

Case Study 5: Lead

Matt, Wen, Rachel, Jie, and Joel

Case Recap

- Lead was used as a gasoline and paint additive until the mid-1980s and it is believed that this lead has settled into the soil in this particular community.
- The community is concerned that children are playing in lead contaminated soil and are therefore suffering the effects of lead exposure.
- The community would like to sue the companies responsible for this contamination for damages and environmental cleanup costs.

Concerns

- Can we provide evidence beyond a reasonable doubt?
- Would we be held liable in a countersuit?
- Are we knowledgeable enough on how lead contamination spreads to suggest an appropriate sampling plan?
- Homes are next to roads, so can we be certain which product caused the contamination?

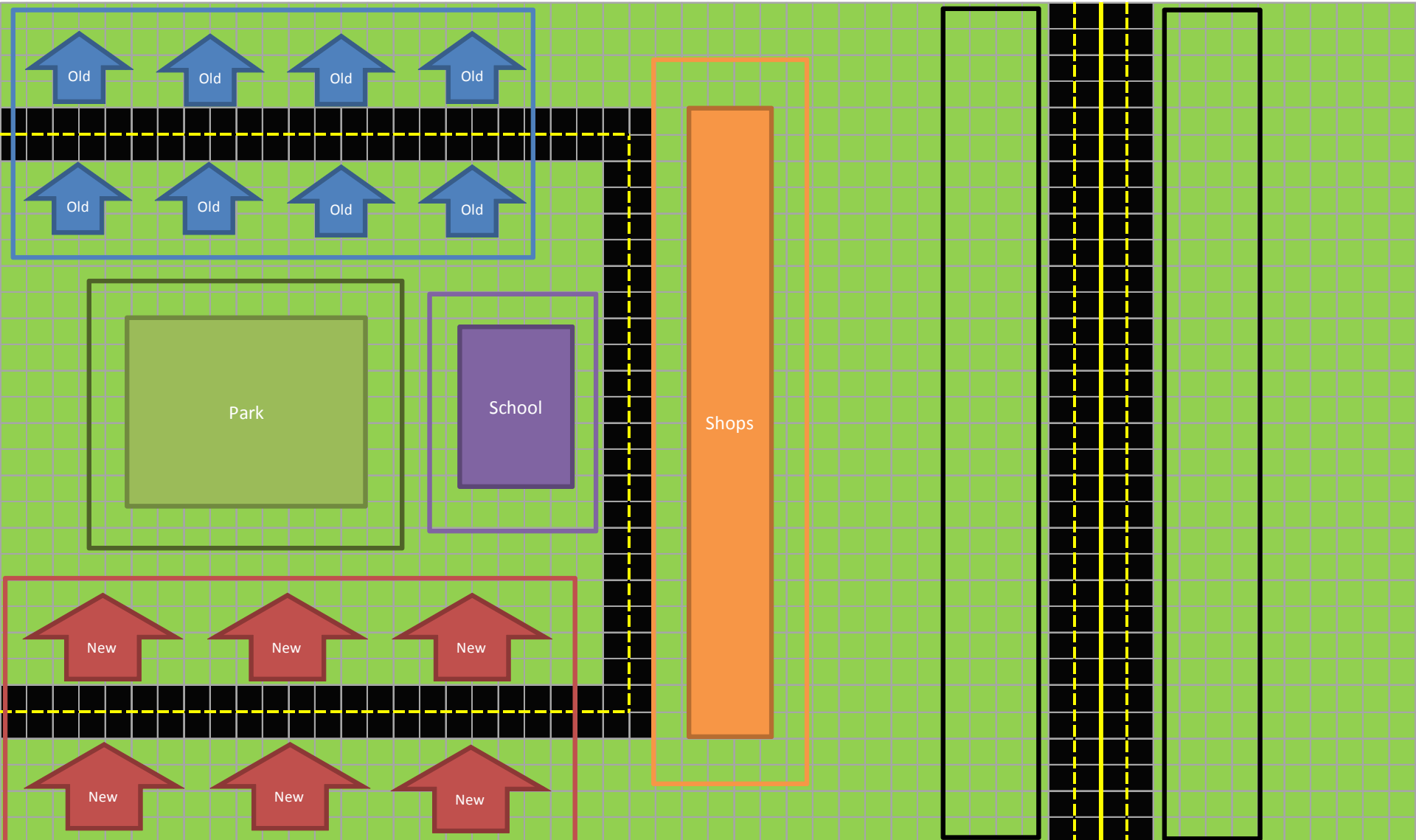
Questions for Community

- Why do the children in this community eat soil?
- Would we be deposed or called to testify? If so, would we be compensated for all time related to the judicial process?
- Are there documented cases of lead poisoning in children?

Analysis

- Take a stratified SRS of soil plots to test. There is likely an abundance of published government and institution studies to help us determine the necessary sample size and normal levels of lead.

Analysis (Cont.)



Analysis (Cont.)

- t-tests to determine if the levels of lead are significantly greater than normal or dangerous levels
- ANOVA and contrasts to determine if the levels of lead are different and how they differ
 - This would help answer the main research question
- Spatial analysis, quantitative or graphical
 - This would help concentrate cleanup efforts and advise parents on where the safe areas are for children to play

