



WHERE PEOPLE & TECHNOLOGY PROSPER

**Oakland County
Michigan**
Emerging Sectors®



Water Technologies

Flowing to the Future



The Oakland County Water Technologies Advantage

The commercial demand for innovative technology that delivers, treats, stores or monitors water is a global market growing expediently. Oakland County's track record with innovative water and wastewater technology coupled with our proximity to the Great Lakes makes it an ideal location to grow a business related to water technologies.

The Great Lakes are cherished by all Michiganders and benefit from aggressive environmental regulations and forward-thinking public officials. These combined efforts have led to the implementation of innovative water technology that protects one-fifth of the world's fresh surface water supply and nine-tenths of the U.S. supply.

Oakland County is further blessed with more inland lakes – 1,450 – than any other county in Michigan. It is no wonder that Oakland County leads the nation by instituting ISO 9000 and ISO 14000 standards in its water resources office.

H₂Opportunities

Oakland County based H₂Opportunities (H₂Opps) is transforming Southeast Michigan into an accelerator for water-dependent industries. H₂Opps is spawning the creation of specialized companies related to water treatment, water distribution, wastewater collection and treatment, storm water management and water-based energy generation and conservation.

H₂Opps is an innovative, non-profit company that assists water and wastewater technology development companies in bringing their products to market. H₂Opps supports these companies in four different areas:

- ◆ Real-World Validation – H₂Opps assists in the planning and installation of new technologies in “real-world” municipal and industrial applications. This allows the technology to be tested and evaluated in a realistic setting
- ◆ Regulatory Support – H₂Opps' industry expertise will help in obtaining approval from utility operators and regulators
- ◆ Business Support – H₂Opps can provide an assortment of services including: business plans, financing planning and marketing development
- ◆ Financial Support – H₂Opps will guide you to a wide variety of public and private investment funding sources including: federal and state grants, low interest loans, angel, venture and private equity

For more information on H₂Opportunities, please visit the web site at www.H2Opps.com.

Current Industry Trends, Fact and Figures:

- ◆ The global water technology industry is estimated at \$23 trillion over the next 20-30 years
- ◆ The global market for water engineering is \$400 billion a year and growing
- ◆ The global market for water treatment is \$58 billion annually
- ◆ The global membrane treatment market for industrial water and wastewater is expected to reach \$5.5 billion annually by 2015
- ◆ The \$1.2 billion consumer water purification market in the United States will increase 4.4 percent annually through 2012
- ◆ United States companies discharge trillions of gallons of water annually and only 10 percent is treated for re-use
- ◆ The deterioration of the water and sewage piping network in the United States will lead to business opportunities for water and wastewater technology companies
- ◆ Daily water usage in the United States is estimated at 410,000 million gallons
- ◆ By 2020, the global demand for water will exceed the available supply by 470 trillion gallons
- ◆ The U.S. military is aggressively pursuing innovative water purification technologies as well as technologies aimed at generating water from non traditional sources such as ambient air and vehicle exhaust



E.P.C. Ltd., an Israeli company, is working with H₂Opportunities to provide innovative and cost effective wastewater treatment solutions for small communities via a demonstration grant from the Michigan Economic Development Corporation and Israel's Ministry of Industry, Trade and Labor.

Water/Wastewater Related Centers, Programs and Laboratories in Michigan - (Partial List)

Bay College

- ◆ Water Resource Management Program

Delta College

- ◆ Water Environmental Technology Program

Dow Water and Process Solutions

- ◆ Mining & Hydrometallurgy
- ◆ Industrial Water
- ◆ Municipal & Desalination
- ◆ Residential & Commercial

Eastern Michigan University

- ◆ Urban Water Resources Research Consortium

Grand Valley State University

- ◆ Annis Water Resources Institute
- ◆ Michigan Alternative and Renewable Energy Center

Lawrence Technological University

- ◆ Great Lakes Stormwater Management Institute

Michigan State University

- ◆ Center for Water Sciences
- ◆ Institute of Water Research
- ◆ Great Lakes Bioenergy Research Center
- ◆ Institute of Public Utilities
- ◆ Center for Microbial Ecology
- ◆ BEACON
- ◆ Center for Microbial Pathogenesis

Michigan Technological University

- ◆ Center for Water and Society
- ◆ Michigan Tech Research Institute
- ◆ Center for Ecosystem Science

NSF International

- ◆ Drinking Water Systems (DWS) Center
- ◆ Water Quality Protection Center
- ◆ Water Treatment and Distribution Systems Program
- ◆ Bottled Water and Packaged Beverage Certification Program
- ◆ Global Testing and Certification for Drinking Water Treatment Units
- ◆ Plastics Piping System Components Program
- ◆ Wastewater Personnel Accreditation

Oakland University

- ◆ Environmental Science Program
- ◆ Environmental Forensics Laboratory
- ◆ Stream Ecology Program

University of Michigan

- ◆ Environmental and Water Resources Engineering – Department of Civil and Environmental Engineering
- ◆ Department of Environmental Health Sciences – School of Public Health
- ◆ Center for Sustainable Systems – School of Natural Resources and the Environment

U.S. Army Tank-Automotive Research, Development and Engineering Center

- ◆ Water Quality and Water Test Cell Laboratories

Wayne State University

- ◆ Urban Watershed Environmental Research Group
- ◆ Central Instrumentation Facility
- ◆ Environmental Chemistry Research Laboratory
- ◆ Smart Sensors and Integrated Microsystems Laboratory
- ◆ Ecotoxicology Laboratory
- ◆ Aquatic Ecotoxicology Laboratory
- ◆ Hydraulic Laboratory
- ◆ Core Imaging Facility
- ◆ Pharmaceutical Toxicology Laboratory

Western Michigan University

- ◆ Institute for Water Sciences



DynamOx, a Michigan based start-up manufacturing company, is working with H₂O opportunities to demonstrate the effectiveness of supersaturated oxygen as a “green solution” in eliminating corrosion in sewer systems thereby extending system life and protecting the health and safety of workers and residents.

Research Projects at Michigan Universities - (Partial List)

Michigan colleges and universities graduate thousands of engineers on an annual basis. This coupled with the large number of applied scientists already here, provides the academic support and the staffing needed to perfect your product, your manufacturing process and intellectual protection needed for your product launch.

Grand Valley State University

- ◆ Cyanotoxin Characterization
- ◆ Valuation of Water-related Ecosystem Services
- ◆ Indicators of Groundwater Sustainability
- ◆ Aquatic Ecosystem Restoration

Lawrence Technological University

- ◆ Low Impact Development Across the Downriver Watershed
- ◆ KSI Structural Stormwater Chamber Performance Evaluation
- ◆ Green Roof Performance Project

Michigan State University

- ◆ Aquaswarm: Small Wireless Autonomous Robots for Monitoring of Aquatic Environments
- ◆ Self-Cleaning Ceramic Membranes for the Removal of Natural and Synthetic Nanomaterials from Drinking Water Using Hybrid Ozonation-Nanofiltration
- ◆ Rapid Biosensor Technology for Recreational Fresh Waters
- ◆ Waste to Energy: Using Electronic Nanocables to 'Wire' Biofilms
- ◆ Evaluation of a Biofilter in Removal of Bacteriophages, Bacteria and Cryptosporidium
- ◆ Digital Watershed
- ◆ Great Lakes Regional Water Projects
- ◆ Watershed Comprehensive Assessment Tool

Michigan Technological University

- ◆ Modeling and Analyzing the Use, Efficiency, Value and Governance of Water as a Material in the Great Lakes Region Through an Integrated Approach
- ◆ Great Lakes and Molecular Sciences Center Portal and Dynamic Decision Support System
- ◆ Automated Lagrangian Water Quality Assessment System
- ◆ Remote Sensing-based Water Color Algorithm for Chlorophyll
- ◆ Effectiveness of Sodium Hypochlorite for Ballast Water Disinfection
- ◆ Sustainable Water Resources for Communities Under Climate Change

- ◆ Development of Protocols for Restoring Great Lakes Coastal Wetlands
- ◆ Integrating Risk Perception with Hydrologic and Water Quality Modeling in the Rio Sonora Basin, Mexico
- ◆ Incorporating Climate Change and Variability into the Bulletin 17B LP3 Flood Frequency Model
- ◆ Sustainable Development for Rural Communities: Social, Health, Economic and Environmental Advances
- ◆ GK12 Global Watershed: Integrating Rural and Global Perspectives with Research and Technological Advances
- ◆ Climate Risk Management for Water Resources Professionals

University of Michigan

- ◆ Anaerobic Membrane Bioreactors for Sustainable Wastewater Treatment
- ◆ Role of Biofilms in Drinking Water Distribution Systems
- ◆ Biofiltration for Enhanced Drinking Water Treatment
- ◆ Biologically Mediated Removal of Multiple Contaminants (Arsenic, Uranium, Nitrate, Perchlorate) from Drinking Water
- ◆ Development of Sustainable Shrimp Aquaculture Systems
- ◆ Inhibition of Nitrification in Wastewater Treatment Systems
- ◆ Sustainable Wastewater Treatment: Waste as a Resource (Sustainable Design Methodology, Phototropic Treatment Systems, Co-digestion of Food Processing Wastes to Produce Biogas)
- ◆ Sustainable Strategies for Removing Pharmaceuticals from Wastewater
- ◆ Environmental Contaminants as Drivers of Antibiotic Resistance

Oakland University

- ◆ Sources of Taste-and-Odor in Drinking Water Systems
- ◆ Treatment Options for Removal of Natural Organic Matter and Disinfection Byproducts
- ◆ Source Tracking of Contaminants in the Lake St. Clair and Clinton River Watersheds
- ◆ River Restoration - Paint Creek Dam Removal
- ◆ Ecological Effects of Invasive Species - Round Goby
- ◆ Organic Matter Decomposition to Assess Stream Integrity
- ◆ Wetland Restoration - Phragmites Removal
- ◆ Detecting the Presence of Round Gobies in Streams

Wayne State University

- ◆ Development of Verification Methods for Ballast Water Treatment Strategies
- ◆ Sediment Yield and Dam Capacity in the Great Lakes Watershed: Field Reconnaissance and Laboratory Analysis
- ◆ Monitor the Vegetative and Macroinvertebrate Community Following a Wetland Restoration
- ◆ Pump System Optimization for Sustainable Water Transmission and Distribution
- ◆ Urban Watershed Restoration Techniques
- ◆ Evaluation of Daphnia as an Environmental Marker for Heavy Metal Contamination
- ◆ PCB Contamination of Water Supplies: Human, Environmental and Aquatic Life Impacts
- ◆ Digital Library for Urban Watershed Management, Education, Research and Training
- ◆ Rapid Methods for Field Determination of Beach Water Quality
- ◆ Novel and Green Techniques for Cleansing Combined Sewer Overflows
- ◆ Heavy Metal Contamination of Water Resources Through Sediment Resuspension
- ◆ Radionuclide Dating of Sediment Contaminants in Urban Water Systems
- ◆ Development of Methods for Early Detection of Non-native Species
- ◆ Renewable Energy Powered Ultraviolet Water Treatment System for Stormwater Receptacles
- ◆ Water-borne Contaminants in the Food Processing Industry
- ◆ Managing the Impact of Multiple Stressors in Saginaw Bay
- ◆ Detroit River Areas of Concern (AOC): Community Workshops and Training
- ◆ Lake St. Clair Water Quality Monitoring

Michigan Economic Development Corporation (MEDC) - Water/Wastewater Technology Initiative

Michigan's first-in-the-nation initiative brings water and wastewater technology innovators together with a wide array of opportunities, natural resources and world-class universities. Michigan, centered amid the Earth's largest collection of freshwater lakes, aims to become a world leader in next-generation sustainable water technologies.



For more information on the state's water and wastewater technology initiative, visit www.michiganadvantage.org, contact the Michigan Economic Development Corporation at medcwater@michigan.org, or call MEDC Customer Assistance at 1-888-522-0103.



Global Water Distribution

- ◆ 97 percent of the water on earth is in the oceans
- ◆ Only 3 percent of the water on earth is freshwater
- ◆ About 2.4 percent of the water on earth is permanently frozen in glaciers and at the polar ice caps
- ◆ About 1/2 of 1 percent of the water on earth is groundwater
- ◆ Only about 1/100 of 1 percent of the water on earth is in rivers and lakes and one fifth of that last 1 percent is in the Great Lakes



Water Technology Companies - (Partial List)

Oakland County Companies

Air and Liquid Systems
Ambient Energy, LLC
AMCOL
American Controls
Behco
Biomin
BrassCraft
CH2M Hill
CRS Service Incorporated
Daniel L. Bowers
Doulton USA
Durr
Environmental Consulting & Technology
Filtru-Systems
Golder Associates
H.O. Trerice
Hoff Engineering
Hubbell Roth and Clark
Hydro Designs
Hydro-Craft
JGM Valve Corporation
Kennedy Industries
Kord Industrial
Kundinger
Magnetool
Martin Control
Maxitrol
Michigan Water Service
Michigan Water Inc.
Mullen Equipment
NLB
Noah Water Systems
Norma Products U.S.
NTH
Numatics
Orchard Hiltz & McCliment Inc.
Plymouth Technology
Rockwell Automation
SBS Corp.
SLC Meter
Sure Flow Products
Syndevco
Telespector Corporation
Thermax
TowerKlean
Universal Flow Monitors
Victaulic
W.A. Kates
Wastewater Engineers
Wonderware

Southeast Michigan Companies

American Aqua
American Pipe Lining
Applied Science
Aquatech Irrigation
Bear Fluid Power
Black & Veatch
Boss Engineering Company
CDM
Central Water Treatment
Centrifuge Solutions
Clearwater Systems
Clow Water Systems
CMS Group
Comprehensive Environmental Solutions
DC Hydraulics
DiHydro
DuBois-Cooper Associates
Ebbco
Eco-Tech
Environmental Water Service
EQ Resource Recovery
Evian
Federal Fluid Power
Filter Engineering Corporation
Flo-Tec
Flow Ezy Filters
Genova Products
Geoproducts
Global Pump
GraPar
H2bid.com
HESCO
Highland Engineering
Hoffmann Filter
Industrial Fluid Systems
Inland Waters
Jomar International
Kinetico
LimnoTech
LiquiForce
Mannik & Smith
MARCOR
MedArray
National Testing Laboratories
Neptech
NSF International
OASIS IRRIGATION
Pittsfield Products
Plastic Trends
Power Process Piping
PVS Technologies

QED Environmental
Quantum Electronics
Rosedale Products
RTI Laboratories
Solution Recovery Services SQS
Tetra Tech
The Mannik & Smith Group
Trenton
Tucker Young Jackson Tull Inc.
United Filtration Systems
URS
Vortex Hydro Energy, LLC
Wade Trim
Waterworks Systems & Equipment
Water System Supply
Westin Engineering of Michigan
Zealtek
Zed Industrial
Zero Gravity Filters

Michigan Companies

Advanced Finishing Technologies
Alpha-Tran Group
American Leak Detection
AMSA
Ang Water Technologies
Aquacera
ASI
Badger Meter
Batco Inc
Benchmark Engineering
Besco Water Treatment
Beverlin Manufacturing
Big Fish Environmental, LLC
BioDri Michigan, LLC
BioTech Agronomics
Blackmer
Bond Fluidaire
Bright Technologies
c2ae
Carlton Meter
CESO
Clean Earth
Coleman Engineering Company
Colonial Engineering
CorPreTek
Crane Engineering
Diazem
Dixon Engineering
Driesenga & Associates
DTS Fluid Power
Duall

Dubric	H2O in Motion	Prein & Newhof
Duperon	Humphrey	Prime Solution
Earth Tech	Hydro Chem Systems	ProAct
East Jordan Iron Works	IMBTEC	Progressive AE
Eaton Filtration	Infrastructure Alternatives	Pro-Tec Equipment
Ecologistics	Jones & Henry Engineers	Renew Systems
Enerco Corporation	K&A	Riveer Environmental
Ener-Tec	Kadlec Associates	Rose & Westra
Envirologic Technologies	KAR Laboratories	Rosler Metal Finishing
Environmental Protection	KDF Fluid Treatment	Schrader Environmental
ESCO Midwest	Lakeshore Environmental	Siemens Water Technologies
FEMA Corporation	M.W. Watermark	Skidmore
Filter and Coating Technology	Main Filter Group	Spence Brothers
Filtrec North America	Mefiag Division	Stoney Creek
Fleis & VandenBrink Engineering	Michigan Fluid Power	STS AECOM
FlowTech	Michigan Pipe & Valve	Summit Water Treatment Froberg
Fluid Power Engineering	Michigan Water Science Center	Well Drilling & Pump Repair Carry
Fluid Process Equipment	Midbrook	Manufacturing
Forest Hills	Moore & Bruggink	Superior Environmental
Franklin Holwerda Company	Municipal Industrial Storage	Systems Belding Tank Technologies
Frontier Technology	N R Mitchell	The Dow Chemical Company
FTC&H	North American Aqua	Tillotson Environmental
Fuller Supply Company	North Country Engineering	TriMatrix Laboratories
Gordon Water System	Northern Environmental	Underground Pipe & Valve
Gosling Czubak	Oetiker	United Water
Gourdie-Fraser	OMM Engineering	Vesitech
Great Lakes Carbon Treatment	Otwell Mawby PC	Vincent Enterprises
Great Lakes Filters	Peerless-Midwest	Walgren Company
Great Lakes Treatment	Pollution Control Services	WaterSolve
Great Lakes Water Treatment	Portage Specialty	Wightman & Associates
GRT	Powell Fabrication & Manufacturing	Wolverine Water Treatment
H&R		

Organizations That Support the Water Technology Industry:

- ◆ Automation Alley
- ◆ Department of Agriculture & Rural Development
- ◆ Department of Natural Resources (DNR)
- ◆ Great Lakes Commission
- ◆ Great Lakes Environmental Research Laboratory
- ◆ Great Lakes Guardians
- ◆ Great Lakes Information Network
- ◆ Great Lakes Restoration Initiative
- ◆ Great Lakes Science Center
- ◆ International Joint Commission
- ◆ Michigan Department of Environmental Quality (MDEQ)
- ◆ Michigan Manufacturing Technology Center (MMTC)
- ◆ Michigan Rural Water Association
- ◆ Michigan Small Business & Technology Center
- ◆ Southeast Michigan Council of Governments
- ◆ U.S. Army Tank-Automotive Research, Development and Engineering Center (TARDEC)



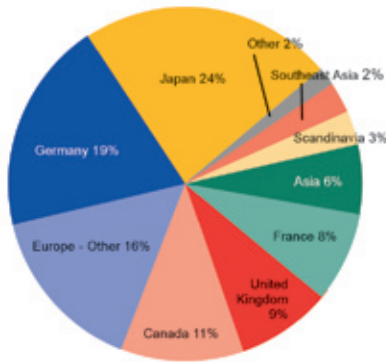
Oakland County Can Help Your Business

- ◆ Site location
- ◆ Financing
- ◆ Tax Incentives
- ◆ Liaison with state and local agencies
- ◆ Workforce development
- ◆ Business Assistance Center (business consulting)
- ◆ Demographic products – to ensure you make the right decision for your company’s location

Oakland County is an International Hub

Foreign firms make the strategic decision to locate in Oakland County because of our highly skilled work force, strong educational systems and the international support available to them.

- ◆ More than 700 foreign-owned firms from 37 countries - with more than 850 business locations - are located in Oakland County
- ◆ 19 school districts and three consortium schools in Oakland County offer Mandarin Chinese language programs
- ◆ Oakland County has more than 93,000 people in the labor force comprised of professional, scientific and technical services skills
- ◆ Oakland County International Airport is one of the busiest corporate airports in the United States, with more than half a million passengers annually



Oakland County is a Strategic Location



- ◆ Centrally located between Chicago, Toronto and Cleveland
- ◆ Oakland County is strategically positioned to capture the entire Midwest market
- ◆ The Michigan-Ontario border is the busiest U.S.-Canada crossing in the country, making this area an ideal location to reach the United States and Canadian market
- ◆ Ontario, less than an hour’s drive from Oakland County, generates 40 percent of Canada’s total domestic product



L. Brooks Patterson,
Oakland County Executive

*With the support of
The Oakland County Board
of Commissioners*



Contact us today for more information:

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