

Digital Project Delivery

Alberta Infrastructure Asset Information Management Contractor Requirements

Change History

Date	Version	Description
March 2018	V1.0	First Release
March 2020	V2.0	Minor revisions/clarifications to the following: Related Requirements, 2.0 AIM Meetings, 4.2 Required Assets, 4.4.2 Reality Capture, 5.0 Quality Control, 6.0 AIM Submittals

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Asset Information Management Objectives

The Province's objective for the use of Asset Information Management (AIM) is to capture, manage, and exchange asset information to increase efficiency for the Province's Facility and Operations Management. The objective of the AIM requirements is the delivery of this asset information for a project. The AIM Requirements expects that all contractors and sub-contractors have downloaded, read, and understood the organization and purpose of the Construction Operations Building Information Exchange (COBie) Standard and these instructions.

Related Requirements

Alberta Infrastructure's COBie Requirements

Alberta Infrastructure's COBie Instructions

1. AIM Manager

- .1 The Contractor shall designate one individual, the AIM Manager, who will act as the single point of contact to the Province for the AIM submittals.
- .2 The AIM Manager shall be accountable for the following activities:
 - .1 Ensuring compliance with the Province's AIM Contractor Requirements.
 - .2 Coordinating and facilitating all project AIM meetings with the Province.
 - .3 Developing, maintaining, updating, distributing, and providing clarifications to the Contractor's AIM Execution Plan (AEP).
 - .4 Executing the AIM procedures as detailed in the AEP and ensuring the reliability of information in the Contractor's deliverables.
 - .5 Executing quality control (QC) processes for accurate data creation, standards adherence and classification of all required assets.
 - .6 Coordinating the delivery of all AIM Submittals to the Province.

2. AIM Meetings

- .1 The Contractor shall hold one AIM kickoff meeting within two (2) weeks of project award.
- .2 The Contractor shall lead and facilitate recurring AIM project meetings with project team members, including the Province, at a frequency defined in the AEP.

3. AIM Execution Plan (AEP)

- .1 The AEP is a process management document created in consultation with the Contractor and the Province. The Contractor shall:
 - .1 Use the AEP template (GOA-AI-TSB-SPE_AEP_Template) provided by the Province as the basis for the AEP, with additional modifications according to the needs of the Contractor.
 - .2 Revise the AEP to reflect changes to the following:
 - .1 Roles and Staffing
 - .2 Collaboration Procedures
 - .3 Quality Control and Quality Assurance
 - .4 Technology Infrastructure
 - .5 Delivery and Updates
 - .6 Reality Capture Methods
 - .3 Deliver the AEP to the Province in accordance with Section 6 *AIM Submittals*.
 - .4 Resubmit the AEP to the Province following any revisions for review and confirmation of acceptance.

4. AIM Requirements

4.1 General

- .1 The International System of Units (S.I.) shall be used in all deliverables. The unit for linear dimensioning is the millimetre, except where the scope requires the use of the metre, such as in site plans. Integers shall indicate millimetres. Decimal numbers with three decimal places shall indicate metres.
- .2 All deliverables shall use English as the default language.
- .3 The Contractor shall:
 - .1 Capture all asset information in the COBie file in accordance with the Province's COBie Requirements and in collaboration with the Province.
 - .2 Complete regular updates, additions, or deletions in the COBie file in the event of project changes that impact the assets, spaces, or documents.

4.2 Required Assets

- .1 The list of building assets to include in a COBie file cannot be stated for all buildings due to the varying design requirements for different buildings. The Contractor shall:
 - .1 Refer to the COBie standard list of excluded building elements (NBIMS-US V3, Chapter 4.2, Pages 218-219).
 - .2 Refer to the project specific Maintainable Asset List, provided by the Province.

4.3 As-Built Requirements

- .1 The Contractor shall provide to the Province As-Built Drawings in an accurately scaled, measurable, and digital format (PDF, CAD, etc).
- .2 All mark-ups, notes, and annotations shall be added on the electronic drawings using the digital mark-up or annotation tool in the software and must be discernible from the original Contract Documents.
- .3 No hand-written, hand- drawn, or scanned mark-ups shall be accepted.
- .4 As-Built Drawings shall contain:
 - .1 The accurate representation of all assets in the COBie file, including:
 - .1 As-built quantity and size.
 - .2 As-built orientation, location, and elevation.
 - .3 Connections to the appropriate systems.

- .2 Routing of major services.
- .3 Dimensional references to gridlines and/or major permanent building elements such as walls, ceilings, and floors.
- .5 The Contractor shall submit As-Built Drawings to the Province in accordance with Section 6-*AIM Submittals*.

4.4 Reality Capture

- .1 Reality Capture photographs produced by the Contractor are intended to capture the as-built conditions of the facility as detailed below. The as-built photographs are not intended or required to be incorporated into the Record Drawings by the Consultant. They are for visual record only.
- .2 All Reality capture photographs produced by the Contractor shall be 16 megapixels resolution and must be clear, legible and unobstructed.
 - .1 The Contractor shall provide the following digital photographs of the installed as-built conditions of the following building elements at a minimum:
 - .1 Rooms/Spaces
 - .1 Photograph of each wall (north, east, south, and west views) prior to concealment.
 - .2 Additional photographs as needed to capture interiors of wall spaces, equipment, rough-in details or large wall sections.
 - .3 Photographs of each ceiling space (room quadrants: NE, SE, NW, SW views) prior to concealment. Break ceiling photographs of large areas into maximum of 200 square metre sections.
 - .4 Additional photographs as needed to capture interiors of ceiling spaces, equipment, rough-in details or large area ceiling sections.
 - .2 Floors/Slabs
 - .1 Photographs of each floor or slab (section quadrants: NE, SE, NW, SW views) prior to concealment/concrete pour. Break floor/slab photographs of large areas into maximum of 200 square metre sections. Minimum of 4 photographs are required per 200 square metre sections.
 - .2 Additional photographs as needed to capture details of floors or slabs, equipment, rough-in details or large floor area sections.
 - .3 Equipment
 - .1 Photographs of all equipment and assets in the final installed location and orientation (minimum of one).
 - .2 Minimum of one photograph of nameplate or equipment tag.
 - .2 The methods and technology to be used to capture and manage the photographs shall be defined by the Contractor in the AEP.

.3 Alternative Reality Capture Methods

- .1 The optional use of panoramic photos, laser scanning or other reality capture technologies are encouraged. These methods can be used to supersede the above as-built photograph requirements at the discretion of the Province.
- .2 Use of any alternative reality capture options shall be detailed by the Contractor in the AEP for review and acceptability.

5. Quality Control

.1 The Contractor shall:

- .1 Perform quality control procedures, as defined in the AEP and in accordance with the Province's COBie Requirements, prior to every AIM submission to the Province.

6. AIM Submittals

6.1 General

- .1 All AIM submittal files shall be named in accordance with the Project Codification Standard provided by the Province.
- .2 All COBie files shall be delivered in accordance with the Province's COBie Requirements.

6.2 Progress AIM Submittals

- .1 The Contractor shall provide the following submittals to the Province with monthly application for payment:
 - .1 Updates to the AEP, in accordance with Section 3 *AIM Execution Plan*.
 - .2 A COBie Submittal Package, in accordance with Alberta Infrastructures COBie Requirements.
 - .3 Updated As-Built Drawings, in accordance with Section 4.2 *As-Built Requirements*.
- .2 The Contractor shall provide additional progress COBie XLSX files, in accordance with Alberta Infrastructures COBie Requirements, to the Province upon request.
- .3 The Contractor shall provide evidence and progress reports of reality capture photographs, in accordance with section 4.3 *Reality Capture*, to the Province upon request.

6.3 Formal AIM Submittals

- .1 The Contractor shall submit the AEP to the Province within 30 days following project award for review and confirmation of acceptance.
- .2 The Contractor shall submit a final AIM Submittal Package at Interim Acceptance of the Work.

- .3 The final AIM Submittal Package shall include:
 - .1 One COBie Submittal Package, in accordance with the Province's COBie Requirements.
 - .2 The complete set of files referenced on the COBie.Documents Tab, in accordance with the Province's COBie Requirements.
 - .3 The current version of the AEP, in accordance with section 3 *AIM Execution Plan*.
 - .4 Finalized As-Built Drawings, in accordance with section 4.2 *As-Built Requirements*.
 - .5 Reality Capture Photographs, in accordance with section 4.3 *Reality Capture*.
 - .6 Digital O&M information, in accordance with Alberta Infrastructure's Master Specification section 01 78 23- *Operation and Maintenance Data and Manuals*.