

Surveying the Extent and Practice of Public Participation Geographic Information Systems

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Abstract

Geographic Information Systems are no longer the sole domain of professional geographers, planners, administrators and researchers. The domain of Public Participation GIS (PPGIS) explores the myriad ways in which members of the public engage in a broad variety of GIS activities – from simple web mapping to community-based spatial data analysis – and includes methods and approaches that place the power of geospatial analysis directly in the hands of citizens or citizen advocates. In order to understand the scope and scale of PPGIS practice in the United States an online survey was developed that was available to respondents from February 1, 2008 to April 1, 2008. The survey was designed to identify and address the following themes: Data sources, organizational practices and goals, user profiles and expectations regarding user outcomes. The goal of the survey research, built on Sawicki & Peterman's (2002) earlier work, was to develop a baseline of current practice to examine if and how trends of PPGIS practice have changed as PPGIS adoption and use has become widespread and has matured. The survey was advertised and promoted through a wide variety of outlets. These included direct email contact with organizations such as university research centers, municipal planning offices and nonprofit groups. The survey was also distributed the survey link via various discussion forums and mailing lists, such as IAPAD's PPGIS.net, as well as GIS and community development-related listservs. This paper describes the entire survey effort (from design to implementation) and shares preliminary findings with the audience in order to facilitate an informed discussion about next steps in PPGIS research.

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I. Introduction

Geographic Information Systems (GIS) have become indispensable to the planning process (Brail and Klosterman, 2001). One would be hard-pressed to find a planner, at least in the developed world, who has not used GIS to interpret a zoning code, track population growth or monitor road conditions. Much more than static mapping, a GIS can be seen as a vast repository of geospatial information. These range from the simple – a map of citywide parks with their features appended – to the complex – a vast system that can show changes in pollution levels in real time. At any level of sophistication, GIS applications are powerful tools that attest to the importance of the visual – of *showing* a representation of conditions – past, present or planned.

When looking at GIS in this light, critical issues and questions emerge. If GIS has the power to show, tell and ultimately persuade, the question of who uses this technology quickly becomes an important one. Traditionally, technology in the planning profession has remained relegated to the profession itself. The nature of technology was such that expensive equipment, complicated software and required in-depth knowledge relegated it to experts and the high-level decision-makers they supported. GIS was no exception, and the early discussions on bringing the technology into the planning field focused primarily on integrating it into the profession (Innes and Simpson, 1993).

However, technology has been evolving, and has been doing so even decades before our present time at the turn of the 21st century. It follows that GIS should likewise evolve and expand its scope and reach (Heikkila, 1998). Personal computers, the internet and user-friendly software are breaking down the walls that kept complicated methods of planning practice within the

sphere of public and/or private governance. The sheer rise in the availability and accessibility of data – from simple Census forms to information on pollution control – cannot be underemphasized. To use a cliché, at the click of a mouse, the public is now privy to a wealth of information, spatial and otherwise, that has previously been confined to the experts.

In many ways, the public can now come to the planning process armed with similar if not the same tools and data that government and its affiliated private interests have been using to make planning and policy decisions for years (Ramasubramanian, 2004). The extent to which the public actually does take this information and become involved in the planning process, through their use of geo-spatial technologies, has led to the development of the field known Public Participation GIS (Craig, Harris & Weiner, 2002), and specifically, the nature of this research project.

Ongoing research projects in the Hunter College Department of Urban Affairs and Planning explore the ways technology can be integrated into the planning process. Public Participation GIS is one facet that has come under study¹. In order to better understand who engages in PPGIS activities and the outcomes that may be expected, a project was developed to survey organizations and their activities as they relate to the subject. As someone with an interest in seeing how the role of the citizen does or does not affect the often-times political nature of the planning process, I felt that this research would provide valuable experience in understanding the evolving role of citizen participation in the urban setting. This may be especially relevant in my intended field of specialization, transportation planning, as transportation projects, because of their direct impacts on the mobility of a population, become points of intense deliberation in the public realm. The field of PPGIS would take this assertion a step further and explore how

¹ This research has been initiated by, and will be included in Prof. Laxmi Ramasubramanian's forthcoming book, "Public Participation and Geographic Information Science", to be published by Springer.

citizen-actors might express their views on transportation issues and problems through the use of GIS technology, perhaps by mapping perceived inadequacies in their transit system.

This paper is organized as follows: A discussion of the brief literature view that informs the research is presented (Section II). Section III, on the survey development, design and institutional approval, follows. Section IV comprises the body of research findings, and also describes the different thematical categories that became apparent during the investigative process. Section V presents conclusions and directions for further research. References and appendices can be found after Section V.

II.1. Literature Review

My research began with a focussed literature review on the subject of PPGIS. While a fairly new discipline, there is a body of PPGIS literature that is developing that is nevertheless important for understanding the base concepts of the field. Schlossberg and Schuford (2005) help to define the field by exploring the concepts of “public” and “participation” as they seek to understand who embodies the public while drawing on Arnstein’s seminal work to discuss citizen participation. Sieber (2006) makes a first attempt at a comprehensive literature review in which we are able to see the different definitions that PPGIS has come to take, ranging from applications in real estate to nature conservation. Carver (2001) and Kingston (2007) and give specific case study examples of PPGIS in the United Kingdom, while Sawicki & Peterman (2002) present the research that has ultimately spawned my updated attempt to observe the various PPGIS actors engaged primarily in activities in the United States. Their work proved to be of vital importance in understanding that, because of the broad definition of the field, PPGIS groups can and will encompass anything from a simple government agency putting its data on

the web to proactive community groups that teach citizens how to use GIS to affect social change.

II.2. Applications

Once a firm grasp on the concept of PPGIS was established, it then became useful to gain insight into the many different kinds of applications that fall under the PPGIS umbrella that are in use today². For this stage, a broad, web-based survey of unique commercial mapping sites, grassroots community organizations, on-line public agency data and mapping portals and academic themed applications were explored. This important step in the research process served two important purposes:

1. To help to begin to categorize the various applications of PPGIS.
2. To identify potential organizations and individuals that can be contacted for the subsequent survey stages.

Because of the well-documented broad scope of PPGIS activities, it is useful to categorize applications to underscore the fact that different applications are intended to serve different needs and populations, and may have very different outcomes. For example, some of the commercial sites observed, such as walkscore.com and primospot.com, can be defined as PPGIS because they allow citizens to submit observed data on the walkability and parking availability in their neighborhoods, respectively. Some of the more sophisticated sites, usually developed in conjunction with university research centers, offer a richer array of data that may help a resident understand the issues facing his/her community on a deeper level. The notion of “degrees” of PPGIS soon develops and helps to inform the categories that the various applications fall into. By no means an exhaustive or totally objective system, I have defined the PPGIS applications into the following categories. They are ranked in descending order, in terms

² See Appendix A: PPGIS Applications

of the extent to which they are GIS applications that truly incorporate notions of public participation.

PPGIS Facilitators: Organizations that work directly with citizens to teach them to use geospatial data for the express purpose of improving their community. These methods and approaches are popular with progressive scholars and universities, especially in the United Kingdom. In the United States, applications have been and are being attempted with recovery mapping in post-Katrina New Orleans.³

Partnerships / Services: These organizations, similar to facilitators, are often university-based, and do not necessarily engage citizens in data collection and analysis. Rather, it is a partnership / service that provides the data and, in many cases, the maps themselves, for community groups who request their services. A prominent example in the New York area is the Community Mapping Assistance Project (CMAP), a partnership offered by the New York Public Interest Research Group. CMAPS's mission is to offer GIS services at reasonable cost to the nonprofit community.⁴

Data Providers: These are organizations that simply put a good amount of geospatial data out to the public for their use. Many local governments have developed online GIS portals where citizens can look up information on their community or particular piece of property. Often totally web-based, data is usually for display purposes only and cannot be downloaded. For example, the Chicago Police Department maintains a comprehensive website where citizens can monitor and map crimes in the city, using official police records.⁵

³ See <http://www.rally-foundation.org>

⁴ A full description can be found at http://www.oasisnyc.net/pages/about_OASIS.htm; note that OASIS is now affiliated with a university, the City University of New York, Center for Urban Research.

⁵ <http://gis.chicagopolice.org>

Private “Niche” Sites: These applications are web-based mapping programs, usually using the Google Map platform, that often display some sort of specific asset, problem or issue in a community. For example, walkscore.com generates a “walkability” score for a user’s selected neighborhood, based on the proximity of mapped services, recreation and transportation access. They are good at informing the community on its positives and negatives, but may or may not encourage public participation. However, even within this category, certain applications will lean toward a greater PPGIS quotient. For example, the project developed by Hunter College students to map existing and desired bike parking facilities used user-submitted data to create its maps.⁶ The developers further the notion of public participation when they presented this spatial data to planning officials seeking potential parking sites.

III. Survey Design⁷

Once a list of potential contacts had been generated in the application research stage, we turned our attention to the issues that we wanted to know more about. While the personalized categories remained useful for describing general PPGIS activities, it is necessary to survey organizations to understand the deeper issues that we are attempting to probe. A short e-survey was designed to question participating respondents on their activities, methods and users. Using the survey-hosting service SurveyMonkey.com, an eight-question instrument was developed. The service allows the survey to be hosted on a secure website, while providing a link that can be distributed, in our case, via email, to intended participants. Following established institutional guidelines regarding informed consent, detailed consent information was provided at the start of the survey.

⁶ <http://nycbikerackstudy.com/>

⁷ See Appendix B: “Survey Instrument”

The questions focus on both the users and the organization itself. We first asked the organization to select a statement that best defines it (Question 2). It is important to note that we did not ask the organization to identify itself by name. We believe that a high response rate could be achieved allowing respondents to complete the survey anonymously. The final two questions afford the participants the opportunity to leave their name, affiliation and contact information should they be interested in the second phase of our research. This allows us to engage willing respondents in further questioning regarding outcomes and greater notions of participation and civic involvement.

The survey also asks about the nature of data used by the organization. One would assume that most mapping services make some use of official data, for example a base map showing roads and town boundaries, major landmarks, or basic property data, yet participation can be enhanced through the use of user-submitted data. In other words, a two-way flow of information can develop, as users add their own impressions and understanding of their community to an otherwise neutral map made up of lines and polygons. A good example is the Neighborhood Knowledge – Living Independently in Los Angeles disability awareness service, which relies on users to submit information regarding facilities and services they find helpful.⁸

Finally, we attempt to understand more about the user. In addition to the user-related description above, we ask who the application is designed to reach and, if known, who are the actual users. This theme arises from our hypothesis that even though an organization or government may believe that is engaging in some sort of PPGIS activity through its provision of spatial data, if the general public is not receiving or acting upon the data, the entire notion of PPGIS is brought into question.

⁸ <http://lila.ucla.edu>

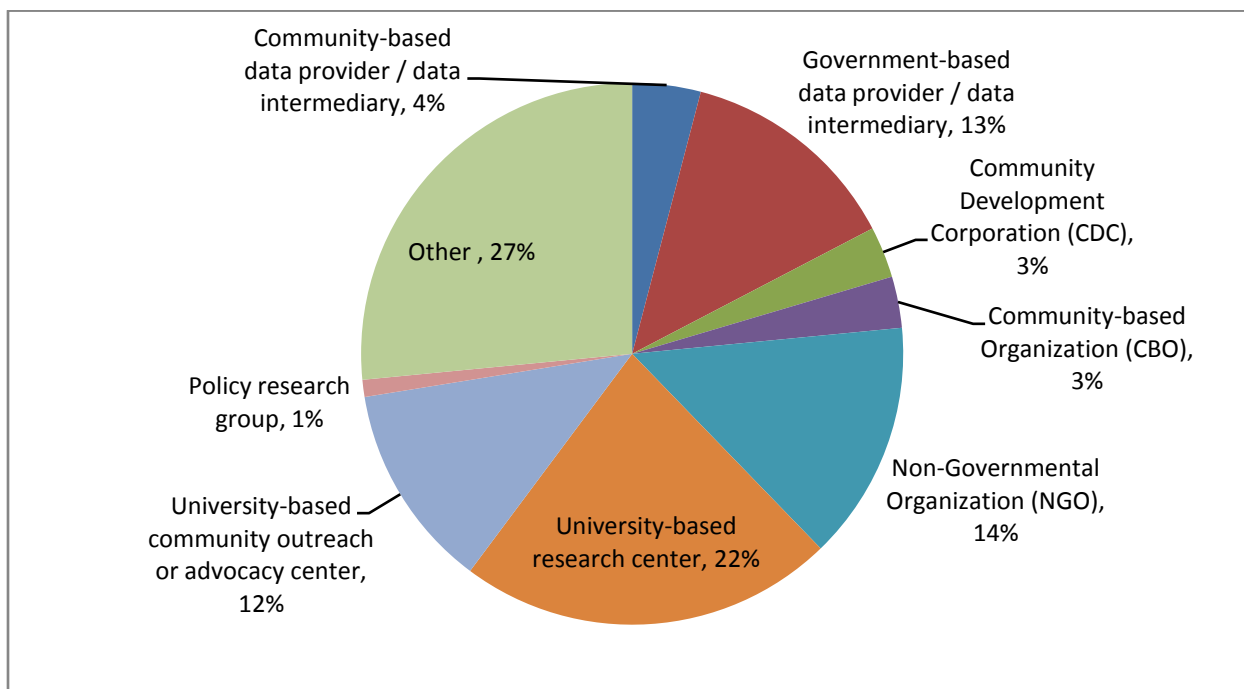
In November 2007, the survey was submitted for preliminary Institutional Review Board (IRB) approval. It was returned to the researchers for clarification regarding methods for selecting targeted organizations and individuals for the e-survey. The methods were further explained by providing a methodology for finding target organizations and the survey was approved for distribution on December 17, 2007. It was first emailed to the 20 or so contacts generated from the web survey of applications on February 1, 2008. The link was embedded in a text email inviting the prospective respondents to complete the survey by clicking on the link. Subsequently, a description of the research and link were posted to various listservs and message boards frequented by actual PPGIS practitioners (PPGIS.net, IAP2) or more general community development communication vehicles (COM-ORG listserv) during the month of February.⁹

IV. Findings

The e-survey accepted responses through the months of February, March and April 2008. The following analysis represents a snapshot of responses as of April 1, 2008. However, the survey remains open through the month of April to collect responses from additional parties interested in our research. The additional time allows for the further development a pool of participants, should we decide to perform further phone interviews, a section which will be discussed later in this paper.

⁹ See Appendix C: "List of Emails and Listserv Contacts"

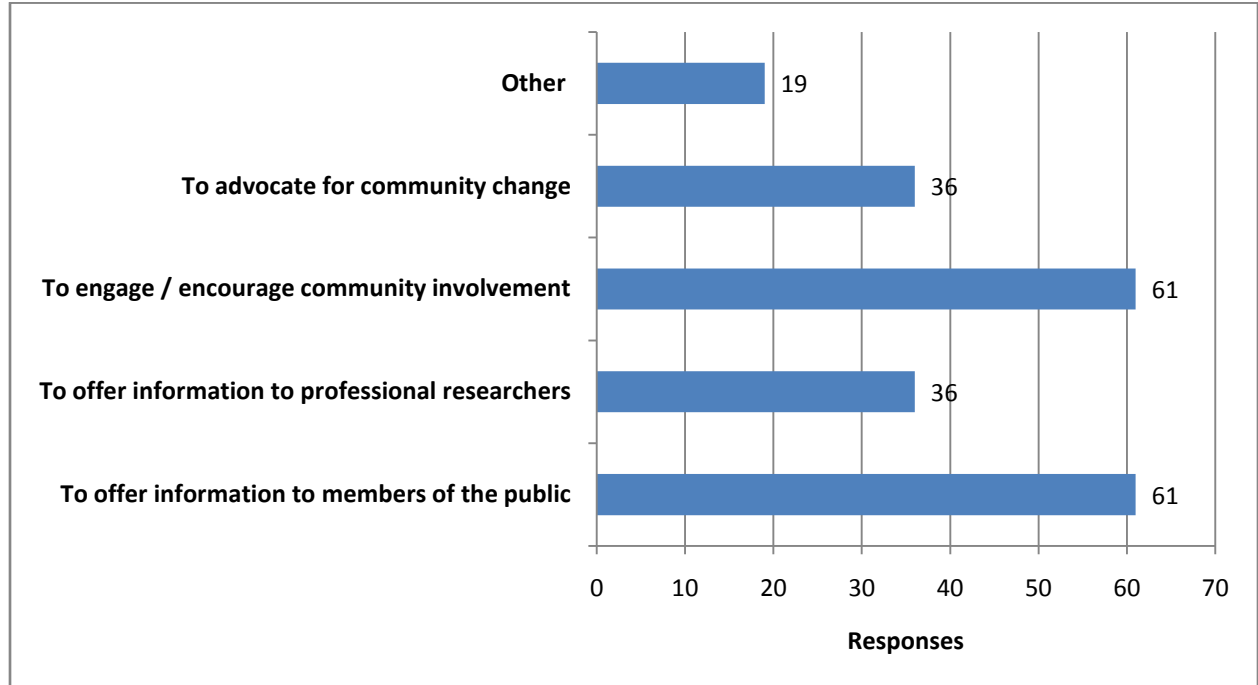
Question 1: How respondents described their organization (98 valid responses):



We provided a myriad of choices for respondents to characterize their organization, and therefore received a wide range of responses. Only one selection was allowed per respondent.

Over one-third of respondents identified themselves as affiliated with a university in some way. This may suggest that PPGIS activities (let alone traditional GIS work) is still confined to the academic realm. About 10% of respondents identified themselves as community-based (either CDCs, CBOs, or other community-based data providers). We also heard from government-based agencies, such as local planning boards and state environmental resource agencies. The NGO category covers many of our international respondents. However, over one-quarter of respondents selected “other;” this included various consulting firms, nonprofits and individual researchers.

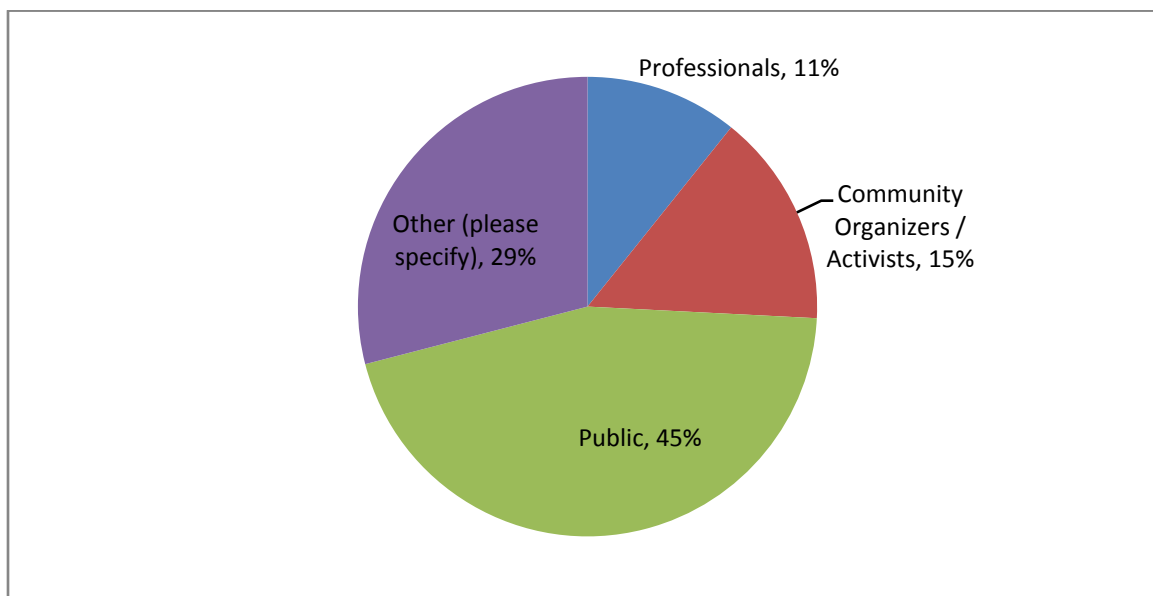
Question 2: How respondents characterized their goals (94 valid respondents):



This question, focusing on organizational goals, allowed the respondent to select more than one choice. Over two-thirds of respondents said that they hoped to encourage community involvement, while about one-third described their work as having more of an advocacy component.

Other goals included more specific descriptions, such as to “give people an idea of how issues and problems or opportunities look spatially and visually” or “to educate high school and college students in conservation.”

Question 3: Intended users of PPGIS applications (93 valid responses):



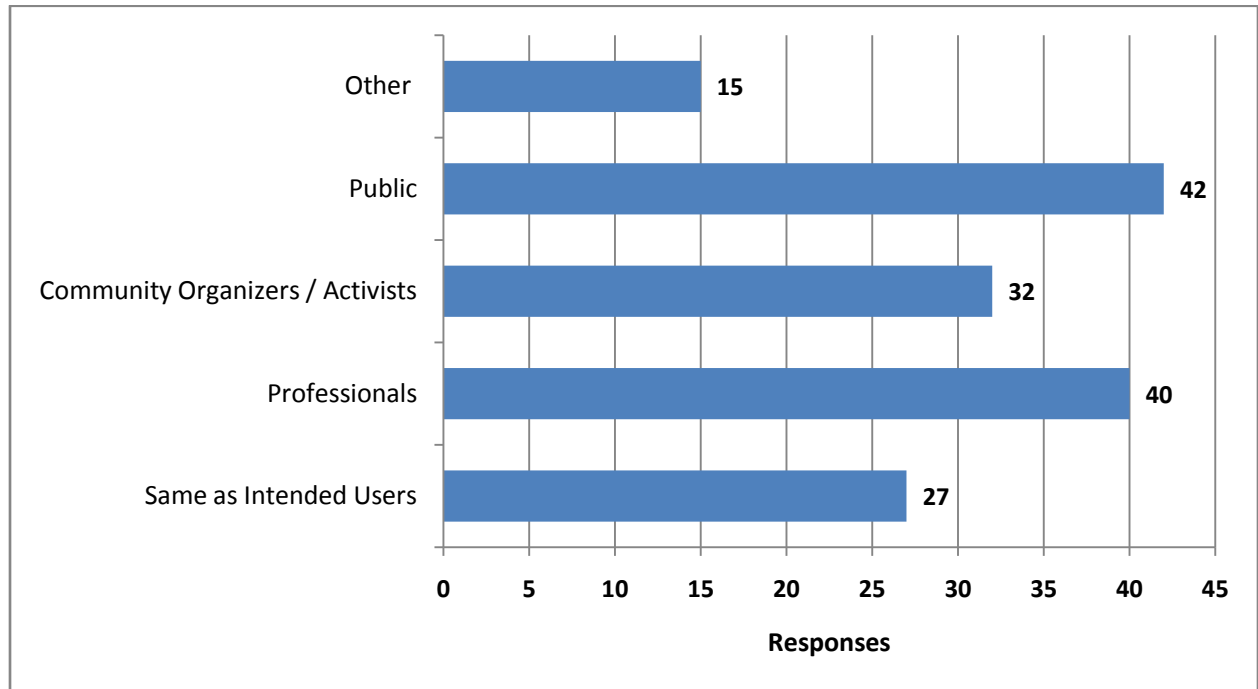
This question, along with the following one, sought to have the respondents describe their users. We hypothesized that there might be a discrepancy between “target” users (i.e. those for whom the service is intended) versus actual users. “Public” – a very general category – was selected 45% of the time. We assumed that this captured the “general” public, versus our categories for “community organizers / activists” and “professionals,” which would reflect more engaged users who may use the data for a specific purpose related to research, policy work or other similar, targeted work.

“Other” was selected by over one-quarter of the respondents, and included such narrower definitions as students and landowners, along with “all of the above.”

We acknowledge that this may have been a problematic question. We asked users to select the choice that best describes who their service is designed to reach, negating that respondents may feel strongly about serving all types of users through their work. As a counterpoint for not supplying a choice for “all of the above,” we found that respondents may not have been willing

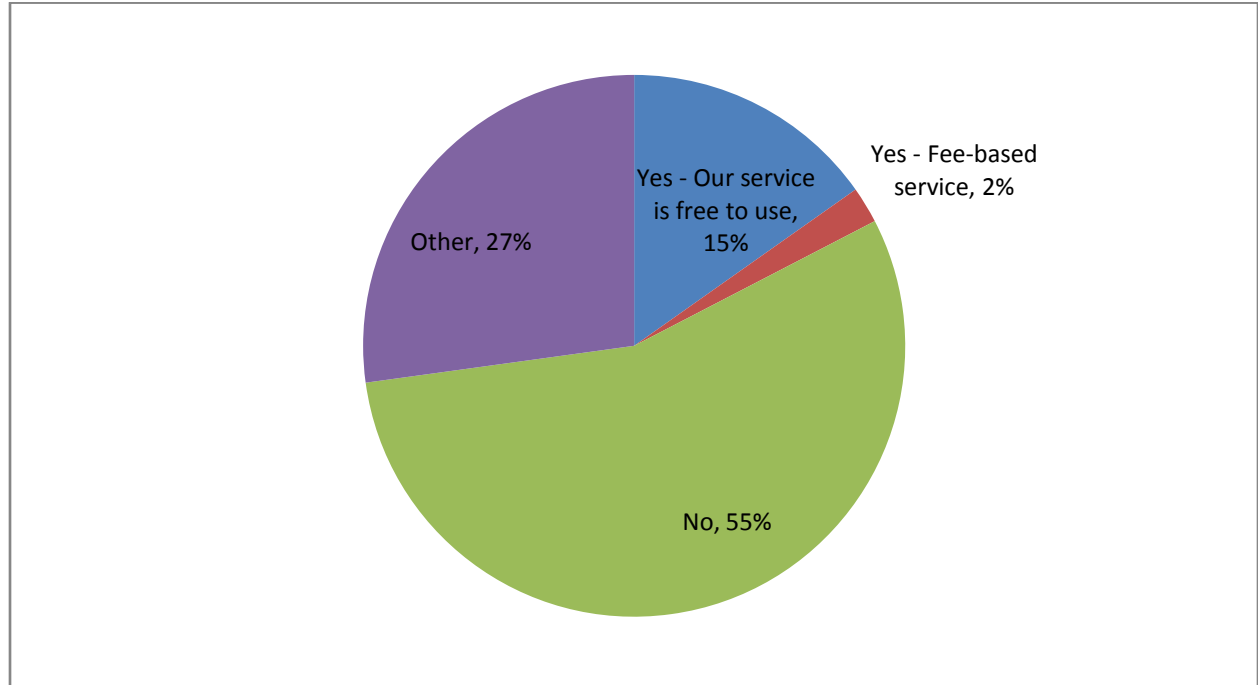
to select the broad, catch-all “public” category we developed, and desired to specifically define their intended audience.

Question 4: Actual users of PPGIS applications (93 valid respondents):



As previously mentioned, we were interested in seeing if there was a discrepancy between intended and actual users of PPGIS applications. For this question, we allowed for multiple responses. “Public” and “Professionals” received the highest number of selections as actual users. About one-third of respondents selected community organizers / activists as actual users. However, 43% of respondents reported professionals as actual users, while only 11% said that these were the prime intended users of their service.

Question 5: Are users required to register with this PPGIS service? (92 valid responses):

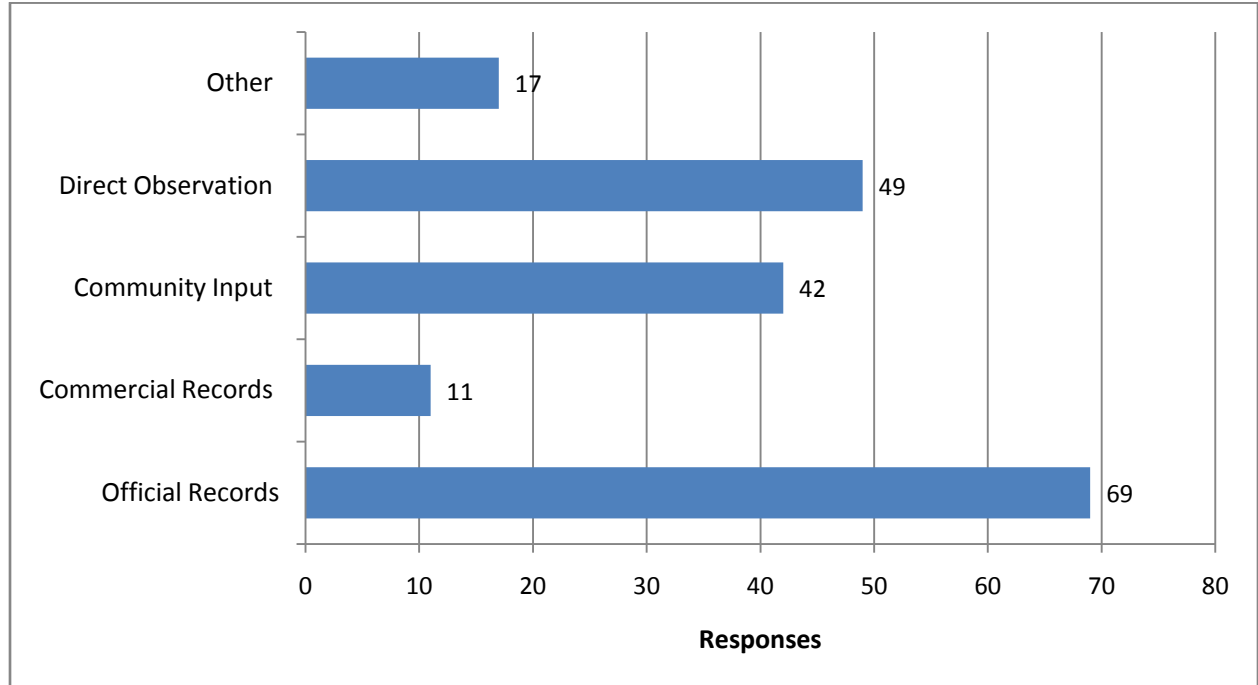


The PPGIS process – how users obtain access to their information – is a theme that can be considered for further study.

Earlier studies framed PPGIS around centralized technology. The model of a physical computerized data or mapping center, usually on a university campus, characterized GIS and PPGIS activities. However, as we assumed, with the rise of affordable personal computers and home internet access, PPGIS activities would become decentralized and diverse. Users would not have to physically go to a computer center with specialized software, they presumably can engage in mapping and data analysis activities on the web.

Even with online PPGIS, users were not required to register to use the respondents' service in over half the cases. While it may seem like a trivial step, the suggestion that the reduced prevalence of required log-in information may speak to the “democratization of data.”

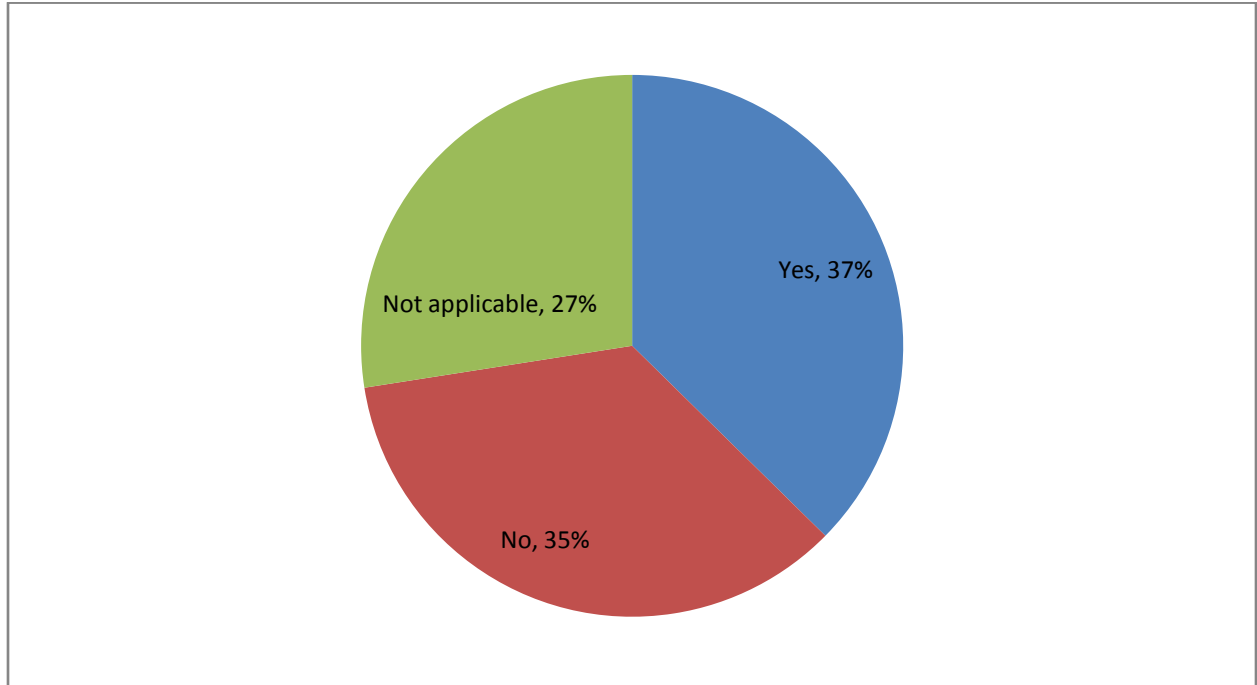
Question 6: Sources of data (93 valid responses):



Our understanding of PPGIS incorporates a key notion of the user being engaged with data inputs and data outputs. Official records still form the “backbone” of PPGIS work, as almost 75% of respondents reported using some form of this data in their work. Direct observation is defined primarily as staff fieldwork, where official data, which can be outdated, is supplemented by information reflecting real-world conditions, for example, a recent survey of vacant land in a community.

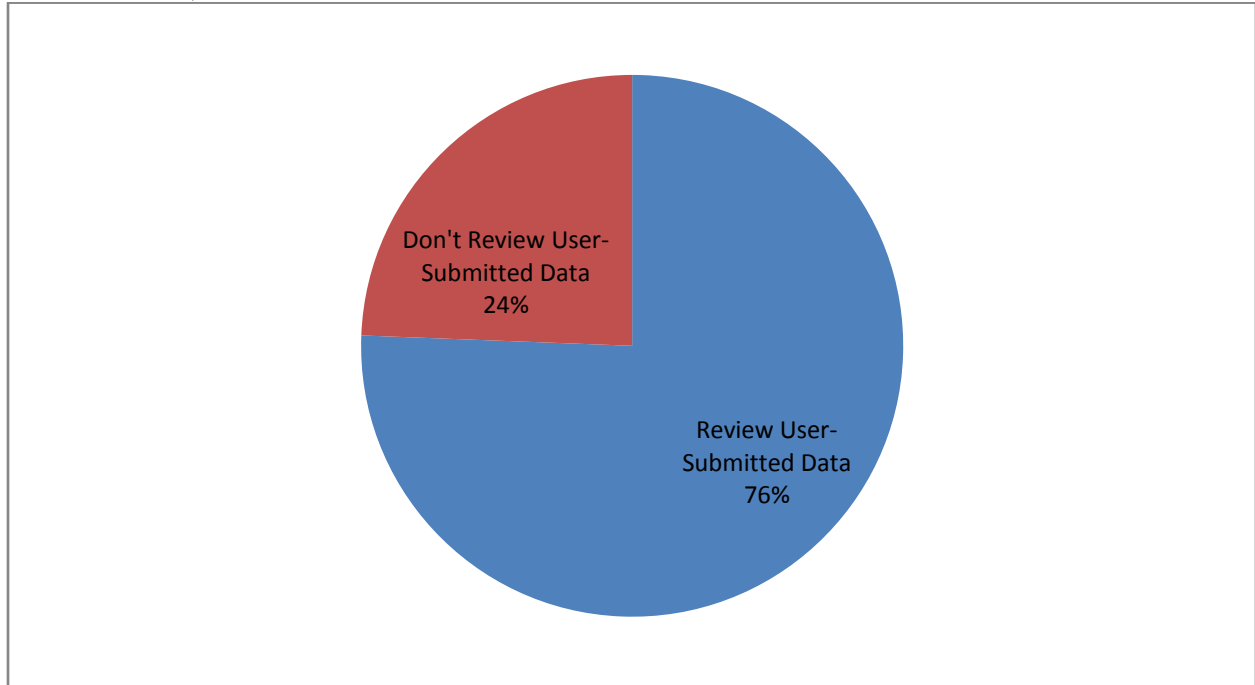
However, there is a fair share of community input, defined as any type of user submission or suggestion regarding existing or desired conditions incorporated into the PPGIS respondents’ work. The following questions attempt to more deeply probe this concept of user-submitted data.

Question 7: Can users submit their own data? (91 valid responses)



Over one-third of the respondents reported allowing user-submitted data to their PPGIS application. A “not applicable” choice was included to offer a response for possible PPGIS practitioners who do not directly engage in data work, such as nonprofit support groups or other various organizations offering similar services.

Question 8: Is user-submitted data reviewed for accuracy? (41 respondents accepting user-submitted data):



While we feel that it is beneficial for PPGIS providers to incorporate some sort of user feedback and method for contributing their own localized knowledge, we recognize that limitations exist. Checking the validity of user-submitted data, if done in a way not to undermine users contributions, can be an important step in creating a more developed PPGIS system, one that uses objective and possibly subjective knowledge to paint an accurate portrayal of community perceptions.

IV.1. Distribution

In casting a wide net, in terms of distributing and advertising the survey, we reached a wide variety of organizations that saw themselves as doing some sort of PPGIS work. However, an e-survey, just like any survey, has its limitations in terms of outreach. We primarily reached organizations with a solid web presence, or, barring that, an active staff that subscribes to various email lists and/or uses GIS-related discussion forums. We only heard from a few (just over 10%) organizations who defined themselves as primarily community based, such as CBOs. The majority of respondents were affiliated with academic research projects or government-based users. Since this survey is a sample of PPGIS practitioners, one cannot assume that this respondent profile truly captures the number and breadth of community-based PPGIS services. Additional research could attempt to further explore the role and practice of PPGIS solely at the community level.

IV.2. Organizational Goals

Drawing from the most prevalent responses to our goals questions, data provision (i.e. offering information) remains a top priority PPGIS activity, receiving 61 selections. Also receiving the same number of selections was the choice to “encourage community involvement.” These two descriptions, we believe, are simply starting points for PPGIS. Government agencies and universities, who are making spatial data available, appear to understand that this information serves as a catalyst to create active and involved citizenry. . . However, we wondered whether data provision and access (a vital building block for PPGIS), resulted in specific actions in the form of community change.

36 respondents selected “to advocate for community change” as one of their goals in their PPGIS work. The choice was less popular than the two “basic” PPGIS descriptors discussed

above. Although we cannot tell without speaking to the organization in question, we hypothesize that the groups who selected this goal engage with the community on a deeper level than those who selected choices that characterize themselves as primarily information distributors.

IV.3. Organizational Structure

The rise of web-based mapping software, coupled with a rise in Internet and broadband access, appears to make data quickly and easily available from a home PC. In over half the cases, data is made freely available in both a monetary sense, and also free from registration requirements. However, many of the free responses to our questions regarding the nature of the organization's PPGIS activities may provide greater insight into how the field is evolving. Each respondent tried to describe their specific application (and therefore, definition) of PPGIS. Quite common was a "dynamic" response, where the group's work was described as having an online component in addition to a hands-on, on-site training component. Many said that they took PPGIS on a "case-by-case" basis, where some larger-scale projects would entail actual partnerships and training, while other, smaller undertakings took a web-based approach. A few respondents also remarked that they were in the midst of developing their PPGIS approach, and were in essence still planning the mechanics. For example, a respondent teaching hospital endeavors to use GIS to make data available to a wide range of professionals, community members and researchers.

IV.4. PPGIS Users

The question of "Who uses PPGIS?" is likely to continue to produce answers as broad and varied as the field itself, and this should be expected. There is no one type of user, just as there is no one singular public. Approximating intended and actual users is just that – a way to generally understand users of PPGIS technologies and applications. We saw that respondents

intended their service to be used primarily by the general public, but actual users tended to be community activists and professionals. This may raise overall issues of public involvement that are not necessarily tied to GIS and explore overall definitions of the public.

IV.5. Follow-up Phone Interviews

A total of eight professionals in the PPGIS field were selected for a brief (10-15 minute) telephone interview during March 2008. This stage of research was designed to have PPGIS practitioners elaborate on concepts that were perhaps too broad for our e-survey. Primarily, we used this opportunity to speak with these individuals on what we consider user outcomes; we wanted to know what users are doing with PPGIS, and, if known, the extent to which technology has had an effect on the planning process in the community.

We spoke with a range of PPGIS practitioners, including university professors, community-based groups and professional researchers. These participants were selected based on contact information provided in the initial e-survey. We learned about an international organization that works with community youth mappers, a group working with New Orleans recovery mapping, a university professor who conducts neighborhood mapping using handheld GPS units, and about the day-to-day work of a university-based data research and advocacy center.

Understanding PPGIS outcomes proved to be a complex task. While all of the respondents were willing to discuss those “success stories” that they felt defined and validated their PPGIS work, discussing whether their work had in fact effected change in the community was perhaps not suited for a telephone conversation. Many of the interviewees remarked that while they would like to think that their work has had some greater effect in creating a sustainable partnerships and an engaged citizenry, the fact remains that it is difficult to judge for

certain. A university extension landscape architecture professor who works and trains participants explained the complexities in attempting to evaluate PPGIS activities. No two situations are alike, thus suggesting that one particular application of PPGIS may work in one situation, while a similar application may fail under different circumstances.

V. Conclusions and Directions for Further Research

Public Participation GIS practice as appears to fall along a continuum. It is a discontinuous series of steps, where at some point, the public gets to use GIS to understand some spatial issue. Rather, it is a process by which communities begin to think critically about their community and use GIS to tackle those issues. This is not to make a divisive distinction between “real” PPGIS and regular mapping. Rather, as our survey has found, there is an extremely broad field of professionals, students, researchers, community organizers, and even businesses who see their GIS work as having a participatory component. Where their work falls along a PPGIS continuum can be explored not as an outright ranking system, but as a way to better quantify, qualify and analyze the effectiveness of the intersection of Geographic Information Systems and public participation.

Unless participants are tracked in some way, there is little hope in understanding how this newer concept of (web-based) PPGIS can be an effective tool for fostering public participation. While it would be impossible to “track” every web user, to really know how well a PPGIS service, organization or program is working, some system of follow-up, at least on selected users, should be kept so that outcomes can be evaluated. We came across at least one organization that distributed its “success stories.” This well-documented, anecdotal evidence may be a useful way to at least begin a discussion on PPGIS effectiveness.

However, the concept of PPGIS effectiveness, like the field itself, is extremely broad and is open to interpretation. Does the concept of PPGIS really help change the planning process into a more inclusive and deliberative method – one that incorporates a newly knowledgeable public? While this is a complex, theoretical question, it is perhaps at the heart of PPGIS. Analyzing PPGIS components separately, such as understanding who the users are, what they do with their data, and how partnerships are structured can help narrow the field enough so that the broader questions have specific outlets. We hope that through a baseline inventory of activities, we have highlighted those issues – large and small – that can guide future, directed research.

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Appendix A: PPGIS Applications

Virtual Slaitwaite	http://www.ppgis.manchester.ac.uk/projects/slaitwaite
London Air Quality	http://www.londonair.org/uk/asp/virtualmaps.asp
Walk Score	http://www.walkscore.com
Chicago Crime Map	http://www.chicagocrime.org/map
Chicago Police CLEARmap	http://gis.chicagopolice.org
Open Street Map	http://www.openstreetmap.org
Primo Spot	http://www.primospot.com
NYPRIG CMAP	http://cmap.nypirg.org
NYC OASIS	http://www.oasisnyc.net
Minneapolis Neighborhood Information System	http://www.cura.umn.edu/MNIS.php
Farmland Preservation and GIS	http://www.lic.wisc.edu/shapingdane/facilitation/agriculture/options/bulletin.htm
Portland, OR Metro Government / City of Portland	http://www.metro-region.org/article.cfm?ArticleID=737
MetroQuest Software / GuelphQuest	http://guelph.ca/living.cfm?subCatID=1615&smocid=2193
Neighborhood Knowledge California (NKCA)	http://nkca.ucla.edu/
Neighborhood Knowledge Los Angeles (NKLA)	http://nkla.ucla.edu/
Living Independently in Los Angeles (LILA)	http://lila.ucla.edu/
CommonCensus Map	http://www.commoncensus.org/
Crisis in Darfur - USHMM / Google Earth	http://www.ushmm.org/googleearth/
Gentilly Neighborhood Mapping Center	http://icpd.dartmouth.edu/viewer.php
NEDAP Financial Justice	http://www.nedap.org/programs/mapping.html
South African San Institute - Cultural Resources Asset Management	http://www.sanculture.org.za/body.htm
Philippine Association for Intercultural Development	http://www.iapad.org/pafid/about_pafid.html
Ovalau Islands, Fiji	http://www.iapad.org/applications/plup/ovalau.htm
Center for the Support of Native Lands - Community Mapping	http://www.nativelands.org/Community%20Mapping.html

Appendix B: Survey Instrument

Dear Colleague:

We invite you to participate in a short e-survey designed to understand the use and effectiveness of Geographic Information Systems that support public participation, an emerging field of study known as PPGIS (Public Participation Geographic Information Systems). This e-survey is part of research conducted by faculty and students at Hunter College of the City University of New York (Hunter). Our research seeks to examine how PPGIS is applied in a variety of contexts to support and facilitate public participation. You have been contacted because we believe that your organization offers an application or service that provides the public with geospatial information in order to inform decision-making. Therefore, we invite you to participate in this research by responding to a brief e-survey that is expected to take about 10 minutes to complete.

Taking part is voluntary and your individual responses to all of the questions will remain confidential. Identifiable information is not required for participation.

While there are no direct benefits to you for participating in the survey, your considered responses to survey questions contribute to enhancing our understanding of the benefits and limits of GIS technologies that are designed to foster public participation.

We thank you in advance for your time.

Best regards,

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For information regarding the institutional approval process for this research, please contact:
Hunter College Institutional Review Board
Reference # HC-110713341
695 Park Avenue , Room E1426
New York, NY 10065
212-650-3053
<http://www.hunter.cuny.edu/irb>

Below, you are given two options:

By selecting "I'd like to participate; take me to the survey," you have consented to participate in this survey and will be taken directly to the questions.

By selecting "I'd like to see the full consent information before I begin," you will be taken to a page that details the methods and procedures employed in our research.

1. How would you like to proceed?

I'd like to participate; take me to the survey

I'd like to see the full consent information before I begin

Full Consent Information:

Through a review of internet-based resources, your organization has been selected to participate in a research study of Public Participation Geographic Information Systems (PPGIS) by faculty and students in the Hunter College Department of Urban Affairs and Planning. PPGIS is a developing field that explores the relationship through which the everyday public can become involved with using, designing or creating geographic information systems. Your project has been selected based on its attempt to inform the public through the use of spatial data. It is anticipated that approximately 25-50 organizations will be surveyed during this phase of research.

Please complete a short survey that seeks to explore the nature of your organization and the organization's role in engaging the public in different aspects of decision-making. It should take about 10 minutes of your time. Taking this survey is completely voluntary and will be used solely for furthering academic knowledge about public participation and geographic information systems. If you decide not to participate at this survey, you may exit the survey at any time and your answers will not be recorded.

We are making every effort to ensure that no one knows what your responses were on the survey. Survey Monkey is a well-known company that collects data for online survey research. The study is not being run from a secure server like those used to handle credit card transactions, so there is a small possibility that responses could be viewed by unauthorized third parties, such as computer hackers. Please consult Survey Monkey's complete privacy policy by clicking on the "Privacy Statement" link at the bottom the company's home page (<http://www.surveymonkey.com>) Printed data collected by the researchers will be kept in a locked office cabinet, and only the undersigned researchers have access to your responses, via a password protected computer.

By clicking "next" and completing the survey, you are voluntarily submitting data to be used in academic research. No identifiable information is required from you, however, we do request that you select a description, from a list of choices, that best describes your organization. At the end of the survey, you have the option of providing contact information if you would like to be personally contacted for a further discussion of our research.

After the survey period is closed, on or about April 1, 2008, you may view the results on-line via a link that will be posted on this survey site. For information regarding the institutional approval process for this research, please contact:

Hunter College Institutional Review Board

Reference # HC-110713341

695 Park Avenue , Room E1426

New York, NY 10065

212-650-3053

<http://www.hunter.cuny.edu/irb>

Please feel free to contact the undersigned researchers with any questions you may have or if you would like to be informed of more complete survey findings. Thank you for your participation.

1. Please select the statement that best describes your organization. (Select only one option)

Community-based data provider / data intermediary
 Government-based data provider / data intermediary
 Community Development Corporation (CDC)
 Community-based Organization (CBO)
 Non-Governmental Organization (NGO)
 University-based research center
 University-based community outreach or advocacy center
 Policy research group
 Other (please specify)

2. Which statement(s) best describe your goals in offering this GIS service or application? (Select all that apply)

To offer information to members of the public
 To offer information to professional researchers
 To engage / encourage community involvement
 To advocate for community change
 Other (please specify)

3. Who is your primary target audience? (Select only one option)

Professionals
 Community Organizers / Activists
 Public
 Other (please specify)

4. Who are the actual users of your GIS service or application? (Select all that apply)

Same As Above
 Professionals
 Community Organizers / Activists
 Public
 Other (please specify)

5. Do you require users to create an account or login before they can use your service or application? (Select only one option)

Yes - Our service is free to use
 Yes - Fee-based service
 No
 Other (please specify)

6. Which statement(s) best describe the sources of your data? (Select all that apply)

Official Records (e.g. property data, environmental data, crime reports, etc.)
 Commercial Records (e.g. phone book listings, advertisements, etc.)
 Community Input (e.g. citizen opinions about favorite places in the community)
 Direct Observation (e.g. staff-recorded data gathered through field observations)
 Other (please specify)

7. Can users submit their own data?

Yes
 No
 Not applicable

8. Do you review user-submitted data for accuracy?

Yes
No
Not applicable

- 1. Please share any comments that you feel would help us better understand the nature, goals and/or purpose of your organization.**
- 2. If you are open to having a longer conversation with our researchers about these topics, please provide contact information (phone or email) so that we may reach you. Your information will not be shared with any outside organization.**

Thank you for taking the time to complete this survey. Your responses will help us better understand the emerging field of PPGIS. Remember, once the survey is closed on or about March 1, 2008, you can view our findings at a link that will be posted on this survey webpage. Also, for more detailed findings, please contact the researchers:

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Appendix C: Listserv Distribution

Listserv or Web-based Group	Address
Open Forum on Participatory GIS	http://ppgis.net
GISMO NYC GIS Listserv	http://www.geo.hunter.cuny.edu/gismo/
URISA: Urban and Regional Information Systems Association	http://www.urisa.org/forums
International Association for Public Participation	http://www.iap2.org
Co-list Community Organizing Listserv	http://comm- org.wisc.edu/mailman/listinfo/colist
Community Development Society	http://www.comm-dev.org/
Build-Com Community Building Listserv	http://groups.yahoo.com/group/build-com/