

MOVING FROM AUTOCAD TO VECTORWORKS LANDMARK: A GUIDE



VECTORWORKS®
LANDMARK

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INTRODUCTION

Vectorworks Landmark software offers tools to streamline landscape-specific design and BIM workflows. Landmark's intelligent tools — such as plants, hardscapes, terrain models, automated irrigation tools, powerful databases, and flexible documentation features — will help you produce 2D drawings and 3D models to easily design, analyze, present, and collaborate on projects. Additionally, Landmark offers superior renderings directly in the design file thanks to default and custom texture/render settings within Vectorworks objects and our Renderworks features.

This all-in-one program will transform your design, presentation, irrigation, and documentation workflows. Unlike other software, Vectorworks has the flexibility to support your entire project from beginning to end, or anywhere in the process — with tools created specifically for you as a landscape professional.

HOW ARE AUTOCAD AND VECTORWORKS LANDMARK DIFFERENT?

Unlike most landscape design professionals using AutoCAD, Vectorworks Landmark users design in 2D and 3D with purpose-built tools to meet those workflows. Professionals

seeking BIM authoring tools also use Vectorworks.

Vectorworks Landmark distinguishes itself in the following ways:

- A robust site design application, focusing on the needs of landscape architects and landscape designers and their design and communication processes from beginning to end.
- Increased GIS connectivity from accessing georeferenced imagery and mapping from ArcGIS online, as well as importing georeferenced files, including SHP, GeoTIFF and modifying the geometry into smart BIM objects which help with contextual and analytical studies.
- Site-specific tools such as Plants, Landscape Areas, Hardscapes, Stairs/Ramps, Walls, Terrain Model, Irrigation, and Heliodon, built to work the way you do.
- Use powerful analysis capabilities, such as water budgeting, solar, slope, cut/fill, surface drainage, visual influence, and others.
- In one application, you have the tools, power, and output capabilities of AutoCAD, SketchUp, Rhino3D, Revit, and Illustrator.
- Sketch/model in 2D and/or 3D, create technical documents, explore complex custom parametric modeling and landscape-specific BIM, and generate the highest-quality presentations from these processes with one set of tools and truly integrated technology.
- Easy customization: Make whatever you need in 2D and/or 3D and create object/symbol libraries to use again and again. Share such resources easily between projects.
- Vectorworks Landmark can import and export many different file formats so you can share information with other applications. This includes a variety of formats such as 2D vector, 2D image, 3D, tabular data, point cloud, and BIM.
- When using the perpetual license, you own your copy of Vectorworks Landmark, so you always have access to your data even if you choose not to upgrade on a regular basis. The Vectorworks Service Select program adds value but is not required.
- Vectorworks Landmark supports both Windows and macOS operating systems.
- Landmark uses cloud services for file exchanges, rendering, and processing power, freeing the design workstation's resources.

HOW ARE AUTOCAD AND VECTORWORKS LANDMARK DIFFERENT? (CONT'D)

HOW VECTORWORKS STACKS UP

	VECTORWORKS LANDMARK	AUTODESK® AUTOCAD
Land-specific Tools	✓	
Integrated 2D/3D Design/Modeling	✓	
Automated Schedules, Worksheets, and Data Reports	✓	✓
Automatic Drawing Coordination	✓	✓
Photorealistic & Artistic Rendering	✓	
BIM Modeling Tools	✓	
Collaboration with other BIM Software via IFC	✓	✓
Multiuser Environment	✓	
Intergration of Building Model with Site Features	✓	*
Mobile Solutions	✓	✓
Free Academic License	✓	✓
Parametric Modeling	✓	✓
Push/Pull Modeling	✓	✓
Convert Basic Shapes to BIM Objects	✓	
Cross-Platform Application	✓	✓
Full Suite of 2D Drafting Tools	✓	✓
NURBS Modeling	✓	✓
Integrated Graphical Scripting	✓	
Extensive Import/Export Options	✓	
Pricing of Landscape Features	✓	
Included Site Analysis Features	✓	
Irrigation and Hydrozoning Tools	✓	
GIS File Management	✓	

*modeled objects typically imported from other applications

FIGURE 1: Capability Chart

COLLABORATION (WITH AUTOCAD USERS AND BEYOND)

Vectorworks software has the most import/export options of any BIM application, so it's easy to collaborate with AutoCAD and other application users. You can import, export, and directly reference both 2D and 3D DWG files. Vectorworks also supports several previous versions of AutoCAD, so you can import your archived DWGs as well as any current files.

VECTORWORKS LANDMARK FILE IMPORT/EXPORT CAPABILITIES

FILE TYPE	IMPORT	EXPORT
3D PDF		✓
3DS	✓	✓
Cinema 4D (.c4d)		✓
C4D Textures	✓	
Collada		✓
Database	✓	✓
CSV	✓	✓
DWG/DXF/DWF	✓	✓
ECW	✓	
FBX		✓
HDR/ HDRI	✓	✓
IFC	✓	✓
IGS/IGES	✓	✓
IMAGE FILES (GIF, BMP, TIF, JPG, PNG)	✓	✓
KML		✓

FILE TYPE	IMPORT	EXPORT
OBJ	✓	✓
Parasolid X-T	✓	✓
PDF	✓	✓
Revit	✓	
Point Cloud	✓	
Rhino (.3DM)	✓	✓
SAT	✓	✓
Script	✓	✓
Shapefile	✓	✓
SketchUp (.SKP)	✓	
STP/STEP	✓	✓
STL	✓	✓
Web View		✓
Worksheet	✓	✓

FIGURE 2: Import/Export Chart

WHY MAKE THE MOVE FROM AUTOCAD TO VECTORWORKS?

SIMPLIFY YOUR PROCESS FROM CONCEPT TO COMPLETION

Though often landscape professionals complete the site analysis process and conceptual studies with image editing software, firms using Vectorworks Landmark can integrate every phase of site design — from schematic designs to construction documents. Firms can start planning with context from city maps and move right into schematic design and modeling.

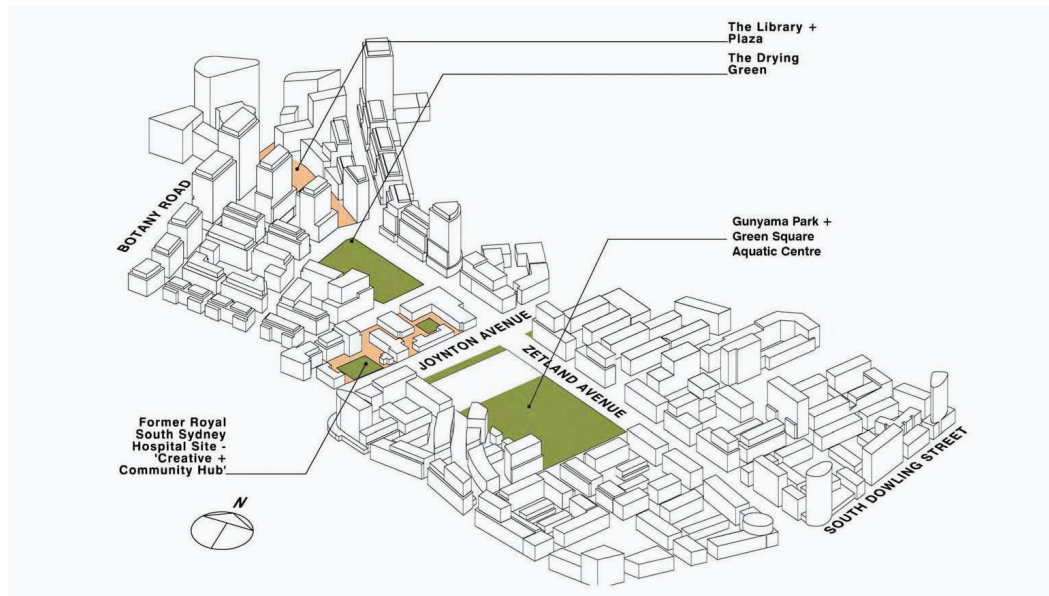


FIGURE 3: McGregor Coxall's Drying Green within the 2D and 3D urban context and resulting Concept Plan.

WHY MAKE THE MOVE FROM AUTOCAD TO VECTORWORKS? (CONT'D)



FIGURE 3: McGregor Coxall's Drying Green within the 2D and 3D urban context and resulting Concept Plan.

WHY MAKE THE MOVE FROM AUTOCAD TO VECTORWORKS? (CONT'D)

Throughout design development, firms can use a variety of analysis features to test the pre- and post-development conditions for validation and correction processes. As designers, project managers, and production team members continue to pursue their design intent for the site — and the amenities they are proposing for the site — the software's various analysis features align with these validation and correction processes. McGregor Coxall's Drying Green within the 2D and 3D urban context and resulting Concept Plan.

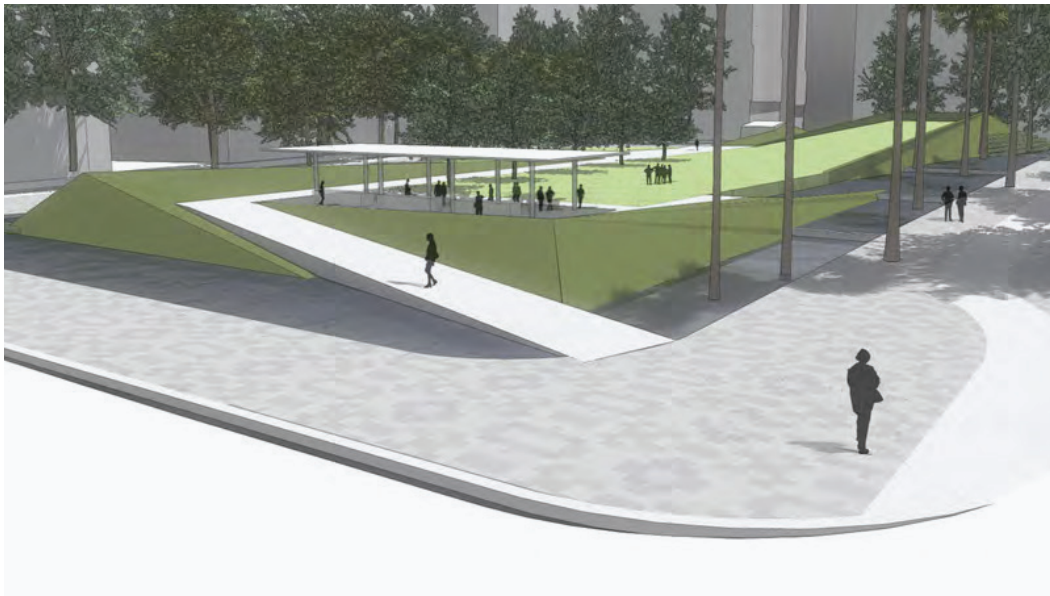


FIGURE 4: McGregor Coxall's Drying Green with surrounding 3D urban context, which helps to inform the design development pahse.

WHY MAKE THE MOVE FROM AUTOCAD TO VECTORWORKS? (CONT'D)

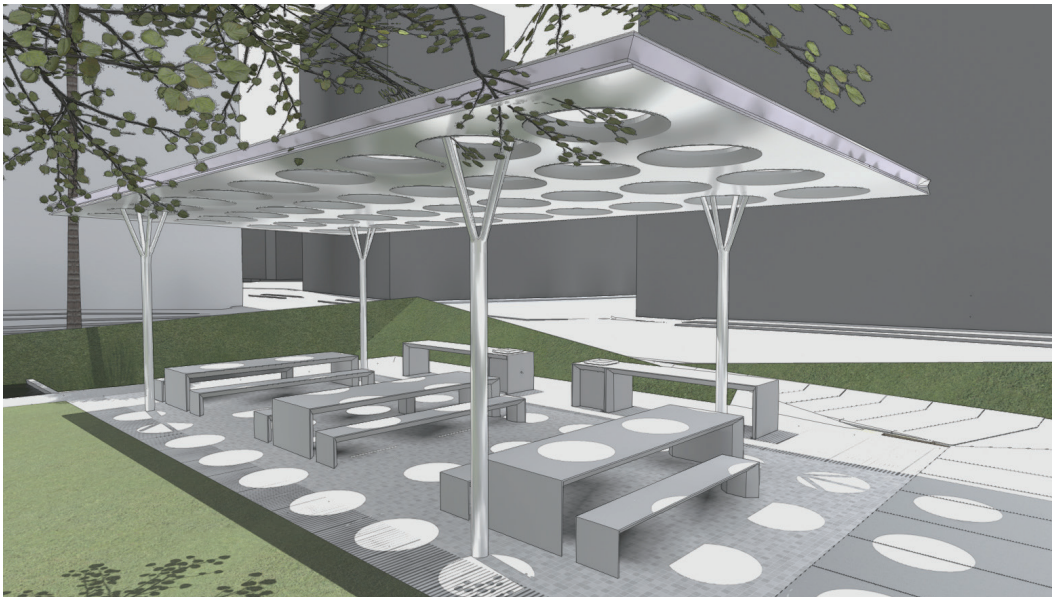
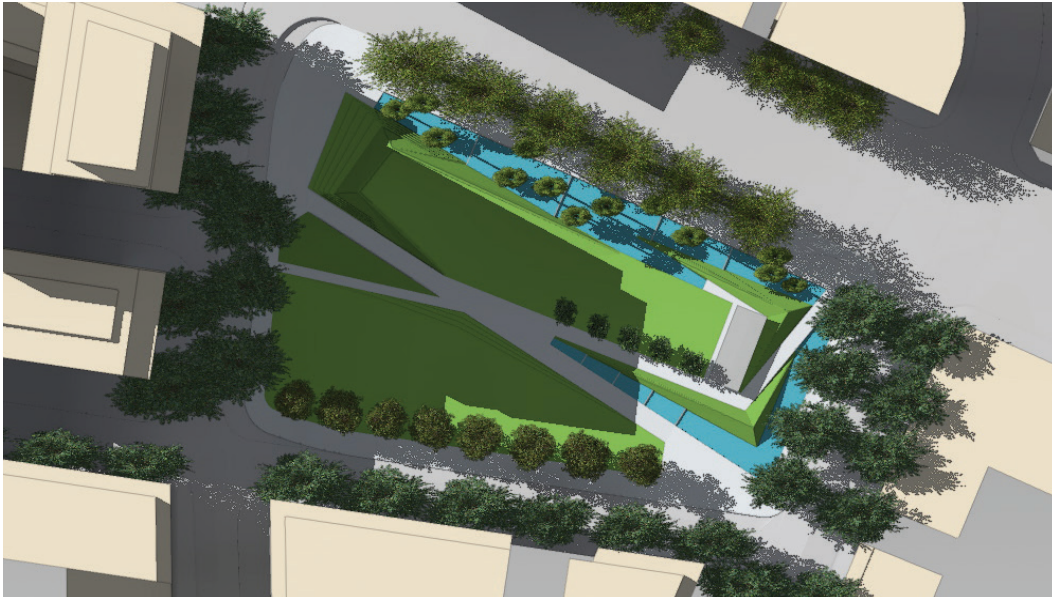


FIGURE 4: McGregor Coxall's Drying Green with surrounding 3D urban context, which helps to inform the design development pahse.

WHY MAKE THE MOVE FROM AUTOCAD TO VECTORWORKS? (CONT'D)

Then, the final stretch: after recognizing how their proposed design will meet the client's needs, designers can not only use the models to enhance for presentations, they can also help to transition directly into construction documentation, including plans, sections, and 3D details.



FIGURE 5: McGregor Coxall's Drying Green progressed to presentation and construction documentation phases.

WHY MAKE THE MOVE FROM AUTOCAD TO VECTORWORKS? (CONT'D)

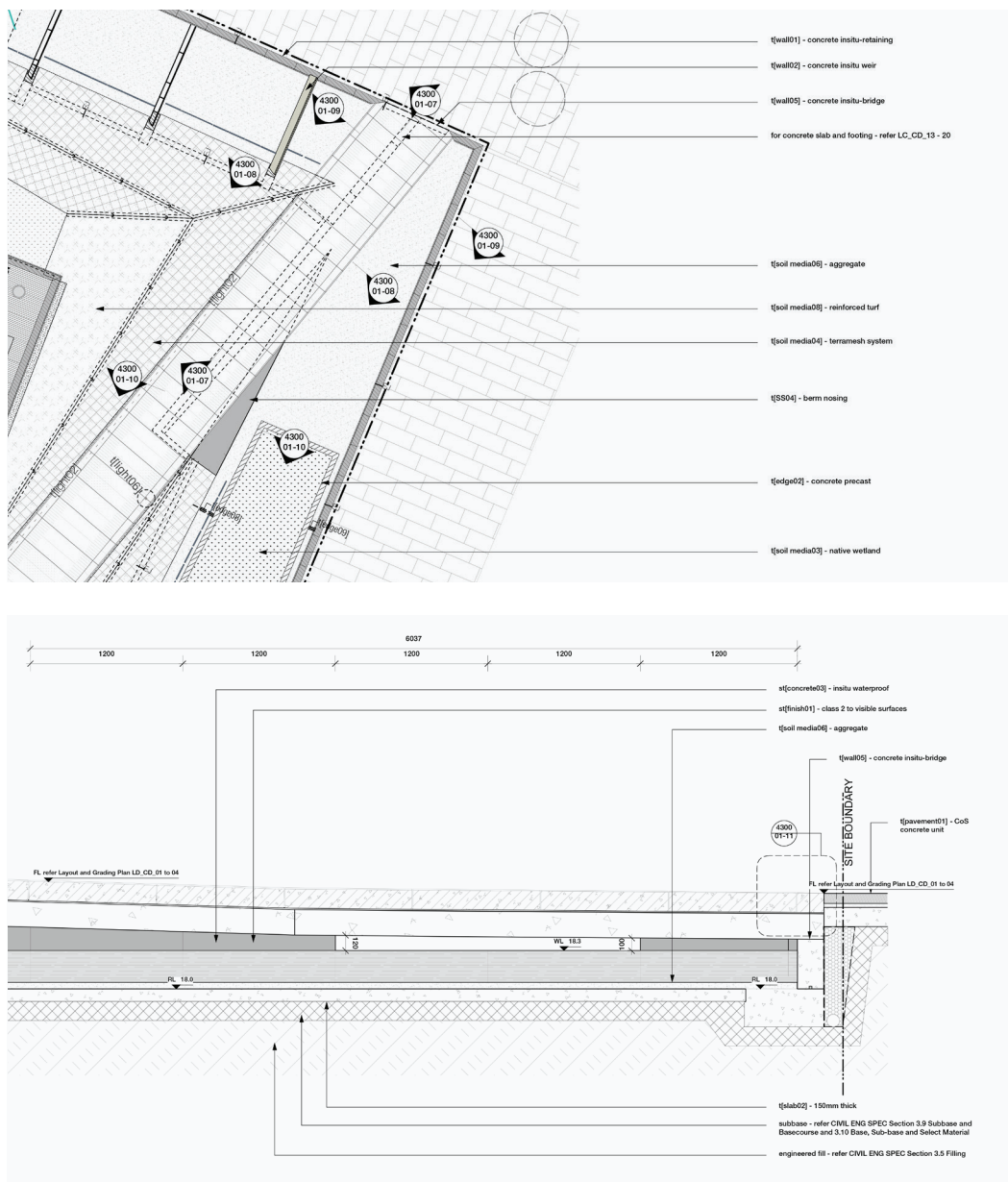


FIGURE 5: McGregor Coxall's Drying Green progressed to presentation and construction documentation phases.

WHY MAKE THE MOVE FROM AUTOCAD TO VECTORWORKS? (CONT'D)

FILE ORGANIZATION

Using a layering system in site design is typical with most CAD solutions. Vectorworks provides additional file organization and visualization through Classes, Design Layers, and Sheet Layers, offering a unique and intuitive method to produce and document drawings and models.

Classes are equivalent to layers in AutoCAD — they are a way to categorize an object. An object's class often determines the object's graphic attributes — in fact, landscape designers often refer to the Class feature as best-practice for controlling how objects will look (pen colors, widths and types, fill colors, gradients, hatches, opacities, etc.).

The Design Layer feature enables users to control “the area of work” in which this object exists (planting, surfaces, terrain, details, etc.). They can act like sheets of vellum for drafting and can also be assigned a scale, which is useful for WYSIWYG line weights, tiles, and hatches. You can set Design Layers to the scale at which drawings will be printed.

You can easily modify the visibility of layers and classes in the Navigation palette, where you can set each class and layer to Visible, Grayed, or Invisible. These visibility states, along with the pan, zoom, 3D view, and rendering of a model can be stored in a saved view. Setting up saved views means quickly and efficiently navigating your model.

WHY MAKE THE MOVE FROM AUTOCAD TO VECTORWORKS? (CONT'D)

Though Design Layers are similar to multiple model spaces in AutoCAD, they can also provide for stacking order controls, so the tree canopy symbols can always show above the understory plantings and surfaces without the tedious task of sending objects to the front/back. Sheet Layers are similar to paper space layouts. Sheet Layers are often set to the paper size at which your drawings will be printed. You access Sheet Layers via the Sheet Layers pane of the Navigation palette. You can lay out your drawings on sheet layers by creating viewports.

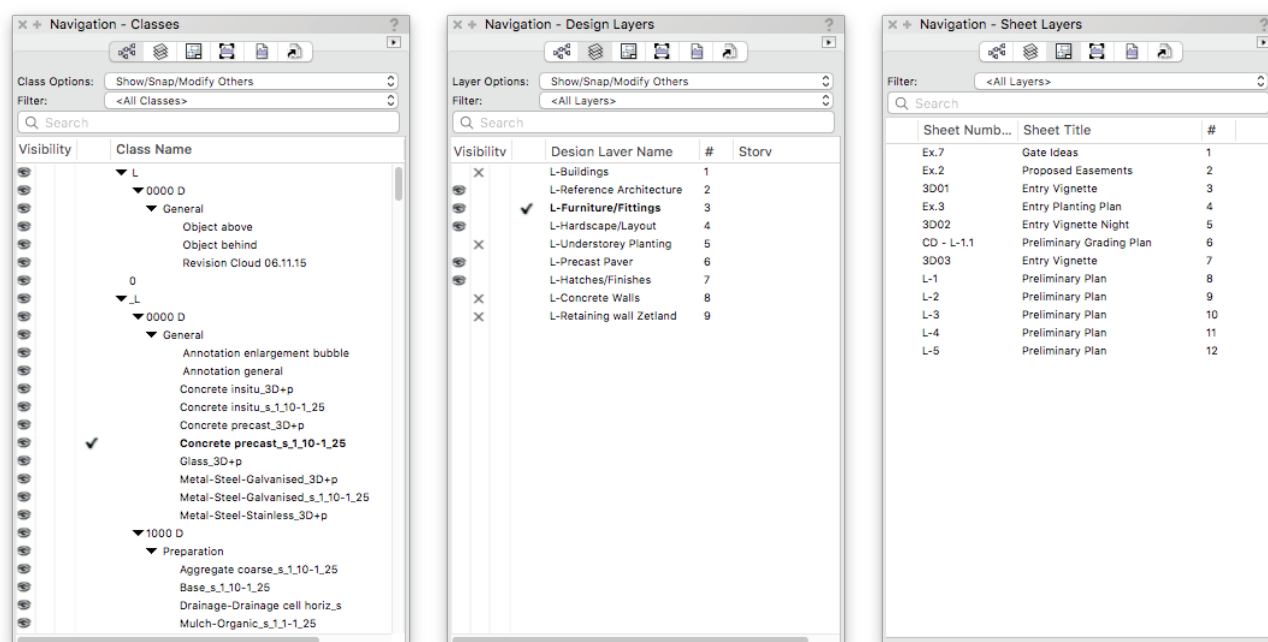


FIGURE 6: Data visualization feature displaying flowering plants' bloom time.

DESIGN IN 2D/3D

SKETCH TO BIM

Vectorworks Landmark is an all-in-one software that enables your site design workflows from initial sketch to final documentation, eliminating the need for separate software for modeling, presentation, and BIM. It's easy to start exploring ideas in Vectorworks. In addition to drawing lines, you can draw shapes, which are more conducive to sketching. Users also enjoy the ease with which scanned preliminary sketches can be imported as image or PDF files and used as a background to guide deliberate design layouts from their initial sketches.

2D DESIGN

2D workflows in Vectorworks support precise CAD documentation as well as intuitive Adobe Illustrator-like graphics. 2D objects drawn as solid shapes, not lines, makes it easier to understand one object's relation to another. These objects can be drawn freehand, or values can be entered while drafting via the Floating Data bar, where you can make calculations within data fields by using standard operators such as +, -, *, and /.

With WYSIWYG graphics, designers save time with an instant recognition for what lines, shapes, and text will look like at selected scales. These custom graphic controls can be class-based or object-based. When you are ready to export DWG files for others to use, Landmark automatically creates CTB files to accompany the exported file for proper graphic handling. You can easily modify or scale drawn objects in the Object Info palette.

3D MODELING

These shapes can quickly become 3D schematic models with push/pull modeling. When you are ready to move forward with your design, you can convert those 2D shapes and 3D models to parametric building objects.

When it comes to 3D modeling, Vectorworks' capabilities include:

- SketchUp-like push/pull modeling
- Rhino-like complex surfaces and curvature
- Maya-like 3D sculpting and deforming
- SolidWorks-like precise solids modeling
- Grasshopper-like algorithmic design

DESIGN IN 2D/3D (CONT'D)

INTEGRATED 2D/3D DESIGN

As the conversion from 2D to 3D has been mentioned, it is important to note that once converted, Vectorworks still recognizes 3D objects in 2D. Often, it is helpful to make these 3D objects into 2D/3D symbols or Auto Hybrid objects. Many items available in the Vectorworks libraries have been pre-hybridized, such as site furnishings, lights and vehicles, and more. For parametric controls, a change in one representation reflects a change in the other.

A key benefit of working in the hybrid environment in Vectorworks Landmark is the fast transition from a 2D view to a 3D view, which can be as instantaneous as entering a shortcut key to its respective 3D view (i.e. front, left, right, back, right isometric, left isometric) or invoking the Flyover feature which provides a click-and-drag transition to a custom 3D view, much like the designer would orbit around a 3D model in SketchUp.

DESIGN IN 2D/3D (CONT'D)

VERSATILE VIEWPORTS

Like in AutoCAD, viewports are views of your model. You can change the visibilities and attributes of layers and classes — as well as the scale and crop — within the viewport. Unlike the limitation of only labeling on top of viewports in AutoCAD, dimensions, notes, and other graphics can be added in the annotation space of a viewport, associating those annotations to the viewport. The viewport settings and class and layer overrides can be transferred from one viewport to another.

Because Vectorworks allows for the ability to work in 2D and 3D at the same time, the viewport options enable the user to produce not only enlarged views — and changed visibilities through viewport overrides — but the ability to create live elevation, section, and detail viewports to facilitate all aspects of visualizing and documenting your 3D modeled site. The intelligent, live viewports are scale-aware, so the built-in labels recognize the viewport's scale and are coordinated. This means that a change in location or number of a viewport is automatically noted in the viewport reference marker. Another live aspect of Vectorworks' viewports is the ability to visualize the data being represented. For example, you can see plant symbols take on a chosen color fill to reflect the time of year when the plant would flower. This visualization effect does not change the plant symbol's visibility in other viewports or the drawing itself.

To learn more about file organization, go the [Drawing Setup](#) section of Vectorworks Help.

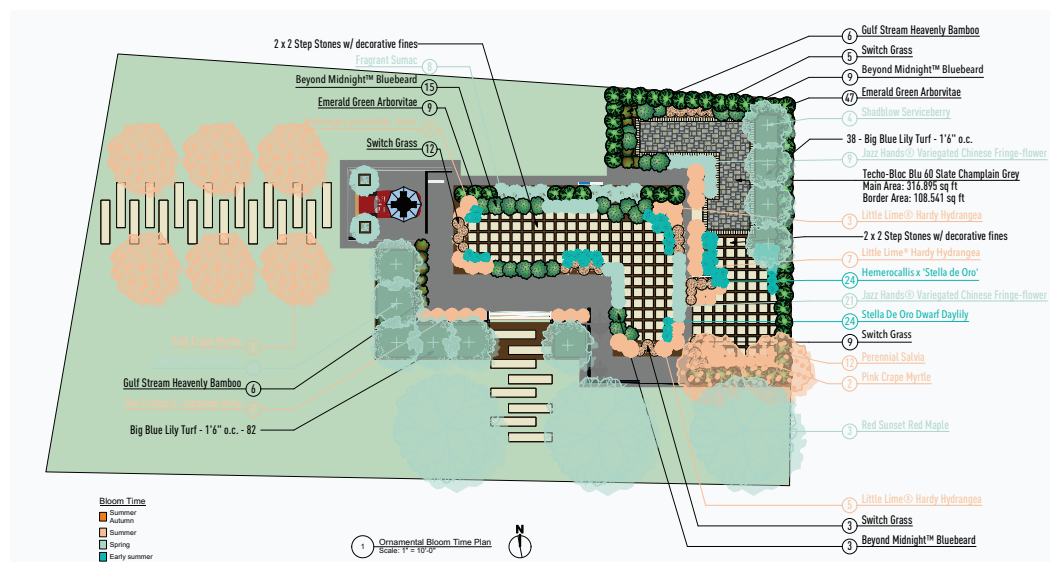


FIGURE 7: Data visualization feature displaying flowering plants' bloom time.

MAXIMIZE BIM IN LANDSCAPE

Vectorworks Landmark's comprehensive BIM capabilities are supported by data-driven modeling and design exploration, typical of the workflows most landscape architecture firms use. Draft or model intelligent objects like plants, hardscapes, irrigation systems, walls, parking layouts, and other site features and structures. Vectorworks even includes a comprehensive site-modeling toolset that allows you to model your existing and proposed terrain surface, as well as perform cut and fill calculations, slope analysis, and surface water flow studies. You can incorporate any or all of these constructs as you adopt BIM at your own pace.

INFORMATION-RICH OBJECTS

A crucial part of BIM in landscape architecture is the information appended to and accessed from the model and its objects. Vectorworks Landmark's smart objects not only carry the object's data, but the relevant parametric settings can be useful in representing the objects and being included in the material schedules. This means that if street lamps or plants are spaced at a given distance, that distance can also be reported in the scheduling worksheet and changed by either the spacing setting in the parametric field or in the worksheet cell, reflecting the change throughout the file and the documents. You can also assign custom data for objects not already preconfigured with such data fields via Vectorworks' Record Format feature.

MAXIMIZE BIM IN LANDSCAPE (CONT'D)

BUILT-IN WORKSHEETS

The biggest benefit to built-in worksheet features in Vectorworks is the ability to report on any object and its appended data without having to manually enter this information. Changes in object quantity, size, description, etc. can be updated when the worksheet is edited or recalculated. These automatic updates provide a much faster workflow when conducting typical material take-off calculations, but also when using these reports to meet jurisdictional or other objective-based requirements where such calculations are necessary.

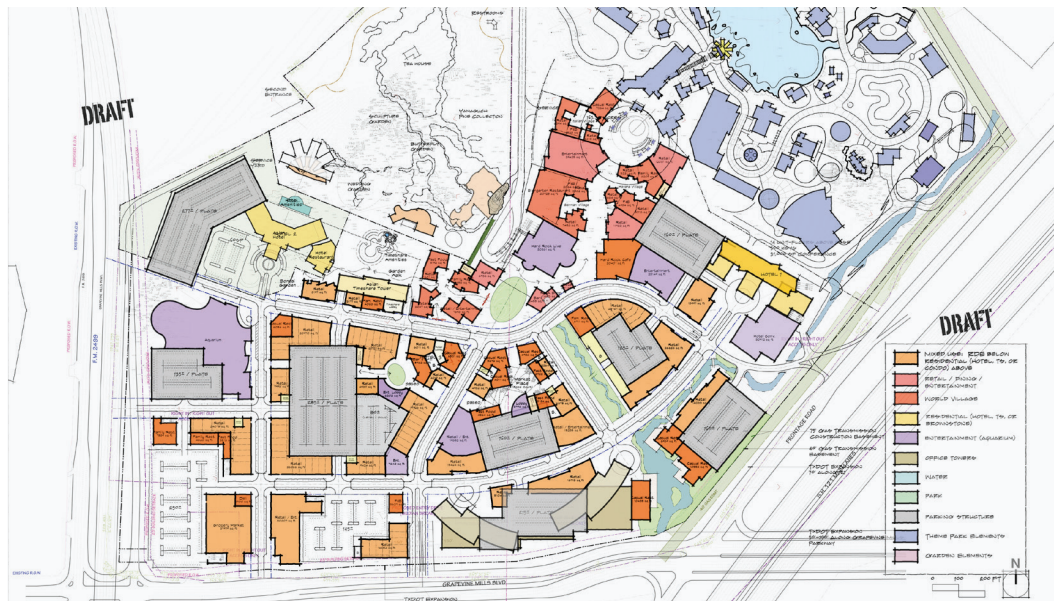


FIGURE 8: Customizable worksheets used for calculations to meet jurisdictional and objective-based design such as site use, stormwater runoff and water budgeting.

MAXIMIZE BIM IN LANDSCAPE (CONT'D)

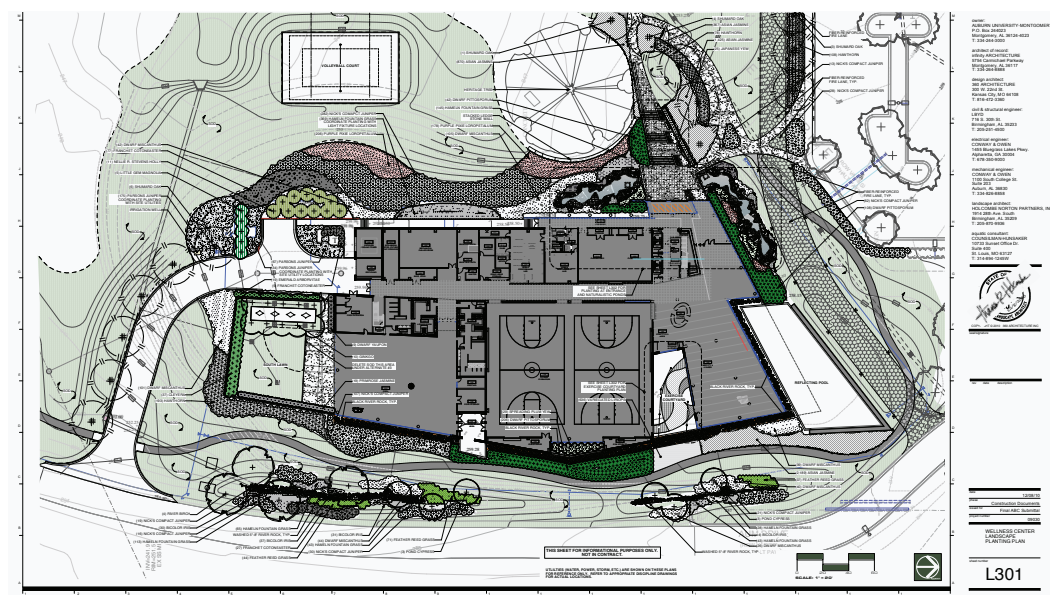
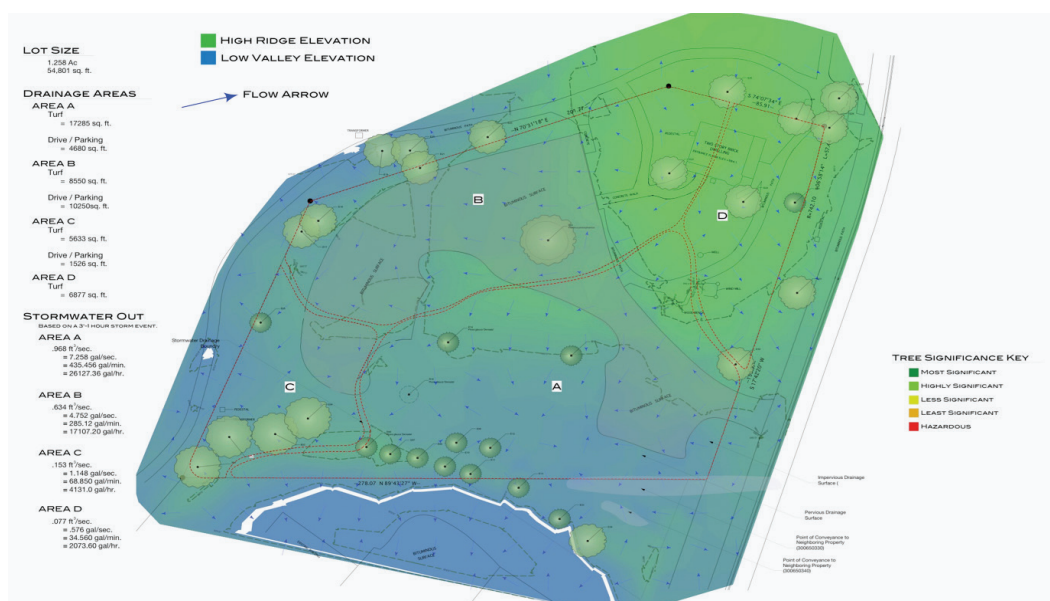


FIGURE 4: McGregor Coxall's Drying Green with surrounding 3D urban context, which helps to inform the design development phase.

SAVABLE/REPLICABLE OBJECT STYLES

Though Vectorworks Landmark offers many symbol and object libraries, users enjoy the flexibility in using and customizing existing library content as well as importing content from other file formats. These objects, whether in 2D, 3D, or a hybrid of both, can be saved and replicated for subsequent uses, making each next project easier and faster than the one before.

WIN MORE WORK WITH PRESENTATION CAPABILITIES

With Vectorworks Landmark, you don't have to use other design software to create eye-catching presentation boards. WYSIWYG graphics, opacity, line weights, and sketch styles allow you to create beautiful diagrams and drawings directly from your model.

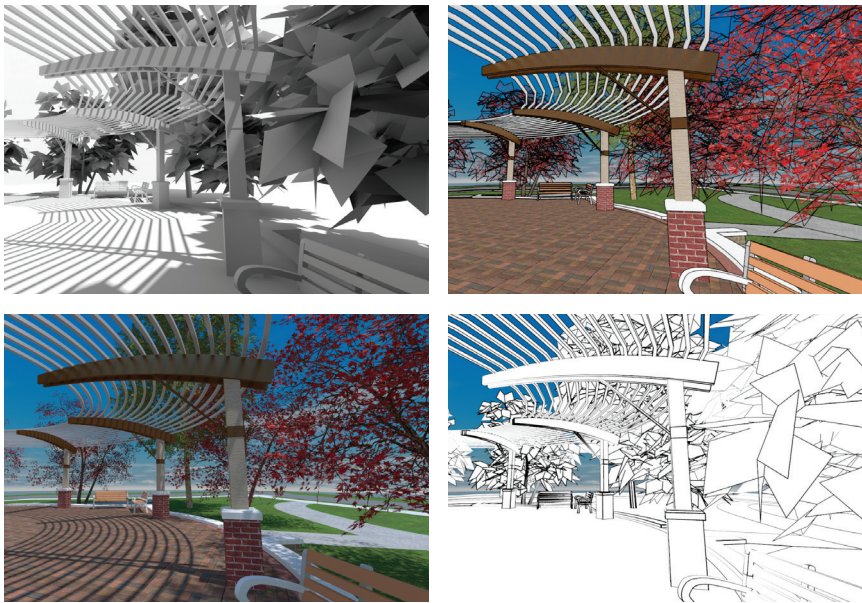


FIGURE 9: Built-in rendering provides multiple presentation styles such as white card, cartoon, photorealistic and pen styles among other artistic options.

Image-based textures can be applied to objects within your model, then rendered with the built-in rendering engine. This allows you to create photorealistic or stylized renderings that can also be overlaid with imported alpha channel-enabled images.



FIGURE 10: Visualization techniques such as displacement mapping, bump, glow and reflectivity are just a few examples of how textures can be manipulated to provide a more realistic scene for presentations.

HOW DO I MAKE THE MOVE FROM AUTOCAD TO VECTORWORKS?

GET UP AND RUNNING QUICKLY

The flexibility of Vectorworks Landmark allows you to maintain your existing CAD workflows while adding BIM capabilities at your own pace. And Vectorworks' import and export capabilities and perpetual licensing model mean you'll always have access to your DWG legacy files.

USER INTERFACE

Similar to AutoCAD, you can access Vectorworks tools via customizable tool palettes, and you can access commands via menus. The biggest difference between the AutoCAD and Vectorworks user interfaces is there is no command line in Vectorworks. However, many Vectorworks tools and commands have keyboard shortcuts, and you can assign shortcuts via workspace customization, so you can keep a very similar workflow to using a command line.

When you select a tool in Vectorworks, it will often have different modes to select in the Tool bar at the top of the drawing window. You can click or scroll through each level of tool modes using the u, i, o and p keys. The tools are organized in several "dockable" tool palettes: the Basic tool palette — which includes standard 2D drafting, text, selection, and navigation tools — and the Tool Sets, which include several tabbed tool palettes. These are Site Planning, Irrigation, Building Shell, 3D Modeling, Visualization, Furn/Fixtures, Dims/Notes, and other detailing tools. You can select these tool sets individually to see the tools they contain.

When you select an object in Vectorworks, its data becomes visible and editable in the Object Info palette. The Object Info palette, or OIP, has three panes: Shape, Data, and Render. The Shape pane is similar to the Object Properties palette in AutoCAD in that it displays information about the object, but it also allows you to modify the object's size and position in space without invoking separate modification tools. With recent advancements of many BIM objects, the OIP provides setting controls within the palette, saving time from invoking the tool's dialog each time a selected object may require a change. The Data pane allows the user to attach custom or IFC data to the object, and the Render pane allows the user to set textures to 3D objects. An additional palette in Vectorworks — the Attributes palette — allows you to set the 2D graphic properties of the object. This is similar to the class attribute settings, but allows the designer to make object-based attribute settings if desired.

To learn more about the Vectorworks user interface, go the [Vectorworks Basics](#) section of Vectorworks Online Help. To see a table of common AutoCAD and Vectorworks tool comparisons, [click here](#).

HOW DO I MAKE THE MOVE FROM AUTOCAD TO VECTORWORKS? (CONT'D)

AUTOCAD® TERM	VECTORWORKS TERM
AC TRIM	TRIM TOOL
ANNOTATION TOOLS	DIMS/NOTES TOOL SET
ARRAY (POLAR, RECTANGLE)	DUPLICATE ARRAY COMMAND
ATTRIBUTES	RECORDS, SCHEDULE WORKSHEETS
BLOCK	SYMBOL OR GROUP
BLOCK COMMAND	CREATE SUYMBOL COMMAND (OR GROUP COMMAND)
BREAK	TRIM TOOL, CONNECT/COMBINE TOOL
BUILD PANEL	BUILDING SHELL TOOL SET
CHAMFER 0 0	JOIN COMMAND
CIRCLE	CIRCLE TOOL, OVAL TOOL
CONSTRUCTION LINE	GUIDE
DESIGN CENTER	RESOURCE MANAGER
COPY	DUPLICATE
DISTANCE	TAPE MEASURE TOOL
DRAWORDER	SEND COMMAND
DYNAMIC DIALOG, PALETTE	PALETTE
ENTITY	OBJECT
ERASE	CLEAR COMMAND OR DELETE KEY
EXPLODE	DECOMPOSE OR UNGROUP
EXTEND	CONNECT/COMBINE TOOL
GRIPS	HANDLES
INSERT	SYMBOL INSERTION TOOL
LAYER	CLASS (VW LAYERS HAVE NO EQUIVALENT IN AUTOCAD)
LINETYPE	LINE TYPE

FIGURE 11: Portion of table comparing Vectorworks and AutoCAD tools and commands.

HOW DO I MAKE THE MOVE FROM AUTOCAD TO VECTORWORKS? (CONT'D)

FILE MANAGEMENT

You can manage symbols, styles, worksheets, records, and other types of resources with the Resource Manager. Vectorworks saves resources as regular Vectorworks files, which you can either reference in the current document or as placements directly in the drawing area.

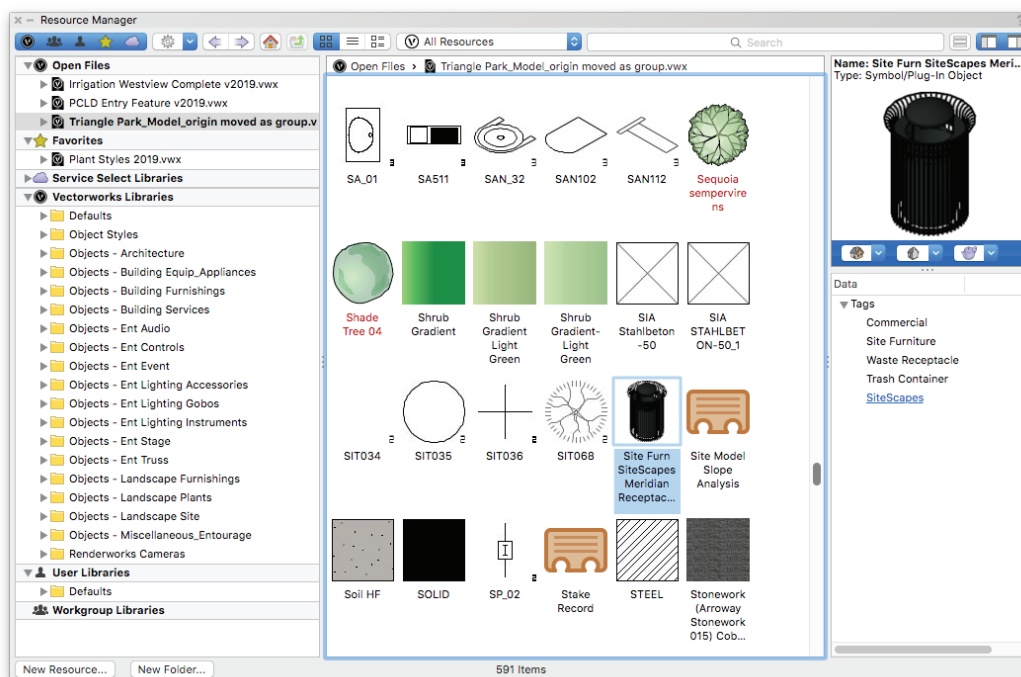


FIGURE 12: Portion of table comparing Vectorworks and AutoCAD tools and commands.

THE RESOURCE MANAGER

A symbol is a common resource in Vectorworks. Symbols are similar to blocks in AutoCAD. You can share them between files and attach data via record — much like block attributes. Vectorworks also has the concept of styles, whereby parametric objects can have certain parameters that persist across all instances of that style, while other parameters can be by instance. You can save these styles as resources, just like symbols. This is very useful for objects like doors and windows that may be similar in type but have different dimensions.

To learn more about resource management, go to the [Resources](#) section of Vectorworks Online Help.

HOW DO I MAKE THE MOVE FROM AUTOCAD TO VECTORWORKS? (CONT'D)

REFERENCING

As mentioned previously, Vectorworks Landmark allows you to easily collaborate and share files with colleagues, consultants, and clients. Just like resources, you can reference other files within the current document. You can track files via the References pane of the Navigation palette, which is similar to the Reference Manager in AutoCAD. When you reference an external file, the layers you choose to reference within that file appear within the current document and can be used to overlay or align geometry.

In a multi-user office, it is important to be able to work on the same project in the same file simultaneously. Unlike AutoCAD's X-referencing system, Vectorworks' Project Sharing feature allows multiple users to work concurrently in a single project file.

To learn more about project sharing, [click here](#).

PRINTING AND PUBLISHING

When it is time to print your drawings, you can coordinate your drawing set, issues, and revisions with the Title Block Manager and the Publish command. You can batch print specific sheet layers to PDF or DWG and save sheet sets for reference.

CONCLUSION

Making the move to Vectorworks Landmark will increase your efficiency and give you the Landscape-specific BIM, 3D modeling, CAD, and illustration capabilities you need, all in one program. You can get more from your site design, modeling, and documentation while maintaining familiar workflows. With Vectorworks Landmark, you can conceptualize your ideas and generate drawings and schedules — all without altering your creative process or exceeding the scope of your work.

LEARN MORE

about how Vectorworks can help you
implement and develop land-specific BIM workflows.

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