

# HOW TO MAP YOUR STEW:

## A multi-approach guide to creating and incorporating the geographic components of your STEW-MAP survey

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Krista Heinlen and Michelle Johnson

Congratulations! You’ve launched your stewardship survey, and that’s a major accomplishment. Now you’re ready to start thinking about what to do with all that awesome data, and this guide is here to help. Specifically, you’ve reached the MAPPING part of your STEW-MAP project, and in order to look at the spatial relationship among stewardship organizations, their descriptions of where they do their work – their Turf – will need to be drawn on the map (this is separate from the address they give as their office location).

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## HANDLING YOUR SURVEY DATA AND PREPARING IT FOR MAPPING

Depending on what kind of survey distribution you’ve chosen – e.g., an online survey software, paper surveys – your data should be in some form of spreadsheet file, with columns representing each question or information input, and rows for each respondent answer. For the list of organizations you sent the survey to, it is best to ensure each organization receives a unique ID number. In all cases, it will be highly important that the respondent’s unique ID number (drawing from your initial list of organizations receiving the survey), organization name, and their drawn Turf, be properly connected. (Turf refers to the area of activity the organization described as working in when responding to the survey.) In other words, you won’t need to use all of your survey response data columns in order to work on your Turfs, but the key to reuniting the spatial Turf information to an organization’s set of responses is making sure that each ID number (often PopID) is assigned to the right Turf area.

- **ProTip:** If you are using an online survey and the survey software has the option to load a panel (mailing list) of contacts, make sure to include a PopID when you load the organization information. That way, PopID will be associated with all responses. Otherwise (i.e. if you are using Maptionnaire, mail versions, or survey software that doesn’t allow you to include the PopID from the beginning), this will need to be done manually later. *(More on what this might look like in Section A).*

### 2 Types of TURF Data:

In some cases, such as with Maptionnaire survey software, organizations will have drawn their own version of this Turf area online as a polygon shapefile which can then be downloaded and checked for accuracy. In most cases, there will be a written description from respondents which will need to be drawn as a shapefile for a Geographic Information System, or GIS. Different applications can be used to do this – ArcGIS, Google MyMaps, and QGIS are some examples. This guide will focus on the ArcGIS platform, but the approach can be tailored to other software.

→Choose Your Own Adventure:

- To Draw Turf Areas Using Written Descriptions, see Section B (starts on page x)
- To Download Organization’s Drawn Turfs , see Section D (starts on page x)
- To Check Organization’s Drawn Turfs for Accuracy, see Section E (starts on page x)

**2 Types of Data Management:**

The size of your survey sample and the duration of your response period may determine how you approach working with your data: you may be able to download and work on completed responses while the survey is ongoing, or you may wait until your survey is closed, and then work with the completed survey data all at once.

→Choose Your Own Adventure:

- To Work On Data From A Completed Survey (All At Once), see Section B (starts on page x)
- To Work On Data From an Ongoing Survey (and Integrate New Data With Completed Data), see Section C (starts on page x)

**Recording Your TURF Methodology in the Survey Data Table:**

Regardless of which type of Data Management and Turf Creation method you choose, you will need to add some information to the data set that indicates how you are building each respondent’s geographic area. Things you’ll want to record include what kind of location the Turf encompasses (city, region, county, etc.), what type of data the Turf is derived from (user-drawn or created by you), who is the person creating or editing the Turf, the date of editing, and other comments, such as your confidence level in or any issues with the final shapefile. *(See Table 1 in Section A)* This guide will offer examples of how to add and populate these fields while you are building the Turf polygons. Once your shapefile work is completed, these fields will become part of the information included for each respondent to your survey.

**Before Getting Started:**

Chances are good that you already have a STEW-MAP folder on your computer. How you organize your project is ultimately up to you, but within your STEW-MAP folder, you’ll benefit by creating a folder called Maps, or GIS, or Turfs, or whatever makes sense to you. This will make it immensely easier to save your shapefiles and Turf-related downloads together for easy management. If you want to take it a step further, you can create individual folders in the Maps folder to separate data and GIS files, since the GIS files can end up having several parts. Again - just easier.

- ProTip: Don’t use any spaces in the folder name – ArcGIS and other GIS software packages gets finicky about these, and you’ll be accessing the folder every time you save a Turf file. Underscores “\_” are fine.

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## SECTION A: Working With Survey Responses and Data

If you have conducted your STEW-MAP survey via an online or software platform, you can follow their specific instructions for downloading the responses and gathering the data into a spreadsheet that you can edit. If the options available are limited to exporting a .csv or .txt file, know that both of these file formats can be opened in a program like Excel and saved as an .xls file if desired.

Once you have an editable spreadsheet, there are a few columns you'll add that will be related to the work that will be done for each organization's Turf. Depending on how the software has uniquely

### **More About What This Might Look Like:**

Let's say in your original survey mailing/distribution list, your first three organizations look like this, where 1, 2, 3, etc. is your PopID:

1. Department of Parks and Urban Forestry
2. The Pinchot Institute
3. Cedar Park Community Association

If your online survey allows you to load a panel, the survey results that you download once the survey has been completed will keep the numbers 1, 2, 3, etc. attached to the organization's responses. If your survey does not allow you to do this, sometimes the downloaded responses will have their own unique number system for your organizations, like this:

- 4679. Department of Parks and Urban Forestry
- 4680. The Pinchot Institute
- 4681. Cedar Park Community Association

What you are doing in this process is making sure that you've included the original 1, 2, 3, etc. PopID values to your organization's responses and their Turfs. This is the piece of continuity that will make all the magic happen! Instructions for when to do this start in Section A.

identified each organization (usually with some sort of ID number connected to their responses), there may be a field called Respondent ID, or UserKey, or something similar. In addition to this column, add a PopID column, which you can fill with the PopID from your initial list of groups that received the survey.

The following table defines and describes the other columns to add:

NAME	FIELD TYPE	FIELD INFORMATION
PopID	Number	<ul style="list-style-type: none"> <li>Unique ID number (PopID) if not already included in downloaded survey responses</li> </ul>
Location	Text	<ul style="list-style-type: none"> <li>City, Region, or Both</li> </ul>
Source	Text	<ul style="list-style-type: none"> <li>Digitization by editor to create the data</li> <li>Digitization via download from Maptionnaire</li> </ul>
Editor	Text	<ul style="list-style-type: none"> <li>Your name or initials</li> </ul>
EditComm	Text	<ul style="list-style-type: none"> <li>Editor comments, observations, or issues with Turf digitization</li> </ul>
RevDate	Date	<ul style="list-style-type: none"> <li>Date of Turf creation/revision</li> </ul>
Completed	Text	<ul style="list-style-type: none"> <li>Yes or No</li> </ul>
Confidence	Text	<ul style="list-style-type: none"> <li>High, Medium, or Low</li> </ul>
TurfType	Text	<ul style="list-style-type: none"> <li>Entire Turf or Multiple Sites that make up Turf</li> </ul>

**Table 1**

Save your spreadsheet with these new columns; you will be able to populate the fields (add the new data for each entry) as you are creating each Turf. If you are already familiar with how to use the Add Field operation within ArcGIS, there are instructions in the next section on how to add these fields there if you'd prefer.

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## SECTION B: Drawing Turfs From Written Descriptions (If you are doing this in batches from an ongoing survey, see Section D first)

### Drawing Turfs Using ArcGIS:

ArcGIS has an extensive set of Editing Tools that allow you to create a new shapefile and draw (or trace) a polygon based on the description you have for a Turf. You can do this using a background map that shows you features like streets, which is helpful when a description says something like, "6<sup>th</sup> Street to 13<sup>th</sup> Street, from Broad Street to Washington Ave.", to describe the Turf's four bounding streets. Other descriptions may reference other related boundaries, such as Zip Codes, Parks, or School Catchment zones. If they do, and if you have access to these in existing shapefiles, you can trace them to create Turf areas using the same editing process.

There are two ways that you can implement these tools: the first is by creating a simple Shapefile, which will essentially be an empty canvas for your drawn polygons, where you will use your survey data

spreadsheet to reference the Turf descriptions and then draw them in an open ArcMap, updating the related fields, or attributes, as you create each polygon.

The second is to create a geodatabase that will contain both your shapefile (in this case called a Feature Class) and your data table, allowing you to pre-load some of the attribute fields and access the descriptions from within the shapefile itself. The latter method will require a bit more attention during set-up, and is recommended for people who are fairly comfortable working with Arc file management. Ultimately, however, your final dataset will be converted to shapefiles in order to be uploaded into an ArcGIS Online map, which have fieldname length limits of 10 characters.

- ProTip: ArcGIS has an extensive help menu and an active forum. If you know what ArcGIS tool or feature you want to use, but don't understand what it does, the help menu can explain in detail what the tool does, with step-by-step examples. Also, if you ever receive an error message, the help menu can explain the error message further, to help you resolve the issue. Finally, the ArcGIS forum (<https://community.esri.com/community/help-and-feedback>) is useful for problem-solving issues you may encounter as you work on your project.

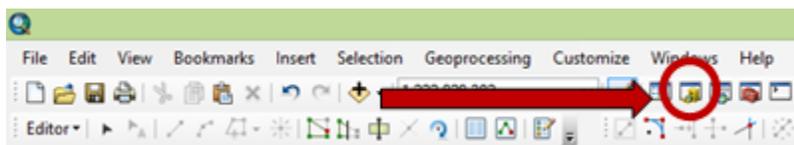
The first thing you can do is make your spreadsheet easier to work with. You don't need all of the spreadsheet data to create the Turfs; by copying and pasting the columns you need into a new CSV file, you'll have a smaller file to manage in ArcGIS and one that readily allows you to add new data, as well as easily recombine it to the larger dataset.

Open your spreadsheet in Excel and select the columns for PopID, Organization Name, Street Address, City, ZipCode, and the Description given for the boundaries of the area where they do their work. Be sure to also include the new fields you added in Section A, which you will edit as you create each Turf. Copy these and paste them into a new blank spreadsheet. Save the sheet as a .csv file, which you can open in Excel, or that you will be able to open in Arc when you are ready.

## I. Drawing Turfs Using a Shapefile

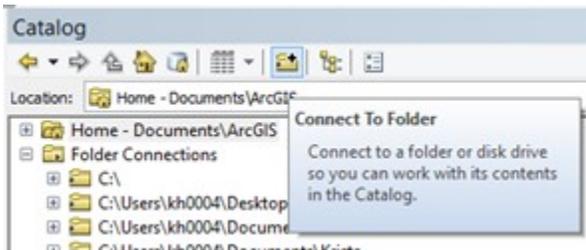
ArcGIS provides a handful of options for drawing new shapes in the program or on your map, and in order to create a saveable, editable file for your turf polygons, the first step will be to set up an empty Shapefile. This can be done in ArcCatalog, which you can open on its own or in your map. If you haven't already, go ahead and open ArcMap, which will set you up with a blank map document.

### a. Open ArcCatalog within ArcMap

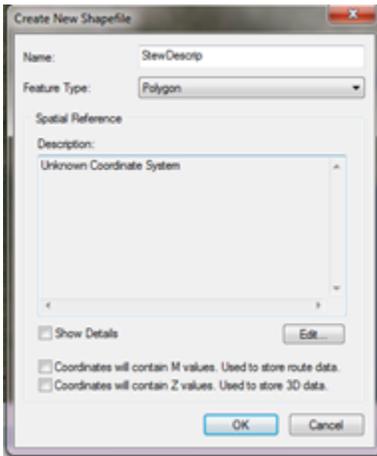


In ArcMap, click on the icon along the top toolbar that looks like a mini yellow file cabinet. This will open the ArcCatalog window on the right of your screen. In order to browse to your STEW-MAP folders, you may first need to tell ArcGIS to *Connect To Folder* and navigate to your STEW-MAP folder location. If Arc has never accessed a folder in the past, it will need you to show it the file you want to use. Once you've connected to a folder, it will continue to be available (i.e. you don't have to do this every time).

b. Connect to your STEW-MAP folder and Create New Shapefile



Within your STEWMap folder, it will help to create a separate folder for your GIS work. You can do this in your regular Windows Explorer, or in ArcCatalog by right-clicking on your STEWMap folder and selecting *New-->Folder*. Give it a name such as GIS, Turfs, or whatever makes the most sense to you. Once you have this folder, right-click on it, and select *New-->Shapefile*. This will pop open a window asking you to set up a name, type and coordinate system for your file:



Give the shapefile a name that makes sense to you, like DrawnTurfs, or STEWTurfs, etc. You will be able to revisit this shapefile and edit it as many times as you need, so it doesn't need to be specific to the date or set of organizations you are working on in this session. For Type, choose Polygon, then click Edit (under the Description box) to set the Projection (use your local State Plane projection, unless you will be tracing your polygons from other shapefiles that are in a different projection (e.g., ZipCodes that have NAD 83 coordinates). If that is the case, match the projection setting of your Shapefile to that coordinate system.

Selecting Edit will open the Spatial Reference Properties Box. To choose your State Plane Coordinates, navigate to the folder called *Projected Coordinate Systems-->State Plane-->NAD 1983 (US Feet)*, and select your state and region (usually North or South). If you need to set the projection to match that of an existing shapefile you are using, go up to the search box and click on the drop-down menu next to the sphere icon that (when you hover on it) says *Add Coordinate System*. From the menu, select Import, and navigate to the shapefile you want to match.

Click OK in the Spatial Reference Properties box, and again in the Create New Shapefile box. You should now be able to see your new shapefile in the ArcCatalog window. You can click and drag this file to place it in your Table of Contents window, or you can click on the *Add Data* icon (the yellow diamond with the plus sign), navigate to the file that contains it, and select it from there. Remember - your new shapefile doesn't have any turfs in it yet, so you won't see anything on your map.

...Just a few more things before you can start to draw the Turf areas:

### c. Add Attribute Fields To Your Shapefile

At the very least, you will need to add one Attribute, or column, to the shapefile's data table. This will be for including the PopID (or name for the organization's original unique identifier). It's also a good idea to

#### **What are Projections, and Why do they Matter?**

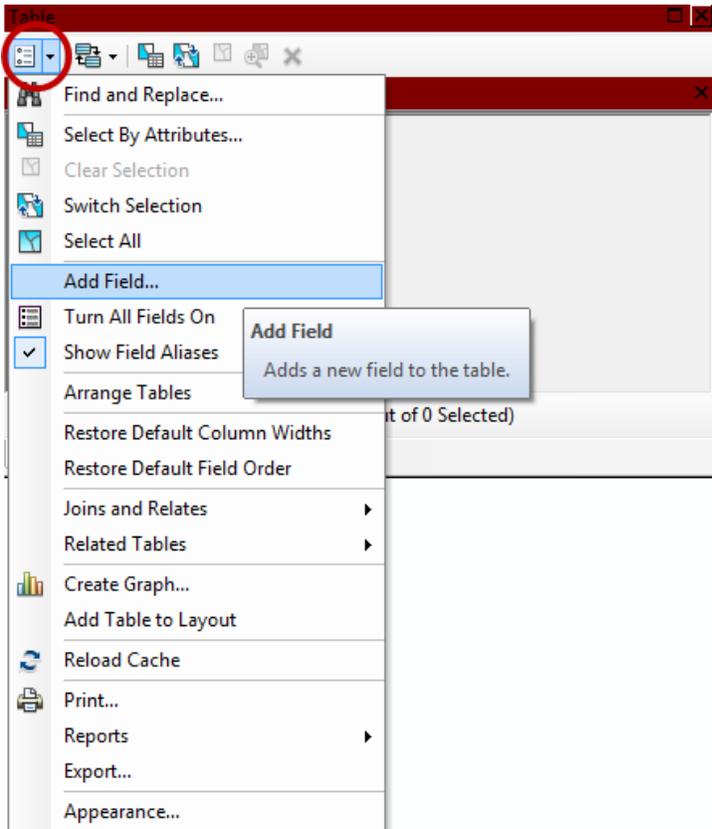
Projection is GIS-speak for the transformation that occurs when you take something that exists on a (round) globe and try to represent it on a flat surface, like your computer screen. There are a bajillion different ways that this process can be tweaked for accuracy.

The important part for the Turf process is that projections are also a way to make sure that shapefiles can align and talk to each other properly. In other words, you would want any shapes that you draw to be able to match the underlying reference information (streets, park locations, county boundaries, etc.) with as much accuracy and consistency as possible. STEW-MAP is considering these Turf areas for their various spatial connections and correlations, and this is the way that you can ensure that the "spatial" components are all on the same page.

For more detailed insights, you can always check out Projections in the ArcGIS Help information.

create a column for the name of the organization as a nice safeguard. Because your shapefile is blank, the table will also be empty of data, but you will soon be remedying that.

To set up your new fields, right click directly on the name of your new shapefile; from the options, select *Open Attribute Table*. The table should appear with default headers that read FID, Shape, and ID. From the Table menu options, select *Add Field*:

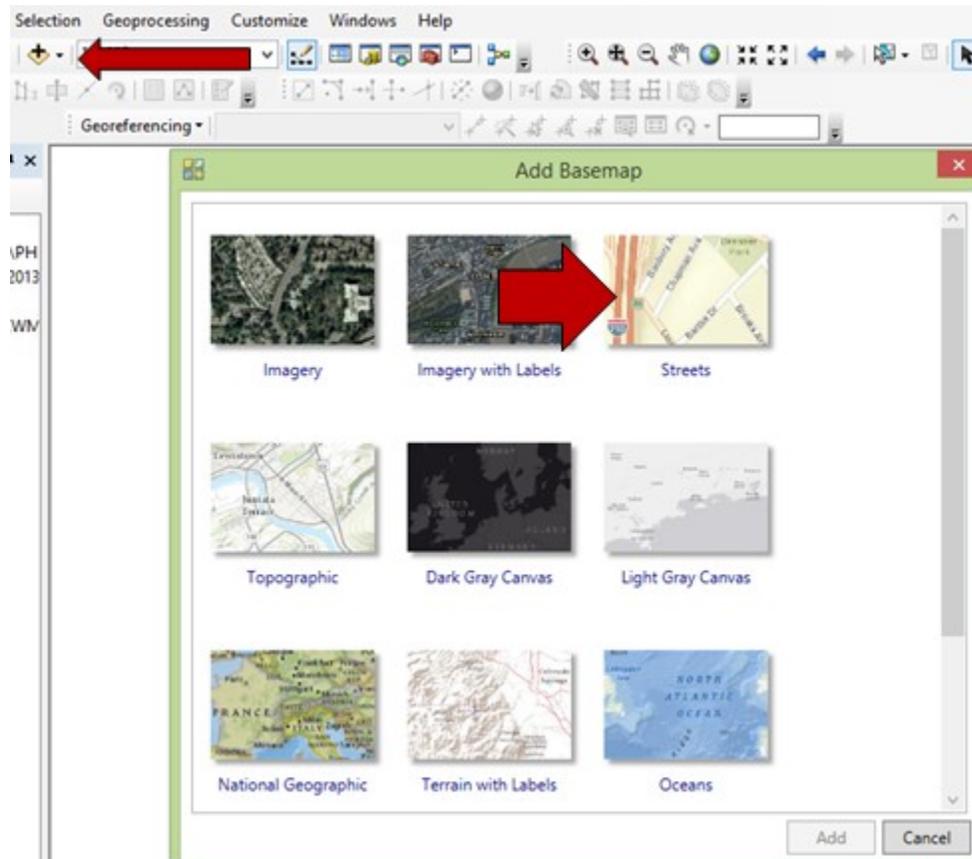


This will pull up the Field window, where you can name your field (PopID), set it to Type = Long Integer, and leave the default for Precision. Follow the same steps for entering a field that will hold the organization's name, but change the Type to Text, and set the Length to 255 if desired (255 is the maximum number of characters allowed; you probably won't need this for the name, but may be useful for other fields). If you opted not to create the rest of your new fields in your spreadsheet (i.e., the fields for your name as the editor, any comments on the Turf boundary, the date of your revisions, etc., as described in the table in Section A), you will need to do this step now.

- ProTip: the option to add these fields in your spreadsheet or your shapefile is up to you. For the former, you will ultimately need to set up your work flow to allow you to toggle back and forth between your shapefile and your spreadsheet in order to fill in these fields as you create new Turf polygons. For the latter, you will need to enter these attributes in the shapefile table within ArcGIS as you are editing the Turfs. **Regardless, you will need to input the correct PopID for each Turf polygon as you create it in your Arc map.**

d. Add other data files to provide references for the Turfs you will draw.

This can include other boundary shapefiles that you have from your region (counties, ZIP codes, parks). One of the easiest to use is a background or basemap that you can add right from Arc, which will show you streets and several area landmarks, Google-style. You can access it by *File-->Add Data-->Add Basemap*, or by clicking the drop down menu on the *Add Data* icon and choosing from the available basemaps. The Streets basemap is an excellent option, and there may be times when you find the Imagery helpful as well:

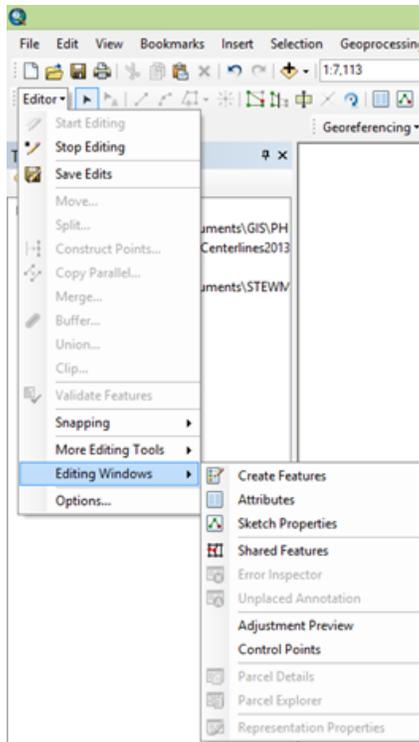


- ProTip: running these basemaps in the background (especially the Imagery) can slow down the time it takes you to make adjustments to your map, since it will be trying to redraw these large files the whole time you are working on your shapefiles. This is totally normal - it's not anything buggy on your system. Remember that by un-checking the box next to these World maps in your Table of Contents, you can turn them off for a while when you don't need them.

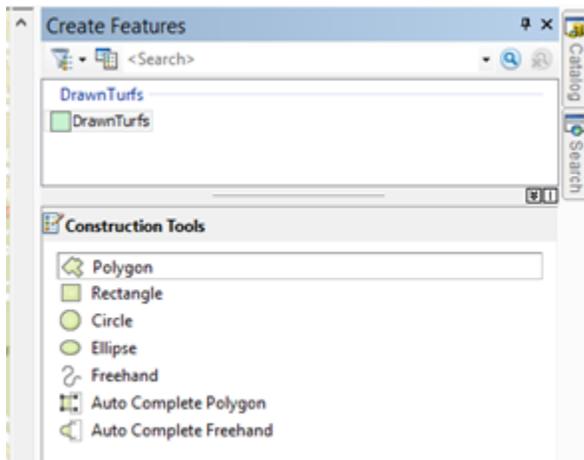
e. Edit your new shapefile to draw your Turfs.

In order to draw the boundaries of an organization's Turf, you will need to formally Edit your shapefile. Start by opening the Editor Toolbar from the Customize options and selecting *Toolbars-->Editor*. This will pop open the editing tools.





Click once on the name of your shapefile (to select it); a variety of Construction Tools will appear below. You'll most likely want to choose the Polygon tool, but you can use any of the options that will best draw your area. Click once on your tool to choose it:

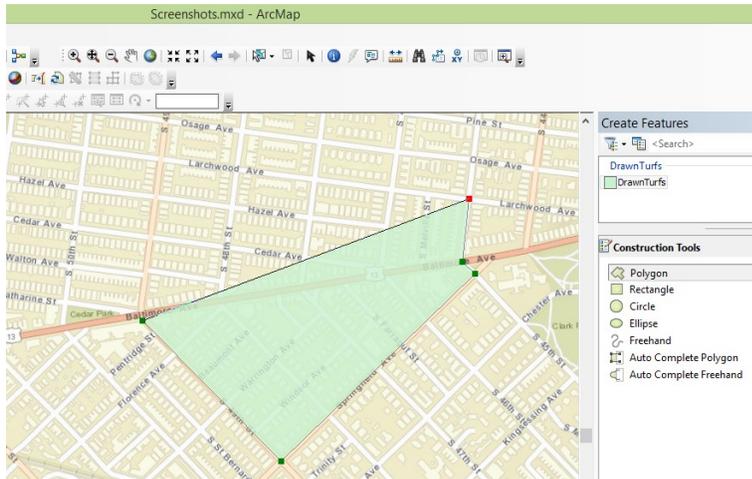


Your cursor will now appear as a crosshair symbol.

Go to your spreadsheet and locate the Description for the first Turf, and find the parameters for the boundary described on your map. If you aren't sure where the area being described is located (if the description is for a school catchment boundary, for example), the quickest way to get your bearings is to search for it in Google Maps (Pro tip: honest - we do this all the time!).

Line your cursor up with the area of focus on your map, and click in order to start drawing. As you move your cursor it will draw a line until you click again, which will set what is called the next "vertex". Each

time you click, you create a new vertex, and these are the spots where you can change direction/turn a corner on order to complete the outline of your Turf. In the image below, each green or red square is a vertex:

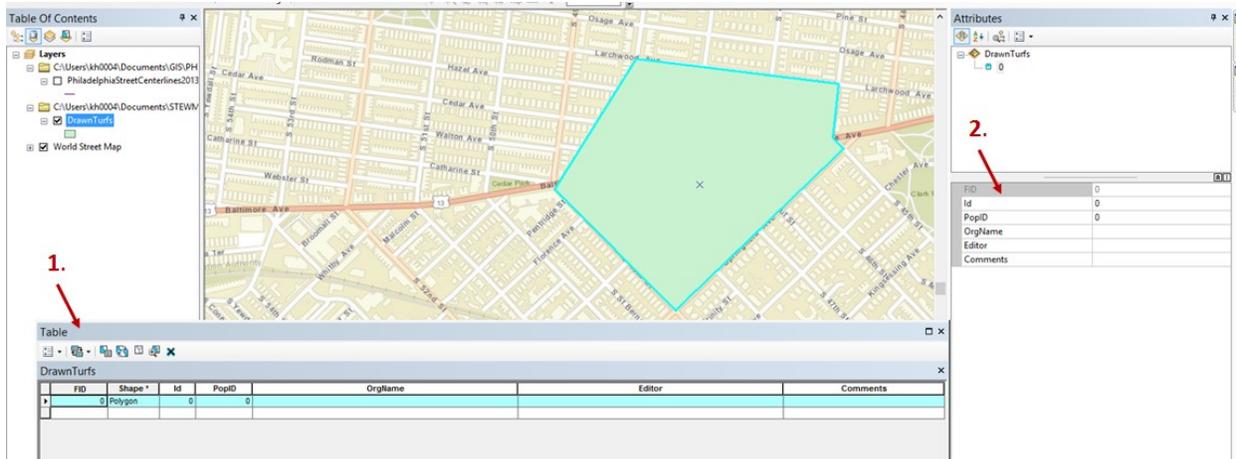


If you place a vertex in the wrong spot, don't panic; you can right-click on your map and choose *Delete Vertex*. Once you have completed all of the parts of a boundary, double click on the first vertex to complete the polygon. It will now have an "x" in the middle, and the polygon boundary will appear highlighted in blue.

- ProTip: Under the Editor drop down menu, there is an option to Save Edits; you'll want to remember to do this frequently so that you don't lose any of your drawn Turfs

Once you have completed a Turf, there are two ways you can fill in the needed attributes:

1. Right click on the name of your shapefile and select *Open Attribute Table*. The table will open with the item you have just drawn highlighted in blue. You can click right into each cell and fill in the associated organization data from your spreadsheet.
2. From the drop down menu on the Editor Toolbar, select *Editing Windows--> Attributes*. This will open an Attributes box over the Create Features box on the right side of your map. The fields for the Turf you have just created will appear in the box, and you can click right into each cell and fill in the associated organization data from your spreadsheet.



Check it out - YOU JUST DREW YOUR FIRST TURF!! You rock. A few more quick things:

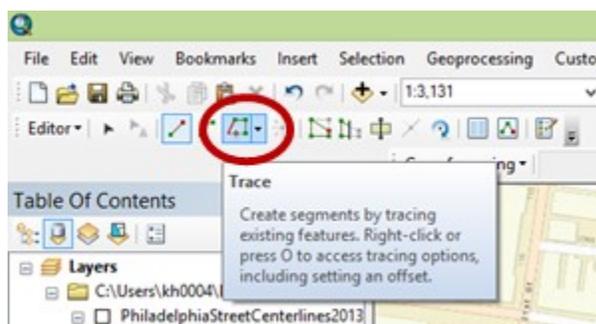
If you chose to add most of the new data columns to your spreadsheet instead of your shapefile, now is the time to go back and fill those in. Make sure you are editing data for the same PopID that you just gave to the new Turf polygon. Go ahead and save your edits in the spreadsheet, and then again in the map. You can never do this too often!

You are ready to move on to the next organization's Turf. To start drawing the next boundary, go back to the Create Features box on the right of your map and select Polygon under Construction Tools again. This will set your cursor back to crosshairs, and you can start placing vertices for the next polygon.

- ProTip: if the Attributes box is still the one you can see, peek down at the bottom of the box and you'll see a set of tabs; one will say Create Features. Just click on the tab to toggle back to that box.

#### f. Tracing Turfs from existing shapefiles.

If you have loaded a shapefile to your map that contains the boundaries of things that you can use to draw your Turfs (such as parks, school catchment areas, ZIP codes, or similar features), you can use one of the Editing tools that allows you to trace these existing boundaries instead of drawing them freehand. You'll find the Trace tool on the Editor toolbar:



When you choose this tool, you can start to trace the existing shape by clicking on any of its edges and then moving your cursor around the perimeter. You'll notice that the name of the object being traced will appear, and the outline of your drawing will snap to the object and be outlined in purple:

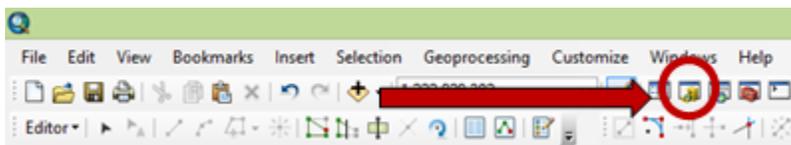


Double-click when you come back around to your starting point to finish your drawing. The new Turf polygon will then be highlighted in blue - same as if you drew it free hand - and will appear directly on top of the shape you just traced. Follow the instructions under #1 (or #2) in part e. above to fill in the attributes, and you're all set. Don't forget to Save your edits!

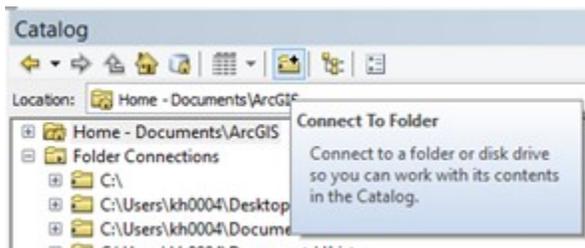
## II. Drawing Turfs Using a Geodatabase

To set up a Feature Class shapefile for your Turf, you'll want to create a New Geodatabase, which is like setting up a new folder to hold your Turf data. This can be done in ArcCatalog.

### a. Open ArcCatalog within ArcMap

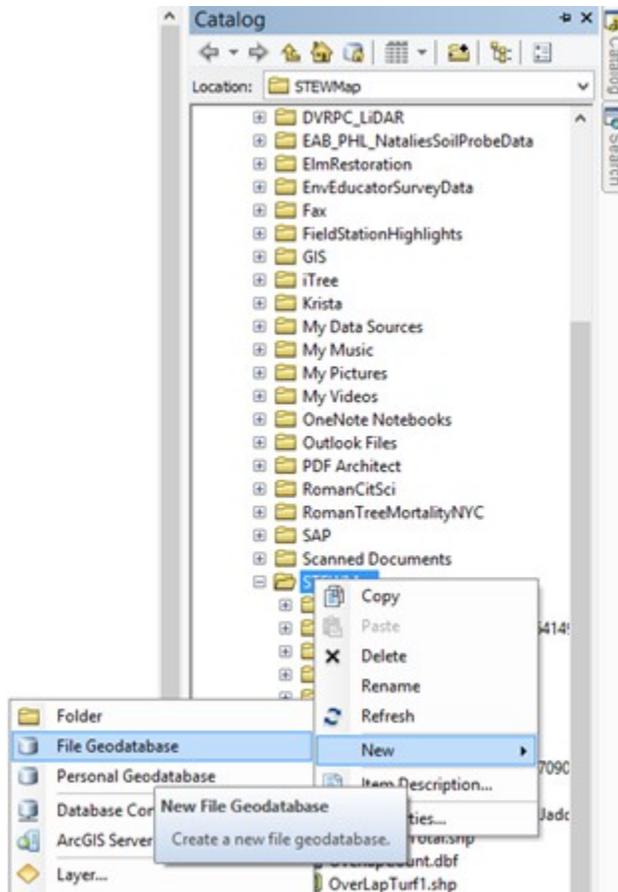


### b. Connect to your STEWMap folder (See steps a. and b. on page 6)



c. Create New File Geodatabase (GDB)

Right-click on the STEW-Map folder, and choose *New-->File Geodatabase*; you will be asked to name the GDB.

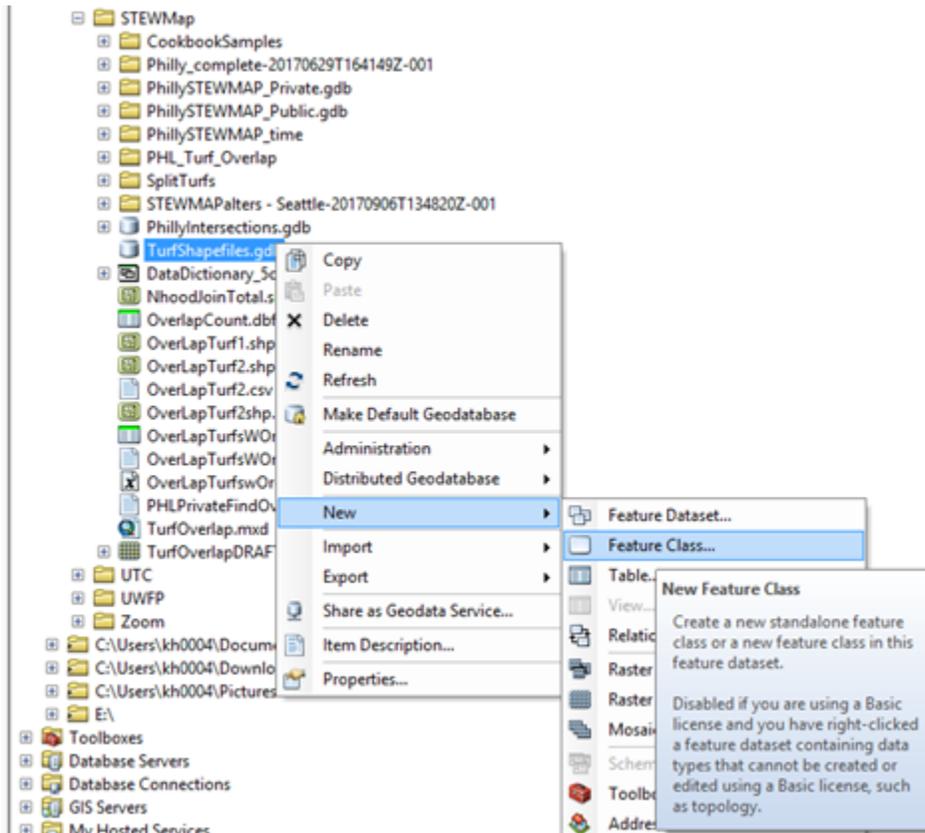


d. Open your .csv file in ArcMap.

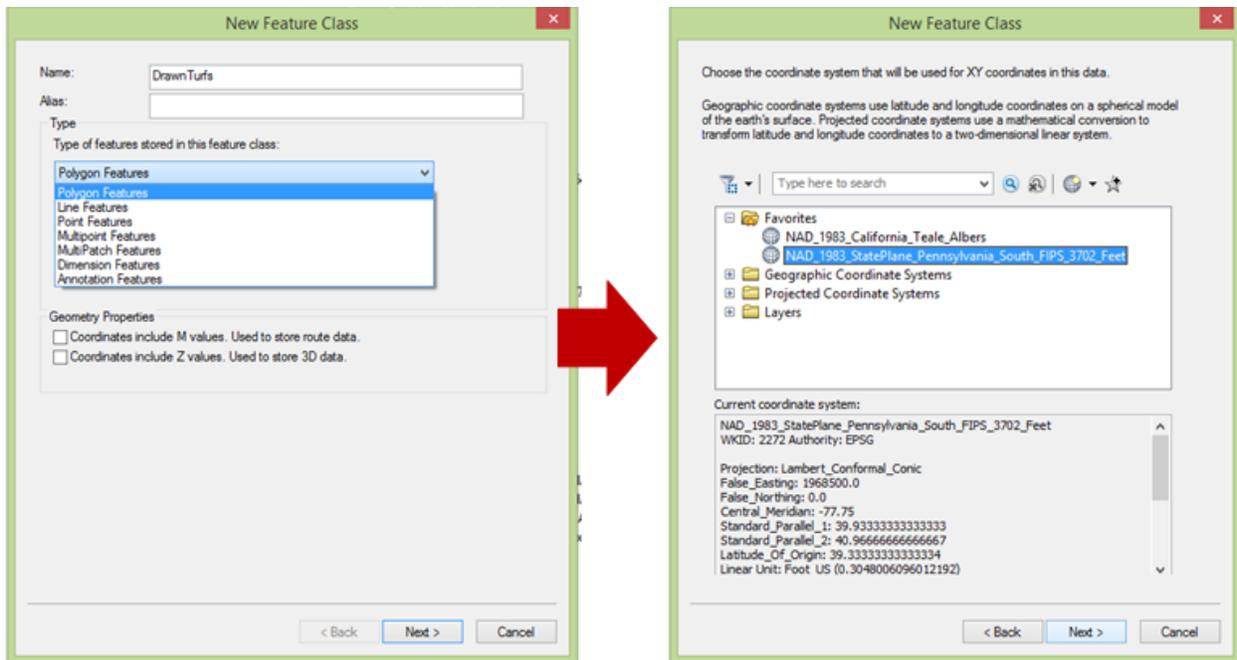
If you've saved your survey data spreadsheet as a .csv file, you can open it inside ArcGIS . The reason for doing this is that by setting up a geodatabase, you can load the information in your survey spreadsheet directly to your empty shapefile, transferring the PopID, organization name, and the description for each Turf directly to your file. You can convert this to a file for the .gdb by right-clicking on the table and choosing *Data→Export Data*, and then saving it as file type Table in the .gdb (you can give it the same name if desired).

- e. Create a new Feature Class shapefile.

In order to have an editable file that you can set up and use to draw your polygon Turfs, you'll start by creating an empty one. This can be done in ArcCatalog. Right-click on your .gdb and select *New-->Feature Class*:

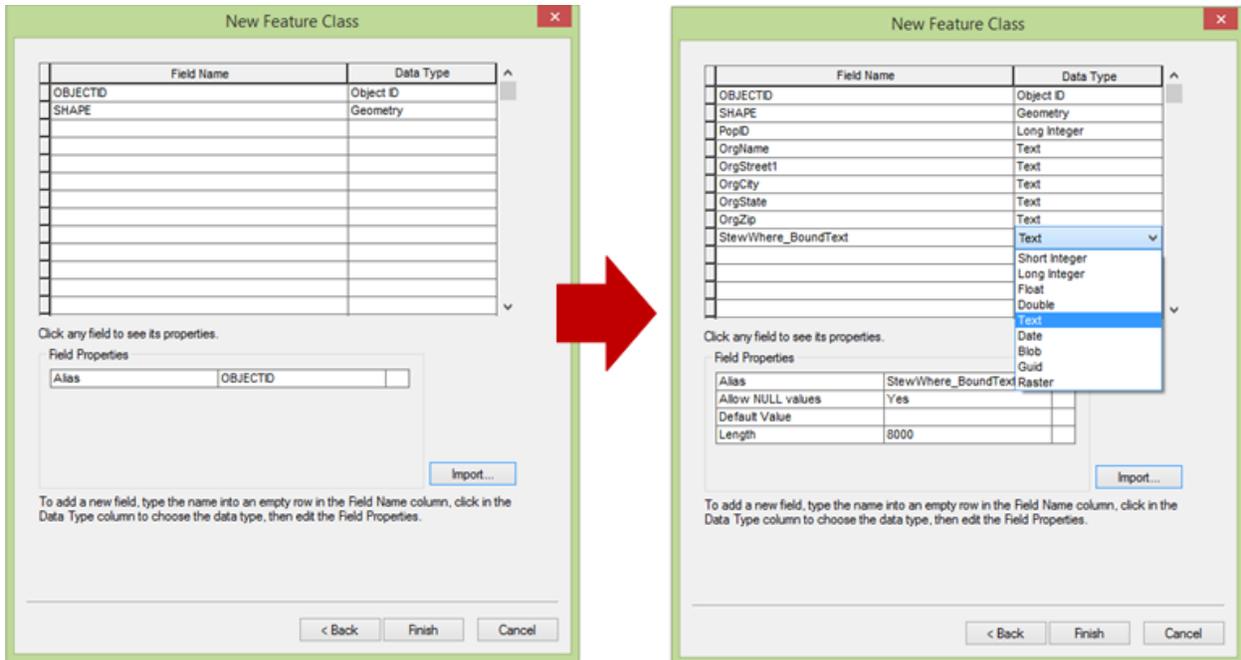


You will then see a New Feature Class pop-up window where you can format the file. For Type, choose Polygon Features, then click Next to set the Projection (use your local State Plane projection, unless you will be tracing your polygons from other shapefiles that are in a different projection (e.g., ZipCodes that are have NAD 83 coordinates). If that is the case, match the projection setting of your Feature Class to that coordinate system:



When you click Next, you will be given options for setting up the Field Configuration. In this step, you can tell the new feature class to adopt the fields, or columns, and headers from your survey data table containing your area descriptions. The advantage of copying these to your feature class is to ensure that the field names are identical, which will be important when you attach your survey data to the file. It will also allow you to access the description information from within the Feature Class.

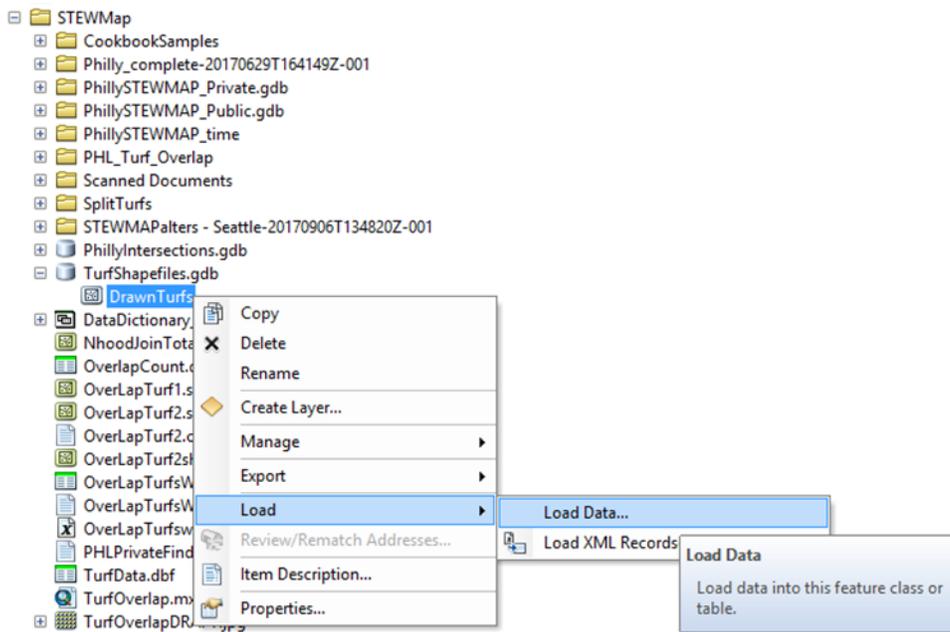
In the Field Configuration window, choose the option to *Import* under the Field Properties area, and browse to the survey data table you exported to the .gdb. Once you select the table, the fields from the table will show up under the Field Names at the top of the window:



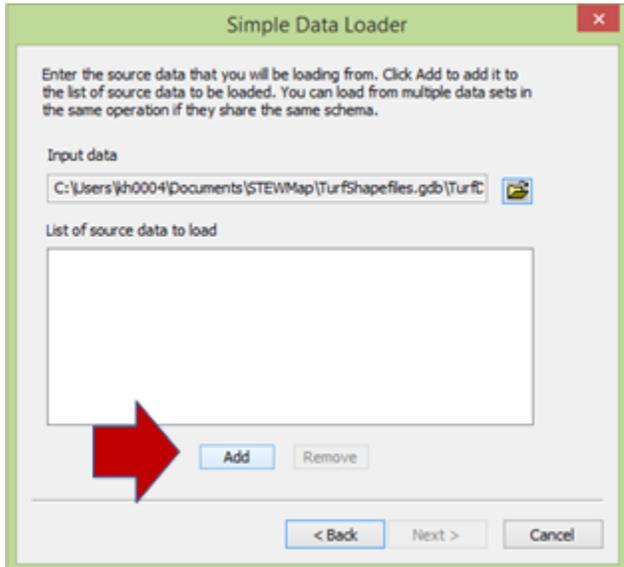
By clicking on the name of any field, or its data type, you can adjust the type and the properties as necessary, although the defaults should give you what you need in most cases. When your fields are good to go, select Finish. Note that your new Feature Class will have the field headers that you need, but no data for them. That comes in the next step.

f. Load Data to Feature Class.

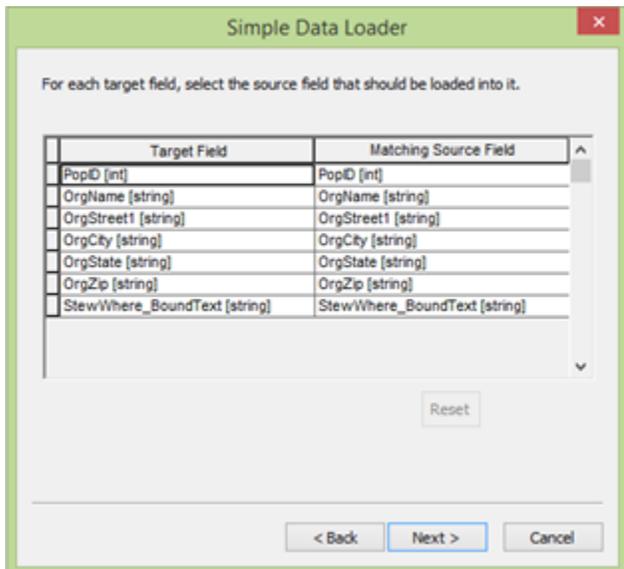
In the ArcCatalog window, right-click on your new feature class and select Load-->Load Data. This will open a Simple Data Loader set up window.



The first window will ask you to navigate to your data table, and then select *Add* in order to put in the List of Source Data to Load:



Click *Next*, and leave the defaults for the geodatabase and target feature class (it already knows what these are). Click *Next* again, and review the fields list to ensure that the Target Field and Matching Source Field are identical:



The next window will be about limiting your data with an attribute query, which you can skip, and that will take you to the summary page where you can choose *Finish*, and your data load will be done. Add the feature class to the map - you won't see anything on the map itself, since you haven't drawn anything yet; open the attribute table to make sure the data loaded and looks OK.

- ProTip: at the bottom of the attribute table, you can see the number of records that now exist in your shapefile. This should be identical to the number of records you just loaded from the survey data

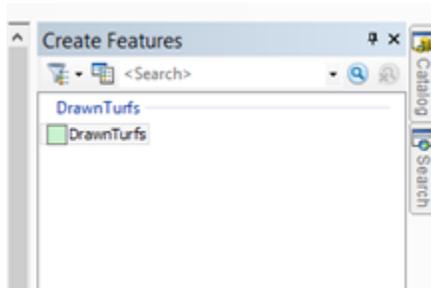
You are now totally set to start drawing Turfs!

g. Add your reference data to your map.

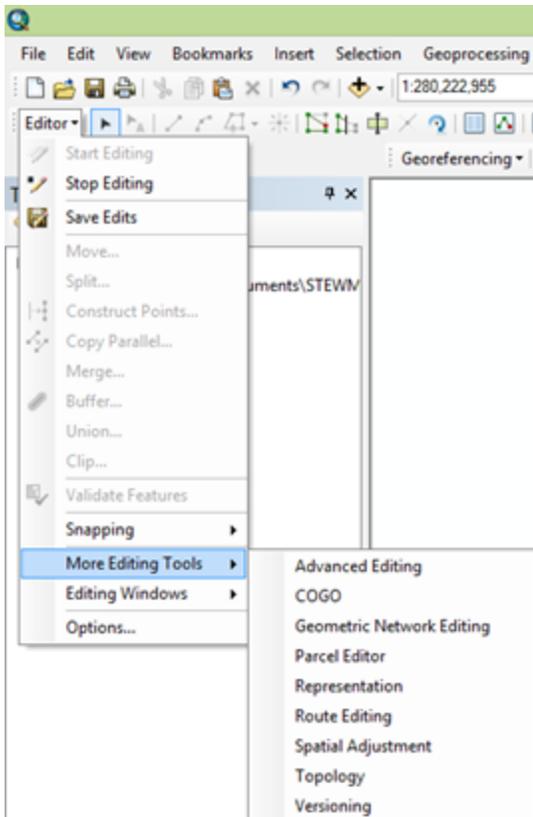
The simplest way to draw new areas in Arc is to line them up with or trace existing shapefiles. You'll notice that many of your organizations reference their boundaries with the names of streets, zip codes, waterways, parks, or other institutions. You can include any of these reference layers for use, or add a Basemap from the *Add Data* icon options; the Streets basemap provides a good starting point for these references, even if you do have the relevant shapefiles. Additionally, there may be times that using the satellite Imagery basemap is also useful.

h. Edit your new feature class to draw your Turfs.

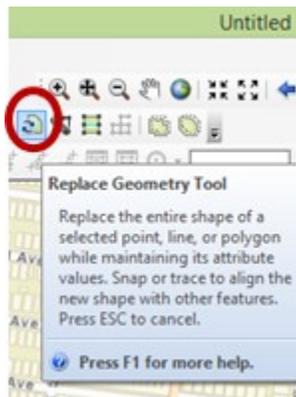
In order to draw the boundaries of an organization's Turf, you will need to Edit your feature class. Start by opening the Editor Toolbar from the Customize options and selecting *Toolbars-->Editor*. This will pop open the editing tools. Under the Editor drop down menu, select *Start Editing*. Arc may ask you to identify the file you wish to edit, in which case you'll select the feature class for your Turfs. Once you've told Arc to Start Editing, it will open the Create Features window on the left of your screen:



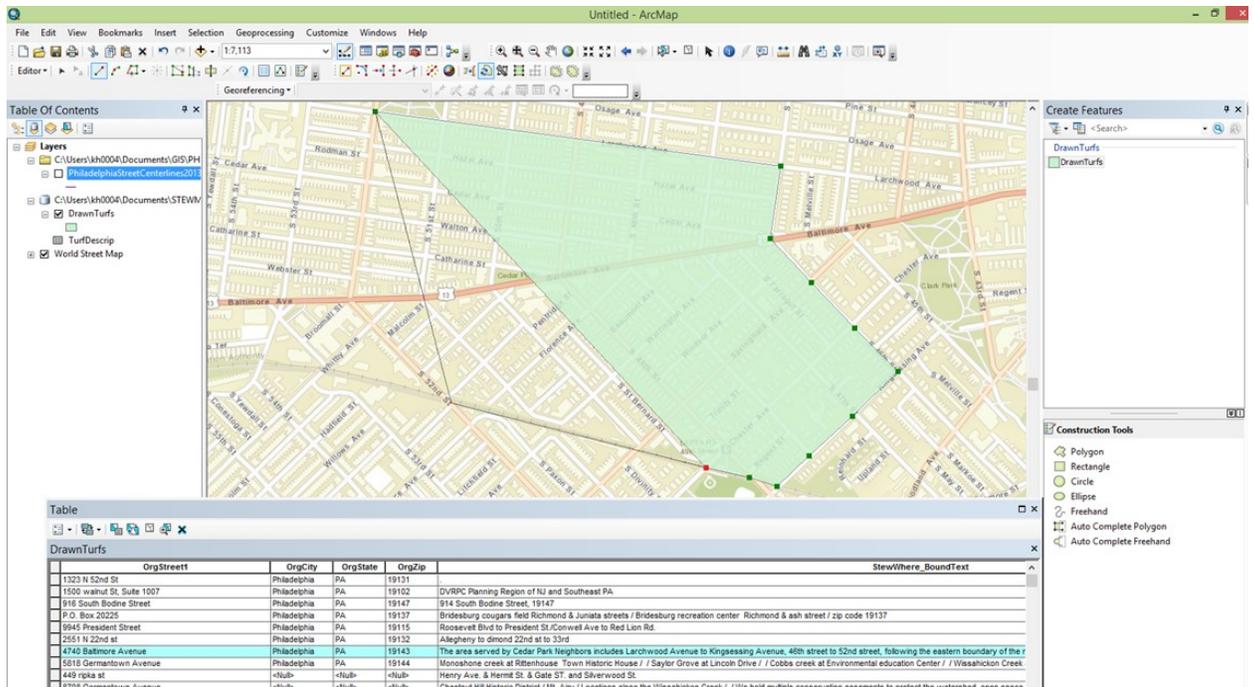
Click once on the name of your feature class (to select it); a variety of Construction Tools will appear below. You'll most likely want to choose the Polygon tool, but you can use any of the options that will best draw your area. Click once on your selection tool to choose it. Return to the Editor drop down menu, and select *More Editing Tools-->Advanced Editing*. This will place a few extra icons on the toolbar, including the one you'll use to create your Turf boundaries:



Click on the icon called *Replace Geometry* from this advanced toolset; it looks like a polygon shape with 2 arrows:



Your cursor will now appear as a crosshair symbol. Right-click on your feature class in the table of contents, and *Open the AttributeTable* to view your data. Select the first record you want to draw, scrolling the table so that you can see the Description. Use your cursor/Replace Geometry tool to click on the map and draw the desired boundary:



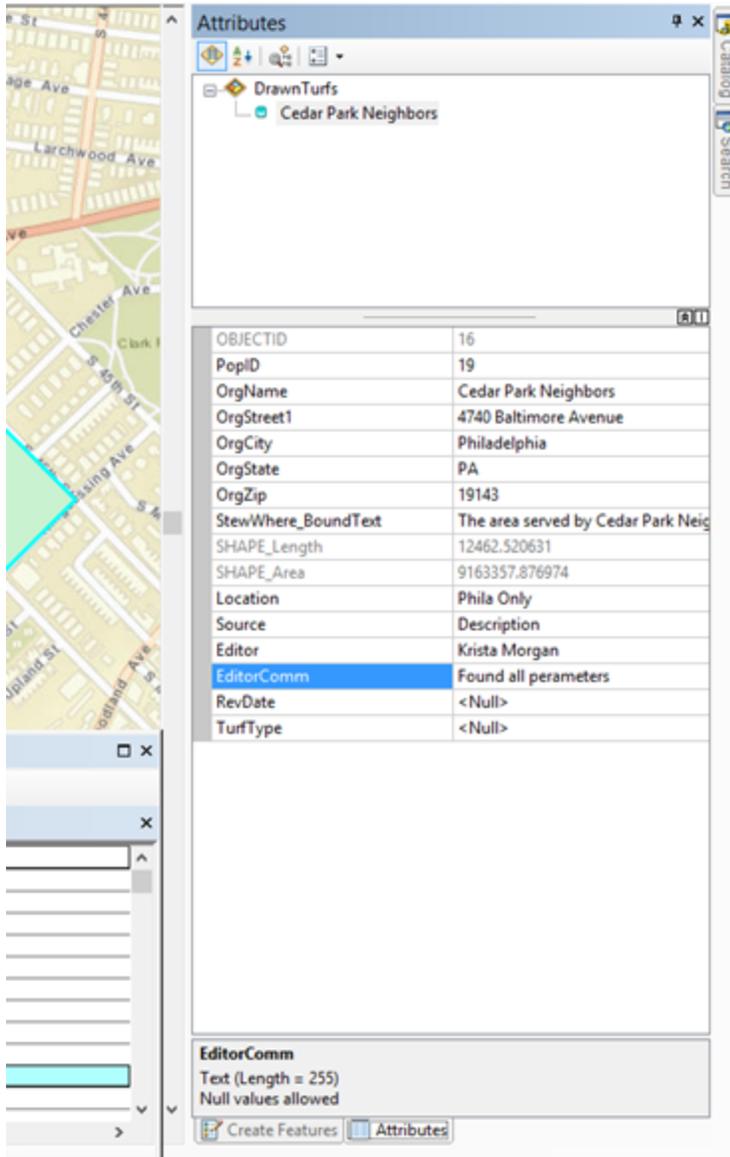
Click on the map any time you want to place a vertice or change direction/go around a corner; double-click when you have finished drawing the boundary at your starting point to complete the polygon. You can then select the next entry to draw.

- ProTip: Under the Editor drop down menu, there is an option to *Save Edits*; you'll want to remember to do this frequently so that you don't lose any of your drawn Turfs

i. **Add your notes and new attributes.**

While you are in Editing mode, you can double-click into any of the cells in your attribute table to enter new information. Once you have completed drawing the turf boundary, navigate to the fields/columns in the attribute table where you will enter Yes or No for Completed, Your Name as the person drawing the turf, the Date if you are including that, and any Comments or Notes on the boundary.

If you would prefer to use the Attribute window instead of the table itself (which may allow for less scrolling to enter your data), you can follow these steps: From the Editor Toolbar drop down menu, select *Editing Windows-->Attributes*. This will open the Attributes window on the right of your screen, and will bring up all available fields for the selected turf polygon (which will be the one you've just drawn). Fill in your related fields right inside each cell:



You should now be able to see your attribute data in the table for the feature class, and are ready to move onto the next Turf.

Don't forget to Save your edits often using the dropdown menu on the Editor toolbar...

### Drawing Turfs Using Other Products

There may be any number of reasons why the steps outlined above for ArcGIS aren't the way to go for your STEW-MAP team. If it's not a program you already have access to, or if you are lacking someone with GIS knowledge and/or the time to learn how to play with it, these can both be prohibitive. If that's the case, there are other utilities that may be worth considering.

### Google MyMaps

Google MyMaps is separate from regular Google Maps, and by logging into it with any regular Google account, it gives you the capacity to make and save edits on a map. (<https://www.google.com/mymaps>).

This can often be the simplest way to go, as it offers a familiar platform, and you can draw up as many polygon shapes as you need. There are several options for accessing tutorials on how to use this program, including help info from Google ([https://support.google.com/mymaps/answer/3024454?hl=en&ref\\_topic=3188329](https://support.google.com/mymaps/answer/3024454?hl=en&ref_topic=3188329)) and tutorial videos (<https://www.youtube.com/watch?v=fLhYr5MGi2g>).

The main key factors if using this route will be to incorporate the information from Section A when it comes to the fields you need to add as you are creating Turfs. The MyMaps features allow you to input the correct PopID for each organization as you draw their areas. You will likely want to have your spreadsheet open so that you can toggle back to the other fields (Comments, etc.) and complete them as you work. At the end of your drawing session, Google will have saved your Turf drawings in what's called a KML file. These types of files are exportable from Google, and you will be able to convert them into ArcGIS shapefiles when the time comes.

Another caveat to using Google MyMaps is that you won't always be able to trace certain geographies if they aren't already a feature of the Google basemap. Things like streets, institutions, and parks are often readily accessible, but you won't necessarily be able to see the outlines of things like county boundaries, ZIP codes, and the like.

## QGIS

QGIS is a free and open source GIS platform that offers a fairly streamlined and accessible way to work with several simple GIS tasks. You can learn more about what the system includes, and how to use it, on their site (<https://qgis.org/en/site/>).

## ArcGIS Student License

Arc GIS offers a significantly lower-cost option for students and those affiliated with academic institutions (i.e., folks with a .edu email address). You can learn more about how to obtain one at the ESRI site (<http://www.esri.com/software/arcgis/arcgis-for-student-use>). Licenses usually offer access for one year, and include most of the software's bells and whistles. This may be a viable option, especially if you are working with student researchers on your STEW-MAP team.

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## SECTION C: Work On Data From an Ongoing Survey (and Integrate New Data With Completed Data)

If you are anticipating that the responses to your STEW-MAP survey will be coming back to you on a reasonably consistent basis over an extended period of time, it may make sense to work with the responses periodically in batches (once every other week, e.g.) instead of waiting until your survey period is closed. An important part of choosing this method is understanding how to incorporate each of these batch updates consistently into your overall dataset. This guide will also talk about how to set up QA/QC procedures once your survey is closed, to ensure that all respondents have been added to the Turf shapefiles.

One of the ways to do this is with Excel's VLOOKUP function (<https://support.office.com/en-us/article/vlookup-function-0bbc8083-26fe-4963-8ab8-93a18ad188a1>), which offers a way to track

your work as you download new survey responses, add them to your existing set of responses, and draw new Turfs for them. If you have someone on your STEW-MAP team who really knows how to make Excel (or Access) sing, this might be a very straightforward option.

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## **SECTION D: Download Organization's Drawn Turfs from Their Survey Response**

(To Be Completed)

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## **SECTION E: Check Organization's Drawn Turfs for Accuracy**

(To Be Completed)

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### **Acknowledgments**

Thanks to Stephanie Freeman for authoring a draft guide to mapping NYC STEW-MAP turfs, which inspired this universal guide.