

PUBLIC HEALTH GIS NEWS AND INFORMATION

July 2006 (No. 71)

*Dedicated to CDC GIS Scientific Excellence and Advancement in
Disease, Injury and Disability Control and Prevention, and Biologic, Chemical and Occupational Safety*

Selected Contents: Events Calendar (p.1); (pp. 7-8); Public Health and GIS Literature 17); Website(s) of Interest (p. 17); Final



News from GIS Users (pp.2-7); GIS Outreach (pp.8-14); DHHS and Federal Update (pp.14-17); Thoughts (pp.17-20); **MAP** Appendix (20-22)

I. Public Health GIS (and related) Events: SPECIAL NCHS/CDC GIS LECTURES

Now online: “The National Neighborhood Indicators Partnership (NNIP)- Advances in the Development and Use of Neighborhood Level Data” presentation at <http://video.cdc.gov/ramgen/gis/gis-06-15-2006.rm>. The NCHS GIS Guest Lecture Series has been presented continuously at NCHS since 1988. As with all of our live lectures, Envision (live interactive) will be available to offsite CDC locations as well as IPTV. Web access will be available to our national and worldwide public health audience. The cosponsors to the NCHS Cartography and GIS Guest Lecture Series include CDC’s Behavioral and Social Science Working Group (BSSWG) and Statistical Advisory Group (SAG). Note: **NCHS Cartography and GIS lectures are open to all.** We look forward to having you join with us and other colleagues. [Questions: please contact Editor, *Public Health GIS News and Information*, at cmc2@cdc.gov; Subscription to the CDC Public Health GIS Users Group is free- see: <http://www.cdc.gov/subscribe.html>]

[Notes: (1) Calendar events are posted as received; for a more complete listing see NCHS GIS website and calendar; (2) Disclaimer: The findings and conclusions in this report are those of the Editor and do not necessarily represent the views of the Centers for Disease Control and Prevention (CDC)]

* TRACKS 2006: Third National Conference Implementing the Tracking Network, CDC and partners, August 9-11, 2006, Atlanta GA [See Tracking Network at: <http://www.cdc.gov/nceh/tracking/tracks06/home.htm>]

* Australian Health Inequities Program (AHIP): *Multi-Disciplinary Approaches To Health Inequities Research*, on September 14, 2006, at The University of Adelaide, Australia [See: <http://som.flinders.edu.au/FUSA/PublicHealth/AHIP.htm>]

* 5th Annual Public Participation GIS Conference (PPGIS), Engagement and Empowerment, in conjunction with the URISA Annual Conference, September 27-28, 2006, Vancouver BC [See URISA/PPGIS meeting website: http://207.145.30.84/annual_highlights]

* 2nd International Conference on Geosensor Networks (GSN'06), October 1-3, 2006, Boston MA [See website: <http://www.spatial.maine.edu/~nittel/GSN2.0.html>]

* ACM-GIS 2006: 14th International Symposium on Advances in Geographic Information Systems, November 10-11, 2006, Arlington VA [See ACM-GIS website: <http://www.itc.nl/acmgis06>]

* 2006 National Environmental Public Health Conference: *Advancing Environmental Public Health: Science, Practice, New Frontiers*, Centers for Disease Control and Prevention, December 4-6, 2006, Atlanta GA [See: <http://www.cdc.gov/nceh/conference>]

* 23rd International Methodology Symposium: Methodological Issues In Measuring Population Health, Statistics Canada, November 1-3, 2006, Ottawa Canada [See: <http://www.statcan.ca/english/conferences/symposium2006>]

* The Asia Pacific EBM (Evidence-Based Medicine) Network Conference, December 8-10, 2006, Hong Kong [See: <http://www.hkcochrane.cuhk.edu.hk>]

2007 Meetings

* 9th Crime Mapping Research Conference: “Spatial Approaches to Understand Crime & Demographics, Developing Methods for Research and Practice,” March 28-31, 2007, Pittsburgh PA [See CMRC conference information at website: <http://www.ojp.usdoj.gov/nij/maps>]

* 2007 Annual Meeting of The Association of American Geographers, April 17-21, 2007, San Francisco CA [See AAG website for conference registration and schedule of events: <http://www.aag.org>]

* URISA’s GIS in Public Health Conference, May 20-23, 2007, New Orleans, LA [See information about this new URISA specialty public health conference at the following website: <http://207.145.30.84/conferences/health/call>]

II. GIS News

[Public Health GIS Users are encouraged to communicate directly with colleagues referenced below on any items; note that the use of trade names and commercial sources that may appear in Public Health GIS News and Information is for identification only and does not imply endorsement by CDC]

A. General News and Training Opportunities

1. **U.S. Census Bureau to Release 2005 ACS Social and Demographic Estimates on August 15, 2006; subsequent releases planned throughout 2006.** On August 15, 2006, the U.S. Census Bureau will release the 2005 American Community Survey (ACS) data on social and demographic characteristics for the nation, all 50 states and the District of Columbia, every congressional district and all counties and places with populations of **65,000 or more**. The release covers 6,800 geographic entities and marks the first time that ACS data will be available for areas with populations of less than 250,000. It is part of the full implementation of the survey, which will provide updated data on an annual basis for all levels of geography (including census tracts and block groups) by 2010. [See: <http://lists.census.gov/mailman/listinfo/acs-alert>]

2. The U.S. Geological Survey is hosting the **2nd Earth Science and Public Health Meeting** September 12-14, 2006, at the National Center in Reston. This will be a forum to foster collaboration between the Public Health and Earth Science Communities, which can lead to solutions for existing and emerging environmental health problems. The intended audience is organizations and individuals interested in **environmental and earth science factors affecting human health**. This meeting is designed to provide a broad forum for discussion, bringing together a variety of interested parties, including policy makers, scientists, resource managers, Congressional staffers, Federal and State government, and non-governmental organizations.

Overall, the meeting will be set up along six thematic areas: (1) exposure to toxic contaminants in air and dust; (2) chemical and pathogen contaminant exposure by drinking water; (3) human consumption of bioaccumulative contaminants; (4) pathogen exposure through recreational waters; (5) vector-borne and zoonotic diseases; and (6) animals as sentinels of human health, along which the USGS public health research is aligned. [More information about the meeting can be found at: <http://health.usgs.gov>; Contact for the meeting is Brenda Pierce at bpierce@usgs.gov]

3. The International **statGIS Summer School**, to be held September 11-16, 2006, at the University of Klagenfurt, Austria, is targeted to researchers in academia, extra-university research, and industry who are interested in learning about recent developments, new methods, and applications in spatial statistics and related areas. Presentations will be made throughout the week by internationally renowned experts on their most recent advances in their respective fields. Topics include Spatial Design; MCMC Methods; Bayes Maximum Entropy Methods; Spartan Random Fields Modelling; Gaussian Markov Random Fields Modeling and Applications; Recent Developments in spatio-temporal Geostatistics; Spatial Point Processes and Applications in Ecology and Epidemiology; Geostatistical Simulation; and, Data Assimilation [See: <http://www.uni-klu.ac.at/statgis06>]

4. The Cathie Marsh Centre for Census and Survey Research will host a 5-day introductory course, **“Spatial Regression,”** November 20-24, 2006, in Manchester, England. Paul Voss, Wisconsin University, and faculty member of the University of California Santa Barbara GIS and Science Program, will lead the course. The course is suitable for all who wish to incorporate these analyses in their own empirical research: a wide range of backgrounds. ArcGIS and GeoDA are the main software used, but prior familiarity with GIS is not necessary. Some acquaintance with the course software of ArcGIS and GeoDa for exploratory spatial data analysis is helpful but not a pre-requisite. Familiarity with basic principles of regression will be assumed. Familiarity with standard multiple regression is expected.

Summary: The role of **spatial autocorrelation** in spatial data sets is a central focus. This five-day course will address the following questions: how does spatial autocorrelation arise; how is it measured and understood; how does it relate to issues of spatial heterogeneity and spatial dependence; and how should it inform the specification and estimation of regression models. The course is structured around a combined lecture format (mornings) and computing lab exercises (afternoons). Although we will use mapping software, the focus of the course is on spatial analysis, not Geographic Information Systems (GIS). Software emphasis will be given to ArcGIS 9 and GeoDa for exploratory spatial data analysis (ESDA) and modeling. [See the introductory course specifics at site: <http://www.csr.ac.uk/events/spatialregression>; Contact: Paul at voss@ssc.wisc.edu]

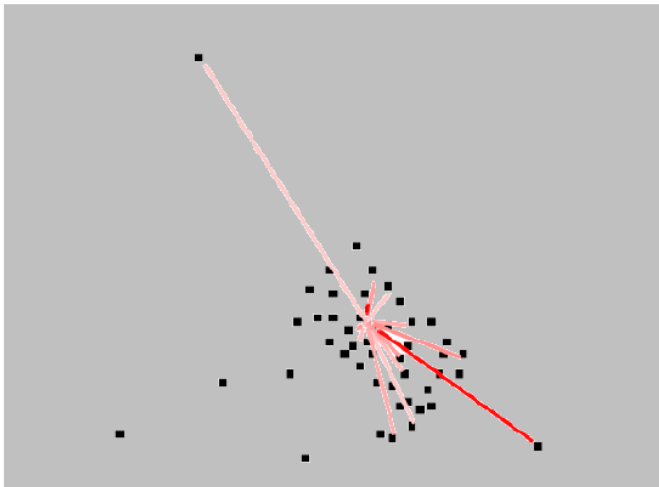
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5. The Institute for Law and Justice is pleased to provide two new NIJ-funded reports: (1) Groff, E and T McEwen (2006). **“Exploring the Spatial Configuration of Places Related to Homicide Events”** (see report on NIJ website at: <http://www.ilj.org/publications/SpatialConfigurationofPlaces.pdf>) provides the first comprehensive exploration of the spatial etiology of homicide in Washington, D.C. Three basic elements of convergence (victim home, offender

Exhibit 1-2: Flows of Offenders to Columbia Heights/Mt. Pleasant Neighborhood from Other Areas



home and homicide location) and three associated measures (i.e., the relative distances between each of those locations) are analyzed. All six elements are explored both individually and jointly in order to increase our understanding of homicide. (2) Groff, E and T McEwen (2006). **”Visualization of Spatial Relationships in Mobility Research: A Primer. Complementing the report on Spatial Configuration of Homicide Events”** (see report on NIJ website at the following site: http://www.ilj.org/publications/Cartographic_Final.pdf) offer a primer on visualizing the spatial configurations of homicide. [Contact: Elizabeth Groff, Institute for Law and Justice, at egroff@ilj.org]

6. Urban and Regional Information Systems Association (URISA): Several national organizations, including URISA and the National States Geographic Information Council (NSGIC), are asking for input from all counties, cities, tribes, state agencies, regional governments, and others regarding current use and need for orthoimagery. This input will help with a Return on Investment analysis for a proposal that is being put forward to Congress asking the federal government to fund orthoimagery for the entire nation on an ongoing

basis. Your input is important to the success of this initiative. [Please review this important initiative at website: <http://www.nsgic.org/committees1/documents.cfm?cid=67>, and take the brief survey for your input at the following link: <http://www.surveymonkey.com/s.asp?u=142981927739>]

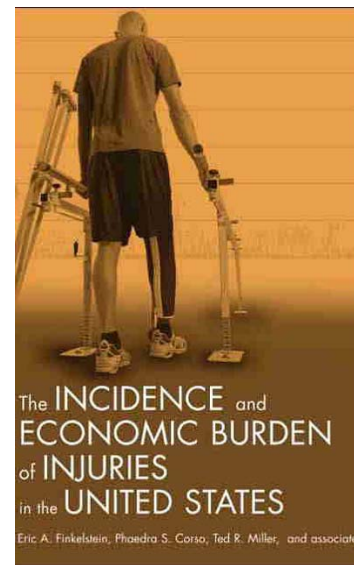
B. Department of Health and Human Services

<http://www.hhs.gov>

7. The National Center for Injury Prevention and Control (NCIPC/CDC) recently announced the publication of **The Incidence and Economic Burden of Injuries in the United States**. The book provides a fresh look at the incidence and economic burden of injuries that occurred in year 2000, including injury-attributable medical expenditures and the value of lost productivity resulting from these injuries. It updates the landmark study published by Dorothy Rice and Ellen MacKenzie, et al., in 1989.

Each day, 1,301 children suffer traumatic brain injuries, 1,294 teens attempt suicide and require medical attention to prevent death, and 801 older adults sustain hip fractures, but they represent only a small portion of the people who will be injured each year in the United States.

The authors of this new report examine medical expenses and productivity losses by gender, age, mechanism of injury, body region and body part injured, and severity. The book includes the following costs stemming from injuries that occurred in 2000 alone: The 50 million injuries that required medical treatment will ultimately cost \$406 billion; These total lifetime costs include estimates of \$80.2 billion in medical care costs and \$326 billion in productivity losses (includes lost wages, fringe benefits, and ability to perform normal household responsibilities). "Many of the nearly 50 million injuries that occur each year in the United States are preventable," said Ileana Arias, PhD, director of NCIPC. "To accomplish that, though, we need greater recognition of the value of our



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prevention efforts. As this study shows, the benefits of preventing things like motor vehicle crashes, falls, residential fires, childhood abuses and other injuries are significant."

Other interesting findings of note: Males account for approximately **70** percent (\$283 billion) of the total costs of injuries; Persons aged 25 to 44 years represent 30 percent of the US population and 40 percent (\$164 billion) of the total costs of injuries; Motor vehicle and fall injuries account for 22 percent (\$89 billion) and 20 percent (\$81 billion) of the total costs of injuries; Upper extremity and lower extremity injuries each account for 17 percent (\$68 billion) of the total costs of injuries. [See: http://www.cdc.gov/ncipc/factsheets/Economic_Burden_of_Injury.htm]

Administration for Children and Families

<http://www.acf.dhhs.gov>

8. The Administration for Children and Families (ACF) provides national leadership and directions to plan, merge, and coordinate the nationwide administration of comprehensive and supportive programs for vulnerable children and families. The new **ACF Student Grant Reviewer Pilot Program** is designed to give college undergraduate and graduate students the opportunity to review and make recommendations on the award of grant applications for federal funding. Students will serve as a member of a grant review panel of subject matter experts who read the grant applications and prepare formal award recommendation reports. ACF hopes to gain access to a rich pool of creative talent that will add a fresh perspective to the grant review process. And second, students will have a rare opportunity to participate in a decision making process that will affect the lives of millions of Americans.

Administration on Aging

<http://www.aoa.gov>

9. Four out of five older adults have a chronic condition and many experience limitations in activities due to such conditions. Eighty percent of the "illness burden" in the United States is the result of chronic illness occurring between the age of 55 and death. Among the most common or severe chronic conditions affecting persons aged 65+ are hypertension (37%), heart disease (15%), arthritis (48%), diabetes (10%), hearing impairments (32%), and major depression (5-10%). Seventy percent of older adults have more than one chronic condition. Co-morbidity puts people at greater risk of functional

decline and raises health care utilization and costs. Increases in the prevalence of chronic conditions and co-morbidity are leading to a growing number of older persons with functional limitations. [See AoA Fact Sheet: http://www.aoa.gov/press/fact/pdf/fs_EvidencedBased.doc]

Agency for Healthcare Research and Quality

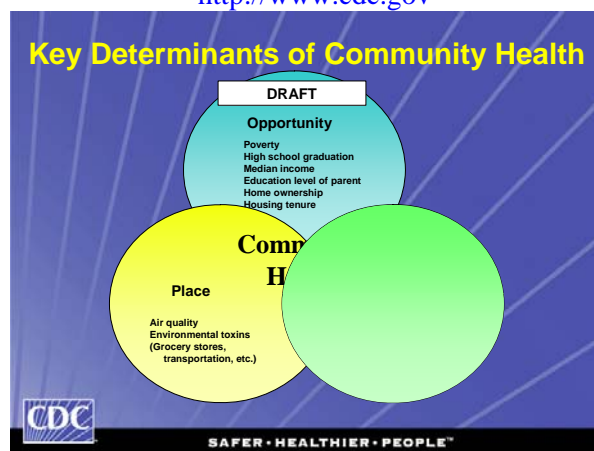
<http://www.ahrq.gov>

10. Sponsored by AHRQ, the **Healthcare Cost and Utilization Project (HCUP)** is a family of health care databases and related software tools developed through a Federal-State-Industry partnership to build a multi-State health data system for health care research and decisionmaking. The HCUP family of administrative longitudinal databases contains discharge-level information on inpatient care in U.S. hospitals or ambulatory surgery encounters. HCUP databases contain a core set of clinical and nonclinical information found in a typical discharge abstract including all-listed diagnoses and procedures, discharge status, patient demographics, and charges for all patients, regardless of payer (e.g., persons covered by Medicare, Medicaid, private insurance, and the uninsured). The information is translated into a uniform format to facilitate both multistate and national-State comparisons and analyses. HCUP databases include: **State Inpatient Databases (SID); State Ambulatory Surgery Databases (SASD); State Emergency Department Databases (SEDD); Nationwide Inpatient Sample (NIS); and, Kids' Inpatient Database (KID).**

Centers for Disease Control and Prevention

[Includes the Agency for Toxic Substances and Disease Registry (ATSDR), in CDC's National Center for Environmental Health]

<http://www.cdc.gov>



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11. CDC/NCEH Webinar, July 24, 2006 (see preceding slide): “**Community Health Status Indicators Project: A Nationwide Approach to Developing Community Health Profiles**” was presented by Marilyn Metzler, Division of Adult and Community Health, National Center for Chronic Disease Prevention and Health Promotion, CDC. [For those who could not attend the Webinar, all slides may be requested from Denise Viator, Project Manager, ORAU/ORISE/PTT/HTT, P.O. Box 117, MS-10, Oak Ridge, TN 37831-0117 or by phone at 865-576-3316 or email at viatord@ornl.gov]

12. Announcing a Research Conference on the National Survey of Family Growth. The National Center for Health Statistics (NCHS) announces the **2006 Research Conference on the National Survey of Family Growth (NSFG)**. The Conference will be held October 19 and 20, 2006, at the NCHS in Hyattsville. The purpose of the conference is to present and discuss papers presenting original, unpublished analyses of the National Survey of Family Growth. NCHS hopes that this will be an annual event. [For further information, please contact the NSFG staff at nsfg@cdc.gov]

Centers for Medicare and Medicaid Services

<http://www.cms.hhs.gov>

13. The purpose of the Centers for Medicare & Medicaid Services’ **Historically Black Colleges and Universities (HBCUs) Health Services Research Grant Program** is to support HBCU researchers in carrying out health services research activities to meet the needs of diverse CMS beneficiary populations. This is the 10th year for the grant program. The goals of the grant program are to: encourage HBCU health services researchers to pursue research issues which impact the Medicare, Medicaid, and SCHIP programs, assist CMS in implementing its mission focusing on health care quality and improvement for its beneficiaries, assist HBCU researchers by supporting extramural research in health care capacity development activities for the African American communities, increase the pool of HBCU researchers capable of implementing the research, demonstration, and evaluation activities of CMS, and assist in fostering interuniversity communication and collaboration regarding African American health disparity issues.

The purpose of the CMS **Hispanic Grant Program** is to implement Hispanic American health services research activities to meet the needs of diverse

CMS beneficiary populations. This is the **8th year** for the grant program. The grant program is designed to: Encourage health services researchers to pursue research issues which impact Hispanic Medicare, Medicaid, and SCHIP health disparities issues, conduct outreach activities to apprise Hispanic researchers of funding availability to conduct research related issues affecting Hispanic American communities to expand the pool of applicants applying for such grants, assist CMS in implementing its mission focusing on health care quality and improvement for its beneficiaries, support extramural research in health care capacity development activities for the Hispanic American communities, promote research that will be aimed at developing a better understanding of health care services issues pertaining to Hispanic Americans, and foster an network for communication and collaboration regarding Hispanic health care issues. [See timely information on these opportunities: http://www.cms.hhs.gov/ResearchDemoGrantsOpt/02_Historically_Black_Colleges_and_Universities.asp#TopOfPage; Also available: invitation to subscribe to one of several free listservs, at URL <http://depts.washington.edu/ccph/faq.html#ListservFAQ> and become a member of Community-Campus Partnerships for Health at www.ccph.info]

Food and Drug Administration

<http://www.fda.gov>

14. The FDA announced in June, 2006, the approval of Gardasil, **the first vaccine developed to prevent cervical cancer**, precancerous genital lesions and genital warts due to human papillomavirus (HPV) types 6, 11, 16 and 18. The vaccine is approved for use in females 9-26 years of age. HPV is the most common sexually-transmitted infection in the United States. The Centers for Disease Control and Prevention estimates that about 6.2 million Americans become infected with genital HPV each year and that over half of all sexually active men and women become infected at some time in their lives. On average, there are **9,710 new cases** of cervical cancer and **3,700 deaths** attributed to it in the United States each year. Worldwide, cervical cancer is the second most common cancer in women; and is estimated to cause over 470,000 new cases and 233,000 deaths each year.

Health Resources and Services Administration

<http://www.hrsa.gov>

15. HRSA’s **Geospatial Data Ware House** allows users to make a **map** or create a report with data that includes:

HRSA awarded grant data, including grantee names, contacts, awarded amounts by fiscal year; HRSA supported health care service delivery sites, including Health Centers, Ryan White CARE Act Ambulatory/Outpatient Medical care sites, National Health Service Corps clinician sites, and Nursing Education Loan Repayment sites; Health Professional Shortage Areas; Medically Underserved Areas and Populations; Hospitals, skilled nursing facilities and other Medicare-approved providers; 2000 U.S. population data from the U.S. Census and 2004 population data; Births and infant deaths; and, Geographic data including census tracts, congressional districts, counties, States, roads, bodies of water.

Indian Health Service

<http://www.ihs.gov>

16. Although widespread across the U.S. in all populations, the STD epidemic disproportionately affects certain racial and ethnic groups. Such **disparities in STD** rates are complex to understand, but may be rooted in a number of social factors such as poverty, inadequate access to health care, lack of education, social inequality, and cultural influences. One group adversely affected by STDs is the American Indian and Alaskan Native (AI/AN) population. Since 1994, CDC has collaborated with the IHS Division of Epidemiology and Disease Prevention by providing staff, funds, and technical assistance to address the STD prevention needs of AI/AN. This relationship has been and continues to be critical for the development of **STD prevention** capacity in Indian Country.

National Institutes of Health

<http://www.nih.gov>

17. The final report of an Institute of Medicine committee charged with assessing the NIH Strategic Plan to Reduce and Ultimately Eliminate Health Disparities is now available online. The "**Examining the Health Disparities Research Plan of the National Institutes of Health: Unfinished Business**" report recommends ways to improve oversight and coordination of the Strategic Plan and to assure that needed research on health disparities is being carried out as effectively and expeditiously as possible. The recommendations are intended to help NIH achieve its minority health and health disparity Strategic Plan objectives. [The NIH report brief can be accessed at site <http://www.iom.edu/CMS/3740/22356/33275.aspx>]

Substance Abuse and Mental Health Services Administration

<http://www.samhsa.gov>

18. Two new reports released today by the Substance Abuse and Mental Health Services Administration (SAMHSA) could help federal and state policymakers improve procedures for monitoring the quality of care provided in residential facilities for adults and for children living with a mental illness. The two studies found that states use a variety of methods for monitoring residential facilities for adults and children with mental illness, and that states vary in the extent to which they use one method or another. Typical methods included on-site inspections, documentation of staff training and qualifications, record reviews, resident interviews, critical-incident reports, and standards for resident-to-staff ratios and for educational levels of facility directors.

All states used at least several of these methods, but few states used all of them. In addition, the studies also found that the regulatory and monitoring environment for residential facilities is complex because in most states, several agencies, each with a different mission and function, are involved in facility licensing, funding, and oversight. [*State Regulation of Residential Facilities for Adults with Mental Illness and State Regulation of Residential Facilities for Children with Mental Illness* at: http://www.samhsa.gov/news/newsreleases/071706_ResidentialCare.htm]

C. Historically Black Colleges and Universities (HBCUs), Hispanic Association of Colleges and Universities (HACUs), and Other Minority Health

News [A listing of HBCUs and HACUs may be found at the following websites <http://www.smart.net/~pope/hbcu/hbculist.htm> and <https://www.hnip.net>]

19. **Notice to Readers: Satellite Broadcast: Mobilizing Against the HIV/AIDS Crisis Among African Americans** (*MMWR* 55(28):778-779, July 21, 2006): CDC and the Public Health Training Network will present the satellite broadcast and webcast, "**Mobilizing Against the HIV/AIDS Crisis Among African Americans**," on November 16, 2006, at 1 p.m. EST. The 2-hour broadcast will highlight relevant research and related programs in the United States; a panel will answer viewer questions, which can be sent via fax during the broadcast or by e-mail during and after the broadcast. Additional information will be available after August 10, 2006, at <http://www.cdcnpin.org> (see link to Satellite Broadcasts).

Organizations are responsible for setting up their own viewing locations and are encouraged to register their locations as soon as possible after August 17, 2006, so that persons who would like to view the broadcast can access information online. Directions for establishing and registering a viewing location also are available. [The broadcast will be available on the Internet for 3 years at <http://www.phppo.cdc.gov/phtn>. Videotapes, DVDs, and video CD-ROMs can be ordered by telephone at 800-458-5231. See: http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5528a6.htm?s_cid=mm5528a6_e]

D. Other Related Public Health GIS News

20. Preventing Teen Motor Crashes: Presentations, slides and audio webcast of the May 15-16, 2006 **“Workshop on Contributions from the Behavioral & Social Sciences in Reducing and Preventing Teen Motor Crashes,”** are available from the Board on Children, Youth, and Families (see website for materials at URL: http://www.bocyf.org/Whats_New_at_the_BOCYF.html), National Research Council and the Institute of Medicine of the National Academies. This workshop draws upon new insights from the behavioral, cognitive, social, and biological sciences, especially in the area of adolescent development and learning processes, that might be applied to prevention strategies to reduce motor vehicle crash rates and to promote responsible behaviors among teen drivers.

21. OGC Sensor Web Enablement (SWE). The Open Geospatial Consortium, Inc. (OGC) has approved and released the **OGC Sensor Web Enablement (SWE) White Paper** as an official public OGC White Paper. ‘A sensor network is a computer accessible network of many spatially distributed devices using sensors to monitor conditions at different locations, such as temperature, sound, vibration, pressure, motion or pollutants. A Sensor Web refers to Web accessible sensor networks and archived sensor data that can be discovered and accessed using standard protocols and interfaces.

In the OGC Sensor Web Enablement (SWE) activity, members of the OGC are defining, testing, and documenting a consistent framework of open standards for exploiting Web-connected sensors and sensor systems of any type. Sensor Web Enablement presents many opportunities for adding a real-time sensor dimension to the Internet and the Web. This has extraordinary significance for science, environmental monitoring,

transportation management, public safety, facility security, disaster management, utilities' SCADA operations, industrial controls, facilities management and many other domains of activity. The OGC voluntary consensus standards setting process coupled with strong international industry and government support in domains that depend on sensors is expected to result in SWE specifications that will become established in all application areas where such standards are of use.’ [See: OGC[®] Sensor Web Enablement: Overview And High Level Architecture, An OGC White Paper, approved July 2006, at <http://www.opengeospatial.org/pt/06-046r2>]

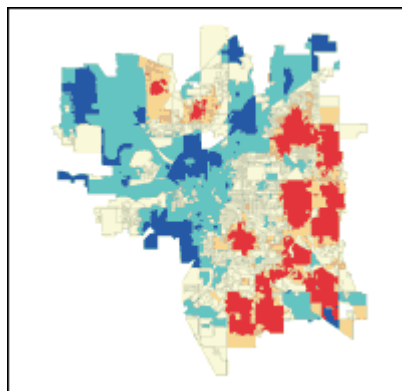
III. GIS Outreach

[Editor: All requests for Public Health GIS User Group assistance are welcomed; readers are encouraged to respond directly to colleagues]

Some Guidance: “Hotspots”

Question: I have been lately taking more of an interest in spatial statistics and such things as hotspots. What is a distance band? It has been a few years since my last statistics class so I would also like a definition of a "Z-score".

Response: The distance band/threshold should be given in the same units as is your projected input feature class. A State Plane projection, for example, is generally in feet. So, when using a 1-mile distance band, you would use 5280 feet. Here are some strategies for identifying an appropriate distance band to use in your analysis: Think about the distance that you select as a moving window



that momentarily settles on top of each feature and looks at that feature within the context of its neighbors (a neighbor is a feature inside the distance band). The hot spot tool sort of works like this:

when it finds a feature with a high value, it says "that's important" when it finds a feature with high values surrounded by other features with high values, it says "that's a hot spot!" The result of the hot spot tool is a Z score which indicates how HOT the cluster is (negative Z scores are COLD spots). The Z score is simply a standard deviation thus you can use it to report statistical significance e.g., a Z

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score above or below ± 1.96 , for example, is statistically significant at the 0.05 level.

Choose a distance band value using the following guidelines: (1) based on what you know about the geographic extent of the spatial process causing clustering for your phenomena. We often don't know this but if we DO we should use it. Suppose we know that the average journey-to-work commute distance is 15 miles. We then can use 15 miles for our distance band when analyzing commute data.

(2) Use a distance band that is large enough to ensure that all features will have at LEAST one neighbor. Especially if the input data are skewed (that is, your centroid polygon values do not give you that nice bell curve when you plot them; you will want to make sure that your distance band is neither too small e.g., most features have only one or two neighbors, nor too large e.g., several features include all other features as neighbors), it can make the Z scores less reliable. The Z scores are very reliable (even with skewed data) as long as the distance band is large enough to get several neighbors (8-ish) for each feature. This tool can be used with skewed data because it is "asymptotically normal".

(3) Use a distance band that reflects maximum spatial autocorrelation. Why? Well, clustering is usually evidence that some underlying spatial process is at work. The distance band that exhibits maximum clustering (as measured by the Spatial Autocorrelation, Global Moran's I tool) is the distance where that spatial process is most "active" or pronounced. At present, the best way to find that distance is a bit tedious (sorry) but run the Global Moran's I Spatial Autocorrelation Tool at multiple distances (like 0.5, 1.0, 1.5, etc. miles; in your case, you would convert miles to feet for State Plane) and note where the resulting Z score seems to peak. With ArcGIS 9.2, the K Function will provide a line graphic showing the distance(s) where spatial autocorrelation is maximized/minimized.

(4) Try not to get stuck on the idea that there is only ONE correct distance band. Most likely there are multiple/interacting spatial processes causing the clustering you are seeing. Rather than thinking you need one distance band, think of the hot spot tool as an effective way to EXPLORE spatial relationships at MULTIPLE spatial scales and think about how when you change the scale (distance band) you may be asking a different question. For example, suppose we are looking

at income or some other demographic data. With small distance bands we might be examining neighborhood income patterns, at a middle scale perhaps community or town/city income patterns, and with large distance bands regional income patterns. [See: *Extend Crime Analysis with ArcGIS Spatial Statistics Tools*, L Scott and N Warmerdam, at http://www.esri.com/news/arcuser/0405/ss_crimestats1of2.html; also demo <http://www.esri.com/software/arcgis/arcinfo/about/demos.html>]

IV. Public Health GIS Presentations and Literature

NCHS/CDC Cartography and GIS Guest Lecture

[Fall lecture to be announced]

Lecture Archive

Now Online: NCHS GIS Guest Lecture, **June 15, 2006**, "The National Neighborhood Indicators Partnership (NNIP)- Advances in the Development and Use of Neighborhood Level Data," G. Thomas Kingsley, Researcher, The Urban Institute, Washington, D.C., at site: <http://video.cdc.gov/ramgen/gis/gis-06-15-2006.rm>.

CDC's *Emerging Infectious Diseases, MMWR and Preventing Chronic Disease*

(1) *Emerging Infectious Diseases*

Emerging Infectious Diseases (EID) is indexed in Index Medicus/Medline, Current Contents, Excerpta Medica, and other databases. EID is part of CDC's key plan for combating emerging infectious diseases; one of the main goals of CDC's plan is to enhance communication of public health information about emerging diseases so that prevention measures can be implemented without delay. The **August 2006 12(8)** edition of EID is now online. This edition includes articles on avian influenza, rabies and other viral transmission topics. [See EID website for this and other timely infectious disease reports at: <http://www.cdc.gov/ncidod/EID/index.htm>]

(2) *Morbidity and Mortality Weekly Report*

Selected articles from CDC's *Morbidity and Mortality Weekly Report* (MMWR): [Readers may subscribe to MMWR and other CDC reports, without cost, at website <http://www.cdc.gov/subscribe.html> as well as access the MMWR online at CDC website <http://www.cdc.gov/mmwr>. Note: Efforts are made to include themes which may lend themselves to spatial distribution] Vol. **55(28)**- Trends in Strength Training, United States, 1998-2004; Progress Toward Poliomyelitis Eradication, India, January 2005-June 2006; QuickStats: Percentage of Older Adults Who Engaged in Regular Leisure-Time Physical Activity, by

Age Group and Sex, United States, 2000-2003; Vol. **55(SS-7)**- Surveillance for Certain Health Behaviors Among States and Selected Local Areas, Behavioral Risk Factor Surveillance System, United States, 2004; Vol. **55(27)**- Commemorating CDC's 60th Anniversary; QuickStats: Number of Emergency Department (ED) Visits with Diagnostic Imaging Performed United States, 1995 and 2004; Vol. **55(26)**- Homicides and Suicides, National Violent Death Reporting System, United States, 2003-2004; Cigarette Use Among High School Students, United States, 1991-2005; Morbidity Surveillance After Hurricane Katrina: Arkansas, Louisiana, Mississippi, and Texas, September 2005; Vol. **55(22)**- Hantavirus Pulmonary Syndrome: Five States, 2006; QuickStats: Life Expectancy at Birth, by Sex, Selected Countries, 2001; Vol **55(SS-3)**- Youth Tobacco Surveillance, United States, 2001-2002; Vol. **55(18)**- Vaccine Preventable Deaths and the Global Immunization Vision and Strategy, 2006-2015.

(3) Preventing Chronic Disease

The July 2006 **3(3)** issue of *Preventing Chronic Disease* (PCD) is online and contains editorials and articles on a variety of topics. [See: <http://www.cdc.gov/pcd>] In this issue diabetes, exercise, tobacco, diet, cancer screening and health disparities are among those discussed. One article of GIS note: “**The Role of Race and Poverty in Access to Foods That Enable Individuals to Adhere to Dietary Guidelines,**” EA Baker, M Schootman, E Barnidge and C Kelly. Excerpts: **Introduction.** The increase in obesity and disparities in obesity and related chronic diseases across racial and ethnic and income groups have led researchers to focus on the social and environmental factors that influence dietary intake. The question guiding the current study was whether all communities have equal access to foods that enable individuals to make healthy dietary choices. **Methods.** We conducted audits of community supermarkets and fast food restaurants to assess location and availability of food choices that enable individuals to meet the dietary guidelines established by the U.S. Department of Agriculture (e.g., fruit and vegetable consumption, low-fat options). We used 2000 census data to assess the racial distribution and the percentage of individuals living below the federal poverty level in a defined area of St Louis, Mo. Spatial clustering of supermarkets and fast food restaurants was determined using a spatial scan

statistic. **Results.** The spatial distribution of fast food restaurants and supermarkets that provide options for meeting recommended dietary intake differed according to racial distribution and poverty rates. Mixed-race or white high-poverty areas and all African American areas (regardless of income) were less likely than predominantly white higher-income communities to have access to foods that enable individuals to make healthy choices. **Conclusion.** Without access to healthy food choices, individuals cannot make positive changes to their diets. If certain eating behaviors are required to reduce chronic disease and promote health, then some communities will continue to have disparities in critical health outcomes unless we increase access to healthy food.

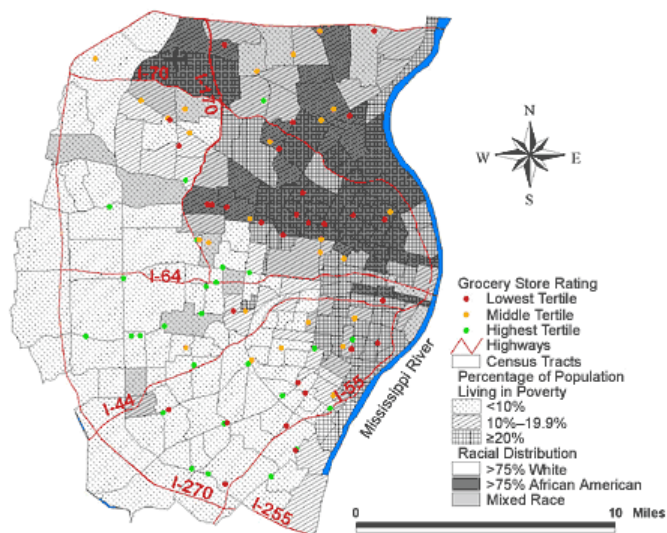


Figure 1. Location of 81 supermarkets and 220 census tracts with underlying racial distribution and poverty rates in the St Louis, Mo, study area. [Contact: Elizabeth A. Baker, PhD, MPH, Saint Louis University School of Public Health, at bakerpa@slu.edu]

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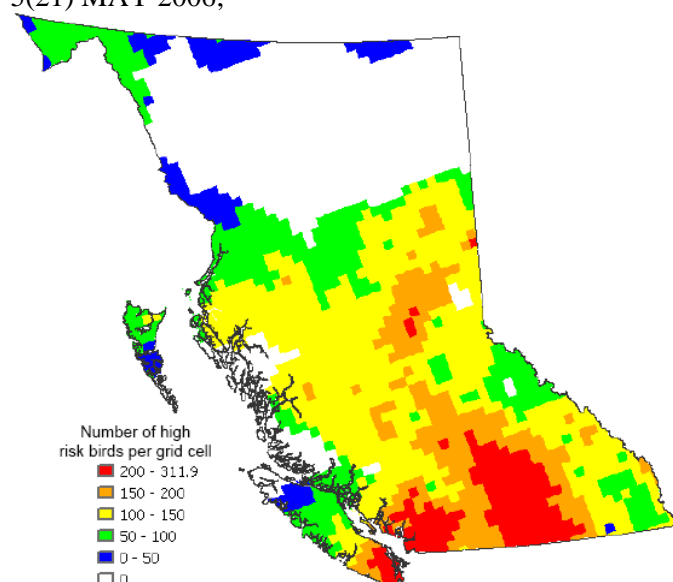
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New Report

The Cancer Atlas, American Cancer Society (with collaboration from CDC and others), 2006. Judith Mackay, Ahmedin Jemal, Nancy C. Lee, D. Maxwell Parkin. This atlas illustrates the latest available data on the cancer epidemic, showing causes, stages of development, and prevalence rates of different types of cancers by gender, income group, and region. It also examines the cost of the disease, both in terms of health care and commercial interests, and the steps being taken to curb the epidemic, from research and screening to cancer management programs and health education. Topics include: Mechanism of Tumor Development, Risk Factors, Cancer in Children, Cancer Survivors, Cancer Registries, Research, Primary Prevention, Early Detection, Management and Treatment, Cancer Organizations, Health Education, Policies and Legislation, The Future of the Epidemic. [See: http://www.cancer.org/docroot/AA/content/AA_2_5_9x_Cancer_Atlas.asp]

New Report

Hunger in America 2006 [excerpts]

Hunger in America 2006, conducted on behalf of America's Second Harvest-The Nation's Food Bank Network (by Mathematica Policy Research, Inc.), is the largest, most comprehensive study of its kind. The results of *Hunger in America 2006* should be discomfoting. It is difficult to understand how people living in this land of plenty can have to make decisions between paying for food or other household necessities. It is troubling that children and seniors, the country's most vulnerable citizens, may have to forgo their most basic need -the need for food- because of a lack of resources. *Hunger in America 2006* tells the stories of **more than 25 million Americans-including 9 million children and nearly 3 million seniors-** who receive emergency food assistance each year from America's Second Harvest-The Nation's Food Bank Network of charitable agencies.

In addition to low incomes, recipients of emergency food typically do not have a lot of resources. 12% are homeless, a 28% increase since 2001. Nearly

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47% do not have access to a working car. Only 35% of the clients served are currently receiving food stamps; recipients, however, stated that food stamp benefits lasted an average of 2.5 weeks a month. Children are especially vulnerable to issues of hunger and poverty. **Thirteen million, or approximately 17.8% of children in the U.S., live in poverty.** The rate of poverty for children under 18 remains higher than those aged 18 to 64 and for those aged 65 and over. Hunger has long-lasting, devastating effects on the health and development of children. Research indicates that even mild undernutrition experienced by young children during critical periods of growth may lead to reductions in physical growth and affect brain development. [Some] 9 million of the people we serve are children under the age of 18; 2 million of those are young children under age 5.

One quarter (25.5%) of all households served by the America's Second Harvest Network indicate that a job was their primary source of household income for the previous month. Income from employment was the most often reported source of income for adults, followed by Social Security (19.3%). A very small percentage of adults (4.2%) reported that traditional "welfare" payments (Temporary Assistance for Needy Families or TANF, and/or General Assistance) were the household's primary source of income in the past month. Unfortunately, for many recipient working households, income from employment is too often not sufficient to make ends meet. **Half of all recipient households (51%) reported incomes of less than \$10,000 in the previous year.** The average household income among all client households was \$11,250 with 75% of all client households with incomes at or below 130% of poverty and 66% of all households with incomes below the federal poverty level.

The faces of the clients we serve are as diverse as the faces of America, yet people of color continue to be disproportionately affected by poverty and hunger. While the African American population accounts for about 13% of the general population, it accounts for 38% of the emergency food recipient population. Since 2001, this has been a 7.6% growth, fairly consistent with growth in poverty. According to the Census Bureau, between 2001 and 2004, the **poverty rate among African Americans increased 8.8%, from 22.7% to 24.7%.** While the Latino population comprises almost 14% of the total U.S. population, it comprises about 17% of the population

served by our Network. Non-Hispanic Whites, however, comprise the plurality of people we serve, or 39.2% of the total clientele. 6.6% of all clients served are Asian, American Indian, Alaskan Native, Hawaiian Native, or other Pacific Islander. 8% identified themselves as "Other."

In the general U.S. population, less than 16% of adults have less than a high school diploma or equivalent. By contrast, in the emergency food assistance system, the rate is double the general U.S. population with more than 37% having not completed high school or attaining the equivalent. For another 37% of emergency food recipient adults, a high school diploma or equivalent is the highest level of education attained. **This data strongly suggests a link between low educational attainment and the likelihood of being poor and needing emergency food assistance.** [http://www.hungerinamerica.org/export/sites/hungerinamerica/about_the_st]

In the Wake of the Storm: Environment, Disaster, and Race After Katrina

Russell Sage Foundation (May 2006): M Pastor, RD Bullard, JK Boyce, A Fothergill, R Morello-Frosch, and B Wright. Excerpts: Among the few not shocked by the stark images splashing across television screens were scholars and activists in the field of environmental justice (EJ). These researchers study chronic risk, generally finding that lower-income minority communities, like



Source: © Michael Ainsworth, Dallas Morning News, Corbis.

Note: Louis Jones, eighty-one, right, and Catherine McZeal, sixty-two, left, help each other walk down flooded Poydras Street as they went to the Superdome on Thursday, September 1, 2005, days after Hurricane Katrina flooded New Orleans. The couple got together to help each other through their crisis. "They wouldn't let our children help us," Mrs. McZeal said, referring to the fact that people were not allowed to drive into the area to get relatives.

those of **New Orleans' Lower Ninth Ward**, are disproportionately exposed to hazards and many other disamenities. Hurricane Katrina, it seemed, simply reflected environmental injustice in an accelerated mode.

In this report, we offer a review of the existing literature and research on the relationship between race, the environment, and large-scale disasters. Our central points are simple. First, environmental inequities by race and often by income seem to be an established part of the American urban landscape- Katrina simply tore back the cover on this unfortunate fact. Second, disasters reflect what might be termed acute risks that, like the chronic risks targeted by environmental justice analysis, are often distributed in a way that reflects established chasms of power. Third, this uneven distribution of risk may impose heavy and unfair costs on certain populations and seems as well to lead to an overall underinvestment in prevention and preparedness, thus increasing burdens for the society as a whole. Making environmental justice principles part of preparedness and environmental policy, in short, is not simply the right thing to do- it is the prudent thing to do.

Katrina did open a window on a dark side of America- namely, the economic and environmental vulnerability of low-income people and minority communities. We can close that window, or we can use the new view to chart a better, healthier, and more equitable future for us all. [Editor: A fascinating report on poverty, race, social class and its relationship to health outcomes; See <http://www.russellsage.org/news/katrinabulletin2>]

Chain Reaction: Income, Race, and Access To Chicago's Major Player Grocers

Metro Chicago Information Center

A recent report from Metro Chicago Information Center (MCIC) examines patterns of major food chains based on density, income, race, and place. The new report (released February 2006), *Chain Reaction: Income, Race, and Access To Chicago's Major Player Grocers*, sheds new light on Chicago's retail patterns by community area, and illuminates the complex and pressing question: why do communities of color have substantially fewer major player grocers on a per capita basis? Is it pure economics, or are location patterns influenced by race?

With a grant from The Partnership for New Communities, MCIC explored this question. Their aim was not to study all Chicago grocery stores or to perform a gap analysis community by community, but rather to develop a meaningful and roughly comparable grouping of grocers and other chains that would allow them to analyze and understand general investment patterns by

income, race, and place.

MCIC also analyzed a wide-range of commercial location patterns, such as major fast food restaurants, major pharmacies, and liquor stores, all of which are frequent substitutes for food purchasing in low-investment communities. Additionally, MCIC did baseline analysis on other commercial indicators relating to health and wellness, services, food and drink, entertainment and culture, and general shopping.

For this analysis, MCIC used Chicago's 77 Community Areas to group and study patterns by store concentration, income, race, and place. Communities were assigned to a race category: White, Black, Hispanic, Asian or diverse. For example, a community where 50% or more of the population is Black was categorized as a "majority Black" community. Diverse communities were those where no single race comprises 50% or more of the population.

Among the key findings: **Income, race, and place are strongly correlated in Chicago.** Access to quality food and other consumer goods is a major obstacle for Chicago residents that live 1) in a low-income community, 2) in a minority community, and 3) on Chicago's South side;



Photograph by Robin F. Pendergrast, September 2005

The highest-income communities have 2.6 times the rate of major player grocers than the lowest income communities. Poverty and store access are inversely related; as poverty concentration goes up, store concentration goes down; There are 11 Chicago communities with no major player pharmacy: 10 are on the South side and those 10 are all majority Black communities; Of the 11 communities that have no major player pharmacy, 7 have no major grocer either, and all 7 are majority Black communities; Majority Black communities have nearly twice the rate of liquor stores than communities of another majority race, and South

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side communities have roughly five more liquor stores on average than North side communities; Black communities have the highest fast food location rates: 13.7 major player fast food restaurants per 100,000 population. They have almost 4 additional fast food restaurants on average than the typical Chicago community; South side communities have a rate of 12.5 restaurants- 1.8 times the rate of major player fast food restaurants per 100,000 population than North side communities. [See full groundbreaking food access report at: <http://info.mcfol.org/www/Datainfo/hottopics/communitydevelopment/pdf/CHAINREACTION.pdf>]

V. Related Census, HHS, FGDC and Other Federal/State Developments

Particle Atlas of World Trade Center Dust

[Heather Lowers and Gregory Meeker, US Geological Survey]
The United States Environmental Protection Agency (EPA) has begun a reassessment of the presence of World Trade Center (WTC) dust in residences, public buildings, and office spaces in New York City, New York. Meeker and others (2005a) have identified slag wool (a man-made vitreous fiber, MMVF), gypsum ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$) (or anhydrite (CaSO_4)), and phases compatible with concrete as signature components of the WTC dust. In addition to these phases, other MMVF, metal or metal oxides, mineral material, and asbestos are present in trace to minor amounts. Background dust samples collected from residences, public buildings, and office spaces will be analyzed by multiple laboratories for the presence of WTC dust. Other laboratories are currently studying WTC dust for other purposes, such as health effects studies. To assist in inter-laboratory consistency for identification of WTC dust components, this **particle atlas of phases in WTC dust** has been compiled.

This particle atlas contains energy dispersive x-ray spectra (EDS) of the common phases found in WTC dust. In addition, scanning electron photomicrographs showing typical morphology of selected particles are included. The dust is a product of the collapse of WTC buildings and contents. While the list of spectra provided is comprehensive, it is by no means complete. Therefore, it is likely phases and compounds will be identified in the future that are not listed in this atlas.

This particle atlas has been compiled to serve as a guide to identify common phases in WTC dust. It is not a complete guide to all phases that may be found in WTC dust. The particles have been identified by stoichiometric

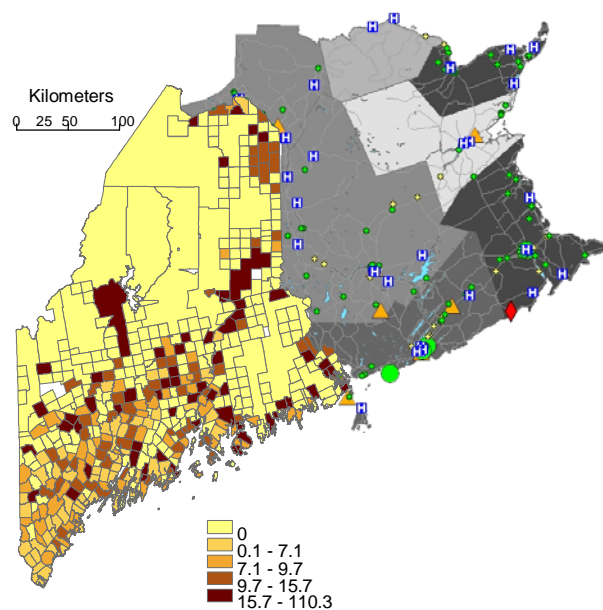
criteria using data acquired by SEM and x-ray microanalysis. Identification is based on extensive experience gained by previous research on WTC dust using electron probe microanalysis, x-ray diffraction, infrared spectroscopy, and other techniques. [See: <http://pubs.usgs.gov/of/2005/1165/508OF05-1165.html#heading01>]

Federal Geographic Data Committee (FGDC)

[The Federal Geographic Data Committee (FGDC) is an interagency committee, organized in 1990 under OMB Circular A-16, which promotes the coordinated use, sharing, and dissemination of geospatial data on a national basis. The FGDC is composed of representatives from seventeen Cabinet level and independent federal agencies. The FGDC coordinates the development of the National Spatial Data Infrastructure (NSDI). The NSDI encompasses policies, standards, and procedures for organizations to cooperatively produce and share geographic data. The 19 federal agencies that make up the FGDC, including HHS, are developing the NSDI in cooperation with organizations from state, local and tribal governments, the academic community, and the private sector. See <http://www.fgdc.gov>]

Mapping Infectious Disease across the Maine-New Brunswick Border

[FGDC/New Brunswick Lung Association Project Summary]
This project addresses the need to understand and plan for infectious disease outbreaks that affect both Canada



and the United States. This joint project will enable public health officials, researchers, policy-makers and the

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public to utilize mapping technology to view infectious disease information, map public health risks and disease control measures, on a **seamless** map of New Brunswick and Maine. Existing framework and thematic data sets focusing on infectious disease (e.g. influenza) will be integrated as part of this cross-border initiative enabling immunization strategies.

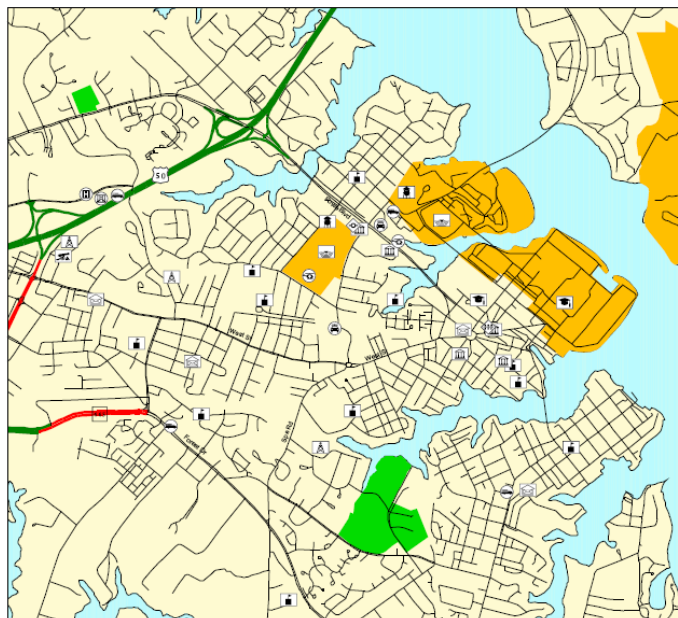
An initial examination of legal and technical issues has been completed, and partnerships are in place. All data integration and web mapping services developed in this project will be integrated within the CGDI (Canadian Geospatial Data Infrastructure) and NSDI and adhere to OGC interoperability standards. New WMS/clearinghouse capabilities will be developed and customized to provide maximum flexibility in viewing data while still respecting data privacy. Through the deployment of web mapping technology, this project will enable cross-border data integration, visualization, analysis, and sharing with multiple partners via a distributed access network. Multi-user collaboration, alerting, and decision-support tools will be developed in addition to web-mapping services. A simulation of an infectious disease outbreak will be conducted in collaboration with partners, to evaluate technologies developed as part of this project. New Brunswick and Maine provide a perfect testing ground for an advanced web-mapping application that will fill the gap that currently exists in surveillance and decision support tools available to local, provincial/state, national officials and the public. [See FGDC website for more on this collaboration: <http://www.fgdc.gov/grants/2006CAP/Category4/MappingInfectiousDisease/?searchterm=disease>]

New DHS Mapping Standard

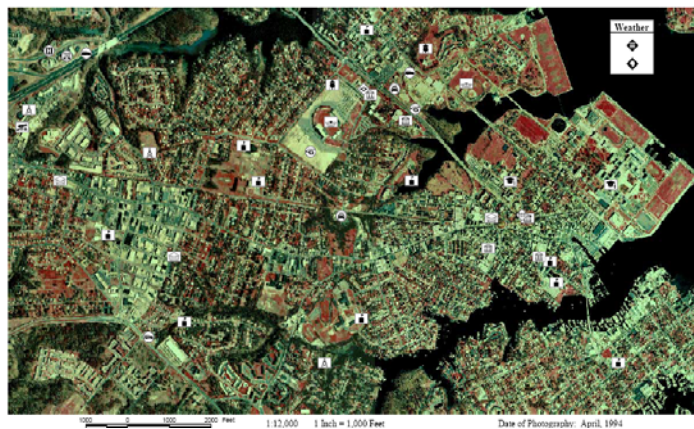
ANSI INCITS 415-2006, Information technology-**Homeland Security Mapping Standard- Point Symbology for Emergency Management**, July 13, 2006. The primary purpose of this standard, Homeland Security Mapping Standard -Point Symbology for Emergency Management, is to establish a common set of symbols for use by mapmakers in support of emergency managers and first responders. It will allow users to rapidly interpret map data and to be able to disseminate consistent, usable information. This National Standard is applicable to all organizations that create maps or otherwise display features for the Emergency Management or First Responder communities. It is limited at this time to support portrayal of point features

that relate to the emergency management and hazard mapping disciplines.

Symbology for Emergency Management Maps Annapolis Area



Symbology for Emergency Management Maps - Annapolis Area



Same symbology on aerial photo

[Contacts: Mike Lee, HSWG Chair, at mikelee@usgs.gov and Scott McAfee, Chair, the FGDC HSWG Emergency Response Symbology Subgroup, at Scott.McAfee@dhs.gov; Sources: *ANSI Standards Actions*, American National Standards Institute <http://publicaa.ansi.org/sites/apdl/Documents/Standards%20Action/SAV3729.pdf>; draft version available for public purchase at this time from the ANSI eStandards Store at the following web location <http://webstore.ansi.org/ansidocstore/product.asp?sku=Draft+INCITS+415>; and, FGDC Homeland Security WG (HSWG) pages on Emergency Symbology Reference- Evaluation Results at <http://www.fgdc.gov/HSWG/index.html>]

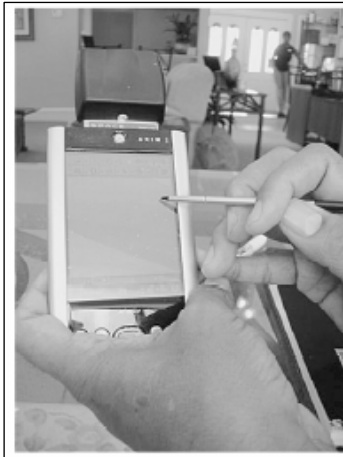
Recent Government Accountability Office (GAO) Reports, 2006

[See: <http://www.gao.gov>]

2010 CENSUS. Census Bureau Needs to Take Prompt Actions to Resolve Long-standing and Emerging Address and Mapping Challenges, GAO-06-272, June 15, 2006: To conduct a successful census, it is important that the U.S. Census Bureau (Bureau) produce the most complete and accurate address file and maps for 2010. For this review, GAO's specific objectives were to determine the extent to which (1) the Bureau's efforts to modernize the address file and maps are addressing problems experienced during the 2000 Census, (2) the Bureau is managing emerging address file and map issues, (3) the Bureau is able to collect and transmit address and mapping data using mobile computing devices (MCD) equipped with global positioning system (GPS) technology, and (4) the Bureau has a plan to update the address file and maps in areas affected by hurricanes Katrina and Rita. GAO reviewed the Bureau's progress in modernizing both the address file and maps. GAO recommends that the Secretary of Commerce direct the Bureau to mitigate risks in building its address file and maps. Specific actions include setting firm dates to complete research and evaluations and develop resulting action plans; reevaluating the schedule and staffing workloads for conducting address canvassing; and developing plans to assess resources needed to update the address file and maps along the Gulf Coast.

The Bureau's address and map modernization efforts have progressed in some areas. The Bureau is researching how to correct addresses that were duplicated, missed, deleted, and incorrectly located on maps. However, some deadlines for completing research are not firm, while other deadlines that had been set continue to slip. Thus, whether research will be completed in enough time to allow the Bureau to develop new procedures to improve the 2010 address file is unknown. Also, the Bureau has not fully addressed emerging issues. For one such issue, the Bureau has acknowledged the compressed time frame for completing address canvassing—an operation where census workers walk every street in the country to verify addresses and maps—but has not reevaluated the associated schedule or staffing workloads. Also, the Bureau has allotted only 6 weeks to conduct address canvassing it completed in 18 weeks in 2000 and expanded the operation from urban areas in 2000 to the entire country in 2010.

Mobile Computing Devices for Collecting and Transmitting Field Data.



Whether the Bureau can collect and transmit address and mapping data using the MCD is unknown. The MCD, tested during 2006 address canvassing, was slow and locked up frequently. Census Bureau officials said the MCD's performance is an issue, but a new MCD to be developed through a contract awarded in

March 2006 will be reliable. However, the MCD will not be tested until the 2008 Dress Rehearsal, and if problems emerge, little time will remain to develop, test, and incorporate refinements. **If after the Dress Rehearsal the MCD is found unreliable, the Bureau could face the remote but daunting possibility of reverting to the costly paper-based census of 2000.**

Bureau officials do not believe a specific plan is needed to update the addresses and maps for areas affected by the hurricanes. Securing a count is difficult under normal conditions, and existing procedures may be insufficient to update addresses and maps after the hurricanes' destruction—made even more difficult as streets, housing, and population will be in flux.

Particulate Matter: EPA Has Started to Address the National Academies' Recommendations on Estimating Health Benefits, but More Progress Is Needed. GAO-06-780, July 17, 2006: A large body of scientific evidence links exposure to particulate matter—a widespread form of air pollution—to serious health problems, including asthma and premature death. Under the Clean Air Act, the Environmental Protection Agency (EPA) periodically reviews the appropriate air quality level at which to set national standards to protect the public against the health effects of particulate matter. EPA proposed revisions to these standards in January 2006 and issued a draft regulatory impact analysis of the revisions' expected costs and benefits.

The estimated benefits of air pollution regulations have been controversial in the past. A 2002 National Academies report generally supported EPA's

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approach but made 34 recommendations to improve how EPA implements its approach. GAO was asked to determine whether and how EPA applied the Academies' recommendations in its estimates of the **health benefits expected** from the January 2006 proposed revisions to the particulate matter standards. GAO examined the draft analysis, met with EPA officials, and interviewed members of the National Academies' committee. In providing technical comments on the report, EPA officials said it was fair and balanced and noted the agency's progress in addressing recommendations via research and development and other analyses.

Federal Agencies have taken Some Steps to Validate Sampling Methods and to Develop a Next Generation Anthrax Vaccine, GAO-06-766T, May 9 2006: GAO has done many studies over the past 7 years on anthrax vaccine safety and anthrax detection methods. GAO has reported the **lack of validated methods** for detecting anthrax contamination and has recommended a coordinated approach to improving the overall process for detecting anthrax that included a probability-based sampling strategy. GAO also reported that the vaccine has not been adequately tested on humans; no studies have been done to determine the optimum number of doses; the long-term safety has not been studied and data on short-term reactions are limited; however, women report higher rates of reactions than do men. Given these problems, GAO recommended the development, of a

better, alternative vaccine. The Secretary of Homeland Security needs to develop a formal strategic plan, including a roadmap, outlining how individual agency efforts would lead to the validation of the overall sampling process.

Web Site(s) of Interest This Edition

http://www.averyinstitute.org/site/PageServer?pagename=Avery_Strategy

The **Avery Institute for Social Change** is a national, non-profit organization based in Harlem, N.Y., that is committed to quality health care for all. The organization takes a practical, visionary approach to health care reform, linking the grassroots, academic and policy communities, giving voice to those who experience the impact of health disparities, particularly in communities of color.

<http://www.ats.ucla.edu/stat/seminars/default.htm> UCLA's Academic Technology Services offers a variety of free Online Seminars and Classes at this site. These include a general introduction to survey data analysis, an introduction using Stata, and an introduction using SUDAAN. There is an additional page linked off of the Stata page that provides the syntax used to draw the various type of samples, including SRS and systematic, used in the seminar. These online seminars are indicated by the suffix *with movies* and are easy to view on just about any browser on just about any platform. A variety of other statistical resources is included.

Final Thoughts

The Chronic Poverty Report 2004–05

[The Chronic Poverty Research Centre Institute for Development Policy & Management, University of Manchester, UK]

The Millennium Declaration committed 189 governments to 'making the right to development a reality for everyone and to freeing the entire human race from want.' Excerpts: 'This report is about people living in chronic poverty- people who remain poor for much or all of their lives, many of whom will pass on their poverty to their children, and all too often die easily preventable deaths. People in chronic poverty are those who have benefited least from economic growth and development. They, and their children, will make up the majority of the 900 million people who will still be in poverty in 2015, even if the Millennium Development Goals are met.

Chronic poverty exists in all regions, and chronically poor people live in many different situations. If and when they have work, it is insecure, casual and at extremely low rates of pay. Many live in remote rural areas, urban slums or conflict zones, suffer from chronic ill health or impairments. Chronic poverty particularly affects children, older people and people with disabilities. People in chronic poverty face layers of social discrimination, often based on ethnicity, religion or language. Chronically poor people have little access to productive assets and low capabilities in terms of health, education and social capital. They are the invisible poor, and occupy a blind spot when it comes to the design of development policy and the delivery of public services.

The distinguishing feature of chronic poverty is extended duration. Such poverty is hard to reverse.

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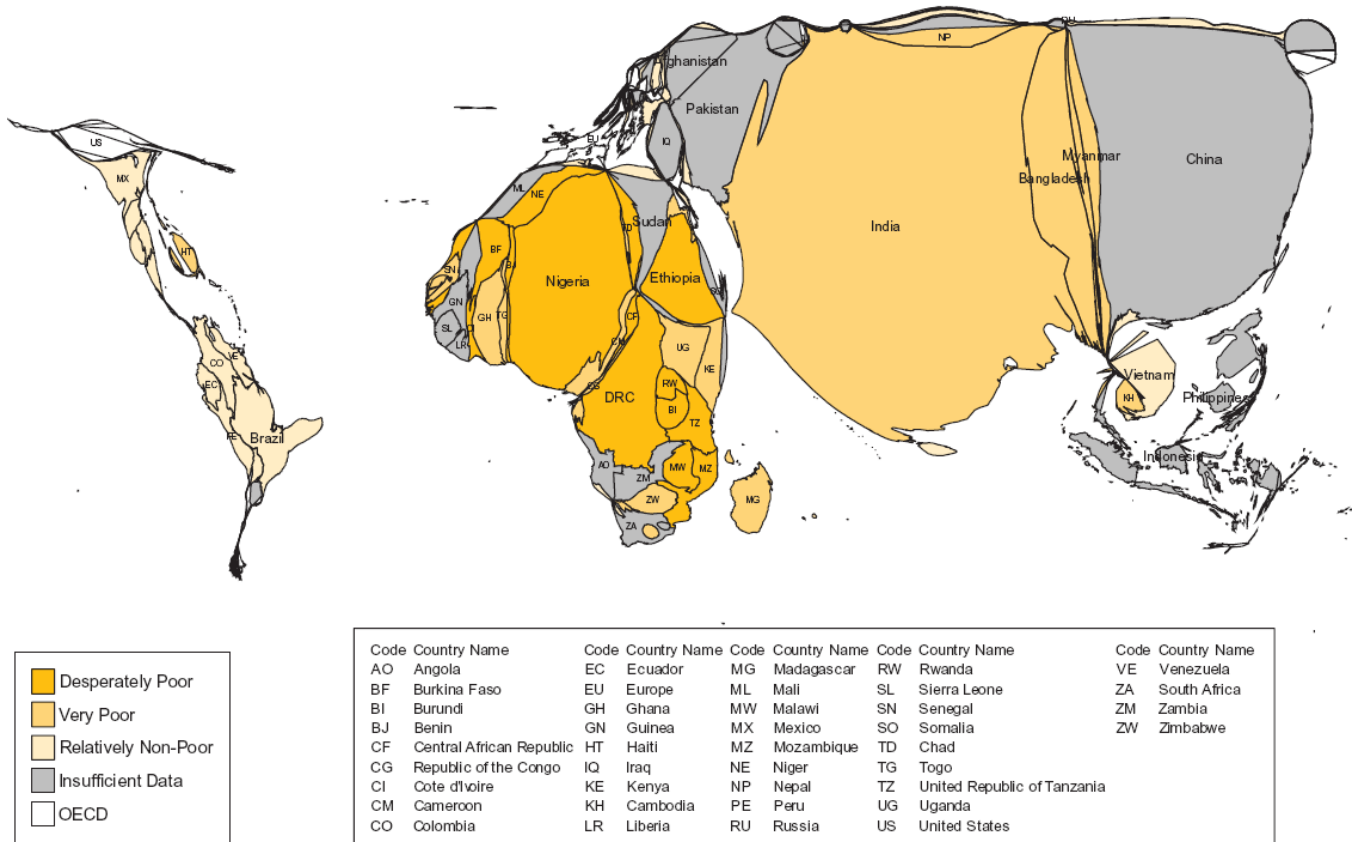
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Differentiating poverty is not simply an issue for officials and researchers: people in poor communities in developing countries also have many ways of distinguishing different types of poverty and expressing the idea of a poverty that persists. An effective response requires a better understanding of what it means to be chronically poor, and better analysis of the characteristics and underlying social processes that result in sustained and intractable poverty.

. . . and why does it matter? The imperative to confront and eradicate chronic poverty is a moral one. International obligations to eradicate poverty cannot be selectively applied, with chronically poor people excluded on the basis that they are too hard to reach. Addressing chronic poverty is integral to the Millennium Development Goals and poverty eradication. Persistent impoverishment is not only a symptom of past deprivation, it is also the cause of future destitution. There is increasing evidence that growth and the prospects for long-term poverty reduction are held back by inequality and by the low returns that the poorest people get on their labour. At the most basic level, people cannot be productive unless their food intake is enough to ensure that they can work.

Reaching the chronically poor is not simply a matter of implementing current policies more fully. Chronic poverty research suggests that millions of people will remain in poverty without policies that specifically address their situation with substantial and well targeted assistance. Understanding the manifestations, attributes and social dynamics of chronic poverty is essential in developing such effective public interventions.’ [See full report at following website: <http://www.chronicpoverty.org/pdfs/CPR1%20FINAL/CPRfinCOMPLETE.pdf>]



The Proportion and size of chronically poor populations in world regions, Source: *The Chronic Poverty Report 2004–05*, the Chronic Poverty Research Centre (CPRC), Institute for Development Policy & Management, University of Manchester, 2006. Technical note to Figure 3.1 The proportion and size of chronically poor populations in world regions The cartogram was designed by Mark Gordon for the Chronic Poverty Research Centre (CPRC). ERSI’s ArcView 3.3 with Andy Adenda’s ‘Cartogram’ ArcView Script was used, based on Charles B. Jackel’s script.¹ The initial shape files were drawn from Environmental Systems Research

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Institute, Inc. (ESRI) 'World Countries 2002' shapefile from the ESRI Data & Maps Series published in 2002. The shapefile was projected in the WGS-84 Projection and then modified. First, Antarctica and 35 small island nations with both low populations and rates of absolute poverty were removed.² Second, the 25 countries and islands of Western Europe were merged into one polygon.³ Third, the entire shapefile was generalized Douglas-Peucker-algorithm from 165,797 vertices to 83,562 vertices using the Generalize Tool in the 'Point & Polyline Tools V1.2' by Soeren Alsleben. Population data represent the 2003 mid-year estimates from the Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat.⁴ In cases where the UN 2003 mid-year population was not available,⁵ the ESRI-provided 1994 estimated population of the country prepared by National Center for Geographic Information and Analysis was employed. The chronic poverty cluster ranks were provided by the CPRC. The estimated number of absolute poor was calculated by multiplying the 2003 mid-year population by the most recent World Bank estimates of rate of absolute poverty, or, in its absence, CPRC estimates. 70 iterations were run to produce the presented cartogram. The average square of the percentage change in area by the final iteration was 0.025%. The cartogram layout was prepared in ESRI's ArcMap 8.3 and then exported as both a JPEG and Adobe .PDF file.

CDC – Celebrating our First 60 Years!



Charles M. Croner, Ph.D., Geographer and Survey Statistician, and Editor, *Public Health GIS News and Information*, Office of Research and Methodology, National Center for Health Statistics, and first DHHS Representative, Federal Geographic Data Committee, at cmc2@cdc.gov. Celebrating our 71st edition with continuous reporting since 1994.

The NCHS GIS home page contains current GIS events, archived GIS reports and other GIS links

<http://www.cdc.gov/nchs/gis.htm>

APPENDIX: MAPPING HEALTH INEQUALITIES

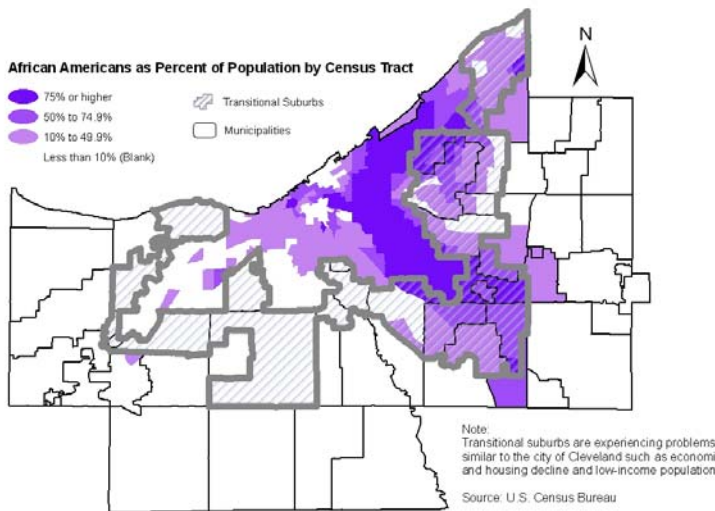
[Fourteenth in Collaborative Series: See May, July, September, November 2004, January, March, May, July, September, November 2005; and January, March, May 2006 editions at NCHS GIS website; also, see the complete archive at http://communitysolutions.com/store/index.asp?DEPARTMENT_ID=121]

Hunger and Poverty Increasing in the Suburbs Cuyahoga County, 2000 to 2005

Terry Lenahan, The Center for Community Solutions, Cleveland Ohio

While we all know hunger occasionally, fewer of us have persistent insatiable hunger. Often a condition of poverty, the low intake of adequate nutrients that also provide fuel for energy is a devastating condition that prohibits hungry families and children from living healthy, productive lives. More than 10 million people in the United States live in households that go hungry; close to one-third of these are children.¹

Percent African American Population in Cuyahoga County, Ohio, 2000



children lived in poverty in 2004.⁵ Over one million Ohio residents depend on Food Stamps each month. As with the U.S. rate, this represented about 9 percent of the total population. Eighty percent of Food Stamp households are families with children.⁶

Unlike the U.S. and Ohio poverty rates, the Cuyahoga County poverty rate decreased slightly in 2004, from 14.2 percent to 13 percent, although this was not a statistically significant decrease.⁷

Need for Food Assistance Increasing in the Suburbs

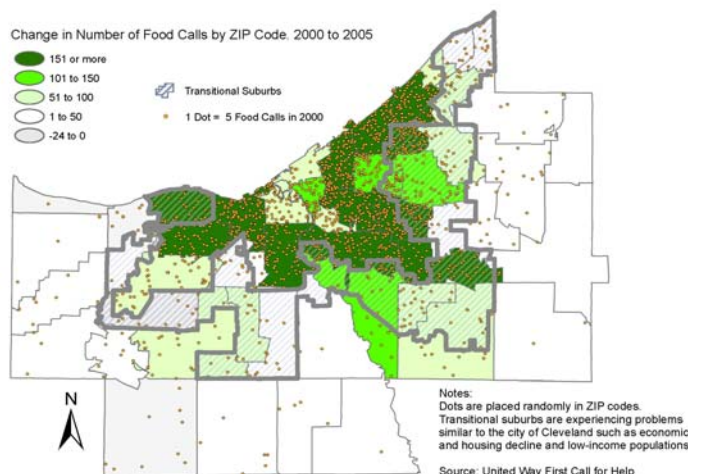
Despite the estimation of decreasing poverty from the U.S. Census Bureau, calls for food assistance in Cuyahoga County to United Way of Greater Cleveland's *First Call for Help* telephone line increased 63 percent between 2000 and 2005, from 8,600 to 14,000. Food calls, recorded by ZIP code,⁸ included the following categories: food stamps, vouchers, home-delivered meals, hot meals, nutrition sites, pantries, baby food, and food programs.

Poverty and Food Stamps

Hunger has been shown to be highly correlated with poverty² and the federal Food Stamp program³ is designed to address this problem. In 2004, 13.1 percent of the U.S. population lived below the poverty level, up from 12.2 percent in 2000. In families with children under 18, 15.5 percent lived in poverty in 2004, up from 14.3 percent in 2000.⁴ More than 25 million people, or about 9 percent of the total population, depend on Food Stamps each month.

In Ohio and Cuyahoga County, nearly one in five

Food Calls in 2000 and Change in Number of Food Calls, 2000 to 2005
Cuyahoga County, Ohio



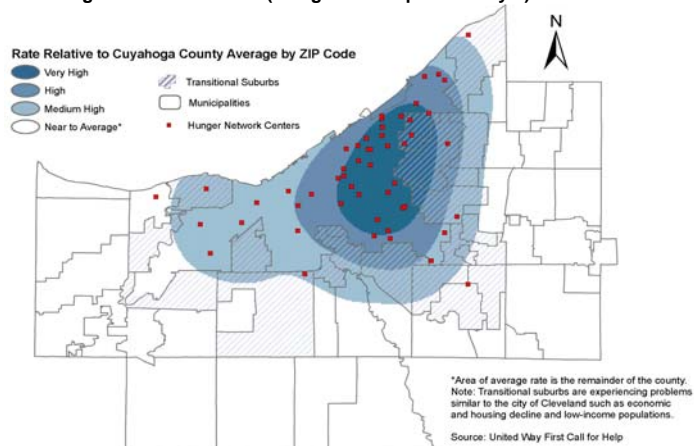
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The percentage increase in food calls was greater in the suburbs than in the city of Cleveland (68 percent and 61 percent, respectively), especially in the southeast suburbs near the city of Cleveland that are predominantly African American. The inner, transitional⁹ suburbs close to Cleveland increased 71 percent, compared to a 46 percent increase in the outer suburbs that are primarily White.

Change in Number of Food Calls, Cuyahoga County, Ohio, 2000 to 2005
And Hunger Network Centers (using ArcGIS Spatial Analyst)



Increases in calls for food assistance greater than 100 percent were found in 12 of Cuyahoga County's 50 ZIP codes, all but one in the suburbs, including several suburbs closest to Cleveland. Increases of more than 100 calls came mostly from Cleveland neighborhoods, but also from these contiguous suburbs.

The Hunger Network of Greater Cleveland is the largest emergency food distribution network in Cuyahoga County, directing 52 hunger centers that distribute a 3-to-5 day supply of food, and 18 hot meal sites that prepare and serve an evening meal at the end of each month to an average of 50,000 people, half of which are children.¹⁰

The Hunger Network experienced a 27 percent increase in the need for emergency food since 2001. More people are visiting the Hunger Network's suburban centers, which saw an increase of 33 percent compared to the county's overall 27 percent increase. The southeastern suburbs, with large African American populations, increased 212 percent since 2000.¹¹

Poverty and Food Assistance in the city of Cleveland

Clevelanders that lived below the poverty level decreased from 26.3 percent in 2000 to 23 percent in 2004, although this was not a statistically significant decrease.¹² However, nearly one-third (32 percent) of Cleveland's children lived in poverty in 2004,¹³ and in female-headed families with children, over one-third (36.3 percent) lived in poverty.¹⁴ According to the U.S. Census Bureau, 2004 American Community Survey, the City of Cleveland was ranked 14th in the country in the percentage of children under the age of 18 who are living in poverty and 12th in the percentage of adults living in poverty.

Calls for food assistance in the city *increased* 61 percent between 2000 and 2005, from 5,300 to 8,500. Although only 34 percent of Cuyahoga County's population lived in Cleveland, about 60 percent of the calls for food assistance in the county came from Cleveland residents. Over three-fourths of the Hunger Network centers, soup kitchens, and food pantries are located in the city of Cleveland.

Maps created by Terry Lenahan, Policy and Planning Associate in Research, The Center for Community Solutions. Data on food assistance calls provided by United Way Services of Greater Cleveland, *First Call for Help*, Cleveland, Ohio. Contact Terry at tlenahan@communitysolutions.com.

¹ Center on Hunger and Poverty, Brandeis University. <http://www.centeronhunger.org>

² Ibid.

³ A person may qualify for benefits if the household's gross monthly income is within 130% of the federal poverty guidelines and within 100% of the poverty level after all allowable expenses (net adjusted income), and if the person's resources such as cash, savings, stocks, etc., do not exceed \$2,000 (\$3,000 if a person is at least 60 years old or disabled).

⁴ American Community Survey Profile 2004. Selected Economic Characteristics. U.S. Census Bureau, 2005.

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⁵ Ibid.

⁶ Hunger Network of Greater Cleveland, www.hungernetwork.org , May 15, 2006.

⁷ American Community Survey Profile 2004. Selected Economic Characteristics. U.S. Census Bureau, 2005. Change in rate from 2000 to 2004 is not significantly different at the 90 percent confidence interval.

⁸ Although ZIP codes are not an ideal unit of geographic analysis, many institutional databases are limited to this type of geo-reference. Several Cuyahoga County ZIP codes span both city and suburban boundaries, resulting in an approximate number of calls to Cleveland and the suburbs.

⁹ Transitional suburbs are experiencing problems similar to the city of Cleveland such as economic and housing decline and low-income populations.

¹⁰ Hunger Network of Greater Cleveland, www.hungernetwork.org, May 15, 2006.

¹¹ Ibid.

¹² American Community Survey Profile 2004. Selected Economic Characteristics. U.S. Census Bureau, 2005. Change in rate from 2000 to 2004 is not significantly different at the 90 percent confidence interval.

¹³ “Population and Housing Narrative Profile, Cleveland, Ohio,” U.S. Census Bureau

¹⁴ American Community Survey Profile 2004. Selected Economic Characteristics. U.S. Census Bureau, 2005.