

# Generating Your Own QSO Party Mobile Maps

State QSO parties have become very popular activities. Most weekends of the year you can find one or more QSO parties to get your contest fix. Many operators hope to make a “clean sweep” by working all the counties in a state. One of the best ways to do this is to follow mobile operators around as they move from county to county. I have operated mobile in the Minnesota QSO Party for the past eight years. During this time the Minnesota Wireless Association (MWA), which sponsors the contest, has posted maps on its Web site showing which counties would be covered by each planned mobile operation.

This year I took over webmaster duties for the MWA, and I wanted to take the rover maps to the next level. I felt three things were needed to make these maps truly useful both for contest planning and for tracking mobiles during the contest.

- Maps should show the counties that will be activated.
- Maps should show the route through the counties in sequence.
- If a mobile operator is using APRS, then the last-reported position should be shown.

Google maps seemed like a good way to start (several APRS tracking sites already use them). Google maps allow the user to

add custom data to a map by using KML files. There is extensive information on how to create KML files on the Google maps Web site.

## Route

The first feature needed was a map of the proposed route. Google allows users to create their own routes and publish the maps. You'll need a Google account to create your own maps. If you have a Google mail account you are all set. Follow these steps to create a route map.

1. Open <http://maps.google.com> and sign in.
2. Choose the “My Maps” link.
3. Choose the “Create new map” link.
4. Add a title and description for your route map.
5. In the upper left corner of the map click the line draw icon and choose “Draw a line along roads.”
6. Click on the starting point of your map. You can pan the map with the arrow keys and zoom with the slider.
7. Double click on the end point, and Google maps will define a route from start to finish (see Figure 1).

This probably is not the *precise* route you want to travel, but you can click and drag

the route from the roads that Google chose to the road(s) you want to use. Google lets you undo each change by using the “Undo” link just above the map (see Figure 2). Repeat this step as often as needed to get the route you want.

8. When you are finished defining your route, click the “View in Google Earth” menu item. This opens a “Save” dialog box. Save the KML file to your computer with a name of your choosing.

9. Click “Done” to save your route.

If you later decide to change your route you can edit the map here, and the changes will show up in the final map.

## County Borders

I searched for ways to get the county borders to show up on Google maps, but I was stymied. Then I came across a feature of the *CQ/X* logging program that fit my need. *CQ/X*, by Chuck Sanders, NO5W, ([www.no5w.com](http://www.no5w.com)) is designed for use in QSO parties. It interfaces with a GPS and tracks which county you are in. As part of this feature, Chuck had to include definitions of county lines using latitude and longitude points. *CQ/X* includes a feature to use these county line definitions to create a KML file showing county lines. The key is the KML file, since Google maps can use it. Chuck's Web site has more information on how to download and use *CQ/X*.

Google maps can only read one KML

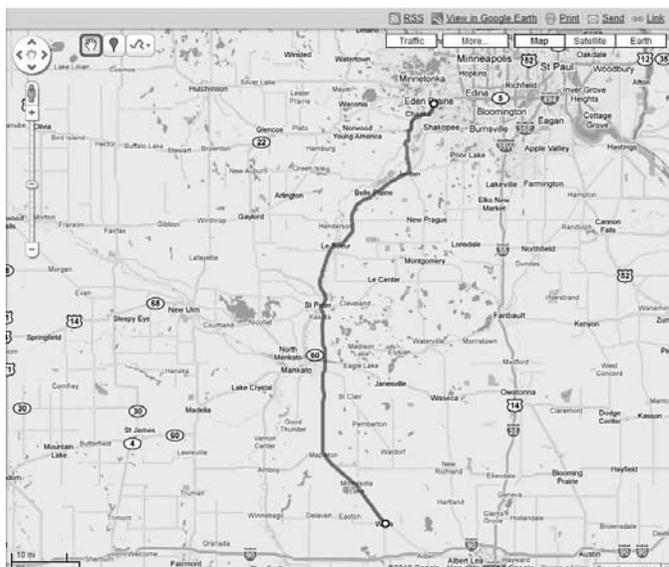


Figure 1 — Google maps can define your rover itinerary from start to finish.

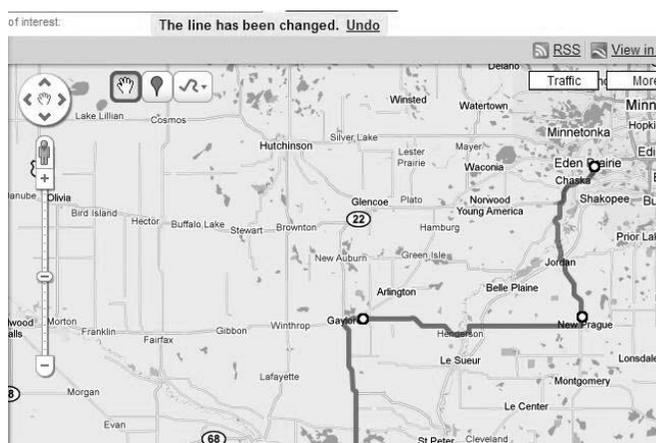
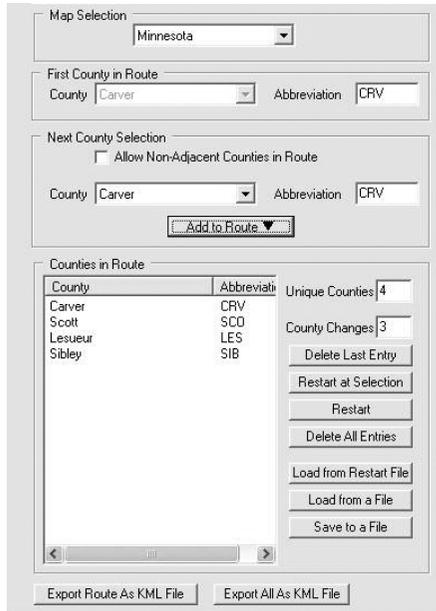


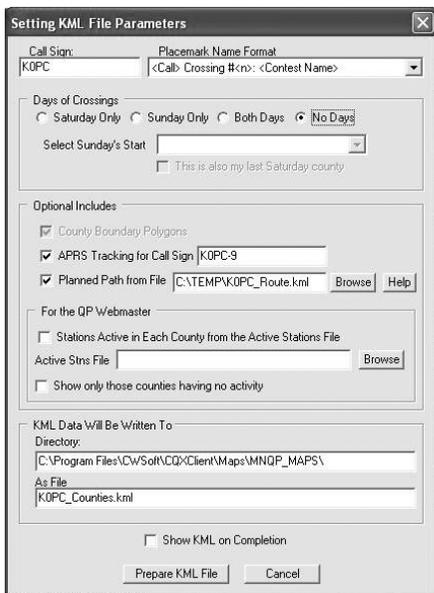
Figure 2 — When customizing your route, Google lets you undo each change via the “Undo” link just above the map.

file at a time. When I started this project I had to combine the three KML files (APRS, route, and counties) into one by hand. This was not difficult; I just used a simple text editor. Chuck has made recent enhancements to *CQ/X*, however, that really simplify the process. Now you just need to generate your route KML file as I've described, and *CQ/X* will do the rest.

Once in *CQ/X* you can use the "QPTools" feature to define which counties you will visit and generate a file in KML format that



**Figure 3 — The *CQ/X* program's "QPTools | Define Route" menu lets you define the counties in your route in the order you plan to visit each.**



**Figure 4 — This *CQ/X* dialog box lets you set the parameters to generate your KML map file.**

Google maps can read. Follow these steps.

1. Start *CQ/X* and choose the QSO party. Several screens for operator information follow. Choose "OK" for each.

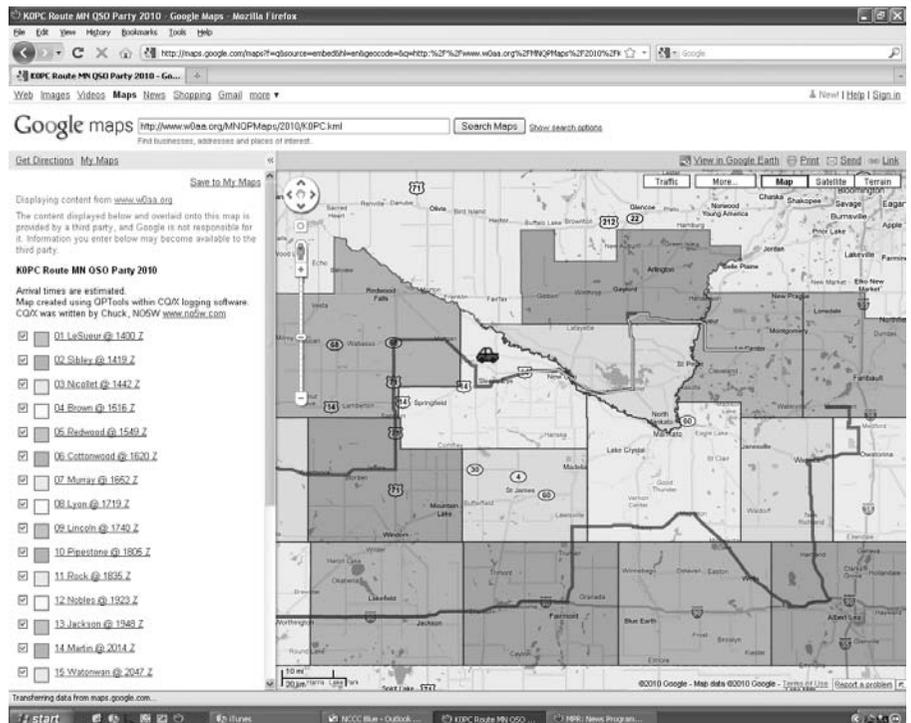
2. Skip the configuration wizard; you don't need it to generate a map.

3. From the main menu, choose "QP-Tools | Define Route." Use this dialog to define the counties in your route in sequence (see Figure 4).

4. When you are finished, choose "Export Route as KML File." Add your APRS call sign if you wish, and add the route



**Figure 5 — The author (left) and John, W9DND — who served as his driver — stand on either side of the KØPC/rover antenna.**



**Figure 6 — The planned and actual routes KØPC took in the 2010 Minnesota QSO Party**

file you generated in Google maps in the "Planned Path from File" box (see Figure 4). Click the "Prepare KML File" button, and your combined KML file will be created. This KML file will contain all the code you need to display your route with county outlines and APRS tracking.

### APRS Tracking

The final piece of the puzzle was APRS tracking. An excellent site for APRS tracking is <http://aprs.fi>. This site allows you to generate a KML file, which is what we need. Initially I needed to merge the KML file generated by [aprs.fi](http://aprs.fi) with the route and county borders files, but you no longer have to do that. The KML file that *CQ/X* generates will include APRS tracking from [aprs.fi](http://aprs.fi), if you choose.

### Viewing the Map

The KML file now needs to be hosted on a Web site, so Google maps can find it. The MWA hosted the files for the rovers, but you can put them on your own Web site just as well. To access the map, enter the path to the KML file in the Google maps search box.

Once your map is displayed in Google maps, you can get a direct link to it by choosing the "Link" item at the upper right corner of the map. This will create a direct link to the map for the QSO party Web site or your e-mail announcements.

A Google map seems to cache these KML files instead of reading them every time you load one. As a result, changes you make may take some time to show up on the map that Google maps displays.

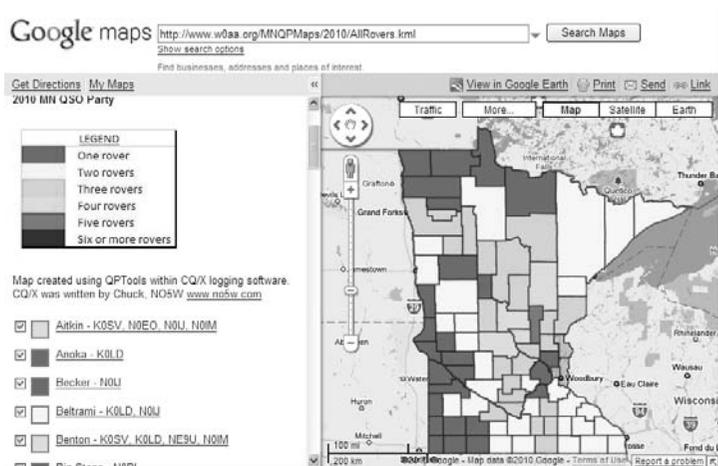
### Finished Product

The map in Figure 6 is one I generated for the 2010 Minnesota QSO Party. It shows the planned route, county lines and our actual track. It even shows when we left

the route. I won't say whether we *planned* to do that or simply took a wrong turn.

In addition to maps for each rover I created a combined map (see Figure 7) showing the level of mobile activity expected in each county. To do this I needed a map of the whole state with county outlines. Of course I turned to *CQ/X*, and it provided an easy way to do this. From the "Define Route" dialog in *CQ/X* simply choose "Export All as KML File." This produces a KML file with all counties in the state outlined. I then edited the KML file in a text editor to assign a color to each county based on the number of rovers visiting it. This map was updated in the weeks before the QSO party to reflect announced mobile operations.

If you are interested in this type of map I encourage you to download the KML file from the MWA Web site and see how to create one of your own.



**Figure 7** — This combined map shows the level of activity in each county during the 2010 Minnesota QSO Party.

### Conclusions

I was very happy with the results of this project. Many operators have told me that the maps were useful both for planning purposes and for tracking mobiles during the heat of the contest. I have to offer a big "thank you" to Chuck, NO5W. His software provided the key to making these maps, and he has incorporated much of my work as a new feature in *CQ/X*. Chuck has an outstanding logging program, and the price is right!

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