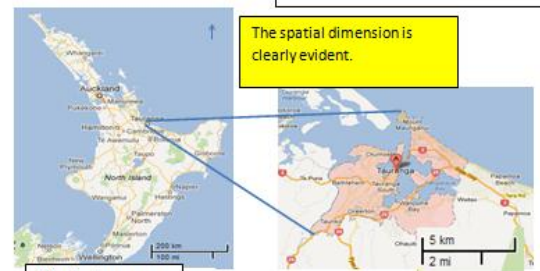1

**Location:** Tauranga Girls' College in located in Tauranga on the North Island.
**Latitude** is 37° 44' S; **Longitude** is 176°08'E

The spatial dimension is clearly evident.

Map 1 - Tauranga

Map 2: Tauranga and surrounds

Note : Overall, a variety of relevant evidence is presented following most geographic conventions. Data manipulations have been combined and all data relates to the problem. The findings of the manipulations are explained.
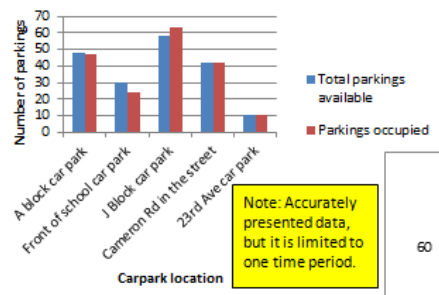
Image 1 - shows the three parking areas, and the two areas of street parking at Tauranga Girls' College. Staff and students use these parking areas. Graph 1 show the need for extra parking spaces or a reduced number of cars.

Note: Parking areas are difficult to see – labels with names would enhance this image.
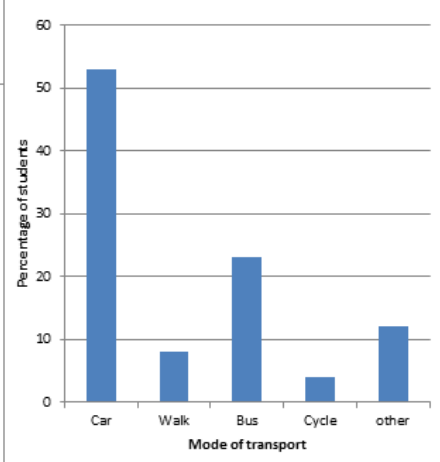
Image 1: Google Maps image

**Graph 1: School parking availability and occupancy**



Graph 1 - shows occupancy of the 5 parking areas is high. Both street parking areas were full. A block and front of school were near full, with only 1 bay free in A Block. J Block parking was in fact over full with 10 students parked on the grass. Data collected on a Monday at 1pm.

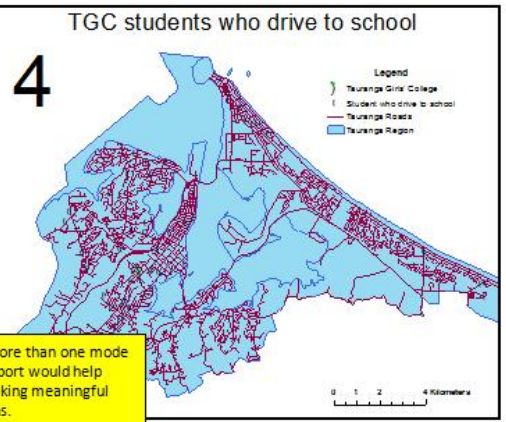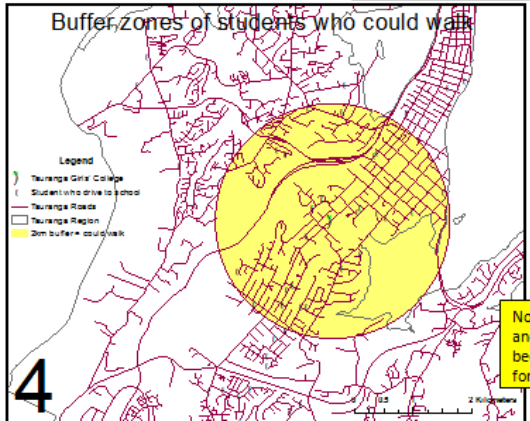Note: Accurately presented data, but it is limited to one time period.

Graph 2 -shows over 50% of senior students drive to school, less than 10% walk, over 20% take the bus and 5% cycle. The remainder of students get to school by other methods, lift with a friend, lift with a parent and on a scooter.

Note: Accurate graphing. Supporting % values would have helped with interpretation of this graph.

**Graph 2: Modes of transport used by senior students to get to school**



TGC students who drive to school

4

Map 3 shows that students come to the school from different suburbs around the city seen by the blue dots.

From this map you can see that there are many students who drive to school, many of whom live close to school.

It is important that my solution encourages students who drive to use another mode of transport.

Note: More than one mode of transport would help with making meaningful decisions.

Buffer zones of students who could walk

4

Map 4 shows the buffer zone that I created. The buffer is a distance of 2km. I think this a distance that students could walk to school from. There are 24 students who drive to school who fall into this buffer zone. I suggest that they could walk to school.

Note: One buffer zone accurately drawn and explained. This technique could have been used to show more data and allow for more meaningful decisions

**Explaining manipulations**

The first thing that I did was to create layers. I did this by collecting information about how senior students get to school as well as their addresses through a survey so that I knew how many students used cars, bided or walked to school. I geocoded the results of the survey using files from the TCC…

I geocoded this data into layers to show visually how many students drove to school and where students lived.  I did this so that I could turn the different layers on and off and see if there were patterns or relationships between home and driving to school and it also showed how many people lived where (2). I created a graph to show the different modes of transport used and my results showed that 53% of students drive to school, 23% on the bus, 8% walked 4% cycled and 12% got to school in another way…

The next thing I did was to create a buffer around the school to show which students who currently drove could walk instead. I did this by creating a new shape file in ArcCatalog that I added to Arc map and using the editor tool I created a circle 2km around the school. I made it transparent so that I could see other data as well (3)…

**Proposing a solution to a geographic problem**

From the results of my analysis, there is definitely a shortage of parking at TGC.

A solution is needed to encourage them to use other modes of transport. A solution to this problem could be to charge students to park at school. There are not enough car parks at the school for the number of students who want to use them and therefore those who want to park at school should have to pay. This might encourage students who live close to school to either walk or catch the bus. Of the 53% of students who drive to school 46% of them live close enough to walk or are able to catch a bus see maps 3 and 4 (4). This would help to make less people want to use the car parks and prevent people from parking on the grass or parking illegally as you can see on the layout.  A weakness of this solution is that some students do not have an alternative way to get to school and students may continue to bring cars and further congest the surrounding streets…       Many alternatives to this solution could be examined such as permits, which are used in many schools or the building of more parking spaces (5). Buses could be more efficient if they didn't have to stop so much and that might encourage students to use them more often…