Assignment 4

For the presidential inauguration on January 20th, more than a million people were expected to crowd the National Mall. How far back from the capital would the crowd extend? A picture works better than words to convey this type of information. On the next page is an example of such a graphic.

Your challenge is to create a graphic of this sort. To make things simpler, assume that the mall is rectangular and that the crowd occupied the area west of 4th Street and east of 14th Street – this avoids the non-rectangular area around the Washington Monument.

Steps:
1. Use Google Earth to get a picture of the National Mall. Make sure you include a scale, so you know the dimensions of the mall.

2. Divide your Google Earth image into regular intervals, such as 100 feet. Calculate the area for each interval – it should be the same for each interval if you placed your division marks evenly.

3. Next, use a spreadsheet to calculate how much area a crowd would take up (assuming five square feet per person) for each point along the Mall. See the figure below for an example.

4. Finally, use Excel to make an axis with your figures and overlay it on the Google Earth image. The trick is to match up the scales of the graph with the scale of the Google Earth image.

5. For a further challenge, extend your calculations all the way back to the Lincoln Memorial. You’ll have to do some fudging for the non-rectangular areas – and remember that people aren’t allowed to stand in the reflecting pond, even if it’s frozen.

Have fun!
PROJECTION 1: A TIGHT SQUEEZE

This projection assumes the Mall is fully packed, with very little room to move.

In dense crowds, a person occupies an area of about 2.5 square feet, an area the size of the front page of The Washington Post.

Experts say it is possible for 2.1 million people to occupy the Mall at this density, but only if they stood perfectly still.

PROJECTION 2: SOME BREATHING ROOM

This projection assumes that each person occupies an area of five square feet.

A person can comfortably stand amongst a crowd in an area of approximately five square feet, the size.

The U.S. Park Police — which no longer counts crowds — calculated crowd size using this standard.

NOTE: Calculations do not take into account the area occupied by Jumbotrons, staging, portable toilets and other temporary objects on the Mall.