

# Finishing Tool

## Preparation and Repair Processes

### Done Manually



The Finishing Tool Suite is designed to automate some of the data preparation, conditioning, repair, geoprocessing, and analysis workflows that are used regularly in the Finishing process. It is necessary to prepare a local geodatabase before running GAIT or Attribution Oversight. The tools drastically reduce the amount of GAIT and AO errors that would occur in an unprocessed geodatabase. The changes made by the Finishing Tool Suite can reduce GAIT errors up to 40-50% and AO errors up to 80%.

In March of 2021, before the first version of the Finishing Tool, the manual Finishing process would have only been about a third of the work documented here. This document breaks down the steps that would be necessary to manually do everything that the Finishing Tool Suite has automated. The steps below are mainly for documentation purposes. The increasing size and complexity of the databases combined with continually mounting responsibilities and expectations for the Finishing Team has necessitated the constant development of this tool. This is not a responsibility of the Finishing Team. Despite the complex level of automation that has been constantly improving, this can barely keep up with the inflating workload and level of effort. A delivery done by following the steps laid out in this document would take about 1-2 weeks.

This should serve as a sense of scale for how critical the Finishing Tool Suite has become. And a demonstrative example of the high level of effort required for Finishing in addition to the steps that have been automated.

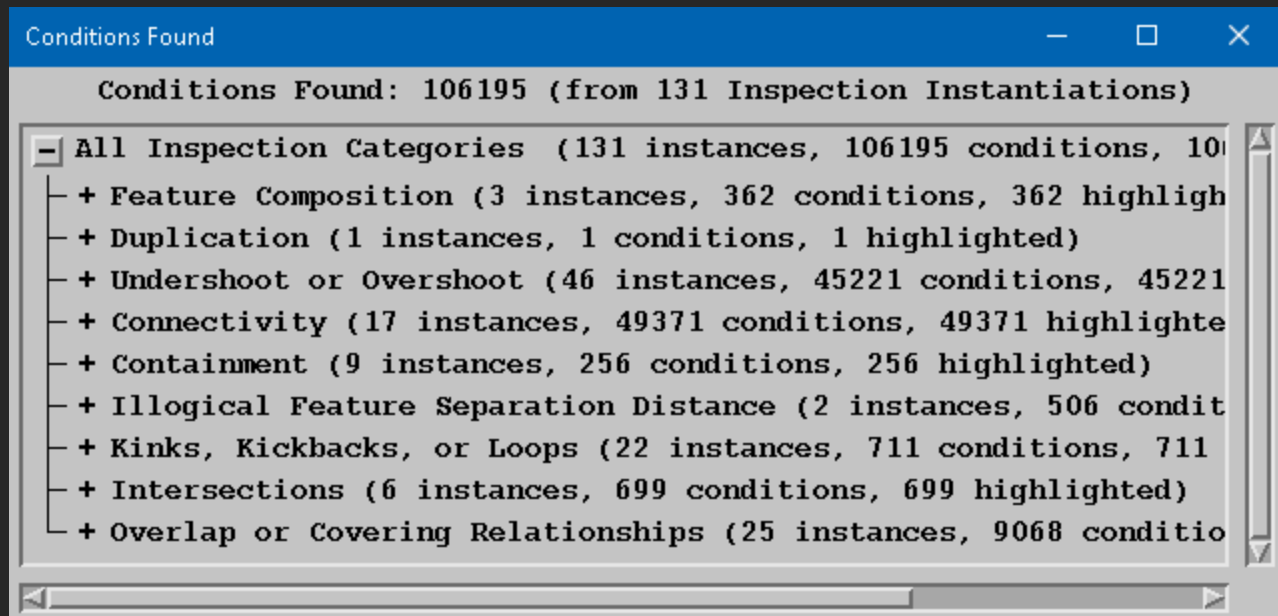


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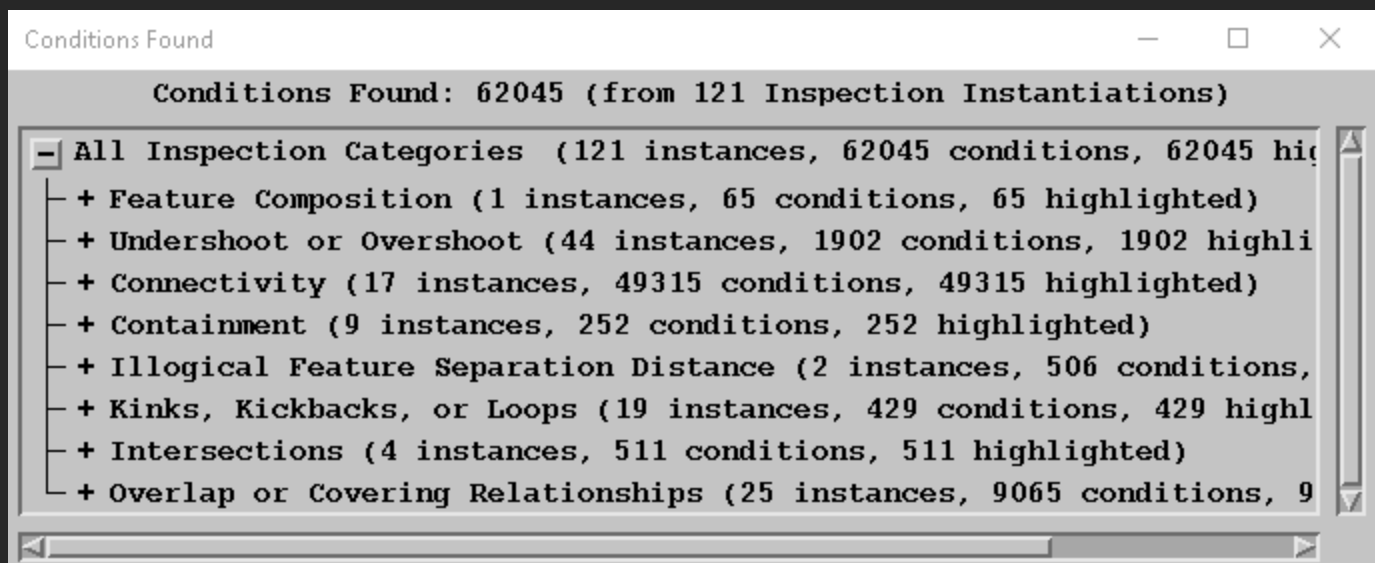
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GAIT results without the Finishing Tool Suite:



GAIT results with the Finishing Tool Suite:



#	Condition Error	Before	After	Difference	Improvement
1	Part Of Multi-part Point	0	0		
2	Part Of Multi-part Line	28	0	-28	100%
3	Part Of Multi-part Area	269	0	-269	100%
4	Sliver Area	65	65		
5	Duplicate Vertices	0	0		
6	Complete Duplicates	1	0	-1	100%
7	Any Two Features With The Same Identifier	0	0		
8	Area - Area Undershoot (Gap)	717	717		
9	Area - Area Overshoot (Sliver)	455	455		
10	Line - Line Undershoot	27110	426	-26684	98%
11	Line - Line Overshoot	16603	98	-16505	99%
12	Line - Area Perimeter Undershoot	74	11	-63	85%
13	Interior Line Vertex - Line Undershoot	194	187	-7	4%
14	Interior Line Vertex - Line Overshoot	10	6	-4	40%
15	Line - Area Perimeter Overshoot	58	2	-56	97%
16	Line Not Cut At Coincidence With Another Line End Node	2268	2213	-55	2%
17	Line Feature Merge Failure - 1/4 Degree Boundaries Excluded	46816	46815	-1	0%
18	Area Feature Merge Failure - 1/4 Degree Boundaries Excluded	5	5		
19	Feature Connectivity Failure	282	282		
20	Point Inside Or On Area Perimeter	201	201		
21	Area Not Containing Any Part Of Another Feature	0	0		
22	Line Inside Area	46	42	-4	9%
23	Line End Node Inside Area	9	9		
24	Point To Feature Coincidence Failure	326	326		
25	Point - Feature Intersection Coincidence Failure	180	180		
26	Line Kink	290	10	-280	97%
27	'Z' Shaped Line Kink	2	2		
28	Line Kink (Single Feature)	48	47	-1	2%
29	Line Feature Join Kink	32	30	-2	6%
30	Line Kickback	3	4	1	33%
31	Loop (Self-intersecting Area Or Line Feature)	26	26		
32	Area Kink Or Kickback	310	310		
33	Feature - Feature Intersection Not At Connecting Node	188	0	-188	100%
34	Line - Line Intersection With Exception	511	511		
35	Line Not Covered By Area Or Line	126	127	1	1%
36	Two Lines Overlap (Coincident Segments)	7572	7568	-4	0%
37	Illegal Shared Face	1370	1370		
	TOTAL	106195	62045	-44150	42%



## Manual Finishing Preparation and Repair Process

1. Somehow split the local database by scale and AOI. (We use the Database Guillotine, because NGA's PB4J tool doesn't work anymore.)
2. If there are too many buildings, you may need to delete the features in the StructurePnt and StructureSrf feature classes.
3. Disable Editor Tracking for the entire dataset.
4. Create a 3x3 fishnet grid over the extent of the data.
5. Make sure to have the current Important Building FFNs list.
6. Repeat all of the following steps for each scale/AOI split GDB.

## Repair All NULL Geometries

Exclude MetadataSrf and ResourceSrf.

1. Run the Repair Geometry (Data Management) tool on AeronauticCrv with the 'Delete Features with Null Geometry' option checked.
2. Run the Repair Geometry (Data Management) tool on AeronauticPnt with the 'Delete Features with Null Geometry' option checked.
3. Run the Repair Geometry (Data Management) tool on AeronauticSrf with the 'Delete Features with Null Geometry' option checked.
4. Run the Repair Geometry (Data Management) tool on AgriculturePnt with the 'Delete Features with Null Geometry' option checked.
5. Run the Repair Geometry (Data Management) tool on AgricultureSrf with the 'Delete Features with Null Geometry' option checked.
6. Run the Repair Geometry (Data Management) tool on BoundaryPnt with the 'Delete Features with Null Geometry' option checked.
7. Run the Repair Geometry (Data Management) tool on CultureCrv with the 'Delete Features with Null Geometry' option checked.
8. Run the Repair Geometry (Data Management) tool on CulturePnt with the 'Delete Features with Null Geometry' option checked.
9. Run the Repair Geometry (Data Management) tool on CultureSrf with the 'Delete Features with Null Geometry' option checked.
10. Run the Repair Geometry (Data Management) tool on FacilityPnt with the 'Delete Features with Null Geometry' option checked.
11. Run the Repair Geometry (Data Management) tool on FacilitySrf with the 'Delete Features with Null Geometry' option checked.
12. Run the Repair Geometry (Data Management) tool on HydroAidNavigationPnt with the 'Delete Features with Null Geometry' option checked.
13. Run the Repair Geometry (Data Management) tool on HydroAidNavigationSrf with the 'Delete Features with Null Geometry' option checked.



14. Run the Repair Geometry (Data Management) tool on HydrographyCrv with the 'Delete Features with Null Geometry' option checked.
15. Run the Repair Geometry (Data Management) tool on HydrographyPnt with the 'Delete Features with Null Geometry' option checked.
16. Run the Repair Geometry (Data Management) tool on HydrographySrf with the 'Delete Features with Null Geometry' option checked.
17. Run the Repair Geometry (Data Management) tool on IndustryCrv with the 'Delete Features with Null Geometry' option checked.
18. Run the Repair Geometry (Data Management) tool on IndustryPnt with the 'Delete Features with Null Geometry' option checked.
19. Run the Repair Geometry (Data Management) tool on IndustrySrf with the 'Delete Features with Null Geometry' option checked.
20. Run the Repair Geometry (Data Management) tool on InformationCrv with the 'Delete Features with Null Geometry' option checked.
21. Run the Repair Geometry (Data Management) tool on InformationPnt with the 'Delete Features with Null Geometry' option checked.
22. Run the Repair Geometry (Data Management) tool on InformationSrf with the 'Delete Features with Null Geometry' option checked.
23. Run the Repair Geometry (Data Management) tool on MilitaryCrv with the 'Delete Features with Null Geometry' option checked.
24. Run the Repair Geometry (Data Management) tool on MilitaryPnt with the 'Delete Features with Null Geometry' option checked.
25. Run the Repair Geometry (Data Management) tool on MilitarySrf with the 'Delete Features with Null Geometry' option checked.
26. Run the Repair Geometry (Data Management) tool on PhysiographyCrv with the 'Delete Features with Null Geometry' option checked.
27. Run the Repair Geometry (Data Management) tool on PhysiographyPnt with the 'Delete Features with Null Geometry' option checked.
28. Run the Repair Geometry (Data Management) tool on PhysiographySrf with the 'Delete Features with Null Geometry' option checked.
29. Run the Repair Geometry (Data Management) tool on PortHarbourCrv with the 'Delete Features with Null Geometry' option checked.
30. Run the Repair Geometry (Data Management) tool on PortHarbourPnt with the 'Delete Features with Null Geometry' option checked.
31. Run the Repair Geometry (Data Management) tool on PortHarbourSrf with the 'Delete Features with Null Geometry' option checked.
32. Run the Repair Geometry (Data Management) tool on RecreationCrv with the 'Delete Features with Null Geometry' option checked.
33. Run the Repair Geometry (Data Management) tool on RecreationPnt with the 'Delete Features with Null Geometry' option checked.
34. Run the Repair Geometry (Data Management) tool on RecreationSrf with the 'Delete Features with Null Geometry' option checked.



35. Run the Repair Geometry (Data Management) tool on SettlementPnt with the 'Delete Features with Null Geometry' option checked.
36. Run the Repair Geometry (Data Management) tool on SettlementSrf with the 'Delete Features with Null Geometry' option checked.
37. Run the Repair Geometry (Data Management) tool on StoragePnt with the 'Delete Features with Null Geometry' option checked.
38. Run the Repair Geometry (Data Management) tool on StorageSrf with the 'Delete Features with Null Geometry' option checked.
39. Run the Repair Geometry (Data Management) tool on StructureCrv with the 'Delete Features with Null Geometry' option checked.
40. Run the Repair Geometry (Data Management) tool on StructurePnt with the 'Delete Features with Null Geometry' option checked.
41. Run the Repair Geometry (Data Management) tool on StructureSrf with the 'Delete Features with Null Geometry' option checked.
42. Run the Repair Geometry (Data Management) tool on TransportationGroundCrv with the 'Delete Features with Null Geometry' option checked.
43. Run the Repair Geometry (Data Management) tool on TransportationGroundPnt with the 'Delete Features with Null Geometry' option checked.
44. Run the Repair Geometry (Data Management) tool on TransportationGroundSrf with the 'Delete Features with Null Geometry' option checked.
45. Run the Repair Geometry (Data Management) tool on TransportationWaterCrv with the 'Delete Features with Null Geometry' option checked.
46. Run the Repair Geometry (Data Management) tool on TransportationWaterPnt with the 'Delete Features with Null Geometry' option checked.
47. Run the Repair Geometry (Data Management) tool on TransportationWaterSrf with the 'Delete Features with Null Geometry' option checked.
48. Run the Repair Geometry (Data Management) tool on UtilityInfrastructureCrv with the 'Delete Features with Null Geometry' option checked.
49. Run the Repair Geometry (Data Management) tool on UtilityInfrastructurePnt with the 'Delete Features with Null Geometry' option checked.
50. Run the Repair Geometry (Data Management) tool on UtilityInfrastructureSrf with the 'Delete Features with Null Geometry' option checked.
51. Run the Repair Geometry (Data Management) tool on VegetationCrv with the 'Delete Features with Null Geometry' option checked.
52. Run the Repair Geometry (Data Management) tool on VegetationPnt with the 'Delete Features with Null Geometry' option checked.
53. Run the Repair Geometry (Data Management) tool on VegetationSrf with the 'Delete Features with Null Geometry' option checked.

## Populate F\_Codes

1. Close ArcMap and open ArcCatalog.



2. Click the GDB you are working on in the main window.
3. Click the Populate F\_Codes tool to run it on the GDB. (This is only up to TDSv7. Any F\_Code changes made in TDSv7.1+ will result in F\_Code errors in GAIT.)
4. Close ArcCatalog and reopen ArcMap.

## Calculate Default Values

1. Run the Calculate Default Values (Defense Mapping) tool on the dataset.

## Calculate Metrics

1. Open the Calculate Metrics (Defense Mapping) tool.
2. Add each line and polygon feature class (33 total) to the Input Features parameter.
3. Check the Length and Area options for Input Metric Types.
4. Under Advanced, make sure that LZN is included in the Input Length Attributes list.
5. Under Advanced, make sure that ARA is included in the Input Area Attributes list.
6. Run the tool.

## Update UFI Values

1. Add all the feature classes to an ArcMap session and start editing.
2. Make sure the Populate GUID tool is added to the Production Editing toolbar.
3. Open Editing Properties.
4. Right-click in the GUID Attributes box and choose "Add new attribute".
5. Add UFI to the list and click Apply.
6. Click the Populate GUID tool.
7. Save and stop editing.

## Integrate Hydrography Features

1. Add the HydrographyPnt, HydrographyCrv, and HydrographySrf feature classes to an ArcMap session.
2. Add the 3x3 fishnet grid you made earlier.
3. Run the Repair Geometry (Data Management) tool on the HydrographyPnt, HydrographyCrv, and HydrographySrf feature classes.
4. This process must be done on partitions of the data since the GDBs for newer projects are significantly more feature dense than they used to be. Our computers cannot handle running this process over an entire database at once.

- 
1. Select all the HydrographyPnt, HydrographyCrv, and HydrographySrf features that intersect the first grid square.
    - a. Open the Snap (Editing) tool.





- i. Choose HydrographyCurves as the Input Features.
  - ii. Choose HydrographySurfaces as the Snap Environment.
  - iii. Choose "VERTEX" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- b. Open the Snap (Editing) tool again.
  - i. Choose HydrographyCurves as the Input Features.
  - ii. Choose HydrographySurfaces as the Snap Environment.
  - iii. Choose "EDGE" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- c. Open the Integrate (Data Management) tool.
  - i. Choose HydrographySurfaces and HydrographyCurves as the Input Features.
  - ii. Set the Rank of HydrographySurfaces to 1 and the Rank of HydrographyCurves to 2.
  - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
  - iv. Run the tool.
- d. Run the Repair Geometry (Data Management) tool on HydrographySurfaces with the "Delete Features with Null Geometry" option checked.
- e. Open the Snap (Editing) tool again.
  - i. Choose HydrographyPoints as the Input Features.
  - ii. Choose HydrographyCurves as the Snap Environment.
  - iii. Choose "END" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- f. Open the Snap (Editing) tool again.
  - i. Choose HydrographyPoints as the Input Features.
  - ii. Choose HydrographyCurves as the Snap Environment.
  - iii. Choose "VERTEX" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- g. Open the Snap (Editing) tool again.
  - i. Choose HydrographyPoints as the Input Features.
  - ii. Choose HydrographyCurves as the Snap Environment.
  - iii. Choose "EDGE" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- h. Open the Integrate (Data Management) tool again.
  - i. Choose HydrographyCurves and HydrographyPoints as the Input Features.



- ii. Set the Rank of HydrographyCurves to 1 and the Rank of HydrographyPoints to 2.
    - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
    - iv. Run the tool.
  - i. Run the Repair Geometry (Data Management) tool on HydrographyCurves with the "Delete Features with Null Geometry" option checked.
  - j. Run the Repair Geometry (Data Management) tool on HydrographyPoints with the "Delete Features with Null Geometry" option checked.
- 2. Select all the HydrographyPnt, HydrographyCrv, and HydrographySrf features that intersect the second grid square.
  - a. Open the Snap (Editing) tool.
    - i. Choose HydrographyCurves as the Input Features.
    - ii. Choose HydrographySurfaces as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - b. Open the Snap (Editing) tool again.
    - i. Choose HydrographyCurves as the Input Features.
    - ii. Choose HydrographySurfaces as the Snap Environment.
    - iii. Choose "EDGE" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - c. Open the Integrate (Data Management) tool.
    - i. Choose HydrographySurfaces and HydrographyCurves as the Input Features.
    - ii. Set the Rank of HydrographySurfaces to 1 and the Rank of HydrographyCurves to 2.
    - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
    - iv. Run the tool.
  - d. Run the Repair Geometry (Data Management) tool on HydrographySurfaces with the "Delete Features with Null Geometry" option checked.
  - e. Open the Snap (Editing) tool again.
    - i. Choose HydrographyPoints as the Input Features.
    - ii. Choose HydrographyCurves as the Snap Environment.
    - iii. Choose "END" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - f. Open the Snap (Editing) tool again.
    - i. Choose HydrographyPoints as the Input Features.



- ii. Choose HydrographyCurves as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - g. Open the Snap (Editing) tool again.
    - i. Choose HydrographyPoints as the Input Features.
    - ii. Choose HydrographyCurves as the Snap Environment.
    - iii. Choose "EDGE" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - h. Open the Integrate (Data Management) tool again.
    - i. Choose HydrographyCurves and HydrographyPoints as the Input Features.
    - ii. Set the Rank of HydrographyCurves to 1 and the Rank of HydrographyPoints to 2.
    - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
    - iv. Run the tool.
  - i. Run the Repair Geometry (Data Management) tool on HydrographyCurves with the "Delete Features with Null Geometry" option checked.
  - j. Run the Repair Geometry (Data Management) tool on HydrographyPoints with the "Delete Features with Null Geometry" option checked.
- 3. Select all the HydrographyPnt, HydrographyCrv, and HydrographySrf features that intersect the third grid square.
  - a. Open the Snap (Editing) tool.
    - i. Choose HydrographyCurves as the Input Features.
    - ii. Choose HydrographySurfaces as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - b. Open the Snap (Editing) tool again.
    - i. Choose HydrographyCurves as the Input Features.
    - ii. Choose HydrographySurfaces as the Snap Environment.
    - iii. Choose "EDGE" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - c. Open the Integrate (Data Management) tool.
    - i. Choose HydrographySurfaces and HydrographyCurves as the Input Features.
    - ii. Set the Rank of HydrographySurfaces to 1 and the Rank of HydrographyCurves to 2.



- iii. Leave the XY Tolerance field blank to use the schema domain default.  
(Recommended by ESRI)
    - iv. Run the tool.
  - d. Run the Repair Geometry (Data Management) tool on HydrographySurfaces with the "Delete Features with Null Geometry" option checked.
  - e. Open the Snap (Editing) tool again.
    - i. Choose HydrographyPoints as the Input Features.
    - ii. Choose HydrographyCurves as the Snap Environment.
    - iii. Choose "END" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - f. Open the Snap (Editing) tool again.
    - i. Choose HydrographyPoints as the Input Features.
    - ii. Choose HydrographyCurves as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - g. Open the Snap (Editing) tool again.
    - i. Choose HydrographyPoints as the Input Features.
    - ii. Choose HydrographyCurves as the Snap Environment.
    - iii. Choose "EDGE" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - h. Open the Integrate (Data Management) tool again.
    - i. Choose HydrographyCurves and HydrographyPoints as the Input Features.
    - ii. Set the Rank of HydrographyCurves to 1 and the Rank of HydrographyPoints to 2.
    - iii. Leave the XY Tolerance field blank to use the schema domain default.  
(Recommended by ESRI)
    - iv. Run the tool.
  - i. Run the Repair Geometry (Data Management) tool on HydrographyCurves with the "Delete Features with Null Geometry" option checked.
  - j. Run the Repair Geometry (Data Management) tool on HydrographyPoints with the "Delete Features with Null Geometry" option checked.
- 4. Select all the HydrographyPnt, HydrographyCrv, and HydrographySrf features that intersect the fourth grid square.
  - a. Open the Snap (Editing) tool.
    - i. Choose HydrographyCurves as the Input Features.
    - ii. Choose HydrographySurfaces as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.



- v. Run the tool.
- b. Open the Snap (Editing) tool again.
  - i. Choose HydrographyCurves as the Input Features.
  - ii. Choose HydrographySurfaces as the Snap Environment.
  - iii. Choose "EDGE" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- c. Open the Integrate (Data Management) tool.
  - i. Choose HydrographySurfaces and HydrographyCurves as the Input Features.
  - ii. Set the Rank of HydrographySurfaces to 1 and the Rank of HydrographyCurves to 2.
  - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
  - iv. Run the tool.
- d. Run the Repair Geometry (Data Management) tool on HydrographySurfaces with the "Delete Features with Null Geometry" option checked.
- e. Open the Snap (Editing) tool again.
  - i. Choose HydrographyPoints as the Input Features.
  - ii. Choose HydrographyCurves as the Snap Environment.
  - iii. Choose "END" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- f. Open the Snap (Editing) tool again.
  - i. Choose HydrographyPoints as the Input Features.
  - ii. Choose HydrographyCurves as the Snap Environment.
  - iii. Choose "VERTEX" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- g. Open the Snap (Editing) tool again.
  - i. Choose HydrographyPoints as the Input Features.
  - ii. Choose HydrographyCurves as the Snap Environment.
  - iii. Choose "EDGE" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- h. Open the Integrate (Data Management) tool again.
  - i. Choose HydrographyCurves and HydrographyPoints as the Input Features.
  - ii. Set the Rank of HydrographyCurves to 1 and the Rank of HydrographyPoints to 2.
  - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
  - iv. Run the tool.



- i. Run the Repair Geometry (Data Management) tool on HydrographyCurves with the "Delete Features with Null Geometry" option checked.
  - j. Run the Repair Geometry (Data Management) tool on HydrographyPoints with the "Delete Features with Null Geometry" option checked.
5. Select all the HydrographyPnt, HydrographyCrv, and HydrographySrf features that intersect the fifth grid square.
  - a. Open the Snap (Editing) tool.
    - i. Choose HydrographyCurves as the Input Features.
    - ii. Choose HydrographySurfaces as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - b. Open the Snap (Editing) tool again.
    - i. Choose HydrographyCurves as the Input Features.
    - ii. Choose HydrographySurfaces as the Snap Environment.
    - iii. Choose "EDGE" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - c. Open the Integrate (Data Management) tool.
    - i. Choose HydrographySurfaces and HydrographyCurves as the Input Features.
    - ii. Set the Rank of HydrographySurfaces to 1 and the Rank of HydrographyCurves to 2.
    - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
    - iv. Run the tool.
  - d. Run the Repair Geometry (Data Management) tool on HydrographySurfaces with the "Delete Features with Null Geometry" option checked.
  - e. Open the Snap (Editing) tool again.
    - i. Choose HydrographyPoints as the Input Features.
    - ii. Choose HydrographyCurves as the Snap Environment.
    - iii. Choose "END" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - f. Open the Snap (Editing) tool again.
    - i. Choose HydrographyPoints as the Input Features.
    - ii. Choose HydrographyCurves as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - g. Open the Snap (Editing) tool again.



- i. Choose HydrographyPoints as the Input Features.
    - ii. Choose HydrographyCurves as the Snap Environment.
    - iii. Choose "EDGE" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - h. Open the Integrate (Data Management) tool again.
    - i. Choose HydrographyCurves and HydrographyPoints as the Input Features.
    - ii. Set the Rank of HydrographyCurves to 1 and the Rank of HydrographyPoints to 2.
    - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
    - iv. Run the tool.
  - i. Run the Repair Geometry (Data Management) tool on HydrographyCurves with the "Delete Features with Null Geometry" option checked.
  - j. Run the Repair Geometry (Data Management) tool on HydrographyPoints with the "Delete Features with Null Geometry" option checked.
6. Select all the HydrographyPnt, HydrographyCrv, and HydrographySrf features that intersect the sixth grid square.
  - a. Open the Snap (Editing) tool.
    - i. Choose HydrographyCurves as the Input Features.
    - ii. Choose HydrographySurfaces as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - b. Open the Snap (Editing) tool again.
    - i. Choose HydrographyCurves as the Input Features.
    - ii. Choose HydrographySurfaces as the Snap Environment.
    - iii. Choose "EDGE" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - c. Open the Integrate (Data Management) tool.
    - i. Choose HydrographySurfaces and HydrographyCurves as the Input Features.
    - ii. Set the Rank of HydrographySurfaces to 1 and the Rank of HydrographyCurves to 2.
    - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
    - iv. Run the tool.
  - d. Run the Repair Geometry (Data Management) tool on HydrographySurfaces with the "Delete Features with Null Geometry" option checked.
  - e. Open the Snap (Editing) tool again.



- i. Choose HydrographyPoints as the Input Features.
    - ii. Choose HydrographyCurves as the Snap Environment.
    - iii. Choose "END" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - f. Open the Snap (Editing) tool again.
    - i. Choose HydrographyPoints as the Input Features.
    - ii. Choose HydrographyCurves as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - g. Open the Snap (Editing) tool again.
    - i. Choose HydrographyPoints as the Input Features.
    - ii. Choose HydrographyCurves as the Snap Environment.
    - iii. Choose "EDGE" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - h. Open the Integrate (Data Management) tool again.
    - i. Choose HydrographyCurves and HydrographyPoints as the Input Features.
    - ii. Set the Rank of HydrographyCurves to 1 and the Rank of HydrographyPoints to 2.
    - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
    - iv. Run the tool.
  - i. Run the Repair Geometry (Data Management) tool on HydrographyCurves with the "Delete Features with Null Geometry" option checked.
  - j. Run the Repair Geometry (Data Management) tool on HydrographyPoints with the "Delete Features with Null Geometry" option checked.
7. Select all the HydrographyPnt, HydrographyCrv, and HydrographySrf features that intersect the seventh grid square.
  - a. Open the Snap (Editing) tool.
    - i. Choose HydrographyCurves as the Input Features.
    - ii. Choose HydrographySurfaces as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - b. Open the Snap (Editing) tool again.
    - i. Choose HydrographyCurves as the Input Features.
    - ii. Choose HydrographySurfaces as the Snap Environment.
    - iii. Choose "EDGE" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.





- v. Run the tool.
- c. Open the Integrate (Data Management) tool.
  - i. Choose HydrographySurfaces and HydrographyCurves as the Input Features.
  - ii. Set the Rank of HydrographySurfaces to 1 and the Rank of HydrographyCurves to 2.
  - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
  - iv. Run the tool.
- d. Run the Repair Geometry (Data Management) tool on HydrographySurfaces with the "Delete Features with Null Geometry" option checked.
- e. Open the Snap (Editing) tool again.
  - i. Choose HydrographyPoints as the Input Features.
  - ii. Choose HydrographyCurves as the Snap Environment.
  - iii. Choose "END" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- f. Open the Snap (Editing) tool again.
  - i. Choose HydrographyPoints as the Input Features.
  - ii. Choose HydrographyCurves as the Snap Environment.
  - iii. Choose "VERTEX" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- g. Open the Snap (Editing) tool again.
  - i. Choose HydrographyPoints as the Input Features.
  - ii. Choose HydrographyCurves as the Snap Environment.
  - iii. Choose "EDGE" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- h. Open the Integrate (Data Management) tool again.
  - i. Choose HydrographyCurves and HydrographyPoints as the Input Features.
  - ii. Set the Rank of HydrographyCurves to 1 and the Rank of HydrographyPoints to 2.
  - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
  - iv. Run the tool.
- i. Run the Repair Geometry (Data Management) tool on HydrographyCurves with the "Delete Features with Null Geometry" option checked.
- j. Run the Repair Geometry (Data Management) tool on HydrographyPoints with the "Delete Features with Null Geometry" option checked.



8. Select all the HydrographyPnt, HydrographyCrv, and HydrographySrf features that intersect the eighth grid square.
  - a. Open the Snap (Editing) tool.
    - i. Choose HydrographyCurves as the Input Features.
    - ii. Choose HydrographySurfaces as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - b. Open the Snap (Editing) tool again.
    - i. Choose HydrographyCurves as the Input Features.
    - ii. Choose HydrographySurfaces as the Snap Environment.
    - iii. Choose "EDGE" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - c. Open the Integrate (Data Management) tool.
    - i. Choose HydrographySurfaces and HydrographyCurves as the Input Features.
    - ii. Set the Rank of HydrographySurfaces to 1 and the Rank of HydrographyCurves to 2.
    - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
    - iv. Run the tool.
  - d. Run the Repair Geometry (Data Management) tool on HydrographySurfaces with the "Delete Features with Null Geometry" option checked.
  - e. Open the Snap (Editing) tool again.
    - i. Choose HydrographyPoints as the Input Features.
    - ii. Choose HydrographyCurves as the Snap Environment.
    - iii. Choose "END" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - f. Open the Snap (Editing) tool again.
    - i. Choose HydrographyPoints as the Input Features.
    - ii. Choose HydrographyCurves as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - g. Open the Snap (Editing) tool again.
    - i. Choose HydrographyPoints as the Input Features.
    - ii. Choose HydrographyCurves as the Snap Environment.
    - iii. Choose "EDGE" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.



- h. Open the Integrate (Data Management) tool again.
    - i. Choose HydrographyCurves and HydrographyPoints as the Input Features.
    - ii. Set the Rank of HydrographyCurves to 1 and the Rank of HydrographyPoints to 2.
    - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
    - iv. Run the tool.
  - i. Run the Repair Geometry (Data Management) tool on HydrographyCurves with the "Delete Features with Null Geometry" option checked.
  - j. Run the Repair Geometry (Data Management) tool on HydrographyPoints with the "Delete Features with Null Geometry" option checked.
9. Select all the HydrographyPnt, HydrographyCrv, and HydrographySrf features that intersect the ninth grid square.
  - a. Open the Snap (Editing) tool.
    - i. Choose HydrographyCurves as the Input Features.
    - ii. Choose HydrographySurfaces as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - b. Open the Snap (Editing) tool again.
    - i. Choose HydrographyCurves as the Input Features.
    - ii. Choose HydrographySurfaces as the Snap Environment.
    - iii. Choose "EDGE" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - c. Open the Integrate (Data Management) tool.
    - i. Choose HydrographySurfaces and HydrographyCurves as the Input Features.
    - ii. Set the Rank of HydrographySurfaces to 1 and the Rank of HydrographyCurves to 2.
    - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
    - iv. Run the tool.
  - d. Run the Repair Geometry (Data Management) tool on HydrographySurfaces with the "Delete Features with Null Geometry" option checked.
  - e. Open the Snap (Editing) tool again.
    - i. Choose HydrographyPoints as the Input Features.
    - ii. Choose HydrographyCurves as the Snap Environment.
    - iii. Choose "END" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.



- f. Open the Snap (Editing) tool again.
  - i. Choose HydrographyPoints as the Input Features.
  - ii. Choose HydrographyCurves as the Snap Environment.
  - iii. Choose "VERTEX" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- g. Open the Snap (Editing) tool again.
  - i. Choose HydrographyPoints as the Input Features.
  - ii. Choose HydrographyCurves as the Snap Environment.
  - iii. Choose "EDGE" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- h. Open the Integrate (Data Management) tool again.
  - i. Choose HydrographyCurves and HydrographyPoints as the Input Features.
  - ii. Set the Rank of HydrographyCurves to 1 and the Rank of HydrographyPoints to 2.
  - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
  - iv. Run the tool.
- i. Run the Repair Geometry (Data Management) tool on HydrographyCurves with the "Delete Features with Null Geometry" option checked.
- j. Run the Repair Geometry (Data Management) tool on HydrographyPoints with the "Delete Features with Null Geometry" option checked.

## Integrate Transportation Features

1. Add the TransportationGroundPnt, TransportationGroundCrv, and TransportationGroundSrf feature classes to an ArcMap session.
2. Add the 3x3 fishnet grid you made earlier.
3. Run the Repair Geometry (Data Management) tool on the TransportationGroundPnt, TransportationGroundCrv, and TransportationGroundSrf feature classes.
4. This process must be done on partitions of the data since the GDBs for newer projects are significantly more feature dense than they used to be. Our computers cannot handle running this process over an entire database at once.

- 
1. Select all the TransportationGroundPnt, TransportationGroundCrv, and TransportationGroundSrf features that intersect the first grid square.
    - a. Open the Snap (Editing) tool.
      - i. Choose TransportationGroundCurves as the Input Features.
      - ii. Choose TransportationGroundSurfaces as the Snap Environment.
      - iii. Choose "VERTEX" as the Type.
      - iv. Type "0.03 Meters" for the Distance option.



- v. Run the tool.
- b. Open the Snap (Editing) tool again.
  - i. Choose TransportationGroundCurves as the Input Features.
  - ii. Choose TransportationGroundSurfaces as the Snap Environment.
  - iii. Choose "EDGE" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- c. Open the Integrate (Data Management) tool.
  - i. Choose TransportationGroundSurfaces and TransportationGroundCurves as the Input Features.
  - ii. Set the Rank of TransportationGroundSurfaces to 1 and the Rank of TransportationGroundCurves to 2.
  - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
  - iv. Run the tool.
- d. Run the Repair Geometry (Data Management) tool on TransportationGroundSurfaces with the "Delete Features with Null Geometry" option checked.
- e. Open the Snap (Editing) tool again.
  - i. Choose TransportationGroundPoints as the Input Features.
  - ii. Choose TransportationGroundCurves as the Snap Environment.
  - iii. Choose "END" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- f. Open the Snap (Editing) tool again.
  - i. Choose TransportationGroundPoints as the Input Features.
  - ii. Choose TransportationGroundCurves as the Snap Environment.
  - iii. Choose "VERTEX" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- g. Open the Snap (Editing) tool again.
  - i. Choose TransportationGroundPoints as the Input Features.
  - ii. Choose TransportationGroundCurves as the Snap Environment.
  - iii. Choose "EDGE" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- h. Open the Integrate (Data Management) tool again.
  - i. Choose TransportationGroundCurves and TransportationGroundPoints as the Input Features.
  - ii. Set the Rank of TransportationGroundCurves to 1 and the Rank of TransportationGroundPoints to 2.



- iii. Leave the XY Tolerance field blank to use the schema domain default.  
(Recommended by ESRI)
    - iv. Run the tool.
  - i. Run the Repair Geometry (Data Management) tool on TransportationGroundCurves with the "Delete Features with Null Geometry" option checked.
  - j. Run the Repair Geometry (Data Management) tool on TransportationGroundPoints with the "Delete Features with Null Geometry" option checked.
- 2. Select all the TransportationGroundPnt, TransportationGroundCrv, and TransportationGroundSrf features that intersect the second grid square.
  - a. Open the Snap (Editing) tool.
    - i. Choose TransportationGroundCurves as the Input Features.
    - ii. Choose TransportationGroundSurfaces as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - b. Open the Snap (Editing) tool again.
    - i. Choose TransportationGroundCurves as the Input Features.
    - ii. Choose TransportationGroundSurfaces as the Snap Environment.
    - iii. Choose "EDGE" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - c. Open the Integrate (Data Management) tool.
    - i. Choose TransportationGroundSurfaces and TransportationGroundCurves as the Input Features.
    - ii. Set the Rank of TransportationGroundSurfaces to 1 and the Rank of TransportationGroundCurves to 2.
    - iii. Leave the XY Tolerance field blank to use the schema domain default.  
(Recommended by ESRI)
    - iv. Run the tool.
  - d. Run the Repair Geometry (Data Management) tool on TransportationGroundSurfaces with the "Delete Features with Null Geometry" option checked.
  - e. Open the Snap (Editing) tool again.
    - i. Choose TransportationGroundPoints as the Input Features.
    - ii. Choose TransportationGroundCurves as the Snap Environment.
    - iii. Choose "END" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - f. Open the Snap (Editing) tool again.



- i. Choose TransportationGroundPoints as the Input Features.
    - ii. Choose TransportationGroundCurves as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - g. Open the Snap (Editing) tool again.
    - i. Choose TransportationGroundPoints as the Input Features.
    - ii. Choose TransportationGroundCurves as the Snap Environment.
    - iii. Choose "EDGE" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - h. Open the Integrate (Data Management) tool again.
    - i. Choose TransportationGroundCurves and TransportationGroundPoints as the Input Features.
    - ii. Set the Rank of TransportationGroundCurves to 1 and the Rank of TransportationGroundPoints to 2.
    - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
    - iv. Run the tool.
  - i. Run the Repair Geometry (Data Management) tool on TransportationGroundCurves with the "Delete Features with Null Geometry" option checked.
  - j. Run the Repair Geometry (Data Management) tool on TransportationGroundPoints with the "Delete Features with Null Geometry" option checked.
3. Select all the TransportationGroundPnt, TransportationGroundCrv, and TransportationGroundSrf features that intersect the third grid square.
  - a. Open the Snap (Editing) tool.
    - i. Choose TransportationGroundCurves as the Input Features.
    - ii. Choose TransportationGroundSurfaces as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - b. Open the Snap (Editing) tool again.
    - i. Choose TransportationGroundCurves as the Input Features.
    - ii. Choose TransportationGroundSurfaces as the Snap Environment.
    - iii. Choose "EDGE" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - c. Open the Integrate (Data Management) tool.



- i. Choose TransportationGroundSurfaces and TransportationGroundCurves as the Input Features.
  - ii. Set the Rank of TransportationGroundSurfaces to 1 and the Rank of TransportationGroundCurves to 2.
  - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
  - iv. Run the tool.
- d. Run the Repair Geometry (Data Management) tool on TransportationGroundSurfaces with the "Delete Features with Null Geometry" option checked.
- e. Open the Snap (Editing) tool again.
  - i. Choose TransportationGroundPoints as the Input Features.
  - ii. Choose TransportationGroundCurves as the Snap Environment.
  - iii. Choose "END" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- f. Open the Snap (Editing) tool again.
  - i. Choose TransportationGroundPoints as the Input Features.
  - ii. Choose TransportationGroundCurves as the Snap Environment.
  - iii. Choose "VERTEX" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- g. Open the Snap (Editing) tool again.
  - i. Choose TransportationGroundPoints as the Input Features.
  - ii. Choose TransportationGroundCurves as the Snap Environment.
  - iii. Choose "EDGE" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- h. Open the Integrate (Data Management) tool again.
  - i. Choose TransportationGroundCurves and TransportationGroundPoints as the Input Features.
  - ii. Set the Rank of TransportationGroundCurves to 1 and the Rank of TransportationGroundPoints to 2.
  - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
  - iv. Run the tool.
- i. Run the Repair Geometry (Data Management) tool on TransportationGroundCurves with the "Delete Features with Null Geometry" option checked.
- j. Run the Repair Geometry (Data Management) tool on TransportationGroundPoints with the "Delete Features with Null Geometry" option checked.





4. Select all the TransportationGroundPnt, TransportationGroundCrv, and TransportationGroundSrf features that intersect the fourth grid square.
  - a. Open the Snap (Editing) tool.
    - i. Choose TransportationGroundCurves as the Input Features.
    - ii. Choose TransportationGroundSurfaces as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - b. Open the Snap (Editing) tool again.
    - i. Choose TransportationGroundCurves as the Input Features.
    - ii. Choose TransportationGroundSurfaces as the Snap Environment.
    - iii. Choose "EDGE" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - c. Open the Integrate (Data Management) tool.
    - i. Choose TransportationGroundSurfaces and TransportationGroundCurves as the Input Features.
    - ii. Set the Rank of TransportationGroundSurfaces to 1 and the Rank of TransportationGroundCurves to 2.
    - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
    - iv. Run the tool.
  - d. Run the Repair Geometry (Data Management) tool on TransportationGroundSurfaces with the "Delete Features with Null Geometry" option checked.
  - e. Open the Snap (Editing) tool again.
    - i. Choose TransportationGroundPoints as the Input Features.
    - ii. Choose TransportationGroundCurves as the Snap Environment.
    - iii. Choose "END" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - f. Open the Snap (Editing) tool again.
    - i. Choose TransportationGroundPoints as the Input Features.
    - ii. Choose TransportationGroundCurves as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - g. Open the Snap (Editing) tool again.
    - i. Choose TransportationGroundPoints as the Input Features.
    - ii. Choose TransportationGroundCurves as the Snap Environment.
    - iii. Choose "EDGE" as the Type.



- iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - h. Open the Integrate (Data Management) tool again.
    - i. Choose TransportationGroundCurves and TransportationGroundPoints as the Input Features.
    - ii. Set the Rank of TransportationGroundCurves to 1 and the Rank of TransportationGroundPoints to 2.
    - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
    - iv. Run the tool.
  - i. Run the Repair Geometry (Data Management) tool on TransportationGroundCurves with the "Delete Features with Null Geometry" option checked.
  - j. Run the Repair Geometry (Data Management) tool on TransportationGroundPoints with the "Delete Features with Null Geometry" option checked.
- 5. Select all the TransportationGroundPnt, TransportationGroundCrv, and TransportationGroundSrf features that intersect the fifth grid square.
  - a. Open the Snap (Editing) tool.
    - i. Choose TransportationGroundCurves as the Input Features.
    - ii. Choose TransportationGroundSurfaces as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - b. Open the Snap (Editing) tool again.
    - i. Choose TransportationGroundCurves as the Input Features.
    - ii. Choose TransportationGroundSurfaces as the Snap Environment.
    - iii. Choose "EDGE" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - c. Open the Integrate (Data Management) tool.
    - i. Choose TransportationGroundSurfaces and TransportationGroundCurves as the Input Features.
    - ii. Set the Rank of TransportationGroundSurfaces to 1 and the Rank of TransportationGroundCurves to 2.
    - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
    - iv. Run the tool.
  - d. Run the Repair Geometry (Data Management) tool on TransportationGroundSurfaces with the "Delete Features with Null Geometry" option checked.



- e. Open the Snap (Editing) tool again.
    - i. Choose TransportationGroundPoints as the Input Features.
    - ii. Choose TransportationGroundCurves as the Snap Environment.
    - iii. Choose "END" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - f. Open the Snap (Editing) tool again.
    - i. Choose TransportationGroundPoints as the Input Features.
    - ii. Choose TransportationGroundCurves as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - g. Open the Snap (Editing) tool again.
    - i. Choose TransportationGroundPoints as the Input Features.
    - ii. Choose TransportationGroundCurves as the Snap Environment.
    - iii. Choose "EDGE" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - h. Open the Integrate (Data Management) tool again.
    - i. Choose TransportationGroundCurves and TransportationGroundPoints as the Input Features.
    - ii. Set the Rank of TransportationGroundCurves to 1 and the Rank of TransportationGroundPoints to 2.
    - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
    - iv. Run the tool.
  - i. Run the Repair Geometry (Data Management) tool on TransportationGroundCurves with the "Delete Features with Null Geometry" option checked.
  - j. Run the Repair Geometry (Data Management) tool on TransportationGroundPoints with the "Delete Features with Null Geometry" option checked.
6. Select all the TransportationGroundPnt, TransportationGroundCrv, and TransportationGroundSrf features that intersect the sixth grid square.
- a. Open the Snap (Editing) tool.
    - i. Choose TransportationGroundCurves as the Input Features.
    - ii. Choose TransportationGroundSurfaces as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - b. Open the Snap (Editing) tool again.



- i. Choose TransportationGroundCurves as the Input Features.
  - ii. Choose TransportationGroundSurfaces as the Snap Environment.
  - iii. Choose "EDGE" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- c. Open the Integrate (Data Management) tool.
  - i. Choose TransportationGroundSurfaces and TransportationGroundCurves as the Input Features.
  - ii. Set the Rank of TransportationGroundSurfaces to 1 and the Rank of TransportationGroundCurves to 2.
  - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
  - iv. Run the tool.
- d. Run the Repair Geometry (Data Management) tool on TransportationGroundSurfaces with the "Delete Features with Null Geometry" option checked.
- e. Open the Snap (Editing) tool again.
  - i. Choose TransportationGroundPoints as the Input Features.
  - ii. Choose TransportationGroundCurves as the Snap Environment.
  - iii. Choose "END" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- f. Open the Snap (Editing) tool again.
  - i. Choose TransportationGroundPoints as the Input Features.
  - ii. Choose TransportationGroundCurves as the Snap Environment.
  - iii. Choose "VERTEX" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- g. Open the Snap (Editing) tool again.
  - i. Choose TransportationGroundPoints as the Input Features.
  - ii. Choose TransportationGroundCurves as the Snap Environment.
  - iii. Choose "EDGE" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- h. Open the Integrate (Data Management) tool again.
  - i. Choose TransportationGroundCurves and TransportationGroundPoints as the Input Features.
  - ii. Set the Rank of TransportationGroundCurves to 1 and the Rank of TransportationGroundPoints to 2.
  - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
  - iv. Run the tool.



- i. Run the Repair Geometry (Data Management) tool on TransportationGroundCurves with the "Delete Features with Null Geometry" option checked.
  - j. Run the Repair Geometry (Data Management) tool on TransportationGroundPoints with the "Delete Features with Null Geometry" option checked.
7. Select all the TransportationGroundPnt, TransportationGroundCrv, and TransportationGroundSrf features that intersect the seventh grid square.
  - a. Open the Snap (Editing) tool.
    - i. Choose TransportationGroundCurves as the Input Features.
    - ii. Choose TransportationGroundSurfaces as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - b. Open the Snap (Editing) tool again.
    - i. Choose TransportationGroundCurves as the Input Features.
    - ii. Choose TransportationGroundSurfaces as the Snap Environment.
    - iii. Choose "EDGE" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - c. Open the Integrate (Data Management) tool.
    - i. Choose TransportationGroundSurfaces and TransportationGroundCurves as the Input Features.
    - ii. Set the Rank of TransportationGroundSurfaces to 1 and the Rank of TransportationGroundCurves to 2.
    - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
    - iv. Run the tool.
  - d. Run the Repair Geometry (Data Management) tool on TransportationGroundSurfaces with the "Delete Features with Null Geometry" option checked.
  - e. Open the Snap (Editing) tool again.
    - i. Choose TransportationGroundPoints as the Input Features.
    - ii. Choose TransportationGroundCurves as the Snap Environment.
    - iii. Choose "END" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - f. Open the Snap (Editing) tool again.
    - i. Choose TransportationGroundPoints as the Input Features.
    - ii. Choose TransportationGroundCurves as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.



- iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - g. Open the Snap (Editing) tool again.
    - i. Choose TransportationGroundPoints as the Input Features.
    - ii. Choose TransportationGroundCurves as the Snap Environment.
    - iii. Choose "EDGE" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - h. Open the Integrate (Data Management) tool again.
    - i. Choose TransportationGroundCurves and TransportationGroundPoints as the Input Features.
    - ii. Set the Rank of TransportationGroundCurves to 1 and the Rank of TransportationGroundPoints to 2.
    - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
    - iv. Run the tool.
  - i. Run the Repair Geometry (Data Management) tool on TransportationGroundCurves with the "Delete Features with Null Geometry" option checked.
  - j. Run the Repair Geometry (Data Management) tool on TransportationGroundPoints with the "Delete Features with Null Geometry" option checked.
- 8. Select all the TransportationGroundPnt, TransportationGroundCrv, and TransportationGroundSrf features that intersect the eighth grid square.
  - a. Open the Snap (Editing) tool.
    - i. Choose TransportationGroundCurves as the Input Features.
    - ii. Choose TransportationGroundSurfaces as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - b. Open the Snap (Editing) tool again.
    - i. Choose TransportationGroundCurves as the Input Features.
    - ii. Choose TransportationGroundSurfaces as the Snap Environment.
    - iii. Choose "EDGE" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - c. Open the Integrate (Data Management) tool.
    - i. Choose TransportationGroundSurfaces and TransportationGroundCurves as the Input Features.
    - ii. Set the Rank of TransportationGroundSurfaces to 1 and the Rank of TransportationGroundCurves to 2.



- iii. Leave the XY Tolerance field blank to use the schema domain default.  
(Recommended by ESRI)
    - iv. Run the tool.
  - d. Run the Repair Geometry (Data Management) tool on TransportationGroundSurfaces with the "Delete Features with Null Geometry" option checked.
  - e. Open the Snap (Editing) tool again.
    - i. Choose TransportationGroundPoints as the Input Features.
    - ii. Choose TransportationGroundCurves as the Snap Environment.
    - iii. Choose "END" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - f. Open the Snap (Editing) tool again.
    - i. Choose TransportationGroundPoints as the Input Features.
    - ii. Choose TransportationGroundCurves as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - g. Open the Snap (Editing) tool again.
    - i. Choose TransportationGroundPoints as the Input Features.
    - ii. Choose TransportationGroundCurves as the Snap Environment.
    - iii. Choose "EDGE" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - h. Open the Integrate (Data Management) tool again.
    - i. Choose TransportationGroundCurves and TransportationGroundPoints as the Input Features.
    - ii. Set the Rank of TransportationGroundCurves to 1 and the Rank of TransportationGroundPoints to 2.
    - iii. Leave the XY Tolerance field blank to use the schema domain default.  
(Recommended by ESRI)
    - iv. Run the tool.
  - i. Run the Repair Geometry (Data Management) tool on TransportationGroundCurves with the "Delete Features with Null Geometry" option checked.
  - j. Run the Repair Geometry (Data Management) tool on TransportationGroundPoints with the "Delete Features with Null Geometry" option checked.
- 9. Select all the TransportationGroundPnt, TransportationGroundCrv, and TransportationGroundSrf features that intersect the ninth grid square.
  - a. Open the Snap (Editing) tool.



- i. Choose TransportationGroundCurves as the Input Features.
  - ii. Choose TransportationGroundSurfaces as the Snap Environment.
  - iii. Choose "VERTEX" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- b. Open the Snap (Editing) tool again.
  - i. Choose TransportationGroundCurves as the Input Features.
  - ii. Choose TransportationGroundSurfaces as the Snap Environment.
  - iii. Choose "EDGE" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- c. Open the Integrate (Data Management) tool.
  - i. Choose TransportationGroundSurfaces and TransportationGroundCurves as the Input Features.
  - ii. Set the Rank of TransportationGroundSurfaces to 1 and the Rank of TransportationGroundCurves to 2.
  - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
  - iv. Run the tool.
- d. Run the Repair Geometry (Data Management) tool on TransportationGroundSurfaces with the "Delete Features with Null Geometry" option checked.
- e. Open the Snap (Editing) tool again.
  - i. Choose TransportationGroundPoints as the Input Features.
  - ii. Choose TransportationGroundCurves as the Snap Environment.
  - iii. Choose "END" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- f. Open the Snap (Editing) tool again.
  - i. Choose TransportationGroundPoints as the Input Features.
  - ii. Choose TransportationGroundCurves as the Snap Environment.
  - iii. Choose "VERTEX" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- g. Open the Snap (Editing) tool again.
  - i. Choose TransportationGroundPoints as the Input Features.
  - ii. Choose TransportationGroundCurves as the Snap Environment.
  - iii. Choose "EDGE" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- h. Open the Integrate (Data Management) tool again.





- i. Choose TransportationGroundCurves and TransportationGroundPoints as the Input Features.
  - ii. Set the Rank of TransportationGroundCurves to 1 and the Rank of TransportationGroundPoints to 2.
  - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
  - iv. Run the tool.
- i. Run the Repair Geometry (Data Management) tool on TransportationGroundCurves with the "Delete Features with Null Geometry" option checked.
- j. Run the Repair Geometry (Data Management) tool on TransportationGroundPoints with the "Delete Features with Null Geometry" option checked.

## Integrate Utility Features

1. Add the UtilityInfrastructurePnt, UtilityInfrastructureCrv, and UtilityInfrastructureSrf feature classes to an ArcMap session.
  2. Add the 3x3 fishnet grid you made earlier.
  3. Run the Repair Geometry (Data Management) tool on the UtilityInfrastructurePnt, UtilityInfrastructureCrv, and UtilityInfrastructureSrf feature classes.
  4. Add a Definition Query to UtilityInfrastructurePoints to only load Pylons. (FCSUBTYPE = 100558)
  5. Add a Definition Query to UtilityInfrastructureCurves to only load Cables. (FCSUBTYPE = 100199)
  6. This process must be done on partitions of the data since the GDBs for newer projects are significantly more feature dense than they used to be. Our computers cannot handle running this process over an entire database at once.
- 
1. Select all the Pylons, Cables, and UtilityInfrastructureSurfaces that intersect the first grid square.
    - a. Open the Snap (Editing) tool.
      - i. Choose UtilityInfrastructureCurves as the Input Features.
      - ii. Choose UtilityInfrastructureSurfaces as the Snap Environment.
      - iii. Choose "VERTEX" as the Type.
      - iv. Type "0.03 Meters" for the Distance option.
      - v. Run the tool.
    - b. Open the Snap (Editing) tool again.
      - i. Choose UtilityInfrastructureCurves as the Input Features.
      - ii. Choose UtilityInfrastructureSurfaces as the Snap Environment.
      - iii. Choose "EDGE" as the Type.
      - iv. Type "0.03 Meters" for the Distance option.



- v. Run the tool.
- c. Open the Integrate (Data Management) tool.
  - i. Choose UtilityInfrastructureSurfaces and UtilityInfrastructureCurves as the Input Features.
  - ii. Set the Rank of UtilityInfrastructureSurfaces to 1 and the Rank of UtilityInfrastructureCurves to 2.
  - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
  - iv. Run the tool.
- d. Run the Repair Geometry (Data Management) tool on UtilityInfrastructureSurfaces with the "Delete Features with Null Geometry" option checked.
- e. Open the Snap (Editing) tool again.
  - i. Choose UtilityInfrastructurePoints as the Input Features.
  - ii. Choose UtilityInfrastructureCurves as the Snap Environment.
  - iii. Choose "END" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- f. Open the Snap (Editing) tool again.
  - i. Choose UtilityInfrastructurePoints as the Input Features.
  - ii. Choose UtilityInfrastructureCurves as the Snap Environment.
  - iii. Choose "VERTEX" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- g. Open the Snap (Editing) tool again.
  - i. Choose UtilityInfrastructurePoints as the Input Features.
  - ii. Choose UtilityInfrastructureCurves as the Snap Environment.
  - iii. Choose "EDGE" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- h. Open the Integrate (Data Management) tool again.
  - i. Choose UtilityInfrastructureCurves and UtilityInfrastructurePoints as the Input Features.
  - ii. Set the Rank of UtilityInfrastructureCurves to 1 and the Rank of UtilityInfrastructurePoints to 2.
  - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
  - iv. Run the tool.
- i. Run the Repair Geometry (Data Management) tool on UtilityInfrastructureCurves with the "Delete Features with Null Geometry" option checked.
- j. Run the Repair Geometry (Data Management) tool on UtilityInfrastructurePoints with the "Delete Features with Null Geometry" option checked.



2. Select all the Pylons, Cables, and UtilityInfrastructureSurfaces that intersect the second grid square.
  - a. Open the Snap (Editing) tool.
    - i. Choose UtilityInfrastructureCurves as the Input Features.
    - ii. Choose UtilityInfrastructureSurfaces as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - b. Open the Snap (Editing) tool again.
    - i. Choose UtilityInfrastructureCurves as the Input Features.
    - ii. Choose UtilityInfrastructureSurfaces as the Snap Environment.
    - iii. Choose "EDGE" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - c. Open the Integrate (Data Management) tool.
    - i. Choose UtilityInfrastructureSurfaces and UtilityInfrastructureCurves as the Input Features.
    - ii. Set the Rank of UtilityInfrastructureSurfaces to 1 and the Rank of UtilityInfrastructureCurves to 2.
    - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
    - iv. Run the tool.
  - d. Run the Repair Geometry (Data Management) tool on UtilityInfrastructureSurfaces with the "Delete Features with Null Geometry" option checked.
  - e. Open the Snap (Editing) tool again.
    - i. Choose UtilityInfrastructurePoints as the Input Features.
    - ii. Choose UtilityInfrastructureCurves as the Snap Environment.
    - iii. Choose "END" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - f. Open the Snap (Editing) tool again.
    - i. Choose UtilityInfrastructurePoints as the Input Features.
    - ii. Choose UtilityInfrastructureCurves as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - g. Open the Snap (Editing) tool again.
    - i. Choose UtilityInfrastructurePoints as the Input Features.
    - ii. Choose UtilityInfrastructureCurves as the Snap Environment.
    - iii. Choose "EDGE" as the Type.



- iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - h. Open the Integrate (Data Management) tool again.
    - i. Choose UtilityInfrastructureCurves and UtilityInfrastructurePoints as the Input Features.
    - ii. Set the Rank of UtilityInfrastructureCurves to 1 and the Rank of UtilityInfrastructurePoints to 2.
    - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
    - iv. Run the tool.
  - i. Run the Repair Geometry (Data Management) tool on UtilityInfrastructureCurves with the "Delete Features with Null Geometry" option checked.
  - j. Run the Repair Geometry (Data Management) tool on UtilityInfrastructurePoints with the "Delete Features with Null Geometry" option checked.
- 3. Select all the Pylons, Cables, and UtilityInfrastructureSurfaces that intersect the third grid square.
  - a. Open the Snap (Editing) tool.
    - i. Choose UtilityInfrastructureCurves as the Input Features.
    - ii. Choose UtilityInfrastructureSurfaces as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - b. Open the Snap (Editing) tool again.
    - i. Choose UtilityInfrastructureCurves as the Input Features.
    - ii. Choose UtilityInfrastructureSurfaces as the Snap Environment.
    - iii. Choose "EDGE" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - c. Open the Integrate (Data Management) tool.
    - i. Choose UtilityInfrastructureSurfaces and UtilityInfrastructureCurves as the Input Features.
    - ii. Set the Rank of UtilityInfrastructureSurfaces to 1 and the Rank of UtilityInfrastructureCurves to 2.
    - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
    - iv. Run the tool.
  - d. Run the Repair Geometry (Data Management) tool on UtilityInfrastructureSurfaces with the "Delete Features with Null Geometry" option checked.
  - e. Open the Snap (Editing) tool again.
    - i. Choose UtilityInfrastructurePoints as the Input Features.



- ii. Choose UtilityInfrastructureCurves as the Snap Environment.
    - iii. Choose "END" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - f. Open the Snap (Editing) tool again.
    - i. Choose UtilityInfrastructurePoints as the Input Features.
    - ii. Choose UtilityInfrastructureCurves as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - g. Open the Snap (Editing) tool again.
    - i. Choose UtilityInfrastructurePoints as the Input Features.
    - ii. Choose UtilityInfrastructureCurves as the Snap Environment.
    - iii. Choose "EDGE" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - h. Open the Integrate (Data Management) tool again.
    - i. Choose UtilityInfrastructureCurves and UtilityInfrastructurePoints as the Input Features.
    - ii. Set the Rank of UtilityInfrastructureCurves to 1 and the Rank of UtilityInfrastructurePoints to 2.
    - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
    - iv. Run the tool.
  - i. Run the Repair Geometry (Data Management) tool on UtilityInfrastructureCurves with the "Delete Features with Null Geometry" option checked.
  - j. Run the Repair Geometry (Data Management) tool on UtilityInfrastructurePoints with the "Delete Features with Null Geometry" option checked.
- 4. Select all the Pylons, Cables, and UtilityInfrastructureSurfaces that intersect the fourth grid square.
  - a. Open the Snap (Editing) tool.
    - i. Choose UtilityInfrastructureCurves as the Input Features.
    - ii. Choose UtilityInfrastructureSurfaces as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - b. Open the Snap (Editing) tool again.
    - i. Choose UtilityInfrastructureCurves as the Input Features.
    - ii. Choose UtilityInfrastructureSurfaces as the Snap Environment.
    - iii. Choose "EDGE" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.



- v. Run the tool.
- c. Open the Integrate (Data Management) tool.
  - i. Choose UtilityInfrastructureSurfaces and UtilityInfrastructureCurves as the Input Features.
  - ii. Set the Rank of UtilityInfrastructureSurfaces to 1 and the Rank of UtilityInfrastructureCurves to 2.
  - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
  - iv. Run the tool.
- d. Run the Repair Geometry (Data Management) tool on UtilityInfrastructureSurfaces with the "Delete Features with Null Geometry" option checked.
- e. Open the Snap (Editing) tool again.
  - i. Choose UtilityInfrastructurePoints as the Input Features.
  - ii. Choose UtilityInfrastructureCurves as the Snap Environment.
  - iii. Choose "END" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- f. Open the Snap (Editing) tool again.
  - i. Choose UtilityInfrastructurePoints as the Input Features.
  - ii. Choose UtilityInfrastructureCurves as the Snap Environment.
  - iii. Choose "VERTEX" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- g. Open the Snap (Editing) tool again.
  - i. Choose UtilityInfrastructurePoints as the Input Features.
  - ii. Choose UtilityInfrastructureCurves as the Snap Environment.
  - iii. Choose "EDGE" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- h. Open the Integrate (Data Management) tool again.
  - i. Choose UtilityInfrastructureCurves and UtilityInfrastructurePoints as the Input Features.
  - ii. Set the Rank of UtilityInfrastructureCurves to 1 and the Rank of UtilityInfrastructurePoints to 2.
  - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
  - iv. Run the tool.
- i. Run the Repair Geometry (Data Management) tool on UtilityInfrastructureCurves with the "Delete Features with Null Geometry" option checked.
- j. Run the Repair Geometry (Data Management) tool on UtilityInfrastructurePoints with the "Delete Features with Null Geometry" option checked.



5. Select all the Pylons, Cables, and UtilityInfrastructureSurfaces that intersect the fifth grid square.
  - a. Open the Snap (Editing) tool.
    - i. Choose UtilityInfrastructureCurves as the Input Features.
    - ii. Choose UtilityInfrastructureSurfaces as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - b. Open the Snap (Editing) tool again.
    - i. Choose UtilityInfrastructureCurves as the Input Features.
    - ii. Choose UtilityInfrastructureSurfaces as the Snap Environment.
    - iii. Choose "EDGE" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - c. Open the Integrate (Data Management) tool.
    - i. Choose UtilityInfrastructureSurfaces and UtilityInfrastructureCurves as the Input Features.
    - ii. Set the Rank of UtilityInfrastructureSurfaces to 1 and the Rank of UtilityInfrastructureCurves to 2.
    - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
    - iv. Run the tool.
  - d. Run the Repair Geometry (Data Management) tool on UtilityInfrastructureSurfaces with the "Delete Features with Null Geometry" option checked.
  - e. Open the Snap (Editing) tool again.
    - i. Choose UtilityInfrastructurePoints as the Input Features.
    - ii. Choose UtilityInfrastructureCurves as the Snap Environment.
    - iii. Choose "END" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - f. Open the Snap (Editing) tool again.
    - i. Choose UtilityInfrastructurePoints as the Input Features.
    - ii. Choose UtilityInfrastructureCurves as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - g. Open the Snap (Editing) tool again.
    - i. Choose UtilityInfrastructurePoints as the Input Features.
    - ii. Choose UtilityInfrastructureCurves as the Snap Environment.
    - iii. Choose "EDGE" as the Type.



- iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - h. Open the Integrate (Data Management) tool again.
    - i. Choose UtilityInfrastructureCurves and UtilityInfrastructurePoints as the Input Features.
    - ii. Set the Rank of UtilityInfrastructureCurves to 1 and the Rank of UtilityInfrastructurePoints to 2.
    - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
    - iv. Run the tool.
  - i. Run the Repair Geometry (Data Management) tool on UtilityInfrastructureCurves with the "Delete Features with Null Geometry" option checked.
  - j. Run the Repair Geometry (Data Management) tool on UtilityInfrastructurePoints with the "Delete Features with Null Geometry" option checked.
- 6. Select all the Pylons, Cables, and UtilityInfrastructureSurfaces that intersect the sixth grid square.
  - a. Open the Snap (Editing) tool.
    - i. Choose UtilityInfrastructureCurves as the Input Features.
    - ii. Choose UtilityInfrastructureSurfaces as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - b. Open the Snap (Editing) tool again.
    - i. Choose UtilityInfrastructureCurves as the Input Features.
    - ii. Choose UtilityInfrastructureSurfaces as the Snap Environment.
    - iii. Choose "EDGE" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - c. Open the Integrate (Data Management) tool.
    - i. Choose UtilityInfrastructureSurfaces and UtilityInfrastructureCurves as the Input Features.
    - ii. Set the Rank of UtilityInfrastructureSurfaces to 1 and the Rank of UtilityInfrastructureCurves to 2.
    - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
    - iv. Run the tool.
  - d. Run the Repair Geometry (Data Management) tool on UtilityInfrastructureSurfaces with the "Delete Features with Null Geometry" option checked.
  - e. Open the Snap (Editing) tool again.
    - i. Choose UtilityInfrastructurePoints as the Input Features.





- ii. Choose UtilityInfrastructureCurves as the Snap Environment.
    - iii. Choose "END" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - f. Open the Snap (Editing) tool again.
    - i. Choose UtilityInfrastructurePoints as the Input Features.
    - ii. Choose UtilityInfrastructureCurves as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - g. Open the Snap (Editing) tool again.
    - i. Choose UtilityInfrastructurePoints as the Input Features.
    - ii. Choose UtilityInfrastructureCurves as the Snap Environment.
    - iii. Choose "EDGE" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - h. Open the Integrate (Data Management) tool again.
    - i. Choose UtilityInfrastructureCurves and UtilityInfrastructurePoints as the Input Features.
    - ii. Set the Rank of UtilityInfrastructureCurves to 1 and the Rank of UtilityInfrastructurePoints to 2.
    - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
    - iv. Run the tool.
  - i. Run the Repair Geometry (Data Management) tool on UtilityInfrastructureCurves with the "Delete Features with Null Geometry" option checked.
  - j. Run the Repair Geometry (Data Management) tool on UtilityInfrastructurePoints with the "Delete Features with Null Geometry" option checked.
- 7. Select all the Pylons, Cables, and UtilityInfrastructureSurfaces that intersect the seventh grid square.
  - a. Open the Snap (Editing) tool.
    - i. Choose UtilityInfrastructureCurves as the Input Features.
    - ii. Choose UtilityInfrastructureSurfaces as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - b. Open the Snap (Editing) tool again.
    - i. Choose UtilityInfrastructureCurves as the Input Features.
    - ii. Choose UtilityInfrastructureSurfaces as the Snap Environment.
    - iii. Choose "EDGE" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.



- v. Run the tool.
- c. Open the Integrate (Data Management) tool.
  - i. Choose UtilityInfrastructureSurfaces and UtilityInfrastructureCurves as the Input Features.
  - ii. Set the Rank of UtilityInfrastructureSurfaces to 1 and the Rank of UtilityInfrastructureCurves to 2.
  - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
  - iv. Run the tool.
- d. Run the Repair Geometry (Data Management) tool on UtilityInfrastructureSurfaces with the "Delete Features with Null Geometry" option checked.
- e. Open the Snap (Editing) tool again.
  - i. Choose UtilityInfrastructurePoints as the Input Features.
  - ii. Choose UtilityInfrastructureCurves as the Snap Environment.
  - iii. Choose "END" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- f. Open the Snap (Editing) tool again.
  - i. Choose UtilityInfrastructurePoints as the Input Features.
  - ii. Choose UtilityInfrastructureCurves as the Snap Environment.
  - iii. Choose "VERTEX" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- g. Open the Snap (Editing) tool again.
  - i. Choose UtilityInfrastructurePoints as the Input Features.
  - ii. Choose UtilityInfrastructureCurves as the Snap Environment.
  - iii. Choose "EDGE" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- h. Open the Integrate (Data Management) tool again.
  - i. Choose UtilityInfrastructureCurves and UtilityInfrastructurePoints as the Input Features.
  - ii. Set the Rank of UtilityInfrastructureCurves to 1 and the Rank of UtilityInfrastructurePoints to 2.
  - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
  - iv. Run the tool.
- i. Run the Repair Geometry (Data Management) tool on UtilityInfrastructureCurves with the "Delete Features with Null Geometry" option checked.
- j. Run the Repair Geometry (Data Management) tool on UtilityInfrastructurePoints with the "Delete Features with Null Geometry" option checked.



8. Select all the Pylons, Cables, and UtilityInfrastructureSurfaces that intersect the eighth grid square.
  - a. Open the Snap (Editing) tool.
    - i. Choose UtilityInfrastructureCurves as the Input Features.
    - ii. Choose UtilityInfrastructureSurfaces as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - b. Open the Snap (Editing) tool again.
    - i. Choose UtilityInfrastructureCurves as the Input Features.
    - ii. Choose UtilityInfrastructureSurfaces as the Snap Environment.
    - iii. Choose "EDGE" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - c. Open the Integrate (Data Management) tool.
    - i. Choose UtilityInfrastructureSurfaces and UtilityInfrastructureCurves as the Input Features.
    - ii. Set the Rank of UtilityInfrastructureSurfaces to 1 and the Rank of UtilityInfrastructureCurves to 2.
    - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
    - iv. Run the tool.
  - d. Run the Repair Geometry (Data Management) tool on UtilityInfrastructureSurfaces with the "Delete Features with Null Geometry" option checked.
  - e. Open the Snap (Editing) tool again.
    - i. Choose UtilityInfrastructurePoints as the Input Features.
    - ii. Choose UtilityInfrastructureCurves as the Snap Environment.
    - iii. Choose "END" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - f. Open the Snap (Editing) tool again.
    - i. Choose UtilityInfrastructurePoints as the Input Features.
    - ii. Choose UtilityInfrastructureCurves as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - g. Open the Snap (Editing) tool again.
    - i. Choose UtilityInfrastructurePoints as the Input Features.
    - ii. Choose UtilityInfrastructureCurves as the Snap Environment.
    - iii. Choose "EDGE" as the Type.



- iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - h. Open the Integrate (Data Management) tool again.
    - i. Choose UtilityInfrastructureCurves and UtilityInfrastructurePoints as the Input Features.
    - ii. Set the Rank of UtilityInfrastructureCurves to 1 and the Rank of UtilityInfrastructurePoints to 2.
    - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
    - iv. Run the tool.
  - i. Run the Repair Geometry (Data Management) tool on UtilityInfrastructureCurves with the "Delete Features with Null Geometry" option checked.
  - j. Run the Repair Geometry (Data Management) tool on UtilityInfrastructurePoints with the "Delete Features with Null Geometry" option checked.
- 9. Select all the Pylons, Cables, and UtilityInfrastructureSurfaces that intersect the ninth grid square.
  - a. Open the Snap (Editing) tool.
    - i. Choose UtilityInfrastructureCurves as the Input Features.
    - ii. Choose UtilityInfrastructureSurfaces as the Snap Environment.
    - iii. Choose "VERTEX" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - b. Open the Snap (Editing) tool again.
    - i. Choose UtilityInfrastructureCurves as the Input Features.
    - ii. Choose UtilityInfrastructureSurfaces as the Snap Environment.
    - iii. Choose "EDGE" as the Type.
    - iv. Type "0.03 Meters" for the Distance option.
    - v. Run the tool.
  - c. Open the Integrate (Data Management) tool.
    - i. Choose UtilityInfrastructureSurfaces and UtilityInfrastructureCurves as the Input Features.
    - ii. Set the Rank of UtilityInfrastructureSurfaces to 1 and the Rank of UtilityInfrastructureCurves to 2.
    - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
    - iv. Run the tool.
  - d. Run the Repair Geometry (Data Management) tool on UtilityInfrastructureSurfaces with the "Delete Features with Null Geometry" option checked.
  - e. Open the Snap (Editing) tool again.
    - i. Choose UtilityInfrastructurePoints as the Input Features.



- ii. Choose UtilityInfrastructureCurves as the Snap Environment.
  - iii. Choose "END" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- f. Open the Snap (Editing) tool again.
  - i. Choose UtilityInfrastructurePoints as the Input Features.
  - ii. Choose UtilityInfrastructureCurves as the Snap Environment.
  - iii. Choose "VERTEX" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- g. Open the Snap (Editing) tool again.
  - i. Choose UtilityInfrastructurePoints as the Input Features.
  - ii. Choose UtilityInfrastructureCurves as the Snap Environment.
  - iii. Choose "EDGE" as the Type.
  - iv. Type "0.03 Meters" for the Distance option.
  - v. Run the tool.
- h. Open the Integrate (Data Management) tool again.
  - i. Choose UtilityInfrastructureCurves and UtilityInfrastructurePoints as the Input Features.
  - ii. Set the Rank of UtilityInfrastructureCurves to 1 and the Rank of UtilityInfrastructurePoints to 2.
  - iii. Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)
  - iv. Run the tool.
- i. Run the Repair Geometry (Data Management) tool on UtilityInfrastructureCurves with the "Delete Features with Null Geometry" option checked.
- j. Run the Repair Geometry (Data Management) tool on UtilityInfrastructurePoints with the "Delete Features with Null Geometry" option checked.

## Hypernova Burst Multipart Features

1. Add all feature classes to an ArcMap session and start editing.
2. Select all the features in AeronauticCrv.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
3. Select all the features in AeronauticPnt.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
4. Select all the features in AeronauticSrf.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
5. Select all the features in AgriculturePnt.



- a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
6. Select all the features in AgricultureSrf.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
7. Select all the features in BoundaryPnt.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
8. Select all the features in CultureCrv.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
9. Select all the features in CulturePnt.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
10. Select all the features in CultureSrf.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
11. Select all the features in FacilityPnt.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
12. Select all the features in FacilitySrf.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
13. Select all the features in HydroAidNavigationPnt.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
14. Select all the features in HydroAidNavigationSrf.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
15. Select all the features in HydrographyCrv.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
16. Select all the features in HydrographyPnt.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
17. Select all the features in HydrographySrf.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
18. Select all the features in IndustryCrv.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
19. Select all the features in IndustryPnt.



- a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
20. Select all the features in IndustrySrf.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
21. Select all the features in InformationCrv.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
22. Select all the features in InformationPnt.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
23. Select all the features in InformationSrf.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
24. Select all the features in MilitaryCrv.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
25. Select all the features in MilitaryPnt.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
26. Select all the features in MilitarySrf.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
27. Select all the features in PhysiographyCrv.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
28. Select all the features in PhysiographyPnt.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
29. Select all the features in PhysiographySrf.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
30. Select all the features in PortHarbourCrv.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
31. Select all the features in PortHarbourPnt.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
32. Select all the features in PortHarbourSrf.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
33. Select all the features in RecreationCrv.



- a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
34. Select all the features in RecreationPnt.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
35. Select all the features in RecreationSrf.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
36. Select all the features in SettlementPnt.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
37. Select all the features in SettlementSrf.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
38. Select all the features in StoragePnt.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
39. Select all the features in StorageSrf.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
40. Select all the features in StructureCrv.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
41. Select all the features in StructurePnt.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
42. Select all the features in StructureSrf.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
43. Select all the features in TransportationGroundCrv.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
44. Select all the features in TransportationGroundPnt.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
45. Select all the features in TransportationGroundSrf.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
46. Select all the features in TransportationWaterCrv.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
47. Select all the features in TransportationWaterPnt.





- a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
48. Select all the features in TransportationWaterSrf.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
49. Select all the features in UtilityInfrastructureCrv.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
50. Select all the features in UtilityInfrastructurePnt.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
51. Select all the features in UtilityInfrastructureSrf.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
52. Select all the features in VegetationCrv.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
53. Select all the features in VegetationPnt.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
54. Select all the features in VegetationSrf.
  - a. Click the Explode Multipart Feature tool on the Advanced Editing toolbar.
  - b. Save edits.
55. Stop editing.

## Delete Identical Features

1. Add all feature classes to an ArcMap session.
  2. For the Fields parameter in the steps below, the following fields need to be checked for each feature class:
    - Zl005\_FNA
    - Zl005\_NFN
    - Zl006\_MEM
    - Zl026\_CTUU
    - SHAPE
- 
3. Open the Delete Identical (Data Management) tool.
    - a. Add AeronauticCrv as the Input Dataset.
    - b. In the Fields box, select all of the PSG required fields for AeronauticCrv as well as the additional fields listed at the start of this section.
    - c. Run the tool.



4. Open the Delete Identical (Data Management) tool.
  - a. Add AeronauticPnt as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for AeronauticPnt as well as the additional fields listed at the start of this section.
  - c. Run the tool.
5. Open the Delete Identical (Data Management) tool.
  - a. Add AeronauticSrf as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for AeronauticSrf as well as the additional fields listed at the start of this section.
  - c. Run the tool.
6. Open the Delete Identical (Data Management) tool.
  - a. Add AgriculturePnt as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for AgriculturePnt as well as the additional fields listed at the start of this section.
  - c. Run the tool.
7. Open the Delete Identical (Data Management) tool.
  - a. Add AgricultureSrf as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for AgricultureSrf as well as the additional fields listed at the start of this section.
  - c. Run the tool.
8. Open the Delete Identical (Data Management) tool.
  - a. Add BoundaryPnt as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for BoundaryPnt as well as the additional fields listed at the start of this section.
  - c. Run the tool.
9. Open the Delete Identical (Data Management) tool.
  - a. Add CultureCrv as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for CultureCrv as well as the additional fields listed at the start of this section.
  - c. Run the tool.
10. Open the Delete Identical (Data Management) tool.
  - a. Add CulturePnt as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for CulturePnt as well as the additional fields listed at the start of this section.
  - c. Run the tool.
11. Open the Delete Identical (Data Management) tool.
  - a. Add CultureSrf as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for CultureSrf as well as the additional fields listed at the start of this section.
  - c. Run the tool.
12. Open the Delete Identical (Data Management) tool.
  - a. Add FacilityPnt as the Input Dataset.



- b. In the Fields box, select all of the PSG required fields for FacilityPnt as well as the additional fields listed at the start of this section.
  - c. Run the tool.
13. Open the Delete Identical (Data Management) tool.
  - a. Add FacilitySrf as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for FacilitySrf as well as the additional fields listed at the start of this section.
  - c. Run the tool.
14. Open the Delete Identical (Data Management) tool.
  - a. Add HydroAidNavigationPnt as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for HydroAidNavigationPnt as well as the additional fields listed at the start of this section.
  - c. Run the tool.
15. Open the Delete Identical (Data Management) tool.
  - a. Add HydroAidNavigationSrf as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for HydroAidNavigationSrf as well as the additional fields listed at the start of this section.
  - c. Run the tool.
16. Open the Delete Identical (Data Management) tool.
  - a. Add HydrographyCrv as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for HydrographyCrv as well as the additional fields listed at the start of this section.
  - c. Run the tool.
17. Open the Delete Identical (Data Management) tool.
  - a. Add HydrographyPnt as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for HydrographyPnt as well as the additional fields listed at the start of this section.
  - c. Run the tool.
18. Open the Delete Identical (Data Management) tool.
  - a. Add HydrographySrf as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for HydrographySrf as well as the additional fields listed at the start of this section.
  - c. Run the tool.
19. Open the Delete Identical (Data Management) tool.
  - a. Add IndustryCrv as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for IndustryCrv as well as the additional fields listed at the start of this section.
  - c. Run the tool.
20. Open the Delete Identical (Data Management) tool.
  - a. Add IndustryPnt as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for IndustryPnt as well as the additional fields listed at the start of this section.



- c. Run the tool.
- 21. Open the Delete Identical (Data Management) tool.
  - a. Add IndustrySrf as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for IndustrySrf as well as the additional fields listed at the start of this section.
  - c. Run the tool.
- 22. Open the Delete Identical (Data Management) tool.
  - a. Add InformationCrv as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for InformationCrv as well as the additional fields listed at the start of this section.
  - c. Run the tool.
- 23. Open the Delete Identical (Data Management) tool.
  - a. Add InformationPnt as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for InformationPnt as well as the additional fields listed at the start of this section.
  - c. Run the tool.
- 24. Open the Delete Identical (Data Management) tool.
  - a. Add InformationSrf as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for InformationSrf as well as the additional fields listed at the start of this section.
  - c. Run the tool.
- 25. Open the Delete Identical (Data Management) tool.
  - a. Add MilitaryCrv as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for MilitaryCrv as well as the additional fields listed at the start of this section.
  - c. Run the tool.
- 26. Open the Delete Identical (Data Management) tool.
  - a. Add MilitaryPnt as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for MilitaryPnt as well as the additional fields listed at the start of this section.
  - c. Run the tool.
- 27. Open the Delete Identical (Data Management) tool.
  - a. Add MilitarySrf as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for MilitarySrf as well as the additional fields listed at the start of this section.
  - c. Run the tool.
- 28. Open the Delete Identical (Data Management) tool.
  - a. Add PhysiographyCrv as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for PhysiographyCrv as well as the additional fields listed at the start of this section.
  - c. Run the tool.
- 29. Open the Delete Identical (Data Management) tool.



- a. Add PhysiographyPnt as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for PhysiographyPnt as well as the additional fields listed at the start of this section.
  - c. Run the tool.
30. Open the Delete Identical (Data Management) tool.
  - a. Add PhysiographySrf as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for PhysiographySrf as well as the additional fields listed at the start of this section.
  - c. Run the tool.
31. Open the Delete Identical (Data Management) tool.
  - a. Add PortHarbourCrv as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for PortHarbourCrv as well as the additional fields listed at the start of this section.
  - c. Run the tool.
32. Open the Delete Identical (Data Management) tool.
  - a. Add PortHarbourPnt as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for PortHarbourPnt as well as the additional fields listed at the start of this section.
  - c. Run the tool.
33. Open the Delete Identical (Data Management) tool.
  - a. Add PortHarbourSrf as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for PortHarbourSrf as well as the additional fields listed at the start of this section.
  - c. Run the tool.
34. Open the Delete Identical (Data Management) tool.
  - a. Add RecreationCrv as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for RecreationCrv as well as the additional fields listed at the start of this section.
  - c. Run the tool.
35. Open the Delete Identical (Data Management) tool.
  - a. Add RecreationPnt as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for RecreationPnt as well as the additional fields listed at the start of this section.
  - c. Run the tool.
36. Open the Delete Identical (Data Management) tool.
  - a. Add RecreationSrf as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for RecreationSrf as well as the additional fields listed at the start of this section.
  - c. Run the tool.
37. Open the Delete Identical (Data Management) tool.
  - a. Add SettlementPnt as the Input Dataset.



- b. In the Fields box, select all of the PSG required fields for SettlementPnt as well as the additional fields listed at the start of this section.
  - c. Run the tool.
- 38. Open the Delete Identical (Data Management) tool.
  - a. Add SettlementSrf as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for SettlementSrf as well as the additional fields listed at the start of this section.
  - c. Run the tool.
- 39. Open the Delete Identical (Data Management) tool.
  - a. Add StoragePnt as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for StoragePnt as well as the additional fields listed at the start of this section.
  - c. Run the tool.
- 40. Open the Delete Identical (Data Management) tool.
  - a. Add StorageSrf as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for StorageSrf as well as the additional fields listed at the start of this section.
  - c. Run the tool.
- 41. Open the Delete Identical (Data Management) tool.
  - a. Add StructureCrv as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for StructureCrv as well as the additional fields listed at the start of this section.
  - c. Run the tool.
- 42. Open the Delete Identical (Data Management) tool.
  - a. Add StructurePnt as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for StructurePnt as well as the additional fields listed at the start of this section.
  - c. Run the tool.
- 43. Open the Delete Identical (Data Management) tool.
  - a. Add StructureSrf as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for StructureSrf as well as the additional fields listed at the start of this section.
  - c. Run the tool.
- 44. Open the Delete Identical (Data Management) tool.
  - a. Add TransportationGroundCrv as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for TransportationGroundCrv as well as the additional fields listed at the start of this section.
  - c. Run the tool.
- 45. Open the Delete Identical (Data Management) tool.
  - a. Add TransportationGroundPnt as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for TransportationGroundPnt as well as the additional fields listed at the start of this section.



- c. Run the tool.
- 46. Open the Delete Identical (Data Management) tool.
  - a. Add TransportationGroundSrf as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for TransportationGroundSrf as well as the additional fields listed at the start of this section.
  - c. Run the tool.
- 47. Open the Delete Identical (Data Management) tool.
  - a. Add TransportationWaterCrv as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for TransportationWaterCrv as well as the additional fields listed at the start of this section.
  - c. Run the tool.
- 48. Open the Delete Identical (Data Management) tool.
  - a. Add TransportationWaterPnt as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for TransportationWaterPnt as well as the additional fields listed at the start of this section.
  - c. Run the tool.
- 49. Open the Delete Identical (Data Management) tool.
  - a. Add TransportationWaterSrf as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for TransportationWaterSrf as well as the additional fields listed at the start of this section.
  - c. Run the tool.
- 50. Open the Delete Identical (Data Management) tool.
  - a. Add UtilityInfrastructureCrv as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for UtilityInfrastructureCrv as well as the additional fields listed at the start of this section.
  - c. Run the tool.
- 51. Open the Delete Identical (Data Management) tool.
  - a. Add UtilityInfrastructurePnt as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for UtilityInfrastructurePnt as well as the additional fields listed at the start of this section.
  - c. Run the tool.
- 52. Open the Delete Identical (Data Management) tool.
  - a. Add UtilityInfrastructureSrf as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for UtilityInfrastructureSrf as well as the additional fields listed at the start of this section.
  - c. Run the tool.
- 53. Open the Delete Identical (Data Management) tool.
  - a. Add VegetationCrv as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for VegetationCrv as well as the additional fields listed at the start of this section.
  - c. Run the tool.
- 54. Open the Delete Identical (Data Management) tool.



- a. Add VegetationPnt as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for VegetationPnt as well as the additional fields listed at the start of this section.
  - c. Run the tool.
55. Open the Delete Identical (Data Management) tool.
  - a. Add VegetationSrf as the Input Dataset.
  - b. In the Fields box, select all of the PSG required fields for VegetationSrf as well as the additional fields listed at the start of this section.
  - c. Run the tool.

## All Bridge/Tunnel WID Updater

1. Add the TransportationGroundCrv feature class to an ArcMap session.
  - a. Select all Bridges and Tunnels for the scale you are working in. (F\_CODE IN ('AQ040', 'AQ130') AND ZI026\_CTUU >= scale)
    - i. Make a layer from the selection and clear the current selection.
  - b. Select all Roads for the scale you are working in. (F\_CODE IN ('AP030') AND ZI026\_CTUU >= scale)
    - i. Make a layer from the selection and clear the current selection.
  - c. Select all Cart Tracks for the scale you are working in. (F\_CODE IN ('AP010') AND ZI026\_CTUU >= scale)
    - i. Make a layer from the selection and clear the current selection.
  - d. Select all Railways and Railway Sidetracks for the scale you are working in. (F\_CODE IN ('AN010', 'AN050') AND ZI026\_CTUU >= scale)
    - i. Make a layer from the selection and clear the current selection.
2. Using the Road selection layer, Select by Location any that share a line segment with the Bridge/Tunnel selection layer.
  - a. Make a layer from the selection and clear the current selection.
  - b. Using the Roads on Bridges/Tunnels selection layer, browse through each Road feature and manually check if the Bridge/Tunnel Width (WID) is less than or equal to the Road Minimum Travelled Way Width (ZI016\_WD1).
  - c. If the Bridge/Tunnel Width (WID) is incorrect, multiply the Road Minimum Travelled Way Width (ZI016\_WD1) by 1.5 and apply that to the Bridge/Tunnel Width (WID).
  - d. Check the ZI026\_CTUU of the Bridge/Tunnel and Road. If they don't match, update the Bridge/Tunnel ZI026\_CTUU to match the Road ZI026\_CTUU.
3. Repeat for all the Roads in the Roads on Bridges/Tunnels selection layer.
4. Using the Cart Track selection layer, Select by Location any that share a line segment with the Bridge/Tunnel selection layer.
  - a. Make a layer from the selection and clear the current selection.





- b. Using the Cart Tracks on Bridges/Tunnels selection layer, browse through each Cart Track feature and manually check if the Bridge/Tunnel Width (WID) is less than or equal to the Cart Track Width (WID).
    - c. If the Bridge/Tunnel Width (WID) is incorrect, multiply the Cart Track Width (WID) by 1.5 and apply that to the Bridge/Tunnel Width (WID).
    - d. Check the Z1o26\_CTUU of the Bridge/Tunnel and Cart Track. If they don't match, update the Bridge/Tunnel Z1o26\_CTUU to match the Cart Track Z1o26\_CTUU.
  5. Repeat for all the Cart Tracks in the Cart Tracks on Bridges/Tunnels selection layer.
- 
6. Using the Railway and Railway Sidetrack selection layer, Select by Location any that share a line segment with the Bridge/Tunnel selection layer.
    - a. Make a layer from the selection and clear the current selection.
    - b. Using the Railways and Railway Sidetracks on Bridges/Tunnels selection layer, browse through each Railway and Railway Sidetrack feature and manually check if the Bridge/Tunnel Width (WID) is less than or equal to the Railway and Railway Sidetrack Gauge Width (Z1o17\_GAW).
    - c. If the Bridge/Tunnel Width (WID) is incorrect, add 1 to the Railway and Railway Sidetrack Gauge Width (Z1o17\_GAW) and apply that to the Bridge/Tunnel Width (WID).
    - d. Check the Z1o26\_CTUU of the Bridge/Tunnel and Railway and Railway Sidetrack. If they don't match, update the Bridge/Tunnel Z1o26\_CTUU to match the Railway and Railway Sidetrack Z1o26\_CTUU.
  7. Repeat for all the Railways and Railway Sidetracks in the Railways and Railway Sidetracks on Bridges/Tunnels selection layer.

## All Pylon HGT Updater

1. Add the UtilityInfrastructureCrv and UtilityInfrastructurePnt feature classes to an ArcMap session.
    - a. Select all Pylons for the scale you are working in. (F\_CODE IN ('ATo42') AND Z1o26\_CTUU >= scale)
      - i. Make a layer from the selection and clear the current selection.
    - b. Select all Cables with height greater than 0 for the scale you are working in. (F\_CODE IN ('ATo05') AND HGT > 0 AND Z1o26\_CTUU >= scale)
      - i. Make a layer from the selection and clear the current selection.
    - c. Using the Pylon selection layer, Select by Location any that intersect the Cable selection layer.
      - i. Make a layer from the selection and clear the current selection.
    - d. Using the Cable selection layer, Select by Location any that intersect the Pylon selection layer.
      - i. Make a layer from the selection and clear the current selection.
- 



2. Using the Cables intersecting Pylons selection layer, browse through each Cable feature and select any Pylons from the Pylons intersecting Cables selection layer that intersect each Cable.
  - a. Update the HGT of the intersecting Pylons to match the current Cable feature.
  - b. Also update the ZI026\_CTUU of the Pylons to match the current Cable feature.
3. Repeat for all the Cables in the Cables intersecting Pylons selection layer.

## All Dam WOC Updater

1. Add the HydrographySrf and TransportationGroundCrv feature classes to an ArcMap session.
    - a. Select all Dams for the scale you are working in. (F\_CODE IN ('B1020') AND ZI026\_CTUU >= scale)
      - i. Make a layer from the selection and clear the current selection.
    - b. Select all Roads for the scale you are working in. (F\_CODE IN ('A1030') AND ZI026\_CTUU >= scale)
      - i. Make a layer from the selection and clear the current selection.
    - c. Select all Cart Tracks for the scale you are working in. (F\_CODE IN ('A1010') AND ZI026\_CTUU >= scale)
      - i. Make a layer from the selection and clear the current selection.
    - d. Select all Railways and Railway Sidetracks for the scale you are working in. (F\_CODE IN ('A1010', 'A1050') AND ZI026\_CTUU >= scale)
      - i. Make a layer from the selection and clear the current selection.
- 
2. Using the Dam selection layer, Select by Location any that intersect the Road selection layer.
    - a. Make a layer from the selection and clear the current selection.
  3. Using the Dams on Roads selection layer, browse through each Dam feature.
    - a. Only update the Dam attributes if the Road feature is truly crossing the Dam surface.
    - b. If the Road Lane Count (LTN) is 1 and the Dam WOC is not populated or less than or equal to the Road Minimum Travelled Way Width (ZI016\_WD1), set the Dam WOC = 5.
    - c. If the Road Lane Count (LTN) is greater than 1 and the Dam WOC is not populated or less than or equal to the Road Minimum Travelled Way Width (ZI016\_WD1), multiply the Road Lane Count (LTN) by 2.5 and add 2.
    - d. Set the Dam WOC to that value.  $((LTN * 2.5) + 2)$
    - e. If the Dam Transportation System (TRS) is not populated, set the Dam Transportation System (TRS) = "Road".
  4. Repeat for all the Dams in the Dams on Roads selection layer.
- 



5. Using the Dam selection layer, Select by Location any that intersect the Cart Track selection layer.
    - a. Make a layer from the selection and clear the current selection.
  6. Using the Dams on Cart Tracks selection layer, browse through each Dam feature.
    - a. Only update the Dam attributes if the Cart Track feature is truly crossing the Dam surface.
    - b. If the Dam WOC is not populated or less than or equal to the Cart Track Width (WID), set the Dam WOC = 5.
    - c. If the Dam Transportation System (TRS) is not populated, set the Dam Transportation System (TRS) = "Road".
  7. Repeat for all the Dams in the Dams on Cart Tracks selection layer.
- 
8. Using the Dam selection layer, Select by Location any that intersect the Railway and Railway Sidetrack selection layer.
    - a. Make a layer from the selection and clear the current selection.
  9. Using the Dams on Railways and Railway Sidetracks selection layer, browse through each Dam feature.
    - a. Only update the Dam attributes if the Railway or Railway Sidetrack feature is truly crossing the Dam surface.
    - b. If the Dam WOC is not populated or less than or equal to the Railway or Railway Sidetrack Gauge Width (ZI017\_GAW), add 2 to the Railway and Railway Sidetrack Gauge Width (ZI017\_GAW) and round to the nearest whole number.
    - c. Set the Dam WOC to that value. (ZI017\_GAW + 2 (rounded))
    - d. If the Dam Transportation System (TRS) is not populated, set the Dam Transportation System (TRS) = "Railway".
  10. Repeat for all the Dams in the Dams on Railways and Railway Sidetracks selection layer.
- 
11. Using the Dam selection layer, select all the features.
    - a. Use Select by Location to remove from the current selection any Dams that intersect Roads, Cart Tracks, Railways, or Railway Sidetracks.
    - b. Make a layer from the selection and clear the current selection.
  12. Using the Dams without Trans selection layer, select any Dams that do not have WOC populated.
    - a. Set the Dam WOC = 5.
    - b. Clear the current selection.
  13. Using the Dams without Trans selection layer set the Dam Transportation System (TRS) = "No Transportation System".

## Building in BUA Scaler

Important Building FFNs list for Maxar and Hexagon on Project 10:



- Power Generation
- Climate Control
- Water Supply
- Sewerage
- Waste Treatment and Disposal
- Materials Recovery
- Transportation Hub
- Railway Transport
- Pedestrian Transport
- Road Transport
- Pipeline Transport
- Water Transport
- Air Transport
- Mail and Package Transport
- Transportation Support
  - > Hotel
  - > Resort
- Radio Broadcasting
- Television Broadcasting
- Government
- Diplomacy
- Defence Activities
- Public Order
  - > Imprisonment
  - > Law Enforcement
- Safety
  - > Firefighting
- Security Services
- Primary Education
- Secondary Education
- Higher Education
- Vocational Education
- In-patient Care
- Out-patient Care
- Human Tissue Repository
- Leprosy Care
- Public Health Activities
- Refugee Shelter
- Aquarium
- Auditorium
- Botanical and/or Zoological Reserve Activities
- Cinema



- Library
- Museum
- Night Club
- Opera House
- Theatre
- Place of Worship
- Community Centre
- Convention Centre

1. Add the SettlementSrf, StructureSrf, and StructurePnt feature classes to an ArcMap session.
  2. Select all BUAs for the scale you are working in. (F\_CODE IN ('AL020') AND ZI026\_CTUU >= scale)
  3. Make a layer from the selection and clear the current selection.
- 
4. Select all Building Surfaces with ZI026\_CTUU less than 50k. (F\_CODE IN ('AL013') AND ZI026\_CTUU < 50000)
  5. Select by Location from that selection any Building Surfaces that are within the BUA selection layer.
  6. Select by Attribute from that selection any Building Surfaces with an FFN in the Important Building FFNs list, or Height greater than or equal to 46 meters, or have Navigation Landmark (LMC) = True. (FFN IN (351, 352, 360, 370, 383, 385, 489, 490, 494, 495, 500, 505, 520, 541, 529, 551, 552, 601, 604, 811, 825, 835, 831, 843, 841, 832, 845, 833, 851, 852, 855, 857, 861, 862, 864, 866, 865, 883, 906, 892, 907, 594, 902, 905, 895, 894, 891, 931, 893, 579) OR HGT >= 46 OR LMC = 1001)
  7. Set the ZI026\_CTUU of this selection to 250000.
  8. Clear the current selection.
- 
9. Select all Building Surfaces with ZI026\_CTUU greater than or equal to 50k. (F\_CODE IN ('AL013') AND ZI026\_CTUU >= 50000)
  10. Select by Location from that selection any Building Surfaces that are within the BUA selection layer.
  11. Select by Attribute from that selection any Building Surfaces with an FFN not in the Important Building FFNs list, and Height less than 46 meters, and have Navigation Landmark (LMC) = False. (FFN NOT IN (351, 352, 360, 370, 383, 385, 489, 490, 494, 495, 500, 505, 520, 541, 529, 551, 552, 601, 604, 811, 825, 835, 831, 843, 841, 832, 845, 833, 851, 852, 855, 857, 861, 862, 864, 866, 865, 883, 906, 892, 907, 594, 902, 905, 895, 894, 891, 931, 893, 579) AND HGT < 46 AND LMC <> 1001)
  12. Set the ZI026\_CTUU of this selection to 12500.
  13. Clear the current selection.
- 



14. Select all Building Points with Zl026\_CTUU less than 50k. (F\_CODE IN ('AL013') AND Zl026\_CTUU < 50000)
  15. Select by Location from that selection any Building Points that are within the BUA selection layer.
  16. Select by Attribute from that selection any Building Points with an FFN in the Important Building FFNs list or Height greater than or equal to 46 meters or have Navigation Landmark (LMC) = True. (FFN IN (351, 352, 360, 370, 383, 385, 489, 490, 494, 495, 500, 505, 520, 541, 529, 551, 552, 601, 604, 811, 825, 835, 831, 843, 841, 832, 845, 833, 851, 852, 855, 857, 861, 862, 864, 866, 865, 883, 906, 892, 907, 594, 902, 905, 895, 894, 891, 931, 893, 579) OR HGT >= 46 OR LMC = 1001)
  17. Set the Zl026\_CTUU of this selection to 50000.
  18. Clear the current selection.
- 
19. Select all Building Points with Zl026\_CTUU greater than or equal to 50k. (F\_CODE IN ('AL013') AND Zl026\_CTUU >= 50000)
  20. Select by Location from that selection any Building Points that are within the BUA selection layer.
  21. Select by Attribute from that selection any Building Points with an FFN not in the Important Building FFNs list and Height less than 46 meters and have Navigation Landmark (LMC) = False. (FFN NOT IN (351, 352, 360, 370, 383, 385, 489, 490, 494, 495, 500, 505, 520, 541, 529, 551, 552, 601, 604, 811, 825, 835, 831, 843, 841, 832, 845, 833, 851, 852, 855, 857, 861, 862, 864, 866, 865, 883, 906, 892, 907, 594, 902, 905, 895, 894, 891, 931, 893, 579) AND HGT < 46 AND LMC <> 1001)
  22. Set the Zl026\_CTUU of this selection to 12500.
  23. Clear the current selection.

## Other Tools

The Default Bridge/Tunnel WID Updater, Default Pylon HGT Updater, and Default Dam WOC Updater tools are all variations on the versions detailed above. These just check for default values rather than comparing all features for incorrect value pairs.

The Database Feature Report and Source Analysis Report tools cannot be manually replicated in ArcMap.

These steps do not include the specific deviations and changes required for a CACI database. In addition, the CACI Swap Scale and CTUU tool cannot be manually replicated in ArcMap.

