

June 13, 2016

Consolidated Technology Services  
Office of Legal Services  
1500 Jefferson Street  
P.O. Box 41501  
Olympia, Washington 98501

Attention: Susan Steele, RFI Coordinator

Dear Ms. Steele,

**Re: Request for Information  
Orthoimagery Data and Services for Washington State  
Consolidated Technology Services A16-RFI-177 • Due 4:00 pm, June 14, 2016**

Hexagon, through its Valtus Imagery Services division of North West Geomatics Ltd., is pleased to submit our response to the above-captioned Request for Information (RFI).

Based on the requirements as outlined in this RFI, we believe the data within the Hexagon Imagery Program (HxIP) would fully meet the needs of the stakeholders. At its inception, the program was created specifically as an off-the-shelf, licensed dataset. However, the specifications for acquisition through processing and delivery were developed incorporating the types of standards that industry professionals have come to expect of a quality orthoimagery product. Further enhancing the professional grade data that comprises the HxIP is the accessibility of it through our Valtus Imagery Services delivery mechanism. Valtus customers, such as a Washington State PSAP RiverComm 911, find the streaming service an easy and reliable method of accessing the high resolution HxIP imagery data.

We feel that our solution would provide the State of Washington with an efficient and cost effective means of procuring state wide, high resolution orthoimagery that would address all of the requirements as set forth in the published RFI documents.

We welcome the opportunity to deliver an in person presentation to the appropriate stakeholders during the RFI evaluation process to explain any part of our orthoimagery data, program, delivery methods and or subscription model and licensing terms, to provide any further information you may need to evaluate our products and or services.

Sincerely,

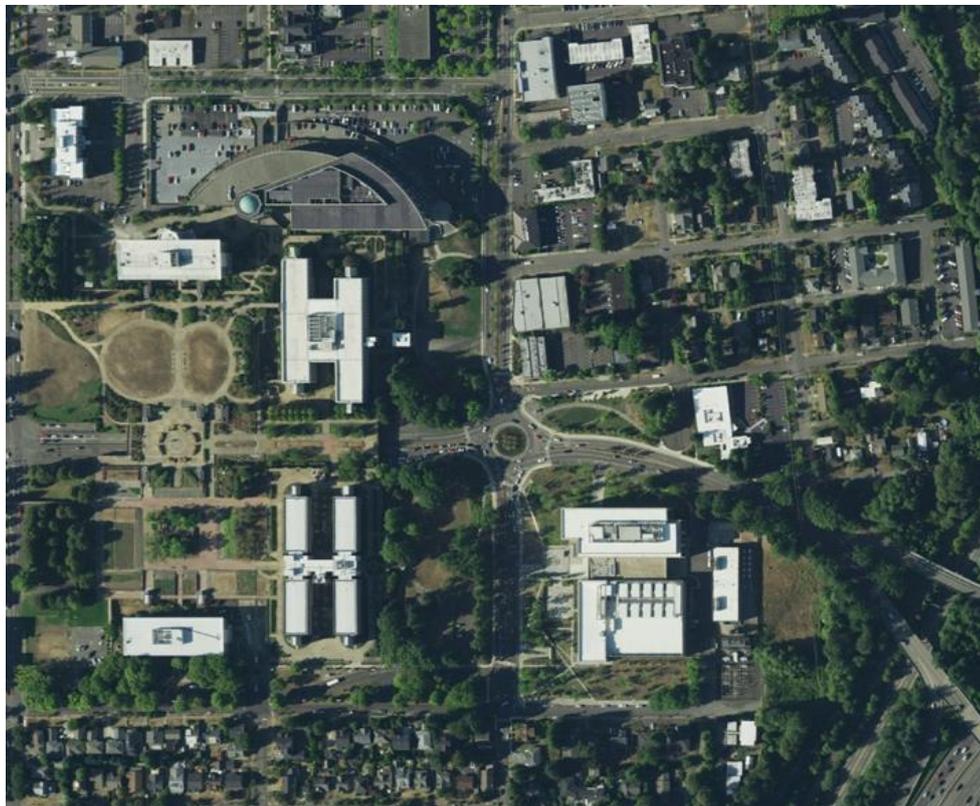


Tammy Peterson  
Director Sales Strategy & Support  
Valtus Imagery Services

Response to Request for Information  
*for*  
Orthoimagery Data and Services for Washington State  
*for*  
**Consolidated Technology Services**

A16-RFI-177

Issued: June 2, 2016  
Submission Due Date: June 14, 2016



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## Executive Summary

The Hexagon Imagery Program (HxIP) is the first off-the-shelf, licensed orthoimagery product designed for use by industry professionals. The specifications and standards employed in the development of the program ensure that the end product meets the rigorous accuracy and quality standards of a typical custom acquisition project.

The program provides;

- 4 band orthorectified imagery
- 30cm resolution in the Wide Area Collect (WAC)
- 15cm resolution in the Urban Area Collect (UAC) – urban defined as >50,000 population
- 2 – 3 year planned refresh of WAC
- 12 – 24 month planned refresh of UAC
- Set specifications and accuracy standards
- Metadata
- Access through OGC compliant streaming services
- Hardcopy delivery option also available

There is also the support and capacity of having Leica Geosystems, part of Hexagon, providing the technology. All acquisition partners are required to use the same sensor – currently the Leica ADS 100, digital pushbroom sensor. This not only ensures a truly consistent dataset, but also allows for ongoing improvement of the program as the partners are able to quickly adopt advancements in the sensor technology as they become available.

The other final aspect that completes the benefits of the program is the expertise of the Valtus Imagery Services delivery system.

Since 2003, Valtus Imagery Services, a division of North West Geomatics Ltd., has been providing best in class solutions for the storage, management and delivery of geospatial information in the form of orthoimagery and elevation data through web delivery systems.

The Valtus delivery system is comprised of;

- OGC compliant WMS/WMTS delivery protocols
- Ability to provide projection, scaling and mosaics “on the fly”
- A fully redundant backend architecture, automated failover and load balanced system ensuring consistent and stable, 24/7 service availability
- System is housed in a Class 1 secure facility with multiple backbone Internet connectivity, multiple power and environmental control
- Web accessible Client Account Administration Tools
- Optional token based authentication function for additional security
- Client support both locally and globally through network of authorized resellers, such as Ascent GIS, based in Spokane Washington

The following detailed response to RFI A16-RFI-177, provides all information requested in the RFI. The requested Matrix has been completed in the form provided to afford specific clarity on the responses. Corporate information is provided as well as indicative current clients and projects that are similar in scope to the requirements of the State of Washington. Annual pricing is provided that supports both hard pixel delivery to the State, as well as a comprehensive streaming service to all authorized users; within the context of the proposed licensing terms.

# Response to Requirements Matrix

\*The Pricing and Licensing Information included in the RFI response are Proprietary & Confidential\*

| Category   | Minimum Requirements  | Year 1 Data/Service Yes/No | Year 2 Data/Service Yes/No | Potential Year 3 Data/Service Yes/No | Alternate? Provide Details   |
|--|---|----------------------------|----------------------------|--------------------------------------|--|
| <b>Imagery Requirements</b>                      |   |                            |                            |                                      |  |
| <b>Source Imagery Resolution</b>                 | 12-inches statewide orthoimagery  | Yes                        | Yes                        | Yes                                  | 30cm GSD only for statewide orthoimagery   |
|  | 6-inch orthoimagery in urban areas (>50,000 population)   | Yes                        | Yes                        | Yes                                  | 15cm GSD only for urban area orthoimagery  |
| <b>Current Age of Existing Imagery</b>           | June – September 2015 for 1ft statewide imagery   | Yes                        | Yes                        | Yes                                  | Existing 30cm statewide imagery acquired June-September 2015   |
|  | List your recent 6” imagery presently available for WA (state age & date range)   | No                         | Yes                        | Yes                                  | 15cm collection only began in late 2015, so there are currently no 15cm urban areas available  |
| <b>Planned Imagery Capture Periods (minimum)</b> | Statewide 1ft (Ex. 2017 June – September) (single vintage and consistent leaf on status)  | Yes                        | Yes                        | Yes                                  | 30cm statewide imagery planned for June-September 2015. Single vintage, leaf on  |
|  | 6” Urban Area orthoimagery – list areas of state planned to be flown  | No                         | Yes                        | Yes                                  | Bellingham<br>Kennewick<br>Longview<br>Mount Vernon<br>Olympia<br>Seattle<br>Spokane<br>Walla Walla<br>Wenatchee<br>Yakima             |
| <b>Ortho Imagery Refresh Cycle</b>               | 2 – 3 yrs. statewide refresh (2015, 2017) of 1 foot orthoimagery – state cycle  | No                         | Yes                        | Yes                                  | 2-3 year statewide refresh of 30cm resolution imagery  |
|  | Continuous 12 – 24 month urban area refresh of 6 inch imagery – state cycle   | Yes                        | No                         | Yes                                  | 12-24 month urban area refresh of 15cm resolution imagery  |
| <b>Orthoimagery Refresh Cycle</b>                | 1 copy of imagery data to be provided to the contracting organization for distribution to entities for on-site hosting for organization without or with limited bandwidth | Yes                        | Yes                        | Yes                                  | Yes, a single copy of the data will be provided to the contracting organization for distribution to entities requiring on-site hosting |

|  |  |     |     |     |   |
|--|--|-----|-----|-----|---|
| <b>Color IR &amp; RGB</b>                | Includes 4-band orthoimagery   | Yes | Yes | Yes | Yes, all data in hardcopy or streaming service is 4-band orthoimagery                             |
| <b>1 ft. Imagery Horizontal Accuracy</b> | All well-defined points tested shall fall within 6 meters of true ground at a 95% confidence level | Yes | Yes | Yes | Yes, as per published specifications as provided in the additional materials to this RFI response |
| <b>FGDC Metadata</b>                     | The metadata provided with the individual vintages of 1' and 6" imagery                            | Yes | Yes | Yes | Yes, all 30cm and 15cm data in hardcopy or streaming service provides metadata                    |

| <b>Category</b>                                  | <b>Minimum Requirements</b>  | <b>Year 1 Data/Service</b><br>Yes/No   | <b>Year 2 Data/Service</b><br>Yes/No | <b>Potential Year 3 Data/Service</b><br>Yes/No | <b>Alternate? Provide Details</b>   |
|--|--|--|--------------------------------------|--|---|
| <b>Licensing and User On-Line Data Access</b>    |  |  |                                      |  |   |
| <b>Government Users</b>                          | All Washington State Agencies, Regents-level institutions, all County and City Governments, all Public Safety and Municipalities (PSAP, Water & Fire District) and Tribes that are supported as part of the E911 & NG911 will have access to the data. | Yes  | Yes                                  | Yes  | Applicable to both hard copy and streaming service  |
| <b>Government Contractors</b>                    | Any commercial firm doing work on behalf of the above governmental entities will have access to the data for the duration of that contracted work and will be required to remove any and all data upon completion of their service contracts.          | Yes  | Yes                                  | Yes  | Applicable to both hard copy and streaming service  |
| <b>Online Access</b>                             | Included in price?<br><br>Access to online services set up by individual user or organization  | Yes<br><br>Yes   | Yes<br><br>Yes                       | Yes<br><br>Yes                                 | A full set of Client Account Administration Tools for account management are provided at no additional cost |
| <b>Streaming Web Service</b>                     | Included in yearly subscription cost   | Yes  | Yes                                  | Yes  | Subscription/contract pricing is for hardcopy delivery or streaming service or both                         |
| <b>Standard Format of Streaming Data Service</b> | Please describe  | Valtus is an OGC standard conforming WMS and WMTS image streaming protocol service. Our services also implement the optional "GetFeatureInfo" method to provide detailed metadata for the layer. |                                      |  |   |

|                                    |                 |   |
|------------------------------------|-----------------|---|
| <b>Standard On-line Projection</b> | Please describe | The Valtus services provide thousands of map projections from the EPSG coordinate system database for “on the fly” server side reprojection of data allowing the end user to work in their chosen projected system. |
|------------------------------------|-----------------|---|

| <b>Category</b> | <b>Minimum Requirements</b> | <b>Year 1 Data/Service</b><br>Yes/No | <b>Year 2 Data/Service</b><br>Yes/No | <b>Potential Year 3 Data/Service</b><br>Yes/No | <b>Alternate? Provide Details</b> |
|-----------------|-----------------------------|--------------------------------------|--------------------------------------|--|-----------------------------------|
|-----------------|-----------------------------|--------------------------------------|--------------------------------------|--|-----------------------------------|

**Stand Alone On-Site Data Products**

|  |   |     |     |     |  |
|--|---|-----|-----|-----|--|
| <b>Standard Hardcopy Format &amp; Delivery</b>                         | Single delivery of 1’ imagery in WA State Plan Coordinates – South Zone once per vintage (e.g. 2015/2017) for statewide imagery. WSPC – SZ HARN<br>Note: State will re-project the 1 ft. data for counties in North Zone.<br>Single delivery of 6” imagery in WA State Plan Coordinates – Zone appropriate once per vintage | Yes | Yes | Yes | Delivery of 30cm statewide and 15cm urban imagery provided as outlined in hardcopy format and delivery minimum requirements  |
| <b>Perpetual Use License of On-site Stored Statewide 1 ft. Imagery</b> | The 1 ft. data received in first year subscription/contract will be available for government use in perpetuity when a second year subscription is signed.   | No  | No  | Yes | A perpetual license for the 30cm data received in the first year subscription/contract will be granted to the licensed parties upon execution of a third year subscription |
| <b>Perpetual Use License of On-site Stored of 6” Imagery</b>           | The 6” data received in first year subscription contract will be available for government use in perpetuity when a second year subscription is signed.  | No  | No  | Yes | A perpetual license for the 15cm data received will be granted to the licensed parties upon execution of a third year subscription   |
|  |   |     |     |     |  |

| <b>Category</b> | <b>Minimum Requirements</b> | <b>Year 1 Data/Service</b><br>Yes/No | <b>Year 2 Data/Service</b><br>Yes/No | <b>Potential Year 3 Data/Service</b><br>Yes/No | <b>Alternate? Provide Details</b> |
|-----------------|-----------------------------|--------------------------------------|--------------------------------------|--|-----------------------------------|
|-----------------|-----------------------------|--------------------------------------|--------------------------------------|--|-----------------------------------|

**Purchasing Imagery Data and Service Details**

|   |   |           |           |           |  |
|---|---|-----------|-----------|-----------|--|
| <b>Subscription / Data Renewal Cost</b> | Yearly subscription cost not to exceed \$235,000 per year including all taxes and fees. | \$235,000 | \$235,000 | \$235,000 | Pricing based on bundled offering of hard copy delivery and streaming service access for both 30cm and 15cm data inclusive |
|---|---|-----------|-----------|-----------|--|

|   |  |     |     |     |   |
|---|--|-----|-----|-----|---|
| <b>Online Streaming Service Subscription (Web Mapping Service Access)</b> | Access to online service is done on an annually base.  | Yes | Yes | Yes | Subscription/contract pricing is for hardcopy delivery or streaming service or both   |
| <b>On Premise Data Usage &amp; Perpetual Use</b>                          | Each yearly subscription renewal results in the previous year's on-site data being available for organizational use in perpetuity. | No  | No  | Yes | On-site or hardcopy data that has been delivered will enter into a perpetual license upon execution of a third year subscription/contract |

**Service Years**

**Year 1** = July 1, 2016 to June 30, 2017

**Year 2** = July 1, 2017 to June 30, 2018

**Potential Year 3** = July 1, 2018 to June 30, 2019

## Cost and Schedule Estimates

The cost to the State of Washington for an annual subscription to the Hexagon Imagery Program (HxIP) is \$235,000.00 per year, inclusive of all taxes and fees.

This subscription provides the following deliverables;

- A one-time hardcopy delivery of both 30cm and 15cm resolution, 4-band orthoimagery datasets
  - Delivery will be in one file format and one projection of choice
- Streaming service through OGC compliant WMS/WMTS delivery protocols
  - The service can be used by licensed end users in any and all software applications they possess, having the ability to consume the service
  - Unlimited viewing and plotting ability while using the service
- Authorized access and use by all parties as outlined in the State Government End User License Agreement (as attached in the Appendices section of this response document)
- Any refresh of either dataset that becomes available during the subscription year, will be included as part of the streaming service, at no additional cost.

The estimated schedules for delivery and refresh are as follows;

- Commencement of service as provided in the Response to Requirements Matrix document, year one July 1, 2016 – June 30, 2017
- Immediate access to streaming service upon executed service agreement
- Hardcopy delivery to be prepared and shipped within two weeks of executed agreement and finalized, defined file format and projection requirements
- 30cm Wide Area Collect was acquired in 2015 and has a planned refresh schedule of 2017
- 15cm Urban Area Collect areas planned for 2016 will be processed and available within the first quarter of 2017.
- A perpetual license of the first vintage (2015/16) of hardcopy data will be granted to the licensed parties upon execution of a third year subscription

# Corporate Expertise

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## CORPORATE PROFILE - NORTH WEST GROUP

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North West Group (North West) part of Hexagon, was founded in 1988 and operates from combined office and hangar facilities at the Calgary International Airport, Alberta, Canada and also maintains an office in Denver, Colorado. North West was acquired by Hexagon AB in June 2014.

The North West Group consists of four operating entities and business initiatives:

1. North West Geomatics Ltd. Undertakes specialty airborne data acquisition and is the managing organization for the Hexagon Imagery Program.
2. Valtus Imagery Services Manages and distributes geospatial data over the Internet, through proprietary IP stores.
3. AltaLIS A public private partnership (PPP) with the Government of Alberta (GOA) responsible for the distribution and maintenance of all GOA geospatial and cadastral data.
4. Hexagon Imagery Program The Hexagon Imagery Program (HxIP) is a global, proprietary imagery acquisition and data base with planned acquisition for the continental United States Hawaii, Puerto Rico and the US Virgin Islands, populated parts of Canada and all of western Europe. This data is 15cm urban GSD and 30cm wide area GSD coverage with a planned refresh schedule

The North West Group consists of 50 management, technical, and production staff with substantial experience in all facets of these operations.

### **North West Geomatics Ltd.**

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North West Geomatics Ltd. specializes in digital aerial photography, digital remote sensing, and related imagery and mapping services in North America and abroad. North West and its predecessor company have been in business since 1968.

The company is ISO 9001:2008 certified, and has pioneered a variety of techniques that maximize productivity and efficiency in airborne data acquisition and processing. We have earned a reputation for fast, efficient service and accurate product delivery in all phases of aerial data acquisition, including project planning, imagery acquisition, post-acquisition processing, and quality control. We meet and exceed industry standards for aerial survey and mapping, use advanced computerized quality management processes, and invest significantly in research and development in order to maintain our position as a leader in the remote sensing industry.

North West owns and operates high-performance aircraft that are specifically modified and equipped with state-of-the-art Leica ADS100 systems, a digital imagery technology that is far superior to traditional film camera technology.

For more information on North West, see [www.nwgeo.com](http://www.nwgeo.com).

## Valtus Imagery Services

Valtus Imagery Services (Valtus), a division of North West, is a web-based hosting and delivery service for geospatial data. The original development for Valtus' on-line offering dates back to 1997 and has been in full commercial operation since 2003.

Valtus hosts and delivers orthophoto coverage from multiple datasets including the Hexagon Imagery Program (HxIP). It offers superior, accurate orthorectified imagery and enables customers' access to the imagery database through either a WMS/WMTS facility or a direct data download process. Valtus also provides a proprietary, on-line LiDAR data management and delivery system.

Valtus provides its clients with geospatial data storage, internal distribution, and secure access services. These services enable companies to store large, complex datasets and make them available company-wide without incurring the cost of developing and maintaining in-house technologies for this purpose. Valtus also provides a full e-commerce facility for licensing orthophoto and LiDAR data.

For information on Valtus' services and current coverage, see [www.valtus.com](http://www.valtus.com).

The screenshot displays the Valtus website interface. At the top left is the Valtus logo, and to its right is the tagline "The Leading Source for Geospatial Imagery and LiDAR Data" and a "Partner Login" link. A horizontal navigation menu includes links for Home, Store, Products, Partners, Gallery, About Us, Support, and Account Admins. The main content area features a large banner for "Largest, privately held database of 'off-the-shelf' LiDAR data in North America" with a "Learn more" link. To the left of the banner is a "Imagery & Data Store" section with a shopping cart icon and a "Shop" button. Below the banner are three promotional tiles: "view our Coverage area" with a "Coverage Map" button, "Easy to use, unparalleled quality imagery. Streamed directly to your desktop. Views | Spatial Data as a Service" with a "Learn More" button and a "Views" logo, and "NSGIC mid-year Conference" with dates and location, and a "Learn More" button.

AltaLIS Ltd. is a joint-venture partnership between North West Geomatics Ltd., Silvacom Ltd., and Martin Newby Consulting Ltd. North West's involvement in AltaLIS is a logical extension of the proprietary geospatial data sales and services offered by our Valtus division.

AltaLIS makes Alberta's base mapping infrastructure available, accessible, accurate, and affordable for the public. It is the private sector operator for Alberta Data Partnership (ADP) a non-profit organization formed by the Government of Alberta, and several utility companies, in 1996 when the Government of Alberta discontinued its traditional role of funding and managing Alberta's digital mapping and cadastral data bases. ADP's core function is to maintain and promote the broadest possible distribution of provincial geospatial data in a manner that meets the immediate needs of the Alberta marketplace and preserves the mapping data for the long-term benefit of Albertans.

As the operator for ADP, AltaLIS undertakes the continued updating, re-engineering, storage, distribution, value-added redistribution, and management of Alberta's primary mapping datasets—urban and rural cadastral, disposition, and title datasets and topographic and small-scale mapping.

For additional information on AltaLIS and its products, see [www.altalis.com/index.html](http://www.altalis.com/index.html).



## Hexagon Imagery Program (HxIP)

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With the establishment of the Hexagon Imagery Program (HxIP) in 2014, quality geospatial imagery, captured with Leica Geosystems' airborne sensors, is now available through the cloud. North West is responsible for the complete implementation of HxIP from data acquisition, data processing and final deliveries. North West's Valtus division is responsible for the data storage and delivery of the imagery through the cloud.

Partnering with some of the most notable aerial acquisition firms across the globe - Hexagon's airborne sensor customers - this ecosystem of valuable data and content provides:

- 15cm resolution urban
- 30cm/1 foot resolution wide area
- Four-band (R,G,B, and NIR)
- Set specifications and accuracy standards
- Metadata
- Planned refresh schedule

The data is available as a service through both Esri and OGC protocols, on an annual subscription basis. The business model of "unlimited use in all applications" ensures that a consistent dataset is used across all of parts of an organization.

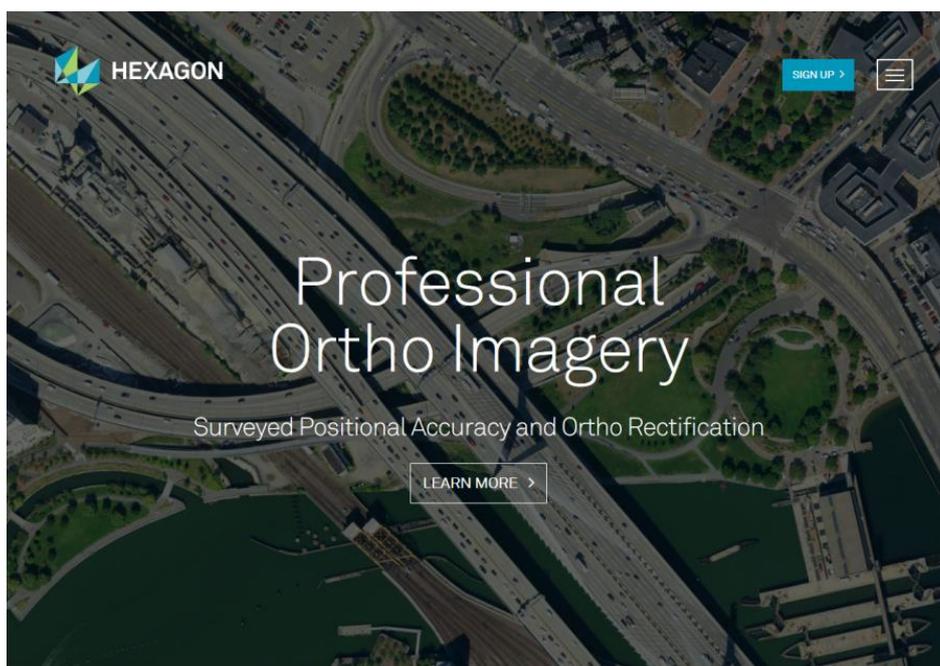
Acquisition is underway for the entire continental United States, Hawaii, Puerto Rico, US Virgin Islands, populated areas of Canada and all of Western Europe. The planned refresh rate for all content is currently based on 2-3 years for 30cm wide area coverage and 12-24 months for 15cm urban area coverage.

HxIP provides orthorectified imagery that meets rigorous industry accuracy and quality standards through the use of the most sophisticated processing methodologies. This ensures industry professionals have a product that can be used with confidence.

HxIP is available through the cloud via multiple content service providers:

- ESRI's ArcGIS Marketplace
- Hexagon Geospatial's Power Portfolio
- Valtus and its network of authorized resellers

For information on the Hexagon Imagery Program (HxIP) see [www.hexagonimagery.com](http://www.hexagonimagery.com)



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## REPRESENTATIVE CUSTOMERS

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The Valtus customers, outlined below, provide a representative snapshot of the similar types of service offerings we have the expertise in delivering. Our complete client list includes many other public and private sector clients and is available to prospective clients on request.

### State of Kansas – Kansas Geological Survey

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In 2013 North West Geomatics and Surdex Corporation, embarked on a speculative acquisition project that would initiate the Hexagon Imagery Program (HxIP). This 30cm resolution, 4-band orthoimagery data was then placed into the Valtus Imagery Services library and resulted in Valtus successfully being awarded a 3 year subscription contract for imagery and data services for the State.

**2014-Present** Services provided: Hardcopy delivery of state-wide imagery data, as well as streaming service to all licensed users. The 2015 refresh that was completed under HxIP has also been added to their account.

### Government of Alberta

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The Government of Alberta had been a long-standing customer of Valtus, but was scattered throughout numerous individual departments and agencies. In 2012, a comprehensive contract was proposed to eliminate the disparate set up of the past and consolidate the users as well as the various data products and service required.

**2006-Present** Services provided: Hardcopy delivery of required areas including stereo data and streaming service of imagery for all licensed users.

### AltaLink Management Ltd.

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AltaLink is an electric transmission company, previously owned by SNC-Lavalin. To meet the needs of the customer, Valtus created an all-inclusive bundled service offering to address their rigorous regulatory requirements.

**2009-Present** Services provided: On-demand downloading ability for hardcopy data, both imagery and LiDAR. Streaming service of imagery and LiDAR hillshades to all licensed users.

### Repsol Oil & Gas Canada Ltd. (Formerly Talisman Energy)

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A long standing Valtus customer and one of the original bundled services offerings created. It is one of the customers that Valtus also provides hosting, management and delivery of their proprietary imagery data, which allows for seamless access across both the Valtus public library and their own proprietary data.

**2006-Present** Services provided: On-demand downloading ability for hardcopy data, both imagery and LiDAR. Streaming service of imagery and LiDAR hillshades to all licensed users. Hosting, management and delivery of customer's proprietary imagery data.

## **McElhanney Land Surveys Ltd.**

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McElhanney was originally a customer through the Valtus online store, simply obtaining hardcopy delivery on an as needed, transactional basis. They then moved to the streaming service as the imagery became more of an integrated part of their workflow. In 2015, a new license agreement was created to accommodate the expanding needs of their business with regards to both internal and external customers. This new license agreement allowed them to provide the streaming service to not only their office locations throughout the country, but also as part of the web application service they provide to their customers.

**2005-Present** Services provided: On-demand downloading ability of imagery data, streaming service of imagery to all licensed users, ability to publish in public facing web application (in a view only manner).

# Appendices

## Hexagon Imagery Program (HxIP) - Acquisition Specifications

| Specification  | 30cm Program  |
|--|---|
| (Planned) allowable GSD                                | Maximum 0.4 meter   |
| Accuracy   | RMSE <sub>x/y</sub> = 1.2m<br>RMSE <sub>r</sub> = 1.7m<br>CE90 = 2.6m<br>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%<br>Target: 150<br>Minimum: 140<br>Maximum: 160 |
| Brightness   | Mean pixel count within ±7.5% of the middle DN value<br>Minimum: 108<br>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  |

## **END USER LICENSE AGREEMENT**

VALTUS IMAGERY SERVICES, a division of North West Geomatics Ltd.

Please read the terms and conditions provided below carefully. By using the Imagery or the Services, you acknowledge that you have read this agreement and agree to be bound by its terms and conditions.

Valtus Imagery Services, a division of North West Geomatics Ltd., ("Valtus") is the owner or licensee of intellectual property rights (including without limitation copyright) in the imagery (the "Imagery") made available or accessible by use of the online services provided by Valtus (the "Services") to the customer using the Services and/or identified on the signature block below (the "Authorized End User"). Conditioned upon compliance with the terms and conditions of this Agreement, Valtus grants to the Authorized End User a non-exclusive, non-assignable and non-transferable license to use for the Authorized End User's internal business purposes the Imagery and/or Services for which the Authorized End User has paid the required license fees.

The Imagery is licensed, not sold, to the Authorized End User. No ownership rights are transferred to the Authorized End User. The Imagery and Services may only be used internally by the Authorized End User or externally by individual users authorized in writing by Valtus or its Authorized Partner (the "Partner") through which Authorized End User is licensing the Imagery, and not by any other party, whether or not affiliated with the Authorized End User. If the Authorized End User is a federal, provincial, state or local government agency, the Imagery is licensed solely to the particular agency and not to any other government agency unless explicit authorization has been received from Valtus.

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The Authorized End User agrees that the limitations of liability and disclaimers set forth herein will apply regardless of whether the Authorized End User has accepted the Imagery or any other product or service delivered by Valtus. The Authorized End User acknowledges and agrees that Valtus has set its prices and entered into this Agreement in reliance upon the disclaimers of warranty and the limitations of liability set forth herein, that the same reflect an allocation of risk between the parties (including the risk that a contract remedy may fail of its essential purpose and cause consequential loss), and that the same form an essential basis of the bargain between the parties.

This agreement will terminate automatically without notice, and all access to the Services and the Imagery will be terminated, if the Authorized End User fails to comply with any term of this Agreement. In the event of termination, the Authorized End User must immediately return the Imagery to Valtus or destroy it and certify this destruction in writing to Valtus.

The Authorized End User agrees to defend, indemnify, and hold Valtus, its affiliates, directors, employees, and agents harmless from and against any claim, action, proceeding, loss, cost, expense, damages, and liability, including reasonable legal

fees, arising from the breach of this Agreement by the Authorized End User or any claims made against Valtus for liabilities that are expressly disclaimed or excluded by Valtus.

This Agreement is the complete and exclusive statement of the understanding between the Authorized End User and Valtus with respect to the Imagery and the Services and may be amended or modified only in a written instrument signed by a duly authorized representative of both parties. If any provision is determined to be invalid or unenforceable, the remaining provisions of this Agreement shall continue to be valid and enforceable. Without the prior written consent of Valtus, neither this Agreement nor any of the rights granted by it may be assigned or transferred by the Authorized End User. This restriction on assignments or transfers shall apply to assignments or transfers by operation of law, as well as by contract, merger or consolidation.

It is THE CUSTOMER'S RESPONSIBILITY to ensure that its use of the Imagery and Services complies with these terms and to seek prior written permission from Valtus for any uses not expressly permitted or not specified in this Agreement.

IN WITNESS WHEREOF, the Authorized End User, intending this Agreement to be effective as of the earlier of (i) the date set forth below and (ii) the date the Authorized End User commenced use of the Services or the Imagery, has caused this Agreement to be executed by its duly authorized representative.

**CUSTOMER**

\_\_\_\_\_

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

## The Addendum

Outlined within this Addendum are the Special Terms and Conditions which are granted to State Government with regards to the End User License Agreement.

### **Special Terms and Conditions**

- 1) The following entities shall be allowed unlimited access licenses;
  - a. All State Government Agencies and Regents-level institutions
  - b. All County-level governments
  - c. All Municipal (city) governments
  - d. All Public Safety Answering Points (PSAP)
  - e. Tribes who are served and part of E911 and NG911
  - f. Any commercial firm or organization holding an active contract to conduct work on behalf of the entities listed above.
  
- 2) Authorized users shall be allowed to develop and publish, not for monetary gain, publically available web applications which utilize ortho-imagery or web map service(s), in a view-only mode with no download capability.
  
- 3) Authorized users shall be allowed to print and distribute, not for monetary gain, hardcopy format maps that display the ortho-imagery.
  
- 4) At the end of the subscription period, the data will enter into a perpetual license. At the end of the period, the web services will no longer be provided. However, the license allows for perpetual use of the data for all approved users. Upon renewal of the subscription service or refresh of the data, the historical data will be allowed in the public domain.



**HEXAGON**

## Hexagon Imagery Program

Current and Quality Imagery for Industry Professionals

### USE CASE: STATE GOVERNMENT

#### KANSAS NEXT GENERATION 9-1-1

The Kansas 9-1-1 Coordinating Council developed a program to deploy NG9-1-1 throughout all 105 counties within the State. The Council established a 9-1-1 Administrator position and numerous technical and support committees to execute the requirements of this ongoing initiative.

The Council established GIS goals and a standard set of data layers that required statewide coverages that were consistent, current, authoritative and standardized. Key to the implementation was performing a GIS GAP Analysis and Data Enhancement. To accomplish this, the Council contracted for a statewide GAP Analysis of existing GIS data and selected five GIS providers to begin the GIS Data Enhancement and Remediation based on the results of the GAP Analysis.

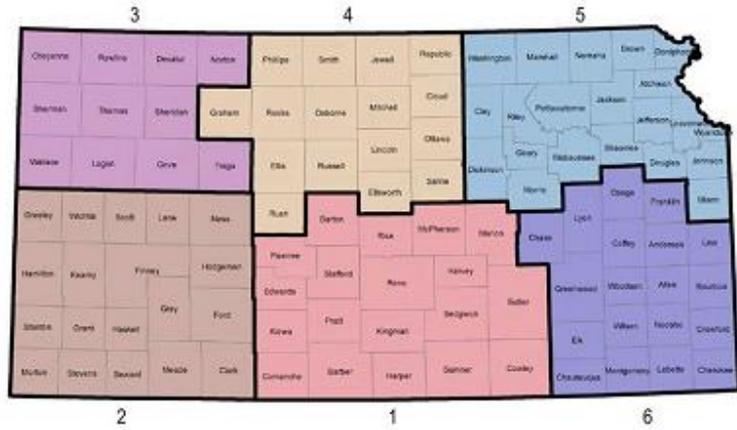
To meet the established GIS Goals, the Council immediately identified the need for a statewide ortho imagery layer. The ortho imagery was needed to support the GAP Analysis and Data Enhancement and provide an authoritative reference layer for call taking and dispatch within the PSAPS. The imagery provides a current and consistent base map to be leveraged by state and local GIS programs with the added benefit of providing a significant economy of scale by conducting one statewide project.

The Council posted an RFP on March 31, 2014 with an extremely aggressive schedule to meet the goals and schedules of the NG9-1-1 plan. The schedule for imagery

| Region                 | Imagery Ready Date |
|------------------------|--------------------|
| Region 1 South Central | May 30, 2014       |
| Region 2 South West    | June 15, 2014      |
| Region 3 North West    | July 15, 2014      |
| Region 4 North Central | August 15, 2014    |
| Region 5 North East    | October 1, 2014    |
| Region 6 South East    | November 30, 2015  |

delivery consisted of six regions based on priority needs. The RFP required delivery of the data in hard delivery formats as well as a web hosting service and included the provision for data licensing.

Aerial acquisition firms North West Geomatics and Surdex Corporation were selected to provide the Hexagon Imagery Program (HxIP) content to fulfill the statewide orthoimagery requirement, with web services to be provided by the Valtus Imagery Services. The HxIP provided statewide, 1 foot natural color and color infrared orthoimagery using the Leica ADS 100 airborne digital sensor. Due to the availability of the HxIP, the aggressive delivery schedule was achieved allowing the GIS remediation vendors to quickly begin work to meet the overall schedules of the program.



The license agreement allows access to the HxIP data to:

- ✓ State, county and municipal government departments
- ✓ Regents' institutions
- ✓ All Public School Districts
- ✓ Any firm doing work on behalf of these entities

The Web services being provided by Valtus Imagery Services include OGC WMS with authentication and support for Esri Java Script API.

The NG9-1-1 Project is one of the largest 9-1-1 and GIS initiatives ever undertaken within the State of Kansas. The HxIP data provided the ability for the State to develop authoritative statewide data layers including road centerlines, address points, boundaries and accurate GIS data for rural counties.

The HxIP's ability to provide immediate professional quality orthoimagery has allowed the NG9-1-1 program to progress on schedule to eventually provide the citizens of Kansas best in class NG9-1-1 service.

*"A current, consistent, and accurate statewide orthoimagery basemap was considered to be essential to the Kansas NG9-1-1 initiative. Procuring the imagery under a statewide effort provided an economy of scale over individual county-based projects that have been conducted in the past. While the imagery was acquired to support the state's NG9-1-1 program, the use and benefit of the imagery will go well beyond this arena. The Surdex/Valtus/Hexagon team stepped up with the right product to help ensure the success of the project. They've been responsive to our needs and have been a pleasure to work with."*

**Scott Ekberg, Kansas NG9-1-1 Administrator**

