

# Resilient East Haddam

Showcasing Resilient Connecticut Projects  
in East Haddam & Mystic Webinar

Tuesday, April 8, 1 PM

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Daniel Pasquale, PE

# Agenda

1. Project Overview
2. Modeling to Assess Flood Risks
3. Adaptation Strategies

## 2. Project Overview







# Rehearsal Studio





# Rehearsal Studio



9/2/2021



1/1/2024



1/10/2024



# Actor Housing





# Norwich Road & Actor Housing – 9/2/2021





# Creamery Road Crossing





# Creamery Road – 9/2/2021





# Creamery Road Crossing – 1/10/2024





## 2. Modeling to Assess Flood Risks

# Hydrology – Present and Future Precipitation Estimates

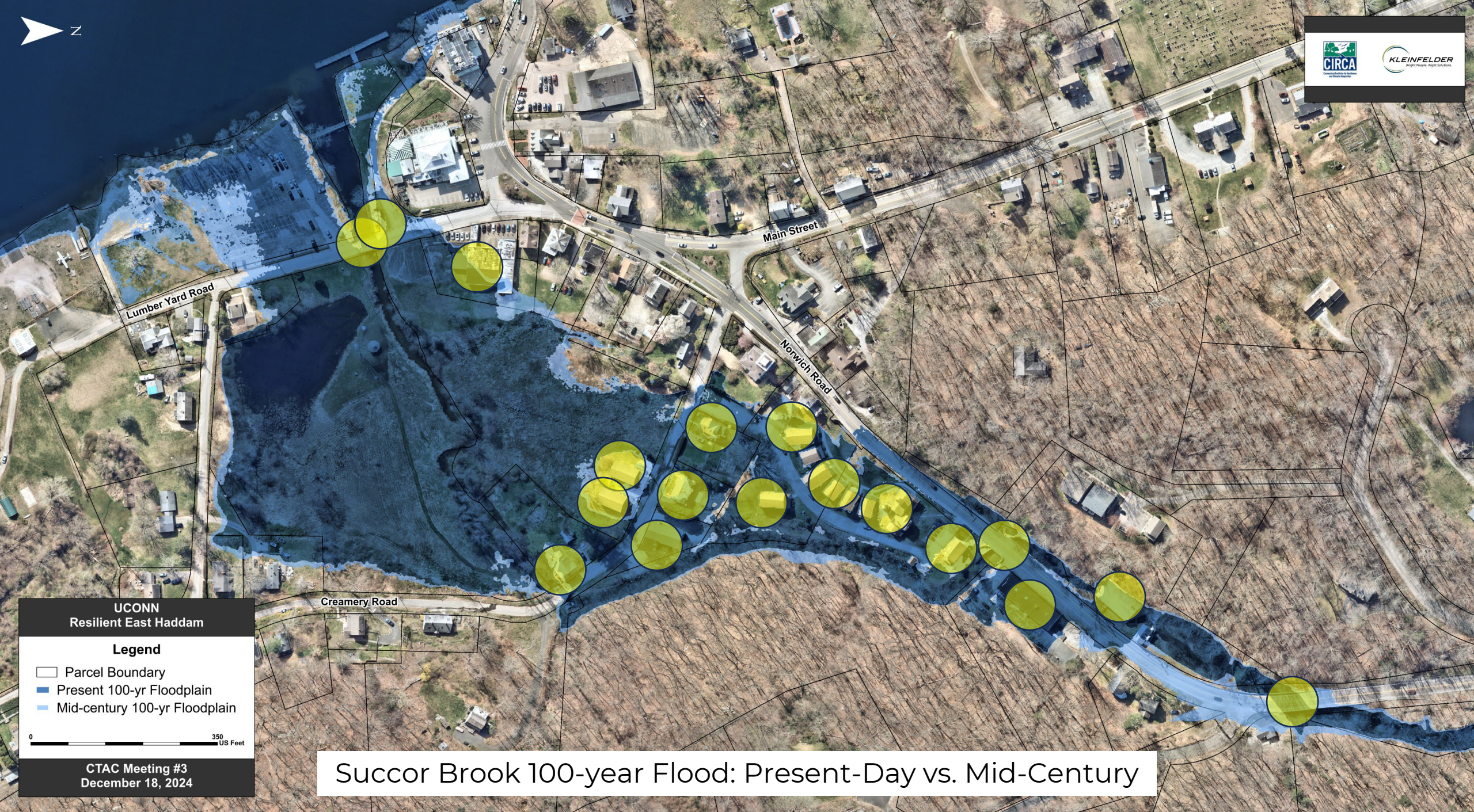
Year	Precipitation Estimates, Inches			
	NOAA Atlas 14 (Present Day)	CT-PCSAR (1970-99 Baseline)	CT-PCSAR (2040-69 Prediction)	CT-PCSAR (2070-99 Prediction)
10 Year	5.2	4.1	6.1	5.4
20 Year	--	4.7	7.5	6.4
25 Year	6.3	--	--	--
50 Year	7.2	5.7	10.0	8.1
100 Year	8.0	6.6	12.5	9.7
500 Year	10.7	--	--	--



# Hydrology – Predicting Peak Flows

	Succor Brook Peak Flow Estimates (cfs)					
	2-year	5-year	10-year	25-year	50-year	100-year
USGS StreamStats: CT Multiparameter	142	230	301	410	503	609
USGS StreamStats CT Drainage Area	169	294	398	553	684	831
FEMA (Middlesex County FIS)			330		550	650
<b>HEC-HMS - Present Day (NOAA Atlas 14)</b>	<b>203</b>	<b>371</b>	<b>533</b>	<b>775</b>	<b>971</b>	<b>1188</b>
<b>HEC-HMS - 2040-69 (CT PCSAR)</b>			<b>725</b>		<b>1697</b>	<b>2374</b>





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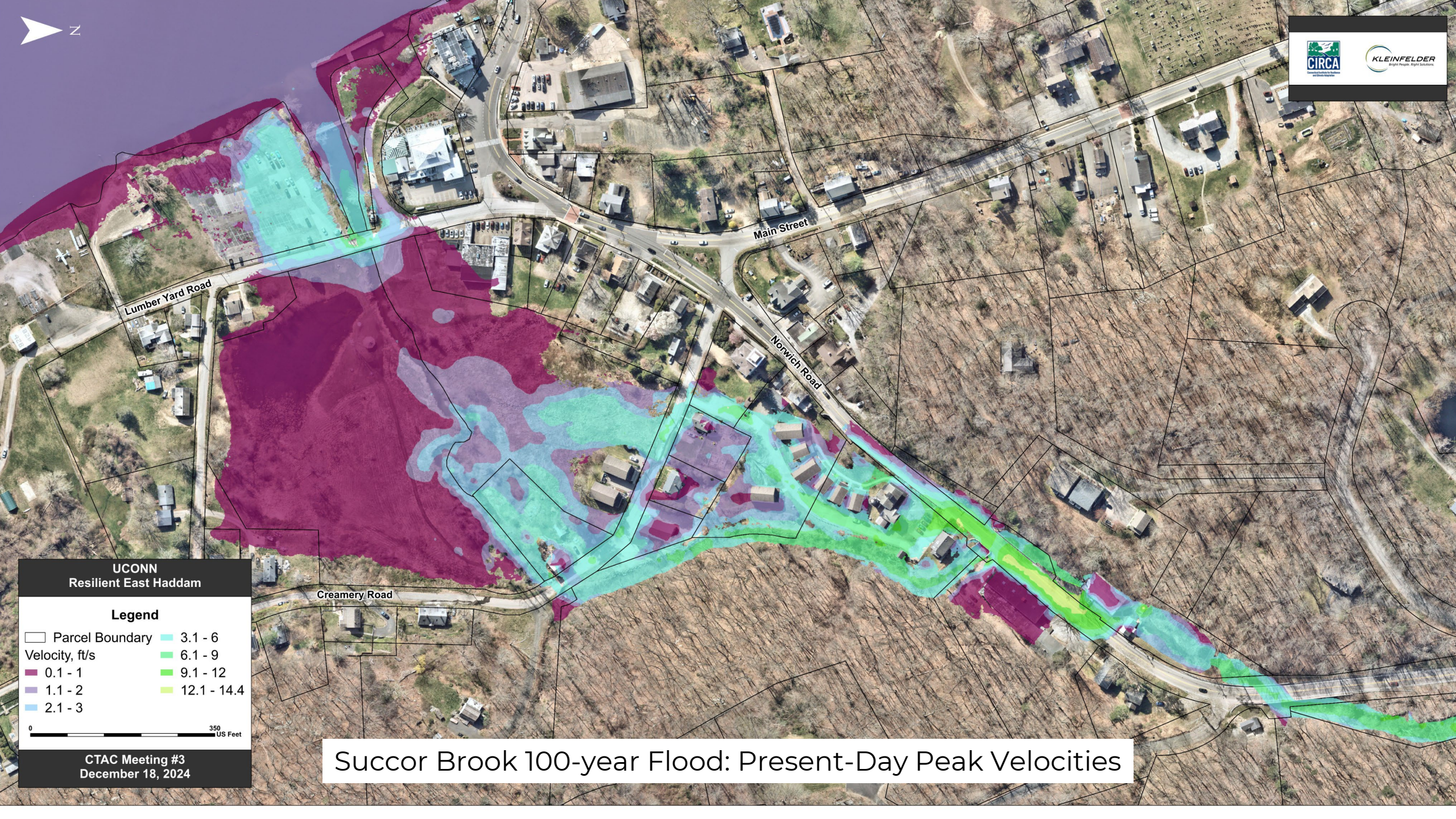
**Legend**  
Parcel Boundary  
Present 100-yr Floodplain  
Mid-century 100-yr Floodplain

0 350 US Feet

CTAC Meeting #3  
December 18, 2024


Succor Brook 100-year Flood: Present-Day vs. Mid-Century








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**Legend**


 Parcel Boundary


 0.1 - 1


 1.1 - 2

 2.1 - 3

 3.1 - 6

 6.1 - 9

 9.1 - 12

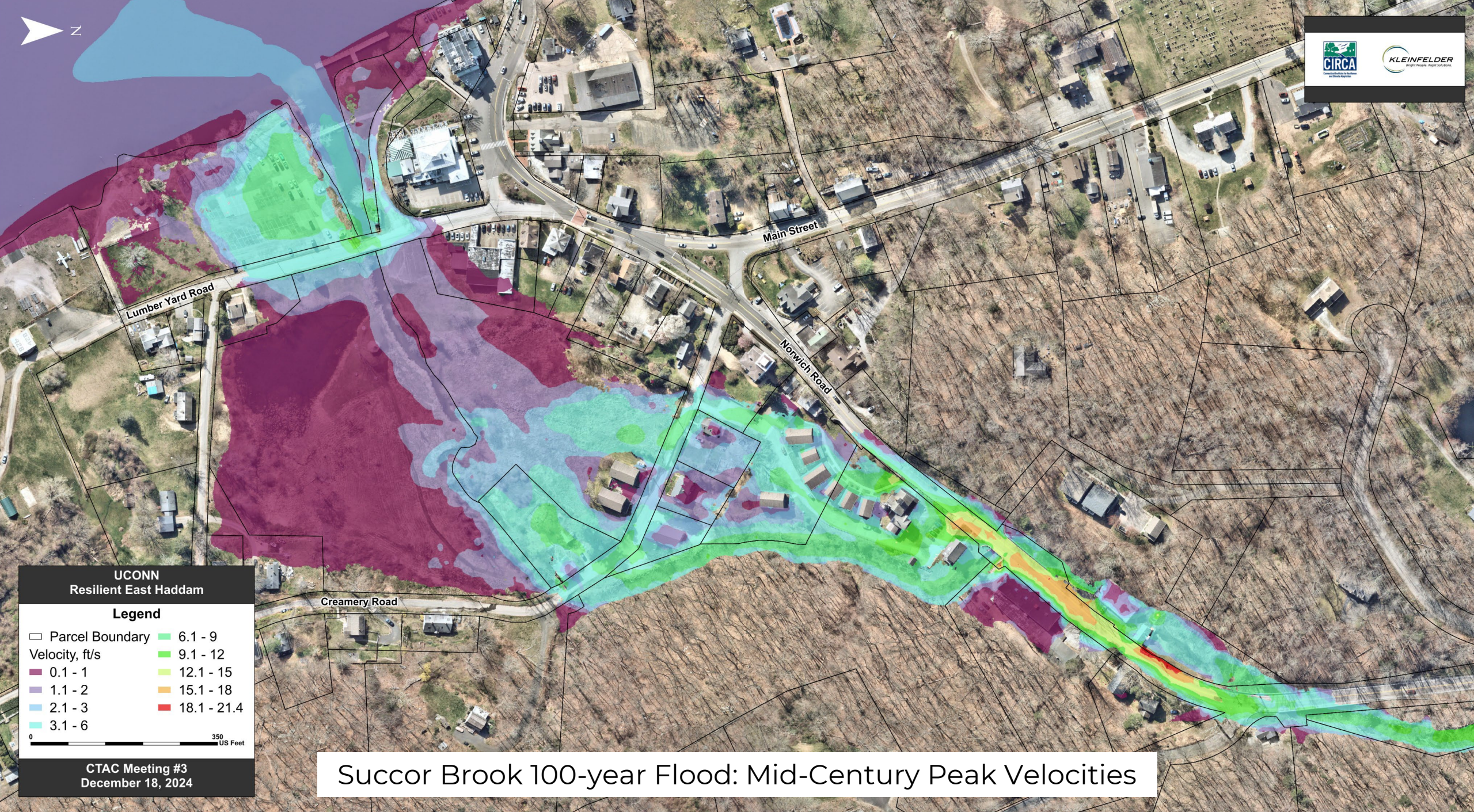
 12.1 - 14.4

  
0 350 US Feet

CTAC Meeting #3  
December 18, 2024

Succor Brook 100-year Flood: Present-Day Peak Velocities





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Legend

Parcel Boundary

Velocity, ft/s

0.1 - 1

1.1 - 2

2.1 - 3

3.1 - 6

6.1 - 9

9.1 - 12

12.1 - 15

15.1 - 18

18.1 - 21.4

0

350

US Feet

CTAC Meeting #3

December 18, 2024

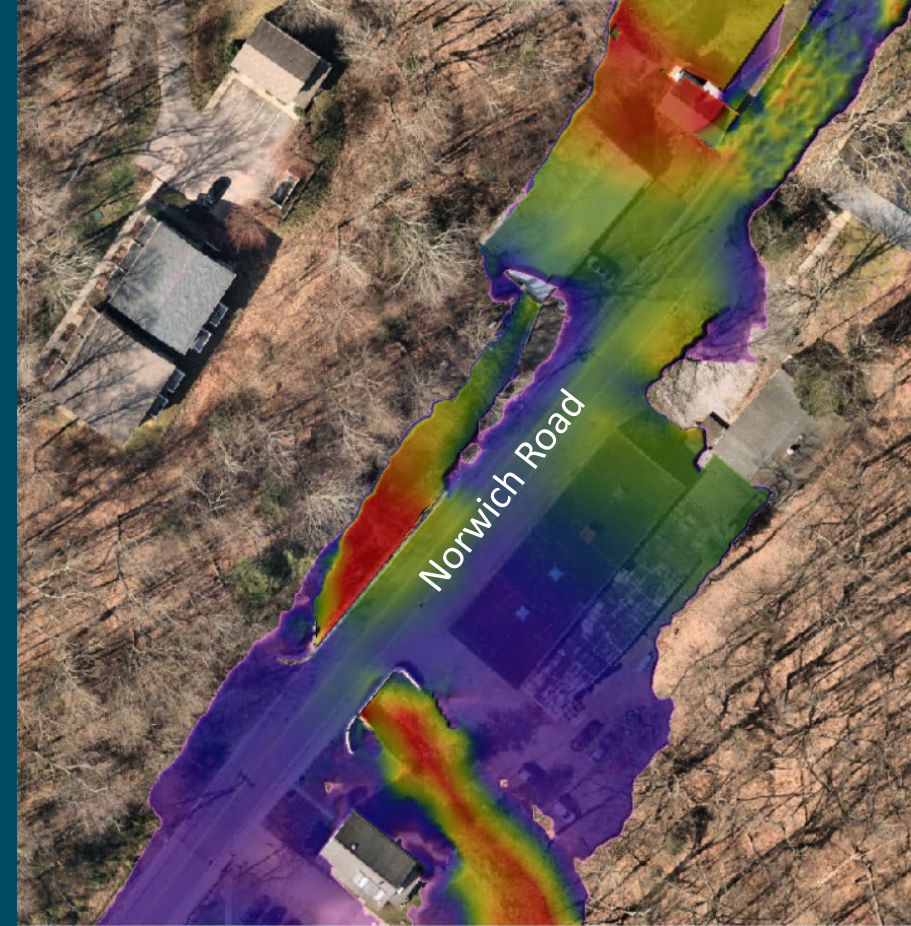
Succor Brook 100-year Flood: Mid-Century Peak Velocities



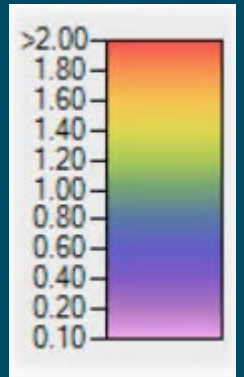
# Rehearsal Studio



10-year Event



100-year Event



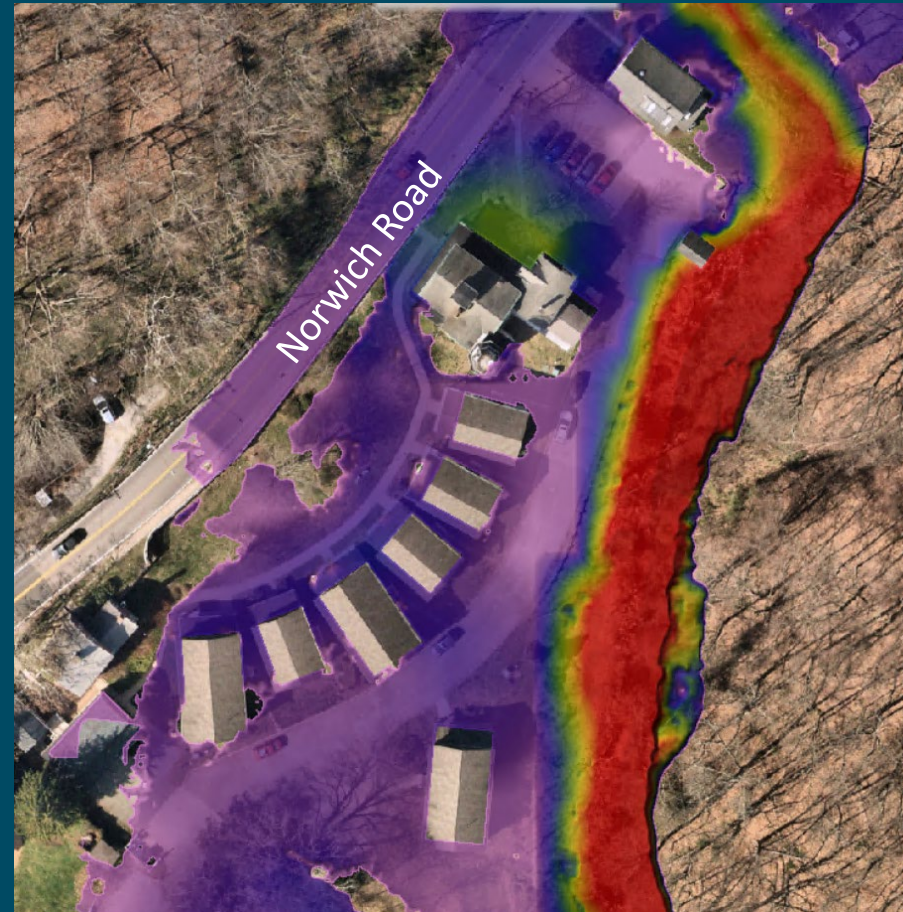
Increase in Peak  
Flood Elevation  
(ft)



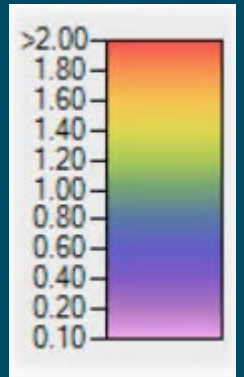
# Actor Housing



10-year Event



100-year Event



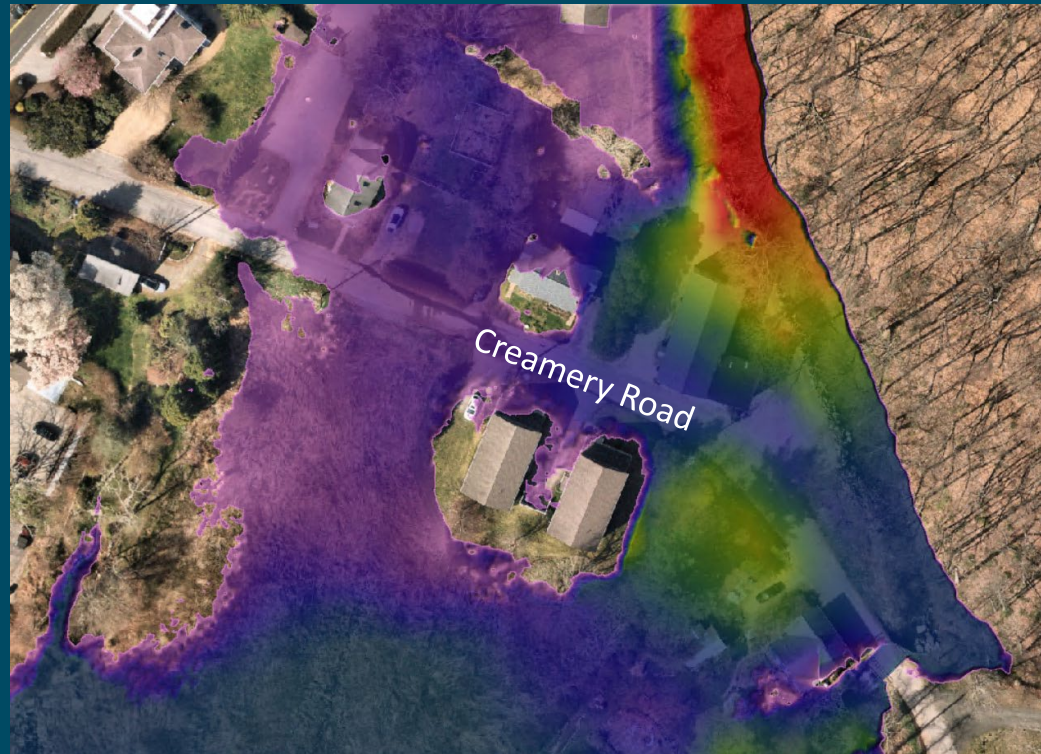
Increase in Peak  
Flood Elevation  
(ft)



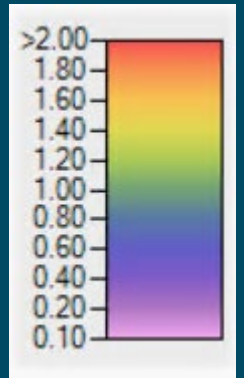
# Creamery Road



10-year Event



100-year Event



Increase in Peak  
Flood Elevation  
(ft)



# 3. Adaptation Strategies

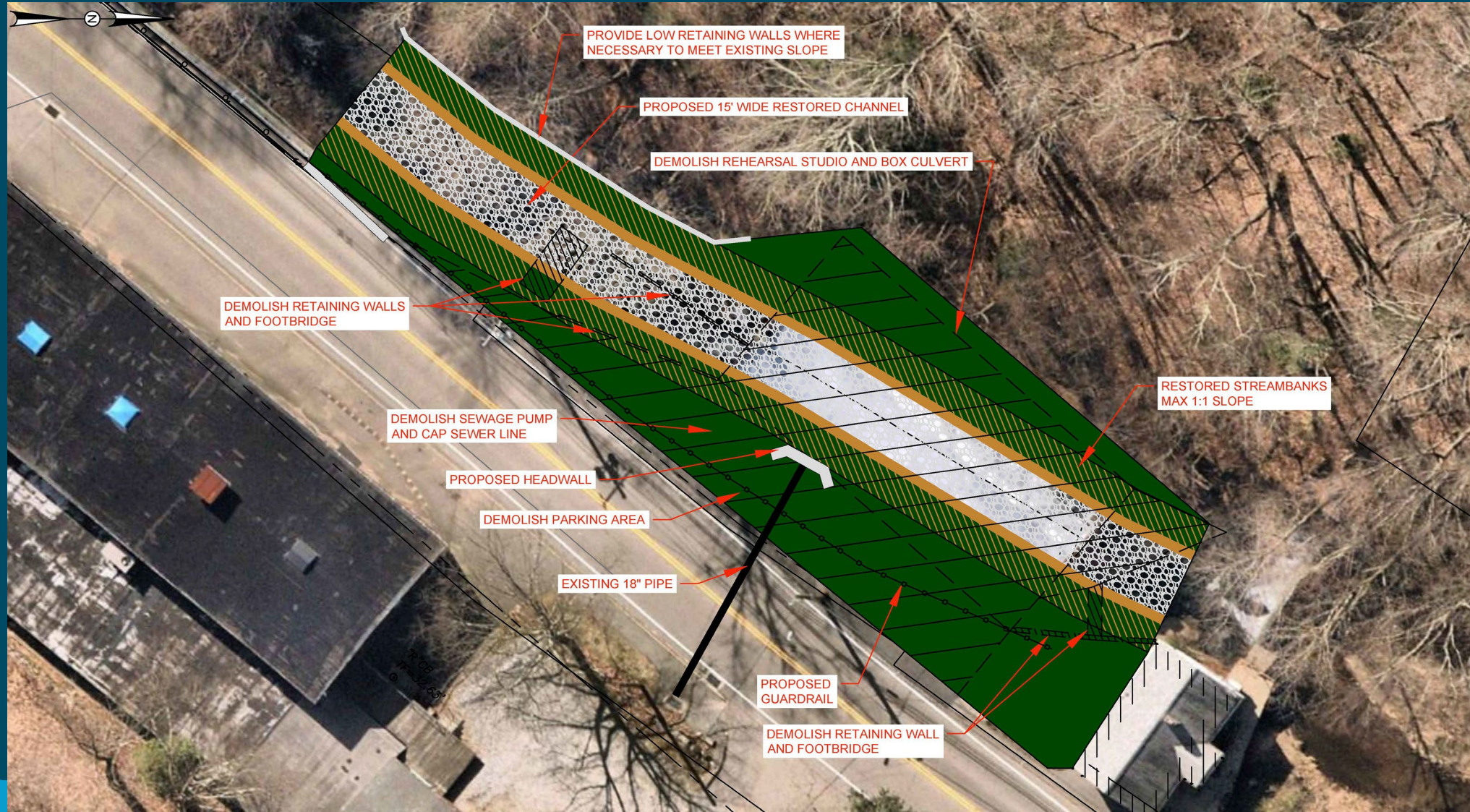


# Adaptation Strategies

1. Remove Rehearsal Studio, Restore Stream
2. Raise Driveway and Construct Berm or Floodwall
3. Widen Creamery Road Culvert

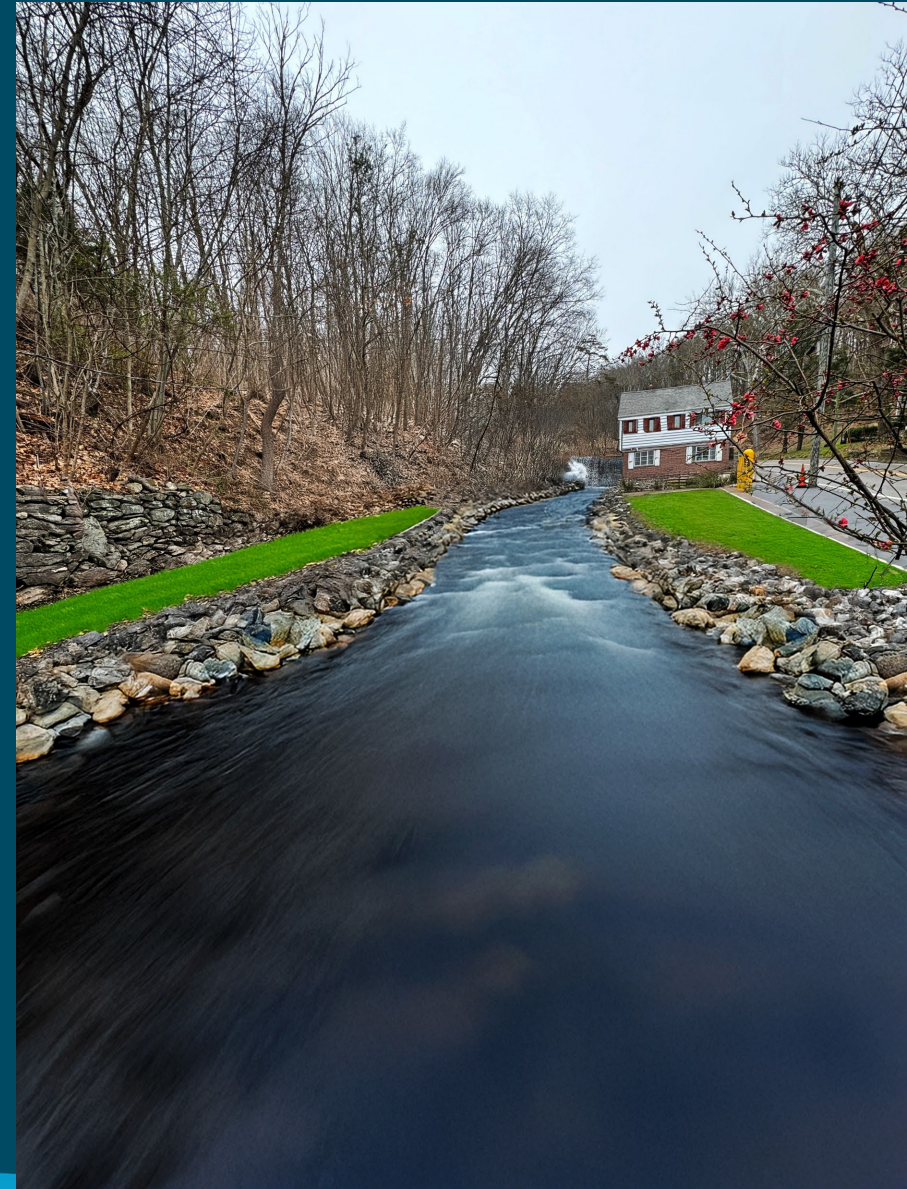


# 1. Remove Rehearsal Studio, Restore Stream - Concept Design





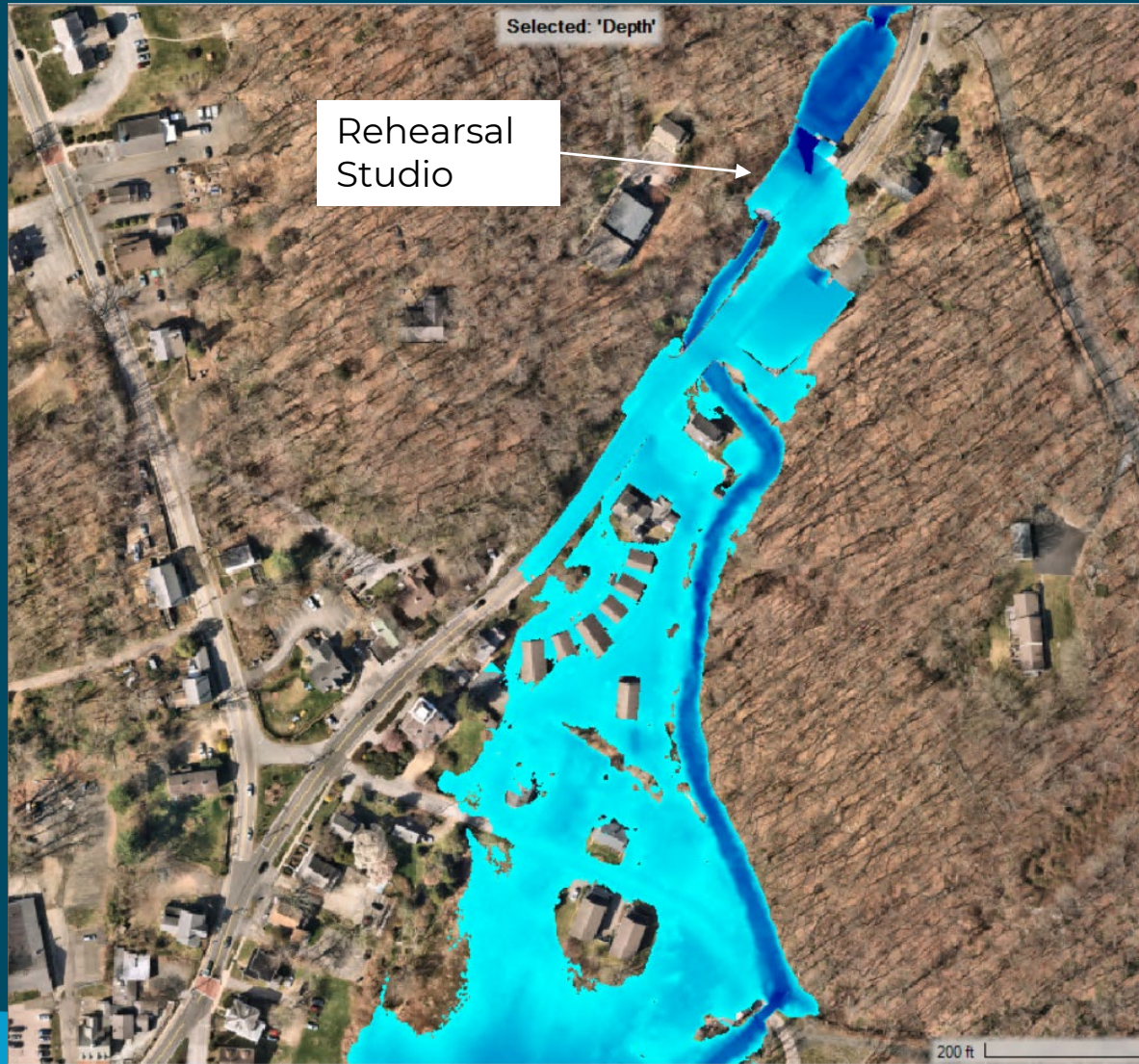
# 1. Remove Rehearsal Studio, Restore Stream - Rendering



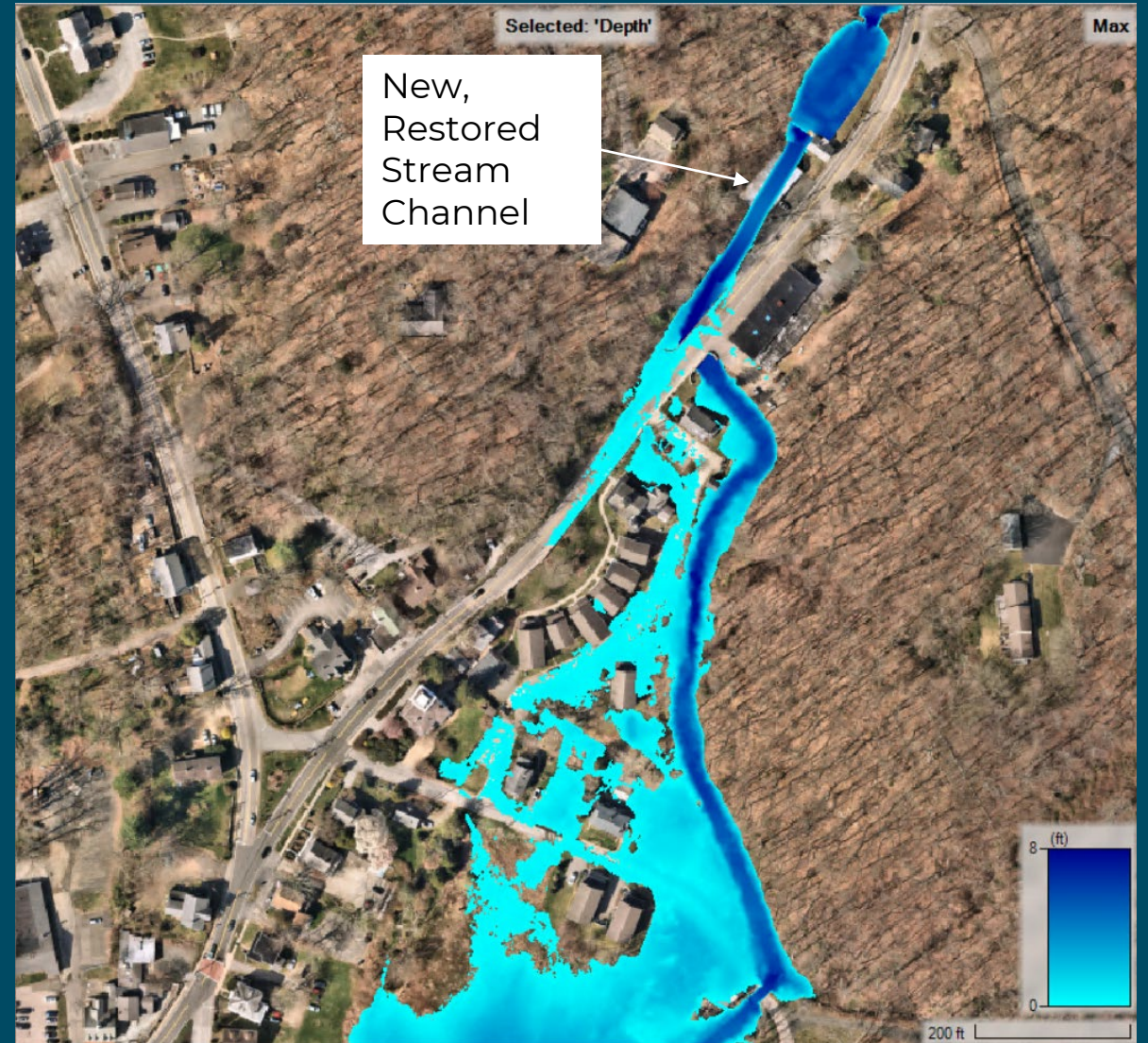


# 1. Remove Rehearsal Studio, Restore Stream - Results

100-year - No-build condition



100-year - With mitigation





## 2. Engineered Floodwall, Berm, Driveway - Concept





## 2. Engineered Berm





## 2. Engineered Floodwall





## 2. Raised Driveway





## 2. Raised Driveway and Berm





### 3. Creamery Road Bridge - Concept





### 3. Widen Creamery Road Crossing



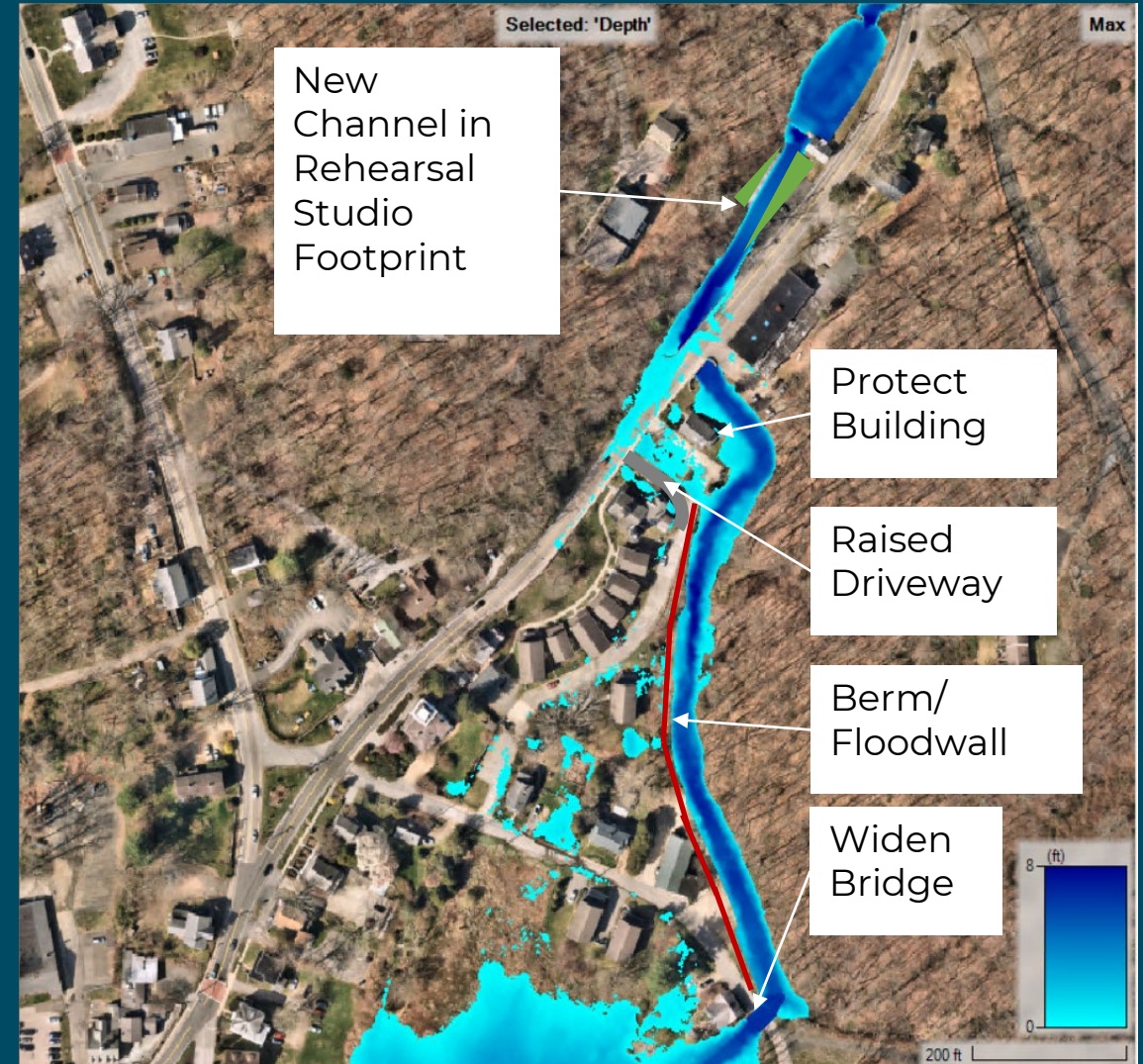


## 2/3. Engineered Floodwall and Creamery Road - Results

100-year - No-build condition



100-year - with mitigation





# Finishing Steps....

- Additional Mitigation Strategies
- Cost
- Benefit-Cost Analysis
- Final Recommendations
- Funding
- Implementation