

District of Columbia
Geographic Information System (DC GIS):
Strategic Plan

Final



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Prepared By:



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1 EXECUTIVE SUMMARY

Introduction

This plan is the result of an open and participatory process. It embodies input from the District of Columbia Geographic Information System (DC GIS) stakeholder community of interest, which includes a diverse population of participants from both inside and outside of DC Government. The **main emphasis of this plan is on the long-term direction of the DC GIS Program**, for both activities and governance. A specific outcome of the planning process is a refined Mission Statement for the Program, as follows:

*The Mission of DC Geographic Information System (DC GIS) is to **improve the quality and lower the cost of services provided by the DC Government**, through the District's collective investment and effective application of geospatial data and systems. Furthermore, DC GIS will reach beyond the DC Government by continuing to **make DC GIS data freely and publicly available to the fullest extent possible** in consideration of privacy and security.*

The use of Geographic Information Systems (GIS) in DC is pervasive with a history of collaboration on developing and sharing geospatial data. Fundamentally, it answers the question “where is it?” DC GIS started with a voluntary willingness to share basemap data across departments, and grew to **the coordinated sharing of over 200 data layers across a broad and diverse federation of departments**. As a technology, GIS empowers policy-makers and implementers with data and application tools that **support better decision-making and performance**.

Situation Analysis

The current DC GIS Program provides DC agencies and the public a **“one-stop shop” for disseminating geospatial data and enterprise applications**. Nationally, it is in the top tier of comparable programs, and its accessible data and services surpass what is available in many states and city jurisdictions. **The program is coordinated by the Office of the Chief Technology Officer (OCTO) GIS Group, which chairs the GIS Steering Committee (GISSC)** established by Mayors Order 2002-27. GISSC is a voluntary group of interested GIS practitioners from over 20 DC Government departments as well as external organizations. Currently, the Committee does not have any bylaws for governance or voting, and **decisions about direction have been made by OCTO, with input from the GISSC participants**.

The **existing GIS infrastructure and interests extend beyond OCTO's GIS Group**, and continue to be nurtured external to OCTO's efforts, to meet mission-specific needs. The need for a plan to guide DC GIS activities and program investment is clear, given the large number and diversity of DC GIS stakeholders. These **stakeholders recognize the importance of standards, coordination, and guidance via the DC GIS Program**. Also needed is GISSC governance reform, such as adopting bylaws to govern meetings and decision-making of the GISSC, and expanding the number of permanent members.

This may require **revitalization of the existing Mayors Order (2002-27) that established GISSC** six years ago.

Strategic Goals

DC GIS has achieved high levels of successful utilization, both inside and outside of DC Government. Nonetheless, it is not without deficiencies and needs. The potential for improvements to the DC GIS Program to help achieve the Mayor's desired outcomes is recognized in this plan. **The planning process resulted in specific long-term (five year) goals to achieve continued success and improvements, as listed below:**

- 1) Ensure that state and local needs are met by focusing resources on geospatial data, systems, and program activities that are in alignment with District priorities
- 2) Develop and operate enterprise mapping data, geospatial applications, and Web services that enhance the utility, reduce the cost, and expand the interoperability of citywide and agency IT systems
- 3) Provide outstanding customer service and training that enable DC GIS users and stakeholders to leverage the full power of GIS technology
- 4) Sustain and improve GIS coordination and partnerships in the District of Columbia, the region, and the nation
- 5) Be innovative and adapt to the changing market for geospatial technology
- 6) Apply GIS in ways that increase revenue and reduce costs for the District

Action Plan

Short-term (two-year) success factors for each goal listed above are described in the body of the plan, to help guide the action-oriented implementation program. While **parallel activities are anticipated across all six programmatic goals**, certain aspects will be emphasized in more detailed business plans. For example, **programmatic goals #2 and #3 (see above) were selected as the dual-subject for a focused Business Plan**, which will be a separate document emanating from this Strategic Plan. Its details will be congruent with this plan's high-level content and overall intentions.

Immediate actions recommended in the Strategic Plan are as follows:

OCTO will:

- **Seek endorsement of Mayor's Order 2002-27 from the current Mayor, Adrian M. Fenty, after refinements as necessary**
- **Formally add permanent members to the GISSC; in addition to the current permanent members (Office of the Chief Technology Officer, District Department**

of Transportation, Office of Planning, and the Office of the City Administrator) add the following in a formal and recognized manner:

- Department of Consumer and Regulatory Affairs
 - Department of Health
 - Department of Public Works
 - District Department of the Environment
 - Fire and Emergency Medical Services
 - Homeland Security and Emergency Management Agency
 - Metropolitan Police Department
 - Office of Deputy Mayor for Planning and Economic Development
 - Office of Tax and Revenue
 - Office of Unified Communications
 - Office of Zoning
 - Water and Sewer Authority
 - United States Geological Survey
- **Schedule an official “GISSC Annual Budget Meeting”** for September of each year to review past year’s spending, and the **DC GIS Business Plan** for spending in the coming year(s).

The GISSC Permanent Members will:

- Conduct a vote to endorse **and adopt this Strategic Plan as a guide to the continuing operations of DC GIS and GISSC governance** reform, including by reference the official adoption of the DC Government Federated Geospatial Data Model and associated best practices
- **Develop Bylaws** for the governance of GISSC, such as the following formalities:
 - Meeting rules
 - Voting rules
 - Rules for the formation and governance of subcommittees

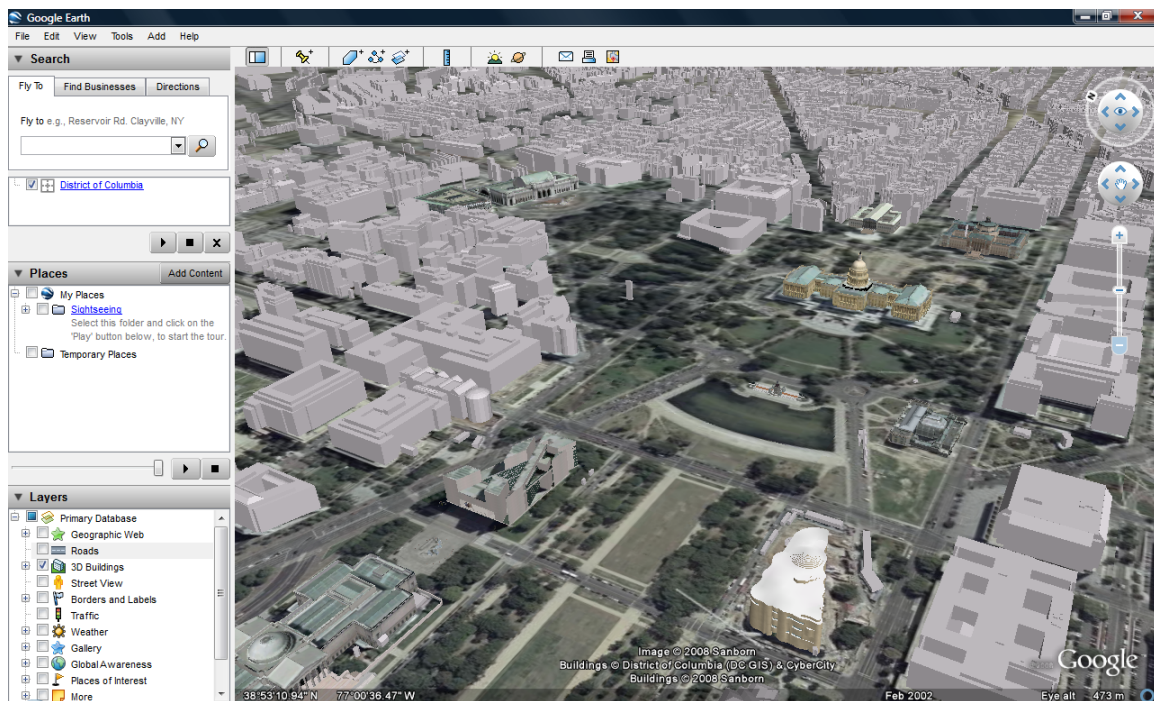
The Full GISSC will:

- **Meet at least quarterly**
- **Be open to all**; including federal agencies, universities, non-profit organizations, private sector users, and geospatial vendors
- **Serve as a forum for the exchange of information and ideas**

- **Provide advice to the GISSC Permanent Members and to OCTO**
- **Adopt GIS technical standards**

Measuring Success

The long-term performance period for the six programmatic goals articulated in this Strategic Plan is five years. **Efforts on each of the six goals will run in parallel, on an ongoing basis.** They will be **reviewed annually by the GISSC Permanent Members** (proposed) to determine their enduring relevance to the overall DC GIS Program. **The short-term success factors are programmed to extend through FY 2010.** These include both ongoing and periodic activities, on which **status will be reviewed at the GISSC Annual Budget Meeting in September of each year** (proposed).



DC GIS three dimensional buildings on Google Earth™

2 CURRENT SITUATION

2.1 DC GIS Program: Background

The **District of Columbia Geographic Information System (DC GIS) Program** is an existing operation with a long history of providing GIS services for citizens and government alike. It is part of the technology ecosystem of the District, serving DC Government departments as well as non-DC organizations and the public at-large. The Program is **supported by a willing federation of departments**, each of which may collect and maintain geospatial data to meet unique mission requirements. Each is responsible for particular content to ensure reliable and authoritative source data, but not the entire DC GIS database.

The GIS Group within the Office of Chief Technology Officer (OCTO) provides overall support to this Program and its federated constituents. It coordinates the sharing of geospatial data, and **provides DC agencies and the public a “one-stop shop” for disseminating geospatial data and enterprise applications.**

The OCTO GIS Group is at the nexus of the following DC GIS objectives:

- Provide all users access to geospatial data of known quality
- Plan geospatial data development activities
- Eliminate redundant purchase, creation, and maintenance of geospatial data
- Increase awareness of the availability of existing GIS datasets
- Ensure the completeness and accuracy of information describing the datasets (metadata)
- Establish geospatial data standards and encourage adherence to them
- Clarify data distribution policies, ensure public access to information and establish technical procedures for restricting distribution of sensitive datasets
- Facilitate the coordination of geospatial data gathering, maintenance, and enhancement with cooperating federal and regional agencies and authorities
- Provide the framework to develop and maintain the DC GIS enterprise database consistent with data from numerous source agencies

Pre-2000

In the mid-1990's, the National Capital Planning Commission (NCPC) and DC Government departments collaborated on aerial survey work to produce accurate planimetric basemap data for the District. This **basemap data was shared across departments** and used to support a variety of mission-specific applications and functions, such as planning, permitting, assessing, and public works. By 1996, this collaboration formed the basis of what became known as the Washington GIS Consortium (WGIS). In 1998, NCPC was tasked by the Office of Management and Budget (OMB) to develop goals and objectives for WGIS. For this purpose, the “WGIS

Strategic Plan, 2000-2005” was developed, laying some **important groundwork for data sharing and collaboration amongst GIS stakeholders** in the District, leading to what later became known as DC GIS.

Post-2000

In February 2002, the District of Columbia **GIS Steering Committee (GISSC)** was **created by “Mayors Order 2002-27.”** The GISSC was established to:

“... optimize the development and promote effective usage of the District of Columbia Geographic Information System (DC GIS), and assist the Office of Chief Technology Officer (OCTO) in establishing and enforcing standards, policies, procedures, and protocols for the DC GIS.” (See Appendix B for a copy of Mayors Order 2002-27.)

In brief, the **GISSC's five primary functions**, as defined in the Mayor Order, are as follows:

- Provide a centrally organized authority to support DC GIS
- Assign responsibility for maintaining and updating data for the DC GIS and allocate resources for GIS activities
- Prevent duplication of effort and ensure interoperability
- Solicit multi-lateral input and participation
- Promote effective usage of the DC GIS

The Mayors Order designated OCTO as the permanent chair of GISSC, with three other permanent members, including the Office of the City Administrator, the Office of Planning, and the Department of Transportation. Additional members may be appointed by the Mayor or City Administrator, but membership has grown organically, without formal appointments, and **now includes almost 20 DC Government departments**. In addition, ad hoc participation by non-DC Government stakeholders has taken place.

In May 2005, OCTO GIS Manager developed the [“Strategic Plan for the DC GIS Office of Chief Technology Officer, FY 2005-2006.”](#) It described GISSC’s role to include the following responsibilities:

- Serve as the primary decision-making body that establishes and implements DC GIS policies and standards, taking into account the needs and resources of all District agencies
- Define and approve GIS projects, and set priorities and timelines
- Work with DC agencies to establish responsibilities for specific GIS tasks, including maintaining essential data
- Seek multilateral input, participation, support, and usage by District government stakeholders

- Work with OCTO to coordinate activities among agencies
- Foster communication and cooperation among District agencies, Federal agencies, and other GIS users and data sources
- Promote integration of the GIS with District agency business processes

In practice, the **GISSC has been a voluntary group of interested GIS practitioners** across DC Government departments, chaired by the OCTO GIS Manager. Meetings are held on a fairly regular basis, with information exchange and status reports on data, applications, and training being the main agenda topics. Lately, the strategic planning process has been an important focal point for the GISSC meeting agenda. Since the **GISSC does not have a set of Bylaws to describe governance procedures**, it is not as formal or official as it could be in performing its primary functions; and, only four departments are currently designated as permanent members by Mayor’s Order 2002-27. These observations are discussed further, later in this plan document.

2.2 DC GIS Program: Current Status

National Perspective

The following table presents the current DC GIS status with respect to the “Nine Criteria for a Successful Statewide GIS Program.” The criteria were co-developed by the Federal Geographic Data Committee (FGDC) and the National States Geographic Information Council (NSGIC) as part of the Fifty States Initiative.

National Criterion	Status	Status Description
1. A full-time, paid coordinator position is designated and has the authority to implement the state’s business and strategic plans.	MEETS	That is the GIS Director position within the Office of the Chief Technology Officer. That position is currently held by Barney Krucoff.
2. A clearly defined authority exists for statewide coordination of geospatial information technologies and data production.	MEETS	Mayor’s Order 2002 -27 established the DC GIS Steering Committee. The USGS MOU recognizes the “District of Columbia as a full participant in the NSDI and recognize[s] the DC GISSC as the geographic coordinating body from the District of Columbia.
3. The statewide coordination office has a formal relationship with the state’s Chief Information Office (CIO).	MEETS	The DC GIS Program is administered by the Office of the Chief Technology Officer. The GIS Director reports to a Deputy Chief Technology Officer.
4. A champion (politician or executive decision-maker) is aware and involved in the process of geospatial coordination.	TO BE REAFFIRMED BY MAYOR’S ORDER	In January 2007, a new Mayor and City Council took office. Many department heads, including the Chief Technology Officer (CTO), are also new since 2007. CapStat has been implemented, and awareness of GIS as a tool to help monitor and achieve desired outcomes has increased under this new Administration.

National Criterion	Status	Status Description
5. Responsibilities for developing the National Spatial Data Infrastructure (NSDI) and a State Clearinghouse are assigned.	MEETS	The DC GIS Clearinghouse is the responsibility of the OCTO. OCTO currently distributes over 200 layers of geospatial information including metadata. NSDI is a shared responsibility, but the DC GISSC is accountable for the geospatial coordination within the District government. DC GIS has a project to make the clearinghouse an NSDI node and GOS compliant.
6. The ability exists to work and coordinate with local governments , academia, and the private sector.	PARTIALLY MEETS	The District is the only state/local government in the coverage area, and the ability to coordinate within the DC Government is well established. Additional coordination with Federal agencies is required. Coordination with academia and nonprofits is informal.
7. Sustainable funding sources exist to meet project needs.	MEETS	New for FY 2009, the DC GIS program will be a line item in OCTO's proposed operating budget for enterprise systems. The DC GIS program has been heavily reliant on capital funding up to now.
8. GIS Coordinators have the authority to enter into contracts and become capable of receiving and expending funds.	MEETS	This capability has been used to build an enterprise GIS system for the District.
9. The Federal government works through the statewide coordinating authority.	PARTIALLY MEETS	The MOU with USGS is a major step. Several other federal agencies work primarily through their most logical DC government partner. For example, FEMA through DC HSEMA, Census through the Office of Planning State Data Center, EPA through DC Department of the Environment, CDC through the DC Department of Public Health, Justice through DC MPD.

The DC GIS Program fully meets six of the nine criteria and partially meets three of the nine. Nationally, this is **a score that puts DC GIS into the top tier of established programs**. Accordingly, the OCTO GIS Manager was recently selected to serve on the newly formed National Geospatial Advisory Council (NGAC), in recognition of DC's leadership and accomplishments in supporting objectives of the Federal Geographic Data Committee (FGDC) and the National Spatial Data Infrastructure (NSDI) for the benefit of the District.

DC GIS is rich in data by comparison to other jurisdictions that are participating in the National Spatial Data Infrastructure (NSDI). The DC GIS data holdings and number of available layers (over 200) far exceed the published contents of "The National Map," which is currently focused on seven (7) "Framework" layers. The following table presents the current DC GIS status for each of the seven NSDI "Framework" data layers:

NSDI Framework Layer	DC GIS Status
Cadastral (parcels)	Published (except for federal land)
Political Boundaries	Published
Hydrography	Published (cartographic)
Imagery	Published
Elevation	Published (not current –circa 1995)
Transportation (Air, Roads, Inland Waterways, Rail, Transit)	Published
Geodetic control	Published (needs improvement)

District Perspective

There is considerable GIS functionality and data made available to stakeholders in the District, via DC GIS. The **existing and accessible services surpass what is available in many states and city jurisdictions**. While the stakeholders are generally well served and there is broad stakeholder representation on the GISSC, **decisions on what to do are made by OCTO** – stakeholders do not have a vote in these decisions, although they may have input. For example, stakeholders have had input into this plan; however, currently there is no formally established procedure for GISSC to endorse and adopt this plan, such as by vote.

This strategic planning process has shed light on the perception of **“no voting rights” outside of OCTO**, and raised the need for GISSC governance reforms. While the DC GIS customers and stakeholders widely appreciate the accomplishments of the OCTO GIS Group, future consideration should be given to how decisions are made and presented. Aside from full voting privileges, DC GIS could promote a transparent process whereby key decisions and their rationale are presented to GISSC before being finalized by OCTO.

By Mayors Order 2002-27, the GISSC itself *“may opt to include non-District government organizations and individuals as non-voting members of sub-groups,”* implying that the DC Government members of GISSC are voting members. Currently, there are no formal committee Bylaws to govern voting, and membership has evolved to be more ad hoc and voluntary than by formal appointment.

To-date, the general perception is that OCTO has been benevolent in its chairmanship of GISSC, and that the DC GIS Program has been effective. Nonetheless, concerns were expressed during the strategic planning process about how priorities are set and decisions are made. Specifically, **OCTO can dictate by unilateral decision what GIS programs or technology will be supported by DC GIS**. Some GISSC representatives expressed fear that DC GIS programs might be downsized or consolidated by OCTO, for example, if non-GIS programs are considered to be a higher priority and resources are limited. This possibility could adversely impact DC Government departments who rely on DC GIS to support their activities. If such potential trade-offs are made without consultation with the impacted parties, OCTO may be forgoing the opportunity to tap agency goodwill for support and resources.

While mostly beneficial, OCTO's unilateral decisions might also include projects that OCTO thinks are important, even if other departments might think other things are more important for the overall effectiveness of the DC GIS Program. For example, the recent decision to spend money on Google technology for GIS applications may prove to be a wise decision, but the impetus did not come from GISSC, or any of its permanent members other than OCTO. There was no vote. **OCTO can “call the shots” on GIS without getting the buy-in of agency-heads**, for better or worse.

Starting about three years ago, **OCTO decided to phase-out direct budget support for GIS personnel and contractors assigned to specific departments**, e.g., the Office of Planning. Later, the broader “GIS Liaisons Program,” was also phased-out as a direct service offering. Under this program, OCTO supplied personnel to work directly in support of individual departments and their mission-specific goals, to more efficiently utilize GIS to improve operations and the delivery of services. **In its place, OCTO established Portfolio Managers to be responsible for departmental clusters, rather than GIS-specific liaisons** for individual departments. While some agencies were able to fill the GIS-gap left by this measure, others felt short-staffed in the aftermath, and have not been able to replace the lost capacity.

Recent DC GIS Program Initiatives

Developing data, applications, and services are the main activities of the OCTO GIS Group. For example, its basemap update efforts are considered “essential” by key stakeholders. In terms of specific program initiatives of general interest, the following is a summary of recent DC GIS activities and developments:

- Data Related:
 - Photogrammetric update of planimetric basemap is underway
 - 3D building are now available
 - Greatly improved centerline address ranges are available
 - Adding residential rental units to the Master Address Repository (MAR) and resolving address anomalies
 - Income data by Census Block Group is available
 - Many data layers are recently updated, including CAMA property, National Park Service Trails and Scanned Historical Mapping
 - FOIA appeal with the Department of Interior, National Park Service for federal property data in useful digital form was denied
 - City walkout routes in the event of an evacuation on foot
 - Unified street centerline project underway for the National Capital Region (Towson University with FGDC support)
- Applications:
 - New DDOT Traffic Camera Tool
 - New Master Address Repository Sample Client and Services (e.g. reverse geocoding)
 - ESRI-based mobile capture tool for hydrants
- Google Implementation Progress:

- Release of KML data
- Progress on Intranet Google Earth
- Google Maps applications (DOT Evacuation Routes, DDOT Snow Response, DCPS School Finder, FEMS Hydrants)

2.3 Strengths

- DC GIS has a **working program**, and provides tangible access to data and functionality to both government users and citizens, through a variety of means
- There is a range of data consumers in DC, both internal and external to DC government, spanning the spectrum of sophistication; servicing this **diversity of demand** has resulted in the DC GIS program being broad-based and versatile
- There is **alignment between GIS and IT** in DC, making pervasive the high-level goal to “bridge the digital divide”
- DC GIS has an established **Federated Data Model** to optimize data sharing and minimize duplication of effort; data stewards are named, and cooperation takes place to facilitate data sharing
- DC GIS offers **modern and innovative Web services**
- City **leaders believe** in the value of GIS in DC
- DC GIS and its predecessors have **coordinated flyovers and planimetric base map data** for the benefit of DC Government users and other stakeholders in the District since the mid-1990s.
- There are long-standing, **working partnerships** in the District between many stakeholders

2.4 Weaknesses

- The Mayor’s Order that established the GISSC is not fully implemented, and the **governance model is not satisfactory** to all members, and turnover amongst those who participate is high
- Data gaps exist for a few key themes, such as **utilities, federal properties, and high-resolution elevation data** in the District
- There is a **“broken partnership”** with components of the National Park Service (NPS) responsible for property data
- Data sharing in the Metro Washington area is not consistently practiced by neighboring jurisdictions, which is an impediment to emergency services having a **Common Operating Picture (COP) based on the same data**; while this is not a DC GIS Program issue, it is a regional deficiency of concern to the FGDC in terms of NSDI development and homeland security situation awareness
- Members of the GISSC have been mostly **passive on strategic matters**
- While there is some key support at high-levels, much of DC executive **leadership is lacking in knowledge of GIS** and its problem-solving applications
- User demand and **utilization statistics are lacking** for DC GIS applications and Web services

2.5 Opportunities

- **Interest-levels are high** in GIS, so the timing is good for engaging new and old GIS stakeholders, and increasing the diversity of membership on the GISSC
- **GIS technology is much better understood** than ever before, which makes the current time opportune for making it more integral to DC infrastructure
- The opportunity exists to **apply GIS to government areas of responsibility that could benefit**, such as helping to maximize tax collections
- DC GIS can exploit GIS functionality for summarizing data such as crime and accidents not only according to traditional geopolitical boundaries, but also *across* these areas, resulting in **improved access to information** for the public and GIS stakeholders
- DC GIS and its supported applications are poised to benefit from **increased availability of geospatial data** from the private sector (e.g., streets, imagery) as well as other public organizations (e.g. GSA data holdings on federal government property, socioeconomic data, etc.)
- There is an opportunity for **shared planning for GIS data collection** amongst GISSC members, to better leverage and coordinate across independent mission-based efforts; and, the private sector could be involved in the planning process,
- Funding for the DC GIS program has been requested as part of the proposed OCTO operating budget in Fiscal Year 2009 (October 2008-September 2009), and there is an opportunity to achieve **sustainability as a regularly funded enterprise system**
- Mayor Fenty, has made education his number one priority and has executive authority over the District of Columbia Public Schools. In September 2008 the DC GIS offices were moved to Jefferson Middle School in Southwest Washington. The DC GIS is **uniquely positioned to take a leading role in integrating GIS with K-12 education.**

2.6 Threats

- **FOIA requests and appeals** to achieve data sharing between governmental entities can have political repercussions
- **DC GIS resources could get pooled** to support other enterprise applications within OCTO, thereby diluting GIS initiatives and activities
- Misunderstanding or **overselling “cool” new technology** may result in less support or unrealistic expectations for established technology that gets-the-job-done on a daily basis
- The possibility of a **chargeback business model for GIS** may weaken support for OCTO’s respected position in DC GIS oversight

3 MISSION & GOALS

3.1 Mission Statement

The Mission of DC Geographic Information System (DC GIS) is to **improve the quality and lower the cost of services provided by the DC Government**, through the District's collective investment and effective application of geospatial data and systems.

Furthermore, DC GIS will reach beyond the DC Government by continuing to **make DC GIS data freely and publicly available** to the fullest extent possible in consideration of privacy and security.

3.2 Long-term Programmatic Goals

The following six goals are the long-term (five-year) "programmatic goals" to support the DC GIS mission:

- 1) Ensure that state and local needs are met by focusing resources on geospatial data, systems, and program activities that are in alignment with District priorities
- 2) Develop and operate enterprise mapping data, geospatial applications, and Web services that enhance the utility, reduce the cost, and expand the interoperability of citywide and agency IT systems
- 3) Provide outstanding customer service and training that enable DC GIS users and stakeholders to leverage the full power of GIS technology
- 4) Sustain and improve GIS coordination and partnerships in the District of Columbia, the region, and the nation
- 5) Be innovative and adapt to the changing market for geospatial technology
- 6) Apply GIS in ways that more fairly enforce the tax code and reduce costs for the District

3.3 Short-term Success Factors for Each Goal

The 'success factors' for each goal are action-oriented considerations to guide implementation efforts over the remainder of the current Fiscal Year (FY 2008) and the next two Fiscal Years (FY 2009 and 2010). In many cases, these represent tangible examples of actual or seriously contemplated projects. Others are less specific. Either way, the success factors are intended to provide guidance and direction to implementation efforts, congruent with overall District priorities and long-term goals.

Success factors are listed after each goal, below.

- 1) ***Ensure that state and local needs are met by focusing resources on geospatial data, systems, and program activities that are in alignment with District priorities***
 - a. Focus on desired outcomes and measurable benefits. Apply GIS to the Mayor's CapStat policy areas, including: Education; Public Safety; Government Services; Government Operations; Health and Human Services; Economic Development
 - b. Further the transparency of the District government. Provide geospatial data and applications to the public so that citizens can efficiently interact with DC agencies (e.g., the DDOT Snow Response Reporting System)
 - c. Support educational initiatives. Support schools in the District (K-12) in recognizing integrating geography and technology into the DCPS curriculum. Further, lead Geography Week and GIS Day (November, annually), to stimulate educational interest in geospatial technology applied to social studies and current events

- 2) ***Develop and operate enterprise mapping data, geospatial applications, and Web services that enhance the utility, reduce the cost, and expand the interoperability of citywide and agency IT systems:***
 - a. Develop and maintain comprehensive mapping data programs. Ensure the availability and currency of core datasets on a regular planned schedule, including the following examples:
 - i. *Vector Property Map (VPM)*
 - ii. *Master Address Repository (MAR)*
 - iii. *Photogrammetric data such as streets, building footprints, elevation, and imagery*
 - iv. *Agency originated layers such as administrative boundaries and zoning*
 - b. Develop and deploy high-demand applications for internal professional and external public use cases. Offer a DC Intranet version of Google Earth that combines the richness of DC GIS data with the ease of use of Google (for DC Government use only, due to licensing constraints in the Intranet case for Google); assess application demand for citywide deployments, agency clusters, and functional areas
 - c. Continue the development and deployment of Web services. Support integration of DC GIS services into departmental business processes, such as permitting and customer/citizen relationship management, as well as public needs, with accessible Web services
 - d. Maintain and expand the one-stop shop of current, accurate, and documented DC geospatial data. Continue to implement the DC GIS Federated Geospatial Data Model (FGDM) approach; adopt clear criteria to determine whether any dataset poses an unacceptable privacy or security risk

- e. Deploy mobile and laptop applications. Provide support for DC First Responders (FRs) mobile requirements
 - f. Adopt a standard for feature-level metadata. Require such metadata for geospatial data sets, and provide tools to create and manage it
 - g. Make it easier for non-GIS users to contribute spatially-oriented data. For example, deploy a Web-based version of the MAR batch geocoder that works with Microsoft Excel and Google Docs
 - h. Improve business processes with the use of GIS. Achieve a greater degree of uniformity and usability in DC Government's many interfaces
 - i. *Develop a standard look-and-feel*
 - ii. *Implement the new standard as mapping websites are built going forward*
 - i. Add underground utilities data as feasible. Work with DDOT, WASA, and utility companies to develop and provide this data, seeking FOIA exemption to protect critical infrastructure security concerns
- 3) *Provide outstanding customer service and training that enable DC GIS users and stakeholders to leverage the full power of GIS technology:***
- a. Train GIS users.
 - i. *Add entry-level course for using Google Earth*
 - ii. *Continue other aspects of the DC GIS Training Program*
 - iii. *The DC GIS program trains a significant number of GIS users every year (300-400), but it does not reach enough executive leadership with "executive-friendly" training*
 - *In collaboration with Human Resources, include GIS requirements in the Management Supervisory Service (MSS) program and the Capital City Fellows Program*
 - *Properly and effectively position "Google-type" solutions in the minds of executives; in particular, the perception that "Google can do everything, for free" needs to be reconciled with reality*
 - b. Provide technical support and consulting. Deliver Tier II help desk support
 - c. Expand penetration of GIS to where it is not utilized. Prioritize one cluster of departments per year that could benefit from the use of GIS in their business processes and mission activities
- 4) *Sustain and improve GIS coordination and partnerships in the District of Columbia, the region, and the nation:***
- a. Formalize and sustain governance for the GIS Steering Committee (GISSC) and the DC GIS programs it supports. Reaffirm and refine Mayors Order

2002-27 to revitalize and update as necessary and appropriate, to accommodate the following:

- i. *Establish an Permanent Members within the larger GIS Steering Committee (a so-called “two tier” structure); at a minimum, the Board should include executive leaders from the four permanent DC Government members of the GISSC (i.e. OCTO, Office of Planning, DDOT, and the City Administrator’s Office) and a representative from the Federal Government (e.g. USGS)*
 - ii. *Assign the Permanent Members to draft and adopt Bylaws to more fully implement the GISSC charter in support of the development and maintenance of DC GIS programs; voting rights can be vested in such a board for key Committee decisions, such as adopting or changing Bylaws*
 - iii. *Vote on the “big stuff” to ensure consensus (e.g., budget priorities, and standards), but not everything; votes may be to “endorse” certain priorities (since approval rights may be beyond the GISSC’s authority); voting rights should be specified in the Bylaws*
 - iv. *The executive members of the GISSC will hold an “Annual Budget Meeting” in September of each year to accomplish the following:*
 - *Review GIS obligations during the Fiscal Year ending September 30th*
 - *Review planned obligations for the upcoming Fiscal Year beginning October 1st*
 - *Prepare coordinated budget submittal for the Mayor’s Office for the Fiscal Year beyond the upcoming new one*
 - v. *Departmental leadership (agency heads) shall attend the annual “budget meeting” of the GISSC, leaving the rest of the meetings to their designees where appropriate*
- b. Reach beyond the District Government. Engage both new and old partners from the Federal Government, Academia, and relevant Non-Profits in DC GIS programs
- i. *Determine appropriate mechanisms to involve GIS stakeholders who are external to DC Government*
 - *Add Universities and Non-profits as formal members of GIS Steering Committee*
 - *Add the Federal Government as a formal member of GISSC*
 - *Add public utility providers as formal members of GISCC*
 - *Execute an annual survey of stakeholders on needs and utilization regarding DC GIS data and services*
 - ii. *Leverage external resources and support on behalf of DC GIS (e.g. Universities in the area are interested in supplementing DC GIS training with programs for executives)*
 - iii. *Leverage federal investment in geospatial data and systems*

- iv. *Support and benefit from the National Spatial Data Infrastructure (NSDI)*
 - v. *Achieve interoperability with systems that are external to DC Government*
- c. Achieve intra and inter government GIS planning and activities in DC. Establish repeatable planning processes focused on continuous performance improvement though attention to desired outcomes, savings, and competitive advantage for the District
- i. *Ensure alignment of GIS activities with the strategic goals of the District as an enterprise*
 - ii. *As well as reviewing OCTO budget priorities for DC GIS, individual departments should review their own budgets for congruence with GISSC endorsed priorities*
 - iii. *GIS budgets that support “hidden infrastructure” should be publicized in a more visible way, to minimize the risk of false economies and misperceptions, and to improve transparency*

5) *Be innovative and adapt to the changing market for geospatial technology:*

- a. Leverage the modern ‘data democracy.’ Take full advantage of the Internet and the World Wide Web (www)
- b. Leverage both professional and citizen participation via the Web. For example, the public could serve a role in data error identification and correction, with the creation of suitable Web tools and processes
- c. Leverage private investment. Track and take advantage of private sector innovation in geospatial technology and IT, for example, cloud-computing
- d. Help ‘bridge the digital divide’ in the District. Leverage Internet information providers, such as Google, Microsoft, and Yahoo
- e. Migrate to commercially-supported mapping services when sufficient and cost-effective. For example, continue to investigate Google Earth capabilities for meeting agency needs

6) *Apply GIS in ways that more fairly enforce the tax code and reduce costs for the District*

- a. Deliver value to the District from DC GIS investments. For example, help enforce the tax code (e.g. make assessments more defensible on commercial properties; track street vendors to improve sales tax collections); achieve value through the reuse of data and services; support performance improvements for agencies by making GIS integration with their business processes easier and cost-effective
- b. Manage technology risk. For example, limit speculative development efforts without eliminating innovation and learning; reduce time to deployment and enable agile development by identifying shared services and through the loose coupling of service interfaces to underlying implementation platforms

- c. Retire low value systems. Evaluate the necessity of systems that are costly to support while yielding low value, and develop plans to sunset such systems; identify and retire any redundant projects that are unnecessary

4 REQUIREMENTS

DC GIS has achieved high levels of success. Nonetheless, it is not without deficiencies and needs. This section describes the major components and **considerations for understanding, sustaining and enhancing DC GIS**, including existing infrastructure, data, applications, and organizational requirements. The following are some of the high-level needs that emerge from the subsequent sections:

The need for:

- Executive support, funding, and governance
- Expanded geospatial data availability and services
- Shared GIS planning and development activity
- Staff support to augment GIS capacity
- Focus on desired outcomes (e.g., business retention and attraction)

4.1 Description of Existing Infrastructure

This section characterizes a representative set of GIS stakeholders in DC Government, and their GIS programs. It also provides examples of other stakeholders who benefit from and contribute to DC GIS. It is not intended to be exhaustive. Rather, it conveys the point that the **existing GIS infrastructure and interests extend beyond OCTO's GIS Group**, and continue to be nurtured external to OCTO's efforts, to meet mission-specific needs.

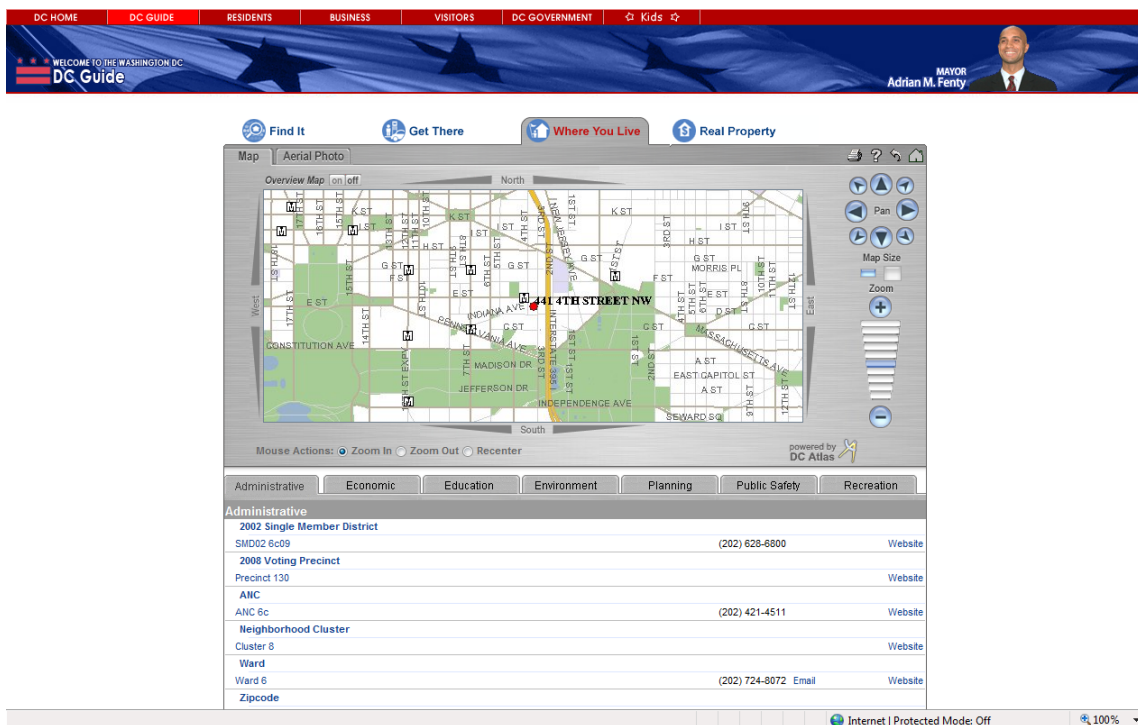
4.1.1 OCTO GIS Group

The GIS group within OCTO helps agencies improve the delivery of DC Government services by efficiently utilizing GIS technology. The OCTO GIS Group is responsible for supporting existing infrastructure and implementing new infrastructure that supports and enhances the DC GIS program, for the benefit of all stakeholders in the District. The services described below cover the many components of the Group's ongoing effort, **requiring executive support and sustainable funding for the long-term success** of the DC GIS Program.

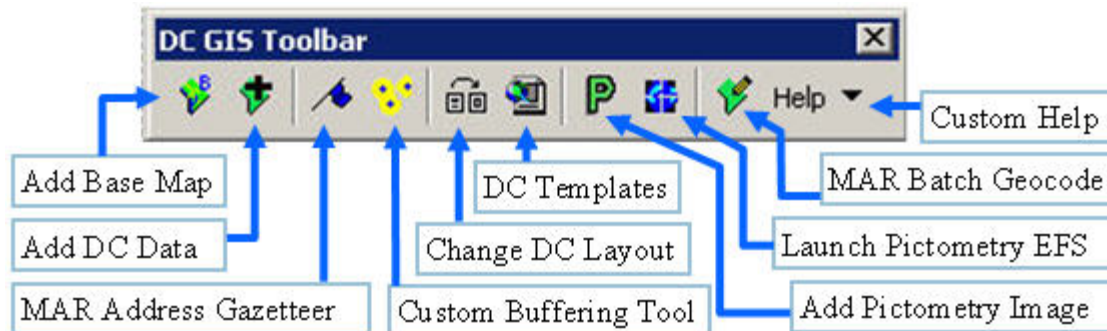
The services provided by the OCTO GIS Group include the following:

- Support to the GISSC as mandated by Mayors Order 2002-27

- Planning, program management, coordination, standards development
- Design, development, and maintenance services for the District’s central GIS
 - Provide central data store
 - Public and intranet web sites (DC Guide and DC Atlas)
 - Geospatial web services (also called common services)
 - Desktop and thin client GIS applications for specialized applications
 - Systems design and maintenance for the central GIS



DC Guide. Image Source: OCTO.



DC GIS Custom Toolbar for ArcGIS. Image Source: OCTO.

- Customer services
 - Training on DC-specific GIS applications and services
 - Respond on an as-needed basis to customer requests and support needs
 - Provide consulting services
- Data services
 - Acquisition, maintenance, and quality control of layers that serve multiple agencies including metadata
 - Operating the central data hosting: discovery, publishing, and distribution of all District government layers
- Direct support for individual agencies with projects of multi-agency importance
 - Funding, project support, staff augmentation, on call support
- Procurement / Project management
 - Contracting officers technical representative / project management, multi-agency buys (data, software, services), technical review and approval of agency specific procurements
- Intergovernmental coordination within the geospatial community
 - NSGIC, OGC, URISA, MWCOG, state and regional GIS directors, Federal agencies not closely associated with another DC Agency

4.1.2 Other DC-Government Stakeholders in DC GIS Groups

The following list is not all-inclusive, but it is representative of the current users of GIS data and technology within DC Government. All are stakeholders in DC GIS, and most are members of the GISSC. The **requirement for continued coordination through DC GIS and the GISSC** is self-evident, based on the number of agencies already engaged in GIS activities. Many have in-house capacity for GIS development and utilization. **All benefit from the availability of data and services through DC GIS.** Descriptions of the departmental programs and requirements follow, after the list.

- Office of the City Administrator
- Department of Transportation (DDOT)
- Office of Planning (OP)
- Homeland Security and Emergency Management Agency (HSEMA)
- Fire Emergency Medical Services (FEMS)
- Metropolitan Police Department (MPD)
- Office of Tax and Revenue (OTR)
- Department of Consumer and Regulatory Affairs (DCRA)
- Department of Public Works (DPW)
- Office of the Deputy Mayor for Planning and Economic Development (DMPED)
- District of Columbia Water and Sewer Authority (WASA)
- District of Columbia Office of Zoning (DCOZ)
- Department of Environment (DOE)

Office of the City Administrator

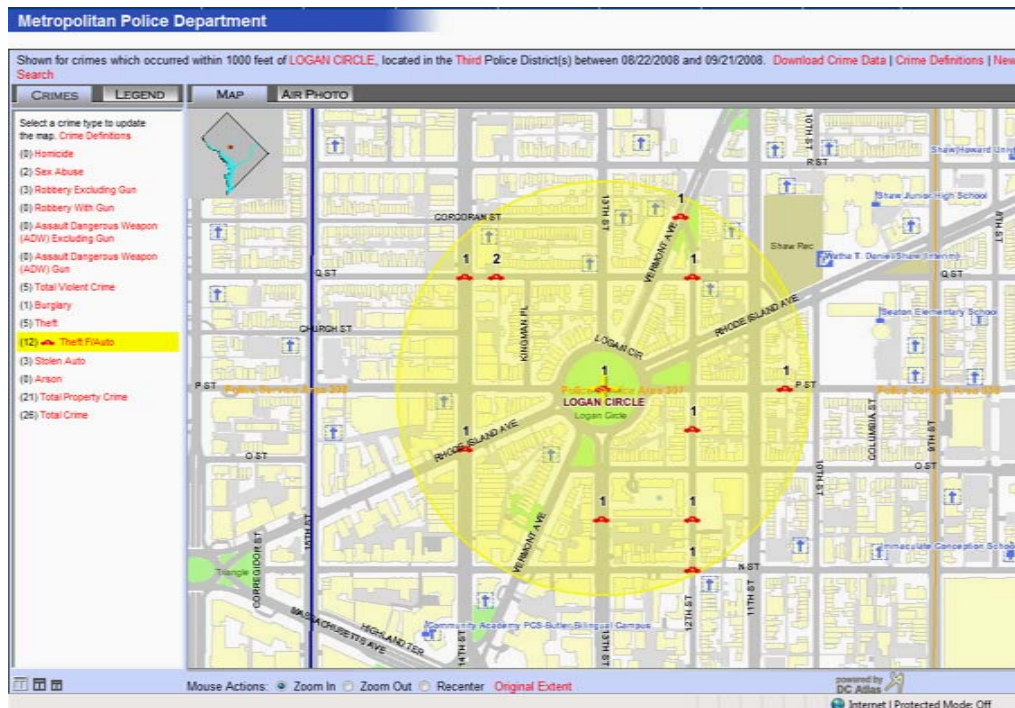
The Office of the City Administrator (OCA) is responsible for the day-to-day management of the District government, setting operational goals, and implementing legislative action and policy decisions approved by the Mayor and DC Council. OCA **promotes efficient and cost-effective operations** to meet the short and long term needs of the community by monitoring agency performance and providing administrative direction.

The City Administrator reports directly to the Mayor and has direct oversight of the Deputy Mayors and supporting agencies. The City Administrator prepares the District's **annual operating budget** and provides direction to all District agencies to ensure they are meeting the needs of District residents. The Office of the City Administrator manages the Mayor's CapStat program which promotes the goals of measurable outcomes in City Government.

The Office also administers the **Online Service Request Center (SRC)**. The Service Request Center allows users to request DC government services and track their requests online. Services can range from traffic signal and pothole repairs to trash pickup, grounds maintenance, and pest abatement.

GIS integration in the SRC allows location to explicitly inform the location of service requests. The application uses a standardized address list which is the pre-cursor to the DC Master Address Repository (MAR). **The MAR should now be fully integrated into**

the application via a data feed or web service to verify addresses, blocks & intersections.



Office of City Administrator has back publication of live data feeds. Crimemap.dc.gov combines live data feed from the Citywide Data Warehouse with Master Address Repository to put data in the hands of citizens quickly and accurately. Image Source: OCTO.

Department of Transportation (DDOT)

The District's Department of Transportation (DDOT) manages and maintains transportation infrastructure. DDOT has a full-time Chief of GIS Operations, who works in the Office of Information Technology and Innovation, which is one of the offices within the Office of the Director (where overall responsibility for the oversight and management of DDOT resides). In addition, there are five administrations within DDOT, each with GIS needs and capabilities. In this manner, **DDOT GIS is a microcosm of the overall DC GIS Program**, with similar needs for coordination and infrastructure development.

The five administrations within DDOT include:

- Infrastructure Project Management Administration (IPMA)
- Mass Transit Administration (MTA)
- Transportation Policy & Planning Administration (TPPA)
- Traffic Operation Administration (TOA)
- Urban Forestry Administration (UFA)

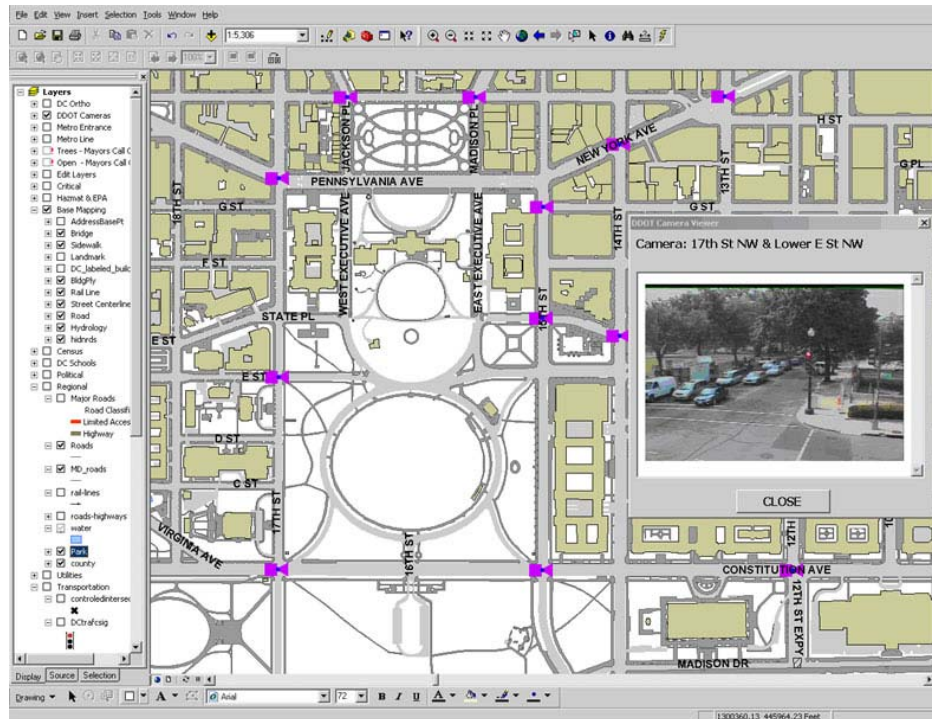
DDOT is a good example of a department with a well-justified need for GIS to support its mission requirements. It is **both a data provider to DC GIS, and a data consumer**. For example, street centerlines, an important dataset for many departments is created and maintained by DDOT and supplied to DC GIS. In turn, the planimetric basemap data acquired and updated by the OCTO GIS Group are made available to DDOT for its internal GIS program. Other collaborative efforts are underway for street furniture (e.g. items such as bus shelters, benches, and mailboxes), and crash data. This mutual dependence is recognized and accepted by all parties as a key tenet of the DC GIS federation.

DDOT has its own GIS Steering Committee with approximately 12 members (including OCTO's GIS Manager), and is in the process of developing GIS strategic plans for the Department and its administrative units.

Strategic goals for DDOT GIS include:

- Lower cost of data maintenance and administration
- Promote cost sharing
- Reduce workload by automation
- Streamline work flow
- Increase confidence in data.

Within DDOT, more analytical GIS capabilities are needed. For example, GIS should be used for degradation modeling to help visualize maintenance and repair requirements. GIS can also be used to assist determining what school children are eligible for Smart Cards for mass transit.



HSEMA Integrated GIS with DDOT Traffic Cameras. Image Source: OCTO/DDOT.

Office of Planning (OP)

The District's Office of Planning (OP) works with residents throughout the District to identify and better understand neighborhood priorities for revitalization plans and implementation projects. It also works with developers, large institutions, and the community to resolve problems prior to decisions being made. OP also disseminates demographic and economic data, fulfilling the role of State Data Center (SDC) for US Census Bureau data in the District. Of primary importance in terms of the assessment of existing GIS infrastructure and program requirements, **OP maintains a GIS/IT group that performs demographic and spatial analysis, develops specialized GIS tools, and creates maps for a variety of constituents.** Map requests are tracked by OP GIS/IT to better understand the demand metrics for different map titles and themes. This group also provides IT support for OP.

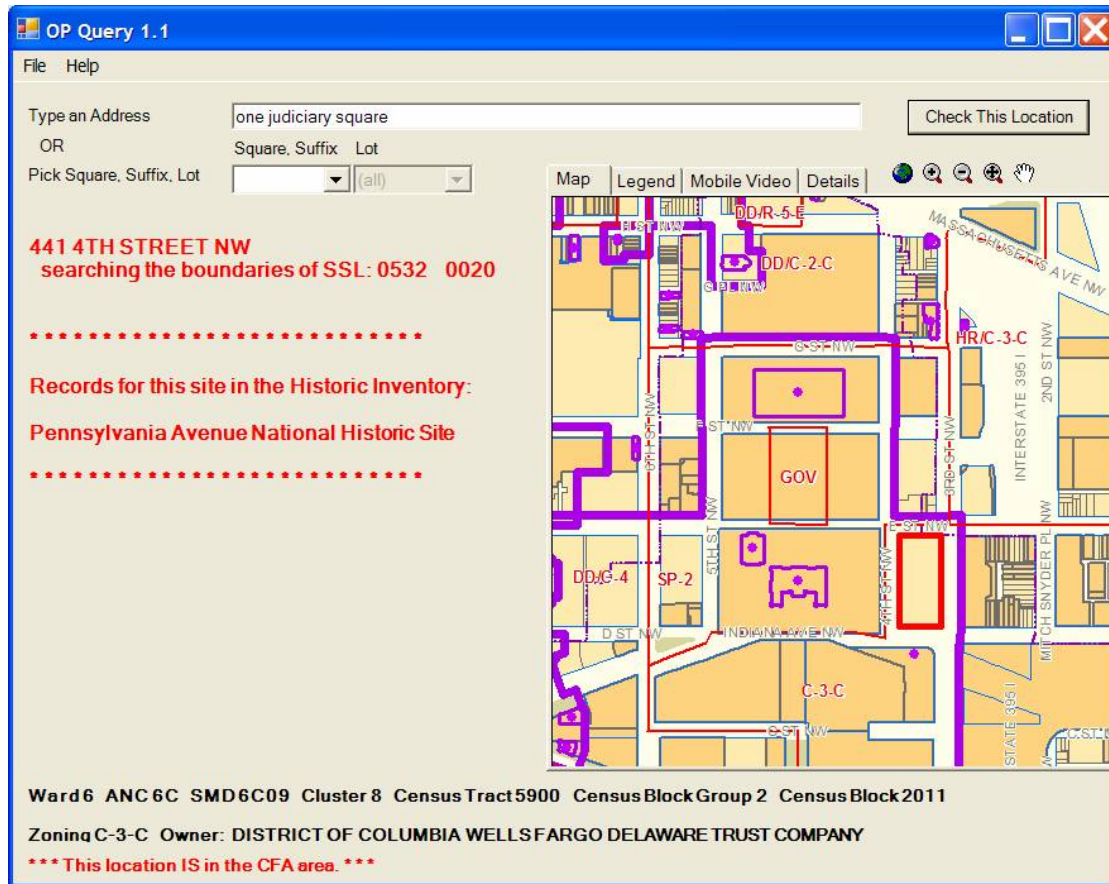
The OP GIS/IT Group has a core team of five full-time people, including a Director of GIS/IT. In addition to the intense use of technology within this core team, there is a broad use across OP, including heavy use of desktop GIS tools (i.e., ArcMap). The GIS/IT group has developed extensions that work with ArcMap to make it easier for casual users to produce their own maps. These extensions are made available through DC GIS to the wider GIS community in the District, via Citrix. An important benefit of the Group's efforts is the **empowerment of non-GIS experts to make their own maps** with these extensions.

The OP GIS/IT Group has three constituencies:

- OP staff
- Maps on demand for the public
- Services to other agencies

The Group is a **major consumer of DC GIS data and services, as well as a data provider** (i.e., demographic and economic data through its State Data Center role, and land use data from its planning mission). The hands-on familiarity with key datasets is an asset to the OP GIS/IT Group, enabling effective spatial analysis rooted in a deep understanding of the data being manipulated, and its suitability for various purposes. Determining the 'fitness-for-use' is often a function of having reliable metadata. One of OP's requirements is for feature-level metadata with time-stamping, so that the GIS/IT analysts can know precisely that which may have changed since their last analyses. Another data-related requirement to support planning and land-use analyses is for high-resolution elevation data, and derivative products such as elevation contours with a one-foot interval.

OP Query is one tool the Office of Planning has developed to make information for the District more accessible to internal and external customers. OP's GIS staff focuses on analysis of spatial data and high-quality map products.



OP Query Application Showing Historic Area Boundaries. Image Source: OP.

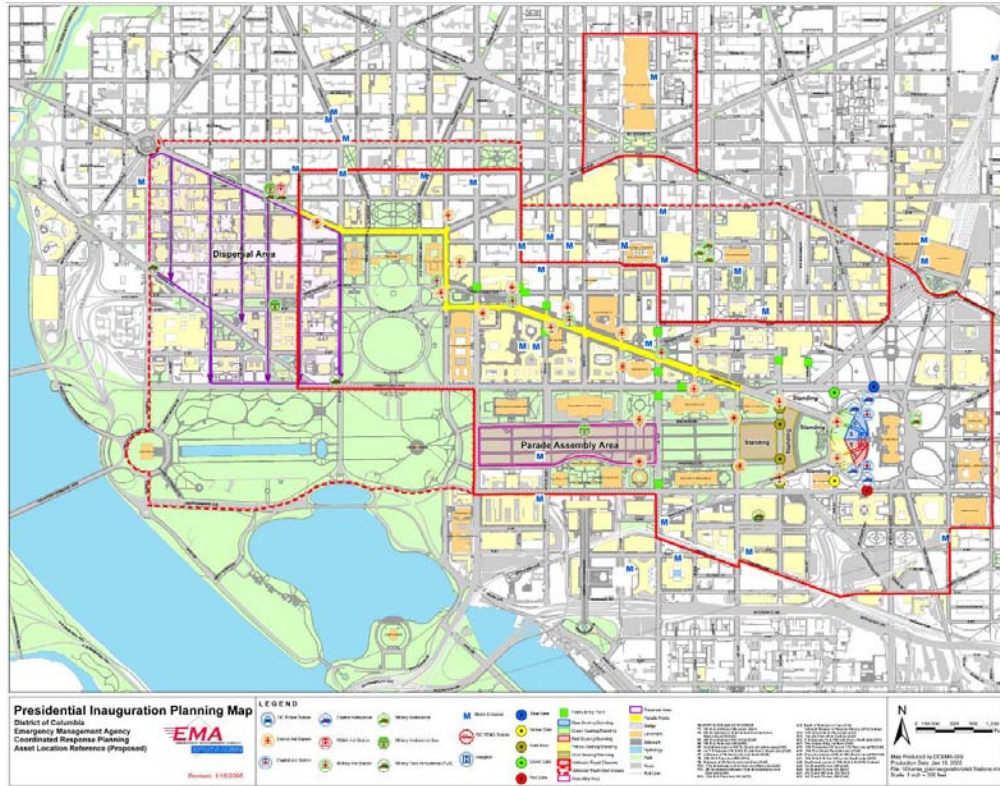
The Group was an **early adopter of the DC GIS Web service for the Master Address Repository (MAR)**, relying on it for their OP geocoder. Such services are well-regarded and seen an important development for DC GIS to nurture. While great strides have been made to make data available in consumable ways, such as downloadable shape files, the OP GIS/IT Group **would like to see on-line streaming of key feature-level datasets** in the future. Also, the Group anticipates benefits from access to OCTO’s instance of ArcGIS Server (AGS), when feasible.

Homeland Security and Emergency Management Agency (HSEMA)

The Homeland Security and Emergency Management Agency (HSEMA) provides coordination and support of the city’s response to emergencies and disasters of all types, both natural and manmade. The mission of HSEMA is to reduce the loss of life and property and protect citizens and institutions from all hazards by operating and maintaining a comprehensive all-hazard community-based, state-of-the-art emergency management infrastructure. This is accomplished by:

- Developing plans and procedures to ensure emergency response and recovery capabilities for all emergencies and disasters;
- Coordinating emergency resources for emergencies and disaster incidents;

- Providing training for all emergency first responders, city employees, and the public;
- Conducting exercises; and
- Coordinating all major special events and street closings.



HSEMA 2005 Presidential Inauguration Planning Map. Image Source: HSEMA/OCTO.

HSEMA does not have any dedicated GIS staff and **relies heavily on DC GIS to provide both planning and activation of GIS services.** Under the guidelines provided by the District Response Plan, DC GIS functions in Emergency Support Function 5 (ESF5) and supports all DC agencies with geospatial technologies in the Emergency Operations Center (EOC).

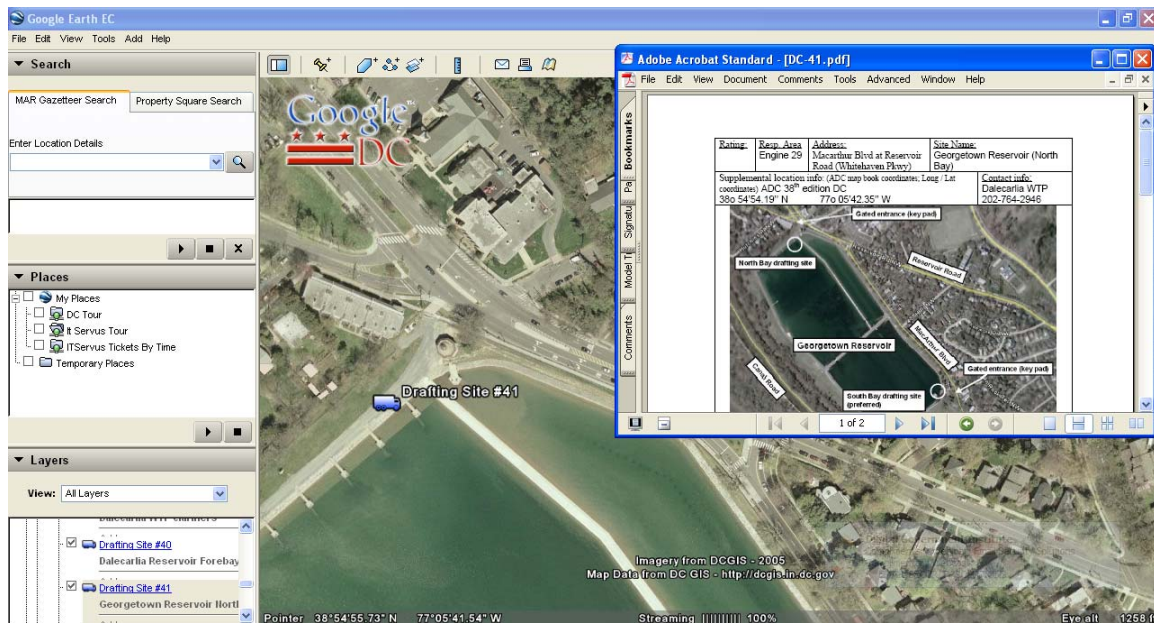
As part of the IMAP certification requirements, **all critical systems must be housed within the EOC.** HSEMA maintains a copy of DC GIS data onsite as well as HSEMA specific, sensitive and classified datasets not shared outside of the HSEMA environment. A real-time link to the 911 Computer-Aided Dispatch (CAD) system is an example of data available in the EOC.

HSEMA would benefit greatly from a full time analyst to provide Planning and Mitigation support to the Preparedness Branch. DC GIS currently provides 12 hours per week staff time to HSEMA.

Fire and Emergency Medical Services (FEMS)

The DC Fire and Emergency Services provides fire prevention and suppression and emergency management services to the District, including medical care and transport, hazmat response, and rescue services. Additionally, the FEMS provides specialized services unique to the Capital such as presidential motorcade escort and backup support for major public demonstrations. Service deployment is conducted out of 33 neighborhood stations throughout DC. On average, **FEMS responds to over 400 incidents each day.**

The Geographic Information Systems function exists under the Office of the Assistant Fire Chief for Emergency Management Services. GIS at FEMS serves to assist the tactical and logistical planning needs of the agency. For example, FEMS has used GIS to **optimize the locations of Advance Life Support (ALS) units based upon spatial patterns** of demand. If unit response times are poor in certain areas of the city, additional resources have been added or existing resources re-allocated based upon existing mapped locations. By prioritizing, FEMS has provided better ALS coverage and overall response times have improved across the city. GIS has also been used to provide the fire chiefs with **pre-plan maps of critical infrastructure and other likely targets** of attack. Spatial technology has also been integrated into emergency response software (computer aided dispatch, or CAD) so that dispatchers can view available resources near the site of a reported incident.



Pre-planned water draft site and linked document in Google (Earth) DC. Image Source: FEMS/OCTO.


Metropolitan Police Department (MPD)

The Metropolitan Police Department is responsible for protecting citizens and visitors in the District. There are several "pods" of GIS activity within MPD. Within the CTO's

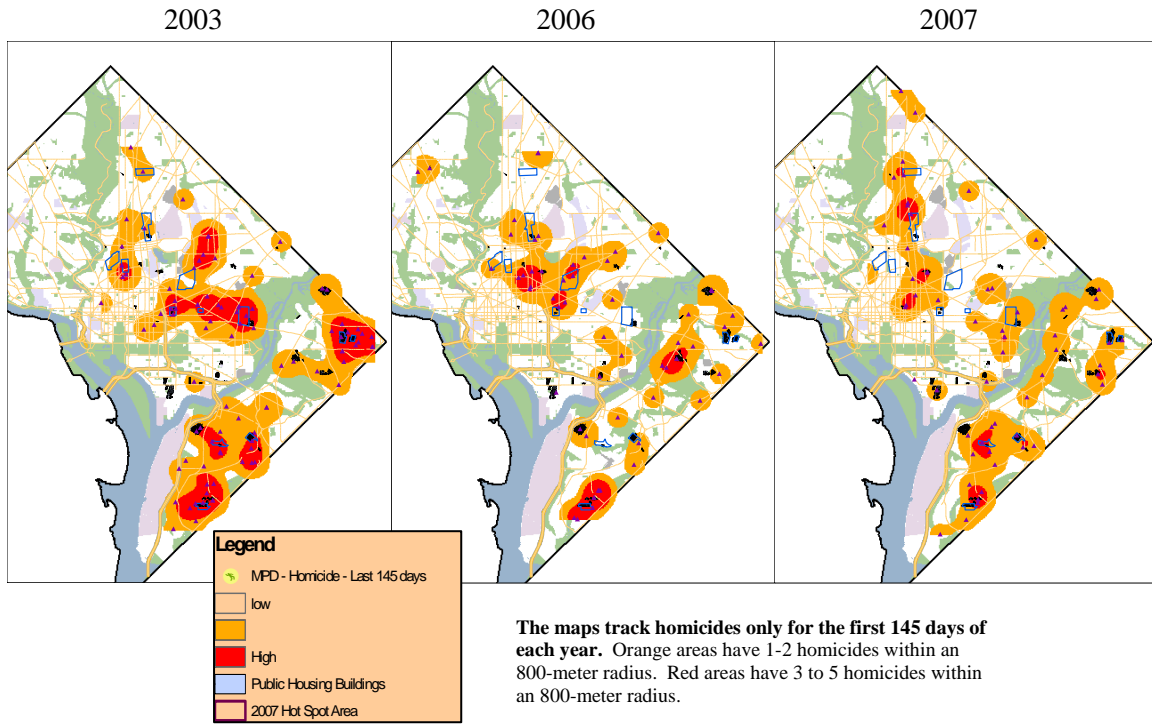
Office, there is a group of crime analysts who support the Police Chief with daily crime statistics. Each of the seven districts under the Patrol Services and School Security Bureau has a trained crime analyst also. **MPD has approximately 12 officers with GIS training through DC GIS** who support the various command centers within MPD.

DC GIS presently supports both branches of the Homeland Security Bureau within MPD. Special Operations Division (SOD) is supported through HSEMA activities. The Intelligence Fusion Division is supported with onsite analysis, training and data development. All eight of the programs under the Intelligence Fusion Division have benefited from DC GIS involvement through direct or indirect support. DC GIS has committed 15 hours per week staff time to MPD.

The nature of the work being done at MPD requires that the majority of the data created therein either not be shared, or be “watered down” prior to dissemination. The lack of a standard procedure and an easy to use tool for accomplishing this task has led to the institutional requirement that all MPD data be kept wholly within MPD. Crime modeling and other intervention programs have been hindered by this practice.

 <p>Robbery Location</p>	<p>Equipment taken from a marked Police Vehicle</p> <p>Between the hours of 1800 on May 2nd and 0800 on May 3rd, a Montgomery County Police marked patrol vehicle was broken into and numerous articles of police equipment were removed.</p> <p>Among the list of property taken were: one X-26 Taser with two cartridges, two black county police uniforms (no badge), and a duty belt containing two loaded magazines, handcuffs, and an ASP baton. No firearms or portable radios were taken.</p>
<p>Teletype 08-198: Homeland Security Self Tutorial Mandatory Training</p> <p>Bank Robbery In Progress FNC Bank 17th & K Street NW • Theft</p>	

Conceptual diagram of the Metropolitan Police Department “Temperature Board” New Information Initiative. Image Source: MPD/OCTO.



Shifting Homicide Hotspots. Image Source: MDP/OCTO.

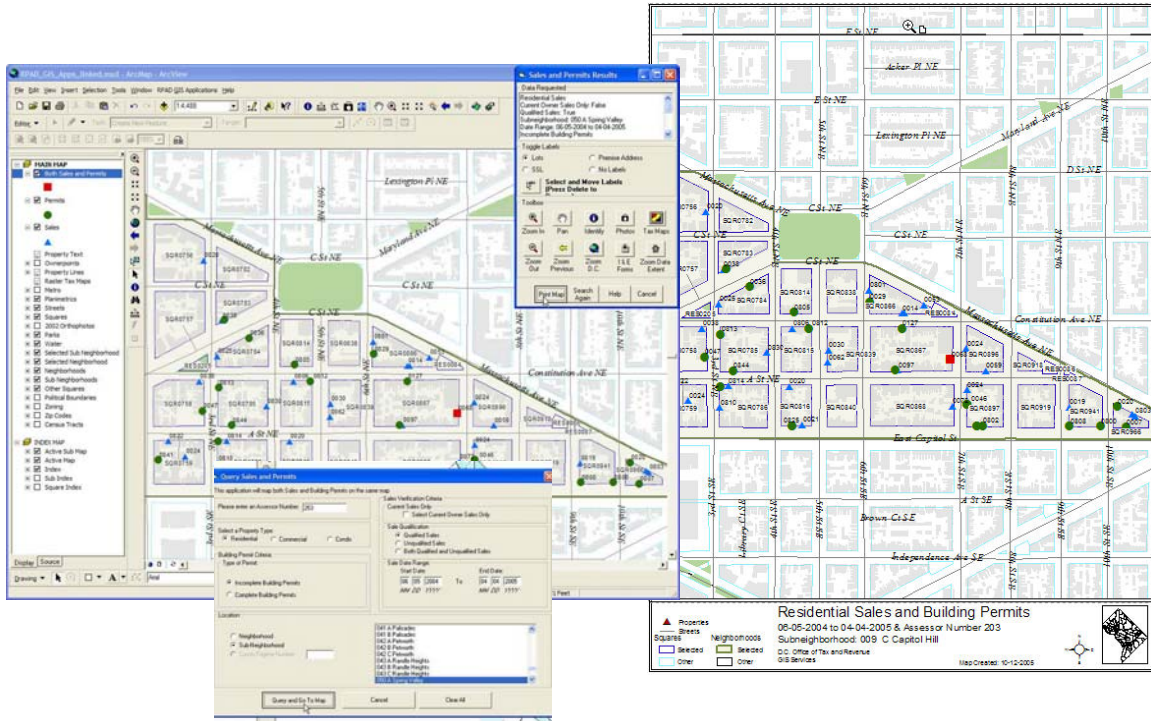
Office of Tax and Revenue (OTR)

The Real Property Tax Administration (RPTA), Real Property Assessment Division (RPAD), is an organizational entity within the Office of Tax and Revenue (OTR). It is primarily responsible for property assessment, property ownership changes, assessment tax rates, tax mapping, tax sales, and **maintenance of the Owner Points and of the Vector Property layers**. RPAD is divided organizationally into five units:

- Residential Assessment
- Major Properties Assessment
- General Commercial Assessment
- Standards and Service
- Maps and Titles

Within each of these units GIS is being used. Examples are:

- Mapping of Vacant/Abandoned Properties
- Mapping of Appeals for General Commercial Properties
- Tax Sale Mapping
- Homestead Property Tax Credit Mapping
- Maintenance of the District's Vector Property Map



OTR Sales and Buildings Permit Tool. Image Source: OTR/OCTO.

RPTA has two primary database systems: 1) Integrated Tax System (ITS); and, 2) Computer Assisted Mass Appraisal (CAMA) System.

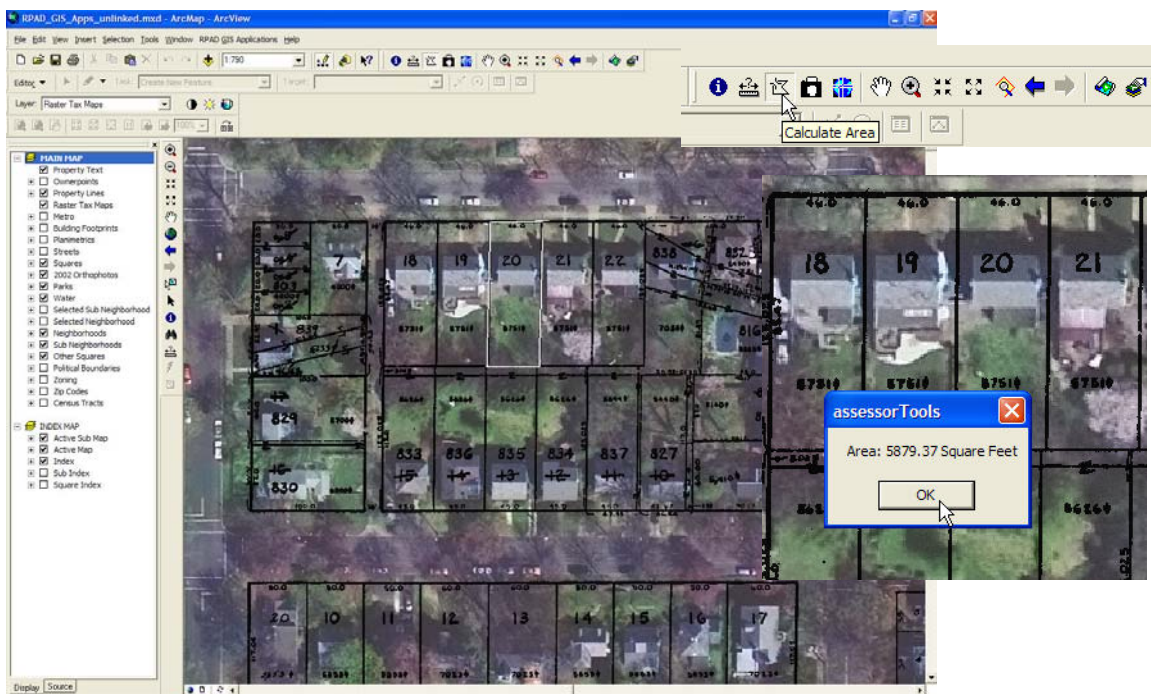
The Integrated Tax System (ITS) is a database used for sending tax bills, also known as the tax assessment roll. This database **stores comprehensive tax information**, such as: ownership; mailing addresses of record lots; tax lots; parcels; condominiums; and, federally owned lands such as reservations and appropriations. The ITS database also processes notices and tax bills. The linkage from the Vector Property layers to this database is by Square, Suffix, and Lot (SSL). It should be noted that not all record lots have a direct 1:1 relationship to information in this database.

The Computer Assisted Mass Appraisal (CAMA) system is comprised of an Oracle database and software from Vision Appraisal to assist with appraising properties. The CAMA system **stores characteristics of properties** such as use code, assessor number and valuation information (e.g. income, cost and market value). It was installed and taken live in year 2001. Linkage from CAMA to Vector Property Map (VPM) layers is by the aforementioned SSL (Square, Suffix, and Lot). The CAMA system interacts nightly with ITS for updates.

Additionally, over the last few years **several integrative GIS applications** have been developed for RPAD. These use datasets maintained by the RPAD staff, including the

Computer Assisted Mass Appraisal (CAMA) and Real Property databases, and integrate many other DC agency datasets on a real-time or near-real-time basis. RPAD staff generally use these applications to perform the analyses necessary in the assessment, field survey, and appeal processes. They have collectively become known as the “**RPAD Assessor Tools,**” and are **currently used daily by about 60 RPAD assessors, their managers and supervisors.**

RPTA has also implemented Smart Data Strategies (SDS) “Analyst” software tool that lets **users get more real information out of their parcel data.** This software harnesses ESRI’s graphical toolset and focuses it on the tasks of allowing users to quickly locate and identify parcels, view related data, gather useful statistics, and perform calculations on parcel data.



DC Assessor Tools. Image Source: OCTO/OTR.

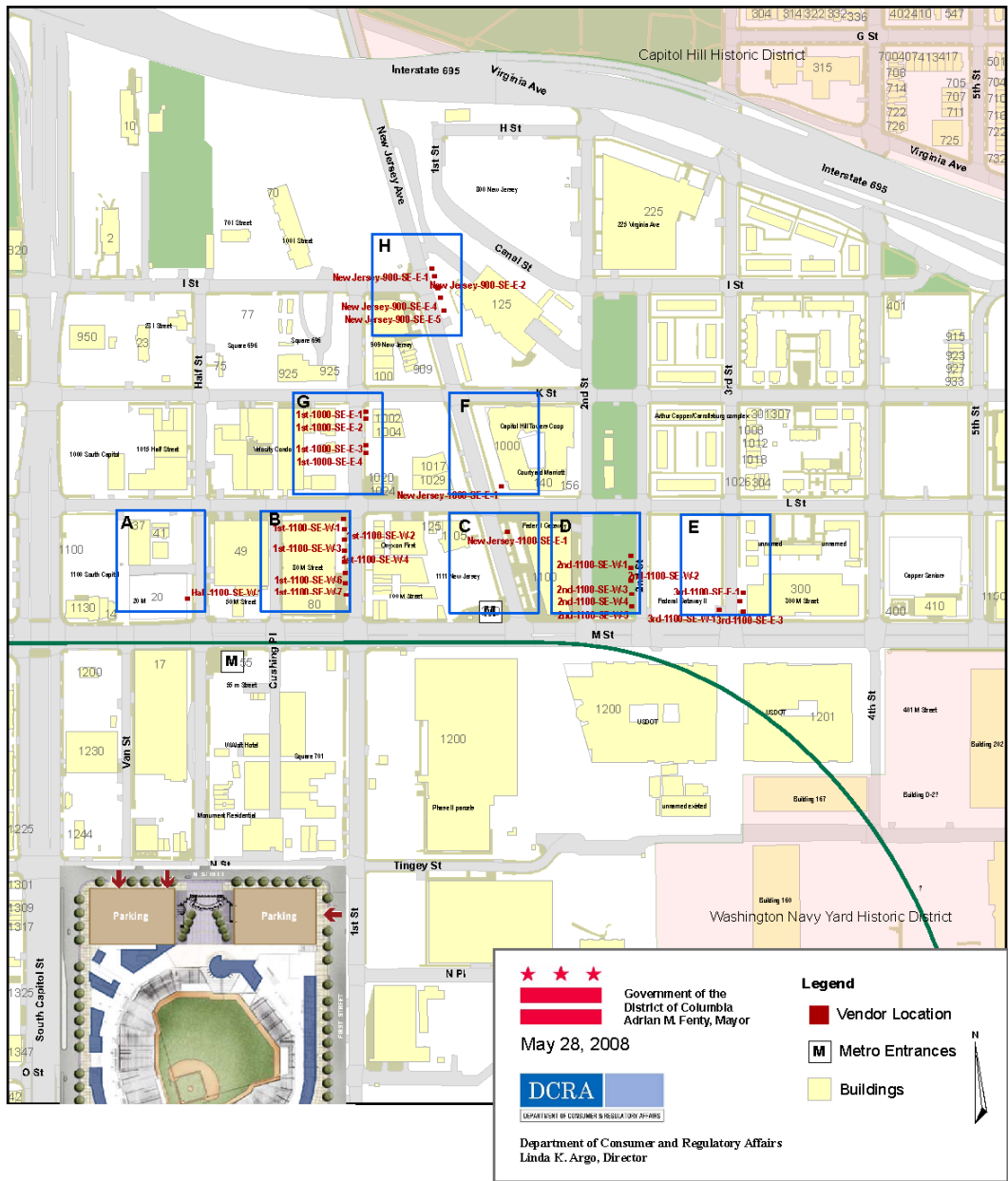
Department of Consumer and Regulatory Affairs (DCRA)

The mission of the Department of Consumer and Regulatory Affairs (DCRA) is to protect the health, safety, economic interests, and quality of life of residents, businesses, and visitors in the District of Columbia by issuing licenses and permits, conducting inspections, enforcing building, housing, and safety codes, regulating land use and development, and providing consumer education and advocacy services.

DCRA **utilizes geospatial technology for a variety of applications** to support their mission including, but not limited to:

- Permit Intake Validation Service (PIVS)
- Mapping of Vacant/Abandoned Properties

- Mapping support for the Nationals Park Street Vendor Lottery
- Maintenance of the District’s Vector Property Map



Nationals Park Vendors Site Map. Image Source: DCRA.

Additionally, **DCRA’s new licensing and permitting, inspections and enforcement solution has several geospatial components** such as address input, routing and thematic map display.

Within DCRA is the **Office of the Surveyor (OS)**, which is the legal office of record of plats and subdivisions of all private property in the District of Columbia (District). The

Office of the Surveyor is responsible for preparing, maintaining and protecting all maps, books, plats and subdivision of all private property in the District and all property belonging to the District. The OS's customers include District residents and businesses, title companies, architects, surveyors, federal government and other District agencies.

The Office of the Surveyor's core business functions include:

- ***Building Plat Process:*** The process by which customers obtain an official copy of their building plat
- ***Subdivision Plan Process:*** The process by which customers who want to reorganize existing parcel(s) of land, including transferring assessment & tax lots to record lots, divide existing lot into multiple lots; and combine several existing lots into one or more lots have their land divided and officially recorded with the Office of the Surveyor
- ***Survey Process:*** The process by which customers obtain the assistance of the Office of the Surveyor to conduct a survey identifying or confirming the set-backs (distance between their building and their property lines) and/or property corners
- ***Wall Test Process:*** The process by which customers performing new construction on their land parcel have their structure's set-backs verified by the Office of the Surveyor prior to issuance of a building occupancy permit
- ***Street and Alley Closings:*** The process by which customers who want to close a street or alley obtain the necessary approvals

In addition to these core business functions, the OS provides metes and bounds descriptions, deed analyses, survey computations, highway plan changes, transfer of jurisdiction service, sizes and shapes of record lots, and subdivision plats to its customers.

The OS plays a critical role in the District's land development process, and GIS supports this effort in a numbers of ways. The Office works closely with engineering companies, architectural firms, planners, developers, private contractors, and District residents to facilitate urban renewal and development projects by assuring that proposed projects conform to District's zoning regulations and subdivision requirements.

The OS has been using some form of CAD (Computer-Aided Design) for over two decades. With the recent development of the Vector Property Map, GIS has begun to play a much more fundamental role within this group.

In 2008, OS launched a document management system that allows individuals visiting the OS office to search and find high resolution scanned documents of properties of interest. As of June 2008, **approximately 400,000 documents have been scanned and indexed and made available through several terminals located within the OS.** A future goal is to make this available to other DC agencies and the public via a geospatial interface.

Department of Public Works (DPW)

The mission of the Department of Public Works (DPW) is to provide sanitation, parking enforcement, fleet maintenance and energy-related services for District residents, visitors, and businesses to ensure safe, clean and aesthetic neighborhoods and public spaces.

GIS activities, whether completed, in progress, or planned, are all born from the agency's mission and goals. These activities have allowed the agency to: increase efficiency through better organization; improve citizen services through better identification of needs using analysis, pattern recognition, and spatial visualization; and, promote better communication between employees, supervisors, and managers.

GIS roles, activities, and work products that relate to the agency's goals and business processes, and also to DC GIS data dependencies, have been defined in detail by DPW. DPW has undertaken numerous GIS projects during the past three years. Through these projects, DPW created more efficient static and daily routes, thereby **maximizing personnel and equipment resources to accomplish an increased workload.** DPW also improved GIS data resources and maintenance procedures, making the DPW GIS data layers of high enough quality to be distributed for use and publication outside the DPW.

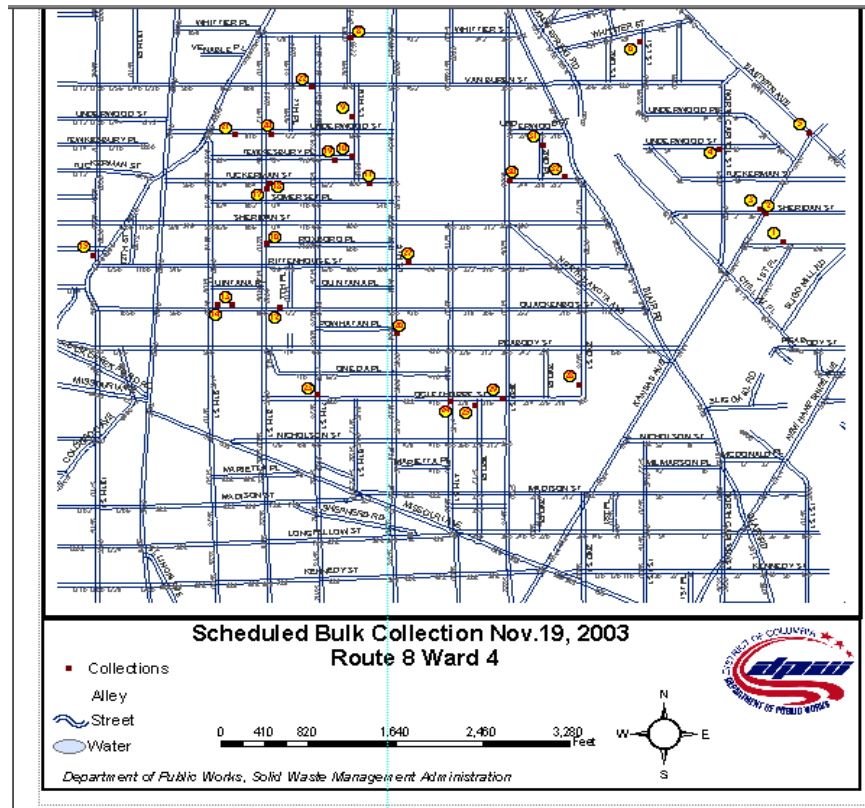
Project examples include:

- Static Routing – *ongoing*
- Daily Routing – *complete*
- Development of DPW Geodatabase for Data Maintenance – *complete, but constantly under maintenance and modification*
- Point of Service (POS) Mapping – *complete*

DPW benefits from the availability of Web services from OCTO, such as MAR, and the OCTO GIS Citrix application server. The former provides authoritative addresses for the geocoding of service requests; and the latter is used for hosting the Debris Tracking and the Automated Routing applications. The following issues have also been addressed at DPW using GIS in an effective manner:

- Snow complaints
- Recovering from Hurricane Isabel
- Abandoned autos
- POS locations mapped
- Turn Restriction Survey (TRS)
- Routing for trash collections
- DCStat for performance monitoring and evaluation
- Parking restriction areas and parking meter locations
- Litter can mapping, types and proximity to bus stops
- Created recycling routes
- Rerouted convention area trash routes

- Developed public internet access site allowing people to track leaf collection progress in relation to their address.
- Mapped street sweeper routes



DPW Scheduled Bulk Collection Map. Image Source: DPW.

Office of the Deputy Mayor for Planning and Economic Development (DMPED)

The Office of the Deputy Mayor for Planning and Economic Development (DMPED) supports the Mayor in developing and executing the District’s economic development policy. Its purpose is to assist the Mayor in the coordination, planning, supervision, and execution of all programs, policies, proposals, and **functions related to economic development in the District of Columbia**. DMPED serves as the Mayor’s advisor for the most effective allocation of public resources devoted to developing the District’s flourishing economy.

DMPED has three dynamic roles:

- DMPED sets development priorities and policies, coordinates how the District markets itself to businesses and developers, and recommends/ensures implementation of financial packaging.

- DMPED represents the Mayor to businesses, developers, and other government agencies by managing relations with a variety of constituents who operate primarily outside the government.
- Internally, DMPED manages the executive agencies responsible for economic development. These agencies comprise the Cluster Group for Economic Development and have functional responsibility for planning, housing, employment services, business development and regulation. The Office of the Deputy Mayor for Economic Development is accountable for the performance of these agencies with a combined annual economic development budget that exceeds \$180 million.



Anacostia Waterfront Redevelopment Model. Image Source: DMPED.

District of Columbia Water and Sewer Authority (WASA)

The DC Water and Sewer Authority (DCWASA) provides retail drinking water distribution, wastewater collection, and wastewater treatment services to the District of Columbia and provides wholesale wastewater treatment services to certain suburban jurisdictions. Enabling legislation in 2006 established DCWASA as an independent agency of DC government. DC WASA develops its own budget which is incorporated into the District’s budget; all funding for operations and improvements now comes through usage fees, grants and bond sales.

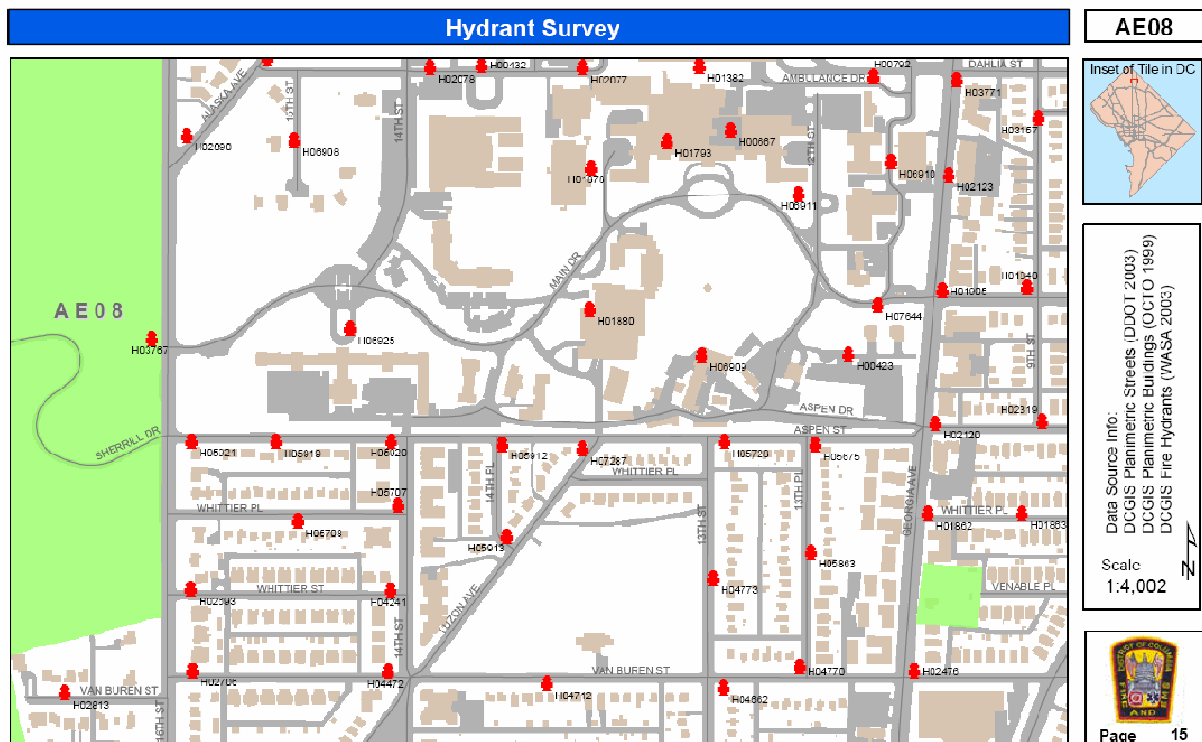
WASA is using GIS to manage their water and sewer infrastructure and assets.

They employ a senior GIS analyst and GIS analyst. GIS achievements at WASA include:

- In 2004 WASA initiated a 10.3 million dollar comprehensive asset management system. The system was based upon the existing document management strategy based on scanned paper maps, but it combines customer information and billing with infrastructure models along with GIS and mapping data.

- WASA has provided FEMS with a Google Earth datalayer that reports hydrant operational status in near-real time fashion. This datalayer is distinguished from the public facing KMZ download by additional attribution.
- WASA has developed a mobile hydrant survey tool based on the ArcGIS Server SDK that is run on the Motorola MC35 handheld computer. The application allows the user to select a hydrant based on location rather than identifier number, which limits the number of field data entry errors due to incorrectly selected hydrants.
- WASA is using imagery and photogrammetric data to calculate impervious surface fees by user for long term control and cost of the combined sewer outfall.

WASA also requires a **real-time data feed for the Vector Property Map**. Another challenge for the organization is establishing **feedback mechanisms** with partner agencies to **address data errors**, omissions, and other deficiencies in shared datasets.



Managing Fire Hydrants. Image Source: OCTO/WASA/FEMS.

District of Columbia Office of Zoning (DCOZ)

The District’s Office of Zoning (DCOZ) is an independent agency that provides administrative, professional and technical assistance to the Zoning Commission (ZC) and

the Board of Zoning Adjustment (BZA) in the maintenance and regulation of zoning in the city. DCOZ utilizes zoning regulations to control land use, density, height, and bulk characteristics of property. The ZC is an independent, quasi-judicial body in the District of Columbia, created by the Zoning Act of 1920, as amended. The ZC is charged with preparing, adopting and subsequently amending the Zoning Regulations and Map, consistent with the Comprehensive Plan for the National Capital area. The Zoning Commission consists of the three local members appointed by the Mayor and confirmed by the Council, the Director of the National Park Service (or staff member), and the Architect of the Capitol (or staff member).

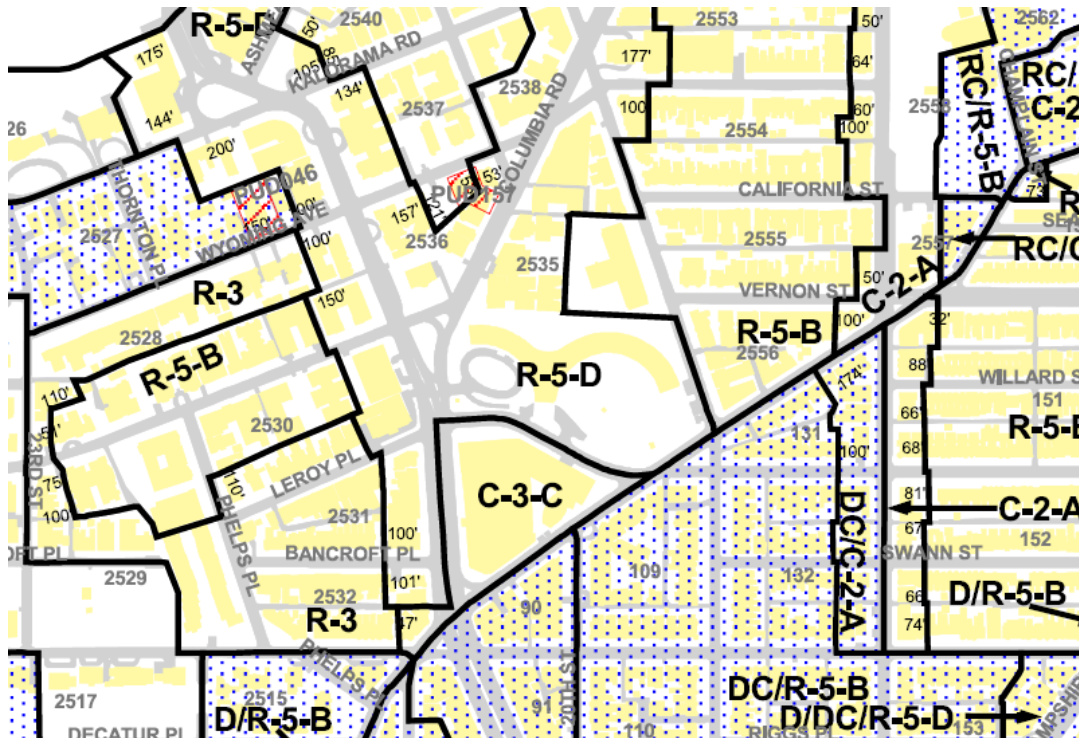
The Board of Zoning Adjustment (BZA) is also an independent, quasi-judicial body of the District of Columbia Government. It is empowered to grant relief from the strict application of zoning regulations (variances), approve certain uses of land (special exceptions), and hear appeals of actions taken by the Zoning Administrator. The Board consists of three Mayoral appointees, a rotating member of the District's Zoning Commission, and an appointee of the National Capital Planning Commission (NCPC). In cases involving only Foreign Missions and Chanceries, the Executive Director of the NCPC becomes the sixth member of the Board.

DCOZ has a Chief Information Officer (CIO) that appreciates the power of GIS and has **developed and implemented an Interactive Zoning Information System (IZIS)** to support its mission requirements and business process as well as provide citizens with a user friendly, convenient, and efficient system to research zoning information. Within IZIS, historical Records of Zoning and BZA decisions can be searched and retrieved, Zoning and BZA applications filed, exhibits viewed, progress of current cases tracked, and zoning scenarios mapped and displayed.

DCOZ is both a data provider to DC GIS, and a data consumer. For example, Zoning, which is an important dataset for many departments, is created and maintained by DCOZ and supplied to DC GIS. In turn, the planimetric basemap data acquired and updated by DC GIS is made available to DCOZ for its internal GIS program. As stated elsewhere in this plan, this **mutual dependence is recognized and accepted by all parties as a key tenet of the DC GIS federation.**

Additional datasets supplied by DCOZ to DC GIS are as follows:

- Overlays
- Planned Unit Development (PUD)
- Campus Boundaries



Sample DC zoning map. Image Source: DCOZ/OCTO.

Strategic goals for DCOZ GIS include:

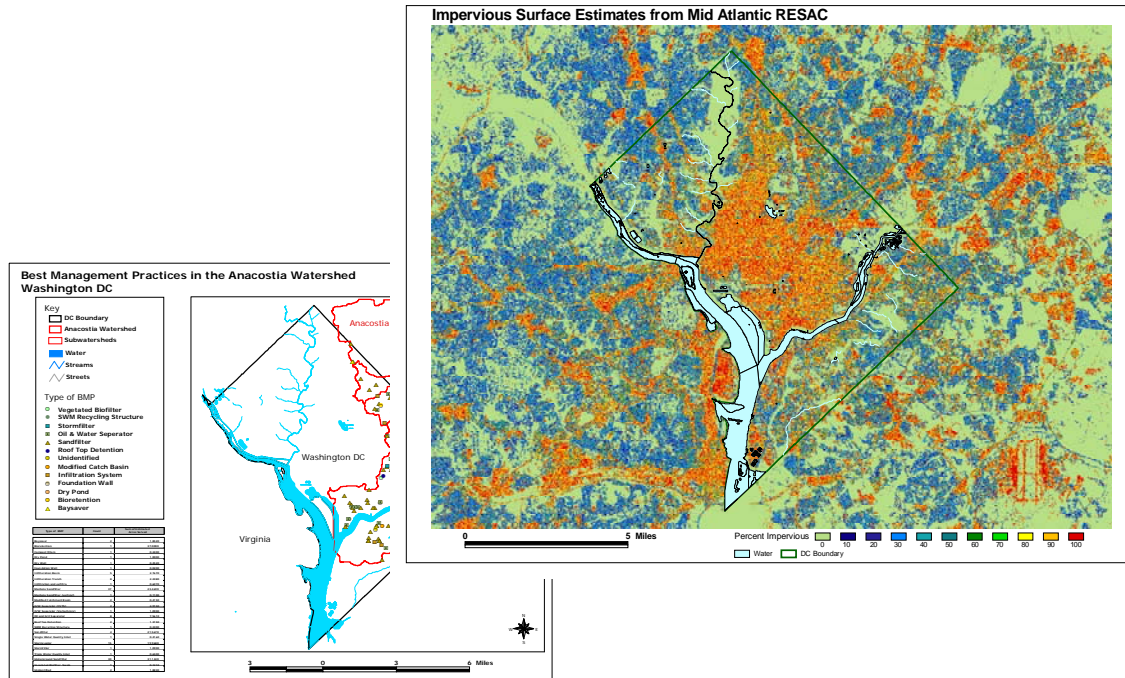
- Create a convenient, easy to use, and understandable zoning process
- Revolutionize service delivery through the use of technology
- Streamline zoning procedures to ensure a predictable, efficient and consistent process
- Synchronize activities and outcomes with Federal and District agencies.
- Create an expansive outreach and educational program for District residents and businesses

District Department of Environment (DDOE)

DDOE is a one-stop-shop for programs and services that protect human health and the environment and address energy efficiency issues for all sectors of the city. DDOE was recently formed from the merger of several programs including DC Government's Environmental Health Administration, the DC Energy Office, policy functions of the Tree Management Administration and policy functions of the Office of Recycling.

DDOE programs are designed to facilitate cleaner air and water, green our neighborhoods and building space, and assist with the management of hazardous and toxic waste disposal. Additionally, DDOE conducts **community and educational outreach** to increase public awareness of environmental and energy related issues.

DDOE is leading the restoration of the Anacostia River, which suffers from severely degraded water quality due to a history of deleterious environmental discharges from city sources and also sources in Maryland. There is an initiative to make the river fishable and swimmable by 2032. DDOE uses GIS to implement Best Management Practices (BMPs), which are the most effective, practical methods of preventing or reducing pollution from non-point sources.



DDOE’s use of Best Management Practices to manage non-point pollution runoff in the District’s watersheds. Image Source DDOE/OCTO.

4.1.3 Other Government Stakeholders in DC GIS

National Capital Planning Commission (NCPC)

In the District, the National Capital Planning Commission (NCPC) serves as the central planning agency for federal land and buildings, with an advisory role to the District for certain land use decisions. The Mayor of DC serves on the Commission. NCPC approves District projects in the central area of the city, reviews and advises on other DC projects and the elements of the Comprehensive Plan that relate to DC, and reviews and advises on amendments to city zoning regulations and maps.

NCPC’s overall functions include the following:

- Development of a Comprehensive Plan for the National Capital Region

- Review of federal and some District of Columbia proposed developments and projects
- Review of District of Columbia zoning amendments
- Annual review of the Federal Capital Improvements Program (FCIP) and the District of Columbia Capital Improvements Program (DCCIP)
- Development of special planning projects under its general planning authority

NCPC has a long history using both GIS and CAD (Computer-Aided Design) technology, but it does not have a line item for GIS in its budget. Prior to DC GIS being established, NCPC led GIS efforts in the District, and formed the Washington Geographic System (WGIS) Consortium. In 1998, the Office of Management and Budget (OMB) tasked NCPC to develop a Strategic Plan for WGIS to formalize its mission, goals, and structure. A copy of this Plan (WGIS Strategic Plan, 2000-2005) was reviewed as part of the current strategic planning process.

One of the key interests at NCPC in GIS data dissemination is the protection of federal installations, such as the White House, the Vice President’s residence and the Naval Observatory, and the U.S. Capitol Building. **There is a need for rules and regulations on determining what sensitive data is in this regard, and how to govern such data.** Sensitivities include, for example, what might be on the roofs of certain buildings, and what can be seen (line-of-sight) from certain building vantage points. In this regard, **NCPC is very interested in 3D building data from DC GIS**, and is a leader in understanding Building Information Modeling (BIM) and its applications.

Another NCPC interest in GIS is to look at federal employment data relative to federal facilities, and to tie the two together. Yet another interest is in federally leased land. And, based on the geographic extent of its responsibilities, **NCPC is interested in regional data sets.**

United States Geologic Survey (USGS)

The USGS is the research, earth and biological arm of the US Department of the Interior (DOI), with headquarters in Reston, Virginia. Part of its mission is devoted to the study of the physical landscape and its associated natural and human-induced hazards. **The USGS is the leader in “The National Map” (TNM) initiative**, which seeks to provide a continuous high-quality, digital basemap for the entire United States based on the partnership and integration of data from federal, state, and local sources. It also is the leader for the **“Geospatial One-Stop” (GOS) portal**, which provides metadata for available geospatial framework data for gaining access to the data. TNM and GOS are important components of the emerging National Spatial Data Infrastructure (NSDI). **A Liaison is assigned to the District of Columbia** and facilitated getting the grant that helped to fund the DC GIS strategic and business planning project of which this plan document is the result. The Liaison also facilitates cost sharing initiatives, such as the recent **orthoimagery** acquisition project for DC.

The USGS Geospatial Liaison Program is a network of USGS personnel who operate out of regional offices and provide a public-facing partnership function with external agencies. The Liaisons work in partnership with state geographic coordinating councils to facilitate bi-directional coordination on federal initiatives such as TNM, GOS, and NSDI. **A Liaison is assigned to the District of Columbia, and facilitated getting the grant that helped to fund the DC GIS strategic and business planning project** of which this plan document is a result. The Liaison also facilitates cost sharing initiatives, such as the recent aerial flyover project for DC. The recent Federal contribution to the orthoimagery acquisition project for DC is example of the involvement of the USGS Geospatial Liaison.

Federal Geographic Data Committee (FGDC) and the National Spatial Data Infrastructure (NSDI)

The FGDC was established by the Office of Management and Budget (OMB) to **leverage investments in geospatial data production and minimize or eliminate redundant efforts across the federal government**. OMB originally chartered FGDC to serve this interagency role in 1990, and re-chartered the committee in 2002. The Secretary of the Department of the Interior (DOI) chairs the FGDC, and maintains a support staff under the USGS National Geospatial Program Office (NGPO). [<http://www.usgs.gov/ngpo/>]

Executive Order 12906 formally established the notion of a National Spatial Data Infrastructure (NSDI), and designated FGDC as the entity responsible for coordinating its implementation. The intent of NSDI is to achieve the following five objectives:

- Reduce duplication of effort among agencies
- Improve quality and reduce costs related to geographic information
- Make geographic data more accessible to the public
- Increase the benefits of using available data
- Establish key partnerships with states, counties, cities, tribal nations, academia and the private sector to increase data availability

National Park Service (NPS)

The National Park Service is DOI's steward agency for the nation's national parks. The national parks network consists of approximately 400 sites of natural, cultural, and recreational importance. According to nps.gov, the mission of the NPS is as follows:

The National Park Service preserves unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations. The Park Service cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world.

NPS GIS Program Office

NPS GIS Program Office **uses GIS to conduct inventory and monitoring of its assets**, as well as site management plans such as environmental impact statements. NPS also coordinates mapping with partner agencies during staged events such as Independence Day celebrations and incidents such as wildfires.

The NPS operates a number of regional technical centers for GIS. **The National Capital Region GIS Regional Technical Support Center (RTSC) assists the parks** with GIS issues. For example, the RTSC digitized 487 parcels off paper Land Status maps and used coordinate geometry (COGO) from legal land descriptions from deeds and titles; ownership information is available via a link to the Master Deed List (MDL), a database of that contains the details of the transaction between the NPS and the individual owner (source: http://mms.nps.gov/gis/gis_program/documents/ncrgis.pdf). Similarly, the RTSC has begun researching and digitizing the National Natural Landmarks Program (NNL) pencil maps, which represent “sites that illustrate the geologic and ecologic character of the United States.” Historically the ownership of these sites has been difficult to determine due to inadequate boundary and ownership record keeping.

NPS Land Office

For federal lands within the District, the NPS Land Office (under the authority of DOI) **refuses to give digital map boundary data and metadata to the DC Government** in response to requests from the OCTO GIS Manager. When direct approaches failed, **OCTO filed a FOIA request** in 2006, which was denied by DOI. Subsequently, OCTO appealed the ruling by DOI, which was issued February 28, 2008. Based on the appeal, **DOI offered to provide paper property records for a fee** (based on “reasonable standard charges for document search and duplication”) or PDF files, but not the digital map data or metadata from the NPS Real Property Database.

DOI’s rationale for the fee is that it was **not demonstrated in the FOIA request or the appeal that it was in the public’s interest to release such data**; but, since it can not be exempted from such release in paper form, a fee was justified to cover reproduction costs. DOI’s rationale for withholding the digital map data seems to be based on its “pre-decisional” and “deliberative” nature -- “release at this stage would surely result in public confusion.” Metadata is also being withheld, because DOI claims it is “predominantly internal” and is a “matter with merely internal significance” and “relates to trivial matters of no genuine public interest” and is therefore an allowable **basis for “FOIA exemption.”**

From the ruling on the appeal:

In summary, the Department concludes that: 1) the District has not demonstrated its entitlement to a fee waiver; 2) the draft digital maps are protected from disclosure by exemption (5); and 3) the metadata is protected from disclosure by exemption (2). Accordingly, these aspects of your appeal are denied. [Source: Appeal No. 2006-214, DOI, Office of the Solicitor, February 28, 2008]

FOIA Exemption (2) exempts from mandatory disclosure records that are "related solely to the internal personnel rules and practices of an agency." **FOIA Exemption (5)** exempts "inter-agency or intra-agency memorandums or letters which would not be available by law to a party other than an agency in litigation with the agency." **DOI's fallback on these exemptions for digital map data and related metadata seems incongruent with their administration of FGDC and advocacy for the NSDI.**

U.S. Census Bureau

The Census Bureau is under the United States Department of Congress. Its mission is to provide timely, relevant, and cost-effective data about the U.S. population and economy. Headquarters offices are located in Suitland, Maryland. DC operations are conducted out of the Philadelphia Regional Office.

The U.S. Census Bureau was an early pioneer in the field of computer mapping and GIS. Largely due to Title 13 restrictions on household-level data sharing, the Bureau's point addressing efforts have been conducted independently of similar or identical projects in the private and public sector. However, the Bureau's TIGER/Line street network files and enumeration areas such as census tracts, blocks, and block groups continue to provide the foundation for copious amounts of socio-economic and demographic analyses for DC GIS customers such as the Office of Planning and Health and Human Services. **Census data also serves as an important data input to important DC GIS datasets** such as the Master Address Repository (MAR) and the Vector Property Map (VPM).

In 1978 The Census Bureau established State Data Centers to effectively distribute data to state and local governments. In the District of Columbia, the Office of Planning serves as the District's State Data Center. In return for providing technical assistance to customers regarding Census Data, the Office of Planning has access Census data prior to public release, and receives specialized Census services.

4.1.4 Other DC GIS Stakeholders: Nonprofit Organizations

Washington, DC Economic Partnership (WDCEP)

The Washington, DC Economic Partnership is a public/private partnership dedicated to facilitating economic development in the District of Columbia. WDCEP, a nonprofit organization, partners with a variety of community stakeholders to promote business opportunities throughout the District and contributes to business retention and attraction activities.

WDCEP is constantly striving to enhance the District's economy through jobs creation for DC residents, increasing tax revenues, retaining existing businesses and attracting new businesses. It serves as an information clearinghouse and research center for prospects, businesses, District agencies, and community stakeholders. The retention programs and activities offered by WDCEP **tell the story of the District's economic resurgence and development dynamic in local, regional, national and international**

markets. With WDCEP efforts, the District of Columbia continues as a premier business environment and residential opportunity. Using GIS to help tell this story is a demonstrated requirement of WDCEP.

The Urban Institute

The Urban Institute is a nonprofit, nonpartisan research body dedicated to conducting independent scholarly **research and evaluation on a variety of social and economic public policies and programs** for policymakers, program administrators, business, academics, and the public. Much of the Institute's activities are centered in ten policy centers and/or projects.

There is no single GIS program or point of contact within the Institute. Desktop technology is administered through the Institute's Information Technology. Generally the technology is accessible to researchers by request. There is an internal Mapping User Group that meets regularly to provide support and knowledge sharing. This group has also developed a training program for internal participants.

The Urban Institute can be characterized as a consumer of data and a provider of analyses. **The Institute relies heavily on many geographic datasets published by OCTO.** Common geographies used for summary analysis include wards, neighborhood clusters, police and school districts, census tracts, and zip codes. Vector Property Map is an important resource for many projects that involve analyses at the individual household level.

A showcase project at the Institute is the NeighborhoodInfo DC Project, which provides citizens and the government a copious amount of socioeconomic data on the neighborhood level in the District. NeighborhoodInfo DC is a joint project of the Urban Institute and the Washington DC Local Initiatives Support Corporation (LISC). The project is supported by six individuals currently. At the website, there is an interactive tool that provides tabular queries, as well as spatial interrogation of the data using a clickable map.

NeighborhoodInfo DC has partnered with a number of city government agencies, including the Office of the Deputy Mayor for Planning and Economic Development, Office of the Deputy Mayor for Education, the Office of Planning, the Office of the State Superintendent of Education, the Metropolitan Police Dept., the Income Maintenance Administration, the Department of Housing and Community Development, the DC Housing Authority, the Dept. of Insurance, Securities, and Banking, and the Department of Health. NeighborhoodInfo DC has provided data and analysis to support the work of many DC agencies, which is a direct result of OCTO's investments in the city's GIS infrastructure.

NeighborhoodInfoDC

Home About Us **Neighborhood Profiles** Resource Center Ask a Question

Neighborhood Profiles

Police Service Areas (PSAs)

The 45 PSAs are the way the Police Department currently organizes its services within the city. (New PSA definitions were established May 2004.)

If you're not sure which PSA you're interested in, you can look it up for a specific address at the DC Atlas: <http://citizenatlas.dc.gov/atlasapps/reporhometab.aspx>, or [visit the PSA web site](#) for assistance.

To see data for a PSA, select one from the [links below](#) or scroll over the map to select the area that interests you.

Washington DC Police Service Areas

Clickable map of neighborhood profiles according to Police Service Areas. Image source: Urban Institute.

The Urban Institute exists outside of DC Government and thus does not have direct access to other DC GIS resources; however, as a heavy data user the Urban Institute could provide important data feedback to OCTO through the use of online editing, for example.

4.2 Data Requirements

Data requirements are expanded upon as part of the *DC GIS Business Plan* that is a companion document to this Strategic Plan. Herein, stakeholder requirements and dependencies identified during the strategic planning process are identified in outline form.

The following were reported as data priorities in the Stakeholder Questionnaire responses:

- Maintain the Master Address Repository (MAR)
- Promote standards for data sharing
- Achieve regular planimetric updates

Data needs that were identified in Stakeholder Workshops, Interviews, and/or Questionnaire:

- Federal properties in the District
- Neighborhood boundaries in the District
- Law enforcement jurisdiction boundaries
- Better socioeconomic and demographic data
- Geographically-located crash data
- Geographically-located street furniture (e.g. bus shelters, benches, mailboxes, etc.)
- High-resolution elevation data
- Feature-level metadata

New data of interest to stakeholders:

- 3D Buildings
- 360 degree views of streets from DDOT
- DC ‘globe’ for Google Earth from DC GIS
- KML versions of SHP file data from DC GIS
- New FEMA floodplain boundaries
- Geocoded and generalized income tax records

Old data that could be possibly mined for content:

- The Department of Environment had a contractor develop a map of federal properties, circa 1999; it’s likely out-of-date, but it was a past attempt to address the federal property data gaps
- Various but unspecified agency data -- **DC GIS data holdings go beyond what is available and well-documented in the Data Catalog**; many of these unavailable layers are undocumented, and were collected several years ago as part of the “data grab” to support DC Guide -- there might be useful data that could be

updated and made available if there was a **push to document such data with standardized metadata**

GIS data use cases mentioned in Stakeholder Workshops:

- KML data for visualization and departmental studies
- Data downloads to support departmental analysis using GIS tools, such as ArcView, and uploads of results
- Integrating, superimposing, and analyzing thematic data from non-GIS professionals, such as economic trends, fiscal policy, human resources, health & human services, public health issues, taxation, demographic and other socioeconomic and political data – the demand is high with DC for these kind of mash-ups, whether in an environment such as ArcIMS, ArcGIS, Google Earth, or other.

4.3 Technology Requirements

Technology requirements are expanded upon in the ***DC GIS Business Plan***. As mentioned in the context of Data Requirements, the Business Plan is a companion document to this Strategic Plan, and it delves into greater detail for implementation purposes. The following outline represents input received from stakeholders during the strategic planning process.

Technology requests from Stakeholder Workshops, Interviews, and/or Questionnaire responses:

- Data mark-up capabilities, both on the web and on mobile devices; procedures for “accepting” and “managing” mark-ups are also needed, to determine what actually needs to be updated in the authoritative data source (this could be construed as a form of “crowdsourcing”, which is the term being applied to Web 2.0 participatory data corrections based on the knowledge, willingness, and capability of individual users and citizens)
- Database replication
- Support for dynamic editing
- Methodology and best practices for aggregating sensitive data to preserve privacy and confidentiality
- Web services and analysis services (Web services are self-contained components that provide specific functionality to other applications via the Internet)
- Change notification (e.g. feature-level metadata or time-stamping)
- Wiki for GIS knowledge and procedure sharing

4.4 Organizational Needs

Input from the Stakeholder Workshops, Interviews, and Questionnaire responses indicates the following overarching organizational needs:

- GISSC Governance Reform
- Work Force Development
 - **Need for staff capacity** to increase GIS utilization in departments where it is currently being used
 - **Need for start-up support** in organizations not utilizing GIS
 - **Need for executive training**, distinct from technical training, to increase awareness and understanding of GIS capabilities to improve government operations and the delivery of services to constituents
- Business Process Change

4.4.1 Governance Reform

A key finding of the strategic planning process is the **need to revitalize the governance of GISSC**. The specific recommendation is to adopt the so-called “two-tier” structure that is used in a number of state jurisdictions, such as Maryland, Delaware, New Jersey, Wyoming and elsewhere. Many states seem to be gravitating to such a model, if not already operating in such a mode.

In the case of DC, since the GISSC is already chartered, the main requirement is to **convene an Permanent Members to more fully implement a governance structure, including the development and adoption of bylaws** for addressing the decision-making processes of the GISSC, such as what issues should be voted on, and who should have voting privileges. The following diagram shows a concept of operations for blending in the proposed Permanent Members.

Conceptual Diagram of Governance Relationships



It is recommended that the composition of the Permanent Members include the existing permanent members of the GISSC, including OCTO, DDOT, Office of Planning, and the Office of the City Administrator. A fifth member is recommended to represent the federal government mapping establishment, such as USGS. **For a non-DC Government member to be including as a voting member of the Permanent Members, the existing Mayors Order 2002-27 would need revision.**

4.4.2 Work Force Development

The importance of training was a common refrain in both the Stakeholder Workshops and Questionnaire responses. The current OCTO DC GIS Training Program supports a substantial curriculum, and delivers instruction to approximately 300 DC Government employees per year – a significant number. This is producing **higher expectations amongst staff within departments for GIS-knowledgeable executives** to provide direction and guidance in applying GIS to mission-specific requirements and business processes. While technical training programs are strong, a deficit has been identified in the area of executive training.

In addition, as part of the Mayor’s priority on Education, a goal has been set by OCTO to help bridge the digital divide in the District’s schools. Therefore, GIS support for District schools will be expanded in the year ahead, to go beyond DC Government employees to **reach students who will be matriculating into the work force in years ahead**. For example, this will include support to help District schools recognize Geography Week and GIS Day (in November, annually).

4.4.3 Business Process Change

Integration of GIS with business processes was stated as **an important desired outcome** in both the Stakeholder Workshops and Questionnaire responses. For example, on-line permitting was given as a specific use case that would benefit from increased support for **GIS integration with business processes**. Another request given as an example was GIS integrations with SAS.

The following is a list of desired outcomes, grouped by CapStat policy areas. These outcomes were taken from the [Mayor’s 100 Days and Beyond document](#), and were selected as examples of **business requirements that benefit from utilization of GIS** functions, such as geocoding, routing, buffering and other analytical and computational capabilities. Some of these outcomes have been accomplished, and others are being worked on, and in both cases, not always with the benefit of GIS; and yet, it is clear that **GIS can support such priorities in a results-oriented manner**.

Policy Area	Desired Outcome with GIS Requirements
Public Safety	a) Add four more EMS transport units to improve response times
	b) FEMS Mobile Data Terminal (MDT) Training and Program Roll-Out
	c) Issue an updated protocol study guide to all FEMS personnel and perform field tests
	d) Develop a comprehensive public safety agency training enhancement strategy
	e) Implement alternatives for reducing EMS “Frequent Flyer” heavy users
	f) Build homeland security & emergency preparedness into the culture of the MPD and the community
Government Services	a) Begin a Rush Hour Towing Pilot Program
	b) Begin implementation of Traffic Calming Measures in targeted neighborhoods
	c) Introduce a revised taxi zone map
	d) Plant more than 3000 trees
	e) Repave more than 50 miles of local streets for the 2007 construction season
	f) Coordinate efforts between local and federal agencies to inventory, assess, and manage the District’s green space
	g) Expand Circular service into additional neighborhoods

Policy Area	Desired Outcome with GIS Requirements
	h) Do a demonstration project to retrofit District buildings with Green Roofs
	i) Break ground on Phase II of the Metropolitan Branch Trail
Government Operations	a) Align agency services to eliminate duplication (e.g. DPH to provide waste hauling for Parks and Recreation)
Health and Human Services	a) Evaluate the benefit and cost of establishing wellness opportunity zones
	b) Introduce legislation that will improve the District's ability to enforce against all regional health threats and hazards including lead
	c) Identify proven and innovative health initiatives that establish community infrastructures to support health, access to healthy foods, and save places to be physically active
	d) Evaluate best practices and develop pilot program initiatives with monitored outcomes within specific communities/neighborhoods
	e) Explore expanding home visitation and early intervention programs to reduce infant mortality, child abuse and neglect, youth violence, and to support mental health and wellness as well as offer HIV/AIDS prevention services through DMH provider agencies
	f) Establish and enforce a standard data report and collection timetable for hospital and other provider data
	g) Establish public-private partnerships to develop data capacity within city administrations
	h) Create a plan for cross public agency data sharing
	i) Publicly support interoperable Electronic Medical Record implementation
	j) Develop city-wide programs to reduce reliance on emergency rooms for non-emergencies including exploring the possibility of 211-call line based nurse advice line, expanding primary care availability, emergency room outreach workers to make clinic appointments for non-emergency patients, public education campaign for alternatives to emergency rooms and options for insurance (Alliance/Medicaid)
	k) Working with a private non-profit, initiate an effort to explore a Housing First policy to address homelessness
	l) Open a new supermarket in Ward 8
	m) Provide additional downtown shelter space by resolving the Franklin School issue or other means
	n) Develop a strategy to ensure that no parent will be unable to find and keep a job due to the unavailability of affordable child care
o) Develop a strategy to dramatically change the ratio of institutional versus family-based service provision to Mental Retardation Developmental Disabilities Administration (MRDDA) clients	
Economic Development	a) Announce a Retail Action Strategy
	b) Enforce and implement the new authority that will allow DCRA to immediately enclose hazardous and/or vacant properties
	c) Provide additional downtown shelter space by resolving the Franklin School issue or other means
	d) Secure commitments to open new bank branches in underserved communities
	e) Open a new, customer-oriented permit center at DCRA, and examine the possibilities of conducting online permitting
	f) Announce the locations of the 4-storefront libraries and expedite procurement of construction for the 4 permanent neighborhood libraries
	g) Approve revised Tax Increment Financing for Skyland Shopping Center in Ward 7 and submit to the City Council
	h) Identify private and non-profit groups to make meaningful investments in DC schools and parks
	i) Initiate a comprehensive rewrite of Zoning Regulations
Education	a) Support the development and implementation of a strategy to increase the number of

Policy Area	Desired Outcome with GIS Requirements
	certified early education and childcare facilities
	b) Review existing government- and community-based initiatives and capital projects to identify and prioritize opportunities for reducing duplication and increasing interagency coordination
	c) Accelerate the implementation of a unified student tracking and data sharing system
	d) Explore alternatives through which the Mayor could drive the accelerated repair and modernization of DCPS facilities, including a targeted initiative aimed at reducing the maintenance backlog
	e) Support the creation of a comprehensive, citywide strategy for Out of School Time programs that includes public schools, community based organizations, funders, and other relevant governmental and non-governmental entities

4.5 Policy and Standards

The need for policy and standards to guide DC GIS activities and program investment is clear, given the large number and diversity of DC GIS stakeholders. This reality amplifies the importance of standards, coordination, and guidance via the DC GIS Program. And, it includes the need for governance reforms (see Section 4.4.1), such as adopting bylaws to govern meetings and decision-making of the GISSC. The purpose of policy and standards is to **facilitate ongoing progress toward a truly federated model**, where the following traits are fully realized:

- Collaboration and synergies are commonplace
- Unnecessary duplication of effort and expense is eliminated
- The whole is greater than the sum of the parts

In this regard, the [DC Federated Geospatial Data Model](#) document (August 2005) is a key reference for relevant standards both adopted and contemplated for DC GIS. It should be endorsed and adopted by the GISSC as a part of the **formal guidance for operating within the context of the DC GIS federation of data providers and consumers**. This federation has evolved into a strong Community of Interest (COI) in GIS/IT policies and standards, and has benefited from an enterprise approach.

The following are some of the key standards cited in the abovementioned FGDM document, which are still applicable to the DC GIS Program:

- FGDC standards in general (www.fgdc.gov/standards)
- FGDC Content Standards for Digital Geospatial Metadata (www.fgdc.gov/metadata/geospatial-metadata-standards)
- Open GIS Consortium specifications (www.opengeospatial.org/standards)
- Industry *de facto* standards: e.g., ESRI, Oracle, Microsoft, Google
- Mapping-specific standards: e.g., MD State Plan Coordinate System, NAD83, NAVD88, and NGRS
- DC GIS enterprise standards: e.g., MAR, VPM, FGDM

- OCTO enterprise standards

The following diagram first appeared in the FGDM document, and it is still relevant to today's DC GIS Program.

DC GIS Federated Concept Diagram

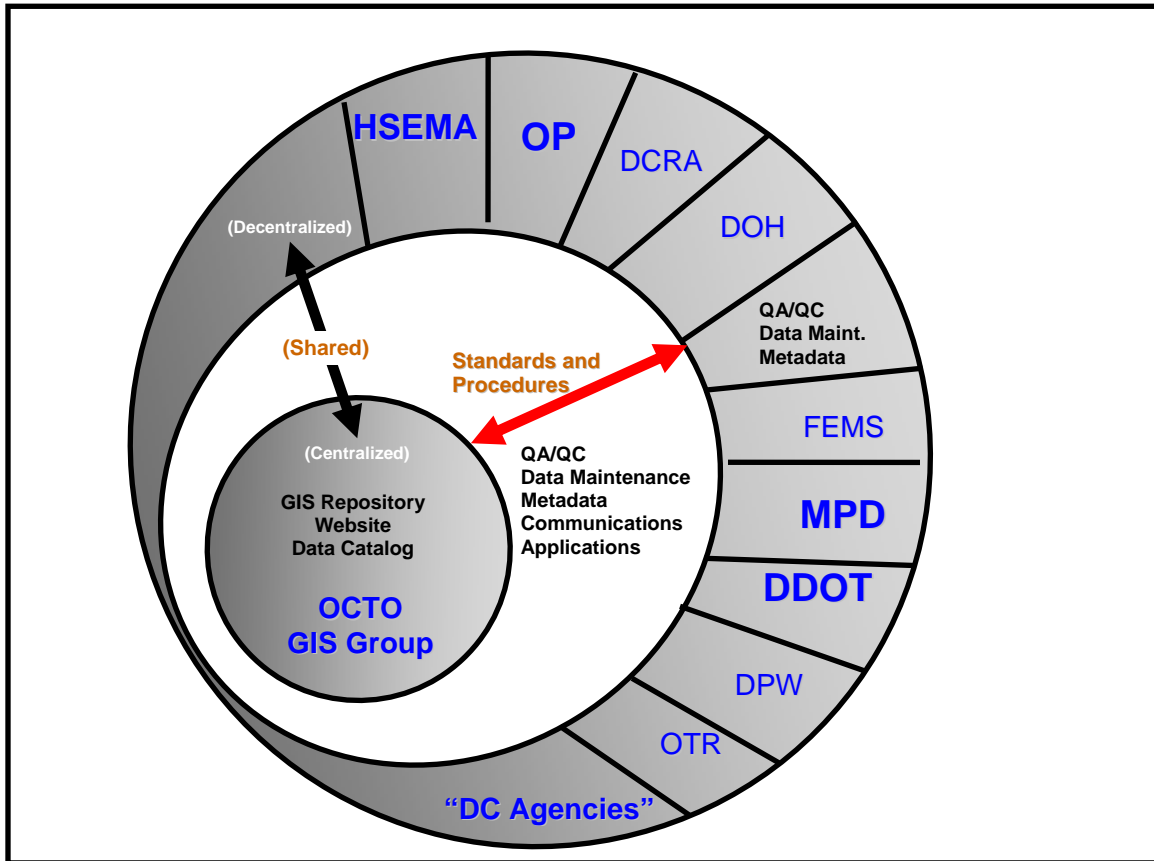


Image Source: Source: DC Federated Geospatial Data Model, August 2005.

In addition to the open and *de facto* standards of the GIS community of interest, there are specific considerations as part of the Information Technology (IT) community at-large. The GIS Group responsible for maintaining the DC GIS Central data repository, catalog, and website resides and operates within the OCTO organization. Therefore, certain IT policies and standards are an important part of the overall operating environment. OCTO is taking or contemplating the following directions (see table below), and examples pertaining to DC GIS are listed to show congruity.

OCTO Corporate Technology Considerations

Technology Consideration	DC GIS Exemplar
1. Cloud Computing	DC GIS 3D Buildings, perhaps the world’s largest collection of such buildings to be publicly available for a single jurisdiction, are now served to the public on the generally accessible version of Google Earth, over the Internet
2. Software as a Service (SaaS)	Currently, there are no SaaS examples being used in a substantial way –leading GIS software manufacturers have not fully embraced this software pricing and delivery model, as of yet; however, emerging examples include ESRI’s ArcGIS On-line, a set of Web-based products and resources, which is mainly a content source at the moment, but also expected to provide analytical functionality
3. Data Analysis / Business Intelligence	The DC GIS Data Catalog is a metadata repository that documents the contents of available data for Web access, downloading, and analysis; DC GIS Web applications are commonly used to access and display data from the Citywide Data Warehouse (CDW); and, one of the strengths of GIS technology is the analysis of spatial patterns, such as the concentration of crime, or distribution of income
4. Consolidate and Effective Use “Our” Tools	The OCTO GIS Group supports DC GIS data originators with tools for effective data stewardship, such as those developed for the Vector Property Map (VPM) based on ArcGIS, used for data editing and mapmaking
5. Consolidate Capacity	The OCTO GIS Group hosts the data, applications, and services that comprise DC GIS using a virtual architecture to achieve flexibility and agility in configuration management, including live storage migration without disrupting service availability (using VMotion)

Technology Consideration	DC GIS Exemplar
6. Make Everything Operate in an Active-Active World	The DC GIS physical systems are configured in two clusters, providing improved performance and availability for servicing clients, thereby avoiding the risk of single point of failure
7. Enterprise Architecture	The DC GIS architecture is based on both open and de facto standards for the GIS industry, accommodating technology alternatives from multiple vendors as well as the Open Source community
8. Service Oriented Architecture	DC GIS comprises distributed data and services that achieve value through “reuse” as an architectural design pattern and deployment methodology, enabling agility to support multiple business processes – the MAR and related services represent a case in point – it establishes a common business entity that is shared across all agencies, i.e., authoritative addresses, encapsulated in a service
9. Knowledge Repository	The previously mentioned DC GIS Data Catalog also applies in this context, since the metadata it contains is a key ingredient for the discovery of geographic information, an important form of spatial knowledge; in addition, MAR fits this case, as it is an address lookup and validation tool that anyone can use, courtesy of the Web Services Catalog that documents the knowledge needed to access and use it as a service

5 IMPLEMENTATION PROGRAM

The success factors for each goal (described in Section 3.3) represent the full scope of the Implementation Program for this Strategic Plan. While **parallel activities are anticipated across all six programmatic goals**, certain aspects will be emphasized in this section, below, or further developed in more detailed business plans. For example, **programmatic goals #2 and #3 were selected as the dual-subject for a focused Business Plan**, which will be a separate document emanating from this Strategic Plan. Its details are congruent with this plan's high-level content and overall intentions.

5.1 Implementation Priorities and Action Items

The following explicit action items need to be taken to move forward with the Strategic Plan:

OCTO will:

- **Seek endorsement of Mayors Order 2002-27 from the current Mayor, Adrian M. Fenty**, after refinements as necessary
- **Add permanent members formally to the GISSC**; in addition to the current permanent members (Office of the Chief Technology Officer, District Department of Transportation, Office of Planning, and the Office of the City Administrator) add the following in a formal and recognized manner:
 - Department of Consumer and Regulatory Affairs
 - Department of Health
 - Department of Public Works
 - District Department of the Environment
 - Fire and Emergency Medical Services
 - Homeland Security and Emergency Management Agency
 - Metropolitan Police Department
 - Office of Deputy Mayor for Planning and Economic Development
 - Office of Tax and Revenue
 - Office of Unified Communications
 - Office of Zoning
 - Water and Sewer Authority
 - United States Geological Survey
- **Schedule the an official “GISSC Annual Budget Meeting”** for September of each year review the past year's spending, and the **DC GIS Business Plan** for spending in the coming year(s).

The GISSC permanent members will:

- Conduct a vote amongst the to endorse **and adopt this Strategic Plan as a guide to the continuing operations of DC GIS and GISSC governance** reform, including by reference the official adoption of the DC Government Federated Geospatial Data Model and associated best practices
- **Develop Bylaws** for the governance of GISSC, such as the following formalities:
 - Meeting rules
 - Voting rules
 - Rules for the formation and governance of subcommittees

The Full GISSC will:

- **Meet at least quarterly**
- **Be open to all**; including federal agencies, universities, non-profit organizations, private sector users, and geospatial vendors
- **Serve as a forum for the exchange of information and ideas**
- **Provide advice to the GISSC Permanent Members and to OCTO**
- **Adopt GIS technical standards**

5.2 Phasing & Milestones

The long-term performance period for the six programmatic goals articulated in this Strategic Plan is five years. **Efforts on each of the six goals will run in parallel, on an ongoing basis.** They will be reviewed annually by the GISSC Permanent Members (proposed) to determine their enduring relevance to the overall DC GIS Program.

The short-term success factors are programmed to extend through FY 2010. These include both ongoing and periodic activities, on which **status will be reviewed at the GISSC Annual Budget Meeting in September of each year.** (See Section 5.5 on “Measuring Success” for approach to monitoring schedule and status.)

5.3 Budget Plan

The proposed **OCTO operating budget for DC GIS is \$2.135 million for FY 2009.** This will support the current level of staffing and program activities of the OCTO DC GIS Group. This is an important step forward for the DC GIS Program, which, up until this proposed budget is approved, will have relied heavily on tenuous capital budget support. Since funding will need to be proposed and approved as part of the ongoing annual budget cycle, **there is still uncertainty of future support.** The US Congress votes to approve the overall DC budget.

This Strategic Plan proposes the **first annual “Budget Meeting” for GISSC to occur in September 2008**. At that meeting, OCTO will review spending for the Fiscal Year in progress, present its spending plan for the upcoming FY 2009, and project-ahead to FY 2010. In the common interest of DC Government transparency, department representatives should **come prepared with sharable data on GIS budgets** pertaining to their departmental investments. Based on input during the planning process, it appears that most departments with a GIS budget can trace it to a line item in their department’s operating budget. If this is not the case for some departments, then they should **work toward traceability and transparency** in their own budget plans. Otherwise, it will not be clear how much funding overall is being devoted to GIS utilization within DC Government. For example, initiation of a comprehensive program for mapping underground utility data is not covered by this budget; that effort is estimated to require an additional rough estimate of \$2.5 million, the burden of which would be divided across program sponsors, including OCTO, DDOT, and WASA, for example.

By mutual full disclosure, the departmental stakeholders in DC GIS achieve greater congruence and **potential synergies by sharing GIS budget information and spending priorities**. Another benefit is continuing to eliminate unnecessary duplication of effort, and also, realizing potential economies of scale. Individual departments must obviously prioritize mission-specific needs, and are good at justifying their spending based on such needs. **OCTO is responsible for enterprise systems that support the overall operations and multiple-missions of DC Government, and DC GIS is designated as such a system.**

External to DC Government, **intermittent support is sometimes available from federal partners**. For example, this strategic planning process was supported by Cooperative Agreement Program (CAP) grant from FGDC.

The following is a list of potential federal funding support for GIS Programs that will be tracked by the OCTO GIS Group for applicability to DC GIS:

- NOAA Geodetic Control Modernization
- USGS and NGA Cost Sharing
- DHS Grants
- FGDC Grants

5.4 Marketing the Program

DC GIS is one of the nation’s premier GIS programs for comparable jurisdictions, and lends credence to the positioning of DC as a world-class city. **Marketing outreach about the DC GIS Program and its benefits** to DC Government and District citizens is a necessary part of sustaining a world-class program. To-date, efforts have been effective for **establishing a DC GIS “brand,” including logo recognition and a Web presence**. Also, a regular effort has been maintained to inform stakeholders of new data and

services, primarily through the GISSC. Nonetheless, **a concerted effort to inform stakeholders**, beyond GISSC meetings, is recommended.

The list below is a sampling of specific communication items, which could be expanded upon in a detailed Marketing Plan outside the scope of this Strategic Plan:

- Media event coincident with Geography Week or GIS Day, in one of the District’s schools
- Schedule presentations for DC agency heads
- Presentation for Council and staff members
- Presentation for CapStat audience
- Presentation to OCTO Portfolio Managers
- Presentations to local stakeholder groups, and the Metropolitan Washington Council of Governments (MWCOG)
- Collateral materials for reuse and dissemination (whitepapers, power point library, posters, and case studies about DC GIS applications and stakeholder stories)
- Brainstorm on a “tag line” (i.e., marketing slogan) to use with the DC GIS logo for branding purposes
- Press releases on newsworthy items
- Obtain better mailing lists for external stakeholders (outside of DC Government)
- Track DC GIS user demand with better metrics on utilization

5.5 Measuring Success

On a periodic snapshot basis (e.g., quarterly), status will be reported using the following chart, as a similar rubric. Ratings are based on a qualitative assessment, all things considered.

Programmatic Goals	Overall Goal Status (Green, Yellow, Red)*	Success Factors	Schedule	Comment and Color-Code (Green, Yellow, or Red)*
Goal 1: Align with District Priorities		<input type="checkbox"/> Focus on desired outcomes in support of CapStat	Ongoing	
		<input type="checkbox"/> Further the transparency of District Government	Ongoing	

Programmatic Goals	Overall Goal Status (Green, Yellow, Red)*	Success Factors	Schedule	Comment and Color-Code (Green, Yellow, or Red)*
		<input type="checkbox"/> Support educational initiatives	Ongoing	
Goal 2: Enterprise GIS		<input type="checkbox"/> Develop and maintain mapping programs	Ongoing (but photogrammetric data every two years, every four years for elevation)	
		<input type="checkbox"/> Deploy high-demand applications	Ongoing	
		<input type="checkbox"/> Continue to develop Web Services	Ongoing	
		<input type="checkbox"/> Expand and enhance DC GIS available data	Ongoing	
		<input type="checkbox"/> Deploy mobile laptop apps for First Responders	2 nd quarter 2009	
		<input type="checkbox"/> Adopt a standard for feature-level metadata	3 rd quarter 2009	
		<input type="checkbox"/> Deploy Web-based version of the MAR batch geocoder	1 st quarter 2009	
		<input type="checkbox"/> Improve business processes with GIS and achieve greater uniformity and usability in interfaces	2 nd quarter 2009	
		<input type="checkbox"/> Add underground utilities data as feasible	Long-term	
Goal 3: Customer Service		<input type="checkbox"/> Train GIS users	Ongoing	
		<input type="checkbox"/> Provide technical support and consulting	2 nd quarter 2009	
		<input type="checkbox"/> Expand GIS within clusters	Ongoing	
Goal 4: GIS Coordination		<input type="checkbox"/> Formalize governance of GISSC and increase transparency of GIS decisions	Ongoing	
		<input type="checkbox"/> Reach out to new partners, and old	Ongoing	
		<input type="checkbox"/> Achieve intra and inter governmental	Ongoing	

Programmatic Goals	Overall Goal Status (Green, Yellow, Red)*	Success Factors	Schedule	Comment and Color-Code (Green, Yellow, or Red)*
		GIS planning		
Goal 5: Innovation and Adaptation		<input type="checkbox"/> Leverage data democracy	Ongoing	
		<input type="checkbox"/> Leverage professional and citizen participation	4 th quarter 2009	
		<input type="checkbox"/> Leverage private investment on GIS	Ongoing	
		<input type="checkbox"/> Help 'bridge the digital divide' in the District	Ongoing	
		<input type="checkbox"/> Migrate to commercially-supported mapping services when appropriate	Ongoing	
Goal 6: Fairly enforce the tax code and reduce costs		<input type="checkbox"/> Deliver value from DC GIS investments	Ongoing	
		<input type="checkbox"/> Manage technology risk	Ongoing	
		<input type="checkbox"/> Retire low value systems	Ongoing	

*Color Key (during operational use, cells in the preceding table will be color-coded and comments added as appropriate).

Color: Rating
Green: Fully meets expectations and requirements (e.g., on schedule and achieving desired outcome)
Yellow: Partially meets expectations and requirements (e.g., behind schedule, but making reasonable progress toward desired outcome)
Red: Not meeting expectations and requirements (e.g., behind schedule and very little or no progress toward desired outcome)

On a cumulative basis, overall status reported on the previous chart (i.e. Green, Yellow, and Red)* will be “rolled-up” and tracked using the following chart:

Progress Matrix	Year 0	Year 1				Year 2			
	Aug 2008	Oct 2008	Jan. 2009	April 2009	July 2009	Oct. 2009	Jan. 2010	April 2010	July 2010
Programmatic Goal 1									
Programmatic Goal 2									
Programmatic Goal 3									
Programmatic Goal 4									
Programmatic Goal 5									
Programmatic Goal 6									
Running Assessment									

***NOTE:** Chart cells will be color-coded (i.e., Green, Yellow, Red) based on overall goal status as assessed by OCTO GIS Group and presented to GISSC.

6 APPENDICES

Appendix A. Strategic Planning Methodology

The DC GIS Strategic Planning approach followed the process recommended by NSGIC and FGDC, as outlined in the guidance and template documents published in March 2006, on “Advancing Statewide Spatial data Infrastructures in Support of the National Spatial Data Infrastructure (NSDI).” For this project, key process elements included the following:

- **Stakeholder workshops** -- in December 2007 and one in March 2008 (over 40 people attended each one)
- **GISSC meeting presentations and feedback** – at project outset in September 2007 and most recently in June 2008
- **Departmental and stakeholder interviews, and scheduled teleconferences** – January 2008 – July 2008
- **On-line survey questionnaire** – conducted in May 2008 (15 comprehensive responses to over 50 questions)
- **Ad hoc meetings and telecommunications** – throughout the project duration (September 2007 – July 2008)
- **Strategic Plan Working Group (SPWG) sessions** -- one in January 2008 and one in June 2008
- **Document review and topical research (e.g. data profiling and analysis of the DC GIS Data Catalog)**—throughout project duration (September 2007-July 2008)
- **Iteration on draft documents** -- first, second, and final drafts (with interim drafts on parts of the plan documents)
- **Final Draft** – presented the GISSC October 6, 2008
 - Decision to endorse the plan tabled until November 6, 2008.
 - Discussion help achieve consensus on plan November 6, 2008.
- **Plan Endorsed by GISSC** -- November 6, 2008.
- **Final Version released January 2009**

Appendix B. The Mayors Order 2002-27

Mayor's Office 2002- 27

February 4, 2002

Mayor Williams signs a Mayor's order establishing the GIS Steering Committee

GOVERNMENT OF THE DISTRICT OF COLUMBIA
ADMINISTRATIVE ISSUANCE SYSTEM

Mayors Order 2002-27
February 4, 2002

SUBJECT: Establishment of Geographic Information System Steering Committee
ORIGINATING AGENCY: Office of the Mayor

By virtue of the authority vested in me as the Mayor of the District of Columbia by section 422 (11) of the District of Columbia Home Rule Act, approved December 24, 1973, 87 Stat. 790. Pub. L 93-198, D.C. Code, 2001 ED. & 1-205-22(11), it is hereby **ORDERED** that:

1. **ESTABLISHMENT:** There is hereby established in the government of the District of Columbia a Geographics Information System Steering Committee (GISSC), to optimize the development and promote effective usage of the District of Columbia Geographic Information System (DC GIS), and assist the Office of Chief Technology Officer (OCTO) in establishing and enforcing standards, policies, procedures and protocols for the DC GIS, with such additional purposes and functions as set forth generally below. In addition, District departments and agencies shall have responsibilities, and may be required to take actions, arising from directives of the GISSC, as set forth generally below.
2. **PURPOSE:** The GISSC shall aim to ensure that: (a) the DC GIS is developed and maintained to achieve its full potential in providing digital maps, geographic based information, and GIS applications to enhance the planning, decision making, and business processes of District government agencies, and to provide value to the citizens of the District of Columbia: (b) all mapping and GIS activities in the District government are cost effective, interoperable and integrated with the DC GIS; and (c) the DC GIS is used effectively within District government.
3. **SCOPE AND FUNCTIONS:** The GISSC will meet, coordinate, form sub-groups, and promulgate binding directives to: (a) provide a centrally organized authority to assist OCTO in carrying out its mandate to develop and enforce policy directives and standards regarding information technology throughout the District government, pursuant to & 1813 of the Office of the Chief Technology Officer Establishment Act of 1998, effective March 26, 1999 (D.C. Law 12-175;D.C. Official Code & 1-1402), specifically with regard to policies, standards, procedures and protocols related to the DC GIS: (b) assign responsibility to the District agencies with regard to maintaining, updating, and providing GIS data to the DC GIS, and with regard to creating GIS applications, developing GIS capabilities, meeting schedules for GIS projects, and allocating resources for GIS related activities: (c) prevent duplication of GIS activities within District government, and ensure singularity and interoperability; (d) solicit multilateral input and participation throughout the District government in developing and enhancing the DC GIS: and (e) promote effective usage of the DC GIS within District government and integration of the DC GIS with District agency business processes, and other District technology initiatives, where appropriate.

4. COMPOSITION: OCTO, the Office of the City Administrator, the Office of Planning, and the Department of Transportation shall be permanent members of the GISSC. OCTO shall serve as the permanent chair of the GISSC. Additional members shall be appointed or removed by the Mayor or City Administrator. The GISSC may establish sub-groups, such as subcommittees, working groups and task forces, that may include both members and non-members of the GISSC. The GISSC may opt to include non-District government organizations and individuals as non-voting members of sub-groups.
5. DEPARTMENT AND AGENCY RESPONSIBILITIES: District government departments and agencies shall follow the directives of the GISSC with regard to any and all activities that may involve or impact the DC GIS. This may include, but not be limited to, assigning resources, changing processes, maintaining and providing data, building and enhancing databases, purchasing and upgrading hardware and software, developing applications, providing training, hiring personnel, refraining and desisting from duplicative, non cost effective, or non-interoperable GIS or mapping activities, transferring functions and projects to other agencies, following specified procedures, standards and protocols, adhering to specified schedules, submitting requests for initiating GIS or mapping projects and activities, and serving on sub-groups of the GISSC or as members of the GISSC. All District departments and agencies shall coordinate with OCTO on all GIS or mapping development activities, applications and procurements, and shall take corrective action to bring into compliance any elements or activities the OCTO or the GISSC deem not to be in compliance with standards for the DC GIS.
6. ADMINISTRATION: District government departments and agencies will provide administrative and staff support and other assistance to the GISSC upon request.
7. EFFECTIVE DATE: This Order shall become effective immediately.

Anthony A. Williams
MAYOR

Attest: Beverly D. Rivers
SECRETARY OF THE DISTRICT OF COLUMBIA

Appendix C. Glossary of Acronyms

Acronym	Meaning
AGS	ArcGIS Server
ArcIMS	Arc Internet Map Server
BZA	Board of Zoning Adjustment
CAD	Computer-Aided Dispatch, Computer-Aided Design
CAMA	Computer Assisted Mass Appraisal (System)
CIO	Chief Information Officer
COP	Common Operating Picture
CTO	Chief Technology Officer
DC	District of Columbia
DC GIS	District of Columbia Geographic Information System
DCCIP	District of Columbia Capital Improvements Program
DCOZ	District of Columbia Office of Zoning
DCPS	District of Columbia Public Schools
DCRA	Department of Consumer and Regulatory Affairs
DDOT	District Department of Transportation
DHS	Department of Human Services
DMH	Department of Mental Health
DMPED	Office of the Deputy Mayor for Planning and Economic Development
DDOT	District Department of Transportation
DOH	Department of Health
EOC	Emergency Operations Center
EPA	Environmental Protection Agency
ESF5	Emergency Support Function 5
ESRI	Environmental Systems Research Institute
FCIP	Federal Capital Improvements Program
FDM	Federated Data Model
FEMA	Federal Emergency Management Agency
FEMS	Fire and Emergency Medical Services
FGDC	Federal Geographic Data Committee
FOIA	Freedom of Information Act
FR	First Responder
GIS	Geographic Information System
GIS/IT	Geographic Information System/Information Technology
GISSC	GIS Steering Committee
GOS	Geospatial One Stop
GSA	General Services Administration

Acronym	Meaning
HSEMA	Homeland Security and Emergency Management Agency
HSIP	Homeland Security Infrastructure Program
IMAP	Internet Message Access Protocol
IPMA	Infrastructure Project Management Administration
IT	Information Technology
ITS	Integrated Tax System
IZIS	Interactive Zoning Information System
KML	Keyhole Markup Language
KMZ	Zipped KML file
MAR	Master Address Repository
MDT	Mobile Data Terminal
MOU	Memorandum of Understanding
MPD	Metropolitan Police Department
MRDDA	Mental Retardation and Developmental Disabilities Administration
MSS	Management Supervisory Service
MWCOG	Metropolitan Washington Council of Governments
NCPC	National Capital Planning Commission
NGA	National Geospatial-Intelligence Agency
NGAC	National Geospatial Advisory Council
NGPO	National Geospatial Program Office
NPS	National Park Service
NSDI	National Spatial Data Infrastructure
NSGIC	National States Geographic Information Council
OCTO	Office of Chief Technology Officer
OGC	Open Geospatial Consortium
OMB	Office of Management and Budget
OP	Office of Planning
OS	Office of the Surveyor
OZ	Office of Zoning
OTR	Office of Tax and Revenue
PIVS	Permit Intake Validation Service
PUD	Planned Unit Development
QA/QC	Quality Assurance/Quality Control
RPAD	Real Property Assessment Division
RPTA	Real Property Tax Administration
SAS	Statistical Analysis System
SDC	State Data Center
SDS	Smart Data Strategies
SHP	Shape file
SOD	Special Operations Division

Acronym	Meaning
SSL	Square, Suffix, and Lot
TNM	The National Map
TOA	Traffic Operation Administration
TPPA	Transportation Policy & Planning Administration
UFA	Urban Forestry Administration
URISA	Urban & Regional Information Systems Association
USGS	United States Geological Survey
VPM	Vector Property Map
WASA	District of Columbia Water and Sewer Authority
WDCEP	Washington, DC Economic Partnership
WGIS	Washington GIS Consortium
WMATA	Washington Metropolitan Area Transit Authority (a.k.a. “Metro”)

Appendix D. Reference Documents

Publisher	Title	Date
Mayor Fenty	<u>100 Days and Beyond: 2007 Action Plan for DC</u>	2007
NCPC	WGIS Strategic Plan, 2000-2005	1999
NSGIC/FGDC	<u>Strategic Plan Templates</u>	2006
OCTO	<u>Federated Geospatial Data Model</u>	2005
OCTO	<u>Strategic Plan for the DC GIS Office of Chief Technology Officer, FY 2005-2006</u>	2005

Appendix E. Document History

Version #	Date	Description	Responsible Party
First Draft	5/28/08	DC GIS Strategic Plan (work-in-progress)	AppGeo
Second Draft v.5	6/11/08	Ibid.	AppGeo
Second Draft v.6	6/26/08	Ibid.	AppGeo
Final Draft v.1	7/16/08	For final review by OCTO	Appgeo
Final Draft v.2	9/22/08	Including OCTO final revisions	OCTO
Final Draft v.3	10/20/08	Revisions from USGS	OCTO
Final Version	1/24/09	Including GISSC endorsed changes	OCTO

NOTES:

Appendix F. Acknowledgements

This project was supported, in part, by the Federal Geographic Data Committee (FGDC) as part of the Fifty States Initiative. This national initiative identifies implementation steps that should be undertaken to establish more formal statewide geospatial coordination that will contribute to completing the National Spatial Data Infrastructure (NSDI). Additional funding was provided by the District of Columbia Office of the Chief Technology Officer.

The District of Columbia contracted with Applied Geographics, Inc. (AppGeo) of Boston, Massachusetts to develop the plan documents. Project oversight and input was provided by the District of Columbia GIS Steering Committee (GISSC), with representatives from:

- Office of the City Administrator
- District Department of Transportation (DDOT)
- Office of Planning (OP)
- Homeland Security and Emergency Management Agency (HSEMA)
- Fire and Emergency Medical Services (FEMS)
- Metropolitan Police Department (MPD)
- Office of Tax and Revenue (OTR)
- Department of Consumer and Regulatory Affairs (DCRA)
- Department of Public Works (DPW)
- Office of the Deputy Mayor for Planning and Economic Development (DMPED)
- District of Columbia Water and Sewer Authority (DC WASA)
- District of Columbia Office of Zoning (DCOZ)
- District Department of Environment (DDOE)
- National Capital Planning Commission (NCPC)
- United States Geologic Survey (USGS)
- National Parks Service (NPS)
- Washington, DC Economic Partnership (WDCEP)
- Urban Institute
- OCTO GIS Group

Appendix G. Copyright Notice

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