

Valassis Lists Data as an Indicator of Population Recovery in the New Orleans Area

Revised November 2008

By Elaine Ortiz and Allison Plyer

Introduction

In this rapidly changing post-Katrina environment, standard estimates of population are insufficient. For example, the Census produces only one annual estimate of the population of Orleans Parish, which is available at the parish-level nine months after the date it represents. Since 2007, the Greater New Orleans Community Data Center has experimented with a new indicator of population recovery for the New Orleans metro area: monthly U.S. Postal Service (USPS) data of residences actively receiving mail by ZIP Code and parish.

To meet the need for timely data at even smaller geographic levels, the Data Center is pleased to now offer USPS-based counts of active residences at the census block-level for Orleans Parish. These block-level counts are available via our online mapping system at www.gnocdc.org/repopulation. Qualified nonprofits are eligible to download the data in an excel spreadsheet.

The source for our block level data is the Valassis Residential and Business Database, which we purchased from Valassis Direct Mail Inc (formerly ADVO, Inc.). Valassis utilizes the U.S. Postal Service CDS subscription process to cleanse their database of mailing addresses, thus mimicking USPS delivery quality.¹ Valassis uses a proprietary process to review the millions of address changes they receive every week through the CDS program, and works cooperatively with the USPS to improve address quality for the entire mailing industry. The Valassis mailing list is the most complete national resident and business list available in the marketplace, and can be purchased at www.valassislists.com.

In the spirit of transparency and knowledge building, this report provides a description of the *Valassis Lists* data and the methodology we used to develop our block-level counts of residences actively receiving mail. As we make new discoveries about the Valassis data and its application in post-Katrina New Orleans, we will update this technical document.

The Valassis Residential and Business Database

Although our online mapping system presents only counts of active residential addresses, the Valassis mailing list is a database of all “possible deliveries,” which includes both vacant and active addresses, residential and business addresses, and P.O. boxes. Active addresses are defined by the Post Office as delivery points where mail has been picked up in the previous 90 days. Vacant addresses are urban delivery points where mail has not been collected for 90 days or longer.

Addresses included in the Valassis Database

The Valassis Residential and Business Database contains nearly every type of business and residence, including apartments, condominiums, single family homes, duplexes, fraternities, Single Room Occupancy units (permanent, supportive housing for the homeless), residential units in an assisted living facility or retirement home, FEMA trailers, mobile homes, boat houses, government agencies, hospitals, office buildings, retail stores, restaurants, and a limited number of college dormitories and military housing units. The Valassis mailing list would be equivalent to the complete list of USPS addresses if one was publicly available.

Address records for individuals who requested to be removed from *Valassis Lists* mailings are included in the database but flagged as “do not deliver.”

Addresses excluded from the Valassis Database

Some types of addresses are excluded from the Valassis Residential and Business Database. For example, a single high-volume address that has been assigned its own unique ZIP Code, such as the Sewerage and Water Board of New Orleans, is not included. Addresses that are part of a military ZIP Code are also not in the Valassis Database. And while Valassis may have the business address for a nursing home or homeless shelter, the individual residential units are typically excluded. Residential addresses for each dorm room in a college dormitory are sometimes included and sometimes excluded. A very small number of addresses (less than one-tenth of one percent of all addresses nationwide) are not included due to court orders or because they are “general delivery addresses” to the post office.

The Valassis Database also does not include addresses that are under construction, demolished, blighted and therefore not likely to become active for some time, have no delivery box/slot, or are rural route addresses that have not been collecting mail for 90 days or longer. These excluded addresses are referred to as “no stats” by the USPS.

Generating a list of active residences for the New Orleans metro area

For this paper, we have chosen to analyze the Valassis database as of March 2008. In order to arrive at our counts of active residential addresses for each parish in the New Orleans metro area, we excluded vacant addresses, business addresses, and P.O. boxes. As part of the geocoding process, we also identified and excluded addresses outside the seven parish New Orleans metropolitan statistical area (MSA) of Orleans, Jefferson, Plaquemines, St. Bernard, St. Charles, St. John and St. Tammany.

The Valassis Residential and Business Database included 615,449 addresses in the New Orleans MSA for March 2008. Excluding P.O. boxes, 480,780 (91 percent) of these addresses were residential and 44,605 (9 percent) were businesses (See Table 1). Another 90,064 addresses in the Valassis Database were P.O. boxes.

P.O. boxes can largely be ignored for the purpose of using the *Valassis Lists* data as an indicator of population. However, it should be noted if the Post Office has flagged a large percentage of P.O. boxes as the “only way to get mail,” which suggests that the P.O. box owners may not be duplicated in the other address data. These types of P.O. boxes were an insignificant issue for the New Orleans metro area: Only 1,845 P.O. boxes in Plaquemines,

409 P.O. boxes in St. Charles and 592 P.O. boxes in St. Tammany were flagged as the “only way to get mail.” While some such P.O. boxes are for rural residences where the USPS does not provide home delivery, others may be set up by individuals who work or travel to these parishes for parts of the year. In order to be conservative in our population indicators, we decided to exclude all P.O. boxes in our final count of active residences.

Table 1 groups the March 2008 data into three mutually exclusive categories of residential, business, and P.O. box addresses. There were 468,564 active residential addresses in the MSA, of which 145,506 were in Orleans Parish. In addition, there were 12,216 vacant residential addresses, of which 5,538 were in Orleans Parish. As a result of Hurricane Katrina, certainly more than 4 percent of all residential addresses in Orleans Parish are vacant. So, what is missing from the Valassis Database? Residences damaged by Hurricane Katrina and not likely to receive mail for some time are flagged as “no stat” addresses by the Post Office and excluded from the CDS updates that are the source for the Valassis Database. There is only one known source for “no stat” addresses. The U.S. Department of Housing and Urban Development publishes census tract level counts of “no stat” addresses on its website.²

Table 1. Valassis Database Addresses by Type, Status, and Parish, March 2008

	Residential Addresses*			Business Addresses*			P.O. Boxes					Total Addresses
	Active	Vacant	Total	Active	Vacant	Total	Active Residential	Vacant Residential	Active Business	Vacant Business	Total	
Jefferson	184,719	5,260	189,979	18,094	1,677	19,771	13,987	2,071	5,688	817	22,563	232,313
Orleans	145,506	5,538	151,044	13,317	821	14,138	15,778	1,644	4,607	950	22,979	188,161
Plaquemines	7,906	61	7,967	743	32	775	3,514	2,207	491	234	6,446	15,188
St. Bernard	11,123	35	11,158	820	7	827	3,490	2,029	548	250	6,317	18,302
St. Charles	15,735	119	15,854	786	14	800	5,423	1,206	656	136	7,421	24,075
St. John	15,625	50	15,675	979	23	1,002	3,293	1,173	412	95	4,973	21,650
St. Tammany	87,950	1,153	89,103	6,894	398	7,292	11,172	4,061	3,361	771	19,365	115,760
Total	468,564	12,216	480,780	41,633	2,972	44,605	56,657	14,391	15,763	3,253	90,064	615,449

Notes: Universe is total active and vacant addresses. Eight of the 41,633 active business addresses are primarily business with some residential deliveries, and 30 of the 468,564 active residential addresses are primarily residential with some business deliveries.

* Excludes P.O. boxes.

Exploring the list of active residential addresses

Once we isolated the active residential addresses, we explored the properties of those addresses using the 40 address fields and six geospatial fields in the Valassis Residential and Business Database. Select attributes of active residential addresses are shown in Table 2 and described below. A few of the data fields, including the geospatial data and the indicator for multi-family residences, are generated by *Valassis Lists*. The majority of the address data, however, is provided directly by the USPS through the CDS update process.

Table 2. Select Attributes of Active Residential Addresses, by Parish, March 2008

	Rural Route	City Route	Single family	Multi-family	Drop Stop	College	Trailer	Do Not Deliver	Total Active Residential Addresses
Jefferson	67	184,652	137,580	47,139	587	0	802	129	184,719
Orleans	11	145,495	111,016	34,490	4,076	1,973	1,984	1,630	145,506
Plaquemines	10	7,896	6,859	1,047	10	0	12	6	7,906
St. Bernard	6	11,117	10,411	712	25	0	375	2	11,123
St. Charles	16	15,719	14,327	1,408	7	0	105	11	15,735
St. John	10	15,615	14,515	1,110	53	0	17	6	15,625
St. Tammany	24	87,926	80,780	7,170	573	0	1,017	106	87,950
Total	144	468,420	375,488	93,076	5,331	1,973	4,312	1,890	468,564

Note: P.O. boxes are excluded from all counts.

Rural and city routes

Residences with rural route addresses cannot be accurately mapped (geocoded) because a rural route box address does not precisely identify the location of the house. Because we planned to map our addresses, we assessed how much impact this might have on our data. As Table 2 shows, addresses in our seven parish region are almost entirely on city routes, thus largely avoiding problems associated with mapping rural route addresses.

Single & multi-family residences

Valassis Lists defines single family and multi-family residences using internal data rules. Housing units that share the same street and number, and can only be distinguished by their secondary unit number (Apt 1, etc...) are defined as multi-family. Double “shot gun” houses, which are a large share of the Orleans Parish housing stock, are typically categorized as two single-family addresses because each unit has its own street number (308 and 310 Lowerline St). Based on this limited definition of multi-family housing, about 24 percent (34,490) of active residences in Orleans Parish are multi-family residences, and less than 10 percent of active residences are multi-family in St. Bernard, St. Charles, St. John, and St. Tammany parishes.

Drop stops

About one percent of active residences in the New Orleans metro area are drop stops, which are single delivery points for multiple residences. Examples of drop stops include a boarding house or fraternity in which mail is delivered to the door for subsequent distribution, a single door slot shared by multiple residences, a box on a wall that serves both units of a duplex, or a large condo building. In Orleans Parish, there were 4,076 drop stop addresses in March 2008, of which 1,550 (38 percent) were college residences.

College housing

As of March 2008, 1,973 active residential addresses were flagged as college housing in Orleans Parish. These addresses include Loyola University’s four residence halls and the Southern University of New Orleans’ temporary trailers (thru Spring 2008). College residences that are in the database but not flagged as college housing include the LSU Health Sciences Center Residence Hall, Tulane Papillon apartments, and Tulane Deming Pavilion apartments.

At Xavier University, Dillard University, the University of New Orleans (UNO), and Tulane’s uptown campus, the post office drops mail at a central mail room for staff to distribute to student mailboxes. All of the addresses are

marked as businesses in the Valassis Database, and only Xavier and Tulane addresses are also marked as colleges. According to Valassis, the USPS is working to improve their identification of college housing. These efforts are evident from the fact that Xavier University was not marked as a college address in January or March 2008. Starting in June 2008, Xavier's address was marked as a college and also as a drop stop, appearing 69 times (as an active business address) in the Valassis Database.

We should also note that college residence halls are typically defined as "group quarters," and are therefore excluded from the Census Bureau's definition of a housing unit.

Trailers

Based on the address unit type in the Valassis Database, there were 4,312 active residential trailers in the MSA as of March 2008, including 1,984 trailers in Orleans Parish. However, these figures are low compared to the 7,091 active FEMA trailers reported in Orleans Parish during the week of March 25, 2008.³ The likely explanation for this difference is that FEMA trailers located on the property of a damaged residential address maintain the original address unit type. Thus, we are not able to use the Valassis Database to identify all active FEMA trailers in the New Orleans metro area.

Do Not Deliver

In March 2008, the Valassis mailing list included 1,890 postal customers who requested to be removed from future mailings. These addresses are included in the database and flagged as "do not deliver."

Comparing the *Valassis Lists* data to other sources

Next we compared the *Valassis*-based counts of active residential addresses to other USPS-based counts of active residences, researched the literature on mailing list databases, and did some casual ground-truthing to verify the validity of using the *Valassis Lists* data.

Comparing the Valassis Database to other USPS-based counts of active residences

The Greater New Orleans Community Data Center publishes USPS counts of active residences at the ZIP Code and parish level back to August 2006, at which time the Post Office had recovered from the storm and scrubbed their database of over 100,000 residential addresses. As we document in a May 2007 report, *Using U.S. Postal Service Delivery Statistics to Track the Repopulation of New Orleans & the Metropolitan Area*, this USPS data is provided by Sammamish DataSystems.⁴

As a first check of the Valassis Database, we compared Valassis counts of active residences with data published by Sammamish DataSystems and the U.S. Department of Housing and Urban Development (HUD).

The primary source for Valassis, Sammamish, and HUD data is the USPS Address Management Systems database, but each dataset is provided via a different USPS product. Valassis uses weekly updates from the USPS' CDS product to enhance its own address list.^a The Sammamish data is generated from monthly counts of

^a To qualify for CDS updates, companies must demonstrate they possess a minimum of 90% of the current possible delivery addresses in the ZIP Codes and/or address groups where they wish to receive CDS updates. Once qualified, a company

addresses published by carrier route and ZIP Code in the USPS Delivery Statistics Product. HUD receives quarterly data extracts directly from the USPS at the ZIP+4 level. Under their license agreement with USPS, HUD must aggregate these data to the census tract level before releasing the data to the public. In February 2008, HUD began to publish data separately for residential and business addresses.

One significant difference between the three data sources is that the Valassis Database includes some additional addresses that are excluded in the HUD and Sammamish data. The Valassis Database includes a record for each residence that is part of a drop stop. Sammamish and HUD, in contrast, count each drop stop as only one address regardless of the number of residences at the drop stop.^a In our analysis of the March 2008 Valassis Database, we identified 5,331 active residential drop stop addresses. Of these, we determined that 1,062 addresses were unique. After removing the 4,269 “duplicate” drop stop addresses, the Valassis Database includes 464,295 active residential addresses for the seven parish MSA, which is 188 more records than Sammamish but 102 fewer than HUD (Table 3). Thus, the number of active residential addresses in each dataset is very similar after accounting for differences in how drop stops are counted.

Table 3. HUD, Sammamish, and Valassis-Modified counts of Active Residential Addresses, March 2008

	Sammamish	Valassis-modified	HUD
Jefferson	184,139	184,294	184,597
Orleans	142,317	142,046	142,123
Plaquemines	7,968	7,900	7,909
St. Bernard	11,015	11,110	11,088
St. Charles	15,573	15,731	15,645
St. John	15,546	15,593	15,554
St. Tammany	87,549	87,621	87,481
Total	464,107	464,295	464,397

Notes: Valassis-modified counts have duplicate drop-site addresses removed. Sammamish data is the week of March 9th, Valassis data is the week of March 9th, and HUD data is as of March 31, 2008

Claritas Inc. study

Claritas Inc. compared Census 2000 data of occupied households with estimates of active residential addresses from the USPS Delivery Statistics Product. For the entire U.S., the estimate of active residential addresses was 3.5 percent lower than occupied housing units in the Census 2000.⁵ At our request, Claritas provided the estimates of active residences for the New Orleans MSA for the year 2000. For the New Orleans metro area, the USPS-based estimates were about 3 percent *higher* than the number of occupied housing units in the Census 2000 (Table 4). However, there were significant differences between parishes. Urban parishes like Jefferson and Orleans had slightly more active residential addresses than Census 2000 occupied housing units, while Plaquemines and St. Charles had fewer. The number of active residential addresses and Census 2000 occupied housing units was nearly identical in St. Tammany and St. Bernard parishes.

receives the CDS base file, which contains the USPS’s official record of mailing addresses in walk sequence order, and regular electronic updates by carrier route.

^a Examples of drop stops include a single door slot shared by two residences, a box on a wall for duplexes, or a boarding house or fraternity in which mail is delivered to the door for subsequent distribution.

Table 4. Claritas Inc. Estimates of USPS Active Residential Addresses Compared with Census 2000 Housing Units, by Parish

	Census 2000 Occupied Housing Units	USPS 2000 Active Residences	USPS/ Census Occupied
Jefferson	176,234	182,993	104%
Orleans	188,251	201,160	107%
Plaquemines	9,021	6,666	74%
St. Bernard	25,123	25,008	100%
St. Charles	16,422	13,422	82%
St. John	14,283	12,801	90%
St. Tammany	69,253	69,276	100%
Total	498,587	511,326	103%

Sources: Census 2000 and Claritas Inc. USPS-based estimates of active residences in 2000.

Notes: Key differences exist between residential addresses actively receiving mail and Census 2000 occupied housing units. Residential addresses include housing units and a limited number of group quarters, such as college residence halls. Census 2000 occupied housing units exclude all group quarters. A second difference is that the census definition of an occupied housing unit is the "usual" place of residence (i.e. not a vacation home) for the persons living in it. Active residential addresses include all residences where mail has been picked up in the previous 90 days.

RTI International study

A study by RTI International evaluated the coverage of residential addresses from an ADVO (now Valassis) Database in Dallas County, Texas. To check for *under coverage*, the researchers "ground checked" 2,380 gaps in delivery sequence, and identified 2 percent (46) of these gaps as missed residences.⁶ Some of this under coverage resulted from persons who requested their address be removed from the Valassis Database.⁹ The same researchers evaluated the Valassis Database for *over coverage* in Houston, Texas. Of 2,724 addresses selected for ground checks, only 3 percent could not be located. Based on these findings, the authors determined that the Valassis Database was complete and useful for selecting samples for survey research.

Joint study by Greater New Orleans Community Data Center and Claritas Inc

Using carrier route data from the USPS Delivery Statistics Product, Data Center Deputy Directory Allison Plyer and Ken Hodges, Chief Demographer at Claritas Inc., documented the effectiveness of USPS data for measuring parish-level population displacement and recovery after a major catastrophe.⁷ This April 2008 report was prepared for the Population Association of America 2008 Annual Meeting.

⁹ The Valassis Database used by the Greater New Orleans Community Data Center, however, does not suffer from this drawback because it includes "do not deliver" addresses.

Informal “ground-truthing” and future research

We have also completed a few of our own on-the-ground checks of the *Valassis Lists* data, which have confirmed the completeness of the Valassis address list. Nearly as important as the completeness of the Valassis Database is the correspondence between “active” and “occupied” residences. For example, an attentive property owner or helpful neighbor who regularly picks up the mail of a vacant house may lead to more active residences than occupied households. On the other hand, squatters and individuals continuing to have their mail delivered to a relative’s home or to a P.O. box may result in fewer active residences compared to occupied households.

Upcoming research by GNO Community Data Center Deputy Director Allison Plyer will assess the differences between USPS counts of active residences and estimates of occupied households from surveys completed by neighborhood-based groups.

Small area counts of active residences

Parish and ZIP Code level counts of active residences from the USPS have provided vital information in post-Katrina New Orleans. Yet, these counts would be far more useful and informative at smaller geographic levels.

Ideally, we would provide the address-level data, but we cannot release the individual mailing addresses (see *Why can’t I get the address level data?* at www.gnocdc.org/repopulation). Census geographies, such as census tracts and blocks,^a provide an alternative way to organize the Valassis data in meaningful ways. However, there are limitations that are important to understand.

Strengths and limitations of Valassis’ geocoding process

Valassis uses a proprietary street database to match each address with a street segment within its ZIP Code. This address-matching process is called “geocoding.” Latitude and longitude coordinates are generated by estimating the location of the address along the street segment and census block information is retrieved from a database based on which side of the street the address number falls. This type of database geocoding is generally more accurate than alternative processes that rely on a spatial join of address point features and census block polygons.

The Valassis Database avoids the most common geocoding problems: addresses that are spelled incorrectly, are incomplete, or have the wrong ZIP Code. Every address in the Valassis Database is updated directly from the U.S. Post Office and has already been reviewed for accuracy through a CASS (Coding Accuracy Support System) certification process. As a result, the Valassis Database has a very high address-matching rate, and geocoding errors are minimized: 98 percent of active residential addresses (456,960) in the MSA were “address-matched” to a street segment (Table 5). The address match rate for Orleans Parish was nearly 99 percent, the highest in the MSA. Plaquemines, however, had a much lower match rate of 79 percent, suggesting that caution should be

^a Census tracts are relatively permanent statistical subdivisions of a parish that generally have between 1,500 and 8,000 people, with an optimum size of 4,000 people. Census block groups are a cluster of census blocks that generally contain between 600 and 3,000 people, with an optimum size of 1,500 people. Census blocks are small in area; usually, a block bounded by city streets. However, census blocks in sparsely settled areas may contain many square miles of territory.

used in analyzing small area data for that parish. The accuracy of the Valassis database compared to other address lists allows for analysis at very small geographic areas.

Table 5. Valassis Geocode Match Results for Active Residential Addresses, by Parish, March 2008

	Address Match	ZIP+4 Centroid	ZIP+2 Centroid	ZIP Centroid	Total	Address Match Rate
Jefferson	181,735	757	2,113	114	184,719	98%
Orleans	143,690	71	1,663	82	145,506	99%
Plaquemines	6,220	13	1,459	214	7,906	79%
St. Bernard	10,918	32	165	8	11,123	98%
St. Charles	14,987	33	684	31	15,735	95%
St. John	14,678	21	721	205	15,625	94%
St. Tammany	84,732	526	2,485	207	87,950	96%
Total	456,960	1,453	9,290	861	468,564	98%

Notes: The match rate indicates the precision of the geocodes (latitude and longitude assignment, and census block). An "address match" means the geocodes are assigned based on a match to a street segment. If an address could not be found or the matching street segment had no geometry associated with it, then the geocodes are assigned based on the centroid of the ZIP Code. A ZIP+4 centroid is based on the five digit ZIP Code plus the four digit add-on code (i.e. 70118-3611), and is the most accurate of all ZIP centroids. A ZIP+2 centroid is based on the five digit ZIP Code plus the first two digits of the add-on code (i.e. 70118-36). A ZIP centroid is based on only the five digit ZIP Code (i.e. 70118).

However, there are some limitations to the Valassis geocoding process. New addresses, which are continuously added to the Valassis Database, are assigned accurate census block designations quarterly (although the new addresses are immediately assigned accurate x, y coordinates). In addition, there are errors in assigning census blocks, such as addresses being assigned to "neutral grounds" where no housing is located, and addresses being clustered in one census block in suburban areas. These types of errors are found in all geocoding methods.

Developing an in-house geocoding process

In order to increase the speed of assigning census blocks to new addresses as well as better identify the source of geocoding errors, the GNO Community Data Center decided to handle all the geocoding in-house using MapMarker Plus, a desktop software created by Pitney Bowes. Bringing the geocoding in-house had several other advantages as well. Instead of a separate geocoding process for new addresses, we could use a consistent methodology for all addresses. And by tracking all records in a central database, we could take further steps to improve the quality of the census block geocodes in Orleans Parish.

When we initially geocoded the Valassis list, MapMarker Plus produced geocode match rates comparable to Valassis (Table 6).

Table 6. MapMarker Geocode Match Results for Active Residential Addresses, by Parish, March 2008

	Address match	ZIP+4 Centroid	ZIP+2 Centroid	ZIP Centroid	Total	Address Match Rate
Jefferson	181,190	546	2,474	509	184,719	98%
Orleans	143,671	126	1,654	55	145,506	99%
Plaquemines	6,325	19	1,353	209	7,906	80%
St. Bernard	10,894	83	141	5	11,123	98%
St. Charles	15,175	42	501	17	15,735	96%
St. John	14,675	35	714	201	15,625	94%
St. Tammany	85,054	351	2,490	55	87,950	97%
Total	456,984	1,202	9,327	1,051	468,564	98%

Notes: The match rate indicates the precision of the geocodes (latitude and longitude assignment, and census block). An "address match" means the geocodes are assigned based on a match to a street segment. If an address could not be found or the matching street segment had no geometry associated with it, then the geocodes are assigned based on the centroid of the ZIP Code. A ZIP+4 centroid is based on the five digit ZIP Code plus the four digit add-on code (i.e. 70118-3611), and is the most accurate of all ZIP centroids. A ZIP+2 centroid is based on the five digit ZIP Code plus the first two digits of the add-on code (i.e. 70118-36). A ZIP centroid is based on only the five digit ZIP Code (i.e. 70118).

Because the census block counts can be visually compared to the satellite imagery in our Google map, we have a very low tolerance for error. Addresses geocoded to a ZIP Code centroid would not be accurate enough to be included in our block level mapping system. Thus, our first step was to review and manually correct the census block codes for addresses geocoded to a ZIP centroid. As a result of these corrections, we were able to assign census blocks to all but 16 of the 1,835 active residential addresses initially geocoded to a ZIP centroid in Orleans Parish.

Next, we carefully reviewed block-level thematic maps of active residential addresses in order to check for suspicious pockets of high and low density, as well as other anomalies. We discovered about 700 active residential addresses in the March 2008 Valassis Database that were geocoded to a neutral ground census block, and revised the census block code for those addresses. Finally, we used our own local knowledge of the city to correct the census block code for about 200 additional addresses.

Despite our best efforts, some errors in census block geocodes will always exist. However, we believe that the number of errors is relatively small, and that the correct census block for an address with a geocoding error is usually adjacent to the incorrect census block to which the address is assigned.

Aggregating block counts can minimize error

The Greater New Orleans Community Data Center decided to publish counts of active residences for Orleans Parish at the census block level in order to provide the finest level of detail. However, we recommend aggregating the block counts to census block groups, census tracts, or neighborhoods in order to nullify small geocoding errors and improve the accuracy of the final counts.

¹ *CDS User Guide*, United States Postal Service, Updated February 8, 2007.

² *HUD Aggregated USPS Administrative Data On Address Vacancies*, U.S. Department of Housing and Urban Development. Available at <http://www.huduser.org/DATASETS/usps.html>

³ FEMA External Affairs, received in personal email correspondence on March 25, 2008.

⁴ Plyer, Allison and Joy Bonaguro, *Using U.S. Postal Service Delivery Statistics to Track the Repopulation of New Orleans & the Metropolitan Area*, May 2007. Available at www.gnocdc.org.

⁵ Jacobsen, Linda, Ken Hodges, and Fred Wilcox, *New Data Sources and Applications for Population and Household Estimates*, Claritas Inc. Presented at the Annual Meeting of the Population Association of America, Atlanta, Georgia, May 9 – 11, 2002.

⁶ Iannacchione, V.G., J.M. Staab, and D.T. Redden (2003), "Evaluating the Use of Residential Mailing Lists in a Metropolitan Household Survey." *Public Opinion Quarterly*. Vol 67. No.2 pp 202-210.

⁷ Plyer, Allison and Ken Hodges, *Using U.S. Postal Service Delivery Statistics to Track Population Shifts Following a Major U.S. Disaster*, Population Association of America 2008 Annual Meeting, April 2008. Available at <http://paa2008.princeton.edu/abstractViewer.aspx?submissionId=80655>