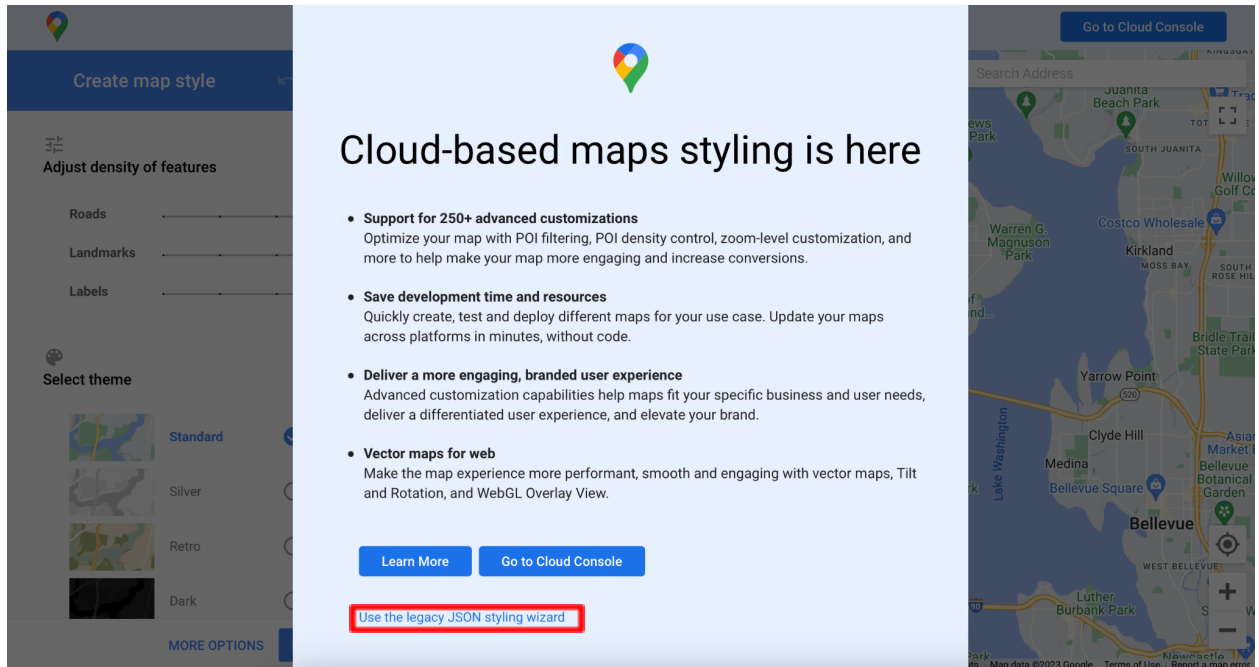


# 3D Laser Cut Map Instructions

By: Sage Ugras

1. Go to <https://mapstyle.withgoogle.com/> and press “Use the legacy and JSON styling wizard.”



2. Select the area you want to make a map of. Keep in mind, the larger the area you choose, the smaller the roads will show up + the harder it is to laser cut unless you want a very large piece. (Ex: San-Francisco Bay Area needed at least an 11” x 10” cutting area to come out nicely)
3. Adjust the “density of features” settings so there are no labels, landmarks, or small roads. (Your map should look similar to the one below.)

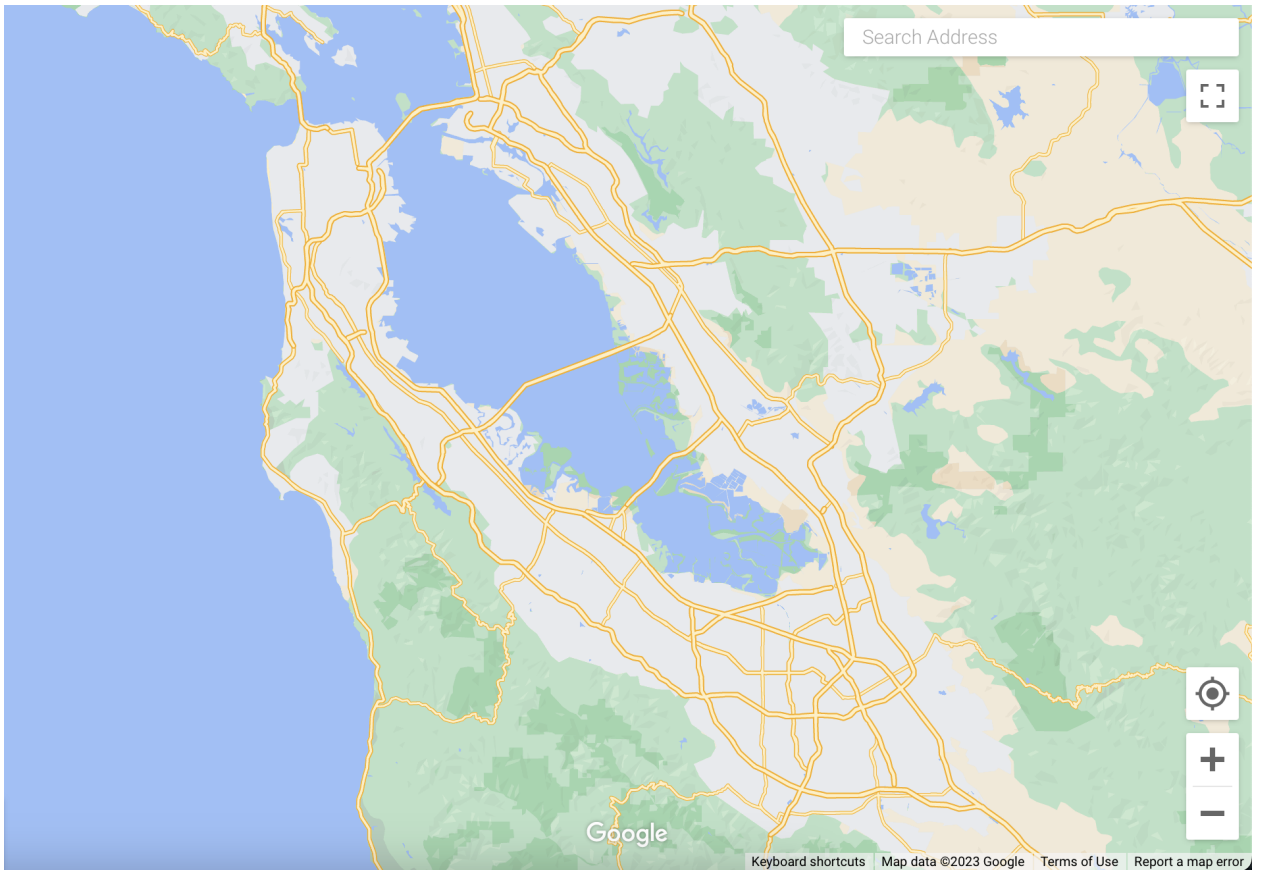


## Adjust density of features

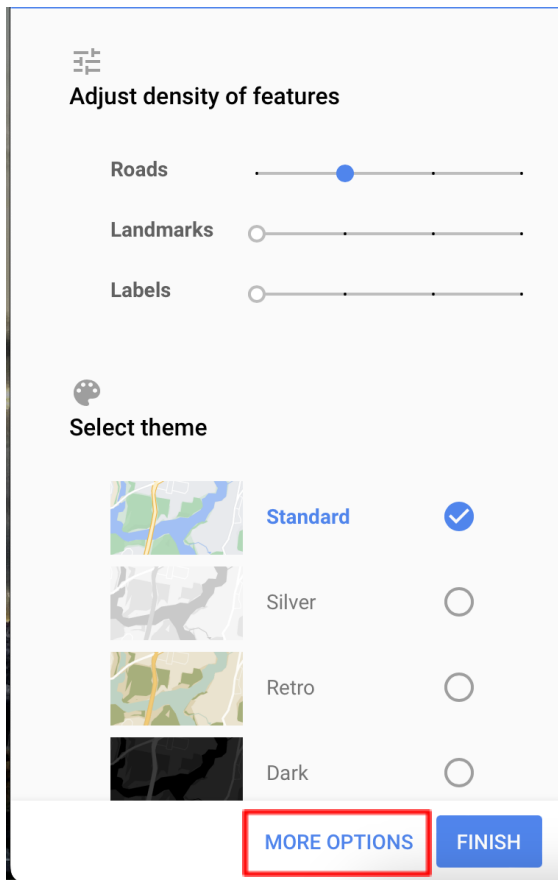
Roads

Landmarks

Labels



4. Below the settings, click on the “more options” button.





5. Under feature type, select “roads”, under Element type select “all”, and under Stylers select “color” and change it to blue.

Feature type	Element type	Stylers
<ul style="list-style-type: none"><li>• Points of interest<ul style="list-style-type: none"><li>Attraction</li><li>Business</li><li>Government</li><li>Medical</li><li>Park</li><li>Place of worship</li><li>School</li><li>Sports complex</li></ul></li><li>• Road<ul style="list-style-type: none"><li>• Highway<ul style="list-style-type: none"><li>Controlled access</li></ul></li><li>• Arterial</li><li>• Local</li></ul></li><li>• Transit<ul style="list-style-type: none"><li>Line</li><li>Station<ul style="list-style-type: none"><li>Airport</li><li>Bus</li></ul></li></ul></li></ul>	<ul style="list-style-type: none"><li>• All</li><li>Geometry<ul style="list-style-type: none"><li>Fill</li><li>Stroke</li></ul></li><li>Labels<ul style="list-style-type: none"><li>Text<ul style="list-style-type: none"><li>Text fill</li><li>Text outline</li></ul></li><li>• Icon</li></ul></li></ul>	<p>Visibility</p> <p><input checked="" type="radio"/> inherit</p> <p><input type="radio"/> hidden</p> <p><input type="radio"/> simplified</p> <p><input type="radio"/> shown</p> <hr/> <p><input checked="" type="checkbox"/> Color #0433ff</p> <p><input type="checkbox"/> Weight</p> <p><i>The effect of the following</i></p>

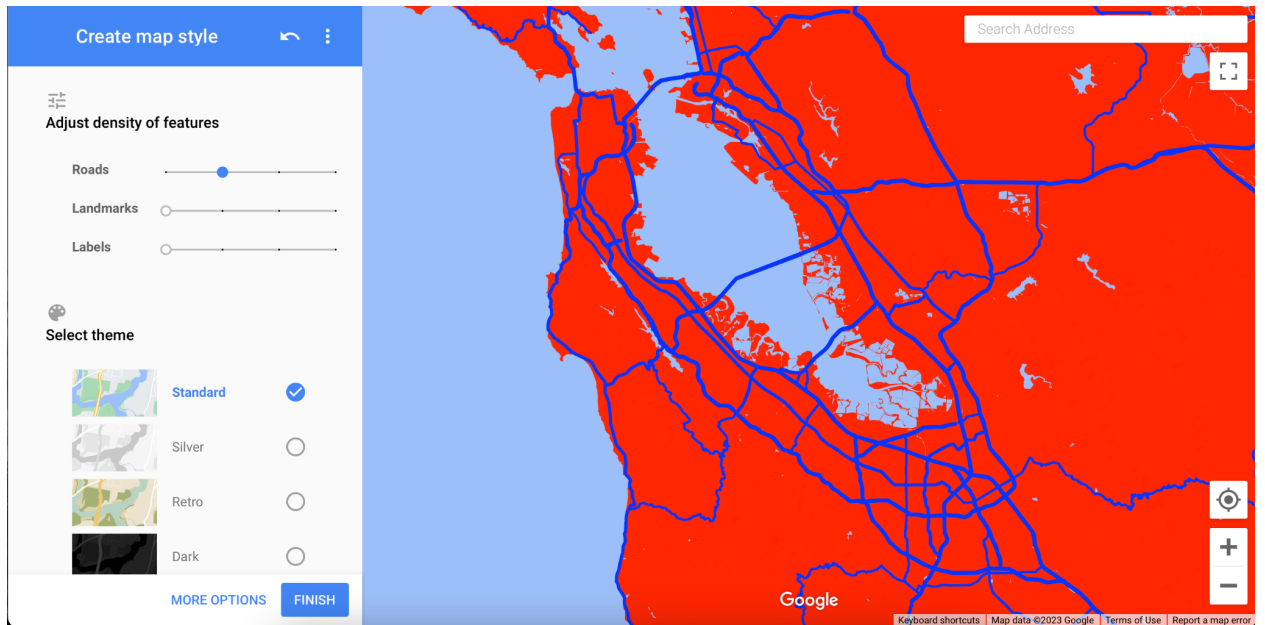
FEWER OPTIONS **FINISH**

6. Under feature type, select “landscape”, under Element type select “all”, and under Stylers select “color” and change it to red.

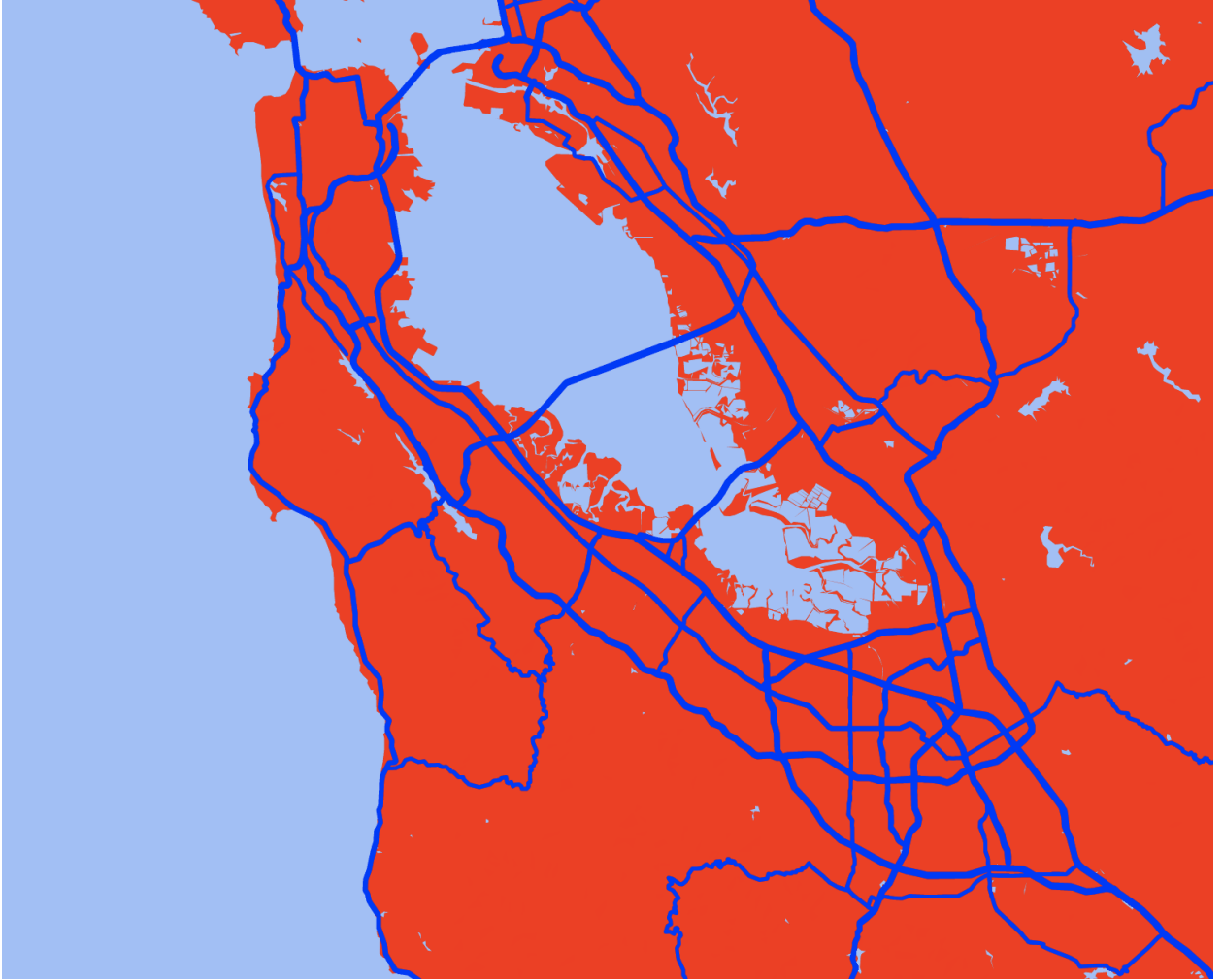
Feature type	Element type	Stylers
<ul style="list-style-type: none"><li>• Administrative &gt;</li><li>Country &gt;</li><li>Province &gt;</li><li>Locality &gt;</li><li>• Neighborhood &gt;</li><li>• Land parcel &gt;</li><li>• <b>Landscape</b> &gt;</li><li>Human-made &gt;</li><li>Natural &gt;</li><li>Landcover &gt;</li><li>Terrain &gt;</li><li>• Points of interest &gt;</li><li>Attraction &gt;</li><li>Business &gt;</li><li>Government &gt;</li><li>Medical &gt;</li><li>Park &gt;</li><li>Place of worship &gt;</li><li>School &gt;</li></ul>	<ul style="list-style-type: none"><li>• <b>All</b> &gt;</li><li>Geometry &gt;</li><li>Fill &gt;</li><li>Stroke &gt;</li><li>Labels &gt;</li><li>Text &gt;</li><li>Text fill &gt;</li><li>Text outline &gt;</li><li>Icon &gt;</li></ul>	<p>Visibility</p> <p><input checked="" type="radio"/> inherit</p> <p><input type="radio"/> hidden</p> <p><input type="radio"/> simplified</p> <p><input type="radio"/> shown</p> <hr/> <p><input checked="" type="checkbox"/> <b>Color #ff2600</b></p> <p></p> <hr/> <p><input type="checkbox"/> <b>Weight</b></p> <p></p> <hr/> <p><i>The effect of the following</i></p>

[FEWER OPTIONS](#) [FINISH](#)

7. Exit out of the “other options” menu (if you click “finish” you will not exit out of the menu).  
Your map should look like this:

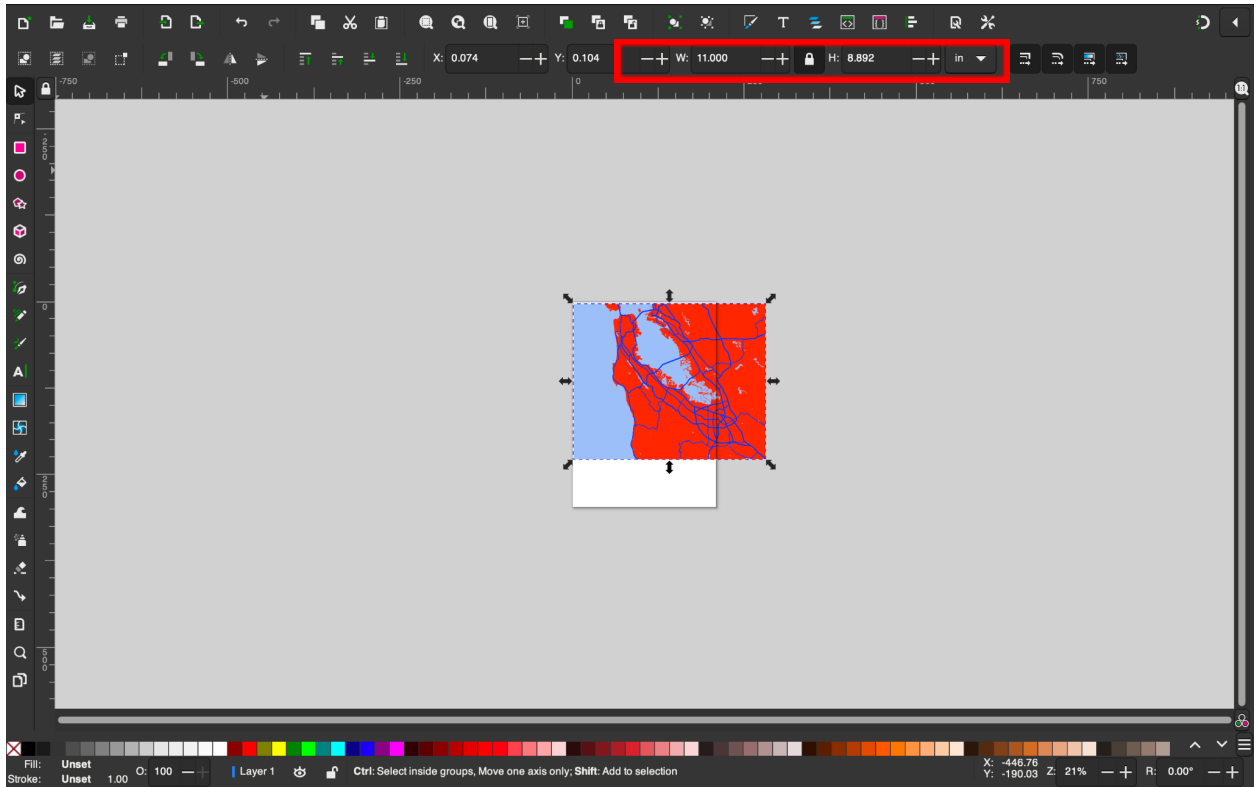


8. Fullscreen your map and take a screenshot of the area you would like.

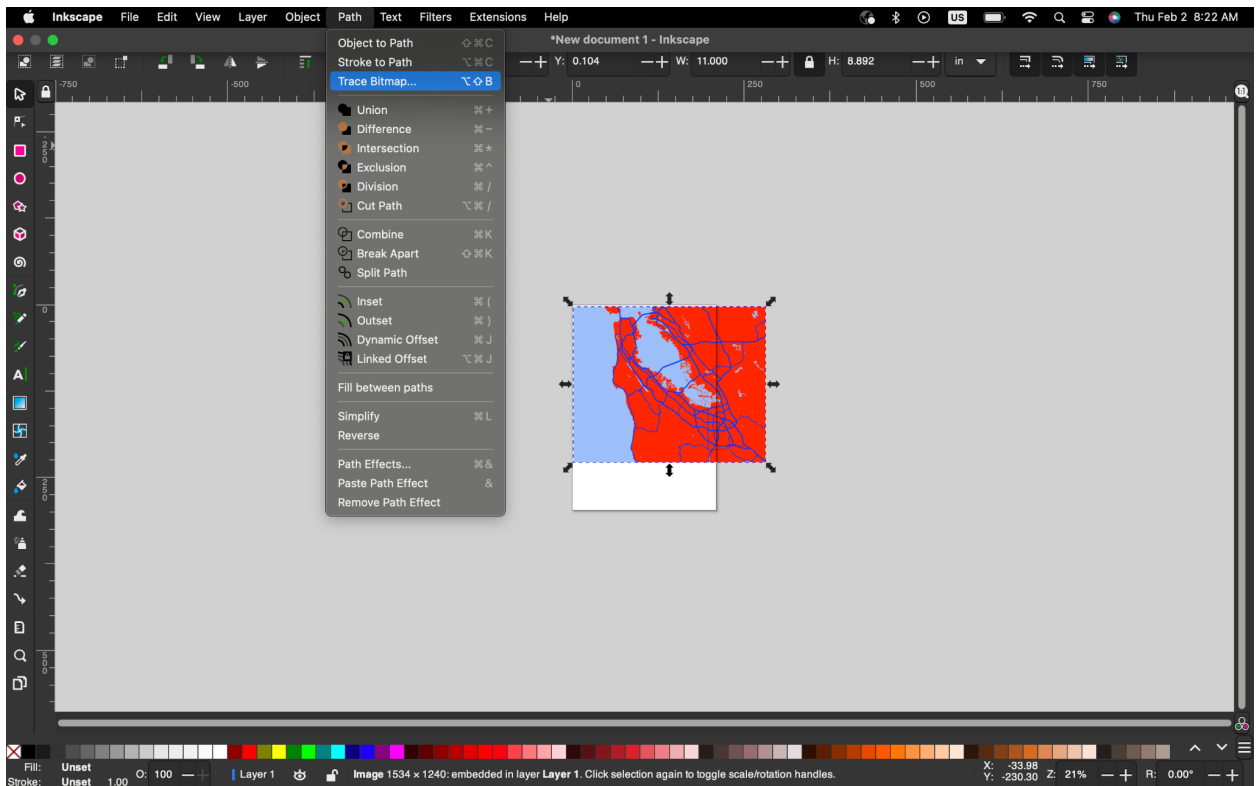


9. Open Inkscape and select "new document"

10. Upload your screenshot to the inkscape document and (with the lock closed) resize it to whatever dimensions you would like.



11. Next, with your photo selected, go to “path” then to “trace bitmap”.





12. Next, select the “multicolor” option. Then under “detection mode” select “colors” from the drop-down menu. Set the # of scans to 3 and check the “stack” and “remove background” options.

Single scan **Multicolor** Pixel art

**Detection mode:**

Colors ▾

Scans  3 -- +

Smooth  Stack

Remove background

**Details:**

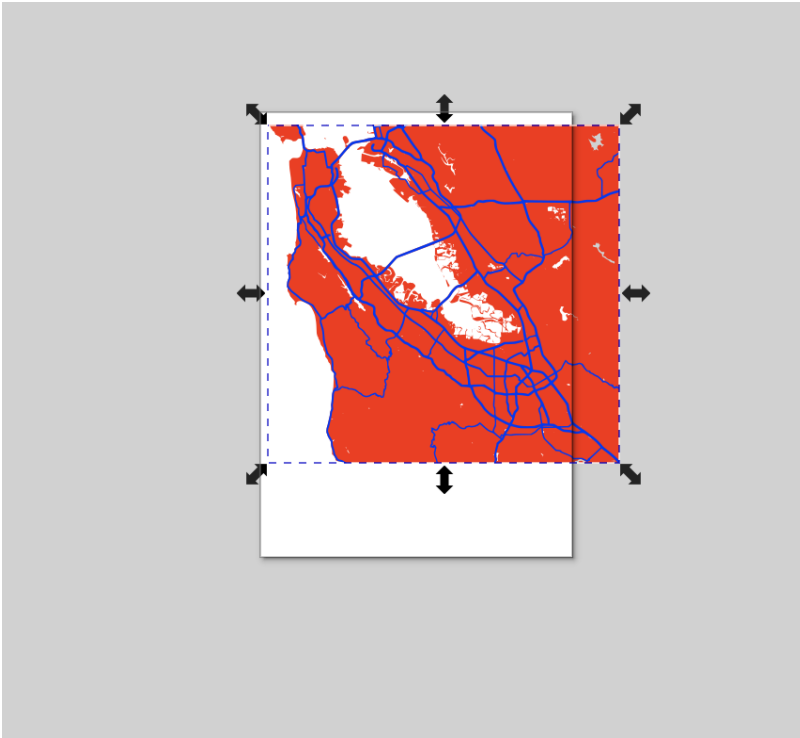
Speckles  2 -- +

Smooth corners  1.00 -- +

Optimize  0.200 -- +

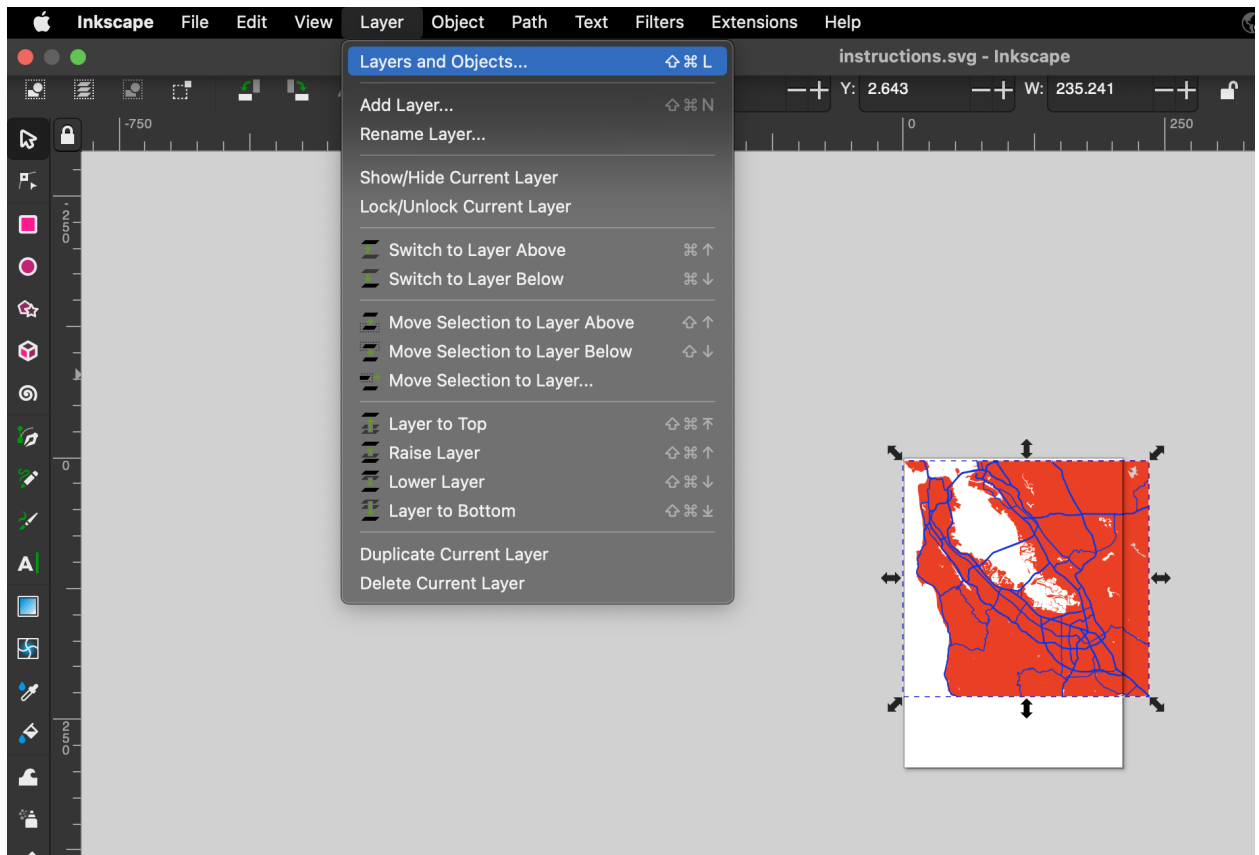
User-assisted trace

13. After clicking “apply”, you should end up with at least one layer that only has the land and roads. Delete all other layers and select the land and roads layer.

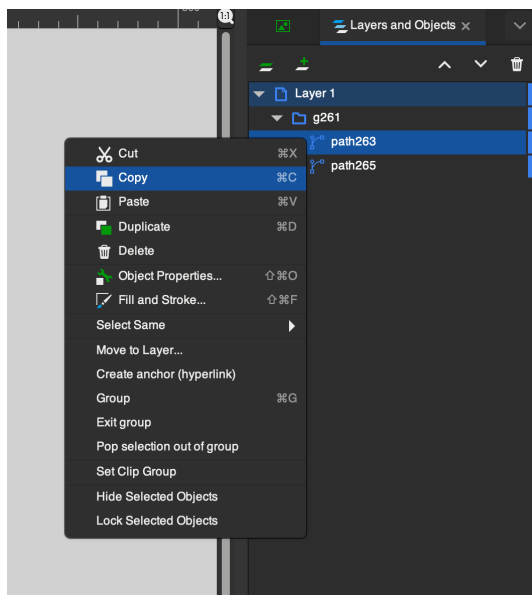


14. Close the “trace bitmap” menu if it is still open.

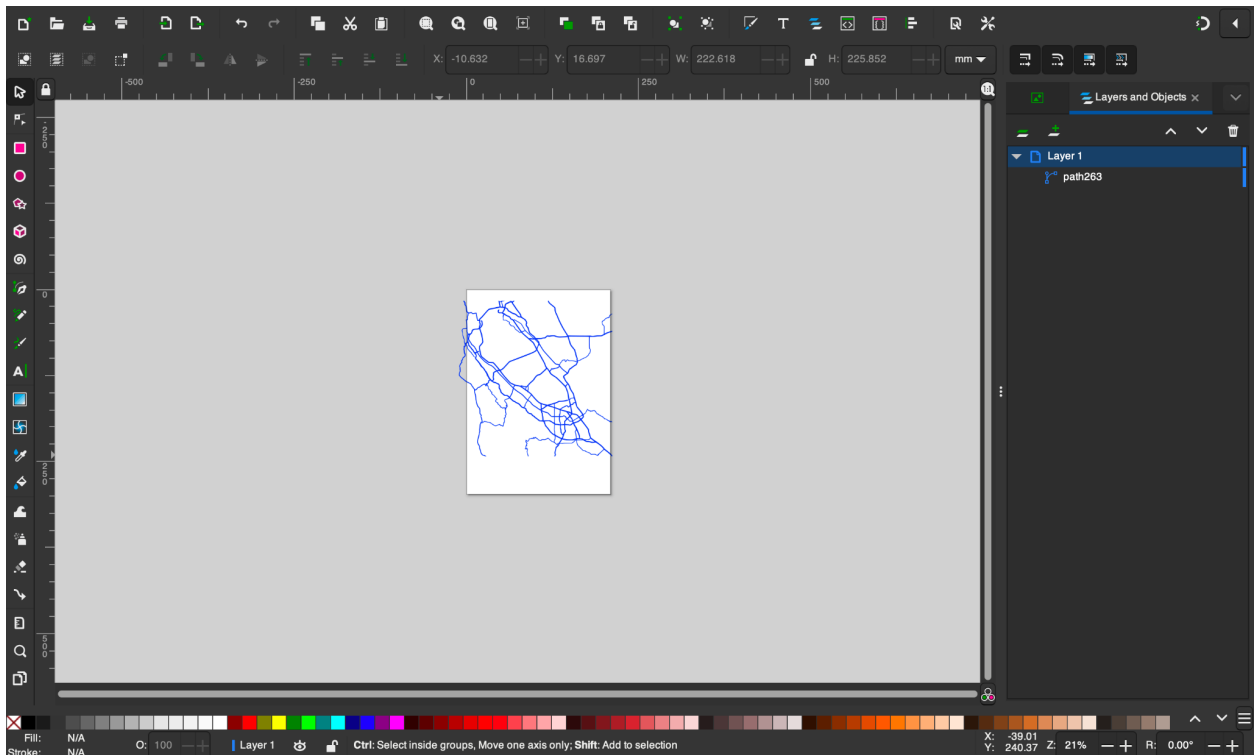
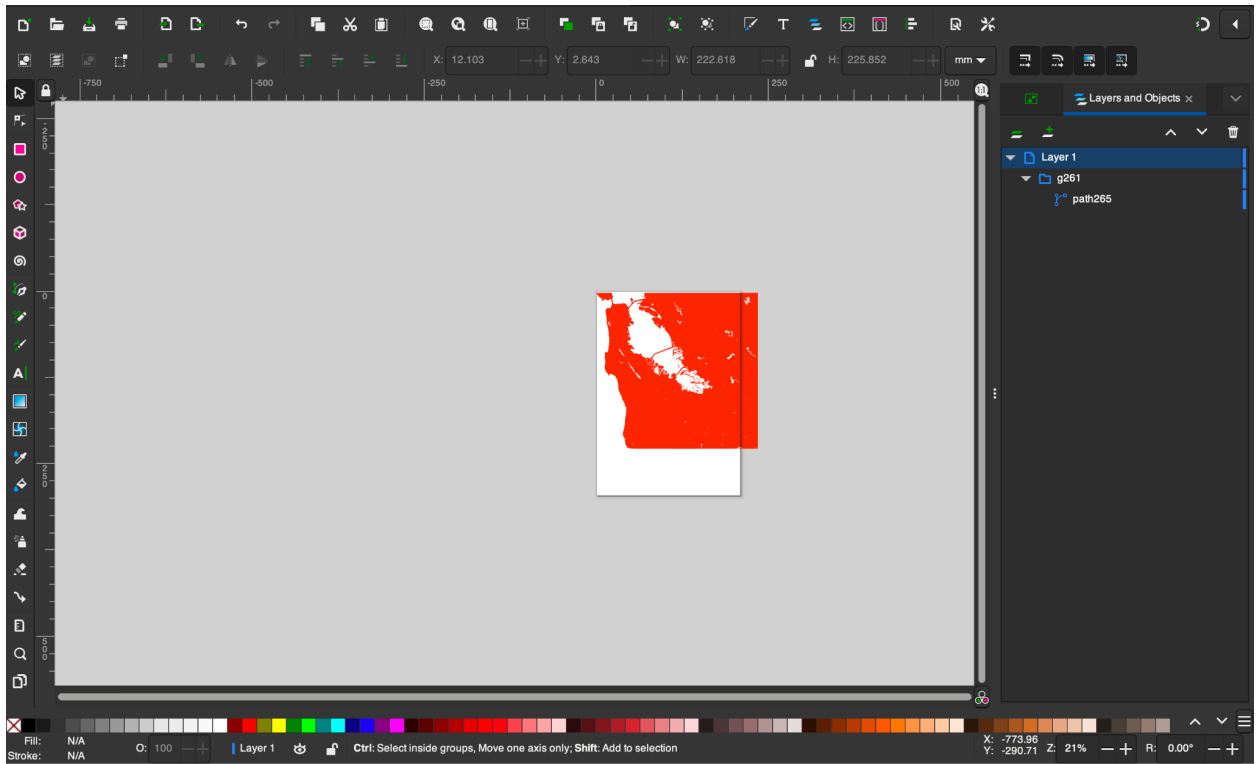
15. Select the picture and go to “layer” then click on “layers and objects”.



16. Two paths should show up in this menu. Select one of the paths (I selected the roads) and copy+paste it into another inkscape document and save that document as an inkscape SVG. You can then delete it from the original inkscape document.

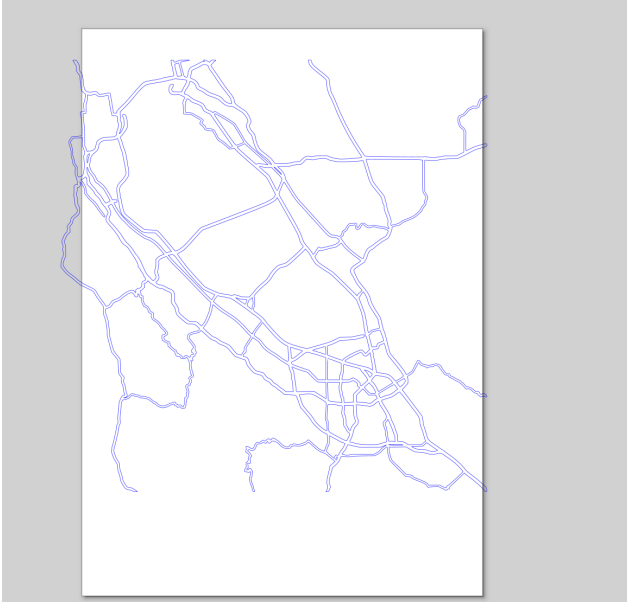


17. You should now have two documents. We will do the roads first.



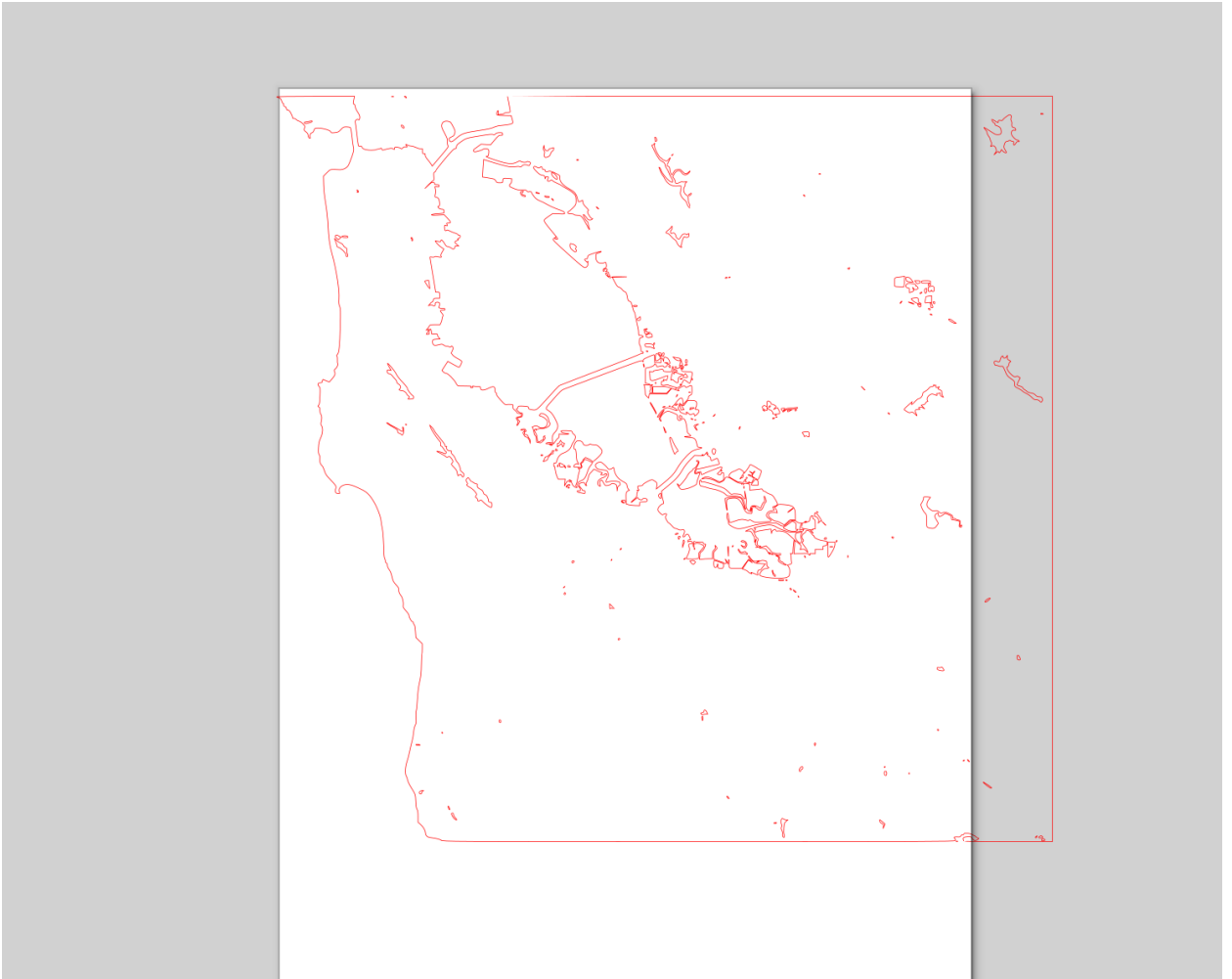
18. On the roads document, select the roads and go to the bottom where there is “fill” and “stroke”, first click the no-fill option (the box with the red X), then hold shift and click the

basic blue color. Your final result should look like this:



19. You can now save the roads as a normal SVG file to then be used on a laser cutter. (I will provide which settings I used to cut my roads and land later on in the instructions.)

20. Next, do the same thing to the land as you did to the roads. The final result should look like this:



21. Next, go to <https://fslaser.com/software/> and click “try now”. You will need to make a RetinaEngrave account.
22. One at a time, upload the SVG files to RetinaEngrave 3.0 by going to “file”, “import”, “Image/drawing” and cut on your laser cutter. I used 25% speed 25% power for the cuts and they all came out with minimal burning. *\*Note: your settings may be different because of the laser cutter you are using, so make sure to do a few test-cuts before choosing any settings*