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COUNTY OF RIVERSIDE

TRANSPORTATION AND LAND MANAGEMENT AGENCY

Transportation Department

MEMORANDUM

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County Surveyor

To: Professional Land Surveying Community

From: David McMillan, County Surveyor

Date: 7-10-2019

Regarding: CATCH Online!

Effective immediately all Tracts and Parcel Maps will be run by the Land Survey Professional using CATCH Online.

Introduction

The County of Riverside Transportation Department, Survey Division developed a tool that can automatically check the digital survey-plat prior to approval. The tool that was developed is named County Automated Terrestrial CAD Helper (CATCH). CATCH is an ArcGIS geoprocessing tool written in Python. This tool created an automation script that reads the digitally submitted survey-plat and reports errors back to the industry professional Land Surveyor or Civil Engineer (applicant) who submitted the CADD file. These errors are sent back to the applicant as a Zipped file containing a PDF map, report, and a CAD file containing line, point, or polygon errors. Once the errors are fixed, the applicant can re-submit the survey-plat for approval. After the file is approved by CATCH it is then forwarded to the Assessor's office for input into the County's Parcel Fabric layer.

Thanks to everyone who helped make this available to the Public!

Licensing

No special licensing required, only an internet browser.

Data Used for Testing

The data that was used for testing were set up with the proper level names, file naming conventions per the Riverside County Map preparation manual. Maps were created by the public and were run successfully through the CATCH Online.

Step 1: Review CAD File

SEE STEPS AS OUTLINED IN THE MAP PREPARATION MANUAL [LINK](#)

1. Check Naming convention of the CAD file.
 - The CAD file must be named like the following example
PM_31211 or TR_31211
The CAD File needs an underscore PM_ or TR_ at the beginning or the tool won't run!
2. Check Level Names of the CAD file and make sure they match the list shown below
 - V-PROP-LINE (Property Boundary)
 - V-PROP-SUBD (Lot Lines)
 - V-RWAY-CNTR (Centerline)
 - V-RWAY-LINE (Right-of-Way Lines)
 - V-ANNO-STREET (Optional)
 - V-ANNO-LOT (Optional)
3. Check Scale needs to be in feet 1:1
4. Check Line Types of CAD File
 - Line Types need to be individual line segments, polylines will cause errors when running the tool. If the file still has polylines you can still run the tool, and advise the customer that they can use the split macro found [here](#) which will fix the polylines and turn them into individual line segments.

Step 2: Using the CATCH Online

1. Go to the following link using ArcGIS Online (AGOL). [Click here for link](#)
2. Fill in the information as shown on the figure 1.1 below

Input Output

Enter e-mail address from Surveyor*

JoeSurveyor@gmail.com

Attach CADD File*

URL Upload file

Select file...

Enter Combination Factor*

0

Enter Convergence Angle*

0

Enter Map Name*

PM_37082_CP2

Enter Engineer/Surveyor Name and License #*

PLS

Enter Engineering Firm*

PLS

[Help](#) Execute

Figure 1.1 CATCH Interface

3. Click on upload file and click the select file button and upload the CADD file (Remember to name the file correctly as shown in the above figure 1.1).
4. After the file uploads you will see file upload success as shown in the figure 1.2 below.

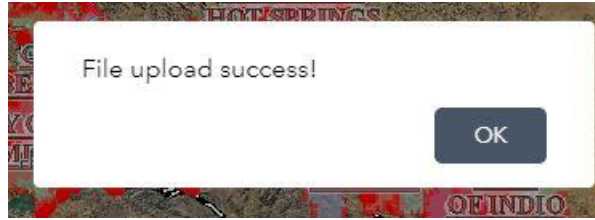

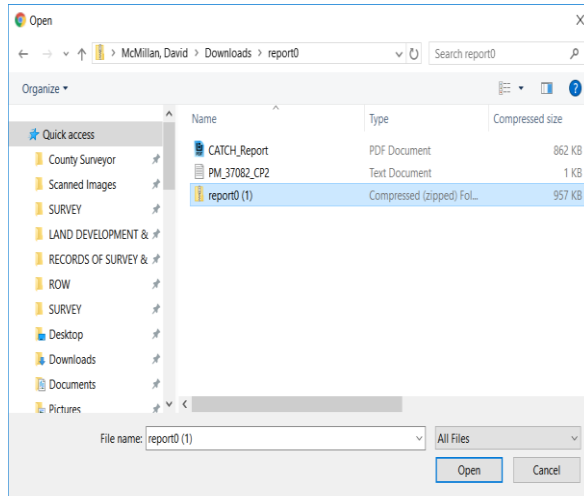
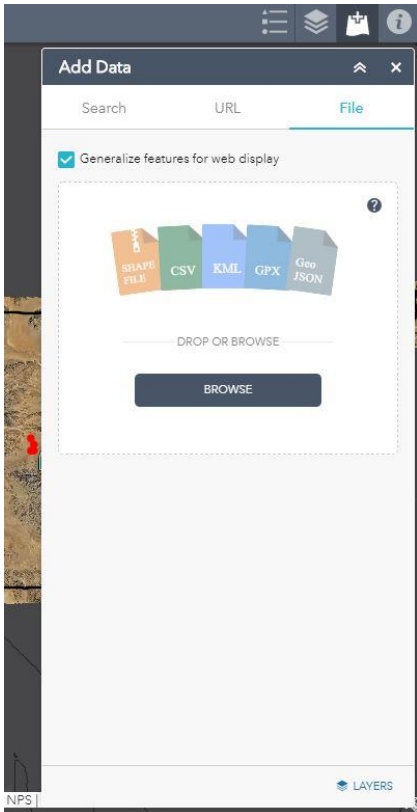
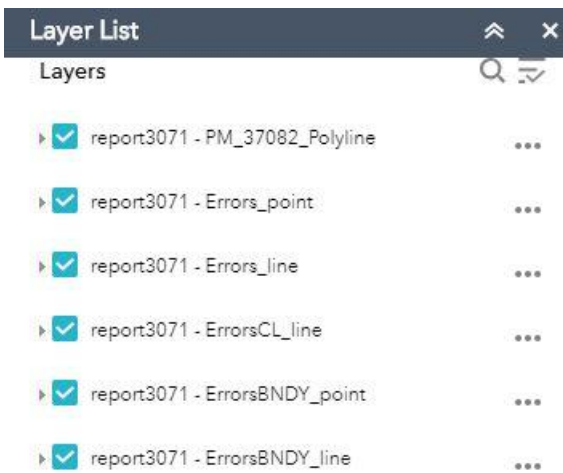


Figure 1.2 File Upload Success

5. Click the ok button as shown in figure 1.2.
6. Next fill in the combination factor and convergence angle from your map
7. Next enter the map name. (This needs to be named like the file shown in figure 1.1 example is shown here PM_37082_CP2).
8. Next enter the submitting land surveyor's name and license number signing the map.
9. Finally enter the Engineering/Surveying firm name.
10. After all the information is entered hit execute
11. After the tool runs and if it is successful it will return two hyperlinks
 - a. One is a hyperlink to the PDF report.
 - b. The other hyperlink is to a zip file containing: The CAD file Errors, Shapefiles, and the PDF report
12. If you want to upload the CATCH results from the ZIP file into the Web Map, click on the add item button and select File as shown below.

13. Next select BROWSE and navigate to the zip file and select "open" into the window as shown in the figure below.



14. The results should show up in the web map as shown in the figure below

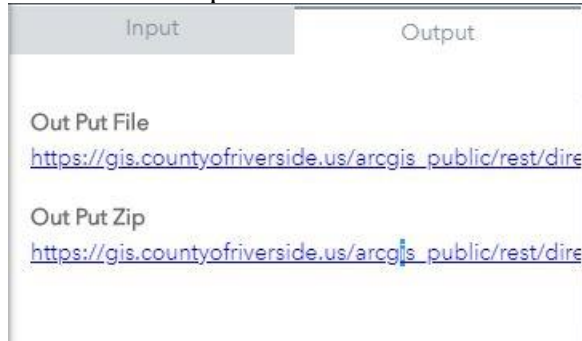


Step 3: Review the Results from CATCH

Below is an overview from the results for the CATCH Online.

REVIEW:

1. Click on the output tab and click the Out Put File as shown in the figure below.



- a. Click on the hyperlink as shown in the above figure. After doing so it will download a report. This Report has a total of 5 pages.
 - b. **Page one** shows the overview of the results of CATCH
 - c. **Page Two** shows the results for the Boundary Topology Check
 - d. **Page Three** shows the results for the Layer Name Check
 - e. **Page Four** shows the results for the Lot Topology Check
 - f. **Page Five** shows the results for the CL Topology Check (This is a Warning only Layer and will not cause the tool to fail)
 - g. **Each page shows how well the CADD file performed across the 6 Topology rules that make this file loadable into Esri's parcel fabric.**
 - h. **A detailed look at the topology errors and rule definitions can be found here**
 - i. [Presentation Link](#)
 - ii. See presentation titled CATCH_TopologyRules.pptx
2. Next click on the Out Put Zip hyperlink
 - a. This link will download a Zipped file that has the following contents
 - i. CADD files showing only the errors per Boundary and the Lot topology results

- ii. Shape files of the same errors as listed above
- iii. The PDF report from the CATCH Online

Step 4: The file needs to PASS before it is acceptable by the County Surveyor

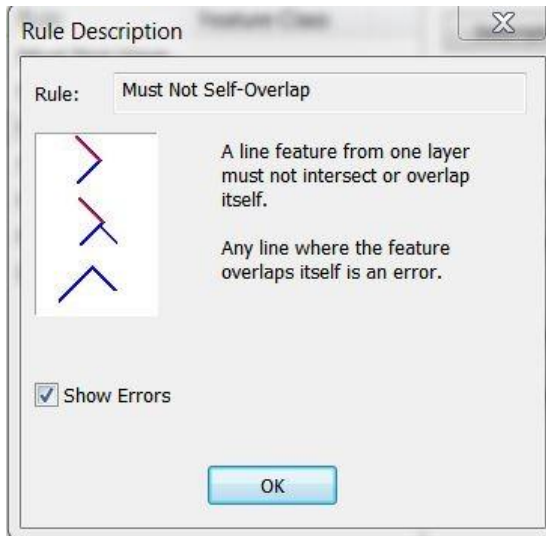
1. If you found that your CADD file has errors, fix these errors and then re-run the tool again through CATCH until the report shows that the tool pass.
2. Once the tool passes send a copy of the PDF report and the CADD file to the Land Development Map Check Section for final delivery
3. The Land Development Map Check Team will run the tool one final time to create the data for delivery to the Assessor.
4. Once the map records, the Land Development Map Check team will send the GIS data to the Assessor for entry into the Parcel Fabric.

Understanding Topology Errors from the Report

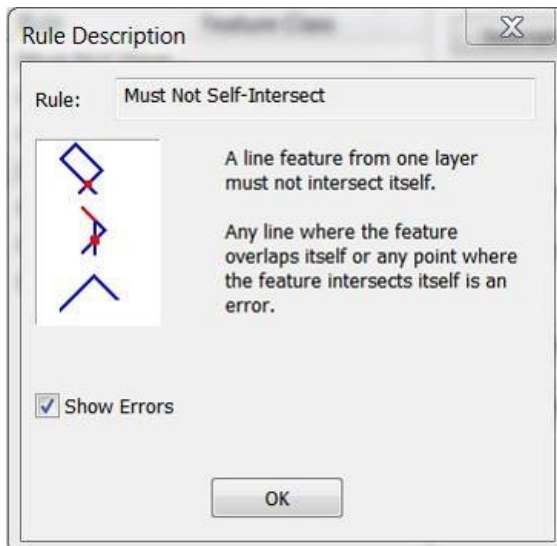
Below is list of the six topology rules from Esri’s Parcel Fabric

Line Type	Rule	Description
Polyline	Must Not Self-Overlap	
Polyline	Must Not Self-Intersect	
Polyline	Must Be Single Part	
Polyline	Must Not Intersect Or Touch Interior	
Polyline-Polygon	Must Be Covered By Boundary Of	
Polygon-Polyline	Boundary Must Be Covered By	

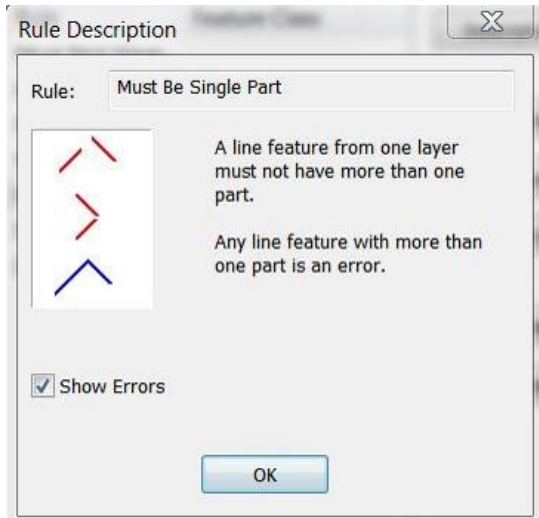
CAD Line Data Must Not Self-Overlap



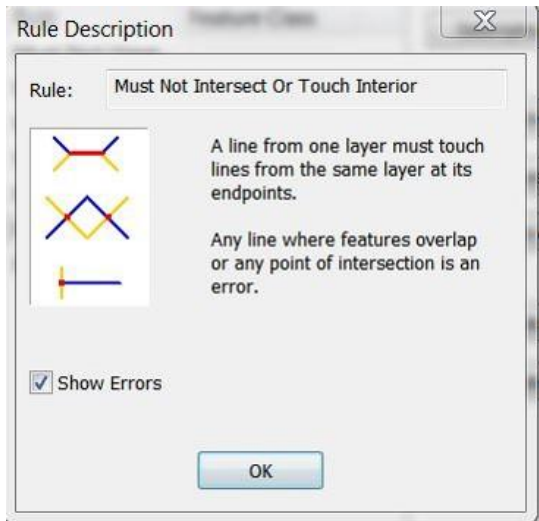
CAD Line Data must not Self-Intersect



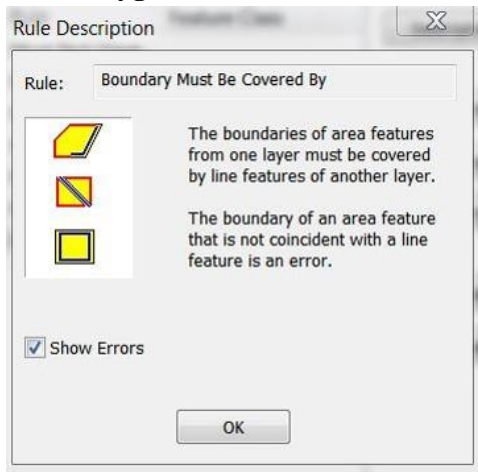
CAD Line Data must be a single part



CAD Line Data must not Intersect or Touch Interior



CAD Polygon Data must have Line covered by polygons



CAD Polygon Data must have Polygons covered by lines

