



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

COPY

June 19, 2003

Operations Manager
Lower Connecticut River Basin Office
U.S. Army Corps of Engineers, NED
6 Athol-Richmond Road
Royalston, Massachusetts 01368-8900

Telephone: (978) 249-2547
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Honorable Dan H. Mylott:
Mayor of Fitchburg
718 Main Street
Fitchburg, MA 01420



Dear Mayor Mylott:

I conducted the inspection of the Fitchburg, Massachusetts Local Flood protection Project on May 28, 2003. A detailed inspection report is enclosed for your review.

Regrettably, the project remains in poor condition and we are increasingly concerned over the City's lack of progress in developing a maintenance plan. In our last report we referenced our recently completed hydrological analysis. The results of that report indicated that project maintenance burden could be concentrated within selected reaches representing roughly 25% of the total project length. Wholesale vegetation removal along its entire reach is not necessary. Now that we have gained this fresh perspective, the challenge remains for us to work together in crafting a viable strategy to return the project to its intended level of protection.

I'd first like to reiterate the major conclusions of the hydrologic report, which is entitled "North Nashua River Channel Rehabilitation Study – Fitchburg Local Protection Project", dated May 2003 (see enclosed). The Study encompassed the entire project area and identified the most flood prone reaches. These were assigned one of three levels of priority. First-priority segments, those most vulnerable to flooding, include the following:

- Laurel Street Bridge to Cushing Street Bridge - The hydrological report revealed that, due to the Railroad Bridge restrictions, this stretch cannot pass the 9000 cubic feet per second (cfs) design flow even if maintained in optimum condition. Moreover, this bottleneck is exacerbated by the presence of vegetation and shoaling in the channel. For example, with the 9000 cfs design flood, elevations would rise an additional 0.9 feet. Hence, removal of shoaling and vegetation

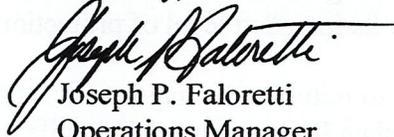
within this 400-foot reach would substantially reduce flood damages during a design event or prevent flooding for smaller events.

- Putnam Street Bridge to a point 100 feet upstream of the nearby Railroad Bridge – Bank vegetation would cause the Railroad Bridge to be overtopped by 0.3 feet in a design storm. Vegetation removal along this 300-foot reach would reduce flood stage by 0.7 feet, resulting in 0.4 feet of freeboard.
- From the Railroad Bridge downstream of Oak Hill Road Bridge to a point 800 feet upstream of the bridge – Vegetation and shoaling upstream of Oak Hill Road Bridge increase flood stage by 1.5 feet resulting in the bridge being overtopped by 0.4 feet in a design storm. Vegetation downstream of the bridge reduces freeboard by 0.8 feet to 0.2 feet, so that a design storm would just barely be contained within the channel at this location, and greater events would cause flooding more frequently.

Other sections identified as second and third priority areas include: the reach from Sawyer Passway Bridge to a point roughly 300 feet downstream of Water Street Bridge; the reach 200' downstream of Rollstone bridge to the downstream Railroad Bridge; the stretch between Water Street and Laurel Street bridges; and the reach between Circle Street and Lower River Street bridges.

We again invite the City to meet with us to discuss the report in more detail, its implications on maintenance requirements and the environment, and a plan to address these needs. Please have DPW Superintendent John Anderson contact me at (978) 249-2547 to set up a meeting at his convenience. Should you find time in your busy schedule, you are more than welcome to join us. If you have any questions or comments concerning the project inspection or the Hydrologic Analysis Study, please call me at (978) 249-2547.

Sincerely,



Joseph P. Faloretti
 Operations Manager
 Lower Connecticut River Basin

Enclosures

Copy Furnished:

President, City Council
 718 Main Street
 Fitchburg, MA 01420

Mr. John Anderson
 Superintendent of Streets
 Department of Public Works
 718 Main Street
 Fitchburg, MA 01420

Mr. James Shuris
Commissioner of Public Works
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Nancy Thornton, Director
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Outreach Coordinator
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Assistant Superintendent
Department of Public Works
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Fitchburg, MA 01420

FITCHBURG, MASSACHUSETTS - LOCAL PROTECTION PROJECT

SEMI-ANNUAL INSPECTION

28 May 2003

GENERAL COMMENTS

Virtually no maintenance of the project has been accomplished since the last inspection and for the past several years.

The Corps recently completed a hydrological study of the project reach entitled North Nashua River Channel Rehabilitation Study – Fitchburg Local Protection Project to determine the impact of excess vegetation and shoaling on river elevations. A copy of the Channel Rehabilitation Study is attached to the inspection report. Also, each segment described below contains a brief (*italicized bold*) comment from the study.

The following conditions were noted during the inspection:

NOTE: Descriptions in parentheses coincide with stations and work area designations on General Plans 1, 2 and 3 of North Nashua River Channel Rehabilitation, Fitchburg, Massachusetts Operations and Maintenance Manual February 1982.

1. **Project start.** (Several hundred feet upstream of Oak Hill Road Bridge, near station 580+00)

Woody vegetation is present on the riprap slopes and stone gabions and should be removed.

This reach is a first priority flood prone area.

2. **Oak Hill Road Bridge.** (Approximately 300 feet downstream of station 575+00)

Looking upstream - Significant vegetation, including small trees, is present on both sides of the channel. The shoal on the left bank immediately above and under the bridge appears to be expanding and should be removed.

Looking downstream - The shoal on the left bank appears to be expanding. The shoal should be removed. Vegetation covering both banks should be removed.

The above are first priority flood prone areas.

3. **Daniel Street Bridge.** (Approximately 300 feet downstream of station 565+00)

Looking upstream – A shoal is present in the south (left) half of the channel above the old railroad bridge. This shoal should be closely monitored. Small trees are growing in both sides of the channel.

Looking downstream - Both banks are covered with vegetation.

This reach presently has sufficient capacity to pass the design flood of 9000 cubic feet per second (cfs).

4. **Adjacent to the McDonald's Parking Lot.** (Work areas "D" and "E" Located on the left bank downstream of Daniel Street Bridge.)

Vegetation within the banks of the channel along both sides of the river is 10 to 20 feet high.

This reach presently has sufficient capacity to pass the design flood of 9000 cfs.

5. **Kimball Street Bridge.** (Station 550+00)

Looking upstream – Heavy brush growth is present along both banks. A shoal on the right bank should be closely monitored.

Looking downstream – Vegetative growth is present on the east (right) bank.

This reach presently has sufficient capacity to pass the design flood of 9000 cfs.

6. **Upper River Street Bridge.** (Work area "F")

Looking upstream - Trees are growing out of the walls along both sides of the river. A large poplar is growing near the edge of the water.

Looking downstream - Heavy vegetation is present along both banks.

This reach presently has sufficient capacity to pass the design flood of 9000 cfs.

7. **Behind The Former Premier Box Company.** Located on the right bank. (Station 550+00 to 545+00)

Vegetation is present on both banks. A conservation group has proposed development of a river walk between the Upper River Street Bridge and the Sheldon Street Bridge.

This reach presently has sufficient capacity to pass the design flood of 9000 cfs.

8. **Sheldon Street Bridge.** (Work area "G")

Looking upstream - Woody vegetation and shoals are present on both banks.

Looking downstream - Brush, trees, and other undesirable vegetation are present on both banks. A shoal is present on the left bank.

The channel several hundred feet upstream of the Shelton Street Bridge is at full capacity during a design flood. However, removal of vegetation within this reach would not provide any significant

margin of safety as flows are controlled by the constriction at the bridge.

9. **Lower River Street Bridge.** (Work area "I")

Looking upstream - Vegetative growth is present along both banks.

Looking downstream - The large shoal on the left bank should be removed.
Vegetation should be removed from both banks.

The reach downstream of the bridge is a second priority flood prone area primarily due to shoaling.

10. **Circle Street Bridge.** (Station 510+00)

Looking upstream - Trees and brush growing in the training walls along both banks should be removed.
The shoal on the left side of the channel should be removed.

Looking downstream - Shoals on the both sides of the channel and woody vegetation on the shoals should be removed.

The reach upstream of the bridge is a second priority flood prone area primarily due to shoaling.

11. **Upper Rollstone Street Bridge.** (Station 505+00) This bridge near the DPW building is closed.

Looking upstream - Heavy vegetative growth is present along both banks of the river. Trees are growing along the bridge abutment in a shoal area by the left bank. The shoal obstructs the north half of the channel under the bridge.

Looking downstream - The river channel narrows at this point and should be kept completely free of obstructions. The significant growth of trees, brush and other vegetation in the concrete lining along the left side of the channel should be removed.

The reach downstream of Rollstone Bridge is a third priority flood prone area primarily due to excess vegetation.

12. **Putnam Street Bridge.** (Approximately 300 feet downstream of station 485+00)

Looking upstream – There is heavy growth of trees and vegetation in the training walls along both sides of the river, extending well upstream of the railroad bridge. This is also a narrow stretch of the river and should be kept free and open. The shoals on the north (right) bank approximately 100 yards above the railroad bridge and under the right span of the railroad bridge should be removed. The large shoal in the center of the channel about 200 yards upstream of the railroad bridge should be removed. The large elm growing on a shoal at the center bridge pier and the shoal at the railroad bridge center abutment should be removed.

Looking downstream - There is heavy growth of trees, brush and other vegetation within the training walls and riprap along both sides of the river extending beyond the footbridge, which is about 300 feet

downstream of Putnam Street. A large tree is growing next to the bridge abutment. Also, there are trees leaning over the channel approximately 150' from the bridge at the right downstream embankment.

A riverfront park has been proposed for the location just downstream of the bridge. The city should closely coordinate this proposal with the Corps of Engineers to insure that the proposal will not negatively impact the function of the project. ??? Should we change this paragraph ???

This is a first priority flood prone area.

12. **Railroad Bridge** (Looking upstream from the Putnam Street Bridge.)

The trees and shrubs growing in the channel in the vicinity of the railroad bridge should be removed.

This is a first priority flood prone area.

13. **Laurel Street Bridge**. (Work areas "O", "P")

Looking upstream - Major shoaling has taken place in the entire area of the upstream railroad crossing. A large shoal, which is nearly covered with vegetation, restricts the western span and half of the center span. This is a significant restriction, which has decreased the discharge capacity of the channel by nearly 33% and needs to be corrected promptly. The shoals and vegetation should be removed.

Looking downstream - The channel narrows downstream of a manhole on the right bank. The trees, brush and vegetation growing along both banks should be removed.

This is a first priority flood prone area and the most likely reach to experience flooding.

14. **Water Street Bridge**. (Station 460+00)

Looking upstream - The large shoal about 100 feet upstream of the bridge along the north (right) bank near the floodwall should be removed. Significant tree growth along the south bank should be removed. Concrete walls line both sides of the river.

Looking downstream - A shoal has formed on the left bank adjacent to the floodwall. Numerous willow trees have become established.

The reach upstream of Water Street Bridge is a second priority flood prone area primarily due to excess vegetation.

15. **Sawyer Passway Bridge**. (Approximately 75 feet downstream of station 450+00) This bridge is located about 1,000 feet upstream of the Fifth Street Bridge.

Looking upstream - Shoaling in the center of the river above the bridge and has created a restriction within the channel and should be removed. Small trees have fallen over.

Railroad Bridge Upstream - This bridge has 3 arches (spans). The lower portion of the right span is completely blocked by a shoal. The shoal should be removed.

Downstream - There is major brush, tree and vegetative growth on both banks downstream to the Fifth Street Bridge.

The reach upstream of the bridge is a third priority flood prone area primarily due to excess vegetation.

16. **Fifth Street Bridge.** (Work area "T")

Looking upstream - Construction of a new bridge is in progress. The steep slopes near the bridge should be monitored closely to prevent erosion.

Looking downstream - There are trees, brush and vegetative growth within the wide floodway.

This reach presently has sufficient capacity to pass the design flood of 9000 cfs.

17. **Railroad Bridge.** Located several hundred feet downstream of Fifth Street Bridge. (Station 420+00)

Access to this bridge is no longer available. The city should inspect this bridge and/or make provisions to provide access to the site during the semi-annual inspections.

This reach presently has sufficient capacity to pass the design flood of 9000 cfs.

18. **Bemis Road Bridge.** (Work area "U")

Riprap at both bridge abutments is free of vegetation.

Looking upstream - Small trees have become established on the riprap protection and at the toe of the slope along the right bank.

Looking downstream - The river channel is wide and straight. There is a large shoal in the middle of the channel and another on the north (left) bank about 125 yards downstream.

This reach presently has sufficient capacity to pass the design flood of 9000 cfs.

19. **Airport Road Bridge.** (Formerly Falulah Road) (Work area "W")

Looking upstream - Brush and trees are present along both banks. There are trees in the channel at the abutments and on the shoal on the left bank.

Looking downstream - The shoals along the right and left bank have increased in size. The shoal on the right bank extends under the bridge and a short distance upstream of the bridge.

This reach presently has sufficient capacity to pass the design flood of 9000 cfs.

GENERAL

1. The hydrological study identifies roughly 5800 linear feet of restricted channel section, which represents about 25% of the total project. The priority areas should be addressed through an aggressive long-term maintenance program. The Corps stands ready to work with the city in developing a specific plan. The remainder of the project, presently capable of passing the 9000 cfs design flood, should continue to be monitored closely to assure that shoaling and vegetative growth does not progress to the extent that channel capacity is reduced to below the design standard. The hydrological study revealed that some vegetation and shoaling along much of the project may be tolerated without compromising design channel capacity. This allows for the adoption of a more balanced approach that addresses the needs of both flood control and environmental resources.
2. A semi-annual report, due in February and August of each year should be submitted by the city to the Corps. This report should provide an update of the city's progress in accomplishing the necessary maintenance of the project and serves as an important tool in assessing the project status. Semi-Annual reports have not been submitted by the city for many years.
3. The city should obtain all necessary local, state and/or federal permits to accomplish maintenance of the project. The Department of Public Works must work closely with the Fitchburg Conservation Commission and the Massachusetts Department of Environmental Protection and other interested parties to develop a plan and obtain the necessary local, state and federal permits before beginning any work in the river and channel. Obtaining the permits will allow the City of Fitchburg to accomplish the maintenance of the project. This work may include, but is not limited to, brush removal and herbicide treatment, as well as the removal of shoals and other obstructions. The plan should address flood control maintenance and environmental issues and concerns.
4. Cutting is only a partial solution to the problem of undesirable vegetation. Significant resprouting occurs on an annual basis. Application of an approved herbicide, accomplished in accordance with state laws and regulations, is recommended to prevent trees, shrubs and other vegetation from quickly sprouting.
5. Prior to the inspection, Michael Lanava, John Anderson, Lisa Wong, Michael O'Hara, James Law, Jeffrey Mangum and Joseph Faloretti looked at the former steam plant located off of Westminster Street and asbestos removal access road that have potential as additions to the City of Fitchburg's open space program.

LOCAL FLOOD PROTECTION PROJECT INSPECTION REPORT

Project: **Fitchburg, Massachusetts**

Maintaining Agency: **City of Fitchburg, Department of Public Works**

Type Inspection: Semi-Annual Staff 90 Day Interim

River Basin: Lower Connecticut

Date of Inspection: **28 May 2003**

Feature	Sat	Unsat	Deficiencies
PUMPING STATIONS - STRUCTURES			N/A
INTERIOR			
EXTERIOR			
PUMPS - MOTORS - ENGINES			N/A
TRIAL OPERATED			
GENERAL CONDITION			
POWER SOURCE			
INSULATION TESTS			
METAL INTAKES/OUTLETS			
GATE VALVES			
GATES - DRAINAGE STRUCTURES			N/A
TRIAL OPERATED			
GENERAL CONDITION			
LUBRICATION			
DIKES - DAMS			N/A
GENERAL CONDITION			
SLOPES/EROSION			
SAND BOILS/CAVING			
TRESPASSING			
SLOPE PROTECTION			
DRAINS			
STOP-LOGS - LOG BOOM			N/A
CONDITION OF LOGS			
AVAILABILITY OF LOGS			
HIGHWAY SLOTS			
STORAGE FACILITIES			
CHANNELS - OUTLET WORK CHANNEL			
BANKS		X	See remarks.
OBSTRUCTION CONTROL		X	See remarks.

FORM

Feature	Sat	Unsat	Deficiencies
CONCRETE STRUCTURES			
SURFACE		X	See remarks.
SETTLEMENT		N/A	
JOINTS		N/A	
DRAINS			
MISCELLANEOUS			
EMERGENCY OPERATIONS PLANS			
EMERGENCY EQUIPMENT			
SEMI-ANNUAL REPORT		X	No report submitted.

Inspection Party: John Anderson, Superintendent of Public Works, Fitchburg
Michael Lanava, Executive Director, Fitchburg Economic Development Office
Lisa Wong, Fitchburg Economic Development Office
Michael O'Hara, Fitchburg Office of the Planning Coordinator
Joseph Faloretti, Operations Manager, Lower Connecticut River Basin, USACE
Jeffrey Mangum, Project Manager, Tully Lake, USACE
James Law, Operations Technical Support Section, USACE

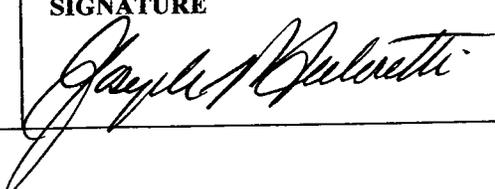
Photographs Taken: None

Remarks & Additional Comments:

(Indicate here observations, discussions, specific feature deficiencies, recommendations and any other pertinent information. Use continuation sheet if necessary.)

See attached sheets.

X ALL APPLICABLE ITEMS. IF UNSAT INDICATE SPECIFIC DEFICIENCIES. INDICATE IF NOT APPLICABLE.

DATE: <i>19 JUN 03</i>	INSPECTED BY: TYPE NAME & TITLE Joseph P. Faloretti Operations Manager, Lower Connecticut River Basin	SIGNATURE 
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