

Formatting Existing Inventories for Streets



Introduction

The *Formatting Existing Inventories for Streets Guide* was designed to compliment the [i-Tree Streets User's Manual v4.x](#). This guide will assist users through the basic steps of preparing and importing an existing street tree inventory into i-Tree Streets. This method is one of the quickest and easiest ways for users with an existing street tree inventory to utilize the i-Tree assessment tools.

This guide is broken down into (4) phases which can be completed in stages as time and resources permit.

1. Early decisions
2. Formatting an Existing Street Tree Inventory
3. Creating an Access ready project from an Excel spreadsheet
4. Creating an i-Tree Streets project & importing in data

Online Resources

This document also refers to additional reference materials which can be accessed on the i-Tree website under the [Resources – Archives](#) tab. See the section titled **Streets Import Resources**. Several reference materials will be referred to during various phases of this guide to assist users in understanding steps and available options.

Phase 1: Early Decisions

1. **Requirements** - Total time needed could vary between a half day to a few days depending on the size and complexity of your existing inventory data and a user's comfort level working with various software applications. Microsoft Office **Excel & Access** and **i-Tree Streets** are required to complete the import steps. System requirements for i-Tree are on page 4 of the Streets manual.
2. **Considerations & limitations** - Streets will provide a snap shot in time of your Street tree resource. Streets is an assessment tool which will provide estimates of benefits and values, which will enhance strategic planning and management. Streets is not designed to be dynamically or frequently updated to manage street trees or track work histories. Refer to the Streets manual and other reference documents under the Resources- Archives section of the i-Tree website to learn more about the methodology and limitations of the application. The [Community Tree Guides](#) are the best place to start further exploration of how the Streets model works.
3. **Acquiring existing tree inventory records** - There are multiple types of street tree inventories available including GIS based systems, simple spreadsheets & custom tree inventory and management systems. It is easiest to work with inventory data records in a spreadsheet format where you can easily edit data as required. Many inventory systems allow exporting records out as csv files or .xls files for use in Microsoft Excel. Always work with a copy of your original data.
4. **Decide what data to import** - A minimum of tree species and DBH are required for Streets to compute benefit values. Including additional information is optional and will allow for more detailed analysis of the resource. I would recommend including tree Condition if available as it will enhance reporting and analysis of data. Zones can also be useful for comparison of areas if your existing inventory has such data available. Data fields that will not be imported into Streets can be deleted from the working copy of the inventory spreadsheet.

Formatting Existing Inventories for Streets



Phase2: Formatting Existing Data for i-Tree Streets

The following documents and files will be referred to in the next phases. They can be accessed or downloaded from the i-Tree Tools website under the [Resources – Manuals & Workbooks](#) and [Resources- Archives](#) tabs.

- [i-Tree Street User's Manual](#) v4 (PDF) pages 25 (copy at end of guide)
- Streets Formatting Example (Excel spreadsheet)
- i-Tree Streets & STRATUM Species Codes by Climate Region (Excel spreadsheet)

Data Requirements

Refer to page 25 of the Streets manual for proper field names, formatting requirements and acceptable value ranges for inventory data. Remember, only data fields that will be imported need to be reformatted. Extra data fields should be deleted to avoid import errors. Streets will add in all data fields to your database after importing.

Examples of steps to reformat an existing inventory are illustrated below using simplified raw inventory data.

ID	House #	Street	Common Name	Quadrant	Diameter	Height Class	Condition
345	732	lapham st.	Ash Spp.	NE	6.8	15'-30'	Poor
346	735	lapham st.	Elm Spp. (Hybrid)	NW	5.1	0'-15'	Good

1. **Change Field Names** as shown in the manual on page 25. Notice in the table below that **Zone** is used for quadrant and **OtherOne** is used for height class data which was provided in ranges in the existing inventory. Data fields must be spelled exactly as listed in the manual but do not need to be in the same order.

ID	StreetNumber	StreetName	SpCode	Zone	DBH	OtherOne	CondWood
345	732	lapham st.	Ash Spp.	NE	6.8	15'-30'	Poor
346	735	lapham st.	Elm Spp. (Hybrid)	NW	5.1	0'-15'	Good

2. **Change species and data to Streets species codes and accepted values** as shown in the Streets manual. Midwest species codes FR for *Fraxinus spp.* and ULS for *Ulmus spp.* are used below. Values for CondWood and OtherOne were changed to numeric data types. Other existing values (ID, Zone, etc.) were in acceptable formats for import.

ID	Zone	SpCode	DBH	CondWood	OtherOne	StreetName	StreetNumber
345	NE	FR	6.8	2	2	lapham st.	732
346	NW	ULS	5.1	4	1	lapham st.	735

Formatting considerations – The [Streets formatting example](#) spreadsheet, found on the i-Tree website, has several worksheets showing a complete inventory as exported from a GIS system and the same data in a different worksheet properly formatted for import into i-Tree Streets. This is only an example and all data does not need to be imported unless desired. An additional worksheet labeled **Metadata** shows the relationships of existing data with numeric values required for import. This information is helpful when later setting up the Streets project user defined fields.

Formatting Existing Inventories for Streets



- **New species** can be used in the SpCode field if not available in a regional species code list. Keep track of new species as they will need to be defined and assigned values in the Streets program later.
- **OtherOne, OtherTwo and OtherThree** fields are optional and will only allow predefined values such as Hazard Tree 1= Yes, 2 = No. You will not be able to use OtherOne to capture unique data entries such as numeric tree height values. Tree heights or other similar unique data types will need to be in predefined ranges such as in the previous example.
- **Tree ID numbers** – Streets automatically generates ID numbers and uses the ID value for managing records in the database. Therefore, the ID field is not designed for managing tree tag numbers or identifying and locating trees. Street address, street name, location site, and location number are considered values used for field location and identification of street trees.

The reformatting process can be a time consuming task. Users with advance Excel skills may be able to use pivot tables to expedite data reformatting. However, it is possible to reformat existing data by simply using the **Sort** option and **Find and Replace** within a field as shown below. Note - a copy of the common name field is duplicated for editing, changed to SpCode, sorted and then each species is changed in the highlighted field to a Streets species code. Save work frequently during this process in case you make a mistake and need to restore back to a previous copy.

D	E	F	G
Species	Common Name	SpCode	Year Plant
341	Ailanthus	AIAL	2008
341	Ailanthus	AIAL	2008
341	Ailanthus	AIAL	2008
341	Ailanthus	AIAL	2008
341	Ailanthus	AIAL	2008
341	Ailanthus	AIAL	2008
341	Ailanthus	AIAL	2008
341	Ailanthus	AIAL	2008
341	Ailanthus	AIAL	2008
341	Ailanthus	AIAL	2008
341	Ailanthus	AIAL	2008
951	American Basswood	American Basswood	
951	American Basswood	American Basswood	
951	American Basswood	American Basswood	
951	American Basswood	American Basswood	
951	American Basswood	American Basswood	

Find and Replace [?] [X]

Find Replace

Find what: American Basswood

Replace with: TIAM

Options >>

Replace All Replace Find All Find Next Close

Formatting Existing Inventories for Streets



Phase 3: Creating an Access ready project from an Excel spreadsheet

Only Access *.mdb formatted files can be imported into i-Tree Streets; all other database file types must be converted to *.mdb files. The following directions detail the process for importing a Streets-formatted inventory from an Excel spreadsheet into an Access Table. The process outlined below may vary slightly depending on your operating system and the version of Excel or Access you are using.

Save your Access database as a 2002-2003 file type format if you are using Microsoft Access 2007 or 2010,

1. Create a new Access database for Streets:
 - From your computer's **Start** menu, navigate to **(All) Programs** and then select **Microsoft Access** from the list.
 - In the default **Access** dialogue box, select the **Blank database** radio button under the heading of **Create new database using**.
 - In the **File New Database** dialogue box, name your database (**YourCityProject.mdb**), browse to the location where you want to save it, and press the **Create** button to create and save your new database.
2. Import an Excel spreadsheet into the newly created Access database:
 - From the **File** menu of Access, navigate to **Get External Data** and select **Import**.
 - Using the **Files of type** pull-down menu, select **Microsoft Excel (*.xls)**.
 - Navigate to the file location of your formatted Excel file **YourCityData.xls**, select file, and click on the **Import** button.
 - Using the **Import Spreadsheet Wizard**, highlight the **Show Worksheets** radio button and select the worksheet containing your inventory data records; click **Next >**.
 - Check the **First Row Contains Column Headings** box and click **Next >**.
 - Since this is a new database, highlight the **In a New Table** button for the question of where to store data and click **Next >**.
 - **Field Options Dialog Box:** Verify that field names and records follow the formatting conventions described in the i-Tree Streets Manual on page 25
 - ; if not, field names can be renamed here and data fields that are not being imported into Streets can be excluded by checking the **Do not import field (skip)** box.
 - **Indexed:** If you have an **ID** field in your inventory, choose **Yes (no duplicates)** for that column. All other fields should be left with the default **Indexed** choice of **No**. (*Note- you will need to highlight each category to verify the selection.*) When data field verification is complete, click **Next >**.
 - If you do not have an ID field in your inventory, choose **Let Access Add Primary Key**. It will create an **ID** field as your primary key. If you already have an ID field with inventory numbers, select **Choose My Own Primary Key** and select **ID** from the pull-down menu; click **Next >** to continue.
 - In the **Import to Table** box, type the name **STRATUM_Inventory**; click **Finish** and then **OK** to complete the import process. **NOTE:** Though your *.mdb file can have any name, the table with the Streets-formatted inventory must be named **STRATUM_Inventory**.
 - Save and Exit Access

Formatting Existing Inventories for Streets

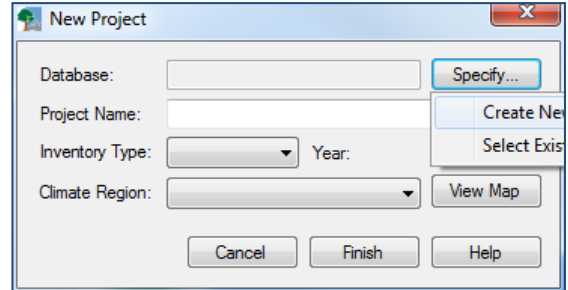


Phase 4: Creating an i-Tree Streets project & importing in data

You will now need to go through the process of creating a **New Project** in Streets by following the project creation & definition steps in Phase 1 & 2 of the Streets Manual. You will then import your existing data into this newly created project.

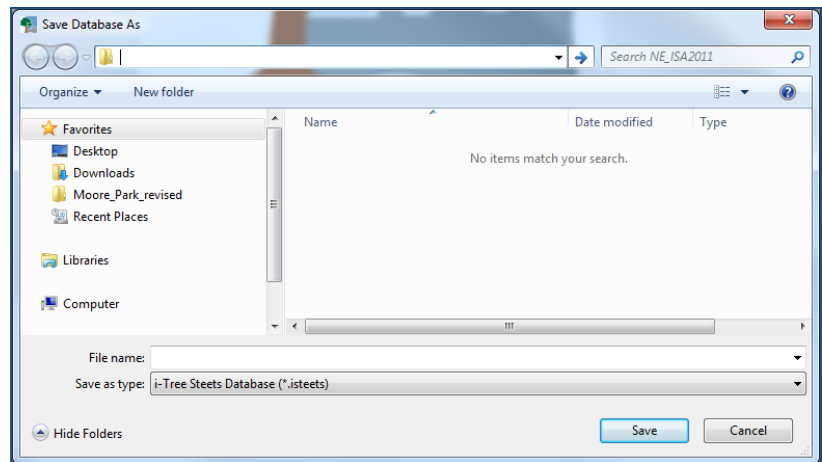
1. Launch Streets & Create New Project
Select → **File** → **Open** → **New Project**

- Click the “**Specify**” button and click **Create New** which launches the “Specify database location” dialog box.



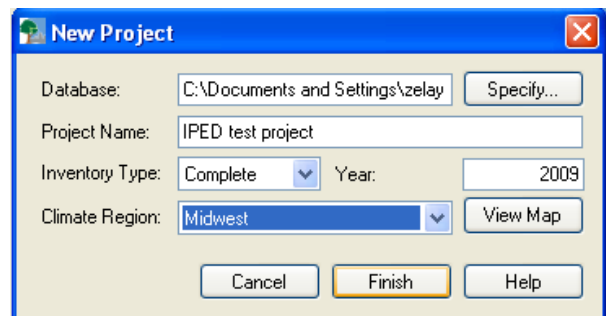
2. Navigate to a location where you want to create your project and **type the name** in the File name dialog box.

Then **hit Save**. (This will automatically populate the Database field in the New Project box)



3. Fill in the remaining fields in the New Project dialog box.

- **Project Name:** Type a project name
- **Inventory Type:** Complete is used for this example
- **Climate Region:** Choose your climate region from the dropdown.
- Click Finish when complete. (This will launch the Define City Dialog box)



Formatting Existing Inventories for Streets



- Define **City** - Fill in first (4) drop downs for Nation, State, County & City. Remaining fields can be filled in later if desired by selecting Input – City information from the menu. Hit OK.

Define City

Nation: United States of America
 State: Illinois
 County: Cook
 City: Oak Park

Total Municipal Budget (\$): 0
 Population: 0
 Total Land Area (sq mi): 0

Average Sidewalk Width (ft): 0
 Total Linear Miles of Street (mile): 0
 Average Street Width (ft): 0

OK Cancel Help

Define Costs→This information is used for a cost-benefit analysis.. You can fill in values if known or leave blank and fill in later. Hit OK

Define Cost

Public Private All

Annual Planting (\$):
 Annual Pruning (\$):
 Annual Tree And Stump Removal And Disposal (\$):
 Annual Pest and Disease Control (\$):
 Annual Establishment/Irrigation (\$):

Annual Price of Repair/mitigation of Infrastructure Damage (\$):
 Annual Price of Litter/Storm Clean-Up (\$):
 Average annual Litigation And Settlements due to Tree-Related Claims (\$):
 Annual Expenditure for Program Administration (\$):
 Annual Expenditures for Inspection/Answer Service Requests (\$):
 Other Annual Expenditures (\$):

Public Annual Total Program:

OK Cancel Help

Benefit Prices→ Hit OK to accept default benefit values or customize as desired with local values. Current home resale, electricity and Natural gas values may be available from local resources and will make results more locally applicable.

Benefit Prices

Electricity (\$/Kwh): 0.0759
 Natural Gas (\$/Therm): 0.98
 CO2 (\$/lb): 0.0075
 PM10 (\$/lb): 2.84
 NO2 (\$/lb): 3.34

SO2 (\$/lb): 2.06
 VOC (\$/lb): 3.75
 Stormwater Interception (\$/gallon): 0.0271
 Average Home Resales Value (\$): 218,000

OK Cancel Help

Formatting Existing Inventories for Streets



5. **User Defined Fields** – (page 28) check boxes will activate data collection fields and should be set up to match the data in your existing inventory. Individual tabs will allow you to customize the data parameters within each option to match the data in your inventory as shown in the next (2) screen captures

- Tabs that are not checked on the Record tab will appear “grayed out” indicating they are not active.
- You can always comeback and modify fields after closing this screen by selecting **Input**→**Data Fields** from the Streets menu.

The screenshot shows the 'User Defined Fields' dialog box with the 'Record' tab selected. The 'Reportable Data' section contains the following checked options: Maintenance Info, Other One, Street Segment, Land Use, Other Two, Condition, Site Type, and Other Three. The 'Inventory Details' section contains the following checked options: Street Address, Surveyor, and Survey Date. The 'Land Use', 'DBH', 'Zone/Sample', 'Conflicts', 'Streets', 'Site Type', and 'Loc. Site' tabs are visible at the top and are grayed out. A 'Defaults' button is located at the bottom right of the dialog box.

6. Page through the “Tabs” which are active and **change defaults to match the data fields in your reformatted inventory.**

The Maintenance & Priority descriptions and numeric values shown here are taken from the Metadata worksheet of the [Streets formatting example spreadsheet](#).

The screenshot shows the 'User Defined Fields' dialog box with the 'Maintenance' and 'Priority Task' tabs selected. The 'Recommended Maintenance' table is as follows:

Code	Description
1	N/A
2	Watch
3	Routine Prune
4	Training Prune
5	Cable & Prune
6	Remove
7	Remove Stump
8	Plant
9	Safety Prune

The 'Priority Task' table is as follows:

Code	Description
1	OK
2	Complete within next years
3	Complete over next 2-3 years
4	Complete over next 5 years

Both tables have a 'Defaults' button at the bottom right of their respective sections.

Formatting Existing Inventories for Streets



- Define optional Other1, 2 & 3 fields if they are being used in your inventory data. Note- predefined values correspond with inventory data to be imported.
- Hit OK when all user defined fields are completed and project will automatically save.

Code	Description
1	0'-15'
2	15'-30'
3	30'-45'
4	45'-60'
5	60'+
6	N/A

7. Once project is saved, select **File- Import - Inventory data** from the main menu.

- Select **Browse** in the dialog box and navigate to the Access database with the **STRATUM_Inventory** table created in the previous phase.
- **Select the Access database** file and hit Open. The Database File: field will be populated in the dialog box. Hit OK.
- You should then receive a message indicating that **records have been imported successfully**.
- **Troubleshooting** - If you receive an error, carefully check Field names for correct spelling, proper sequencing and correct data types in the Access database. These are the most common causes of errors during the import process.

Database File: C:\Documents and Settings\zel

Project Name:

OK Cancel Browse...

i-Tree Streets

1872 records imported successfully.

OK

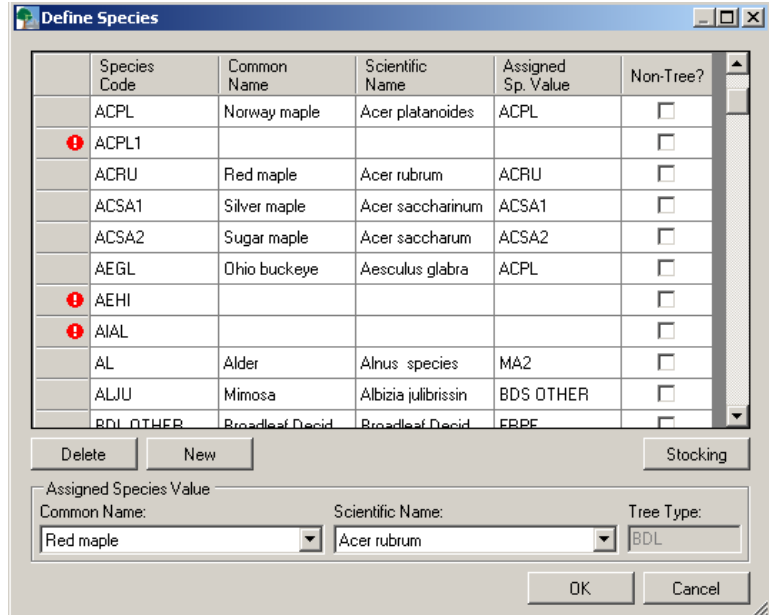
Formatting Existing Inventories for Streets



- **Isolating an error** in data can be difficult if you are working with numerous data fields and a large inventory. You can attempt to import in your data eliminating one field at a time to isolate the data field where an error may be causing a problem.

8. Defining new species- if you have new species in your data, you will receive a message informing you that there are “**unmatched species**”

- The program will then launch the **Define Species** dialog box indicating that species need to be defined. Refer to page 36 for species matching steps which will need to be completed at some point. You can hit OK and save the project without defining species and complete later by selecting **Input-Species** from the main menu.



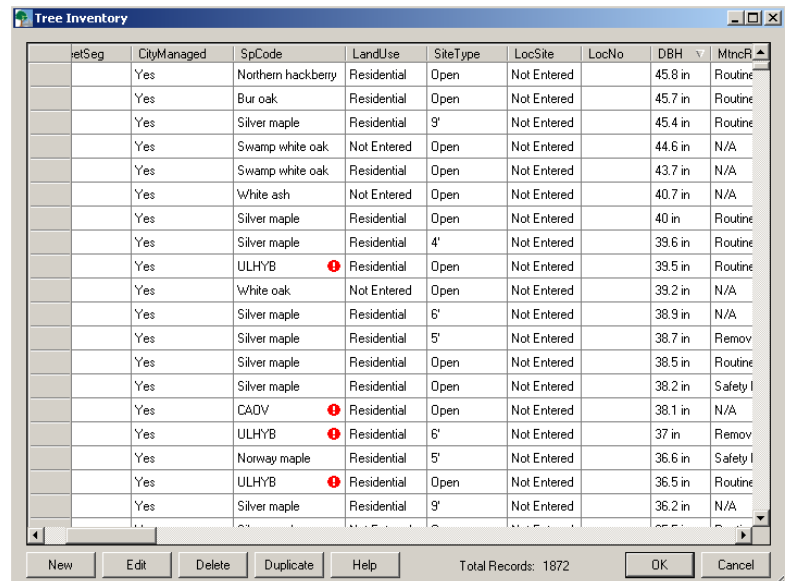
Checking records for errors

It is a good idea to check records for additional errors by selecting **Input- Records** from the main menu.

Issues will be noted with a red exclamation mark indicating that a problem exists. The example at the right is showing undefined species codes.

Records can be sorted by ascending or descending values by clicking on the field name. This is good a way to identify values out of range due to typos.

Save your project and run reports (page 39) once issues are resolved.



Formatting Existing Inventories for Streets



COPY OF Streets Manual page 25 Table 1. Required field names and formats as well as category options for final Streets Access database. It is only necessary to include the fields for which you have data. Remember to be extra careful with the spelling of the field names as they must be exact.

Field name	Format	Possible values
ID	Number	0-4,000,000,000
StreetSeg	Number	0-4,000,000,000 if sampling or 0 for complete inventory
Zone	Number or text	1-4,000,000,000 if number; up to 20 characters if text; or blank if not recorded
SpCode	Text	Up to 10 characters; see www.itreetools.org > Resources for species codes
CityManaged	Number	1 if yes, 0 if private; 1 or blank if not recorded (assumes public tree)
DBH	Number	1-10 for categories or actual value
LandUse	Number	1-10; blank or 0 if not recorded
SiteType	Number	1-10; blank or 0 if not recorded
LocSite	Number	1-10; blank or 0 if not recorded
LocNo	Number	1-10; blank or 0 if not recorded
MtncRec	Number	1-10; blank or 0 if not recorded
MtncTask	Number	1-10; blank or 0 if not recorded
SwDamg	Number	1-10; blank or 0 if not recorded
WireConflict	Number	1-10; blank or 0 if not recorded
CondWood	Number	1-10; blank or 0 if not recorded
CondLvs	Number	1-10; blank or 0 if not recorded
OtherOne	Number	1-10; blank or 0 if not recorded
OtherTwo	Number	1-10; blank or 0 if not recorded
OtherThree	Number	1-10; blank or 0 if not recorded
GPS_Lat	Text	Decimal degrees (0-90) with direction (35.34642345N)

Formatting Existing Inventories for Streets



GPS_Lon	Text	Decimal degrees (0-180) with direction (98.34642345W)
StreetName	Text	Up to 50 characters
StreetNumber	Text	Up to 50 characters
SurveyorId	Text	Up to 10 characters
SurveyDate	Date/Time	Any allowable date/time format
NoteThisTree	Yes/No	Yes or No
Comments	Text	Up to 255 characters