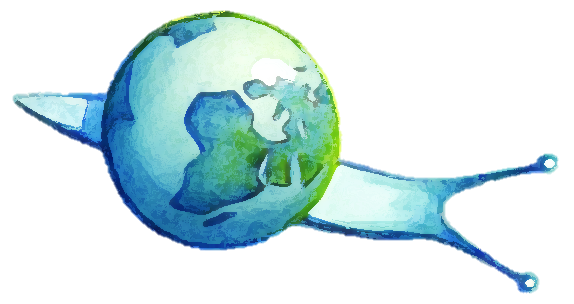
Finishing Tool Suite v9.8.5

This is a suite of tools designed to automate the data processing steps in Finishing. It is necesary 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.

All tools run sequentially on each feature class in the dataset that contains features.

The standard Finishing process is checked by default.

A close-up of a brain

Description automatically generated with low confidenceDO NOT TRY TO RUN THIS ON SDE!!!

# TDS

Add the TDS dataset here. The tools all use this main path.

# For Top Secret Finishing Version, what is the name of our leader

☠

# Scale\_to\_run\_tools\_\_ZI026\_CTUU\_>\_

# Options

## Use 25k\_LOC feature classes only

With this option checked, tools will only run on the specific 25k\_LOC features.

## Disable Editor Tracking

This disables Editor Tracking on all feature classes in the dataset. If Editor Tracking is not disabled, the current user will be marked as Last Edited on any features the tools edit.

\*\*This can be skipped for interim runs, but needs to be checked for final finishing.

## Skip Buildings

This will automatically skip the StructureSrf and StructurePnt feature classes for all tools. This option exists because the databases we work on can have upwards of 10-20 million Building features. Our computers cannot handle this.

# Finishing

## Repair All NULL Geometries

Runs Repair Geometry and deletes features with NULL geometries.

## Populate F\_Codes

Identifies features with mismatched F\_Code/FCSubtype pairs and updates the F\_Codes to match the FCSubtypes.

Original code by John Jackson. Refactored by Nat Cagle.

## Calculate Default Values

Identifies text and numeric feature class fields with NULL values. Populates the NULL fields with their schema defined default values.

## Calculate Metrics

Updates the spatial calculation of Length (LZN) fields for polyline features and Area (ARA) fields for polygons.

## Update UFI Values

Populates Unique Feature Identifier (UFI) fields containing NULL values. Finds and updates feature subtypes with duplicate UFI values within a given feature class. Identifies illegal UFI values that are not 36 alphanumeric characters with a format of {12345678-1234-1234-1234-123456789012}.

\_Note\_: Duplicate UFI values across multiple feature classes cannot be identified. To avoid this occurrence, analysts must not copy attributes between feature classes.

\_Note\_: Manually entered, legal UFI values that meet the formatting requirements will not be flagged. This means that the following UFI values are technically valid:

LEONARDO-EATS-FROG-EGGS-DISGUSTINGLY

GOTOH\*LL-F\*CK-C\*CK-PISS-MOTHERF\*CKER

## Integrate Hydrography Features\*

Selects all Hydrography point, line, and polygon features with CTUU greater than or equal to the user defined scale. Repairs the geometry of the line and polygon features first. Runs the new integration process on each data partition. Repairs the geometry of the line and polygon features after processing. Clears the cached memory of selected features.

## Integrate Transportation Features\*

Selects all Transportation point, line, and polygon features with CTUU greater than or equal to the user defined scale. Repairs the geometry of the line and polygon features first. Runs the new integration process on each data partition. Repairs the geometry of the line and polygon features after processing. Clears the cached memory of selected features.

## Integrate Utility Features\*

Selects all Pylon points, Cable lines, and Utility polygon features with CTUU greater than or equal to the user defined scale. Repairs the geometry of the line and polygon features first. Runs the new integration process on each data partition. Repairs the geometry of the line and polygon features after processing. Clears the cached memory of selected features.

\*Updated Integration Process - The amount and complexity of features in our databases prevents normal processing due to insufficient computer resources. To combat this, the integration tools partition the features into smaller chunks to allow for processing. The integration process has been updated, and for each data partition, the new integration sequence is performed in descending order of geometric hierarchy.

## Default Bridge/Tunnel WID Updater

Identifies Bridge and Tunnel lines with default (-999999) Width ONLY. Calculates the Bridge/Tunnel WID value based on coincident Transportation features and updates mismatched CTUU values. Transportation features include Roads, Railways, Railway Sidetracks, and Cart Tracks.

## Default Pylon HGT Updater

Identifies Pylons with default (-999999) Height ONLY. Updates the Pylon HGT value to match the intersecting Cable HGT value and updates mismatched CTUU values.

## Default Dam WOC Updater

Identifies Dam polygons with default (-999999) Width of Crest ONLY. Calculates the Dam WOC value based on the Lane Count or Gauge Width of any intersecting Transportation features and updates the Transportation System (TRS). Applies a standard value if the Dam does not intersect any Transportation features. Transportation features include Roads, Railways, Railway Sidetracks, and Cart Tracks.

Original code by John Jackson. Refactored and updated by Nat Cagle.

## Hypernova Burst Multipart Features

Identifies all true multipart features within each feature class and explodes all the parts while maintaining original attribution.

## Delete Identical Features

Identifies features with identical geometry and PSG attribution and removes any duplicate features.

# Preprocessing

## All Bridge/Tunnel WID Updater

Identifies ALL Bridge and Tunnel lines with Width less than or equal to that of their coincident Transportation feature. Calculates a new Bridge/Tunnel WID value based on the coincident Transportation features and updates mismatched CTUU values. Transportation features include Roads, Railways, Railway Sidetracks, and Cart Tracks.

## All Pylon HGT Updater

Identifies ALL Pylons with Height less than or equal to that of their intersecting Cable. Updates the Pylon HGT value to match the intersecting Cable HGT value and updates mismatched CTUU values.

## All Dam WOC Updater

Identifies ALL Dam polygons with Width of Crest less than or equal to that of any intersecting Transportation features. Calculates a new Dam WOC value based on the Lane Count or Gauge Width of any intersecting Transportation features and updates the Transportation System (TRS). Applies a standard value if the Dam does not intersect any Transportation features. Transportation features include Roads, Railways, Railway Sidetracks, and Cart Tracks.

Original code by John Jackson. Refactored and updated by Nat Cagle.

## Building in BUA Scaler

Identifies and descales Building points and polygons within BUAs that meet ALL THREE of the following criteria:

* Have a Feature Function (FFN) value that is NOT on the current project Important Building FFNs list.
* Have a Height (HGT) value less than 46 meters.
* Have a Navigation Landmark (LMC) value of False.

Identified and scales up Building points and polygons within BUAs that meet ANY ONE of the following criteria:

* Have a Feature Function (FFN) value that IS on the current project Important Building FFNs list.
* Have a Height (HGT) value greater than OR equal to 46 meters.
* Have a Navigation Landmark (LMC) value of True.

## Database Feature Report

Scans the entire provided TDS dataset (not affected by the user defined scale). Creates a text file reporting the breakdown of feature classes and feature counts. Includes the following information:

* Total Points, Curves, and Surfaces
* Total Hydrography, Transportation, Utility, Building, and Landcover features
* Total features per feature class and a count of each subtype
* Empty feature classes

Original code by John Jackson. Refactored by Nat Cagle.

## Source Analysis Report

Scans the entire provided TDS dataset (not affected by the user defined scale). Creates a text file and CSV file reporting the breakdown of source types for each feature class. Includes the following information for each feature class:

* Version
* Source Description (ZI001\_SDP)
* Source Date (ZI001\_SDV)
* A count for each unique combination of values.

Original code by John Jackson. Refactored by Nat Cagle.

Text

Description automatically generatedText, table

Description automatically generated

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| # | Condition Error | Before | After | Difference | Percent 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% |

Repair All NULL Geometries

Populate F\_Codes

Calculate Default Values

Calculate Metrics

Update UFI Values

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Integrate and Repair Trans

Integrate and Repair Utilities

Hypernova Burst Multipart Features

Delete Identical Features

All Bridge/Tunnel WID Updater

All Pylon HGT Updater

All Dam WOC Updater

Building in BUA Scaler

Make sure to have the current Important Building FFNs list.

Somehow split the local database by scale and AOI.

If there are too many buildings, you may need to delete the features in the StructurePnt and StructureSrf feature classes.

Disable Editor Tracking for the dataset.

Create a 3x3 fishnet grid over the extent of the data.

Repeat all of the following steps for each scale/AOI split GDB.

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# # Repair All NULL Geometries

# Run the Repair Geometry (Data Management) tool on each of the 53 feature classes with the "Delete Features with Null Geometry" option checked. (Exclude MetadataSrf and ResourceSrf.)

(Exclude MetadataSrf and ResourceSrf.)

Run the Repair Geometry (Data Management) tool on AeronauticCrv with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on AeronauticPnt with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on AeronauticSrf with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on AgriculturePnt with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on AgricultureSrf with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on BoundaryPnt with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on CultureCrv with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on CulturePnt with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on CultureSrf with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on FacilityPnt with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on FacilitySrf with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on HydroAidNavigationPnt with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on HydroAidNavigationSrf with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on HydrographyCrv with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on HydrographyPnt with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on HydrographySrf with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on IndustryCrv with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on IndustryPnt with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on IndustrySrf with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on InformationCrv with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on InformationPnt with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on InformationSrf with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on MilitaryCrv with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on MilitaryPnt with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on MilitarySrf with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on PhysiographyCrv with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on PhysiographyPnt with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on PhysiographySrf with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on PortHarbourCrv with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on PortHarbourPnt with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on PortHarbourSrf with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on RecreationCrv with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on RecreationPnt with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on RecreationSrf with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on SettlementPnt with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on SettlementSrf with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on StoragePnt with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on StorageSrf with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on StructureCrv with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on StructurePnt with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on StructureSrf with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on TransportationGroundCrv with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on TransportationGroundPnt with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on TransportationGroundSrf with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on TransportationWaterCrv with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on TransportationWaterPnt with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on TransportationWaterSrf with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on UtilityInfrastructureCrv with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on UtilityInfrastructurePnt with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on UtilityInfrastructureSrf with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on VegetationCrv with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on VegetationPnt with the 'Delete Features with Null Geometry' option checked.

Run the Repair Geometry (Data Management) tool on VegetationSrf with the 'Delete Features with Null Geometry' option checked.

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# # Populate F\_Codes

Close ArcMap and open ArcCatalog.

Click the GDB you are working on in the main window.

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.)

Close ArcCatalog and reopen ArcMap.

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# # Calculate Default Values

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

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# # Calculate Metrics

Open the Calculate Metrics (Defense Mapping) tool.

Add each line and polygon feature class (33 total) to the Input Features parameter.

Check the Length and Area options for Input Metric Types.

Under Advanced, make sure that LZN is included in the Input Length Attributes list.

Under Advanced, make sure that ARA is included in the Input Area Attributes list.

Run the tool.

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# # Update UFI Values

Add all the feature classes to an ArcMap session and start editing.

Make sure the Populate GUID tool is added to the Production Editing toolbar.

Open Editing Properties.

Right-click in the GUID Attributes box and choose "Add new attribute".

Add UFI to the list and click Apply.

Click the Populate GUID tool.

Save and stop editing.

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# # Integrate and Repair Hydro

Add the HydrographyPnt, HydrographyCrv, and HydrographySrf feature classes to an ArcMap session.

Add the 3x3 fishnet grid you made earlier.

Run the Repair Geometry (Data Management) tool on the HydrographyPnt, HydrographyCrv, and HydrographySrf feature classes.

Select all the HydrographyPnt, HydrographyCrv, and HydrographySrf features that intersect the first grid square.

Open the Snap (Editing) tool.

Choose HydrographyCurves as the Input Features.

Choose HydrographySurfaces as the Snap Environment.

Choose "VERTEX" as the Type.

Type "0.03 Meters" for the Distance option.

Run the tool.

Open the Snap (Editing) tool again.

Choose HydrographyCurves as the Input Features.

Choose HydrographySurfaces as the Snap Environment.

Choose "EDGE" as the Type.

Type "0.03 Meters" for the Distance option.

Run the tool.

Open the Integrate (Data Management) tool.

Choose HydrographySurfaces and HydrographyCurves as the Input Features.

Set the Rank of HydrographySurfaces to 1 and the Rank of HydrographyCurves to 2.

Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)

Run the tool.

Run the Repair Geometry (Data Management) tool on HydrographySurfaces with the "Delete Features with Null Geometry" option checked.

Open the Snap (Editing) tool again.

Choose HydrographyPoints as the Input Features.

Choose HydrographyCurves as the Snap Environment.

Choose "END" as the Type.

Type "0.03 Meters" for the Distance option.

Run the tool.

Open the Snap (Editing) tool again.

Choose HydrographyPoints as the Input Features.

Choose HydrographyCurves as the Snap Environment.

Choose "VERTEX" as the Type.

Type "0.03 Meters" for the Distance option.

Run the tool.

Open the Snap (Editing) tool again.

Choose HydrographyPoints as the Input Features.

Choose HydrographyCurves as the Snap Environment.

Choose "EDGE" as the Type.

Type "0.03 Meters" for the Distance option.

Run the tool.

Open the Integrate (Data Management) tool again.

Choose HydrographyCurves and HydrographyPoints as the Input Features.

Set the Rank of HydrographyCurves to 1 and the Rank of HydrographyPoints to 2.

Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)

Run the tool.

Run the Repair Geometry (Data Management) tool on HydrographyCurves with the "Delete Features with Null Geometry" option checked.

Run the Repair Geometry (Data Management) tool on HydrographyPoints with the "Delete Features with Null Geometry" option checked.

Select all the HydrographyPnt, HydrographyCrv, and HydrographySrf features that intersect the second grid square.

Repeat the above process 8 more times for each of the grid squares.

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# # Integrate and Repair Trans

Add the TransportationGroundPnt, TransportationGroundCrv, and TransportationGroundSrf feature classes to an ArcMap session.

Add the 3x3 fishnet grid you made earlier.

Run the Repair Geometry (Data Management) tool on the TransportationGroundPnt, TransportationGroundCrv, and TransportationGroundSrf feature classes.

Select all the TransportationGroundPnt, TransportationGroundCrv, and TransportationGroundSrf features that intersect the first grid square.

Open the Snap (Editing) tool.

Choose TransportationGroundCurves as the Input Features.

Choose TransportationGroundSurfaces as the Snap Environment.

Choose "VERTEX" as the Type.

Type "0.03 Meters" for the Distance option.

Run the tool.

Open the Snap (Editing) tool again.

Choose TransportationGroundCurves as the Input Features.

Choose TransportationGroundSurfaces as the Snap Environment.

Choose "EDGE" as the Type.

Type "0.03 Meters" for the Distance option.

Run the tool.

Open the Integrate (Data Management) tool.

Choose TransportationGroundSurfaces and TransportationGroundCurves as the Input Features.

Set the Rank of TransportationGroundSurfaces to 1 and the Rank of TransportationGroundCurves to 2.

Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)

Run the tool.

Run the Repair Geometry (Data Management) tool on TransportationGroundSurfaces with the "Delete Features with Null Geometry" option checked.

Open the Snap (Editing) tool again.

Choose TransportationGroundPoints as the Input Features.

Choose TransportationGroundCurves as the Snap Environment.

Choose "END" as the Type.

Type "0.03 Meters" for the Distance option.

Run the tool.

Open the Snap (Editing) tool again.

Choose TransportationGroundPoints as the Input Features.

Choose TransportationGroundCurves as the Snap Environment.

Choose "VERTEX" as the Type.

Type "0.03 Meters" for the Distance option.

Run the tool.

Open the Snap (Editing) tool again.

Choose TransportationGroundPoints as the Input Features.

Choose TransportationGroundCurves as the Snap Environment.

Choose "EDGE" as the Type.

Type "0.03 Meters" for the Distance option.

Run the tool.

Open the Integrate (Data Management) tool again.

Choose TransportationGroundCurves and TransportationGroundPoints as the Input Features.

Set the Rank of TransportationGroundCurves to 1 and the Rank of TransportationGroundPoints to 2.

Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)

Run the tool.

Run the Repair Geometry (Data Management) tool on TransportationGroundCurves with the "Delete Features with Null Geometry" option checked.

Run the Repair Geometry (Data Management) tool on TransportationGroundPoints with the "Delete Features with Null Geometry" option checked.

Select all the TransportationGroundPnt, TransportationGroundCrv, and TransportationGroundSrf features that intersect the second grid square.

Repeat the above process 8 more times for each of the grid squares.

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# # Integrate and Repair Utilities

Add the UtilityInfrastructurePnt, UtilityInfrastructureCrv, and UtilityInfrastructureSrf feature classes to an ArcMap session.

Add the 3x3 fishnet grid you made earlier.

Run the Repair Geometry (Data Management) tool on the UtilityInfrastructurePnt, UtilityInfrastructureCrv, and UtilityInfrastructureSrf feature classes.

Add a Definition Query to UtilityInfrastructurePoints to only load Pylons. (FCSUBTYPE = 100558)

Add a Definition Query to UtilityInfrastructureCurves to only load Cables. (FCSUBTYPE = 100199)

Select all the Pylons, Cables, and UtilityInfrastructureSurfaces that intersect the first grid square.

Open the Snap (Editing) tool.

Choose UtilityInfrastructureCurves as the Input Features.

Choose UtilityInfrastructureSurfaces as the Snap Environment.

Choose "VERTEX" as the Type.

Type "0.03 Meters" for the Distance option.

Run the tool.

Open the Snap (Editing) tool again.

Choose UtilityInfrastructureCurves as the Input Features.

Choose UtilityInfrastructureSurfaces as the Snap Environment.

Choose "EDGE" as the Type.

Type "0.03 Meters" for the Distance option.

Run the tool.

Open the Integrate (Data Management) tool.

Choose UtilityInfrastructureSurfaces and UtilityInfrastructureCurves as the Input Features.

Set the Rank of UtilityInfrastructureSurfaces to 1 and the Rank of UtilityInfrastructureCurves to 2.

Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)

Run the tool.

Run the Repair Geometry (Data Management) tool on UtilityInfrastructureSurfaces with the "Delete Features with Null Geometry" option checked.

Open the Snap (Editing) tool again.

Choose UtilityInfrastructurePoints as the Input Features.

Choose UtilityInfrastructureCurves as the Snap Environment.

Choose "END" as the Type.

Type "0.03 Meters" for the Distance option.

Run the tool.

Open the Snap (Editing) tool again.

Choose UtilityInfrastructurePoints as the Input Features.

Choose UtilityInfrastructureCurves as the Snap Environment.

Choose "VERTEX" as the Type.

Type "0.03 Meters" for the Distance option.

Run the tool.

Open the Snap (Editing) tool again.

Choose UtilityInfrastructurePoints as the Input Features.

Choose UtilityInfrastructureCurves as the Snap Environment.

Choose "EDGE" as the Type.

Type "0.03 Meters" for the Distance option.

Run the tool.

Open the Integrate (Data Management) tool again.

Choose UtilityInfrastructureCurves and UtilityInfrastructurePoints as the Input Features.

Set the Rank of UtilityInfrastructureCurves to 1 and the Rank of UtilityInfrastructurePoints to 2.

Leave the XY Tolerance field blank to use the schema domain default. (Recommended by ESRI)

Run the tool.

Run the Repair Geometry (Data Management) tool on UtilityInfrastructureCurves with the "Delete Features with Null Geometry" option checked.

Run the Repair Geometry (Data Management) tool on UtilityInfrastructurePoints with the "Delete Features with Null Geometry" option checked.

Select all the Pylons, Cables, and UtilityInfrastructureSurfaces that intersect the second grid square.

Repeat the above process 8 more times for each of the grid squares.

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# # Hypernova Burst Multipart Features

# Add all feature classes to an ArcMap session and start editing.

# One at a time for each feature class, select all the features.

# Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

# Save edits.

# Repeat for all 53 feature classes.

# Stop editing.

Add all feature classes to an ArcMap session and start editing.

Select all the features in AeronauticCrv.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in AeronauticPnt.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in AeronauticSrf.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in AgriculturePnt.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in AgricultureSrf.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in BoundaryPnt.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in CultureCrv.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in CulturePnt.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in CultureSrf.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in FacilityPnt.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in FacilitySrf.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in HydroAidNavigationPnt.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in HydroAidNavigationSrf.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in HydrographyCrv.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in HydrographyPnt.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in HydrographySrf.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in IndustryCrv.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in IndustryPnt.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in IndustrySrf.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in InformationCrv.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in InformationPnt.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in InformationSrf.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in MilitaryCrv.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in MilitaryPnt.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in MilitarySrf.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in PhysiographyCrv.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in PhysiographyPnt.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in PhysiographySrf.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in PortHarbourCrv.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in PortHarbourPnt.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in PortHarbourSrf.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in RecreationCrv.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in RecreationPnt.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in RecreationSrf.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in SettlementPnt.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in SettlementSrf.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in StoragePnt.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in StorageSrf.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in StructureCrv.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in StructurePnt.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in StructureSrf.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in TransportationGroundCrv.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in TransportationGroundPnt.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in TransportationGroundSrf.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in TransportationWaterCrv.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in TransportationWaterPnt.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in TransportationWaterSrf.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in UtilityInfrastructureCrv.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in UtilityInfrastructurePnt.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in UtilityInfrastructureSrf.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in VegetationCrv.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in VegetationPnt.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Select all the features in VegetationSrf.

Click the Explode Multipart Feature tool on the Advanced Editing toolbar.

Save edits.

Stop editing.

#-----------------------------------

# # Delete Identical Features

# Add all feature classes to an ArcMap session.

# Open the Delete Identical (Data Management) tool.

# Add the first feature feature class as the Input Dataset.

# In the Fields box, select all of the PSG required fields for that feature class as well as:

# - ZI005\_FNA

# - ZI005\_NFN

# - ZI006\_MEM

# - ZI026\_CTUU

# - SHAPE

# Run the tool.

# Repeat for all 53 feature classes.

Add all feature classes to an ArcMap session.

For the Fields parameter in the steps below, the following fields need to be checked for each feature class:

- ZI005\_FNA

- ZI005\_NFN

- ZI006\_MEM

- ZI026\_CTUU

- SHAPE

Open the Delete Identical (Data Management) tool.

Add AeronauticCrv as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add AeronauticPnt as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add AeronauticSrf as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add AgriculturePnt as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add AgricultureSrf as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add BoundaryPnt as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add CultureCrv as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add CulturePnt as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add CultureSrf as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add FacilityPnt as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add FacilitySrf as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add HydroAidNavigationPnt as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add HydroAidNavigationSrf as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add HydrographyCrv as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add HydrographyPnt as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add HydrographySrf as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add IndustryCrv as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add IndustryPnt as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add IndustrySrf as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add InformationCrv as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add InformationPnt as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add InformationSrf as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add MilitaryCrv as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add MilitaryPnt as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add MilitarySrf as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add PhysiographyCrv as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add PhysiographyPnt as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add PhysiographySrf as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add PortHarbourCrv as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add PortHarbourPnt as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add PortHarbourSrf as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add RecreationCrv as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add RecreationPnt as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add RecreationSrf as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add SettlementPnt as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add SettlementSrf as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add StoragePnt as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add StorageSrf as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add StructureCrv as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add StructurePnt as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add StructureSrf as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add TransportationGroundCrv as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add TransportationGroundPnt as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add TransportationGroundSrf as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add TransportationWaterCrv as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add TransportationWaterPnt as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add TransportationWaterSrf as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add UtilityInfrastructureCrv as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add UtilityInfrastructurePnt as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add UtilityInfrastructureSrf as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add VegetationCrv as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add VegetationPnt as the Input Dataset.

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.

Run the tool.

Open the Delete Identical (Data Management) tool.

Add VegetationSrf as the Input Dataset.

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.

Run the tool.

#-----------------------------------

# # All Bridge/Tunnel WID Updater

Add the TransportationGroundCrv feature class to an ArcMap session.

Select all Bridges and Tunnels for the scale you are working in. (F\_CODE IN ('AQ040', 'AQ130') AND ZI026\_CTUU >= scale)

Make a layer from the selection and clear the current selection.

Select all Roads for the scale you are working in. (F\_CODE IN ('AP030') AND ZI026\_CTUU >= scale)

Make a layer from the selection and clear the current selection.

Select all Cart Tracks for the scale you are working in. (F\_CODE IN ('AP010') AND ZI026\_CTUU >= scale)

Make a layer from the selection and clear the current selection.

Select all Railways and Railway Sidetracks for the scale you are working in. (F\_CODE IN ('AN010', 'AN050') AND ZI026\_CTUU >= scale)

Make a layer from the selection and clear the current selection.

Using the Road selection layer, Select by Location any that share a line segment with the Bridge/Tunnel selection layer.

Make a layer from the selection and clear the current selection.

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).

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).

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.

Repeat for all the Roads in the Roads on Bridges/Tunnels selection layer.

Using the Cart Track selection layer, Select by Location any that share a line segment with the Bridge/Tunnel selection layer.

Make a layer from the selection and clear the current selection.

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).

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).

Check the ZI026\_CTUU of the Bridge/Tunnel and Cart Track. If they don't match, update the Bridge/Tunnel ZI026\_CTUU to match the Cart Track ZI026\_CTUU.

Repeat for all the Cart Tracks in the Cart Tracks on Bridges/Tunnels selection layer.

Using the Railway and Railway Sidetrack selection layer, Select by Location any that share a line segment with the Bridge/Tunnel selection layer.

Make a layer from the selection and clear the current selection.

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 (ZI017\_GAW).

If the Bridge/Tunnel Width (WID) is incorrect, add 1 to the Railway and Railway Sidetrack Gauge Width (ZI017\_GAW) and apply that to the Bridge/Tunnel Width (WID).

Check the ZI026\_CTUU of the Bridge/Tunnel and Railway and Railway Sidetrack. If they don't match, update the Bridge/Tunnel ZI026\_CTUU to match the Railway and Railway Sidetrack ZI026\_CTUU.

Repeat for all the Railways and Railway Sidetracks in the Railways and Railway Sidetracks on Bridges/Tunnels selection layer.

#-----------------------------------

# # All Pylon HGT Updater

Add the UtilityInfrastructureCrv and UtilityInfrastructurePnt feature classes to an ArcMap session.

Select all Pylons for the scale you are working in. (F\_CODE IN ('AT042') AND ZI026\_CTUU >= scale)

Make a layer from the selection and clear the current selection.

Select all Cables with height greater than 0 for the scale you are working in. (F\_CODE IN ('AT005') AND HGT > 0 AND ZI026\_CTUU >= scale)

Make a layer from the selection and clear the current selection.

Using the Pylon selection layer, Select by Location any that intersect the Cable selection layer.

Make a layer from the selection and clear the current selection.

Using the Cable selection layer, Select by Location any that intersect the Pylon selection layer.

Make a layer from the selection and clear the current selection.

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.

Update the HGT of the intersecting Pylons to match the current Cable feature.

Also update the ZI026\_CTUU of the Pylons to match the current Cable feature.

Repeat for all the Cables in the Cables intersecting Pylons selection layer.

#-----------------------------------

# # All Dam WOC Updater

Add the HydrographySrf and TransportationGroundCrv feature classes to an ArcMap session.

Select all Dams for the scale you are working in. (F\_CODE IN ('BI020') AND ZI026\_CTUU >= scale)

Make a layer from the selection and clear the current selection.

Select all Roads for the scale you are working in. (F\_CODE IN ('AP030') AND ZI026\_CTUU >= scale)

Make a layer from the selection and clear the current selection.

Select all Cart Tracks for the scale you are working in. (F\_CODE IN ('AP010') AND ZI026\_CTUU >= scale)

Make a layer from the selection and clear the current selection.

Select all Railways and Railway Sidetracks for the scale you are working in. (F\_CODE IN ('AN010', 'AN050') AND ZI026\_CTUU >= scale)

Make a layer from the selection and clear the current selection.

Using the Dam selection layer, Select by Location any that intersect the Road selection layer.

Make a layer from the selection and clear the current selection.

Using the Dams on Roads selection layer, browse through each Dam feature.

Only update the Dam attributes if the Road feature is truly crossing the Dam surface.

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.

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.

Set the Dam WOC to that value. ((LTN \* 2.5) + 2)

If the Dam Transportation System (TRS) is not populated, set the Dam Transportation System (TRS) = "Road".

Repeat for all the Dams in the Dams on Roads selection layer.

Using the Dam selection layer, Select by Location any that intersect the Cart Track selection layer.

Make a layer from the selection and clear the current selection.

Using the Dams on Cart Tracks selection layer, browse through each Dam feature.

Only update the Dam attributes if the Cart Track feature is truly crossing the Dam surface.

If the Dam WOC is not populated or less than or equal to the Cart Track Width (WID), set the Dam WOC = 5.

If the Dam Transportation System (TRS) is not populated, set the Dam Transportation System (TRS) = "Road".

Repeat for all the Dams in the Dams on Cart Tracks selection layer.

Using the Dam selection layer, Select by Location any that intersect the Railway and Railway Sidetrack selection layer.

Make a layer from the selection and clear the current selection.

Using the Dams on Railways and Railway Sidetracks selection layer, browse through each Dam feature.

Only update the Dam attributes if the Railway or Railway Sidetrack feature is truly crossing the Dam surface.

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.

Set the Dam WOC to that value. (ZI017\_GAW + 2 (rounded))

If the Dam Transportation System (TRS) is not populated, set the Dam Transportation System (TRS) = "Railway".

Repeat for all the Dams in the Dams on Railways and Railway Sidetracks selection layer.

Using the Dam selection layer, select all the features.

Use Select by Location to remove from the current selection any Dams that intersect Roads, Cart Tracks, Railways, or Railway Sidetracks.

Make a layer from the selection and clear the current selection.

Using the Dams without Trans selection layer, select any Dams that do not have WOC populated.

Set the Dam WOC = 5.

Clear the current selection.

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

Add the SettlementSrf, StructureSrf, and StructurePnt feature classes to an ArcMap session.

Select all BUAs for the scale you are working in. (F\_CODE IN ('AL020') AND ZI026\_CTUU >= scale)

Make a layer from the selection and clear the current selection.

Select all Building Surfaces with ZI026\_CTUU less than 50k. (F\_CODE IN ('AL013') AND ZI026\_CTUU < 50000)

Select by Location from that selection any Building Surfaces that are within the BUA selection layer.

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)

Set the ZI026\_CTUU of this selection to 250000.

Clear the current selection.

Select all Building Surfaces with ZI026\_CTUU greater than or equal to 50k. (F\_CODE IN ('AL013') AND ZI026\_CTUU >= 50000)

Select by Location from that selection any Building Surfaces that are within the BUA selection layer.

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)

Set the ZI026\_CTUU of this selection to 12500.

Clear the current selection.

Select all Building Points with ZI026\_CTUU less than 50k. (F\_CODE IN ('AL013') AND ZI026\_CTUU < 50000)

Select by Location from that selection any Building Points that are within the BUA selection layer.

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)

Set the ZI026\_CTUU of this selection to 50000.

Clear the current selection.

Select all Building Points with ZI026\_CTUU greater than or equal to 50k. (F\_CODE IN ('AL013') AND ZI026\_CTUU >= 50000)

Select by Location from that selection any Building Points that are within the BUA selection layer.

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)

Set the ZI026\_CTUU of this selection to 12500.

Clear the current selection.

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

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These steps do not include all of 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.