



District of Columbia
Geographic Information System
Steering Committee
October 15, 2009

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Introductions & Quorum



Minutes from last meeting
<http://dcgis.dc.gov>



DC GIS NEWS

- OCTO Changes
 - Bryan Sivak, new Chief Technology Officer
 - Thomas Jones, Deputy Chief Technology Officer going to City of Philadelphia
- Recent outages
 - Two major disruptions in September
 - Several shorter ArcSDE outages
- System utilization up 30% in fiscal year 2009, 1,157,932,924 database calls
- Broadband Mapping
- FGDC Grants Coming Soon



Track DC

<http://track.dc.gov>

Marina Havan, Office of City Administrator



Bylaws Discussion & Adoption



- Review history
- Do we have quorum?
- Discussion
- Modification
- Adoption
- Nomination of Executive Committee Members
- Election of Executive Committee Members



Training Class Schedule FY 2010



Pending approval from WDA

- November
 - Overview 11/04
 - Google (Earth) DC 11/10
 - ArcGIS 11/17 to 11/19
- December
 - Overview 12/02
 - Google (Earth) DC 12/09
 - ArcGIS 12/15 to 12/17
- January
 - Overview 01/06
 - Google (Earth) DC 01/13
 - ArcGIS 01/19 to 01/21
- February
 - Overview 02/03
 - Google (Earth) DC 02/10
 - ArcGIS 02/16 to 02/19
- March
 - Overview 03/03
 - ArcGIS 03/16 to 03/18
 - Google (Earth) DC 03/24
- April
 - Overview 04/06
 - Google (Earth) DC 04/14
 - ArcGIS 04/20 to 04/22



Training Class Schedule FY10

Pending approval from WDA



- May
 - Overview 05/04
 - Google (Earth) DC 05/12
 - ArcGIS 05/18 to 05/20
- June
 - Overview 06/02
 - Google (Earth) DC 06/09
 - ArcGIS 06/15 to 06/17
- July
 - Overview 07/07
 - Google (Earth) DC 07/14
 - ArcGIS 07/20 to 07/22
- August
 - Overview 08/03
 - Google (Earth) DC 08/11
 - ArcGIS 08/17 to 08/19
- September
 - Overview 09/01
 - Google (Earth) DC 09/08
 - ArcGIS 09/14 to 09/16



Updated Datasets



- Attendance Zone Relationships
- Bicycle Count Location
- Certification of Occupancy FY2008
- Charter School
- Civic and Neighborhood Association
- DC Property Location (DRES)
- Federal Location (GSA)
- Generalized Layer (Building, Sidewalk, and Road)
- Gas Station
- Grocery Store
- Hotel
- Income for 2006 by Census Tract
- Litter Can
- Ortho 2009 from Pictometry (1 meter, working on 1 foot)
- Notary Public (Public and Private)
- Pharmacy
- Parking Meter
- Public School
- Recreation Center and Other Facilities
- Red Light Camera
- Retail Site
- Senior Service Network Location
- Smart Bike
- Speed Hump
- Tennis Court
- Traffic Monitoring Station
- Transfer of Jurisdiction (Zoning)
- Urban Tree Canopy Metrics Tables
- Vector Property Map
- Voting Precinct (2008) – minor edits
- Wireless Hot Spot



Next Update



- **28 Green Map layers including:**
 - Farmers Market
 - Green Building
 - Energy Star
 - Green Roof
 - Nature Center
 - Community Garden
- **Contours and Digital Elevation Model**
- **DC Agency Location**



Washington D.C. Land Base Update Project

GIS Steering Committee 10/15/09

- Additional Planimetric Feature Compilation
 - Topographic Contour Completion
 - Summer 2009 NAIP Orthoimagery

KCI – Surveying, Program Management, QA/QC

Sanborn – Production, Photogrammetry

Doug Goldsmith, PM - KCI

Shawn Benham, PM – Sanborn



Supplemental Planimetrics

- Pools
 - Grates
 - Bollards
 - Stairs
-
- Production/QC in progress





Supplemental Planimetrics

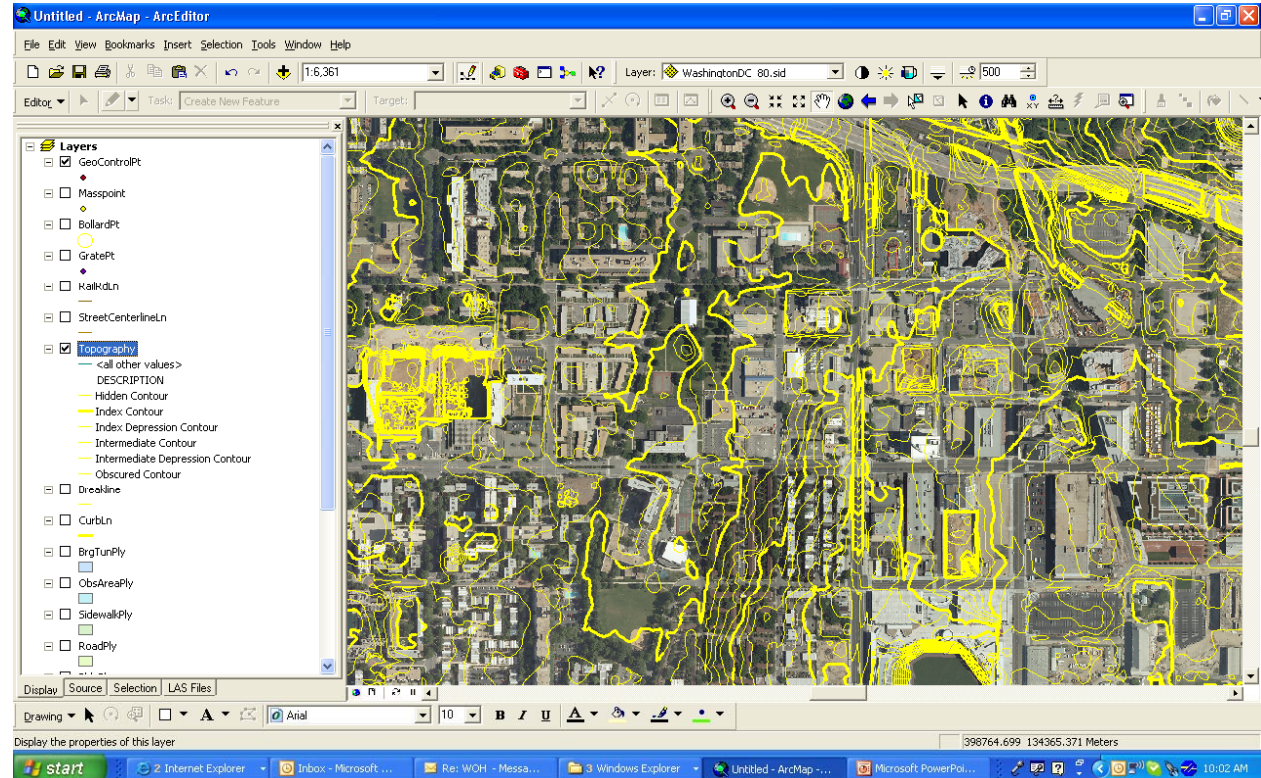
- Curb lines
 - Line feature
 - Correspond with EOP
 - Roads, parking
- Pilot Complete
- Compilation in progress





Topographic Mapping

- 2' CI
- DTM generated
- Classified by type
- Attributed with elevation
- QC underway





Topographic Mapping (TIN)

- TIN Created from DTM
- Used to Generate Contours
- Deliverable ESRI format





Accuracy Checkpoints

- Used to validate contour accuracy
- Initial survey exceeded tolerances by 0.2'-0.4'

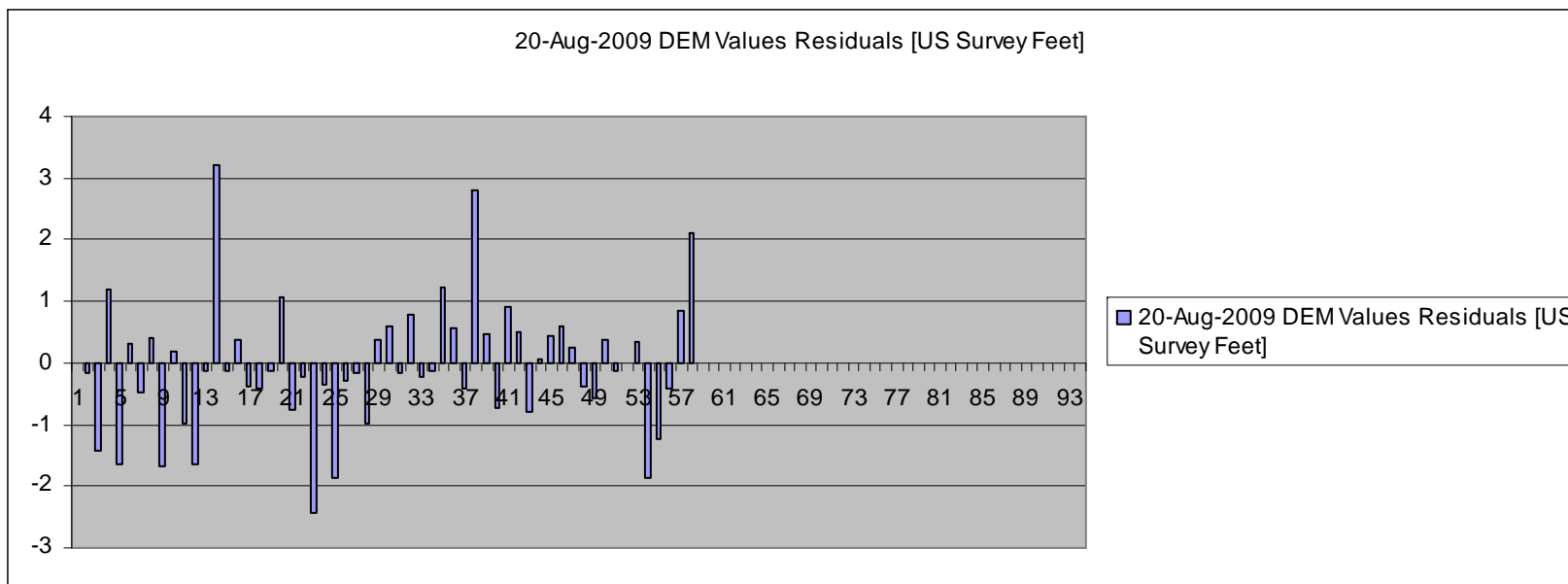




Accuracy Validation



- 57 Independent checkpoints
- Well defined points
- Normal distribution
- Average 0.76' / RMSE 1.0' / Median -0.14'





Accuracy Standards

- ASPRS
 - Class 1
 - Class 1.5
 - Class 2
- NMAS
 - 90% w/in 1'
- NSSDA
 - Tested results
 - Scale independent

Table 2-2
Planimetric Feature Coordinate Accuracy Requirement (Ground X or Y in Feet) for Well-Defined Points

Target Map Scale 1 in. = x (ft)	Ratio ft/ft	Limiting RMS Error in X or Y, ft		
		ASPRS		
		Class 1	Class 2	Class 3
5	1:60	0.05	0.10	0.15
10	1:120	0.10	0.20	0.30
20	1:240	0.2	0.4	0.6
30	1:360	0.3	0.6	0.9
40	1:480	0.4	0.8	1.2
50	1:600	0.5	1.0	1.5
60	1:720	0.6	1.2	1.8
100	1:1,200	1.0	2.0	3.0
200	1:2,400	2.0	4.0	6.0
400	1:4,800	4.0	8.0	12.0
500	1:6,000	5.0	10.0	15.0
800	1:9,600			
1,000	1:12,000			
1,667	1:20,000			

Table 2-3
ASPRS Topographic Elevation Accuracy Requirement for Well-Defined Points

Target Contour Interval (ft)	ASPRS Limiting RMS Error, ft					
	Topo Feature Points			Spot or DTM ¹ Elevation Points		
	Class 1	Class 2	Class 3	Class 1	Class 2	Class 3
0.5	0.17	0.33	0.50	0.08	0.16	0.25
1	0.33	0.66	1.0	0.17	0.33	0.5
2	0.67	1.33	2.0	0.33	0.67	1.0
4	1.33	2.67	4.0	0.67	1.33	2.0
5	1.67	3.33	5.0	0.83	1.67	2.5

¹ DTM = digital terrain model.



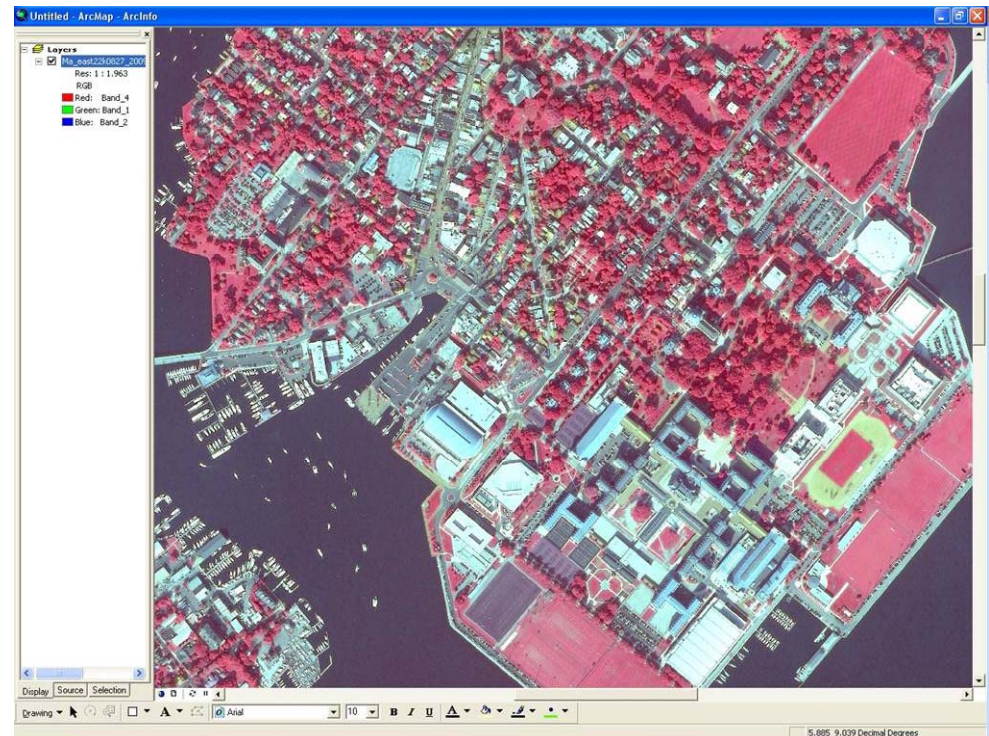
Accuracy Statement

- Data tested for well defined points has RMSE of 1.0. This mean that at least 65 percent of points are within 1'. Actually tested results show close to 90% of the points are within 1'. Generally users should be able to expect points +/- 1' for well defined features as measured from the DTM



NAIP Orthoimagery

- Multispectral Imagery
 - 1 meter GSD
 - Summer 2009 Flight
 - Horizontal Accuracy
 - 95 % points w/in 6 meters
 - USGS NED DEM
 - DOQQ tiles and and JPEG compressed County mosaics
 - DOQQ tiles and and JPEG compressed County mosaics

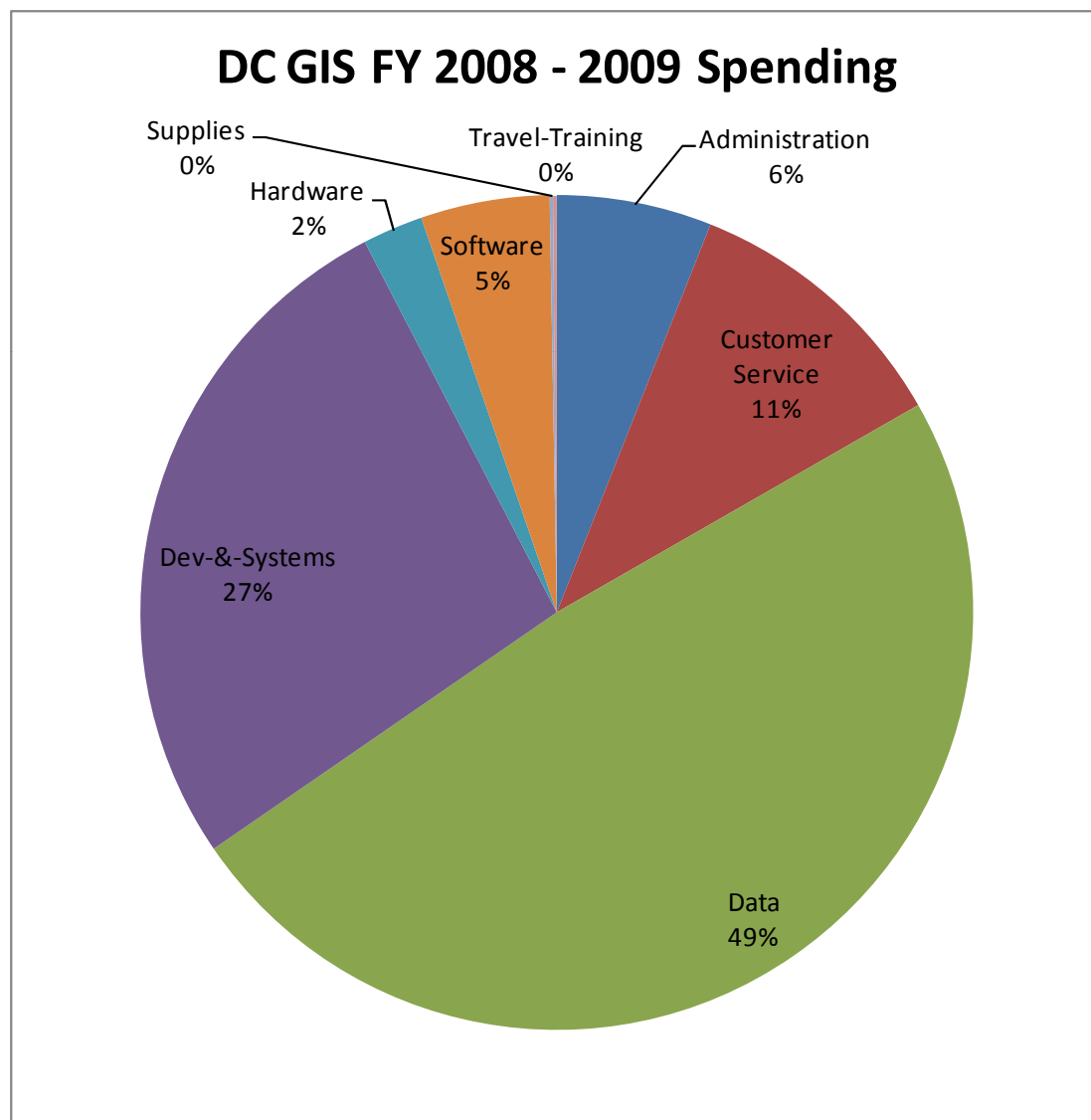




Budget Discussion and Review

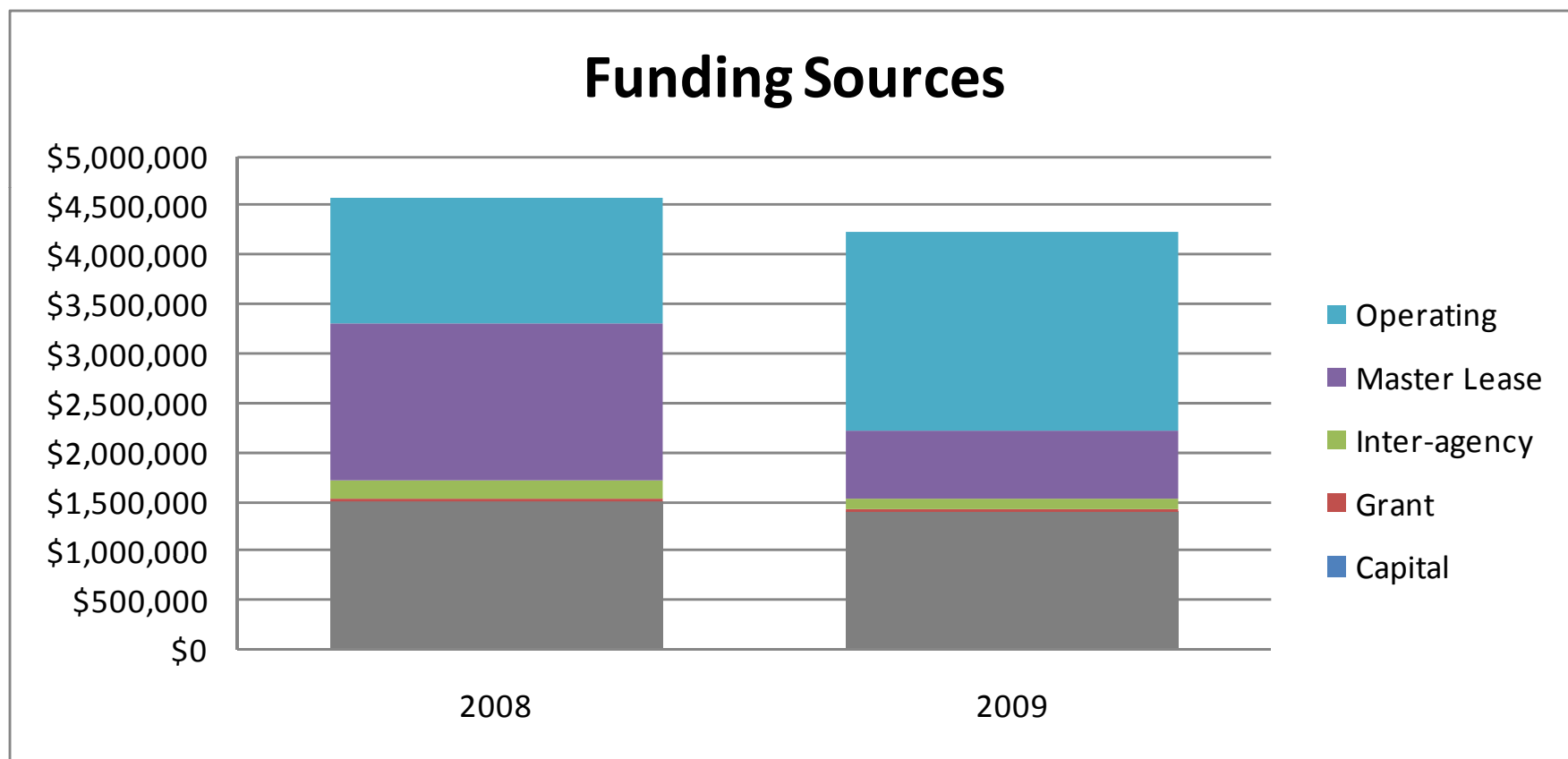


2008 – 2009 Spending History





Funding





2010 Operating Budget



2016 GIS		2009 Start	Current 2010 After Council cut	% Change from Base
PS	\$ 1,464,864	\$	912,003	-38%
NPS	\$ 670,000	\$	158,085	-76%
Total	\$ 2,134,864	\$	1,070,088	-50%



Proposed 2010 Master Lease



Project / Activity	Project Importance	Reasoning	Proposed Spending
BI-ANUAL 1" TO 100' PHOTOGRAMETRIC MAPPING UPDATE This is DC's planimetric and orthoimage base map. Cost includes prime and quality control contractors.	1	Fundamental data that all agencies use and is put in the public domain.	\$ 600,000
MAPPING WEB SERVICE and WEB SITE DEVELOPMENT. Develop multiple Web Mapping applications for agencies and the public. Primarily fund labor hour contractor procured through ITSA contract. Also includes Google Earth development.	1	DC GIS is constantly called on to produce Web applications that provide information and respond to policy problems. Includes retirement of ArcIMS apps and services.	\$ 350,000
LIDAR DATA PROCESSING - The National Geospatial-Intelligence agency is providing DC with free LiDAR data. Some processing will be required. The data supports environmental analysis, visualization, flood response and more.	2	We didn't pay for the data collection this is a bargain.	\$ 60,000
HARDWARE TO SUPPORT THE DC GIS - Hardware costs have been falling as consolidation with other programs takes place.	2	<ul style="list-style-type: none"> o Desktop refresh o SAN Space o Other 	\$ 50,000
OTHER DATA DEVELOPMENT PROJECTS - To be determined by DC GIS Steering Committee	3	TBD by DC GIS Steering Committee	
FY Total Spending			\$ 1,060,000
			\$ 40,000



VECTOR PROPERTY MAP PUBLIC LANDS. Public lands are the last land records to be converted/mapped digitally. As of the end of FY2009 35% of public lands data had been converted. Includes development of next generation data maintenance tools.	1	Fundamental data that all agencies use and is put in the public domain.	\$ 320,000
DC GIS SYSTEMS TEAM. Development / Migrate the DC GIS Central Database and server side systems.	1	This supports part of systems architect and DBA who ensure continuous improvement of the DC GIS. DC has gained significant value from a highly centralized system. That system must be regularly modernized or the users will drift away.	\$ 225,000
MAPPING/DOCUMENT APPLICATION FOR OFFICE OF SURVEYOR Develop and deploy applications to make historic land records searchable by map and available to public.	1	These documents have great historic value and effect current land development. Previously in paper format only.	\$ 50,000
CONVERT RIGHT OF WAY DATA GIS AND INTEGRATE WITH OTHER GIS DATA SETS. Currently right of way data is attribute only (no graphical representation). The data will greatly assist DDOT, Zoning, Planning and Economic Development.	2	Saves money by allowing for business process automation.	\$ 45,000
IMPROVE SURVEY ACCURACY OF SQUARES AND RIGHTS-OF-WAY Historic land records don't always fit the real world. The will cause more and more problems as the public is exposed to geospatial technology and the data is used to impervious service fees. Land Surveys are need to improve data over time. This includes the DC Boundary which is not survey accurate.	2	Essential as more and more business processes depend on this data.	\$ 100,000
MOBILE COMPUTING INITIATIVE - Support the field operations of DC Agencies by allowing query of DC GIS data, tracking personnel and assets, data collection and editing.	2	High return on investment and significant interest from agencies	\$ 200,000



Capital continued



MULTIMODAL ROUTING - DC needs a fully routable model that lets us understand how you can walk from here to there as well as drive or take rail or bus. We don't yet have the ability to map areas "15 minutes away from here" adequately by walking or bus. Critical for assessment of sites and neighborhoods Transit routes should be integrated with bus and rail info from WMATA, and should be updatable as this information changes over time.	2	In high demand from Office of Planning, DDOT, and Deputy Mayor for Economic Development. Critical to the District ability to quantify the benefits of density/urbanity.	\$ 300,000
SUPPORT FOR CENSUS 2010 INCLUDE LUCA FEEDBACK AND APPEAL - DC GIS has a key role in maximizing the District's count including an interactive process with Census to be sure they have every residential address.	1	Critical to maximizing DC's count and future federal revenue allocations.	\$ 70,000
IMPROVED BUSINESS ESTABLISHMENT DATA - DC GIS currently uses commercial data under license, and the license terms limit the ability of DC's agencies to publish it on the Internet, include it in our models, etc. Either obtain broader licensing terms for a good-quality commercial database or develop procedures to create and maintain such a database on our own.	2	In demand for several agencies models. Existing commercial business data has licensing restrictions	\$ 80,000
3D SOFTWARE. - Sketchup Pro site licensing for work with 3D building data. Better support for 3D in ESRI environments	2	DC has made initial investment in 3d buildings; additional software is needed to expand their use.	\$ 140,000
UNDERGROUND UTILITY DATA DEVELOPMENT - This is major missing element of the DC GIS with significant public safety and business process implications. Starts with facilitation and builds to a major project in out years.	3	TBD by DC GIS Steering Committee	\$ 50,000
CO-AGENCY DATA DEVELOPMENT - DC GIS will work with agencies to create new data sets on a project basis.	2	DC GIS is frequently called on to create new data to resolve and respond to policy problems.	\$ 80,000



Property Quest

<http://propertyquest.dc.gov/>

Charlie Richman, Office of Planning