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Washington Convention Center
Washington, DC

Helping Federal Users Obtain Imagery

Jeffrey J. Danielson, SAIC
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USGS Center for Earth Resources Observation and Science (EROS)
Sioux Falls, South Dakota

U.S. Department of the Interior
U.S. Geological Survey

Overview

- Support of the Commercial Remote Sensing Space Policy (CRSSP)
- Helping Federal Users Obtain Imagery
  - Near-term land remote sensing data requirements
  - Data storage, management and distribution of commercial remote sensing data
  - Acquiring commercial remote sensing data from commercial satellite and aerial vendors
  - Analysis of data requirements
    - Requirements lifecycle
  - Analysis Scenario: Washington, DC

USGS support of the Commercial Remote Sensing Space Policy (CRSSP)

- The U.S. Geological Survey (USGS) is a lead government agency in the implementation of the civil aspects of the President's 2003 Commercial Remote Sensing Space Policy (CRSSP)

- The USGS implements the policy and supports other Federal agencies by:
  1. Collecting and managing near-term land remote sensing data requirements for Federal agencies
  2. Developing an infrastructure to store, manage and distribute commercial remote sensing data acquired by and shared with other Federal agencies
  3. Providing an interface for acquiring commercial remote sensing data from commercial satellite and aerial vendors

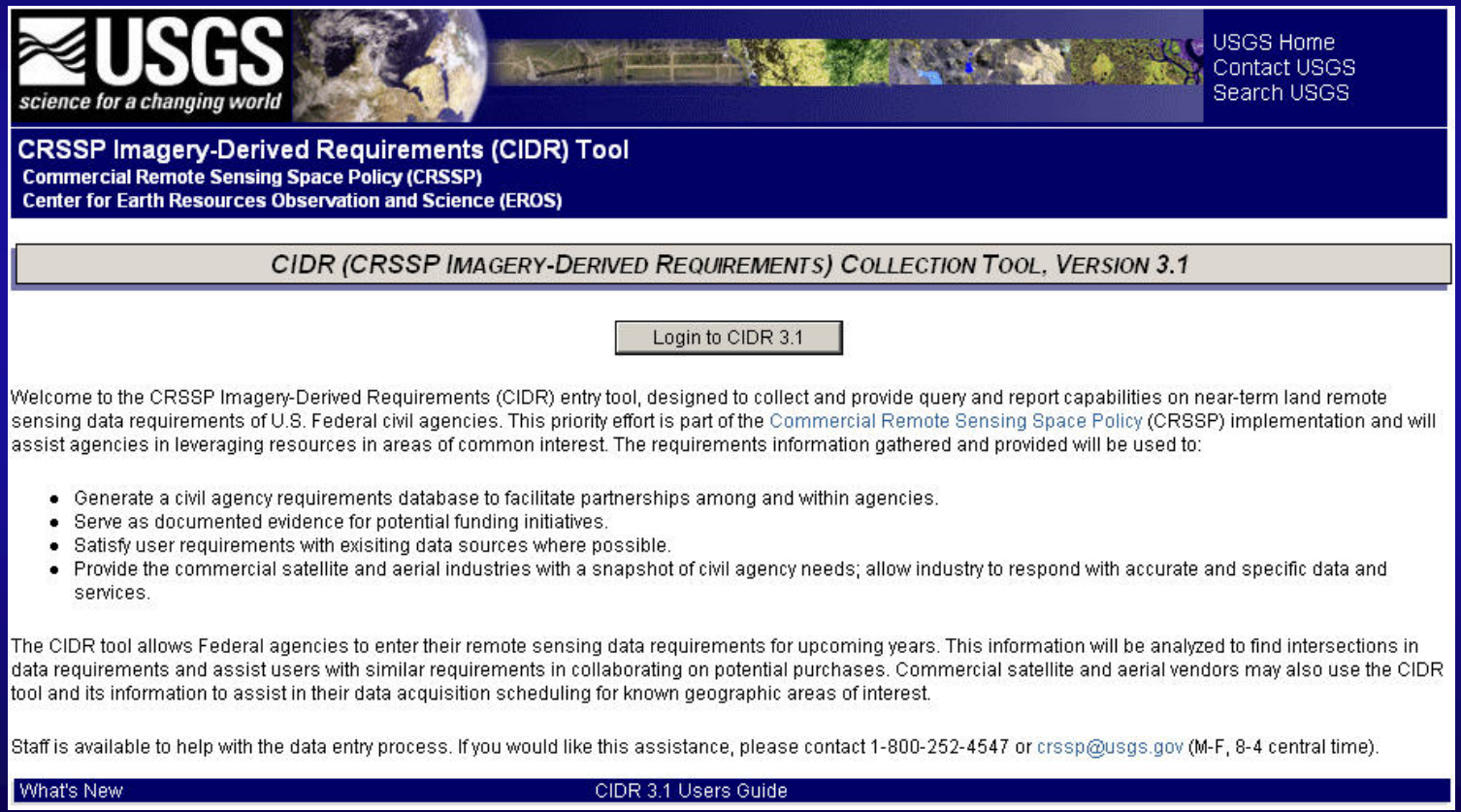
USGS

Helping Federal Users Obtain Imagery

- **USGS/EROS support services:**
  1. Outreach activities to help users understand more about CRSSP and the agencies involved in the implementation of the policy
  2. Assist users with data requirements entry into the CRSSP Imagery Derived Requirements (CIDR) tool
  3. Analyze requirements entered into the CIDR tool and help to identify existing data that may meet the needs of Federal users, as well as to ascertain potential partnership opportunities with other agencies and provide feedback/results to those users
  4. Help users to understand the different types of remotely sensed data, sources, and applications of data (e.g., IKONOS, Quickbird, OrbView, AWiFS, or NAIP)
  5. Help users understand more about the Federal contracts available to them and assist with the purchase of commercial satellite and aerial data from vendors

Collecting/managing Federal (civil) agency near-term land remote sensing data requirements

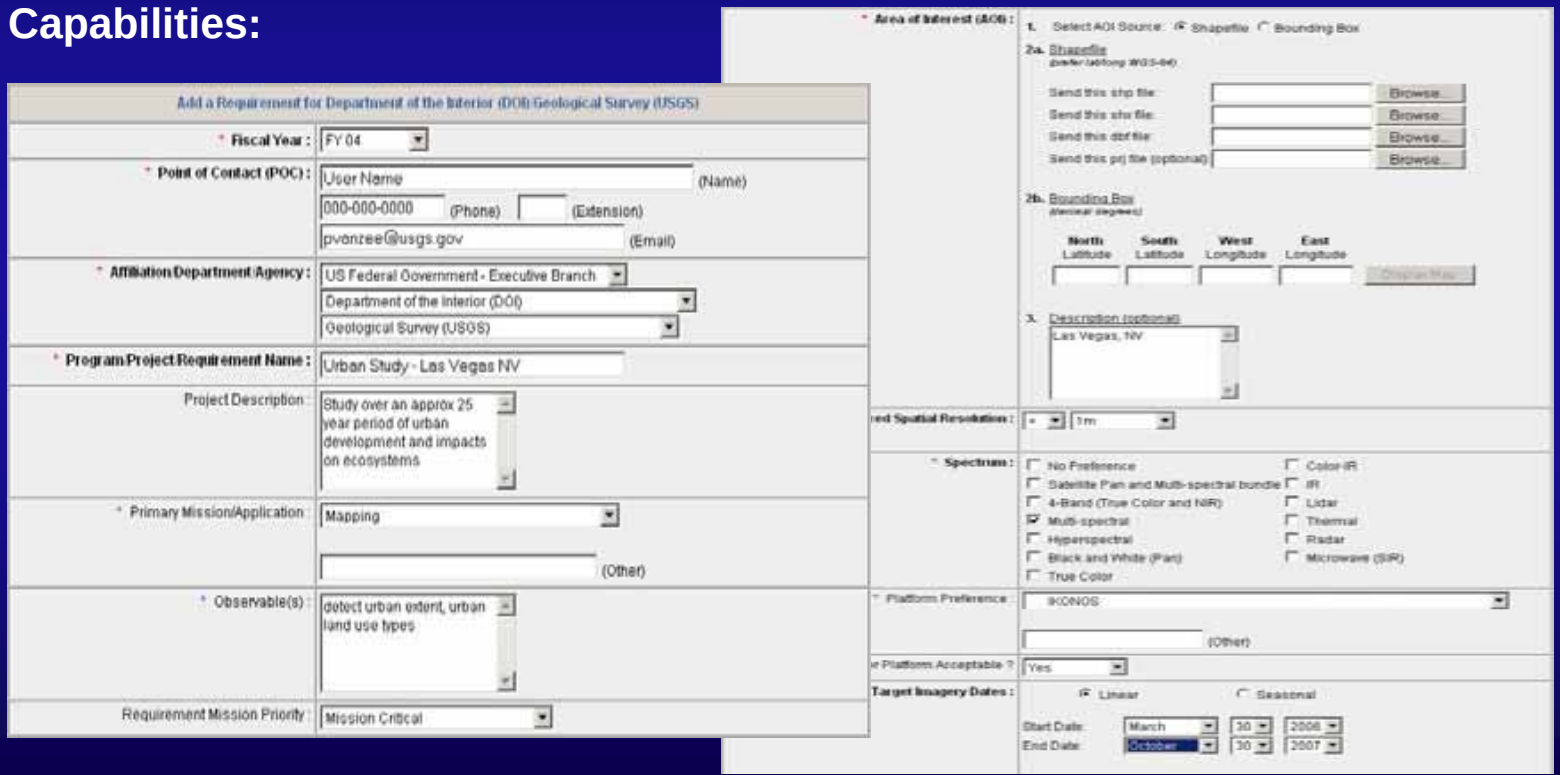
http://cidr.cr.usgs.gov



CRSSP Imagery-Derived Requirements (CIDR) Tool

The CIDR tool allows federal agencies to enter remote sensing data requirements for upcoming years. This information is analyzed to find intersections with data requirements for other agencies (helping form partnerships). Sources of existing imagery are then reviewed to find imagery that meets users requirements.

Entry Capabilities:



CRSSP Imagery-Derived Requirements (CIDR) Tool…..cont'd

Report Capabilities:

First | Previous | 1 | 2 | 3 | 4 | 5 | Next | Last
Turn off Paging (list all requirements)

Department or Agency	Requirement Name	Platform	Resolution	Funding	Funding Confidence	Date Last Modified	Data Status	Validation QC Status
National Park Service	Recovery of landscape post 1990, 1992 and 1993 fir	test	30m	**Funded**	100%	2005-09-06	Fulfilled	Validated
National Agricultural Statistics Service	June Area Survey	no preference	5m	Unfunded	0%	2005-05-26	*Unfulfilled*	Validated
National Oceanic & Atmospheric Administration (NOAA)	NOS/CSC	quickbird	2-4m	**Funded**	100%	2005-05-25	*Unfulfilled*	Validated
Fish & Wildlife Service	Habitat Assessment	ikonos	1m	**Funded**	100%	2005-05-16	*Unfulfilled*	Validated
Fish & Wildlife Service	all	no preference	not specified	**Funded**	100%	2005-05-16	*Unfulfilled*	Validated
						2005-05-16	*Unfulfilled*	Validated
						2005-05-16	*Unfulfilled*	Validated
						2005-05-16	*Unfulfilled*	Validated
						2005-05-26	*Unfulfilled*	Validated
						2005-05-26	*Unfulfilled*	Validated

Query Capabilities:

Use coordinates from a placename.

Pick names from this place names list:

Alabama
Alaska
Arizona
Arkansas

(•) United States
( ) International

Zoom to Selected Place

Or...Enter bounding coordinates.

North	West	East	South
31.005	-93.9375	-88.443	29.115

Zoom in to Rectangle | Zoom out to Globe

Or...Just click and drag to define bounding box on the map.

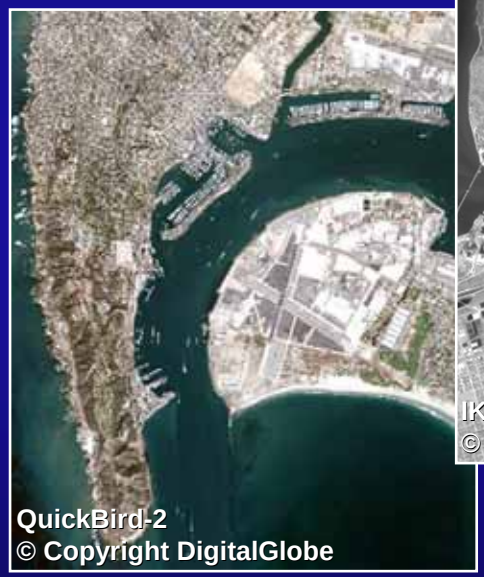
Search Requirements

(Note: Please be patient; creating your shapefile...)

USGS

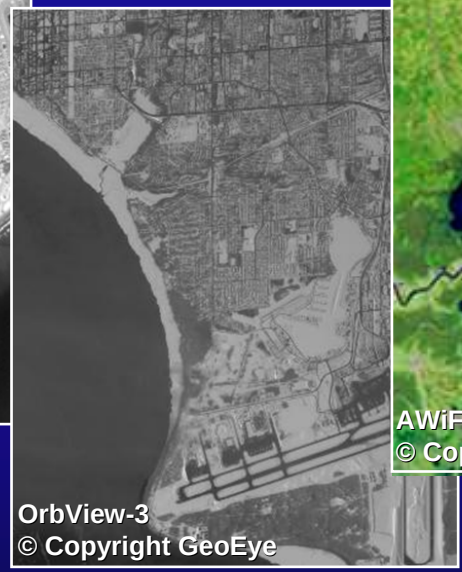
Developing an infrastructure to store, manage, and distribute commercial remote sensing data

The USGS Commercial Data Purchases (UCDP) Imagery Collection consists of imagery from several commercial vendors and is available to Federal users based on license.



San Diego, CA
03/09/2002

Galveston, TX
11/11/2003



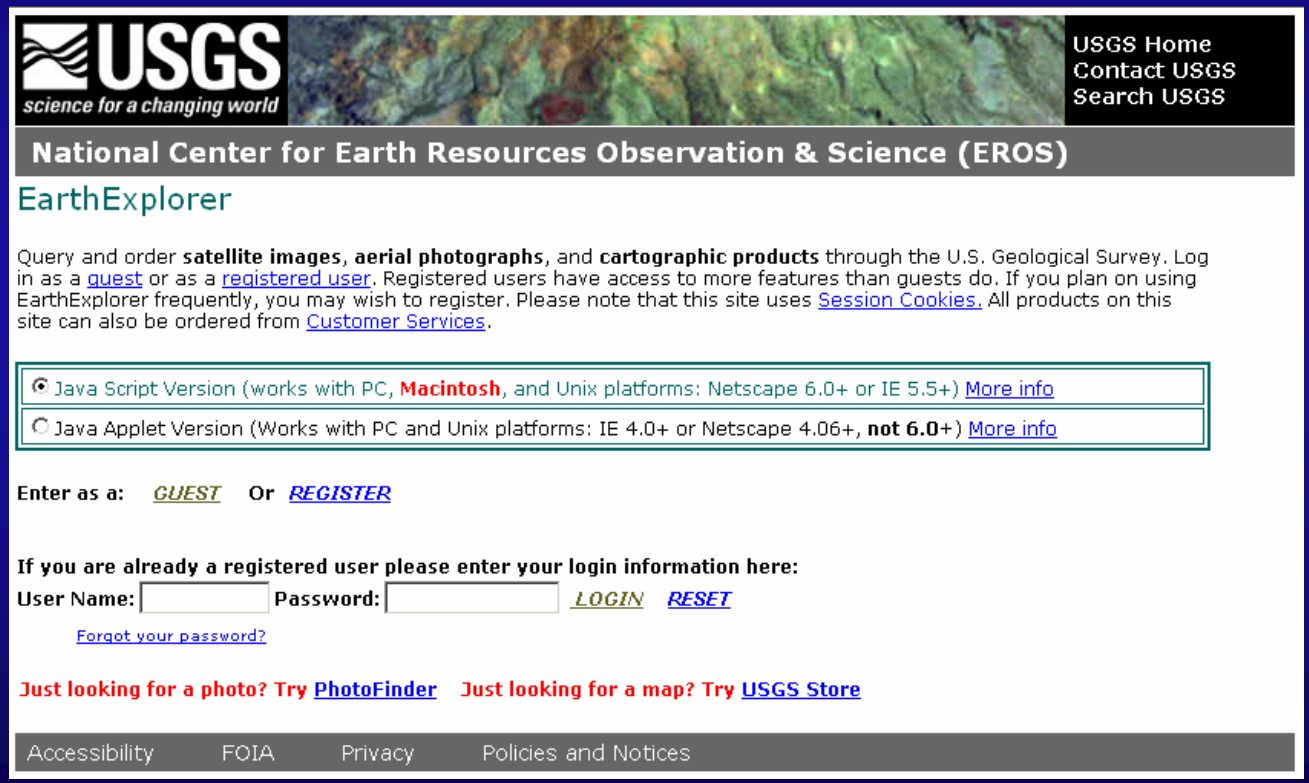
Anchorage, AK
03/05/2004

New Orleans, LA
8/15/2005

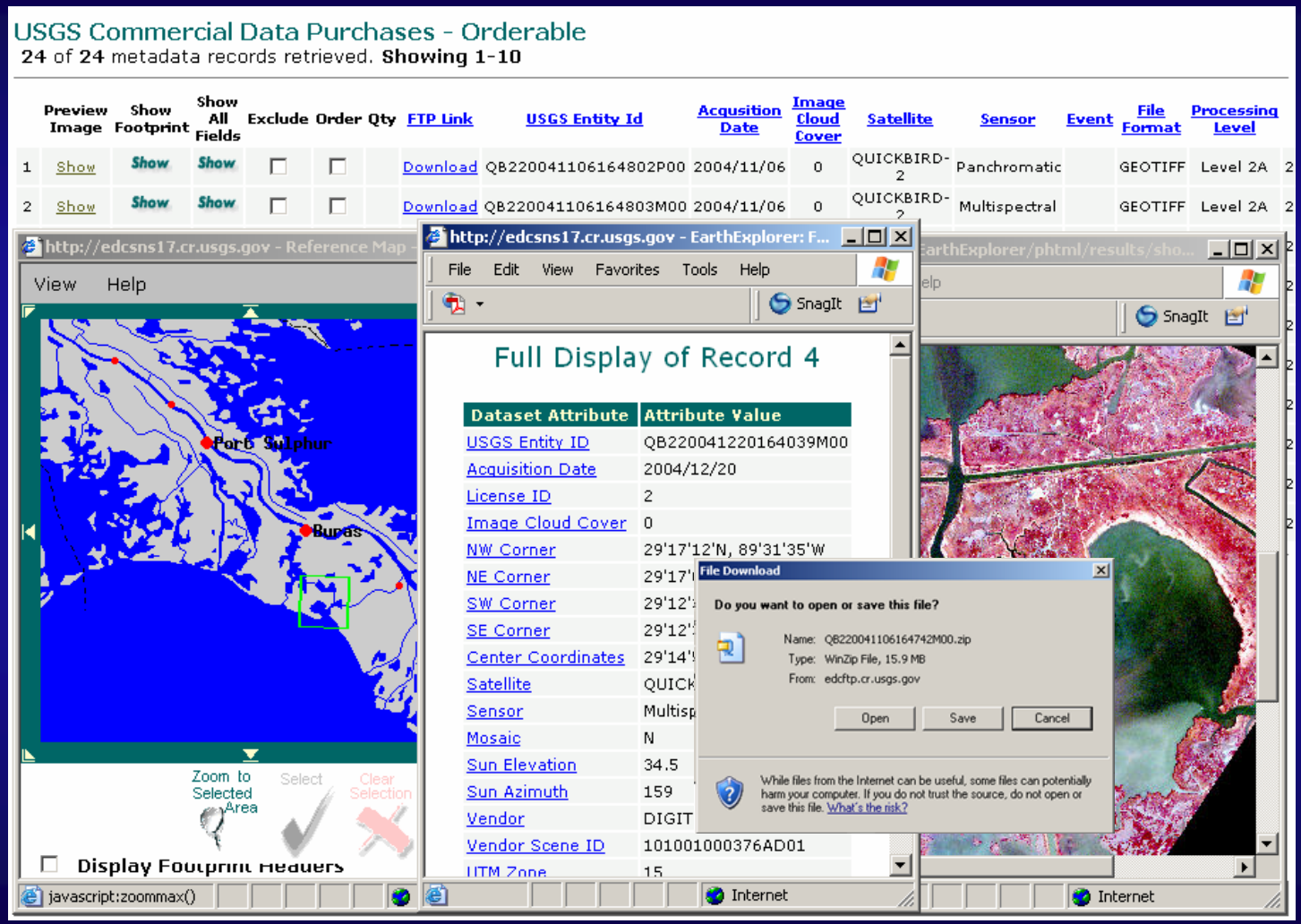
USGS

Access to the USGS Commercial Data Purchases (UCDP) imagery collection

Licensed commercial imagery can be downloaded and ordered on DVD
http://earthexplorer.usgs.gov

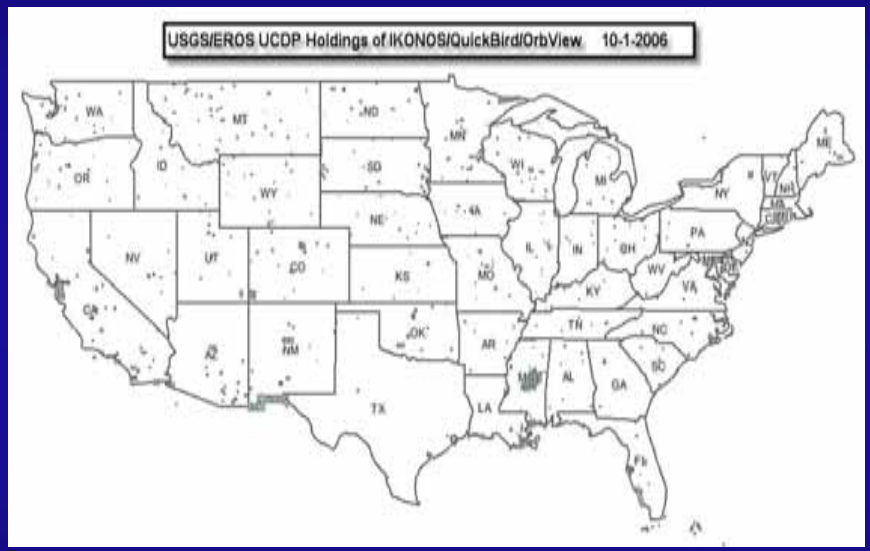


Access to the USGS Commercial Data Purchases (UCDP) imagery collection…..cont'd



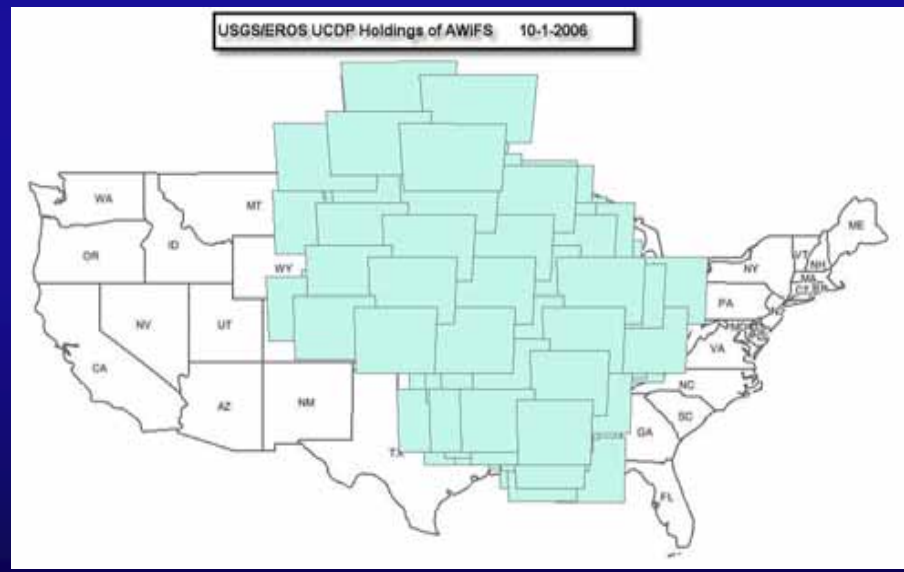
USGS

Access to the USGS Commercial Data Purchases (UCDP) imagery collection…..cont'd



UCDP Imagery Holdings

Shapefiles can be downloaded at:
http://edcftp.cr.usgs.gov/pub/metadata/satellite/ucdp/

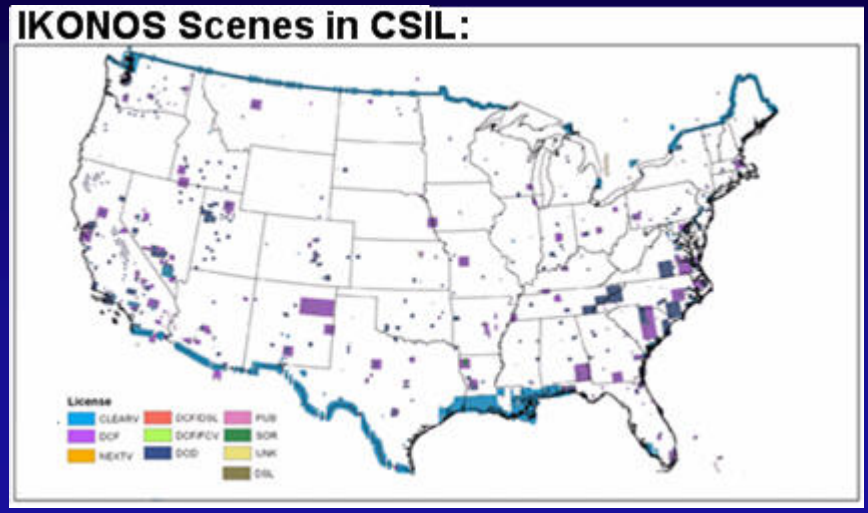


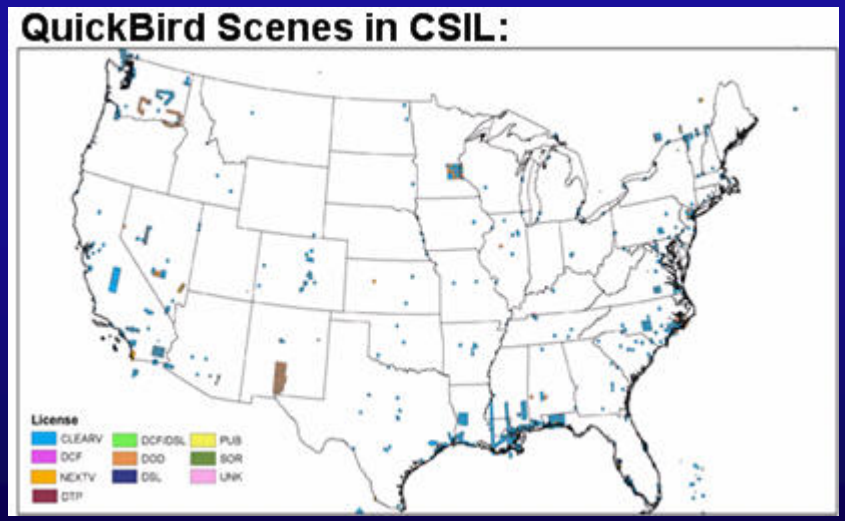
USGS

Access to other Federal sources of commercial remote sensing data

NGA's Commercial Satellite Imagery Library (CSIL) Holdings

Shapefiles can be downloaded at:
http://edcftp.cr.usgs.gov/pub/metadata/satellite/ucdp/CSIL_Shapefiles/



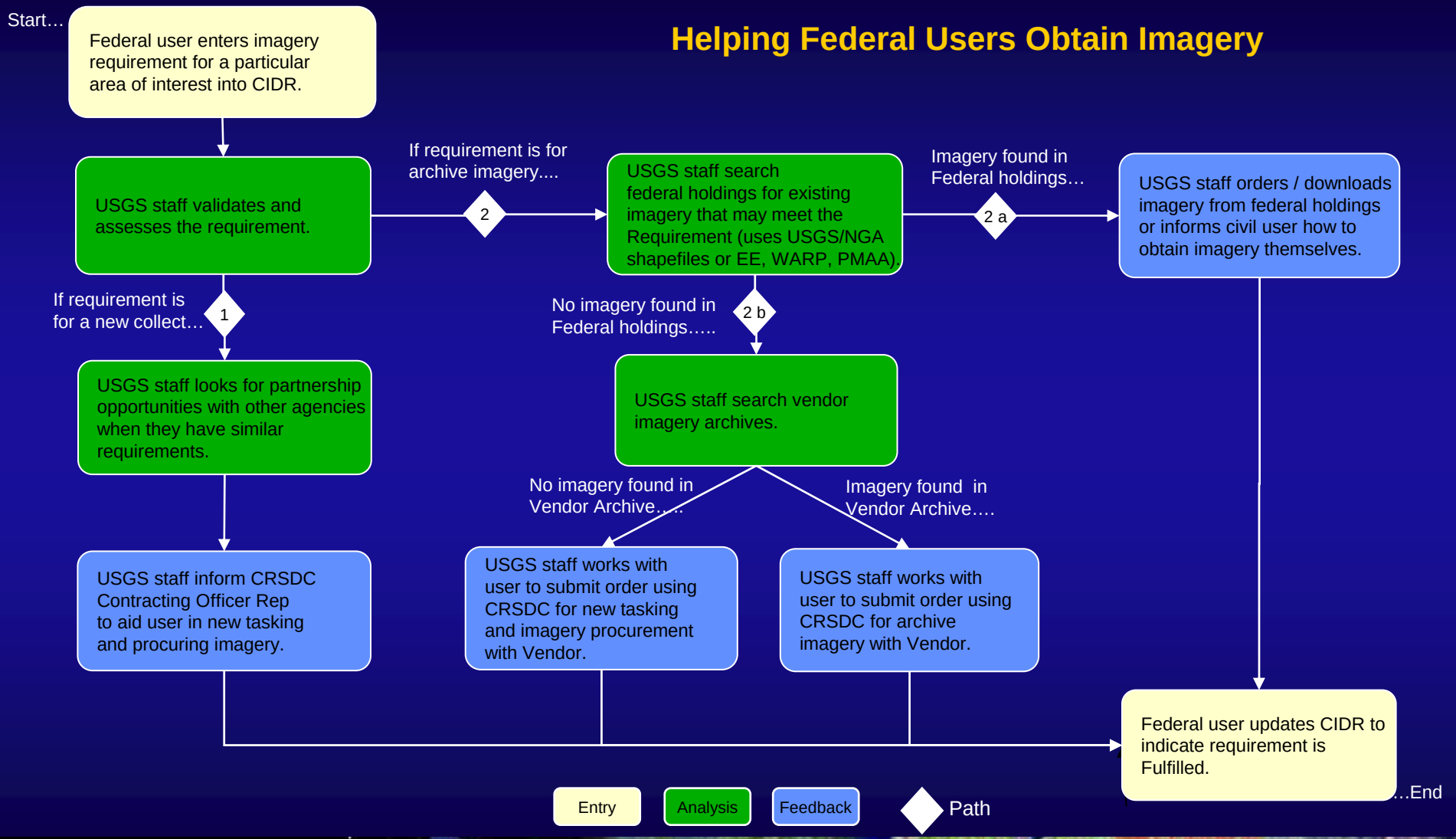


USGS

Providing an interface for acquiring commercial remote sensing data from commercial vendors

- USGS Commercial Remote Sensing Data Contracts (CRSDC) provide federal, state, and local government agencies access to a broad range of commercially available remotely sensed, high resolution, airborne, and satellite data for both new acquisitions and existing imagery. This includes orthorectified, panchromatic, natural color, multispectral, infrared, radar, and aerial photography
- The USGS has negotiated advantageous terms on behalf of purchasing organizations, including highly competitive pricing, discounts, and the most flexible and least restrictive licensing arrangements offered to date by the commercial satellite and aerial industry
- These contracts directly support CRSSP by providing a centralized mechanism for civil agencies to acquire commercial remote sensing products from various commercial vendors

Requirements Lifecycle: Entry -> Analysis -> Feedback

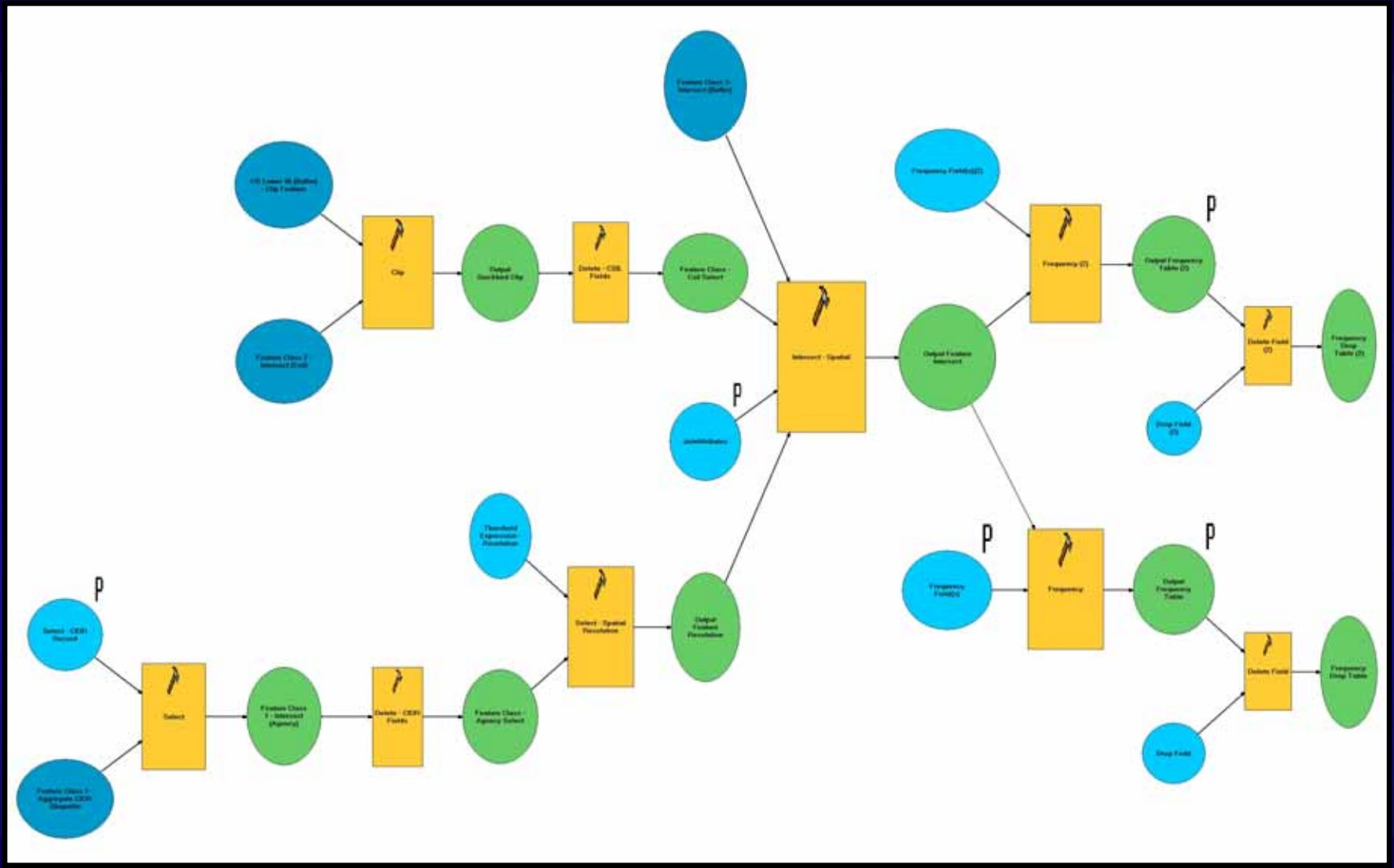


Analysis of data requirements

- Using ArcGIS 9.1, CIDR requirement shapefiles are spatially intersected with feature data sets of existing data collections and potential partnership opportunities. These results are candidates that could potentially or partially fulfill a Federal users requirement for imagery.

- CIDR Requirements Intersection – Frequency Model Methodology:
  - Use Structured Query Language (SQL) statements within ArcGIS to spatially select CIDR requirements based on spatial and spectral resolution and target acquisition date.
  - Intersect selected CIDR requirements with multiple spatial data inputs
    - GeoDatabase and feature data sets of existing imagery data collections
    - Feature data sets of potential partnership opportunities
  - The frequency function is exploited to aggregate sliver polygon attributes to the existing image frame or the potential partnership area of interest (AOI) level.
  - Selected attributes (i.e. Req_ID, Entity_ID, Acquisition_Date, and License) are extracted from the frequency table and outputted to a dBASE file.
  - The dBASE file with a map graphic displaying the intersect coverage area is sent as feedback to the Federal customer.
  - The work flow is automated by implementing the process within ArcGIS ModelBuilder.

CIDR Requirements Intersection – Frequency Model



USGS

Analysis Scenario: Four Counties Bordering Washington, DC

Intersection of High Resolution Requirements and Imagery

U.S. Department of the Interior
U.S. Geological Survey

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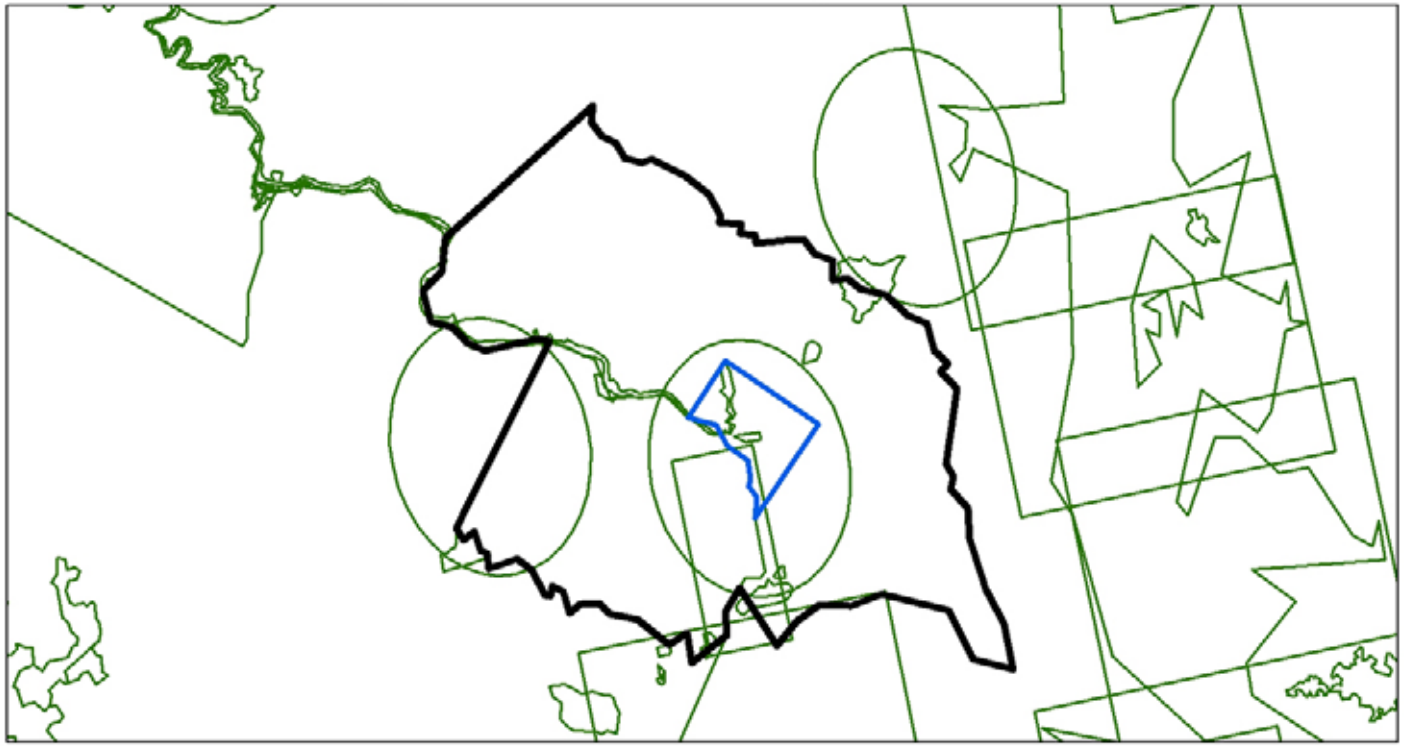
High Resolution Requirements



LEGEND
- District of Columbia
- High Resolution Requirements
- Four-county area

Analysis Query: Spatial Resolution Less Than 5 Meter

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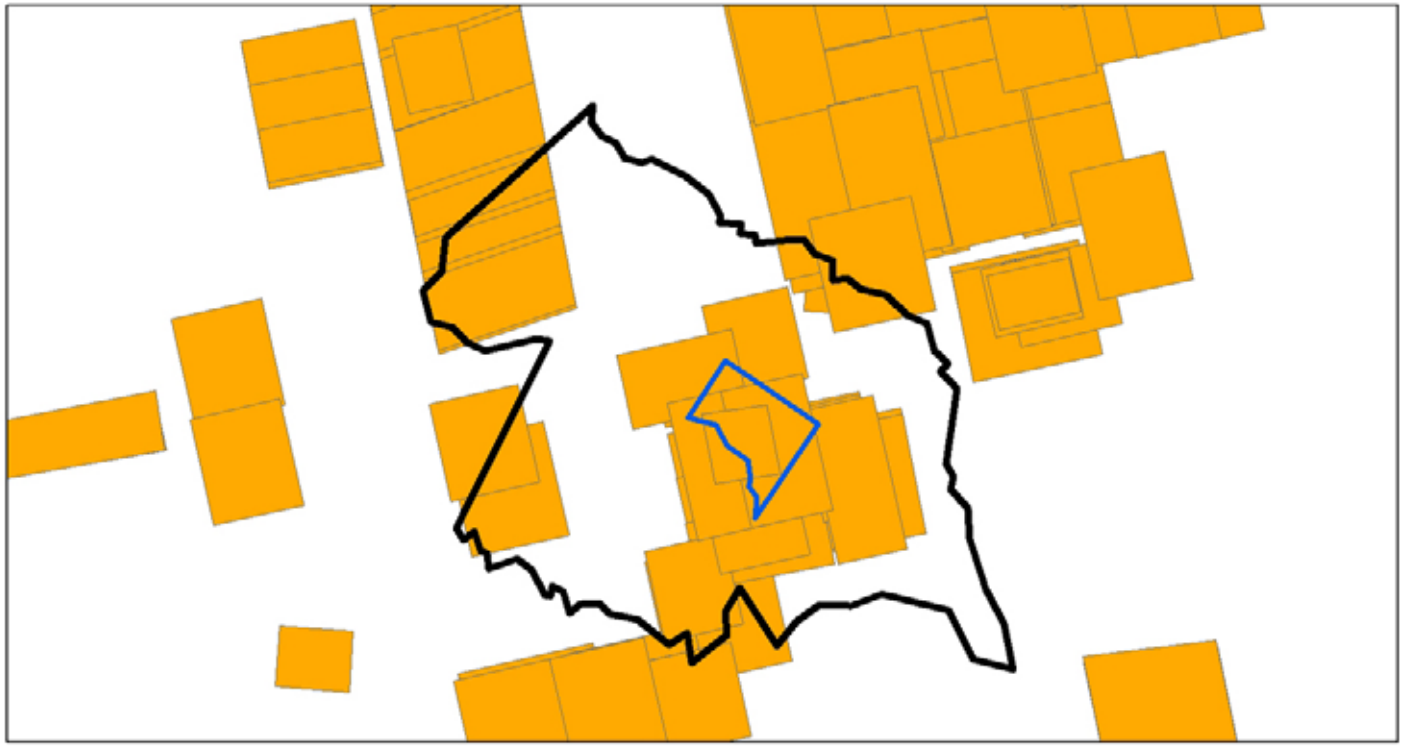
High Resolution Image Data



LEGEND
- District of Columbia
- Four-county area
- High Resolution Imagery

Analysis Query: Spatial Resolution Less Than 5 Meter

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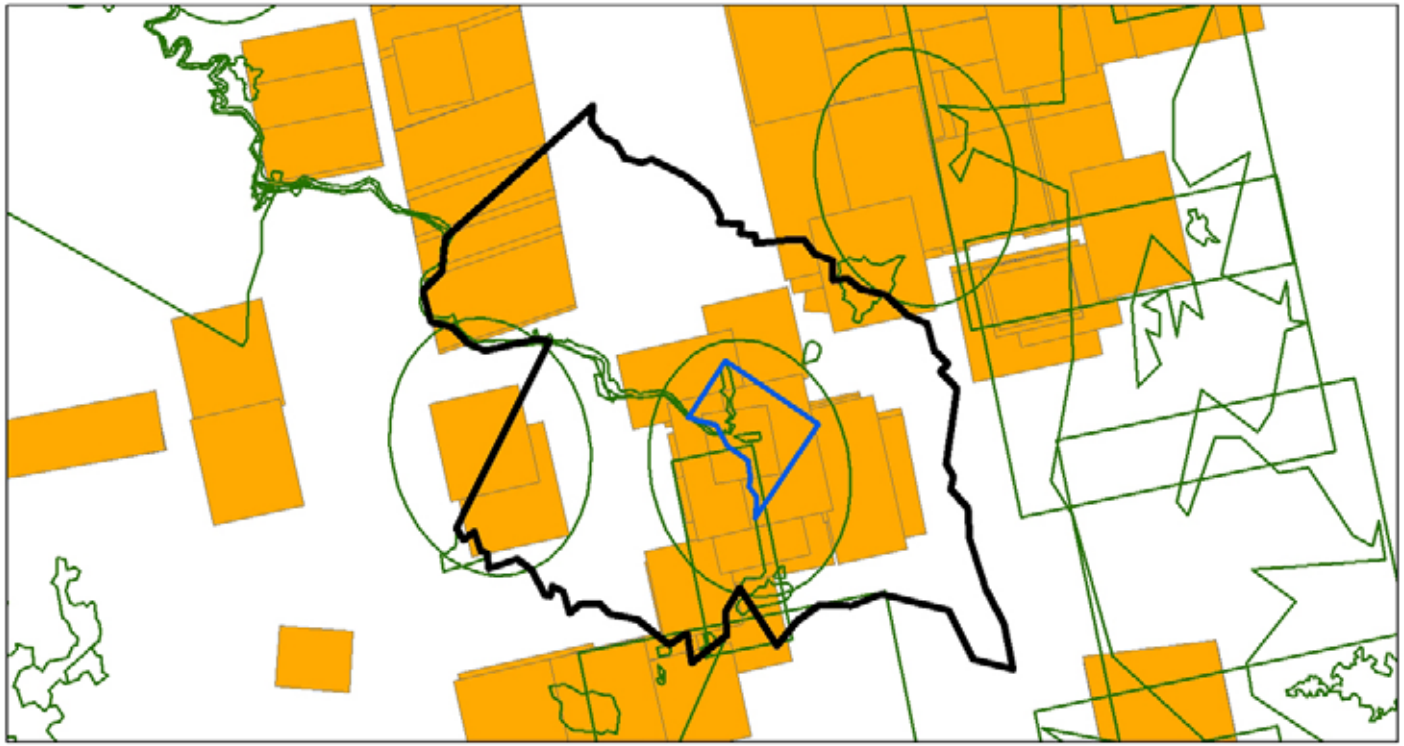
Four Counties Bordering the District of Columbia



LEGEND

- District of Columbia
- Four-county area
- High Resolution Requirements
- High Resolution Imagery

Analysis Query: Spatial Resolution Less Than 5 Meter

Number of Requirements within the 4 County Area: 8

Number of High Resolution Scenes: 98

USGS

Sample Results – Quickbird and IKONOS Imagery

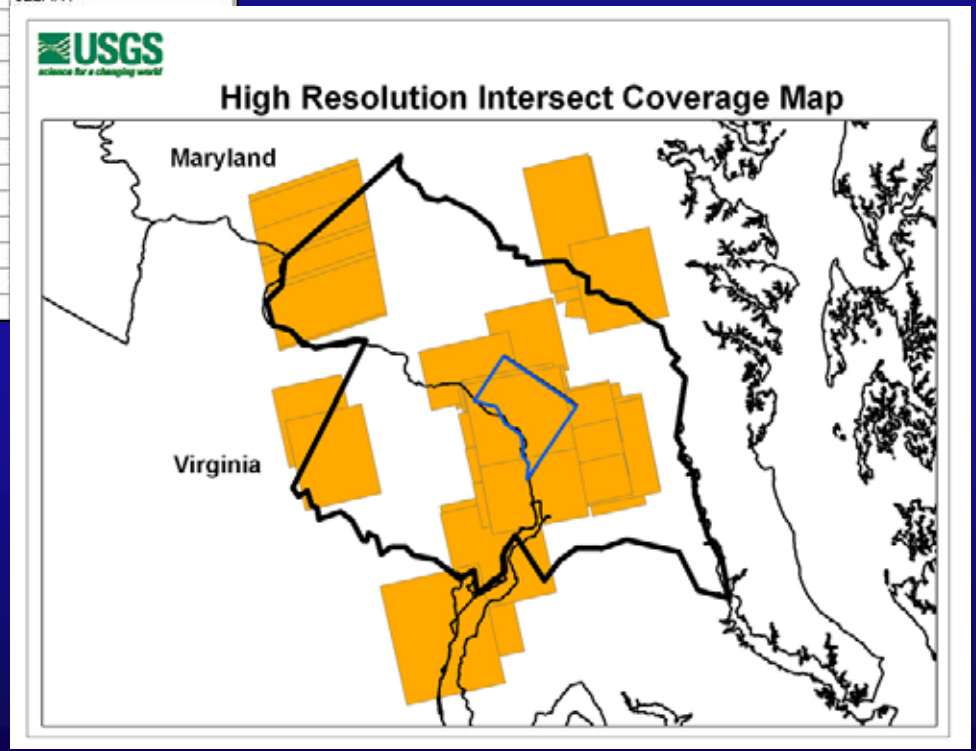
Washington, D.C.
IKONOS-2 © Copyright GeoEye
Acquired: August 13, 2006

Washington, D.C.
QuickBird-2 © Copyright DigitalGlobe
Acquired: September 30, 2005

USGS

Analysis Results – Feedback to the user point of contact (POC)

OID	REQ_ID	ENTITY_ID	ACQUISITIO	LICENSE_1
8	413	01MAY06QB0100020MS	5/1/2006	NEXTV
9	413	01MAY06QB0100020PN	5/1/2006	NEXTV
21	413	13DEC05QB0100045MS	12/13/2005	NEXTV
22	413	13DEC05QB0100045PN	12/13/2005	NEXTV
23	413	13DEC05QB0100046MS	12/13/2005	NEXTV
24	413	13DEC05QB0100046PN	12/13/2005	NEXTV
43	413	29JUN05QB0100038PN	6/29/2005	CLEARV
44	413	29JUN05QB0100039MS	6/29/2005	CLEARV
45	413	29JUN05QB0100043PN	6/29/2005	CLEARV
46	413	29JUN05QB0100044MS	6/29/2005	CLEARV
14	413	10APR04QB0100031PN	4/10/2004	CLEARV
15	413	10MAR04QB0100065MS	3/10/2004	
16	413	10MAR04QB0100067PN	3/10/2004	
25	413	16APR03QB0100095MS	4/16/2003	
26	413	16APR03QB0100095PN	4/16/2003	
27	413	16APR03QB0100096MS	4/16/2003	
28	413	16APR03QB0100096PN	4/16/2003	
4	413	01MAR03QB0100018MS	3/1/2003	
5	413	01MAR03QB0100018PN	3/1/2003	
6	413	01MAR03QB0100019MS	3/1/2003	
7	413	01MAR03QB0100019PN	3/1/2003	
29	413	16JAN03QB0100009MS	1/16/2003	
30	413	16JAN03QB0100010PN	1/16/2003	



USGS

Implementing the Commercial Remote Sensing Space Policy (CRSSP)

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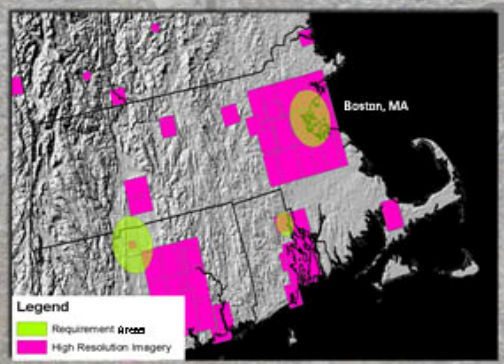
Implementing the Commercial Remote Sensing Space Policy (CRSSP)

Helping Federal Users Obtain Imagery



U.S. Department of the Interior
U.S. Geological Survey

The U.S. Geological Survey (USGS) is responsible for gathering near-term remote sensing data requirements as part of implementing the Commercial Remote Sensing Space Policy (CRSSP). The USGS partners with the National Geospatial-Intelligence Agency (NGA) and the National Oceanic & Atmospheric Administration (NOAA) in these efforts.

Federal users who require aerial or satellite imagery can enter their requirements into the web-accessed CRSSP Imagery-Derived Requirements (CIDR) tool. Several agencies share imagery in support of CRSSP, including the U.S. Department of Agriculture (USDA), the National Aeronautics and Space Administration (NASA), NGA, and the National Park Service (NPS).

The requirements are then checked by analysts at the USGS Center for Earth Resources Observation and Science (EROS).

Using Geographic Information Systems GIS) software and the CIDR database, USGS EROS analysts search imagery holdings at the USGS, NGA, and commercial vendors for existing imagery and seek partnerships with other agencies that may meet the users' requirements.

If existing imagery is found, Federal users are informed on how to obtain the imagery and of any potential partnerships.

IKONOS-2, © Copyright GeoEye
Boston, MA 10/15/2005

If imagery cannot be found to meet the requirements, users are informed of procurement options for obtaining the imagery from commercial vendors through existing contracts, such as the USGS Commercial Remote Sensing Data Contracts (CRSDC).

If new imagery is acquired, users are encouraged to share the imagery with other Federal agencies by providing a copy to the USGS. The USGS acts as a clearinghouse for commercial imagery that can be shared among Federal agencies.

For more information
USGS Commercial Remote Sensing Space Policy Implementation: http://crssp.usgs.gov
Email: crssp@usgs.gov
Phone: 800-252-4547

USGS

For More Information

USGS CRSSP Home Page: *http://crssp.usgs.gov*

Email: crssp@usgs.gov

Phone: 1-800-252-4547