2.12 SEVERE SUMMER STORMS

Severe summer storms traditionally precede an approaching cold air mass. In the northern hemisphere, the spin of the earth naturally produces weather patterns affecting North America, which travel from west to east across the continent. Key components to the formation of storms are a low pressure zone, high pressure zone and the jet stream.

The troposphere is the lowest portion of Earth's atmosphere containing approximately 75% of the atmosphere's mass and almost all of its water vapor. Air at this level is acted upon by the earth surface (land and water) and the heating cycle associated with sunlight. Unlike other portions of the atmosphere which are largely homogenous, at the surface discrete areas or bubbles exist of differing temperature, water vapor content and pressure. Warm areas (low pressure) tend to rise, pressing on the borders of surrounding cool areas (high pressure). It is where the pressure zones interface that temperature changes cause water vapor in the air to condense creating precipitation. The warmer the overall temperature of the atmosphere and the greater the volume of water vapor present, the larger the associated perception event.

Jet streams are fast flowing, relatively narrow air currents found in the atmosphere around 11 kilometers (36,000 ft) above the surface of the Earth. They form at the boundaries of adjacent air masses with significant differences in temperature, such as of the polar region and the warmer air toward the equator. These air currents migrate north and south in a snakelike pattern changing their relative location as the planet's axis tilts with each passing year. These winds act on the high and low pressure zone moving them across the continent and shifting them north and south.

Thunderstorms develop when large differences exist between adjacent zones combined with significant water vapor. As warm air begins to lift, it eventually starts to cool and condensation takes place. When the moisture condenses, heat is released which further aids in the lifting process. If enough instability is present in the atmosphere, this process will continue long enough for cumulonimbus clouds to form, which supports lightning and thunder (see Diagram 2.12.a). As water droplets rise into the colder air, they can freeze. When the velocity of wind becomes great enough, the ice pellets are repeatedly lifted and dropped in the storm adding layers of ice with each cycle. Once the wind cannot support the weight of the ice pellet it falls the ground in the form of hail.

One key component to a thunderstorm is lightning, an atmospheric discharge of electricity. High speed videos (examined frame-by-frame) show that most lightning strikes are made up of multiple individual strokes. A typical strike is made of 3 to 4 strokes. The sudden increase in pressure and temperature from lightning produces rapid expansion of the air surrounding and within a bolt of lightning. In turn, this expansion of air produces a sonic shock wave which produces the sound of thunder. Lightning, other storm components, often seeks a path though the tallest object available. Trees, utility line/poles, tall buildings and even humans can be sought as a pathway for the discharging electricity.
Summer storms are considered high wind events by the National Climactic Data Center when surface winds meet or exceed 50 knots or 57.6 miles per hour. It is possible for winds in strong storms to exceed 100 miles per hour, with gusts even stronger.

![Images of Towering Cumulus, Mature, and Dissipating Stages of Thunderstorms](http://en.wikipedia.org/wiki/Thunderstorm)

**Figure 2.12.a**

**Hurricane IKE Inland Effects in Ohio (September 2008 Windstorms)(FEMA DR-1805-OH)**

The effects of Hurricane Ike in inland North America were unusually intense and included widespread damage across all or parts of eleven states, which included Ohio. The storm had rapidly become an extratropical cyclone and was enhanced by an adjacent frontal boundary and produced widespread winds with gusts to hurricane-force in several areas. The severe winds were reported across the Midwestern States, although little or no rain fell in many of those areas. They were as a result of a combination of factors, including the strength and size of Ike, the location on the east side of the storm where the winds are usually stronger in a northward-moving system, its fast forward motion (approximately 40 miles per hour), and the warm air ahead of the storm. All of these factors most likely allowed the high winds aloft to reach the surface easier, resulting in areas reporting wind gusts nearing or topping hurricane force.

Ohio was hit extremely hard by the storm starting on September 14, 2008. The remnants of Ike caused a total of 2.6 million power outages in the state, including 370,000 outages in Columbus (Franklin County). Many of the citizens in Columbus were without power for 5 – 7 days, because many electric company workers were in Texas helping crews restore electricity to the millions who lost power from Hurricane Ike.
Wind gusts of over 75 miles per hour were recorded in Cincinnati (Hamilton County), Dayton (Montgomery County) and Columbus. Additionally, a State of Emergency was declared by Governor Strickland on September 15, 2008. On September 16th and 17th, the Governor took a tour of the heavily damaged areas, particularly in Cincinnati, Columbus and Dayton to survey the damage.

The Cincinnati metropolitan area was hit very hard, with approximately 2.1 million people losing power. A Duke Energy spokesperson said “We have never seen anything like this. Never. We’re talking about 90 percent of our customers without power.” September 15th through 17th, most of the schools in Hamilton and Butler Counties had classes cancelled because of power outages. In the Dayton, Ohio area 300,000 of 515,000 Dayton Power & Light Company’s (DP&L) customers lost power following severe wind storms on the afternoon of September 14th, according to a company spokesperson. As of Thursday morning, September 18th, 90,000 DP&L customers remained without power. Also hit hard were central Ohio (over 350,000 customers losing power) and northeastern Ohio (over 310,000 customers losing power). A water emergency was also declared in Butler County as the water supply diminished due to the lack of power. A "Level 1 Emergency" was declared in the county to encourage people to remain at home. A curfew was implemented on September 17th in Carlisle (Warren County) due to increased looting as a result of the lengthy power outage.

Agricultural damage was severe, with as much as 20% of the state's total corn crop lost as a result of wind. Some fields were nearly flattened by the hurricane-force wind gusts. Tens of thousands of people also lost power in northwest Ohio, where widespread damage was reported, especially in the Lima (Allen County) and Findlay (Hancock County) areas. Some of the most significant damage in these communities included a radio tower that collapsed and a church that was heavily damaged.

RISK ASSESSMENT

Location

Severe summer storms and associated high wind / hail events are common throughout Ohio and reported hundreds of times each year. Analysis of the number of reported occurrences from 1997 to 2007 by the NCDC shows a clear concentration in north-central and northeast Ohio (Map 2.12.a). The five counties with the highest number of reported occurrences (150 – 200 over ten years) are Richland, Lorain, Cuyahoga, Summit and Stark Counties (all in Region 2). Conversely, a concentrated area of low reported occurrences (0 – 49 over ten years) exists in south-central Ohio, with most in Region 3.
State of Ohio
Summer Storm and Hail
1997 - 2007 Events

Number of Events
- 0 - 49
- 50 - 99
- 100 - 149
- 150 - 200

"NCDC Storm Data" is an official publication of the National Oceanic and Atmospheric Administration (NOAA) which documents the occurrence of storms and other significant weather phenomena having sufficient intensity to cause loss of life, injuries, significant property damage, and/or disruption to commerce.

Data shown on this map were developed from 2008 NCDC climatological data which are not maintained by Ohio EMA. Therefore, Ohio EMA does not guarantee their accuracy.

Proponent: Lambert Conformal Conic
Map produced by Ohio EMA 2011.
Over one half of the counties in Ohio have between 50 and 99 reported summer storm events over the course of 10 years. These counties are predominantly in the western and central portions of the state. Based on the dispersion pattern generated, it can be reasonably concluded the number of summer storm events in Ohio is influenced by the proximity to Lake Erie.


Usually, tropical storms and hurricanes directly affecting other states result in extended rainfall in Ohio. NOAA Operational Significant Event Imagery shows that the windstorms of 2008 were a legacy from Hurricane IKE, which arced clockwise from the Gulf of Mexico to the western basin of Lake Erie and the Saint Lawrence Seaway. Ohio was affected from Hamilton County in southwest Ohio to the northeastern counties of Ashland, Carroll and Summit. Unlike other secondary effects of a diminishing hurricane, high winds in excess of 65 miles per hour were primarily the cause of damage for many counties, causing power outages across these portions of the state. It was reported that winds equal to a Category 1 hurricane (winds up to 74 miles per hour) caused at least $1.255 billion in insured losses.
Severe Storms, Flooding and Landslides – April through May 2011 (FEMA DR-4002-OH).

The impact of this event was widespread and costly due to the prolonged and record-setting spring rainfall during the months of March, April and May. According to the National Weather Service (NWS), a persistent upper valley weather channel over the eastern U.S. led to an active storm track over the Ohio Valley. During the month of April and into mid-May, the local NWS offices serving Ohio issued flood watches, flood warnings, flash flood watches and advisories and/or special weather statements for the Ohio River Watershed and Drainage Basin for 31 of the 44 days. Eighty-one percent of the watches, warnings and advisories were issued directly for the impacted counties, however,
all of the counties had high stream levels on their watersheds. Also during this
time period, there were road closures almost every day due to flooding and/or
high water. A notable incident was a small plane crashed near Ravenna, Ohio
with three injuries due to saturated soil absorbing much of the impact. According
to the Highway Patrol, had it not been for soft, soaked earth and mud, all three
on board would have perished upon impact. Other incidents included 7,630
customers in power outages, trees uprooted, parts of buildings sustaining
moderate damage and the loss of a countywide 911 system. As a result, the 21
affected Ohio counties received $44,506,071 in public assistance funds.

FEMA-4077-DR, Ohio Disaster Declaration as of 09/20/2012

Severe Storms and Straight Line Winds – June 2012 (FEMA DR-4077-OH).

An anomalously strong storm ridge centered across the Southeast and brought
record heat to the Upper Ohio Valley with the area in a flow on the northern edge
of the ridge. A weak frontal boundary extended from northern Indiana into
western Pennsylvania. Abundant moisture, strong instability, moderate shear,
and a short wave just south of the boundary provided the ingredients for a long-
tracked mesoscale convective system, classified by the Storm Prediction Center as a derecho, to track all the way from northern Indiana across eastern Ohio, southwestern Pennsylvania, northern WV, and western Maryland. As the system crossed the area, widespread wind damage was reported across areas primarily south and west of Pittsburgh. There were several reports of structural damage and damage led to a fatality when a barn collapsed in Muskingum county. Power outages were widespread with up to 130,000 outages reported immediately after the storms passage, most of which, were in Ohio. Muskingum and Guernsey counties sustained $712,000 and $500,000 in damages respectively. This also became one of the costliest disasters to hit Ohio, right behind Hurricane Ike in 2008. Two fatalities and eight injuries occurred during this event with $40,440,000 in property damage and $105,000 in damage to crops. As a result, of this event, 37 affected Ohio counties received $22,538,519 in public assistance funds.

Hurricane SANDY – October 2012 (FEMA DR-4098-OH).

On October 29, 2012, Hurricane Sandy made landfall near Atlantic City, New Jersey, however, the storm continued to produce significant wind, storm surge, rainfall and inland-flooding hazards across the Northeastern United States. High
wind warnings as well as flood and flash flood watches and warnings for portions of Ohio and Indiana. The National Weather Service reported winds up to 80 miles per hour during the height of the storm system. First Energy Nuclear Operating Company reported sirens without AC power near Perry Nuclear Power Plant (Lake County-15 sirens, Geauga County-1 siren, Ashtabula-1siren) and Beaver Valley Power Station (Beaver County, PA-1siren). In Cuyahoga County, 80 people with functional needs were evacuated to a high school in Cleveland Heights, while another 11 shelters were being opened. The storm delivered a blow to Ashtabula County, but it wasn’t the big uppercut some people had feared. As expected, strong wind toppled trees and dropped power lines, causing power outages across the county. Incessant rain topped trees and flooded some thoroughfares in the area. Some of the hardest-hit areas were along the lakeshore, including Conneaut, North Kingsville, and Saybrook Township. Outages were reported in every city, village and township in the county, according to Illuminating Company information. Trees and limbs that collapsed on power lines were a big culprit, officials said. Lake County had residents from 142 homes near the mouth of the Chagrin River evacuated to the Mentor Community Center with another 70 evacuated to a shelter in Painesville. First Energy reported 55,516 customers without power in northeast Ohio. No fatalities were reported, however there was one injury that occurred. Property damage was estimated at $55,234,000 with no damage to crops. As a result, of this event, 37 affected Ohio counties received $17,810,815 in public assistance funds.

Past Occurrences

In 2003 the largest recorded event caused $145,000,000 in hail damage to the central Ohio counties of Franklin and Delaware. The area impacted is urbanized with a large number of high valued residences. The largest single-county event recorded occurred in 2006 with $100,000,000 in estimated property damage in Licking County. Hail stones 1.75 inches in diameter damaged many homes and vehicles during a 15-minute period. In a similar event the Montgomery County, the City of Huber Heights experienced $70,000,000 in damages in 2001. Of the varied forces involved in summer storms, hail has been the most destructive.

High wind events are more destructive from the perspective of transportation and utilities. Although the dollar value of the most destructive wind event is reported at $750,000 (Erie County), power outages and disabled telephone lines that accompany the inaccessibility of emergency services creates potentially life threatening situations.

Hurricanes and tropical storms.

Not much detail can be found without extensive research about hurricanes and tropical storms significantly affecting Ohio. However, in September 2003, the effects of Hurricane ISABEL dropped light to moderate precipitation on the eastern half of Ohio with isolated areas reporting over 3 inches of rainfall. Tropical Storm BRET created 1 to 3 inches of rainfall in the extreme southwest.
and southeast counties of the state. Again, only isolated areas received 3 inches of rain.

**Probability of Future Events**

The historical period used for severe summer storm analysis began with April 30, 1997 and closed April 30, 2007 based on statistics tabulated by the NCDC. During this period over 5,000 events are documented with over 15,000 documented since 1950. Based on available documented occurrences, severe summer storms are the most prevalent natural hazard events in Ohio.

From January 1997 to August 2007 Ohio has received 19 presidential declarations. Of the declared events, 16 specifically cite severe storms as part of the description. Additionally, the only year Ohio did not receive a federal declaration for a severe storm was 1999. Based on historical trends, Ohio can reasonably expect at least one storm every two years large enough to trigger a federal declaration, as well as numerous smaller events.

**Hurricanes and tropical storms.**

In the 208 years that Ohio has been a State, there has been only one hurricane or tropical storm resulting in a Presidential Declaration. Therefore, 1 event in 208 years is equivalent to 0.005% or one half of one percent of hurricane or tropical storm affecting Ohio, which is an extremely low probability of this type of event occurring in the future.

**LHMP Data**

**Henry County.** The county’s updated Hazard Mitigation Plan states that one of the most notable storms was on March 19, 1947 when an event caused thousands of dollars of damage ($1,000 in 1947 is equal to nearly $11,000 today) in Deshler, Ohio. Streets were blocked with debris and downed power line poles and trees causing power outages and impeding traffic.

Another storm system affected the southern portion of the county in the villages Hamler, New Bavaria and Holgate on August 8, 1979. This storm caused over $20,000 in property damage, but no significant damage occurred to field crops.

Hail-producing storm systems occurred on September 25, 1994 caused $500,000 in property damage and $500,000 in crop damage due to 2-inch hail falling throughout the county.

**Darke County.** The 2011 Updated Hazard Mitigation Plan cites that there have been a total of 2 lightning events, 64 hail events, and 148 thunderstorm/wind events in Darke County from June 9, 1958 through December 31, 2010. Based on NCDCC data, Darke County can expect at least four severe summer storm events each year along with smaller events. Some of the significant events are described in the following paragraphs.

On Friday, August 13, 1976, Thunderstorm and lightning that struck the Darke County Home Assisted Living Center, destroying the 1897 historic brick structure and causing over $1 million dollars in damages and leaving its 49 residents
homeless. Another event during that same day caused hundreds of thousands of dollars damage to the historic Darke County Tile Company built in 1878.

Thunderstorms caused $300,000 in property damages on November 7, 1996 near Ithaca, Ohio, with an estimate of $20,000 in crop damage. Trees were downed, barns were destroyed, roofs were blown off, and cornfields were severely damaged.

On May 12, 2002, severe thunderstorm winds struck south of Greenville. Mobile homes in the Sherwood Forest Mobile Home Park were severely damaged. A roof was blown off one home on Hogpath Road. Over $100,000 in property damage was reported.

Farifield County. The March 2011 Farifield County Natural Hazards Mitigation Plan references 189 severe thunderstorm events since 1950. During the period from January 2000 to August 2010, there were 71 thunderstorm wind incidents in Fairfield County according to NCDC. The County had as many as 36 severe thunderstorm warnings in a single year. The jurisdictions of the county have all been affected by these dangerous fast moving storms at one time or another. Property damage during this period was reported as $462,000.00 with crop damages listed as $3,000.00.

SHARPP. Hazard identification data were queried from SHARPP to evaluate each hazard and its frequency. Severe summer storms ranked third for frequency when compared to all 15 hazards evaluated in this plan (Chart 2.2.a), and they ranked fifth in terms of magnitude. However, this hazard scored relatively low for all other factors, and was given an overall ranking of sixth. While this may seem low, it should be noted that severe summer storms can be associated with tornadoes or flooding, which were evaluated elsewhere in this plan. Both of these hazards ranked high for most factors evaluated in SHARPP, indicating significant threats from each. According to records and data entered to date into vulnerability assessments, losses from severe storms are estimated at 374,484 residential structures ($13,322,159,583), 20,236 non-residential structures ($3,718,335,490) and 960 critical facilities ($1,872,336,618). These and additional HIRA data queried from SHARPP can be found in Appendix J.

VULNERABILITY ANALYSIS AND LOSS ESTIMATION

Methodology

During data development for the thunderstorm/high wind and hail hazard, it quickly became apparent the two must be addressed separately. Hail events, as stated earlier, are far more costly and have a much greater financial impact in urbanized areas. Events of the same magnitude can create $10,000,000 worth of damage in an urban setting, or as little $50,000 in forested or agricultural area. Of the 88 counties in Ohio, 22 percent reported no hail loss while two counties reported $100,000,000 or more.

The extreme range of the data for hail would skew any useful thunderstorm/high wind analysis. As a result, the vulnerability and loss estimate for summer storms
considers only thunderstorms/high wind events while hail is addressed at the state level.

The 10-year summer storm losses (1997 to 2007) for each county provided the basis for estimating potential vulnerability and losses. To yield the per capita 10-year damage total for each county, the total damage for the decade was divided by the 2001 population. That figure divided by ten, resulted in the annual per capita damage figure for severe summer storms in each county (in raw dollar unadjusted for inflation). This is the figure that appears in the column on the right.


Following this event, the Ohio Insurance Institute (OII) conducted a windstorm loss survey in which 24 property and casualty companies participated. This represented:

- 68% of Ohio’s personal auto insurance market
- 72% of the homeowners’ market
- 33% of the state’s commercial lines market based on 2007 Ohio premium volume

Results of the survey were reported on September 11, 2009.

Results

With an annual summer storm loss figure of $1.67 per capita, based on the population of 11,381,725, Ohio can expect an annual statewide summer storm loss of approximately $19,007,481 any given year. The 10-year loss includes all residential, commercial, governmental structures, as well as infrastructure and public facilities for each county. Table 2.12.a shows severe summer weather per capita loss.
<table>
<thead>
<tr>
<th>Region 1</th>
<th>Region 2</th>
<th>Region 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>County</td>
<td>2001 Pop.</td>
<td>10-Year Cumulative Summer Storm Losses</td>
</tr>
<tr>
<td>Aiken</td>
<td>108,522</td>
<td>$2,307,000</td>
</tr>
<tr>
<td>Auglaize</td>
<td>46,453</td>
<td>$231,000</td>
</tr>
<tr>
<td>Champaign</td>
<td>39,210</td>
<td>$333,000</td>
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<tr>
<td>Clark</td>
<td>143,969</td>
<td>$380,000</td>
</tr>
<tr>
<td>Clinton</td>
<td>41,277</td>
<td>$1,614,000</td>
</tr>
<tr>
<td>Crawford</td>
<td>46,695</td>
<td>$2,386,000</td>
</tr>
<tr>
<td>Defiance</td>
<td>39,195</td>
<td>$218,000</td>
</tr>
<tr>
<td>Erie</td>
<td>79,321</td>
<td>$3,637,000</td>
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<tr>
<td>Fayette</td>
<td>28,387</td>
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<td>Fulton</td>
<td>42,334</td>
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<td>Hancock</td>
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<td>Hardin</td>
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<td>Henry</td>
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<td>Huron</td>
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<td>Logan</td>
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<td>Lucas</td>
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<td>Madison</td>
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<td>Marion</td>
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<td>Mercer</td>
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<td>Miami</td>
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<td>Morrow</td>
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<td>Preble</td>
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<td>Shelby</td>
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</table>
The total 10-year cumulative summer storm loss for Region 1 is $49,448,000, and an annual per-capita loss of $2.25, which is the highest in the state. Within the Region, Ottawa and Sandusky Counties have historically had the highest 10-year loss each exceeding $5,000,000 affecting approximately 102,689 people. Henry County historically had the lowest 10-year loss at $99,000 affecting 29,090 people.

Region 2 has the highest 10-year cumulative summer storm loss in the state at a total of $53,649,000. However, this is the most populous Region in the state, and exhibits the lowest annual per-capita loss of $0.71. Within the Region, Geauga County has historically had the highest 10-year per-capita loss of $1.88 (Table 2.12.a). Franklin County has historically had the lowest 10-year per-capita loss at $0.08, but has the second highest population in the state.

Region 3 has a 10-year cumulative summer storm loss of $14,604,000, which has affected a population of approximately 1,458,464 persons (annual per-capita of $1.00). Holmes County has had experienced the highest 10-year loss at a total of $2,174,000 affecting approximately 39,539 persons (Table 2.12.a). Morgan County has had the least 10-year loss to summer storms at $48,000, which affected approximately 14,963 persons (Table 2.12.a).

Hail events cannot be assessed by county; however, historical trends indicate Ohio will experience hail storms generating $25,000,000 or more of damages once in a two year period. Predominantly rural areas range from no reported losses in 19 counties to a high of $975,000 in Gallia County. The highly sporadic nature of hail events makes county-to-county comparisons misleading. With 2,491 hail events and $463,571,600 in damages over the analysis period, the mean event would cost $186,062. However, the usefulness of such a statistic is highly debatable, as it is provided for illustration only.

Property damage is not the only loss associated with summer storms and hail. Over the analysis period 13 deaths and 98 injuries were attributed to these events. Of the injuries reported, 20 are attributed to a single event in Franklin County which involved a campground.


The OII survey concluded Ohio’s insured losses totaled $1.255 billion and government costs for protection and clean-up were $38.6 million. Insurance companies reported a record-high number of claims filed across the state. At least 270,000 were filed in Ohio, including 220,000 homeowners, 30,000 commercial and 20,000 auto insurance claims.

STATE-OWNED AND STATE-LEASED CRITICAL FACILITIES VULNERABILITY ANALYSIS & LOSS ESTIMATION

Since severe summer storms are non-spatial hazards and have the potential to affect all state-owned structures, the determination was made to assess total replacement costs for the two categories of state-owned facilities (critical and non-critical). Additionally, many state-government facilities are leased, and the
replacement costs associated with these structures are based on the annual rental fees. Supplemental information for these state datasets can be found in section 2.1 of this plan. All facility numbers and at-risk dollars referenced in this section are listed by county in Appendix C. Maps C-1 and C-2 show the at-risk values for state-owned and state-leased critical facilities, and these maps are located in Appendix C.

Tables 2.1.a – 2.1.c list state-owned critical and non-critical facility numbers and replacement values within each county. Currently, there are a total of 4,456 state-owned facilities (2,343 critical and 2,113 non-critical) throughout Ohio worth an estimated $4.3 billion. For Region 1 there are 906 critical and 635 non-critical worth approximately $845 million and $354 million, respectively. The county with the largest dollar exposure of state-owned facilities is Marion with $421,369,273, mostly related to a large correctional facility. Marion County also has the highest dollar exposure of critical facilities at $368 million.

Presently, there are a total of 1,709 (900 critical and 809 non-critical) state-owned facilities in Region 2, worth an estimated $2.4 billion. The estimated worth for the critical facilities is over $1.5 billion, and non-critical is over $930 million. As would be expected, Franklin County, which contains the state capital, represents the majority of the dollar value with $994 million in state-owned facilities that include 99 critical in nature, worth approximately $675.5 million.

The lowest total number (1,206) of state-owned facilities is located in Region 3, representing over $633 million. The estimated worth for critical facilities is nearly one-fifth of that in Region 2 ($389 million), and $273 million in non-critical facilities. Ross County accounts for nearly one third of the dollars at risk ($137 million) in the entire Region, which is mainly due to a large correctional facility.

Tables 2.1.d – 2.1.f list state-leased critical and non-critical facility numbers and their respective annual rental costs within each county. Currently, there is a total of 296 state facilities that are leased annually, of which 30 are critical to response and recovery following a disaster. For Region 1, there are three critical and 39 non-critical with approximately $654,528 and $2,851,641 in annual rent, respectively. Region 2 has 24 critical and 168 non-critical leases with annual rental costs of $7,841,431 and $43,721,216, respectively. In Region 3 numbers are similar to those in Region 1 with three state-leased critical facilities ($476,832) and 59 state-leased non-critical facilities ($3,063,305).


An Ohio Department of Jobs and Family Services structure was damaged at the Fifth Avenue facility in Columbus (Franklin County). Additionally, due to power and telecommunication issues, some facilities had trouble coordinating through traditional means. The Ohio Department of Transportation reported 46 state roads and hundreds of local roads were impacted by debris. Power outages and physical damage to traffic signal systems also were caused by the storm. At the storm’s peak, 490 state-controlled traffic systems were non-functional with tens of thousands locally-controlled systems without power.