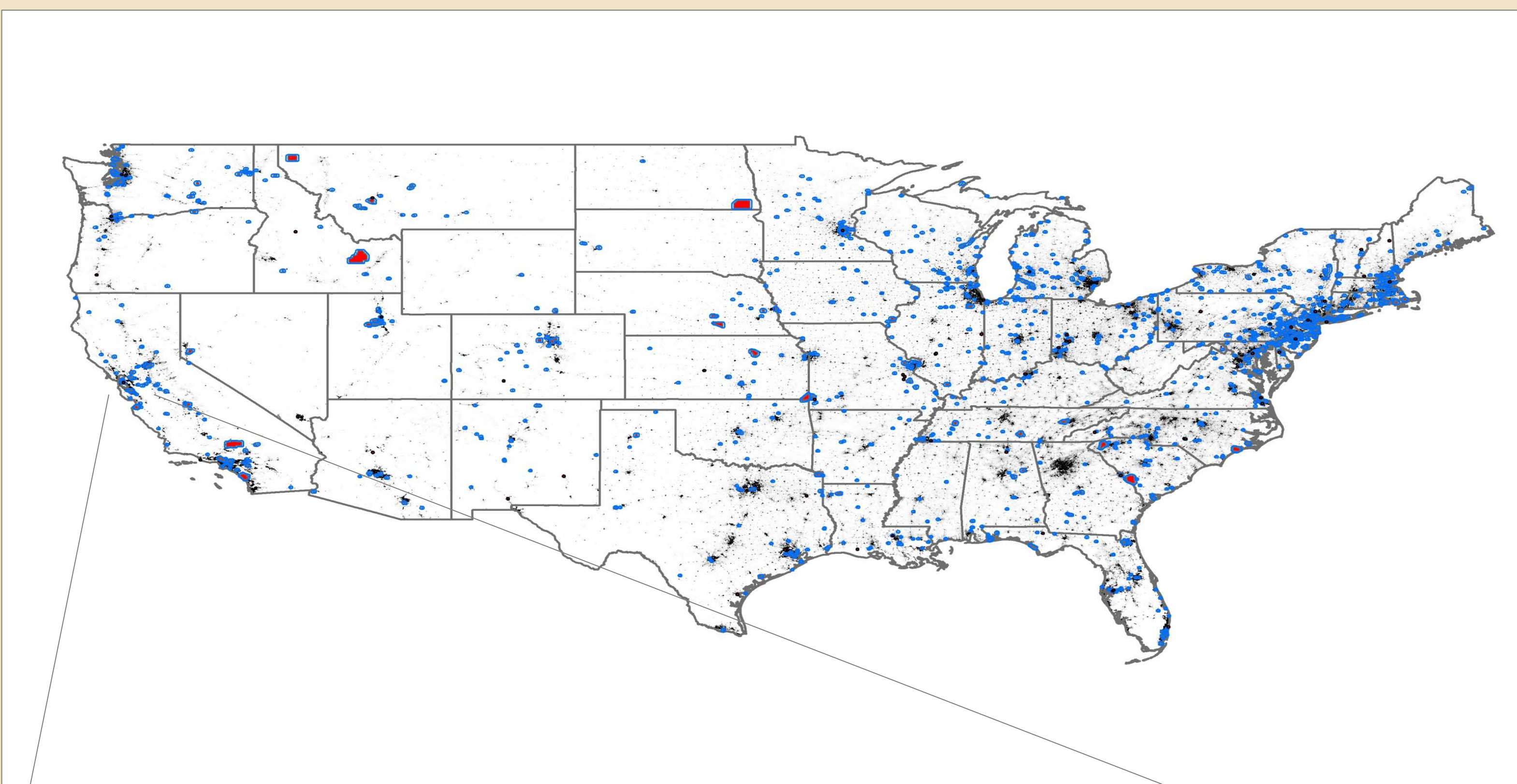


Innovative Methodologies & Mapping to Assess Vulnerable Populations Near Superfund Sites

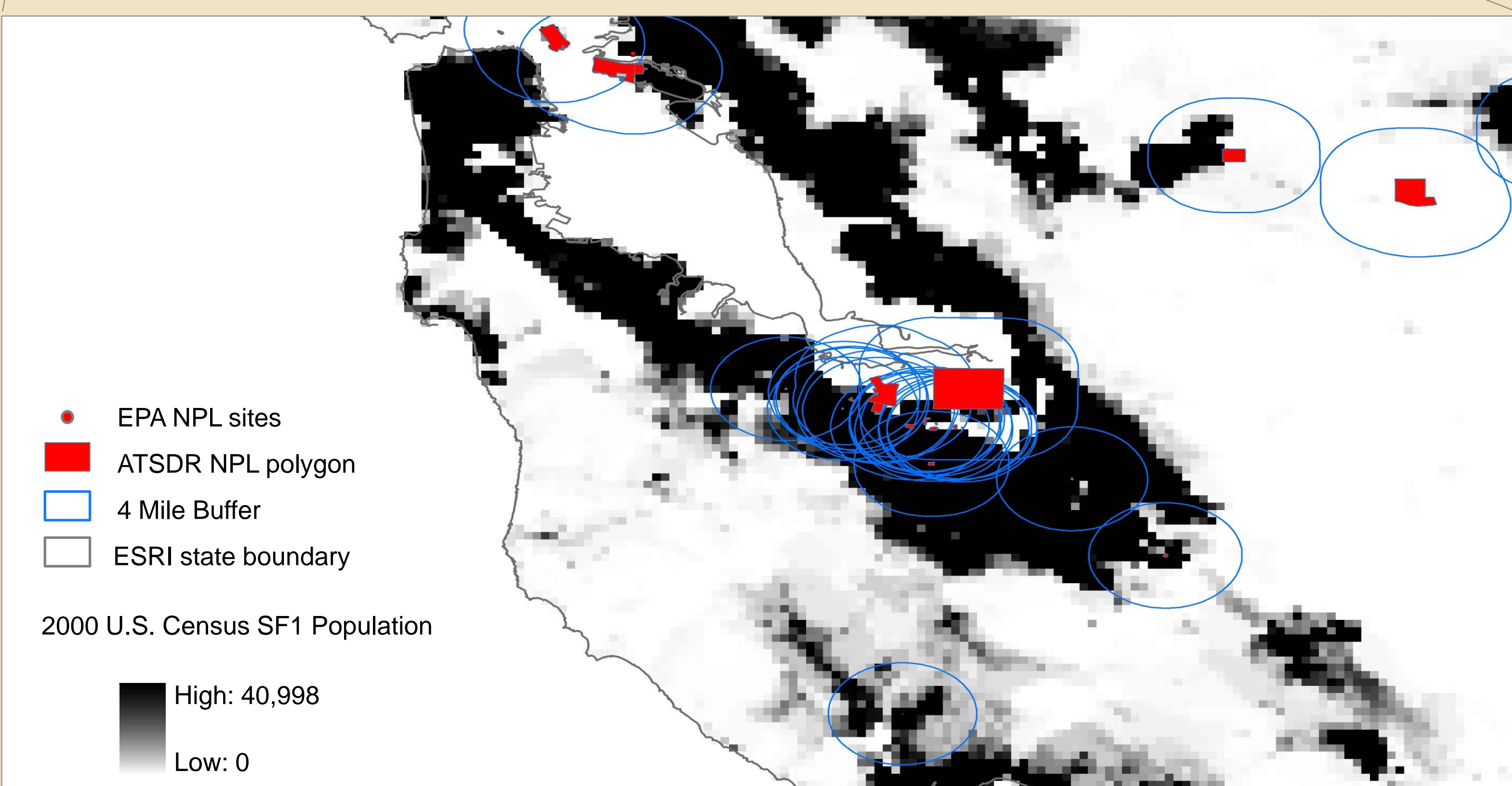
Columbia University Superfund Research Program (SRP) Research Translation Core
Meredith L. Golden, Gregory Yetman, and Tricia Chai-Onn

Columbia SRP Population Assessment

CIESIN 2008 "Assessment of Populations in Proximity to Superfund National Priorities List (NPL) Sites" report for NIEHS (<http://sedac.ciesin.columbia.edu/eh/sfpop.html>) uses the 2000 U.S. Census Grids population database to determine overall demographic, economic, and housing characteristics of U.S. populations residing within 1 and 4 mile buffers of Superfund NPL sites. The analyses eliminate double-counting and estimate the total population in proximity to two or more Superfund sites. The ATSDR's polygon data for 1,562 NPL sites and EPA's 2008 point data for the remaining 72 NPL sites serve as the locations for the Superfund sites in this study.



2000 U.S. Census Grid Population and 4 Mile buffers around NPL sites



The maximum number of overlapping sites with 4-mile buffers is 20 (in Santa Clara, CA)

Proposed Partnerships

NIEHS Supplemental Funding

Grant awarded to Columbia SRP Research Translation Core to expand CIESIN's "Assessment of Populations in Proximity to Superfund NPL Sites" in order to provide detailed analyses of the geospatial distribution of vulnerable populations at risk from toxic exposures at Superfund sites. Mandate to assist agencies and community groups concerned with the evaluation and remediation at specific sites.

Federal Partners & Community Stakeholders

Seeking collaborations with EPA, ATSDR, and NIEHS staff responsible for Superfund research, evaluation, remediation, and outreach and their community partners in order to identify data critical to understanding and addressing the risks and needs of populations in proximity to Superfund sites.

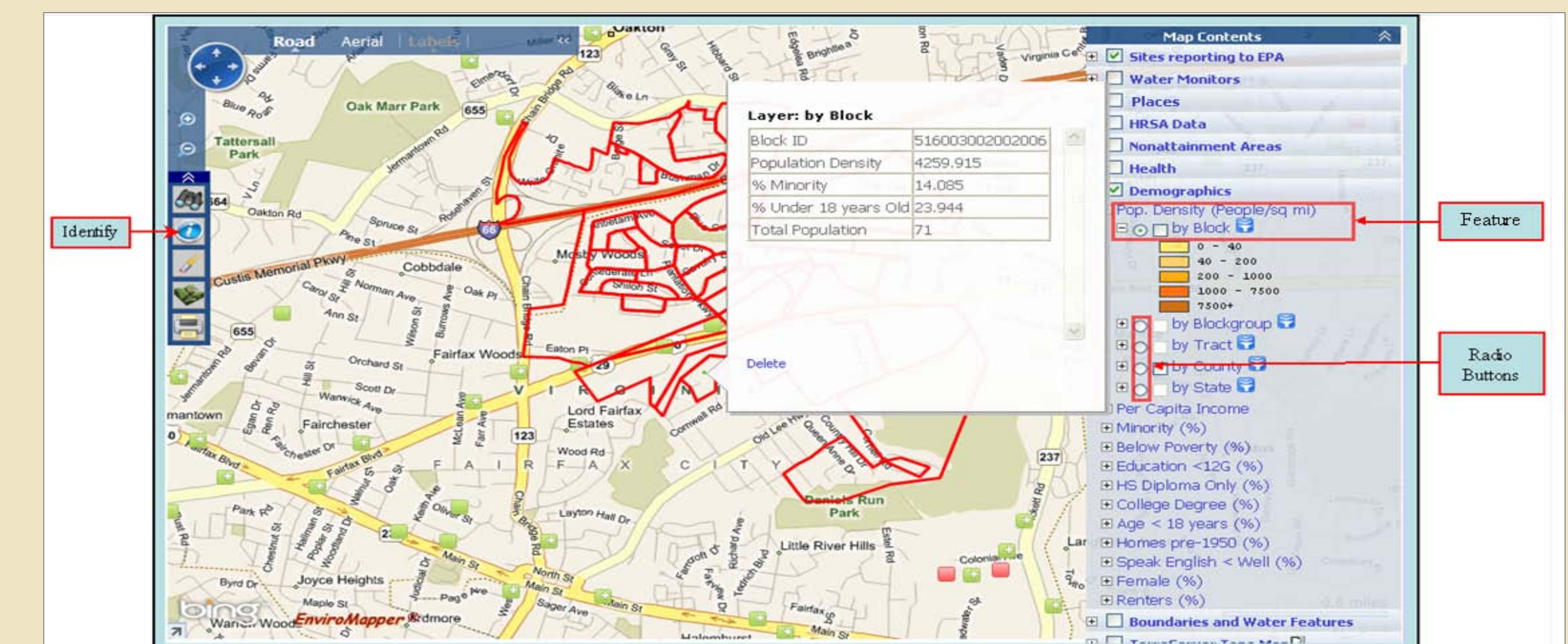
Propose working with EPA's Office of Environmental Justice staff to add specific data layers and filters to EJView.

Work Plan

- Include additional demographic characteristics, updated variables, new hazard and infrastructure data
 - Vulnerable populations (e.g., women of childbearing age)
 - Natural hazard data (e.g., flood-prone areas)
 - Places at risk (e.g., day cares, camps, nursing homes)
- Determine regional differences in vulnerable populations
- Develop EPA regional profiles for populations near SF sites
- Create detailed socio-demographic profiles of selected SF sites
- Generate polygons for Superfund NPL sites with only point data
- Identify and filter sites by toxic exposures and/or health risk
- Develop a national "hotspots" map identifying locations of vulnerable populations in proximity to high toxic exposures

EPA's EJView

- Replaces Environmental Justice Geographic Assessment Tool
- Geographic view of environmental, health, and facility information with demographics for any US community
- Uses area-weighted method of population estimation. For each Census polygon respective population values adjusted proportionally (area-weighted) based on % of polygon that lies within the study area
- Map features with filtering capability, examples include:
 - Health Risks : cancer, respiratory, neurological, low birth weight rate, infant mortality rate (county/state)
 - Demographic features: income, race, education, gender, age, housing (block group/census tract/county/state), population density and minority % (block)
- Other map features:
 - Sites reporting to EPA: hazardous waste, air emissions, Brownfields, Superfund NPL, water dischargers, and toxic releases
 - Water monitors: USGS NWIS & EPA STORET
 - Places GNIS database: schools, hospitals, worship
 - Health Resources & Services Administration data
 - Nonattainment Areas: Particulate Matter (PM_{2.5}) & O₃ 8-Hour
 - Boundaries and Water Features: streams, water bodies, railroads, watersheds, health service areas, freight commodity flow, congressional districts, urban areas, federal lands, zip codes, city, county and state boundaries
 - TerraServer Topo Map
 - National Land Cover
- Identify tool: allows user to specify point, rectangle, or custom area on map so map feature reports can be generated
- Search tool: helps find maps of specific locations for features
- Running reports: generate or link reports via EPA's databases for map features selected for specific area or buffered point



For More Information

Please see: <http://sedac.ciesin.columbia.edu/eh/sfpop.html>
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