

## Visualizing GPS Data with Track Kit & Google Maps

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## Visualizing GPS Data with Track Kit & Google Maps

Now that you know how to collect waypoints and tracks using your smartphone or tablet, let's explore ways to visualize the data on the web. In this exercise, you will upload your GPS track from your phone to the Track Kit server. Then you'll export the data from the Track Kit website to a Google Maps file (.KML) and add it to a Google Map. You'll learn how to customize the color and symbols on the map, as well as how to share your map with others.

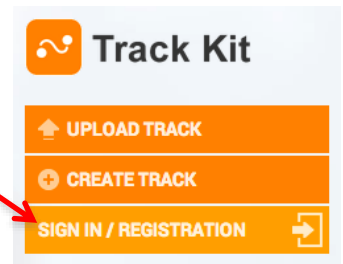
### Managing Your GPS Data on Track-Kit.net

Track Kit provides a free online mapmaking site, <http://track-kit.net>. It provides a space for storing your GPS tracks as well as tools for editing and visualizing the data you collected using the Track Kit mobile app.

#### Log into Your Track Kit Account on the Web

In order to save your GPS tracks, waypoints and photographs online, you must register for a free Track Kit account.


- Go to <http://track-kit.net> in an internet browser and click on **SIGN IN/REGISTRATION**.
- If you have already created an account, **Log In**. Otherwise, click on the **Registration** link and fill out the required information. WRITE DOWN YOUR LOG IN INFORMATION. You'll need it again.



Username/email: \_\_\_\_\_ Password: \_\_\_\_\_


#### Log into Your Track Kit App on Your Device

Before you can upload your GPS data to the Track-Kit website, you must first log into your new account within the Track Kit app on your device. You may also be required to confirm your email before you can access the Track Kit server (check your email).

- Open the Track Kit app on your device. Click on the **three dot ellipsoid** icon  in the lower right side of the screen. Android users, select the **Menu** button. When additional options appear, click on the **Settings icon**. In the **Options** menu, scroll ALLLLL the way to the end. Look for the orange **Log in** button. Click on it. Enter your email and password to log in. Note, if you just registered, you may need to verify your email (check your email).
- Click on the **← arrows** at the top of the **Options** menu until you return to the main map screen.



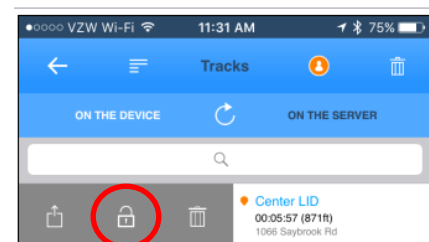
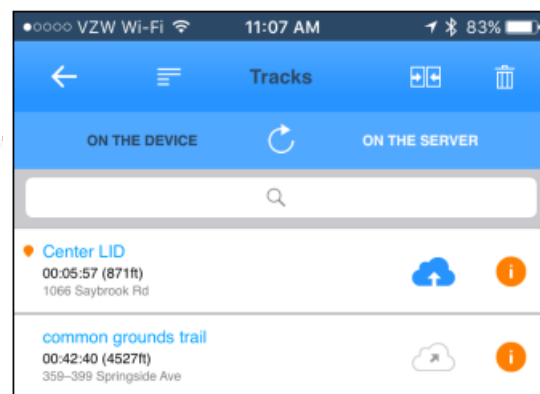
## Upload Your Tracks to the Track-Kit Website

On your smartphone or tablet, from the main map screen, **tap the Tracks icon**  and **select TRACKS**. \*\*\***ANDROID USERS**, tap the Menu icon and select **TRACKS**.



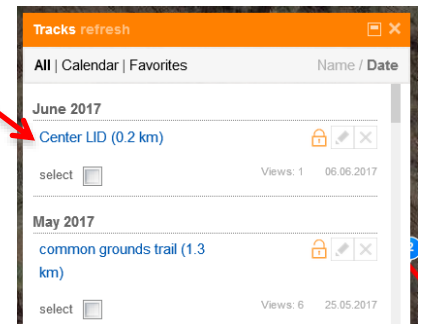
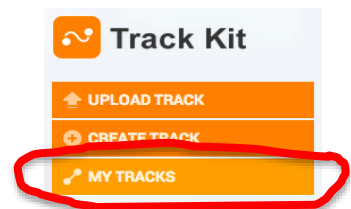
The app distinguishes between two categories of tracks. Those that are **“On The Device”** and those that are **“On The Server.”** The current view will be highlighted in black text.

- **Tap on “On The Device”** to ensure you are looking at the tracks on your phone/tablet.
- Locate the track you just collected and wish to upload to the server and **tap the blue cloud icon**. This will upload that track to your account on the Track-Kit.com website.
- Once your track has been loaded, the blue cloud will turn gray.
- To ensure your track has been uploaded, **tap “On The Server.”** Your track should be listed.
- Tap on the **orange “i” information icon** next to the name of your track. You will see a summary of the track appear on the screen. Options for **editing** the track information, **sharing** the track and **deleting** the track are listed on the bottom of the window. Tap on the **Share icon** in the middle. Notice there are four different data formats to export the track including GPX, KML, KMZ and CSV. These can also be exported and shared via iTunes or Email. Click **Cancel**.
- Click on the **white ←** at the top of the menu to return to your list of tracks stored on the server.
- By default your track is **“public,”** which means that anyone who visits the Track-Kit website can view it. It must remain public for you to share a link to the map.
- To make your track private, **swipe your finger to the right** over the name of your track. You will see a menu appear with three options (share, lock, delete). **Tap on the padlock icon** to lock the track. This will make the track private. Note that you now no longer have the option to share your track.
- Since you may want to edit your track before you share it, leave it as a **private track** for now. Use your finger to swipe left and close the menu.



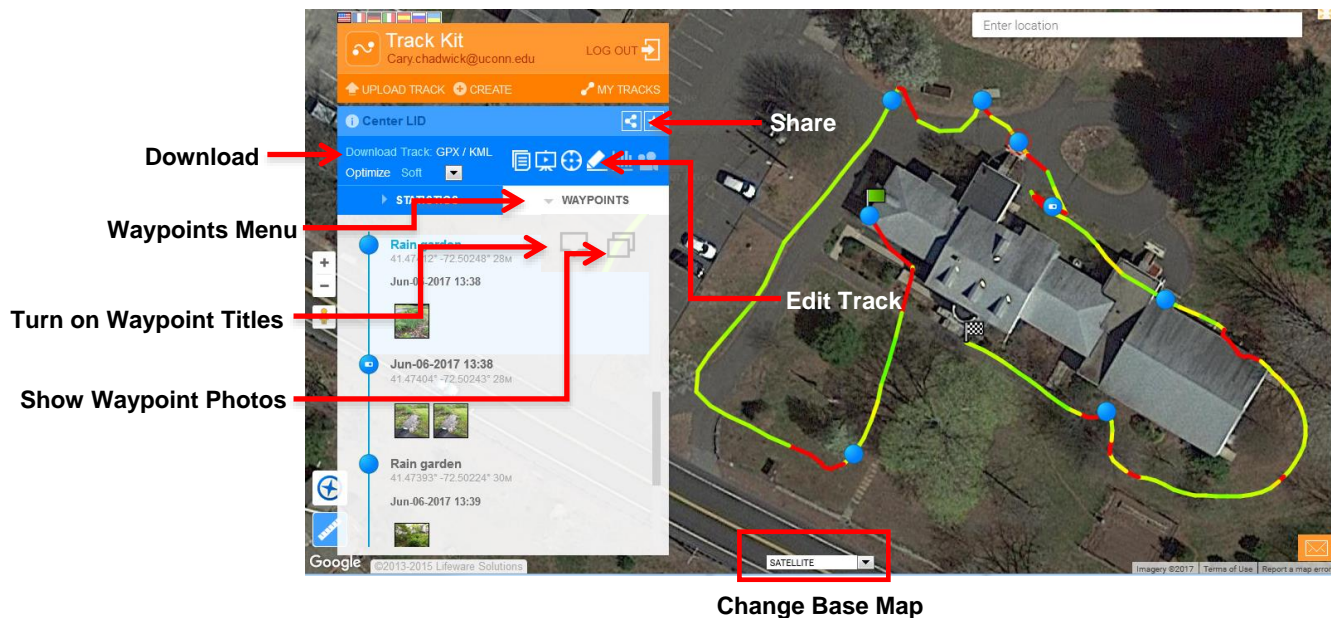
## View Your Track on the Track Kit Website

- Return to your computer and your web browser. The Track Kit website, <http://track-kit.net> should still be open (if not, open it and log in).
- Because you are logged in, you will notice a “My Tracks” option added to the upper left navigation menu. Click on **My Tracks**. A map will open with a list of the tracks you have uploaded/saved to your account.
- **Click on the title** of the track you just walked to view to open it (Note, the name of your track may be different than what is shown to the right).
- A map of your track and waypoints will open.



**Tip:** To unclutter your map window, click on the X in the upper right corner of the Tracks box. This will close the box. But don't worry, you can reopen it at any time by clicking on **MY TRACKS**.

- Take a moment to **explore** the Track Kit map page. (NOTE: your map will look different!)



**Download**

**Waypoints Menu**

**Turn on Waypoint Titles**



**Show Waypoint Photos**

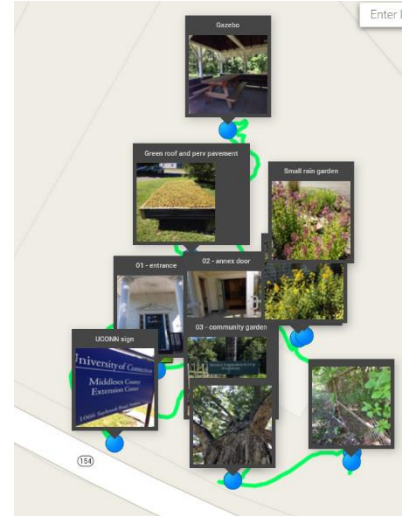
**Share**

**Edit Track**

**Change Base Map**



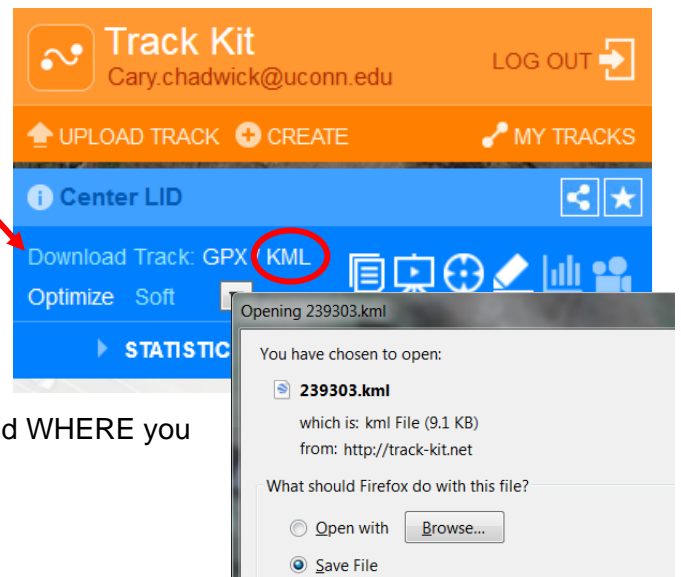
- The panel on the left may obstruct a portion of your track. To move your map out of the way **click and hold anywhere on the map** and then drag (i.e., pan) it to your desired position.
- Explore your track and waypoints by clicking on them. Pretty snazzy right? No coding required and your photos and everything you entered in the field is on your map. Can I get a Woo-Hoo!?
- Notice that as you click on different points, they are highlighted in the **Waypoints** menu on the left.
- **Click on the pop-up icon**  next to green start flag in the Waypoints menu. This will turn on the waypoint labels.
- **Click on the icon that looks like two overlapping pages**  in the Waypoints menu to display the photos associated with each waypoint. Turn these options off when you are finished exploring.



## Exporting Data from Track Kit

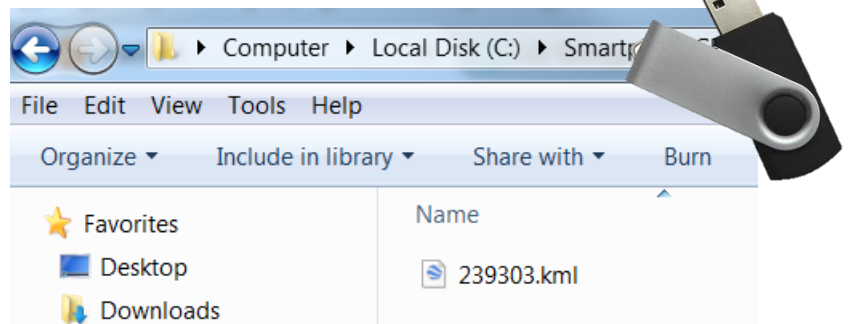
The Track Kit website does a decent job of organizing and displaying your data. It is also essential for transferring your tracks from the Cloud to your device. However, there may be times when you wish to export the data to a file you can save on your computer, or upload to another mapping tool like Google Maps. In this step of the exercise, you will export your track to a Google KML file.

- You should be viewing your track in the Track Kit web map. On the Track Info panel on the left side of the screen, locate **Download Track**. Click on the **KML** link.
- You will be prompted to specify a location where the track will be saved. Click on **Browse...** to select a drive and folder location (this may be different on a Mac). If you have a USB flash drive, save it there. Otherwise, save the KML to the hard drive of the computer you are using (but don't forget the name of the file and WHERE you saved it!).





*Note: your browser may format this window slightly differently and may also be automatically set up to save the file to your "Downloads" folder. The Downloads folder (on a PC) is usually located here:  
C://Users/{your username}/Downloads*



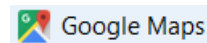
**Pro Tip:** We won't use it in today's workshop, but you may also want to download your track as a GPX file. GPX is the standard format for storing GPS data and can be used in a variety of different mapping tools. It never hurts to have a backup! Just note, this file will not include photos. [Download Track: GPX](#)

## Importing Data to Google Maps

Your Track Kit data looks great (better) in Google Maps. Trust us. You'll see. In this step of the exercise, you'll upload the KML file to Google Maps, My Places. From there you can do more edits, or share your map in a variety of ways.

### Sign into Google Maps

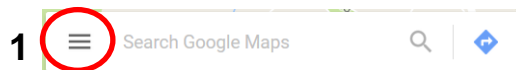
- Open a **new tab** in your browser and go to **Google Maps**.
- If you are not already **signed into** your Google Account, you will see a blue **Sign In** icon in the upper right hand corner. Click it and sign in with your Google password.



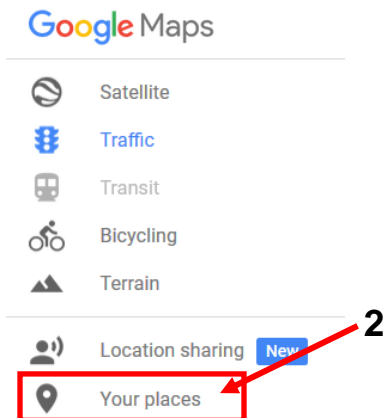
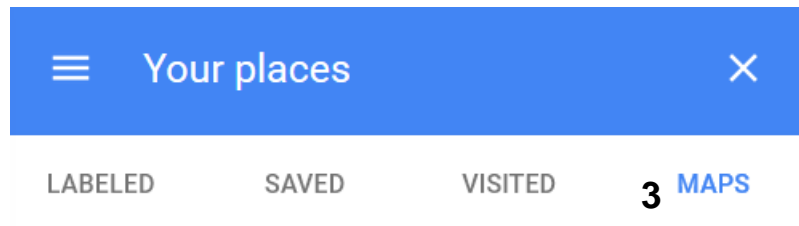
[Sign in](#)

### Google My Places

- Google My Places is a place to create and save your own Google maps. To find it in Google Maps, click on the **Menu icon** (three horizontal lines) in the search bar in the upper left hand corner of Google Maps.

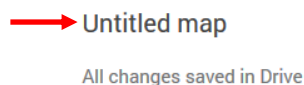


- In the panel that appears, click on **Your Places**.
- In the **Your places** panel, click on **Maps**. If you have ever created maps in Google My Maps, you will see them listed.



### Create a New Map

- At the bottom of the **Maps** tab in the **Your places** panel, click on **Create Map**. Google will switch to the Map Editor and create a new, Untitled map.
- Click on the words, **Untitled map** in the panel on the left side of the map. Edit the **map title and description** to reflect the GPS data you collected earlier today. Click **Save**.



Edit map title and description

Map title

Extension LID Demonstration Sites

Description

This is a map of the Low Impact Development sites at the UConn Extension Center.

Save

Cancel

### Import Your Track Kit KML

- Below your newly updated Map title and Description you will see Google has created an **"Untitled layer"**. This is where you will import your Track Kit KML file.
- Below the layer name, click on the blue **Import** button.

Extension LID Demonstration Sites

This is a map of the Low Impact Development sites at the UConn Extension Center.

All changes saved in Drive

Add layer Share Preview

✓ Untitled layer

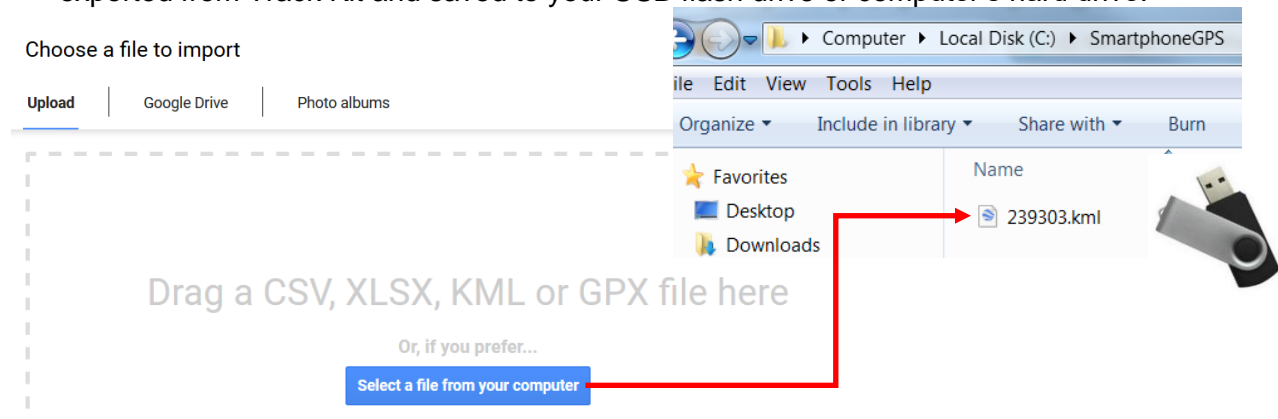
Import

Add places to this layer by drawing or importing data. [Learn more](#)



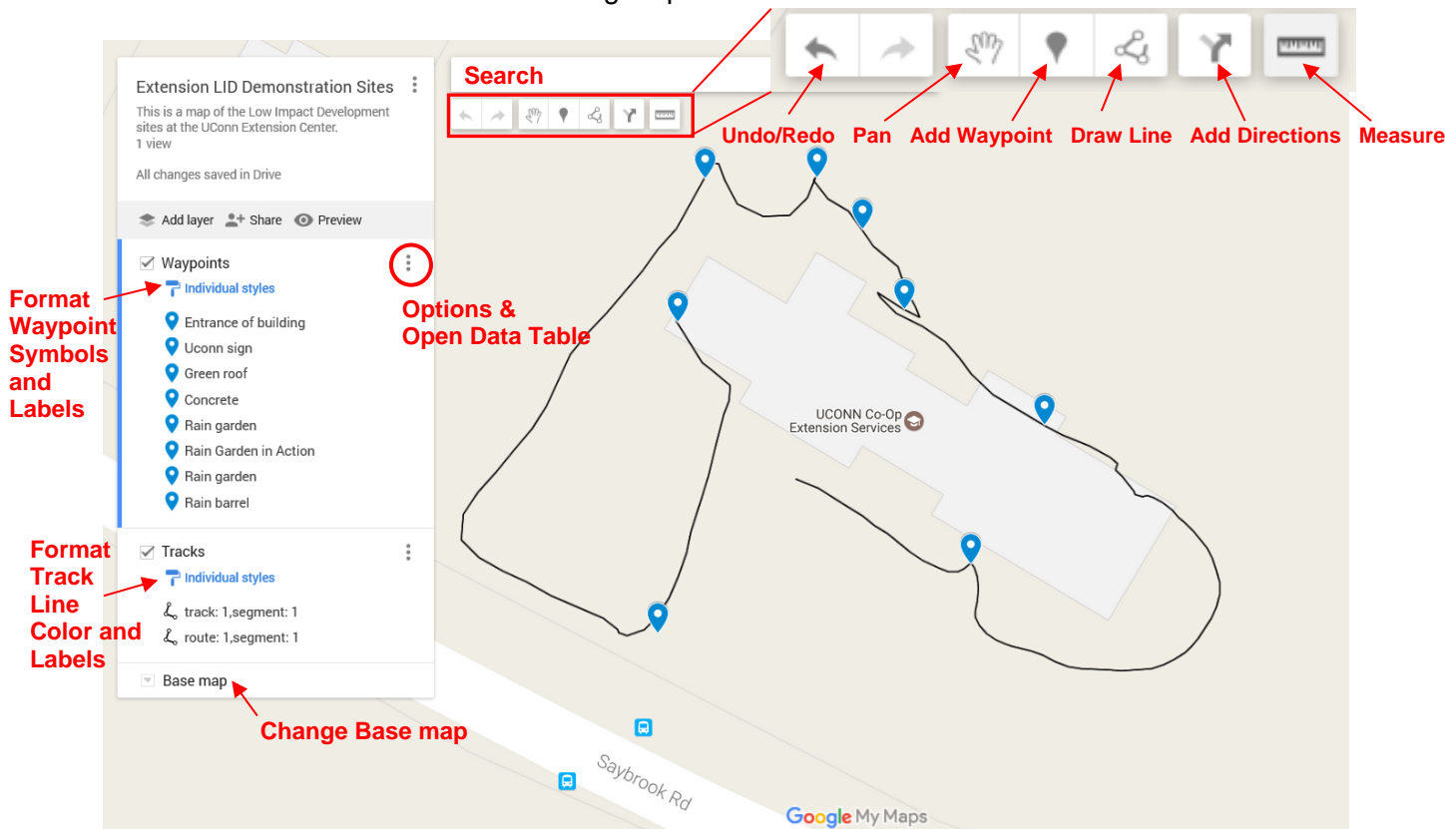


- In the **Choose a file to import** window, be sure **Upload** is selected and click on **“Select a file from your computer”**. This is where you will navigate to and select the KML file you exported from Track Kit and saved to your USB flash drive or computer’s hard drive.



## The Google My Maps Interface

The image below points out important features of the Google My Maps interface. We'll take a closer look at some of these in the following steps of the exercise.



## Formatting Waypoints in Google My Maps

- Click on the **three dots** next to **Waypoints** and select **Rename this layer** in the options that appear. Rename the layer to better reflect the type of data the waypoints represent.

- Click on the **three dots** again. This time select **Open data table**. A table displaying the waypoint information will appear. Notice you can **edit the content** of these fields. Any changes here will also be reflected in the pop-up window that appears when you click on the waypoint symbol on the map. Caution: don't mess with the wptPhotos field or else your images will not appear in the pop-ups!

Low Impact Development Practi...

Find in table 1-8 of 8 < >

	name	description	wptPhotos
1	Entrance of building	Welcome to the Middlesex County Extension Center!	img239303_1_1.jpg
2	Uconn sign	Out by the road. Who knew UConn was in Haddam?!	img239303_2_1.jpg
3	Green roof	Green roof demonstration site. Looks like it needs a' weeding.	img239303_3_1.jpg
4	Concrete	Previous concrete demonstration site. No puddles here!	img239303_4_1.jpg
5	Rain garden	Lovely little rain garden surrounded by pavement. Filters rain water from the roof.	img239303_5_1.jpg
6	Rain Garden in Action	Rain baby, rain!	img239303_6_1.jpg
7	Rain garden	Another rain garden. This one might need maintenance.	img239303_7_1.jpg
8	Rain barrel	Rain barrel collects water from the roof that can be used to water the plants in the community garden.	img239303_8_1.jpg

- **Close** the table.
- Click on the **Individual styles** link under the layer name. This will allow you to customize the appearance of the waypoint markers on your map. You will also be able to add labels (we'll do that in the next step).
- Click on the arrows under **Group places by** and check out the options.

Group places by

Individual styles

Set labels

No labels

Uniform style (All markers the same)

Sequence of numbers (Markers numbered in a particular order)


Individual styles (All markers unique)


Style by data column: (Marker symbol determined by a data field)


name

description

wptPhotos

☒ Low Impact Development Practi... 

 Individual styles

1 → Entrance of building 

Uconn sign

Green roof

Concrete


Rain garden


Rain Garden in Action


Rain garden

Rain barrel

- For now, select **Individual Styles**. Hover your mouse over the name of one of your waypoints. Notice a **paint can icon** appears. Click on it.
- Change the **color** and **icon** of the waypoint.

☒ Low Impact Development Practi... 

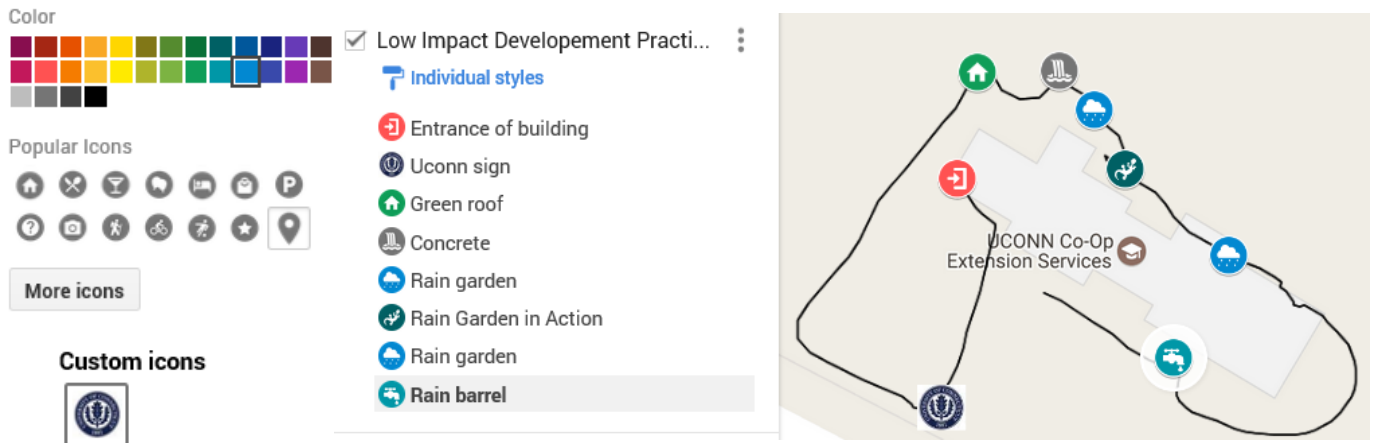
 Individual styles

Entrance of building 

Notice there are better icons than in Track Kit? You are also able to upload a custom icon.

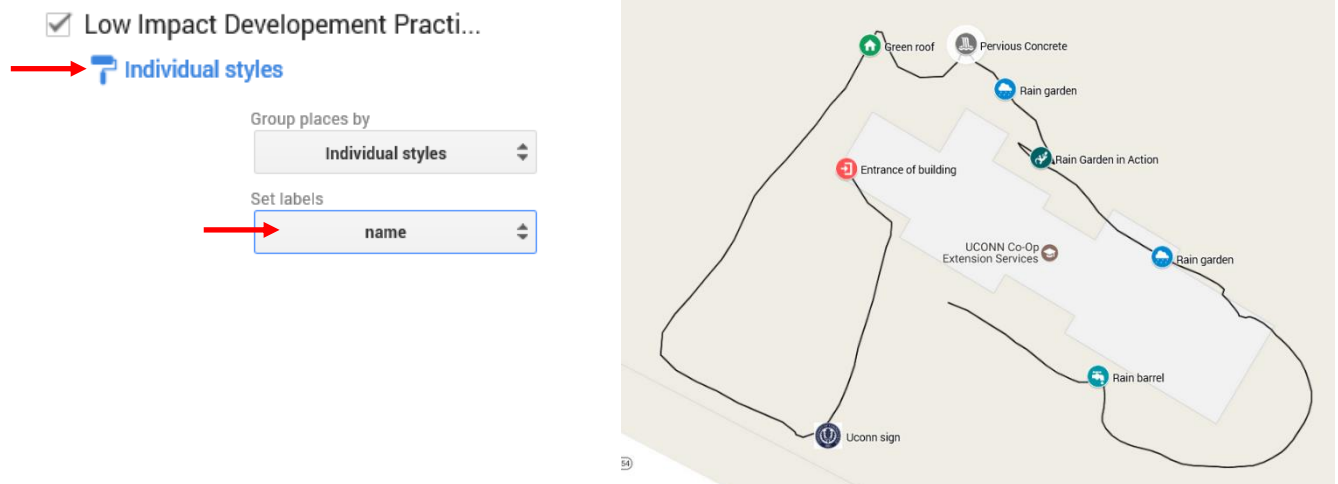


- If you have time to spare, repeat this with the other waypoints.



## Add Labels to Your Map

- Click on the **Individual styles** paint brush icon under the waypoint layer name again. This time look for **Set labels**. Click on the arrows to specify the field you wish to use to label the features on your map (hint: try name first). That's all there is to it!








## Waypoint Pop-Up Windows

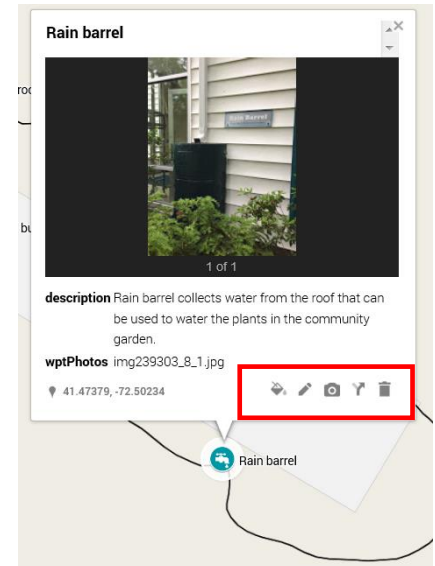
Waypoints can also be edited from the pop-up window itself. Let's take a look.

- Click on any of your waypoints on the map. A pop-up window will open, displaying the information you collected (and edited in either Track Kit or Google Maps), along with the



photograph collected in the field. Tools for editing the content of the pop-up are located at the bottom of the pop-up window.

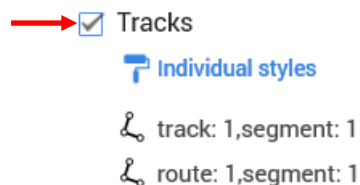
- Click on the **paint can**.  The style tools should look familiar to you.
- Click on the **pencil**.  This allows you to edit the content of the pop-up. **Uncheck the box** next to wptPhotos. This will remove the field from the pop-up display. It's unnecessary and clutters the pop-up.
- Click on the **camera icon**.  Notice you can add additional photos or video clips. Select cancel.
- Click on the **driving direction icon**.  This will add a new layer to your map that will allow your map readers to navigate to the waypoint. After you added it, **remove the Driving direction layer** by clicking on the **three dots** to the right of the layer name and select **Delete this layer**.
- The **garbage can** does what you think it does. Don't do it. 



## Customizing Your Track Line in Google Maps

In this step of the exercise, you will learn how to delete, edit and symbolize your track line.

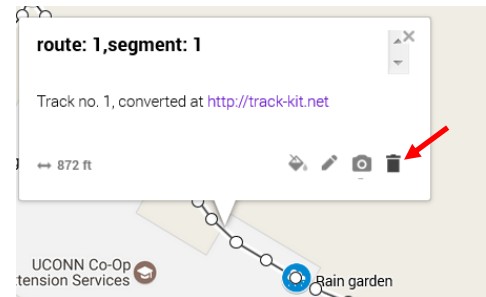
- Your Track Kit KML includes both waypoints and track segments. The track segments are added to a layer listed below the waypoint layer in the side panel. Notice you can make the tracks visible on your map, or invisible simply by **checking the box** next to the layer name. Give it a try.



- You can **rename** the Tracks layer by **clicking on the layer name**. Give it a better title, maybe "Walking Path" or "Trail".

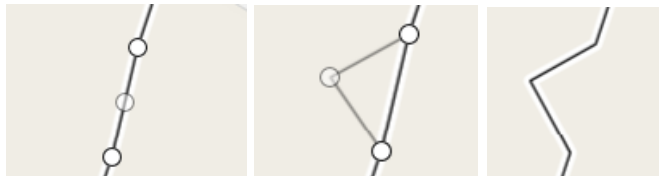
Notice the layer includes (at least) two track segments. This is a carry-over from Track Kit. In order to avoid confusion, let's delete the route segment.

- **Click on the track line** on your map. In the pop-up that appears, click the **garbage can** (yes, now you can do it!). The track segment will be removed from your map and your layer.

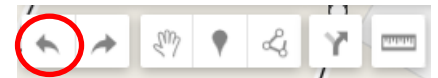
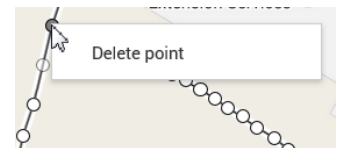


Did you notice when you clicked on the track segment on the map that the track line vertices appeared (the dots that connect the line)? Those can be used to edit the track line.

- **Click on your track line.** Click the **X** in the upper right hand corner of the pop-up window to close it.
- **Hover your mouse** over one of the **white track line dots**. Notice your cursor turns into a hand. Left click and hold the mouse button down over a dot and drag it to a new location on the map. Release the mouse button and watch as your track line is transformed. Pretty simple right?

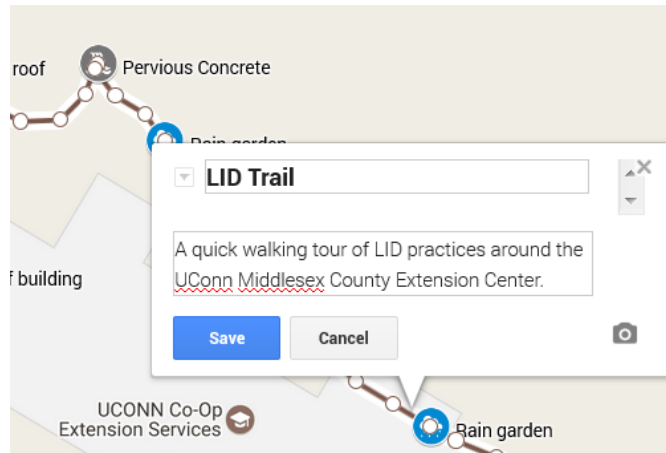


- Track line vertices can also be deleted. **Hover over a dot** and right click. Select **Delete point**.
- Oops. Was that a mistake? Try using the **Undo button** to undo your edits.
- Click anywhere off the track line to hide the vertices.

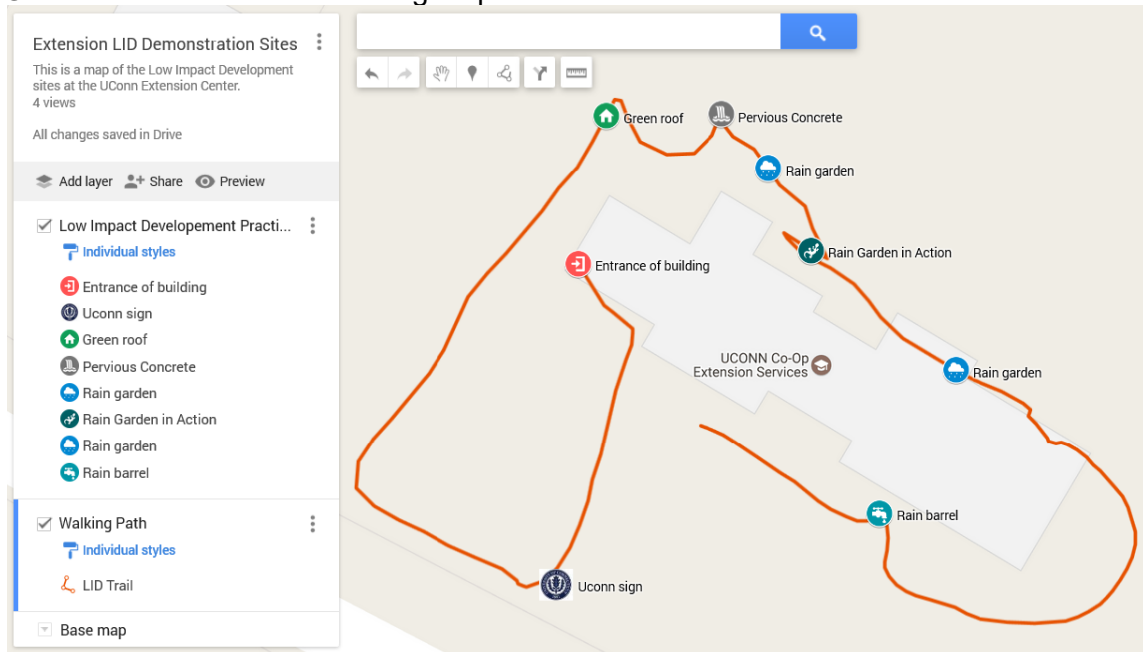


Next, let's change the symbology (color and style) of the track line.

- **Click on the track line** again on your map, then click on the **paint can icon** in the pop-up window that appears. **Select a new color** and **adjust the line width**. **Close** the symbol selector.
- Next click on the **pencil icon** in the pop-up window to **rename** the segment and provide a **description**. Click **Save**. Click anywhere on your map to unselect your track segment.










Great work. That's a nice looking map!





## Bonus Google Map Functions

There are a few additional tools in Google My Maps that we don't spend time on in this workshop. Below is a brief description of these. If you have extra time, try them. If not, do not worry, these are for your reference.

<b>Add Layer</b> 	Creates a new untitled layer in the side panel. Data can be imported (KML, CSV, GPX, XLSX) as well as georeferenced photos stored on Google Drive or Google Photos. New markers and lines can also be added to this layer using the add marker and draw a line tools outlined below.
<b>Add Marker</b> 	Allows you to add markers to the map. The marker will be added to the "active" layer. The active layer will have a blue bar along the left side of the layer name in the side panel. Click on a layer to make it the active layer. You can also drag markers from one layer to another. Markers can be edited to customize the name, description and content of the pop-up. Photographs and YouTube videos can be embedded in a marker.
<b>Draw a Line</b> 	Allows you to add a line or enclosed shape to the map. Can be a point to point line, or enclosed polygon. The feature will be added to the "active" layer. Custom driving/walking/biking routes can also be created using this tool. They will be displayed in a new layer in the side panel.
<b>Add Directions</b> 	Allows user to generate driving/walking/biking directions using a point to point address search. The result will be displayed in a new layer in the side panel.
<b>Measure</b> 	Allows user to measure distance (ft/miles) and area (acres/sq mi) on the map.
<b>Print Map</b>	Option to print map to jpg or pdf. Click on  next to the map name and select Print map.
<b>Export to KML</b>	Export entire map or select layers to KML or KMZ file. Click on  next to the map name to access.

## Saving Your Map

Did you notice you haven't had to click a Save Map button yet? That's because your Google My Map is automatically saved in your Google Drive. Nice!

### Extension LID Demonstration Sites

This is a map of the Low Impact Development sites at the UConn Extension Center.  
6 views

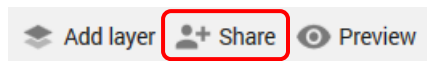
 All changes saved in Drive



## Sharing Your Google Map

Now that you have collected GPS data and created a beautiful custom map, let's learn how to share it with the world!





- Click on the **Share link** in the side panel. It's the one with the + sign growing out of a human head.



- A **Share settings** window will open. Notice it provides a link that you can use to share your map with others. This can be copied and pasted into an email, or linked to on a website. You can also share the link directly from this window via Gmail, Google+, Facebook or Twitter. Don't share anything just yet, we have a few more settings to get to.

- Access to your map will be set to "Private" by default – only you will have access and you will not be able to share it using a link. You can change this setting under the **"Who has access"** section of the **Sharing settings** window. You can share your map with specific people, anyone with a link, or with the Public (anyone). Those who you share it with do not need to have a Google sign-in to access it. For now, set the link sharing to **"On – Public on the Web"**. Be sure the **"access"** is specified to **"can view"** not "can edit". We don't intend to collaborate on this map (but you COULD if you wanted to).

### Link sharing

- ☐  **On - Public on the web**  
Anyone on the Internet can find and access. No sign-in required.
- ☒  **On - Anyone with the link**   
Anyone who has the link can access. No sign-in required.
- ☐  **Off - Specific people**  
Shared with specific people.

Access: Anyone (no sign-in required)

Can view ▾

Save

Cancel

Can edit

✓ Can view 

- Back in the **Sharing settings** window, notice that you can invite people to view and/or edit the map via email. You also have the opportunity to “prevent editors from changing access and adding new contributors”. That may be a handy check box in the future. You can click on the Learn more link to learn more about file sharing.
- Click **Done** to close the Sharing settings window.

#### Sharing settings

Link to share

<https://drive.google.com/open?id=1cCmsfBjk10vqzOAJscyYeYU3Q&usp=sharing>

Share link via:



Who has access



Public on the web - Anyone on the Internet can find and **view**

[Change...](#)



Cary Chadwick (you)  
carychadwick@gmail.com

Is owner

Invite people:

Enter names or email addresses...

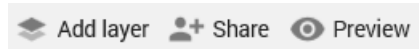


Owner settings [Learn more](#)

☐ Prevent editors from changing access and adding new people

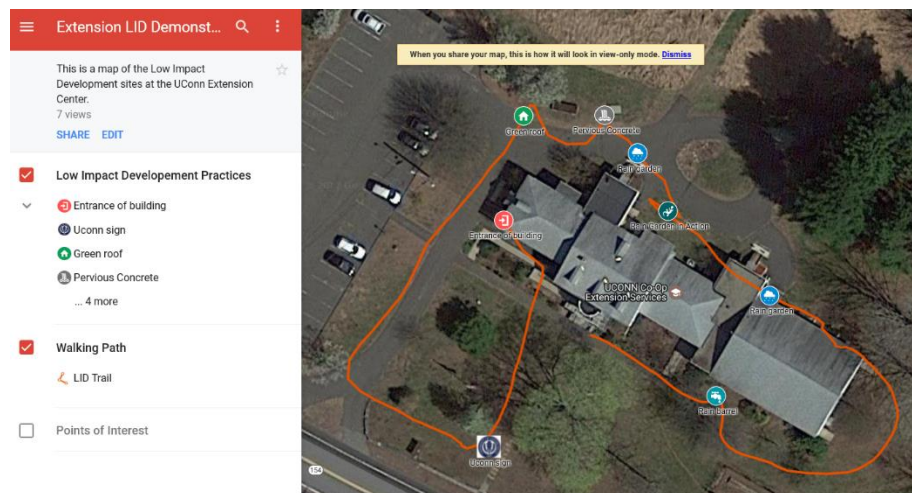
**Done**

Next, let's preview what your shared map will look like. Click on the **Preview** link in the side panel. It's the one with the eyeball.



- Your map will open in a new browser tab in “view-only” mode. This is what your map readers will experience when you share your map with them. Take a minute to **click around**.

Notice that all of the properties of your map will be retained – the base map and zoom scale that you set will carry-over, as well as the status of the layers in your side panel. If they were “turned on” (checked) in your My Map, they will be visible on your shared map. If they were unchecked, they will appear in the layer list, but will not appear on the map until the user checks the box.



- If you wish to change anything about the map, you can click on the **EDIT** link to return to the Google My Maps editor.



- If you are satisfied and ready to share your map, click on the **SHARE** link. Click Share via email. An email message will be composed and will include a link to your map. Send it to someone (or yourself). Alternatively, if you use social media, you can try sharing your new map using any of the social media links provided.
- Click on the **SHARE** link again. This time select, **Embed on my site**. A window will open providing HTML source code that can be copied/pasted into the source code for your webpage. This will embed the map directly on your site. Cool.

If you want to see what this looks like, visit

<http://s.uconn.edu/gmembed>

#### An Embedded Google My Map



Congratulations! You have completed this exercise. If you finished before everyone else, go back and poke around some more.



If you want to read more about Google My Maps, visit the My Maps Help.

<https://support.google.com/mymaps>

