GPS and Maps

To begin the journey, I thought I would plan ahead by hanging my GPS out the window so that it could get a good grasp on the satellites. Once it had warmed up, we headed out from Mathey College to Nassau Street, where I needed to stop at Wachovia for some cash. After that brief stop, we headed north of Nassau and decided to turn whenever we felt like it, our direction was pretty arbitrary, but we periodically checked the GPS to detect how far we had been. I did notice after a downhill ride that the GPS did not register my top speed correctly, because from riding bikes enough I am positive that I was going much faster than 22 MPH. Other than that I feel that our trip went pretty well, after coming back we ran into our first problem: I could not upload the tracklog. After coming to class and figuring it out, I was able to see our trip on the map. I noticed that it was very jumpy, but that was most likely due to losing the signal to tree cover or some other reason. I then plotted the map on google maps. This is what I found:
The first thing noticeable is the large jumps seen on the map. I knew I had not traveled like that and suppose that they are due to reflection considering that I was traveling in between buildings and this reflection could have easily occurred for a few data points. I then went through my excel spreadsheet and found all the points with a big jump in either latitude or longitude and highlighted them. I then deleted them from the tracklog file and made a new map:

This map has none of the impurities as the other and better represents our true trek. Upon closer examination I found that when I zoomed in, the track wasn’t always along the road, but sometimes off to the side. Considering the scale of the map, I reasoned that this imperfection was within the error of 45 feet listed on my GPS. The total distance calculated from the excel spreadsheet also varies a little bit from the data on my GPS, which only leads me to believe that the GPS must use a different formula than compiling the data points step by step to calculate the distance.