TransCAD and the BCAG Model

presented to

Caltrans District 3

presented by

Cambridge Systematics, Inc.

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September 18th of 2017

Agenda
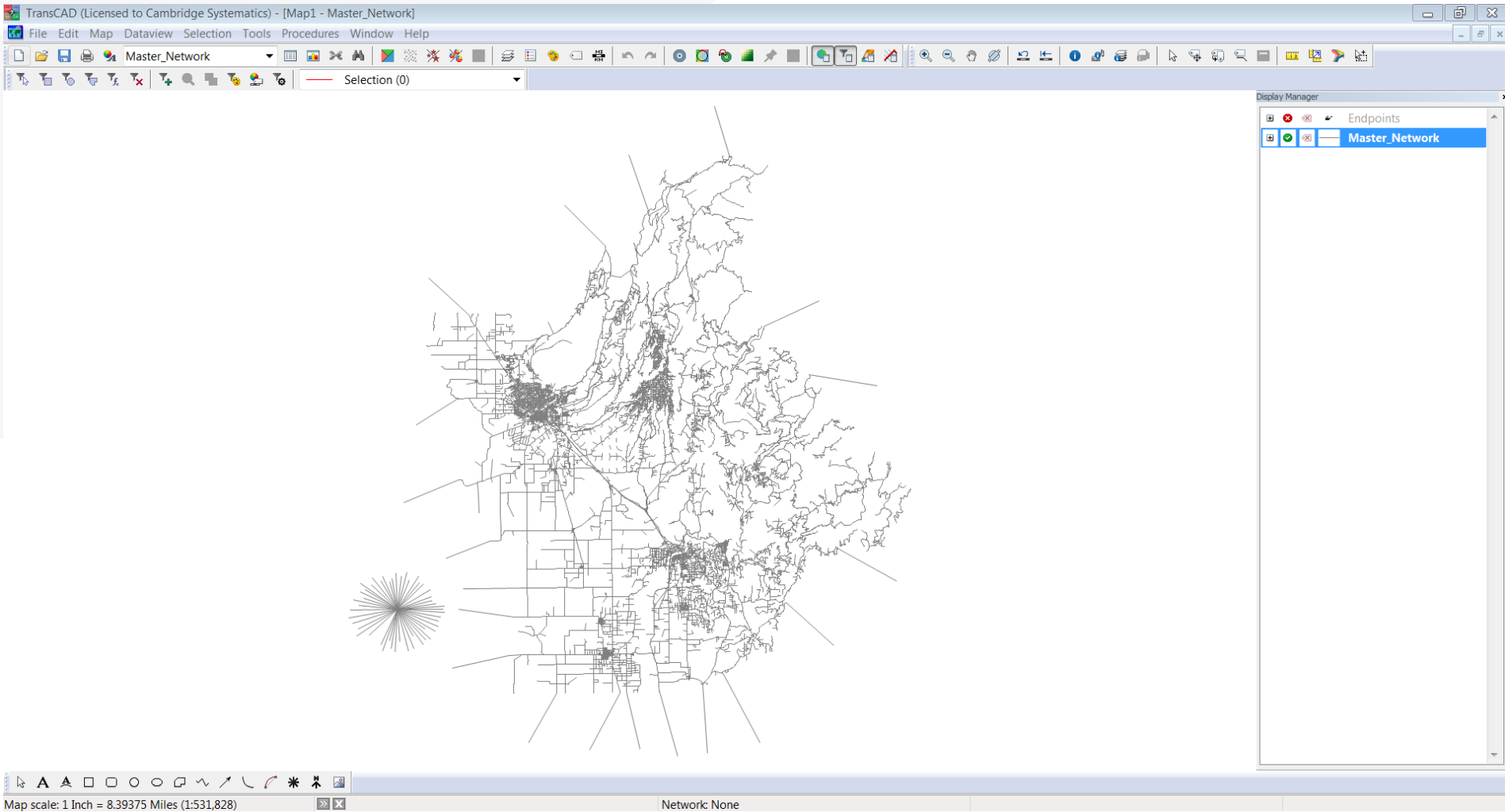
➤ TransCAD Overview and Navigation

➤ Formatting and Viewing Data

➤ Data Tables and Joining Data

➤ Printing Maps using Layouts

➤ Looking at BCAG Highway Assignment

➤ Roadway Network Editing

➤ Advanced Topics?

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TransCAD Software Overview

➤ Transportation data management and analysis

➤ **GIS based** transportation planning analysis

➤ TransCAD:

  » Let you store, retrieve, analyze, and visualize geographic data in new and useful ways

  » Has tools to apply sophisticated transportation, operations research, and statistical models.

  » GISDK (development computer programming language)

➤ Version & build

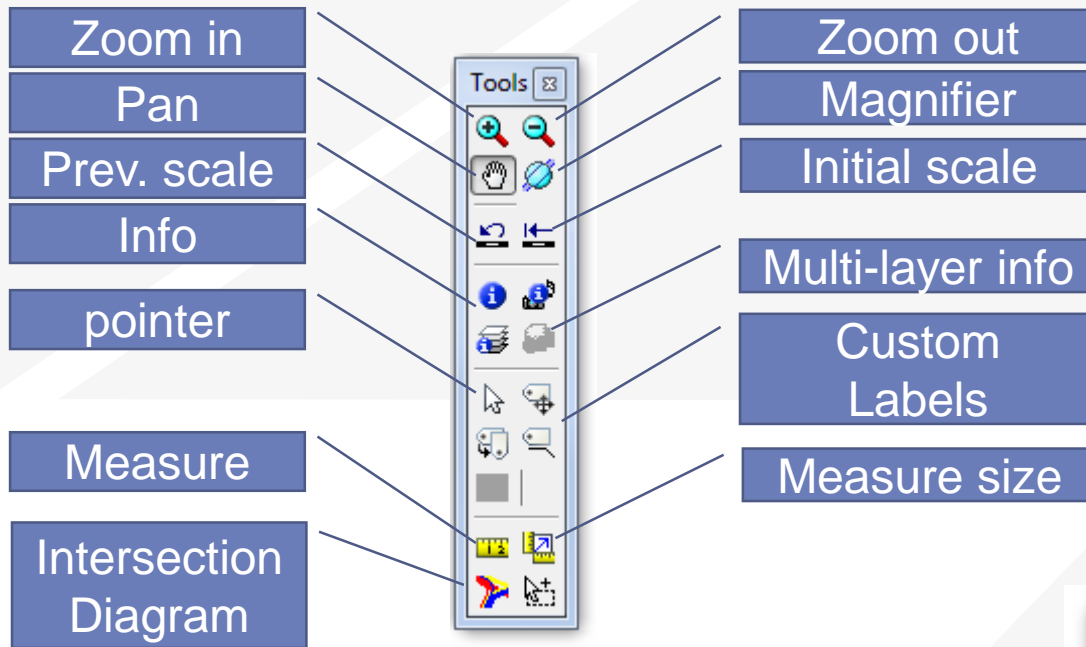 » Version I have open: Version 7.0 Build 12215 64-bit
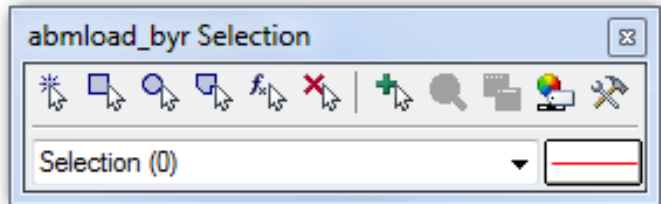
  » 64-bit vs. 32-bit

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TransCAD User Interface

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Tools

Most used

Statistics   Window   Help

Zoom in

Pan

Prev. scale

Info

pointer

Measure

Intersection Diagram

Tools

Zoom out

Magnifier

Initial scale

Multi-layer info

Custom Labels

Measure size

These can be docked at the top of the window!

Selection toolbox

abmload_byr Selection

Selection (0)

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Tools

Drawing toolbox*

Map Editing
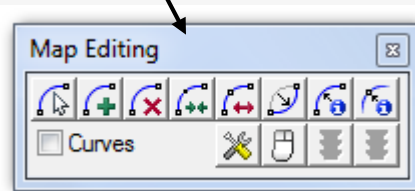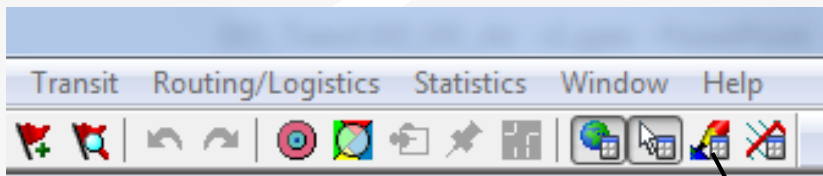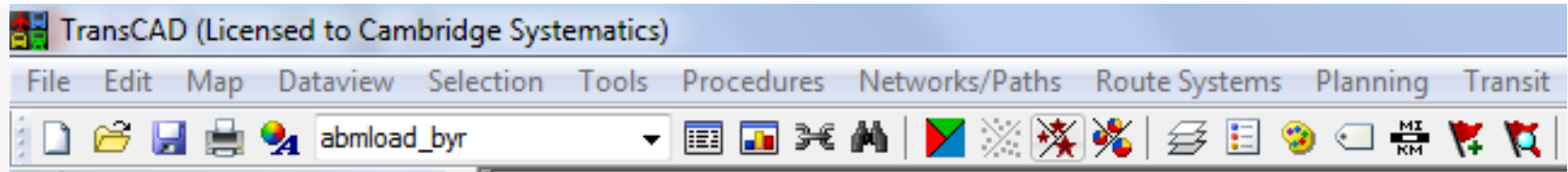
GISDK toolbox

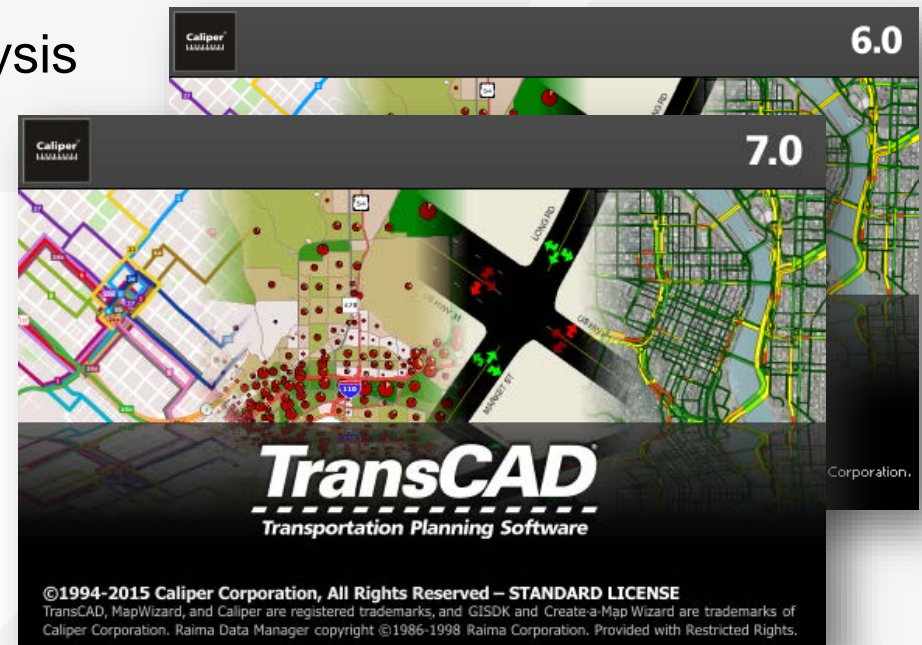* For objects on the map – not for geographic editing

Usually docked at the bottom of the window

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TransCAD Software Overview

➤ Built-In Forecasting Tools

» 4-Step Travel Model

» Model Calibration/Estimation Utilities

» GIS-Based Roadway and Transit Data

» Intermediate Results Analysis

» Matrix Editor

» Spatial Analysis Tools

6.0

7.0

TransCAD
Transportation Planning Software

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Built In Interface

- Provides an interactive method of running a Travel Model

- Very flexible, but can be a bit tedious to use

- Is enhanced through use of customized "Add-Ins"

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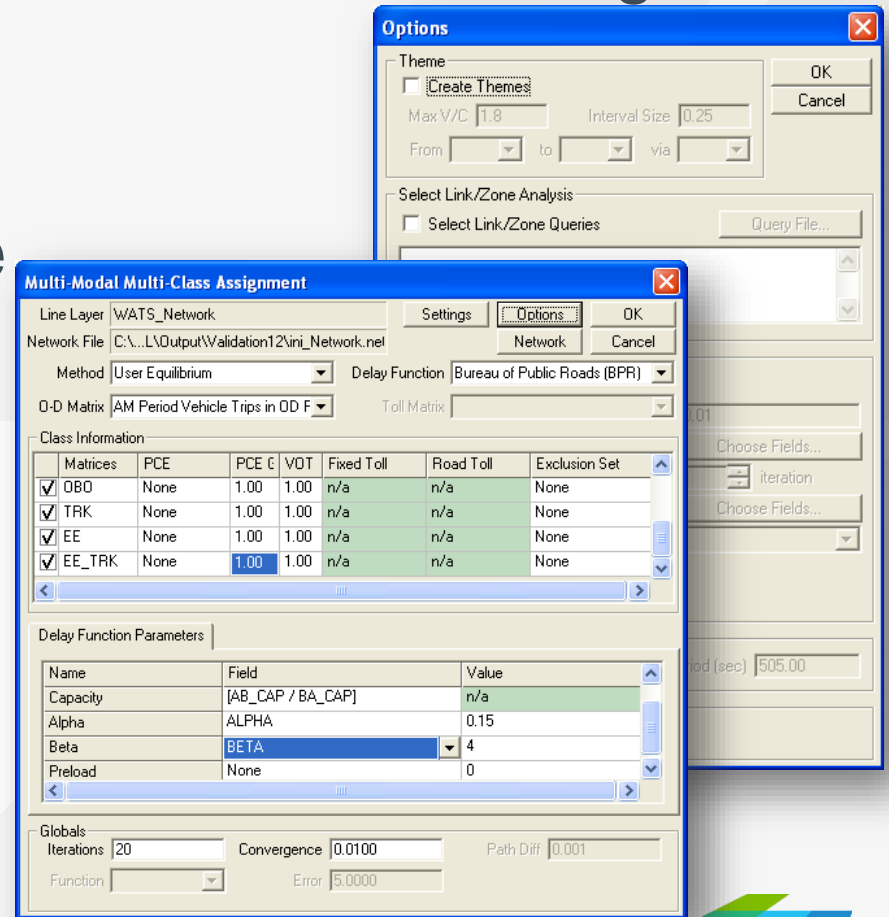
Batch Mode

➢ Settings from the interface can be saved

➢ With looping, repetitive tasks can be automated (e.g., run assignment 5 times with different input data but mostly similar settings)

CAMBRIDGE SYSTEMATICS
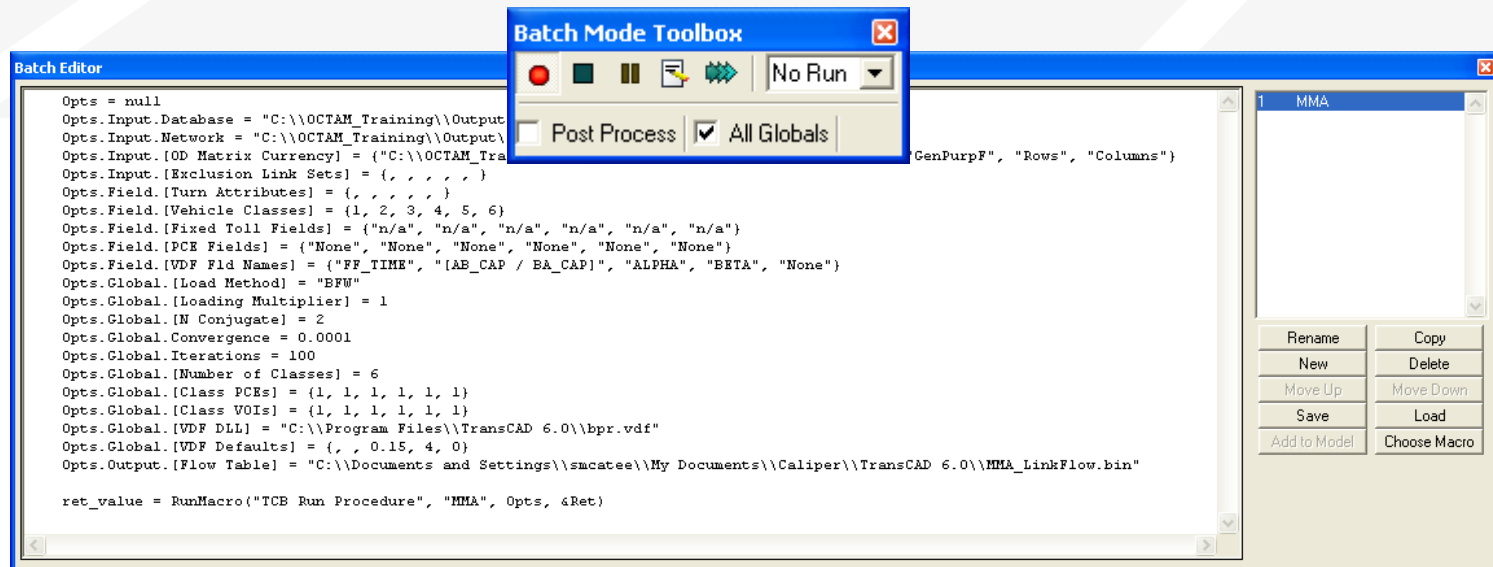
Customized Interfaces

➤ Created with the GISDK scripting language

➤ Utilize Batch Mode to automate tasks

➤ Utilize customized code to streamline and customize model processes

➤ Makes running and analyzing scenarios easy and efficient

CAMBRIDGE SYS
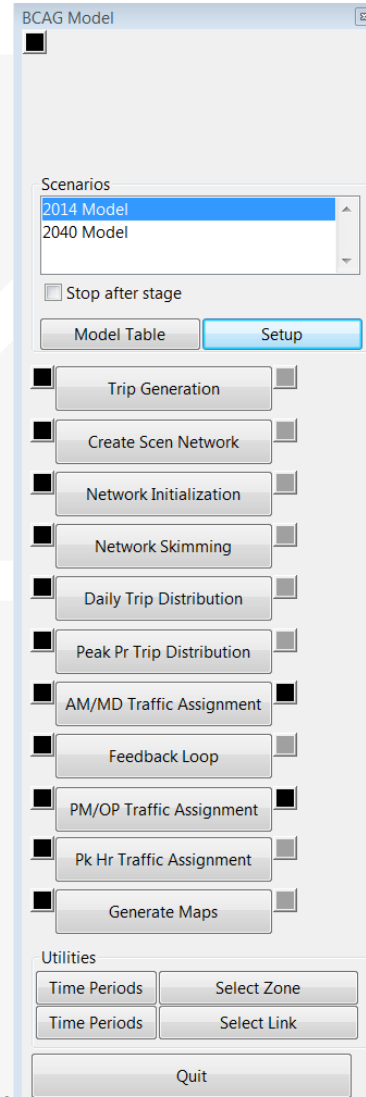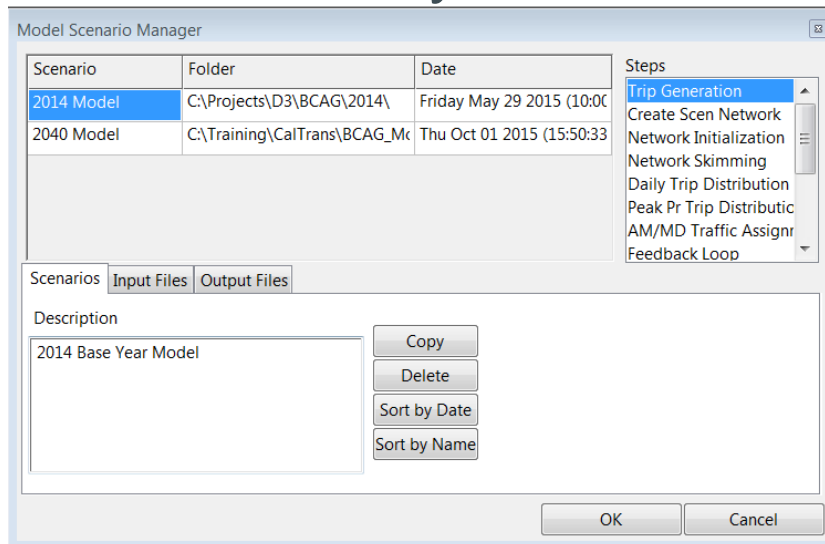
Open Architecture

- Allows for inclusion of any amount or type of data

- Requires deliberate and careful definition of input data requirements

- Almost any aggregate travel model algorithm that can be thought up can be implemented in TransCAD

Dataview1 - Master_Network

ID	Dir	Length	Road_Name	FUNC_CLASS	AB_TTf	BA_TTf	CAPACITY	CONST_YEAR	AB_SPEED	BA_SPEED	AB_LANES	BA_LANES	AM_CAPFAC	MD_CAPFAC	PM_CAPFAC	OP_CAPFAC	AB_TIME	BA_TIME	AB_CONGTT	BA_C
1	0	0.63	LARKIN RD	Arterial	1.00	1.00	800	2014	50.00	50.00	1	1	2.90	4.85	3.70	7.50	0.75	0.75	—	
2	0	0.47	ORD FERRY RD	Collector	1.00	1.00	700	2014	45.00	45.00	1	1	2.90	4.85	3.70	7.50	0.63	0.63	—	
3	0	1.14	CHICO RIVER RD	Collector	1.00	1.00	700	2014	45.00	45.00	1	1	2.90	4.85	3.70	7.50	1.52	1.52	—	
4	0	0.73	DURHAM PENTZ RD	Collector	1.00	1.00	700	2014	35.00	35.00	1	1	2.90	4.85	3.70	7.50	1.25	1.25	—	
5	0	4.82	CENTERVILLE RD	Local	1.00	1.00	600	2014	5.00	5.00	1	1	2.90	4.85	3.70	7.50	57.79	57.79	—	
6	0	1.13	BLOCK RD	Local	1.00	1.00	600	2014	25.00	25.00	1	1	2.90	4.85	3.70	7.50	2.71	2.71	—	
7	0	0.11	BELL RD	Local	1.00	1.00	600	2014	35.00	35.00	1	1	2.90	4.85	3.70	7.50	0.19	0.19	—	
8	0	1.65	ROAD 48	Local	1.00	1.00	600	2014	35.00	35.00	1	1	2.90	4.85	3.70	7.50	2.83	2.83	—	
9	0	2.86	RIVER RD	Collector	1.00	1.00	700	2014	35.00	35.00	1	1	2.90	4.85	3.70	7.50	4.90	4.90	—	
10	0	1.49	RIVER RD	Collector	1.00	1.00	700	2014	45.00	45.00	1	1	2.90	4.85	3.70	7.50	1.99	1.99	—	
11	0	2.39	ORD FERRY RD	Collector	1.00	1.00	700	2014	45.00	45.00	1	1	2.90	4.85	3.70	7.50	3.19	3.19	—	
12	0	4.46	SEVEN MILE LN	Local	1.00	1.00	600	2014	45.00	45.00	1	1	2.90	4.85	3.70	7.50	5.95	5.95	—	
13	0	1.88	SEVEN MILE LN	Local	1.00	1.00	600	2014	45.00	45.00	1	1	2.90	4.85	3.70	7.50	2.51	2.51	—	
14	0	1.05	ORD FERRY RD	Collector	1.00	1.00	700	2014	45.00	45.00	1	1	2.90	4.85	3.70	7.50	1.39	1.39	—	

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Compatible File Formats

➤ TransCAD can read and write data to/from many universally accepted file formats.

» GIS (Shapefile, Geodatabase)

» Spreadsheet

» Database

» Text

» HTML (with add-in)

» Traffic Software (with add-in)

» Others

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GIS Applications

➤ Use TransCAD model results in ArcGIS to create high quality maps.

➤ Link TransCAD networks to GIS-based analysis tools.

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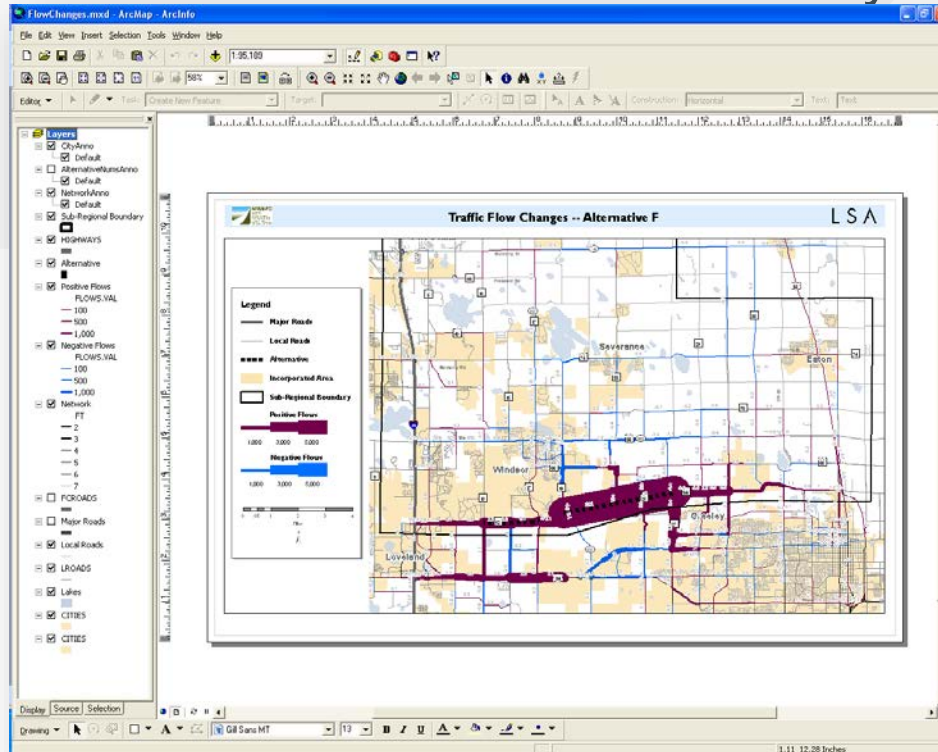
TransCAD Tips

File and Data Types

➤ Data Files actually contain information:

» Tables (.bin, .DBF)

» Geographic Files or Layers (.dbd, .shp)

» Matrices (.mtx)

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File and Data Types

➤ Some files do not contain information:

» Dataviews (.dvw)

» Maps (.map) and workspaces (.wrk)

» Matrix Views (.mvw)

➤ These files refer to other file types that contain data

» Same concept as a project file (.mxd) in ArcMAP

STOP

Never use File → Save As → "Dataview (.dvw)" or "Map (.map)" to save a copy for modification!

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File and Data Types

- Geographic Files (.dbd) are GIS layers and can be edited and viewed.
  - » We use line layers as "roadway networks"

- Route Systems (.rts) contain transit information
  - » Route systems are linked to line layers

- Routable Network Files (.net, .tnw) are routable networks used internally by TransCAD.
  - » Routable network files must be created before running certain tasks.
  - » Separate networks for roadway and transit

Useful Features

- Saved Workspaces

- Undo and Redo

- Copy and Paste directly between TransCAD and other programs (e.g., Excel)

- The Display Manager
  - » Show it from Map → Display Manager

- Multiple selection sets

- Many more…

CAMBRIDGE SYSTEMATICS
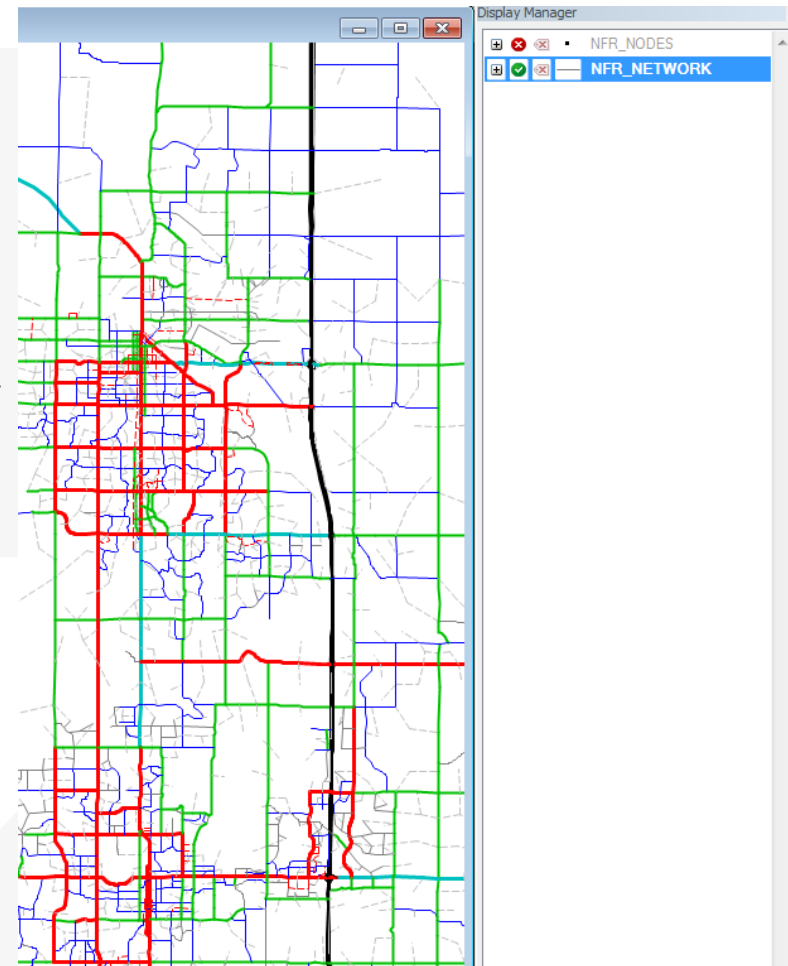
New in TransCAD 6.0, 7.0

➤ Read and write directly to ESRI Geodatabases

➤ Improved Mapping Features
- » Label customization
- » Transparency

➤ Under the Hood
- » 64-bit architecture
- » More multithreading
- » New procedures (e.g., drive egress to transit)

➤ TransCAD 7
- » Even More multithreading
- » Improved transit management
- » Improved elevation data
- » Pivot tables and charts

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Map Basics: Visualizing

Working with Layers

➤ Start by opening a map **or** a geographic (dbd) layer file

» Opening a layer will create a new map and add the layer

» Opening a map will load all saved layers, settings, etc.

➤ Access layers with the layers dialog box ( )

CAMBRIDGE SYSTEMATICS
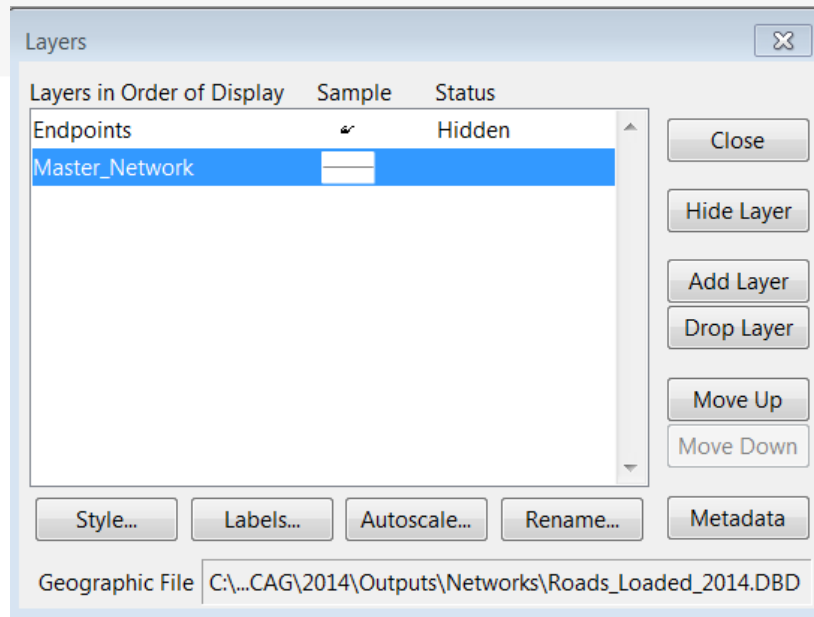
Working with Layers

- **The Layers Dialog (⬚)**
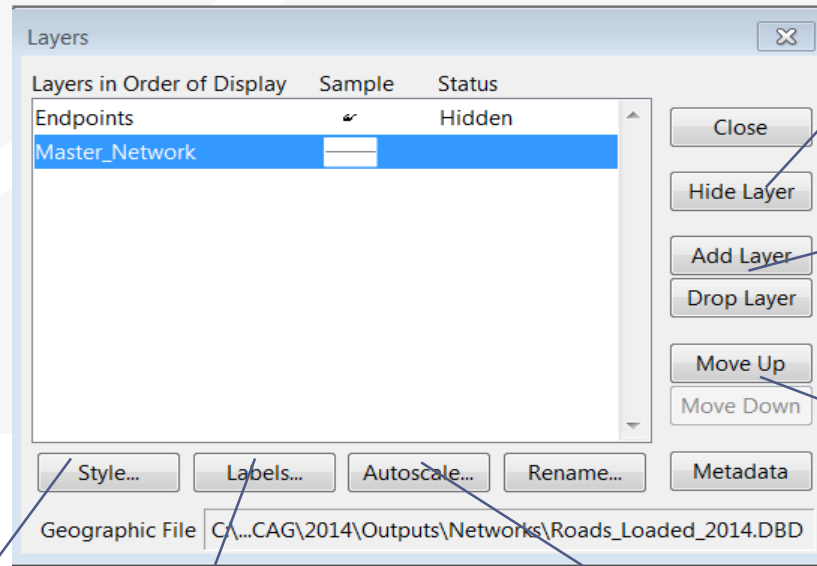
Hide/show a layer

Add/Drop layers

Re-order layers

Change a layer style

Add/edit labels

Automatically show/hide layers as certain scales

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Working with Layers

- **Layers are drawn from TOP to BOTTOM**

Top layer (drawn first)

Bottom layer (drawn last)

CAMBRIDGE SYSTEMATICS
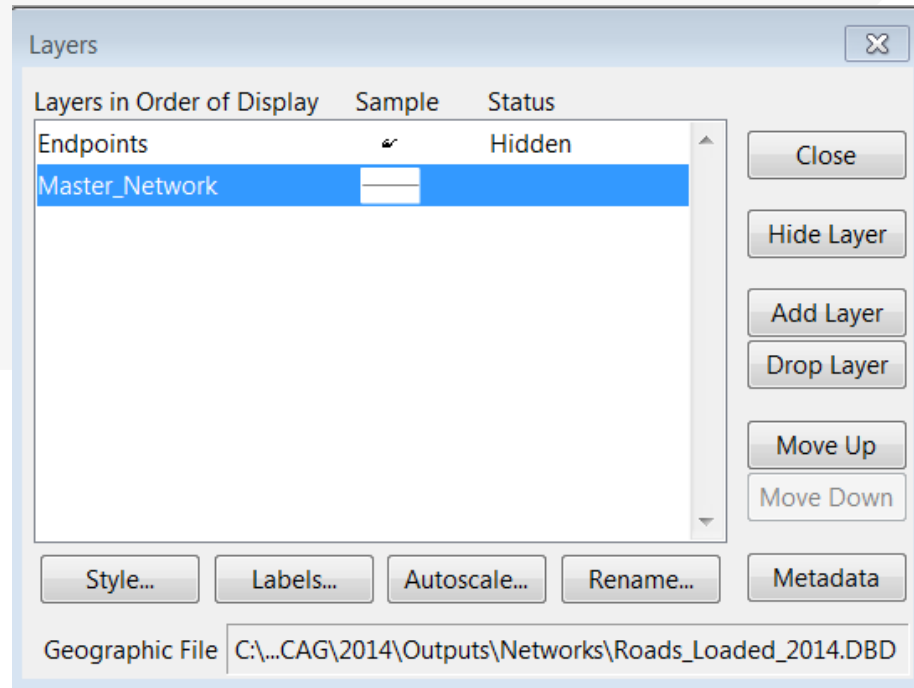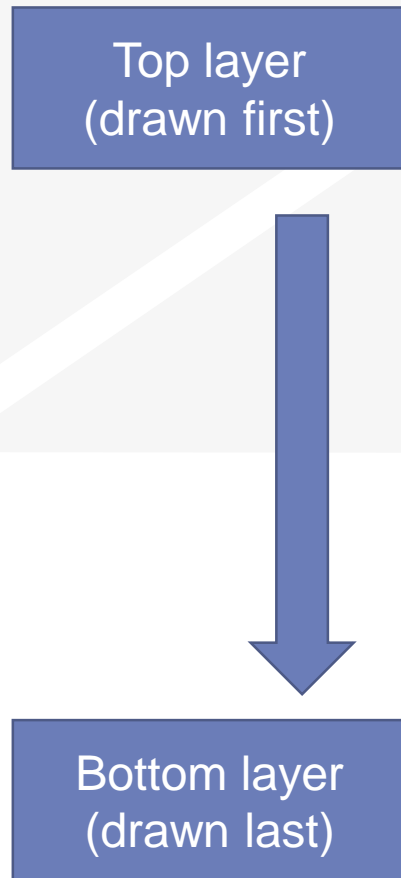
Display Manager

➤ Activate from Map → Display Manager

➤ Quick access to layers, settings, etc.

» Right-click for more settings, including *make working layer*

Hide/show a layer

Add/edit labels

Change a layer style
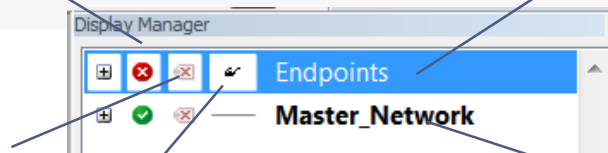
Node layer is **NOT** active

Bold text: links layer is active

Display Manager
Endpoints
Master_Network

CAMBRIDGE SYSTEMATICS

Color Theme

Creating Maps

➤ Create a new map by opening a Geographic File (*.dbd)

➤ Add more layers if desired

» [layers icon] then [Add Layer]

➤ Choose the active layer

» Use the dropdown selector

» Or use the display manager

➤ Change the "default" styles for the layers

» [layers icon] then [Style...] , or [palette icon] , or use the display manager

➤ Hide or show layers

» [layers icon] or the display manager

CAMBRIDGE SYSTEMATICS
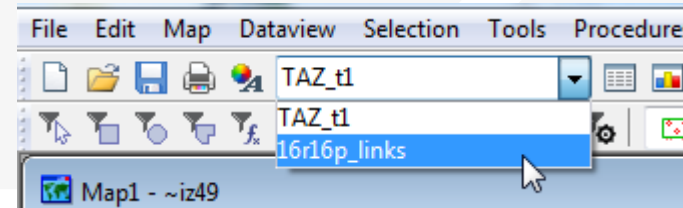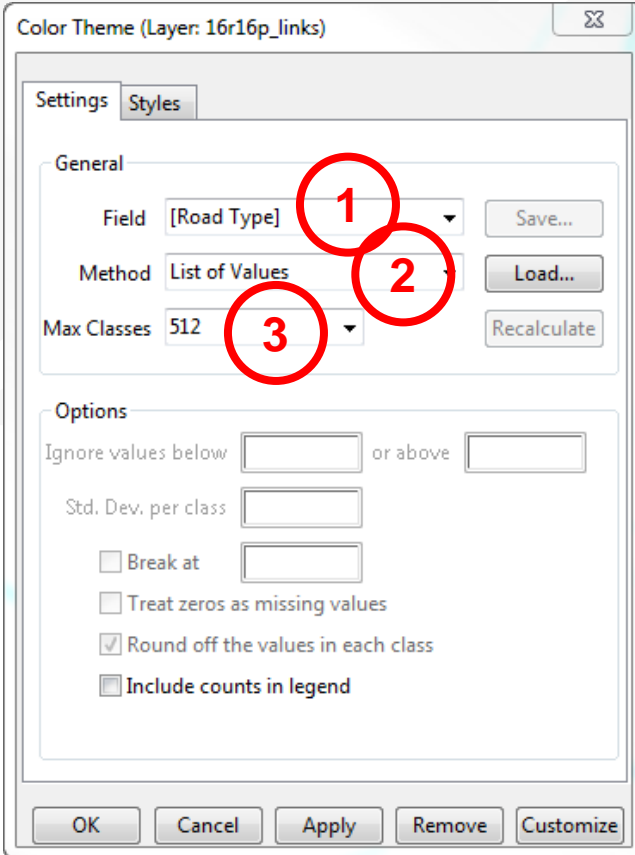
Color and Pattern Themes

➤ Set feature colors and styles based on attributes

» Color Themes ( ) are often used to display facility type on a roadway network

» Pattern Themes (Map → Pattern Theme…) is sometimes used to display number of lanes on a roadway network

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Color and Pattern Themes

The Settings Tab

1. Choose a field to represent

2. Choose a method to create categories and number of classes

* Use the Load and Save buttons to store and recall settings

» *This is a huge time-saver!*

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Color and Pattern Themes
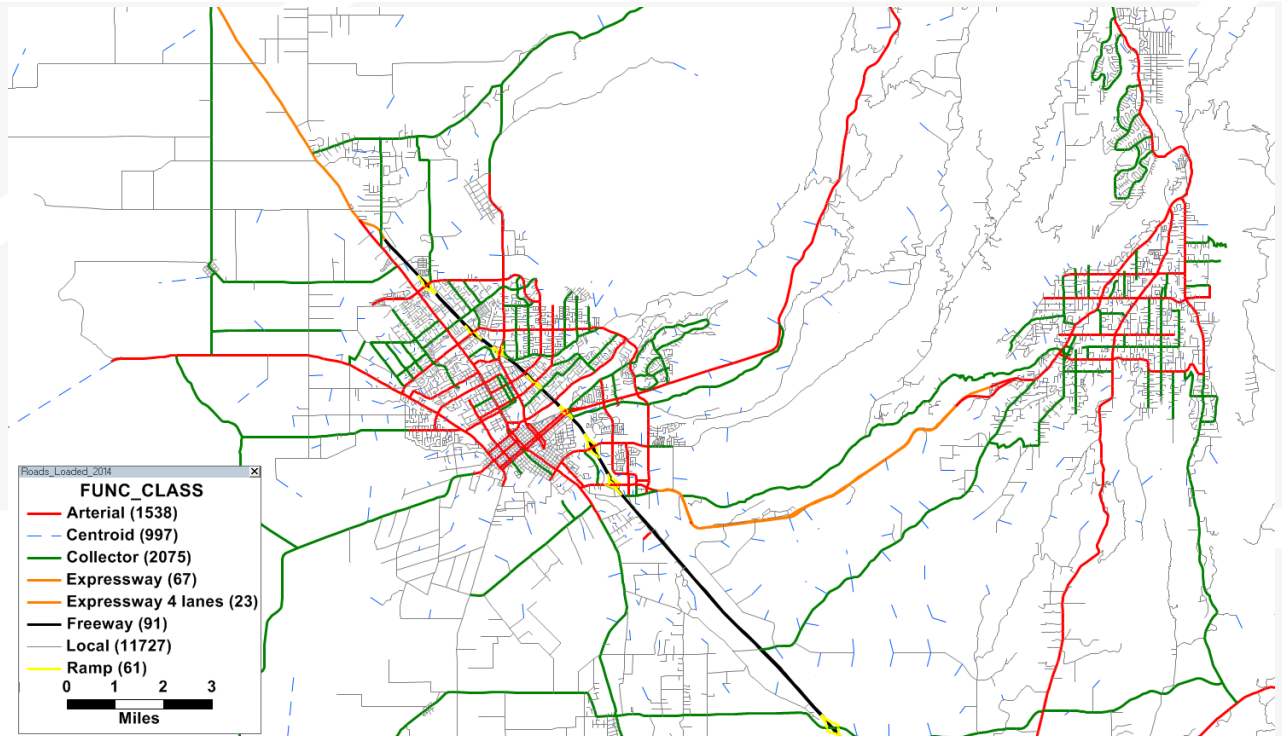
The Styles Tab
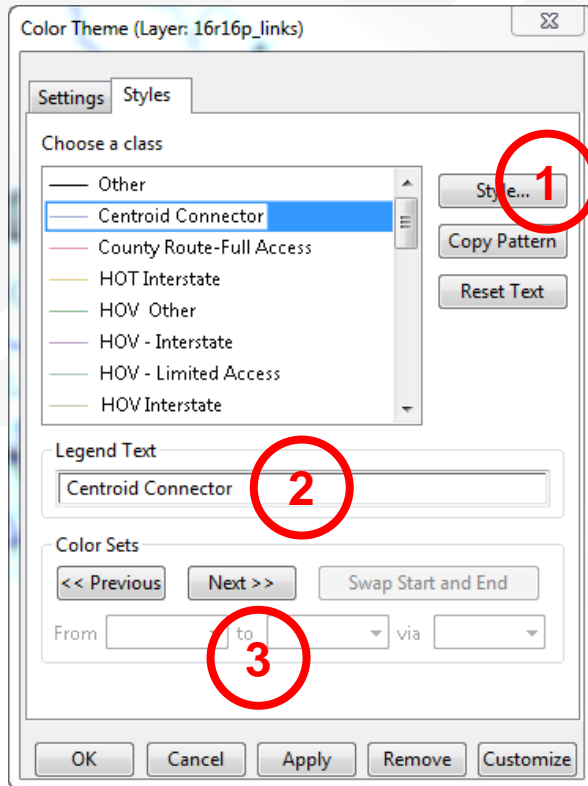
1. Choose a style for each class

2. Select a legend text for each class

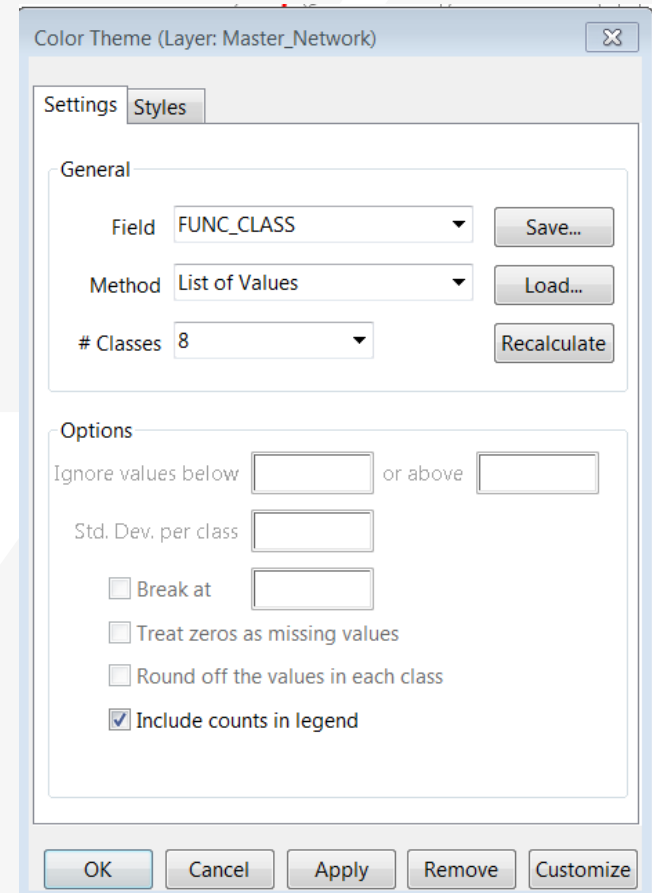3. Choose from pre-defined color settings if desired

CAMBRIDGE SYSTEMATICS

Functional Class

Func_Class
Arterial
Centroid
Collector
Expressway
Expressway 4 lanes
Freeway
Local
Ramp

Roads_Loaded_2014

FUNC_CLASS
- Arterial (1538)
- Centroid (997)
- Collector (2075)
- Expressway (67)
- Expressway 4 lanes (23)
- Freeway (91)
- Local (11727)
- Ramp (61)

0 1 2 3
Miles

* Based on BCAG model link layer attribute table

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Practice 1: Create a color theme for line layer based on function class

1. Open the BCAG Network File (BCAG_Network_2014.dbd)
   - ✓ File→Open, then in the file type dropdown next to 'File name:' select Geographic File(*.cdf,.*dbd) option
   - ✓ Browse to the location/folder where the geographic file is located and select the 'BCAG_Network_2014.dbd' and click 'Open' button

2. On the top ribbon, click [icon]   it is called 'color theme map wizard'

3. It opens up a dialog box with two tabs. In the first tab 'Settings' tab:
   - ✓ Select the Func_class from the 'Field' drop down options
   - ✓ Select the 'List of Values' from the 'Method' drop down options
   - ✓ Max. Classes: Use the default value (512)

4. Go to the 'Styles' tab
   - ✓ Observe the default styles
   - ✓ Optional: Set a preferred style for each facility type (we will use a shortcut)

5. Go back to the Settings tab, click the Load button.
   - ✓ Choose From Settings File
   - ✓ Browse to and select SCAG Training\Settings.stg
   - ✓ Click OK again to complete the color theme dialog box

6. Save the settings (optional, method 1)
   - ✓ Tools → Geographic Utilties → Geographic file
   - ✓ Click Save Settings

7. Save the settings (optional, method 2) File –Save As
   - ✓ Save a Map file that you can open later with the settings applied

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Labels

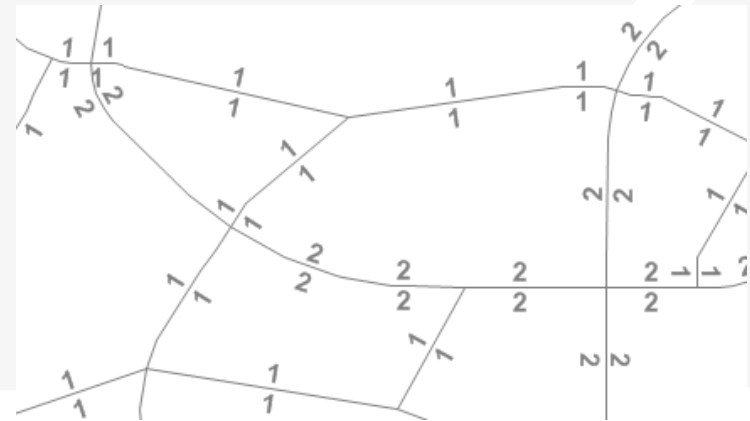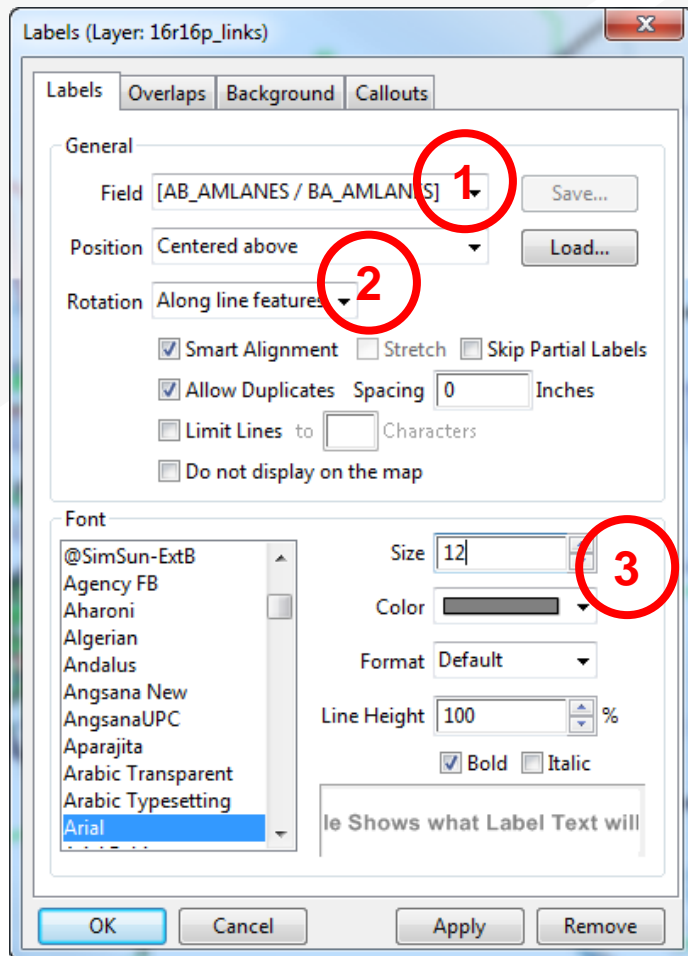CAMBRIDGE SYSTEMATICS

Automatic Labels

- Labels (🏷) can be used to show things including:
  - » Traffic Volumes
  - » Number of Lanes
  - » Centroid Numbers
  - » SED/Land Use Data

- Labels can be set differently for different selection sets

CAMBRIDGE SYSTEMATICS

Automatic Labels
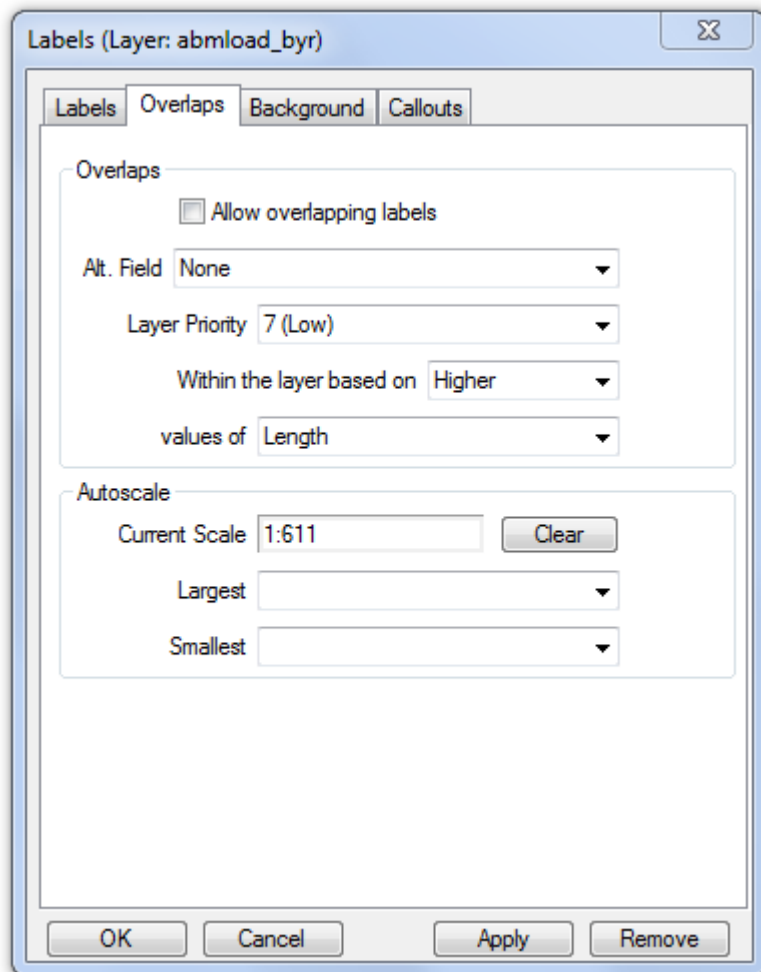
The Labels Tab

1. Select the field to use for labels

2. Set label placement options
   » *Note the "Allow Duplicates" checkbox*

3. Set the label style options

CAMBRIDGE SYSTEMATICS
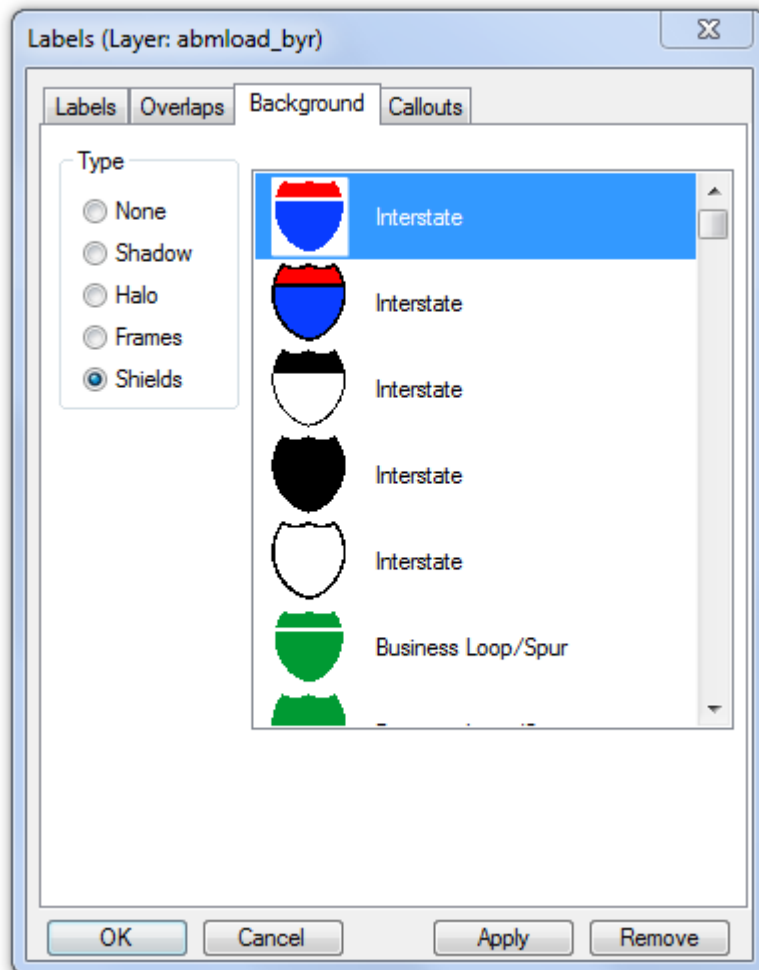
Automatic Labels

The Overlaps Tab

➤ Overlapping labels can be allowed if desired

➤ Different layers can have different priorities

➤ Autoscale can turn labels on and off automatically

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Automatic Labels

The Background Tab

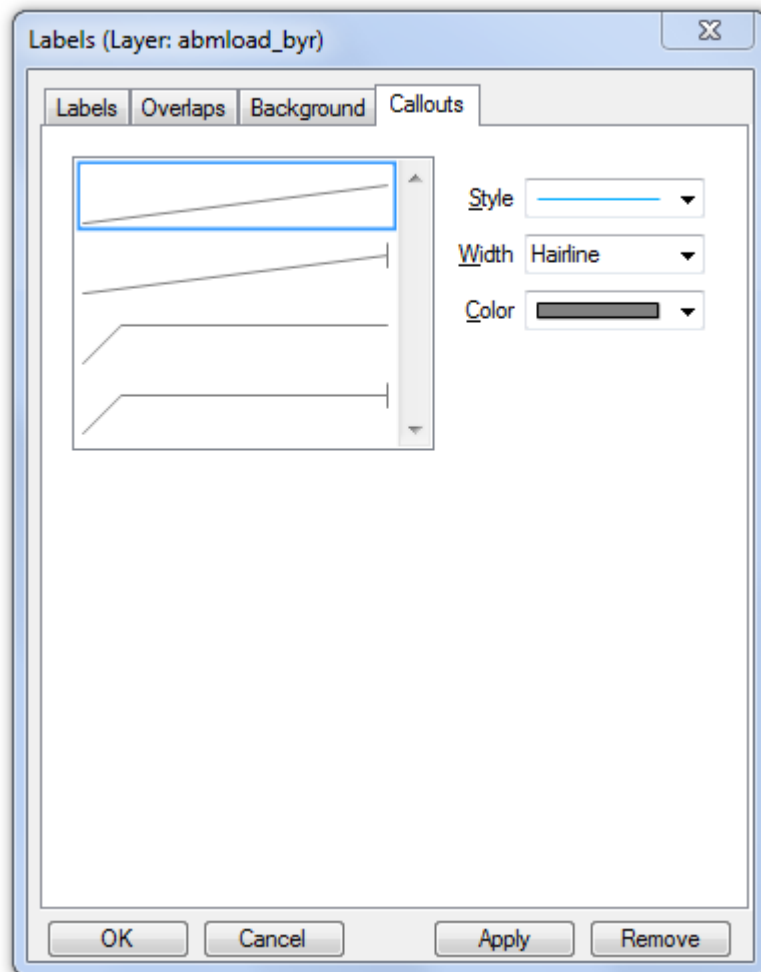

➤ Shadows, halos, frames, or shields can be added to labels to create better looking and more informative maps

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Automatic Labels

The Callouts Tab

➤ Set the default callout style to use when labels are manually re-positioned

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Practice 2: Add number of lanes labels

1. Start with the results from Practice 1
   - ✓ Open the saved map if needed
2. Use the and zoom-in tool (🔍) to zoom in to the area of interest
3. On the top ribbon, click the labels icon (🖼)
   - ✓ Select the [AB_LANES/BA_LANES] field
   - ✓ Change the size and color to match your preference
   - ✓ Change the format to have numbers by comma separated
   - ✓ Click 'OK' button
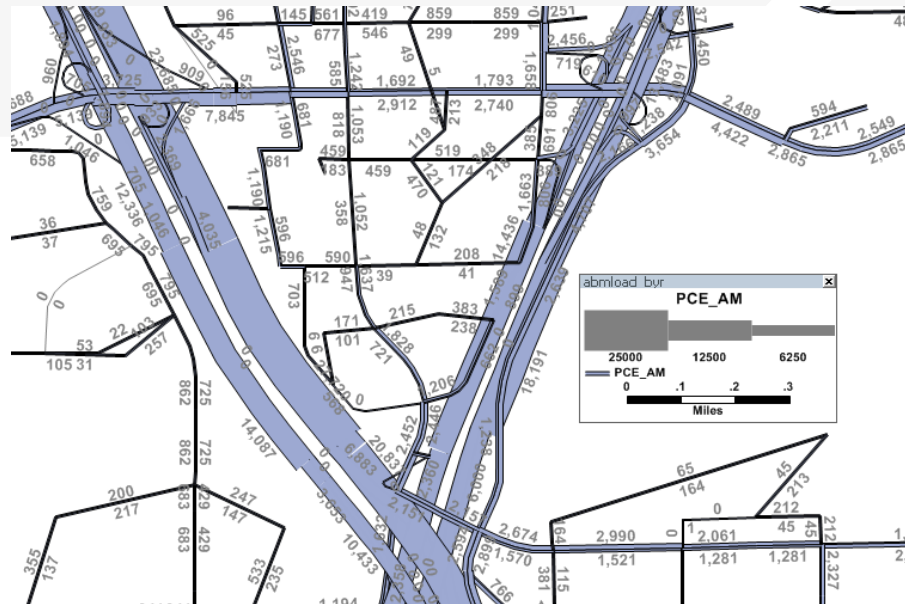
In training, save the map for future use

CAMBRIDGE SYSTEMATICS
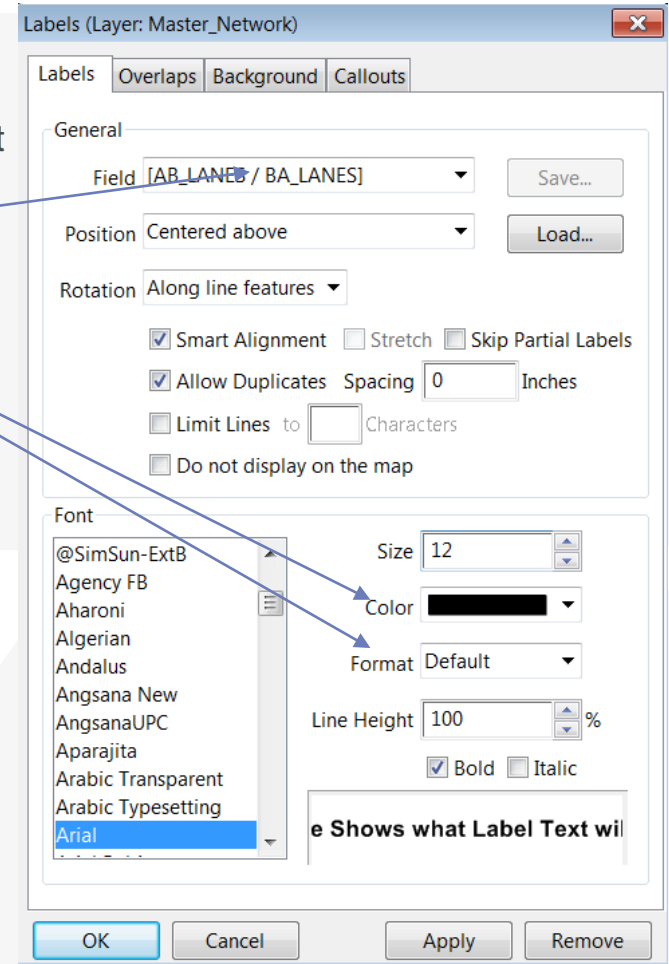
Create Scaled Symbol Theme

(also known as bandwidth map)

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Scaled Symbol Themes

➤ Scaled Symbol Themes (✳) are often used to:

 » Display traffic volumes

 » Display results of a select link or node analysis
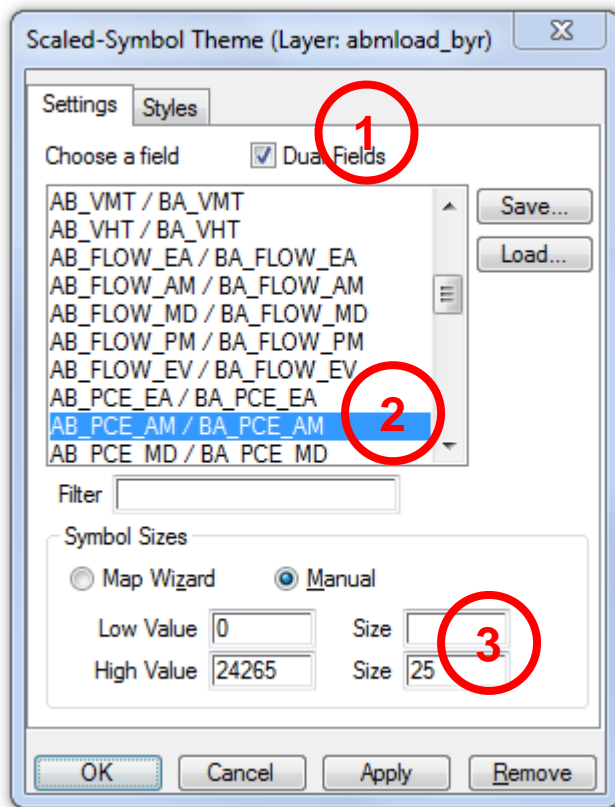
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Scaled Symbol Themes

The Settings Tab

➤ Show directional fields only, or all fields

➤ Select a field to use

➤ Specify a scale, or let TransCAD specify one automatically

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Create Selection Sets

Selection Sets

➤ Add additional formatting capability

➤ Useful for analysis and data processing

➤ Use the Selection Set Toolbox
  » Select items with a query
  » Select items by pointing
  » View the Selection Settings

➤ One map can contain many selection sets
  » Show or hide selected items
 » Format selected items with different colors, styles, and labels

CAMBRIDGE SYSTEMATICS
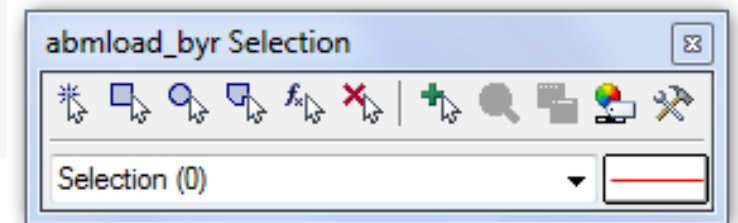
Practice 3: Create selection sets and color and label them

➤ **Start with the results from Practice 2**
- ✓ Open the saved map if needed

1. Goto Tools and select 'Selection' or hit F9
   - ✓ This will show the selection toolbox shown to the right
   - ✓ Click select by condition (🔲) to open the query builder
   - ✓ Type in condition: **FUNC_CLASS = "Centroid"** (option: CONTAINS)
   - ✓ Type the Set Name (Connectors)

2. Change the centroid connector lane labels
   - ✓ Open selection settings (Selection → Settings or 🖥)
   - ✓ Choose Connectors, then click Style
   - ✓ Set the color to "default gray" – this allows the color theme to override
   - ✓ Click Labels
   - ✓ Set the label to a smaller font size and different color
   - ✓ Close the selection settings

✓ **TIP:** You can make other changes to multiple different selection sets, or can hide some features altogether!

In training, save the map for future use
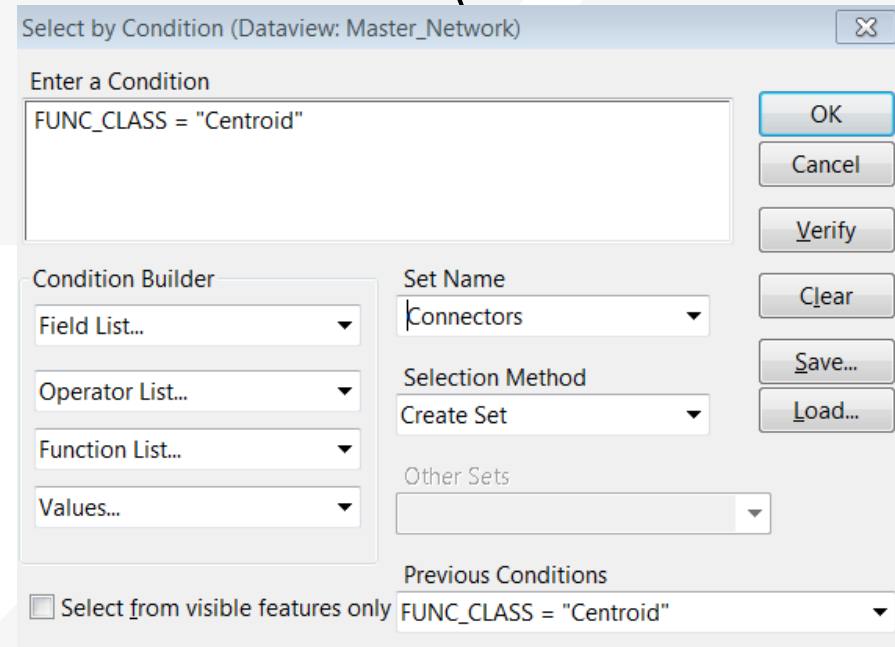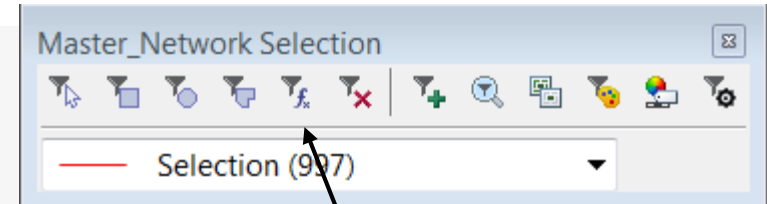
Data Tables ("Dataviews")

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Working with dataviews

- Open a dataview for any existing layer (▦)

- Open a standalone table with File → Open

- Add/Remove fields with Dataview → Modify Table
  - » (or ▦)
  - » Be careful: Changes are permanent once you click "OK"

- Data can be edited directly in the dataview
  - » Be careful: Changes are saved as you go

- Create formula fields with "Formula Field"

- Right-Click on a column header for more options
  - » Including a formula Fill

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Working with Dataviews

➔ <u>Formula **Field**</u>   ***vs.***   <u>Add Field</u> & <u>Formula **Fill**</u>

» Formula **Fill** adds new data and saves values in the table

» Formula **Fields** are updated when other values change, but are not stored in the data table

▪ Formula fields are stored in a map, dataview (*.dvw), or workspace (*wrk)

1. Enter a formula

2. Use the Field List to find field names

3. Name the formula field

Tip: nz([Field]) converts null values to zero values

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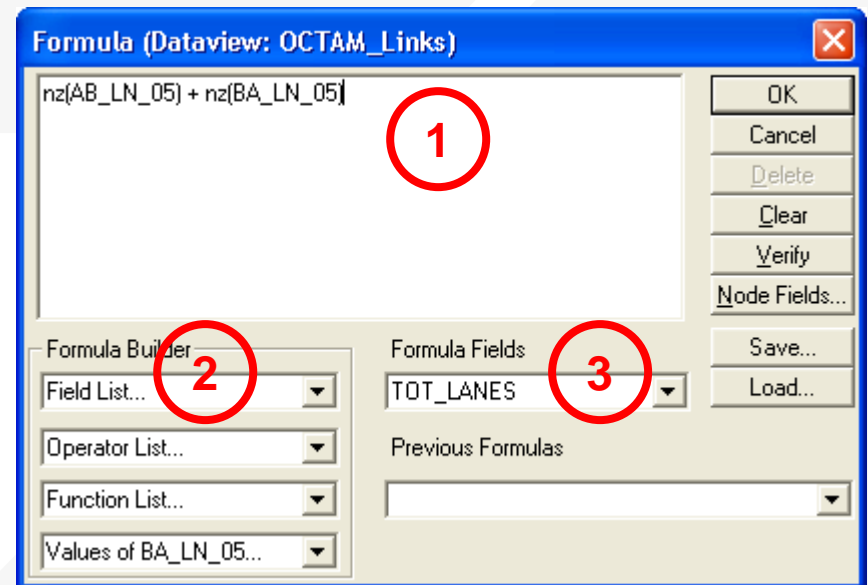
Practice 4: Add total number of lanes in a **NEW FIELD**

➤ **Start with the results from Practice 3**

  ✓ Open the saved map if needed

1. On the top ribbon, click [icon] it will open the links layer daataview table

2. Use Dataview → Modify Table or click

  ✓ Click 'Add Field'

  ✓ Name the field "TOT_LANES"

  ✓ You can move the field position using Move Up and Move Down buttons to the right

  ✓ Click 'OK'

3. Go to 'Dataview' window

  ✓ Right click the top part of the 'TOT_LANES' field

  ✓ Select 'Fill'

  ✓ Select the 'Formula' in the fill method options

  ✓ Type: nz(AB_LANES) + nz(BA_LANES)

  ✓ Alternatively you can use the formula builder

  ✓ Click 'OK' button.

  ✓ This fills in two-way number of lanes
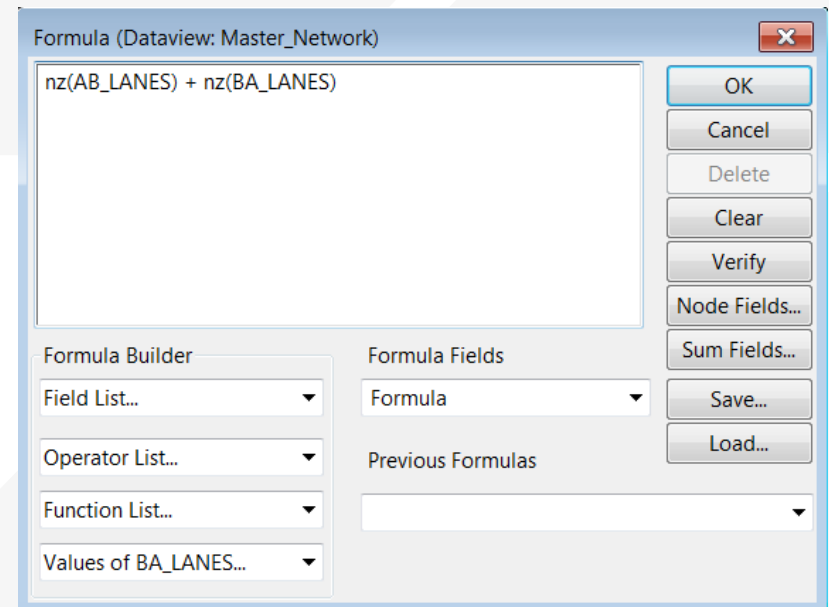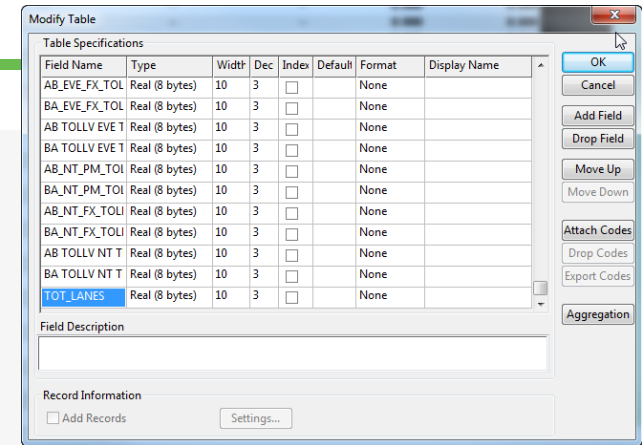
Bonus: Try this example using a formula field instead!

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Joining Data

Joining Data

➤ Layers have an associated data table (⊞)

➤ Data can be joined (⋈) to other tables

» Roadway Network + Traffic Assignment results

» TAZ layer + Land Use Data

» Roadway Network + Lookup Table

» More…

➤ This is how traffic assignment results are viewed in TransCAD

Joining Data

1. Select the Primary join table
   - » *Be careful: Check the Field*

2. Select the secondary join table
   - » *Be careful: Check the Field*

3. Create a name for the view, or use the default (do this last)

Tip: You can open a file from the join dialog box

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Practice 5: Join the assignment data to the network layer (Tier 1)

1. Open the BCAG Network File (BCAG_Network_2014.dbd)

   ✓ File→Open, then in the file type dropdown next to 'File name:' select Geographic File(*.cdf,.*dbd) option

   ✓ Browse to the location/fol⬚ where the geographic file is located and select the 'BCAG_Network_2014.dbd' and click 'Open' button

2. Open the Assignment Data Table

   ✓ File → Open

   ✓ File Type Fixed-format Binary (*.bin)

   ✓ Browse to **\2014\Outputs\Volumes\Volumes_AM3.bin**

3. Create a join from Dataview → join or

   ✓ Set the left side of the join to Master_Network, field 'ID'

   ✓ Set the right side of the join to Volumes_AM3

   ✓ Set the right side join field to Master_Network, field 'ID1'

   ✓ Click 'OK', then use "info" to review the data

   ✓ **Warning: Do NOT close the joined view!**

Join

Settings | Options

Create Joined View

Name: Master_Network+Volumes_AM3

Joining from (left side of join)

Table: Master_Network

Field: ID

Examples: 16823, 4, 5, 24, 25, 26, 27, 16763, 29, 30

To (right side of join)

Table: Volumes_AM3

Field: ID1

Examples: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

OK | Cancel

Bonus: Create a scaled symbol theme map based tot_flow

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Printing Maps (Layouts)

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Layouts

➤ Allow users to create a page to be printed

   » Set paper size

   » Set a specific printer **PDF writers work best!**

➤ Created from File → New

➤ Print maps, drawing items, tables, and insets

➤ Add titles, legends, etc.

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# **Practice 6:** Create a Layout with your map

1. Start with the results from Practice 5
   - ✓ Open the saved map if needed

2. Create a new layout using File → New or 🗋
   - ✓ Check the page settings with File → Properties or 🎨
   - ✓ Select a printer and page size
   - ✓ Set to landsape
   - ✓ **Important:** Un-check Change size of items when page size changes

3. Add your map to the layout using ▢
   - ✓ Draw a box to place the map
   - ✓ Select Map, check 'Use actual point sizes'
   - ✓ Optionally un-check 'Keep map's aspect ratio'
   - ✓ Click 'OK'

4. Position and edit the legend
   - ✓ Use the pointer tool (⌖)
   - ✓ Drag the legend to a good location
   - ✓ Double-click to edit legend text and contents

5. Add a legend title
   - ✓ Use the 'Freehand Text' tool (**A**), usually at the bottom of the window
   - ✓ Drag a box, then type a title
   - ✓ Use the pointer to reposition, double-clicking to edit

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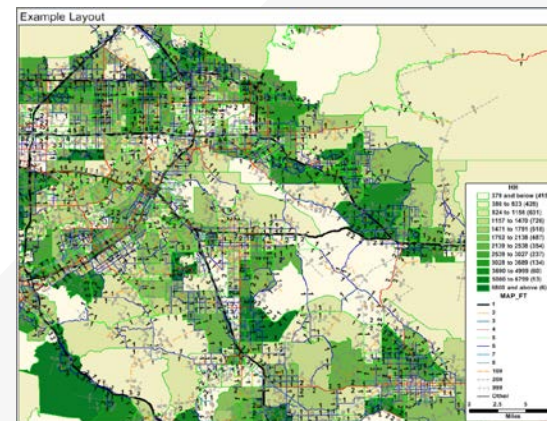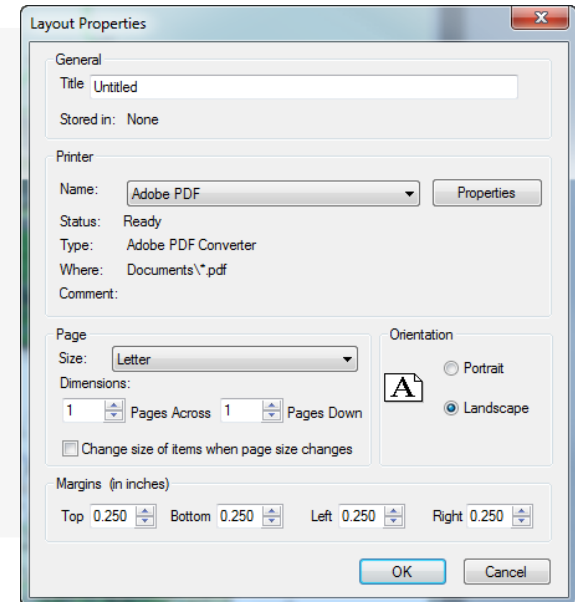
More on Networks and Zones

User Variables

➤ Creating your own variables

» Additional fields can be added to links & nodes layers

» Field names can contain spaces and numbers, and do not have a practical limit to the number of characters

» HOWEVER…

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User Variables

➢ Creating your own variables

» It is preferable to:

- Limit field names to 10 characters
- Avoid using spaces
- Avoid starting a field name with a number

» If these guidelines are followed, compatibility with other GIS programs will be improved

- Field names that do not follow these guidelines will have truncated or confusing names when exported to a shapefile

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Centroids

➤ Centroids are special nodes that are linked to socioeconomic data

» TAZ numbers match the TAZ layer, data tables, and matrices

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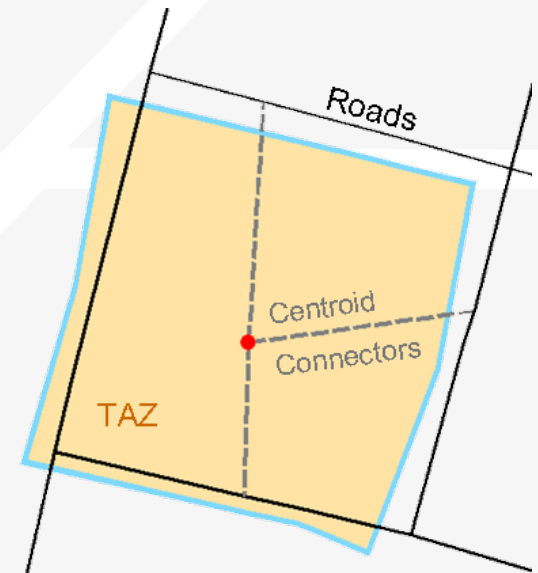
Recap

Learned by Example

➤ Creating maps

➤ Adding layers

➤ Setting layer styles, labels, and themes

➤ Working with data tables

➤ Joining Views

➤ Creating layouts for printing

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Highway Assignment

CAMBRIDGE SYSTEMATICS

Assignment Results

➤ Basic Volumes

» Located on the **Loaded Network**

» Outputs\Networks\Roads_Loaded_2014dbd

➤ Volume and Travel Time for:

» Each Period
(AM, MD, PM, OP)

» Total daily

Dataview1 - Master_Network Info	
ID	6680
LoadAM_AB	7325.00
LoadAM_BA	–
LoadAM_2Wy	7325.00
LoadMD_AB	9774.00
LoadMD_BA	–
LoadMD_2Wy	9774.00
LoadPM_AB	4125.00
LoadPM_BA	–
LoadPM_2Wy	4125.00
LoadOP_AB	2690.00
LoadOP_BA	–
LoadOP_2Wy	2690.00
Load24_AB	23914.00
Load24_BA	–
Load24_2Wy	23914.00
AM_CAPFAC	2.90
MD_CAPFAC	4.85
PM_CAPFAC	3.70
OP_CAPFAC	7.50
LoadAMPkHr_AB	2416.00
LoadAMPkHr_BA	–
LoadAMPkHr_2Wy	2416.00
LoadPMPkHr_AB	1405.00
LoadPMPkHr_BA	–
LoadPMPkHr_2Wy	1405.00
AB_TTf	1.00
BA_TTf	1.00

Assignment Results

➤ Detailed Results in a separate table

  » Join to the network using ID & ID1

  » By time period or daily

  » In the \Outputs\Volumes folder

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Assignment Results

➤ Detailed Results include:

» Basics:
- Total Flow
- Flow by class (e.g., drive alone, shared ride, truck)
- Travel time and speed (congested time by period)

» Extras / Statistics:
- VMT (called V_Dist_T)
- VHT
- Volume to Capacity Ratio ("VOC")
- PCE Values

» Select Link / Zone Results
- Only present if mode was run with
- \Inputs\BCAG_Links.qry

Practice 7: Review Assignment Results

1.   Repeat practice 5 result

2.   Label the links with the % share of vehicles that are "Drive Alone"
(Hint: create a formula field)

3.   Try creating a bandwidth (scaled symbol) theme showing directional volume

(hint: Use ✖)

CAMBRIDGE SYSTEMATICS

Roadway Network Editing

Network Editing

➤ Warning: Make a backup copy first!

» There is an "Undo" function in TransCAD

» Edits are made directly to the network file: You can't close without saving to discard changes

The Undo function in TransCAD 5+ makes network editing less risky

» Network files sometimes become corrupt

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Network Editing
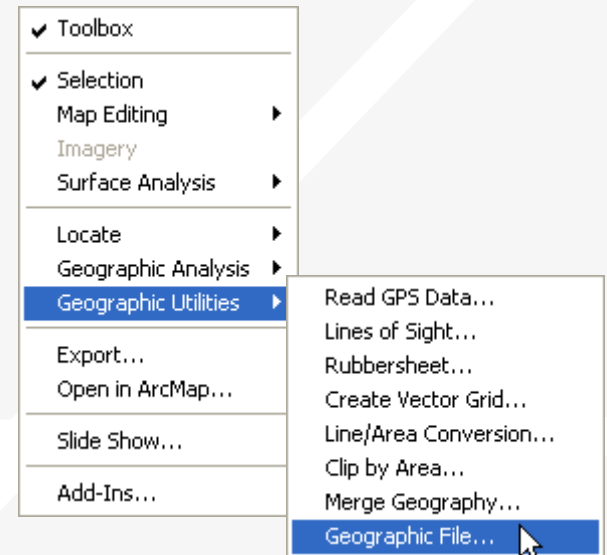
➤ Backing up the Roadway Network

➤ **Method 1 (recommended):**

» Open the network in TransCAD

» Use Tools → Geographic Utilities → Geographic File

» *Click **Archive** to save in a zip file*

➤ **Method 2 (advanced):**

» Close all files in TransCAD

» Create a zip file with the line layer and route system files

» Make sure to get <u>all</u> related files

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Network Editing

➤ Once you have made a backup, you can:

» Edit attributes of existing links

» Change data for a specific year or for multiple years and alternatives

» Add new links, delete existing links, or realign existing links
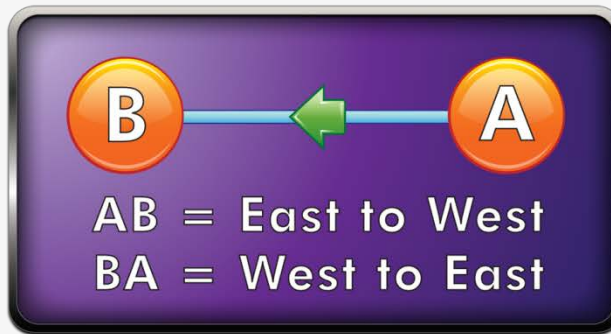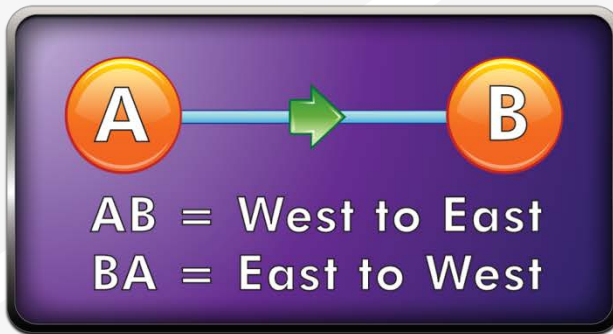
» Add data for a year not yet included in the network

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Network Editing

➤ Edit attributes of existing links

» Display settings can assist with editing

➤ Additional labels and/or themes can be useful

» Label # of lanes or other values

» Show Topology ( ) to see AB vs. BA

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Network Topology

➤ Show topology to identify AB and BA directions

AB = West to East
BA = East to West

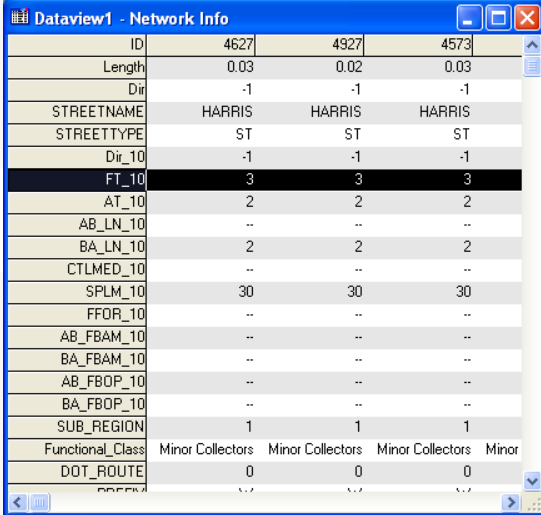AB = East to West
BA = West to East

➤ To identify one-way roads, use the DIR field:
- » 0: Two-way travel
- » 1: A → B travel
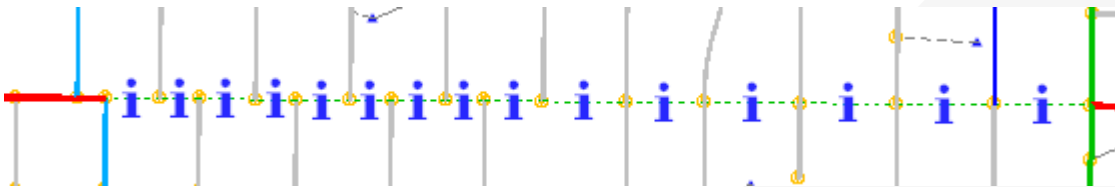- » -1: B → A travel

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Network Editing

➤ **Edit attributes of existing links – Method 1**

» To make most edits, use the information tool (🛈) and edit text in the form that appears

» Changes can be undone
  ■ Each edit action creates an undo point

» You can select and fill multiple links with the information tool
  ■ Multiple values can be filled by right-clicking on row names

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Network Editing
Alternate Method

➤ Edit attributes of existing links *Alternate Method*

» Use the map editing toolbox ( )

» Use the Edit Line Attributes ( ) button

- Operation of this tool is similar to using the information button

» Edits are saved when the green light ( ) is clicked

» Use the red ( ) light to cancel all unsaved edits

» The Undo function will undo all edits that are saved at once with the green light

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Network Editing

➤ What Fields do I Edit???

» **Facility Type**
  - ▪ Facility type identifier

» **Lanes**
  - ▪ Directional number of lanes, by time period
  - ▪ Aux. lanes (freeway links only)

» **Direction**

» **Area Type**
  - ▪ Use nearby links as a guide

» **MODE**
  - ▪ 2 for most links (other values are for transit)

» **Other fields as necessary**

Practice: Network Editing

➤ Open the input network file

➤ Make a backup copy of this network in a folder called "Backup"

» Use Tools → Geographic Utilities → Geographic File and archive the network

» Add the date to the backup filename

» Edit the original network file

➤ Try using the different editing approaches to:
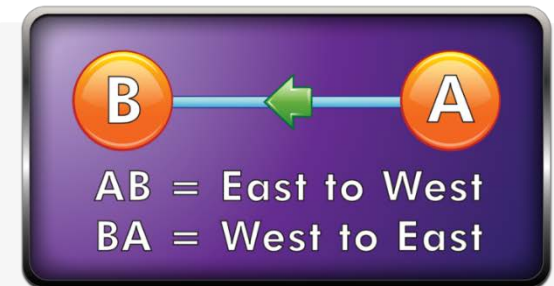
» Change the facility type

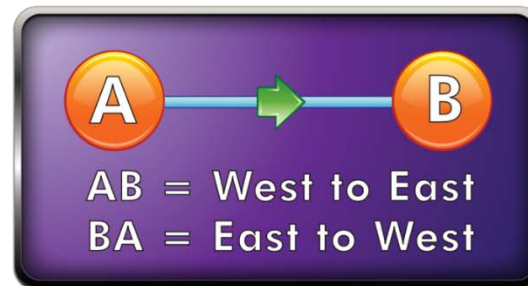» Widen a Road

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Practice: Network Editing

➤ Show Topology on the network

➤ Change a roadway to represent a different number of lanes in each direction

➤ Change a different roadway to a one-way road

» 0 = Two-Way
» 1 = A to B
» -1 = to A

AB = West to East
BA = East to West

AB = East to West
BA = West to East

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Network Editing

➤ Adding new links

» Use the map editing toolbox ( )

» Add links using Add Line ( )

- To work properly, links must be connected at nodes

- Existing links may need to be split

- Avoid splitting links if possible

» Make sure that links are connected by:

- Saving edits

- Moving a node around – do all of the attached links move with it?

- Canceling the edit

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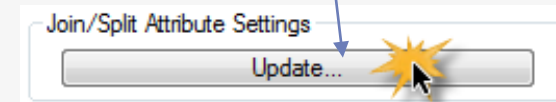
Network Editing

➤ **Adding New Links**
  » New links need new data!
  » Copy data from an existing link with similar characteristics
    ▪ Use the Edit Link Attributes ( ) button
    ▪ Click/shift-click on the new link(s)
    ▪ Shift-click on the similar old link
    ▪ Right-click on the data for the "old" link and choose "Copy Values"
  » Splitting/Joining Links
    ▪ **Check the split/join settings**
    ▪ Use the split/join tools ( )
    ▪ New/moved links may be connected at new nodes
    ▪ Check data on split/joined links

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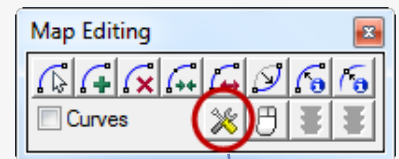
Network Editing

➤ Keeping Transit up to date
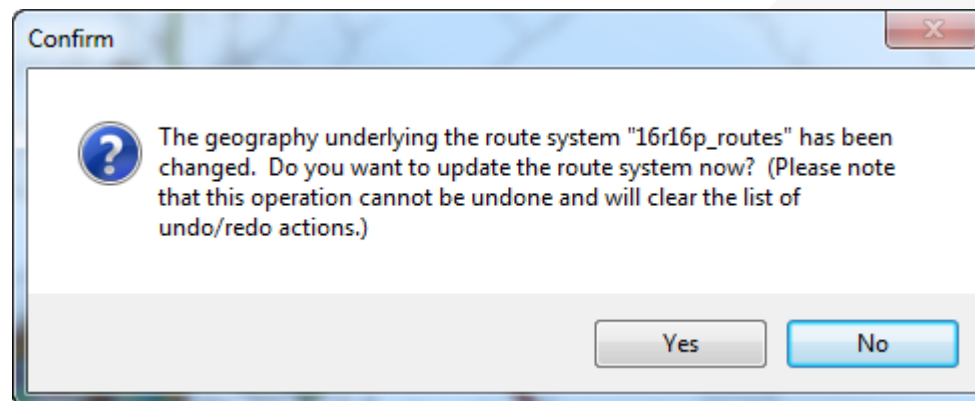
» Always add the route system to the network before making edits (link additions, splits, or joins)

» Add the route system from networks\Inputs
Note: Make sure to choose the Route System file type

» Make the route system active after every few edits

» TransCAD will prompt and update the transit network based on your changes

Confirm

The geography underlying the route system "16r16p_routes" has been changed. Do you want to update the route system now? (Please note that this operation cannot be undone and will clear the list of undo/redo actions.)

Yes   No

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Network Editing

CAMBRIDGE SYSTEMATICS
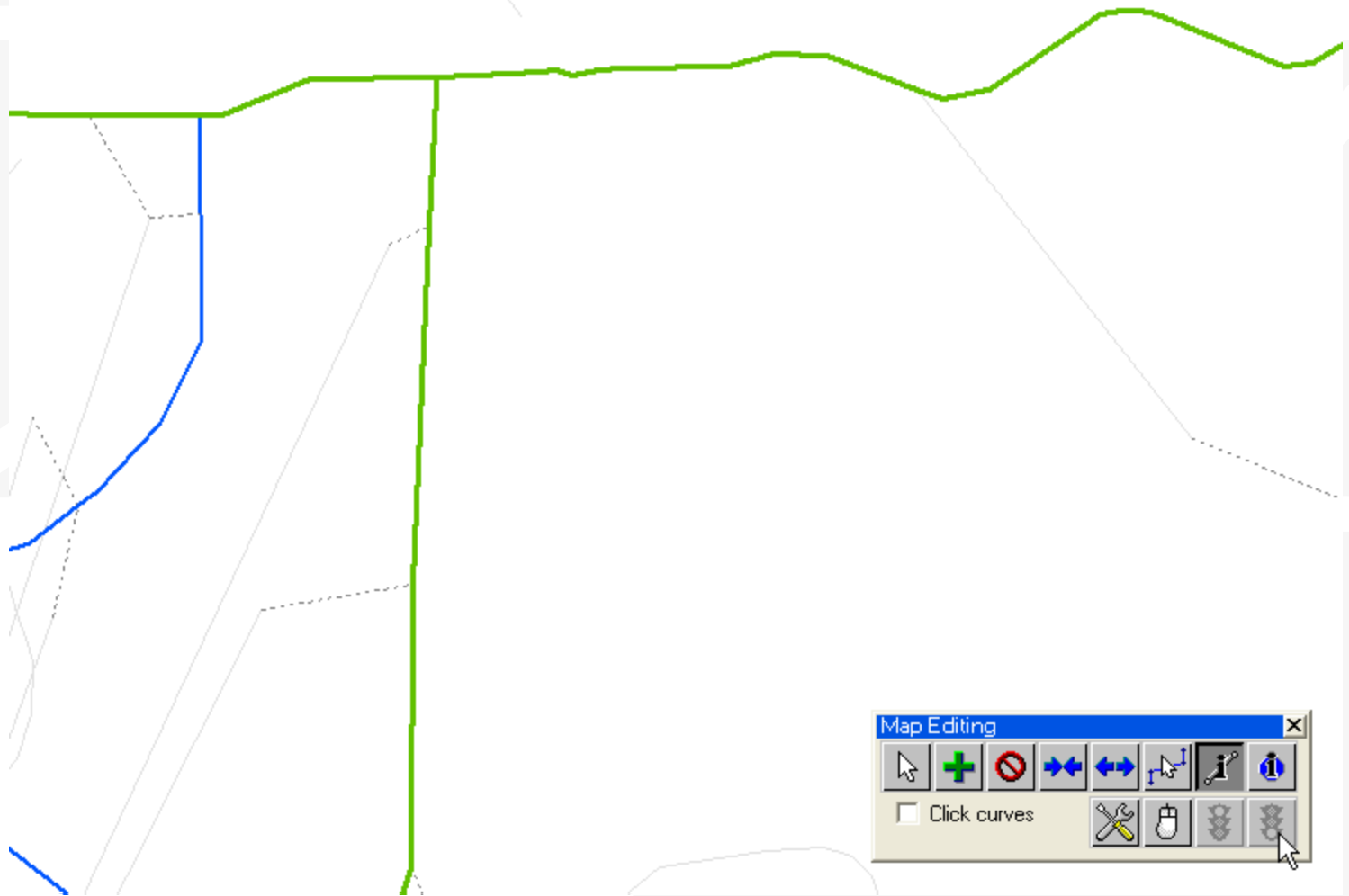
Practice: Network Editing

➤ Continue editing the input network

➤ Add, delete, and realign some links

» Show topology: Note that the way a new
link is created defines its AB direction

➤ Copy link values from an old road to newly
created links

➤ Split and join links

» look at the data that appears on each half

» Look at the network editor settings ( )

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Network Editing

➤ Things to keep in mind:

» When splitting links, make sure the data on both pieces still makes sense

» When adding new roadways, adjust centroid connectors if necessary

» Adding detail or making corrections?

▪ You may need to make edits to base and forecast networks

Advanced Topics

Advanced Topics

➤ **Matrix Files and OD Tables**
  » Matching matrix files to zones/centroids
  » Visualizing trip table data
    ▪ Desire Lines

➤ **Setting up Select Link and Zone Anlaysis**
  » Creating a query file
  » Running assignment only with select analysis activated

➤ **Routable Networks**
  » Creating and updating a ".net" Network
  » Interactive pathbuilding

➤ **Basic Scripting**
  » Batch Recorder
  » Simple Macro Creation

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Thank You!

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