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Washington, DC

Helping Federal Users Obtain Imagery

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USGS Center for Earth Resources Observation and Science (EROS)

Sioux Falls, South Dakota

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




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>



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CRSSP Imagery-Derived Requirements (CIDR) Tool
Commercial Remote Sensing Space Policy (CRSSP)
Center for Earth Resources Observation and Science (EROS)

CIDR (CRSSP IMAGERY-DERIVED REQUIREMENTS) COLLECTION TOOL, VERSION 3.1

Login to CIDR 3.1

Welcome to the CRSSP Imagery-Derived Requirements (CIDR) entry tool, designed to collect and provide query and report capabilities on near-term land remote sensing data requirements of U.S. Federal civil agencies. This priority effort is part of the [Commercial Remote Sensing Space Policy \(CRSSP\)](#) implementation and will assist agencies in leveraging resources in areas of common interest. The requirements information gathered and provided will be used to:

- Generate a civil agency requirements database to facilitate partnerships among and within agencies.
- Serve as documented evidence for potential funding initiatives.
- Satisfy user requirements with existing data sources where possible.
- Provide the commercial satellite and aerial industries with a snapshot of civil agency needs; allow industry to respond with accurate and specific data and services.

The CIDR tool allows Federal agencies to enter their remote sensing data requirements for upcoming years. This information will be analyzed to find intersections in data requirements and assist users with similar requirements in collaborating on potential purchases. Commercial satellite and aerial vendors may also use the CIDR tool and its information to assist in their data acquisition scheduling for known geographic areas of interest.

Staff is available to help with the data entry process. If you would like this assistance, please contact 1-800-252-4547 or crssp@usgs.gov (M-F, 8-4 central time).

What's New [CIDR 3.1 Users Guide](#)

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:

Add a Requirement for Department of the Interior (DOI) Geological Survey (USGS)	
* Fiscal Year:	FY 04
* Point of Contact (POC):	User Name: _____ (Name) 000-000-0000 (Phone) _____ (Extension) pvonree@usgs.gov (Email)
* Affiliation Department Agency:	US Federal Government - Executive Branch Department of the Interior (DOI) Geological Survey (USGS)
* Program/Project Requirement Name:	Urban Study - Las Vegas NV
Project Description:	Study over an approx 25 year period of urban development and impacts on ecosystems
* Primary Mission/Application:	Mapping _____ (Other)
* Observable(s):	detect urban extent, urban land use types
Requirement Mission Priority:	Mission Critical

* Area of Interest (AOI):	
1. Select AOI Source:	<input checked="" type="checkbox"/> Shapefile <input type="checkbox"/> Bounding Box
2a. Shapefile	(prefer lat/long WGS-84) Send this shp file: _____ Browse Send this shx file: _____ Browse Send this dbf file: _____ Browse Send this prj file (optional): _____ Browse
2b. Bounding Box	(decimal degrees) North Latitude: _____ South Latitude: _____ West Longitude: _____ East Longitude: _____ Display Map
3. Description (optional):	Las Vegas, NV
Required Spatial Resolution:	1m
* Spectrums:	<input type="checkbox"/> No Preference <input type="checkbox"/> Color-IR <input type="checkbox"/> Satellite Pan and Multi-spectral bundle <input type="checkbox"/> IR <input type="checkbox"/> 4-Band (True Color and NIR) <input type="checkbox"/> Lidar <input checked="" type="checkbox"/> Multi-spectral <input type="checkbox"/> Thermal <input type="checkbox"/> Hyperspectral <input type="checkbox"/> Radar <input type="checkbox"/> Black and White (Pan) <input type="checkbox"/> Microwave (SAR) <input type="checkbox"/> True Color
* Platform Preference:	IKONOS _____ (Other)
Is Platform Acceptable?	Yes
Target Imagery Dates:	<input checked="" type="checkbox"/> Linear <input type="checkbox"/> Seasonal Start Date: March 30 2008 End Date: October 30 2007



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: 31.005 West: -93.9375 East: -88.443 South: 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...)

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.



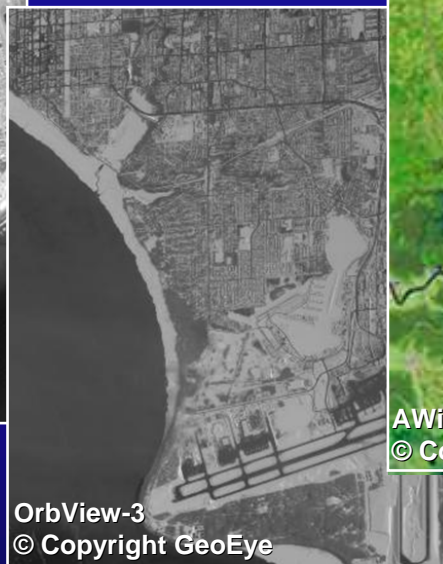
QuickBird-2
© Copyright DigitalGlobe

San Diego, CA
03/09/2002



IKONOS-2
© Copyright GeoEye

Galveston, TX
11/11/2003



OrbView-3
© Copyright GeoEye

Anchorage, AK
03/05/2004



AWiFS
© Copyright GeoEye

New Orleans, LA
8/15/2005

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

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



The screenshot shows the USGS EarthExplorer website. At the top left is the USGS logo with the tagline "science for a changing world". To the right is a navigation menu with links for "USGS Home", "Contact USGS", and "Search USGS". Below this is a dark banner with the text "National Center for Earth Resources Observation & Science (EROS)". The main heading is "EarthExplorer". A paragraph of text explains that users can query and order satellite images, aerial photographs, and cartographic products. It mentions login options for guests and registered users, and includes links for "Session Cookies" and "Customer Services". Below the text are two radio button options for Java versions: "Java Script Version" (selected) and "Java Applet Version". Further down, there are links for "GUEST" and "REGISTER" under the heading "Enter as a:". A login section follows with the heading "If you are already a registered user please enter your login information here:", fields for "User Name:" and "Password:", and links for "LOGIN" and "RESET". A "Forgot your password?" link is also present. At the bottom, there are links for "PhotoFinder" and "USGS Store" under the heading "Just looking for a photo? Try" and "Just looking for a map? Try". The footer contains links for "Accessibility", "FOIA", "Privacy", and "Policies and Notices".

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National Center for Earth Resources Observation & Science (EROS)

EarthExplorer

Query and order **satellite images**, **aerial photographs**, and **cartographic products** through the U.S. Geological Survey. Log in as a [quest](#) or as a [registered user](#). Registered users have access to more features than guests do. If you plan on using EarthExplorer frequently, you may wish to register. Please note that this site uses [Session Cookies](#). All products on this site can also be ordered from [Customer Services](#).

Java Script Version (works with PC, **Macintosh**, and Unix platforms: Netscape 6.0+ or IE 5.5+) [More info](#)

Java Applet Version (Works with PC and Unix platforms: IE 4.0+ or Netscape 4.06+, **not 6.0+**) [More info](#)

Enter as a: [GUEST](#) Or [REGISTER](#)

If you are already a registered user please enter your login information here:

User Name: Password: [LOGIN](#) [RESET](#)

[Forgot your password?](#)

Just looking for a photo? Try [PhotoFinder](#) Just looking for a map? Try [USGS Store](#)

Accessibility FOIA Privacy Policies and Notices

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

USGS Commercial Data Purchases - Orderable

24 of 24 metadata records retrieved. Showing 1-10

Preview Image	Show Footprint	Show All Fields	Exclude	Order Qty	FTP Link	USGS Entity ID	Acquisition Date	Image Cloud Cover	Satellite	Sensor	Event	File Format	Processing Level
Show	Show	Show	<input type="checkbox"/>	<input type="checkbox"/>	Download	QB220041106164802P00	2004/11/06	0	QUICKBIRD-2	Panchromatic		GEOTIFF	Level 2A
Show	Show	Show	<input type="checkbox"/>	<input type="checkbox"/>	Download	QB220041106164803M00	2004/11/06	0	QUICKBIRD-2	Multispectral		GEOTIFF	Level 2A

http://edcns17.cr.usgs.gov - Reference Map

View Help

Zoom to Selected Area

Select

Clear Selection

Display Footprint Headers

http://edcns17.cr.usgs.gov - EarthExplorer: F...

File Edit View Favorites Tools Help

SnagIt

Full Display of Record 4

Dataset Attribute	Attribute Value
USGS Entity ID	QB220041220164039M00
Acquisition Date	2004/12/20
License ID	2
Image Cloud Cover	0
NW Corner	29°17'12"N, 89°31'35"W
NE Corner	29°17'12"N, 89°31'35"W
SW Corner	29°12'12"N, 89°31'35"W
SE Corner	29°12'12"N, 89°31'35"W
Center Coordinates	29°14'12"N, 89°31'35"W
Satellite	QUICKBIRD-2
Sensor	Multispectral
Mosaic	N
Sun Elevation	34.5
Sun Azimuth	159
Vendor	DIGIT
Vendor Scene ID	101001000376AD01
ITM Zone	15

earthExplorer/phtml/results/show...

SnagIt

File Download

Do you want to open or save this file?

Name: QB220041106164742M00.zip

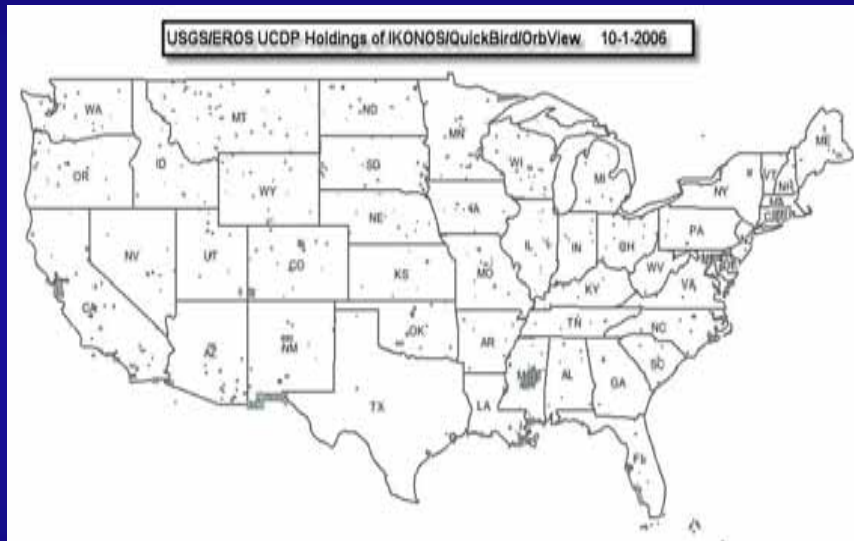
Type: WinZip File, 15.9 MB

From: edcftp.cr.usgs.gov

Open Save Cancel

While files from the Internet can be useful, some files can potentially harm your computer. If you do not trust the source, do not open or save this file. [What's the risk?](#)

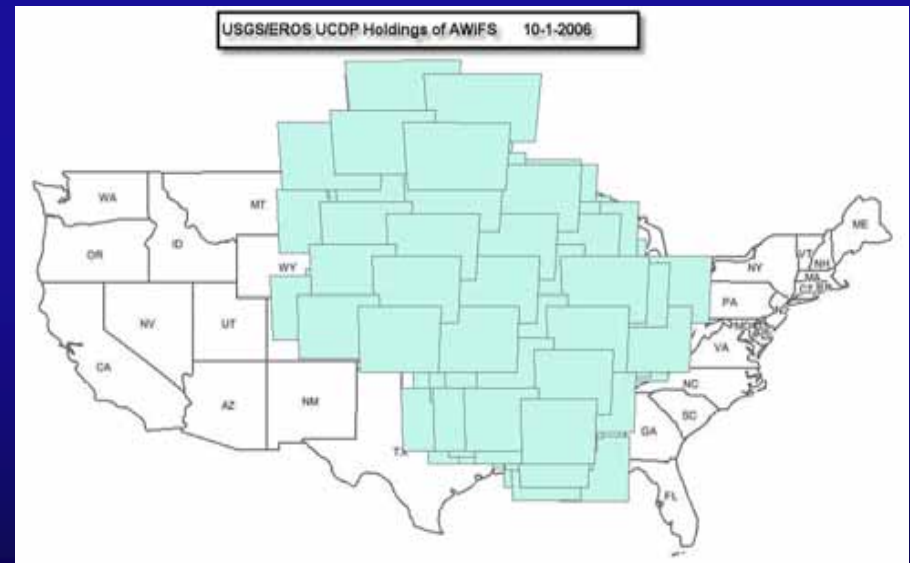
Access to the USGS Commercial Data Purchases (UCDP) imagery collection.....cont'd



UCDP Imagery Holdings

Shapefiles can be downloaded at:

<http://edcftp.cr.usgs.gov/pub/metadata/satellite/ucdp/>



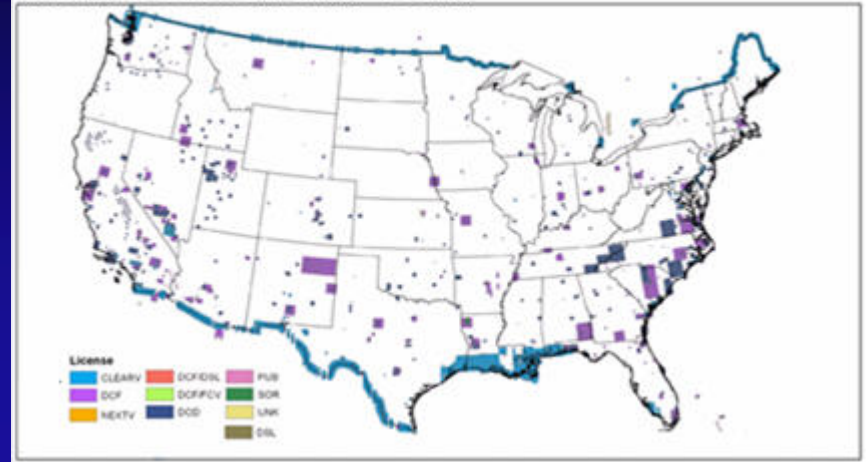
Access to other Federal sources of commercial remote sensing data

NGA's Commercial Satellite Imagery Library (CSIL) Holdings

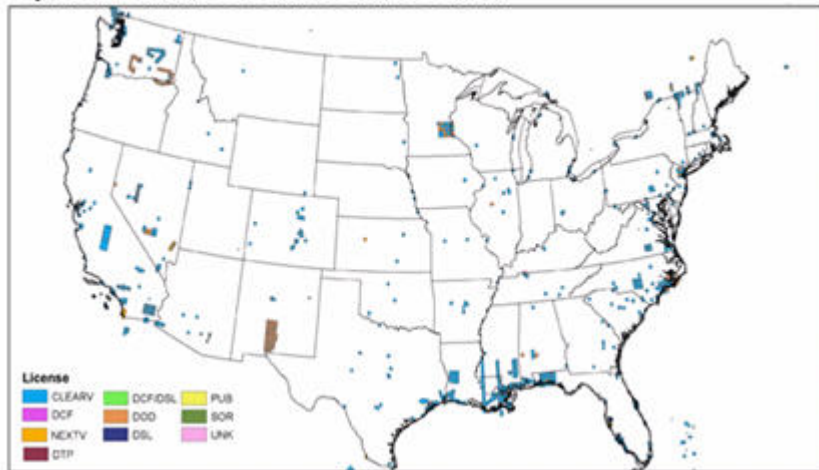
Shapefiles can be downloaded at:

http://edcftp.cr.usgs.gov/pub/metadata/satellite/ucdp/CSIL_Shapefiles/

IKONOS Scenes in CSIL:



QuickBird Scenes in CSIL:



OrbView Scenes in CSIL:

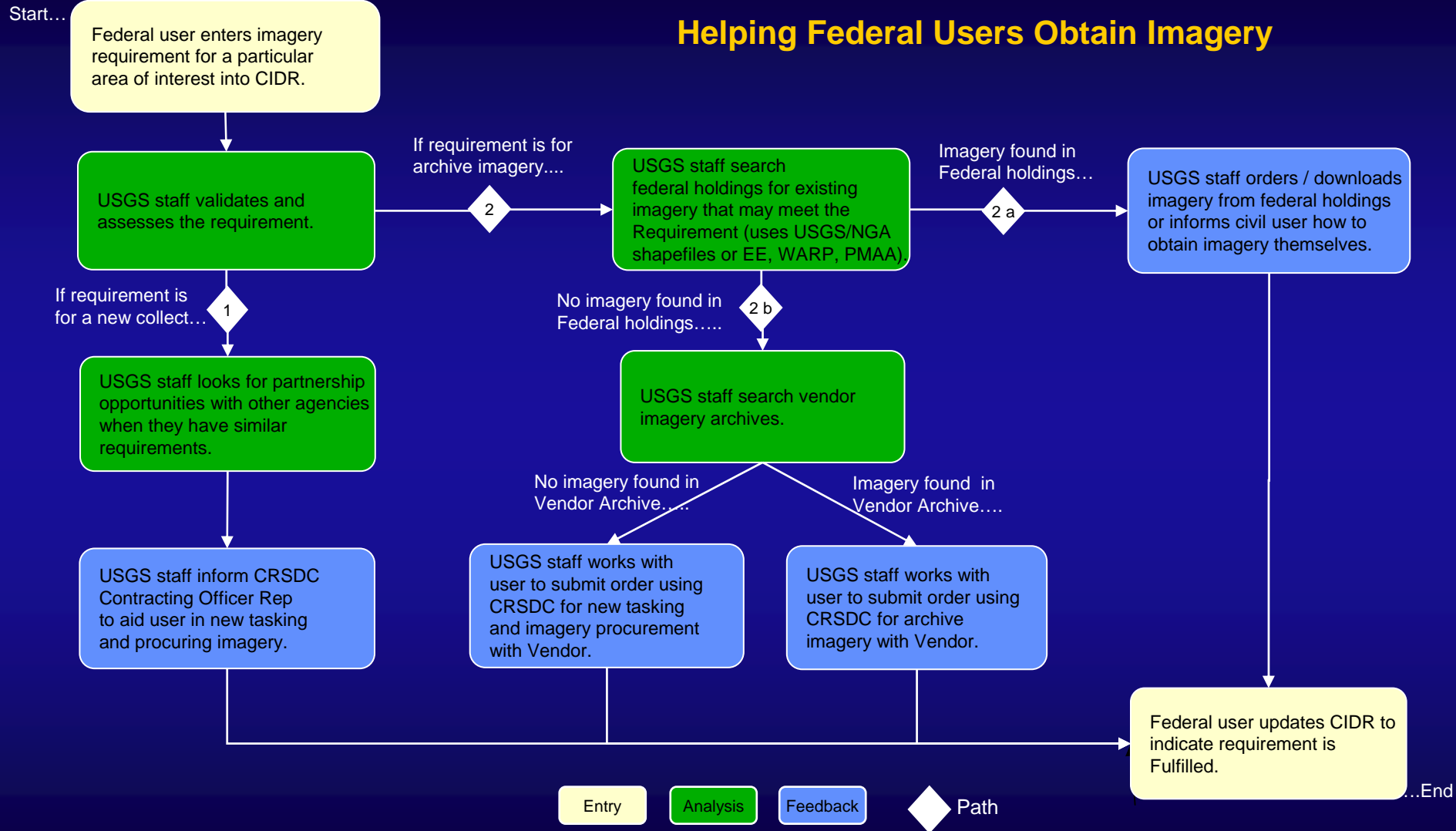


Providing an interface for acquiring commercial remote sensing data from commercial vendors

- 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

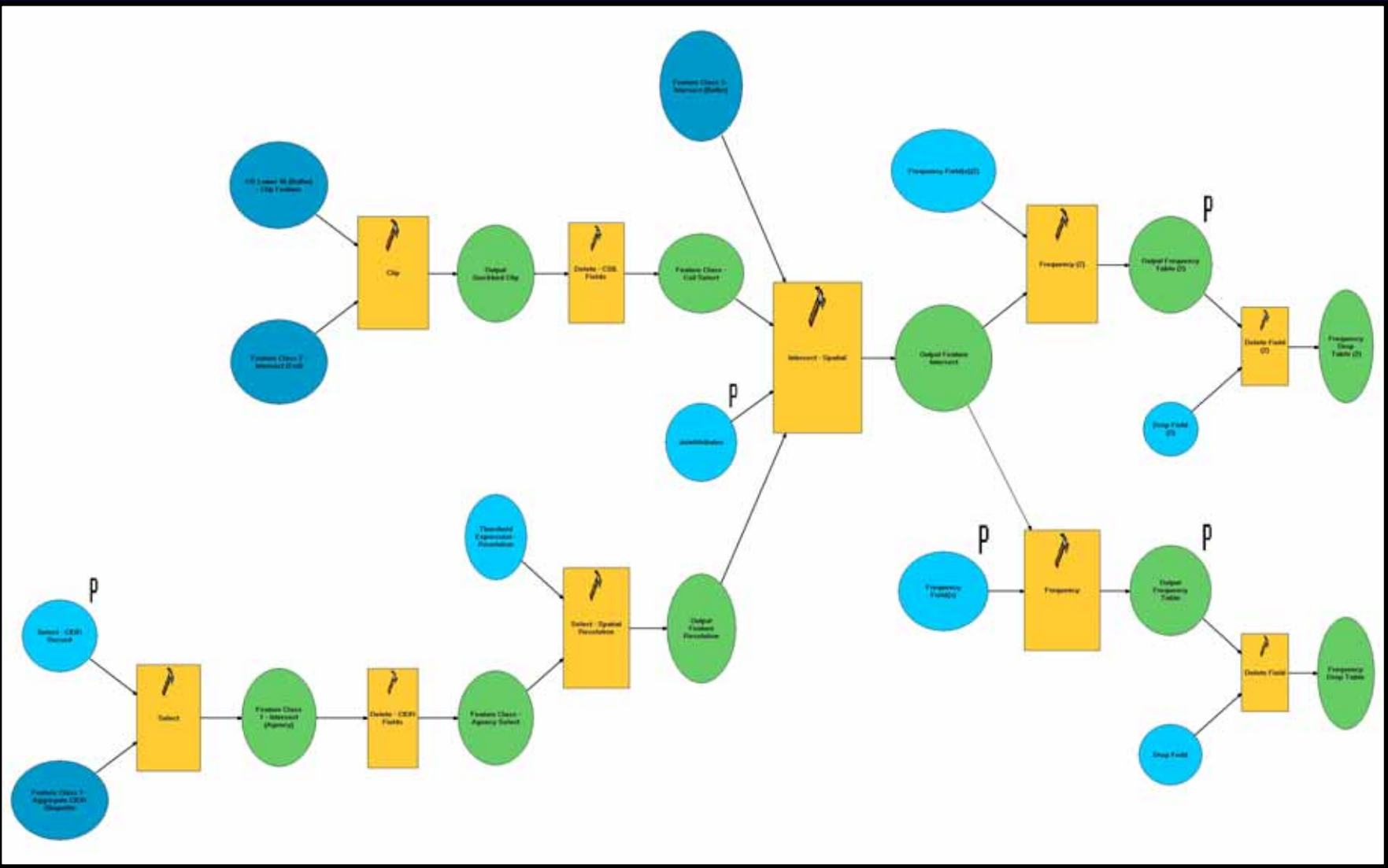
Helping Federal Users Obtain Imagery



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.g. 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.

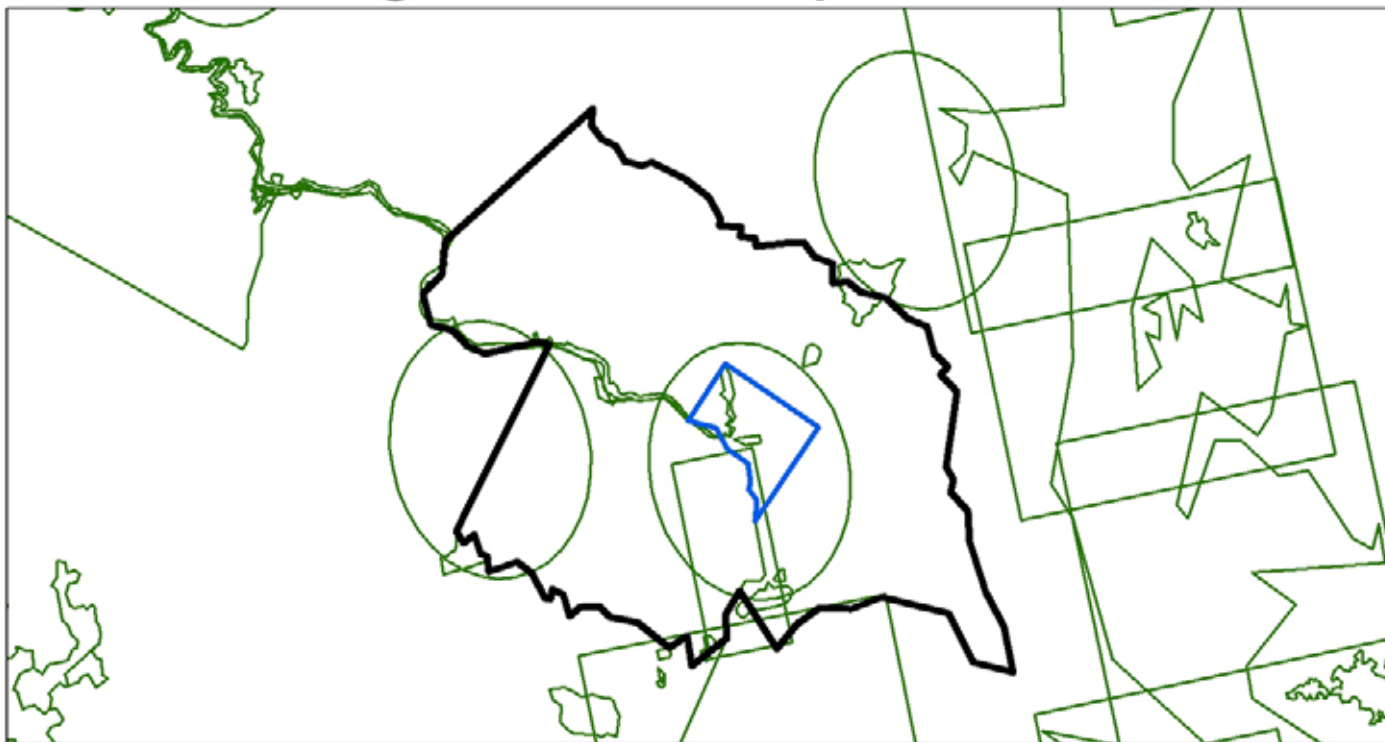
CIDR Requirements Intersection – Frequency Model



Analysis Scenario: Four Counties Bordering Washington, DC

Intersection of High Resolution Requirements and Imagery

High Resolution Requirements

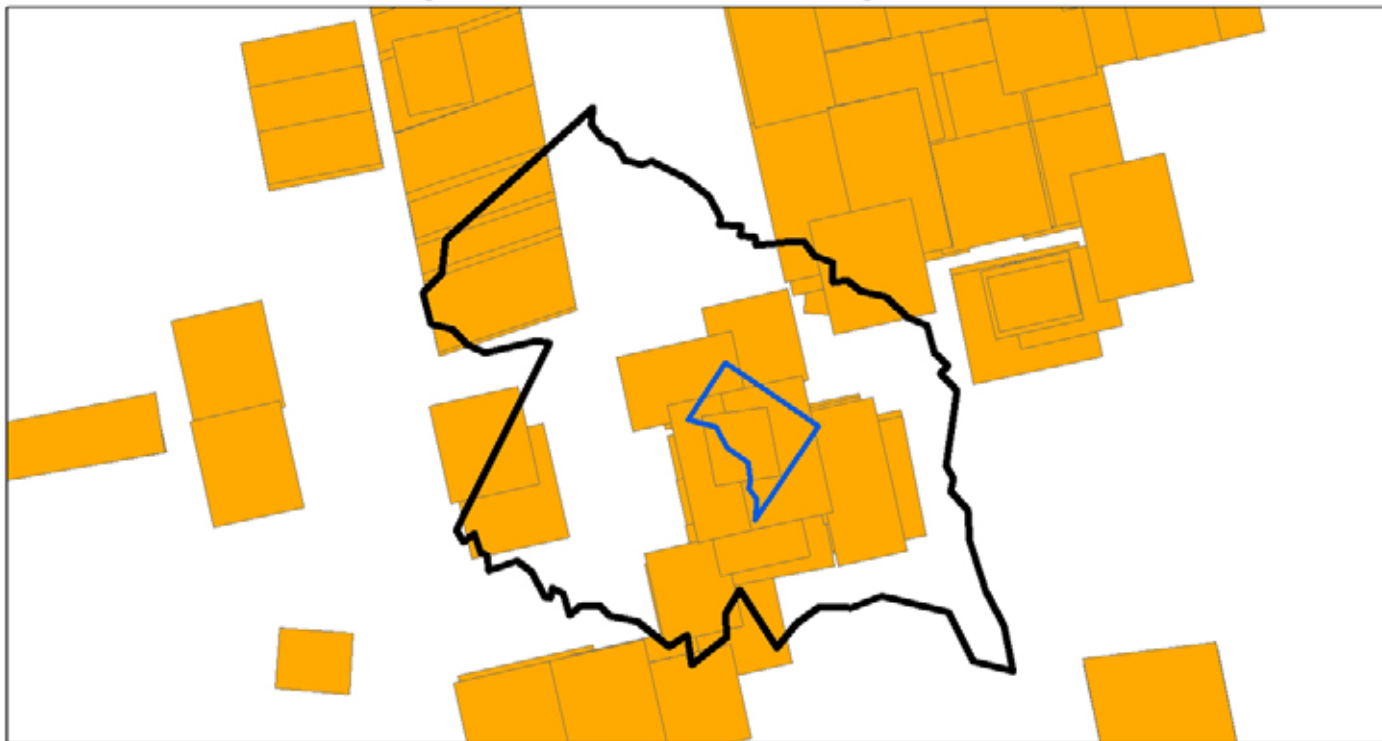


LEGEND




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

Analysis Query: Spatial Resolution Less Than 5 Meter

High Resolution Image Data

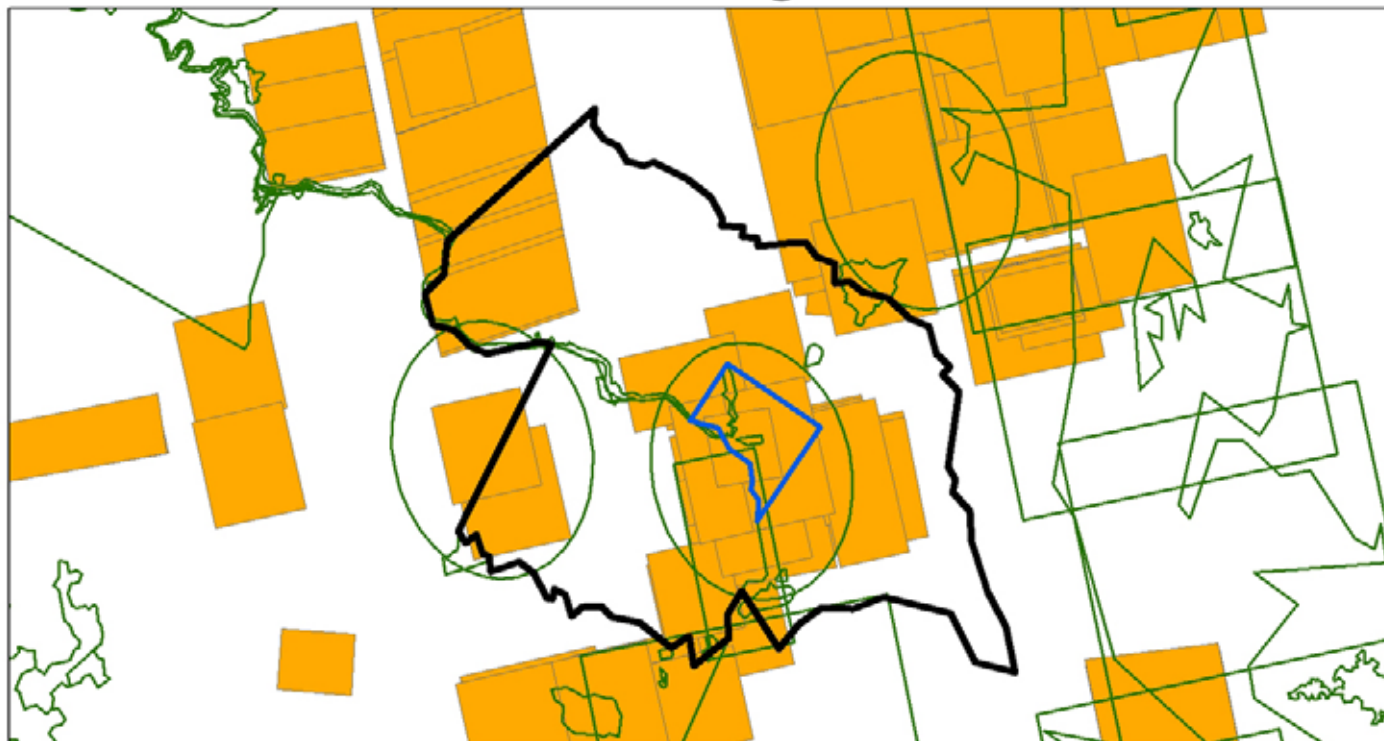


LEGEND

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

Analysis Query: Spatial Resolution Less Than 5 Meter

Four Counties Bordering the District of Columbia



LEGEND

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

Sample Results – Quickbird and IKONOS Imagery



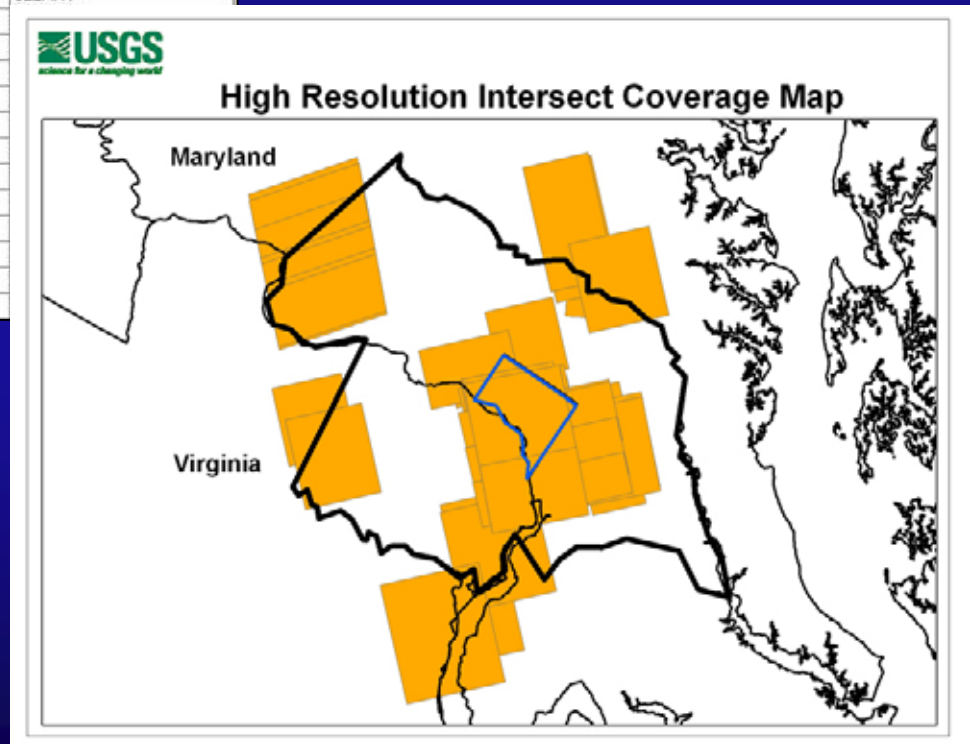
Washington, D.C.
IKONOS-2 © Copyright GeoEye
Acquired: August 13, 2006



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

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	

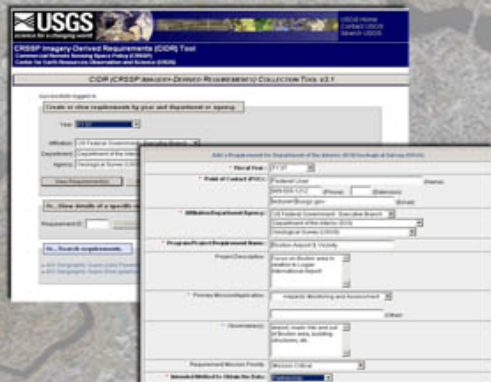


Implementing the Commercial Remote Sensing Space Policy (CRSSP)



Implementing the Commercial Remote Sensing Space Policy (CRSSP)

Helping Federal Users Obtain Imagery



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).



IKONOS-2, © Copyright GeoEye
Boston, MA 11/6/2006

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

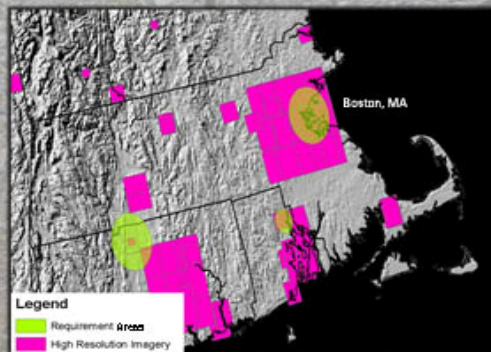
Using Geographic Information Systems (GIS) software and the CIDR database, USGS EROS analysts search imagery holdings at the USGS, NGA, and commercial vendors for existing imagery and seek partnerships with other agencies that may meet the users' requirements.

If 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.

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

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



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



For More Information

USGS CRSSP Home Page: <http://crssp.usgs.gov>

Email: crssp@usgs.gov

Phone: 1-800-252-4547

