

# Military Recruitment Center Site Determinants

Derrak Richard  
Alan Devenish  
Ryan Arnold

## Background

- The attacks of September 11<sup>th</sup>, 2001 prompted the Army, and all other military branches to transform into a larger, more agile force.
- To attain these goals the Army must annually recruit and retain more than twice the number of uniformed personnel needed by any other military service. In fiscal year 2008, the Army's recruiting mission was over 167,000. Like the other services, the Army employs three primary types of tools:

Source: GAO-08-1037R, Army Recruitment Incentives

## National Defense Authorization Act for Fiscal Year 2006, Sec 681 established:

- Recruiter Incentive Pay Pilot Program, June 2006
  - Bonus pay to Army who exceed their recruitment goals. The incentive's purpose is to increase the number and quality of new Army recruits.
  - Bonuses can range from \$100 to \$8,600 per year, depending on the extent to which recruiters exceed set benchmarks
- Enlisted recruit quality based on two criteria
  - Graduation from high school. Over 90% graduation rate.
  - Armed Forces Qualification Test score. Over 60% above average.

Source: GAO-08-1037R, Army Recruitment Incentives

## Background

- "It turned out that kids who were of upper income were more likely to go to college, but it also turned out that kids from lower incomes had better chances of getting need-based financial aid to college. So when you look at who goes to the military, you tend to get those in the middle."
  - **Beth Asch, a RAND military personnel analyst**
- A survey of the military's recruitment system found that the Defense Department zeroes in on schools where students are perceived to be more likely to join up, while making far less effort at schools where students are steered toward college.
  - **November 29, 2004 by the Boston Globe**

## Study Question

- Are military recruitment centers disproportionately located near areas of low income and inferior schools?

## Oregon School Report Cards

- Created by the 1999 Oregon Legislature, the school report card is a part of other programs initiated to improve Oregon's educational system. This legislation requires that the Oregon Department of Education produce and issue a report card to all districts and schools in the state.

## 2007-2008 District Report Card

**PORTLAND  
SCHOOL DISTRICT**



Dear Parents and Community Members,

October 7, 2008

The Oregon Department of Education is proud to issue the tenth annual school report card. As Oregon schools and districts continue to face many challenges, educators remain committed to providing the highest quality education for Oregon students. This year you will find a federal rating displayed on this report card. This district rating is required by the No Child Left Behind Act. The report card is not meant to tell you everything about your district, but it offers a starting point for discussions about where improvement might be needed and for celebrating successes in education for Oregon's children.

### Federal Adequate Yearly Progress Rating: NOT MET

☐ MET See rating details on back page  
☒ DID NOT MEET ☐ Identified for District Improvement

*Susan Castillo*

Susan Castillo, State Superintendent of Public Instruction

### SCHOOL RATINGS

SCHOOLS	Overall	Academic Achievement Student Performance	Attendance/Dropout Student Behavior	Improvement	School Characteristics
Abemethy Elementary School	Exceptional	Exceptional	Strong	Improved	Exceptional
Ainsworth Elementary School	Exceptional	Exceptional	Exceptional	Stayed About The Same	Exceptional
Alameda Elementary School	Exceptional	Exceptional	Exceptional	Stayed About The Same	Exceptional
Alliance High School	Not Rated	Unacceptable	Unacceptable	Not Rated	Unacceptable
Arlita Elementary School	Satisfactory	Strong	Satisfactory	Stayed About The Same	Exceptional
Arts, Communication & Tech (S12)	Unacceptable	Low	Unacceptable	Stayed About The Same	Low
Astor Elementary School	Strong	Strong	Strong	Stayed About The Same	Exceptional
Atkinson Elementary School	Strong	Strong	Strong	Stayed About The Same	Exceptional
Beach Elementary School	Satisfactory	Satisfactory	Satisfactory	Stayed About The Same	Exceptional
Beaumont Middle School	Strong	Strong	Strong	Stayed About The Same	Exceptional
Benson Polytechnic High School	Satisfactory	Satisfactory	Strong	Stayed About The Same	Exceptional
Brimwood Middle School (CA)	Strong	Satisfactory	Satisfactory	Improved	Exceptional
BitTech High School (S12)	Satisfactory	Low	Unacceptable	Improved	Exceptional
Boise-Ellet Elementary School	Satisfactory	Satisfactory	Strong	Stayed About The Same	Exceptional
Bridger Elementary School	Satisfactory	Satisfactory	Strong	Stayed About The Same	Exceptional
Bridlemile Elementary School	Exceptional	Exceptional	Strong	Stayed About The Same	Exceptional

### Circumstances which may prevent a school from receiving a rating

All schools will receive report cards, however, some schools will not receive ratings. The chart below describes circumstances that may apply to particular schools and that may result in a school not being rated in a particular area.

Circumstances	Will the school receive a Report Card?	Will the school receive a Rating in:				
		School Characteristics?	Student Performance?	Student Behavior?	Improvement?	Overall?
Less than a 2-year combined total of 80 test scores in Reading and Math Knowledge and Skills tests.	Yes	Yes	No	Yes	No	No
During the two most recent years combined, fewer than 50 students attending the school.	Yes	Yes	No	No	No	No
Schools without a benchmark grade (3,4,5,6,7, 8, or 10).	Yes	No	No	Yes	No	No
Schools newly opened within the last year.	Yes	Yes	No	No	No	No
Schools with a significant population change due to boundary changes.	Yes	Yes	No	No	No	No
Schools with a significant population change due to grade level configuration changes.	Yes	Yes	No	No	No	No
Schools with less than two years of data.	Yes	Yes	No	No	No	No
Schools with only two years of data.	Yes	Yes	Yes	Yes	No	No

Source: OREGON SCHOOL & DISTRICT REPORT CARD 2007-2008 POLICY MANUAL, p 15

## Ratings Defined

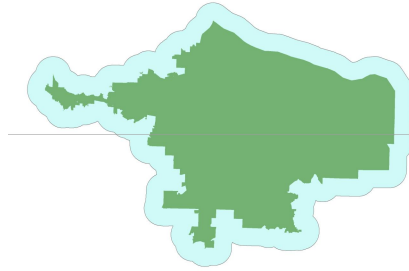
- **Academic Achievement** ratings for high schools are based on Reading and Math Knowledge and Skills and Writing Statewide Assessments.
- **Student Behavior (Attendance and Dropout)** is calculated as an average of attendance rates for school years 2006-2007 and 2007-2008 and dropout rates for school years 2005-2006 and 2006-2007.
- The **Overall** rating is a combination of Student Performance rating (2 year average) + Student Behavior rating (2 year average) + Improvement in Student Performance and Student Behavior (4 year average).

## Data Used

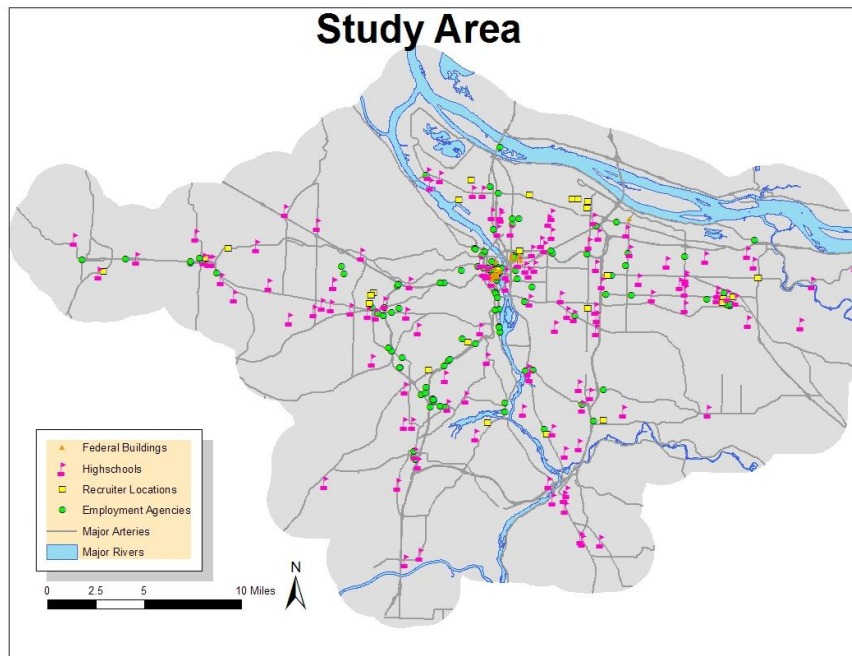
- Military recruitment center address locations (Google)
- Portland high school address locations (Oregon Department of Education)
- 2007-2008 Portland high school 'report card' data (Oregon Department of Education)
- Portland employment agency address locations (Google)
- Federal office address locations (Google)
- 2008 RLIS tax lots

# Geographic Extent

- One half mile beyond the Portland metro area (2008 RLIS Metro Fill)



## Study Area

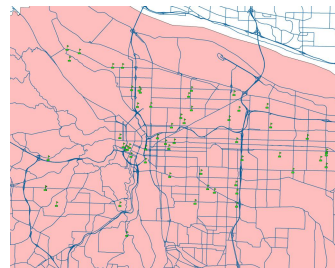
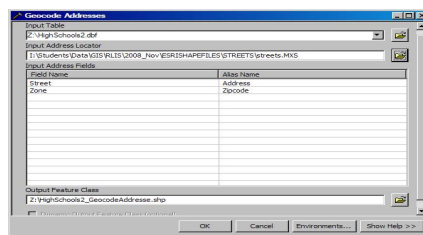


## Methods

- High school 'report card' variables were converted to a numeric ordinal scale
  - 5 = Exceptional
  - 4 = Strong
  - 3 = Satisfactory
  - 2 = Low
  - 1 = Unacceptable

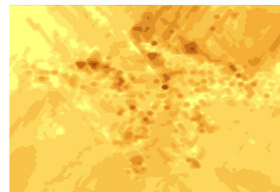
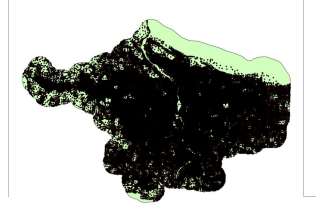
## Methods

- Point address locations were collected, entered into .dbf format, and geocoded.



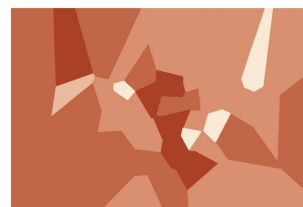
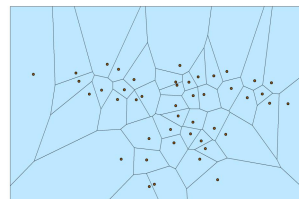
## Methods

- 2008 tax lot polygons were converted to point values
- Point values were then transformed into a continuous layer by Kriging



## Methods

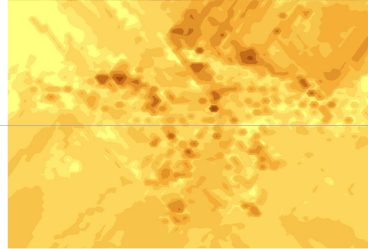
- School points were converted to Thiessen polygons for each school grade variable
  - Attendance
  - Academic
  - Overall
- Polygons were then converted to Raster



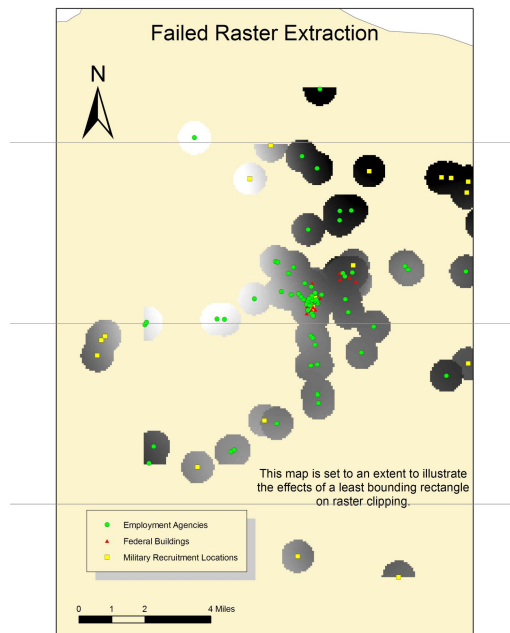


## Methods

- All Rasters were generated or converted to a common 300 ft. cell size (city block).



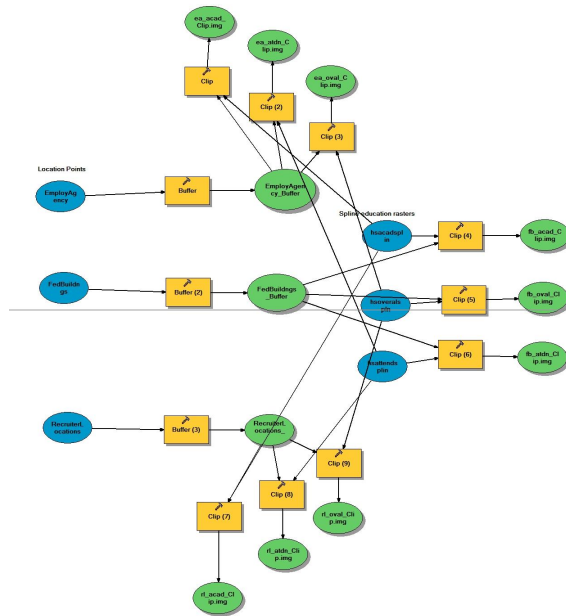
## FAILED MODEL MAP



## Corrected Model Map



FAILED MODEL





# Results

## Average Score Using Near Analysis

	HS Attendance	HS Academic	HS Overall
Military Recruiting Centers	3.23	3.4	3.47
Government Offices	4	4.28	4.28
Employment Agencies	3.73	4.29	4.32

# Discussion

- Our project was exploratory rather than predictive
- Neighborhoods do not yield good indications of an organization's objectives
- Local (Portland) features cannot be accounted for in our study

## Limitations

- Data access (RSID maps, recruiter productivity, etc.)
- Study extent (a single metro area)
- Absence of trend analysis (property values)
- Absence of quality indices (our indicators were independently derived)

## Example of index

Table IV. Description of the variables used in the investigation

MV segment number	Segment name	Percent of households	MV segment number	Segment name	Percent of households
Cluster 1			Cluster 2		
Number of RSIDs: 7			Number of RSIDs: 18		
MV 32	Metro singles	27.9	MV 24	City ties	30.3
MV 46	Difficult times	26.6	MV 46	Difficult times	13.5
MV 36	Metro mix	18.6	MV 45	Struggling metro mix	13.4
MV 24	City ties	4.6	MV 05	Prosperous metro mix	3.4
Total		77.7	Total		60.6
Cluster 3			Cluster 4		
Number of RSIDs: 141			Number of RSIDs: 57		
MV 16	Country home families	31.3	MV 42	Trying rural times	29.3
MV 38	Rustic homesteaders	16.3	MV 38	Rustic homesteaders	16.1
MV 25	Bedrock America	6.1	MV 25	Bedrock America	6.4
MV 18	White picket fence	5.6	MV 28	Building a family	5.2
Total		59.3	Total		57.0
Cluster 5			Cluster 6		
Number of RSIDs: 34			Number of RSIDs: 4		
MV 05	Prosperous metro mix	25.8	MV 13	Successful singles	62.2
MV 04	Mid-life success	10.6	MV 36	Metro mix	21.8
MV 15	Great beginnings	8.8	MV 37	Urban up and comers	10.8
MV 17	Stars and stripes	8.7	MV 45	Struggling metro mix	1.9

## Recommendations

- Match study extent to data extent (national approach)
- Define a normal distribution: our control locations were selected for a reason but were not ideal for statistical analysis
- Reframe question to examine recruit behavior using agent based modeling

Questions?

## Sources

- Faults, et al, D (2001).Adapting geodemographic information to army recruiting: the case of identifying and enlisting Private Ryan. *Journal of Services Marketing* . 15, 3.
- GAO Report, September 2005: Reporting Additional Servicemember Demographics Could Enhance Congressional Oversight. <http://www.gao.gov>
- GAO Letter to Congressional Committees, September 2008: Military Personnel: Evaluation Methods Linked to Anticipated Outcomes Needed to Inform Decisions on Army Recruitment Incentives. <http://www.gao.gov>