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| [Insert Product or AASHTOWare Icon Here] |
| [ProJECT NAME]  Work Plan |
| [Document Date]  [Document Version] |
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Instructions: This is a standard template for creating AASHTOWare project work plans. The blue italicized text in this document provides instructions for entering data into the template.

The front cover page may be modified as needed; however, the cover shall include the work plan title, work plan period, document date, and document version.

All sections of the document shall be completed unless noted as optional. If a section is not applicable, note that the section is “Not Applicable” instead of removing the section. Additional information may be included in the work plan as deemed necessary by the contractor or stakeholders.

The “⇒” character in most of the sections and subsections, indicates the location where text should be entered, and should be replaced by the text entry. Many sections also include tables that should be completed. Rows may be added or removed from the tables as required.

After completing this document, delete all instruction text and unused example text, including the text in this paragraph.

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Update the TOC after creating or modifying the document by: Right-clicking in the body of the TOC; clicking on “Update Field”; and clicking on “Page numbers only” or “Entire table”.

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# Project Overview

## Purpose

Briefly describe the purpose of this work plan and the project that this plan addresses.

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## Goals and Objectives

Describe the business/technical goals and objectives that this project is intended to achieve.

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## Scope

Describe the scope of the project by defining what the project will and will not accomplish. Provide a narrative or bulleted list of products, services, deliverables, or other outcomes expected from the project. In order to clearly define the boundaries of the project, also provide information that describes what is outside the scope of the project. The items listed as excluded should be limited to those items that a reviewer of the work plan might reasonably assume to be included within the scope if not specifically identified as being excluded.

Note: The work activities for the project will be described in detail in the following sections.

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| Project Includes |
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| Project Excludes |
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## Assumptions

Describe any project assumptions related to business, technology, resources, scope, expectations, or schedules.

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| Assumptions |
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## Constraints

Describe the limiting factors, or constraints, that restrict the contractor project team’s options regarding scope, staffing, scheduling, and management of the project, as well as any other identified constraints.

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| Constraints |
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# User Requirements and Specifications

This section is used to define the business and user requirements that the project’s proposed products and services are expected to meet. A typical project will include or reference the business and user requirements in a User Requirements Specification (URS). The level of detail of the URS may be high level or very detailed depending on the objectives of the project.

The project may also be charged with refining the URS or with fully developing the URS. In this case, the URS shall be included as a planned deliverable in the “Project Schedule, Milestones, and Cost” section of the work plan.

Projects may also reference other previously defined specifications such as system requirements specifications or functional design specifications.

The user requirements and/or other specifications may be documented in this section or this information may also be included in an appendix or attached document. If included outside this section, this section shall note the location of the appendix or document. The format of this section or referenced document is left up to the preparer.

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# Work Activities

This section is used to define the work activities and tasks required to deliver the products and services that meet the project goals, objectives, assumptions, constraints, requirements, and specifications defined in the previous sections. Tasks for developing and executing the management, monitoring, and control procedures should also be defined. Also identify the key deliverables and artifacts that will result from the project work activities and tasks. These work activities, tasks, deliverables, and artifacts should provide the basis for the initial estimates of effort, staffing, and cost of the project; and should provide the basis for drilling down and identifying more detailed tasks which allow for further refinement of the project estimates.

The work activities may be documented in this section or this information may also be included in an appendix or attached document. If included outside this section, this section should note the location of the appendix or document. The format of this section or referenced document is left up to the preparer.

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# Project Schedule, Milestones, and Cost

This section contains the schedule, milestones, deliverables, review gates, cost, estimates, and estimation methods for the project.

## Project Schedule

Include a Gantt chart of the project schedule. If a detailed schedule has been developed, reference the location of the schedule.

The project schedule is developed using the work activities, tasks, deliverables, and the level effort; and then establishing precedence relationships among activities, assigning resources, and establishing the start and end date of each activity and task.

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## Milestones, Review Gates, and Deliverables

Identify all major milestones from the project schedule and the planned completion date for each item. Also, identify each deliverable that will be submitted to the task force for approval and the estimated completion date for each. In addition, define the project review gates (go/no-go approval points in the project lifecycle) and the estimated approval date for each gate.

Document each milestone, review gate, deliverable, and completion date in the table below. These items should be in time line sequence and the dates should be consistent with the project schedule. Refer to the “Review Gates” section in of the Deliverable Planning and Acceptance standard for a description of the standard review gates, required deliverables, and required artifacts for projects, and alternatives for iterative development.

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| Major Milestone, Review Gate, or Deliverable | Planned Completion Date |
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## Project Cost

Using the project estimates of effort and schedule (below), define the cost of tasks, activities, milestones, and deliverables; and then define the total cost of the project.

### Total Project Cost

Provide the total cost of the project and any explanations needed to clarify the total cost.

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### Cost Breakdown

Provide the one or more cost breakdowns structures as required by the Request for Proposal or equivalent document. For example the following table is used to breakdown the total project costs by deliverables and milestones.

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| Deliverable/Milestone | Delivery Date | Cost | % of Total |
| --- | --- | --- | --- |
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|  |  |  |  |
| Total Project Cost |  |  |  |

## Estimation Methods and Estimates

### Estimation Methods

Describe the methods used to estimate the project level of effort, schedule, and cost. Include any tools and techniques used to obtain these estimates. If applicable, include how the use of subcontractors influences these estimates.

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### Estimates

Provide the estimates of effort, schedule, and any other estimate that was used to determine the total project cost.

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| --- | --- |
| Project Estimates | |
| Total effort estimate in person-months or person-hours |  |
| Schedule estimate in calendar months |  |
| Other estimate in xxx units (if applicable) |  |

# Project Organization and Staffing

## Project Organizational Structure

Provide a diagram of the contractor organizational structure for the project, including the use of subcontractors. Show the reporting relationship to the AASHTOWare project task force and other AASHTO stakeholder groups. Example stakeholders include technical review teams, technical advisory groups, user group representatives, AASHTO staff, T&AA liaisons, and SCOA liaisons. The diagram should show all roles defined in Roles and Responsibilities subsection below.

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## Roles and Responsibilities

Describe the roles and responsibilities for the organization structure defined above, including contractor roles, subcontractor roles, task force, and other AASHTO stakeholder roles.

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| Role | Responsibility | Organization |
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## Contractor Staffing

Using the table below, list of all contractor and subcontractor personnel by the roles listed above that the contractor plans to use to accomplish the project work contained in this work plan. Include the percent of each person’s time committed to the project; and differentiate between contractor and subcontractor personnel. Provide a reference to the location of the resumes for each person.

If needed, provide additional information to clarify the use of personnel or the substitution of alternative personnel. After submittal of the work plan, any staffing changes shall be approved by task force.

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| Contractor/Subcontractor  Personnel Role | Name | % Time on Project |
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# Technical Process and Technologies

Define the technical methods, standards, tools, and technologies for the project that will be used for system analysis, system design, development, integration, deployment, and operation. Proprietary tools and exceptions to AASHTOWare standard are also defined.

Processes and tools for issue management, change management, status reporting, quality management, testing, communication management, configuration management, and risk management are described in other sections of the work plan.

## Methods and Standards

Identify the development methodology and other technical procedures and techniques that will be used to analyze, design, develop, and/or deploy the products and/or services for the project. In addition, identify the technical standards, policies, and procedures governing development and/or modification of the artifacts, including the AASHTOWare Standards and Guidelines (S&G) Notebook. All AASHTOWare standards in the S&G Notebook shall be complied with unless an exception to one or more standards is documented below and approved by the project task force and SCOA.

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## Project Life Cycle

Describe and provide a diagram of the lifecycle model that will be used for the project. Use the AASHTOWare standard lifecycle and, if needed, tailor it to accommodate the specific needs of the project. Include the review gates in the diagram that will be used as approval points during the project lifecycle.

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## Tools and Technologies

Identify the programming languages, operating systems, database systems, and other tools and technologies to be used to analyze, design, develop, integrate, build, deploy, and operate the project’s technical products.

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### Proprietary Tools and Technologies

Note any tools or technologies from above that are proprietary and the issues/solutions to ownership and licensing of these products.

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### Proprietary Tools and Technologies Approval Process

Describe the process that will be used to obtain permission for any other proprietary tools and technologies identified during the execution of the project. The AASHTO Cooperative Computer Software Policies, Guidelines, and Procedures requires approval by SCOA before any tools or technologies that may affect AASHTO's ownership of a product are employed.

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## Exceptions to AASHTOWare Standards

Identify any exceptions to the standards in the AASHTOWare S&G Notebook that will occur during the project and the describe reasons or justification for each exception.

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# Monitoring and Control

Define or reference a separate document that defines the processes for managing issues, controlling project changes, and reporting status of the project.

## Issue Management

Describe the process for managing project issues. Include the methods, tools, and resources used to document, submit, analyze, prioritize, and handle project issues. Also include how the issues will be tracked and managed to closure.

An issue is basically anything that might impact the ability of the project to meet its goals or deliver its intended product(s). Issues should be differentiated from risks in that a risk is a potential occurrence whereas an issue is something that has actually occurred.

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## Change Management

Describe the process for controlling project changes. Include the methods, tools, and resources used to document, submit, log, track, prioritize, analyze for impact, and approve change requests. The change control process is used controlling changes such as changes to the project scope, schedule, budget, and previously approved deliverables. The process should include a description of the roles involved in determining specific resolution actions such as approval, rejection, or delay of a change request.

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## Status Reporting

Describe the process for reporting project status. This process shall describe the frequency of status reports, the distribution of the status reports, and the content that will be provided in each status report or reference example report. At a minimum, status reports shall be created and delivered to the task force once a month. The status reports shall include but not be limited to the following content: Date of Report, Dates of Reporting Period, Summary View, Accomplishments for this Period, Planned Activities for Next Reporting Period, Budget Status, Milestones/Deliverables, Changes Requests, Risks, and Issues. The Summary View shall provide a quick view of the status of key areas such as schedule, scope, budget, deliverables, changes, communication, risks and issues. Green, Yellow, or Red or another similar method should be used in the Summary View.

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# Quality Management

Define or reference a separate document that defines the approach to be used for quality management, including the processes for quality assurance, quality control, and testing.

## Quality Assurance

Describe the quality assurance process that will be used. This process shall include activities to determine if required deliverables, artifacts, and approvals comply with standards. This process shall include the contractor’s plans to follow the process described in the AASHTOWare Quality Assurance Standard, including the scheduling and participation in an annual Quality Assurance meeting.

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## Quality Control

Describe the quality control process that will be used. Include the approach for reviewing deliverables and artifacts to find problems and issues and to ensure that requirements are met; and the approach for approving/accepting deliverables and review gates.

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### Review Gate Approval Procedure

Describe the procedure used by the contractor and task force during the project to submit, approve, and reject review gates and major deliverables submitted with the review gates, and to document the approval decision.

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### Major Deliverable Approval Procedure

If major deliverables will be approved prior to or independent of the review gates, describe the procedure that will be used to submit, approve, and reject major deliverables prior to their designated review gates; and to document the approval decision.

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### Reviews and Assessments

Describe procedures used by the contractor and task force, in addition to those listed above, for reviewing and assessing artifacts, deliverables, and other project outcomes and for documenting these reviews and assessments.

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## Project Test Plan

Describe or reference a separate document that describes the test plan to be used by the project. The Project Test Plan is a planning document that defines the overall testing approach and methodology, description of test phases, testing responsibilities, testing deliverables, and the target schedule for the phases and deliverables. The required content of the Project Test Plan is defined is the AASHTOWare Testing Standard.

Note: The Project Test Plan does not define the details and test procedures for alpha and beta testing. These are defined in separate deliverables prepared during later stages of the project.

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# Communication Management

Describe or reference a separate document that describes the approach for communicating information between the contractor’s organization, the project task force, and other project stakeholders. This approach should include a Communication Register (or Matrix) that includes what information will be communicated, to whom it is communicated, when it will be communicated, and how it will be communicated. An example Communication Register is provided below.

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| --- | --- | --- | --- | --- | --- | --- |
| What? | Who? | | When? | How? | | |
| Information | Provider/ Stakeholder | Recipient/ Stakeholder | Timeframe/ Frequency/ Trigger | Format | Medium/Distribution Method | Storage/Disposition Method |
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# Configuration Management and Project Repository

## Configuration Management

Describe the approach for configuration management or reference a separate document that describes the approach, including the methods, tools, and resources that will be used for configuration management. Configuration management describes the activities for formally identifying, tracking, and controlling configuration items; defining baselines, version control; and associated auditing and reporting. Configuration items may be intermediate or final outputs (including executable systems, executable code components, source code components, user documentation, databases, test cases, test plans, specifications, project management artifacts, and data) and elements of the support environment (including compilers, operating systems, and tools).

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## Project Repository

Describe or reference a separate document that describes methods, tools, and resources that will be used to establish, access, and maintain the project repository. All document-based artifacts, deliverables, submittals, approvals, documentation, and other work products created during the project shall be stored in project repository that may be accessed by the task force, TRTs, TAGS, and other stakeholders identified by the task force.

If not included in the above configuration management approach, this section shall also describe the procedure for naming, versioning, storing and revising project deliverables, artifacts, and other work products that are stored in the project repository. When a deliverable is approved by the task force, TRT, or TAG, it shall be named, versioned, dated, and stored in the project repository using the conventions described in this procedure. Each time a deliverable or artifact is changed and reapproved, the name, version, and date shall be updated in the project repository.

Microsoft SharePoint is the preferred tool for creating, maintaining, and accessing the repository; however, other tools may be used if approved by the task force and SCOA.

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# Risk Management

Describe or reference a separate document that identifies the approach for managing risks, including the roles, activities, methods, and tools. Include the methods used to identify, analyze, prioritize, and report risks that may occur during the lifecycle of the project. Also include how the risks will be tracked and managed to closure.

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# Backup and Disaster Recovery

## Backup Plan

Reference a separate document that describes the Backup Plan or include the plan below. The Backup Plan includes what will be backed up, the frequency of backups, type and retention of each backup, type of media and software used for backup and recovery, roles and responsibilities, backup procedures, procedures to recover individual files or the complete development environment; and any specific needs of the project or product. Refer the Backup and Disaster Recovery Standard for the requirements of the Backup Plan.

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## Disaster Recovery Plan

Reference a separate document that contains the Disaster Recovery plan that will cover the operational development environment for this project. The Backup and Disaster Recovery Standard requires the contractor organization to have a Disaster Recovery Plan in place that includes actions for protecting the AASHTOWare development or maintenance environment against a disaster; and actions for restoring the complete environment at an alternate site and resuming normal operations within a specified number of days following a disaster event. The specified number of days will be agreed upon by both AASHTO and the contractor organization.

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# Technical Debt

Almost all applications have technical debt. All technical debt may not be bad. However, technical debt tends to increase as an application ages and can cause negative impacts. Technical debt must be identified and managed to ensure applications meet requirements and maximize the long-term viability of applications.

Gartner defines technical debt as “the deviation of a system from any of its non-functional requirements.” Technical debt can come about due to many factors, including the application design, programming and other technical tools used, coding practices, the introduction or evolution of technologies, and other related items.

For each debt item identified in the sections below, include the associated risk, probability of occurrence, and potential severity. Identify the scale of fixing each debt item using a scale similar to small, medium, or large or maintenance item, enhancement, or major upgrade.

## Historical Technical Debt

Identify technical debt caused by designs, coding practices, or programming languages or other tools integral to the application that are or are becoming outdated and introduce risk to the application. Include technical debt arising from updates over time that increase complexity, make modules cumbersome to support, reduce performance, or increase operational or customer costs.

The contractor must review the Application Infrastructure Component List or a suitable substitute with the task force to complete this section unless this work plan is for a new product. The information about a debt item below must also include whether the item is included in the Application Instructure Component List.

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## Technical Debt Introduced by This Work Plan

Identify technical debt introduced by the work identified in this plan. In addition to the information requested above, explain why the technical debt is being introduced and other options considered and discarded.

The task force or contractor may recommend introducing technical debt to clear a near-term hurdle with the understanding that the technical debt will need to be addressed later. Technical debt may be introduced for a variety of factors, including an emergency fix or the need to deliver functionality quickly.

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# Revision History

Identify changes to the work plan in the table below.

| Version | Date | Name | Description |
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# Appendices

If needed, include Appendices for requirements, design specifications, plans, resumes, or other documents referenced in the body of the work plan. Number the first as Appendix A, the second as Appendix B, and so on.

## Appendix A – TBD

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