AutoCAD to MicroStation CONNECT Edition

Migration Guide

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Bentley Systems, Incorporated

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MicroStation Product Advancement

Use MicroStation CONNECT Edition to deliver projects smarter. With proven MicroStation technology, you can be confident in your ability to take on any design, construction, or operations project. No matter what design information you are working with or what kind of deliverables are required, you can rely on MicroStation's flexibility and power to get the job done on time and on budget.

MicroStation's advanced parametric 3D modeling capabilities enable infrastructure professionals of any discipline to deliver data-driven, BIM-ready models. Take control as your team aggregates their work using MicroStation, including designs and models created with Bentley's discipline-specific BIM applications. Because your project team works in a universal modeling application, they can easily communicate using information-rich deliverables while maintaining the full richness and integrity of the data in your models.
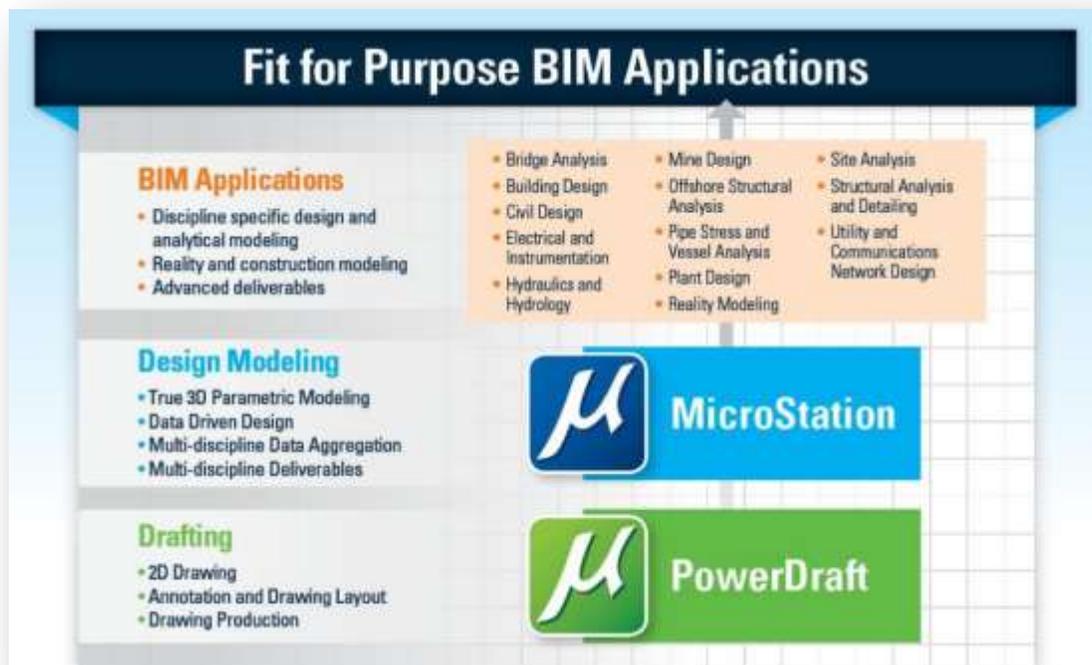
The MicroStation family of products provides the power to precisely model, document, and visualize information-rich, 2D and 3D designs of all types. No matter the scale, professionals from any discipline benefit from the versatility of Bentley software for infrastructure projects.

MicroStation and all Bentley BIM applications are built on the same comprehensive modeling platform. Consequently, you can easily transition your MicroStation work into discipline-specific workflows with Bentley's design and analytical modeling BIM applications. With this flexibility, your team has the right application for their work *and* they'll have many BIM advantages of without the need to change existing workflows.

WHY YOU SHOULD SWITCH TO MICROSTATION
Key benefits for AutoCAD users!

MicroStation gives you the capabilities you need to succeed. Whether you need to bridge 2D and 3D workflows or speed creation of project deliverables, MicroStation helps you get better results . Here are just some of the ways that MicroStation can help you and your team work better together.

Connected User Experience/User Interface

- Personalized product recommendations
- Share production content more easily
- Access related capabilities faster with an integrated search
- Easily navigate and learn faster via the standard ribbon interface

Documentation

- Accelerate and ensure drawing consistency
- Ensure consistency and accuracy of annotation
- Simplify and streamline the control of drawing appearances
- Automate creation and updates of reports and tables

Modeling

- Explore more design alternatives
- Simplify modeling workflows
- Create and share more flexible, reusable parametric content

Printing

- Offload plot processing
- Combine all types of project content in plot sets in a single operation, including raster and PDF

Visualization

- Accelerate rendering
- Create seamless textured surfaces

Interoperability

- Use and share RealDWG 2013 - 2018 data, JT format, and IFC CV2.0

Extensibility

- Non-programmers can record and repeat common tasks easily
- "Promote" macros to VBA for downstream use

Administration

- Deploy MicroStation using virtualized environments
- Easily and quickly deploy non-English versions

MicroStation Key Features by Industry

Road/Rail	Buildling	Utilities/Government	Plant/Process	Structural Detailing	Electrical
Drape imagery onto terrains	Authentic DWG and RealDWG support	Automatic snapping in place of 100's of geospatial	Use stanards templates and built-in checker	Use stanards templates and built-in checker	Use stanards templates and built-in checker
Automatic snapping in place of 100's of geospatial formats	Integrate with real-time visualization applications	Integrate 3D phototextured reality meshes created from ordinary photos	Automatically create and embed property-driven tables/reports	Automatically create and embed property-driven tables/reports	Automate annotation using embedded BIM information
Automate creation of traffic animations	Integrate point clouds in 16 native formats	Automatically create and embed property-driven tables/reports	Integrate point clouds in 16 native formats	Intelligent parametric content cloud access	Automatically create and embed property-driven tables/reports
Integrate point clouds in 16 native formats	Integrate 3D phototextured reality meshes created from ordinary photos	Preicsely incorporate Esri SHP files	Lossless data exchange across applications/disciplines via	Automate annotation using embedded BIM information	Intelligent parametric content cloud access
Integrate with real-time visualization applications	Use stanards templates and built-in checker	Automatically change object display using embedded BIM data	Intelligent parametric content cloud access	Leverage embedded cloud services for sharing files	Built-in comprehensive learning and help
Integrate 3D phototextured reality meshes created from ordinary photos	Automate annotation using embedded BIM information	Use stanards templates and built-in checker	Employ integrated solid, surface and mesh modeling	Built-in comprehensive learning and help	Leverage embedded cloud services for sharing files
Preicsely incorporate Esri SHP files	Use mesh modeling tools	Work with data from web map servers	Integrate with Plant Design System workflows	Automate sheet indexing	Authentic DWG and RealDWG support
Use stanards templates and built-in checker	Intelligent parametric content cloud access	Use mesh modeling tools	Integrate 3D phototextured reality meshes created from ordinary photos	Authentic DWG and RealDWG support	Automate drawing production from and immersion in models
Use mesh modeling tools	Employ integrated solid, surface and mesh modeling	Integrate with real-time visualization applications	Automatically change object display using embedded BIM data	Automated batch sheet creation	Automate sheet indexing
Integrate terrain models and Land XML data	Automate drawing production from and immersion in models	Integrate point clouds in 16 native formats	Integrate with real-time visualization applications	Build and maintain persistent 2D and 3D constraints	Automated batch sheet creation
Intelligent parametric content cloud access	Employ high quality built-in rendering and animation	Authentic DWG and RealDWG support	Automate annotation using embedded BIM information	Employ integrated solid, surface and mesh modeling	Build and maintain persistent 2D and 3D
Integrate live or static GPS data with models	Build and maintain persistent 2D and 3D constraints	Automate annotation using embedded BIM information	Built-in comprehensive learning and help	Automatically change object display using embedded BIM data	Employ integrated solid, surface and mesh modeling
Automate drawing production from and immersion in models	Automatically create and embed property-driven tables/reports	Leverage embedded cloud services for sharing files	Embed BIM information into models	Integrate with real-time visualization applications	Automatically change object display using embedded BIM data
Layer 2D geometry onto models for 3D visualizations	Integrate IFC models	Embed BIM information into models	Leverage embedded cloud services for sharing files	Automate drawing production from and immersion in models	Robust PDF support for 3D and properties
Employ high quality built-in rendering and animation	Incorporate Revit RFA content	Built-in comprehensive learning and help	Automate drawing production from and immersion in models	Robust PDF support for 3D and properties	Use cloud services to resolve issues across project team
2D/3D constraints with complex expressions	Automatic snapping in place of 100's of geospatial formats	Lossless data exchange across applications/disciplines via	Automate sheet indexing	One button product update	One button product update
Automate sheet indexing	2D/3D constraints with complex expressions	Robust PDF support for 3D and properties	Import JT format data	Use cloud services to resolve issues across	2D/3D constraints with complex expressions
Built-in comprehensive learning and help	Leverage embedded cloud services for sharing files	Integrate terrain models and Land XML data	Automatic snapping in place of 100's of geospatial formats	2D/3D constraints with complex expressions	Integrate 3D phototextured reality meshes created from ordinary photos
Authentic DWG and RealDWG support	Embed BIM information into models	Drape imagery onto terrains	Preicsely incorporate Esri SHP files	Integrate point clouds in 16 native formats	Embed BIM information into models
Employ integrated solid, surface and mesh modeling	Automatically change object display using embedded BIM data	Integrate live or static GPS data with models	Authentic DWG and RealDWG support	Lossless data exchange across applications/disciplines via	Integrate with real-time visualization applications
Publish geospatial PDFs	Automate sheet indexing	Display models based on slope, height and other geometric characteristics	Robust PDF support for 3D and properties	Integrate 3D phototextured reality meshes created from ordinary photos	Integrate point clouds in 16 native formats
"Paint" components like trees onto terrains	Automated batch sheet creation	Layer 2D geometry onto models for 3D visualizations	Display models based on slope, height and other geometric characteristics	Embed BIM information into models	Lossless data exchange across applications/disciplines via
Automate annotation using embedded BIM information	Built-in comprehensive learning and help	Publish geospatial PDFs	Automated batch sheet creation	Incorporate Revit RFA content	Incorporate Revit RFA content

MIGRATION OPTIONS AND CONSIDERATIONS

While planning a successful migration to MicroStation CONNECT Edition, you'll need to consider various factors. This document provides a roadmap to navigate the task.

The suggested migration path is to move directly from your current CAD Package to MicroStation CONNECT Edition. In some cases, however, it may be prudent to conclude some projects without migration while migrating long-term projects to MicroStation CONNECT Edition. New projects should begin with MicroStation CONNECT Edition once corporate and client standards have been restructured.

MicroStation
CONNECT
Edition

Hybrid and
Transition
Projects
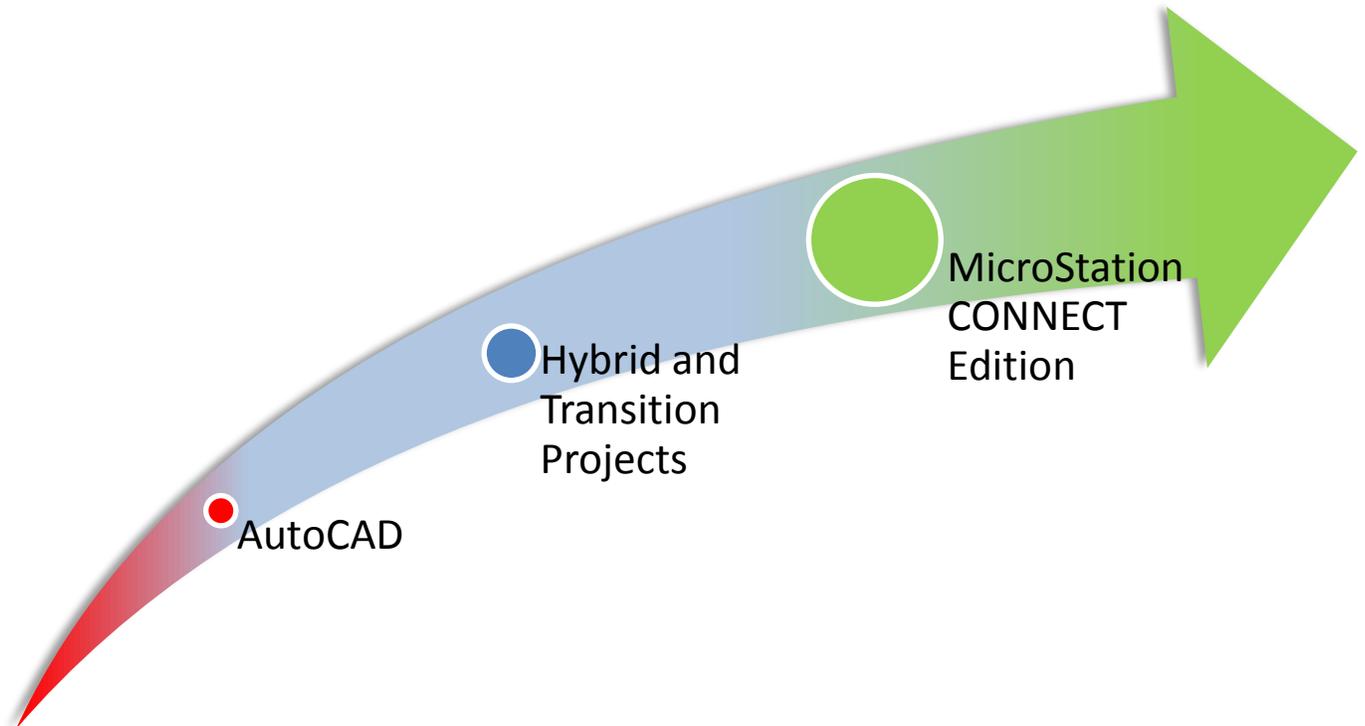
AutoCAD

Migrating to MicroStation CONNECT Edition from AutoCAD

While migrating to MicroStation, organizations will need to retain various standards and functions. The lists below contain AutoCAD "standards items," along with their MicroStation analogs and suggested actions.

Migrate (as required)

DWT ➔ Seed files
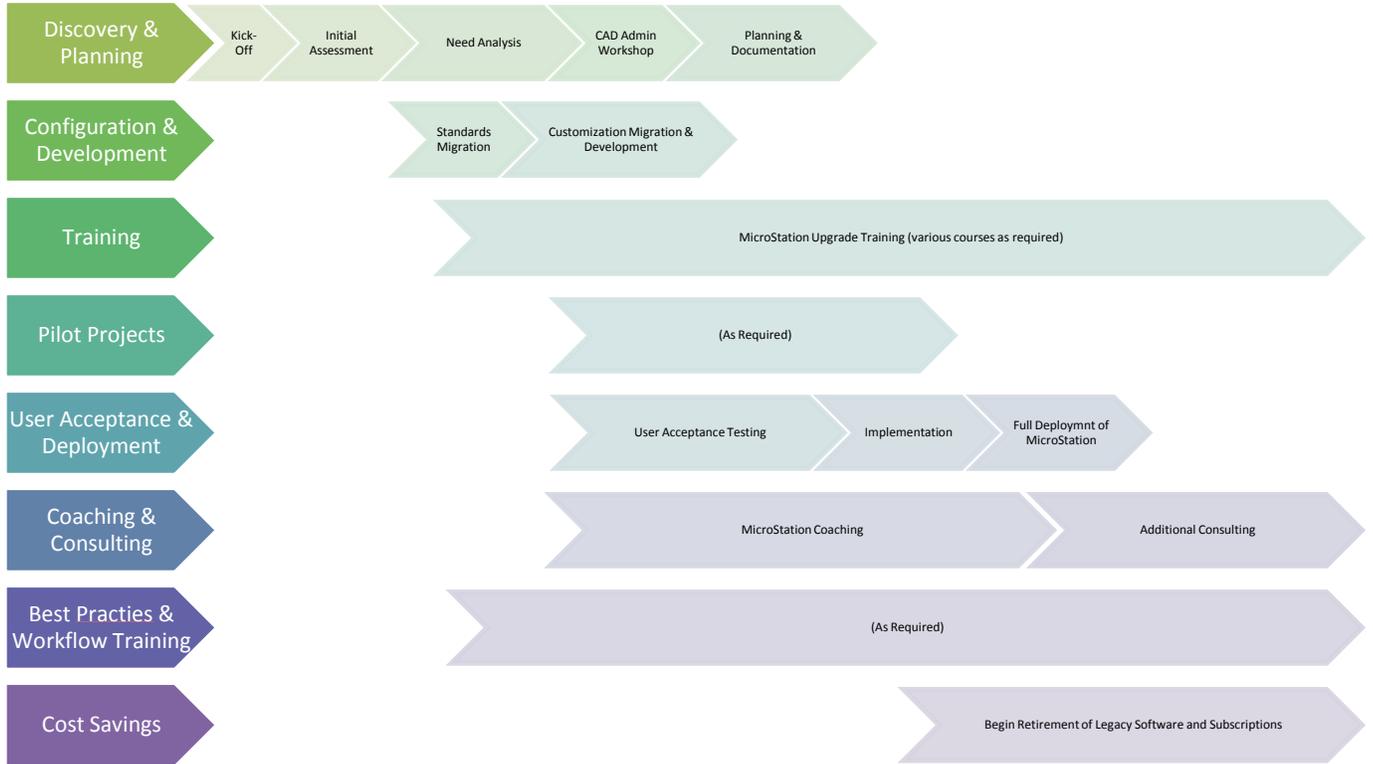Block Libraries ➔ Cell Libraries
Custom AutoCAD Line Styles ➔ MicroStation Custom Line Styles
AutoCAD Text Styles ➔ MicroStation Text Styles
AutoCAD Dimension Styles ➔ MicroStation Dimension Styles
AutoCAD Layers ➔ MicroStation Levels

Rewrite (as required)

AutoCAD VBAs ➔ MicroStation VBAs (.mvba)
AutoLISP ➔ MicroStation VBAs (.mvba)
AutoCAD Scripts ➔ MicroStation Scripts
Custom Tools ➔ MicroStation VBA or Custom Tools as Required

Develop/Migrate/Deploy

Project-specific standards ➔ Worksets
Corporate Standards ➔ Workspaces

MicroStation CONNECT Edition *configurations* offer an organized set of workspaces and worksets that incorporate client- and project-specific settings. This structure promotes conformity to CAD standards and improves accessibility. An "example" workspace and "MetroStation" workset is delivered with MicroStation and serves as a model configuration.

MIGRATION ROADMAP

The following graphic depicts a plan for migrating to MicroStation.

Discovery & Planning	Kick-Off	Initial Assessment	Need Analysis	CAD Admin Workshop	Planning & Documentation
Configuration & Development			Standards Migration	Customization Migration & Development	
Training		MicroStation Upgrade Training (various courses as required)			
Pilot Projects		(As Required)			
User Acceptance & Deployment		User Acceptance Testing	Implementation	Full Deploymnt of MicroStation	
Coaching & Consulting		MicroStation Coaching		Additional Consulting	
Best Practies & Workflow Training		(As Required)			
Cost Savings			Begin Retirement of Legacy Software and Subscriptions		

A successful migration plan includes consulting, configuration, testing, best practices, and a thorough training strategy.

Completing a pilot project will mitigate deployment wrinkles, as they provide robust testing of new configurations and workflows in a real-world project environment.

MIGRATION PLANNING

The following sections will facilitate migration planning in conjunction with a Bentley User Advocate.

Software Applications

MicroStation

- Having a solid understanding of how to use MicroStation is essential for implementing it, giving you the greatest return on your investment. Most importantly, out-of-the-box MicroStation capabilities could replace various aspects of your workflows and data structures. Bentley provides a range of methods for acquiring the necessary knowledge:
    - Instructor-led, Live Training:
        - Virtual classroom on the LEARNserver
        - Scheduled in Bentley classroom
        - On-site
    - Self-study Training [on demand] on Bentley's LEARNserver
    - Webinars
    - Online Help
    - Bentley Communities

    Helpful links:
        - Click here for currently scheduled live, virtual training classes and webinars
        - Click here for instructor-led, live training courses and self-study (on demand) training
        - Click here for Bentley Communities

Other Software

- You should consider migrating from vertical/discipline-specific, dwg-based applications to appropriate CONNECT Edition vertical applications.
- Verify that any document management system in use is compatible with CONNECT Edition products.

Operating Environment

Ensure that:

- The operating system in use is version-compatible with MicroStation CONNECT Edition.
- Any virtualized environment in use is version-compatible with MicroStation CONNECT Edition.
- Hardware in use meets MicroStation CONNECT Edition minimum requirements.

Review Workflows & Customizations

Review your workflows and automated processes to determine which ones may be replaced using standard MicroStation capabilities, and which ones can be replaced using customizations like macros or VBA applications.

Resource Items and Standards

- Port standards to dgn Libraries (.dgnlib) (i.e. custom functionality, layer/level definitions, text styles, display styles, dimension styles, print-related settings, custom line styles, template files (.dwt), etc.)
- Identify any use of metadata (xdata, block attributes, etc.)
- Review items like working units, angular units, geographic coordinate systems, use of sheet models/paperspace, and so on.

User Interface

Review company-specific customizations. Decide if they need to be migrated and move those items to MicroStation UI components.
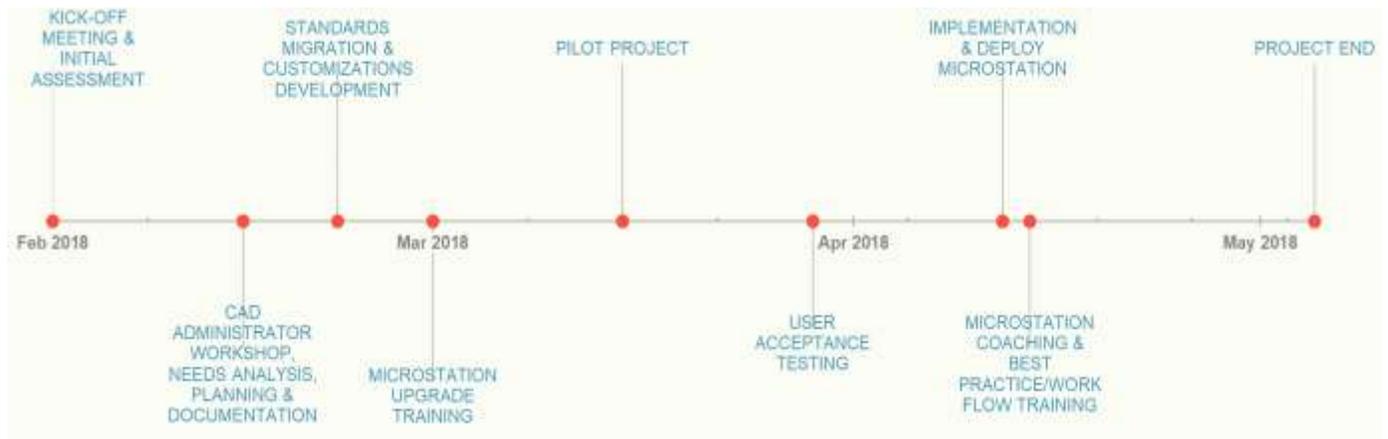
Legacy Data

Determine migration plan for legacy data (i.e. legacy data will not be migrated, migrated only as required, referenced, and copied as needed, and so forth).

Licensing

Review licensing model and verify internet needs based on licensing requirements.

Timeline

Be aware that migration timelines can vary depending on size and complexity.

BENTLEY SERVICES

Bentley's professional services team offers a wide variety of services to assist users in their migration process. Bentley can execute the entire MicroStation migration service or assist with specific areas, from workflow analysis to workspace migration and configurations, or from fundamentals training to advanced project coaching. Contact your Bentley account manager for additional information and services in structuring the right program for your organization.

MicroStation Complete Upgrade Assistance

Partner with Bentley's professional services team to upgrade to MicroStation. Bentley will coordinate and work to provide a successful implementation from discovery to go-live. Your Bentley consultant(s) will:

- Assess and make recommendations for software applications and operating environment
- Review, develop, and plan/implement workflows and customizations
- Evaluate, develop, and implement resource items and standards
- Examine and configure user interface
- Create legacy data migration plan
- Review licensing model
- Establish timeline
- Deliver training

Other MicroStation Services Offerings
Bentley's professional services team can provide alternative, smaller services packages.

Custom Upgrade Services

Bentley offers many services to assist users in migrating to MicroStation that don't include the complete upgrade. Bentley services range from providing general overview and direction to implementation planning to development and deployment. If you don't see what you are looking for, please contact your account manager and Bentley will scope a proposal for you.

Workflow Analysis Package

Engage with the Bentley professional services team for an on-site workflow analysis. A Bentley consultant will:
- Analyze your AutoCAD workflows and structures from both administrative and user production perspectives
- Discover opportunities to improve productivity
- Investigate current processes and recommend improvements
- Reduce workarounds and tedious manual interactions
- Increase knowledge and skills
- Provide suggestions for sustainability

CAD Administration Workshop Package

Bentley offers services to assist users in migrating their standards and workflows. A Bentley consultant will:

- Review MicroStation requirements
- Review and assess configuration and workflow setup
- Identify, update, and recommend CAD standards
- Deliver CAD administration training
- Work on-site to provide guidance in the first steps of configuring and managing MicroStation and its workspaces
- Provide on-site support, best practice direction, and over-the-shoulder coaching for the project team

CAD Administrator/SME Training

Along with migration services, Bentley strongly recommends some initial training for the CAD support team and subject matter experts (SMEs) involved with the migration. The early overviews and training help the user migration team understand the inner workings of the product, and allows them to make better decisions regarding system configuration.

This training is offered in a variety of formats and levels, tailored to user knowledge and experience. Not all the material needs be covered onsite and may be completed through virtual classroom training.

End User Training

The Bentley professional services team offers a variety of training options for AutoCAD users who need to learn MicroStation either live, virtual/at the users' site, and/or self-study (on demand). Current courseware is developed in a modular format, ranging in length from one hour to three hours. This modularity allows the services team to easily identify a series of training courses targeted for a user's specific needs.

For larger deployments, a training plan is developed to address the users in various departments. Based on the number of users in each department and the maximum number of users per class, the number of training sessions is determined.

Custom Training

The Bentley services team recommends training all users with the standard courseware that Bentley offers and maintains. Users learn how the software works, what commands to use, and what the applicable options do in an environment that is known and will ensure user success. In conjunction with standard training, a "custom workflow" can be included that will walk users through their normal workflow within their environment, using their data and standards. A "custom workflow" is essentially a hands-on exercise for the students and does not contain any of the instruction on how to use a command, only steps on how to achieve the specified design objective.

The Bentley services team generally does not recommend developing custom training materials for users that reflects their data and workflows. The primary reasons are the cost and time requirements of the initial

development and to maintain and update the materials, as the software changes with new options and functionality.

Project Coaching

Project coaching is a service where the Bentley consultant provides hands-on or over-the-shoulder coaching to users on their active projects. Applying concepts learned in the classroom to active design projects often raises additional questions, as no two design projects are ever the same. Having the Bentley consultant available to ask questions specific to a project is very valuable to the continued learning and application of the software.

Project coaching may accompany training offerings for a half-day or a full day. During this additional time, the users work in the product with their own project data to reinforce their learning.

Recurring Services Package

The goal of the Recurring Services Plan is to focus on important, ongoing maintenance, updates, and enhancements required to keep the Bentley solutions in line with your evolving business. This proactive plan is structured to allow for the purchase of the optimal amount of time, based on anticipated needs for the upcoming year.

APPENDIX A – HELPFUL LINKS

- Currently scheduled live, virtual training classes and webinars:
  http://pages.info.bentley.com/learning/?Filter=Live&Prod=MicroStation

- Instructor-led, live training courses and self-study (OnDemand) training:
  http://learn.bentley.com/app/Public

- Bentley Communities:
  http://communities.bentley.com

- Contact us (Bentley offices):
  https://www.bentley.com/en/about-us/contact-us

- Sales contact request form:
  https://www.bentley.com/en/about-us/contact-us/sales-contact-request