Validation and Submission Tool Guide

The Validation and Submission Tool (also "Validation Tool" or "V3ValidationTool") is a dual-purpose tool that helps to:

1) Prepare a parcel dataset submission that is free of some of the most commonly found parcel dataset errors; and
2) Offers the interface through which to prepare the *.ini submission form* that must be included with the V3 data submission.

The two modes under which the tool can be run are:

"TEST" mode = For VALIDATING a parcel dataset

You should use the tool in TEST mode to **find and/or fix errors** within a Searchable Format parcel submission. By running the tool in TEST mode, the tool will check a **Searchable Format** submission for various types of general, attribute, and geometric type errors. Running the tool in TEST mode will provide easy-to-use descriptions of each error so that the proper resolutions can be implemented.

"FINAL" mode = For SUBMITTING parcel and zoning datasets and creating required *.ini submission form*

In order to properly prepare a Searchable or Export Format submission, counties MUST use the tool to **prepare their parcel submission** and create an *.ini submission form*. By running the tool in FINAL mode, the tool will check a **Searchable Format submission**, validate the existence, degree, and nature of any errors, and will present the interface through which an *.ini submission form* will be created. Export Format submitters also use FINAL mode to generate the mandatory *.ini submission form*, which also serves the role of a crosswalk for the Export Format.

When to Use V3 Validation Tool		
		Benchmark 1 & Benchmark 2 Parcel and Zoning Data Submission & Extended Parcel Attribute Set Submission with Parsed Address Elements
VALIDATING/PREPARING	**EXPORT FORMAT**	Standardized domains/fields not required
	SEARCHABLE FORMAT	✓ The tool can assist
SUBMITTING	**EXPORT FORMAT**	✓ Validation Tool is **required**
	SEARCHABLE FORMAT	✓ Validation Tool is **required**

Why is This Guide Necessary?

The statewide parcel layer can be more interoperable, consistent, maintainable, and user friendly if free of **file errors**, **attribute errors**, and **errors of geometric qualities**.

- **Locate File Errors.** File errors may cause incompatibility with that of other jurisdictions when aggregating data from local to statewide levels. These types of errors may also affect the accuracy or usability of an entire dataset.
- **Locate Attribute Errors.** Attributes can be more consistent, understandable, searchable, maintainable, and user friendly if the data is free from anomalies. Furthermore, adhering to an attribute standard allows for continuity and contiguity across all counties when aggregating to a statewide dataset.
- **Locate Geometric Errors.** Geometric flaws may cause issues for users depending upon how they are used in various software applications.
- **Create the mandatory *.ini submission form*.** The submission form for V3 is the output file (.ini) that results from running the tool in FINAL mode.

How to Use This Guide

It is recommended you have the following materials at hand:

- The *V3 Submission Documentation* and V3 webpage
- The data participating in the Searchable or Export Format submission, with data **already prepared to the schema standards**
- The county staff member(s) who will submit the data for V3
- The *Validation and Submission Tool* from www.sco.wisc.edu/parcels/tools

Contents

1 About The Tool

The Validation Tool serves two purposes: 1) **TEST mode** for testing/validating, and 2) **FINAL mode** for final validation in order to submit data and create the mandatory *.ini submission form*.

1.1 About TEST Mode

Executing the tool in TEST mode will allow you to assess your parcel submission and **determine specifically what improvements need to be made** to the dataset of a Searchable Format submission before zipping up the files and performing a formal submission. The tool's TEST mode is **designed to flag all conditions that violate schema specifications and note them in two places**:

1) **Summary file** – A file called *ValidationSummary.txt* is a summary file named and written to the directory specified by the user in the tool's dialogue.

2) **In-line comments** – Comments that are automatically created **within the output feature class** whose output location is also specified by the user in the tool's dialogue.

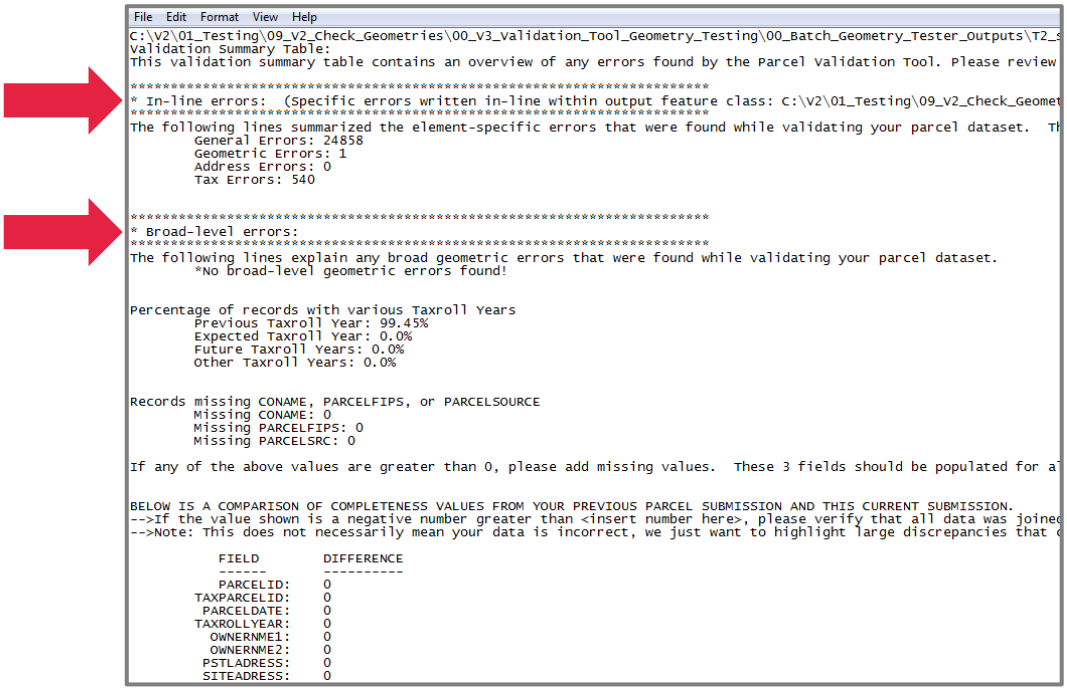
The purpose of TEST mode is to eliminate errors—by helping to pinpoint them—and thus direct the user to take the appropriate actions to correct them.

Resolving errors may necessitate the execution of one of the V3 Project's tools, custom automated solutions, or manual edits—depending upon which is the most appropriate solution.

It is anticipated that **the Validation Tool may need to be executed several times in TEST mode** in order to troubleshoot all errors that may exist within a submission. Some errors may be overlooked when resolving edits the first time through and the Validation Tool should be executed subsequent times until all possible fixes to errors have been resolved. The tool should always be executed one final time before proceeding to FINAL mode.

After all possible errors are found and corrected within TEST mode, the dataset is ready for submission. **If any errors remain because it is not possible to resolve them, they must be explained within the *Explain-Certification.txt* that is entered when running the tool in FINAL mode.**

The error status is always summarized within the output *ValidationSummary.txt* file, as pictured in Figure 1. This file meant to provide a general overview of the condition of the dataset.



```
File  Edit  Format  View  Help
C:\V2\01_Testing\09_V2_Check_Geometries\00_V3_Validation_Tool_Geometry_Testing\00_Batch_Geometry_Tester_Outputs\T2_
Validation Summary Table:
This validation summary table contains an overview of any errors found by the Parcel Validation Tool. Please review

************************************************************************
* In-line errors:  (Specific errors written in-line within output feature class: C:\V2\01_Testing\09_V2_Check_Geomet
************************************************************************
The following lines summarized the element-specific errors that were found while validating your parcel dataset.  Th
        General Errors: 24858
        Geometric Errors: 1
        Address Errors: 0
        Tax Errors: 540


************************************************************************
* Broad-level errors:
************************************************************************
The following lines explain any broad geometric errors that were found while validating your parcel dataset.
        *No broad-level geometric errors found!


Percentage of records with various Taxroll Years
        Previous Taxroll Year: 99.45%
        Expected Taxroll Year: 0.0%
        Future Taxroll Years: 0.0%
        Other Taxroll Years: 0.0%


Records missing CONAME, PARCELFIPS, or PARCELSOURCE
        Missing CONAME: 0
        Missing PARCELFIPS: 0
        Missing PARCELSRC: 0

If any of the above values are greater than 0, please add missing values.  These 3 fields should be populated for a

BELOW IS A COMPARISON OF COMPLETENESS VALUES FROM YOUR PREVIOUS PARCEL SUBMISSION AND THIS CURRENT SUBMISSION.
-->If the value shown is a negative number greater than <insert number here>, please verify that all data was joine
-->Note: This does not necessarily mean your data is incorrect, we just want to highlight large discrepancies that

          FIELD        DIFFERENCE
          ------       ----------
          PARCELID:    0
        TAXPARCELID:   0
         PARCELDATE:   0
        TAXROLLYEAR:   0
          OWNERNME1:   0
          OWNERNME2:   0
         PSTLADRESS:   0
         SITEADRESS:   0
```

Figure 1. ValidationSummary.txt file (Example). This summarizes error status for both "In-line errors" and "Broad-level errors"

1.2 About FINAL Mode

Once the parcel data is determined to be ready for submission—as determined by an error-free TEST mode run and a corresponding *ValidationSummary.txt* file, the Validation Tool can then be executed using in FINAL mode.

Export Format Note. If submitting in Export Format, **TEST mode should be skipped**. For Export Format adherents, only FINAL mode should be executed.

FINAL mode walks both the Export and Searchable Format submitter through a few prompts that automatically build the *.ini submission form* that is required for submission of V3 data.

- The *.ini submission form* is an automatically created **.ini** file that is named with the county name preceding the output file name, which is determined by the user:
  - e.g., "**DANE_Final1.ini**"
    - where "DANE" is the submitting county specified and "_Final1" is the output file name chosen by the user).

The tool need only be executed once in FINAL mode. The only output for FINAL mode is the *.ini submission form*.

Once the .ini file is created, the only further action to finish submission is to zip up all the participating files for submission and submit the data through the upload data page via LTSB's WISE-Decade platform.

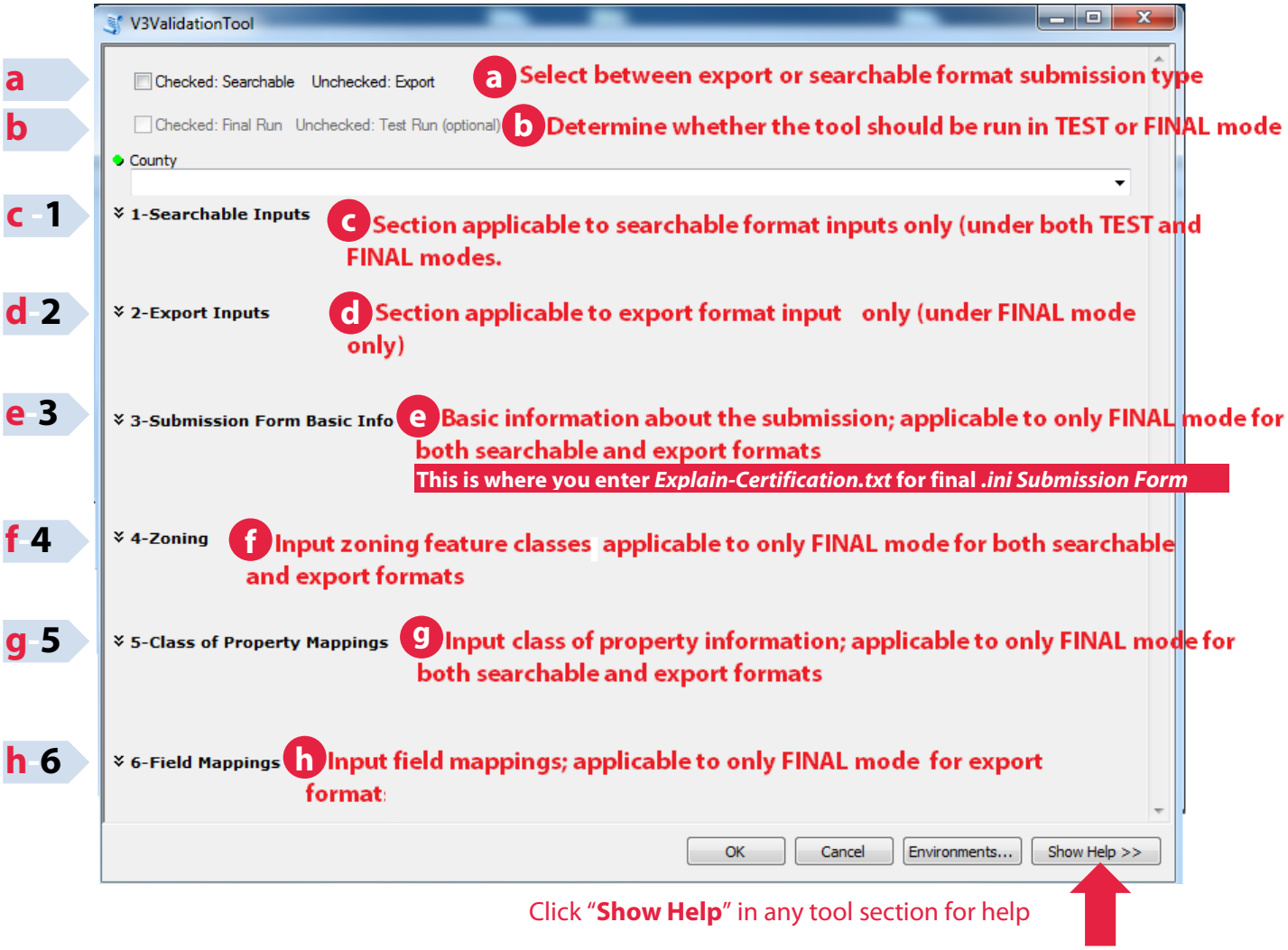


Figure 2. Tool Interface

2 Installing the Tool

The *Validation and Submission Toolbox* contains an ArcPy script tool. To begin installation, download the zipped package from www.sco.wisc.edu/parcels/tools.

Unzip the download to the directory of your choice. You may want to place the tool within a directory that is close to your parcel submission working directory. Next, open ArcCatalog and navigate to the newly created directory containing the unzipped files. You should see a toolbox (if you do not see any toolboxes, hit **F5** to refresh the directory).

The tool should be ready to run upon unzipping. If you experience trouble starting or executing the tool, see the Troubleshooting section below.

3 Before Starting . . .

There are a handful of recommendations that will help in executing the tool and making submission to the parcel project as easy as possible. Please review the list below for tips on preparing your data for the Validation and Submission Tool before proceeding.

1) **Format your data to the schema standards**
   - The Validation Tool's TEST mode is meant to be executed on an parcel layer that is as-close-as-possible to the schema specifications.
   - An excessive number of errors will likely be found on a parcel dataset that does not closely adhere to the schema, even if it is an well designed parcel dataset on its own.
   - The tool is designed to test against the statewide parcel schema only.
   - Testing the dataset before the proper preparations have been applied may cause the tool to not complete execution, as it is designed to gracefully exit execution if the needed requirements are not intact in the tested feature class.
   - Running the tool in TEST mode before the data is properly prepared may also cause an excessive number of simple errors to be flagged. This may appear overwhelming to the submitter and subtle errors may obfucscate the more important ones.

2) **Test the tool**
   - If you would like to test how the tool works, give it a try on the included test data, which can be found within the zipped tool package.

3) **Run the "Null Fields and Set to UPPPERCASE Tool"**
   - Run the Null Fields and Set to UPPERCASE Tool. The Project's attribute schema specifies that leading and trailing white spaces should **not** exist within a parcel submission.
   - The schema specifies that all strings should written in UPPERCASE.
   - The schema also specifies that empty string cells (e.g. "") should be annotated as true SQL <Nulls>.
   - The Validation Tool will flag any instance of the these errors and these types of errors can add up quickly. For this reason, it is recommended that you execute the Null Fields and Set to UPPERCASE Tool.

4 Glossary of Associated Files

- *ValidationSummary.txt* – A text file that results when you run the tool in TEST mode. It summarizes errors.
- *Explain-Certification.txt* – A plain text file that the county LIO writes. A template *Explain-Certification.txt* file can be found at the root level of the tool's zipped package. It explains any special situations. It also contains essential information that MUST be present for the submission to be accepted. (For example, it is where the **ACCESSURL** attribute is specified, and the **Other Layers** that will be submitted per Appendix E are specified.) It is entered in as attachment in the "3-Submission Form Basic Info" section of the tool's FINAL mode.
- *.ini submission form* – An .ini format file that is the result of successfully running the tool in FINAL mode. This file provides all of the information you have inputted in FINAL mode (including the *Explain-Certification.txt*). It is **MANDATORY for all submissions**—whether Searchable or Export format.
- *Output Feature Class* – The feature class that results from running the tool in TEST mode, where errors can be viewed as values within the attribute table as "In-line errors," written in-line inside the output feature class.

5 TEST Mode: Overview

TEST mode may yield several thousand errors or merely a handful of errors upon its first running. The number of errors will be influenced by the size of the parcel dataset, its adherance to schema specifications, and the amount of preparation that has already been applied to the layer.

For Export Format Submitters. Test mode is **designed for execution on Searchable Format submissions only**. If submitting in Export Format, please prepare your data to the highest degree of adherence to the Export Format and proceed in using the tool in FINAL mode.

5.1 Finding errors manually

The Validation Tool will check your data for errors, but it is advisable to manually check for errors first. Generally speaking, this is the process that a county may have employed in the past to double-check that the parcel submission adheres to the specs of the V3 Submission Documentation. Ensure that the dataset is vetted with a **manual error check** before moving to the next step.

5.2 Finding errors via the Validation Tool

The Validation Tool is designed to **identify common file**, **geometric**, and **attribute issues** seen within parcel datasets. The next sections in this document are broken into these issue-type sections.

Geometric Issues

The geometric assessment results can be found within the output *ValidationSummary.txt* file and within the geometric error field ("GeometricElementErrors") of the tested parcel feature class.

Attribute Issues

The attribute assessment results can be found within the output *ValidationSummary.txt* file and within the general error field ("GeneralElementErrors"), address error field ("AddressElementErrors"), or tax error field ("TaxElementErrors") of the tested parcel feature class.

6 TEST Mode: Interpreting Geometric Issues

6.1 Types of Geometric Issues

While running the tool in TEST mode, some counties may be presented with "geometric errors" to resolve. These geometric errors may be classified in one of two locations pending the nature of the error: Immediate errors, In-line errors, or Broad-level errors.

Immediate errors

- "Immediate" errors exist on parcel feature classes under conditions where the feature class cannot be further tested by the tool without resolving them. Immediate errors do **not** apply to geometric issues.

In-line errors

- "In-line" errors exist on individual parcel features within the dataset and apply to only the specific feature at the given OBJECTID within the feature class.
  - ***Example***: A parcel geometry was found that has no length value or no area value, thus indicating that it contains a "Null" geometry or invalid geometry
- Notes that describe the nature of In-line errors can be found within the output feature class that is created by running the tool in TEST mode. These error notes will exist in the "GeometricElementErrors" field that is automatically created when running the tool in TEST mode. A summary of the number of in-line geometric errors found is also written to the *ValidationSummary.txt* file for the purpose of quick reference when reviewing the results.

```
5  ********************************
6  * In-line errors:  (Specific err
7  ********************************
8  The following lines summarized t
9      General Errors: 0
10     Geometric Errors: 0
11     Address Errors: 0
12     Tax Errors: 101
```

Figure 3. In-line errors from ValidationSummary.txt

Broad-level errors

- "Broad-level" errors are broader in nature and typically apply to an entire parcel feature class or a large portion of a feature class.

- ***Example***: The dataset is projected to a Coordinate Reference system that differs from that of the statewide schema.

- Notes that describe the nature of broad-level errors can be found within the *ValidationSummary.txt* file under the "Broad-level errors" section.
- The summary file will read "*No broad-level geometric errors found!" if no errors of this type were found when running in TEST mode.
- Note that broad-level errors will **not** be found within the "GeometricElementErrors" field as this type of error is not specific to any one feature (rather, they apply to the feature class as a whole).

7 TEST Mode: Workflow/Sequence for Edits

7.1 Recommended sequence of editing

Three levels of errors may be found when running the tool in TEST mode. It is recommended you resolve these issues in the following order, but please note this workflow is recommended only if no other workflow is preferred:

1) **Immediate errors – Resolve 1st**
   - General Errors
   - Geometric Errors (NOT APPLICABLE)
   - Address Errors (NOT APPLICABLE)
   - Tax Errors (NOT APPLICABLE)
2) **Broad-level errors – Resolve 2nd**
   - General Errors
   - Geometric Errors
   - Address Errors
   - Tax Errors
3) **In-line errors – Resolve 3rd**
   - General Errors
   - Geometric Errors
   - Address Errors
   - Tax Errors

Immediate errors – Resolve 1st

Immediate errors are errors found within the data that **have a direct effect on the proper execution of the tool**. If an error of this nature is found, the tool will gracefully stop executing and alert the user of the problem through the tool's dialogue and within the *ValidationSummary.txt* file.

Generally no other errors will be listed when this type of error is encountered. The user must resolve the immediate error, using the directives provided in the *ValidationSummary.txt* file before proceeding with the next execution of the tool in TEST mode. Once the immediate error is resolved, the tool can be executed again for broad-level and in-line errors.

Broad-level errors – Resolve 2nd

Broad-level errors are recommended for resolution after immediate errors, but before in-line errors. This is due to the nature of broad-level errors, which **affect a great number of features**. The various resolutions to broad-level errors tend to be well suited for batch troubleshooting. Executing resolutions on large batches of features or the entire feature class may positively impact the number of in-line errors, which are can require more manual intervention to resolve.

In-line errors – Resolve 3rd

In-line errors are recommended for resolution last.

Recommendation for Handling Error Types

At the above error levels, there are four categorical types of error. It is recommended that these types be handled in the following order—but only if a different workflow is not preferred by the user, as the condition of the data, software used, and other factors may cause a more obvious workflow to be desirable):

1) **General Errors** – errors otherwise unclassified by the three types below
2) **Geometric Errors** – errors that are a function of parcel geometry
3) **Address Errors** – errors specific to address-related attribute elements
4) **Tax Errors** – errors specific to tax roll-related attribute elements

8 TEST Mode: Resolving Broad-level Geometric Errors

8.1 Reading Broad-level results within the ValidationSummary.txt file

Broad-level geometric errors will come in the following forms. Please read the directives associated with each error to begin troubleshooting.

Geometric File Errors

- Geometric file errors will occur if the parcel feature class appears to have file qualities that do not meet submission standards. The following types of Geometric file errors might be thrown:
  - **Error**: **Invalidated Coordinate Reference System**
  - **Nature**: Occurs when the feature class's coordinate reference system (CRS) cannot be accurately validated by the Validation Tool
  - **Fix**: Please follow this documentation to project native data to the Statewide Parcel CRS: www.sco.wisc.edu/parcels/tools/FieldMapping/Parcel_Schema_Field_Mapping_Guide.pdf and ensure that the feature class adheres to the CRS parameters as so:
    - *Datum*: NAD_1983_HARN_Wisconsin_TM
    - *WKID*: 3071
    - Authority: EPSG
    - *Projection*: Transverse Mercator
    - False Easting: 520000.0
    - False Northing: -4480000.0
    - Central Meridian: -90.0
    - Scale Factor: 0.9996
    - Latitude Of Origin: 0.0
    - *Linear Unit*: Meter (1.0)

- **Error**: **Coordinate Reference System Error**
  - **Nature**: Occurs when the feature class has a coordinate reference system (CRS) applied to it that differs from that of the statewide parcel project's submission standards (NAD_1983_HARN_Wisconsin_TM). This CRS may be imported from \GISTemplates.gdb\SearchableFormatTemplate
    - *Datum*: NAD_1983_HARN_Wisconsin_TM
    - *WKID*: 3071
    - Authority: EPSG
    - *Projection*: Transverse Mercator
    - False Easting: 520000.0
    - False Northing: -4480000.0
    - Central Meridian: -90.0
    - Scale Factor: 0.9996
    - Latitude Of Origin: 0.0
    - *Linear Unit*: Meter (1.0)
  - **Fix**: Follow this documentation to project native data to the Statewide Parcel CRS: www.sco.wisc.edu/parcels/tools/FieldMapping/Parcel_Schema_Field_Mapping_Guide.pdf

- **Error**: **Geometry Type Error**
  - **Nature**: Occurs when the feature class contains non-polygonal features, such as points or lines. Only polygon feature classes should be submitted.
  - **Fix**: Prepare a feature class containing polygon parcel features

Geometric Misplacement Flag

- A Geometric Misplacement Flag of flag will occur if parcel geometries appear to be spatially misplaced when comparing them against the previous statewide parcel version's parcel geometries. This existence of this issue is indicative of a re-projection error but could also be caused by various other reasons.
  - **Purpose of this test**: The purpose of this test is to call attention to the possibility that the parcel geometries could be inaccurate. Past parcel submissions have occasionally contained subtle to significant degrees of dataset-wide geometric misplacement. Almost every time this condition was observed, it was the direct result of merging the local parcel dataset with its native coordinate reference system applied, with a statewide parcel template, with the statewide coordinate reference system applied. To best preserve the geometric quality of the local parcel dataset, the local dataset should be projected from its native CRS to the CRS of the statewide parcel layer and then merged into a template file.
    - See the following documentation for advice on how to project native data to the Statewide Parcel CRS: www.sco.wisc.edu/parcels/tools/FieldMapping/Parcel_Schema_Field_Mapping_Guide.pdf
  - **How is this error tested?** Within the logic of the Validation Tool, parcel geometries of the submitter's parcel dataset are checked at ten evenly dispersed intervals across the parcel dataset. Each of these tests involve querying the most recent statewide parcel feature service by PARCEL ID, accessing the geometric properties of the queried parcel, and comparing parcel centroids of each polygon. If the two parcel

centroids contain more than a 0.01 meter difference, then the given test will fail. If all ten of these tests fail during the duration of running the tool, the Geometric Misplacement Flag is thrown.

- **False positives**: Given the nature of this test's logic as described, there is a possibility of a false positive test for geometric misplacement. The following may be reasons a geometric misplacement error may be incorrectly displayed:
  - Any reason that all, or a significant number of parcel features were spatially adjusted over the course of the year.
  - The parcel ID within the parcel dataset does not match that of the parcel ID submitted for the previous year.
  - The parcels submitted to the previous version of the parcel project were misplaced and were not corrected when preparing the statewide layer.
  - ***If any of these conditions are true, or another, please make note of them within the*** *Explain-Certification.txt* section of the tool's FINAL mode under "3-Submission Form Basic Info."
- **Validating and correcting this issue**: If this flag is thrown and it is clear that the false positives mentioned above are not explanations of its cause, then the following steps are recommended:
  - **Validating**
    1) Open a new ArcMap session and bring the parcel feature class
    2) Add an orthorectified imagery layer (use the best/most reliable layer available)
    3) Add the native parcel dataset (make sure that the native layer has the county coordinate reference system applied.
    4) Change each of the two parcel layers symbology to have no fill and stroke with two distinct colors.
    5) Zoom-in on parcels across several different areas across the county, check to ensure that the geometries of the two parcel datasets align (it may be necessary to zoom-in beyond the 1:1 scale).
    6) If there is a difference between the location of the two parcel datasets when inspecting parcels across the county, then a geometric misplacement exists.
  - **Correcting**
    1) If the parcel dataset was prepared using steps akin to merging the native parcel dataset with the parcel projects GIS template without first projecting the native data to the statewide coordinate reference system, then this is likely the cause of the geometric misplacement. Follow the steps outlined in this document to re-prepare the parcel geometries: www.sco.wisc.edu/parcels/tools/FieldMapping/Parcel_Schema_Field_Mapping_Guide.pdf

9 TEST Mode: Resolving In-line Geometric Errors

9.1 Reading results within the "GeometricElementErrors" field

Geometric errors that are specific to an individual feature will be written in-line within the *GeometricElementErrors* field. This field is automatically created when running the tool in TEST mode. Open the output feature class in ArcMap after running this Validation Tool and sort this field descending on the *GeometricElementErrors* field. Please read the directives associated with each error to begin troubleshooting.

Error and Flag Overview

The following types of "geometric element errors" or "flags" might be thrown when running a validation. These results will be reflected within the GeometricElementErrors field.

- **Error/Flag: Sliver Polygon**
  - **Nature**: This type of flag will occur if the parcel's geometry appears to have the geometric qualities of a sliver polygon. Specifically, if the polygon has any of the following:
    - "Sliver polygon: AREA" → area < 0.01 Meters
    - "Sliver polygon: LENGTH" → length < 0.01 Meters
    - "Sliver polygon: AREA/LENGTH" → area / length < 0.01 Meters
  - **Fix**: *Note that this type of issue is annotated as a "flag" and thus not necessarily an indication of an error. In many parcel datasets, this type of sliver polygon is used to maintain a spatially contiguous parcel dataset, even though there may be small areas where parcels did not COGO together perfectly. While these types of features are not preferred, they are acceptable by the parcel projects standards as long as one of the following actions are applied:
    - ***If the sliver exists intentionally as a way to fill a geometric gap in the parcel dataset***, the parcel should be annotated as "GAP" within the parcel ID field.
    - ***If the sliver exists as an unintentional fragment of another parcel***, the parcel should be geometrically merged with the parcel that shares a common parcel ID.

- **Error/Flag: Corrupt Geometry**
  - **Nature**: This type of flag will occur if the parcel's geometry cannot be accessed within the script. Use the following directives accordingly:
    - ***"Corrupt Geometry: The feature's area and/or length could not be accessed."***
      Or
    - ***"Corrupt Geometry: The feature's geometry could not be accessed."***
      → A rare general error that occurs when a parcel's geometry could not be accessed. This type of error is indicative of a corrupt parcel geometry and is general in nature. As this is a general error, there may be various reasons that the error was thrown.
  - **Fix**: If either of these error messages are found on a feature, try the following techniques to troubleshoot (in the following order):
    - Navigate to the feature within ArcMap by selecting the feature and choosing to zoom to it. If the act of zooming to the feature brings you to no result, or to some location outside of the county, then the parcel likely has a null geometry. Features with null geometry should be deleted or re-created.
    - If navigating to the feature by selecting the feature and zooming to it brings you to a parcel feature, explore the nature of the parcel geometry.
      - Does it self-intersect?
      - Does it contain more than 2 vertices?
      - Do any of its vertices exist perfectly on top of one another?
      - Is it represented as existing within the county boundaries?
      - Is it a multipart feature? If this is a multipart feature, the same issues should be examined on each part of the multi-part feature.
        - Does it self-intersect?
        - Does it contain more than 2 vertices?
        - Do any of its vertices exist perfectly on top of one another?
        - Is it represented as existing within the county boundaries?
      - *If any of the above are true, actions should be taken to correct the issue, the feature should be deleted, or re-created.

10 TEST Mode: Resolving Broad-level Attribute Errors

10.1 Reading broad-level results within the ValidationSummary.txt file

Broad-level attribute errors will come in the following forms within the *ValidationSummary.txt*. Please read the directives associated with each error in the summary file to begin troubleshooting.

```
C:\Users\csee\Documents\GitHub\V3ValidationTool\TestData\Sample_Searchable_Submission\OutputFiles\WAUK8_ValidationSummary.txt
Validation Summary Table:
This validation summary table contains an overview of any errors found by the Parcel Validation Tool. Please review the contents of this file and make changes to yo

**********************************************************************
* In-line errors:  (Specific errors written in-line within output feature class: C:\Users\csee\Documents\GitHub\V3ValidationTool\TestData\Sample_Searchable_Submissi
**********************************************************************
The following lines summarized the element-specific errors that were found while validating your parcel dataset.  The stats below are meant as a means of reviewing
    General Errors: 0
    Geometric Errors: 0
    Address Errors: 0
    Tax Errors: 101


**********************************************************************
* Broad-level errors:
**********************************************************************
The following lines explain any broad geometric errors that were found while validating your parcel dataset.
    *No broad-level geometric errors found!


Percentage of records with various Taxroll Years
    Previous Taxroll Year: 100.0%
    Expected Taxroll Year: 0.0%
    Future Taxroll Years: 0.0%
    Other Taxroll Years: 0.0%


Records missing CONAME, PARCELFIPS, or PARCELSOURCE
    Missing CONAME: 0
    Missing PARCELFIPS: 0
    Missing PARCELSRC: 0

If any of the above values are greater than 0, please add missing values.  These 3 fields should be populated for all records submitted.


BELOW IS A COMPARISON OF COMPLETENESS VALUES FROM YOUR PREVIOUS PARCEL SUBMISSION AND THIS CURRENT SUBMISSION.
-->If the value shown is a negative number greater than <X>, please verify that all data was joined correctly and no data was lost during processing.
-->Note: This does not necessarily mean your data is incorrect, we just want to highlight large discrepancies that could indicate missing or incorrect data.

        FIELD       DIFFERENCE
        ------      ----------
      PARCELID:     -153562
   TAXPARCELID:     -153562
    PARCELDATE:     100
   TAXROLLYEAR:     -154177
     OWNERNME1:     -154177
     OWNERNME2:     -10298
     PSTLADRESS:    -152544
     SITEADRESS:    -144156
  ADDNUMPREFIX:     -62955
       ADDNUM:      -142937
  ADDNUMSUFFIX:     -214
       PREFIX:      -31433
    STREETNAME:     -144242
```

Figure 4. Broad-Level Attribute Errors - Summarized in ValidationSummary.txt

Note that in TEST mode, the Validation Tool is designed to compare some portions of the Searchable Format submission you are testing for V3 against V2 data specific to YOUR county (that being the standardized county data from the V2 statewide layer), or values that might be "expected" based on the statewide schema.

Percentage of records with various Taxroll Years

- This heading displays results of a summary on your V3 test file's TAXROLLYEAR attribute.
- It is expected that the majority of tax records should be the year prior to the year in which a parcel submission takes place.
  - For V3—with the data request in 2017—the majority of tax records should be "**2016**." (There is one case where an exception can be made to this rule, for cases of Parcel Splits/New Parcels, as detailed in the V3 Submission Documentation under the attribute definition for TAXROLLYEAR.)
- The "Percentage of records with various Taxroll Years," and **ALL error messages must be interpreted in the context of YOUR dataset**. A human with knowledge of the native data can interpret the output best.
- Consider the sample report below, followed by an explanation of the various types of errors you might get:

Percentage of records with various Taxroll Years
Previous Taxroll Year: 0.0%
Expected Taxroll Year: 63.1%
Future Taxroll Years: 17.0%
Other Taxroll Years: 0.0%

- **Error/Flag: All 4 stats add up to less than 100%**
  - **Nature**: Occurs when there are <Null> values in the TAXROLL year field, <Null> values are not counted within this summary.
  - **Fix**: Please ensure that all <Null> values exist because they are Parcel Splits/New Parcels, if they are not Parcel Splits/New Parcels, then they should have a valid tax roll year associated with them.
- **Error/Flag: Any value higher than 0.0% exists in "Other Taxroll Year"**
  - **Nature**: Occurs when there are TAXROLLYEAR values that are anything other than the previous, future, or expected taxroll year. For example, in the case of V3 project "2014" is not valid and would be flagged here.
  - **Fix**: Please ensure that all TAXROLLYEAR values are valid and make sure to update other attributes appropriately so that this data is of the appropriate vintage. If TAXROLLYEAR values cannot be of the appropriate vintage, please make an explanation of this within the *Explain-Certification.txt*.
- **Error/Flag: Any value higher than 0.0% exists in "Previous Taxroll Years"**
  - **Nature**: Occurs when there are TAXROLL values that meet the previous tax year, future or expected tax roll year. For example, in the case of V3 project "2015" is not valid and would be flagged here. The majority of V3 tax rolls should be "2016"
  - **Fix**: Please ensure that all TAXROLL values are valid and make sure to update other attributes appropriately so that this data is of the appropriate vintage.
- **Error/Flag: An exceptionally large value exists in "Previous Taxroll Years"**
  - **Nature**: Occurs when there are TAXROLL values that meet the previous tax year, future or expected taxroll year. For example, in the case of V3 project "2015" is not valid and would be flagged here. The majority of V3 tax rolls should be "2016"
  - **Fix**: Please ensure that all TAXROLL values are valid and make sure to update other attributes appropriately so that this data is of the appropriate vintage.

Records missing CONAME, PARCELFIPS, or PARCELSOURCE

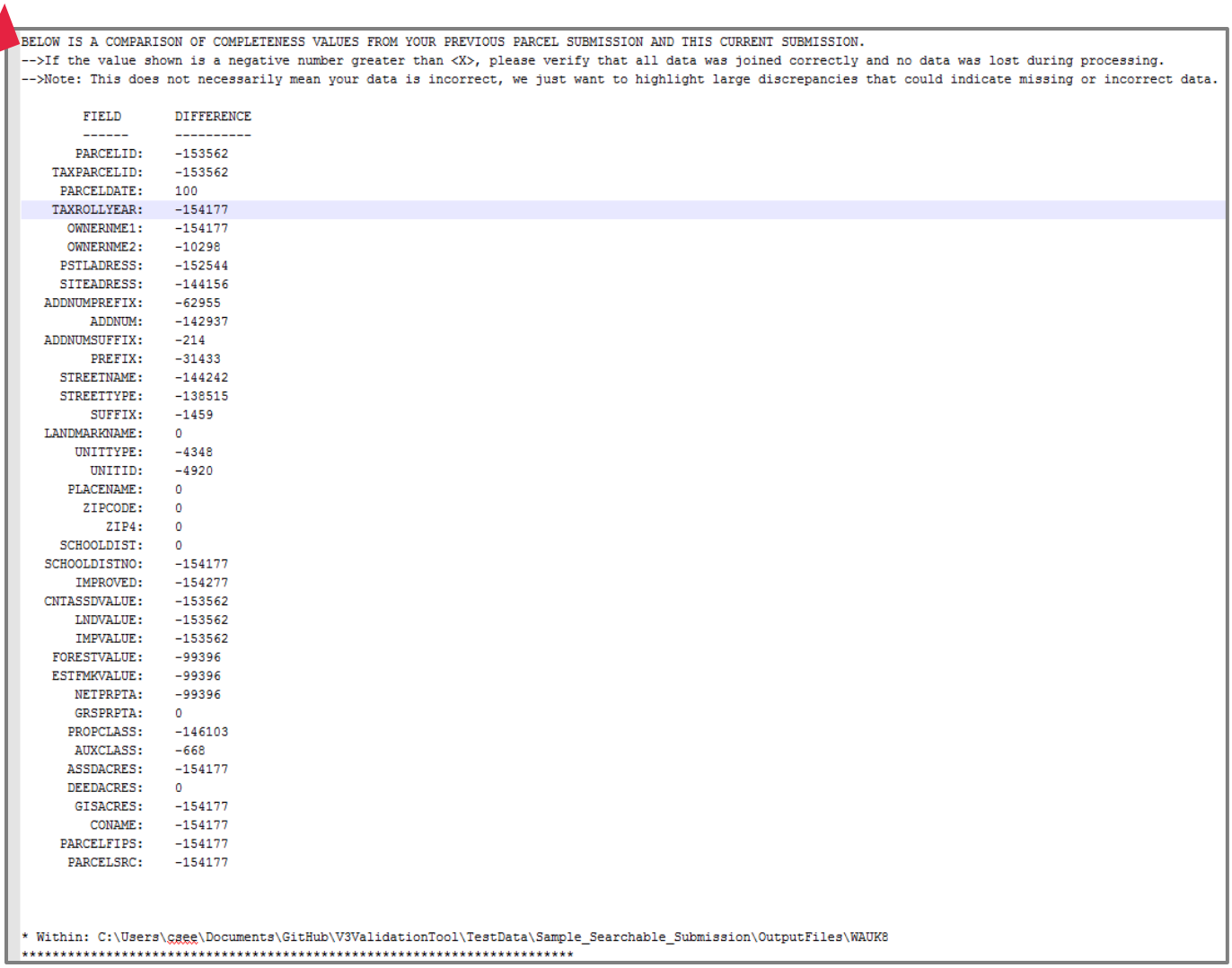
- This heading speaks to a few fields in the parcel schema that are particularly important to be 100% populated: CONAME, PARCELFIPS, and PARCELSOURCE.
- Consider the sample report below, followed by an explanation of the various types of errors you might get:

Records missing CONAME, PARCELFIPS, or PARCELSOURCE
Missing CONAME: 4
Missing PARCELFIPS: 100
Missing PARCELSRC: 55

- **Error/Flag: Any of the three fields (CONAME, PARCELFIPS, or PARCELSOURCE)contain missing values**
  - **Nature**: Occurs when there are blank or <Null> records within any of these three fields
  - **Fix**: Please ensure that all three of these fields are 100% populated with valid domains as defined in the schema documentation. You can isolate these records by sorting each field descending, and using field calculator to populate as appropriate.

BELOW IS A COMPARISON OF COMPLETENESS VALUES FROM YOUR PREVIOUS PARCEL SUBMISSION AND THIS CURRENT SUBMISSION.

- It is expected that parcel submissions continue to grow in quality and attribute completeness as well as natural subtle increases in quantity of records.
- Significant differences, however, in the number of records populated from one submission to the next (e.g., from V2 to V3) are indications of possible error or possible improvement.
- The table associated with this feedback section of the *ValidationSummary.txt* file is **created by comparing your current submission against what was established in the previous year's parcel data** (the standardized V2 statewide layer).
- Consider the sample report below, followed by an explanation of the various types of errors you might get:



```
BELOW IS A COMPARISON OF COMPLETENESS VALUES FROM YOUR PREVIOUS PARCEL SUBMISSION AND THIS CURRENT SUBMISSION.
-->If the value shown is a negative number greater than <X>, please verify that all data was joined correctly and no data was lost during processing.
-->Note: This does not necessarily mean your data is incorrect, we just want to highlight large discrepancies that could indicate missing or incorrect data.

       FIELD       DIFFERENCE
       ------      ----------
      PARCELID:    -153562
   TAXPARCELID:    -153562
    PARCELDATE:    100
   TAXROLLYEAR:    -154177
     OWNERNME1:    -154177
     OWNERNME2:    -10298
    PSTLADRESS:    -152544
    SITEADRESS:    -144156
  ADDNUMPREFIX:    -62955
       ADDNUM:    -142937
  ADDNUMSUFFIX:    -214
       PREFIX:    -31433
    STREETNAME:    -144242
    STREETTYPE:    -138515
       SUFFIX:    -1459
  LANDMARKNAME:    0
      UNITTYPE:    -4348
        UNITID:    -4920
     PLACENAME:    0
       ZIPCODE:    0
          ZIP4:    0
    SCHOOLDIST:    0
  SCHOOLDISTNO:    -154177
      IMPROVED:    -154277
  CNTASSDVALUE:    -153562
      LNDVALUE:    -153562
      IMPVALUE:    -153562
   FORESTVALUE:    -99396
   ESTFMKVALUE:    -99396
      NETPRPTA:    -99396
      GRSPRPTA:    0
     PROPCLASS:    -146103
      AUXCLASS:    -668
     ASSDACRES:    -154177
     DEEDACRES:    0
      GISACRES:    -154177
        CONAME:    -154177
    PARCELFIPS:    -154177
     PARCELSRC:    -154177


* Within: C:\Users\csee\Documents\GitHub\V3ValidationTool\TestData\Sample_Searchable_Submission\OutputFiles\WAUK8
*************************************************************************
```

Figure 5. Sample completeness report

- **Error/Flag: Missing attribute values across any field listed.**
  - **Nature**: If a negative number is noted within this table, then the annotated number represents how many fewer records are properly populated within the parcel layer being tested in contrast to the currently live parcel layer. If a positive number is noted, then this many new records are properly populated. A negative or positive number does not necessarily mean your data is correct or incorrect, however, large discrepancies *could* indicate missing or incorrect data.
  - **Note that these statistics are compiled against the most recent and curated parcel data (in this case, the standardized V2 data).**
  - **Fix**: If any field's difference appears to be abnormally significant, please review the field and identify whether this difference is due to missing or incorrect data.
    - **If difference is due to missing or incorrect data**: Please fix the issue so that the most complete and contemporary data as possible is being submitted. If it is not possible to achieve this, then please make a note within the *Explain-Certification.txt* section of the tool.
    - **If difference is NOT due to missing or incorrect data**: Please make note of the explanation within the *Explain-Certification.txt* section of the tool.

11 TEST Mode: Resolving In-line Attribute Errors

11.1 Errors in GeneralElementErrors/AddressElementErrors/TaxElementErrors fields

Attribute errors cover the bulk of expected and possible errors that the tool will find. Because of the quantity and nature of these types of issues, the issues are broken into three categories:

- **GeneralElementErrors** – Attribute errors that are not specific to address or tax elements
- **AddressElementErrors** – Attribute errors that are specific to address-related elements
- **TaxElementErrors** – Attribute errors that are specific to tax-related elements

11.2 Reading results in the GeneralElementErrors/AddressElementErrors/TaxElementErrors

- General, address, and tax in-line errors are specific to an individual parcel feature.
- These and are written **in-line** within their respectively named fields, **in the output feature class** that results from running the tool in TEST mode
- Like GeometricElementErrors, these three fields are automatically created when running the tool in TEST mode.
- After running the Validation Tool, open the output feature class in ArcMap.
- Sort descending on each of these fields, *one at a time*.
- After sorting, there will be one or more messages on the lines at the top of the table, delimited by a pipe (|)
- In the attribute table of the output feature class, read the directives associated with each error to begin troubleshooting.

11.3 Interpreting these directives

General directives are listed below, note that error messages contain contextual descriptions that have large number of permutations. Thus, it is not possible to list all possible messages and the message descriptions below. This documentation intended to provide general guidelines.

Legend for syntax, for interpreting error directives below

[*FIELD*] – This syntax represents a parcel schema field name as a way of annotating that this is a variable and could be interchanged for any field name.

[*ADDRESS FIELD*] – Similar to [*FIELD*], this syntax represents a standardized field name as a way of annotating that this is a variable. In this case, the field is specific to **address** element fields only.

<X> – Indicates a count of something, could be any value—from small to very large.

- **Error/Flag: An unknown issue occurred with the [*FIELD*] field. Please inspect this field's value**
  - **Nature**: This type of "general element error" or "flags" might be thrown when an unexpected condition exists within the annotated field. As the message states, the issue is unknown and uncommon. See the fix below for strategies to resolve this.
  - **Fix #1**: *Note that this type of issue is annotated as a "flag" and thus not necessarily an indication of an error. These records should be inspected within their respective field. To inspect a record, open an Editing session In ArcMap on the output feature class, navigate to the record in question:
    - **Does anything appear abnormal about the content of the cell?**
    - **Copy the record from the cell and paste it into a text editor**
      - **Do any new characters appear?**
      - **Are there new lines below the text?**
      - **Are there characters on new lines?**
    - If any of the above conditions, or other strange/undesirable conditions exist within the cell, please make the appropriate corrections. If no obvious solution appears, proceed to fix #2.
  - **Fix #2**: If there are no obvious problems with the record, please check the record to make sure that it is meeting parcel schema specifications. If there is no obvious reason that this error exists please note that "*-There are **<X>** instances of the following error 'unknown issue occurred with the ADDNUM field. Please inspect this field's value.' These issues are unexplainable*." within the *Explain-Certification.txt* as a part of your submission.

- **Error/Flag: Value in [*FIELD*] doesn't appear to be a numeric value**
  - **Nature**: Occurs when there are non-numeric elements existing within the field when only numeric values should exist.

- **Fix**: Please ensure that all values within this field are numeric. Correct the issue by starting an editing session in ArcMap to type-in a valid value, or use field calculator to correct the records. If this issue exists on a large number of records, a more automated, or re-joining new may be a warranted solution.

- **Error/Flag: Null Found on [*FIELD*]**
  - **Nature**: Occurs when a <Null> value was found within a field that should never contain <Nulls>.
  - **Fix**: Please ensure that all values within this field are free of <Null> values. Correct the issue by starting an editing session in ArcMap to type-in a valid value, or use field calculator to correct the records. If this issue exists on a large number of records, a more automated, or re-joining new may be a warranted solution.

- **Error/Flag: Appears to be a duplicate value in [*FIELD*]**
  - **Nature**: Occurs when a duplicate value was found within a field that should never contain duplicate values. **NOTE:** This error message will flag the second and all subsequent instances of duplicate values present, but does not flag the first occurrence of a value. Right of way, hydrography, gaps, and other non-parcel features are designed to not be included in this assessment. However if items similar to these non-parcel features are flagged, their error can be disregarded.
  - **Fix**: Please ensure that all values within this field are not duplicative. Correct the issue by starting an editing session in ArcMap to type-in a valid value, or use field calculator to correct the records. If this issue exists on a large number of records, a more automated, or re-joining new may be a warranted solution.
  - **NOTE**: It is possible that exploded multipart parcels will be flagged by this tool. For V3 it will not be required to dissolve single parcels represented by multiple non-contiguous geometries. If this condition is the reason why duplicate polygons exist, then these features may be submitted as they exist but this should be reported within the "*Explain-Certification.txt*" file.

- **Error/Flag: Value provided in PLACENAME doesn't contain required LSAD descriptor.**
  - **Nature**: Occurs when a place name value does not the needed LSAD descriptor, such as:
    - CITY OF
    - TOWN OF
    - VILLAGE OF
  - PLACENAME examples:
    - CITY OF CHIPPEWA FALLS
    - TOWN OF MADISON
    - CITY OF MADISON
    - VILLAGE OF LAKE HALLIE
  - **NOTE** *All* tax parcels must have a PLACENAME value, even parcels that have not been assigned an address.
  - **Fix**: Please ensure that all values within this field contain their appropriate LDAD descriptor. Correct the issue by starting an editing session in ArcMap to type-in a valid value, or use field calculator to correct the records. If this issue exists on a large number of records, a more automated, or re-joining new may be a warranted solution.

- **Error/Flag: Value provided in [*FIELD*] not in acceptable domain list.**
  - **Nature**: Occurs when an invalid domain exists within the annotated field.
  - **Fix**: Please ensure that all values within this field contain a valid value. Correct the issue by first checking the schema definition for the field within the Schema Documentation. Also, consult the V3 parcel domain list for a comprehensive list of domains on fields as appropriate. Use an ArcMap editing session or field calculator to correct the records. If this issue exists on a large number of records, a more automated solution may be desired, such as the data standardize tool.

- **Error/Flag: Value provided in [*FIELD*] does not appear in list created from V2 data. Please verify this value is correct.**
  - **Nature**: Similar to the previous error, occurs when an unrecognized value exists within the annotated field. However, in this case the [*FIELD*] containing the value does not have a comprehensive list of domains. This is simply a flag to call attention to the field so that a specialist can make the correct decision on the validity of the value.
  - **Fix**: Please check all values containing this flag and verify that they contain a valid value. There will not be a comprehensive list of domains for this field, so verifying the record means that it must be checked against the field's definition within the Schema Documentation. Also, consult the V3 parcel domain list for a comprehensive list of domains on fields as appropriate. Use an ArcMap editing session or field calculator to correct the records. If this issue exists on a large number of records, a more automated solution may be desired, such as the data standardize tool.

- **Error/Flag: [*FIELD*] is Null but [*FIELD*] is populated. Please ensure elements are in the appropriate field.**
  - **Nature**: This flag will be thrown when one of a selection of fields that relate to one another are found to be blank/<Null> when they should not be blank/<Null>. For example, if SITEADRESS were populated, indicating that a site address has been assigned to the parcel, then we would also expect that STREETNAME would be populated. Under this example, if SITEADRESS were populated and STREETNAME were <Null> then this flag would be thrown.

- **Fix**: Please check all values containing this flag and verify that they contain a valid value in context of the fields that they are flagging. Verifying the record may mean that it must be checked against each field's definition within the Schema Documentation. Use an ArcMap editing session or field calculator to correct the records.

- **Error/Flag: Null Found on [*FIELD*] field and value is expected.**
  - **Nature**: This flag will be thrown when a value is found to be blank/<Null> when a value would otherwise be expected.
  - **Fix**: Please check all values containing this flag and ensure that they contain a valid value in context of the fields that they are flagging. Verifying the record may mean that it must be checked against each field's definition within the Schema Documentation. Use an ArcMap editing session or field calculator to correct the records.

- **Error/Flag: Value provided in ZIPCODE is either not 5 digits long or does not appear to be a Wisconsin zipcode.**
  - **Nature**: This flag will be thrown if the zipcode value does not meet specifications of a Wisconsin zipcode, or if the value is not five digits in length.
  - **Fix**: Please check all values containing this flag and ensure that they contain a valid zipcode value. Note that the Schema Documentation defined that this field should contain the site address zipcode, so only Wisconsin zipcodes are valid. To make corrections, use an ArcMap editing session or field calculator to correct the records.

- **Error/Flag: Value provided in IMPROVED doesn't correspond with IMPVALUE for this record - please verify.**
  - **Nature**: This flag will be thrown if the IMPROVED value does not properly match the value within IMPVALUE field. Please consult the Schema Documentation for IMPROVED for considerations on how this field should be populated in relation to the IMPVALUE field.
  - **Fix**: To make corrections, use an ArcMap editing session or field calculator to correct the records.

- **Error/Flag: Bad characters found in [*FIELD*]**
  - **Nature**: This flag will be thrown if uncommon characters were found within the defined field. Please double-check this field to ensure that the values within it are correct, readable, and free of new lines/carriage returns. Please note that these flags are thrown under particular contexts, so not all flags are errors and not all instances of these characters will cause flags **With the exception of new lines "\n" and carriage returns "\r"** – these characters should never exist in a parcel submission.
  - **Fix**: To make corrections, use an ArcMap editing session or field calculator to overwrite and correct the records.

- **Error/Flag: A value provided in PROPCLASS field is not in acceptable domain list.**
  - **Nature**: This error will be thrown if any values other than those listed as acceptable domains within the Schema Documentation for PROPCLASS are found within the field. As defined in the Schema Documentation, the valid domains for this field are:
    - **1**
    - **2**
    - **3**
    - **4**
    - **5**
    - **5M**
    - **6**
    - **7**
  - **Fix**: To make corrections, use an ArcMap editing session or field calculator to overwrite and correct the records. Note, for large numbers of errors, the Class of Property Dissolve Toolset may be of use in correcting this issue.

- **Error/Flag: A value provided in AUXCLASS field is not in AUXCLASS domain list. Please ensure mappings for these values are provided in the 'Explain/Certification' box of submission form.**
  - **Nature**: This error will be thrown if any values other than those listed as acceptable domains within the Schema Documentation for AUXCLASS are found within the field. As defined in the Schema Documentation, the valid domains for this field are:
    - **X1**
    - **X2**
    - **X3**
    - **X4**
    - **W1**
    - **W2**
    - **W3**
    - **W4**
    - **W5**
    - **W6**
    - **W7**
    - **W8**
    - **W9**
  - **Note:** The above is not an exhaustive list of acceptable values. Other classifications you may have that are not included in the definition of AUXCLASS or PROPCLASS may be included within AUXCLASS, and **these**

additional values would not require standardization as long as the definitions are specified within the submission form.
  - **Fix**: To troubleshoot this flag, first review the domains listed within the flagged field. If any of the values represent an AUXCLASS EXEMPT or AUXCLASS SPECIAL value, ensure that they are corrected to meet the values annotate in the Schema Documentation. If the value does not represent an AUXCLASS EXEMPT or AUXCLASS SPECIAL value, then the value can be left as is. Make sure to define each of these additional values within the submission documentation part of the tool's "TEST" mode. To make corrections to a value, use an ArcMap editing session or field calculator to overwrite and correct the records. Note, for large numbers of errors, the Class of Property Dissolve Toolset may be of use in correcting an issue.

- **Error/Flag: Duplicate values exist in [PROPCLASS or AUXCLASS] field.**
  - **Nature**: This flag will be thrown if a domain is observed to exist twice within either the PROPCLASS or AUXCLASS fields.
  - **Fix**: A domain should only be listed once within this comma delimited list. To make corrections, use an ArcMap editing session or field calculator to overwrite and correct the records.

- **Error/Flag: The value provided in CONAME field does not match expected county name.**
  - **Nature**: This flag will be thrown if the CONAME does not match the name of the county expected, which would be the contributing jurisdiction (The CONAME is expected to be the same as the contributing county name) **Note: if you are contributing parcels on behalf of another county, this flag can be disregarded.**
  - **Fix**: Ensure that the CONAME value is correctly populated. To make corrections, use an ArcMap editing session or field calculator to overwrite and correct the records.

- **Error/Flag: The value provided in PARCELFIPS field does not match submitting county fips.**
  - **Nature**: This flag will be thrown if the PARCELFIPS does not match the name annotated within PARCELSRC as would be expected. **Tip: make sure that leading zeros are intact within this field;** for example, BAYFIELD has a FIPS code of 007, if the value of "7" were used in lieu of "007" this flag would be thrown.
  - **Fix**: Ensure that the value is correctly populated. To make corrections, use an ArcMap editing session or field calculator to overwrite and correct the records.

- **Error/Flag: The value provided in [PARCELSRC or PARCELFIPS] field does not appear to meet required domains.**
  - **Nature**: This flag will be thrown if the PARCELFIPS or PARCELSRC does not match the domain list as defined within the Schema Documentation. **Tip: for PARCELFIPS, make sure that leading zeros are intact within this field;** for example, BAYFIELD has a FIPS code of 007, if the value of "7" were used in lieu of "007" this flag would be thrown. **Tip: for PARCELSRC, make sure that " COUNTY' is not included in this field;** for example, an annotation of "BAYFIELD COUNTY" would cause a flag to be thrown.
  - **Fix**: Ensure that the value is correctly populated. To make corrections, use an ArcMap editing session or field calculator to overwrite and correct the records.

- **Error/Flag: The value provided in PARCELSRC field does not match submitting county name.**
  - **Nature**: This flag will be thrown if the PARCELSRC does not match the number annotated within PARCELFIPS as would be expected. **Tip: make sure that leading zeros are intact within the PARCELFIPS field;** for example, BAYFIELD has a FIPS code of 007, if the value of "7" were used in lieu of "007" this flag would be thrown.
  - **Fix**: Ensure that the value is correctly populated. To make corrections, use an ArcMap editing session or field calculator to overwrite and correct the records.

- **Error/Flag: The value provided in SCHOOLDISTNO is not expected length (4 digits). Please correct.**
  - **Nature**: This flag will be thrown if the SCHOOLDISTNO does not match the length of a valid school district ID, that being an ID with a character length of four.
  - **Fix**: Ensure that the value is correctly populated. To make corrections, use an ArcMap editing session or field calculator to overwrite and correct the records. Please see the V3_Parcel_Domain_List.xlsx for a comprehensive list of valid SCHOOLDISTNO and SCHOOLDIST values.

- **Error/Flag: The values provided in SCHOOLDISTNO and SCHOOLDIST field do not match. Please verify values are in acceptable domain list.**
  - **Nature**: This flag will be thrown if the SCHOOLDISTNO does not match valid the school district name (SCHOOLDIST) that is listed within the school district within the V3_Parcel_Domain_List.xlsx.
  - **Fix**: Ensure that the value is correctly populated. To make corrections, use an ArcMap editing session or field calculator to overwrite and correct the records. Please see the V3_Parcel_Domain_List.xlsx for a comprehensive list of valid SCHOOLDISTNO and SCHOOLDIST values.

- **Error/Flag: A value in SCHOOLDISTNO or SCHOOLDIST is not within the acceptable domain list. Please correct.**
  - **Nature**: This flag will be thrown if the SCHOOLDISTNO or SCHOOLDIST does not match a valid school district name (SCHOOLDIST) or school district number (SCHOOLDISTNO) as listed within the updated domain list for school districts: V3_Parcel_Domain_List.xlsx.

- **Fix**: Ensure that the value is correctly populated, meeting a valid domain as appropriate. To make corrections, use an ArcMap editing session or field calculator to overwrite and correct the records. Please see the V3_Parcel_Domain_List.xlsx for a comprehensive list of valid SCHOOLDISTNO and SCHOOLDIST values.

12 TEST Mode: Repeat Sequence (As Needed)

The validation sequence articulated through the steps up to this point will need to be executed once and then the tool **executed again** in TEST mode to ensure that the errors were resolved. Once the tool is run in TEST mode without error, the tool can then be run in FINAL mode to finalize the data submission.

13 FINAL Mode

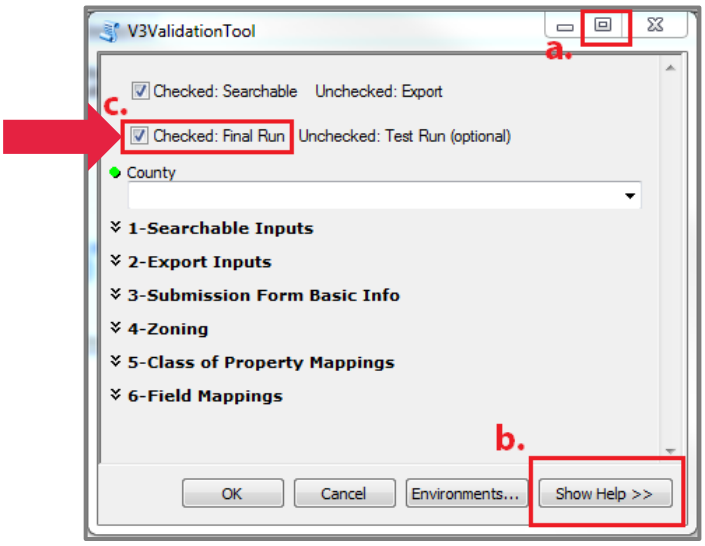
The Validation and Submission Tool's secondary purpose is to prepare the submission form that will accompany the zipped GIS file submission. The *.ini submission form* is an .ini format file that is yielded from successfully running the tool in FINAL mode. This file provides all of the information you have inputted in FINAL mode, including the *Explain-Certification.txt*. It is MANDATORY for all submissions—whether Searchable or Export format. This part of the guide will explain what is needed to create the *.ini submission form* and how to package-up the parcel submission.

13.1 Getting Started/Installing the tool

- Please be sure to read sections 1-4 of this guide before getting started. These sections will guide you through an overview of the tool.
- The subsequent sections of this guide will presume that you have read sections 1-4 and have installed the Validation and Submission Tool.

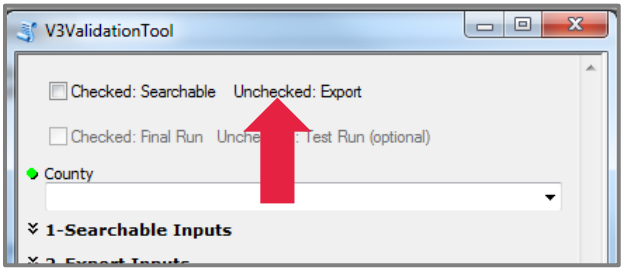
13.2 Using the Tool and Configuring FINAL Mode

- To begin with FINAL mode, open the V3ValidationTool from within the *Submission_Validation_Toolbox.tbx*.
- The interface of the tool will familiar if you have been using the tool in TEST mode.



- Checking the box **c.** will set the tool to execute in **FINAL mode**, and will affect the parameters that are available for populating within the six accordion toggles within the tool dialogue below it.
  - **Tip:** Use the "Maximize" toggle (item **a.** in the above figure) to gain more screen real estate and make configuring the tool easier.
  - **Tip:** Make sure to also open the "**Show Help**" section (item **b.**) for reference while configuring the tool. When you click on a given dialogue component, the corresponding help section will be brought-up in the "help" section.

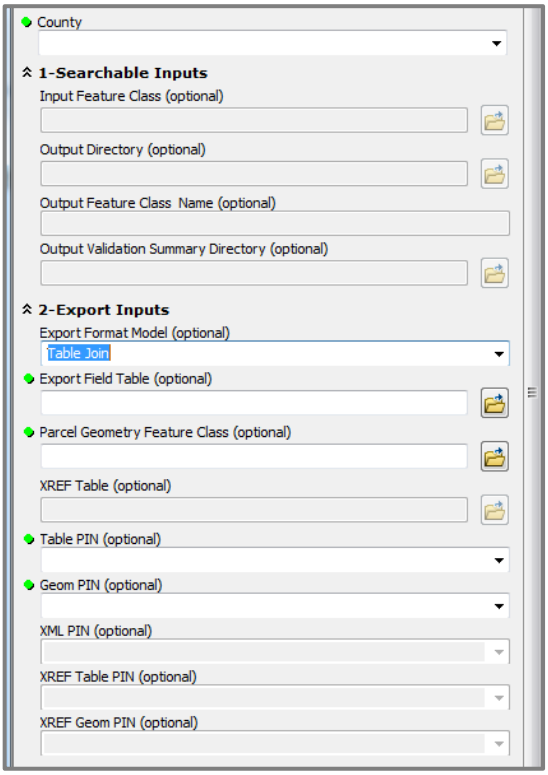
For EXPORT FORMAT Submitters Only:



- Important!
- Make sure to **uncheck the very first box** to indicate that you are preparing an **Export Format** submission. Configuring this parameter correctly affects the functionality of the tool!

13.3 Completing the Tool's Dialogue With Parameters

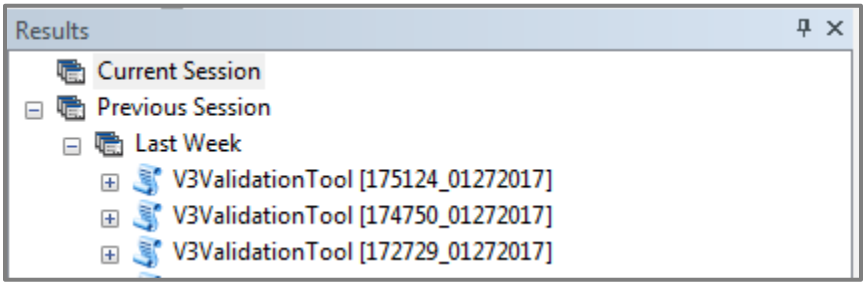
- Once you have properly configured the tool to run in FINAL mode and have set the County as appropriate, the remainder of the tool's configurations are nested across the tool's six accordion dropdowns.
- Depending your submission type (Export or Searchable), condo model type, or various other submission conditions, some of the parameters may be grayed-out and not possible to populate. The tool is designed to only request the information that is relevant to your particular submission type.
- Notice how the "Searchable Inputs" are not available in the below example. This is because an Export submission been chosen by unchecking the first parameter.



- **Remember to use the tool's help section ("Show Help") if a parameter is unclear.**

- Please fill out the tool's dialogue, working from top to bottom, **expanding each of the six accordion sections one at a time**.
- See Figure 2 on page 4 for an explanation of the tool's accordion sections.
- If any parameter is grayed out, you can skip it and move along.
- If you miss a parameter, the tool will identify the missing parameter and will not allow you to execute the tool.
- Regardless of your submission type, a requirement to successfully completing the tool in FINAL mode is the inclusion of a completed *Explain-Certification.txt* file.
- **Complete and Save the *Explain-Certification.txt* file**. It can be found as a template within the root level of the tool's zipped package, which is available here.

- **Tip:** Use the ArcCatalog "Results" window to pull-up past configurations of the tool in order and revise the tool's configurations. To do this, open the results window from the file menu: *Geoprocessing* > *Results*. Within the results window, navigate to the most recent running of the tool and double click the script element. This will bring-up the former configuration of the tool:

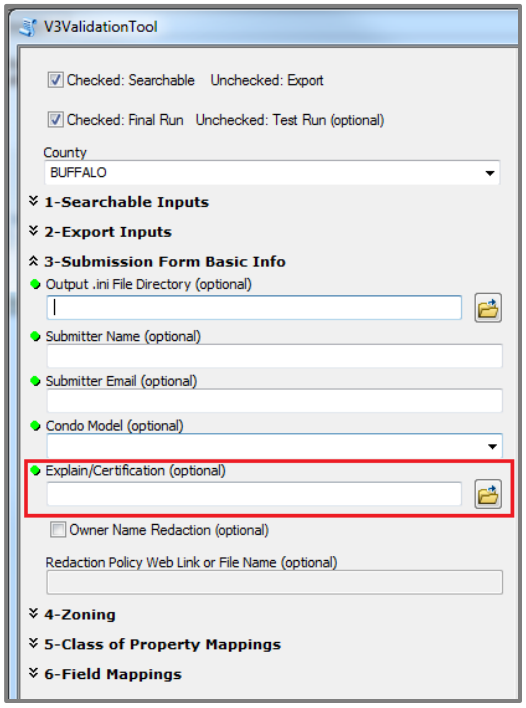


13.4 Inputting the *Explain-Certification.txt* file

Regardless of your submission type, a requirement to successfully completing the tool in FINAL mode is the inclusion of a completed "*Explain-Certification.txt*" file.

The *Explain-Certification.txt* file can be found as a template within the root level of the tool's zipped package, which is available here.

- You will be asked to configure the tool with your completed *Explain-Certification.txt* file within the "3-Submission Form Basic Info" section.
- Simply drag the *Explain-Certification.txt* file from ArcCatalog or from Explorer onto the box outlined in red, or use the file picker to configure this parameter.
- **Important! Make sure to fill-out and save the *Explain-Certification.txt* form BEFORE running the tool.**



About filling out the *Explain-Certification.txt* file:

- Open the *Explain-Certification.txt* file from the root level of the zipped package.
- Use the text editor of your choice, such as *Notepad++* or Windows default text editor *Notepad*.
- Fill out the 4 items in the file by simply typing text into the line directly below each of the four items.
- Below is an example of a properly configured *Explain-Certification.txt* file (for sake of readability, the responses appear in green below):

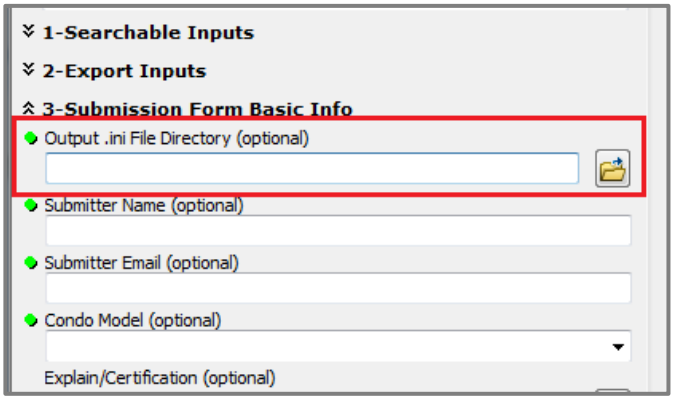
```
a) By typing my name in the line below, I hereby certify that this submission is
complete (relative to the Element Occurrence Standard):
Jane Smith


b) Brief explanation of any unsolvable errors, missing data, or other issues with
adhering to the submission standards here (if any):
-There are 30 instances of the following error “unknown issue occurred with the
ADDNUM field. Please inspect this field's value.” These issues due to a unique
address number situation in Badger County that deviates from expected values due to
a unique, non-standard character in our address numbering system.
-There are 204 parcels that do not have a SCHOOLDIST or a SCHOOLDISTNO. These are
new parcels that have not yet been developed.

c) Below, please list the names of the “Other Layers” that will be included with
your V3 submission (per Appendix E of the Submission Documentation):
Rights-of-Way as BROWN_ROW_2016
Roads/Streets/Centerlines as BROWN_ROADS_2016
Hydrography (line or polygon) as BROWN_HYDRO_2016
Addresses as BROWN_ADDRESSES_2016
Buildings/Building Footprints NOT AVAILABLE
Land Use NOT AVAILABLE
Parks/OpenSpace (e.g., county forests) NOT AVAILABLE
Trails BROWN_TRAILS_2016
Other Recreation NOT AVAILABLE

d) What URL do you wish to use for the ACCESSURL attribute? This would be the URL
to a webpage where end-users of the statewide layer can view and/or download most
current county parcel data. It may be the URL for a landing page for the county’s
viewers/apps/open data download sites, or the URL for the county GIS web map that
displays parcel data:
http://browncounty.maps.arcgis.com/apps/webappviewer/index.html?id=61fba3fd419045e4
8aa6ba759838387c
```

Figure 6. Explain-Certification.txt file - Example

13.5 Saving the Mandatory .ini submission form

Once the submission form is complete, the *.ini submission form* will be written to the output directory that was chosen under accordion 3 under “Output .ini File Directory.”

- Navigate to the .ini file and **copy the .ini file** to your submission directory (where you have stored all of the files you will submit for V3).



14 Packaging the V3 Submission

Include the following on the root level of your zipped package:

- *.ini submission form*
- All parcel submission files
- All zoning submission files
- All "Other Layers" (per Appendix E of the Submission Documentation)

Layer/Theme	Naming Convention	Format
☐ **.ini submission form**	DANE_Final.ini	.ini file
☐ **Parcels with Tax Roll Attributes**	DANE_PARCELS.gdb\PARCELS	File geodatabase feature class
☐ **County-Maintained Zoning**	DANE_PARCELS.gdb**GENERAL** DANE_PARCELS.gdb\FARMLAND DANE_PARCELS.gdb\SHORELAND DANE_PARCELS.gdb\FLOODPLAIN DANE_PARCELS.gdb\AIRPORT	File geodatabase feature class
☐ **OTHER LAYERS:**		
Rights-of-Way	DANE_**ROW**_YEAR*	Flexible
Roads/Streets/Centerlines	DANE_**ROADS**_YEAR	Flexible
Hydrography (line and/or polygon)	DANE_**HYDRO**_YEAR _LINE (or _POLY)	Flexible
Addresses	DANE_**ADDRESSES**_YEAR	Flexible
Buildings/Building Footprints	DANE_**BUILDINGS**_YEAR	Flexible
Land Use	DANE_**LANDUSE**_YEAR	Flexible
Parks/OpenSpace (e.g., county forests)	DANE_**PARKS**_YEAR	Flexible
Trails	DANE_**TRAILS**_YEAR	Flexible
Other Recreation (boat launches, etc.)	DANE_**RECREATION**_YEAR	Flexible

* *YEAR* represents the year from the **date of the content** (YYYY).

Zip and submit to wisedecade.legis.wisconsin.gov!

Troubleshooting

My tool does not show-up in the directory I have unpacked to.
If the tool does not appear in the directory you have unpacked it to, first try refreshing the directory in ArcCatalog (Right click directory » Refresh…). If the problem continues, please contact Codie See at csee@wisc.edu.

I get an error when attempting to run the tool.
- It may also be useful to restart ArcCatalog if you continue to get errors. A file lock may be a cause of the error.
- Right-click > refresh on the tool's toolbox, may help resolve an issue.
- If running the tool results in an error, first ensure that the tool runs correctly on a test dataset, which is available within tool's zipped package.
- If the tool does not run successfully over the test data, try to interpret the error message (which is the resulting red text within tool's dialogue). Submit the error message (via screen capture or cut and paste) to Codie See at csee@wisc.edu.

I get a properties dialogue instead of a tool input dialogue when opening the tool.
Refresh the directory in ArcCatalog (hit F5 or *right-click > refresh* to refresh the directory).

Who can I contact for help?
David Vogel, State Cartographer's Office, djvogel2@wisc.edu
Codie See, State Cartographer's Office, 608-890-3793, csee@wisc.edu