

# YES Spatial Analysts Team: Project summary

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Youth Enrichment Services Pb (lead) Exposure Project | Summer 2017**

## Spatial analysts lead (Pb) exposure project overview

The spatial analysts were a four-student sub-team of the Lead Exposure summer research project coordinated by Youth Enrichment Services (YES) to investigate lead exposure levels and prevention measures in the Lincoln-Lemington neighborhood of Pittsburgh, PA. Our group was tasked with using spatial data and geographic information system software to gain insight into how the neighborhood's built and social environments impact residents' exposure to lead toxins.

The spatial analysts worked together for about 40 hours during July and August, 2017 to learn mapping concepts, build data plans, collect field data, and visualize the results for presentation to a public audience. None of the students had worked with professional mapping software before and most had only rudimentary exposure to social research methods. And yet, over the course of the project, the four spatial analysts developed core competencies in each important knowledge domain and produced professional-quality maps (see Figures 1 and 2 below) and academic posters. Additionally, our group gelled well and we enjoyed our work together.

## Summary of education model

The YES summer research project was as unique in its design as it was ambitious in its goals. Participating students were mentored through a complicated set of research phases—including conducting on-the-ground field research in Lincoln-Lemington—while learning how to use professional-grade mapping software on Linux machines. To accomplish so many separate but interdependent tasks over the short month-or-so of project time required a nimble approach to group work time centered around the following principles:

- **Surgically applied mini-lessons:** unlike traditional college courses where conceptual learning is front-loaded and application of those concepts rests on that foundation, work with the spatial analysis had integrate concepts and applications throughout the project.
- **Students fly the plane, facilitator coaches the pilots:** Watching a teacher click through steps is notoriously unhelpful for students. During this project, even tricky tasks were actually executed by students under close direction from the facilitator. Over the course of hours and weeks, however, students internalized even the more complicated tasks through focus and repetition.
- **Iterate, iterate, iterate:** We developed complex products by creating simpler ones first—then iterating.
- **Student experts:** Each of the four spatial analysis naturally developed an area of expertise which they could then share in *mini-doses* with his/her peers as needed through the project.
- **Coordinating often:** Spatial analysis were frequently calling other team members and coordinators for direction throughout the project so as to make small corrections often rather than major overhauls.

Figure 1: Age of housing stock choropleth map



Figure 2: Youth gathering locations “heat map”

