



# NAPA SANITATION DISTRICT

## GHD - TASK ORDER No. 52 ASSET MANAGEMENT PLAN

Date: \_\_\_\_\_

Issued under Professional Services Agreement dated \_\_\_\_\_.

To: GHD

### Project Description:

Asset Management Plan - Professional Design Services.

### Description of Scope of Services to be performed by Consultant under this Task Order:

See Exhibit 'A' – Scope of Services

**Description of Services to be Provided by District:** See Exhibit 'A' –Scope of Services

**Deliverables:** See Exhibit 'A' –Scope of Services

**Consultant Project Manager:** Ted Whitton, PE

**Consultant Quality Control Manager:** Seth Yoskowitz, PE

**Schedule to Perform Services:** November 2016 through May 2017

**Time & Materials Not-to-Exceed Cost Limit:** \$174,680

See Exhibit 'B' –Fee Schedule

### APPROVALS:

#### GHD

By: \_\_\_\_\_  
Authorized Representative

\_\_\_\_\_  
Date

#### NAPA SANITATION DISTRICT

By: \_\_\_\_\_  
Purchasing Agent

\_\_\_\_\_  
Date

NSD Account No.: \_\_\_\_\_



# Asset Management Plan

## Project Scope Summary

### Introduction

Based on our understanding of the District's objectives and goals, GHD has developed a customized scope for an implementable and sustainable AM program that includes the following considerations:

**Develop an asset management implementation strategy roadmap that is appropriate for the District.** While the primary elements of an asset management program may be similar across utility organizations, the roadmap for implementation is different based on specific needs.

**Build upon and leverage work to date.** This project will focus on developing an Asset Management Plan and implementation roadmap that appropriately leverages existing District management practices.

**Work collaboratively and engage District staff.** Throughout the process GHD will work collaboratively with District staff with a focus on knowledge transfer using workshops. We have found workshops as being the most efficient use of staff time to maximize the benefit from the commitment. GHD will work with the District to determine which staff need to be included in each workshop or training.

**Develop a strategy and framework** that is easy and simple to understand and at the same time structured, comprehensive, scalable and allows for continuous improvement

### Scope of Work

The following scope of work represents GHD's recommended scope for developing an Asset Management Plan, and is based on the services described in the District's Request for Proposals with some modifications based on our experience on similar projects. This scope of work is also the basis for our consulting fee provided under separate envelope.

### Task 1 – Project Management

#### *Task 1.1 – Kick-Off Meeting and Project Work Plan*

GHD will conduct a 1-hour kick-off meeting with the District. The primary purpose of the kick-off meeting is to introduce the project team members and review the project Work Plan. GHD will prepare a Work Plan in advance of the kickoff meeting that charts the work to be performed, identifies the project purpose and objectives, key stakeholders (internal and external), workshops and deliverables, and schedule requirements. The plan will also provide contact information and communication protocols between the District and consultant team.

#### *Task 1.2 – Quality Reviews*

Quality assurance and quality control reviews will be performed for each task as the work progresses by GHD's designated Strategic Advisor, Roop Lutchman, and our Project Principal, Seth Yoskowitz. Quality assurance will occur through discussion and refinement of our approach to task-level activities and workshop agendas and materials, and quality control reviews will be performed on all project deliverables prior to submission to the District.



## EXHIBIT 'A'

### *Task 1.3 – Cost and Schedule Monitoring and Control*

GHD will work closely with the District to manage the project schedule as work progresses, especially with coordinating workshops and meetings with District staff. GHD's Project Manager, Ted Whiton, will monitor the team's activities against the Work Plan to make certain the schedule and budget are adhered to and project deliverables meet the objectives agreed to in the kickoff meeting. GHD will provide monthly progress reports with invoices that summarize work completed over the past period and project to date, and the work scheduled for the coming period. Outstanding issues requiring review and decisions with the District will also be noted.

#### *Task 1 Deliverables*

- Project Work Plan
- Kickoff Meeting Agenda and Minutes
- Monthly Progress Reports

## **Task 2 – Asset Management Best Practices Review**

### *Task 2.1 – Education and Awareness Training*

GHD will draw from our library of training material and work with the District to develop appropriate AM awareness training for the District Staff. A 2-hour training session will be delivered and will be designed to engage the District Staff through a facilitated process to begin providing input into the asset management program development. The training will be structured to answer the following questions: What is Asset Management? How do you do Asset Management? What are the benefits of doing Asset Management? And what is my role in the process? This task is a key element of the leading and managing change strategy. Although District staff may be aware of AM principles, this exercise will serve to get GHD and NSD staff on the same page as the project kicks off.

### *Task 2.2 – Staff Interviews*

GHD will conduct up to eight 1-hour staff interviews (individually or in groups) to identify key workflows, document data usage, and discuss current asset management practices. During these interviews, GHD will begin each session with additional awareness training (as appropriate) for understanding how the process being discussed fits into the overall AM framework specific to each department.

### *Task 2.3 – Asset Management Program Development Workshop*

GHD will conduct a 2-hour workshop focusing on AM program elements and how District staff will be part of the development and implementation process. GHD will lead and facilitate the workshop and utilize breakout sessions as a leading change strategy and to promote staff engagement. Specific breakout sessions' structure and expected outcomes will be developed collaboratively with the District based on the outcomes of the initial staff interviews.

#### *Task 2 Deliverables*

- 2-hour AM Awareness Training for District Staff
- 1-hour Staff Interviews (Up to 8)
- 2-hour AM Program Development Workshop Material



### Task 3 – Gap Assessment

Our approach to gap assessment is based upon our proprietary tool - Total Enterprise Asset Management Quality Framework (TEAMQF) - which has been used to assess water/wastewater agencies in the US and globally. The assessment tool has been recently updated to now incorporate the requirements of ISO 55001:2014, which is the newly published international standard for asset management. GHD's TEAMQF asset management assessment framework is built around the nine categories listed in the following table.

Table 1: Gap Assessment Categories

| Category | Category Name            | Asset Management Practices Covered   |
|----------|--------------------------|--|
| 100      | Setting Direction        | Asset Management Policy; Strategy; Demand Analysis; Asset Management Objectives  |
| 200      | Programming              | Accounting & Costing; Strategic Planning; Capital Expenditure Evaluation   |
| 300      | Preparation              | Maintenance Decision Making; Asset Management Plans & Implementation   |
| 400      | Implementation           | Operations; Creation & Acquisition; Maintenance; Work Resource Management; Rationalization & Disposal  |
| 500      | Asset Monitoring         | Asset Condition Monitoring; Asset Performance Monitoring; Incident Investigation   |
| 600      | Management System Review | Management System; Business Risk Management; Asset Risk Management; Continuous Improvement; Legal, Regulatory & Other Requirements   |
| 700      | People & Organization    | Organization Issues; People Issues; Commercial/Procurement Activities; Communications  |
| 800      | Data & Information       | Process for Managing Asset Knowledge; Asset Data & Knowledge; Activity Data & Knowledge  |
| 900      | Technology               | Systems for : Data & Information; Financial & Human Resources; Work & Maintenance Management; Supply & Logistics; Advanced Data and Information Analysis & Decision Making |

#### Task 3.1 – Conduct Gap Assessment Workshops

This task is the core of the overall gap assessment. GHD will facilitate two 4-hour gap assessment workshops. As part of the assessment workshops, GHD will ask a series of questions about District's asset management practice, providing specific examples where appropriate.



## EXHIBIT 'A'

The workshop approach is interactive to support development of consensus opinion among the attendees on the current state of practice. The questions and results are projected on a screen so that staff may confirm the evaluation made. We will maintain a record of the comments made in support of the scoring so that staff may more readily recall the reasoning behind a score when discussing the gap and how to close it.

GHD will assess the degree to which District staff, practices and tools support and enable business goals in alignment with your strategic intent. We will identify those areas that continue to work effectively, and those that can be improved to better support strategic asset management.

### *Task 3.2 – Develop Gap Assessment Summary Results*

After completion of the assessment workshops, GHD will summarize the information, compare the current District practices against leading practices, develop a set of preliminary findings, and identify a list of potential enhancement recommendations.

The gap analysis involves providing a score against each topic's area and commenting on the state of the practice at the District.

The gap assessment results will be presented for each of the nine categories, in a format illustrated in Figure 4. For each category we will state the general requirements, provide the key aspects of our observations, and list the recommended priority areas for improvement.

The gap assessment results will be used to develop a set of goals and objectives for the program. Working closely with the District staff, we will identify the appropriate next steps needed to meet the identified goals and objectives. The results will be documented in a technical memorandum.

### *Task 3 Deliverables*

- Two 4-hour Gap Assessment Workshops
- Gap Assessment Summary Technical Memo (Tech Memo 1)

## **Task 4 – Business Process Improvements and Asset Management Framework**

### *Task 4.1 – Facilitate Workshops*

GHD will facilitate a series of four workshops with District staff to develop the key elements of the Asset Management Framework and program objectives and goals. These workshops will build upon the work completed in Task 3. The workshops are further explained in this section

#### **Workshop No. 1 : Asset Management Program Policy, Goals, Objectives, and Outcomes (2 Hours)**

In the developing asset management improvement programs, GHD works with our clients to establish an appropriate asset management (AM) policy with objectives. The purpose of an AM Policy is to document the District's commitment to asset management through formalizing functions, practices, expectations and responsibilities associated with the management of assets used to support delivery of services. It broadly outlines how and why asset management will be undertaken and how it links to the organization as a whole.

#### **Workshop No. 2: Asset Management Business Process Improvements (4 Hours)**

This workshop will focus on the primary business processes that make up an asset management program, including: Levels of Service (LoS), Business Risk Exposure (BRE), condition assessment and failure modes. The workshop will be used to gain input from the District on the development or enhancement of these various elements.



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LoS is the way the asset management program describes the outcomes that the District expects to achieve in providing services to its customers. GHD will prepare example levels of service statements that draw upon the body of knowledge we have in this regard and which reflect the District's operating environment and organizational goals. GHD will develop service level statements, gain input on the LoS framework development, and set LoS goal targets.

An asset's risk, or BRE, is an indication of the importance of an asset from a decision making perspective. It is closely related to the consequences associated with the failure of the asset. The objective of a BRE framework and methodology is to develop a series of rules for determining the direct and in-direct implications of the loss of the asset taking redundancy, resiliency and other considerations into account. GHD will work with the District to set initial risk threshold criteria.

Other business processes will also be addressed during this workshop, including condition assessment methodologies and scoring systems, asset performance, failure modes, asset life, asset life cycle cost analysis and asset management plan development process.

### **Workshop No. 3: Organizational Structure, Change Management, and Continuous Improvements (2 Hours)**

GHD understands that the District recognizes the importance of aligning its organization, processes and people to support the requirements of leading Asset Management practices. Part of an AM strategy and implementation program is the understanding of organizational capacity, roles, responsibilities and business processes to achieve a high performing organization in the area of AM. The GHD team uses recognized change models like the ADKAR model (Awareness-Desire-Knowledge-Ability-Reinforcement; by Jeffrey Hiatt) and other change models to help support organizations through transformation. Alignment with organizational goals, assessment of service delivery capabilities, and the AM governance reporting structure are all impacted by Asset Management implementation programs. This workshop will focus on several fundamental aspects of a sustainable asset management program including: how the District is organized into functional roles that sustain asset management; asset management plan content, level and frequency; change management; and continuous improvement.

### ***Task 4.2 – Develop Strategies and Objectives of the Asset Management Framework***

Using the Asset Management framework business process improvements developed in Task 4.1, GHD will assist the District in developing appropriate strategies and objectives for program implementation.

Based on the LoS Framework structure developed in Workshop No. 2, performance measures will be further developed. GHD will assist in identifying and developing performance measure definitions, and determine actual performance, long term goals and short term targets to the extent possible based on readily availability data provided by the district.

Based on the BRE Framework structure developed in Workshop No. 2, the risk thresholds that will be used in the BRE analysis as part of future TAMPs will be developed. An example of a BRE Framework laid out as a chart is shown in Figure 5.

GHD will assist NSD in determining the format of and structure of future TAMP(s) (type, level, frequency) and appropriate best practices to determine/assess asset failure modes, condition, life expectancy/residual life and replacement costs. Figure 6 is an example of the capital and O&M financial requirements forecasting that will be developed as part of the TAMP. GHD will include in the strategy development organizational considerations such as process ownership, staffing and personnel requirements, and training requirements. Outcomes of the AMP developed strategies and objectives will inform the development of the Task 5 Asset Management Roadmap Implementation Plan (Roadmap).



## EXHIBIT 'A'

GHD will include in the strategy development organizational considerations such as process ownership, staffing, and personnel requirements, and training requirements. Outcomes of the AMP developed strategies and objectives will be the basis for the development of the TAMP, and it will inform the development of the Task 4 Asset Management Roadmap Implementation Plan (Roadmap).

### *Task 4.4 – Evaluate Data and Technology Systems*

Based on the results of the Gap Assessment review completed in Task 2, GHD will develop a strategic level assessment of NSD's data and information technology systems. To support the implementation of the AMP, the District must collect, store, manage, and analyze large amounts of infrastructure data in an effective and efficient manner. By focusing on the use of the data in strategic, tactical and operational decision making, the District will be in a position to understand what data is needed to be collected and maintained for each major asset type. Accordingly, the District will also be able to tailor its data collection and maintenance efforts so as to limit spending valuable time and money on data that is of limited or no value.

GHD will identify for each major information technology solution which types of major assets are included, what data attributes are being managed by that software, what is readily known about the quality of that data, and how the data is being shared with other information solutions. The intent is to evaluate the management and use of asset data; and, in so doing, identify issues or gaps with the information technology solutions and suggestions for how those issues or gaps may be resolved. Our findings will be used to develop a business case for improving, changing or adding technology in support of the District achieving its asset management objectives, and delivering the Asset Management Plan.

### *Task 4 Deliverables*

- Workshop Materials
- Asset Management Framework Business Process Improvements Summary (Tech Memo 2)

## **Task 5 – Implementation Roadmap**

GHD will work with the District to develop an implementation plan for improving the asset management program that will incorporate the implementation guiding principles identified throughout this proposal, including:

- Fit for purpose and appropriate for the District
- Knowledge transfer
- Leading and managing change through collaboration and staff engagement
- Developing a roadmap that is appropriate for the District
- Build upon and leverage work to date

GHD will work with the District to develop an implementation plan roadmap for the future tactical asset management plans (TAMPS), business improvement projects, and information system and data management.

Implementation tasks will be aligned to the organization structured around four primary core process (see Figure 8) areas as follows:

- Planning
- Core-Service Delivery
- Performance Management
- Support Services



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For each core process, implementation tasks will be identified and include:

- Implementation task description
- Benefits
- Internal costs (e.g., general staff requirements expressed as FTEs)
- External costs (e.g. consulting, software, condition assessment)
- Priority level

Examples of implementation tasks and an associated roadmap schedule are shown in Figure 9 and 10 respectively.

### *Task 5.1 – Facilitate Roadmap Planning Workshop*

GHD will conduct a 2 hour Roadmap project planning meeting to review the outcomes of the AMP, and to identify the primary focus areas and priorities for implementation tasks.

### *Task 5.2 – Roadmap Implementation Plan*

Based on the results and input from the workshop, GHD will develop a draft roadmap document. GHD will submit three hard copies and the required digital copies. A comment response review meeting will be conducted and GHD will address comments and deliver three hard copies and digital copies of the final roadmap document.

#### *Task 5 Deliverables*

- Roadmap Implementation Plan (Tech Memo 3)

## **Task 6 – Asset Management Plan (AMP)**

The AMP will summarize the content of Tech Memos 1, 2 and 3 and present the overall strategy and roadmap for implementing asset management business improvements at NSD. The AMP will include:

- Strategies and Objectives of the Asset Management Program
- Levels of Service and Performance Measures
- Risk Framework
- Tactical Asset Management Plan Development Strategy
- Management Strategy Group Framework for O&M and Capital Planning

### *Task 6.1 – Draft and Final Asset Management Plan*

Once the tech memo deliverables from the previous tasks (gap assessment, business improvements, and roadmap implementation plan) have been reviewed by the District and revised, contents from all three as well as other deliverables from the previous tasks will be assembled together to create a draft asset management plan. A comment response review meeting (by WebEx) will be conducted at the 60% and 90% complete stages, and GHD will address comments and deliver three hard copies and digital copies of the Final Asset Management Plan. Once the Final AMP has been completed, GHD will facilitate a 1 hour presentation to the NSD Board on the findings and results of the AMP.

#### *Task 6 Deliverables*

- Draft and Final Asset Management Plan (AMP Report)
- Asset Management Plan Presentation to the NSD Board

## EXHIBIT 'B'

| <br>NAPA Sanitation District<br>Asset Management Plan     | Deliverables  | Project<br>Principal | Project<br>Manager | Strategic<br>Advisor | AM Technical<br>Lead | Senior AM<br>Consultant | AM<br>Consultant | Admin<br>Support | Total Hours | Total Fees  |
|--|---|----------------------|--------------------|----------------------|----------------------|-------------------------|------------------|------------------|-------------|-------------|
|  |   | \$260                | \$240              | \$260                | \$240                | \$175                   | \$150            | \$110            |             |             |
| <b>Task 1 - Project Management</b>   |   | 8                    | 48                 | 8                    | 4                    | 4                       | 4                | 8                | 84          | \$18,820.00 |
| 1.1 – Kick-Off Meeting and Project Work Plan   | – Project Work Plan   |                      | 8                  |                      | 4                    | 4                       | 4                | 4                | 24          |             |
| 1.2 – Quality Reviews  | – QA/QC reviews   | 8                    | 8                  | 8                    |                      |                         |                  |                  | 24          |             |
| 1.3 – Cost and Schedule Monitoring Control   | – Monthly invoices and progress reports   |                      | 32                 |                      |                      |                         |                  | 4                | 36          |             |
| <b>Task 2 – Asset Management Best Practices Review</b>   |   | 2                    | 36                 | 2                    | 36                   | 36                      | 12               | 8                | 132         | \$27,300.00 |
| Task 2.1 – Education and Awareness Training  | Asset Management Awareness Training for District Staff<br>– Training Materials<br>– 2 Hour Awareness Training Session | 1                    | 8                  | 1                    | 8                    | 8                       |                  | 2                | 28          |             |
| Task 2.2 – Staff Interviews  | 1 Hour Staff Interviews (Up to 8)<br>– Strategic Business Process Map (Up to 8)<br>– Meeting Summaries (Up to 8)      |                      | 20                 |                      | 20                   | 20                      | 12               | 4                | 76          |             |
| Task 2.3 – Asset Management Program Development Workshop   | AM Program Development Workshop<br>– Workshop materials<br>– 2 Hour Facilitated Workshop                              | 1                    | 8                  | 1                    | 8                    | 8                       |                  | 2                | 28          |             |
| <b>Task 3 – Gap Assessment</b>   |   | 2                    | 24                 | 2                    | 28                   | 40                      | 40               | 6                | 142         | \$27,180.00 |
| Task 3.1 – Conduct Gap Assessment Workshops  | Gap Assessment Workshops<br>– Workshop Materials<br>– Two 4-Hour Facilitated Workshops                                | 1                    | 16                 | 1                    | 24                   | 24                      | 16               | 4                | 86          |             |
| Task 3.2 – Develop Gap Assessment Summary Results  | – Gap Assessment Summary (Tech Memo 1)  | 1                    | 8                  | 1                    | 4                    | 16                      | 24               | 2                | 56          |             |
| <b>Task 4 – Business Process Improvements and Asset Management Framework</b>   |   | 5                    | 52                 | 5                    | 52                   | 60                      | 48               | 10               | 232         | \$46,360.00 |
| Task 4.1 – Asset Management Framework Development Workshops  | Facilitate Workshops  |                      |                    |                      |                      |                         |                  |                  | 0           |             |
| Workshop 4.1: AM Program Policy, Goals, Objectives, and Outcomes   | – Workshop Materials<br>– 2-Hour Facilitated Workshop   | 1                    | 8                  | 1                    | 8                    | 8                       | 8                | 2                | 36          |             |
| Workshop 4.2: AM Business Process Improvements   | – Workshop Materials<br>– 4-Hour Facilitated Workshops  | 1                    | 12                 | 1                    | 12                   | 12                      | 8                | 2                | 48          |             |
| Workshop 4.3: Org Structure, Change Mgmt, and Continuous Imps  | – Workshop Materials<br>– 2-Hour Facilitated Workshop   | 1                    | 8                  | 1                    | 8                    | 8                       | 8                | 2                | 36          |             |
| Task 4.2 – Develop Strategies and Objectives of the AM Framework   | – Levels of Service Framework<br>– Business Risk Exposure Framework   | 1                    | 16                 | 1                    | 16                   | 16                      | 8                | 2                | 60          |             |
| Task 4.3 – Evaluate Data and Technology Systems  | – Review of Data and Technology Systems<br>– Tech Memo 2  | 1                    | 8                  | 1                    | 8                    | 16                      | 16               | 2                | 52          |             |
| <b>Task 5 – Roadmap Implementation</b>   |   | 2                    | 12                 | 2                    | 12                   | 24                      | 32               | 4                | 88          | \$16,240.00 |
| Task 5.1 – Facilitate Roadmap Planning Workshop  | Roadmap Planning Workshop<br>– Workshop Materials<br>– 2-Hour Facilitated Workshop                                    | 1                    | 8                  | 1                    | 8                    | 8                       | 8                | 2                | 36          |             |
| Task 5.2 – Roadmap Implementation Plan   | – Roadmap Implementation Plan (Tech Memo 3)   | 1                    | 4                  | 1                    | 4                    | 16                      | 24               | 2                | 52          |             |
| <b>Task 6 – Asset Management Plan</b>  |   | 2                    | 24                 | 2                    | 28                   | 16                      | 16               | 4                | 92          | \$19,160.00 |
| Task 6.1 – Draft and Final Asset Management Plan   | – Asset Management Plan (Draft and Final Report)<br>– Asset Management Plan Presentation                              | 2                    | 24                 | 2                    | 28                   | 16                      | 16               | 4                | 92          |             |
|  | <b>Total Hours</b>  | 21                   | 196                | 21                   | 160                  | 180                     | 152              | 40               | 770         | \$155,060   |
|  | <b>Total Cost</b>   | \$5,460              | \$47,040           | \$5,460              | \$38,400             | \$31,500                | \$22,800         | \$4,400          |             |             |
| *Notes:  |   |                      |                    |                      |                      |                         |                  |                  |             |             |
| 1. Cost estimates for Project Management are based on a six month project duration   |   |                      |                    |                      |                      |                         |                  |                  | Consumables | \$4,620     |
| 2. Cost estimates, including travel expenses, are based on three sets of onsite meetings and workshops by GHD                              |   |                      |                    |                      |                      |                         |                  |                  | ODC         | \$15,000    |
| 3. Miscellaneous expenses, including printing, copying, postages, phone and other miscellaneous expenses, are based on \$6 per labor hour. |   |                      |                    |                      |                      |                         |                  |                  | TOTAL FEE   | \$174,680   |