Table of Standard and Potential Lidar Products (Raw Data & Data Derivatives)

Product	Data Source	Resolution	Auxillary Data Needed	Delivery By	Skill Set Needed to Produce Product	Skill Set Needed to Use Product	Data Source Location	Extra Cost	Uses
Raw Data									
Point Cloud	Directly Measured	8 pts/m	N/A	Vendor	N/A	Moderate (Fusion/R-LidR/ArcGIS)	Physical Hard Drive	None	3D visualization and point cloud profiles
1st Order Derivatives									
Bare Earth Elevation Model	Rasterized from point cloud	1 m	N/A	R3 Remote Sensing Shop	N/A	Basic (ArcGIS)	Image Server & Mosaic Datasets	None (Standard R3 Product)	Elevation, Hillshade, Slope, Aspect, Ruggedness, etc.
Bare Earth Hillshade	Rasterized from point cloud	1 m	N/A	R3 Remote Sensing Shop	N/A	Basic (ArcGIS)	Image Server & Mosaic Datasets	None (Standard R3 Product)	Visual interpretation of surface features
Canopy Height Model	Rasterized from point cloud	1 m	N/A	R3 Remote Sensing Shop	N/A	Basic (ArcGIS)	Image Server & Mosaic Datasets	None (Standard R3 Product)	Combined with Highest Hit Hillshade to visualize canopy
Canopy Surface Model (Highest Hit Elevation)	Rasterized from point cloud	1 m	N/A	R3 Remote Sensing Shop	N/A	Basic (ArcGIS)	Physical Hard Drive	None (Standard R3 Product)	Viewshed Analysis
Highest Hit Hillshade	Rasterized from point cloud	1 m	N/A	R3 Remote Sensing Shop	N/A	Basic (ArcGIS)	Image Server & Mosaic Datasets	None (Standard R3 Product)	Combined with Canopy Height Model to visualize canopy
Grid Metrics	Rasterized from point cloud summarized at 20m scale	20m	N/A	R3 Remote Sensing Shop	N/A	Basic Raster (ArcGIS)	Physical Hard Drive or T drive	None (Standard R3 Product for QL-1 Acquistions)	Linear regression or random forest models (2nd Order Derivatives) Basic raster modeling
▪ *Canopy Cover (1st cover above 2m)*	*Rasterized from point cloud summarized at 20m scale*	*20m*	*N/A*	*R3 Remote Sensing Shop*	*N/A*	*Basic Raster (ArcGIS)*	*Physical Hard Drive or T drive*	*None (Standard R3 Product for QL-1 Acquistions)*	*Linear regression or random forest models (2nd Order Derivatives) Basic raster modeling*
▪ *Canopy Density (multiple datasets)*	*Rasterized from point cloud summarized at 20m scale*	*20m*	*N/A*	*R3 Remote Sensing Shop*	*N/A*	*Basic Raster (ArcGIS)*	*Physical Hard Drive or T drive*	*None (Standard R3 Product for QL-1 Acquistions)*	*Linear regression or random forest models (2nd Order Derivatives) Basic raster modeling*
▪ *95th Percentile Height*	*Rasterized from point cloud summarized at 20m scale*	*20m*	*N/A*	*R3 Remote Sensing Shop*	*N/A*	*Basic Raster (ArcGIS)*	*Physical Hard Drive or T drive*	*None (Standard R3 Product for QL-1 Acquistions)*	*Linear regression or random forest models (2nd Order Derivatives) Basic raster modeling*
▪ *too many to list*	*Rasterized from point cloud summarized at 20m scale*	*20m*	*N/A*	*R3 Remote Sensing Shop*	*N/A*	*Basic Raster (ArcGIS)*	*Physical Hard Drive or T drive*	*None (Standard R3 Product for QL-1 Acquistions)*	*Linear regression or random forest models (2nd Order Derivatives) Basic raster modeling*
Individual Tree Segmentation	Point cloud	Vector Data Points/Polygons	N/A* (Field plots required for validation)	Locally Produced	Moderate to Advanced (Fusion/R-LidR)	Basic (ArcGIS)	Physical Hard Drive or T drive	Time & Effort	Summarize trees (or tree approximate objects) at differing scales (stand, per acre, etc)
▪ *Snag Detection*	*Point cloud*	*Vector Data Points*	*N/A* (Field plots required for validation)*	*Locally Produced*	*Moderate to Advanced (R-LidR)*	*Basic (ArcGIS)*	*Physical Hard Drive or T drive*	*Time & Effort*	*Identification of live and dead trees*
2nd Order Derivatives									
Area-based Linear Regression Models	Grid Metrics & Field Plots	20m (dictated by field plots and grid metrics)	Field plots	GTAC or Locally Produced	Advanced (Fusion/R/R-LidR)	Basic Raster (ArcGIS)	Physical Hard Drive or T drive	≈ $2,000 - $3,000/model* or Time & Effort	Landscape models of metrics of interest (Volume, Biomass, Basal Area, Stand Density, etc.)
Tree-based Models	Tree Points/Tree Crown Polygons & Field Plots	20m (dictated by need)	Field plots	Locally Produced	Advanced (Fusion/R/R-LidR)	Basic Raster (ArcGIS)	Physical Hard Drive or T drive	Time & Effort	Landscape models of metrics of interest (Volume, Biomass, Basal Area, Stand Density, etc.)
Area- & Tree-based Regression Models	Grid Metrics, Tree Points & Field Plots	20m (dictated by field plots and grid metrics)	Field plots	Locally Produced	Advanced (Fusion/R/R-LidR)	Basic Raster (ArcGIS)	Physical Hard Drive or T drive	Time & Effort	Landscape models of metrics of interest (Volume, Biomass, Basal Area, Stand Density, etc.)

* The price range listed for GTAC produced area-based linear regression models is approximate and can vary according to the number of models requested and modeling complexity. Costs for required field plots is not included.

Note: Physical hard drives containing all data and data products are available at each forest or district. Contact your local GIS specialist or forest GIS coordinator for more information.