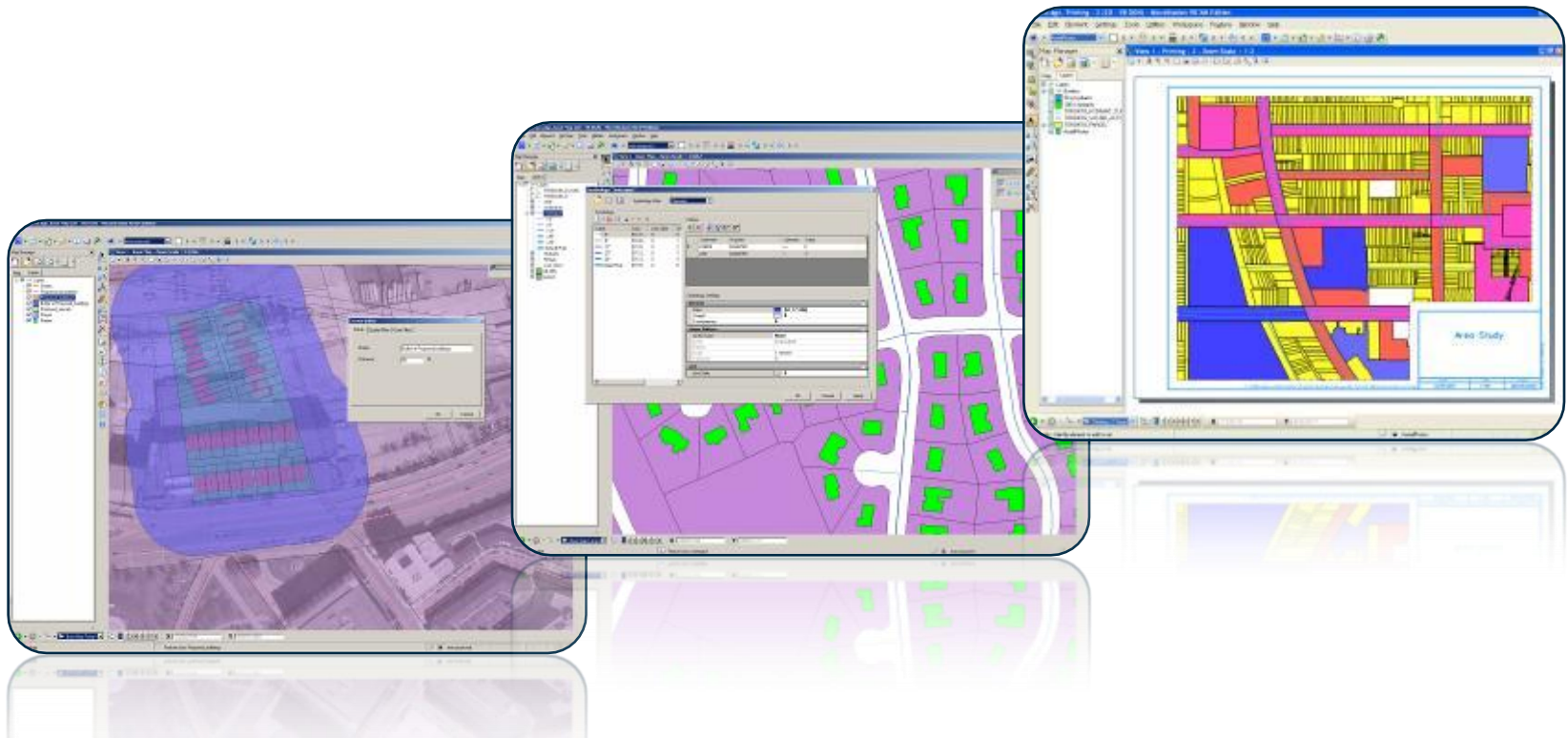


Geospatial Products V8i (SELECTseries 1)

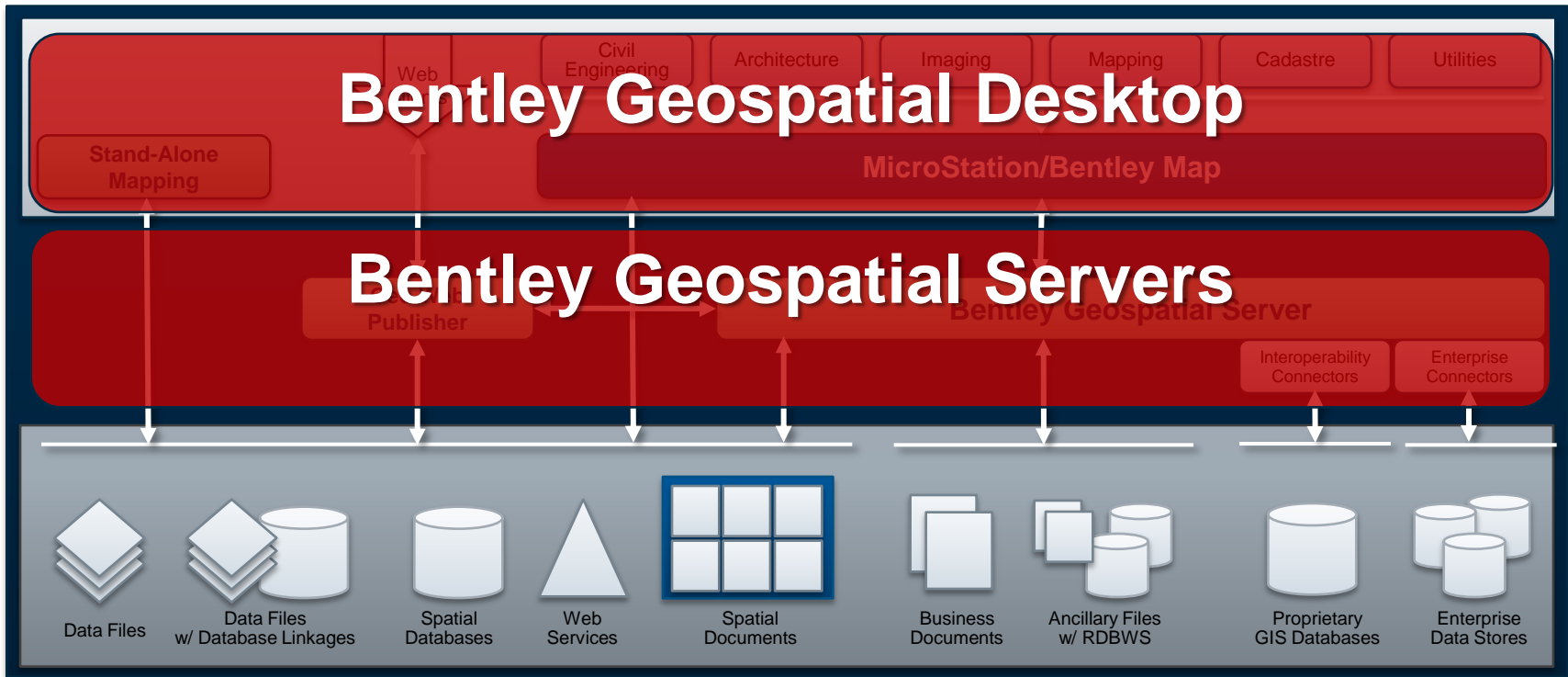
Keith Raymond
Product Manager Geospatial Desktop Products

Presentation Overview

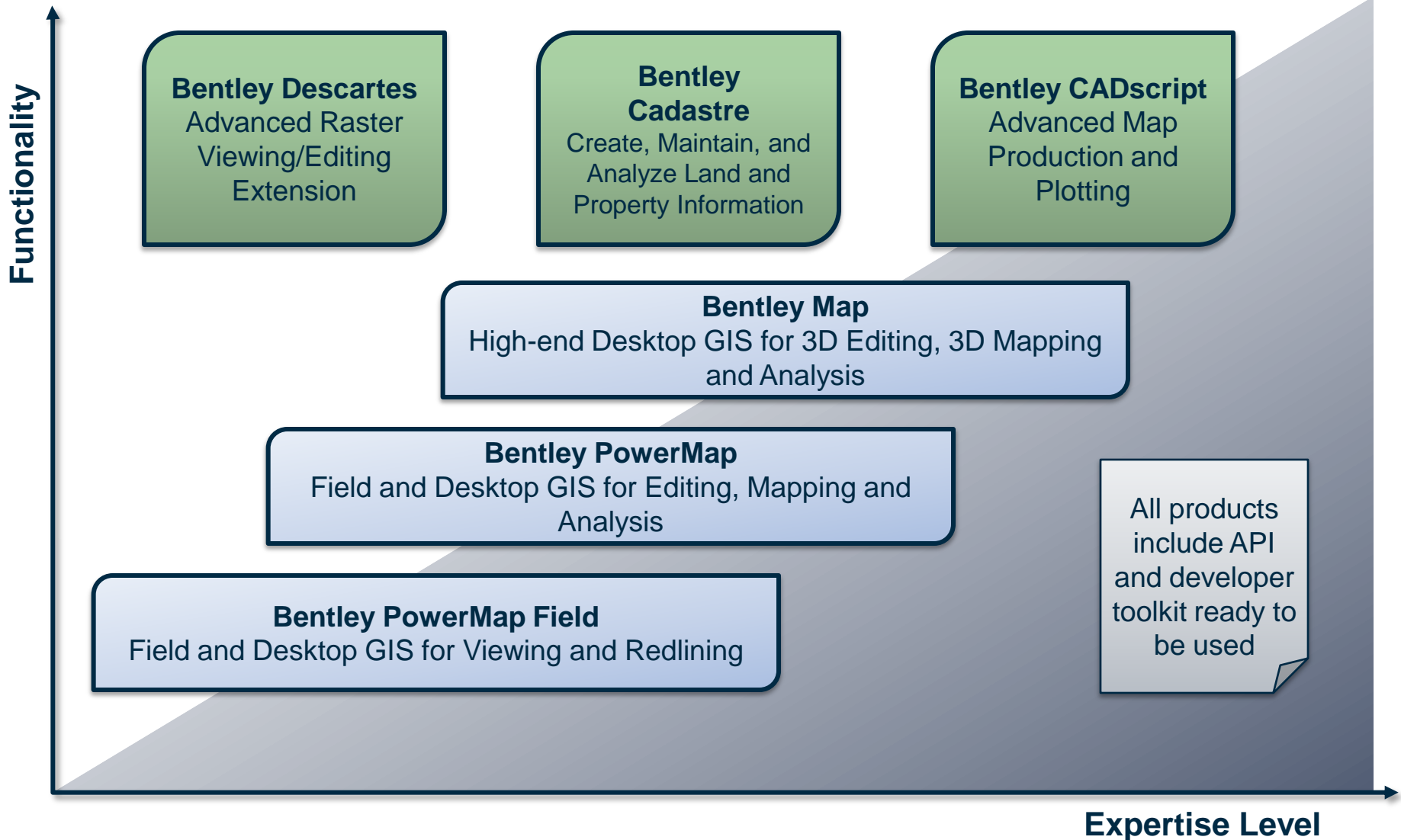
- What are the various products?
- Why would you need them?
- Demonstrations

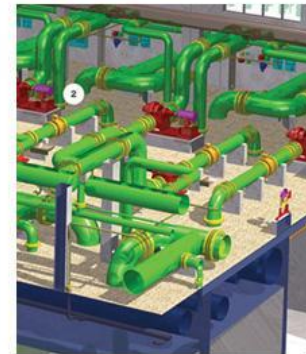
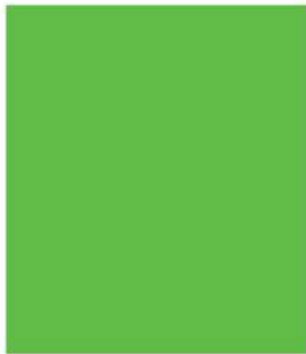


Architecture



Geospatial Desktop Product Line





www.bentley.com

Bentley Map

Because your work requires...

- Assembling geospatial/non-geospatial data to produce thematic maps and reports
- Viewing, editing geospatial data from file based GIS formats or spatial databases
- **Requiring strong smart 3D editing capabilities (Push/Pull)**
- Decision making using spatial analysis
- Producing data models and editing tools for different geospatial applications
- Creating industry specific GIS applications through customization
- Labeling and annotate geospatial data

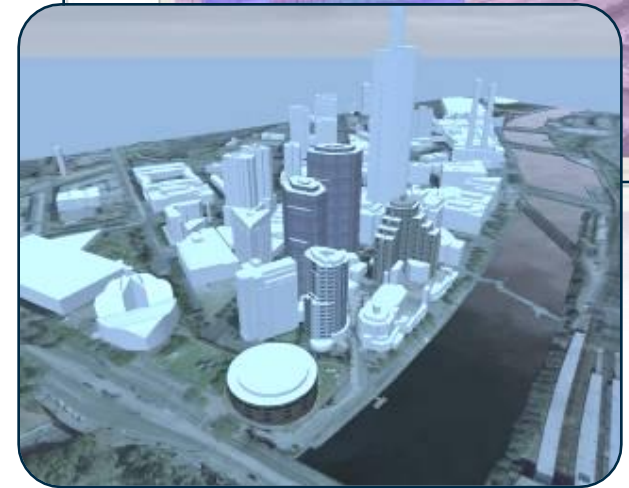
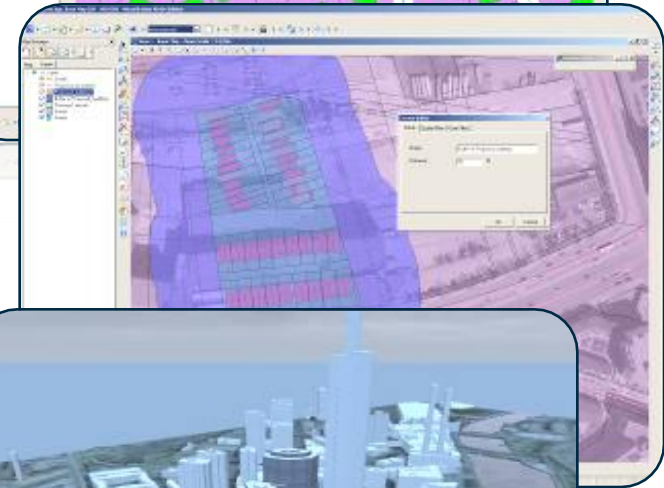
Top Features

- **GeoReferenced PDF**- Powered by MicroStation
- **WMS Client**- Powered by MicroStation
- **Google Earth (Import/Export)**- Powered by MicroStation
- **AEC GeoReferencing**- Powered by MicroStation
- **GPS Tracking**- Powered by MicroStation



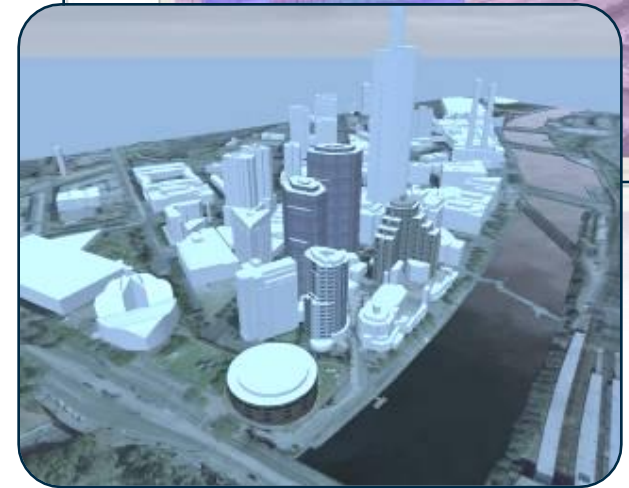
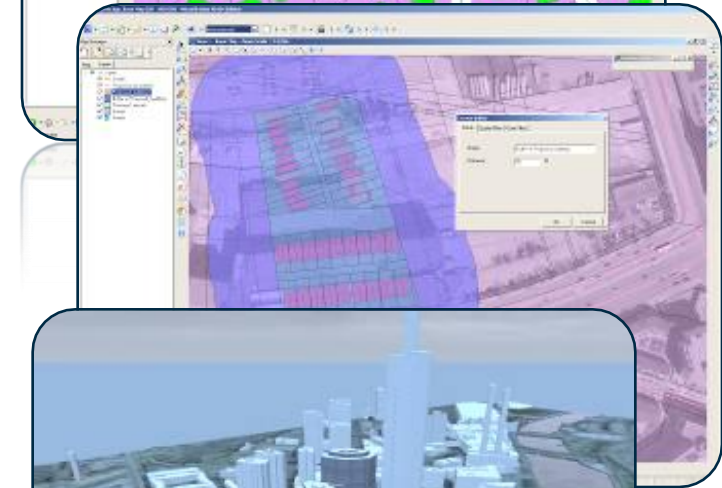
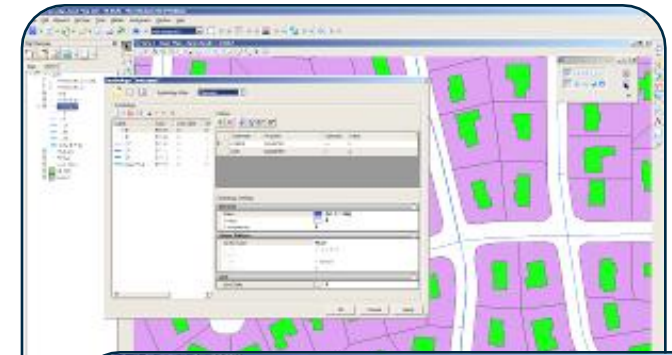
Top Features

- 3D Smart Editing
- XML Feature Modeling with Geospatial Administrator
- Oracle Spatial editing
 - 3D objects support
 - ProjectWise Links and Design Links support with Oracle Spatial persistence
 - Simpler Register Feature Process
- Dynamic Labeling of Features



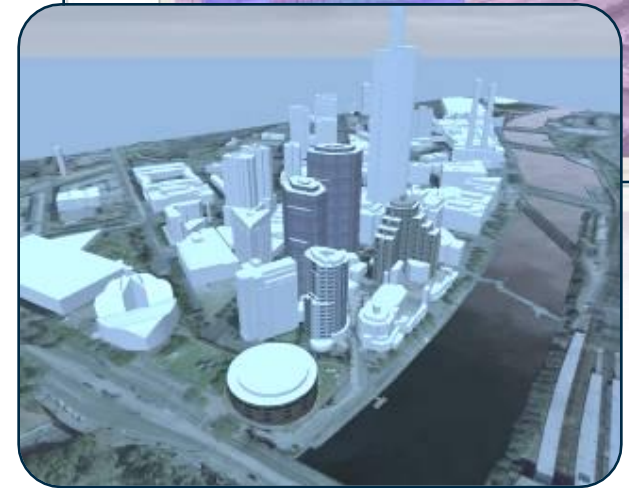
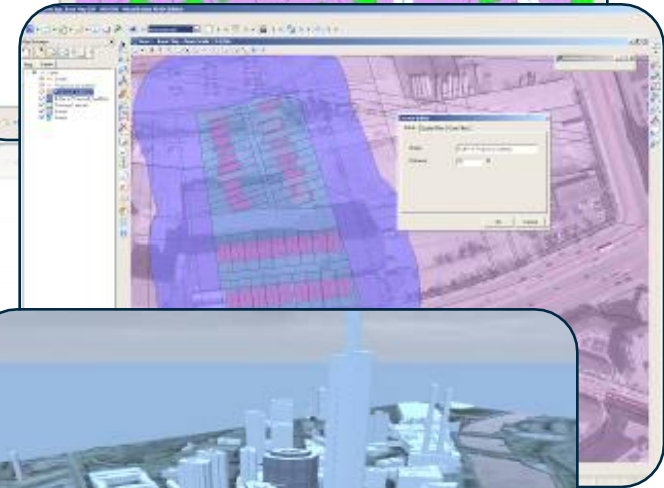
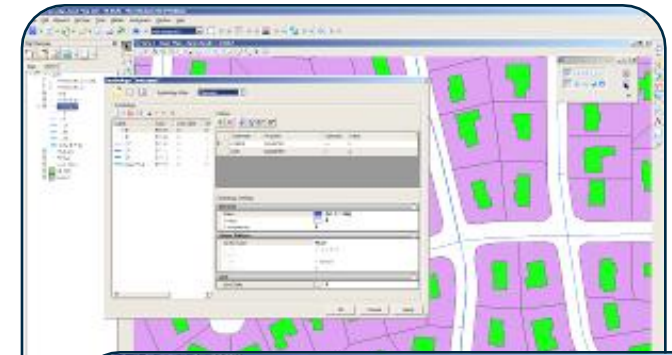
Top Features

- Joins between features
- Promote to XFM tool
- Search, browse and report
 - Multi-features attributes editing
- Map Manager
- Map generation and print preparation



Top Features

- Topology model and maintenance
- Spatial analysis and presentation
- Data cleanup tools
- **Polygon split/merge**
- Interoperability (GML, SHP, MapInfo, Oracle Spatial)
 - Publish to i-model (for use in ProjectWise Navigator)
 - Attribute values used as the imported element elevation
- GIS Development Platform

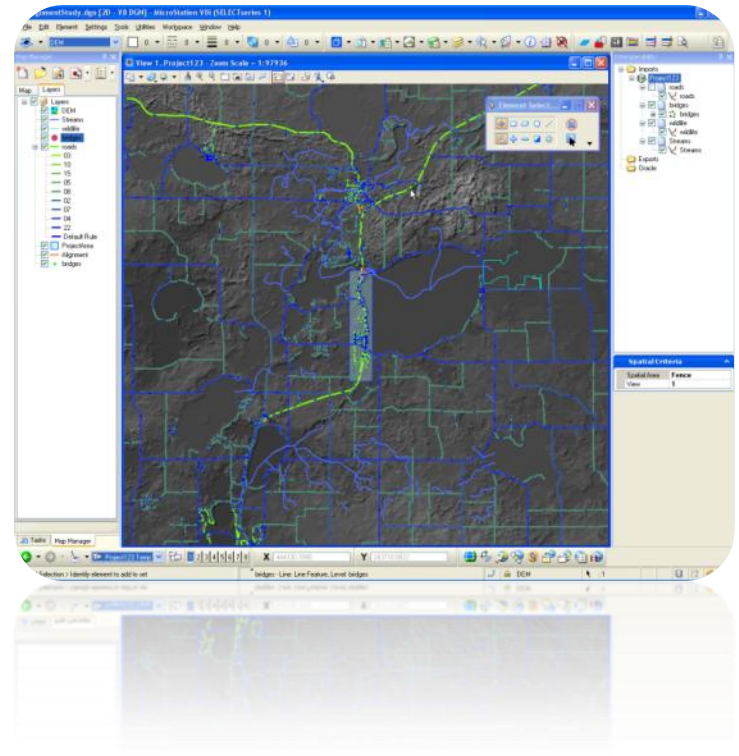


Bentley Map Value Proposition



Demo: Bentley Map Basic Mapping

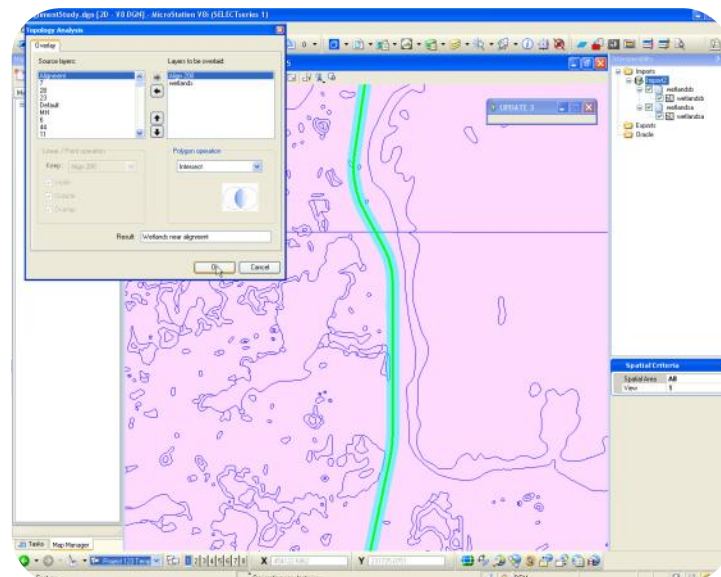
- Import of Shapefile
- Thematic Mapping
- Labeling
- Attributes Editing using Grid Control
- Joins
- Raster DEM (powered by Bentley Descartes)



Demonstration

Demo: Bentley Map Spatial Analysis

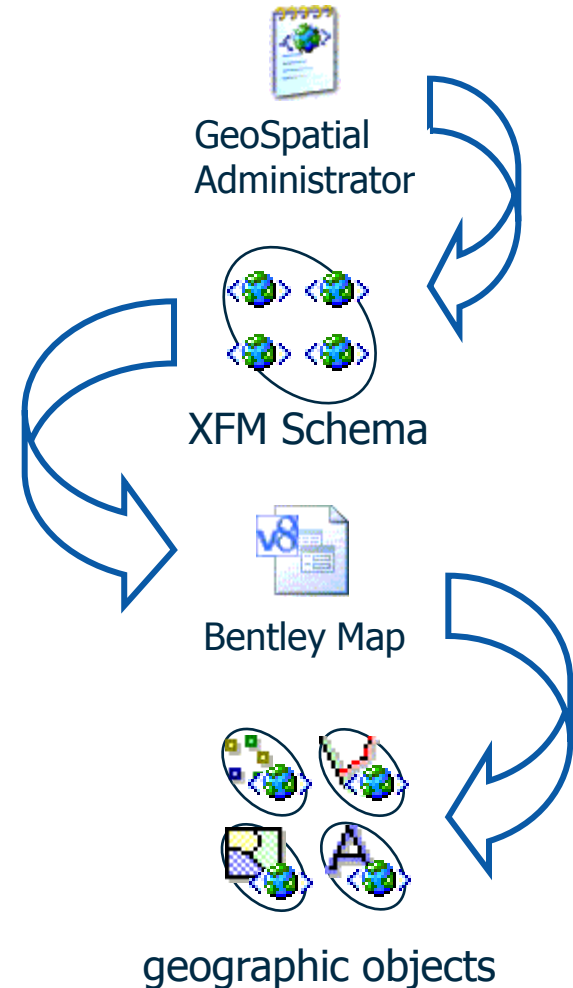
- Easy to use buffering tools
- Easy to use spatial overlays tools (Intersect, Difference, etc)
- Browsing the result of the spatial analysis
- Export the analysis result to CSV



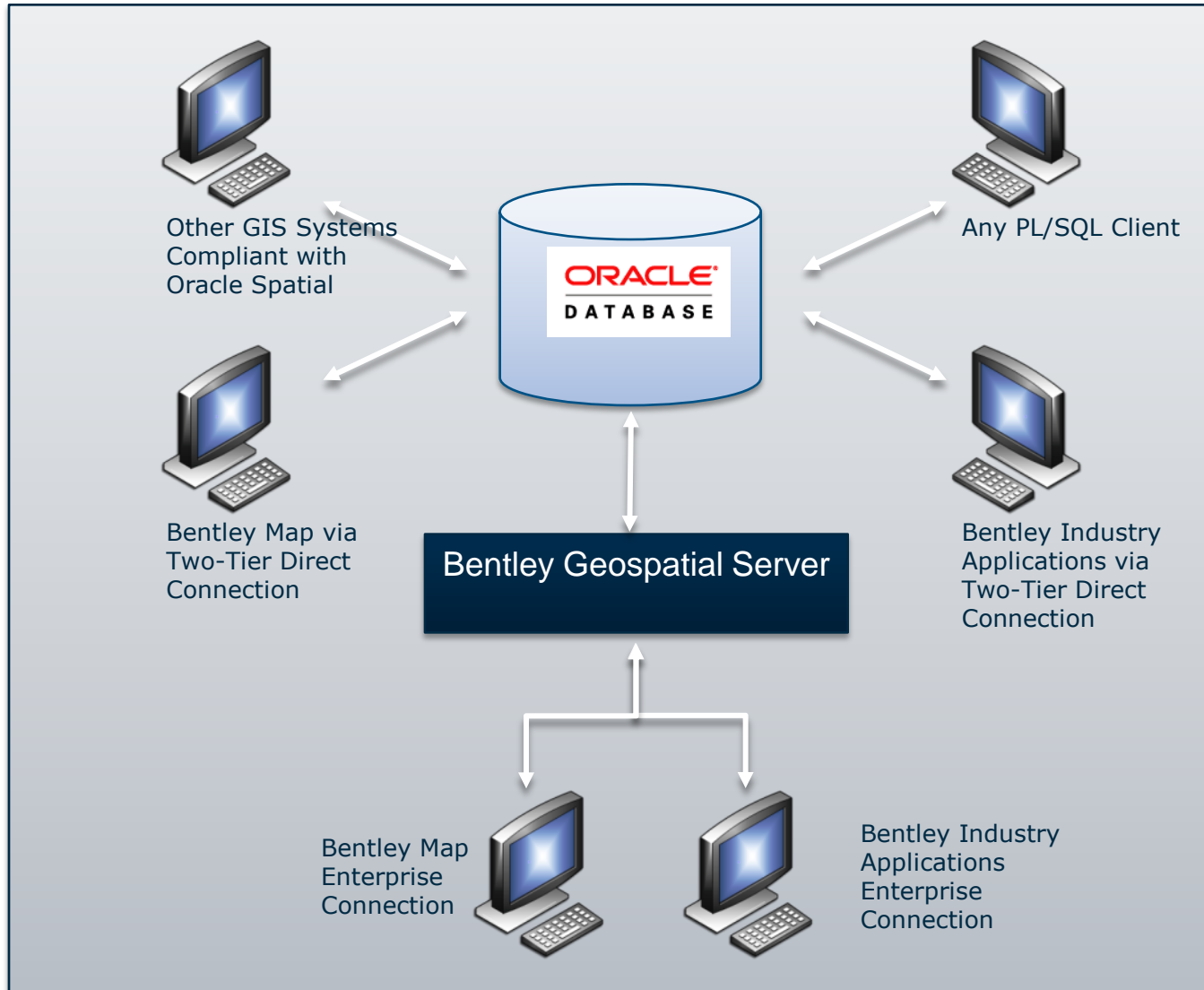
Demonstration

XML Feature Modeling (XFM)

- XML Metadata Driven GIS
 - Features
 - Properties
 - Domain lists, default values
 - Property based symbology
 - Property based annotation
 - Relationships
 - Placement and editing rules
 - Operations and methods
 - Other behaviors
 - Message propagation rules
 - User interface
- Extensible
- Enforces user standards
- Easy to implement without programming

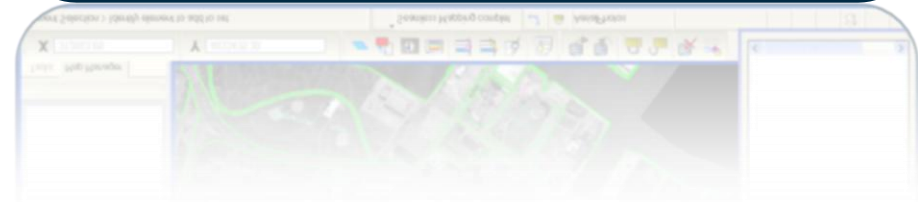
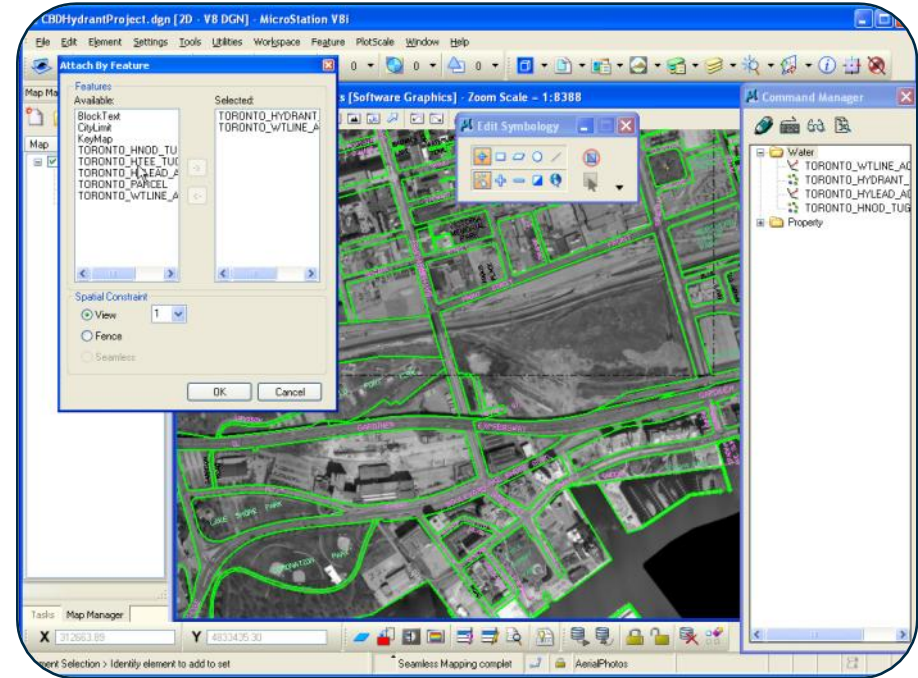


Interoperability with Oracle Spatial



Demo: Bentley Map – XFM

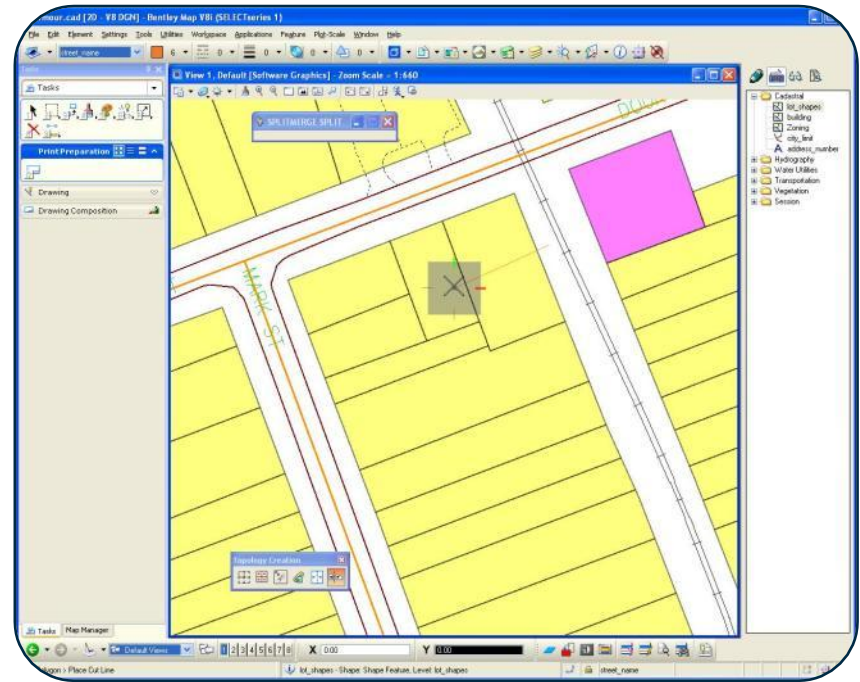
- Oracle Spatial Editing
- Feature Modeling



Demonstration

Demo: Bentley Map- Polygon split and merge

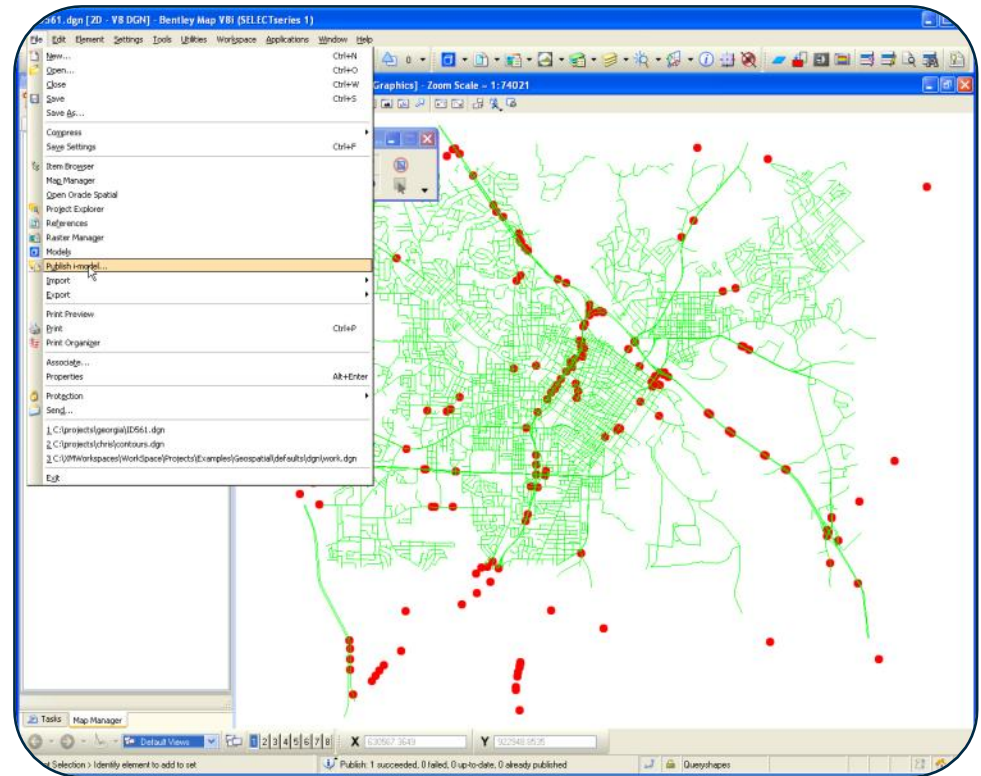
- Splits and merges polygon features
- Handles attributes based on user defined rules
- Copies all properties in absence of any defined rules



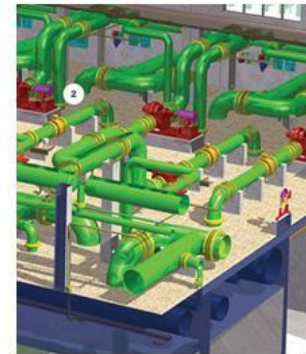
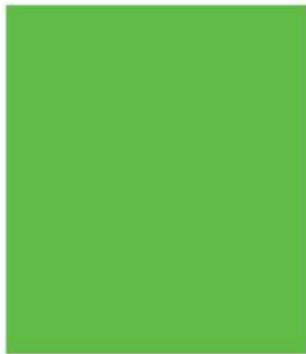
Demonstration

Demo: Bentley Map- Publish to i-model

- i-model is a DGN with geometry and attributes understood by all MicroStation based applications
- The cross-Bentley applications interoperability currency



Demonstration



www.bentley.com

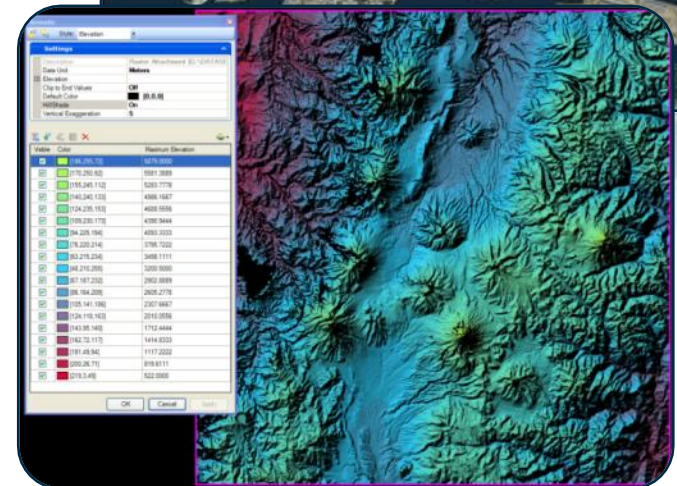
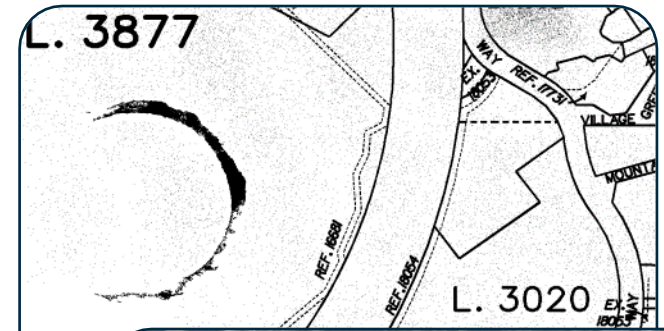
Bentley Descartes

Why Descartes? Because your work requires...

- Editing raster based maps (Full Color) or plans (Black/White)
- Geo-referencing scanned plans/older maps
- Viewing Oracle Spatial GeoRaster
- Viewing Raster DEM with visualization
- Editing 3D oriented images (e.g.: building textures)
- Converting raster into vector or converting vector into raster
- Creating raster scene(s) using any data (vector, raster)
- Creating image mosaics

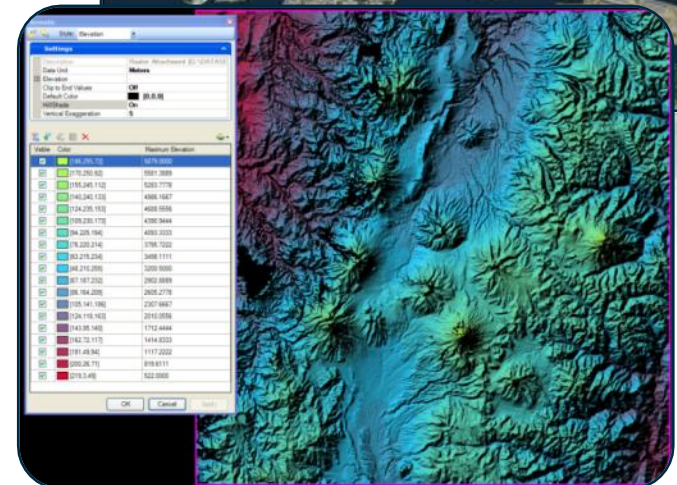
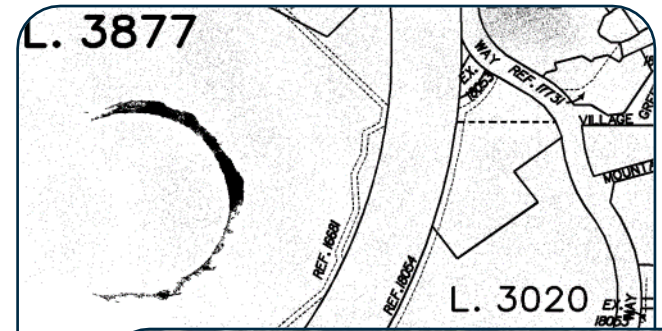
Top Features

- Viewing of Oracle Spatial Georaster
- Viewing of Raster DEM
- Binary Raster Editing
 - (ala I/RAS B)
- Color Raster Editing
- Snap on raster content
- 3D Texture Editing (e.g.: 3D building texture)



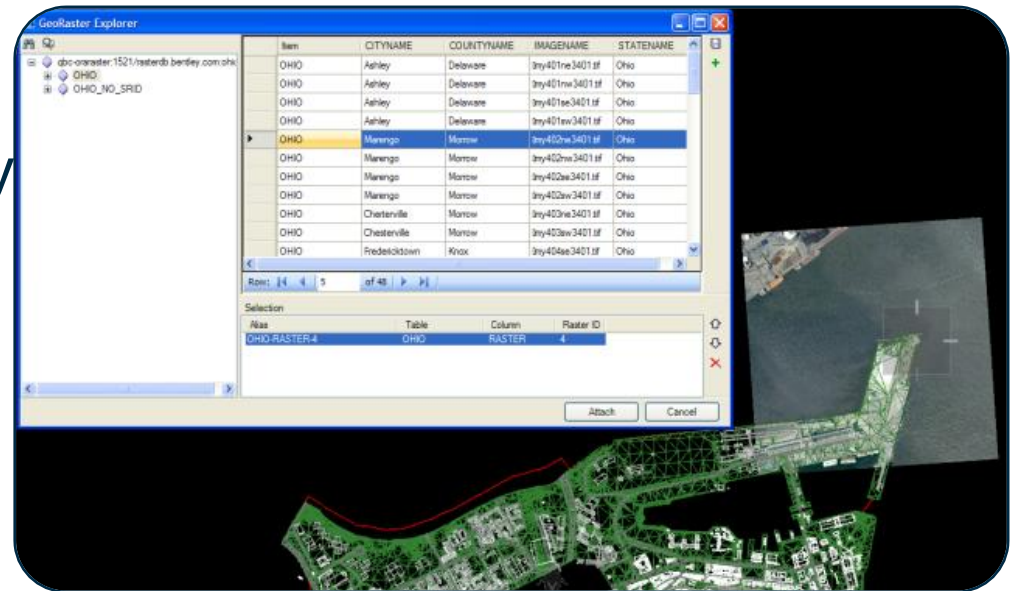
Top Features

- Image Processing
 - Raster Geo-Referencing/Warping
 - Persistent coordinate system transformation
 - Raster Mosaic Creation
 - Raster Scene Creator
- Raster to Vector conversion and Vector to Raster conversion
- Convert Raster Text to Vector Text (OCR)



Viewing of Oracle Spatial GeoRaster

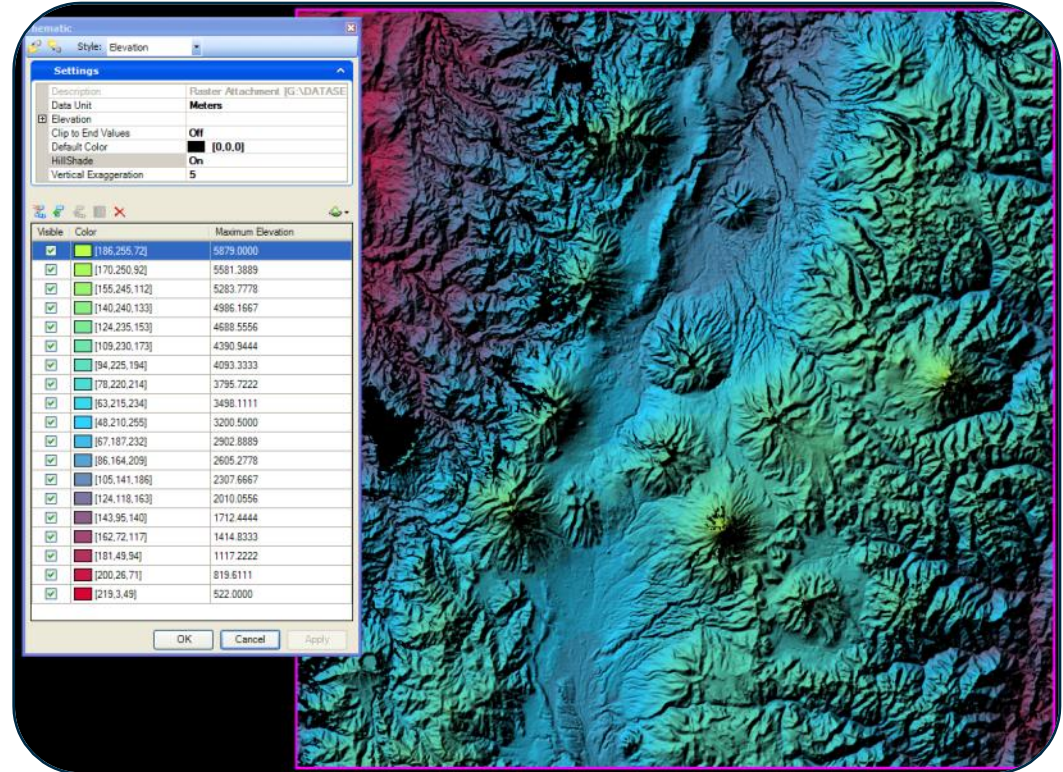
- Extremely fast viewing of GeoRaster
- Querying GeoRaster by attributes and/or spatially
- Viewing GeoRaster as Raster DEM



Demonstration

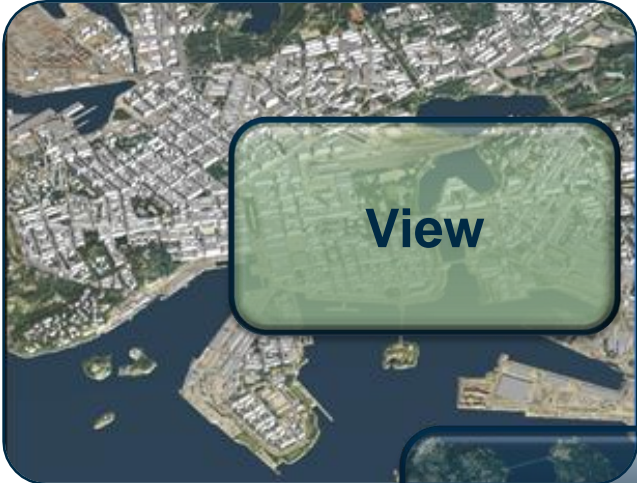
Viewing of Raster DEM

- Allows viewing Raster DEM
- Allows applying multiple filtering
 - Elevation, Slope, Aspect
- Supports multiple formats
 - Erdas image (*.img)
 - Oracle Spatial GeoRaster
 - GeoTiff (*.tif)
 - Tag Image File (*.tif)
 - Internet Tiff (*.itiff)
 - Internet Tiff 64 bit (*.iTiff64)
 - USGS DEM (*.dem)
 - USGS SDTS (*.catd.DDF)

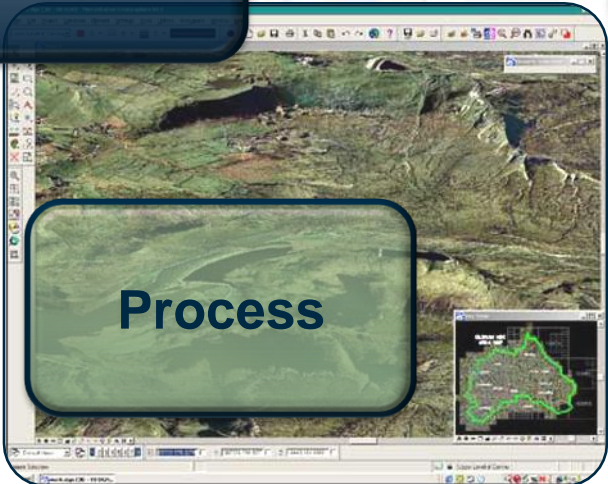
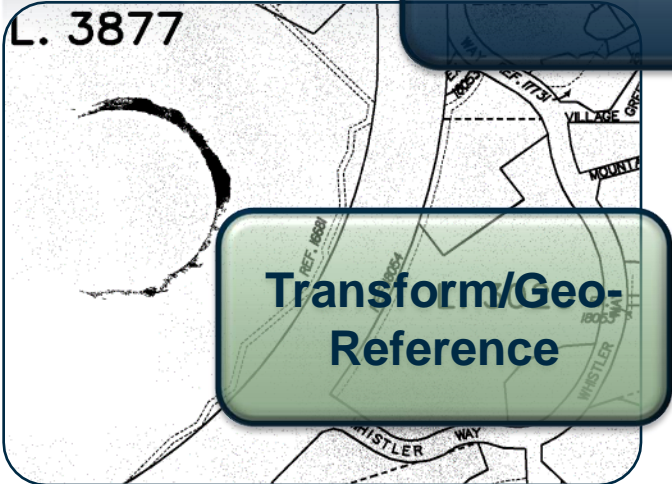


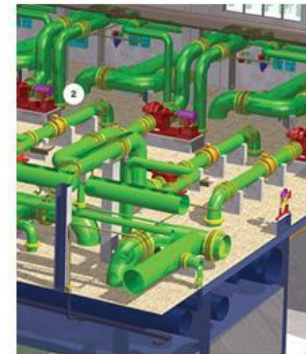
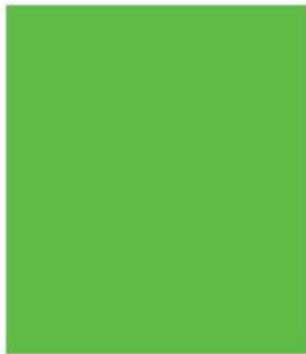
Demonstration

Bentley Descartes Value Proposition



All your Raster Data





Geo Web Publisher

Why Geo Web Publisher ? Because you need to...

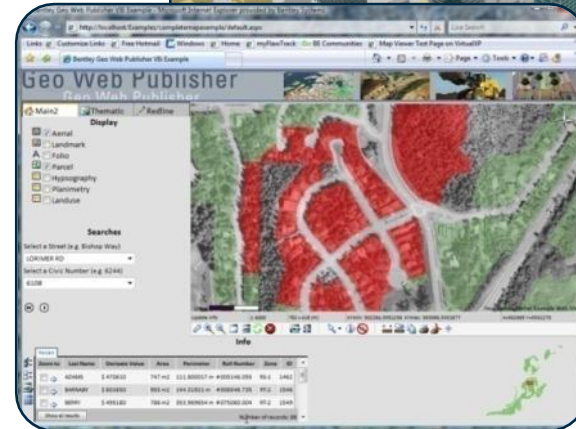
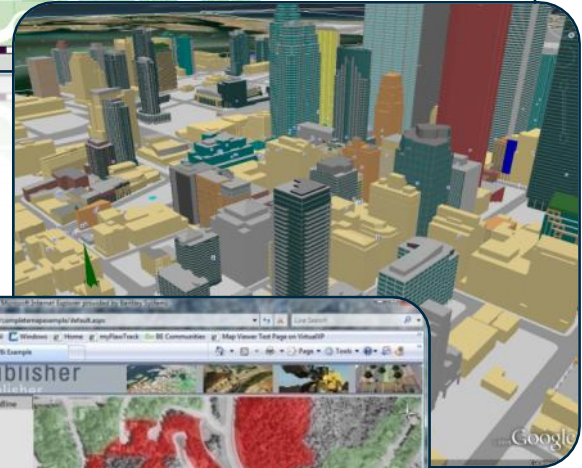
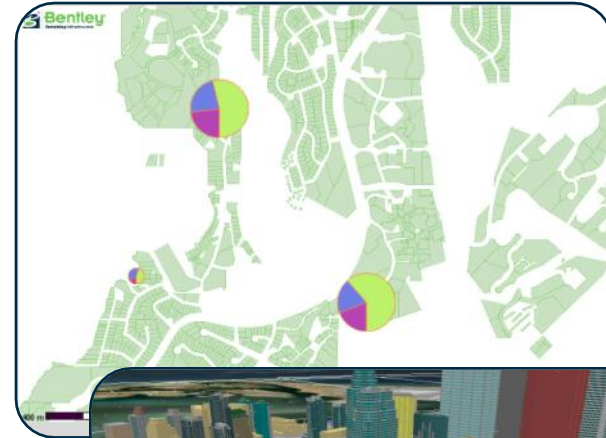
- Make data available to a wide audience
- Because you need to share 3D city data with citizens, mayor, city council, managers
- Integrate with many data types in a single portal
- “Deliver” GIS tools to casual users
- Allow Web GIS users to create reports, prints, etc. from Web GIS applications
- Create and maintain Web GIS applications, be able to rapidly meet Web users needs
- Integrate GIS and mapping data with other enterprise wide systems

What is Geo Web Publisher?

- It is a Web GIS
 - Easy to implement, high performance
 - Brings together multiple data sources, and databases
 - Supports collaboration workflows
 - OGC compliant, WMS/WFS server
- Advanced tools for GIS Web applications creation and administration
- End user tools for map navigation, querying, analysis, reporting, redlining, editing

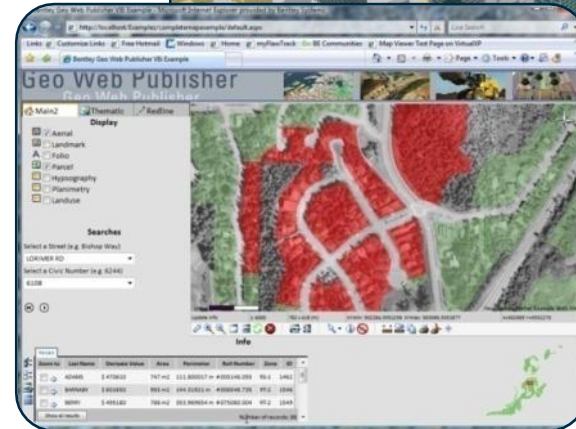
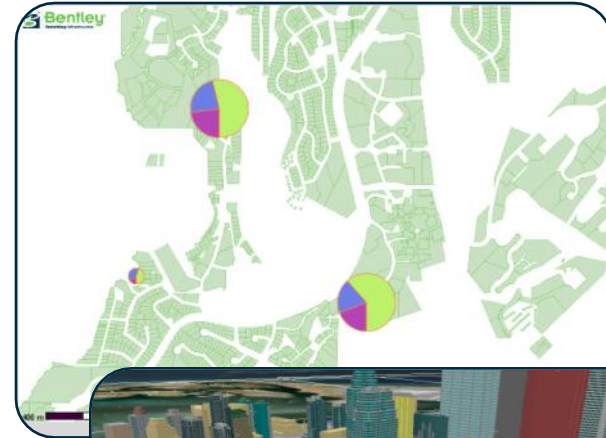
Top Features

- Multi data sources input support
 - DGN/DGN XFM with full fidelity
 - Oracle spatial
 - Geometry, valid time and history, **GeoRaster**
 - Live or **pre-published for optimal performance**
 - Raster
 - WMS
 - Database
 - SHP
 - MapInfo
 - Files can be stored in ProjectWise



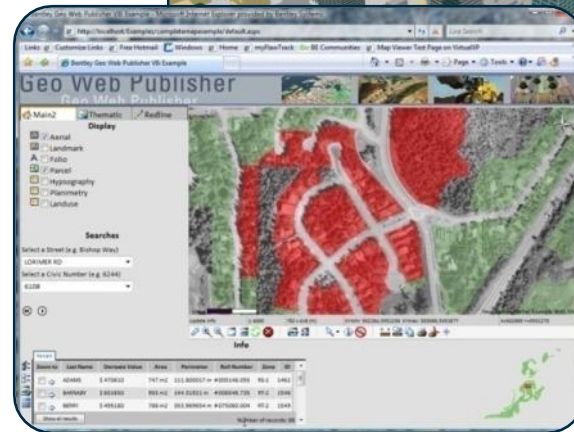
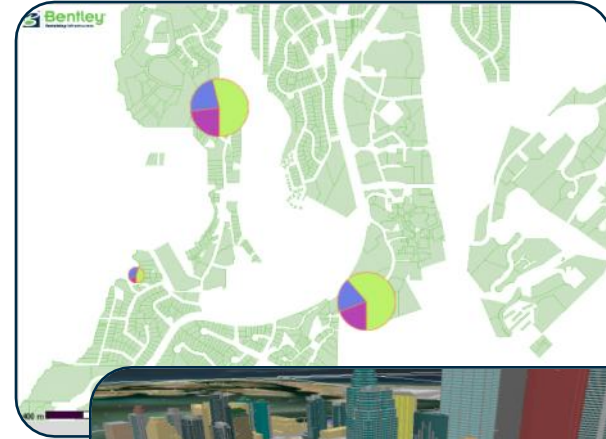
Top Features

- End users GIS tools
 - Searching
 - Reporting
 - Thematic mapping
 - **Pie charts**
 - Redlining
 - Light editing (Oracle Spatial)
 - **Edit ODBC Database attributes**
 - Cartographic printing
- Data Server
 - WMS, WFS, **Google Earth**



Top Features

- Public Web Services for rapid integration with non-Bentley applications
- Silverlight WMS Support
- Projections, multiple coordinate systems publishing
- Web application creation (low cost of ownership)

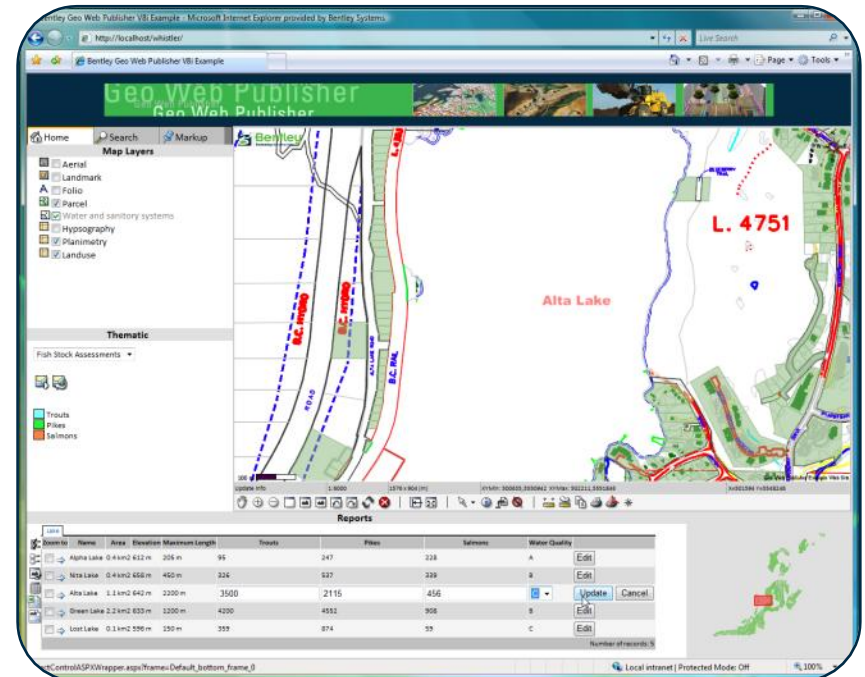


Value proposition

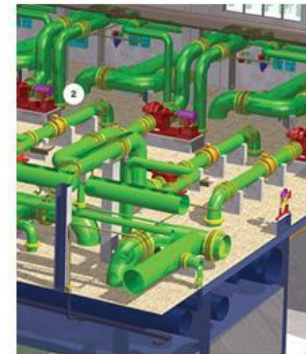
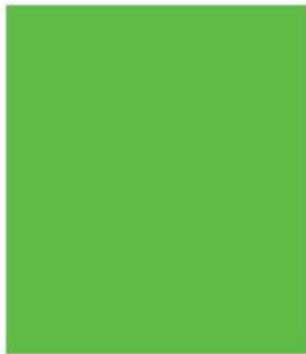


Demo: Bentley Geo Web Publisher – Reporting

- Redline map
- Query area
- Query properties
- Print report



Demonstration



3D City GIS

3D City GIS

Noise Simulation

Urban Planning

Shadow Analysis

Bentley 3D City GIS

3D Analysis and Design

Public Relationship Management

Natural Disaster Mitigation

Components of a 3D City GIS

3D Modeling and Quality Control



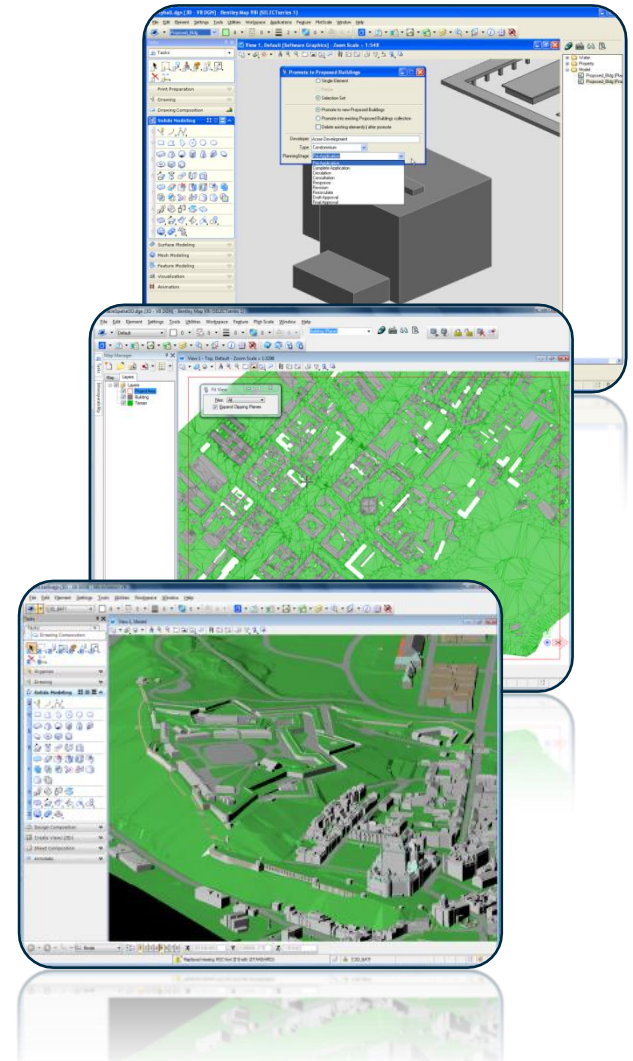
Persist, Manage and Serve



Explore, Analyze and Design in 3D

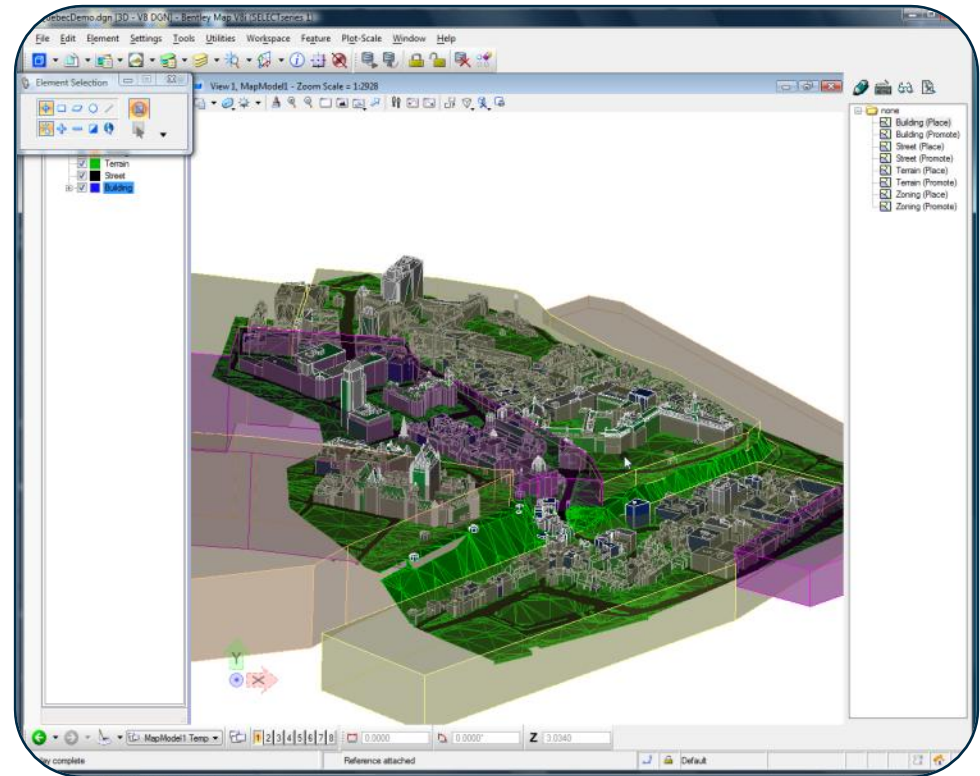
Bentley Map in 3D City

- The central piece of any Bentley 3D City GIS
- 3D Data Creation tool
 - Model and edit smart 3D Objects
 - Work with Oracle Spatial 3D
- 3D Data Analysis tool
 - Produce 3D thematic maps
 - Review attributes, produce reports
- 3D Development platform
 - For cities
 - For data producers



Demo: Bentley Map 3D Oracle Spatial

- View Oracle Spatial 3D data
- Query streets and terrain
- Thematic mapping
- Overlay with zoning areas and defined height limits

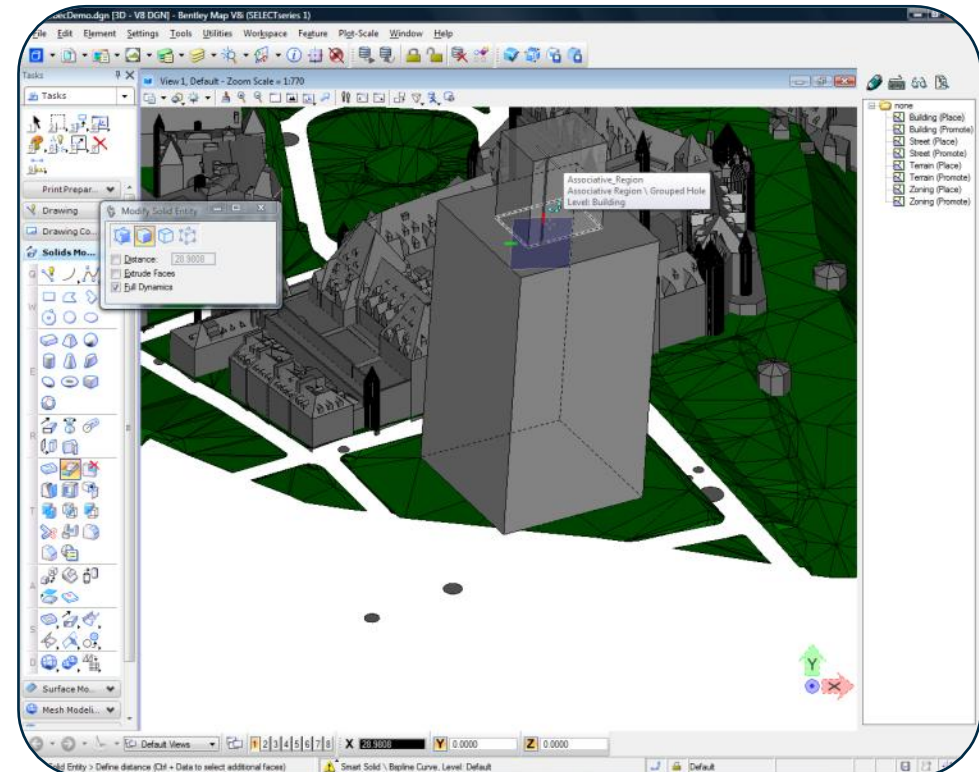


Data provided by Quebec City, Canada

Demonstration

Demo: Bentley Map 3D Oracle Spatial

- Sketch a new building
- Post to Oracle
- Modify the building
- Post to Oracle

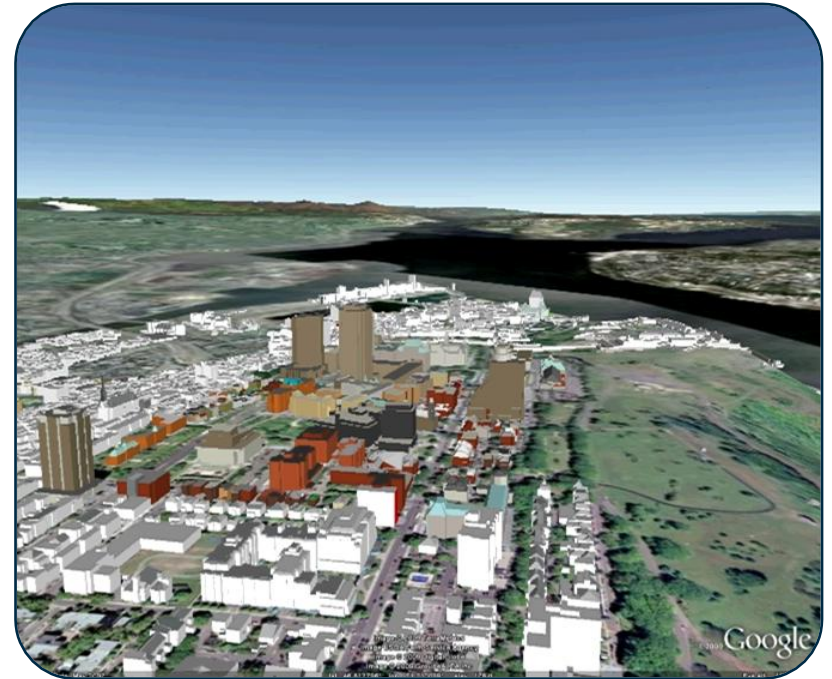


Data provided by Quebec City, Canada

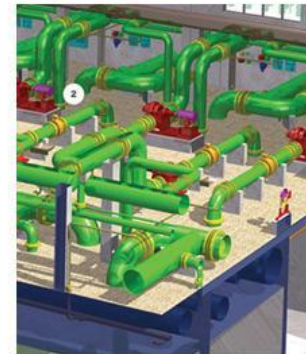
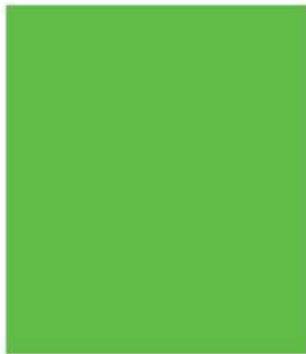
Demonstration

Demo: Bentley Geo Web Publisher Google Earth

- View 3D City model in Google Earth
- Model is tiled and served by Bentley Geo Web Publisher



Demonstration



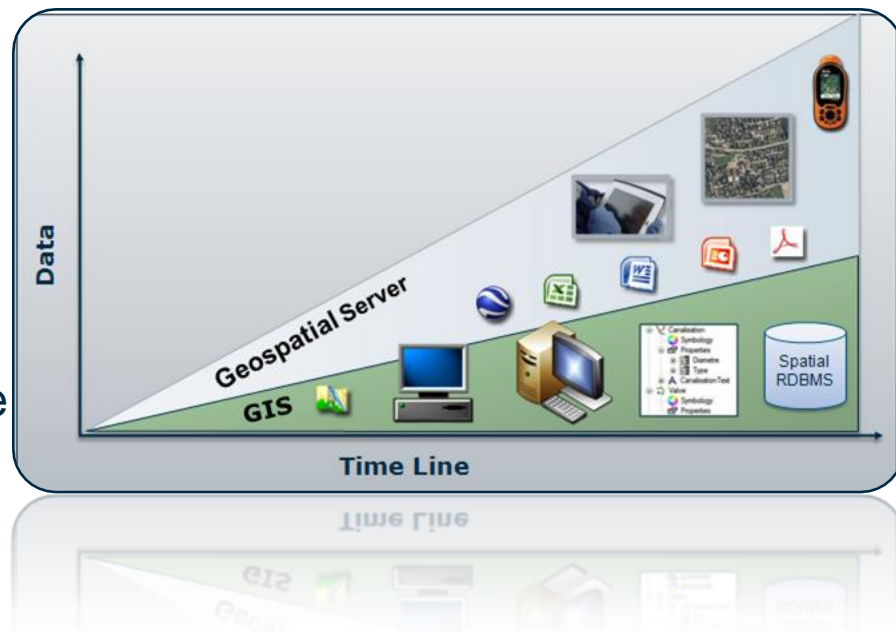
Geospatial Server

Why Geospatial Server? Because you need to...

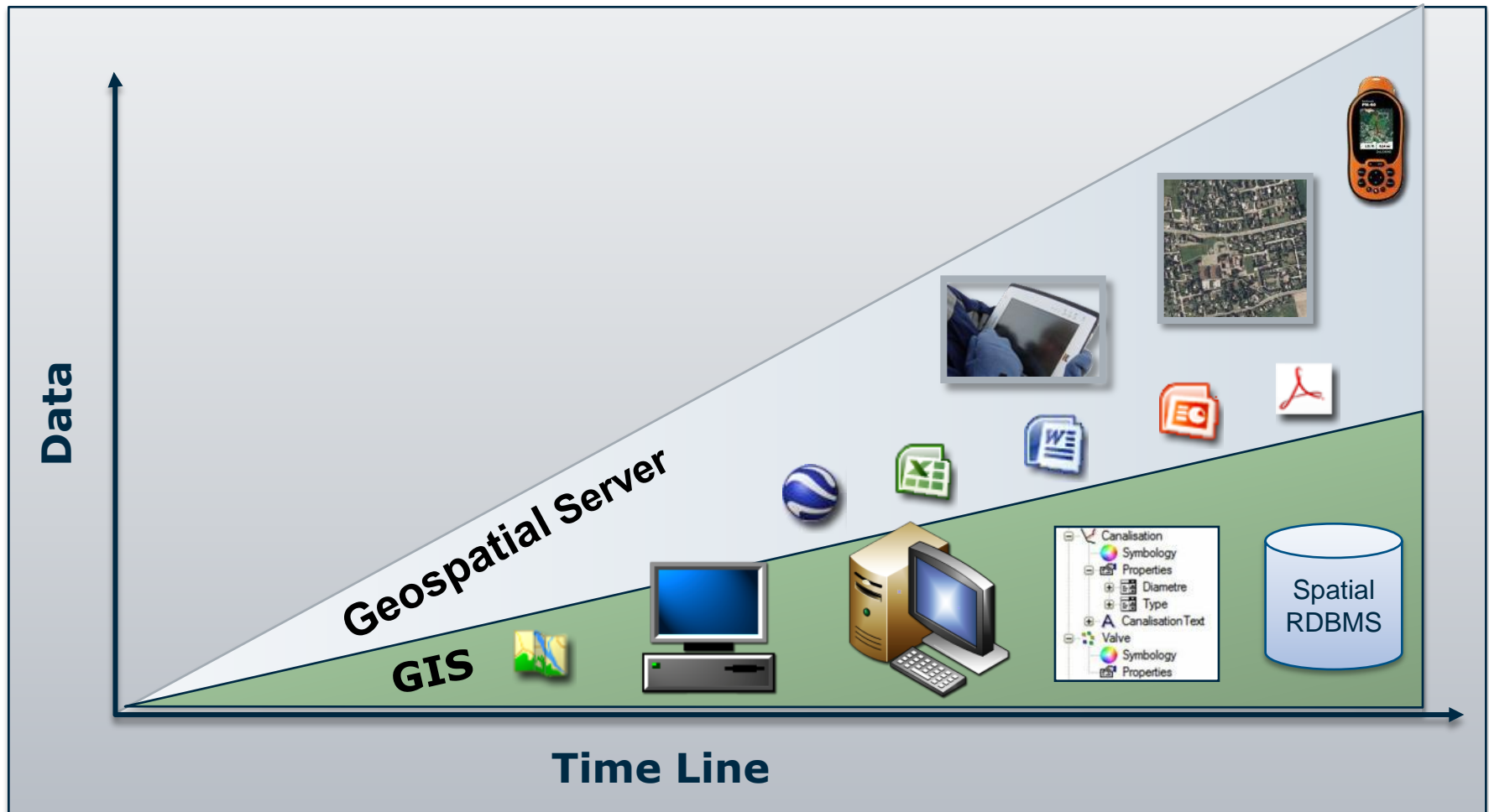
- Manage huge volumes of heterogeneous data (GIS data, document, images, projections, ...)
- Easily find the data you own about a given location on earth
- Know if the data you are about to work with is the latest and greatest or not
- Make sure that colleagues have access to the data they need to perform their tasks, no less, no more
- Edit information in spatial databases using a disconnected/long transaction workflow

What is the Bentley Geospatial Server?

- A portfolio of the following products:
 - ProjectWise Integration Server
 - ProjectWise Geospatial Management Module
 - ProjectWise Connector for Oracle
 - ProjectWise InterPlot Server
- Integrated for geospatial needs
- Five Services:
 - Document Service
 - Spatial Indexing/Searching Service
 - Workflow Management Service
 - Spatial Database Service
 - Plotting Service
- Can add ProjectWise Connector for ArcGIS as an option

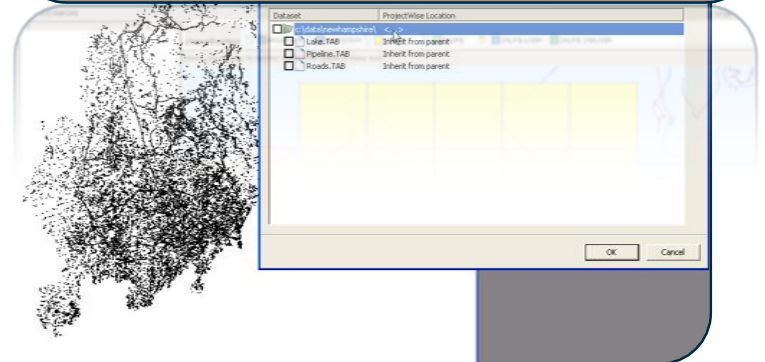
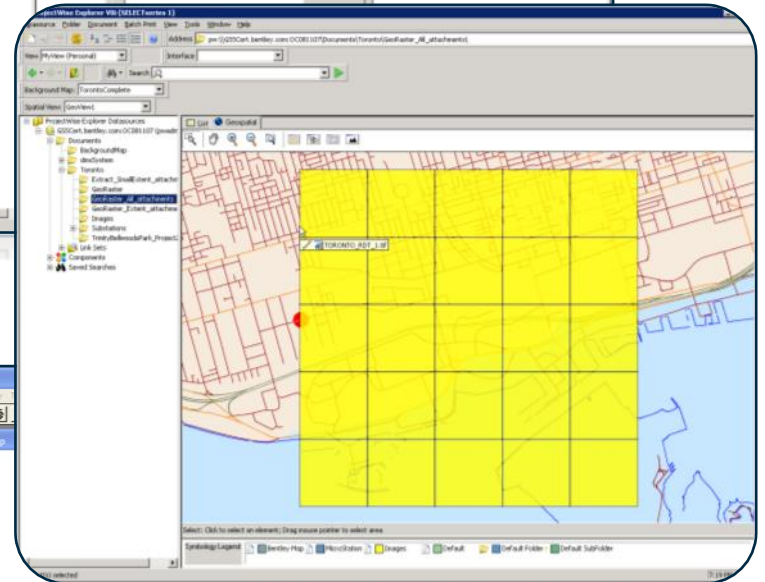
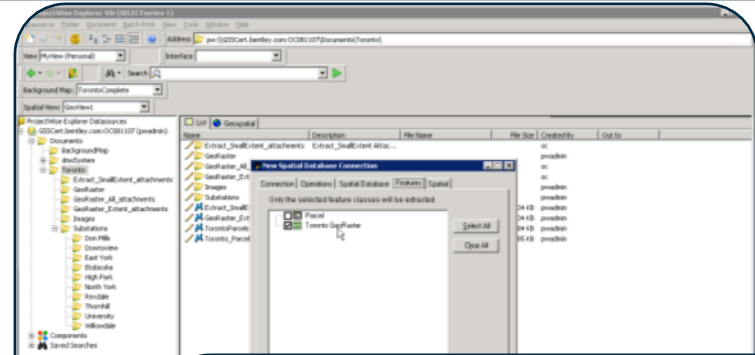


The Bentley Geospatial Server Way



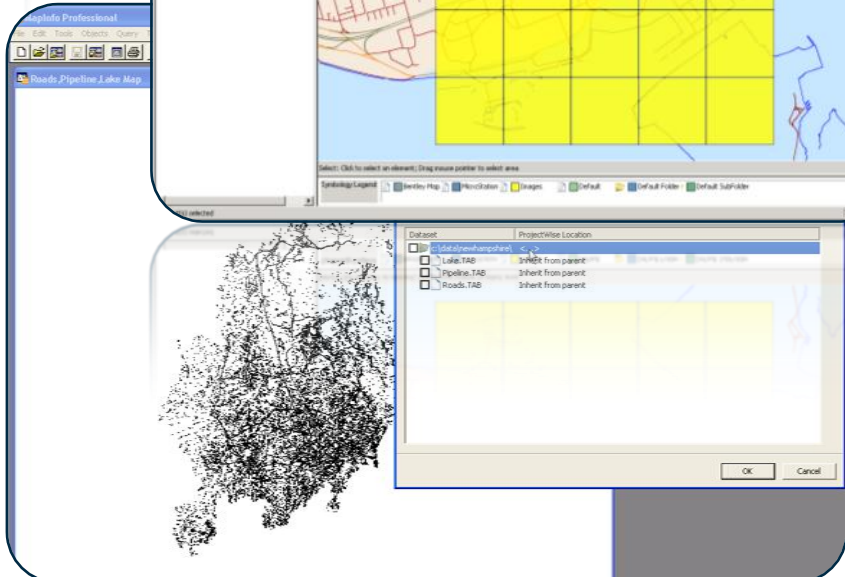
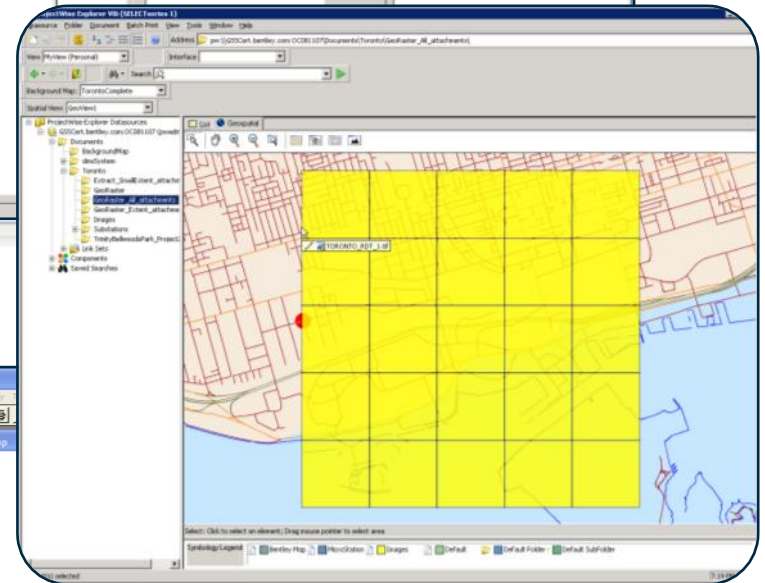
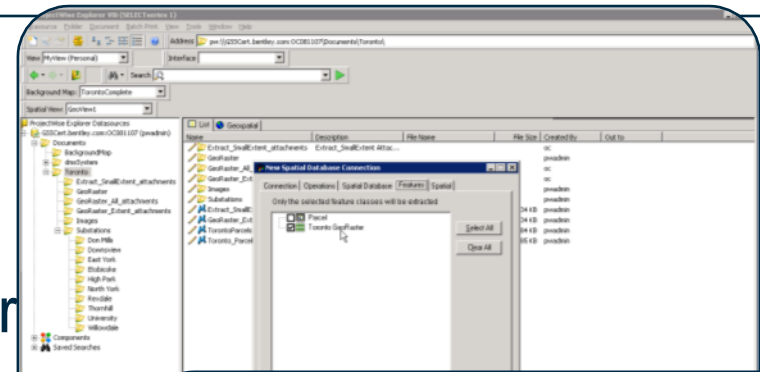
Top Features

- Oracle Spatial
 - Live transactional editing
 - Disconnected transactional editing
 - History and valid time
 - Oracle GeoRaster
 - Oracle Spatial 3D Editing
 - Design Link support



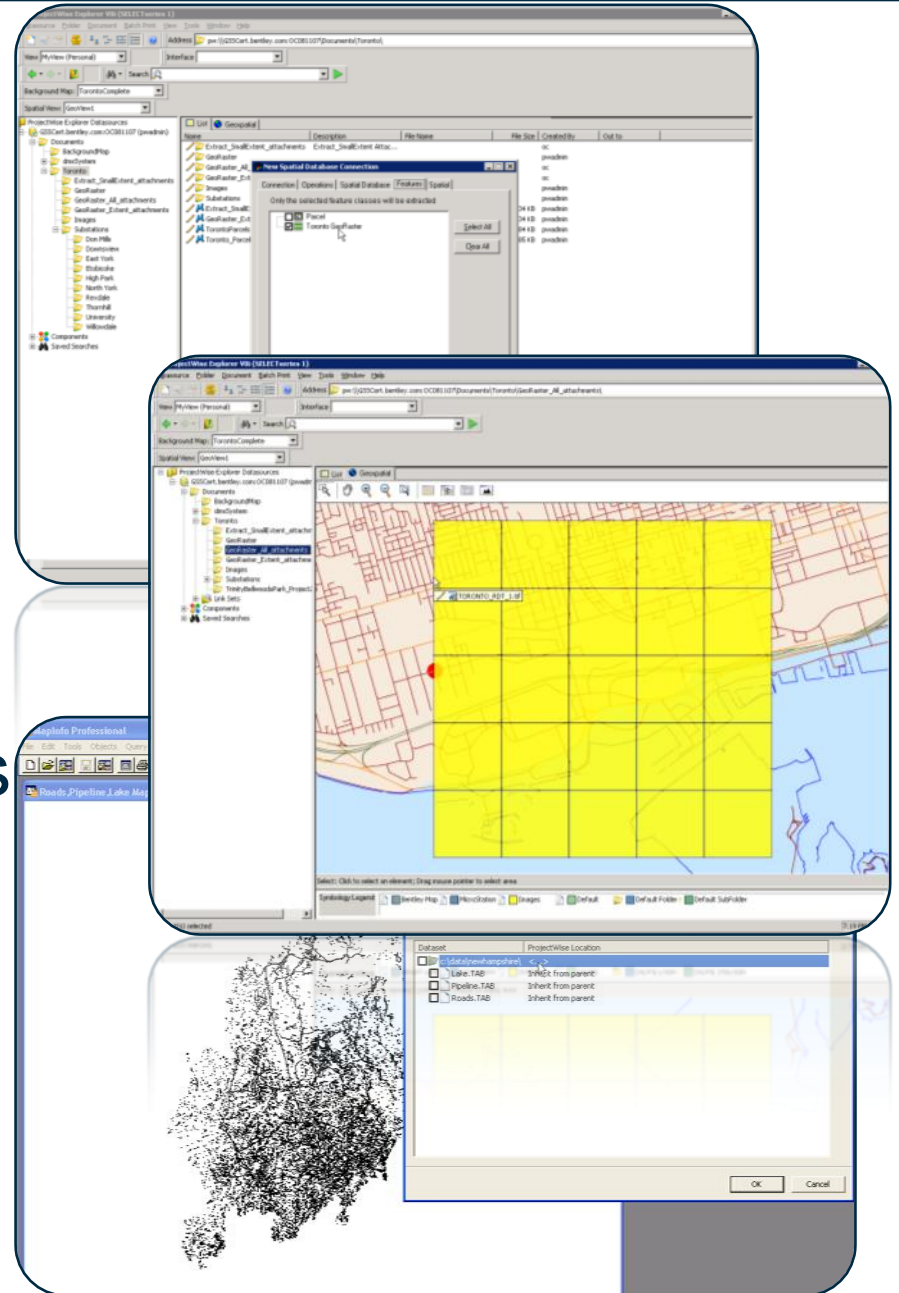
Top Features

- Advanced Background Maps (streamed CAD/raster maps, GIS layers, spatial database layers, WMS)
- Spatial Locations/Spatial Search
- GIS Types Support:
 - ESRI Personal Geodatabase Support
 - ESRI Shapefile
 - MapInfo TAB
 - MapInfo MIF/MID
 - MapInfo WOR



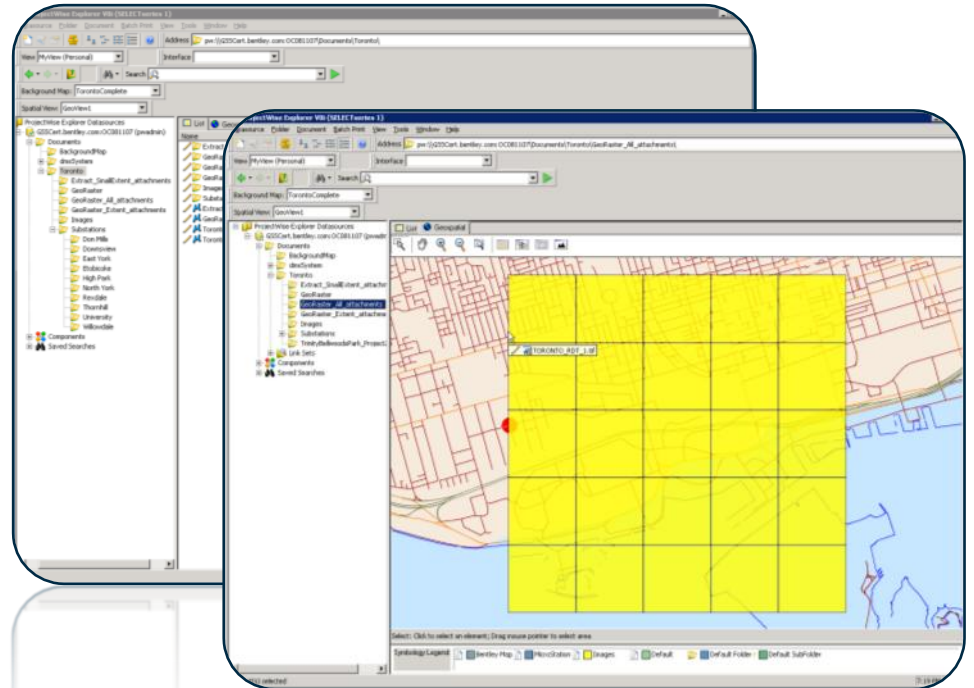
Top Features

- iDesktop for:
 - MapInfo
 - ESRI ArcMap
- DGN/XFM Feature Component Indexing
- Geocoding by attributes
- Linear Referencing
- Batch plotting



Demo: Bentley Geospatial Server-Oracle Spatial Georaster

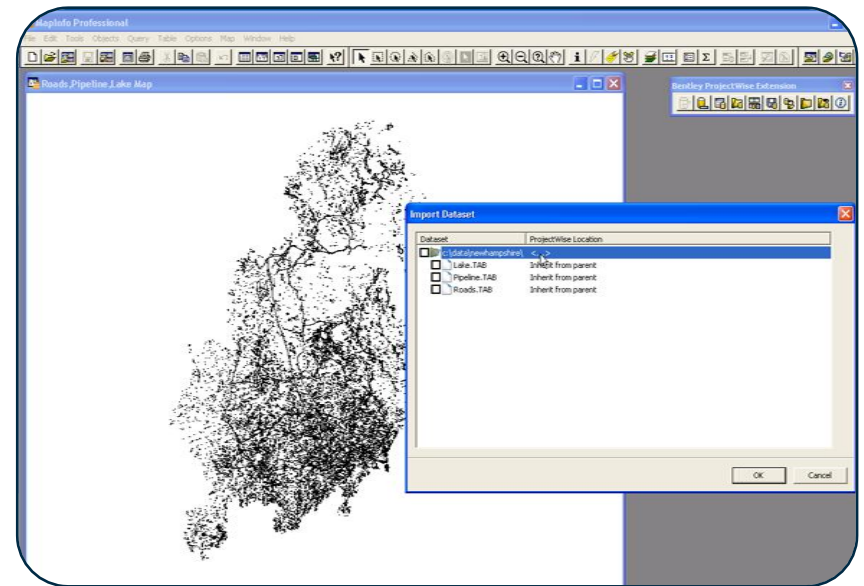
- Extract Oracle Spatial Geometry and GeoRaster
- Edit in Bentley Map
- Add Design Links (ProjectWise and URL)
- Post to Oracle Spatial



Demonstration

Demo: Bentley Geospatial Server-iDesktop for MapInfo

- Load MapInfo TAB file in Geospatial Server
- Open MapInfo Tab from Geospatial Server



Demonstration

Value proposition

Manage

Edit

Index

Plot

Geospatial information

Find

Archive

Organize

Questions?