

# Incorporating Adaptation into Day-to-Day Planning













Tell us who you are...





THE  
INTER  
TWINE

## Regional Conservation Strategy

FOR THE GREATER  
PORTLAND-VANCOUVER  
REGION









Yellow Wood, LLC  
**Concept Site Plan**  
 Pelham, NH  
 December, 2014







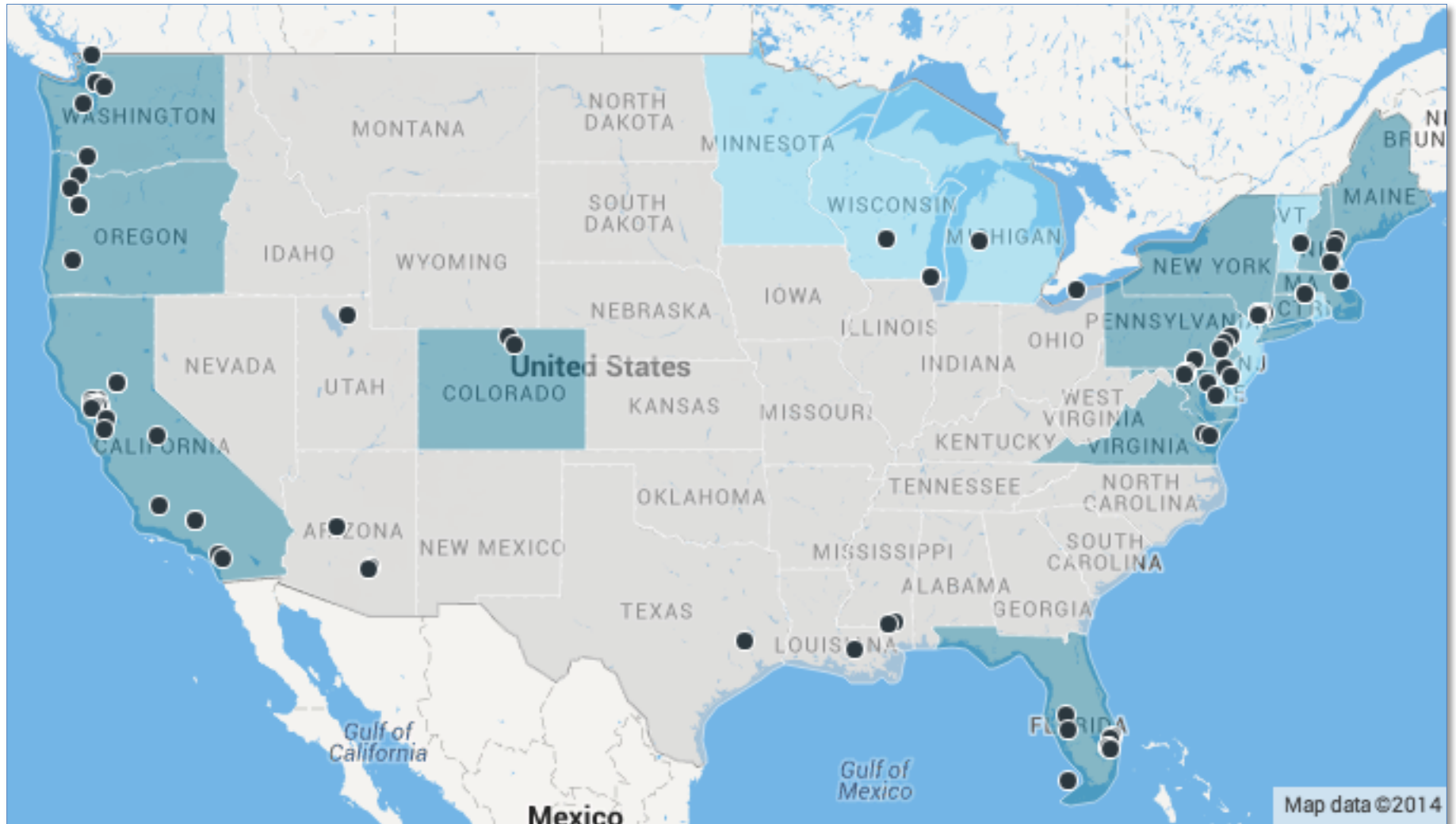
# Adaptation Planning: *Best Practices from the Local Level*

Jessica Grannis  
Local Solutions Conference  
April 5, 2016

GEORGETOWN CLIMATE CENTER



# State and local plans



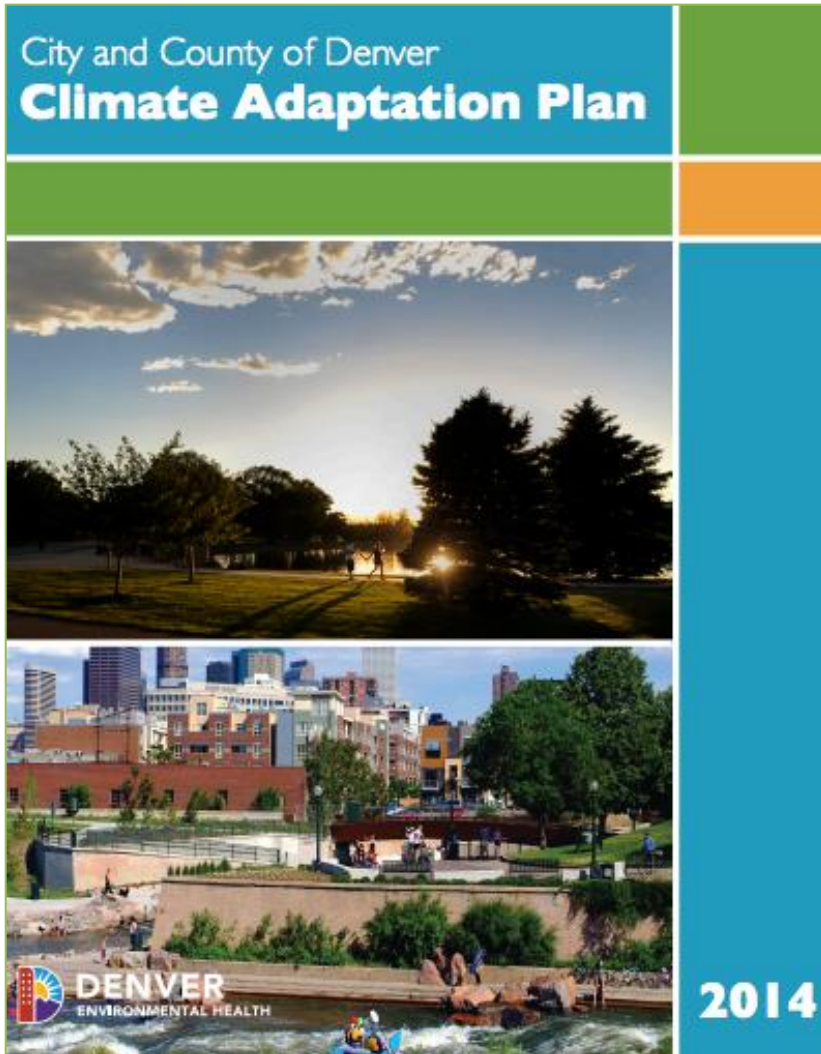
Map data ©2014

- State-Led Adaptation Plan Finalized
- Other State Planning Efforts Underway
- Local and Regional Plans



# Local adaptation planning:

*Denver, CO*



- Buildings and Energy
- Health
- Land Use & Transport
- Natural Resources
- Water
- Food and Ag

# Local adaptation planning:

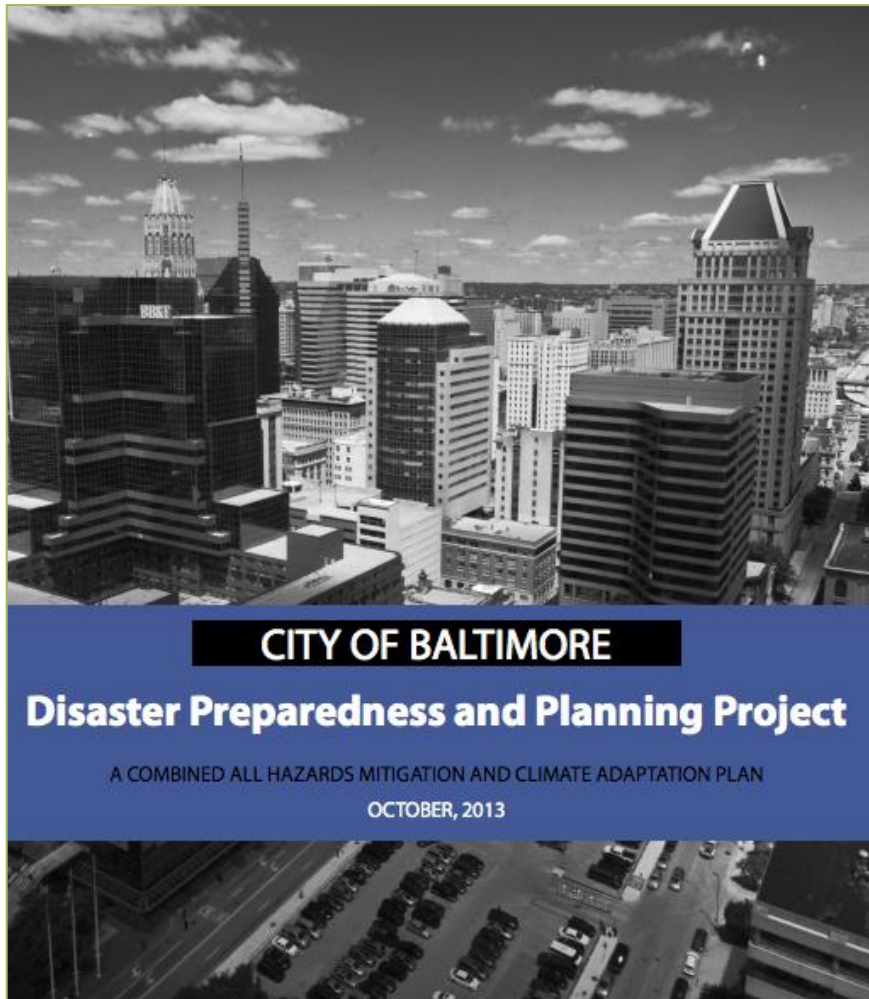
## *Denver, CO – short term actions*

Climate Impact	Vulnerability	EMS Activities	Responsible Agency	Agency Plan
Increase in temperature and urban heat island effect	Stress on trees and urban landscaping	<ol style="list-style-type: none"><li>1) Publish and begin the outreach of the Metro Denver Urban Forest Assessment</li><li>2) Initiate a contract to inventory existing trees within the City in preparation for a Tree and Shade Master Plan</li><li>3) Update the right-of-way tree list that focuses on trees that can thrive in future climates</li></ol>	Department of Parks and Recreation	<p>Metro Denver Urban Forest Assessment</p> <p>Tree and Shade Master Plan</p> <p>Right-of-Way Tree List Storm</p>



# Mainstreaming adaptation:

## *Baltimore's Hazard Mitigation Plan*



### IMPLEMENTATION GUIDELINES

Lead Agency

MOEM

Stakeholders

BCRP (Forestry), BGE, Building Owners, DGS, DOT, DPW, Exelon, PSC, Utility customers, Veolia, Wheelabrator

Alignment with Goals

Goals 2 and 3

Connection with Existing Efforts



Building Standards and Zoning Codes; CAP; ESF-12; MDNR

Timeframe



# Mainstreaming adaptation:

## *Broward County's Comprehensive Plan*




- Elevate buildings for SLR
- Design buildings to be more resilient to extreme storms
- Reevaluate zoning
- Consider SLR in public investment decisions



# Regional coordination:

## *Southeast Florida Climate Change Compact*




**A Region Responds to a Changing Climate**

Southeast Florida Regional Climate Change Compact Counties

Regional Climate Action Plan

October 2012



# State support for local planning:

## *Cal-Adapt*

### Video Tour

VIEW THE DIFFERENT TOOLS AND DATA AVAILABLE IN CAL-ADAPT




### Explore Climate Tools

INTERACTIVE MAPS & CHARTS

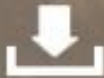


### About Cal-Adapt

-  WHAT'S NEW?
-  WHAT'S TO COME?
-  FAQs

### Access Data

ACCESS THE RAW DATA USED IN CAL-ADAPT



Select and download data in a variety of tabular and GIS formats

### Resources

INFORMATION, ARTICLES & LINKS





Find out more about how climate change in California is relevant to your community

### Community

PARTICIPATE IN COMMUNITY BASED TOOLS AND ACTIVITIES



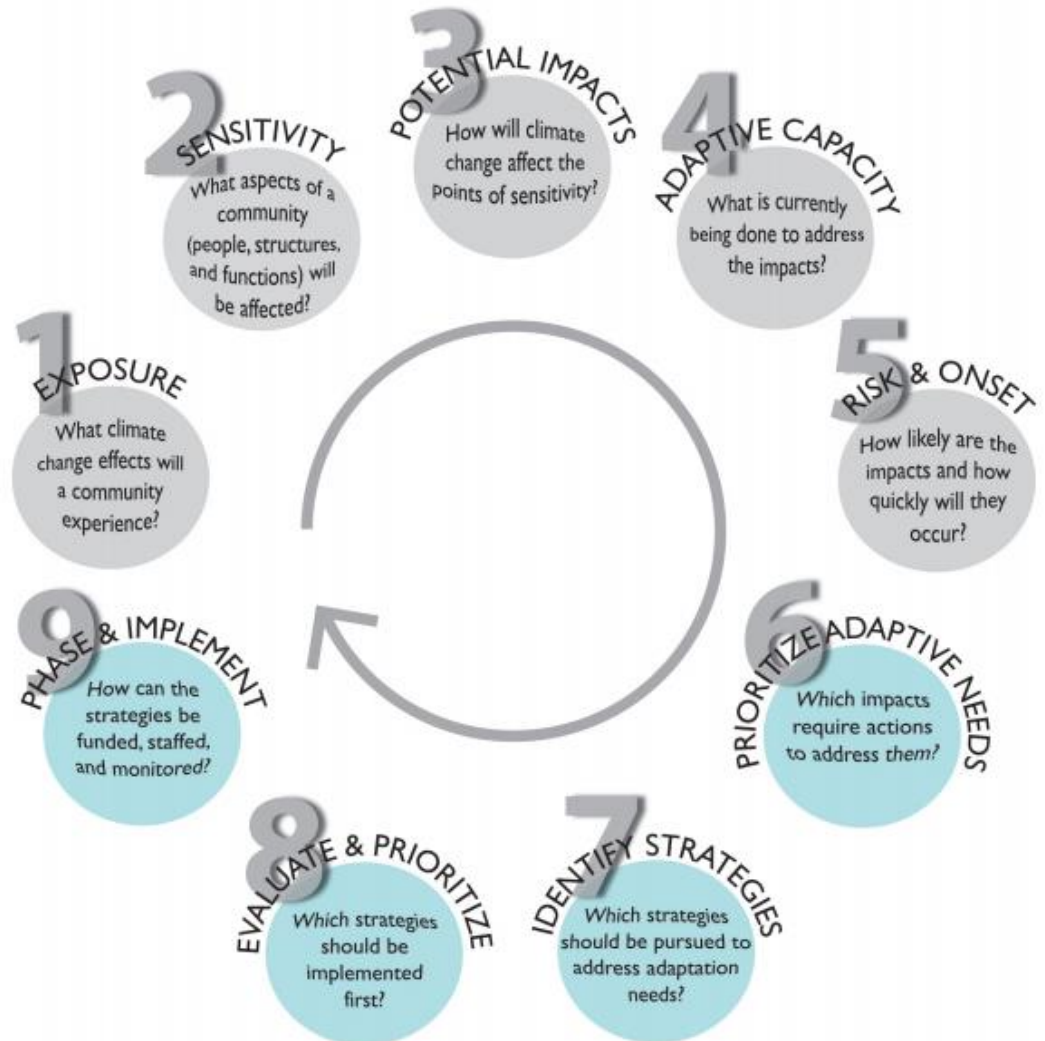
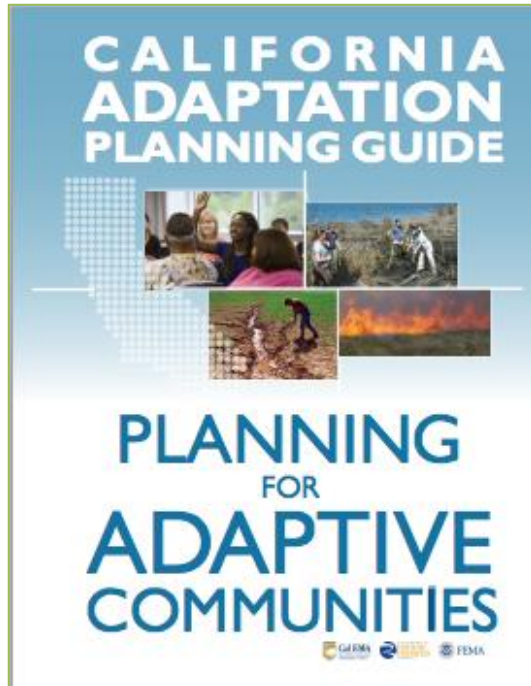
Find out how you can share your thoughts and findings, communicate with experts, and help to collect new data

 Tweet 273  Like 451



# State support for local planning

## California planning guidance



# Mainstreaming adaptation:

## *Boston's adaptation checklist*





# Mainstreaming adaptation:

## *San Francisco's Capital Improvement Planning*



Source: Climate Central

# Where to mainstream in local plans

- Land Use Plans (e.g., comprehensive plan)
- Hazard Mitigation Plans
- Transportation Plans
- Capital Improvement Plans
- Emergency Preparedness Plans
- Water Management Plans
- Urban Forestry Plans
- Extreme Heat Plans

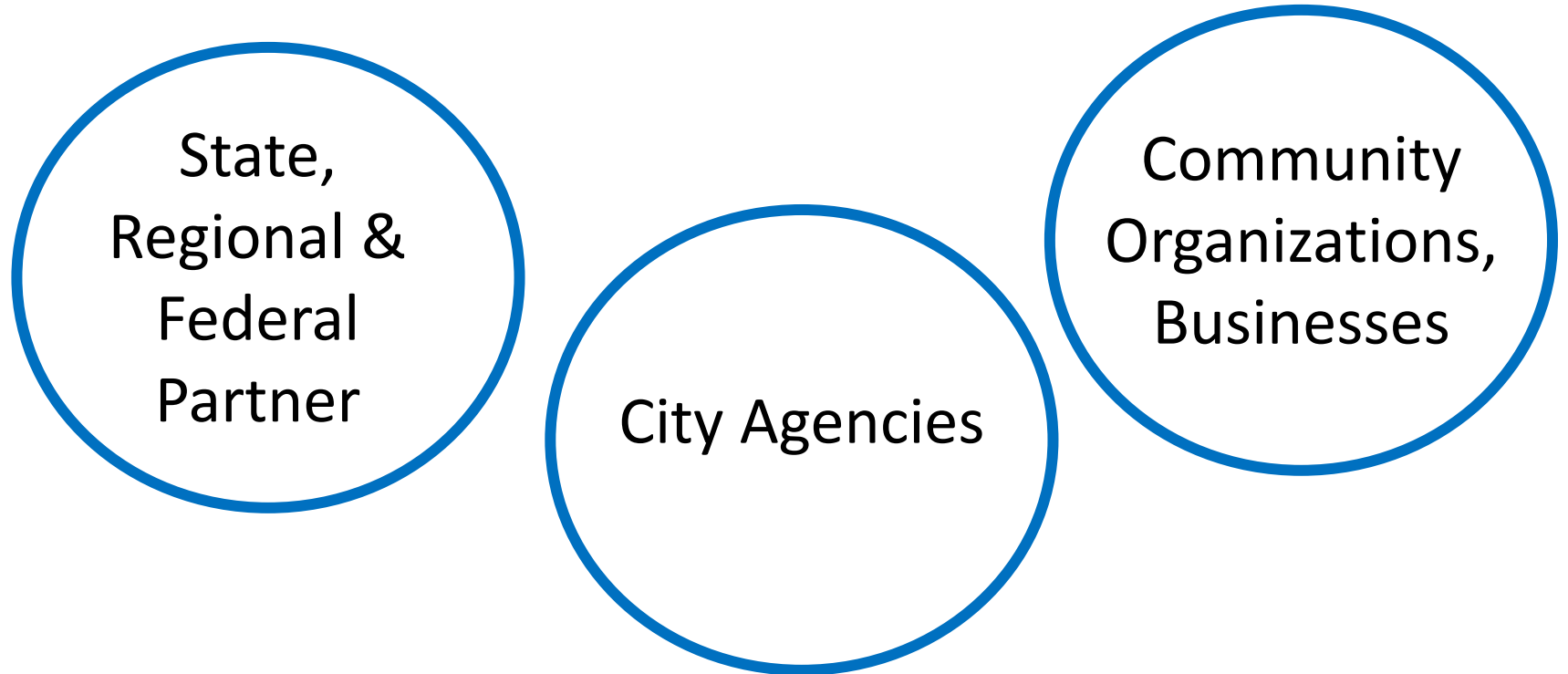


# What makes a good plan

- Implementable actions
- Specified actors
- Timelines for action
- Funding and pathways for implementation
- Progress reports
- Post-implementation monitoring

# What makes a good plan

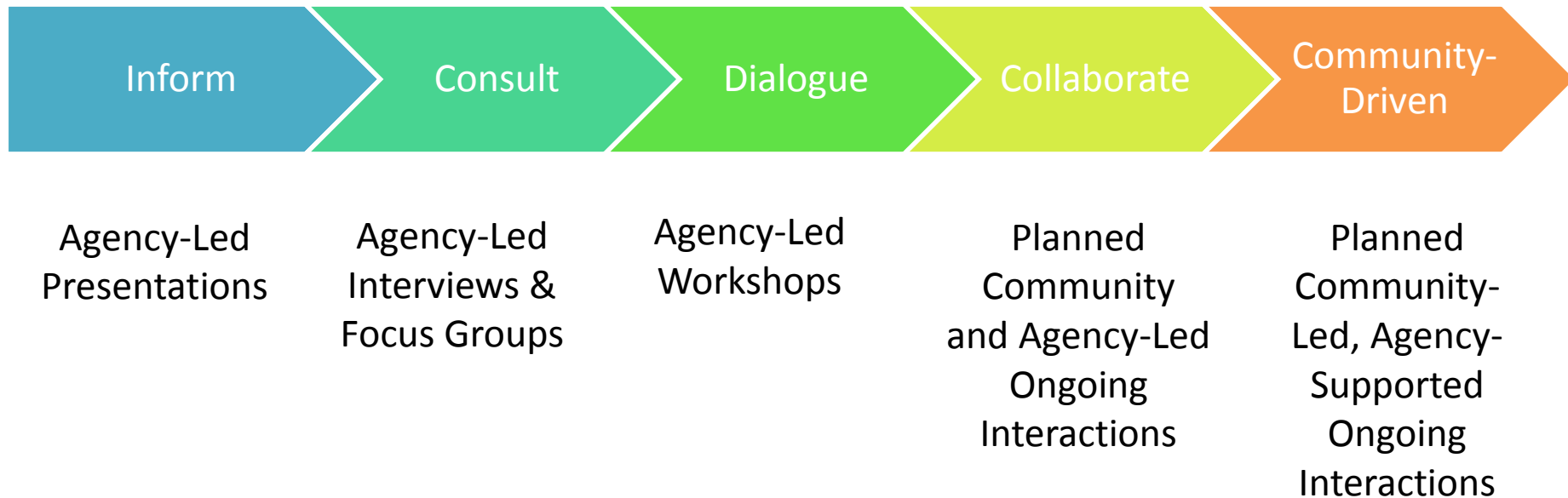
## *Coordination*





# What makes a good plan

## *Outreach & Engagement*



Source: Equity Matters Report, Extreme Heat Scenario-Based Pilot Project in Frontline Communities (Dec. 2015)

# What makes a good plan

## *Legal Aspects*

- Does designated actor have legal authority?
- Is this action consistent with state and federal laws?
- Could action prompt litigation?
- Is this action constitutional?



# Tracking state progress

## Maine

### Overview of Maine's Climate Change Preparations

This page provides an overview of the steps Maine is taking to prepare for the impacts of climate change.

In 2003, the Maine Legislature charged the Department of Environmental Protection (DEP) with developing a mitigation plan to reduce greenhouse gas emissions ([HP 622, An Act To Provide Leadership in Addressing the Threat of Climate Change](#)). This directive led to the development of the [2004 Maine Climate Action Plan](#).

In 2009, the legislature directed DEP to develop adaptation options for the state in order to prepare for climate impacts ([LD 460, To Evaluate Climate Change Adaptation Options for the State](#)). In response, DEP created a coordinating committee composed of representatives from the private and public sector. This committee was subdivided into four working groups centered around Maine's built, coastal, natural, and social environments. These working groups were tasked with developing recommendations for adaptation action.

In February 2010 the coordinating committee highlighted the need for adaptation planning; data, monitoring, and assessment; information and awareness; and planning and coordination. The committee presented its report, [People and Nature Adapting to a Changing Climate: Charting Maine's Course](#), to the Joint Standing Committee on Natural Resources of the 124th Maine Legislature. This 2010 plan includes 118 goals to help prepare Maine for climate impacts.

[Read More](#)



[VIEW STATE ADAPTATION PLAN STATUS](#)



[VIEW ALL COMPLETED GOALS](#)

### Maine



#### People and Nature Adapting to a Changing Climate: Charting Maine's Course

Finalized: February 2010



● 4 out of 118 Goals Completed

● 84 out of 118 Goals in Progress



[SUBMIT AN UPDATE ABOUT THIS STATE'S PROGRESS](#)



[RECEIVE EMAILS ABOUT THIS STATE'S PROGRESS](#)

## State Law and Policy

Resource Name	Resource Type	Date
"Resolve, To Continue Evaluating Climate Change Adaptation Options for the State" - Maine SP0733, LD 1818	Law and Governance	April 1, 2010
"Resolve, To Evaluate Climate Change Adaptation Options for the State": Maine SP0163 / LD 460	Law and Governance	April 23, 2009
Maine Sand Dune Rules	Law and Governance	June 8, 2006

## State Agency Plans

Resource Name	Sector(s) Covered	Date
Climate Change and Transportation in Maine	Biodiversity and ecosystems, Emergency preparedness, Land use and built environment, Transportation	October 14, 2009

## More Featured Resources

Resource Name	Resource Category	Date
Maine Climate Adaptation Toolkit	Data and tools	October 26, 2015
Maine's Climate Future: 2015 Update	Assessments	February 2015



## Adaptation Clearinghouse™

Search by keywords

search

+ [Click here to browse by resource type, sector, impact](#)

Tap into the adaptation expertise of the Georgetown Climate Center and its partners. Find resources using the search, mapping, and browsing tools displayed on this page.

### Featured Policy Areas



Law & Governance



Sea-Level Rise



Urban Heat

### Sector Materials to Get You Started



Coasts



Public Health



Transportation



Water

### Find Adaptation Resources Near You

Map data ©2012 Google - [Terms of Use](#)

Get Resources

Select State

### Highlighted This Week

#### City of Chicago

When it comes to adapting to climate change, the City of Chicago continues to provide important leadership. The city's "Lead by Example Workplans" identify more than 470...



### Recently Added Resources

Climate Change Adaptation in New York City: Building a Risk Management Response  
The New York City Panel on Climate Change (NPCC) was convened by Mayor Michael Bloomberg in more...

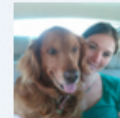


LEAVE NETWORK

## Local Government Professionals

The Local Government Professionals Network highlights the power of local action to prepare for climate change. This network allows local government professionals to find, rate, and share the adaptation resources that are aimed at local government officials.

[READ MORE](#)



### Welcome Jessica Grannis

Adaptation Program Manager at Georgetown Climate Center

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## Local Government Resources and Activity

Resources

Members

### POPULAR RESOURCES

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[LOCAL PLANS](#)

[GUIDELINES & TOOLS](#)

[FUNDING PROGRAMS](#)

[LAWS & REGULATIONS](#)

[COMMUNICATION & ENGAGEMENT](#)

[SOLUTIONS](#)

### Highly Rated Resources (edit)

The Popular Resources tab features resources that are rated highly by other members of the Local Government Professionals Network. Local Government Professionals members like you may influence this list by rating resources. Just click on a resource and assign it a 1 (low) to 5 (high) star rating. The highest ratings (4 and 5) should be granted to resources that you have found useful in your own work.

[APPLY ADDITIONAL FILTERS](#) 

[SORT BY](#) 

Resource

#### City of Benicia, California Climate Change Vulnerability and Risk Summary Report

2015

Network Rating



The City of Benicia is a coastal community in the San Francisco Bay area of California. In April 2014, Benicia was awarded a [California Coastal Conservancy Climate Ready Grant](#) for \$150,000 to conduct a climate change vulnerability assessment and to develop a climate adaptation plan. The Vulnerability and Risk Report was developed in partnership with ICF International and Placeworks, who examined climate change related vulnerabilities and risks in Benicia (primarily sea



# urban heat toolkit



GEORGETOWN CLIMATE CENTER  
A Leading Resource for State and Federal Policy



# sea-level rise toolkit



# drought toolkit



# green infrastructure toolkit



# For More Information

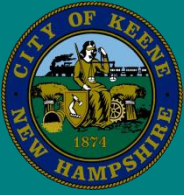
Jessica Grannis

Georgetown Climate Center

[grannis@law.georgetown.edu](mailto:grannis@law.georgetown.edu) / 202-661-6594

<http://www.georgetownclimate.org>

<http://www.adaptationclearinghouse.org>



City of Keene, NH

# Towards a Climate Resilient Community

Local Solutions:  
Eastern Regional Climate Change  
Preparedness Conference  
April 5, 2016

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



# Keene, New Hampshire “Elm City”

- Southwestern corner of the New Hampshire
- Incorporated in 1753
- Population: 22,563 (more than doubles during the day)
- Size: 34.7 Square Miles
- City Council - City Manager form of Government
- Home of Keene State College & Antioch New England University



## World-Renowned Pumpkin Festival

2013 World Record for Lighted Jack-o-Lanterns 30,581





and pictures. To help protect your privacy, Outlook prevented automatic download of some pictures in this message.

ene <citreq-dpw=ci.keene.nh.us@mail17.us4.mcsv.net> on behalf of City of Keene <citreq-dpw@ci.keene.nh.us>

nb

Weekend Rain Forecasted for Keene



**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.

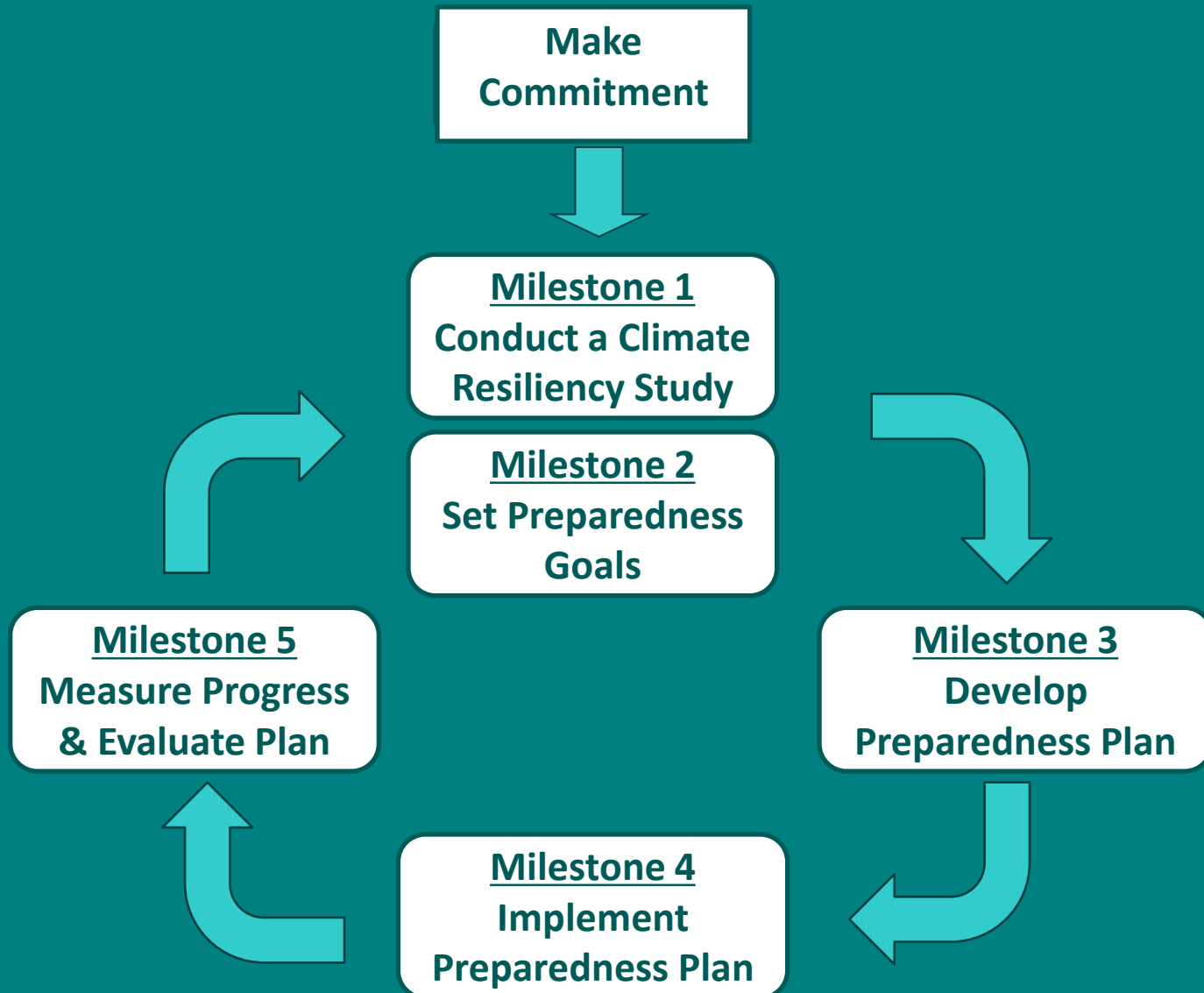


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# How We Got Started...

- 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

# 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

# Resiliency in Keene

- Develop energy efficiency and sustainable design standards
- Decrease runoff from sites
- 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













## **“CAFFEINATED CLIMATE”**

**2005 October\*      11.2 inches in 24 hrs**

**2012 May\*          4.8 - 6.9 inches in 5 hrs**

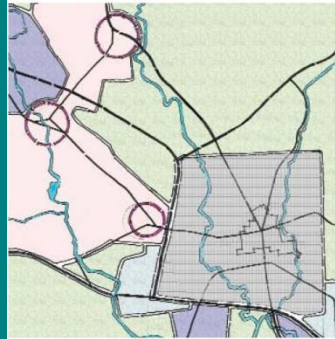
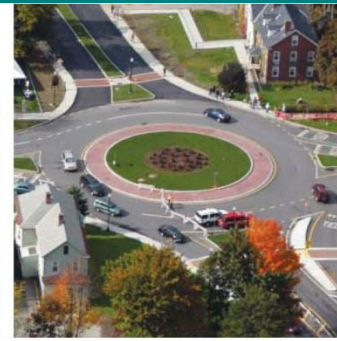
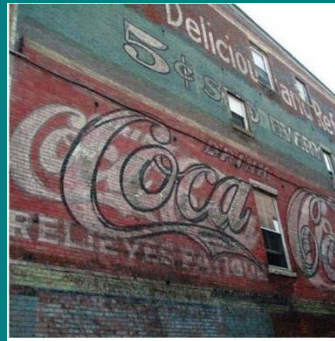
**2013 September    4.6 inches in 5 hrs**

**\* Federal disaster declaration**

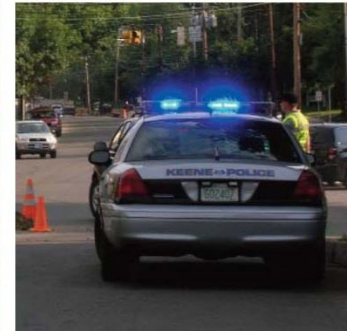
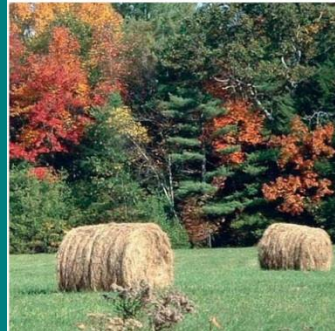


# 2010 Comprehensive Master Plan

- 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





# Implementation

- Hillside Development Ordinance
- Surface Water Ordinance
- Incentive Zoning for Green Building
- LID Regulations
- Complete Streets Policy
- Local Food Initiative
- Environmental Preferred Purchasing
- Alignment

# 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/Strategy: 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.

	FINANCIAL PLAN & PROJECT SCHEDULE					TOTAL	
	PRIOR YR	FY17	FY18	FY19	FY20		FY21
<b>EXPENDITURES</b>							
Design					129,207		115,476
Construction/Implementation			135,000		732,173		461,904
Property/Equip. Acquisition			765,000				
TOTAL		\$0	\$900,000	\$0	\$861,380	\$0	\$577,380
<b>FUNDING</b>							
Current Revenue					861,380		
Capital Reserve							
Debt Funded			900,000				577,380
Federal or State Grants							
Other Sources							
TOTAL		\$0	\$900,000	\$0	\$861,380	\$0	\$577,380

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

PROJECT STATUS: Ongoing CIP



## City of Keene Capital Improvement Program 2016/2017 - 2021/2022

# Operating Budget Form

<b>DEPARTMENT:</b>		<b>PLANNING</b>		<b>FUND:</b>		<b>GENERAL</b>	
<b>DIVISION(s):</b>		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.					
<b>Cost Center(s):</b>		Align w/CMP					
<b>MISSION:</b>		Develop the Comprehensive Master Plan and Community Vision and implement that Plan and Vision through specific projects, policies, and programs		Municipal Governance & Fin Stability		Future Land Use & Policy	
<b>PRIMARY SERVICES &amp; RESPONSIBILITIES:</b>		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		Leadership			
<b>FISCAL YEAR 2016/2017 OBJECTIVES:</b>		Provide staff support, information, and services to a variety of City Boards and Commissions, City departments, officials, and citizens.					
		<b>STATUTE</b>		<b>CMP</b>		<b>VOICE</b>	
Continue Comprehensive Master Plan implementation process with Planning Board and PLD Committee		674.1		Municipal Governance & Fin Stability		O, I, E	
Complete Greenhouse Gas Inventory and report (2015 data)				Climate Change		C, E	
Implement the construction phase of Safe Routes to School grant projects for Jonathan Daniels School and Maple Acres				Walkable Community		O, I	
Complete the construction phase of the Wetlands and Floodplain restoration project in Woodland Cemetery using the ARM Fund grant				Open Space & Greenway Connections		O, I, E	
Implement Phase I of the Land Use Code Update				Future Land Use & Policy		I	
Participate in regional efforts to address air quality issues related to particulate matter				Transportation		O, I, E	
Coordinate and provide staff to the College City Commission				Municipal Governance & Fin Stability		O, I, E	
Complete Airport Master Plan Update				Leadership		I	
Write grants for funding to support programs/initiatives				Infrastructure		O, I	
Give presentations to community groups and professional organizations				Economic Development		O, I	
Assist in implementing a City-wide Economic Development Strategy				Transportation		O, I	
Develop and begin implementing a City-wide Economic Development Strategy							
<b>METRICS:</b>							
Adoption of revisions or updates to the Comprehensive Master Plan the same year they are proposed/identified				FY15		FY16	
Complete 90% of the initial completeness reviews in 10 business days		1		1		1	
Complete 90% of minor amendment applications within 5 business days		90%		90%		91%	
Complete 95% of minor amendment requests within 5 business days		96%		98%		98%	
Complete 95% of all inspection requests within 5 business days		96%		97%		98%	
Adoption of revisions to Planning Board Standards and Regulations the same year they are proposed/identified		1		1		0	



# Implementation

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

# HEALTH

## Task List

	<b>TASK</b>	<b>Who performs task?</b> <small>(employee title)</small>	<b>FREQUENCY</b> <small>(e.g. daily, weekly, quarterly, comp. base-dates, not advised)</small>	<b>TIME TO COMPLETE TASK</b> <small>(hours, or fraction thereof)</small>	<b>TIME TO COMPLETE TASK</b> <small>ANNUALIZED</small>	<b>Operating costs to support Task</b> <small>ANNUALIZED</small>	<b>Re-Direct?</b> <small>other department (specify)</small>	<b>Re-Direct?</b> <small>other agency (specify)</small>	<small>contract ops or privatization</small>
1	Manage 01801 Home Health Care/ Mental Health Service	Health Officer	Quarterly	3 Hours	12	79.2	Human Services		These are contract services that are being managed by Health department
2	Manage 01800-62102 Professional Services Mosquito monitoring	Health Officer	Monthly	1 hour	12	79.2	Public works		These are contract services that are being managed by Health department
3	Renewal of Annual Food establishment licenses	Sanitarian	Annual	40 hours	40	264	City Clerk/Revenue	DHHS Food Protection	
4	Keep webpages updated with Mosquito pool reports and Arbivora Weekly Bulletins	Administrative Assistant	Monthly	.5 Hour	6	40	Public works		
5	Inspection of Licensed Food Establishments	Sanitarian	Daily	3 Hours	780	5,148	Code	DHHS Food Protection	Establishment could self inspect
6	Computer input of inspections of Food Establishments	Sanitarian	Weekly	4 Hours	208	1,373	Code	DHHS Food Protection	
7	Inspect Foster homes/ Daycares/ Schools	Sanitarian	Monthly	5 Hours	60	396	Code	DHHS	
8	Respond to complaints involving Food Establishments	Sanitarian	Monthly	10 hours	120	792	Code	DHHS Food Protection	
9	Respond to housing complaints involving health issues	Sanitarian	Weekly	2 Hours	110	726	Code	DHHS	
10	Plan review for new or remodeling food establishments	Sanitarian	Monthly	2 Hours	24	159	Code	DHHS Food Protection	yes
11	Inspections during building of new or remodeled food establishments	Sanitarian	Weekly	1 Hour	52	343	Code	DHHS Food Protection	yes
12	Attend Emergency Preparedness Meetings RCC	Sanitarian	Bi-Monthly	2 Hours	12	79	Code		Meetings already attended by many regional agencies
13	Attend Self Inspecting Cities Meetings Held by DHHS Food Protection	Sanitarian	Quarterly	7 Hours	28	185	Code		State DHHS and other Self Inspecting Cities and towns attend
14	Meetings/Staff, Neighborhood Groups, Committees...	Sanitarian	Weekly	1.5 hours	78	515			Meetings already attended by Code
15	Research health and code issues	Sanitarian	Daily	1 Hour	260	1,716	Code		
16	Supervision of field inspectors	Sanitarian	Daily	1 Hour	260	1,716	Code	N/A	
17	Customer Service/ phone calls, walk-ins, fielding questions to appropriate inspectors, personnel, pulling files.	Administrative Assistant	Daily	1 Hour	260	1,716	Code		
15	Data entry of complaints	Administrative Assistant	Daily	.5 Hour	130	858	Code		
18	General administrative duties/ filing, proofreading, creating brochures, scheduling meetings, minute taker, ordering office supplies/equipment, petty cash	Administrative Assistant	Daily	1.5 Hours	390	2,574	Code		

# 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
- Competing Priorities
- Changes in Staff/Budgets
- Changes in Leadership





## Rhett Lamb

Planning Director/ACM

City of Keene Planning Department

City Hall 4<sup>th</sup> Floor

3 Washington Street

Keene, New Hampshire 03431

603-352-5474

[rlamb@ci.keene.nh.us](mailto:rlamb@ci.keene.nh.us)

[www.ci.keene.nh.us/planning/climateprotection.htm](http://www.ci.keene.nh.us/planning/climateprotection.htm)

What have you done:

Has your city already begun thinking about climate change adaptation – if so how? Into what plans, policies, regulations have you incorporated consideration of climate change?

How did you overcome  
challenges:

What challenges/barriers did you encountered in doing so? Did you overcome those challenges and if so how? What can others learn from your process?



What opportunities do you have to do more:

What opportunities do you have for scaling up that work to better integrate adaptation into other plans, laws, policies, etc.? What plans, laws, policies need to be updated in the next couple of years?

What do you need:

What do you need to help you better integrate adaptation into local decision making?

A dramatic sunset over a coastal town. The sky is filled with dark, heavy clouds, with a bright orange and yellow glow from the setting sun breaking through near the horizon. The town, with its houses and trees, is silhouetted against the bright sky. The water in the foreground is dark and reflects the colors of the sunset. In the immediate foreground, there are dark, jagged rocks. The overall mood is serene and atmospheric.

QUESTIONS AND  
COMMENTS?