



# Spatial Data Viewer (SDV) Version 1.1 Training

June, 2011  
Instructor – Cathy Cole, GISP



North Carolina Department of Transportation

Geographic Information Systems (GIS)

# Welcome & Introductions



- Greeting
- Incidentals
- Ground rules

# SDV Training Schedule



- Objectives
  - Provide Hands-on training for SDV
- Estimated Time
  - Approximately 4 hours
- Method of Instruction
  - Show & Tell
  - FAQ
- Materials
  - PowerPoint
  - SDV Tool

# Training Expectations



- SDV Training materials provided by GIS Unit
- SDV “hands-on” Training workshop
- Workshop demonstrates the SDV tool
- SDV Spokesperson
- Enhance ability to guide & support others
- Network





# SDV Training Demonstration



North Carolina Department of Transportation

Geographic Information Systems (GIS)

## SDV Training Outline

### Introduction to SDV

- Display Window
- Contents Window
- Ribbons
- ArcExplorer button
- Map Groups
- Tools
- SDV Resource Center
- Scenario

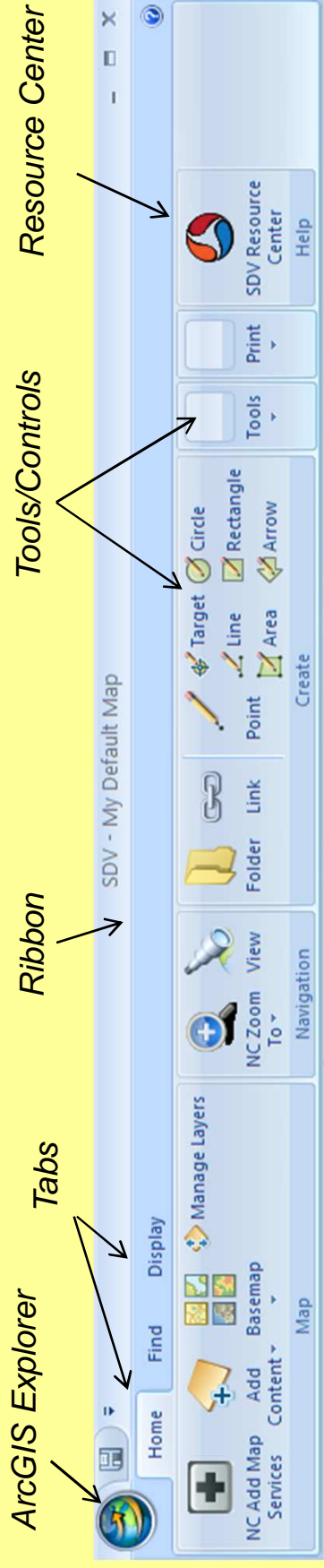
# SDV Training



The screenshot shows the SDV Spatial Data Viewer interface. The main map area displays a topographic map of North Carolina with a yellow dashed outline. The interface includes a ribbon at the top with various tool groups, a contents window on the left, and a display window on the right. Labels with arrows point to the following components:

- SDV Components**: Points to the top ribbon area.
- ArcGIS Explorer**: Points to the Home button in the ribbon.
- Preloaded Service Layers**: Points to the 'Basemap (NCDOT Community Map)' layer in the Contents window.
- NCDOT Community Map Basemap**: Points to the 'Basemap (NCDOT Community Map)' layer in the Contents window.
- Contents Window**: Points to the entire Contents window area.
- Map Basemap**: Points to the 'Basemap (NCDOT Community Map)' layer in the Contents window.
- Display Window**: Points to the main map area.
- ESRI help**: Points to the Help button in the ribbon.
- Resource Center**: Points to the SDV Resource Center button in the ribbon.
- Tools/Controls**: Points to the Tools button in the ribbon.
- Ribbon**: Points to the top ribbon area.
- Navigation**: Points to the Navigation group in the ribbon.
- Map**: Points to the Map button in the ribbon.
- Basemap**: Points to the Basemap button in the ribbon.
- Find**: Points to the Find button in the ribbon.
- Home**: Points to the Home button in the ribbon.
- Manage Layers**: Points to the Manage Layers button in the ribbon.
- Display**: Points to the Display button in the ribbon.
- Basemap**: Points to the Basemap button in the ribbon.
- Basemap**: Points to the Basemap button in the ribbon.
- Basemap**: Points to the Basemap button in the ribbon.

## SDV Ribbon



- To minimize The Ribbon right-clicking on it and select "Minimize the Ribbon," or select the "Minimize the Ribbon" option in the dropdown list to the right of the

[ArcGIS Explorer button](#) and the save icon



## SDV Ribbon

Other resources of interest along the Ribbon:

*ArcGIS Explorer  
online help*



*Quick Access Toolbar (only a Save icon is visible by default)*

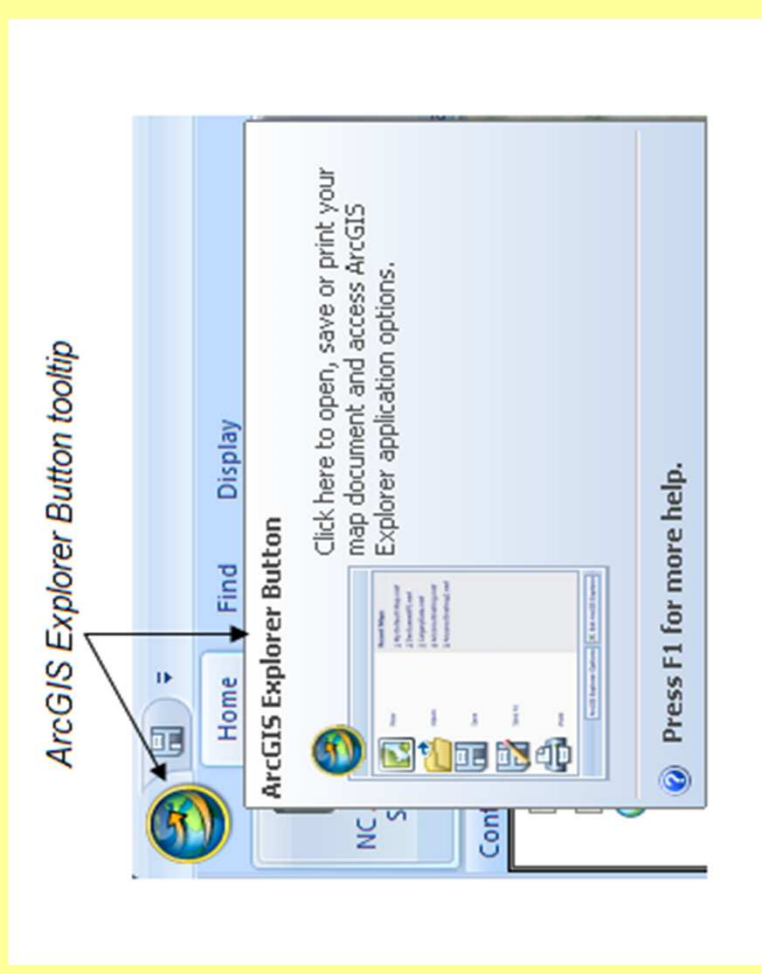
*ArcGIS Explorer button*

The Online Help button brings up ArcGIS Explorer online help.



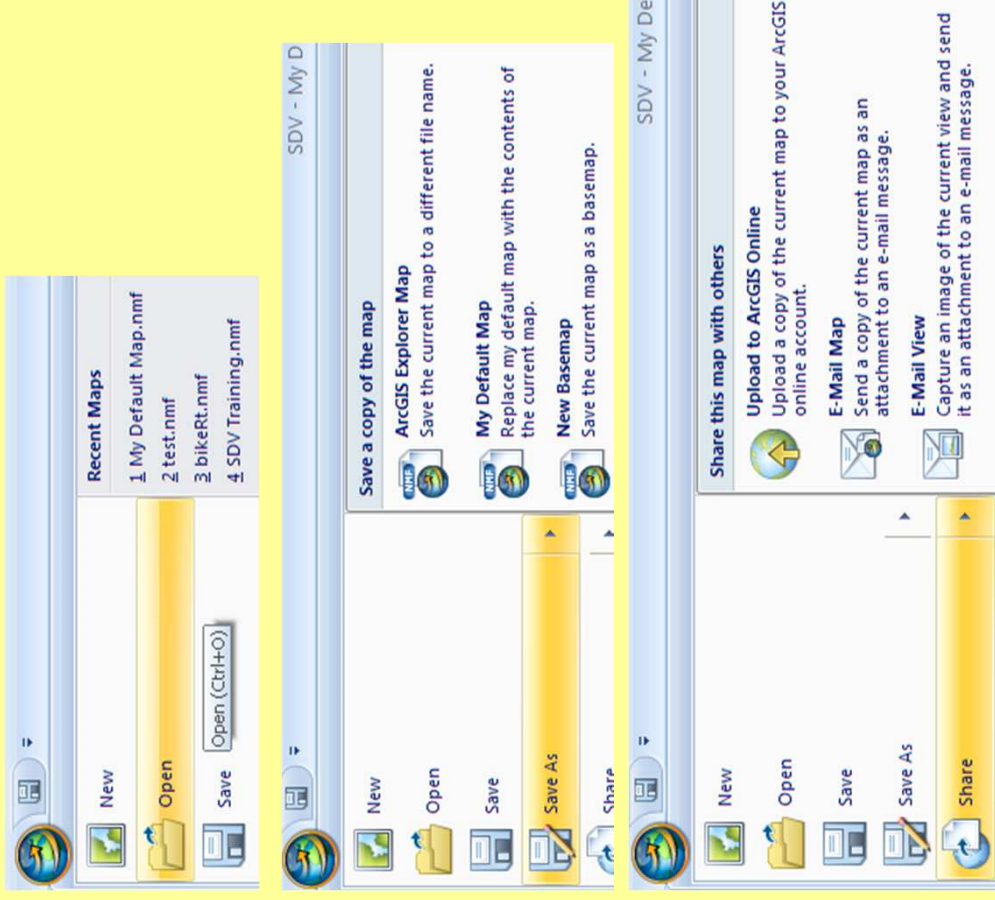
## ArcGIS Explorer Icon

- New
- Open
- Save
- Save As
- ArcExplorer Map
- My Default Map
- New Basemap
- Share
- Upload ArcGIS Online
- E-mail map
- E-mail view
- Print



## ArcGIS Explorer Icon

- Open
- Save As
- Share

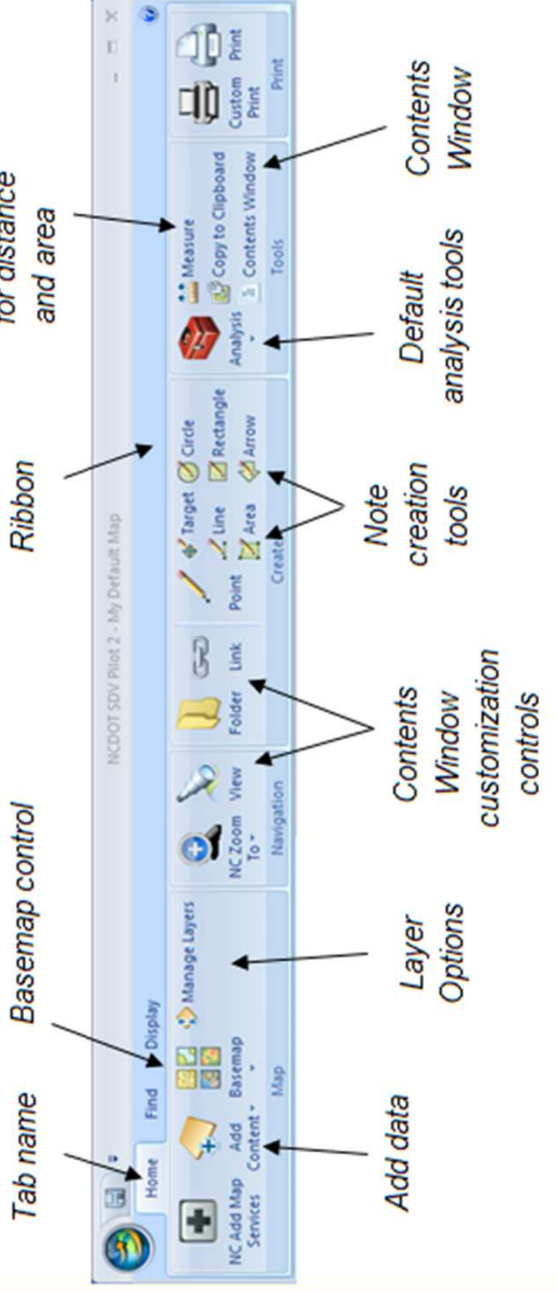


## SDV Tabs

### Home Tab

There are 3 initial tabs on the Ribbon:

**Home** tab, which carries tools and functions common to all datasets:



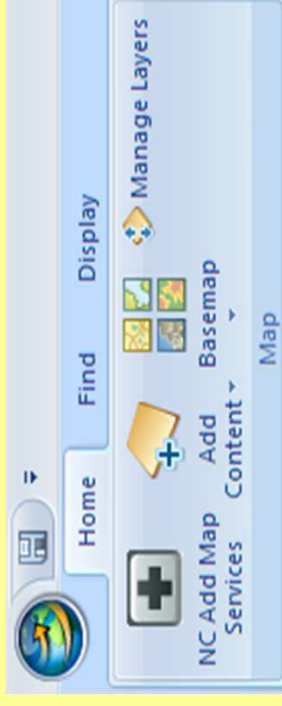


## SDV Tabs

### Home Tab

#### Map Group

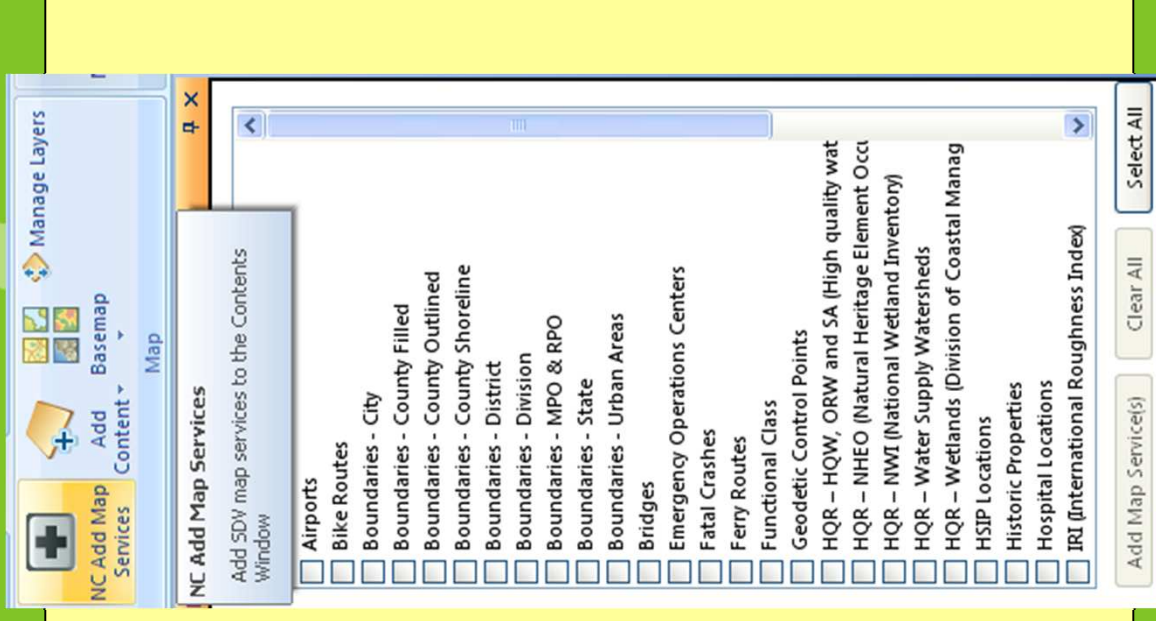
- NC Add Map Services
  - Add SDV map services to the Contents Window
- Add Content
  - ArcGIS online, layers, Map Content files, KML files, GIS Services, shapefiles, raster data, Geodatabase, text files, GPS data, Image overlays
- Basemap
  - NCDOT, ESRI's World Topo, Bing, My Basemap
- Manage Layers
  - Change layer position, remove, clear cache



## NC Add Map Services

- Over 40 map services
- New ones under development
- Guided by Business Unit
- SDV Resource Center announcements
- Send suggestions to:

[SDVHelp@ncdot.gov](mailto:SDVHelp@ncdot.gov)

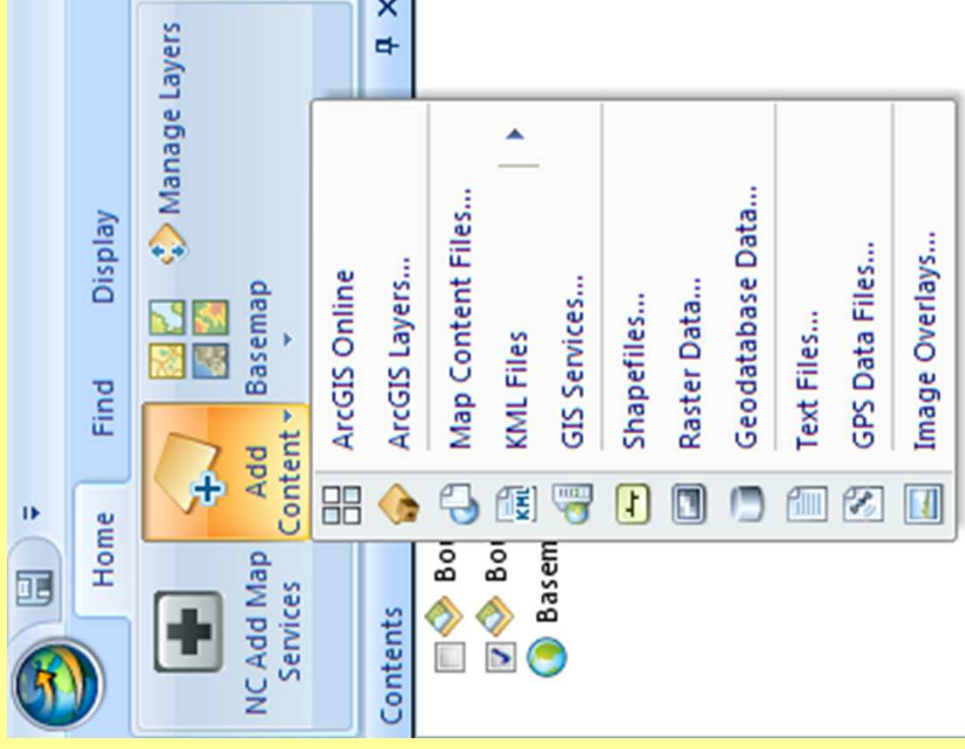


# SDV Training



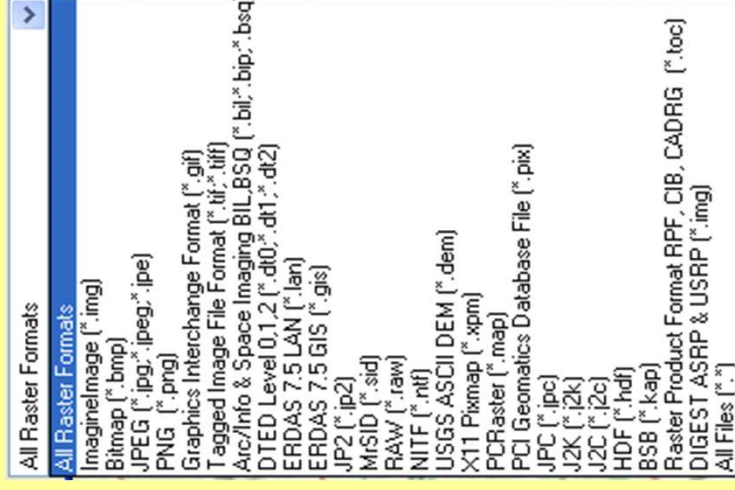
## Add Content

- ArcGIS layers
- KML Files
- Shapefiles
- Geodatabase
- Rasters
- Text
- GPS data
- Overlays



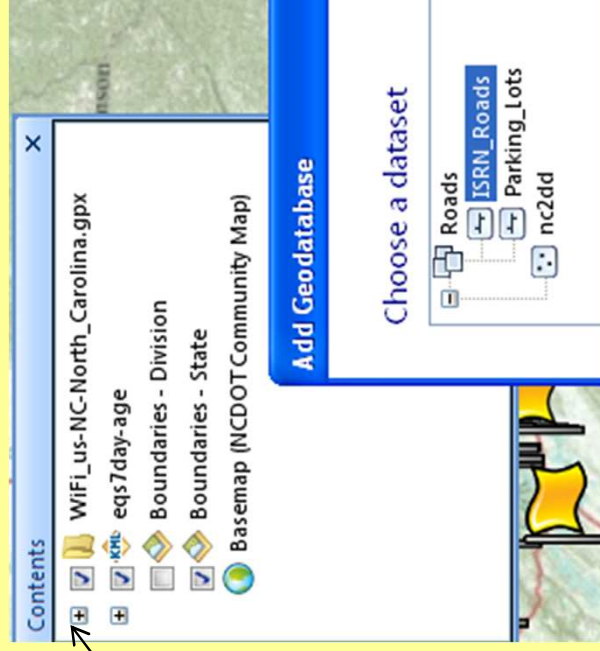
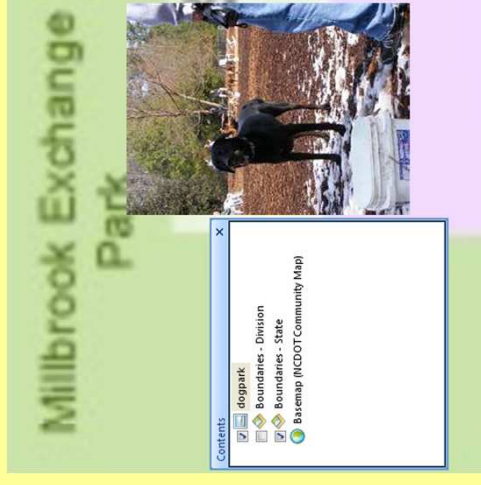
## Add Content

- ArcGIS layers
- KML Files
- Shapefiles
- Geodatabase
- Rasters
- Text
- GPS data
- Overlays



## Add Content

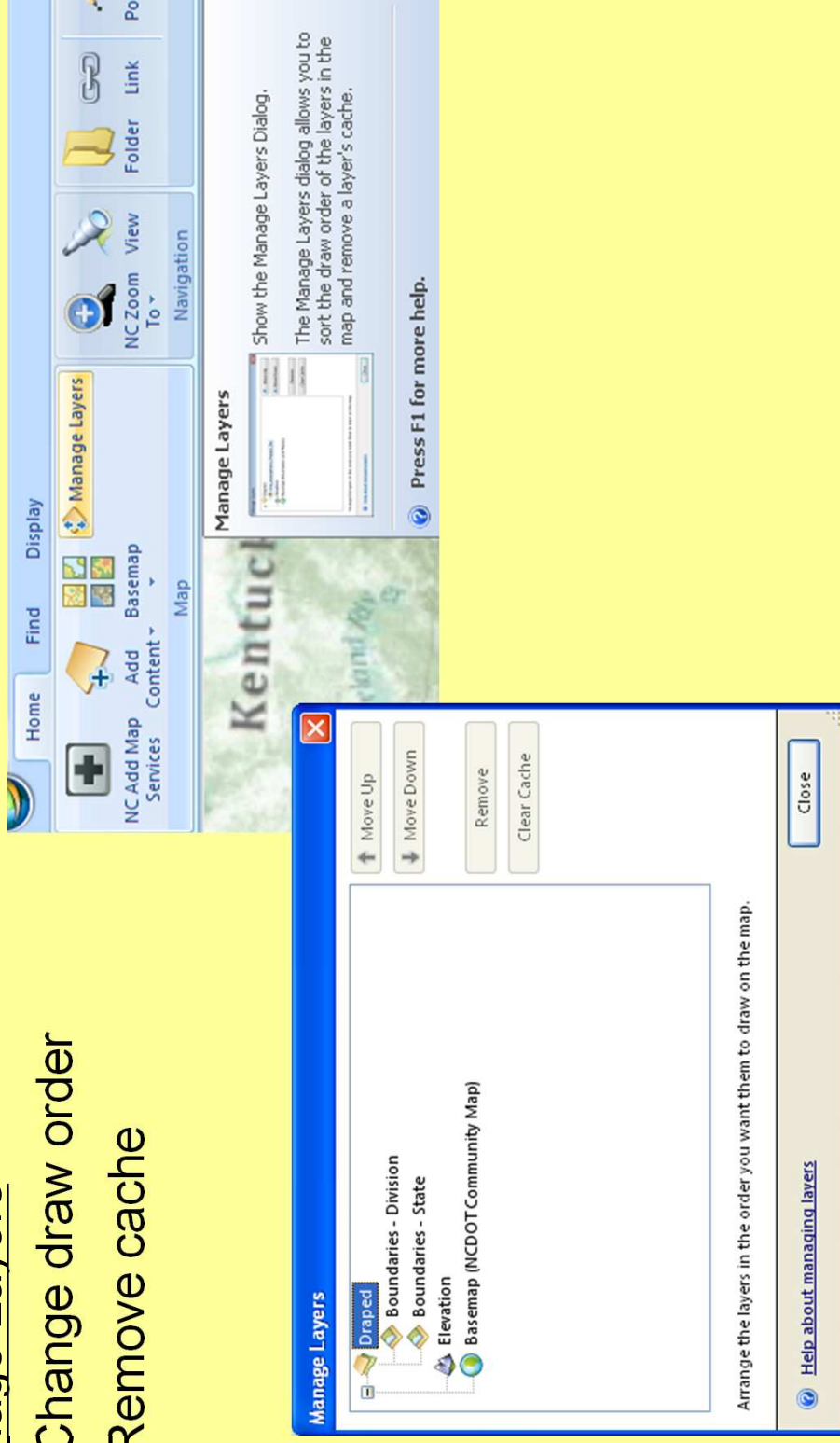
- ArcGIS layers
- KML Files (<http://earthquake.usgs.gov/earthquakes/shakemap/>)
- Shapefiles
- Geodatabase
- Rasters
- Text
- GPS data
- Overlays





## Manage Layers

- Change draw order
- Remove cache



The screenshot displays the SDV software interface. In the foreground, the 'Manage Layers' dialog box is open, showing a list of layers: Draped, Boundaries - Division, Boundaries - State, Elevation, and Basemap (NCDOT Community Map). The dialog includes buttons for 'Move Up', 'Move Down', 'Remove', and 'Clear Cache'. Below the list, it states: 'Arrange the layers in the order you want them to draw on the map.' and a 'Close' button. At the bottom left of the dialog is a link: 'Help about managing layers'.

In the background, the 'Manage Layers' panel is visible, showing a map of Kentucky. The panel includes a 'Show the Manage Layers Dialog.' button and a text box: 'The Manage Layers dialog allows you to sort the draw order of the layers in the map and remove a layer's cache.' Below this is a 'Press F1 for more help.' button.



# SDV Resource Center

<http://gisi01.dot.nc.net/SDVResourceCenter/home.aspx>



SDV Resource Center



SDV Help

- Hover over tool for description



## SDV Resource Center

### Map Services

and

### Data Layers

- Map Service Layers
  - Shapefiles
  - Geodatabase layers
  - ArcGIS layers
- ect..



#### Map / GIS Service

Layer type served out to users via ArcGIS Server, based on potentially several different layers containing specific feature symbology, labelling, and scaled views that cannot be changed by the user.



Providing access to North Carolina transportation-related geospatial information

Home
Services and Data
Help
Support
Contact Us

### Map Services

The following is a list of map services available in SDV.  
 \*\*Click on link to view data layer metadata.

Map Service	Description	Data Layers**
AADT Linear Segments	Statewide AADT Volume Groups segments	ROAD_AADT_EST_ARC
AADT Count Stations	Statewide average daily traffic count stations	ROAD_AADT_CNT_STATION_POINT
Airports	Statewide airport locations	AIRPORT_POINT
Bike Routes	Statewide bicycle routes and Local suitability/routes	ROAD_BICYCLE_ROUTE_ARC
Boundaries - City	Statewide municipal boundaries	BOUNDARY_MUNICIPAL_POLYGON
Boundaries - County Filled	Statewide county polygon boundaries	BOUNDARY_COUNTY_POLYGON
Boundaries - County Outlined	Statewide county line boundaries	BOUNDARY_COUNTY_ARC
Boundaries - County Shoreline	Statewide county polygon boundaries, with shoreline	BOUNDARY_COUNTY_SHRLN_POLYGON
Boundaries - District	Statewide NCDOT District boundaries	BOUNDARY_DOT_DISTRICT_POLYGON
Boundaries - Division	Statewide NCDOT Division boundaries	BOUNDARY_DOT_DIVISION_POLYGON

Services and Data

- Map Services
- Data Layers
- Tool Data
- Basemaps





# SDV Resource Center

<http://gisi01.dot.nc.net/SDVResourceCenter/home.aspx>



The screenshot shows a web browser window displaying the SDV Resource Center website. The browser's address bar shows the URL: <http://gisi01.dot.nc.net/SDVResourceCenter/Training.aspx>. The website header includes the NCDOT logo and the text "NCDOT INTRANET NORTH CAROLINA DEPARTMENT OF TRANSPORTATION". Below the header is a navigation menu with links for Home, Services and Data, Help, Support, and Contact Us. The main content area features a "Training" section with the following items:

- Support
- System Requirements
- FAQs
- Known Issues
- Training**

Under the "Training" section, there is a sub-section titled "Obtain training materials used during the SDV training." which includes a link for "SDV Training Power Point Presentation". The footer of the website contains copyright information: "© Copyright NCDOT | NCDOT Home | NC.gov | Accessibility | Privacy Statement".



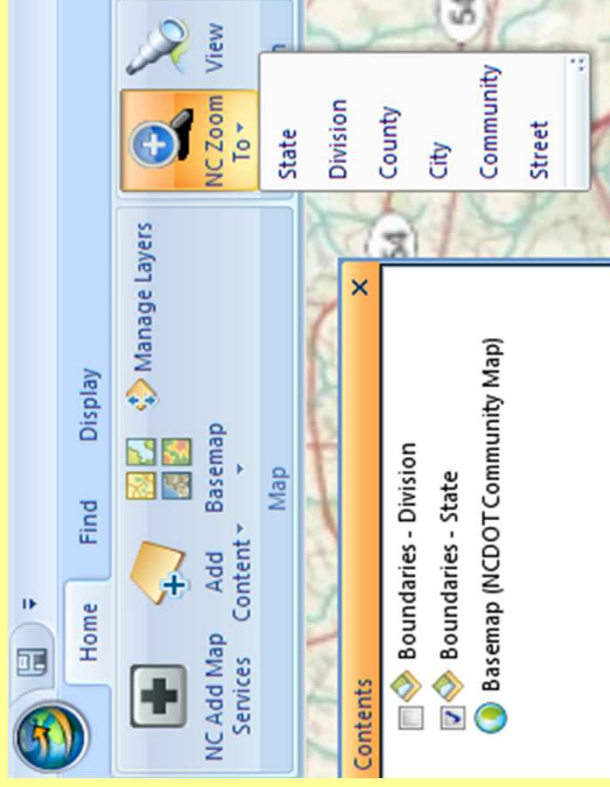
North Carolina Department of Transportation

Geographic Information Systems (GIS)

## Home Tab

### Navigation Group

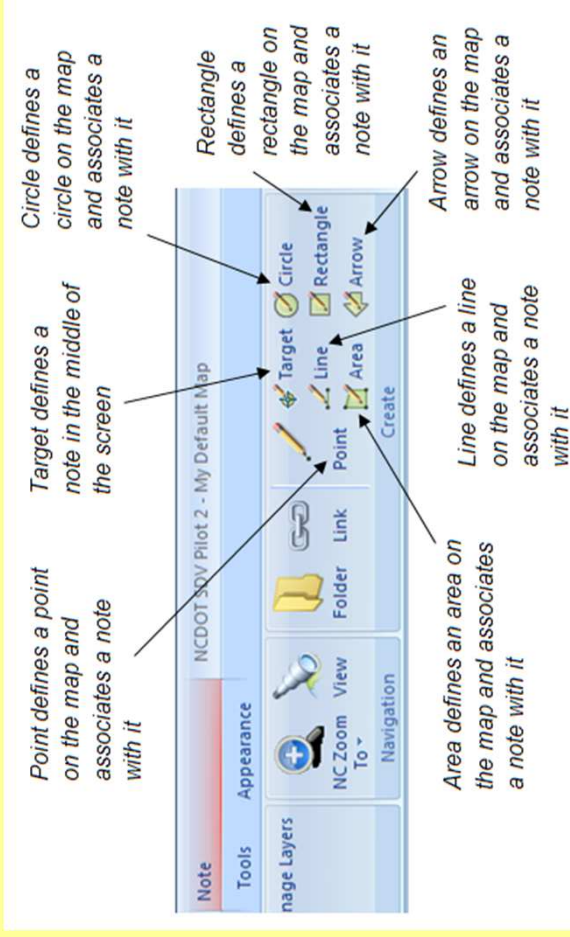
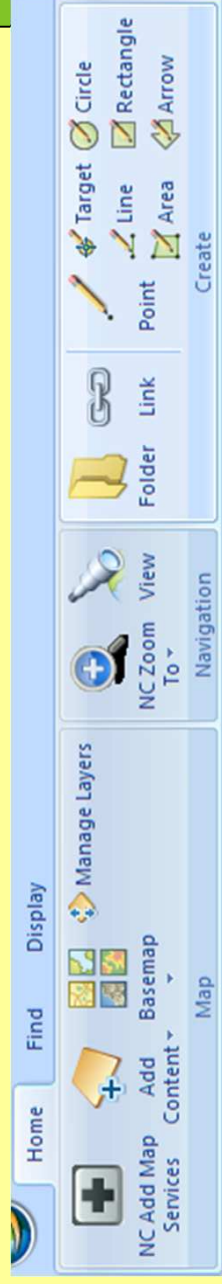
- NC Zoom To
  - State, Division, County, City, Community, Street
- View
  - Create a view of map to return to



## Home Tab

### Create Group

- Folder
- Link
- Point
- Target
- Line
- Circle
- Rectangle
- Area



SDV Resource Center

<http://gisi01.dot.nc.net/SDVResourceCenter/Notes.aspx>

## Home Tab

### Tools Group

- Analysis
- Measure
- Copy to Clipboard
- Contents Window



## SDV Resource

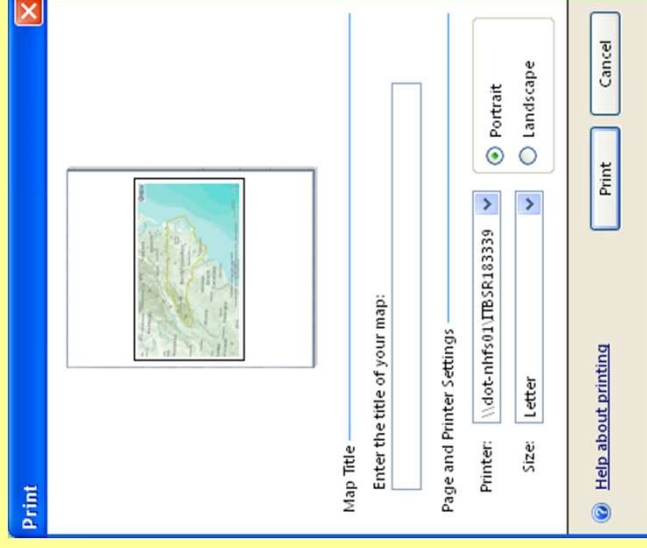
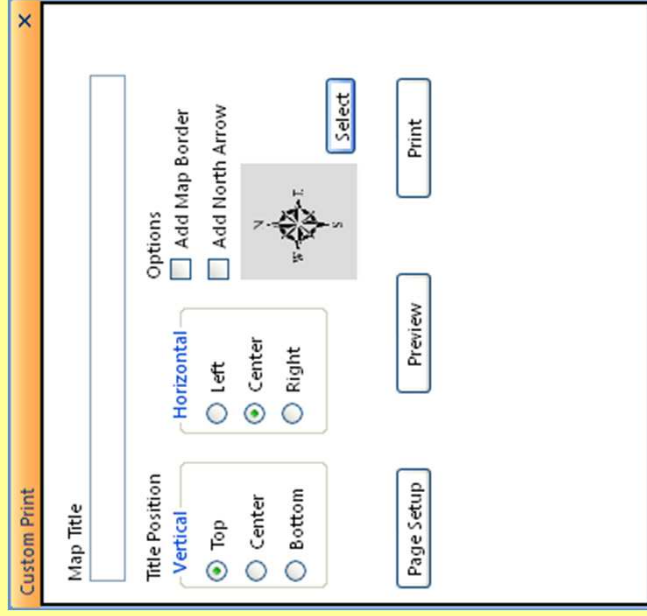
<http://gisi01.dot.nc.net/SDVResourceCenter/MeasureToolHighlights.aspx>



## Home Tab

### Print Group

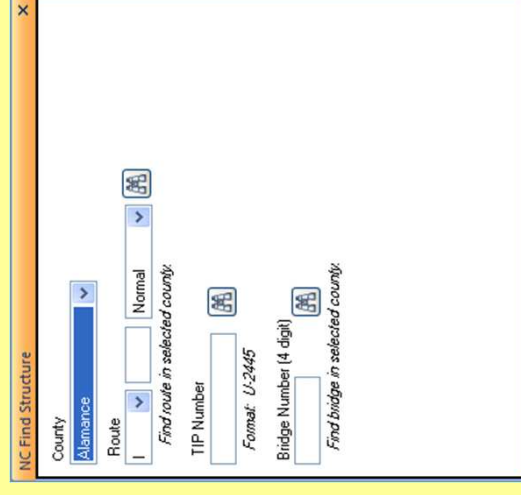
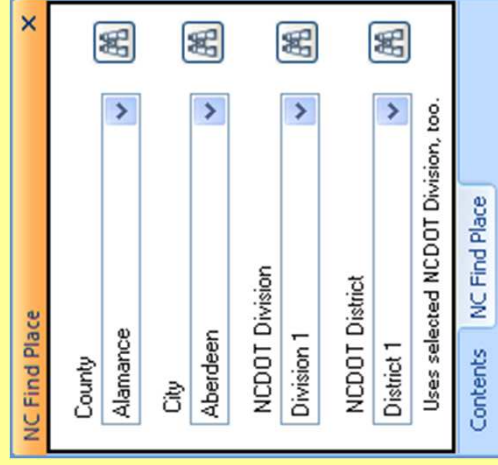
- Custom Print - Map title, border, North Arrow
- Print - Map title, printer, size, orientation



## Find Tab

### Find Group

- NC Find Place
  - County, City, NCDOT Division, NCDOT District
- NC Find Structure
  - County, Route, TIP Number, Bridge Number

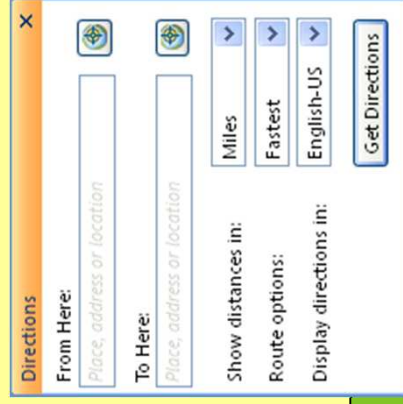
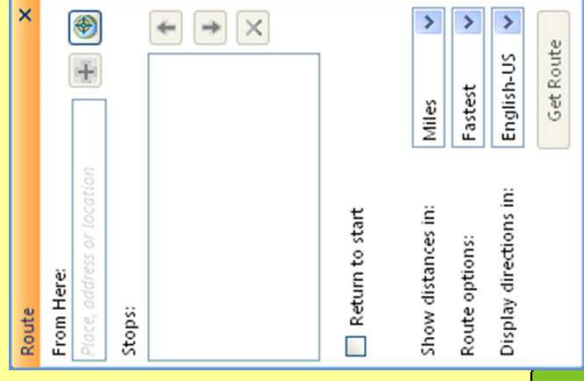
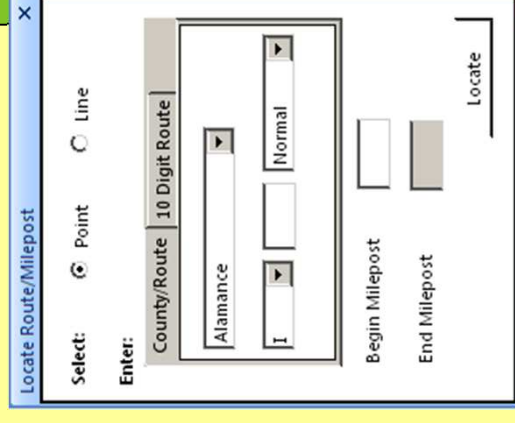


## Find Tab

### Find Group - continued

#### Find

- NC Identify Route/Milepost
  - provides a mechanism to identify a route and its milepost information at a specified point
- NC Locate Route/Milepost
  - Route
  - Directions

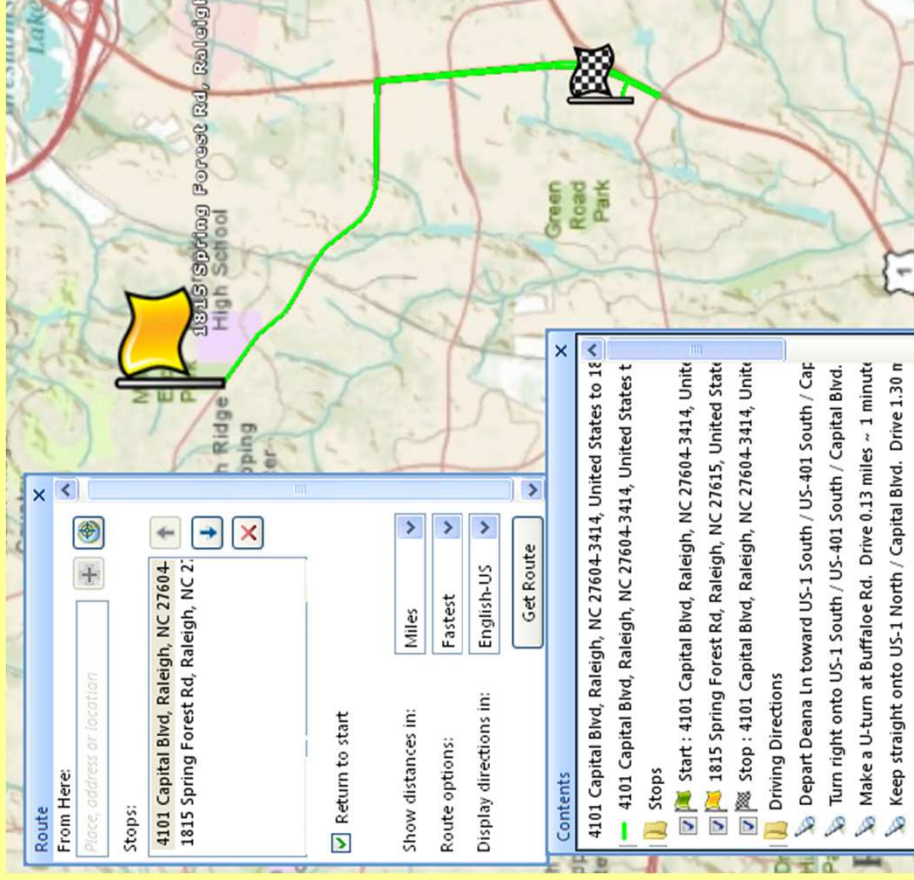
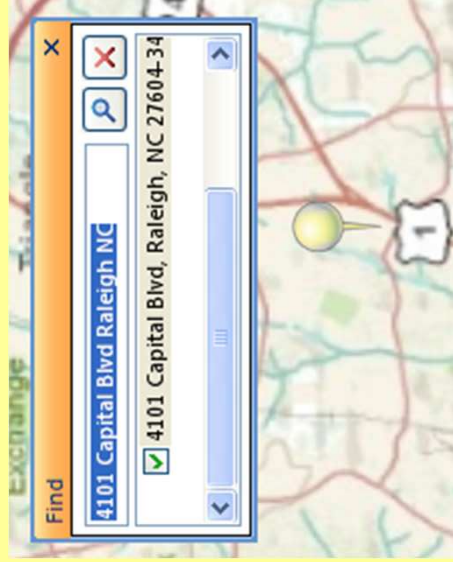


## Find Tab

### Find Group - continued

#### Find

- Find
- Find Route

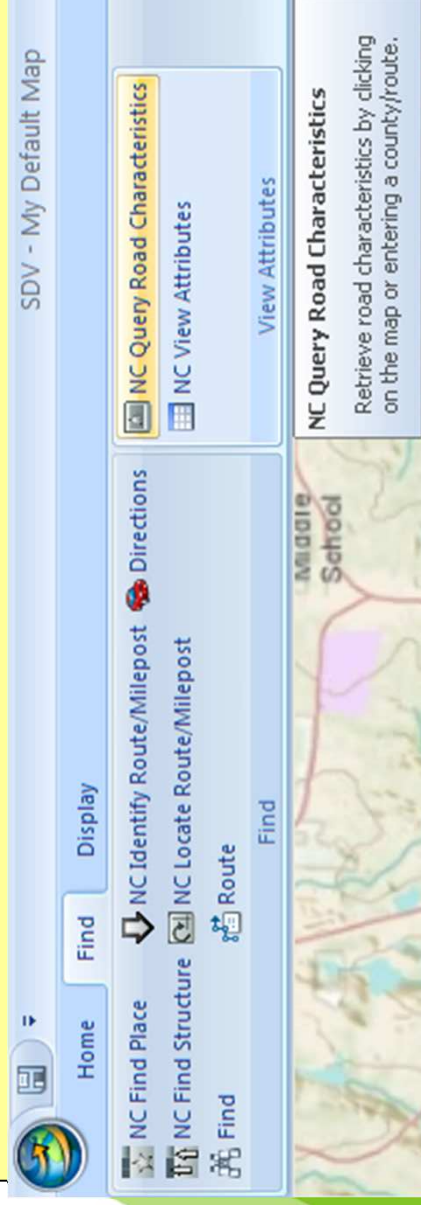
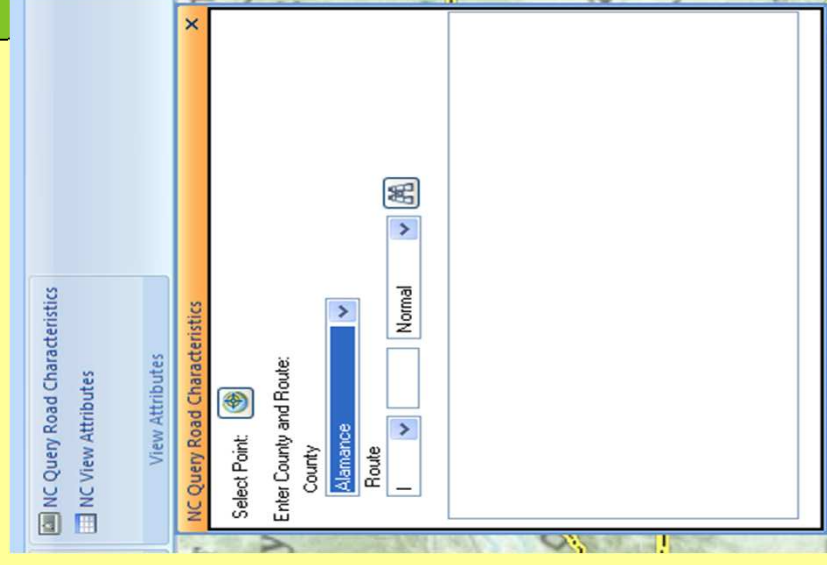




## Find Tab

### View Attributes Group

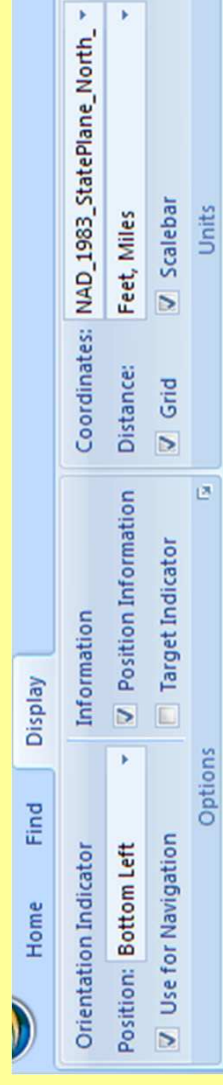
- NC Query Road Characteristics
  - Retrieve road characteristics
- NC View Attributes
  - View feature layer attributes



## Display Tab

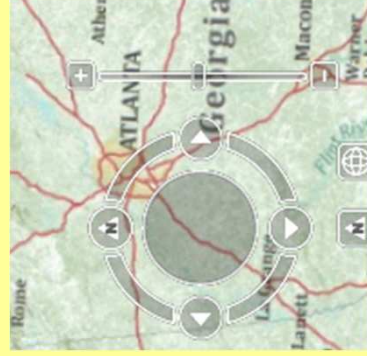
### Options Group

- Orients the zoom/pan tool to move around the Display Window

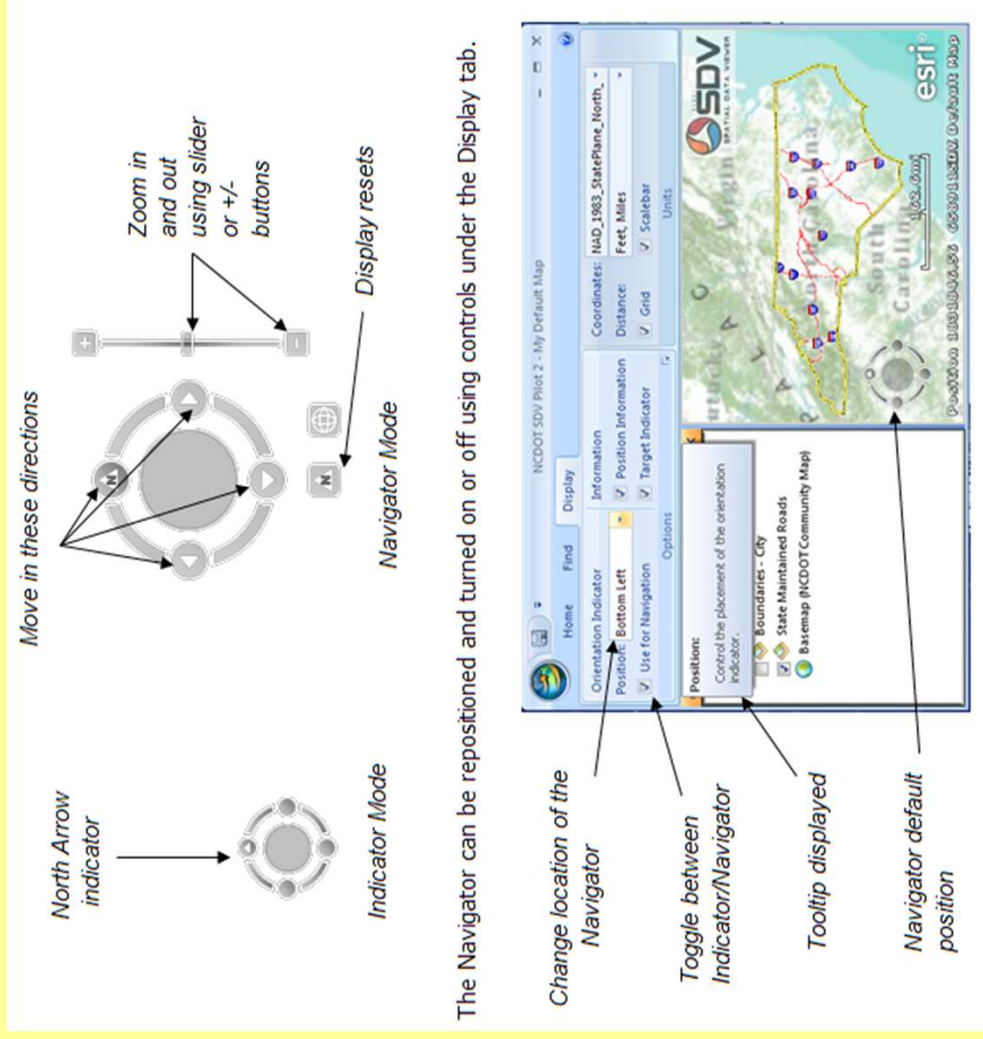


### Units Group

- Select coordinate system, units of measurement
  - Select Grid, Scalebar



## Display Tab Navigator



The diagram illustrates the Navigator controls in two modes:

- Indicator Mode:** Shows a North Arrow indicator and a circular Navigator control with directional arrows.
- Navigator Mode:** Shows a similar circular control with a globe icon and a 'Display resets' button.

Additional controls include a zoom slider and +/- buttons for zooming in and out.

The screenshot shows the SDV interface with the following annotations:

- Change location of the Navigator:** Points to the Orientation Indicator dropdown menu.
- Toggle between Indicator/Navigator:** Points to the 'Use for Navigation' checkbox.
- Tooltip displayed:** Points to the tooltip for the Orientation Indicator, which lists options like 'Boundaries - City', 'State Maintained Roads', and 'Basemap (NCDOT Community Map)'.
- Navigator default position:** Points to the globe icon in the Navigator Mode.

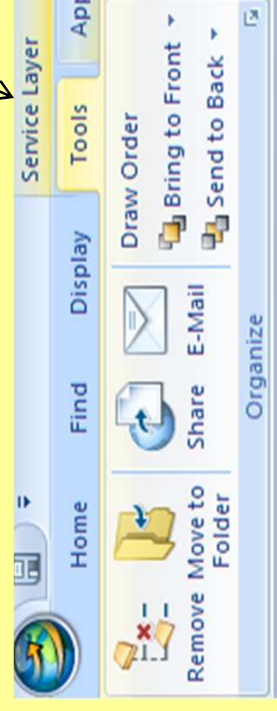
The Navigator can be repositioned and turned on or off using controls under the Display tab.

## Tools Tab

Visible when Layers or Notes are selected in Contents Window

### Organize Group

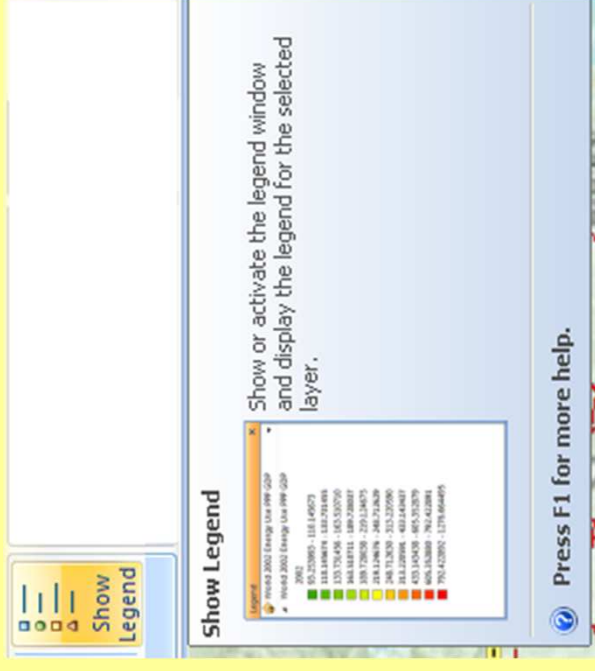
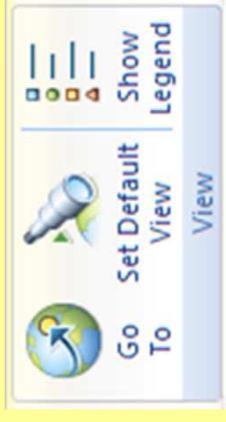
- Remove
- Move to Folder
- Share
- E-Mail
- Draw Order
  - Bring to Front
  - Send to Back



## Tools Tab

### View Group

- Go To
  - Zooms to selected content layer
- Set Default View
  - Bookmarks the map
- Show Legend
  - Shows features of selected content layer





## Tools Tab

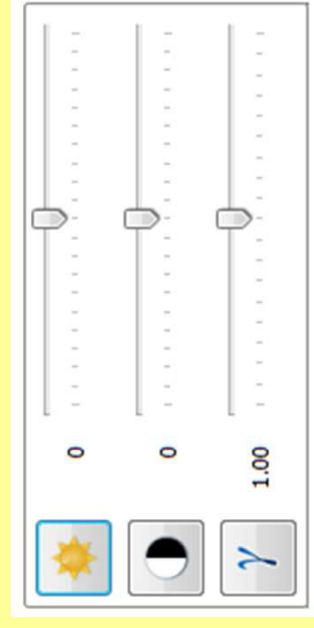
### Effects Group

- Transparency
- For selected layer

(Also accessed from Appearance tab)



- Enhance
- For image



## Tools Tab

### Effects Group

- Swipe
- For selected layer



Swipe

Use **Swipe** to reveal layers beneath the layer you chose to swipe and, depending on how you've set the **Layers options**, the layers above it. This button makes it easy to quickly see what is underneath a particular layer without having to turn it off in the **Contents** window or reorder layers.

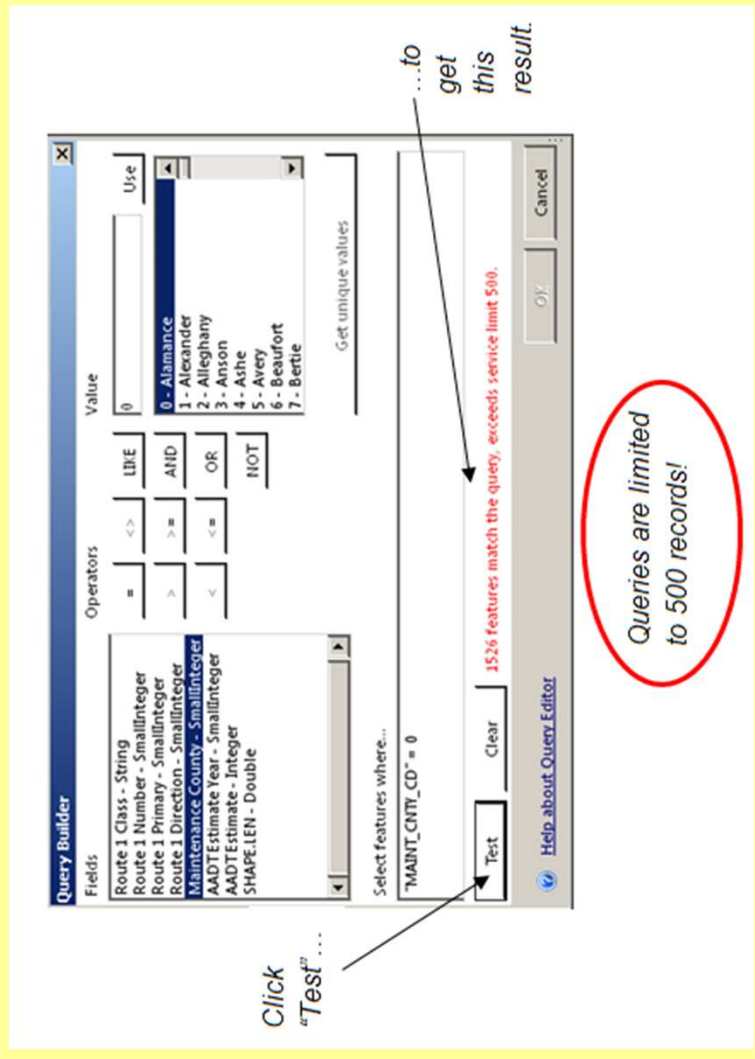
#### **To reveal layers beneath the layer you've selected**

Choose the layer or group layer you want to swipe from the **Contents** window, then move the cursor over the map. You'll notice that the cursor changes based on whether you are resting the mouse pointer on the top, bottom, left, or right of the map. This lets you choose the direction in which you want to swipe the layer. Hold down the left mouse button and drag in the direction indicated by the mouse pointer.

## Tools Tab

### Query Group

- To query a selected layer from the Contents Window
- Access SDV Resource Center for Help

Click "Test" ...

...to get this result.

Queries are limited to 500 records!

1526 features match the query, exceeds service limit 500.



## Appearance Tab

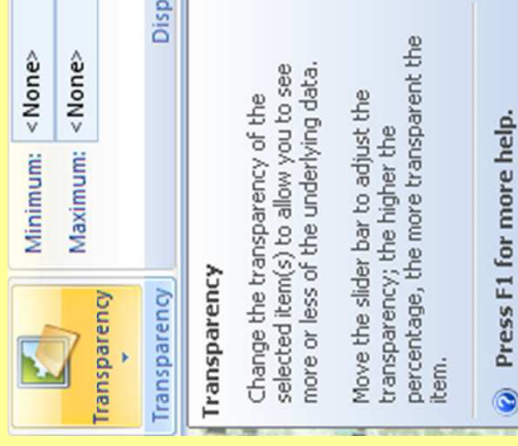
### Popup Group

- Provides information about item selected



### Transparency Group

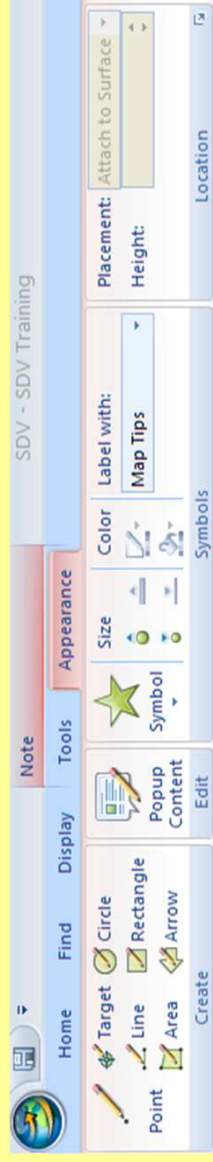
### Display Range Group



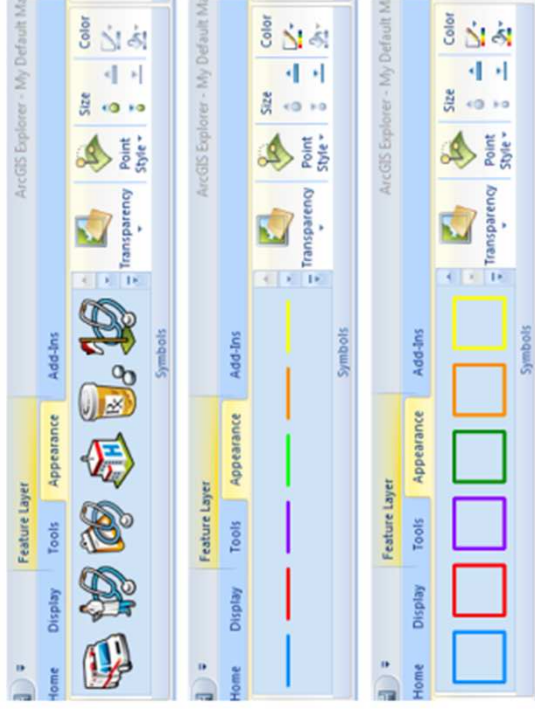
**Use Current**  
Use the current map display to set the maximum zoom level.

## Appearance Tab

- Change the display options
- Notes
- Symbols
- Labels



The *Appearance* tab includes a *Symbol* group that contains various controls for selecting symbols to draw the GIS data with and controls for modifying properties of the symbol. Notice the different galleries for points, line, and areas (polygons):



## **FACILITATE**

- Measure
- Access NC and NCDOT data
- Share information

## **FUNCTIONALITY**

- More NC map services
- More NC tools
- SDV Resource Center - <http://gisi01.dot.nc.net/SDVResourceCenter/>

## **FUTURE**

- Suggestions go to SDVHelp - [sdvhelp@ncdot.gov](mailto:sdvhelp@ncdot.gov)

## **TRAINING**

- Training other users helps everyone



# SDV Training



## Collapsed Bridge Scenario

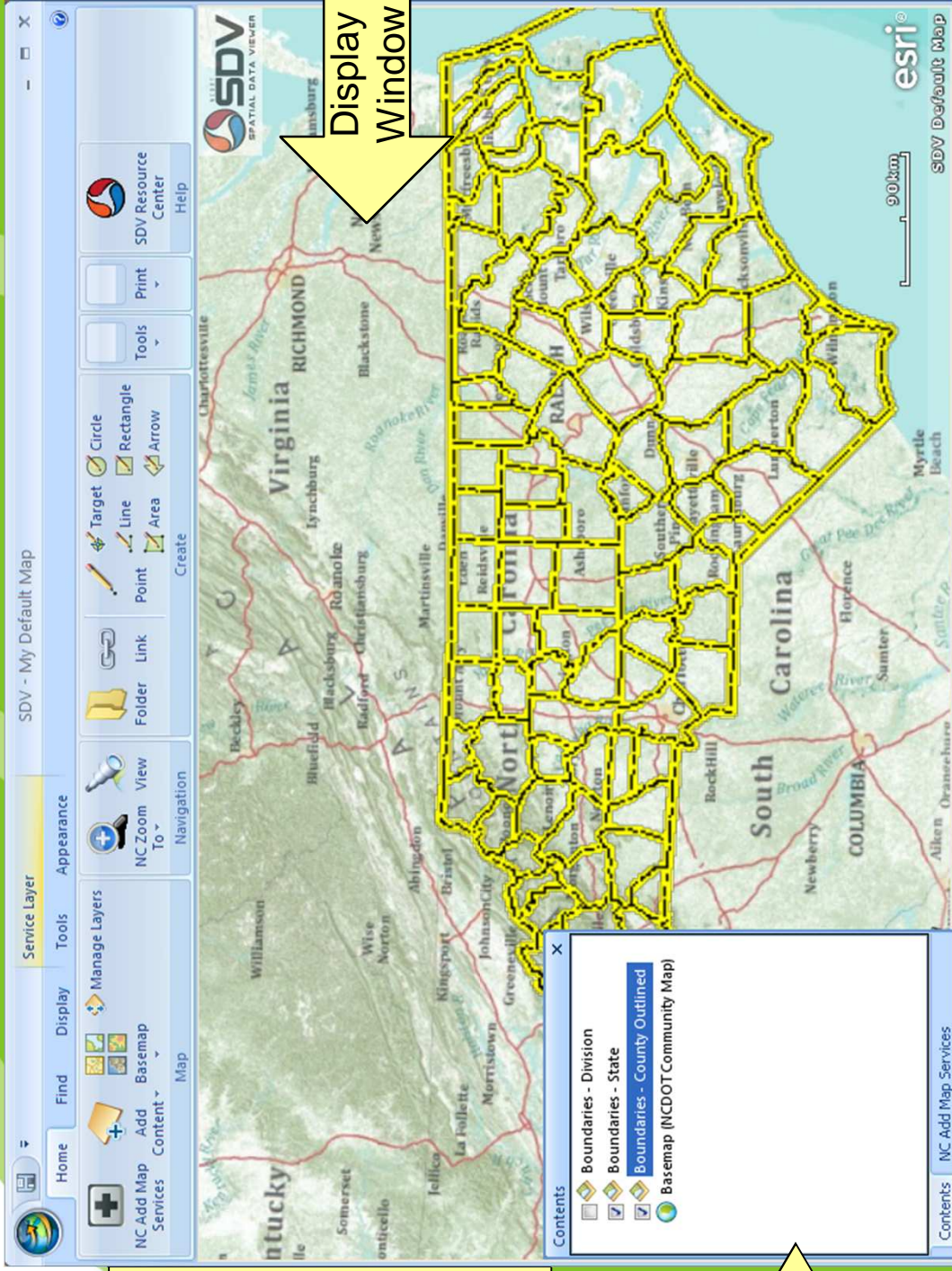


- **Collapsed Bridge Scenario**
  - Add Map Services
  - SDV Resource Center
  - NC Find Tools
  - Query Tools
  - Zoom to incident area (mouse, NC Zoom, navigation tool)
  - Change Basemap
  - Find road characteristics, bridge, pavement, & fatal accident data
  - View attributes of collapsed section
  - Create note for area in question
  - Email the map
  - Add external data to the map
  - Measure area around collapsed bridge, distance to alternate route
  - Add North Arrow, Print preview Map, save as PDF



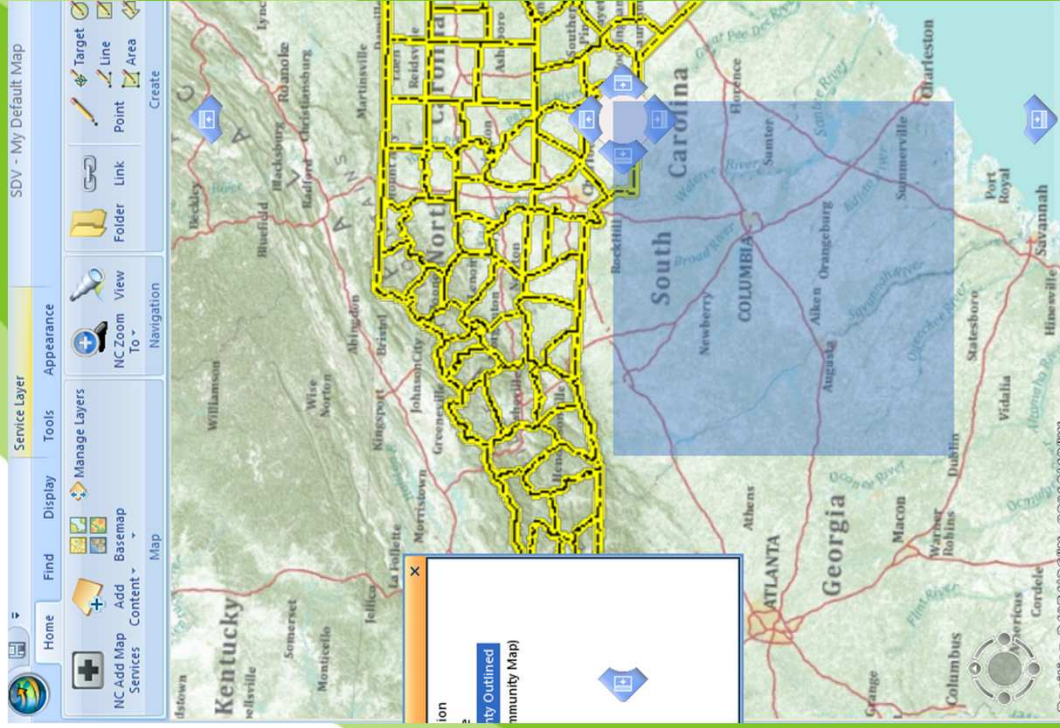
# SDV Training

- Open SDV
- Add NC Map Service
- Select layer

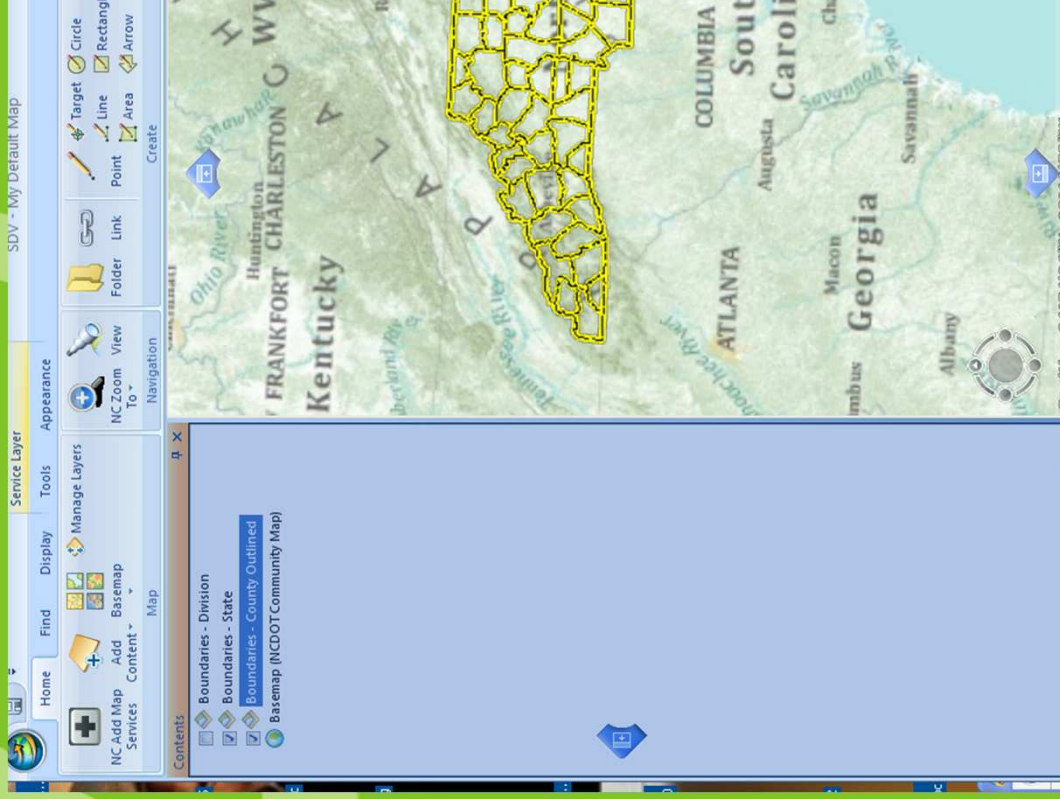


Contents Window  
(docking)

# SDV Training

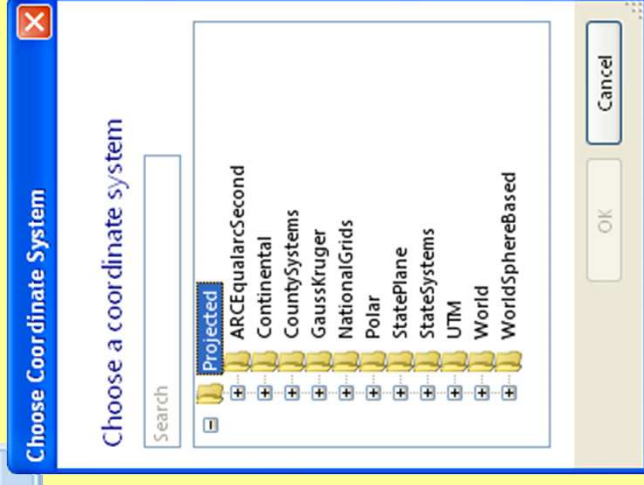
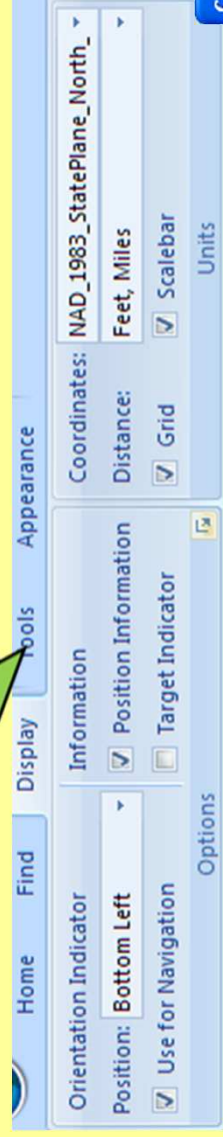


Docking



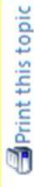


To change the map coordinate system:



1. Click Display tab
2. Click the coordinates dropdown
3. Click <More>
4. Choose the correct coordinate system

## Coordinate Systems



### About Coordinate Systems

A coordinate system is a fixed reference framework superimposed onto the surface of an area to designate the location of features within it. The positions of objects on the earth's spherical surface are measured in geographic coordinates. While latitude and longitude can locate exact positions on the surface of the earth, they are not uniform units of measure; only along the equator does the distance represented by one degree of longitude approximate the distance represented by one degree of latitude. To overcome measurement difficulties, data is often transformed from three-dimensional geographic coordinates to two-dimensional projected coordinates.

Learn more about [Map Projections](#)

Coordinate systems (either geographic or projected) provide a framework for defining real-world locations. In ArcGIS Explorer, the coordinate system is used as the method to automatically integrate the geographic locations from different datasets into a common coordinate framework for display and analysis.

### To work with coordinate systems in ArcGIS Explorer

ArcGIS Explorer provides two property sheets that allow you to work with coordinate systems and geographic transformations, one for 2D Coordinate Systems and the other for 3D Coordinate Systems.

In the 2D Coordinate System property sheet you can choose the coordinate system as well as the geographic transformation(s) to use when projecting layers to the map coordinate system when your map is in 2D Display mode. In the 3D Coordinate System property sheet you can select the geographic transformation(s) to use when projecting layers to the map coordinate system when your map is in 3D Display mode.

### To display the Coordinate System properties



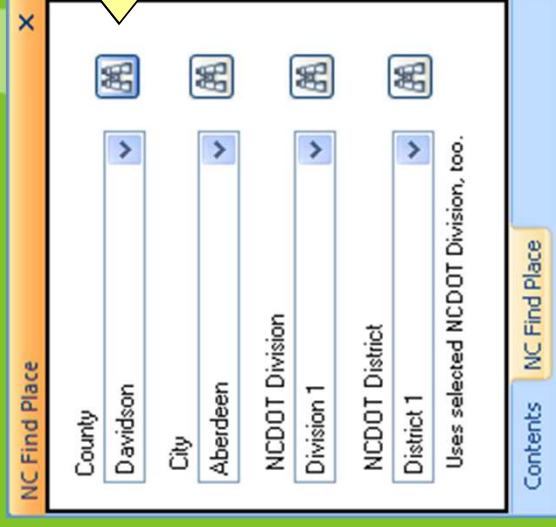
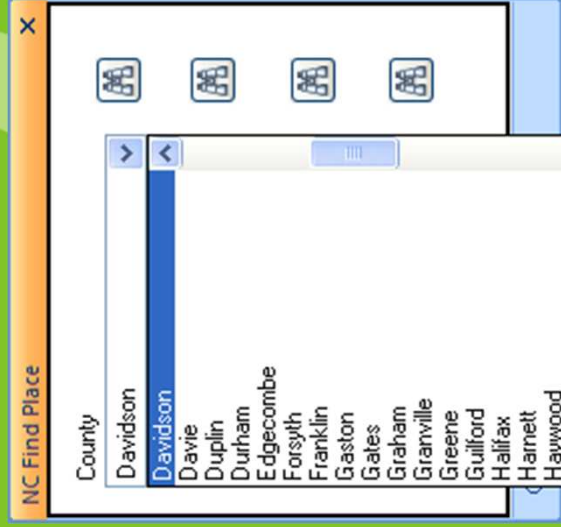
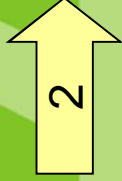
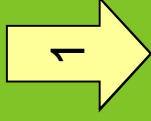
1. Click the *ArcGIS Explorer Button*.
2. Click *Map Properties*.
3. Choose *3D Coordinate System* or *2D Coordinate System*.

# SDV Training



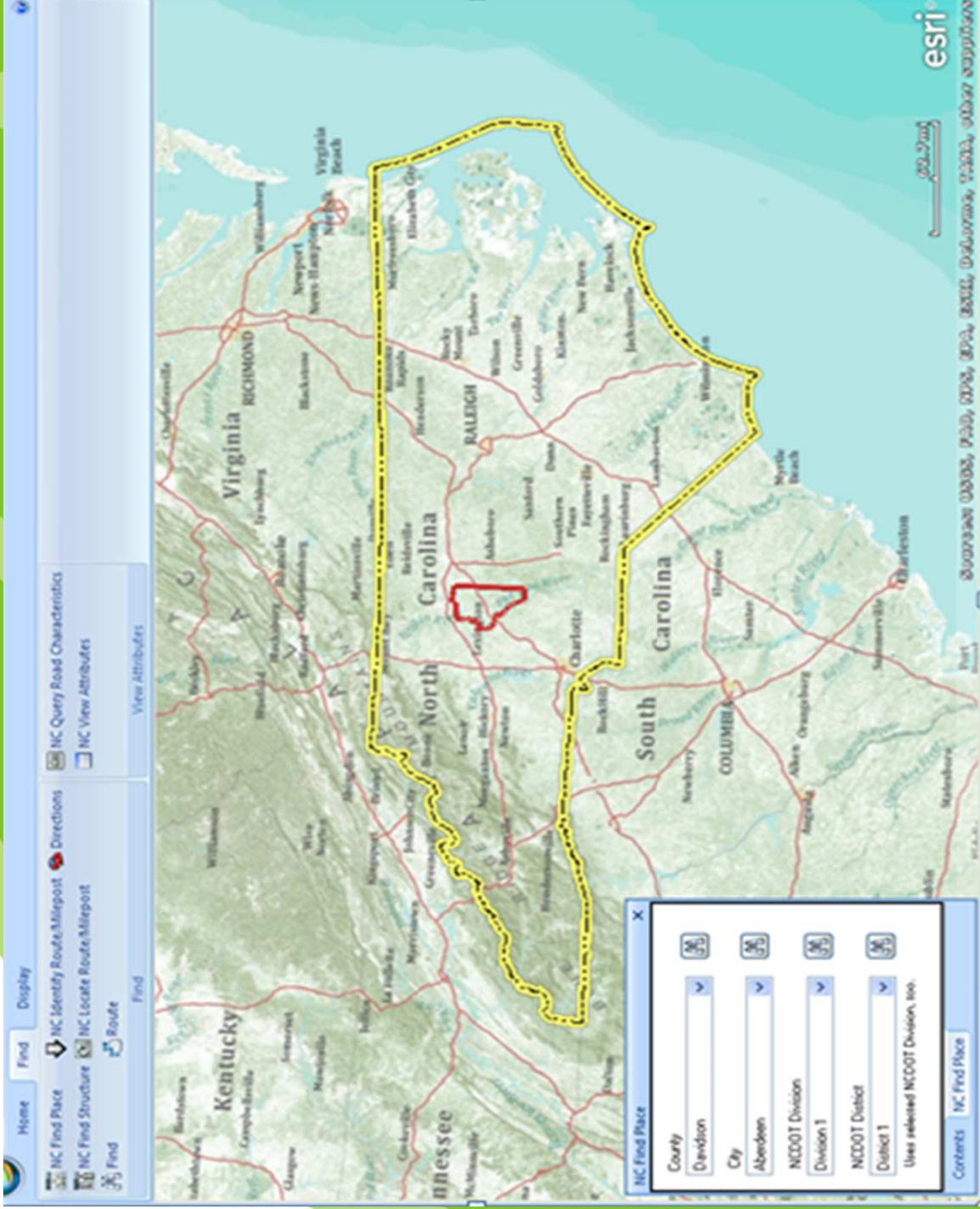
## Find Davidson County

1. Click Find tab
2. Click NC Find Place
3. From the County drop down list choose Davidson County
4. Click the search button

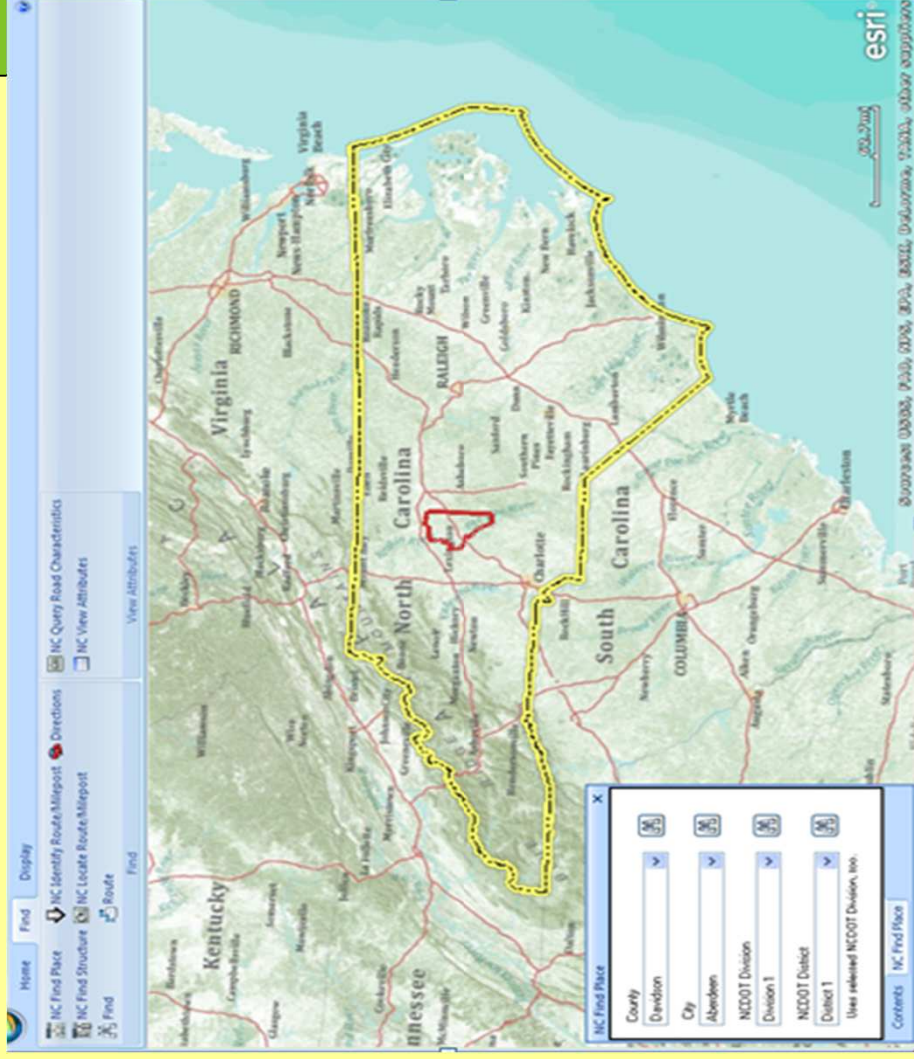




# SDV Training

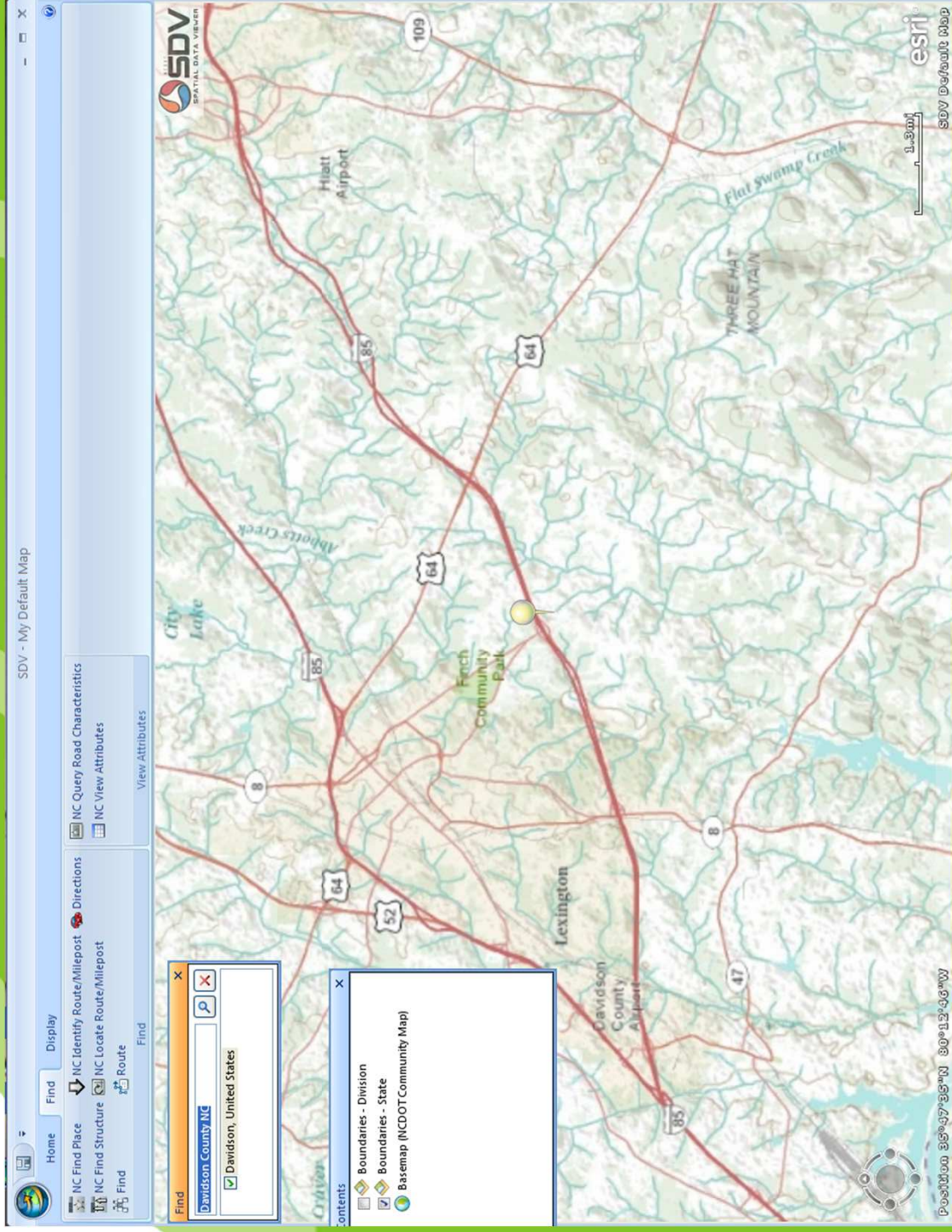



- County is located, now zoom in
  - Right Click, Go To
  - Scroll button on mouse
  - GO To Icon under Appearance tab





# SDV Training

The screenshot displays the SDV Spatial Data Viewer interface. The main map shows a topographic view of Davidson County, North Carolina, with major roads (85, 64, 109) and landmarks like Flat Swamp Creek and Three Hat Mountain. A yellow pin is placed on the map near Finch Community Park. The interface includes a toolbar with options like Home, Find, and Display. The 'Find' panel is active, showing search options: 'NC Find Place', 'NC Find Structure', and 'NC Find Route'. The 'Find' dropdown menu is open, displaying 'Davidson County, NC' and 'Davidson, United States'. The 'Contents' panel on the right shows layers for 'Boundaries - Division', 'Boundaries - State', and 'Basemap (NCDOT Community Map)'. The status bar at the bottom indicates the current location: 35°56'20.00"N 80°01'23.68"W.

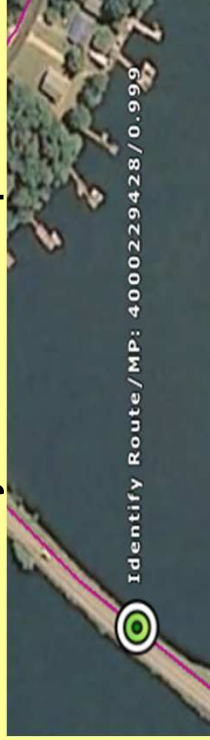
You can also use the FIND option to get to general area

## Additional Tools:



**NC Identify Route/Milepost**  
Click on a route to identify the route and milepost at that location.

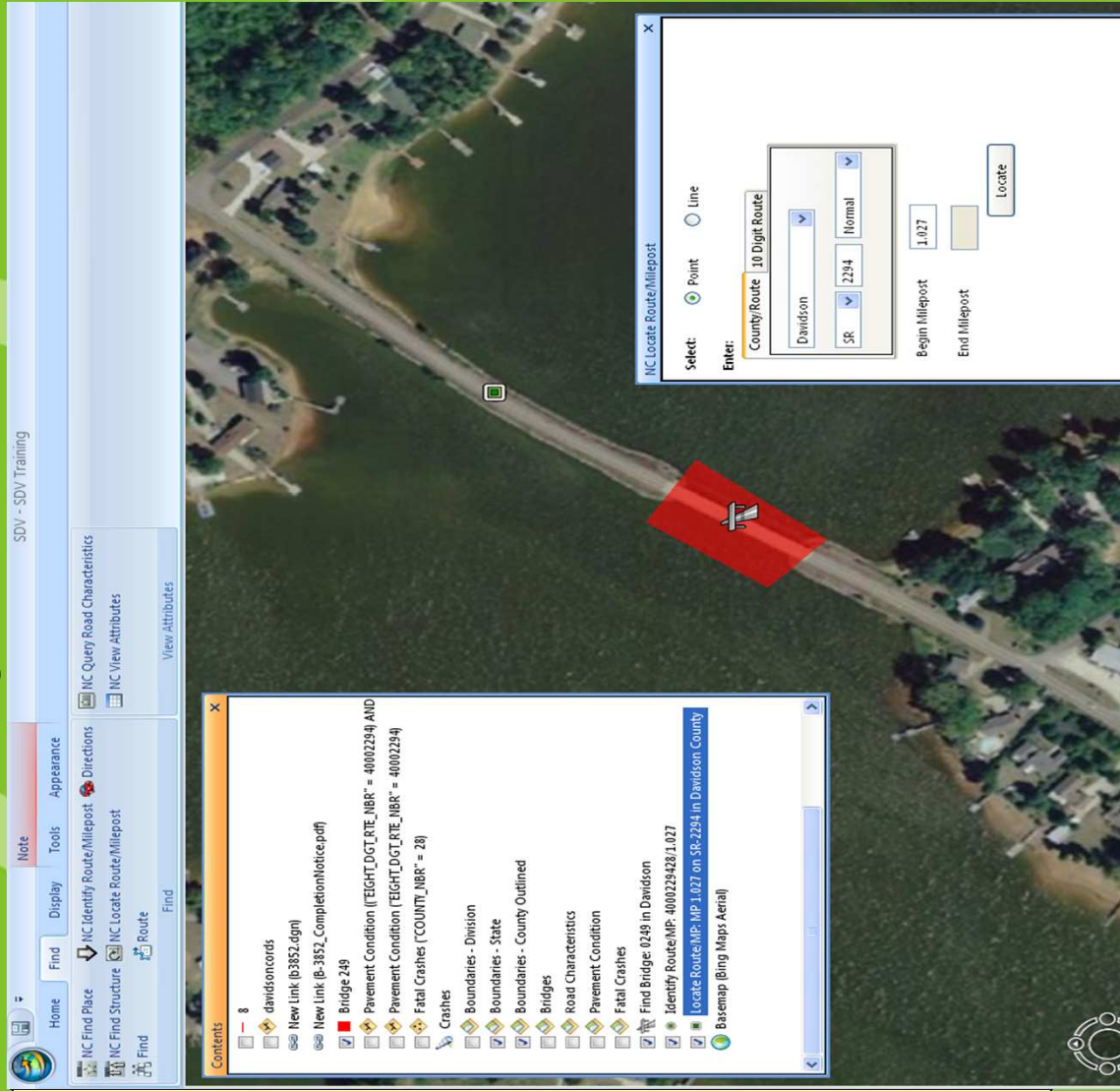
## NC Identify Route/Milepost



## NC Locate Route/Milepost



**NC Locate Route/Milepost**  
Locate a route and milepost on the map.



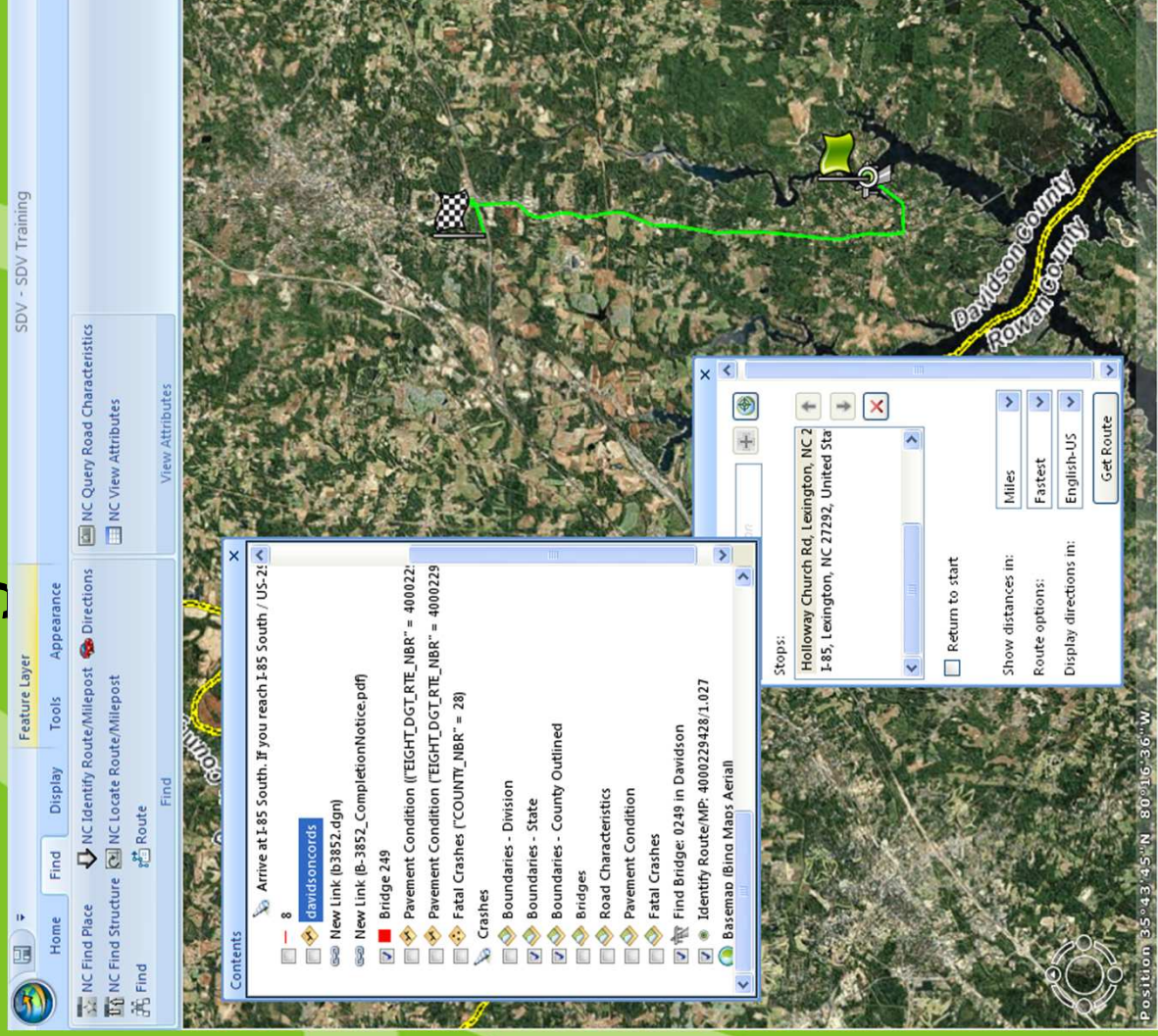
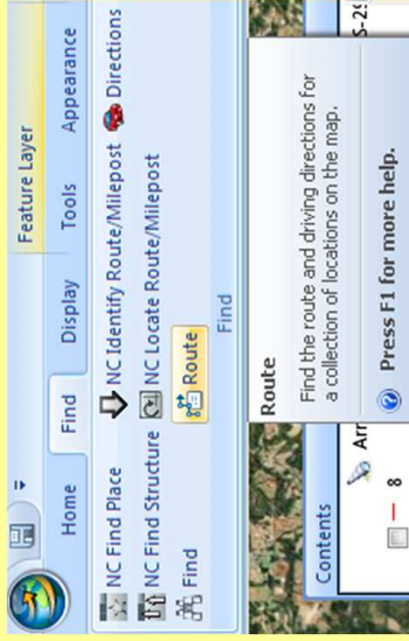
The screenshot shows the SDV application interface. The 'Contents' window on the left lists various layers, including 'Fatal Crashes' and 'Road Characteristics'. The 'NC Locate Route/Milepost' dialog box on the right has the following fields:

- Select:  Point  Line
- Enter: County/Route: 10 Digit Route
- County: Davidson
- Route: SR 2294
- Normal: Normal
- Begin Milepost: 1.027
- End Milepost: [Empty]
- Locate

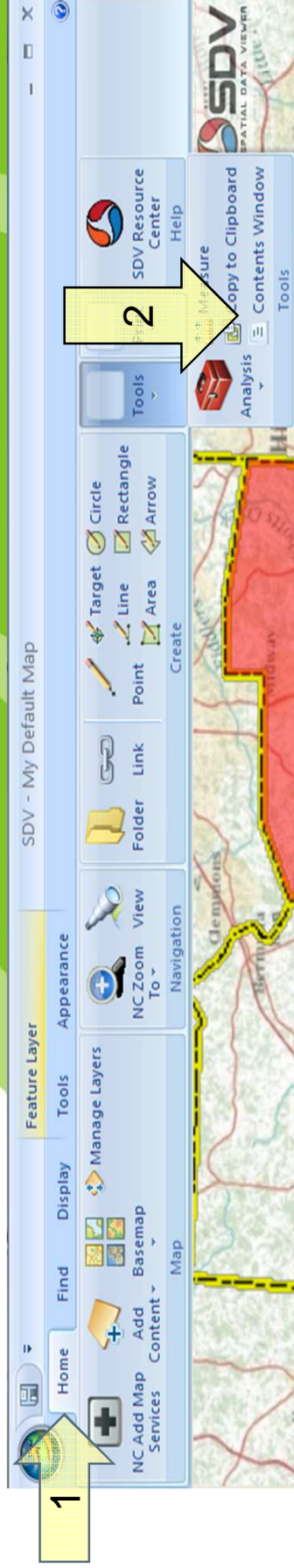


# SDV Training

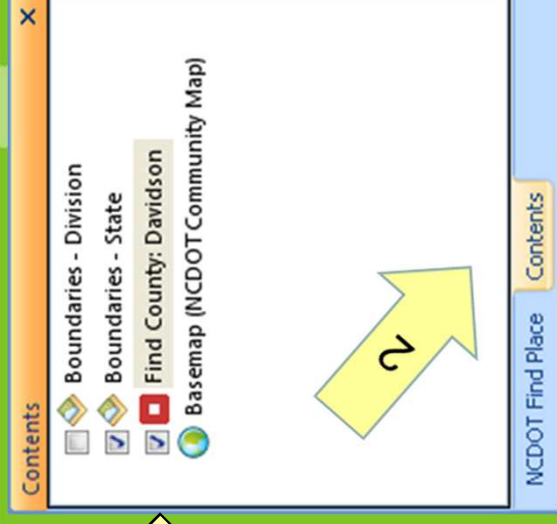
## Additional Tools: Route



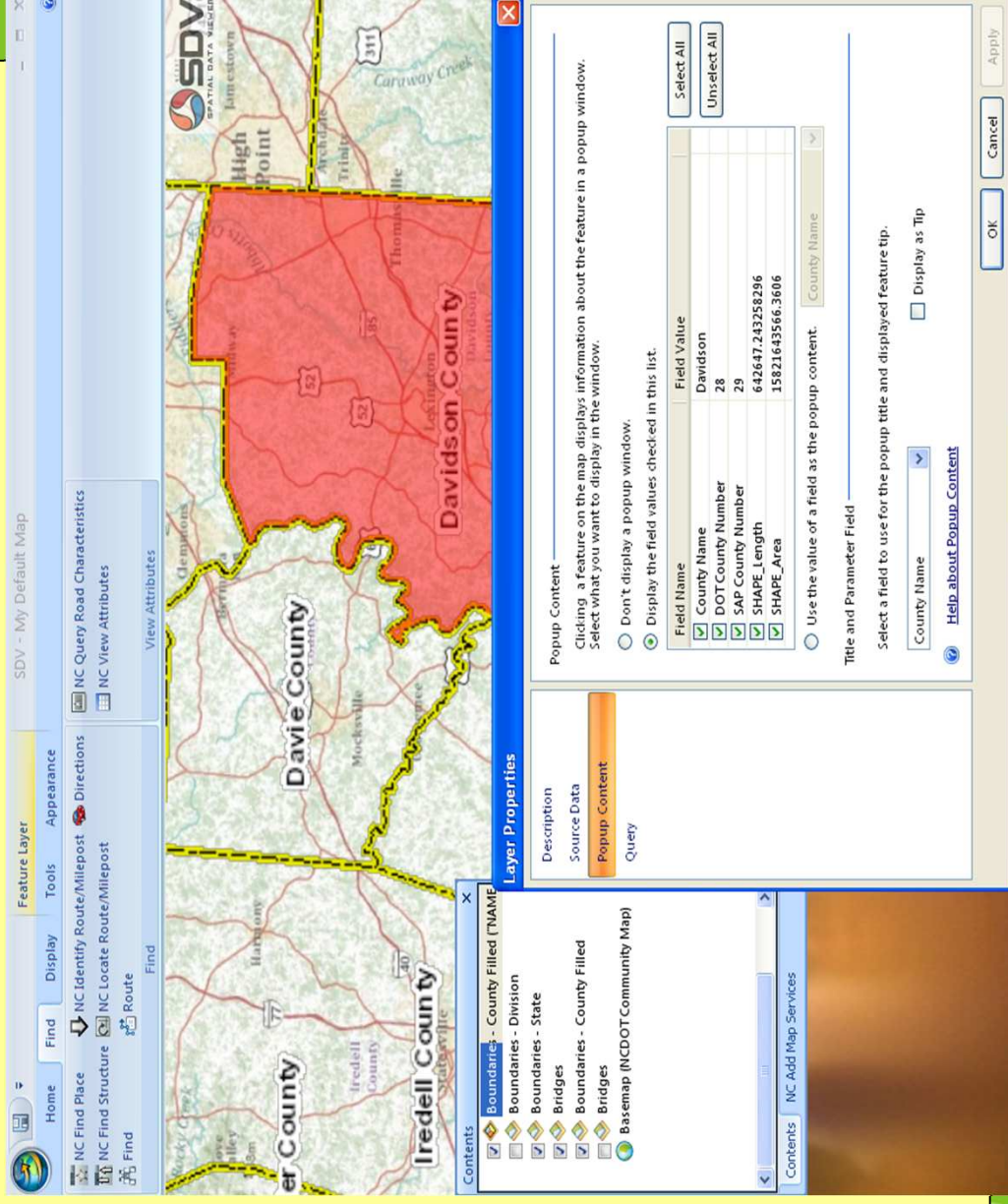




1. Click Home tab
2. Click Contents Window (there are 2 ways to get there)
3. Check the Find County: Davidson option box
4. Right click on Find County: Davidson
5. Click "Go to"
6. Or Double Click Find County: Davidson
7. SDV zooms in to county



- To view Layer Properties
  - Right Click Layer
- Layer Properties
  - Description
  - Source Data
  - Popup Content
  - Query



The screenshot shows the SDV software interface with a map of North Carolina counties. The 'Layer Properties' dialog box is open for the 'County Filled' layer. The 'Query' tab is selected, showing a table of field values for the popup content.

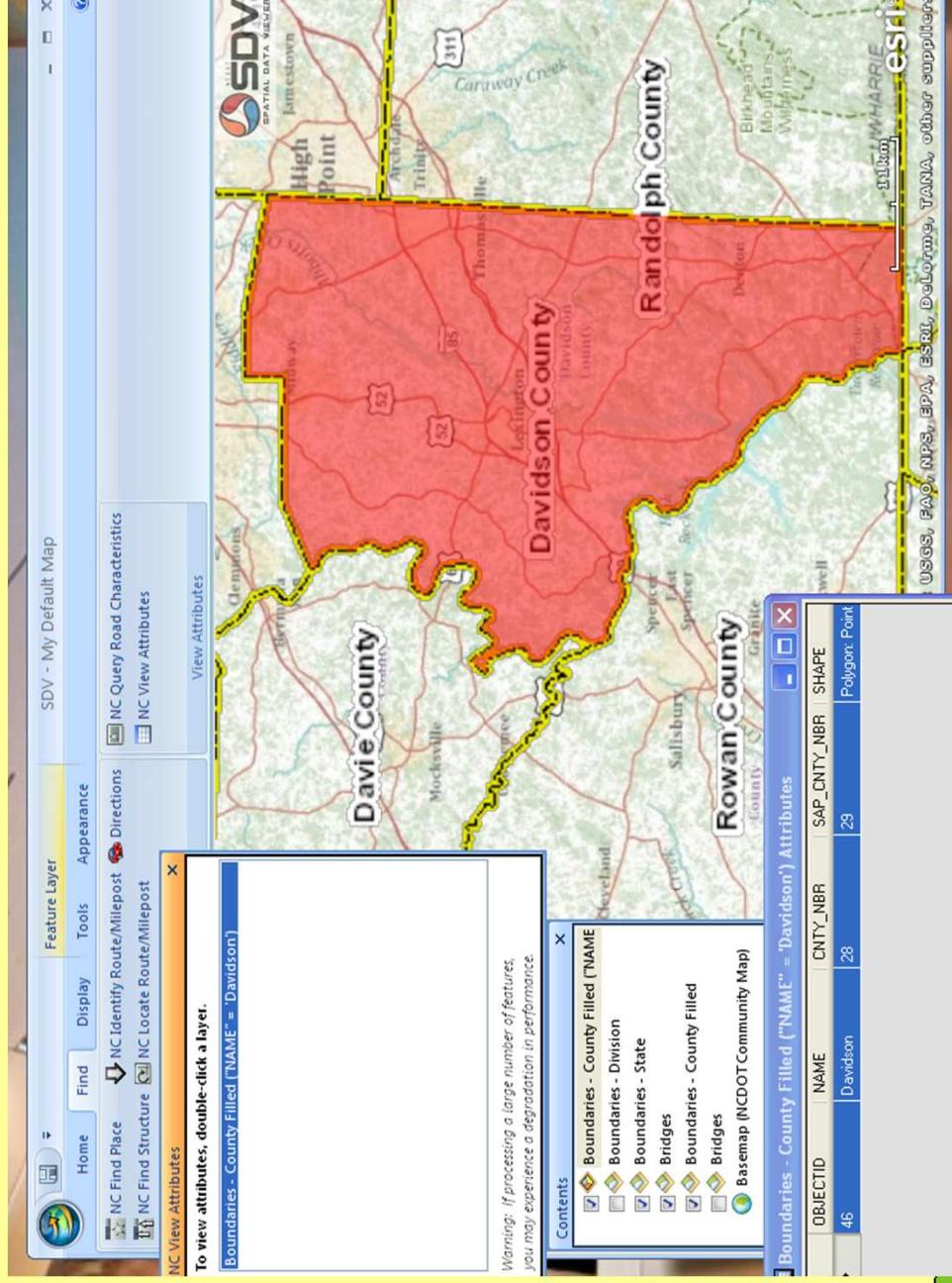
Field Name	Field Value
<input checked="" type="checkbox"/> County Name	Davidson
<input checked="" type="checkbox"/> DOT County Number	28
<input checked="" type="checkbox"/> SAP County Number	29
<input checked="" type="checkbox"/> SHAPE_Length	642647.243258296
<input checked="" type="checkbox"/> SHAPE_Area	15821643566.3806

The 'Popup Content' section is checked, and the 'Display as Tip' checkbox is also checked. The 'Title and Parameter Field' is set to 'County Name'.



# SDV Training

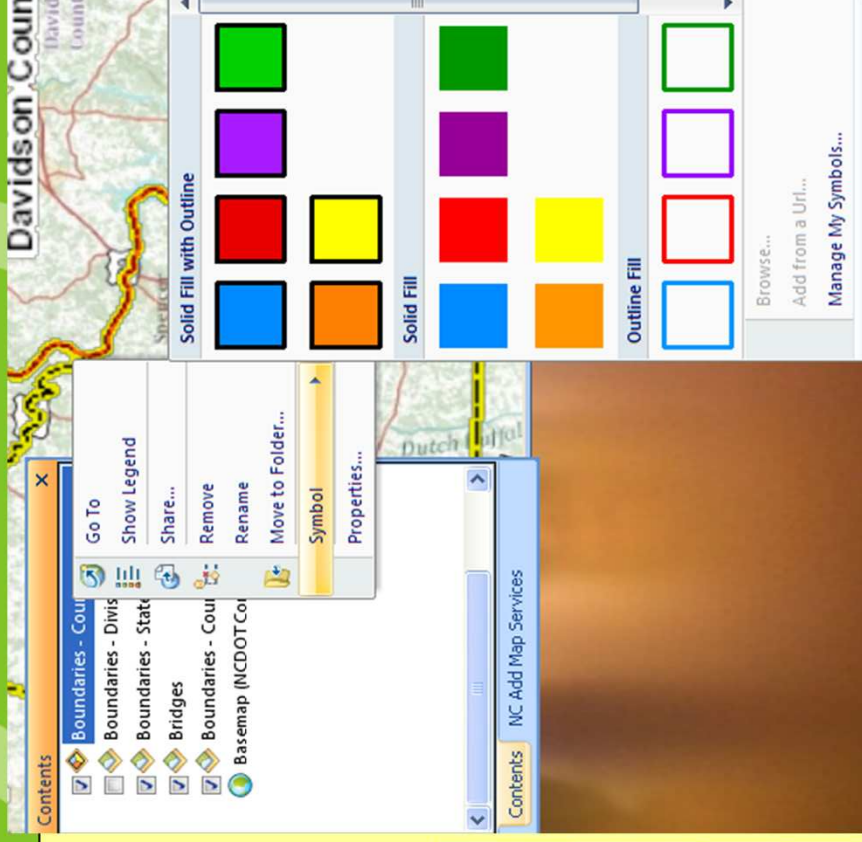
- To view Attributes after Selection
  - Click NC View Attributes



# SDV Training



- To Change appearance of layer
  - Right Click Layer
  - Scroll to Symbol
  - Select from options





# SDV Training

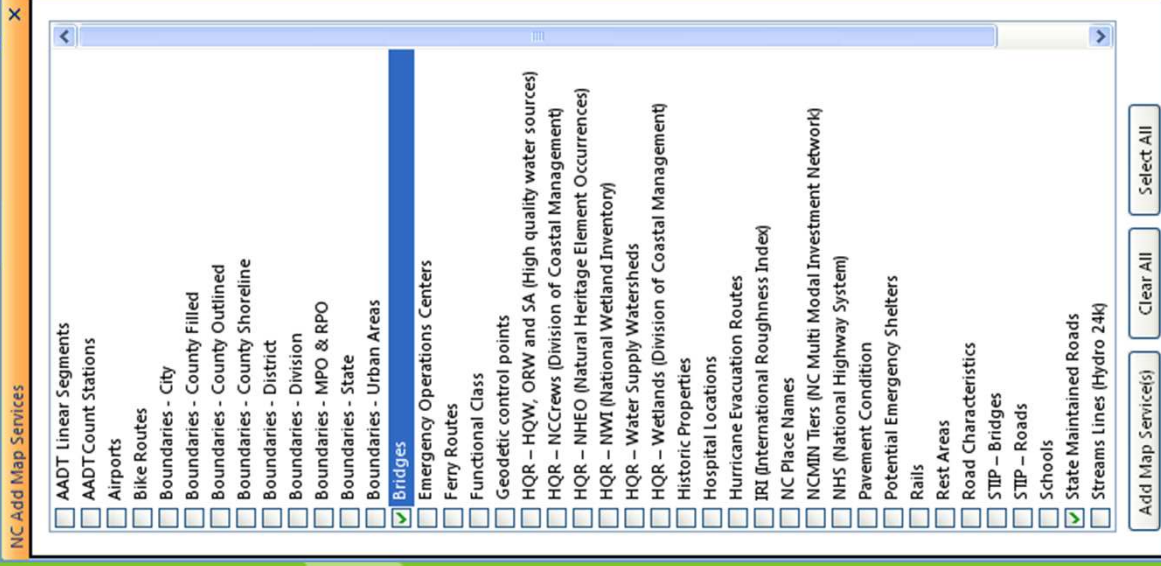
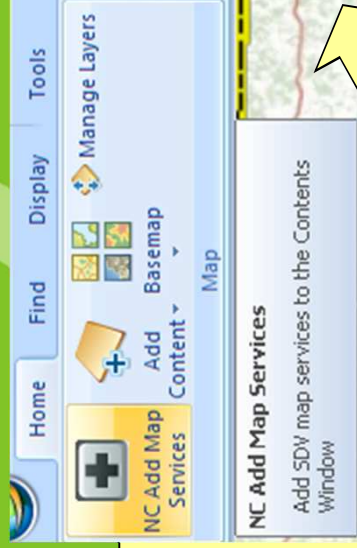


1. NC Add Map Services

2. Click box for layers of interest

3. Click Add Map Service(s) button

4. Click the map service checkbox in the Contents Window (con't on next slide)

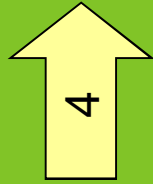




# SDV Training

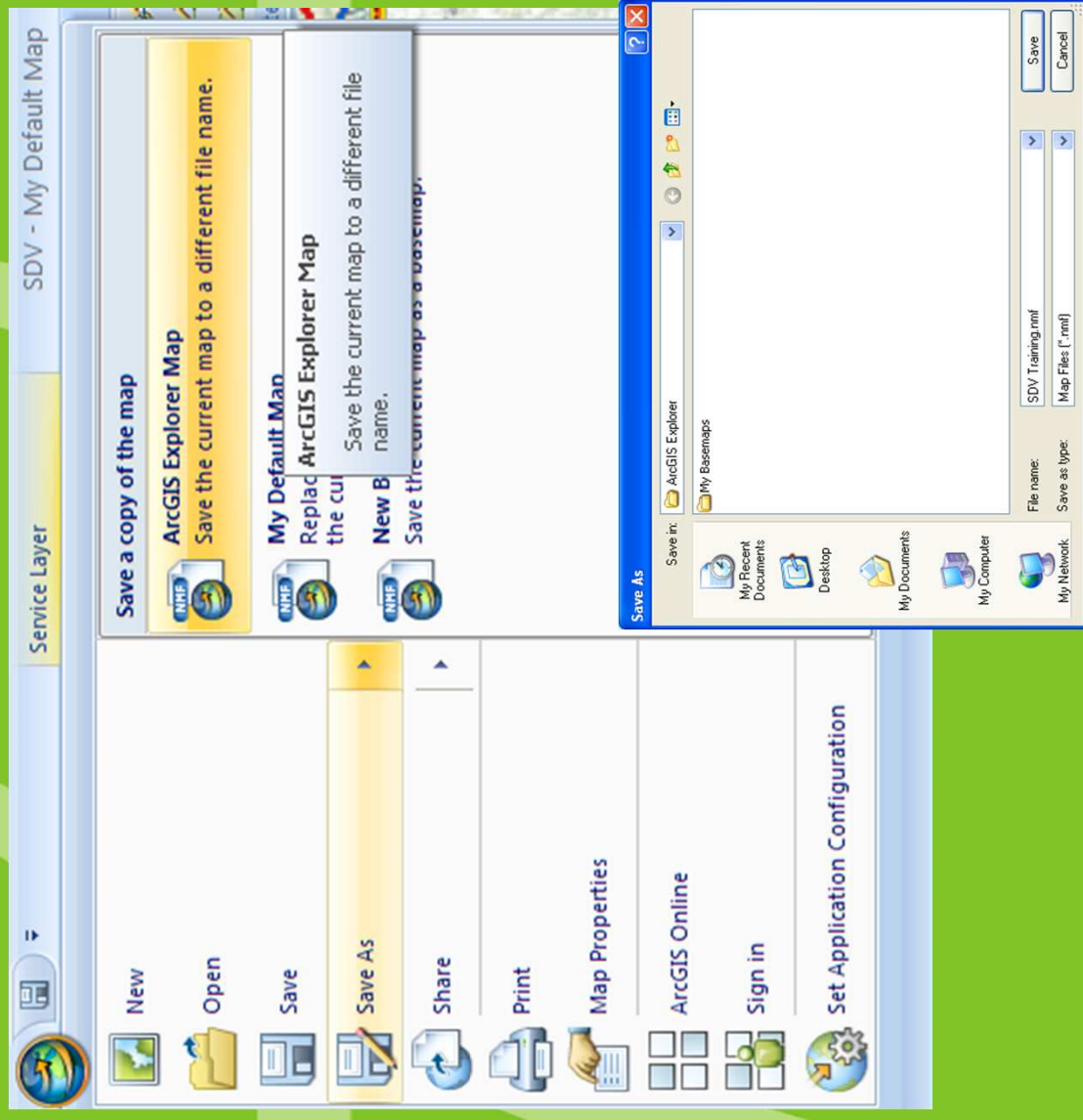


4. Click the map service checkbox in the Contents Window



## Save Map

1. Click AGX Icon
2. Click Save As
3. Click ArcGIS Explorer Map
4. Navigate to folder
5. Type name
6. Map Name Changes



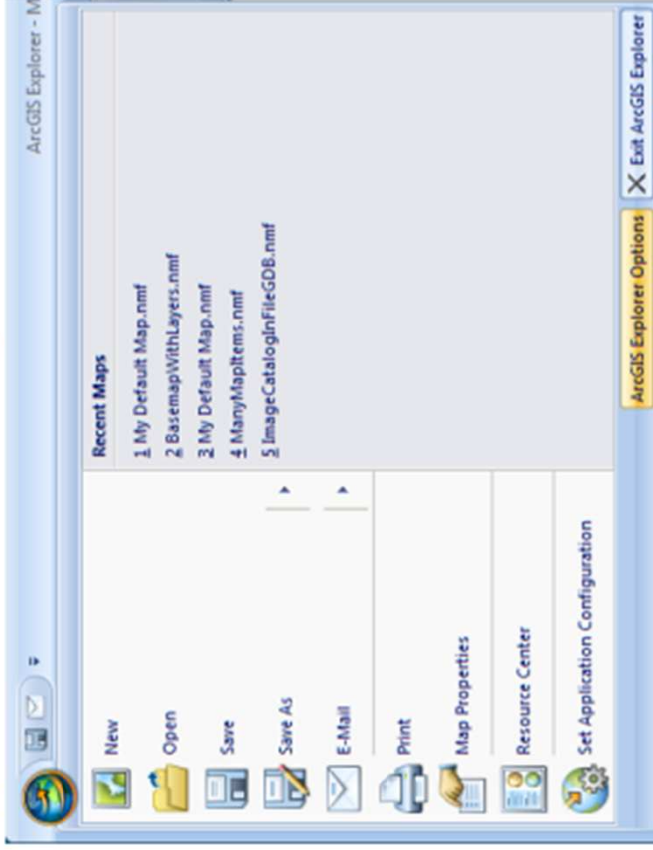


## About ArcGIS Explorer Options



You can set options that apply to the application and are retained from session to session.

To display the *ArcGIS Explorer Options* dialog, click the *ArcGIS Explorer Button* , then click the *ArcGIS Explorer Options* button:





1. Click Find Tab
2. NC Find Structure
3. Enter County
4. Enter Bridge Number
5. Click Find symbol
6. Point is symbolized on map
7. Double Click to zoom to result



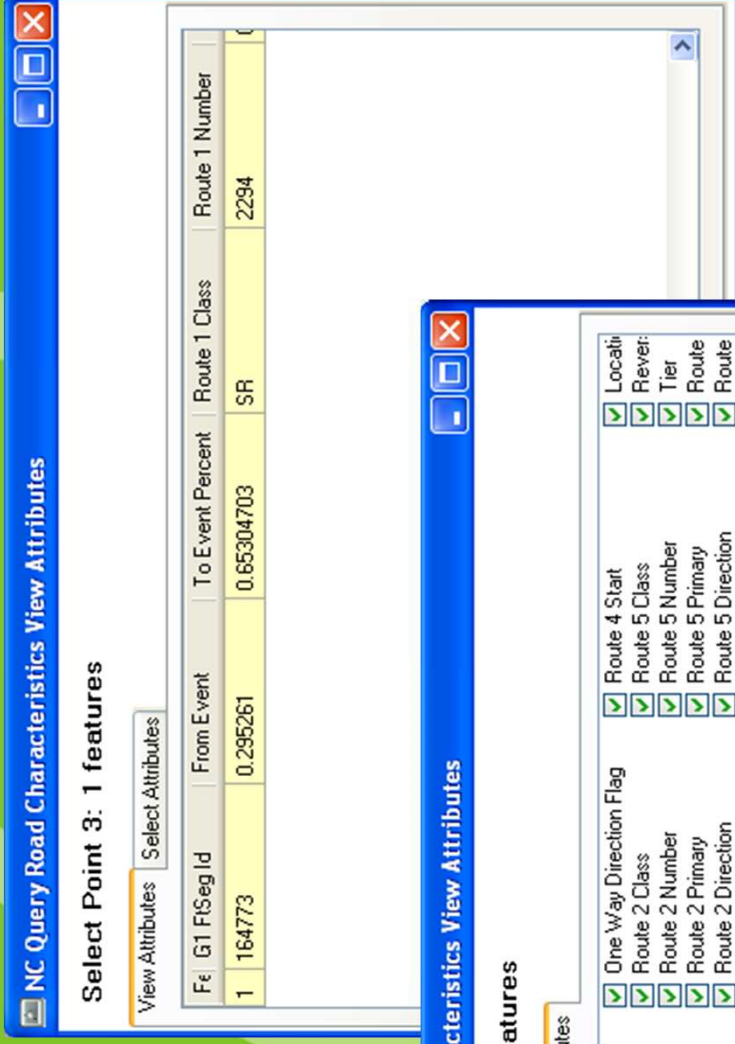


## View Road Attributes

1. Click NC Query Road Characteristics
2. Select Point
3. Enter Davidson
4. Click on Road where bridge collapsed
5. When feature is selected, right click feature, View Attributes

## View Attributes

- Feature Selected
- Or, Select Attributes from the database and view only fields needed

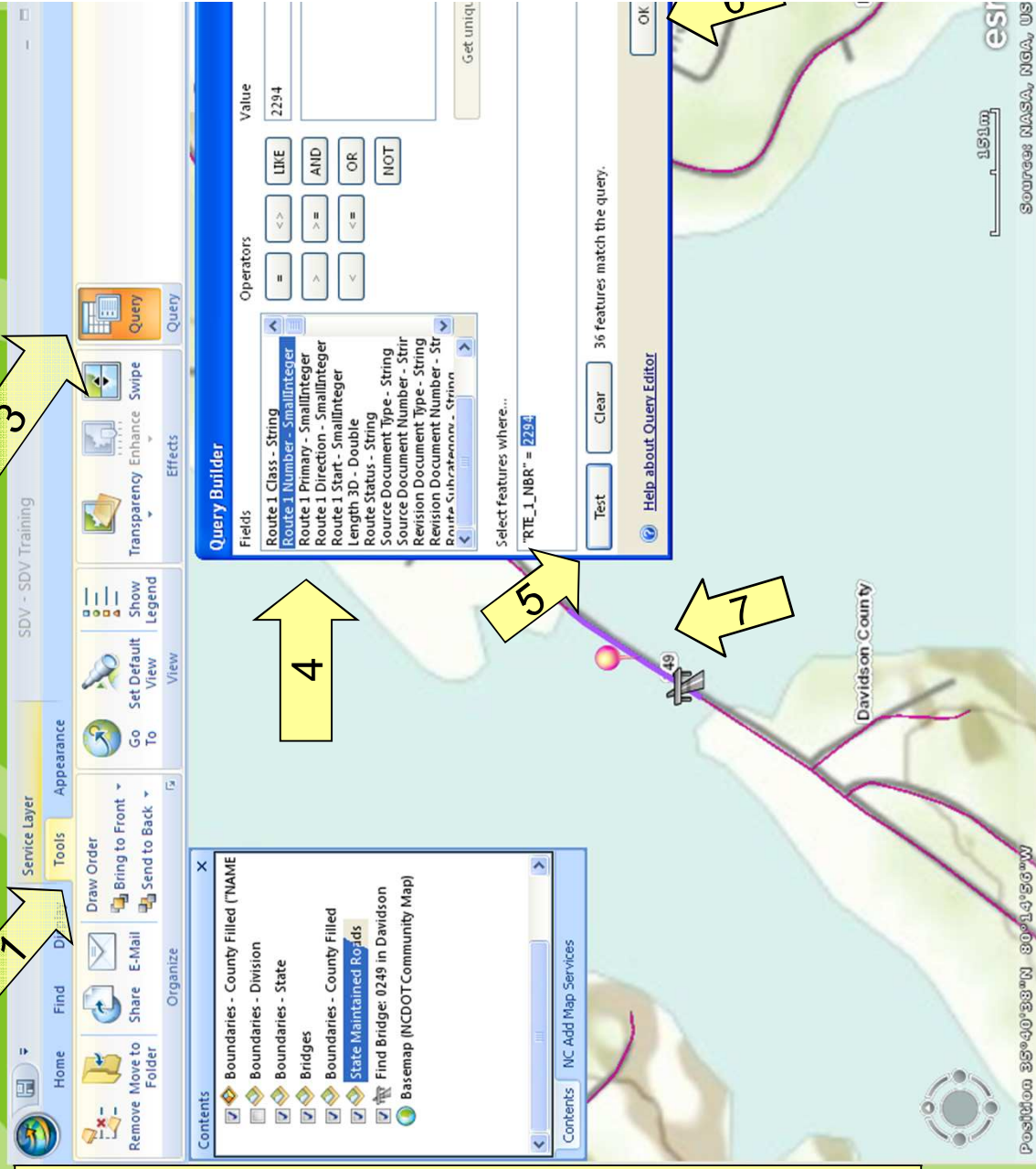


# SDV Training



To Query


1. Click Tools Tab
2. Click layer from Contents Window
3. Click Query
4. Click field, operator, and value
5. Click Test
6. Click OK
7. Notice symbology change



The screenshot displays the SDV Spatial Data Viewer interface. The 'Tools' tab is active, and the 'Query' tool is selected. The 'Contents' window shows a list of layers, with 'State Maintained Roads' highlighted. The 'Query Builder' window is open, showing a query: "Route\_1\_NBR" = 2294. The map shows a road network with several segments highlighted in pink, indicating they match the query. Yellow arrows with numbers 1 through 7 point to the following elements: 1. The Tools Tab, 2. The 'State Maintained Roads' layer in the Contents Window, 3. The Query Builder window, 4. The 'Route\_1\_NBR - SmallInteger' field in the Query Builder, 5. The '=' operator in the Query Builder, 6. The '2294' value in the Query Builder, and 7. The map showing highlighted road segments.



# SDV Training

Click Selected Road  
 icon pops up  
 Select SR pop up option  
 View Attributes



SDV - SDV Training

Feature Layer

Tools

Appearance

Map

Home

Find

Display

NC Add Map Services

Add Content

Basemap

Map

Manage Layers

NC Zoom To

View

Navigation

Folder Link

Point

Line

Area

Circle

Rectangle

Arrow

Tools

Print

SDV Resource Center

Help

Contents

- State Maintained Roads (RTE\_IDBR)
- Boundaries - County Filled (NAME = Davidson)
- Boundaries - Division
- Boundaries - State
- Bridges
- Boundaries - County Filled
- State Maintained Roads
- Find Bridge: 0249 in Davidson
- Basemap (NCDOT Community Map)

9 Feature(s) Found

- Boundaries - County Filled (NAME = Davidson)
- State Maintained Roads
- Secondary Road
- Secondary Road
- Secondary Road
- Secondary Road
- Secondary Road
- Secondary Road
- Secondary Road

Secondary Road

Route 1 Class	Secondary Road
Route 1 Number	2294
Route 1 Primary	Normal
Route 1 Direction	Inventory
Route 1 Start	Not start
Length 3D	0.66
Route Status	System
Source Document Type	Not-Verified
Source Document Number	Null
Revision Document Type	Not-Verified
Revision Document Number	Null
Route Subcategory	2-Lane Undivided
One Way Direction Flag	Both directions
Route 2 Class	NA
Route 2 Number	0
Route 2 Primary	NA
Route 2 Direction	NA
Route 2 Start	NA
Route 3 Class	NA
Route 3 Number	0
Route 3 Primary	NA
Route 3 Direction	NA
Route 3 Start	NA
Route 4 Class	NA
Route 4 Number	0
Route 4 Primary	NA
Route 4 Direction	NA
Route 4 Start	NA
Route 5 Class	NA

Position 35°40'39"N 80°14'39"W

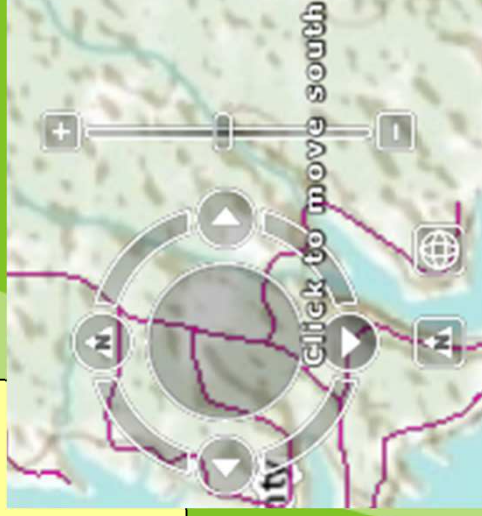
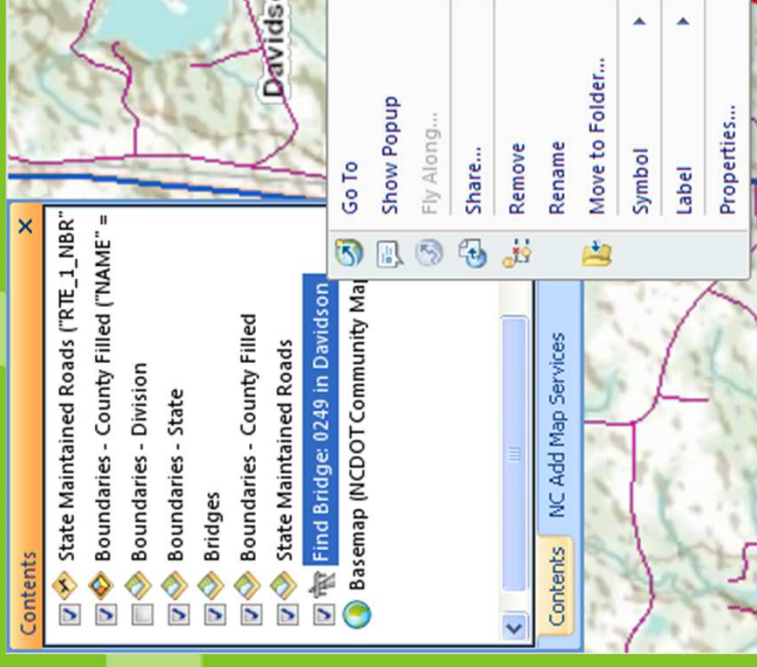
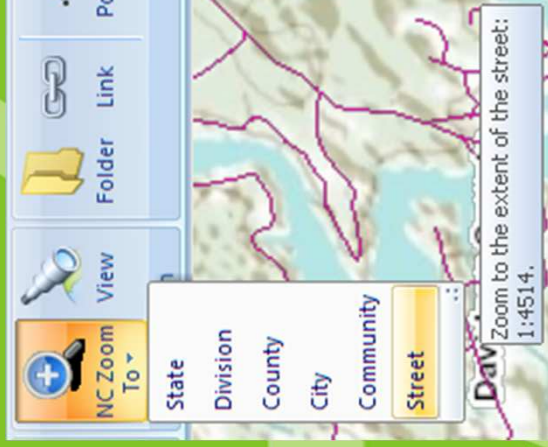
esri

Source: NASA, NGA, USGS

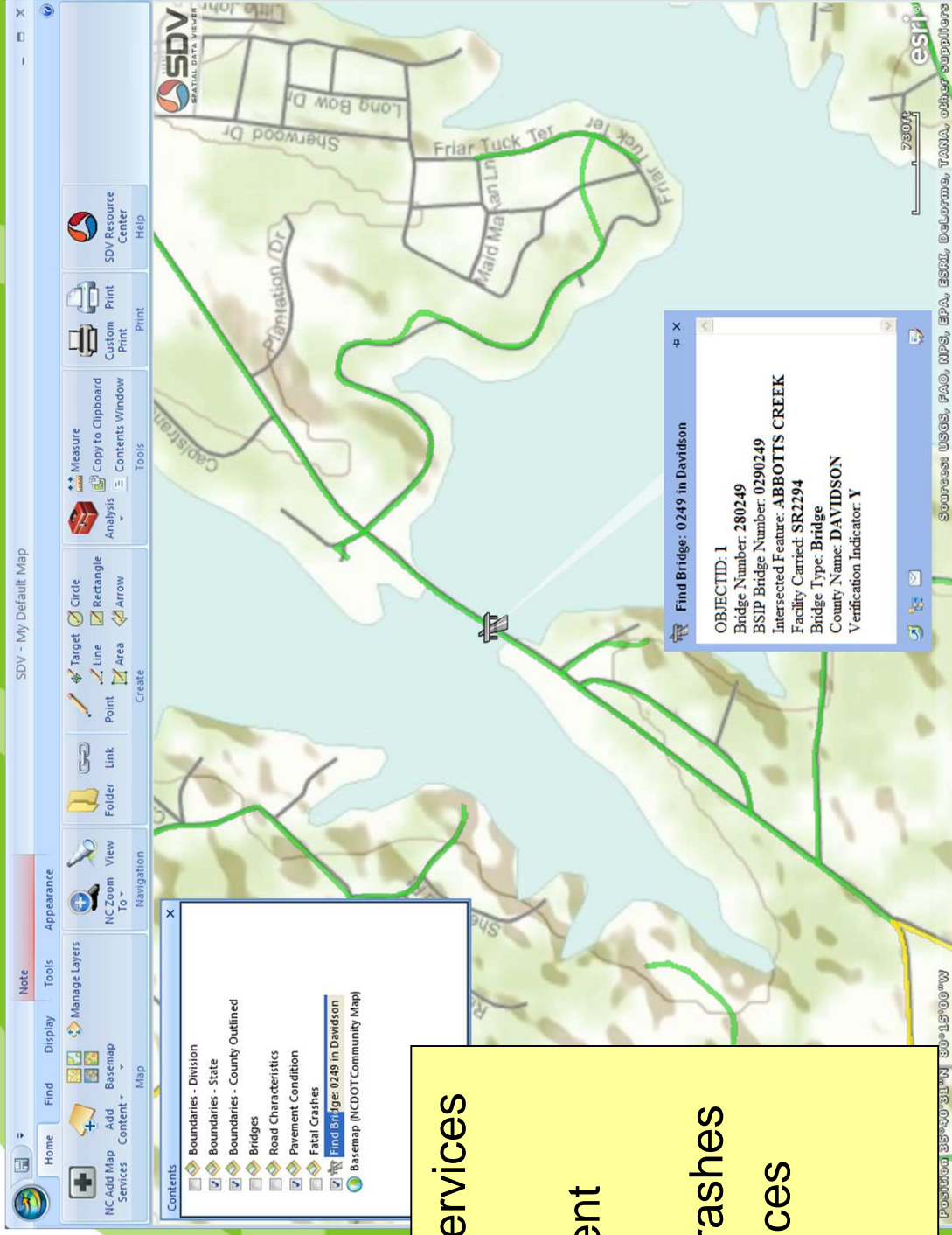


# SDV Training

- Zoom Tools
1. NC Zoom To Street
2. Mouse -Scroll
3. Go To option
4. Orientation Indicator



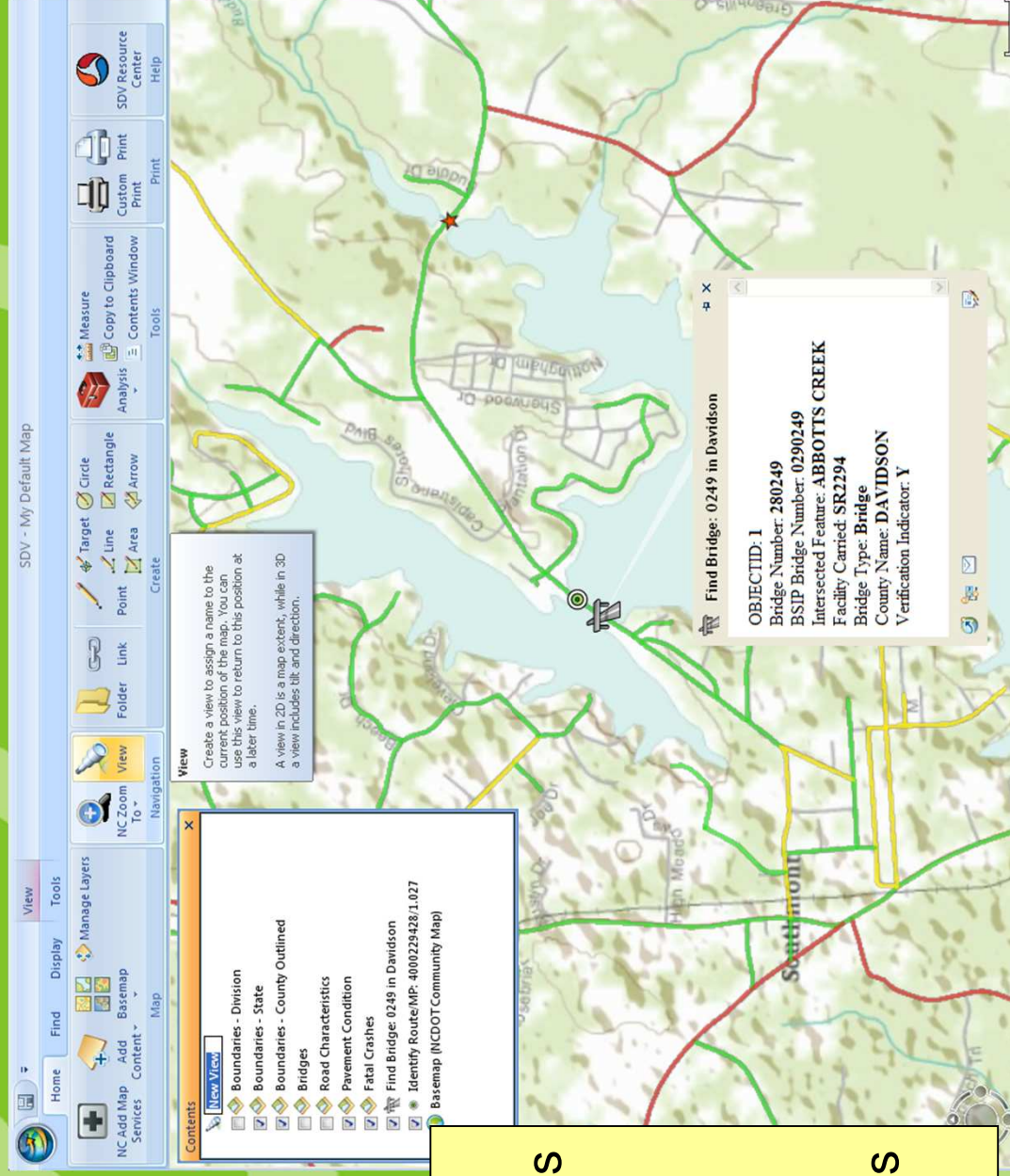
# SDV Training



- Add more Map Services
- 1. Home tab
- 2. Select Pavement Condition
- 3. Select Fatal Crashes
- 4. Add Map Services



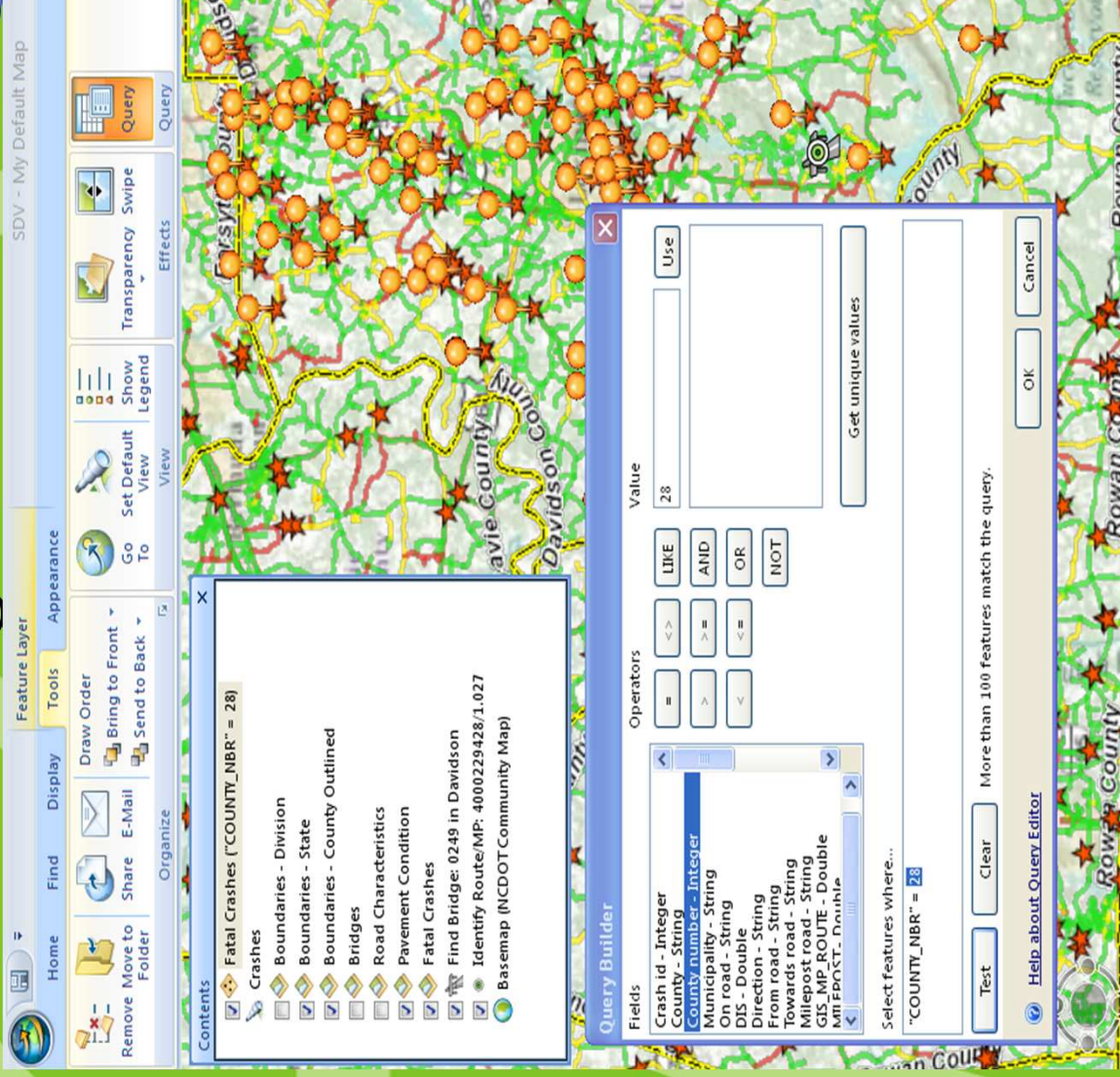
# SDV Training



- Perform more analysis
1. Click on Fatal Crashes
  2. Click on Pavement Condition
  3. Select View in Navigation Group
  4. Save View as Crashes

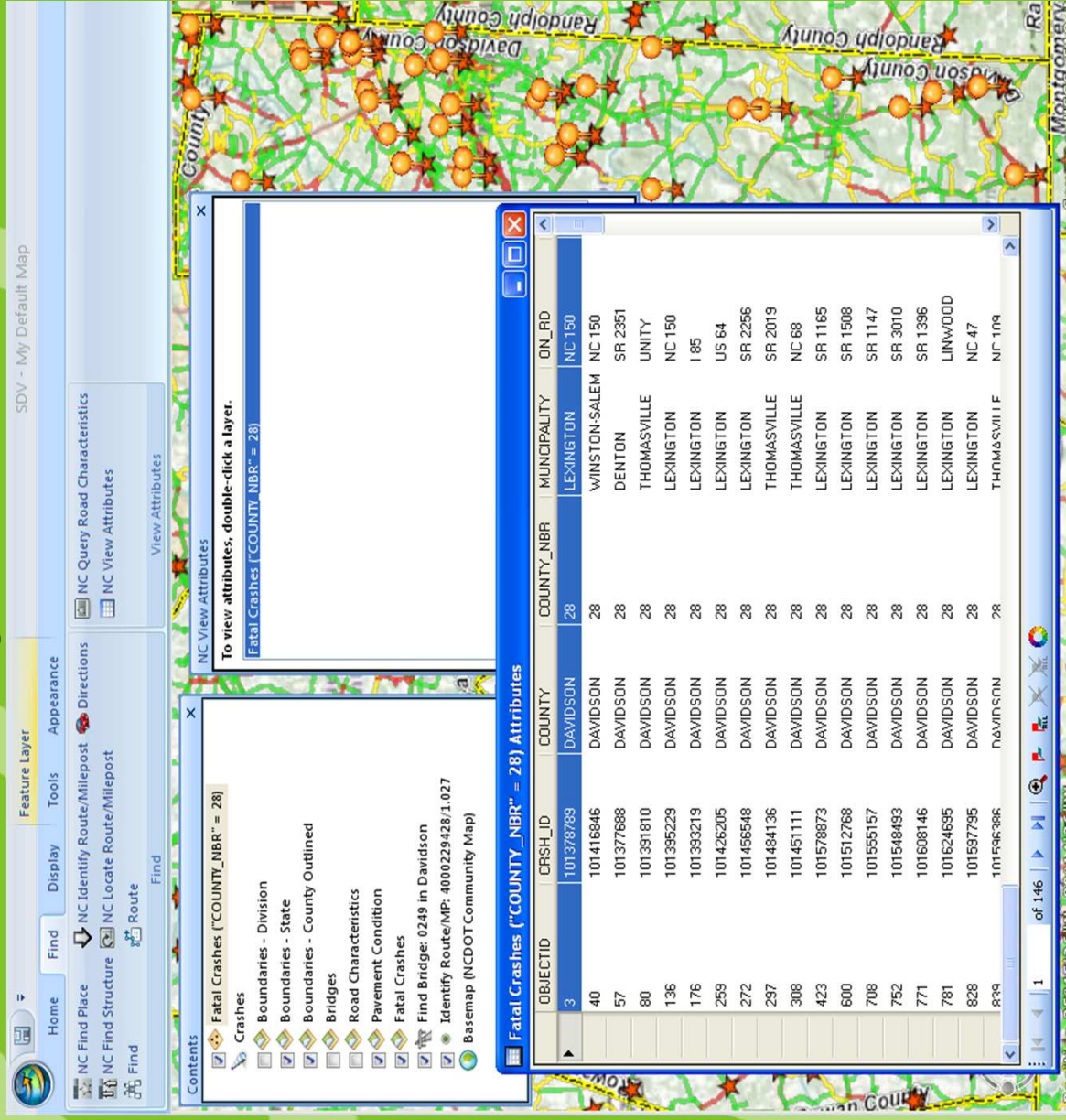
Perform more analysis

1. Click on Fatal Crashes
2. Click Query in Tools tab
3. Write statement
4. Test and say OK





# SDV Training

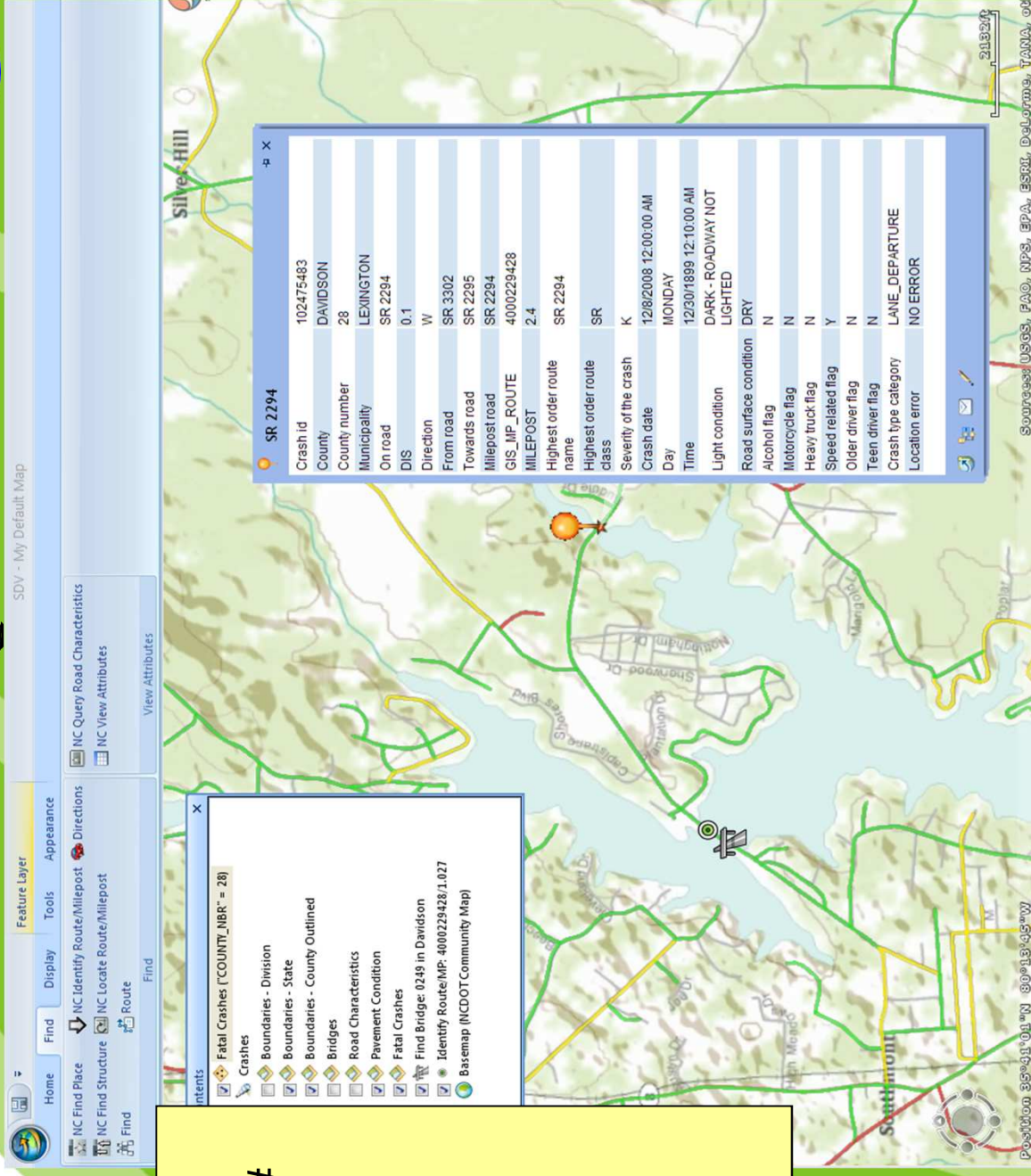


The screenshot shows the SDV interface with a map of Davidson County, NC. A query window titled 'Fatal Crashes ("COUNTY\_NBR" = 28)' is open, displaying a table of crash data. The table includes columns for OBJECTID, CRASH\_ID, COUNTY, COUNTY\_NBR, MUNICIPALITY, and ON\_RD. The data shows various crash events across different municipalities in Davidson County.

OBJECTID	CRASH_ID	COUNTY	COUNTY_NBR	MUNICIPALITY	ON_RD
3	101378783	DAVIDSON	28	LEXINGTON	NC 150
40	101418846	DAVIDSON	28	WINSTON-SALEM	NC 150
57	101377688	DAVIDSON	28	DENTON	SR 2351
80	101391810	DAVIDSON	28	THOMASVILLE	UNITY
136	101395229	DAVIDSON	28	LEXINGTON	NC 150
176	101393219	DAVIDSON	28	LEXINGTON	I 85
259	101426205	DAVIDSON	28	LEXINGTON	US 64
272	101456548	DAVIDSON	28	LEXINGTON	SR 2256
297	101484136	DAVIDSON	28	THOMASVILLE	SR 2019
308	101451111	DAVIDSON	28	THOMASVILLE	NC 68
423	101578873	DAVIDSON	28	LEXINGTON	SR 1165
600	101512768	DAVIDSON	28	LEXINGTON	SR 1508
708	101555157	DAVIDSON	28	LEXINGTON	SR 1147
752	101548493	DAVIDSON	28	LEXINGTON	SR 3010
771	101608146	DAVIDSON	28	LEXINGTON	SR 1396
781	101624695	DAVIDSON	28	LEXINGTON	SR 1396
828	101597795	DAVIDSON	28	LEXINGTON	LINWOOD
839	101596386	DAVIDSON	28	THOMASVILLE	NC 47

## Review Attributes

1. Click Find tab
2. Double-click the results from the query
3. Attributes table becomes available
4. Have any fatal crashes occurred on SR-2294?



SDV - My Default Map

Feature Layer

Home Find Display Tools Appearance

NC Find Place NC Identify Route/Milepost NC Query Road Characteristics

NC Find Structure NC Locate Route/Milepost NC View Attributes

Find Route View Attributes

Contents

- Fatal Crashes ("COUNTY\_NBR" = 28)
- Crashes
- Boundaries - Division
- Boundaries - State
- Boundaries - County Outlined
- Bridges
- Road Characteristics
- Pavement Condition
- Fatal Crashes
- Find Bridge: 0249 in Davidson
- Identify Route(MP: 4000229428,1.027
- Basemap (NCDOT Community Map)

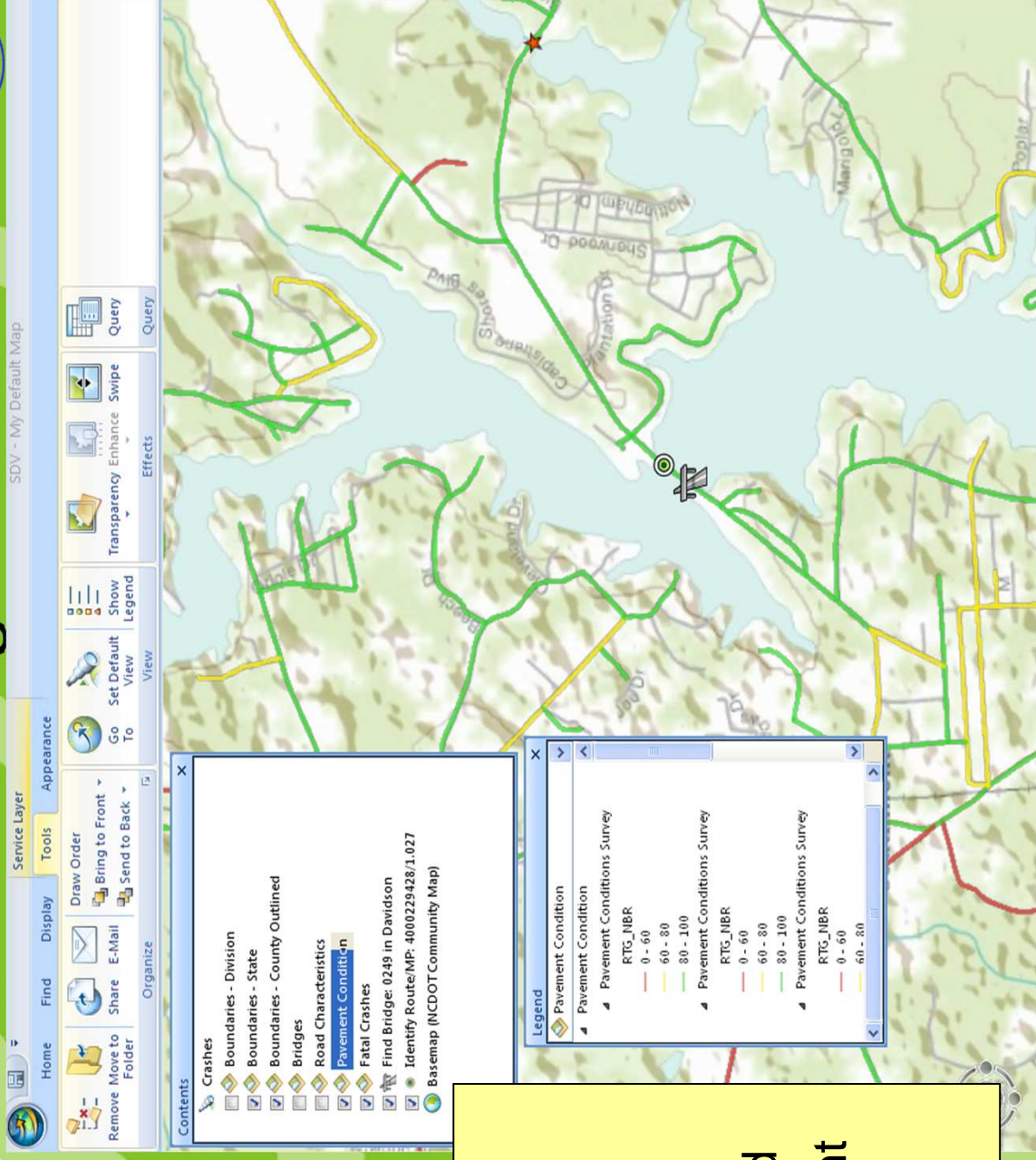
SR 2294	
Crash id	102475483
County	DAVIDSON
County number	28
Municipality	LEXINGTON
On road	SR 2294
DIS	0.1
Direction	W
From road	SR 3302
Towards road	SR 2295
Milepost road	SR 2294
GIS_MP_ROUTE	4000229428
MILEPOST	2.4
Highest order route name	SR 2294
Highest order route class	SR
Severity of the crash	K
Crash date	12/8/2008 12:00:00 AM
Day	MONDAY
Time	12/30/1899 12:10:00 AM
Light condition	DARK - ROADWAY NOT LIGHTED
Road surface condition	DRY
Alcohol flag	N
Motorcycle flag	N
Heavy truck flag	N
Speed related flag	Y
Older driver flag	N
Teen driver flag	N
Crash type category	LANE DEPARTURE
Location error	NO ERROR

## Review Attributes

1. Zoom in to bridge # 249
2. Double-click the closest fatal accident symbol
3. Attributes table becomes available
4. Was this a teen driver?



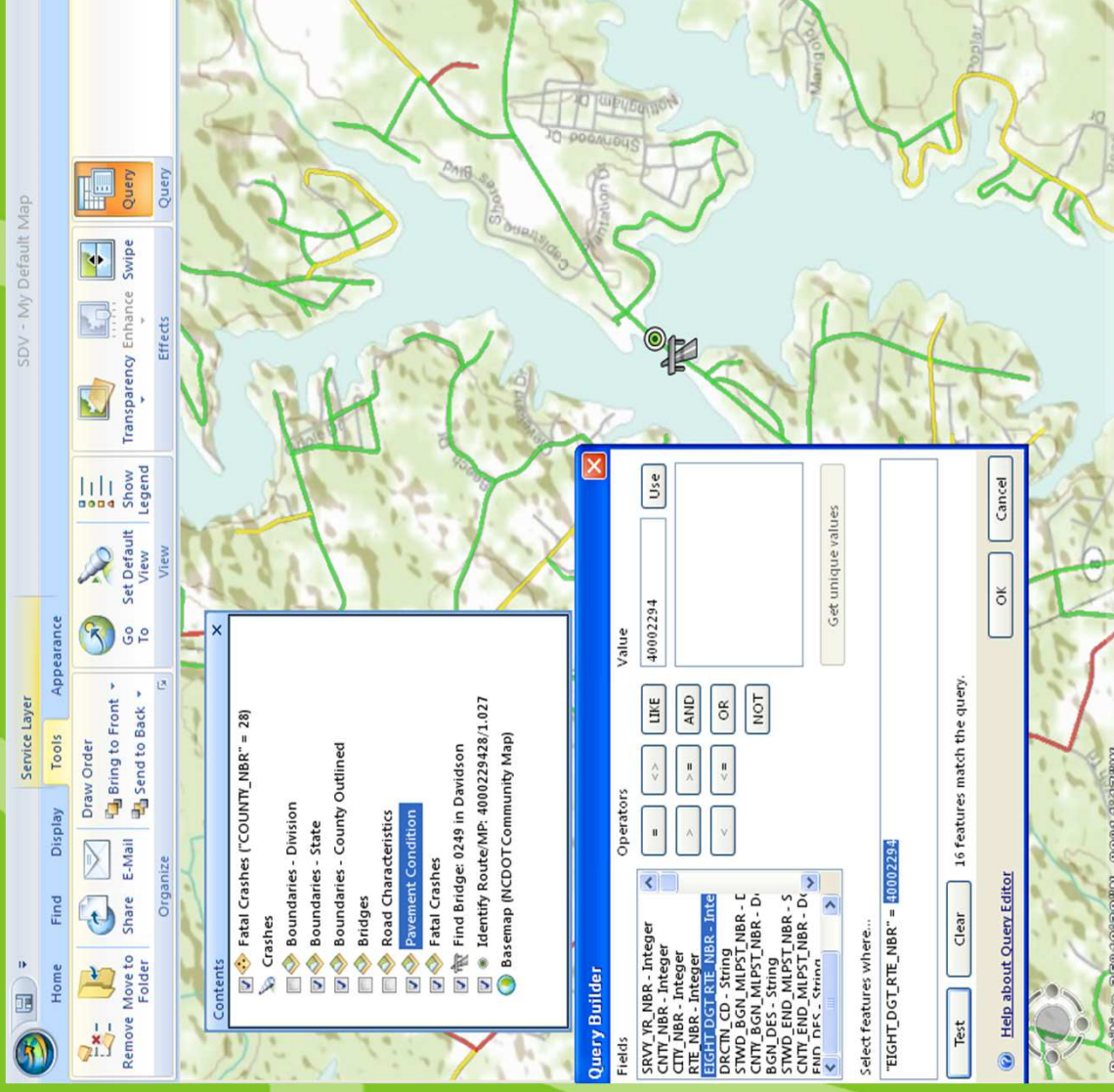
# SDV Training



- Perform more analysis
1. Click on Pavement Condition
  2. Click Tools Tab
  3. Select Show Legend
  4. Determine Pavement Condition

Perform more analysis

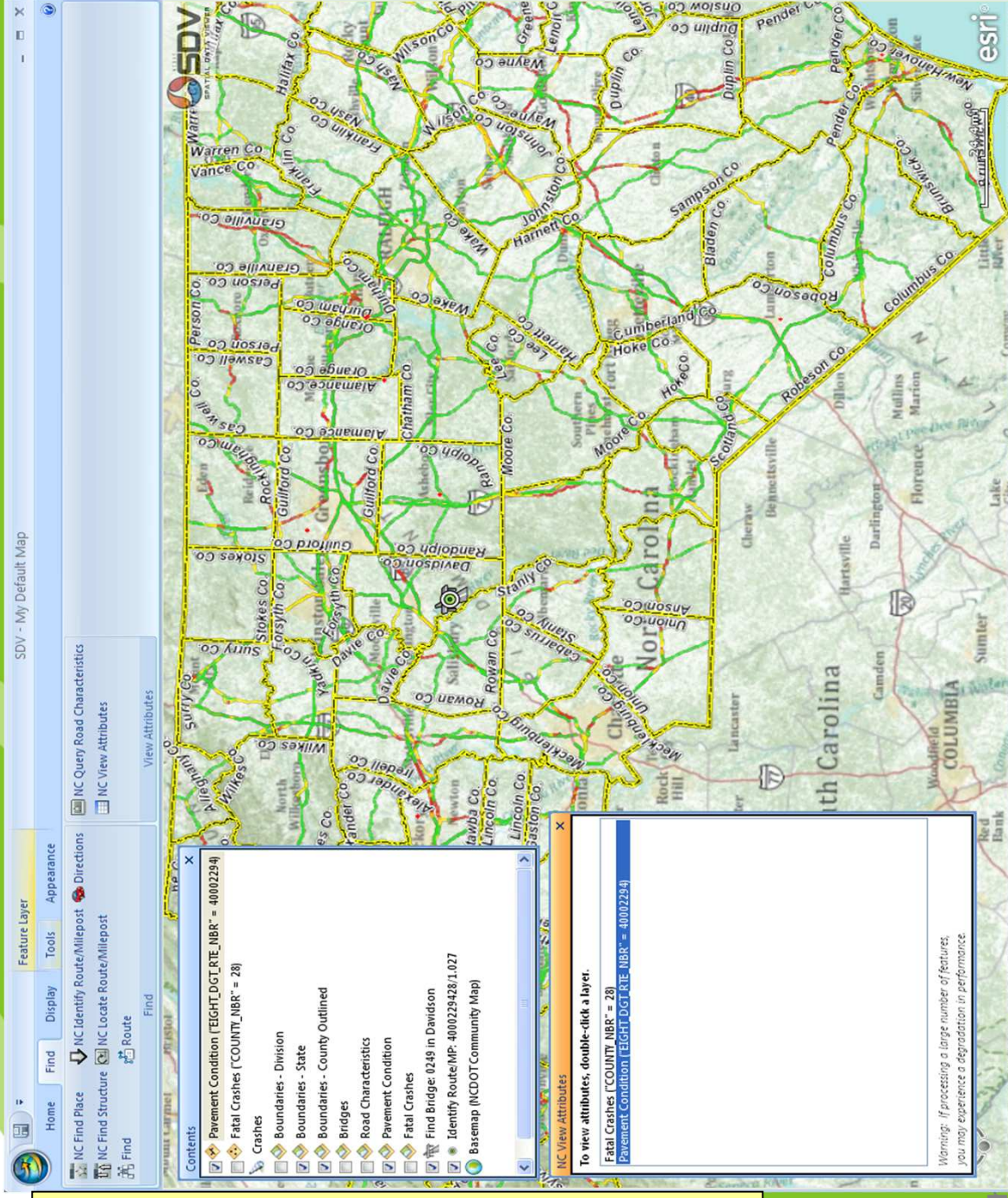
1. Click on Pavement Condition
2. Click Tools Tab
3. Query
4. Use the EIGHT\_DGT\_RTE\_NMR to write SQL (hint – the number is already in Contents Window)
5. Click Use,
6. Click Test
7. Click OK



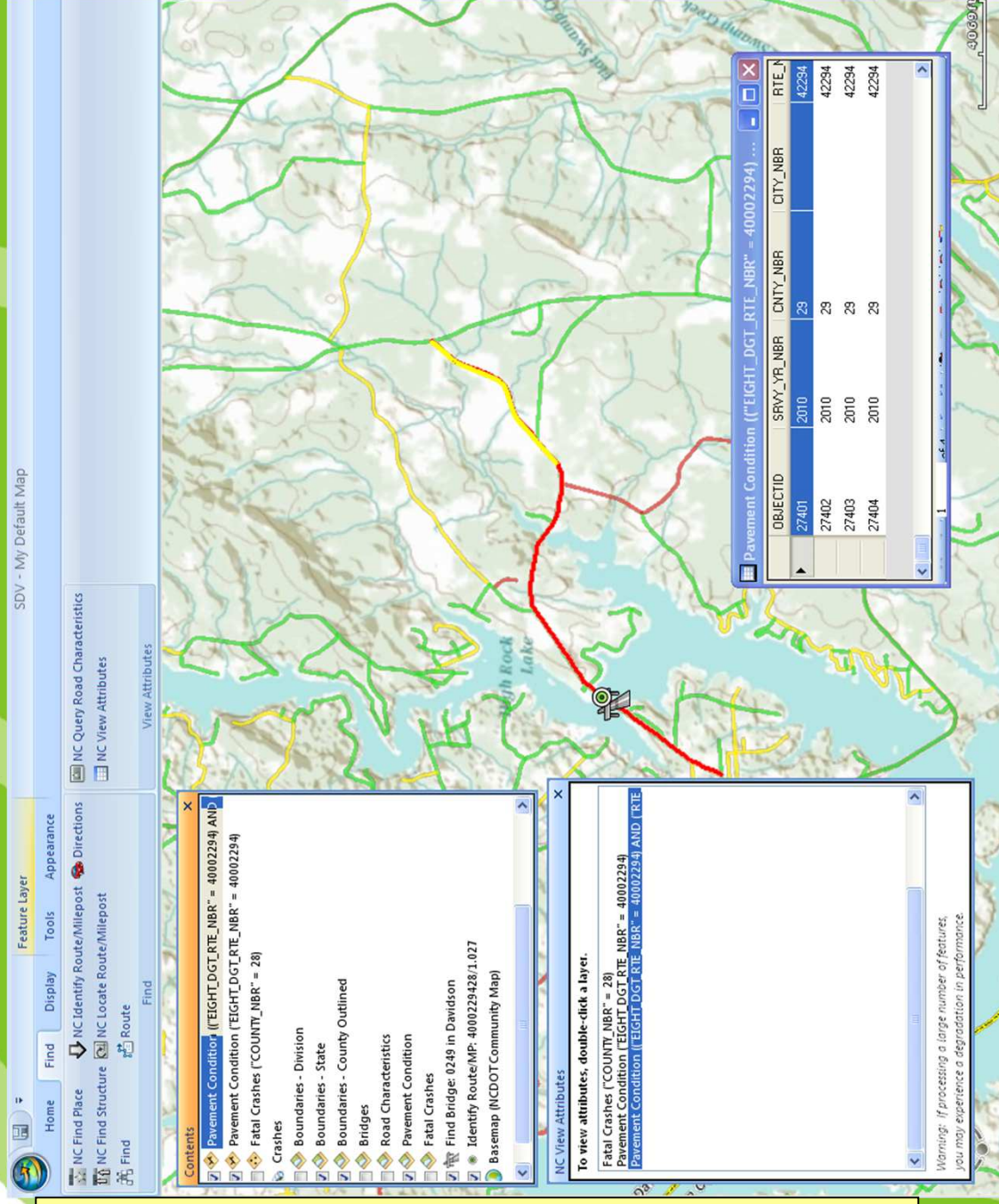


Map Zooms out –  
Why?

1. Click on Find
2. Click NC View Attributes
3. Double-Click Pavement Condition
4. Notice the CNTY\_NBR field



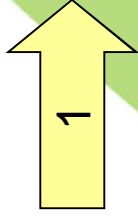




Query the query

1. Click on Pavement condition results
2. Find Tab, Query
3. Use RTE\_ID and string
4. Use & Test
5. Click Find
6. Double-click NC View Attributes
7. Examine results-Symbology & data

# SDV Training



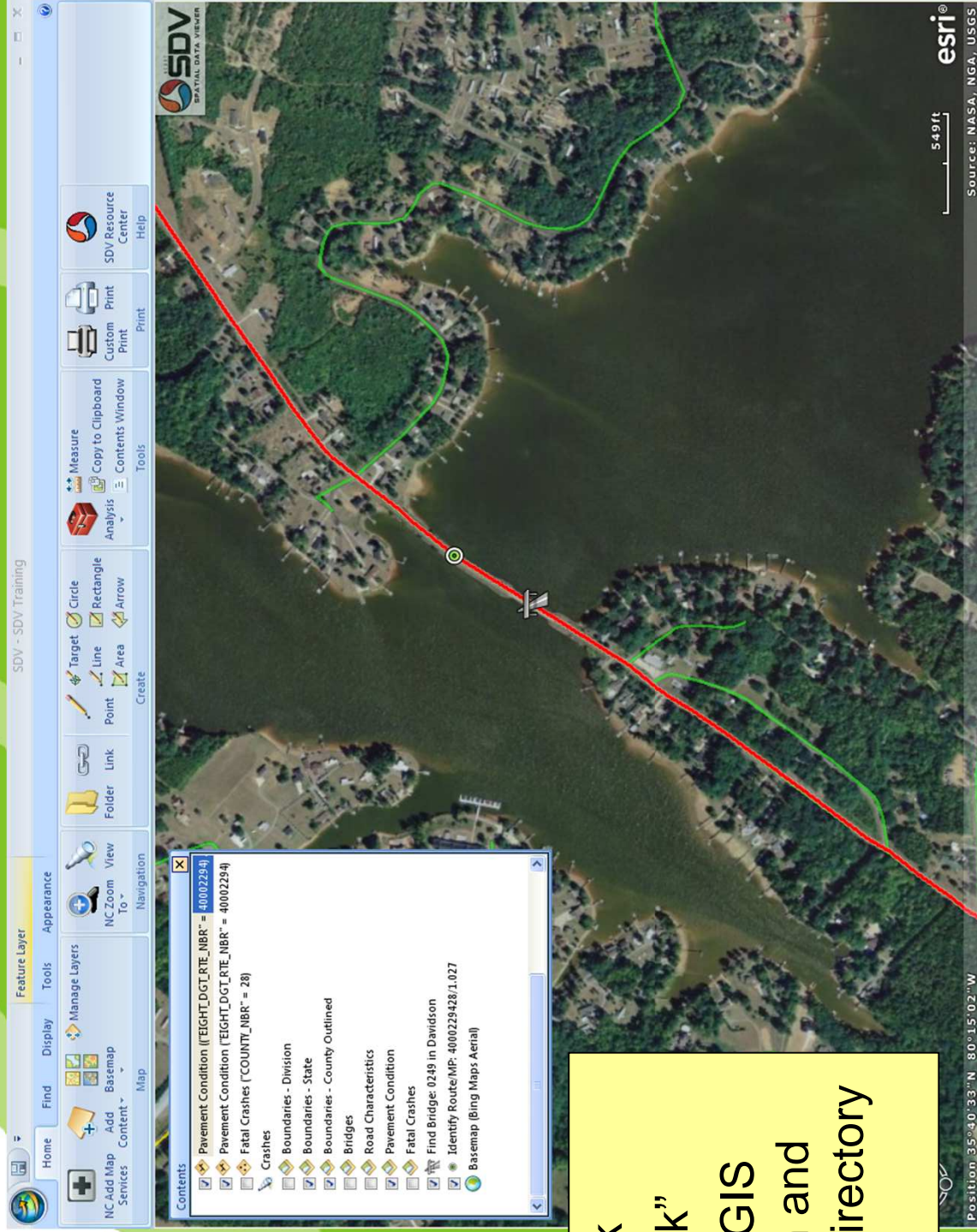
## Change Basemap

1. Click Home tab
2. Click Basemap button
3. Click ESRI World Imagery





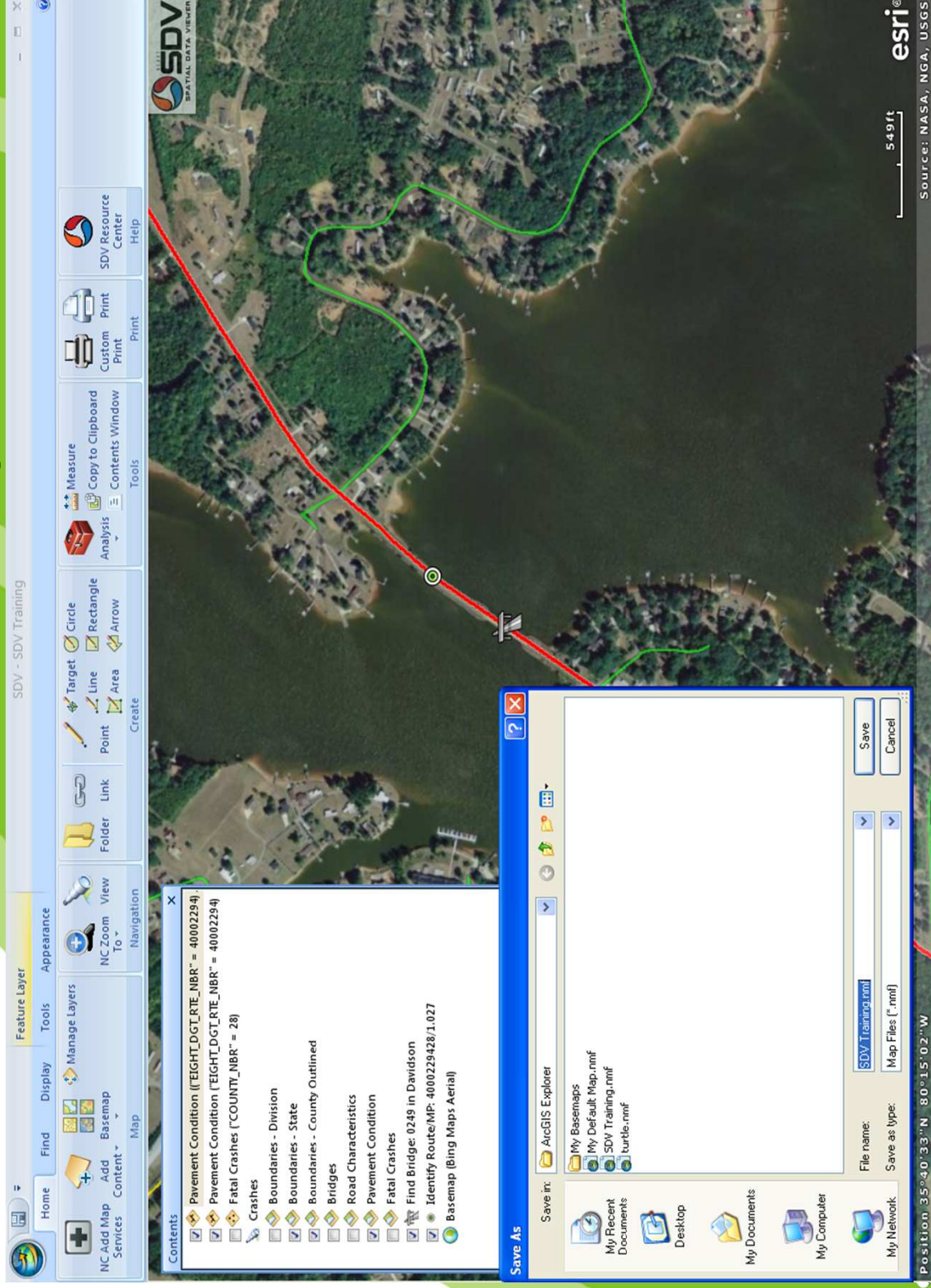
# SDV Training



## Save Your Work

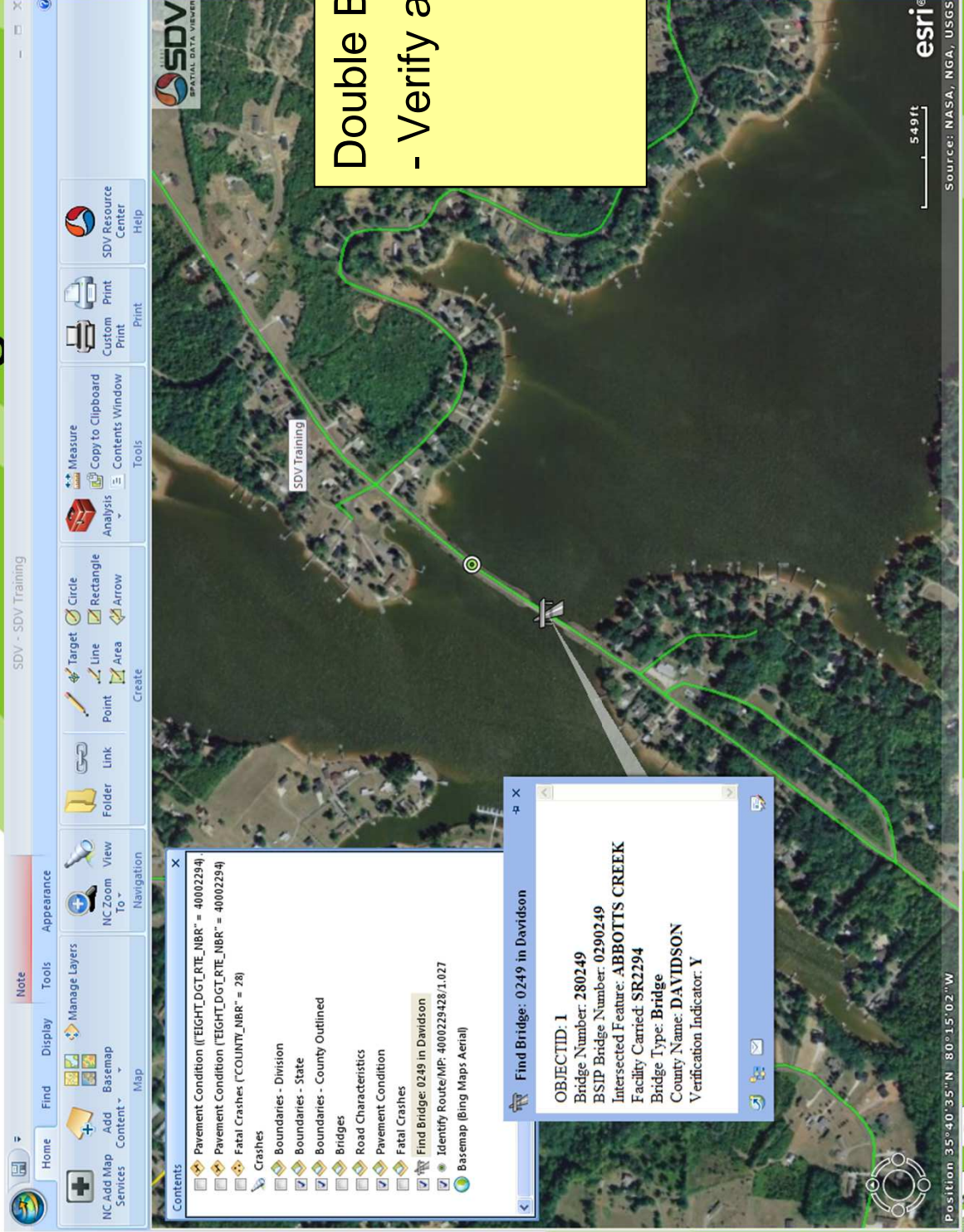
1. Click on "disk"
2. Click on ArcGIS Explorer icon and navigate to directory

# SDV Training

The screenshot displays the SDV Spatial Data Viewer interface. The main map area shows an aerial view of a residential area with a red line and green polygons overlaid. The interface includes a menu bar (Home, Find, Display, Tools, Appearance), a toolbar with various navigation and analysis tools, and a 'Contents' panel on the left. The 'Contents' panel lists several layers, including 'Pavement Condition', 'Fatal Crashes', and 'Find Bridge: 0249 in Davidson'. A 'Save As' dialog box is open in the foreground, showing the file name 'SDV Training.mxf' and the save location 'Map Files (\*.mxf)'. The status bar at the bottom indicates the current position: 35°40'33"N 80°15'02"W. The source is cited as NASA, NGA, USGS.





SDV - SDV Training

**Contents**

- Pavement Condition (EIGHT\_DGT\_RTE\_NBR\* = 40002294)
- Pavement Condition (EIGHT\_DGT\_RTE\_NBR\* = 40002254)
- Fatal Crashes (COUNTY\_NBR\* = 28)
- Crashes
- Boundaries - Division
- Boundaries - State
- Boundaries - County Outlined
- Bridges
- Road Characteristics
- Pavement Condition
- Fatal Crashes
- Find Bridge: 0249 in Davidson
- Identify Route/MP: 4000229428/1.027
- Basemap (Bing Maps Aerial)

**Find Bridge: 0249 in Davidson**

OBJECTID: 1  
 Bridge Number: 280249  
 BSIP Bridge Number: 0290249  
 Intersected Feature: ABBOTTS CREEK  
 Facility Carried: SR2294  
 Bridge Type: Bridge  
 County Name: DAVIDSON  
 Verification Indicator: Y

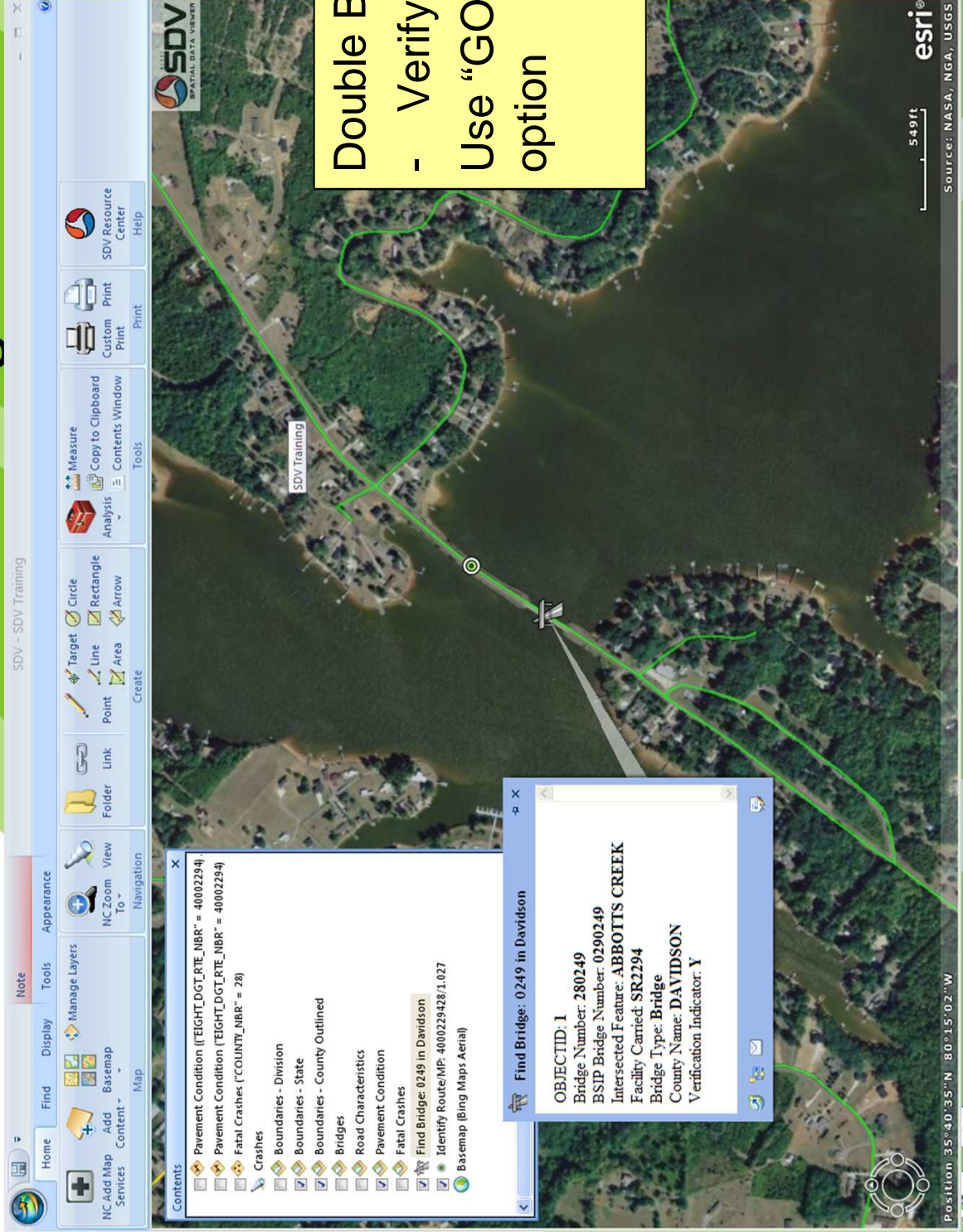
SDV  
SPATIAL DATA VIEWER

549ft  
 esri®  
 Source: NASA, MGA, USGS

Position: 35°40'35"N 80°15'02"W

Double Bridge Icon  
 - Verify attributes





SDV - SDV Training

Contents

- Pavement Condition (EIGHT\_DGT\_RTE\_NBR\* = 40002294)
- Pavement Condition (EIGHT\_DGT\_RTE\_NBR\* = 40002254)
- Fatal Crashes (COUNTY\_NBR\* = 28)
- Crashes
- Boundaries - Division
- Boundaries - State
- Boundaries - County Outlined
- Bridges
- Road Characteristics
- Pavement Condition
- Fatal Crashes
- Find Bridge: 0249 in Davidson
- Identify Route/MIP: 4000229428/1,027
- Basemap (Bing Maps Aerial)

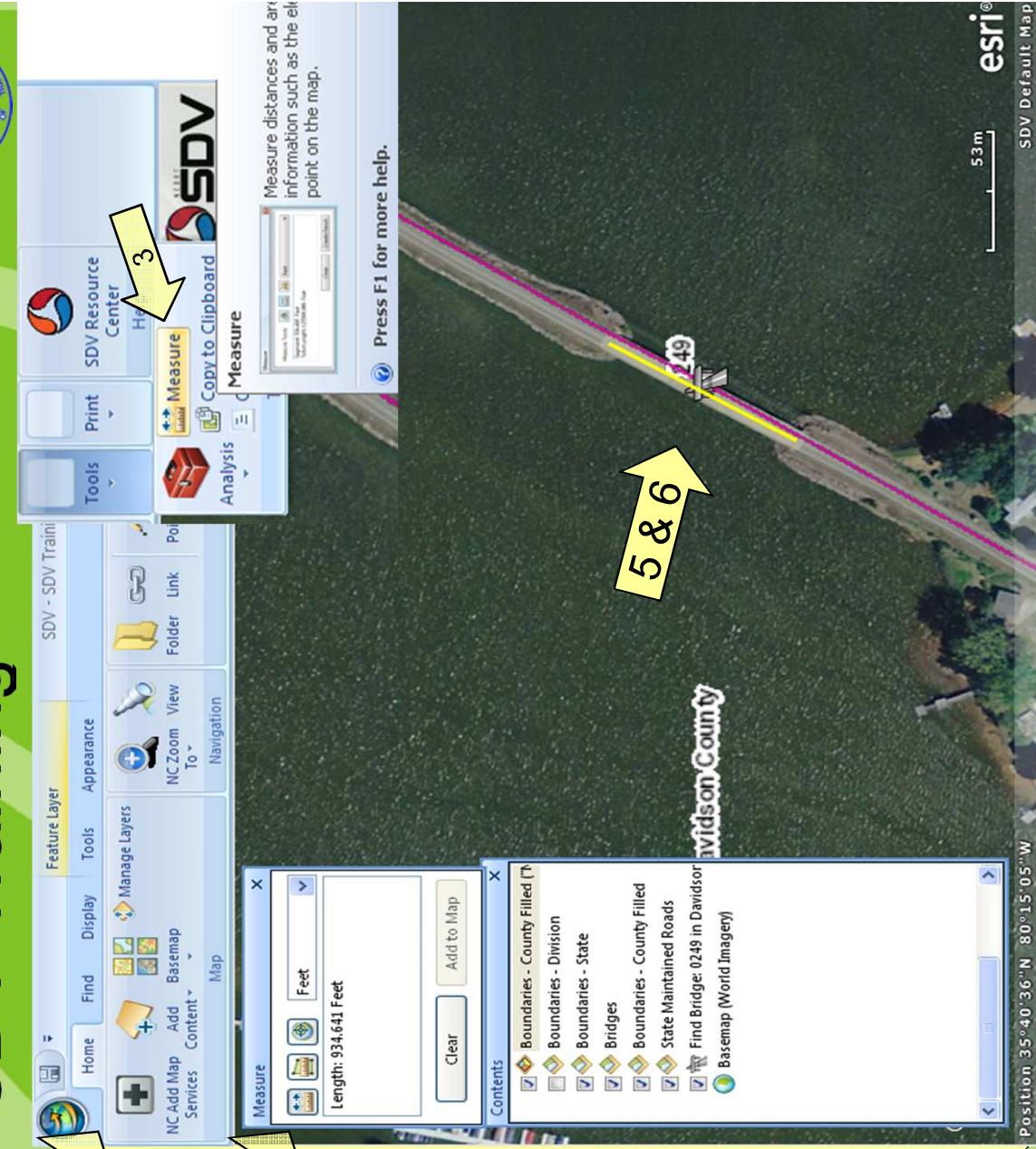
Find Bridge: 0249 in Davidson

OBJECTID: 1  
 Bridge Number: 280249  
 BSIP Bridge Number: 0290249  
 Intersected Feature: ABBOTTS CREEK  
 Facility Carried: SR2294  
 Bridge Type: Bridge  
 County Name: DAVIDSON  
 Verification Indicator: Y

549ft  
 esri®  
 Source: NASA, NGA, USGS

Position: 35°40'35"N 80°15'02"W

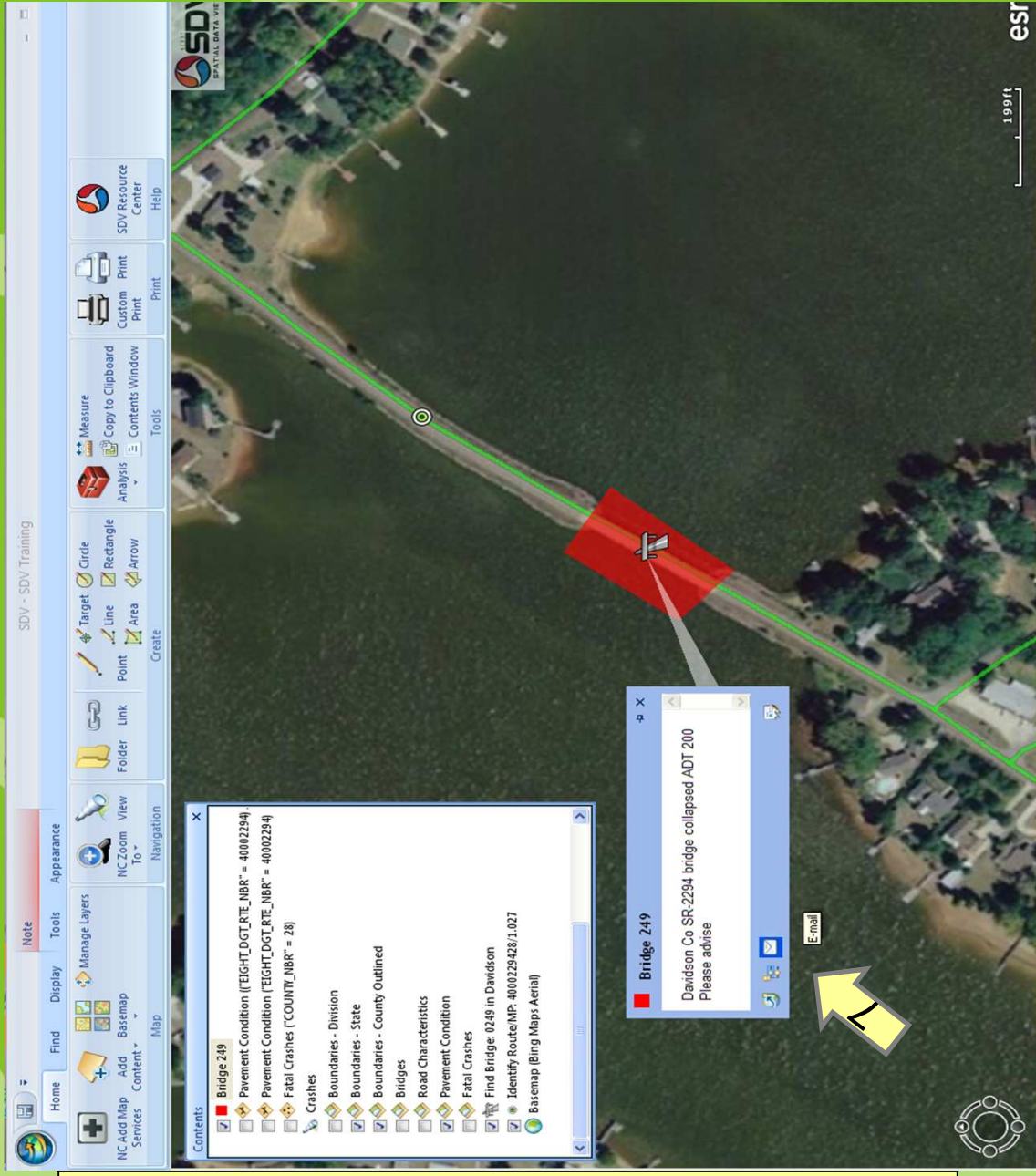
# SDV Training



## Measure Collapsed Bridge

1. Click Home tab
2. Click Tools
3. Click Measure tool
4. Click the first button for length and the middle button to measure area and select unit of measurement
5. Click, draw line, then double click to finish
6. Measured area gets hi-lighted





## Create a Note

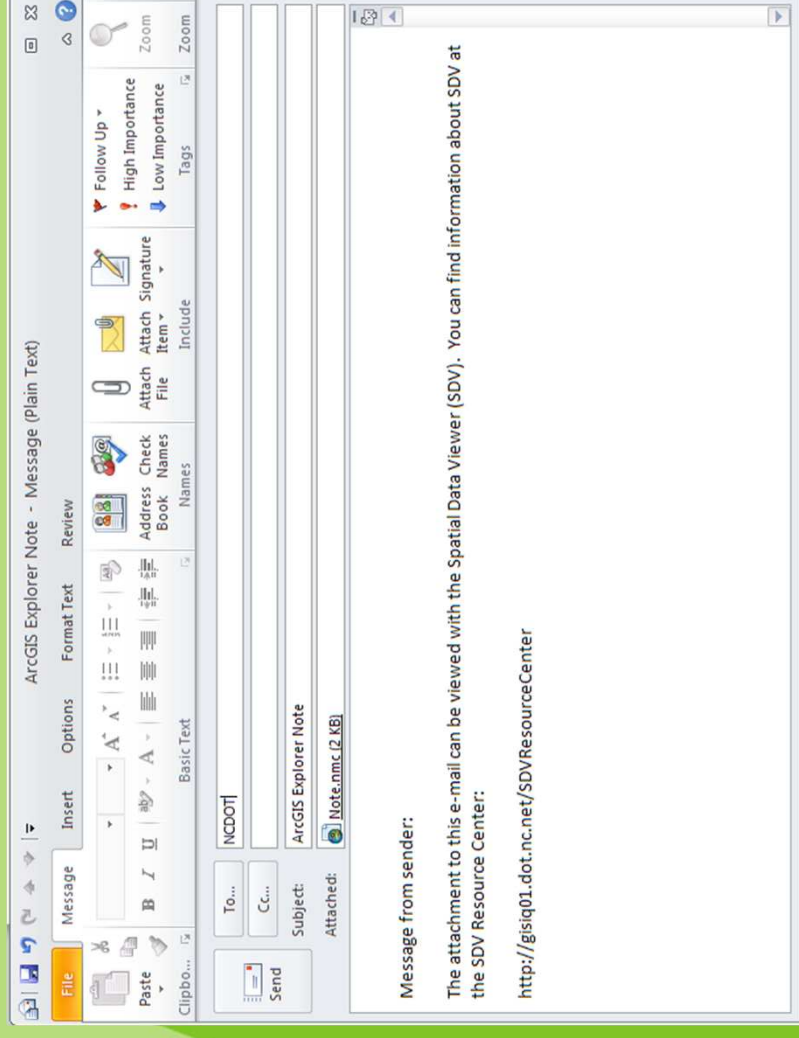
1. Click Note tab
2. Click Area under Tools tab
3. Click on the map to outline the area of concern
4. Finish the area by double clicking
5. Add information to the note window
6. OK
7. Click Email



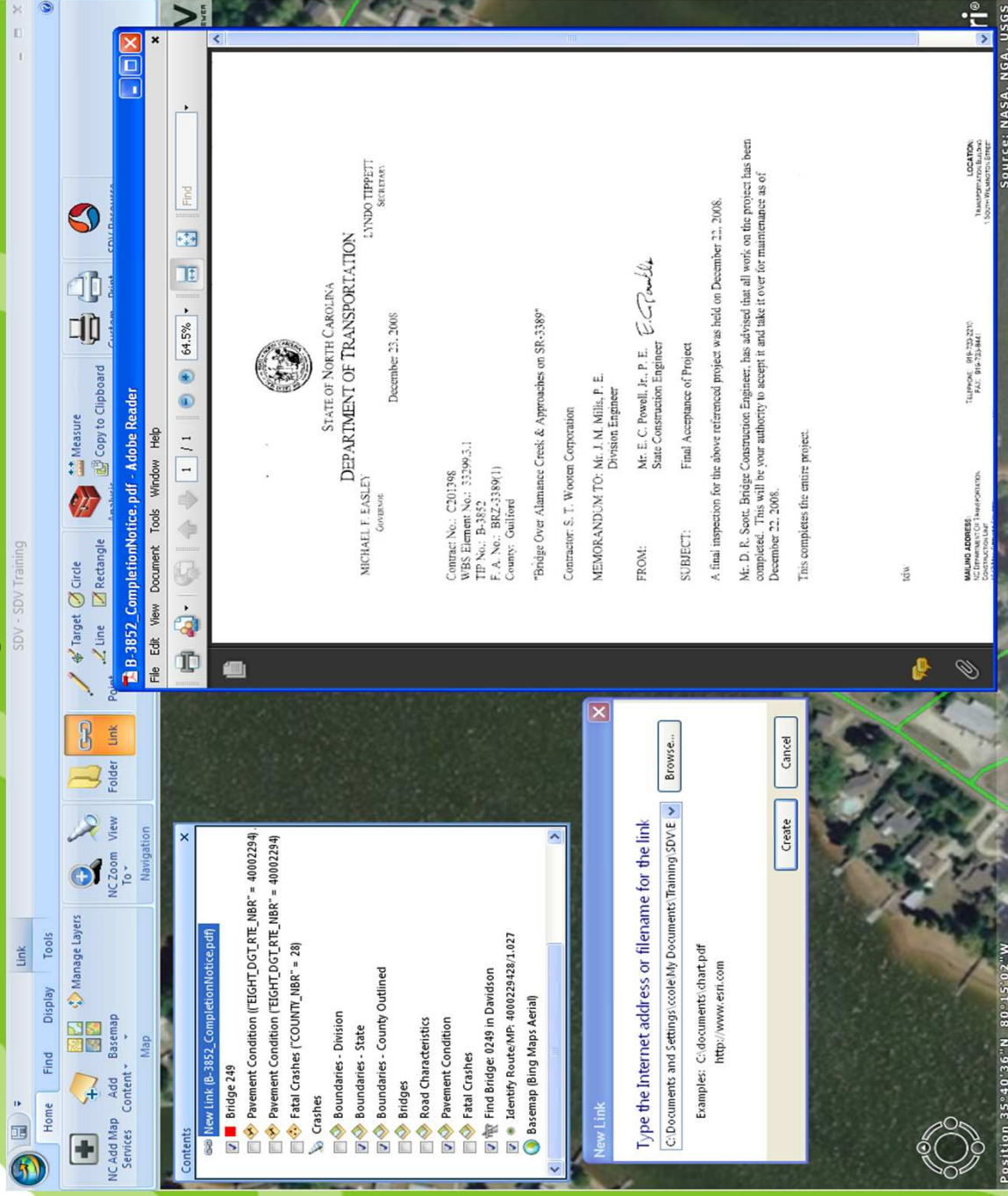
# SDV Training



- Sending E-Mail Options
1. Click E-Mail icon on note
  2. ArcGIS Explorer button
  3. Click Share
    - E-mail Map sends a map package, others will need the same access to the data
    - E-mail View sends a jpg
    - You can also right click the mouse and select Share option

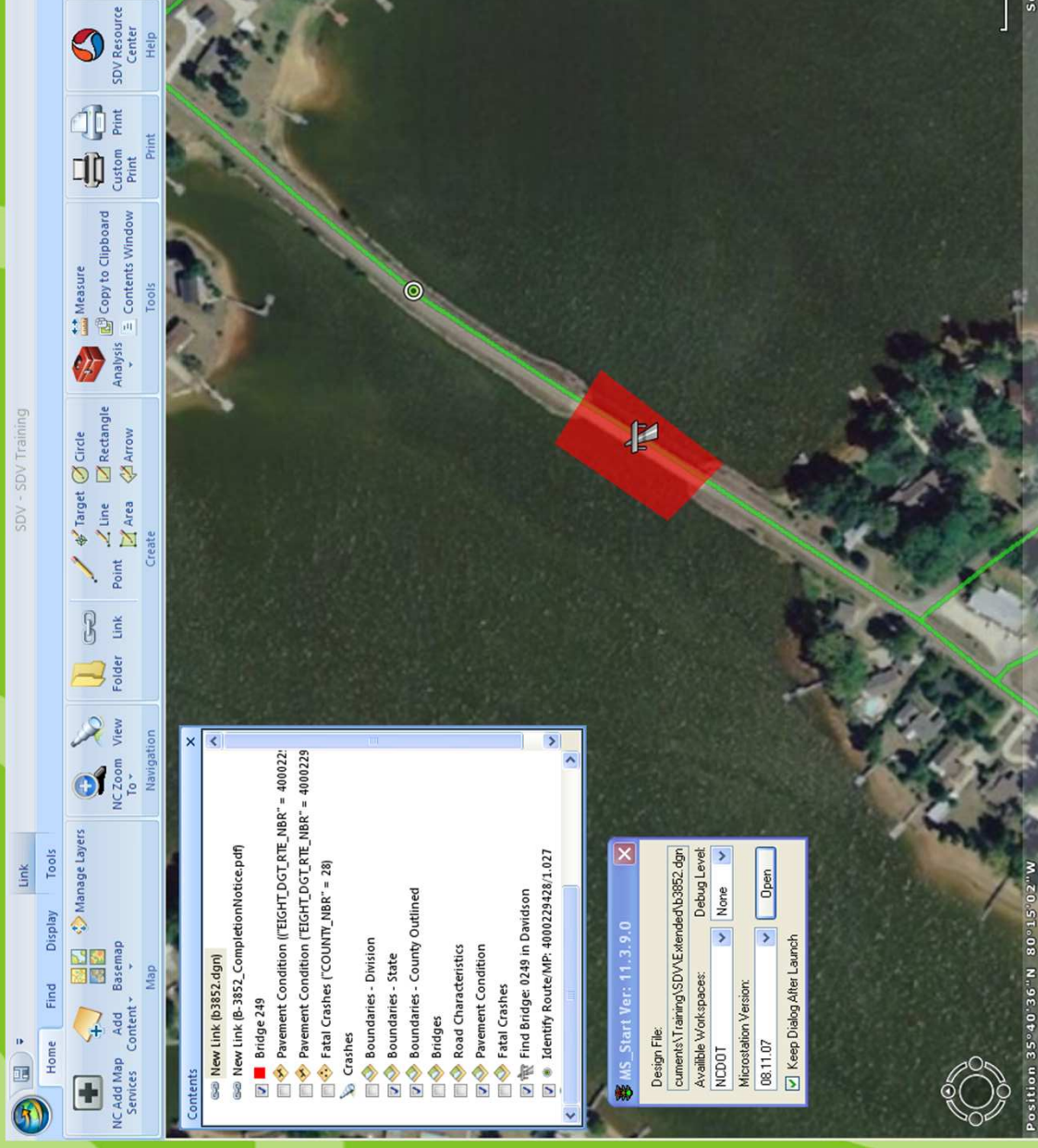


1. Add a link to documents
2. Click Link icon
3. Navigate to correct directory
4. Click on the new link in the Contents Window
5. Rename link



The screenshot shows the SDV Training interface. On the left is a map with a 'Link' icon. A 'Contents' window is open, listing various layers like 'Bridge 249', 'Pavement Condition', and 'Fatal Crashes'. A 'New Link' dialog box is open, prompting the user to 'Type the Internet address or filename for the link'. The dialog shows the current path as 'C:\Documents and Settings\coole\My Documents\Training\SDVE' and provides a 'Browse...' button. In the background, a PDF document is displayed, which is a memorandum from the North Carolina Department of Transportation, dated December 21, 2008, regarding a project on SR-3389.

# SDV Training



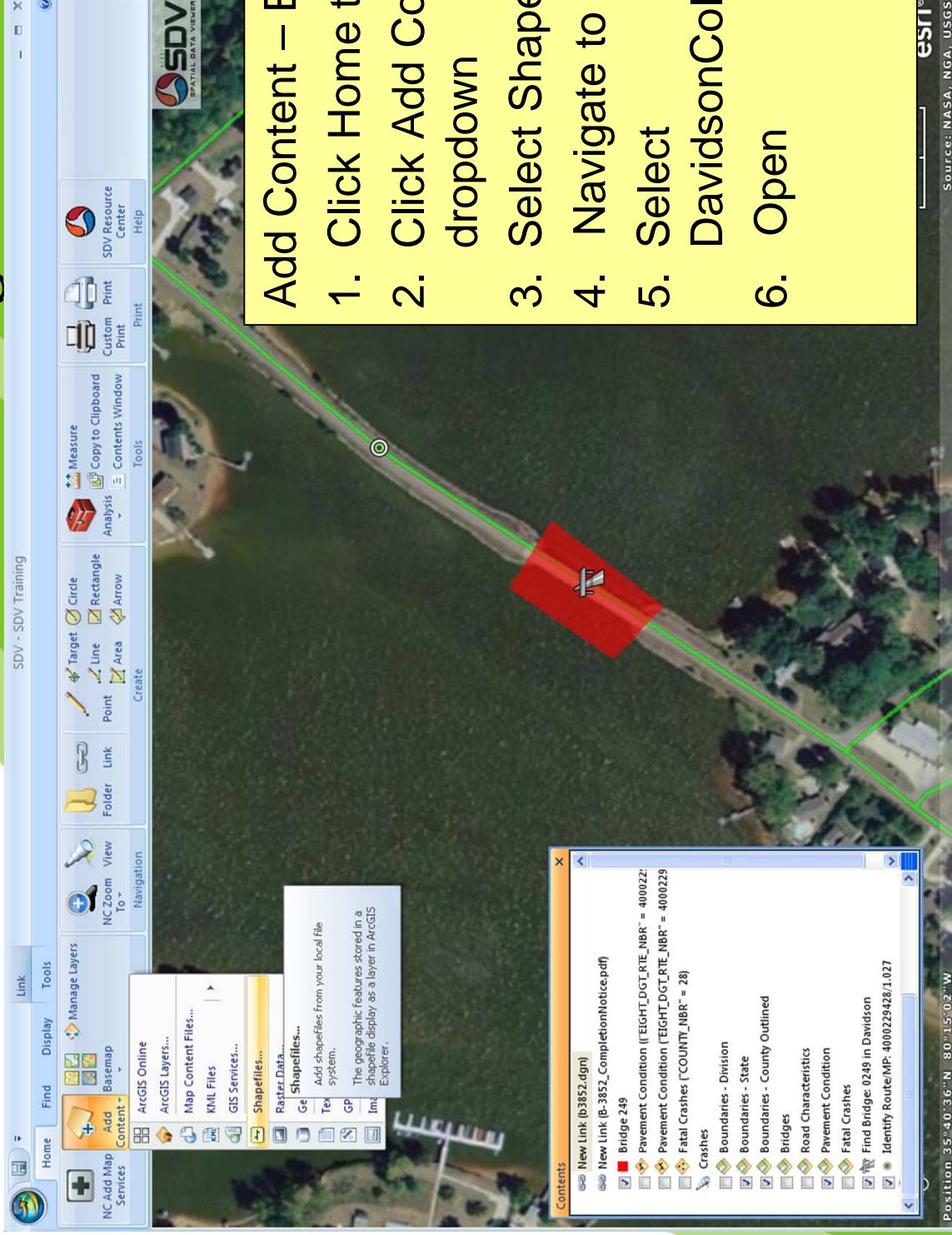
1. Add Link to .dgn
2. Click Home Tab
3. Click Link
4. Navigate to directory for .dgn
5. Double-click link to .dgn in Contents Window
6. Open new dialog



# SDV Training



Microstation opens  
with .dgn displayed

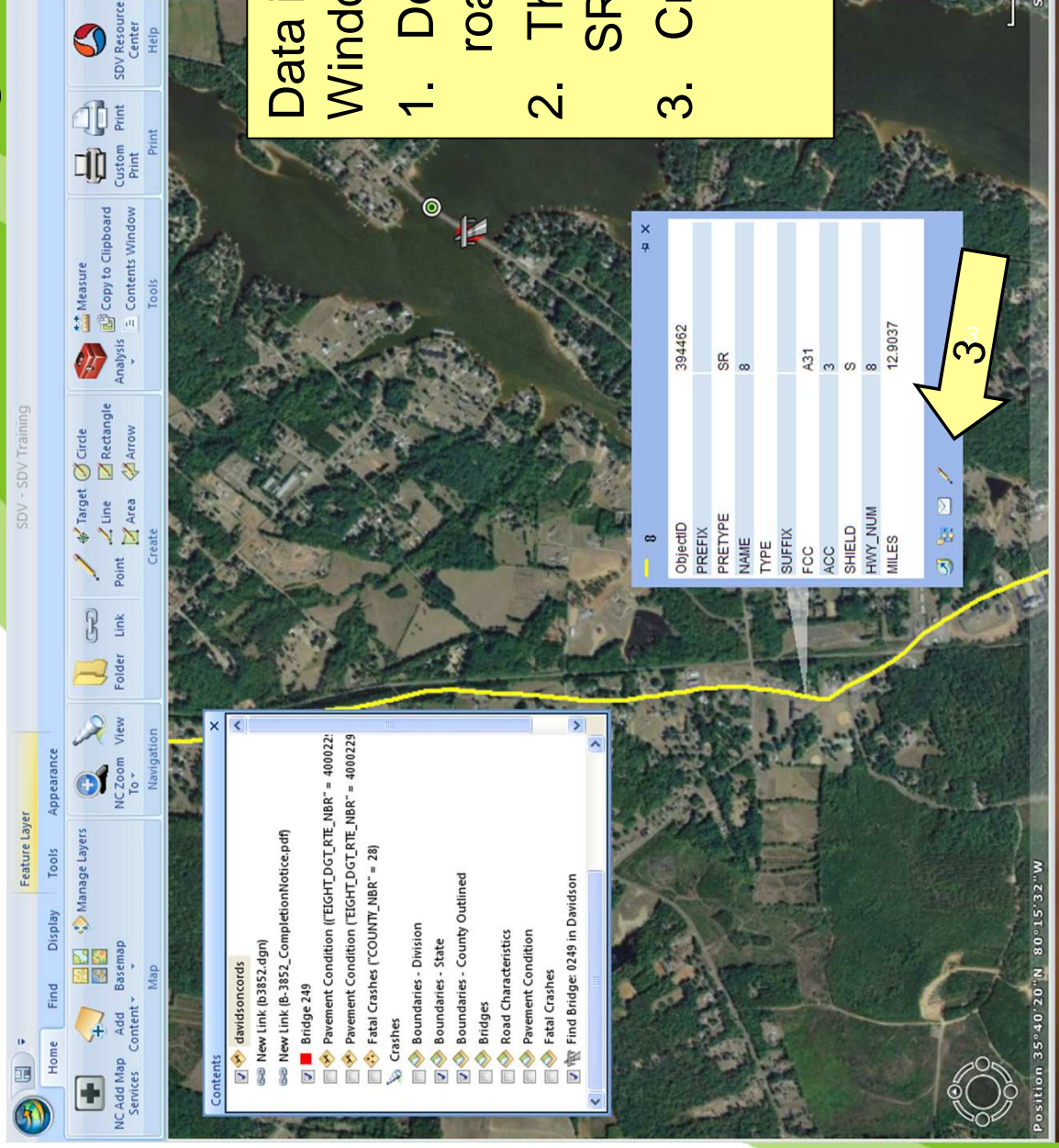


The screenshot shows the SDV Spatial Data Viewer interface. The 'Add Content' menu is open, showing options like 'ArcGIS Online', 'Map Content Files...', 'KML Files', 'GIS Services...', 'Shapefiles...', 'Raster Data...', 'Geotiffs', 'Text Files', 'GP Files', and 'Imagery'. A tooltip for 'Shapefiles...' explains that geographic features are stored in a shapefile and displayed as a layer in ArcGIS Explorer. A red box highlights the 'Add Content' button in the top toolbar. The 'Contents' window is open, showing a list of layers including 'New Link (03652.dgn)', 'New Link (03652\_CompletionNotice.pdf)', 'Bridge 249', 'Payment Condition ("EIGHT\_DGT\_RTE\_NBR" = 400022)', 'Payment Condition ("EIGHT\_DGT\_RTE\_NBR" = 4000229)', 'Fatal Crashes ("COUNTY\_NBR" = 28)', 'Crashes', 'Boundaries - Division', 'Boundaries - State', 'Boundaries - County Outlined', 'Bridges', 'Road Characteristics', 'Payment Condition', 'Fatal Crashes', 'Find Bridge: 0249 in Davidson', and 'Identify Route/MP: 4000229/428/1.027'. The map background shows an aerial view of a road with a green line and a red box highlighting a specific area.

## Add Content – External Data

1. Click Home tab
2. Click Add Content dropdown
3. Select Shapefiles
4. Navigate to directory
5. Select DavidsonCoRds.shp
6. Open





The screenshot shows the SDV software interface. The 'Contents' window is open, listing various layers. The 'Attribute Table' window is also open, displaying data for a selected object (ObjectID: 394462). A yellow arrow points to the 'MILES' field in the attribute table, which contains the value 12.9037.

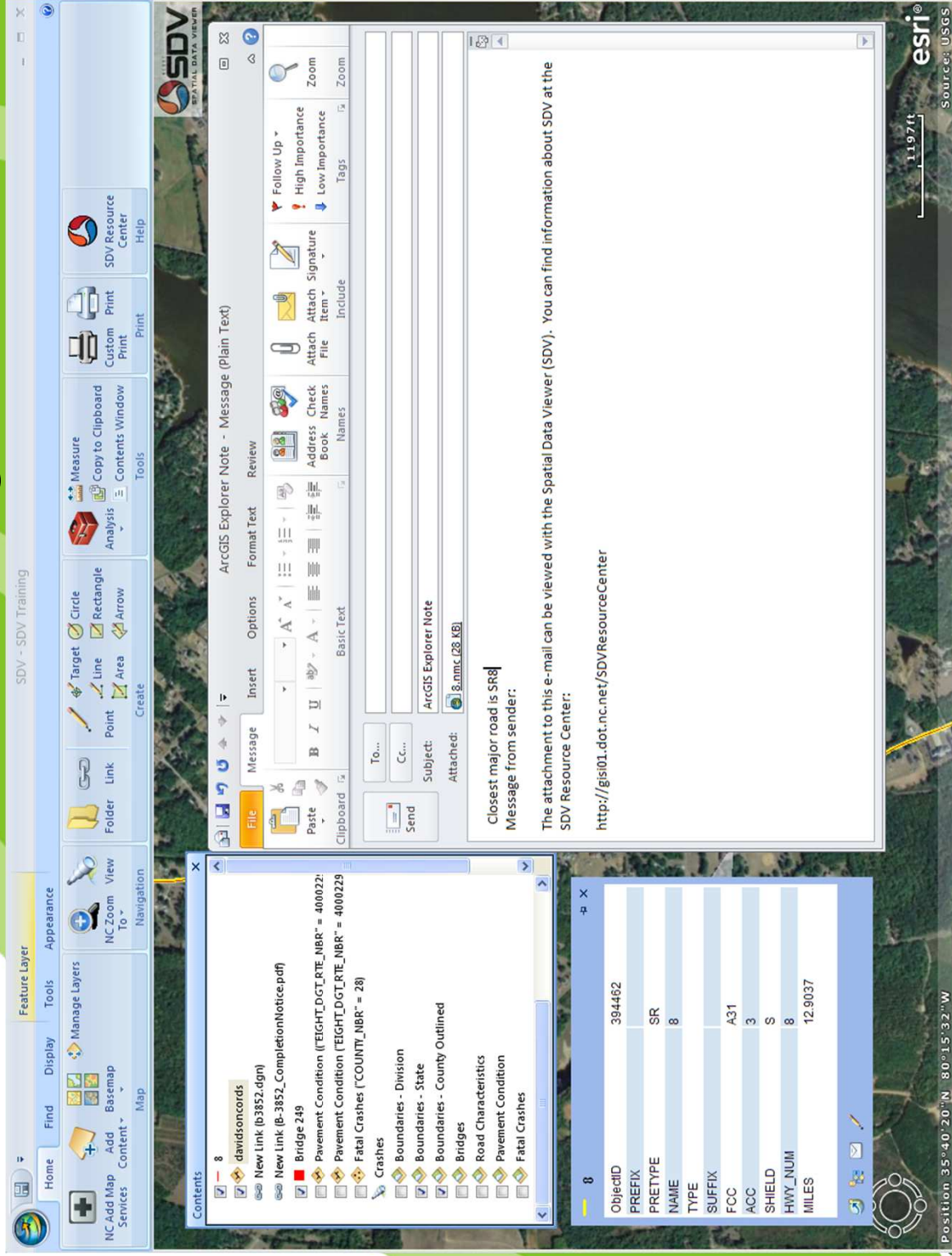
ObjectID	394462
PREFIX	SR
PRETYPE	8
NAME	
TYPE	A31
SUFFIX	3
FCC	S
ACC	8
SHIELD	12.9037
HWY_NUM	
MILES	

Data is added to Contents Window

1. Double-click the major road closest to bridge 249
2. The closest major road is SR-8
3. Create note, send email



# SDV Training



The screenshot displays the SDV Spatial Data Viewer interface. The main window shows a map with a yellow line indicating a road. Several windows are open:

- Contents Window:** Lists layers including 'davidsoncords', 'New Link (B3852.dgm)', 'New Link (B-3852\_CompletionNotice.pdf)', 'Bridge 249', 'Pavement Condition ("EIGHT\_DGT\_RTE\_NBR" = 400022)', 'Pavement Condition ("EIGHT\_DGT\_RTE\_NBR" = 4000229)', 'Fatal Crashes ("COUNTY\_NBR" = 28)', 'Crashes', 'Boundaries - Division', 'Boundaries - State', 'Boundaries - County Outlined', 'Bridges', 'Road Characteristics', 'Pavement Condition', and 'Fatal Crashes'.
- Message Window:** Displays an email message with the subject 'ArcGIS Explorer Note' and an attachment '8.mmc (28 KB)'. The message text reads: 'Closest major road is SR8', 'Message from sender:', 'The attachment to this e-mail can be viewed with the Spatial Data Viewer (SDV). You can find information about SDV at the SDV Resource Center:', and 'http://gis01.dot.nc.net/SDVResourceCenter'.
- Table Window:** Shows a table with the following data:
 

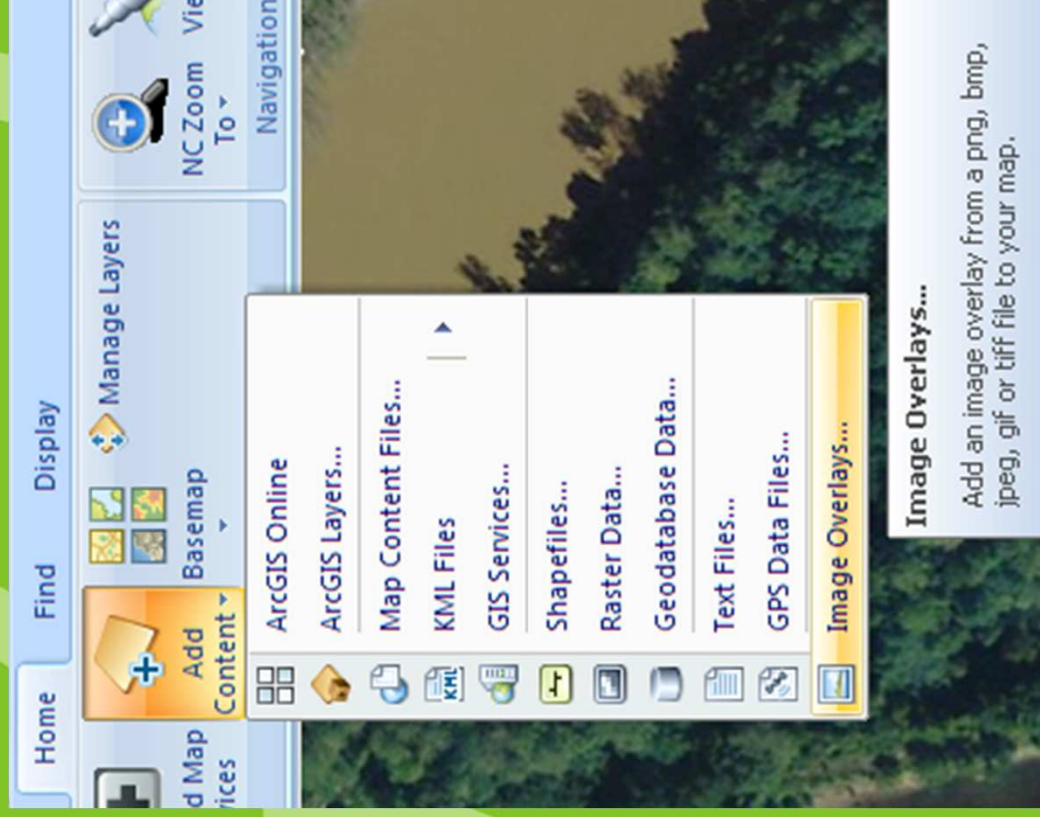
ObjectID	394462
PREFIX	SR
PRETYPE	8
NAME	
TYPE	
SUFFIX	A31
FCC	3
ACC	S
SHIELD	8
HWY_NUM	12.9037
MILES	

# SDV Training

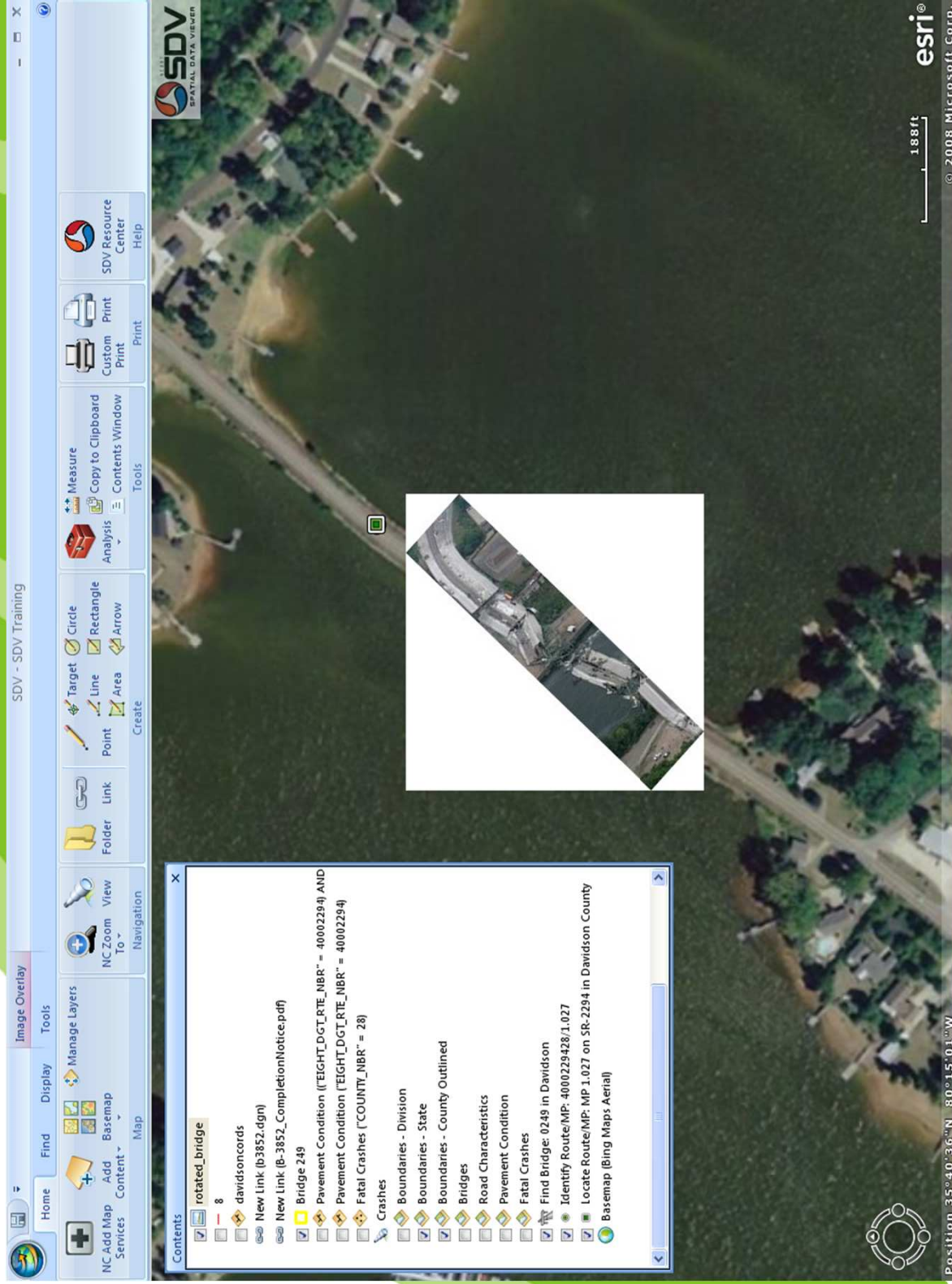


## Add Content – External Data

1. Click Home tab
2. Click Add Content dropdown
3. Select File type and path



# SDV Training

The screenshot displays the SDV Spatial Data Viewer interface. The main window shows an aerial map of a road area. An inset image in the center shows a close-up of a bridge structure. A 'Contents' window is open in the bottom-left corner, listing various data layers. The interface includes a menu bar (File, Edit, View, Tools, Window, Help), a toolbar with icons for navigation and analysis, and a status bar at the bottom right showing coordinates and scale.

**Contents Window:**

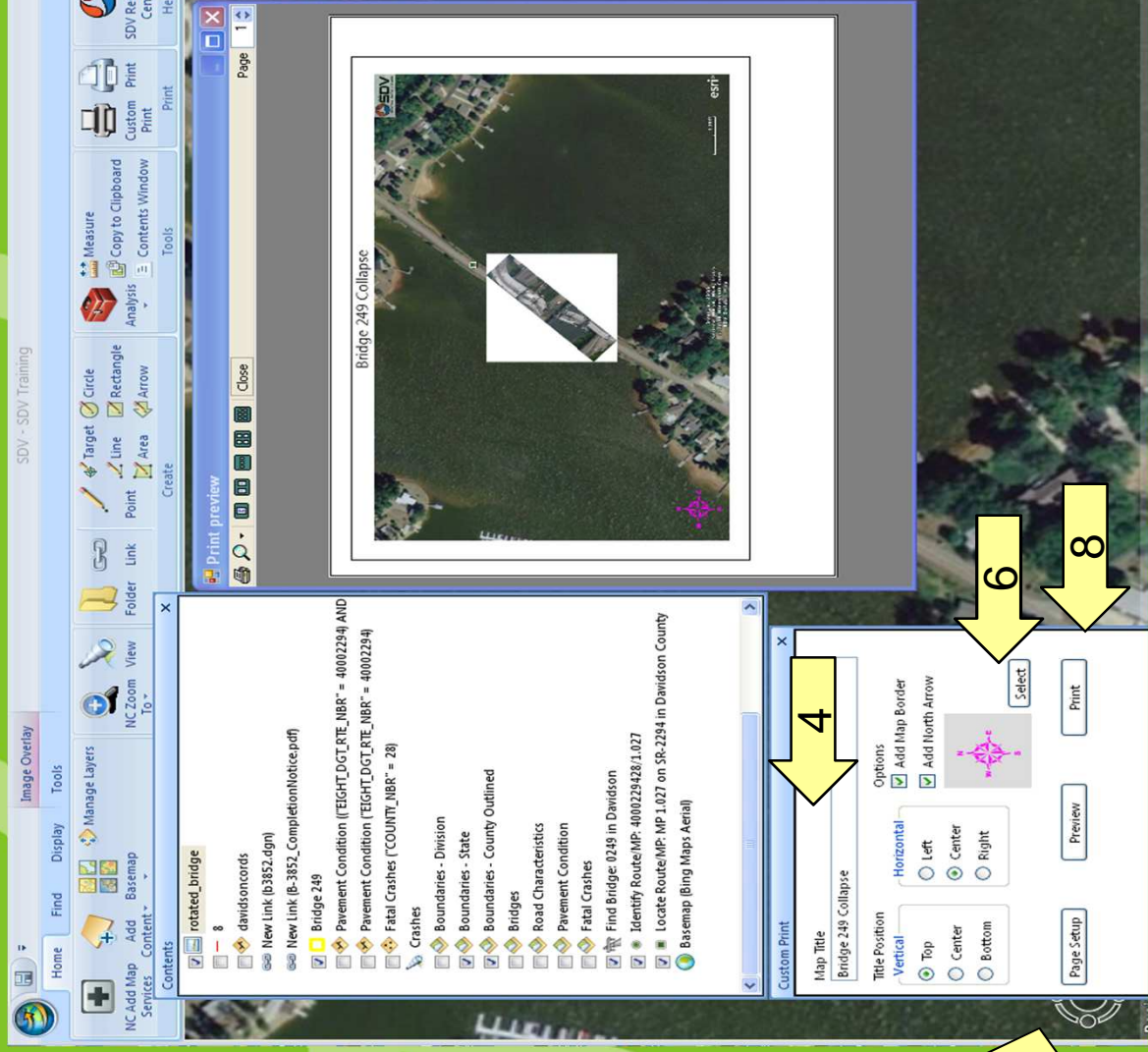
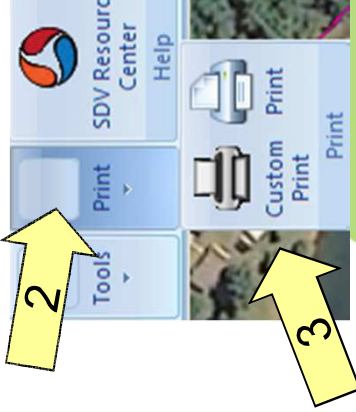
- rotated\_bridges
- 8
- davidsoncords
- New Link (b3852.dgn)
- New Link (b-3852\_CompletionNotice.pdf)
- Bridge 249
- Pavement Condition (HEIGHT\_DGT RTE\_NBR\* = 40002294) AND
- Pavement Condition (HEIGHT\_DGT RTE\_NBR\* = 40002294)
- Fatal Crashes (COUNTY\_NBR\* = 28)
- Crashes
- Boundaries - Division
- Boundaries - State
- Boundaries - County Outlined
- Bridges
- Road Characteristics
- Pavement Condition
- Fatal Crashes
- Find Bridge: 0249 in Davidson
- Identify Route/MP: 40002294/28/1.027
- Locate Route/MP: MP 1.027 on SR-2294 in Davidson County
- Basemap (Bing Maps Aerial)

**Status Bar:** Position: 35°40'36"N 80°15'01"W  
Scale: 188ft  
© 2008 Microsoft Corp.



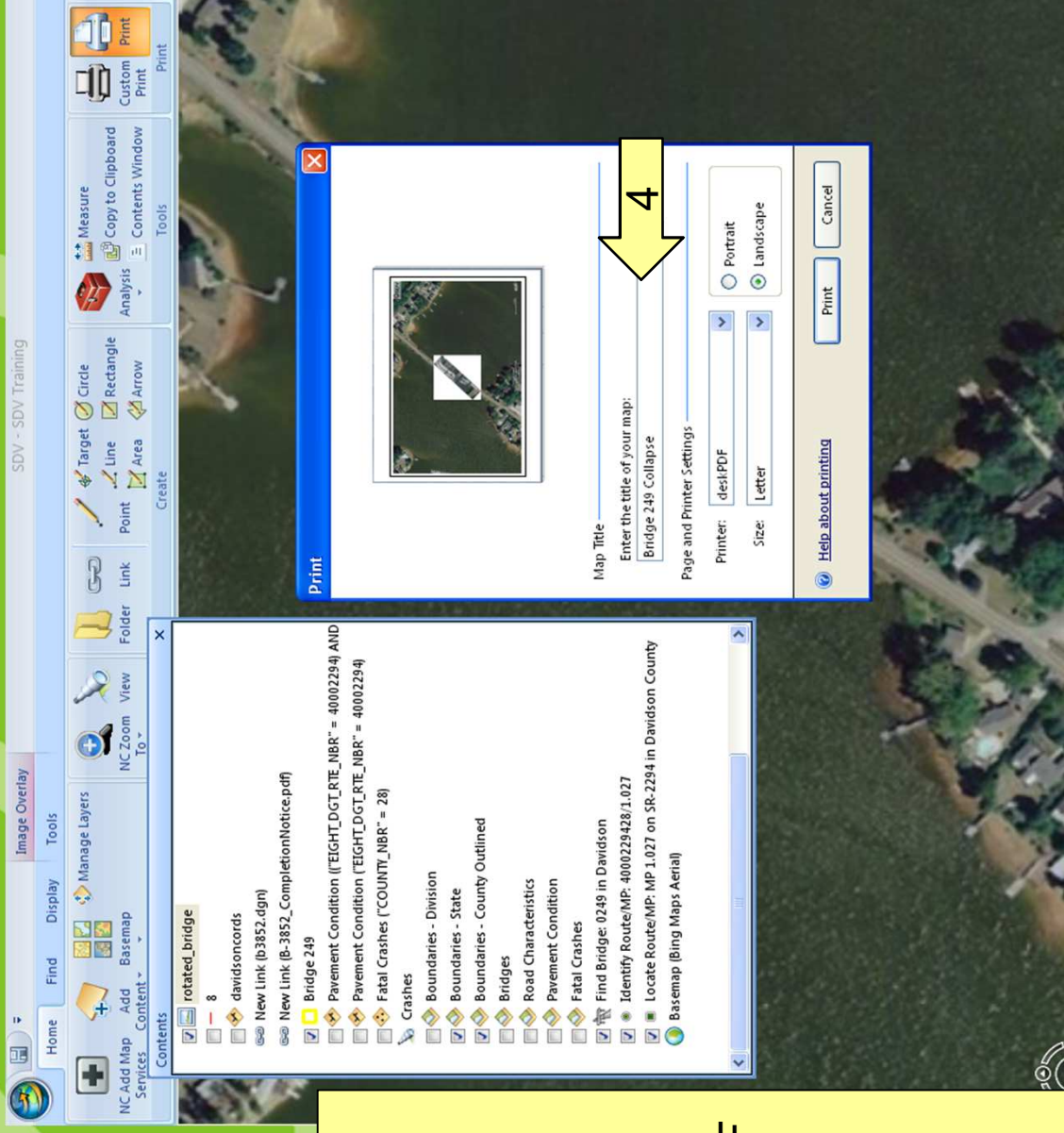
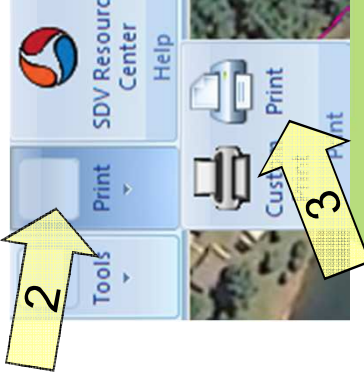


# SDV Training



## Print the Map using Custom Print

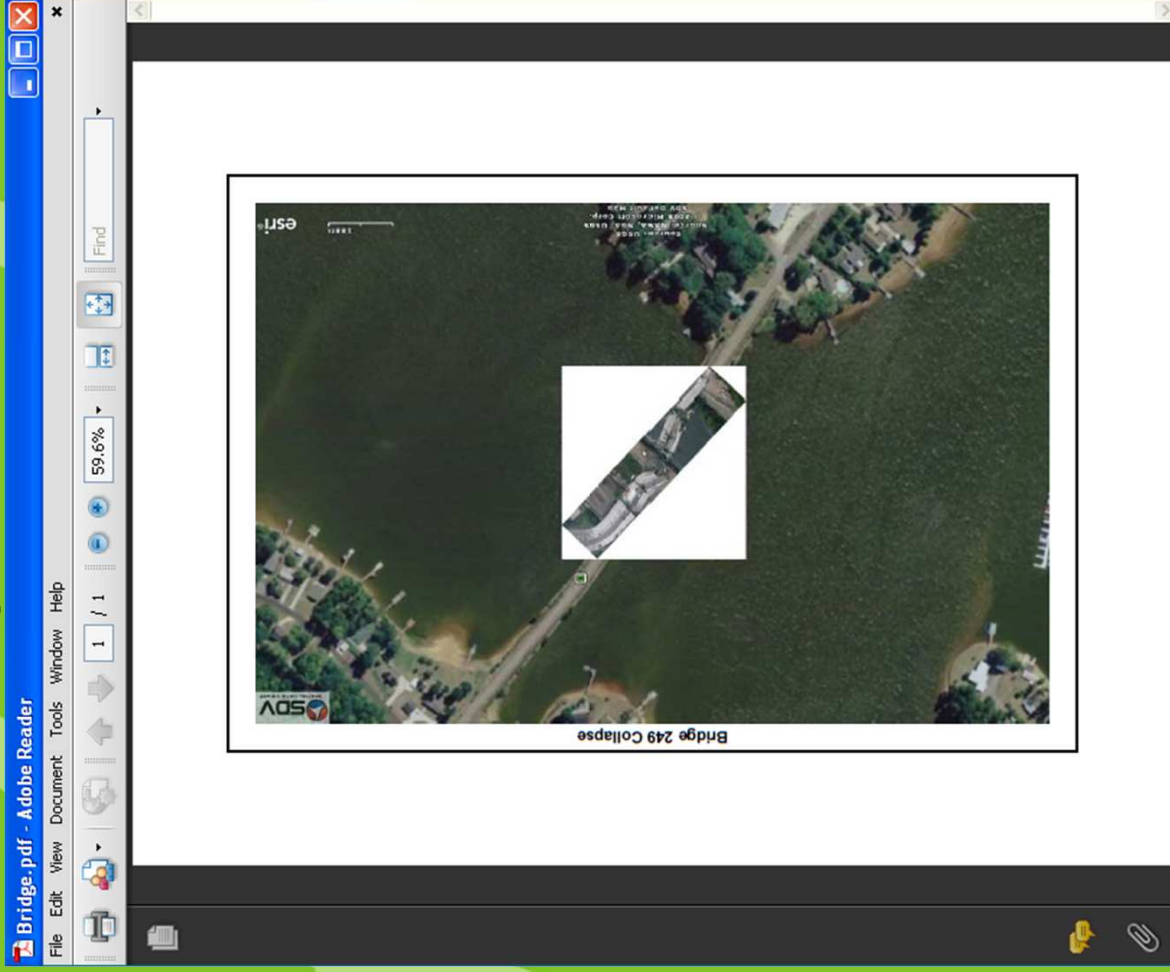
1. Click the Home tab
2. Click Print
3. Click Custom Print
4. Enter Map title
5. Select page options
6. Select North Arrow
7. Choose page settings
8. Click print preview or print



## Print the Map using Custom Print

1. Click the Home tab
2. Click Print
3. Click Print
4. Enter Map title
5. Change printer to deskPDF
6. Select size
7. Choose page settings
8. Click print preview or print

# SDV Training





# SDV Training

## Questions?





# Thank you!

Resource Center –  
<http://gisi01.dot.nc/SDVResourceCenter/home.aspx>

SDV Help Desk  
[SDVHelp@ncdot.gov](mailto:SDVHelp@ncdot.gov)



North Carolina Department of Transportation

Geographic Information Systems (GIS)