***Exxon Valdez* Oil Spill Trustee Council**
General Restoration, Habitat Enhancement, Habitat Protection, and Facilities Projects
Quarterly Project Reporting Form

Detailed instructions for each section below are given in Section II. Quarterly Project Reports in the Reporting Policy on the website, https://evostc.state.ak.us/policies-procedures/reporting-procedures/

Project Number: 22220507

Project Title: Port Graham Corporation General Restoration and Habitat Protection

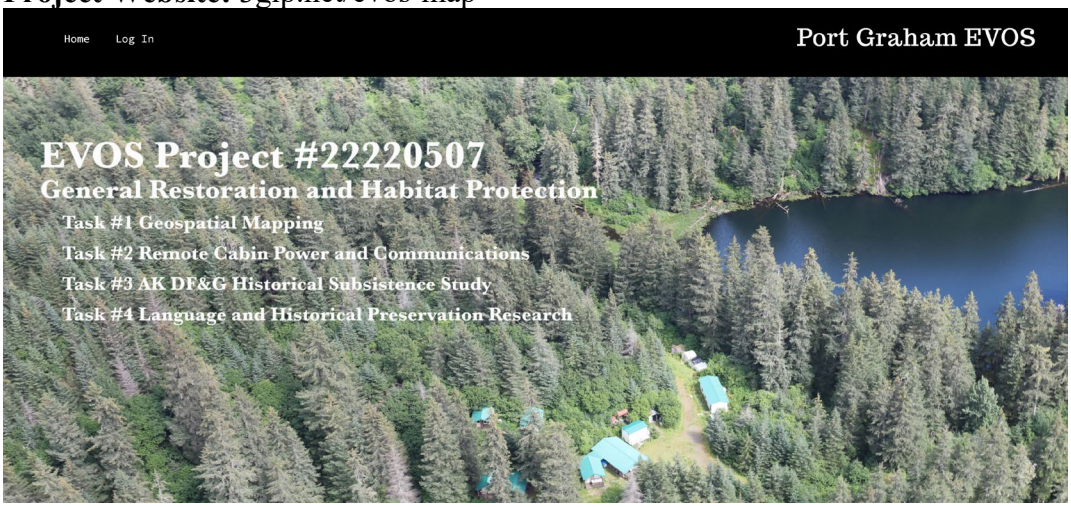
Principal Investigator(s):
Principal Investigator -Stephen (Steve) Colligan, 3GLP, Inc dba E-Terra & Precision Flight Devices and Port Graham – E-Terra JV
Principal in Charge-Jon Shepherd, Port Graham Corporation, President
Project Finance- Tom Delamater, Port Graham, CFO

Reporting Periods and Due Dates:

Reporting Period	*Due Date*
February, March, April	June 1
May, June, July	September 1
August, September, October	December 1
November, December, January	**March 1**

Submission Date: March 3rd, 2023

Project Website: 3glp.net/evos-map



Please check all the boxes that apply to the current reporting period.

☒ **Project progress is on schedule.**

FY22 has turned out to be a productive Q4, regardless of the late start and record weather problems earlier in FY22. We were able to compile and review all known geospatial data sources for the region and compile a GAP analysis and draft report. We are also able to make significant progress on accessing geodetic control and boundary data which will lead to compilation of accurate base map data starting Q1 FY23. These unanticipated factors led to most all fieldwork being extended until FY23. At the end of Q4 PGC requested and was granted a No-Cost Extension of FY22 unused funds for Tasks 1, 2 and 4. Task 3, a sub-contract to AK DF&G for subsistence study in Port Graham was rescheduled through EVOS. ADF&G requested an extension and rescheduling of the Subsistence Study which was approved by EVOS in December of FY22.

☒ **Project progress is delayed**

As stated above originally planned fieldwork has been delayed into FY23 putting the project back on season alignment for field work and data collection Summer of 2023. At this point there is still concern that construction and logistic elements of other projects may interrupt / block access to project areas. To mitigate these logistical issues, as stated below from Q3 report below, we have created a project portal for all projects to submit photos, video and other data to share and coordinate access, construction material staging and bypass from construction.

"This project has coordinated efforts with the FWS EVOS PGC-USFWS grant 22220608 Port Graham Habitat Enhancement, where it has been discovered that road access and conditions are much more challenging than anticipated, and helicopter operations are of limited availability due to weather or prior contract commitments.

There are multiple activities going on in the region. The need for a consolidated web portal for field work has been determined to be necessary to facilitate field knowledge of Engineering, Habitat, Road, Bridge and Culvert replacement. Some part of the EVOS projects and along with other independent projects of Tribal Transportation intersect at many points and require coordination. See description of project task overview and details for more detailed description."

☒ **Budget reallocation request.**

As stated above project fieldwork, LiDAR data collection, Land Survey support and related expenses have been extended into FY23. In Q1FY23 we will be submitting a more detailed budget update line items for each budget category. The initial grant request was rolled up into generalized budget line items. As we move to negotiate Helicopter time, Fuel, Survey Support and other items we will forecast our estimated costs with more specificity.

☐ **Personnel changes.**

Not at this time

1. Summary of Work Performed:
Below is a narrative of status and work performed under the 4 Subtask areas approved under this contract.

2. Abstract:

Project Task 1: Geospatial & Land Records Development
PGC started data research and coordination to assemble a composite base map that will meet national mapping standards and be usable as a primary data source for the Port Graham Corporation region and land holdings.
Below are overviews of the following research and data analysis:

1) Cadastral Survey and Accuracy Assessment:
2) Data Inventory and Geospatial Data GAP analysis:

The first Project-task is to compile and research available data for the Region and provide a GAP Analysis of available public, private and required geospatial data to support the long term needs of PGC operations.

We have made significant progress in land title and parcel research through the Kenai Peninsula Borough, BLM and State of Alaska Division of Natural Resources. We have found errors in the KPB records and are scheduling meetings with the KPB GIS and Assessors office to develop an incremental exchange of data to update the KPB land base. Much of these inconsistencies are the details of which of the several Port Graham entities own which specific parcels or land selections that were not displayed correctly.

We have started compiling a geospatial database of public records for Cadastral Survey Monuments in the area. Working with our registered land surveyor we have created the following assessment as a first step. We anticipate completing this first phase survey data compilation before field season 2023.

Cadastral Survey and Accuracy Assessment:

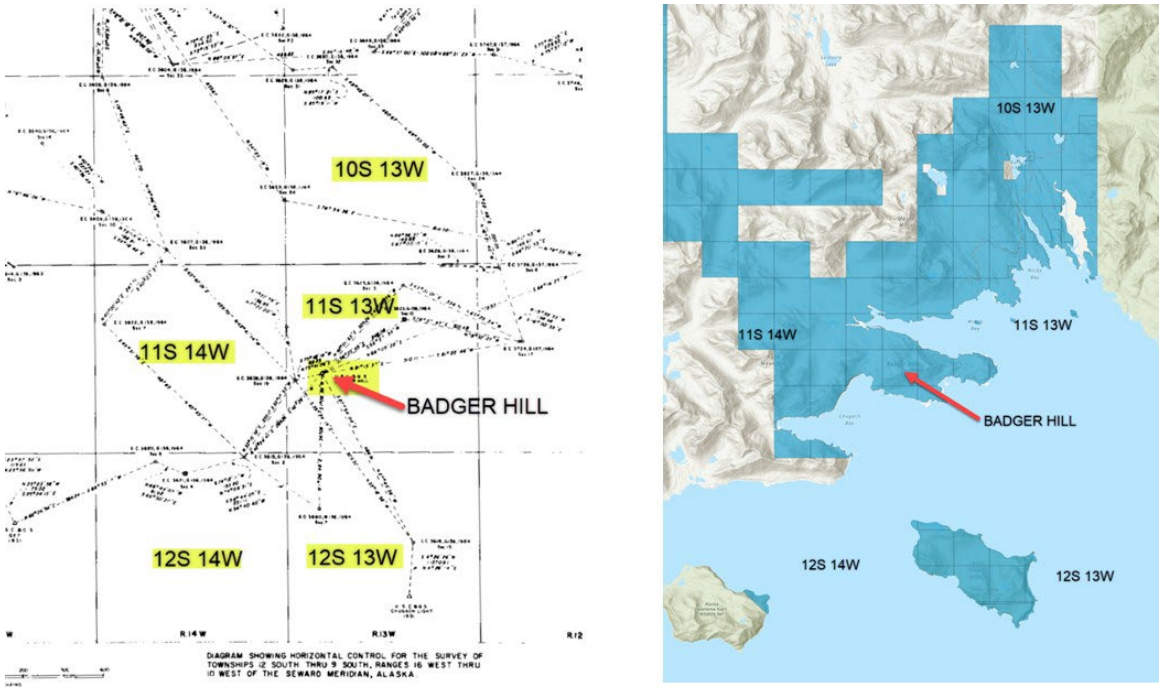
Cadastral Survey Background:

During the database accuracy assessment, we found accurate 2014 and 2017 position data for survey points near Port Graham. With this survey data there is the potential to create an accurate portrayal of the record survey data in the Port Graham area. Ignoring any potential blunders in the record survey information a parcel fabric the area around Port Graham can be constructed in the NAD83 (2011) datum with a spatial accuracy of +/- 1 ft.

The BLM rectangular survey work in portions of 20 townships raised a few questions during this review. Several townships have been surveyed by the BLM on multiple occasions. The dimensions reported in the resurveys were well within the tolerances allowed in the original surveys. Most of the plats are in the NAD27 datum and will require a transformation to NAD83. A cursory examination of Township 6 South, Range 4 West in the Kenai Fiords National Park indicates the parcel layer may need to be shifted to the NW by ~ 175 feet. We have been able to recover the GPS data used during the original survey of the 12 Townships NE of Nuka Bay. (See Figure 1). This data can be reprocessed in the NAD83 (2011) datum, and a very accurate parcel fabric of the area can be generated.

Most of the townships have shorelines digitized from existing maps in the 1960's. The National shoreline may be a more accurate representation of the actual conditions.

During the preparation of the ArcGIS Parcel Fabric, based on the record survey information, key monuments for controlling the surveys and any conflicts can be identified. If additional information is acquired later, the Parcel Fabric can be updated to reflect the changes. For example, an accurate NAD83 position for NGS control point BADGER HILL could be obtained later and update the parcels in the five Townships shown below.



Badger Hill survey monument controls a significant portion of the surveys around Windy Bay.

Task Scope:

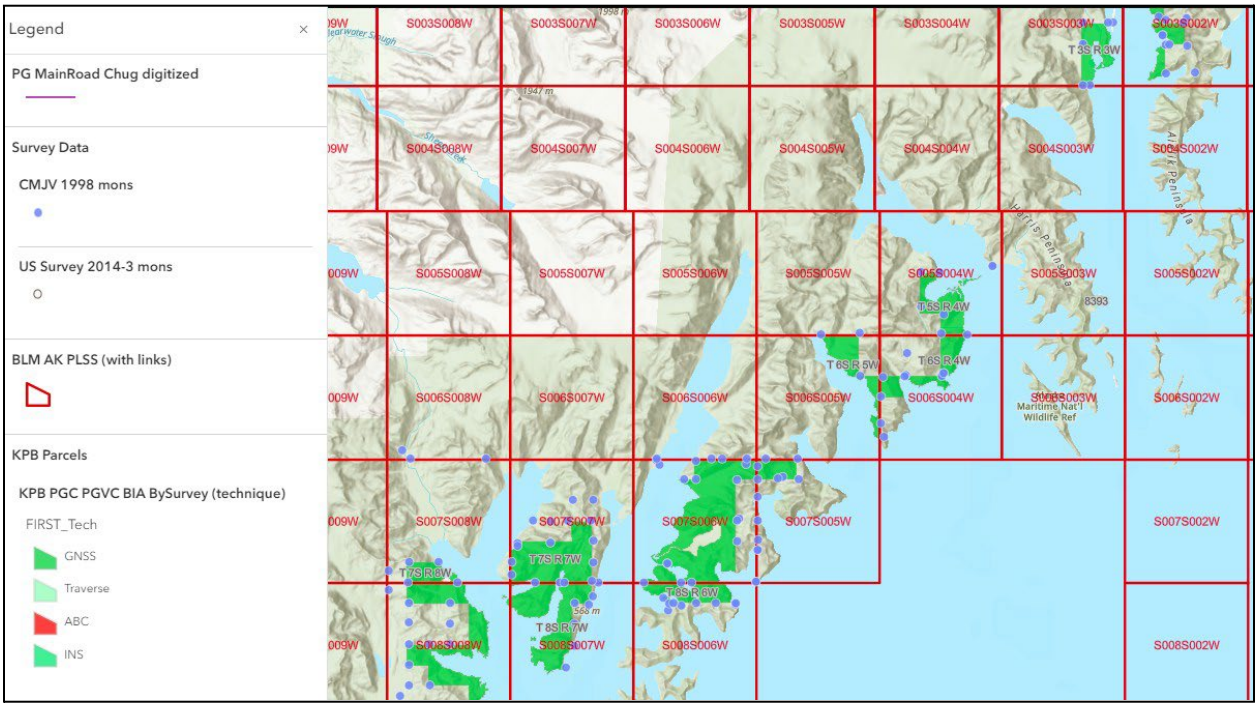
Update parcel geometry of Port Graham Corporation lands, and parcels around Port Graham village.

Harvest GNSS coordinates from recorded surveys and/or reprocess GNSS data to update survey monument positions.
Enter record survey data into the ArcGIS Parcel Fabric, constrained to accurate GNSS monument positions to update geometry of parcel fabric.
Where parcels are along the shoreline, research and choose best shoreline layer to represent MHW boundary.
Determine areas where parcel fabric needs improvement and recommend possible solutions

Task Approach:

The project area is divided into 2 groups of surveys / parcels.

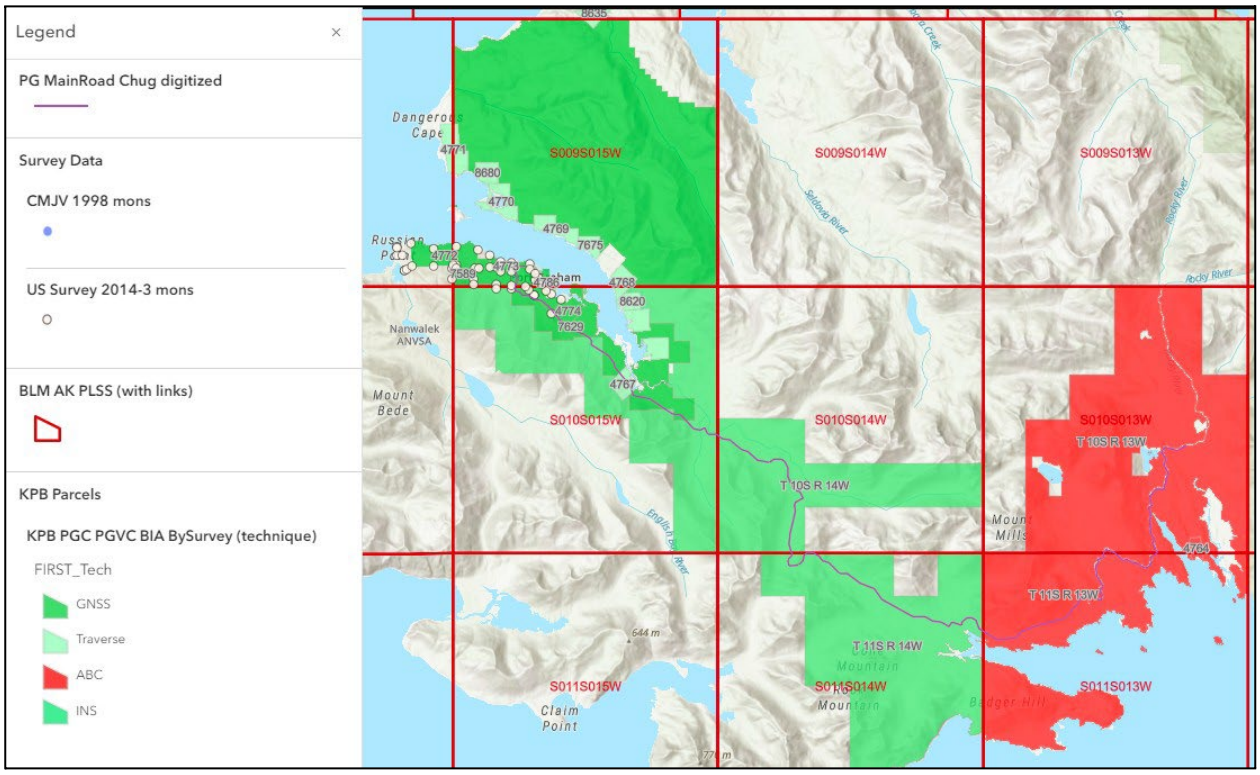
Group 1: Kenai Fiords (Nuka Bay to Aialik Bay, 12 Township surveys)
Reprocess CMJV (Jim Mitchell) GNSS data from 1998 survey to produce accurate NAD83 coordinates on survey monuments. The BLM surveys used NAD27 based on a measured shift (not NADCON).
Update parcel geometry based on COGO entry of record survey measurements fixed to new NAD83 monument coordinates.
If we can process the GNSS data through OPUS, we expect excellent results (should be within +/- 1 ft, Jim was able to process one file in OPUS as a proof of concept)



Group 1: Kenai Fiords (Nuka Bay to Aialik Bay, 12 Township surveys) The blue dots (CMJV 1998 mons) are monuments that we should be able to reprocess GPS data for accurate NAD83 coordinates.

1. **Group 2:** Port Graham Village Site and surrounding area, including Chugach Bay and Windy Bay (18 US Surveys and 8 Township surveys).
    a. Harvest GNSS coordinates on survey monuments from recent recorded surveys performed with GNSS around Port Graham village site (eg, Record of Survey 2014-000132-0)
    b. Update parcel geometry based on COGO entry of record survey measurements, fixed to recent NAD83 monument coordinates where available (mostly around village and around Port Graham)

c. Estimated Accuracy
   i. Around the village site, expect that this will improve the accuracy of the estimated location for the survey monuments, in some cases by up to 40ft.
   ii. Area on north side of Port Graham has GNSS Township survey mixed with older traverse survey of parcels, will use abutting Township GNSS measurements to improve parcels.
   iii. Area SE of Port Graham along road, and Chugach Bay, inertial survey with NAD27 control, have not found updated coordinates for any of these survey monuments.
   iv. Windy Bay, Rocky Bay and Rocky Lake area, ABC survey method, expect low quality results, have not found updated coordinates for any of these survey monuments. To improve, may recommend field resurvey of some control points.



Group 2: Port Graham Village Site and surrounding area, including Chugach Bay and Windy Bay (18 US Surveys and 8 Township surveys) White dots are monuments with GNSS coordinates from a recent Record of Survey.

Based on how the various surveys close internally and fit with each other, we expect to get a better sense of which parts of the parcel fabric have lower or higher uncertainty in their positional accuracy. For areas with higher uncertainty, we will outline steps that can be taken to improve them.

Task Deliverables:

1. Updated parcel geometry
    a. Parcel layer with COGO created geometry. Will include monument layer with NAD83 coordinates, noting source/method for determining coordinates and positional uncertainty estimate.
    b. Where GNSS data is reprocessed, processing report (or OPUS solution) will be included.
    c. Links to, or PDF copies of, surveys used as source material for creation of COGO parcels.
2. Narrative document describing the parcel geometry creation and assessing areas with higher uncertainty and methods for verifying or improving the data.

Geospatial Data GAP Analysis:

Basemap Geospatial Data Overview

Elevation Data

The most recent elevation data providing complete coverage of all Port Graham lands is the Ifsar based 3DEP 5 meter resolution Alaska DEM, based on 2015-2016 Fugro data for the AOI. This provides an improvement over the previous NED data, but there were challenges deriving the correct bare earth elevations under dense vegetation/forest, leading to low accuracy and low detail in the terrain data in parts of the AOI.

Lidar based elevation data has not been funded or collected for the entire lower Kenai Peninsula area, but only for partial project areas, including the BIA/Chugachmiut collection in 2016, resulting in a 1 m resolution DEM covering the forested areas & road system on Port Graham lands between Port Graham and Rocky Lake, but not the higher elevations.

Imagery

A 50 cm basemap (currently 2013-2022 mosaic) is provided by the State's Alaska High Resolution Imagery (Maxar satellite imagery), available as WMS or WMTS only, in natural color or CIR versions.

KPB (Kenai Peninsula Borough) had 9" aerial imagery acquired by Pictometry (now EagleView) 2020-2022. The license covers the KPB and cities, other users need to request a use authorization from EagleView for their projects. The imagery has no certified positional accuracy due to a lack of ground control.

There are also historical (1950 - 2003) aerial imagery sources, with a few public data sets that have been ortho-rectified. AHAP CIR imagery has been ortho-rectified for the Kenai Peninsula (1.5 m resolution ortho-mosaic, 20 m accuracy). Most of the PG lands are covered by 1985 AHAP imagery, with the NE part covered by 1978 imagery. 1 m resolution 1996-1997 B/W DOQ imagery is available from USGS, also with a relatively low accuracy ortho-rectification (noticeable offsets between quadrangles).

PGC has purchased high resolution (50 cm) satellite imagery (ortho-processed by E-Terra) covering most of its KEFJ inholdings, Port Graham Village, the Rocky-Windy Bay area and East Chugach Island with 2011-2016 ortho imagery.

E-Terra also produced UAV imagery products (including very high resolution ortho mosaics) for PGC of the Port Graham dock and tank farm areas in 2021.

Man-made Features

Geodetic Control

<See Cadastral Summary Above>.

Cadastral Parcels

The KPB Parcel data, originally digitized in the 1990s, has seen no positional accuracy improvements in the PG lands areas and contains non-uniform offsets of tens of feet compared to survey data. See also JOA reports and plans for improvements in this EVOSTC project.

Infrastructure Data

Road & trail data (DNR, DOT) is incomplete, with inconsistent detail and positional accuracy.

There are several overlapping datasets for bridges and culverts (DNR, AWC), missing some bridges and many culverts and other stream crossing locations (some of which have been started to be documented during the 2022 field work). They have inconsistent attributes and very variable positional accuracy.

Alaska Energy Authority energy and utilities data includes existing, proposed and potential hydroelectric sites as of 2015, and electric transmission lines.

Natural Resources

Geology/Mining

The USGS Alaska Resource Data File provides information about mines, prospects & mineral occurrences throughout the AOI.

Soils

A USDA Soil survey is available for the Lower Kenai Peninsula Area (covering the contiguous PG lands and Chugach Island, but not the KEFJ area). The NPS created a "Soil Landscapes Map" for KEFJ (Kenai Fjords National Park) - not with the level of detail of the USDA soil survey.

Hydrography

Current NHDPlus data is still based on 1960's topographic maps and aerial photographs, contains flowlines only for the larger streams (including some errors with streams going uphill), low accuracy catchment areas based on a low detail DEM, outdated glacier delineations etc.

Improvements depend on area-wide improved topographic data (topo or topobathy Lidar) for accurate detailed bare earth surface data, enabling quality EDH (elevation derived hydrography).

Vegetation and land cover maps

USDA Forest Service created a 2017 Kenai Peninsula Vegetation Map (dominance classes, tree and shrub cover) based on automated classification of segmented remote sensing data (mostly satellite imagery). The accuracy on PG lands is relatively unverified due to a scarcity of ground truth data in the lower Kenai Peninsula.

The NPS created a 2008 KEFJ land cover map based on manual delineation of land cover classes on aerial photographs, with a lot of information about plant associations but with low spatial detail (8 ha / 20 acre MMU).

Wetland mapping

The National Wetlands Inventory (USFWS) provides wetlands data (wetland type and extent using a biological definition of wetlands) mapped for this area in the 1980 with a 3 acre MMU based on 1978 & 1984 1:65,000 CIR imagery. EVOSTC project number 22220508 aims at updating and improving the FWS wetland maps for the whole EVOS region with a 1 acre MMU by 2025. For the Port Graham / KEFJ area, a lack of updated quality elevation and hydrography data means that the wetland mapping will be based primarily on high resolution imagery interpretation.

Wildlife / Subsistence

1985 ADFG habitat maps are available in digitized form. A 2014 ADFG community subsistence study of Port Graham and other nearby communities includes low resolution overview maps in the report. ADFG (Anadromous Waters Catalog) also provides data points about freshwater fish.

Updates

Continuous update and evaluation of current and planned data sources are being maintained in a consolidated spreadsheet for tracking and coordination.

Please refer to detailed spreadsheet attached for data sources, accuracy evaluation and other metadata.

< SEE Attached Data Inventory and Assessment Spreadsheet>

Hardware Software Infrastructure:

We have built out infrastructure to support operations. Computer equipment, software and IT network components have been installed. We are now loading data and developing software interfaces for PGC lands interface.

Project Task 2: Power and Communication Support
PGC has made significant progress on this task. PGC has acquired equipment and is awaiting installation and configuration until snow clears in spring of 2023.

Project Task 3: ADF&G Historical Subsistence Study
ADF&G Subsistence Division has successfully rescoped and rescheduled this task with EVOS to start in FY23 and align with their fieldwork schedule directly with EVOS.

Project Task 4: Language and historical preservation research
This task is extended into FY23 as part of the No Cost Extension approved by EVOS.

3. Coordination and Collaboration:

As stated previously, we have been communicating with other projects in the region but have also ramped up our participation in the Statewide working groups for geospatial coastal and vegetation mapping. Our primary efforts at this point are to create a common platform of communications and data sharing for road, bridge, culvert and fish habitat studies.

After finding significant geospatial errors both in spatial accuracy and tabular data we have been working with Kenai Peninsula Borough to participate in their Parcel Fabric Project. We anticipate a formal agreement that will allow survey and boundary research done under this project to be accepted into their primary parcel base. This will eliminate the recirculation of old records and propagation of outdated surveys.

We have continued to meet with US Fish and Wildlife staff, road and infrastructure engineering firm RPK Engineering for the village and determined that we would take the lead on creating a web portal for these projects to coordinate field activities. Each project is in the field for different reasons and focus. We are just completing the loading and attributing project information from all participating groups. All photos, video and data are being authored so that all parties can have updated information and have mutual benefit of each other's fieldwork. This Project Portal will be rolled out in late April/ Early May 2023 before fieldwork commences.

Project personnel have been working with AXIOM data librarian to create and update records in their data portal. Initial spreadsheet with inventory and assessment of available data has been successfully uploaded in Q4FY22. We don't anticipate loading field data until Q3 after data processing later in 2023.

4. Response to EVOSTC Review, Recommendations and Comments:

5. Budget: Cumulative Spending & Budget Q1,Q2, Q3 and Q4 FY22 January 31, 2022

Budget Category:	Proposed FY 22	Proposed FY 23	Proposed FY 24	Proposed FY 25	Proposed FY 26	5-YR TOTAL PROPOSED	ACTUAL CUMULATIVE
FY22 Q4 January 31,2022							
Personnel	$ 898,866.95	$ 741,204.00	$ 741,204.00	$ 741,204.00	$ 741,204.00	$ 3,839,268.00	$ 898,866.95
Travel	$ 691.60	$ 37,167.60	$ 36,236.00	$ 20,904.00	$ 17,832.00	$ 148,780.00	$ 691.60
Contractual	$ 162,187.50	$ 1,011,397.55	$ -	$ 150,000.00	$ 75,000.00	$ 1,425,000.00	$ 162,187.50
Commodities	$ -	$ -	$ -	$ -	$ -	$ -	
Equipment	$ 402,096.71	$ 331,303.29	$ 25,000.00	$ 35,000.00	$ 25,000.00	$ 818,400.00	$ 402,096.71
Indirect Costs (6%)	$ 78,950.57	$ 94,417.09	$ 46,646.40	$ 54,726.48	$ 50,042.16	$ 324,782.88	$ 78,950.57
Original SUBTOTAL	$ 2,433,391.04	$ 1,362,840.80	$ 849,086.40	$ 1,001,834.48	$ 909,078.16	$ 6,556,230.88	$1,542,793.33
Extension FY22 to FY23	**$1,542,793.33**	**$2,215,489.53**	**$849,086.40**	**$1,001,834.48**	**$909,078.16**	**$6,556,230.88**	
General Administration (9% of s	Agency	Agency	Agency	Agency	Agency	Agency	Agency
PROJECT TOTAL	**$2,652,396.23**	**$1,485,496.47**	**$925,504.18**	**$1,091,999.58**	**$990,895.19**	**$7,146,291.66**	

See attached: No-Cost extension of FY22 funds to FY23

Revision *V4 Table Item 5 "Budget" correction made to eliminate $2000 from Contract Category for rent of temporary Document Processing area, billed in October 2022, not Paid – removed from Contract Category for October 2022 expense.*
Corrected cumulative equipment amount from $406,096.71 to $402,096.71

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