The Hexagon Imagery Program (HxIP)

Montana State Imagery Working Group Meeting
March 16, 2017

Tammy Peterson – Hexagon
Mike McGuire – Ascent GIS, Inc.

Hexagon Imagery Program (HxIP)

"Create a global high quality 30cm data set to meet the needs of the geospatial professional "

- **Truly professional program**
  - **Fully rigorous acquisition and photogrammetric processing standards**
  - **The leading North American and European firms as partners**

- **Multiple content products:**
  - **RGB (3 band) cached ortho tile streaming service**
  - **RGBR (4 band) ortho tile streaming service and hard delivery**
  - **High density surface models (planned)**

- **Nationwide Coverage with Planned Refresh Schedule:**
  - **Wide area coverage (WAC) 1 foot GSD on a 2 – 3 year cycle**
  - **High value areas (UAC) 6 inch GSD on a 18-24 month schedule**

HEXAGON

Background

- **HxIP began in 2014**
  - **Leveraging the Leica sensor expertise – ADS100**
  - **Engaging the leading aerial acquisition firms (NAIP contractors) in the US**
  - **Valtus authorized resellers**

- **Initial program definition**
  - **1 ft wide area (WAC) coverage with 3 to 4 year refresh**
  - **1 ft urban (HVA) coverage - < 2 year refresh**
  - **All leaf-on acquisition**
  - **Coverage included continental USA, populated areas of Canada and Western Europe**

HEXAGON

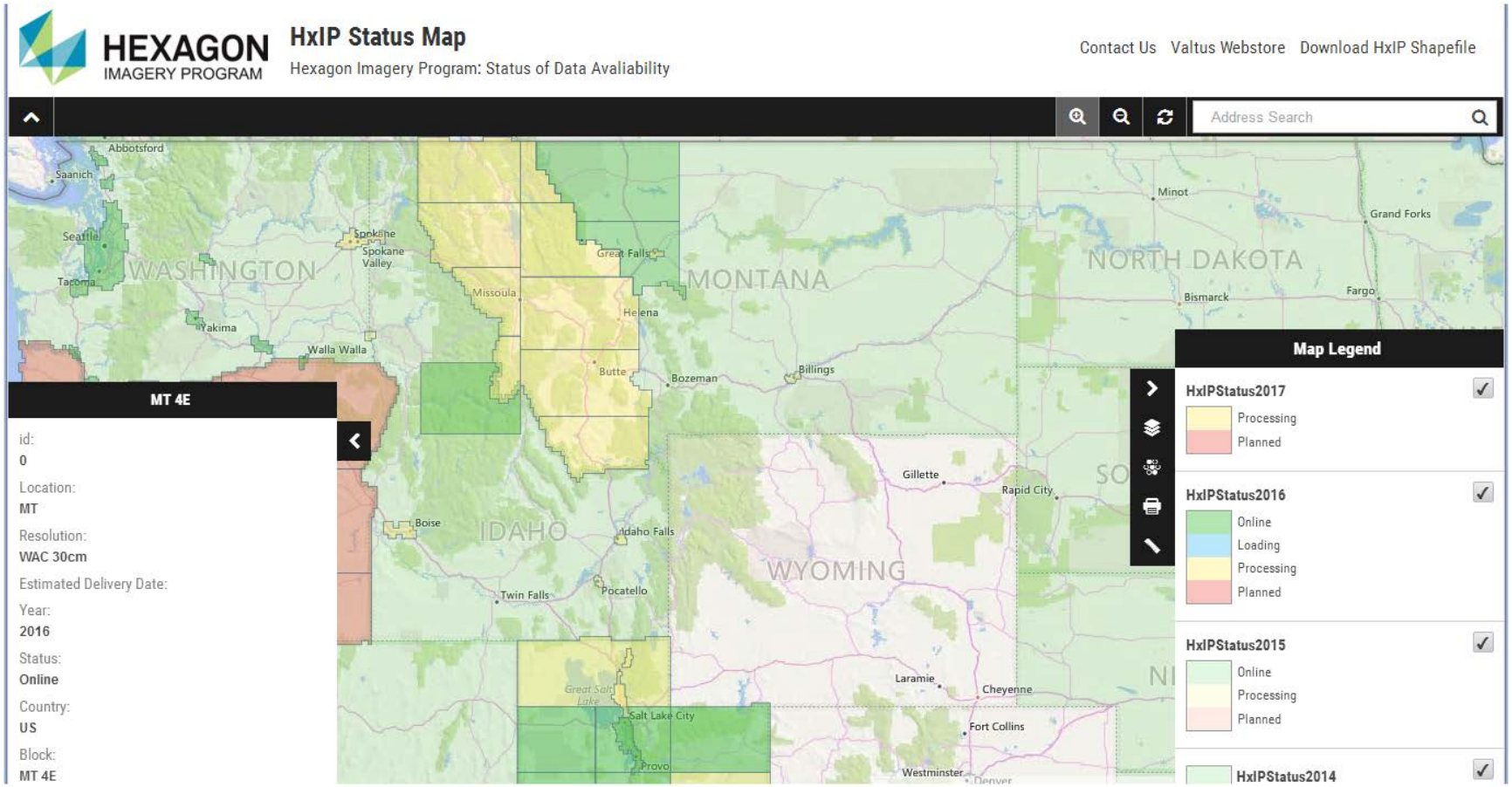
HxIP Evolution

- **Program has evolved to include**
  - **More frequent refresh rates**
  - **Higher resolution in urban coverage areas**
  - **Expanded territory**
  - ***Future data sets may include elevation, oblique, street level***

- **Recent program modifications**
  - **1 ft wide area coverage (WAC) with a fixed 2 year refresh**
  - **6 in urban coverage (UAC) - < 2 year refresh with urban areas being defined as >50,000 population.**
  - **Some leaf-off acquisition**
  - **Coverage to now include Hawaii, Puerto Rico, US Virgin Islands and British Virgin Islands**

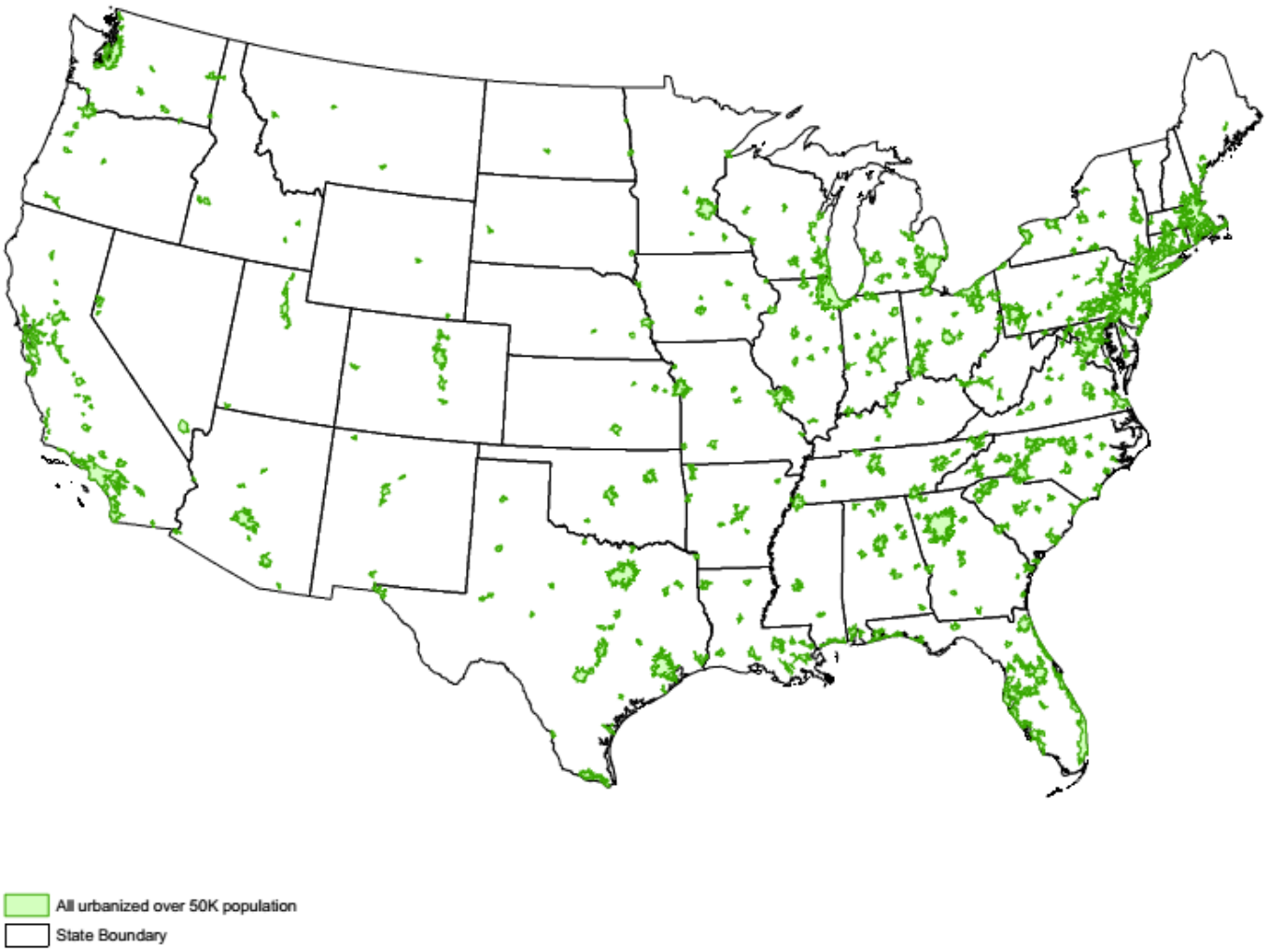
HEXAGON

HxIP Current Status

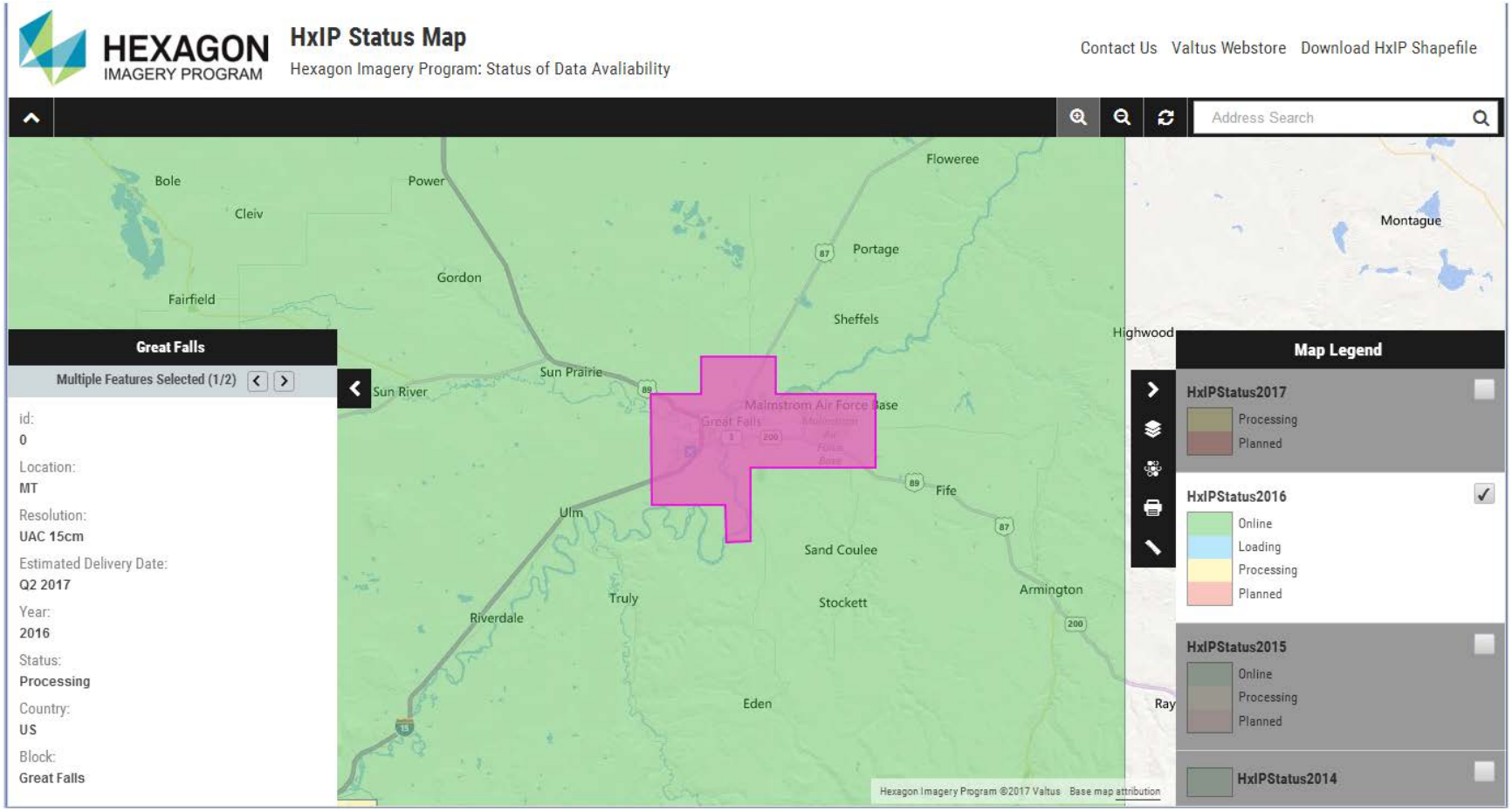


HEXAGON

HxIP Urban Coverage Areas



HEXAGON


HEXAGON
IMAGERY PROGRAM
HxIP Status Map
Hexagon Imagery Program: Status of Data Avaliability
Contact Us
Valtus Webstore
Download HxIP Shapefile
Address Search
Great Falls
Multiple Features Selected (1/2)
id:
0
Location:
MT
Resolution:
UAC 15cm
Estimated Delivery Date:
Q2 2017
Year:
2016
Status:
Processing
Country:
US
Block:
Great Falls
Map Legend
HxIPStatus2017
Processing
Planned
HxIPStatus2016
Online
Loading
Processing
Planned
HxIPStatus2015
Online
Processing
Planned
HxIPStatus2014
Bole
Cleiv
Power
Fairfield
Gordon
Floweree
Portage
Sheffels
Montague
Highwood
Sun River
Sun Prairie
Malmstrom Air Force Base
Great Falls
Fife
Ulm
Sand Coulee
Truly
Stockett
Armington
Riverdale
Eden
Ray
Hexagon Imagery Program ©2017 Valtus
Base map attribution

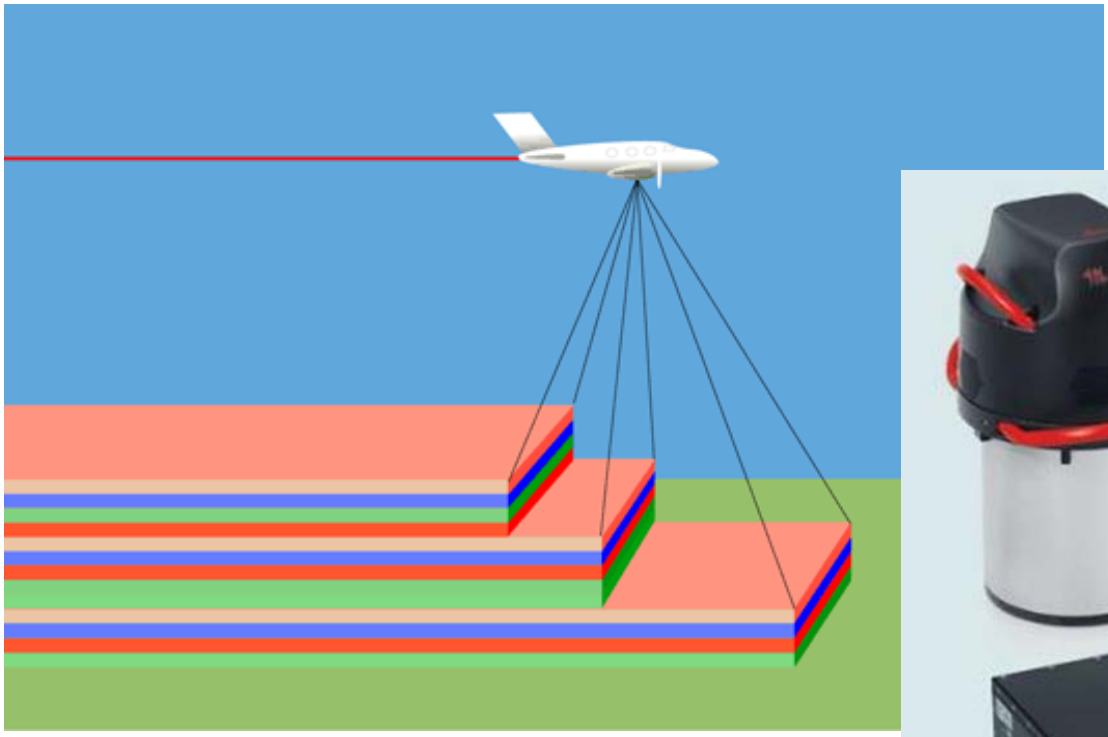
HEXAGON

HxIP Current Program members

	NAFTA	EU
Content Providers	Quantum Geospatial Surdex Corporation North West Geomatics Fugro Geospatial Kucera International Inc. CompassData	COWI Blom Pasco (AeroData) CompassData
Technology Providers	Valtus (Hosting Platform) Hexagon Geosystems (Sensors & Production Software)	Valtus (Hosting Platform) Hexagon Geosystems (Sensors & Production Software)
Resellers	Hexagon Geospatial Valtus Distribution Partners Ascent GIS, Inc.	Hexagon Geospatial Blom URBEX Valtus Distribution Partners

HEXAGON

Hexagon Technology – The ADS100



HEXAGON

Hexagon Technology – The ADS100

HEXAGON

Program Specs

Specification	30cm Program
(Planned) allowable GSD	Maximum 0.4 meter
Accuracy	RMSEx/y = 1.2m RMSEr = 1.7m CE90 = 2.6m CE95 = 3.0m
Minimum sun angle	30°
Cloud/cloud shadow	≤10% and not obscuring HVA area or paved roads or other transportation network
Smoke/fire	May be cause for rejection
Persistent smoke (volcano, factory, crop burn, etc.)	Allowable – not cause for rejection
Snow/ice cover	Permanent snow/ice is acceptable
Specular reflection	Allowable provided shoreline and surrounding features are not obscured
Maximum allowable image shear	≤ 3 pixels
Band-to-band pixel misregistration	≤ 0.5 pixel and no perceivable color fringing
Sidelap	Minimum 27%
Non-pixel data	DN value of 0 and 255 reserved for non-data
Acceptable image blemishes, scratches, artifacts, etc.	Imagery should be blemish and artifact free
Flooding/standing water	Acceptable as long as paved roads or agricultural field boundaries are not obscured
Smear and/or occlusion	No stated policy but subject to call-out
Clipping	Cumulative luminosity pixel count for bins 0-5 and 250-255 shall not be less than 98%,preferably > 99%
Contrast	Difference between cumulative pixel counts containing 99% and 1% of the data shall be greater than 59% of the bit depth, ±4% Target: 150 Minimum: 140 Maximum: 160
Brightness	Mean pixel count within ±7.5% of the middle DN value Minimum: 108 Maximum: 147
Color balance	Neutral objects shall be have a DN difference of no more than 5 for any RGB triplet
Bridge warp/smear	Bridge/freeway/causeway warp/smear is not acceptable
Building seamline sheer	Within HVAs only

HEXAGON

HxIP Availability

Strategic relationships to facilitate ease of access for the professional user to HxIP data

- **Valtus Imagery Services**
  - **Physical delivery, web streaming services through multiple protocols, as well as other products (ie. stereo and DSM)**
- **Ascent GIS**
  - **Reseller & Imagery Production Services**

HEXAGON

Program Pricing

- **Per square mile model**
  - **Hard pixel delivery via Valtus Store**
    - **30cm $9.00 per square mile**
    - **15cm $18.00 per square mile**

- **Per user subscription model annual subscription fee**
  - **Unlimited use, all applications $2,000**
  - **No geographic restrictions**
  - **Based on concurrent users**
  - **Flexible licensing terms**

- **County Government Pricing**
  - **Extended licensing terms**

- **State Government Pricing**
  - **Extended and flexible licensing terms**

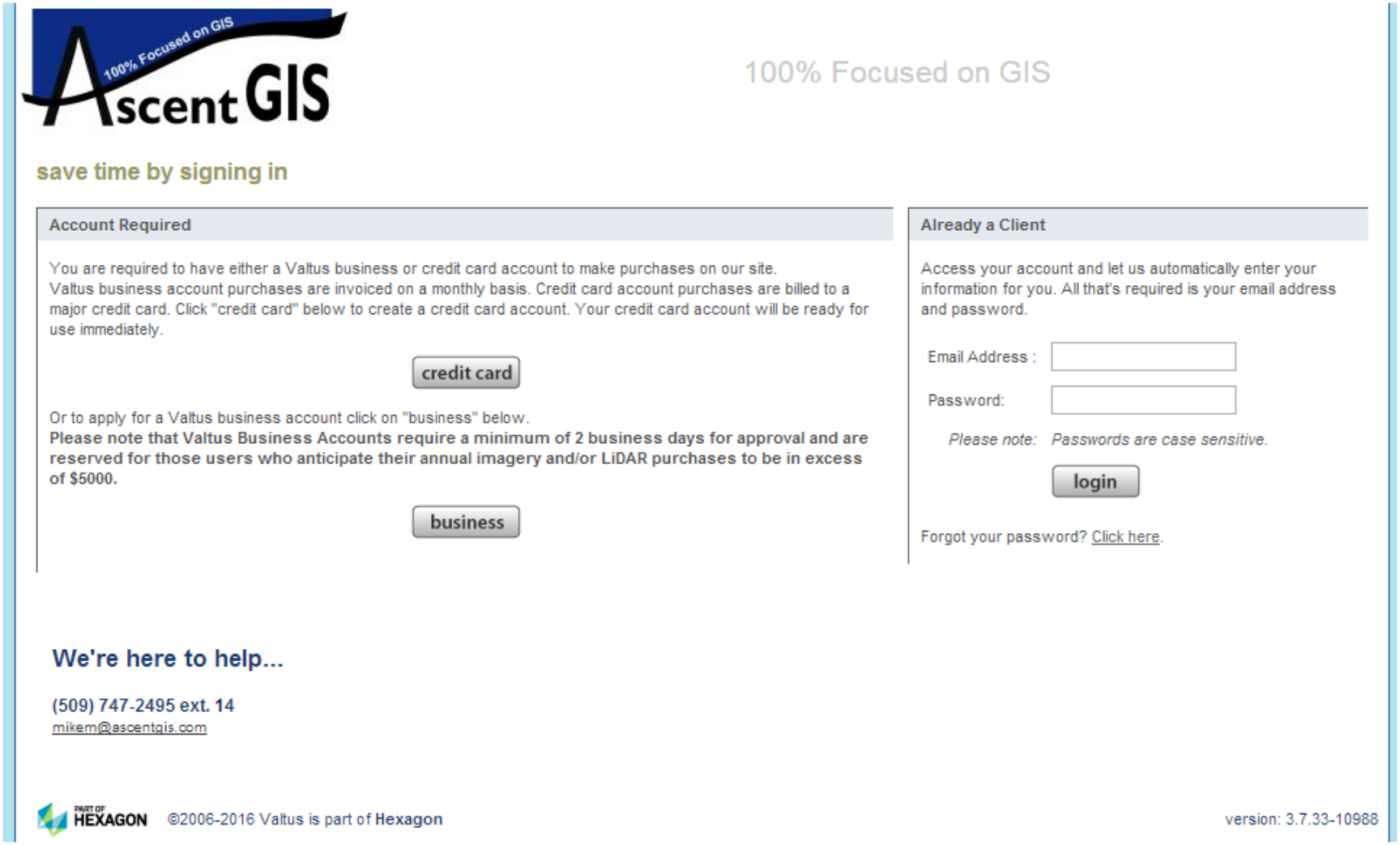
HEXAGON

Getting Started

DOWNLOAD AERIAL DATA

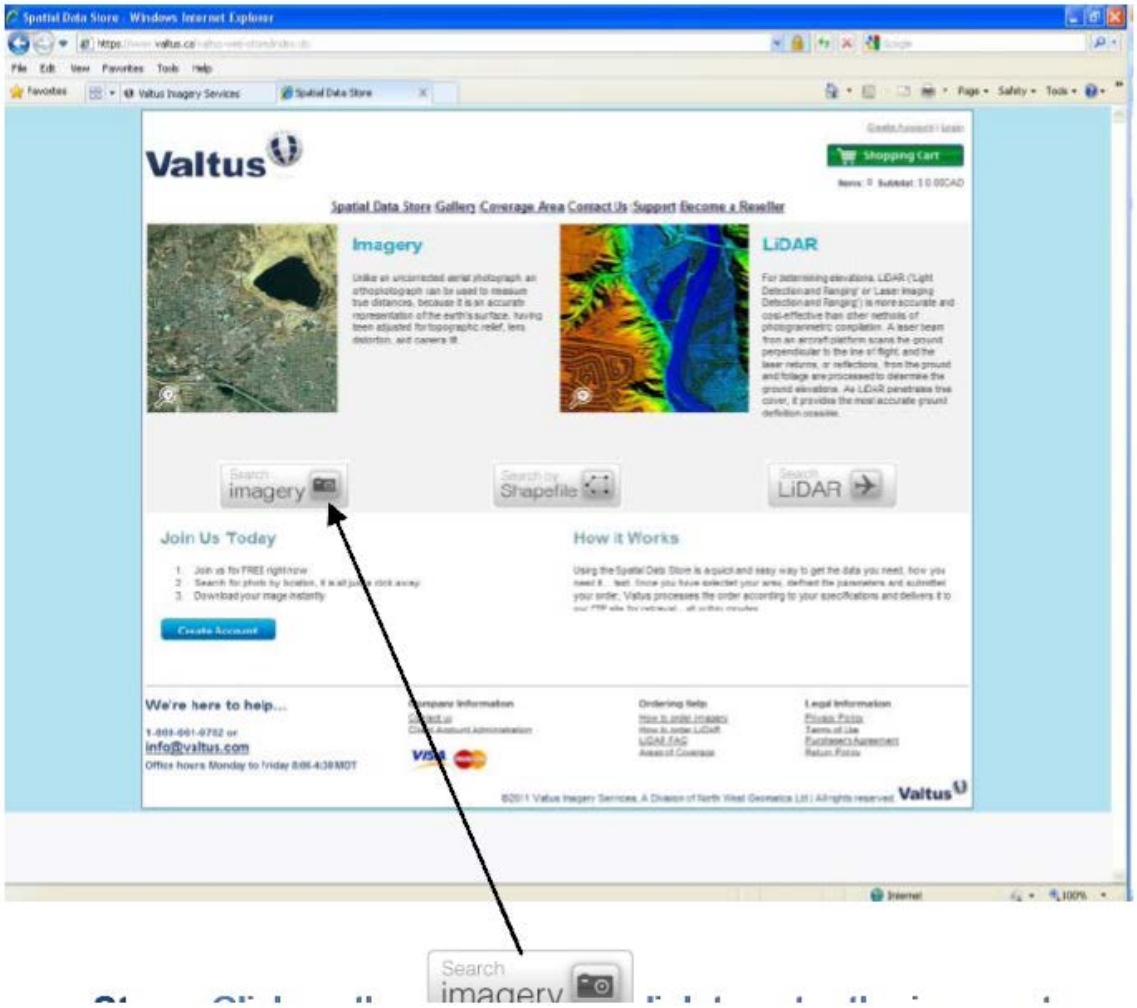
HEXAGON

Hexagon Store



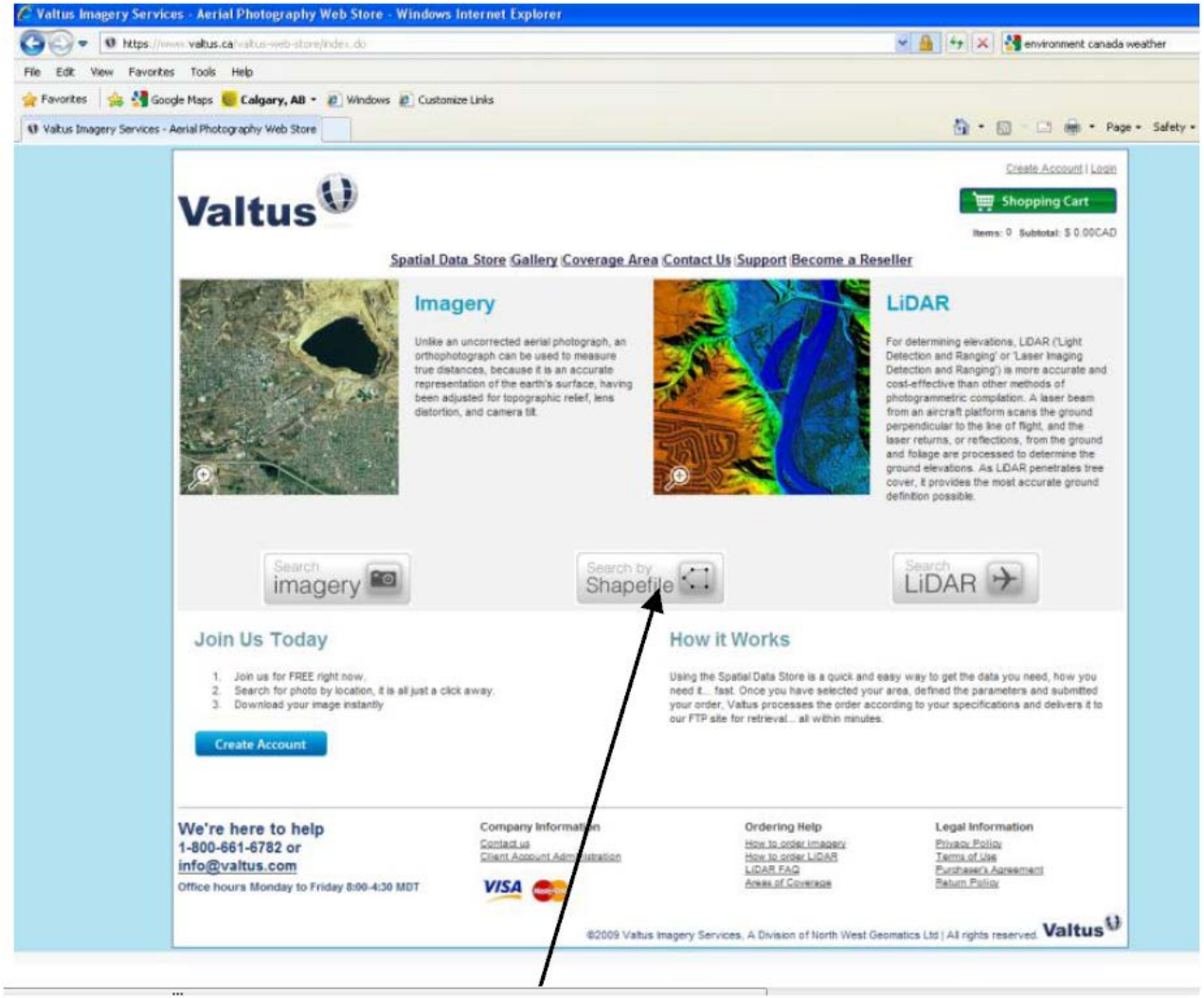
HEXAGON

The Imagery Store

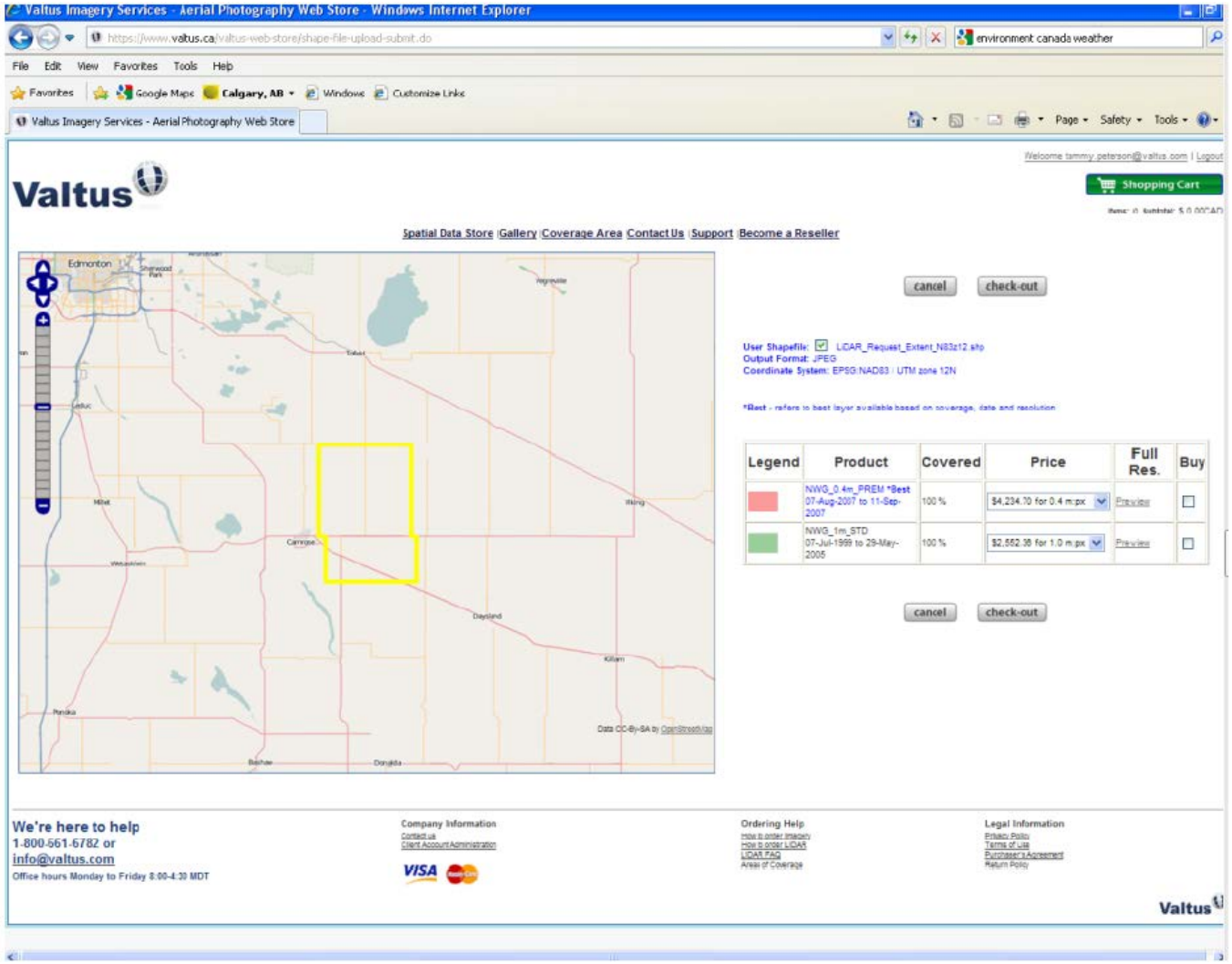


HEXAGON

Upload a Shapefile



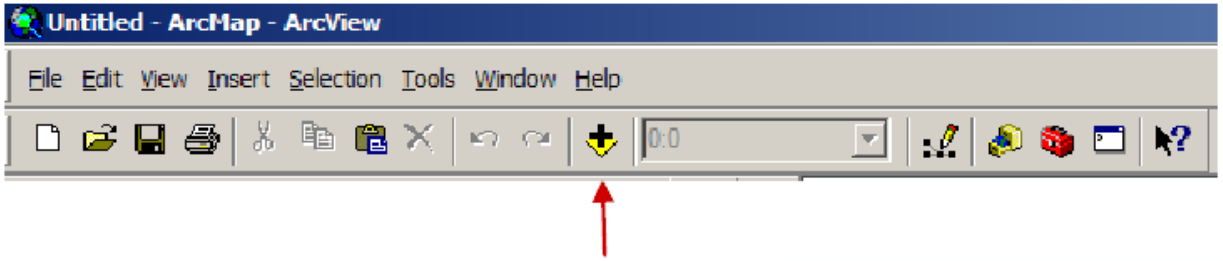
Upload Shapefile Cont.



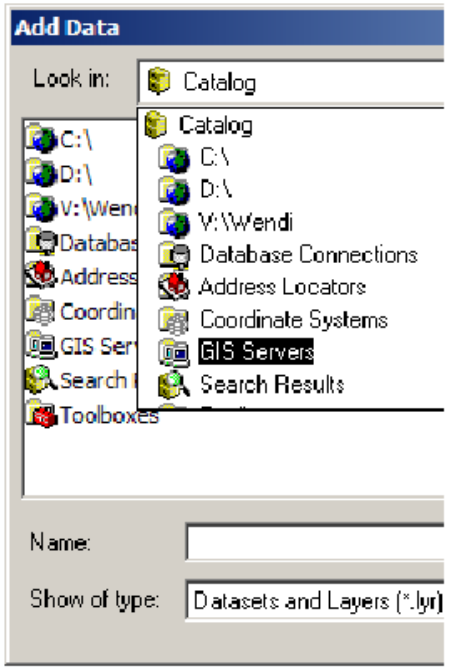
HEXAGON

Streaming Services

- Click the “Add Data” button, or navigate to File - Add Data - Add Data...:



- Choose “GIS Servers” from the drop down menu:

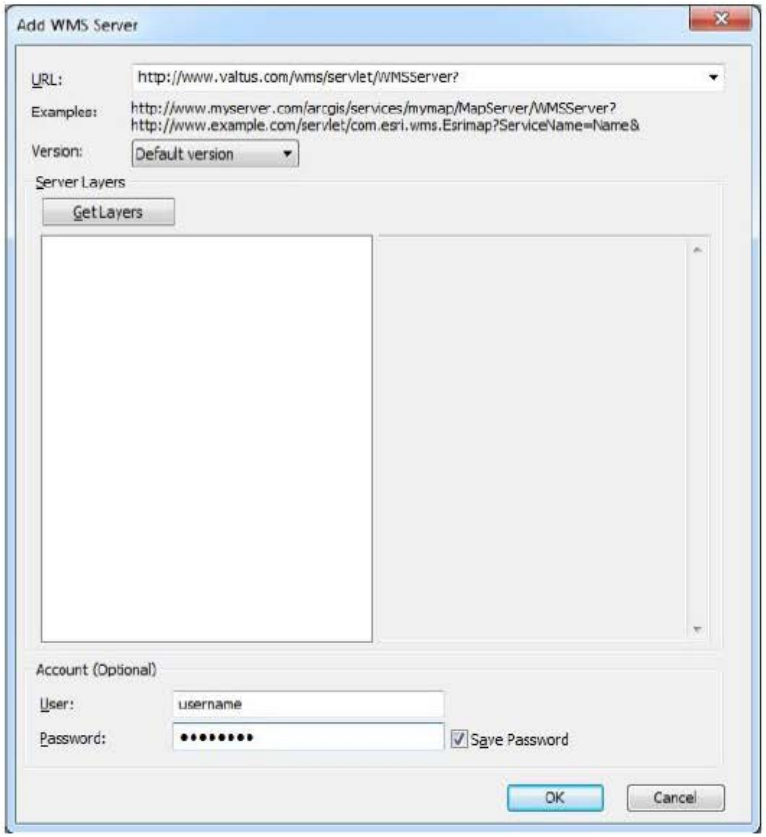


HEXAGON

Streaming Cont.

To Load Views as a WMS service:

- Double-click "Add WMS Server"
- The Add WMS Server window opens. In the URL field, add the URL http://www.valtus.com/views/wms
- Under Account (Optional) Fill in your username and password. Click the 'Save Password' box if you would like ArcMap to remember your password. Click OK.



HEXAGON

Review

Product

- One Foot or Better
- 4 Band Color

Deliverables

- Hard Pixels
- Streaming Services

HEXAGON

Why Ascent GIS?

- Over 19 Years Providing New/Archive Imagery To NW Clients
- Relationships with all NAIP/Hexagon Contractors
- Production Services
- Frontline Support

HEXAGON

THANKS

Mike McGuire, Ascent GIS, Inc.

Office: 509-747-2495

Cell: 509-995-2961

mikem@ascentgis.com

www.ascentgis.com

HEXAGON