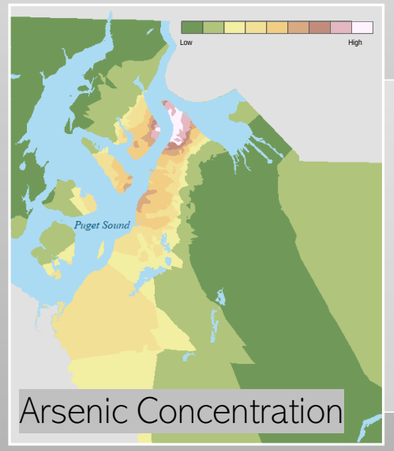
Remediation Recommendations

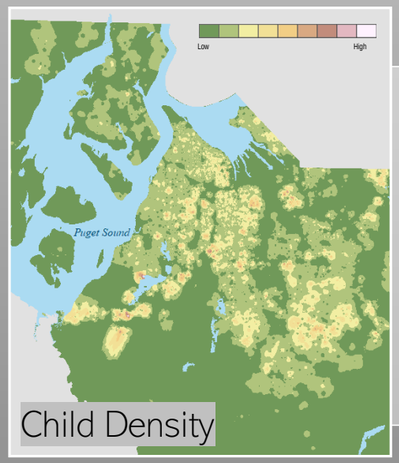
Where toxic soils put Pierce County children at risk

"For almost 100 years, the Asarco Company operated a copper smelter in Tacoma… Arsenic, lead, and other heavy metals are still in the soil as a result of this pollution… toxic metals that pose risks if you accidentally ingest or inhale contaminated soil... Children are especially at risk because they put dirty hands and toys in their mouths and because their bodies are still developing." Washington Department of Ecology



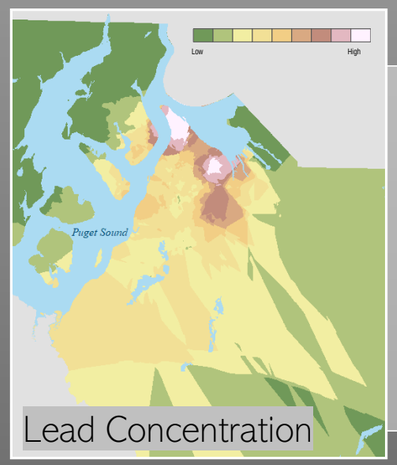
Arsenic Concentration

The Kriging interpolation method was utilized to create a raster that shows the relative concentration of arsenic across Pierce County. The advantage to using interpolation is that it filled in gaps between points by predicting concentration values for those regions. Raster was classified using the 'standard deviation' method and symbolized using the 'surface' color ramp to show low (green) to high (red/white) concentration of arsenic.



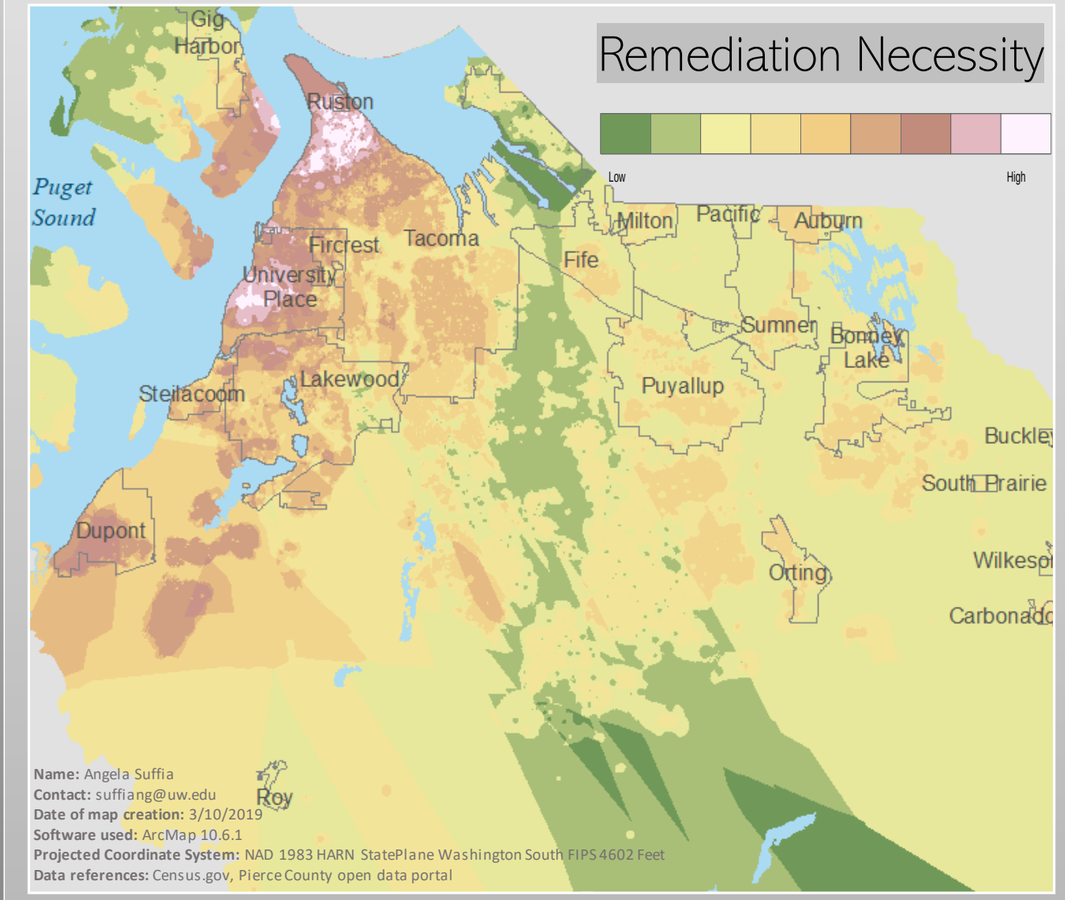
Child Density

The IDW (Inverse Distance Weighted) interpolation method was used to develop a raster to infer the relative density of children under 10 per square mile across Pierce County, even for locations without data. The newly created raster was then was re-classified using the 'standard deviation' method and symbolized using the 'surface' color ramp to show low (green) to high (red/white) density of children per square mile.



Lead Concentration

The Kriging interpolation method was utilized to create a raster that shows the relative concentration of lead across Pierce County. The advantage to using interpolation is that it filled in gaps between points by predicting concentration values for those regions. Raster was classified using the 'standard deviation' method and symbolized using the 'surface' color ramp to show low (green) to high (red/white) concentration of lead.



Toxic remediation sites were identified using the raster calculator. The Arsenic concentration raster, Lead concentration raster and Child density raster were all overlaid to create a gradient of risk for Pierce County. The highest value represents locations that have high concentrations of both lead and arsenic and have high densities of children. Lower values represent locations that have low concentrations of contaminants and/or low density of children. The raster was symbolized using the 'surface' color ramp to show low (green) to high (red/white) areas that should be priority for toxic remediation.