Petrochemical Toxics in the Ohio River Watershed

Survey and Mapping of Permitted Toxic Discharges in Pennsylvania, Ohio and West Virginia

September 2021

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Shell Petrochemical Complex (aka Ethane Cracker) under construction.
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Executive Summary

Context

On the banks of the Ohio River in southwestern Pennsylvania, one of world's largest fossil fuel companies, Royal Dutch Shell, is building a petrochemical complex that, if it becomes operational, will flood the world with 1.6 million tons of plastic each year. This toxic facility is just the first in a planned buildout that could turn the Ohio River valley into a petrochemical hub similar to what exists along the Mississippi River between Baton Rouge and New Orleans, known as "Cancer Alley." Such a buildout would have devastating consequences on the Ohio River and the millions of people that rely on it for drinking water. Before further expansion of the petrochemical industry occurs in the Ohio River Basin, it is important to understand the industry's current footprint and how much toxic pollution is currently discharged into the Basin's streams and rivers.

Methods

To understand the petrochemical industry's current footprint in the upper Ohio River Basin, we used public databases maintained by the Environmental Protection Agency (EPA) to search for petrochemical-related facilities that had National Pollutant Discharge and Elimination System (NPDES) permits. Once the NPDES permits were compiled, we reviewed each permit to find toxic chemicals that are permitted to be discharged into rivers and streams. Only those toxic chemicals that had mass-based numeric discharge limits (e.g., kg/d) were included in this analysis.

Of the permits reviewed containing mass-based discharge limitations, petrochemical facilities are permitted to annually discharge **over 500,000 pounds of toxic pollutants into the Ohio River Basin within Ohio, Pennsylvania, and West Virginia.** These toxic pollutants include known carcinogens like benzene, vinyl chloride, and trichloroethylene and over 100 other chemicals that can affect human health in a variety of ways, including birth defects, developmental disorders, and effects to the central nervous system and endocrine system.

Shell's ethane cracker will significantly increase the rate of permitted discharge of several toxics, including vinyl chloride (68% increase) and trichloroethylene (75% increase).

Shell's ethane cracker will increase the rate of permitted discharge of toxic vinyl chloride by 68% and trichloroethylene by 75%.

Takeaways

The Ohio River is already considered one of the most polluted rivers in the country and there are several petrochemical facilities within the watershed that are hazardous waste sites. The expansion of the petrochemical industry in the Ohio River Basin would exacerbate these impacts for the millions of people who live there and rely on the Ohio River for drinking water.

> **Regulatory agencies have also weakened standards meant to improve and protect water quality at the same time that the petrochemical industry targets the Ohio River Basin for expansion. If what's past is prologue, action must be taken now to prevent further expansion of this toxic industry.**

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Introduction

In 2004, Range Resources fracked the first Marcellus shale gas well in southwestern Pennsylvania. Since then, thousands of new gas wells have been fracked in the Marcellus and Utica shale formations. In Pennsylvania alone, there are over 12,000 active shale gas wells[1] with thousands more in Ohio and West Virginia.[2] This fracking boom resulted in a massive expansion and reconfiguration of natural gas infrastructure across the country. Thousands of miles of new and reconfigured pipelines were constructed to transport fracked natural gas out of these three states to markets around and outside the country.

All of this came with significant social and environmental costs. Residents adjacent to fracking infrastructure have faced health impacts, and the chemicals released by the industry have been tied to impacts to the immune system, sensory organs, liver, and kidney, contributing to cancers, neurotoxicity, and reproductive and developmental toxicity.[3] Forests across these states have been fragmented with rampant construction of roads, well pads, pipelines, compressor stations, and other related infrastructure. Emissions of methane, a potent greenhouse gas, have skyrocketed at a time when we must be reducing greenhouse gas emissions to stave off the worst effects of climate change. While wealthier neighborhoods are less likely to face encroachments from the oil and gas industry,[4] many communities and landowners have suffered from increased industrialization of rural areas, contaminated water supplies, and loss of property through eminent domain.

There are 12,000+ active shale gas wells in Pennsylvania, and thousands more in Ohio and West Virginia.

Oil and gas infrastructure in Pennsylvania, Ohio and West Virginia has impacted residents' health in myriad ways.

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Another impact of the fracking boom now looms on the horizon—turning the Ohio River Basin into a petrochemical hub for the plastics industry.

The Ohio River provides drinking water to over five million people.[5] For decades, the Ohio River "was virtually an open sewer used to dispose of untreated human waste and industrial process water."[6] Historically, Black communities in the Ohio River basin in places like Institute, West Virginia have long experienced the disproportionate health burdens of living in the chemical corridor of the Ohio River basin.[7] Since the 1950s, efforts to clean up the Ohio River have made some progress but it still remains one of the most polluted rivers in the United States, routinely topping that list over the last decade.[8]

The Ohio River provides drinking water to over five million people. It remains one of the most polluted rivers in the United States, routinely topping that list over the last decade.

The buildout of the petrochemical industry threatens to keep the Ohio River at the top of the most polluted river list.

- This report finds the petrochemical buildout would substantially increase the amount of toxic discharges into the basin's rivers and streams.

- It will also result in massive amounts of air pollution, both from the facilities that process natural gas and manufacture plastic as well as the emissions from the continued fracking that will be required to keep these facilities in operation.[9]

- In essence the buildout would be a perpetual pollution machine: oil and gas companies want to lock in long term oil and gas demand just as the end is in sight for fossil fuels as the primary energy source for heating and transportation.

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Turning the Rust Belt into the Plastic Belt

When natural gas wells are fracked and drilled, they can produce both dry gas and wet gas. Dry gas is essentially methane: after processing, what some power plants and stoves burn. Wet gas, or "natural gas liquids" (NGLs), include ethane, propane, and butane. Ethane is the most prolific NGL by volume, making up around 10% of natural gas.

However, ethane does not have market value without additional processing. In order to turn ethane into ethylene, a key precursor to many plastic products, it must first be "cracked" by manufacturing plants called "crackers." This process is both energy and water intensive, resulting in the production of large amounts of heavily contaminated wastewater that is eventually discharged into streams and rivers. And while there may be systems in place to treat the wastewater before discharge, the permits these facilities operate under nevertheless allow these companies every year to dump huge quantities of toxics into watersheds including the Ohio River Basin.

In 2016, Shell began construction of the first ethane cracker that is part of the petrochemical industry's plans for the Ohio River Basin. The state of Pennsylvania granted Shell a $1.6 billion tax break to locate this facility along the banks of the Ohio River about 25 miles northwest of Pittsburgh.[10] When completed and in operation, this petrochemical complex will require 1,000 new wells to be fracked every three to five years.[11]

Unfortunately for communities, the agencies that are charged with protecting our water are in some cases weakening standards; the result is that it is easier for facilities like Shell's ethane cracker to operate with repeated violations. For example, in 2019, the Ohio River Valley Water Sanitation Commission (ORSANCO), a multi-state commission charged with protecting the Ohio River from industrial

Shell Petrochemicals Complex (aka Ethane Cracker) under construction.

Photos: Below, Digitalwhiz / Adobe Stock. Right, Ted Auch, FracTracker Alliance, 2021. Aerial support provided by LightHawk.

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pollution[12], eliminated the requirement for its member states to comply with its water quality standards. Until 2019, ORSANCO required "specific wastewater discharge requirements" to be "incorporated into discharge permits."[13] In 2019, however, ORSANCO eliminated that requirement, stating that its standards are now "advisable" rather than mandatory.[14]

ORSANCO also weakened its standards regarding "mixing zones" in the Ohio River. A mixing zone is an "area or volume of water where initial dilution of a discharge takes place and where certain numeric water quality criteria may be exceeded."[15] In other words, mixing zones are parts of a river where regulators allow permit holders to exceed the limits set in their permits.

Regulators have weakened standards to allow industry to exceed the limits set in their discharge permits.

When ORSANCO revised its pollution control standards in 2013, it imposed a sunset provision to eliminate mixing zones for bioaccumulative chemicals of concern (BCCs) "no later than October 16, 2015."[16] This prohibition applied "immediately" to discharges of BCCs that came into existence after October 16, 2003.[17] However, when it revised its standards again in 2019, ORSANCO removed that sunset provision, stating instead that mixing zones for BCCs should be eliminated "as soon as practicable."[18] Eliminating the requirement to ban mixing zones for BCCs by a certain date opens the door for more of these dangerous chemicals to be discharged into the Ohio River indefinitely.

The timing of ORSANCO's decision and the construction of Shell's ethane cracker can hardly be overlooked[19] and the message is clear: the Ohio River Basin's water supplies are increasingly at risk.

Methodology/Data Acquisition

Under the Clean Water Act, the discharge of any pollutant into streams and rivers (waters of the United States) is unlawful unless the United States Environmental Protection Agency (EPA) or a delegated state agency issues a permit to allow it[20] via the National Pollutant Discharge Elimination System (NPDES).[21] Under the NPDES permitting process, permits are issued as either general or individual permits.[22] A general permit is not issued to any one specific facility but rather covers a class of facilities that have similar operations and discharges. An individual permit is tailored to a specific facility for activities that are not covered by a general permit.

Facilities operating under individual permits are categorized as either "major" or "minor" facilities. For industrial dischargers, EPA classifies major facilities based on a point system using several criteria, including " toxic pollutant potential, flow volume, and water quality factors such as impairment of the receiving water or proximity of the discharge to coastal waters."[23] If the facility scores over a certain point threshold because it has a large discharge volume or is discharging a lot of toxic pollutants, then it is classified as a "major" facility. Facilities that do not exceed the point threshold are considered "minor" facilities.

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Effluent limitations are set in NPDES permits for pollutants in terms of maximum pollutant load or concentration.[24] Once a facility obtains an NPDES permit, it is lawful for that facility to discharge the listed pollutants into streams and rivers up to the limits established in the permit.

The study area for this report is the Ohio River Basin within Ohio, Pennsylvania, and West Virginia (which are also the three states where the vast majority of fracking has occurred in the Marcellus and Utica shale formations).

The Ohio River Basin is heavily impacted by both the fracking and petrochemical industries in part because the Utica and Marcellus shale plays overlap within the basin.

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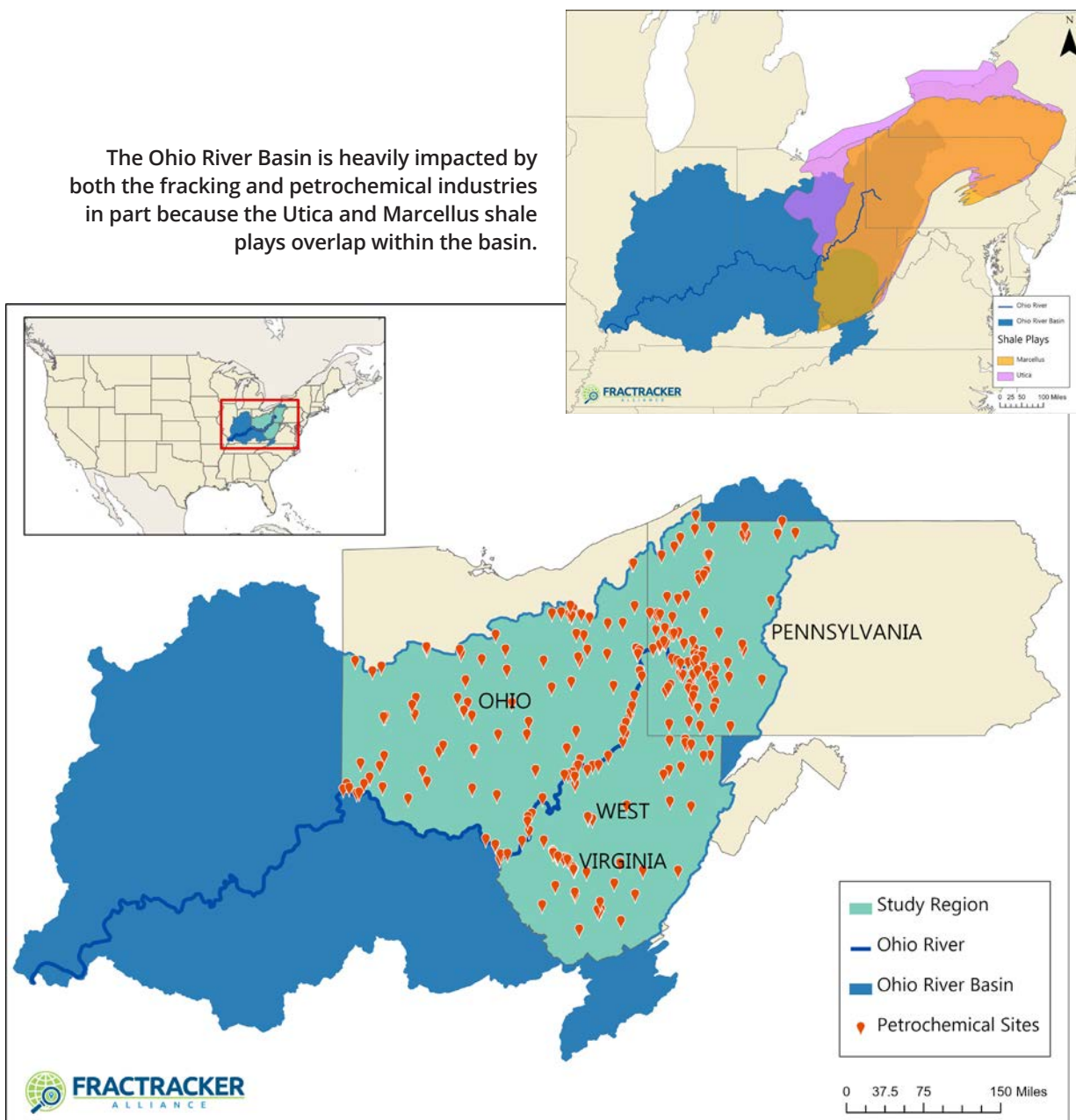
To find petrochemical industry-related facilities, we first used the Watershed Statistics page on EPA's Enforcement and Compliance History Online (ECHO) database to get a list of all facilities with NPDES permits within the Ohio River Basin.[25] Next, we limited the results to the three-state study area and used the following NAICS and SIC codes[26] to narrow the facility list to petrochemical facilities.

TABLE 1: NORTH AMERICAN INDUSTRY CLASSIFICATION SYSTEM (NAICS) CODES AND DESCRIPTIONS	
NAICS Code	NAICS Description
324110	Petroleum Refineries
324191	Petroleum Lubricating Oil and Grease Manufacturing
324199	All Other Petroleum and Coal Products Manufacturing
325110	Petrochemical Manufacturing
325132	Synthetic Organic Dye and Pigment Manufacturing
325182	Carbon Black Manufacturing
325192	Cyclic Crude and Intermediate Manufacturing
325193	Ethyl Alcohol Manufacturing
325199	All Other Basic Organic Chemical Manufacturing
325211	Plastics Material and Resin Manufacturing
325212	Synthetic Rubber Manufacturing
325311	Nitrogenous Fertilizer Manufacturing
325510	Paint and Coating Manufacturing
325520	Adhesive Manufacturing
325998	All Other Miscellaneous Chemical Product and Preparation Manufacturing
326113	Unlaminated Plastics Film and Sheet (except Packaging) Manufacturing
326122	Plastics Pipe and Pipe Fitting Manufacturing
326130	Laminated Plastics Plate, Sheet (except Packaging), and Shape Manufacturing
326140	Polystyrene Foam Product Manufacturing
326150	Urethane and Other Foam Product (except Polystyrene) Manufacturing
326199	All Other Plastics Product Manufacturing
326211	Tire Manufacturing (except Retreading)
326291	Rubber Product Manufacturing for Mechanical Use
326299	All Other Rubber Product Manufacturing
339999	All Other Miscellaneous Manufacturing
424710	Petroleum Bulk Stations and Terminals

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TABLE 2: STANDARD INDUSTRIAL CLASSIFICATION (SIC) CODES AND DESCRIPTIONS	
SIC Code	**SIC Description**
2911	Petroleum Refining
2992	Lubricating Oils and Greases
2999	Product of Petroleum and Coal, Not Elsewhere Classified
2869	Industrial Organic Chemicals, Not Elsewhere Classified
2895	Carbon Black
2865	Cyclic Organic Crudes and Intermediates, and Organic Dyes and Pigments
2821	Plastics Materials, Synthetic Resins, and Nonvulcanizable Elastomers
2822	Synthetic Rubber (Unvulcanizable Elastomers)
3086	Plastic Foam Products
2873	Nitrogenous Fertilizers
2851	Paints, Varnishes, Lacquers, Enamels, and Allied Products
2891	Adhesives and Sealants
2899	Chemicals and Chemical Preparations, Not Elsewhere Classified
3081	Unsupported Plastics Film and Sheet
3084	Plastics Pipe
3089	Plastics Products, Not Elsewhere Classified
9999	Nonclassifiable Establishments
3011	Tires and Inner Tubes
3061	Molded, Extruded, and Lathe-Cut Mechanical Rubber Goods
3069	Fabricated Rubber Products, Not Elsewhere Classified
2879	Pesticides and Agricultural Chemicals, Not Elsewhere Classified
5171	Petroleum Bulk Stations and Terminals
1321	Natural Gas Liquids
3052	Rubber and Plastics Hose and Belting
3053	Gaskets, Packing, and Sealing Devices
3082	Unsupported Plastics Profile Shapes
3083	Laminated Plastics Plate, Sheet, and Profile Shapes
4932	Gas and Other Services Combined
5172	Petroleum and Petroleum Products Wholesalers, Except Bulk Stations and Terminals

After narrowing the selection by NAICS and SIC codes, we identified approximately 250 facilities with NPDES permits in the study area. We then used the Water Pollution Search[27] page on EPA's ECHO database to obtain the NPDES permit data for each facility. Of the approximately 250 total facilities, about 90 facilities are covered under general permits while the remaining facilities have individual permits.[28] Of the facilities covered by individual permits, 32 facilities are considered "major" facilities while the rest are considered minor (or non-major) facilities.

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Next, we used the permitted pollutant discharge data for each permit in ECHO to cross-reference for any toxic or hazardous pollutants that appear on any of the following lists:
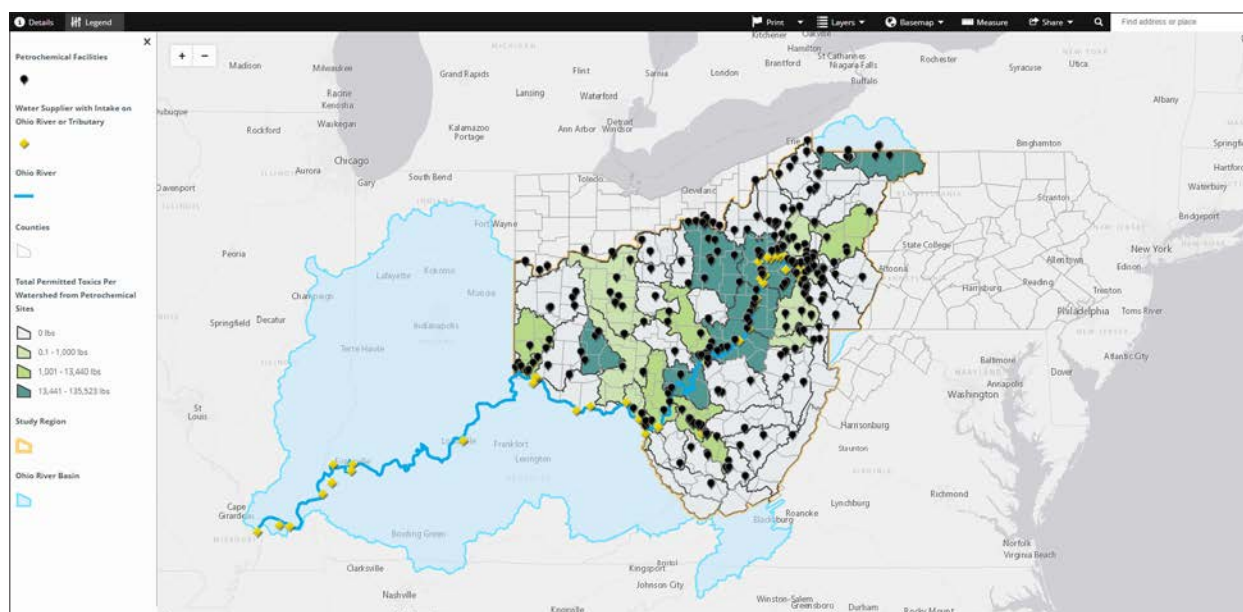
TABLE 3: TOXIC AND HAZARDOUS POLLUTION LISTS	
Toxic / Hazardous List	**Statutory / Regulatory Source**
Toxic Release Inventory	Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA)
Toxic Pollutants	40 C.F.R. § 401.15
Toxic Characteristics	40 C.F.R. § 261.24
Hazardous Waste	40 C.F.R. §§ 261.31 and 261.32
Discarded Commercial Chemical Products	40 C.F.R. § 261.33

Finally, we added the estimated permitted annual discharge for each toxic or hazardous pollutant across all facilities for those permits containing mass-based effluent limitations.

Results

Of the permits reviewed containing mass–based effluent limitations, petrochemical facilities are permitted to annually discharge over 500,000 pounds of toxic pollutants into the Ohio River Basin within Ohio, Pennsylvania, and West Virginia.

As part of this research FracTracker created an interactive map visualizing petrochemical sites and the toxics they are permitted to discharge in three states of the Ohio River Basin (Ohio, West Virginia, and Pennsylvania).

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TABLE 4: ANNUAL PERMITTED DISCHARGE LIMITS OF TOXIC POLLUTANTS (LBS/YEAR)		
Chemical Classification[29]	**Toxic Pollutant**	**Permitted Annual Discharge (lbs) Facility Total**
Volatile Organic Compounds—(VOC)	1,1-Dichloroethane	733.92
	1,1-Dichloroethylene	446.19
	1,1,1-Trichloroethane	6,058.24
	1,1,2-Trichloroethane	2,084.50
	1,2-Dichlorobenzene	2,533.51
	1,2-Dichloroethane	2,802.64
	1,2-Dichloropropane	4,586.54
	1,2,4-Trichlorobenzene	5,630.88
	1,3-Dichlorobenzene	849.49
	1,3-Dichloropropene	567.97
	1,4-Dichlorobenzene	409.17
	2,4-Dinitrotoluene	3,090.93
	2,6-Dinitrotoluene	7,152.16
	Acrolein	28.49
	Acrylonitrile	3,375.60
	Benzene	1,564.02
Volatile Organic Compounds—(VOC)	Carbon tetrachloride	506.80
	Chlorobenzene	497.14
	Chloroethane	3,808.11
	Chloroform	1,880.07
	Dichlorobromomethane	116.78
	Ethylbenzene	2,064.54
	Hexachlorobenzene	76.70
	Hexachlorobutadiene	372.79
	Hexachloroethane	475.65
	Methyl chloride (Chloromethane)	4,424.36
	Methylene chloride	1,949.29
	Nitrobenzene	737.78
	Styrene	13.76
	Tetrachloroethylene (PERC)	686.84
Volatile Organic Compounds—(VOC)	Toluene	1,528.77
	trans-1,2-Dichloroethylene	520.24
	Trichloroethylene	1,651.66
	Vinyl chloride	9,671.10
VOC TOTAL		**72,896.63 lbs/year**
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TABLE 4: ANNUAL PERMITTED DISCHARGE LIMITS OF TOXIC POLLUTANTS (LBS/YEAR)		
Chemical Classification[29]	Toxic Pollutant	Permitted Annual Discharge (lbs) Facility Total
Phthalates	Dibutyl phthalate	1,134.88
	Di[2-ethylhexyl] phthalate (DEHP)	5,032.49
	Diethyl phthalate	2,731.50
	Dimethyl phthalate	532.15
PHTHALATES TOTAL		9,431.02 lbs/year
Phenols	2-Chlorophenol	711.22
	2-Nitrophenol	951.46
	2,4-Dichlorophenol	896.17
	2,4-Dimethylphenol	520.00
	2,4-Dinitrophenol	1,652.47
	4-Nitrophenol	1,671.62
	4,6-Dinitro-o-cresol	1,762.00
	Phenol	586.32
	Total Phenols[30]	2,791.94
PHENOLS TOTAL		11,543.20 lbs/year
Polycyclic Aromatic Hydrocarbons (PAH)	Acenaphthene	614.64
	Acenaphthylene	608.77
	Anthracene	298.93
	Benz[a]anthracene	504.63
	Benzo[a]pyrene	552.83
	Benzo[b]fluoranthene	504.28
	Benzo[k]fluoranthene	521.77
	Chrysene	527.64
	Fluoranthene	572.23
	Fluorene	619.72
	Naphthalene	654.48
	Phenanthrene	564.91
	Pyrene	690.38
PAH TOTAL		7,235.21 lbs/year
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TABLE 4: ANNUAL PERMITTED DISCHARGE LIMITS OF TOXIC POLLUTANTS (LBS/YEAR)		
Chemical Classification[29]	Toxic Pollutant	Permitted Annual Discharge (lbs) Facility Total
Pesticides	4,4'-DDD	0.16
	4,4'-DDE	0.08
	4,4'-DDT	0.08
	Aldrin	0.35
	Alpha-BHC	1.93
	Dieldrin	0.02
	Endrin	0.80
	Heptachlor	0.56
PESTICIDES TOTAL		**3.98 lbs/year**
Metals	Aluminum	1,358.95
	Barium	507.04
	Chromium	10,575.40
	Chromium, Hexavalent	201.61
	Copper	23,561.41
	Iron	27,082.36
	Lead	2,632.58
	Manganese	2,293.75
	Mercury	1.72
	Nickel	19,951.61
	Phosphorus	16,359.52
	Selenium	16.10
	Sulfide	3,091.57
	Zinc	21,426.86
METALS TOTAL		**129,060.48 lbs/year**
Inorganic Substances	Ammonia as N	212,180.38
	Cyanide	8,264.75
	Fluoride	7,645.84
INORGANIC SUBSTANCES TOTAL		**228,090.97 lbs/year**
Radionuclides	Strontium	48,530.95
Dioxins, Furans, PCBs	PCBs	0.02
GRAND TOTAL 506,792.46 lbs/year		

Nearly 80% of the total annual toxic discharge that is permitted comes from about two dozen major facilities.

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TABLE 5: MAJOR FACILITIES WITH TOXIC DISCHARGES IN THE OHIO RIVER BASIN WITHIN OHIO, PENNSYLVANIA, AND WEST VIRGINIA[31]		
Major Facilities	**NPDES Permit ID**	**Estimated Permitted Facility Discharge Limit (lbs/year)**
Solvay Specialty Polymers USA	OH0003905	14,655.08
Marathon Petroleum Canton Refinery	OH0005657	19,605.54
Durez Corporation	OH0006769	758.08
Kraton Polymers Belpre Plant	OH0007030	9,092.11
Arizona Chemical Company	OH0007196	18,652.66
Dover Chemical Corp.	OH0007269	607.72
INEOS ABS (USA) Corporation	OH0009946	8,200.39
Dow Chemical Company	OH0099309	0.01
Eastman Chemical Company	PA0000507	47.24
Calumet Karns City Refining	PA0002135	5,909.75
Shell Chemical Appalachia[32]	PA0002208	28,339.18
Sonneborn	PA0002666	7,533.49
American Refining Group	PA0002674	1,641.52
United Refining Company	PA0005304	133,705.58
Nova Chemicals Incorporated	PA0006254	29,954.30
Union Carbide Institute Plant	WV0000086	8,759.39
MPM Silicones	WV0000094	43,542.24
APG Polytech	WV0000132	1,091.10
Braskem America Neal Plant	WV0001112	1,000.72
Chemours – Belle Plant	WV0002399	5,648.66
ICL-IP America Inc.	WV0002496	689.82
Koppers Follansbee Tar Plant	WV0004588	390.82
Ergon West Virginia Inc.	WV0004626	56,942.82
Chemtura North and South Plants	WV0004740 WV0022047	256.90
Bayer MaterialScience	WV0005169	4,757.96
TOTAL		**401,783.08 lbs/year**

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Environmental Injustice

Many of the major facilities in Table 5 have long records of significant contamination of the land, air, and water around them. For example, six facilities have been subject to corrective actions pursuant to EPA's authority under the Resource Conservation and Recovery Act (RCRA), as shown in Table 6.

These six facilities are all located in West Virginia, a state with a long and checkered history of sacrificing frontline communities' health in service of corporate polluters, including the 2014 Elk River chemical spill that deprived Charleston-area resident of drinking water and the 1985 Union Carbide toxic leak that led to the passage of the Emergency Planning and Community Right-to-Know Act.

TABLE 6: MAJOR FACILITIES SUBJECT TO EPA'S CORRECTIVE ACTION PROGRAM UNDER RCRA		
Facility (location)	**Contaminants**	**Permitted Discharge (lbs/y)**
Bayer Material Science (New Martinsville, WV)[33]	1,2-Dichlorobenzene, DEHP, phenol, 2,4-Dinitrotoluene, 2,4-Tolunediamine, aniline, and nickel	4,757.96
Chemtura (Morgantown, WV)[34]	1,2-Dichloroethane, trichloroethane, trichloroethene, perchloroethylene, and arsenic (North Plant); perchloroethylene, trichloroethene, and polyaromatic hydrocarbon compounds (PACs) (South Plant)	148.57
Chemours Belle Plant (Belle, WV)[35]	Acetone, benzene, 2-butanone, phenol, toluene, xylene	5,648.66
MPM Silicones (Friendly, WV)[36]	Benzene, monochlorobenzene, 1,2-Dichlorethylene, Toluene, and 1,1- Dichloroethane	43,542.24
Union Carbide Institute Plant (Institute, WV)[37]	Benzene, chlorobenzene, chloroform, carbon tetrachloride, and tetrachloroethene	8,759.39
Koppers Follansbee Tar Plant (Follansbee, WV)[38]	Naphthalene, phenol, volatile organics (benzene, xylene, toluene, ethylbenzene, trichloroethene and trichlorobenzene), polycyclic aromatics, cyanide, and metals	390.82
TOTAL		**63,247.64 lbs/year**

West Virginia's Kanawha River Valley has one of the highest concentrations of chemical facilities in the country, earning it the nickname, "Chemical Valley." These facilities produce explosives, antifreeze, solvents, pesticides, per- and polyfluoroalkyl substances (PFAS), chlorine, and other chemical products.

Two of the sites from Table 6 are along the Kanawha River: the Chemours Plant and the Union Carbide Institute Plant. The Union Carbide Institute Plant is located in the town of Institute, a historically Black community that has faced decades of environmental racism from the chemical industry. Union Carbide used to produce and store the lethal chemical methyl isocyanate in Institute, the same chemical that leaked from a Union Carbide plant in Bhopal, India in 1984, killing thousands of people. Thanks in part to community organizing efforts, the West Virginia plant no longer produces this chemical. However, chemical plants in and around Institute continue to impact residents' health, and air emissions here drive elevated cancer risks from air toxics.[39]

This analysis found 20 sites located in the Upper and Lower Kanawha Watersheds along the Kanawha River, in and around the city of Charleston, which contained the 9th and 11th highest concentrations of toxic pollutants per watershed in this study.

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Facilities that are subject to EPA's Corrective Action authority under RCRA have "risks comparable to Superfund Sites" and include current and former chemical manufacturing plants, oil refineries, lead smelters, wood preservers, steel mills, and commercial landfills.[40] Some of the sites listed above have been subject to corrective action for years.

For example, EPA initiated corrective action against the Chemours plant in Belle, West Virginia, in 1998.[41] In 2015, nearly twenty years later, EPA and the facility owner were still analyzing data to determine how to clean up the toxic contaminants at this site.[42] In other words, once these facilities contaminate the soil and water underneath and around them, it can take years, if not decades, to simply develop a cleanup plan, let alone actually removing the contaminants.

And the toxics contaminating these facilities include known carcinogens like benzene and trichloroethylene. Benzene has been linked to increased incidence of leukemia in occupational exposure in humans as well as developmental effects in animals such as low birth weight, delayed bone formation, and bone marrow damage.[43] Exposure to trichloroethylene has been associated with cancers of the kidney, liver, cervix, and lymphatic system (with the strongest support for kidney cancer).[44] And because of trichloroethylene's moderate water solubility, it has the potential to migrate into groundwater and, in fact, is frequently detected in groundwater.[45] This is of particular concern as there may be a link between the occurrence of congenital heart defects in children and drinking water contaminated with trichloroethylene.[46]

Petrochemical hazardous waste sites in West Virginia's Ohio River basin identified by the U.S. EPA for corrective action under RCRA.

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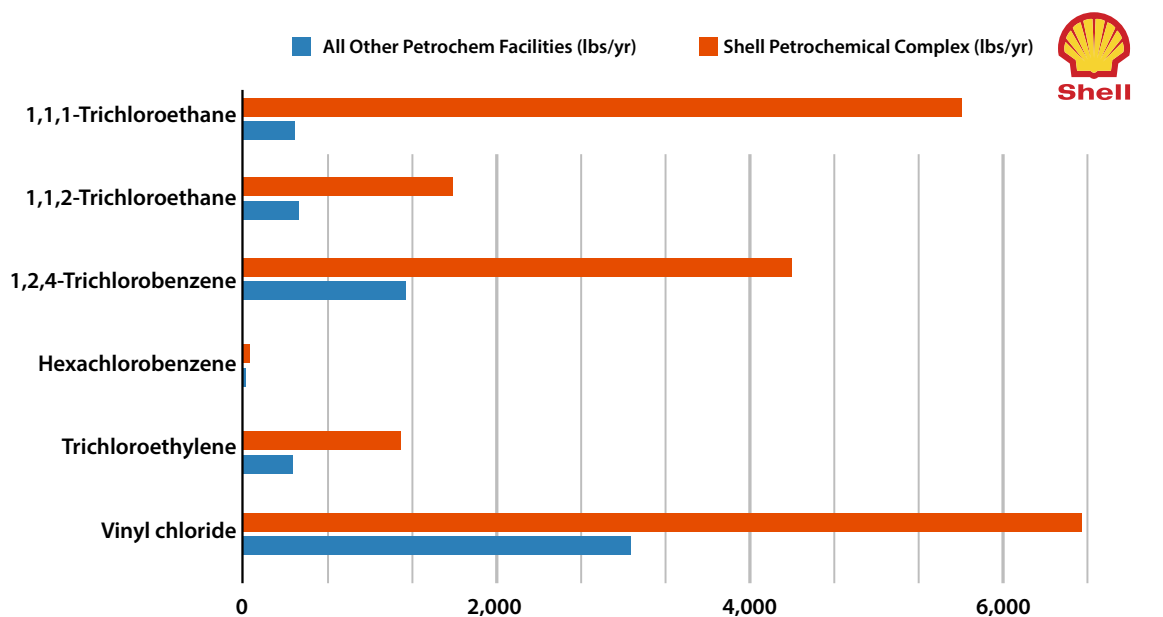earthworks.org/petrochem-OHriverbasin

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The Petrochemical Buildout Will Substantially Increase the Toxic Discharges that are Permitted in the Ohio River Basin

Based on a review of the collected NPDES permits, the petrochemical buildout that is planned for the Ohio River Basin will substantially increase the permitted amount of toxic pollutant discharge. As Table 5 above shows, the Shell ethane cracker alone will increase the amount of permitted discharge by over 28,000 lbs/year, a 7 percent increase for those pollutants with mass-based effluent limits. Considering Shell's ethane cracker is just one of the nearly 130 petrochemical facilities[47] that are part of the petrochemical buildout in the Ohio River Basin (existing or planned), it makes clear that additional petrochemical infrastructure will only exacerbate the toxic discharges into the basin's streams and rivers.

And when looking at some of the pollutants individually, Shell's ethane cracker will be the largest discharger by far of certain toxic pollutants, VOCs in particular. In fact, of the more than thirty VOCs that are permitted for discharge from Shell's ethane cracker, there are six in which the permitted discharge is higher than all other facilities combined based on those facilities with mass-based discharge limits in their permits. This includes 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, 1,2,4-Trichlorobenzene, Hexachlorobenzene, Trichloroethylene, and Vinyl Chloride.

As discussed above, trichloroethylene has been linked to multiple cancers and is a frequent water contaminant. Trichloroethylene could also be connected to congenital heart defects in children who drink water contaminated with it. Increases in other contaminants is equally concerning, as Table 7 shows.

Permitted discharges for six VOCs in the Ohio River Basin (Pennsylvania, Ohio, West Virginia), comparing the combined total permitted for all other facilities vs Shell Petrochemical Complex.

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TABLE 7: HEALTH EFFECTS OF 1,1,1-TRICHLOROETHANE, 1,1,2-TRICHLOROETHANE, 1,2,4-TRICHLOROBENZENE,HEXACHLOROBENZENE, TRICHLOROETHYLENE, AND VINYL CHLORIDE

Pollutant	Acute Effects	Chronic Effects	Cancer	Reproductive /Developmental
1,1,1-Trichloroethane[48]	Skin irritation	Liver damage and neurological effects to low levels	Not classified	No data
1,1,2-Trichloroethane[49]	Skin irritation. Animal studies report effects on liver, kidneys, and central nervous system	Animal studies report effects on liver and immune system; one study reported liver tumors and adrenal tumors	Possible human carcinogen	No data
1,2,4-Trichlorobenzene[50]	Oral animal studies produced alterations of liver and kidneys	Oral animal studies produced alterations of liver and kidneys	Not classified[51]	Little data but it has been found in human breast milk
Hexachlorobenzene[52]	No data in humans	Animal studies report effects on liver, skin, immune system, kidneys, and blood from oral exposure	Probable human carcinogen	Decreased survival rates of newborn animals; crosses the placenta and accumulates in fetal tissue of several animal species Neurological, teratogenic, liver, and immune system effects in offspring of animals orally exposed while pregnant
Trichloroethylene[53]	Effects to central nervous system, liver, kidneys, gastrointestinal system, and skin	Effects to liver, kidney, and immune and endocrine systems	Carcinogenic	Association between occurrence of congenital heart disease in children and a drinking water supply contaminated with TCE
Vinyl Chloride[54]	Effects to central nervous system, loss of consciousness, lung and kidney irritation, and inhibition of blood clotting in humans	Liver damage, effects to central nervous system	Carcinogenic	Association between vinyl chloride exposure in pregnant women and increased incidence of birth defects

Once some of these chemicals are discharged, they do not easily break down. For example, EPA has classified hexachlorobenzene as a persistent bioaccumulative toxic (PBT) chemical with a reporting threshold of 10 pounds.[55] EPA has also listed hexachlorobenzene as a pollutant of concern to EPA's Great Waters Program due to its "persistence in the environment, potential to bioaccumulate, and toxicity to humans and the environment."[56] The amount of hexachlorobenzene permitted to be discharged at Shell's ethane cracker is 2.5 times the reporting threshold.

In addition, several other toxics that are permitted for discharge from Shell's ethane cracker are included on a list of "high-priority" chemicals that EPA recently selected to determine whether they pose an unreasonable risk to human health.[57] In fact, nearly half of the twenty chemicals EPA selected to undergo this risk analysis are permitted for discharge at Shell's ethane cracker in Table 8.

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TABLE 8: EPA'S "HIGH-PRIORITY" CHEMICALS UNDERGOING RISK ANALYSIS	
"High-Priority" Chemical	Shell's Annual Permitted Discharge (lbs/year)
p-Dichlorobenzene	58.43
1,1-Dichloroethane	85.80
1,2-Dichloroethane	265.02
trans-1,2-Dichloroethylene	81.76
o-Dichlorobenzene	300.03
1,1,2-Trichloroethane	1,641.84
1,2-Dichloropropane	594.93
Dibutyl phthalate	105.11
Di-ethylhexyl pthalate	401.53
Total	3,534.45 lbs/year

Key Takeaways

This report provides a snapshot of the existing permitted toxic discharges in the Ohio River Basin to understand how the petrochemical buildout that is planned across this region will exacerbate toxic loading in a river that is all-too-often considered one of the most polluted in the nation.

Of the NPDES permits that were reviewed, permit holders are allowed to discharge over 500,000 lbs/year of toxic pollutants into the Ohio River Basin's streams and rivers. This amount is what is legally permitted under the Clean Water Act. What they actually release might exceed these limits.

These toxic pollutants include known and probable carcinogens, endocrine disruptors, and PBTs.

Importantly, this is almost certainly a conservative estimate because this report only included those permits that contained mass-based (kg/d) effluent limitations. A broader look at permits containing both mass-based and concentration-based limits would likely reveal that the permitted discharge of toxic pollutants is higher than 500,000 lbs/y.

Much of the Ohio River Basin has been affected by polluting industries over the last century. Many plant locations along the Ohio, Monongahela, Allegheny, and Kanawha Rivers are considered hazardous waste sites and are subject to EPA's Corrective Action authority under RCRA. This requires the plant owners to work with EPA to develop and implement a site cleanup plan. However, it can take years, if not decades, to simply develop a site cleanup plan and actually cleaning up the site could be even further away.

One problem encountered in researching EPA's ECHO database is that many NPDES permits were listed as expired. However, upon following up with state regulators, many of these permits were in various stages of renewal. While the renewal process moved forward, the "expired" permit was "administratively continued," allowing the facility to continue operating.[58] This process of "administratively continuing" expired permits can drag on for years, even for facilities that may have significant toxic discharges.

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One such site is Aquatech's wastewater treatment plant along the Allegheny River in Franklin, PA. Aquatech's NPDES permit allowed it to discharge over 77 million pounds of chloride each year.[59] According to EPA, this high amount was because Aquatech did not incorporate available pollutant removal technologies that other similar facilities utilized.[60] Although the permit expired in 2014, the facility continued operating for several years under an administratively continued permit.[61] In 2018, Aquatech and PADEP entered into a consent agreement based, in part, on Aquatech installing the necessary treatment equipment.[62]

ORSANCO's decision to eliminate the requirement for member states to comply with its water quality standards and to eliminate its ban on BCCs by a certain date are further signs that regulators are too often willing to cater to oil and gas interests at the expense of water quality. These requirements were in place to set a minimum benchmark for states to meet water quality standards and to eliminate the discharge of dangerous chemicals that bioacummulate. Eliminating these requirements is likely to worsen the cumulative effects to the Ohio River from petrochemical and other industrial dischargers.

The combined factors of governments luring petrochemical facilities to locate in the Ohio River Basin with billions of dollars in tax breaks while regulators weaken water pollution control standards does not bode well for a river that already tops the list of most polluted rivers in the country.

For example, even though ORSANCO still bans mixing zones for BCCs for discharges that came into existence after October 16, 2003[63], that requirement likely will not apply to Shell's ethane cracker because PADEP allowed Shell to be grandfathered in under the prior permit holder, which dates to 2001.[64] Without the ban on BCC discharges for older facilities, Shell will have no obligation to eliminate BCC discharges for the foreseeable future. And we know that Shell is permitted to discharge at least one BCC, hexachlorobenzene, which accounts for over 75% of that pollutant's permitted annual discharge of the facilities reviewed with mass-based discharge limits.

The combined factors of governments luring petrochemical facilities to locate in the Ohio River Basin with billions of dollars in tax breaks while regulators weaken water pollution control standards does not bode well for a river that already tops the list of most polluted rivers in the country. But the Ohio River does not have to be at the top of that dubious list. Turning this part of Appalachia into a toxic petrochemical hub is not a foregone conclusion.

Regulators and public officials must not continue repeating the mistakes of the past that have resulted in numerous locations in the Ohio River Basin being declared hazardous waste sites. The Ohio River Basin does not need another wave of industrial development that will not only pollute our land, air, and water, but will pollute the world with more plastic.

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15 EPA, Water Quality Standards Handbook, Ch. 5: General Policies, at 1 (Sept. 2014), https://www.epa.gov/sites/default/files/2014-09/documents/handbook-chapter5.pdf.

16 ORSANCO 2013, at 18.

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19 Bill O'Toole, Pollution standards on the Ohio River are now optional and local environmental groups are alarmed, Next Pittsburgh (June 11, 2019), https://nextpittsburgh.com/latest-news/pollution-standards-on-the-ohio-river-are-now-optional-and-local-environmental-groups-are-alarmed/. ("The vote comes at an especially perilous time for Western Pennsylvania's water supply, as the region's industry (and the accompanying pollution it can bring) is set for a dramatic expansion").

20 33 U.S.C. § 1341(a)(1). Here, EPA has delegated authority to Ohio, Pennsylvania, and West Virginia to carry out the NPDES permitting program.

21 See 33 U.S.C. § 1342.

22 U.S. Environmental Protection Agency, About NPDES, https://www.epa.gov/npdes/about-npdes.

23 See EPA, NPDES Permit Writers' Manual, 2-17 (Sept. 2010), https://www3.epa.gov/npdes/pubs/pwm_2010.pdf.

24 Effluent limitations can be based on mass loading (kg/d) or concentration (mg/L). For purposes of this report, only the pollutants containing mass-based effluent limits are included. Many of the permits that were reviewed also contain concentration-based limits for other pollutants so the results in this report are a conservative estimate of how much toxic pollution is being discharged in the Ohio River Basin within Ohio, Pennsylvania, and West Virginia.

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27 U.S. Environmental Protection Agency, Water Pollution Search, https://echo.epa.gov/trends/loading-tool/water-pollution-search/. We used the NPDES permit number to search under the "Facility ID" search function

28 Some facilities with individual permits also had general permits covering things like stormwater discharge.

29 We used the chemical classification system from the Agency for Toxic Substances and Disease Registry (ATSDR) to categorize the list of toxic pollutants. See ATSDR, Chemical Classifications, https://wwwn.cdc.gov/TSP/substances/ToxChemicalClasses.aspx. In some instances, chemicals were designated under more than one category. For example, copper is listed under both inorganic substances and metals. In such cases, we selected just one category.

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30 In some of the NPDES permits, the specific phenolic chemicals were identified (e.g., 4-Nitrophenol). However, in four of the permits, the permit writer just listed "total phenols" instead of specifying which ones. So the "Total Phenols" in Table 4 reflects the total from those four permits while the "Phenols Total" reflects the combined total for the overall phenols category (i.e., the ones that list out the phenolic chemicals individually and the ones that just used "total phenols").

31 For the permits that had mass-based effluent limits in EPA's ECHO database, that data is provided in kg/d. We used the monthly average to estimate the annual permitted discharge in kilograms and then converted to pounds per year (lbs/y). 1 kg = 2.205 lbs

32 This is Shell's proposed ethane cracker that is currently under construction along the banks of the Ohio River in Beaver County, Pennsylvania. Although it is not in operation yet, the Pennsylvania Department of Environmental Protection (PADEP) has issued an NPDES permit for the petrochemical complex and it is included here. Note that EPA has Shell's current permit in its ECHO database but it is still listed under the site's former owner (Horsehead Corp Monaca Smelter).

33 EPA, Hazardous Waste Cleanup: Covestro LLC (Formerly: Bayer Material Science LLC) in New Martinsville, West Virginia, https://www.epa.gov/hwcorrectiveactionsites/hazardous-waste-cleanup-covestro-llc-formerly-bayer-material-science-llc-new.

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36 EPA, Hazardous Waste Cleanup: MPM Silicones LLC (Formerly: GE Silicones) in Friendly, West Virginia, https://www.epa.gov/hwcorrectiveactionsites/hazardous-waste-cleanup-mpm-silicones-llc-formerly-ge-silicones-friendly.

37 EPA, Hazardous Waste Cleanup: Union Carbide Corporation – Institute Operations (Formerly: Bayer Cropscience LP) in Institute, West Virginia, https://www.epa.gov/hwcorrectiveactionsites/hazardous-waste-cleanup-union-carbide-corporation-institute-operations.

38 EPA, Hazardous Waste Cleanup: Koppers Incorporated – Follansbee (Formerly: Beazer East) in Follansbee, West Virginia, https://www.epa.gov/hwcorrectiveactionsites/hazardous-waste-cleanup-koppers-incorporated-follansbee-formerly-beazer-east. Historically a coal tar plant, the Follansbee facility was recently sold to Petro Empire Liquids and Storage for use as a petrochemical storage and distribution facility. Empire Diversified Energy's Subsidiary Petro Empire Liquids and Storage LLC Completes its purchase of the Koppers Facility in Follansbee, West Virginia, PR Newswire (Feb. 23, 2021), https://www.prnewswire.com/news-releases/empire-diversified-energys-subsidiary-petro-empire-liquids-and-storage-llc-completes-its-purchase-of-the-koppers-facility-in-follansbee-west-virginia-301233599.html.

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40 EPA, Learn about Corrective Action, https://www.epa.gov/hw/learn-about-corrective-action.

41 EPA, Hazardous Waste Cleanup: Chemours Belle Plant (Formerly: DuPont) in Belle, West Virginia, https://www.epa.gov/hwcorrectiveactionsites/hazardous-waste-cleanup-chemours-belle-plant-formerly-dupont-belle-west.

42 Ibid.

43 EPA, Benzene, https://www.epa.gov/sites/default/files/2016-09/documents/benzene.pdf; ATSDR, ToxFAQs for Benzene, https://wwwn.cdc.gov/TSP/ToxFAQs/ToxFAQsDetails.aspx?faqid=38&toxid=14.

44 EPA, Trichloroethylene, https://www.epa.gov/sites/default/files/2016-09/documents/trichloroethylene.pdf.

45 Ibid.

46 Ibid.

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54 EPA, Vinyl Chloride,

55 EPA, Persistent Bioaccumulative Toxic (PBT) Chemicals Covered by the TRI Program, https://www.epa.gov/toxics-release-inventory-tri-program/persistent-bioaccumulative-toxic-pbt-chemicals-covered-tri. Several PBTs, including hexachlorobenzene, are also considered bioaccumulative chemicals of concern (BCCs) by ORSANCO. See ORSANCO 2019.

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Petrochemical Pollution and Our Health

Plastics are everywhere, and the industry that makes them is booming. Plastics are produced from fossil fuels. They are the biggest category of "petrochemicals."

Most petrochemical production facilities are located in Texas and Louisiana, but there are others in virtually every state, including a growing number in the Ohio River Valley.[1, 2]

The ubiquity of plastics and other petrochemicals comes at a steep cost to our health, especially for those living near production and processing facilities.

Why the production of plastics is a danger to our health

Health impacts of petrochemical pollution include:

Higher risk of cancer

A study in Texas found that living closer to oil refineries was associated with higher rates of bladder, breast, colon, lung, lymphoma, and prostate cancers. Those living within 10 miles faced the greatest risk.[3]

Other studies have found that living near petrochemical facilities is also associated with an increased risk of bone, brain, liver, larynx, and pancreatic cancers, as well as other cancers of the blood.[4, 5]

An analysis found that those living within 3.1 miles of petrochemical facilities had a 30 percent higher leukemia risk than those in communities with no petrochemical facilities. Another study found elevated leukemia incidence in children.[6, 7]

Adverse birth outcomes

Living closer to petrochemical facilities is linked with poor birth outcomes like preterm birth, low birth weight, miscarriage, stillbirth, and birth defects.[8, 9]

More asthma and respiratory illness

Studies show higher rates of asthma and respiratory illnesses among people living near petrochemical facilities.[10]

Kidney disease

Living near petrochemical facilities is associated with an increased risk of chronic glomerulonephritis. This is a major cause of chronic kidney disease and can lead to end-stage renal failure.[11]

Children are more vulnerable to pollution

The petrochemical industry creates extraordinary amounts of pollution. Some of the most harmful pollutants include benzene, ethylene oxide, formaldehyde, chloroprene, PFAS, vinyl chloride, and trichloroethylene.[12]

Several studies address the health implications for adults. But researchers suggest that infants and children may be especially vulnerable since they breathe more and drink more (for their size), live closer to the ground (where many pollutants concentrate), and have sensitive, rapidly developing organ systems.[13]

Plastic production and environmental injustice

The building blocks of plastic are made at the expense of our health, and people of color are disproportionately impacted.

Petrochemical plants, incinerators, landfills, and other heavily polluting industries are commonly sited in communities that already are burdened by multiple pollution sources. This is in large part a result of racial discrimination in housing and financial services, as well as the designation of low-income Black and Latino neighborhoods as mixed residential-industrial zones.[14]

Many of the worst air pollution hotspots are found in southern states with weaker environmental oversight. In majority-Black census tracts, the estimated risk of cancer from toxic air emissions is more than twice the risk found in majority-white tracts.[15] And it is often these communities that are targeted for new petrochemical processing facilities.[16]

June 2022

Full list of sources: momscleanairforce.org/sources-petrochemical-health

Petrochemicals and climate change

The petrochemical industry is a vast, growing, and frequently overlooked contributor to climate change. Every step of the petrochemical "lifecycle" —from extracting the fossil fuel feedstocks, to manufacturing the plastics, to managing the waste— releases climate-heating gases.[17]

We are creating mountains of plastics. They do not decompose, and they keep emitting greenhouse gases long after we throw them in the trash, even after they become micro-plastics in landfills, agricultural soils, and oceans.[18] There is no good way to dispose of plastics.

How can we protect our communities from petrochemical pollution?

Petrochemical companies make bad neighbors—for communities and for the planet. Federal and state pollution standards are both woefully inadequate and poorly enforced.[19] Regulators compile pollution data (usually based on industry's self-reported models) but have a poor track record of informing those in harm's way. Officials rarely step in to curtail the emissions, and they almost never shut down the polluters.[20]

We need EPA and other government agencies to rein in toxic pollution from the production of plastics and other petrochemicals. These facilities are sickening local neighborhoods and heating the planet with their emissions. Communities need the strongest possible standards and protections. We are asking the administration to clamp down immediately on construction and expansion of new plastics and petrochemical facilities.

We can use our voices to oppose new petrochemical facilities and to minimize health harms to vulnerable communities. To learn more about how you can speak out, visit **www.momscleanairforce.org/issues/toxic-chemicals/plastics**.

TRAUMA-INFORMED COMMUNITY CHANGE

An Exploration of Community-Led, Trauma-Informed, Prevention-Oriented, Resilience-Building, & Healing-Centered Considerations for Strengthening Communities

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Introduction

There is little doubt that our nation's systems and institutions are simultaneously experiencing trauma themselves while also perpetuating trauma in ways that powerfully shape our individual and collective lived experiences. As the movement to create a more trauma-informed and -responsive world grows and makes meaningful impacts, it becomes increasingly clear that there is transformative power in unlocking the potential held within the communities where we live, learn, work, play, and connect.

While enshrining trauma-informed policies and practices in law is a significant component of building and sustaining the resilient and flourishing world we hope for, it is also critical that we notice the fertile ground within our communities for true healing and growth to take root and that community members have what they need to sow the necessary seeds to support well-being now and in the future.

Indeed, it is within our communities, where stories, lived experiences, and culture intertwine, that we find the seeds of transformation waiting to sprout. By fostering community-led capacity- and coalition-building efforts, we can remove barriers and dismantle dynamics that limit potential while nurturing the collective spirit and mobilizing resiliency factors to create the context and conditions where all may stand empowered to thrive together.

Through such actions, CTIPP envisions a future defined by rich, connected community life where compassion reigns, institutions act in alignment with localized needs and priorities, and the radiance of true community stewardship and citizenry among residents illuminates a clear path ahead.

How "Traditional" Community Change Efforts Fall Short, and Where Trauma-Informed Change Differs

In terms of building capacity to support equitable and meaningful civic, political, economic, and social participation, particularly among those living in trauma-impacted communities, "traditional" community-building approaches tend to fall short. Research reveals that many aspects of traditional approaches to community transformation can further perpetuate trauma and do not support holistic well-being (BRIDGE Housing, 2018) since they typically:

- Lack the breadth and depth of resources demonstrated to support healing, growth, and resiliency to help communities withstand further harm
- Are informed by and based on the worldview of those who have the greatest power in our society
- Fail to acknowledge the full range of the human experience of people living in and interfacing with the community

These "typical" approaches to community change, then, often further exacerbate existing inequities, limit access to essential supports, and chill empowered, expansive participation in community life.

It is unsurprising that challenging the status quo, striving for justice, and promoting equality of access, opportunity, and outcome is often considered threatening among those who already hold ample power and unearned privileges.

With change, there is loss, and shifting the balance of how our world functions to support increasing access to resources to support justice, equality, and optimal well-being among a greater group of people can breed fear, uncertainty, and resistance among those who already enjoy these aspects of community life (Freire, 1972). This resistance can stall or suffocate community change efforts, leaving trauma-impacted communities vulnerable to further re-traumatization and threats to holistic well-being (Isom et al., 2021).

Further, many community change frameworks subscribe to existing cultural scripts and policies that emphasize individual coping without recognition of the strength of how people adapt to survive within oppressive systems. This can perpetuate exclusion, shame, and coercive power, thus further hindering democratic participation and stifling the potential of many communities and their residents from participating in and engaging with society in ways that promote healing, growth, and well-being (Kane, 2019; Tebes et al., 2019).

It is through taking on transformation with an eye toward trauma-informed strategies that a profound paradigm shift can occur. A trauma-informed approach urges us to critically analyze the interpersonal and structural contexts that shape our communities and the agency and well-being of the people within them.

Trauma-informed strategies offer an alternative to the oppressive "doing to" and the paternalistic "doing for" approaches embedded in traditional community development and instead make a shift toward "doing with," ensuring that community voice is centered and meaningfully leading the direction of the work.

The exclusion and silencing of community voice in "improvement" or "revitalization" efforts often leave needs unmet and can lead to harm and re-traumatization. These impacts are exacerbated when the tenuous, unstable funding that is intended to propel change is contingent on reaching goals and hitting benchmarks that have been set by external parties whose priorities are significantly different from the community.

Anchoring in a trauma-informed frame can powerfully catalyze communities to move away from the dominance of individualism and pathology and toward promoting community wellness, mutual meaning-making, and collective care (Ungar, 2021). By embracing this path toward transformation, we unlock the potential for genuine empowerment, resilience, safety, belonging, healing justice, and a brighter future for all.

Common Barriers to Engagement and Effective Change Efforts in Trauma-Impacted Communities

Multi-level trauma exposure can challenge communities and undermine earnest efforts to implement resiliency- and well-being-promoting change (Pinderhughes et al., 2015).

There is no "one size fits all" approach to trauma-informed community development, and it is vital to acknowledge the complexity of many factors that are often at play, particularly among communities and residents impacted by trauma. Factors related to this complexity can include:

- The presence of chronic daily stressors related to living in poverty, exposure to community violence, experiencing unaddressed trauma symptomology and sequelae, and other challenges can limit the capacity and motivation to engage with and participate in the community in ways that are necessary to sustain change;

- Community-based resources and organizations may be stretched too thin to serve as key leaders, funders, supporters, or other such roles critical to the success of community engagement and development;
- Outreach efforts without intentional design to ensure the messaging lands with those who have been impacted by trauma tend not to resonate in ways that result in robust engagement;
- Since change strategies are often imposed on communities from the "outside," critical community context is lacking, as is a sense of belonging and ownership of change efforts among community members;
- Historical and ongoing structural oppression, racism, exclusion, isolation, and other forms of institutional betrayal contribute to a healthy sense of distrust, a lack of hope, and other barriers to engagement among those living in trauma-impacted communities;
- People who have experienced trauma often feel a sense of futility and/or skepticism after many experiences of being ignored, harmed, and left behind, often accompanied by external entities over-promising and under-delivering, thus making engagement feel as if it is not worthwhile;
- Lack of shared understanding and language among community members and other potential change partners to conceptualize and address community trauma;
- The necessary collaboration for large-scale community change is sometimes quashed based on powerful community organizations or other stakeholders being protective of and in charge of distributing what are generally quite scarce resources; and
- Experiencing trauma can limit a person's access to future-based orientation and thinking, thus obscuring what might be imagined as realistically possible in the way of meaningful change, thus making it challenging for community members to fully appreciate the role they could play in creating change.

Community change plans that do not take these and other relevant factors into account can lead to false starts, frustration and disappointment, deterioration of hope, and a lack of motivation for continued engagement among funders, community members, and other stakeholders.

These experiences can perpetuate cycles of trauma and re-traumatization for the people living within such communities, compounding the complexity of community needs.

There is, however, promise for changemakers to overcome such barriers when intentional efforts are directed toward considering and being responsive to trauma and its localized, multi-level impacts. The praxis of trauma-informed community development and engagement can facilitate access to material necessities and internal and external resources demonstrated to help heal community wounds and promote engagement. A review of community efforts reveals many positive shifts along the pathway of change that is aligned with a trauma-informed approach, including (BRIDGE Housing, 2018; Ungar, 2021):

A review of community efforts reveals many positive shifts along the pathway of change that is aligned with a trauma-informed approach, including (BRIDGE Housing, 2018; Ungar, 2021):
* Increased self-efficacy
* Sense of accountability/ownership in relation to community well-being
* Shared power among partners in change
* Movement toward health equity, increased access to quality resources, and justice
* Greater sense of acceptance/belonging
* Increased social capital
* Enhanced connection and cohesion
* Greater consistency (and the safety that accompanies it)
* Increased trust in institutions and the collective
* Commitment to community stewardship
* Co-creation of community culture rooted in resiliency and strength, supported by a powerful collective comprised of community members of diverse identitie

What Makes an Approach Trauma-Informed?

At their core, trauma-informed community engagement and development strategies seek to:
- Integrate an understanding of the indelible impacts of interpersonal, structural, and historical trauma
- Promote healthy, pro-social, and culturally grounded coping
- Honor community expertise and center voices of lived experience

These common elements can ultimately build capacity to advance individual and community resiliency and well-being, reduce the likelihood of re-traumatization, and increase opportunities for expansive, meaningful participation in society in ways that can mitigate vulnerability to suboptimal wellness, expectantly cascading through the years to disrupt intergenerational transmissions of trauma and adversity (BRIDGE Housing, 2018).

This is operationalized more clearly through the six values of a trauma-informed approach as outlined by SAMHSA. At a high level, SAMHSA describes trauma-informed systems and communities as settings wherein the people there:
- Realize the widespread prevalence of trauma and understand paths for trauma recovery;
- Recognize its signs and symptoms in individual and collective contexts;
- Respond by integrating knowledge of the nature and impacts of trauma into formal policies and community norms related to the ways of knowing, thinking, being, doing, and relating; and
- Actively resist re-traumatization through intentional actions that reduce the likelihood of further harm (SAMHSA, 2017).

Safety (Physical and Psychological)
Traditional community-building models tend to mirror broader societal norms that ultimately prioritize mitigating threats to some groups' safety over others based unjustly on ascriptive characteristics including but not limited to ethnic background; racial identity; gender identity or presentation; sexual orientation; socioeconomic status; age; (dis)ability; and religious/spiritual affiliation.

The reinforcement and replication of these hegemonic dynamics can be re-traumatizing for many with lived experiences as it hearkens to the oft-received message of not mattering, being unworthy, and lacking voice and control in one's life. Establishing resilient, trauma-informed communities involves the creation and sustainment of safe physical environments based on expressed local perspectives and commitment to intentional action that limits and, ideally, prevents collective and individual exposure to violence across the lifespan among all members of the community.

## Trustworthiness and Transparency

It is not unusual for people with lived experience to carry with them a worldview in which people cannot be trusted—often including oneself and the broader systems and institutions that underpin our everyday lives (O'Neill, 2018).

The trauma-informed value of trustworthiness and transparency is enlivened when a community fosters positive relationships among all of its members, from its residents, to those in City Hall, to law enforcement officers, schools, and other local institutions, businesses, and organizations that comprise the community.

Before proposing action toward change, it is often vital to build relationships with residents through a variety of mechanisms, such as community events and activities, to lay the groundwork for establishing meaningful relationships and building trust with key community members (Larson, 2022).

In the change planning and implementation process, enlivening this value can include being honest about the possibilities for change based on resources available and anticipated barriers to change that may be encountered. This also can be derived from inviting community members to play central roles in spearheading change, both demonstrating to the broader community that they are being represented and potentially motivating others to join in action to amplify community representation and voice in the process.

Trustworthiness and transparency remain central to any trauma-informed community change process as the healthy development of the human brain and body demands consistent compassion and predictability, which ultimately can unlock healing at individual, relational, community, and system levels (Matlin et al., 2019; Porter et al., 2016).
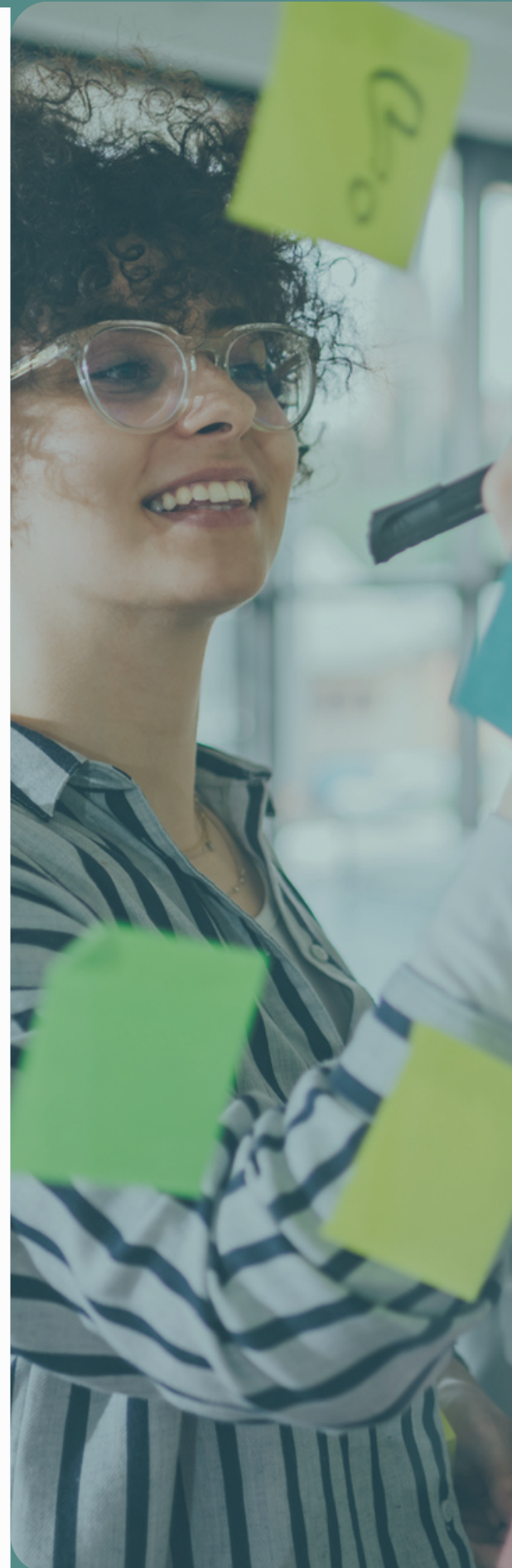
Peer Support

In the trauma-informed community context, trauma-informed peer support entails community members working together on issues of common concern. Community members themselves sharing information to normalize and de-pathologize trauma as well as disseminating details on how trauma-informed approaches can help their communities can be a powerful way to generate momentum and cultivate supportive and symbiotic relationships among residents to move the larger community towards greater self-efficacy, empowerment, and resilience (CDC, 2022).

Further, the active and positive coping supported on an individual level through processes such as peer support, as well as the meaning-making experiences of supporting neighbors in navigating challenges related to trauma and adversity, can support the emergence of post-traumatic growth among community members engaged in powerful peer connections, ultimately bolstering community capacity and power in the change process.

Notably, in addition to individual-level post-traumatic growth that can be enhanced through peer support, there is also emerging wisdom from the field on the concept of community post-traumatic growth. This emerging phenomenon demonstrates the powerful positive impacts that joining together to support one another in promoting well-being and engaging in collective experiences of witnessing resiliency and growth throughout the community and of the community-as-a-whole can bring about (Black et al., 2022).

Collaboration and Mutuality

In the spirit of the African proverb, "If you want to go fast, go alone, if you want to go far, go together," trauma-informed communities support the meaningful involvement of residents in efforts to build capacity and implement change.

Similarly, trauma-informed communities prioritize cross-agency and -sector collaboration by promoting partnership and coordination among and between community entities. This ultimately enhances collective knowledge and creates stronger community and organizational linkages for community members to receive equitable, appropriate, accessible, and affirming trauma-informed supports and services (Ellis & Dietz, 2017).

Empowerment, Voice, and Choice

In alignment with the adage posed by Desai and colleagues (2019), "If you want to know about a book, ask the author," trauma-informed community development strategies intentionally center lived experience and community voice.

This is accomplished through conceiving community members as experts of themselves and through the deliberate noticing, honoring, and mobilizing the inherent wisdom, strengths, capacities, and skills of communities and the individuals, families, and groups who interface with them.

In frameworks that seek to integrate trauma-informed and resilience-building approaches, a community is enhanced to support opportunities for individual and collective growth and self-actualization based on what its members truly desire, and those opportunities are designed to be accessible and equitable for all.

Cultural, Historical, and Gender Issues

Historical and present-day threats to civility and dignity contribute to cascading and compounding consequences that disproportionately impact those made most vulnerable to experiencing marginalization, oppression, adversity, discrimination, disenfranchisement, and trauma (O'Neill et al., 2018).

Trauma-informed capacity-building approaches have vast liberatory potential to drive positive community-level change because they value and support local history and culture with a reverence for the diversity of a community's makeup.

This requires intentionality around interweaving efforts to advance accessibility, belonging, diversity, equity, inclusion, and justice (ABDEIJ) into all actions undertaken toward community change. Integrating ABDEIJ concepts is critical to acknowledging and addressing the profound and interconnected impacts of historical, racial, cultural, and other forms of collective trauma that contribute to the cyclical nature of trauma within communities (Pinderhughes et al., 2015).

The burdens borne by communities affected by generational trauma, including displacement, violence, exclusion, disenfranchisement, and cultural erasure, perpetuate high stress, isolation, and disengagement from the civic participation that is needed for capacity- and coalition-building efforts to be truly community-led (BRIDGE Housing, 2018; Porter et al., 2017).

Recognizing the importance of remembering and allowing space for grief is essential to foster healing and memorializing cultural cornerstones in ways that can contribute to sustained change in communities (BRIDGE Housing, 2018; Mussell et al., 2004; Tebes et al., 2019). By engaging with culturally grounded resources and practices, community members can find self- and collective understanding, compassion, and coping strategies to recover from and counteract structural harms (BRIDGE Housing, 2018).

Additionally, engaging (directly or indirectly) with trauma material can lead to burnout and hinder sustained participation, further exacerbating the struggles of those facing intersectional and compounding trauma-related challenges (Silva, 2020).

Integrating cultural wisdom and indigenous practices into community organizing, capacity-building, and change implementation has been demonstrated to bolster critical awareness and collective action to drive social, political, and cultural changes within communities impacted by trauma (Crawford et al., 2021; Faust et al., 2021).

One powerful example emerges from the Menominee Indian Tribe, which highlights that we can achieve transformative change when we honor lived experience, collectively remember and listen to the stories, and provide support to communities so they may direct the change that helps them expand into their vision of a preferred future through culturally grounded principles, efforts, and activities (Faust et al., 2021; Menominee Indian Tribe of Wisconsin, n.d.).

The importance of cultural context that this example shines a spotlight on cannot be emphasized enough when considering how to enliven this principle of a trauma-informed approach in community engagement and development work.

Broad Considerations for Building Capacity and Engaging Communities in Trauma-Informed Change

To reiterate: given the dynamism and complexity of community life, and how each community has its constellation of unique needs and individualized ideas of how to prioritize addressing barriers to getting those needs met, there is no "one size fits all" approach to creating and sustaining healthy communities that fit every possible context.
Building, sustaining, and mobilizing community resilience and trauma prevention efforts demand an approach adaptable to local contexts and evolving needs.

This complexity can often lead communities to question where to begin implementation. It can also be challenging to balance aligning change efforts with best hopes while also being realistically adaptable to the unique community environment in which implementation is being considered based on available resources, capacity, and other characteristics that determine the direction for the work to be done (Danielson & Saxena, 2019).

In addition to community context and broader sociopolitical factors influencing goodness-of-fit for implementing various approaches to change, it is also important to recognize that different communities will have different trauma recovery trajectories that may center on pre-trauma characteristics and circumstances, adding yet another layer of complexity that demands a trauma-informed approach (Magruder et al., 2017).

With these factors in mind, the below considerations are proposed to support changemakers in leaving scant, siloed change efforts behind in favor of coalescing around common community values and best hopes and working cooperatively and collaboratively to cultivate community cultures and environments that sustainable support resilience and wellbeing for all.

Anchoring in a Process Orientation and Remaining Flexible

While an overarching vision, long-term goals, and/or shared values may remain consistent throughout a community's journey toward change, the strategies utilized and interim objectives along the way are likely to shift based on a variety of ambiguities and uncertainties given how quickly conditions can change, as has been demonstrated clearly in the last several years.

Adopting a flexible process orientation will help meet the unique needs of a community because it is nearly certain the context and conditions around the effort will evolve as new knowledge is gained and new participants are engaged. Building resilient, healing-centered, and trauma-responsive communities through a flexible, process-oriented lens entails:

- Leveraging social capital and indigenous wisdom to meet challenges and choice points as they arise
- Creating feedback loops and reciprocal learning cultures, informed by continuous data collection, leaving community members standing empowered to align resources and change efforts effectively
- Engaging community members and stakeholders to foster collective competence and shared responsibility for impactful change

Keeping an Eye Toward Prevention, as Viewed Through a Systems Lens

Maintaining a systems lens helps changemakers and stakeholders shift away from individual blame and deficiency toward a more holistic understanding of community challenges rooted in time, space, and context. It is essential to recognize that individual, family, and collective community behaviors and experiences are interconnected with broader factors that exist, emerge, and evolve in the context of broader living systems (Bronfenbrenner, 1992; SAMHSA, 2017).

Aptly encapsulating the importance of context in examining and disrupting cycles of trauma, Resmaa Menakem (2020) has stated: "Many times trauma in a person decontextualized over time can look like personality. Trauma in a family decontextualized over time can look like family traits, trauma decontextualized in a people over time can look like culture. It takes time to slow it down so you can begin to discern what's what."

As this quote highlights, while individual- and family-level clinical interventions, services, and supports can be helpful, alone, they are insufficient. Targeting a broader context is integral to reducing the incidences of harm that create the need for such interventions, services, and supports in the first place (Matlin et al., 2019).

A prevention-oriented approach acknowledges the broader systemic dynamics that perpetuate trauma and focuses on multi-level strategies to promote self-healing, interpersonal and relational healing, as well as structural and systemic healing to optimize well-being for all (Magruder et al., 2017; Bellis et al., 2019). Investments in the social determinants of health and macro-social factors known to impact experiences and outcomes among those with lived experience can reduce future trauma exposure and promote population-level health and well-being (Tebes et al., 2019).

By prioritizing systems-level prevention and investing in upstream community-based solutions, communities can lift the burdens of trauma and re-traumatization, achieve a greater return on investment than is accomplished by merely responding to harm that has already occurred, and improve overall community health, thus also building resilience and capacity to future potential experiences of trauma and adversity.

Engaging a Multi-Generational Lifespan-Based Perspective

Too frequently, the solutions to ACEs and developmental adversity are confined to direct interventions that support children and young people in isolation. Building resilience to navigate stress, challenge, and change successfully requires expanding our approach across the lifespan and paying attention to context.

Breaking intergenerational cycles of trauma and adversity requires an approach that considers the additional vulnerability often present among caregivers and others who themselves have lived experience, given the interconnectedness of community life. This includes seeking to reduce how adversity is dosed and buffered in child- and youth-caregiver and other significant community-based relationships (Center for Youth Wellness & Zero to Three, 2018).

Family functioning can be profoundly impacted by community conditions and the presence/absence of risk and protective factors that promote trauma recovery and holistic well-being, including:
- Low collective efficacy or social control
- Lack of neighborhood services
- Low community socioeconomic status
- Limited community-based access to enriching environments (e.g., greenspaces, locations to be in connection with one another, etc.)

This suggests that community-level intervention with an eye toward multigenerational prevention can reduce exposure to ACEs that can snowball with each generation if left addressed only in the context of what happens in early life development (Schofield et al., 2018).

A multigenerational approach includes supporting healthy development in both informal (e.g., shifting neighborhood culture toward a trauma-informed, healing-centered, resilience-oriented lens) and formal contexts (e.g., social services using positive parenting programs or other similar approaches) alike, all of which can align community assets with the needs and strengths of the families within it such that positive experiences and outcomes become increasingly more likely (Schofield et al., 2018).

What happens across our lifespan can compound to perpetuate further patterns that can impact generations to come. A trauma-informed approach acknowledges that individual and collective needs can and do look different based on where a community member, group, or the community-as-a-whole is within the lifespan.

Mobilizing Strengths, Assets, Capacities, Skills, Gifts, and Wisdom through Community-Led Action

Elevating and amplifying community voice and ensuring that efforts toward change are community-led can enhance success in engaging in transformational community change. This process brings about a sense of belonging, ownership, connectedness, and pride that motivates continued participation and motivation toward change (BRIDGE Housing, 2018).

Trauma-informed approaches to community development and engagement demonstrate a reverence for community wisdom and lived experience, suggesting that the people who have the most at stake if change efforts are implemented ought to be the ones driving the change (Chapin Hall, 2022; SAMHSA, 2017).

There is some doubt about whether institutions and organizations have the agility and flexibility to devise holistic solutions that attend to community priorities and needs with the same efficacy as tapping into the social and human capital of community members (Brennen, 2020).

Ultimately, community infrastructure and social capital among community members are what remain after external funding sources evaporate or are otherwise disinvested, which creates a compelling argument for capacity-building. These processes can restore power to the community to catalyze and sustain change efforts based on its priorities, values, and best hopes (Falkenburger et al., 2018).

In considering how to leverage community strengths, is important to recognize that leadership and meaningful participation can originate from anywhere – from seasoned community organizers, to local artists, to a collective of concerned pediatricians, to a county government entity, or any other person, group, or organization that seeks to catalyze community resiliency-building efforts.

And yet, it is important that power is shared among community members to prevent ongoing efforts from becoming siloed, replicative, or competitive. It is vital that all partners in change are accountable to community members acting and advocating on their behalf and interests.

Returning to the idea of process orientation versus outcome orientation, it can be helpful to avoid focusing on building capacity to implement a particular initiative and instead consider building on the capacity of the community itself to gain long-term direct access to resources, set forth actionable plans, and enable participation that fits for each community member (Ellis & Dietz, 2022).

Such capacity is built through empowerment frameworks prioritizing trust-based community relationships and community-generated solutions. These can be further strengthened by engaging in shared leadership with an openness toward "uncommon partners" in the work as a critical competency for sustainable, meaningful, community-driven change (Porter et al., 2016).

A useful strategy for some communities has been pooling strengths and capacities through the creation of cross-sector, cross-system "champions" who regularly connect to organize and activate others around achieving a shared vision of sustainable change to lead to their preferred future (Aspen Institute, 2010; BRIDGE Housing, 2018; Ellis & Dietz, 2017; Matiln et al., 2017). Further, it can be useful to build multiple points of entry and a variety of different opportunities for community members to engage, participate, and contribute based on their own unique gifts, capacity, bandwidth, and motivation to change efforts.

Differing philosophies around what constitutes significant and meaningful engagement looks like can impact (Matlin et al., 2019; Hall et al., 2012; SAMHSA, 2017; Tebes et al., 2019):
- How resources are (or are not) shared
- What expectations for change efforts are held
- What level of motivation to participate is present
- Whether trust and safety to fully and authentically show up is possible
- How significantly key predictors of success such as optimism, hope, efficacy, curiosity, commitment, and belonging are experienced

Continuously Creating Opportunities for the Co-Construction of Knowledge and Meaning

Research suggests that dismantling oppressive systems and institutions challenges existing power structures and contributes to creating the context and conditions for empowerment to emerge. This can foster collective transformation related to social dynamics, shift overarching values and virtues, promote post-traumatic growth, and support other progressive changes that enhance well-being (Freire, 1972; Somasundaram & Sivayokan, 2013).

Accordingly, ongoing learning and education are vital to advance trauma-informed and resilience-building approaches, thus ensuring community members understand individual and collective trauma responses they have experienced or borne witness to, along with the powerful role they can play in driving the transformation needed to create and sustain thriving, flourishing communities (Blanch et al., 2019; Tebes et al., 2019).

While workforce development is vital in building and sustaining trauma-informed communities, consciousness-raising, education, and training efforts most powerfully advance community change when this knowledge is not solely held among those who hold employed positions in mental health, education, legal, and other professionalized systems/institutions (SAMHSA, 2017).

To build capacity across sectors and to fully tap into the diverse community expertise that will lead to the most effective long-term change, it is vital that all members of the community are equipped with knowledge of trauma and trauma-informed approaches. This leaves community members standing empowered to choose how they want to make meaning of this information and what they wish to do to act upon the knowledge and understanding of how trauma has impacted their lives and the lives of their cared-for ones and neighbors.

Thinking outside of the box to meet community members where they are is critical to build and leverage a groundswell of support. By creating learning and digestion opportunities, you can help build the capacity to sustain trauma-informed community change (Kania & Kramer, 2011; Mobilizing Action for Resilient Communities, n.d.; Porter et al., 2016).

For instance, some changemakers have found that creating open education opportunities through community-based events and/or integrating discussions about trauma and community transformation at existing town hall meetings can powerfully foster competency- and content-based learning, equipping community members with the knowledge, tools, skills, and pathways to make an impact (Matlin et al., 2019).

Framing around a shared language and understanding when messaging opportunities for engagement and participation can also be critical in increasing community capacity for resilience-focused change. For example, rather than framing change implementation that the community wishes to sustain as "initiatives" or "projects," it can be helpful to message engagement efforts as advancing movements or establishing networks/collaboratives.

The right terminology can help engage community members because it implies earnest and intentional efforts rather than focusing on set budgets, rigid timelines, and box-checking. This can also help grow momentum to work collectively toward shared principles and behaviors, as well as build capacity to sustain these positive gains based on what has been established as important or engaging to community members.

Workforce development is integral to building and sustaining trauma-informed communities, necessitating an understanding of trauma's impacts and self-care for professionals (SAMHSA, 2017). Policies, procedures, and hiring practices that align with trauma-informed principles help to concretize a trauma-informed culture and help ensure that this lens is embedded in an organization's mission, vision, and values so that intentionality around engaging in a trauma-informed way does not peter out over time (SAMHSA, 2017). Training is most impactful when it extends beyond clinical staff to reach leadership and administrative roles (SAMHSA, 2017).

In addition to formal education opportunities for people to engage with in their workplaces, cultivating opportunities for shared learning among community members can further enhance community capacity and enable cross-sector, cross-system collaboration. Engaging the community in learning that grounds itself in strengths-based language and a sense of urgency can fuel the awareness needed to catalyze collective transformation (Tebes et al., 2019; Blanch et al., 2019).

Various mechanisms and settings for learning, such as community events, meetings, online platforms, and competency-based education, can raise consciousness and promote leadership within communities (Matlin et al., 2019). These considerations and strategies, among others, further seek to create shared knowledge, language, and meaning. They can help communities co-construct a collective understanding of their history and future possibilities to work toward realizing together.

Similarly, as new ways of thinking, knowing, being, doing, and relating are discovered along a community's pathway toward resiliency and flourishing, it is important to ensure that implementation efforts and actions undertaken and underway are those which will help a community achieve sustainable well-being.

Engaging in ongoing evaluation and progress-monitoring as new learnings are integrated into change plans is of critical importance. However, there are few psychometrically valid, reliable, and universalizable tools available for implementing trauma-informed community change – an important insight to inform continued exploration and research.

Grounding Awareness and Action in Wisdom from the Fields of Neuroscience, Epigenetics, Adverse Childhood Experiences, and Resilience (NEAR)

The ever-evolving field of NEAR science illuminates what we know and are continuing to learn about individual and collective experiences of trauma and resilience and provides important context for any community capacity-building and change effort because it equips communities with the knowledge to transform intergenerational health and well-being (Porter et al., 2016).

Implementing trauma-informed and allied community change efforts works most effectively when education about and consideration for the NEAR framework is integrated throughout the planning, implementation, and sustainment process. It is also vital to integrate and institutionalize this knowledge within programs, policies, protocols, and practices among community organizations, entities, businesses, and agencies, as well as among the general community population (Müller & McKenney, 2020).

This is interconnected with education, as already highlighted. For instance, communities can promote positive child and family well-being through facilitating education on the impact of trauma-impacted environments and traumatic experiences on human development and promoting activities associated with allied frameworks such as the Healthy Outcomes for Positive Experiences approach to facilitate pro-social, positive development and disrupt intergenerational cycles of trauma and adversity (Sege et al., 2017; Social Current, n.d.).

Bolstering individual and collective protective factors that the research connects to resilience and post-traumatic growth can facilitate the establishment and maintenance of self-efficacy at individual, family, and community levels. These positive experiences achieved through task accomplishment along the change process are connected to profound shifts in worldview among those who have experienced trauma (Keyes & Galea, 2016; Tebes et al., 2019).

This can be accomplished by supporting NEAR-based activities, including:
- Structuring opportunities for reflection into community capacity-building and change efforts
- Providing opportunities to hone skills for transformational leadership to support community members with lived experience in informing and leading change efforts that:
  - promote connection and cohesion
  - advance workforce development
  - support community resource-need alignment
  - shift the course of public policies
  - increase access to science-aligned promising practices
  - equip many community members with what is needed to engage in ongoing learning and evaluation
  - support efforts to scale the prevention continuum to ensure sustainability and resiliency to future threats of harm (Sege et al., 2017; Social Current, n.d.)

[see the APPENDIX for more information on NEAR science]

Diversifying Funding Streams and Tapping into an Abundance Mindset

Sustaining financial support for aligning community objectives and hopes with enhancing macrosocial determinants that influence overall health and well-being is essential to heal, mitigate, and prevent trauma and build community resilience (Bowen & Murshid, 2016; Matlin et al., 2019). Communities vary considerably, however, in the ways that trauma and its sequelae emerge; the resources each community has available to produce effective, sustainable solutions also, in turn, are diverse.

Common funding sources for community change efforts include designated community, city, county, state, and federal appropriations, grants, agency, organizational, and departmental contributions, private contributions, business sector and philanthropic contributions, and the establishment of local taxes or fees (414 Life, n.d.; BRIDGE Housing, 2018). Often in community development and engagement efforts, these resources are pooled into a central organization or nonprofit, sometimes referred to as a "backbone institution."

This action is generally framed as "investing in the community," yet placing such power and focus in the hands of nonprofits or other centralized entities excludes community members from participating in important conversations and influencing the direction taken at critical choice points, ultimately disempowering the community under the guise of inclusive action (Chapin Hall, 2022; Devia et al., 2017).

There is also an unfortunate tendency for institutions and organizations to sequester resources as they see fit rather than redistribute them in alignment with community preferences (Hebert & Gallion, 2016). Further, funding allocation is frequently prioritized based on an oppressive status quo and examines difficult-to-attain benchmarks that do not always indicate meaningful change outcomes based on shared community vision and values (Hebert & Gallion, 2016). This tactic can cause communities to have funding pulled for "not meeting expectations" in change efforts during times of profound need (Chapin Hall, 2022). In addition, those benchmarks tend to be deficit-focused rather than salutary and working toward positive change, which counters what is connected to promoting deep and authentic community engagement (BRIDGE Housing, 2018; Daniels, n.d.).

Finally, research, technical assistance, and support provided by outside organizations often end up absorbing substantial partnership funds, reducing the total resources available to implement critical change initiatives in communities, leading to fizzled-out hopes and cycles of re-traumatization (Hebert & Gallion, 2016). Clearly, without access to diverse, sustainable funding streams, communities can be hindered from truly flourishing and allocating the resources needed to thrive, where they know will create the most significant positive impact.

Given the complexity of transformative change in trauma-impacted communities, aligning, leveraging, braiding, and blending resources from various sectors and sources is often necessary to sustain support for change. This often also requires communities, potential funders, and other change partners to shift from a scarcity mindset to an abundance mindset and can require significant action given how counter-cultural a collective approach to allocating resources can be to what those in power in communities are used to.

Positioning communities to take the lead to cultivate and mobilize community strengths and skills through a trauma-informed lens demands more innovative funding models that allocate resources directly into the hands of residents rather than organizations to enable capacity and scaling of collective change efforts driven by the community, for the community (Chapin Hall, 2022). Advocates and change partners can work to establish a system where community members maintain control over how resources are used, such as by requiring funds to be shared with and/or controlled directly by communities and tribes, which has been shown to strengthen community cohesion and ownership in change efforts while bolstering procedural and other forms of social justice (Ellis & Dietz, 2022; Devia et al., 2017).

While paternalistic models of community change may consider adaptations to trauma and adversity exhibited among communities to be "liabilities," there is ample evidence that communities that have built internal capacity to self-sustain community change efforts over time have been able to achieve consistent, positive progress on complex and interrelated issues at scale without necessarily needing to devise drastically new approaches or finding new major sources of funding (Cabaj & Weaver, 2016; Kania & Kramer, 2011).

Expanding the Evidence Base in an Accountable, Anti-Oppressive Way

In the quest to build and sustain resilient, healthy communities, engaging evidence-based, evidence-informed, and promising practices play a pivotal role. So often, communities have been cautiously hopeful and optimistic at the prospect of being able to spearhead the change they want to see happen while, instead, external agendas prevail, leaving people with lived experience feeling particularly slighted and exploited by the process of external parties coming in and benefitting from their pain without seeing actual improvements or change to their communities.

Trauma-informed approaches can turn this tide, integrating accountability and honoring community preference and expertise to support sustainable change.

While empirical research practices to deepen the understanding of individual and collective trauma experiences and related outcomes are often problematic, the current lack of empirical support specifically for trauma-informed community change models can impede change efforts and deter funders from providing necessary support. It is crucial to address this gap by utilizing collaborative frameworks such as community-based participatory research and empowerment evaluation, which prioritize meaningful community engagement and support communities in getting what they need to stand empowered to evaluate their strategies and progress.

These approaches establish trust between researchers, funding partners, community members, and other partners rather than contributing to the traditional harms researchers and academia have inflicted upon communities (Cox et al., 2009; Danielson & Saxena, 2019). Meaningful data collection and analysis, driven by community expertise, can help establish best practices and inform decision-making—as long as academics and researchers avoid viewing communities solely as research subjects or data sources.

By combining evidence-based approaches with meaningful community engagement, we can strengthen the empirical foundation of trauma-informed models, cultivate a culture of inclusivity, mutuality, and shared learning, support empowered communities leading the charge in the change they want to see, and build resilient futures together.

Joining Individual, Family, Organizational, Institutional, and Systems Reform with Place-Based Community-Level Change

While there is much promising change happening in many communities, CTIPP often hears that this change remains siloed and falls short of cascading through the community in mutually enhancing ways.

Change efforts targeted solely at the internal operations of organizations or enabling skill development among individuals who access services and supports could fall short of meeting broader community needs.

Efforts to engage in trauma-informed community change without parallel efforts that are implemented across various systems will not produce large-scale change and can reproduce harm by touching on trauma themes (Tebes et al., 2019). The interconnectedness of our lives with others contextualizes that each person and each family are not individual islands operating in isolation.

Accordingly, as stated earlier, a living systems approach calls upon each change partner to be attentive to the ways that they are engaged in reciprocal relationships and interactions at various levels of our society and how being embedded within these dynamic, complex ecologies require intentionally designed multi-level, multi-pronged approaches to enhancing well-being.

While it can be an understandable survival technique for those, who recognize the need for change and fervently wish to play some sort of role in enlivening that change to focus on hyper-localized change as it feels more as if it is within their individual control, expanding beyond our individualistic efforts to see a pathway toward something more broadly different that can only be achieved through coordinated, collaborative, and collective action is a vital aspect of breaking through the barriers that sustain cycles of the status quo.

It is vital for all to courageously step outside of their own echo chambers and silos in pursuit of connecting with those who have shared interests, values, and visions for the future. Expanding and more strategically levering community partnerships leverages the synergies between systems to improve community conditions and capacity to meet the complex individual, family, and community needs exhibited among those impacted by trauma, which generally cannot be realized through change within a single organization or even a single system of care (Chapin Hall, n.d.; Tebes et al., 2019).

It thus behooves advocates and activists with a stake in advancing community well-being to intentionally uplift the interconnectedness and interdependence of the strands of community life in the work (BRIDGE Housing, 2018).

Working with partners can help create a framework that enables components that contribute to community resilience, such as an ethical and secure means for data-sharing, the development of collective goals, and partialized objectives/action steps that tap into the unique wisdom and gifts of all involved, as well as connection points to support staying focused on and anchored in the priorities that will most support the community in building community capacity to sustain well-being   (Bethell et al., 2017; Ellis and Dietz 2017).

Mechanisms to build transparent, trusting relationships to facilitate an open dialogue wherein all stakeholders are listening to their partners' needs remain essential and are a key component of coming together in service of advancing trauma-informed change.

Zooming even further out, it can be helpful to highlight how local coordination and collaboration are essential to laying the groundwork to build a national network of sustainable, resilient trauma-informed communities. Cross-disciplinary, cross-sector, and cross-system collaboration, over time, improve outcomes at all levels, including the possibility for broad, sustained community- and population-level change (Srivastav et al., 2020).

Structures such as CTIPP's _PressOn_ are cultivating communities of practice that span geographical borders to provide space where advocates and activists can share and learn from one another. The initiative is helping communities at all stages of change gain inspiration and practical wisdom to evolve and grow localized pockets of transformation.

Further, staying connected to others can sustain the hope, self-efficacy, engagement, and momentum that sometimes can peter out when insular or isolated change efforts rather than collaborative, coordinated, and collective ones prevail (Ellis & Dietz, 2017, Mobilizing Action for Resilient Communities, n.d.).

Final Thoughts

No community is immune to the unexpected upheavals of trauma and adversity. By integrating and embodying the values and principles of a trauma-informed approach, we create fertile grounds for healing, recovery, resiliency, and post-traumatic growth on individual and collective levels.

It is through operationalizing these values that we can work together to fortify our communities, enabling them to weather future adversity with unity, connection, strength, wisdom, compassion, and unwavering hope, while simultaneously working to prevent harm from occurring in the future.

By infusing our change efforts with a trauma-informed lens, we unlock a world of benefits that extend far beyond individual healing. It becomes a universal precaution woven into the fabric of our strategies, propelling us towards prevention, supportive environments, social justice, equity, and intergenerational well-being for all.

Learn more at CTIPP.org.

Appendix: NEAR Science

Neuroscience relates to the understanding of the nervous system and brain, including discovering the role of emotions in relation to memory and the brain, understanding the basics of various brain states with an emphasis on the various stress/trauma/survival responses that may emerge, recognizing and generally comprehending the capacity humankind has available through neuroplasticity (the changing of the brain as trauma or adversity happen and heal over time), and being able to determine how to intervene to support resilience and recovery across the lifespan based on what is observed individually and/or collectively among community members (Posakony, 2020).

Epigenetics describes how the body's genes are expressed and adapt to experience and environment across the life course and, as research has revealed, transgenerationally (Yehuda & Lehrner, 2018). This aspect also promotes a realistic sense of hope by revealing that while trauma and its impacts can be transmitted through epigenetic changes that are passed on from one generation to the next, so, too, can resiliency, skills, strengths, and the capacity to heal and grow (Posakony, 2020).

There is evidence that such conditions within communities that adopt a trauma-informed approach are more likely to see changes in genetic expression that may contribute to generational healing and recovery (Danielson & Saxena, 2019). Community change has the potential to support future generations with a disposition toward empathy, resiliency, strength, social competency, reflective awareness, and citizenship, all of which contribute to more empowered, meaningful ways of being than are available to trauma-impacted communities that do not undergo change efforts through this type of framework (Ungar, 2021).

Adverse childhood experiences (ACEs) refer to certain indicators of significant stressors and challenges encountered within families, communities, and systems that, when experienced in the first eighteen years of life, particularly in the case of compounding and/or intersectional challenges, can powerfully shape physical, psychological, social, spiritual, emotional, and behavioral health and well-being.

Importantly, while there are many population-level challenges, public health research indicates that people tend to become more vulnerable in connection to experiencing ACEs, with consideration for the concept of multifinality – defined by McLaughlin (2016) as "the process by which the same risk and/or protective factors may ultimately lead to different developmental outcomes" – and the broad range of possible sequelae along the lifespan among people who have experienced ACEs, it is critical to recognize that there is no "set" trajectory following exposure to ACEs (Tebes et al., 2019; Weems et al., 2021).

It is also noteworthy that there are other forms of developmental adversity – "exposure during childhood or adolescence to environmental circumstances that are likely to require significant psychological, social, or neurobiological adaptation by an average child and that represent a deviation from the expectable environment" – that are important to consider in devising and implanting plans for trauma-informed community change work (McLaughlin, 2016). Such examples may include experiencing discrimination or racism, being bullied, experiencing migration or displacement, witnessing war, enduring or extreme poverty, being exposed to community violence or deteriorating built environments, or becoming involved in the foster system (Philadelphia ACE Project, n.d.; Posakony, 2020).

Further explorations, such as Smart Start's (n.d.) "Healthy & Resilient Communities" frameworks, have further expanded this exploration by including adverse climate experiences (E.G., hurricanes, wildfires, droughts, and so forth) as well as "atrocious cultural experiences" (E.G., having a legacy of trauma through a macro and sociohistorical lens, such as slavery, genocide, colonization, segregation, family separation, and so forth). All of these conditions and experiences demand contextual consideration in addressing community change.

Resilience describes the capacity to adapt to, prevent, or mitigate the impacts of an adverse event or traumatic experience and recover through survival, adaptability, evolution, and growth in spite of ongoing stress, challenge, and change (Ellis & Dietz, 2017). Resilience may be developed as well as exercised and may occur at the individual- and community-level.

Considering communities each as living, self-organizing systems makes it of great importance to consider how to unlock and mobilize community-level resilience. Indicators of contextual community resilience include factors like mutuality and social reciprocity, community co-care and collaboration, and, interestingly, training on NEAR science itself (Posakony, 2020).

There are certain adaptive capacities in communities that are able to build and sustain resilience and well-being through trauma-informed change efforts, identified by Ellis & Dietz (2017) as the ability to sustain economic development within the community; the degree to which residents possess social capital (I.E., social networks and supports, including family and other community members); the effective bidirectional transfer of information and communication between residents and community-based organizations/agencies that provide services and supports; and the community competence to support activities related to civic engagement, self-management, and collective empowerment for community engagement and advocacy.

These are factors that it is critical to find individualized strategies to support within communities for them to become self-sustaining in their change and growth process despite uncertain and stressful circumstances.

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Climate Survival Toolkit:

Visioning the Next Era of Our Movement

This year was like the opening scene of an apocalypse movie. Maybe that's why you're here: fires, hurricanes, smoke, heat, floods. Inflation, hunger, or drought. Millions of lives that were sacrificed so the economy could keep growing. It's all part of the same unnatural disaster.

Most of us are alarmed, and while we beg for help watching cities be destroyed around us, we're offered half measures, and spend our time haggling for a little more — all while the world burns. Maybe you find yourself in exhaustion, terror, burnout or disbelief.

But there is another way.

In communities around the world, people are coming together to help each other, prepare for the struggles ahead and replace the destructive system that brought us here with a new way. People are distributing air purifiers, producing food, creating water purification when sanitation plants fail, and creating community-owned energy. People are demanding that **cop cities stop, wages are survivable and destructive fossil fuel extraction comes to an end.** More than demanding — making it so.

This is the Climate Survival movement, and this toolkit is your invitation to join.

▪▪▪

Are you part of a group that wants to do this work more deeply? We are working with groups around the U.S., and we offer:

- Coaching on launching this work in your community
- The opportunity to join a national map of groups carrying out Climate Survival organizing
- And the opportunity to pilot signature programs like Scouting (an approach to community outreach)

Fill out this form so we can talk more with you.

▪▪▪

We are building alignment among groups working across social justice issues including prison and police abolition & community safety; tenant organizing; food and land sovereignty; and many other issues compounded by our accelerating ecological crisis.

The Climate Survival movement is rooted in three elements:

- **survival programs** that create economic self-determination and resilient communities. Disaster preparedness can only take place when people's needs are met. This can include grassroots disaster preparedness programs, people-helping-people programs like food distribution (also known as mutual aid), and large-scale economic programs like farming and housing cooperatives. These programs will grow a larger climate justice movement, sustain long-term protest uprisings, and help us withdraw from fossil fuels. We are inspired by the survival programs created by the American Indian Movement, the Black Panthers, the Young Lords, and other movements around the world.

- **direct action,** applying our labor to meet our needs — regardless of the consequences (definition by Gopal Dayaneni, co-founder of Movement Generation). We cannot just disaster-prepare our way out of the crisis we are in — this extractive, destructive system must end;

- **And somatics,** activities that allow us to reconnect with ourselves, with each other, with a sense of community and our own power by tuning in to the sensations, perceptions, and experiences of our minds and bodies.

About Us

We work closely with, take leadership from, and provide resources and staff coordination to Survival Bloc, a collective of nine young (Millennial and Gen Z) BIPOC climate justice leaders who are building out the vision, tactics and programs of a decentralized mass movement for climate survival. While Survival Bloc has informed the creation of the Climate Survival approach, this document was created by Climate Mobilization Project and any errors are ours.

Climate Mobilization Project is most known for our work on climate emergency declarations and supporting local, state and federal campaigns for an end to all climate change causing pollution by 2030. Because *waves arms at everything* the emergency is here, and now we need to survive it, in the last few months we've shifted our efforts to the work described above. **This movement-building work can't continue without your help. Please give online using this link.**

A Note About This Moment

Some of the challenges and opportunities we face in this political moment are:
- Congress' failure to take meaningful action on climate, and the slow pace of city, county and state climate programs.
- Rising inequality amid continued cuts to food, income, and health supports
- Escalating climate disasters that are hitting global and US-based frontline communities the hardest and will continue accelerating rapidly
- Widespread concern about climate change that has not yet been tapped into by any mass movement

Last year, we sought guidance for our work from dozens of leaders from across the Just Transition movement. Many of their ideas and solutions guide our work.

Building on these conversations, we are:

- Building a multi-issue "movement of movements" by bringing groups together to explore how we can respond to the accelerating ecological crisis with more intersectional movement building approaches;
- Addressing the ways that the non-profit industrial complex has fragmented us into working issue-by-issue, and has even been a strategy to repress our movements
- Seeking creative and ambitious solutions on an emergency timeline, rather than becoming trapped in slow and incremental legislative cycles;
- Offering somatic healing tools to organize and reach people who are facing the traumas of COVID and ecological crises;
- Both organizing in our communities and working to build a vastly larger mass movement;
- Using communications, arts, and cultural strategies that shape the public's imagination of what is possible through the stories we tell;
- And creating strategies for more long-term and creative direct action campaigns.

Further readings about the moment we are in:
- Dean Spade Is Asking Activists, "How Much Bolder Could You Be?"
- Economics for Emancipation Podcast Ep. 3: To Become Ungovernable
- "Smart" Repression

Personal and Collective Resilience Practice: Orienting

Written by Caroline Contillo, rooted in the work of Peter Levine

Orienting is the nervous system's natural response to scan for safety. Doing this intentionally can help bring a sense of ease. This is an activity that can help you tap into the connection between your mind & body by orienting to the space you're in. Orienting helps us remember that we have a body and exist in a specific space.

1. Start to notice your **felt sense**. This can mean noticing where your body connects with your chair, the feeling of clothing on your skin, any sense of temperature or sensation in your body.
2. Start to let your eyes slowly wander around the room you're in. Instead of labeling things for what they are, see if you can allow your eyes to be attracted to shape and color. Let your eyes lead you, slowly around the room, including above and behind you.
3. After a few minutes of noticing shapes and colors, let your eyes rest. Check back in with your felt sense and notice if things feel any different.

Grassroots Disaster Response

Under **Disaster Colonialism & Disaster Capitalism,** businesses and governments use shocks including climate disasters caused by the fossil fuel industry, to launch new extractive projects and privatize public services by shifting them to private ownership <u>(what happened recently in Maui is just one of many examples of this)</u>. **But the same ruptures that allow power grabs from above in disasters can also unleash people-power rebellions from below. What if our movements were prepared?** We would be able to resist these forces and come out ahead.

We are responding to Disaster Colonialism and Disaster Capitalism with <u>disaster collectivism,</u> which author Rebecca Solnit defines in A Paradise Built in Hell as "the sense of immersion in the moment and solidarity with others caused by the rupture in everyday life during and following a crisis… (and) the increased cooperation, mutual aid, and collective action that often emerges during times of disaster."

Movements have historically used disasters to build networks of community care and mutual aid. <u>We are building on this tradition to organize proactively and use disinvestment and climate disasters to invite people into a larger struggle for economic self-determination.</u>

Disasters are a unique opportunity for organizing. Preparing for and responding to disasters can build power by transforming peoples' sense of their own agency and capacity for collective action. And disaster organizing projects can respond to other needs and opportunities, including supporting protests and long-term social movements.

When disaster relief doesn't show up, we get the chance to govern ourselves. This gives us the chance to build the economic system that will eventually replace capitalism. This approach is known as "dual power," where a new, liberatory power structure competes with the old, exploitative one (capitalism). We can create dual power by building **counter institutions** that contest for power within the system, alongside **alternative institutions** that help people to meet needs for food, water, shelter and more. During movements of upheaval or disaster, counter institutions advance societal change; alternative institutions meet the needs of people participating in the movement; and the movement begins to create a new social order built on large-scale, viable alternatives to capitalism. **<u>In these moments, community members ourselves constitute the government, the active decision-making body, as democracy has always offered and rarely delivered.</u>** Thus disasters unfold as if a revolution has already taken place.

The idea of dual power shows us how to care for our own communities when governments have repeatedly failed to do so. The things which are foundational to survival — housing, food, mobility, education, water, energy, care, and so on — need to be at the center of our movements' strategies, so that when disaster strikes our neighborhoods, communities, or countries we have the networks, the resources and the authority to "do it ourselves."

Making this a reality is closer than we may think. Consider all of the ways that people are already practicing self-governance — mutual aid groups, peoples' assemblies, tenants unions, legacies of Indigenous and Black self-determination struggles — just to name a few.

How can we build the networks, trust, and resources needed to practice self-governance and resource-sharing in moments of crisis? Check out the case studies below to learn more.

- Case studies of grassroots disaster collectivism
- WTF is Dual Power?
- Black Panther Party survival programs
- Grassroots energy democracy through microgrids
- Land and farming based self-governance in Puerto Rico after Hurricane Maria
- Cooperation Jackson's grassroots water infrastructure development after Jackson water crisis
- Resistance! São Paulo's homeless seize the city
- #OccupySandy: Disaster Relief and Dual Power
- Disaster Anarchy: Mutual Aid and Radical Action
- Politicising proximity: Radical municipalism as a strategy in crisis
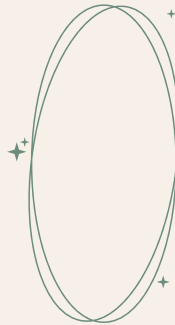
Beyond Disaster Resilience

Too often, resilience is used to describe an individual's ability to withstand adverse circumstances. But **expecting resilience of individuals and families facing climate disasters, if there is no justice, is harmful.**

Resilience also refers to an economy or city's ability to carry on with business as usual. People's needs must be met, but **helping corporations and our extractive economy keep operating causes harm as well.**

True resilience in a disaster depends on all our past and present struggles for racial, economic, and immigration justice — which demands that our communities not only build resilience to storms, fires, and droughts, but also gain the political power to transform our way of life.

Personal and Collective Resilience Practice: Excavating Support

Written by Caroline Contillo, rooted in the work of Lucién Demaris and Cedar Landsman

In our individualist society, we often feel like we have to make it through challenging situations on our own, leaving us numb to the support that exists. Becoming sensitive to our ability to lean on support is part of what helps us come out of individualism into a sense of solidarity.

Think of a time you went through a challenging situation. You don't have to pick a traumatizing memory, but can work with a memory where you had a difficult experience you were able to get through.

We're going to do a bit of journaling about this memory.

Start to think of everything that supported you during this challenge. Begin with remembering all of the people who supported you. Maybe there were people who you reached out to who weren't able to help, or there were bureaucratic hurdles to receiving the help you needed.

But were there other people involved in some way, who were involved in more subtle ways? The authors of the books that helped you, or people who grew the food that you ate, for example.

You can also start to think of support you received from nonhuman life. Did you feel supported by:
- Pets, farm animals, wildlife
- Trees, or a natural setting
- Stars
- Mythology, poetry, artwork, movies

Cast as wide a net as possible and write down all of the support you may have experienced, from the obvious to the more subtle. Take care to tap into that feeling of support, especially if you had initially felt like you had to make it through this challenge alone.

What does it feel like to consider all of the types of support that exist?

What comes to mind when you consider all of the possible ways that you are supportive that you might not know about?
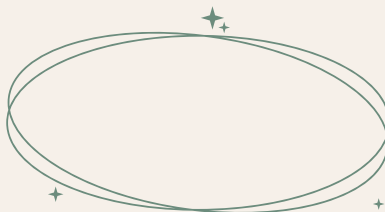
Personal Resilience Inventory

created by Caroline Contillo

Resilience is not just an individual quality but also a result of community connections. This checklist will help you assess both your own sense of resilience and the resilience of your relationships. It can help you notice where you might want to spend some time and attention to cultivate more capacity to avoid overwhelm and find shared purpose following a rupture or crisis.

Inner Resilience

- I know my personal signs that I am experiencing stress or trauma
- I have practices to help me come back to baseline following stress
- I have practices that help me stay present during a crisis
- I have spent time emotionally preparing for future challenges or ruptures
- I find support in spiritual or philosophical beliefs
- I make sense of my life through journaling or an art practice
- I know basic first-aid
- I have a three-month supply of the medications I need to live
- I can easily orient towards a sense of purpose during crisis
- I know when to and find it easy to reach out when I need help
- I can adjust to living without electricity if needed, or have access to a generator

Outer Resilience
- I know three people in my local community who I could ask for help when needed
- I know my immediate neighbors
- I have shared tools, ingredients, or other support with neighbors
- I have more than a weekly supply of food that I know how to cook
- I have more than a weekly supply of clean water
- I am aware of a church, community center, restaurant or other hub I could go to in my community for assistance during a disaster
- I know which organizations offer emergency assistance during a crisis in my community
- I know alternate ways to communicate and find help if wifi and mobile networks are down
- I am familiar with public transportation in my community
- I know where I would go if I could not stay at my current residence, and how to get there
- I know where all my important legal documents are and have made copies

Collective Survival Assessment

For each of the statements below, think about or discuss with your group whether you agree, disagree, or fall somewhere in the middle:

- I know what I would do if a climate disaster hit my community.
- I am part of a community of people who look out for each other.
- I have helped someone during a crisis.

Journal for 5 minutes about what this brings up for you.

Next, take some time to look inward, asking, "What are the unmet needs I have?" Then expand that question to ask "what are the needs of my neighbors and my community?" You can use the chart below to brainstorm needs; you can also consider making a map of needs.

What unmet needs exist in this area for...	Myself	My Neighbors / Community
Food		
Housing		
Transportation		
Healthcare		
Education		
Childcare		
Electricity/ energy		
Other Needs		

After thinking about day to day needs, consider the consequences of current and potential climate disasters. Think, journal, or discuss these questions:

- **What climate disasters have already impacted my community?**
  - Consider disasters like storms / floods, fires / smoke, drought, extreme heat, power outages, high fuel prices, extreme snowfall or other impacts
- **What climate disasters could hit my community in the near future?**
- **How will these disasters exacerbate the unmet needs that my community is already facing?**

Learning About Survival Programs

Survival programs are different in every community, but they're all around us — grocery delivery programs that began at the start of the pandemic; air purifier building and distribution; grassroots warming, cooling and smoke shelters; and grassroots weatherization programs come to mind.

But let's dig deeper! Amid the long emergency of austerity (cuts to public services that did not offer enough to begin with), the rise of the far right, and spiraling inflation, climate survival programs can also address underlying unmet needs such as food, housing, energy, and transportation — while building resilient communities ahead of the disasters we know are coming.

Survival programs that inspire us include:
- Scouting (detailed below in Meeting People In Your Community) — building relationships with neighbors, block by block, and creating structures for community safety, care, and collective response to challenges
- Survival farming programs and land hubs that connect farmers cooperatives with local mutual aid and movement building projects to build relationships and regenerative farming skills
- Grassroots solar energy microgrids that end dependence on unreliable, extractive energy utilities
- Housing support programs for trans people who are houseless or forced to leave unsafe states

This list has just a few examples that inspire us. We are excited to see what ideas you'll come up with.

> "Bottom-up cooperation poses a threat to top-down authority. One reason that disasters are threatening to elites is that power devolves to the people on the ground in many ways: it is the neighbors who are the first responders, and who assemble impromptu kitchens and networks to rebuild. And it demonstrates the viability of a dispersed, decentralized system of decision-making."
>
> — Rebecca Solnit, **A Paradise Built in Hell**

Mapping Resources in Your Community

If you are thinking about starting a survival program (or even just getting ready for the next disaster that hits your community), you'll need to get an understanding of what resources already exist in the place where you live.

If you like, you can make a list, or if you prefer, you can make a physical map.

Below are just a few categories of resources
that you might find in your community:

- Individuals who are informal leaders in their building, block, neighborhood or workplace
- People you know as friends or acquaintances
- Places of worship
- Government agencies / resources
- Social service nonprofits that meet specific needs
- Grassroots groups of people helping people (mutual aid groups)
- Community-based organizations that advance the needs and solutions of a specific neighborhood or group of constituents
- Grassroots groups that work to address specific issues (i.e. climate change, police/prison abolition, economic justice)
- Labor unions
- Local businesses
- Farms

Next Steps

After doing the activities above, take some time — perhaps half an hour, or an hour — to journal about or discuss these questions:

What types of activities might help respond to the on-going, unmet needs in your community?
Consider using Movement Generation's <u>Resilience Based Organizing handout</u> and <u>worksheet</u> for more ideas and inspiration.

Once you've done some brainstorming, think critically about your ideas for survival programs. Ask yourself, "How does this build our movement? How can it make us more powerful?"

- Who is already leading in your community? How can a project like this align with and/or support their work?
- How do your survival program ideas bring people together to build relationships, spend time together, and learn together?
- How do your ideas carry forward the story we're telling, of people coming together in the face of disaster to work for our collective survival?
- How does your idea address ongoing unmet needs? How does it address disaster preparedness?

Is there an organization or group of people that you'd like to talk more with about making these ideas a reality?

Meeting People in Your Community: an introduction to scouting from Survival Bloc

We usually hear the word " scouting" tossed around right after a community has been struck by a natural disaster. This is because public health + emergency response services, like FEMA, typically lack the infrastructure to conduct equitable neighborhood wellness checks. Energy from local municipalities and the broader community is focused on clearing disaster debris, restoring power, and ultimately scheming about how to push forward self-interest projects under the guise of "rebalancing" the local economy. BIPOC, undocumented, low-income, elder, and disabled communities are disproportionately impacted by natural disasters.

Homelessness, eviction, wage loss, and food + medicine shortages are just some of the issues that crop up. When a person or group scouts a neighborhood post-disaster, it is to identify these cracks in the system. They take the time to knock individual doors, ask if the person living there is alright, and if they are in need of anything. Sometimes these interactions can end up saving a life, depending on the situation. Scouting is a natural strategy that communities turn to, because it is the most direct communication strategy for finding people who may not have received vital resources or care.

What if our social movements kept up its momentum and continued this way of communicating + strategizing closely with people who are struggling all the time? What if we used this natural, horizontal, autonomous response to disaster to transform everyday crises like poverty, landlord exploitation, and broader problems like the climate crisis? **"Scouting" or "community scouting" is when we hold consistent communication with our neighbors to curate strategies that help meet their immediate or long term needs.**

Scouting helps us:
- Build a membership base + invites people to actively participate in solidarity culture
- Provides sustainable, tailored community care to marginalized groups
- And is a tool to identify and design potential campaigns and survival programs.

How We Can Support You In This Process

Climate Mobilization Project is currently piloting Movement Incubation, a process where organizations in a community come together to learn, create a vision for Climate Survival, and pilot survival programs, launch direct actions, and build a powerful, thriving base of members. Climate Mobilization Project will facilitate movement incubation workshops with 10 more groups by summer 2024. We can also support you to plan and organize movement incubation workshops yourself.

We also offer:
- Coaching on launching this work in your community
- The opportunity to join a national map of groups carrying out Climate Survival organizing
- And the opportunity to pilot signature programs like Scouting and Heart & Soul (a community-based support group curriculum)

Fill out this form so we can talk more with you.

Thank you for reading! The planet turns in revolutions.

This toolkit is just one turn toward our collective survival. We look forward to working with you, and we'll be back soon with more resources you can use to participate in this movement. To stay in touch until then, sign up for updates here. You can give here to help fund the creation of more resources.

Additional Items to Consider Adding to an Emergency Supply Kit:

- ❑ Prescription medications and glasses

- ❑ Infant formula and diapers

- ❑ Pet food, water and supplies for your pet

- ❑ Important family documents such as copies of insurance policies, identification and bank account records in a portable waterproof container

- ❑ Cash and change

- ❑ Emergency reference material such as a first aid book or information from www.ready.gov

- ❑ Sleeping bag or warm blanket for each person. Consider additional bedding if you live in a cold-weather climate.

- ❑ Complete change of clothing including a long sleeved shirt, long pants and sturdy shoes. Consider additional clothing if you live in a cold-weather climate.

- ❑ Fire Extinguisher

- ❑ Matches in a waterproof container

- ❑ Feminine supplies, personal hygiene items and hand sanitizer

- ❑ Mess kits, Paper cups, plates and disposable utensils, paper towels

- ❑ Paper and pencil

- ❑ Books, games, puzzles or other activities for children

Ready
Prepare. Plan. Stay Informed.®

Emergency Supply List

FEMA

www.ready.gov

Recommended Items to Include in a Basic Emergency Supply Kit:

❑ **Water and non-perishable food for several days**

❑ **Extra cell phone battery or charger**

❑ **Battery-powered or hand crank radio that can receive NOAA Weather Radio tone alerts and extra batteries**

❑ **Flashlight and extra batteries**

❑ **First aid kit**

❑ **Whistle to signal for help**

❑ **Dust mask, to help filter contaminated air and plastic sheeting and duct tape to shelter-in-place**

❑ **Moist towelettes, garbage bags and plastic ties for personal sanitation**

❑ **Non-sparking wrench or pliers to turn off utilities**

❑ **Can opener (if kit contains canned food)**

❑ **Local maps**

FEMA's Ready Campaign educates and empowers Americans to take some simple steps to prepare for and respond to potential emergencies, including those from natural hazards and man-made disasters. Ready asks individuals to do three key things: get an emergency supply kit, make a family emergency plan, and be informed about the different types of emergencies that could occur and appropriate responses. Everyone should have some basic supplies on hand in order to survive several days if an emergency occurs. This list of emergency supply kit items is only a starting point. It is important that individuals review this list and consider the unique needs of their family, including pets, for items to include. Individuals should also consider having at least two emergency supply kits, one full kit at home and smaller portable kits in their workplace, vehicle or other places they spend time.

Ready.

FEMA

Federal Emergency Management Agency
Washington, DC 20472