NECESSITY BREEDS DATA INNOVATION:

Obtaining Accurate Demographic Data in the Wake of Hurricane Katrina

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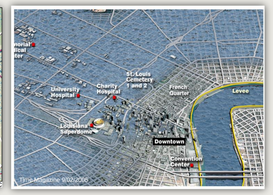
INTRODUCTION

When unanticipated events take place that turn regular data needs into urgent imperatives, GIS professionals are forced to innovate in utilizing multiple, often non-traditional data sources for short and long term planning necessities. Such events unfolded in the New Orleans region in 2005, when the landfall, devastation, and dramatic demographic shifts caused by hurricanes Katrina and Rita coincided with the midpoint between decennial Census efforts. As a consequence, during the immediate recovery efforts following the storms, there was a lack of reliable and up to date demographic at a time when it was needed most for transportation, utility, land-use, and other recovery planning efforts.

53 levee breaches in the regional system

80% flooding in the city



As the Metropolitan Planning Organization (**MPO**) for the damaged region, entrusted to aid the local transit authority in providing transit service, the Regional Planning Commission (**RPC**) sought data to ensure that transit was accessible to relocated residents that needed it most. The previously invaluable U S Census data from 2000 were no longer relevant. Vast numbers of people were temporarily housed away from their former homes, while awaiting loans, grants, supplies and basic information needed to rebuild their permanent residences. An influx of recovery workers now inhabited all portions of the region. In short, Census 2000 data no longer reflected the reality of the remaining half of the decade.

New Orleans Region

New Orleans south shore urban	396,704
New Orleans Uptown/Lakefront urban	191,563
Jefferson/Lakefront/Metairie/Kenner urban	88,503
Jefferson/Westbank urban	97,600
Total Living in RPC Urbanized Areas	**1,747,400**
Total Living in RPC Parish Area	**1,858,202 – 95% of Area Population**

WORKING WITH US CENSUS

During the early years just after the storm (late 2005, 2006 and into 2007) the U. S. Census, several agencies within the State of Louisiana, Claritas, ESRI, RAND, local governments and others used varying methodologies to predict population trends, and help determine where people would most likely be returning. This data was anticipated as a basis for planning and for prioritizing infrastructure improvements of all types. Beginning with the Census and evolving into an MPO based population trend analysis, the RPC became an involved partner in establishing a sound basis for these projections.

Katrina Diaspora

FEMA Trailer Living

Residents fleeing Hurricane Katrina and its aftermath numbered 1.36 million and were dispersed across the U S for long periods of time. Those returning generally were forced to find other living arrangements while rebuilding their former homes and awaiting FEMA trailers that were later declared unhealthy.

Census Plans with the Region

Census forms hang from doorknobs of (seemingly) unoccupied housing in New Orleans, (Chris Bickford For the New York Times)

Agents of the U .S. Census met with the RPC as early as winter 2005 to discuss anticipated non-traditional approaches needed to prepare for the 2010 decennial Census form distribution. The majority of victims in the three most devastated parishes (counties) were forced into unusual living arrangements due to their housing made uninhabitable by structural damage and mold. These arrangements would be necessary for as long as lengthy insurance, grant disbursement and reconstruction process took. Uncertainties for victims were exacerbated due to the relocation of jobs, schools and family members, or due to lack of services in the region. While many flood victims had FEMA trailers in their yards, many were living temporarily at one or multiple other addresses. Due to these circumstances, an unprecedented arrangement took place wherein the U. S. Census hand delivered forms to all existing residential doors (as opposed to mailing, since the U. S. Postal Service does not forward Census forms) in these three parishes. Census management recognized that although many of these residences receiving forms were likely temporary, with their occupants undertaking the process of rebuilding permanent housing, the ultimate goal was to count people where their permanent housing would be rebuilt in 2010.

NEW POPULATION DISTRIBUTION

The RPC, on behalf of its board hired a consulting firm (GCR, Inc.) to provide population projection aid through multi-layered analysis of post-Katrina activity datasets, including activated utility accounts, mail deliveries, new trash receptacle drop offs, and other indicators that signaled an attempt at establishing a permanent. Based primarily on a comparison of active utility accounts for each Census block, the current number of active accounts was divided into the pre-Katrina number of active accounts and multiplied by the Census 2000 population for each block: **Pop2007Estimate = Pop2000 X (Current Accounts/Pre-Katrina Accounts)**

U. S. Census Population Totals 1960 to 2000 by County

Population of Eight Parish Area and State, 1960-2000

	1960	1970	1980	1990	2000
Jefferson	208,769	338,229	454,592	448,306	455,466
Orleans	627,525	593,471	557,515	496,938	484,674
Plaquemines	22,545	25,225	26,049	25,575	26,757
St. Bernard	32,398	51,186	64,097	66,631	67,229
St. Charles	21,219	29,550	37,259	42,437	48,072
St. John the Baptist	19,436	23,933	31,928	39,996	43,044
St. Tammany	38,643	63,585	110,869	144,508	191,268
Tangipahoa	59,434	65,875	80,698	85,789	100,588
Metro Total	1,028,760	1,190,933	1,363,003	1,350,180	1,417,098
State Total	3,257,022	3,644,637	4,205,900	4,219,973	4,468,976
Percent of State Population in Metro Area	31.6%	32.7%	32.4%	32.0%	31.7%

Source: U.S. Census Bureau

Pre-Katrina Census Population by County and for the Region which served as the basis for establishing percentage of active residents by Census block.

RPC/GCR Inc. Population Projection Estimates 2012 -2032

	2012	2017	2022	2027	2032
Jefferson	450,861	450,907	455,087	460,426	465,867
Orleans	355,634	375,020	388,020	401,615	414,015
Plaquemines	30,627	31,139	31,578	35,595	36,708
St. Bernard	25,663	30,640	37,494	44,929	51,260
St. Charles	56,827	60,076	63,147	66,345	67,297
St. John	49,839	50,755	54,227	57,886	59,650
St. Tammany	261,270	279,645	313,779	350,261	378,254
Tangipahoa	130,777	137,576	152,442	168,376	178,950
Metro Area	**1,361,099**	**1,415,687**	**1,498,887**	**1,585,330**	**1,645,000**

Post-Katrina Population Projections by County and for the Region taking into account the diaspora and following trends as identified in tracking utilities, mail delivery, building permits, etc.

RPC Submerged Roads Program Construction and Demolition Permit Locations 2008

Submerged Roads Program
Demolition and Major Construction Permits in Orleans and St. Bernard Parishes
Major Demolition
Major Construction
Demolition
Major Construction
Demolition
Major Construction