

ROADMAP TO MILL REDEVELOPMENT WEBINAR SERIES

Webinar # 2

Challenges and Solutions to Redevelopment

The webinar will begin shortly.



ROADMAP TO MILL REDEVELOPMENT WEBINAR SERIES



Webinar # 2

Challenges and Solutions to Redevelopment

Preservation, adaptive reuse, contamination, and climate change all pose challenges to redeveloping mills.

How do you overcome those challenges?

*October 6, 2020
10:00 to 11:30 am*



ROADMAP TO MILL REDEVELOPMENT WEBINAR SERIES



Webinar # 2

Challenges and Solutions to Redevelopment

Some house keeping items:

- All participants will be muted during the webinar.
- Submit questions via Q & A to "All"
- This webinar is being recorded and will be posted on the NJIT TAB website: www.njit.edu/tab (under "Resources")



ROADMAP TO MILL REDEVELOPMENT WEBINAR SERIES



Webinar # 2

Challenges and Solutions to Redevelopment



Colette Santasieri, PhD
Executive Director,
NJIT TAB Program



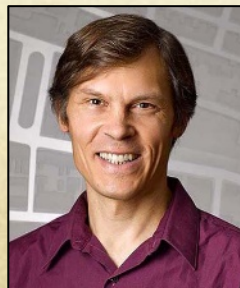
Dennis Deziel
Administrator
EPA Region 1



Laura V. Trieschmann
State Historic
Preservation Officer,
Vermont



Ileen Gladstone, PE,
LSP, LEED AP
Senior Vice President,
GEI Consultants



Ben Carlson, AIA,
LEED AP
Director of Urban
Design,
Associate Principal,
Goody Clancy



Leila Pike, P.E.
Water Resources
Engineer,
GEI Consultants



New Jersey Institute of Technology Technical Assistance to Brownfields Communities Program (NJIT TAB)

With funding from EPA, NJIT TAB provides free technical assistance to state, regional, county, tribal and local government entities and nonprofits in EPA Regions 1 (New England), 3 (mid-Atlantic), and 4 (southeast) who want to transform brownfield sites into community assets.

Form more information contact NJIT TAB at:

tab@njit.edu or 973-642-4165

Visit our website: www.njit.edu/tab



ROADMAP TO MILL REDEVELOPMENT WEBINAR SERIES



Webinar # 1: New England Mills: Then and Now

September 24, 2020; 10:00 to 11:00 am

A look back at the importance of mills in New England's history,
and then for a look forward to their new prominence

Webinar # 3: The Funding Stack

October 15, 2020; 10:00 to 11:30 am

Discover the many sources of funding available from EPA Brownfields grants,
to state historic tax credits, to loans, and more!

Webinar # 4: Adapting to Changing Times

October 27, 2020; 10:00 to 11:00 am

In their original form, mills provided jobs to the community.
Now, repurposed mills are serving the communities in new and exciting ways

Registration required (www.njit.edu/tab; click on the News and Events)



ROADMAP TO MILL REDEVELOPMENT WEBINAR SERIES



Dennis Deziel
Administrator
EPA Region 1



Sources: Portland Press Herald; www.ricentral.com/chariho_times/; <https://abandonedplaces.livejournal.com/>;
https://en.wikipedia.org/wiki/Dorchester,_Boston



ROADMAP TO MILL REDEVELOPMENT WEBINAR SERIES



Looking to the Past for a Future:
Preservation and Adaptive Use of Two Vermont Mills



Laura V. Trieschmann
State Historic Preservation Officer,
State of Vermont



Looking to the Past for a Future: Preservation and Adaptive Use of Two Vermont Mills

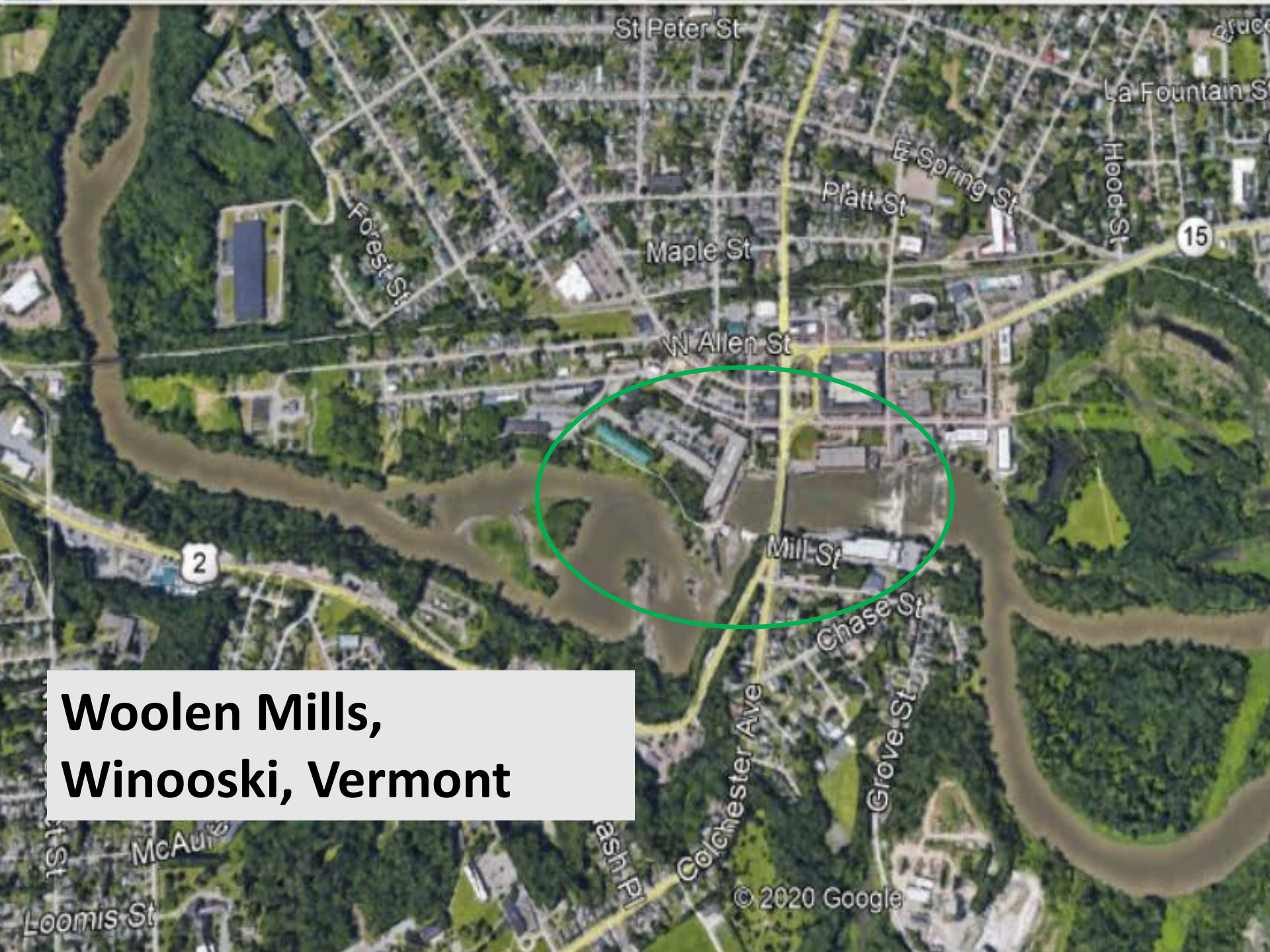


Projects

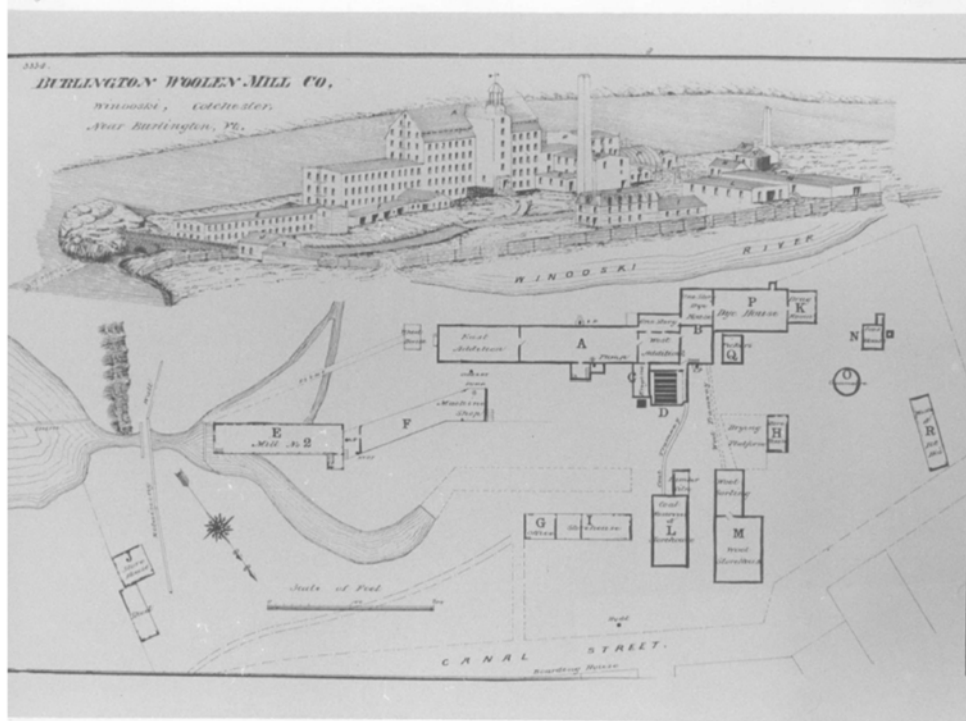
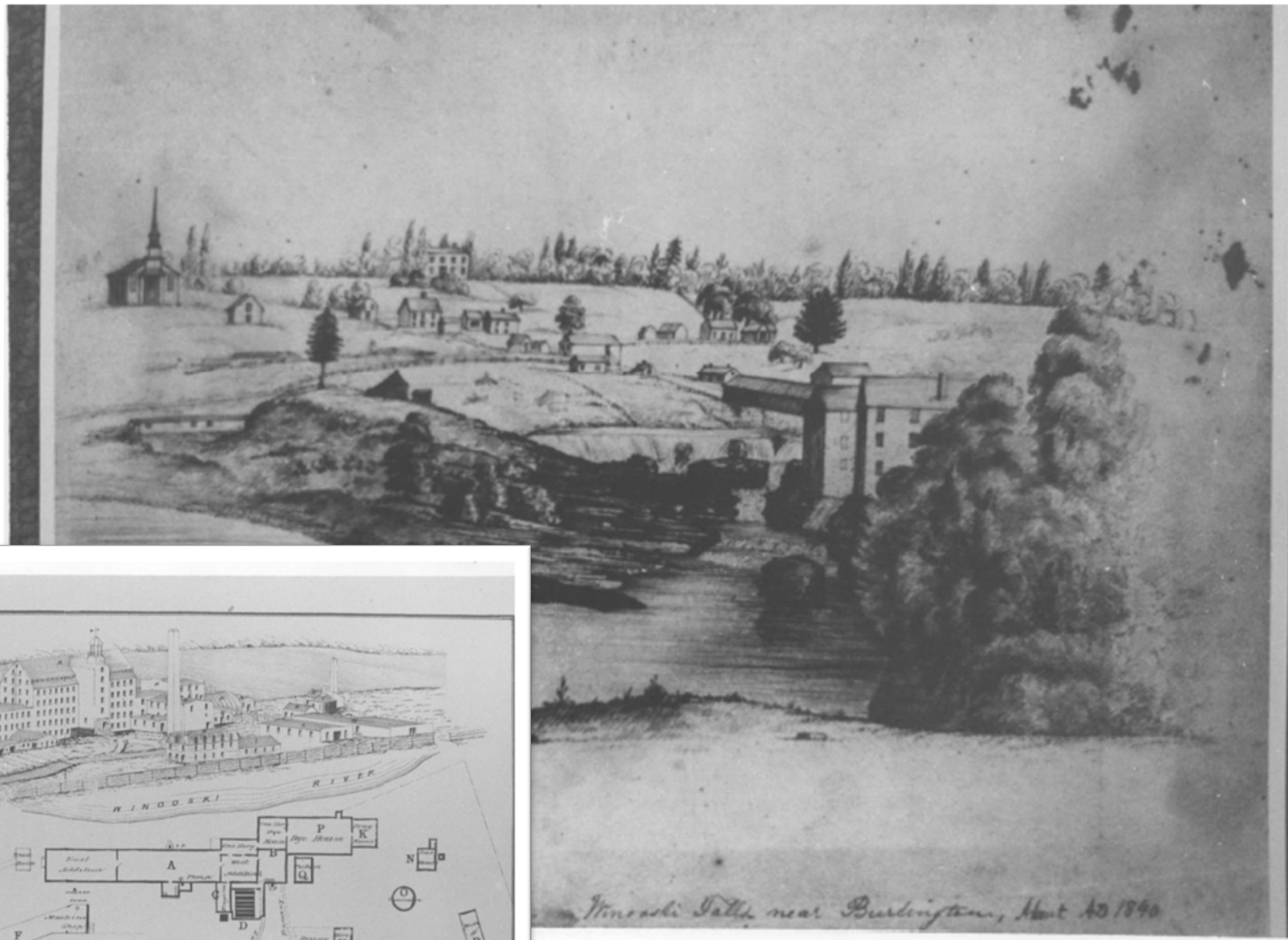
- *Burlington Woolen Company, Winooski*
 - *Champlain Mill*
 - *The Woolen Mill*
- *Fellow Gears Shaper Company, Springfield*
 - *One Hundred River Street*

(034-8770-8)(11-12-27-12M)(12-3000)

WINOOSKI, VT.



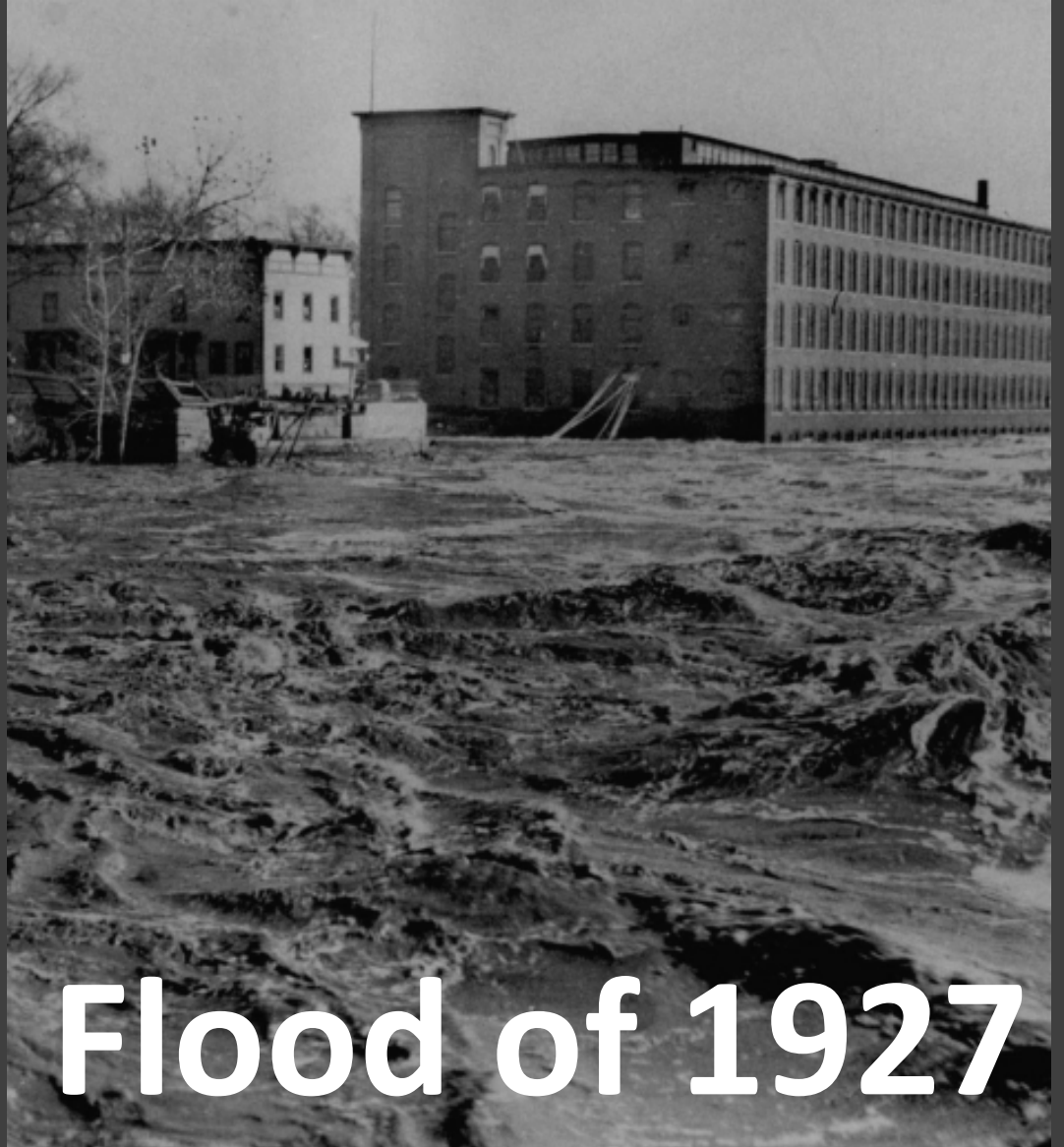
**Woolen Mills,
Winooski, Vermont**



Birdseye View of Winooski, Vt.



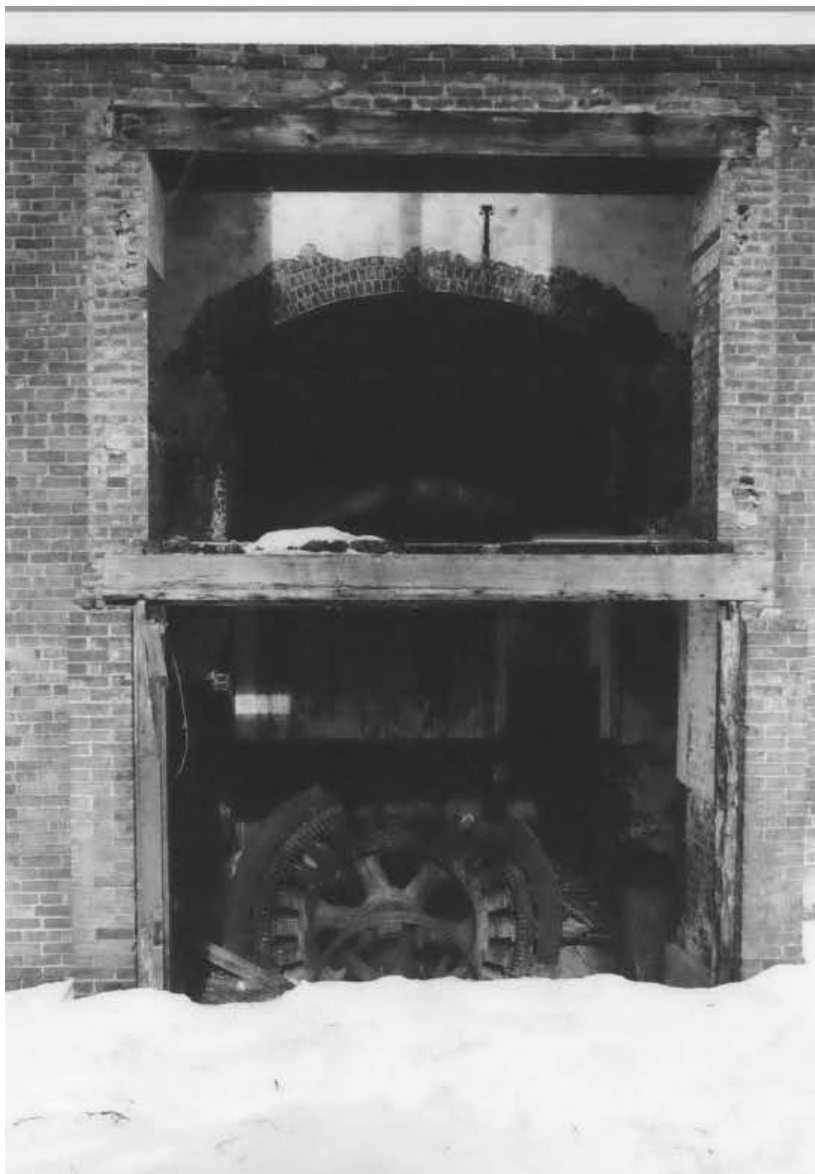




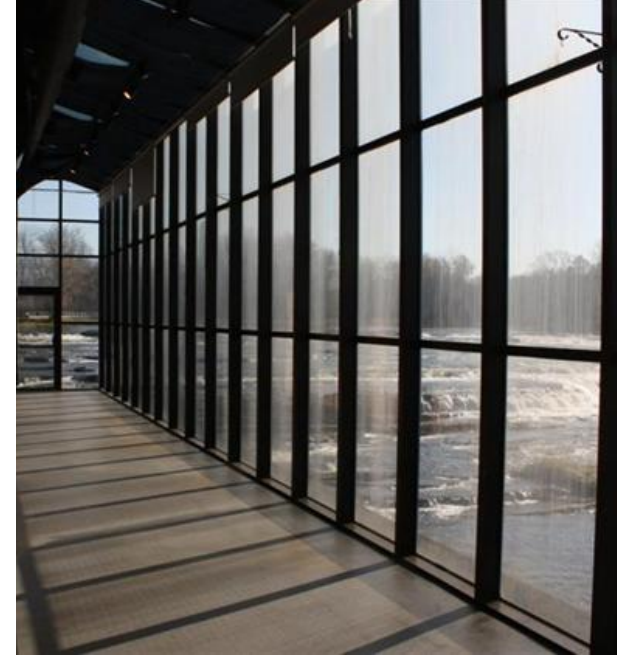
Flood of 1927

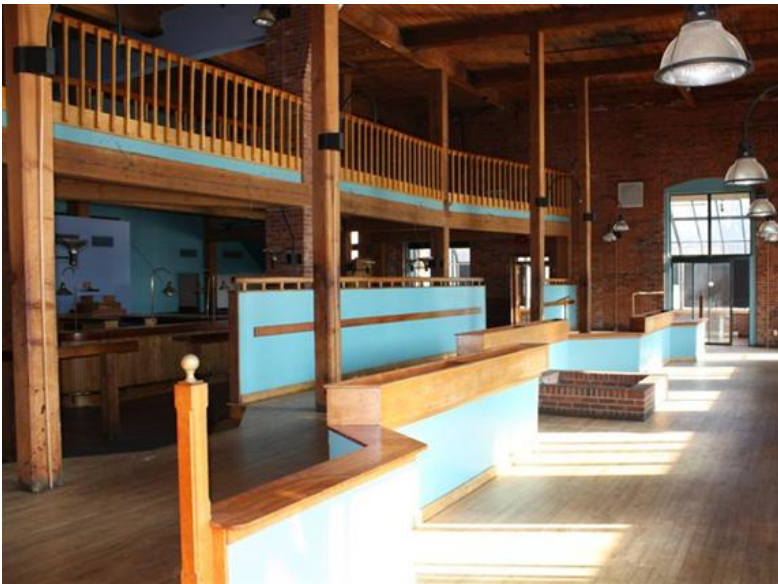
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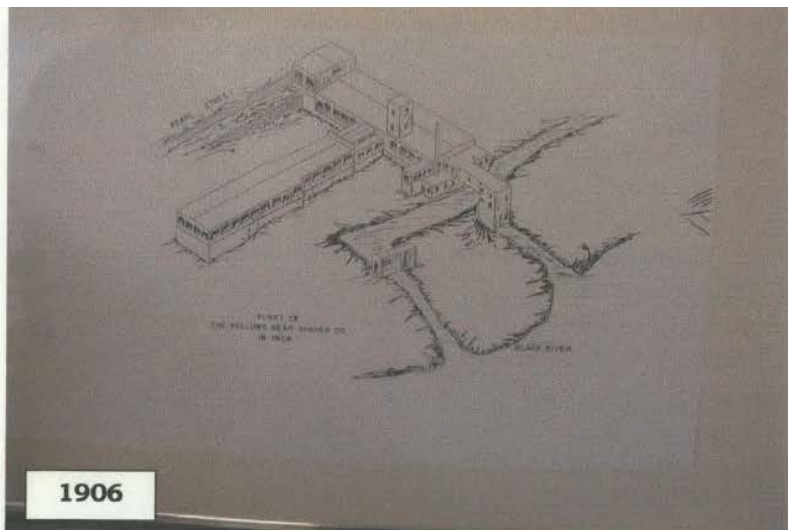




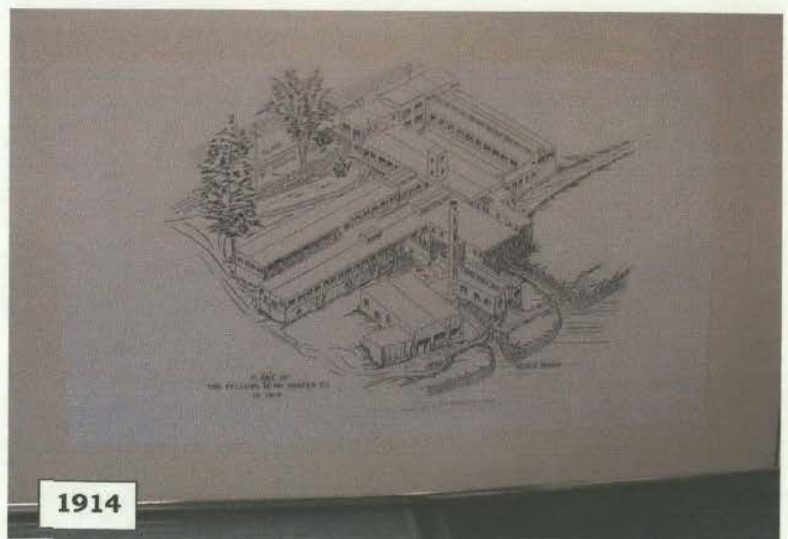


**Fellows Gear Shaper Company Mill,
Springfield, Vermont**



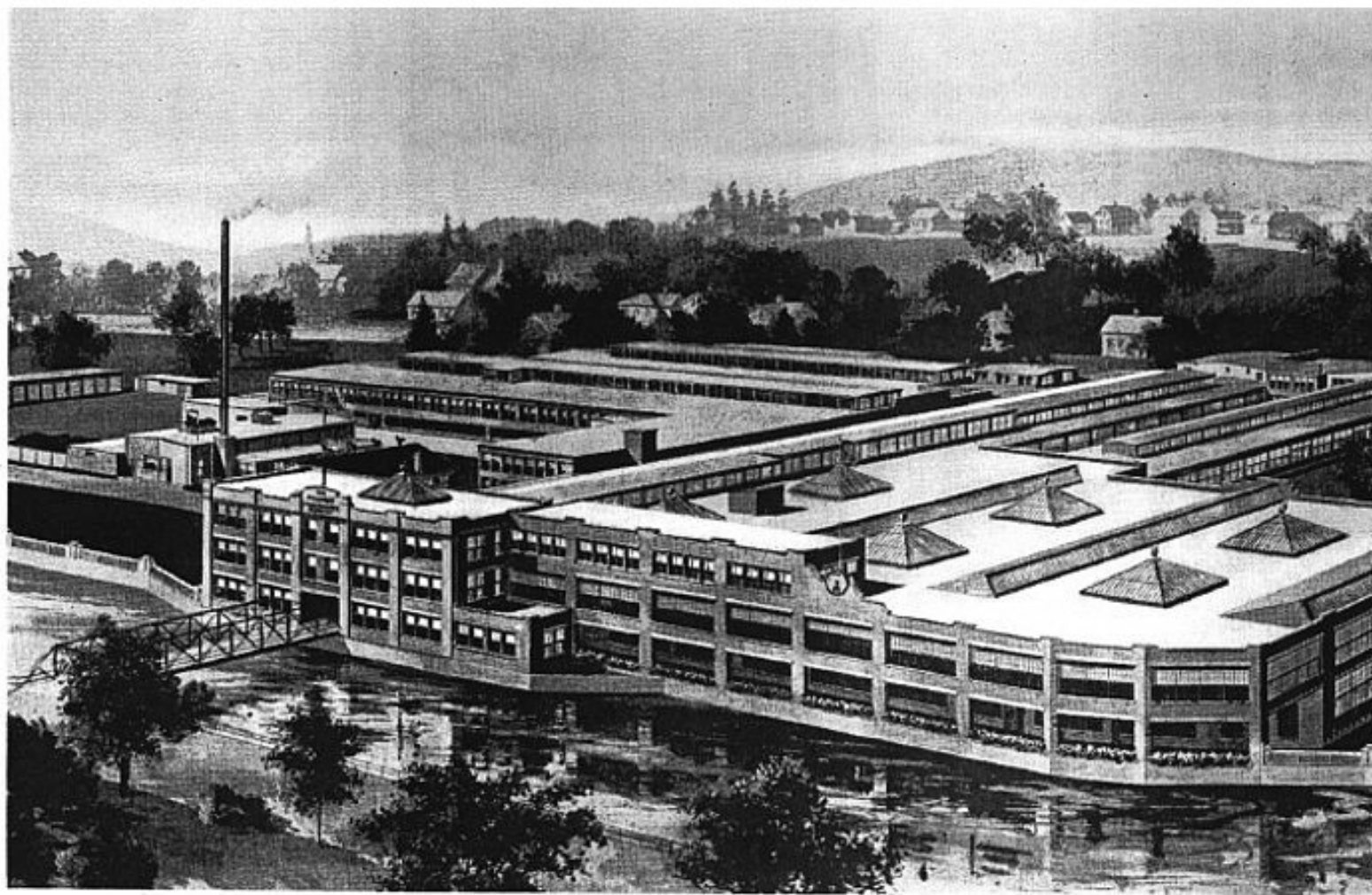


1906

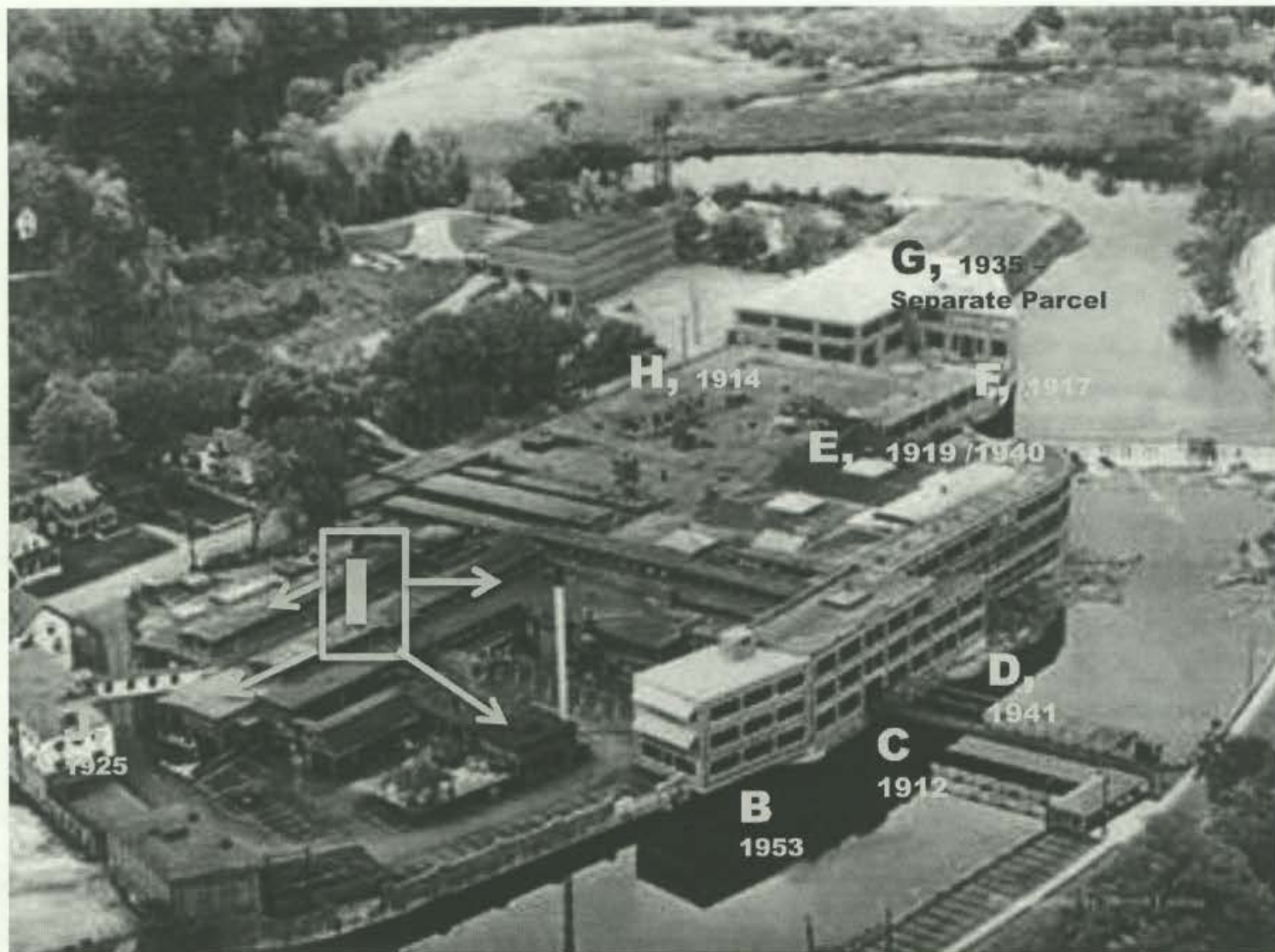


1914





Main Office and Plant of The Fellows Gear Shaper Company—Makers of Complete Equipment Finishing, and Testing Gears.





Flood of 1927



Springfield, Vermont.
Fellows Gear Shaper Bridge.
Nov 4th 1927



Building #5 and Building #6



Building #7 (Metal chip shed)













LIGHT AND SPACE

Sabra Field • Pat Musick • Karen Madden • Dan O'Donnell



A historical color photograph of a river scene. In the background, a large, multi-story mill building with many windows sits on a hill. A tall smokestack is visible to the left. A bridge crosses the river in the middle ground. The foreground shows a rocky riverbank with some vegetation. The sky is overcast.

Thank you

Laura V. Trieschmann,
Vermont State Historic Preservation Officer
Laura.Trieschmann@vermont.gov



ROADMAP TO MILL REDEVELOPMENT WEBINAR SERIES



What might be lurking underground or in the walls?
Contamination at Mills



Ileen Gladstone, PE, LSP, LEED
AP Senior Vice President
GEI Consultants



What Might be Lurking Underground or In the Walls: Contamination at Mills

Ileen Gladstone, P.E., LSP

October 6, 2020

AGENDA

- 1 Types of contamination at mills
- 2 Due diligence
- 3 Where and how to look for contamination
- 4 Cleanup of an abandoned mill



Mills

- Use raw material to manufacture:
 - Textiles
 - Pulp, paper and paperboard
 - Wood products for construction
 - Iron and steel
- Materials
 - Cotton, wool and other raw fibers
 - Wood and wood fibers, virgin and recycled
 - Iron, ore, coal and metal scrap



What to look for

- Textiles
 - Polychlorinated biphenyls (PCBs), lead, mercury, asbestos, volatile organic compounds (VOCs)
- Paper mills and wood products
 - Creosote, wood-treating chemical, VOCs, dioxins, lead PCBs, petroleum
- Iron and Steel mills
 - Lead, PCBs, petroleum, slag, asbestos
- Railroad lines and spurs
 - Polyaromatic hydrocarbons (PAHs), lead, pesticides and PCBs
- Underground Storage Tanks and Aboveground Storage Tanks
 - Fuel oils, gasoline, VOCs



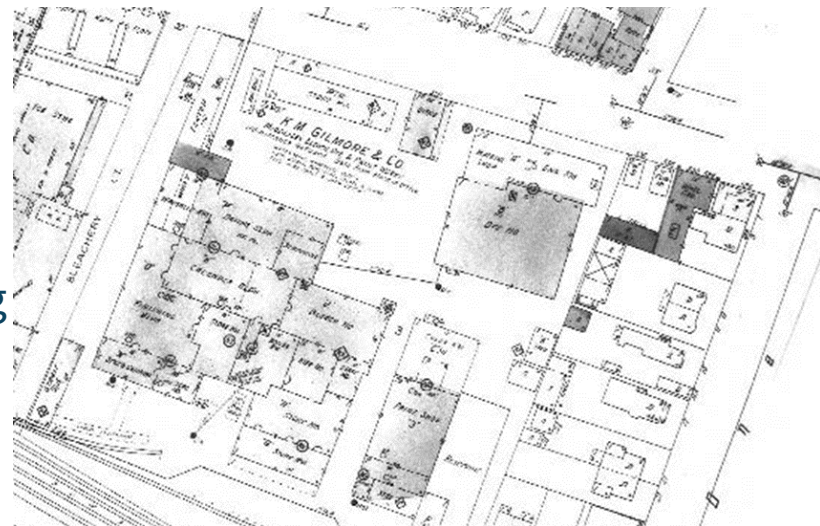
Eyes Wide Open

- Due Diligence Goal
 - Identify “Areas of Recognized Environmental Concern”
- Paper Search
 - Historic records, maps and photographs, compliance records
- Site Visit
- Sources
 - Leaking tanks, contaminated fill, historic processes, dry well, drums, potential dumping
- Testing

Aerial Photo

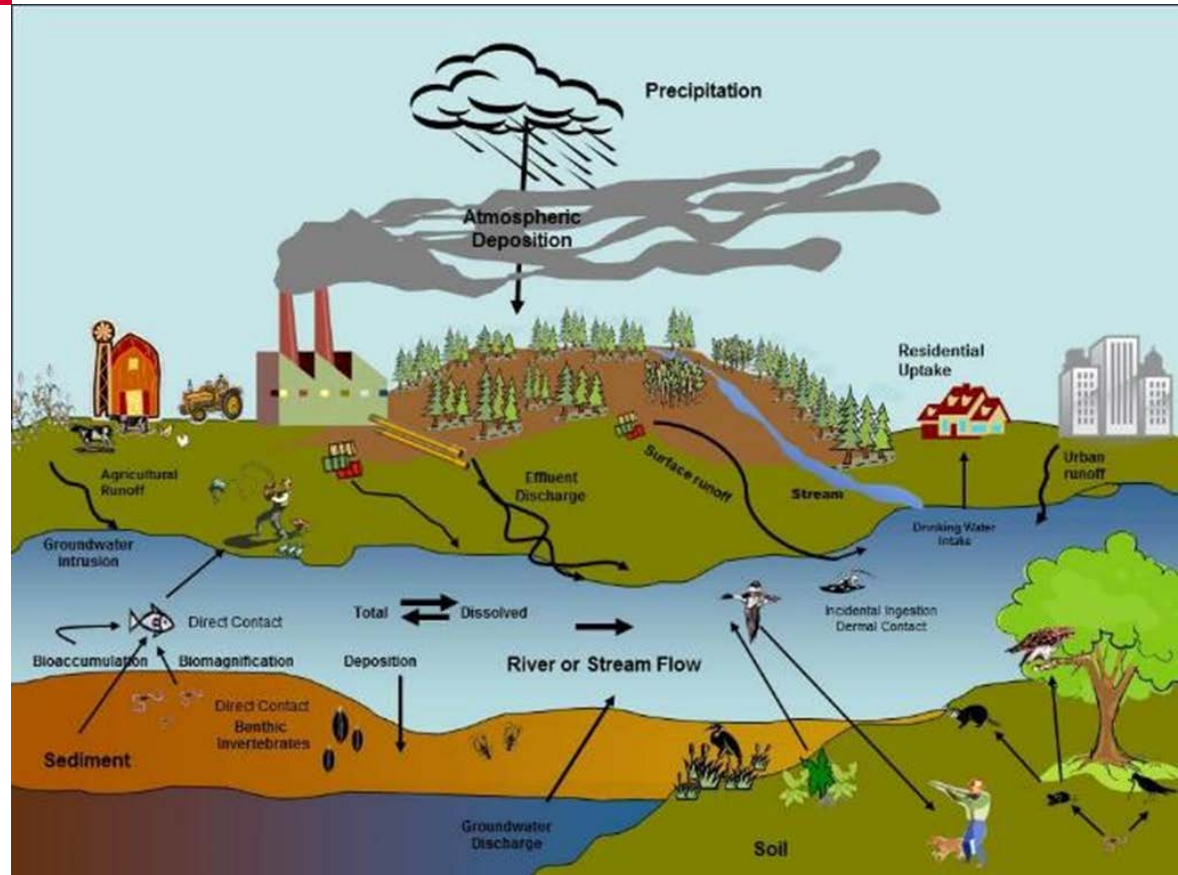


Sanborn Map



Where to look

- Soil
- Groundwater
- Sediment
- Surface water
- Soil gas
- Indoor air
- Building materials



Testing, Testing, Testing

- Subsurface investigation
 - Soil borings/test pits/monitoring wells
 - Soil and groundwater testing
 - Soil gas testing
- Sediment and surface water sampling
- Indoor air testing



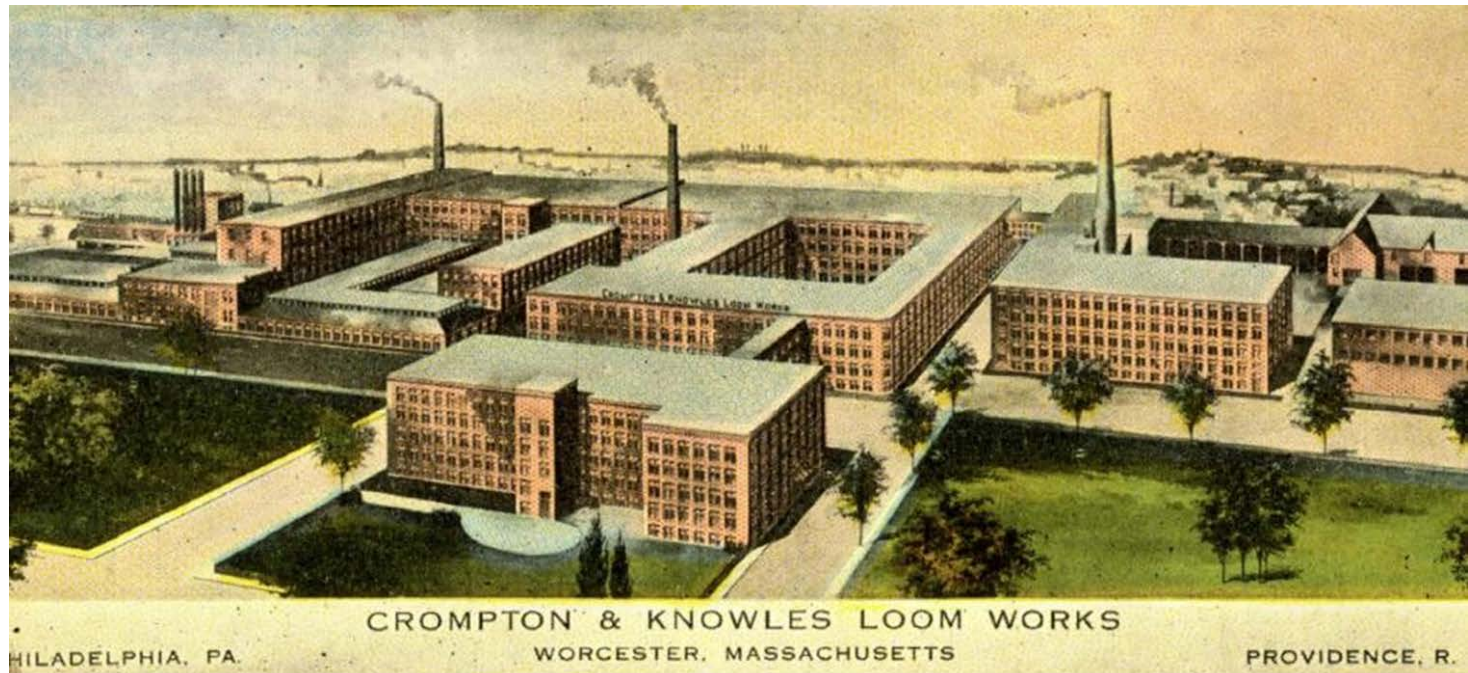
Building Materials

- Asbestos
 - Pipe and boiler installation
 - Suspended ceiling tiles
 - Wallboard and joint compound
 - Caulking and glazing
 - Mastic
 - Floor covering and tiles
- Lead-based paint
- PCBs
 - Caulking
 - Paint
- Mold



Crompton & Knowles Loom Works Worcester, MA

- Operated
 - 1892-1970
- Tenants
 - 1970s-1990s
- Manufactured
 - Cloth making looms
- Contaminated
 - Groundwater
 - Soil
 - Indoor air
- Buildings
 - Asbestos



DISPOSAL SITE





2010



2015



2019



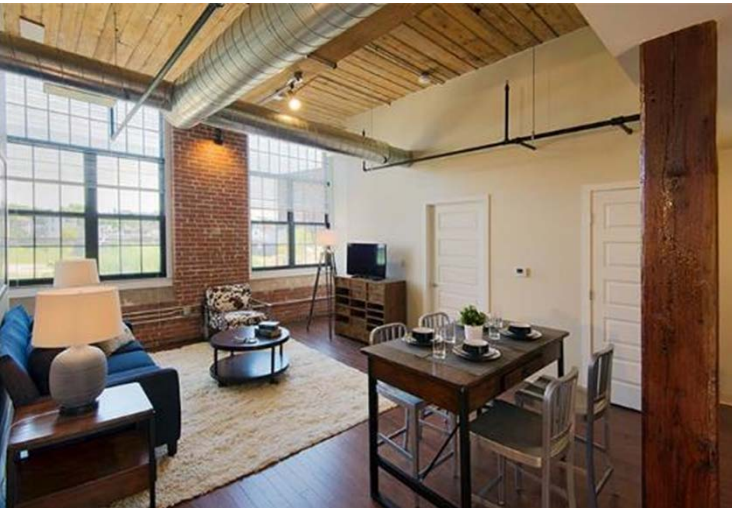
Cleanup

- Soil
 - Excavation and offsite disposal
 - Capping
- Indoor air
 - Vapor mitigation system
- Institutional Controls
 - AUL
- Brownfield Tax Credits



The Lofts at Loomworks

The Community Builders





GEI



Consultants

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GEI Consultants
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781.424.9924

ROADMAP TO MILL REDEVELOPMENT WEBINAR SERIES

Can we give this mill new life?
Lessons from two cities



Ben Carlson, AIA, LEED AP
Director of Urban Design,
Associate Principal
Goody Clancy

Can we give this mill new life?

Lessons from two cities:

Manchester, NH
Amoskeag Millyard



Bridgeport, CT
Remington Arms



Can we give this mill new life?

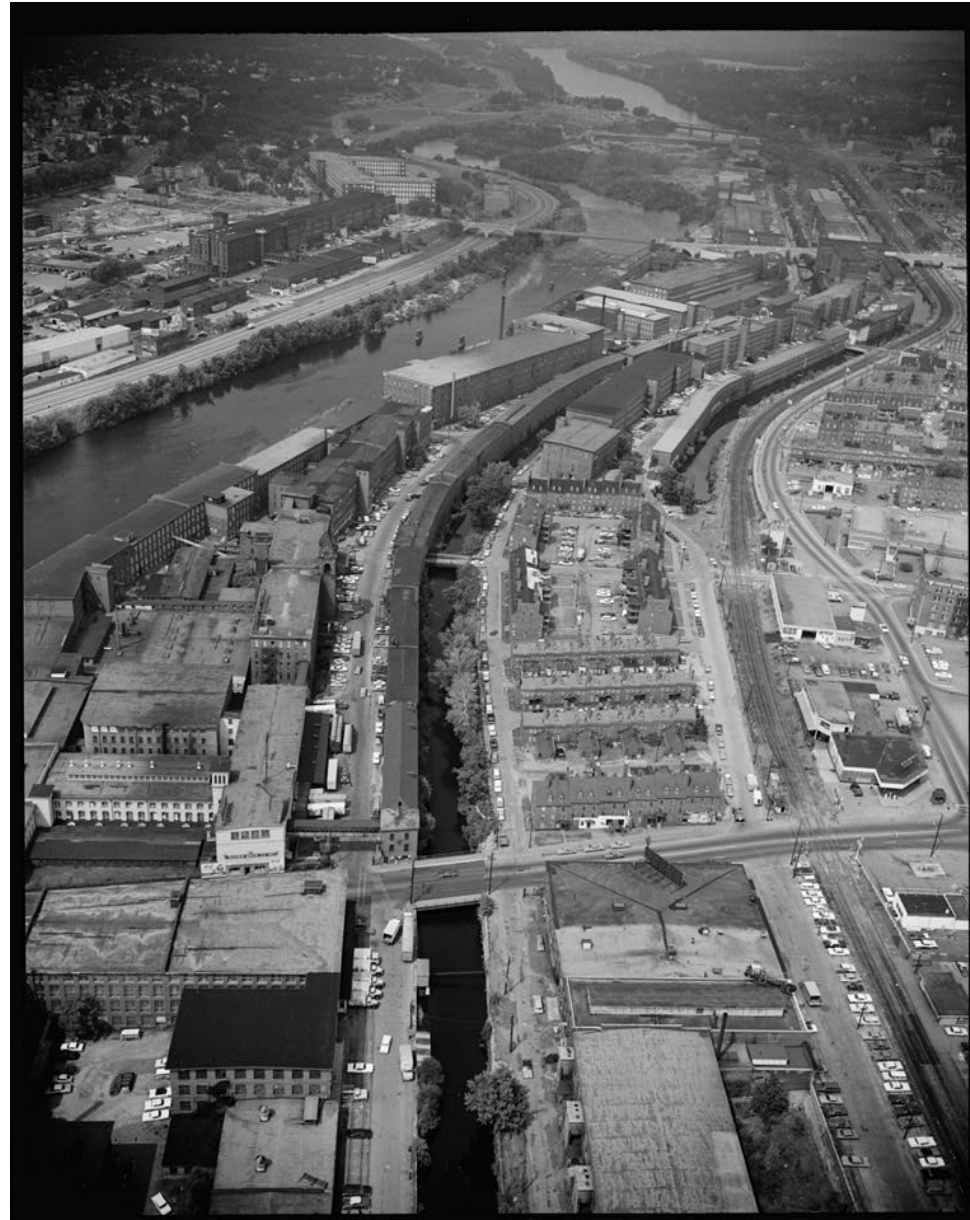
Critical feasibility questions:

- Is the structure adequate?
- Has enclosure been maintained?
- Is there adequate access to serve modern uses?

Manchester

Amoskeag Manufacturing, 1831-1935

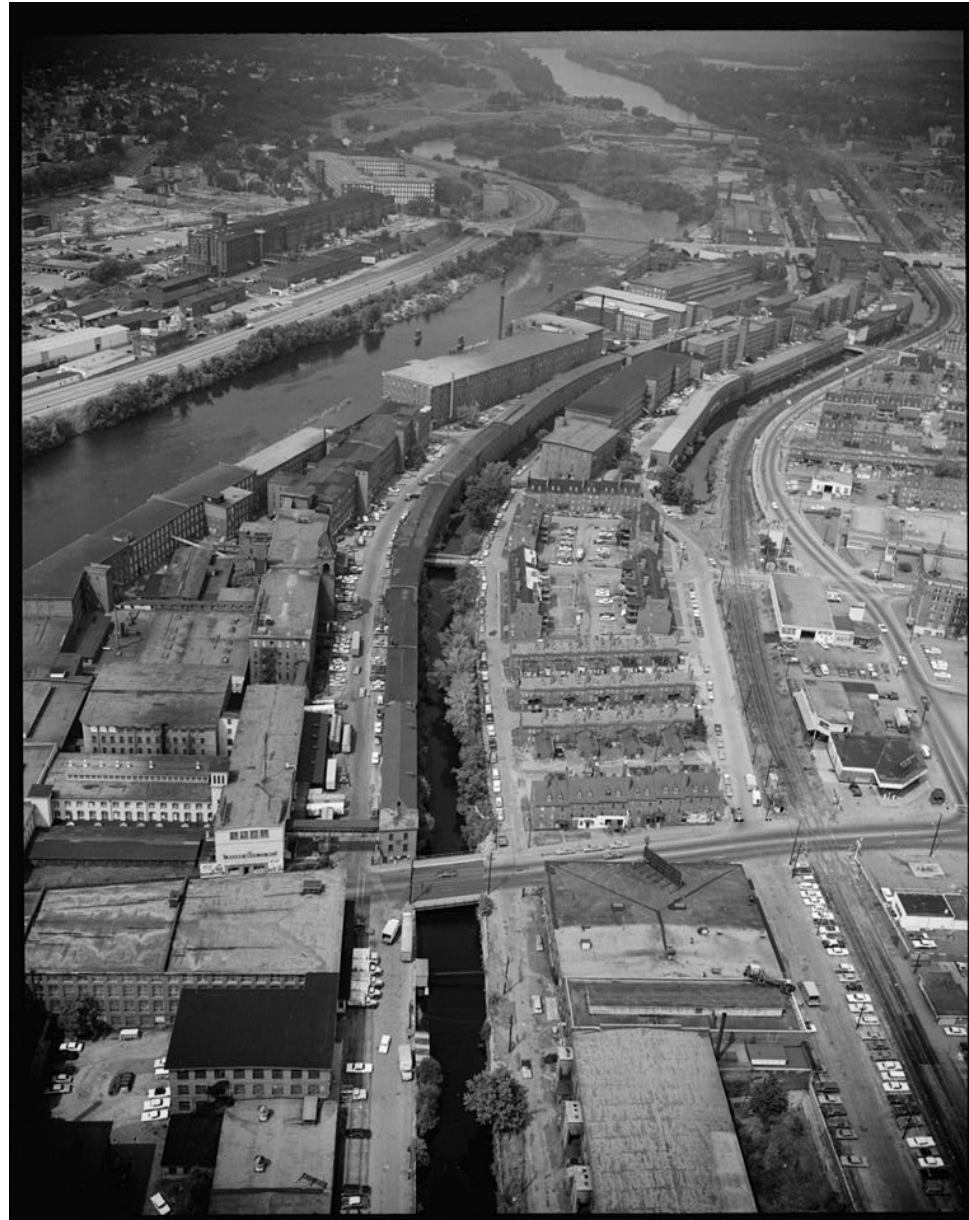
- 75-building water-powered “Industrial utopia”
- Adapted from textiles to machinery
- New industrial workforce



Manchester

Amoskeag Manufacturing, 1831-1935

- 75-building water-powered “Industrial utopia”
- Adapted from textiles to machinery
- New industrial workforce



Second reinvention, 1935-1950's

- Lost advantage to steam
- 1935 flood, bankruptcy cost 17,000 jobs
- Local entrepreneurs bought property for \$5M
- Revived clothing & boot manufacturing, WWII-1950's

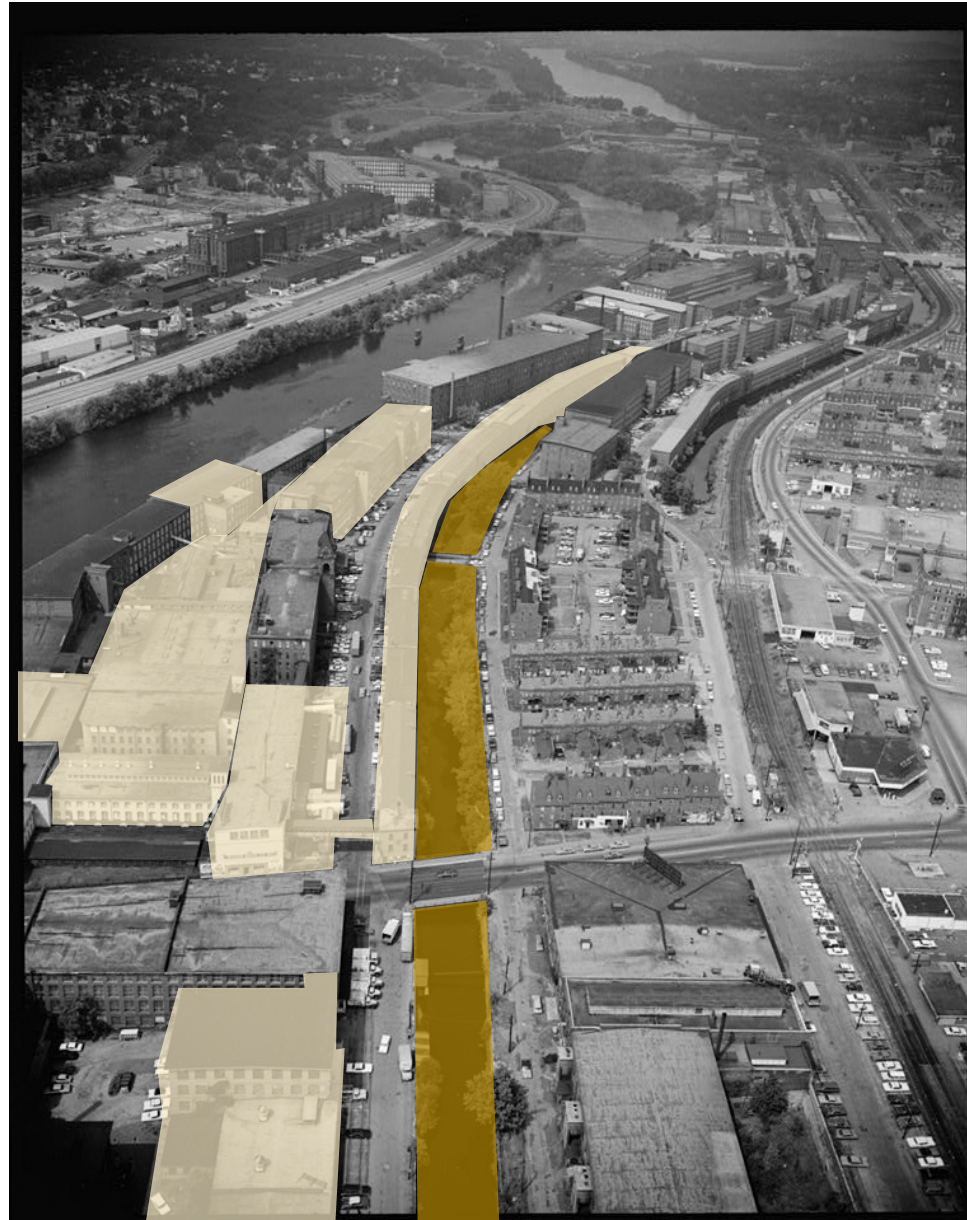


FLOOD SCENE. AMOSKEAG MILLS, MANCHESTER, N. H.



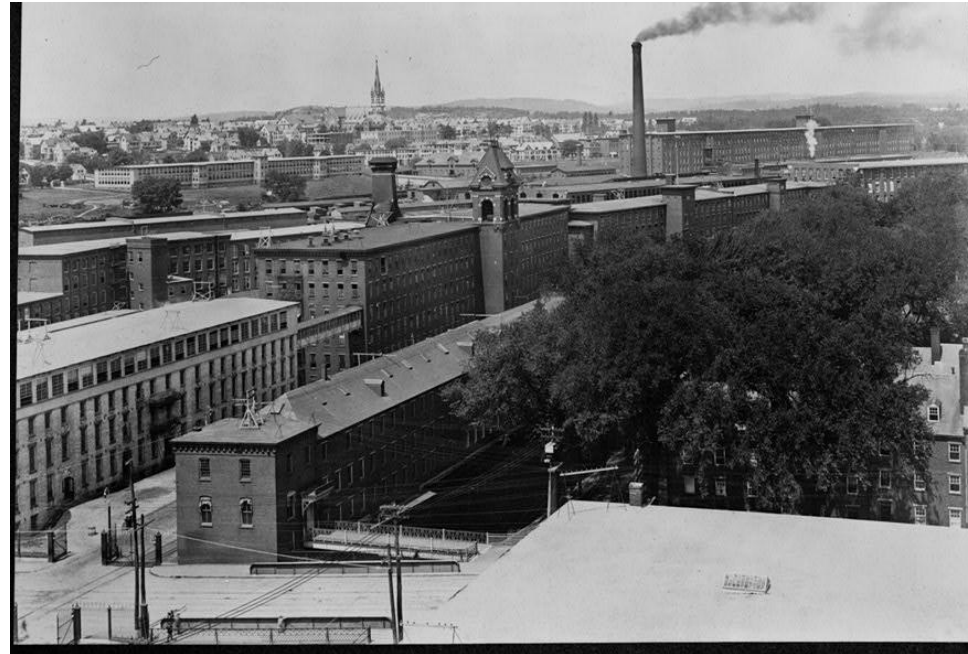
Urban renewal, 1960's-1980's

- Plan to raze entire complex sparked preservation movement
- 60 of 75 buildings preserved
- Limped into 1980's with limited occupancy
- 1957 anthrax outbreak at mill demolished in 1971



Urban renewal, 1960's-1980's

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- 60 of 75 buildings preserved
- Limped into 1980's with limited occupancy
- 1957 anthrax outbreak at mill demolished in 1971



The Millyard reinvented, 1980's-today

- Initial investor DEKA
- Research, office, university
- Occupancy limited only by parking



Manchester

Critical feasibility questions:

- Is the structure adequate?
 - **Yes! Thanks to ambitious original investment**
- Has enclosure been maintained?
 - **Yes! Thanks to generations of effort**
- Is there adequate access to serve modern uses?
 - **Until recently, yes, by sacrificing 20% of the mill buildings**
 - **New access options necessary for more intense use**

Special thanks to John Clayton, Manchester Historic Association Millyard Museum

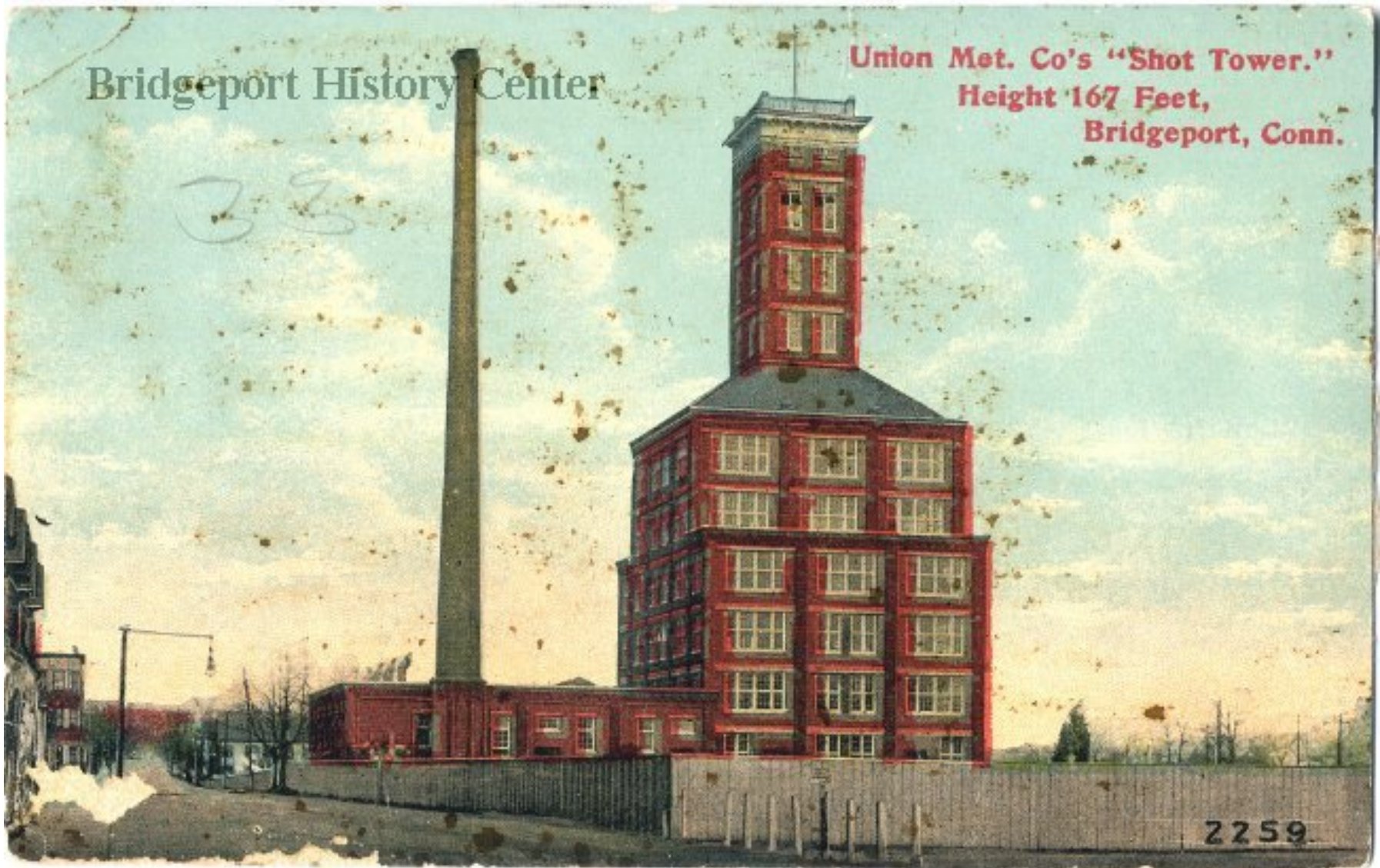
Bridgeport

Remington Arms flourished during two world wars...



Bridgeport

The Shot Tower: historic industrial innovation



Bridgeport

The Shot Tower: historic industrial innovation



Bridgeport

Vandalism and infernos



Bridgeport

Shot Tower: structurally sound for vertical loads; roof replacement needed

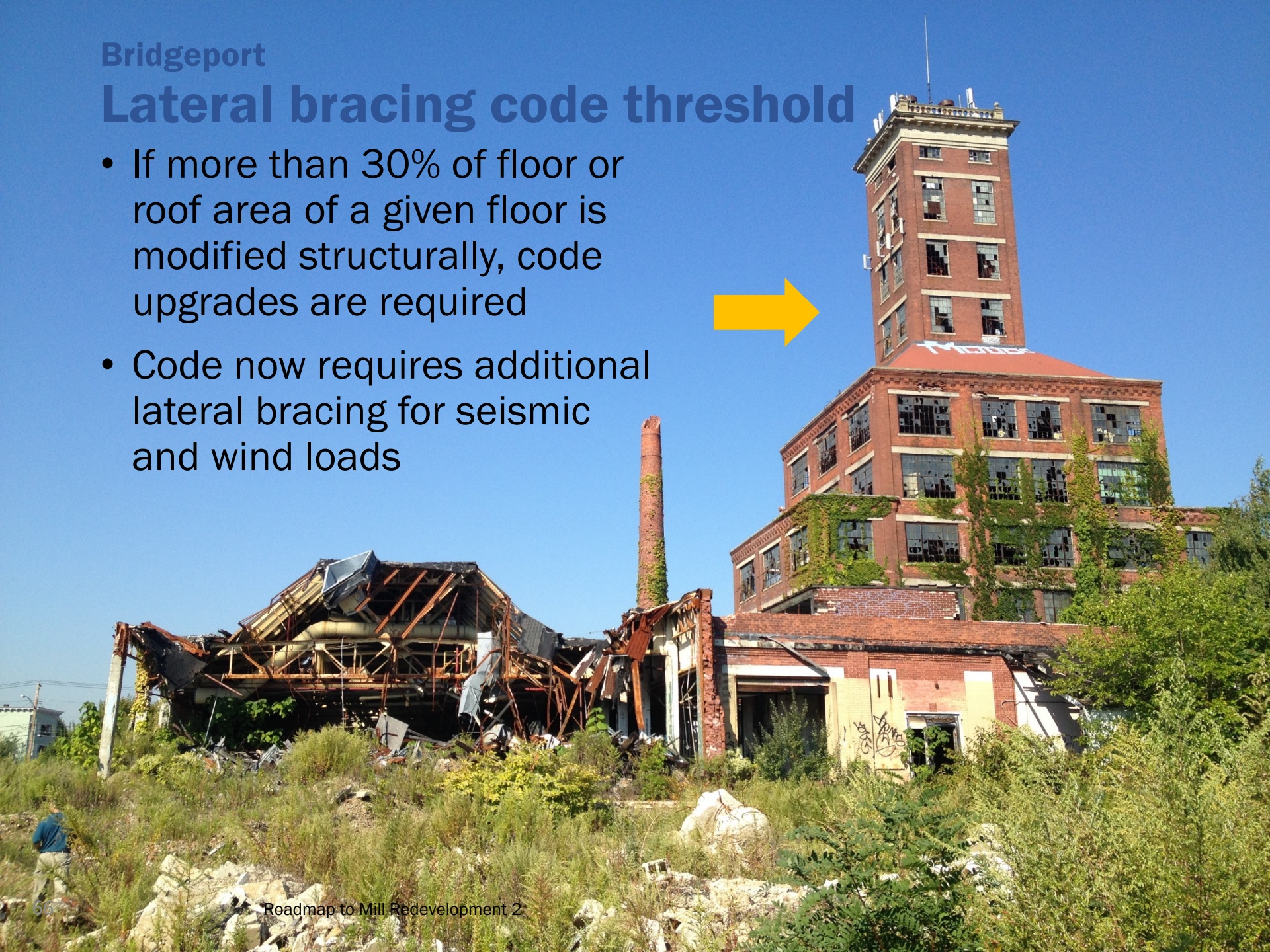


Structural analysis by Simpson
Gumpertz & Heger (SGH)

Bridgeport

Lateral bracing code threshold

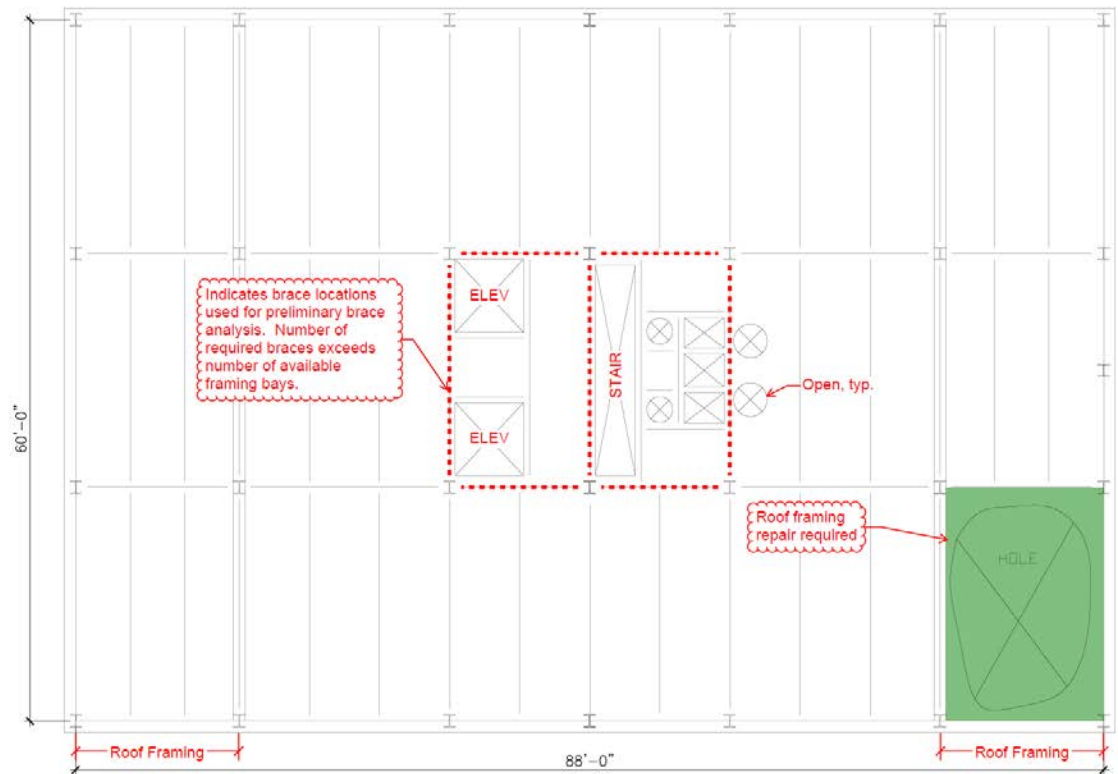
- If more than 30% of floor or roof area of a given floor is modified structurally, code upgrades are required
- Code now requires additional lateral bracing for seismic and wind loads



Bridgeport

Less is more

- Limit structural alterations (stairs, elevator) to core to stay under 30% threshold triggering lateral bracing
- Use only lower 5 floors



5

LEVEL 5 FRAMING PLAN

1/8" = 1'-0"

Masonry repair, window covers, roof repair





Legend:
 Area for repointing
 Area for masonry rebuilding

Figure ST-S
Shot Tower South Elevation
07/22/2016

Bridgeport

Mill building 330: primary structure adequate for vertical loads



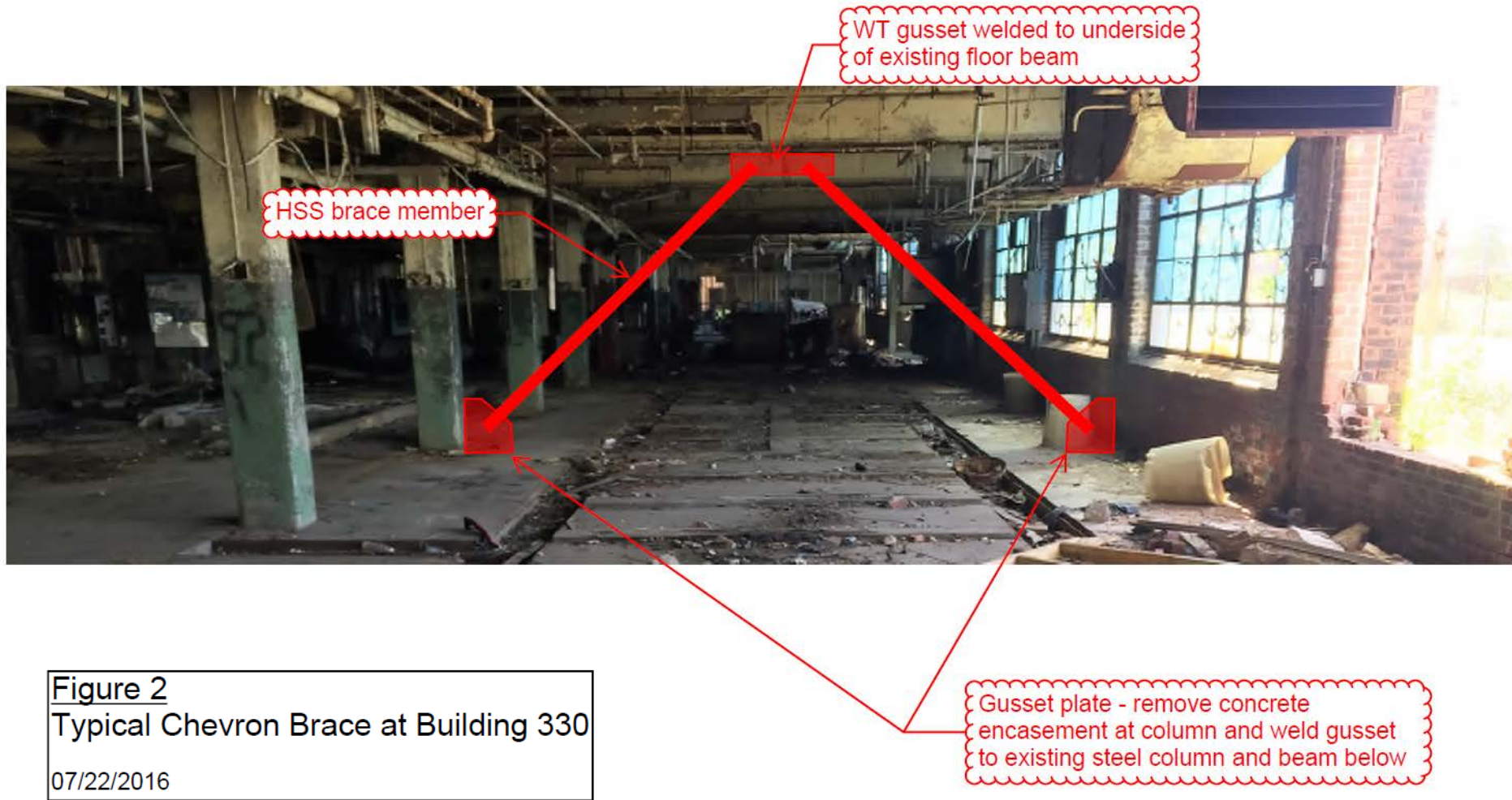
Bridgeport

Rotted floor joists need replacement

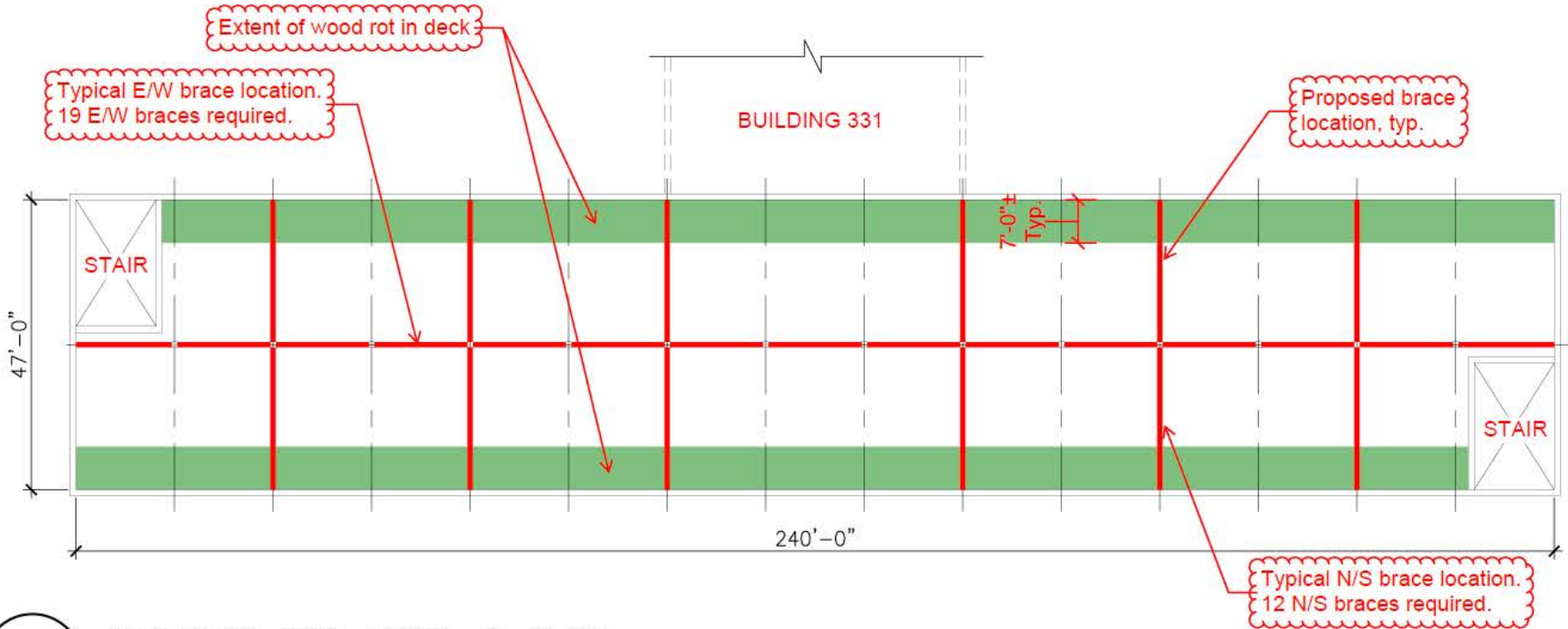
- Over 30% of floor area, hence code upgrades needed



Frequent lateral bracing needed



Will bracing make space hard to use?



3

BUILDING 330 LEVEL 3 PLAN

$\frac{3}{64}'' = 1'-0''$

Bridgeport

Masonry repair, window covers, roof cover



Center bay of building not shown (see South Elevation East Side)

Bridgeport

Transit would unlock economic opportunity



Bridgeport Transit would unlock economic opportunity



Bridgeport

Critical feasibility questions:

- Is the structure adequate?
 - **Mostly yes, thanks to ambitious original investment**
 - **Lateral bracing needs pose challenges**
- Has enclosure been maintained?
 - **No! Significant wood floor deterioration poses challenge**
- Is there adequate access to serve modern uses?
 - **Parking area available for initial re-occupancy**
 - **Transit station investment would unlock far more potential**

Special thanks to Frank Croke, City of Bridgeport; and SGH Engineering



ROADMAP TO MILL REDEVELOPMENT WEBINAR SERIES



Our Changing Climate: Flood Risks to Waterfront Mills



Leila Pike, P.E.
Water Resources Engineer
GEI Consultants



Our Changing Climate: Flood Risks to Waterfront Mills

Leila Pike, P.E.

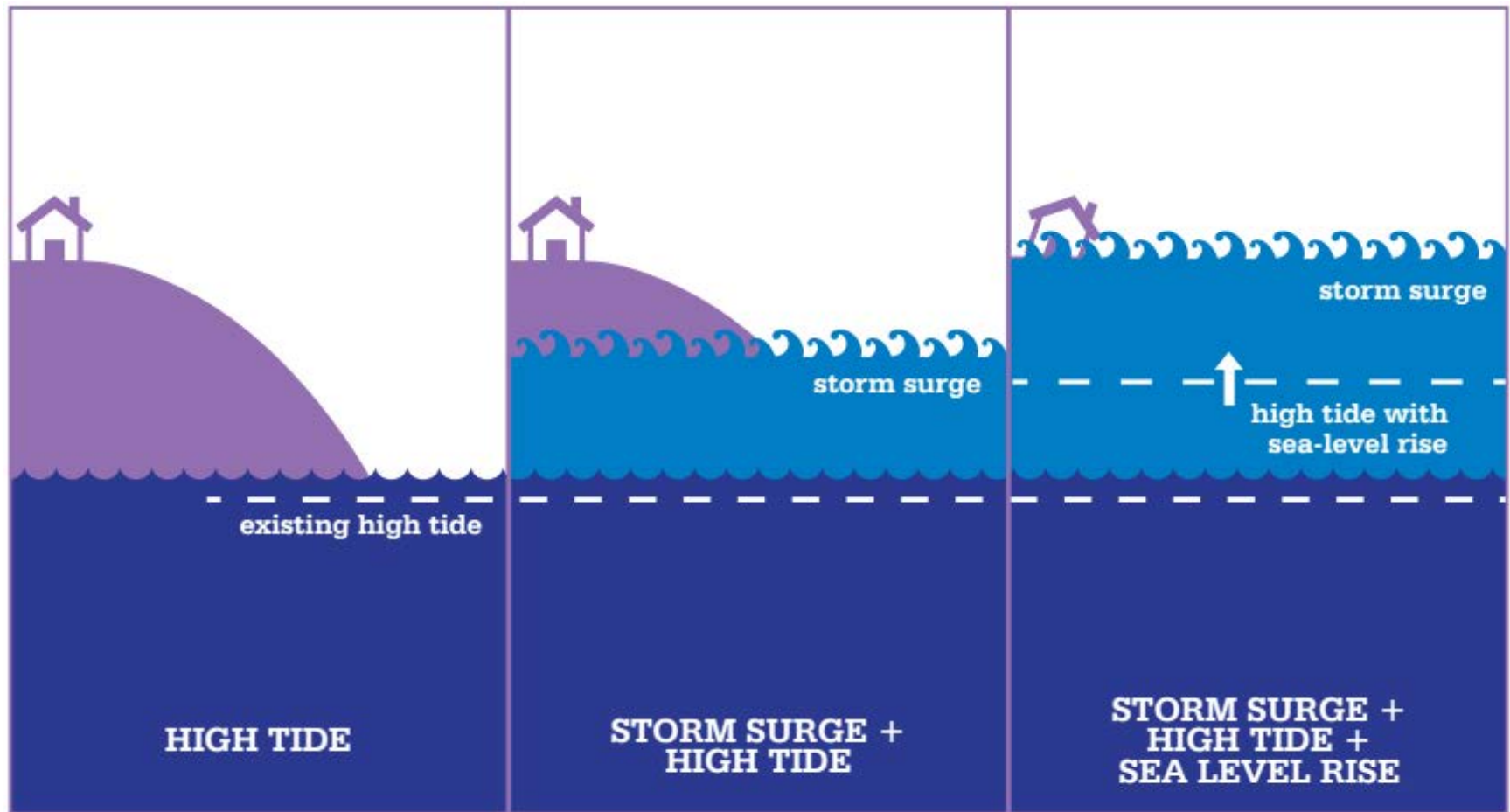
AGENDA

- 1 Climate Change Risks to Mill Redevelopment
- 2 Resources to Understand Flood Risks
- 3 Example: Saco Island, Maine
- 4 Roadblocks to Redevelopment Considering Flood Risk
- 5 Flood Adaptation
- 6 A Way Forward



Climate Change Risks

- Coastal storm surge (i.e. hurricanes)
- Sea level rise
- Increasing frequency and intensity of rain events

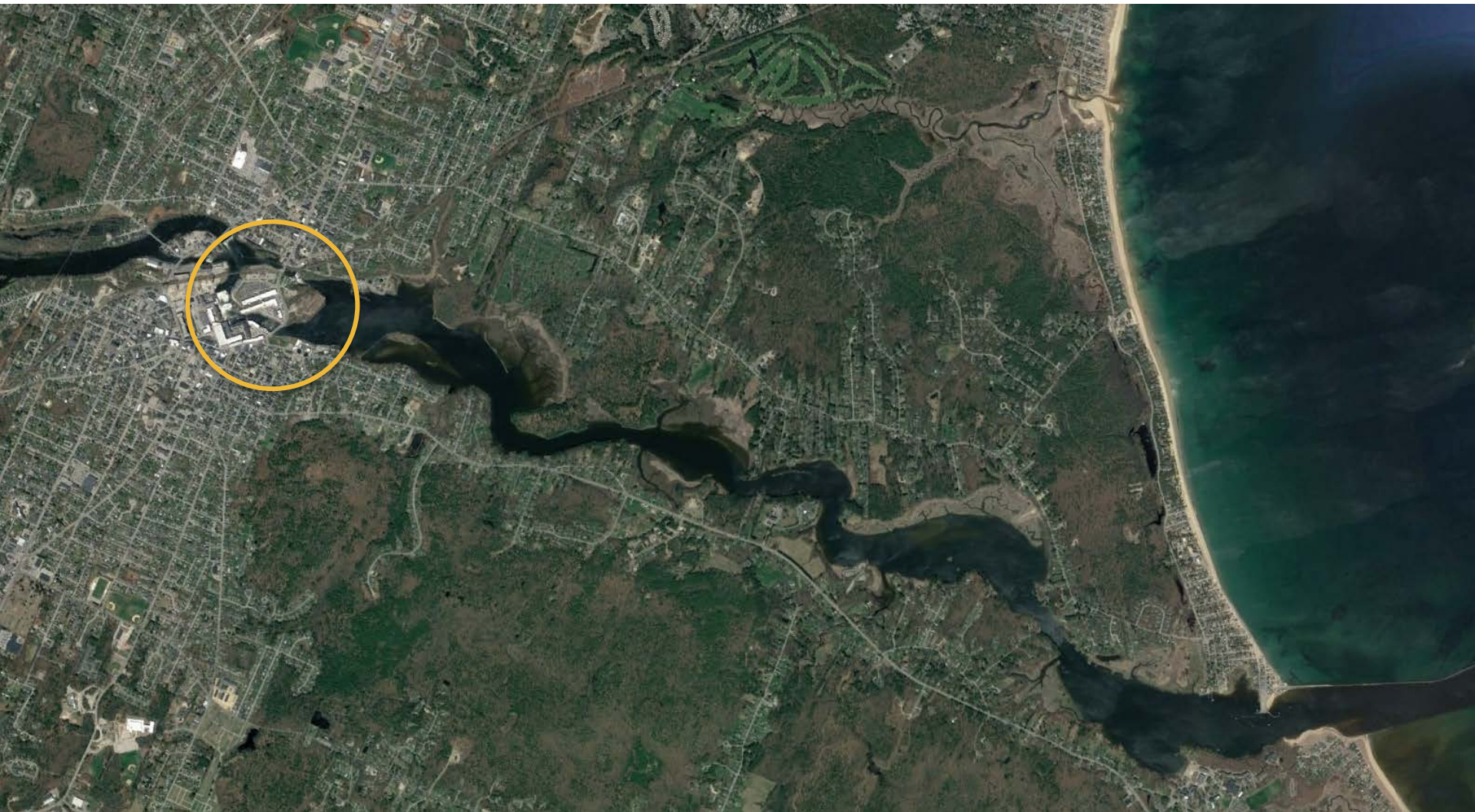


Resources to Understand Risks

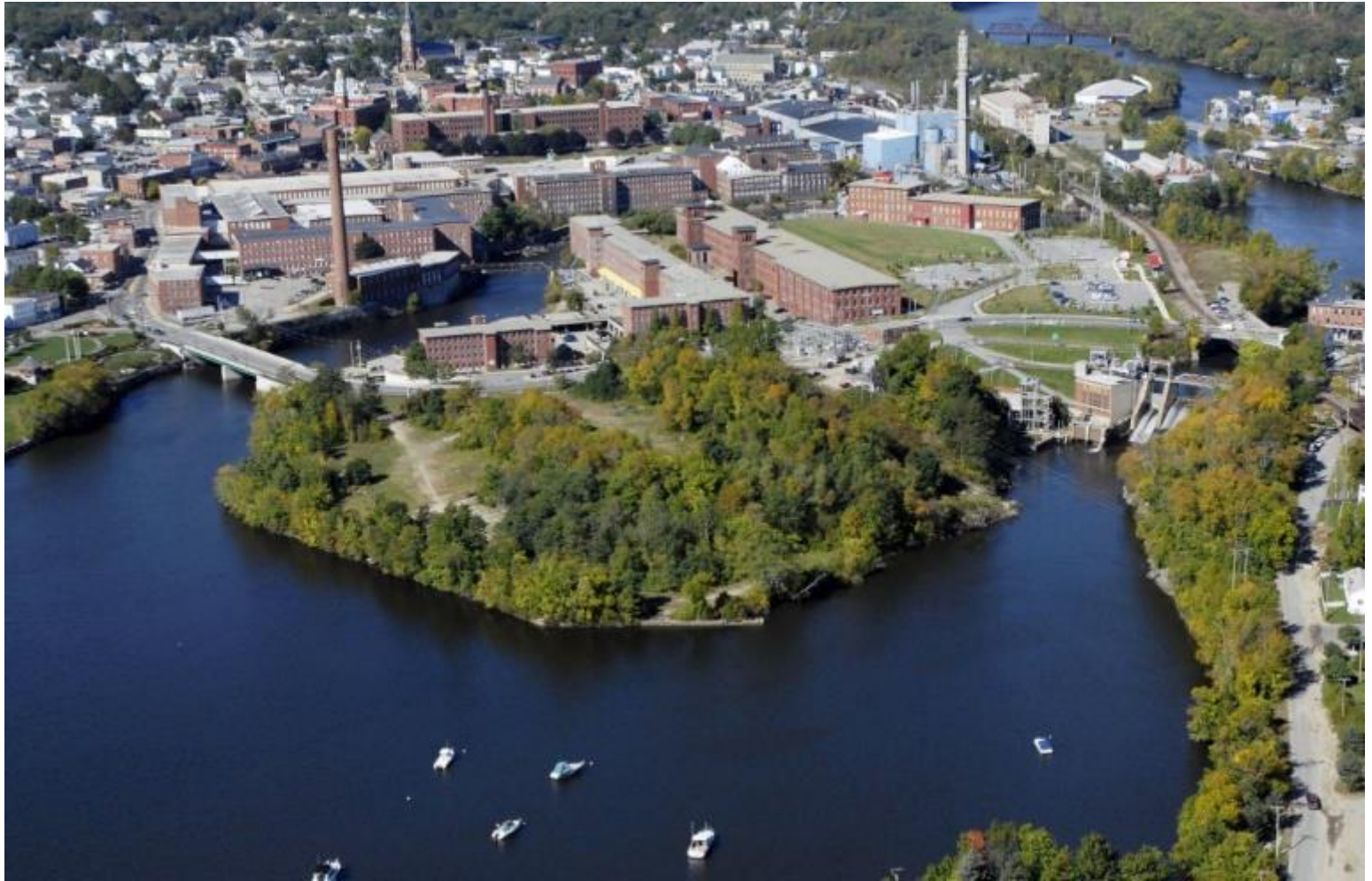
- NOAA Coastal Flood Exposure Mapper
- NOAA Sea Level Rise Viewer
- FEMA Flood Insurance Rate Maps



EXAMPLE: SACO ISLAND, ME



EXAMPLE: SACO ISLAND, ME



Source: Kennebec Journal



THE MILLS AT SACO FALLS



Source: The Mills at Saco Falls



NOAA COASTAL FLOOD EXPOSURE MAPPER



CREATE My Map

ACTIVE LAYERS

SAVED MAPS 0

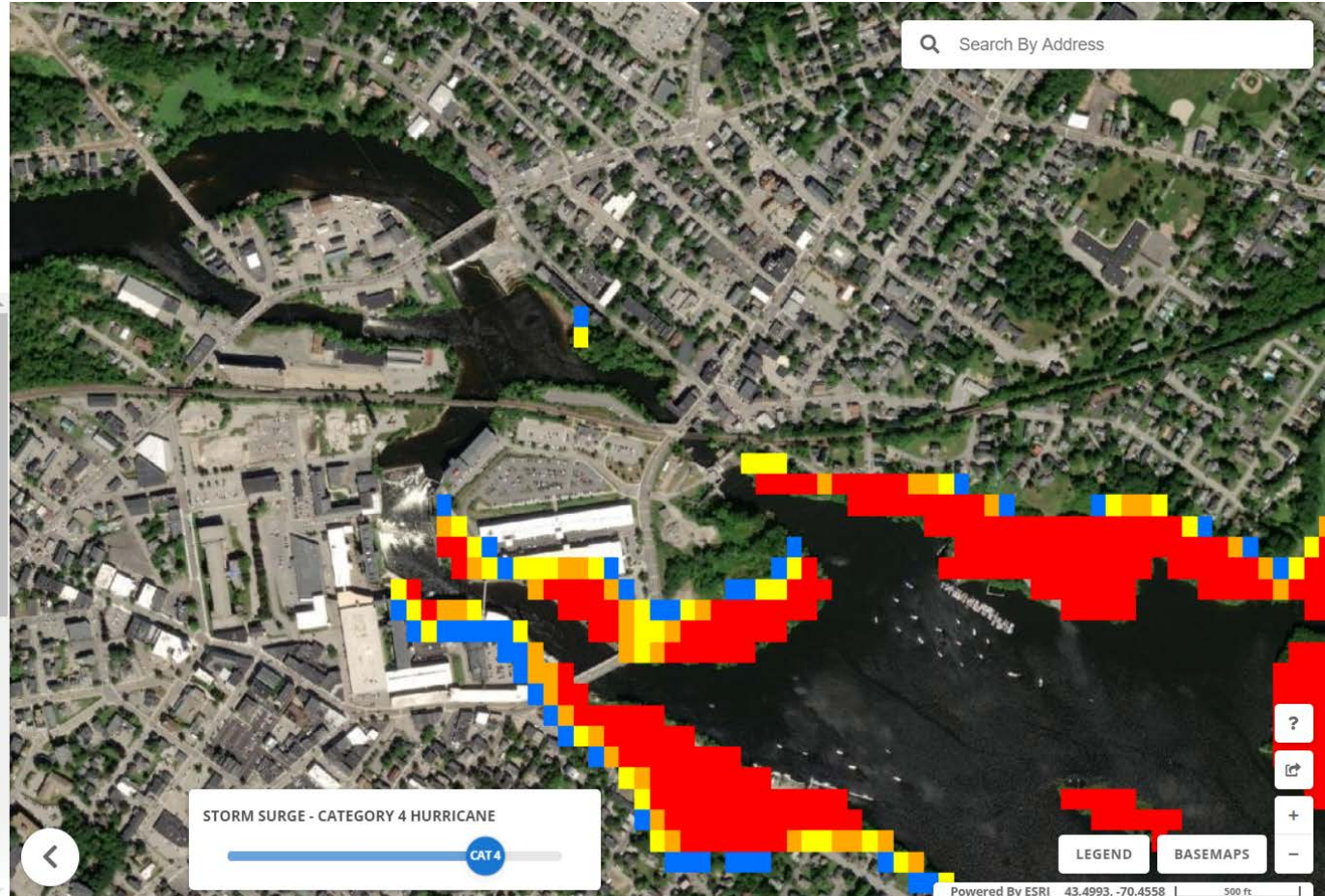
HAZARD LAYERS

- Coastal Flood Hazard Composite ☐
- High Tide Flooding ☐
- FEMA Flood Zones ☐
- Tsunami ☐
- Storm Surge ☒
- Sea Level Rise ☐

SOCIETAL EXPOSURE

- Population Density ☐
- Poverty ☐
- Elderly ☐
- Employees ☐

SAVE MAP



NOAA COASTAL FLOOD EXPOSURE MAPPER



CREATE

My Map

ACTIVE LAYERS

SAVED MAPS 0

HAZARD LAYERS

Coastal Flood Hazard Composite	<input type="checkbox"/>		
High Tide Flooding	<input type="checkbox"/>		
FEMA Flood Zones	<input type="checkbox"/>		
Tsunami	<input type="checkbox"/>		
Storm Surge	<input type="checkbox"/>		
Sea Level Rise	<input checked="" type="checkbox"/>		

SOCIETAL EXPOSURE

Population Density	<input type="checkbox"/>		
Poverty	<input type="checkbox"/>		
Elderly	<input type="checkbox"/>		

SAVE MAP



SLR - 6FT ABOVE MHHW

6ft

LEGEND

BASEMAPS

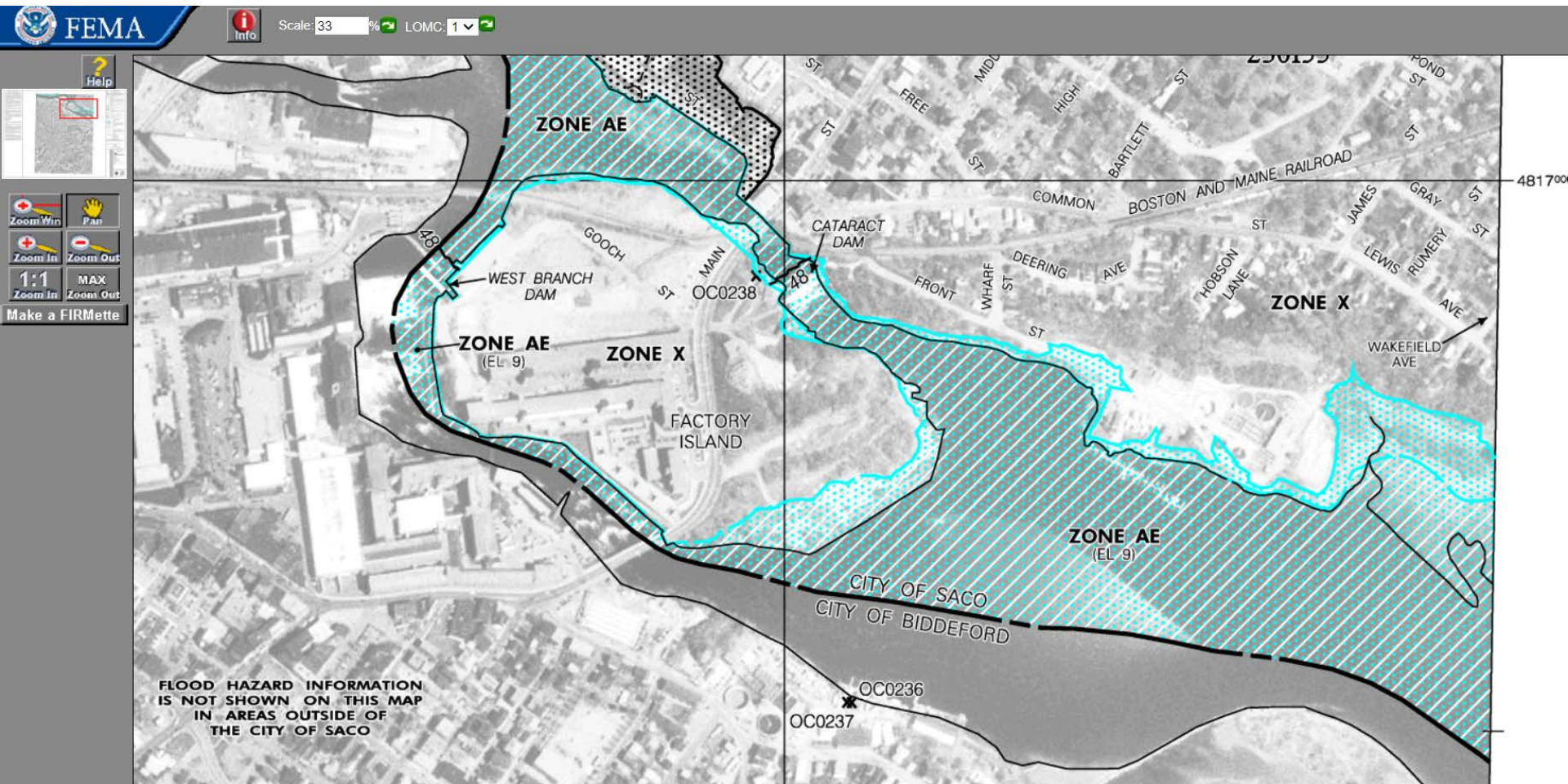
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Contact Us Privacy Policy Disclaimer USA.gov



Enter an address or city



FEMA MAP SERVICE CENTER



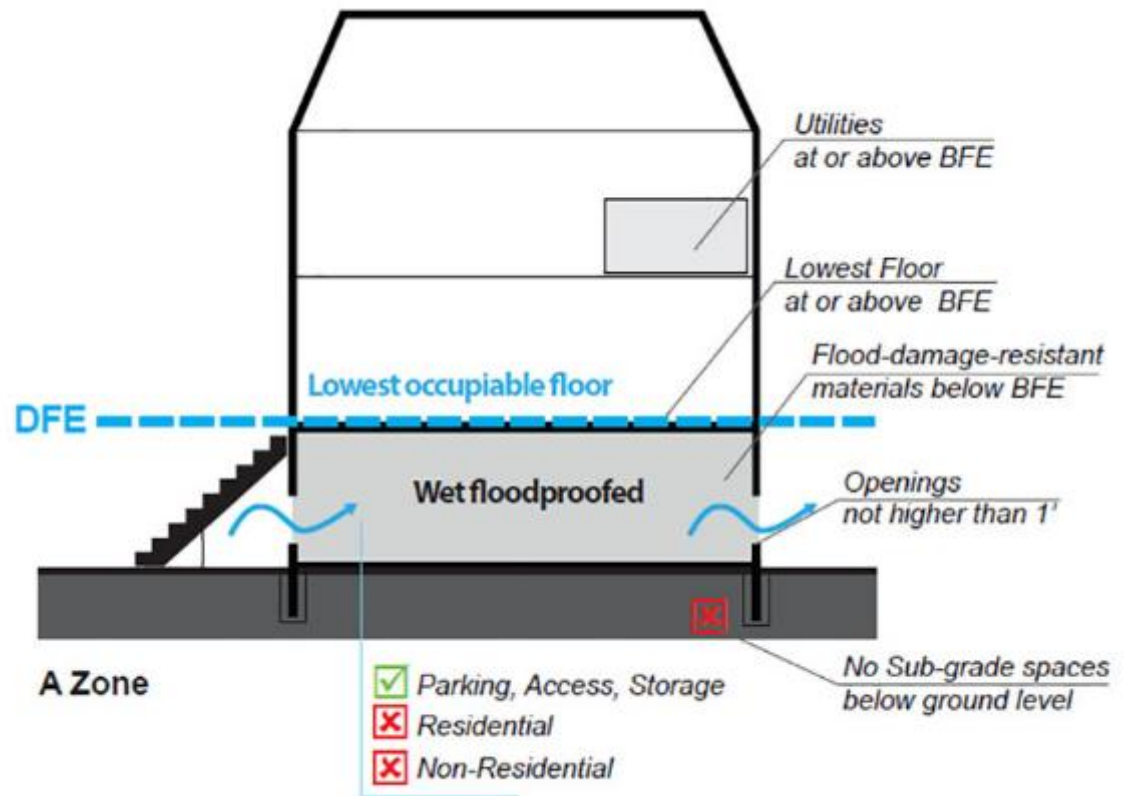
Roadblocks to Redevelopment

- FEMA Flood Maps
 - Flood insurance
 - Building restrictions/regulations
- Community Floodplain Regulations
- Potential Flood Damage



Flood Adaptation

- Consider Uses
- Utilize Floodproofing
- Construct with Adaptive Capacity in Mind
- Consider increasing threats



Source: nyc.gov



A Way Forward

- Review flooding risk through websites
 - FEMA, NOAA, USGS
- Hire a surveyor to understand proximity of FEMA zones
 - Letter of Map Amendment “LOMA”
- Discuss options with a local floodplain manager
- Incorporate flood adaptation into future projects





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ROADMAP TO MILL REDEVELOPMENT WEBINAR SERIES





ROADMAP TO MILL REDEVELOPMENT WEBINAR SERIES



The New Jersey Institute of Technology's
Technical Assistance to Brownfields Program
(NJITAB), in association with EPA Region 1 is proud to offer a
4-part webinar series focused on the redevelopment of
New England's iconic mills. Join us!

Webinar #3: The Funding Stack

Discover the many sources of funding available including EPA
Brownfields grants, state historic tax credits, loans, and more!

October 15, 2020; 10:00 to 11:30 am; Free



James Byrne
EPA Region 1



Jonathan Arnold
Arnold Development
Group



Renee Tribert
Preservation
Connecticut



Barbara Sokoloff
Barbara Sokoloff
Associates, Inc.

Derek Farias
Barbara Sokoloff
Associates, Inc.



Registration Required: register here

<http://bit.ly/Mills-3>