

KING COUNTY WATER DISTRICT NO. 90

KING COUNTY, WASHINGTON

RESOLUTION NO. 976

A **RESOLUTION** of the Board of Commissioners of King County Water District No. 90, King County, Washington, authorizing and adopting the proposal of Aakavs Consulting Services for a GIS/Asset Management System Study.

WHEREAS, Aakavs Consulting Services specializes in the integration of assessment, planning, integration and implementation of IT, GIS, compliance management, asset management, workflow automation, document management and web and mobile technologies; and

WHEREAS, the District has expressed an interest in being able to access an appropriate and user friendly GIS based enterprise asset and facilities management system integrated with other critical business systems; and

WHEREAS, District staff has recommended that Aakavs Consulting Services' proposal to build an enterprise GIS, Asset Management and Enterprise System Integration Foundation, be approved in an amount not-to-exceed \$18,513.00 and

WHEREAS, the Board of Commissioners deems it to be in the best interest of the District to accept the proposal of Aakavs Consulting Services as recommended by District staff.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF COMMISSIONERS OF KING COUNTY WATER DISTRICT NO. 90 AS FOLLOWS:

Section 1: That the proposal of Aakavs Consulting Services dated April 28, 2014, is hereby approved and adopted in an amount not to exceed \$18,513.00.

Section 2: The District staff is hereby authorized to take such administrative action as may be necessary to effectuate the provisions of this Resolution.

Section 3: That this Resolution shall become effective June 3, 2014.

ADOPTED by the Board of Commissioners of King County Water District No. 90, King County, Washington at its regular, open public meeting thereof held on 1st day of July, 2014.

R. V. Sigler 7-1-14
Ann Annia 7/1/14
By R. M. 7/1/14

PROPOSAL

Building an Enterprise GIS, Asset Management, And Enterprise Systems Integration Foundation For KCWD 90

Submitted to

King County Water District 90

March 27, 2014

Submitted by



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TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
1. EXECUTIVE SUMMARY	3
1.1 PROJECT BACKGROUND AND METHODOLOGY	3
1.2 PRICE AND SCHEDULE.....	4
2. PROJECT UNDERSTANDING & APPROACH.....	5
2.1 UNDERSTANDING OF THE PROJECT & SCOPE OF WORK.....	5
2.2 DETAILED TECHNICAL APPROACH.....	6
Task 1 – Information Gathering.....	7
Task 2 – Gaps & Needs Assessment Presentation.....	8
Task 3 – Onsite Workshop.....	8
Task 4 – Solution and Recommendations Report.....	9
Task 5 – Develop Implementation Plan.....	10
Task 6 – Final Presentation.....	11
Task 7 – Project Management.....	11
2.3 MAJOR WINS AND GAINS	11
2.4 MAJOR ASSUMPTIONS	12
2.5 PRICE AND SCHEDULE.....	13
APPENDIX	14
AAKAVS' CAPABILITIES.....	15
DIRECT DOMIAN EXPERIENCE.....	15
GIS-IT SERVICES OFFERINGS.....	17

1. EXECUTIVE SUMMARY

1.1 PROJECT BACKGROUND AND METHODOLOGY

The District has expressed interest in being able to move to a more appropriate and user friendly GIS based enterprise asset and facilities management system integrated with other critical business systems for maintaining their assets and facilities infrastructure e.g. work orders, scada, metering, financial, backflow, billing etc. The current CAD technology is neither cost effective nor the right technology for doing such work. Discussions have been held with various staff and consultants over the past 2+ years. Stantec and Aakavs interviewed the District Manager and prepared a presentation demonstrating the capabilities of GIS/ Enterprise Asset and Facilities Management system as it may apply to the District's current and future tools. As a follow up to the introductory meeting/presentation held March 26, 2013 at the District office, the District requested a proposal for Phase 1 services that includes limited upfront planning efforts.

The upfront planning work is important to ensure that the architecture or the applications built in future are not overly complex, over-built or over-architected. The cost of correcting a wrong approach or programs/ codes later is way more expensive than investing in some planning effort upfront. The upfront planning effort is optimized so that it's not overdone, but just enough to watch for future caveats and devise an appropriate phased plan. The upfront planning effort is recommended to save lots of efforts and costs later. We also propose to build the applications in a modular way so that the system can be built slowly over time, reuse what has been built earlier, and build success and traction slowly but steadily over the phases.

Stantec and Aakavs understand that this project represents the discovery phase of a longer term project. We are addressing this project as "Phase I".

- Phase I – Phase I is the "inception" phase to perform some foundational strategizing and planning work for a longer term project. The focus in Phase I is to gather information, assess, document, identify, prioritize and recommend appropriate software and platforms based on the District's needs to streamline and improve its business processes, data, GIS, and integrated IT systems. An implementation plan with cost and schedule will also be developed to provide the District with a roadmap of future phases, keeping in mind the resource and fund constraints of the District. This phase will cost \$19,380.
- Future Phases – Actual construction and implementation will happen following the implementation plan developed in Phase I. Some of the Phase I deliverables may need to be refined further in this phase. This phase cannot be detailed now due to lack of information and will depend on how the project unfolds in Phase I. The future phases may cost about \$80,000 – \$100,000, depending on the extent of integration required, and the number of systems to be customized and integrated. So, per our current understanding, the total budget estimate for all phases is in the tune of \$100,000 - \$120,000 for all phases included. This budget estimate may increase if the Phase 1 inception planning work is not done.

In Phase I - first, information about data, workflows, and business processes (inter and intra departmental) need to be collected and reviewed. Then strategies will be defined so that the District can conduct its business in a better and more efficient way in the future. Those improved business processes have to be

supported and facilitated by the use of right technology. The CAD/ GIS/ IT systems supporting those business processes will then be reviewed. Gaps, needs and deficiencies will be identified and documented. Efficiencies of latest cutting-edge technology will be identified, and solution options will be developed to support the refined and improved business processes. Appropriate recommendations will be developed for improved business processes and latest technology and software products supporting those processes. An implementation roadmap will be developed with scope, cost, and budget to support Phase II.

This proven approach combined with highly experienced personnel will strategize, assess, plan, and develop a comprehensive implementation plan for the District in order to streamline their business processes, workflows and GIS-IT systems. This project will be managed out of Aakavs' Issaquah office. The Project Manager and Principal Analyst will be Amab Bhowmick with assistance from Stantec and the District as needed

The following tasks are proposed for this project. Details of these tasks are documented in Section 2.2.

- Task 1 – Information Gathering & Background Information Review
- Task 2 – Gaps & Needs Assessment Presentation
- Task 3 – Onsite Workshop
- Task 4 – Solution and Recommendations Report
- Task 5 – Develop Implementation Plan
- Task 6 – Final Presentation
- Task 7 – Project Management

1.2 PRICE AND SCHEDULE

Based on the proposed tasks in this proposal, the approximate price for the Phase 1 program is \$18,900, which will produce the roadmap and specifics for future phases. More detail is provided in the following sections. If the District wishes to add meetings or otherwise change the scope, the cost will be adjusted accordingly.

The tentative total time to finish this Phase I is 4 - 5 weeks from the start. We can adjust the schedule, if needed, to accommodate the District's availability and preferences.

2. PROJECT UNDERSTANDING & APPROACH

This section contains:

- Understanding of the project & scope of work
- Detailed technical approach
- Price and Schedule

2.1 UNDERSTANDING OF THE PROJECT & SCOPE OF WORK

The maintenance, access, and knowledge of the right kind of data at the right time are increasingly becoming routine challenges with the increasing number of inter-departmental data and applications, "silos" of information, paper based processes, and old or inappropriate technologies. Up keeping the currency and accuracy of data is also becoming a major issue and the costs for the same is increasing with time. Moreover, the efforts and budgets may not be invested into the right technology e.g. managing utility and parcel information in CAD rather than in GIS. The District wishes to review all of the above across functions/ departments to take advantage of the latest cutting-edge technology in order to increase efficiency and productivity.

During our meeting with the District on March 26, 2013, it already expressed the following overall needs that will be further investigated during the project:

- Multiple inefficient systems and/ or databases, redundant business processes, stand-alone "silos", inaccurate data, and paper forms etc. have organically developed over the years of operations within the District. There is not enough cross-functional/ departmental integration or access of IT systems and data through one unified interface or portal. Duplication of effort happens as staff enters same data into multiple systems. Information cannot be found efficiently, and also leads to redundancy and multiple points of errors.
- There is no real Enterprise Content Management System (ECMS) within the District. Data is maintained on network drives and file cabinets and notebooks on paper. These are not the most desired places or methods for data storage as intelligent enterprise searches with archival and retrieval mechanisms cannot be performed.
- The District doesn't have an Enterprise Asset Management System (EAMS) for managing assets across the District. The operations department only has paper form based asset maintenance and management processes.
- No real GIS exist to host and maintain utilities and land parcel related data. It's all in CAD which is not the correct platform for such data maintenance, based on the District's operations and is costly to continue to maintain, own, and train.

- Lot of information about business processes or systems within the District resides within individual human knowledge base and is not system based. This may result into loss of vital information if that individual becomes unavailable for any reason.
- Field information is not always electronically transferred to databases or systems. This leads to loss of information, inaccurate information input, and also no instant access or clarity of information of what happened at the field. This is very critical for emergency and crisis management.
- Most of the systems within the District consume a lot of data and produce more data. The outcomes of most systems don't directly relate to recommendations or decision support. This is a huge problem from the management standpoint. There is no management or operations dashboard that seamlessly connect all required and relevant systems in the background and provides a singular interface to staff and managers to do their daily and routine work. The staff and management cannot track and monitor efficiently their key performance indicators or issues. The dashboard may also be extended in future to incorporate strategic and ad hoc functions e.g. modeling, crisis management etc.
- Lack of general management and IT policies across the District is another big issue. The District needs to understand what IT systems need to be used and how, and how to handle information across systems and databases. Information may not be available remotely, and when it's required. Security and permissions may not be in place. Staff may or may not have easy access to critical infrastructure information as needed.
- The District also expressed concerns that enough training and support for all the users and stakeholders across the District may not have been imparted to use the IT systems properly. Training and support are keys to the success, and rollouts will be unsuccessful without proper support. The users will not just use an IT system unless they are comfortable with it. Lack of training and support encourages users to build their own comfortable "silo" systems and databases. Also, we will be mindful about the above facts while designing new GIS-IT systems so that the users have minimal learning curve and are productive quickly.
- Lots of MS Excel spreadsheets and home grown methods are used in various business processes due to lack of properly designed applications or systems e.g. dashboard.

2.2 DETAILED TECHNICAL APPROACH

- Phase I. – Aakavs envisions the Phase I as the "inception" phase to perform some foundational strategizing and planning work for a longer term project. The focus in Phase I is to gather information, assess, document, identify, and recommend appropriate software and platforms based on the District's needs to streamline and improve its business processes, data, GIS, and integrated IT systems. An implementation plan with cost and schedule will also be developed to provide the District with a roadmap of future phases, keeping in mind the resource and fund constraints of the District.
- Future Phases – Actual implementation will happen following the implementation plan developed in Phase I. Some of the Phase I deliverables may need to be refined further in this phase. This phase cannot be detailed now due to lack of information and will depend on how the project

unfolds in Phase I. The following items, including but not limited to, will be covered in this phase (or in multiple phases e.g. Phase II, Phase III etc.) are as follows. Which items from the list below will be covered in Phase II and which ones go to Phase III or future phases is not clear at this point. This decision will be made during Phase I.

- Develop GIS Standards and Specifications
- Migrate CAD data to GIS
- Finalize and deploy the Enterprise GIS-IT Architecture
- Design/ Develop Asset & Facilities Management Database
- Design/ Develop Computerized Maintenance Management System for Assets e.g. wells, treatment plant, pump stations, transmission lines, reservoirs, distribution lines, PRVs, hydrants, valves, air/vacs, blow offs, fittings, services and meters.
- Design/ Develop GIS Management & Operations Dashboards
- Attach Attributes and Drawings to spatial features (assets, faculties etc.)
- Integrate with Network Analysis & Hydraulic Modeling – maintained by Stantec; this will eliminate double entry between Hydraulic Modeling and District Operations
- Reporting for Management, Operations, Assets, Facilities
- Mobile Applications Rollouts on Phones, iPads, tablets...
- Integrate with i-enhance (Billing)
- Integrate with Wonderware (Scada)
- Integrate with QuickBooks (Financial)
- Integrate with BPMS (Backflow)
- Integration with Document Management System
- Integrate with other Business Systems (others...)
- Plan for further rollouts as desired
- Training
- Support & Maintenance

The project plan and tasks are defined in a way minimize staff time so that their daily routine activities and workload are not impacted. We will gather intelligence from the staff as much as required and then operate on our own so that the District's operations, goals and objectives are not hampered. Stantec will also be involved in tasks as appropriate. The proposed services in Phase I in terms of tasks and subtasks are as follows:

PHASE 1 TASKS:

Task 1 – Information Gathering

Aakavs will meet with each appropriate key stakeholder to discover current information system resources (manual and automated), application and data issues, and business processes that are either part of or

related to the current and future routine or management activities. Aakavs and the District will work very closely in this task to ensure the success of the project. Aakavs will review all background information as provided by the District, formulate questionnaires, and conduct 4 "in-person" meetings (1 hour each) with Tom, Darcy, Josh and Laurie. One group interview session (2 hours) will also be conducted to review and consolidate all interview findings, and develop consensus. Aakavs will follow up over emails and phone calls with key stakeholders as required to complete this task.

Deliverables:

- Review all CAD files and relevant background information
- Design questionnaires
- Conduct all "in-person" meetings
- Conduct the group workshop

Task 2 – Gaps & Needs Assessment Presentation

Aakavs will gather and collate all information from Task 1, examine and analyze unmet needs and future needs in light of the District's management and business goals, and local government best practices. It is important to first identify how the District can do their business better in future, and then identify technology solutions to support that. We will also identify opportunities to consolidate systems e.g. if i-enhance have modules to do other work like backflow. If development and customization costs for future phases can be reduced by buying modules of existing systems that will be preferred. Cost benefit analysis for buying modules vs. custom developing codes for integration will also be done in order to choose the correct approach. Appropriate mobile devices and platforms will also be identified to support the enterprise asset and facilities management. We will perform the review, evaluation, analysis, and then prepare for the presentation with the District Project Manager. Then, Aakavs will present verbally (2 hour onsite PowerPoint presentation) all gaps and needs in terms of software, hardware, data, systems and integration options to appropriate stakeholders. Note that no concrete solutions will be identified in this task, but the focus is to identify and build consensus on the gaps and needs priorities. This will ensure that the recommended solutions will be implemented in the right priority and phases.

Deliverables:

- Perform the Gaps and Needs Analysis
- Prepare and verbally present onsite - the Gaps & Needs Assessment

Task 3 – Onsite Workshop

Aakavs will identify and recommend practical combination options of business process improvements and compatible technology solutions. All key stakeholders are required to be present in this workshop. We will facilitate an onsite group workshop (3 hours) with specific focus to:

- Discuss feasible solutions options and approach to bridge the identified gaps and needs

- Build consensus on the preferred solution option and project phases and prioritize them using Relative Matrix Approach (RMA). We will use our proprietary RMA method to weight each criteria or candidate solution and then rate them to decide the priority scores. We will guide the District on how to weight and rate the candidate items. The District stakeholders will determine the weights and the ratings, so that final scoring will already have their consensus and buy-in.

Deliverables:

- Facilitate the onsite workshop to decide priorities and project phasing while ensuring stakeholder consensus and “buy-in”.

Task 4 – Solution and Recommendations Report

The resulting priorities and solution recommendations from Task 4 will be presented as a comprehensive set of technology investments, data realignments, GIS system development, other systems integration, and business process improvements – with already confirmed consensus and “buy-in” from the stakeholders. Textual and tabular information will be supplemented by appropriate artifacts e.g. future work flow diagrams, and conceptual IT system architecture. Two major items will be worked on in this task as follows:

- Develop a high-level conceptual enterprise GIS-IT architecture design to encompass and represent all identified preferred solutions in an integrated fashion – all systems and databases that GIS will possibly integrate with in future. The architecture will illustrate new IT systems, improved business processes, and seamless integration across functions. The conceptual architecture will be further refined during the implementation in the future phase.
- Develop programmatic recommendations around preferred solution options to bridge identified gaps.

MS Visio diagrams (e.g. existing work flow diagrams, current IT architecture) and Excel spreadsheet tables may be included to illustrate the findings. The District will review the report and provide one consolidated feedback in the same word document with “track changes” within 5 business days of receiving the initial draft document. Aakavs will discuss with the District, incorporate the District's comments, and deliver the final version of the document within 5 business days. The District will issue an approval (email ok) of the final report upon receiving it. This report should cover the following, but not limited to, areas:

- **Business Processes** - Inter-departmental business and management process improvements including lean management and IT initiatives to conduct business more efficiently. Emphasis will be given to migrate from human based to system based information and intelligence storage and operations.
- **Conceptual GIS-IT architecture** - Seamless enterprise integration architecture for strategic IT framework to support IT driven central management of federate systems, processes, and data

- **Data** - Database and Data development and consolidation with emphasis on accuracy and completeness. This includes CAD to GIS data conversion and geodatabase design and development with proper asset and facility attributes.
- **Security** - Role based authenticated data and system access throughout the enterprise, including PCI and Microsoft security policies
- **Enterprise GIS** - Integration with all relevant IT systems and databases across the enterprise including asset and facility management (we will build this in Phase II), document management (we will identify and implement this in future, if needed), Wonderware (Scada), i-nhance (billing), QuickBooks (financial) etc.
- **Management and Operations Dashboards** – Management, Operations, Supervisory, Events, Roles etc. with unified access to all other databases and systems mentioned above.
- **Training** - Appropriate training and system rollout assistance
- **Maintenance and Support** - Post installation support, maintenance, troubleshooting, technical assistance, ad hoc help. No new features or functions will be considered under standard maintenance and support. All new features and functions will be covered under separate projects as needed.

Deliverables:

- Draft and Final conceptual enterprise GIS-IT architecture design
- Draft and Final Programmatic Recommendation Report

Task 5 – Develop Implementation Plan

Aakavs will develop a phased implementation plan for the future phases (Phase II, Phase III etc.) that will outline appropriate tasks, activities, responsibilities, schedule, and budget. The plan will also provide a phased roadmap to guide data conversion and development, software procurement (if any, one or multiple), software set up and configuration (on premises vs cloud subscription), custom software development (if any), other IT systems integration, training, system administration and support, project communications, and risk management.

Note that this task will occur in parallel to the Task 4 so that these two tasks are in synchronization of what they propose as solutions and how to implement them. MS Visio diagrams and Excel spreadsheet tables may be included in this plan. The District will review the report and provide one consolidated feedback in the same word document with “track changes” within 5 business days of receiving the initial draft document. Aakavs will discuss with the District, incorporate the District’s comments, and deliver the final version of the document within 5 business days. The District will issue an approval (email ok) of the final report on receiving it.

Deliverables:

- Draft and Final Implementation Plan for identified future phases e.g. Phase II, Phase III

Task 6 – Final Presentation

Aakavs will conduct a final presentation and Q&A session onsite (2 hours) to present the work that has been performed in Phase I including the methodology and the outcomes, and outline the roadmap for the future phases as illustrated in the approved Implementation Plan. Key stakeholders and participants will be required to be present during this task. We will present the consensus that has been built in Phase I while performing all the above tasks. Aakavs will review the presentation with the District's Project Manager beforehand to ensure appropriate findings and recommendations are covered.

Deliverables:

- Review Draft presentation with the District Manager
- Final Presentation onsite

Task 7 – Project Management

Aakavs will manage the project to meet project goals and objectives by critical schedule milestones within the allocated project budget. We recognize the importance of moving this program forward in a timely manner in the most economical way. Due to the unfolding nature of the work, which will be defined in more detail through each task, the project cost accounting and invoicing will be managed on a time and materials basis. As part of project management, Aakavs' Project Manager will:

- Communicate with the District's Project Manager and Stantec on a regular basis as needed to ensure timely and effective completion of tasks.
- Ensure deliverables are submitted on a timely manner
- Manage all tasks within budget and schedule by resolving conflicts and managing risks
- Verbally report via a scheduled telephone call or "in-person" to the District's Project Manager on a weekly basis regarding status and issues.

2.3 MAJOR WINS AND GAINS

Following are the major wins and gains from Phase I that will positively affect the future phases. Some of these work items will be done in the future phases, but the vision and foundation will be laid out in Phase I

- Better, more accessible data through integrated systems via a unified interface or dashboard. Users do not have to learn multiple IT systems.
- Track and monitor - click on map and find any data about anything. Real time data acquisition, views, queries e.g. maintenance programs, work orders, asset information, activities - flushing, valving, hydrant, costs etc.
- Easy user experience e.g. Google or Bing maps for mapping and navigation, but huge amount of rich data will be transparently integrated in the background for the users.
- Support Automatic data collection in future - GPS/ RTK locations. Better and more accurate

geographic location information will be integrated with assets and facilities.

- Huge and complex custom queries presented in a simple and transparent way to the users. Users do not have to know complex and huge queries or SQL.
- Human to Systems based knowledge
- Staff productivity increases - enter data day forward. Legacy data migration - paper to systems and databases.
- Eliminate redundancy and multiple point of error e.g. BPMS: i-nhance for customer information.
- Expandable systems built with a modular approach - reuse existing modules and frameworks, reduce costs over time as more applications get built and rolled out.
- Total cost of ownership over time decreases as more modules and components are reused.
- Device and platform (OS) independency – it will not matter what device (laptop, desktop, iphone, ipad, android tablet or phone etc) or OS (Windows, Mac etc.) you are using
- On Premise or Cloud deployment – we will assess and recommend cost savings in terms of hardware, software licenses, maintenance and support.
- Enterprise security - in-situ or cloud, we will secure the enterprise either way.
- Finite projects timeline and scope – phased approach. Each project has a finite budget and timeline to finish. No project will go on incessantly.
- Increases efficiency/ productivity – saves \$\$\$ over time. Staff does whatever they are supposed to do, not loose time on redundant or inefficient work processes.
- Project Management – integrates budgets, milestones, updates, timelines etc.
- Project Planning – now that the data is system based and not human based, projects can be planned based on data available from other similar projects over time. Better planning and budgeting will lead to better execution of the project, thus improving its chances for success.

2.4 MAJOR ASSUMPTIONS

Following are the major assumptions:

- The District Project Manager (PM) will help Aakavs in terms of information gathering, meeting scheduling, stakeholder participation, and coordination of the whole project
- The PM will provide assistance in order to mitigate any risk during the project
- The PM will ensure all reviews with comments are provided to Aakavs on a timely manner
- The PM will provide Aakavs with appropriate access to infrastructure and stakeholders as required to execute each task successfully. This may include remote access.
- The District will help Aakavs to keep the scope from creeping in order to finish the Phase I on time and within budget. The scope creep should be documented as wish list and may be included in future phases.

2.5 PRICE AND SCHEDULE

Following table and figure presents the price for this project. Stantec's project manager/representative (Laurie Fulton) is represented in the Project Manager column and Aakavs' representative (Arnab Bhowmick) is represented in the Principal Analyst column.

Table 1: Price

KCWD 90: Phase I		Project Manager	Principal Analyst	Labor	Labor Cost	Total
Hourly Rates		195	153	Hours		
Work Breakdown Structure						
Task 1: Review and Approve 3 Recommendations						
a. Review all CAD files and all other relevant background information			8	6	1,224	1,224
b. Review all CAD files and other information at the field		1	2	2	501	501
c. Review all CAD files and other information - 4 hours per location - 12 in total		1	4	6	807	807
d. Review all CAD files and other information - 2 hr		2	2	2	696	696
Task 2: Review and Approve 3 Recommendations						
a. Review and approve 3 recommendations generated			8	6	1,224	1,224
b. Review all CAD files and other relevant background information			4	4	612	612
c. Review all CAD files and other information at the District			2	2	306	306
Task 3: Review and Approve 3 Recommendations						
a. Prepare for the public group workshop		2	4	6	1,002	1,002
b. 3 hr on-site workshop - all 4 interview participants and board members.		3	3	6	1,044	1,044
i. Present findings and prepare recommendations.				0	-	0
ii. Keep in view future requirements and phases - walking the correct path				0	-	0
iii. Prepare recommendations for Phase II and III				0	-	0
Task 4: Review and Approve 3 Recommendations						
a. Review the prioritized and finalized solutions and recommendations - includes WDOB review cycle		3	22	25	3,951	3,951
Task 5: Review and Approve 3 Recommendations						
a. Review the scope, budget and timeline for Phase II and Phase III - includes WDOB review cycle		2	42	44	6,816	6,816
Task 6: Review and Approve 3 Recommendations						
a. Review and approve 3 recommendations			2	2	306	306
b. 2 hr on-site workshop to present the implementation plan - field based		1	2	2	501	501
Total						
		17	105	122	19,380	19,380

The tentative total time to finish this Phase I is 4 - 5 weeks from the start. We can adjust the schedule, if needed, to accommodate the District's availability and preferences

APPENDIX

AAKAVS' CAPABILITIES

This section covers the following:

- Direct Domain Experience
- GIS-IT Services Offerings

DIRECT DOMIAN EXPERIENCE

The Aakavs team distinguishes itself in that it offers:

- ***Direct domain experience with assessment, planning, and implementation of GIS, IT and asset management, scada, financial systems:***

The Aakavs team has extensive experience assessing, evaluating, and implementing a federated enterprise IT systems including needs analysis, strategic planning, software and platform identification, implementation planning, and deploying IT systems across the organization for federal, state, and local governments that require an understanding of all stakeholders, infrastructure, framework, technologies, portals, data warehouses, other IT systems and databases, and organization dynamics. For more information, visit the following URLs:

<http://www.aakavs.com/index.php/geospatial-services/78-geospatial-services/76-gisit-services>

<http://www.aakavs.com/index.php/geospatial-services/gis-services/enterprise-gis-consulting>

<http://www.aakavs.com/index.php/geospatial-services/gis-services/enterprise-asset-management-eam>

We understand that core IT systems and architecture provide the foundation for seamless integration across the departments for their systems and business processes. That's where our core IT expertise adds value. We also understand that GIS has widespread usage and should be leveraged wherever possible. Our extensive enterprise GIS experience supports that. Integrating asset management and financial systems leveraging the core IT foundation is becoming extremely important in routine operations. Our in-depth knowledge in those areas will facilitate such seamless integration.

- ***Direct domain expertise in core Information Technology:***

The proposed team members have worked with multiple IT systems and implemented value added applications and software throughout their careers. Aakavs provide enterprise oriented consulting methods based on best practices, and industry standard solutions to leverage and integrate various systems, applications, and data within your organization. Enterprise Application Integration (EAI) is one of our key focus areas. We excel in needs and requirements analysis, gap and options analysis, system evaluations (existing, legacy, new), product and platform identification, and devise optimal implementation plans to streamline and transform your business processes for productivity gains. We also perform detail enterprise architecture design in order to assess the readiness of your infrastructure, identify gaps, and plan for the implementation of a federated and "well communicating" system. The artifacts developed during the strategy, planning, and

deployment phases are documented and used extensively during implementation and post implementation support. The above approach is crucial to provide optimum, business needs driven solutions. We also help identify training requirements for your workforce, and in some cases provide the required training.

With our consultants working by your side, you can address your business goals better and quicker with more efficiency and accuracy using optimized and integrated IT systems and industry best practices. We also create and configure customized collaboration portals (data and applications), management dashboards, and operations dashboards by user roles to increase control, supervision, efficiency, and productivity. Our consultants are also extensively involved in implementation, project management, stakeholder training, and technology transfer so that you can own and operate your systems with comfort. On request, we also provide on-call support services if your staff needs project based or routine support for your IT systems. For more information, visit the following URLs:

<http://www.aakavs.com/index.php/it-services>

<http://www.aakavs.com/index.php/it-services/enterprise-it-consulting>

- ***Business Process Re-engineering and Improvement:***

The proposed team members have worked with multiple local governments and private sector clients throughout their careers implementing geospatial, asset management systems, financial systems, document management systems, portals and dashboards, other departmental systems, and integrating those with mainstream core IT systems. In order to do that, business processes, workflows, and data flows had to be improved and re-engineered depending on the requirements and goals of the project. We assist with the planning and assessment of your enterprise, application and data needs, data collection and capture procedures, business processes, data access and dissemination procedures, and hardware & software platform evaluation. We conduct user workflow analysis, data and process flows, user roles and activity flows, and design sessions to identify and streamline business needs. One of our consulting strengths lies in identifying ways in which workflows can be optimized or automated, and limited resources can be managed well to provide immediate productivity gains.

- ***Knowledge of local government:***

The proposed team members have worked with multiple local governments, in WA and across US, throughout their career implementing various IT systems and integrating those with other third party systems across departments within the organization. Our consultants have performed work with more than a dozen Cities and Counties just within the State of Washington, and many more within other states across the US. Our consultants are well aware of the working methodology, organizational dynamics, multi-departmental stakeholder participation, cutting edge technology, strategic planning and assessment, and the software identification and implementation processes that are suitable for the local governments. In the course of their work, our consultants have proved their commitment to quality, value, and timeliness over and over again.

- ***Award winning projects*** – Our consultants have received national recognition from time to time on various projects. For example, Arnab was awarded by ESRI the “**Special Achievement in GIS**” award in the International User Conference in San Diego a few years ago. Both Gregg (Aakav's

employee) and Arnab have received many awards and accolades throughout their professional careers for their contributions.

- **Excellent team track record** – We have a history of getting re-hired by our existing clientele for providing quality services within budget and on time.

GIS-IT SERVICES OFFERINGS

Aakavs specializes in the integration of assessment, planning, integration and implementation of IT, GIS, compliance management, asset management, workflow automation, document management, web and mobile technologies. We are distinguished from other information systems consultants in a several ways.

- Our interdisciplinary teams are recognized for delivering comprehensive assessments and solution recommendations to complex problems. We have the necessary expertise to assess the District's management and business processes, GIS-IT systems, identify best practices and work with you to develop improved workflows, solutions and implementation plan.
- Our consultants have designed and implemented GIS-IT systems in multiple local governments and various departments to manage assets, natural resources, roads and drainage infrastructure, environmental monitoring/compliance, and real property records.
- Our success specifying and delivering both desktop and web services-oriented GIS-IT solutions to meet enterprise information systems standards provides us with the real-world experience to seamlessly integrate the District's improved workflows.
- Our commitment to quality is evidenced by our customer testimonials and customer loyalty.

Aakavs is committed to providing its clients with the best value in information systems consulting, as proven by our qualifications and experiences. Our consultants also maintain their expertise through continual training and participation in professional societies and conferences.

A summary of Aakavs' information systems services offerings is presented in Table 2.

Table 2 – Aakavs’ Information Systems Services Offerings

Services	Description	Sample Deliverables
Information Systems Assessment and Planning	Determine the best overall GIS-IT systems, hardware, software, data, and solutions to support business requirements, processes and practices.	<ul style="list-style-type: none"> • Business Process Analysis • Gap and Solutions Options Analysis • Benchmarking Analysis • Enterprise-wide GIS-IT Plans • GIS-IT Implementation Plans • GIS-IT Audits
Systems and Applications Development, Engineering and Implementation	Determine system architecture, select software components, design databases, configure and integrate off-the-shelf solutions, write and test codes, document codes and procedures, and train/support clients.	<ul style="list-style-type: none"> • System Requirements Analysis • Software and Platform Selection • Systems Integration • GIS • Asset Management System • Financial Systems Integration • Software Engineering <ul style="list-style-type: none"> — Analysis — Specifications — Design — Development — Implementation — Application Training • Software Support
Data Development and Management	Convert hardcopy maps or tabular data to digital format, collect field data, transform existing digital data to required formats, and produce map displays based on various analysis techniques. Design enterprise databases and geodatabases. Design and implement portals, and document management systems	<ul style="list-style-type: none"> • Data Conversion • Field Data Acquisition • GPS and LIDAR data processing • Portals and Dashboards • Document Management System • Data Warehousing • Mapping Products (2-D and 3-D) • Modeling • ArcGIS and other Open Source GIS
System Management	Provide outsourcing GIS-IT services.	<ul style="list-style-type: none"> • Project Management • Network Management • Data Management • System Configuration, Operation and Administration • User Training • Ad Hoc/ On Call Support