NIH Office of Management (OM):

Enterprise Cloud Platform IWMS & IT Applications

**STATEMENT OF OBJECTIVES**

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## PURPOSE

The National Institutes of Health (NIH)/Office of Management (OM)/Office of Research Facilities (ORF) & Office of Research Services (ORS) is pursuing the acquisition of a single, enterprise cloud platform with built-on applications. The built-on applications require functionality consistent with Integrated Workplace Management System (IWMS); and IT service management (ITSM) such as service request management, project management, change management, and IT asset management. The platform must provide capability to support other enterprise administrative functions such as IT, HR, and Financials.

The NIH Office of Management (OM) provides leadership, direction, and oversight to diverse organizations at NIH in budget and finance, human resources, management assessment and policy, program integrity, contract, procurement, and logistics, engineering services, safety, space, facility management, support services, and security operations.

Within OM resides The Office of Research Facilities (ORF) and The Office of Research Services (ORS). ORF is responsible for the entire NIH facility lifecycle, including planning, acquiring, constructing, renovating, operating and maintaining and assessment and reporting related to all NIH real property, owned and leased. ORS provides responsive and dependable support to the NIH research mission by planning, directing and delivering scientific and regulatory activities, public safety, security, and services to enrich the NIH community. Within OM resides the Information Technology Branch (ITB), which supports both ORF and ORS for IT needs.

The platform and applications will be provided as Platform as a Service (PaaS) and Software as a Service (SaaS), respectively. The applications must be native to the platform or certified platform applications and must inherit platform capability. The platform and applications must be accessible via web browser for all functionality and mobile device-enabled for field use functionality.

In addition to the PaaS and SaaS licenses needed to access the platform and applications, this requirement also includes the support services need to migrate and standardize data, configure workflows, test, deploy, train, and secure the platform and applications.

The solution will provide a single, cloud enterprise platform and native platform applications to request and fulfill all NIH administrative service requests, such as facility and IT requests, and provide change management, project management, demand management, and other IT Business Management functions. The solution will also provide native platform applications for enterprise asset management functionality for all NIH assets, such as facility, IT, laboratory, and clinical assets.

The government believes it is more effective to utilize a single, enterprise-wide platform solution that can be expanded to all NIH Institutes and Centers through native platform applications. The solution will be implemented primarily out-of-the-box with some configuration, and little to no customization. During implementation, the contractor is required to support the cloud services provider with perform periodic system upgrades and security patches. The contractor is required to provide training on supporting the cloud services provider with carrying out upgrade and patching activities to ensure the support function can be performed in-house after implementation. After implementation, the government intends to operate and maintain the solution internally. The solution must be easy to navigate and use for end-users. The majority of end-users are not IT professionals and do not possess the skill set to navigate and use a complex solution.

This Statement of Objectives (SOO) describes the goals that NIH OM expects to achieve with:

* + 1. deployment of single, web-based, mobile-enabled, cloud enterprise platform
    2. consolidation and migration of existing systems, workflows, and data into a native/certified platform IWMS application and IT workflow applications
    3. data gathering, migration, and standardization
    4. business processes documentation and reengineering
    5. end-user, requestor, and administrator testing, acceptance, and training

There are approximately 1380 end-user fulfillers and 20,000-30,000 requestors for the future solution, which may increase in the future. The requirement is broken down into three separate user groups

**ORF IWMS: Approximately 1300 total end-users/fulfillers**

The intent is to replace and consolidate multiple current NIH ORF information systems used across the facility lifecycle into an IWMS application. The current NIH ORF information systems include on-premise systems, cloud-based SaaS systems, custom-built/homegrown systems, legacy commercial-off-the-shelf (COTS) products, excel spreadsheets, .pdf forms, and SharePoint sites.

**ORF/ORS ITB IT Workflows: Approximately 80 total end-users/fulfillers**

The intent is to deploy IT workflow applications on the same cloud platform as the IWMS application which will enable ITB to enhance its existing IT Service Management capabilities and enable additional IT workflows such as IT Asset Management and Project Management. Currently, IT service requests are routed to ITB through a central request portal from ServiceNow IT Service Management, which is operated by a separate NIH organization outside OM, however ITB does not have access to any IT workflow functionality beyond IT Service Management.

**NIH Requestors: Approximately 20,000 – 30,000 requestors**

The intent is to deploy a single request portal on the same platform for all NIH administrative service requests, starting with Facility and IT requests. The request portal will be leveraged by the entire NIH community.

In addition to the PaaS and SaaS licenses needed for the above end-user groups, this requirement includes the integrations services needed to successfully implement the solution, including:

* Infrastructure Engineering, Development, Implementation, Integration
* Enterprise Application Integration
* Data Migration and Integration
* Enterprise Data Management
* Business Process Reengineering
* Architecture Validation and Verification
* Change Management and Engagement
* Project Management and Scheduling
* Risk Assessment and Management
* End-User Testing, Acceptance, and Training
* Administrator Training and Platform Certification

## 2.0 BACKGROUND

In addition to existing business needs, this requirement also aligns with multiple mandates and directives from Department of Health and Human Services (HHS) and The National Academies of Science Engineering and Medicine (NASEM).

“In support of a government-wide directive from the White House Office of Management and Budget, the U.S. Department of Health and Human Services (HHS) launched *ReImagine HHS*, an effort to improve efficiency and effectiveness at the Department and throughout its operating and staff divisions”. Specifically, this contract requirement aligns with “Strategic Goal 5: Promote Effective and Efficient Management and Stewardship”, and more specifically “Strategic Objective 5.1: Ensure responsible financial management, Strategic Objective 5.3: Optimize information technology investments to improve process efficiency and enable innovation to advance program mission goals… Capitalize on and leverage best practices from divisions within HHS and the private sector to develop enterprise-wide information technology solutions, while minimizing custom application development, maximizing collaboration, and reducing cost”.

“At the request of NIH, The National Academies of Sciences, Engineering, and Medicine convened an ad hoc committee to: (1) identify facilities in greatest need of repair or those most impacting mission implementation; (2) assess the rationale and composition of projects to bring the NIH main campus facilities up to current standards or acceptable operational performance which meet mission objectives; (3) evaluate at a high level the completeness, accuracy, and relevance of cost estimates (already developed by/for NIH) for proposed capital projects; and (4) identify potential factors and approaches that the NIH should consider in developing a comprehensive capital strategy for its main campus portfolio of facilities”. This contract requirement will improve NIH’s ability to make data-driven decisions throughout capital investment planning.

Additionally, the growing risks associated with cybersecurity create an urgent need to secure all network connected devices. Many NIH facilities are equipped with complex industrial controls systems used to remotely monitor, automate, and control different campus and building systems, such as security, fire, HVAC, and others. These industrial controls systems are in a unique middle ground between building systems and IT systems, because they control building equipment, and are connected to the IT network. ORF, ORS, and ITB all play a significant role in managing and securing the industrial control systems and their associated campus and building systems. Having said that, the intent of this requirement is to provide a single platform in which both IWMS and IT data and workflows can be managed and shared between IWMS and IT applications.

Currently, ORF utilizes a mixture of commercial off-the-shelf (COTS), homegrown, and Microsoft products to manage the NIH facility life-cycle. The lack of a single system of engagement limits ORF’s efficiency, effectiveness, and accountability when administering the NIH facility life-cycle. The current systems do not meet full functional or technical requirements, do not provide ease of use to users and customers, and are not integrated in a manner which supports data visibility or cross-functional workflows.

Key business drivers include improving efficiency, effectiveness, and accountability. Automation, such as automated workflows, notifications, and data population, should be leveraged as much as possible to improve efficiency. Data integrity and visibility should be established and improved through automated change management workflows, dynamic roles and permissions, and automated dashboards and reporting. The customer or requestor experience should be improved by providing request status visibility and automated notifications.

The intent is to replace and consolidate the NIH ORF information systems used across the NIH Facility Lifecycle into an IWMS application over time, in a phased approach to achieve an enterprise-wide solution that can be leveraged across all ORF functions, including capital investment planning. The current ORF systems are listed on the following page in Table 1: Current ORF Systems. See Appendix A for visual diagram.:

**Table 1: Current ORF Systems**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Current System** | **Vendor - Type** | **Business Function** | **Data Volume** | **Data Clean Up Needed\*** | **IWMS Module**  **Phase**  **# of Users** |
| **MS2000** | MicroMain - legacy COTS | Maintenance Requests | 65,000 requests/year | Low  20  fields | Customer Request Portal  Phase 1  20,000 – 30,000 requestors |
| **WebView** | Blue Cardinal – SaaS | Facility Asset Inventory | 80,000+ assets | Medium  15\* – 75  fields | Maintenance Management  Phase 1  450 – 500 users |
| **WebView** | Blue Cardinal – SaaS | Scheduled Maintenance | 60,000 work order/year | Low  30  fields | Maintenance Management  Phase 1  450 – 500 users |
| **WebView** | Blue Cardinal – SaaS | Parts Inventory Management | 4,100 part orders/year | High  20  fields | Maintenance Management  Phase 1  450 – 500 users |
| **ORF Utility Shutdown** | Custom/  Homegrown | Utility Shutdown | 2,250 tickets/year | Low  10  fields | Maintenance Management  Phase 1  450 – 500 users |
| **VFA Facility** | Accruent /VFA- SaaS | Facility Condition Assessment | 80,000+ assets | Medium  15\* - 75  fields | Capital Planning  200 – 250 users  Phase 2 |
| **Deficiency Requests** | Microsoft SharePoint | Deficiency Request and Tracking | 80,000+ assets | High  15\* - 75  fields | Capital Planning  200 – 250 users  Phase 2 |
| **Project Prioritization** | Microsoft Excel | Project Prioritization | 350 projects/year | High  10\* - 50  fields | Capital Planning  200 – 250 users  Phase 2 |
| **MS Construction** | MicroMain – legacy COTS | Construction Project Requests | 350 projects/year | High  20 fields | Customer Request Portal  20,000 – 30,000 requestors Phase 3 |
| **UPD** | Microsoft SharePoint | Construction Project Management | 350 projects/year | High  15\* - 50 fields | Construction Management  200 – 250 users  Phase 3 |
| **ARCHIBUS** | ARCHIBUS –  on-premise | Space Management | 350 buildings  90,000 rooms | Low  40 fields | Space & Lease Management  250 – 300 users  Phase 4 |

Currently, IT service requests are currently routed to ITB through a central request portal from ServiceNow IT Service Management, which is operated by a separate NIH organization outside OM. ITB is unable to enhance its existing ITSM capabilities or expand into other IT workflow areas such as IT Asset Management, which limits ITB's efficiency, effectiveness, and accountability.

For the IT workflows, the intent is to replace and consolidate some existing systems, while other existing systems will remain and require integrations. Specifically, ServiceNow will not be migrated or disposed of, ServiceNow will continue to be used. ServiceNow is the established NIH IT Service Management environment. Due to the hybrid centralized & distributed model of IT Service Management at NIH, the solution must work seamlessly with the existing ServiceNow environment that is well established within the central NIH IT group.

Therefore, the future enterprise platform, IWMS application, and IT workflow applications must integrate seamlessly with the ServiceNow platform. The current ITB systems are listed below in Table 2: Current ITB Systems.

**Table 2: Current ITB Systems**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Current System** | **Vendor - Type** | **Business Function** | **Data Volume** | **To be replaced?** |
| **ServiceNow ITSM** | ServiceNow- SaaS | IT Service Requests | 15,000  requests/year | No |
| **Sunflower** | NIH Business System- Oracle | IT Asset Management | 4,500 assets | No |
| **JIRA** | Atlassian – SaaS | IT Change Management | 200 records | Yes |
| **ITB Project Management** | Microsoft SharePoint | IT Project Management | 70 records | Yes |

**Data Clean Up**

All forms of data clean up are needed, including but not limited to, data formatting, normalization, duplicate removal, etc. Any data verification that requires field surveying would be part of the optional quantities identified in SOO section 4.1 at the bottom of page 10.

The Government does not expect 100% of all fields across all records to be perfected as part of this requirement. Some records, fields, and values carry more criticality than others and therefore at a minimum, need to be cleaned up. Furthermore, some records, fields, and values require varying levels of effort to be cleaned up. For example, it’s more important to clean up active records as opposed to inactive records.

Excluding Construction Projects from MS Construction and UPD (third and second to last rows on Table 1): an estimated 5 years of legacy records need to be migrated. For Construction Projects, an estimated 10 years of legacy records need to be migrated.

The Government will work with the awardee during implementation to establish which exact fields needs to be cleaned up and how based on the awardee’s estimation for level of effort.

Please refer to Table 1: Current ORF Systems, specifically the column “Data Clean Up Needed” for more detailed information on the estimated level of clean up needed and the current quantity of data fields per each record type.

A High level of clean up would indicate that the current data set entirely lacks a data standard, and therefore much or all the data is not uniform nor categorized/classified.

A medium level of clean up may have partial data standards where some fields have standard uniform values, but other fields need formatting, normalization, etc.

A low level of clean up likely has standardization across most or all fields and would only require minor revisions to ensure the data is connected to other tables within the solution.

Where an “\*” is included next to the quantity of fields, this indicates the lower number is the estimated minimum number of fields that needs clean up. For example, for Deficiency Requests, we estimate a minimum of 15 of the total 75 fields require clean up.

## SCOPE

**Subscription Licenses**

The platform and applications will be provided as Platform as a Service (PaaS) and Software as a Service (SaaS), respectively. The applications must be native to the platform or certified platform applications and must inherit platform capability. The platform and applications must be accessible via web browser for all functionality and mobile device-enabled for field use functionality.

The built-on applications require functionality consistent with Integrated Workplace Management System (IWMS); and IT service management (ITSM) such as service request management, project management, change management, and IT asset management. The platform must provide capability to support other enterprise administrative functions such as IT, HR, and Financials.

**Implementation/Integration Support Services**

In addition to the PaaS and SaaS licenses needed to access the platform and applications, this requirement also includes the support services need to migrate and standardize data, configure workflows, test, deploy, train, and secure the platform and applications. Additionally, there is an optional quantity of asset data gathering in-person field surveys. This includes asset tagging, 2D Computer Aided Design (CAD) and 3D Building Information Modeling (BIM).

## 3.1 Period of Performance

The base period of performance is for one year from contract award with four, one-year options.

## 3.2 Place of Performance

The contractor will perform most activities off government site; however, training is the only mandatory onsite activity (pending travel authorization).

Bethesda, MD

Frederick, MD

Poolesville, MD

Durham, NC

Hamilton, MT

Potentially Other Owned and Leased Facilities located across the United States

**Mandatory On-Site Performance:**

* Data gathering via field surveys (Optional Quantities)
* Asset tagging, barcoding, QR coding (Optional Quantities)
* On-site training, specifically for 500+ maintenance and other staff

Excluding the performance listed above, other performance such as data standardization, migration,

and application configuration may be performed remotely.

## 3.3 Coordination

The Government will provide a dedicated internal FTE project manager, integrated project team, and end-user test/acceptance groups for implementation. The contractor is required to provide the implementation support services to complete the solution deployment, data gathering, standardizing, and migration, workflow configuration, end user training, governance model development, and overall project management needed to for each implementation phase.

The Government will work with the contractor to develop, configure, test, accept, and deploy throughout each phase of implementation. The Government and contractor will establish stage gate reviews and acceptance criteria to ensure that each phase of the newly developed and configured solution meets the Government’s requirements.

Prior to the start of a new phase, the contractor will identify any gaps in functionality e.g. loss of features that are present. Prior to migrating from the old system to the new system, the contractor will identify potential solutions to mitigate the gaps in functionality and present the solutions to the Government for approval.

During implementation, the contractor is required to perform periodic system upgrades and security patches to the future enterprise solution. The contractor is required to provide training on carrying out upgrade and patching activities to ensure the function can be performed in-house after implementation.

For data migration, all data is owned by ORF and will be made available to the contractor. There will be more contractor to contractor interactions when performing system integrations. All contractors involved are contractually bound to cooperate with other contractors to share information that belongs to the government. The contracting officer and contracting officer’s representative anticipate there will be no information sharing issues for this requirement and both will be available through contract administration to ensure the necessary information is made available.

For data migration, the contractor will migrate all active task-based records (maintenance requests, parts requests, construction project requests, work orders, parts orders, etc.). Some historical data, including completed work orders, completed projects, etc, between 1-5 years, will need to be migrated by the contractor. In addition to all active and some historical task-based records, all active asset and all space records will also need to be migrated by the contractor.

## OBJECTIVES

The solution will provide a single, secure, cloud enterprise platform and native platform applications. The platform will be FedRAMP-authorized and meet NIH IT security requirements. The platform and applications will be provided as Platform as a Service (PaaS) and Software as a Service (SaaS), respectively. The applications must be native to the platform or certified platform applications and must inherit platform capability. The platform and applications must be accessible via web browser for all functionality and mobile device-enabled for field use functionality.

In addition to the PaaS and SaaS licenses needed to access the platform and applications, this requirement also includes the support services need to migrate and standardize data, configure workflows, test, deploy, train, and secure the platform and applications. Additionally, there is an optional quantity of asset data gathering in-person field surveys. This includes asset tagging, 2D Computer Aided Design (CAD) and 3D Building Information Modeling (BIM).

## 4.1 Task Area 4: Outsourcing

**FedRAMP-Authorized Enterprise Cloud Services Platform (PaaS)**

* Development Instance/Environment
* Test Instance/Environment
* Production Instance/Environment

This instance (infrastructure resources) will be shared across the Office of Management and coordinated by the incumbent to prevent collisions.

**Integrated Workplace Management System (IWMS) Application(s) (SaaS)**

* Integrated Workplace Management System (IWMS)- Facilities Asset Management
* Integrated Workplace Management System (IWMS) – Space Management
* Integrated Workplace Management System (IWMS) – Clinical Asset Management
* Integrated Workplace Management System (IWMS) – Laboratory Asset Management

**4.1.1 Optional Quantities:**

**IT Workflows Application(s) (SaaS) - (Optional Quantities)**

* IT Service Management (ITSM)
* IT Asset Management (ITAM)
* IT Operations Management (ITOM)
* IT Business Management (ITBM)
* DevOps
* Program Management
* Change Management

**Asset Management (Optional Quantities)**

* Asset Field Verification & Tagging: Barcode, QR, RFID
* Asset-Space Field Survey & Documentation: 2D Computer-Aided-Design (CAD), 3D Modeling

**Office of Management (OM) Enterprise Cloud Platform Roadmap**

* Facilities Management
* Business Management: Intake and project/portfolio management, demand management
* IT Service Management (e.g. CMDB, Security Orchestration, Automation and Response)
* Asset Management
* Security Operations
* Operations Management
* App Development: platform for light-weight, low-code, no code development with workflow
* HR, Financials

## 4.2 Task Area 6: Integrations Services

**Development, Implementation, Integration; Enterprise Application Integration**

* Deploy an enterprise FedRAMP-authorized cloud platform and install IWMS and IT workflow applications.
* The enterprise cloud platform will be shared across the NIH administrative offices in OM and the Office of the Director and must be implemented with the architecture to support the potential for a federated management governance model across offices and contractors.
* Migrate or integrate all systems listed in Table 1: Current ORF Systems and provide full suite of implementation services (e.g. configuration, data migration, training, etc.)
* Implement HTML links within the platform and solution and in outside systems, such as the Building Automation System, to enable rapid access to records stored in the platform and IWMS.
* Initially integrate the cloud platform with several existing systems (listed in table below) in a simple and intuitive architecture that takes advantage of modern API technology stacks

**4.2.1 Optional Quantities/Hours**

* Deploy an enterprise FedRAMP-authorized cloud platform and install IT workflow applications.
* Migrate or integrate all systems listed in Table 2: Current ITB Systems and provide full suite of implementation services (e.g. configuration, data migration, training, etc.)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Current System** | **Workflows/Data** | **Integration Type Needed** | **Integration Mechanism** | **Integration Purpose** | **Integration Frequency** | **System of Record** | **Database systems, types, & versions** | **Implementation Phase Needed** |
| **NIH iTrust** | Single Sign-on via NIH Common-access-card (CAC) Multi-factor Authentication, Signature, Encryption | One-Way | TBD | Single Sign On, Multi Factor Authentication against enterprise directory | N/A | N/A | Not readily available – will be made available upon implementation | Prior to Phase 1 – Initial integration |
| **NIH Enterprise Directory** | Enterprise Personnel Directory | One-Way | TBD | Contact Information for all NIH Personnel | Hourly/Daily | NIH Enterprise Directory | Not readily available – will be made available upon implementation | Prior to Phase 1 – Initial integration |
| **ARCHIBUS** | Poly-lined Floor Plans, Building/Room Table and all other Facility Information Management System (FIMS) functionalities | One-Way (potentially Bidirectional) | TBD | Use of authoritative NIH Campuses, Buildings, Floors, Rooms, Floor Plans | Hourly/Daily | Phase 1-3: ARCHIBUS  Phase 4: IWMS | 24.1.1.570 | Prior to Phase 1 – Initial integration |
| **ServiceNow** | IT Service Requests | Bidirectional | TBD | Coordination of IT Service Requests | Real Time | Both existing ServiceNow instance & new ITSM application | Madrid, New York, or Orlando. Will confirm upon implementation | Upon start of ITB Implementation Phase for ITSM |
| **Siemens** | Building Automation System | One-Way (potentially Bidirectional) | TBD | Predictive maintenance, energy usage; coordination of equipment status | Real Time | Siemens | Insight.  Will be upgraded to Desigo | TBD – does not need to be prior to Phase 1 |
| **Johnsons Controls** | Building Automation System | One-Way (potentially Bidirectional) | TBD | Predictive maintenance | Real Time | Johnson Controls | Metasys 10.1 | TBD – does not need to be prior to Phase 1 |
| **NIH Business System (NBS) – including Sunflower – Oracle**  **or nVision data warehouse** | NIH Assets, Property, Financials | One-Way | TBD | Leverage authoritative property and financial data. | Hourly/Daily | NBS | Oracle | TBD – does not need to be prior to Phase 1 |
| **IBM Maximo** | Central Utility Plant Asset Inventory | One-Way | TBD | Roll up of full capital asset portfolio | Hourly/Daily | IBM Maximo | 7.6.0.8 | TBD – does not need to be prior to Phase 1 |
| **ArchGIS** | Geographic Information System (GIS) | Bidirectional | TBD | Leveraging GIS graphical interface for completion of tickets and managing of assets | Real Time | ArchGIS | Not readily available – will be made available upon implementation | TBD – does not need to be prior to Phase 1 |
| **Orion** | Network Faults | Bidirectional | TBD | Identify Building Automation devices impacted by network faults; update status and IP address | Real Time | Orion | Not readily available – will be made available upon implementation | TBD – does not need to be prior to Phase 1 |

**Integrated Workplace Management System (IWMS) Phased Implementation Plan**

The government requires data gathering, standardizing, and migration, workflow configuration, dashboard and report development, end user training, administrator training, governance model development, and overall project management throughout each phase of implementation.

**Table 1: Current ORF Systems** - identifies the current ORF systems to be migrated into the IWMS.

**Appendix A: ORF Data Model** – visually illustrates the current ORF systems and data flow

**Appendix B: ORF IWMS Detailed Objectives (separate attachment)** - comprehensive list of solution criteria & priority

The government has established the following phased implementation approach for the IWMS application:

**Phase 1: Maintenance Management**

Customer Requested Maintenance

Use Case Example: “Submit request for an out-of-service elevator”

Data Volume: 65,000 requests/year

Workflow: request🡪assign🡪plan🡪schedule🡪work in progress🡪on hold🡪review🡪close

Facility Asset Inventory Management

Use Case Example: “Track supply air system with children air handling units”

Data Volume: 80,000+ individually tracked assets, uniquely identified

Periodic, Preventative, and Condition-Based Maintenance

Use Case Example: “Assign maintenance inspection points to a chilled water system”

Workflow: request🡪assign🡪plan🡪schedule🡪work in progress🡪on hold🡪review🡪close

Parts Inventory Management

Use Case Example: “Order a fan belt and air filters”

Data Volume: 4,100+ parts requests/year

Workflow: request 🡪approve 🡪review🡪fulfill🡪requisition🡪purchase🡪receive🡪 issue

Maintenance and Space relationships for risk management

Use Case Example: “Graphically view highlighted floorplans to illustrate which rooms/areas are served by a respective building system or asset

i.e. Electrical Panel-XXXX serves all rooms on the first floor.”

Data Volume: 80,000+ individually tracked assets, uniquely identified

Utility Shutdown Request, Approval, and Notification

Use Case Example: “Shutdown chilled water in Building 2 to perform annual maintenance”

Data Volume: 2,250 shutdown tickets/year

Workflow: request🡪approve by Facility Manager🡪notify building occupants

**Phase 2: Condition Assessment & Capital Investment Planning**

Condition Assessment

Use Case Example: “Perform condition assessment on Building 2 to identify deficiencies”

Data Volume: 80,000+ individually tracked assets, uniquely identified

Workflow: start assessment🡪identify deficiencies🡪complete assessment

Deficiency Planning & Estimating

Use Case Example: “Estimate the cost of remediating deficiencies in Building 2”

Data Volume: 80,000+ individually tracked assets, uniquely identified

Workflow: review and estimate deficiencies🡪group deficiencies into candidate project🡪create candidate project

Capital Reinvestment Planning and Budgeting

Use Case Example: “Group deficiencies by asset type, create candidate project”

Data Volume: 350 active construction projects/year

Workflow: review candidate projects🡪align candidate projects to budget🡪promote candidate project to active construction project🡪assign active project to project manager

**Phase 3: Construction Project Management**

Construction Project Management

Large Project Use Case Example: “Manage design-bid-build or design-build construction project that will build a new laboratory facility”

Small Project Use Case Example: “Manage contractor-performed work to replace individual building systems or assets”

Data Volume: 350 active construction projects/year

Large Project Workflow: assign project🡪 design procurement🡪design review🡪design completion🡪construction procurement 🡪 construction administration 🡪 commissioning 🡪 closeout

Small Project Workflow: assign project🡪procurement🡪contract administration🡪closeout

**Phase 4: Space, Real Estate, & Lease Management**

Space Management

Use Case Example: “Track how much lab space the National Cancer Institute is assigned” or “Plan swing space for dislocated operations during a space renovation”

Data Volume: 16+ million square feet;

200+ owned buildings for department tracking and rent chargeback

Leased facility management

Use Case Example: “Track the lease terms and needed facility actions on leased facilities”

## Deliverables:

|  |  |  |  |
| --- | --- | --- | --- |
| Deliverable | Format | Due | Acceptable |
| Risk Management Plan  (data loss) | Microsoft Word | 45 days after award | Correct format, free of grammatical/clerical errors, on time. |
| Change Management Plan (organizational communication) | Microsoft Word | 45 days after award | Correct format, free of grammatical/clerical errors, on time. |
| Training Plan | Microsoft Word | 90 days after award | Correct format, free of grammatical/clerical errors, on time. |
| Agile Plan (Product vision statement, product roadmap, product backlog, release plan, sprint backlog, increment | Multiple | 90 days after award, continuously updated | Correct format, free of grammatical/clerical errors, on time.  Updated at end of each sprint. |
| Master Data Management Plan | Microsoft Word/Excel | 90 days after award, continuously updated | Correct format, free of grammatical/clerical errors, on time.  Updated at end of each sprint. |
| User Roles, Access, Permissions, and Security Plan, to include Security Information Assurance Package for Authority-to-Operate (ATO) to comply with NIST 800-53 security control assessment and authorization | Microsoft Word/Excel  + standard NIST 800-53 format | 120 days after award, continuously updated | Correct format, free of grammatical/clerical errors, on time.  Updated at end of each sprint. |
| Training Library  (how-to guides) | Multiple | 120 days after award, continuously updated | Correct format, free of grammatical/clerical errors, on time.  Updated at end of each sprint. |

## APPENDIX A: ORF DATA MODEL

