

CAD & GIS INTEGRATION

ACEC-KY/FHWA/KYTC Partnering Conference 2012

Jeremy Gould and Henry Wells

CAD & GIS Integration Topics

- Tools and Methods for:
 - Importing MicroStation DGN files into ArcMap
 - <http://transportation.ky.gov/Highway-Design/Pages/DGN-to-ARC-GIS-Conversion-Instructions.aspx>
 - Importing GIS Raster Imagery into MicroStation
 - <http://transportation.ky.gov/Highway-Design/Software%20Documentation/KyRaster.pdf>
 - Importing GIS Vector data into MicroStation

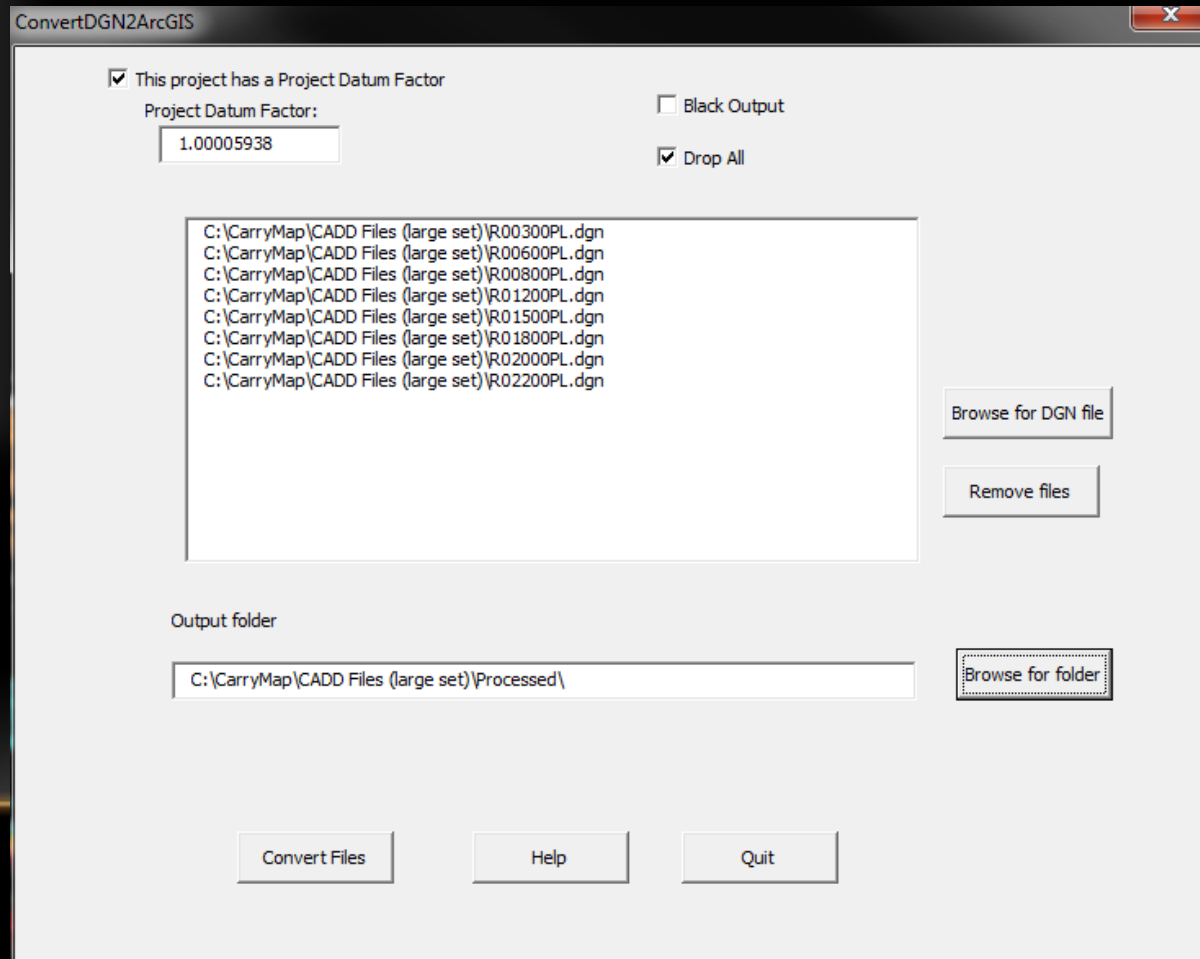
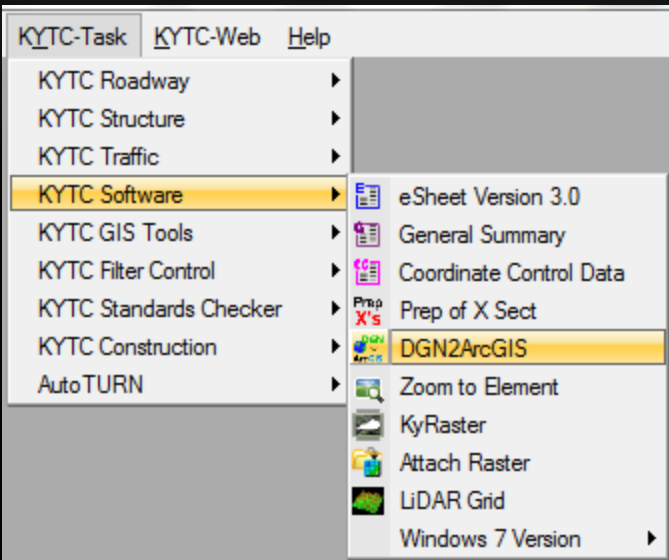
TOPIC:

Importing MicroStation DGN files into ArcMap

- Issues/difficulties discovered:
 - Deleted elements in DGN file (non-compressed)
 - Custom Line Styles
 - Curves, Arcs, B-splines
 - Coordinate Systems/Project Datum Factor (PDF)
- What is needed to effectively bring in the MicroStation DGN files?
 - DGN2ArcGIS tool (custom MicroStation program provided by KYTC via KYTC CADD Standards Workspace)
 - Project Coordinate System/Project Datum Factor (PDF)
 - Working with CAD Data toolbox.tbx (ArcGIS Toolbox provided by KYTC via KYTC CADD Standards Workspace)

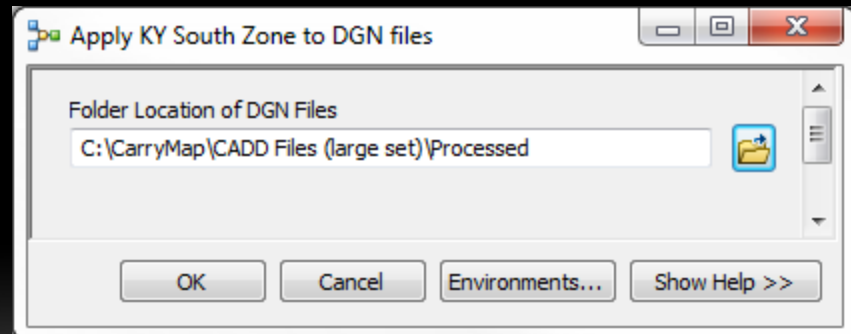
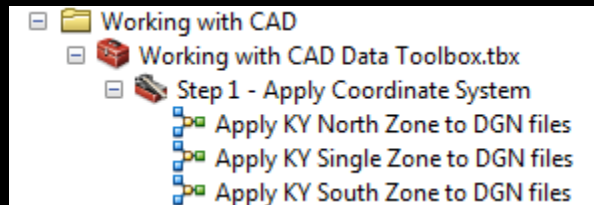


Importing MicroStation DGN files into ArcMap



Importing MicroStation DGN files into ArcMap

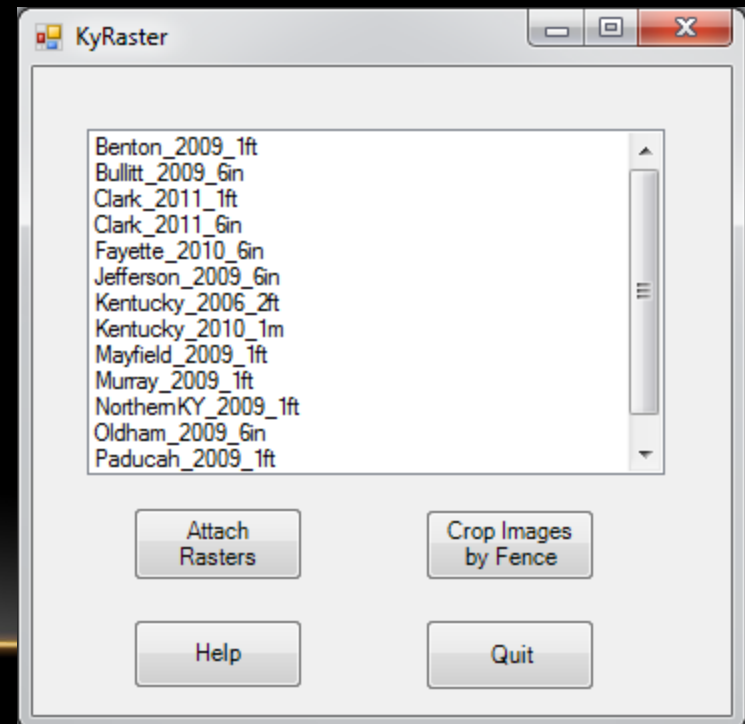
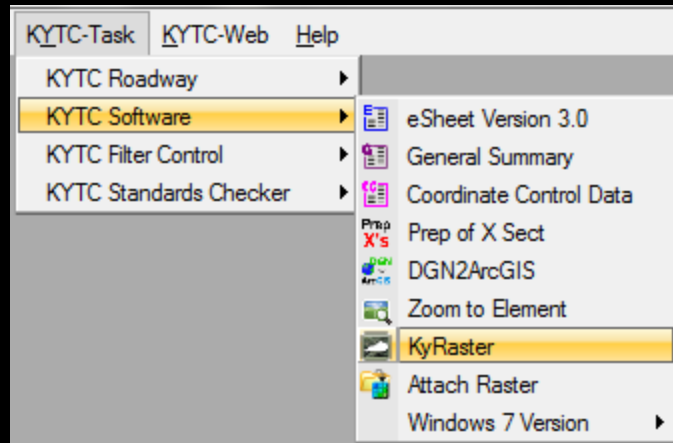
- KYTC ArcGIS users:
S:\Models\Working with CAD\Working with CAD Data Toolbox.tbx
- CONSULTANT ArcGIS users:
C:\KYTC_CADD_Standards\KYTC_Resource\Data\Working with CAD Data Toolbox.tbx



TOPIC:

Importing GIS Raster Data into MicroStation

- Load raster data on the fly as a .XWMS file (WMS = Web Mapping Service)
- Download the raster data to your local machine

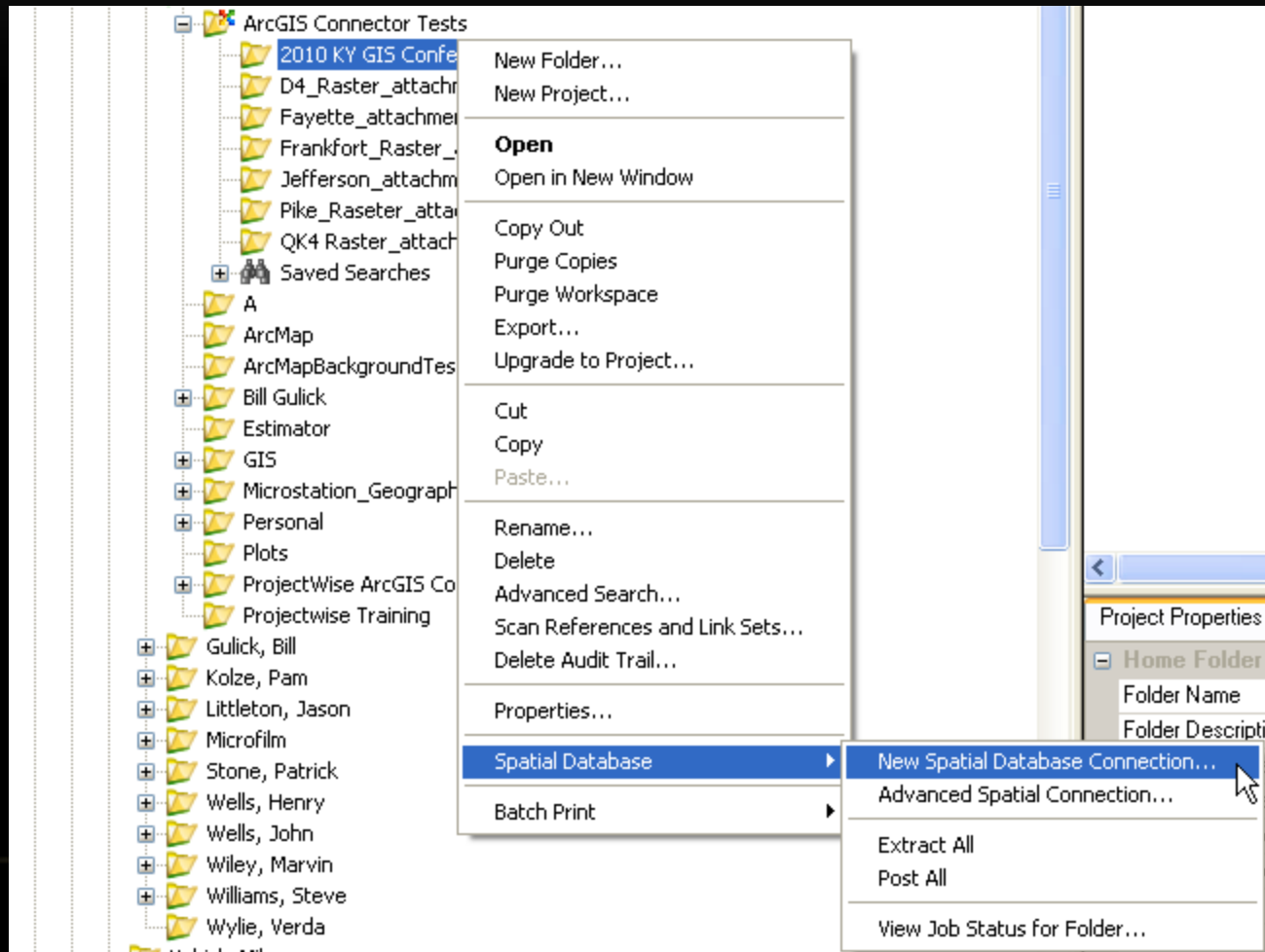


TOPIC:

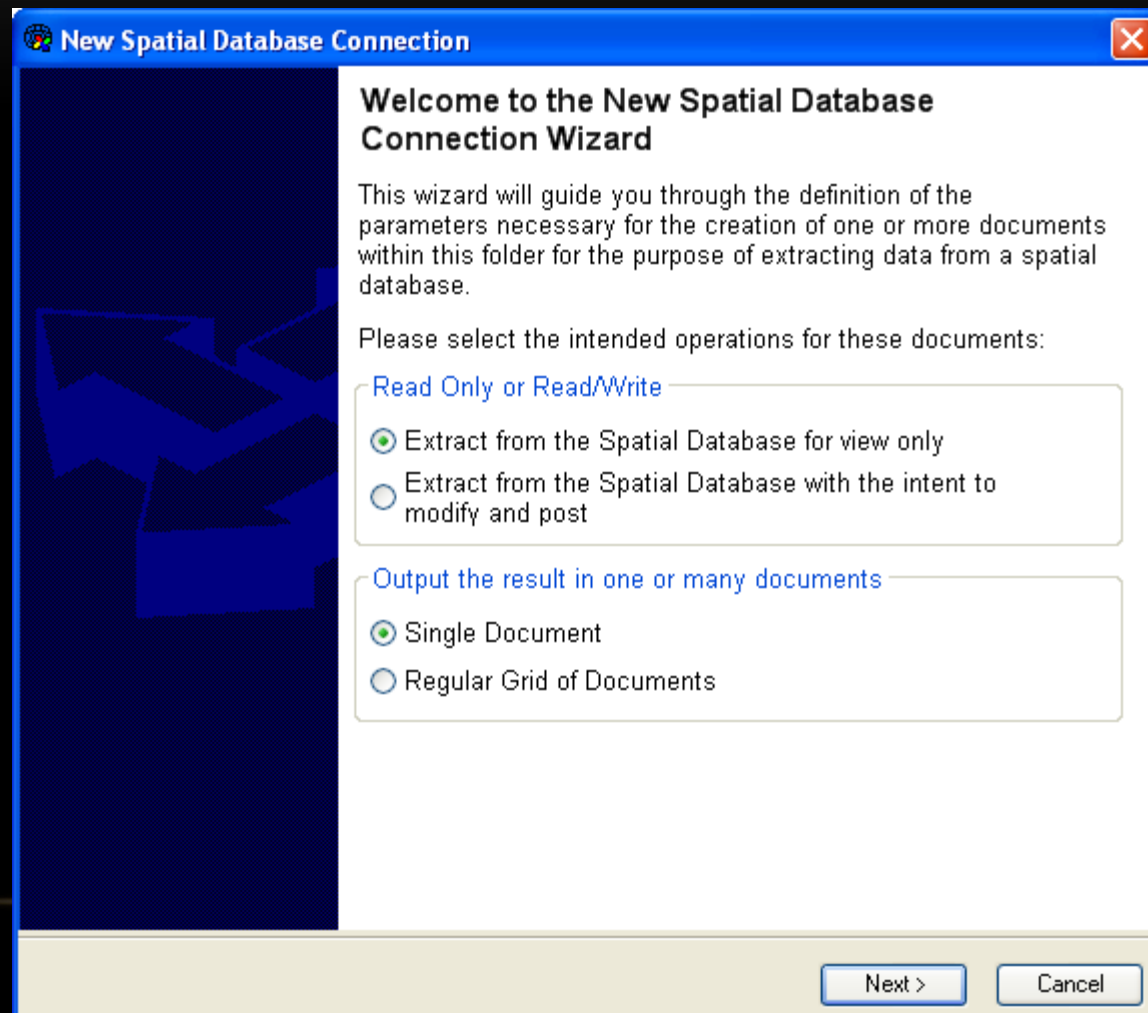
Importing GIS Vector Data into MicroStation

- ProjectWise ArcGIS Connector
- Shapefile reference
- Shapefile import
- Future:
 - Possible load data via ArcGIS Server Feature Service (would require Bentley Map)

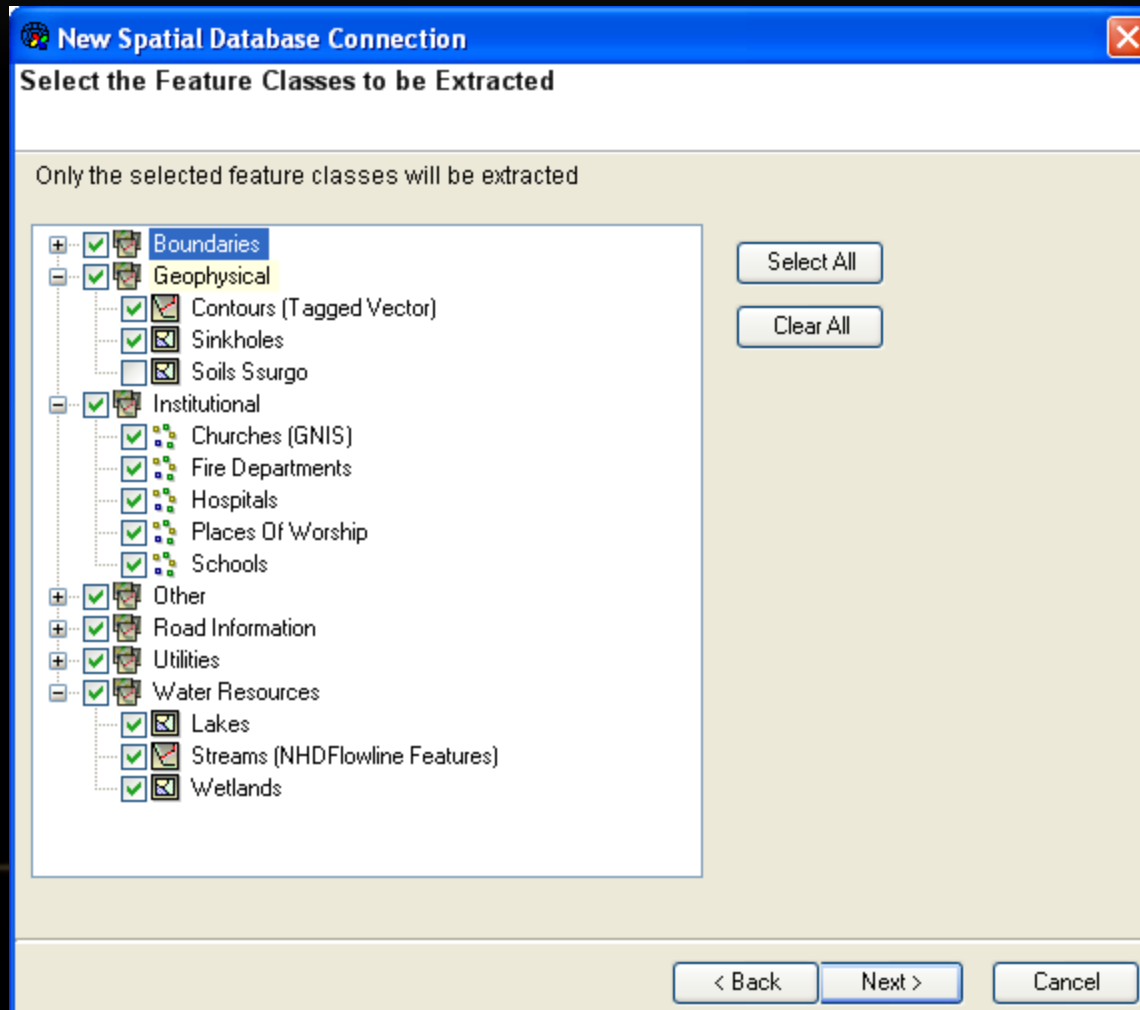
Importing GIS Vector Data into MicroStation via the ProjectWise ArcGIS Connector



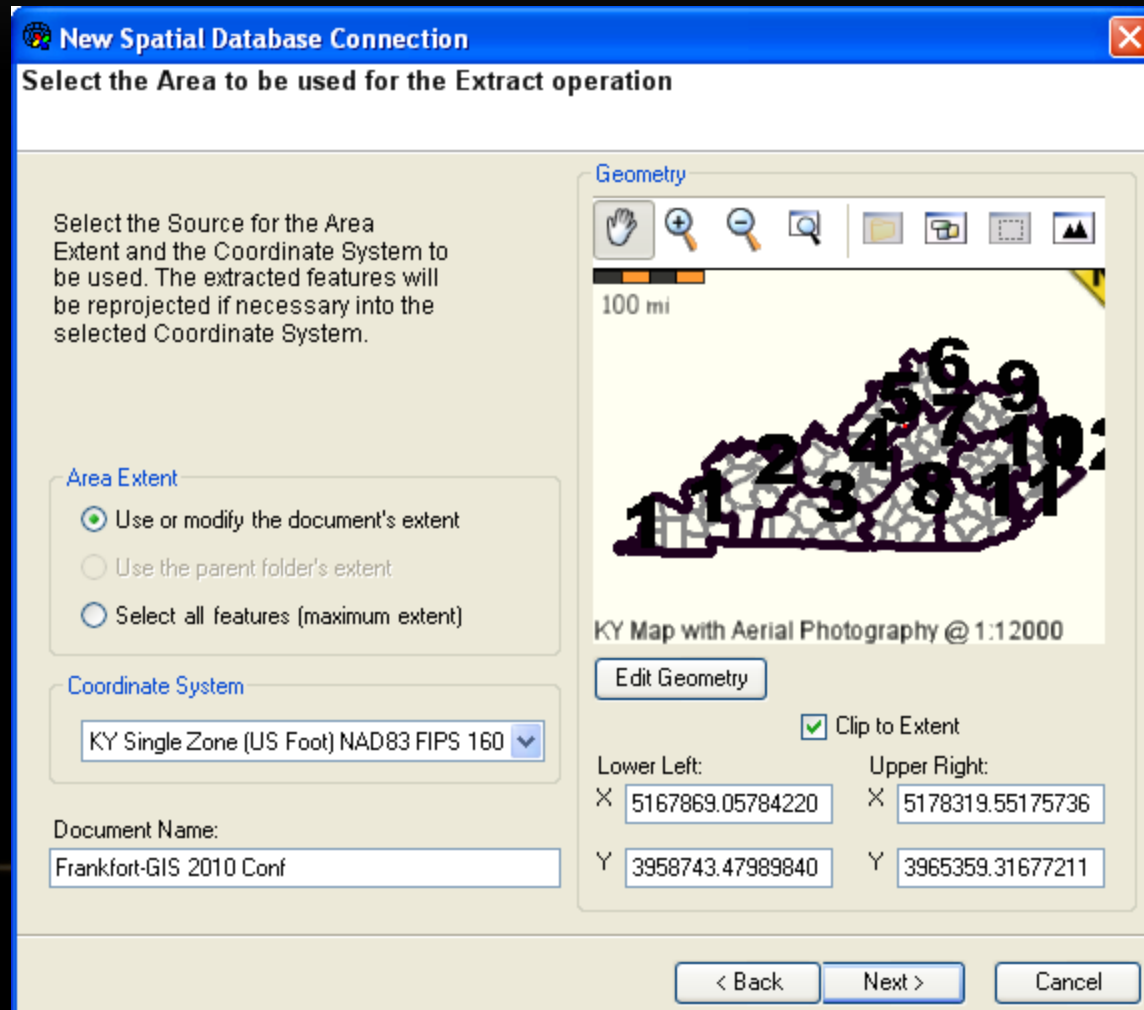
Importing GIS Vector Data into MicroStation via the ProjectWise ArcGIS Connector



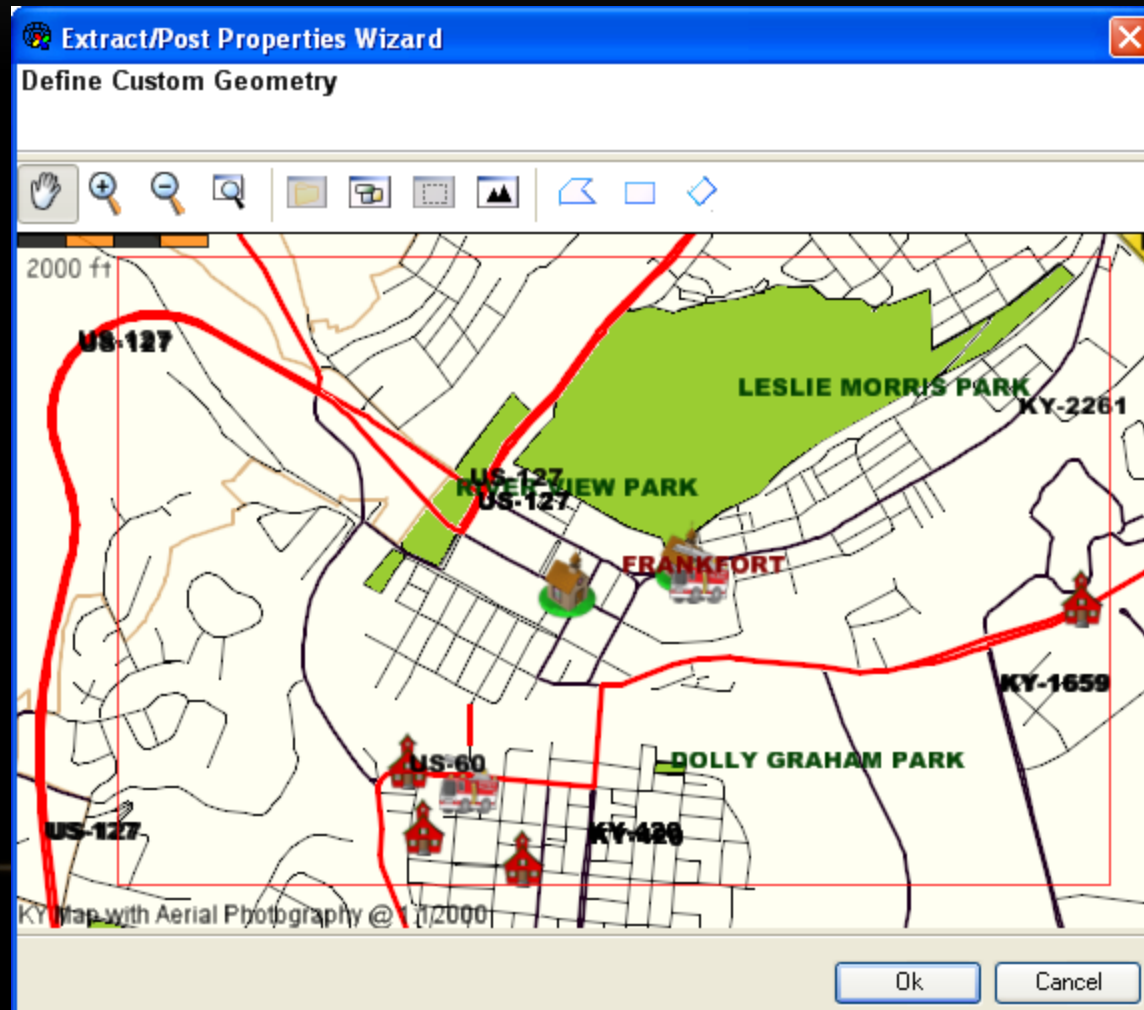
Importing GIS Vector Data into MicroStation via the ProjectWise ArcGIS Connector



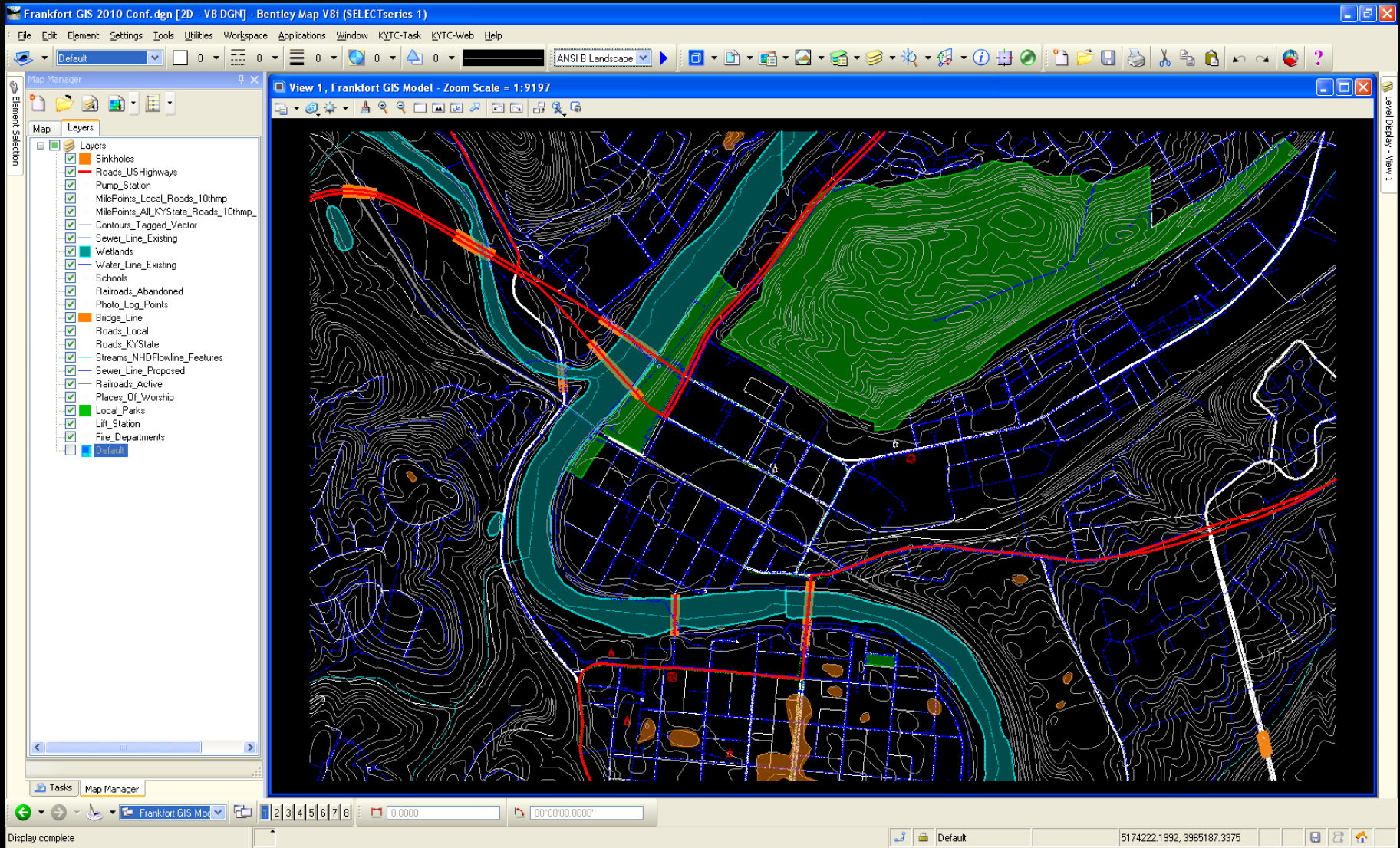
TOPIC: Importing GIS Vector Data into MicroStation



TOPIC: Importing GIS Vector Data into MicroStation



Importing GIS Vector Data into MicroStation via the ProjectWise ArcGIS Connector



Importing GIS Vector Data into MicroStation via the ProjectWise ArcGIS Connector

The screenshot displays the Bentley Map V8i interface with the following components:

- Map Manager:** A tree view on the left showing layers such as Sinkholes, Roads_USHighways, Pump_Station, MilePoints_Local_Roads_10thmp, MilePoints_All_KYState_Roads_10thmp, Contours_Tagged_Vector, Sewer_Line_Existing, Wetlands, Water_Line_Existing, Schools, Railroads_Abandoned, Photo_Log_Points, Bridge_Line, Roads_Local, Roads_KYState, Streams_NHDFlowline_Features, Sewer_Line_Proposed, Railroads_Active, Places_Dt_Worship, Local_Parks, Lift_Station, Fire_Departments, and Default.
- View 1, Frankfort GIS Model - Zoom Scale = 1:2282:** The main map window showing a topographic map of Frankfort, KY, with various GIS layers overlaid. The text "FRANKFORT PARK" is visible on the map.
- Browser Window:** A web browser window displaying a roadview image from http://roadview-images.kytc.ky.gov/Mandli_Data/11-02-2009/037-KY-420N/037-K.... The image shows a street view of a road intersection.
- Analyze Result Window:** A table displaying the results of an analysis for a specific feature.

Field	Value
OFFSET	0.027
ROUTE_NEID	2677
LANE	1
DIR	N
COLL_DATE	11-02-2009
FRAME	949
SUBSTITUTE_ROUTE	037-KY-0420 -000
SESSION_NAME	037-KY-420N
FRONT_URL	http://roadview-images.kytc.ky.gov/Mandli_Data/11-02-2009/037-KY-420N/037-KY-420N\FRONT\Dir_009_VF_00949.jpg
RIGHT_URL	http://roadview-images.kytc.ky.gov/Mandli_Data/11-02-2009/037-KY-420N/037-KY-420N\RIGHT\Dir_009_VF_00949.jpg
LEFT_URL	http://roadview-images.kytc.ky.gov/Mandli_Data/11-02-2009/037-KY-420N/037-KY-420N\LEFT\Dir_009_VF_00949.jpg
ALTERNATE_ROUTE	
ALTERNATE_MP	
EXTRACT_DATE	634149913420000000
CNTYCODE	037
CNTYNAME	Franklin
RT_PREFIX	KY
RT_NBR	0420
RT_SFXX	
RT_SECTION	000
SEG_ID	8867
REC_ID_FWD	975081
REC_ID_RVS	975079

Importing GIS Vector Data into MicroStation via the ProjectWise ArcGIS Connector

The screenshot displays the Bentley Map V8i interface for a project named 'Frankfort-GIS 2010 Conf. dgn'. The main map area shows a satellite view of 'RIVER VIEW PARK' with various GIS layers overlaid, including roads, streams, and utility lines. A yellow line highlights a specific bridge feature. The Data Browser window is open, showing a table of bridge data.

OBJECTID	RT_NE_ID	RT_NE_UNIQ	BEGINNING_	MID_MP	ENDING_MP	DISTRICT	COUNTY_NAM	COUNTY	RT_PREFX	RT_NUMBER	RT_SUFFIX	RT_SECTION	RT_DESCR	GOV_LEVEL	EXTRACT_DA
181235	2748	037-US-0127 -010	8.809	8.882	8.955	5	Franklin	37	US	127		10	US HIGHWAY 1...	01	634215744000
180644	2735	037-US-0060K -0...	0	0.037	0.076	5	Franklin	37	US	60	X	0	BRIDGE ST	01	634215744000
180274	2695	037-KY-1211 -000	0.627	0.654	0.681	5	Franklin	37	KY	1211		0	TAYLOR AVE	01	634215744000
180265	2702	037-KY-1659 -010	3.662	3.685	3.708	5	Franklin	37	KY	1659		10	MARTIN LUTHE...	01	634215744000
181234	2748	037-US-0127 -010	8.406	8.447	8.488	5	Franklin	37	US	127		10	US HIGHWAY 1...	01	634215744000
180649	2736	037-US-0060 -000	8.408	8.475	8.542	5	Franklin	37	US	60		0	LOUISVILLE RD...	01	634215744000
180640	2747	037-US-0127 -000	8.741	8.814	8.887	5	Franklin	37	US	127		0	US HIGHWAY 1...	01	634215744000
180635	2747	037-US-0127 -000	8.185	8.197	8.229	5	Franklin	37	US	127		0	US HIGHWAY 1...	01	634215744000
180266	2701	037-KY-1659 -000	3.665	3.688	3.711	5	Franklin	37	KY	1659		0	GLENNS CREEK...	01	634215744000
181233	2748	037-US-0127 -010	8.167	8.199	8.231	5	Franklin	37	US	127		10	US HIGHWAY 1...	01	634215744000
180639	2747	037-US-0127 -000	8.404	8.445	8.486	5	Franklin	37	US	127		0	US HIGHWAY 1...	01	634215744000

Importing GIS Vector Data into MicroStation via the ProjectWise ArcGIS Connector

The screenshot displays the Bentley Map V8i interface with the following components:

- Map Manager:** Shows a list of layers including Sewer_Line_Existing, Wetlands, Water_Line_Existing, Schools, Railroads_Abandoned, Photo_Log_Points, Bridge_Line, Roads_Local, Roads_KYState, Streams_NHDFlowline_Features, Sewer_Line_Proposed, Railroads_Active, Places_Of_Worship, Local_Parks, Lift_Station, Fire_Departments, and Default.
- Interoperability Panel:**
 - Imports:** corpbndline1z
 - Exports:** Centerlines.shp
 - Unknown:** Bridge_Line, Contours_Tagged_Vector, Default, Fire_Departments, Lift_Station, Local_Parks, MilePoints_All_KYState_Roads_10thmp_HIS_Snapshot, MilePoints_Local_Roads_10thmp, Photo_Log_Points.
- General Properties:**
 - Name: corpbndline1z
 - Geometry Type: Line
 - Mapped Name: (empty)
 - Where Clause: (empty)
- Symbology Properties:**
 - Level: corpbndline1z
 - Color: ByLevel
 - Transparency: 0
 - Weight: ByLevel
 - Line Style: ByLevel
 - Priority: 0
 - Element Class: Primary
- Data Browser Table:**

ORD_	AGENCY_CON	CONTACT	UES	COMMENTS	ADDNAME	SHAPE_len	FID
FOSTER KRS81...	BTADD	LAURA JE		BTADD DID NO...	BTADD	7016.21286449	0
CRITTENDEN 0...	NKADD	JEFF BUR	MOVE...	NONE	NKADD	8567.09792937	1
CARROLLTON K...	NKADD	JEFF BUR		KRS FILING AT ...	NKADD	26.4055922262	2
WILLIAMSTOW...	NKADD	JEFF BUR		ANNEXATION A...	NKADD	5036.16334536	3
CARROLLTON K...	NKADD	JEFF BUR		KRS FILING AT ...	NKADD	2372.2890561	4
FALMOUTH KR...	NKADD	JEFF BUR		NONE	NKADD	6976.666618	5
CARROLLTON K...	NKADD	JEFF BUR		KRS FILING AT ...	NKADD	860.227749542	6
FALMOUTH KR...	NKADD	JEFF BUR		NONE	NKADD	5856.50313352	7
CARROLLTON K...	NKADD	JEFF BUR		KRS FILING AT ...	NKADD	1072.51120531	8
MAYSVILLE90C17	BTADD	LAURA JE			BTADD	7.51464500173	9
FALMOUTH KR...	NKADD	JEFF BUR		12/01/2002	SECRETARY OF...	NONE	SECRETARY OF...
FALMOUTH 170...	NKADD	JEFF BURT		12/01/2001	SECRETARY OF...	IHAD TO ROTA...	DOQ
WILLIAMSTOW...	NKADD	JEFF BURT		11/01/2002	SECRETARY OF...	NONE	SECRETARY OF...
WILLIAMSTOW...	NKADD	JEFF BURT		11/01/2002	SECRETARY OF...	NONE	SECRETARY OF...
- Map View:** Shows a map with a green polygon labeled 'LESLIE MORRIS PARK' and other features like 'VIEW PARK'.
- Status Bar:** Shows 'Row: 1 of 4805' and '0.0000'.

TOPIC:

Importing GIS Vector Data into MicroStation

- ProjectWise ArcGIS Connector
- Shapefile reference
- Shapefile import (Bentley Map)
- Future:
 - Possible load data via ArcGIS Server Feature Service (would require Bentley Map)

QUESTIONS???