re:MEDIATE

Community and Environmental Justice

SUSTAINABLE WATER IMPROVEMENT IN A DISADVANTAGED COMMUNITY

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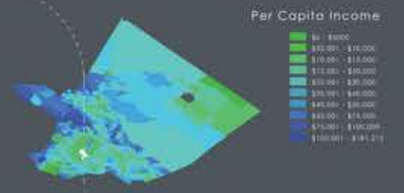
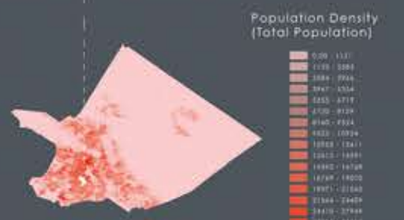
SITE CONTEXT

SOUTH GATE GRAPHIC ANALYSIS





WHY IS THIS IMPORTANT?

Disadvantaged Communities are more lily to suffer from poor water quality. These communities are also less able to fight for improved water quality.

Pairing with recent efforts on improving water quality and quantity related issues in disadvantaged communities in California, this project explores environmental solutions for those communities in depth.

We want to determine which disadvantaged community is in the most need for water improvement within the Los Angeles community and propose a sustainable program that helps improve the issues.

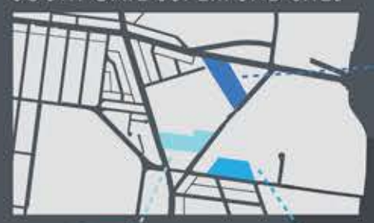
GOALS & OBJECTIVES

1) Identify locations and types of improvement necessary within the communities.
- Locate a community in need of water clean up or watershed restoration.
- Collect data of specific water issues the community faces.

2) Determine what, if any, role race or ethnicity have to do with water contamination and urban areas.
- Advance environmental justice causes by showing data correlating ethnic centers with economic/social inequality, and with contaminated water sources.
- Figure out methods of implementing sustainable design in those communities.
- Determine methods of getting community investment/involvement in sustainable design projects.

3) Propose sustainable design programs to improve the issues for the communities.
- Narrow down type of water contamination most affecting a community.
- Find sustainable methods of contamination removal.
- Potential programs associated with community involvement and upkeep of project site.

SOUTH GATE SUPERFUND SITES



COOPER DRUM CO.

This site was used to recondition and wash close-topped steel drums that had previously held industrial chemicals. Tetrachloroethylene (PCE), Trichloroethylene (TCE) is common solvent used for cleaning metal parts, and Dichloroethylene (DCE), a by-product of TCE, were detected in the groundwater. Since spring 2015, the Potentially Responsible Parties (PRP) are extracting the contaminated groundwater with a pipe system that EPA is continuously overseeing.

JERVIS B. WEBB CO.

This site was used to manufacture industrial conveyor belt systems and aluminum and stainless steel aircraft divets. Historical business operations contaminated soil and groundwater with chemicals called volatile organic compounds (VOCs) including TCE. Since 2015, the EPA has been the lead in investigating the contamination in order to identify how to best clean up the site.

SOUTHERN AVENUE INDUSTRIAL AREA

This site previously was formerly used to manufacture screw products and ball mill adhesive tapes for drying carpets. TCE was also found in the soil and groundwater of the site and is still currently under investigation. Drinking water is safe, but there is the potential that drinking water wells may become contaminated due to connections between the aquifers.

TERMS TO KNOW

Superfund
Environmental program established in 1980 to address hazardous waste sites that threaten the public health and the environment.

Groundwater
The supply of fresh water found beneath the Earth's surface and is an important part in drinking water supply.

National Priorities List (NPL)
The most hazardous waste sites identified for possible long-term clean up under EPA's list of superfund site programs.

Trichloroethylene (TCE)
A common solvent used for cleaning metal parts, often contaminating groundwater in most superfund sites.

Phytoremediation
The process of removing, degrading, or containing soil, air, or water contaminants by the use of green plants.

SOUTH GATE COMMUNITY INVOLVEMENT

South Gate's high NPL ratio has mobilized the citizens of South Gate. They founded the South Gate Community Environmental Health Action Team (CEHAT) which is composed of community activists, business owners, environmental justice organizations, neighborhood associations, schools, community health centers, civic groups and faith organizations.

Once the remediation process is completed, the site will be turned over to them, giving the stakeholders influence over what happens to the sites once they are clean.

SOILS

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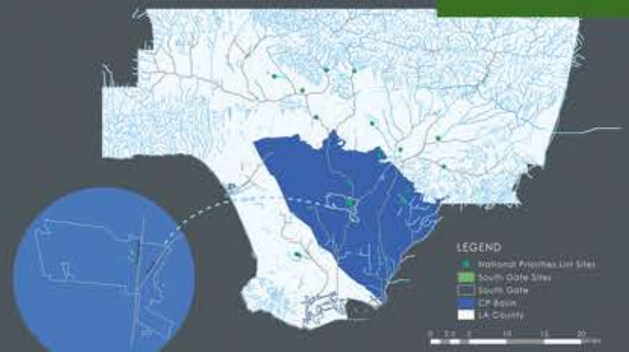
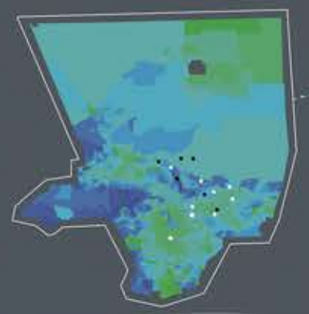


Of the 17 National Priority List sites in LA County 10 are in high density areas with a per capita income of less than $20,000.



Areas with lower per capita income also have higher population densities and higher minority populations. These areas tend to have lower voting rates, which results in areas with larger voting populations pushing off "Locally unwanted land use" into these poorer communities.

South Gate is located in a high density, majority Latino, area with a per capita income of roughly $20,500.

WHAT IS ENVIRONMENTAL JUSTICE?

The EPA defines ***environmental justice*** as "fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies."

Environmental racism refers to social minorities which are disproportionately exposed to higher rates of pollution or denied sources of ecological resources. Instances of environmental racism include exposure to industrial or agricultural pollution, toxic wastes, flooding, lack of clean water, and denial from resource decision making.

In Los Angeles County, environmental inequality is most felt by the urban poor.

PROPOSED REMEDIATION PROGRAM

How is this proposed site sustainable?

AIR

Soil Vapor Extraction brings the toxic vapors up into a facility, where VOCs are scrubbed out. The scrubbed air is then pumped into the grove of trees where any remaining contaminants will be take into the cells of the trees via respiration.

GROUNDWATER

Groundwater contamination is the biggest threat, as it can leach into aquifers and poison drinking water. Deep rooted trees, such as Poplars and cottonwoods, can reach into the ground and extract TCE and heavy metals from the water. This cleans the soil as well.

The Site's somewhat poorly drained soil means there is a slower infiltration rate into the groundwater, allowing plants more time to extract pollutants from the soil.

SOIL/VEGETATION

Remediation of TCE, heavy metal contaminants, and other pollutants using phytoremediation. Certain plant species are "hyperaccumulators," meaning they absorb and sequester toxic contaminants into their cells. Heavy plantings of selected plants can extract soil contaminants after traditional vapor extraction techniques are used.


COMMON SUNFLOWER
Helianthus annuus

PURPLE NEEDLE GRASS
Stipa pulchra


WILLETAT
Baccharis salicifolia


RUE ELDERBERRY
Sambucus nigra


YERBA SANTA
Eriodictyon crassifolium


FREMONT COTTONWOOD
Populus fremontii