BOARD MEETING DATE: June 2, 2017   AGENDA NO. 8

PROPOSAL: Transfer Funds and Issue Purchase Orders for Necessary Software
                 and Hardware to Develop an Enterprise Geographical Information
                 System

SYNOPSIS: A recent strategic planning effort for an Enterprise Geographical
                 Information System (EGIS) identified a need to use GIS more
                 broadly across the diverse business processes at SCAQMD. In
                 order to implement the recommended EGIS, SCAQMD needs to
                 update the current spatial IT infrastructure, storage environment
                 and delivery of geospatial services to serve a growing need for
                 geospatial data and to enable integration with other supported
                 business systems and databases. This action is to transfer funds
                 within the Information Management (IM) FY 2016-17 Budget, and
                 to issue purchase orders for the acquisition of computer hardware
                 and software necessary for the development of an EGIS at a total
                 cost not to exceed $80,000. Funds are available in IM's FY2016-
                 17 Budget.

COMMITTEE: Administrative Committee, May 12, 2017, Recommended for
                 Approval

RECOMMENDED ACTIONS:
1. Transfer $80,000 to the Information Management FY 2016-17 Budget, Capital
    Outlays Major Object from the Information Management FY 2016-17 Budget,
    Services and Supplies Major Object;
2. Authorize the Procurement Manager to issue a sole-source purchase order to Esri for
    a not-to-exceed amount of $66,000 to purchase the following software:
    a. Two (2) ArcGIS Enterprise Standard (Windows) Up to Four Cores Licenses
    b. Two (2) ArcGIS Enterprise Standard (Windows) Up to Four Cores Staging
        Server Licenses;

3. Authorize the Procurement Manager to purchase two (2) Kemp Virtual Load Balancers (VLM-2000), including operating systems, from the current approved vendor list at a cost not to exceed $14,000.

<div align="center">Wayne Nastri
Executive Officer</div>

JCM:MAH:OSM:agg

Background

SCAQMD's website incorporates a number of online maps to display information useful to the public, researchers, and the regulated community, including the Air Quality Map, the Check Before You Burn map, the FIND map, the MATES IV interactive risk map, the AB 2588 interactive risk map, the Rule 1113 exemption area locator map, and a special monitoring map with data display. Currently, there are seven interactive and display maps on our external website rendering specific data, each for a single purpose; in addition, two departments have developed in-house GIS applications for specific uses.

SCAQMD primarily uses GIS for information distribution and data visualizations. Geospatial data is processed and delivered through a variety of technologies, including MapDotNet6.5, MapDotNet9.1, Bing Maps, and ArcGIS. The current maps have evolved over time to satisfy certain departmental needs; however, the agency is limited by the lack of a comprehensive, enterprise system approach.
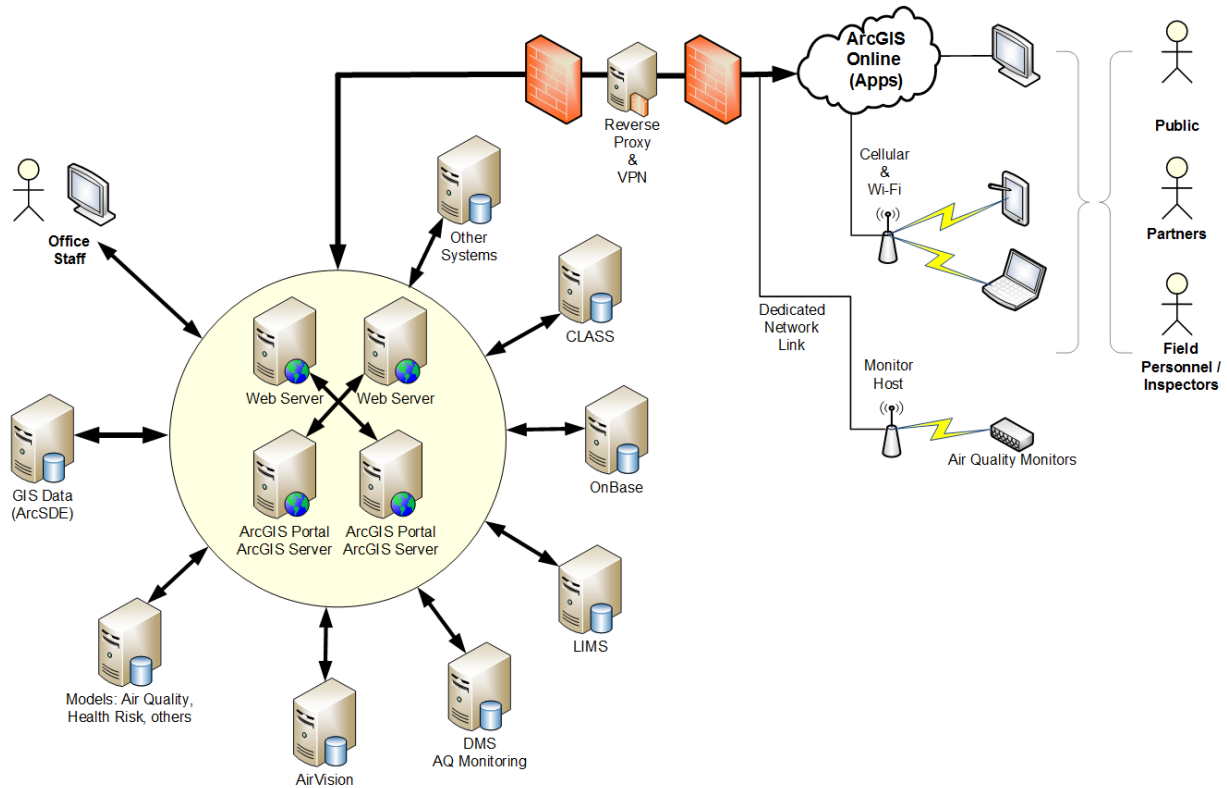
SCAQMD engaged Psomas to perform the strategic planning for a Geographic Information System (GIS) at the District-wide level.Their analysis identified a need to use GIS more broadly across the diverse business processes at SCAQMD by providing increased access to GIS information through integration with existing business systems, accessing information through web and mobile applications, and simplifying GIS tools. The Enterprise GIS System Design prepared by Psomas presents an enhanced GIS system concept for SCAQMD that addresses these needs. It features a consolidated, centralized, enterprise GIS database, internal web mapping capability, and strong integration with other enterprise systems, including OnBase, CLASS, and AirVision.

In order to implement the recommended enterprise-wide GIS system, SCAQMD will need to update the current spatial IT infrastructure, storage environment, and delivery of geospatial services to serve a growing need for geospatial data and enable integration with other supported business systems and databases.

Proposal

In their Enterprise GIS Implementation Plan, Psomas provided a concept for deploying GIS at SCAQMD, shown in Figure 1.

Figure 1. EGIS System Concept

The recommended system design has the following attributes:

- Expanded use of Esri software to create an enterprise GIS database and web application server framework;
- A robust and reliable GIS mapping and application server cluster that integrates with SCAQMD's other core business systems; and
- A versioned production enterprise geodatabase to store and manage GIS datasets.

Psomas has recommended that SCAQMD continue using Esri software for GIS for the following reasons:
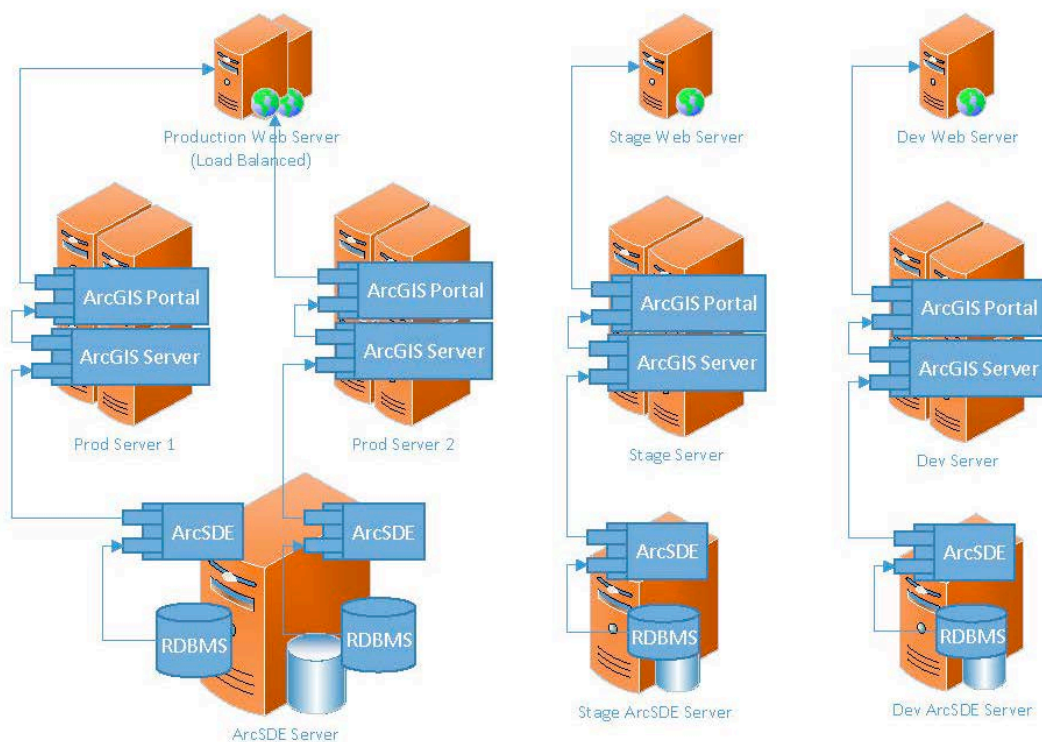
- Esri's ArcGIS is the dominant GIS software in the key industries that are most relevant to the agency, including: local government, research, and regulatory agencies, with a world-wide market share of 43% (and 80% share of the entire federal, state, and local government U.S. market).
- Esri is a closely-held, privately-owned, company that has been consistently profitable for decades and is committed to reinvesting in research and

development. Esri has been the overall leader for decades and represents long-term viability as a GIS platform; and

- Esri has been successful in expanding the application of GIS into the functions of local government, utilities, and a wide-array of other industries making ArcGIS the most comprehensive software platform available to the SCAQMD through readily-available templates and solutions, a rich web application development framework, spatial analysis and data management tools, online user and developer documentation, and educational support.

The recommended implementation configuration (Figure 2) consists of a three-tiered environment for development, staging/testing, and production. Having this environment isolation improves the management of applications and data so that production systems are reliable, test environments provide verification of the application functions and performance before advancing to production, and the development environment isolation keeps early code away from testing and production.

Figure 2. GIS Implementation Configuration

The hardware and software necessary for this EGIS configuration includes additional load balancing servers to modulate map and data requests, additional database servers for expanded data storage needs, Esri software components, and necessary support software as detailed in Table 1.

Table 1. Additional Hardware and Software Necessary for Enterprise GIS Implementation

Item Description	Quantity	Unit Price ($)	Total ($)	Total with Tax ($)
Kemp Virtual Load Balancers (VLM-2000), including Windows operating system	2	6,000	12,000	14,000
ArcGIS Enterprise Standard (Windows) Up to Four Cores Licenses	2	20,000	40,000	44,000
ArcGIS Enterprise Standard (Windows) Up to Four Cores Staging Server Licenses	2	10,000	20,000	22,000
Total			**72,000**	**80,000**

This action proposes to transfer funds within the Information Management FY 2016-17 Budget, and issue purchase orders for an amount not to exceed $80,000 for the purchase of computer hardware and software necessary to develop an Enterprise Geographical Information System. Total capital outlay cost is not to exceed $80,000, including applicable taxes.

Sole Source Justification
Section VIII.B.2 of the Procurement Policy and Procedure identifies circumstances under which a sole source purchase award may be justified. This request for a sole source purchase from Esri are made under provision VIII.B.2.a. Esri has already provided a cost quote and the effort required to prepare a bid request from re-sellers will exceed any possible savings that could be gained.

Resource Impacts
Sufficient funds are available in Information Management's FY 2016-17 Budget.