Advanced Solutions AU Extension On-Demand Sessions

December 8-11, 2009 / 9:00am – 5:00pm EST

ARCHITECTURE AND BUILDING DESIGN

Autodesk® Revit® Collaboration: Shared Coordinates for Projects Big and Small
Steve Stafford
Revit has a sophisticated system that allows us to manage a project's true elevation, position, and location, and share this with our project partners. This class will explain how accessible this really is.

Lost in Space: Finding Stuff You Can't See
Chris Needham
Finding objects that seem to disappear of their own accord can prove confusing and frustrating. Since computers are by design logical, there must be reasons why this occurs. This class will help you to understand what goes on when you're not looking, and help you to know where to look to find your missing objects. There are at least 26 different reasons why something may not be visible! We'll go through them and explore how we can use this list to inform "best practice" in your office so as to eliminate this being a continuing problem for you.

Production Incline with Spline
Steve Butler
Do you need to import a model from AutoCAD Architecture or Autodesk Revit into 3ds Max to produce presentational renderings and animation? The answer is NO! As long as you are provided with a floor plan and elevations, you can produce a model in 3ds Max from existing linework. I will show you how. On top of that, the model will be more stable considering it's a native Max file, plus you will acknowledge that the rendering times will decrease. From 2D to 3D with ease, use them for creating anything from site plans to architectural models. It's all in the SPLINE!

CIVIL ENGINEERING

AutoCAD® Civil 3D®: Survey Exposed!
Joe Hedrick
Interested in teaching classes on-site and virtually? Learn how to take full advantage of the survey capabilities included in Autodesk Civil 3D. During this session we will dig into the tools and explore tips and techniques that will make any land surveyor successful! Special attention will be placed on field coding and field collection, processing and adjusting survey data, creating topographic surveys, and stakeout.

Don't be left out in the CODE
Chad Studer
Creating Assemblies and Corridors are relatively easy in AutoCAD Civil 3D. However, displaying this data for deliverables may prove more of a challenge. To simplify this display, styles can be created and associated with code sets. Code sets use links, points, and shape codes to display your data in plan, 3D, and section views. We will apply multiple code sets to achieve more information and to display your data efficiently. The goal of this session is to display corridors in plan view for production drawings, automate hatching to show proposed pavement location, display real world materials to the corridor, review corridor design with subassembly data in 3D, show typical sections correctly in section views and use this typical section for plan sheets. This session will benefit all professionals who understand the basics of Civil 3D.

Engineering Geology with AutoCAD®: Go Solid!
Robert Marschallinger
Learn how to represent and integrate outcrop and borehole data, geophysical and subsurface infrastructure data in 3D, and create internally consistent solid models of geology and infrastructure. Blend the solids by Boolean operations to derive arbitrary profile sections, synthetic drillings or excavated rock masses, and round-trip the derived 3D models with Autodesk Design Review in the geotechnical work group. The presented work flows apply to excavation pit design, tunnelling, open-pit, and subsurface mining as well.

Leveraging AutoCAD® Civil 3D® and Autodesk® Navisworks® to Bid and Build a More Efficient Project
Seth Cohen
Here's the scenario: we are a company that builds pipe networks using micro-tunneling technology. When we bid on projects, one of our main concerns is whether or not we will encounter materials under the ground at certain depths that would hinder tunneling. Actually, not only under the ground... but under the ocean! Even though the plans say one thing, we've done enough micro-tunneling projects to know that we will encounter materials that were not discovered during the design phase. In the past, based on our experience, we could estimate where we would encounter those types of materials. But now, we will use some of the coolest tools available from Autodesk to better visualize where those materials will be, and how we will construct our projects. We will use AutoCAD Civil 3D, along with Autodesk Navisworks, to very quickly see where we will encounter these different interferences, and to help us better plan the construction of our projects.

The EXPRESSway for Hydraulic Analysis
Matthew Anderson
Introduction to the available tools in the Hydraflow Express Analysis tool for AutoCAD Civil 3D. Learn the various analysis tools hidden away in this express calculator. You will uncover new possibilities to analyze and design your storm water designs. Uncover quick and easy tools for stormwater detention design.

Urban Transportation Design and AutoCAD® Civil 3D®: Real Projects, Real Challenges, and Real Solutions
Rad Lazic
Join us in this class to experience firsthand what happens when AutoCAD Civil 3D is put into production on an urban transportation project and 50 designers, engineers, and CAD operators work together to develop design models and deliver the data to the field crews with just 120 days of buffer between final design and construction. We will share experiences from design project managers, CAD managers, and design team leaders from this real-life project!

CONSTRUCTION AND REAL ESTATE

Introduction to a BIM Execution Plan
Mike Flieller
As the BIM wave begins to crest, is your organization struggling to determine how a multitude of BIM technologies can fit together in a comprehensive system that can achieve your strategic goals? Learn how your organization can establish a plan to implement BIM technologies. Establish the goals and objectives for those technologies, understand how those technologies fit into the program or project plan life cycle, and assign responsibilities to execute the plan. Learn how this plan adopts guidelines established by the AIA and AGC to provide an industry standard requirement.

Leveraging BIM with Autodesk® Quantity Takeoff
Mark Webb
Learn how to prepare Autodesk Revit Architecture and AutoCAD Architecture data for use in Autodesk Quantity Takeoff. Learn advanced techniques with model and search takeoff, as well as techniques to review the model and sheet data to validate takeoff. Discover how to override design data to take into account overages, waste factors, or simply to correct a design error using formulas. Learn how to map model data to your takeoff catalog in order to generate detailed material reports.

CUSTOMIZATION AND PROGRAMMING

AutoCAD® .NET: Developing for AutoCAD Using F#
Kean Walmsley
Find out about F#, Microsoft's recent addition to the .NET language portfolio, and understand why Functional Programming is gaining such widespread interest from the software industry. We will step through F# samples working inside AutoCAD, and others working independently.

AutoCAD® .NET: Zero to 3D in 90 Minutes
Fenton Webb
Learn how to create 3D AutoCAD drawings and the concepts behind 3D modeling using the AutoCAD.NET API. Also learn how to create simple 3D geometry in AutoCAD using the API, then move onto Extruding, Lofting, Revolving and more. Also learn how to harness the Freeform Organic modeling feature of AutoCAD 2010, and finally learn how to extract the geometry using the Boundary Representation (BREP) API.

AutoLISP®: Beyond the Basics
Robert Green
So you've started using AutoLISP/Visual LISP but now you want to gain more functionality and build more elegant routines? This class will get you there. In this class we'll discuss how to work with selection sets, set filtering, entity modification, user input qualification, logical functions WHILE, COND and FOREACH, using USER sysvars, custom error handlers, and system variable manipulation to create truly powerful routines. Along the way you'll learn valuable tips to help you debug and protect your code using Visual LISP IDE functions. The class will be conducted in the context of actual programs using "pseudocode" so you'll know what's happening and why the programming statements look the way they do. If you've wanted to build your AutoLISP skills but haven't been able to tackle the more advanced topics, this class is a must!

Customizing Entity Behavior in AutoCAD® .NET
Stephen Preston
Question: When is a line not a line? Answer: When it represents a real world object, like a pipe or a power cable. The new Overrule API in AutoCAD 2010 allows .NET programmers for the first time to "customize" the display and behavior of standard AutoCAD entities. In this class, you will discover how to use this new and powerful API in your own applications; and learn how this API differs from the ObjectARX custom entity API. Coding examples will be presented in VB.NET, but the concepts that will be demonstrated apply to all other .NET programming languages.

Extended Entity Data
Bill Fane
This course teaches experienced Lisp programmers how to attach their own data onto existing AutoCAD drawing objects, and how to interrogate this data later. This extended data does not show up in the drawing nor does it appear in the AutoCAD List command, but it is available to knowledgeable programmers. The type of data that can be attached includes plotting parameters, client and project information, vendor and inventory data for component parts, and so on. We will work through an example that parametrically creates a 2D drawing detail of a coil spring and then attaches its specifications to it. If we want to edit the spring later, we can read its specs back from the attached data.

Getting Started with AutoCAD® Civil 3D® Application Programming Using .NET
Peter Funk
This session is for Civil 3D users and beginners in application development who want to create their first custom application using the Civil 3D .NET API. Basics of the Civil 3D API, object structure, and usage of Civil 3D API libraries in creating custom applications will be discussed.

Making VB.NET as Easy as VBA
Jerry Winters
The writing is on the wall. VBA, though not gone, will be replaced in the future. But .NET is a different beast. Right? After all, I could draw a line in VBA with four lines of code. Why does it take over twice that number of lines of code to draw a simple line in VB.NET? If you find yourself saying, "It's hard. I don't like change", then this class is for you. Can VB.NET be as easy as VBA? It can. Learn how.

Store It in the DWG: XData, Extension Dictionaries, and Object Data Through .NET
Jerry Winters
AutoCAD files can and often do store more than lines, circles, and arcs. Entities themselves can store information inside them. But what are the options and the differences between the options, and how is it done? Learn it all in 90 minutes.

The New Autodesk® Revit® Family API: Everything is Relative
Jeremy Tammik
Understand and use the new Revit 2010 family API, which provides full access to programming facilities within the family editor context. Use the API to automate Revit content creation based on existing part databases, and other library specifications. Programmatically create and modify family content. Extract family definitions from existing projects. Define references and constraints to parametrically drive family type model geometry, specify formulas to drive parameter values, and add annotation and dimensioning. Control detailed visibility of family types and their elements. Control family loading behaviour. Understand and reuse the functionality provided by the Revit SDK family API samples. Implement automated batch mass processing of all family definition and manipulation processes, which you were previously forced to complete individually and manually. This class assumes basic knowledge of Revit programming.

Upgrading Your Autodesk® Inventor® Add-Ins to Use the New Ribbon User Interface
Brian Ekins
This session will introduce you to the features of the new ribbon user interface introduced in Inventor 2010. You'll learn about the new ribbon-related functionality in the Inventor programming interface and how to use it to add support for the ribbon interface to your add-ins. Because Inventor users can choose to use either the classic or ribbon interface in Inventor, you'll also learn how your add-in can provide support for both.

Using the FDO API in C# .NET
Scott McFarlane
This advanced programming course is designed for GIS developers who want to manipulate data in an FDO data store using C# .NET. Attendees will understand the fundamentals of FDO, and the basic structure of an FDO data source. Learn how to create new FDO data stores, define schemas and feature classes, and query, insert, modify, and delete features. We'll develop examples using a variety of data sources, including SDF, SHP, SQL Server and Oracle, and we'll identify opportunities for code reuse.

DESIGN VISUALIZATION

Basic MaxScript for Architectural Visualization
Nils Norgren
MaxScript is a powerful and versatile tool that can be used to speed up repetitive tasks and often make the impossible possible. Getting started with it can be daunting, especially without any programming or scripting experience. This course will walk artists through some basic scripting concepts - from using the listener for simple commands to more involved scripts with interfaces. The primary focus will be to support arch vis artists and workflow. With utilities and scripted animation, attendees will leave with practical knowledge to make them a more effective Autodesk 3ds Max artist.

EDUCATION

Incorporating Software Simulation Into Web-Based Training
Andrea Bell
How can you give students a hands-on AutoCAD learning experience over the web? How can you deliver "lab-style" training without the lab? This class looks at the possibilities and limitations of software simulation as it relates to AutoCAD and AutoCAD-based products. We'll start with an overview of what makes software simulation tools different from other web-based training tools and highlight a few of the more common simulation software options. Our focus will be on the making of a simulation - incorporating mouse clicks, keyboard entries, mouse movements and right-clicks - all basic requirements for even the simplest of AutoCAD commands. In addition, you'll learn to include simulation features such as hints, success and failure notifications, as well as voice-over narrations. Throughout this process, you'll learn tips, tricks, and limitation work-arounds to create an effective AutoCAD-based training simulation. Finally, an overview of common deployment strategies and challenges will be presented.

Teaching in the Virtual Classroom: Tools, Tips and Techniques for eLearning
Don Schwartz
The advantage of a down economy is that it's the best time for training! The biggest problem with a down economy is that training budgets are cut first. So how to train your staff and prepare your company for the next economic surge with a limited budget? In this session we'll explore the options for creating and hosting intranet and web-based eLearning. We'll cover the foundation concepts needed to move your traditional instructor-led classroom training to the virtual classroom. We'll take you through the tools, show effective techniques, and address common problems and pitfalls in preparing and delivering eLearning.

Your Professor Should be Able to Help You: EngineersRule.com
J.D. Mather
In this class you will learn how to help students navigate the Autodesk Student Community with a minimum of input from you. Discover the answers to the most common problems students have with Autodesk software including, downloading, installing, and registering the software. We will also look at common user interface problems and help systems. The goal of the class is to enable you to offer the students professional and efficient guidance. Alleviate the frustrations, make your students see you as the guru, and save your valuable time for instruction.

FACILITIES MANAGEMENT

Don't Get Floored In Your Facility: Autodesk® Revit® Architecture as an Effective Facilities Management Tool
Christopher Fernandez
See how Revit Architecture can be an effective facilities management tool. Understand how parameters, schedules, and area plans can create a cohesive facility plan from design to management. See move coordination and scenario planning using the industry's premier architectural design tool.

GENERAL DESIGN

AutoCAD: 3D Modeling Made Easy *JC Malitzke*
This class offers AutoCAD users a chance to explore the AutoCAD 3D features, as well as tried and true 3D modeling techniques. Existing tools for 3D solid and surface model creation will accelerate your design workflow! AutoCAD mesh modeling tools will enhance your free-form designs. Learn new techniques in AutoCAD 2010, as well as tried and true techniques that will supersede your old-school techniques, and develop an understanding of 3D conceptual design. We'll explore the fundamental uses of the User Coordinate System (UCS) flexibility, Sweeps, Lofts, PressPull, Helix, Solids, Surfaces, Meshes, and Gizmos for editing. If you used AutoCAD 3D in the past, attend this session and get ready to be surprised!

AutoCAD: Beyond 3D – Tap the Power of Visualization Tools *Travis Jones*
Creating a 3D model is only half of it! The real power of 3D is to communicate your ideas with materials, cameras, and walk-through animations. In this session we will tap into the power to define and apply visual styles that will quickly change the appearance of your 3D models. Easily orbit around your models, swivel the view, and even fly through your models! We'll explore how you can record animations on the fly or by using a predefined animation path. Come to this session and learn how to give your 3D models a facelift!

GEOSPATIAL

Autodesk® Topobase Tips and Tricks
Yan Cerf
This class covers some best practices, shortcuts, tool chains, workflows, little-known useful features, tips, explanations, gotchas, sample scripts, code snippets, tricks, configuration scenarios, metrics, utilities, and resources for working with the Topobase platform. We will attempt to impart as much Autodesk corporate knowledge about Topobase as we can without making participants brains explode. This may be considered a roll-up of solutions and answers from internal technical discussion mailing lists, technical support, forum posts, engineering white papers, consulting engagements, and customer success stories.

Dynamic Authoring with Autodesk MapGuide® Enterprise
Scott McFarlane
"This class demonstrates how the session repository in MapGuide Enterprise makes dynamic authoring easier than ever. We'll explore the various XML schemas that define MapGuide resources, such as feature sources, layers, maps, and web layouts. You'll learn how MapGuide manages session state, and how to use the MapGuide server API to work with repository data. We'll also introduce the parts of the MapGuide API that support the new SDF format, and look at how this can be used to develop digitizing and redlining applications.

Integrating GIS and CAD Data with the FME FDO Provider
Dale Lutz
FDO Data Access technology - the Autodesk Geospatial data access platform - is important for enabling interoperability between CAD and GIS systems. In this session, attendees will learn how they can directly and natively access nine commonly-used spatial data formats, including key ESRI, MapInfo and GML/XML formats from within AutoCAD Map 3D using the FME FDO Provider. Through case studies and demonstrations, AutoCAD Map 3D users will learn how to use this free FME FDO Provider tool to use their CAD and GIS data together, enabling this information to be freely and seamlessly accessed and used by others for improved data sharing and collaboration.

Using AutoCAD® Map 3D and LiDAR Data to Enhance 3D Maps and Designs
Justin Lokitz
In this class we will focus on the ability of AutoCAD Map 3D to import and utilize 3D LiDAR data for enhancing 3D maps and designs. We will cover what LiDAR is, the benefits of LiDAR data, and how Map 3D can utilize huge LiDAR data sets to create incredible 3D surface models and enhance mapping and feature creation.

INDUSTRIAL DESIGN

Engineer Marketing With Autodesk® Showcase®
Kevin Richards
Learn how to use Autodesk Showcase for marketing material. This is a class for engineers or anyone who is responsible for creating photo realistic renderings using CAD models. You will learn how to set up images that can be used for ads, Internet sites, brochures, etc. Learn which settings print companies are looking for and which tips and tricks matter to create the best image. You will see different examples of how to take a simple image and turn it into a marketing campaign.

Product Narratives: Telling the Complete Story of What Your Design Is All About
Max Sims
Learn how to tell a story in order to sell your design to management. This class will involve the fundamental elements of storytelling in order to describe your product, car, or building. You will learn to use the animation output of Autodesk Maya, 3ds Max, 3ds Max Design 2010, Showcase or Alias Studio as a means of tight narrative that will emotionally engage your audience and compel them to buy in to your idea. A comprehensive story begins with your design research, customer interviews, your design process, and then the final documentation. All of this is combined in editing software for a finished product narrative that explains to decision makers who your customer is and why your solution is the ideal course of action for further resources.

MANUFACTURING

3D Product Documentation
Abhijit Singh
Learn to create compelling visuals, technical illustrations, and animations that allow you to communicate your 3D designs to personnel on the shop floor (assembly instructions, operating procedures), customers (user manuals) and repair and maintenance crews. The product we will be using requires no prior CAD knowledge, allowing you to hand off documentation tasks to non-CAD personnel in your company. Create your documentation concurrently with the ability to update your documentation as your design changes.

A Day in the Life with Autodesk® Vault Workgroup
Brian Schanen
This class covers the workflow of files as they move through Autodesk Vault Workgroup. Concepts such as Lifecycles, Security, Revisions and Release Management will be discussed. Watch from the perspective of different users levels and see their interactions with documents as files are managed by Vault Workgroup.

AutoCAD® Mechanical: Something Old and Something New
Colleen Klein
Make your drawings and parts libraries more productive by discovering both old and new tools in AutoCAD Mechanical. You will see how you can use the Constraint Manager to redefine your existing blocks and add intelligence to the drawing. Learn the tricks to publishing your custom parts to the existing library and discover how to generate an intelligent BOM (bill of materials) from legacy AutoCAD files. This class will cover many new tips and tricks for using your parts list and BOM, and enhancements and techniques that often get overlooked.

Capturing Design Intent in Autodesk® Inventor® Using Construction Geometry
Kevin Robinson
Learn how to take full advantage of sketch line types including construction and center line geometry, center points, and driven dimensions. Making these simple tools part of your everyday work flow allows you to capture your design intent while creating your part models. You will improve your modeling accuracy, consistency, and overall productivity with the use of these tools. Best practices will be demonstrated and discussed that take advantage of these tools and contrasts them with other methods of construction. Many examples, in both 2D and 3D sketches contributed from power users, will be shown. This class will benefit all levels of Inventor users who create and modify part models. A detailed handout is planned that reviews each of the techniques presented.

Cashing In on the Vault and Retrieving the Treasures
Allen Gager
Go beyond the basic Check-In, Check-Out functionality of Autodesk Vault and find out how to get more productivity for free. Vault offers a number of tools that are often overlooked. We will show you how to find what you need and put it at your fingertips for quick and easy access.

Digital Prototyping for the Factory Floor
Shibai Bagchi
This session will teach you how to create 3D factory layouts using Autodesk Navisworks for Manufacturing and demonstrate the potential benefits of using your 2D factory layout drawings and point cloud scans as a starting point for creating your 3D layout. Combine together product data, tooling and fixture data, and layout and facilities data from different CAD formats, and create a single 3D digital model of your factory. Experience virtual flythrough and walkthrough of your factory environment. Analyze the model to check for collisions and identify space constraints. Create 4D simulations of your factory models to simulate the installation of equipment on the factory floor.

Digital Prototyping: Mechanical Simulation Overview
Peter Maxfield
Introducing Autodesk mechanical simulation tools and the range of applications and physics that each tool can effectively address, starting from stress to thermal, dynamic response, rigid body dynamics, fluid dynamics and event simulations.

Hold that Pose! Still Imagery With Autodesk® Inventor® Studio
Mark Flayler
Stop relying on third-party outsourcing or contractors to create photo-realistic or illustrative renderings. Autodesk Inventor provides robust tools for your extended engineering needs. This class takes a deeper look into proper rendering methods using Lighting, Surface, and Scene Styles to obtain optimal results. Learn how to setup and modify advanced Lighting methods and Cameras. Create Illustrative renderings useful for catalogs or artistic expression of your designs. Finally, learn how to setup up wrapper assemblies to streamline the rendering process.

Migrating from AutoCAD® to AutoCAD Electrical
Randy Brunette
So you are not using an electrical drafting package but have created or are creating electrical drawings. And you're wondering how AutoCAD Electrical will work for you. Sign up to see how AutoCAD Electrical can work with existing drawings and how to add electrical intelligence to those legacy files (such as intelligent ladders, electrical components, and automatic wire numbers). We will also highlight some of the major productivity gains available in AutoCAD Electrical compared with stand-alone AutoCAD. This class will appeal to anyone interested in learning the ins and outs of using AutoCAD Electrical in an AutoCAD environment. You should have a basic understanding of AutoCAD.

Stop Stringing It! Digitally Prototype Those Wires and Harnesses
Mike Carlson
Learn to use Autodesk Inventor Routed Systems to digitally prototype your wires and cables. Stop using the "old school" method and add more value to your mechanical design. Time and money have been wasted on electrical design, and now you can virtually eliminate that waste. No more issues with tight radius bends and rework of mechanical components to allow proper clearance for cables. Learn how to communicate with AutoCAD Electrical using XML imports and exports. Finally, document those designs effectively for manufacturing with nailboards, run lists, and cut tables. Attendees should have basic knowledge of Autodesk Inventor.

STRUCTURAL DESIGN AND ENGINEERING

An Overview of the Composite Design Capabilities of Autodesk® Revit® Structure and Robot® Structural Analysis 2010 Products
David Odeh
This class will provide an overview of the background, theory, and applications of the Composite Designer Extension for Revit Structure 2010. First, we will discuss composite steel design theory and the applicable AISC codes. Next, we will review the various features of the Composite Designer tool, including its capabilities to analyze and optimize composite members using the Revit Structure analytical model. Using real-world examples, we will then explore how to use the Composite Designer Extension to quickly analyze member strength and serviceability; rapidly explore different design concepts for floor framing; and create optimum framing designs by weight, cost, or depth. More generally, the seminar will illustrate the benefits of using customized structural analysis tools within Revit Structure.

AutoCAD® Structural Detailing Standards and Template Development
Adam Sheather
This course will guide you through the setup and incorporation of your current AutoCAD Standards in the AutoCAD Structural Detailing Templates. Each "flavor" of AutoCAD Structural Detailing (Formwork, Reinforcement and Steel) will be looked at from a settings point of view. You'll learn about creating templates, layers, and linetypes consistent with your current AutoCAD Standards. The course will also look at Autodesk Revit and Robot integration techniques and development of user-defined objects that can be created for use with AutoCAD Structural Detailing.

Modeling Complex Surfaces and Structures Using the New Modeling Tools for Autodesk® Revit® 2010
Marcello Sgambelluri
Learn how to deal with complex geometry in Revit Structure. This course will go in-depth and have step-by-step instructions to teach you how to accurately model complex geometry using the new modeling tools in the concept modeling portion of Revit 2010. You will improve your knowledge of modeling complex geometry in Revit in order to meet your client's and project's needs. This class will benefit structural project managers, CAD/Revit managers, structural CAD/Revit modelers, as well as architects. Attendees should have general knowledge of Revit architecture or Revit Structure.

Structural Design Using Autodesk® Robot® Structural Analysis
Brian Johnson
This extended lecture class will focus on structural design for structural steel and reinforced concrete structures using Robot Structural Analysis. This presentation will provide an overview of design workflows and structural design criteria using Robot and Revit Structure and in-depth instruction on specific design tasks. You will learn how to optimize structural steel designs, design steel connections, and perform automatic and interactive concrete reinforcement design. Explore custom design options with the Robot Spreadsheet Extension. This class will not focus on analysis methodologies, rather it is intended to show the design and optimization functionality in Robot.

UTILITY AND TELECOMMUNICATIONS

Mapping Water Quality with RESTful Web Services for MapGuide®
Haris Kurtagic
One of the critical open interoperability technologies that is being developed and supported by the open source geospatial community is the MapGuide and Feature Data Object Application Programming Interface (FDO API). In this presentation I will describe an application developed for the City of Ljubljana Water Company, which is designed to provide the public with maps showing water quality. The application was developed using RESTful MapGuide/FDO web services and integrates with the City's SharePoint services. The application allows users to search (or even use Google search) for a particular location; for example, by street address. The user can display a water quality map of the region in which the location lies in MapGuide or alternatively Google Maps using KML generated by MapGuide RESTful web services. This case study illustrates a major advantage of implementing GIS using web-oriented architecture.