

Digital Project Delivery

**Alberta Infrastructure
Asset Information Management
Design-Builder Requirements**

Change History

Date	Version	Description
March 2018	V1.0	First Release
July 2019	V1.1	Minor Revision
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

Table of Contents

Asset Information Management Objectives	3
Related Requirements	3
1. AIM Manager	4
2. AIM Meetings	4
3. AIM Execution Plan (AEP)	4
4. AIM Requirements	5
4.1 General	5
4.2 Required Assets	5
4.3 As-Built Requirements	5
4.4 Record Drawings	6
4.5 Reality Capture	6
5. Quality Control	7
6. AIM Submittals	8
6.1 General	8
6.2 Progress AIM Submittals	8
6.3 Formal AIM Submittals	8

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 for the AIM requirements is a focus on the as built and turn over data associated with the assets of a project. The AIM Requirements expects that the Design-Builder has 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

Alberta Infrastructure's AIM Execution Plan Template

Alberta Infrastructure's COBie Compliance Form Template

1. AIM Manager

- .1 The Design-Builder 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 Design-Builder Requirements.
 - .2 Coordinating and facilitating all project AIM meetings with the Province.
 - .3 Developing, maintaining, updating, distributing, and providing clarifications to/for the AIM Execution Plan (AEP).
 - .4 Executing the AIM procedures as detailed in the AEP and ensuring the reliability of information in the Design-Builder's submittals.
 - .5 Executing quality control (QC) processes for accurate data creation, standards adherence, and classification of all assets required.
 - .6 Coordinating the delivery of all AIM Submittals to the Province.

2. AIM Meetings

- .1 The Design-Builder shall hold one AIM kickoff meeting within two (2) weeks of project award.
- .2 The Design-Builder 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 Design-Builder and the Province. The Design-Builder 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 Design-Builder.
 - .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 submittals. The unit for linear dimensioning is the millimetre, except where the scope requires the use of the metre. Integers shall indicate millimetres. Decimal numbers with three decimal places shall indicate metres.
- .2 All AIM submittals shall use English as the default language.
- .3 The Design-Builder shall:
 - .1 Capture all assets 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 Design-Builder shall:
 - .1 Refer to the COBie standard list of excluded building elements (NBIMS-US V3, Chapter 4.2, Pages 218-219).
 - .2 Collaborate with the Province and Facility Management Staff to define a project specific list of required assets.
 - .3 Use the Maintainable Asset List template provided by the Province as the basis for the list of required assets, with additional modifications according to the needs of the Design-Builder.
 - .4 Deliver the Maintainable asset list to the Province in accordance with Section 6 *AIM Submittals*.

4.3 As-Built Requirements

- .1 The Design-Builder shall provide As-Built Drawings to the Province 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.
- .5 Dimensional references to gridlines and/or major permanent building elements such as walls, ceilings, and floors.
- .6 The Design-Builder shall submit As-Built Drawings to the Province in accordance with Section 6 *AIM Submittals*.

4.4 Record Drawings

- .1 The Design-Builder shall update the Record Drawings throughout the construction phase of the project to reflect approved project changes, including:
 - .1 Project change orders.
 - .2 Site instructions.
 - .3 RFI responses and clarifications.
 - .4 Shop drawings.
 - .5 As-Built Drawings.
- .2 The Record Drawings shall contain the accurate representation of all assets in the COBie file as per the As-Built Drawings.
- .3 The Design-Builder shall provide evidence of updated Record Drawings to the Province upon request.
- .4 The Design-Builder shall submit Record drawings to the Province in accordance with Section 6 *AIM Submittals*.

4.5 Reality Capture

- .1 As-built photographs produced by the Design-Builder 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, 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.
- .3 The Design-Builder shall provide the following digital photographs of the installed as-built conditions of all 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.
- .4 The methods and technology to be used to capture and manage the photographs shall be defined in the AEP.
- .5 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 in the AEP for review and acceptability.

5. Quality Control

- .1 The Design-Builder 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 XLSX files and COBie Submittal Packages shall be delivered in accordance with the Province's *COBie Requirements*.

6.2 Progress AIM Submittals

- .1 The Design-Builder shall provide the following submittals to the Province at a frequency defined in the AEP:
 - .1 Updates to the AEP, in accordance with Section 3 *AIM Execution Plan*.
 - .2 Updates to the Design COBie XLSX file.
 - .3 Updates to the Construction COBie XLSX file.
 - .4 Updates to the Maintainable Asset List, in accordance with Section 4.2 *Required Assets*.
 - .5 Updated As-Built Drawings, in accordance with Section 4.3 *As-Built Requirements*.
- .2 The Design-Builder shall provide additional progress COBie XLSX files to the Province upon request.
- .3 The Design-Builder 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 Design-Builder shall submit:
 - .1 The AEP to the Province within 30 days following project award for review and confirmation of acceptance.
 - .2 Finalized Record Drawings, in accordance with Section 4.4 *Record Drawings*, 30 days following Interim Acceptance of the Work.
- .2 The Design-Builder shall submit a formal Design AIM Submittal Package at each of the designated project phases defined in the AEP.
 - .1 Formal Design AIM Submittal Packages shall include:
 - .1 One COBie Submittal Package in accordance with the Province's *COBie Requirements*.
 - .2 The current version of the AEP, in accordance with section 3 *AIM Execution Plan*.

- .3 The current version of the Maintainable Asset List, in accordance with Section 4.2 *Required Assets*.
- .3 The Design-Builder shall submit a formal Construction AIM Submittal Package at Interim Acceptance of the Work.
 - .1 Formal Construction AIM Submittal Packages shall include:
 - .1 One COBie Submittal Package, in accordance with the Province's *COBie Requirements*.
 - .2 The current version of the AEP, in accordance with section 3 *AIM Execution Plan*.
 - .3 The complete set of files referenced on the COBie.Documents Tab, in accordance with the Province's *COBie Requirements*.
 - .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*.