Airborne Electromagnetic Surveys 3D Web Application Proof of Concept

Activity Description

California Department of Water Resources Esri Enterprise Advantage Program

Activity Summary

Esri will provide general technical support to assist California Department of Water Resources, Sustainable Groundwater Management Office's Airborne Electromagnetic (AEM) Surveys. The objective of this effort is to prototype new functionality for a web application to support the visualization of electromagnetic response and related subsurface data within California's groundwater basins. The goal is to display geophysical AEM and related subsurface data in an interactive 2D/3D web application.

Activity #1: Requirements Gathering and Workflow Development

Esri will work with the AEM team to discover priority business requirements for visualizing AEM and related subsurface data, focusing on how the team uses this data to manage groundwater. Business requirements may address:

- Scientific and public viewing of data to understand aquifer structures
- Identifying areas for groundwater recharge

Esri will summarize its findings and associated workflows and review them with AEM staff.

Activity #2: Architecture Review

Esri will conduct sessions with AEM staff to identify current and future infrastructure needs to host the web application and associated geoprocessing tools. This will include analysis of data storage, web hosting, and how to access data from the web application. This analysis might result in suggested hardware and software suggestions for a production application.

Activity #3: Web Application Prototyping

Following discovery, Esri will support the AEM team to prototype one to two priority workflows to evaluate the best means of scaling and incorporate the data in a web application hosted in DWR's ArcGIS Online Organization. Prototyping may include:

- Server-side geoprocessing enabled through web UI
- Client-side processing of tabular data into a web scene
- Configuring a web app for data visualization (Web AppBuilder for ArcGIS, Operations Dashboard for ArcGIS).

As part of this activity Esri will provide knowledge transfer to AEM staff through webinars, demonstrations, and ad-hoc discussion at a mutually agreed cadence.

It is assumed that after Activity 3, ESRI will provide an hours estimate and costs to provide a scaled production application. This will culminate findings of the tasks in this activity description to provide a scaled application. It

will implement analysis from Activity 2 and will provide functionality that will allow for future analysis and visualization such as use of 3D interpolation and voxel layers.

Esri Responsibilities

- Provide up to 66 hours of consulting services as described above.

CA DWR Responsibilities

- Communicate technical needs and priorities to the Esri consultants.
- Provide appropriate technical staff to work with the Esri technical consultant during the engagement.
- Provide Esri with the electromagnetic response data and other relevant data needed in the web application.
- Provide Esri access to the CA DWR ArcGIS Online organization.

Esri Assumptions

- Esri will use CA DWR's ArcGIS Online for the web application configuration.
- CA DWR will provide data in an Esri supported format (i.e. Geodatabase, shapefiles). Esri is not responsible for data clean up or conversion.
- This activity will be supported remotely from Esri's offices. The Esri consultant(s) will work with direction from CA DWR's technical staff and management.

Hours and Credit Estimate:

Hours Estimate	**Activity**
24	Activity #1: Requirements Gathering and Workflow Development
24	Activity #2: Architecture Review
60	Activity #3: Web Application Prototyping
Credit Estimate	**54**