



TRAINING GUIDE

# GIS Editing Tools Arc 10x



# Editing Tools for ArcGIS Desktop

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*Lucity GIS* contains an editor extension that tracks edits made to the *Lucity GIS* geodatabase and ensures that those edits are synchronized with the *Lucity™* databases.

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






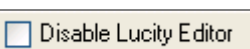
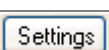
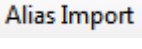
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## Lucy GIS Editor Toolbar



The table below lists the available tools. Click on the button name links to view detailed descriptions and explanations.

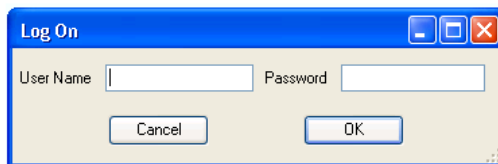
### Tools

	<i>Process Log</i>	Toggles a dockable window that provides the ability to log events related to the Lucy GIS tools
	<i>GIS Edit Session Status</i>	Displays the current <a href="#">edit session status</a> (Red-session not enabled, Yellow-session is initializing, Green- Session is enabled).
	<i>Lucy Data Loader</i>	Imports/updates data to the geodatabase and Lucy database
	<i>Update Spatial Relationships</i>	Forces configured spatial relationships to update
	<i>Force Synchronization</i>	Forces features to synch with the Lucy database
	<i>Lucy Delete tool</i>	<a href="#">Deletes features from both the geodatabase and the Lucy database</a>
	<i>Sewer Tools</i>	<a href="#">Various tools to renumber, merge and split sewer features</a>
	<i>Storm Tools</i>	<a href="#">Various tools to renumber, merge and split storm features</a>
	<i>Street Tools</i>	<a href="#">Various tools to renumber, split, merge, define, dissolve, and generate street features</a>
	<i>Water Tools</i>	<a href="#">Various tools to renumber, merge and split water features</a>
	<i>Clear Lucy Edit Cache</i>	Clears outstanding edits in the Lucy edit cache
	<i>Disable Lucy Editor</i>	Disables the Lucy Editor extension
	<i>Lucy Settings</i>	Controls various user and mxd specific settings
	<i>Lucy Alias Import</i>	Sets Lucy alias names based upon current map configuration

## Editing Your Geodatabase

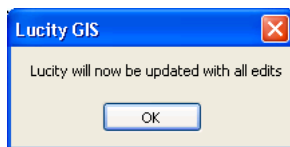
The Lucy Editing extension runs in the background of ArcMap. Every time an ArcMap edit session begins the Lucy extension checks to see if any Lucy layers are in the edit workspace. If there are Lucy Features in the edit workspace the extension will activate itself. During the edit session the extension will track the changes made inside any feature classes linked to Lucy and writes them to an edit cache in the GBAComm database. It automatically tracks new features, and attribute changes. When the ArcMap edit session is saved the changes that the extension has tracked are synced into the Lucy Databases and become permanent. There are situations where it is required that users use special tools provided by Lucy to make edits. These situations have to do with Common ID fields being changed, features being deleted, etc...

- In order to start editing your geodatabase, you will need to go to **Editor > Start Editing**. This command is on the ESRI Editor Toolbar. If you do not have an editor toolbar on your screen, go to **View > Toolbars** and you should be able to turn it on.
- When you start editing, Lucy GIS checks to see if you are logged in yet. If you have not yet logged into Lucy GIS in this ArcGIS session, you will be prompted to login.



*Note: This is the same login as your standard Lucy login.*

- It processes for a few moments to retrieve the necessary data and settings, and will prompt you that upon completion of edits, the desktop application will be updated. You will only see this prompt once during the ArcGIS session.



**Warning:** If you start editing a Lucy geodatabase and do not receive this message, something is wrong. Stop editing, close your project, reopen it, and try to start editing again. If you still do not receive this message, review the Lucy process log for further information. If needed contact a Lucy support representative. Another indicator that there is something wrong with the edit session is the color of the Lucy Edit Session Status.

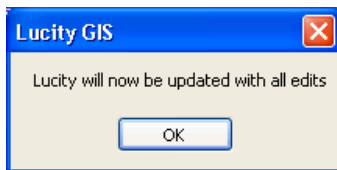
- Once the edit session starts, the Lucy GIS Editing toolbar will be enabled. Also, the Edit Session Status will change from yellow to green.



- When saving edits, you will receive the prompt, "Lucy will now be updated."

## Saving Edits to Geodatabase

1. When you have finished making you edits, go to Editor>>Stop Editing. If you select to save your edits, you will be prompted that Lucy is going to be updated with your edits.

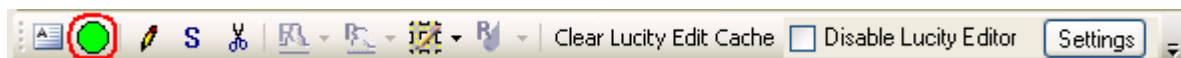


2. It will pause for a few moments to figure out what needs to be updated. You will see a progress bar in the lower right-hand corner of ArcMap and the Edit Session Status will be yellow. Do not close ArcMap while this is processing or the changes will not be made to the desktop.
3. The progress bar runs twice to 100%. The first time, it is reordering features so that they are updated into the desktop in the correct order and retrieves necessary information needed for the synchronization. Depending upon how many features you are updating you may see a brief pause or a substantial pause at 100% during the first progress bar. This pause will depend upon your computer memory and how many features you updated.
4. After the second progress bar completes, it will automatically close. This means that the desktop application updates are finished and the Edit Session Status will be green.

*Notes: When you delete a feature from the map, it does not delete the feature from the desktop; it changes its status to "Not in Map". To tell whether or not something is in the map, open the Inventory module for that feature and find the feature you are interested in. If the "Show in Map" button is enabled, the feature is in the geodatabase. If the "Show in Map" button is disabled, the feature is not in the geodatabase. There is a special delete tool that will allow you to delete features both in the map and in the desktop application.*

## Lucy Edit Session Status

On the Lucy Edit toolbar there is a tool that indicates the status of your edit session. When ArcMap is out of the edit session the circle is grey. When in an edit session, the color changes between yellow, green or red.



- Yellow- Processing edits or initializing
- Green- Tracking edits
- Red- Not tracking edits

*Note: If you are having trouble editing, check to make sure that this status is either yellow or green.*

## Editing Behind the Scenes

There are three checks performed to determine editing status:

- The workspace matches the Lucity geodatabase.
- The version of the geodatabase is configured with Lucity.
- The feature classes are linked to Lucity.

Processes before saving edits:

- If the feature's CommonID field is updated, the extension will check to see if the feature already exists in Lucity. If it does exist, the extension will populate the feature's attribute data with the information in Lucity.

*Note: This is not the case if the GIS field is not null or if the Lucity field is null.*

- If a shape or area is changed and the always update length area option is checked in the Feature Class setup, then the Lucity length and area fields will be updated.

## Business Rules for Editing

Even with a custom geodatabase integration, there are still some standard business rules that must be followed to meet Lucity requirements. The following are the business rules adhered to by Lucity. It is not required for all data in the geodatabase to follow these rules; Lucity places no restrictions on data in the geodatabase. However, only those features that meet the requirements will propagate to the Lucity inventory database and will be accessible in the desktop inventory modules.

1. Every feature must have a unique text identifier. This is defined as the "Feature Class Common Link Field 1" in the Custom Geodatabase form.
2. Sewer pipes and storm pipes must be drawn or digitized in direction of flow.

## Clear Lucity Edit Cache

All edits made during an ArcMap edit session are tracked in the GBAARCED table in the LucityComm database. When you save your edit session the *Lucity GIS Extension* will process through the GBAARCED table updating the Lucity database with the edits.

You may find that it is necessary to clear the edit cache. Some typical reasons may include:

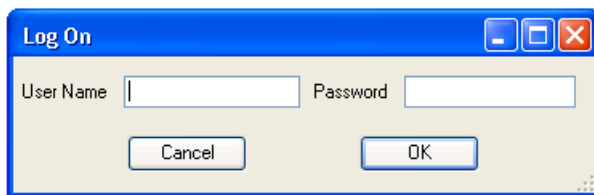
- Saving your edit session after running the Update Spatial Relationship and Force Synchronization tools takes too long to process.
- If you clear the edit cache you can then re-select a smaller number of features and then run the Force Synchronization tool on the new set.
- You performed the "Calculate" function on a field that either isn't in the desktop or the desktop doesn't need to be updated with the values. Whenever you run the "Calculate" function on the field, every record that is modified is added to the GBAARCED table. Thus, saving your edits will take additional time processing through the GBAARCED table.

- A bad record exists in the GBAARCED table. It is recommended that you contact a Lucy support representative to confirm that a bad record exists and the GBAARCED table can be cleared.

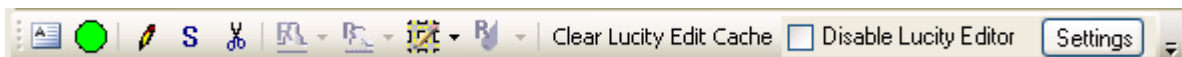
*Important: If you clear the Lucy Edit Cache it will clear all records added by the current user. The Lucy database will not be updated with edits that are cleared from the Lucy Edit Cache! You will either need to perform the edits again in a new edit session, or run the Force Synchronization tool on the previously edited features in order for the Lucy database to get updated correctly.*

To clear the Lucy Edit Cache:

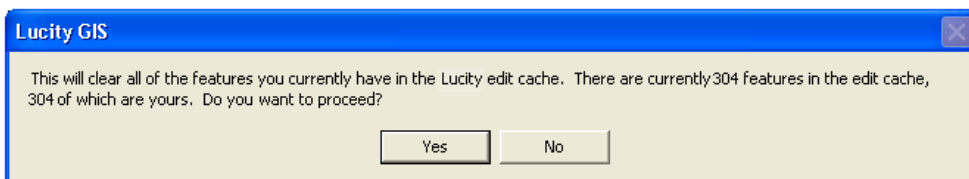
1. Start an edit session in ArcMap. It is important that you are logged into the desktop application as the user whose edits you wish to remove from the Lucy Edit Cache. If you are not logged into the program as that user, you will need to restart ArcMap so that you can log back into the desktop application as the correct user.



2. Select Clear Lucy Edit Cache on the Lucy GIS Edit Toolbar.



3. A dialog will appear listing how many features will be deleted from the Lucy edit cache. To continue and have the records removed, click "Yes".



## Lucy Data Loader




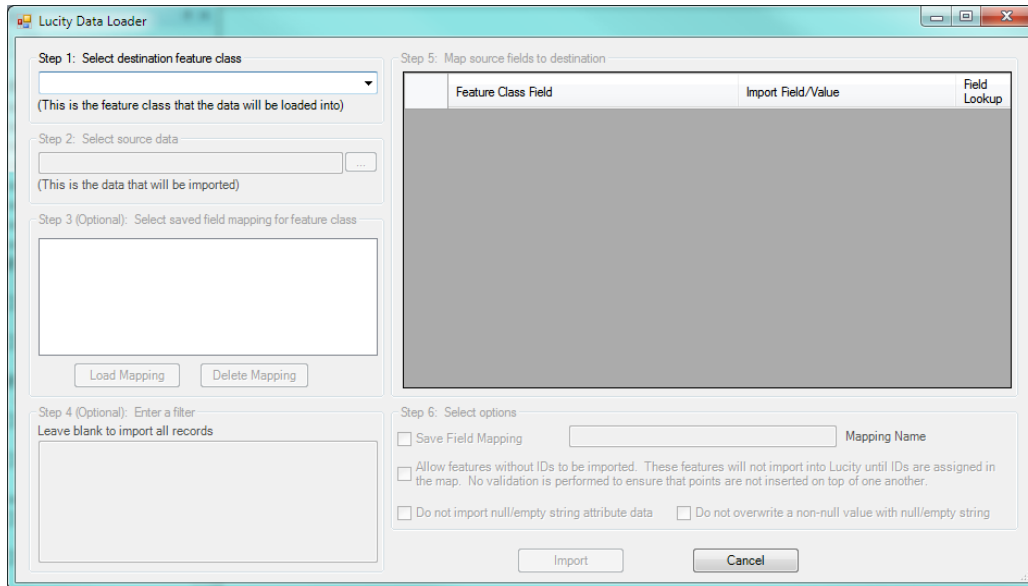
The Lucy Data Loader allows users to perform a mass data import and/or update to the geodatabase and Lucy. The tool will import features into both a Lucy linked feature class and the corresponding Lucy table at the same time. It can also be used on existing features to update spatial and attribute data. The Lucy GIS Data Loader can perform the following functions:

- Insert new features into the geodatabase and Lucy database
- Update spatial information for existing features in the geodatabase
- Update attribute information for existing features in the geodatabase and Lucy database

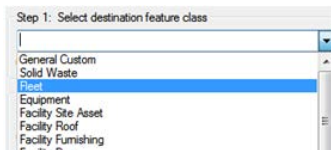


To use the tool, complete the following steps:

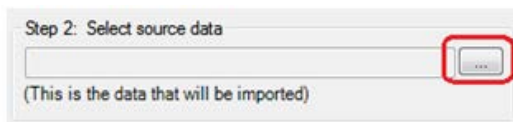
1. In ArcMap, start an edit session.
2. Click on the Data Loader tool  on the *Lucity GIS* Edit toolbar. The following form will appear:



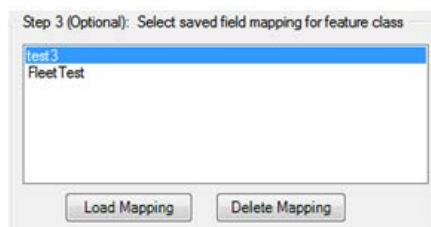
3. Select the destination feature class from the drop down list. Only editable feature classes that are linked to Lucity will be listed.



4. Select the source data. Use the browse button to navigate to the location of the source data. The source data can be a feature class or shapefile.



5. Select a saved field mapping (Optional). If this is a routine import in which users previously saved the field mapping they can select the mapping from the list to automatically load the saved settings.



6. Enter a filter syntax (Optional). If users wish to limit the records that are imported from the source file they can specify the select filter criteria in the text box.

*Note: Only include the syntax that follows the*

*"SELECT \* FROM <tablename> WHERE".*

*For example: MODEL = 'FORD'*

7. Using the grid on the right, map the source fields to the destination fields.
  - Use the field lookup button for a list of fields from the source data
  - If a field needs a constant value assigned, type the constant value directly into the grid with a leading "=". For example, if a field should be updated so all records have the value "Hank" enter "=Hank".

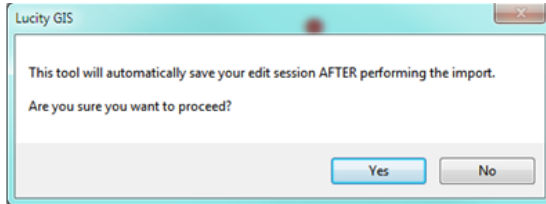
Step 5: Map source fields to destination

Feature Class Field	Import Field/Value	Field Lookup
FLG_VEH_CD (Fleet ID)	VEHCLENUM	<input type="button" value="Lookup"/>
FLG_VEH_TY (FLG_VEH_TY)		<input type="button" value="Lookup"/>
FLG_CL_CD (FLG_CL_CD)		<input type="button" value="Lookup"/>
FLG_MAN_CD (FLG_MAN_CD)		<input type="button" value="Lookup"/>
FLG_MODEL (FL_MODEL)	MODEL	<input type="button" value="Lookup"/>
FLG_OPERATR (FLG_OPERATR)	=Hank	<input type="button" value="Lookup"/>
FLG_ID (FLG_ID)		<input type="button" value="Lookup"/>
FLG_DB (In GBA Database?)		<input type="button" value="Lookup"/>

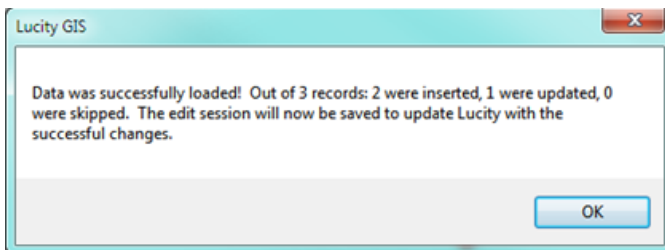
8. Finally, specify any additional options:
  - **Save Field Mapping.** Check this box to save the field mapping. The next time the Lucity Data Loader tool is used on that feature class the saved mapping will be available.
  - **Allow features without IDs to be imported.** This special option for importing data allows data to be imported without IDs. This is available so that data can be brought into the geodatabase without an ID and later the IDs can be entered directly into the geodatabase itself. An example of this would be if a series of meters were GPS in the field, but not numbered, they could be imported into the geodatabase and numbered within the geodatabase. If you choose to import data without IDs it is critical that the data is only imported once; otherwise, the data will continually append itself to the geodatabase.
  - **Do not import null/empty string attribute data.** If a field in the source record contains a null/empty string value the value will not be sent to the destination record in the feature class or Lucity database. This is especially important when using the Lucity Data Loader to update existing features.
  - **Do not overwrite a non-null value with null/empty string.** If using the Lucity Data Loader to update an existing feature this will prevent existing information from being overwritten with null/empty string data.

- Click Import to begin the import process. The import will automatically save your edit session after performing the import. Click Yes, on the following dialog to start the import process.

*Note: During the import process any spatial relationships and number generators that are setup will automatically be run*



- The process of the import will be displayed in the lower right-hand corner of the ArcMap window. Once complete a dialog similar to the following will be displayed to indicate the results of the import.




## Update Spatial Relationships

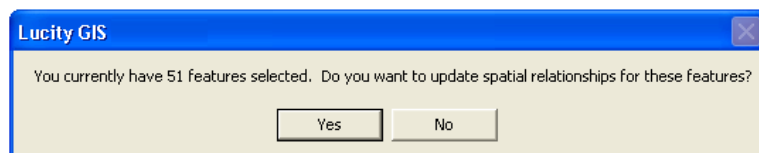


### Update Spatial Relationships tool

To aid in general editing and maintaining relationships between features, *Lucity GIS* has a special functionality that will automatically update features in a feature class based on their location relative to features in other feature classes. For example, most clients will want to have a relationship set up between Sewer Pipes and Sewer Structures so that sewer pipes are automatically assigned the upstream and downstream structure numbers. If this spatial relationship is not set up, the user has to maintain these fields manually. Another example is to create a relationship between the parcel feature class and the sewer service lateral feature class so that when new service laterals are drawn, they are automatically assigned an address based on the parcel proximity.

To use the tool, complete the following steps:

- In ArcMap, start an edit session.
- Click on the Update Spatial Relationships tool  on the *Lucity GIS* Edit toolbar.
- If there are features currently selected in the map, you will receive a message similar to the one below. This verifies how many features are currently selected. To continue, click "Yes".



*Note: If no features are currently selected, using the Update Spatial Relationships tool drag a box around the feature(s) you want updated.*

4. A status bar will appear in the lower right-hand corner of ArcMap showing the progress of the update. After the status has reached 100% you must save your edit session to finish the update process.

*Note: Do not use this tool to force features to synchronize to the desktop application; instead, use the Force Synchronization tool. This tool will not synchronize features that are not the target of a spatial relationship.*

*Note: It is not necessary to use this tool on features you are currently editing; the desktop application automatically updates spatial relationships anytime you make any changes to a feature.*

This tool is most commonly used for these situations:

1. On data loaded using the ESRI data loader to update upstream and downstream structure numbers on sewer pipes and storm conduits.
2. On any other data loaded using the ESRI data loader that participates in spatial relationships. For example, if trees are loaded using a data loader and you want to assign trees to the streets they associated with (if they are close enough to a street to be considered a street tree), you can use this tool to select the trees. If the street layer is in the map, and if you have the relationship setup, it will update the trees to assign an attribute with the street number.
3. In situations where spatial relationships did not get updated due to an error in the software.
4. In situations where you have created new spatial relationships among your features. Since the system does not automatically run the new relationship on existing features you would need to use this tool to update the database.

*Note: If, after using this tool, the attributes do not update as you are expecting them to update, it is possible that you do not have the features snapped, or it is possible that you do not have the spatial relationship properly defined.*

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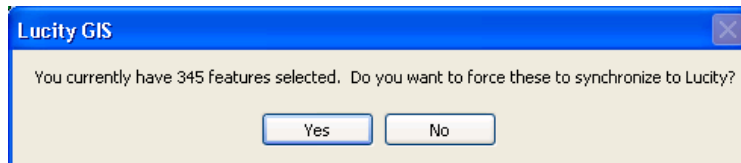
## Force Features to Synchronize with the Desktop Application

**S** The Force Synchronization tool will update the Lucy database with the data from the selected features in the geodatabase without making any changes to the features.

*Note: This tool DOES NOT update the geodatabase with information from the desktop application.*

To force features in the map to be synchronized with Lucy:

1. In ArcMap, start an edit session.
2. Click the Force Synchronization tool **S** on the *Lucy GIS* Edit toolbar.
3. If there are currently selected features, you will receive a message similar to the one below. This verifies how many features are currently selected. To continue, click "Yes".



*Note: If no features are currently selected, using the Force Synchronization tool drag a box around the feature(s) you want updated.*


4. A status bar will appear in the lower right hand corner of ArcMap showing the progress of the synchronization. After the status has reached 100% you must save your edit session to finish the synchronization process.

This tool is most commonly used for the following situations:

1. To update the Lucy database with edits made to features outside of an edit session, such as running the ESRI calculate tool on a field outside an edit session.
2. To update the Lucy database with edits made to features during an edit session in which the Lucy GIS Extension was NOT loaded.
3. In situations where the feature didn't get synched to the Lucy database due to an error in the software.

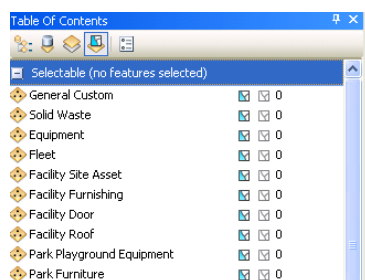
*Note: The Force Synchronization tool WILL NOT update the Lucy database correctly if the following edits were made in an edit session in which the Lucy GIS Extension was not loaded: Line Splits, Line Merges, Renumbering Features, Feature Deletes. These types of edits MUST be made during an edit session in which the Lucy GIS Extension is loaded and using the appropriate Lucy edit tools.*


# Deleting Features from the Map

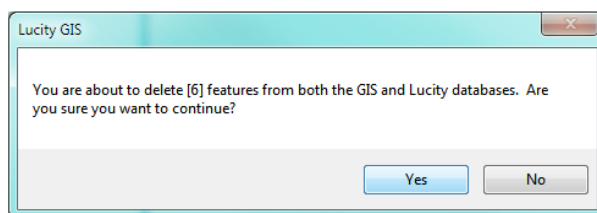
The Lucy GIS delete tool  will delete all selected features from both the geodatabase AND the Lucy database. Use extreme caution when using this tool to prevent the unintentional deletion of features.

To delete features from both the geodatabase and the desktop application:

1. In ArcMap, start an edit session.
2. It is highly recommended that you modify the selectable layers in your map using the ESRI selection window in the table of contents. Only make selectable the layer(s) in the map from which you wish to delete features. A check placed in the box to the left of the layer indicates that the layer is selectable.



3. Click the Lucy Delete tool  on the *Lucy GIS* Edit toolbar.
4. Using the Lucy Delete tool, select the feature(s) in the map you wish to delete by drawing a box around the feature(s).
5. The following prompt will appear with the number of selected features and asking for confirmation of the delete.



6. The selected features will automatically be deleted and they should no longer appear in the map. To complete the deletion process users must save their edit session. Once the save edit process has been completed, the features will no longer exist in the map or in Lucy.

*Note: If you accidentally deleted the wrong feature in the map using the Delete tool, you can recover this feature by: NOT saving the edit session, or by using the Undo function to undo the delete and then clearing the Lucy Edit Cache by selecting Editing Tools>>Clear Lucy Edit Cache on the Lucy GIS Edit toolbar.*

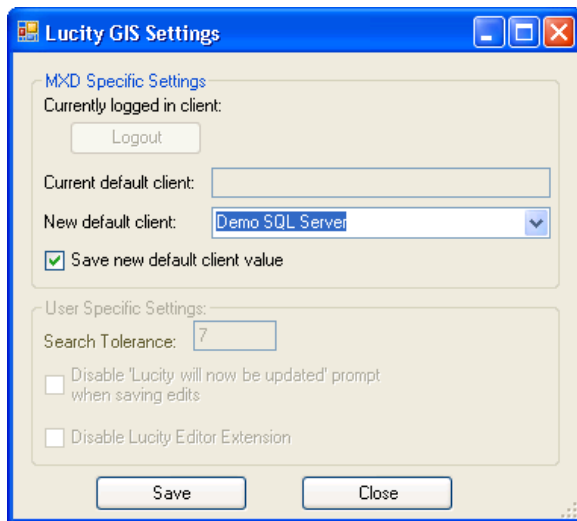
## Disable Lucy Editor

To disable Lucy GIS editing, place a check mark in this box ☐ Disable Lucy Editor. When this box is checked you will not receive any Lucy editing messages and your edits will not be updated in the Lucy databases.

*Note: This setting is only active during that ArcMap session. If you exit the map and reopen it, you will need to check the option again if you do not want Lucy editor enabled.*

## Settings

The settings option allows you to set up defaults specific to the .mxd or user.



### 1. MXD Specific Settings:

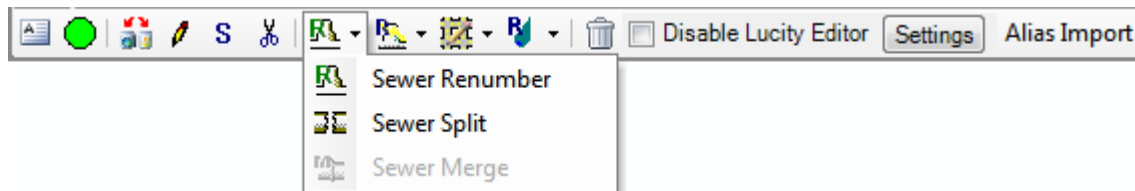
- Click "Logout" to log out of the current client.
- Choose a new default client from the drop down list.
- Check the "Save new default client value" to set the new client to the default

### 2. User Specific Settings:

- The search tolerance determines how close you need to be to a feature in the map before the Open Module tool will recognize it or select it. Enter a new search tolerance (in pixels) in the field provided.
- To disable the "Lucy will now be update" prompt for the user, check the box labelled "Disable 'Lucy will now be updated' prompt when saving edits."
- To disable the Lucy editor extension for a specific user, check the box labelled "Disable Lucy Editor Extension."

## Sewer Editing Tools

Click on the arrow next to the Sewer tool to view the Sewer Editing menu.



- Sewer Merge is only enabled when two linear features are selected in the map.
- Sewer Split is only enabled if one linear feature is selected in the map.
- Sewer Renumber is only enabled if one feature is selected in the map.

## Merging Sewer Pipes



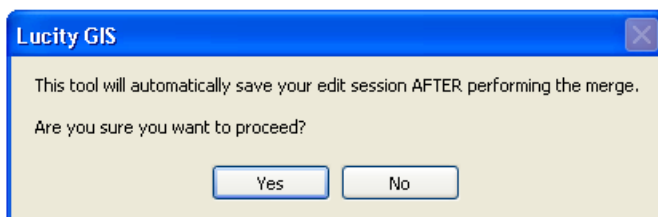
### Merge Sewer Pipe Tool

The Merge Sewer Pipe tool will merge two sewer pipes in the map and in the *Lucity* database. The tool also offers the ability to delete the associated sewer structure from the map and the *Lucity* database.

*Note: The Sewer Merge Tool is only enabled if all of the following conditions are met: (1) You have two features selected in the map (2) The features selected are linear*

To merge two features in the map:

1. In ArcMap, start an edit session.
2. Select two adjacent sewer features in the map. You can do this by dragging a box around the two pipes or by clicking on one pipe and then holding down the SHIFT key while clicking on the second pipe.
3. Click the Sewer Merge tool on the *Lucity GIS* Edit toolbar.
4. The merge tool requires that edits be saved before and after performing the merge. You will receive one of the following prompts asking you if you want to proceed.





- Click Yes and the following dialog will appear.

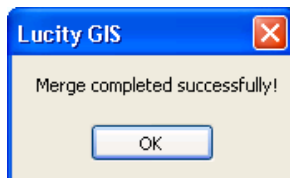
The screenshot shows the 'Lucity GIS- Sewer Merge' dialog box. It contains the following sections and controls:

- Existing From Pipe:** Read-only information including Alt PipeID, From Feature Type (Sanitary Structure Inventory), From Feature ID (116999), GIS Length (335.64933501440), and Lucy Length (335.65).
- Existing Split Feature:** Feature Type (Sanitary Struct), Common ID (117000), and three radio buttons: ☒ Don't delete feature, ☐ Delete feature from GIS only, and ☐ Delete from GIS and Lucity. It also has a dropdown for 'Select a status for the structure' set to 'N/A'.
- Existing To Pipe:** Read-only information including Alt PipeID, To Feature Type (Sanitary Structure Inventory), To Feature ID (117001), GIS Length (350.0007083470), and Lucy Length (350).
- New Alt PipeID (Optional):** From Feature Type (Sanitary Structure In), From Feature ID (116999), a text field for New Alt PipeID, To Feature Type (Sanitary Structure I), and To Feature ID (117001). It includes four radio buttons: ☒ Manual Entry, ☐ Use Lucy Auto Number, ☐ Use End Point IDs, and ☐ Use Existing Longer Pipe ID.
- New Pipe Length:** GIS Length (685.65), Lucy Length (685.65), and two radio buttons: ☐ Set Lucy Length = GIS Length and ☐ Use Lucy Calculated Length.
- New Pipe Attributes- Copy from:** Three radio buttons: ☐ Existing From Pipe, ☒ Longer Pipe, and ☐ Existing To Pipe.
- Archive (Optional):** A checkbox for 'Archive pre-merged pipes. This will keep a pipe record in the Lucity inventory module for both of the pre-merged pipes.' and a dropdown for 'Archived pipe status'.
- Buttons:** 'OK', 'Cancel', 'Advanced Settings', and '\*As listed in Lucity'.

- Existing From Pipe: This is read-only information about the pre-merged from pipe.
- Existing Split Feature: This is the existing sewer structure information and lists the various merge options for the structure.
  - Don't Delete Feature: Select this option if you want to keep the structure in both the desktop inventory module and in the structure feature class.
  - Delete Feature From GIS Only: Select this option if you want to keep the structure in the desktop inventory module, but would like the feature removed from the structure feature class. **Note:** This option is disabled if the tool was unable to locate a structure within 1 map unit of the common end point for the two pipes or if the structure feature class is not editable.
  - Delete from GIS and Lucity: Select this option if you want to remove the structure from both the desktop inventory module and the structure feature class. **Note:** This option is disabled if the tool was unable to locate a structure within 1 map unit of the common end point of the two pipes, the structure feature class is not editable, or the structure doesn't exist in the desktop inventory module.
  - Structure Status: This combo box is only enabled if you choose an option that would keep the structure record within the desktop inventory. The combo box lists the various status types that are defined in the status pick list field in the desktop structure inventory module.
- Existing To Pipe: This is read-only information about the pre-merged to pipe.
- New Alt ID: You can choose to manually enter a new Alt Pipe ID, use a Lucity auto number (this option is only enabled if you have an Alt Pipe ID field in your feature class that is configured to use a number generator), use the end point IDs or use the Alt Pipe ID from the longer pipe.
- New Pipe Length: This option is only enabled if the tool calculates a difference between the GIS and Lucity pipe lengths. You can choose to set the Lucy length to be equal to the GIS length or you can use the Lucy calculated length.
- New Pipe Attributes-Copy from: You can choose to copy over the attributes from the pre-merged from pipe, pre-merged to pipe, or the longer pipe.

- **Archive: (Optional)** Select this option if you wish to maintain a record in the desktop pipe inventory module for both the pre-merged pipes. If you select this option, the pre-merged pipes will not be deleted from the desktop inventory module.
  - The status combo box lists the various status types that are defined in the status pick list field in the desktop sewer pipe inventory module.
  - Selecting this option will update the following information for the existing to and from pipe:
    1. The pipe status will be updated to the status selected from the list.
    2. The ability to create requests, work orders and PM/Work Template records against the pipe is now disabled. This is done by the tool updating the NT\_NOWORK field.
    3. The show in map is disabled for the pipe.
- **Advanced Settings:** This allows you to override the default settings that control what associations should be updated with the use of this tool.

6. When you have finished making selections, click **OK**.
7. The following message will appear when the process is finished.



Note: \_\_\_\_\_

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## Splitting Sewer Pipes

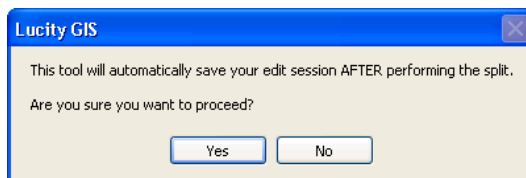


The *Lucy GIS* Extension includes this tool used for splitting sewer features in the geodatabase and in the Lucy database.

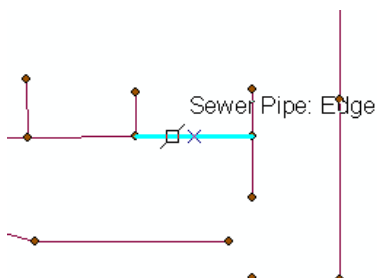
*Note: This tool is only enabled if all of the following conditions are met: (1) You have one feature selected in the map (2) The feature selected is linear.*

To split a sewer pipe in the map:

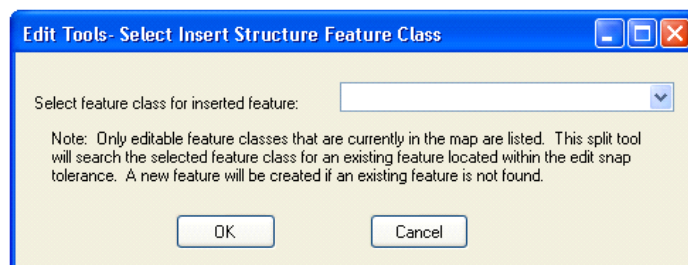
1. In ArcMap, start an edit session.
2. Select a sewer pipe in the map.
3. Click the Sewer split tool on the *Lucy GIS* Edit toolbar.
4. The split tool requires that edits be saved before and after performing the split. You will receive one of the following prompts.



5. Click Yes. Using the mouse, left-click on the line where you want the split to occur.



6. The following dialog will appear if you have more than one editable sewer structure feature class in the map. You will need to select a feature class that will contain the split structure.



- Existing From Point: This is read-only information for the existing upstream structure.
- Existing Pipe: This is read-only information for the existing pipe.
- Existing To Point: This is read-only information for the existing downstream structure.
- Conflicting Pipe length: This option is only enabled when length of the pipe in the desktop is different than the length of the pipe in GIS. If this option is enabled you can choose to set the Lucy length equal to the GIS length or you can proportionally split the pipe in the desktop to match the split in GIS.
- New Alt PipeID for US Pipe: You have the option to manually enter an Alt Pipe ID for the new upstream pipe, use a Lucy auto number (this is only enabled if you have auto numbers set up), use end point IDs, or use the existing pipe's Alt PipeID.
- New Split Point (Required): The new structure must be assigned a common ID before proceeding. You have the option to manually enter the common ID or use a Lucy auto number (this is only enabled if you have the option setup with the Geodatabase Configuration tool). Note: If a structure already existed at the point along the line where you chose to perform the split then this section will be disabled and will contain the existing structure information.
- New Alt PipeID for DS Pipe: You have the option to manually enter an Alt ID for the new downstream pipe, use a Lucy auto number (this is only enabled if you have auto numbers set up), or use end point IDs.
- Archive: (Optional) Select this option if you wish to maintain a record in the Lucy pipe inventory module for the pre-split pipe. If you select this option, the pre-split pipe will not be deleted from the Lucy inventory module.
- The status combo box lists the various status types that are defined in the status pick list field in the Lucy sewer pipe inventory module.
- Selecting this option will update the following information for the pre-split pipe:
  1. The pipe status will be updated to the status selected from the list.

2. The ability to create requests, work orders and PM/Work Template records against the pipe is now disabled. This is done by the tool updating the NT\_NOWORK field.
  3. The show in map is disabled for the pipe.
- Advanced Settings: This allows you to override the default settings that control what associations should be updated with the use of this tool

7. When you have finished making selections, click **OK**.
8. The following message will appear when the process is finished.



Note: \_\_\_\_\_

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## Renumber a Sewer Structure

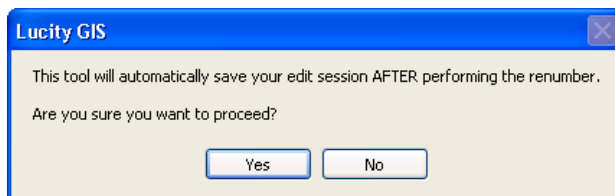


The *Lucity GIS* Extension includes this tool used for renumbering your sewer structures, pipes, pump stations and service laterals.

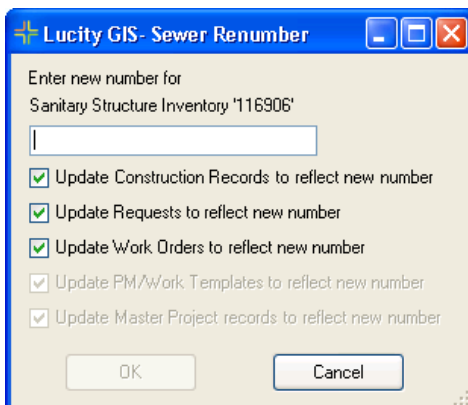
*Note: This tool is only enabled if you have one feature selected in the map.*

To renumber a feature:

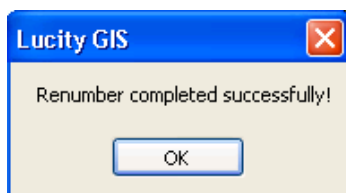
1. In ArcMap, start an edit session.
2. Select a sewer feature in the map.
3. Click the Renumber Sewer Structure tool on the *Lucity GIS* Edit Toolbar.
4. The renumber tool requires that edits be saved before and after performing the renumber. You will receive one of the following prompts.



5. Click Yes and the following dialog will appear.

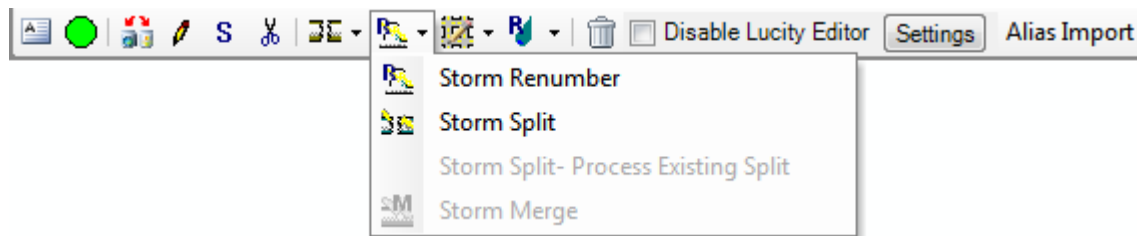


6. Enter the new number and select OK.
7. The following message will appear when the process is finished.



## Storm Editing Tools

Click on the arrow next to the Storm tool to view the Storm Editing menu.



- Storm Merge is only enabled when two linear features are selected in the map.
- Storm Split is only enabled if one linear feature is selected in the map.
- Storm Renumber is only enabled if one feature is selected in the map.

## Merging Storm Conduits



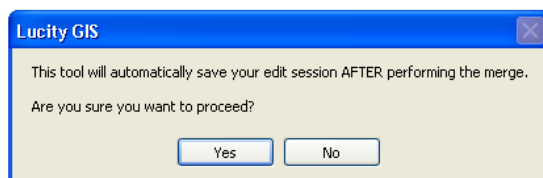
### Merge Storm Conduits Tool

The Merge Storm Conduits tool will merge two storm conduits in the map and in the *Lucity* database. The tool also offers the ability to delete the associated storm structure from the map and the Lucity database.

*Note: The Storm Merge Tool is only enabled if all of the following conditions are met: (1) You have two features selected in the map (2) The features selected are linear*

To merge two features in the map:

1. In ArcMap, start an edit session.
2. Select two adjacent storm features in the map. You can do this by dragging a box around the two conduits or by clicking on one conduit and then holding down the SHIFT key while clicking on the second conduit.
3. Click the Storm Merge tool on the *Lucity GIS* Edit toolbar.
4. The merge tool requires that edits be saved before and after performing the merge. You will receive one of the following prompts asking you if you want to proceed.





- Click Yes and the following dialog will appear.

The screenshot shows the 'Lucity GIS- Storm Merge' dialog box. It contains the following fields and options:

- Existing From Pipe:** Alt PipeID, From Feature Type (Storm Structure Inventory), From Feature ID (4564), GIS Length (601.63031420225), Lucy Length (754.3).
- Existing Split Feature:** Feature Type (Storm Structure), Common ID (4562), radio buttons for 'Don't delete feature' (selected), 'Delete feature from GIS only', and 'Delete from GIS and Lucy'. A dropdown for 'Select a status for the structure' is set to 'None'.
- Existing To Pipe:** Alt PipeID, To Feature Type (Storm Structure Inventory), To Feature ID (4560), GIS Length (594.4457701435), Lucy Length (275.5).
- New Alt PipeID (Optional):** From Feature Type (Storm Structure Inve), New Alt PipeID (empty), To Feature Type (Storm Structure Inv), To Feature ID (4560). Radio buttons for 'Manual Entry' (selected), 'Use Lucy Auto Number', 'Use End Point IDs', and 'Use Existing Longer Pipe ID'.
- New Pipe Length:** GIS Length (1196.14), Lucy Length (1029.8), radio buttons for 'Set Lucy Length = GIS Length' (selected) and 'Use Lucy Calculated Length'.
- Archive (Optional):** A checkbox for 'Archive pre-merged pipes' and a dropdown for 'Archived pipe status'.
- New Pipe Attributes- Copy from:** Radio buttons for 'Existing From Pipe', 'Longer Pipe' (selected), and 'Existing To Pipe'.

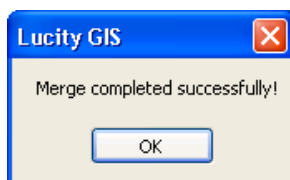
Buttons at the bottom: OK, Cancel, Advanced Settings. A note '\*As listed in Lucy' is present.

- Existing From Pipe: This is read-only information about the pre-merged from pipe.
- Existing Split Feature: This is the existing storm structure information and lists the various merge options for the structure.
  - Don't Delete Feature: Select this option if you want to keep the structure in both the desktop inventory module and in the structure feature class.
  - Delete Feature From GIS Only: Select this option if you want to keep the structure in the desktop inventory module, but would like the feature removed from the structure feature class. **Note:** This option is disabled if the tool was unable to locate a structure within 1 map unit of the common end point for the two pipes or if the structure feature class is not editable.
  - Delete from GIS and Lucy: Select this option if you want to remove the structure from both the desktop inventory module and the structure feature class. **Note:** This option is disabled if the tool was unable to locate a structure within 1 map unit of the common end point of the two pipes, the structure feature class is not editable, or the structure doesn't exist in the desktop inventory module.
  - Structure Status: This combo box is only enabled if you choose an option that would keep the structure record within the desktop inventory. The combo box lists the various status types that are defined in the status pick list field in the desktop structure inventory module.
- Existing To Pipe: This is read-only information about the pre-merged to pipe.
- New Alt ID: You can choose to manually enter a new Alt Pipe ID, use a desktop auto number (this option is only enabled if you have an Alt Pipe ID field in your feature class that is configured to use a number generator), use the end point IDs or use the Alt Pipe ID from the longer pipe.
- New Pipe Length: This option is only enabled if the tool calculates a difference between the GIS and desktop pipe lengths. You can choose to set the Lucy length to be equal to the GIS length or you can use the Lucy calculated length.



- New Pipe Attributes-Copy from: You can choose to copy over the attributes from the pre-merged From Pipe, pre-merged To Pipe, or the longer pipe.
- Archive: (Optional) Select this option if you wish to maintain a record in the desktop pipe inventory module for both the pre-merged pipes. If you select this option, the pre-merged pipes will not be deleted from the desktop inventory module.
  - The status combo box lists the various status types that are defined in the status pick list field in the desktop storm conduit inventory module.
  - Selecting this option will update the following information for the existing to and from pipe:
    1. The pipe status will be updated to the status selected from the list.
    2. The ability to create requests, work orders and PM/Work Template records against the pipe is now disabled. This is done by the tool updating the NT\_NOWORK field.
    3. The show in map is disabled for the pipe.
- Advanced Settings: This allows you to override the default settings that control what associations should be updated with the use of this tool.

6. When you have finished making selections, click OK.
7. The following message will appear when the process is finished.



Note: \_\_\_\_\_

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## Splitting Storm Conduits

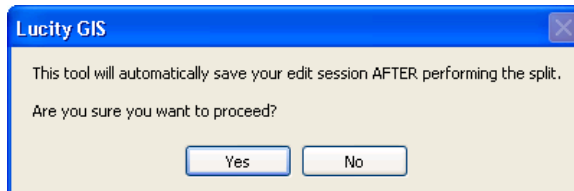


The *Lucity GIS* Extension includes this tool used for splitting storm features in the geodatabase and in the desktop.

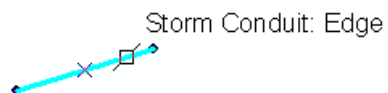
*Note: This tool is only enabled if all of the following conditions are met: (1) You have one feature selected in the map (2) The feature selected is linear.*

To split a storm conduit in the map:

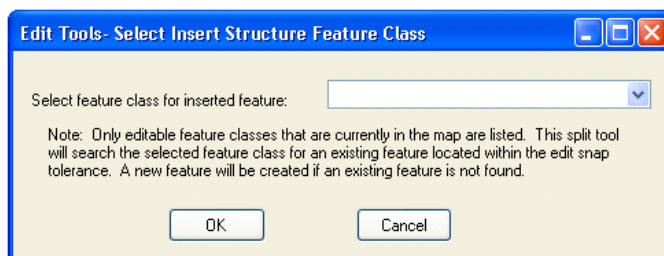
1. In ArcMap, start an edit session.
2. Select a storm conduit in the map.
3. Click the Storm split tool on the *Lucity GIS* Edit toolbar.
4. The split tool requires that edits be saved before and after performing the split. You will receive one of the following prompts.



5. Click Yes. Using the mouse, left-click on the line where you want the split to occur.



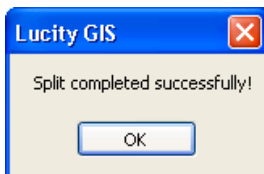
6. The following dialog will appear if you have more than one editable storm structure feature class in the map. You will need to select a feature class that will contain the split structure.



- Existing From Point: This is read-only information for the existing upstream structure.
- Existing Pipe: This is read-only information for the existing pipe.
- Existing To Point: This is read-only information for the existing downstream structure.
- Conflicting Pipe length: This option is only enabled when length of the pipe in Lucy is different than the length of the pipe in GIS. If this option is enabled you can choose to set the Lucy length equal to the GIS length or you can proportionally split the pipe in Lucy to match the split in GIS.
- New Alt PipeID for US Pipe: You have the option to manually enter an Alt Pipe ID for the new upstream pipe, use a Lucy auto number (this is only enabled if you have auto numbers set up), use end point IDs, or use the existing pipes Alt PipeID.
- New Split Point (Required): The new structure must be assigned a common ID before proceeding. You have the option to manually enter the common ID or use a Lucy auto number (this is only enabled if you have the option setup with the Geodatabase Configuration tool). **Note:** If a structure already existed at the point along the line where you chose to perform the split then this section will be disabled and will contain the existing structure information.
- New Alt PipeID for DS Pipe: You have the option to manually enter an Alt ID for the new downstream pipe, use a Lucy auto number (this is only enabled if you have auto numbers set up), or use end point IDs.
- Archive: (Optional) Select this option if you wish to maintain a record in the desktop pipe inventory module for the pre-split pipe. If you select this option, the pre-split pipe will not be deleted from the desktop inventory module.
  - The status combo box lists the various status types that are defined in the status pick list field in the desktop storm pipe inventory module.
  - Selecting this option will update the following information for the pre-split pipe:
    1. The pipe status will be updated to the status selected from the list.

2. The ability to create requests, work orders and PM/Work Template records against the pipe is now disabled. This is done by the tool updating the NT\_NOWORK field.
  3. The show in map is disabled for the pipe.
- Advanced Settings: This allows you to override the default settings that control what associations should be updated with the use of this tool.

7. When you have finished making selections, click **OK**.
8. The following message will appear when the split process is finished.



Note: \_\_\_\_\_

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## Renumber a Storm Structure

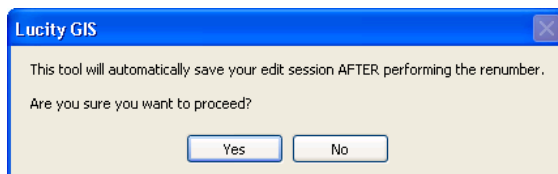


The *Lucity GIS Manager™* Extension includes this tool used for renumbering your storm structures, conduits, pump stations and detention basins.

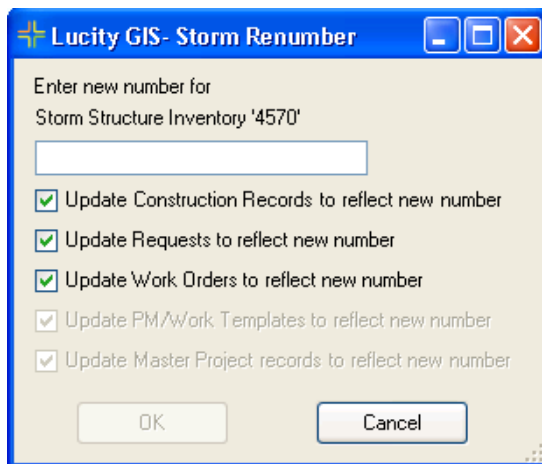
*Note: This tool is only enabled if you have one feature selected in the map.*

To renumber a feature:

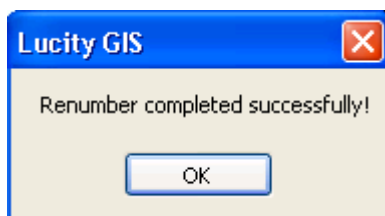
1. In ArcMap, start an edit session.
2. Select a storm feature in the map.
3. Click the Storm Renumber tool on the *Lucity GIS* Edit Toolbar.
4. The renumber tool requires that edits be saved before and after performing the renumber. You will receive one of the following prompts.



5. Click Yes and the following dialog will appear.



6. Enter the new number and select OK. The following dialog will appear.
7. The following message will appear when the renumber process is finished.



## Water Editing Tools



- Water Merge is only enabled when two linear features are selected in the map.
- Water Split is only enabled if one linear feature is selected in the map.
- Water Renumber is only enabled if one feature is selected in the map.

## Splitting Water Pipes



The *Lucity GIS Manager*™ Extension includes this tool used for splitting water pipes in the geodatabase and in Lucity.

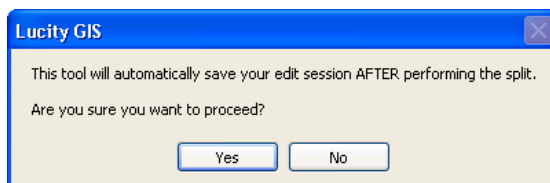
*Note: This tool can only be used on features that already exist in the Lucity database.*

To split pipes in the map:

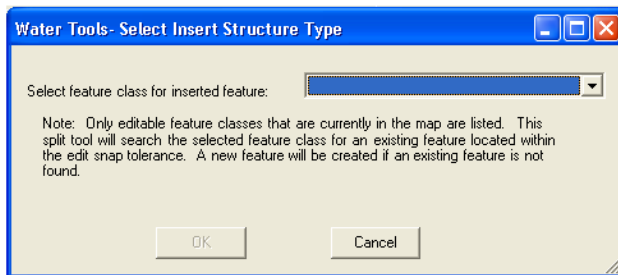
1. In ArcMap, start an edit session.
2. Using the ESRI select tool, select the water pipe you'd wish to split in the map. Once a single pipe is selected in the map, the Split Water Pipe tool will be enabled.
3. Click the Split Water Pipe tool on the *Lucity GIS* Edit toolbar.
4. Using the Split tool, click on the line at the location where you want the split to occur. This tool uses your editor snapping environment.

*Note: Don't worry if you aren't accurate regarding where to perform the split. You will later be able to enter a length where the split should occur.*

5. You'll receive a prompt similar to the following. If any unsaved edits are detected, your edit session will be saved prior to using this tool. Then, after performing the split, the edit session will be saved again and the desktop will be updated. Click Yes to proceed.

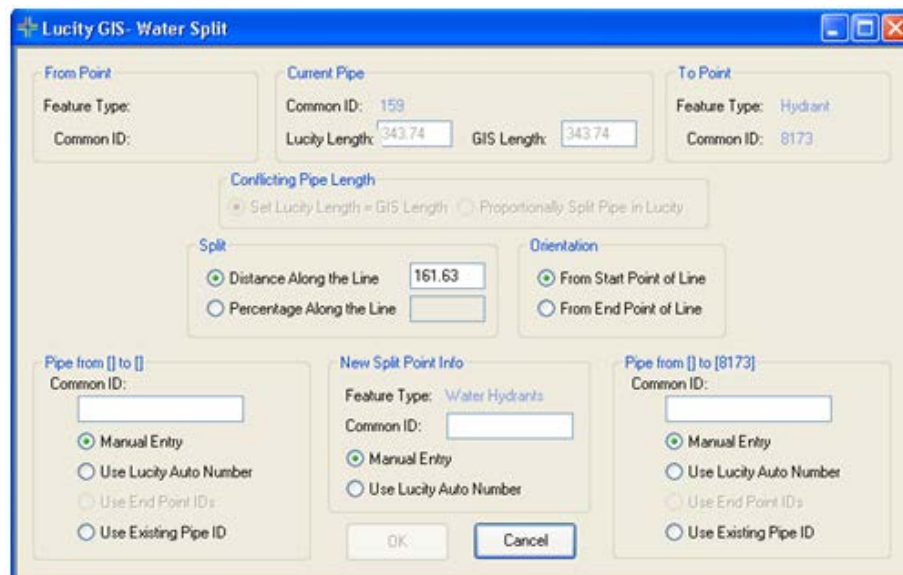


6. The following window will appear.



- Click on the drop-down menu to select from the structure type list. You can select from any editable feature classes that are currently in your map.
- This split tool will search the selected feature class for an existing feature located within the edit snap tolerance. If no existing feature is found, a new feature of the type selected will be created.

7. Click OK. The following window will appear:



- The From Point and To Point data is read-only. This is carried over from the desktop and identifies the common ID and feature type found at each point.
- The Current Pipe information is also read-only. This is carried over from the desktop and your GIS map and identifies the common ID, length in the desktop, and length in the map.
- If the tool finds a conflicting pipe length (i.e. the Lucy Length is different from the GIS Length), you have two options: You can set the length in the desktop to the length found in the map, or you can proportionally split the pipe in the desktop. If the Lucy Length and GIS Length are the same, the conflicting pipe length section will be disabled.
- In the Split section, indicate either the distance or percentage along the line where you'd like the split to occur. By default, the tool will identify the distance along the line based on the point at which you clicked. The Split section will be disabled if an existing feature was found within the edit snap tolerance. In that instance, the split distance will be pre-determined.



8. In the Orientation section, choose whether the split distance or percentage is calculated from the start or end point of the line. The Orientation section will be disabled if an existing feature was found.
  - Two Pipe ID sections are provided. These are used to indicate the common IDs for the two new pipe records. You can choose to either manually enter a new pipe ID number for each pipe or use existing pipe IDs. If this feature class is set up for auto-numbering (in the Custom Geodatabase Synchronizer Setup), the "Use Lucity Auto Number" button will be enabled. End Point IDs can be used if an existing feature was found within the edit snap tolerance, or once the New Split Point Common ID is populated.
  - The New Split Point Info sections are used to indicate the common ID for the new feature inserted at the split point. You can manually enter an ID or use the Lucity auto-number if this feature class is set up for auto-numbering. The New Split Point section will be disabled if an existing feature was found within the edit snap tolerance. In that instance, the common ID will be pre-defined.
9. Click OK when you are finished configuring the split point and new feature.
10. The split tool will now process the split and insert a structure at the location you indicated. As previously mentioned in Step 5, your edit session will be saved; you will receive the standard Lucity edit prompts. When the process is complete, the following window will appear:



*Note: If you renumber both new pipe sections (i.e. if you don't retain the original pipe number), the original pipe will be assigned the pipe ID of the longer of the two new pipe sections. Any water associations, work orders, requests, and PMs associated with the original pipe will be associated with the new pipe record; however, they will retain the original pipe ID. Both pipe sections will be associated to existing work orders and PMs.*

## Merge Water Pipes



The *Lucity GIS Manager*™ Extension includes this tool used for merging water pipes in the geodatabase and in Lucity.

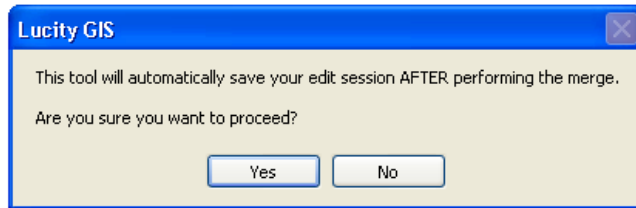
*Note: This tool can only be used on features that already exist in the Lucity database.*

To merge pipes in the map:

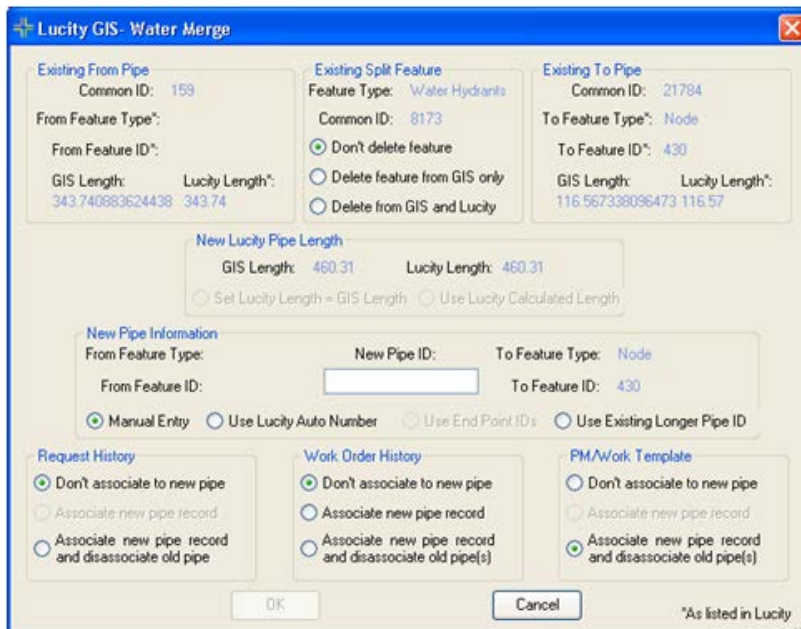
1. In ArcMap, start an edit session.
2. Using the ESRI select tool, select only the two adjacent pipes that need to be merged. No other pipes can be selected. Once the two pipes are selected in the map, the Merge Water Pipe tool will be enabled.
3. Click the Merge Water Pipe tool on the *Lucity GIS* Edit toolbar.



4. You'll receive a prompt similar to the following. If any unsaved edits are detected, your edit session will be saved prior to using this tool. Then, after performing the split, the edit session will be saved again and the desktop will be updated. Click Yes to proceed.



5. The following window will appear.



- The Existing From Pipe and To Pipe data is read-only. This is carried over from the desktop and identifies the pipe common ID and the related structure information for the pipe.
- The Existing Split Feature is also read-only. This is carried over from the desktop and your GIS map and identifies the feature type and common ID.
- In the Existing Split Feature section, choose one of the three options.
- If the tool finds a conflicting pipe length (i.e. the Lucy Length is different from the GIS Length for the newly merged pipe), you have two options: You can set the length in the desktop to the length found in the map, or you can proportionally split the pipe in the desktop. If the Lucy Length and GIS Length are the same, the New Lucy Pipe Length section will be disabled.
- The New Pipe Information section lists the new From and To feature information. This is read-only and was carried over from the desktop.

- In the New Pipe Information section, you will need to enter a New Pipe ID. You can choose to either manually enter a new pipe ID number, use the existing longer pipe ID, use end point IDs, or if this feature class is set up for auto-numbering (in the [Custom Geodatabase Synchronizer Setup](#)), the "Use Lucity Auto Number" button will be enabled.
- In the Request History section, you can choose to not associate the Requests with the new pipe, or disassociate the Requests from the old pipe and associate them to the new pipe (only one asset can be associated to each Request). The Associate New Pipe Record option is disabled. It will be made available for a future release.

*Note: Requests can only be associated to the new pipe, not the old. If you selected "Don't Associate to New Pipe", the old pipe IDs will still be displayed in the Request but will no longer be linked to the Pipe Inventory records. If you selected "Associate New Pipe Record and Disassociate Old Pipe", all Requests related to either pipe will be associated to the new pipe.*

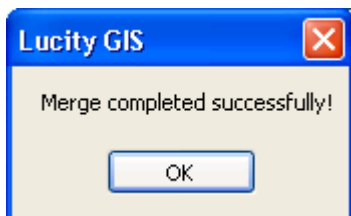
- In the Work Order History section, you can choose to not associate the Work Orders with the new pipe, associate the Work Orders with the new pipe, or disassociate the Work Orders from the old pipe and associate them to the new pipe (multiple assets can be associated to each Work Order).

*Note: If you selected "Don't Associate to New Pipe", the old pipe IDs will still be displayed in the Work Order Assets tab, but will no longer be linked to the Pipe Inventory record. If you selected "Associate New Pipe Record", the Work Order Assets tab will display the old and new pipe IDs, but only the new pipe ID will be linked to the Pipe Inventory record. If you selected "Associate New Pipe Record and Disassociate Old Pipe", the new and old pipe IDs displayed in the Work Order will be changed to the new pipe ID, and all will be linked to the same Pipe Inventory record.*

- In the PM/Work Template section, you can choose to not associate the PMs with the new pipe, or disassociate the PMs from the old pipe and associate them to the new pipe. The latter option is selected by default. The Associate New Pipe Record option is disabled.

*Note: If you selected "Don't Associated to New Pipe", the old pipe IDs will be removed from all PMs. If you selected "Associate New Pipe Record and Disassociate Old Pipe", the old pipe IDs will be removed from all PMs and the new pipe IDs will be added.*

6. Click OK when you are finished configuring the merge options.
7. The merge tool will now process the merge and delete the structure based on the options you selected. As previously mentioned in Step 4, your edit session will be saved; you will receive the standard Lucity edit prompts. When the process is complete, the following window will appear:



*Note: If you assigned the newly merged pipe the ID from one of the old pipes, the other pipe record will be deleted (i.e. Pipe1 and Pipe2 were merged. If you assigned the new pipe an ID of Pipe1, the record for Pipe2 would be deleted, and vice versa). If you assigned the newly merged pipe an ID of anything other than the ID from the two old pipe records, the pipe record with the shorter pipe length will be deleted and the pipe record with the longer pipe length will be updated. When the pipe records are merged, the system will update the to and from feature information, pipe length, and pipe number. Requests, Work Orders, and PMs will then be associated/disassociated as indicated. The system then updates Water associations, carrying over any associations from the old pipe(s) to the new pipe record. The system then carries over any documents and comments associated to the old pipe(s) to the new pipe record.*

## Water Renumber

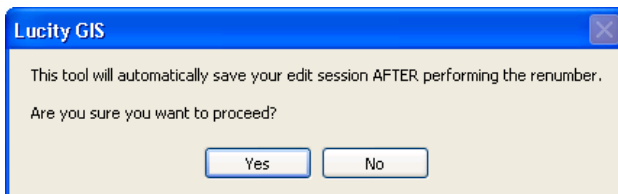


The *Lucity GIS Manager™* Extension includes this tool used for renumbering your water structures.

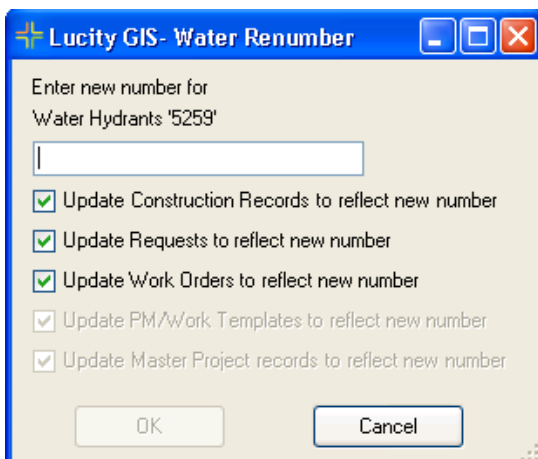
*Note: This tool is only enabled if you have one feature selected in the map.*

To renumber a feature:

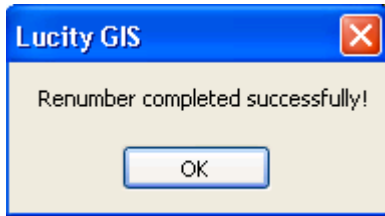
1. In ArcMap, start an edit session.
2. Select a water feature in the map.
3. Click the Water Renumber tool on the *Lucity GIS* Edit Toolbar.
4. The renumber tool requires that edits be saved before and after performing the renumber. You will receive one of the following prompts.



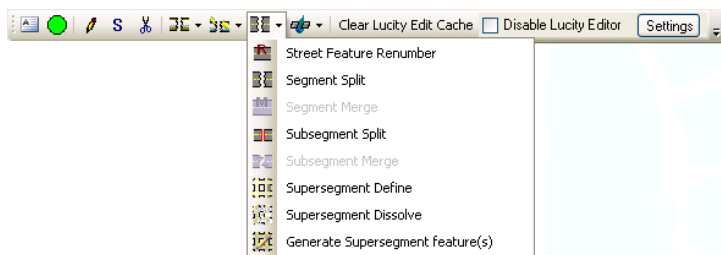
5. Click Yes and the following dialog will appear.



6. Enter the new number and select OK. The following dialog will appear.
7. The following message will appear when the renumber process is finished.




## Street Editing Tools



- Street Feature Renumber is enabled when one feature is selected in the map.
- Segment Split is enabled when one linear feature is selected in the map.
- Segment Merge is enabled when two linear features are selected in the map.
- Subsegment Split is enabled when one linear feature is selected in the map.
- Subsegment Merge is enabled when two linear features are selected in the map.
- Supersegment Define is enabled when one or more linear features are selected in the map.
- Supersegment Dissolve is enabled when one or more linear features are selected in the map.
- Generate Supersegment is always enabled.

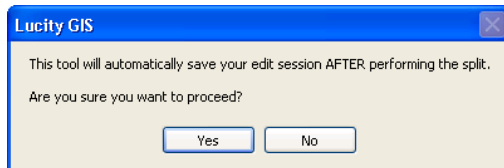
## Splitting Street Segments

 Lucy GIS includes this tool used for splitting street segment features in the geodatabase and in Lucy.

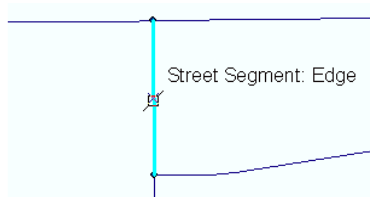
*Note: This tool is only enabled if all of the following conditions are met: (1) You have one feature selected in the map (2) The feature selected is linear.*

To split a street segment in the map:

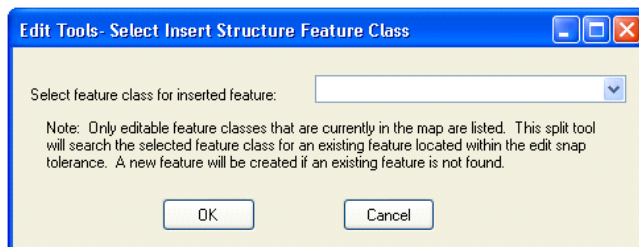
1. In ArcMap, start an edit session.
2. Select a street segment in the map.
3. Click the Segment Split on the GIS Edit toolbar.
4. The split tool requires that edits be saved before and after performing the split. You will receive one of the following prompts.



5. Click Yes. Using the mouse, left-click on the line where you want the split to occur.



6. The following dialog will appear if you have more than one editable street intersection feature class in the map. You will need to select a feature class that will contain the intersection.
7. Inserting an intersection is not required. You will have the option to not create an intersection feature in a later step.
8. If an intersection feature already exists at the location of the split, the tool will not create a new intersection and instead associate the new streets to the existing intersection.



Note: \_\_\_\_\_

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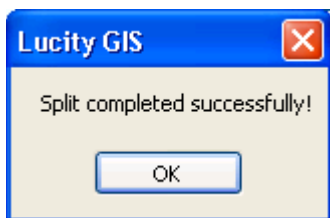
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- Existing From Intersection: This is read-only information. It lists the intersection number and from street name as it is listed in Lucity for the existing street.
- Existing Street Segment: This is read-only information for the existing street segment.
- Existing To Point: This is read-only information. It lists the intersection number and to street name as it is listed in Lucity for the existing street.
- Conflicting Pipe length: This option is only enabled when length of the pipe in Lucity is different than the length of the pipe in GIS. If this option is enabled you can choose to set the Lucity length equal to the GIS length or you can proportionally split the street in Lucity to match the split in GIS.
- Split (Required): This is the calculated distance along the line where the mouse-click occurred. This value can be overwritten.
- Orientation: This indicates in what direction the split location is measured from.
- New Segment ID for the From Street (Required): The new street segment must be assigned a segment ID. You have the option to manually enter the ID, use a Lucity auto number (this is only enabled if you have auto numbers set up), use intersection IDs (this is only enabled if you have an intersection defined), or use the existing segment's ID. Note: By default, the longer street section is assigned the existing segment's ID, but again this can be overwritten.
- Intersection Info: If an existing intersection was found at the location of the mouse-click this section will be filled out automatically with the existing intersection info and will be read-only. If you don't have any editable intersection feature classes configured with Lucity in the map, this section will be disabled and the 'Do not create an intersection' will be checked. Otherwise, you have the option to manually enter the intersection ID, use a Lucity auto number (this is only enabled if you have auto numbers set up), or not create an intersection feature.
- New Segment ID for the To Street (Required): The new street segment must be assigned a segment ID. You have the option to manually enter the ID, use a Lucity auto number (this is only enabled if you have auto numbers set up), use intersection IDs (this is only enabled if you have an intersection defined), or use the existing segment's ID. Note: By default,

the longer street section is assigned the existing segment's ID, but again this can be overwritten.

- New Address Range for the From Street (Optional): This is the address info for the new from street segment. Note: The left and right from address values will be pre-populated with the values from the pre-split street.
  - New Address Range for the To Street (Optional): This is the address info for the new to street segment. Note: The left and right to address values will be pre-populated with the values from the pre-split street.
  - Advanced Settings: This allows you to override the default settings that control what associations should be updated with the use of this tool.
9. When you have finished making selections, click OK.
  10. The following message will appear when the process is finished.



## Merging Street Segments

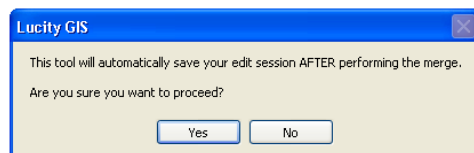


Lucy GIS includes this tool used for merging street segment features in the geodatabase and in Lucy.

*Note: The Street Merge Tool is only enabled if all of the following conditions are met: (1) You have two features selected in the map (2) The features selected are linear.*

To merge two street segments in the map:

1. In ArcMap, start an edit session.
2. Select two adjacent street segment features in the map. You can do this by dragging a box around the two streets or by clicking on one street and then holding down the SHIFT key while clicking on the second street.
3. Click the Street Merge tool on the Lucy GIS Edit toolbar.
4. The merge tool requires that edits be saved before and after performing the merge. You will receive one of the following prompts asking you if you want to proceed.



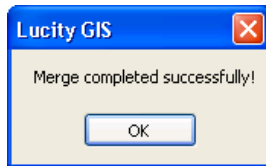


- Click Yes and the following dialog will appear

- Existing From Street: This is read-only information about the pre-merged from street.
- Existing Intersection: If an intersection feature was located at the common endpoint of the two street features this section will be enabled. This is the existing intersection information and lists the various merge options for the intersection.
  - Don't Delete Feature: Select this option if you want to keep the intersection in both the desktop inventory module and in the intersection feature class.
  - Delete Feature From GIS Only: Select this option if you want to keep the intersection in the desktop inventory module, but would like the feature removed from the intersection feature class. Note: This option is disabled if the tool was unable to locate a structure within 1 map unit of the common end point for the two streets or if the intersection feature class is not editable.
  - Delete from GIS and Lucity: Select this option if you want to remove the intersection from both the desktop inventory module and the intersection feature class. Note: This option is disabled if the tool was unable to locate an intersection within 1 map unit of the common end point of the two streets, the intersection feature class is not editable, or the intersection doesn't exist in the desktop inventory module.
  - Structure Status: This combo box is only enabled if you choose an option that would keep the intersection record within the desktop inventory. The combo box lists the various status types that are defined in the status pick list field in the desktop intersection inventory module.
- Existing To Street: This is read-only information about the pre-merged to street.
- New Street Segment (required): You can choose to manually enter a new Segment ID, use a Lucity auto number (this option is only enabled if the segment ID field in the feature class is configured to use a number generator), use the end point IDs, use the existing segment ID of the from street, or use the existing segment ID of the to street.
- Merge Subsegments. By default, this option is enabled and checked if both of the pre-merged street segments only have one associated subsegment. Leave this option checked if you wish to maintain a one to one ratio between your street segment and subsegments; otherwise, the newly merged street segment will have two subsegments.



- New Street Segment Length: This option is only enabled if the tool calculates a difference between the GIS and Lucity street segment lengths. You can choose to set the Lucity length to be equal to the GIS length or you can use the Lucity calculated length.
  - New Street Segment Attributes-Copy from: You can choose to copy over the attributes from the pre-merged from street, pre-merged to street, or the longer street.
6. When you have finished making selections, click OK. The following message will appear when the process is completed:



## Renumber a Street Feature

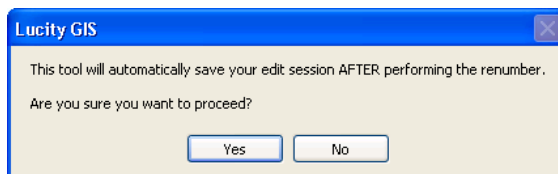


Lucity GIS includes this tool used for renumbering your street segments, intersections, and structures.

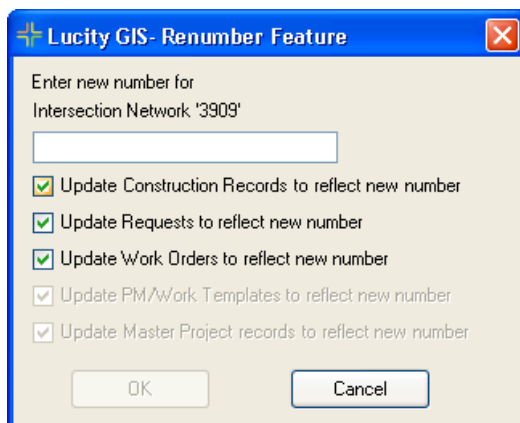
*Note: This tool is only enabled if you have one feature selected in the map.*

To renumber a feature:

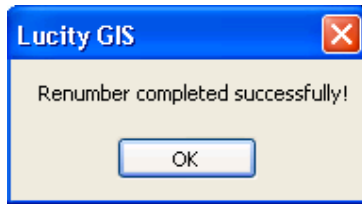
1. In ArcMap, start an edit session.
2. Select a street feature in the map.
3. Click the Street Feature Renumber tool on the Lucity GIS Edit Toolbar.
4. The renumber tool requires that edits be saved before and after performing the renumber. You will receive one of the following prompts.



5. Click Yes and the following dialog will appear.



6. Enter the new number and select OK.
7. The following message will appear when the process is finished.



## Splitting Street Subsegments

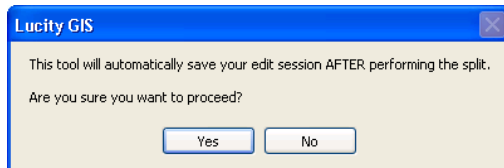


Lucity GIS includes this tool used for splitting street subsegment features in the geodatabase and in Lucity.

*Note: This tool is only enabled if all of the following conditions are met: (1) You have one feature selected in the map (2) The feature selected is linear.*

To split a street subsegment in the map:

1. In ArcMap, start an edit session.
2. Select a street subsegment in the map.
3. Click the Subsegment Split on the Lucity GIS Edit toolbar.
4. The split tool requires that edits be saved before and after performing the split. In addition, the street segment associated to the selected subsegment will be synched to the desktop. This will ensure that the selected subsegment is validated with the desktop application.



Note: \_\_\_\_\_

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- Click Yes. Using the mouse, left-click on the line where you want the split to occur.

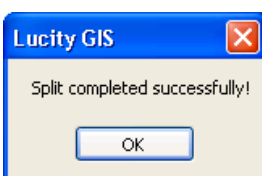
- Subsegment to Split: This is read-only information. It lists the information in the desktop for the existing subsegment.
- Split (Required): This is the calculated distance along the line where the mouse-click occurred. This value can be overwritten.
- Orientation: This indicates in what direction the split location is measured from.
- New From Subsegment Info (Optional): These fields will be automatically populated based upon the existing subsegment information. This information can be manually overwritten.

*Note: The sidewalk length and driveway approach fields are calculated by the system based upon the length of the new subsegment to the original subsegment length.*


- New To Subsegment Info (Optional): These fields will be automatically populated based upon the existing subsegment information. This information can be manually overwritten.

*Note: The sidewalk length and driveway approach fields are calculated by the system based upon the length of the new subsegment to the original subsegment length.*

- When you have finished making selections, click OK.
- The following message will appear when the process is finished.



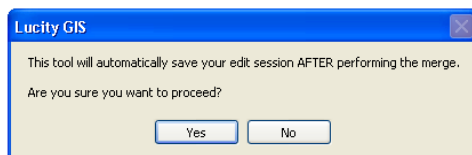
## Merging Street Subsegments

 Lucity GIS includes this tool used for merging subsegment features in the geodatabase and in Lucity.

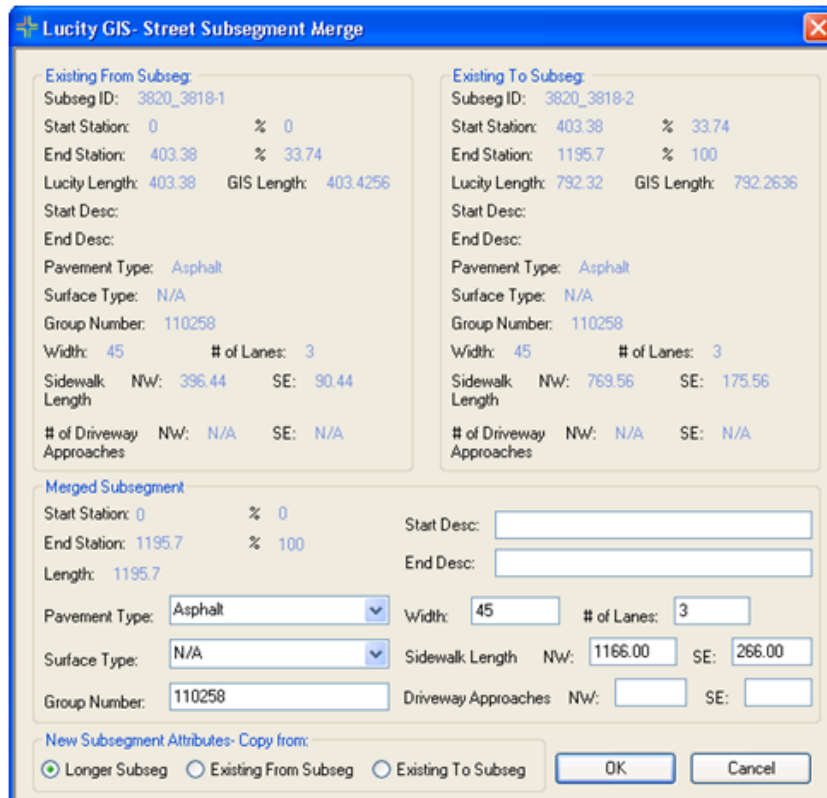
*Note: The Subsegment Merge Tool is only enabled if all of the following conditions are met:  
(1) You have two features selected in the map (2) The features selected are linear.*

To merge two subsegments in the map:

1. In ArcMap, start an edit session.
2. Select two adjacent subsegment features in the map. You can do this by dragging a box around the two subsegments or by clicking on one subsegment and then holding down the SHIFT key while clicking on the second subsegment.
3. Click the Subsegment Merge tool on the Lucity GIS Edit toolbar.
4. The merge tool requires that edits be saved before and after performing the merge. You will receive one of the following prompts asking you if you want to proceed.



5. Click Yes and the following dialog will appear.



The dialog box is titled "Lucity GIS- Street Subsegment Merge". It contains two columns of information for the subsegments being merged. The left column is for the "Existing From Subseg" and the right column is for the "Existing To Subseg". Below these columns is a section for the "Merged Subsegment" with input fields for its properties. At the bottom, there are radio buttons for "New Subsegment Attributes- Copy from:" and "OK" and "Cancel" buttons.

Existing From Subseg:		Existing To Subseg:	
Subseg ID:	3820_3818-1	Subseg ID:	3820_3818-2
Start Station:	0 % 0	Start Station:	403.38 % 33.74
End Station:	403.38 % 33.74	End Station:	1195.7 % 100
Lucity Length:	403.38	Lucity Length:	792.32
GIS Length:	403.4256	GIS Length:	792.2636
Start Desc:		Start Desc:	
End Desc:		End Desc:	
Pavement Type:	Asphalt	Pavement Type:	Asphalt
Surface Type:	N/A	Surface Type:	N/A
Group Number:	110258	Group Number:	110258
Width:	45	Width:	45
# of Lanes:	3	# of Lanes:	3
Sidewalk Length NW:	396.44	Sidewalk Length NW:	769.56
Sidewalk Length SE:	90.44	Sidewalk Length SE:	175.56
# of Driveway Approaches NW:	N/A	# of Driveway Approaches NW:	N/A
# of Driveway Approaches SE:	N/A	# of Driveway Approaches SE:	N/A

**Merged Subsegment**

Start Station: 0 % 0  
End Station: 1195.7 % 100  
Length: 1195.7

Start Desc:   
End Desc:

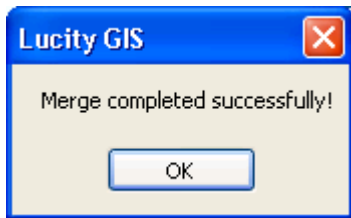
Pavement Type:  Width:  # of Lanes:   
Surface Type:  Sidewalk Length NW:  SE:   
Group Number:  Driveway Approaches NW:  SE:

New Subsegment Attributes- Copy from:  
☒ Longer Subseg ☐ Existing From Subseg ☐ Existing To Subseg

OK Cancel

- Existing From Subseg: This is read-only information about the pre-merged from subsegment.

- Existing To Subseg: This is read-only information about the pre-merged to subsegment.
  - Merged Subseg: These fields will be automatically populated based upon the existing subsegment information. This information can be manually overwritten.
    - The sidewalk length and driveway approach fields are calculated by the system based upon the length of the new subsegment to the original subsegment length.
  - New Subsegment Attributes-Copy from: You can choose to copy over the attributes from the pre-merged from subseg, pre-merged to subseg, or the longer subsegment. **Note:** This option will be automatically set and disabled if you set the new street segment ID equal to the previous to or from street segment ID.
6. When you have finished making selections, click *OK*.
  7. The following message will appear when the process is finished.



## Defining Supersegments

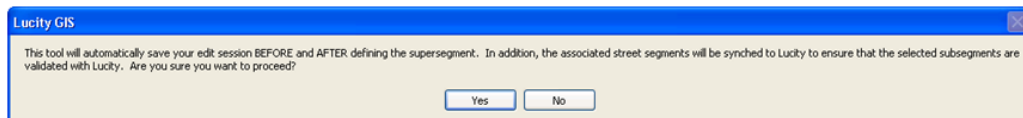


Lucy GIS includes this tool used for defining supersegments in the geodatabase and in Lucy. This tool can be used to create new supersegments or add to an existing supersegment.

*Note: This tool is only enabled if all of the following conditions are met: (1) You have one or more features selected in the map (2) The features are linear.*

To create a supersegment in the map:

1. In ArcMap, start an edit session.
2. Select a street supersegment in the map.
3. Click the Supersegment Define tool on the Lucy GIS Edit toolbar.
4. The define tool requires that edits be saved before and after performing the split. In addition, the street segment associated to the selected subsegment(s) will be synched to the desktop. This will ensure that the selected subsegment(s) are validated with the desktop.



Note: \_\_\_\_\_

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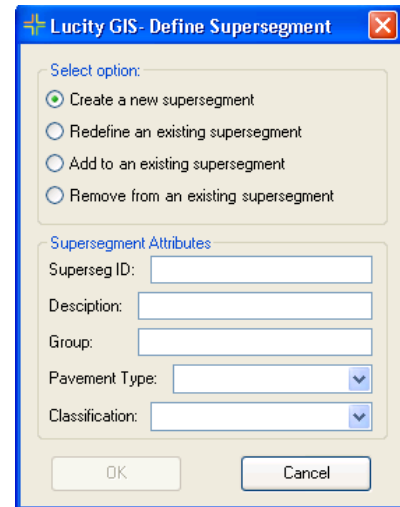
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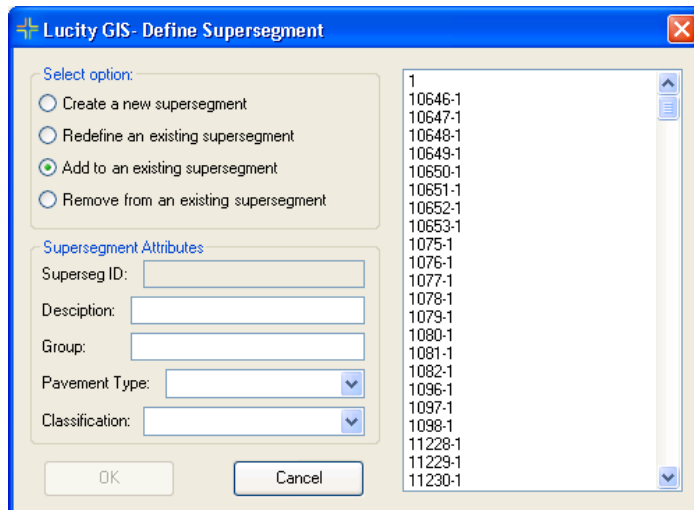
5. Click Yes. The dialog to the right will appear.

- Select an option:
  - Create a new supersegment- select this option to create a new supersegment record in the desktop.
  - Redefine an existing supersegment- select this option to redefine the subsegments in an existing supersegment.
  - Add to existing supersegment- select this option to add the selected subsegments to an existing supersegment
  - Redefine an existing supersegment- select this option to remove all subsegments associated to an existing supersegment and then only associate the selected subsegments.



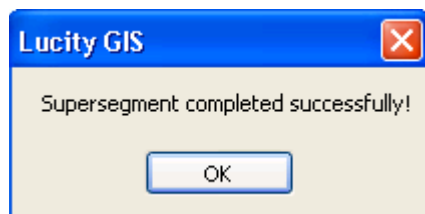
The dialog box titled "Lucity GIS- Define Supersegment" contains a "Select option:" section with four radio buttons: "Create a new supersegment" (selected), "Redefine an existing supersegment", "Add to an existing supersegment", and "Remove from an existing supersegment". Below this is a "Supersegment Attributes" section with input fields for "Superseg ID:", "Description:", "Group:", "Pavement Type:" (a dropdown menu), and "Classification:" (a dropdown menu). At the bottom are "OK" and "Cancel" buttons.

*Note: If you select the option to add to or redefine an existing supersegment the form will expand allowing you to select an existing supersegment*



The expanded dialog box shows the "Add to an existing supersegment" option selected. The "Supersegment Attributes" section is populated with data from an existing supersegment. To the right of the attributes is a list box containing a list of subsegment IDs: 1, 10646-1, 10647-1, 10648-1, 10649-1, 10650-1, 10651-1, 10652-1, 10653-1, 1075-1, 1076-1, 1077-1, 1078-1, 1079-1, 1080-1, 1081-1, 1082-1, 1096-1, 1097-1, 1098-1, 11228-1, 11229-1, and 11230-1. The "OK" and "Cancel" buttons are at the bottom.

- Supersegment Attributes: If you selected the option to create a new supersegment, then this section will be empty and you must enter a superseg ID before proceeding; otherwise, this section will be populated with the information from the existing supersegment.
6. When you have finished making selections, click OK.
7. A message will appear to inform you when the process is finished.



A small message box titled "Lucity GIS" with a red "X" icon in the top right corner. The text inside says "Supersegment completed successfully!". There is an "OK" button at the bottom.

## Dissolving Supersegments

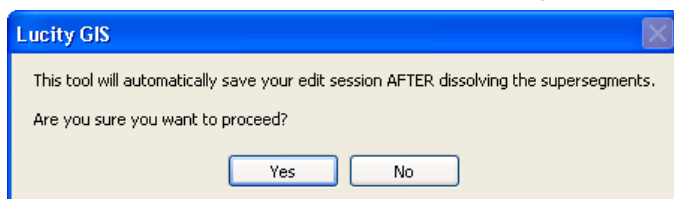


Lucity GIS includes this tool used for dissolving supersegments in the geodatabase and in Lucity.

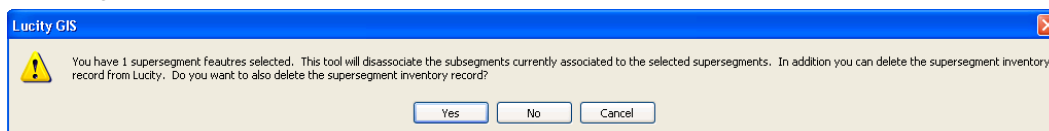
*Note: This tool is only enabled if all of the following conditions are met: (1) You have one or more features selected in the map (2) The features are linear.*

To dissolve a supersegment in the map:

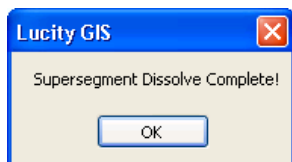
1. In ArcMap, start an edit session.
2. Select a street supersegment in the map.
3. Click the Supersegment Dissolve tool on the Lucity GIS Edit toolbar.
4. The dissolve tool requires that edits be saved before and after performing the dissolve. You will receive a prompt similar to the following:



5. Click Yes. The following dialog will appear. Click yes, if you wish to have the selected supersegment record(s) deleted from the desktop.



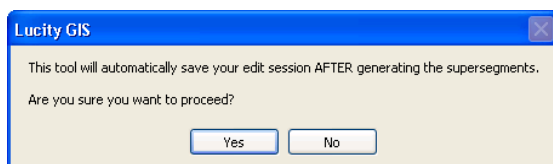
6. The following message will appear when the process is finished.



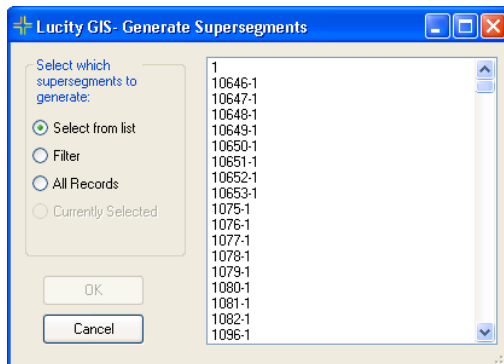
## Generate Supersegment Feature

To generate a supersegment in the map:

1. In ArcMap, start an edit session.
2. Optional step: Select the supersegment(s) in the map in which you want the shape to be updated.
3. Click the Generate Supersegment Feature(s) tool on the Lucity GIS Edit toolbar.
4. The generate tool requires that edits be saved before and after generating the supersegments. You will receive a prompt similar to one of the following:



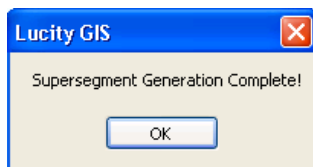
5. Click Yes. The following dialog will appear.



- Select an option:
  - Select from list- select this option to select the supersegment(s) from the list on the right. All selected supersegments will be recreated in the map.
  - Filter- selecting this option will change the list box on the right to contain a list of supersegment module filters. All supersegments that meet the filter criteria will be recreated in the map.
  - All records- select this option to recreate all supersegments in the map that are linked to the desktop.

*Note: This option may take some time to process as it is basically deleting and recreating the supersegment feature in GIS for each supersegment in the desktop.*

- Currently selected- this option is only enabled if you have supersegments currently selected in the map.
6. The following message will appear when the process is finished.



## Alias Import

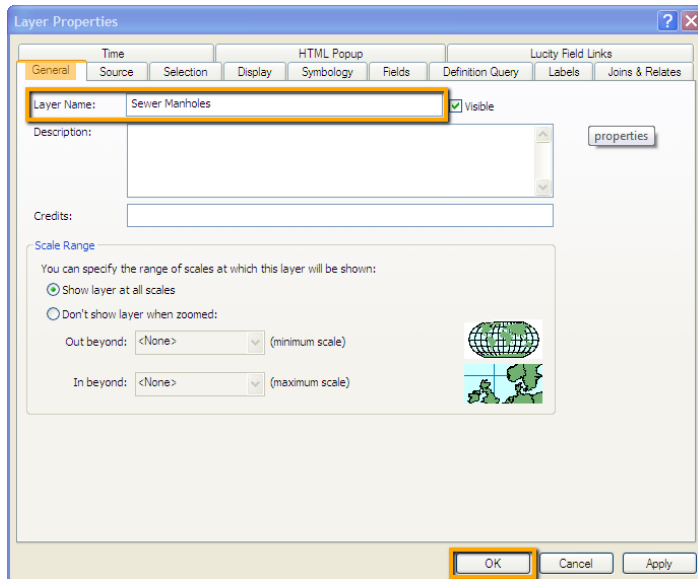
The Alias Import tool in ArcMap is designed to take the aliases that are specified in the MXD for each feature class, and apply those to the Lucity Geodatabase configuration. This is a quick way to customize feature class names in a map, update the geodatabase configuration's alias lists, and then publish the mxd as a service that can be used by other Lucity mapping tools.

*Note: Each feature class can be associated to multiple aliases; however, an alias can be associated to only one feature class.*

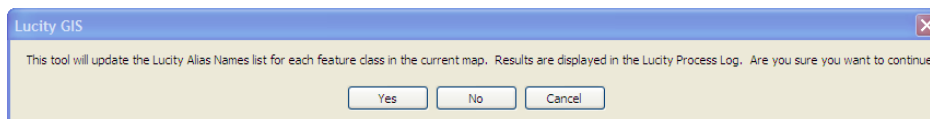
To use the tool, complete the following steps:

1. In ArcMap, verify the feature classes have the desired layer name:

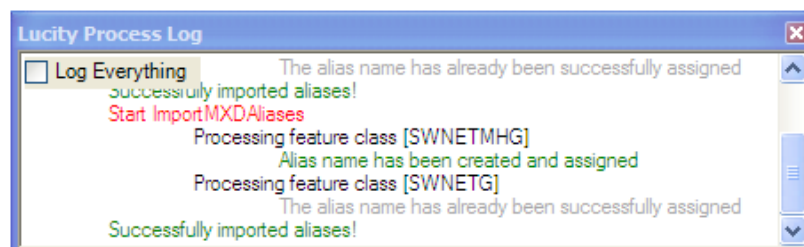




2. On the *Lucy GIS* Edit toolbar, click the Alias Import button. The following message will appear:

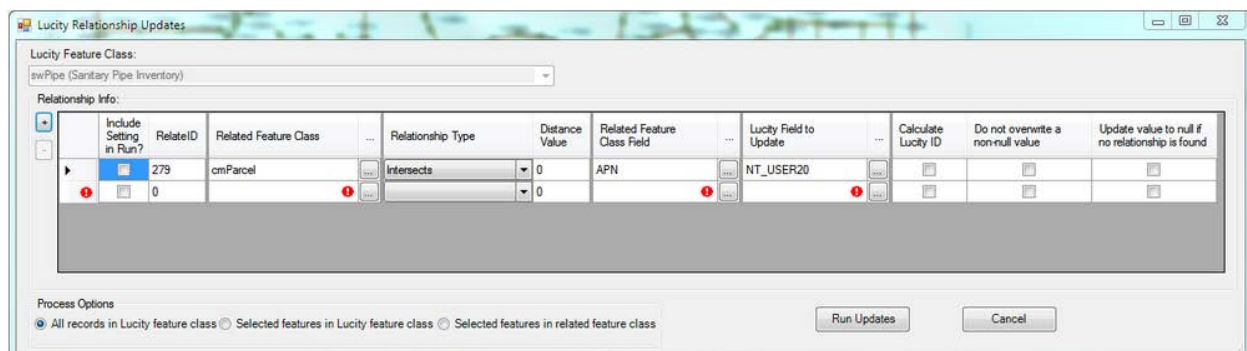


3. Click Yes to continue. The Lucy process log will display the results of the import:



## Direct Spatial Updates tool

The Direct Spatial Updates tool allows users to directly update a Lucy record from a feature that shares a location without updating the feature that is linked to the Lucy record.




## Features

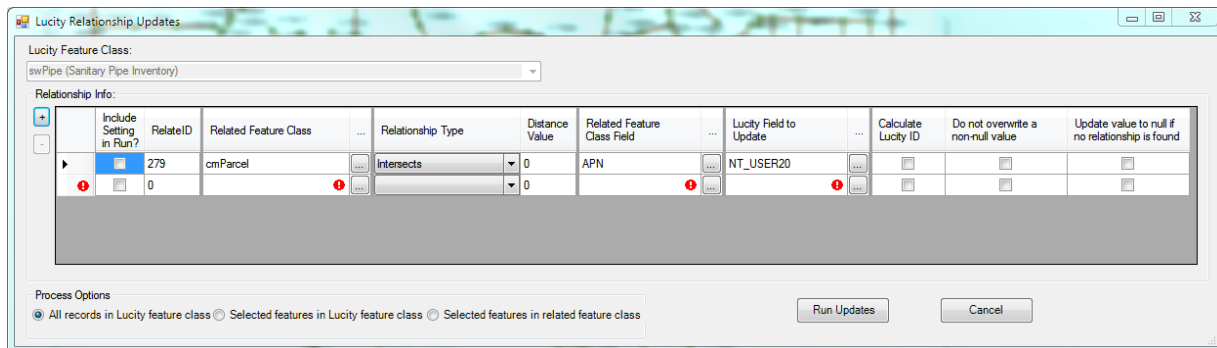
- Updates a Lucity module from a feature class that isn't linked to the Lucity module. It does this without updating the feature class that is linked to Lucity.
- This still requires the Lucity module to be related to a feature class as this is how the spatial update is calculated
- Does not require users to be in an ArcMap edit session.
- Is faster than a standard spatial relationship update.
- Direct Spatial Updates are only done on demand unlike spatial relationships which are automatically updated in many instances.
- Multiple Direct Updates can be setup and run all at once.
- Direct Updates are saved so they can be run in the future.

## Relationship Types

- **From Intersect:** Finds any features in the Related Feature Class that intersect the from point of the feature in the Lucity Feature Class. This relationship only works for polyline, edge, or complex edge features.
- **To Intersect:** Finds any features in the Related Feature Class that intersect the To Point of the feature in the Lucity Feature Class. This relationship only works for polyline, edge, or complex edge features.
- **Contained by:** Finds any features in the Lucity Feature Class that are contained by features in the Related Feature Class. The Related Feature Class must be a polygon feature class.
- **Intersects:** Finds the first feature in the Related Feature Class that intersects the feature in the Lucity Feature Class.
- **To Intersect Distance:** Finds the first feature in the Related Feature Class that intersects the feature in the Lucity Feature Class. It then calculates the distance along the related feature between the intersection location and to point. If the Lucity Feature Class is of a polyline geometry type then it requires the 'to point' of the Lucity feature to intersect the related feature. This relationship type requires the related feature class to be a polyline.
- **From Intersect Distance:** Finds the first feature in the Related Feature Class that intersects the feature in the Lucity Feature Class. It then calculates the distance along the related feature between the intersection location and the from point. If the Lucity Feature Class is of a polyline geometry type then it requires the 'to point' of the selected feature to intersect the related feature. This relationship type requires the related feature class to be a polyline geometry type.
- **Midpoint Intersect:** Finds any feature in the Related Feature Class that intersects the midpoint of the feature in the Lucity Feature Class. This relationship is designed for polyline, edge, or complex edge features as the selected feature class, and a polygon feature for the Related Feature Class.
- **Is Within a Distance of:** Finds all features in the Related Feature Class that are with a specified distance of the feature in the Lucity Feature Class.

## To Setup a Direct Spatial Relationship

1. If there is a set of records to run the tool against select them.
2. On the Editor Toolbar click on the  button. The following window will appear:



3. Select a **Lucy Feature Class**. This list will show all feature classes in the map that are related to Lucy. The Lucy module that is related to this feature class will be updated by the relationship.
4. Click the **+** button to add a relationship.
5. Enter the name of the **Related Feature Class**. Click the **...** button for a list of all feature classes that are in the map. This is the feature class that will provide the data to update the Lucy module.
6. Select the **Relationship Type** and fill out the **Distance** value if needed.
7. Select the **Related Feature Class Field**. Click the **...** button for a list of fields in the **Related Feature Class**. This is the field that will provide the data to update the Lucy module.
8. Select the **Lucy Field to Update**. Click the **...** button for a list of the fields that can be updated in the Lucy module. This is the field in Lucy that will be updated.
9. Mark any desired settings.
10. Select the desired **Process Option**.
11. Check the **Include Setting in Run?** box for one or more Direct Spatial Updates.
12. Click **Run Updates**.
13. The process log will appear and provide information about the process.

