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**OGC[®] KENTUCKY WATERSHED MODELING INFORMATION
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Annex A—KWMIP Requirements and Work Breakdown Structure

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Annex A: KWMIP Requirements and Work Breakdown Structure

1 Introduction

This document describes the KWMIP Requirements for this Web Services Initiative.

2 Requirements

The following table shows the KWMIP Requirements.

Table 1-KWMIP Requirements

Service/Requirement	Annex B Paragraph
1) Web Map Services	2.3
2) Web Feature Services	2.3
3) Web Coverage Services	2.3
4) Catalog Services – Web / Z39.50	2.3

3 Interoperability Initiative Process Framework

This section describes a flexible framework of standard, repeatable processes, which can be combined and adapted as necessary to address the requirements of each Interoperability Initiative. These tasks are executed with a Virtual Team Infrastructure. This Process Framework forms the basis for the OGC Web Services Initiative Work Breakdown Structure.

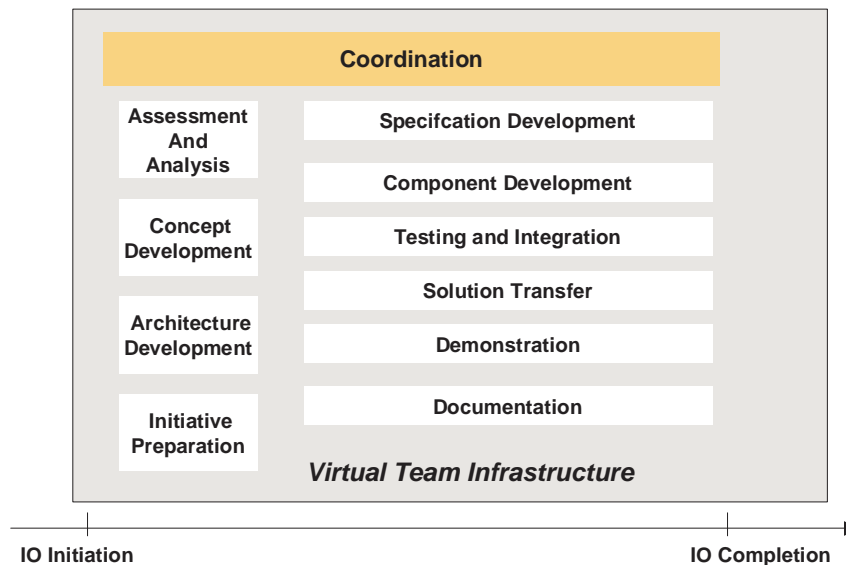


Figure 3: Interoperability Initiative Process Framework.

3.1 Tasks

3.1.1 Coordination

Enables overall Initiative coordination between OGC Staff, OGC IP Team, Sponsors, Participants, and other TC/PC Members as required. Initiative Coordination includes the following Subtasks:

- **Collaborative Environment** - OGC IP Team provides synchronous and asynchronous collaboration environments for cross organizational, globally distributed, virtual teams working interdependently to execute Initiative OrdersActivities under this subtask include reading email and engaging in collaborative discussions including teleconferences.
- **Management** - Services ensuring Initiative Order participants are staying within designated budgets, that the work is progressing according to the agreed schedule, and that the tasks identified in the Statement of Work are executed. Including status reporting.
- **Communication** – Includes communicating ongoing and planned Initiative and Work Item Status to OGC and other organizations such as ISO. This task does not include IP Business Development functions.

3.1.2 Specification Development

This task defines and develops models, schemas, encodings, and interfaces necessary to realize required Architectures. Includes specification Pre-design and Design tasks. This task may include activities to coordinate ongoing Initiatives with Specification Program activities.

3.1.3 Component Development

This task develops prototype interoperable commercial software components based on draft candidate implementation specifications or adopted specifications necessary to realize the required Architecture.

3.1.4 Testing and Integration

This task integrates, documents and tests functioning interoperable components and infrastructures that execute operational elements, assigned tasks, and information flowsrequired to fulfill a set of user requirements. Includes Technology Integration Experiments (TIEs).

3.1.5 Solution Transfer

This task prepares prototypical interoperable components so that they can be assembled at required sites.

3.1.6 Demonstration

This task defines, develops and deploys functioning interoperable components and infrastructures that execute operational elements, assigned tasks, and information flows required to fulfill a set of user requirements.

3.1.7 Documentation

This Task ensures development and maintenance of the pre-specification, pre-conformant interoperable OpenGIS technologies (including Draft Interoperability Program Reports and Interoperability Program Reports) and the systems level documentation (example user documentation, etc.) necessary to execute the Initiative. This task may include coordination with OGC Specification Program activities including the Documentation Team.

4 KWMIP Work Breakdown Structure (WBS)

The following Work Breakdown Structure (WBS) is derived from the OGC Interoperability Initiative Process Framework. This WBS should be interpreted in the following manner:

- Items that are grayed out are either IP Team tasks, have already been completed, or are not required for the KWMIP Initiative.
- Bold text is a task grouping or subtask grouping.
- Plain text indicates tasks against which proposing organizations should respond.
- Italic text indicates the task explanation (These task explanations are valid only for KWMIP; subsequent initiatives will issue appropriate task explanations).

A proposing organization does not have to respond to all tasks below. However bold italic text in the task explanation indicates which tasks are mandatory or conditional. Conditional tasks are those that are mandatory if a proposing organization takes on certain non-mandatory tasks. All responses shall use this WBS to structure their responses. Evaluations of responses will be based on whether a proposal addresses the WBS task items. So a company anticipating working on a particular task that fails to indicate their intent by using the WBS structure below will not be considered for the desired task. The KWMIP project plan and schedule will use this WBS as a template as well.

1 Coordination

1.1 Collaborative Environment

1.1.1 Routine and ad hoc telecons as assigned

*Task Explanation-The proposing organization shall provide a technical representative and an alternate to participate in regularly scheduled telecons. If a participant organization has a representative that is requested or volunteers to participate in an ad hoc telecon, then that representative or a reasonable alternative shall join the ad hoc telecon if at all possible. **This item is mandatory for all proposing organizations.***

1.1.2 E-mail review and comment

*Task Explanation-The proposing organization shall provide technical representatives to participate in specification and prototypical component development discussions via the KWMIP mail list. **This item is mandatory for all proposing organizations.***

1.1.3 Action Item status reporting

*Task Explanation-Proposing organizations' representatives shall report the status of their work in response to any action item accepted by them in whole or part. Action Items will be assigned to relevant work groups with an identified work group leader. Action item status shall be reported to the relevant work group leader. **This item is mandatory for all proposing organizations.***

1.2 Initiative Plan Development

1.2.1 Project Plan Development

1.2.2 Project Schedule Development

1.2.3 WBS Development

1.2.4 Concept of Operations Development

1.3 Management

1.3.1 Status Reporting

*Task Explanation-Proposing organizations' business representatives shall report the status of their work as assigned to and accepted by them in their SOW following the structure of this WBS. Status reports will reflect the WBS item number and name, the "health" of the effort with green indicating optimal; yellow indicating issues have arisen that appear resolvable; and red indicating that issues have arisen that require immediate resolution or the effort will not succeed, and finally the report will describe the work done to fulfill the WBS item. Reports will be submitted to the KWMIP Initiative Manager and Operations Manager on a Monthly basis. The first status report will be due 30 days after award of contract with all subsequent reports being due on the third of the month or the first Monday thereafter by COB. **This item is mandatory for all proposing organizations. Additionally all proposing organizations shall submit an initial status report indicating personnel assigned to support the KWMIP initiative. This initial status report will use a form to be supplied to proposing organizations that have been invited to participate in the KWMIP initiative. These initial status reports shall be submitted to KWMIP Operations lead no later than the first day of the KWMIP kickoff in soft copy format only.***

1.3.2 Initiative Accounting

*Task Explanation-Proposing organizations' business representatives shall submit an invoice to Jeffrey Burnett of OGC. The invoice shall include the OGC Accounting Job Code. This Job Code will be provided to contracted participants by OGC via the contract. The invoice shall be submitted monthly for work completed during the prior month. Deliverables shall be itemized. The invoice shall include the budgetary not to exceed figure. **This item is mandatory for all proposing organizations.***

Communication

1.3.3 OGC Internal IP Status Briefings

1.3.4 OGC External IP Status Briefings

2 Assessments and Analysis

2.1 *Organizational Capability Review*

2.2 *Organizational OGC Requirements Review*

3 Concept Development

3.1 *Sponsor Feasibility Study Review*

3.2 *RFT Development*

3.3 *RFT Response Analysis*

3.4 *RFT Response Review*

4 Architecture Development

4.1 *Operational Architecture Development*

4.2 *System Architecture Development*

4.3 *Technical Architecture Development*

5 Initiative Preparation

5.1 *Sponsor Planning TEMs*

5.2 *RFQ Development*

5.3 *Participant Budget Development*

5.4 *Contract Development*

5.5 *SOW/SOP Development*

6 Specification Development

Task Explanation-Proposing organizations should minimally respond to this task and its associated subtasks (or a subset thereof) OR to task 7 Component Development To

*support this responding organizations shall send a technical representative to the KWMIP Kickoff; **this kickoff attendance is mandatory for all proposing organizations.***

7 Component Development

Task Explanation-Proposing organizations should minimally respond to this task and its associated subtasks (or a subset thereof) OR to task 6 Specification Development.

7.1 Prototypical Interoperable Software Development

Task Explanation-Proposing organizations' technical representatives shall either develop server software or modify existing product server software to provide the interfaces necessary under KWMIP.

7.1.1 Server software development

Task Explanation-Proposing organizations' technical representatives shall develop server software or modify existing product server software to provide the interfaces under the KWMIP. The proposing organizations will make this server software available for sponsor review and input during the course of the KWMIP initiative.

7.1.1.1 Legacy server software enhancement

*Task Explanation-Additionally, the proposing organization shall adapt existing Kentucky Web Feature Service (WFS), a Web Map Service (WMS), Web Coverage Service (WCS) or Catalog Service-Web (CS-W / Z39.50 for KWMIP. **This item is mandatory for all proposing organizations.***

7.1.2 Client software development

*Task Explanation-Proposing organizations' technical representatives shall develop/provide client software or modify existing product client software to satisfy the client use case of KWMIP in Annex B, KWMIP Architecture. The proposing organizations will make this client software available for sponsor review and input during the course of the KWMIP initiative. Proposing organizations shall be prepared to develop client software to support their server software. However, they may make arrangements with other participants to use that organization's client software to exercise their server during the course of the initiative. This is applicable only so long as the sponsors and IP Team agree that the third party client is appropriate for exercising the functionality of the relevant server. **If the proposing organization is providing server software and client software, then the client software shall exercise all KWMIP or other OGC services provided by their server.***

8 Testing and Integration

8.1 Configuration Management

8.1.1 CM Plan Development

Task Explanation-The Proposing organization shall provide a representative to develop a configuration management plan for interfaces and components developed during the KWMIP initiative.

8.1.2 Initiative CM

The Proposing organization shall provide a representative to exercise the configuration management plan for interfaces and components developed during the KWMIP initiative.

8.2 Infrastructure Setup

*Task Explanation -- The Proposing organization shall set up as many components as possible on the same hardware and operating systems as the final deployments as possible. **This item is mandatory for all organizations proposing to provide software and / or hardware components for KWMIP.***

8.3 Technology Integration Experiments

8.3.1 Iterations 1-N

8.3.1.1 Component Interface Test

*Task Explanation-The Proposing organization shall provide a technical representative to conduct formal Technology Integration experiments that exercise server and/or client component software's ability to properly implement the interfaces, operations, encodings, and messages developed during KWMIP. There will be multiple TIEs during the course of KWMIP that will exercise various interfaces, operations, encodings, and messages developed during KWMIP. There may also be multiple iterations of a particular TIE or set thereof. **This item is mandatory for all organizations proposing to provide software components for KWMIP.***

8.3.1.2 Test Result Analysis

*Task Explanation-The Proposing organization shall provide a technical representative to report the outcome and relevant software reporting messages from TIEs in which the proposing organization participates. These TIE reports shall be submitted to the KWMIP email list and within Monthly Status Report to be courtesy copied to the initiative architect. **This item is mandatory for all organizations proposing to provide software components for KWMIP.***

8.4 System Tests

8.4.1 Functional Test

*Task Explanation – The Proposing organization shall demonstrate the functionality of all software delivered against the Use Cases in Annex B, KWMIP Architecture. **This item is mandatory for all organizations proposing to provide software components for KWMIP.***

8.4.2 Interface Test

*Task Explanation – The Proposing organization shall demonstrate conformance with the appropriate OGC interfaces by using the OGC CITE Web site where the appropriate test suites are available. **This item is mandatory for all organizations proposing to provide software components for KWMIP.***

9 Solution Transfer

9.1 Software Installation

*Task Explanation-The Proposing organization shall provide licensed copy / copies of KWMIP relevant software components for installation/integration onto the KWMIP Network. This must take the form of the proposing organization installing it on a machine in the KWMIP Network. **This item is mandatory for all organizations proposing to develop software components for KWMIP.***

9.2 Software Integration

9.3 Data Loading

*Task Explanation-The Proposing organization shall provide a technical representative to load data to any server components the proposing organization may provide. This task includes data loading to KWMIP Network based servers. **This item is mandatory for all organizations proposing to develop server components for KWMIP.***

10 Demonstration

10.1 Use Case Development

Task Explanation-The Proposing organization shall provide a technical representative to develop or support the development of use cases that define and explain the utility of the interfaces developed during KWMIP. These use cases shall be used to provide a basis for demonstration storyboards and the demonstration itself.

10.2 Storyboard Development

Task Explanation-The Proposing organization shall provide a technical or business representative to develop or support the development of the demonstration storyboards that will define the structure and content of the demonstration.

10.3 Venue Access

10.4 Data Requirements Assessment

10.5 Data Acquisition and Distribution

10.6 Demonstration Preparation and Delivery

*Task Explanation-The Proposing organization shall provide a technical and/or business representative to develop or support the development of demonstration that will exercise the functionality of the interfaces developed during KWMIP. The representative(s) will also support the demonstration event(s) as required. The proposing organization will maintain server and client software for a period of no less than 12 months after the completion of the KWMIP demonstration. **This item is mandatory for all organizations proposing to provide software components for KWMIP.***

11 Documentation

11.1 IPR Development

*Task Explanation-The Proposing organization shall provide a technical representative to serve as editor of a relevant Interoperability Program Report (IPR). Not all organizations responding to this item will be required to provide an editor; alternatively however they shall support the editor by providing authors for sections of the IPR and for reviews of the Draft IPR (DIPR). **The IPR is the deliverable of the work items within KWMIP.***

11.2 System Documentation Development

11.2.1 Functional Specification

11.2.1.1 Architectural Overview

*Task Explanation-The Proposing organization shall provide a technical representative to develop an architectural overview of their software component(s) relevant to the KWMIP architecture. **This item is mandatory for all organizations proposing to develop software components for KWMIP.***

11.2.1.2 Use Cases

Task Explanation-The Proposing organization shall provide a technical representative to develop use cases to show the functionality of their software components in the context of

the KWMIP architecture. This item is mandatory for all organizations proposing to provide software components for KWMIP.

11.2.1.3 UML System Models

11.2.1.4 System Configuration

Task Explanation-The Proposing organization shall provide a technical representative to develop a detailed document describing the combined environment of hardware and software component(s) that compose their contribution to KWMIP. This item is mandatory for all organizations proposing to develop software components for KWMIP to be installed at sponsor or other host sites connected to the OGC Network.)

11.2.2 Installation Guide

Task Explanation-The Proposing organization shall provide a technical representative to develop an installation guide for their software component(s). This item is mandatory for all organizations proposing to develop software components for KWMIP to be installed at sponsor or other host sites connected to the OGC Network.

11.2.3 Training Material & Users Guide

Task Explanation-The Proposing organization shall provide a technical representative to develop a User's Guide and Training Materials pertaining to their software component(s) developed or modified for KWMIP. The documents shall be provided to sponsors and IP Team to support their ability to demonstrate the proposing organization's contributions to the KWMIP initiative. This item is mandatory for all organizations proposing to develop software components for KWMIP.

11.3 Planning Study Report

12 Draft Conformance Test Document (DCTD) Development

Task Explanation-Proposing organizations' technical representatives shall develop a Draft Conformance Test Package pertaining to an interface developed for KWMIP. The representatives shall submit the Draft Conformance Test Package, as an IPR, to the OGC Technical Committee for review. Those representatives shall present said Reports to relevant OGC TC special interest and working groups. Those representatives will work with WG members to resolve issues that the members may raise with regard to the Draft Conformance Test Package/IPR and the conformance test(s) described therein. Proposing organizations should respond to this task AND its associated tasks (task 6 Specification Development and task 11 Documentation.

12.1 Summarize TIEs, demo results and data issues

Task Explanation-Proposing organizations' technical representatives shall include a section in the DCTD detailing progress pertaining to the implementation of the interface by including TIE results, lessons-learned from the demo, and particular data issues.)

12.2 Conformance Test

Task Explanation-Proposing organizations' technical representatives shall outline in the DCTD all of the necessary information to conduct a valid conformance test of the interface, including the sub items below)

12.2.1 Test Cases

Task Explanation-Proposing organizations' technical representatives shall outline a valid conformance test for the interface. A valid conformance test will include identification of all required and optional server requests in the interface and the acceptable results for testing servers and the syntax checks to perform for testing client requests; an explanation of an acceptable verification of the results (machine, human, etc); a list of expected/valid warnings or exceptions to interface behavior; a matrix of test dependencies and explanation of ordering tests appropriately for inherent tests and dependencies.

12.2.2 Data

Task Explanation-Proposing organizations' technical representatives shall identify appropriate data sets for use in conducting a conformance test for an interface.

12.2.3 Recommendations

Task Explanation-Proposing organizations' technical representatives shall document recommendations to resolve issues with the current state of the interface, or with the conformance tests.