

District of Columbia Geographic Information System Steering Committee May 29, 2009

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- Introductions
- City Administrator Expands Membership of GISSC– Barney Krucoff
- DC GIS News Barney Krucoff
- Implementing the Strategic Plan Rich Grady, Applied Geographics
- City Wide Data Warehouse Update Chris Marshal
- Data Report Mario Field
- Tree Canopy / Land Cover Jim Amerault DDOT and Jarlath O'Neil-Dunne University of Vermont





DC GIS NEWS



# • Department of Consumer and Regulatory Affairs

- Department of Health
- Department of Public Works
- District Department of Environment
- Emergency Management
- Fire and Emergency Medical Services
- Homeland Security and Agency
- Metropolitan Police Department
- Deputy Mayor Planning & Econ Dev
- Office of Tax and Revenue
- Office of Unified Communications
- Office of Zoning
- Water and Sewer Authority
  - \* Plus USGS as a non-voting federal partner.

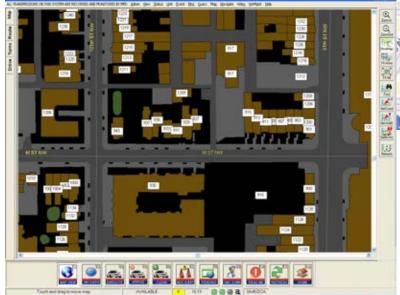




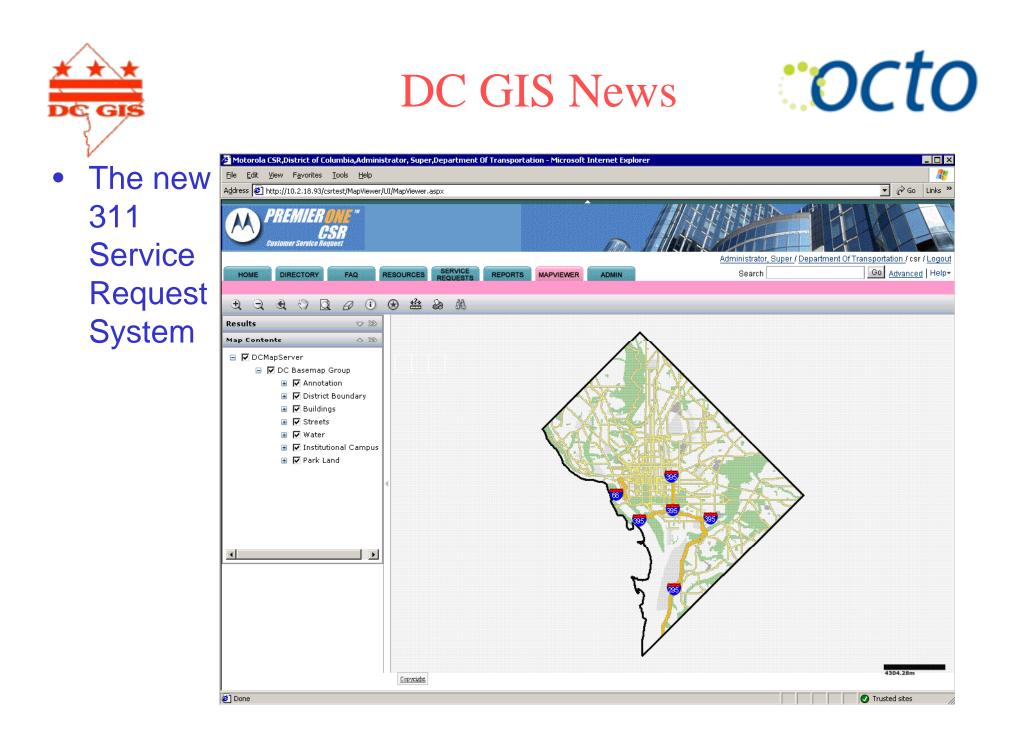
# DC GIS News



 The DC GIS Base Map is now part of the Computed Aided Dispatch (CAD aka 911) system



- 0 ESOURIAVE NW ANSSOURIAVE NICHOLSON ST NW **TH ST** MA 9TH ST NW MADISON ST NW MADISON ST NW MADISON ST NW LONGFELLOW ST NW LONGFELLOW ST NW
  - Also in the I-mobile client in MPD and FEMS vehicles





Department of Property Management \* \* \* be ais FY10-FY15 Capital Project Locations CONSOLIDATED FORENSICS LABORATORY BUILDING OF ENERG TRANSPORTATION/ FAA DEPARTMENT OF EDUCATION OOD AND DRUG HOUSE WEST ADMINISTRATION FOUNTAIN GSA REGIONAL OFFICE AEROSPACE BUILDING THE WASHINGTON CENTER DESIGN CENTER L'ENFANT PLAZA NORTH BUILDING Ward 2 SERVICE UARTER ENGINE 13 FRONTAGE RD APITOL SQUARE PL Ward 6 WATERFRONT H ST

 Also new language with GISSC Role in capital plan. check pages 205 & 213

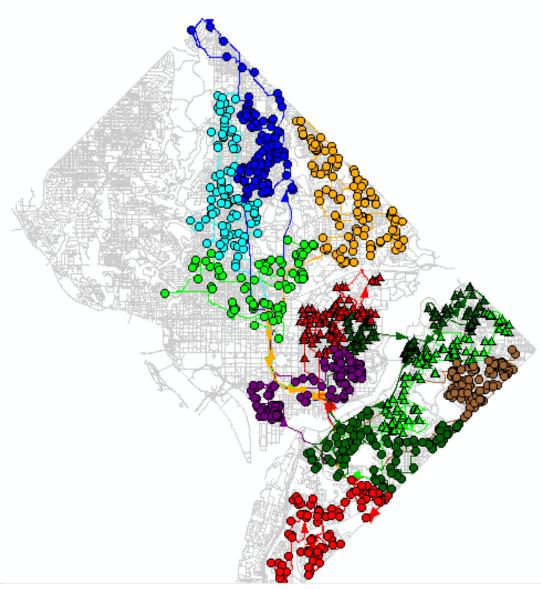
"This capital fund (N1604c) is paired with master lease fund project ZA143C. Both invest in shared applications and mapping data for District agencies that work with geographic data. OCTO coordinates and facilitates crossagency investments through the **District of Columbia Geographic Information System** (DC GIS) Steering Committee."





• Thanks DPW!

DC GIS

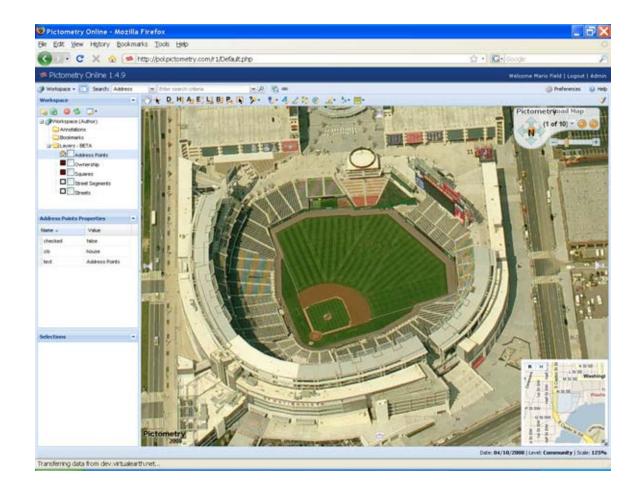




# Pictometry & NAIP Update OCTO



- Pictometry spring flight successful leaf-off
- New library this summer
- Pictometry online still work in progress
- National Agriculture Imagery Program (NAIP) flying both MD and VA. DCwide leaf-on forth band in planning stage.





# Summer Youth



- DC GIS Hosting 10 Summer Youth
- Working closely with DDOT on GPS Data Collection
  - Awnings
  - Benches
  - Bicycle Racks
  - Bollards
  - Call Boxes
  - Electrical Control Boxes
  - Litter Cans
  - Mailboxes
  - Media Boxes
  - Parking Meters
  - Parking Garages
  - Planters
- Field Trips
  - National Maritime Heritage Foundation
  - Library of Congress
  - National Geographic
  - GeoEye

- Sidewalk Cafes
- Stairs Into Buildings
- Street Furniture
- Taxi Cab Stands
- Vaults
- Ventilation Grates
- Wheelchair Ramps
- Segway Rental locations
- Tour Bus Stops
  - Office of Planning
  - WDEP
  - Coastlines



# Supporting:

- Deputy Mayor for Planning and Economic Development (DMPED)
- Washington, DC Economic Partnership (WDCEP)
- Executive Office of Mayor (EOM)

### Place: Global Retail Real Estate Conference, Las Vegas

- ~30,000 Attendees (developers, retail brokerage, restaurants, more!)
- District Delegation: Mayor Fenty; Neil Albert (CA); DMPED Project Managers; Council Members Gray, K. Brown, M. Brown, Alexander, Bowser, Evans, and Thomas; and OCTO GIS!

#### DC GIS Tools

- Custom Identification Tools
- Georeference Site Plans
- All DC GIS Central has to offer!





All Touch Enabled – Use Your Hands!









- **Microsoft Surface Application** 
  - DC GIS Basemap, Retail Site Imagery, Narratives, Sq. Footage





# GIS for Economic Development









# Google (Earth) DC Plugin available soon!

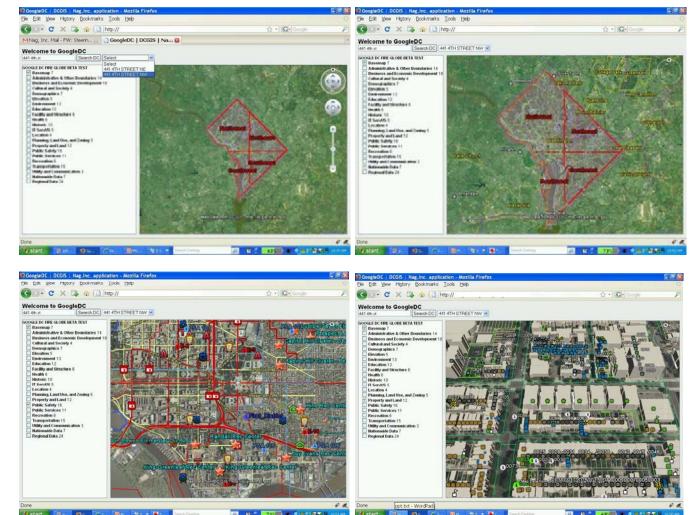


•Seamless tie-up with existing Google DC Fusion Data.

•Drill down capability for 300+ layers

#### •MAR Integration

• Custom secure applications on the web developed for FIRE & Public Safety





# GoogleDC 5.0 deployment Package



•Upgraded Google Earth Enterprise to beta 5.0 and GoogleDC customization Package

•Automatically Un-Installs previous versions, before installing the new version.

•Both Google Earth Enterprise and customization script is rolled into one package for quick and easy deployment.

ogle Earth DC Setup	
tup Options	
Server location: http://d	Gearth1.dcgis.dc.gov
Cache size:	
🗹 Install Google Ea	rth DC
For All Users	
🔽 Uninstall previou	s versions of Google Earth (if found)
	Google Earth DC Setup
	Click Next to begin install



- WDCEP Retail Site Locator in Google Map <u>http://googledc.dcgis.dc.gov/retail</u>
- CSOSA Sex Offender Web Site in Google Map
   <u>http://10.2.11.29/sor</u>
- DC Capital Projects Map <a href="http://10.2.11.29/agencyapps/capital.aspx">http://10.2.11.29/agencyapps/capital.aspx</a>
- DPW Trash/Recycle Pickup Date lookup

http://10.2.11.29/trashrecyclepickup/



# Master Address Repository Residential Units



Total Unit(s): 12		
Unit	Unit SSL	
101	1096 2017	
102	1096 2018	
103	1096 2019	
104	1096 2020	
201	1096 2021	
202	1096 2022	
203	1096 2023	
204	1096 2024	
301	1096 2025	
302	1096 2026	
303	1096 2027	
304	1096 2028	

#### Condominium – 1 18<sup>TH</sup> STREET SE

http://dcgis.dc.gov/mar





# Master Address Repository Residential Units



#### What is a Residential Unit?

An individual housing occupancy which has a secondary designation. These can be apartments or condominiums Most of these units have an interior entrance to the location.

Examples of designations include:

1 18<sup>th</sup> Street NE 101
1439 SPRING ROAD NW 302
4338 HALLEY TERRACE SE 1A
100 CHESAPEAKE STREET SE 5



# Residential Units Cocto



- 185,632 records in the Residential Units
- There are an estimated 194,000 202,000 in DC •
- Thus the Residential is estimate to be between 91.9% 95.6% complete •
- Includes fields:
  - $\geq$ Unit Num
  - Unit Type  $\geq$
  - Unit ID  $\geq$
  - Address ID  $\geq$
  - Condo SSL  $\geq$
  - Condo Square  $\succ$
  - Condo Suffix  $\geq$
  - Condo Lot  $\geq$
  - Condo Book  $\succ$
  - **Condo Page**  $\geq$
  - Metadata ID  $\geq$



MAR Update



- Major improvement in Quality of SSL Data in MAR
  - Automatic weekly update of SSL AID Cross Reference Table
  - Reviewed recommended and assigned addresses
- Updated Documentation
  - MAR Presentation
  - MAR Frequently Asked Questions (FAQ)
  - Address Anomalies
- MAR Blog: <a href="http://dcaddresscoordinates.blogspot.com">http://dcaddresscoordinates.blogspot.com</a>



# ESRI Geocoding Tool CCCC

- Available in DCGIS Central SDE
- Alternative to MAR Batch Geocoder which is slow in dealing with large amount of records.
- Bucket approach.
  - 1. MAR Geocoding
  - 2. Street Centerline Geocoding
  - 3. Regional
- Most of the settings are preset



# MAR Geocoding Tool Settings Octo

Address Locato	or Properties	? ×
Name: Description: Primary table Reference da Database C	ionnections\DCGISCentral_RO.sde\DCGIS.Adc	Input Address Fields The field containing: is recognized if it is named: Street Address Addr Street Delete
Fields House Numbe Prefix Directio Prefix Type: Street Name: Street Type: Suffix Directio	er: ADDRNUM	Matching Options         Place Name Alias Table         Spelling sensitivity:         76         Minimum candidate score:         76         Minimum match score:         76         Intersections         Connectors:         Separate connectors by a space, e.g. "& @ , /"         Output Options         Side offset:         In f candidates tie         Output Fields         V X and Y coordinates         Reference data ID
Help	Advanced	OK Cancel

# DC GIS Strategic and Business Planning:



### **Presented to DC GIS Steering Committee** May 29, 2009

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# How we got here...

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Slide 24

### Strategic Planning Process: Who has participated?

DC Agencies

- Independent DC Agencies
- Federal Agencies
- Academic Institutions
- Private Sector
- Nonprofits
- Others Groups
- Citizens





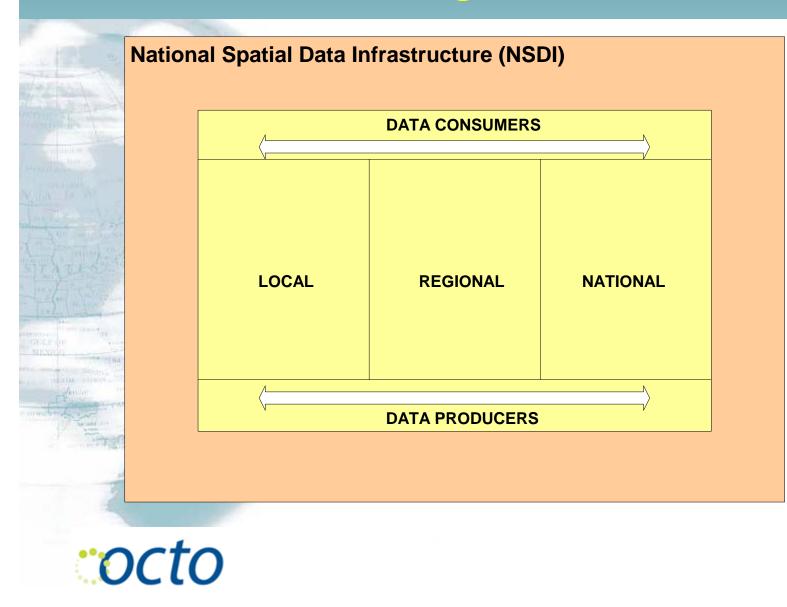
### National Context: Part of a Bigger Picture

- National Spatial Data Infrastructure (NSDI)
- Federal Geographic Data Committee (FGDC) & National States Geographic Information Council (NSGIC) "Fifty States Initiative"
  - Cooperative Assistance Program (CAP) Grant Support
  - GIS Strategic Planning and Business Planning Guidance
     Lessons Learned From Other CAP Grant Recipients
  - National Geospatial Advisory Council (NGAC)





# NSDI Goal: Data Sharing





# Strategic Planning Process: Overview

- Stakeholder workshops: December 2007 and March 2008 (over 40 people attended each one)
  - *GISSC meeting presentations and feedback:* September 2007, June 2008, October 2008, and November 2008
  - Strategic Plan Working Group (SPWG) sessions: January 2008 and June 2008
    - Barney Krucoff (OCTO)
    - Roger Barlow (USGS)

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- Charlie Richman (Office of Planning)
- Dave Koehler (DPW)
- Erik Johnson (FEMS)



# Strategic Planning Process: Overview (cont'd)

- Departmental and stakeholder interviews, and teleconferences: January 208 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 performance period (September 2007 July 2008)
- **Document review and topical research** (e.g. data profiling and analysis of the DC GIS Data Catalog): Throughout project (September 2007-July 2008)
  - *Iteration on draft documents* -- first, second, and final drafts (with interim drafts on parts of the plan documents)

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### Strategic Planning Results: Refined 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.



# Strategic Planning Results: Goals

The planning process resulted in six long-term (5- year) goals:

- 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
- Apply GIS in ways that increase revenue and reduce costs for the District





### **Important Accomplishments**

- Consensus adoption of the DC GIS Strategic Plan by the GISSC, November 6, 2008
- Recommendation to expand the GISSC under Mayor's Order 2002-27, and other recommendations of the Strategic Plan, approved and made actionable by the City Administrator, Dan Tangherlini, on May 8, 2009,
  - Going forward, the GISSC will:

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Continue to be chaired by OCTO

Continue to include senior representatives of the original permanent members (Office of the Chief Technology Officer, District Department of Transportation, Office of Planning, and the Office of the City Administrator) **plus:** 

See Table on Next Slide



# Important Milestones (cont'd)

### Table of GISSC Expanded Voting Membership\*:

Department of Consumer and Regulatory Affairs	Office of Tax and Revenue
District Department of the Environment	Office of Unified Communications
Fire and Emergency Medical Services	Office of Zoning
Homeland Security and Emergency Management Agency	Water and Sewer Authority
Metropolitan Police Department	Department of Health
Office of Deputy Mayor for Planning and Econ. Development	Department of Public Works

\* Plus USGS as a non-voting federal partner.





# **GISSC** Actions from City Administrator

#### The expanded permanent members of the GISSC shall:

- Review and endorse the DC GIS Strategic Plan and Federated Data Model
- Develop **Bylaws** for the governance of GISSC, such as rules for establishing a quorum, conducting votes, and the formation of governance and subcommittees
- Produce and adopt an updated DC GIS Business Plan by September 30, 2009
  - Schedule an official "GISSC Annual Budget Meeting" for September of each year, to review:
    - Past year's spending
      - DC GIS Business Plan for spending in the coming year(s) with recommendations to the OCTO CTO and City Administrator
- Continue to hold meetings at least quarterly open to all agencies and the public





### GISSC Actions: DC GIS Business Plan

- We got a head start in 2008 with DC GIS Staff Preliminary planning focused Data, Applications, and Services (i.e. Goals #2 and #3 from Strategic Plan)
  - 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
  - Provide outstanding customer service and training that enable DC GIS users and stakeholders to leverage the full power of GIS technology

Participatory: Need a Business Plan Subcommittee!



1



#### GISSC Actions: DC GIS Business Plan (cont'd)

- Applying "Portfolio Management" Projects have different life-cycles and investment strategies:
- Invest (build or enhance)
- Maintain (provide basic support)
- Sunset (migrate toward retirement)
  - Divest (shut-off spending and "kill it")





#### GISSC Actions: DC GIS Business Plan Next Steps

- Form Business Plan Subcommittee (BPS)
- Share draft document with BPS
- Schedule teleconferences and/or web meetings with in next few weeks to get feedback and input (June-July iterations)
- Refine draft and derive presentation to make at next GISSC meeting in July
- Provide Final Draft Business Plan document for GISSC Budget Meeting in September
- Finalize Business Plan based on Budget Meeting





### **Four-Month Schedule**

	June		July		August		Septemb	er
GISSC Action Items	1st Half	2nd Half						
Establish Business Plan Subcommittee (BPS)								
Establish Bylaws Subcommittee (BLS)								
Distribute preliminary draft of Business Plan to BPS								
Present revised draft of Business Plan to OCTO DC GIS								
Present revised draft of Business Plan to full GISSC								
BLS to meet and develop proposed Bylaws								
Present proposed Bylaws to OCTO DC GIS								
Present proposed Bylaws to full GISSC								
Finalize Business Plan based on GISSC feedback								
Present to OCTO DC GIS								
Finalize Bylaws based on GISSC feedback								
Present to OCTO DC GIS								
Annual Budget Meeting								
Vote on Bylaws								
Vote on Business Plan investment priorities								
Finalize Bylaws as needed								
Finalize Business Plan as needed								





#### **GISSC Actions:** Bylaws

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- Form a "Bylaws Subcommittee" to (e.g.):
  - Establish protocols for conducting meetings
  - Determine when voting is needed
  - Determine voting rules
    - One agency one vote?
    - Simple majority wins?
    - Quorum for a vote to be valid?
    - Breaking deadlocks?

Report back to the full GISSC in July (need to put in place by September to vote on Business Plan)



Slide 40

#### **GISSC Actions:** Bylaws Subcommittee

- Who should be on it?
  - Original members of GISSC?
  - Original members plus others?
  - What others?
    - OR
  - One rep from each of the traditional "clusters?"
    - Human Services
    - Planning and Economic Development
    - Public Safety
    - Transportation and Operations
  - Discussion...(and then, volunteers!)







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#### Slide 42

## Thank you!





## **Rich Grady**



rgrady@appgeo.com

Slide 43

## DC Public Data Catalog

#### Providing Government Transparency and Accountability By Publishing District Data



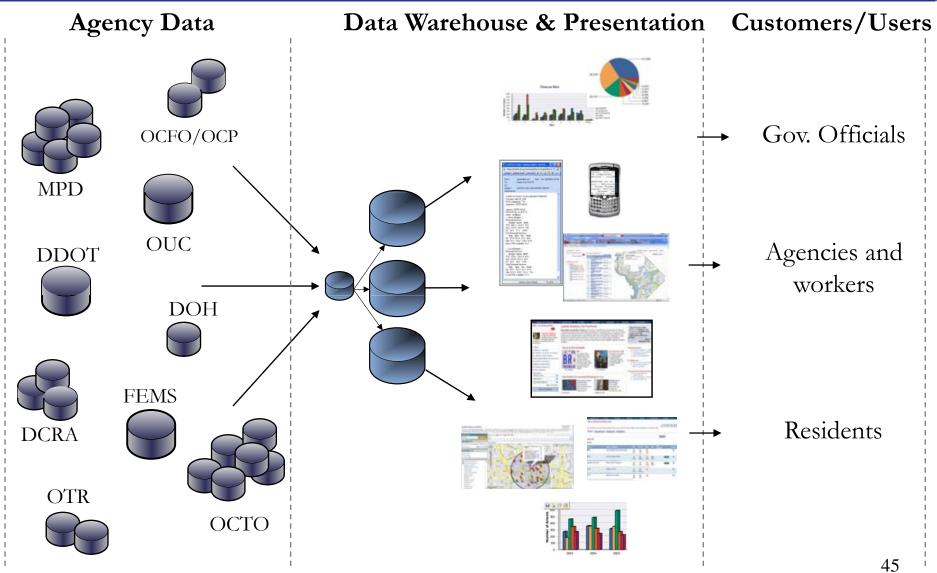
#### DC GIS Steering Committee Meeting

May 29, 2009



## CityDW Overview









- Public Display of Over 270 Data Sets
- Search Capability of District Data and Agency Information
- > One Click Access to Data on Google Maps
- Easy Data Downloads into Excel Spreadsheets
- Data Feeds that Provide Various Update Frequencies—
   Some in Near Real Time
- > Open Access to Data—No Registration Requirements



## Data Catalog & Data Feeds



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NLINE SERVICE Equests	Crime incidents (ASAP) 2006 Purchase Orders 2009 Purchase Orders 2008 Purchase Orders 2004-2007 Public Space Permits 2008 Public Space Permits 2004-2007				SPIL mes. ESRI: Used for consumption by ESRI-compatible mapping applications. Most datasets in ESRI format are updated on a monthly or quarterly basis as they are not "operational" in nature.
	ITSA Awarded Engagements Purchase Card Transactions (New) ITSA Current Open Requirements				KML:Used to display geospatial data in Google Earth, Google Maps, and similar applications.



## Data Catalog & Data Feeds

#### Users can download up-to-date data into a spreadsheet.

#### DC Data Catalog and Data Feeds

5

By accessing data catalog and feeds, you agree to our Terms of Use. Please read before accessing the data.

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Learn about Data Formats

Please note that data feeds contain the latest update from the source database (which might include records from several days ago and not today's date). Datasets marked 'daily' are published on weekdays with the latest information received from the source agency

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Available from the DC Data Catalog and Data Feeds http://data.octo.dc.gov/



## Data Catalog & Data Feeds



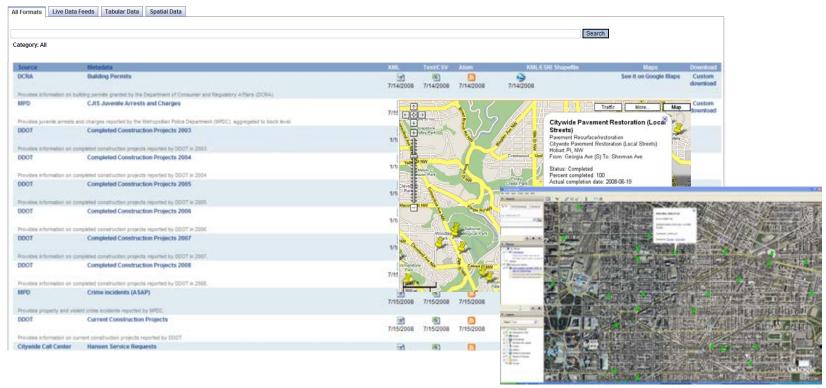
Learn about Data Formats << Back to Data Catalog Main

Users can map your data with a single click.

#### DC Data Catalog and Data Feeds

By accessing data catalog and feeds, you agree to our Terms of Use. Please read before accessing the data.

Please note that data feeds contain the latest update from the source database (which might include records from several days ago and not today's date). Datasets marked "daily" are published on weekdays with the latest information received from the source agency.



Available from the DC Data Catalog and Data Feeds http://data.octo.dc.gov/



## **Cto** Data Catalog Custom Downloads

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\_ | a | 🖉 Data Catalog - Windows Internet Explorer 🗸 😽 🗙 Google p-Q http://data.octo.dc.gov/NewCalendar.aspx?datasetid=2 G File Edit View Favorites Tools Help 0 -Sign in Mindows Live Live Search What's New Profile Mail Photos Calendar MSN Share 🛃 • 🖾 • 🔥 🔄 🔹 🔝 🕤 🖶 🔹 🔂 Page 🔹 🎯 Tools 🤹 \* \* 吕 👻 👑 DC Intranet Start Page FOIA Facts: DOJ AG Issues ... A Data Catalog X District of Columbia MAYOR FENTY DC GUIDE RESIDENTS BUSINESS VISITORS GOVERNMENT FOR KIDS << Back to Data Catalog Main OCTO HOME About OCTO **CJIS Juvenile Arrests and Charges** How to Reach Us Ask the CTO FOIA Requests News Room Popular Downloads Employment Date Range Opportunities Site Map From 01/01/2008 to 01/01/2009 3 2 Scorecard From 01/01/2009 to 05/11/2009 0 3 SERVICES CityDW Download Data DC GIS DC-NET Customize your data downloads below by selecting a location, time range and format. Data is available in XML, Text/CSV, KML or ESRI Shapefile formats. If you are unfamiliar with these data formats, DC-WARN please read the descriptions below. In most cases, you will be asked to select which date field the report should be filtered by (ie. Completion Date, Modified Date, etc). UCC Once your selections are made, click "Get Data." If data does not appear, you may need to turn off pop-up blockers. Or, the requested data may be too large, if this is the case, you will receive an error message & be asked to either split the data or provide your email address so we can process your request and email the results. INFORMATION ASMP Learn more about data. HSMP Policies, Guidelines, & Procedures Select a location Select a time range Ward 1 Program Management Ward 2 O Citywide Last 30 days Standards Spectrum Coalition for Ward 3 Ward C Last 60 days Public Safety Ward 4 Web Standards Ward 5 OANC One year and Style Ward 6 O Police District O Year to date Ward 7 ONLINE SERVICE **OPSA** Ward 8 O Other REQUESTS Neighbourhood Cluster Based on Date of arrest 🗸 OBID Select a preferable format of results Get Data OCSV ○ XML



## **OCTO** Data Catalog Custom Downloads

DC OFFICE OF THE CHIEF TECHNOLOGY OFFICER

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12	1932680	19930620	4/27/2009 9:00	В	M	-1	NO VALUE	-1 NO	VALUE AS	SIGNED.	N	А	4/27/200	9 13:22	-1 NO VALU	JE
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15	1932972	19920104	4/28/2009 16:25	В	M	-1	NO VALUE	-1 NO	VALUE AS	SIGNED.	Y	А	4/28/200		1 OFFICER	v
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21	1935046	19940901	5/8/2009 15:40	В	М	-1	NO VALUE	-1 NO	VALUE AS	SIGNED.	Y	Α	5/8/200		-1 NO VALU	JE
22	1935387	19920515	5/10/2009 2:51	В	М	-1	NO VALUE	-1 NO	VALUE AS	SIGNED.	N	А	5/10/20	09 6:24	1 OFFICER	v
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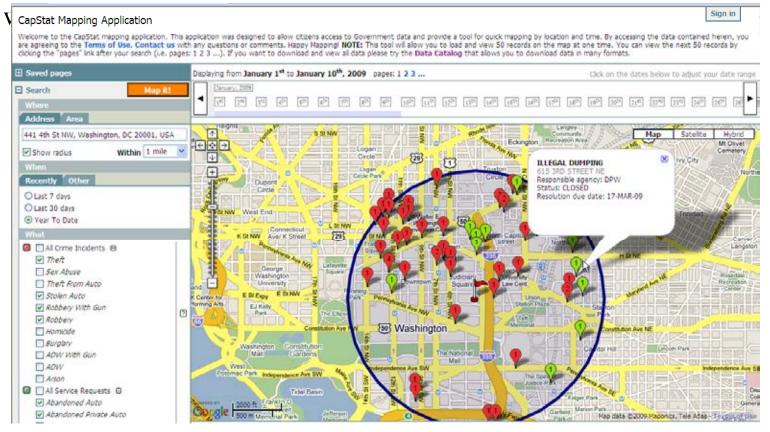


## **Custom BI Applications**



#### The CapStat Mapping Application

- Search by location/address, person
- Point mapping, Google Map based
- Research an area: crimes, service requests or inspections..., when and





## Data Catalog via DC GIS



🔍 100% 🔹 🔐

😜 Internet

Ambulatory surgical centers as de	efined by DOH.	
OTR via DC GIS	Appropriations	S 05/07/2009 05/07/2009
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DC GIS	Bridges with Attributes - polygon	
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Rooftop Spot Elevations		
OCTO via DC GIS	Buildings	
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Building footprints with firewalls.		
OCTO via DC GIS	Buildings - 3D (ESRI Format ONLY)	
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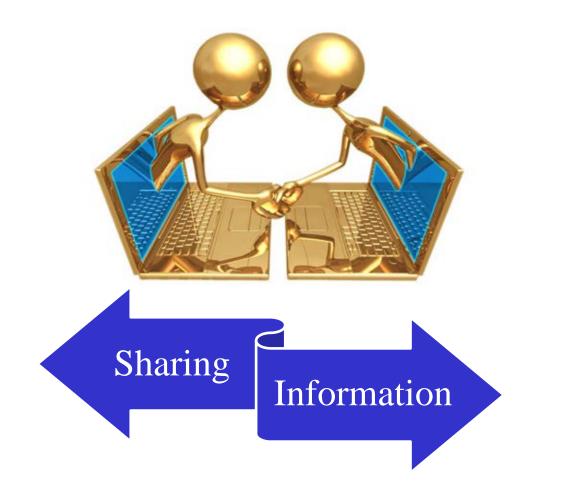


## CityDW and DC GIS:

- Share the common goal of providing District data to promote open government and provide information to residents, businesses, and visitors to the District of Columbia.
- Both work to provide centralized repositories for District data.
- Share data.

Creating Even More Open Government

## The Need for More Data



Gitywide Data Warehou



How You Can Help



## ✓ Provide Awareness

## ✓ Provide Data



#### Contact Us



CityDW@dc.gov

## <u>http://citydw.octo.dc.gov/</u> <u>http://data.octo.dc.gov/</u> <u>http://reports.citydw.octo.dc.gov/</u> <u>http://capstat.oca.dc.gov/mapping/</u>

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Christopher Marshall Program Analyst – Citywide Data Warehouse Christopher.Marshall@DC.gov





## Data Report Mario Field, Dr. Data



## Data Updates



- ABRA Liquor License
- Business Point (INFO USA)
- Capital Project 2010
- DC Connector Bus
- Embassy
- Land Cover 2006
- Main Street
- Retail Site (WDCEP)
- Sex Offender
- Snow Emergency Route
- Street Tree
- Traffic Volume (2006 and 2007)



## Final Planimetric Data Delivered



- Building
- Bridge and Tunnel
- Geodetic Control Point
- Obscured Area
- Railroad
- Road
- Sidewalk
- Street Centerline
- Wooded Area
- Tentative load date: June 12, 2009





 Acknowledgment of the DC Geographic Information Systems Program (DC GIS). The District of Columbia Government makes no claims as to the completeness, accuracy or content of any data contained hereon, and makes no representation of any kind, including, but not limited to, the warranty of the accuracy or fitness for a particular use, nor are any such warranties to be implied or inferred with respect to the information or data furnished herein.



# VPM – Public Lands Update Octo

Red – recently captured parcels

Pink – recently captured

reservations

**Project to map public lands is underway.** 

Mapped 20% ~ 1150 Reservations. Mapped 85% ~ 1300 parcels

**Recent Public Lands include:** 

- National Zoo
- Fort Dupont Park
- Triangle Park (many transferred to DC)
- Battery Kemble Park
- Oxon Run Parkway

# vpm.dc.gov



## Upcoming Data



- Contours
- DTM
- Federal Location
- Hotel
- Gas Station
- Green Roof
- HIV Clinic
- Rehabs
- School Attendance Boundary

# Assessing Urban Tree Canopy in the Nation's Capital

#### Jarlath O'Neil-Dunne

University of Vermont Spatial Analysis Laboratory 802.656.3323 joneildu@uvm.edu





## UTC Assessment

Questions

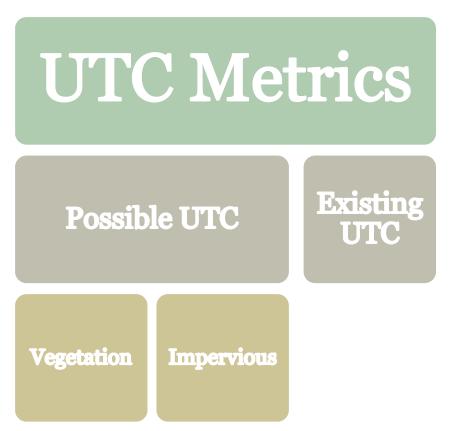
#### Answers

How much tree canopy do we have?

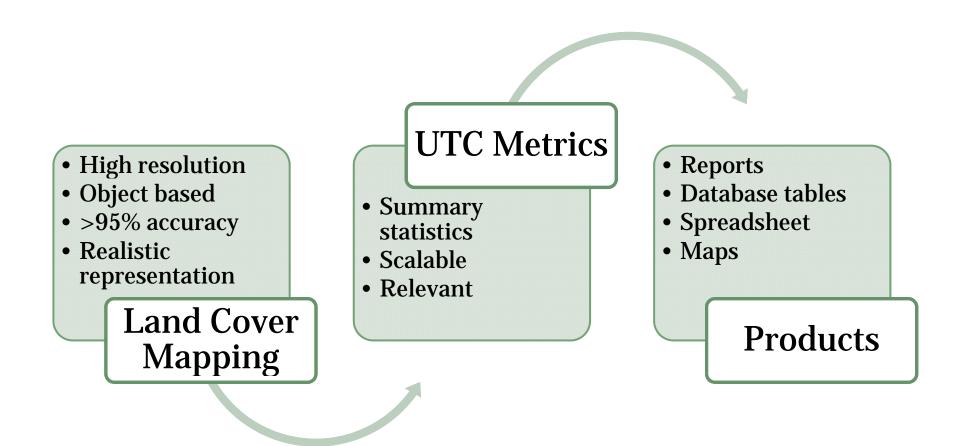
How much tree canopy could we have?

Who "owns" the tree canopy?

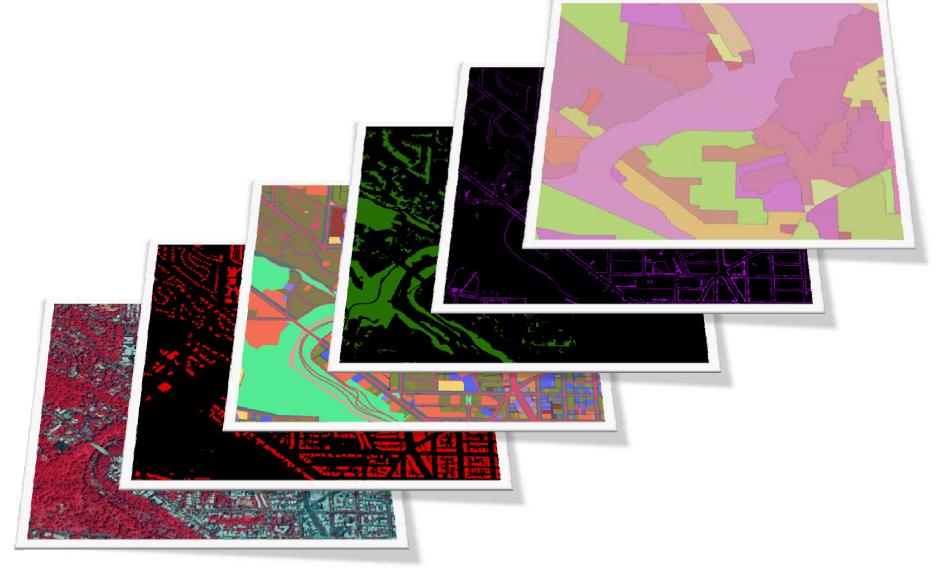
How is the tree canopy distributed?



## Approach



## Leveraging Existing Investments

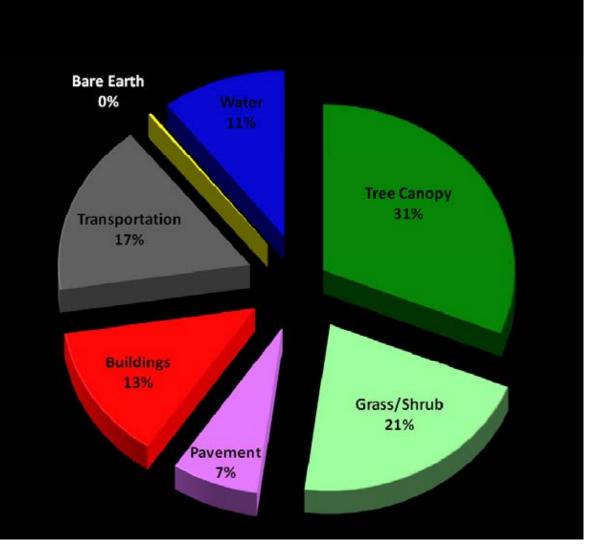


## Land Cover Mapping



## Land Cover Metrics



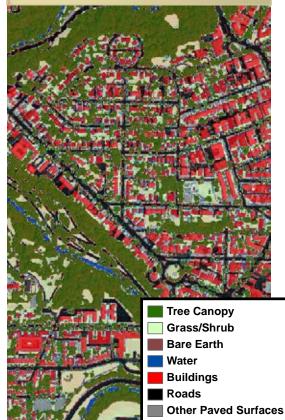


## **Comparison to National Datasets**

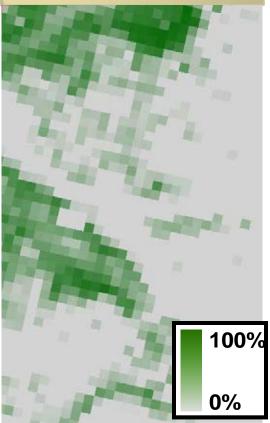
#### Color Infrared Aerial Imagery



#### High Resolution Land Cover



#### National Land Cover Dataset



#### **UTC Estimates**

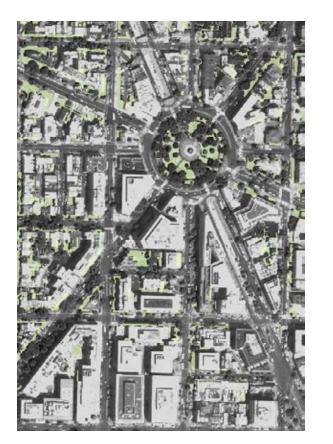
Derived from 2008 imagery 2ft resolution

35%

20 Derived from 2001 imagery 30m resolution

# UTC Types



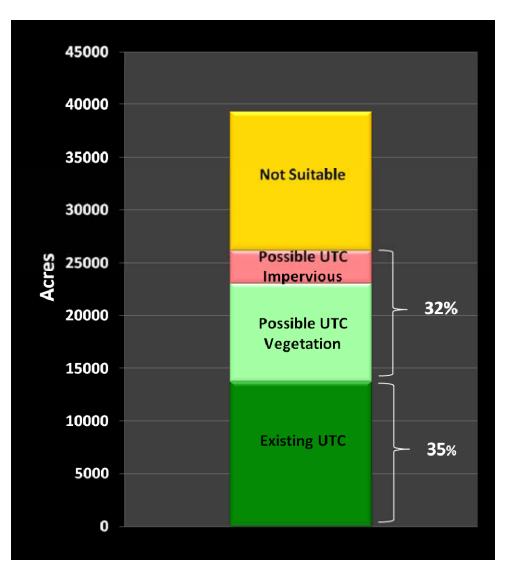






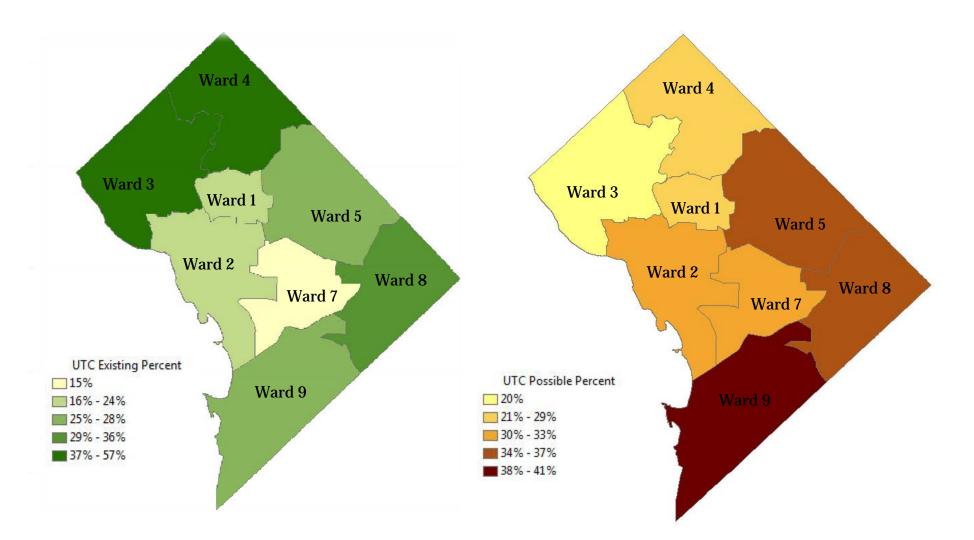


## **City UTC Metrics**

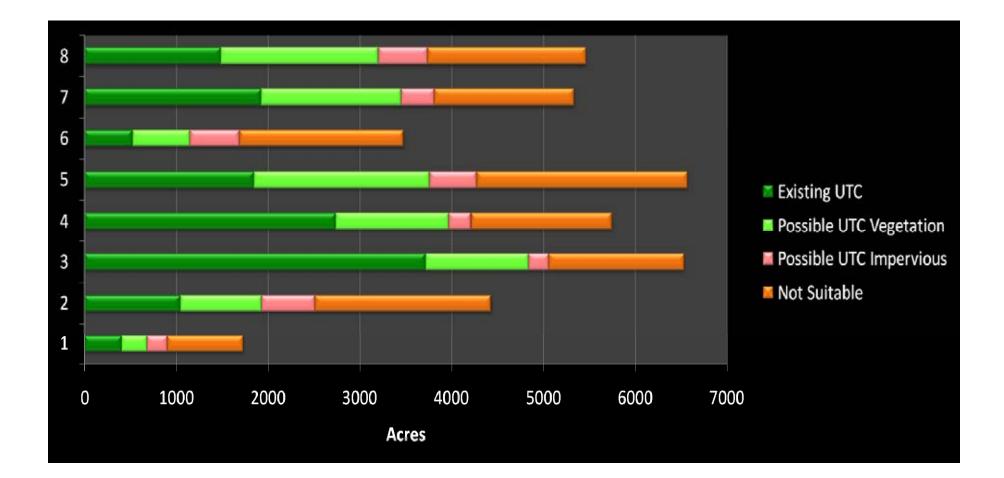


- **39283** acres of land (excludes water)
- 13673 acres of Existing UTC
- 9305 acres of Possible UTC that is grass/shrub
- 3204 acres of Possible UTC that is impervious
- 13102 acres is not suitable for tree canopy (buildings, roads)

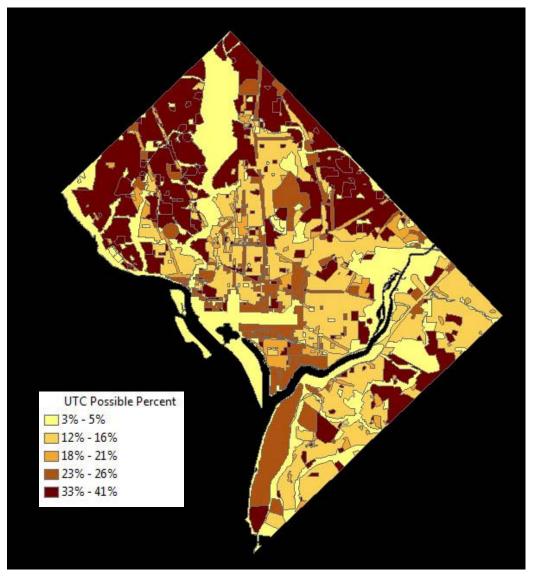
## Wards Analysis



#### Ward Metrics

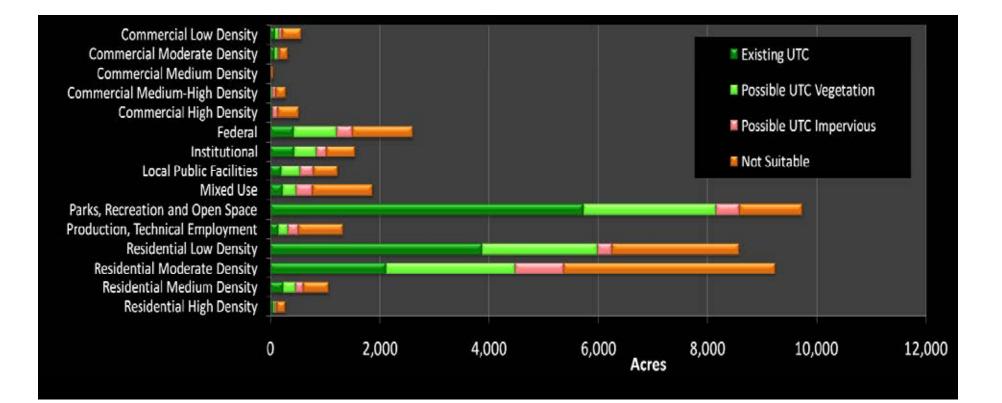


#### Parcel Land Use Analysis



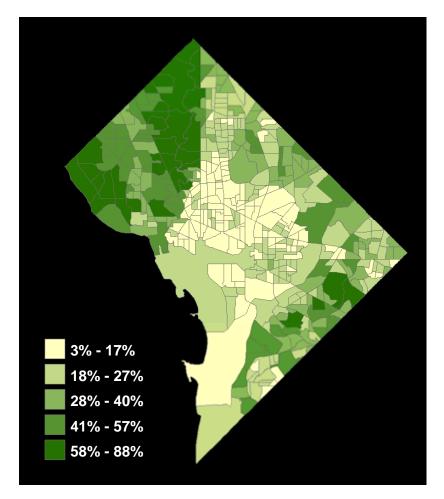
Commercial High Density Commercial Low Density Commercial Medium Density Commercial Medium-High Density Commercial Moderate Density Federal Institutional Local Public Facilites Mixed Land Use No Data Parks, Recreation, and Open Space Production and Technical Employment **Residential High Density Residential Low Density** Residential Medium Density **Residential Moderate Density** Water Areas

#### Land Use UTC Metrics

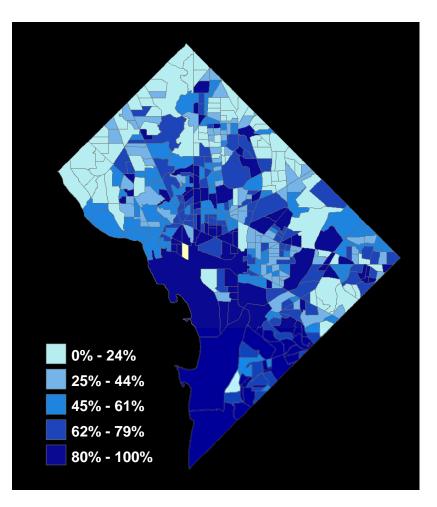


#### Census

#### **Percent Existing UTC**



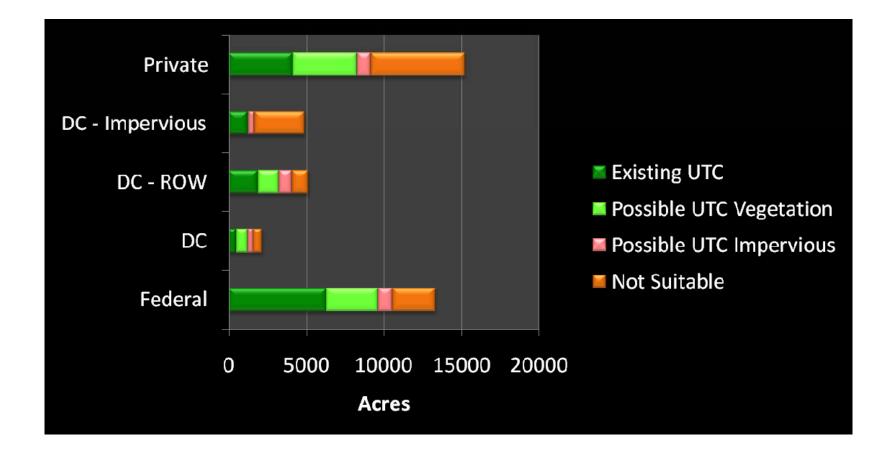
#### **Percent Renter Occupied**



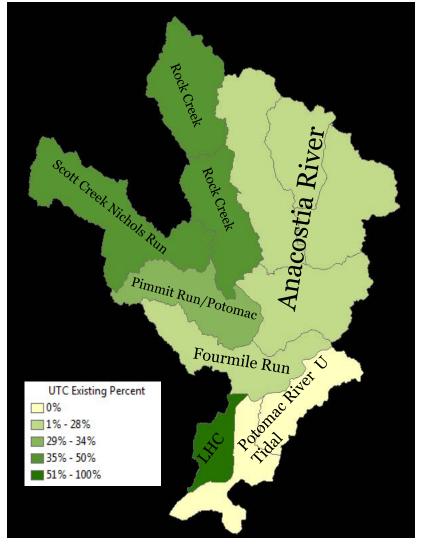
## Parcel Analysis

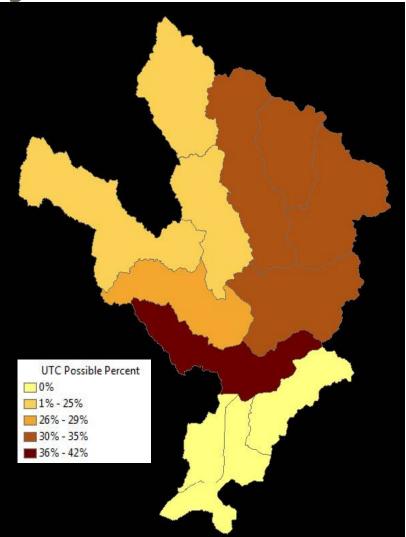


#### **Ownership Metrics**

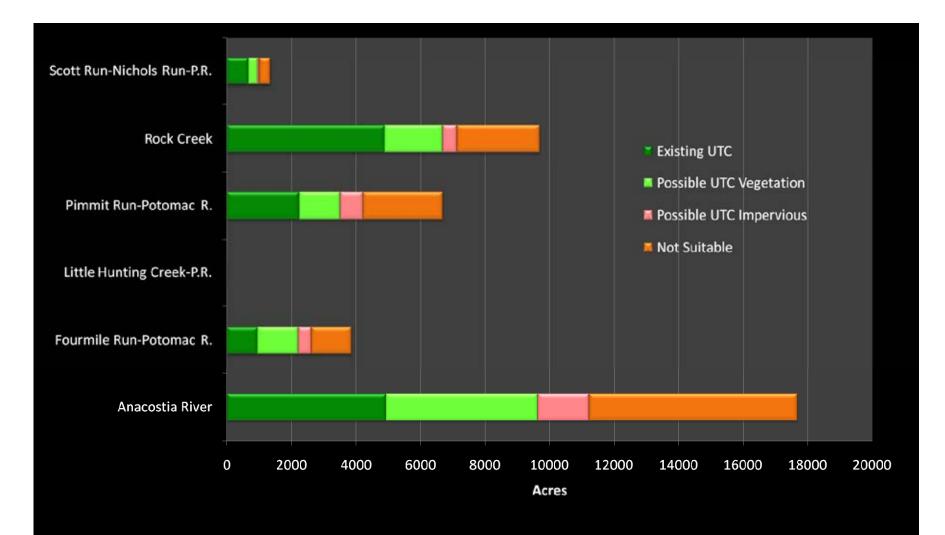


#### Subwatershed Analysis

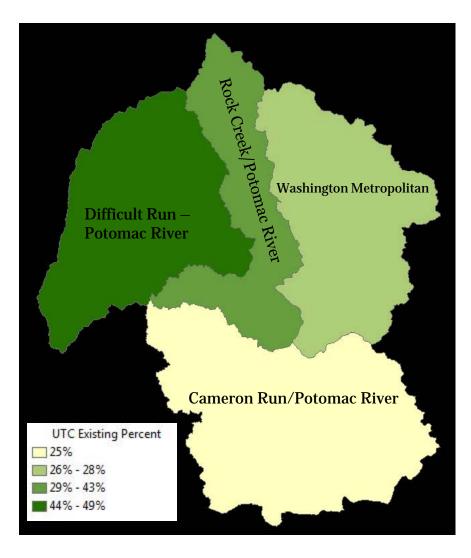


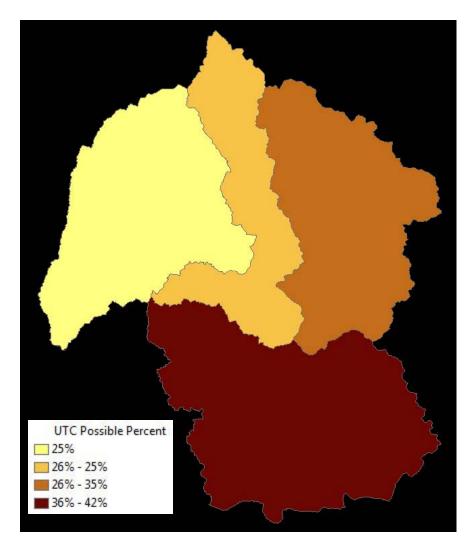


#### Subwatershed UTC Metrics

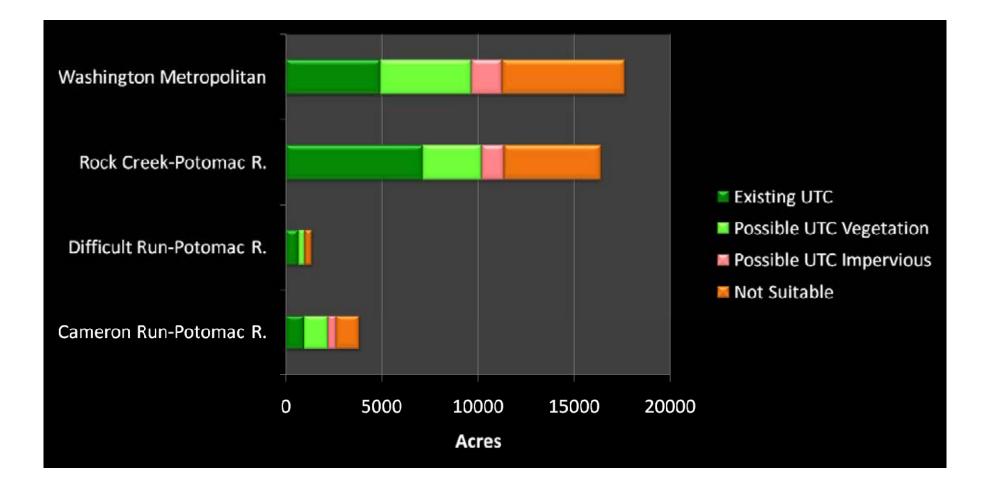


#### Watershed Analysis





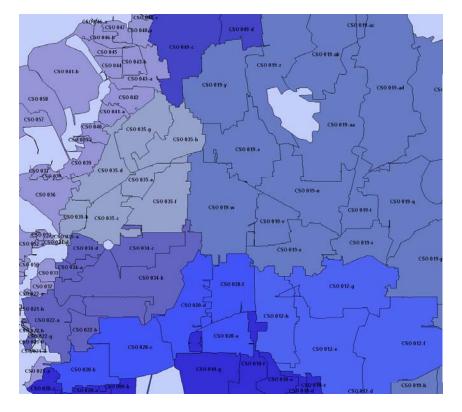
## Watershed UTC Metrics

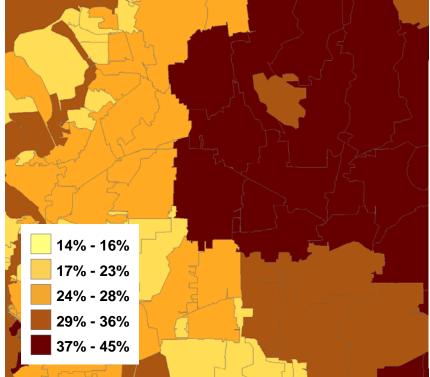


## Storm Sewer System

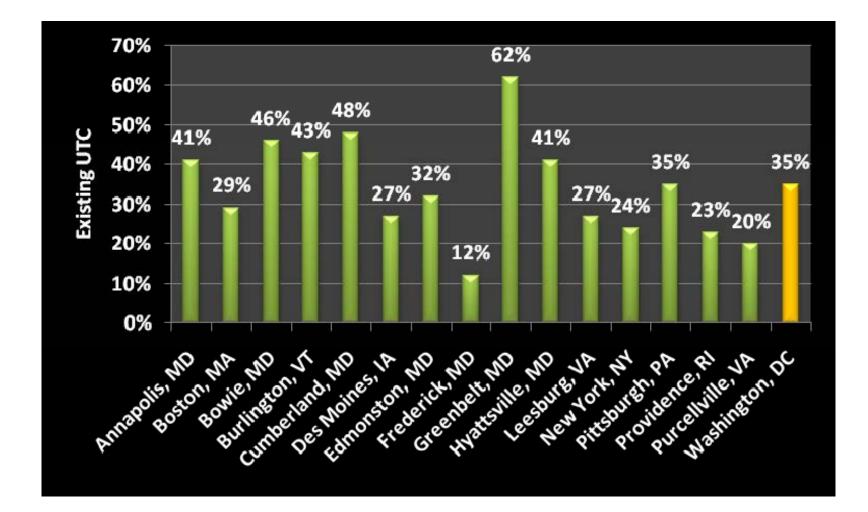
#### Name

#### **Possible UTC**





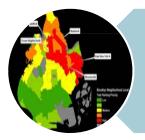
#### **Comparison to Other Cities**



## Next Steps







## Prioritization

# Assessing Urban Tree Canopy in the Nation's Capital

#### Jarlath O'Neil-Dunne

University of Vermont Spatial Analysis Laboratory 802.656.3323 joneildu@uvm.edu



