

# **GDOT REVAMP**

# Bucket 1 – Roads and Pedestrian Signs

# GIS ArcPro Tasks User Manual

Updated 6/10/2021

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# 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.

* Im	nport GDOT Database	

- c. Click Run
- d. Click Finish

#### Step 1 Task: Pre-script Domain Setup Complete

#### 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:

2

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
<ul> <li>Input Feature Class (GDOT delivered data &amp; Schools)</li> </ul>

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

Census Crosswalks Local Roads LRSN StateRt Parking
Local Roads LRSN StateRt
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
- 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 o.o5 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 o.o5 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-wTurnLanes
- d. Search Radius **o.o5 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 o.o5 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

Parameters Environments	?
Enter Phase_2_B1 Database Phase_2_B1.gdb	
Enter Data base to copy from Working.gdb LibertyWorking.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. Rightclick and Open Processing. You will be using this map to get started.

🖻 👩 Maps

### 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.

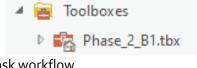
#### c. Expand the Databases folder

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.

Catalog							
Project Portal Favorites							
🛞 🚡 Search Project	:						
🖻 🗑 Maps							
🖻 🗃 Toolboxes	🔺 📷 Maps						
🖻 🛜 Databases	Processing						
🖻 😿 Styles	🔣 Validation						
Figure Servers							
🖻 📻 Tasks							
🖻 📊 Folders							
Elecators							



Phase\_2\_B1.gdb

🔺 📄 Databases

#### 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.



REVAMP Phase 2 B1 V 3.0.33

🔺 😿 Styles

🎲 Favorites

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

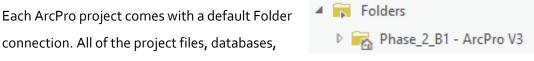
Workflow is stored. Double Click on the Task

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.

🔺 屓 Tasks

	Contents	Tasks					
Tasks				?	Ŧ	џ	×
[	REVAMP Phase	2 B1 V 3.0.33	3				≡
Tasks Message	!5						
😎 Step 1 - Pre	e Script Domain Set	up					
😎 Step 2 Imp	ort and Setup						
🗾 Step 3 - Sel	ects, Buffers & Grid	ds for Validation					
🗾 Step 4 Crea	te Validation Enviro	onment					

#### g. Expand Folders



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. Failed to create new feature(s).
Failed to evaluate Arcade expression. [ Rule name: UpdateRouteID\_wSchoolZones, Triggering event: Insert, Class name: Crosswalks,
GlobalID: {D8ACF2CF-D862-46F3-A443-372C33C11EE7}, Arcade error: Table not found {369FD827-85EB-4108-A4C7-9F0B92AEDC67}, Script line: 9]The table was not found. [{369FD827-85EB-4108-A4C7-9F0B92AEDC67}]The table was not found. [{369FD827-85EB-4108-A4C7-9F0B92AEDC67}]

#### 1. In the TOC

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

Processir	ng 🔣 Validation 📗	Deliverable QAQC 🗄 Attribute Rules: Crosswalks 🗙		
Calculation	Constraint Validation			
Add Rule	▼ Columns ▼ 🛛	ilter 🔻		
Order	Rule Name	Description	Subtype	Field
~ Immed	iate 2 Rule(s)			
	UpdateRoutelD_WSidewalks	Updates Crosswalks Route ID from wSidewalks	<all></all>	ROUTEID
	Last Value	Uses the Last Value entered to update next edits	<all></all>	

#### 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

Attrib		Share	Crime A	Analysis	Data A	ssistant	A	ppeara	nce	Labelin	g Di
へ か ontingent Values	Calculation Rule *	Constraint Rule	Validation Rule	Ready to Use Rules *		Import Rules			Disable Rule	R Save	
		Add R	ules				Attribut	e Rules			
×	Processing	🔣 Valid	ation	🗾 Deliveral	ble QAQ(	: [	*Attri	bute Ru	les: Cros	swalks 🔉	<

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**Repopulate M-Values** 

 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.

Feature Class Propert	ties: wParking	×	
Source	✓ Data Source		
Indexes	* Data Source		
Relationships	Data Type	File Geodatabase Feature Class	
Editor Tracking	Database	S:\01_FY2021\GDOT_REVAMP\01_REVAMP\Validat	
	Name	wParking	
	Alias	wParking	
	Feature Type	Simple	
	Geometry Type	Line	
	Coordinates have Z value Yes		
	Coordinates have M value	Yes	
Attachments		No Attachments	
	Feature Binning	Disabled	
	COGO Enabled No		
	Split Model	Update/Insert •	
	> Extent	<u></u>	
	<ul> <li>Spatial Reference</li> <li>Domain Resolution and</li> </ul>	d Toloranco	
		OK Cancel	

- 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.
- 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

Parameters Environments (?	D
Input Features	
wParking 👻	I.
Input Route Features	
LocalRoads 🔹 🗎	I.
Route Identifier Field	
ROUTE_ID ·	•
Search Radius	
0.5 Feet	•
Output Event Table	
wParking_LocateFeaturesAlong	I.
Output Event Table Properties Route Identifier Field	
RID	1
Event Type	
Line	•
From-Measure Field	_
FMEAS	
To-Measure Field	
TMEAS	
✓ Include all fields from input	
✓ Use M direction offsetting	

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- **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

Geoprocessing	]	₩ ₽ ×
$   \in $	Dissolve Route Events	$\oplus$
Parameters En	vironments	?
Input Event Table wParking_Locat	e ieFeaturesAlong	• 🗃
Event Table Prop Route Identifier I		
RID		-
Event Type		
Line		-
From-Measure F	ield	
FMEAS		-
To-Measure Field	3	
TMEAS		-
Dissolve Fields (	9	
ROUTE_ID		-
PARKING_T	YPE RT	-
PARKING T		
		•
A Output Event Tal		
wParking_Disso		
Output Event Tal Route Identifier		
RID		
Event Type		
Line		-
From-Measure F	ïeld	
fmeas		
To-Measure Field		
tmeas		
Combine adj	acent events only	
✓ Build index		

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

$   \in $	Make Route Event Layer	$\oplus$
Parameters Environr	nents	?
Input Route Features		
LocalRoads		- 🧰
Route Identifier Field		
ROUTE_ID		•
Input Event Table		
wParking_DissolveFea	atures	-
Event Table Properties Route Identifier Field		
RID		•
Event Type		
Line		-
From-Measure Field		
FMEAS		-
To-Measure Field		
TMEAS		-
Layer Name or Table V	iew	
wParking_DissolveFea	atures Events	
Offset Field		
		•
Generate a field for	locating errors	
Events with a posit	ive offset will be placed to the right of the route	es

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 automatch up to ROUTEID, and you may want to match it to RID.

Geoprocessing	≁ İ ×							
) A	Append 🕀							
<ul> <li>This tool modifies the input data.</li> </ul>								
Parameters Environments (								
Input Datasets 📀								
wParking_DissolveFeatures Event	ts 🔹 🗧							
Expression								
There is no expression defined.								
+ New expression *								
Target Dataset								
wParking_2								
Field Matching Type Use the field map to reconcile field o	lifferences 👻							
Field Map								
Output Fields (+)	Source Properties							
ROUTE_ID	Merge Rule First 🔹							
FROM_MILEPOINT	wParking_DissolveFeatures Events							
TO_MILEPOINT (0)	fmeas							
PARKING_TYPE_RT	Add New Source 🗸							
PARKING TYPE LT	Add Herr Bource							

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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></null>
1766	Polyline ZM	1191200012700INC	1.5703	1.6189	Parallel Parking	Parallel Parking	<null></null>
1754	Polyline ZM	1191200030101INC	0.3717	0.4227	Perpendicular Parking	Perpendicular Parking	<null></null>
1761	Polyline ZM	1191200030101INC	0.2522	0.3213	Parallel Parking	Perpendicular Parking	<null></null>
1762	Polyline ZM	1191200030101INC	0.5656	0.5939	Perpendicular Parking	<null></null>	<null></null>
1765	Polyline ZM	1191200030101INC	0.321	0.3717	Perpendicular Parking	<null></null>	<null></null>

9. After you have completed, delete the original wParking and rename wParking<sub>2</sub> to wParking.
 Lastly, clean up the GDB and delete the events and tables that were created during this process.