**Research Design**

Candidate lawn signs were a very visible aspect of the political landscape in the days leading up to the Fall 2000 elections. While these lawn signs seemed to be everywhere, we wondered whether there was a geography of these signs in Eau Claire, and how relative were the distribution of specific candidates’ signs with the strength of their votes. The purpose of this project is to develop an accurate method of mapping lawn signs, and then to determine if there is a relationship between the number and the location of the political signs and the actual votes cast. Our focus for this study was Presidential, Senatorial, Congressional, and the 93rd Assembly elections in Eau Claire, Wisconsin.

While mapping every political lawn sign in Eau Claire may initially seem to be a mammoth task, it is a task particularly well suited to DGPS (Differential Global Positioning System) and GIS (Geographic Information System) technologies. For this project, we used the Trimble Pro XR DGPS to record the latitude-longitude coordinates to each lawn sign. The high-end GPS with real-time differential correction calculates coordinates with sub-meter accuracy. The Trimble uses a data dictionary menu that attaches the name of a candidate to each sign’s coordinates. We then had to drive every street in the city - on both sides - to map all of the signs on the weekend prior to the election. After 15 hours of data collection, the DGPS data was downloaded and formatted in Pathfinder. Then we exported the data into ESRI’s ArcView GIS to tabulate the data and produce the maps for this project.

All of the sign data was collected by the time the election on November 7, 2000 took place. Once we got a good system of using the data dictionary and collecting points, the process was fairly easy. It is possible that we have missed, by human error, some of the signs because of the large area that we needed to cover. It was easy to see that on the main roads there were more signs than on the side roads. The correlation between votes and signs proved not to be a factor in the outcome of the election. Bush had more votes than Gore had more signs than Bush. Therefore, little correlation was established between the number of votes and the number of political signs.

**Conclusion**

Bush/Congressional Signs: 944
Bush/Presidential Signs: 16,381

The technique used to collect point information for each sign was to first create a data dictionary in the Trimble DGPS. The second step was to create an offset of about 5-10 meters to place the points more accurately in the lawns. The final step in a second process was to mount the Trimble DGPS antennas on top of our cars and drive down each side of the street, logging signs as they came up.

**GPS Survey Methodology**

The mapping was fairly straightforward:

1. The Trimble Pro XR DGPS antenna is on top of our cars while we drive down each side of the street, logging points as we came up.
2. The data dictionary was used to assign the names of the candidates to coordinates.

The Trimble Pro XR DGPS was used to record the latitude-longitude coordinates of each sign. After 15 hours of data collection, the data was downloaded and formatted in Pathfinder. The data was then exported to ESRI’s ArcView GIS to tabulate the data and produce the maps for this project.

**DGPS Survey Results**

- **Bush**: 323 signs
- **Gore**: 236 signs
- **Buchanan**: 36 signs
- **Tully**: 89 signs
- **Kind**: 62 signs
- **Kohl**: 191 signs
- **Gillespie**: 53 signs
- **Cameron**: 160 signs

**Comparation Between Voting Patterns and Income**

<table>
<thead>
<tr>
<th>Income Bracket</th>
<th>Votes</th>
<th>Signs</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0 - $16,000</td>
<td>12,881</td>
<td>53</td>
</tr>
<tr>
<td>$16,001 - $20,500</td>
<td>7,538</td>
<td>37</td>
</tr>
<tr>
<td>$20,501 - $27,700</td>
<td>6,991</td>
<td>35</td>
</tr>
<tr>
<td>$27,701 - $32,360</td>
<td>5,622</td>
<td>27</td>
</tr>
<tr>
<td>$32,381 - $47,600</td>
<td>4,571</td>
<td>21</td>
</tr>
</tbody>
</table>

**Election Results**

<table>
<thead>
<tr>
<th>Candidate</th>
<th>First Assembly</th>
<th>Congressional</th>
<th>Senatorial</th>
<th>Presidential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bush</td>
<td>7,326</td>
<td>28,394</td>
<td>14,381</td>
<td>16,381</td>
</tr>
<tr>
<td>Gore</td>
<td>3,894</td>
<td>20,501</td>
<td>5,622</td>
<td>4,571</td>
</tr>
<tr>
<td>Buchanan</td>
<td>1,230</td>
<td>4,571</td>
<td>3,622</td>
<td>2,548</td>
</tr>
<tr>
<td>Tully</td>
<td>2,571</td>
<td>12,881</td>
<td>6,991</td>
<td>5,622</td>
</tr>
<tr>
<td>Kind</td>
<td>1,077</td>
<td>4,571</td>
<td>3,622</td>
<td>2,548</td>
</tr>
<tr>
<td>Kohl</td>
<td>1,077</td>
<td>4,571</td>
<td>3,622</td>
<td>2,548</td>
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<tr>
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</tr>
<tr>
<td>Cameron</td>
<td>4,571</td>
<td>12,881</td>
<td>6,991</td>
<td>5,622</td>
</tr>
</tbody>
</table>

The map to the right shows the median income for the city of Eau Claire. Notice the distribution of the signs within the different income regions. The income regions do not entirely represent the sign distribution. There is a slight correlation that can be seen in the Presidential and Congressional races.

**Percent Voting for Bush / Cheney**

- 27 - 32
- 32 - 40
- 40 - 42
- 42 - 47
- 47 - 54

**Percent Voting for Gore / Lieberman**

- 42 - 53
- 53 - 58
- 58 - 73

**COMPARISON BETWEEN VOTING PATTERNS AND INCOME**

- 1990 Median Household Income
  - $0 - $16,000
  - $16,001 - $20,500
  - $20,501 - $27,700
  - $27,701 - $32,360
  - $32,381 - $47,600

**Correlation Between Bush/Cheney Votes and Signs**

- Bush/Cheney Votes: 12,881
- Bush/Cheney Signs: 234 %Votes: 27.1%

- Bush/Cheney Votes: 7,538
- Bush/Cheney Signs: 37 %Votes: 40.5%

**Correlation Between Gore/Lieberman Votes and Signs**

- Gore/Lieberman Votes: 16,381
- Gore/Lieberman Signs: 294 %Votes: 25.2%

- Gore/Lieberman Votes: 5,622
- Gore/Lieberman Signs: 107 %Votes: 27.1%

**Comparing Positions of Signs on Heavy Traveled Residential Roads**

The five roads that are outlined in green have the highest concentration of signs. Out of the 1254 signs recorded, 263 (21%) were found on these five roads.