

NEGOTIATIONS CHECK LIST

RFP NO. 13-008 NAME OF PROJECT: Procurement of Remotely Sensed Data

NAME OF FIRM: Watershed Sciences, Inc.

TOTAL PROJECT BUDGET: \$334,000

SPECIFIC ITEMS TO REVIEW:

1. Data Acquisition Areas.

Data acquisition priority areas 1, 2, and 3 as defined in project area of interest shapefile, dated 20130403 (juneau_13-008_aois_20130405.shp), to the following general specifications:

- a. Data acquisition prioritized for no clouds or fog, leaf off, no snow, minimum shadowing, and low tides as practical, in that order.
 - i. Ocean shorelines will be acquired at lowest possible tide, as practical.
 - ii. Shorelines to 500 feet will be acquired with minimum leaf-on, and no-snow, as practical.
 - iii. Elevations above 500 feet will be acquired with no snow as priority, as practical.
- b. Priority area 1: 8 pt / sq m LiDAR (nominal); 15 cm 4 Band orthoimagery
 - i. primary polygon – 92 square miles, more or less, depending on shoreline buffers.
 - ii. Spuhn Island – approximately 0.3 square miles.
 - iii. miscellaneous islands – approximately 0.2 square miles.
- c. Priority areas 2 and 3: 4 pt / sq m LiDAR (nominal); 30 cm 4 Band orthoimagery
 - i. Shelter Island – 2.4 square miles, more or less.
 - ii. Taku Harbor – 4.7 square miles, more or less.
 - iii. Antler Creek – 3.8 square miles, more or less.
 - iv. Kensington Mine – 21.3 square miles, more or less.
 - v. Greens Creek Mine – 15.3 square miles, more or less.
 - vi. Eaglecrest – 4.1 square miles, more or less.
 - vii. Snettisham – 1.9 square miles, more or less.

2. Buffering of Ocean Shorelines.

- a. Water side of ocean shorelines will be buffered to include imagery to at least 100 meters, irrespective of the project shapefile aois.
- b. Imagery and LiDAR of Juneau's harbor infrastructure at Auke Bay and downtown Juneau will be acquired. To the extent possible, other improvements extending from shore or located in nearshore areas, as well as islands not specifically identified in the project aois shapefile, but found in these nearshore waterbody buffers, will be acquired.

3. Buffering of Watershed Ridgelines.

- a. Entire watersheds (to ridgelines, including additional nominal buffer (ca 50 meter)) will be included in imagery and LiDAR acquisitions, as generally identified project shapefiles. Essential specific watershed ridgelines are identified in project shapefile: "juneau_13-008_watershed_ridgelines_20130403.shp".

4. LiDAR point cloud deliverables to include the following, with associated specifications:

- a. Nominal LiDAR point density:

8 pts/sq meter (priority area 1); 4 pts/sq meters (areas 2 and 3).

- b. By point: vertical elevations as both Ellipsoidal and Orthometric heights (orthometric datum and units: Geoid 09, US survey feet, zero = MLLW).
- c. By point: horizontal coordinates as WGS84 decimal degrees, UTM N8 (meters), and Alaska State Plane 1 (U.S. survey feet).

- d. Unique timestamp for each LiDAR return.

- e. Separate ASCII, and LAS point clouds (format 1.3) files, for

Combined point classes

- i. All returns

Separated point classes

- ii. bare earth returns
- iii. first returns
- iv. vegetation
- v. buildings
- vi. bridges and other manmade structures

- f. Unclassified RAW strip LAS files, by flightline, to facilitate "between flightline" QA/QC.

- g. Classification for each LiDAR point return, using ASPRS classification codes:

- i. high vegetation
- ii. low vegetation
- iii. water
- iv. ground (bare earth)
- v. building
- vi. bridge
- vii. car, boat, etc
- viii. unclassified
- ix. other

5. LiDAR point cloud derivatives to include the following:

- a. Bare earth DEM, 1 meter cells, hydroflattened, with vertical and horizontal datums as follows:
 - i. vertical: orthometric elevations in U.S. survey feet (Geoid 09, zero = MLLW).
 - ii. horizontal: Alaska State Plane 1 (meters).
- b. First Return (highest hit) DEM, 1 meter cells, with vertical and horizontal datums as follows:
 - i. vertical: orthometric elevations in U.S. survey feet (Geoid 09, zero = MLLW).
 - ii. horizontal: Alaska State Plane 1 (meters).
- c. Vegetation DEM, 1 meter cells, with vertical and horizontal datums as follows:
 - i. vertical: orthometric elevations in U.S. survey feet (Geoid 09, zero = MLLW).
 - ii. horizontal: Alaska State Plane 1 (meters).
- d. LiDAR intensity return raster, GeoTIFF, 0.5 meter cells, Alaska State Plane 1 (meters).
- e. NoData values in DEMs and intensity return raster to be clearly identified.
- f. Bare earth TINs.

6. Project vector shapefiles to include the following:

- a. Water breaklines (shorelines, major water bodies, major rivers, and bridges).
- b. Control points used for calibrating elevations and for use in QA/QC.
- c. Flightlines with GPS locations and timestamps (1 second interval minimum).
- d. Project boundaries (LiDAR coverage, and imagery coverage).
- e. File tiling scheme (1500 x 1500 meter tiles, or similar).

7. Orthoimagery.

- a. In general, for all areas:
 - i. 4 Band Imagery (RGB+IR), as orthorectified images, delivered in tiled file datasets, Alaska State Plane 1, US survey feet; radiometrically corrected, with collars (minimum 20 feet), delivered as:
 - a. GeoTIFFs
 - b. JPG 2000
 - ii. Original source images, as raw tiff files.
- b. For priority area 1, orthoimagery as 15 cm pixels; nodata pixels clearly identified.
- c. For priority areas 2 and 3, orthoimagery as 30 cm pixels; nodata pixels clearly identified.

8. Metadata.

Metadata for all LiDAR and imagery deliverables, meeting FGDC metadata specifications.
For tiled datasets, separate metadata files for each tile, and each collected dataset.

Specific datasets requiring metadata:

- a. each LiDAR point cloud
- b. LiDAR bare earth DEM
- c. LiDAR first return DEM
- d. vegetation DEM
- e. LiDAR intensity raster
- f. breakline vectors
- g. control points
- h. project boundaries
- i. file tile dataset shapefiles
- j. flightlines

9. Project Reports.

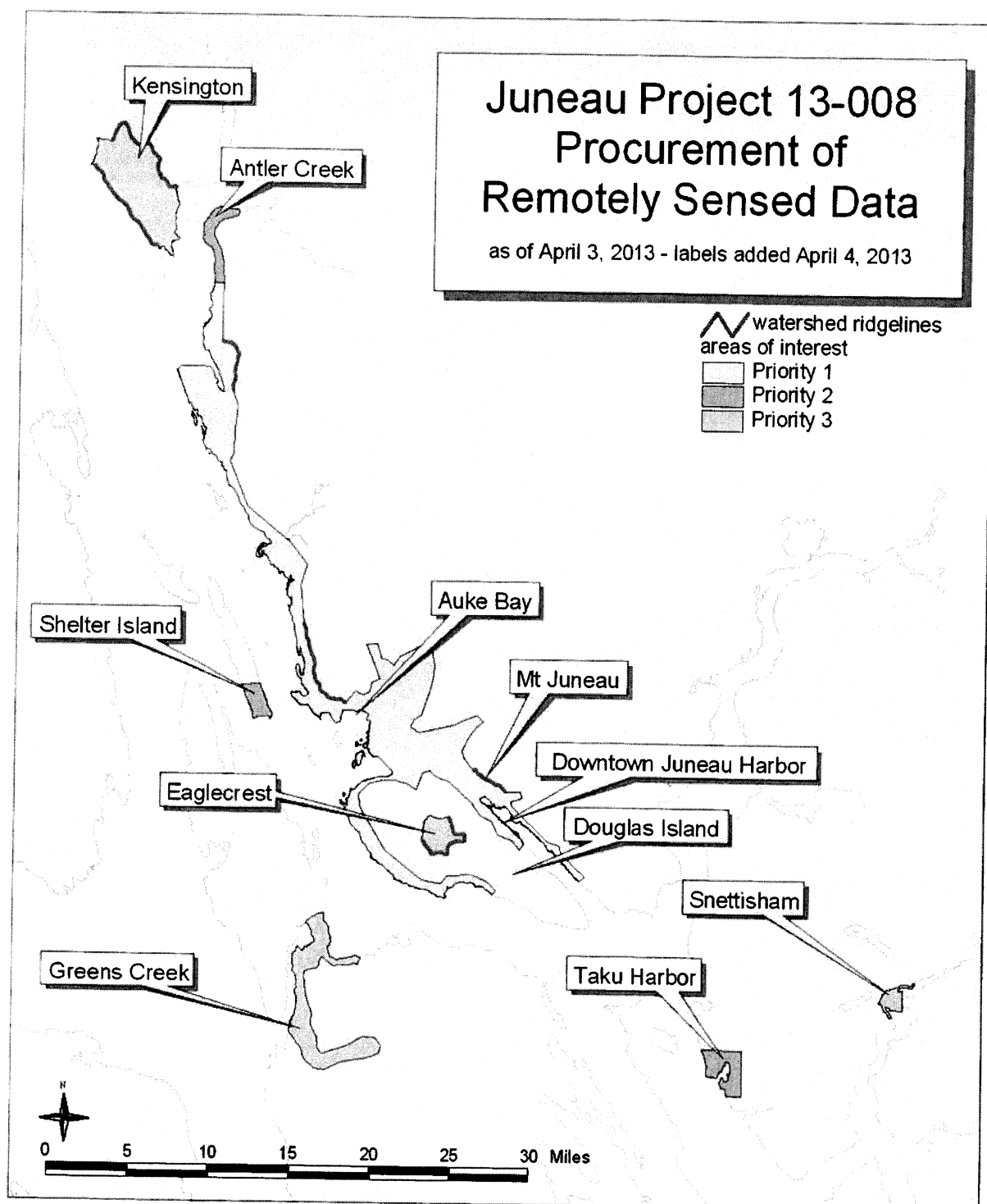
Project reports will include, but need not be limited to:

- a. Full project report (two printed copies, and PDF).
- b. Documentation on methodology to calculate orthometric heights from ellipsoidal heights.
- c. QA/QC reports on LiDAR horizontal and vertical accuracies.
- d. Reports on orthoimagery, including QA/QC on horizontal accuracies.
- e. Voids and clustering in LiDAR datasets.

10. Miscellaneous.

- a. Contractor will deploy at least two concurrent crews to Juneau, when conditions are opportune, to facilitate data acquisition.
- b. LiDAR data from the project's pilot area (circa 5 square miles in Mendenhall Valley) will be provided to the City and Borough of Juneau, within 4 weeks of acquisition. Orthoimagery for the project's pilot area may be delivered later, as it becomes available.
- c. Two copies of all data, deliverables, and reports will be provided to the City and Borough of Juneau on electronic media (suitable USB drives, or similar).
- d. All deliverables and derivatives are in the public domain.

11. Project Map as of April 3, 2013



CONTRACTOR REVIEW AND RESPONSES

1. Data Acquisition Areas.

- a. Data acquisition priorities ☒okay; ☐not okay
 - i. Low tide acquisition of shorelines, as practical ☒okay; ☐not okay
 - ii. Shoreline to 500 feet, leaf-off, as practical ☒okay; ☐not okay
 - iii. Elevations above 500 feet, no-snow, as practical ☒okay; ☐not okay
- b. Priority Area 1:
 - i. Primary polygon ☒okay; ☐not okay
 - ii. Spuhn Island ☒okay; ☐not okay
 - iii. Miscellaneous islands ☒okay; ☐not okay
- c. Priority Areas 2 and 3:
 - i. Shelter Island ☒okay; ☐not okay
 - ii. Taku Harbor ☒okay; ☐not okay
 - iii. Antler Creek ☒okay; ☐not okay
 - iv. Kensington ☒okay; ☐not okay
 - v. Greens Creek ☒okay; ☐not okay
 - vi. Eaglecrest ☒okay; ☐not okay
 - vii. Snettisham ☒okay; ☐not okay

2. Buffering of Ocean Shorelines.

- a. 100 meter buffers of ocean shorelines ☒okay; ☐not okay
- b. LiDAR and imagery of harbor infrastructure ☒okay; ☐not okay

3. Buffering of Watershed Ridgelines.

- a. 50 meter buffers on identified watersheds ☒okay; ☐not okay

4. LiDAR point cloud deliverables to include the following, with associated specifications:

- a. Nominal postings (8 pts / sq m; 4 pts / sq m) ☒okay; ☐not okay
- b. Ellipsoidal heights and orthometric heights ☒okay; ☐not okay
- c. WGS decimal degrees, UTMN8, ASP1 coordinates ☒okay; ☐not okay
- d. Unique timestamp per return ☒okay; ☐not okay.

e. Separate ASCII, and LAS point clouds (format 1.3) files, for

Combined point classes

- i. All returns ☒okay; ☐not okay

Separated point classes

- ii. Bare earth ☒okay; ☐not okay
- iii. First return ☒okay; ☐not okay
- iv. Vegetation ☒okay; ☐not okay
- v. Buildings ☒okay; ☐not okay
- vi. Bridges ☒okay; ☐not okay
- f. Unclassified RAW LAS flightline files ☒okay; ☐not okay

g. Classification for each LiDAR point return, using ASPRS classification codes:

- i. high vegetation ☒okay; ☐not okay
- ii. low vegetation ☒okay; ☐not okay
- iii. water ☒okay; ☐not okay
- iv. ground (bare earth) ☒okay; ☐not okay
- v. building ☒okay; ☐not okay
- vi. bridge ☒okay; ☐not okay
- vii. car, boat, etc ☒okay; ☐not okay
- viii. unclassified ☒okay; ☐not okay
- ix. other ☒okay; ☐not okay

5. LiDAR point cloud derivatives to include the following:

a. Bare earth DEM, 1 meter cells, hydroflattened, with vertical and horizontal datums as follows:

- i. vertical datum as specified ☒okay; ☐not okay
- ii. horizontal datum as specified ☒okay; ☐not okay

b. First Return (highest hit) DEM, 1 meter cells, with vertical and horizontal datums as follows:

- i. vertical datum as specified ☒okay; ☐not okay
- ii. horizontal datum as specified ☒okay; ☐not okay

c. Vegetation DEM, 1 meter cells, with vertical and horizontal datums as follows:

- i. vertical datum as specified ☒okay; ☐not okay
- ii. horizontal datum as specified ☒okay; ☐not okay

d. LiDAR intensity return raster, in GeoTIFF format ☒okay; ☐not okay

e. NoData values in DEMs ☒okay; ☐not okay

f. Bare earth TINs ☒okay; ☐not okay

6. Project vector shapefiles to include the following:

a. Water breaklines ☒okay; ☐not okay

b. Control points ☒okay; ☐not okay

c. Flightlines with GPS ☒okay; ☐not okay

d. Project boundaries ☒okay; ☐not okay

e. File tiling scheme ☒okay; ☐not okay

7. Orthoimagery.

a. In general, for all areas:

i. 4 Band Imagery (RGB+IR) ☒okay; ☐not okay

a. geotiffs ☒okay; ☐not okay

b. JPG2000 ☒okay; ☐not okay

ii. Original source images ☒okay; ☐not okay

b. For priority area 1, orthoimagery 15 cm pixels ☒okay; ☐not okay

c. For priority areas 2 and 3, orthoimagery 30 cm pixels ☒okay; ☐not okay

8. Metadata.

Metadata for all LiDAR and imagery deliverables, meeting FGDC metadata specifications. For tiled datasets, separate metadata files are required for each tile, and for each collected dataset.

Specific datasets requiring metadata:

- | | |
|---------------------------------|---|
| a. each LiDAR point cloud | <input checked="" type="checkbox"/> okay; <input type="checkbox"/> not okay |
| b. LiDAR bare earth DEM | <input checked="" type="checkbox"/> okay; <input type="checkbox"/> not okay |
| c. LiDAR first return DEM | <input checked="" type="checkbox"/> okay; <input type="checkbox"/> not okay |
| d. vegetation DEM | <input checked="" type="checkbox"/> okay; <input type="checkbox"/> not okay |
| e. LiDAR intensity raster | <input checked="" type="checkbox"/> okay; <input type="checkbox"/> not okay |
| f. breakline vectors | <input checked="" type="checkbox"/> okay; <input type="checkbox"/> not okay |
| g. control points | <input checked="" type="checkbox"/> okay; <input type="checkbox"/> not okay |
| h. project boundaries | <input checked="" type="checkbox"/> okay; <input type="checkbox"/> not okay |
| i. file tile dataset shapefiles | <input checked="" type="checkbox"/> okay; <input type="checkbox"/> not okay |
| j. flightlines | <input checked="" type="checkbox"/> okay; <input type="checkbox"/> not okay |

9. Project Reports.

Project reports will include, but need not be limited to:

- | | |
|--|---|
| a. Full project report | <input checked="" type="checkbox"/> okay; <input type="checkbox"/> not okay |
| b. Documentation on ellipsoidal to orthometric heights | <input checked="" type="checkbox"/> okay; <input type="checkbox"/> not okay |
| c. QA/QC reports on LiDAR accuracies | <input checked="" type="checkbox"/> okay; <input type="checkbox"/> not okay |
| d. Reports on orthoimagery accuracies | <input checked="" type="checkbox"/> okay; <input type="checkbox"/> not okay |
| e. Voids and clustering in LiDAR datasets | <input checked="" type="checkbox"/> okay; <input type="checkbox"/> not okay |

10. Miscellaneous.

- | | |
|--|---|
| a. At least two concurrent crews to Juneau, when conditions are opportune | <input checked="" type="checkbox"/> okay; <input type="checkbox"/> not okay |
| b. Data from the project's pilot area.
LiDAR first, orthoimagery as available | <input checked="" type="checkbox"/> okay; <input type="checkbox"/> not okay |
| c. Two electronic copies of all data, deliverables, and reports | <input checked="" type="checkbox"/> okay; <input type="checkbox"/> not okay |
| d. Deliverables and derivatives in public domain | <input checked="" type="checkbox"/> okay; <input type="checkbox"/> not okay |

11. Project Map as of April 3, 2013

☒ okay; ☐ not okay

NOTE: Changes are to be listed on *Form E, NEGOTIATED CHANGES*.
Copies of Form E are to be given to Purchasing & the Law Department.

E

NEGOTIATED CHANGES
(Signature of both parties required)

RFP NO. 13-008

NAME OF PROJECT: Procurement of Remotely Sensed Data

NAME OF FIRM:

Watershed Sciences, Inc.

TOTAL PROJECT BUDGET:

\$334,000

NEGOTIATED CHANGES:

1. None Required.

Signature of Company Representative

Russell Fay

Date: 4/5/2013

Printed Name of Company Representative

Russell Fay

Signature of City Representative

TC

Date: 4/5/13

Printed Name of City Representative

Teri Camery, Senior Planner, Project Manager

Planning Manager

Greg P. Chaney

April 5 2013

Greg P. Chaney

NOTE: Signed copies are to be sent to Purchasing
& included with the contract preparation materials sent to Law