

# OTA RESOURCES &



## CLIMATE CHANGE PREPAREDNESS

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@Mass\_OTA

# MASSACHUSETTS OFFICE OF TECHNICAL ASSISTANCE (OTA)

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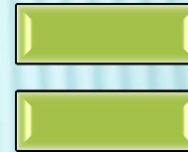
- ✖ Toxics Use Reduction Act (TURA) of 1989
- ✖ Three partnering agencies:
  - + MassDEP (Regulatory)
  - + TURI (Research & Grants)
  - + OTA (Technical Assistance)

# CHEMICAL SAFETY & CLIMATE CHANGE RESILIENCY PROJECT

Toxics  
Use  
Reduction



Climate  
Change  
Resiliency  
Planning



Reduced  
Risk of  
Industrial  
Accidents







**Rhonda Ragsdale**

@profragsdale

Follow

There is a thick smell of oil in the air downtown [#Houston](#)

11:25 AM - Aug 27, 2017



4



54



28



**RFH**

@rth02

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[@DisasterPIO](#) There is a widespread gas smell in Houston's East End. Any info?

12:52 PM - Aug 27, 2017



3



34



13



**Raquel de Anda**

@deAndaAnda

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Rancid chemical smell near Houston [@ValeroEnergy](#) refinery. What's going on? Why all the flaring? Folks Can't Breathe [#HurricaneHarvery](#)

2:20 PM - Aug 27, 2017



1



33



39



# First responders file suit against Arkema over 'serious bodily injuries' in Houston chemical plant fire after Hurricane Harvey

- First responders filed a lawsuit in Harris County court alleging [Arkema](#) failed to take adequate safety steps to secure dangerous chemicals ahead of [Hurricane Harvey](#)
- The lawsuit filed by seven police, fire and emergency service workers seeks at least \$1 million

Published 11:22 PM ET Thu, 7 Sept 2017



# Floods

Chemical Releases & Spills  
Emergency Shutdowns

# Extreme Heat

Chemical Temperature  
Explosion Risks

Climate Change  
& Chemical  
Releases

# Extreme Cold

Power Outages  
Frozen pipes  
HVAC Failure

# Storms

Power Outages  
HVAC Failure  
Infrastructure Failure

# DANVERS, MA - THANKSGIVING MIRACLE



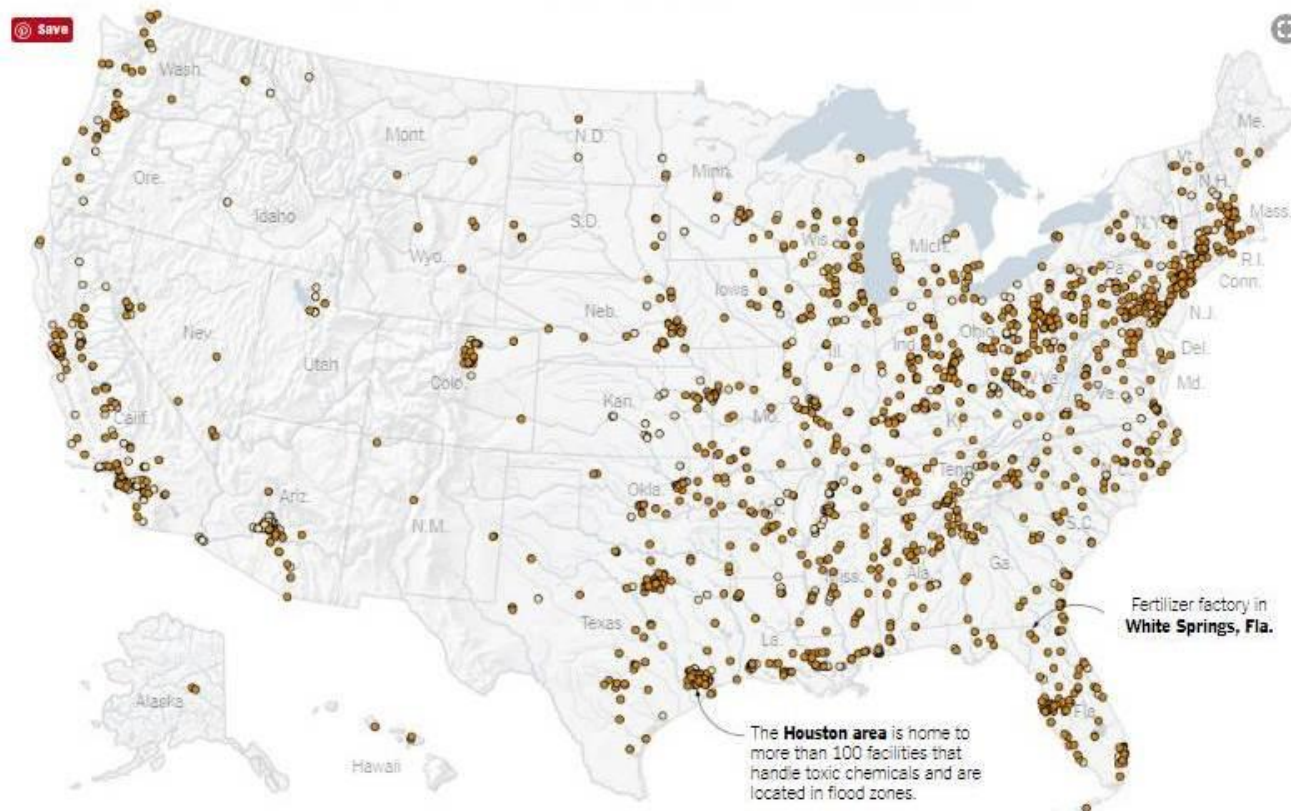


# Floods Are Getting Worse, and 2,500 Chemical Sites Lie in the Water's Path

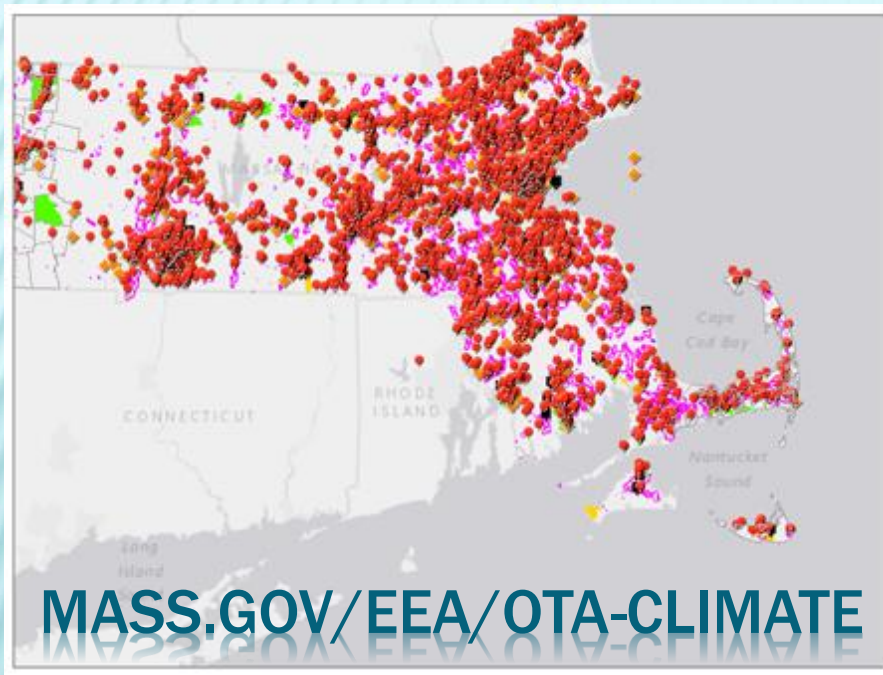
By HIROKO TABUCHI, NADJA POPOVICH, BLACKI MIGLIOZZI and ANDREW W. LEHREN FEB. 6, 2018

**More Than 2,500 Sites That Handle Toxic Chemicals  
Are Located in Flood-Prone Areas Across the Country.**

● Site in area at high risk of flooding ○ Site in area at moderate risk of flooding



# OTA MAP OF TOXICS AND VULNERABILITIES



## ✕ Toxics Data Layers

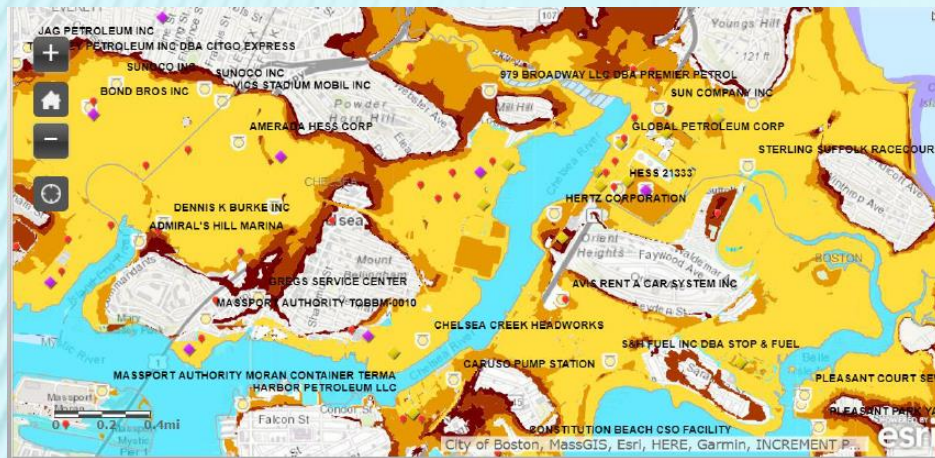
- + Tier II Facilities
- + Major Facilities
- + Underground Storage Tanks
- + Active Railways

## ✕ Vulnerability Data Layers

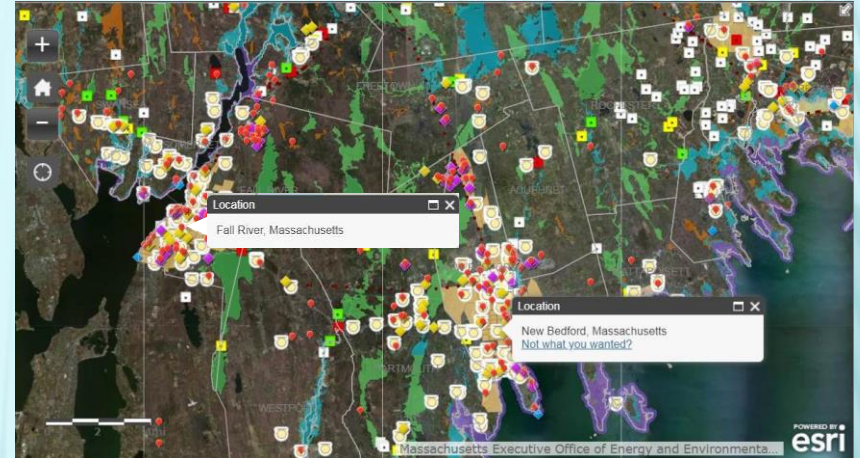
- + Flood Zones
- + Hurricane Zones
- + Environmental Justice Zones
- + High Risk Dams



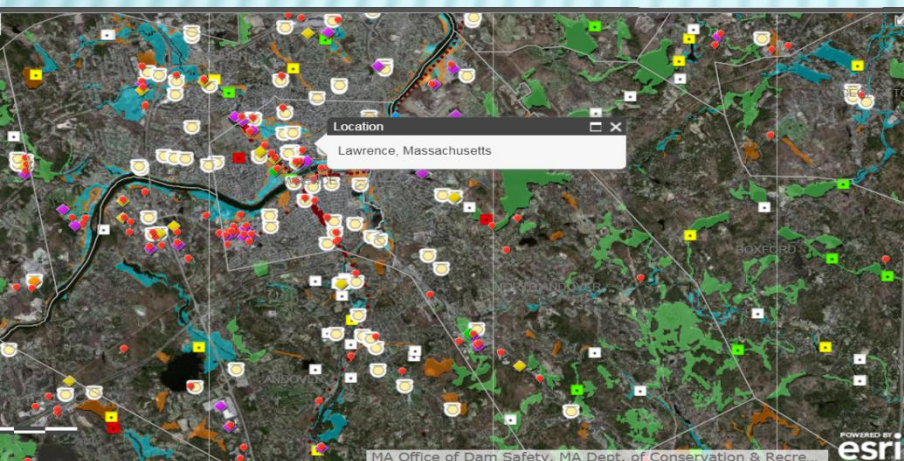
# CHELSEA CREEK



# FALL RIVER & NEW BEDFORD



# LAWRENCE



# EAST BOSTON







Dangerous  
Chemical?

Human /  
Environmental  
Contact?



Potential for  
Hazard?

# EVALUATE RISKS



## Chemical Properties

Toxic  
Flammable  
Combustible



## Weather Risks

Flood  
Hurricane  
Freezing  
Heat



## Chemical Storage

Secondary Containment  
Compatibility

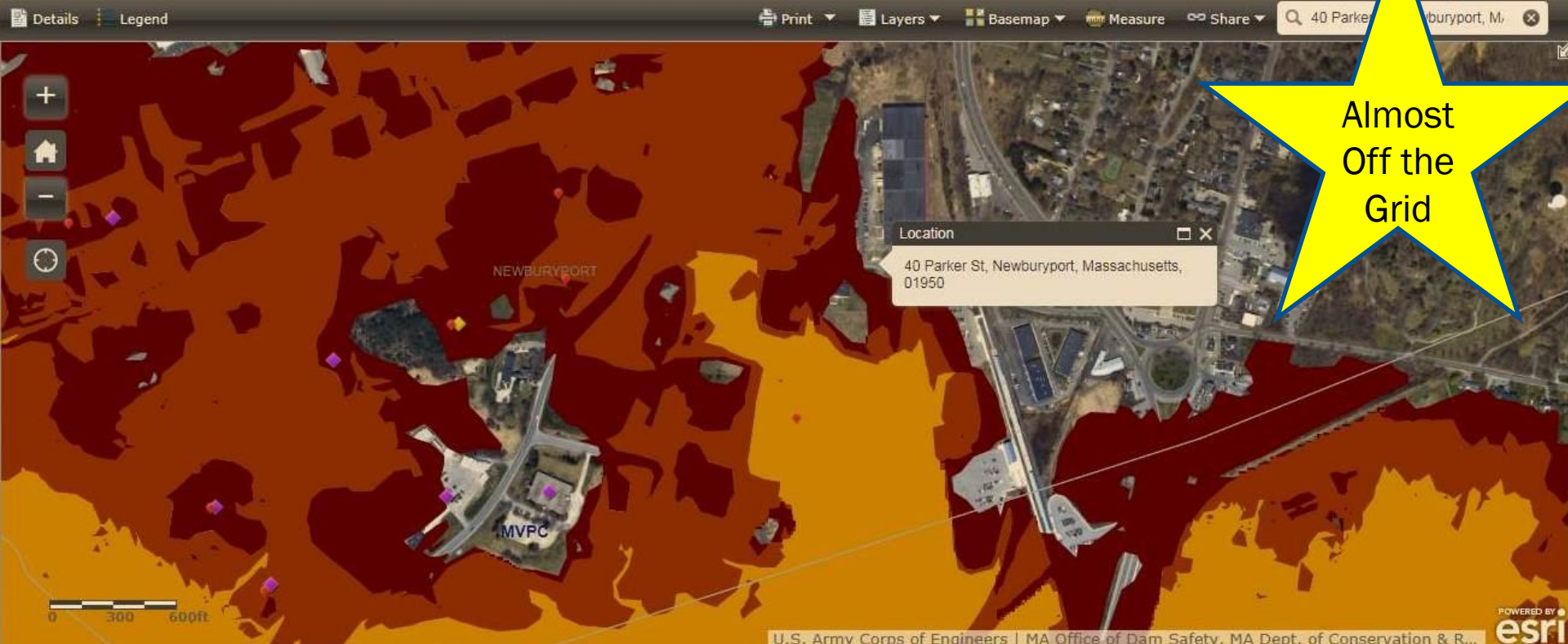


## Toxics Use Reduction

Product Substitution  
Reduce Inventory  
Engineering

# MARK RICHEY WOODWORKING – ENERGY EFFICIENCY AND TOXICS USE / WASTE REDUCTION

## Massachusetts Toxics Users and Climate Vulnerability Factors



## Reductions:



120 gallons lacquer thinner / acetone / other chemicals per year

1,200 gallons denatured alcohol per year

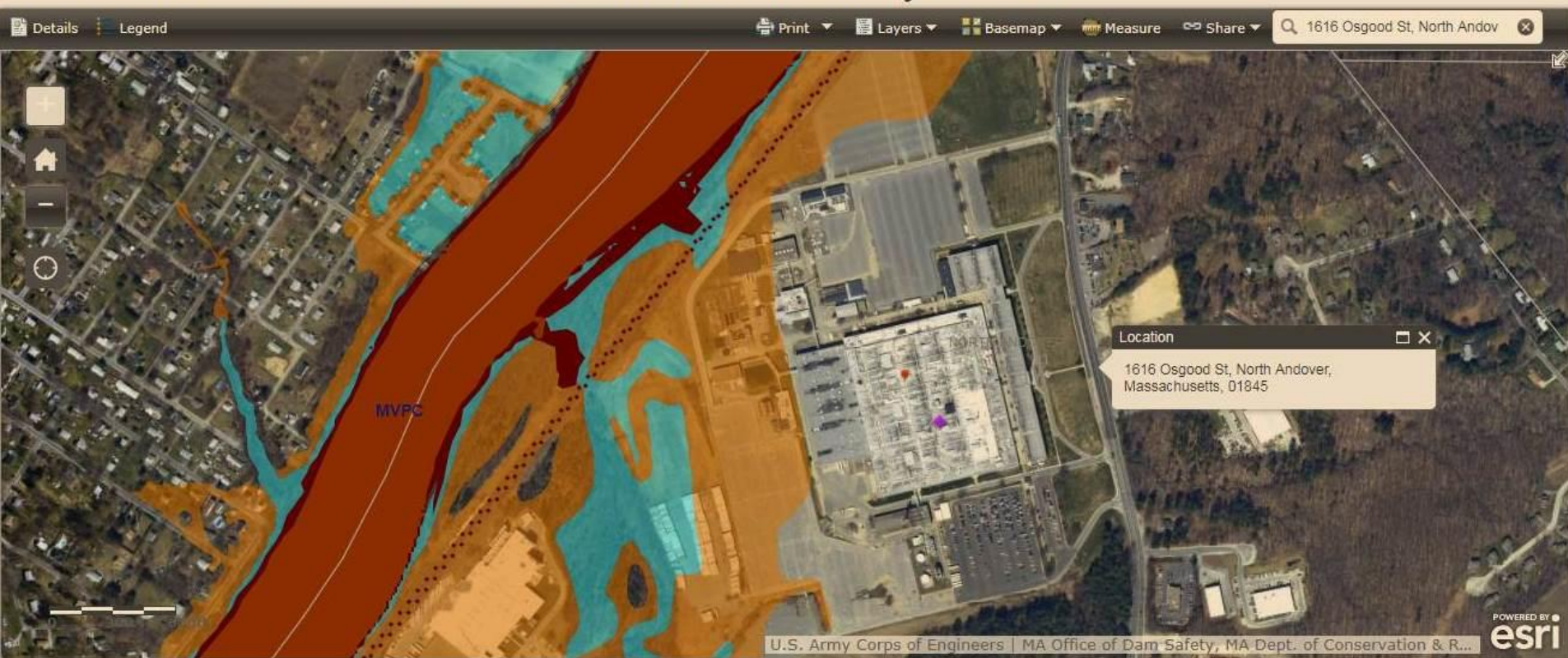
12 tons VOCs per year

Savings of \$16,435



# OPHIR OPTICS – TOXICS USE REDUCTION THROUGH LEAN MANUFACTURING & SIX SIGMA

## Massachusetts Toxics Users and Climate Vulnerability Factors



## Reductions:



3,870 lbs mineral spirits per year

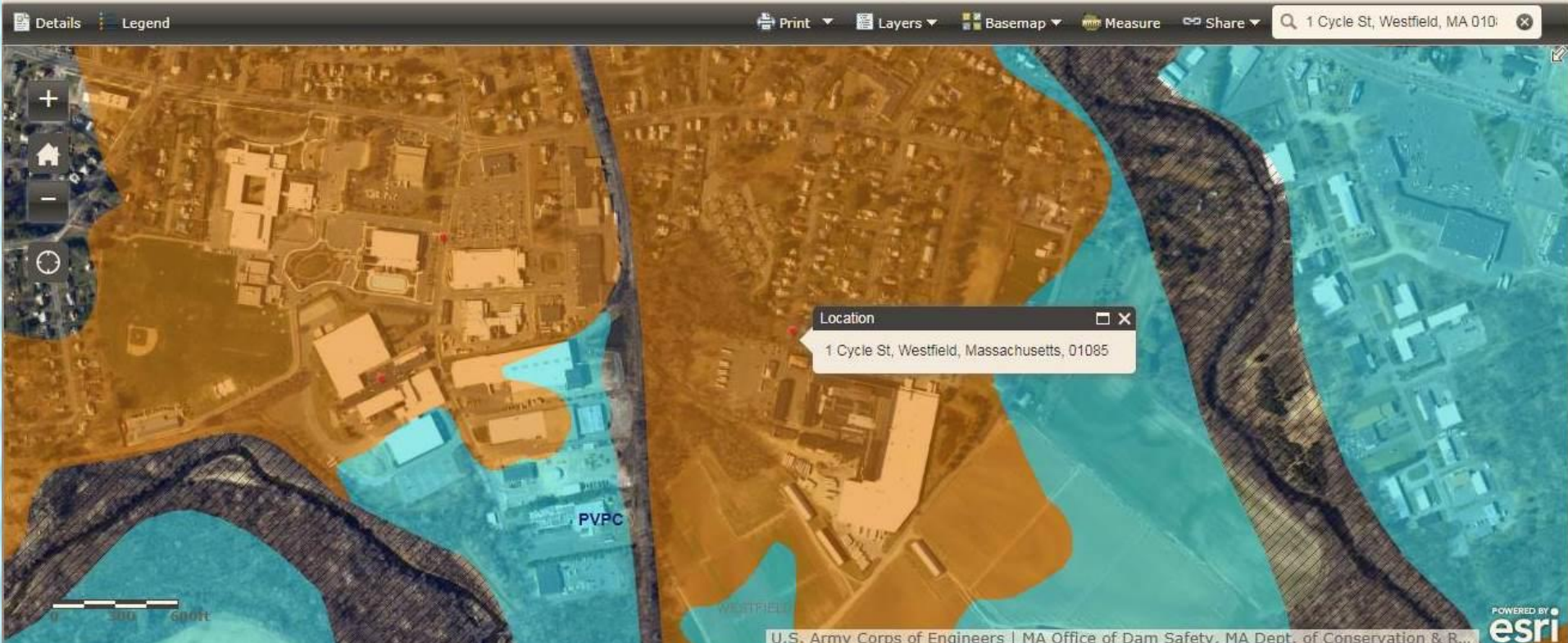
Went from Large Quantity Generator (LQG) to Small Quantity Generator (SQG)

Savings of \$1,000,000 in efficiency improvements, \$100,000 in scrap reductions, and \$60,000 in hazardous waste reductions



# COLUMBIA MANUFACTURING – ZERO WASTEWATER DISCHARGE & HAZARDOUS WASTE REDUCTION

## Massachusetts Toxics Users and Climate Vulnerability Factors



## Reductions:



147,000 lbs of water per day in plating operations

Recovered 98% of plating chemistry (nickel and chromic acid), saving 600 lbs per week

Exempt from air / water discharge & hazardous waste treatment permits

Savings of \$3,000,000 in water / sewer fees, \$3,850,000 nickel purchases, \$8,000,000 chrome purchases

# OPPORTUNITIES





## Remaining Training Dates and Locations

### Charlton

Central Massachusetts Regional Planning  
Commission (CMRPC)

Thursday, April 12, 2018  
9:30 a.m. – 12:30 p.m.

Charlton Public Library, 40 Main St.,  
Charlton, MA 01507

### Leominster

Montachusett Regional Planning Council  
(MRPC)

Thursday, April 26, 2018  
1:30 p.m. – 4:30 p.m.

North Central Career Center, 100 Erdman  
Way, Leominster, MA 01453

[www.mass.gov/eea/ota-climate](http://www.mass.gov/eea/ota-climate)

# THANK YOU!



## FOR MORE INFORMATION:

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