FINDINGS AND RECOMMENDATIONS

KGIS DATA ANALYSIS PROJECT

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TABLE OF CONTENTS

EXECUTIVE SUMMARY

PlanGraphics undertook a rapid and comprehensive examination of the data requirements and associated needs of the KGIS user community, including City and County government, KUB, other governments, the private sector and the general public. In doing so PlanGraphics sought to identify the data requirements of the user community, whether or not they were being met and what gaps resulted from unfulfilled data and information needs. PlanGraphics undertook this assessment with an additional objective of reducing costs where it could be accommodated while sustaining the benefits being derived from the various user constituencies.

In undertaking the assessment PlanGraphics interviewed more than 125 individuals from City and County government and KUB, a dozen more targeted interviews of government and KUB management, a cross section of external users and more than 200 respondents to an on-line survey targeting KGIS users. We examined the practices of KGIS in the context of GIS best and emerging practices and sought the opinions of other GIS industry experts.

And while the bulk of this summary section addresses the opinions of KGIS users relevant to their data usage and needs we have also reached a number of important conclusions and recommendations, which are presented in a subsequent section of this document, in the form they were presented to City, County and KUB study participants.

As one of the nations oldest and most successful multi-participant, multi-jurisdictional GIS, it continues to serve as a benchmark to other systems across the US and elsewhere. More importantly it was become inextricably interwoven in the business processes of government, KUB, the private sector and the general public. Its benefits of lower costs of business and higher efficiencies and timeliness to government and KUB have become largely internalized and in some instances buried from view or taken for granted by the current user experience.

Yet, there are indeed areas where cost savings can be achieved and other areas where additional benefits can be reaped. The most significant of the monetary benefits can be derived by leveraging the six year investment recently committed by the County on behalf of the Property Assessor. This decision can lead to biannual updates of aerial photography and mapping quality imagery, as well as serve a foundation for the mapping of terrain and other 3D features that are highly sought by the users of KGIS. Over an 8 year budgeting horizon (reflecting the 7+ years of benefits to be accrued by the Property Assessors' photography contract with Pictometry; KGIS would realize improved currency and timeliness of its photographic and digital base maps at a cost savings and reductions expected to range from $727,000 to $1.3 million.

As importantly, there were a host of additional opportunities where costs could be reduced and conversely where significant benefits could be realized by the expenditure of

additional sums, the reallocation of staffing resources or the institution of new procedures and communication venues.

SUMMARY OF DATA REQUIREMENTS

How valuable is KGIS to its users?

KGIS is valuable. Of the respondents to the on-line survey, more than half said KGIS was of critical importance to them, and more than 80% said it was of either high or critical importance.

KGIS is used a lot. Nearly half of the participants in the survey reported that they use KGIS every day, and almost three-quarters said they used it either every day or every week. (Some survey reponses were more specific, e.g., "40 plus times a day Monday-Friday," 20-30 times a day," and "8:00-4:30 everyday."

KGIS users are generally happy with it. While numerous possible tweaks were identified in the survey, the group interview sessions, and the telephone interviews, KGIS users can be very complimentary. One external user said in a telephone interview that "KGIS data is the benchmark." Many comments from the on-line survey were also extremely positive:

o "Without KGIS data, we absolutely could not do business. GIS is the future and we discover everyday ways in which growing the database would further help us. We cannot take a step backwards when it comes to protecting the public's interest in real property."

o "KGIS is one of the best public GIS websites available. I recently used Chattanooga's GIS, and was suprised how far advanced KGIS is."

o "KGIS data is a great tool to increase productivity, customer service, and quality of my work."

o "KGIS staff are an excellent resource and I look forward to continuing to work with them on even more projects in the future as others in public health (within and outside KCHD) continue to learn the usefulness of map-based data analysis and presentation."

o "I was in the Land Surveying industry for 6 years, and I relied on KGIS to perform quick property research to meet my deadlines, and assist me in finding deeds and plat info (I also used the Register of Deeds Website). Whenever KGIS was down for maintenance (which is usually done outside of regular business hours), I realized how important it was to my job duties, and how much it helped. I just wanted to say thank you."

KGIS could be even more valuable if more users were fully aware of what they can do with it. A surprising number of participants in the group interviews expressed wishes for types of data that they were unaware were already available to them. As one

participant said, "Let us know what KGIS has---I'm sure there's a lot of stuff that KGIS has and we don't know it."
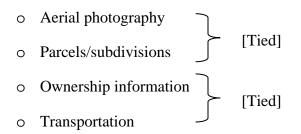
What types of data are most important to KGIS users?

The following five data types received the highest percentages of "high" or "critical" importance in the on-line survey:

- o Addresses: 64% of the people who responded to the survey said addresses were critical, and more than 90% said addresses were of either high or critical importance

- o Ownership information: More than 80% said high or critical

- o Aerial photography: Approx 75% said high or critical

- o Parcels/subdivisions: 75% said high or critical

- o Buildings: Just under 66% said high or critical

The results of the group interviews, as broadly summarized in Chart 1 below, are generally consistent with this ranking, although transportation features appear to be more important and building features less important:

- o Addresses

- o Aerial photography
- o Parcels/subdivisions   } [Tied]

- o Ownership information
- o Transportation   } [Tied]

Where do these important data sets come from? Interestingly, much of the most valuable data comes from user organizations---specifically the Metropolitan Planning Commission and the Property Assessor---and is made available to other users **through** the coordinated sharing of information that KGIS makes possible:

- o Addresses: Metropolitan Planning Commission

- o Parcels: Property Assessor

- o Subdivisions: Property Assessor/KGIS

- o Ownership Information: Property Assessor

o   Aerial photography: KGIS

o   Buildings: KGIS

o   Transportation: Metropolitan Planning Commission (centerlines/names), KGIS (planimetric edge of pavement)

Aerial Imagery

The great majority of KGIS users (more than 80 percent) who responded to the on-line survey reported that the detail of the aerial photography (which, in the public Web site that most respondents use is, by default, the higher resolution 6") met their needs. Participants in the group interview sessions generally expressed a preference for the higher resolution 6" photography[1], and for some groups the 6" photography was critical to their ability to use the data, as follows:

* City of Knoxville Engineering

* City of Knoxville Plans Review and Inspections

* City of Knoxville Public Service

* Knox County Engineering and Public Works

* Metropolitan Planning Commission

* Knox County Health Department

* Knox County Property Assessor

Likewise, most respondents to the survey (79%) said that the aerial photography was sufficiently up to date to meet their needs; however, a desire for more frequent flying of the photography was noted in several of the group interviews (City engineering, for example, said they would like to see annual flights).

Contours

While many participants in the group interview sessions were satisfied with 4' contours, a significant number of participants expressed a need for 2' contours---and for some, even

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[1] One participants said in a follow-up e-mail, "I hate the [1-foot] 2009 photography; I usually always skip turning it on when I'm looking back through the historical aerials."

finer contour increments would be welcome[2]. Within the individual focus areas, the following said they rely on 2' contours:

- City of Knoxville Parks and Recreation, Community Development, Engineering, Fire, Law, Plans Review and Inspections, Policy/Redevelopment/Sustainability, and Public Service

- Knox County Engineering and Public Works

- Knox County Property Assessor

- Knoxville Utilities Board

- Metropolitan Planning Commission[3]

Lidar/DTM

Some of the participants use the Lidar and DTM data directly while others use derivatives of the data, such as, hillshade. Within the individual focus areas, the following said they rely on Lidar and DTM data:

- City of Knoxville Engineering

- Knox County Engineering and Public Works (Storm Water Management)

- Knoxville Utilities Board

- Metropolitan Planning Commission

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[2] A participant from City engineering noted that even 6" contours might not be good enough in some instances.

[3] 2' contours are required by the City subdivision regulations---other than that, it appears that while MPC users prefer the smaller contour increments, they are not essential.