State Highway Metro Maps: Experiences of an Emerging Cartographer

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I am a Masters in Geographic Information Science (MGIS) student at the University of Canterbury, currently undertaking research into crowdsourced public transport passenger feedback systems. I recently published a map depicting the New Zealand highway system using Beck's underground mapping symbology (Fig. 1). This paper will provide context for this map and share my experiences as an emerging New Zealand cartographer.

As a student undertaking the Masters in Geographic Information Science program, I work with geographic data on a regular basis during my coursework and thesis research. In particular, the Cartography and Geovisualization course I studied last year introduced me to key cartographic concepts. Instead of mainly working with just GIS data, then throwing it into a basic layout with a legend and north arrow and calling it a map as I had in previous coursework; this time around there was a much greater focus on creating better quality map design and layout. One of the final assignments of the course was to create an atlas of a region with a variety of maps. Working on this, I found that I enjoyed spending time (sometimes too much!) tweaking various aspects of the symbology and layout to imbue my maps with a clean design and attention to detail.

In my spare time, I enjoy experimenting with geographic information and creating cartographic maps. Given that much of my thesis work is self-directed, my flexible schedule led to the rise of 'Procrastination mapping': maps created as the direct result of the procrastination of more important work. Evenings would be spent browsing open geographic datasets for ideas, contributing to OpenStreetMap and working on maps. To facilitate this unproductive behaviour, I created a blog called Kiwimapper (http://kiwimapper.wordpress.com) where I posted some of the maps I created.

One such map created over several evenings of procrastination was of New Zealand's State Highways. This map represented the country's road network in the style of Harry Beck's iconic London Underground Map, a map that has famously been widely remixed and recreated all over the world (Transport for London, n.d). The idea to create the maps came after travelling around Europe for five weeks over summer. I have always enjoyed the London Underground style of transit map, but was easily able to use them for the first time to navigate the transit systems of London, Paris, Barcelona and Rome. The map is also similar to Cameron Booth's United States Highway Map in that it represents a road network in a non-traditional manner. To create the New Zealand Highway version, I used a New Zealand road map to work from as an approximation of size and scale. Adobe Illustrator was

used for the creation of the vector elements of the map, which was a challenge at first as I learned how the software worked from a beginner level.
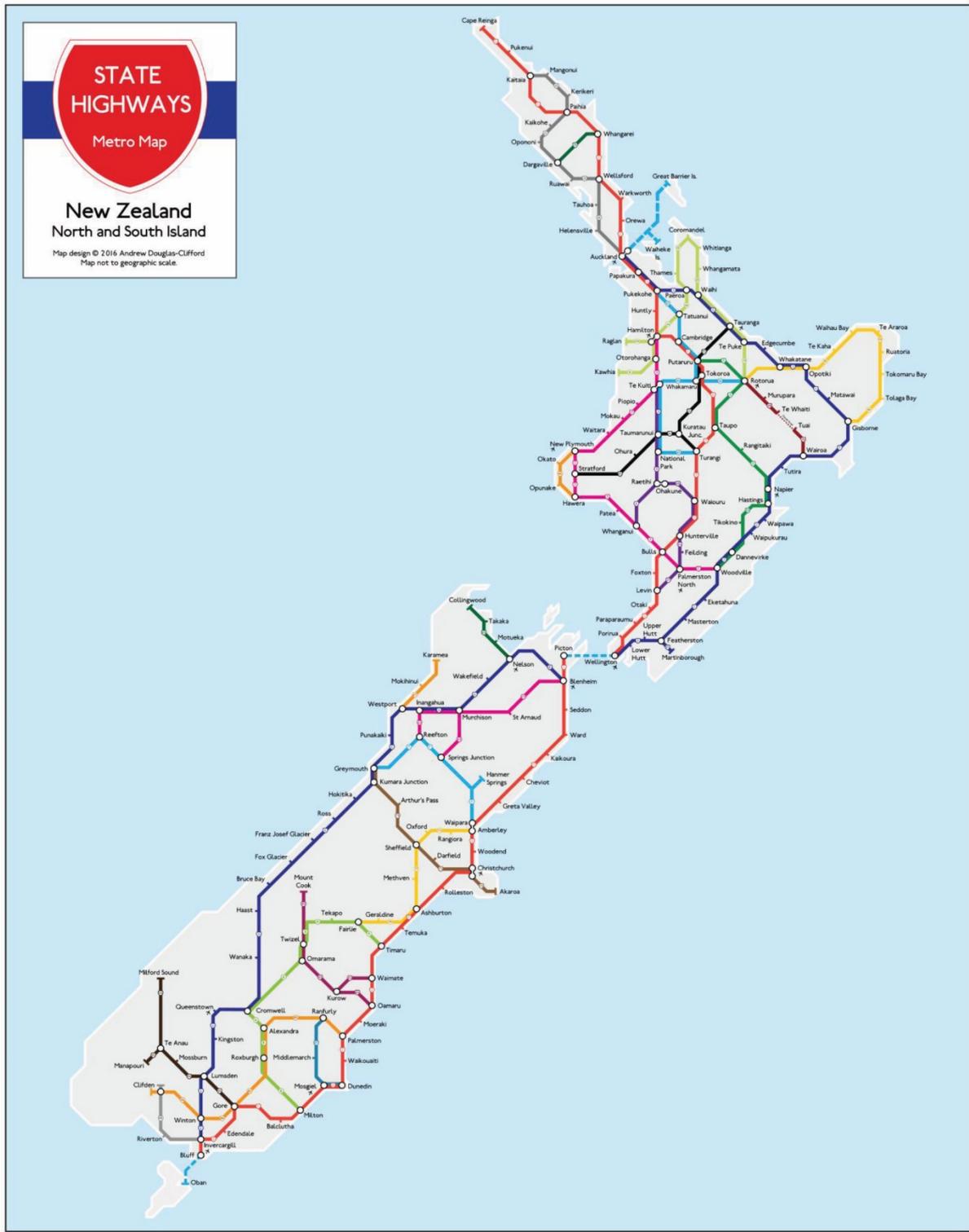

Figure 1. The New Zealand State Highway Metro Map.

The focus of the map is an artistic representation of the highways. Throughout the design process, I wanted to emphasise a clean, minimal, precise metro design and typography, in order to put the focus on the state highways and the key towns along them. As the design developed, the functional nature was brought forward. Unlike traditional geographic maps, metro maps like those used by the London Underground are designed to merely be topologically correct. This works well when the purpose is to help the map reader move between two stops on a public transportation network, but is also a useful visual aid for navigating New Zealand due to the (relatively) limited number of highways and roads that connect the country's towns and cities.

Many metro maps traditionally eschew geography almost altogether. Similar to Beck's original design where a stylised Thames River was retained as the only topographic feature, I decided to retain New Zealand's coastline in a manner that helped retain the instant recognisability of the country's landmass. Limiting the extent of the land area geographically in this manner presented an interesting challenge in placing routes in dense areas, especially in the upper North Island. However, I believe I was able to functionally incorporate the routes with minimal disruption to the aesthetics of the map. Of course, as the map is not geographically to scale, one of the drawbacks of this map is that while it is possible to determine a route to take, the user has no sense of how long a journey might take. Beck's Underground map shares this downside, although the larger distances of New Zealand highways between towns mean that the omission is more prominent here. An alternate version of this map could have focused on navigation, such as including the distance between stops, but the added visual clutter couldn't be justified in the current artwork-centric design.

Not thinking much of it at the time, I posted the South Island edition of the map to my blog and social media. To my surprise, the maps received a huge amount of positive attention that quickly took off on Facebook, Twitter and Reddit. The map connected with a lot of people in the general public that went a lot further than the audience of map enthusiasts I thought would enjoy it. The North Island map was quickly requested as a follow up, with many people interested in buying prints; a print company approached me and helped make selling copies of the map possible. The completion of the full New Zealand design a couple of months later saw the popularity of the maps take on yet again unexpected heights, this time on a national level. The map was featured in articles by the New Zealand Herald1, M2 Magazine2 and Stuff.co.nz3, and I was also asked to talk about the maps on John Campbell's Radio New Zealand Checkpoint program4. Demand for the prints became so high in the week after releasing them that the print company was struggling to keep up, with orders coming in from across New Zealand and internationally as far away as the United Kingdom. Why do I think the map was so popular? The iconic style of the design really seemed to resonate with the public in much the same way that the original London map did, especially with Kiwi and British expats. A lot of comments that people left online also linked the map to their experiences of travelling across New Zealand's highways. Whatever the reason, it was an extremely gratifying and inspiring experience to see so many people enjoy my work.

Needless to say, I learnt a lot in the relatively short period of time since I began to really explore cartography. As an emerging cartographer, I now have a better perspective on finding the right balance between usability and aesthetics, although I admit I still have some way to go. Creating and transitioning the design from a web to a print medium got me to think about the considerations that need to be made for a map's colour reproduction and legibility. It's also rare that a well-executed map is the first and last iteration of a given cartographic work, as you're not always going to get it right the first time. My experience creating the State Highway maps brought to the forefront the importance of feedback, of which I received plenty publically online in the comment sections of Facebook and Reddit, and in person. I received valuable feedback on route corrections, pointing out spelling areas and other useful suggestions for improvement that I hadn't noticed, especially in areas of the North Island that I'm not so familiar with geographically.

Since releasing the State Highway Maps, I've been further encouraged to share the maps I create with the wider world. I have created maps that take advantage of increasingly open sources of geographic data. An example is Banks Peninsula utilized contour line data from Land Information New Zealand which I used to create a 'historical looking' terrain map. More recently, I used OpenStreetMap data of several of New Zealand's towns and cities to create adult colouring maps, and which were also featured in the New Zealand Herald as an enjoyable 'Guess the NZ town/city from the blank map' quiz. I have also created an Australian Highway Map in the same metro style as the New Zealand one.

I enjoy creating cartography and take pride in placing a high importance on design and attention to detail. If you are interested in my other mapping adventures, please visit my blog at https://kiwimapper.wordpress.com/.

Reference

Transport for London (no date) Harry Beck's tube map, available at: https://tfl.gov.uk/corporate/about-tfl/culture-and-heritage/art-and-design/harry-becks-tube-map (accessed 29 July 2016).