

Application of Science and Technology to Community Exposure and Risk Assessment: C-FERST: Community-Focused Exposure and Risk Screening Tool

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Today's presentation

- Brief introduction
- Brief live demonstration
- Step through the application of C-FERST to a case study
- Summary

Introduction

- Decision tools to assist decision makers who implement environmental policies to make choices that result in sustainable communities.
 - For application at whatever scale is necessary, e.g., national, regional, local community.

What is C-FERST?

(Community-Focused Exposure and Risk Screening Tool)

ORD/NERL's GIS & resource access Web tool for conducting cumulative human exposure and risk screening assessments, to build sustainable and healthy communities
(www.epa.gov/head/c-ferst)

- *empowers regions, communities to make informed decisions*
- *provides framework to communicate human exposure science*
- *contains data, maps, guidance, weblinks, community solutions, other info*

C-FERST Background and Status

late 2007: ORD / CARE discussions on computerizing draft CARE Workbook for Community Screening of Environmental Risks

March 08: "C-FERST" coined

Oct 08: ORD/CARE collaborative session at ISEA conference

2008/2009: Assessment of other tools and needs;
ORD/CARE C-FERST Workgroup;
C-FERST prototype presented at annual CARE Mtgs

2009: NERL communities research plan;
Communities exposure research;
3 *JESEE* publications

2010: C-FERST intranet v. 1; CARE PO Training;
EJ Conferences; RAF heightened interest

2011: C-FERST extranet->internet v. 1
apply to CARE case studies;
integrate with other tools & efforts

C-FERST: Demand Pull vs Technology Push

Innovative,
high quality science



User-friendly
interface and readouts

- ✓ modeled local exposures
- ✓ guidance on local measurements
- ✓ cumulative risk science
- ✓ other info useful to communities

- ❑ Follow community guidance; access info
- ❑ Map multimedia human exposures and risks
- ❑ Learn best practices in other communities
- ❑ Generate community reports for risk ranking



Supporting Communities and Refining C-FERST through Pilot Case Studies



- ORD/NERL supported Region 5 CARE/EJ Showcase Community in FY10
- New FY11 Case Studies
 - Region 1 Portland, ME CARE
 - Region 1 Springfield, MA CARE
 - Region 2 Brooklyn, NY CARE
 - Region 5 Minneapolis, MN CARE (tentative)
 - Region 1 Tribal pilot (T-FERST)



Goals of CARE/C-FERST Pilots

- Provide CARE Level 1 Partners with Useful Information to Identify and Prioritize Issues
- Enhance C-FERST Usability, for future use by POs, CARE partners, and others
- Provide transferable, generalizable methods to identify and prioritize issues
- Enhance cumulative exposure and risk science to inform decision-making



Demonstration of C-FERST

<https://cfpub.epa.gov/cferst>



Proposed Steps for C-FERST Application to CARE Projects

Step 1. Apply C-FERST via CARE Roadmap or PACE-EH

- Familiarize POs and Communities with C-FERST
- Apply CARE Roadmap
- Refine C-FERST GUI for usability
- Gather information for issues of concern



Community-Focused Exposure and Risk Screening Tool

Recent Additions | Contact Us Search: All EPA This Area Go

You are here: [EPA Home](#) » [C-FERST](#) » Use C-FERST following Community Guidance

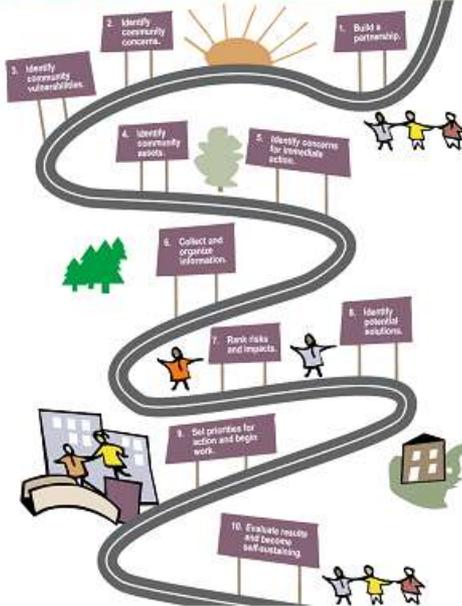
Use C-FERST following Community Guidance

These cross-walks with C-FERST are under development - we welcome your input.

C-FERST is designed to be used in conjunction with community guidance documents. The pages below guide the user through four protocols and show how C-FERST can assist in each step.

CARE Roadmap with C-FERST

The Roadmap: Ten Steps to a Healthier Community and Environment

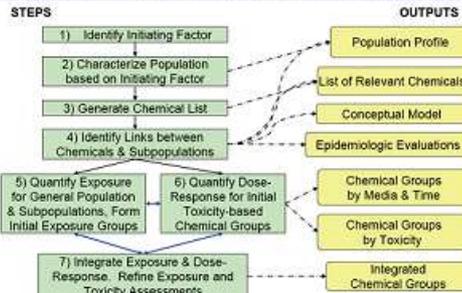


PACE-EH with C-FERST

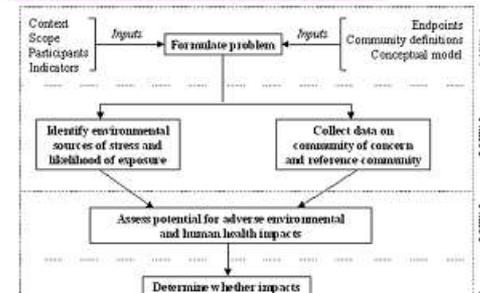


If the user chooses to follow community guidance, these C-FERST 'crosswalks' connect specific guidance steps, including sustainability, with related C-FERST information.

EPA Cumulative Risk Guidance with C-FERST



EPA EJ Toolkit with C-FERST



C-FERST Home

USE C-FERST FOLLOWING COMMUNITY GUIDANCE

-- OR --

SELECT INDIVIDUAL OPTIONS:

Consider/Identify Environmental Issues

Access Factsheets for Issues of Concern

Visualize Exposure / Risk-Related Maps

Generate Environmental Issue Profiles

Prioritize Your community's Issues

Explore Potential Solutions

Access Other Community Tools

Provide Feedback / Contact US

About C-FERST



Proposed Steps for C-FERST Application to Region 1 CARE Projects

Step 2. Identify Issues of Concern

- Discuss issues identified by the community, and additional issues for consideration based on available data, guidance, and other community efforts via C-FERST
- Refine list of environmental issues, and vulnerability indicators

[C-FERST Home](#)[USE C-FERST FOLLOWING COMMUNITY GUIDANCE](#)

-- OR --

[SELECT INDIVIDUAL OPTIONS:](#)[Consider/Identify Environmental Issues](#)[Access Factsheets for Issue of Concern](#)[Visualize Exposure / Risk-Related Maps](#)[Generate Environmental Issue Profiles](#)[Prioritize Your community's Issues](#)[Explore Potential Solutions](#)[Access Other Community Tools](#)[Provide Feedback / Contact US](#)[About C-FERST](#)

Consider/identify environmental issues for your community

View Guidance Developed By Other Groups

- [EPA's CARE \(Community Action for a Renewed Environment\) Roadmap](#)
Step 2, "Identify Community Concerns: Identify the environmental, health, and related social and economic concerns of the community," pp. 9-10.
- [NACCHO's PACE-EH \(Protocol for Assessing Community Excellence in Environmental Health\)](#)
Task 5, "Generate a list of community-specific environmental health issues", p.24.
- [EPA's 2007 Cumulative Risk Guidance Document](#)
Section 2.1, "Initiating Factors For Cumulative Risk Assessment", pp. 2-1 to 2-4.
- [EPA's 2004 Toolkit for Assessing Potential Allegations of Environmental Injustice](#)
Phase 1, "Problem Formulation", pp. 58-63.

Access U.S. Census Data

- [Link to factfinder.census.gov](http://link.to/factfinder.census.gov)

Factsheets

- [View Factsheets](#)
View factsheets and web links organized by general information, sources, concentrations and exposures, risk and effects, and risk reduction categories.

What are other communities concerned about?

- [CARE Community Profiles](#)
View all community projects undertaken through CARE, organized by year with links to descriptions of the projects.
- [EPA CARE Level 2 Project Solutions](#)
Search EPA CARE Level 2 Project Reports by issue.
- [Environmental Justice Grant and Program Projects](#)
View summary of EJ community projects being conducted through grants, cooperative agreements, and other programs.
- [Community-based Air Toxics Projects](#)
View reports on community-based air toxics projects (searchable by issue) and access other links to strategies on improving air quality.

Access guidance to measure local data

- [Measurement Methods for Collecting Local Data](#)

View Tables of Environmental Issues

- [Environmental Issues Categorizes by Resource](#)
View a table of issues categorized by EPA reports and community documents.
- [Environmental Issues Categorized by Type, Media, and Pathway](#)
View a table showing media, exposure pathways, health endpoints, and chemicals associated with each issue.



Proposed Steps for C-FERST Application to CARE Projects

Step 3. Apply C-FERST with CARE Roadmap or PACE-EH to Gather Information

- Fact Sheets for Issues of Concern
- SES Data to Identify Vulnerable Areas
- Issue Profiles
- Maps
- Other Communities and Best Practices with Similar Issues



Community-Focused Exposure and Risk Screening Tool

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You are here: [EPA Home](#) » [C-FERST](#) » CARE Road Map

Using the [CARE Road Map](#) with C-FERST

1. **"Build a Partnership:** Build a collaborative partnership representing a broad range of interest that is able to identify environmental risks and impacts, build consensus, and mobilize all the resources necessary to achieve community goals."

+In C-FERST you can...

2. **"Identify Community Concerns:** Identify the environmental, health, and related social and economic concerns of the community. "

+In C-FERST you can...

3. **"Identify Vulnerabilities:** Identify environmental and health vulnerabilities that may increase risk to the community."

4. **"Identify Assets:** Identify community assets in order to build on strengths and resources."

5. **"Identify Immediate Concerns:** Identify and begin to address immediate environmental and health concerns."

+In C-FERST you can...

6. **"Collect and Organize Information:**

1. **Collect and Summarize** available information on stressors, concerns, and vulnerabilities."

-In C-FERST you can...

- collect data from your community's [Environmental Issue Profiles](#), [factsheets on environmental issues](#) (organized alphabetically and by substance, media, health effect, and misc.), [maps](#) of environmental exposures, sources, risks, health issues, and demographic information;
- access [links to other mapping and community assessment tools](#) to collect additional data;
- view [guidance for collecting local measurements](#) and [enter local environmental data](#)* (e.g., sources or concentrations) for mapping.

2. **"Identify Gaps** where the information on stressors, concerns, and vulnerabilities is missing or inadequate. "

-In C-FERST you can...

- generate [Environmental Issue Profiles](#) to locate environmental and health issues of interest to your community that are missing information; and
- create [your community's data matrix](#)* to view, compare and identify gaps in available environmental, health and demographic data.

7. **"Rank Risks and Impacts:** Compare and rank community concerns to help identify those that have the greatest impact."

+In C-FERST you can...

8. **"Identify Potential Solutions:** Identify and analyze options for reducing priority concerns and vulnerabilities for filling information gaps."

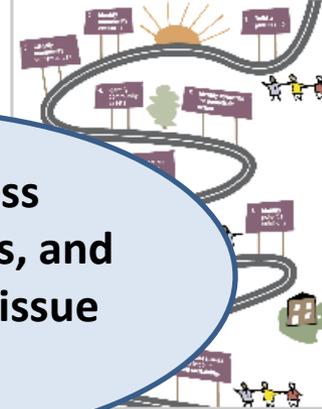
+In C-FERST you can...

9. **"Set Priorities for Action and Begin Work:** Decide on an action plan to address concerns, fill information gaps, and mobilize the community and its partners to carry out the plan."

+In C-FERST you can...

Source: EPA CARE Program (<http://www.epa.gov/care>) The CARE Roadmap: 10 Step Plan to Improve Community Environment and Health (20pp, 3MB, About PDF)

The Roadmap: Ten Steps to a Healthier Community and Environment



Around Step 6, we collect and compile information.

We can access factsheets, maps, and environmental issue profiles.

C-FERST Home

USE C-FERST FOLLOWING COMMUNITY GUIDANCE

-- OR --

SELECT INDIVIDUAL OPTIONS:

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About C-FERST



Community-Focused Exposure and Risk Screening Tool

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You are here: [EPA Home](#) » [C-FERST](#) » Access Factsheets for Issues of Concern

Access Factsheets for Issues of Concern

Click on the hyperlinked issues below to view factsheets and web links currently available in C-FERST. These are organized by general information, sources, concentrations and exposures, risk and effects, and risk reduction categories. Note: Some of the concerns below appear under multiple categories.

-View Alphabetical List of Issues

[1,3 Butadiene](#)
[Acetaldehyde](#)
[Acrolein](#)
[Arsenic](#)
[Arsenic in Soil](#)
[Arsenic in Water](#)
[Asbestos](#)
[Auto body Shops](#)
[Benzene](#)
[Brownfields](#)
[Childhood Asthma](#)
[Childhood Lead Poisoning](#)
[Chromium](#)
[Diesel Exhaust](#)
[E.coli at Beaches](#)
[Environmental Tobacco Smoke \(ETS\)](#)
[Fine Particulates \(PM 2.5\)](#)
[Fish Consumption](#)
[Formaldehyde](#)
[Hazardous Waste/Pharmaceuticals in Water](#)
[Healthy Homes](#)
[Land Use/Smart Growth](#)
[Lead](#)
[Lead in Drinking Water](#)
[Mercury](#)
[Methamphetamine Labs](#)
[Microbes in Water](#)
[Mobile Sources](#)
[Mold](#)
[Naphthalene](#)
[Non-chemical Stressors \(Risk Modifying Factors\) TBD](#)
[Outdoor Air - Near Roadway](#)
[Ozone](#)
[Polychlorinated biphenyls \(PCBs\)](#)
[Polycyclic aromatic hydrocarbons \(PAHs\)](#)
[Ports](#)
[Radon](#)
[Recreational Water Quality](#)
[Residential Pesticides](#)
[Runoff](#)
[Schools](#)
[Solid Waste Disposal/Recycling](#)

The Portland CARE community has identified a number of potential concerns.

43 issues are currently populated with weblinks to fact sheets. The issues are based on a review of EPA reports and community documents.

C-FERST Home

USE C-FERST FOLLOWING COMMUNITY GUIDANCE

-- OR --

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About C-FERST

Hybrid Relief

View Concentrations, Exposures, and Risks

Please select an environmental issue to map:

- AIR
 - Cumulative Cancer Risk
 - Cumulative Non-Cancer Risk
 - Non-Cancer Neurological Risk
 - Non-Cancer Respiratory Risk
 - Acetaldehyde
 - Acrolein
 - Arsenic
 - Benzene
 - Concentration
 - Exposure
 - Cancer Risk
 - 1,3-Butadiene
 - Chromium
 - Diesel PM
 - Formaldehyde
 - Lead
 - Naphthalene
 - PAH
 - Fine Particulates (PM 2.5)
 - PM 2.5 (1997 Standard)
 - PM 2.5 (2006 Standard)
 - Ozone
 - Ozone 8hr (1997 Standard)
 - Radon
 - Environmental Tobacco Smoke (ETS)
 - Near Roadway
- WATER
 - Arsenic
- FOOD
 - Mercury From Fish Consumption
- MULTIMEDIA
 - Lead
 - Residential Pesticide Exposure
- CUMULATIVE HEALTH RISKS
 - Asthma
 - Lung Cancer
 - Early Neurotoxicity Effects

View Sources

Air Water Food Multimedia

- All National Emissions Inventory Points
- NEI Points Filtered By Issue
- Air Quality Monitors (AQS)
- AIRS Facility Sites (AFS)
- Toxic Release Inventory Sites (TRI)

Air Water Food Multimedia

- Water Quality Inventory Report (305b)
- Combined Sewer Overflows (CSOs)
- Impaired Waters with TMDLs
- Beaches
- Major Permitted Water Discharge Sites (PCS Majors)
- All Permitted Water Discharge Sites (PCS)

Air Water Food Multimedia

- Fish Consumption Advisories
- Fish Tissue Samples

Air Water Food Multimedia

- Superfund National Priority List Sites (NPL)
- Large Quantity Hazardous Waste Sites (RCRA)
- Density of EPA Registered Facilities

View Health Data

- [CDC NCEH database](#)

Link to Data Information

This pane will hold references for and links to additional information about the data currently visible on the map.
 Example:
[View Data](#)
[References](#)
[Disclaimers/Uncertainties](#)

View Demographic Data

U.S. Census 2000 Data by Tract

- Percent Minority
- Percent Below Poverty Level
- Percent Age Less Than 6 Years Old
- Percent Age Less Than 18 Years Old
- Percent Age Greater Than 64 Years Old
- Percent Housing Units Built Before 1950
- Percent 25 Years And Over With Less Than A High School Degree
- Percent 25 Years And Over With A High School Degree
- Percent Linguistically Isolated Households
- Population of American Indian and Alaskan Native
- Population of American Indian and Alaskan Native Below Poverty Level
- Tribal Census Tracts (Census 2000)

Add Local Data

Click on the map to get the coordinates for a location, or enter them in the boxes below. Then be sure to enter a title and description for your point before clicking save.

Address:

Latitude:

Longitude:

Title:

Description:

Add Pin Cancel Show/Hide

Remove All

Portland

South Portland

esri

Contact Us

ferst/ViewMap.cfm

2010

Ongoing ORD Research

C-FERST Map Data Sources



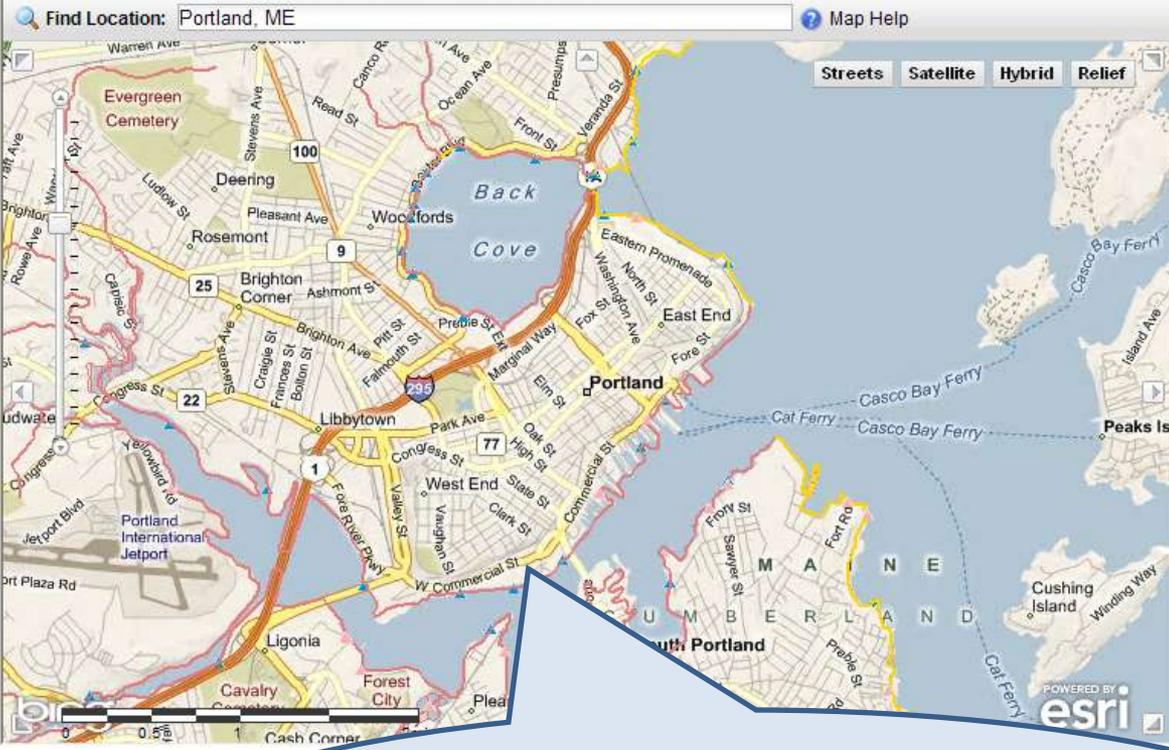
Community-Focused Exposure and Risk Screening Tool

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You are here: [EPA Home](#) » [C-FERST](#) » View Exposure/Risk-Related Maps

To add your local data to the map, see the "Add Local Data" tab to the right of the map.

Example: [Local Maps](#) | [Measurement Methods for Collecting Local Data](#)



View Sources

Air Water Food Multimedia

Fish Consumption Advisories
 Fish Tissue Samples

Air Water Food Multimedia

Water Quality Inventory Report (305b)
 Combined Sewer Overflows (CSOs)
 Impaired Waters with TMDLs
 Beaches
 Major Permitted Water Discharge Sites (PCS Majors)
 All Permitted Water Discharge Sites (PCS)

Please note that some layers are only visible when zoomed in to the local level. We are working to improve the table of contents to let you know how far in you have to zoom to see each layer. For now, if you turn on a layer and the map remains blank, try zooming in. We appreciate your patience and understanding.

View Demographic Data
 View Health Data
 View Issue Pie Charts
 Add Local Data
 Link to Data Information

- C-FERST Home

- USE C-FERST FOLLOWING COMMUNITY GUIDANCE
- OR –
- SELECT INDIVIDUAL OPTIONS:
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- Access Other Community Tools
- Provide Feedback / Contact US
- About C-FERST

Portland is a coastal community and has identified some water-related concerns. This is a map of fish advisories, impaired waters, and water discharges.

Return to
[Click here to](#)



Community-Focused Exposure and Risk Screening Tool

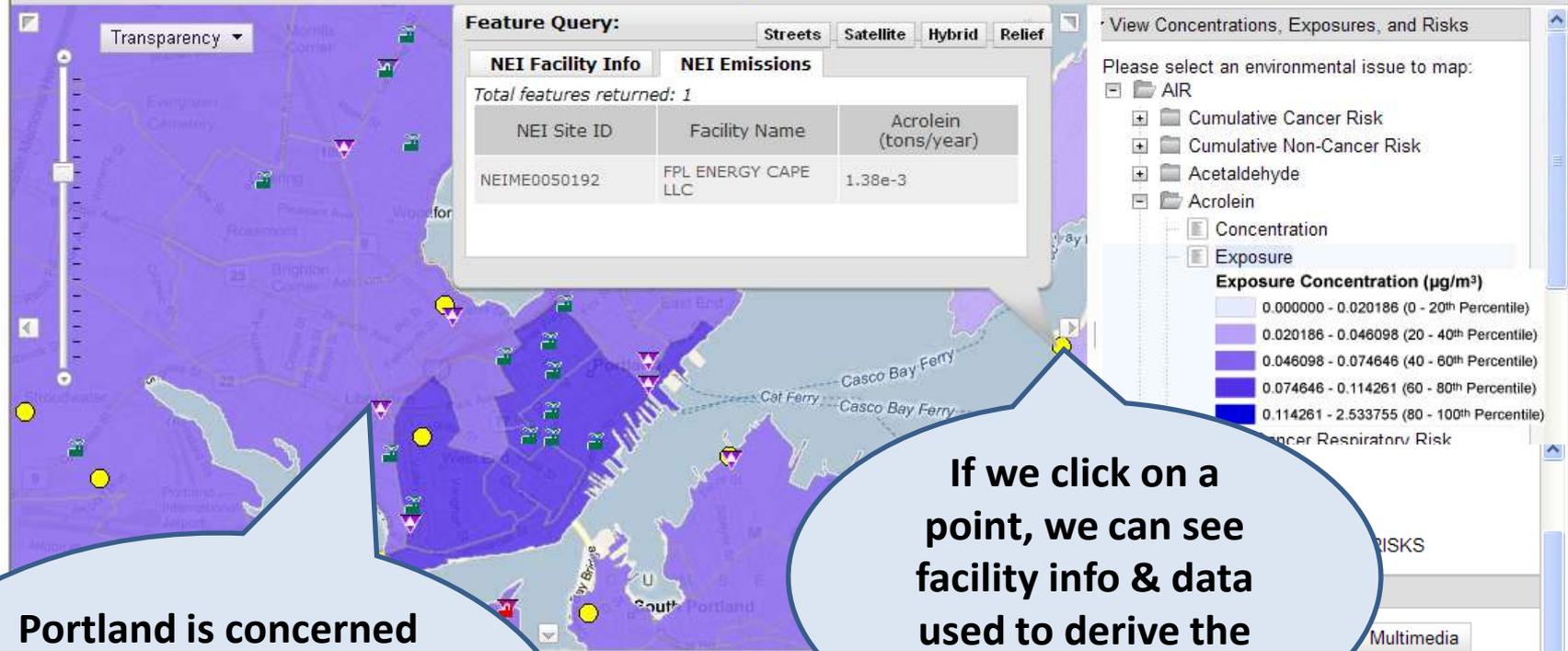
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To add your local data to the map, see the "Add Local Data" tab to the right of the map.

Example: [Local Maps](#) | [Measurement Methods for Collecting Local Data](#)

Find Location:



Portland is concerned about Acrolein. This is a map of Acrolein exposures overlaid with emissions sites and air quality monitors.

If we click on a point, we can see facility info & data used to derive the estimates.



Community-Focused Exposure and Risk Screening Tool



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You are here: [EPA Home](#) » [C-FERST](#) » Generate Environmental Issue Profiles for Your Community

Generate Environmental Issue Profiles for Your Community

Limitations and Future Plans

Oracle database underway to further populate reports

To generate a report:

- (1) set the scale (Local or National)
- (2) set the area (if local scale)
- (3) select one or more issues using the checkboxes below
- (4) click the Generate Report button below.

Select Scale

Enter Area (city, county, state, zip) optional

+Alphabetical List of Issues

-- OR View By: --

+Specific Toxic Substances of Concern

+Media

+Health Effects of Concern

+Other Topics

Return to [C-FERST Home](#)

[Click here to email comments on this page](#)

The reports contain information about the following:

- **General Information** Links to factsheets and websites with summary/general information.
- **Health outcomes** Links to health-related factsheets and other (e.g., CDC) tools
- **Exposure and risk reductions** Links to fact sheets on exposure and risk reduction strategies.
- **Population affected** Describes briefly which populations may be affected. A future possibility is to describe and/or map that demographic at the local level.
- **Sources** Links to factsheets and websites about sources, searchable databases, and other mapping tools. Future possibilities include lists and maps of sources in C-FERST.
- **Environmental Concentrations** Lists the estimated ambient concentrations in your community, with a pie chart of contributing sources, and links to maps of these concentrations when available. A future possibility is to link to available databases containing environmental concentrations.
- **Human Exposures** Lists the estimated exposure concentrations in your community with a pie chart of contributing sources and links to maps of these concentrations when available.
- **Health risks** Lists the estimated risks in your community with a pie chart of contributing sources, and links to maps of these risks when available. Future possibilities include providing other statistics and figures about these health risks (e.g., comparisons to national averages).
- **Other Communities Focusing on this Issue** Links to reports about other communities that have focused on the issue.
- **Solutions Implemented by Other Communities** Links to promising practices and solutions that have been implemented by other communities.

We can generate
“environmental issue profiles”
for over 40 environmental
issues currently. The profiles
include information described
here.

http://

C-FERST Home

USE C-FERST
FOLLOWING
COMMUNITY
GUIDANCE

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SELECT INDIVIDUAL
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Environmental Issues

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Issues of Concern

Visualize Exposure /
Risk-Related Maps

Generate
Environmental Issue
Profiles

Prioritize Your
community's Issues

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Solutions

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LOCATION

- Local portland, maine

ISSUE

- 1,3 Butadiene

GENERAL INFORMATION

- Relevant Web Links:
 - EPA Links:
 - [Technology Transfer Network Air Toxics Web Site | Health Effects Notebook: Butadiene](#)
 - External Links:
 - [Search Butadiene on ToxNet \(databases on toxicology, hazardous chemicals, environmental health\)](#) [EXIT Disclaimer](#)
 - [NTP 11th Report on Carcinogens Substance Profile: 1,3-Butadiene \(3pp, 205KB, About PDF\)](#) [EXIT Disclaimer](#)
 - [ATSDR Toxic Substances Portal: 1,3 Butadiene](#) [EXIT Disclaimer](#)

HEALTH OUTCOMES

TBD

EXPOSURE AND RISK REDUCTION ACTIONS

- Relevant Web Links:
 - EPA Links:
 - [Plain English Guide to the Clean Air Act: Reducing Toxic Pollutants](#)
 - [Reducing Air Toxics in Your Community \(4pp, 2.2MB, About PDF\)](#)
 - External Links:
 - [ATSDR ToxFAQs: How can families reduce risk of exposure to 1,3-Butadiene?](#) [EXIT Disclaimer](#)
- See Also
 - [Risk Reduction Information for Mobile Sources](#)

This is an example environmental issue profile.

SCALE (POPULATION AFFECTED)

TBD

SOURCES

- Relevant Web Links:
 - EPA Links:
 - [Air Toxics from Motor Vehicles \(4pp, 21KB, About PDF\)](#)
 - [Search TRIExplorer for Reports on Butadiene Releases from Stationary Sources](#)
 - External Links:
 - [Search TRI on ToxNet for Reports and Maps on Butadiene Releases from Stationary Sources](#) [EXIT Disclaimer](#)

STRATEGIES IMPLEMENTED BY OTHER COMMUNITIES

CARE Final Reports

- New York: Center of Environmental Information, Rochester (2005)
- [Abstract | Final Report \(56pp, 934KB, About PDF\)](#)

C-FERST Home

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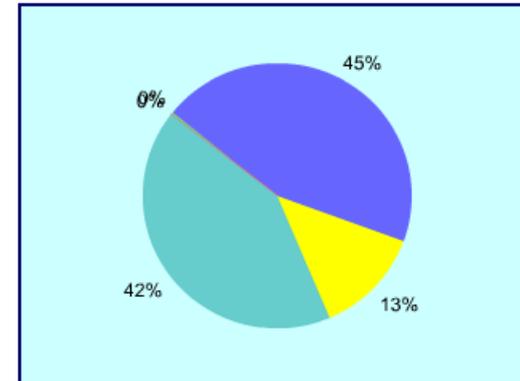
Provide Feedback / Contact US

About C-FERST

ENVIRONMENTAL CONCENTRATIONS

Quantitative data supplied by the 2002 National Air Toxics Assessment (outdoor sources only):

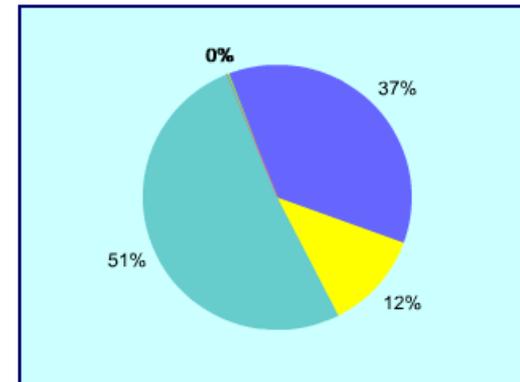
- Estimated Local average concentration = 0.057416 $\mu\text{g}/\text{m}^3$
 - estimated background concentration = 0.025602 $\mu\text{g}/\text{m}^3$ 
 - estimated contribution from major point sources = 0.000165 $\mu\text{g}/\text{m}^3$ 
 - estimated contribution from area and other sources = 0.000023 $\mu\text{g}/\text{m}^3$ 
 - estimated contribution from on-road mobile sources = 0.024098 $\mu\text{g}/\text{m}^3$ 
 - estimated contribution from non-road mobile sources = 0.007528 $\mu\text{g}/\text{m}^3$ 
- [View map of 1,3 Butadiene concentrations.](#)



HUMAN EXPOSURES

Quantitative data supplied by the 2002 National Air Toxics Assessment (outdoor sources only):

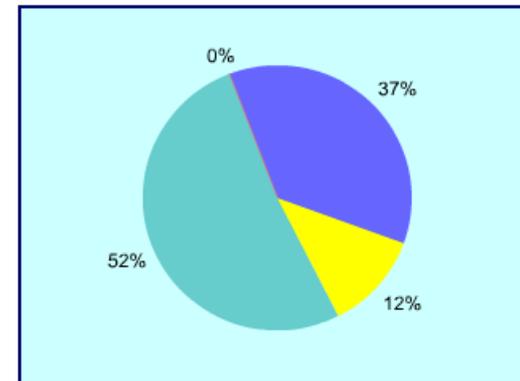
- Estimated Local average exposure concentration = 0.059363 $\mu\text{g}/\text{m}^3$
 - estimated background exposure concentration = 0.021670 $\mu\text{g}/\text{m}^3$ 
 - estimated contribution from major point sources = 0.000156 $\mu\text{g}/\text{m}^3$ 
 - estimated contribution from area and other sources = 0.000020 $\mu\text{g}/\text{m}^3$ 
 - estimated contribution from on-road mobile sources = 0.030520 $\mu\text{g}/\text{m}^3$ 
 - estimated contribution from non-road mobile sources = 0.006997 $\mu\text{g}/\text{m}^3$ 
- Relevant Web Links:
 - EPA Links:
 - [Acute Exposure Guideline Levels \(AEGLs\) for 1,3-Butadiene](#)
 - External Links:
 - [CalEPA OEHHA 1,3-Butadiene Chronic Noncancer Reference Exposure Levels](#) (619pp, 3.67MB, [About PDF](#))
[EXIT Disclaimer](#)
- [View map of 1,3 Butadiene exposure.](#)



HEALTH RISKS

Cancer Risk

- Estimated Local lifetime Cancer Risk attribute from 1,3 Butadiene = 1.7800 in one million.
 - estimated contribution from background source = 0.6500 in one million 
 - estimated contribution from major point sources = 0.0000 in one million 
 - estimated contribution from area and other sources = 0.0000 in one million 
 - estimated contribution from on-road mobile sources = 0.9200 in one million 
 - estimated contribution from non-road mobile sources = 0.2100 in one million 
- Relevant Web Links:
 - EPA Links:
 - [Integrated Risk Information System \(IRIS\): 1,3-Butadiene Summary](#)
 - [Technology Transfer Network Air Toxics Web Site | Health Effects Notebook: Butadiene](#)
 - External Links:
 - [View map of 1,3 Butadiene risks.](#)





Proposed Steps for C-FERST Application to CARE Projects

Step 4. Populate C-FERST Community Data Matrix

- Using information already in C-FERST from EPA databases
- Supplementing info in C-FERST from EPA, Census, State databases
- Adding Local Data as Available
- Incorporating human exposure/risk estimates for selected issues
 - e.g., radon, ETS, fish consumption, childhood lead exposure
- Compare to standards, national averages, other communities



Community-Focused Exposure and Risk Screening Tool

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You are here: [EPA Home](#) » [C-FERST](#) » Prioritize Your Community's Issues

Prioritize Your Community's Issues

- [View your community's data matrix](#)

A key C-FERST product is the Community Data Matrix.

Access examples of risk ranking approaches

Below are links to resources for ranking the relative exposures and risks associated with different environmental issues. Inclusion of these in C-FERST does not necessarily imply endorsement of their use.

- [NACCHO's Protocol for Assessing Community Excellence in Environmental Health \(PACE-EH\) \(PDF\)](#) (111pp, 964KB, [About PDF](#)) [EXIT Disclaimer](#)
Task 10, "Rank The Issues", pp50-56.
- Others - TBD

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Guidance for risk ranking approaches is being developed and will be incorporated as it becomes available.

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Generate Environmental Issue Profiles

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About C-FERST

Data Metrics	Your Community ME	Standard	National Average
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Environmental Human Health

Sources of stress placed on the community (Vulnerability Indicators)

Proximity/density of regulated facilities			
Traffic Density			
# current and past permit exceedances by regulated facilities			
# or extent of non-point sources of pollution			
Noise levels			
% domestic well water use			

This matrix will be the main product of the FY11 case studies

Environmental Concentration Estimates

Outdoor Air - Benzene	0.70938961		
Outdoor Air - Diesel PM	0.27754879		0.4367
Outdoor Air - Formaldehyde	1.07986012		1.43180477
Outdoor Air - Lead	0.00225741	1.5 µg/m ³ (Quarterly Avg)	0.00246383
Indoor Air - Radon	NERL Research Underway		
Indoor Air - ETS	NERL Research Underway		
Drinking Water - Arsenic	NERL Research Underway		
Food - Methyl Mercury in Fish Consumption	NERL Research Underway		

Human Exposure Estimates (µg/m³)

Outdoor Air - Benzene	0.64095960		1.35249138
Outdoor Air - Diesel PM	0.17652991		0.58234086
Outdoor Air - Formaldehyde	0.89159177		1.54062861
Outdoor Air - Lead	0.00106027		0.00174110
Indoor Air - Radon	NERL Research Underway		
Indoor Air - ETS	NERL Research Underway		
Drinking Water - Arsenic	NERL Research Underway		
Food - Methyl Mercury in Fish Consumption	NERL Research Underway		
Multimedia- Childhood Lead Exposure	NERL Research Underway		
Multimedia - Residential Pesticide Exposure	NERL Research Underway		

Health Risk Estimates: (in One Million)

Outdoor Air - Benzene	5		10.55
Outdoor Air - Diesel PM	0		0
Outdoor Air - Formaldehyde	0		0.01
Outdoor Air - Lead	0		0
Indoor Air - Radon	NERL Research Underway		
Indoor Air - ETS	NERL Research Underway		
Drinking Water - Arsenic	NERL Research Underway		
Food - Methyl Mercury in Fish Consumption	NERL Research Underway		
Cumulative Health Risk: Lung Cancer	NERL Research Underway		
Cumulative Health Risk: Asthma	NERL Research Underway		
Cumulative Health Risk: Early neurotoxicity effects	NERL Research Underway		

C-FERST Community Data Matrix (cont'd)

Data Metrics	Your Community ME	Standard	National Average
Health			
Existing health conditions			
Infant mortality rate			
Low birth weight			
Age-adjusted mortality			
Reproductive and birth outcomes			
Asthma			
Cancer			
Childhood Cancer			
Childhood Lead Poisoning			
Birth Defects			
Life expectancy at birth			
Demographic and SocioEconomic			
Demographic, Social, and Economic indicators			
% Minority	3.47		31.79
% Below Poverty Level	10.92		12.52
% Less than Age 6 years	6.74		8.18
% Less than 18 Years	23.61		25.61
% > 64 years	14.40		12.38
% >= 25 years with less than a H.S. degree	36.17		28.55
% Housing Units Built Before 1950	35.77		22.08
% Linguistically Isolated Households	0.06		1.80
% Population American Indian and Alaskan Native	0.58		0.86
% Population American Indian and Alaskan Native in poverty	0.22		0.22

These human health and SES indicators could be expanded to include ecosystem indicators from Atlas, ReVA, RoE, etc., including sustainability indicators.



Community-Focused Exposure and Risk Screening Tool

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You are here: [EPA Home](#) » [C-FERST](#) » CARE Road Map

Using the [CARE Road Map](#) with C-FERST

1. **"Build a Partnership:** Build a collaborative partnership representing a broad range of interest that is able to identify environmental risks and impacts, build consensus, and mobilize all the resources necessary to achieve community goals."

+In C-FERST you can...

2. **"Identify Community Concerns:** Identify the environmental, health, and related social and economic concerns of the community."

+In C-FERST you can...

3. **"Identify Community Vulnerabilities:** Identify community vulnerabilities that may increase risks from environmental stressors."

+In C-FERST you can...

4. **"Identify Community Assets:** Develop a list of community assets and strengths of the community."

5. **"Identify Concerns for Immediate Action:**

+In C-FERST you can...

6. **"Collect and Organize Information:**

1. **Collect and Summarize** available information.

+In C-FERST you can...

2. **"Identify Gaps** where the information is missing.

+In C-FERST you can...

7. **"Rank Risks and Impacts:** Compare and rank community concerns to help identify those that have the greatest impact."

-In C-FERST you can...

- generate and examine [your community's data matrix](#)* to compare and rank available environmental, health and demographic data;
- follow links to [exposure and risk ranking approaches](#);* and
- access [other available mapping and community assessment tools](#) that may provide additional information helpful for prioritization.

8. **"Identify Potential Solutions:** Identify and analyze options for reducing priority concerns and vulnerabilities for filling information gaps."

+In C-FERST you can...

9. **"Set Priorities for Action and Begin Work:** Decide on an action plan to address concerns, fill information gaps, and mobilize the community and its partners to carry out the plan."

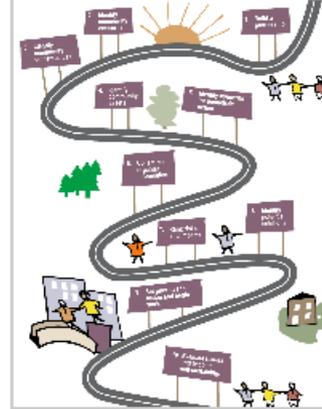
+In C-FERST you can...

10. **"Evaluate Results & Become Self-Sustaining:** Evaluate the results of community action, analyze new information, and develop a plan to restart the Roadmap process. You can restart the process as needed to reestablish priorities, develop new plans for action, collect information, and make your partnership self-sustaining."

At Step 7 communities will begin the risk ranking process. C-FERST provides options that are under development.

Source: EPA CARE Program (<http://www.epa.gov/care>) The CARE Roadmap: 10 Step Plan to Improve Community Environment and Health (20pp, 3MB, About PDF)

The Roadmap: Ten Steps to a Healthier Community and Environment



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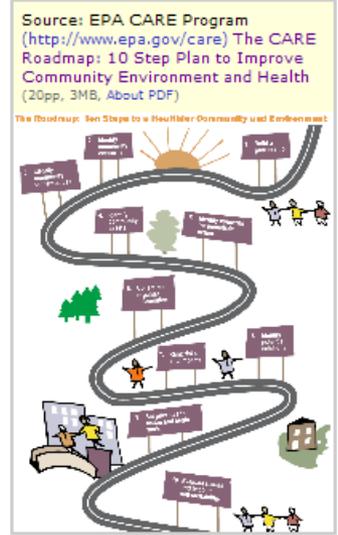
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Using the CARE Road Map with C-FERST

- "Build a Partnership:** Build a collaborative partnership representing a broad range of interest that is able to identify environmental risks and impacts, build consensus, and mobilize all the resources necessary to achieve community goals."
+In C-FERST you can...
- "Identify Community Concerns:** Identify the environmental, health, and related social and economic concerns of the community."
+In C-FERST you can...
- "Identify Community Vulnerabilities:** Identify community vulnerabilities that may increase risks from environmental stressors."
+In C-FERST you can...
- "Identify Community Assets:** Develop a list of community assets in order to build on the existing strengths of the community."
- "Identify Community Concerns and Vulnerabilities:** Identify immediate concerns and vulnerabilities."
+In C-FERST you can...
- "Collect Information:** 1. Identify community concerns and vulnerabilities. 2. "Identify information gaps and vulnerabilities that are missing or inadequate."
+In C-FERST you can...
- "Rank Concerns and Vulnerabilities:** Rank concerns and vulnerabilities to help identify those that have the greatest impact."
+In C-FERST you can...
- "Identify Potential Solutions:** Identify and analyze options for reducing priority concerns and vulnerabilities for filling information gaps."
-In C-FERST you can...
 - access [fact sheets on exposure/risk reduction actions](#) for many environmental issues;
 - explore [promising practices for solutions implemented by communities](#); and
 - [consider approaches of other community groups](#) (organized by environmental issues).
- "Set Priorities for Action and Begin Work:** Decide on an action plan to address concerns, fill information gaps, and mobilize the community and its partners to carry out the plan."
+In C-FERST you can...
- "Evaluate Results & Become Self-Sustaining:** Evaluate the results of community action, analyze new information, and develop a plan to restart the Roadmap process. You can restart the process as needed to reestablish priorities, develop new plans for action, collect information, and make your partnership self-sustaining."

In step 8, the community will identify potential solutions for reducing concerns and filling data gaps.



Source: EPA CARE Program (<http://www.epa.gov/care>) The CARE Roadmap: 10 Step Plan to Improve Community Environment and Health (20pp, 3MB, About PDF)

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Community-Focused Exposure and Risk Screening

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Explore Potential Solutions

- [Access Fact Sheets on Exposure/Risk Reduction Actions](#)

We can access fact sheets on risk reduction actions for high-ranking concerns.

Access Promising Practices for Solutions Implemented by Communities

This is a partial list (not in any particular order) of links to solutions implemented by communities.

- [CARE Promising Practices Document \(PDF\)](#) (29pp, 3.9 MB), ([About PDF](#))
- [EPA CARE Level 2 Project Solutions Searchable by Issue](#)
- [CARE Resource Guide \(Risk Reduction/Mitigation\)](#)
- [Improving Air Quality in Your Community](#)
- Others TBD

Future Plans

Please provide input via CFERSTmail@epa.gov on other practices you would like to see listed here.

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We can also access ideas for 'promising practices' and sustainable solutions implemented in other communities.

htt

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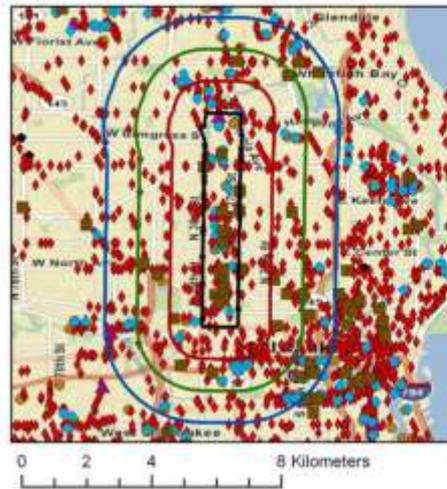


Planned Roles of EPA and Community Partners in Collaborative C-FERST Pilots

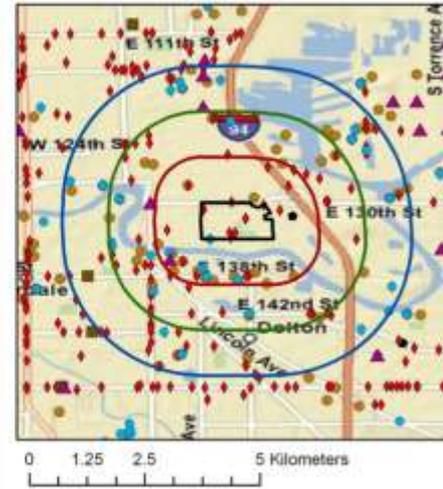
- **Community Partners**
 - Participate in meetings and provide feedback on C-FERST GUI
 - Select issues of concern, and vulnerability indicators of interest
 - Provide local data as appropriate/possible to supplement other databases and provide inputs to exposure models
 - Lead risk ranking
- **Region**
 - Set up regular meetings
 - Provide feedback on selected issues, vulnerability indicators, and C-FERST usability
 - Assist with data collection, focusing on EPA, Census, and State databases
 - Lead C-FERST programming changes as needed
 - Assist community with risk ranking
- **ORD**
 - Demonstrate C-FERST in meetings
 - Refine C-FERST usability (provide direction to programmers) based on feedback
 - Provide input to selected issues and vulnerability indicators
 - Focus on specific exposure science issues
 - e.g., Radon, ETS, Childhood Lead Exposure, Fish Consumption, Near-Roadway

Recognize that Communities are Different

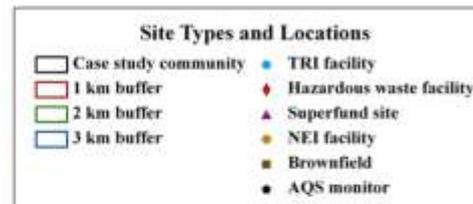
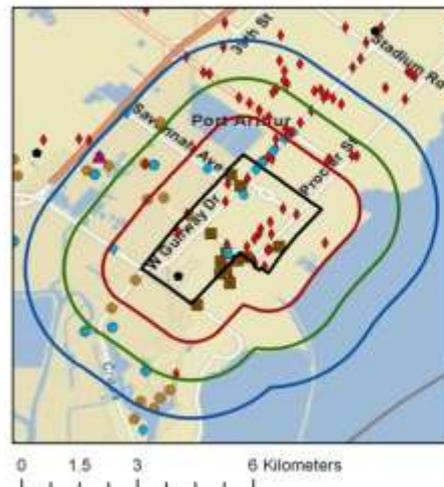
CS-W^a



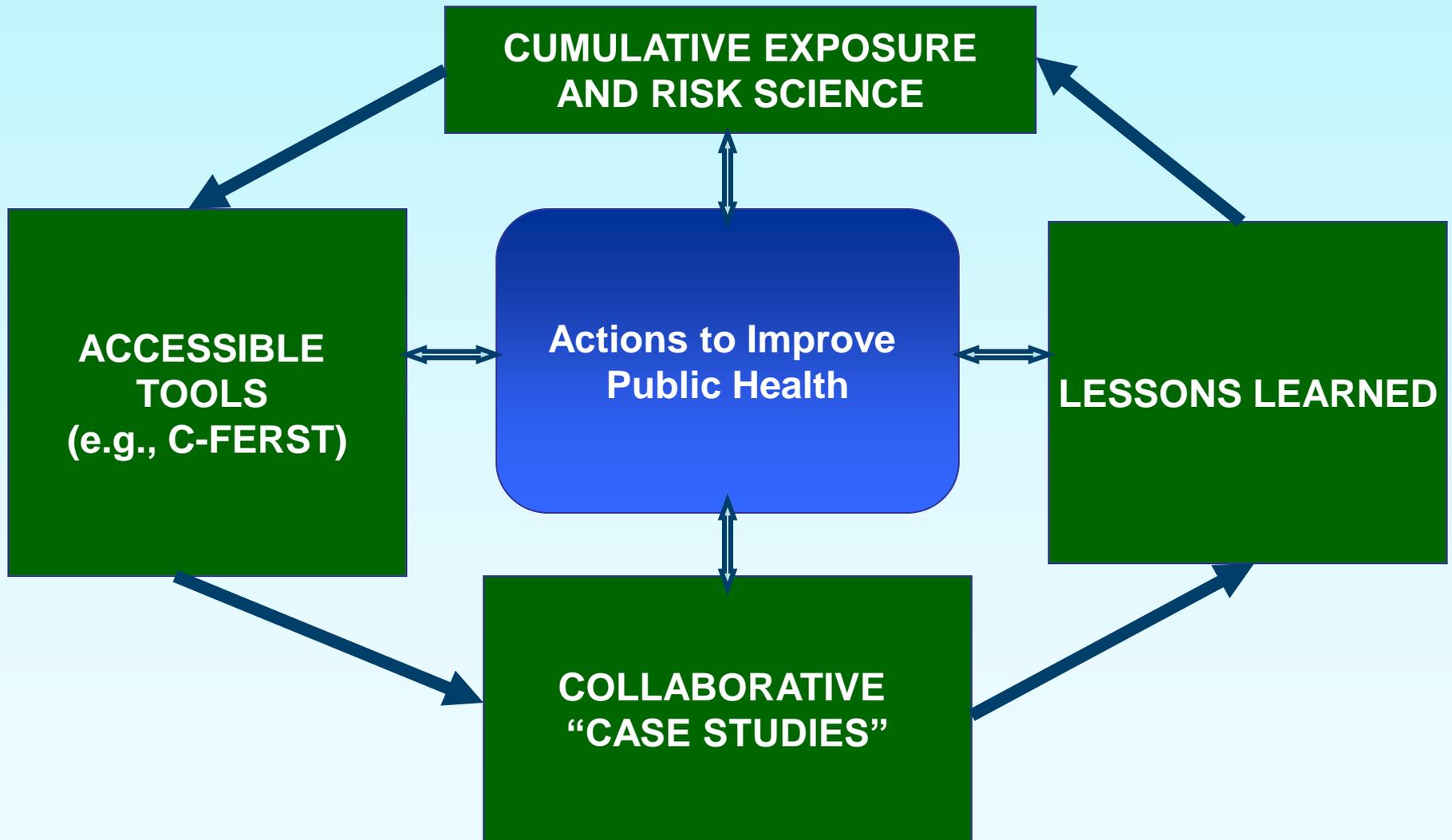
CS-I^b



CS-T^c



Research to Build Sustainable & Healthy Communities is an Iterative Process





Sustainability and Trans-disciplinarity

- Provides transferable tools to build sustainable communities
 - Devolves critical decisions affecting environmental health to communities.
 - Engages communities to apply tools and develop methods for problem formulation, impact assessment, devising and evaluating solutions.
 - Provides options to compare communities and share successful solutions.

- Supports a trans-disciplinary Sustainable Communities program
 - Engages traditional and multiple scientific disciplines.
 - Interfaces with, builds off societal applications and evolution of approaches.

Acknowledgments

❖ C-FERST Development Team

- Valerie Zartarian, Brad Schultz, NERL/ORD
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