

# Construction Management Tracking System

The National Institutes of Health desired a better way to manage construction related projects ranging from minor remodeling efforts to construction of new buildings. The projects needed to have high accountability, effective multi-staff member participation, outstanding information sharing, document automation/management and high efficiency. To meet these needs, the Esri Workflow Manager Extension was added to NIH's existing ArcGIS platform and configured to perform this work within a web browser environment.

The Construction Management Tracking System (CMTS) marshals a work request through NIH's 15 step construction management process. At each step the system:

- routes the work request to the appropriate user
- collects and stores business information such as notes, documents, and approvals
- provides access to information collected in prior steps
- provides links to work request information stored in other system such as electronic document management and the NIH Business System
- stores the expected duration of each step
- tracks the start and completion date of the process step
- provides workload information for management

The Construction Management Tracking System (CMTS ) is built on Esri's ArcGIS Server leveraging an industry standard relational database management system and web service technology. This enables it to integrate with other business systems.

## The Construction Management Process Steps

### 1. The Customer Initiates the Work Request.

### 2. Intake Clerk Creates the Area of Work (AOW) Polygon.

The AOW polygon can be used to identify other nearby projects that may be competing for resources such as freight elevator access and material storage space.

### 3. Pre-Project Planning Board (PPPB) Reviews the Work Request.

The PPPB is a board of managers from several organizational nodes responsible for safety and standards. The board identifies work requests that will require reviews, permits, or special instructions to ensure all required standards and policies are met. The system stores this information for the Project Officer's reference throughout the project.

### 4. Project Manager Reviews the Work Request.

There are several construction management teams at the NIH Office of Research Facilities responsible for various types of projects. The Project Manager must ensure that the work being requested is of the appropriate type for the team to manage.

### 5. Project Manager Assigns the Project Officer.

The system presents the Project Manager with the number of projects currently being managed by each of the project officers on the team. Since the burden on the Project Officer varies throughout the different phases of a project, the system also denotes how many projects are in each phase.

### 6. Project Officer Meets with the Customer.

Notes and photos taken during the meeting can be stored on the system for later reference.

### 7. Project Officer Completes Project Documentation: Scope of Work, Project Plan, Estimate, Request for Contract Action (RFCA).

The system prepopulates some sections of these documents from information that has been collected throughout the process. This automatic population ensures consistency and reduces errors.

**8. Customer Reviews and Approves the Project Documentation.**

Documents are emailed to the customer directly from the system.

**9. Office of Acquisitions (OA) Reviews the RFCA.**

The OA provides feedback to the Project Officer to ensure that project documentation is complete and ready.

**10. Business Support Branch (BSB) Reviews the RFCA.**

The BSB provides feedback to the Project Officer to ensure that project documentation is complete and ready.

**11. The Business Support Branch (BSB) Submits the RFCA to the NIH Business System (NBS).**

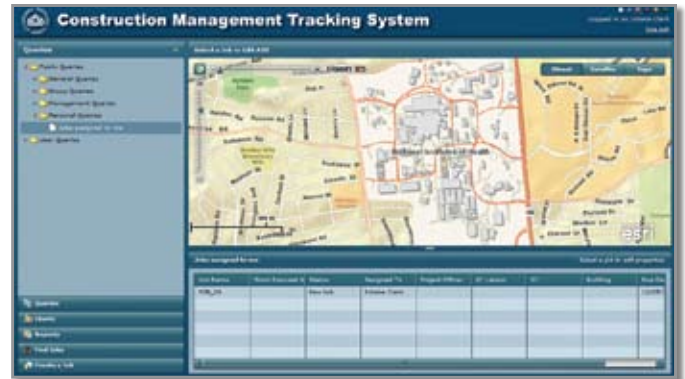
The tracking number provided by NBS is stored in CMTS to help support future information requests made to NBS.

**12. The Project Officer Receives the Notice to Proceed.**

**13. The Project Officer and Customer Inspect the Completed Work.**

The customer representative is stored in the system along with any other notes taken by the Project Officer.

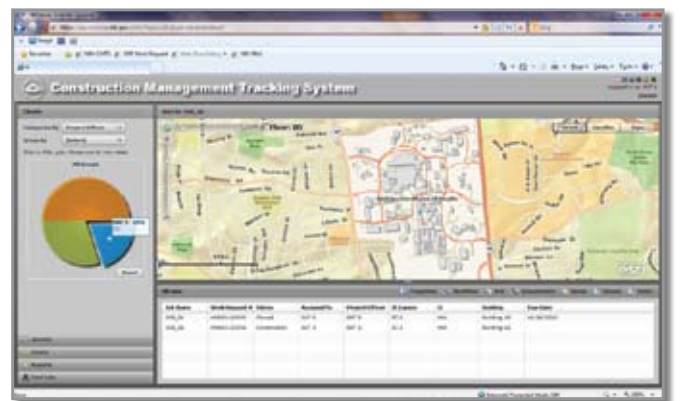
**14. The Invoice is Received and Paid.**



*Intake Clerk Task List*



*PPPB starts review process.*



*Report projects by PO*

The CMTS application thus manages the construction workflow process from the owner’s perspective from conception through design, construction and final payment, ensuring that responsible parties are informed at each step of the way, that they aware of their responsibilities and required schedules, and builds a record of construction documentation. The spatial component of the application allows convenient coordination with other projects in the vicinity. This application is completely customizable for the unique workflow processes of other agencies.