



City of Keene, NH

Towards a Climate Resilient Community

NH Office of Energy and Planning
2016 Spring Planning and Zoning
Conference
June 4, 2016

Rhett Lamb, ACM/Planning Director
City of Keene, NH





MAY 16, 2014

Weekend Rain Forecasted

Heavy rains are predicted for Keene and the Monadnock Region tonight and through this weekend. The Public Works Department, Highway Division, will be inspecting the City drainage system today, as well as brooks and waterways to clear any debris and ensure proper drainage.

The Public Works Department would like to remind residents that they can help ensure proper drainage in their neighborhoods by clearing any leaves or debris from catch basins. We also request that drivers do not attempt to drive on a roadway if it appears to be flooded. This can send water onto properties and can flood basements.

Please contact the Public Works Department at 603-352-6550 with questions or concerns.



[view email in browser](#) | [Unsubscribe](#) rlamb@ci.keene.nh.us from this list. | [visit our website](#) | [forward to a friend](#)

How We Got Started...

- Partnered with ICLEI in 2000 as part of CCP Mitigation program
- GHG Emissions Inventory 2000
- Established GHG reduction target Adopted Climate Change Action Plan in 2004
- Implementing projects since 2000
- Climate Resiliency (Adaptation) Plan 2007
- Comprehensive Master Plan 2010

Reduction Measures

- **Biodiesel & Hybrid vehicles in city fleet**
- **Geothermal system at DPW**
- **Methane to energy system**
- **Micro Hydro energy generation at WTF**
- **Climate Showcase Community Recipient**
- **ESCO contract**
- **LED streetlights, traffic signals**

The Preparedness Planning Process

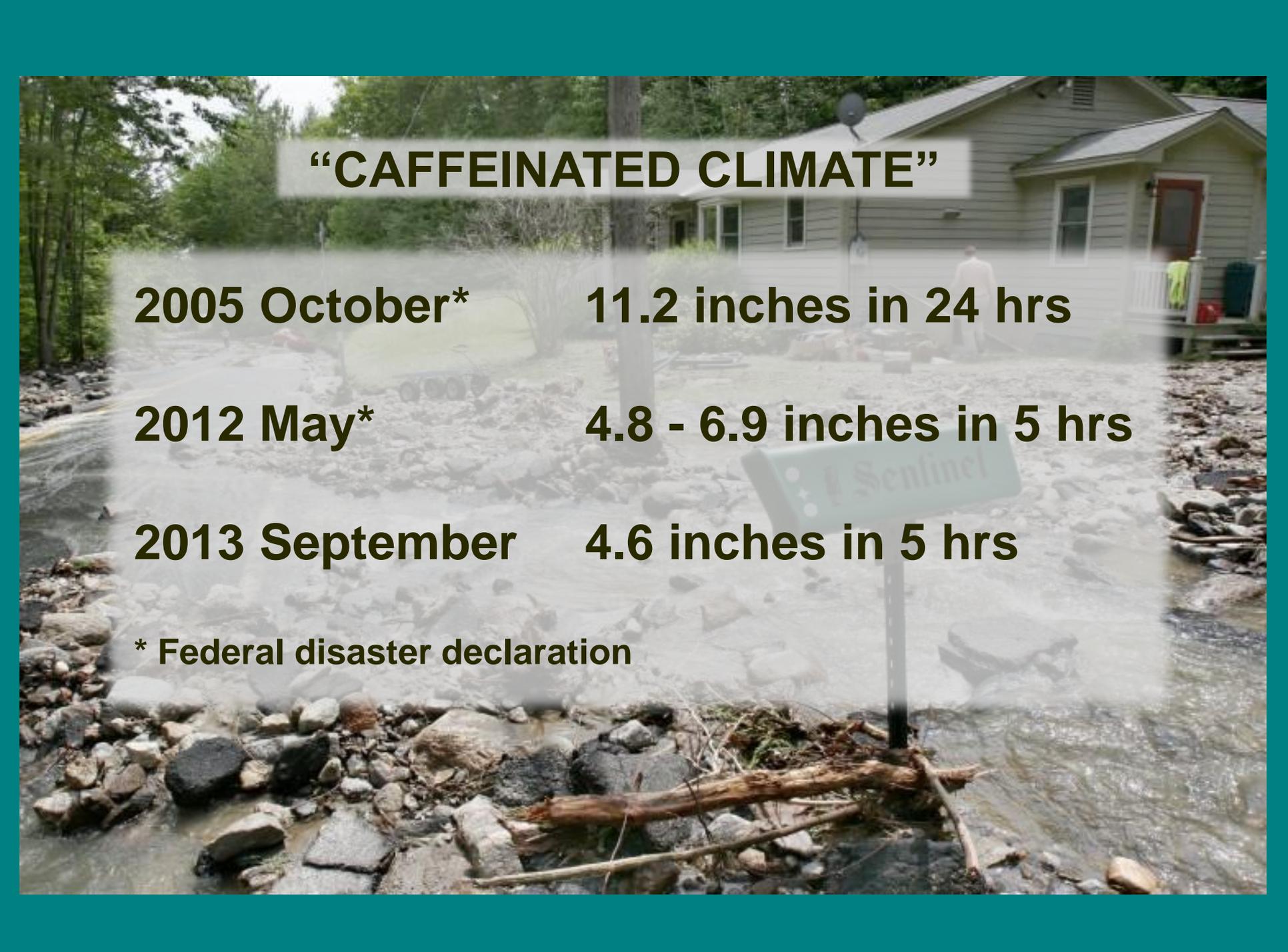


Climate Impacts - Keene

- Floods
- Changes in snowfall
- Changes in plant and animal species
- Hotter days
- Air Quality Impacts
- More dynamic weather pattern



Keene 2005



“CAFFEINATED CLIMATE”

2005 October* 11.2 inches in 24 hrs

2012 May* 4.8 - 6.9 inches in 5 hrs

2013 September 4.6 inches in 5 hrs

*** Federal disaster declaration**



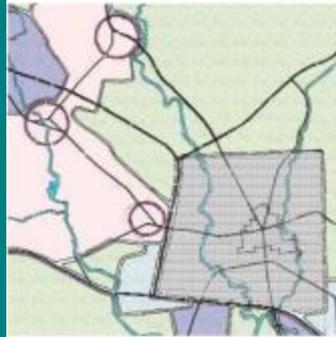


Resiliency in Keene

- Energy efficiency and sustainable design standards
- Decrease runoff
- Enhance ability of Stormwater systems to handle large storms
- Create migratory pathways for animals
- Promote renewable energy resources
- Increase local food production
- Improve reliability of emergency communications
- Set the stage for a community conversation about sustainability

2010 Comprehensive Master Plan

- Written through the filter of a changing climate
- Emphasis on Community Sustainability
- Sets goals and actions for future land use, capital projects, and operating budget



Keene Comprehensive Master Plan



CMP Implementation

- Hillside Development Ordinance
- Surface Water Ordinance
- Incentive Zoning
- LID Regulations
- Culvert and Stormdrain study

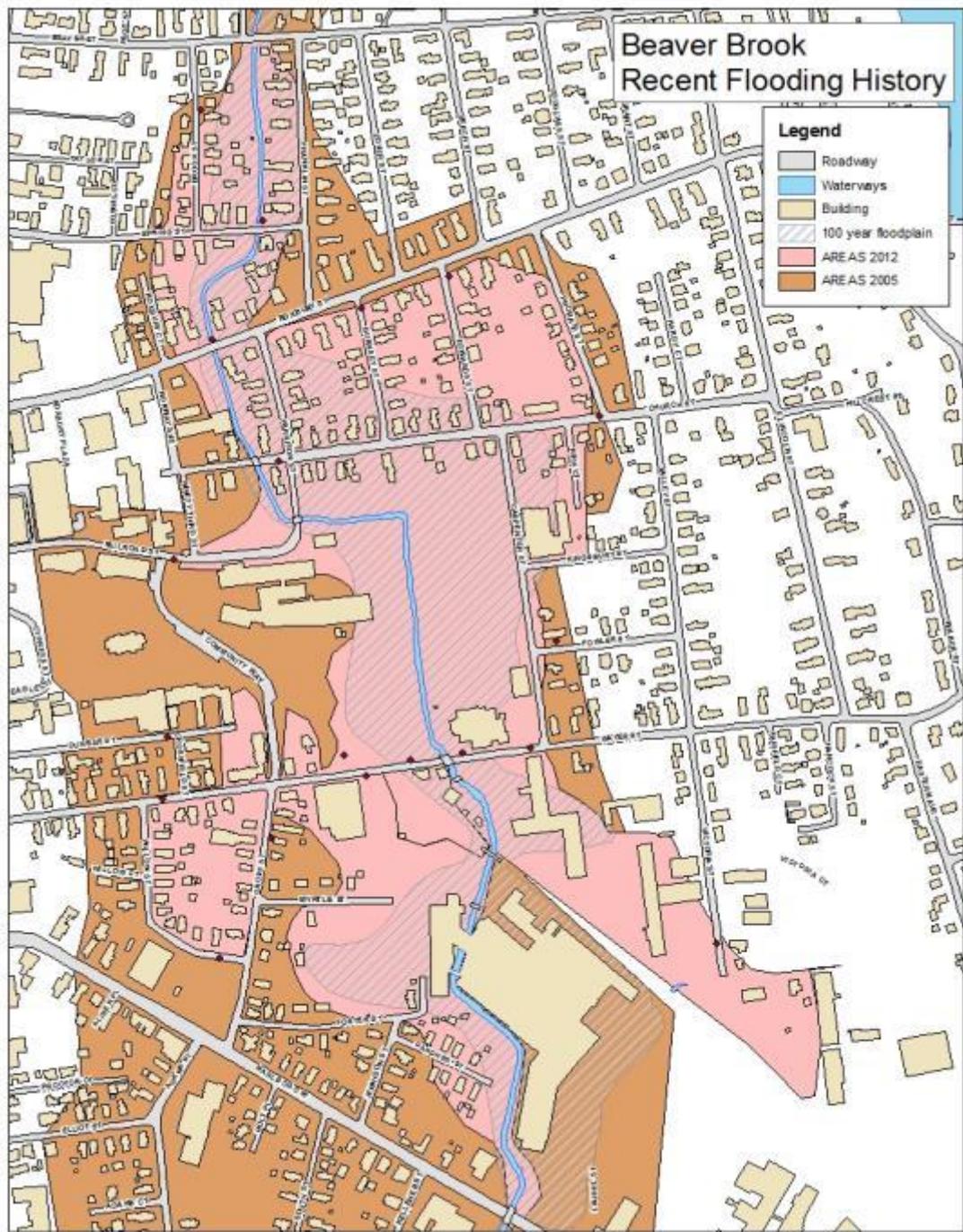




Beaver Brook Recent Flooding History

Legend

- Roadway
- Waterways
- Building
- 100 year floodplain
- AREAS 2012
- AREAS 2005



Capital Improvement Program Project Form

CITY OF KEENE, NEW HAMPSHIRE 2017 - 2022 Capital Project Funding Request



GENERAL PROJECT DATA

Project Name: Flood Management Projects
 Department: Public Works - General Fund
 Physical Location: Various
 Federal Mandate: N/A
 State Regulation or Law: N/A
 Master Plan (CMP) Focus Area: Quality Built Environment
 CMP Vision/Strategic: Infrastructure
 Council Initiative: N/A
 V.O.I.C.E.: Continually Assess Facilities and Infrastructure
 Departmental Objective: Yes



PROJECT DESCRIPTION/JUSTIFICATION

The City has experienced a change in its weather patterns. Severe weather events are occurring on a higher frequency. In particular the City is experiencing rainfall events that are of short duration but very intense precipitations. The City's storm water system has been constructed over the last 100 years with different design standards. As a result of these more intense rain events, the City's storm water system is not effectively handling the resulting flows. This is causing localized repetitive street flooding which is impacting the community and individual properties. The City is addressing the changing climate and its impacts through a series of short term and long term goals. These include on-going maintenance and inspection of the storm water system, identification of small improvements, and watershed analysis. The City has identified areas that have repetitive localized flooding issues.

EXPENDITURES	FINANCIAL PLAN & PROJECT SCHEDULE					TOTAL
	PRIOR YR	FY17	FY18	FY19	FY20	
Design					128,207	579,683
Construction Implementation		136,000			732,173	1,969,077
Property/Equip. Acquisition		796,000				0
TOTAL	\$0	\$930,000	\$0	\$861,380	\$0	\$2,338,760
FUNDING						
Current Revenue						0
Capital Reserve						0
Debt Funded						0
Federal or State Grants						0
Other Sources						0
TOTAL	\$0	\$0	\$0	\$861,380	\$0	\$2,338,760

ANNUAL DEPARTMENT OPERATING BUDGET IMPACT: Moderate \$50,001 to \$100,000
 Creating CIP

PROJECT STATUS: Ongoing CIP



Operating Budget Form

DEPARTMENT:	PLANNING	FUND:	GENERAL
DIVISION(s):	01900		
Cost Center(s):	Provide professional planning advice and technical expertise to City officials, boards, commissions, City departments, and the public as it relates to understanding and addressing key community quality of life issues and priorities.		
MISSION:	Align w/CMP Municipal Governance & Fin Stability Future Land Use & Policy Leadership		
PRIMARY SERVICES & RESPONSIBILITIES:			
Develop the Comprehensive Master Plan and implement that Plan and Vision through specific projects, policies, and programs			
Administer the Planning Board's Subdivision and Site Plan review including the inspection process and related permits to work with Keene residents and businesses as they seek approval for projects before the Planning Board, City Council, and other boards			
Provide staff support, information, and services to a variety of City Boards and Commissions, City departments, officials, and citizens.			
FISCAL YEAR 2016/2017 OBJECTIVES:			
Continue Comprehensive Master Plan implementation process with Planning Board and PLD Committee	STATUTE	CMP	VOICE
Complete Greenhouse Gas Inventory and report (2015 data)	674.1	Municipal Governance & Fin Stability	O, I, E
Implement the construction phase of Safe Routes to School grant projects for Jonathan Daniels School and Maple Acres		Climate Change	O, I, E
Complete the construction phase of the Wetlands and Floodplain restoration project in Woodland Cemetery using the ARM Fund grant		Wetlands Community	C, E
Implement Phase I of the Land Use Code Update		Open Space & Greenway Connections	O, I
Participate in regional efforts to address air quality issues related to particulate matter		Future Land Use Policy	O, I, E
Coordinate and provide staff to the College City Commission		Community Health & Wellbeing	I
Complete Airport Master Plan Update		Municipal Governance & Fin Stability	O, I, E
Write grants for funding to support programs/initiatives		Transportation	I
Give presentations to community groups and professional organizations		Municipal Governance & Fin Stability	O, I
Assist in implementing a City-wide Economic Development Strategy		Leadership	C, E
Develop and begin implementing a City-wide Economic Development Strategy		Infrastructure	O, I
Continue design phase of the Cheshire Rail Trail Phase II project (TAP Grant)		Economic Development	O, I
Adoption of revisions or updates to the Comprehensive Master Plan the same year they are proposed/identified		Transportation	O, I
Complete 90% of the initial completeness reviews in 10 business days			
Complete 95% of minor amendment applications within 5 business days			
Complete 95% of all inspection requests within 5 business days			
Adoption of revisions to Planning Board Standards and Regulations the same year they are proposed/identified			

	FY15	FY16	FY17
1	1	1	1
90%	90%	90%	91%
96%	98%	98%	98%
95%	97%	97%	98%
1	1	1	0

Resiliency Implementation

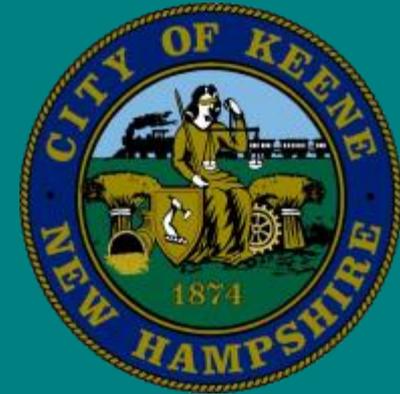
- Watershed H&H Study
- Bridge Replacement
- Drain Cleaning & Repair
- Stormwater System Projects
- Dam Studies and Repairs
- Vulnerability Study update

Observations

- Fixing Big Problems takes a Long Time
- Find a Way to Help affected Residents & Businesses
- Make sure New Development Doesn't Make Things Worse
- FEMA Programs Need to be Recalibrated
- The Cumulative Effect of Small Decisions



Portland waterfront "King Tide" October 28, 2011



Rhett Lamb

Planning Director/ACM

City of Keene Planning Department

City Hall 4th Floor

3 Washington Street

Keene, New Hampshire 03431

603-352-5474

rlamb@ci.keene.nh.us

www.ci.keene.nh.us/planning/climateprotection.htm