Enhancing Government Property Management with Data and Technology

Cristina Garmendia
Alexander Kapur
Harvard Kennedy School
July 2013
Enhancing Government Property Management With Data and Technology

A Policy Analysis Exercise

MARCH 2013

Cristina Garmendia, MPP ‘13
Alexander Kapur, MPP ‘13
John F. Kennedy School of Government
Harvard University

This PAE reflects the views of the authors(s) and should not be viewed as representing the views of the PAE’s external client(s), nor those of Harvard University or any of its faculty.
# Enhancing Government Property Management With Data and Technology

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acknowledgements</td>
<td>2</td>
</tr>
<tr>
<td>Executive Summary</td>
<td>3</td>
</tr>
<tr>
<td>Objective</td>
<td>7</td>
</tr>
<tr>
<td>Introduction &amp; Background</td>
<td>8</td>
</tr>
<tr>
<td>Methodology</td>
<td>10</td>
</tr>
<tr>
<td>Logic Map</td>
<td>11</td>
</tr>
<tr>
<td>Public Sector Asset Management</td>
<td>12</td>
</tr>
<tr>
<td>Framework for Effective Asset Management</td>
<td>12</td>
</tr>
<tr>
<td>Framework Application: Louisville</td>
<td>13</td>
</tr>
<tr>
<td>Case Study: Illustrating Best Practices of Public Asset Management with Paducah, Kentucky</td>
<td>17</td>
</tr>
<tr>
<td>Louisville’s Approach to Public Sector Asset Management</td>
<td>18</td>
</tr>
<tr>
<td>Engaging External Stakeholders in Asset Management</td>
<td>24</td>
</tr>
<tr>
<td>How Real Property Data Drives Effective Asset Management</td>
<td>32</td>
</tr>
<tr>
<td>Data’s Role in Asset Management</td>
<td>32</td>
</tr>
<tr>
<td>Louisville’s Real Property Data Landscape</td>
<td>35</td>
</tr>
<tr>
<td>Data Hierarchy based on Data Creation Stages &amp; on Data Quality</td>
<td>37</td>
</tr>
<tr>
<td>The Causes of Louisville’s Bad Data: A Qualitative Assessment</td>
<td>39</td>
</tr>
<tr>
<td>Recommendations</td>
<td>42</td>
</tr>
<tr>
<td>Appendix I: Interviewee Identity Guide</td>
<td>44</td>
</tr>
<tr>
<td>Appendix II: Qualitative Analysis Definitions</td>
<td>45</td>
</tr>
<tr>
<td>Appendix III: Public Sector Entities Holding Property in Louisville</td>
<td>46</td>
</tr>
<tr>
<td>Works Cited</td>
<td>47</td>
</tr>
</tbody>
</table>
Acknowledgements

The authors of this report would first like to acknowledge the trust and enthusiasm of our clients, Ted Smith and Beth Niblock of the Louisville-Jefferson County Metro Government’s Department of Economic Growth and Innovation and the Department of Information Technology, respectively.

We express our gratitude for the helpful feedback and critical external eye of our faculty advisors, Professor John Haigh and Professor Archon Fung.

We would like to thank our 47 interviewees for their participation in this project. Their knowledge and insight have been invaluable to understand this issue, about which there is little direct academic literature.

Our research would not have been possible without the financial support of the Ash Center for Democratic Innovation and the Mossavar-Rahmani Center for Business and Government at the Harvard Kennedy School of Government.

Lastly, we would like to express a special thanks to Jayson White at the Ash Center Democratic Governance and Innovation for allowing us to present our research proposal and a progress report to August 2012 and February 2013 sessions of the Urban Policy Advisory Group at Harvard University.
Executive Summary

Given the current fiscal crises and budget constraints with which governments must operate, valuable public land and building assets must work at full capacity to fulfill governing objectives. Excess land and buildings should return to the private market to create economic, social, and/or environmental benefits.

Governments at all levels face this administrative challenge. Even the federal government with dedicated property management agencies and full-time specialists acknowledges its own difficulties to enact a comprehensive and cohesive strategy to shed surplus property.\(^1\)

The Louisville-Jefferson County Metro Government of Kentucky (“Metro”) is similarly grappling with how best to repurpose and/or redevelop surplus land and building assets and other real property for which it is a steward, such as industrial brownfield sites. Currently, Metro holds roughly $8.56 million worth of assets deemed surplus.\(^2\) The city government has advanced on a number of critical factors to unlock the value of these assets and to engage cross-sector parties to find best end-use solutions for these holdings. However, there remain opportunities to improve the overall real property management and repurposing process.

This study examines how a city government can employ a data-driven and Open Government method to manage a real property portfolio. A broader objective is to suggest a structured approach for how governments might strategically leverage data and associated transparency to accomplish policy and governance goals.

Data and Asset Management Strengths

Optimizing public sector asset management involves study of four key areas: Rules, Institutional Arrangements, Management Incentives, and Stakeholder Engagement. In each of these areas, Metro has made some progress towards effective asset management:

**Rules**

*Flexible Policy Environment:* The laws and regulations offer flexibility for Metro administrators to repurpose property. A standing executive order allows the government to enter a wide variety of transactions with any form of external party.

**Institutional Arrangements**

*Competency:* Various administrators and other support players, such as a contracted broker, have the knowledge and skills necessary to navigate complex development negotiations and transactions.

*Vision and Culture:* Metro makes concerted efforts to redevelop properties and engage external parties. Metro also understands the value of data-driven, open government and open data, evidenced by a

---

\(^1\) United States, Government Accountability Office, *National Strategy and Better Data Needed to Improve Management of*

\(^2\) Louisville Metro Government, Public Works & Assets, Real Property & Leasing, *Potential Surplus Properties Report* (Louisville, KY: 2012)). This does not account for potential excess assets that are retained by Metro’s affiliated, but separate legal entities (e.g., the Louisville Water Company.)
leading OpenData portal that includes the latest functionality and ease of use. The executive leadership is vested in innovative forms of performance management.

**Data and Information infrastructure:** The government is rich with data and information relevant to real property. Several agencies within Metro in addition to public sector bodies external to the city together generate critical property-related data. A network of individuals in Metro maintains award-winning information and communications technology service, including an OpenData portal.

**Stakeholder Engagement**

**Precedent and Demand:** As a region, Louisville is a healthy tertiary real estate market with a niche in logistics and manufacturing industries. Government entities or affiliates that have successfully managed industrial redevelopment include Jefferson Riverport International and Louisville Regional Airport Authority.

**Incentives and support:** Metro, the Commonwealth of Kentucky, and the Federal governments together incentivize the redevelopment of various property types in the Metro government jurisdiction through grants, subsidies, tax breaks, and other programs. The universe of these programs is known and most have been applied in some combination to facilitate repurposing.

**Data and Asset Management Areas for Improvement**

Applying the same optimization framework involving the four areas referenced above (Rules, Institutional Arrangement, Management Incentives, Stakeholder Engagement) reveals several factors that Metro can improve to enhance its asset management practice:

**Rules**

**Little external awareness/knowledge:** External stakeholders lack knowledge of Metro’s flexible repurposing policy. Furthermore, it is difficult for anyone to understand how that policy applies to Metro’s interaction with the many distinct legal entities that are a part of the government fabric. Administrative procedures and processes lack clarity that would reduce uncertainty and risk for external parties.

**Recommendation:** Promote the value and flexibility of the policy so that external parties recognize its benefits. Formalize administrative procedures/processes and make them available for public view through the online portal and other relevant venues.

**Institutional Arrangements**

**No strategy:** Metro lacks any set of formal guidance, policies, or procedures to govern real property management across departments. Inventories are not consolidated. Property-related technologies, such as facilities management software, serve highly specific functions and narrowly support certain agency administrators, but do not inform strategy.

**Recommendation:** Formulate a management strategy and promote it. Authorize Department of Public Works, leaders of Metro’s brownfields program, development authorities, and other managers of city land and building assets to coordinate a real
Fractured data and duplicated information-gathering: Information needed to drive property decisions is scattered across a number of repositories and individuals in Metro. Internal administrators exchange information on an ad hoc basis, if at all. Knowledge is lost when these individuals transition from their roles. External parties do not know whom to contact to obtain information about specific parcels.

Recommendation: Provide uniform access to internal parties through a consolidated inventory and streamlined asset management system that links key real property data. Such a system will not only drive real property strategy, but also make information ready and available to both internal Metro and external parties key to creating solutions for developable properties.

Management Incentives

No incentives: Metro staff and agents lack clear incentives to engage in strategic asset management strategy or to work towards repurposing solutions for unneeded assets. There are also no established metrics to measure performance (e.g., aging of properties on surplus lists).

Recommendation: Consider establishing internal incentives to drive an asset management program and design relevant metrics to assess performance needed to realize those incentives. Existing and new property data inventories should inform these metrics.

Stakeholder Engagement

Lagging response to information needs: Stakeholders have specific requirements for property data. Current surplus property profiles do not contain the necessary fields and are difficult to access.

Recommendation: Update surplus property profiles with information critical to attract/engage the market (detailed in this report) and make the data available to parties who register with the government in some form.

Restrictive valuation techniques: Metro currently values property based on market or book value. This approach does not account for running/carrying costs, such as hidden maintenance and opportunity costs of undeveloped or surplus assets.

Recommendation: Adjust property valuations to reflect market incentives (tax credits, development programs, etc.) and to account for costs to operate and maintain each asset.

Relationships matter: Various interviewees were often skeptical of the value-add of brokers, certain developers, and other external parties.
Recommendation: Metro should enhance its existing relationship with all external parties involved in real property management lifecycle and broaden its reach of contacts while maintaining its exclusive arrangement with its current broker. A broader base of relationships in the external market drives competition, which creates the best solutions. The OpenData portal and Metro’s website can be used to catalyze this action.
**Objective**

The objective of this report is to demonstrate the relationship between good data, thoughtful use of that data, and effective public sector property administration.

A broader goal is to explore the value proposition of data-driven governance and the Open Government movement, especially as they relate to addressing economic development challenges. Many proponents of transparent government and data often state that the direct link between open data and economic growth is an open question. This report seeks to make that link more apparent.

The resultant findings and recommendations provides Metro with actionable insights regarding:

1. their property management process;
2. the roles and behaviors of external parties in public sector property management; and
3. the utility of data to optimize public real property portfolios.
Introduction & Background

The Problem

Government is the largest owner of real property in the United States. However, this major source of public wealth is not delivering optimal value to its citizens at a time when the public sector must do more with less. Vacant lots, underutilized structures, redundant properties, and bloated inventories all burden the balance sheets of government across jurisdictions.

Attempts to measure this inefficiency vary widely. Reports from the federal level indicate that the U.S. government holds over 45,000 underutilized assets, which currently cost over $1.5 billion a year to maintain while serving diminished purpose to tax payers. At the municipal level, available data from the City of Miami (Florida) reveals that the city has designated approximately 150 out of over 500 properties that it owns/controls as “vacant” with an aggregate assessed market value of roughly $50 million. The poor data that governments employ to manage public sector properties obstruct an accurate assessment of the problem.

Similar to other governments, Metro strives to effectively manage public resources. Metro currently holds over $600 million worth of land and building assets. These properties span various forms: mission-critical property, public goods/recreational facilities, remnant parcels, ad hoc acquisitions resulting from regulatory action/debt collection, and strategic acquisitions to facilitate planned development. Some of these holdings have been deemed surplus. Other properties are vacant land and structures, on which Metro has spent $1.8 million last year and $12 million over the past 10 years to maintain. We emphasize that these numbers are rough estimates, at best. These properties represent unrealized value and undermine the government’s otherwise careful appropriation of resources.

The current real property sales and leasing function is mostly reactive to demands of single agencies and handles tactical management issues. Metro does not yet have a system to coordinate real property management amongst its municipal agencies, across governing jurisdictions, and between private and civic sectors.

Metro lacks a defined methodology to deploy data and other information infrastructure to support existing property repurposing/revitalization initiatives and future planning. The city is not capitalizing on the potential of Open Data and related platforms to spur outside interest in surplus holdings.

Metro would like to understand how better data drives effective management of both its core holdings and surplus assets and how the strategic use of this data can attract various stakeholders to optimize these properties.

The Client

5 United States, City of Miami Property Management Database, (Updated: 09/26/2011).
7 These surplus holdings are only those that Metro controls, and not the affiliated legal entities of Metro or other agencies.
The metropolitan region is located in northwestern Kentucky. The government is a combined city-county structure that merged in 2003. The consolidated jurisdiction has over 750,000 residents, while the metropolitan area is home to over 1.4 million. Fifty percent of the U.S. population lives within 500 miles of Louisville. The City serves as a major manufacturing corridor and is the home of UPS “Worldport”, the logistics company’s U.S. air freight hub. It also hosts a number of other manufacturing businesses and operations of major corporations: Ford Motor Company, General Electric, Yum! Brands, Humana Insurance, Papa Johns International. Despite this commercial activity, Louisville faces a number of economic development challenges, including the reactivation of underutilized and vacant property.

Metro is a highly progressive government, using new methods and tools to address many of its governance challenges. Our client is a combined team from the Department of Economic Growth and Innovation (“EGI”) and the Department of Information Technology (“Tech”), together (“the Client”), which together design and implement programs to tackle issues ranging from public health to redevelopment.

The mission statement of EGI is: To Foster a robust business climate by promoting job creation, meeting workforce needs, creating amenities within our region, and balancing growth by enhancing the environment in order to improve the quality of life in Louisville Metro.

In part, Tech’s mission is: to maximize the value of existing and future technology investments, continually improve technology awareness and knowledge, utilize data-driven trend analysis for the betterment of metro initiatives.

Mayor Greg Fischer is a former manufacturing business owner and private investor who understands the value of operations and process management. He has taken a data-driven approach to city management, recently applying the principles of open government and program evaluation with the establishment of the government performance management initiative dubbed LouieSTAT. His formation of the Department of Economic Growth and Innovation signals commitment to take risks and test new ideas that can enhance governance and administration.

In summary, our Client appreciates methodical process and the significance of data to government operations.

---

9 “Louisville’s Major Employers” Courier Journal Louisville 30 May 2012.
10 http://www.louisvilleky.gov/Mayor/biography.htm
Methodology

To meet the stated objective, we performed research and analyses of the following topics:

Frameworks for Effective Public Sector Property Management

- Approaches to government property asset management
- Theory of corporate/enterprise real property management
- Drivers of effective real property administration (focus on data and information systems)

Metro’s Approach to Public Sector Property Management

- Rules: policies/procedures/rules governing Metro property management
- Actors: agencies and individuals involved in asset management
- Process: roles and responsibilities of internal Metro stakeholders in administering Metro’s real property portfolio
- Decision-making criteria: the information requirements of those stakeholders and the habits of their data use
- Data: The various sources of data, collection method, format, accuracy, etc.

Engagement of External Stakeholders

- Universe: the set of external actors who engage government property
- Behavior: dynamics, processes, and tendencies of property developers
- Decision-making criteria: informational requirements/preferences that underlie investment decisions and drive effective engagement with public property holders
- Perceptions: opinions regarding interaction with the public sector relating to property-related transactions

Our research was grounded in observational data. The sources of our research include four main components:

1. Review of relevant secondary sources: Government records/documents, literature, academic studies, media, and other open source information;
2. Semi-structured interviews with subject-matter experts, internal/external stakeholders;
3. Qualitative analysis: In-depth analysis of interview transcripts to understand the how and why of decision-making. Transcripts were coded using both inductive and deductive methodologies to identify patterns across and within interview groups (internal and external stakeholders); and
4. Case studies: analyses of real property management strategies in other municipalities. We have profiled localities that represent highly effective data and information technology-driven approaches to real property administration. From these profiles of peer and vanguard municipalities, we identified applicable lessons.
Logic Map

**Inputs**
- Real property data
- Enterprise management strategy

**Activities**
- Internal data consolidation
- External data sharing

**Outputs**
- Increased property utilization
- Decreased staff time on property data acquisition and property maintenance

**Impact**
- Reduced operational costs
- Increased property taxes
- Optimized real property portfolio
**Public Sector Asset Management**

**Framework for Effective Asset Management**

An organization’s resource choices are an integral component of its strategy and structure.\(^{12}\) Real estate is one of the most important physical resources, and typically occupies the largest part of a balance sheet after personnel.\(^{13}\) Given the scope of this resource and its impact on both organizational strategy and finance, many organizations now employ a comprehensive asset management program. The goal of asset management is to achieve an efficient and balanced deployment of the portfolio of properties so that it will yield the most benefits at the least cost.\(^{14}\)

Through the use of effective policies and procedures, governments can couple its resources and its vision.\(^{15}\)

Leading experts on public sector asset management typically analyze three dimensions to assess approaches to effective government property management: 1) rules, 2) institutional arrangements, and 3) management incentives. Together, the proper alignment of these dimensions drive efficiency and public usefulness of government-owned property.\(^{16}\) A relevant fourth dimension considers the factors that engage external stakeholders to participate in the public asset management process: 4) market engagement. To Metro, such actors are critical to shape optimal solutions for surplus or undeveloped assets.

**Dimensions of Public Sector Asset Management**

<table>
<thead>
<tr>
<th>Rules</th>
<th>Institutional Arrangements</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Enabling Policy</td>
<td>o Competency</td>
</tr>
<tr>
<td>o Administrative Procedures</td>
<td>o Vision/Culture/Coordination</td>
</tr>
<tr>
<td></td>
<td>o Infrastructure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Management Incentives</th>
<th>Market Engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Internal Incentives</td>
<td>o Precedent/Demand</td>
</tr>
<tr>
<td>o Accountability Framework</td>
<td>o Stakeholder Engagement</td>
</tr>
<tr>
<td></td>
<td>o Incentives</td>
</tr>
</tbody>
</table>


\(^{13}\) Krumm.


\(^{15}\) Kaganova S.

\(^{16}\) Kaganova 3.
To be truly effective, public asset management demands the rigor of process that includes standardized methods, measures, analytical techniques, policies, and procedures.\textsuperscript{17}

**Framework Application: Louisville**

**Rules**

On January 1, 2007, then-Mayor Jeremy Abramson signed Executive Order 3 of Series 2007. This order established procedures for compliance with relevant Commonwealth of Kentucky’s Revised Statutes governing municipal government transactions involving real property and other public procurement. It permits Metro wide permissions to enter into various forms of transactions pertinent to real property acquisitions and dispositions. This includes: competitive and sealed bids, competitive negotiations, non-competitive negotiations, as contained in the Kentucky Model Procurement Code, or in lieu of such procedures, with approval of the Metro Council. City Attorney David Morris affirms that the policy is flexible. He clarified that the Order provides administrators with necessary leeway to explore various transaction forms with diverse counter-parties as long as the Metro Council approves and forms adhere to provisions of the State statutes.

Critically, permissible dispositions applies to Metro properties that have been declared “Surplus.” “Surplus” is defined by, “the public purpose to which the real estate had been dedicated has been abandoned, or that property is no longer needed or suitable for government purposes.” Additionally, the Order permits for wide array of transactions relating to easements needed for infrastructure improvements, capital projects, utilities, or rights of way.

In 2009, this Order was tested when several council members challenged the capacity of Mayor Abrahamson to bind the city to development agreements and appropriate funds without prior approval of the council. Their main concerns regarded the Mayor’s ability to appropriate Metro Government funds without Metro Council approval. Second, the Council took issue with the fact that the Mayor was binding the City to negotiated agreements, which seemed to cross the line of executive powers. Upon his review, the Attorney General validated the executive power to make decisions regarding disposal and repurposing of real property.

Two important takeaways emerge from this policy: 1) decisions relating to real property do not require multi-layered approvals – the Executive has the capacity to make decisions in the public interest. 2) The market may not be aware of the flexibility with this over-riding policy. Many of the market players report that, “Working with the government is extremely complicated because of the various layers of approval required to fully execute a property transaction.”\textsuperscript{18}

\textsuperscript{17} Kaganova 180.
\textsuperscript{18} Interview with #36.
Institutional Arrangements

Competencies

Louisville holds the necessary institutions and competencies to achieve effective real property management and community redevelopment. Experienced executives who have developed extensive knowledge regarding property marketing and transactions reside in Metro government, development authorities, chambers of commerce, special commissions, task forces, and cross-jurisdictional government agencies. Staff have built insights to manage existing facilities and lead specialized committees involving land reuse, vacant property re-use, and strategic development. However, these entities and resources are not well-linked. For example, a key property administrator involved in the disposition of real property reported having never worked with Greater Louisville, Inc.19

Vision/Culture

Metro has a progressive culture with respect to real property management and development. Willingness to experiment with empowered authorities and very recent engagement of a property broker are all evidence of visionary disposition. Cross-sector collaboration is on the rise, demonstrated by such efforts as the recent, “Rubbertown Corridor Economic Development Strategy,” a community revisioning initiative that coordinated the then-Economic Development Department, the Chamber of Commerce, a consortium of private industrial partners, and input from area residents. The plan discussed how Metro-owned properties could support the overall redevelopment strategy. However, interviews with stakeholders on both sides (internal and external to Metro) revealed negative perceptions of the respective counterparty, characterized by mistrust and misunderstanding.

Infrastructure

Metro maintains a number of information repositories that are rich with property information. These include world-class facilities management software, Global Information System (GIS) mapping capability, and tax assessors’ database.

Management Incentives

There is no link between administrator performance and compensation or recognition. Established metrics to track real property management do not exist. Our interviews with property administrators revealed this to be a key factor affecting the potential for implementing an effective property management model. Track record and successful management are irrelevant to individual evaluations. One administrator reported that, “I have not had a performance review in the 10 years in my position.”20 Metro’s recent retention of a broker to facilitate the disposal of surplus properties is a remedy in this area – the contractual agreement provides the broker with commission for each property sold. However, within that contract, there are no guidelines that stipulate how the broker’s performance will be measured on an annual basis.

19 Interview with #1
20 Interview with #1
There are no incentives for Metro departments to designate their land as surplus or pursue other property efficiencies. This contributes to costly but unrecognized underuse of assets, also known as the “rust out” phenomena. These agencies have the beneficial use of the lands, but there is no indication that they would benefit from disposals or efficiency gains.

**Market Engagement**

*Precedent & Demand*

Louisville is considered a tertiary market in the real estate industry. While inflated prices in primary markets such as the “Big Six” (San Francisco, New York, DC, Boston, Los Angeles, Chicago) have increased interest in secondary market, Louisville will rarely be able to compete for big investor dollars against primary cities with stronger development fundamentals. As well, Louisville is surrounded by strong secondary markets, including Nashville, Indianapolis, and Cincinnati, causing intense competition for available development funding. Nashville is ranked 18th on a 2013 PriceWaterhouseCoopers list of top U.S. real estate markets, while Louisville was not ranked. As a result, Louisville may remain a market dominated by subnational players for residential and commercial development.

However, Louisville makes a compelling case as a strong niche market for industrial and logistics-related office space. Louisville’s position as an e-commerce hub makes it a smart location for other e-commerce companies to locate elements of their logistic supply chains, as exemplified by CafePress, which cited Worldport (the co-located UPS hub), as a major incentive for the company’s recent move to Louisville. Worldport is the largest fully automated package handling facility in the world, covering 80 football fields and with 20,000 employees. The Louisville Regional Airport Authority has agreed to sell acreage to be developed for “warehousing, distribution, manufacturing and logistics-related office use.”

Furthermore, Louisville is on the path to pursuing creative re-use of properties for purposes of catalyzing redevelopment and economic growth. For example, The National Association of Local Government Environment Professionals published a report, “Unlocking Brownfields: Keys to Community Revitalization”, in which it highlights as a success story in brownfield revitalization. Once a disused industrial area soiled by 150 years of hard industrial use, the area is now a growing recreational area and sports/entertainment venue. Waterfront Park has earned Louisville recognition as a model for success in waterfront brownfield revitalization.

**Stakeholder Engagement**

Stakeholder engagement in Louisville is improving, but far from ideal. Prior to the contracting of KW Commercial, its current exclusive broker, Metro did not want to engage brokers because they do not want to pay brokerage fees. Developers and brokers do not see Metro as a partner or player in the

---

23 http://pressroom.ups.com/Fact+Sheets/UPS+Worldport+Facts
property market. There is a standing divide between internal and external stakeholders that negatively contributes to fostering a productive asset management strategy for Metro.

**Market Incentives**

Metro has a number of financial incentives to facilitate redevelopment and related investment. Information on these programs appears on the Department of Economic Growth and Innovation website. In form, they range from low-interest revitalization loans, such as the Brownfield Clean-up Loan Program, to tax credits, such as the Industrial Revitalization Act (KIRA). These instruments are important to attract potential developers to more problematic properties and to retain current investors/occupants, especially job creators. While assessing practical utility and effectiveness of these incentives is beyond the scope of this report, the presence of incentives signals commitment to supporting investment.

These programs seem to be gaining some traction. In October of 2011, Kentucky Governor Beshear announced that three Louisville-based corporate partners would leverage the KIRA to support the state’s first active energy services biomass project, involving three corporate partners Lubrizol Corporation, Zeon Chemical, and Recast Energy.25

---

Case Study: Illustrating Best Practices of Public Asset Management with Paducah, Kentucky

Paducah, Kentucky, roughly 200 miles west and south from Louisville, presents a case that reflects the positive outcome achieved by investing in all dimensions that lead to effective real property management. Leveraging a $2 million initial investment from the City’s general fund, Paducah converted a blighted downtown district into a vibrant main street corridor, increasing annual tourism revenue from roughly $50 million in 1995 to over $300 million by 2009.

Rules

Under the leadership of a full-time artist and local resident, Paducah drafted a LowerTown Development Plan, which includes commitments by the City to facilitate the disposal of city-owned properties. Accompanying policies included continuation of mixed-zoning to permit light industrial use for artists-in-residence, the mitigation of traffic flows in the neighborhood, enforcement of building code violations/abandonment standards.

Management Incentives

The success of the program creates political capital for elected officials and connects these officials to the community, resulting from the highly participatory process.

Institutional Arrangements

The planning process started by creating a detailed inventory of every structure in the target neighborhood with relevant data fields. Paducah first created a basic account of city-owned properties in order to design the instruments for the LowerTown vision. The Plan was then coordinated by an external stakeholder, but was championed within the city government by then-City Planning Director Tom Barnett. A collaborative working culture among critical agencies, authorities, and external stakeholders contributed to Lowertown’s transformation as a permanent destination for artists.

Stakeholder Engagement

The city promoted a comprehensive, end-to-end incentive package to artists, both nationally and internationally. The package included the purchase of city-owned parcels for $1, 5-year interest free loans for renovations and refurbishment up to 5 years, $2,500 for relocation expenses, $2,500 for architectural improvements.
Louisville’s Approach to Public Sector Asset Management

Objectives

The objectives of public property management are to operationalize, strategize, monetize, and to act as a steward of various types of properties that serve the public interest.

These management objectives fall among different city departments or agencies in Louisville.

<table>
<thead>
<tr>
<th>Objective</th>
<th>Property Type</th>
<th>Responsible Parties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operationalize</td>
<td>Office, Point of Service, Storage, Other</td>
<td>• Agencies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Public Works</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Public Service Co.’s</td>
</tr>
<tr>
<td>Monetize</td>
<td>Surplus Industrial</td>
<td>• Public Works</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Greater Louisville Inc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Development Authorities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Economic Growth and Innovation</td>
</tr>
<tr>
<td>Steward</td>
<td>Parks Residential Vacant and Abandoned</td>
<td>• Parks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Public Trusts</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Land Bank</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Codes and Regulations</td>
</tr>
<tr>
<td>Strategize</td>
<td>Prime</td>
<td>• Mayor’s Office</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Economic Growth and Innovation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Greater Louisville Inc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Development Authorities</td>
</tr>
</tbody>
</table>

Typologies of Approaches to Real Property Asset Management

Real property management approaches fall into two general typologies: reactive and strategically focused. Reactive management responds to departmental requests on an as-needed basis to acquire or dispose of property and has different departments managing different types of properties in the government portfolio with low levels of coordination. Strategically focused management favors “a more proactive role that aggressively manages assets to maximize their efficiency and minimize the cost of property utilization, and they actively seek ways to use property to accomplish the government’s tactical
and strategic objectives.”

Through the use of effective policies and procedures, an organization can modernize from a siloed management approach to an “agency-wide asset management approach focused along business lines.”

Most government real property management practices are limited to being reactive, due to an understaffing of their asset management offices. As one of our interviewees noted, “Asset management is one of those functions is something we do whenever we have time.”

Metro’s approach is a mixed model of reactive and strategically focused.

Reactive

The language on Metro’s website with respect to Real Property Management indicates a reactive approach:

“The Property Management team provides a wide variety of real estate services to Metro Government on an as-needed basis, serving as Metro's professional real estate resource.”

The Real Estate Services arm of Public Works manages most of the property portfolio for Metro but has only 1.5 full time employees. This department has not been given a strategic role, and responds to acquisition and disposition requests from other departments. Interviews with individuals involved in the real property management process confirmed that this division serves mostly a responsive role, and that their recommendations/opinions are often not prioritized. Surplusing is a decision made at a departmental level and not by a central strategic body. The official Louisville 6-Year Strategic Plan for

Diagram from: Acoba, 161

28 Hentschel 175.
29 Interview with #1.
the Department of Public Works and Assets does not define a goal with respect to the city’s land and building assets. Interviews with Metro officials and executives reveal that the City does not have a consolidated strategy shared across departments for their real assets.

Strategically Focused

Strategic thinking on property management applies for vacant and abandoned property, along with some industrial properties on an infrequent basis. Metro agencies, departments, and offices involved include the Mayor’s office, the Department of Economic Growth and Innovation, Community Services and Revitalization, the Land Banking Authority, and designated development authorities. External advisors and specialized committees are also involved. Some examples appear below.

Metro has hosted two summits on vacant, abandoned, and underutilized properties and initiated the VAPStat project, led by the Department of Codes and Regulations and the city’s Bloomberg Innovation Delivery Team. VAPStat seeks to develop a publicly accessible centralized database for vacant and abandoned properties for information about local foreclosures by the city, code enforcement cases, and demolitions. This team has faced challenges in the execution of its project, especially as they relate to data acquisition.

Led by the Economic Growth and Innovation Department, EPA funding has been acquired to provide planning around industrial neighborhoods and financial assistance for brownfield redevelopment.

The Land Banking Authority is an inter-jurisdictional agency administered by a staff member in the Community Services and Revitalization department that can acquire, clean title, and sell distressed properties. Available properties for sale through this channel

On an infrequent basis, leadership in the Mayor’s Office is engaged on property acquisitions or dispositions considered to be of critical importance to the City. Metro strategically acquired a prime 30-acre property in West Louisville from the state government in January 2013. This property will be marketed by Larry McFall, who serves as broker for the quasi-governmental Jefferson Riverport International, a highly successful industrial park.

Procedures

In practice, a real property management procedure promotes efficient and economical use of real property assets and designates who is accountable for asset management performance. At the federal level, for example, each department or agency has a Senior Real Property Officer who is responsible for all elements of their entity’s portfolio: ownership, needs, costs, asset management plans, performance measures, and surplussing. Diagrams of property disposition procedures with expected timelines and...
internal party engagement are of high value to potential buyers of government owned properties and other interested parties because such a representation demonstrates process rationale and enhances predictability.

There is no existing stakeholder or process map for Metro asset management. We have prepared a rough diagram of the government process based on key stakeholder interviews that lays out the management tasks and a simplified assignation of tasks to parties. This is not an exhaustive description of stakeholder engagement.

Other city governments have made the public sharing of their process of asset management a priority. Examples are the City of Colorado Springs (Colorado) and City of Baltimore (Maryland).

In 2007, the City of Colorado Springs adopted a comprehensive procedure manual for managing their real estate assets that is available to the public on their website. This procedure manual emerged from a collaborative review and rethinking of existing procedures by representatives from Internal Services, Real Estate Services, City Attorney’s Office, Utilities, and various other City Departments. This Manual delineates roles and responsibilities for the Real Estate Services department, creates shared definitions, detailed flow charts of acquisition and disposition processes, rules for conveyance acceptance, valuing property, leasing, and intra-city property transfers.

Two objectives listed for the creation of this manual are especially salient for Metro’s interest in encouraging surplus dispositions: (1) ensuring “the City receives fair market value for all property interests conveyed to third parties unless a public purpose is served through a conveyance at less than fair market value”, and (2) promoting “public confidence in the City’s land acquisition and disposition activities.”

The first responsibility of the Real Estate Services office is to manage real property data. This responsibility is met through protecting, updating, maintaining, receiving, and making copies of all

---

records pertaining to City-owned real estate assets. This office also manages data quality in terms of title work and records, proactively obtaining and reviewing past title information and working with the City Attorney’s or County Clerk’s office to correct any errors or lack of standardization.

In contrast, Metro lacks codified procedures available to the public. When asked for a checklist of disposition or acquisition procedures, a key Metro employee stated, “It’s all in my head.”35 The Land Banking Authority, housed in the Department of Community Services and Revitalization has a one-page PDF listing the steps for purchasing land from the land bank on its website.36 This file does not explicitly share a target timeline for processing requests. The outcome of hidden processes is that it artificially limits the pool of potential buyers to those people already experienced in working with Metro. The lack of process explication and performance targets creates risk, which developers actively avoid when they have alternatives, especially alternatives with definable, predictable, and clear process flows.

Challenges

There are three overarching challenges facing effective asset management for Metro: no complete asset inventory and low market demand for existing surplus properties.

1. Inventory

Knowing what Metro owns is a major challenge in moving towards a more effective asset management strategy. Contributing factors to an incomplete inventory are (1) mismanaged consolidation of city-county government, (2) uncoordinated departmental ownership of assets, and (3) no governing rules or procedures of asset management.

Mismanaged consolidation of the city-county government has contributed to the challenges of identifying what Metro owns. The objective of the consolidation of City and County governments in 2003 was to promote economic development. It was not implemented to consolidate departments across jurisdictions. However, it did lead to the merging of several departments: Administration, Planning, Parks, and Public Works.37

Without purposeful planning, what did not happen was the merging and updating of property ownership listed on titles in PVA and County Clerk offices. “How those deeds are recorded play a very important role whether we have an accurate inventory.”38 Updating of title is a known problem to Codes and Regulations. In a 2011 Courier-Journal investigation, writer Chris Otts found that “by comparing foreclosure-auction results with ownership records from the Jefferson County property valuation administrator...[there were] 680 instances since 2006 in which property appears to remain in the name of the previous owner despite having been sold at auction.”39

---

35 Interview with #1
36 http://www.louisvilleky.gov/NR/rdonlyres/DEA4C848-4193-47A7-AED0-D0C44D540B60/0/Landbank_HowTo.pdf
38 Interview with #1.
Metro manages its assets in silos. Agencies make their own determinations regarding utility and surplus. A lack of a centralized organizational structure could be compensated by accountability and coordination between agencies. However, there are neither targets for asset management performance or frequent contact between Metro property holders. In addition, there is a lack of governing rules or procedures regarding property management that could help coordinate the various agencies’ activities. According to experts, this arrangement is prime environment to permit the “rust out” phenomena referenced previously – the tendency for agencies to benefit from city assets without the incentive to manage them in the most efficient way.

2. Demand

The lack of demand for the majority of its surplus holdings is the second major challenge for faced by Metro. This lack of demand is due to the low suitability of the asset for development (e.g. parcel size, location, contamination, etc.) and the dampening effect of the recession on the local development community.

Metro surplus holdings are hard to move on the market. Public Works has successfully sold 200 surplus properties over the past 5 years, for about $5 million in net revenue. The remaining 100 properties under Public Works purview are “junk” vacant lots. “It’s tough stuff. We are even talking about giving it away, dollar deals.” During an interview with a local

A major factor affecting the local development community in Louisville was that it was severely reduced by the last recession in 2008. Developers new and experienced alike were forced into bankruptcy by the double contraction in demand and financing. Small local developers who are more willing to take on risk and able to obtain financing are in shorter supply than ever before.

3. Governing Rules/Procedures

As explained previously, Metro is currently lagging in making their rules and procedures visible and understandable to the external market. Counterpart jurisdictions have done this in order to limit confusion of and risk posed to external parties.

---

40 Hentschel, 185.
41 Interview with #1.
Engaging External Stakeholders in Asset Management

External parties participating in property development include developers, brokers, site selection consultants, community organizations, and individuals. Louisville has a mix of national and local developer partners, though infill and inner-city projects are dominated by community-based developers, which is aligned with national trends for tertiary markets: “Second- and third-tier markets increasingly ‘become the province’ of local high-net-worth operators, supported by regional and local bank capital.”\(^{42}\) Though diverse in composition of players, the development process itself remains fairly stable, regardless of the developer profile. The process includes several elements that the government can influence and facilitate through the provision of information and data.

Realms of Influence in Development Process

Governments can influence a number of realms of the development process through the strategic provision of information. These critical steps include the search process, investment criteria, negotiation, financing, and network maintenance.

Steps with less opportunity for government influence through information include subcontracting, construction, and leasing.

For government-owned land and buildings to be considered for redevelopment, it is critical that they are included in lists of properties targeted for pursuit by developers. Thus, government-owned properties need to be visible in the search processes of external parties.

Metro vastly improved their ability to market their surplus properties by contracting with private broker KW Commercial to list their properties on the regional MLS (Multiple Listing Service) system. Previously, municipal properties were marketed with physical signage on the property and a limited number of listings on the Metro website. While the access to and listing on MLS is an improvement, surplus city property remains invisible to other brokers. Buy-side brokers are a key party to brokering deals on Metro-owned property and the city must engage them more systematically.\(^{43}\)

\(^{42}\) PwC
\(^{43}\) Interview with #32.
Developers

Development driven by demand and development driven by supply trigger different forms of search processes.44

- Development driven by demand is characterized by a developer looking for a site to locate the type of product/service for which he knows there is existing market demand. These are developers who work on a national scale and niche developers who specialize in a submarket of real estate, such as industrial or affordable housing.

- Development that seeks to find a profitable use for a particular site is development by supply. Developers who have site control or a particular affinity for a historically significant property they seek to redevelop characterize this form.

All developers depend greatly on informal networks. There are many parties who are sources of information with whom communication is essential.45 One national level housing developer identified three ways in which they choose project sites: (1) “a constant set of ongoing relationships with public actors in all the cities” (2) ongoing and automated data mining of publications, websites, and key word searches, (3) projects that they create. He notes, “Just about everything in the world being developed comes to you.” Property information stored in PDFs are not found by search engines, the primary method that citizens access government-related information.46

The largest national developers are limited by the ability of their partnering funders/financiers to understand sub-prime markets: Emerging Trends in Real Estate reports that, “Major money management advisors and investment banks typically lack of depth and reach to understand internally the idiosyncrasies of most medium-sized and smaller metropolitan areas.” Therefore, many national developers are unable to effectively engage with medium and small urban environments without key information.

Niche developers may exclusively use brokers to identify potential sites that fit pre-identified criteria. Industrial developers or their brokers in particular will complete a market analysis before selecting a site. They will check (1) economic and socioeconomic characteristics; (2) forecasted demand; (3) community support as evidenced by comprehensive or master plans; (4) current industrial inventory, space available, and leasing activity.47 These information sets can be accessed from government and commercial websites, chambers of commerce, and brokerage firms.48 Metro’s EGI homepage links to

---

47 Peiser 288, 292.
48 Peiser 288.
PDF files of quarterly commercial and industrial market briefs that include leasing activity. The frequency by which potential investors view these briefs is unknown.

*Brokers and Site Selection Consultants*

Strong performance incentives in the form of commission fees motivate brokers to monitor property availability. Brokers are frequently contacted by developers to provide information on sites that may not yet be on the market. Site selection consultants are retained by corporations to help them locate new operations. They represent approximately sixty percent of transactions in this category. These specialized advisors counsel Fortune 500 companies on the basis of their knowledge of state and local programs and incentives. Together, brokers and site selection experts serve as advisors to space seekers who are less informed about how to select a property specific to their needs.

The broker defines essential criteria necessary to facilitate a search; the research team utilizes a specific method to identify viable property opportunities. This search process includes a sweep of:

- Property databases: LoopNet, CoStar, regional MLS
- Internal lists of properties, updated by brokers and research professionals on a monthly basis
- Industry circulars and lists that are shared among the brokerage community
- Alerts and other notices used to advise of specific property-type availability

Properties that do not emerge from these data sources do not appear in the market results to be considered by brokers, site selection consultants, and their clients for consideration. Interviews with brokers and real estate professionals clarified that in the context of a commercial transaction, the search and selection process evolves very quickly, so properties that cannot be identified through this method are overlooked entirely. As a point of emphasis one broker commented that, “The only time I encounter information about a government-owned property is if broker is in the field, and the broker stumbles upon a property with a sign and a number to contact. I have not seen government properties otherwise.” The implication is that government-owned properties tend not to surface in the search process that external parties employ to prospect property.

*Community Organizations*

Community organizations and nonprofits are cash-strapped and community-minded. They are more likely than for-profit companies to consider locating or investing in areas that are in need of stabilization. However, most community organizations typically do not search for available properties by owner.

Volunteers of America is one of the largest private non-profit organizations in the U.S. The President of VOA’s Los Angeles operations, Robert Pratt, stated in an interview that VOA rigorously monitors the Federal Register to identify potential properties to acquire at low-cost in order to provide support services to at-risk populations, including homeless and low-income families. When asked about this

---

49 http://www.louisvilleky.gov/economicdevelopment/
50 Peiser 292.
52 Interview with #30.
approach, Pratt believed that VOA is entirely unique from its peers in the way that it closely tracks base closures and the availability of other government property. This finding validates that these organizations rarely search for property opportunities through government-controlled surplus websites.

Residents

Residents may not even be aware that a property is for sale or how to ascertain ownership of said property. By way of example, the City of Baltimore sought to return to the tax rolls hundreds of properties that the City had acquired through foreclosure or bankruptcy. 53 Each lot was priced for sale at deliberately low prices during a heavily marketed event called “The Great Baltimore Land Rush.” Of their 300 lots, 200 lots were sold over the course of the 4 hours of the one-day-only sale. While the proceeds from the properties’ sale were insignificant, the decreased costs for maintenance and increased tax revenues are estimated to exceed $500,000 on an annual basis. The takeaway is that residents may never seek to buy adjoining properties they enjoy until they are at risk of losing access to a third party, such as through a “land rush.”

Arguably, the most critical step of the development process is choosing the right site. It is a common saying among real estate professionals that all the money is made when you buy. The profit and probability of success is thus determined by one’s due diligence in acquiring information. The major categories of investment criteria include (1) financial feasibility, (2) political feasibility, and (3) project and partner familiarity.

Financial feasibility is determined not only by cost of land and projected revenue for market demand, but also by hidden costs and benefits. Hidden costs include opportunity costs of being able to make a quicker or more profitable investment elsewhere, unknown environmental remediation costs, and other fees levied by state and local governments. Hidden benefits include available government incentives and refunds.

Political feasibility is whether the community and local government officials are in support of the project. If the city has already completed planning and gotten community input on site uses under consideration, the risk is considerably lessened for development partners. A survey of 239 Urban Land Institute members identified as development professionals inquired probed their method to refine a development project. The respondents described the cost of not understanding the approval process as “resource-draining delays.” Brian McCarl, vice president of acquisitions for Newland Communities, says, “Failure to factor in the public decision-making process and values into decision making is a good recipe for failure.” 54 This comment relates directly to this report’s finding relating to the lack of visibility on Metro’s rules/procedures for government property transactions.

53 Hentschel 182.
54 Peiser 10.
Developers can be partisan toward familiar investment models and partners. People interpret information based on their previous knowledge. Beginner developers are advised to look for smaller and simpler deals. “The criteria for selection should emphasize projects that do not require a lengthy and uncertain process of public approvals.”

Key to attracting industrial developers is the “demand for specialized spaces tailored to distributor needs.” An industrial developers needs the following information: (1) availability and cost of land; (2) transportation infrastructure; (3) labor quality and cost; (4) tax incentives; (5) utilities and waste disposal; (6) energy rates; (7) comparative transportation rates. Utilities are especially critical for manufacturing uses due to the amounts of water that are required. Particular to brownfield redevelopment, a requirement is that the buyer has state and federal protection from liability. Ideally, cities will have already ascertained levels of contamination and/or led clean-up initiatives.

Better information can be translated into tangible monetary value for developers because it turns uncertainty into manageable risk.

Risk management

Developers take, manage, and attempt to minimize risk at every step in the development process. More experienced developers can identify and compete for less risky projects and use their reputation to convince other development partners to accept more of that risk. Funding and financing partners also influence the placement of risk in transactions.

Consequently, less experienced or less capitalized developers take on more risk in terms of projects and funding structure. As well, local developers “take more risks” and “are willing to bet on their communities for the long term rather than focus on some unachievable short-term investment return for investors who may never set foot in town.”

The uncertainty of success is highest in the initial phases, when the developer has less information and must predict the furthest into the future their costs and potential revenues from a project. All projects require cash up-front, or “pursuit capital,” which is needed until a project has advanced to the point that the developer can acquire lending or other forms of capital. In addition, developers are expected to provide 25-40% of the total project cost in cash equity in order to qualify for a bank loan. Better information can be translated into tangible monetary value for developers because it turns uncertainty into manageable risk.

Richard Peiser explains, “The public approvals process has become much more time-consuming and costly over the last two decades, greatly reducing the developer’s control over the process and adding considerably to risk, especially in the early stages when risk is already highest.” To mitigate this early-

---

55 Peiser 10.
56 PwC.
57 Peiser 289.
59 Peiser.
60 PwC. Emerging Trends in Real Estate. 2013.
stage risk, developers are recommended to close on land as late as is permitted, to make the purchase of land conditional upon the receipt of necessary approvals, and to purchase options that provide site control. Again, these findings affirms that information and process familiarity are key to engage and support developers and other relevant.

Parties negotiating on behalf of the government need to know their best alternative to negotiated agreement. What is the value of the property to Metro? This value should include operational cost, opportunity cost, alternate uses by Metro, and expressions of interest by other parties. Value should not only consider cost of acquisition/book value of the property, or even purely assessed market value.

Currently, the Department of Public Works (DPW) negotiates deals for Metro, while for the Commonwealth of Kentucky it is the Finance and Administration arm. DPW may need to be more engaged in asset management strategy to have sufficient information about Metro interests to further improve on their ability to negotiate.

For developers, price is not the only issue up for negotiation. Acquisition terms can be as important. Peiser notes that “paying more for entitlement contingencies, phased take-downs, or lease-up contingencies can be well worth the cost, as the seller shares risks with the buyer.”\(^\text{61}\) Brokerage fees are elements of the acquisition terms. Buyers are typically represented by brokers, whose fees are incorporated into the deal being negotiated.

Therefore, in the process of valuating government-owned properties for sale, Metro should consider these additional points of negotiation in order to entice buyers.

Developers have to find construction, permanent, and equity financing before they can move forward to the commitment phase. State and local incentives can be crucial to allow a developer to move forward in the development process. These can include property tax abatements, tax exemptions, infrastructure improvements, revolving commercial loans, loan and bond guarantees, venture capital, and tax increment financing. Metro lists 3 local incentives and 4 state incentives for property or business owners on their website.\(^\text{62}\)

---

\(^\text{61}\) Peiser 375.
For industrial properties in Louisville, there are two local incentives in the form of technical and financial assistance for brownfield redevelopment: the Brownfield Assessment Program and the Brownfield Clean Up Revolving Loan Program. Information about these programs is listed on the EGI website.\(^\text{63}\)

An accurate, updated, and easily accessible listing of incentives such as rebates, subsidies, tax credits, etc. is critical to permit relevant to contemplate funding and risk management for prospective development projects.

Maintaining relationships is critical to encouraging additional, ongoing investments by external parties. This concept is illustrated with a story from a national developer that used to work in Louisville, The Community Builders (TCB).\(^\text{64}\)

In 1996, TCB served as the Master Developer for the $180 million Hope VI Park DuValle project with 1000+ mixed-income units on 125 acres. The development included a Town Center “that features healthcare facilities, shopping, dining, laundry services and access to mass transit. Other notable amenities include an on-site elementary school, community center and two large parks with an Olympic-sized swimming pool.”\(^\text{65}\) TCB went on to develop a second project in Louisville, and even opened an office in Louisville. This investment had much to do with TCB’s main point of contact, Charles Cash, former Director of the Planning Department. He was perceived as bringing coherency to the city’s neighborhood development strategy.

A member of the leadership of TCB noted that his company had lost touch with Metro after Cash retired in 2010. “I talk to the Housing Authority probably every 3 months or so. We talk to them less often than any other city we are in because they are going through so many changes.” He emphasized, “Not a lot of great information coming out of there.” He compared Louisville to other mid-sized cities where partnerships are created in the housing department, which has ownership over inventory, plans, and deals with neighborhood housing: “Louisville is the exception now.”

The Housing Authority is a quasi-governmental agency not funded by Metro.\(^\text{66}\) However, to external stakeholders, there are reputational spillovers to the entire Metro government.

**A note of caution**

Biased assimilation of information is a common error in judgment. No matter what information a party receives, it is interpreted in a way that supports a pre-existing belief or desired outcome. As well, it is

---


\(^{64}\) Interview with #38


\(^{66}\) (Financial Report 2012).
proven that parties, given convincing facts for choosing one of two different courses of action, actually increases bias to the party's original preference.67

Because of this hard to overcome bias in assimilating information, we do not believe governments should pursue local investors who are purely driven by profit and “bottom-line” thinking. Productive engagements are more likely with regional or national investors who do not have experience with Louisville, and with local investors who have already demonstrate a bias toward investing in risky properties.

How Real Property Data Drives Effective Asset Management

“It is widely acknowledged that governments at all levels, as well as private-sector corporations large and small, seldom provide an accurate account of their property holdings and the condition of the properties in their inventory. And yet a fundamental requirement for any attempt to manage a portfolio of real property assets is an accurate account of these assets.”

Data’s Role in Asset Management

Data and information is a central element enabling the factors that drive the effective asset management framework. Experts assert, “Information is a prerequisite to sound decisions and is the fundamental foundation on which well-designed asset management program is conducted.” The primary outcome of providing effective and efficient asset support to program delivery requires the data availability and sharing among organizations, programs, and various levels of government.”

Recall the framework for effective asset management appearing earlier in this report:

<table>
<thead>
<tr>
<th>Rules</th>
<th>Institutional Arrangements</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Enabling Policy</td>
<td>• Competency</td>
</tr>
<tr>
<td>• Administrative Procedures</td>
<td>• Vision/Culture/Coordination</td>
</tr>
<tr>
<td></td>
<td>• Infrastructure</td>
</tr>
<tr>
<td>Management Incentives</td>
<td>Market Engagement</td>
</tr>
<tr>
<td>• Internal Incentives</td>
<td>• Precedent/Demand</td>
</tr>
<tr>
<td>• Accountability Framework</td>
<td>• Stakeholder Engagement</td>
</tr>
<tr>
<td></td>
<td>• Incentives</td>
</tr>
</tbody>
</table>

The following table describes how real property data relates to each of the four dimensions applicable to effective public sector property management:

<table>
<thead>
<tr>
<th>Dimensions/Factors</th>
<th>Data Relevance</th>
</tr>
</thead>
</table>
| Rules              | • Policy formation requires knowledge of what property is owned and a consistent method to value that property.  
                    | • Policy evaluation and updating requires accurate asset management performance data.  
                    | • Administrative rules and procedures delineate who controls and owns certain information and accountability for accuracy. |
**Institutional Arrangement**
- Delegation of authority to agencies relies on agency’s ability to manage data effectively and filter relevant analyses for executive leadership.
- Consolidated property data is required for centralized decision-making and authority.
- Data and information sharing is necessary to coordinate varying bodies involved in asset management and planning.
- Centralized database is primary method of sharing property information within government, between government jurisdictions, and with the public.
- Effective platforms reduce duplication in data creation, input, and storage and facilitate integration of various data inputs.  

**Management Incentives**
- Agencies justify their resource choices based on data.
- Efficient program delivery and effective funding is measured by performance standards defined by data-driven metrics.

**Market Engagement**
- External market players have information needs to prospect properties and evaluate their development potential: search, investment, negotiation, financing, network maintenance.
- Functional and user-friendly information management tools for packaging of attribute and geo-spatial information attracts and enables external market players.

Functional data, therefore, underlies the factors that support effective real property management. Without such data, relevant decision-makers cannot mitigate common asset management errors, such as miscalculating the aggregate costs and value to program or service delivery. Asset management experts cite that under-developed data and information systems as a main reason that organizations are unable to align their overall strategy with their assets.  

**BALTIMORE’S ASSET INVENTORY SUPPORTS VACANTS TO VALUE PROGRAM**

In November 2012, Baltimore’s Vacants to Value (V2V) Program turned 2 years old, and the City renewed its commitment to find productive uses for roughly 16,000 vacant buildings and land parcels. By FY2012, V2V accelerated repurposing and disposal of these assets by fivefold. This effort embodies full investment in the dimensions of public sector asset management: streamlining of public-to-private sales process, coordination across multiple city departments, use of subsidies to adjust the market value, engagement of the Greater Baltimore Board of Realtors. Notably, the city consolidated available data regarding these assets by merging real property data from multiple data sources into a system named COBLAM, City of Baltimore Land and Asset Management system, which the is used to fast-track the market engagement and disposition process.

---

70 Hentschel, X.
71 Acoba 148.
Case Study: Commonwealth Approach to Real Property Management and Data

The Commonwealth of Kentucky now serves as an enterprise model for networked databases of property data, but it wasn’t always this way.

One of the Metro interviewees worked for the Commonwealth of Kentucky many years ago, when their data was very dysfunctional.

I was hired to set the management system for the Commonwealth of Kentucky. They didn’t care about their property. They never compared them. We found we were paying leases on properties we acquired because [the property information was] coming from two different agencies.

Today, the Division of Real Property in the Department of Administration and Finance owns and manages all government-owned property processes for the Commonwealth of Kentucky. They works closely with the Division of Geographic Information. They use a facilities management database called Archibus to track an inventory of all real property records that the state own, leases, or otherwise have control. In addition, this department negotiates all transactions with private owners on behalf of various agency needs.

When an agency determines a property is surplus, they notify Finance and Administration, who then checks with all other agencies to make sure there is no other state use for the property. They then will advertise the sale of the property and collect sealed bids. A bid is accepted if it comes in over an independent appraisal of the fair market value for a property.

“We look for the best forms of data, they can pull from different applications about an individual or business and present that data to our end-user and have them identify what we call a ‘gold record.’ We identify the most current data for an individual or a business.”
Louisville’s Real Property Data Landscape

Metro government, jurisdiction counterparts, specialized agencies, and other local players generate and maintain property information in various forms and contexts. For a complete list of entities that hold and control property data, see Appendix III. Select agencies/offices have specific property data requirements and use information management instruments to fulfill their respective missions. The fields present in each data set are directly responsive to the informational needs of the creators/holders. Metro maintains a series of stand-alone information systems, which experts qualify as a “low level” of integration. The potential of these individual systems remains inert when they are not connected to other systems within an organization.

There is no comprehensive system that merges or links these individual sources. There is also no mapping of the various data sets. Function-specific data does not support broader financial management or enterprise resource planning.

The table below describes the various data sets, their owners, and the systems in which they reside. Aside from the detail, this table demonstrates the “distance” of the systems, lack of interoperability of the systems, and the variance in data formats.

<table>
<thead>
<tr>
<th>Agency/Function</th>
<th>Objective</th>
<th>Information Requirements</th>
<th>Data Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Works – Real Property and Leasing</td>
<td>● Support property needs of agencies</td>
<td>● Master List of Assets</td>
<td>Excel Print</td>
</tr>
<tr>
<td></td>
<td>● Monetize surplus assets</td>
<td>● List of Surplus Properties</td>
<td></td>
</tr>
<tr>
<td>Public Works – Facilities Management</td>
<td>● Plant operations</td>
<td>● Utilization</td>
<td>Hanson 7</td>
</tr>
<tr>
<td></td>
<td>● Maintenance</td>
<td>● Maintenance</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● Work orders</td>
<td>● Work orders</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● Scheduling</td>
<td>● Scheduling</td>
<td></td>
</tr>
<tr>
<td>Broker (KW Commercial)</td>
<td>● Disposal of surplus assets</td>
<td>● Title</td>
<td>Print converted to PDF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Market value</td>
<td>Internal Database MLS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Attributes</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Geospatial</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Code Enforcement</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Inspection</td>
<td></td>
</tr>
<tr>
<td>Office of Management and Budget</td>
<td>● Financial Reporting</td>
<td>● Book Value</td>
<td>Excel</td>
</tr>
<tr>
<td></td>
<td>● Budgeting</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>● Risk Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lojic</td>
<td>● Mapping</td>
<td>● Geospatial</td>
<td>GIS/Shape Files</td>
</tr>
<tr>
<td></td>
<td>● Econ Development</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

72 Acoba 156.
73 Acoba 156.
### Enhancing Government Property Management With Data and Technology

| Sewer District | • Delivery of utility  
|               | • Maintenance of services  
|               | • Infrastructure layout and quality  
|               | GIS  
| Codes and Enforcement | • Planning  
|                       | • Enforcement  
|                       | • Violations  
|                       | • Liens  
|                       | • Judgments  
|                       | Proprietary system  
| PVA – Jefferson County | • Tax  
|                       | • Assessed market value  
|                       | • Square footage  
|                       | • Year built  
|                       | Proprietary system  
| EGI - Brownfields Program | • Planning  
|                         | • Redevelopment incentives  
|                         | • Inventory of brownfield assets  
|                         | Excel  
| EGI – Community Redevelopment | • Housing and Community Development  
|                          | • Inventory of available homes  
|                          | Excel  
| Jefferson County Public Schools | • Strategic Planning  
|                           | • Service Delivery  
|                           | • Community Event Support  
|                           | • Financial Reporting  
|                           | • Market value  
|                           | • Depreciation  
|                           | • Upgrades  
|                           | • Service and work orders  
|                           | • Condition  
|                           | Unknown  
| Parks | • Park maintenance  
|       | • Optimize for public consumption  
|       | • Inventory  
|       | • Work order and maintenance  
|       | Unknown  
| County Clerk | • Legal Title  
|               | • Deeds  
|               | • Book/Plat numbers  
|               | Index Information Print/PDF  
| Executive Office | • Planning  
|                  | • Development  
|                  | • Jurisdictional coordination  
|                  | • Inventory of assets  
|                  | • Surplus assets  
|                  | • Status  
|                  | Excel Reports GIS  
| VAPStat | • Track statistics on vacant and abandoned property  
|        | Unknown  
|        | Mixed  
| Greater Louisville, Inc. | • Properties available for industrial and commercial development  
|                        | • Single property profiles  
|                        | N/A  


Data Hierarchy based on Data Creation Stages & on Data Quality

Metro’s real property data takes two forms - original data and derived data. Original data is created by actors in the process of meeting a particular role or objective and is created based on primary, first-person observations. Derived data are data that are formed through merging or otherwise adapting existing data. It is reliant on the existence and accuracy of original data. The structure of this hierarchy is important to understand its impact on data quality and usefulness.

Examples of Original Data Sources

PVA of Jefferson County, KY: The PVA database appears to anchor Metro’s other real property information-gathering efforts. This state-level public agency tracks ownership, building characteristics, valuation maps, and tax exemption status. However, the PVA is not required by the Kentucky statute to provide valuations for exempt properties, including certain government and public service companies. Therefore, using the PVA database to track public sector properties may yield ineffective or outdated data for the government’s purposes.

Public sector property administrators utilize the PVA to identify Metro-owned and controlled properties. PVA information is used to benchmark value, ownership, attribute and geo-spatial information. Administrators initiate property information searches using the tax assessor’s database. However, the only way to identify Metro-owned assets is by searching the database by name of a controlling entity or affiliated agencies. Multiple parties revealed concerns that they were, “missing metro-owned properties” from their inventory because of the many variations in naming conventions of a single legal entity and dormant legal entities affiliated with Metro under which legal title is held. Other issues with the PVA data include concerns regarding the modeling techniques that the offices use to calculate the market value.

Jefferson County Clerk’s Office: The county clerk’s office is also a reliable given its requirements and forensic quality. These records are used to establish ownership and must meet the evidentiary standard to execute official transactions and support litigation. However, the online database is limited in a manner similar to the PVA database - a user can search by Party Name, Control Number, Reference Number or Book/Page coordinates. This arrangement is useful if the correct name of the property holder is already known, but does not support. It is also limited by its format - the search results also appear in paper, PDF format, and critical index information is not otherwise standardized. The system is mostly paper-based and requires each user to visit the courthouse and dedicate hours to vet a single property.

Metro Sewer District (“MSD”): Another relatively reliable source of information is Louisville’s Water and Sewer District Map, maintained by the MSD. This database includes geospatial information indicating the locations and forms of water and sewer lines necessary for service provision, maintenance, and capital planning. While interviewees qualified this information as credible, it is not available to the public, and is only available on an ad hoc basis.
Examples of Derived Data Sources

Lojic Public Sector Assets Map: The GIS/Mapping office of Metro government constructed a map of all public sector properties identified through the PVA system. A Lojic employee stated that it required two weeks for him to compile a consolidated list of public sector entities present in the Metro jurisdiction and to apply those names to search for properties held by those entities. While an excellent effort to identify public sector parcels, the accuracy is limited by the capacity to correctly identify all public sector entities and the variations of their respective naming conventions. The Lojic offices clarified that it updates this public sector asset map once a year based tracking changes in the PVA database, requiring 2 days to complete.

Public Works and Assets Property Files: An interview with a property administrator at Public Works and Assets indicated that the office had assembled detailed paper files of each property, containing title information, market value, lien status, and other key characteristics. This administrator used the PVA database, County Clerk and other sources to compile these files. The process took over a year to complete the process for all surplus properties.

Given the heavy reliance of multiple actors on original datasets to execute certain asset management functions, it is critical to consider the quality of the data and its exposure to certain threats resulting from this hierarchy.
The Causes of Louisville’s Bad Data: A Qualitative Assessment

An assessment of the quality of Louisville’s real property data is critical to understand the degree to which available data can effectively support a coordinated real property management strategy. A qualitative analysis of our interview transcripts reveals several concerns tied to data quality.

Bad data was described by our stakeholder interviewees as data that was hard to find, hard to use, or difficult to trust. These descriptions translate to established data quality assessment criteria of accessibility, legibility, interoperability, and credibility.74

Methodology

Over the course of telephone and in-person interviews, various stakeholders that create and utilize real property data commented on its quality. Each comment was categorized for its data processing stage and data quality assessment criteria.

The data processing stages include (1) prioritization, (2) identification, (3) generation, (4) entry, (5) standardization, (6) storage, (7) updating/merging, (8) packaging, and (9) publication. A definition of the process stages are listed in Appendix II.

The categorized comments were counted to identify the stages that may pose higher risks to data quality. The counts are listed in Appendix II.

Analysis Outcomes

Our analysis reveals when Louisville’s real property data is perceived as most vulnerable to errors across stakeholders. Updating and merging of data sets was the most mentioned processing stage related to the disconnected nature of data sources. Other significant patterns of failure are rooted the lack of a data standard and deficiencies in market readiness.

A selection of anecdotal comments by interviewees substantiates the outcomes of the qualitative analysis.

Data Integration:

The Kentucky PVA recognizes potential concerns relating to merging/matching data sets. Their website states, “While we do our best to share information with other government offices, it is often difficult with the influx of people and data to do so all the time. The County Clerk is a county office and the PVA office is a separate state office. We are working everyday to bridge these communication gaps that may sometimes overlay.”75 This statement appears to disclaim errors and inaccuracies that might arise from mismatched sets across agency functions - in this case between the PVA and the County Clerk. These data conflicts lead to inaccuracies regarding ownership, etc.

75 Jefferson County PVA Website [http://jeffersonpva.ky.gov/]
A Metro information technology expert expressed frustration with an existing information system resulting from its lack of interoperability with other systems. She stated, “Hanson right now is so closed and proprietary, it’s very difficult to do anything with it. Which is why we’re excited that we’re moving to 8 and it’s going to be in SQL.”76 This statement signals the value that interoperable data and information can provide.

Similarly, an interview with leadership at EGI revealed that linking/connecting data inputs would be a valuable effort in order to avoid potential data issues in merging separate data sets, “So it would be helpful—and there is some precedent for this with how the Lojic system gets updated with PVA data—to be able to directly link to whatever systems are in place at the PVA, at the state, at the utility companies to be able to automatically populate and update those fields.”77 A separate EGI employee commented, “I really don’t understand why we have so many different databases to check...why can’t someone put this all in one, consolidated format?”78

Data Standardization:

The lack of data standards and a data dictionary exposes Metro real property data to substantial errors and omissions. This deficiency is significant in the process of establishing an inventory of Metro-held properties in addition to managing transactions involving Metro-controlled land and buildings.

At least once per year, the Department of Public Works searches PVA’s database to identify Metro-owned properties. This process involves applying hundreds of variations of the names of Metro agencies, public service companies, trusts, and even defunct legal entities in order to surface all properties titled to the Metro government. A practitioner at the Department of Public Works stated, “always my concern is: what did we miss because of the standardization?”79 Therefore, the lack of a data standard in recording and maintaining the names of Metro entities holding title to land and buildings inhibits the best efforts of designated managers to just maintain the Metro property portfolio.

Describing the challenge of clearing titles of distinct parcels connected to a Brownfields site, an EGI interviewee explained the varying names of entities holding property affiliated with Metro’s Parks Department, “You add complications because we’ve got the Louisville Metro Parks Foundation that owns property and the Parks Commission, and the Board of Park Commissioners.”80 Again, the lack of standard obstructs simple tasks, including pre-transaction due diligence.

Metro’s jurisdictional counterpart at the state-level in Kentucky echoed concerned with property data, attributing data errors to variations in recording practices across counties. “The problem with Kentucky is that we have 120 counties. I think that Florida has like 10. There are a 120 different data formats or how property is even entered into any kind of digital system. There may be 20 different programs that

76 Interview with #6
77 Interview with #11
78 Interview with #14
79 Interview with #1
80 Interview with #11
are used by different PVAs. There is a lack of standardization of address data because all of that data is generated locally.  

*Data Publication/Market Readiness*

Another substantive concern relating to Metro’s real property data quality is its lack of “readiness.” This data defect causes data to fail to affect the decision-making of external parties.

An interviewee at Greater Louisville, Inc., the regional chamber of commerce that connects corporations and job creators with developable sites stated, “Contaminated properties are their own animal. They have gone through clean up processes so they have mounds of environmental data on the property but they don’t have an executive summary on the site. We have this data but not translated for the business. They are not market-ready.”

A stakeholder in Louisville’s real property market asked, “Does the government have properties to sell? I didn’t know that.” His question reveals that surplus property information does not reach external players who might offer solutions for surplus property assets. Another stakeholder of similar profile commented, “Metro is not serious about selling these properties - they don’t post them in places where we can find them, such as the KCREA MLS listing, and they don’t provide the necessary info needed to initiate development or purchasing interest.” A commercial property broker clarified that her search process for available properties does not include checking the Metro’s Surplus property site, and furthermore, that Metro properties are not listed on an internal roster of available properties circulated within the broker community.

---

81 Interview with #19  
82 Interview with #28  
83 Interview with #31  
84 Interview with #33
Recommendations

Our recommendations seek to advise Metro on how they can use data to drive optimization of their real property portfolio. To achieve effective asset management, we have identified the need to enhance the internal property management process and to integrate with the property development processes of external stakeholders.

1. Formalize a property management strategy.

The departments of Public Works, Economic Growth and Innovation, Codes and Regulations, and other major government or quasi-governmental property managers should be authorized to formalize a real property management strategy that is based on best practices from enterprise property management, especially regarding the use of data.

1a. Include all property managers in strategy development. Engaging all decision-makers will result in a more comprehensive property management strategy and lead to better coordination between agencies.

1b. Set performance targets for property management. As part of the property management strategy, performance targets should be set for various tasks that deal with external stakeholders. Consistent achievement of these targets will decrease the perceived risk of dealing with government entities.

1c. Share process with external stakeholders. Publish process diagrams of Metro property acquisition, surplusing, and disposition with expected timelines and internal part engagement to demonstrate process rationale and enhance predictability.

2. Improve data functionality.

There are many methods of improving data quality with varying levels of commitment of resources. We recognize that some tasks are more feasible than others until additional resources are dedicated to Metro asset management.

2a. Audit ownership data fields. A Metro department should be empowered to proactively obtain and review past title information and work with the PVA and County Clerk to correct errors and lack of standardization.

2b. Consolidate data repositories. Metro should consolidate its disparate information into strategy-supporting formats or empower an intermediary to do so.
2c. **Provide internal access to data.** A consolidated inventory and streamlined asset management system will provide information to assist Metro departments in decision-making and to communicate with other departments regarding property.

2d. **Meet informational needs.** Stakeholders have specific requirements for property data. Public property profiles should contain the necessary fields or have fields be made available to vetted parties. Applicable state and local incentives should be included on property listings.

2e. **Share information where people look.** City governments tend to advertise their surplus properties exclusively on their websites, even though most external parties do not search by ownership. Metro should list properties in methods that are already part of the search protocol of their desired audience. All public portals should be leveraged to make information available. Information should be in searchable format that allows for data scraping.

Other recommendations that would facilitate improved asset management include:

3. **Reevaluate valuation method of property.** Valuation is more than book value or acquisition value and should account for otherwise hidden maintenance and opportunity costs of undeveloped or surplus assets. This valuation should be used to determine the best alternatives to reaching a negotiated agreement with an interested party.

4. **Promote flexibility of policy environment.** The flexibility of the Metro policy environment is an asset and provides a competitive advantage relative to other jurisdictions. External parties do not realize the benefits and assume the policy is restrictive and cumbersome.

5. **Build relationships with external stakeholders.** Internal stakeholders were often skeptical of the value-add of brokers, local developers, and other private parties. Metro should prioritize building its relationships with all external parties and broaden its reach of contacts, while maintaining its exclusive arrangement with its current broker.
## Appendix I: Interviewee Identity Guide

<table>
<thead>
<tr>
<th>Sector</th>
<th>Detail</th>
<th>Affiliation/Organization</th>
<th>Name</th>
<th>Code #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>Louisville</td>
<td>Public Works &amp; Assets</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Public Works &amp; Assets</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Public Works &amp; Assets</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Public Works &amp; Assets</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>VAPStat</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Information Technology</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Information Technology</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Office of Management and Budget</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Office of Management and Budget</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Economic Growth and Innovation</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Economic Growth and Innovation</td>
<td></td>
<td>11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Legal</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lojic</td>
<td></td>
<td>13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Community Services and Revitalization</td>
<td></td>
<td>14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Community Services and Revitalization</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Executive Office</td>
<td></td>
<td>16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Codes and Regulations</td>
<td></td>
<td>17</td>
</tr>
<tr>
<td>Philadelphia</td>
<td></td>
<td>Office of Innovation and Technology</td>
<td></td>
<td>18</td>
</tr>
<tr>
<td>Commonwealth</td>
<td></td>
<td>Information Technology</td>
<td></td>
<td>19</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Finance and Administration</td>
<td></td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GIS</td>
<td></td>
<td>21</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GIS</td>
<td></td>
<td>22</td>
</tr>
<tr>
<td>US Federal</td>
<td></td>
<td>GSA</td>
<td></td>
<td>23</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GSA</td>
<td></td>
<td>24</td>
</tr>
<tr>
<td>Quasi</td>
<td></td>
<td>Kentuckiana Regional Planning and Development</td>
<td></td>
<td>25</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kentuckiana Regional Planning and Development</td>
<td></td>
<td>26</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Greater Louisville, Inc.</td>
<td></td>
<td>27</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Greater Louisville, Inc.</td>
<td></td>
<td>28</td>
</tr>
<tr>
<td>Private</td>
<td>Realtors Brokers</td>
<td>Kentucky Association of Realtors</td>
<td></td>
<td>29</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CBRE Louisville</td>
<td></td>
<td>30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CBRE Louisville</td>
<td></td>
<td>31</td>
</tr>
<tr>
<td></td>
<td></td>
<td>KW Commercial</td>
<td></td>
<td>32</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cassidy Turley</td>
<td></td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>Developers</td>
<td>National Brownfields Association</td>
<td></td>
<td>34</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Homebuilders Association of Louisville</td>
<td></td>
<td>35</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Homebuilders Association of Louisville</td>
<td></td>
<td>36</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stephen C Gault &amp; Co.</td>
<td></td>
<td>37</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The Community Builders</td>
<td></td>
<td>38</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Industrial developer</td>
<td></td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>Community Organizations</td>
<td>Volunteers of America</td>
<td></td>
<td>40</td>
</tr>
<tr>
<td></td>
<td></td>
<td>596acres.org</td>
<td></td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>Advisors</td>
<td>Accenture Government Shared Services</td>
<td></td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>Advocacy</td>
<td>National League of Cities</td>
<td></td>
<td>43</td>
</tr>
<tr>
<td>Academic</td>
<td>HBS</td>
<td>Real Estate/Development</td>
<td></td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>HKS</td>
<td>Real Estate/Development</td>
<td></td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>Northeastern</td>
<td>Regional Economic Development</td>
<td></td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>MIT</td>
<td>Department of Urban Planning</td>
<td></td>
<td>47</td>
</tr>
</tbody>
</table>
### Appendix II: Qualitative Analysis Definitions

**Code Definitions**

<table>
<thead>
<tr>
<th>Stage</th>
<th>Definition</th>
<th>“Bad Data” Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>prioritization: what data fields are selected to be collected</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>identification: how data fields are categorized</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>generation: how data is collected or created</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>entry: how data is entered into data fields</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>standardization: how data is formatted to bring together similar or identical elements</td>
<td>7</td>
</tr>
<tr>
<td>6</td>
<td>storage: how data is stored</td>
<td>5</td>
</tr>
<tr>
<td>7</td>
<td>updating/merging: how and when new data points are incorporated from original data collection or existing data sets</td>
<td>12</td>
</tr>
<tr>
<td>8</td>
<td>packaging: how data is displayed or organized for viewing</td>
<td>6</td>
</tr>
<tr>
<td>9</td>
<td>publication: how data is shared with others</td>
<td>10</td>
</tr>
</tbody>
</table>
Appendix III: Public Sector Entities Holding Property In Louisville

(Derived from Interviews and Comprehensive Annual Financial Report)

- Louisville Jefferson County Metro Government
- Capital Projects Corporation
- Public Properties Corporation
- Parking Authority of River City
- Louisville and Jefferson County Metropolitan Sewer District
- Louisville Science Center
- Louisville Water Company
- Transit Authority of River City
- Louisville Metro Housing Authority
- Louisville Regional Airport Authority
- Louisville and Jefferson County Convention and Visitors Bureau
- Waterfront Development Corporation
- Louisville and Jefferson County Riverport Authority
- Jefferson County Public Schools
Works Cited


