# GDOT REVAMP

# Bucket 1 – Roads and Pedestrian Signs

## GIS ArcPro Tasks User Manual

Updated 6/10/2021

## Task Step 1 – Pre-script Domain Setup

This step ensures that the domains loaded from the GDOT data import transfer to the succeeding feature class creation and change the split policy from Default to Duplicate. The original split policy in ArcPro is set to default and not Duplicate like expected in ArcMap.

    a. Double Click on **Step 1- Pre-script Domain Setup**

    b. Import GDOT Database from the location stored on your machine.

> ⁕ Import GDOT Database
> 
> [                                                    ] 📁

    c. Click **Run**

    d. Click **Finish**

<p align="center"><strong style="color:green">Step 1 Task: Pre-script Domain Setup Complete</strong></p>

## Task Step 2 – Import & Set up

1. **Step 1 of Import & Set up :** Import & Set-up

    This step imports the GDOT data and creates a County.gdb and a "County" Working.gdb. The county database is not needed for further processing; however, it is necessary for the GDOT data import.  It should take 2-4 mins to process.

    a. Click the folder next to the blank box in the first Parameter; on the left side, expand/click on Folders and select the default Project Name folder.

    b. In the second Parameter, enter the county name.
    **Ex: Liberty** (*this creates a database for the GDOT data import*)

    c. In the third Parameter, enter county name:

> 📁 Folders
> 
> Name
> 📁 Phase_2_B1 - ArcPro V3
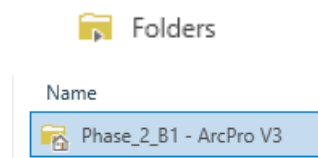
**Ex: LibertyWorking (***this will be your editing database. Be sure not to include spaces in the database name)*

Parameters  Environments  (?)

Set Workenviornment or Project folder name (Phase 2 B1)

Phase_2_B1 - ArcPro V3

Default Database Name (County Name Original)

Liberty

Working Database Name (County Name Working)

LibertyWorking

* Input Feature Class (GDOT delivered data & Schools)

d. In the fourth Parameter, click on the folder, navigate the GDOT data location, and import the following feature classes.

**Input Features from GDOT:**
Census
Crosswalks
Local Roads
LRSN StateRt
Parking
Pedestrian Signals
School Zones
Sidewalks
Turn Lanes
Intersection Pts
Intersection Buffers
Schools Buffers
One Mile Grid
Schools

e. Click **Run**

f. Click **Next Step**

g. In Catalog window pane under  expand and **Refresh** your Project Folder

**THIS IS VERY IMPORTANT**

2. **Step 2 of Import and Set up**: Update Default Database in Options Work Space

You will set your Default workspace in this step. Updating the Default Database in the Options window from the Project default database to the "County" Working.gdb created Step one enables efficient geoprocessing for these tasks' remainder.

    a. Click **Run** - Options window opens

    b. Set **Default geodatabase** to the "County" Working.gdb located in the Default Project folder.

    c. Click **Folders**

    d. Double click Default Project Folder

    e. Select "County" Working.gdb

    f. Click **OK**

    g. Click **Next Step**

3. **Step 3 of Import and Setup:** Add Data to the Map

This step adds all of the data from the "County" Working.gdb to the Processing Map

    a. Click **Run**

    b. The "County" Working.gdb opens

    c. Shift and Select all Features

    d. Click **OK**

4. **Step 4 of Import and Setup:** Split Sidewalks at Intersections

    a. Input Features- **Sidewalks** (from the "County" Working.gdb)

    b. Point Features- **IntersectionPts (**Click down arrow in the Parameter)

    c. Output Feature Class– **SidewalksSplit**

    d. Search Radius – **0.05 Feet**

    e. Click **Run**

    f. Click **Next Step**

5. **Step 5 of Import and Setup**: Split School Zones at intersections segments

    a. Input Features- **SchoolZones** (from the "County" Working.gdb)

    b. Point Features- **IntersectionPts**

    c. Output Feature Class– **All Attributes**

    d. Search Radius – **0.05 Feet**

    e. Click **Run**

    f. Click **Next Step**

6. **Step 6 of Import and Setup**: Split Turn Lanes at intersections segments

    a. Input Features- **TurnLanes** (from the "County" Working.gdb)

    b. Point Features- **IntersectionPts**

    c. Output Feature Class– w**TurnLanes**

    d. Search Radius – **0.05 Feet**

    e. Click **Run**

    f. Click **Next Step**

7. **Step 7 of Import and Setup:** Split Parking at Intersections

    a. Input Features- **Parking** (from the "County" Working.gdb)

    b. Point Features- **IntersectionPts**

    c. Output Feature Class– **wParking**

    d. Search Radius – **0.05 Feet**

    e. Click **Run**

    f. Click **Finish**

**Step 2 Task: Import and Set up Complete**

## Task Step 3 – Setup Validation Environment

This step deletes and appends the attribute records from the ArcPro Default database's features located in Catalog's Databases Folder location. It is important to note that domain defaults and editing rules for validation exist in this Default Database, so **do not** delete the feature classes.  This step intends for a regionally inclusive workspace and avoids having separate instances of ArcPro for each county. Pretty cool, huh?

1. **Step 1 of Setup Validation Environment:** Delete Features from Default Pro Project Database
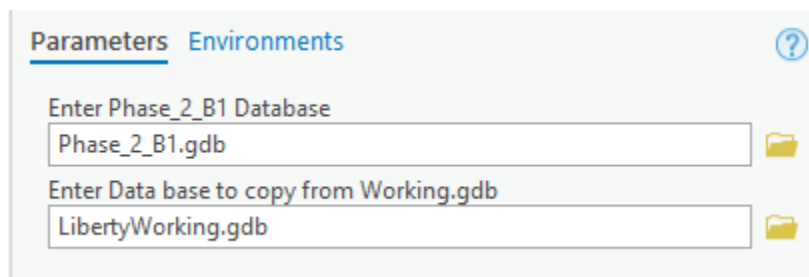
This step deletes the existing feature attributes from the Default Pro Project Database.

   a. Click on the folder in the first parameter

   b. Expand Project        ◢   📁  Project

   c. Click on Databases        📁  Databases

   d. Select Pro Project Database        🗄  Phase_2_B1.gdb

   e. Click **Run**

   f. Click **Next Step**

2. **Step 2 of Setup Validation Environment:** Append Features from County Working GDB

This step appends the data from "County" Working.gdb to the Pro Project Default database.

   a. Input Default Project Database: Phase_2_B1.gdb



   b. Input "County" Working.gdb: "County" Working.gdb

   c. Click **Run**

   d. Click **Next Step**

3. **Step 3 of Setup Validation Environment:** Import GDOT Data

    a. Input –

- **Local Roads**
- **LRNS StateRts**
- **Census**

4. **Step 4 of Setup Validation Environment:** Add Local Reference Data

    a. Input –

- **City Boundaries**
- **Any other related local data** (local roads, sidewalks, signs, road facilities)

5. **Step 5 of Setup Validation Environment:** Set Workspace to ArcPro Default Database

Now that all the Tasks have been processed, this step switches the environment back to the Default Database.

The editing rules and domains exist in the Default database and are used during the Validation Process.

    a. Click **Run**
    b. Click Folder on the Default geodatabase parameter
    c. Click Databases (Expand project if needed)
    d. Select ArcPro Default Database: Phase_2_B1
    e. Click **OK**
    f. Click **Finish**

**Step 4 Task: Create Validation Environment Complete**

# Post Validation Data Processing

After finishing the validation phase, the route data layers must be dissolved back into the GDOT format when delivering the final GDB to ITOS. The following steps explain the Post-Processing Tasks provided in the ArcPro package. These steps provide a new separate environment to manage and QAQA the B1 data layers for final submission to ITOS.

## Post-processing Prerequisites

1.  **Create Deliverable Folder**

    -   Inside the "County" B1 folder, create a new folder and name it "County"_B1

    -   Copy the Phase_2_B1 GDB and paste it into the newly created folder.

2.  **In your ArcPro map, make sure that you have the Deliverable QAQC map added and that the map window is the current view. If not:**

    -   In Catalog, click on Maps.

    -   Right-click the Deliverable QAQC map and then click "Open" to add the map to the project.

## GENERAL OVERVIEW: Preparing the Data Deliverables for ITOS Submission

**\*Make backups of your GDB just in case mistakes or crashes occur during post-processing\***

### General QAQC Process

**Using the Deliverable folder GDB in the Deliverable QAQC map:**

-   Review grids for non-completed areas

-   Use preferred contrast symbology of unique values to visually QAQC data

-   Reviewing editing area for missing data captures

-   Review each dissolved layer for missing fields, attributes, missing data, and that it was dissolved correctly

-   Review each point layer for missing data and attributes

## Package and Submit Deliverable

- In the Deliverable folder, zip the Phase_2_B1.gdb
- Submit to your region's GDOT Map21 OneDrive

# Appendix A

## Getting Familiar with ArcPro Catalog

1. Open Default Project and examine the Project Tab of Catalog Pane on the right pane.

    8 folders conveniently encompass Maps, Toolboxes, Databases, Symbology Styles Packages, Server Connections, Folder Connections, and Locators into one project. While working through the REVAMP validation, data from each county could be organized and validated in this one project if desired.

    a. Expand **Maps** Folder
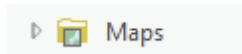
    There are 2 maps: Processing and Validation. The Processing Map is the environment where the ArcPro Tasks will run. The Validation Map is where validation and editing occur. Right-click and open the Validation Map. There are layers with symbology styles set up already. Don't worry about the data in there at this stage—closeout of Validation. Right-click and Open Processing. You will be using this map to get started.
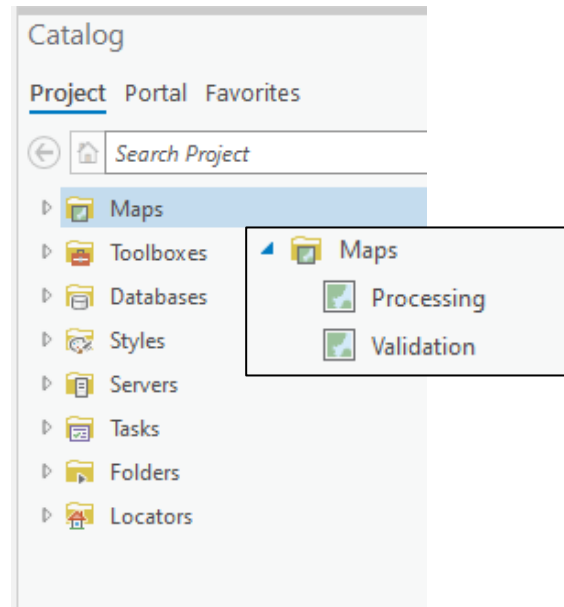
    b. Expand the **Toolboxes** folder

    There is a default Project Toolbox created with every Pro Project. Still, you will **not** need to use any of these tools in this box because they are already built into the Task workflow.
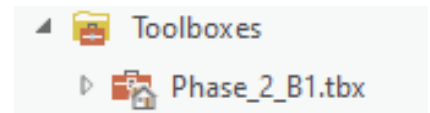
    c. Expand the **Databases folder**

    There is a default Project Database inside of this folder. After the Task workflow is completed, editing will occur with the data in this .gdb. The rules and domains are already in place and sourced to the layers in the Validation map.
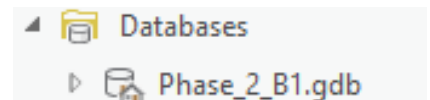
d.  Expand the **Styles** folder

> Every ArcPro Project contains default symbology, much like in ArcMap. However, they are called Styles in ArcPro. With ArcPro, there is an ability to curate custom styles.  There are 2 Style package options for the REVAMP project. Each Line feature is offset from the road centerline and symbolized accordingly. Offsetting enables all of the features to be viewed captured during validation instead of turning on and off layers in the Table of Contents and preventing editing errors.
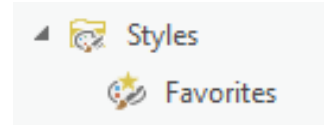
e.  Expand the **Servers** Folder

> This is where server connections are stored.

If you add GIO imagery to this project, it will be stored here.
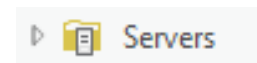
f.  Expand the **Tasks** Folder

> Here is where the Task for this Pre- Processing Workflow is stored. Double Click on the Task File; it opens and docks to the TOC pane. Leave the Tasks Window Open.  At the bottom of the TOC pane, you can toggle between Tasks and Contents if needed.
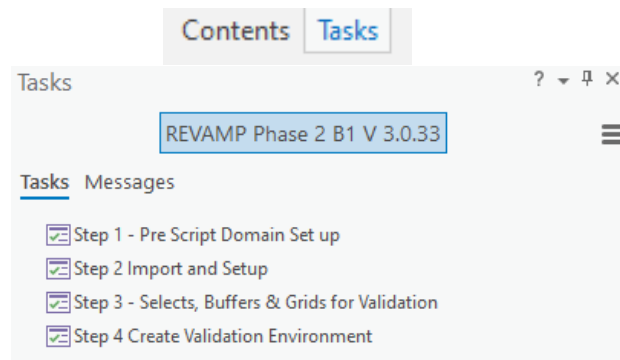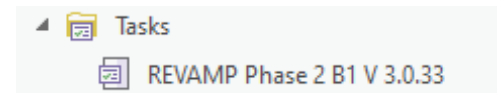
g.  Expand **Folders**

> Each ArcPro project comes with a default Folder connection. All of the project files, databases, toolboxes, etc., can be found in this folder, as well as their subfolders.
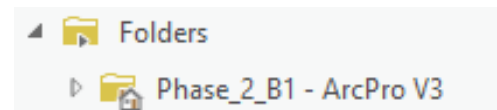
# Appendix B

## Troubleshooting

### Crosswalks Attribute Rules Workaround

The editing layers ' global IDs have zeroed out if creating a new Crosswalks feature and receiving an error similar to the one below. Follow the steps below as a workaround to this issue.



1. **In the TOC**
   a. Right-click Crosswalks
   b. Select Design
   c. Select Attribute Rules to open the Attribute Rules: Crosswalks table



2. **In the Attribute Rules Table**
   a. Delete rules and import Attribute Rules from the project folder

   **OR**

   b. Copy and paste each rule to create a duplicate of all the rules
   c. Delete the original rules (then remove the 1 in the rule names if needed)
   d. Save the changes in the Attribute Rules ribbon
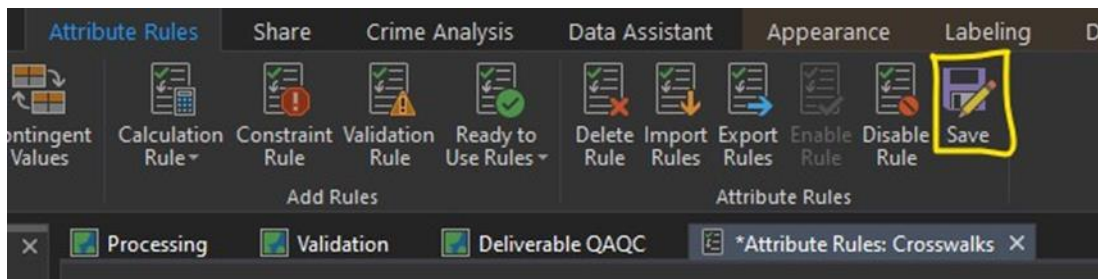
## Repopulate M-Values

1. Import the original Parking layer with M-values from the original database into the map.  In the Feature Class Properties, make sure the "Coordinates have M-values" has "Yes" selected in the properties.
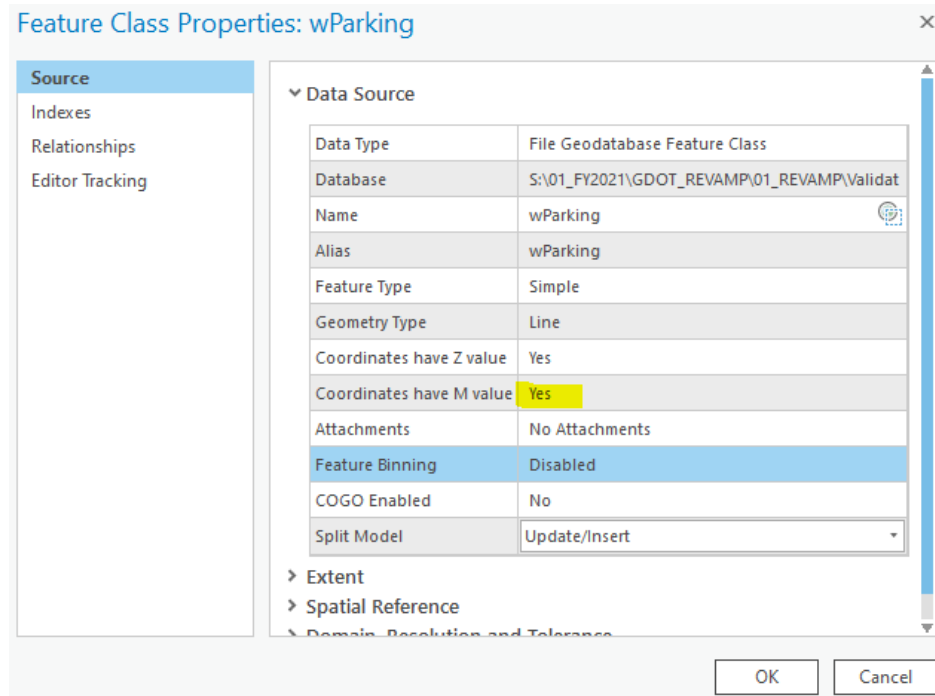


2. For the layer wParking, use the Delete Features tool to delete all features but keep the feature class. Upon completion, you will have a wParking layer with no features inside.

3. In ToolBox, go to the "Liner Referencing Tools"
   You will be using the following tools:

   a. Locate features along Routes
   b. Dissolve Route Events
   c. Make Route Event layer
   d. Append features into WParking
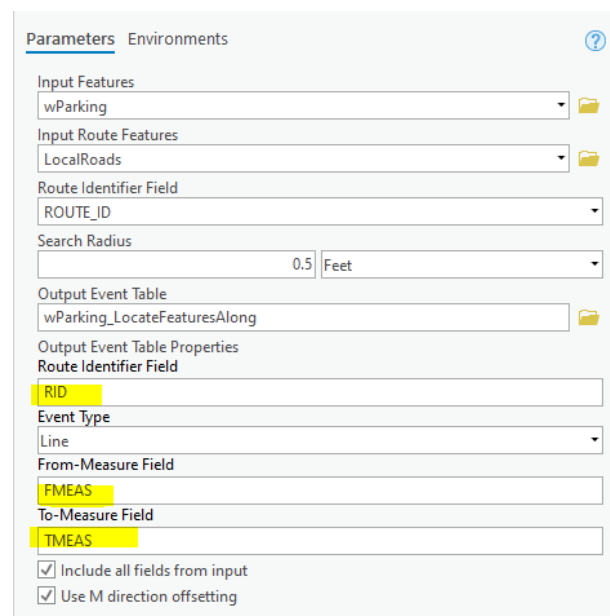
4. Locate Features along routes
    a. This will produce a table. The highlighted fields above are so you can keep the nomenclature different from RID to RouteID and FMEAS from From_MEAS

5. Complete the Dissolve Route Events as follows

6. Open the Make Route Event Layer and complete it as follows.



7. Append the Events layer into the wParking. You will need to field map the fmeas to the FROM_MILEPOINT and then do the same from TO_MILEPOINT. ROUTE_ID will auto-match up to ROUTEID, and you may want to match it to RID.

8. Open up the wParking and check your work to make sure it is updated correctly. An example below shows a RouteID with multiple entries and the segments of different M-vales.

| OBJECTID * | Shape * | ROUTE_ID | FROM_MILEPOINT | TO_MILEPOINT | PARKING_TYPE_RT | PARKING_TYPE_LT | DEC_PARKING_ |
|---|---|---|---|---|---|---|---|
| 1767 | Polyline ZM | 1191200006600INC | 0.4014 | 0.5278 | Parallel Parking | Parallel Parking | <Null> |
| 1766 | Polyline ZM | 1191200012700INC | 1.5703 | 1.6189 | Parallel Parking | Parallel Parking | <Null> |
| 1754 | Polyline ZM | 1191200030101INC | 0.3717 | 0.4227 | Perpendicular Parking | Perpendicular Parking | <Null> |
| 1761 | Polyline ZM | 1191200030101INC | 0.2522 | 0.3213 | Parallel Parking | Perpendicular Parking | <Null> |
| 1762 | Polyline ZM | 1191200030101INC | 0.5656 | 0.5939 | Perpendicular Parking | <Null> | <Null> |
| 1765 | Polyline ZM | 1191200030101INC | 0.321 | 0.3717 | Perpendicular Parking | <Null> | <Null> |

9. After you have completed, delete the original wParking and rename wParking2 to wParking. Lastly, clean up the GDB and delete the events and tables that were created during this process.