

# Vermont Imagery Program

## Buy-up Guide

2016-2020

Version 1.2



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## Summary

The State of Vermont has established a contract with vendors to collect and quality control statewide orthoimagery as well as “optional buy-up products,” including: 1) higher resolution orthoimagery (upgrading from 30cm to 15cm GSD), and 2) planimetrics (“building / impervious surface footprints”). This document describes these optional products, a pricing schedule, and how a State Agency or Regional Planning Commission can work with the State to acquire these products for their areas of interest.

## Terminology

- **GSD** = Ground Sample Distance, the distance between pixel centers measured on the ground. For example, in an image with a 30cm GSD, adjacent pixel image locations are 30cm apart on the ground. GSD is a measure of one limitation to image resolution.
- **Base Orthoimagery** = Standard 30cm GSD statewide orthoimagery (4 band)
- **Optional Buy-up Products** = Specific products that can be purchased by VT State agencies and RPCs annually while the acquisition contract is in force.

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### Buy-up Program

**1. Description of Program:** Buy-up products are optional contract items which the State of Vermont has negotiated with an acquisition contractor. The State of Vermont, State agencies, and Regional Planning Commissions (RPCs) can choose to purchase these products. The VT Center for Geographic Information<sup>1</sup> (VCGI) manages VT’s Imagery Program and its associated Buy-up Program.

**2. Description of Products:** The following “Buy-up Options<sup>2</sup>” will be available for purchase by the State of Vermont and RPCs within Vermont under this Contract.

- **15cm resolution orthoimagery** in alignment with base ortho specifications defined in the contract.



Figure 1- Example 15cm GSD and 30cm GSD resolutions.

| Pixel Size GSD | ASPRS Horizontal Accuracy Class RSMEx and RSMEy | Orthoimage RMSE <sub>x</sub> and RMSE <sub>y</sub> in terms of pixels | Horizontal Accuracy at the 95% Confidence Level (cm) | Associated ASPRS 1990 Legacy Map Scale | Associated ASPRS 1990 Legacy Accuracy Class |
|----------------|---|---|--|--|---|
| 15 cm          | 30 cm   | 2-pixels  | 36.7   | 1:1,200                                | 1   |

<sup>1</sup> VCGI is a Division under the VT Agency of Commerce and Community Development (ACCD)

<sup>2</sup> Lidar is also an option but there is a minimum of 2,000 sq miles (1/5<sup>th</sup> of the state). Contact VCGI for more details.

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- **Planimetric features** must be in alignment with the following specifications

- **Feature specifications:**

- **Structures:** Buildings over 200 sq. ft. including mobile homes; Towers and antennas over 200 sq. ft.; Tanks over 500 sq. ft.; Train stations and platforms; Miscellaneous structures (stadia, large monuments).
- **Impervious Surfaces:** Roads edge-of-pavement. Includes paved and unpaved roads and alleys; paved medians; interpolated roads passing through multi-unit buildings; sidewalks; and parking areas; all driveways, paved or unpaved.

- **Horizontal Accuracy:** Consistent with ortho base specification used to capture features. For example, planimetric features captured using 15cm pixel size GSD ortho imagery must meet ASPRS Horizontal Accuracy Class of 30cm RSME<sub>x</sub> and RSME<sub>y</sub>.

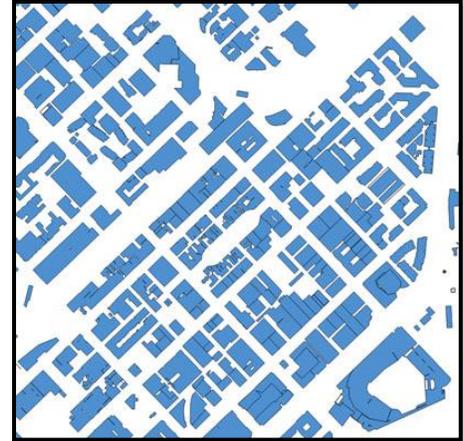


Figure 2- Example of Planimetric features (structures)

3. **Product Pricing (Acquisition and QC):** The following pricing schedule designates the agreed upon pricing of buy-up options.

| Product           | Description   | Cost per Sq. Mile | Cost per Unit                                      |
|-------------------|---|-------------------|--|
| 15cm orthoimagery | Buy-up: 15cm GSD ortho imagery – cost above base imagery. This price includes quality control from an independent contractor. (Note: depending on the size and location of area selected, supplemental project control points AND/or quality control points will be required) | \$64.83           | \$250 per control point<br>+<br>\$500 per QC point |
| Planimetric       | Buy-up: Planimetric features itemized by type <ul style="list-style-type: none"> <li>• Structures</li> <li>• Impervious Surfaces</li> </ul>   | \$47.22           |  |
|                   |   | \$93.33           |  |

Table 1 - Acquisition Costs

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*Note:* Individual buy-up task order cost will be determined by the number of optional buy-up products AND the number of square miles PLUS the cost of quality control.

4. **Buy-up Products already being acquired by VCGI:** VCGI has exercised the option to acquire 15cm GSD orthoimagery for “priority geographic areas” defined by Vermont’s Enterprise GIS Consortium<sup>3</sup> (EGC). Refer to Attachment B and/or this web map (<http://vcgi.maps.arcgis.com/apps/Viewer/index.html?appid=fff88cd6d52548a998ed9e764a69d119>). However, State agencies, RPCs, and municipalities are invited to purchase additional 15cm orthoimagery beyond these areas as well as the other buy-up products defined in this document (lidar + planimetrics).
  
5. **How to Apply:** VCGI administers the VT Imagery Program and is responsible for review “buy-up” applications.
  - a. **Who can apply?** Any State agency or Regional Planning Commissions (RPCs). RPCs are encouraged to reach out to their municipalities to coordinate acquisition within their region. Towns interested in participating in this buy-up should contact their Regional Planning Commission.
  - b. **When can I apply?**
    - i. **15cm Orthoimagery Acquisition:** Applications must be submitted between **October 1<sup>st</sup> – December 31<sup>st</sup>** preceding the spring collection cycle (e.g. fall of 2016 for the spring 2017 collection area, fall of 2017 for the spring 2018 collection area, etc.). Refer to “Geographic Area Requirements and Limitations” outlined in section 6.

**NOTE:** Buy-up AOIs for 15cm orthoimagery are limited to geographic areas being flown within a given year (colored shaded areas on the map in Attachment A). It is also important to note that the State of Vermont plans to collect 15cm for all areas outlined in red in Attachment A below, therefore 15cm buy-up applications DO NOT need to include these areas.
    - ii. **Planimetric Data:** Applications can be submitted to VCGI at **any time**. Refer to “Geographic Area Requirements and Limitations” outlined in section 6.
  - c. **Application Form:** Applicants must complete this [Application Form](#) (<http://tinyurl.com/buyup2016>) and submit it to VCGI for consideration. Applications must be submitted to [accd.vcgiinfo@vermont.gov](mailto:accd.vcgiinfo@vermont.gov).
  
6. **Geographic Area Requirements and Limitations:** The following methodology must be used when defining an Area of Interest (AOI) for buy-up.
  - a. **15cm Orthoimagery**

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<sup>3</sup> <https://outside.vermont.gov/sites/egcgeo/Pages/AboutEGC.aspx>

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- i. Buy-up AOIs are limited to geographic areas being flown within a given year (refer to Attachment A).
  - ii. Minimum 5 contiguous square miles (16 contiguous 15cm ortho tiles)
  - iii. Geographic area defined based on 15cm ortho tiles (900m x 900m) that intersect the clients Area of Interest (AOI).
  - iv. Total square miles based on # of selected 15cm ortho tiles (minimum of 16 contiguous tiles)

### b. Planimetrics

- i. Minimum 5 contiguous square miles. Any geographic area that has current 30cm or 15cm orthoimagery data from the 2016-2020 acquisition cycle.

## 7. What happens after you Apply?

- a. Confirmation of receipt (1 week after receipt)
- b. Determination as to whether request fits program requirements (2 weeks after receipt)
- c. Task Order and MOA (4 weeks after receipt)
  - i. Draft Task Order and MOA crafted by VCGI
  - ii. Draft Task Order and MOA provided to requesting organization, ACCD administration, and acquisition contractor for review/comment.
  - iii. Final Task Order and MOA sent to requesting organization, ACCD administration, and acquisition contractor for signatures

## 8. Product Delivery: Product delivery dates will be specified in the individual task order. This is what you should generally expect.

- 15cm orthos ~ 6 months after flight acquisition
- Planimetrics ~ 6 months after task order approval

## 9. Payment: Terms of payment will be net 30 days for invoices paid by the State of Vermont (eg: state agencies). Terms of payment with Regional Planning Commissions will be defined in the task order with that entity.

## 10. VCGI's Primary Point of Contact (POC): If you have questions please contact Steve Sharp at [steve.sharp@vermont.gov](mailto:steve.sharp@vermont.gov).

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## Attachment A

### VT Orthoimagery Acquisition Plan 15cm + 30cm 2016-2020

