

How to Use Google My Maps to Plan Nature-Based Urban Design Solutions in Your Neighborhood

Student Handout

Introduction:

My Maps is a powerful tool that allows you to capitalize on Google's extensive satellite imagery and accurate neighborhood maps. With *My Maps*, you can create a custom map of existing locations, add layers to describe features, add photos and videos to layers, and measure the perimeter and area of shapes you create on your maps.

Objectives:

- To understand how to use *My Maps* as a tool to plan an urban design project.
- To create an urban design proposal and calculate the percent impact your project will have.
- To use applied math to construct a proposal based on real data and to augment science content with action.

Examples that are referenced:

- Jane Addams Middle School Project, Seattle, WA – Google My Map Example
https://www.google.com/maps/d/viewer?mid=zAEQwl2rdp_M.kQ3-vIGQHl8
- Download example project calculator for Jane Addams MS – Excel File:
https://natureworkseverywhere.org/asset/resources/Jane_Addams_MS_Project_Calculator.xlsx

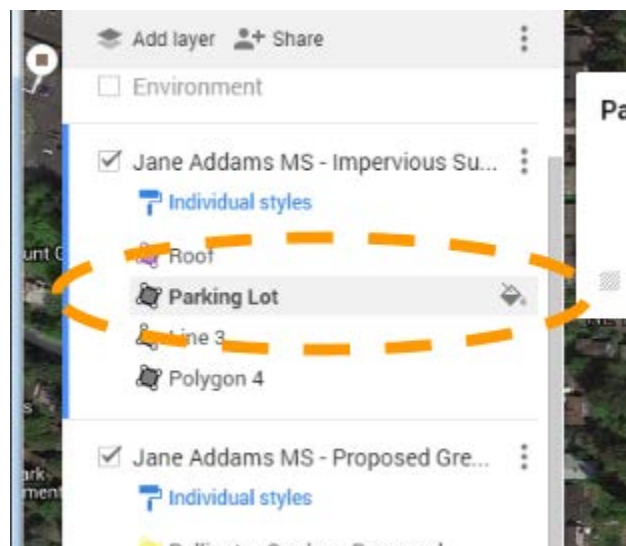
Procedure:

1. Go to My Maps on Google - <https://www.google.com/maps/d/> and sign in to your Gmail/Google account in the upper right hand corner. You will need an account that ends with @gmail.com in order to login to My Maps. Accounts that are hosted by Google, but don't end in @gmail.com will not be able to login to My Maps.
2. Once you are signed in, click "create new map".
3. Enter the name and/or address of your chosen location. Zoom in or out as necessary by using the + or - buttons at the bottom right of the screen.
4. Change the basemap layer to the satellite view by clicking "basemap" at the bottom of the layers box.
5. Click where it says "untitled map" and you will be able to name it and type a description and click save.
6. Click on "untitled layer" and label the layer.

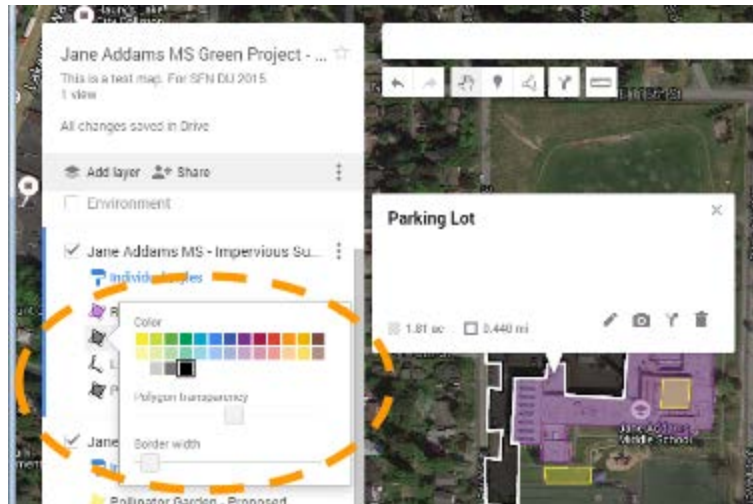
7. For this activity, you will create three types of layers for your location:
 - Existing impervious surfaces
 - Existing green space
 - Proposed green space (includes rain gardens, pollinator gardens, vegetable gardens, etc.)
8. Once you have created your three layers, click on the “Impervious Surfaces” layer in the list. Now any changes you make will be made to this layer only. You can see that it is active because there is a thin blue bar at the left of the layer box.
9. To draw on your map, select the “draw a line” tool at the top of the screen under the map search bar and then click “add a line or shape”.



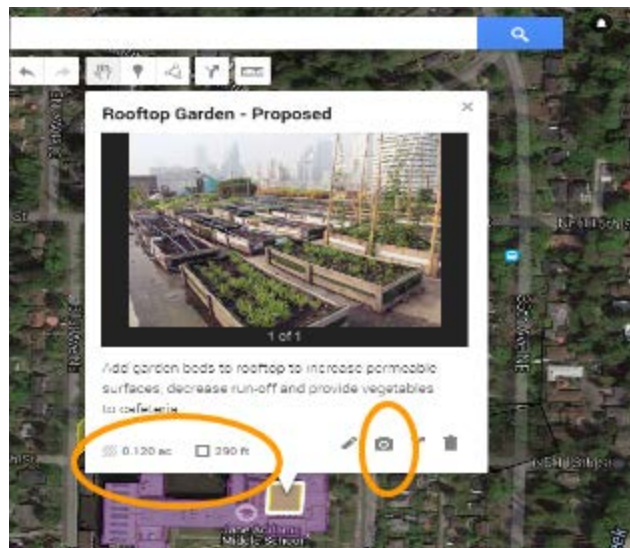
10. Click the mouse where you want the first point and then drag and click until you have outlined an area. If you just want to make a line, you can press enter when you're done drawing, but for our purposes, you should enclose the shape. When you hover near the first dot you made, your cursor will change to a “hand” and then you can click and close the shape.
11. You will then be able to name and describe the shape in the pop-up box. The shapes you have created will appear by name in the layers box to the right as shown below.



12. To change the color of the shape, click on its name in the layers box and then click on the paint bucket icon to the right of the name. A color choice window will appear. Choose the color and level of transparency.



13. If you would like to add a picture or a video to the shape you've created in a layer - click on the shape either in the map or in the layer box and then click on the camera icon at the bottom right of the pop-up window (circled in image below). You can then embed an image or video from the web.



14. Note that in the bottom left corner of the shape description box (see above), there are two numbers - one stands for the amount of acres of surface area are enclosed by the shape and the second number stands for the perimeter of the shape. You will transfer these numbers to a Google spreadsheet for the next part of the project.

15. Now work on your other two layers for **existing green space** and **proposed green space** and outline areas as appropriate.

Spreadsheet:

16. If you are using Google Drive for this project you can go to your Google Drive and click on the red “new” button. Create a Google Sheet. If you haven’t used Google Sheets before, they work similarly to Excel spreadsheets. If you aren’t using Google Drive, you can download the example spreadsheet (https://natureworkseverywhere.org/asset/resources/Jane_Addams_MS_Project_Calculator.xlsx) and enter your own numbers where appropriate. This spreadsheet already has built in calculations.

17. On your spreadsheet, create the following columns (as shown on the example spreadsheet):

- Location
- Acres
- Square Meters

18. Then for each row, add the item names (shapes) that you created on your map and type in the acreage that was given for each. Depending on which unit of measurement you want to use, you can have students do the math conversion by hand and enter it on the spreadsheet (in another column), or they can use an online converter for each, or they can use an equation in the spreadsheet to do the conversion. It’s totally up to you based on your classroom goals and student abilities.

19. You can color code the spreadsheet to correspond to your map or organize it however you would like.

20. Create the following rows on your spreadsheet:

- **Existing garden areas**
- **Proposed garden areas**
- % increase in garden areas
- **Existing impervious surface area**
- **Impervious surface area after proposed projects**
- % Decrease in impervious surface area

21. Now, use the spreadsheet to find the sum of the areas in **bold** in the bulleted list above.

22. The calculations for % increase and % decrease are below. You can use these in your spreadsheet.

$$\% \text{ increase} = ((\text{new value} - \text{original value}) / \text{original value}) * 100$$

$$\% \text{ decrease} = ((\text{original value} - \text{new value}) / \text{original value}) * 100$$

23. Once your calculations and map are complete, begin to prepare your proposal. Be sure to include the following components:

- a. Design statement – explain your design and how it will be a green asset to your school or community. It must functionally improve the drainage and green space in your community, so be sure to note how your design plans to do that.
- b. Percent change – describe the percent change in impervious surfaces that your design will achieve.
- c. Design sketches and maps – showcase design sketches that will help your audience envision what your project might look like after implementation and include maps to show where your improvements will take place.
- d. Inspiration – Include images and references to other urban design projects that served as your inspiration for this project.