



GIS STEERING COMMITTEE

7/18/2018

Hosted by the Office of the Chief Technology Officer

open.data@dc.gov





AGENDA

- Welcome, Data Program News & Updates
 Matthew Crossett, Office of the Chief Technology Officer
 - Lidar Pilot QC Results
 - Maps2 AGS Migration to 10.6
 - Esri ELA Changes (ArcGIS Hub)
 - Public Safety Portal 10.6
 - NearMap Imagery
- Local Update of Census Addresses
 David Jackson, Office of the Chief Technology Officer
 - Preparations for the 2020 Census
- MAR 2.0 Testing Results / Systems & API Updates Julie Kanzler, Office of the Chief Technology Officer
- DPW Use Cases & Needed Product Solutions Both Current & Future Considerations David Kaehler, Department of Public Works
- Data Curation Updates
 Mario Field, Office of the Chief Technology Officer
 - GIS 2.O Database @ Oracle 12c
 - Agency Data Submission Process for Publication
 - Newly Published & Updated Data







2018 SPRING LIDAR UPDATE

- Flown April 5th, 2018 One lift
- Pilot -4 tiles with Deliverables so far
 - Classified LAS
 - Contours (`2FT)
 - DSM / nDSM
 - Hydro Enforced DTM
- QC Highlights
- Data available late August

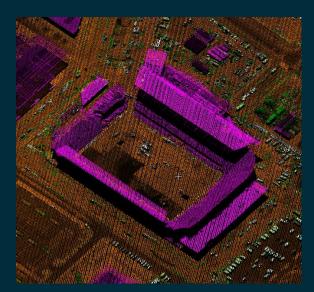






cocto

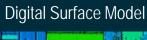
CUSTOMER SERVICE. ACCOUNTABILTY. EFFICIENCY. SECURITY.

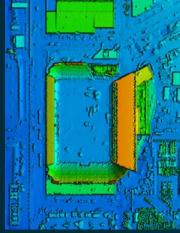


Point Cloud Intensity

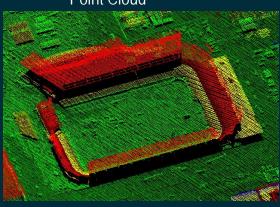


Audi Field – DC United Stadium

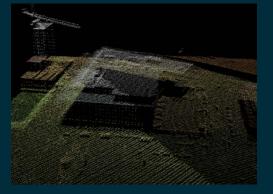




Point Cloud



Raw data via Free Viewer of 200 I ST SE









NEARMAP & PICTOMETRY

- Citywide updates flown on Jun 29th, July 2nd and 7th
- Gain access by visiting http://octo.in.dc.gov/node/165505
- Available as imagery service (ArcGIS Desktop), Web Viewer and in ArcGIS Online marketplace (join <u>Imagery Apps</u> group)
- Planned Oblique Flight for Fall 2018











ELA - ESRI UPDATES

- Entering a new contract this fall, likely a 3yrs deal.
- Changes include:
 - Decreasing EDN's from 10 to 7
 - InSight licenses: some Portal, some AGO
 - Removing ArcGIS Data Interoperability Desktop and Server
 - AGO Named Users no longer Unlimited
 - HUB Optional in Year 1







MIGRATION OF AGS INFRASTRUCTURE/MAPS2 TO 10.6

- Deployed 10.6 on failover Servers (same infrastructure as PROD)
- Agencies and OCTO currently testing
- Go-Live has not been announced. Likely late July/early Aug
- List of Improvements from 10.3.1 to 10.6
- Updated Public Safety Portal to 10.6 (June)







GIS TRAINING

- April and May classes (Q3) at DCHR:
 - Overview and ArcGIS Desktop (2-day)
 - 31 students
- Special ArcGIS Online session for Hola Cultura/SYEP to support mural project (15 MBSYEP Interns)
- ArcGIS Online courses scheduled for August and September
- Waiting for July 20TH confirmation on ArcGIS Pro installation at DCHR before moving forward with scheduling Pro classes.







OUTREACH

- DC Gov. GIS User Group:
 - 7 meetings (#8 tomorrow at 10AM)
 - Recent highlights:
 - DOEE field data collection (Survey123/Collector)
 - DOC custodial population (geocoding/address validation; choropleth mapping)
 - DPW looking at methods for collecting data along roadways
 - DOH Machine Learning
- DC Gov R User Group
 - Inaugural meeting July 25th

Want to know more? Attend! Tomorrow - contact Eva Reid for info







LUCA PROJECT DAVID JACKSON

Sr. GIS Analyst



WHAT IS LUCA 2020

 A US Census Bureau project that allows local governments to review and update the Census Bureau's Master Address File in preparation for the 2020 Census

 Allows local government to update Census' Edge File which contains streets, water lines, railroad tracks.









PROCESS

- Census Allows 120 Calendar Days
- Office of Planning & OCTO Leading effort
- Data Sources: Department of Corrections, Board Of Elections, DCHA, DMV
- Census Address Data Protected by Title 13 privacy regulations.
- Comparing Edge File
 - Census Edge File to DDOT's Streets
 - Census Edge File to list of street issue







PROCESS

- Address File
 - Match Census Addresses to Local Addresses (MAR & Other Local Databases)
 - Group Quarters (University Dorms, Nursing Homes, Group Homes, Halfway Houses)
 - Delete Invalid Address
 - Err on Side of Inclusion (vs. exclusion)
 - Update Latitude / Longitude
 - Update Census Block
 - Update Zipcode

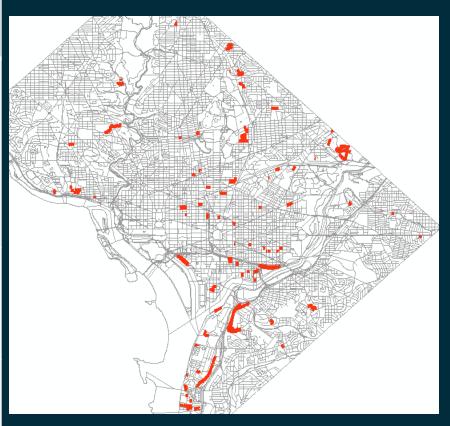






FINDINGS - EDGE FILE

Category	Number of Records	Example
Add Line	164	Named Alleys, Totten Mews, City Center, Georgetown University, The Wharf, Navy Yard,Fort Lincoln
Change Attribute	34	Updates Street Ranges, Street Name, Line Classification
Delete Line	47	DC Village, Audi Field, area, Military, Fort Totten







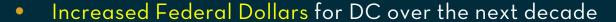
FINDINGS - ADDRESS FILE

Category	Number of Records	Example
Add Address	Tens of Thousands	New ConstructionSubdivided RowhousesChanged to Residential Address
Change Address	332,000	 Change Latitude / Longitude Change Census Block Correct Misspelled Street Name Change Zipcode
Delete Address	319	Address Number too high (above 9000)Unit Absurd
Non Residential	0	 Err on side of inclusion. Did not work on these.
Add Group Quarter	118	Nursing HomesHalfway HousesGroup HomesUniversity Dorms



HOW DO WE BENEFIT?

- More accurate count of residents
 - Useful for planning purposes
 - Political Boundaries Redistricting
 - Wards
 - Advisory Neighborhood Commission (ANC)
 - Single Member District (SMD)



- Each extra housing unit counted = additional residents counted
- Extra residents counted = more Federal Spending over the next decade
- Will likely bring in millions of extra Federal spending







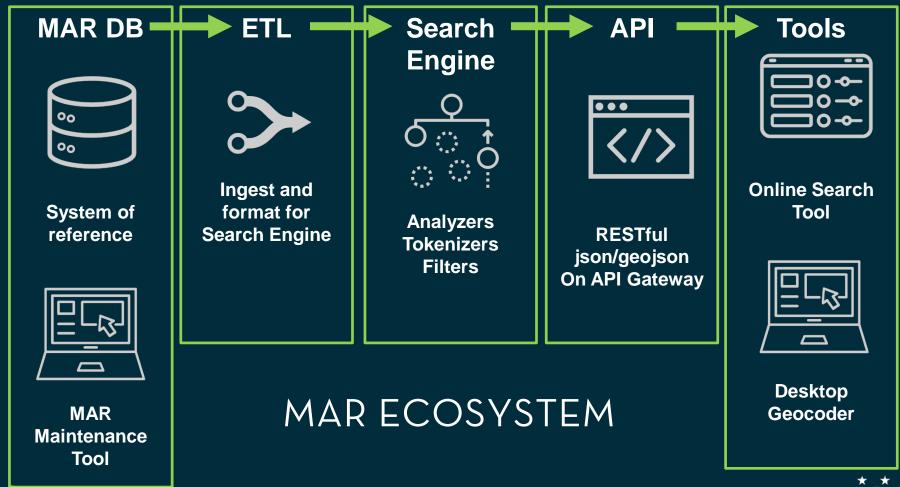


MAR 2.0 TESTING RESULTS JULIE KANZLER

Program Manager, Data APIs & Systems

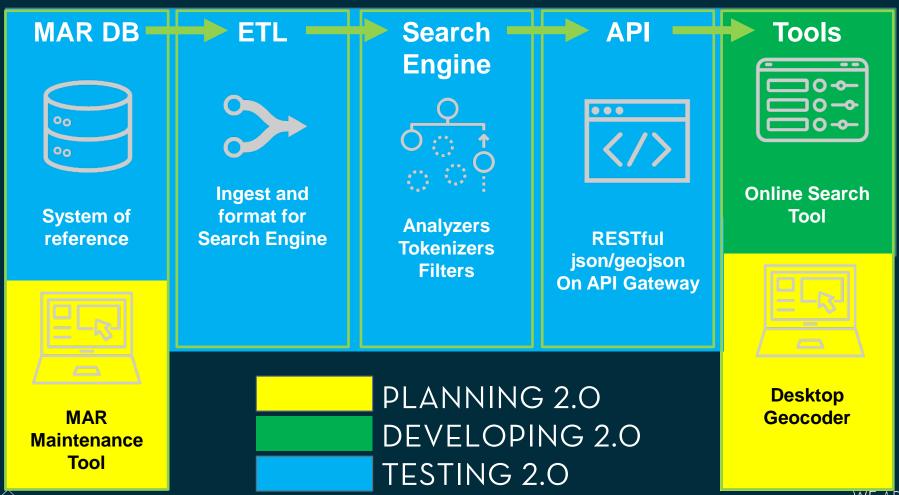
















TESTING MAR 2.0

- Database testing
- API Load testing
- Search Engine Functional testing
- API Functional Testing
- Vulnerability Testing







FUNCTIONAL TEST RESULTS (API)

- Fixed 20+ issues
- Performance is similar to MAR where comparator baselines exist
 - Ex. Locations/[address] similar to FindLocation2 and ValidateAddress
 - Ex. No baseline for geometry results (MAR 1 only returns points)
- Known remaining issues
 - Special characters trigger error for GET requests (best example # in unit addresses)
 - Still expanding the list of abbreviations
 - If you find any missing let us know







LOAD TEST RESULTS

- Passes for 17,000 users with concurrency of 200 on a single node
 - This will be doubled or tripled for production
 - Similar to ArGIS Server and other API / service load levels
 - Rate limits will be set at this level to ensure stability







WHAT'S NEXT FOR YOU - MAR 2.0?

Managers:

 Begin planning for redevelopment of anything that uses MAR Web Service

Developers:

- Test with us, help us tune our search engine
- Request access to postman test collection
- Everyone else: tell your managers and developers









REMINDER: WHY UPGRADE TO 2.0 NOW?

- Standardized output
 - Geojson (ready for mapping)
 - flat json (easily parsed)
- Cross origin resource sharing (no proxies)
- Get any and all information on an address just by asking for it (e.g., snow zones) and its geometry ready for mapping
- Lighten your code all RESTful
- Lighten your load lower burden on resources
- Handle larger addressing loads







NO WORRIES

MAR 2.0 and 1.0 will be up in parallel for FY2019





DPW FIELD OPERATIONS

GIS Use Cases & Needed Product Solutions – Both Current and Future Consideration

FIELD OPERATIONS AT DPW

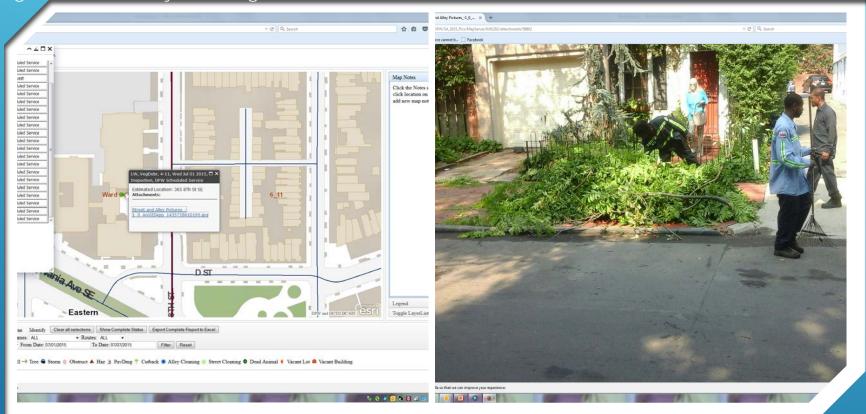
- ► Street and Alley Cleaning
- ► Residential Trash and Recycling Collection
- ▶ Grounds Maintenance
- ► Curbside Leaf Collection

Vehicle-based – e.g. Collections



Manual Labor

- e.g. Street and Alley Cleaning



FIELD OPERATIONS REQUIRE MONITORING AND TRACKING

- Recording blocks/sites as they are completed
- ► Recording before and after pictures/video
- Recording service requests or appointments that are closed out
- ► Supervisor sign-off
- ▶ QA/QC verification

PURPOSES OF OPERATIONS TRACKING

- ► Managerial knowledge
- ► Supervisory Control
- ► Deployment Adjustments
- ► Communication to Public
- ▶ Proof of Work Completed
- ► QA/QC and Timely Corrective Actions

Tracking Tools – Strengths and Limitations

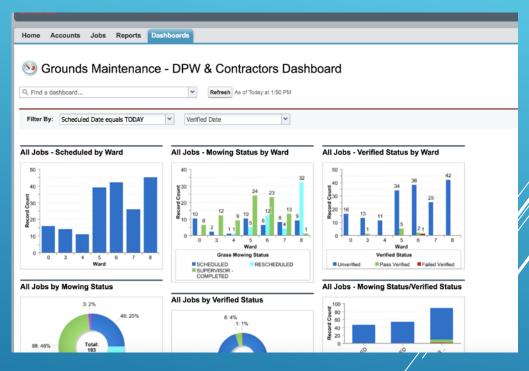
	AVL	Mobile Device Applications	Pictures/Video
Strengths	Tracks where vehicles go and Route Completion reporting is useful for vehicle-based operations	Collects specific data about activities and results. Data can be entered into a database and can be queried	Provides visual proof of situations at a specific time and location
Limitations	Doesn't always prove work was done at those locations and customized usage of AVL data is needed.	Requires specific field worker input on top of their assigned tasks. Training, support, and mentoring is needed. Inconsistent adoption, wireless signal dead zones impede successful implementation	Pictures don't always show exactly what needs to be shown and provide limited data for a database outside of X,Y coordinates and timestamp

REPORTING SCHEDULES AND STATUS

- ► Schedules assigned by area or block
- Real time status dashboards
- ► GIS mapping of sites and blocks to show status geographically
- ▶ Pictures associated with X, Y coordinates to show cleared streets and mowed sites
- Maps and aerial photos to show specific sites

GROUNDS MAINTENANCE – FIELD DATA ENTRY TO REAL-TIME DASHBOARD STATUS FOR MANAGERS IN THE OFFICE



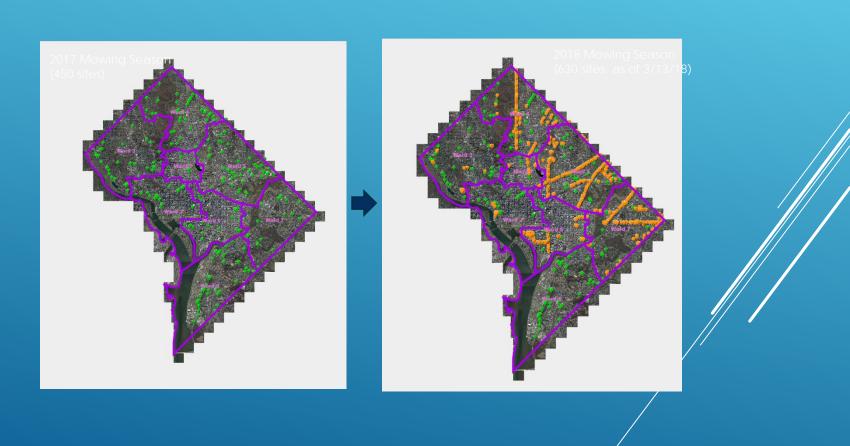


66	295 & Nannie Helen Burroughs NE	2130 Highway Median
	130 Kenilworth Ave & Nannie Helen Burroughs NE (A)	Triangle 7
	131 Kenilworth Ave & Nannie Helen Burroughs NE (B)	Triangle 7
	132 Kenilworth Ave & Nannie Helen Burroughs NE (C)	Triangle 7
	133 Kenilworth Ave & Nannie Helen Burroughs NE (D)	Triangle 7
	134 Kenilworth Ave & Nannie Helen Burroughs NE (E)	Triangle 7
	135 Kenilworth Ave & Nannie Helen Burroughs NE (F)	Triangle 7
	136 Kenilworth Ave & Nannie Helen Burroughs NE (G)	Median 7
	137 Kenilworth Ave & Nannie Helen Burroughs NE (H)	Median 7

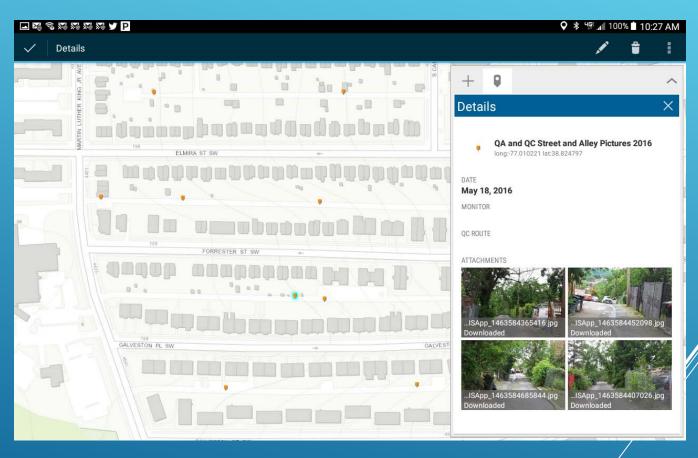
SITE LOCATION EXAMPLE

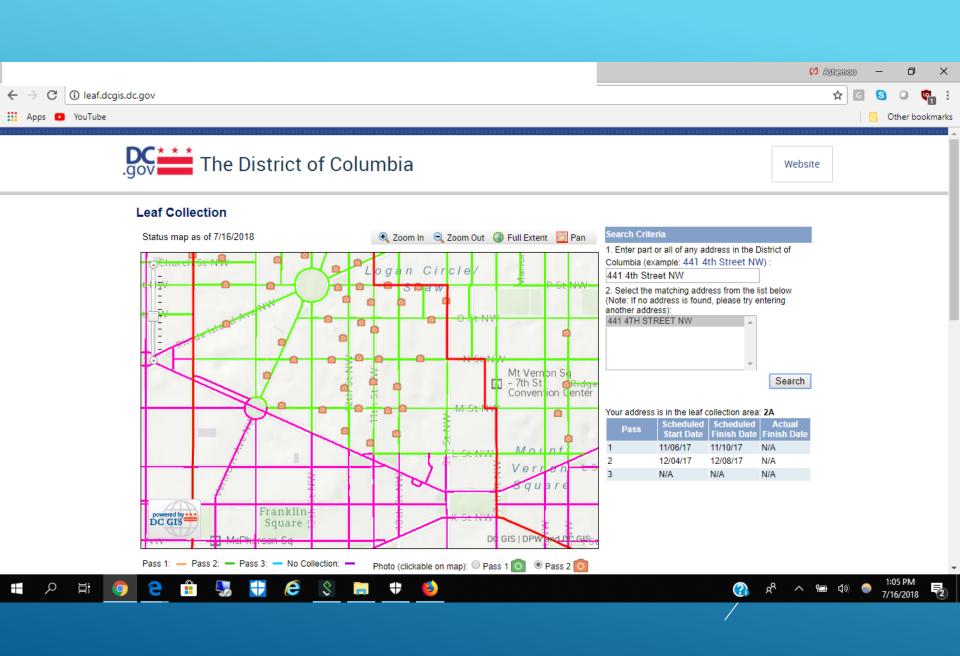


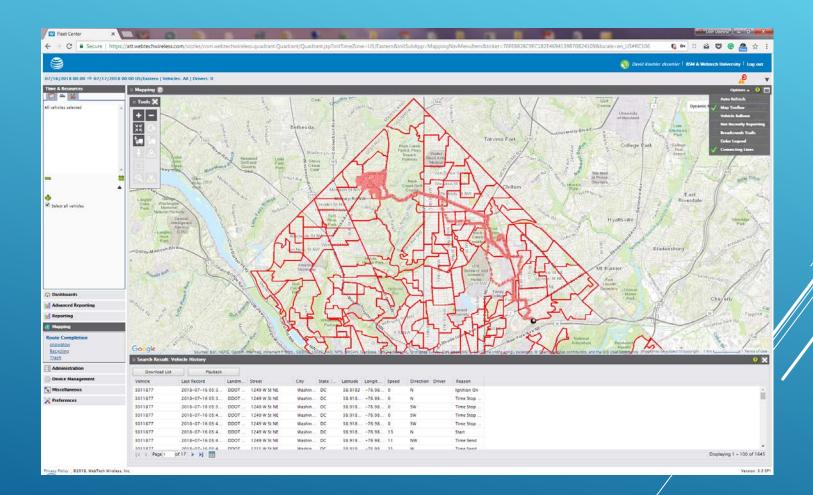
GROUND MAINTENANCE SITE COMPARISON

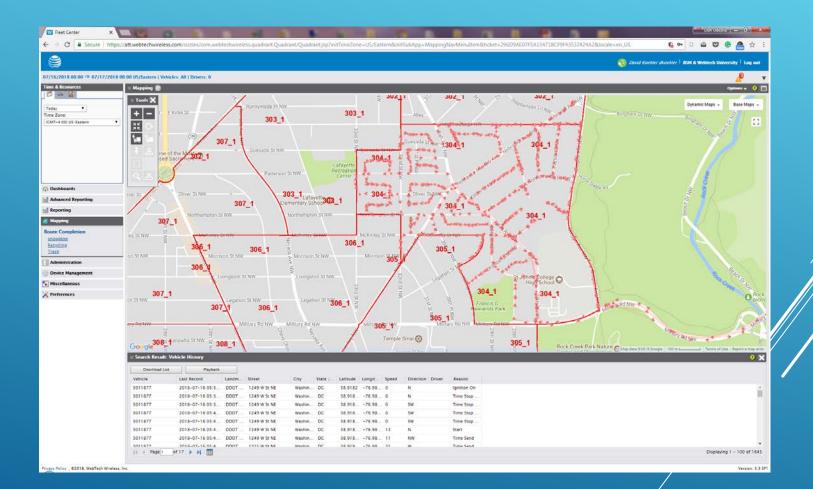


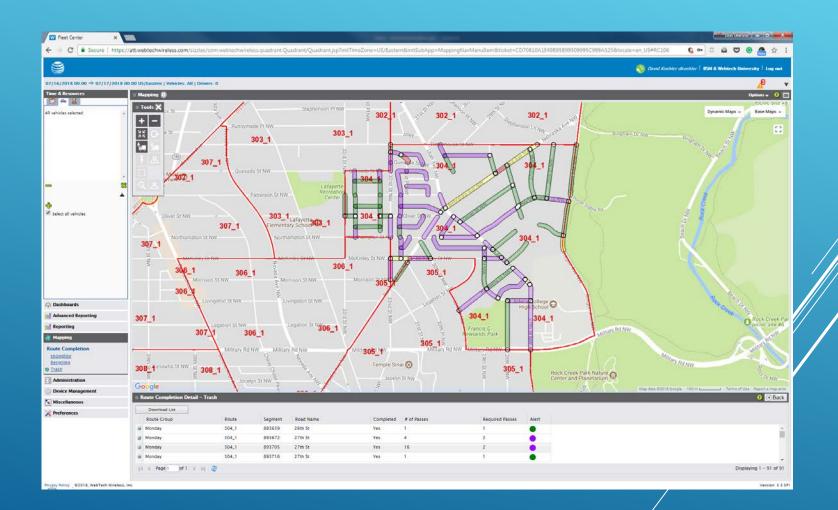
Ward 8 Beautification - Federal Grant





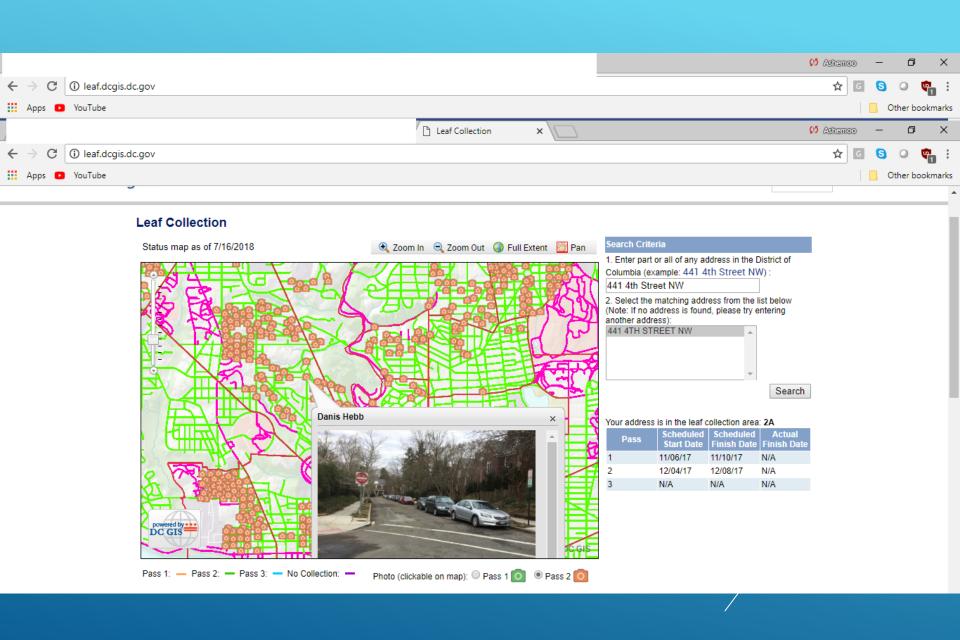






UPCOMING TECHNOLOGIES

- Automated Imagery Capture (e.g. Mapillary) to provide situational documentation at place and time of our choosing with minimal impact on crews and supervisors
- ► Field Access, Dispatch, and Close out of Service Requests with supporting pictures





GIS 2.0 DATABASE @ ORACLE 12C AGENCY DATA SUBMISSION PROCESS NEWLY PUBLISHED & UPDATED DATA

MARIO FIELD

Program Manager, Data Curation





DATA SUBMISSION PROCESS

Review other jurisdictions

New York State

New York City

Chicago

Seattle

San Francisco

Maryland

Findings

New York State has the most comprehensive documentation (roles, responsibilities, processes, dataset rules, etc.)

Others provided more overall/general processes and steps.





DATA SUBMISSIO N PROCESS

Initiation: Remedy Ticket

Consultation: Requirement Doc and Database Report

Curation: QA/QC, Data Transformation, Metadata, Testing

Publication: Data
Availability based on
Classification Level

- <u>Initiation</u>: Remedy ticket starts the process, generally documenting dataset information.
- Consultation involves working with the customer to define the dataset requirements and specifications.
 Requirements document defines what the data is and curation process.
- Curation process uses the specifications in the requirements document and processes the data. Data goes through QA/QC, documentation, testing, and final ETL development.
- <u>Publication</u> involves posting the data to the appropriate platforms following the dataset classification level.





GIS 2.0

- Development and Test Databases Created
- Outline of workflows
- Production database being used for testing on Exadata and Open data tuning
- Next, Map services publishing to AGS 10.6
- Testing is important:
 - ATTRIBUTION IS MORE CONSISTENT AND HAS CHANGED
 - Clear delineation of current vs. historic layers
 - Schema name has changed for those lavers







DATA POSTINGS

- Bus Line
- Bus Stop
- Camera Enforcement
- Community Garden
- Community Supported Agriculture
- District Development (WDCEP)
- District Property
- Emergency Food Provider
- Food Commercial Kit
- Food Waste Drop Off
- Impervious Surface 2017
- Liquor License
- Hunger Heat Map
- Impervious Surface

- Group Meal Center
- Healthy Corner Store
- Joyful Market
- Low Food Access Area
- Notary Public
- Office Aging Lead Agency Site
- Other Bus Line
- Planimetric Redaction Area
- School Garden
- Transportation Analysis Zone
- Urban Agriculture
- Women Infant Child (WIC) Store
- Ward







DATA POSTINGS

- Adopt-A-Block
- American Community Survey
- Bridge Line
- Building Permit (2009 -2011)
- Business Improvement District
- Charter School
- Commission of Fine Arts Review Area
- DC Property
- Felony Arrest and Crime
- Fire Station
- Fitness Center
- Heliport
- Historic Preservation Trust Fund
- HIV/AIDS Clinic
- Hub Zone
- Juvenile Arrest
- Library
- Leaking Underground Storage Tank

- Main Street
- Military Area
- Moving Violation
- Notary Public
- Parking Meter
- Public School
- Public School Closed
- Public School Next Year
- Public School Summer
- School Garden
- Shotspotter
- Stop and Frisk
- Summer Crime Initiative Area
- Summer Camp
- Supermarket Tax Credit Zone
- Traffic Volume (2010 2016)
- University Area
- Underground Storage Tank







DATA POSTINGS

- ATMs
- Adopt-A-Block
- Bank
- Bridge
- CBEs including SBE designation
- Check Cashing
- Clean Teams Area
- Crash
- Credit Union
- DC property
- Independent School
- Moving Violation
- Notary Public
- Parking Violation
- Polling Place







NEXT DATA POSTINGS

- PASS contract data
- Pipeline automated reports
- Basic Business License automation
- Summer Meals
- P-card
- MySchool Summary Lottery Results



