Using Resettlement Patterns in GIS for New Orleans Recovery

April 10, 2008
The degree to which areas have repopulated is almost directly related to the amount of flooding they received following Katrina.

<table>
<thead>
<tr>
<th>Flood Depth (ft)</th>
<th>July 1, 2005</th>
<th>July 1, 2006</th>
<th>October 1, 2006</th>
<th>October 1, 2007</th>
<th>% of 2005 Population Returned</th>
<th>% Growth in Last Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>114,565</td>
<td>112,765</td>
<td>113,322</td>
<td>116,199</td>
<td><strong>101.4%</strong></td>
<td>2.5%</td>
</tr>
<tr>
<td>1</td>
<td>24,980</td>
<td>20,122</td>
<td>20,381</td>
<td>21,054</td>
<td><strong>84.3%</strong></td>
<td>3.3%</td>
</tr>
<tr>
<td>2</td>
<td>31,931</td>
<td>20,439</td>
<td>21,527</td>
<td>22,079</td>
<td><strong>69.1%</strong></td>
<td>2.6%</td>
</tr>
<tr>
<td>3</td>
<td>31,748</td>
<td>15,736</td>
<td>17,439</td>
<td>19,638</td>
<td><strong>61.9%</strong></td>
<td>12.6%</td>
</tr>
<tr>
<td>4</td>
<td>33,794</td>
<td>11,108</td>
<td>13,134</td>
<td>17,219</td>
<td><strong>51.0%</strong></td>
<td>31.1%</td>
</tr>
<tr>
<td>5</td>
<td>36,117</td>
<td>8,819</td>
<td>11,117</td>
<td>15,849</td>
<td><strong>43.9%</strong></td>
<td>42.6%</td>
</tr>
<tr>
<td>6</td>
<td>44,701</td>
<td>11,226</td>
<td>14,337</td>
<td>20,394</td>
<td><strong>45.6%</strong></td>
<td>42.2%</td>
</tr>
<tr>
<td>7</td>
<td>43,938</td>
<td>9,142</td>
<td>11,831</td>
<td>18,433</td>
<td><strong>42.0%</strong></td>
<td>55.8%</td>
</tr>
<tr>
<td>8</td>
<td>18,588</td>
<td>3,727</td>
<td>5,215</td>
<td>7,892</td>
<td><strong>42.5%</strong></td>
<td>51.3%</td>
</tr>
<tr>
<td>9</td>
<td>19,248</td>
<td>2,929</td>
<td>4,094</td>
<td>7,590</td>
<td><strong>39.4%</strong></td>
<td>85.4%</td>
</tr>
<tr>
<td>10</td>
<td>32,726</td>
<td>4,909</td>
<td>6,715</td>
<td>13,093</td>
<td><strong>40.0%</strong></td>
<td>95.0%</td>
</tr>
<tr>
<td>11</td>
<td>18,314</td>
<td>1,766</td>
<td>2,573</td>
<td>7,141</td>
<td><strong>39.0%</strong></td>
<td>177.5%</td>
</tr>
<tr>
<td>12 +</td>
<td>4,212</td>
<td>700</td>
<td>939</td>
<td>1,476</td>
<td><strong>35.0%</strong></td>
<td>57.2%</td>
</tr>
<tr>
<td>Total</td>
<td>454,863</td>
<td>223,388</td>
<td>242,626</td>
<td>288,057</td>
<td><strong>63.1%</strong></td>
<td>18.7%</td>
</tr>
</tbody>
</table>
GCR’s population estimate is based on the application of a block-level “activity index” that measures indicators of residential return.

The primary component of the activity index is a comparison of monthly counts of utility usage to comparable pre-Katrina periods.

Other indicators are used to gauge and verify the accuracy of the utility data, such as building permits, garbage can registrations, active postal accounts, school enrollment, and voter participation.
GCR has combined our data with our GIS capabilities to produce maps of the current rate of population return at a number of geographical levels.

In the resettlement maps, red represents areas in which activity is less than 20% of its pre-Katrina level. Green represents areas in which activity is greater than 80% of its pre-Katrina level. Yellow and orange display areas in between.
Resettlement of New Orleans Population, January 1, 2008
GCR tracks activity in the city on a block-by-block basis; therefore, we have been able to monitor the pace at which each area of New Orleans has repopulated.

Soon after the storm, the population in areas with little or minimal flood damage returned rapidly.

Throughout the recovery period, proximity to repopulated areas has been a critical component to the recovery of damaged areas. The repopulation has radiated from largely unaffected areas into blocks and neighborhoods connected to these areas.

Accordingly, areas disconnected from largely recovered areas have been slow to regain their population. This condition is most acute in the Lower Ninth Ward and parts of Gentilly.
As of January 1, 2008, the population of New Orleans is estimated to be 297,246, 65.2% of its July 2005 level.

Over 40,000 residents returned or relocated to New Orleans in 2007.

The city’s population grew steadily throughout the past year; however, the rate of growth appears to have decreased in December.
Prior to Katrina, the population of Metro New Orleans was about 1.4 million.

Orleans Parish was the most populous, accounting for 35% of all area residents.
Currently, the metro population is approximately 1.2 million.

There will be a redistribution of the residents within the area:

- Jefferson is now the most populous parish in the region
- St. Tammany and Tangipahoa are the fastest growing
- Orleans will approach its pre-Katrina percentage as its recovery progresses
Imminent Population Trends

- Based on recent monthly changes in population, the population of New Orleans should exceed 300,000 in the first quarter of 2008.
- Exceeding the 300,000 threshold will constitute a major milestone and will restore New Orleans to the cohort of “major” central cities.

Examples of U.S. cities with populations of approximately 300,000 - 350,000

<table>
<thead>
<tr>
<th>City</th>
<th>Population (July 2006)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pittsburgh, PA</td>
<td>312,819</td>
</tr>
<tr>
<td>Cincinnati, OH</td>
<td>332,252</td>
</tr>
<tr>
<td>Tampa, FL</td>
<td>332,888</td>
</tr>
<tr>
<td>Anaheim, CA</td>
<td>334,425</td>
</tr>
<tr>
<td>St. Louis, MO</td>
<td>353,837</td>
</tr>
</tbody>
</table>
Voting and Population Trends are Consistent

- While the residential “activity index” is a primary source for GCR’s population estimates, votes cast in recent elections provide another measure of the number of people in the community.
- A comparison of the number of votes cast in the gubernatorial primary elections in 2007 and 2003 provides an interesting insight into the population of New Orleans.
- While fewer votes were cast in the 2007 gubernatorial election in Orleans Parish, the ratio of votes cast to resident population remained constant.

### Population and Votes Cast in Gubernatorial Primaries

<table>
<thead>
<tr>
<th></th>
<th>October, 2003</th>
<th>October, 2007</th>
<th>2007 as a Percentage of 2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orleans Parish Population</td>
<td>465,287</td>
<td>288,057</td>
<td>62%</td>
</tr>
<tr>
<td>Orleans Parish Votes Cast</td>
<td>118,219</td>
<td>72,993</td>
<td>62%</td>
</tr>
</tbody>
</table>
In the fall of 2004, 62,646 students were enrolled in public schools in Orleans Parish.

The level of public school enrollment for fall 2007 was 30,400, or 49% of its 2004 level.

This recent count is within 1% of the student population forecasted by GCR in the summer. The close correlation confirms the usage of the activity index as a metric for estimating and projecting the city’s population.
Residential Permits Issued

- Permit data indicates that demolition activity throughout the city continues at a steady pace
- Permits issued for new construction increased throughout the latter half of 2007
- The number of renovation permits issued by the city has now tapered off to a level comparable to periods prior to Hurricane Katrina

### Residential Permits by Type, 2006-2007

<table>
<thead>
<tr>
<th>Year</th>
<th>Renovation</th>
<th>New Construction</th>
<th>Demolition</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>31,093</td>
<td>727</td>
<td>5,864</td>
</tr>
<tr>
<td>2007</td>
<td>3,406</td>
<td>1,115</td>
<td>3,187</td>
</tr>
</tbody>
</table>

### Average Monthly Permits, 2004-2007

<table>
<thead>
<tr>
<th>Year</th>
<th>Renovation</th>
<th>New Construction</th>
<th>Demolition</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>165</td>
<td>41</td>
<td>35</td>
</tr>
<tr>
<td>2006</td>
<td>2,591</td>
<td>61</td>
<td>489</td>
</tr>
<tr>
<td>2007</td>
<td>310</td>
<td>101</td>
<td>290</td>
</tr>
</tbody>
</table>
40,712 renovation permits have been issued.

During the same period, 9,371 demolition permits and 1,878 new construction permits have been approved.
Renovation Permits Issued Since Katrina
Demolition Permits Issued Since Katrina

Legend
Demolition Permits Density
Low
Medium
High
New Construction Permits Issued Since Katrina
Return of Population in Target Recovery Zones
Return of Population by ZIP Code
Return of Population by Planning District
Return of Population by Neighborhood
Return of Population in Target Recovery Zones
The Decision Support System is designed to assemble critical information into a single place to facilitate more effective analysis and better decision making. It provides users with access to data, statistics, and maps on a jurisdictional basis to enhance understanding and meaning.
DSS Baseline Data

Counts/Averages

- **Demographic**
  - Population Data
  - Individuals per Household
  - Racial Characteristics
  - Age Distribution
  - Median Household Income

- **Housing**
  - Households
  - Owner, Rental, and Vacant Units
  - Average Value
  - Age of Housing Stock
  - Public/Subsidized Housing Units

- **Civic Participation**
  - Registered Voters by Party and Race
  - Voter Participation by Party and Race

- **Economic**
  - Labor Force
  - Types of Businesses
  - Employment by Sector
  - Unemployment
  - Sales Tax Collection

- **Community Resources**
  - Schools
  - Hospitals
  - Neighborhood Clinics
  - Fire Stations
  - Police Substations
  - Public Recreational Facilities
  - Libraries
  - Day Care Centers
  - Churches
DSS
Recovery Data Elements

Commercial/Industrial Counts and Individual Data Points

- Open
- Recovering
- Closed
- Businesses by NAICS Code
- Employment by NAICS Code
- Sales Tax Collections

- City - 39,778 establishments

- Bywater - 405 establishments
The Unified New Orleans Plan

- GCR developed a comprehensive “Data Atlas” that provided up-to-date information on all facets of the city’s recovery.
- Analysis of present population estimates and likely future population trends as part of the Plan’s “Baseline Recovery Assessment”
- Served as the interface between the single city-wide planning team and the four district-level planning teams
New Orleans Hornets Market Analysis