Summary of Modifications/Changes in this Update

This Summary of Changes is for information only.
It is not a part of the referenced document, and should not be used for project documentation.

U.S. Department of Veterans Affairs ♦ Office of Construction & Facilities Management

DATE OF THIS VERSION:

August 1, 2017

TITLE OF DOCUMENT:

VA BIM Manual v2.2

DATE OF VERSION BEING SUPERSEDED (old):

February 1, 2017

DESCRIPTION OF DOCUMENT (previous title, number, other identifying data):

VA BIM Manual v2.0 Nov 10, 2016, rev 2/17

SUMMARY OF CHANGES IN THIS VERSION:

The BIM Manual, a part of the suite of documents in VA BIM Standard, has been revised. The new BIM Manual v2.2 revisions have been made to rearrange the text sections to improve the flow of the text, to change words for clarity, and to respond to comments regarding improvements. *The following list of revisions may not be complete.* The Section numbering reference below are the BIM Manual rev 2/17 numbering.

1) Changes to the BIM Manual Title page
2) Table of Contents revised to include tertiary-sub headings so information is more easily found
3) Section 1.1.3: Changed text
4) Section 1.1.2: Changed "$20 million" to "$10 million"
5) Section 1.1.4: Changed list of VA BIM Standard documents to only categories
6) Section 1.3.3: Changed "BIM Project Execution Plan (PxP)" to "BIM Execution Plan (BxP)"
7) Section 1.4: Removed the following text: Assisting the VA the required information to the CMMS and performing operational testing in the CMMS to assure it functions properly
8) Section 1.4: Alphabetized bullet list

9) Section 2.13.1: Changed text: Rooms, departments, areas, and mechanical spaces that are typically a part of the Architectural, MEPFT, and Interior Design models must be generated with the appropriate BIM tool and associated with bounding elements (walls, doors, windows, floors, columns, ceilings, underside of deck).

10) Section 2.13.1: Added text: When using Autodesk Revit, **Architectural Spaces** (in the architectural and interior design models) must be modeled as "Rooms" and when rooms are aggregated into Departments they must also be modeled as "Areas." **Mechanical Spaces** for MEPFT must be modeled as "Spaces" (volumes that go to the underside of the deck above for load calculations) and when spaces are aggregated together they must also be modeled as a "zone."

11) Section 2.1: Added "Building Service Equipment" to the last bullet

12) Section 2.3: Added the following text: When using Autodesk Revit, the model must be checked for compliance with VA requirements for data and modeling using the free model checker provided by Autodesk. Other similar authoring softwares must provide equivalent quality control model checking, which must be outlined in the AE BxP and accepted by VA. The results of the Model Compliance Report must be submitted to VA at each design progress review.

13) Section 2.6 Changed capital error from "VArious" to "Various"

14) Section 2.12: Changed text to read: This file will include 1) the Program for Design (PFD) which lists each required room and the amount of space the room contains, and 2) the Project Room Contents (PRC) which provides a preliminary equipment list for each room (no building service equipment).

15) Section 2.13.1: Changed text: "Rooms, departments, areas, and mechanical spaces that are typically a part of the Architectural, MEPFT, and Interior Design models must be generated with the appropriate BIM tool and associated with bounding elements…"

Section 2.13.1: Added text: "When using Autodesk Revit, **Architectural Spaces** (in the architectural and interior design models) must be modeled as "Rooms" and when rooms are aggregated into Departments they must also be modeled as "Areas." **Mechanical Spaces** for MEPFT must be modeled as "Spaces" (volumes that go to the underside of the deck above for load calculations) and when spaces are aggregated together they must also be modeled as a "zone."

16) Section 2.14 Revised and rearranged material throughout the entire section for clarity

17) Section 2.15: Moved "Room Test-fits"

18) Section 2.18.1: Changed text to read: Buildings must be minimally modeled for site civil work but must reflect the accurate location of outside proposed building walls and any utility penetrations through floor slabs and walls below ground.

19) Section 2.18.2: Changed text to read: Reference the Interiors Model, the PRC Equipment Models, and appropriate building equipment and systems models (including mechanical for louvers), and others as needed to coordinate the work.

20) Section 2.18.8: Changed text to read in "Mechanical:" All components of the mechanical systems must be modeled accurately, and include the necessary space reservations for appropriate access during maintenance and replacement. Louvers should be modeled as a part of Mechanical.

21) Section 2.18.8: Added the following text: All riser diagrams must be model based.

22) Section 2.18.8 Changed text
   - Title to read: Mechanical, Electrical, Plumbing, Fire Protection, and Medical Technology (MEPFT)

- in "Electrical:" The architectural, mechanical, and electrical models must reference each other and be a part of the Design Coordination to eliminate any mismatches between the models.

23) Section 3.2: Changed the text to read: The AE must provide to the VA Contracting Officer for potential bidders the following: 1) The fully assembled and coordinated non-editable *Design-Intent Model* in a NWD format (or equal) or a digital 3D PDF format; 2) the native BIM files; and 3) *Design-Intent 2D Drawings* (as noted in the DDR) derived from the *Design-Intent Model*.

24) Section 3.5: Changed **FM Model** to **Record Model**

25) Section 3.6: Rewrote the following text for clarity: The AE must support VA in loading the FM Data into the CMMS by incrementally validating and cleansing the data and providing the VA preferred BIM viewer. VA's Office of Information & Technology (OI&T) in collaboration with VA Facility Management will incrementally load the FM Data into the CMMS when the information is known. The FM Data must be completely loaded into the CMMS before 85% of construction Earned Value is reached.

26) Section 3.6: Modified language: Coordinating with the GC, the AE must provide the continuously updated *Record Model*, the *As-Built Drawings*, the *FM Data (in a COBie format)*, *Linked Files*, and a *Comprised Progress Report* to VA.

27) Section 3.9: Removed "1" for header, which renumbered list

28) Section 3.9: Modified text: The following is a summary of BIM deliverables (see PG 18-15 for additional list of Design Deliverables by Design Phase). Project-specific deliverables including format and timelines are to be documented in the BxPs.

29) Section 3.9: Consolidated Model and 2D drawing deliverables into one line

30) Section 3.9: Deliverable #4. Added "photogrammetry"

31) Section 3.9: Deliverable #7. Changed text to: "Final Design-Intent Drawings…" and "100% Design"

32) Section 3.9: Deliverable #11. Added "Update continuously to reflect construction changes;…"

33) Section 3.9: Deliverable # 11: Changed FM Model(s) to Record Models

34) Section 3.9: Deliverable #14. Consolidated with #16, changed to read: Updated and Final FM data: To AE at Construction Milestones, Final to AE at 85% of construction Earned Value

35) Section 3.9: Deliverable #17: Changed text to: "Models for the CMMS" and "60 calendar days before Beneficial Occupancy"

36) Section 3.9: Eliminated row #16 & 17.

37) Section 4: Revised and rearranged section; included all information that had previously been in Section 4.2 Site Modeling.

38) Section 4.2: Changed "Site Modeling" title to "Model Authoring" and added "Model Authoring for a new project must follow the VA BIM Standards."

39) Section 4.3: Changed title: "Data" to "FM Data" and changed the text to read "Create, update, and maintain all model objects and required data as required listed in the *VA FM Data*, e.g., for room spaces and Building Service Equipment"

40) Section 4.4: Changed title: "Equipment Management" to "Room Equipment Management."

41) Section 4.5.1: Added text: Departments shall follow VA Department Color Coding.

42) Section 4.5.2: Changed "Space Size Verification" to "Spatial Validation"

43) Section 4.5.4 through Section 4.5.8: rearranged sections for better clarity and made slight text adjustments.

44) Section 4.5.5: Added "photorealistic" to the rendering sentence.

Section 4.5.5: Added the following: "If VA has a 3D BIM viewer, the AE must provide the model for review in that format. The AE and GC must provide 3D immersion (such as HTC Vibe, HoloLens, Oculus Riff glasses, or similar) during design validation reviews when requested."

45) Section 4.5.9: Changed title from "Swing Space & Phasing Plans" to "Sequencing"

46) Section 4.6: Changed "Contractor" to "GC" for consistency

47) Section 4.8.1: Added "AE" to the following sentence: The AE and GC must ensure that no other trades encroach on these reserved spaces.

48) Section 4.9: Removed entire section.

49) New Section 4.9: Renamed "Use of new Technology/Techniques" to "Value Added Processes"

50) Section 4.10.1/4.9.2: Changed title to read: "Laser Scanning, Photogrammetry, GIS, and Ground Penetrating Radar (GPR) During Construction"

51) Section 4.10.1/4.9.2: Changed text to read: Contractors must integrate laser systems and other construction positioning technologies into their delivery methods. Scans performed by the AE or the GC must be provided to VA in their native formats.