Project Planning and Management (PPM) V2.0

WBS Dictionary

COTS/GOTS

Version 2.0
July 2014

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PPM V2.0 Work Breakdown Structure (WBS) Dictionary

Project Type: COTS/GOTS (WBS Level 1)

A WBS Dictionary contains more detailed information about elements within a Work Breakdown Structure (WBS). The tool can be as detailed as the IT Project Manager wants it to be to help manage the project. The WBS is a useful resource for project management and should be consulted for relevant information on each component of the WBS. Included in the WBS description can be: a brief definition of the WBS element (function, deliverable, etc.) associated activities, milestones, and other information such as performance measurement criteria, statement of work paragraph number, contract line item, start and end dates, resource requirements, cost estimates, quality requirements, technical content, contact information, and revision history.

Below is a WBS Dictionary mapped to the COTS/GOTS PPM Project Type Guide that contains definitions of each WBS element. The IT Project Manager can then augment the information with the specifics of his or her project. Users should reference the COTS/GOTS Project Type Guide and the PPM V2.0 phase-specific user guides for additional information and detail.

Reference ID:	WBS Element Name:	WBS Description:
1.1	Pre-PPM Activities	This summary task covers all pre-PPM activities prior to a project commencing the PPM life cycle. Activities in this area basically cover the selection of both the Project Sponsor and IT Project Manager. These resources are necessary to begin project initiation activities.
1.1.1	Establish Project Sponsor	This activity covers the determination of the Project Sponsor. Key responsibilities of the Project Sponsor include: Providing clear direction for the project and how it links with the organization's overall strategy; securing project resources; ensuring the project is on time, on budget, and on scope; and championing the project at the executive-level to secure buy-in.
1.1.2	Determine IT Project Manager	The IT Project Manager (IT PM) is selected by the Office of Customer Relationship and Performance Management (OCRPM)-Enterprise Program Management Division (EPMD) leadership. As the leader of the project team, the IT PM is responsible for managing tasks, schedules, resource assignments, and for getting artifacts completed by subject matter experts. The IT PM oversees the day-to-day execution of the project, facilitates resolution of issues, and reports status at regular intervals.
1.1.3	Conduct Program/Project Management	This activity occurs within all major phases of the project life cycle and documents all program and project management-related tasks. It includes the effort spent planning, organizing, and controlling the aspects of the project including updating project status, maintaining the project schedule, and

Reference ID:	WBS Element Name:	WBS Description:
		coordinating meetings among team members.
1.1.4	Milestone: Project Approved	*This milestone task denotes that pre-PPM activities have been completed and through completion of those tasks, means that the project is officially approved. This milestone is common across all project types to facilitate reporting.*
1.2	Initiation Phase	This summary task covers all activities within the Initiation Phase of the project.
1.2.1	Complete Project Initiation Form (PIF)	In PPM V2.0, the first step in the Initiation Phase is the completion and submission of a new Project Initiation Form (PIF) which replaces the Work Request Form (WRF) from PPM V1.0. Projects only have one control gate in the new PPM V2.0 Initiation Phase (this phase aligns with PMBOK). The IT PM completes the PIF for the project. The two major objectives of this document are to: 1) Notify key Office of the Chief Information Officer (OCIO) stakeholders that a project (whether it was approved via the normal budgeting process or outside the normal budgeting process) is starting. 2) Request OCIO IPT members - All projects may not require OCIO IPT members based on the characteristics of the project. For example, if HUD is leveraging a shared service line of business, then the need for OCIO IPT members is reduced.
1.2.2	*Milestone: Project Commencement Notification Completed*	*This milestone denotes completion of the actual submission by the IT PM of the PIF and the receipt of the signatures of the TRC Chair, Customer Relationship Coordinator (CRC), and Business Lead. The CRC then distributes the PIF to the pre-determined point-of-contact within the OCRPM-EPMD, OCRPM-Investment Management Division, OCRPM-Enterprise Architecture Division, and OCIO-IT Operations. In addition, IPT OCIO members are determined by each discipline based on the request and notification of team member assignments will be sent to the IT PM.*
1.2.3	Establish Integrated Project Team (IPT)	In this activity, an IPT is assembled to complete the remaining tasks throughout the PPM life cycle. The IPT also monitors project developments and creates necessary documentation throughout the rest of the project's life cycle. The IT PM and Business Lead, in conjunction with the CRC and OCRPM-EPMD Program Management Office (PMO), determine which subject matter experts (SMEs) from the program areas can contribute to the successful development of the project and should be included in the IPT. The IT PM, Business Lead, and Project Sponsor are required members of the IPT. Other key personnel needed on the IPT vary from project to project. The IT PM, Business Lead, and the selected

Reference ID:	WBS Element Name:	WBS Description:
		IPT must ensure that people with the right skill sets are participating to ensure that the correct information is considered when making project type selection and artifact requirement decisions and complete all activities throughout the PPM life cycle. Both business and technology SMEs shall make up the IPT. The IPT works as a team of decision makers to achieve consensus on tasks related to guiding a project through the PPM life cycle. The IPT ensures that all stakeholders are involved during all of the phases of the PPM life cycle, and that significant concerns are directed towards the appropriate governance board.
1.2.4	Conduct Project Kickoff Meeting	After establishment of the IPT (1.2.3), the IT PM should schedule and conduct a formal project kickoff meeting. The project kickoff meeting represents the first meeting with the project team which includes the customer/program area, OCIO team members, and other subject matter experts. This meeting introduces the members of the project team and provides the opportunity to discuss the role of each team member. Other components of the project may also be discussed at this meeting (project schedule, status reporting, etc.).
1.2.5	Develop Project Charter	The Project Charter identifies an opportunity for improving a business or technology function by highlighting where strategic goals are not being met or where performance can be improved, and demonstrates a proposed project's worth and its potential impacts on systems, staff, and operations. The IT PM and Business Lead primarily author the Project Charter to the best of their ability at this point of the project. The Project Sponsor is a required signoff on this document.
1.2.6	*Milestone: Project Charter Completed*	*This milestone task denotes that a key artifact, the Project Charter, has been completed. This is considered a key milestone and is common across all project types to facilitate reporting.*
1.2.7	Develop Initial Detailed Work Breakdown Structure for Project Type	PPM V2.0 introduces new functionality around a Work Breakdown Structure (WBS) to help define the scope baseline, per recommendations made by GAO. In PPM V2.0, a sample WBS is provided for each project type down to level three. This format should give the IT PM and Business Lead a thorough listing of key activities to be performed for the specific project type. In addition, the WBS to level three is built into the Project Schedule template. As project management matures at HUD, a consistent approach to project planning by project type will provide HUD the ability to benchmark project costs and performance by project type.

Reference ID:	WBS Element Name:	WBS Description:
1.2.8	Develop Initial Detailed Project Schedule (Minimum through Planning Phase)	The IT PM and Business Lead with assistance from members of the IPT develops a Project Schedule that defines the tasks from project inception through the Planning Phase at the level of detail necessary to support successful implementation. For the duration of the project, high-level project milestones and dates are provided with more detail to be included as the project continues.
1.2.9	Update/Validate Business Case and Life Cycle Cost Estimate (from budget formulation process)	This activity serves as the link between investment planning activities and PPM for a specific project. In this activity, the IT PM and Business Lead reference the information previously submitted for budget formulation and/or expenditure plan documentation, and updates the information and assumptions as appropriate since most often there is a long duration from the appropriations decisions to project initiation. Updates include business case information and estimated quantitative benefits as well as the high-level life cycle cost estimate. If there is a 10% or greater variance, then the project team must meet with the Director of the OCRPM-Investment Management Division to determine next steps. If the information is consistent, then the project team updates as appropriate and submits updated information at the Project Validation Review.
1.2.10	Update/Validate Projected Project or Solution Benefits (from budget formulation process)	Similar to 1.2.9, this activity serves as a link between investment planning activities and PPM for a specific project. In this activity, the IT PM and Business Lead reference the information previously submitted for budget formulation and /or expenditure plan documentation, and updates the benefits information and assumptions as appropriate since most often there is a long duration from the appropriations decisions to project initiation. A change in benefit projections should be brought to the attention of the TRC at the Project Validation Review.
1.2.11	Assess Preliminary Procurement Support Needed	In this activity, the IPT determines if any preliminary procurement support will be needed on the project. This support would most likely cover the Planning Phase activities and tasks. If it is required, the IPT should initiate any procurement/acquisition process due to typical lead times involved with bringing contractor support onboard. This activity would also be documented in the Procurement Management Plan.
1.2.12	Develop Procurement Management Approach and Plan (if applicable)	The Procurement Management Plan addresses the project's strategy for managing acquisitions. The content serves as the roadmap for effectively planning and managing acquisitions and should document the types of contracts to be used, address contract risks, determine dates for deliverables, and coordinate with other processes, such as scheduling and performance reporting. Additionally,

Reference ID:	WBS Element Name:	WBS Description:
		early identification of metrics to be used in managing and evaluating contractors helps to ensure that business needs are addressed through contract support. The Procurement Management Plan documents the project team's planned approach prior to engagement with HUD's Office of the Chief Procurement Officer (OCPO). OCPO will assist the project with developing an Acquisition Plan for the actual acquisition itself (if needed). The investment-level Acquisition Strategy, part of the annual OMB 300 business case process, should be in alignment with the Procurement Management Plan and acquisition-specific Acquisition Plan(s). A Procurement Management Plan is required for projects that consist of more than one contract. If only one contract is being used for a project, the project team can complete the Procurement Management component of the Project Management Plan in lieu of a standalone Procurement Management Plan.
1.2.13	Finalize Artifacts and Obtain Necessary Signoffs/Signatures	During this activity, the IT PM should also ensure all deliverables are final, signed, and reviewed by the proper team members prior to submission. Signatures needed by artifact are depicted in the Signature Authority Matrix on the PPM website.
1.2.14	*Milestone: Procurement/Acquisition Approach Defined*	*This milestone task denotes that a key activity, the determination of a procurement/acquisition approach has been defined via in most cases the Procurement Management Plan. This is considered a key milestone and is common across all project types to facilitate reporting.*
1.2.15	Conduct Project Validation Review Control Gate	In order to pass through the Initiation Phase to the Planning Phase, a project team needs to receive approval from the TRC through a control gate. During this activity, the IT PM schedules a Control Gate review meeting using the TRC's scheduling process. The lead time on this effort is approximately two weeks which should be built into the project schedule lead times. The two weeks provides the TRC members the chance to review the work completed and prepare comments prior of the meeting.
1.2.16	Conduct Program/Project Management	This activity occurs within all major phases of the project life cycle and documents all program and project management-related tasks. It includes the effort spent planning, organizing, and controlling the aspects of the project including updating project status, maintaining the project schedule, and coordinating meetings among team members.
1.2.17	*Milestone: Project Initiated*	*This milestone task denotes the completion of all major tasks and activities within the Initiation Phase and that a project has formally been initiated. This is considered a key milestone and is*

Reference ID:	WBS Element Name:	WBS Description:
		common across all project types to facilitate reporting.
1.3	Planning Phase	This summary task covers all Planning Phase activities for a project. In this phase, the integrated project team (IPT) decides whether to modify and/or enhance an existing system, custom develop a new solution, install and configure a commercial or government off-the-shelf capability, or utilize a service provided by an external commercial or government entity to meet the identified business needs. The team may also procure resources per the Acquisition Strategy or Procurement Management Plan for the requirements activities or Planning Phase activities only. It may also procure support for the entire project life cycle through deployment. During the Planning Phase, the IPT develops a Concept of Operations (CONOPs) and then gathers and documents detailed business and functional requirements supporting it. The team also develops a detailed Project Schedule for the project. A high-level Solution Architecture document is created and approved and other relevant project management planning activities are documented. The project baseline is established and approved at the Planning Phase control gate review, called the Project Baseline Review.
1.3.1	Procure Resources per the Acquisition Strategy (for Requirements or Entire Project)	Methods of procurement of resources for this phase or the entire project may vary by project type and should be outlined in the Acquisition Strategy (for major systems/programs) and the Procurement Management Plan. The Procurement Management Plan completed in the Initiation Phase describes how a project team will acquire goods and services from outside of HUD. This activity includes preparing the Request for Contract Services (RCS) package for work that is to be completed. If contract resources are to be used in the Planning Phase, the RCS package is completed prior to any further progress in the Planning Phase. The RCS package is then circulated for review and approval signatures. Contractor proposals are solicited, reviewed, negotiated, and approved following steps in federal contracting guidelines.
1.3.2	*Milestone: Contracts Signed/ Task Order Issued (Planning Phase Support)*	*This milestone task denotes that all procurement activities necessary for contractor support for the Planning Phase is completed. This is considered a key milestone and is common across all project types to facilitate reporting.*
1.3.3	Develop Project Tailoring Agreement (PTA)	PPM V2.0 introduces five project types. At this point, since consideration of alternatives was done both in pre-PPM activities as part of budget formulation and during the Initiation Phase, the IPT

Reference ID:	WBS Element Name:	WBS Description:
		should be confident on the specific project type that will be followed. In this task, the IT PM accesses the PTA for the project type selected via the PPM V2.0 website and reviews and tailors it in conjunction with the Business Lead and IPT members. This document needs to be reviewed and approved by the TRC Chair as early as possible in the Planning Phase (separate from the control gate review) to ensure expectations and assumptions are in alignment.
1.3.4	Mobilize Resources (People)	In this task, the IPT and contractor team (if applicable) is formally assembled to begin the formal project planning activities that follow for the Planning Phase.
1.3.5	Re-Evaluate Project Timeline and Update Project Schedule	Due to the fact that initial project timeline estimates were provided in many cases more than twelve months prior to the start of the project, many dates and assumptions are no longer valid. The Planning Phase is where a more confident project cost and schedule baseline should be established. In this activity, and since in most cases contractor support for the requirements gathering activities is likely on board, the joint team should re-evaluate the project timeline and update the Project Schedule accordingly. The IT Project Manager (IT PM) will need to work with his/her touch-point in the Capital Planning and Investment Control (CPIC) function to determine HUD-required re-baseline tasks to follow should substantial changes occur.
1.3.6	Develop Project Management Approach and Plan	The IT PM along with the Business Lead will have the responsibility of determining the project management approach which is documented in the Project Management Plan (PMP). A PMP defines, among other things, how the project is to be executed and controlled. GAO has reported that agencies need to develop comprehensive project management plans, and leading practices emphasize the importance of having a plan in place that, among other things, establishes a complete description that ties together all activities and evolves over time to continuously reflect the current status and desired end point of the project. To be effective, a PMP integrates cost and schedule baselines from planning activities and consolidates subsidiary management plans.
1.3.7	Develop the Concept of Operations (CONOPS) (at the Initiative or Program Level)	A Concept of Operations (CONOPS) depicts high-level requirements that provide a mechanism for users to describe their expectations of the solution. The CONOPS is used as an input to the development of formal testable system and software requirements specifications. A CONOPS provides the most value when depicting the integrated solution. So, if a program area is implementing a large system via a program which contains multiple projects within it, it would be expected that the CONOPS be produced at that program level to show how the entire system and its parts would

Reference ID:	WBS Element Name:	WBS Description:
		operate.
1.3.8	Identify Project Business and Functional Requirements	In this activity, the project's detailed business and initial functional and technical requirements are created and reviewed. This work is the basis of the Planning Phase and when most think of the Planning Phase, most think of the development of business, functional, and technical requirements. The Requirements Lead, in conjunction with the Business Lead, IT PM, and any additional IPT members, determines the project's business, functional and non-functional requirements. The participants use the information in the issued task orders, statement(s) of work, and the approved Project Charter to assist in identifying the requirements. They also will use end user requirements gathering sessions as an input channel as well as the CONOPs information. In addition, the Requirements Management Plan is used to document the information necessary for effectively managing project requirements from definition to delivery. The IT PM and Business Lead assist the Requirements Lead who uses the business, functional, and non-functional requirements to create and update the requirements artifacts (Requirements Definition document and Requirements Traceability Matrix).
1.3.9	*Milestone: Project Requirements Defined*	*This milestone task denotes that a key activity, the development of detailed project requirements, has been completed. This is considered a key milestone and is common across all project types to facilitate reporting.*
1.3.10	Develop Solution Architecture	HUD applications must be in alignment with HUD's Enterprise Architecture. In this activity, the Solution Architecture will depict the initial and future relationship between the current solution and HUD's architecture. The resulting output ensures that the Solution Architecture is in compliance with HUD enterprise architecture principles, best practices, and conceptual target application architectures. The target state includes business, enabling, and support services that are either re-used from the current portfolio, leveraged from existing enterprise services, or established as new services via projects to develop them. The Enterprise Architecture Lead, Lead Solution Architect, and IT PM will likely all determine how to develop and what to include in the Solution Architecture, as it ultimately will be reviewed by the Chief Architect at the Planning Phase control gate review meeting.
1.3.11	*Milestone: Solution Architecture*	*This milestone task denotes that a key activity, the development of the Solution Architecture, has been completed. This is considered a key milestone and is common across all project types to*

Reference ID:	WBS Element Name:	WBS Description:
	Completed	*facilitate reporting.*
1.3.12	Develop Risk Management Plan and Risk Log	Project Risk Management includes the processes of conducting risk management planning, identification, analysis, response planning, and controlling risk on a project. In this activity, the IT PM, Business Lead, and Enterprise Architecture Lead describe at a high-level how the project will: conduct risk management activities, determine which risks may affect the project, prioritize risks for further analysis or action, analyze the effect of identified risks on overall project objectives, develop options to reduce threats to project objectives, control risks, and complete the Risk Management Log.
1.3.13	Develop Quality Assurance Approach and Plan	The purpose of this activity is to specify and document the quality assurance activities and responsibilities for ensuring that the project meets the user requirements and conforms to HUD's Information Technology Management (ITM) Framework. In this activity, the IT PM defines the project's quality policies, procedures, areas of application, and associated criteria. He/she documents the quality management approach including the quality objectives and standards, methods and tools, and roles and responsibilities. The IT PM also describes the operational techniques and activities that the team will use to provide quality assurance, including identification of the assessments, reviews, and audits that will be conducted, the process for quality analysis, how quality will be determined and measured, and how corrective actions will be handled. The IT PM should consult with the Business Lead, Testing Lead, and IPT when determining the quality assurance approach.
1.3.14	Develop Communications Management Plan	Communications Management is how a project provides guidance and information on managing stakeholder expectations. The IT PM and Business Lead need to discuss how, when, and by whom information about the project will be administered and disseminated and describe: stakeholder communications requirements, information to be communicated, reason for distribution of information, person or groups who will receive information, escalation processes. They should also define the processes and techniques the project will utilize to effectively engage stakeholders in project decisions and execution based on the analysis of their needs, interests, and potential impacts. In addition, the IT PM and Business Lead should consult with the CRC, IPT, Project Sponsor, and program area stakeholders when developing the Communications Management Plan.
1.3.15	Determine Project Approach for	Validation answers the question, "Are we building the right product?" Verification answers the question, "Are we building the product right? Maintaining independence of the verification and

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	Independent Verification and Validation (IV&V)	validation processes is an essential element of the IV&V process. In this activity, the IT PM and Business Lead define the project approach for IV&V. IV&V partnerships provide high value to many projects and can be introduced at any phase of a project as determined by the project's sponsorship and/or governance requirements. Currently at HUD, IV&V guidance is being revised. When the new guidance is finalized, this content will be updated to reflect new requirements.
1.3.16	Develop Security and Privacy Documentation	In this activity, the project's initial security and privacy measures are created, updated, reviewed, and approved. The IT PM, IT Security Specialist, and Privacy Lead are responsible for ensuring the information provided is valid across the items. The need for each item will vary by project type and are described in the Planning Phase PPM V2.0 User Guide.
1.3.17	Update Project Schedule from Initiation Phase	Due to changes that have occurred with project estimates in this phase, the project team is encouraged and reminded to update the Project Schedule again prior to the Project Baseline Review control gate.
1.3.18	Finalize Artifacts and Obtain Necessary Signoffs/Signatures	During this activity, the IT PM should also ensure all deliverables are final, signed, and reviewed by the proper team members prior to submission. Signatures needed by artifact are depicted in the Signature Authority Matrix on the PPM website.
1.3.19	Conduct Project Baseline Review Control Gate	In order to pass through the Planning Phase to the Execution & Control Phase, a project team needs to receive approval from the TRC through a control gate. During this activity, the IT PM schedules a control gate review meeting using the TRC's scheduling process. The lead time on this effort is approximately two weeks which should be built into the project schedule lead times. The two weeks provides the TRC members the chance to review the work completed and prepare comments prior to the meeting.
1.3.20	Conduct Program/Project Management	This activity occurs within all major phases of the project life cycle and documents all program and project management-related tasks. It includes the effort spent planning, organizing, and controlling the aspects of the project including updating project status, maintaining the project schedule, and coordinating meetings among team members.
1.3.21	Conduct IV&V Activities	This activity covers all IV&V work that takes place during the Planning Phase. IV&V evaluates the correctness and quality of the project's solution to ensure that development is in accordance with

Reference ID:	WBS Element Name:	WBS Description:
		customer requirements and well-engineered. The IV&V activities include analysis, evaluation, review, inspection, assessment, and testing of software products and processes. IV&V provides management with an independent perspective on project activities and promotes early detection of project/product variances. This allows the project to implement corrective actions to bring the project back in-line with agreed-upon expectations.
1.3.22	*Milestone: Project Planning Completed*	*This milestone task denotes the completion of all major tasks and activities within the Planning Phase and that a project has formally been approved to enter the Execution & Control Phase. This is considered a key milestone and is common across all project types to facilitate reporting.*
1.4	Execution & Control Phase	The Execution & Control Phase consists of those processes performed to complete the work defined in the Project Management Plan and Project Schedule to satisfy the project specifications. This involves coordinating people and resources, managing stakeholder expectations as well as integrating and performing the activities of the project. This phase includes the development of the technical design as well as the full execution of the design from planning to development, testing, and implementation. In addition, project execution activities must include testing and project reviews. Only solutions that have been through the complete testing process and required project reviews can be approved for deployment. Also, this phase establishes the solution in its production environment. If the solution is an information system, data is converted as needed, and functional testing is conducted to verify the system. Additionally, security certification is conducted and capital management reporting requirements must be met. The system or service must have a written authorization to operate in order to proceed prior to beginning operations and maintenance (O&M).
1.4.1	Procure Resources per the Acquisition Strategy (Design/Installation/Configuration/Development and/or Solution (if applicable)	The procurement activities taking place within the Execution & Control Phase will depend on how the procurement was structured in the Planning Phase. If support was procured for requirements development tasks, then the procurement in this phase could be to cover actual software, hardware, and activities required to design, install, configure, and/or develop the solution. Methods of procurement of resources for this phase or the entire project may vary by project type and should be outlined in the Acquisition Strategy (for major systems/programs) and the Procurement Management Plan.
1.4.2	Monitor and Control Quality Assurance	In the Planning Phase, within the Project Management Plan, the project team documented the quality assurance approach for the project. In this activity, the IT PM, Business Lead, and IPT execute the

Reference ID:	WBS Element Name:	WBS Description:
	Activities	quality assurance approach. The execution of quality monitoring and control will lead to less rework and defects. Typical monitoring and controlling tasks within quality assurance include: taking action to control the project; determining acceptable quality levels for deliverables; determining whether project processes are correct and effective; measuring, analyzing, and evaluating performance; determining if variances warrant a corrective action or other change request; influencing factors that cause changes; requesting changes.
1.4.3	Develop Solution Technical Design and Define Interfaces	The Enterprise Architecture Lead, Lead Solution Architect, Solution Development Lead, IT PM and other technical design team members all play a critical role in creating the Technical Design document. Activities include: establish architecture; establish security architecture; create detailed design; document technical design; identify system interfaces; document interface control; conduct interim reviews. For the system interface identification, the IT PM, Lead Solution Architect, Enterprise Architecture Lead, and other IPT members identify the system's interfaces with other application software, including those from other operational organizations. This group also consults with the Business Lead and Solution Development Lead.
1.4.4	*Milestone: Solution Technical Design Completed*	*This milestone task denotes that a key activity, the development of the solution technical design, has been completed. This is considered a key milestone and is common across all project types to facilitate reporting.*
1.4.5	Execute Change Management Process	In the Planning Phase, within the Project Management Plan, the project team documented the processes for how the team will manage change. An effective change management process will cover approving and managing changes to items such as deliverables, organizational process assets, baselines, and project documents. Typically, formal change requests should be submitted to the project Change Control Board (CCB) for review and approval. The Change Management Log, managed by the IT PM, is used to track changes to the project scope, schedule, and/or resources. This process should commence at the time of Project Management Plan completion in the Planning Phase. Many changes will normally occur within the Execution & Control activities of a project which is why the activity is located within this phase.
1.4.6	Plan the Implementation and Release	All activities related to implementation planning are documented in the Implementation Plan. This involves: defining activities, roles, and responsibilities; identifying hardware requirements; identifying

Reference ID:	WBS Element Name:	WBS Description:
	Approach	software requirements. The release approach is also documented within the Implementation Plan and defines if the project is following a phased or incremental approach for its development and implementation. The release approach must be aligned with HUD's configuration management practices. Both project leadership and the IPT members determine what portions of the solution functionality will be developed and implemented in which releases and the rationale for each release.
1.4.7	Determine Testing Strategy	The testing strategy is developed during this key activity and is documented in the Test Plan. The following list defines the detailed sub-tasks that take place when determining and developing the testing strategy: identify testing methods and tools; describe testing tasks and activities; identify personnel requirements; prepare a testing schedule; identify deliverable materials; identify security considerations; identify test evaluation criteria; determine user system acceptance criteria; obtain concurrence on criteria; develop the Test Plan; update the Requirements Traceability Matrix.
1.4.8	Create the Data Conversion Strategy (if applicable)	The Data Conversion Strategy is developed and documented in the Data Conversion Plan. The Data Conversion Plan describes the strategy, preparation, and specifications for converting and/ or migrating data from the source system or systems to the new system. The Enterprise Architecture Lead, Lead Solution Architect, and IT PM author or contribute to the development of the Data Conversion Plan. They also reach out to the owners of the source data to help define the Data Conversion Strategy. Examples of component activities include: identify the overall approach, assumptions, and processes that will be used in the data conversion; develop an inventory and cross-reference of source and target data elements, schema, metadata, and all self-describing files; specify the ETL components and functions for each data source; determine the tools needed to execute the conversion; develop a strategy for data quality assurance and control; identify fall back and contingency strategies; determine impact on business operations.
1.4.9	Configure the Development, Testing & Training Environments (if applicable)	Within this task, the hardware and software environments are configured to support other activities within this phase. Verification must take place that the development, test, and training environments mirror each other and are ready for the activities to be conducted throughout this phase. Activities include: install and configure the hardware and software; setup access privileges; create physical database (if applicable).
1.4.10	Configure and Unit Test Software	During this part of the project, the business requirements captured in the Requirements Definition document and Requirements Traceability Matrix and the specifications in the Technical Design

Reference ID:	WBS Element Name:	WBS Description:
		document are transformed into software code. The software code also is unit and system tested. For COTS/GOTS solutions, the software is configured and unit and system tested. The team must follow controls for this task's sub-activities which are outlined in the Execution & Control PPM V2.0 User Guide. Activities include: configure software, perform configuration control, execute data conversion plan, conduct unit testing, assess readiness for formal acceptance testing, and update design documents.
1.4.11	Conduct User Acceptance Testing (UAT)	Before UAT can begin, test sites and environments must have been configured. User acceptance testing is conducted in accordance with the Test Plan and by a group that does not include the team that, if a custom developed solution, developed the software. The Testing Lead coordinates test environment configuration activities and ensures that the correct version of the software components is deployed to the test environment. The Testing Lead and other IPT members verify that the environment is ready for UAT. The Testing Lead ensures that the UAT participants have the necessary access rights, guidelines, and resources (including test scripts) to complete the testing activities. The IPT supports the UAT participants, reviews the UAT results, addresses reported defects, and assesses solution readiness for deployment to production. Specific sub-tasks include: establish UAT environment; facilitate UAT; monitor UAT environment; document results and make recommendations.
1.4.12	*Milestone: Development/Configuration and Testing Completed*	*This milestone task denotes that several key activities, the development and/or configuration of the solution and all testing, have been completed. This is considered a key milestone and is common across all project types to facilitate reporting.*
1.4.13	Develop Training Strategy and Plan	The Training Plan describes the types of training that will be provided, how the training will be developed and delivered, the schedule, and any other information needed to ensure that users at all levels are prepared to use the system effectively. The amount of training will differ by project type. For example, in a modifications and/or enhancements project, a smaller training footprint will be needed as opposed to a large-scale, COTS/Government-off-the-Shelf (GOTS), Software-as-a-Service (SaaS), or custom-developed solution. The Training Plan also outlines the overall objectives, strategy, and activities for designing and developing curricula and supporting materials to train users, operators, administrators, and support staff on the solution. It describes the methods and schedule for implementing the training, processes for evaluation and continuous improvement, and helps to

Reference ID:	WBS Element Name:	WBS Description:
		ensure that stakeholders are properly trained for their specific job function. The Training Plan should also provide methods of evaluation to determine the effectiveness of the training. This can include pre- and post-training questionnaires and other means of collecting information on the participants training experience, the content that was learned, and the impact of the training on work performance.
1.4.14	Develop End User Training Content	The Business Lead, in conjunction with the IPT, IT PM, and many times the program area stakeholders, develops the training materials, which are any resources created to support the Training Plan including the documentation associated with the deployment of the solution. This includes, but is not limited to, instructor and student guides, audio-visual aids, and computer-based or other media used to disseminate information about the solution to the target audience that is in need of the instruction. Operations and Maintenance (O&M) personnel may also need training on how to install, operate, and maintain the solution. In this case, the more technical team members would assist in training content development. After identifying objectives and defining the most appropriate approach for training delivery (classroom, online, workshop, multi-media), the Business Lead, IT PM, and IPT decide on an appropriate duration for the training. It may be necessary to plan, develop, and execute a series of courses to achieve the training objectives. The IPT considers what staffing and skill requirements are necessary to develop and implement the planned training curriculum. The Business Lead should utilize the Training Plan to document the training requirements and how such requirements will be met. Course developers should work with system analysts, testers, and other stakeholders to develop the training curriculum and associated support materials. Outsourcing course development and training to a specialized external training developer is one possible option.
1.4.15	Conduct Training for End Users	In this activity, the Business Lead ensures the training sessions are conducted in accordance with the Training Plan. Training activities are monitored to determine if the training techniques and materials achieve the desired results. Sub-tasks for this activity include: finalize training schedule; conduct training sessions; evaluate effectiveness of training; modify training materials as necessary.
1.4.16	Create Operations and Maintenance Documentation (O&M and User)	O&M documentation consists primarily of the O&M Manual and User Manual. The O&M Manual contains information and strategies designed to guide stakeholders in the normal use and maintenance of the IT system. The manual facilitates actions and responses to events that may arise during normal solution operations and maintenance and contains detailed information on the control

Reference ID:	WBS Element Name:	WBS Description:
		requirements, scheduling information, and operating procedures necessary to successfully initiate and run the solution. It also provides maintenance personnel with the information necessary to maintain the solution effectively. The manual provides the definition of the software support environment, the roles and responsibilities of maintenance personnel, and the regular activities essential to the support and maintenance of program modules, job streams, and database structures. This activity may not occur for all project types if the solution is a service and O&M activities are conducted by the service provider. The User Manual is written using non-technical language and includes the key features and or functions of the solution. The manual should explain how a business user operates the solution and should include sufficient detail and plain language such that all levels of business users can easily understand how to use the solution.
1.4.17	Create and/or Update Security Artifacts	In this activity, the project continues the creation, update, review, and approval of additional security documentation pertaining to the solution. The IT Security Specialist on the IPT is responsible for ensuring the information provided is valid. The need for each of the items will vary by project type and are described in the Execution & Control PPM V2.0 User Guide.
1.4.18	Obtain Authorization to Operate (ATO)	All IT systems are required to obtain a signed ATO prior to full start up. The ATO represents the formal management approval to authorize operation of an information system and to explicitly accept the risk to organizational operations and assets based on the implementation of an agreed-upon set of security controls.
1.4.19	Install the Solution/ Submit the Software Release Request (HARTS)	If the solution is a system or an application, the software release request is submitted to the HUD Test Center (HTC) for processing. The IT PM or Release Manager submits the HUD Application Release Tracking System (HARTS) request and coordinates with the HTC to obtain approval. The HTC forwards the software release to the team managing HUD's infrastructure for deployment.
1.4.20	*Milestone: Production Environment Ready*	***This milestone task denotes that a key activity, the development/establishment of the production environment, has been completed. This is considered a key milestone and is common across all project types to facilitate reporting.***
1.4.21	Conduct Project Operational Readiness	In order to pass through the Execution & Control Phase to the Close Out Phase, a project team needs to receive approval from the TRC through one or more control gate reviews. Depending on the project type, project approach (e.g., iterative or agile development for custom-developed solutions), project

Reference ID:	WBS Element Name:	WBS Description:
	Review Control Gate (Repeat as Necessary)	health/ performance, and other characteristics, more control gates may be deemed necessary by the TRC, the governance entity that conducts control gate reviews. For example, if a project is using an iterative, incremental development approach, the TRC may require reviews over the series of mini-design and development efforts. The Operational Readiness Review, the control gate held before a system is deployed into production is mandatory.
		During this activity, the IT PM schedules a control gate review meeting using the TRC's scheduling process. The lead time on this effort is approximately two weeks which should be built into the project schedule lead times. The two weeks provides the TRC members the chance to review the work completed and prepare comments prior to the meeting. During this activity, the IT PM should also ensure all deliverables are signed and reviewed by the proper team members prior to submission.
1.4.22	Release Solution in Production for Official Go-Live	Whether as the result of a pilot or not, the solution is deployed into the production environment. The Release Manager posts system alerts regarding the scheduled deployment. The HUD infrastructure team releases the solution into the production environment. The IPT, specifically the Business Lead and Solution Development Lead verify the installed solution meets expectations. Detailed sub-tasks include: notify affected organizations; ensure production environment is correctly established; execute Implementation Plan and Data Conversion Plan; conduct Operational Readiness Review (1.4.21).
1.4.23	Conduct Program/Project Management	This activity occurs within all major phases of the project life cycle and documents all program and project management-related tasks. It includes the effort spent planning, organizing, and controlling the aspects of the project including updating project status, maintaining the project schedule, and coordinating meetings among team members.
1.4.24	Conduct IV&V Activities	This activity covers all IV&V work that takes place during the Execution & Control Phase. IV&V evaluates the correctness and quality of the project's solution to ensure that development is in accordance with customer requirements and well-engineered. The IV&V activities include analysis, evaluation, review, inspection, assessment, and testing of software products and processes. IV&V provides management with an independent perspective on project activities and promotes early detection of project/product variances. This allows the project to implement corrective actions to bring the project back in-line with agreed-upon expectations.

Reference ID:	WBS Element Name:	WBS Description:
1.4.25	*Milestone: Go-Live/Solution in Production for End Users/Customer Base*	*This milestone task denotes the completion of all major tasks and activities within the Execution & Control Phase and that the solution is live and has been placed into production for usage by the end users and customer base. This is considered a key milestone and is common across all project types to facilitate reporting.*
1.5	Close Out Phase	This summary task covers all activities within the Close Out Phase of the project. The Close Out Phase consists of actions and activities performed across all project management processes to formally complete the project or contractual obligation. At project closure, the following may occur: obtain acceptance by the customer to formally close the project; conduct a post-project review; record impacts of project tailoring to any process; document lessons learned; conduct any contract close out activities; archive all relevant project documents; release Integrated Project Team (IPT) resources.
1.5.1	Conduct Post Deployment/Warranty Support (if applicable)	In this activity, the post-deployment support period is conducted after the product launch. Many vendors provide a 60 day or so window of support for any questions that come up after a deployment. The length of the warranty period is usually part of the contract negotiations when purchasing the COTS/GOTS product. After the initial warranty period, vendors typically offer extended-period support contracts.
1.5.2	Handoff Solution to Operations & Maintenance for Support	The official handoff from the project team to the operations and maintenance support team occurs within this activity. This handoff can be to HUD IT Operations or an external vendor who has been contracted to provide technical support for the operations and maintenance component of the solution life cycle. The IT PM must ensure all HUD IT Operations standards and guidance are being followed.
1.5.3	Conduct Post-Deployment Review	For this activity, the IT Project Manager, along with the IPT, perform a high-level post-deployment review and conduct a quick review of the solution that was released into the production environment to determine if it has been operating as expected. The team seeks to ascertain the degree of success from the project (in particular, the extent to which it met its objectives, delivered planned levels of benefit, and addressed the specific requirements as originally defined). The team examines the efficacy of all elements of the installed solution to see if further improvements can be made to optimize the benefit delivered, and to learn lessons from the project that can be used to improve future project work and solutions.

Reference ID:	WBS Element Name:	WBS Description:
1.5.4	Conduct Project Close Out Activities	In this activity, the IPT performs all necessary activities to close out the project. The major components of project close out include administrative close out and contract close out activities. Project administrative closure activities include transferring the project's products or services to production and/or operations; verifying that all deliverables have been provided and accepted; obtaining stakeholder approval for all deliverables; and confirming that the project has met all stakeholder requirements. Administrative closure activities also include tracking and managing any outstanding issues, validating that completion and exit criteria have met, and addressing regulatory compliance items. Contract closure activities include formally closing all contracts associated with the completed project. During close out, internal IPT resources must be formally released. The IT PM provides IPT member performance assessments to be included in their annual performance plans. It also includes releasing all external personnel who were delivering contract support services and working with security to remove both technology and physical accesses. In addition, all relevant project documents must be archived. Project documents include formal deliverables, status reports, meeting minutes, project plan, contract and acquisition information, and other relevant project records. The IT PM needs to work with the Program Management Office (PMO) within the Office of Customer Relationship and Performance Management (OCRPM) to determine where project documents should be archived.
1.5.5	Prepare Project Completion Report	The Project Completion Report documents the finalization of project activities and includes lessons learned content for the benefit of subsequent projects. It also asks for information on project administrative and contract closure activities. Within the lessons learned section, projects need to identify the specific issues that challenged the project team and the reasoning behind the corrective action chosen. Lessons learned are a valuable tool for future projects and should be maintained and communicated by the PMO within OCRPM.

Reference ID:	WBS Element Name:	WBS Description:
1.5.6	Conduct Project Close Out Review Control Gate	During this activity, the IT PM schedules a control gate review meeting using the TRC's scheduling process and then actually attends the meeting with key IPT members. The lead time on this effort is approximately two weeks which should be built into the project schedule lead times. The two weeks provides the TRC members the chance to review the work completed and prepare comments prior to the meeting. Prior to the control gate, the IT PM should also ensure all deliverables are signed and reviewed by the proper team members prior to submission.
1.5.7	*Milestone: Project Close Out Completed*	*This milestone task represents the completion of formal project close out activities including the conducting of the final control gate review. This milestone task is in all project types to facilitate consistent reporting.*
1.5.8	Provide System Documentation to HUD IT Operations	This activity is where project documents tagged as "system" are transferred over to HUD IT Operations for reference in the operations and maintenance portion of the solution's life cycle. The IT PM should work with the IT Operations IPT member to determine the correct repository for system information. Refer to the Project Tailoring Agreement (PTA) for the project type for the classification of project, system, and/or business by PPM artifact to determine which artifacts to move to IT Operations.
1.5.9	Conduct Program/Project Management	This activity occurs within all major phases of the project life cycle and documents all program and project management-related tasks. It includes the effort spent planning, organizing, and controlling the aspects of the project including updating project status, maintaining the project schedule, and coordinating meetings among team members.
1.5.10	Conduct IV&V Activities	This activity covers all IV&V work that takes place during the Close Out Phase. IV&V evaluates the correctness and quality of the project's solution to ensure that development is in accordance with customer requirements and well-engineered. The IV&V activities include analysis, evaluation, review, inspection, assessment, and testing of software products and processes. IV&V provides management with an independent perspective on project activities and promotes early detection of project/product variances. This allows the project to implement corrective actions to bring the project back in-line with agreed-upon expectations.

Reference ID:	WBS Element Name:	WBS Description:
1.5.11	*Milestone: Project Finished*	*This milestone task represents the conclusion of all project activities. This date in the MS Project Schedule is synonymous with the reported Project End Date. This milestone task is in all project types to facilitate consistent reporting.*

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