EPA
United States
Environmental Protection
Agency

Science-Based Decision Tools to Support Campus-Community Partnerships

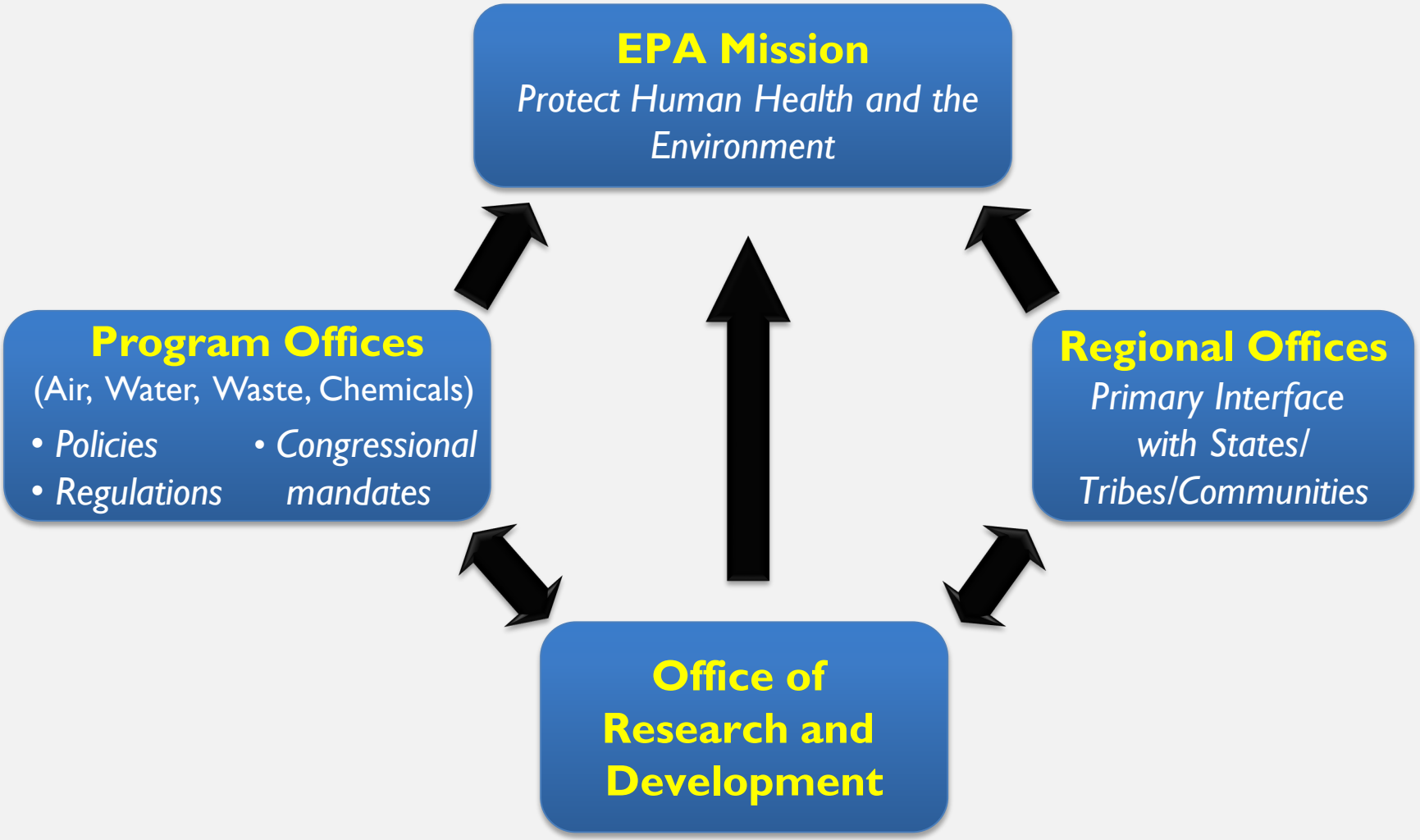
Jose Zambrana, Jr., PhD
Senior Science Advisor
Zambrana.Jose@epa.gov

Center for Environmental Measurement and Modeling

EPIC-N Workshop, California Higher Education Collaboration Conference
UCLA, October 1, 2019

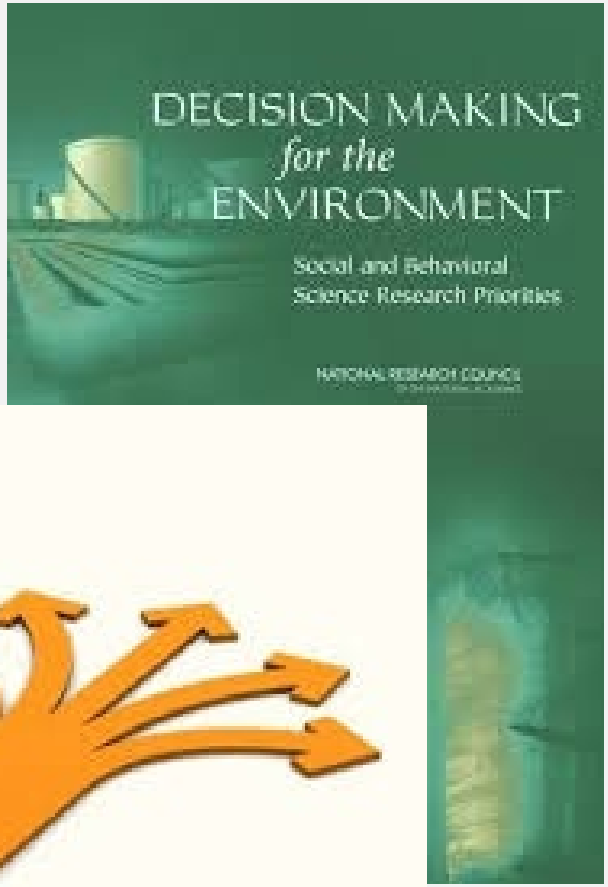
EPA
United States
Environmental Protection
Agency

EPA is a Science Agency



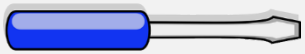
EPA United States Environmental Protection Agency

Science-Based Decisions



EPA United States Environmental Protection Agency

Science-Based Tools



Current State

TOOLS

Desired State

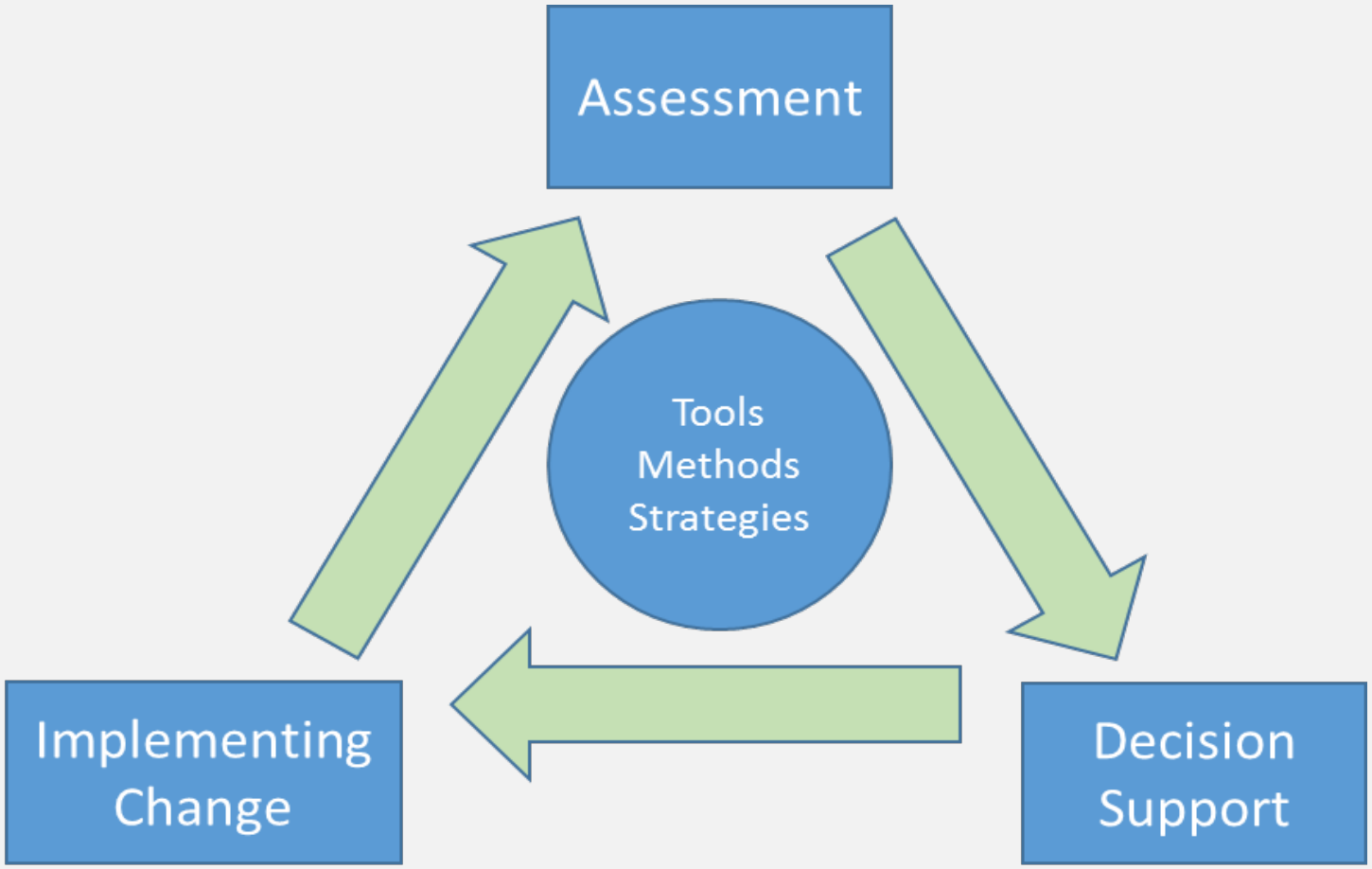
Possible Future States

Model
Database
Indicator
Web-based or software tool
App

Strategy
Guidance Document
Methodology
Training

EPA United States Environmental Protection Agency

Science-Based Tools Framework



EPA United States Environmental Protection Agency

Decision Support Resources

Air & Energy

- Air pollution
- Extreme events
- Wildland fires
- Air sensors

Sustainable & Healthy Communities

- Healthy and resilient communities
- Cleaning up contaminated sites
- Waste and sustainable materials management

Homeland Security

- Water system security
- Decontamination of buildings
- Preparedness and emergency response

Chemical Safety for Sustainability

- Computational toxicology
- Engineered nanomaterials
- Chemical evaluation tools

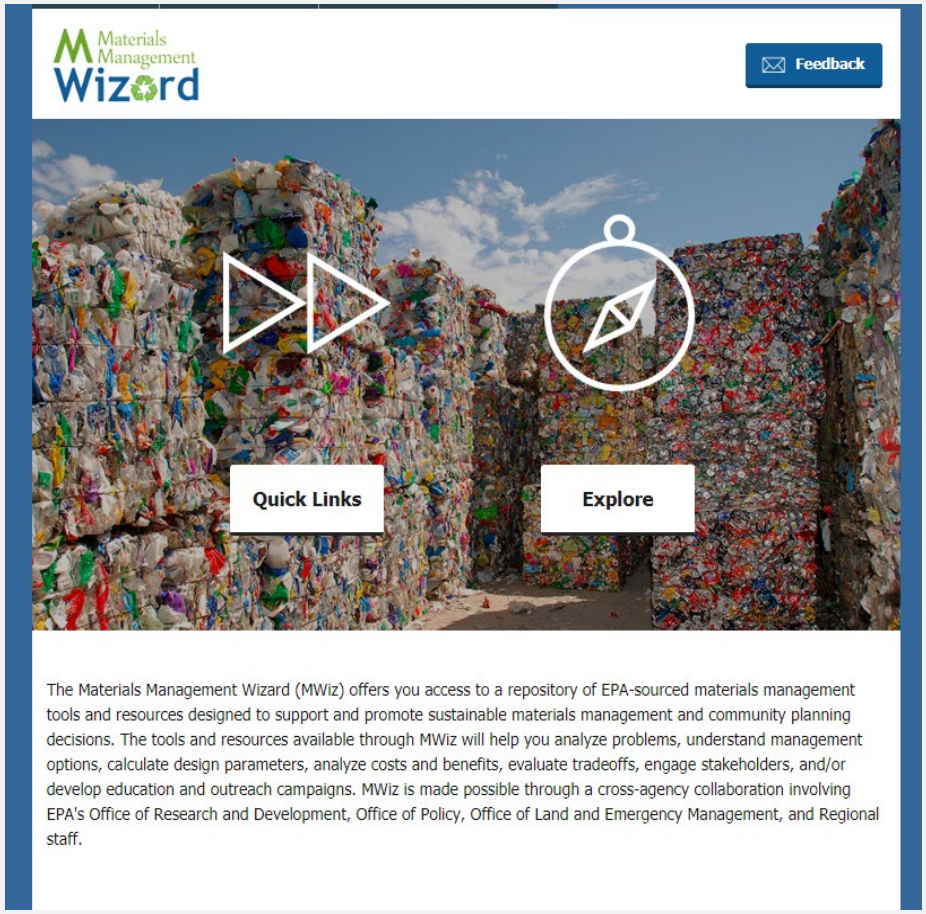
Human Health Risk Assessment

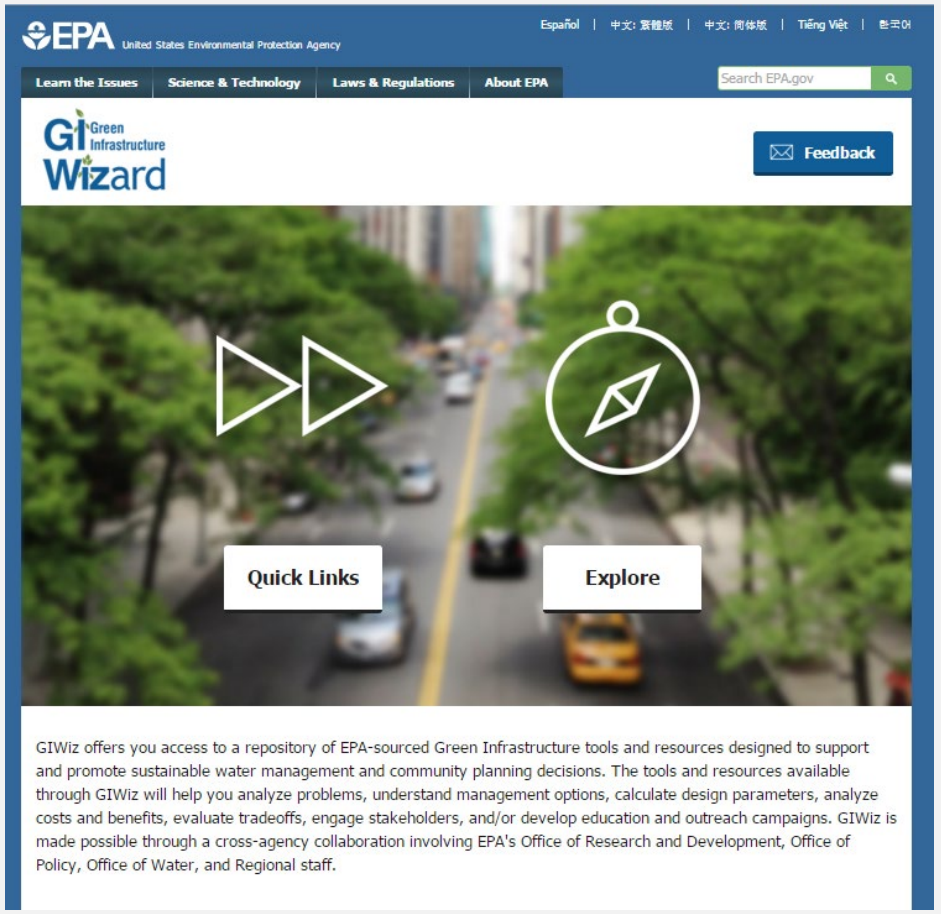
- Risk assessments for specific chemicals
- Risk assessment methods

Safe & Sustainable Water Resources

- Watersheds
- Nutrients and harmful algae blooms
- Water treatment and infrastructure

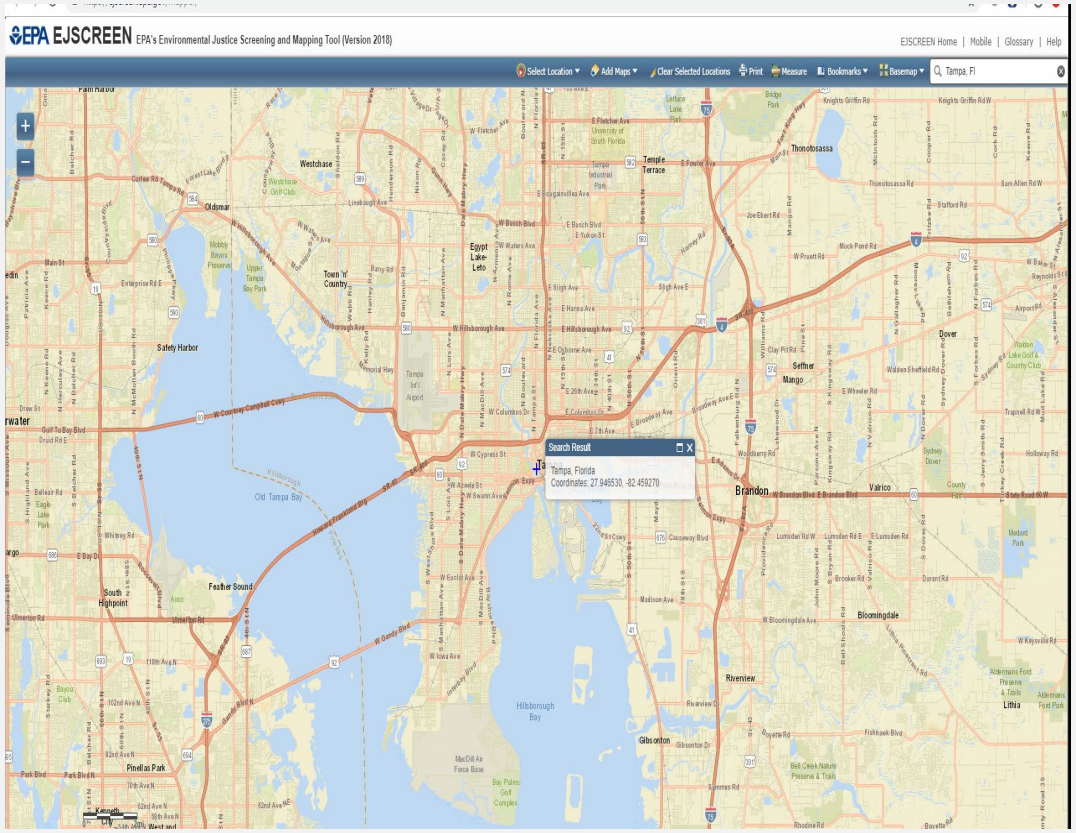
Information Tools





EPA United States Environmental Protection Agency

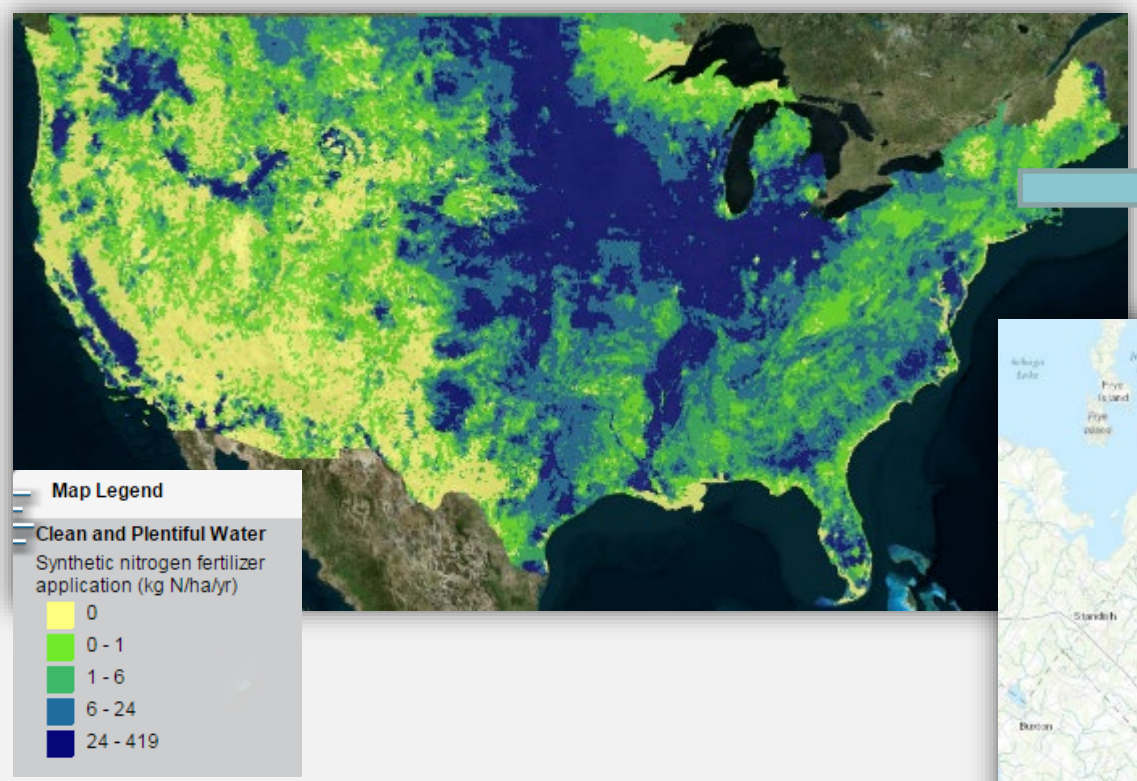
Mapping Tools




Clean Air
Clean & Plen-tiful Water
Bio-diversity Con-servation
Food, Fuel, & Materials
Natural Hazard Mitigation
Climate Stabili-zation
Recreation Culture, & Aesthetics
Our data are organized into 7 ecosystem service benefit categories.

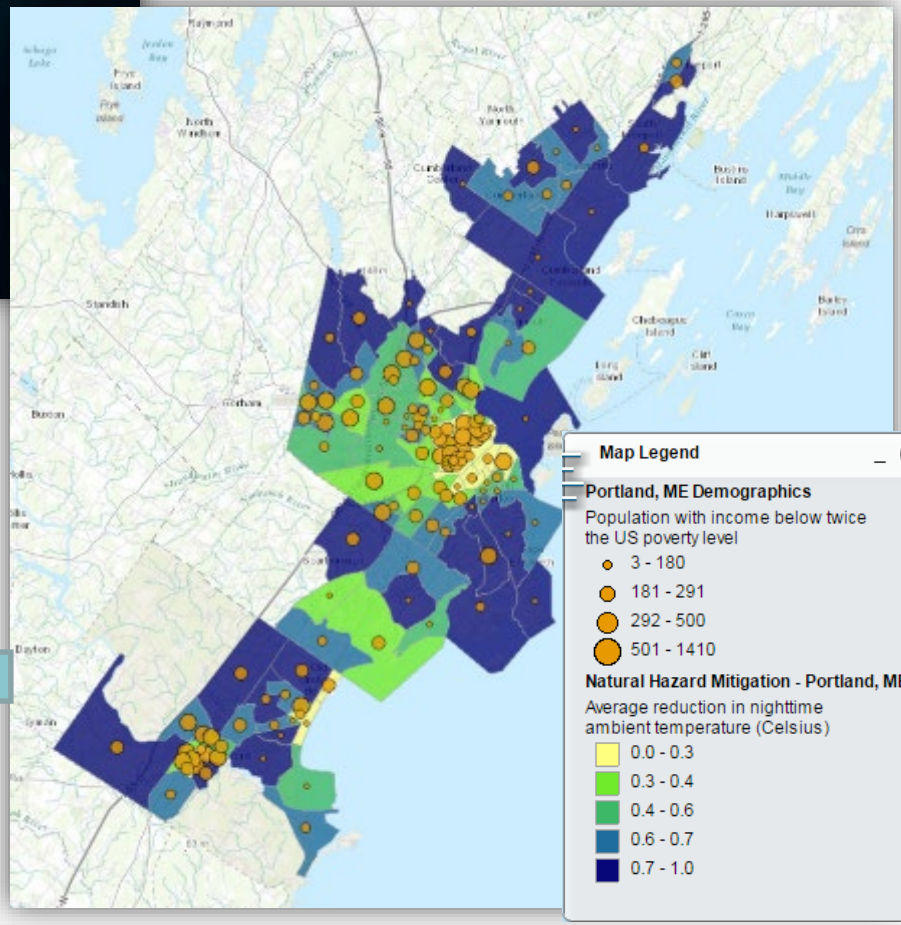
EnviroAtlas includes an Interactive Map

400+ map layers available online



National

- Wall-to-wall coverage for conterminous US
- 300+ data layers

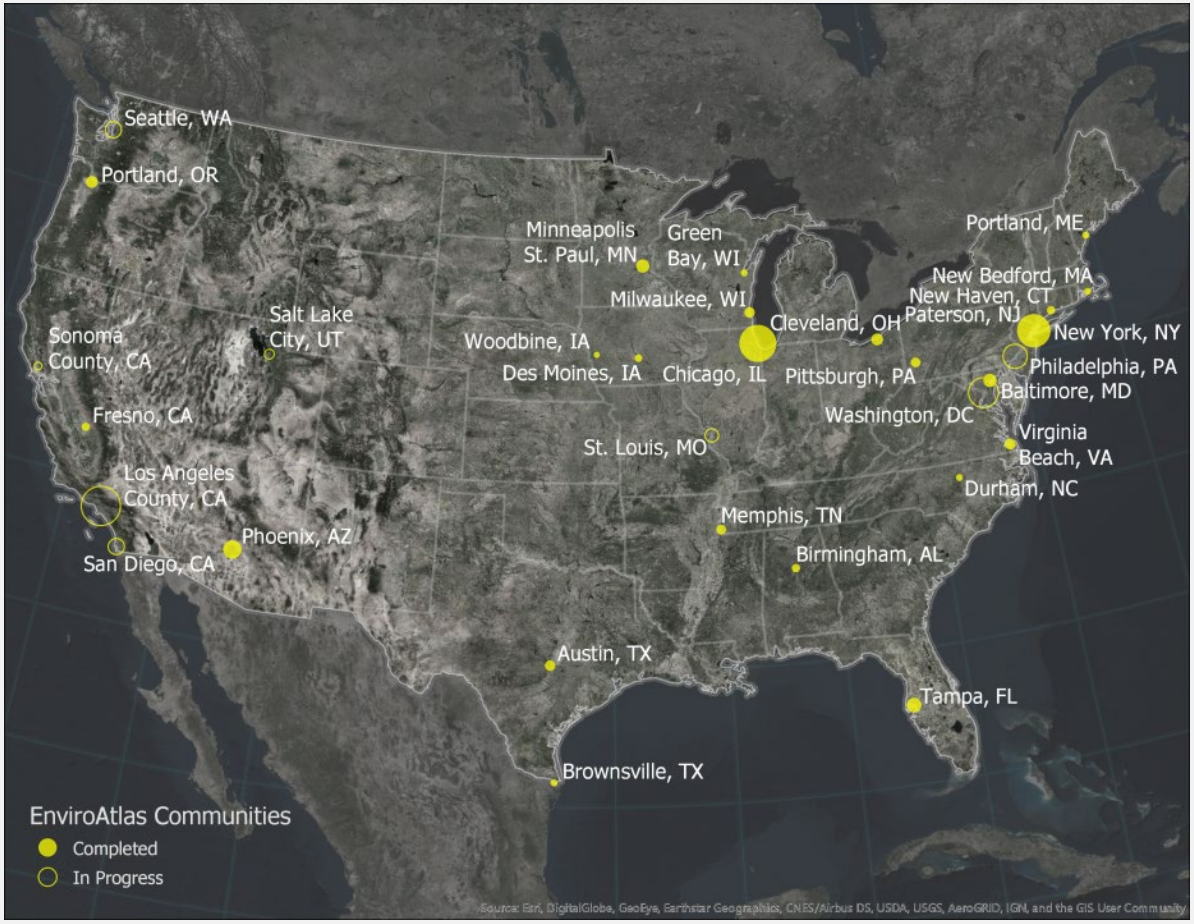


Community

- High resolution component for 1200 populated places
- 100+ data layers

Pictured: Greater Portland, ME

EnviroAtlas Communities



EnviroAtlas
people ♦ health ♦ nature ♦ economy

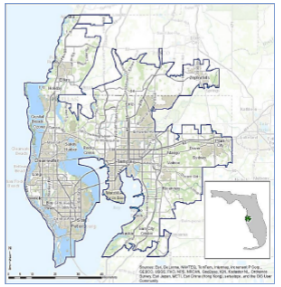
Community Summary Fact Sheet

www.epa.gov/enviroatlas

Tampa, FL and surrounding area

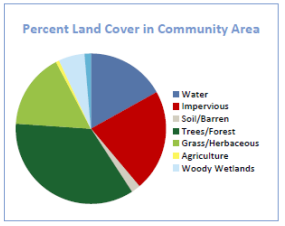
Towns and cities rely on clean air, clean water, green space, and other natural amenities for economic sustainability and quality of life, yet their benefits are not always fully understood or considered in local decisions. EPA and its partners are producing EnviroAtlas to help communities better use environmental assets for public good.

EnviroAtlas includes an online interactive mapping application that anyone can use. The interactive map contains over 200 maps available for the U.S., as well as 100+ fine-scale maps for selected U.S. communities about existing and potential benefits from the local natural environment. The EnviroAtlas community component is based on 1-meter resolution land cover data. Information derived from these data is summarized by census block groups; more spatially explicit map layers are also provided. This fact sheet highlights some of the many community data layers available for the featured area of Tampa, Florida.



Background

The Tampa, Florida area was chosen as an EnviroAtlas pilot community based on its inclusion in EPA's Ecosystem Services Research Program. The EnviroAtlas boundary for the Tampa area was determined using the 2010 Census definition of an Urban Area. It includes Tampa, Clearwater, and St. Petersburg, as well as portions of Hillsborough, Pinellas, and Pasco Counties. The Tampa area measures 3,757 square kilometers, and encompasses 2,434 census block groups.

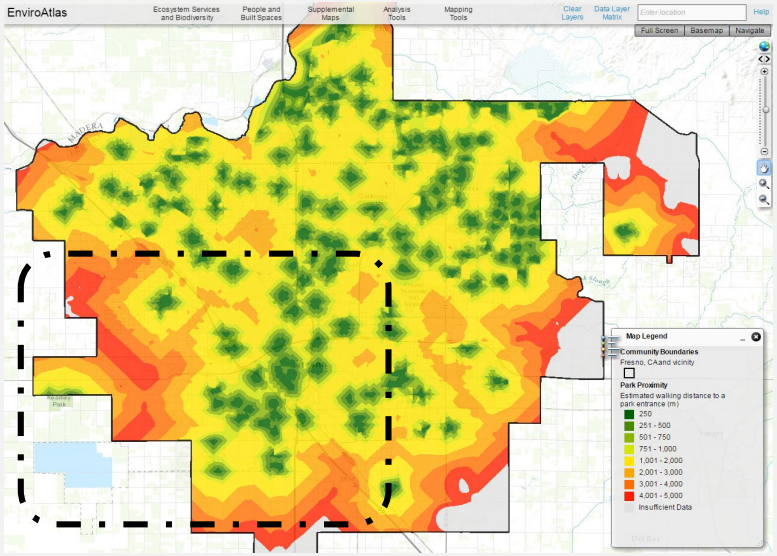


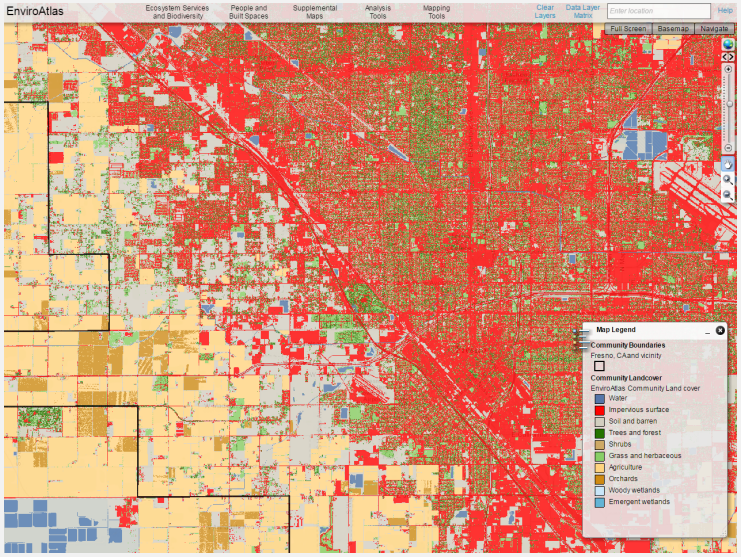
The Tampa, Florida area is in the Southern Coastal Plain ecoregion. It has a mild, humid, sub-tropical climate with hot, humid summers and mild winters. This area is vegetated with longleaf pine flatwoods and savannas, although much of the area has been converted to agricultural use. The community has a very diverse economy and serves as the headquarters for several Fortune 1000 companies. The largest employers include Publix, BayCare Healthcare Systems and Verizon Communications. The demographics of the Tampa community area indicate that the potential exists for income and other disparities in the distribution of environmental assets. EnviroAtlas includes demographic

Tampa Area Demographics 2010 Census	
Total population	2,517,798
Under 13 years old	15.03%
Over 70 years of age	11.85%
Other than white/non-Hispanic	33.75%
Below twice the poverty level	31.36%

City of Fresno, CA – Parks Study

- An “EnviroAtlas community”
- Held a mini-workshop on EnviroAtlas
- Provided maps to City for parks





Impact:

- Funding to increase green space and plant trees
- Increase in green space / trees will promote human health

EPA
United States
Environmental Protection
Agency

194 Projects from 2016 / 2017

EPA United States Environmental Protection Agency

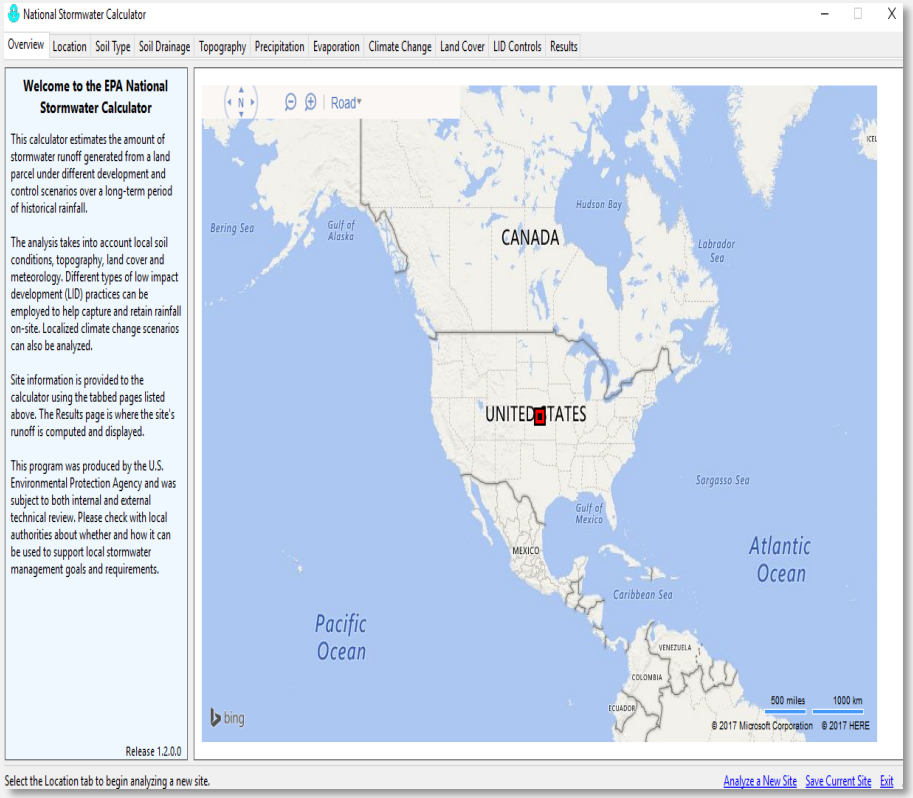
Water Quality Tools

CYAN

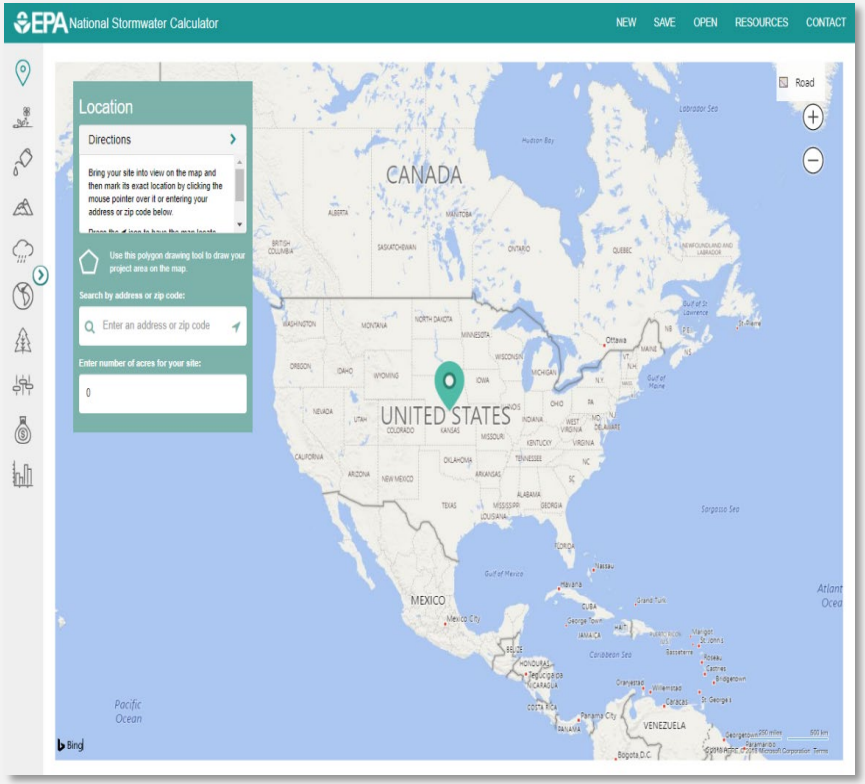
NATIONAL STORMWATER CALCULATOR

National Stormwater Calculator (SWC)

Desktop



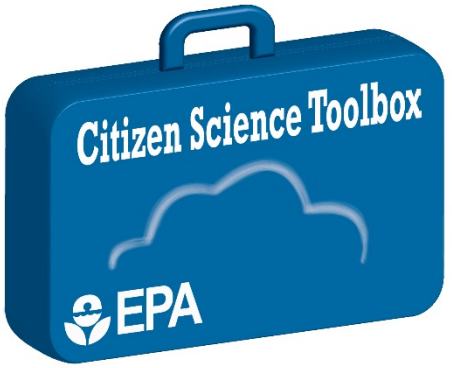
Mobile



EPA United States Environmental Protection Agency

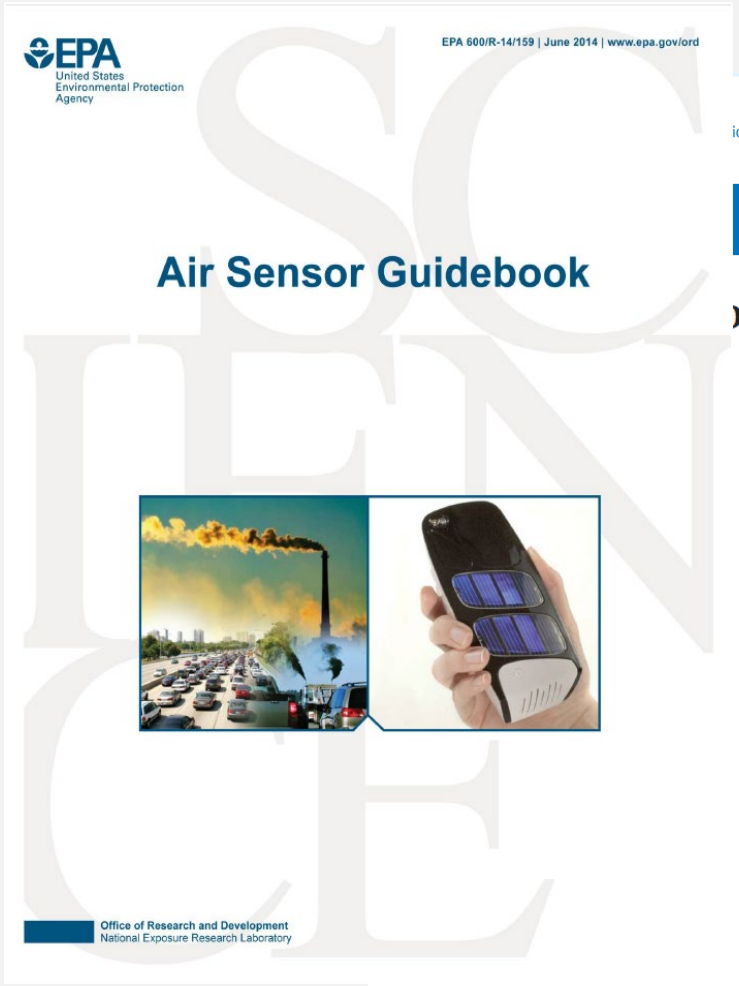
Air Quality Tools

Air Sensor
Measure · Learn · Share



EPA United States Environmental Protection Agency

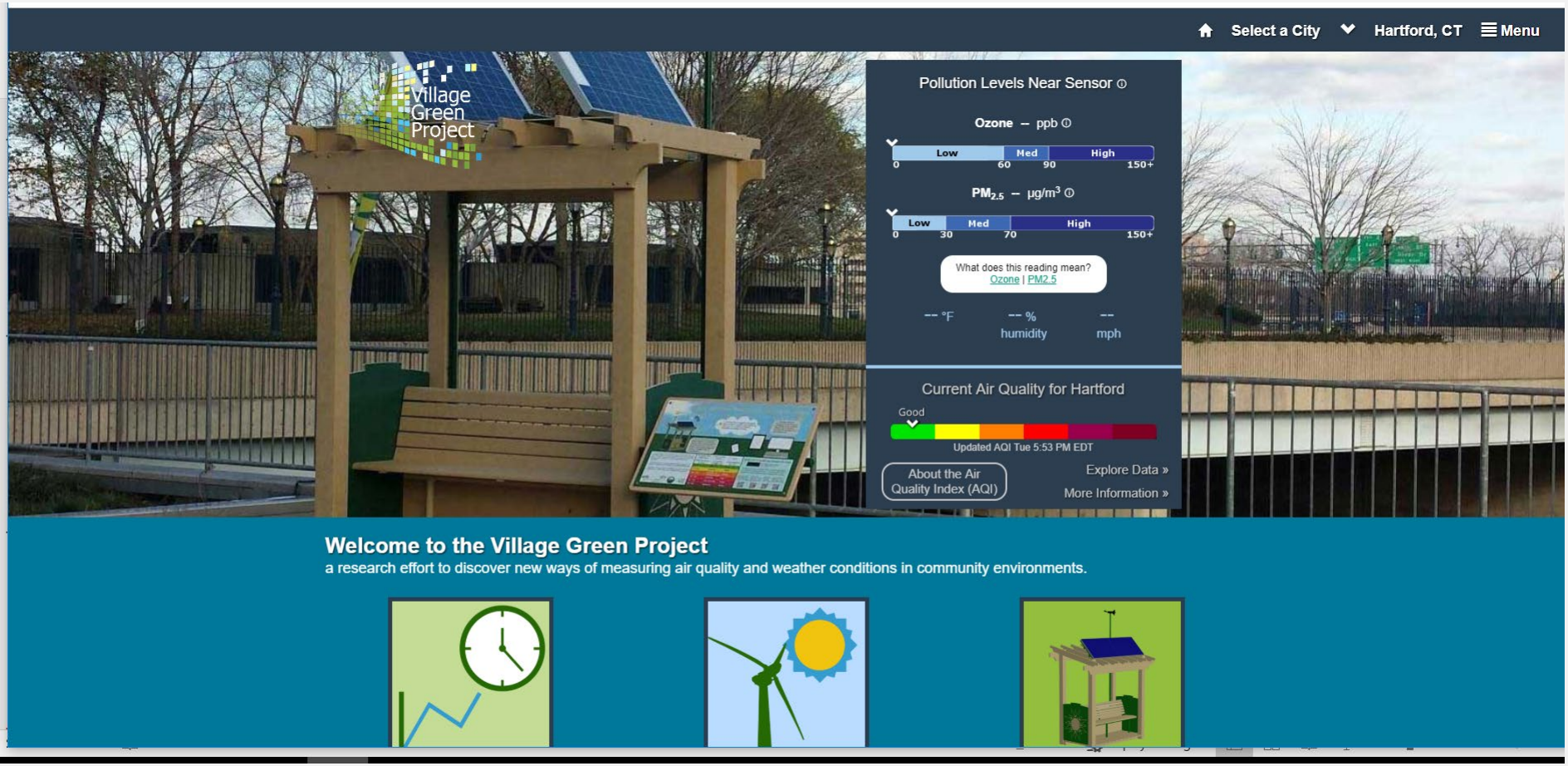
Air Sensor Loan Program



Smoke Sense Study

EPA
United States
Environmental Protection
Agency

Public Engagement Tool



United States Environmental Protection Agency

Which EPA Decision Support Resource Can Your Program Use?

Materials Management Wizard
https://www.epa.gov/sustainability/mwiz

Green Infrastructure Wizard
https://www.epa.gov/sustainability/giwiz

EnviroAtlas
https://www.epa.gov/enviroatlas

EJSCREEN: Environmental Justice Screening and Mapping Tool
https://www.epa.gov/ejscreen

National Stormwater Calculator
https://swcweb.epa.gov/stormwatercalculator/

Cyanobacteria Assessment Network (CyAN)
https://www.epa.gov/water-research/cyanobacteria-assessment-network-cyan

Air Sensor Toolbox for Citizen Scientists, Researchers and Developers
https://www.epa.gov/air-sensor-toolbox

Village Green Project
https://www.epa.gov/air-research/village-green-project

Smoke Sense Project and App
https://www.epa.gov/air-research/smoke-sense-study-citizen-science-project-using-mobile-app

U.S. ENVIRONMENTAL PROTECTION AGENCY

José L. Zambrana, Jr., Ph.D.

Office of Research and Development
Telephone: (213) 244-1819
E-mail: zambrana.Jose@epa.gov