Weekly Report

**Week 1**  
Since this was the first week with the project I mainly dedicated it to simply discovering more about the project and more information on the things I thought I was going to use it solving it. This included looking at some papers, including those recommended to us by the supervisor to see how other people had tackled similar problems, as well as looking at the API for google maps and seeing if I could discover any publicly accessible databases that contain relevant data on Victoria streets, namely one that containing a accurate location of each street or at least gave detail about the number of lanes each street was.  
This is useful because my first 2 thoughts of solving this issue is to either find the relevant information in a data-base, and simply right code to look up and calculate from the database, but if there is no accessible database with the relevant information the idea is to look at the region in google maps set on street view, since in this view all the streets and the same unique colour and simply count the number of pixels that colour. Then with some post-processing work out how long each street is, and using the width of the road from a data-base calculate its area.  
 **Plan for Next week.**  
My plan for next week is to continue the research into a data-base. And if I have not found one by then I will start looking at how to use google maps with python, and how to develop a user interface with python, as that is going to be my preferred language for this project.

**Week 2**

Since my exploration of the possible databases to help me with this assignment was not as helpful as i could have hoped i decided to try to go down a different route and try and analyse a google maps image to determine where the roads where and how wide they were. My first approach to this was to try and get satellite images and try and determine where roads where, but encounter difficulties in accounting for tunnels and dirt roads and such. I then decided to see if i could get google to do the work for me and see how far i could push the google API in accounting for roads. What i managed to do was discover the API that let you save static images of a defined area of the world, but with a lot of restrictions and changes you could make to the map. Such as defining its size precisely and removing unwanted elements as well as well as changing the colours of other elements.  
  
SO once I had this capability I started on a program that takes in a street address or landmark and returns a ~1km square area with everything but roads blacked out and roads a stark white.  
 **Plan for Next Week**  
Next week I will work on taking that image i have managed to generate and then parsing it so that my code can count the number of white pixels to black pixels, and so work out the total area of road there is in the given area.

**Week 3**Having managed to get a static image off google maps last week with roads highlighted a certain colour this week I started working on reading the pixel data from that image, I added in functionality that highlighted the different classes of road a different colour and did some research about the average % Bitumen to !Bitumen per road type. This way I can simply calculate the amount of each road type in the image and multiply that by the % Bitumen to get the amount of road that needs to be resurfaced. It probably won’t be 100% accurate for the roads but it will give enough accuracy for our purposes. Doing it like this will also allow the user to specify what kinds of roads they want to look at and so be able to exclude roads such as interstate highways or Tollways.

**Plan for next Week**  
Next week my task will be to start on the project specification report and try and get that mostly done in time for submission next week, and if I manage to get that completed in time I will start on making a HTML wrapper for my program that will allow the user to select their area from a embedded google map, or to use a address, as well as to give tick boxes as to what data they want displayed

**Week 4**

This week i don't really have much to say, i just did a lot of work on the report due next week. namely the test report, project timeline and general project overview.

**Week 5**

This Week all I did was Finish the Project Proposal, It took Longer than I expected so i Did not get time to start on the GUI as I was intending

**Week 6**

This week was spent on making the GUI, unfortunately I didn’t make a lot of progress because I have never done web dev before and i had to teach myself everything from scratch. so far, all I managed to do was get a website with google maps, but no communication with my backend

**Week 7**

This week was spent researching possible ways to connect my python front end to my GUI, using different library’s and methods, I ended up going with a built in one in Express, as it seemed the easiest and there were a lot of tutorials online to assist me with it, I also considered ways of packaging my project so that installation of library’s was unnecessary but did not get very far because it appears I need to know how my server is going to be communicated to the backend before I start packaging the back-end, and despite my research I haven’t implemented it yet so it still remains a bit beyond me

**Week 8**

This week was dedicated to connecting the python back end of my project with the Node.js and html front end. this is really the last major part of the project to complete. I managed to get the website to give the python program the latitude and longitude easily enough, as there are several online tutorials that help with that, but I had more difficulty of once I had executed the python file getting those values of the pixel count back to the front end. so far, I haven’t quite managed that but I am really close and should get it down by tomorrow.

**Week 9**

This week was a interesting one with my regards for the project, because the core functionality is largely completed and there is still a fair bit of time before it is due I decided to spend this week on experimenting and implementing improvements that i could add, mainly derived from what the other people in the support class showed in their demonstrations, in particular the drawing a square around the pin that was a square kilometre was really cool and would be a great addition to my project, but also the advice of removing pathways. So Really all I did was experiment with those and a few other improvements i could think of, some were more successful than others and i haven’t decided which of the ones i experimented with are going to end up in the final project, but overall a reckon it was a helpful task to undertake.

**Week 10**

This week I finished connecting there backend and front end of my project, and fixed a couple of small issues I had with aspects of it. The rest of this week was spent working on my talk I am giving on the project this Friday

**Week 11**

this week I started on the final report, namely completed the background and method segments

**Week 12**

This week I finished the final report, as well as packaged my project in a manner that will ease the deployment, I also completed the test report and formatted my weekly reports into this word document.