



The State of New Hampshire  
**DEPARTMENT OF ENVIRONMENTAL SERVICES**



**Thomas S. Burack, Commissioner**  
March 10, 2011

The Honorable Gene Chandler, Chairman  
House Public Works and Highways Committee  
Legislative Office Building, Room 201  
Concord, NH 03301

**Re: HB 25-FN-A, making appropriations for capital improvements  
Requested amendment for funding disaster relief and hazard mitigation in response  
to the May 2006 Suncook River avulsion.**

Dear Chairman Chandler:

Thank you for the opportunity to comment on HB 25-FN-A. The Department of Environmental Services (DES) and the Department of Safety (DOS) respectfully request an amendment to HB 25-FN-A to add an appropriation of \$2,000,000 to provide disaster relief and hazard mitigation assistance in response to the May 2006 Suncook River avulsion. This request is fully supported by Governor Lynch.

The avulsion of the Suncook River significantly increased erosion of the banks and bed of the river in the vicinity and upstream of the avulsion, as well as sedimentation downstream. The ability to control these natural processes is limited, as demonstrated by failed attempts in other New Hampshire rivers, as well as around the world. For this reason, we have focused our response to the Suncook avulsion on achieving two overarching goals: (1) protecting vital infrastructure; and (2) reducing the risk of loss of life or property damage from future floods.

In HB 25-FN-A, the Governor, at the request of DES and DOS, proposed funds to support the following projects:

- (1) \$850,000 for construction of in-channel grade control structures to protect the Route 4 and Black Hall Road bridges from ongoing river adjustments caused by the avulsion.
- (2) \$185,000 for a geomorphic assessment of the entire length of the Suncook River from the headwaters in Gilmanton to its confluence with the Merrimack River in Allenstown and Pembroke. This would provide a delineation of the fluvial erosion hazard zones adjacent to the river to enable identification of the properties that are the most vulnerable to damage from river channel changes and would be an important step for the state and local communities to better manage the risk to people, private property and public infrastructure as the Suncook River continues to adjust its course.
- (3) \$200,000 for the removal of the Buck Street Dam in Pembroke and Allenstown, which would reduce flooding of properties along the Suncook River in Pembroke, upstream of the dam.

HB 25-FN-A as introduced does not include funds in the amount of \$2,000,000 that DES and DOS proposed for property acquisition in the Suncook River Fluvial Erosion Hazard Zone.

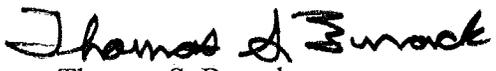
Although the request was originally written to encompass only property acquisition, further developments over the past few months (described below) demonstrate a need for this request to support a variety of life safety, property conservation, and hazard mitigation projects along the Suncook River Valley in the communities of Allenstown, Pembroke, Chichester, Epsom and Pittsfield. In fact, as described on the attached list of 26 potential projects, proposed uses include not only the voluntary acquisition of flood prone homes near the river, but also the protection of critical infrastructure such as bridges and town-owned wells. If approved, expenditures from this capital item can match up to \$6,000,000 in federal grants, which will pay the majority of the overall project costs.

At the Governor's request, representatives from DOS and DES, as well as representatives of the communities of Allenstown, Pembroke, Chichester, Epsom and Pittsfield have been meeting to identify additional short term projects or solutions that will positively impact the personal safety, property, and environment of those who live in the floodplain of the Suncook River. This group has organized into several sub-teams and developed a list of 26 projects that meet the established goals. Some of these projects have been completed and many others are underway. Five (5) substantive projects may qualify for federal grant funds. The attached project list explains the intent of all twenty six projects and the estimated costs. A capital appropriation of \$2,000,000 would support several of these projects.

This approach makes investments that will lessen the human and financial impacts of future flooding events. It is supported by local officials in these communities. And it leverages federal grants designed just for this purpose. This request is not without precedent, as the State has paid a non-federal share of disaster costs following flooding events such as the 2005 Alstead, 2006 Mother's Day, 2007 Nor'easter, August 2008, September 2008 and March 2010 flooding events (all federally declared disasters). By completing mitigation projects such as those on the attached table, we will ultimately minimize future costs to the state.

Thank you for the opportunity to comment on this critical legislation. If you have any questions or need additional information, please contact Christopher Pope, (Director of Homeland Security, DOS) at 545-5842, or Rene Pelletier (Assistant Director of the DES Water Division) at 271-2951.

Sincerely,

  
Thomas S. Burack  
DES Commissioner

  
John J. Barthelmes  
DOS Commissioner

Enclosures

cc: Governor John H. Lynch  
James I. Richardson, Special Assistant for Policy, Governor's Office  
Boards of Selectmen (Chichester, Epsom, Allenstown, and Pembroke)  
Senator Jack Barnes  
Representative J. Brandon Giuda  
Representative Dan McGuire  
Representative Jon Richardson  
Representative John McDonnell  
Senator Sylvia Larson  
Representative G. Brian Seaworth  
Representative Tony Soltani  
Representative Carol McGuire  
Christopher M. Pope, Director, HSEM, DOS

**DEPARTMENT OF ENVIRONMENTAL SERVICES  
AND DEPARTMENT OF SAFETY  
FY 12-13 CAPITAL BUDGET REQUEST  
ACQUISITION OF PROPERTY  
WITHIN THE FLUVIAL EROSION HAZARD ZONE  
OF THE SUNCOOK RIVER**

**SUMMARY AND JUSTIFICATION**

On May 14-15, 2006, the Suncook River (the "Suncook") in Epsom underwent an avulsion, whereby approximately two miles of river channel relocated from its pre-existing primary channel to a portion of its pre-existing secondary channel by dissecting part of the former Cutter's sand and gravel pit (Figure 1). The avulsion has resulted in significant effects on the Suncook, including unstable erosion of the stream channel bottom that continues to migrate upstream, and significant bank erosion and lateral movement of the new Suncook mainstem and contributing tributaries that are supplying large amounts of sediment to river reaches downstream.

The Suncook River continues to erode and degrade rapidly within Cutter's pit, in light of the ample supply of easily eroded sand, silt, and clay available. As a result of this available sediment, the channel downstream has become filled with sediment. This in turn will lead to future avulsion to the downstream channel. In particular, the area of Round Pond and the meander bends north of Short Falls Road are particularly vulnerable. Further downstream, in the communities of Epsom, Allenstown and Pembroke, sediment deposition onto the adjacent floodplain and within the river channel has led to siltation and flooding on individual properties, as the capacity of the Suncook to carry high flows through this area has greatly diminished.

In these communities along with the devastating damage to local infrastructure, the impacts of flooding on citizens' safety and property has been life-altering and in some cases has had significant economic impacts on homeowners. Homes rebuilt or restored after the 2006 flood were damaged yet again during the 2007 event. The movement of sediment through the Suncook River system downstream will continue to negatively affect property owners for many years to come as the river adjusts to its new path. The Suncook River is a very dynamic river, and due to natural processes it will continue indefinitely to meander and migrate by different pathways across the low-lying valley through which it flows.

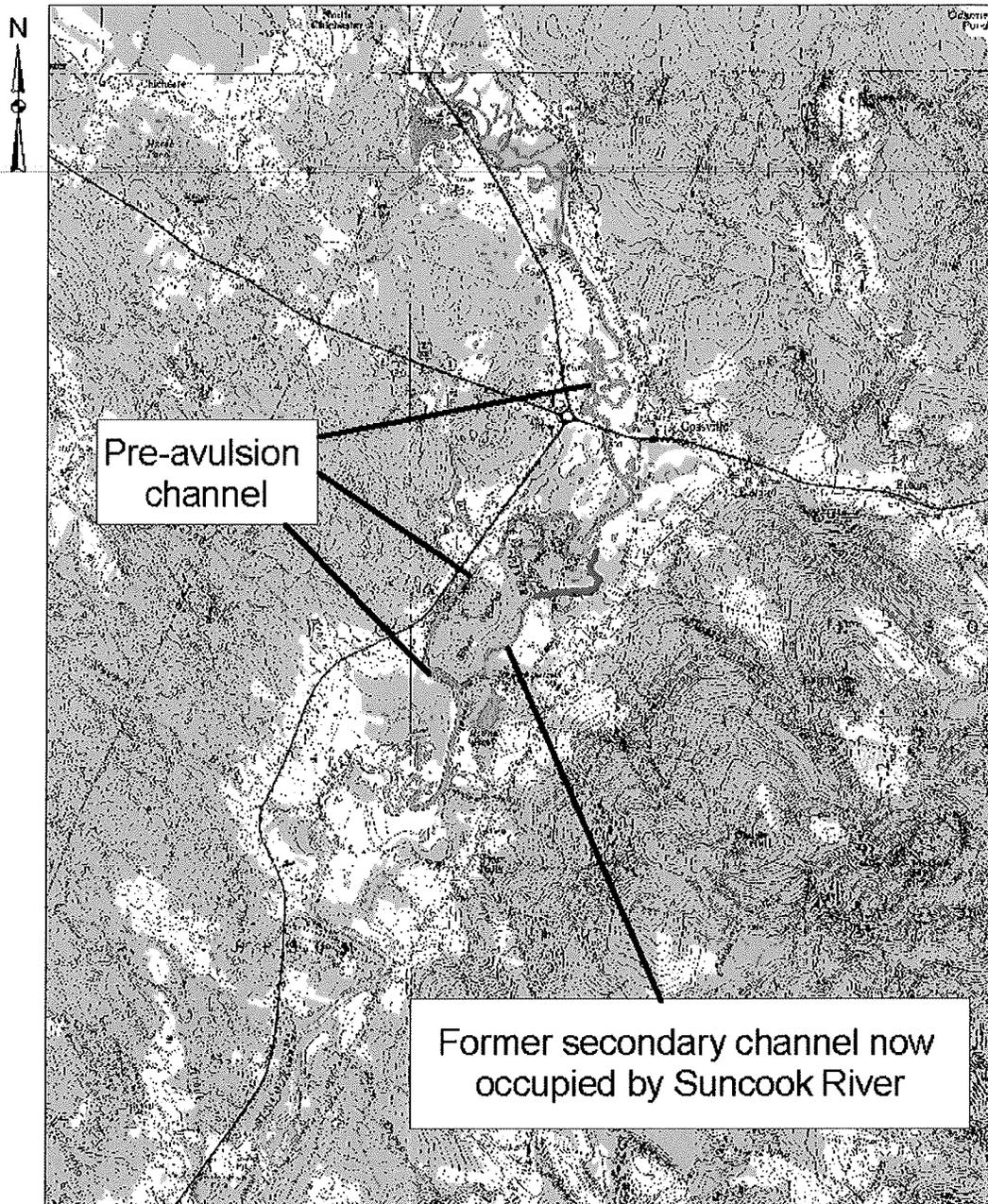
The purpose of this capital budget request is to appropriate matching funds to leverage the non-federal cost share for federal mitigation grants, or to be used in the event that federal or other funds are not available, for the acquisition and demolition or relocation of homes or the mitigation of other structures determined to be at risk based upon fluvial erosion hazard zone delineations established within the communities of Epsom, Pembroke, and Allenstown, or that suffer damage during future flood events in the Suncook River basin. A separate Capital Budget request has been submitted to provide funding for a Fluvial Erosion Hazard (FEH) assessment of the Suncook River basin associated with the 2006 avulsion.

**Funds to acquire and demolish or relocate homes or to mitigate other structures at risk within the established Fluvial Erosion Hazard Zone**

Funds included in this capital budget request are to leverage Federal funding by providing the non-federal match requirement for potential mitigation of at risk structures identified in the FEH study. Under this initiative, funds would be used for communities to mitigate structure determined to be at risk including replacement of under-sized or miss-aligned river and stream crossings and to offer homeowners the option of a voluntary acquisition and demolition, of those homes determined to be located within the final fluvial erosion hazard zone that is delineated for the Suncook River. Homes located within fluvial erosion hazard zones will be at risk for continued sedimentation and flooding during high flow events and for erosion of banks as the river continues to adjust its path in response to the 2006 avulsion. The fluvial erosion hazard zones can also be utilized to prevent further development adjacent to the Suncook River. RSA 674:56 authorizes municipalities to adopt fluvial erosion hazard zoning ordinances. A model fluvial erosion hazard zoning ordinance is contained within DES' Innovative Land Use Guide that each community can modify for their use. Providing homeowners the greatest opportunities to have their property acquired, and for the prevention of further development, will protect public safety adjacent to a very dynamic river. In the event of an emergency, or if federal grant funds were not otherwise available for this purpose, these funds could be used for the purchase of at-risk residences or other structures.

Many projects, identified as a result of this study, could be eligible for grants under the Federal Emergency Management Agency, Unified Hazard Mitigation Assistance Program. Eligible projects include the acquisition and demolition or relocation of at risk structures and the replacement and up-sizing of at risk stream and river crossings. All grants associated with the Unified Hazard Mitigation Assistance program are 75% Federal funds that require a 25% non-federal match.

# Suncook River Avulsion Site



## Legend

— Channel within Cutter's Pit

0 0.5 1 2 Miles

**Figure 1.** Suncook River in vicinity of the avulsion site.

**STATE OF NEW HAMPSHIRE  
CAPITAL IMPROVEMENT PROJECT REQUEST**

FISCAL YEARS 2012-2013

PRIORITY # 9

FORM 1A

AGENCY	CODE	NAME
AGENCY	044	Department of Environmental Services
PROJECT-TITLE/NAME		
Property Acquisition in the Suncook River Fluvial Erosion Hazard Z		

Capital Budget Request	
(a) Site Acquisition	
(b) Site Improvement / Preparation	
(c) Construction	
(d) Utilities	
(e) Architect / Engineering	
(f) Computer Systems / Equipment	
Hardware	
Software	
Training	
Service	
(g) Furnish / Equipment	2,000,000
(h) Other	2,000,000
<b>Total Capital Budget Request</b>	

Other Information	
Total Square Footage:	
Estimated Useful Life:	

Related Annual Operating Budget Expenditures / Savings Estimates	
<b>Expenditures</b>	<b>Savings</b>
(a) Permanent Personnel Services	
(b) Other Personnel Services	
(c) Current Expense	
(d) Equipment	
(e) Travel	
(f) Other	
<b>Total Expenditures / Savings Estimates</b>	
Appropriation Code:	
Will the expenditures / savings be consistent each year? (Yes / No)	

Capital Budget Criteria (See Instructions)	
Requirement Code:	Health and/or Safety A, B, C or D
Definition Code:	Improvement or Repair A, B, C or D
Funding Percentages by Source:	G, F, H or O 100.00%
G = General	F = Federal
H = Highway	O = Other
An Information Technology Project must be part of your IT Plan. Project # <input type="text"/>	

**Justification (Be Concise)**

In 2006, a segment of the Suncook River underwent a relocation (avulsion) which has caused significant erosion within a gravel pit that has led to sedimentation and attendant increased recurring flood risks for property owners adjacent to the river as it adjusts to its new path, and this adjustment will continue indefinitely. The purpose of this capital budget request is to appropriate matching funds to leverage the non-federal cost share for federal mitigation grants under the FEMA Unified Hazard Mitigation Assistance Program. These potential grant projects include acquisition, demolition, and relocation of primary homes identified in the fluvial erosion hazard assessment, replacement and up-sizing of at risk stream and river crossings, and other eligible projects identified in the fluvial erosion hazard assessment. These funds can also be used for the purchase and relocation of homes, other structures, and other mitigation projects should federal or other funds not become available. The delineation of fluvial erosion hazard zones adjacent to the river in Suncook River valley communities will provide the basis for the identification of potential properties to target. A separate capital budget request has been submitted for the performance of the FEH zone delineation. Homes that suffer further damage in future flood events will serve as an additional basis for use of these funds. Please see the accompanying justification memorandum for more detail.

Preliminary Plans: Attach a schematic and location sketch when applicable on an 8-1/2" x 11" sheet.

Telephone Number: 271-2876

Shane Csiki

Contact Name:

Name: Thomas Burack-DES

Commissioner

Date: 3/10/2011

**STATE OF NEW HAMPSHIRE  
CAPITAL IMPROVEMENT PROJECT REQUEST**

FISCAL YEARS 2012-2013

PRIORITY #

FORM 1A

AGENCY	CODE	NAME
AGENCY	044	Department of Environmental Services
PROJECT-TITLE/NAME		
Suncook River Infrastructure Protection Project		

Capital Budget Request	
(a) Site Acquisition	
(b) Site Improvement / Preparation	
(c) Construction	850,000
(d) Utilities	
(e) Architect / Engineering	185,000
(f) Computer Systems / Equipment	
Hardware	
Software	
Training	
Service	
(g) Furnish / Equipment	
(h) Other	
<b>Total Capital Budget Request</b>	1,035,000

Other Information	
Total Square Footage:	
Estimated Useful Life:	50 yrs

Related Annual Operating Budget Expenditures / Savings Estimates	
<b>Expenditures</b>	<b>Savings</b>
(a) Permanent Personnel Services	
(b) Other Personnel Services	
(c) Current Expense	
(d) Equipment	
(e) Travel	
(f) Other	
<b>Total Expenditures / Savings Estimates</b>	
Appropriation Code: <input type="text"/>	
Will the expenditures / savings be consistent each year? (Yes / No)	<input type="checkbox"/>

Capital Budget Criteria (See Instructions)	
Requirement Code:	Health and/or Safety A, B, C or D
Definition Code:	Improvement or Repair A, B, C or D
Funding Percentages by Source:	G, F, H or O
G = General	F = Federal
H = Highway	O = Other
An Information Technology Project must be part of your IT Plan. Project # <input type="text"/>	

**Justification (Be Concise)**

The purpose of this request is to address ongoing river erosion and sedimentation caused by the 2006 Suncook River channel relocation (avulsion) in Epsom that threatens homes and the stability of bridge infrastructure. These threats can be reduced through: (1) the protection of the Route 4 and Black Hall Road crossing infrastructure from ongoing river adjustments directly caused by the avulsion; and (2) a geomorphic assessment of the Suncook River to delineate the fluvial (river) erosion hazard zones adjacent to the river for identification of properties most vulnerable to continued river channel adjustments in response to the avulsion. Delineation of the fluvial erosion hazard zones are crucial for the protection of life and property as the Suncook River continues to adjust its course. The \$850,000 included in this request is to fund the construction of in-channel grade control structures designed to protect the road crossing infrastructure from river adjustments. The amount of \$185,000 is to fund the geomorphic assessment. Please see the attached Suncook River Infrastructure Protection and Fluvial Erosion Hazard Assessment Summary and Justification document for more detail.

**Contact Name:** Shane Csiki      **Telephone Number:** 271-2876      **Preliminary Plans:** Attach a schematic and location sketch when applicable on an 8-1/2" x 11" sheet.

**Name:** Thomas Burack-DES      **Commissioner**      **Date:** 3/10/2011

Item	Task	Town(s)	Description/Key Steps	Hard Cost Status	Estimated Hard Cost*
<b>Short-term Solutions – ability to complete within 12 months</b>					
A	Engage the CNRPC in project management and technical assistance	Allenstown Chichester Epsom Pembroke	CNRPC are facilitators for the individual projects, assisting with solving problems, but not necessarily completing these tasks. Key roles are to provide organizational support, provide information, and to ensure the appropriate parties are involved in each meeting and project.	Hard Cost is Known	\$55,750
B	Install river gauge in southern stretch of Suncook River	Varies, depends on where it's (they're) installed. High priority to Allenstown	Electronically monitored gage. NH HSEM could fund installation under EMPG. One gage is presently in North Chichester. Issues are the match and annual maintenance funds.	Hard Cost is Known	\$15,000 + \$3,000 annual maintenance costs
C	Request a commitment from DOT to provide adequate route signing for detouring traffic off of Route 28 when the road is closed for flooding	Allenstown requested this, but could be installed in Pembroke or Epsom. High priority to Allenstown	When Route 28 closes, Allenstown wants to keep traffic off of town River Road, and channel to Buck Street (state maintained) in Pembroke. Town wants variable message boards and aluminum signs. Coordinate with NHDOT for sharing of resources.	Hard Cost is Unknown at This Time	---
D	Request a grant for a portable (trailer mounted) emergency generator for Allenstown to operate the emergency shelter during a flood emergency	Allenstown	EMPG grant has been submitted.	Hard Cost is Known	\$42,000
E	Review/update the emergency plan for the dams that operate in the Suncook In watershed to ensure maximum mitigation effect during floods	Allenstown & Pembroke	Work with DES to encourage them to review the 4 plans: 1 at Thomas Hodgdon (Allenstown), 1 at Mill at Main Street (Pembroke), 1 at Irish Pond (Allenstown), Buck Street (Pembroke). Dam operations should be reviewed. Buck Street dam is being considered for removal (Capital Budget request submitted to Governor's office for consideration). NHDES has their procedures on how they work on their dams' emergency plans, review annually.	No Hard Cost- *Buck Street Dam-Capital Budget Request	*\$200,000
F	Formally survey/inquire of the residents of the floodplain to determine their interest in acquisition and other mitigation solutions	Allenstown Chichester Epsom Pembroke	Work with each Town to see whether they are interested in surveying at-risk residents of the floodplain. Identify roads and survey homes (see K). 12 homes are on Batchelder Road (Pembroke). There are immediate needs with 35 homes in Pembroke & Allenstown.	No Hard Cost	---
G	Examine the history of previous mitigation projects of Round Pond	Epsom	The Town's well is behind the Epsom School, and residents are concerned with breach/avulsion of Round Pond. The pond is starting to erode and will breach through at some point. One option is to dry-flood the well. See also P & Q. Capital Budget Request includes an FEH study for the entire breach of the River, which will identify at-risk structures - See O.	No Hard Cost Hard Cost for FEH Study	See O - FEH Study
H	Conduct a presentation to residents to explain river morphology issues in terms that are easily understood	Allenstown Chichester Epsom Pembroke	The public presentation must be modified to explain the River conditions clearly to residents.	No Hard Cost	---
I	Replace/upgrade Batchelder Road culvert	Pembroke	The culvert should be replaced or upgraded as needed.	Hard Cost is Unknown at This Time	---

Item	Task	Town(s)	Description/Key Steps	Hard Cost Status	Estimated Hard Cost*
J	Replace/remove state owned culvert by King's Court turnaround	Epsom	The culvert should be replaced or removed as needed. Unknown whether culvert is private or Town/State owned.	Hard Cost is Unknown at This Time	---
K	Identify at-risk homes and pre-record emergency notification warnings that can be sent to at-risk floodplain occupants during a flood emergency utilizing the new state Public Notification System	Allenstown Chichester Epsom Pembroke	Allenstown did a survey, 9 homeowners in the program now, had identified 101 homes; 22 bought, 3 buying now, plus new application this year. Epsom needs help on 1 acquisition, HHSEM will help prepare the application. FEMA considers a cost benefit analysis, and the owner takes 75% value of home/25% is Town match. The internal warning systems would be town-specific.	No Hard Cost	---
L	Provide all residents within the special flood hazard areas with NFIP information and restrictions and ensure that municipal officials and the remaining town residents are aware of the NFIP flood insurance availability.	Allenstown Chichester Epsom Pembroke	Public outreach on the NFIP will be different for every Town. Make sure that all residents are informed of the NFIP and building restrictions. The Community Rating System (CRS) program could possibly be used to supplement the education.	No Hard Cost	---
M	Develop a checklist of local emergency management/ public safety action items for flood events along the Suncook River and consider Incident Annex	Allenstown Chichester Epsom Pembroke	Determine whether each of Town has a checklist and see if it could be shared/modified.	No Hard Cost	---
N	In conjunction with each town's legal counsel, develop an appropriate and consistent response that the communities can provide to property owners that have questions regarding property line issues related to the change in the course of the Suncook River.	Allenstown Chichester Epsom Pembroke	Determine an appropriate response for riparian ownership.	No Hard Cost	---
O	Request state commitment to capital projects for funding non-federal share of certain mitigation projects	Allenstown Chichester Epsom Pembroke	Facilitate obtaining the state funding used as match for federal grants. Two capital budget requests submitted to Governor's office for consideration: install grade control structures to protect infrastructure and mitigate at-risk structures. The budget hearings will start in January. Boards of Selectmen should ask State Representatives for support.	Hard Costs per Capital Budget Request	1. \$2,000,000 2. \$1,035,000 (a)\$850,000 (b)\$185,000
P	Coordinate with the NRCS to determine whether there may be eligible projects to assist agricultural property owners in the flood plain.	Allenstown Chichester Epsom Pembroke	Determine if any NRCS grant programs could help farmers, and provide the information.	No Hard Cost	---
<b>Mid-range Solutions – have steps that could begin within 12 months but completion of the entire project may take longer</b>					
Q	Prevent avulsion of Round Pond	Epsom	See also G & R.	Hard Cost is in a Conceptual Stage	---

Item	Task	Town(s)	Description/Key Steps	Hard Cost Status	Estimated Hard Cost*
R	Mitigate the potential for damage to the Epsom well house	Epsom	Damage to the Town well house could result from a Round Pond breach. The Town could add this project to the Hazard Mitigation Plan. A project could be to dry-flood proof the well with a floodwall around pumphouse and aluminum stoplogs inserted during flooding events. The well is located in the Epsom Village Water District. See also <b>G &amp; Q</b> .	Hard Cost is Known	\$224,000
S	Stop head-cutting of the Route 4 bridge	Chichester	See O- Capital Budget Request includes funding to construct measures deemed necessary to protect RT 4 bridge.	Hard Cost is Known	See O
T	Remove hazardous debris (that could exacerbate damage during a flood) from the Suncook River channel and banks	Allenstown Chichester Epsom Pembroke	Debris movement throughout the River is a concern. Agencies should meet to determine if easements are possible from private landowners to remove the debris. Identify the critical areas where debris will cause problems. Permits will be needed. FEH Study funded via Capital Budget request will identify areas where removal may be necessary.	Hard Cost is in a Conceptual Stage- Assessment is known.	See O
U	Develop plan/pass legislation that would allow state to pay non-federal share of mitigation grants with a condition that towns be able to pay the amount back through some type of tax process	Epsom	Develop plan/pass legislation that would allow state to pay non-federal share of mitigation grants with a condition that towns be able to pay the amount back through some type of tax process	No Hard Cost	---
<b>Long Term Solutions – completion clearly long-term and/or may require critical steps/studies to be conducted to determine if such a solution is even feasible</b>					
V*2	Update Floodplain delineation maps	Allenstown Chichester Epsom Pembroke	Incorporate the new USGS floodplain data layer into FEMA floodplain maps.	No Hard Cost	---
W*2	Stabilize the banks of the river in certain places to protect critical infrastructure		Stabilize the banks of the river in certain places to protect critical infrastructure	Hard Cost is Known -for RT 4 Bridge and Black Hall Road Bridges	See O
X	Dredge/remove sediment		Dredge/remove sediment	Hard Cost is Unknown at This Time	---
Y	Mitigate the potential for damage from ice jams against bridges		Cold River Research Lab (federal) will conduct field research and develop reports if needed.	Hard Cost is in a Conceptual Stage	---
Z	Establish a "Suncook River Advisory Commission"		The Suncook River Team wants to establish a group something similar to other river advisory commissions.	No Hard Cost	---

\* As these Tasks are ongoing, the estimated hard costs provided may be over-estimated. Alternatively, as the projects progress, the Tasks may not include all of the work required to accomplish and therefore could be under-estimated. All estimates are subject to change as the Tasks are ongoing should not be considered final figures.