overlay/Report Analysis** screen.

- Enter a description in the Report Title box.
- Choose the type of analysis.
  - **Work Area Profile Analysis.** This map and report show concentrations of workers and their demographic characteristics (age, earnings, and industry) based on the selected work area and option settings. The report also contains ten experimental Quarterly Workforce Indicators (QWIs). Experimental data should be used with caution.
  - **Labor Shed Analysis.** The Labor Shed map shows where people live who are employed in the selection area. The report summarizes counts for up to 3 user-selected rollup areas.

Note: This parameter, together with “Live or Work” (“Workplace Area” or “Home/Residential Area” in Section 3.3, above) controls the overall content of maps and reports. Table 1 presents the results you can expect from the various combinations of these parameters.

- If you selected **Labor Shed Analysis**, select the summations (rollups) you want to appear on that report. You may simply accept the three default rollups—Cities/Towns, Counties, and States.
- Select the Map Precision, or No Map. You may accept the default (Automatic), or select precision at the Census Block, Census Tract, or County level. After OnTheMap generates your map, you will be able to change the precision.

3.6 Click the **Go** button. OTM calculates the data needed to satisfy your requests. Then it displays an appropriate map and offers options to generate reports in HTML, Excel, PDF formats. Section 4 (below) provides details on these reports.



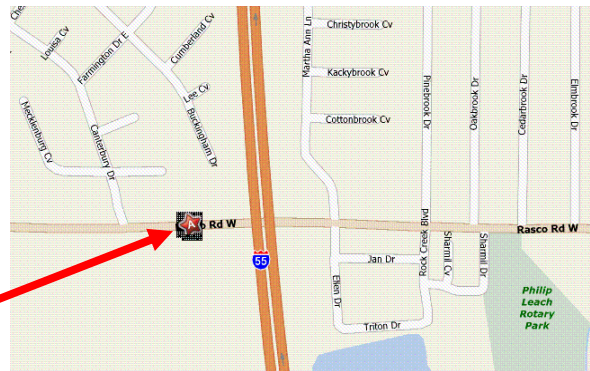
## Case Study

In selecting an area or areas to study, start with an understanding of what you are looking for. The case study is concerned with labor markets, so we focused most of our efforts in OTM on employment areas and some on residential areas. OTM can be of value in other kinds of investigation, such as transportation and urban planning, and the techniques presented in this document may be useful for such studies.

In order to gain an overall view of the labor market directly affected by the tornado, we first studied the entire area defined in the National Weather Service bulletin cited in Section 1.8 (above). We created a buffer  $\frac{1}{4}$  mile on each side of the 11 mile tornado path that began at the Southaven High School and ended at the Hickory Ridge Mall. Here are the steps that were followed:

We searched for one end of the tornado path using the MapQuest map created in Paragraph 2.1.3 (above). The relevant portion of that map is shown here.

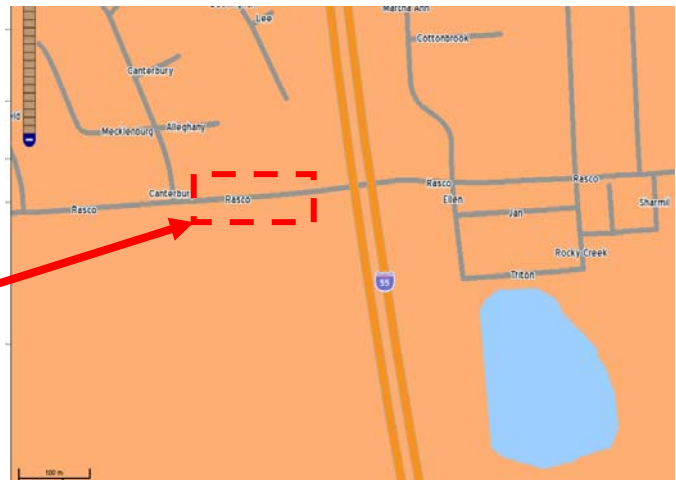
A MapQuest symbol identifies the location of the Southaven High School, the beginning of the tornado path.



Preliminary map (part of MapQuest map).

This is the same area as it appears on an OTM map. When using OTM, we will draw the start of the tornado's path from here.

Location of Southaven High School in OTM.



Corresponding part of an OTM Map.

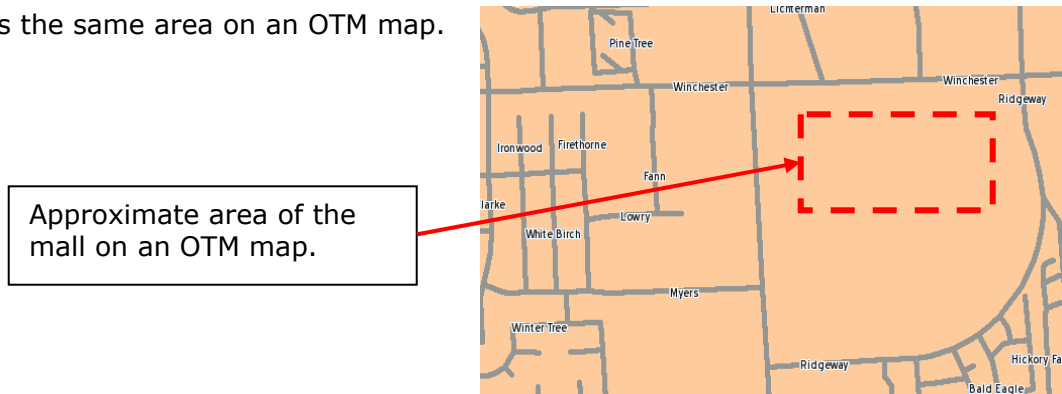
### Case Study (cont'd)

Then we located the other end using the same method. The relevant portion of the second preliminary map is shown here.



Preliminary map (portion of MapQuest map).

This is the same area on an OTM map.



Approximate area of the mall on an OTM map.

Corresponding portion of an OTM Map.

With a clear understanding of the end points of the desired buffer, we used the Ring/Buffer tool to draw the tornado path with a  $\frac{1}{4}$  mile radius. We then enhanced the map using the Background Map Tools and Display Options.

- The map area was zoomed out to encompass a wider geographic area.
- The area was re-centered.

Areas where workers in the study area reside were made visible by selecting the *Points* Display Option.

Having defined the tornado path and its ends, we decided to investigate the affected labor market in two ways: 1) along the entire tornado path, and 2) at the Hickory Ridge Mall.

Following are step-by-step procedures that generated the reports and maps that were the basis for our analysis, and which may be found in the appendixes. Each OTM query generates both a map and a report; either or both can be used in labor market studies. For our analysis we generated five reports and retained the maps corresponding to two of those reports.

To create the reports comprising Appendix 1, we copied HTML versions of the reports and pasted them into Excel to facilitate side-by-side presentation. We also performed some cosmetic changes in Excel to enhance the reports' appearance.

## Case Study (cont'd)

The sequence of the following procedures within each study area promotes effective use of OTM by preserving the shape of the study area while changing criteria for the generation of different reports.

### Study Area 1. The Entire Tornado Path

#### Workers employed in the tornado path area.

The following steps generate two reports on workers within the tornado path, a *Work Area Profile Analysis* and a *Labor Shed Analysis*. The *Work Area Profile Analysis* becomes the first column of Appendix 1, Reports 1 and 2, and the *Labor Shed Analysis* becomes the first column in Report 3 of that appendix. A map is also generated for each report; only the Labor Shed Analysis map was retained, becoming Appendix 2, Map 1.

- **Search:** Enter *Southaven*; then select *Southaven MS*. When the map appears, position it so the locations of both Southaven High School and the Hickory Ridge Mall are visible. Those locations were revealed by using Mapquest and Google Maps, in Section 2.
  - **Layers:** *States, Cities/Towns, Census Tracts, Interstates, Major Highways, Local Roads*.
  - **Analysis:**
    1. **Data Settings:**
      - ♦ Live or Work: *Workplace Area*
      - ♦ Year: Uncheck 2006 and check 2005. (Note: 2005 data is used for all analysis in this case study, as explained above in introductory panel for this case study.)
      - ♦ Job Type: *Primary Private Jobs*
      - ♦ Labor Market Segments: *All Workers*
    2. **Study Area Selection:**

*Line/Radius: .25 Miles.*

After making this selection, draw a straight line dragging the cursor between the locations of Southaven High School and Hickory Ridge Mall. Those locations were discovered previously using MapQuest. At this point the map portion of the OTM screen appears as the map to the right.
    3. **Advanced Area Selection:** No choices were made.
    4. **Map Overlay/Report:**
      - ♦ Report Title: "Tornado Path Workers"
      - ♦ Select the *Work Area Profile Analysis* radio button.
      - ♦ Rollups: Accept the three default selections (Cities/Towns, Counties, States)
      - ♦ Map Precision: Controls whether the map displays points as Census Blocks, Census Tracts, or Counties. Select *Tract* range. (*Block* precision would result in a more granular display of circles, but they would be more difficult to interpret).
- After making these selections, click the **Go** button.



**Results:** As indicated, the report was integrated into Appendix 1, Reports 1 and 2. The map displayed an array of points corresponding to work locations within the study area, but was not retained for the study.

## Case Study (cont'd)

Only one setting from the above steps that create the Work Area Profile Analysis needs to be changed to generate the *Labor Shed Analysis*. In "4. Map Overlay/Report," select the *Labor Shed Analysis* radio button instead of *Work Area Profile Analysis*, then click the Go! button.

- **Results:** As indicated, the report was integrated into Appendix 1, Report 3. The map displayed an array of points corresponding to residence locations of employees who work within the study area; it became Appendix 2, Map 1 (below).

## Residents of the tornado path.

The following steps generate a *Home Area Profile Analysis* report on employed residents of the tornado path area, and a map showing where employed residents of that area live. The *report* becomes the second column of Appendix 1, Report 2; the map was not retained for the analysis.

This procedure reuses the area that was selected for the previous procedures. Being dependent on work done in previous steps, this procedure cannot be used unless those steps have been executed. However, reuse guarantees that the area selected for the reports on resident workers is based on geography that is identical to the reports on workers employed.

Selection parameter changes were:

- **Analysis:**
  - 1. **Data Settings:** Live or Work: *Home/Residential Area* (this deselects the *Workplace Area* radio button).
  - 4. **Map Overlay/Report:**
    - ♦ Report Title: "Tornado Path Resident Workers Profile."
    - ♦ Select the *Commute Shed Analysis* radio button.
- **Results:**
  - ♦ Points caused OTM to display circles that represent the number of residents who work within each of the census tracts.
  - ♦ Thermals enable supplementing the display with thermal contours wherein darker colors indicate greater densities of workers per square mile.
- **Map Key:** Clicking on this button results in display of the map legend.

Only one setting from the above steps that create the Home Area Profile Analysis report needs to be changed to generate the Commute Shed Analysis report. In 4. *Map Overlay/Report*, select the *Commute Shed Analysis* radio button (which also deselects *Home Area Profile Analysis*), then click the *Go!* Button.

- **Results:**

The map displays an array of points corresponding to work locations of resident workers; i.e., the Commute Shed. It may be viewed as Appendix 2, Map 2.



## **Case Study** (cont'd)

### **Study Area 2. Hickory Ridge Mall**

The mall area was selected because it is a compact area of employment concentration that suffered severe damage. The National Weather Service bulletin and the Hickory Ridge Mall's Web page referred to in Section 1.8 (above) told us that severe damage to the mall forced its closing for an extended length of time. Many jobs were affected by the closure, so we studied the mall as a labor market geography.

Selection parameters for this map were:

- **Search:** Enter *Memphis*; when the list of Memphis locations appears, select *Memphis TN*.
- **Layers:** *States, Cities/Towns, Interstates, Major Highways, Local Roads, Census Tracts*.
- **Analysis:**
  - 1. **Data Settings:**
    - ♦ Live or Work: *Workplace Area*
    - ♦ Year(s): 2005
    - ♦ Job Type: *Primary Private Jobs*
    - ♦ Labor Market Segments: *All Workers*
  - 2. **Study Area Selection:** *Ring/Buffer / Point / Radius: .25 Miles*.  
After choosing these options, the cursor was dragged over the location of the mall and clicked. OTM responded by superimposing a circle encompassing a ¼-mile radius around that spot.
  - 3. **Advanced Area Selection:** No choices were made.
  - 4. **Map Overlay/Report:**
    - ♦ Report Title: "Area Profile, Hickory Ridge Mall"
    - ♦ The *Work Area Profile Analysis* radio button was selected (to generate a report of the age ranges, earnings ranges, and jobs by industry type for jobs in the mall).
    - ♦ Rollups: The three default selections were accepted (Cities/Towns, Counties, States).
    - ♦ Map Precision: the *Tract* range was selected.After making these selections, the **Go** button was clicked.
- **Results:**
  - ♦ The map generated contained a circle with a ¼ mile radius around the center of the mall. The circle contained a single data point, indicating that the circle contained only one Census Tract. The map was not used in the analysis.
  - ♦ The report is the basis for the "Hickory Ridge Mall" column of Appendix 1, Report 1.

The report was the basis for the "Hickory Ridge Mall" column in Appendix 1, Report 1. The map became Appendix 2, Map 3.

## **Case Study** (cont'd)

### **Study Area 3. Paired Area Study of the Tornado Path**

Section 5, on disaster-related initial UI claims, compares the number of workers employed within the tornado area who are also residents of that area. To generate that number, a Paired Area Report was created. Paired Area Reports allow specification of a second selection area to limit the destinations of the workers under analysis. The steps to generate this report are:

- **Search:** Enter *Southaven*; then select *Southaven MS* . When the map appears, position it so the locations of both Southaven High School and the Hickory Ridge Mall are visible. Those locations were revealed by using Mapquest and Google Maps, in Section 2.
- **Layers:** Accept the defaults.
- **Analysis:**
  1. **Data Settings:**
    - ♦ Live or Work: *Workplace Area*
    - ♦ Year: Uncheck 2006 and check 2005. (Note: 2005 data is used for all analysis in this case study, as explained above in introductory panel for this case study.)
    - ♦ Job Type: *Primary Private Jobs*
    - ♦ Labor Market Segments: *All Workers*
  2. **Study Area Selection:** *Ring/Buffer; Line/Radius: .25 Miles.*

After making this selection, draw a straight line dragging the cursor between the locations of Southaven High School and Hickory Ridge Mall. Those locations were discovered previously using MapQuest.
  3. **Advanced Area Selection:**
    - ♦ Select Create a Paired Home Area
    - ♦ Ring/Buffer: Line / .25 mile radius (then draw a straight line following the exact path of the line drawn while defining the first area)
  4. **Map Overlay/Report:**
    - ♦ Report Title: "Path Area Workers Who Live in the Path Area"
    - ♦ Select the *Paired Work Area Profile Analysis* radio button.
    - ♦ Rollups: Accept the default selections.
    - ♦ Map Precision: Accept the default.

After making these selections, click the **Go** button.
- **Results:** The report contained Total Private Primary Jobs, which was used in the analysis in Section 5. The map was not used.

The resulting number of primary private jobs is used in Section 5, on disaster-related initial UI claims.

## Section 4. Using OTM Reports

Government agencies, business firms, private charities, news media, and individuals need timely estimates of the economic consequences of disasters. OTM reports can help answer certain kinds of questions concerning the businesses located in the affected area, such as:

- From which cities, counties, and states do most workers commute?
- What are the mostly likely routes for commuters?
- What industries are located in the area, and how many jobs does each industry provide?
- What is the percentage of younger or older workers?
- What is the percentage of workers who earn high wages or low wages?

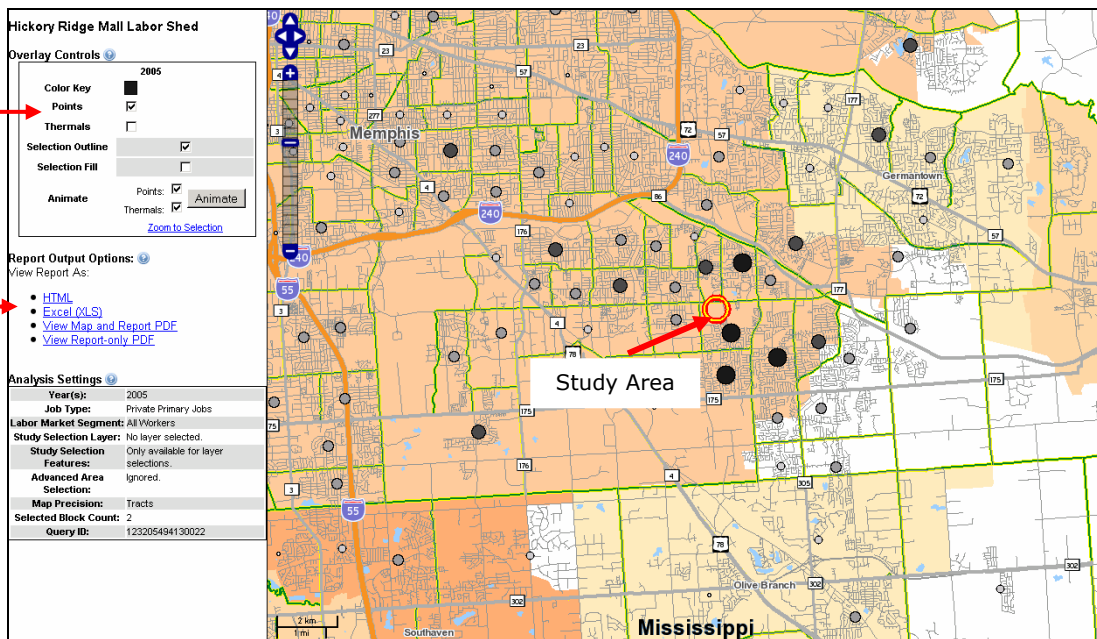
And OTM reports can help answer similar questions concerning employed residents of the area, such as:

- How many employed residents are affected?
- In which cities, counties, and states do most of these residents work?
- What appear to be likely routes for commuters?
- In what industries do these residents work?
- What is the percentage of younger or older employed residents?
- What percentage of residents earn high wages or low wages?

OTM study areas are not limited to conventional geographic areas, and subsets of an area can be studied as well as the whole impacted area. Study areas can cross civil divisions such as city, county, and even state boundaries. They can be as small as a census block or as big as multiple states. OTM's unique flexibility to define study areas makes it possible to formulate a number of comparisons, such as:

- How does an area's labor market compare with the labor market of the area's employed residents?
- How do portions of one area compare to one another; for example, how does a business district compare to the outlying area?

After you enter your selection criteria in Section 3 (above), OTM pauses to crunch data for your map. Then it displays the map with an outline of the study area you selected. The Results screen offers several options for map "Overlay Controls" and "Report Output Options" to the left on the Results screen; arrows on the screen captures pasted in the following page indicate where you will find these options.



Overlay Control Options control the way results appear on maps.

- **Points** controls whether circles representing employment or residence concentrations appear on the map. A point represents either a Census Block, Census Tract, or County, based on the Map Precision selected under the Map Overlay/Report tab (selection parameters are described in Section 3, above).
- **Thermals** control the presence of overlays where varying levels of shading represent varying densities of employment or residence.

For the above map the Points option was selected, causing the display of the colored circles. (The hollow circle near the center represents the study area; it is not a data point.) The Thermals option was turned off because in this case it would have obscured some details.

Report Output Options are:

- **HTML** - the format used to display Web screens. Reports in HTML format can be copied and pasted into Excel or other applications, making it possible to compare and contrast with other reports. Working with multiple reports in the same Excel document facilitates use of Excel features to compare and contrast related data. Excel also enables you to enhance the report's appearance for presentation.
- **Excel (.xls)** - the format used for Microsoft Excel. This format offers similar advantages as HTML. But every time you generate a report in Excel format, OTM creates a new Excel document. You can end up with multiple Excel files, which you usually need to delete--a minor inconvenience.
- **View Map and Report PDF** - creates a .pdf-format document that contains the map and report. Although this option is easy to use, PDF-format documents cannot readily be compared side-by-side with other documents, or enhanced. Also, you cannot zoom in / out or reposition maps generated through this option; if you need to manipulate the map you should do so in OTM. Then, if you want to use the map in a report or graphics application such as PowerPoint, copy the screen and paste it into the target application. As suggested above, if you need to manipulate the report, select the HTML format, copy the document, and paste it into Excel.
- **View Report-only PDF** - creates a .pdf-format document that contains the report. As with the View Map and Report PDF option, this is easy to use, but PDF-format documents cannot readily be compared side-by-side with other documents, or enhanced.



### Case Study

In order to answer questions about the area that was devastated by the tornado, we constructed several reports by copying standard OTM report contents from HTML versions, pasting them in Excel, and enhancing the reports--in part by positioning the contents side-by-side to facilitate comparison of basic data. We also captured some maps that OTM generated while developing the reports.

For this study we wanted the reports to reveal significant characteristics of the labor market within the 11 x ½ mile area that suffered the tornado. We sought attributes of the jobs located within different parts of that area. And we compared the characteristics of workers whose jobs are located in the tornado area to employed residents of the same area. Our interpretation of the reports follows in this section; the actual reports and maps are provided as Appendices to this document.

Appendix	Title	Contents
1	<b>Report 1. Area Profiles: Tornado Path Segments.</b> Labor Market Characteristics of Tornado Path, Hickory Ridge Mall, and Tornado Path Minus Hickory Ridge Mall	Jobs by worker age, jobs by earnings paid, and jobs by industry type for the entire tornado path and two subsets—the Hickory Ridge Mall and everything in the path <i>except</i> the mall, arranged side by side.
	<b>Report 2. Area Profiles: Tornado Path.</b> Labor Market Characteristics of Workers Employed In and Employed Residents Of the Tornado Path	Jobs by worker age, jobs by earnings paid, and jobs by industry type for both workers employed in the tornado path, and employed residents of the same area, arranged side by side.
	<b>Report 3. Labor and Commute Sheds: Tornado Path.</b> Where tornado path workers live and where tornado path employed residents work.	Cities/towns, counties, and states where workers employed in the tornado area live, and where employed residents of that area work.
2	<b>Map 1. Labor Shed , Tornado Path</b>	A map containing data points that represent concentrations of workers' residence locations. Corresponds to the Labor Shed data in Report 3.
	<b>Map 2. Commute Shed , Tornado Path</b>	A map containing data points that represent concentrations of employed residents' work locations. Corresponds to the Commute Shed data in Report 3.

### **Case Study (continued)**

**Report 1** compares labor markets within segments of the tornado path. Three areas are compared side-by-side: the entire tornado path, the mall, and the tornado path *except for* the mall. We found some interesting differences between the shopping center labor market and the tornado area outside the shopping center:

- ♦ The mall hosts 2,380 of 7,137 (33.3%) of the area's workers.
- ♦ Mall workers are distinctly younger (52.1% are age 30 or younger, compared to 21.6% of their counterparts in nearby damaged areas).
- ♦ Mall workers are paid less (57.7% earn \$1,200 or less per month, compared to 12.1%).

What accounts for the differences? One factor is the dominant industries located in the two areas.

- ♦ 79.6% percent of the mall workers are employed in just two industries, Retail Trade and Accommodation/Food Services; only 9.9% of the workers in the outlying area of the tornado path work in those industries. Businesses in these two industries tend to employ younger employees and offer lower pay.
- ♦ Outside the mall, 79.1% of the workers are employed in Manufacturing, Wholesale Trade, Transportation/Warehousing, and Real Estate--industries typically paying higher compensation. In contrast, just 5.8% of the mall workers are employed in those four industries.
- ♦ **Report 2** compares, side by side, the labor market characteristics of workers who are employed within the path of the tornado to the employed residents of the same area. This report shows that:
  - ♦ The Workers Age characteristics show little variation between the tornado area's workers and the area's employed residents. 31.8% of tornado area workers are age 30 or younger, and 31.6% of the employed residents are in the same range. 13.4% of the workers are age 55 or older, as are 14% of the employed residents.
  - ♦ The Jobs by Earnings Paid characteristics indicate that a slightly higher proportion of the area's workers earn less than the employed residents; 27.3% of the workers earn \$1,200 per month or less, while 22.0% of the employed residents are in that range. 45.7% of the workers' earnings are in the \$1,201 - \$3,400 range, while 50.9% of the employed residents are in that range. There is no significant difference in the highest earnings range, more than \$3,400 per month.
  - ♦ The top four industries for both the tornado area's workers and the area's employed residents were Manufacturing, Retail Trade, Transportation and Warehousing, and Accommodation and Food Service. Those four industries accounted for 71.0% of the workers' jobs and 53.3% of the employed residents' jobs. However within these four industries, Manufacturing provided 27.7% of the area's jobs, whereas only 11.9% of the employed residents work in that industry. And 21.7% of the area's workers are employed in Retail Trade, compared to 13.4% of the employed residents. On the other hand, the area's workers are slightly less concentrated in Accommodation and Food Services (workers 11.5%, residents 15.6%).

### **Case Study (continued)**

**Report 3** compares, side by side, the Labor and Commute Sheds of the tornado area. The *Labor Shed* is the cities/towns, counties, and states where area workers live. The *Commute Shed* is the cities/towns, counties, and states where area employed residents work.

- Most of the area's workers (59.8%) live in Memphis, Tennessee, and most of the area's resident workers (52.0%) are employed in this city. However the former are more dispersed across other cities and towns, whereas 15.0% of the area's resident workers are in a single town, Southaven, MS.
- Geographic differences also emerge in the county level data; 76.2% of the area's workers and 56.8% of the area's employed residents are in Shelby, TN. Moreover, at the state level, 84.3% of the area's workers and 58.4% of the area's employed residents are in TN.

OTM maps:

**Map 1** presents a network of points depicting the Labor Shed. Each point represents a range of the number of tornado area workers who live in a Census Tract.

**Map 2** also presents a network of points, but these represent ranges of the number of tornado area resident workers who work in a Census Tract (the Commute Shed).

- Viewed together, these maps suggest considerably different commuting patterns for travel between home and work for area workers and area employed residents. This observation reflects the findings in Report 3 and underscores the value-added of consistent presentation of information in OTM, whether the user views the tabular or graphic data.
- These two maps show that area workers travel to work from a broad area, whereas area employed residents work in a few concentrated areas. Businesses tend to concentrate in certain locations, whereas residences tend to spread out over wider areas.

## Section 5. OTM and Disaster-Related Initial Claims

The flexibility of OnTheMap to capture labor market characteristics of areas that may not conform to the shapes of traditional geographic areas (not the least of which is interstate areas) creates new opportunities to expand the scope of disaster assessment. In the previous sections, we outlined the steps to generate industry, demographic and earnings reports for both workers of the impacted area (some of whom may reside elsewhere) and employed residents in the impacted area (some of whom may work elsewhere). Here, we present an approach to utilize the unique information offered in OnTheMap to estimate disaster-related initial claims.

Individuals who submit disaster-related initial claims are eligible for either regular unemployment insurance benefits (as specified in state and federal law) or Disaster Unemployment Assistance (DUA). Only those individuals who are not covered under regular benefits can qualify for DUA<sup>5</sup>. Key requirements are that the individual must be, as a “direct result of a major disaster”: 1. unemployed, able to work and available for work; 2. unable to reach the place of work; or, 3. unable to work because of a disaster-incurred injury. For the purposes of this document, our analysis centers on an estimation of individuals potentially eligible for either type of disaster-related initial claim, regular UI benefits or DUA.<sup>6</sup>

The relevance of labor market information to State Employment Security Agency (SESA) program administration varies across states, but traditionally the link has been inconsistent at best, to both employment services and field operations. Our focus on disaster-related initial claims falls under the purview of employment service activity. These program activities typically concentrate resources on real-time needs associated with a specific subpopulation of working persons or a specific geography of service that cannot be readily gleaned from traditional statistical products. Sections 3 and 4, above, describe how to use OnTheMap for real-time disaster assessment, focusing on workers (as defined by the Work Area Profile analysis) or employed residents (as defined by a Home Area Profile analysis), while exploiting flexible geographic definition.

A common request of state labor market information shops in the context of disaster assessment is to estimate the potential number of disaster-related initial claims (inclusive of both regular UI claims and DUA claims) for a range of scenarios. This estimate represents the potential volume of the claims workload, and is helpful to locate where the claims services will need to be delivered. Several LMI shops base the potential number of initial claims caused by a major disaster on measures of labor force and projected damage severity.

### Current Methodology:

Potential number of disaster-related claims =  
(labor force in impacted area X projected severity)

State analysts often determine projected severity using historical experience coupled with analytic adjustments arising from the idiosyncrasies of a specific disaster, such as proximity to transportation arteries or flood plains. The use of Internet-based

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<sup>5</sup> The data underlying OTM represent employment of persons whose employers are obligated to purchase unemployment insurance. The exempt populations include agricultural workers, the self employed, and railroad workers.

<sup>6</sup> In order to make DUA benefits available, the President of the United States must designate a major disaster. The benefit amount of an individual's disaster-related claim is determined according to state provision for unemployment benefits, and eligible individuals can receive payments for twenty-six weeks. DUA benefits are funded by the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) and administered by the states. For more information, see <http://www.workforcesecurity.doleta.gov/unemploy/disaster.asp>



sources of information, as identified in Section 2, is a useful supplement to this activity.

As mentioned, the particular concern in this section is estimation of the impacted population that is likely to file a disaster-related initial claim. The use of labor force as the core data source equates impacted population with employed and unemployed residents when, in fact, only a portion of these individuals may actually work within the area affected by the disaster (which is a requirement for approval of a disaster-related initial claim). The flexibility of OTM enables users to move easily to a redefinition of impacted population from “employed residents” of the disaster area to “workers employed” in the disaster area. Initial claims resulting from disasters cover individuals who are unable to work because their employment status has been impacted by a major disaster; the “workers employed” concept closely aligns with this target group.

OTM-based Methodology:

Potential number of disaster-related claims =  
(workers employed in impacted area X projected severity)

In addition, the labor force concept suffers from constraints caused by rigid geographic definitions. The Federal/State Local Area Unemployment Statistics (LAUS) program produces a monthly estimate for labor force, but its reporting is limited to traditional political geographies such as states, metropolitan areas, counties and municipalities. These civil divisions are defined, in part, by population or employment density, and can reduce the preciseness of geographic coverage that is so critical to disaster assessment. The redefinition of the impacted population to “workers employed” within the geographic boundary of a specific disaster area (as opposed to prescribed civil divisions) is central to a more realistic estimation of workload size.

A second concern for LMI shops in disaster assessment is the geography of service delivery. The flexibility of the OTM Workplace Area report makes it possible to estimate the number of workers employed in the impacted area who reside in the subject area as distinct from those who reside elsewhere--even in another county or state. A comprehensive strategy for service delivery to persons filing an initial claim based on a disaster requires a delivery protocol capable of serving each of these claimant pools near their place of residence.



**Case Study**

Based on the real-time reporting of the case study disaster, we identified a 11 X ½ mile path of the tornado extending from Southaven High School in Southaven, MS to the Hickory Ridge Mall in Memphis, TN. The information provided by the National Weather Service describes the damage as extensive and, in fact, the mall’s Web page reported that it would be closed for an undetermined period of time. It seems reasonable, therefore, to assume that employees of work establishments in the tornado path would be eligible to submit disaster-related initial claims.

### **Case Study (cont'd)**

State Employment Security Agencies administer initial claims and, as noted, need to allocate staff resources on the basis of workload size and geography of service delivery. The OTM Area Profile Reports reveals that 7,137 private-sector workers are employed by businesses located in the tornado path.

#### **Disaster Assessment: Impacted Workers**

Private-sector workers employed in tornado path    7,137

who are

residents within the tornado path	48
residents outside of the tornado path	7,089
residents of Tennessee	6,020
residents of other states	1,117

The irregular shape of the tornado path cuts across two states, but that is not a statistical problem for OTM. Because OTM uses the census block as the basic unit of geography and the local employment dynamics program is national in scope, we are able to utilize key features of the application to identify the geography of service with greater specificity than is the case with other data sources. Moreover, as noted, the “workers employed” concept closely aligns disaster assessment with disaster-related initial claims.

OTM generates counts of where workers live who are employed in the tornado path. This orientation provides two distinct perspectives with implication for service delivery: 1) an estimate for workers impacted by the tornado who reside within, or outside, its path; and, 2) an estimate for workers impacted by the tornado who reside within, or outside, Tennessee. The number of workers who both live and work within the tornado area was obtained by generating a Paired Area Report, wherein both the source and destination areas were the tornado area.

- 7,089 of the area’s workers (ninety-nine percent) travel from residences outside the tornado path to workplaces within that area (see Section 3 for description of paired-area report). OTM identifies the concentrations of these “worker employed” residences in the surrounding areas, although such information is not reported as a part of this case study. The geospatial display of these concentrations can refine further the potential strategies for service delivery.

**Case Study (cont'd)**

- Approximately sixteen percent of all workers impacted by the tornado reside in areas outside of Tennessee. The vast majority of these out-of-state workers dwell in Mississippi. The size of this subpopulation isn't unexpected, as the starting point for the tornado touchdown was only a small portion of the northwest corner of Mississippi, but the finding does demonstrate the critical interstate capability of OTM.

## **Appendix 1. Report 1.**

### **Area Profiles: Tornado Path Segments**

Labor Market Characteristics of Tornado Path, Hickory Ridge Mall,  
and Tornado Path Minus Hickory Ridge Mall

<b>Characteristics</b>	<b>Entire Tornado Path</b>		<b>Hickory Ridge Mall</b>		<b>Path Minus Hickory Ridge Mall</b>	
	<b>2005Q2 Count</b>	<b>Share</b>	<b>2005Q2 Count</b>	<b>Share</b>	<b>2005Q2 Count</b>	<b>Share</b>
✓ <b>Total Private Primary Jobs</b>	7,137	100.0%	2,380	100.0%	4,757	100.0%
<b>Jobs by Worker Age</b>						
✓ Age 30 or younger	2,267	31.8%	1,239	52.1%	1,028	21.6%
Age 31 to 54	3,915	54.9%	855	35.9%	3,060	64.3%
Age 55 or older	955	13.4%	286	12.0%	669	14.1%
<b>Jobs by Earnings Paid</b>						
✓ \$1,200 per month or less	1,950	27.3%	1,374	57.7%	576	12.1%
\$1,201 to \$3,400 per month	3,261	45.7%	855	35.9%	2,406	50.6%
More than \$3,400 per month	1,926	27.0%	151	6.3%	1,775	37.3%
<b>Jobs by Industry Type (2-digit NAICS)</b>						
Agriculture, Forestry, Fishing and Hunting	0	0.0%	0	0.0%	0	0.0%
Mining, Quarrying, and Oil and Gas Extraction	2	0.0%	0	0.0%	2	0.0%
Utilities	1	0.0%	1	0.0%	0	0.0%
Construction	190	2.7%	17	0.7%	173	3.6%
✓ Manufacturing	1,975	27.7%	1	0.0%	1,974	41.5%
✓ Wholesale Trade	607	8.5%	81	3.4%	526	11.1%
✓ Retail Trade	1,546	21.7%	1,155	48.5%	391	8.2%
✓ Transportation and Warehousing	720	10.1%	47	2.0%	673	14.1%
Information	1	0.0%	0	0.0%	1	0.0%
Finance and Insurance	58	0.8%	12	0.5%	46	1.0%
✓ Real Estate and Rental and Leasing	601	8.4%	9	0.4%	592	12.4%
Professional, Scientific, and Technical Services	28	0.4%	3	0.1%	25	0.5%
Management of Companies and Enterprises	1	0.0%	1	0.0%	0	0.0%
Admin & Support, Waste Mgmt and Remediation	279	3.9%	227	9.5%	52	1.1%
Educational Services	15	0.2%	4	0.2%	11	0.2%
Health Care and Social Assistance	149	2.1%	19	0.8%	130	2.7%
Arts, Entertainment, and Recreation	0	0.0%	0	0.0%	0	0.0%
✓ Accommodation and Food Services	821	11.5%	740	31.1%	81	1.7%
Other Services (excluding Public Administration)	143	2.0%	63	2.6%	80	1.7%
Public Administration	0	0.0%	0	0.0%	0	0.0%

Note: Checked (✓) items are referred to  
in Section 4.

## **Appendix 1. Report 2.**

### **Area Profiles: Tornado Path**

Labor Market Characteristics of Workers Employed in and Employed Residents Of The Tornado Path

<b>Characteristics</b>	<b>Tornado Area Workers</b>		<b>Tornado Area Employed Residents</b>	
	<b>2005Q2 Count</b>	<b>Share</b>	<b>2005Q2 Count</b>	<b>Share</b>
<b>Total Private Primary Jobs</b>	7,137	100.0%	1,511	100.0%
<b>Jobs by Worker Age</b>				
✓ Age 30 or younger	2,267	31.8%	477	31.6%
Age 31 to 54	3,915	54.9%	823	54.5%
✓ Age 55 or older	955	13.4%	211	14.0%
<b>Jobs by Earnings Paid</b>				
✓ \$1,200 per month or less	1,950	27.3%	332	22.0%
✓ \$1,201 to \$3,400 per month	3,261	45.7%	769	50.9%
✓ More than \$3,400 per month	1,926	27.0%	410	27.1%
<b>Jobs by Industry Type (2-digit NAICS)</b>				
Agriculture, Forestry, Fishing and Hunting	0	0.0%	1	0.1%
Mining, Quarrying, and Oil and Gas Extraction	2	0.0%	0	0.0%
Utilities	1	0.0%	4	0.3%
Construction	190	2.7%	88	5.8%
✓ Manufacturing	1,975	27.7%	180	11.9%
Wholesale Trade	607	8.5%	145	9.6%
✓ Retail Trade	1,546	21.7%	203	13.4%
✓ Transportation and Warehousing	720	10.1%	188	12.4%
Information	1	0.0%	16	1.1%
Finance and Insurance	58	0.8%	47	3.1%
Real Estate and Rental and Leasing	601	8.4%	29	1.9%
Professional, Scientific, and Technical Services	28	0.4%	42	2.8%
Management of Companies and Enterprises	1	0.0%	13	0.9%
Admin & Support, Waste Mgmt and Remediation	279	3.9%	108	7.1%
Educational Services	15	0.2%	4	0.3%
Health Care and Social Assistance	149	2.1%	155	10.3%
Arts, Entertainment, and Recreation	0	0.0%	19	1.3%
✓ Accommodation and Food Services	821	11.5%	235	15.6%
Other Services (excluding Public Admin)	143	2.0%	34	2.3%
Public Administration	0	0.0%	0	0.0%

Note: Checked (✓) items are referred to in Section 4.

## **Appendix 1. Report 3.**

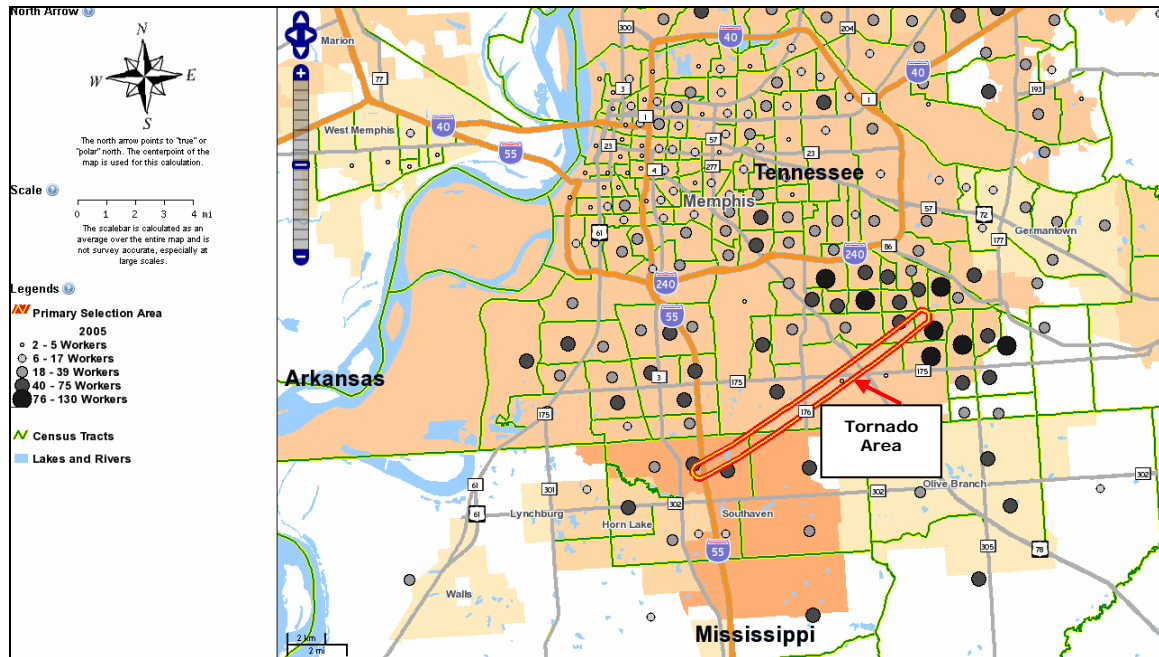
### **Labor and Commute Sheds: Tornado Path**

Where tornado path workers live (Labor Shed) and where tornado path employed residents work (Commute Shed)

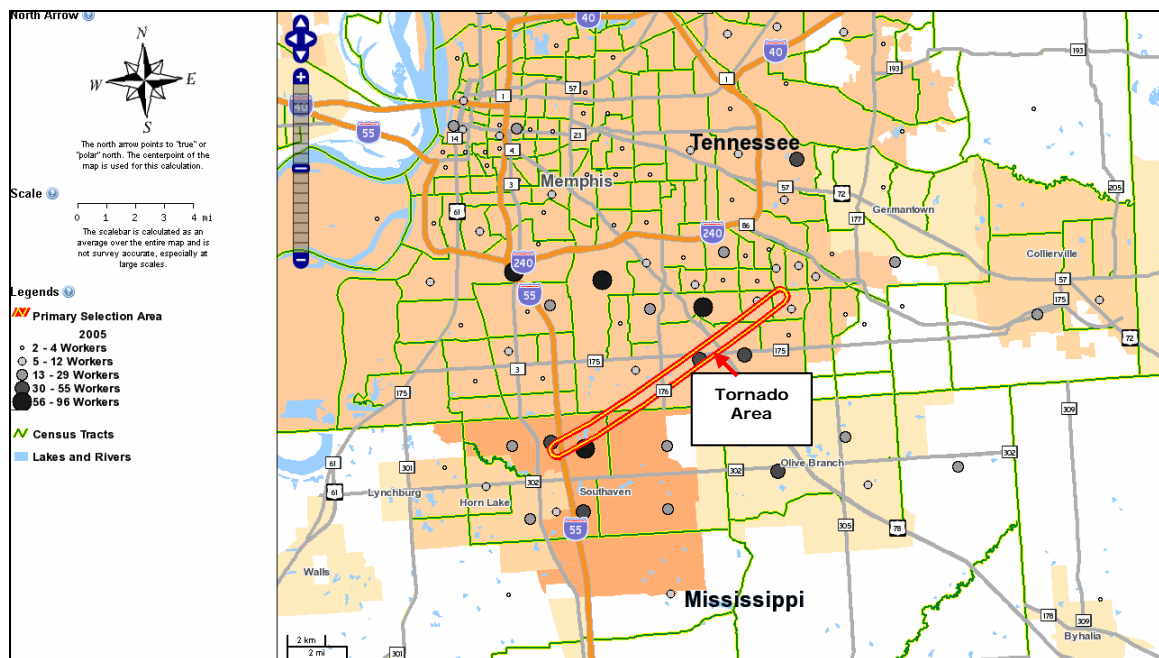
<b>Geographies</b>	<b>Tornado Path Labor Shed</b>		<b>Tornado Path Commute Shed</b>	
	<b>2005Q2</b>		<b>2005Q2</b>	
	<b>Count</b>	<b>Share</b>	<b>Count</b>	<b>Share</b>
✓ <b>Total Private Primary Jobs</b>	7,137	100.0%	1,511	100.00%
<b>Job counts in Cities/Towns</b>				
✓ Memphis, Tennessee	4,268	59.8%	785	52.0%
Southaven, Mississippi	224	3.1%	227	15.0%
Bartlett, Tennessee	207	2.9%	0	0.0%
Olive Branch, Mississippi	186	2.6%	97	6.4%
Collierville, Tennessee	184	2.6%	19	1.3%
Germantown, Tennessee	180	2.5%	10	0.7%
Horn Lake, Mississippi	106	1.5%	50	3.3%
Nashville-Davidson (balance), Tennessee	101	1.4%	0	0.0%
Hernando, Mississippi	38	0.5%	21	1.4%
West Memphis, Arkansas	35	0.5%	12	0.8%
All Other Locations	1,608	22.5%	290	19.2%
<b>Job counts in Counties</b>				
Shelby Co., Tennessee	5,440	76.2%	859	56.8%
DeSoto, Mississippi	729	10.2%	409	27.1%
Fayette Co., Tennessee	121	1.7%	0	0.0%
Tipton Co., Tennessee	108	1.5%	0	0.0%
Davidson Co., Tennessee	107	1.5%	0	0.0%
Marshall Co., Mississippi	102	1.4%	0	0.0%
Tate Co., Mississippi	68	1.0%	7	0.5%
Crittenden Co., Arkansas	67	0.9%	17	1.1%
Madison Co., Tennessee	38	0.5%	0	0.0%
Williamson Co., Tennessee	30	0.4%	0	0.0%
All Other Locations	327	4.6%	219	14.5%
<b>Job counts in States</b>				
✓ Tennessee	6,020	84.3%	883	58.4%
✓ Mississippi	1,013	14.2%	605	40.0%
✓ Arkansas	87	1.2%	20	1.3%
✓ All Other Locations	17	0.2%	3	0.3%

Note: Checked (✓) items are referred to in Section 4 and/or 5

## Appendix 2. Tornado Path Labor and Commute Sheds



**Map 1. Labor Shed, Tornado Path.** Each point (small circle) represents a range of the number of tornado path workers who live in a Census Tract; the green lines indicate the borders of the Census Tracts. Darker density points represent higher concentrations of workers; the Legend to the left of the map provides the ranges of numbers of workers. This map was generated in conjunction with the Tornado Path Labor Shed data in Report 3.



**Map 2. Commute Shed, Tornado Path.** Each point represents a range of the number of tornado path-employed residents who work in a Census Tract. The Legend to the left of the map provides the ranges of numbers of employed residents. This map was generated in conjunction with the Tornado Path Commute Shed data in Report 3.