Looking Back at the Storms: A GIS Perspective of Tornado Damage
Fort Worth / Arlington Tornadoes

Downtown Fort Worth
March 28, 2000
Major Structures in Path

Scattered F-0 Damage to Jacksboro Highway

F-2 Tornado Circulation
Most Organized

F-3 Tornado Circulation
Less Organized

Primary Corridor of Window Breakage

Airborne Debris Area - Mostly Collateral Damage

Scattered F-0 Damage to Oakland and I-30

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Fort Worth / Arlington Tornadoes

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Current Structure-Dominant Land Uses

- 0-15%
- 15-30%
- 30-50%
- 50-80%
- 80-100%
2025 Structure-Dominant Land Uses

- 0-15%
- 15-30%
- 30-50%
- 50-80%
- 80-100%
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Fort Worth / Arlington Tornadoes

April 2003 Hailstorm

1940
1,500 Homes
$57 Million
1.9 Million SQ. Ft.

Hail Data Courtesy: Tim Marshall

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Fort Worth / Arlington Tornadoes

April 2003 Hailstorm

2003
415,000 Homes
$47 Billion
909 Million SQ. Ft.

Hail Data Courtesy: Tim Marshall

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GIS Comparison of the Damage Areas

Total Damage Area:
- Fort Worth Tornado: 344 Acres
- OKC Tornado: 12,200 Acres

Damage Area Considered Significant (F-2+ Rating):
- Fort Worth Tornado: 63 Acres
- OKC Tornado: 7,750 Acres
Fort Worth / Arlington Tornadoes

Downtown Fort Worth Path Animation
Residents: 51,300
Employees: 64,600
Structures: 23,000
Structure Value: $4.2 Bill.
Damages: $2.6 Bill.
Hourly Traffic: 169,000
Normal Volume: 1,700
Traffic Jam: 79,500
Fort Worth / Arlington Tornadoes

85% of Downtown Structures
94% of Downtown Structure Values
Fort Worth / Arlington Tornadoes

266,000 Population
150,000 Employees
$15.8 Billion Value
Growth

1950

225 Structures
$9.2 Million

2009

45,000 Structures
$10,100 Million
Fort Worth / Arlington Tornadoes
Severe Thunderstorm Warning

Counties: Johnson

Issued: Monday, 4/25/2005 3:33:00 PM
Expires: Monday, 4/25/2005 4:30:00 PM

Status: WARNING
Event: Severe Thunderstorm
Area: 325 Sq. Miles
Storm Motion: Moving East at 35 MPH

Impacted Population: 70
In Homes: 62
In Multi-Family Units: 2
In Mobile Homes: 6
English Spoken Well: 75%
English Not Spoken: 1%

Preliminary: 1
Male: 37
Under Age 18: 21
Over Age 65: 8
Housing Units: 25

Source: 2000 Census

Description:

* SEVERE THUNDERSTORM WARNING FOR... NORTHERN JOHNSON COUNTY IN NORTH CENTRAL TEXAS

* At 3:34 PM CDT... National Weather Service Doppler Radar Detected A Severe Thunderstorm Located 1.3 Miles West Of Godley... Or Near Granbury... And Moving East At 35 MPH. This Storm Was Capable Of Producing Nickel Size Hail... And Damaging Winds In Excess Of 60 MPH.

Timing:

* THE SEVERE THUNDERSTORM WILL BE NEAR... GODLEY BY 4:05 PM JOSHUA BY 4:40 PM BURLINGTON BY 4:55 PM NORTHERN ALVARADO BY 4:45 PM 9 MILES NORTH OF VINEYARD BY 4:52 PM FOR YOUR PROTECTION MOVE TO A STURDY SHELTER UNTIL THE STORM PASSES. IF YOU ARE CAUGHT OUTSIDE... SEEK SHELTER IN A STRONG BUILDING AND IF INSIDE... AVOID WINDOWS UNTIL THE STORM HAS PASSED. A TORNADO WATCH IS IN EFFECT FOR THE WARNED AREA. SEVERE THUNDERSTORMS CAN PRODUCE TORNADOES WITH LITTLE OR NO WARNING.

Population In Warning Area (Up to 10 Top Populations Listed):

<table>
<thead>
<tr>
<th>City/Location</th>
<th>County</th>
<th>Persons</th>
<th>Male</th>
<th>Female</th>
<th>Housing</th>
<th>Units Under 18 Orc</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. County Land</td>
<td>Johnson</td>
<td>41,420</td>
<td>22,802</td>
<td>18,618</td>
<td>16,648</td>
<td>50%</td>
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<tr>
<td>2. Druço</td>
<td>Johnson</td>
<td>16,205</td>
<td>8,714</td>
<td>7,491</td>
<td>6,997</td>
<td>25%</td>
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<tr>
<td>3. Joshua</td>
<td>Johnson</td>
<td>4,525</td>
<td>2,247</td>
<td>2,278</td>
<td>1,619</td>
<td>10%</td>
</tr>
<tr>
<td>4. Alvins</td>
<td>Johnson</td>
<td>2,917</td>
<td>1,417</td>
<td>1,500</td>
<td>1,038</td>
<td>25%</td>
</tr>
<tr>
<td>5. Kneal</td>
<td>Johnson</td>
<td>2,155</td>
<td>987</td>
<td>1,168</td>
<td>608</td>
<td>26%</td>
</tr>
</tbody>
</table>

North Central Texas Council of Governments
Lessons Learned

- Location Location
- Growth is Meeting Risk
- Tornadoes Relatively Small
- Are We Ready for Bigger Storms?
- Information/Tools Improved
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