

# Deep Dive into the Filter Builder



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# Which to use:

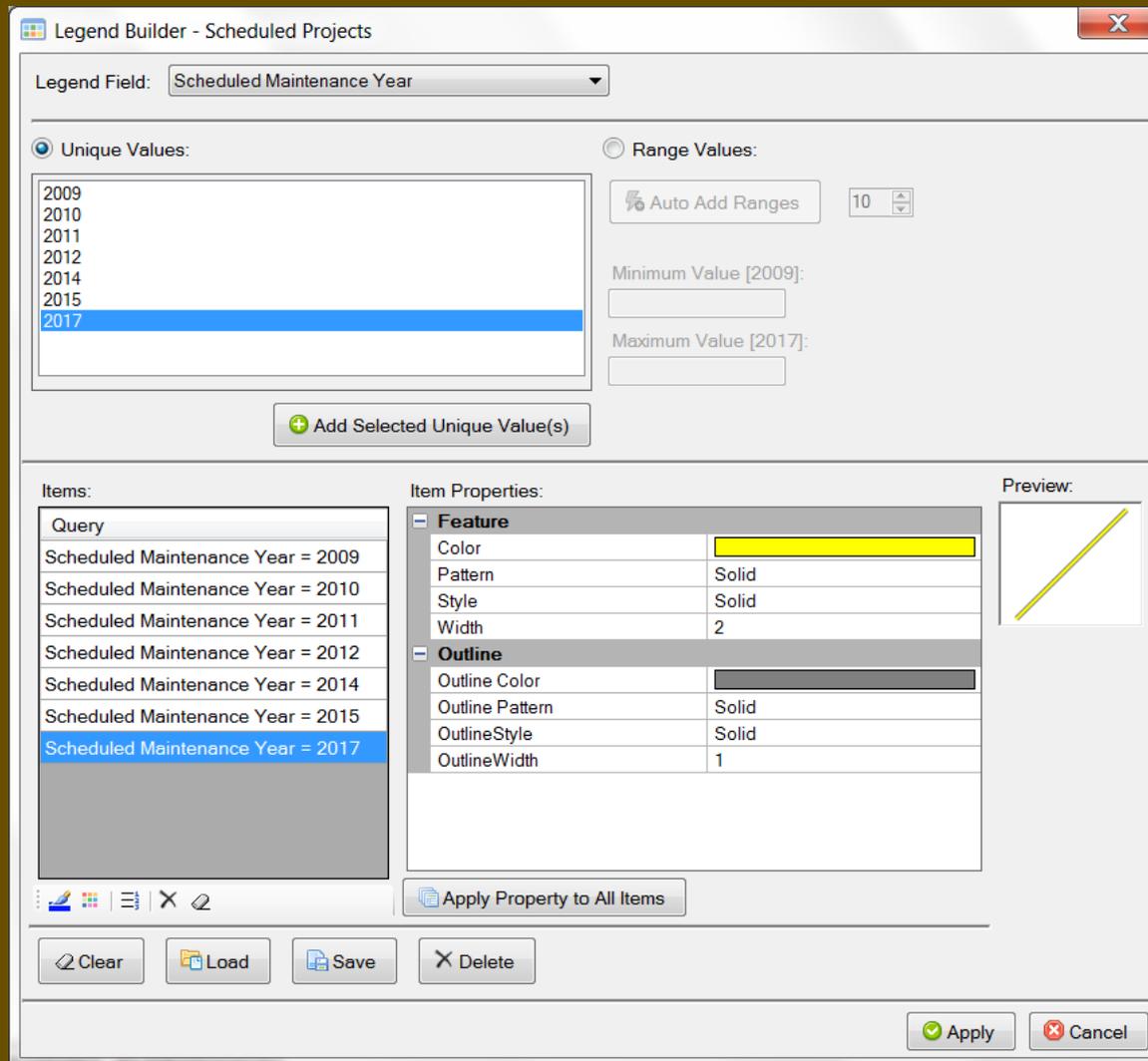
## Legend

or

## Filter?

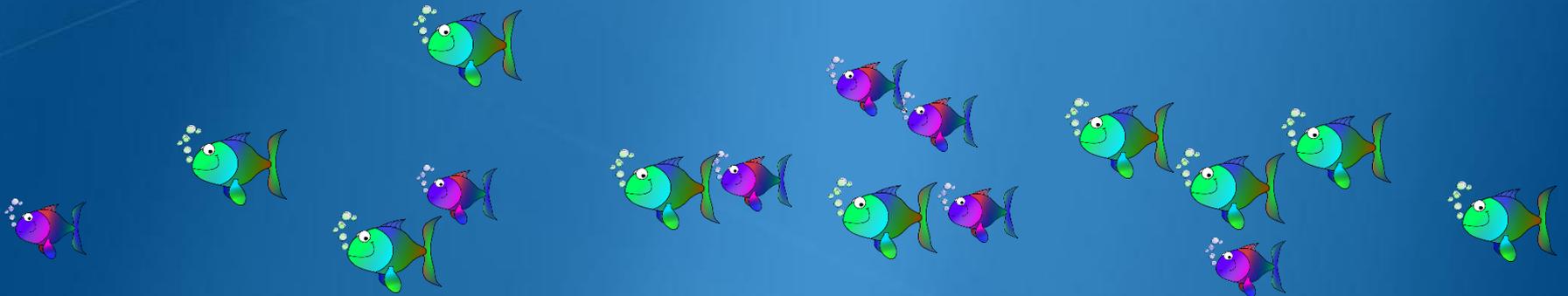


# Legend: lists and explains the symbols and colors used on a map



# Roadsoft Filters can be used to:

- Hide features on the map
- Make selections
- Limit data on reports
- Define collection set for the LDC
- Define set of roadways for Strategies



# Roadsoft Filter:

- Defines a “set” of related roadway features that can be saved and used for multiple purposes.



Total Miles:  
1059.087

Total Miles:  
1059.087

Asphalt Miles:  
259.688

Total Miles:  
1059.087

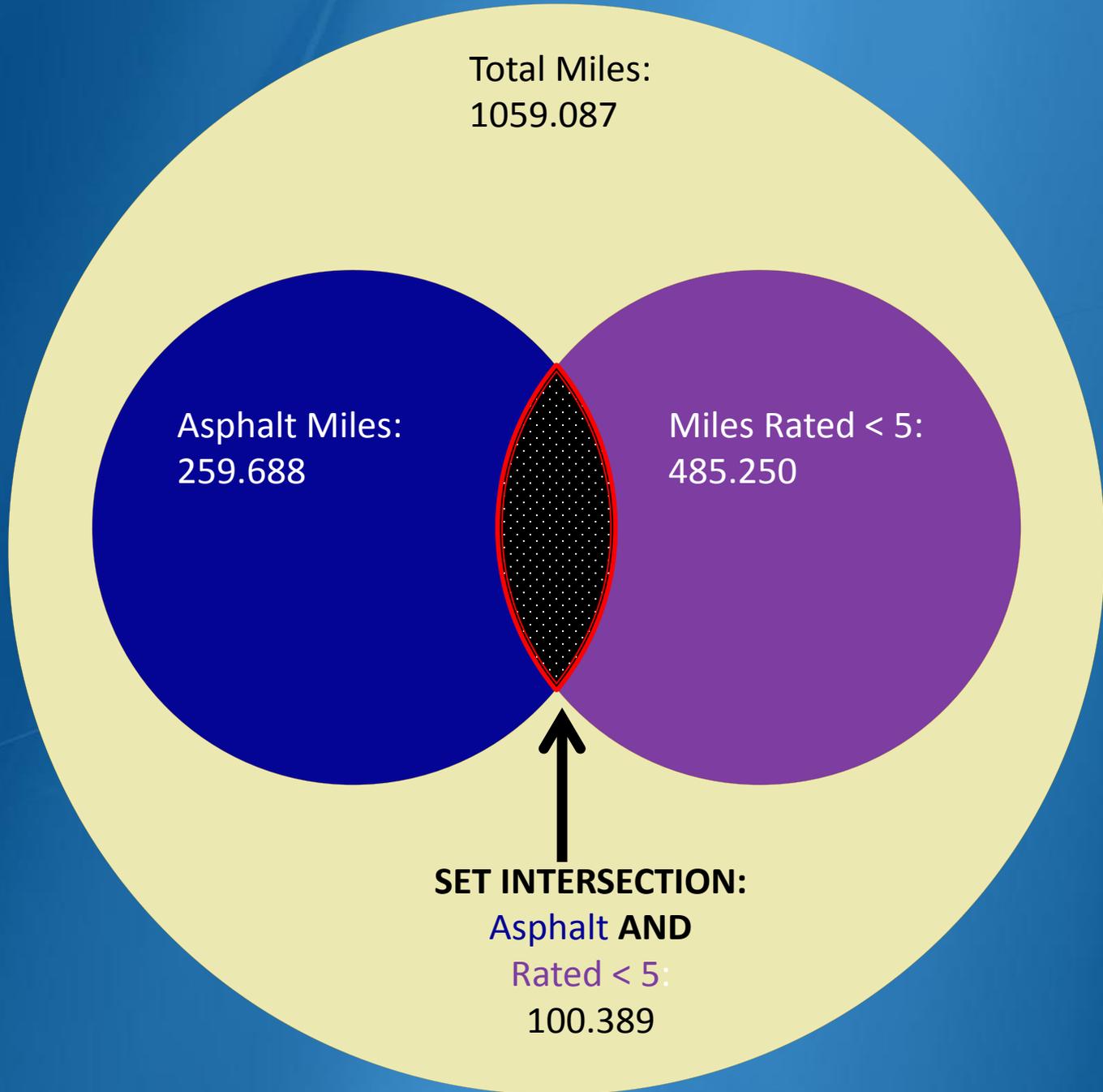
Miles Rated < 5:  
485.250

Total Miles:  
1059.087

Asphalt Miles:  
259.688

Miles Rated < 5:  
485.250

**SET INTERSECTION:**  
Asphalt AND  
Rated < 5:  
100.389



Total Miles:  
1059.087

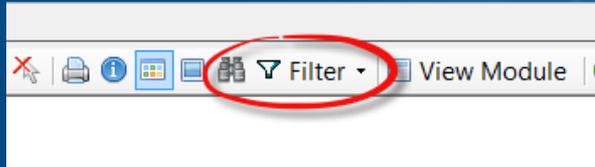
Asphalt Miles:  
259.688

Miles Rated < 5:  
485.250

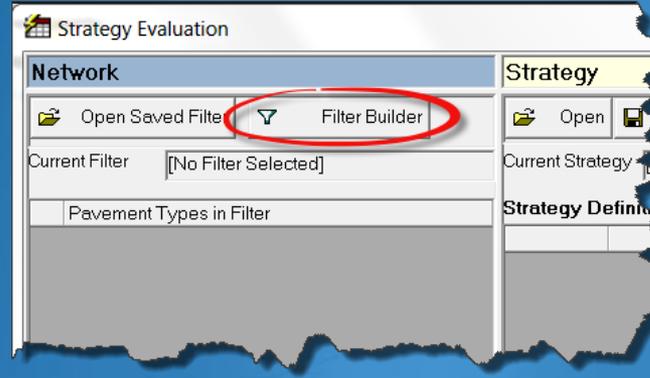


**SET UNION:**  
Asphalt **OR**  
Rated < 5:  
644.549

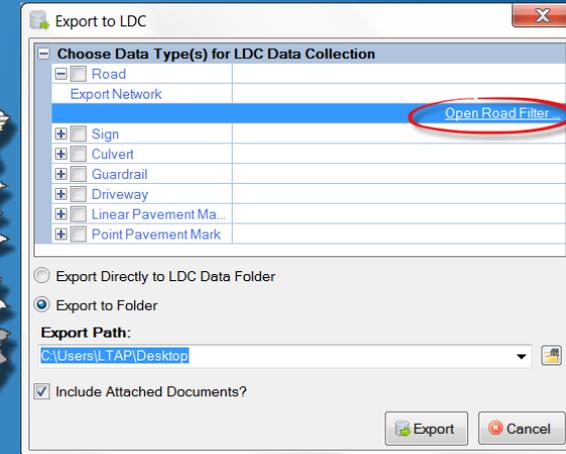
# Where's the Filter Builder?



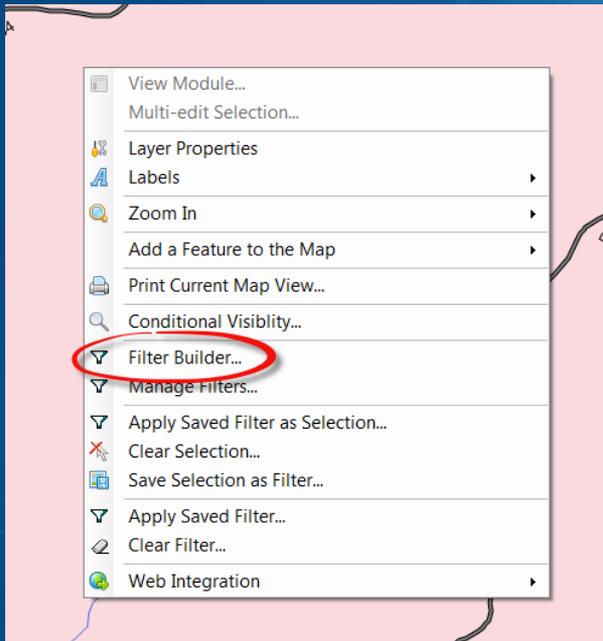
Map Button Bar



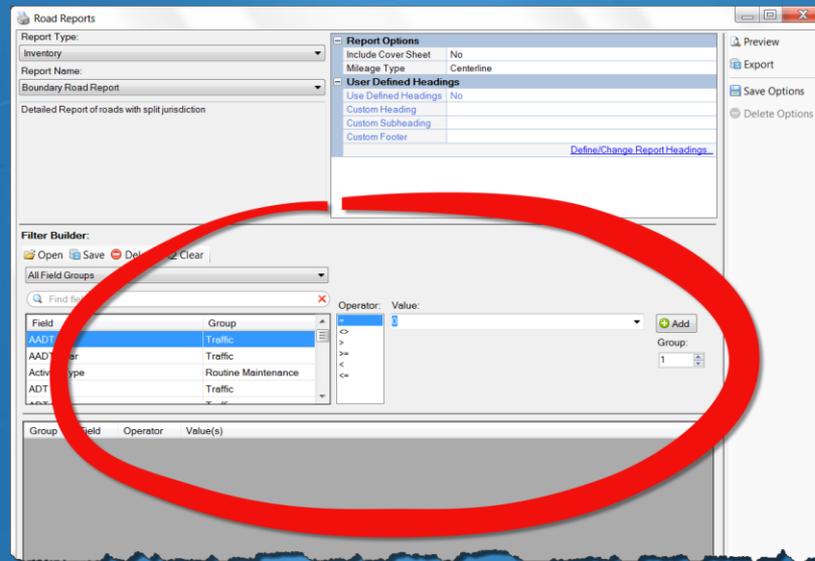
Strategy Form



LDC Export



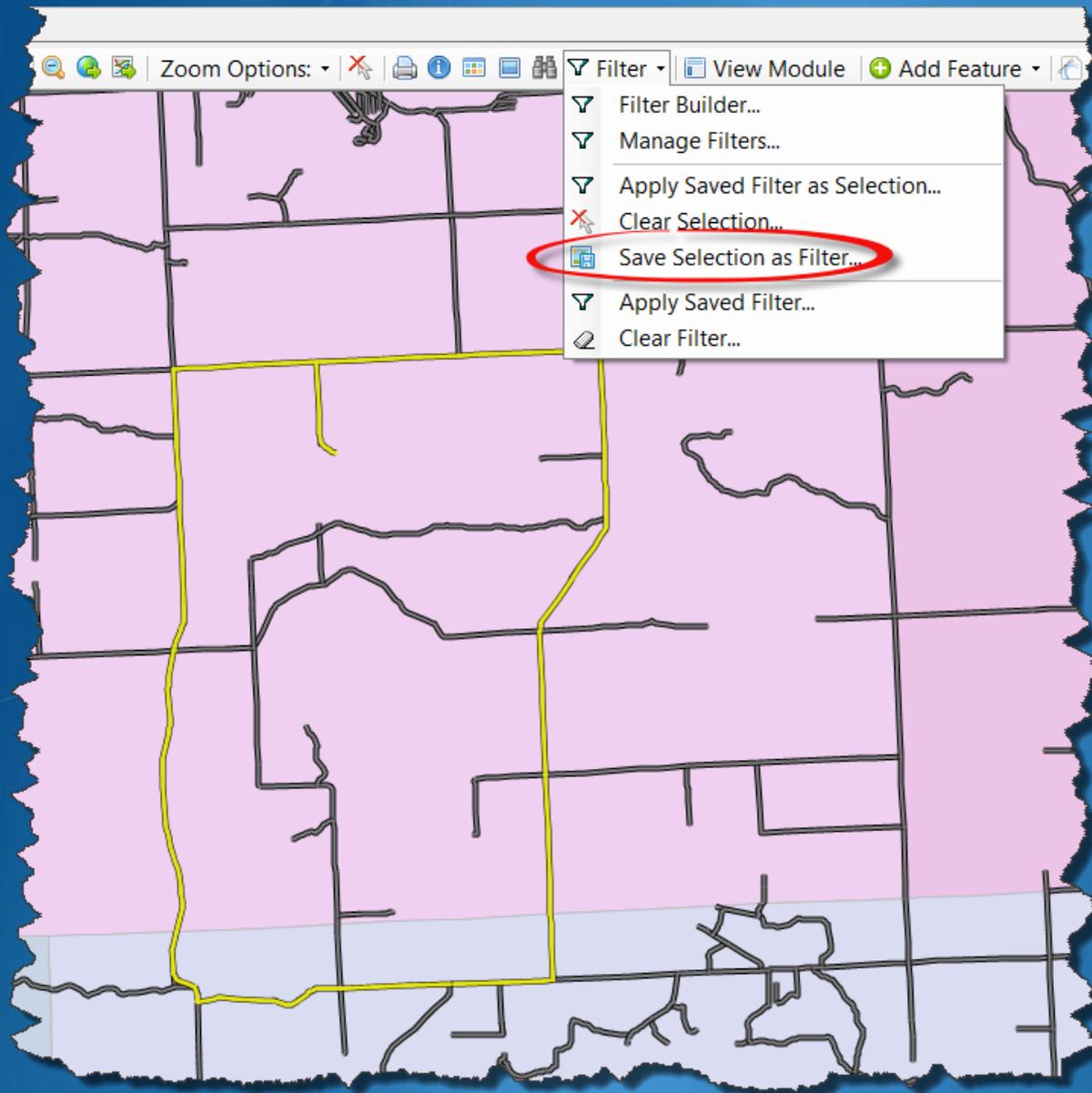
Right-click Menu



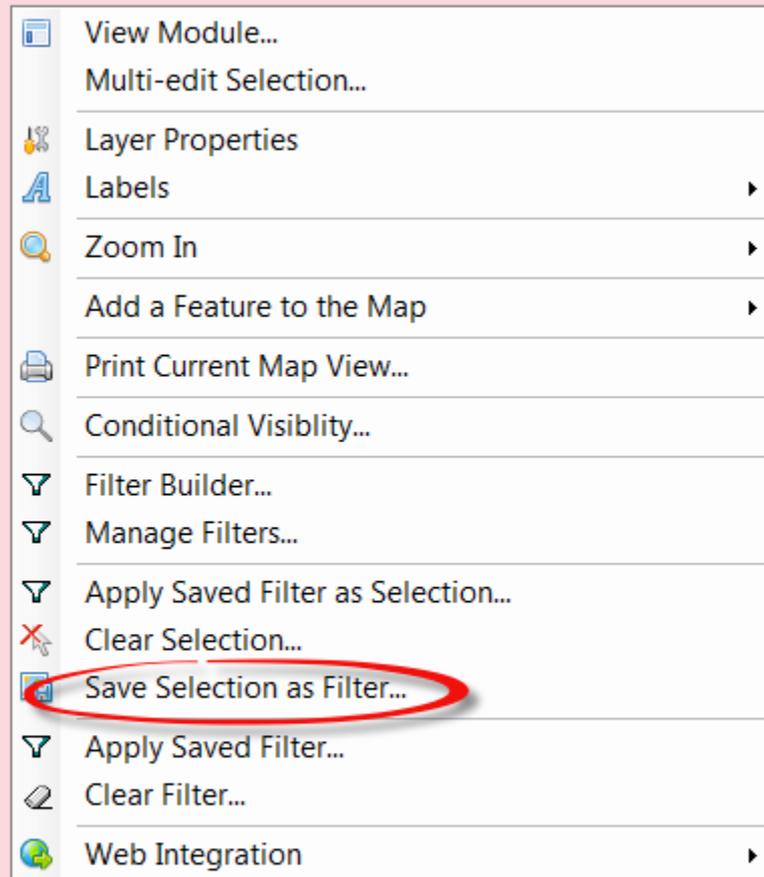
Reports Form



# Manually Selected Filter



# Another Manually Selected Filter



# Filter Builder

Road Layer Filter Builder

Open Save Delete Clear

All Field Groups

Find field...

Field	Group
AADT	Traffic
AADT Year	Traffic
Activity Type	Routine Maintenance
ADT	Traffic
ADT Date	Traffic
Average URCI Value	URCI Sample

Operator: Value: 2016-05-19

Operator: = <> > >= < <=

+ Add

Group: 1

Group	Field	Operator	Value(s)
-------	-------	----------	----------

Criteria

3997 Segments/1124.909 Linear Miles [unfiltered]

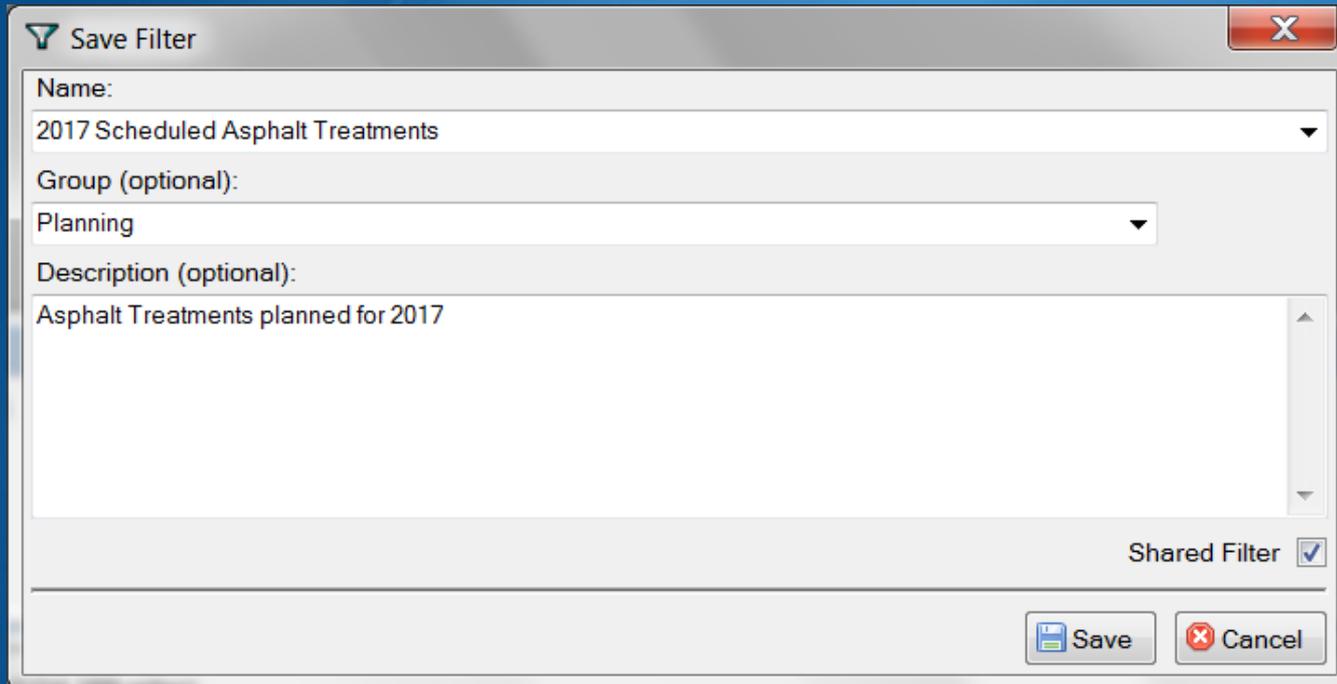
Apply as Filter Append to Selection Replace Selection

# Top Button Bar



- Open
  - Load the criteria from a saved filter
- Save
  - Name the criteria so it can be used again
- Delete
  - Get rid of the old stuff
- Clear
  - Clean up the working space so you can start over

# Save Filter



Save Filter

Name:  
2017 Scheduled Asphalt Treatments

Group (optional):  
Planning

Description (optional):  
Asphalt Treatments planned for 2017

Shared Filter

Save Cancel

- Optional Group
  - Helps to stay organized
- Shared Filter
  - Allows use by others

# Manage Filters

Manage Filters

Group:

Search for Filter Name...

Name	Group	Shared	Owner
06_AM		<input checked="" type="checkbox"/>	Admin
07AMSurvey		<input checked="" type="checkbox"/>	Admin
08AMSurvey		<input checked="" type="checkbox"/>	Admin
2006 Activity		<input checked="" type="checkbox"/>	Admin
2007 Projects		<input checked="" type="checkbox"/>	Admin
2009 Federal Aid		<input checked="" type="checkbox"/>	Admin
2011 Non- Federal		<input checked="" type="checkbox"/>	Admin
2011 Paser county roads		<input checked="" type="checkbox"/>	Admin
2012 City& Village		<input checked="" type="checkbox"/>	Admin
2012 Federal Aid		<input checked="" type="checkbox"/>	Admin
2012 Federal Aid 2		<input checked="" type="checkbox"/>	Admin
Alcona County Act 51 Roads		<input checked="" type="checkbox"/>	Admin
Alcona Twn		<input checked="" type="checkbox"/>	Admin

Multi-edit Selected Filters

Group: 2012 Retired Filters

Sharing: Shared

Apply Cancel

Edit Delete

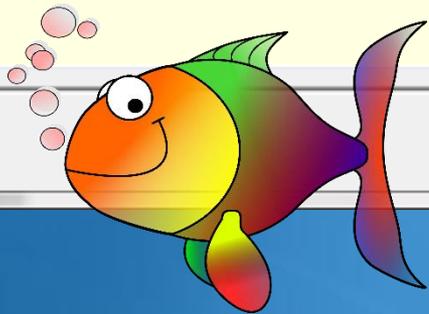
Load Saved Filter

Group:

2012 Retired Filters

Search for Filter Name...

Name	Shared	Owner
2012 City& Village	<input checked="" type="checkbox"/>	Admin
2012 Federal Aid	<input checked="" type="checkbox"/>	Admin
2012 Federal Aid 2	<input checked="" type="checkbox"/>	Admin



OK  Cancel

# Finding Fields

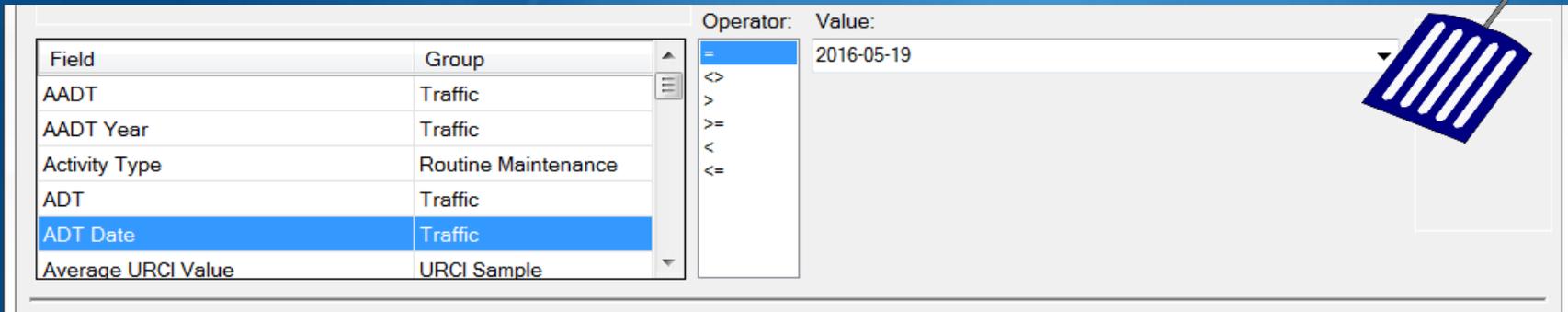


All Field Groups

Find field...

- Field Groups drop-down
  - Limits the field list to a particular grouping
- Find field...
  - Partial search by field name

# Fields, Operators and Values



The screenshot shows a query builder interface. On the left is a table with two columns: 'Field' and 'Group'. The 'ADT Date' row is highlighted. In the center is a list of operators: '=', '<>', '>', '>=', '<', '<=', 'Like', and 'Not Like'. The '=' operator is selected. On the right is a 'Value:' field containing the date '2016-05-19'. A blue eraser icon is positioned over the value field.

Field	Group
ADT	Traffic
ADT Year	Traffic
Activity Type	Routine Maintenance
ADT	Traffic
ADT Date	Traffic
Average URCI Value	URCI Sample

Operator: Value:  
= 2016-05-19

- Operators list will depend on Field Type
  - =, <>, >, >=, <, <=, Like, Not Like
- Values will also depend on Field Type
  - Select from lookup value list
  - True or False
  - Select from list of collected data values
  - Type in a value
  - Search

# Add Criteria

The interface consists of a main header area, a table, a criteria input section, and a status bar.

Group	Field	Operator	Value(s)
-------	-------	----------	----------

Criteria

3997 Segments/1124.909 Linear Miles [unfiltered]

- Use criteria and display resulting counts

# Add more criteria

Latest

Field	Group
Latest Remarks	URCI Sample (Latest)
Latest Ride Rating	Other Ratings
Latest Surface Rating	Surface
Latest Total Deduct Value	URCI Sample (Latest)
Latest URCI Value	URCI Sample (Latest)

Operator: Value:

Operator	Value
=	1-Failed
<>	2-Very Poor
>	3-Poor
>=	4-Fair
<	5-Fair
<=	6-Good
	7-Good
	8-Very Good
	9-Excellent
	10-Excellent

+ Add

Group: 1

Group	Field	Operator	Value(s)
1	Surface Type	=	Asphalt
1	Latest Surface Rating	=	1-Failed or 2-Very Poor or 3-Poor or 4-Fair

Criteria

Surface Type	=	Asphalt
Latest Surface Rating	=	1-Failed or 2-Very Poor or 3-Poor or 4-Fair

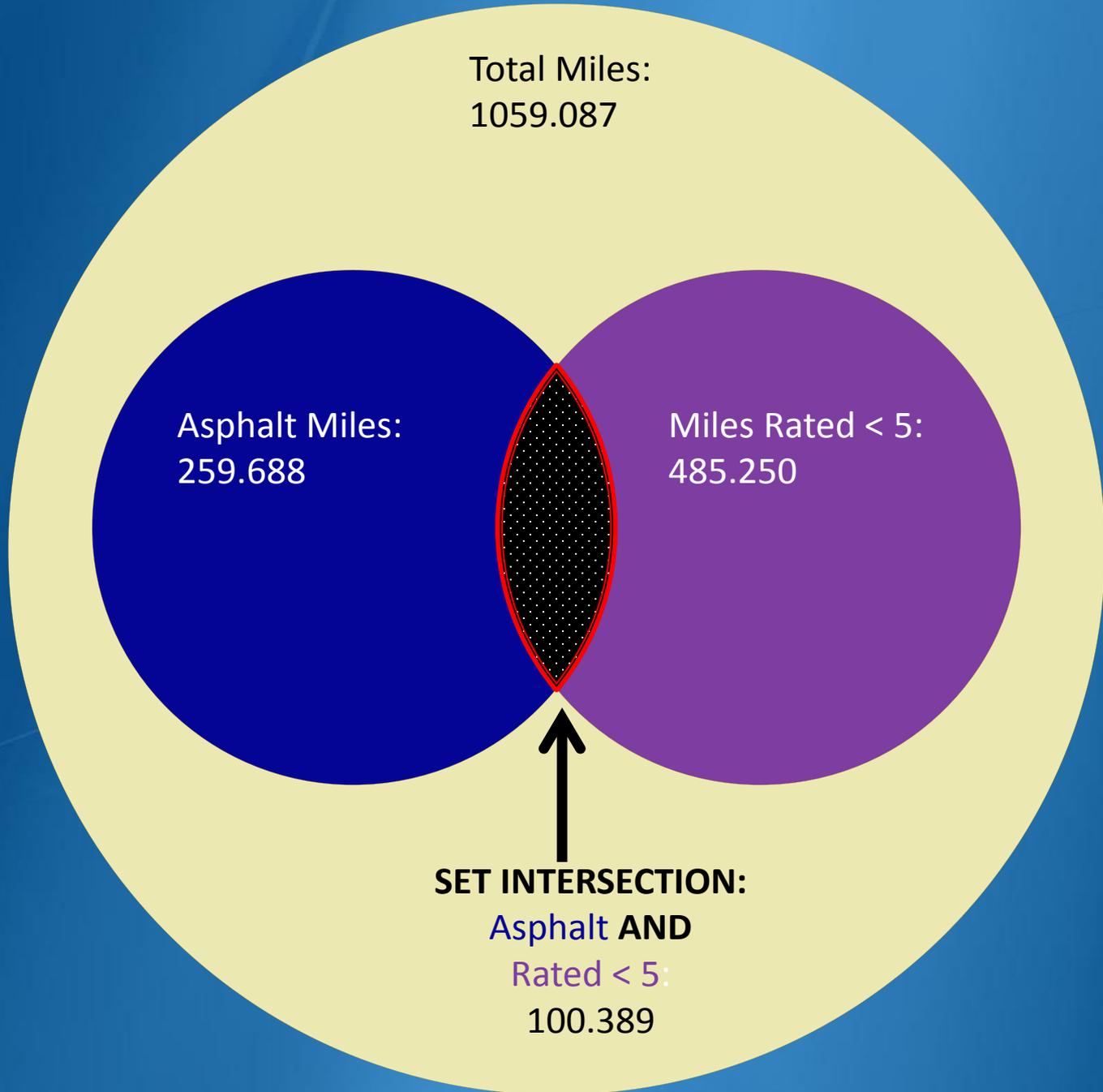
- Implements a SET INTERSECTION (AND) between criteria

Total Miles:  
1059.087

Asphalt Miles:  
259.688

Miles Rated < 5:  
485.250

**SET INTERSECTION:**  
Asphalt AND  
Rated < 5:  
100.389



# Group

The screenshot shows a software interface for defining filter criteria. At the top, there is a table with two columns: 'Field' and 'Group'. The first row is 'Saved Filter' under 'Saved Filters'. To the right, there are 'Operator' and 'Value' fields. The 'Operator' field contains '=', and the 'Value' field contains 'Select Saved Filter...'. A red circle highlights a 'Group' dropdown menu in the top right corner, which is currently set to '2'. Below this is a large table with four columns: 'Group', 'Field', 'Operator', and 'Value(s)'. The table contains three rows of criteria. The third row is highlighted in yellow. At the bottom, there is a 'Criteria' section that displays the criteria in a summary format.

Group	Field	Operator	Value(s)
1	Surface Type	=	Asphalt
1	Latest Surface Rating	=	1-Failed or 2-Very Poor or 3-Poor or 4-Fair
2	Saved Filter	=	Plow Route 1

Criteria

Surface Type = Asphalt  
Latest Surface Rating = 1-Failed or 2-Very Poor or 3-Poor or 4-Fair  
--- OR ---  
Saved Filter = Plow Route 1

- Separates criteria into numbered Groups
- Implements a SET UNION (OR)

Total Miles:  
1059.087

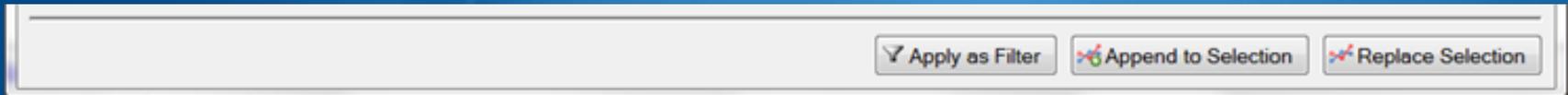
Asphalt Miles:  
259.688

Miles Rated < 5:  
485.250



**SET UNION:**  
Asphalt **OR**  
Rated < 5:  
644.549

# Bottom Button Bar

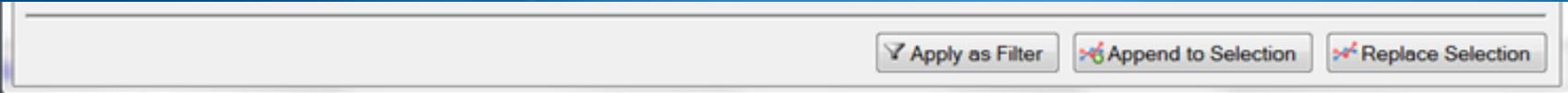


- Apply as Filter

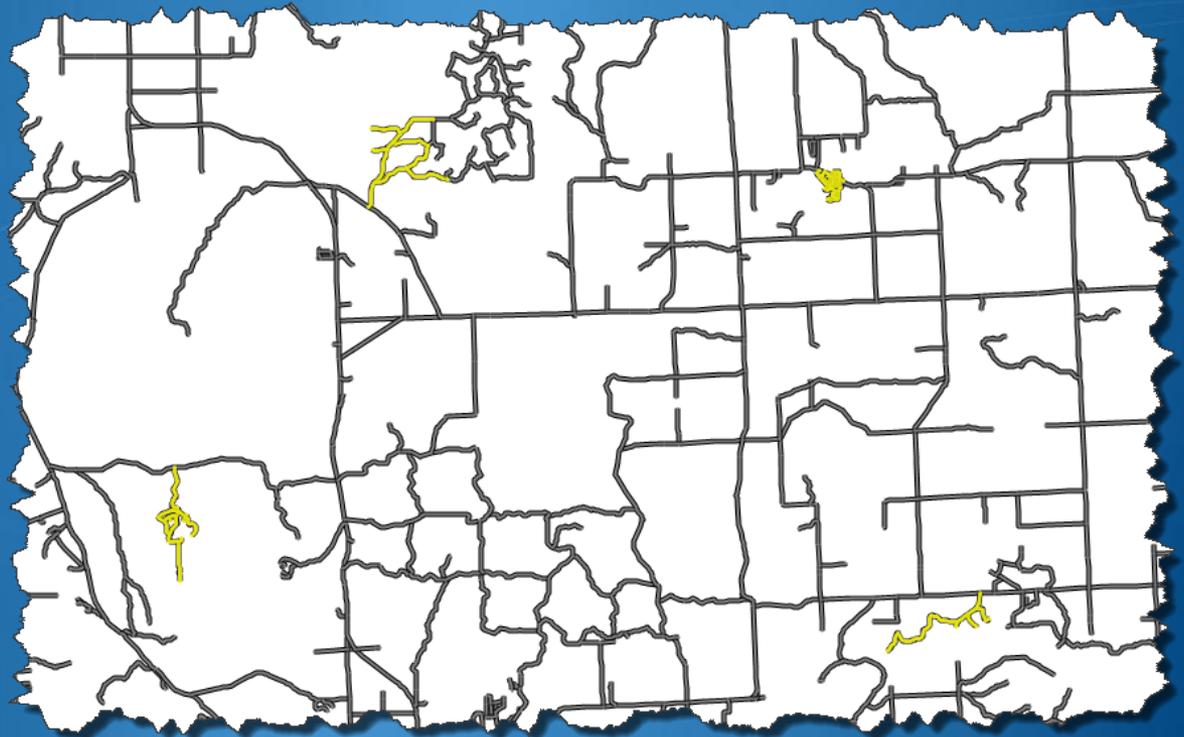
- Displays only features in defined set and turns off rest of display



# Bottom Button Bar



- Append to Selection
- Replace Selection



# Pay attention to the Group!

Rating

Field	Group
Latest Base Rating	Other Ratings
Latest Drainage Rating	Other Ratings
Latest IBR Rating	IBR Ratings
Latest Ride Rating	Other Ratings
Latest Surface Rating	Surface
Rating	Curb/Gutter

Operator: Value:

=	1-Failed
<>	2-Very Poor
>	3-Poor
>=	4-Fair
<	5-Fair
<=	6-Good
	7-Good
	8-Very Good
	9-Excellent
	10-Excellent

+ Add  
Group: 1

Surface

Field	Group
Surface Spec Notes	Surface Design
Surface Sub-Type, Historical	Surface
Surface Sub-Type, Latest	Surface
Surface Type	Surface
Surface Type (Scheduled)	Scheduled Maintenance
Surface Width	Physical/Design

Operator: Value:

=	1-Failed
<>	2-Very Poor
>	3-Poor
>=	4-Fair
<	5-Fair
<=	6-Good
	7-Good
	8-Very Good
	9-Excellent
	10-Excellent

+ Add  
Group: 1

# Commonly Confused Fields

Surface	
Surface SubType	Asphalt-Standard
Current Rating	7 - Good
RSL	7
Confidence	95
YLR	

Rating/Treatment History	
<a href="#">Add Rating/Treatment...</a>	
9/17/2012	
⊕ Rating	8 - Very Good
9/6/2011	
⊕ Rating	5 - Fair
8/23/2010	
⊕ Rating	5 - Fair
9/22/2009	
⊕ Rating	5 - Fair
9/25/2008	
⊕ Rating	8 - Very Good
10/30/2007	
⊕ Rating	9 - Excellent
9/27/2006	
⊕ Rating	9 - Excellent
9/15/2005	
⊕ Rating	6 - Good

**Current  
Surface  
Rating**

**Latest  
Surface  
Rating**

**Surface  
Rating,  
Historical**

Surface	
Surface SubType	Asphalt-Standard (Asphalt)
Current Rating	7 - Good
RSL	7
Confidence	95
YLR	

Rating/Treatment History	
<a href="#">Add Rating/Treatment...</a>	
9/17/2012	
⊕ Rating	8 - Very Good
9/6/2011	
⊕ Rating	5 - Fair
8/23/2010	
⊕ Rating	5 - Fair
9/22/2009	
⊕ Rating	5 - Fair
9/25/2008	
⊕ Rating	8 - Very Good
10/30/2007	
⊕ Rating	9 - Excellent
9/27/2006	
⊕ Rating	9 - Excellent
9/15/2005	
⊕ Rating	6 - Good

**Latest Eval  
Date  
(or Year)**

**Eval Date,  
Historical  
(or Year)**

- Current = Calculated Rating
- Later = Last Actual Rating
- Historical = Exists anywhere in the History

# Finding things that are missing

- Empty Fields

The image shows a software interface with several panels. On the left, a data entry form is visible with the following sections:

- Identification**
  - Segment Name: Deerfield Trl
  - From: Lakeside
  - To: Timberline
  - City/Twp: Mitchell Twp
  - Maintained By: No
- Physical/Design**
  - Number of Lanes: 0
  - Surface Width: 0.00
  - Right of Way: 0.00
  - Restriction: Not designated
- Traffic Volume**
  - Traffic Volume: Undefined
  - Road Design: Undefined
  - % Commercial: 0.0
- Miscellaneous**

Two search windows are overlaid on the right side of the interface:

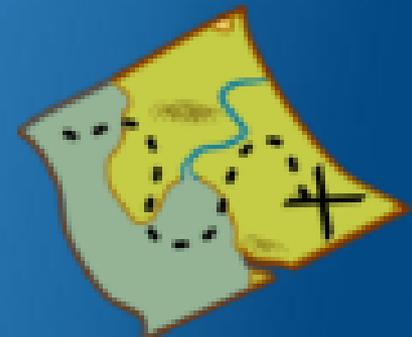
- The top search window shows a table with columns 'Field' and 'Group'. The row 'Number of Lanes' (Physical/Design) is selected. The search criteria are 'Operator: =' and 'Value: 0'. A red circle highlights the '0' value, and a red arrow points from it to the '0' value in the 'Physical/Design' section of the main form.
- The bottom search window shows a table with columns 'Field' and 'Group'. The row 'Restriction Type' (Physical/Design) is selected. The search criteria are 'Operator: =' and 'Value: restrict1', 'Restricted Load', 'Seasonal (not snow-plowed)', 'All-Season (not weight restricted)', and 'Not designated'. A red circle highlights the 'Not designated' value, and a red arrow points from it to the 'Not designated' value in the 'Restriction' field of the main form.

# Finding things that don't exist

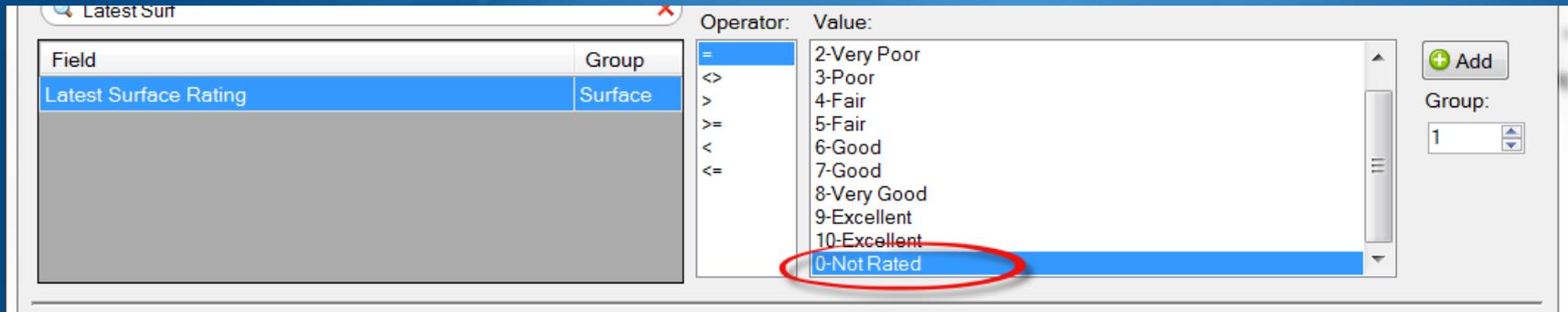
- Non-existing repeatable fields

Surface	
Surface SubType	Undefined (Undefined)
Current Rating	0 - Not Rated
RSL	0
Confidence	0
YLR	
<b>No Rating/Treatment History</b>	
<a href="#">Add Rating/Treatment..</a>	

Maintenance	
<a href="#">Add Maintenance</a>	Lookups
<b>No Maintenance Items Found</b>	



# Roads - Not Rated



- Filter Builder sometimes handles this for you

# Signs with no Maintenance

Maintenance

Find field...

Field

- Latest Activity
- Latest Maintenance Crew
- Latest Maintenance Date
- Latest Work Authorization
- Latest Work Reason
- Maintenance Crew, Historical

Operator: =

Value: Undefined

- Remove Obstruction
- Other
- New Installation
- Replace
- Repair
- Relocate

+ Add

Group: 1

Group	Field	Operator	Value(s)
1	Latest Activity	=	Undefined

Criteria

Latest Activity = Undefined

1 Support(s) found

● But not always....

# Now what? Try it backwards...

The screenshot shows the 'Sign Filter Builder' application interface. At the top, there are buttons for 'Open', 'Save', 'Delete', and 'Clear'. Below these is a dropdown menu set to 'Maintenance' and a search field labeled 'Find field...'. A list of fields is shown on the left, with 'Latest Activity' selected. The 'Operator' is set to '=' and the 'Value' list is open, showing options like 'Undefined', 'Remove Obstruction', 'Other', 'New Installation', 'Replace', 'Repair', and 'Relocate'. A red circle highlights the operator and value list area. Below this is a table with columns 'Group', 'Field', 'Operator', and 'Value(s)'. The table contains one row: Group 1, Field Latest Activity, Operator =, Value(s) Undefined or Remove Obstruction or Other or New Installation or Replace or Repair or Relocate. A 'Criteria' section at the bottom left shows 'Latest Activity ='. A 'Save Filter' dialog box is open in the foreground, with 'Name: Signs with Maintenance' circled in red. The dialog also has fields for 'Group (optional)', 'Description (optional)', and a 'Shared Filter' checkbox. At the bottom of the dialog are 'Save As' and 'Cancel' buttons. At the bottom of the main application window are buttons for 'Apply as Filter', 'Append to Selection', and 'Replace Selection'. The status bar at the bottom left shows '2408 Support(s) found'.

Sign Filter Builder

Open Save Delete Clear

Maintenance

Find field...

Field

- Latest Activity
- Latest Maintenance Crew
- Latest Maintenance Date
- Latest Work Authorization
- Latest Work Reason
- Maintenance Crew, Historical

Operator: Value:

- Undefined
- Remove Obstruction
- Other
- New Installation
- Replace
- Repair
- Relocate

Add

Group: 1

Group	Field	Operator	Value(s)
1	Latest Activity	=	Undefined or Remove Obstruction or Other or New Installation or Replace or Repair or Relocate

Criteria

Latest Activity =

2408 Support(s) found

Save Filter

Name: Signs with Maintenance

Group (optional):

Description (optional):

Shared Filter

Save As Cancel

Apply as Filter Append to Selection Replace Selection

# Using Saved Filters

The screenshot shows the 'Sign Filter Builder' application window. At the top, there are menu options: Open, Save, Delete, and Clear. Below this is a 'Saved Filters' dropdown menu and a search box labeled 'Find field...'. The main configuration area is divided into three sections: 'Field', 'Operator', and 'Value'. The 'Field' section contains a list with 'Saved Filter' selected. The 'Operator' section shows a list with '<>' selected. The 'Value' section shows a list with 'Select Saved Filter...' selected. To the right of these sections are buttons for '+ Add' and 'Group: 1'. Below this configuration area is a table with the following data:

Group	Field	Operator	Value(s)
1	Saved Filter	<>	Signs with Maintenance

The 'Operator' cell in the table is circled in red. Below the table is a 'Criteria' section with a list containing 'Saved Filter <> Signs with Maintenance'. At the bottom of the window, it displays '747 Support(s) found' and three buttons: 'Apply as Filter', 'Append to Selection', and 'Replace Selection'.

# Best Advice

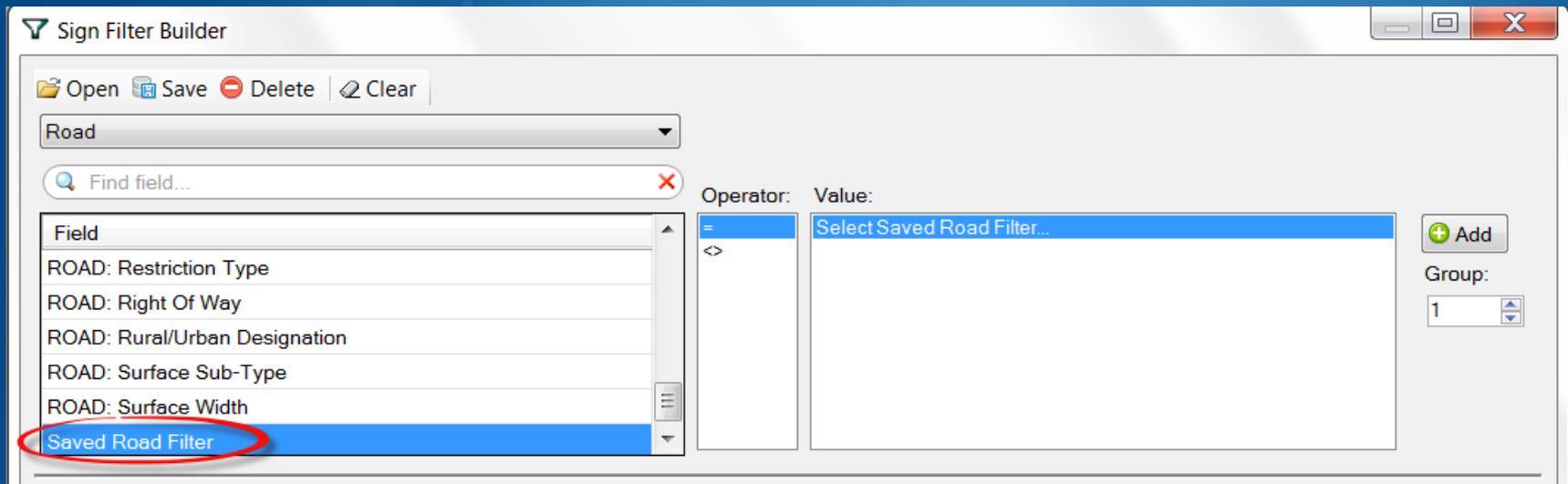
- Know what you expect you should get



- Check what you get to see if it was what you wanted to get



# Using Saved Road Filters



- Some ROAD fields are available directly
- Saved Road Filters can also be used

# Sign Filters create a set of SUPPORTS

Sign Filter Builder

Open Save Delete Clear

All Field Groups

Find field...

Field	Group
Background Brand	Background
Background Lot Number	Background
Background Manufacturer	Background
Background Series Number	Background
Background Type	Background
Background Warranty	Background

Operator: =

Value: Crystal Grade  
Diamond Grade DG3  
Diamond Grade LDP  
Diamond Grade VIP  
Engineer Grade  
High Intensity  
High Intensity Prismatic  
MVP Prismatic  
Omni-View

+ Add

Group: 1

Group	Field	Operator	Value(s)
-------	-------	----------	----------

Criteria

324 Support(s) [unfiltered including archived]

Apply as Filter Append to Selection Replace Selection

# Roadsoft Tech Support

- (906) 487-2102
- [roadsoft@mtu.edu](mailto:roadsoft@mtu.edu)
- [www.roadsoft.org](http://www.roadsoft.org)
  - Roadsoft Manual
  - Navigate the Map & Select Assets

